

# Automation & Control **Telemecanique** The essential guide

July  
**2005**

Don't worry, Jeremy  
everything's  
under control.





## Introduction

### Telemecanique,

- the Schneider Electric brand for Automation & Control.
- innovative products...

<b>Detection</b> <ul style="list-style-type: none"><li>■ Photo-electric sensors</li><li>■ Inductive proximity sensors</li><li>■ Limit switches</li><li>■ Sensors for pressure control</li></ul>	<b>1</b>
<b>Operator Dialog</b> <ul style="list-style-type: none"><li>■ Control and signalling units</li><li>■ Human-Machine Interfaces</li></ul>	<b>2</b>
<b>Automation</b> <ul style="list-style-type: none"><li>■ Relays</li><li>■ Programmable controllers &amp; Automation platforms</li><li>■ Distributed Inputs/Outputs</li></ul>	<b>3</b>
<b>Motion Control</b> <ul style="list-style-type: none"><li>■ Modules</li><li>■ Lexium 05, 17D drives for SER, BPH and BPL motors</li><li>■ Twin Line drives for SER motors</li></ul>	<b>4</b>
<b>Motor Control</b> <ul style="list-style-type: none"><li>■ Motor control components</li><li>■ Components for power control applications</li><li>■ Soft starters and variable speed drives</li></ul>	<b>5</b>
<b>Power Supplies</b> <p>Power supplies and transformers for control circuits</p>	<b>6</b>
<b>Interfaces and I/Os</b> <ul style="list-style-type: none"><li>■ Connection</li><li>■ Interfaces and distributed Inputs/Outputs</li></ul>	<b>7</b>
<b>AS-Interface cabling system</b> <ul style="list-style-type: none"><li>■ The cabling system that meets your needs for industrial automation systems</li></ul>	<b>8</b>
<b>Machine safety</b> <ul style="list-style-type: none"><li>■ Safety solutions provide maximum protection in all the safety functions of your automation system</li></ul>	<b>9</b>
<b>Explosive atmospheres</b> <ul style="list-style-type: none"><li>■ Detection</li><li>■ Control and signalling units</li><li>■ Machine safety</li><li>■ Automation</li></ul>	<b>10</b>
<b>Schneider worldwide</b> <ul style="list-style-type: none"><li>■ Address</li></ul>	

# Telemecanique, the Schneider Electric brand for Automation & Control

**Used together or separately**, Telemecanique products can provide complete functionalities for all of your industrial, building, infrastructure, and energy automation applications.



**Known for its quality and innovation for over 80 years,**

Telemecanique offers a wide range of products in over 130 countries around the world.

**TeSys** motor starters  
**Altivar** drives  
**Altistart** soft starters  
**Twin Line** motors and servo-drives  
**Advantys** distributed I/O  
**Zelio** relays and **Twido** controllers  
**Modicon** PLCs  
**Unity** automation hardware and software solution (NEW !)  
**Magelis** operator terminals  
**Harmony** control and signalling units  
**Osiconcept** sensors  
**Preventa** safety solutions  
etc.

# Simply Smart !

Leveraging ingenuity and intelligence for ease of use

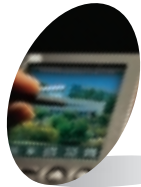


## Simplicity

- Cost effective “optimum” offers that make selection easy for most typical applications
- Products that are easy to understand for users, electricians and automation specialists
- User-friendly intuitive programming,

...for example **Zelio Logic**

Easy programming directly on the smart module with either the Compact or Modular versions, or via PC using FBDs or Ladder Logic. Control of applications by simply sending an SMS...



## Ingenuity

- Auto-adapts to its environment, “plug & play”
- Application functions, control, communication and diagnostics embedded in the products
- User-friendly operation either directly on the product or remotely

...for example **Altivar 38**

“Plug & drive” speed drive with functionality adapted specifically for pumps and fans, solutions with harmonics protection and PowerSuite software for pocket PCs, perfectly suited for building applications!



## Flexibility

- Interchangeable modular functions, to better meet the requirements for extensions
- Software and accessories common to multiple product families

...for example **Twido**

Programmable controller with “compact” or “modular” versions to better meet your needs. Its flexibility enables you to add options like a display, communication bus, more memory,....

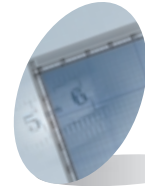


## Openness

- Compliance with field bus, connection, and software standards
- Enabling decentralised or remote surveillance via the web with **Transparent Ready** products

...for example **TeSys modèle U**

The first starter controller to integrate motor power and control functions, adaptable to a variety of standard buses, and permits you to transparently monitor applications via the web.



## Compactness

- High functionality in a minimum of space
- Freedom in implementation

...for example **Magelis XBT-N**

Besides the fact that it is the most compact semi-graphic display on the market, it offers a high degree of legibility, configurable keys, and multi-language management capabilities.



# Telemecanique, innovative products for all Automation & Control functions.

## Machine safety

See **Machine safety**  
in each function

## AS-Interface

See **AS-Interface**  
in each function

## Systems & Architectures

## Operator dialog



## Interfaces & I/O



## Detection



### Interfaces & I/O

#### Connectors

Cable-ends, terminal blocs

#### Interfaces

Plug-in relays, analog converters, discrete interfaces

Pre-wired interfaces, IP20/IP67 distributed I/O

#### AS-Interface

IP20/IP67 interfaces, cables, repeaters, accessories, addressing and adjustment terminals

#### Machine safety

Safety monitors and controllers on AS-Interface

#### Software

Software to design and install AS-Interface system, safety monitors and controllers on AS-Interface programming software

### Detection

#### Sensors

Limit switches  
Proximity sensors  
Photo-electric and ultrasonic sensors  
Pressure switches  
Rotary encoders

#### RFID, vision

Inductive identification  
Vision system

#### Machine safety

Switches, light curtains, mats

#### Software

Safety mats configuration software

### Operator dialog

#### Control & signalling units

Control and signalling units, cam switches  
Beacons and indicator banks

#### Human machine interfaces

Operator interface terminals, industrial PCs, Web servers, HMI and SCADA PC-based software

#### Control stations, mounting solutions

Control and pendant stations, front panels mounting kits

#### AS-Interface

Control stations, keypads, beacons

#### Machine safety

Emergency stops, control stations, enabling switches, foot switches

#### Software

Operator terminal software

### Mounting systems

#### Mounting systems

##### Enclosures

Wall mounted enclosures  
Floor standing enclosures, suite type cubicles  
Industrial boxes

##### Equipment and accessories

Thermal control equipment  
Power splitter blocks  
Mounting accessories

#### Systems & Architectures

##### Connecting Ethernet devices

##### Web-enabling PLCs on Ethernet

##### Application protocols and field buses

# Simply Smart !

Software tools



Motion control



Automation



Motor control



Power supplies

## Automation

### Relays

Plug-in relays, electronic timers, control relays, counts  
Smart relays

### PLCs, PC based control, distributed I/O

Programmable controllers  
PLC platforms  
PC based control  
Distributed I/O, I/O controllers

### AS-Interface

Master modules for Modicon PLCs

### Machine safety

Optimum and universal controllers

### Software

PLCs and safety controllers programming software

## Software tools

Global software  
**Generation of application systems**  
**Application control**  
**Collaborative development**

Dedicated software  
See **Software** in other functions

## Power supplies

### Power supplies

Switch mode power supplies  
Filtered rectified power supplies, transformers

### AS-Interface

Power supplies

## Motion control

### General motion control

Motors, servo drives and controllers

### Software

Software for Lexium drives and motors

## Motor control

### Motor starters

Contactors  
Circuit breakers, fuse carriers  
Thermal relays  
Combinations, motor controllers

### Soft starters, variable speed drives

Soft starters  
Variable speed drives

### Mounting solutions

Motor starter mounting kit

### AS-Interface

Motor controllers, enclosures, variable speed drives

### Machine safety

Switch disconnectors, thermal-magnetic motor circuit breakers, enclosed starters

### Software

Motor control programming software

## A complete range of innovative and much more simple to use sensors

Benefit from Telemecanique's major innovation:

### Osiconcept®

Offering simplicity through innovation

A worldwide detection first for improving productivity. A complete offer for resolving your most commonly encountered detection problems:

- product selection simplified
  - product availability simplified
  - installation and setting-up simplified
  - maintenance simplified
  - detection simplified using a single supplier.
- Improved simplicity for improved productivity.

## Osiconcept

Improve performance by making your machines *less complicated* and *more intelligent*.

Improve customer expertise with an efficient product line offering *simplified* selection and improved selling potential.

Reduce maintenance time with products that are *simpler* and unequalled in *flexibility*.



Select the sensor according to your specific requirements

**“Universal” series:**

Multi-purpose products providing multiple functions. Osiconcept products are included in this series.

**“Optimum” series:**

Designed for essential and repetitive functions.

**“Application” series:**

Offers functions specifically for specialist needs, thus providing the ideal solution for your more complex applications.

### The essential guide

A selection of 1250 products, with the top 500 selling products referenced in bold characters.



## Osiris

Photo-electric sensors



> A single product that automatically adapts to all conditions

A simple press on the button automatically configures the sensor and provides optimal performance for the particular conditions.

## Osiprox

Inductive proximity sensors



> A single product that automatically adapts to all installation environments

A simple press on the button automatically configures the sensor and provides optimal performance irrespective of the installation method (flush, non flush).

## Osisonic

Ultrasonic sensors



> A single product that automatically learns both its detection mode and detection zone

A simple press on the button automatically configures the sensor to its correct detection mode and optimal detection zone.

## Osiswitch

Limit switches



> Availability of more than 5,000 interchangeable configurations within 24 hours

Only one type of metal operating heads for 5 different bodies. Connection and contacts modularity.

## Nautilus

Sensors for pressure control



> A user-friendly product at last; easy to parameter prior to installation and to modify during operation

Ergonomic, tactile feedback keys plus drop-down menu on large 4-digit display.

# Contents

## ■ Osiris Photo-electric sensors ..... 1/2 to 1/11

*Detection without contact of objects whatever their shape or material*

- > Detection from a few millimetres to several tens of metres
- > 3D adjustable fixing accessories
- > Specific products for particular applications

## ■ Osiprox Inductive proximity sensors ..... 1/12 to 1/22

*Detection without contact of metal objects*

- > Sensor / object distance  $\leq 60$  mm
- > Generic cylindrical and flat form products
- > Specific products for particular applications

## ■ Osisonic Ultrasonic sensors ..... 1/24

*Detection without contact of any object of any material*

- > Detection from a few millimetres up to 8 metres
- > Extra large range to ensure finding the right product
- > Specific products for particular applications

## ■ Osiswitch limit switches ..... 1/26 to 1/35

*Detection by contact of rigid objects*

- > Positive opening operation of electrical contacts
- > Object speed  $\leq 1.5$  m/s
- > Specific products for particular applications

## ■ Nautilus Sensors for pressure control ..... 1/36 to 1/41

*Detection by contact with fluid*

- > Electronic pressure and vacuum switches
- > Analogue pressure sensors
- > Electromechanical pressure and vacuum switches

## Other detection technologies

### ■ Osiprox Capacitive proximity sensors ..... 1/23

### ■ Opto-electronic rotary encoders ..... 1/25

### ■ Osiview Vision system ..... 1/42

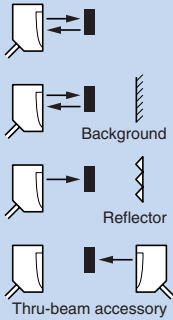
Complete industrial vision system comprising: controllers, lenses, cameras, lighting systems, accessories, etc.

### ■ Inductel Inductive identification ..... 1/43

Complete inductive identification system provided by a complete range of tags, inductive heads and stations

### ■ Photo-electric sensors for explosive atmospheres

(see chapter 10 "Explosive Atmosphères")



**Osiconcept®**  
Offering simplicity through Innovation

**A single product that automatically adapts to all conditions.**

Programmable NO / NC  
NO: object present = output ON  
NC: no object present = output ON



Osiconcept®



Osiconcept®

		Design 18 plastic	Design 18 metal
Max / usable sensing distance	without accessory	0.4 / 0.3 m	0.4 / 0.3 m
	w/o accessory, with background supp.	0.12 / 0.12 m	0.12 / 0.12 m
	with reflector (polarised)	3 / 2 m	3 / 2 m
	with thru-beam accessory	20 / 15 m	20 / 15 m
Fixing (mm)		M18 x 1	M18 x 1
Case M (metal) P (plastic) / Dimensions (mm) Ø x L or W x H x D		P / M18 x 64	M / M18 x 64
Common characteristics		Adjustment of sensing distance: <b>using teach mode</b> / Setting-up assistance LEDs (⊗): yes / Temperature	

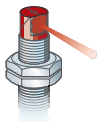
### Sensors for DC applications (solid-state output: transistor)

Connection		Pre-cabled, PvR (2 m)	
T / R 3-wire	PNP programmable NO / NC	XUB0APSNL2	XUB0BPSNL2
	NPN programmable NO / NC	XUB0ANSNL2	XUB0BNSNL2
	PNP / NPN programmable NO / NC	–	–
Connection		M12 connector	
T / R 3-wire	PNP programmable NO / NC	XUB0APSNM12	XUB0BPSNM12
	NPN programmable NO / NC	XUB0ANSNM12	XUB0BNSNM12
	PNP / NPN programmable NO / NC	–	–
Connection		Screw terminals	
T / R 3-wire	PNP / NPN programmable NO / NC	–	–
Switching capacity (mA) main output / alarm output		100 / –	100 / –
Common characteristics		Supply voltage limits, min/max (V) including ripple: 10...36 (except XUM 10...30) / Switching	
Thru-beam accessory	pre-cabled (2 m)	XUB0AKSNL2T	XUB0BKSNL2T
	connector	XUB0AKSNM12T	XUB0BKSNM12T
	screw terminals, ISO 16 cable gland	–	–

### Multi-current/multi-voltage sensors for AC/DC applications 10...36 V DC / 20...264 V AC including ripple on DC (relay output, 1 C/O, 3 A)

Connection		Pre-cabled, PvR (2 m)	
T / R	programmable, NO/NC with time delay	–	–
Connection		Screw terminals	
T / R	programmable, NO/NC with time delay	–	–
LED output state indicator (⊗) / power on LED (⊗)		–	–
Switching frequency (Hz)		–	–
Time delay(s)		–	–
Thru-beam accessory	pre-cabled, PUR (2 m)	–	–
	screw terminals, ISO 16 cable gland	–	–

Also available in Design 18 metal, 2-wire type multi-current/multi-voltage AC/DC version. Please refer to [www.Telemechanique.com](http://www.Telemechanique.com)

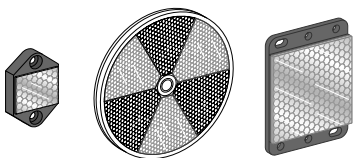


#### 90° head

All the above Osiris Design 18 sensors are available with an integral 90° head. To order, replace the letter "N" in the reference by "W".  
Example: For pre-cabled versions: XUB0APSNL2 becomes XUB0APSWL2.  
For connector versions: XUB0APSNM12 becomes XUB0APSWM12.  
Sensing distances: refer to [www.Telemechanique.com](http://www.Telemechanique.com)

## Accessories

### Reflectors



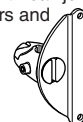
XUZC24      XUZC80      XUZC50

Reflectors (mm)	
Ø 21	XUZC21
24 x 21	<b>XUZC24</b>
Ø 31	XUZC31
Ø 39	XUZC39
Ø 80	<b>XUZC80</b>
50 x 50	<b>XUZC50</b>
100 x 100	<b>XUZC100</b>

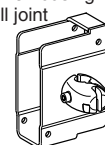
### 3D fixings with ball joint



Bracket with ball joint for sensors and reflector XUZC50



Protective housing with ball joint



M12 rod for ball joint

for	
XUB...	<b>XUZB2003</b>
XUM...	<b>XUZM2003</b>
XUK...	<b>XUZK2003</b>
XUX...	<b>XUZX2003</b>

for	
XUM...	<b>XUZM2004</b>
XUK...	<b>XUZK2004</b>
XUX...	<b>XUZX2004</b>

XUZ2001



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Osiconcept®



Osiconcept®

Miniature design	Compact design 50 x 50	Compact design
0.55 / 0.4 m	1.2 / 0.8 m	3 / 2 m
0.10 / 0.10 m	0.3 / 0.3 m	1.3 / 1.3 m
4 / 3 m	5.7 / 4 m	15 / 11 m
14 / 10 m	35 / 30 m	60 / 40 m
direct: fixing centres 25.5, M3 screws P / 12 x 34 x 20	direct: fixing centres 40 x 40, M4 screws P / 18 x 50 x 50	direct: fixing centres 30 / 38 to 40 / 50 / 74, M5 screws P / 30 x 92 x 71
range (°C): -25...+55 / Degree of protection (conforming to IEC 60529): IP65, IP67 (XUK: IP65)		

XUM0APSAL2	-	-
XUM0ANSAL2	-	-
-	XUK0AKSAL2	-
M8 connector	M12 connector	-
XUM0APSAM8 (1)	-	-
XUM0ANSAM8 (1)	-	-
-	XUK0AKSAM12	XUX0AKSAM12
-	-	XUX0AKSAT16
100 / 50	100 / 50	100 / 100
frequency (Hz): 250 / Overload and short-circuit protection (★) / LED output state indicator (⊗): yes / power on LED (⊗): yes		
XUM0AKSAL2T	XUK0AKSAL2T	-
XUM0AKSAM8T (1)	XUK0AKSAM12T	XUX0AKSAM12T
-	-	XUX0AKSAT16T

(1) M8 not Snap-C® compatible

-	XUK0ARCTL2	-
-	-	XUX0ARCTT16
-	⊗ / ⊗	⊗ / ⊗
-	20	20
-	Adjustment from 0 to 15 s, on energisation, on de-energisation or monostable	-
-	XUK0ARCTL2T	-
-	-	XUX0ARCTT16T



**Connector innovation**

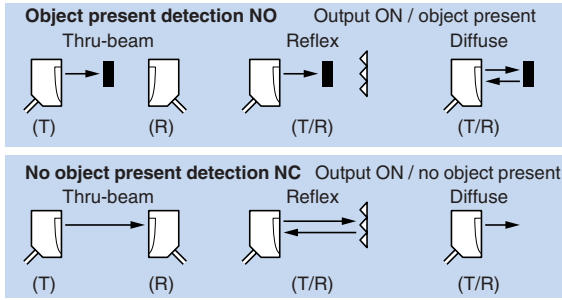
New, innovative connector that is universal, simple and fast.

For all Telemecanique sensors with Snap-C compatible M12 connectors:

- cabling to the required length without using a screwdriver or a soldering iron,
- ready in just a few seconds, no wire stripping required.



Simple fixings			Suitable female plug-in connectors, including pre-wired versions					
Fixing support for M12 rod    <b>XUZ2003</b>	Single bracket		length 5 m without LED M8 M12	 pre-wired, elbowed <b>XZCP1041L5</b>	 pre-wired, straight <b>XZCP0941L5</b> <b>XZCP1141L5</b>	 screw terminal <b>XZCC8FCM40S</b> <b>XZCC12FCM40B</b>	 Snap-C - <b>XZCC12FDM40V</b>	
	for	standard						with ball joint
	XUB...	<b>XUZA118</b> (stnls. steel)						<b>XUZA218</b> (plastic)
	XUM...	<b>XUZA50</b>						-
	XUK...	<b>XUZA51</b>						-
XUX...	<b>XUZX2000</b>	-						



		Design 18 plastic	Design 18 metal
Max / usable sensing distance	Diffuse	0.8 / 0.6 m	0.8 / 0.6 m
	Polarised reflex	3 / 2 m	3 / 2 m
	Reflex	5.5 / 4 m	5.5 / 4 m
	Thru-beam	20 / 15 m	20 / 15 m
Fixing (mm)		M18 x 1	M18 x 1
Case M (metal) P (plastic) / Dimensions (mm) Ø x L or W x H x D		P / M18 x 46	M / M18 x 46
Setting-up assistance LEDs ☒		–	–
Common characteristics		Temperature range (°C): – 25...+ 55 / Degree of protection (conforming to IEC 60529): IP65, IP67 (XUK: IP65)	

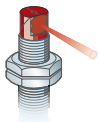
### Sensors for DC applications (solid-state output: transistor)

Connection	Pre-cabled, PvR, L = 2 m		M12 connector (1)	Pre-cabled, PvR, L = 2 m		M12 connector (1)
<b>Transmitter</b>			XUB2AKSNL2T			XUB2AKSNM12T
<b>Receiver or T/R, 3-wire PNP (1)</b>	Diffuse, adjustable	NO	<b>XUB5APANL2</b>	XUB5APANM12	<b>XUB5BPANL2</b>	XUB5BPANM12
		NC	XUB5APBNL2	XUB5APBNM12	XUB5BPBNL2	XUB5BPBNM12
	Polarised reflex	NO	XUB9APANL2	XUB9APANM12	XUB9BPANL2	XUB9BPANM12
		NC	XUB9APBNL2	XUB9APBNM12	XUB9BPBNL2	XUB9BPBNM12
	Reflex	NO	<b>XUB1APANL2</b>	XUB1APANM12	<b>XUB1BPANL2</b>	XUB1BPANM12
		NC	XUB1APBNL2	XUB1APBNM12	XUB1BPBNL2	XUB1BPBNM12
	Thru-beam	NO	XUB2APANL2R	XUB2APANM12R	XUB2BPANL2R	XUB2BPANM12R
		NC	XUB2APBNL2R	XUB2APBNM12R	XUB2BPBNL2R	XUB2BPBNM12R
Supply voltage limits, min/max (V) including ripple	10...36		10...36	10...36		10...36
Switching frequency (Hz)	500		500	500		500
Common characteristics for DC versions	Switching capacity, max (mA): 100 / Overload and short-circuit protection (★) / LED output state					

(1) For versions with NPN output, replace "P" by "N". Example: XUB1APANL2 becomes XUB1ANANL2.

### Multi-current/multi-voltage sensors for AC/DC applications 10...36 V DC / 20...264 V AC including ripple on DC (relay output, 1 C/O, 3 A)

Connection	–		–	–	–
<b>Transmitter</b>	–		–	–	–
<b>Receiver or T/R</b>	Diffuse	NO + NC	–	–	–
	Polarised reflex	NO + NC	–	–	–
	Reflex	NO + NC	–	–	–
	Thru-beam	NO + NC	–	–	–
Switching frequency (Hz)	–		–	–	–
LED output state indicator (☒) / power on LED (☒)	–		–	–	–

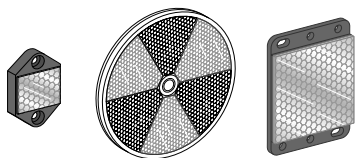


#### 90° head

All the above Osiris Design 18 sensors are available with an integral 90° head. To order, replace the letter "N" in the reference by "W".  
 Example: For pre-cabled versions: XUB0APSNL2 becomes XUB0APSWL2.  
 For connector versions: XUB0APSNM12 becomes XUB0APSWM12.  
 Sensing distances: refer to [www.Telemecanique.com](http://www.Telemecanique.com)

### Accessories

#### Reflectors



XUZC24 XUZC80 XUZC50

#### Reflectors (mm)

Ø 21	XUZC21
24 x 21	<b>XUZC24</b>
Ø 31	XUZC31
Ø 39	XUZC39
Ø 80	<b>XUZC80</b>
50 x 50	<b>XUZC50</b>
100 x 100	<b>XUZC100</b>

#### 3D fixings with ball joint

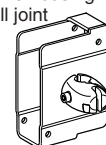


Bracket with ball joint for sensors and reflector XUZC50



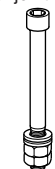
for  
 XUB... **XUZB2003**  
 XUM... **XUZM2003**  
 XUK... **XUZK2003**  
 XUX... **XUZX2003**

Protective housing with ball joint



for  
 XUM... **XUZM2004**  
 XUK... **XUZK2004**  
 XUX... **XUZX2004**

M12 rod for ball joint



XUZ2001



Miniature design	Compact design 50 x 50	Compact design
0.6 / 0.4 m	1.5 / 1 m DC or AC	3 / 2.1 m
3 / 2 m	7.5 / 5 m DC or 6 / 4 m AC	15 / 11 m
6 / 4 m	15 / 9 m DC or 10 / 7 m AC	20 / 14 m
12 / 8 m	45 / 30 m DC or 30 / 20 m AC	60 / 40 m
direct: fixing centres 25.5, M3 screws	direct: fixing centres 40 x 40, M4 screws	direct: fixing centres 30 / 38 to 40 / 50 / 74, M5 screws
P / 12 x 34 x 27	P / 18 x 50 x 50	P / 30 x 92 x 71
⊗	⊗	⊗
/ LED output state indicator and power on LED (⊗): yes		

Pre-cabled, PvR, L = 2 m	M8 connector	Pre-cabled, PvR, L = 2 m	M12 connector (1)	Screw trmls., ISO 16 cbl.gland	M12 connector (1)
XUM2AKSNL2T	XUM2AKSNM8T	XUK2AKSNL2T	XUK2AKSNM12T	XUX0AKSAT16T	XUX0AKSAM12T
<b>XUM5APANL2</b>	XUM5APANM8	<b>XUK5APANL2</b>	XUK5APANM12	<b>XUX5APANT16</b>	XUX5APANM12
XUM5APBNL2	XUM5APBNM8	XUK5APBNL2	XUK5APBNM12	XUX5APBNT16	XUX5APBNM12
XUM9APANL2	XUM9APANM8	XUK9APANL2	XUK9APANM12	XUX9APANT16	XUX9APANM12
XUM9APBNL2	XUM9APBNM8	XUK9APBNL2	XUK9APBNM12	XUX9APBNT16	XUX9APBNM12
<b>XUM1APANL2</b>	XUM1APANM8	<b>XUK1APANL2</b>	XUK1APANM12	<b>XUX1APANT16</b>	XUX1APANM12
XUM1APBNL2	XUM1APBNM8	XUK1APBNL2	XUK1APBNM12	XUX1APBNT16	XUX1APBNM12
XUM2APANL2R	XUM2APANM8R	XUK2APANL2R	XUK2APANM12R	XUX2APANT16R	XUX2APANM12R
XUM2APBNL2R	XUM2APBNM8R	XUK2APBNL2R	XUK2APBNM12R	XUX2APBNT16R	XUX2APBNM12R
10...30	10...30	10...30	10...30	10...36	10...36
500	500	500	500	500	500
indicator (⊗): yes / power on LED (⊗): yes					

–	–	Pre-cabled, L = 2 m	–	Screw trmls., ISO 16 cbl.gland	–
–	–	XUK2ARCNL2T	–	XUX0ARCTT16T	–
–	–	XUK5ARCNL2	–	XUX5ARCNT16	–
–	–	XUK9ARCNL2	–	XUX9ARCNT16	–
–	–	XUK1ARCNL2	–	XUX1ARCNT16	–
–	–	XUK2ARCNL2R	–	XUX2ARCNT16R	–
–	–	20	–	20	–
–	–	⊗ / ⊗	–	⊗ / ⊗	–

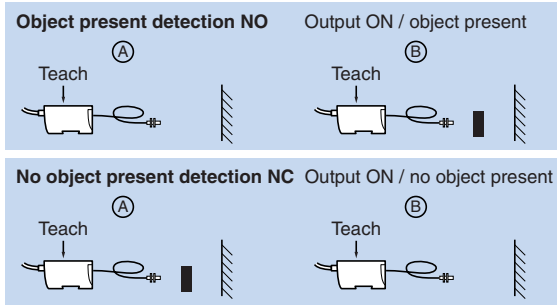


(1) Connector innovation

New, innovative connector that is universal, simple and fast.  
 For all Telemecanique sensors with Snap-C compatible M12 connectors:  
 – cabling to the required length without using a screwdriver or a soldering iron,  
 – ready in just a few seconds, no wire stripping required.



Simple fixings			Suitable female plug-in connectors, including pre-wired versions					
Fixing support for M12 rod    <b>XUZ2003</b>	Single bracket		length 5 m without LED M8 M12	 pre-wired, elbowed <b>XZCP1041L5</b>	 pre-wired, straight <b>XZCP0941L5</b>	 screw terminal <b>XZCC8FCM40S</b>	 Snap-C – <b>XZCC12FDM40V</b>	
	for	standard						with ball joint
	XUB...	<b>XUZA118</b> (stnls. steel)						<b>XUZA218</b> (plastic)
	XUM...	<b>XUZA50</b>						–
	XUK...	<b>XUZA51</b>						–
XUX...	<b>XUZX2000</b>	–						



(1) Models suitable for use with XUFZ01 and XUFZ02

	Optimum	Universal
System	For plastic fibres	
Max / usable sensing distance (mm)	Depending on fibre	
Fixing (mm)	DIN rail or direct: fixing centres 25, M3 screws	
Dimensions (mm) H x W x D	40 x 10 x 65	
Case: P (plastic)	P	
Sensitivity adjustmant	Using teach mode	
Setting-up assistance LEDs ⊗	⊗	⊗ and 4-digit display
Temperature range (°C)	- 10...+ 55	
Degree of protection (conforming to IEC 60529)	IP65 with Ø 1 fibre / IP64 with Ø 0.5 fibre	

System
Sensing distance (mm)
Fibre cross-section
Fibre Ø (mm)
Sheath Ø
Temperature range (°C)
References
Fixing

(2) With XUFZ04 fixing clamp with lens  
 (3) Depending on length and lens fixing clamps

### Sensors for DC applications (solid-state output: transistor)

Connection				Pre-cabled, PVC (2 m)	
References	3-wire PNP	programmable	NO / NC	<b>XUDA1PSML2</b>	<b>XUDA2PSML2</b>
Amplifier	3-wire NPN	programmable	NO / NC	<b>XUDA1NSML2</b>	<b>XUDA2NSML2</b>
Connection				<b>M8 connector</b>	
References	3-wire PNP	programmable	NO / NC	<b>XUDA1PSMM8</b>	<b>XUDA2PSMM8</b>
Amplifier	3-wire NPN	programmable	NO / NC	<b>XUDA1NSMM8</b>	<b>XUDA2NSMM8</b>
Supply voltage limits, min/max (V) including ripple	10.8...26.4				
Switching capacity (mA) main output	100				
Alarm output (switching capacity mA)	-				50
Overload and short-circuit protection (★)	★				★
LED output state indicator (⊗)	⊗				⊗
Switching frequency (Hz)	1000				1000 (standard mode) 5000 (fast mode). Sensing distance halved in fast mode
Programmable timer	-				40 ms on beam break
Anti-interference	-				in standard mode

(1) Models suitable for use with XUFZ01 and XUFZ02

System
Sensing distance (mm)
Fibre cross-section
Fibre Ø (mm)
Sheath Ø
Temperature range (°C)
References
Fixing

### Accessories

#### Suitable female pre-wired plug-in connectors for use with amplifier XUD●●●M8

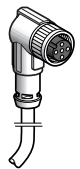


Fig. 1

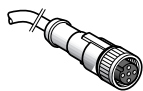


Fig. 2

length 5 m

Elbowed without LED, fig. 1 **XZCP1041L5**

Elbowed with LED, fig. 2 **XZCP0941L5**

#### For thru-beam system plastic fibre optics

Lenses		For increasing sensing distance (pair)	<b>XUFZ01</b>
		With 90° mirror (pair)	<b>XUFZ02</b>
Fixing clamp with lens (set of 2)		Front screw fixing for fibre optics XUFZ920	<b>XUFZ04</b>

#### For all system plastic fibre optics

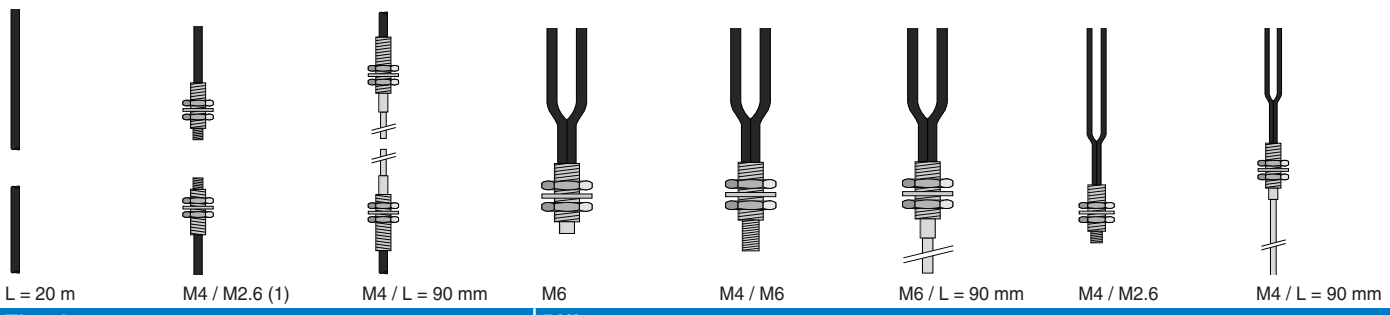
Fibre trimmer		For trimming fibres to length (included with all fibre optics)	<b>XUFZ11</b>
Protective metal tubing		Length 1 m, for plastic fibres with threaded end fittings	
		For M4 thread	<b>XUFZ210</b>
		For M6 thread	<b>XUFZ310</b>

(1) Models suitable for use with XUFZ01 and XUFZ02

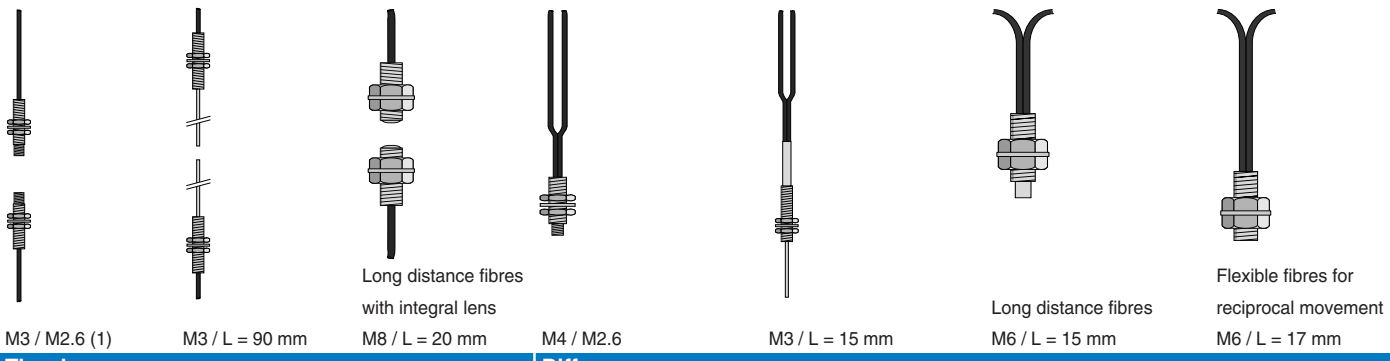
System
Sensing distance (mm)
Fibre cross-section
Fibre Ø (mm)
Sheath Ø
Temperature range (°C)
References
Fixing



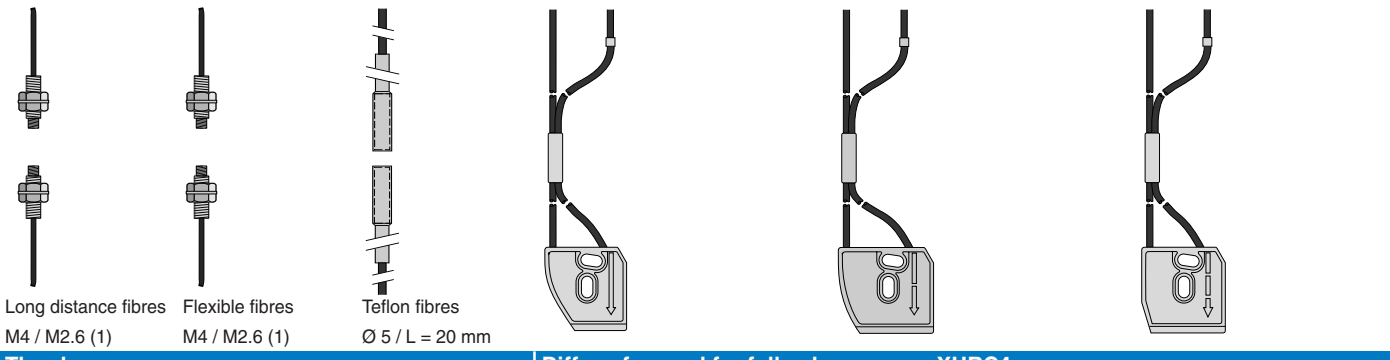
## Plastic fibre optic light guides (length 2 m)



Thru-beam			Diffuse				
250 to 900 (3)	200 or 1500 (1)	180	70	60	60	15	18
Ø 1	Ø 1	Ø 1	Ø 1	Ø 1+16 Ø 0.265	Ø 1	Ø 0.5 + 4 Ø 0.23	Ø 0.5
Ø 2.2	Ø 2.2	Ø 2.2	Ø 2.2 x 2	Ø 2.2 x 2	Ø 2.2 x 2	Ø 1 x 2	Ø 1 x 2
- 25...+ 60	- 25...+ 60	- 25...+ 60	- 25...+ 60	- 25...+ 60	- 25...+ 60	- 25...+ 60	- 25...+ 60
XUFZ920	XUFN12301	XUFN12311	XUFN05321	XUFN05323	XUFN05331	XUFN02323	XUFN01331
(2)	M4 x 0.7	M4 x 0.7	M6 x 0.75	M6 x 0.75 / M4 x 0.7	M6 x 0.75	M4 x 0.7	M4 x 0.7



Thru-beam			Diffuse			
50 or 1000 (1)	30	2500	18	6	95	55
Ø 0.5	Ø 0.5	Ø 1	Ø 0.5	Ø 0.265	Ø 1.5	Ø 1
Ø 1	Ø 1	Ø 2.2	Ø 1 x 2	Ø 1 x 2	Ø 2.2 x 2	Ø 2.2 x 2
- 25...+ 60	- 25...+ 60	- 25...+ 60	- 25...+ 60	- 25...+ 60	- 25...+ 60	- 25...+ 60
XUFN35301	XUFN35311	XUFN2L01L2	XUFN01321	XUFN04331	XUFN5P01L2	XUFN5S01L2
M3 x 0.5	M3 x 0.5	M8 x 1.25	M4 x 0.7	M3 x 0.5	M6 x 0.75	M6 x 0.75



Thru-beam			Diffuse focused for full colour sensor XURC4			
300 or 2000 (1)	100 or 750 (1)	1000	10		20	30
Ø 1.5	Ø 1	Ø 1	Transmitter Ø 1	Receiver Ø 1.5	Transmitter Ø 1.5	Receiver Ø 1.5
Ø 2.2	Ø 2.2	Ø 2.2	Ø 2.2 x 2	Ø 2.2 x 2	Ø 2.2 x 2	Ø 2.2 x 2
- 25...+ 60	- 25...+ 60	- 25...+ 60	- 10...+ 55	- 10...+ 55	- 10...+ 55	- 10...+ 55
XUFN2P01L2	XUFN2S01L2	XUFN2T01L2	XUFN5L01L2	XUFN5L02L2	XUFN5L03L2	
M2.6 x 0.45 / M4 x 0.7	M2.6 x 0.45 / M4 x 0.7	by clip (included)	2 elongated holes Ø 3.2 x 6.7 for M3 screws / fixing centres = 9.8 mm			



	Contrast sensors			Luminescence sensors
	Diffuse	Diffuse (manual)	Diffuse (with teach mode)	Diffuse (manual)
<b>Max / usable sensing distance</b>	<b>0.019 m</b>	<b>0.009 m (1)</b>	<b>0.009 m (1)</b>	<b>0.02 m</b>
Fixing (mm)	direct: fixing ctrs. 40 x 40	direct: 21 x 28, M5 screws	direct: 21 x 28, M5 screws	M18 x 1
Sensitivity adjustment potentiometer	with teach mode button		with teach mode button	
Case M (metal) P (plastic) / Setting-up assistance LEDs ☒	P / ☒	M / ☒	M / ☒	M / ☒
Temperature range (°C) / Degree of protection (conforming to IEC 60529)	- 10...+ 55 / IP65	- 10...+ 55 / IP67	- 10...+ 55 / IP67	- 25...+ 55 / IP67
Dimensions (mm) Ø x L or H x W x D	50 x 15 x 50	100 x 30 x 62.5	96 x 31 x 64	Ø18 x 95

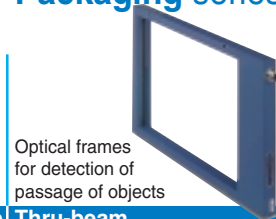
### Sensors for DC applications (solid-state output: transistor)

Connection	M12 connector	M12 connector	M12 connector	M12 connector
<b>Transmitter / Receiver</b>	<b>3-wire PNP</b> <b>NO function</b>	XUKR1PSMM12	–	–
	<b>3-wire NPN</b> <b>NO function</b>	XUKR1NSMM12	–	–
	<b>3-wire PNP / NPN</b> <b>programmable NO / NC</b>	–	XURK0955D	<b>XUKR1KSMM12</b>
Supply voltage limits, min/max (V) including ripple	10...30	10...30	10...30	10...30
Switching capacity, max (mA) / Switching frequency (Hz)	100 / 5000	200 / 10000	200 / 10000	100 / 1000
Overload and short-circuit protection (★) / LED output state indicator (☒)	★ / ☒	★ / ☒	★ / ☒	★ / ☒

(1) 0.007 m with XURZ02; 0.018 m with XURZ01

### Packaging series (continued)

### Packaging series



	Detection of transparent materials		Objects on conveyor	Optical frames for detection of passage of objects
	Reflex (reflector not included)	Reflex (with teach mode) (50 x 50 reflector included)	Diffuse with adjustable b/ground suppression	Thru-beam
<b>Max / usable sensing distance</b>	<b>1.1 / 0.8 m (2)</b>	<b>1.5 m</b>	<b>1 m</b>	<b>0.12 m</b>
Fixing (mm)	M18 x 1	direct: fixing ctrs. 40 x 40	direct: fixing ctrs. 40 x 40	direct: 222.5, M5 screws
Sensitivity adjustment potentiometer		with teach mode button		
Case M (metal) P (plastic) / Setting-up assistance LEDs ☒	P / –	P / ☒	P / ☒	M / ☒
Temperature range (°C) / Degree of protection (conforming to IEC 60529)	+ 10...+ 55 / IP67	- 25...+ 55 / IP65	- 25...+ 55 / IP65	0...+ 60 / IP65
Dimensions (mm) Ø x L or H x W x L	Ø18 x 55	50 x 18 x 80	50 x 18 x 50	205 x 25 x 230

### Sensors for DC applications (solid-state output: transistor)

Connection	Pre-cabled, PVC (2 m)	Pre-cabled, PVC (2 m)	Pre-cabled, PVC (2 m)	–
<b>Transmitter / Receiver</b>	<b>3-wire PNP</b> <b>NO function</b>	–	–	–
	<b>3-wire NPN</b> <b>NO function</b>	–	–	–
	<b>3-wire PNP</b> <b>programmable NO / NC</b>	XUBH01353	–	–
	<b>3-wire NPN</b> <b>programmable NO / NC</b>	XUBJ01353	–	–
<b>Connection</b>	–	XUKT1KSM2	XUK8AKSNL2	–
	<b>3-wire PNP</b> <b>programmable NO / NC</b>	XUBH01353D	–	–
	<b>3-wire NPN</b> <b>programmable NO / NC</b>	XUBJ01353D	–	–
<b>3-wire PNP / NPN</b> <b>programmable NO / NC</b>	–	<b>XUKT1KSMM12</b>	<b>XUK8AKSNM12</b>	XUVF120M12
Supply voltage limits, min/max (V) including ripple	10...30	10...30	10...30	18...30
Switching capacity, max (mA) / Switching frequency (Hz)	100 / 500	100 / 1500	100 / 250	400 / 500
Overload and short-circuit protection (★) / LED output state indicator (☒)	★ / ☒	★ / ☒	★ / ☒	★ / ☒

(2) With 50 x 50 mm reflector; 0.6 m with 24 x 21 mm reflector

(3) Different passageway sizes; 200 x 180: XUVF180M12, 200 x 250: XUVF250M12 and "U" form models available.

### Accessories

#### Suitable female plug-in connectors, including pre-wired versions

length 5 m without LED	pre-wired, elbowed	pre-wired, straight	screw terminal
M8 (or S)	XZCP0666L5	<b>XZCP0566L5</b>	XZCC8FCM30S
M12 (or D)	XZCP1241L5	<b>XZCP1141L5</b>	XZCC12FCM40B
U20 (or K)	XZCP1965L5	XZCP1865L5	XZCC20FCM30B

#### Lenses for colour mark or luminescence detection

Lens for doubling sensing distance	Ring for fixed focusing distance
XURZ01	XURZ02



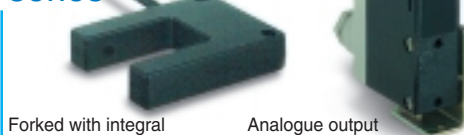


	Colour sensors			Forked, for detection of opaque labels	Detection of aqueous liquids
	Diffuse	Diffuse	Diffuse	Thru-beam infrared	Barrage infrared
	(with teach mode)		(with integral amplifier)		
	<b>0.009 m (1)</b>	<b>0.02 m</b>	<b>0.040...0.060 m</b>	<b>0.005...0.25 m (4)</b>	<b>0.2 m (5)</b>
	direct: fixing ctrs. 28, M5 screws with teach mode button	direct: fixing centres 40 x 40 with teach mode button	direct: fvg. ctrs. 68x42, M5 screws with teach mode button	on rail, fixing centres 16 with teach mode button	direct: fixing centres 20
	M / ⊗	P / ⊗	M / ⊗	M / ⊗	P / ⊗
	- 10...+ 55 / IP67	- 10...+ 55 / IP65	- 10...+ 55 / IP67	0...+ 55 / IP65	0...+ 40 / IP65
	96 x 31 x 64	50 x 25 x 50	80 x 30 x 57	97 x 20 x 26	47 x 13 x 33

M12 connector	M12 connector	Pre-cabled (2 m)	Pre-cabled (2 m)	M8 connector	Pre-cabled (2 m)
-	XUKC1PSMM12	XURC3PPML2	XURC4PPML2	-	-
-	XUKC1NSMM12	XURC3NPML2	XURC4NPML2	-	-
XURU1KSMM12	-	-	-	XUVK0252S	XUMW1KSNL2
10...30	10...30	10...30	10...30	10...30	10.8...26.4
200 / 2000	100 / 1500	100 / 1200	100 / 1200	100 / 10000	100 / 1000
★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗

(4) Depending on fibres selected, see table below

### Materials handling series



Forked with integral amplifier for indexing

Analogue output Position control



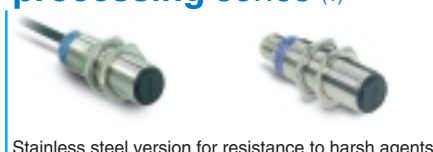
Laser class II

Very long sensing distance or accurate sensing



High excess gain for resistance to accumulated dirt

### Food and beverage processing series (1)



Stainless steel version for resistance to harsh agents

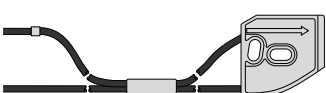
Thru-beam	Diffuse	Thru-beam laser	Thru-beam	Polarised reflex	Diffuse
<b>0.03 m</b>	<b>0.20...0.80 m</b>	<b>500 / 100 m</b>	<b>70 / 50 m</b>	<b>3 / 2 m</b>	<b>0.15 / 0.10 m</b>
fixing centres 47	fvg. ctrs: 30 - 11P cable gland	M18 x 1	M18 x 1	M18 x 1	M18 x 1
-	-	↻	↻	-	-
P / -	P / ⊗	P / ⊗	M / ⊗	M (stainless steel) / -	M (stainless steel) / -
- 5...+ 55 / IP54	- 25...+ 60 / IP67	- 10...+ 45 / IP67	- 25...+ 55 / IP67	- 25...+ 55 / IP67	- 25...+ 55 / IP67
-	86 x 27 x 83	∅18 x 76	M18 x 95	-	-

Pre-cabled, PvR (2 m)	Screw terminals	-	-	Pre-cabled (2 m)	Pre-cabled (2 m)
XUVH0312	-	-	-	-	-
XUVJ0312	-	-	-	-	-
-	-	-	-	XU9N18PP341	XU5N18PP341
-	-	-	-	XU9N18NP341	XU5N18NP341
-	XUJK803538 (2)	-	-	-	-
-	-	<b>M12 connector</b>	<b>M12 connector</b>	<b>M12 connector</b>	<b>M12 connector</b>
-	-	<b>XU2P18PP340DL</b>	<b>XU2M18AP20D (7)</b>	<b>XU9N18PP341D</b>	<b>XU5N18PP341D</b>
-	-	<b>XU2P18NP340DL</b>	-	<b>XU9N18NP341D</b>	<b>XU5N18NP341D</b>
-	-	-	-	-	-
19...38	20...30	10...30	10...30	10...30	10...30
150 / 1000	max: 20, min: 4 / 10000	100 / 500	100 / 30	100 / 500	100 / 500
★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗

(6) Thru-beam system also available

(7) With 4...20 mA analogue output

### Fibre optic light guides for use with full colour sensor XURC4...



Fibre type	System	Reference	Sensing dist.	Fibre type	System	Reference	Sensing dist.
<b>Focused</b>	Diffuse	XUFN5L01L2	10 mm	<b>Standard</b>	Diffuse	XUFN05321	5 mm
		XUFN5L02L2	20 mm		Thru-beam	XUFN12301 + XUFZ01	250 m
		XUFN5L03L2	30 mm		(colour detection by transparency)		



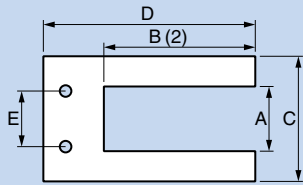
Forks



	Thru-beam	Thru-beam	Thru-beam laser
<b>Max / usable sensing distance</b>	2...120 mm	2...120 mm	2...120 mm
Fixing (mm)	(see column E below)		
Sensitivity adjustment	potentiometer, 25 turn	teach button	
Case M (metal) P (plastic) / Setting-up assistance LEDs ☒	M / ☒		
Temperature range (°C) / Degree of protection (conforming to IEC 60529)	- 25...+ 60 / IP65		
Dimensions (mm) L x H	(see columns C and D below)		

### Sensors for DC applications (solid-state output: transistor)

Connection	M8 connector (1)	M8 connector	M8 connector
<b>Type of output</b>	3-wire PNP/NPN programmable NO / NC		
Dimensions (mm) 3 choices of depth B (2)	A B C D E	A B C D E	A B C D E
<b>Transmitter / Receiver</b>	XUYF953002COS 2 40 40 60 14	XUYFANEP40002 2 42 32 57 14	XUYFALNEP40002 2 42 41 57 14
	XUYF954002COS 2 40 37 60 14	XUYFANEP40005 5 42 35 57 14	XUYFALNEP40005 5 42 44 57 14
	XUYF954015COS 15 40 50 60 27	XUYFANEP40015 15 42 45 57 27	XUYFALNEP40015 15 42 54 57 27
	XUYF954030COS 30 40 65 60 42	XUYFANEP40030 30 42 60 57 42	XUYFALNEP40030 30 42 69 57 42
	XUYF954050COS 50 57 85 77 40	XUYFANEP40050 50 42 80 57 40	XUYFALNEP40050 50 42 89 57 40
	XUYF954080COS 80 57 115 77 70	XUYFANEP40080 80 42 110 57 70	XUYFALNEP40080 80 42 119 57 70
	XUYF954120COS 120 57 155 77 110	XUYFANEP40120 120 42 150 57 110	XUYFALNEP40120 120 42 159 57 110
Supply voltage limits, min/max (V) including ripple	10...30		
Switching capacity, max (mA) / Switching frequency (Hz)	100/500 Hz (10 kHz for XUYF953002COS)		
Overload and short-circuit protection (★) / LED output state indicator (☒)	★ / ☒		



(1) For pre-cabled (L = 2 m) version, delete CO from the reference. Ex: XUYF953002COS becomes XUYF953002S

(2) For B = 59 mm, replace the first number 4 in the reference by 6

For B = 95 mm, replace the first number 4 in the reference by 10

Ex: for B = 59 mm: XUYFANEP40002 becomes XUYFANEP60002



Sensors with plastic fibre optics

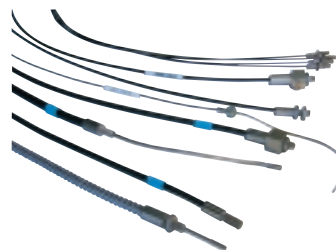
	Light sensor	Colour sensor, 1 or 4 colours	Contrast sensor
<b>Max / usable sensing distance</b>	dpg. on fibre & end fitting	2...60 mm	18 mm
Fixing (mm)	DIN rail	51 x 115	DIN rail
Sensitivity adjustment	potentiometer, numerical +/-	teach button	teach button
Case M (metal) P (plastic) / Setting-up assistance LEDs ☒	P / ☒	P / ☒	P / ☒
Temperature range (°C) / Degree of protection (conforming to IEC 60529)	0 ... + 60 / IP65		
Dimensions (mm) L x H	13 x 60	61 x 125	13 x 60

### Sensors for DC applications (solid-state output: transistor)

Connection	M8 connector	2 x M12 connectors (included)	M8 connector
<b>Type of output</b>			
PNP	NO function	-	-
NPN	NO function	-	XUYDCFCO966S
PNP/NPN	Programmable NO / NC	XUYFLCO966S	XUYLC2001 (1 colour)
		-	XUYLC2004 (4 colours)
Supply voltage limits, min/max (V) including ripple	10...30		
Switching capacity, max (mA) / Switching frequency (Hz)	100 / 5		
Overload and short-circuit protection (★) / LED output state indicator (☒)	★ / ☒		
Suitable plastic fibre optics, to be ordered separately	Usable Ø 1 mm	Sensing distance	
	L = 10 m XUFZ910	18 mm L = 0.6 m XUYFPCF61	L = 0.6 m XUYFPDC61
	L = 20 m XUFZ920	60 mm L = 0.6 m XUYFPCP61	L = 1 m XUYFPDC101
	L = 50 m XUYA00550	18 mm L = 1 m XUYFPCF101	L = 0.6 m / M8 XUYFPDCM861
		60 mm L = 1 m XUYFPCP101	L = 1 m / M8 XUYFPDCM8101



Amplifier for fibre optics



Diffuse or Thru-beam depending on fibres			
for plastic fibres		or plastic or glass fibres	
<b>dpg. on fibres</b> (80 mm for diffuse, 200 mm for thru-beam, up to 4 m using end fitting accessories)			
DIN rail			
potentiometer	potentiometer, numerical +/-	pot. num. + teach	LCD display
P / ⊗			P / ⊗ using selector/setting knob
0...+ 60	0...+60 / IP65	0...+ 60 / IP65 & IP67	0...+ 60 / IP40
30 x 80	13 x 60	30 x 80	45 x 100

Glass fibre optics Length = 0.6 m (4)		
	Thru-beam	Diffuse
<b>Sensing distance</b>	<b>200 mm</b>	<b>80 mm</b>
Fibre Ø	1.2 mm	1.2 mm
Temperature	PVC sheath: - 25...+ 60°C	
	spiroid metal tube: - 25...+ 120°C	
	flexible stainless steel: - 25...+ 200°C	

AC	DC	DC	AC / DC	DC
Screw terminals	M8 connector (1)	M8 connector (1)	Screw terminals	2 x M8 connectors
Output relay, 1 C/O	3-wire PNP/NPN programmable NO / NC		Output relay, 1 C/O	PNP (3) or analogue
30 x 80	13 x 60	13 x 60	30 x 80	45 x 100
-	<b>XUYAFVCO966S</b> (glass fibre)	XUYAFVCO946S (glass fibre)	XUYAFV954R (glass fibre)	XUYAFCLARY4ANSP
				XUYAFCLARY3ANSP
				XUYAFCLARY2ANSP
				XUYAFCLARY4STSP
				XUYAFCLARY3STSP
XUYAF400A (plastic fibre)	<b>XUYAFPCO966S</b> (plastic fibre)	XUYAFPCO946S (plastic fibre)	XUYAFP954R (plastic fibre)	XUYAFCLARY2STSP
115/230 V AC	10...30	10...30	20...250 V AC/DC	10...30
3A/250V / 25Hz	100/1kHz	100/1kHz time delay	3A / 25Hz	100/1.1kHz
-	★ / ⊗	★ / ⊗	- / ⊗	★ / ⊗

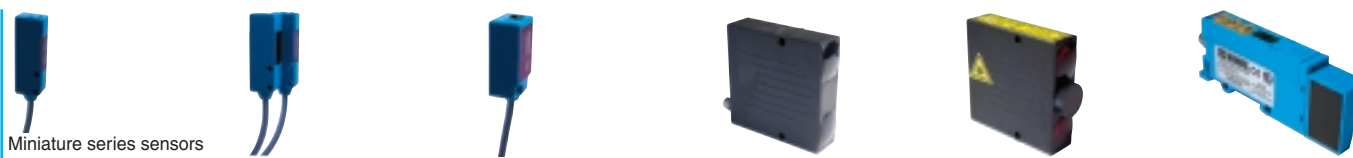
with straight end fitting (5)		
PVC sheath	XUYFVERSD61	XUYFVPSD61
spiroid metal tube	XUYFVERMD61	XUYFVPM61
flexible stnls. steel	XUYFVERTD61	XUYFVPTD61

(4) Other lengths available (1 m, 1.5 m, 2 m), consult us  
 (5) Other end fittings (side, elongated, pliable), consult us  
 Note: Glass fibres are not suitable for use with amplifier XUYAF400A

**Plastic fibre optics Length = 2 m**  
 see the complete XUFN offer on page 7

Plastic fibre optics for use with end fittings		
Ø 1 mm fibre	L = 20 m	<b>XUFZ920</b>
End fitting (single)	sensing dist. 70 mm	XUYA110
End fittings (pair)	sensing dist. 200 mm	XUYA210
	sensing dist. 800 mm	XUYA211
	sensing dist. 4 m	XUYA213

(3) For NPN version, replace the last letter of the reference (P) by N



Miniature series sensors

Polarised reflex 50 x 50 reflector included	Thru-beam	Background suppression	Background suppression with 2 channels	Background suppression, LASER	Diffuse with sensing face on side adjustable...450 mm
<b>1...1.5 m</b>	<b>4 m</b>	<b>1.5...80 mm</b>	<b>50...600 mm</b>	<b>50...300 mm</b>	
2 x Ø 3 holes / centres 9.5	3 x Ø 3 holes / centres 9.5	2 x Ø 3 holes / centres 14.5	2 x Ø 4 holes / centres 54	2 x Ø 4 holes / centres 54	DIN rail
potentiometer	potentiometer	potentiometer	potentiometer	potentiometer	using + / - buttons
P / ⊗	P / ⊗	P / ⊗	P / ⊗	P / ⊗	P / ⊗
0...+ 50 / IP65 & IP67	0...+ 50 / IP65 & IP67	0...+ 50 / IP65 & IP67	-25...+ 60 / IP67	0...+ 50 / IP65	0...+ 60 / IP65
10 x 40	10 x 40	20 x 32	18 x 60	18 x 60	30 x 78

M8 connector (6)	M8 connector (6)	M8 connector (6)	M8 connector (6)	M8 connector	M8 connector (6)
XUYBCO989SP	XUYRCO989SP (receiver)	XUYPCO989SP	-	-	-
XUYBCO989SN	XUYRCO989SN (receiver)	XUYPCO989SN	-	-	-
-	-	-	XUYPS2CO945S	XUYPS1LCO965S	XUYPLCO966S
-	XUYECO989 (transmitter)	-	-	-	-
10...30					
100 / 500	100 / 500	100 / 500	100 / 370	100 / 5k	100 / 1k
★ / ⊗					

(6) For pre-cabled (L = 2 m) version, delete CO from the reference. Ex: XUYPS**CO**989SP becomes XUYPS989SP

**Accessories**

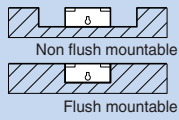
**Suitable female pre-wired plug-in connectors**

2 m	M8 straight	M12 straight	M8 elbowed	M12 elbowed
5 m	XZCP0941L2	XZCP1141L2	XZCP1041L2	XZCP1241L2
	XZCP0941L5	XZCP1141L5	XZCP1041L5	XZCP1241L5

**For plastic fibre optics**

Fibre trimmer (for trimming fibres to length)

**XUFZ11**



**Osiconcept®**  
Offering simplicity through innovation

A single product that automatically adapts to all installation environments.

Accurate position detection using teach mode.



	Form E 26 x 26	Form C 40 x 40	Form D 80 x 80	M12
<b>Nominal sensing distance Sn</b>	15 mm	25 mm	60 mm	5 mm
Usable sensing distance S (mm) flush mountable / non flush mountable	0...8 / 0...12	0...12 / 0...20	0...32 / 0...48	0...2.7 / 0...4
Fine adjustment zone (mm) flush mountable / non flush mountable	5...10 / 5...15	8...15 / 8...25	20...40 / 20...60	1.7...3.4 / 1.7...5
Suitability for flush mounting (metal environment)	flush mountable or non flush mountable via Osiconcept teach mode			
Case M (metal) P (plastic)	P	P	P	P
Temperature range (°C)	- 25...+ 70	- 25...+ 70	- 25...+ 70	- 25...+ 70
Degree of protection (conforming to IEC 60529)	pre-cabled: IP68 (with connector: IP67)			IP67

## Sensors for DC applications

Connection			Pre-cabled, PvR (2 m)			
Dimensions (mm) Ø x L or W x H x D			26 x 26 x 13	40 x 40 x 15	80 x 80 x 26	M12 x 54
3-wire	PNP	NO function	<b>XS8E1A1PAL2</b>	<b>XS8C1A1PAL2</b>	<b>XS8D1A1PAL2</b>	–
		NC function	XS8E1A1PBL2	XS8C1A1PBL2	XS8D1A1PBL2	–
	NPN	NO function	<b>XS8E1A1NAL2</b>	<b>XS8C1A1NAL2</b>	<b>XS8D1A1NAL2</b>	–
		NC function	XS8E1A1NBL2	XS8C1A1NBL2	XS8D1A1NBL2	–
Connection			M8 connector	M12 connector		
3-wire	PNP	NO function	<b>XS8E1A1PAM8</b>	<b>XS8C1A1PAM8</b>	<b>XS8D1A1PAM12</b>	<b>XS612B2PAL01M12 (2)</b>
		NC function	XS8E1A1PBM8	XS8C1A1PBM8	XS8D1A1PBM12	XS612B2PBL01M12 (2)
	NPN	NO function	<b>XS8E1A1NAM8</b>	<b>XS8C1A1NAM8</b>	<b>XS8D1A1NAM12</b>	<b>XS612B2NAL01M12 (2)</b>
		NC function	XS8E1A1NBM8	XS8C1A1NBM8	XS8D1A1NBM12	XS612B2NBL01M12 (2)
Supply voltage limits, min/max (V) including ripple			10...36	10...36	10...36	10...36
Switching capacity, max (mA)			100	200	200	100
Overload and short-circuit protection (★)			★	★	★	★
LED output state indicator (⊗) and power on LED (⊗)			⊗ / ⊗	⊗ / ⊗	⊗ / ⊗	⊗ / ⊗
Voltage drop, closed state (V) at I nominal			≤ 2	≤ 2	≤ 2	≤ 2
Switching frequency (Hz)			2000	1000	150	1000

## Multi-current/multi-voltage sensors for AC/DC applications

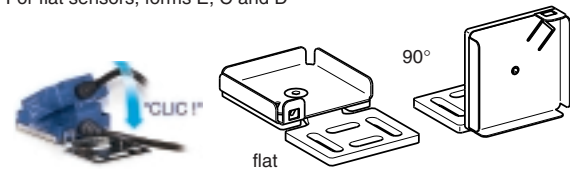
Connection			Pre-cabled, PvR (2 m)			
Dimensions (mm) Ø x L or W x H x D			26 x 26 x 13	40 x 40 x 15	80 x 80 x 26	–
2-wire	AC/DC	NO function	<b>XS8E1A1MAL2</b>	<b>XS8C1A1MAL2</b>	<b>XS8D1A1MAL2</b>	–
		not short-circuit protected (1) NC function	<b>XS8E1A1MBL2</b>	<b>XS8C1A1MBL2</b>	<b>XS8D1A1MBL2</b>	–
Connection			1/2" 20 UNF connector			
2-wire	AC/DC	NO function	<b>XS8E1A1MAL01U20</b>	<b>XS8C1A1MAL01U20</b>	<b>XS8D1A1MAU20</b>	–
		not short-circuit protected (1) NC function	<b>XS8E1A1MBL01U20</b>	<b>XS8C1A1MBL01U20</b>	<b>XS8D1A1MBU20</b>	–
Supply voltage limits, min/max (V) including ripple			20...264	20...264	20...264	–
Switching capacity, max (mA)			200 AC or DC	300 AC / 200 DC	300 AC / 200 DC	–
LED output state indicator (⊗) / power on LED (⊗)			⊗ / ⊗	⊗ / ⊗	⊗ / ⊗	–
Residual current, open state (mA)			≤ 1.5	≤ 1.5	≤ 1.5	–
Voltage drop, closed state (V) at I nominal			≤ 5.5	≤ 5.5	≤ 5.5	–
Switching frequency (Hz)			2000	1000	150	–

(1) For these sensors without short-circuit protection, it is essential to connect a 0.4 A quick-blow fuse in series with the load

## Accessories

### Fixing

For flat sensors, forms E, C and D



	flat	90°	substitution of block type sensors XSE / XSC / XSD
Form E	<b>XSZBE00</b>	<b>XSZBE90</b>	<b>XSZBE10</b>
Form C	<b>XSZBC00</b>	<b>XSZBC90</b>	<b>XSZBC10</b>
Form D	–	–	<b>XSZBD10</b>

Fixing clamp with indexing pin for cylindrical sensors



M8	<b>XSZB108</b>
M12	<b>XSZB112</b>
M18	<b>XSZB118</b>
M30	<b>XSZB130</b>





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M18	M30	M8	M12	M18	M30
9 mm	18 mm	2.5 mm	4 mm	8 mm	15 mm
0...4.8 / 0...7.2	0...8.8 / 0...14.4	0...2	0...3.2	0...6.4	0...12
3...6 / 3...9	6...11 / 6...18	–	–	–	–
flush or non flush mountable via Osiconcept teach mode		flush mountable	flush mountable	flush mountable	flush mountable
M	M	M	M	M	M
- 25...+ 70	- 25...+ 70	- 25...+ 70	- 25...+ 70	- 25...+ 70	- 25...+ 70
IP67		IP67	pre-cabled: IP68 (with connector: IP67)		

M18 x 67	M30 x 71	M8 x 50	M12 x 50	M18 x 60	M30 x 60
–	–	<b>XS608B1PAL2</b>	<b>XS612B1PAL2</b>	<b>XS618B1PAL2</b>	<b>XS630B1PAL2</b>
–	–	XS608B1PBL2	XS612B1PBL2	XS618B1PBL2	XS630B1PBL2
–	–	<b>XS608B1NAL2</b>	<b>XS612B1NAL2</b>	<b>XS618B1NAL2</b>	<b>XS630B1NAL2</b>
–	–	XS608B1NBL2	XS612B1NBL2	XS618B1NBL2	XS630B1NBL2

<b>XS618B2PAL01M12 (2)</b>	<b>XS630B2PAL01M12 (2)</b>	<b>XS608B1PAM12</b>	<b>XS612B1PAM12</b>	<b>XS618B1PAM12</b>	<b>XS630B1PAM12</b>
XS618B2PBL01M12 (2)	XS630B2PBL01M12 (2)	XS608B1PBM12	XS612B1PBM12	XS618B1PBM12	XS630B1PBM12
<b>XS618B2NAL01M12 (2)</b>	<b>XS630B2NAL01M12 (2)</b>	<b>XS608B1NAM12</b>	<b>XS612B1NAM12</b>	<b>XS618B1NAM12</b>	<b>XS630B1NAM12</b>
XS618B2NBL01M12 (2)	XS630B2NBL01M12 (2)	XS608B1NBM12	XS612B1NBM12	XS618B1NBM12	XS630B1NBM12
10...36	10...36	10...58	10...58	10...58	10...58
100	100	200	200	200	200
★	★	★	★	★	★
⊗ / ⊗	⊗ / ⊗	⊗ / –	⊗ / –	⊗ / –	⊗ / –
≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2
1000	1000	2500	2500	1000	500

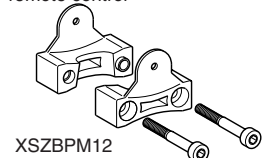
–	–	–	M12 x 50	M18 x 60	M30 x 60
–	–	–	<b>XS612B1MAL2</b>	<b>XS618B1MAL2</b>	<b>XS630B1MAL2</b>
–	–	–	<b>XS612B1MBL2</b>	<b>XS618B1MBL2</b>	<b>XS630B1MBL2</b>

–	–	–	<b>XS612B1MAU20</b>	<b>XS618B1MAU20</b>	<b>XS630B1MAU20</b>
–	–	–	<b>XS612B1MBU20</b>	<b>XS618B1MBU20</b>	<b>XS630B1MBU20</b>
–	–	–	20...264	20...264	20...264
–	–	–	200	300 AC / 200 DC	300 AC / 200 DC
–	–	–	⊗ / –	⊗ / –	⊗ / –
–	–	–	≤ 1.5	≤ 1.5	≤ 1.5
–	–	–	≤ 5.5	≤ 5.5	≤ 5.5
–	–	–	25 AC / 1000 DC	25 AC / 1000 DC	25 AC / 500 DC

(2) Flying lead (L = 0.15 m) with end mounted remote control incorporating M12 connector

Suitable female plug-in connectors, including pre-wired versions

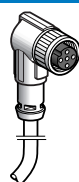
For Osiconcept XS6 remote control



length 5 m without LED

M8	XZCP0666L5
M12	XZCP1241L5
U20	XZCP1965L5

pre-wired, elbowed



pre-wired, straight

<b>XZCP0566L5</b>
<b>XZCP1141L5</b>
XZCP1865L5

screw terminal

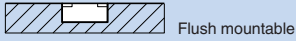


XZCC8FCM30S
XZCC12FCM40B
XZCC20FCM30B

Snap-C



–
<b>XZCC12FDM40V</b>
–



	Form J 8 x 22	Form F 15 x 32	Form E 26 x 26	Form C 40 x 40
<b>Nominal sensing distance Sn</b>	<b>2.5 mm</b>	<b>5 mm</b>	<b>10 mm</b>	<b>15 mm</b>
Operating zone (mm)	0...2	0...4	0...8	0...12
Suitability for flush mounting (metal environment)	flush mountable	flush mountable	flush mountable	flush mountable
Case M (metal) P (plastic)	P	P	P	P
Temperature range (°C)	- 25...+ 70	- 25...+ 70	- 25...+ 70	- 25...+ 70
Degree of protection (conforming to IEC 60529)	pre-cabled: IP68 (with connector: IP67)			

## Sensors for DC applications

Connection			Pre-cabled, PvR (2 m)			
Dimensions (mm) Ø x L or W x H x D			8 x 22 x 8	15 x 32 x 8	26 x 26 x 13	40 x 40 x 15
<b>3-wire</b>	<b>PNP</b>	NO function	<b>XS7J1A1PAL2</b>	<b>XS7F1A1PAL2</b>	XS7E1A1PAL2	XS7C1A1PAL2
		NC function	XS7J1A1PBL2	XS7F1A1PBL2	XS7E1A1PBL2	XS7C1A1PBL2
	<b>NPN</b>	NO function	<b>XS7J1A1NAL2</b>	<b>XS7F1A1NAL2</b>	XS7E1A1NAL2	XS7C1A1NAL2
		NC function	XS7J1A1NBL2	XS7F1A1NBL2	XS7E1A1NBL2	XS7C1A1NBL2
Connection			<b>M8 connector</b>			
<b>3-wire</b>	<b>PNP</b>	NO function	<b>XS7J1A1PAL01M8 (1)</b>	<b>XS7F1A1PAL01M8 (1)</b>	XS7E1A1PAM8	XS7C1A1PAM8
		NC function	XS7J1A1PBL01M8 (1)	XS7F1A1PBL01M8 (1)	XS7E1A1PBM8	XS7C1A1PBM8
	<b>NPN</b>	NO function	<b>XS7J1A1NAL01M8 (1)</b>	<b>XS7F1A1NAL01M8 (1)</b>	XS7E1A1NAM8	XS7C1A1NAM8
		NC function	XS7J1A1NBL01M8 (1)	XS7F1A1NBL01M8 (1)	XS7E1A1NBM8	XS7C1A1NBM8
Supply voltage limits, min/max (V) including ripple			10...36	10...36	10...36	10...36
Switching capacity, max (mA)			100	100	100	100
Overload and short-circuit protection (★) / LED output state indicator (⊗)			★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗
Voltage drop, closed state (V) at I nominal			≤ 2	≤ 2	≤ 2	≤ 2
Switching frequency (Hz)			2000	2000	1000	1000

## Sensors for DC applications

Connection			Pre-cabled, PvR (2 m)			
Dimensions (mm) Ø x L or W x H x D			8 x 22 x 8	15 x 32 x 8	26 x 26 x 13	40 x 40 x 15
<b>2-wire</b>	<b>non polarised</b>	NO function	XS7J1A1DAL2	XS7F1A1DAL2	XS7E1A1DAL2	XS7C1A1DAL2
		NC function	XS7J1A1DBL2	XS7F1A1DBL2	XS7E1A1DBL2	XS7C1A1DBL2
Connection			<b>M8 connector</b>			
<b>2-wire</b>	<b>non polarised</b>	NO function	XS7J1A1DAL01M8 (1)	XS7F1A1DAL01M8 (1)	XS7E1A1DAM8	XS7C1A1DAM8
		NC function	XS7J1A1DBL01M8 (1)	XS7F1A1DBL01M8 (1)	XS7E1A1DBM8	XS7C1A1DBM8
Supply voltage limits, min/max (V) including ripple			10...36	10...36	10...36	10...36
Switching capacity, max (mA)			100	100	100	100
Overload and short-circuit protection (★) / LED output state indicator (⊗)			★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗
Residual current, open state (mA)			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Voltage drop, closed state (V) at I nominal			≤ 4	≤ 4	≤ 4	≤ 4
Switching frequency (Hz)			4000	5000	1000	1000

(1) Flying lead (L = 0.15 m) with M8 end connector



## Accessories


Fixing		substitution of block type sensors XSE / XSC / XSD			Fixing clamp with indexing pin for cylindrical sensors	
	flat	90°	flat	90°	M8	<b>XSZB108</b>
	Form E	<b>XSZBE00</b>	<b>XSZBE90</b>	<b>XSZBE10</b>	M12	<b>XSZB112</b>
	Form C	<b>XSZBC00</b>	<b>XSZBC90</b>	<b>XSZBC10</b>	M18	<b>XSZB118</b>
	Form D	—	—	<b>XSZBD10</b>	M30	<b>XSZB130</b>



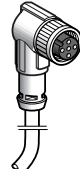
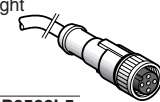




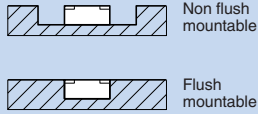
Form D 80 x 80	M8	M12	M18	M30
40 mm	1.5 mm	2 mm	5 mm	10 mm
0...32	0...1.2	0...1.6	0...4	0...8
flush mountable	flush mountable	flush mountable	flush mountable	flush mountable
P	M	M	M	M
- 25...+ 70	- 25...+ 70	- 25...+ 70	- 25...+ 70	- 25...+ 70
pre-cabled: IP68 (with connector: IP67)	IP67	pre-cabled: IP68 (with connector: IP67)		

80 x 80 x 26	M8 x 33	M12 x 33	M18 x 36.5	M30 x 40.6
XS7D1A1PAL2	<b>XS508B1PAL2</b>	<b>XS512B1PAL2</b>	<b>XS518B1PAL2</b>	<b>XS530B1PAL2</b>
XS7D1A1PBL2	XS508B1PBL2	XS512B1PBL2	XS518B1PBL2	XS530B1PBL2
XS7D1A1NAL2	<b>XS508B1NAL2</b>	<b>XS512B1NAL2</b>	<b>XS518B1NAL2</b>	<b>XS530B1NAL2</b>
XS7D1A1NBL2	XS508B1NBL2	XS512B1NBL2	XS518B1NBL2	XS530B1NBL2
<b>M12 conctr.</b> 	<b>M8 connector</b>	<b>M12 connector</b> 		
XS7D1A1PAM12	<b>XS508B1PAM8</b>	<b>XS512B1PAM12</b>	<b>XS518B1PAM12</b>	<b>XS530B1PAM12</b>
XS7D1A1PBM12	XS508B1PBM8	XS512B1PBM12	XS518B1PBM12	XS530B1PBM12
XS7D1A1NAM12	<b>XS508B1NAM8</b>	<b>XS512B1NAM12</b>	<b>XS518B1NAM12</b>	<b>XS530B1NAM12</b>
XS7D1A1NBM12	XS508B1NBM8	XS512B1NBM12	XS518B1NBM12	XS530B1NBM12
10...36	10...36	10...36	10...36	10...36
100	200	200	200	200
★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗
≤ 2	≤ 2	≤ 2	≤ 2	≤ 2
100	5000	5000	2000	1000

80 x 80 x 26	M8 x 50	M12 x 50	M18 x 52.5	M30 x 50
XS7D1A1DAL2	XS508B1DAL2	XS512B1DAL2	XS518B1DAL2	XS530B1DAL2
XS7D1A1DBL2	XS508B1DBL2	XS512B1DBL2	XS518B1DBL2	XS530B1DBL2
<b>M12 connector</b> 				
XS7D1A1DAM12	XS508B1DAM12	XS512B1DAM12	XS518B1DAM12	XS530B1DAM12
XS7D1A1DBM12	XS508B1DBM12	XS512B1DBM12	XS518B1DBM12	XS530B1DBM12
10...36	10...58	10...58	10...58	10...58
100	100	100	100	100
★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗
≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
100	4000	4000	3000	2000

#### Suitable female plug-in connectors, including pre-wired versions

length 5 m without LED	pre-wired, elbowed	pre-wired, straight	screw terminal	Snap-C
				
M8 (or S)	XZCP0666L5	<b>XZCP0566L5</b>	XZCC8FCM30S	-
M12 (or D)	XZCP1241L5	<b>XZCP1141L5</b>	XZCC12FCM40B	<b>XZCC12FDM40V</b>
U20 (or K)	XZCP1965L5	XZCP1865L5	XZCC20FCM30B	-



	M8	M12	M18	M30
<b>Nominal sensing distance Sn</b>	2.5 mm	4 mm	8 mm	15 mm
Operating zone (mm)	0...2	0...3.2	0...6.4	0...12
Suitability for flush mounting (metal environment)	non flush mountable			
Case M (metal) P (plastic)	P			
Temperature range (°C)	- 25...+ 70			
Degree of protection (conforming to IEC 60529)	IP67	pre-cabled: IP68 (with connector: IP67)		

## Sensors for DC applications

Connection			Pre-cabled, PvR (2 m)			
Dimensions (mm) Ø x L or W x H x D			M8 x 33	M12 x 33	M18 x 33.5	M30 x 40.5
<b>2-wire</b> (non polarised)	<b>NO or NC</b>	programmable	–	–	–	–
<b>4-wire</b>	<b>PNP</b>	<b>NO + NC</b>	complementary outputs	–	–	–
	<b>NPN</b>	<b>NO + NC</b>	complementary outputs	–	–	–
<b>3-wire</b>	<b>PNP</b>	<b>NO function</b>	XS4P08PA340	XS4P12PA340	XS4P18PA340	XS4P30PA340
		<b>NC function</b>	XS4P08PB340	XS4P12PB340	XS4P18PB340	XS4P30PB340
	<b>NPN</b>	<b>NO function</b>	XS4P08NA340	XS4P12NA340	XS4P18NA340	XS4P30NA340
		<b>NC function</b>	XS4P08NB340	XS4P12NB340	XS4P18NB340	XS4P30NB340
Connection			<b>M8 connector</b>	<b>M12 connector</b>		
<b>3-wire</b>	<b>PNP</b>	<b>NO function</b>	XS4P08PA340S	XS4P12PA340D	XS4P18PA340D	XS4P30PA340D
		<b>NC function</b>	XS4P08PB340S	XS4P12PB340D	XS4P18PB340D	XS4P30PB340D
	<b>NPN</b>	<b>NO function</b>	XS4P08NA340S	XS4P12NA340D	XS4P18NA340D	XS4P30NA340D
		<b>NC function</b>	XS4P08NB340S	XS4P12NB340D	XS4P18NB340D	XS4P30NB340D
Supply voltage limits, min/max (V) including ripple			10...38	10...38	10...38	10...38
Switching capacity, max (mA)			200	200	200	200
Short-circuit protect. (★) / LED output state indicator (⊗) / Power on LED (⊗)			★ / ⊗ / –	★ / ⊗ / –	★ / ⊗ / –	★ / ⊗ / –
Voltage drop, closed state (V) at I nominal			≤ 2	≤ 2	≤ 2	≤ 2
Switching frequency (Hz)			5000	5000	2000	1000

## Multi-current/multi-voltage sensors for AC/DC applications

Connection			Pre-cabled, PvR (2 m)			
Dimensions (mm) Ø x L or W x D x H				M8 x 50	M12 x 50	M18 x 60    M30 x 60
<b>2-wire</b>	<b>AC/DC</b>	<b>NO function</b>	XS4P08MA230	XS4P12MA230	XS4P18MA230	XS4P30MA230
		<b>NC function</b>	XS4P08MB230	XS4P12MB230	XS4P18MB230	XS4P30MB230
	not short-circuit protected (1)	<b>AC</b>	<b>NO or NC programmable</b>	–	–	–
	<b>AC/DC</b>	<b>NO or NC programmable</b>	–	–	–	
Connection			<b>U20 connector</b>			
<b>2-wire</b>	<b>AC/DC</b>	<b>NO function</b>	XS4P08MA230K	XS4P12MA230K	XS4P18MA230K	XS4P30MA230K
		<b>NC function</b>	XS4P08MB230K	XS4P12MB230K	XS4P18MB230K	XS4P30MB230K
Supply voltage limits, min/max (V) including ripple			20...264	20...264	20...264	20...264
Switching capacity, max (mA)			100	200	300 AC / 200 DC	300 AC / 200 DC
LED output state indicator (⊗)			⊗	⊗	⊗	⊗
Residual current, open state (mA)			≤ 0.6	≤ 0.6	≤ 0.6	≤ 0.6
Voltage drop, closed state (V) at I nominal			≤ 5.5	≤ 5.5	≤ 5.5	≤ 5.5
Switching frequency (Hz)			25 AC / 3000 DC	25 AC / 3000 DC	25 AC / 2000 DC	25 AC / 1000 DC

(1) For these sensors without short-circuit protection, it is essential to connect a 0.4 A quick-blow fuse in series with the load

## Accessories

### Fixing clamps

Fixing clamp with indexing pin for cylindrical sensors



M4	<b>XSZB104</b>	M12	<b>XSZB112</b>
M5	<b>XSZB105</b>	M18	<b>XSZB118</b>
M6.5	<b>XSZB165</b>	M30	<b>XSZB130</b>
M8	<b>XSZB108</b>		





## Miniature cylindrical (assembly)

## Rectangular Form C



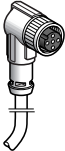
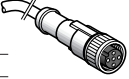

Miniature cylindrical (assembly)			Rectangular Form C			
Ø 4	M5	Ø 6.5	Form C			
1 mm	1 mm	1.5 mm	15 mm	20 mm increased sensing dist.	20 mm	40 mm increased sensing dist.
0...0.8	0...0.8	0...1.2	0...12	0...16	0...16	0...32
flush mountable			flush mountable		non flush mountable	
M			P			
- 25...+ 70			- 25...+ 70			
IP67			IP67			

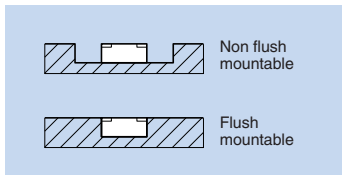
Pre-cabled, PvR (2 m)			Screw terminals (3)			
Ø 4 x 29	M5 x 29	M6.5 x 33	40 x 40 x 117			
-	-	-	XS7C40DP210	-	XS8C40DP210	-
-	-	-	XS7C40PC440	XS7C40PC449	XS8C40PC440	XS8C40PC449
-	-	-	XS7C40NC440	XS7C40NC449	XS8C40NC440	XS8C40NC449
<b>XS1L04PA310</b>	<b>XS1N05PA310</b>	<b>XS1L06PA340</b>	-	-	-	-
-	-	-	-	-	-	-
XS1L04NA310	XS1N05NA310	XS1L06NA340	-	-	-	-
-	-	-	-	-	-	-
<b>M8 connector</b>						
<b>XS1L04PA310S</b>	<b>XS1N05PA311S (2)</b>	<b>XS1L06PA340S</b>	-	-	-	-
-	-	-	-	-	-	-
XS1L04NA310S	XS1N05NA311S (2)	XS1L06NA340S	-	-	-	-
-	-	-	-	-	-	-
5...30	5...30	10...38	12...48			
100	100	200	4-wire version = 200 - 2-wire version = 1.5...100			
★ / ⊗ / -	★ / ⊗ / -	★ / ⊗ / -	4-wire version = ★ / ⊗ / ⊗ - 2-wire version = ★ / ⊗ / -			
≤ 2	≤ 2	≤ 2	4-wire version = ≤ 2 - 2-wire version = ≤ 4			
5000	5000	2500	2-wire = 1500 / 4-wire = 1000		2-wire = 800 / 4-wire = 1000 (20mm) 500 (40mm)	

			Screw terminals (3)			
-	-	-	40 x 40 x 117			
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	XS7C40FP260	-	XS8C40FP260	-
-	-	-	XS7C40MP230	-	XS8C40MP230	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	20...264			
-	-	-	AC version = 500 - AC/DC version = 300 / 200			
-	-	-	⊗			
-	-	-	AC version = ≤ 1.5 - AC/DC version = ≤ 0.8 / 1.5			
-	-	-	≤ 5.5			
-	-	-	25 AC / 50 DC			

(2) Stainless steel sensors, Sn = 0.8 mm

(3) Sensors supplied without cable gland. Suitable cable gland: 13P

Suitable female plug-in connectors, including pre-wired versions						
length 5 m without LED	pre-wired, elbowed		pre-wired, straight		screw terminal	
M8 (or S)	XZCP0666L5		XZCP0566L5		XZCC8FCM30S	
M12 (or D)	XZCP1241L5		XZCP1141L5		XZCC12FCM40B	
U20 (or K)	XZCP1965L5		XZCP1865L5		XZCC20FCM30B	



	Form E 26 x 26	Form C 40 x 40	M30	M18	M30
<b>Nominal sensing distance Sn</b>	10 mm	15 mm	10 mm	5 mm	10 mm
<b>Operating zone (mm)</b>	0...8	0...12	0...8	0...4	0...8
<b>Suitability for flush mounting (metal environment)</b>	flush mountable			flush mountable	
<b>Case M (metal) P (plastic)</b>	P	P	M	M	M
<b>Temperature range (°C)</b>	- 25...+ 70			0...+ 50	
<b>Degree of protection (conforming to IEC 60529)</b>	IP67			pre-cabled: IP68 (with connector: IP67)	
<b>Dimensions (mm) Ø x L or W x H x D</b>	26 x 26 x 13	40 x 40 x 15	M30 x 81	M18 x 70	M30 x 60
<b>Maximum speed of passing object (impulses/min)</b>	48000	48000	6000...48000 (1)	-	-
<b>Adjustable frequency range (impulses/min)</b>	6...6000	6...6000	6...150 / 120...3000 (1)	-	-

### Sensors for DC applications

Connection			Pre-cabled, PvR (2 m)				
<b>4-wire</b>	<b>PNP/NPN NO/NC</b>	programmable	-	-	-	XS1M18KPM40	XS1M30KPM40
<b>3-wire</b>	<b>PNP NC function</b>	slow version	-	-	<b>XSAV11373</b>	-	-
		fast version	-	-	<b>XSAV12373</b>	-	-
	<b>0...10 V output</b>	plastic	-	-	-	-	-
<b>4...20 mA output</b>		metal, flush mountable	-	-	-	-	-
		plastic, flush mountable	-	-	-	-	-
		plastic, non flush mountable	-	-	-	-	-
Connection			M8 or M12 connector				
<b>4-wire</b>	<b>PNP/NPN NO/NC</b>	programmable	-	-	-	XS1M18KPM40D	XS1M30KPM40LD
<b>3-wire</b>	<b>PNP NC function</b>		<b>XS9E11RPBL01M12 (3)</b>	<b>XS9C11RPBL01M12 (3)</b>	-	-	-
			-	-	-	-	-
	<b>0...10 V output</b>		-	-	-	-	-
	<b>4...20 mA output</b>		-	-	-	-	-
Supply voltage limits, min/max (V) including ripple			10...36	10...36	10...58	10...38	
Switching capacity, max (mA)			100	200	200	200	
Short-circuit protect. (★) / LED output state indicator (⊗) / Power on LED (⊗)			(⊗)	★ / ⊗ / ⊗	★ / ⊗ / ⊗	★ / ⊗ / -	★ / ⊗ / -
Linearity error			-	-	-	-	
Voltage drop, closed state (V) at I nominal			≤ 2	≤ 2	≤ 2	≤ 2.6	
Switching frequency (Hz)			-	-	-	1000	
Operating frequency (Hz)			-	-	-	-	

### Multi-current/multi-voltage sensors for AC/DC applications

Connection			Pre-cabled, PvR (2 m)				
<b>2-wire</b>	<b>AC/DC NC function</b>	slow version	<b>XS9E11RMBL01U20 (5)</b>	<b>XS9C11RMBL01U20 (5)</b>	-	-	-
		fast version	-	-	<b>XSAV11801</b>	-	-
not short-circuit protected (2) NC function			-	-	<b>XSAV12801</b>	-	-
Supply voltage limits, min/max (V) 50-60 Hz			20...264	20...264	20...264	-	-
Switching capacity, max (mA)			100	300 AC / 200 DC	300 AC / 200 DC	-	-
LED output state indicator (⊗) / Power on LED (⊗)			⊗ / ⊗	⊗ / ⊗	⊗ / -	-	-
Residual current, open state (mA)			≤ 1.5	≤ 1.5	≤ 1.5	-	-
Voltage drop, closed state (V) at I nominal			≤ 5.5	≤ 5.5	≤ 5.7	-	-
Switching frequency (Hz)			-	-	-	-	-

### Accessories

**Fixing**

For flat sensors, forms E, C and D

	flat	90°	substitution of block type sensors XSE / XSC / XSD
Form E	<b>XSZBE00</b>	<b>XSZBE90</b>	<b>XSZBE10</b>
Form C	<b>XSZBC00</b>	<b>XSZBC90</b>	<b>XSZBC10</b>
Form D	-	-	<b>XSZBD10</b>

Fixing clamp with indexing pin for cylindrical sensors

M12	<b>XSZB112</b>
M18	<b>XSZB118</b>
M30	<b>XSZB130</b>



# Analogue (Position control)



Form F 8 x 32	Form E 26 x 26	Form C 40 x 40	Form D 80 x 80	M12	M18	M30
5 mm	10 mm	15 mm	40 mm	M: 2 mm / P: 4 mm	M: 5 mm / P: 8 mm	M: 10 mm / P: 15 mm
1...4	1...10	2...15	5...40	M: 0.2...2 / P: 0.4...4	M: 0.5...5 / P: 0.8...8	M: 1...10 / P: 1.5...15
flush mountable	flush mountable	flush mountable	flush mountable	flush / non flush mountable	flush / non flush mountable	flush / non flush mountable
P	P	P	P	M or P	M or P	M or P
- 25...+ 70	- 25...+ 70	- 25...+ 70	- 25...+ 70	- 25...+ 70	- 25...+ 70	- 25...+ 70
pre-cabled: IP68 (with connector: IP67)				IP67		
15 x 32 x 8	26 x 26 x 13	40 x 40 x 15	80 x 80 x 26	Ø 12 x 50	Ø 18 x 50	Ø 30 x 52.5
-	-	-	-	-	-	-
-	-	-	-	-	-	-

-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
XS9F111A1L2	XS9E111A1L2	XS9C111A1L2	XS9D111A1L2	XS4P12AB110	XS4P18AB110	XS4P30AB110
-	-	-	-	XS1M12AB120	XS1M18AB120	XS1M30AB120
XS9F111A2L2	XS9E111A2L2	XS9C111A2L2	XS9D111A2L2	-	-	-
-	-	-	-	<b>XS4P12AB120</b>	<b>XS4P18AB120</b>	<b>XS4P30AB120</b>
connector	<b>M8 or M12 connector</b>					
-	-	-	-	-	-	-
-	-	-	-	-	-	-
XS9F111A1L01M8 (4)	XS9E111A1L01M12 (4)	XS9C111A1L01M12 (4)	XS9D111A1M12	-	-	-
<b>XS9F111A2L01M8 (4)</b>	<b>XS9E111A2L01M12 (4)</b>	<b>XS9C111A2L01M12 (4)</b>	<b>XS9D111A2M12</b>	-	-	-
10...36	10...36	10...36	10...36	10...38	10...38	10...38
-	-	-	-	-	-	-
-	-	-	-	-	-	-
± 1 V for 0...10 V version / ± 2 mA for 4...20 mA version						
-	-	-	-	-	-	-
-	-	-	-	-	-	-
2000	1000	1000	100	1500	500	300

(1) 6...150 and 6000 impulses/min for XSAV11373 and XSAV11801 (slow version); 120...3000 and 48000 impulses/min for XSAV12373 and XSAV12801 (fast version)

(2) For these sensors without short-circuit protection, it is essential to connect a 0.4 A quick-blow fuse in series with the load

(3) Flying lead (L = 0.15 m) with end mounted remote control incorporating M12 connector

(4) Flying lead (L = 0.15 m) with end connector

(5) Flying lead (L = 0.15 m) with end mounted remote control incorporating 1/2–20 UNF connector

Suitable female plug-in connectors, including pre-wired versions		
length 5 m without LED	pre-wired, elbowed	pre-wired, straight
M8	XZCP0666L5	XZCP0566L5
M12 (or D)	XZCP1241L5	XZCP1141L5
U20	XZCP1965L5	XZCP1865L5
		screw terminal
		XZCC8FCM30S
		XZCC12FCM40B
		XZCC20FCM30B



		M8	M12	M18	M30
<b>Nominal sensing distance Sn</b>	flush mountable	2.5 mm	4 mm	10 mm	20 mm
	non flush mountable	–	–	–	–
Operating zone (mm)	flush mountable	0...2	0...3.2	0...8	0...16
	non flush mountable	–	–	–	–
Suitability for flush mounting (metal environment)		Flush mountable			
Case M (metal) P (plastic)		M			
Temperature range (°C)		- 25...+ 50			
Degree of protection (conforming to IEC 60529)		IP67		IP68 (with connector: IP67)	
Dimensions (mm) Ø x L		M8 x 33	M12 x 33	M18 x 36.5	M30 x 40.6

### Sensors for DC applications

Connection				Pre-cabled, PvR (2 m)			
3-wire	PNP	NO function		XS1N08PA349	XS1N12PA349	XS1N18PA349	XS1N30PA349
		NC function		XS1N08PB349	XS1N12PB349	XS1N18PB349	XS1N30PB349
	NPN	NO function		XS1N08NA349	XS1N12NA349	XS1N18NA349	XS1N30NA349
		NC function		XS1N08NB349	XS1N12NB349	XS1N18NB349	XS1N30NB349
4-wire	PNP	NO + NC	flush mountable	–	–	–	–
			non flush mountable	–	–	–	–
	NPN	NO + NC	flush mountable	–	–	–	–
			non flush mountable	–	–	–	–
	PNP+NPN NO/NC programmable	NO/NC	flush mountable (metal)	–	–	–	–
			non flush mountable (metal)	–	–	–	–
			non flush mountable (plastic)	–	–	–	–
			–	–	–	–	
Connection				M8 connector		M12 connector	
3-wire	PNP	NO function		XS1N08PA349S	XS1N12PA349D	XS1N18PA349D	XS1N30PA349D
		NC function		XS1N08PB349S	XS1N12PB349D	XS1N18PB349D	XS1N30PB349D
	NPN	NO function		XS1N08NA349S	XS1N12NA349D	XS1N18NA349D	XS1N30NA349D
		NC function		XS1N08NB349S	XS1N12NB349D	XS1N18NB349D	XS1N30NB349D
4-wire	PNP	NO + NC	flush mountable	–	–	–	–
			non flush mountable	–	–	–	–
	NPN	NO + NC	flush mountable	–	–	–	–
			non flush mountable	–	–	–	–
	PNP+NPN NO/NC programmable	NO/NC	flush mountable (metal)	–	–	–	–
			non flush mountable (metal)	–	–	–	–
			non flush mountable (plastic)	–	–	–	–
			–	–	–	–	
Supply voltage limits, min/max (V) including ripple				10...36			
Switching capacity, max (mA)				200			
Short-circuit protection (★) / LED output state indicator (⊗)				★ / –			
Voltage drop, closed state (V) at I nominal				≤ 2			
Switching frequency (Hz)				2500	2500	1000	500

### Accessories

#### Fixing clamps

Fixing clamp with indexing pin for cylindrical sensors



M8	XSZB108
M12	XSZB112
M18	XSZB118
M30	XSZB130

## Complementary outputs NO + NC

## PNP + NPN outputs, NO/NC programmable

1



M8	M12	M18	M30	M12	M18	M30
1.5 mm	2 mm	5 mm	10 mm	2 mm	5 mm	10 mm
2.5 mm	4 mm	8 mm	15 mm	4 mm	8 mm	15 mm
0...1.2	0...1.6	0...4	0...8	0...1.6	0...4	0...8
0...2	0...3.2	0...6.4	0...12	0...3.2	0...6.4	0...12
Flush mountable or non flush mountable depending on model				Flush mountable or non flush mountable depending on model		
M				M or P depending on model		
- 25...+ 70				- 25...+ 70		
IP67		IP68 (with connector: IP67)		IP68 (with connector: IP67)		
M8 x 50	M12 x 33	M18 x 36.5	M30 x 40.5	M12 x 50	M18 x 60	M30 x 60

Pre-cabled, PvR (2 m)				Pre-cabled, PvR (2 m)		
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
<b>XS1M08PC410</b>	<b>XS1N12PC410</b>	<b>XS1N18PC410</b>	XS1N30PC410	-	-	-
XS2M08PC410	XS2N12PC410	XS2N18PC410	XS2N30PC410	-	-	-
XS1NM08NC410	XS1N12NC410	XS1N18NC410	XS1N30NC410	-	-	-
XS2M08NC410	XS2N12NC410	XS2N18NC410	XS2N30NC410	-	-	-
-	-	-	-	<b>XS1M12KP340</b>	<b>XS1M18KP340</b>	<b>XS1M30KP340</b>
-	-	-	-	<b>XS2M12KP340</b>	XS2M18KP340	XS2M30KP340
-	-	-	-	<b>XS4P12KP340</b>	<b>XS4P18KP340</b>	XS4P30KP340
-	-	-	-	-	-	-
<b>M12 connector</b>				<b>M12 connector</b>		
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
<b>XS1M08PC410D</b>	<b>XS1N12PC410D</b>	<b>XS1N18PC410D</b>	<b>XS1N30PC410D</b>	-	-	-
<b>XS2M08PC410D</b>	<b>XS2N12PC410D</b>	<b>XS2N18PC410D</b>	XS2N30PC410D	-	-	-
XS1M08NC410D	XS1N12NC410D	XS1N18NC410D	XS1N30NC410D	-	-	-
XS2M08NC410D	XS2N12NC410D	XS2N18NC410D	XS2N30NC410D	-	-	-
-	-	-	-	<b>XS1M12KP340D</b>	<b>XS1M18KP340D</b>	<b>XS1M30KP340D</b>
-	-	-	-	<b>XS2M12KP340D</b>	XS2M18KP340D	XS2M30KP340D
-	-	-	-	XS4P12KP340D	XS4P18KP340D	XS4P30KP340D
10...36				10...36		
200				200		
★ / ☒				★ / -		
≤ 2				≤ 2.6		
5000	5000	2000	1000	5000	2000	1000

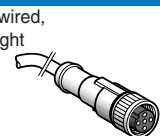
### Suitable female plug-in connectors, including pre-wired versions

length 5 m  
without LED

pre-wired,  
elbowed



pre-wired,  
straight



screw terminal

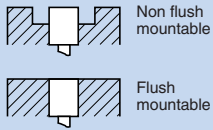


M8 (or S)  
M12 (or D)

XZCP0666L5  
XZCP1241L5

XZCP0566L5  
XZCP1141L5

XZCC8FCM30S  
XZCC12FCM40B




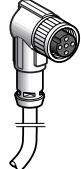
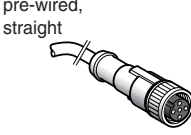

		M12	M18	M30
<b>Nominal sensing distance Sn</b>	flush mountable	2 mm	5 mm	10 mm
	non flush mountable	4 mm	8 mm	15 mm
Operating zone (mm)	flush mountable	0...1.6	0...4	0...8
	non flush mountable	0...3.2	0...6.4	0...12
Suitability for flush mounting (metal environment)		Flush mountable or non flush mountable depending on model		
Case M (metal) P (plastic)		M		
Temperature range (°C)		- 25...+ 70		
Degree of protection (conforming to IEC 60529)		IP68 (with connector: IP67)		
Dimensions (mm) Ø x L		M12 x 55	M18 x 60	M30 x 60

### Multi-current/multi-voltage sensors for AC/DC applications

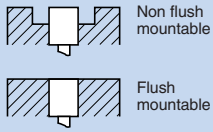
Connection			Pre-cabled, PvR (2 m)		
2-wire AC/DC	NO function	flush mountable	<b>XS1M12MA250</b>	<b>XS1M18MA250</b>	<b>XS1M30MA250</b>
		non flush mountable	XS2M12MA250	XS2M18MA250	XS2M30MA250
	NC function	flush mountable	XS1M12MB250	<b>XS1M18MB250</b>	<b>XS1M30MB250</b>
		non flush mountable	XS2M12MB250	XS2M18MB250	XS2M30MB250
Connection			1/2" 20 UNF connector		
2-wire AC/DC	NO function	flush mountable	XS1M12MA250K	<b>XS1M18MA250K</b>	XS1M30MA250K
		non flush mountable	XS2M12MA250K	XS2M18MA250K	<b>XS2M30MA250K</b>
	NC function	flush mountable	XS1M12MB250K	XS1M18MB250K	XS1M30MB250K
		non flush mountable	XS2M12MB250K	XS2M18MB250K	XS2M30MB250K
Supply voltage limits, min/max (V) 50-60 Hz			20...264		
Switching capacity, max (mA)			5...200	5...200 AC, 5...300 DC	
LED output state indicator (⊗) / Power on LED (⊗)			⊗ / ⊗		
Residual current, open state (mA)			≤ 1.5		
Voltage drop, closed state (V) at I nominal			≤ 5.5		
Switching frequency (Hz)			25 AC, 4000 DC	25 AC, 2000 DC	25 AC, 2000 DC (1)

(1) 25 AC, 1000 DC for non flush mountable Ø 30 mm

### Accessories

Fixing clamps	Suitable female plug-in connectors, including pre-wired versions			
Fixing clamp with indexing pin for cylindrical sensors	length 5 m without LED	pre-wired, elbowed	pre-wired, straight	screw terminal
				
M12 <b>XSZB112</b> M18 <b>XSZB118</b> M30 <b>XSZB130</b>	U20 (or K)	XZCP1965L5	XZCP1865L5	XZCC20FCM30B





	Suitability for flush mtg. (metal environment)	M12	M18	M30	Ø 32	40 x 40
Nominal sensing distance $S_n$	flush mountable	2.5 mm	4 mm	10 mm	15 mm	15 mm
	non flush mountable	–	8 mm	15 mm	20 mm	–
Operating zone (mm)	flush mountable	0...1.44	0...3.6	0...7.2	0...10.8	0...10.8
	non flush mountable	–	0...5.8	0...10.8	0...14.4	–
Case M (metal) P (plastic)	flush mountable	M	M	M	M	P
	non flush mountable	–	P	P	P	–
Temperature range (°C)		- 25...+ 50				
Degree of protection (conforming to IEC 60529)		IP67				
Dimensions (mm) Ø x L		M12 x 50	M18 x 60	M30 x 60	M32 x 80	40 x 40 x 117

### Sensors for DC applications

Connection				Pre-cabled, PVC (2 m)				
3-wire	PNP	NO function	flush mountable	XT1M12PA372	XT1M18PA372	XT1M30PA372	–	–
			non flush mountable	–	XT4P18PA372	XT4P30PA372	–	–
		NC function	flush mountable	XT1M12PB372	XT1M18PB372	XT1M30PB372	–	–
			non flush mountable	–	–	–	–	–
	NPN	NO function	flush mountable	XT1M12NA372	XT1M18NA372	XT1M30NA372	–	–
			non flush mountable	–	XT4P18NA372	XT4P30NA372	–	–
Connection				Screw terminals				
3-wire	PNP	NO + NC functions	flush mountable	–	–	–	–	XT7C40PC440
			non flush mountable	–	–	–	–	XT7C40NC440
	NPN	NO + NC functions	flush mountable	–	–	–	–	–
Supply voltage limits, min/max (V) including ripple				10...38				
Switching capacity, max (mA)				300				
Short circuit-protection (★) / LED output state indicator (⊗)				★ / ⊗				
Voltage drop, closed state (V) at I nominal				≤ 2				
Switching frequency (Hz)				100				

### Multi-current / multi-voltage for AC applications

Connection				Pre-cabled, PVC (2 m)				
2-wire AC	NO function	not short-circuit protected (1)	flush mountable	–	XT1M18FA262	XT1M30FA262	XT1L32FA262	–
			non flush mountable	–	XT4P18FA262	XT4P30FA262	XT4L32FA262	–
	NC function		flush mountable	–	XT1M18FB262	XT1M30FB262	XT1L32FB262	–
			non flush mountable	–	–	XT4P30FB262	XT4L32FB262	–
Connection				Screw terminals				
2-wire AC	NO or NC programmable	flush mountable	–	–	–	–	–	XT7C40FP262
Supply voltage limits, min/max (V) 50-60 Hz				20...264	20...264	90...250	20...264	–
Switching capacity, max (mA)				–	300	300	250	350
LED output state indicator (⊗) / Power on LED (⊗)				⊗ / –				
Residual current, open state (mA)				–	≤ 1.5 / 120 V	≤ 1.5 / 120 V	≤ 7	≤ 1.5
Voltage drop, closed state (V) at I nominal				–	≤ 5.5	≤ 5.5	≤ 9	≤ 5.5
Switching frequency (Hz)				–	25	25	10	25

(1) For these sensors without short-circuit protection, it is essential to connect a 0.4 A quick-blow fuse in series with the load

### Accessories

#### Fixing clamps

Fixing clamp with indexing pin for cylindrical sensors



M8	<b>XSZB108</b>
M12	<b>XSZB112</b>
M18	<b>XSZB118</b>
Ø 32	XSZB32

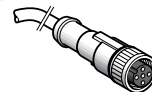
#### Suitable female plug-in connectors, including pre-wired versions

length 5 m without LED

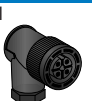
pre-wired, elbowed



pre-wired, straight



screw terminal



M8	<b>XZCP1041L5</b>
M12	<b>XZCP1241L5</b>

<b>XZCP0941L5</b>
<b>XZCP1141L5</b>

<b>XZCC8FCM40S</b>
<b>XZCC12FCM40B</b>



	M12	M18	M30	M30 Long sensing distance
<b>Nominal sensing distance Sn</b>	5 or 10 cm depending on model	15 or 50 cm depending on model	1 m	8 m
Operating zone (mm)	6.4...51 6.4...102	19...152 51...508	51...991	203...8000
Sensitivity adjustment	Fixed	Adjustable using remote control	Adjustable	Adjustable
Case P (plastic)	P	P	P	P
Temperature range (°C)	- 20...+ 65	0...+ 50 / - 20...+ 65	0...+ 60	- 20...+ 60
Degree of protection (conforming to IEC 60529)	IP67		IP65	
Dimensions (mm) Ø x L or W x H x D	M12 x 50	M18 x 65	M30 x 85	M30 x 106

### Sensors for DC applications (24 V)

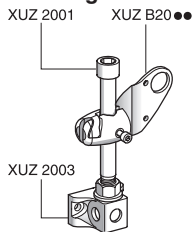
Connection			M8 connector	M12 connector		
3-wire	PNP	NO function	XX512A2PAM8	XX518A3PAM12	-	-
	NPN	NO function	XX512A2NAM8	XX518A3NAM12	-	-
4-wire	PNP/NPN	NO function	XX512A1KAM8	XX518A1KAM12	XX630A1KAM12	-
	PNP	NO + NC function	-	-	XX630A1PCM12	XX630A3PCM12
	NPN	NO + NC function	-	-	XX630A1NCM12	XX630A3NCM12
	Analogue	0...10 V output	-	-	XX930A1A1M12	XX930A3A1M12
		4...20 mA output	-	-	XX930A1A2M12	XX930A3A2M12
Supply voltage limits, min/max (V) including ripple			10...28			
Switching capacity, max (mA)			<100			
Short-circuit protection (★)			★			
LED output state indicator (⊗) / Power on LED (⊗)			⊗ / ⊗		⊗ / ⊗ except XX518A1..(-/-) ⊗ / ⊗	
Voltage drop, closed state (V) at I nominal			<1			
Switching frequency (Hz)			125		40 / 80 (XX518A1..)	10
Transmission frequency (Hz)			500		300	200
						75

(1) Flying lead (L = 0.15 m) with M12 end connector

### Accessories

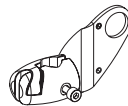
#### Fixings

##### 3D fixings with ball joint



3D kit example

Bracket with ball joint for cylindrical sensors



for	
Ø 12	XUZB2012
Ø 18	XUZB2003
Ø 30	XUZB2030

M12 rod for ball joint



XUZ2001

Fixing support for M12 rod

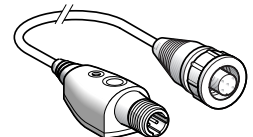


XUZ2003

#### Programming

##### Pushbutton

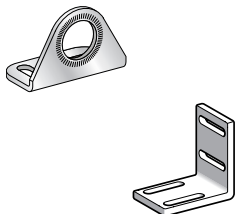
for teaching, usable with sensors XX518A3 and XX7V1



XXZPB100

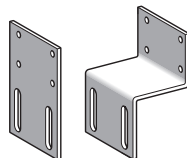
##### Simple fixings

90° fixing brackets



for	
Ø 12	XXZ12
Ø 18	XXZA118
Ø 30	XXZ30
XX7F	XXZ1933

Mounting plates for XX7K



flat	XXZ3074F
cranked	XXZ3074S



# Rotary encoders

## Opto-electronic, incremental

(counting indication)



Mini flat	Flat	Combined, multi-fixing
10 cm	25 cm	50 cm
6.2...102	51...254	51...508
–	–	–
Fixed	Fixed	Adjustable using remote control
P	P	P
- 20...+ 65	0...+ 50	- 20...+ 65
IP67		
33 x 19 x 7.6	74 x 30 x 16	60 x 33 x 18 / M18 x 60

Remote M12 connector (1)	M12 connector	
XX7F1A2PAL01M12	XX7K1A2PAM12	XX7V1A1PAM12
XX7F1A2NAL01M12	XX7K1A2NAM12	XX7V1A1NAM12
–	–	–
–	–	–
–	–	–
–	–	–
10...28		
<100		
★		
⊗ / ⊗		
<1		
100	80	40
500	500	300

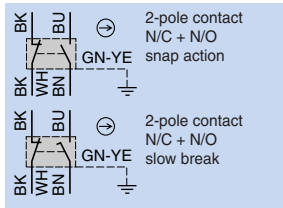
Solid shaft	Ø 40 Ø 6	Ø 58 Ø 6	Ø 58 Ø 10
Degree of protection	IP54	IP65	
Maximum rotational speed	12 000 rpm		
Maximum frequency	100 kHz	160 kHz	
Temperature range (°C)	- 20...+ 75		
Maximum load	2 daN	10 daN	
Torque	0.2 N.cm	0.8 N.cm	
<b>Resolution</b>	<b>Output stage</b>		
	<b>Connection</b>		
	Pre-cabled, PVC, 2 m		
	radial	M23 connector	radial
100 points			
	5 V RS422; 4.5...5.5 V	XCC1406PR01R	–
	Push-pull 11...30 V	XCC1406PR01K	–
360 points			
	5 V RS422; 4.5...5.5 V	XCC1406PR03R	XCC1506PS03R
	Push-pull 11...30 V	XCC1406PR03K	XCC1506PS03K
500 points			
	5 V RS422; 4.5...5.5 V	XCC1406PR05R	XCC1506PS05R
	Push-pull 11...30 V	XCC1406PR05K	XCC1506PS05K
1000 points			
	5 V RS422; 4.5...5.5 V	XCC1406PR10R	XCC1506PS10R
	Push-pull 11...30 V	XCC1406PR10K	XCC1506PS10K
1024 points			
	5 V RS422; 4.5...5.5 V	XCC1406PR11R	XCC1506PS11R
	Push-pull 11...30 V	XCC1406PR11K	XCC1506PS11K
2500 points			
	5 V RS422; 4.5...5.5 V	–	XCC1506PS25R
	Push-pull 11...30 V	–	XCC1506PS25K

### Accessories

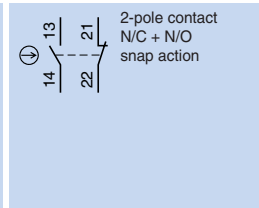
Suitable female plug-in connectors		
<b>Pre-wired connectors</b>		
	elbowed	straight
L = 5m (without LED)		
M8 for XX512A1...	XZCP1041L5	XZCP0941L5
for XX512A2...	XZCP0666L5	XZCP0566L5
M12 for XX7..., XX518...& XX630...	XZCP1241L5	XZCP1141L5
<b>Other connectors</b>		
	screw terminal	Snap-C
M8 for XX512A1...	XZCC8FCM40V	XZCC8FDM40V
for XX512A2...	XZCC8FCM30V	XZCC8FDM30V
M12 for XX7..., XX518...& XX630...	XZCC12FCM40B	XZCC12FDM40B

Encoder accessories			
<b>Shaft couplings</b>			
with spring	Bore diameter (encoder side)	Bore diameter (machine side)	Reference
	6 mm	6 mm	XCCRAR0606
	6 mm	8 mm	XCCRAR0608
	6 mm	10 mm	XCCRAR0610
	10 mm	10 mm	XCCRAR1010
	10 mm	12 mm	XCCRAR1012
elastic	6 mm	6 mm	XCCRAE0606
<b>Mounting/fixing</b>			
Set of 3 eccentric clamps			XCCRG5
for XCC15..P			
Simple bracket			XCCRE5S

### XCMD



### XCKT



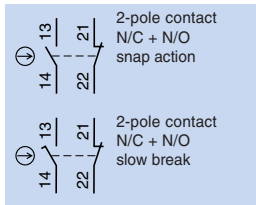
### Miniature XCMD metal, pre-cabled; fixing by the body or by the head

Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever	Variable length thermoplastic roller lever	M12 head metal end plunger
Mechanical durability (millions of operating cycles)	10	10	10	10	10
Actuation speed (in m/s)	0.5	0.5	1.5	1.5	0.5
Switches conforming to standard IEC 947-5-1 section 3	⊕	⊕	⊕	⊕	⊕
Degree of protection conforming to IEC 60529	IP66 and IP67				
Rated operational characteristics	AC 15; B 300 (Ue = 240 V, Ie = 1.5 A) / DC 13; R 300 (Ue = 250 V, Ie = 0.1 A)				
Cable entry	Pre-cabled, adjustable direction, length = 1 m (other lengths available on request)				
Fixing centres (mm)	20				M12 x 1
Body dimensions W x D x H (mm)	30 x 16 x 50				
Complete switch (2-pole N/C + N/O snap action)	<b>XCMD2110L1</b>	<b>XCMD2102L1</b>	<b>XCMD2115L1</b>	XCMD2145L1	<b>XCMD21F0L1</b>
(2-pole N/C + N/O break before make, slow break)	XCMD2510L1	XCMD2502L1	XCMD2515L1	XCMD2545L1	XCMD25F0L1

⊕ Positive opening operation



### XCKP



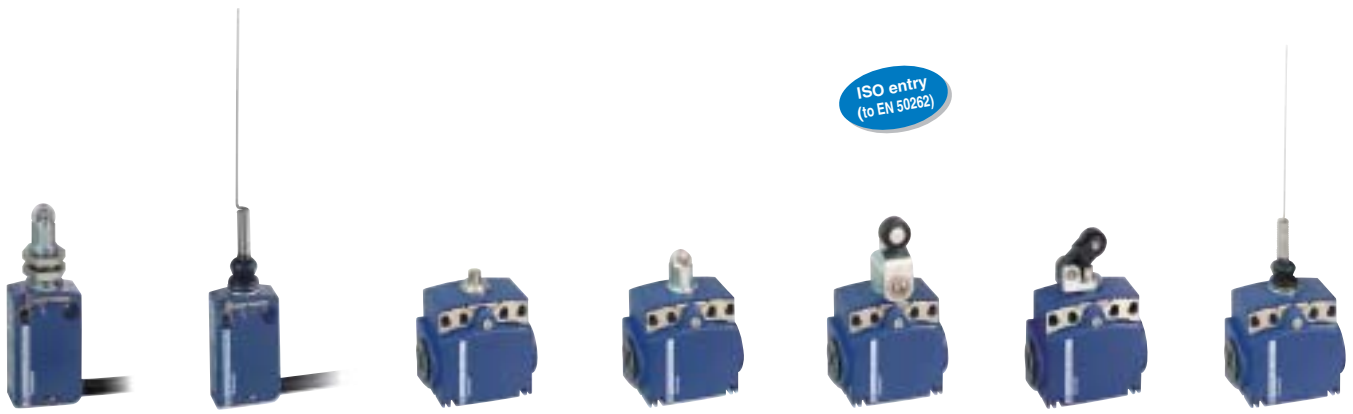
### Compact XCKD metal and XCKP plastic conforming to standard EN 50047

Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever plunger, horizontal actuation in 1 direction	M18 head metal end plunger	M18 head steel roller plunger
Mechanical durability (millions of operating cycles)	15	10	15	10	10
Actuation speed (in m/s)	0.5	0.5	1	0.5	0.5
Switches conforming to standard IEC 947-5-1 section 3	⊕	⊕	⊕	⊕	⊕
Degree of protection conforming to IEC 60529	IP66 and IP67				
Rated operational characteristics	AC 15; A 300 (Ue = 240 V, Ie = 3 A) / DC 13; Q 300 (Ue = 250 V, Ie = 0.27 A)				
Cable entry	1 tapped entry for ISO M16 x 1.5 cable gland (2)				
Fixing centres (mm)	20	20	20	M18 x 1	M18 x 1
Body dimensions W x D x H (mm)	31 x 30 x 65				
<b>Metal switches</b>					
Complete switch (2-pole N/C + N/O snap action)	<b>XCKD2110P16</b>	<b>XCKD2102P16</b>	<b>XCKD2121P16</b>	<b>XCKD21H0P16</b>	<b>XCKD21H2P16</b>
(2-pole N/C + N/O break before make, slow break)	XCKD2510P16	XCKD2502P16	XCKD2521P16	XCKD25H0P16	XCKD25H2P16
<b>Plastic, double insulated switches</b>					
Complete switch (2-pole N/C + N/O snap action)	<b>XCKP2110P16</b>	<b>XCKP2102P16</b>	<b>XCKP2121P16</b>	<b>XCKP21H0P16</b>	<b>XCKP21H2P16</b>
(2-pole N/C + N/O break before make, slow break)	XCKP2510P16	XCKP2502P16	XCKP2521P16	XCKP25H0P16	XCKP25H2P16

(2) For Pg 11 cable entries, replace P16 by G11. Example: XCKD2110P16 becomes XCKD2110G11

For other cable entries, see customised assembly on page 1/25

⊕ Positive opening operation



ISO entry  
(to EN 50262)

Compact XCKT plastic, 2 cable entries						
M12 head steel roller plunger	"Cat's whisker"	Metal end plunger	Steel roller plunger	Thermoplastic roller lever	Thermoplastic roller lever plunger, horizontal actuation	"Cat's whisker"
10	5	15	10	10	15	5
0.1	1	0.5	0.5	1.5	1	1
⊖	–	⊖	⊖	⊖	⊖	–
IP66 and IP67						
AC 15; A 300 (Ue = 240 V, Ie = 3 A) / DC 13; Q 300 (Ue = 250 V, Ie = 0.27 A)						
2 tapped entries for ISO M16 x 1.5 cable gland (1)						
20						
20 or 40						
58 x 30 x 51						
<b>XCMD21F2L1</b>	XCMD2106L1	<b>XCKT2110P16</b>	<b>XCKT2102P16</b>	<b>XCKT2118P16</b>	<b>XCKT2121P16</b>	XCKT2106P16
XCMD25F2L1	XCMD2506L1	–	–	–	–	–

(1) For Pg 11 cable entries, replace P16 by G11. Example: XCKT2110**P16** becomes XCKT2110**G11**



ISO entry  
(to EN 50262)

Application - XCPR and XCDR with manual reset								
Thermoplastic roller lever	Variable length thermoplastic roller lever	Thermoplastic roller lever Ø 50 mm	"Cat's whisker"	Metal end plunger	Steel roller plunger	Thermoplastic roller lever plunger, horizontal actuation in 1 direction	Thermoplastic roller lever plunger, vertical actuation in 1 direction	Thermoplastic roller lever
10	10	10	5	1	1	1	1	1
1.5	1.5	1.5	1	0.5	0.5	1	1	1.5
⊖	⊖	⊖	–	⊖	⊖	⊖	⊖	⊖
IP66 and IP67								
AC 15; A 300 (Ue = 240 V, Ie = 3 A) / DC 13; Q 300 (Ue = 250 V, Ie = 0.27 A)								
1 tapped entry for ISO M20 x 1.5 cable gland (3)								
20								
20								
20								
20								
20								
31 x 30 x 95								
<b>XCKD2118P16</b>	XCKD2145P16	XCKD2139P16	XCKD2106P16	XCDR2110P20	XCDR2102P20	XCDR2121P20	XCDR2127P20	XCDR2118P20
XCKD2518P16	XCKD2545P16	XCKD2539P16	XCKD2506P16	XCDR2510P20	XCDR2502P20	XCDR2521P20	XCDR2527P20	XCDR2518P20
<b>XCKP2118P16</b>	XCKP2145P16	XCKP2139P16	XCKP2106P16	XCPR2110P20	XCPR2102P20	XCPR2121P20	XCPR2127P20	XCPR2118P20
XCKP2518P16	XCKP2545P16	XCKP2539P16	XCKP2506P16	XCPR2510P20	XCPR2502P20	XCPR2521P20	XCPR2527P20	XCPR2518P20

(3) For Pg 13.5 cable entries, replace P20 by G13. Example: XCDR2110**P20** becomes XCDR2110**G13**

For other cable entries, see customised assembly on page 1/25

### Heads - common to miniature and compact bodies

#### Metal plunger and multi-directional heads

Description	Metal end plunger	Metal end plunger with protective elastomer boot	Steel roller plunger	Retractable steel roller lever plunger	Thermoplastic roller lever plunger, horizontal actuation
					
Reference	↻ ZCE10	↻ ZCE11	↻ ZCE02	↻ ZCE24 (2)	↻ ZCE21



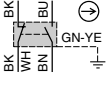
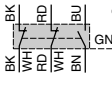
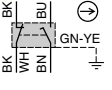
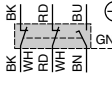
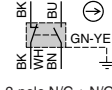
#### Metal rotary heads and levers

Description	Rotary head without lever, spring return, for actuation from LH or RH side	Thermoplastic roller lever, track: 24/31 mm (ZCMD) 29/36 mm (ZCD/P/T)	Steel roller lever, track: 24/31 mm (ZCMD) 29/36 mm (ZCD/P/T)	Thermoplastic roller lever, track: 16/39 mm (ZCMD) 21/44 mm (ZCD/P/T)	Steel roller lever, track: 16/39 mm (ZCMD) 21/44 mm (ZCD/P/T)
					
Reference	↻ ZCE01	↻ ZCY15 (2)	↻ ZCY16 (2)	↻ ZCY25 (2)	↻ ZCY26 (2)






(1) Recommended for use with bodies: ZCD... / ZCP... / ZCT... (2) Recommended for use with bodies: ZCMD...

### Bodies

#### Miniature

					
Type of contact	 2-pole N/C + N/O Snap action	 3-pole N/C+N/C+N/O Snap action	 2-pole N/C + N/O Slow break	 3-pole N/C+N/C+N/O Slow break	 2-pole N/C + N/O Snap action M12 5-pin connector
Reference of metal body	ZCMD21	ZCMD39	ZCMD25	ZCMD37	ZCMD21C12
Reference of plastic body	-	-	-	-	ZCMD21M12

### Connection of miniature bodies

Specific pre-cabled connection components					Option: pre-wired M12 connector, L = 2 m
L = 1 m	ZCMC21L1	ZCMC39L1	ZCMC25L1	ZCMC37L1	
L = 2 m	ZCMC21L2	ZCMC39L2	ZCMC25L2	ZCMC37L2	
L = 5 m	ZCMC21L5	ZCMC39L5	ZCMC25L5	ZCMC37L5	XZCP1164L2

↻ Positive opening operation (3)  Snap-C<sup>®</sup> compatible

Thermoplastic roller lever plunger, vertical actuation	M12 head metal end plunger	M18 head metal end plunger	M12 head steel roller plunger	M18 head steel roller plunger	Spring rod	Spring rod with plastic end	"Cat's whisker"
⊖ ZCE27	⊖ ZCEF0 (2)	⊖ ZCEH0 (1)	⊖ ZCEF2 (2)	⊖ ZCEH2 (1)	ZCE08	ZCE07	ZCE06

Thermoplastic roller lever, track: 20/36 mm (ZCMD) 24/40 mm (ZCD/P/T)	Steel roller lever, track: 20/36 mm (ZCMD) 24/40 mm (ZCD/P/T)	Ceramic roller lever	Variable length thermoplastic roller lever	Round, glass fibre rod lever Ø 3 mm L = 125 mm	Metal spring-rod lever	Thermoplastic roller lever Ø 50 mm	Adjustable thermo-plastic roller lever Ø 50 mm
⊖ ZCY18 (1)	⊖ ZCY19 (1)	⊖ ZCY22	⊖ ZCY45	ZCY55	ZCY91	⊖ ZCY39	⊖ ZCY49

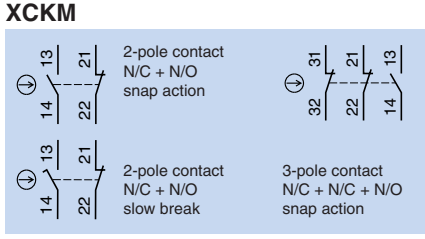
Compact

Type of contact								
Ref. metal body	ZCD21	ZCD39	ZCD25	ZCD37	ZCD21M12	-	-	-
Ref. plastic body	ZCP21	ZCP39	ZCP25	ZCP37	-	ZCP21M12	ZCT21P16	ZCT25P16

Connection of compact bodies

Interchangeable outlet for cable gland							Option: pre-wired M12 connector, L = 2 m	ZCT Pg 11 cable gland versions: replace the suffix P16 by G11. Example: ZCT21P16 becomes ZCT21G11 ZCT 1/2 NPT versions: replace the suffix P16 by N12 (adaptor). Example: ZCT21P16 becomes ZCT21N12
Description	For ISO M16 cable gland	For ISO M20 cable gland	For Pg 11 cable gland	For Pg 13.5 cable gland	For 1/2" NPT cable gland	For PF 1/2 (G12) cable gland		
Metal	ZCDEP16	ZCDEP20	ZCDEG11	ZCDEG13	ZCDEN12	ZCDEF12	5-pin	
Plastic	ZCPEP16	ZCPEP20	ZCPEG11	ZCPEG13	ZCPEN12	ZCPEF12	4-pin	XZCP1164L2 XZCP1169L2

ISO entry  
(to EN 50262)



### Type XCKM metal, 3 cable entries

Type of operator	Metal end plunger	Steel roller plunger	Roller lever plunger, horizontal actuation in 1 direction	Thermoplastic roller lever	"Cat's whisker"
Mechanical durability (millions of operating cycles)	20	20	20	15	10
Actuation speed (in m/s)	0.5	0.5	1.5	1.5	0.5
Degree of protection conforming to IEC 60529	IP665				
Rated operational characteristics	AC 15; A 300 (Ue = 240 V, Ie = 3 A) / DC 13; Q 300 (Ue = 250 V, Ie = 0.27 A)				
Cable entry (1)	3 tapped entries for ISO M20 x 1.5 cable gland (2 entries fitted with blanking plugs)				
Fixing centres (mm)	41				
Body dimensions W x D x H (mm)	63 x 30 x 64				

<b>Complete switch</b> (2-pole N/C + N/O snap action)	⊕ XCKM110H29	⊕ XCKM102H29	⊕ XCKM121H29	⊖ XCKM115H29	XCKM106H29
(2-pole N/C + N/O, break before make, slow break)	⊖ XCKM510H29	⊖ XCKM502H29	⊖ XCKM521H29	⊖ XCKM515H29	-

(1) For Pg 13.5 cable entry delete the reference suffix H29. Example: XCKM110H29 becomes XCKM110  
 ⊕ Positive opening operation

### Customised assembly of Classic XCKM switches Body/contact sub-assemblies



### Type XCKM metal, 3 cable entries

Type of contact				
	2-pole N/C + N/O snap action	2-pole N/C + N/O slow break	3-pole N/C + N/C + N/O snap action	3-pole N/C + N/C + N/O slow break
Reference of body with contact block	⊕ ZCKM1H29	⊖ ZCKM5H29	⊕ ZCKMD39H29	⊖ ZCKMD37H29
Reference of contact block only	⊕ XE2SP2151	⊕ XE2NP2151	⊕ XE3SP2141	⊖ XE3NP2141



# Customised assembly of Classic XCKM switches

## Operating heads, complete or for customer assembly



Complete switch

=



Body/contact assembly

+



Head

+



Lever

### Rotary or multi-directional heads

with thermoplastic roller lever (2)

with steel roller lever (2)

with variable length thermoplastic roller lever (2)

with Ø 6 mm thermoplastic rod L = 200 mm (3)

with thermoplastic roller lever (3) for actuation from left AND right or left OR right

with "Cat's whisker"

with spring rod



Reference

⊖ ZCKD15

⊖ ZCKD16

ZCKD41

ZCKD59

⊖ ZCKD31

ZCKD06

ZCKD08

### Plunger heads

with metal end plunger

with metal end plunger and protective boot

with steel roller plunger

with thermoplastic roller lever plunger, horizontal actuation in 1 direction

with steel roller lever plunger, horizontal actuation in 1 direction



Reference

⊖ ZCKD10

⊖ ZCKD109

⊖ ZCKD02

⊖ ZCKD21

⊖ ZCKD23

### Rotary heads and separate levers

spring return, for actuation from left AND right or left OR right

lever with thermoplastic roller (2)

lever with steel roller (2)

variable length lever with thermoplastic roller (2)

variable length lever with steel roller (2)

rod, Ø 6 mm thermoplastic L = 200 mm (3)



Reference

⊖ ZCKD05

⊖ ZCKY31

⊖ ZCKY33

ZCKY41

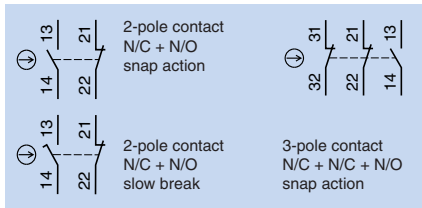
ZCKY43

ZCKY59

(2) Adjustable throughout 360° in 5° steps, or in 90° steps by reversing the notched washer

(3) Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever mounting

#### XCKJ



ISO entry (to EN 50262)



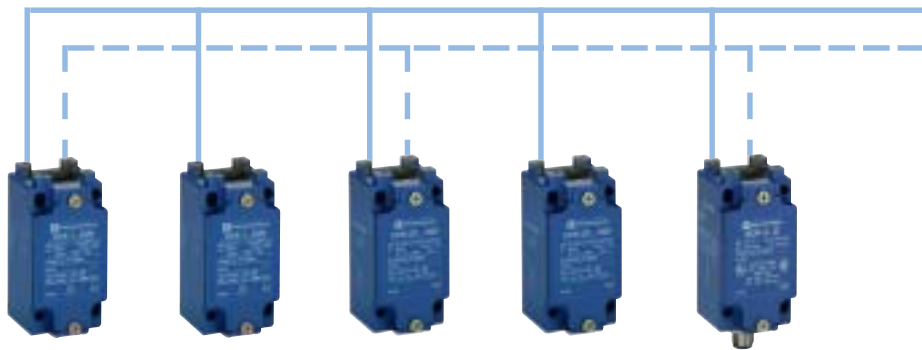
#### Type XCKJ metal, fixed body, conforming to standard EN 50041

Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever	Variable length thermoplastic roller lever	Polyamide Ø 6 mm rod lever L = 200 mm
Mechanical durability (millions of operating cycles)	30	25	30	30	30
Actuation speed (in m/s)	0.5	1	1.5	1.5	1.5
Degree of protection conforming to IEC 60529	IP 667				
Rated operational characteristics	AC 15; A 300 (Ue = 240 V, Ie = 3 A) / DC 13; Q 300 (Ue = 250 V, Ie = 0.27 A)				
Cable entry (1)	1 tapped entry for ISO M20 x 1.5 cable gland				
Fixing centres (mm)	30 x 60				
Body dimensions W x D x H (mm)	40 x 44 x 77				

Complete switch (2-pole N/C + N/O snap action)	⊕ XCKJ161H29	⊕ XCKJ167H29	⊕ XCKJ10511H29	⊖ XCKJ10541H29	⊖ XCKJ10559H29
	(2-pole N/C + N/O break before make, slow break)	⊕ XCKJ561H29	⊕ XCKJ567H29	⊕ XCKJ50511H29	⊖ XCKJ50541H29

(1) For Pg 13.5 cable entry delete the reference suffix H29. Example: XCKJ161H29 becomes XCKJ161  
 ⊕ Positive opening operation

### Customised assembly of Classic XCKJ switches Body/contact sub-assemblies



#### Type XCKJ metal, 3 cable entries

Type of contact					
Cable entry (1)	1 tapped entry for ISO M20 x 1.5 cable gland				M12 connector
Reference of body with contact block	⊕ ZCKJ1H29	⊕ ZCKJ5H29	⊕ ZCKJD39H29	⊖ ZCKJD37H29	⊕ ZCKJ1D
Reference of contact block only	⊕ XE2SP2151	⊕ XE2NP2151	⊕ XE3SP2141	⊖ XE3NP2141	⊕ XE2SP2151





# Customised assembly of Classic XCKJ switches

Operating heads, complete or for customer assembly



Complete switch

=



Body/contact assembly

+



Head

+



Lever

## Plunger or multi-directional heads

with reinforced steel roller end plunger

with metal end plunger

with thermoplastic roller lever plunger, 1 direct. of actuation

with steel roller lever plunger, 1 direct. of actuation

with steel roller end plunger

with steel ball bearing end plunger



Reference

⊖ ZCKE67



⊖ ZCKE61



⊖ ZCKE21



⊖ ZCKE23



⊖ ZCKE62



⊖ ZCKE66

with metal side plunger

with steel roller side plunger

with spring rod

with "Cat's whisker"



Reference

⊖ ZCKE63



⊖ ZCKE64



ZCKE08



ZCKE06

## Separate rotary heads and levers

spring return for actuation from left AND right or left OR right

lever with thermoplastic roller (2)

lever with steel roller (2)

variable length lever with thermoplastic roller (2)

variable length lever with steel roller (2)

rod, Ø 6 mm thermoplastic L = 200 mm (2)

spring-metal rod lever (3)



Reference

⊖ ZCKE05



⊖ ZCKY11



⊖ ZCKY13



ZCKY41



ZCKY43



ZCKY59



ZCKY91

stay put for actuation from left AND right

forked arm lever with thermoplastic rollers, 1 track (2)

forked arm lever with thermoplastic rollers, 2 track (2)



Reference

ZCKE09



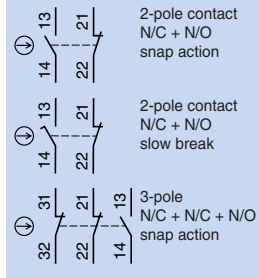
ZCKY71



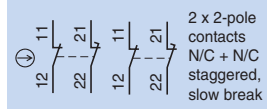
ZCKY61

(2) Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever mounting  
 (3) Adjustable throughout 360° in 5° steps, or in 90° steps by reversing the notched washer

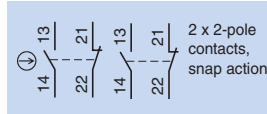
### XCKS



### XCKMR



### XCR



ISO entry  
(to EN 50262)



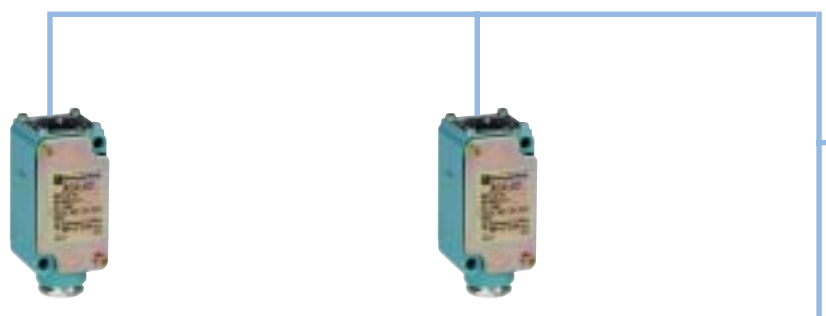
### Type XCKS plastic, double insulated, conforming to standard EN 50041

Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever	Variable length thermoplastic roller lever	Rubber roller lever Ø 50 mm	Polyamide Ø 6 mm rod lever L = 200 mm
Mechanical durability (millions of operating cycles)	25	15	20	20	20	20
Actuation speed (in m/s)	0.5	0.5	1.5	1.5	1	1
Degree of protection conforming to IEC 60529	IP653					
Rated operational characteristics	AC 15; A 300 (Ue = 240 V, Ie = 3 A) / DC 13; Q 300 (Ue = 250 V, Ie = 0.27 A)					
Cable entry (1)	1 tapped entry for ISO M20 x 1.5 cable gland					
Fixing centres (mm)	30 x 60					
Body dimensions W x D x H (mm)	40 x 36 x 72.5					

<b>Complete switch</b> (2-pole N/C + N/O snap action)	⊕ XCKS101H29	⊕ XCKS102H29	⊕ XCKS131H29	XCKS141H29	XCKS139H29	XCKS159H29
(2-pole N/C + N/O break before make, slow break)	⊕ XCKS501H29	⊕ XCKS502H29	⊕ XCKS531H29	XCKS541H29	XCKS539H29	XCKS559H29
Body (2-pole N/C + N/O snap action)	⊕ ZCKS1H29	⊕ ZCKS1H29	⊕ ZCKS1H29	⊕ ZCKS1H29	⊕ ZCKS1H29	⊕ ZCKS1H29
(2-pole N/C + N/O break before make, slow break)	⊕ ZCKS5H29	⊕ ZCKS5H29	⊕ ZCKS5H29	⊕ ZCKS5H29	⊕ ZCKS5H29	⊕ ZCKS5H29
(3-pole N/C + N/C + N/O snap action)	⊕ ZCKSD39H29	⊕ ZCKSD39H29	⊕ ZCKSD39H29	⊕ ZCKSD39H29	⊕ ZCKSD39H29	⊕ ZCKSD39H29
Associated head (including operator)	⊕ ZCKD01	⊕ ZCKD02	⊕ ZCKD31	ZCKD41	ZCKD39	ZCKD59
Operating lever for rotary head	-	-	⊕ ZCKY31	ZCKY41	ZCKY39	ZCKY59
<b>Complete switch</b> with 2-pole snap action contacts						
(2 x N/C + N/O contacts actuated in each direction)	-	-	-	-	-	-
(1 x N/C + N/O contact actuated in each direction)	-	-	-	-	-	-
<b>Complete switch</b> (2 x single-pole C/O snap action contacts)						
(2 x 2-pole N/C+N/C staggered, slow break contacts)	-	-	-	-	-	-

⊕ Positive opening operation (1) For Pg 13.5 cable entry delete the reference suffix H29. Example: XCKJ161H29 becomes XCKJ161

## XC2J switches, customised assembly Body/contact sub-assemblies



### Type XC2J metal, fixed body, 1 cable entry incorporating cable gland

Type of contact	<p>Single-pole 1 C/O contact snap action</p>	<p>Double-pole 2 C/O simultaneous contacts snap action</p>
Reference of body with contact block	ZC2JC1	ZC2JC2
Reference of contact block only	XCKZ01	XESP1021





## Sensors for pressure control

### Electronic sensors XMLG

Electrical connection by M12 connector



Pressure range (bar) (1)	-1...0	0...1	0...10	0...25	0...100	0...250	0...400
Fluids controlled	Hydraulic oils, air, fresh water, sea water, corrosive fluids from -15...+125°C						
Ambient air temperature	-15...+85°C						
Degree of protection (conforming to IEC 60529)	IP66 and IP67						
Voltage limits	12...24 V DC, 8...33 V DC						
Dimensions (mm) Ø x L	Ø 22.8 x 70 (not including connector)						
Fluid connection (2)	1/4" BSP male						
Electrical connection (3)	M12 connector						
Type of output (4)	4...20 mA, 2-wire technique						
Analogue output 4...20 mA	XMLGM01D21	XMLG001D21	XMLG010D21	XMLG025D21	XMLG100D21	XMLG250D21	XMLG400D21

Available in bulk packs for selling in lots, please consult us

The XMLG range also includes pressure switches, please consult us

### Electronic sensors XMLE

Electrical connection by DIN 43650 connector



Setting range (bar) (1)	-1...0	0...1	0...10	0...25	0...100	0...250	0...600																
Fluids controlled	Hydraulic oils, air, fresh water, sea water, corrosive fluids from -15...+80°C																						
Ambient air temperature	-15...+80°C																						
Degree of protection (conforming to IEC 60529)	IP65																						
Voltage limits	24 V DC, 11...33 V DC																						
Dimensions (mm) Ø x L	Ø 40 x 90 (not including connector)																						
Fluid connection (2)	1/4" BSP male																						
Electrical connection (3)	DIN 43650 connector																						
Type of output (4)	<table border="0"> <tr> <td>Transmitter</td> <td colspan="7">4...20 mA, 2-wire technique</td> </tr> <tr> <td>Pressure switch</td> <td colspan="7">PNP or NPN, normally closed (NC)</td> </tr> </table>							Transmitter	4...20 mA, 2-wire technique							Pressure switch	PNP or NPN, normally closed (NC)						
Transmitter	4...20 mA, 2-wire technique																						
Pressure switch	PNP or NPN, normally closed (NC)																						
Analogue output 4...20 mA	XMLEM01U1C21	XMLE001U1C21	XMLE010U1C21	XMLE025U1C21	XMLE100U1C21	XMLE250U1C21	XMLE600U1C21																
NPN output	XMLEM01U1C31	XMLE001U1C31	XMLE010U1C31	XMLE025U1C31	XMLE100U1C31	XMLE250U1C31	XMLE600U1C31																
PNP output	XMLEM01U1C41	XMLE001U1C41	XMLE010U1C14	XMLE025U1C41	XMLE100U1C41	XMLE250U1C41	XMLE600U1C41																

(1) Other sizes, please consult us

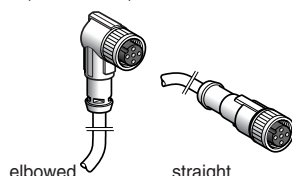
(2) Other fluid connections, please consult us

(3) Other types of connection, please consult us

(4) Other types of output; 0...5 V, 0...10 V, etc., please consult us

#### Suitable female plug-in connectors

Pre-wired connectors, L = 5 m (without LED)



elbowed

straight

M12

XZCP1241L5

XZCP1141L5

Other connectors



screw terminal

XZCC12FCM40B



Snap-C


XZCC12FDM40V




DIN 43650A

XZCC43FCP40B



Setting range of lower limit (PB): vacuum switches (bar)	of upper limit (PH): pressure switches	-0.08...-1	0.08...1	0.2...2.5	0.8...10	3.2...40
Fluids controlled		Hydraulic oils, air, fresh water, sea water, corrosive fluids from -15...+80°C				
Ambient air temperature		-25...+80°C				
Degree of protection (conforming to IEC 60529)		IP67				
Voltage limits (V)		24 V DC (17...33 V DC)				
Dimensions (mm) H x W x D		113 x 46 x 58				
Fluid connection		1/4" BSP female (1)				
Electrical connection		M12 connector (2) 				
<b>Configurable with digital display, connection by M12 connector (3)</b>						
Universal sensors,	4...20 mA	<b>XMLFM01D2025</b>	<b>XMLF001D2025</b>	XMLF002D2025	<b>XMLF010D2025</b>	XMLF040D2025
solid-state output, 200 mA	0...10 V	XMLFM01D2125	XMLF001D2125	XMLF002D2125	XMLF010D2125	XMLF040D2125
Dual stage pressure switches, solid-state output, 200 mA		<b>XMLFM01D2035</b>	<b>XMLF001D2035</b>	XMLF002D2035	<b>XMLF010D2035</b>	XMLF040D2035
Analogue sensors	4...20 mA	<b>XMLFM01D2015</b>	<b>XMLF001D2015</b>	XMLF002D2015	<b>XMLF010D2015</b>	XMLF040D2015
	0...10 V	XMLFM01D2115	XMLF001D2115	XMLF002D2115	XMLF010D2115	XMLF040D2115
Possible differential (bar) (pressure switches)	Min at low setting	0.03	0.03	0.08	0.3	1.2
	Min at high setting	0.03	0.03	0.08	0.3	1.2
	Max at high setting	0.95	0.95	2.38	9.5	38



Setting range of upper limit (PH): pressure switches (bar)		8...100	12.8...160	20...250	32...400	48...600
Fluids controlled		Hydraulic oils, air, fresh water, sea water, corrosive fluids from -15...+80°C				
Ambient air temperature		-25...+80°C				
Degree of protection (conforming to IEC 60529)		IP67				
Voltage limits		24 V DC (17...33 V DC)				
Dimensions (mm) H x W x D		113 x 46 x 58				
Fluid connection		1/4" BSP female (1)				
Electrical connection		M12 connector (2) 				
<b>Configurable with digital display, connection by M12 connector (3)</b>						
Universal sensors,	4...20 mA	<b>XMLF100D2025</b>	XMLF160D2025	<b>XMLF250D2025</b>	<b>XMLF400D2025</b>	XMLF600D2025
solid-state output, 200 mA	0...10 V	XMLF100D2125	XMLF160D2125	XMLF250D2125	XMLF400D2125	XMLF600D2125
Dual stage pressure switches, solid-state output, 200 mA		<b>XMLF100D2035</b>	XMLF160D2035	<b>XMLF250D2035</b>	<b>XMLF400D2035</b>	XMLF600D2035
Analogue sensors	4...20 mA	<b>XMLF100D2015</b>	XMLF160D2015	<b>XMLF250D2015</b>	<b>XMLF400D2015</b>	XMLF600D2015
	0...10 V	XMLF100D2115	XMLF160D2115	XMLF250D2115	XMLF400D2115	XMLF600D2115
Possible differential (bar) (pressure switches)	Min at low setting	3	4.8	7.5	12	18
	Min at high setting	3	4.8	7.5	12	18
	Max at high setting	95	152	237.5	380	570

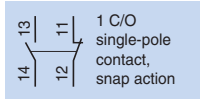
(1) Available with other fluid connections: 1/4" NPT female and SAE 7/16-20 UNF

(2) For M12 connection accessories, see page 3

(3) AC 120 V version with 2.5 A relay output and SAE 7/8-16 UN connector also available



## Sensors for pressure control Electromechanical pressure and vacuum switches XMLA and B



Size (bar)	-1	5	1	2.5
Environmental characteristics	Ambient air temperature (°C): -25...+70 Degree of protection (conforming to IEC 60529): IP66			
Rated operational characteristics	AC-15; B300 (Ue = 240V, Ie = 1.5A - Ue = 120V, Ie = 3A) / DC-13; R300 (Ue = 250V, Ie = 0.1A)			
Fluid connection	1/4" BSP female (other connections possible, please consult us)			
Electrical connection	Screw terminals (1), tapped entry for ISO M20 x 1.5 cable gland - <a href="#">For n° 13 (DIN Pg 13.5) cable gland</a>			
Fluids controlled	Hydraulic oils, fresh water, sea water, air up to 70°C		Hydraulic oils, air up to 0°C	Hydraulic oils, fresh water, sea water, air up to 70°C

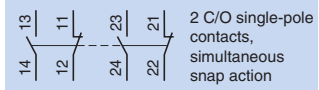
### Type XML-A fixed differential, single threshold detection

Setting range (bar) of upper limit (PH): pressure switches	-	5	1	2.5
Dimensions (mm) H x W x D	113 x 35 x 75	113 x 35 x 75	162 x 110 x 110	158 x 55 x 77.5
<b>With setting scale</b> 1 C/O single-pole, snap action contact	XMLAM01V2S12	-	XMLA001R2S12	XMLA002A2S12
<b>Without setting scale</b> 1 C/O single-pole, snap action contact	XMLAM01V1S12	-	XMLA001R1S12	XMLA002A1S12
Natural differential (bar) at low setting	0.24 (2)	-	0.02	0.13
subtract from PH to give PB at high setting	0.24 (2)	-	0.04	0.13

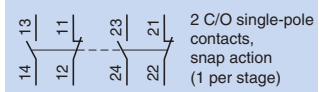
### Type XML-B adjustable differential, regulation between 2 thresholds

Setting range (bar) of upper limit (PH): pressure switches	-	5	1	2.5
<b>With setting scale</b> 1 C/O single-pole, snap action contact	XMLBM02V2S12	XMLBM05A2S12	XMLB001R2S12	XMLB002A2S12
Possible differential (bar) Min at low setting	0.13 (3)	0.5	0.04	0.16
subtract from PH to give PB Min at high setting	0.13 (3)	0.5	0.06	0.21
Max at high setting	0.8 (3)	6	0.75	1.75

### XMLC



### XMLD



## XMLC and D



Fluids controlled	Hydraulic oils, fresh water, sea water, air up to 70°C		Hydraulic oils, air up to 0°C	Hydraulic oils, fresh water, sea water, air up to 160°C
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### Type XML-C adjustable differential, regulation between 2 thresholds

Setting range (bar) of upper limit (PH): pressure switches	-	5	1	2.5
Dimensions (mm) H x W x D	113 x 46 x 85	113 x 46 x 85	175 x 110 x 110	158 x 55 x 90
<b>With setting scale</b> 2 C/O single-pole, snap action contacts	XMLCM02V2S12	XMLCM05A2S12	XMLC001R2S12	XMLC002B2S12
Possible differential (bar) Min at low setting	0.13 (4)	0.45	0.03	0.13
subtract from PH to give PB Min at high setting	0.14 (4)	0.45	0.04	0.17
Max at high setting	0.8 (4)	6	0.8	2

### Type XML-D fixed differential, dual stage, for detection at each threshold

Setting range (bar)	2 <sup>nd</sup> stage switching point (PB2)	-	1	2.5
1 <sup>st</sup> stage switching point (PB1)	-0.12...-1 (4)	-	0.12...1	0.34...2.5
Spread between 2 stages (PB2 - PB1)	-0.10...-0.98	-	0.04...0.92	0.2...2.36
	-0.02...-0.88	-	0.08...0.73	0.14...1.5
<b>Without setting scale</b> 2 C/O single-pole, snap action contacts (1 per stage)	XMLDLM02V1S12	-	XMLD001R1S12	XMLD002B1S12
Natural differential (bar) at low setting	0.1 (2)	-	0.03	0.14m
subtract from PH 1/2 to give PB 1/2 at high setting	0.1 (2)	-	0.07	0.19





4	10	20	35	70	160	300	500
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conforming to IEC 947-5-1 Appendix A, EN 60 947-5-1

tapped entry, replace the last number of the reference (2) by 1 (example: XMLA010A2S12 becomes XMLA010A2S11)

Hydraulic oils, fresh water,  
sea water, air up to 70°C

Hydraulic oils up to 160°C

0.4...4	0.6...10	0.7...20	1.5...35	5...70	10...160	20...300	30...500
113 x 35 x 75	113 x 35 x 75	113 x 35 x 75	113 x 35 x 75	113 x 35 x 75	113 x 35 x 75	113 x 35 x 75	113 x 35 x 75
XMLA004A2S12	<b>XMLA010A2S12</b>	<b>XMLA020A2S12</b>	XMLA035A2S12	<b>XMLA070D2S12</b>	XMLA160D2S12	<b>XMLA300D2S12</b>	XMLA500D2S12
XMLA004A1S12	XMLA010A1S12	XMLA020A1S12	XMLA035A1S12	XML-A070D1S12	XMLA160D1S12	XMLA300D1S12	XMLA500D1S12
0.35	0.5	0.4	1.25	3	5.5	16.5	20
0.35	0.5	1	1.25	7.5	18	35	45

0.25...4	0.7...10	1.3...20	3.5...35	7...70	10...160	22...300	30...500
XMLB004A2S12	<b>XMLB010A2S12</b>	<b>XMLB020A2S12</b>	XMLB035A2S12	<b>XMLB070D2S12</b>	XMLB160D2S12	<b>XMLB300D2S12</b>	XMLB500D2S12
0.02	0.57	1	1.7	4.7	9.3	19.4	23
0.25	0.85	1.6	2.55	8.8	20.8	37	52.6
2.4	7.5	11	20	50	100	200	300

- (1) For electrical connection by DIN 43650A connector (IP65), replace the letter "S" in the reference by "C". Example: XMLB010A2S12 becomes XMLB010A2C12  
 (2) For vacuum switch: natural differential to be added to PB to give PH  
 (3) For vacuum switch: possible differential to be added to PB to give PH  
 (4) Setting range (bar) of lower limit (PB): vacuum switch

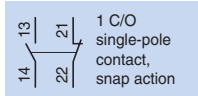


Hydraulic oils, fresh water,  
sea water, air up to 160°C

Hydraulic oils up to 160°C

0.3...4	0.7...10	1.3...20	3.5...35	7...70	12...160	22...300	30...500
113 x 46 x 85	113 x 46 x 85	113 x 46 x 85	113 x 46 x 85	113 x 46 x 85	113 x 46 x 85	113 x 46 x 85	113 x 46 x 85
XMLC004B2S12	<b>XMLC010B2S12</b>	<b>XMLC020B2S12</b>	XMLC035B2S12	XMLC070D2S12	XMLC160D2S12	XMLC300D2S12	XMLC500D2S12
0.15	0.45	0.7	1	4.5	9	16	19
0.17	0.7	1	1.5	8.9	21	35	52
2.5	8	11	22	60	110	240	340

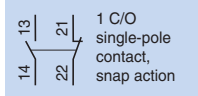
0.40...4	1.2...10	2.14...20	4.4...35	9.4...70	16.5...160	36...300	41...500
0.19...3.79	0.52...9.32	0.9...18.76	1.9...32.5	6.6...67.2	10.5...154	25...289	25...484
0.21...2.18	0.68...5.8	1.24...9.55	2.5...20.4	2.8...46	6...83	11...189	16...244
XMLD004B1S12	<b>XMLD010B1S12</b>	<b>XMLD020B1S12</b>	XMLD035B1S12	XMLD070D1S12	XMLD160D1S12	XMLD300D1S12	XMLD500D1S12
0.15	0.45	0.7	1.5	5	8.8	17	21
0.19	0.6	1.3	2.6	9.5	20	42	65



Setting range of upper limit (PH) (bar)	1...6	1.3...12	3.5...25
Fluids controlled	Air, water (fresh water, sea water) from 0...+70°C		
Ambient air temperature	-25...+70°C		
Degree of protection (conforming to IEC 60529)	IP54		
Rated operational characteristics	AC-15; B300 (Ue = 240 V, Ie = 1.5 A - Ue = 120 V, Ie = 3 A) / DC-13; R300 (Ue = 250 V, Ie = 0.1 A)		
Dimensions (mm) H x W x D	106 x 57 x 98		126 x 57 x 98
Fluid connection	1/4" BSP female		
Electrical connection	Screw terminals, 2 tapped entries for n° 13 (DIN Pg 13.5) cable gland		

### Type XMx-A with internal setting screw

Without setting scale, screw terminal connections				
1 C/O single-pole, snap action contact		XMXA06L2135	XMXA12L2135	XMXA25L2135
Possible differential (bar) subtract from PH to give PB	Min at low setting	0.8	1	3.4
	Min at high setting	1.2	1.7	4.5
	Max at high setting	4.2	8.4	20



Setting range of upper limit (PH) (bar)	1...6	1.3...12	3.5...25
Fluids controlled	Air, water (fresh water, sea water) from 0...+70°C		
Ambient air temperature	-25...+70°C		
Degree of protection (conforming to IEC 60529)	IP54		
Rated operational characteristics	AC-15; B300 (Ue = 240 V, Ie = 1.5 A - Ue = 120 V, Ie = 3 A) / DC-13; R300 (Ue = 250 V, Ie = 0.1 A)		
Dimensions (mm) H x W x D	113 x 57 x 98		133 x 57 x 98
Fluid connection	1/4" BSP female		
Electrical connection	Screw terminals, tapped entry for n° 13 (DIN Pg 13.5) cable gland		

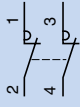
### Type XMA with external setting screw (transparent cover)

Without setting scale, screw terminal connections				
1 C/O single-pole, snap action contact		XMAV06L2135	XMAV12L2135	XMAV25L2135
Possible differential (bar) subtract from PH to give PB	Min at low setting	0.8	1	3.4
	Min at high setting	1.2	1.7	4.5
	Max at high setting	4.2	8.4	20



## Sensors for pressure control

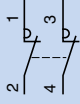
### Electromechanical pressure switches for power circuits, adjustable differential for regulation between 2 thresholds



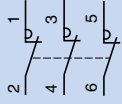
2 N/C 2-pole contact, snap action



Degree of protection			IP20			IP65		
			4.6	7	10.5	4.6	7	10.5
<b>Size (bar)</b>			4.6	7	10.5	4.6	7	10.5
<b>Setting range of upper limit (PH) (bar)</b>			1.4...4.6	2.8...7	5.6...10.5	1.4...4.6	2.8...7	5.6...10.5
<b>Fluids controlled</b>			Water (fresh water, sea water) from 0...+55°C					
<b>Electrical connection</b>			Screw terminals, 2 cable entries with grommet			Screw terminals, 2 tapped entries for n° 13 (DIN Pg 13.5) cable gland		
<b>Ambient air temperature</b>			For operation: 0...+50°C. For storage: -30...+80°C					
<b>Rated operational characteristics</b>			I <sub>e</sub> = 10 A, U <sub>e</sub> = 250 V AC					
<b>Power rating of controlled motors</b>	110 V	AC 2-pole, single-phase	0.75 kW (1 HP)			0.75 kW (1 HP)		
		AC 2-pole, 3-phase	1.1 kW (1.5 HP)			1.1 kW (1.5 HP)		
	230 / 400 V	AC 2-pole, single-phase	1.5 kW (2 HP)			1.5 kW (2 HP)		
		AC 2-pole, 3-phase	2.2 kW (3 HP)			2.2 kW (3 HP)		
<b>Dimensions (mm) H x W x D</b>			96/105 x 72 x 102	94 x 72 x 102		115 x 72 x 106	115 x 72 x 106	
<b>Fluid connection</b>	G 1/4 (BSP female)		FSG2	FYG22	FYG32	FSG2NE	FYG22NE	FYG32NE
	R 1/4 (BSP male)		FSG9	FYG29	FYG39	–	–	–
	G 3/8 (BSP female) rotating nut		–	–	–	FSG2NEG	–	–
<b>Possible differential</b> (bar) subtract from PH to give PB	At low setting		1 min. - 2.1 max.	1.2 min. - 2.3 max.	1.9 min. - 3 max.	1 min. - 2.1 max.	1.2 min. - 2.3 max.	1.9 min. - 3 max.
	At middle setting		1.1 min. - 2.2 max.	1.4 min. - 2.5 max.	2.1 min. - 3.2 max.	1.1 min. - 2.2 max.	1.4 min. - 2.5 max.	2.1 min. - 3.2 max.
	At high setting		1.2 min. - 2.3 max.	1.6 min. - 2.7 max.	2.3 min. - 3.4 max.	1.2 min. - 2.3 max.	1.6 min. - 2.7 max.	2.3 min. - 3.4 max.



2 N/C 2-pole contact, snap action



3 N/C 3-pole contact, snap action

Size (bar)			6		12		25		
			<b>Setting range of upper limit (PH) (bar)</b>			1...6		1.3...12	
<b>Fluids controlled</b>			Air, water (fresh water, sea water) from 0...+70°C						
<b>Ambient air temperature</b>			For operation: -25...+70°C. For storage: -40...+70°C						
<b>Decompression valve / On/Off knob</b>			without	with	without	with	without		
<b>Fluid connection</b>			G 1/4 (BSP female)	4xG 1/4 (BSP female)	G 1/4 (BSP female)	4xG 1/4 (BSP female)	G 1/4 (BSP female)		
<b>Electrical connection</b>			Screw terminals, 2 tapped entries for n° 13 (DIN Pg 13.5) cable gland						
<b>Degree of protection</b>			IP54			IP54		IP54	
<b>Rated insulation voltage</b>			U <sub>i</sub> = 500 V						
<b>Electrical durability</b>	Power	1.5 kW	400 V AC 3-phase: 1 000 000 operating cycles						
		2.2 kW	230 V AC 3-phase: 600 000 operating cycles						
		3 kW	400 V AC 3-phase: 700 000 operating cycles						
<b>Dimensions (mm) H x W x D</b>			106 x 57 x 97.5	138 x 57 x 97.5	106 x 57 x 97.5	138 x 57 x 97.5	126 x 57 x 97.5		
<b>Type of contacts</b>	2 N/C 2-pole, snap action contact		XMPA06B2131	XMPE06B2431	XMPA12B2131	XMPE12B2431	XMPA25B2131		
	3 N/C 3-pole, snap action contact		XMPA06C2131	XMPE06C2431	XMPA12B2131	XMPE12C2431	XMPA25B2131		
<b>Possible differential</b> (bar) subtract from PH to give PB	Min at low setting		0.8	0.8	1	1	3.4		
	Min at high setting		1.2	1.2	1.7	1.7	4.5		
	Max at high setting		4.2	4.2	8.4	8.4	20		

## Vision system

### Composition of a vision system: Controller + Camera + Lens + Keypad + Monitor + Lighting + Accessories

The monitoring parameters in association with position, rotation and exposure adjustment functions enable verification of:

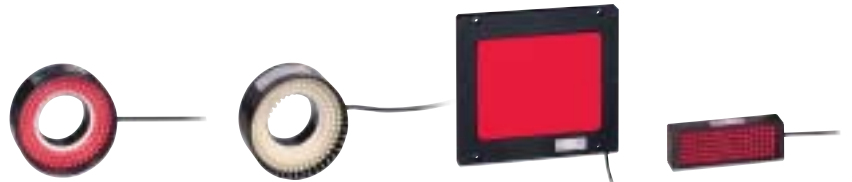
- Dimensions
- Position
- Presence/absence
- Quality and conformity of markings



Vision controllers		with 32-bit RISC processor CPU, 24 V DC		
<b>Number of camera channels</b>		<b>1 camera</b>	<b>2 cameras</b>	<b>2 cameras</b>
Number of programmes		32	64	32
Image analysis algorithms		Line, binary window, grey-scale window, binary edge, grey-scale edge, feature extraction, smart matching		OCR/OCV
Dimensions mm (W x D x H)		40 x 129.3 x 84		
Software language	English/French	XUVM110FR	XUVM210FR	XUVM230FR
	English/German	XUVM110GE	XUVM210GE	–
	English/Spanish	XUVM110SP	XUVM210SP	–
	English/Italian	XUVM110IT	XUVM210IT	–



Description	Camera	Lenses				Monitor	Keypad
	C mount	C mount with knurled locking wheel					
	<b>"Full-frame"</b>	<b>50 mm</b>	<b>25 mm</b>	<b>16 mm</b>	<b>8.5 mm</b>	<b>9" (22 cm)</b>	<b>8-button console</b>
Characteristics	659x494 pixels	f: 2.8	f: 1.4	f: 1.4	f: 1.5	BNC connector	2 m flying lead
Dimensions (mm) Ø x L or W x D x H	31x54.5x29	Ø 29.5x34	Ø 29.5x32	Ø 29.5x33.2	Ø 43.5x40	221x259x228	54.5x46x124.6
Reference	XUVC002	XUVCLF50D27	XUVCLF25D27	XUVCLF16D27	XUVCLF8D40	XUVVWBM990	XUVK001



Lighting	Shower system		Back light system	Bar system
<b>Colour of LEDs</b>	<b>red</b>	<b>white</b>	<b>red</b>	<b>red</b>
Power, W	6	8.2	4.2	4.8
Supply voltage, V DC	12	24	12	12
Dimensions (mm) Ø x L or W x D x H	Ø 70 x 27	Ø 70 x 27	132 x 8 x 120	86 x 18 x 28.8
Reference	XUVLDR270RDWD	XUVLDR270SW	XUVLFL100	XUVLDL130X15

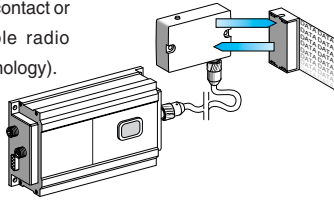


## Accessories

Description	Power supplies		Connection cables				Backup
	24 V DC	12 V DC	Camera	Monitor	RS 232	Pre-wired connectors	Utility
	for vision controller or lighting system	for lighting system	to controller	to controller	Tool port to PC	for 24 V DC lighting system, cable length 5 m	for backing-up data, Windows 95/98/NT/2000/XP compatible
Reference	XUVC002	XUVCLF50D27	XUVCLF25D27	XUVCLF16D27	XUVCLF8D40	XUVLFCB5	XUVLCB5



The data is stored in an accessible memory, without physical contact or visual sighting, by simple radio frequency link (RFID technology).



Applications		Logistic: traceability, storage and other applications not requiring a large memory				Automated production: assembly, automation of flexible manufacturing workshops and all applications requiring a large memory with fast access	
Tags		Fixed code	Read/write code		Read/write code		
Type of memory		ROM	EEPROM		Ferro-electric		
Memory capacity		3 fixed words (6 bytes)	4 fixed words (8 bytes) + 58 modifiable words (116 bytes)		4 K words (8 Kb)	16 K words (32 Kb)	
Nominal sensing distance (mm)		40	40	40	70	50	
Time	Read (ms)	45 for all 6 bytes	50 (normal) + (26 x number of 4 byte blocks)		25 + 5 per byte	0.5 + 0.5 per byte	
	Write (ms)	–	76 + (124 x number of 4 byte blocks)		25 + 5 per byte	0.5 + 0.5 per byte	
Dimensions (mm) Ø x depth or W x H x D		Ø 30 x 4	Ø 30 x 1	22 x 45 x 12	54 x 85.5 x 1	40 x 60 x 17	50 x 75 x 15
Degree of protection		IP68	IP67	IP67	IP67	IP65	IP67
Housing material		Polyester	Epoxy	Rilsan	PVC	PPS	Rilsan
Fixing method		Central screw	Glued	Clip-on	–	Screws, 50 mm centres	Screws, 65 mm centres
Reference (1)		XGLB34F213	XGLB31E213	XGLB45E215	XGLB90E210	XGPB464220	XGPB576230





Inductive heads		Logistic		Automated production		
Nominal sensing distance (mm)		40	40 or 70 dpg. on tag		50	50
Dimensions (mm) Ø x L or W x H x D		Ø 30 x 73	100 x 65 x 29		100 x 65 x 29	100 x 65 x 29
Degree of protection		IP65	IP65		IP65	IP65
Connection		M12, 5-pin, male connector, max cable length = 2 m			M12, 5-pin, male connector, max cable length = 2 m	
Reference		XGLA112A71	XGLA112D70		XGLA212D70	XGLA312D70



Stations		Common to inductive heads and logistic or automated production tags			
Dimensions (mm) W x H x D		210 x 120 x 60			
Serial link		Standard: RS 485, Uni-TE/Modbus protocol or additional protocol depending on network option selected.			
Connection		Power supply: 1/2" 20 UNF, 3-pin, male connector; To inductive head: M12, 5-pin, female connector			
Supply voltage		24 V DC			
Protocol		Ethernet/Modbus/TCP	Interbus-S	Fipio	Uni-Te/Modbus (std.)
	Transmission speed (Bauds)	10/100 Mb	500 Kb	1.2 Mb	4800 ... 57600
	Connection (network option)	RJ45 connector	M23 connectors	SUB-D male connector	M12 male connector
Reference		XGKS1715503	XGKS140421	XGKS130421	XGKS110121

(1) Logistic tags: sold in lots of 10

### Accessories

Power supply		Connection			
 24 V DC single-phase 48 W, 2 A supply <b>ABL7RE2402</b>		Inductive head - station jumper cable (M12-M12, 5-pin)	L = 1 m	XZCR1511064D1	
			L = 2 m	XZCR1511064D2	
		Standard serial link, M12 female connector		XZCC12FDM40B	
		24 V DC supply connection cable, 1/2" 20 UNF female connector		XZCC20FDM30B	
		RS 232 C / RS 485 line adaptor		VZ3N586	

## A wide range of Human/Machine interfaces to meet your needs!

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- **Ingenuity:** LED technology for all signalling functions.
- **Flexibility:** of modular construction, the products evolve with the automation system.
- **Robustness:** mechanical performance much higher than standard requirements.
- **Compactness:** the overall dimensions are the smallest on the market.

### Magelis

HMI at the *touch* of a finger and the *blink* of an eye.

In order to improve the performance of your production equipment, Telemecanique offers you a complete range of hardware and software specifically for Human/Machine dialogue.



- **Compact,** the range of Magelis display units, terminals and industrial PCs is characterised by its ease of implementation.
- **Ingenious,** the software range simplifies the design of your HMI (Human/Machine Interface) applications.

*The new Magelis range, comprising display units, terminals, graphic terminals with keypad or touchscreen and i PC industrial PCs, offers improved robustness for ensuring availability of your installation.*



- Take advantage of these new Telemecanique offers that are **open** to the new information and communication technologies.

#### The essential guide

*A selection of the most popular selling products enabling you to quickly locate the most appropriate solution for your application... from pushbuttons to the industrial PC.*

# Contents

## Control and signalling units

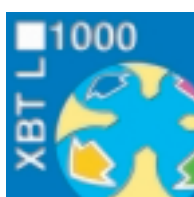
- Pushbuttons, switches and pilot lights Ø 16 with plastic bezel, **Harmony XB6** ..... 2/2 to 2/4
- LED pilot lights Ø 8 and 12
- Harmony XVL** ..... 2/5
- Pushbuttons, switches and pilot lights Ø 22 with metal bezel, **Harmony XB4** ..... 2/6 to 2/9
- Pushbuttons, switches and pilot lights Ø 22 with plastic bezel, **Harmony XB5** ..... 2/10 to 2/12
- Control stations
- Harmony XAL** ..... 2/13
- Monolithic pushbuttons, switches and pilot lights Ø 22 with plastic bezel, **Harmony XB7** ..... 2/14 to 2/15
- Pushbuttons, switches and pilot lights Ø 30 with metal or plastic bezel, **Harmony 9001** ..... 2/16 to 2/19
- Cam switches
- Harmony Series K** ..... 2/20 to 2/21
- Beacons and indicator banks
- Harmony XVB/XVP** ..... 2/22 to 2/23
- Pendant control stations
- XAC** ..... 2/24 to 2/25

■ Control and signalling units for explosive atmospheres  
(see Chapter 10 "Explosive Atmospheres")



To benefit from perfect interoperability select Telemecanique software.

- XBTL1001/L1003
- Vijeo Designer
- Vijeo Look
- Monitor Pro
- The FactoryCast HMI Web server



## Human/Machine Interfaces

- Display units
- Magelis XBTL and XBTHM** ..... 2/26
- Terminals
- Magelis XBTR, XBTPM, XBTF and XBTD** ..... 2/27 to 2/30
- Industrial PCs
- Magelis Smart iPC, Compact iPC, Modular iPC** ..... 2/31 to 2/33
- Software
- XBTL, Vijeo Designer, Vijeo Look, Monitor Pro** ..... 2/34 to 2/36
- Embedded Web servers and gateways
- FactoryCast** ..... 2/37

















(1):

Voltage	Letter (●)
12...24 VAC/DC (15 mA)	B
48...120 VAC (25 mA)	G
230...240 VAC (25 mA)	M













#### Illuminated pushbuttons

Type of head	Shape of head	Flush push																																				
	  	rectangular (2)																																				
Degree of protection		IP 65 / Nema 4, 4X, 13 / Class II																																				
Mounting (mm)	panel cut-out mounting centres	$\varnothing 16.2^{+0.2}_0$ 24 x 18 with rectangular head, 18 x 18 with square or circular head																																				
Dimensions (mm)	W x H x D (below head)	24 x 18 x 50 with rectangular head, 18 x 18 x 50 with square or circular head																																				
Connection (3)		Tags for 2.8 x 0.5 Faston connectors or for soldering																																				
Type of push		Spring return																																				
		<b>Complete products</b> 12 ... 24 VAC/DC   																																				
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#### Pilot lights

Type of head	Shape of head	Smooth lens cap																		
	  	rectangular (2)																		
		<b>Complete products</b> 12 ... 24 VAC/DC  																		
References	white  <b>XB6 DV1BB</b> green  <b>XB6 DV3BB</b> red  <b>XB6 DV4BB</b> yellow  <b>XB6 DV5BB</b> blue  –	<table border="1"> <thead> <tr> <th>Complete products</th> <th>Products for user assembly</th> <th>Products for user assembly</th> </tr> </thead> <tbody> <tr> <td><b>XB6 DV1BB</b></td> <td><b>ZB6 E●1B (1)</b></td> <td><b>ZB6 DV1</b></td> </tr> <tr> <td><b>XB6 DV3BB</b></td> <td><b>ZB6 E●3B (1)</b></td> <td><b>ZB6 DV3</b></td> </tr> <tr> <td><b>XB6 DV4BB</b></td> <td><b>ZB6 E●4B (1)</b></td> <td><b>ZB6 DV4</b></td> </tr> <tr> <td><b>XB6 DV5BB</b></td> <td><b>ZB6 E●5B (1)</b></td> <td><b>ZB6 DV5</b></td> </tr> <tr> <td>–</td> <td><b>ZB6 E●6B (1)</b></td> <td><b>ZB6 DV6</b></td> </tr> </tbody> </table>	Complete products	Products for user assembly	Products for user assembly	<b>XB6 DV1BB</b>	<b>ZB6 E●1B (1)</b>	<b>ZB6 DV1</b>	<b>XB6 DV3BB</b>	<b>ZB6 E●3B (1)</b>	<b>ZB6 DV3</b>	<b>XB6 DV4BB</b>	<b>ZB6 E●4B (1)</b>	<b>ZB6 DV4</b>	<b>XB6 DV5BB</b>	<b>ZB6 E●5B (1)</b>	<b>ZB6 DV5</b>	–	<b>ZB6 E●6B (1)</b>	<b>ZB6 DV6</b>
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(1) Basic reference, to be completed by the letter B, G or M indicating the required voltage. See voltage table above.

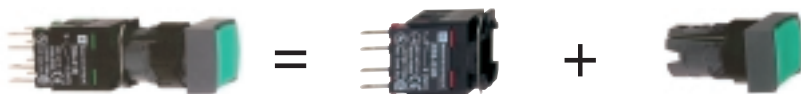
(2) For products with a square head, replace the letter **D** in the reference by the letter **C** (XB6 DW1B1B becomes XB6 CW1B1B).

For products with a circular head, replace the letter **D** in the reference by the letter **A** (XB6 DW1B1B becomes XB6 AW1B1B).

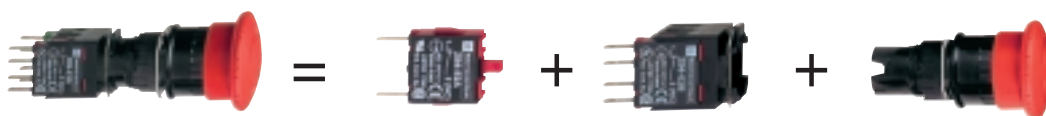
(3) Alternative connection: 1 x 0.5 pins for printed circuit boards.

## Contact functions

2



Pushbuttons						
Type of head			<b>Flush push</b>			
Shape of head			rectangular (2)			
Degree of protection			IP 65 / Nema 4, 4X, 13 / Class II			
Mounting (mm)	panel cut-out		$\varnothing 16.2^{+0.2}_0$			
	mounting centres		24 x 18 with rectangular head, 18 x 18 with square or circular head			
Dimensions (mm)	W x H x D (below head)		24 x 18 x 50 with rectangular head, 18 x 18 x 50 with square or circular head			
Connection (3)			Tags for 2.8 x 0.5 Faston connectors or for soldering			
Type of push			Spring return			
			Complete products	Products for user assembly		
References	white		N/O	<b>XB6 DA11B</b>	<b>ZB6 Z1B</b>	<b>ZB6 DA1</b>
			N/C + N/O	<b>XB6 DA15B</b>	<b>ZB6 Z5B</b>	<b>ZB6 DA1</b>
	black		N/O	–	<b>ZB6 Z1B</b>	<b>ZB6 DA2</b>
			N/C + N/O	<b>XB6 DA25B</b>	<b>ZB6 Z5B</b>	<b>ZB6 DA2</b>
	green		N/O	<b>XB6 DA31B</b>	<b>ZB6 Z2B</b>	<b>ZB6 DA3</b>
			N/C + N/O	<b>XB6 DA35B</b>	<b>ZB6 Z5B</b>	<b>ZB6 DA3</b>
	red		N/O	–	<b>ZB6 Z1B</b>	<b>ZB6 DA4</b>
			N/C + N/O	<b>XB6 DA45B</b>	<b>ZB6 Z5B</b>	<b>ZB6 DA4</b>

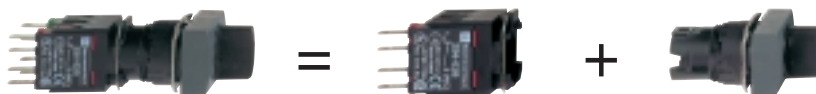


Ø 30 mushroom head Emergency stop pushbuttons							
Type of head			<b>Trigger action</b>				
Shape of head			cylindrical				
Type of push			Turn to release				
			Complete products	Products for user assembly			
References	red		2 N/C + 1 N/O	<b>XB6 AS8349B</b>	<b>ZB6 E2B</b>	<b>ZB6 Z5B</b>	<b>ZB6 AS834</b>
Type of push			Key release, Ronis 200				
References	red		2 N/C + 1 N/O	<b>XB6 AS9349B</b>	<b>ZB6 E2B</b>	<b>ZB6 Z5B</b>	<b>ZB6 AS934</b>

(2) For products with a square head, replace the letter **D** in the reference by the letter **C** (XB6 DA11B becomes XB6 CA11B).

For products with a circular head, replace the letter **D** in the reference by the letter **A** (XB6 DA11B becomes XB6 AA11B).

(3) Alternative connection: 1 x 0.5 pins for printed circuit boards.



#### Selector switches and key switches

<b>Type of head</b>		<b>Black handle</b>	rectangular (2)
<b>Shape of head</b>		Degree of protection	IP 65 / Nema 4, 4X, 13 / Class II (except key switches)
<b>Mounting (mm)</b>	panel cut-out mounting centres	Dimensions (mm)	24 x 18 with rectangular head, 18 x 18 with square or circular head
	W x H x D (below head)	Connection (3)	24 x 18 x 50 with rectangular head, 18 x 18 x 50 with square or circular head Tags for 2.8 x 0.5 Faston connectors or for soldering
<b>Type of operator</b>		<b>Complete products</b>	<b>Products for user assembly</b>
<b>Number and type of positions</b>		<b>2 positions</b> stay put	<b>2 positions</b> stay put <b>2 positions</b> spring return to centre
<b>References</b>	N/O N/C + N/O	<b>XB6 DD221B</b> <b>XB6 DD225B</b>	<b>ZB6 Z1B</b> <b>ZB6 DD22</b> <b>ZB6 Z5B</b> <b>ZB6 DD22</b> <b>ZB6 Z1B</b> <b>ZB6 DD24</b> <b>ZB6 Z5B</b> <b>ZB6 DD24</b>
<b>Number and type of positions</b>		<b>3 positions</b> stay put	<b>3 positions</b> stay put <b>3 positions</b> spring return to centre
<b>References</b>	N/O	<b>XB6 DD235B</b>	<b>ZB6 Z5B</b> <b>ZB6 DD23</b> <b>ZB6 Z5B</b> <b>ZB6 DD25</b>



<b>Type of operator</b>		<b>Ronis key, n° 200</b>	<b>Complete products</b>	<b>Products for user assembly</b>
<b>Number and type of positions</b>		<b>2 positions</b> stay put	<b>2 positions</b> stay put	<b>2 positions</b> spring return to centre
<b>References</b>	N/C + N/O	<b>XB6 DGC5B</b>	<b>ZB6 Z5B</b> <b>ZB6 DGC</b>	<b>ZB6 Z5B</b> <b>ZB6 DGB</b>
<b>Number and type of positions</b>		<b>3 positions</b> stay put	<b>3 positions</b> stay put	<b>3 positions</b> spring return to centre
<b>References</b>	N/C + N/O	<b>XB6 DGH5B</b>	<b>ZB6 Z5B</b> <b>ZB6 DGH</b>	<b>ZB6 Z5B</b> <b>ZB6 DGS</b>

(1):

Voltage	Letter (●)
12...24 VAC/DC (15 mA)	B
48...120 VAC (25 mA)	G
230...240 VAC (25 mA)	M



#### Illuminated selector switches

<b>Type of operator</b>		<b>Coloured handle</b>	<b>Products for user assembly</b>
<b>Number and type of positions</b>		<b>2 positions</b> stay put	<b>3 positions</b> stay put
<b>References</b>	white ● N/C + N/O green ● N/C + N/O red ● N/C + N/O	<b>ZB6 E●1B (1)</b> <b>ZB6 Z5B</b> <b>ZB6 DD02</b> <b>ZB6 DD03</b> <b>ZB6 YK1</b> <b>ZB6 E●3B (1)</b> <b>ZB6 Z5B</b> <b>ZB6 DD02</b> <b>ZB6 DD03</b> <b>ZB6 YK3</b> <b>ZB6 E●4B (1)</b> <b>ZB6 Z5B</b> <b>ZB6 DD02</b> <b>ZB6 DD03</b> <b>ZB6 YK4</b>	

(1) Basic reference, to be completed by the letter B, G or M indicating the required voltage. See voltage table above.

(2) For products with a square head, replace the letter **D** in the reference by the letter **C** (XB6 DD221B becomes XB6 CD221B).

For products with a circular head, replace the letter **D** in the reference by the letter **A** (XB6 DD221B becomes XB6 AD221B).

(3) Alternative connection: 1 x 0.5 pins for printed circuit boards.



# LED pilot lights Ø 8 and 12

(1):

Voltage	Number (●)
5 V (25 mA)	1
12 V (18 mA)	2
24 V (18 mA)	3
48 V (10 mA)	4



2

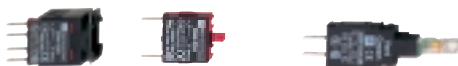
LED pilot lights		With black bezel	With integral lens cap	
Type of head		Protruding LED, Ø 8 mm	Covered LED, Ø 8 mm	Covered LED, Ø 12 mm
Degree of protection		IP 40, IP 65 with seal (2)		
Mounting (mm)	panel cut-out	Ø 8.2 mm	Ø 8.2 mm	Ø 12.2 mm
	mounting centres	12.5 x 12.5 mm	10.5 x 10.5 mm	16.5 x 16.5 mm
Dimensions (mm)	Ø x Depth (below head)	Ø 12 x 32	Ø 10 x 34	Ø 16 x 45
Connection		Tags (3)	Tags (3)	Threaded connectors
References (1)	green ●	<b>XVL A1●3</b>	<b>XVL A2●3</b>	<b>XVL A3●3</b>
	red ●	<b>XVL A1●4</b>	<b>XVL A2●4</b>	<b>XVL A3●4</b>
	yellow ●	<b>XVL A1●5</b>	<b>XVL A2●5</b>	<b>XVL A3●5</b>
Tightening key		For Ø 8 mm pilot lights		For Ø 12 mm pilot lights
References		XVL X08		XVL X12

(1) Basic reference, to be completed by the number 1, 2, 3 or 4 indicating the required voltage. See voltage table above.

(2) For an IP 65 degree of protection, include the seals: XVL Z911 for pilot lights XVL A1●● and XVL A2●●; XVL Z912 for pilot lights XVL A3●●.

(3) Tags for 2.8 x 0.5 Faston connectors or for soldering.

## Sub-assemblies & accessories for Ø 16 plastic bezel control and signalling units

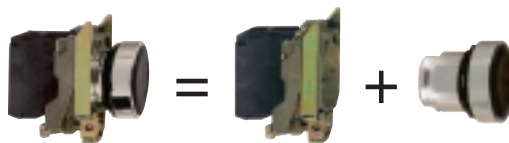


Sub-assemblies	Bodies for pushbuttons and selector switches			Bodies for pilot lights			
Rated operational characteristics, AC-15: Ue = 240 V and Ie = 1.5 A or Ue = 120 V and Ie = 3 A Positive operation of contacts conforming to IEC/EN 60947-5-1: N/C contacts with positive opening operation, positive opening force 20 N				Consumption			
				15 mA	12...24 VAC/DC		
				25 mA	48...120 VAC		
				25 mA	230...240 VAC		
	Type of contact	Fixing collar + contacts	Contacts	Pilot light bodies	12 ... 24 V	48 ... 120 V	230 ... 240 V
References	N/O	ZB6 Z1B	<b>ZB6 E1B</b>	White ●	<b>ZB6 EB1B</b>	ZB6 EG1B	<b>ZB6 EM1B</b>
	N/C	ZB6 Z2B	<b>ZB6 E2B</b>	Green ●	<b>ZB6 EB3B</b>	ZB6 EG3B	<b>ZB6 EM3B</b>
	2 N/O	<b>ZB6 Z3B</b>	–	Red ●	<b>ZB6 EB4B</b>	ZB6 EG4B	<b>ZB6 EM4B</b>
	2 N/C	ZB6 Z4B	–	Yellow ●	ZB6 EB5B	ZB6 EG5B	ZB6 EM5B
	N/O + N/C	<b>ZB6 Z5B</b>	–	Blue ●	ZB6 EB6B	ZB6 EG6B	ZB6 EM6B

















Accessories							
<b>Legend holders</b>		24 x 28 mm (8 x 21 mm legend)			24 x 36 mm (16 x 21 mm legend)		
Blank legend	Background colour	without legend	yellow or white	black or red	without legend	yellow or white	black or red
References (10)*		<b>ZB6 YD20</b>	<b>ZB6 YD21</b>	ZB6 YD22	ZB6 YD30	ZB6 YD31	ZB6 YD32
<b>Blank legends for legend holders</b>		8 x 21 mm (24 x 28 mm legend holder)			16 x 21 mm (24 x 36 mm legend holder)		
	Background colour	–	yellow or white	black or red	–	yellow or white	black or red
References (20)*		–	<b>ZB6 Y1001</b>	ZB6 Y2001	–	ZB6 Y4001	ZB6 Y3001
<b>Ø 45 mm yellow legend for mushroom head Emergency stop pushbutton</b>							
	Marking	Blank, for engraving		EMERGENCY STOP	ARRET D'URGENCE		
References		<b>ZB6 Y7001</b>		<b>ZB6 Y7330</b>	ZB6 Y7130		
	Body/fixing collar	Plate		<b>Tightening tool</b>	<b>Dismantling tool</b>		
		anti-rotation		and slackening, for fixing nut	for removal of contact blocks		
References	ZB6 Y009 (10)*	ZB6 Y003 (10)*		ZB6 Y905 (2)*	ZB6 Y018 (5)*		
<b>Protective shutter for pushbuttons and switches</b>				<b>Connector</b>		<b>Blanking plug</b>	
	for rectangular heads	for circular and square heads		Faston, female	IP 65		
References	ZB6 YD001	<b>ZB6 YA001</b>		ZB6 Y004 (100)*	ZB6 Y005 (10)*		

\* sold in lots of









#### Pushbuttons, spring return

<b>Type of head</b>			<b>Chromium plated circular bezel</b>				
<b>Degree of protection</b>			IP 65 / Nema 4X, 13 / Class I. (IP 66 for booted pushbuttons)				
<b>Mounting (mm)</b>		panel cut-out	Ø 22.5 (22.4 <sup>+0.4</sup> <sub>0</sub> recommended)				
		mounting centres	30 x 40				
<b>Depth (mm)</b>		below head	43				
<b>Connection (1)</b>			Screw clamp terminals				
<b>Type of push</b>			<b>Flush</b>			<b>Flush, booted</b>	
Unmarked		<b>Products</b>	<b>Complete</b>	<b>For user assembly</b>		<b>Complete</b>	<b>For user assembly</b>
							
<b>References</b>		black ● N/O	<b>XB4 BA21</b>	ZB4 BZ101	ZB4 BA2	<b>XB4 BP21</b>	ZB4 BZ101 ZB4 BP2
		green ● N/O	<b>XB4 BA31</b>	ZB4 BZ101	ZB4 BA3	<b>XB4 BP31</b>	ZB4 BZ101 ZB4 BP3
		red ● N/C	<b>XB4 BA42</b>	ZB4 BZ102	ZB4 BA4	<b>XB4 BP42</b>	ZB4 BZ102 ZB4 BP4
		yellow ● N/O	<b>XB4 BA51</b>	ZB4 BZ101	ZB4 BA5	<b>XB4 BP51</b>	ZB4 BZ101 ZB4 BP5
		blue ● N/O	<b>XB4 BA61</b>	ZB4 BZ101	ZB4 BA6	<b>XB4 BP61</b>	ZB4 BZ101 ZB4 BP6
<b>Type of push</b>			<b>Flush</b>			<b>Flush, booted</b>	
With international marking		<b>Products</b>	<b>Complete</b>	<b>For user assembly</b>		<b>Complete</b>	<b>For user assembly</b>
<b>References</b>		green  N/O	<b>XB4 BA3311</b>	ZB4 BZ101	ZB4 BA331	–	–
		red  N/C	–	–	–	<b>XB4 BA4322</b>	ZB4 BZ102 ZB4 BA432
<b>Type of push</b>			<b>Projecting</b>			<b>Mushroom head, Ø 40 mm</b>	
Unmarked		<b>Products</b>	<b>Complete</b>	<b>For user assembly</b>		<b>Complete</b>	<b>For user assembly</b>
							
<b>References</b>		black ● N/O	–	–	–	<b>XB4 BC21</b>	ZB4 BZ101 ZB4 BC2
		red ● N/C	<b>XB4 BL42</b>	ZB4 BZ102	ZB4 BL4	–	–
<b>Type of push</b>			<b>Double-headed pushbuttons</b>			<b>Double-headed pushbuttons, booted</b>	
<b>Degree of protection</b>			IP 40			IP 66	
With international marking		<b>Products</b>	<b>Complete</b>	<b>For user assembly</b>		<b>Complete</b>	<b>For user assembly</b>
							
<b>References</b>		green / red  N/C + N/O	<b>XB4 BL845</b>	ZB4 BZ105	ZB4 BL8434	<b>XB4 BL945</b>	ZB4 BZ105 ZB4 BL9434



#### Ø 40 mm mushroom head Emergency stop pushbuttons

<b>Type of push</b>			<b>Push-pull (N/C)</b>			<b>Trigger action</b>	
Unmarked		<b>Products</b>	<b>Complete</b>	<b>For user assembly</b>		<b>Complete</b>	<b>For user assembly</b>
							
<b>References</b>		red ● N/C or N/C + N/O	<b>XB4 BT42</b>	ZB4 BZ102	ZB4 BT4	<b>XB4 BT845</b>	ZB4 BZ105 ZB4 BT84
<b>Type of push</b>			<b>Turn to release (N/C)</b>			<b>Turn to release (N/C + N/O)</b>	
<b>References</b>		red ● N/C or N/C + N/O	<b>XB4 BS542</b>	ZB4 BZ102	ZB4 BS54	<b>XB4 BS8445</b>	ZB4 BZ105 ZB4 BS844
<b>Type of push</b>			<b>Key release (N/C)</b>			<b>Key release (N/C + N/O)</b>	
<b>References</b>		red ● N/C or N/C + N/O	<b>XB4 BS142</b>	ZB4 BZ102	ZB4 BS14	<b>XB4 BS9445</b>	ZB4 BZ105 ZB4 BS944

(1) Alternative connections: plug-in connector, Faston connectors (6.35 and 2 x 2.8).

## Contact functions



### Selector switches and key switches

Type of head	Chromium plated circular bezel	
Degree of protection	IP 65 / Nema 4X, 13 / Class I	
Mounting (mm)	panel cut-out	Ø 22.5 (22.4 <sup>+0.4</sup> <sub>0</sub> recommended)
	mounting centres	30 x 40
Depth (mm)	below head	43
Connection (1)	Screw clamp terminals	
Type of operator	Handle	

Products	Complete		For user assembly		Complete		For user assembly	
Number and type of positions	<b>2 positions</b> stay put		<b>2 positions</b> stay put		<b>2 positions</b> spring return to left		<b>2 positions</b> spring return to left	
References	black ● N/O	<b>XB4 BD21</b>	ZB4 BZ101   ZB4 BD2		<b>XB4 BD41</b>	ZB4 BZ101   ZB4 BD4		
Number and type of positions	<b>3 positions</b> stay put		<b>3 positions</b> stay put		<b>3 positions</b> spring return to centre		<b>3 positions</b> spring return to centre	
References	black ● N/O + N/O	<b>XB4 BD33</b>	ZB4 BZ103   ZB4 BD3		<b>XB4 BD53</b>	ZB4 BZ103   ZB4 BD5		



### Type of operator

Products	Complete		For user assembly		Complete		For user assembly	
Number and type of positions (2)	<b>2 positions</b> stay put		<b>2 positions</b> stay put		<b>2 positions</b> stay put		<b>2 positions</b> stay put	
References	black ● N/O	<b>XB4 BG21</b>	ZB4 BZ101   ZB4 BG2		<b>XB4 BG41</b>	ZB4 BZ101   ZB4 BG4		
Number and type of positions	<b>2 positions</b> spring return to left		<b>2 positions</b> spring return to left		<b>3 positions</b> stay put		<b>3 positions</b> stay put	
References	black ● N/O	<b>XB4 BG61</b>	ZB4 BZ101   ZB4 BG6		–	–	–	–
	black ● N/O + N/O	–	–	–	<b>XB4 BG33</b>	ZB4 BZ103   ZB4 BG3		

## Separate components



### Electrical blocks







Single contact blocks	
Rated operational characteristics	AC-15, 240 V - 3 A
Positive operation of contacts conforming to IEC/EN 60947-5-1	All functions incorporating a N/C contact are positive opening operation
References (5)*	N/O <b>ZBE 101</b>
	N/C <b>ZBE 102</b>

(1) Alternative connections: plug-in connector, Faston connectors (6.35 and 2 x 2.8).






(2) The symbol indicates key withdrawal position.

\* sold in lots of






Pilot lights							
Type of head		Circular bezel Smooth lens cap					
Degree of protection		IP 65 / Nema 4X, 13 / Class I					
Mounting (mm)	panel cut-out mounting centres	Ø 22.5 (22.4 <sup>+0.4</sup> <sub>0</sub> recommended)					
Depth	below head	30 x 40 43					
Connection (1)		Screw clamp terminals					
Light source		Integral LED			Direct supply for BA 9s bulb (not included)		
	<b>Products</b>	<b>Complete</b>			<b>Complete</b>	<b>For user assembly</b>	
Supply voltage		24 VAC/DC	48...120 VAC	230...240 VAC	250 V max., 2.4 W max.		
References	white 	<b>XB4 BVB1</b>	<b>XB4 BVG1</b>	<b>XB4 BVM1</b>	<b>XB4 BV61</b>	ZB4 BV6	ZB4 BV01
	green 	<b>XB4 BVB3</b>	<b>XB4 BVG3</b>	<b>XB4 BVM3</b>	<b>XB4 BV63</b>	ZB4 BV6	ZB4 BV03
	red 	<b>XB4 BVB4</b>	<b>XB4 BVG4</b>	<b>XB4 BVM4</b>	<b>XB4 BV64</b>	ZB4 BV6	ZB4 BV04
	yellow 	<b>XB4 BVB5</b>	<b>XB4 BVG5</b>	<b>XB4 BVM5</b>	<b>XB4 BV65</b>	ZB4 BV6	ZB4 BV05
	blue 	<b>XB4 BVB6</b>	<b>XB4 BVG6</b>	<b>XB4 BVM6</b>	–	–	–



Illuminated pushbuttons and selector switches							
Type	Flush push, spring return, illuminated pushbuttons						
Light source		Integral LED			Direct supply for BA 9s bulb (not included)		
	<b>Products</b>	<b>Complete</b>			<b>Complete</b>	<b>For user assembly</b>	
Supply voltage		24 VAC/DC	48...120 VAC	230...240 VAC	250 V max., 2.4 W max.		
References	white  N/C + N/O	<b>XB4 BW31B5</b>	<b>XB4 BW31G5</b>	<b>XB4 BW31M5</b>	<b>XB4 BW3165</b>	ZB4 BW065	ZB4 BW31
	green  N/C + N/O	<b>XB4 BW33B5</b>	<b>XB4 BW33G5</b>	<b>XB4 BW33M5</b>	<b>XB4 BW3365</b>	ZB4 BW065	ZB4 BW33
	red  N/C + N/O	<b>XB4 BW34B5</b>	<b>XB4 BW34G5</b>	<b>XB4 BW34M5</b>	<b>XB4 BW3465</b>	ZB4 BW065	ZB4 BW34
	yellow  N/C + N/O	<b>XB4 BW35B5</b>	<b>XB4 BW35G5</b>	<b>XB4 BW35M5</b>	<b>XB4 BW3565</b>	ZB4 BW065	ZB4 BW35
	blue  N/C + N/O	<b>XB4 BW36B5</b>	<b>XB4 BW36G5</b>	<b>XB4 BW36M5</b>	–	–	–



Type	Double-headed pushbuttons with LED pilot light (1 flush green push, 1 projecting red push)			Illuminated selector switches (2 position stay put)			
Degree of protection	IP 40			IP 65			
Light source	Integral LED			Integral LED			
	<b>Products</b>	<b>Complete</b>			<b>Complete</b>		
Supply voltage		24 VAC/DC	48...120 VAC	230...240 VAC	24 VAC/DC	48...120 VAC	230...240 VAC
References	green  N/C + N/O	–	–	–	<b>XB4 BK123B5</b>	<b>XB4 BK123G5</b>	<b>XB4 BK123M5</b>
	red  N/C + N/O	–	–	–	<b>XB4 BK124B5</b>	<b>XB4 BK124G5</b>	<b>XB4 BK124M5</b>
	yellow  N/C + N/O	<b>XB4 BW84B5</b>	<b>XB4 BW84G5</b>	<b>XB4 BW84M5</b>	<b>XB4 BK125B5</b>	<b>XB4 BK125G5</b>	<b>XB4 BK125M5</b>

(1) Alternative connections: plug-in connector, Faston connectors (6.35 and 2 x 2.8).

## Separate components and accessories

2

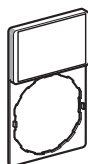
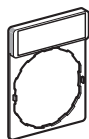


### Electrical blocks

	Single contact blocks	Light blocks with integral LED				Light block, direct supply	
Rated operational characteristics	AC-15, 240 V - 3 A	Consumption					
		18 mA	24 VAC/DC				
Positive operation of contacts conforming to IEC/EN 60947-5-1	N/C contacts with positive opening operation	14 mA	120 VAC				
		14 mA	240 VAC				
		To combine with heads for integral LED				For BA 9s bulb (not included)	
			24 VAC/DC	48...120 VAC	230...240 VAC	250 V max., 2.4 W max.	
References (5)*	N/O	<b>ZBE 101</b>	white ●	ZBV B1	ZBV G1	ZBV M1	ZBV 6
	N/C	<b>ZBE 102</b>	green ●	ZBV B3	ZBV G3	ZBV M3	Colour provided by lens
			red ●	ZBV B4	ZBV G4	ZBV M4	
			yellow ●	ZBV B5	ZBV G5	ZBV M5	
			blue ●	ZBV B6	ZBV G6	ZBV M6	



Diecast metal enclosures (Zinc alloy, usable depth 49 mm)		1 vertical row				2 vertical rows		
Number of cut-outs	Front face dimensions	1	2	3	4	2	4	6
References	80 x 80 mm	XAP M1201	–	–	–	XAP M1202	–	–
	80 x 130 mm	–	XAP M2202	XAP M2203	–	–	XAP M2204	–
	80 x 175 mm	–	–	XAP M3203	XAP M3204	–	–	XAP M3206



### Accessories

#### Legend holders, 30 x 40 mm, for 8 x 27 mm legends

Marking	Background colour: black or red						white or yellow		
References (10)*	Blank	ZBY 2101						ZBY 4101	
International	0 (red background)	ZBY 2931	I	ZBY 2147	AUTO	ZBY 2115	STOP	ZBY 2304	–
English	OFF	ZBY 2312	ON	ZBY 2311	START	ZBY 2303	–	–	–
French	ARRET (red b/grnd)	ZBY 2104	ARRET-MARCHE	ZBY 2166	MARCHE	ZBY 2103	–	–	–
German	AUS	ZBY 2204	AUS-EIN	ZBY 2266	EIN	ZBY 2203	–	–	–
Spanish	PARADA (red b/grnd)	ZBY 2404	PARADA-MARCHA	ZBY 2466	MARCHA	ZBY 2403	–	–	–

#### Legend holders, 30 x 50 mm, for 18 x 27 mm legends

Background colour	black or red						white or yellow		
References (10)*	Blank	ZBY 6101						ZBY 6102	

#### Ø 60 mm legend for mushroom head Emergency stop pushbutton

Background colour	yellow					
Marking	Blank	EMERGENCY STOP	ARRET D'URGENCE	NOT-AUS	PARADA DE EMERGENCIA	
References	ZBY 9101	ZBY 9330	ZBY 9130	ZBY 9230	ZBY 9430	

(1) Alternative connections: plug-in connector, Faston connectors (6.35 and 2 x 2.8).

\* sold in lots of





#### Pushbuttons, spring return

<b>Type of head</b>			<b>Circular bezel</b>				
Degree of protection			IP 65 / Nema 4X, 13 / Class II. (IP 66 for booted pushbuttons)				
Mounting (mm)		panel cut-out	Ø 22.5 (22.4 <sup>+0.4</sup> <sub>0</sub> recommended)				
		mounting centres	30 x 40				
Depth (mm)		below head	43				
Connection (1)			Screw clamp terminals				
<b>Type of push</b>			<b>Flush</b>			<b>Flush, booted</b>	
Unmarked		<b>Products</b>	<b>Complete</b>	<b>For user assembly</b>		<b>Complete</b>	<b>For user assembly</b>
References		black ● N/O	<b>XB5 AA21</b>	ZB5 AZ101	ZB5 AA2	<b>XB5 AP21</b>	ZB5 AZ101 ZB5 AP2
		green ● N/O	<b>XB5 AA31</b>	ZB5 AZ101	ZB5 AA3	<b>XB5 AP31</b>	ZB5 AZ101 ZB5 AP3
		red ● N/C	<b>XB5 AA42</b>	ZB5 AZ102	ZB5 AA4	<b>XB5 AP42</b>	ZB5 AZ102 ZB5 AP4
		yellow ● N/O	<b>XB5 AA51</b>	ZB5 AZ101	ZB5 AA5	<b>XB5 AP51</b>	ZB5 AZ101 ZB5 AP5
		blue ● N/O	<b>XB5 AA61</b>	ZB5 AZ101	ZB5 AA6	<b>XB5 AP61</b>	ZB5 AZ101 ZB5 AP6
<b>Type of push</b>			<b>Flush</b>				
With international marking		<b>Products</b>	<b>Complete</b>	<b>For user assembly</b>		<b>Complete</b>	<b>For user assembly</b>
References		green I N/O	<b>XB5 AA3311</b>	ZB5 AZ101	ZB5 AA3311	–	–
		red I N/C	–	–	–	<b>XB5 AA4322</b>	ZB5 AZ102 ZB5 AA4322
<b>Type of push</b>			<b>Projecting</b>			<b>Mushroom head, Ø 40 mm</b>	
Unmarked		<b>Products</b>	<b>Complete</b>	<b>For user assembly</b>		<b>Complete</b>	<b>For user assembly</b>
References		black ● N/O	–	–	–	<b>XB5 AC21</b>	ZB5 AZ101 ZB5 AC2
		red ● N/C	<b>XB5 AL42</b>	ZB5 AZ102	ZB5 AL4	–	–
<b>Type of push</b>			<b>Double-headed pushbuttons</b>			<b>Double-headed pushbuttons, booted</b>	
Degree of protection			IP 40			IP 66	
With international marking		<b>Products</b>	<b>Complete</b>	<b>For user assembly</b>		<b>Complete</b>	<b>For user assembly</b>
References		green / red I N/C + N/O	<b>XB5 AL845</b>	ZB5 AZ105	ZB5 AL8434	<b>XB5 AL945</b>	ZB5 AZ105 ZB5 AL9434



#### Ø 40 mm mushroom head Emergency stop pushbuttons

<b>Type of push</b>			<b>Push-pull (N/C)</b>			<b>Trigger action</b>	
Unmarked		<b>Products</b>	<b>Complete</b>	<b>For user assembly</b>		<b>Complete</b>	<b>For user assembly</b>
References		red ● N/C or N/C + N/O	<b>XB5 AT42</b>	ZB5 AZ102	ZB5 AT4	<b>XB5 AT845</b>	ZB5 AZ105 ZB5 AT84
<b>Type of push</b>			<b>Turn to release (N/C)</b>			<b>Turn to release (N/C + N/O)</b>	
References		red ● N/C or N/C + N/O	<b>XB5 AS542</b>	ZB5 AZ102	ZB5 AS54	<b>XB5 AS8445</b>	ZB5 AZ105 ZB5 AS844
<b>Type of push</b>			<b>Key release (N/C)</b>			<b>Key release (N/C + N/O)</b>	
References		red ● N/C or N/C + N/O	<b>XB5 AS142</b>	ZB5 AZ102	ZB5 AS14	<b>XB5 AS9445</b>	ZB5 AZ105 ZB5 AS944

(1) Alternative connections: plug-in connector, Faston connectors (6.35 and 2 x 2.8).



## Contact functions



### Selector switches and key switches

<b>Type of head</b>		<b>Circular bezel</b>			
Degree of protection		IP 65 / Nema 4X, 13 / Class II			
Mounting (mm)	panel cut-out mounting centres	Ø 22.5 (22.4 <sup>+0.4</sup> <sub>0</sub> recommended)			
Depth (mm)	below head	30 x 40 43			
Connection (1)		Screw clamp terminals			
<b>Type of operator</b>		<b>Handle</b>			
	<b>Products</b>	<b>Complete</b>	<b>For user assembly</b>	<b>Complete</b>	<b>For user assembly</b>
Number and type of positions		<b>2 positions</b> stay put	<b>2 positions</b> stay put	<b>2 positions</b> spring return to left	<b>2 positions</b> spring return to left
References	black ● N/O	<b>XB5 AD21</b>	ZB5 AZ101   ZB5 AD2	<b>XB5 AD41</b>	ZB5 AZ101   ZB5 AD4
Number and type of positions		<b>3 positions</b> stay put	<b>3 positions</b> stay put	<b>3 positions</b> spring return to centre	<b>3 positions</b> spring return to centre
References	black ● N/O + N/O	<b>XB5 AD33</b>	ZB5 AZ103   ZB5 AD3	<b>XB5 AD53</b>	ZB5 AZ103   ZB5 AD5
<b>Type of operator</b>		<b>Key, n° 455</b>			
Number and type of positions (2)		<b>2 positions</b> stay put	<b>2 positions</b> stay put	<b>2 positions</b> stay put	<b>2 positions</b> stay put
References	black ● N/O	<b>XB5 AG21</b>	ZB5 AZ101   ZB5 AG2	<b>XB5 AG41</b>	ZB5 AZ101   ZB5 AG4

(2) The symbol indicates key withdrawal position.

## Separate components and accessories

### Electrical blocks

Single contact blocks		Light blocks with integral LED				Light block, direct supply	
		To combine with heads for integral LED				For BA 9s bulb (not included)	
			24 VAC/DC	48...120 VAC	230...240 VAC	250 V max., 2.4 W max.	
References (5)*	N/O	ZBE 101	white ●	ZBV B1	ZBV G1	ZBV M1	ZBV6
	N/C	ZBE 102	green ●	ZBV B3	ZBV G3	ZBV M3	Colour provided by lens
			red ●	ZBV B4	ZBV G4	ZBV M4	
			yellow ●	ZBV B5	ZBV G5	ZBV M5	
				blue ●	ZBV B6	ZBV G6	ZBV M6

### Accessories

#### Legend holders, 30 x 40 mm, for 8 x 27 mm legends

Marking	Background colour: black or red								white or yellow	
References (10)*	Blank	ZBY 2101								ZBY 4101
References	International	0 (red background)	ZBY 2931	I	ZBY 2147	AUTO	ZBY 2115	STOP	ZBY 2304	–
	English	OFF	ZBY 2312	ON	ZBY 2311	START	ZBY 2303	–	–	–
	French	ARRET (red b/grnd)	ZBY 2104	ARRET-MARCHE	ZBY 2166	MARCHE	ZBY 2103	–	–	–
	German	AUS	ZBY 2204	AUS-EIN	ZBY 2266	EIN	ZBY 2203	–	–	–
	Spanish	PARADA (red b/grnd)	ZBY 2404	PARADA-MARCHA	ZBY 2466	MARCHA	ZBY 2403	–	–	–

#### Legend holders, 30 x 50 mm, for 18 x 27 mm legends

Background colour	black or red								white or yellow	
References (10)*	Blank	ZBY 6101								ZBY 6102

#### Ø 60 mm legend for mushroom head Emergency stop pushbutton









Background colour	yellow								
Marking	Blank	EMERGENCY STOP	ARRET D'URGENCE	NOT-AUS	PARADA DE EMERGENCIA				
References	ZBY 9101	ZBY 9330	ZBY 9130	ZBY 9230	ZBY 9430				
	<b>Body/fixing collar</b>			<b>Fixing nut</b>		<b>Bezel tool</b>		<b>Plate</b>	
	for electrical block (contact or light)			for head		for tightening fixing nut ZB5 AZ901		anti-rotation	
References	ZB5 AZ009 (10)*			ZB5 AZ901 (10)*		ZB5 AZ905		ZB5 AZ902	

(1) Alternative connections: plug-in connector, Faston connectors (6.35 and 2 x 2.8).

\* sold in lots of










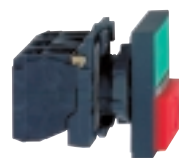
#### Pilot lights




<b>Type of head</b>		<b>Circular bezel</b> <b>Smooth lens cap</b>						
Degree of protection		IP 65 / Nema 4X, 13 / Class II						
Mounting (mm)	panel cut-out mounting centres	Ø 22.5 (22.4 <sup>+0.4</sup> <sub>0</sub> recommended)						
Depth	below head	30 x 40						
Connection (1)		43						
Light source		Screw clamp terminals			Integral LED			Direct supply for BA 9s bulb (not included)
	<b>Products</b>	<b>Complete</b>			<b>Complete</b>	<b>For user assembly</b>		
								
Supply voltage		24 VAC/DC	48...120 VAC	230...240 VAC	250 V max., 2.4 W max.			
References	white 	<b>XB5 AVB1</b>	<b>XB5 AVG1</b>	<b>XB5 AVM1</b>	<b>XB5 AV61</b>	ZB5 AV6	ZB5 AV01	
	green 	<b>XB5 AVB3</b>	<b>XB5 AVG3</b>	<b>XB5 AVM3</b>	<b>XB5 AV63</b>	ZB5 AV6	ZB5 AV03	
	red 	<b>XB5 AVB4</b>	<b>XB5 AVG4</b>	<b>XB5 AVM4</b>	<b>XB5 AV64</b>	ZB5 AV6	ZB5 AV04	
	yellow 	<b>XB5 AVB5</b>	<b>XB5 AVG5</b>	<b>XB5 AVM5</b>	<b>XB5 AV65</b>	ZB5 AV6	ZB5 AV05	
	blue 	<b>XB5 AVB6</b>	<b>XB5 AVG6</b>	<b>XB5 AVM6</b>	–	–	–	



#### Illuminated pushbuttons and selector switches

<b>Type</b>	<b>Flush push, spring return, illuminated pushbuttons</b>						
Light source		Integral LED			Direct supply for BA 9s bulb (not included)		
	<b>Products</b>	<b>Complete</b>			<b>Complete</b>	<b>For user assembly</b>	
							
Supply voltage		24 VAC/DC	48...120 VAC	230...240 VAC	250 V max., 2.4 W max.		
References	white  N/C + N/O	<b>XB5 AW31B5</b>	<b>XB5 AW31G5</b>	<b>XB5 AW31M5</b>	<b>XB5 AW3165</b>	ZB5 AW065	ZB5 AW31
	green  N/C + N/O	<b>XB5 AW33B5</b>	<b>XB5 AW33G5</b>	<b>XB5 AW33M5</b>	<b>XB5 AW3365</b>	ZB5 AW065	ZB5 AW33
	red  N/C + N/O	<b>XB5 AW34B5</b>	<b>XB5 AW34G5</b>	<b>XB5 AW34M5</b>	<b>XB5 AW3465</b>	ZB5 AW065	ZB5 AW34
	yellow  N/C + N/O	<b>XB5 AW35B5</b>	<b>XB5 AW35G5</b>	<b>XB5 AW35M5</b>	<b>XB5 AW3565</b>	ZB5 AW065	ZB5 AW35
	blue  N/C + N/O	<b>XB5 AW36B5</b>	<b>XB5 AW36G5</b>	<b>XB5 AW36M5</b>	–	–	–



<b>Type</b>	<b>Double-headed pushbuttons with LED pilot light</b> (1 flush green push, 1 projecting red push)			<b>Illuminated selector switches</b> (2 position stay put)			
Degree of protection	IP 40			IP 65			
Light source	Integral LED			Integral LED			
	<b>Products</b>	<b>Complete</b>			<b>Complete</b>		
Supply voltage		24 VAC/DC	48...120 VAC	230...240 VAC	24 VAC/DC	48...120 VAC	230...240 VAC
References	green  N/C + N/O	–	–	–	<b>XB5 AK123B5</b>	<b>XB5 AK123G5</b>	<b>XB5 AK123M5</b>
	red  N/C + N/O	–	–	–	<b>XB5 AK124B5</b>	<b>XB5 AK124G5</b>	<b>XB5 AK124M5</b>
	yellow  N/C + N/O	<b>XB5 AW84B5</b>	<b>XB5 AW84G5</b>	<b>XB5 AW84M5</b>	<b>XB5 AK125B5</b>	<b>XB5 AK125G5</b>	<b>XB5 AK125M5</b>

(1) Alternative connections: plug-in connector, Faston connectors (6.35 and 2 x 2.8).

Separate components and accessories: see previous page.







### Complete stations with 1 pushbutton, selector switch or key switch (light grey RAL 7035 base with dark grey RAL 7016 cover)

<b>Degree of protection</b>		IP 65 / Nema 4X and 13 / Class II					
<b>Dimensions (mm)</b>		W x H x D					
<b>Fixing (mm)</b>		2 x Ø4.3 on 54 mm centres					
<b>Function</b>		<b>1 Start or Stop function</b>			<b>1 Start-Stop function</b>		
<b>Marking</b>		On spring return push			On legend holder and legend below head		
Number and type of pushbutton/selector switch/key switch		1 flush green p/b	1 flush red p/b	1 projecting red p/b	1 2 position stay put selector switch or key switch		
References	N/O	I	XAL D102	–	–	–	
		Start	XAL D103	–	–	–	
	N/C	O - I	–	–	–	XAL D134	XAL D144
		O	–	XAL D112	XAL D115	–	–



<b>Function</b>		<b>Emergency stop (light grey RAL 7035 base with yellow RAL 1012 cover)</b>			
Number and type of mushroom head pushbutton		1 red Ø 40 head, turn to release		1 red Ø 40 head, key release	
Latching mechanism		Trigger action		Standard	
References	N/C	–	XAL K174	XAL K184	
	N/C + N/C	XAL K178F	XAL K174F	XAL K184F	
	N/C + N/O	XAL K178E	XAL K174E	XAL K184E	
	N/C + N/C + N/O	XAL K178G	XAL K174G	XAL K184G	




### Complete stations with 2 and 3 pushbuttons or 2 pushbuttons + 1 pilot light (light grey RAL 7035 base with dark grey RAL 7016 cover)

<b>Dimensions (mm)</b>		2-way control stations: 68 x 106 x 62; 3-way control stations: 68 x 136 x 87					
<b>Fixing (mm)</b>		2-way control stations: 2 x Ø4.3 on 54 x 68 centres; 3-way control stations: 2 x Ø4.3 on 54 x 98 centres					
<b>Function</b>		<b>Start-Stop functions</b>			<b>2 functions</b>	<b>3 functions</b>	
<b>Marking</b>		On spring return push					
Number and type of pushbutton/pilot light		1 flush green p/b 1 flush red p/b	1 flush green pushbutton 1 flush red pushbutton 1 pilot light with integral LED (1)	24 VAC/DC	230 VAC	1 flush white p/b 1 flush red p/b 1 flush black p/b 1 flush white p/b 1 Ø 30 red mushroom head p/b 1 flush black p/b	
References	N/O + N/C	I - O	XAL D213	XAL D363B	XAL D363M	–	
		Start - Stop	XAL D215	–	–	–	
	N/O + N/O	↑ ↓	–	–	–	XAL D222	–
		↑ ○ ↓	–	–	–	–	XAL D324

<b>Accessories</b>		<b>Standard contact blocks</b>			<b>(1) Light blocks with integral LED, colour red</b>	
Description		N/O contact	N/C contact	24 VAC/DC	230 VAC	
References		ZEN L1111	ZEN L1121	ZAL VB4	ZAL VM4	







#### Pushbuttons

<b>Type of head</b>		<b>Flush push</b>	circular	
Degree of protection		IP 54, class II		
Mounting (mm)	panel cut-out mounting centres	Ø 22.4 (0 +0.1)	30 (horizontal) x 40 (vertical)	
Dimensions (mm)	Ø x Depth (below head)	Ø 29 x 41.5, (Ø 40 x 41.5 for Emergency stop)		
Connection (1)		Screw clamp terminals, 1 x 0.34 mm <sup>2</sup> to 1 x 1.5 mm <sup>2</sup>		
<b>Type of push</b>		<b>Spring return</b>	<b>Push and push-to-release</b>	
References (10*)	black	N/O	XB7 EA21P	XB7 EH21P
		C/O	XB7 EA25P	XB7 EH25P
	green	N/O	<b>XB7 EA31P</b>	<b>XB7 EH31P</b>
		C/O	XB7 EA35P	XB7 EH35P
	red	N/C	<b>XB7 EA42P</b>	-
		C/O	XB7 EA45P	-
	yellow	N/O	XB7 EA51P	-



#### Selector switches and key switches

<b>Type of operator</b>		<b>Black handle</b>		<b>Ronis key, n° 455</b>	
Number and type of positions		<b>2 positions</b> stay put 	<b>3 positions</b> stay put 	<b>2 positions</b> stay put 	<b>3 positions</b> stay put 
References (10*)	N/O	<b>XB7 ED21P</b>	-	<b>XB7 EG21P</b>	-
	N/C + N/O	XB7 ED25P	-	-	-
	2 N/O	-	<b>XB7 ED33P</b>	-	XB7 EG33P



#### Ø 40 mushroom head Emergency stop pushbuttons

<b>Type of head</b>		<b>Trigger action</b>	
<b>Type of push</b>		<b>Turn to release</b>	<b>Key release, Ronis 455</b>
References (10*)	red	N/C	<b>XB7 ES542P</b>
	red	N/C + N/O	XB7 ES545P
			<b>XB7 ES142P</b>
			XB7 ES145P

(1) Alternative connection: 1 x 6.35 and 2 x 2.8 mm Faston connectors.

\* sold in lots of 10



## Contact functions and light functions

(1):

Voltage	Letter (●)
24 VDC	B
230 VAC	M



2

### Illuminated pushbuttons

Type of head		Projecting push	
		circular	
Degree of protection		IP 54, class II	
Mounting (mm)		Ø 22.4 (0 +0.1)	
panel cut-out mounting centres		30 (horizontal) x 40 (vertical)	
Dimensions (mm)		Ø 29 x 41.5, (Ø 40 x 41.5 for Emergency stop)	
Connection (2)		Screw clamp terminals, 1 x 0.34 mm <sup>2</sup> to 1 x 1.5 mm <sup>2</sup>	
Type of push		Spring return	
Light source		Integral LED	Incandescent bulb direct supply (bulb not included)
Supply voltage		24 VDC or 230 VAC	6 or 24 VDC, or 130 VAC
References (10*)	green	N/O <b>XB7 EW33●1P</b> (1)	<b>XB7 EW3361P</b>
	red	N/O XB7 EW34●1P (1)	XB7 EW3461P
		N/C XB7 EW34●2P (1)	–
	yellow	N/O XB7 EW35●1P (1)	XB7 EW3561P
Type of push		Push and push-to-release	
Light source		Integral LED	Incandescent bulb direct supply (bulb not included)
Supply voltage		24 VDC or 230 VAC	6 or 24 VDC, or 130 VAC
References (10*)	green	N/O <b>XB7 EH03●1P</b> (1)	<b>XB7 EH0361P</b>
	red	N/O XB7 EH04●1P (1)	XB7 EH0461P
		N/C XB7 EH04●2P (1)	–
	yellow	N/O XB7 EH05●1P (1)	XB7 EH0561P



### Pilot lights

Light source		Integral LED	Incandescent bulb direct supply (bulb not included)	Incandescent bulb direct through resistor (bulb included)
Supply voltage		24 VDC or 230 VAC	6 or 24 VDC, or 130 VAC	230 VAC
References (10)*	white	XB7 EV01●1P (1)	XB7 EV61P	XB7 EV71P
	green	XB7 EV03●1P (1)	XB7 EV63P	XB7 EV73P
	red	XB7 EV04●1P (1)	XB7 EV64P	XB7 EV74P
	yellow	XB7 EV05●1P (1)	XB7 EV65P	XB7 EV75P

### Incandescent bulbs, long life

BA 9s base fitting, Ø 11 mm max., length 28 mm max.

References	6 V (1.2 W)	24 V (2 W)	130 V (2.4 W)
	DL1 CB006	DL1 CE024	DL1 CE130

(1) Basic reference, to be completed by the letter B or M indicating the required voltage. See voltage table above.

(2) Alternative connection: 1 x 6.35 and 2 x 2.8 mm Faston connectors.

\* sold in lots of 10



#### Pushbuttons, spring return

<b>Type of push</b>		Flush	Projecting	Projecting (high guard)	
<b>Colour of push</b>		Multi-colour (set of 7 clip-in coloured caps)			
<b>Degree of protection</b>		IP 66 / Nema 1, 2, 3, 3R, 4, 6, 12 and 13 / Class II			
<b>Mounting (mm)</b>	panel cut-out	Ø 31			
	mounting centres	57.2 x 44.5 (with legend 9001KN2●●), 57.2 x 50.8 (with legend 9001KN3●●)			
<b>Depth below head (mm)</b>		42			
<b>Connection</b>		Screw clamp terminals			
<b>References</b>		C/O	<b>9001KR1UH13</b>	<b>9001KR3UH13</b>	<b>9001KR2UH13</b>
		N/O	<b>9001KR1UH5</b>	<b>9001KR3UH5</b>	<b>9001KR2UH5</b>



#### Mushroom head Emergency stop pushbuttons

<b>Type of push</b>		Spring return	Push-pull			
		Ø 35 mushroom head	Ø 57 mushroom head	Ø 41 mushroom head	Ø 35 mushroom head	
<b>Degree of protection</b>		IP 66 / Nema 1, 2, 3, 3R, 4, 6, 12 and 13 / Class II				
<b>Mounting (mm)</b>	panel cut-out	Ø 31				
	mounting centres	57.2 x 44.5 (with legend 9001KN2●●), 57.2 x 50.8 (with legend 9001KN3●●)				
	mounting centres (Ø 57 head)	57.2 x 57.2 (with legend 9001KN2●● or 9001KN3●●)				
<b>Depth below head (mm)</b>		42				
<b>Connection</b>		Screw clamp terminals				
<b>References</b>		C/O	<b>9001KR24RH13</b>	<b>9001KR25RH13</b>	<b>9001KR9R94H13</b>	<b>9001KR9R20H13</b>
		N/C	<b>9001KR24RH6</b>	<b>9001KR25RH6</b>	<b>9001KR9RH6</b>	<b>9001KR9R20H6</b>



#### Selector switches and key switches

<b>Type of operator</b>		Long black handle	Key, n° 455			
	positions (1)	3 - spring return	2 - stay put	2 - spring return	3 - stay put	2 - stay put
<b>Number and type of positions</b>						
<b>Degree of protection</b>		IP 66 / Nema 1, 2, 3, 3R, 4, 6, 12 and 13 / Class II				
<b>Mounting (mm)</b>	panel cut-out	Ø 31				
	mounting centres	57.2 x 44.5 (with legend 9001KN2●●), 57.2 x 50.8 (with legend 9001KN3●●)				
<b>Depth below head (mm)</b>		42				
<b>Connection</b>		Screw clamp terminals				
<b>References</b>	N/O	–	<b>9001KS11FBH5</b>	<b>9001KS34FBH5</b>	–	–
	C/O	<b>9001KS53FBH1</b>	–	–	<b>9001KS43FBH1</b>	<b>9001KS11K1RH1</b>

(1) The symbol indicates key withdrawal position.

## Light functions



2

### Pilot lights

<b>Type of head</b>		Smooth lens cap			
Degree of protection		IP 66 / Nema 1, 2, 3, 3R, 4, 6, 12 and 13 / Class II			
Mounting (mm)	panel cut-out	Ø 31			
	mounting centres	57.2 x 44.5 (with legend 9001KN2●●), 57.2 x 50.8 (with legend 9001KN3●●)			
Depth below head (mm)		42			
Connection		Screw clamp terminals			
Type of light block		With high luminosity LED (included)			Incandescent BA 9s bulb (included)
References		24 VAC/DC	48 VAC/DC	120 VAC/DC	230 VAC
	green ●	<b>9001KP35LGG9</b>	<b>9001KP36LGG9</b>	<b>9001KP38LGG9</b>	<b>9001KP7G9</b>
	red ●	<b>9001KP35LRR9</b>	<b>9001KP36LRR9</b>	<b>9001KP38LRR9</b>	<b>9001KP7R9</b>
	yellow ●	<b>9001KP35LYA9</b>	<b>9001KP36LYA9</b>	<b>9001KP38LYA9</b>	<b>9001KP7A9</b>



### Illuminated pushbuttons, spring return

<b>Type of head</b>		Spring return flush push			
Degree of protection		IP 66 / Nema 1, 2, 3, 3R, 4, 6, 12 and 13 / Class II			
Mounting (mm)	panel cut-out	Ø 31			
	mounting centres	57.2 x 44.5 (with legend 9001KN2●●), 57.2 x 50.8 (with legend 9001KN3●●)			
Depth below head (mm)		42			
Connection		Screw clamp terminals			
Type of light block		With high luminosity LED (included)			Incandescent BA 9s bulb (included)
References		24 VAC/DC	48 VAC/DC	120 VAC/DC	230 VAC
	green ●	C/O <b>9001K3L35LGGH13</b>	<b>9001K3L36LGGH13</b>	<b>9001K3L38LGGH13</b>	<b>9001K2L7RH13</b>
	red ●	C/O <b>9001K3L35LRRH13</b>	<b>9001K3L36LRRH13</b>	<b>9001K3L38LRRH13</b>	<b>9001K2L7GH13</b>
	yellow ●	C/O <b>9001K3L35LYAH13</b>	<b>9001K3L36LYAH13</b>	<b>9001K3L38LYAH13</b>	<b>9001K2L7AH13</b>



### Illuminated Ø 41 mushroom head pushbuttons, high luminosity LED

Degree of protection		IP 66 / Nema 1, 2, 3, 3R, 4, 6, 12 and 13 / Class II			
Mounting (mm)	panel cut-out	Ø 31			
	mounting centres	57.2 x 44.5 (with legend 9001KN2●●), 57.2 x 50.8 (with legend 9001KN3●●)			
Depth below head (mm)		42			
Connection		Screw clamp terminals			
Type of light block		With high luminosity LED (included)			Incandescent BA 9s bulb (included)
		24 VAC/DC	48 VAC/DC	120 VAC/DC	230 VAC/DC
<b>Type of head</b>		2 position, push-pull			
References	red ●	C/O <b>9001KR9P35RH13</b>	<b>9001KR9P36RH13</b>	<b>9001KR9P38RH13</b>	<b>9001KR9P7RH13</b>
<b>Type of head</b>		3 position, push-pull (pull: spring return, centre: stay put, push: spring return)			
References	red ●	N/C + N/C late break <b>9001KR8P35RH25</b>	<b>9001KR8P36RH25</b>	<b>9001KR8P38RH25</b>	<b>9001KR8P7RH25</b>



**Pushbuttons, spring return**

<b>Type of push</b>		Flush	Projecting	Projecting (high guard)	
<b>Colour of push</b>		Multi-colour (set of 7 clip-in coloured caps)			
<b>Degree of protection</b>		IP 66 / Nema 1, 2, 3, 3R, 4, 4X, 12 and 13 / Class II			
<b>Mounting (mm)</b>	panel cut-out	Ø 31			
	mounting centres	57.2 x 44.5 (with legend 9001KN2●●), 57.2 x 50.8 (with legend 9001KN3●●)			
<b>Depth below head (mm)</b>		42			
<b>Connection</b>		Screw clamp terminals			
<b>References</b>		C/O	9001SKR1UH13	9001SKR3UH13	9001SKR2UH13
		N/O	9001SKR1UH5	9001SKR3UH5	9001SKR2UH5



**Selector switches**

<b>Type of operator</b>		Long black handle				
<b>Number and type of positions</b>	positions	3 - spring return	2 - stay put	2 - spring return	3 - stay put	
<b>Degree of protection</b>		IP 66 / Nema 1, 2, 3, 3R, 4, 4X, 12 and 13 / Class II				
<b>Mounting (mm)</b>	panel cut-out	Ø 31				
	mounting centres	57.2 x 44.5 (with legend 9001KN2●●), 57.2 x 50.8 (with legend 9001KN3●●)				
<b>Depth below head (mm)</b>		42				
<b>Connection</b>		Screw clamp terminals				
<b>References</b>		N/O	–	9001SKS11FBH5	9001SKS34FBH5	–
		C/O	9001SKS53FBH1	–	–	9001SKS43FBH1



**Pilot lights**

<b>Type of head</b>		Smooth lens cap			
<b>Degree of protection</b>		IP 66 / Nema 1, 2, 3, 3R, 4, 4X, 12 and 13 / Class II			
<b>Mounting (mm)</b>	panel cut-out	Ø 31			
	mounting centres	57.2 x 44.5 (with legend 9001KN2●●), 57.2 x 50.8 (with legend 9001KN3●●)			
<b>Depth below head (mm)</b>		42			
<b>Connection</b>		Screw clamp terminals			
<b>Type of light block</b>		With high luminosity LED (included)			Incandescent BA 9s bulb (included)
<b>References</b>		24 VAC/DC	48 VAC/DC	120 VAC/DC	230 VAC
	green ●	9001SKP35LGG9	9001SKP36LGG9	9001SKP38LGG9	9001SKP7G9
	red ●	9001SKP35LRR9	9001SKP36LRR9	9001SKP38LRR9	9001SKP7R9
	yellow ●	9001SKP35LYA9	9001SKP36LYA9	9001SKP38LYA9	9001SKP7A9

## Accessories



2

### Contact blocks with protected terminals

Type of contact	Single contact blocks	
Connection	Screw clamp terminals	
References	C/O	9001KA1
	N/O	9001KA2
	N/C	9001KA3
	C/O, late break	9001KA4
	N/C, late break	9001KA5
	N/O, early make	9001KA6



### Enclosures

Type	Number of Ø 30 mm cut-outs	NEMA ratings	Reference
Aluminium	1	1, 3, 4, 6, 12, 13	9001KY1
	2	1, 3, 4, 6, 12, 13	9001KY2
	3	1, 3, 4, 6, 12, 13	9001KY3
	4	1, 3, 4, 6, 12, 13	9001KY4
Stainless steel	1	1, 3, 4, 4X, 13	9001KYSS1
	2	1, 3, 4, 4X, 13	9001KYSS2
	3	1, 3, 4, 4X, 13	9001KYSS3



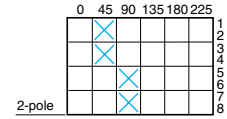
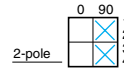
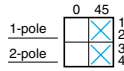
### Legends

Type	Colour of legend	Aluminium, size 44 x 43 mm black background	Plastic, size 57 x 57 mm white background
Marking	Blank	9001KN200	9001KN100WP
	START	9001KN201	9001KN101WP
	STOP (red background)	9001KN202	9001KN102RP
	FORWARD	9001KN206	9001KN106WP
	REVERSE	9001KN207	9001KN107WP
	CLOSE	9001KN208	9001KN108WP
	OPEN	9001KN209	9001KN109WP
	DOWN	9001KN210	9001KN110WP
	UP	9001KN211	9001KN111WP
	HIGH	9001KN214	9001KN114WP
	LOW	9001KN215	9001KN115WP
	RESET	9001KN223	9001KN123WP
	PULL TO START/ PUSH TO STOP	9001KN379	9001KN179WP

2



positions (°)

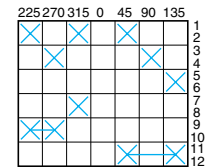
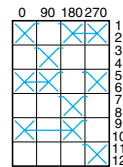
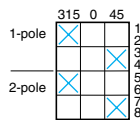


### Cam switches, K1 / K2 series

Function	Switches	ON-OFF switches	Stepping switches
	45° switching angle	90° switching angle	with "0" position
Degree of protection front face	IP 65 (1)	IP 65 (1)	IP 65 (1)
Conventional thermal current (Ith)	12 A   20 A	12 A   20 A	12 A   20 A
Rated insulation voltage (Ui) conforming to IEC60947-1	690 V	690 V	690 V
Number of positions	2	2	2 + "0" position
Number of poles	2	2	2
Dimensions of front plate (mm)	45 x 45	45 x 45	45 x 45
Front mounting method	Multifixing plate, 45 x 45 mm	<b>K1B 002ALH</b>   <b>K2B 002ALH</b>	<b>K1B 1002HLH</b>   <b>K2B 1002HLH</b>
	Plastic mounting plate for Ø 22 mm hole	<b>K1B 002ACH</b>   <b>K2B 002ACH</b>	<b>K1B 1002HCH</b>   <b>K2B 1002HCH</b>
		<b>K1D 012QLH</b>   <b>K2D 012QLH</b>	<b>K1D 012QCH</b>   <b>K2D 012QCH</b>



positions (°)



### Cam switches, K1 / K2 series

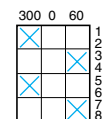
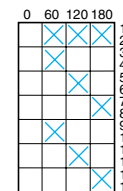
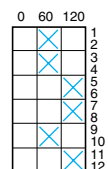
Function	Changeover switches	Ammeter switches	Voltmeter switches
Degree of protection front face	IP 65 (1)	IP 65 (1)	IP 65 (1)
Conventional thermal current (Ith)	12 A   20 A	12 A   20 A	12 A   20 A
Rated insulation voltage (Ui) conforming to IEC60947-1	690 V	690 V	690 V
Number of positions	2 + "0" position	3 + "0" position (3 circuits + "0" position)	6 + "0" position (measurements between 3 phases & N + "0" pos.)
Number of poles	2	4	7
Dimensions of front plate (mm)	45 x 45	45 x 45	45 x 45
Front mounting method	Multifixing plate, 45 x 45 mm	<b>K1D 002ULH</b>   <b>K2D 002ULH</b>	<b>K1F 003MLH</b>   to be compiled *
	Plastic mounting plate for Ø 22 mm hole	<b>K1D 002UCH</b>   <b>K2D 002UCH</b>	<b>K1F 003MCH</b>   to be compiled *
		<b>K1F 027MLH</b>   to be compiled *	<b>K1F 027MCH</b>   to be compiled *

(1) With seal KZ73 for switch with Multifixing plate, with seal KZ65 for Ø 22 mm hole mounting switches. Seal to be ordered separately.

(\*) Please consult your Schneider Electric agency.



positions (°)



### Cam switches with key operated lock, K1 series

Function	Stepping switches	Run switches	Changeover switches + "0" pos.
Degree of protection front face	IP 65	IP 65	IP 65
Conventional thermal current (Ith)	12 A	12 A	12 A
Rated insulation voltage (Ui) conforming to IEC60947-1	690 V	690 V	690 V
Number of positions	2 + "0" position	3 + "0" position	2 + "0" position
Number of poles	3	2	2
Dimensions of front plate (mm)	55 x 100	55 x 100	55 x 100
Colour of handle	red   black	red   black	red   black
Front mounting method	Ø 22 mm hole + Ø 43.5 mm hole	<b>K1F 022QZ2</b>   <b>K1F 022QZ4</b>	<b>K1G 043RZ2</b>   <b>K1G 043RZ4</b>
		<b>K1D 002UZ2</b>   <b>K1D 002UZ4</b>	

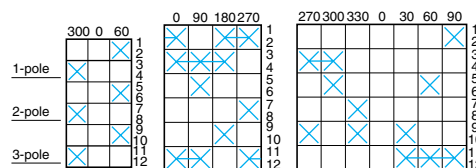
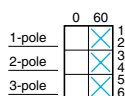




## 10 to 150 A ratings



positions (°)



2

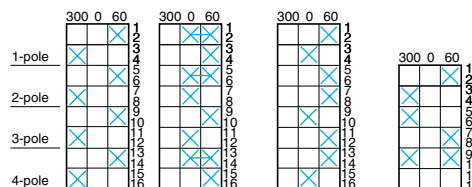
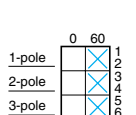
Cam switches, K10 series										
Function	Switches			Changeover switches		Ammeter switches	Voltmeter switches			
Degree of protection	front face			with "0" position		IP 65	IP 65			
Conventional thermal current (I <sub>th</sub> )	10 A			10 A		10 A	10 A			
Rated insulation voltage (U <sub>i</sub> ) conforming to IEC60947-1	440 V			440 V		440 V	440 V			
Number of positions	2			2 + "0" position		3 + "0" pos. (1) 6 + "0" pos. (2)				
Number of poles	1	2	3	2	3	3	3			
Dimensions of front plate (mm)	30 x 30			30 x 30		30 x 30	30 x 30			
Front mounting method	By Ø 16 mm or 22 mm hole			K10 A001ACH	K10 B002ACH	K10 C003ACH	K10 D002UCH	K10 F003UCH	K10 F003MCH	K10 F027MCH

(1) (3 circuits + "0" position).

(2) (Measurements between 3 phases and N + "0" position).



positions (°)



Cam switches, K30 series									
Function	Switches	Switches	Changeover	Starting	Starting	Reversing			
Degree of protection	front face		with "0" position	star-delta	2-speed	IP 40			
Conventional thermal current (I <sub>th</sub> )	32 A		32 A	32 A	32 A	32 A			
Rated insulation voltage (U <sub>i</sub> ) conforming to IEC60947-1	690 V		690 V	690 V	690 V	690 V			
Number of positions	2		3	3	3	3			
Number of poles	3	3	4	3	3	3			
Dimensions of front plate (mm)	64 x 64		64 x 64	64 x 64	64 x 64	64 x 64			
Front mounting method	Multifixing		K30 C003AP (3)	K30 C003HP (3)	K30 D004HP (3)	K30 H004UP (3)	K30 H001YP (3)	K30 H004PP (3)	K30 E003WP (3)

(3) To order switches with other thermal current ratings (50, 63, 115, 150 A): replace the number 30 in the reference by 50, 63, 115 or 150 respectively.

Example: a switch with a 32 A current rating, for example K30 C003AP, becomes K50 C003AP for a current rating of 50 A.

## Accessories for cam switches K1/K2

Rubber seals			
for IP 65 degree of protection			
For use with heads	with 45 x 45 mm front plate Ø 22 mm hole or 4 hole front mtg.	with 60 x 60 mm front plate Ø 22 mm hole or 4 hole front mtg.	with 45 x 45 mm front plate multifixing
References (5)*	KZ 65	KZ 66	KZ 73

\* sold in lots of

2



Illuminated beacons XVB L, Ø 70 mm		Steady light signalling		Flashing light signalling	
<b>Light source</b>		Incandescent BA 15d bulb, 7 W max. (not included)	LED on BA 15d base (included)	LED on BA 15d base (included)	"Flash" discharge tube 5 J (1)
<b>Degree of protection</b>		IP 65			
<b>Rated insulation voltage (Ui)</b>		250 V			
<b>Beacon references (2)</b>	12...230 VAC/DC	XVB L3●	–	–	–
	24 VAC/DC	–	XVB L0B●	XVB L1B●	XVB L6B●
	120 VAC	–	XVB L0G●	XVB L1G●	XVB L6G●
	230 VAC	–	XVB L0M●	XVB L1M●	XVB L6M●



Indicator banks XVB C, Ø 70 mm 2 to 5 units (3)		Base units	Steady light signalling		Flashing light signalling		Audible units (90 db at 1 m)
<b>Light source</b>		–	Incandescent BA 15d bulb, 10 W max. (not included)	Integral LED	Integral LED	"Flash" discharge tube, 5 J (1)	–
<b>Degree of protection</b>		IP 65					
<b>Rated insulation voltage (Ui)</b>		250 V					
<b>Base unit references</b>	with cover	XVB C21 (4)	–	–	–	–	–
	without cover	XVB C07 (5)	–	–	–	–	–
<b>Lens unit references (2)</b>	12... 230 VAC/DC	–	XVB C3●	–	–	–	–
	24 VAC/DC	–	–	XVB C2B●	XVB C5B●	XVB C6B●	–
	120 VAC	–	–	XVB C2G●	XVB C5G●	XVB C6G●	–
	230 VAC	–	–	XVB C2M●	XVB C5M●	XVB C6M●	–
<b>Audible unit references</b>	12 to 48 VAC/DC	–	–	–	–	–	XVB C9B
	unidirectional 120 to 230 VAC	–	–	–	–	–	XVB C9M

(4) For connection on AS-Interface, order a base unit XVB C21A (side cable entry) or XVB C21B (bottom cable entry).

(5) For indicator banks with "Flash" discharge unit.



Indicator banks XVP C, Ø 50 mm 2 to 5 units (3), black clamping ring (6)		Base unit	Steady or flashing light signalling	"Flash" signalling		Audible units (55...85 dB at 1 m)
<b>Light source</b>		–	Incandescent BA 15d bulb, 10 W max. (not included)	"Flash" discharge tube, 0.3 J	"Flash" discharge tube, 0.6 J	–
<b>Degree of protection</b>		IP 65				
<b>Rated insulation voltage (Ui)</b>		250 V				
<b>Base unit</b>		with cover XVP C21	–	–	–	–
<b>References (2)</b>	250 V max.	–	XVP C3●	–	–	–
	24 VDC	–	–	XVP C6B●	–	XVP C09B
	120 VAC	–	–	–	XVP C6G●	XVP C09G
	230 VAC	–	–	–	XVP C6M●	XVP C09M

(1) To order a lens unit with a 10 J discharge tube, replace the number 6 by 8 (example: XVB L6B● becomes XVB L8B●).

(2) To obtain the complete reference, replace the ● by the number designating the colour as follows: 3 = green, 4 = red, 5 = orange, 6 = blue, 7 = clear, 8 = yellow.

(3) An indicator bank comprises: 1 base unit + 1 to 5 illuminated units or 1 audible unit max.

(6) To order products with a **cream clamping ring**, add the letter **W** to the end of the reference (example: base unit + green lens unit: XVP C21W + XVP C33W, etc.).

# Miniature beacons

## Rotating mirror beacon and Sirens



Miniature illuminated beacons XVD LS Ø 45 mm		Steady light signalling	"Flash" signalling
<b>Light source</b>		Incandescent BA 15d bulb, 5 W max. (not included)	"Flash" discharge tube, 0.5 J
<b>Degree of protection</b>		IP 40	
<b>Rated insulation voltage (Ui)</b>		250 V	
<b>Beacon references (1)</b>	24...230 VAC/DC	<b>XVD LS3●</b>	–
	24 VAC/DC	–	<b>XVD LS6B●</b>
	120 VAC	–	<b>XVD LS6G●</b>
	230 VAC	–	<b>XVD LS6M●</b>

(1) To obtain the complete reference, replace the ● by the number designating the colour as follows: 3 = green, 4 = red, 5 = orange, 6 = blue, 7 = clear, 8 = yellow.



Rotating mirror beacon XVR and sirens XVS		Rotating mirror beacon		Sirens, 106 db	
<b>Description</b>		Halogen bulb 70 W H1 (included)	Incandescent bulb 25 W BA15d (included)	1 tone	2 tone
	<b>Diameter</b>	Ø 165 mm		Ø 92 mm	
<b>Degree of protection</b>		IP 65		IP 40	
<b>Rated insulation voltage (Ui)</b>		250 V			
<b>References (2)</b>	24 VAC/DC	<b>XVR 1B9●</b>	<b>XVR 1B0●</b>	<b>XVS B1</b>	<b>XVS B2</b>
	120 VAC	–	<b>XVR 1G0●</b>	<b>XVS G1</b>	<b>XVS G2</b>
	230 VAC	–	<b>XVR 1M0●</b>	<b>XVS M1</b>	<b>XVS M2</b>

(2) To obtain the complete reference, replace the ● by the number designating the colour as follows: 3 = green, 4 = red, 5 = orange, 6 = blue, 8 = yellow.

## Accessories

Bulbs and LEDs		Indicator banks XVB / XVP			Beacons XVD LS	Rotating mirror beacon	
<b>Light source</b>		Incandescent bulb, BA 15d base fitting	LED, BA 15d base fitting	Flashing LED, BA 15d base fitting	Incandescent bulb, BA 15d base fitting	Halogen bulb, 70 W H1 base fitting	Incandescent bulb, 25 W BA 15d base fitting
<b>References (3)</b>	12 V	DL1 BEJ (7 W)	–	–	–	–	–
	24 V	DL1 BEB (6.5 W)	DL1 BDB●	DL1 BKB●	DL1 BEBS (4 W)	DL1 BRBH	DL1 BRB
	48 V	DL1 BEE (6 W)	–	–	–	–	–
	120 V	DL1 BEG (7 W)	DL1 BDG●	DL1 BKG●	DL1 BEGS (5 W)	–	DL1 BRG
	230 V	DL1 BEM (7 W)	DL1 BDM●	DL1 BKM●	DL1 BEMS (5 W)	–	DL1 BRM

(3) To obtain the complete reference, replace the ● by the number designating the colour as follows: 1 = white, 3 = green, 4 = red, 6 = blue, 8 = orange.

Mounting accessories		For beacons and indicator banks type XVB			For beacons and indicator banks type XVP		
<b>Length</b>		100 mm	400 mm	800 mm	112 mm	260 mm	410 mm
<b>Black aluminium support tube</b>		XVB C02	XVB C03	XVB C04	XVP C02 (4)	XVP C03 (4)	XVP C04 (4)
<b>Black fixing plates</b>	for horizontal support	XVB C11			–		
	for vertical support	XVB C12			XVP C12 (4)		

(4) Aluminium support tube with integral fixing base. To order a cream XVP unit, add the letter **W** to the end of the reference (example: XVP C03W).

2



Type XAC A "Pistol grip"			
Degree of protection	IP 65 / Nema 4, 4X / Class II		
Rated operational characteristics	AC 15 (240 V 3 A), DC 13		
Conventional thermal current	lthe	10 A	
Connection	Screw clamp terminals, 1 x 2.5 mm <sup>2</sup> or 2 x 1.5 mm <sup>2</sup>		
For control of	<b>single-speed motors</b> 		<b>2-speed motors</b> 
Dimensions (mm)	W x H x D	52 x 295 x 71 (x 85 with ZA2 BS44)	52 x 295 x 71 (x 85 with ZA2 BS44)
Number of operators	mechanically interlocked	2	
	Emergency stop	without	ZA2 BS44
References		XAC A201	XAC A2013
			XAC A207
			XAC A2073



Type XAC A			
For control of single-speed motors			
Dimensions (mm)	W x H x D	80 x 314 x 70 (x 90 with ZA2 BS44)	80 x 440 x 70 (x 90 with ZA2 BS54)
Number of operators	mechanically interlocked between pairs	2	
	Emergency stop	without	ZA2 BS44
References		XAC A271	XAC A2713
			XAC A471
			XAC A4713



For control of single-speed motors			
Dimensions (mm)	W x H x D	80 x 500 x 70 (x 90 with ZA2 BS54)	80 x 560 x 70
Number of operators	mechanically interlocked between pairs	6	
	Emergency stop	without	ZA2 BS54
References		XAC A671	XAC A6713
			XAC A871



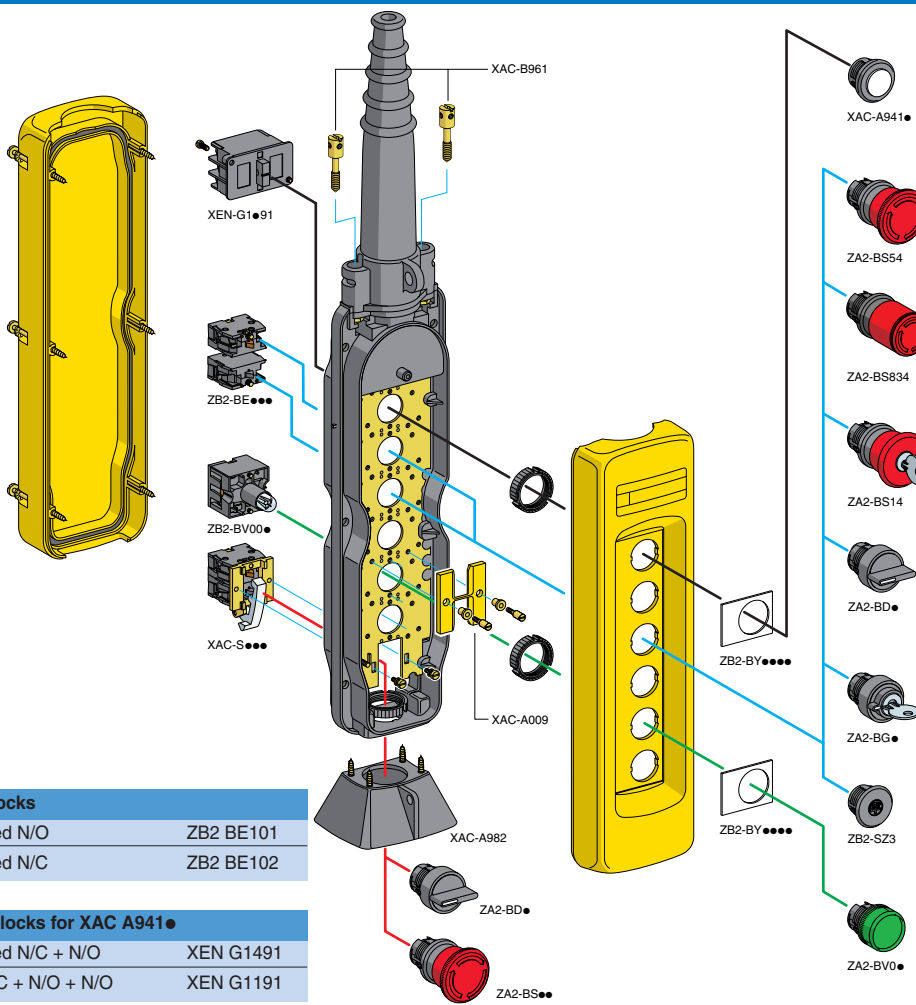
# Stations for user assembly



## Empty enclosures type XAC A

Number of ways	2	3	4	5	6	8	12
References	XAC A02	XAC A03	XAC A04	XAC A05	XAC A06	XAC A08	XAC A12

## Separate components (for mounting in enclosures XAC A)



Contact blocks	
Single-speed N/O	ZB2 BE101
Single-speed N/C	ZB2 BE102

Contacts blocks for XAC A941	
Single-speed N/C + N/O	XEN G1491
2-speed N/C + N/O + N/O	XEN G1191

Contact blocks (for mounting in enclosure base)	
N/O	XAC S101
N/C + N/O	XAC S105

**Protective guard (for base mounted units)**  
For selector switch or mushroom head pushbutton XAC A982

Booted operators	
white	XAC A9411
black	XAC A9412

Mushroom head, latching	
turn to release Ø 30	ZA2 BS44
Ø 40	ZA2 BS54

Mushroom head, latching, trigger action	
turn to release Ø 30	ZA2 BS834
Ø 40	ZA2 BS844

Mushroom head, latching	
key release Ø 30	ZA2 BS74
Ø 40	ZA2 BS14

Selector switch	
2 pos. stay put	ZA2 BD2
3 pos. stay put	ZA2 BD3

Key switch	
key n° 455 2 pos. stay put	ZA2 BG4
3 pos. stay put	ZA2 BG5

Blanking plug	
with seal and fixing nut	ZB2 SZ3

Pilot light heads	
white	ZA2 BV01
green	ZA2 BV03
red	ZA2 BV04
yellow	ZA2 BV05

Pilot light bodies	
direct supply	ZB2 BV006
direct supply, through resistor	ZB2 BV007

### Legends, 30 x 40 mm

	With symbols conforming to NF E 52-124						With text		
References	ZB2 BY4901	ZB2 BY4903	ZB2 BY4907	ZB2 BY4909	ZB2 BY4913	ZB2 BY4915	ZB2 BY4930	ZB2 BY2303	ZB2 BY2304
								blank	
References	ZB2 BY2904	ZB2 BY2906	ZB2 BY2910	ZB2 BY2912	ZB2 BY2916	ZB2 BY2918	ZB2 BY2931	white or yellow background	ZB2 BY4101



Type		Compact display units				
Display	Capacity	2 lines, 20 characters		4 lines, 20 characters		
	Type	Back-lit LCD green		Back-lit LCD 3 colours green, orange, red	Back-lit LCD green	
Data entry		Via keypad with 8 keys (4 with changeable legends)				
Functions	Representation of variables	Alphanumeric				
Communication	Downloadable protocols	Uni-TE, Modbus			Modbus	
Development software		XBTL1001 and XBTL1003 (on Windows 98, 2000 and XP)				
Dimensions W x D x H		132 x 37 x 74 mm			132 x 37 x 74 mm	
Compatibility with PLCs		Twido, Nano, TSX Micro, Premium,	Twido, Nano, TSX Micro, Premium, Quantum, Momentum	Twido, Nano, TSX Micro, Premium, Quantum, Momentum	Motor starter Tesys Model U	
Supply voltage		5 VDC		24 VDC	24 VDC	
References		<b>XBTN200</b>	<b>XBTN400</b>	<b>XBTN410</b>	<b>XBTN401</b>	<b>XBTNU400</b>

(1) Except XBTN200: alphanumeric screen.

## With matrix screen



Type		Multilingual display units		
Display	Capacity	8 lines, 40 characters		
	Type	Back-lit LCD, monochrome		
Data entry	Function / service keys	–	4 / 1	– / 5
Functions	Representation of variables	Alphanumeric, bargraph, gauge		
Communication	Downloadable protocols	Multiple (Uni-TE, Modbus, AEG and for Allen Bradley, GE Fanuc, Omron, Siemens PLCs)		
Development software		XBTL1001 and XBTL1003 (on Windows 98, 2000 and XP)		
Dimensions W x D x H		202 x 64.8 x 111.3 mm		
Compatibility with PLCs		Twido, Nano, TSX Micro, Premium, Quantum		
Supply voltage		24 VDC		
Without printer link, without log		<b>XBTHM007010</b>	<b>XBTHM027010</b>	<b>XBTHM017010</b>
With printer link, with log		–	–	<b>XBTHM017110</b>

# Terminals

## With matrix screen



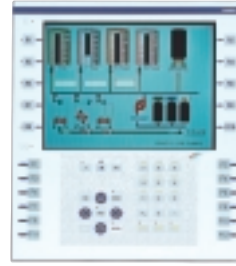
2

Type		Terminals		
Display	Capacity	4 lines, 20 characters		
	Type	Back-lit LCD green	Back-lit LCD, 3 colours green, orange, red	
Data entry		20 keys (12 configurable)		
Functions	Representation of variables	Alphanumeric		
Communication	Downloadable protocols	Uni-TE, Modbus		
Development software		XBTL1001 and XBTL1003 (on Windows 98, 2000 and XP)		
Dimensions W x D x H		137 x 37 x 118 mm		
Compatibility with PLCs		Twido, Nano, TSX Micro, Premium,	Twido, Nano, TSX Micro, Premium, Quantum, Momentum	
Supply voltage		5 VDC	24 VDC	
References		<b>XBTR400</b>	<b>XBTR410</b>	<b>XBTR411</b>

## With matrix screen



Type		8 line multilingual matrix screen terminals		
Display	Capacity	8 lines, 40 characters		
	Type	Back-lit LCD, monochrome		
Data entry	Function / service keys	12 / 10		
	Numeric / soft function keys	12 / 4		
Functions	Representation of variables	Alphanumeric, bargraph, gauge		
Communication	Downloadable protocols	Multiple (Uni-TE, Modbus, AEG and for Allen Bradley, GE Fanuc, Omron, Siemens PLCs)		
Development software		XBTL1001 and XBTL1003 (on Windows 98, 2000 and XP)		
Dimensions W x D x H		253 x 62.5 x 155 mm		
Compatibility with PLCs		Twido, Nano, TSX Micro, Premium		
Supply voltage		24 VDC		
Without printer link, without log		<b>XBTPM027010</b>		
With printer link, with log		<b>XBTPM027110</b>		



Type		Terminals with keypad		
Display	Screen size	5.7"	10.4"	
	Type	Back-lit monochrome LCD, green 16 levels of grey	TFT, 256 colours	
Data entry	Soft function keys with LED	8	10	
	Static function keys with LED	10 + legends	12 + legends	
	Service keys	12	12	
	Alphanumeric keys	12 + 3 alphanumeric access		
Functions	Representation of variables	Alphanumeric, bitmap, bargraph, gauge, potentiometer, selector		
	Recipes	125 records maximum with 5000 values maximum		
	Curves	16	16	
	Alarm logs	Yes	Yes	
Communication	Downloadable protocols	Uni-TE, Modbus, AEG and for Allen Bradley, GE Fanuc, Omron, Siemens PLCs		
	Bus and networks	Fipway, Modbus Plus with PCMCIA card (except XBTF011110)		
Development software		XBT L1003 (on Windows 98, 2000 and XP)		
Dimensions W x D x H		220.3 x 88 x 265 mm	296 x 91 x 332 mm	
Compatibility with PLCs		Twido, Nano, TSX Micro, Premium, Quantum		
RJ45 Ethernet 10 TCP/IP connector		no	no	yes
Supply voltage		24 VDC		24 VDC
References		<b>XBTF011110 / F011310</b>	<b>XBTF024510</b>	<b>XBTF024610</b>

With touchscreen



Type		Terminals with touchscreen		
Display	Screen size	5.7"	10.4"	
	Type	LCD STN, 256 colours	LCD TFT, 256 colours	
Data entry		Touchscreen		Touchscreen
Functions	Representation of variables	Alphanumeric, bitmap, bargraph, gauge, potentiometer, selector		
	Recipes	125 records maximum with 5000 values maximum		
	Curves	16	16	
	Alarm logs	Yes	Yes	
Communication	Downloadable protocols	Uni-TE, Modbus, AEG and for Allen Bradley, GE Fanuc, Omron, Siemens PLCs		
	Bus and networks	Fipway, Modbus Plus with PCMCIA card (except XBTF032110)		
Development software		XBT L1003 (on Windows 98, 2000 and XP)		
Dimensions W x D x H		197 x 92.6 x 147 mm	296 x 91 x 222 mm	
Compatibility with PLCs		Twido, Nano, TSX Micro, Premium, Quantum		
RJ45 Ethernet 10 TCP/IP connector		no	no	yes
Supply voltage		24 VDC		24 VDC
References		<b>XBTF032110 / F032310</b>	<b>XBTF034510</b>	<b>XBTF034610</b>





# Graphic terminals open to NTIC (New Technology for Information and Communication) With 5.7" touchscreen



Type		Optimum	Multifunction		
Display	LCD screen size	5.7"	5.7"	5.7"	5.7"
	Type	Back-lit STN monochrome, blue	Back-lit STN, monochrome black and white	STN, colour 64 colours	TFT, colour 256 colours
Functions	Representation of variables	Alphanumeric, bitmap, bargraph, gauge, button, light, clock, flashing light, keypad			
	Curves	yes, with log	yes, with log	yes, with log	
	Alarm logs	yes, incorporated	yes, incorporated	yes, incorporated	
Communication	Downloadable protocols	Uni-TE, Modbus	Uni-TE, Modbus	Uni-TE, Modbus, Modbus TCP/IP	Uni-TE, Modbus, Modbus TCP/IP
	Bus and networks	–	–	Ethernet, IEEE 802.3 10 BASE-T, RJ45	Ethernet, IEEE 802.3 10 BASE-T, RJ45
	Expansion 1	–	For Modbus Plus network connection module		
Third party protocols	Mitsubishi (Melsec), Omron (Sysmac), Rockwell Automation (Allen Bradley), Siemens (Simatic)				
Development software	Vijeo Designer VJD●●●TGSV42M (on Windows 2000 and XP)				
Dimensions W x D x H	207 x 58 x 157 mm		171 x 60 x 138 mm		132 x 74 x 78 mm
Compatibility with PLCs	Twido, Nano, TSX Micro, Premium, Quantum				
«Compact Flash» card slot	no	yes	yes	yes	yes
Character fonts	ASCII, Japanese (ANK, Kanji), Chinese (simplified Chinese), Taiwanese (traditional Chinese)				
Built-in Ethernet 10 TCP/IP	no	no	yes	no	yes
Supply voltage	24 VDC		24 VDC		24 VDC
References	XBTG2110		XBTG2120		XBTG2130 XBTG2220 XBTG2330

## With 7.4", 10.4" or 12.1" touchscreen



Type		Multifunction			
Display	LCD screen size	7.4"	10.4"	10.4"	12.1"
	Type	TFT, colour 256 colours	STN, colour 64 colours	TFT, colour 256 colours	TFT, colour 256 colours
Functions	Representation of variables	Alphanumeric, bitmap, bargraph, gauge, button, light, clock, flashing light, keypad			
	Curves	yes, with log	yes, with log	yes, with log	
	Alarm logs	yes, incorporated	yes, incorporated	yes, incorporated	
Communication	Downloadable protocols	Uni-TE, Modbus	Uni-TE, Modbus, Modbus TCP/IP	Uni-TE, Modbus, Modbus TCP/IP	Uni-TE, Modbus, Modbus TCP/IP
	Bus and networks	–	Ethernet, IEEE 802.3 10 BASE-T, RJ 45		
	Expansion	For Modbus Plus network connection module			
Third party protocols	Mitsubishi (Melsec), Omron (Sysmac), Rockwell Automation (Allen Bradley), Siemens (Simatic)				
Development software	Vijeo Designer VJD●●●TGSV42M (on Windows 2000 and XP)				
Dimensions W x D x H	215 x 60 x 170 mm		317 x 58 x 243 mm		
Compatibility with PLCs	Twido, Nano, TSX Micro, Premium, Quantum				
«Compact Flash» card slot	yes	yes	yes	yes	yes
Character fonts	ASCII, Japanese (ANK, Kanji), Chinese (simplified Chinese), Taiwanese (traditional Chinese)				
Built-in Ethernet 10 TCP/IP	no	yes	yes	yes	yes
Supply voltage	24 VDC		24 VDC		24 VDC
References	XBTG4320		XBTG4330		XBTG5230 XBTG5330 XBTG6330



Connection cables	PC to Magelis transfer cables			
	2.5 m	2.5 m	2 m	2 m
Application	PC to all XBTN200, N400 and R400	PC to all XBT except XBTN200, N400, R400 and XBTG	PC to XBTG	
Type of connector	RJ45 / MiniDin + SUB D 9	SUB D 9 / SUB D 25	SUB D 9 / MiniDin	USB / MiniDin
Physical link	RS 232C	RS 232C	TTL	TTL
References	XBTZ945 (1)	XBTZ915 (1)	XBTZG915	XBTZG925

(1) Adaptor **SR2CBL06** for linking USB port of PC, to be used in conjunction with connecting cables XBTZ945 and XBTZ915 for connecting display units or terminals XBTN/R/H/P/E/HM/PM/F.

Connection cables	Telemecanique PLC connection cables (2.5 m)			
Application	XBTN200, N400, R400, NU400 to: Twido, Nano, TSX Micro, Premium	All XBT except XBTN200, N400, R400, NU400 to: Twido, Nano, TSX Micro, Premium	Quantum	Momentum (port 1)
Type of connector	RJ45 / MiniDin	MiniDin / SUB D 25	SUB D 9 / SUB D 25	RJ45 / SUB D 25
Physical link	RS 485	RS 485	RS 232	RS 232
References	XBTZ9780	XBTZ968	XBTZ9710	XBTZ9711



Network cards	PCMCIA type III card		Module
Compatibility	XBTF	XBTF	XBTG
Protocol	Modbus Plus	Fipway	Modbus Plus
References	TSXMBP100	TSXFPP20	XBTZGMBP



Memory cards	PCMCIA type II card	«Compact Flash» card			
Compatibility	XBTF	XBTG (except XBTG2110)			
Capacity	16 Mb	64 Mb	128 Mb	256 Mb	512 Mb
References	XBTMEM16	XBTZGM64	XBTZGM128	XBTZGM256	MPCYN00CFE00N



Type		i PC Smart	i PC Compact	
Display	Size	15" active matrix XGA (1024 x 768)		
	Type	TFT colour LCD (262,144 colours)		
Data entry		Via touchscreen	Via touchscreen	
Processor	Type	VIA	VIA	Intel Pentium 4 Mobile
	Frequency	667 MHz	667 MHz	1.7 GHz
Internal hard disk		–	≥ 20 Gb IDE, 2"1/2	
RAM memory		256 Mb expandable up to 512 Mb	256 Mb expandable up to 512 Mb (1 memory slot max.)	
CD-ROM drive		–	Yes, 24 x	
Expansion slots		2 PCMCIA slots	1 PCI bus slot, 2 PCMCIA slots,	
		–	1 Compact Flash slot	
Ethernet TCP/IP network		1 x 10 BASE-T/100BASE-TX (RJ45)		
Operating system		Windows XPe integrated	Windows 2000 pre-installed	
Input/Output ports		2 x USB, 1 x COM1, 1 x COM2,	2 x USB, 1 x COM1, 1 x COM2, 1 x COM3	
	on front panel	1 x LPT1 (parallel), 1 x PS/2 keyboard	1 x LPT1 (parallel), 1 x PS/2 keyboard and 1 x PS/2 mouse	
Fixing		–		
Fixing		Fixings included with each product for mounting on panel or enclosure door		
Dimensions W x D x H		395 x 62 x 294 mm	395 x 100 x 294 mm	
Supply voltage		24 VDC	115...230 VAC	
References		MPCKT52NDJ00T	MPCKT52NAA00N	MPCKT55NAA00N

### Combined offers (bundle pack)

Magelis i PC Compact industrial PCs can be supplied with software packages.  
Characteristics identical to standard industrial PCs shown above.

Type		i PC Compact		
Processor	Type	VIA	Intel Pentium 4M	
Applications		Vijeo Look	Vijeo Look	
Pre-installed software		Vijeo Look 2.6 RT1024	Vijeo Look 2.6 RT1024	Vijeo Look 2.6 BT1024
References		MPCKT52NAA00A	MPCKT55NAA00A	MPCKT55NAA00B

### Accessories

«Compact Flash» card	
Capacity	512 Mb (empty) for i PC Smart or i PC Compact
Reference	MPCYN00CFE00N

RAM memory expansion		
Capacity	512 Mb SO DIMM for VIA	512 Mb SO DIMM for Pentium 4 Mobile
References	MPCYK02RAM512	MPCYK05RAM512



Type		12" front panel screen		
Display	Size	12" active matrix SVGA (800 x 600)		
	Type	Back-lit active matrix TFT colour LCD (262,144 colours)		
Data entry	Keyboard	Via keyboard	Via keyboard and touchscreen	Via touchscreen
	Keyboard	70 standard IBM keys + 2 x 10 user function keys	–	–
Dimensions W x D x H		410 x 52.7 x 330 mm	410 x 52.7 x 330 mm	380 x 52.7 x 330 mm
Input/Output ports on front panel		1 x IrDA infrared and 1 x PS/2 keyboard/mouse		
Associated product		1 central unit Control box or 1 central unit Control box pack (combined offer)		
Fixing		Fixings included with each screen for mounting on panel or enclosure door		
Supply voltage		From Control box unit		
References		MPCNA20NNN00N	MPCNB20NNN00N	MPCNT20NNN00N



Type		15" front panel screen		
Display	Size	15" active matrix XGA (1024 x 768)		
	Type	Back-lit active matrix TFT colour LCD (262,144 colours)		
Data entry	Keyboard	Via keyboard	Via keyboard and touchscreen	Via touchscreen
	Keyboard	70 standard IBM keys + 2 x 10 user function keys	–	–
Dimensions W x D x H		480 x 52.7 x 370 mm	480 x 52.7 x 370 mm	460 x 52.7 x 340 mm
Input/Output ports on front panel		1 x IrDA infrared and 1 x PS/2 keyboard/mouse		
Associated product		1 central unit Control box or 1 central unit Control box pack (combined offer)		
Fixing		Fixings included with each screen for mounting on panel or enclosure door		
Supply voltage		From Control box unit		
References		MPCNA50NNN00N	MPCNB50NNN00N	MPCNT50NNN00N



# Modular industrial PCs

## iPC Modular range



2

Central unit Control box type		Small	Medium		Large	
Processor	Type	Intel Celeron	Intel Celeron	Intel Pentium III	Intel Celeron	Intel Pentium III
	Frequency	566 MHz	566 MHz	850 MHz	566 MHz	850 MHz
Internal hard disk		≥ 20 Gb IDE, 2"1/2				
RAM memory		256 Mb SDRAM expandable up to 512 Mb (2 memory slots max.)				
CD-ROM drive		Optional	Yes, removable 24 x			
Expansion slots		–	3 slots (1 ISA bus, 1 PCI bus and 1 ISA/PCI bus)		6 slots (2 ISA bus, 3 PCI bus and 1 ISA/PCI bus)	
Ethernet TCP/IP network		1 x 10 BASE-T/100 BASE-TX (RJ45)				
Bus and networks		–	With additional card on ISA or PCI bus: Modbus/Uni-TE/Fipio bus, Modbus Plus/Fipway networks, INTERBUS-S/Profibus DP/CANopen Third party bus			
Video card		built-in PCI 64 bit controller, 2 Mb RAM				
Operating system		Windows 2000 pre-installed				
Input/Output ports		2 x USB, 1 x COM1, 1 x COM4 and 1 x LTP1 (parallel) 1 x external VGA video screen, 1 x PS/2 keyboard (1) and 1 x PS/2 pointing device (1)				
Associated product		1 front panel screen or as a stand-alone (2)				
Fixing		Fixings included with each screen for mounting on panel or enclosure door				
Dimensions W x D x H		310 x 310 x 94.2 mm	310 x 310 x 184.5 mm		310 x 310 x 258 mm	
115...230 VAC supply voltage		MPCAN02NAA00N	MPCBN02NAA00N	MPCBN05NAA00N	MPCCN02NAA00N	MPCCN05NAA00N
24 VDC supply voltage		MPCAN02NDA00N	MPCBN02NDA00N	MPCBN05NDA00N	MPCCN02NDA00N	MPCCN05NDA00N

(1) Port not operational when the central unit Control box is used with the front panel screen.

(2) To use the Control box without a front panel screen, mounting panel **MPCNP00NNN00N** is required.

## Combined offers (bundle pack)

Magelis iPC central unit Control boxes (115...230 VAC supply) can be supplied with software packages.

Characteristics identical to standard Control box units shown above.

Central unit Control box type		Small	Medium
Processor	Type	Intel Celeron, 566 MHz	Intel Celeron, 566 MHz
	Pre-installed software	Pack A "Monitoring RT"	Vijeo Look supervision, 1024 I/O "Run Time"
	Pack B "Monitoring BT/RT"	–	Vijeo Look supervision, 1024 I/O "Build Time/Run Time"
Pack A, 115...230 VAC supply voltage		MPCAN02NAA00A	MPCBN02NAA00A
Pack B, 115...230 VAC supply voltage		–	MPCBN02NAA00B

## Accessories



Separate components			
External LCD flat screen, flush mounting		12" SVGA (800 x 600)	15" XGA (1024 x 768)
References	115...230 VAC supply voltage	MPCYS20NAN00N	MPCYS50NAN00N
	24 VDC supply voltage	MPCYS20NDN00N	MPCYS50NDN00N
Swivel arm for external screen		MPCYN00ARM00N	
Qwerty PS/2 keyboard, 101 keys		MPCYN00KBD00N	
Remote mounting kit for front panel screen		5 m	10 m      20 m
References		MPCYN00R05KIT	MPCYN00R10KIT      MPCYN00R20KIT
Separate components for Control box			
SDRAM memory expansion		64 Mb	128 Mb      256 Mb
References		MPCYN00RAM064	MPCYN00RAM128      MPCYN00RAM256
CD-ROM reader for Small Control box MPCAN0		MPCYN00CDR00N	



Type	Configuration software				
<b>Compatibility</b>	All XBT except XBTG		XBTG		
<b>Operating system</b>	Windows 98, 2000 and XP		Windows 2000 and XP		
<b>Version (1)</b>	Light (not for XBTG)	Complete	Single (1 station)	Group (3 stations)	Team (10 stations)
<b>References for PC CD-ROM</b>	<b>XBTL1001M</b>	<b>XBTL1003M (2)</b>	–	–	–
<b>Including PC cable</b>	Serial	–	VJDSNDTGSV42M	VJGNDTGSV42M	VJDTNDTGSV42M
	USB	–	VJDSUDTGSV42M	VJGUDTGSV42M	VJDTUDTGSV42M

(1) Demonstration version available, XBTL1001M / L1003M demo: XBTL1003DEMO, Vijeo Designer demo: VJDSPULTUCDV10M.

(2) Update XBTLUP1004.

### XBTL1001 / L1003 for Magelis display units and terminals

The XBTL1001/L1003 configuration software can be used to create operator dialogue applications designed for controlling automation systems for:

- all XBTN/R/H/HM display units, XBTG/PM/E terminals with software XBTL1001,
- all XBTN/R/H/HM display units, XBTG/PM/E and F terminals with software XBTL1003.

Applications created using the XBTL1001/L1003 software are independent to the protocol used. The same operator dialogue application can be used with PLCs available from the principal manufacturers.

#### Configuration

The XBTL1001/L1003 configuration software enables simple creation of various types of pages: application pages (can be interlinked), alarm pages, help pages, recipe pages, etc.



### Vijeo Designer for Magelis touchscreen graphic terminals XBTG

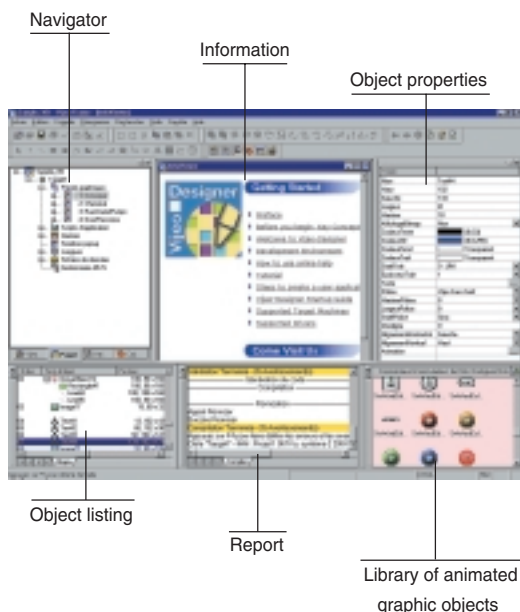
The Vijeo Designer configuration software can be used to create operator dialogue applications designed for controlling automation systems for all the Magelis range of New Technology (NTIC) terminals: XBTG.

#### Configuration

The Vijeo Designer configuration software enables operator dialogue projects to be easily and quickly performed due to advanced ergonomics using 6 configurable windows.

Vijeo Designer configuration software also offers complete application management tools:

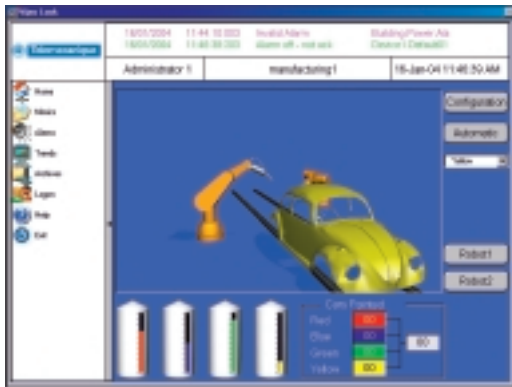
- . Project creation, a project being one or several applications.
  - . Recipe editor (32 groups of 64 recipes of 1024 ingredients max.).
  - . Cross-referencing of application variables.
  - . Application synoptics documentation.
  - . A simulation mode for easy testing of the application from the design office.
- Powerful graphics editor for easy creation of synoptics.  
8 types of object animation for animated synoptics.





Type		Control software			
Compatibility		All Telemecanique PLCs and Third party PLCs			
Operating system		Windows 2000 and XP			
Input/Output size		Small, 128 I/O	Medium, 512 I/O	Large, 1024 I/O	Extra Large, 2048 I/O
References	Development/execution (BT/RT)	VJLSMDBTSV26M	VJLSMDBTMV26M	VJLSMDBTLV26M	VJLSMDBTXV26M
	Execution (RT)	VJLSMDRTSV26M	VJLSMDRTMV26M	VJLSMDRTLXV26M	VJLSMDRTXV26M

## Vijeo Look for industrial PCs



### Presentation

Vijeo Look 2.6 is a SCADA (Supervisory Control And Data Acquisition) software package designed for stand-alone stations, that offers perfect synergy between the Web and HMI (Human Machine Interface). It is based on standardised technologies.

Easy to implement, it offers all the standard functions of a graphic supervision tool.

Vijeo Look is supplied with a pre-configured OFS (OPC Factory Server) Data Server. It is compatible with PCs running Windows 2000 Professional or Windows XP Professional and enables the creation of applications based on all Telemecanique new and old generation PLCs.

The functions of Vijeo Look control software can be used for:

- . Acquisition of PLC tags.
- . Visualisation of these tags.
- . Process supervision and control.
- . Recording the values of the PLC tags or internal tags of the process in a database.
- . Embedded software processing.

The Inputs/Outputs are tags from the OPC Server (or those of the Inputs/Outputs of TSX Micro/Premium PLCs exchanged automatically). They are used for visualisation and embedded processing.

Simple and innovative, Vijeo Look offers optimal solutions.

### Structure of the offer

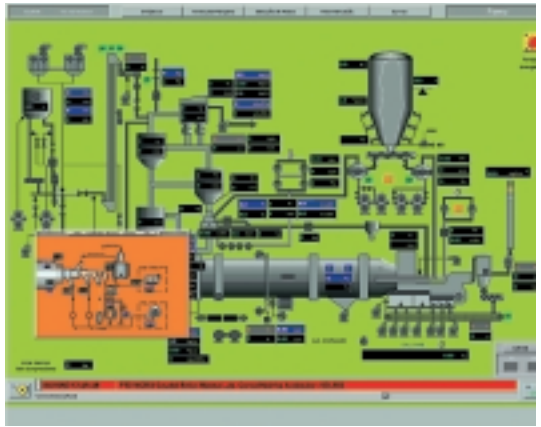
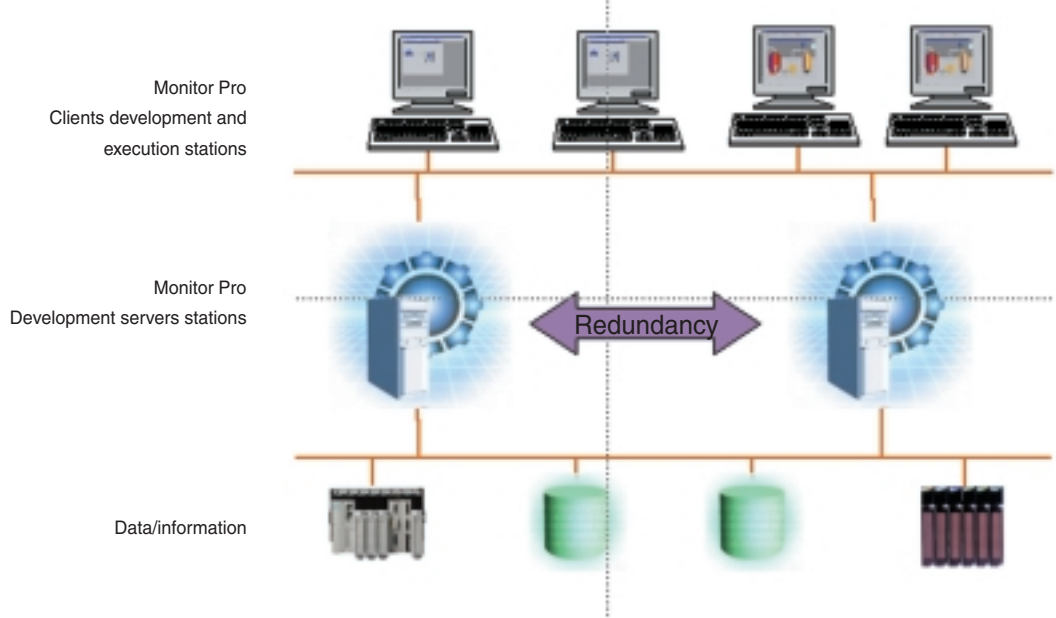
2 types of software licence are available for Vijeo Look:

- . "Build Time/Run Time" for application development and execution.
- . "Run Time" for the execution of applications created with a "Build Time"/"Run Time" licence.



<b>Type</b>	<b>Supervision software</b>
<b>Compatibility</b>	All Telemecanique PLCs and other PLCs on the market via communication drivers or using the standard OPC
<b>Operating system</b>	Windows 2000 service Pack 3, Windows XP and Windows server 2003
<b>Input/Output size</b>	11 sizes comprising 300 I/Os to unlimited I/Os (4800 tags to unlimited)
<b>Versions</b>	Development (Build Time/Run Time) and Execution (Run Time)
<b>References for PC CD-ROM</b>	<b>Please contact your Regional Sales Office</b>

## Multi-level architecture



### Description

Monitor Pro V7.2 is a SCADA (Supervisory Control And Data Acquisition) software solution. Its real-time high performance server offers excellent processing capability, mainly due to the application objects. In addition, its client-server architecture enables it to easily adapt to the topology of your application: multi-server for sharing the processing, multi-user for a wide distribution of information or in redundancy mode for your "high availability" applications.

- **The graphic interface** offers a library of graphic objects. Based on Windows technology, they can easily be customised.
- **The Configuration Explorer:** an intuitive environment for configuration of the real-time data server that also enables object orientated configuration.
- **Relational databases access interface**, supplied with SQL Server 2000. Monitor Pro V7.2 easily enables recording of the production data or access to the stored information. Monitor Pro V7.2 also operates with Oracle, Sybase, Dbase IV and databases supporting the ODBC standard.
- **Improved availability:** Monitor Pro incorporates redundancy services ensuring a high level of architecture availability.
- **Integrated traceability functions**, for real-time monitoring of the quality of your production as well as logging all the actions of the operators.

Monitor Pro V7.2 is the supervision software that adapts to your needs. It offers you real-time monitoring of production and enables you to optimise the operation of your equipment.







Implementation software	FactoryCast	FactoryCast HMI
Compatibility with Telemecanique PLCs	TSX Micro, Premium, Quantum	Premium, Quantum
Operating system	Windows 2000 and XP	
Application	Configuration of FactoryCast modules	Development and implementation of FactoryCast HMI application
References for multilingual PC CD-ROM	Included with FactoryCast modules	TLXCDFCHMIV1M

### FactoryCast

Remote diagnostic functions using simple Internet browser

- . Secure access to the diagnostics system and application
- . Numerical or graphical display and adjustment of data
- . E-mailing
- . Open to customisation and creation of Web pages for diagnostics suited to your needs

### FactoryCast HMI

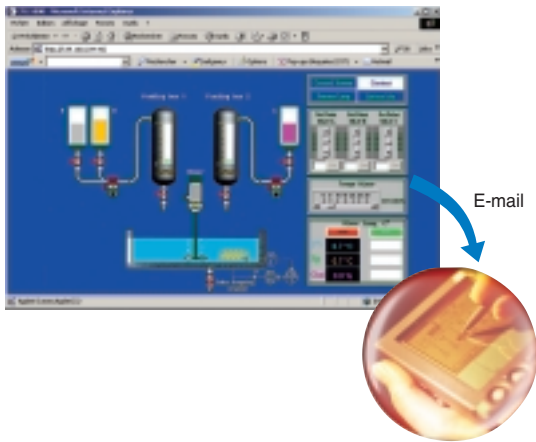
Identical diagnostic functions as FactoryCast + new HMI functions embedded in a PLC module:

- . Real-time database and acquisition of PLC data (1000 variables)
- . Calculations for pre-processing of data
- . Advanced alarm management with E-mailing
- . Archiving of data in relational databases (SQL, Oracle, MySQL)
- . A user customisable Web server for an interface suited to your needs

### FactoryCast Gateway

New offer comprising "all in one" Web intelligent gateways integrated in a stand-alone enclosure:

- . Communications network interfaces and Modbus or Uni-Telway serial links
- . Remote access function, RAS server
- . Notification of alarms function by E-mail
- . User customisable Web function



## FactoryCast Web server modules



Automation platform		TSX Micro		Premium		Quantum		Modbus	Uni-TE
Data rate		10/100 Mbit/s	10 Mbit/s	10/100 Mbit/s		10/100 Mbit/s		10/100 Mbit/s	10/100 Mbit/s
Services Ethernet	Modbus TCP/IP Protocol	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Uni-TE TCP/IP Protocol	Yes	Yes	Yes	Yes	-	-	-	Yes
	Ethway Protocol	-	Yes	-	-	-	-	-	-
	Serial Protocol	Uni-TE	-	-	-	-	-	Modbus Master	Uni-Telway slave
	Modem Protocol	PPP, PAP	-	-	-	-	-	PPP, PAP	PPP, PAP
	Global Data	-	-	Yes	-	Yes	-	-	-
	I/O Scanning	-	-	Yes	-	Yes	-	Yes	Yes
	Services gateway/RAS	Yes	-	-	-	-	-	Yes	Yes
Web server	Standard Web services	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	FactoryCast services	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	FactoryCast HMI services	-	-	-	Yes	-	Yes	-	-
References		TSXETZ510	TSXEY110WS	TSXEY5103	TSXWY100	140NOE77111	140NWM10000	TSXETG1000	TSXETG1010



## Ingenious solutions for all your automation system applications

Perfect suitability for all your applications thanks to a complete offer... from simple relays to automation platforms.

### Zelio

Relays and Zelio Logic smart relays



#### Zelio relay range

Zelio Relay plug-in relays, Zelio Control control and measurement relays, Zelio Count counters, Zelio Time timing relays: These ranges offer *compactness* and *simplicity*.

#### Zelio Logic smart relays

Designed for management of simple automation systems comprising 10 to 40 I/O. Compact or modular, Zelio Logic offers *flexibility* and *simplicity*.

### Twido

Programmable controllers



**Twido**, ideal for simple installations and small machines: standard applications comprising 10 to 100 I/O (max. 252 I/O). Compact or modular, Twido offers *flexibility* and *simplicity*.

### Modicon

Automation platforms and distributed I/Os



**Modicon TSX Micro**, ideal for machine builders. At the heart of the machine, TSX Micro offers *compactness*, *modularity* and *integration* benefits.

- CANopen machine bus connection
- Low cost Ethernet connection
- Doubling of memory capacity



**Modicon Premium**, ideal for manufacturing applications. Outstanding *flexibility* for distributed architectures and *integration* of advanced automation system functions.

- New high performance processors
- CANopen machine bus connection, from entry level



**Modicon Quantum**, ideal for process applications. *High level of performance* for process control and architecture availability.

- New high performance processors
- Onboard Ethernet
- Memory expansion option using PCMCIA
- USB connection



**Modicon Momentum M1/M1E**, ideal for distributed architectures. *Compactness* and *flexibility* for control and I/O distribution on Ethernet.

#### The essential guide

A simplified selection guide enabling you to quickly select all the products required to develop an automation system... from a small simple machine to a complex installation.

# Contents

## Relays

- **Zelio Relay** - Plug-in relays ..... 3/2 to 3/3
- **Zelio Control** - Control and measurement relays ..... 3/4
- **Zelio Count** - Counters ..... 3/5
- **Zelio Time** - Timing relays ..... 3/6 to 3/7
- **Zelio Logic** - Smart relays ..... 3/8 to 3/9

## Programmable controllers, Automation platforms

- **Twido** - Programmable controllers ..... 3/10 to 3/11
- **Modicon TSX Micro** - Automation platforms ..... 3/12 to 3/17
- **Modicon Premium** - Automation platforms ..... 3/18 to 3/25
- **Modicon Quantum** - Automation platforms ..... 3/26 to 3/33
- **Unity** - Software ..... 3/34 to 3/35
- **PL7, Concept, ProWORKS 32** - Software ..... 3/36 to 3/37

## Distributed inputs/outputs

- Distributed inputs/outputs with processor  
**Modicon Momentum** ..... 3/38 to 3/41
- Distributed inputs/outputs **Advantys STB**  
(see Chapter 7 “Interfaces and I/Os”)

## Unity

Taking you into a new world of automation

*At the heart of the Telemecanique offer, Unity is the new generation software and hardware automation platform.*

■ **Open**, based on universal Microsoft Visio, VBA and XML software standards, Unity is designed to allow your tools to work together.

■ **Smart**, Unity provides a common IEC development environment for Modicon Premium, Atrium and Quantum platforms. With Unity, you can reduce development cycles and improve quality by reusing standard programmes.



■ **Flexible**, the new range of Modicon Premium, Atrium and Quantum processors offers extended memory capabilities and greater execution performance.

*With Transparent Ready, Schneider Electric has applied market standards to its automation system architectures, making data exchange even easier. Smart and simple to use, the Telemecanique software offer ensures maximum efficiency in terms of application development and maintenance, while its high performance Telemecanique PLCs help to achieve optimum installation availability and productivity. Committed to maximising your investment over the long-term, Schneider Electric makes it easy for you to develop your applications with complete peace of mind.*



3

Type of relay		Interface relays RSB		
<b>Contact characteristics</b>				
Thermal current I <sub>th</sub> in A (temperature ≤ 40°C)		8	12	16
Number of contacts		2 C/O	1 C/O	1 C/O
Contact material		AgNi	AgNi	AgNi
Switching voltage, min. / max.		5 / 250 VAC/DC	5 / 250 VAC/DC	5 / 250 VAC/DC
Switching capacity, min. / max.		5 mA / 2000 VA	5 mA / 3000 VA	5 mA / 4000 VA
<b>Coil characteristics</b>				
Average consumption, inrush, VA / W		0.75 VA / 0.45 W		
Permissible voltage variation		0.8 ... 1.1 U <sub>n</sub> (50 / 60Hz or =)		
References		(1)	(1)	(1)
Coil supply voltage on DC	6 VDC	RSB2A080RD	RSB1A120RD	RSB1A160RD
	12 VDC	RSB2A080JD	RSB1A120JD	RSB1A160JD
	24 VDC	RSB2A080BD	RSB1A120BD	RSB1A160BD
	48 VDC	RSB2A080ED	RSB1A120ED	RSB1A160ED
	60 VDC	RSB2A080ND	RSB1A120ND	RSB1A160ND
	110 VDC	RSB2A080FD	RSB1A120FD	RSB1A160FD
Coil supply voltage on AC	24 VAC	RSB2A080B7	RSB1A120B7	RSB1A160B7
	48 VAC	RSB2A080E7	RSB1A120E7	RSB1A160E7
	110 VAC	–	–	–
	120 VAC	RSB2A080F7	RSB1A120F7	RSB1A160F7
	220 VAC	RSB2A080M7	RSB1A120M7	RSB1A160M7
	230 VAC	RSB2A080P7	RSB1A120P7	RSB1A160P7
	240 VAC	RSB2A080U7	RSB1A120U7	RSB1A160U7

(1) References for relays without socket. For relays with socket, add the letter **S** to the end of the selected reference. (Example: RSB2A080B7 becomes RSB2A080B7S).

## Sockets for relays

Type of socket	For interface relays RSB		
<b>Mixed input/output type sockets</b>			
without location for protection module	–	–	–
with location for protection module	–	–	–
<b>Separate input/output type sockets</b>			
with location for protection module	RSZE1S48M	RSZE1S35M	RSZE1S48M
<b>Protection modules</b>			
Diode, 6...230 VDC	RZM040W		
Diode + LED, 6...24 VDC	RZM031RB		
Diode + LED, 24...60 VDC	RZM031BN		
Diode + LED, 110...230 VDC	RZM031FPD		
Varistor + LED, 6...24 VDC or AC	RZM021RB		
Varistor + LED, 24...60 VDC or AC	RZM021BN		
Varistor + LED, 110...230 VDC or AC	RZM021FP		
RC circuit, 24...60 VAC	RZM041BN7		
RC circuit, 110...240VAC	RZM041FU7		
“Power on” indication, 110/230 VAC	–		
“Power on” indication, 6/24 VDC with protection diode	–		
Varistor, 24 VAC	–		
Varistor, 230 VAC	–		
Multifunction timer module, 24...230 VDC or AC	–		
<b>Accessories</b>			
Plastic extractor	RSZR215		
Maintaining spring clamp	–		
Legend for sockets	RSZL300		



## Miniature and universal relays



### Miniature relays RXL

### Universal relays RUN with contact position mechanical indicator

12	10	6	6	10	10	4
2 C/O	3 C/O	4 C/O	4 C/O	2 C/O	3 C/O	3 C/O
AgNi	AgNi	AgNi	AgNi/AU 5 u	AgNi	AgNi	AgNi/AU 10 u
5 / 250 VAC/DC	5 / 250 VAC/DC	5 / 250 VAC/DC	5 / 250 VAC/DC	20 / 250 VAC/DC	20 / 250 VAC/DC	10 / 250 VAC, 125 VDC
5 mA / 3000 VA	5 mA / 2500 VA	5 mA / 1500 VA	2 mA / 1500 VA	50 mA / 3000 VA	50 mA / 3000 VA	1 mA / 1000 VA

1.6 VA / 0.9 W				2.3 VA / 1.5 W		
0.8 ... 1.1 Un (50 / 60Hz or =)				0.8 ... 1.1 Un (50Hz or =), 0.85...1.1Un (60Hz)		
(2)	(2)	(2)	(2)	(2)	(2)	–
–	–	–	–	–	–	–
RXL2A12B1JD	RXL3A10B1JD	RXL4A06B1JD	RXL4G06B1JD	RUN21D21JD	RUN31A21JD	–
RXL2A12B1BD	RXL3A10B1BD	RXL4A06B1BD	RXL4G06B1BD	RUN21D21BD	RUN31A21BD	RUN33A22BD
RXL2A12B1ED	RXL3A10B1ED	RXL4A06B1ED	RXL4G06B1ED	RUN21D21ED	RUN31A21ED	RUN33A22ED
–	–	–	–	–	–	–
RXL2A12B1FD	RXL3A10B1FD	RXL4A06B1FD	RXL4G06B1FD	RUN21D21FD	RUN31A21FD	–
RXL2A12B1B7	RXL3A10B1B7	RXL4A06B1B7	RXL4G06B1B7	RUN21D21B7	RUN31A21B7	RUN33A22B7
RXL2A12B1E7	RXL3A10B1E7	RXL4A06B1E7	RXL4G06B1E7	RUN21D21E7	RUN31A21E7	RUN33A22E7
–	–	–	–	RUN21D21F7	RUN31A21F7	RUN33A22E7
RXL2A12B1F7	RXL3A10B1F7	RXL4A06B1F7	RXL4G06B1F7	–	–	–
–	–	–	–	–	–	–
RXL2A12B1P7	RXL3A10B1P7	RXL4A06B1P7	RXL4G06B1P7	RUN21D21P7	RUN31A21P7	RUN33A22P7
–	–	–	–	–	–	–

(2) References for relays without status LED indicator. For relays with status LED indicator, replace the last number 1 in the reference by 2. (Example: RXL2A12B1JD becomes RXL2A12B2JD).

### For miniature relays RXL

### For universal relays RUN with contact position mech. indicator

RXZE1M114 (3)	–	RXZE1M114	RXZE1M114	RUZ1D	RUZ1A	RUZ1A
RXZE1M114M	–	RXZE1M114M	RXZE1M114M	RUZ7D	RUZ7A	RUZ7A

RXZE1S108M	RXZE1S111M	RXZE1S114M	RXZE1S114M	–
------------	------------	------------	------------	---

RZM040W	RUW040BD
RZM031RB	–
RZM031BN	–
RZM031FPD	–
RZM021RB	–
RZM021BN	–
RZM021FP	–
RZM041BN7	–
RZM041FU7	RUW041P7
–	RUW010P7
–	RUW030BD
–	RUW042B7
–	RUW042P7
–	RUW101MW

RXZR235	–
RXZ200	RUZ200
RXZL320	–

(3) Limited to 7 A in operation.



3

Function	Rotational direction and presence of phases					
		+ Undervoltage	+ Over and undervoltage	+ Asymmetry		
Adjustable time delay	without	without	0.1...10 s	0.1...10 s	fixed, 0.5 s	0.1...10 s
Supply voltage	220...440V	380...440V	400V	380...440V	380...440V	380...440V
Output	2 C/O	2 C/O	2 C/O	2 C/O	1 C/O	2 C/O
References	RM4TG20	RM4TU02	RM4TR34 (1)	RM4TR32 (2)	RM4TA02	RM4TA32

(1) Relay with fixed voltage thresholds.

(2) Relay with adjustable voltage thresholds.

## Current and voltage measurement relays

(3) Basic reference. To be completed with the letters indicating the required voltage, as shown below:

Voltage	VAC, 50/60 Hz	VDC
24...240 V	MW	MW
110...130 V	F	–
220...240 V	M	–
380...415 V	Q	–



Function	Detection of over and undercurrent					
Measuring range	3...30 mA	0.3...1.5 A	0.05 ...0.5 V	1...10 V	30...300 V	180...270 V
	10...100 mA	1...5 A	0.3 ...3 V	5...50 V	50...500 V	
	0.1...1 A	3...15 A	0.5...5 V	10...100 V		
Adjustable time delay	0.05...30 s	0.05...30 s	0.05 ...30 s	0.05...30 s	0.05...30 s	0.1...10 s
Output	2 C/O	2 C/O	2 C/O	2 C/O	2 C/O	2 C/O
References	RM4JA31.. (3)	RM4JA32.. (3)	RM4UA31.. (3)	RM4UA32.. (3)	RM4UA33.. (3)	RM4UB35

(4) Basic reference. To be completed with the letters indicating the required voltage, as shown below:

Voltage	RM4-LG01	RM4-LA32	
	VAC, 50/60 Hz	VAC, 50/60 Hz	VDC
24 V	B	B	–
24...240 V	–	MW	MW
110...130 V	F	F	–
220...240 V	M	M	–
380...415 V	Q	Q	–



Control relays	Empty or fill	
Sensitivity scale	5 ... 100 kΩ	0.25 ... 5 kΩ 2.5 ... 50 kΩ 25 ... 500 kΩ
Time delay	without	adjustable, 0.1 to 10 s
Output	1 C/O	2 C/O
References	RM4LG01. (4)	RM4LA32.. (4)

Liquid level control probe type	Measuring electrode and reference electrode	1 simple stainless steel electrode in PVC protective casing
Mounting	suspended	suspended
Maximum operating temperature	100°C	100°C
References	LA9RM201	RM79696043

# Zelio Count

## Counters Totalisers



Display	Mechanical				LCD
Supply voltage	24 VDC				Battery
Number of digits displayed	5	6	6	8	8
Counting frequency	20 Hz	10 Hz	25 Hz	25 Hz	7.5 kHz
Type of zero reset	Manual	Without	Manual	Without	Manual (1)
Front face dimensions, W x H	41.5 x 31 mm	30 x 20 mm	60 x 50 mm	60 x 50 mm	48 x 24 mm
References	XBKT50000U10M	XBKT60000U00M	XBKT60000U10M	XBKT80000U00M	XBKT81030U33E

(1) With electrical interlocking.

3

## Hour counters



Display	Mechanical		LCD
Supply voltage	24 VAC	230 VAC	Battery
Number of digits / display	7 (99,999.99 h)	7 (99,999.99 h)	8 (999,999.99 h)
Supply frequency	50 Hz	50 Hz	Mode: 1/100 hour
Type of zero reset	Without	Without	Manual (1)
Front face dimensions, W x H	48 x 48 mm	48 x 48 mm	48 x 24 mm
References	XBKH70000004M	XBKH70000002M	XBKH81000033E

(1) With electrical interlocking.

## Multifunction counters



Display	LCD				LED	
Number of digits displayed	6					
Counting frequency	5 kHz					
Type of reset	Manual, electric and automatic					
Front face dimensions, W x H	48 x 48 mm					
Preselection number	1		2		1	
References	Supply voltage	24 VDC	XBKP61130G30E	XBKP61230G30E	XBKP62130G30E	XBKP62230G30E
		115 VAC	XBKP61130G31E	XBKP61230G31E	–	–
		230 VAC	XBKP61130G32E	XBKP61230G32E	XBKP62130G32E	XBKP62230G32E

# Zelio Time

## Timing relays Industrial timers



3

Type of single function relay width 22.5 mm, relay output	On-delay		Off-delay		
External control	no	yes	no	yes	yes
Supply voltage	24 VAC/DC 110...240 VAC	24 VAC/DC 42...48 VAC/DC 110...240 VAC	24...240 VAC/DC	24 VAC/DC 42...48 VAC/DC 110...240 VAC	24 VAC/DC 42...48 VAC/DC 110...240 VAC
Timing range	0.05 s...300 h	0.05 s...300 h	0.05 s...10 mn	0.05 s...300 h	0.05 s...300 h
Output	1 C/O	2 C/O (1)	1 C/O	2 C/O (1)	1 C/O
References	RE7TL11BU	RE7TP13BU	RE7RB11MW	RE7RL13BU	RE7RM11BU

(1) 1 selectable in instantaneous mode.



Type of single function relay width 22.5 mm, relay output	Asymmetrical flashing	Pulse on energisation
External control	yes	no
Supply voltage	24 VAC/DC 42...48 VAC/DC 110...240 VAC	24 VAC/DC 110...240 VAC
Timing range	0.05 s...300 h	0.05 s...300 h
Output	1 C/O	1 C/O
References	RE7CV11BU	RE7PE11BU



Type of multifunction relay	6 functions (2)	8 functions (3)
Supply voltage	24 VAC/DC 42...48 VAC/DC 110...240 VAC	24 VAC/DC 110...240 VAC
Timing range	0.05 s...300 h	0.05 s...300 h
Output	1 C/O	2 C/O (1 selectable in instantaneous mode)
References	RE7ML11BU	RE7MY13BU

(2) RE7ML11BU functions: On-delay, Off-delay, Pulse on energisation with start on energisation, Pulse on energisation with start on opening of remote control contact, Flashing with start during the OFF period, Flashing with start during the ON period.

(3) REMY13BU functions: On-delay, Off-delay, Pulse on energisation with start on energisation, Pulse on energisation with start on opening of remote control contact, Flashing with start during the OFF period, Flashing with start during the ON period, Star-delta starting with double On-delay timing, Star-delta starting with contact for switching to star connection.



## Modular timers



Type of modular timer width 17.5 mm, relay output	On-delay	Multifunction		
External control	no	–		
Supply voltage	24 VDC - 24 ...240 VAC	24 VDC - 24 ...240 VAC	12 ... 240VAC/DC	
Timing range	0.1 s...100 h	0.1 s...100 h	0.1 s...10 h	0.1 s...100 h
Output	1 C/O	1 C/O	1 C/O	1 C/O
References	RE11RAMU	RE11RMMU (1)	RE11RMEMU (2)	RE11RMMW (1)

(1) Multifunction: On-delay, Off-delay, Totaliser, Symmetrical flashing, Chronometer, Pulse on energisation, Pulse output, Timing after closing/opening of control contact.

(2) Multifunction: On-delay, Off-delay, Totaliser, Symmetrical flashing, Chronometer, Pulse on energisation.



Type of modular timer width 17.5 mm, relay output	Asymmetrical flashing	Pulse on energisation	Off delay	Chronometer
External control	–	–	–	–
Supply voltage	24 VDC - 24...240 VAC	24 VDC - 24...240 VAC	24 VDC - 24...240 VAC	24 VDC - 24...240 VAC
Timing range	0.1 s...100 h	0.1 s...100 h	0.1 s...100 h	0.1 s...100 h
Output	1 C/O	1 C/O	1 C/O	1 C/O
References	RE11RLMU	RE11RHMU	RE11RCMU	RE11RBMU



Type of modular timer width 17.5 mm, solid-state output	On-delay	Off-delay	Multifunction (3)
Supply voltage	24...240 VAC/DC	24...240 VAC	24...240 VAC
Timing range	0.1 s...100 h	0.1 s...100 h	0.1 s...100 h
Output	solid-state	solid-state	solid-state
References	RE11LAMW	RE11LCBM	RE11LMBM

(3) Multifunction: On-delay, Off-delay, Totaliser, Symmetrical flashing, Chronometer, Pulse on energisation, Pulse output, Timing after closing/opening of control contact.



Panel-mounted relays	Timer on-delay	Asymmetrical flasher	Multifunction (4)	Multifunction (5)
Power supply	24...240 VAC/DC			
Time range	0,02 s...300 h			
Output	2 relay 5 A			
Reference	RE48ATM12MW	RE48ACV12MW	RE48AMH13MW (6)	RE48AML12MW

(4) Timer on-delay / pulse on energization

(5) Timer on-delay / calibrator / timer off-delay / symmetrical flasher

(6) 1 selectable in instantaneous

# Zelio Logic Smart relays

## Compact SR2



Compact smart relays		With display, d.c. power supply					
Supply voltage		12 VDC			24 VDC		
Number of inputs/outputs		12	20	10	12	20	20
Number of inputs		discrete inputs		discrete inputs		discrete inputs	
		8	12	6	8	12	12
		of which 0-10 V analogue inputs		of which 0-10 V analogue inputs		of which 0-10 V analogue inputs	
		4	6	—	4	2	6
Number of outputs		4 relay	8 relay	4 relay	4	8 relay	8
Dimensions, W x D x H (mm)		71.2x59.5x107.6		71.2x59.5x107.6		124.6x59.5x107.6	
Clock		yes	yes	no	yes	no	yes
References		SR2B121JD	SR2B201JD	SR2A101BD (1)	SR2B12●BD (2)	SR2A201BD (1)	SR2B20●BD (2)

(1) Programming on smart relay in LADDER language only

(2) Replace ● by the number «1» to order a smart relay with **relay outputs** and by «2» for a smart relay with **transistor outputs** (Example: SR2B121BD)



Compact smart relays		With display, a.c. power supply					
Supply voltage		24 VAC			100/240 VAC		
Number of inputs/outputs		12	20	10	12	20	20
Number of discrete inputs		8	12	6	8	12	12
Number of outputs		4 relay	8 relay	4 relay	4 relay	8 relay	8 relay
Dimensions, W x D x H (mm)		71.2x59.5x107.6		71.2x59.5x107.6		124.6x59.5x107.6	
Clock		yes	yes	no	no	no	no
References		SR2B121B	SR2B201B	SR2A101FU (1)	SR2B121FU	SR2A201FU (1)	SR2B201FU

(1) Programming on smart relay in LADDER language only



Compact smart relays		Without display and without buttons					
Supply voltage		24 VDC			100/240 VAC		
Number of inputs/outputs		10	12	20	10	12	20
Number of inputs		discrete inputs		discrete inputs		discrete inputs	
		6	8	12	6	8	12
		of which 0-10 V analogue inputs		of which 0-10 V analogue inputs		of which 0-10 V analogue inputs	
		-	4	6	—	—	—
Number of outputs		4 relay	4 relay	8 relay	4 relay	4 relay	8 relay
Dimensions, W x D x H (mm)		71.2x59.5x107.6		124.6x59.5x107.6		71.2x59.5x107.6	
Clock		no	yes	yes	no	yes	yes
References		SR2D101BD (1)	SR2E121BD (3)	SR2E201BD (3)	SR2D101FU (1)	SR2E121FU	SR2E201FU

(1) Programming on smart relay in LADDER language only

(3) For version with **24 VAC supply** (0 analogue inputs), delete the letter **D** from the end of the reference (**SR2E121B** and **SR2E201B**)

## Modular SR3



Modular smart relays*	With display					
	24 VDC		24 VAC		100/240 VAC	
Supply voltage	24 VDC		24 VAC		100/240 VAC	
Number of inputs/outputs	10	26	10	26	10	26
Number of inputs	discrete inputs		discrete inputs		discrete inputs	
	6	16	6	16	6	16
	of which 0-10 V analogue inputs		of which 0-10 V analogue inputs		of which 0-10 V analogue inputs	
Number of outputs	4	6	—	—	—	—
	4	10	4 relay	10 relay	4 relay	10 relay
Dimensions, W x D x H (mm)	71.2x59.5x107.6	124.6x59.5x107.6	71.2x59.5x107.6	124.6x59.5x107.6	71.2x59.5x107.6	124.6x59.5x107.6
Clock	yes	yes	yes	yes	yes	yes
References	SR3B10●BD (1)	SR3B26●BD (1)	SR3B101B	SR3B261B	SR3B101FU	SR3B261FU

\* Each modular base can be fitted with one communication module and one I/O expansion module.

(1) Replace ● by the number «1» to order a smart relay with **relay outputs** and by «2» for a smart relay with **transistor outputs** (Example: SR3B101BD)



Expansion modules (2)	Inputs / Outputs			Communication	
Usage	For modular smart relays SR3B●●●●●●			MODBUS network	
Number of inputs/outputs	6	10	14	—	
Number of discrete inputs	4	6	8	—	
Number of outputs	2 relay	4 relay	6 relay	—	
Dimensions, W x D x H (mm)	35.5x59.5x107.6	72x59.5x107.6	72x59.5x107.6	35.5x59.5x107.6	
References	24 VDC	SR3XT61BD	SR3XT101BD	SR3XT141BD	SR3MBU01BD
	24 VAC	SR3XT61B	SR3XT101B	SR3XT141B	—
	100...240 VAC	SR3XT61FU	SR3XT101FU	SR3XT141FU	—

(2) The power supply of the expansion modules is provided via the Zelio Logic modular relays

## Zelio Soft software and back-up memory

Software and back-up memory	Multilingual programming software	Back-up memory
Description	PC CD-ROM (Windows 95/98, NT, 2000, XP, ME) (3)	EEPROM
References	SR2SFT01	SR2MEM01
PC/Smart relay connecting cable	SR2CBL01	—
Interface for USB port	SR2CBL06	—

(3) CD-Rom containing «Zelio Soft» software, an application library, a self-training manual, installation instructions and a user's manual.

## Communication interface

Interface and software	Communication interface	Programming software
Supply voltage	12/24 VDC	—
Description	—	PC CD-ROM (Windows 95/98, NT, 2000, XP, ME)
Dimensions, W x D x H (mm)	72x59.5x107.6	—
References	SR2COM01	SR2SFT03



3

Type of base		Compact			
Number of discrete I/O		10	16	24	40
Number of discrete inputs (24 VDC)		6 sink/source	9 sink/source	14 sink/source	24 sink/source
Number of discrete outputs		4 relay 2 A	7 relay 2 A	10 relay 2 A	14 relay 2 A, 2 N/C 1 A
Types of connection		Non-removable screw terminals			
Possible I/O extension modules		–	–	4	7
Counting		3 x 5 kHz, 1 x 20 kHz			4 x 5 kHz, 2 x 20 kHz
PWM position control		–	–	–	2 x 7 kHz
Serial ports		1 x RS 485	1 x RS 485; as an option: 1 x RS 232C or RS 485		
Protocol		Modbus Master/slave, ASCII, remote I/O			
Dimensions LxDxH		80x70x90 mm	80x70x90 mm	95x70x90 mm	157x70x90 mm
Reference	Supply voltage 100...240 VAC	TWDLCAA10DRF	TWDLCAA16DRF	TWDLCAA24DRF	TWDLCAA40DRF (1)
	Supply voltage 19.2...30 VDC	TWDLCAA10DRF	TWDLCAA16DRF	TWDLCAA24DRF	–
	Real-time clock (as an option)	TWDXCPRTC			
	Display unit (as an option)	TWDXCPODC			

(1) Also available in 40 I/O version with Ethernet : TWDLCAA40DRF becomes TWDLCAE40DRF



Type of base		Modular		
Number of discrete I/O		20		40
Number of discrete inputs (24 VDC)		12 sink/source	12 sink/source	24 sink/source
Number of discrete outputs		8 source transistor 0.3 A	6 relay and 2 source transistor 0.3 A	16 source transistor 0.3 A
Types of connection		HE 10 connector	Removable screw terminals	HE 10 connector
Possible I/O extension modules		4	7	7
Supply voltage		24 VDC		
Integrated Counting		2 x 5 kHz, 2 x 20 kHz		
PLS/PWM position control		2x7 kHz		
Serial ports		1 x RS 485; as an option: 1 x RS 232C or RS485		
Protocol		Modbus Master/slave, ASCII, remote I/O		
Dimensions LxDxH		35.4x70x90 mm	47.5x70x90 mm	47.5x70x90 mm
Reference		TWDLMDA20DTK (2)	TWDLMDA20DRT	TWDLMDA40DTK (2)
	Real-time clock (as an option)	TWDXCPRTC		
	Display unit (as an option)	TWDXCPODM		
	Memory extension (as an option)	–	TWDXCMPFK64	

(2) Also available in the following version: sink transistor outputs (TWDLMDA20DUK and TWDLMDA40DUK)

## Accessories

Prewired system for modules with HE10 connectors	For modular bases TWDLMDA20DTK/40DTK	For inputs TWDDI16DK/32DK	For outputs TWDDO16TK/32TK
TwidoFast "preformed" cable L = 3 m	TWDFCW30M	TWDFCW30K	TWDFCW30K
L = 5 m	TWDFCW50M	TWDFCW50K	TWDFCW50K
Telefast sub-bases L = 1 m	TWDFST20DR10	TWDFST16D10	TWDFST16DR10
L = 2 m	TWDFST20DR20	TWDFST16D20	TWDFST16DR20

Memory cartridge and software	Memory cartridge	TwidoSoft software
Description	Application update	with cable
Reference	TWDXCMPFK32	TWDSPU1001V10M



## I/O modules



Type of module		Analog						
Number of I/O		2 inputs	4 inputs	8 inputs	1 output	2 outputs	2 inputs/1 output	
Connection		Removable screw terminals						
Inputs	Range	0...10 V (1) 4...20 mA (2)			–		0...10 V (1) 4...20 mA (2)	Type K, J, T thermocouples 3-wire Pt 100 thermal probe
	Resolution	12 bits (4096 points)			–		12 bits (4096 points)	
Outputs	Range	–		0...10 V 4...20 mA	± 10 V	0...10 V 4...20 mA		
	Résolution	–		12 bits	11 bits + sign	12 bits		
Measuring accuracy		0.2 % FS						
Supply voltage		24 VDC						
Dimensions LxDxH		23.5 x 70 x 90 mm						
Reference		TWDAMI2HT	TWDAMI4LT	TWDAMI8HT	TWDAMO1HT	TWDAVO2HT	TWDAMM3HT	TWDALM3LT

(1) Non differential

(2) Differential



Type of module		Discrete					AS-Interface Master
Number of discrete I/O		8	4 inputs/4 outputs	16	16	32	2 modules (4)
Logical input		Sink	Sink/Source				–
Connections		Removable screw terminals			HE 10 connectors		Removable screw terminals
Reference	Inputs 24 VDC	TWDDDI8DT	TWDDMM8DRT	TWDDDI16DT	TWDDDI16DK	TWDDDI32DK	–
	Inputs 120 V	TWDDAI8DT	–	–	–	–	–
	Relay outputs 2 A	TWDDRA8RT	TWDDMM8DRT	TWDDRA16RT	–	–	–
	Source transistor outputs 0.1 A	TWDDO8TT (3)	–	–	TWDDO16TK (3)	TWDDO32TK (3)	TWDNOH10M3

(3) Also available in the following version: sink transistor outputs, (TWDDO8UT, TWDDO16UK and TWDDO32UK)

(4) 2 modules max. 62 discrete slaves max. 7 analog slaves max. AS-Interface/M3, V 2.11 (S.7.4 profile not supported)

## Communication modules



Type of module	CANopen Expansion	Serial interface module			Serial interface adaptor			Ethernet Interface	
		RS 232C	RS 485	–	RS 232C	RS 485	–		
Physical layer (non isolated)		–	RS 232C	RS 485	RS 232C	RS 485	–	–	
Connections		Screw terminals	Mini-DIN connector		Screw terminals	Mini-DIN connector	Screw terminals	RJ45	
Protocol		–	Modbus Master/slave, ASCII, remote I/O						
Compatibility with Twido base		Base 24 or 40 I/O	Modular base TWDLMDA			Compact base TWDLCAA16/24DRF Modular base via the integrated display module TWDXCPODM		All model	
Reference		TWDNCO1M	TWDNOZ232D	TWDNOZ485D(5)	TWDNOZ485T	TWDNAC232D	TWDNAC485D	TWDNAC485T	499TWD01100

(5) Screw terminals available : TWDN●Z485D becomes TWDN●Z485T

# Modicon TSX Micro Platform of automatism

## Basic configurations



Type of processor		TSX 3705	TSX 3708	TSX 3710	
<b>3</b>	<b>Power supply</b>	110...240 VAC		24 VDC	
	<b>Number of slots</b>	Standard On extension	2 (1 available) –	3 (1 available) –	2 (1 available) 2
	<b>Number of integrated discrete I/O modules</b>	1 (16 I, 12 Q)	2 (32 I, 24 Q)	1 (16 I, 12 Q)	1 (16 I, 12 Q)
	<b>Number of integrated analog I/O channels</b>	–	–	–	–
	<b>Type of integrated I/O</b>	I: 24 VDC, Q: relay	I: 24 VDC, Q: relay	I: 24 VDC, Q: sol.st. 0.5 A	I: 24 VDC, Q: relay
	<b>Application-specific modules</b> (counter, position control)	2 half-size		2 half-size	
	<b>Bus</b>	AS-Interface cabling system		1 half-size	
		CANopen machine bus		–	
		Fipio fieldbus		–	
	<b>Networks</b>	Modbus Plus, Fipway		–	
		Ethernet TCP/IP		1 external module	
	<b>Memory capacity</b>	Integrated		14 K words	
		With PCMCIA extension		–	
	<b>Execution time for one instruction</b>	Boolean		0.25 µs	
		Numerical		4.81 µs	
	<b>Rack dimensions (WxDxH)</b>	170,3 x 132,5 x 151 mm	230 x 132,5 x 151 mm	170,3 x 132,5 x 151 mm	
	<b>Reference</b>	With screw terminals		TSX3705028DR1	TSX3708056DR1
		With HE 10 connector (1)		–	–
				TSX3710128DT1	TSX3710128DR1
				TSX3710128DTK1	–

(1) For use with Advantys Telefast ABE7 wiring system

(2) Basic configuration provided without I/O modules

## Memory extension



Type of PCMCIA card for TSX 3721/22		Application		
<b>Technology</b>		SRAM	Flash EPROM	Backup
<b>Memory size (3)</b>	32 K words	TSXMRPP128K	TSXMFPP128K	TSXMFPP096K
	32 K words/128 K words	TSXMRPP348K	TSXMCPC224K	–
	64 K words	TSXMRPP224K	TSXMFPP224K	–
	64 K words/128 K words	TSXMRPP384K	TSXMCPC224K	–
	128 K words	TSXMRPC448K	TSXMFPP384K	–
	128 K words/128 K words	TSXMRPC768K	–	–

(3) The 1<sup>st</sup> value corresponds to the size of the application area, the second to the size of the area for data storage (recipes, production data, etc).



TSX 3710			TSX 3721		TSX 3722			
24 VDC	110...240 VAC		24 VDC	110...240 VAC		24 VDC	110...240 VAC	
2 (1 available)			3 (3 available)			3 (3 available)		
2			2			2		
2 (32 I, 32 Q)	1 (16 I, 12 Q)	1 (16 I, 12 Q)	-			-		
-	-	-	-			1 (8 I, 1 Q)		
I: 24 VDC, Q: sol. st. 0.1 A	I: 115 VAC, Q: relay	I: 24 VDC, Q: relay	-			I: 0...10 V or 0/4...20 mA, Q: 0...10 V		
2 half-size			4 half-size			4 half-size (2 integrated channels)		
1 half-size			1 half-size			1 half-size		
-			1 PCMCIA card			1 PCMCIA card		
-			1 PCMCIA card			1 PCMCIA card		
-			1 PCMCIA card			1 PCMCIA card		
1 external module			1 external module			1 external module		
14 K words			20 K words			20 K words		
-			128 K words + 128 K words for file storage			128 K words + 128 K words for file storage		
0.25 µs			0.13 µs (0.19 µs with PCMCIA)			0.13 µs (0.19 µs with PCMCIA)		
4.81 µs			4.50 µs			4.50 µs		
170,3 x 132,5 x 151 mm			230 x 132,5 x 151 mm					
-	TSX3710028AR1	TSX3710028DR1	TSX3721101 (2)	TSX3721001 (2)	TSX3722101 (2)	TSX3722001 (2)		
TSX3710164DTK1	-	-						

### Mini extension rack

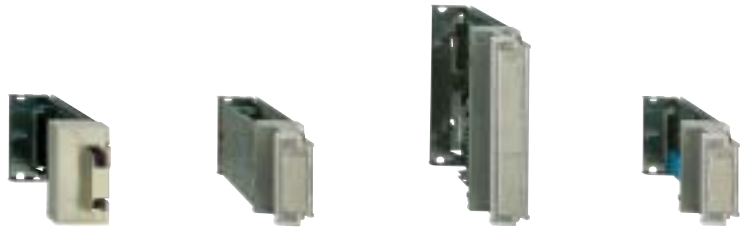


Type of rack	2 slots
For use with	TSX3710/21/22
Rack dimensions (WxDxH)	112,5 x 132,5 x 151 mm
Reference	4 positions TSXRKZ2

Process power supplies see chapter 6 "Power supply"

# Modicon TSX Micro Platform of automatism

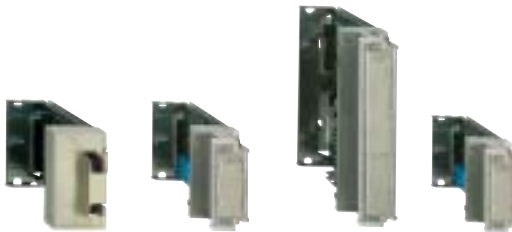
## Discrete I/O modules



3

Type of module		Discrete inputs			
<b>Connection</b>		By HE 10 connector (1)		By screw terminals supplied	
<b>Module format</b>		Half		Standard	Half
<b>Number of channels</b>		12		32	8
<b>Input voltage</b>	24 VDC positive logic	<b>TSXDEZ12D2K</b>	–	<b>TSXDEZ32D2</b>	–
	24 VDC positive/negative logic	–	<b>TSXDEZ12D2</b>	–	–
	100...120 VAC	–	–	–	<b>TSXDEZ08A4</b>
	200...240 VAC	–	–	–	<b>TSXDEZ08A5</b>

(1) For use with Advantys Telefast ABE7 wiring system



Type of module		Discrete outputs				
		Solid state			Relay	
<b>Connection</b>		By HE 10 conn. (1)		By screw terms. supplied		
<b>Module format</b>		Half		Standard	Half	
<b>Number of protected channels</b>		8		32	4	8
<b>Protection of outputs</b>		Yes		Yes	Yes	No
<b>Output voltage/current</b>	24 VDC/0.5 A	<b>TSXDSZ08T2K</b>	<b>TSXDSZ08T2</b>	<b>TSXDSZ32T2</b>	–	–
	24 VDC/2 A	–	–	–	<b>TSXDSZ04T22</b>	–
	24 VDC/1 A per channel	–	–	–	–	<b>TSXDSZ08R5</b>
	24...240 VAC/1 A per channel	–	–	–	–	<b>TSXDSZ32R5</b>

(1) For use with Advantys Telefast ABE7 wiring system



Type of module		Discrete I/O				
<b>Connection</b>		By HE 10 connector (1)			By screw terminals supplied	
<b>Module format</b>		Half		Standard		
<b>Number of inputs</b>		8	16	32	16	16
<b>Number of outputs</b>		8 solid state	12 solid state	32 solid state	12 solid state	12 solid state
<b>Protection of outputs</b>		Yes			No	
<b>Voltage/current output</b>	24 VDC/0.5 A	<b>TSXDMZ16DTK</b>	<b>TSXDMZ28DTK</b>	–	<b>TSXDMZ28DT</b>	–
	24 VDC/0.1 A	–	–	<b>TSXDMZ64DTK</b>	–	–
	100...120 VAC/50 VA	–	–	–	<b>TSXDMZ28DR</b>	<b>TSXDMZ28AR</b>

(1) For use with Advantys Telefast ABE7 wiring system





## Analog I/O modules



Type of module	Analog inputs	
	High level with common point	High level isolated
Connection	By screw terminals supplied	
Number of channels	8	4
Resolution	11 bits + sign	12 bits
Input signal	$\pm 10\text{ V}$ , $0\dots 10\text{ V}$	$0\dots 20\text{ mA}$ , $4\dots 20\text{ mA}$
Reference	<b>TSXAEZ801</b>	<b>TSXAEZ802</b>
		<b>TSXAEZ414</b>

(1)  $\pm 10\text{ V}$ ,  $0\dots 10\text{ V}$ ,  $0\dots 5\text{ V}$ ,  $1\dots 5\text{ V}$ ,  $0\dots 20\text{ mA}$ ,  $4\dots 20\text{ mA}$ , B, E, J, K, L, N, R, S, T, U, Pt 100, Ni 1000 (2 or 4-wire), thermal probe, thermocouple



Type de module	Analog outputs	
	With common point	
Connection	By screw terminals supplied	By screw terminals supplied
Number of channels	4	2
Resolution	11 bits + sign	11 bits + sign or 12 bits
Input signal	$\pm 10\text{ V}$ , $0\dots 10\text{ V}$	$\pm 10\text{ V}$ , $0\dots 20\text{ mA}$ , $4\dots 20\text{ mA}$
Reference	<b>TSXASZ401</b>	<b>TSXASZ200</b>



Type of module	Analog I/O	Analog I/O
	Integrated	High level with common point
Connection	By 15-way SUB-D connector not supplied	By screw terminals supplied
Number of inputs	8	4
Number of outputs	1	2
Resolution	8 bits	11 bits + sign or 12 bits
I/O signal	$0\dots 10\text{ V}$ , $0\dots 20\text{ mA}$ , $4\dots 20\text{ mA}$	$\pm 10\text{ V}$ , $0\dots 10\text{ V}$ , $0\dots 20\text{ mA}$ , $4\dots 20\text{ mA}$
Reference	<b>TSX3722 (2)</b>	<b>TSXAMZ600</b>

(2) References: see pages 3/16 and 3/17, TSX3722 basic configuration

# Modicon TSX Micro Platform of automatism

## Integrated counter modules



3

Type of module	Counting on discrete I/O module	Integrated counting on TSX 3722
Type of inputs for	Sensors, limit switches Totem Pole incremental encoders	Sensors, limit switches Totem Pole incremental encoders
Frequency	500 Hz	10 kHz
Response time	8 ms	8 ms
Number of channels	2 (1)	2 (2)
Reference	TSX37 (3)	TSX3722 (3)

(1) On the first 4 inputs of the 28, 32 or 64 discrete I/O modules

(2) Plus 2 channels on the discrete I/O

(3) References: see pages 3/12 and 3/13, TSX37 basic configuration

## Counter/position control modules



Type of module	Counter			Positioning
Type of inputs for	2-wire PNP sensors 24 VDC Totem Pole incremental encoders 5 VDC RS 422, 10...30 VDC			SSI or parallel absolute encoder 5 VDC, 10...30 VDC
Frequency	40 kHz	40 kHz	500 kHz	200 or 1000 kHz
Response time	5 ms	5 ms		5 ms
Number of channels	1	2		1
Reference	TSXCTZ1A	TSXCTZ2A	TSXCTZ2AA	TSXCTZ1B



## Communication modules



Type of module		Ethernet TCP/IP network For TSX 3710/21/22 PLCs	
Speed		10/100 Mbps	10/100 Mbps
Standard services		TCP/IP(Uni-TE, Modbus)	TCP/IP(Uni-TE, Modbus)
Transparent Ready	Class	B20	C20
	I/O Scanning	Yes	Yes
Web server	Standard services	Yes	Yes
	FactoryCast services	–	Yes with 8 Mb of user Web pages and graphics editor
Reference		<b>TSXETZ410</b>	<b>TSXETZ510</b>

3



Type of module	AS-Interface cabling system	CANopen machine bus	Fipio fieldbus
Name and description	Half size in-rack	PCMCIA card	PCMCIA card
Speed	167 Kbps	20 Kbps...1 Mbps dep. on distance	1 Mbps
Reference	<b>TSXSAZ10</b>	<b>TSXCPP110</b>	<b>TSXFPP10</b>



Type of module		Serial links Uni-Telway, Modbus	
Name and description		Integrated port	Multiprotocol PCMCIA card
Speed		19.2 Kbps	1.2...19.2 Kbps
Reference	With interface	RS 485	<b>TSXS37 (1)</b>
		RS 232D	–
		20 mA CL	–
			<b>TSXS37 (1)</b>
			<b>TSXS37 (1)</b>
			<b>TSXS37 (1)</b>

(1) References: see pages 3/12 and 3/13, TSX3705/08/10 PLCs with link integrated on TER terminal port, or TSX3721/22 PLCs with link integrated on AUX terminal port.



Type of module	Networks Modbus Plus	Fipway
Name and description	PCMCIA card	PCMCIA card
Speed	1 Mbps	1 Mbps
Reference	<b>TSXM37 (1)</b>	<b>TSXF37 (1)</b>

# Modicon Premium Platform of automatism

## Processors under Unity Pro software



3

Type of processor		TSX 57C configuration 1 rack	TSX 5700 1 rack	TSX 5710 4 racks max.	TSX 5720 16 racks max.
Number of I/O in racks	Discrete	192	256	512	1024
	Analog	12	12	24	80
Integrated process control		No	No	No	Yes
Application-specific channels (counter, position control, weighing)		4	4	8	24
Bus	AS-Interface cabling system	1	1	2	4
	CANopen machine bus	1 (integrated)	1 (integrated)	1	1
	INTERBUS, Profibus DP fieldbus	–	–	1	1
Networks (Ethernet, Modbus Plus, Fipway)		1	1	1	1
Memory capacity	Integrated	96 Kb (+ space) data/prog	96 Kb (+ space) data/prog	96 Kb data/prog.	160/192 Kb data/prog. (1)
	With PCMCIA extension	96 Kb data/128 Kb prog.	96 Kb data/128 Kb prog.	96 Kb data/224 Kb prog.	160/192 Kb data (1)/768 Kb prog.
Execution time for one instruction	Boolean	0.19 µs	0.19 µs	0.19 µs	0.19 µs
	On word or arithmetic	0.25 µs	0.25 µs	0.25 µs	0.25 µs
Reference	Without integrated port	–	–	<b>TSXP57104M</b>	<b>TSXP57204M</b>
	Integrated Ethernet	–	–	<b>TSXP571634M</b>	<b>TSXP572634M</b>
	Integrated CANopen	<b>TSXP57C0244M (2)</b>	<b>TSXP570244M</b>	–	–
	Integrated Fipio	–	–	<b>TSXP57154M</b>	<b>TSXP57254M</b>

(1) The second value corresponds to the integrated memory capacity when the processor is equipped with a Fipio manager integrated link

(2) 24 VDC version : TSXP57CD0244M, 100...240 VAC version : TSXP57CA0244M

(3) Processor with double format

(4) PC format card on PCI bus

## Processors under PL7 software



Type of processor		TSX 5710 4 racks max.	TSX 5720 16 racks max.
Number of I/O in racks	Discrete	512	1024
	Analog	24	80
Integrated process control		No	Yes
Application-specific channels (counter, position control, weighing)		8	24
Bus	AS-Interface cabling system	2	4
	CANopen machine bus	1 (with TSXP57103M)	1
	INTERBUS, Profibus DP fieldbus	–	1
Networks (Ethernet, Modbus Plus, Fipway)		1	1
Memory capacity	Integrated	32 K words data/prog.	48 K words data/prog. (5)
	With PCMCIA extension	32 K words data/64 K words prog.	32 K words data (5)/160 K words prog.
Execution time for one instruction	Boolean	0.50 µs	0.19 µs
	On word or arithmetic	0.62 µs	0.25 µs
Reference	Without integrated port	<b>TSXP57103M</b>	<b>TSXP57203M</b>
	Integrated Ethernet	–	<b>TSXP572623M</b>
	Integrated Fipio	<b>TSXP57153M</b>	<b>TSXP57253M</b>
	Integrated Ethernet and Fipio	–	<b>TSXP572823M</b>

(5) The second value corresponds to the processor with integrated Fipio bus manager link.

(6) PC format card for ISA bus.



## Atrium slot-PLCs under Unity Pro software



TSX 5730 16 racks max.	TSX 5740 16 racks max.	TSX 5750 16 racks max.	PCI 5720 16 racks max.	PCI 5730 16 racks max.
1024	2040	2040	1024	1024
128	256	512	80	128
Yes	Yes	Yes	Yes	Yes
32	64	64	24	32
8	8	8	4	8
1	1	1	1	1
3	4	5	1	3
3	4	5	2	4
192/208 Kb data/prog. (1)	320 Kb data/prog.	640 Kb data/prog.	160/192 Kb data/prog. (1)	192/208 Kb data/prog. (1)
192/208 Kb data (1)/1,75 Mb prog.	440 Kb data/2 Mb prog.	896 Kb data/7 Mb prog.	160 Kb data/768 Kb prog.	192/208 Kb data (1)/1,75 Mb prog.
0.12 µs	0.06 µs	0.037 µs	0.19 µs	0.12 µs
0.17 µs	0.08 µs	0.045 µs	0.25 µs	0.17 µs
TSXP57304M	–	–	TSXPCI57204M (4)	–
TSXP573634M	TSXP574634M	TSXP575634M	–	–
–	–	–	–	–
TSXP57354M	TSXP57454M	TSXP57554M	–	TSXPCI57354M (4)

3

## Atrium slot-PLCs under PL7 software



TSX 5730 16 racks max.	TSX 5740 16 racks max.	PCX 5720 16 racks max.	PCX 5730 16 racks max.
1024	2040	1024	1024
128	256	80	128
Yes	Yes	Yes	Yes
32	64	24	32
8	8	4	8
1	1	1	1
2	2	1	2
3	4	1	3
64/80 K words data/prog. (5)	96 K words data/prog.	48/64 K words data/prog.	64/80 K words data/prog.
80/96 K words data (5)/384 K words prog.	170 K words data/992 K words prog.	48/64 K words data (5)/160 K words prog.	80/96 K words data (5)/384 K words prog.
0.12 µs	0.06 µs	0.19 µs	0.12 µs
0.17 µs	0.08 µs	0.25 µs	0.17 µs
TSXP57303M	–	TPCX57203M (6)	–
TSXP573623M	–	–	–
TSXP57353M	TSXP57453M	–	TPCX57353M (6)
–	TSXP574823M	–	–

# Modicon Premium Platform of automatism

## Memory extensions for Unity Pro processors



3

Type of PCMCIA card		Application		Additional data
<b>Technology</b>		SRAM	Flash EPROM	SRAM
<b>Memory size</b>	128 Kb	<b>TSXMRPP128K</b>	<b>TSXMFPP128K</b>	<b>TSXMFPP096K (3)</b>
	224 Kb	<b>TSXMRPP224K</b>	<b>TSXMFPP224K</b>	–
	384 Kb	<b>TSXMRPP384K</b>	<b>TSXMFPP384K</b>	–
	448 Kb	<b>TSXMRPC448K (1)</b>	–	–
	768 Kb	<b>TSXMRPC768K (1)</b>	<b>TSXMFPP512K (512 Ko)</b>	–
	1 Mb	<b>TSXMRPC001M (1)</b>	<b>TSXMFPP001M</b>	–
	2 Mb	<b>TSXMRPC002M (1)</b>	<b>TSXMCPC002M (2)</b>	–
	3 Mb	<b>TSXMRPC003M (1)</b>	<b>TSXMFPP004M (4 Mo)</b>	<b>TSXMRPF004M (4 Mo)</b>
	7 Mb	<b>TSXMRPC007M (1)</b>	–	–
8 Mb	–	–	<b>TSXMRPF008M</b>	

(1) By configuration, the user can reserve part of the memory space for data storage (recipes, production data) on request.

(2) These cards have an additional SRAM area for storing data (recipes, production data).

(3) Backup cartridge of the program when this one reside entirely in PLC internal memory.

## Memory extensions for PL7 processors



Type of PCMCIA card		Application		Additional data
<b>Technology</b>		SRAM	Flash EPROM	SRAM
<b>Memory size (4)</b>	32 K words	<b>TSXMRPP128K</b>	<b>TSXMFPP128K</b>	–
	64 K words	<b>TSXMRPP224K</b>	<b>TSXMFPP224K</b>	–
	64 K words/128 K words	<b>TSXMRPP384K</b>	<b>TSXMCPC224K</b>	–
	128 K words	<b>TSXMRPC448K</b>	<b>TSXMFPP384K</b>	–
	128 K words/128 K words	<b>TSXMRPC768K (5)</b>	–	–
	256 K words	<b>TSXMRPC001M</b>	–	–
	256 K words/640 K words	<b>TSXMRPC01M7 (5)</b>	–	–
	384 K words/640 K words	<b>TSXMRPC002M</b>	–	–
	512 K words	<b>TSXMRPC003M (5)</b>	–	–
	2048 K words	–	–	<b>TSXMRPF004M</b>

(4) The 1<sup>st</sup> value corresponds to the size of the application area, the second to the size of the additional data area for storing data (recipes, production data, etc).

(5) These cards have an additional SRAM area for storing application object symbols.



## Power supply modules <sup>(1)</sup>



Type of power supply module for	Premium					Atrium <sup>(2)</sup>
Input voltage	24 VDC		110...240 VAC	100...120/200...240 VAC		24 VDC
Output voltage	5 VDC/24 VDC					5 VDC
Total useful power	30 W	50 W	26 W	50 W	77 W	26 W
Format	Standard	Double	Standard	Double	Double	–
Reference	TSXPSY1610M	TSXPSY3610M	TSXPSY2600M	TSXPSY5500M	TSXPSY8500M	TSXPSI2010

(1) Process power supplies see chapter 6 “Power supply”

(2) Only for Atrium slot-PLCs under Unity

3

## Racks



Type of rack	Non extendable		Extendable
For configuration	Mono-rack		Multi-rack (16 max.)
	Dimensions WxDxP		
Reference	4 positions	188 x 160 x 151,5 mm (3)	–
	6 positions	261,6 x 160 x 151,5 mm (3)	TSXRKY6
	8 positions	335,3 x 160 x 151,5 mm (3)	TSXRKY8
	12 positions	482,6 x 160 x 151,5 mm (3)	TSXRKY12
			TSXRKY4EX
			TSXRKY6EX
			TSXRKY8EX
			TSXRKY12EX

(3) Height of I/O modules : 151,5 mm with HE 10 or SUB-D connectors, 165 mm with screw terminals

## Connection accessories

Type	Bus X daisy chaining cable for extendable racks	Line terminators
	–	Set of 2
Reference	–	TSXTLYEX
	L = 1 m	TSXCBY010K
	L = 3 m	TSXCBY030K
	L = 5 m	TSXCBY050K
	L = 12 m	TSXCBY120K
	L = 18 m	TSXCBY180K
	L = 28 m	TSXCBY280K
	L = 38 m	TSXCBY380K
	L = 50 m	TSXCBY500K
	L = 72 m	TSXCBY720K
	L = 100 m	TSXCBY1000K

# Modicon Premium Platform of automatism

## Discrete I/O modules



3

Type of module		Discrete inputs				
Connection		By screw terminals TSXBLY01 (1)			By HE 10 connector (2)	
Number of isolated channels		8	16	16 (3)	32	64
Input voltage	24 VDC	TSXDEY08D2	TSXDEY16D2	TSXDEY16FK	TSXDEY32D2K	TSXDEY64D2K
	48 VDC	–	TSXDEY16D3	–	TSXDEY32D3K	–
	24 VAC	–	TSXDEY16A2 (4)	–	–	–
	48 VAC	–	TSXDEY16A3	–	–	–
	100...120 VAC	–	TSXDEY16A4	–	–	–
	200...240 VAC	–	TSXDEY16A5	–	–	–

- (1) Terminal block to be ordered separately
- (2) For use with Advantys Telefast ABE7 wiring system
- (3) Module with high-speed isolated inputs (filtering from 0.1 to 7.5 ms) able to activate the event-triggered task
- (4) Module also compatible with 24 VDC negative logic



Type of module		Discrete outputs						
		Solid state				Relay	Triac	
Connection		By screw terminals TSXBLY01 (1)		By HE10 conn. (2)		By screw terminals TSXBLY01 (1)		
Number of protected channels		8	16	32	64	8	8	16
Output voltage/current	24 VDC/0.5 A	TSXDSY08T2	TSXDSY16T2	–	–	–	–	–
	24 VDC/2 A	TSXDSY08T22	–	–	–	–	–	–
	24 VDC/0.1 A	–	–	TSXDSY32T2K	TSXDSY64T2K	–	–	–
	48 VDC/1 A	TSXDSY08T31	–	–	–	–	–	–
	48 VDC/0.25 A	–	TSXDSY16T3	–	–	–	–	–
	24...48 VDC-24...240 VAC/5A	–	–	–	–	TSXDSY08R5A	–	–
	24...120 VDC/5 A	–	–	–	–	TSXDSY08R4D	–	–
	48...240 VAC/1 A per channel	–	–	–	–	–	–	TSXDSY16S5
	48...40 VAC/2 A per channel	–	–	–	–	–	TSXDSY08S5	–

- (1) Terminal block to be ordered separately
- (2) For use with Advantys Telefast ABE7 wiring system



Type of module		Discrete I/O	
Connection		By HE 10 connector (2)	
Number of inputs		16 high-speed	
Number of protected outputs		12 solid state	12 reflex or timed
Output voltage/current	24 VDC/0.5 A	TSXDMY28FK	TSXDMY28RFK

- (2) For use with Advantys Telefast ABE7 wiring system

Connection accessories: See [www.telemecanique.com](http://www.telemecanique.com)





## Analog I/O modules



Type of module	Analog input					
	High level with common point			High level isolated	Low level isolated	
Connection	By 25-way SUB-D connector					By terminal block (1)
Number of channels	4 high-speed	8	16	8	16	4
Resolution	16 bits	12 bits		16 bits	16 bits	16 bits
Reference	High level input (2)	<b>TSXAEY420</b>	<b>TSXAEY800</b>	<b>TSYAEY1600</b>	<b>TSXAEY810</b>	–
	Multi-range	–	–	–	–	<b>TSXAEY1614</b> (3) <b>TSXAEY414</b> (4)

(1) Screw terminals **TSXBLY01** to be ordered separately

(2)  $\pm 10$  V, 0...10 V, 0...5 V, 1...5 V, 0...20 mA, 4...20 mA

(3)  $\pm 63$  mV thermocouple (B, E, J, K, L, N, R, S, T, U)

(4)  $\pm 10$  V,  $\pm 5$  V, 0...10 V, 0...5 V, 1...5 V, 0...20 mA, 4...20 mA, -13...+63 mV, 0...400 W, 0...3850 W, thermal probe, thermocouple



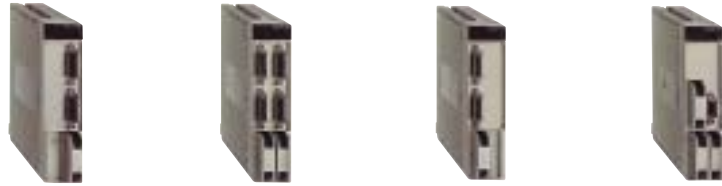
Type of module	Analog output	
	Isolated	With common point
Connection	By screw terminals TSXBLY01 (5)	By 25-way SUB-D connector
Number of channels	4	8
Resolution	11 bits + sign	13 bits + sign
Reference	Input signal (6) <b>TSXASY410</b>	<b>TSXASY800</b>

(5) Terminal block to be ordered separately

(6)  $\pm 10$  V, 0...10 V, 0...20 mA, 4...20 mA.

# Modicon Premium Platform of automatism

## Counter modules



3

Type of module	Counter		Counter/measurement	Electronic cam
Type of inputs for	Sensors (1) Incremental encoders (2)		Sensors (1) Encoders (2)(3)	Incremental encoders (2) Absolute encoders (4)
Counting	40 kHz		500 kHz/200 kHz (4)	
Cycle time	5 ms	10 ms	1 ms	–
Number of channels	2	4	2	128 cams
Number of axes	–	–	–	1
Reference	<b>TSXCTY2A</b>	<b>TSXCTY4A</b>	<b>TSXCTY2C</b>	<b>TSXCXY1128</b>

(1) For 2/3-wire PNP/NPN 24 VDC sensors

(2) For 5 VDC RS422, 10...30 VDC Totem Pole incremental encoders

(3) For SSI serial or parallel output absolute encoders

(4) For RS485 serial or parallel output absolute encoders

## Motion control modules



Module type	For translators (amplifier for stepper motor)		For analog control servomotors (for asynchronous and brushless motors)				
Control outputs	RS 422		+/- 10 V				
Compatible with drives	Lexium 05, Twin Line		Lexium 05/17D, Twin Line				
Functions	Linear axes	–	Limited		Limited or infinite	Limited or infinite(5)	
	Slave axes	–	With static ratio		With dynamic ratio	–	
Frequency for each axis	187 kHz		500 kHz with incremental encoder, 200 kHz with absolute encoder (6)				
Number of axes	1	2	2	4	2	4	3
Reference	<b>TSXCFY11</b>	<b>TSXCFY21</b>	<b>TSXCAY21</b>	<b>TSXCAY41</b>	<b>TSXCAY22</b>	<b>TSXCAY42</b>	<b>TSXCAY33</b>

(5) With linear interpolation on 2 or 3 axes

(6) SSI serial or with parallel outputs



Module type	Servomotors with SERCOS® digital ring (for brushless motors)		
Control outputs	SERCOS® network ring		
Compatible with ranges	Lexium 17D		
Functions	Linear or infinite independent axes, slave axes with cam profile or ratio		
Processing	4 sets of axes with linear interpolation from 2 to 8 axes	4 sets of axes with linear and circular interpolation from 2 to 3 axes (7)	4 sets of axes with linear interpolation from 2 to 8 axes
Frequency for each axis	4 Mb SERCOS® network ring		
Number of axes	8 (8)	8 (8)	16 (9)
Reference	<b>TSXCSY84</b>	<b>TSXCSY85</b>	<b>TSXCSY164</b>

(7) TSXCSY85 module supplied with TJE trajectory editor: linear trajectories with links between segments according to polynomial or circular interpolation and circular trajectories.

(8) 8 real axes, 4 imaginary axes and 4 remote axes

(9) 16 axes (real axes, imaginary and remote axes)

## Weighing modules



Type of module	ISP Plus	
	supplied uncalibrated	supplied calibrated and  offer
Load cell inputs / outputs	50 measurements (for 1 to 8 load cells) / 2 discrete and 1 RS 485 for display unit	
Reference	Without display unit	<b>TSXISPY101</b>
	With display unit TSXXBTH100	<b>TSXISPY111</b>
		Please consult your Schneider-electric agency

Connection accessories: See [www.telemecanique.com](http://www.telemecanique.com)



## Communication modules

Transparent Ready



Type of module		Ethernet TCP/IP				
Speed		10 Mbps		10/100 Mbps		
Standard services		Ethway, TCP/IP (Uni-TE, Modbus)		TCP/IP (Uni-TE, Modbus)		
Transparent Ready	Classe	C10	B30	B30	C30	D10
	Global Data	–	Yes	Yes	Yes	–
	I/O Scanning	–	Yes	Yes	Yes	–
	TCP Open	Yes	–	–	Yes	–
Web server	Standard services	Yes	Yes	Yes	Yes	Yes
	FactoryCast services	Yes	–	–	Yes	–
	FactoryCast HMI services	–	–	–	–	Yes
Reference		TSXETY110WS	TSXP57 (1)	TSXETY4103	TSXETY5103	TSXWMY100

(1) References: see pages 3/18 and 3/19, Premium processors with integrated Ethernet TCP/IP port



Type of module	AS-Interface cabling system	CANopen machine bus	Fipio manager fieldbus	INTERBUS fieldbus	Profibus DP fieldbus
Name and description	In-rack	PCMCIA	Integrated port	In-rack	In-rack
Speed	167 Kbps	20 K...1 Mbps	1 Mbps	0.5 Mbps	9.6 K...12 Mbps
Reference	TSXSAY1000	TSXCPP110	TSXP57 (2)	TSXIBY100	TSXPBY100

(2) References: see pages 3/18 and 3/19, Premium processors with integrated Fipio port



Type of module			Serial links					
			Uni-Telway		Modbus		ASCII	
Name and description			Integrated port	In-rack	PCMCIA	In-rack	PCMCIA	PCMCIA
Speed			19.2 Kbps	19.2 Kbps	1.2...19.2 Kbps	19.2 Kbps	1.2...19.2 Kbps	1.2...19.2 Kbps
Reference	With interface	RS 485	TSXP57 (1)	TSXSXY21601	TSXSXCP114	TSXSXY11601	TSXSXCP114	TSXSXCP114
		RS 232D	–	–	TSXSXCP111	–	TSXSXCP111	TSXSXCP111
		20mA CL	–	–	TSXSXCP112	–	TSXSXCP112	TSXSXCP112

(1) References: see pages 3/18 and 3/19, Premium processors with integrated Ethernet TCP/IP port



Type of module		Other networks		
		Modbus Plus	Fipway	Fipio (agent function)
Name and description		PCMCIA card	PCMCIA card	PCMCIA card
Speed		1 Mbps	1 Mbps	1 Mbps
Reference		TSXMMP100	TSXFPP20	TSXFPP10

Connection accessories: See [www.telemecanique.com](http://www.telemecanique.com)

# Modicon Quantum Platform of automatism

## Processors under Unity Pro software



3

Type of processor		Simple applications	Simple and medium complexity applications
<b>Max. number of discrete I/O</b> (1)	Local	Unlimited (27 slots max.)	
	Decentralized/distributed	31744 inputs (RIO)/8000 inputs (DIO) and 31744 outputs (RIO)/8000 outputs (DIO)	
<b>Max. number of analog I/O</b> (1)	Local	Unlimited (27 slots max.)	
	Decentralized/distributed	1984 inputs (RIO)/500 inputs (DIO) and 1984 outputs (RIO)/500 outputs (DIO)	
<b>Type of application-specific I/O</b>		Intrinsically safe I/O, counter, motion control, high-speed interrupt inputs, time-stamp, serial link, AS-Interface sensor/actuator bus	
<b>Communication ports</b> (2)	Integrated Modbus	2 RS 232/RS 485	2 RS 232
	Modbus Plus	1 integrated, 2 in local rack	1 integrated, 6 in local rack
	Ethernet TCP/IP	2 in local rack	6 in local rack
	Fieldbus	Profibus DP: 2 in local rack	INTERBus/Profibus DP: 6 in local rack
<b>Memory capacity</b>	Integrated	2 Mb	2 Mb
	With PCMCIA extension	–	–
	Data storage	–	–
<b>Reference</b>		<b>140CPU31110</b>	<b>140CPU43412U</b>

- (1) The maximum values for the number of discrete or analog I/O are not cumulative
- (2) The numbers of communication modules are not cumulative, 2 or 6 in local rack, depending on model
- (3) Processor compatible with Unity Pro software after updating its firmware (via OS-Loader included in Unity Pro)

## Processors under Concept/ProWORK software



Type of processor		Simple applications	
<b>Max. number of discrete I/O</b> (1)	Local	Unlimited (27 slots max.)	
	Decentralized/distributed	31744 inputs (RIO)/8000 inputs (DIO) and 31744 outputs (RIO)/8000 outputs (DIO)	
<b>Max. number of analog I/O</b> (1)	Local	Unlimited (27 slots max.)	
	Decentralized/distributed	1984 inputs (RIO)/500 inputs (DIO) and 1984 outputs (RIO)/500 outputs (DIO)	
<b>Type of application-specific I/O</b>		Intrinsically safe I/O, counter, motion control, high-speed interrupt inputs, time-stamp, serial link, AS-Interface sensor/actuator bus	
<b>Communication ports</b> (2)	Integrated Modbus	1 RS 232	
	Modbus Plus	1 integrated, 2 in local rack	
	Ethernet TCP/IP	2 in local rack	
	Fieldbus	INTERBus/Profibus DP: 2 in local rack	
<b>Memory capacity</b>	Integrated	256 Kb	512 Kb
<b>Reference</b>	Concept/ProWORX	<b>140CPU11302</b>	<b>140CPU11303</b>

- (1) The maximum values for the number of discrete or analog I/O are not cumulative
- (2) The numbers of communication modules are not cumulative, 2 or 6 in local rack, depending on model
- (3) Processor compatible with Unity Pro software after updating its firmware (via OS-Loader included in Unity Pro)





Complex applications		Hot Standby redundant applications	
Unlimited (27 slots max.)	Unlimited (26 slots max.)		
31744 inputs (RIO)/8000 inputs (DIO) and 31744 outputs (RIO)/8000 outputs (DIO)			
Unlimited (27 slots max.)			
1984 inputs (RIO)/500 inputs (DIO) and 1984 outputs (RIO)/500 outputs (DIO)			
Intrinsically safe I/O, counter, motion control, high-speed interrupt inputs, time-stamp, serial link, AS-Interface sensor/actuator bus			
2 RS 232	1 RS 232/485		
1 integrated, 6 in local rack			
6 in local rack	1 integrated, 6 in local rack	6 in local rack	
INTERBUS/Profibus DP: 6 in local rack	Profibus DP: 6 in local rack		
4 Mb	2 Mb		
–	7 Mb		
–	8 Mb		
<b>140CPU53414U</b>	<b>140CPU65150</b>	<b>140CPU65160</b>	<b>140CPU67160</b>

3



Simple and medium complexity applications	Complex applications
Unlimited (27 slots max.)	
31744 inputs (RIO)/8000 inputs (DIO) and 31744 outputs (RIO)/8000 outputs (DIO)	
Unlimited (27 slots max.)	
1984 inputs (RIO)/500 inputs (DIO) and 1984 outputs (RIO)/500 outputs (DIO)	
Intrinsically safe I/O, counter, motion control, high-speed interrupt inputs, time-stamp, serial link, AS-Interface sensor/actuator bus	
2 RS 232	
1 integrated, 6 in local rack	
6 in local rack	
INTERBUS/Profibus DP: 6 in local rack	
2 Mb	4 Mb
<b>140CPU43412A (3)</b>	<b>140CPU53414A (3)</b>

# Modicon Quantum Platform of automatism

## Power supply modules <sup>(1)</sup>



Type of power supply module for			Quantum				
<b>Input voltage</b>			24 VDC	48...60 VDC	100...150 VDC	120...230 VAC	115/230 VAC
<b>Output current</b>			8 A/3 A (4)	8 A	8 A/3 A	8 A/3 A (1)	11 A
<b>Reference</b>	<b>Type</b>	Standalone (2)	<b>140CPS21100</b>	–	<b>140CPS51100</b>	<b>140CPS11100</b>	–
		Summable	<b>140CPS21400</b>	<b>140CPS41400</b>	–	–	<b>140CPS11420</b>
		Redundant	<b>140CPS22400</b>	<b>140CPS42400</b>	<b>140CPS52400</b>	<b>140CPS12400</b>	<b>140CPS12420</b>

(1) Process power supplies see chapter 6 "Power supply"

(2) The output current for the standalone power supply modules is 3 A

## PCMCIA memory extensions



Type of PCMCIA card for Unity processors 140CPU65/67		Application		Additional data
<b>Technology</b>		SRAM	Flash EPROM	SRAM
<b>Memory size</b>	512 Kb/512 Kb (3)	–	<b>TSXMCPC512K</b>	–
	1 Mb (4)	<b>TSXMRPC001M</b>	<b>TSXMFPP001M</b>	–
	2 Mb (4)	<b>TSXMRPC002M</b>	<b>TSXMFPP002M</b>	–
	2 Mb/1 Mb (3)	–	<b>TSXMCPC002M</b>	–
	3 Mb (4)	<b>TSXMRPC003M</b>	–	–
	4 Mb	–	<b>TSXMFPP004M</b>	<b>TSXMRPF004M</b>
	7 Mb (4)	<b>TSXMRPC007M</b>	–	–
	8 Mb	–	–	<b>TSXMRPF008M</b>

(3) The 1<sup>st</sup> value corresponds to the size of the application area, the second to the size of the additional data area for storing data (recipes, production data, etc)

(4) By configuration the user can reserve part of the memory space for data storage (recipes, production data, etc)



## Racks



Type			Racks	Rack extension module (1)
		Dimensions WxDxH		
References	2 slots	104x104x290 mm	140XBP00200	–
	3 slots	143x104x290 mm	140XBP00300	–
	4 slots	184x104x290 mm	140XBP00400	–
	6 slots	265x104x290 mm	140XBP00600	–
	10 slots	428x104x290 mm	140XBP01000	–
	16 slots	671x104x290 mm	140XBP01600	–
		Rack extension		–

(1) Local extension module, to be placed in main rack and secondary rack.

## Connection accessories (2)

Type	Cable for extension racks (main and secondary)	
References	L = 1 m	140XCA71703
	L = 2 m	140XCA71706
	L = 3 m	140XCA71709

(2) Other accessories: See [www.telemecanique.com](http://www.telemecanique.com)

# Modicon Quantum Platform of automatism

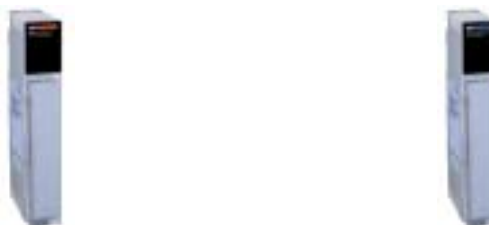
## Discrete I/O modules



3

Type of module	Discrete inputs					
Connection	By screw terminals 140XTS00200 (to be ordered separately)					
Number of isolated channels	16	4 groups of 8	3 groups of 8	2 groups of 8	6 groups of 16	8 groups of 2
Input voltage	5 VDC TTL (negative logic)	–	140DDI15310	–	–	–
	24 VDC	–	140DDI35300(1)	–	–	140DDI36400
	10...60 VDC	–	140DDI85300	–	–	–
	20...30 VDC	–	140DSI35300(1)	–	–	–
	125 VDC	–	–	140DDI67300	–	–
	24 VAC	140DAI34000	140DAI35300	–	–	–
	48 VAC	140DAI44000	140DAI45300	–	–	–
	115 VAC	140DAI54000	140DAI55300	–	140DAI54300	–
	230 VAC	140DAI74000	140DAI75300	–	–	–

(1) For negative logic, replace 00 at the end of the reference with 10, for example 140DDI35300 becomes 140DDI35310.



Type of module	Discrete outputs					
Solid state						
Connection	By screw terminals 140XTS00200 (to be ordered separately)					
Number of protected channels	16	4 groups of 8	4 groups of 4	2 groups of 8	6 groups of 16	2 groups of 6
Output voltage/current	5 VDC TTL/0.075 A (2)	–	140DDO15310	–	–	–
	24 VDC/0.5 A	–	140DDO35301(1)	–	–	–
	10...30 VDC/0.5 A (3)	–	140DVO85300	–	–	–
	19.2...30 VDC/0.5 A	–	–	–	140DDO36400	–
	10...60 VDC/2 A	–	–	–	140DDO84300	–
	24...125 VDC/0.75 A	–	–	–	–	140DDO88500
	24...48 VAC/4 A	–	–	140DAO84220	–	–
	24...115 VAC/4 A	140DAO84010	–	–	–	–
	24...230 VAC/ 4-3 A	140DAO84000	140DAO85300	–	–	–
	100...230 VAC/4-3 A	–	–	140DAO84210	–	–

(1) For negative logic, replace 01 at the end of the reference with 10, for example 140DDO35301 becomes 140DDO35310.

(2) Negative logic

(3) Controlled outputs



Type of module	Discrete I/O			Discrete outputs	
Solid state					
Relay					
Connection	By screw terminals 140XTS00200 (to be ordered separately)				
Number of I/O	2 groups of 8/2 groups of 4		1 group of 4/ 4 isolated	–/16 NO	–/8 NO/NC
Input voltage	24 VDC	125 VAC	125 VDC	–	–
Output voltage/current	30 VDC/15 A	125 VAC/4 A	125 VDC/4 A	150 VDC or 250 VAC/2 A	150 VDC or 250 VAC/5 A
Reference	140DDM39000	140DAM59000	140DDM69000	140DRA84000	140DRC83000





## Analog I/O modules



Type of module	Analog inputs				
Connection	By screw terminals 140XTS00200 (to be ordered separately)				
Number of channels	8	16	8		
Input signal	4...20 mA 1...5 V	0...25/20 mA 4...20 mA	(1)	Thermal probe Pt, Ni	Thermocouple (2)
Resolution	12 bits	0...25000 points	16 bits	12 bits + sign	16 bits
Reference	140ACI03000	140ACI04000	140AVI03000	140ARI03010	140ATI03000

(1) 0...25 mA,  $\pm 20$  mA, 4...20 mA, 0...10 V,  $\pm 10$  V, 0...5 V,  $\pm 5$  V, 1...5 V.

(2) Type B, E, J, K, R, S, T, mV

3



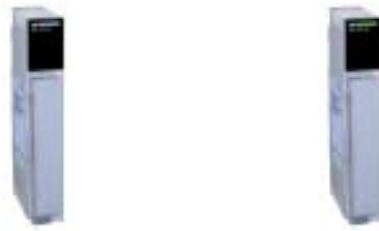
Type of module	Analog output		
Connection	By screw terminals 140XTS00200 (to be ordered separately)		
Number of channels	4	8	4
Input signal	4...20 mA	0...25/20 mA 4...20 mA	0...10 V, $\pm 10$ V 0...5 V, $\pm 5$ V
Resolution	12 bits	0...25000 points	12 bits
Reference	140ACO02000	140ACO13000	140AVO02000




Type of module	Analog I/O
Connection	By screw terminals 140XTS00200 (to be ordered separately)
Number of inputs	4
Number of outputs	2
Input signal	0...20 mA, $\pm 20$ mA, 4...20 mA, 0...10 V, $\pm 10$ V, 0...5 V, $\pm 5$ V, 1...5 V.
Resolution	Inputs 16 bits, outputs 12 bits
Reference	140AMM09000

# Modicon Quantum Platform of automatism

## Intrinsically safe I/O modules



3

Type of module	I/O 		Analog		
	Discrete				
Connection	By screw terminal 140XTS33200 (to be ordered separately)				
Number of inputs	8	–	8	–	
Number of outputs	–	8	–	8	
Input signal	–	–	Thermal probe	0...25/20 mA	
			Thermocouple (1)	4...25 mA	
Resolution	–	–	12 bits + sign	0...25000 points	15 bits
Reference	140DII33000	140DIO33000	140AII33000	140AII33010	140AIO33000

(1) Type J, K, E, T, S, R, B, mV

## Counter and special purpose modules



Type of module	High-speed counter		High-speed inputs with interrupt	Time-stamp system	
Type of inputs for	Incremental encoders		Discrete 24 VDC (2)	DCF 77	Discrete
Counting frequency	100 kHz	500 kHz	–	24 VDC (3)	24...125 VDC
Number of channels	5	2	16	1	32
Reference	140EHC10500	140EHC20200	140HLI34000	140DCF07700	140ERT85410

(2) 3 operating modes: Interrupt, latch, high-speed inputs, on rising or falling edge.

(3) For GPS or DCF time receiver

## Motion control modules



Type of module	For analog control servomotors Single axis	Servomotors with SERCOS® digital ring (for brushless motors)
Control outputs	RS 422 incremental encoder	SERCOS® network ring
Compatible with the ranges	Lexium 17D	Lexium 17D
Functions	Master/slave position capture Synchronization of a master/slave, torque control	Linear or infinite independent axes, slave axes with cam profile or ratio 4 sets of axes with linear interpolation from 2 to 8 axes
Frequency for each axis	200 kHz nominal, 500 kHz max. with incremental encoder	4 Mb SERCOS® network ring
Number of axes	1 real axis, 1 remote axis	With MMF Start programming kit (4)
Processor	–	66 MHz
		133 MHz
Reference	140MSB10100	140MMS42501
		140MMS53502

(4) 8 real axes, 4 imaginary axes, 4 remote axes, 4 coordinate sets, 4 follower sets, cam profiles

Connection accessories: See [www.telemecanique.com](http://www.telemecanique.com)



## Communication modules

Transparent  
Ready



Type of module		Ethernet TCP/IP network			
<b>Speed</b>		10/100 Mbps			
<b>Standard services</b>		TCP/IP(Modbus)			
<b>Transparent Ready</b>	Class	B30	B30	C30	D10
	Global Data	Yes	Yes	Yes	–
	I/O Scanning	Yes	Yes	Yes	–
	FDR server	Yes	Yes	Yes	–
	SNMP protocol	Yes	Yes	Yes	Yes
<b>Web server</b>	Standard services	Yes	Yes	Yes	Yes
	FactoryCast services	–	–	Yes	Yes
	FactoryCast HMI services	–	–	–	Yes
<b>Reference</b>		<b>140CPU651 (1)</b>	<b>140NOE77101</b>	<b>140NOE77111</b>	<b>140NWM10000</b>

(1) References: see pages 3/26 and 3/27, Quantum processors with integrated Ethernet TCP/IP



Type of module	Modbus Plus network	AS-Interface cabling system	INTERBUS fieldbus (2)	Profibus DP V0 fieldbus (3)
<b>Name and description</b>	Integrated link	In-rack	In-rack	In-rack
<b>Speed</b>	1 Mbps	167 Kbps	1 Mbps	9,6 K...12 Mbps
<b>Reference</b>	<b>140CPU (4)</b>	<b>140EIA92100</b>	<b>140NOA61100</b>	<b>140CRP81100</b>

(2) Compatible with concept and ProWORK32 software

(3) Available in Profibus DP V1 version, please consult your Schneider Electric agency

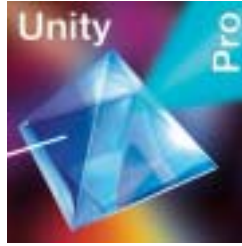
(4) References: see pages 3/26 and 3/27, Quantum processors with integrated Modbus Plus



Type of module	Serial link Modbus	ASCII
<b>Name and description</b>	Integrated link	In-rack
<b>Speed</b>	19.2 Kbps	19.2 Kbps
<b>Reference</b>	<b>140CPU (5) (6)</b>	<b>140ESI06210</b>

(5) References: see pages 3/26 and 3/27, Quantum processors with integrated Modbus

(6) RS 232/RS 485 on 140CPU651●● and 140CPU67160 processors and RS 232 on 140CPU31110, 140CPU43412A, 140CPU53414A processors.

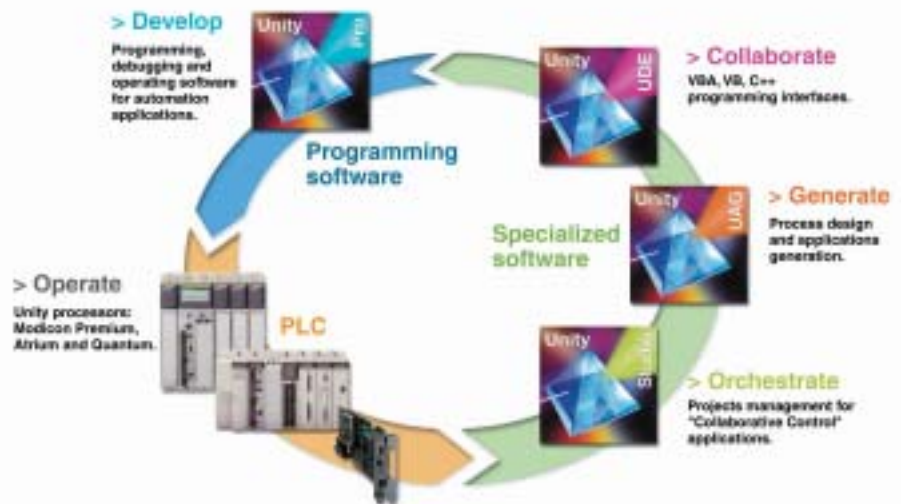


3

<b>Type of software</b>		<b>Unity Pro Medium version 2.0</b>			
<b>Type of license version 2.0</b>		Single (1 station)	Group (3 stations)	Open Team (10 stations)	Site (> 10 stations)
<b>References</b>	Software package	UNYSPUMFUCD20	UNYSPUMFGCD20	–	–
	Update (1)	UNYSPUMZUCD20	UNYSPUMZGCD20	–	–
<b>Type of software</b>		<b>Unity Pro Large version 2.0</b>			
<b>Type of license version 4.4</b>		Single (1 station)	Group (3 stations)	Open Team (10 stations)	Site (> 10 stations)
<b>References</b>	Software package	UNYSPULFUCD20	UNYSPULFGCD20	UNYSPULFTCD20	UNYSPULFFCD20
	Update (1)	UNYSPULZUCD20	UNYSPULZGCD20	UNYSPULZTCD20	UNYSPULZFCD20
<b>Type of software</b>		<b>Unity Pro Extra large version 2.0</b>			
<b>Type of license version 4.4</b>		Single (1 station)	Group (3 stations)	Open Team (10 stations)	Site (> 10 stations)
<b>References</b>	Software package	UNYSPUEFUCD20	UNYSPUEFGCD20	UNYSPUEFTCD20	UNYSPUEFFCD20
	Update (2)	UNYSPUEZUCD20	UNYSPUEZGCD20	UNYSPUEZTCD20	UNYSPUEZFCD20

(1) From Concept M et PL7 junior

(2) From Concept M, PL7 junior, ProWORX NxT and ProWORX 32



**Unity Pro** is the common programming, debugging and operating software for the Premium, Atrium and Quantum ranges of PLCs. It is based on the standards set by PL7 and Concept software and provides a comprehensive set of new functions for greater productivity and openness to other software.

The five IEC61131-3 languages are supported as standard in Unity Pro with all the debugging functions, on the simulator or directly online with the PLC.

Thanks to independent symbolic memory variables, structured data and user function blocks, the application objects directly reflect the application-specific components of the automated process.

Using graphic libraries, the Unity Pro operator screens are configured in the application by the user. Operator access is simple and direct.

Debugging and maintenance are made simple by animated graphic objects.

For diagnostics, a display window provides a clear display in chronological order (time-stamped at source) of all system and application faults. The navigation function for finding the causes of faults traces missing conditions back to the source.

The standard XML Web format for exchanging data has been adopted as the source format for Unity applications. All or part of the application can be exchanged with other software in the project simply using the Import/Export function.

The converters integrated in Unity Pro automatically convert IEC 61131-3 PL7 and Concept standards and applications.



# Unity software

## Specialist tools



“Collaborative Control” distributed project development software

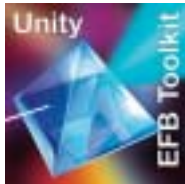
Type of software		Unity Studio			
Type of license version 2.0		Single (1 station)	Group (3 stations)	Open Team (10 stations)	Site (> 10 stations)
References	French	UNYSEWXFUCD20F	–	–	–
	English	UNYSEWXFUCD20E	–	–	–
	German	UNYSEWXFUCD20D	–	–	–
	Spanish	UNYSEWXFUCD20S	–	–	–
	Italian	UNYSEWXFUCD20T	–	–	–
	Multi-language	UNYSEWLFUCD20	UNYSEWLFUCD20	UNYSEWLFUCD20	UNYSEWLFUCD20
Update Unity Pro to Unity studio		UNYSEWLYUCD20	–	–	–

3



SFC View application diagnostic and monitoring software

Type of software		Unity SFC View		
Type of license version 2.0		Single (1 station)	Group (10 stations)	Site (100 stations)
References	Software package	UNYSDUMFUCD20	UNYSDUMFTCD20	UNYSDUMFFCD20



EF/EFB function development software in C language

Type of software		Unity EFB Toolkit
Type of license		Single (1 station), english version (software and manual)
References	Software package	UNYSPUZFUCD20E
	Renewal	UNYCSPSPUZBU



Software for designing and generating batch/process applications

Type of software		Unity UAG (Unity application generator)	
Type of license version 2.1		Single (1 station)	Site
References	Medium Software package	UAGSEWMFUCD21	UAGSEWMFFCD21
	Large Software package	UAGSEWLFUCD21	UAGSEWLFCD21



Pack for developing specific solutions

Type of software		Unity UDE
		Please consult your Schneider Electric agency.



PL7 is the common programming, debugging and operating software for the TSX Micro and Premium ranges of PLCs as well as Atrium coprocessors (see pages 3/12, 3/18 and 3/26).

PL7 offers 4 IEC languages: Instruction List (IL), Ladder Diagram (LD), Structured Text (ST) and Sequential Function Chart (SFC). You can use the most suitable language for each function in your application, making use of the multi-tasking structure of the processors.

For using application-specific functions, PL7 directly integrates the application-specific screens required for configuration and adjustment as well as supervisory and diagnostics activities.

Type of software		PL7 Micro for TSX Micro platform			
Type of license version 4.4		Single (1 station)	Single with SyCon V2.8	Group (3 stations)	Open Team (10 stations)
Reference	Software package (1)	TLXCDPL7MPPU44M	TLXCDPL7MPPC44M	TLXCD3PL7MPPU44M	TLXOTPL7MP44M
	Update (2)	TLXRCDPL7MP44M	TLXRCDPL7MPC44M	TLXRCD3PL7MP44M	–
		PL7 Junior for TSX Micro/Premium and Atrium coprocessor platforms			
Type of license version 4.4		Single (1 station)	Group (3 stations)		
Reference	Software package (1)	TLXCDPL7JPU44M	TLXCD3PL7JPU44M		
	Update (2)	TLXRCDPL7JP44M	TLXRC3DPL7JP44M		
	Upgrade (3)	TLXUCDPL7JP44M	TLXUCD3PL7JP44M		
		PL7 Pro for TSX Micro/Premium and Atrium coprocessor platforms			
Type of license version 4.4		Single (1 station)	Group (3 stations)	Open Team (10 stations)	Open Site
Reference	Software package (1)	TLXCDPL7PPU44M	TLXCD3PL7PPU44M	TLXOTPL7PP44M	TLXOSPL7PP44M
	Update (2)	TLXRCDPL7PP44M	TLXRCD3PL7PP44M	–	–
	Upgrade (3)	TLXUCDPL7PP44M	TLXUCD3PL7PP44M	–	–

(1) **PU** at the end of the reference: software package supplied with cable for USB port on PC, replace with **P** for cable for RS 232C port on PC.

(2) From the previous software version. (3) From lower level, earlier version software.

## Specialist tools

### EF function development software in C language

Type of software	PL7 SDKC for EF function development software in C language
PL7 SDKC software extension	For PL7 Micro/Junior/Pro
Reference	TLXLSDKCPL741M

### Development of applications in C language

Type of software	PL7 FUZ for processing process applications using fuzzy logic
PL7 FUZ software extension	For PL7 Micro/Junior/Pro, TSX Micro/Premium
Reference	TLXLPL7FUZ34M

### Comparison of PL7 applications

Type of software	PL7 DIF for comparison of applications	
PL7 DIF software extension	For PL7 Pro, TSX Micro/Premium	
Type of license	Single (1 station)	Site (> 10 stations)
Reference	TLXCDPL7DIF42	TLXOSPL7DIF42

### Availability of control systems based on Premium platforms

Type of software	Warm Standby redundant
Warm Standby software extension	For PL7 Junior/Pro
Type of license	Single (1 station)
Reference	TLXCDWSBYP40F

# Programming software

## For Modicon Quantum, Momentum



**Concept** is the IEC programming software for the Momentum and Quantum range of PLCs. It provides advanced Microsoft Windows based tools that deliver a multi-language development environment for control system programming.

Uses familiar, standardized editors, bundled in a single application to create and integrate PLC control, communication and diagnostic logic.

Five IEC editors give users the freedom to choose the programming language that fits their application requirements: Function Block Diagram (FBD), Ladder Diagram (LD), Sequential Function Chart (SFC), Structured Text (ST) and Instruction List (IL).

Type of software		Concept for Quantum/Momentum platforms			
Type of license version 2.6		Single (1 station)	Group (3 stations)	10 users (10 stations)	Site
Software references	Concept S	372SPU47101V26	–	–	–
	Concept M	372SPU47201V26	–	–	–
	Concept XL	372SPU47401V26	372SPU47411V26	372SPU47421V26	372SPU47431V26
Update references	Concept S (3)	372ESS47101	–	–	–
	Concept M (3)	372ESS47201	–	–	–
	Concept XL (3)	372ESS47401	372ESS47403	372ESS47410	372ESS47400

(3) From an earlier software version.

## Specialist tools

### EF/EFB function development software in C language

Type of software		Concept EFB Toolkit	
Type of license		Version 2.6	Upgrade version 2.6
Reference	Software package	332SPU47001V26	372ESS47001

### Exploitation and service Concept software version

Type of software		Concept Application Loader	
Type of license		Version 2.6	
Reference	Software package	372SPU47701V26	

### Software for designing and generating batch/process applications

Type of software		Unity UAG (Unity application generator)	
Type of license version 2.1		Single (1 station)	Site
Reference	Medium Software package	UAGSEWMFUCD21	UAGSEWMFFCD21
	Large Software package	UAGSEWLFUCD21	UAGSEWLFFCD21

### SFC View application diagnostic and monitoring software

Type of software		Concept SFC View		
Type of license version 3.0		Single (1 station)	Group (10 stations)	Site (100 stations)
Reference		372SFV16000V30	372SFV16020V30	372SFV16030V30

## ProWORX for Modicon Quantum, Momentum

**ProWORX 32** is the flexible, easy-to-use cross-platform LL984-programming software for Modicon range PLCs. It gives you the power to program your Modicon controllers online or offline, manage your I/O subsystems, and analyze your plant's activity in real-time, all in a familiar Windows environment.

ProWORX 32 provides client/server capabilities to organize user-groups and -rights, store projects at a central location and realize office-plant floor bridging.

The project emulator provides the ability to test projects prior to running them in the PLC run-time environment to ensure your system will run at peak efficiency.



Type of software		ProWORX for Quantum/Momentum platforms			
Type of license version 1.1		Single (1 station)	Group (3 stations)	Multi-user (10 stations)	Site
Software references	ProWORX 32 Server	372SPU78001PSEV	–	–	–
	ProWORX 32 Suite	372SPU78001PSSV	–	–	–
	ProWORX 32 Client, Full Dev.	372SPU78001PDEV	372SPU78001PSTH	372SPU78001PSTE	372SPU78001SITE
	ProWORX 32 Online	372SPU78101PONL	–	–	–
	ProWORX 32 Lite	372SPU71001PLDV	372SPU71001PLTH	372SPU71001PLTE	–
Upgrade to ProWORX 32 references (4)		372SPU78401LPUP	372SPU78401LPSTH	372SPU78401LPSTE	–

(4) Only possible for customers, who are "up-to-date" with CSP (continuing support program)

Accessoires de raccordement : Consulter [www.telemecanique.com](http://www.telemecanique.com)

# Modicon Momentum \_\_\_\_\_ Distributed I/O and processors

## Discrete I/O modules



3

Type of module	Multibus discrete inputs			
Connection	By screw terminals 170XTS00100 or spring terminals 170XTS00200 (to be ordered separately)			
Input voltage	24 VDC		120 VAC	230 VAC
Number of channels	16 (1 common point)	32 (2 common points)	16 (2 common points)	
Dimensions (WxDxH)	125 x 47.5 x 141.5 mm (with communication modules or processors) 144 x 70 x 141.5 mm (with M1/M1E processors and optional modules)			
Reference	170ADI34000	170ADI35000	170ADI54050	170ADI74050



Type of module	Multibus discrete outputs							
	Solid state				Triac			
Connection	By screw terminals 170XTS00100 or spring terminals 170XTS00200 (to be ordered separately)							
Output voltage	5...24 VAC, 24...230 VAC		24 VDC		120 VAC		230 VAC	
Number of protected channels	6 (1 common pt)	16 (2 common pts)	32 (2 common pts)	8 (2 common pts)	16 (2 common pts)	8 (2 common pts)	16 (2 common pts)	16 (2 common pts)
Output current	Per channel	5 A	0,5 A	0,5 A	2 A	0,5 A	2 A	0,5 A
	Per group of channels	—	4 A	8 A	4 A	4 A	4 A	4 A
	Per module	21 A	8 A	16 A	8 A	8 A	8 A	8 A
Dimensions (WxDxH)	125 x 47.5 x 141.5 mm (with communication modules or processors) 144 x 70 x 141.5 mm (with M1/M1E processors and optional modules)							
Reference	170ADO83030	170ADO34000	170ADO35000	170ADO53050	170ADO54050	170ADO73050	170ADO74050	



Type of module	Multibus discrete I/O							
	Solid state				Relay		Triac	
Connection	By screw terminals 170XTS00100 or spring terminals 170XTS00200 (to be ordered separately)							
Number of channels	Inputs	16 (1 common pt)	16 (4 com. pts)	16 (1 com. pt)	10 (1 common pt)			
	Input logic	Positive	Positive (1)	Negative	Positive		—	
	Outputs	16 (1 common pt)	16 (2 common pts)		8/4 (1 com. pt)	12	8 (2 common pts)	
Input voltage	12...48 VDC		24 VDC					120 VAC
Output voltage	12...48 VDC		24 VDC		24...230 VAC/20...115 VDC			120 VAC
Output current	Per output	0,5 A	0,5 A		2 A	0,5 A	2 A	0,5 A
	Per group of channels	—	4 A		4 A	4/2 A	8 A	4 A
	Per module	8 A	8 A		8 A	6 A	16 A	4 A
Dimensions (WxDxH)	125 x 47.5 x 141.5 mm (with communication modules or processors) 144 x 70 x 141.5 mm (with M1/M1E processors and optional modules)							
Reference	170ADM85010	170ADM35010	170ADM35015	170ADM37010	170ADM39010	170ADM39030	170ARM37030	170ADM69051

(1) For a version with high-speed positive logic, replace 0 at the end of the reference with 1. E.g. 170ADM35010 becomes 170ADM35011

Connection accessories: See [www.telemecanique.com](http://www.telemecanique.com)





## Analog I/O modules



Type of module	Multibus analog inputs		
Connection	By screw terminals 170XTS00100 or spring terminals 170XTS00200 (to be ordered separately)		
Number of channels	8 isolated	16 with common point	4 isolated
Input signal	$\pm 5\text{ V}$ , $\pm 10\text{ V}$ , $\pm 20\text{ mA}$ , 1...5 V, 4...20 mA	$\pm 5\text{ V}$ , $\pm 10\text{ V}$ , 4...20 mA	Multi-range $\pm 25\text{ mV}$ , $\pm 10\text{ mV}$ (1)
Resolution	14 bits + sign, 15 bits unipolar	12 bits + sign	15 bits + sign
Dimensions (WxDxH)	125 x 47.5 x 141.5 mm (with communication modules or processors) 144 x 70 x 141.5 mm (with M1/M1E processors and optional modules)		
Reference	170AAI03000	170AAI14000	170AAI52040

(1) Temperature probe: Pt 100, Pt 1000, Ni 100, Ni 1000, Thermocouple: B, E, J, K, N, R, S, T.



Type of module	Multibus analog outputs		Analog I/O and multibus discrete I/O		
Connection	By screw terminals 140XTS00200 (to be ordered separately)				
Number of channels	Inputs	–	4 differential + 4 discrete	6 with com pt + 8 discrete (24 VDC)	
	Outputs	4	2 + 2 discrete (24VDC)	4 with com pt + 8 discrete (24 VDC)	
Input signal	$\pm 10\text{ V}$ , 0...20 mA	$\pm 10\text{ V}$ , 4...20 mA	$\pm 5\text{ V}$ , $\pm 10\text{ V}$ , $\pm 20\text{ mA}$ , 1...5 V, 4...20 mA	0...10 V	$\pm 10\text{ V}$
Output signal	–		$\pm 10\text{ V}$ , 4...20 mA	0...10 V	$\pm 10\text{ V}$
Resolution	12 bits + sign		12...14 bits dep. on signal	14 bits	14 bits
Dimensions (WxDxH)	125 x 47.5 x 141.5 mm (with communication modules or processors) 144 x 70 x 141.5 mm (with M1/M1E processors and optional modules)				
Reference	170AAO12000	170AAO92100	170AMM09000	170ANR12090	170ANR12091

## Application-specific I/O modules



Type of module	High-speed counter	Discrete I/O with Modbus port
Type of inputs for	Incremental or absolute encoders	RS 485 Modbus port
Operating voltage	24 VDC	120 VAC
Counting frequency	200 kHz	–
Number of channels	2 independent	–
Number of discrete I/O	2 x 3 inputs/2 x 2 outputs	6 inputs/3 outputs
Dimensions (WxDxH)	125 x 47.5 x 141.5 mm (with communication modules or M1/M1E processors) 144 x 70 x 141.5 mm (with M1/M1E processors and optional modules)	
Reference	170AEC92000	170ADM54080

# Modicon Momentum \_\_\_\_\_ Distributed I/O and processors

## Communication modules



3

Type of module	Ethernet TCP/IP network		Fipio fieldbus	INTERBUS (1) fieldbus	Profibus DP fieldbus
Speed	10 Mbps	10/100 Mbps	1 Mbps	0.5 Mbps	9.6 K...12 Mbps
Manager PLC	-		Premium	-	-
Redundancy	No		No	No	No
Standard services	Modbus TCP/IP		-	-	-
Reference	170ENT11002	170ENT11001	170FNT11001	170INT11000 (1)	170DNT11000

(1) Generation 4, twisted pair medium: 170INT11003, with optical fiber medium: 170INT12000



Type of module	Other networks Modbus Plus		DeviceNet
Speed	1 Mbps		0.5 Mbps
Manager PLC	Premium or Quantum	Quantum	-
Redundancy	No	Yes	No
Standard services	-		-
Reference	170PNT11020	170PNT16020	170LNT71000

## Optional modules for M1/M1E processors



Type of module (1)	Modbus Plus		Asynchronous serial link
Communication ports	1 Modbus Plus	2 redundant Modbus Plus	1 RS 232/RS 485 Modbus
Real-time clock	Integrated, ± 13 sec/day accuracy		
Connection	By 9-way SUB-D connector		
Reference	172PNN21022	172PNN26022	172JNN21032

(1) Include save battery of the M1/M1E processors application and data memories.

## Connection accessories

Type	RS 232C communication cable		
Length	1 m	3 m	6 m
Reference	110XCA28201	110XCA28202	110XCA28203



## M1/M1E processors



Type of processor		M1				
Number of I/O	Discrete	2048 I/O			2048 I/2048 Q	8192 I/O
	Registers	2048 words			4096 words	26048 words
Integrated communication ports	Modbus	1 RS 232C	1 RS 232C + 1 RS 485		1 RS 232C	1 RS 232C + 1 RS 485
	Ethernet TCP/IP	–				
	I/O bus (1)	–			1 I/O port	–
Transparent Ready	Embedded Web server	–				
Memory capacity	RAM	64 Kb			256 Kb	512 Kb
	Flash	256 Kb			256 Kb	512 Kb
	User, 984 LL language (2)	2.4 K			12 K	18 K
	User, IEC language (3)	–			160 K	240 K
	Data	2 K			4 K	24 K
Cycle time		1 ms/K	0.63 ms/K	1 ms/K	0.63 ms/K	1 ms/K
Reference		171CCS70000	171CCS70010	171CCS78000	171CCS76000	171CCC78010

(1) I/O bus derived from INTERBUS bus.

(2) ProWORX 32 or Concept programming software.

(3) Concept programming software.



Type of processor		M1	M1E			
Number of I/O	Discrete	8192 I/O				
	Registers	26048 words				
Integrated communication ports	Modbus	1 RS 232C	1 RS 485		–	
	Ethernet TCP/IP	–		1 integrated Ethernet port		
	I/O bus (1)	1 I/O port	–		1 I/O port	
Transparent Ready	Embedded Web server	–		Standard services (class A10)		
Memory capacity	RAM	512 Kb		544 Kb		
	Flash	512 Kb		1 Mb	512 Kb	1 Mb
	User, 984 LL language (2)	18 K				
	User, IEC language (3)	240 K	–		200 K	200 K
	Data	24 K				
Cycle time		1 ms/K	0.3 ms/K			
Reference		171CCC76010	171CCC98020	171CCC98030	171CCC96020	171CCC96030

## Power supply module <sup>(4)</sup>



Type of power supply module for	Momentum processors
Input voltage	120 or 230 VAC (selected by jumper)
Output voltage	24 VDC
Output current	0.7 A
Dimensions (WxDxH)	73 x 44.5 x 146 mm
Reference	170CPS11100

(4) Process power supplies see chapter 6 "Power supply"

## The controller motor/drive response to all your motion control requirements

### Lexium *High-performance motion control*

Lexium has added to its Telemecanique motion control offer by offering Lexium 05 drives for brushless motors, available in three sizes. Combined with motors in the SER series, this new range provides compact drive solutions ranging in power from 0.4 to 3.2 kW.

*Highly ingenious* "all in one" drive concept. Functions integrated in the Schneider languages. Sercos®: Top-of-the-range SERCOS® digital ring, and... *very easy* to wire up.



#### Lexium 05 drives from 3.2 A to 9 A

- Lexium 05 operates in either torque or speed control mode by means of its  $\pm 10V$  analog interface. Its encoder interface also performs the function of an electronic gearbox.
- The speed and position references can be controlled via the fieldbus interface.



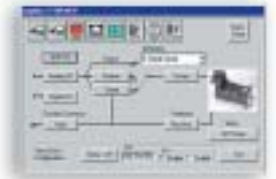
#### Lexium 17D drives from 1.5 A to 20 A and 40 A to 70 A

- High-technology digital drives for brushless motors.
- "All in one" concept integrating: EMC filters, braking resistors (reduction in system cost and dimensions), simple indexer and built-in transmission for simple applications.



#### Motors

3 ranges:  
**BPL** from 1.1 to 5.4 Nm  
**BPH** from 0.4 to 100 Nm  
**SER** from 1.1 to 13.4 Nm



#### Software

PowerSuite 2 commissioning software, Unilink and software for determining the size of the motor.

### Twin Line *Fully programmable intelligent drives*

Open to standard fieldbuses: CanOpen, Modbus, DeviceNet, INTERBUS, Profibus. Simple, user-friendly operation, parameter setting and control.



#### TLD and TLC Twin Line drives (750 W to 8 kW)

Highly suitable range for independent machines yet also capable of operating on PC/PLC architectures.



#### SER motors from 0.3 to 13.4 Nm

Highly suitable range for dynamic applications requiring the utmost precision, covering a continuous torque range from 0.3 to 13.4 Nm.



#### Software

Windows TLCT settings utility.

The essentials  
 A simplified selection guide to help you quickly select your motion control products.

# Contents

## Wide variety of control architectures:

- Fieldbus: FIPIO, CanOpen (native), Modbus Plus, Profibus DP
- SERCOS®: high-technology fully digital motion with Premium or Quantum processing

## 3 motor ranges are associated with the drives:

### ■ BPL and BPH motors from 0.4 to 100 Nm:

- > Brushless motors with high torque-inertia ratio
- > Extensive power range: 0.4 to 100 Nm continuous operation, 1 to 230 Nm peak operation
- > IP67 protection, brake, high-resolution SinCos feedback

### ■ SER motors from 0.3 to 13.4 Nm:

- > Specially adapted to the needs of OEMs
- > Wide power range: 1.1 to 13.4 Nm continuous operation, 2.5 to 38 Nm peak operation. High-resolution SinCos feedback as standard
- > IP 56 protection, brake, etc

■ Application-specific motion control modules for Modicon Premium and Quantum platform ..... 4/2

■ **Lexium 05** drives for SER brushless motors ..... 4/4 to 4/9

■ **Lexium 17D** drives for SER, BPH and BPL brushless motors ..... 4/10 to 4/17

■ **Twin Line** drives for SER brushless motors ..... 4/18 to 4/21





Module type	For translators (amplifier for stepper motor)		For analog control servomotors (for asynchronous and brushless motors)				
Control outputs	RS 422		+/- 10 V				
Compatible with drives	Lexium 05, Twin Line		Lexium 05/17D, Twin Line				
Functions	Linear axes	–	Limited		Limited or infinite		Limited or infinite (1)
	Slave axes	–	With static ratio		With dynamic ratio		–
Frequency for each axis	187 kHz		500 kHz with incremental encoder, 200 kHz with absolute encoder (SSI serial or parallel output)				
Number of axes	1	2	2	4	2	4	3
Reference	TSXCFY11	TSXCFY21	TSXCAY21	TSXCAY41	TSXCAY22	TSXCAY42	TSXCAY33

(1) With linear interpolation on 2 or 3 axes



Module type	Servomotors with SERCOS® digital ring (for brushless motors)		
Control outputs	SERCOS® network ring		
Compatible with ranges	Lexium 17D		
Functions	Linear or infinite independent axes, slave axes with cam profile or ratio		
Processing	4 sets of axes with linear interpolation from 2 to 8 axes	4 sets of axes with linear and circular interpolation from 2 to 3 axes (2)	4 sets of axes with linear interpolation from 2 to 8 axes
Frequency for each axis	4 Mb SERCOS® network ring		
Number of axes	8 (3)	8 (3)	16 (4)
Reference	TSXCYSY84	TSXCYSY85	TSXCYSY164

(2) TSXCYSY85 module supplied with TJE trajectory editor: linear trajectories with links between segments according to polynomial or circular interpolation and circular trajectories.

(3) 8 real axes, 4 imaginary axes and 4 remote axes

(4) 16 axes (real axes, imaginary and remote axes)

## Connection accessories for Modicon Premium and Quantum modules

Type	Fiber optic cables For Lexium 17D MDHA1...N00/A00 drives	
Connection	Pre-equipped cable with SMA connectors	
Reference	L = 0.3 m	990MCO00001
	L = 0.9 m	990MCO00003
	L = 1.5 m	990MCO00005
	L = 4.5 m	990MCO00015
	L = 16.5 m	990MCO00055
	L = 22.5 m	990MCO00075
	L = 37.5 m	990MCO00125

# Motion control

## Modules for Modicon Quantum platform



Module type	For analog control servomotors Single axis
Control outputs	RS 422
Compatible with drives	Lexium 17D
Functions	Master/slave position capture Synchronization of a master/slave, torque control
Frequency for each axis	200 kHz nominal, 500 kHz max. with incremental encoder
Number of axes	1 real axis, 1 remote axis
Reference	<b>140MSB10100</b>



Module type	Servomotors with SERCOS® digital ring (for brushless motors)
Control outputs	SERCOS® network ring
Compatible with ranges	Lexium 17D
Functions	Linear or infinite independent axes, slave axes with cam profile or ratio
Processing	4 sets of axes with linear interpolation from 2 to 8 axes
Frequency for each axis	4 Mb SERCOS® network ring
Number of axes	With MMF Start programming kit (1)
Reference	<b>140MMS42501 (2)</b>   <b>140MMS53502 (3)</b>

(1) 8 real axes, 4 imaginary axes, 4 remote axes, 4 coordinate sets, 4 follower sets, cam profiles

(2) Maximum 22 axes including 16 real axes with assistance from our application services

(3) Maximum 32 axes including 22 real axes with assistance from our application services

Launch 1<sup>st</sup> quarter 2005



Drive type	Digital for brushless motors			
	Size 1	Size 2	Size 3	
Supply voltage	115 VAC single phase			
Output current	Continuous	3.2 A	7 A	9 A
	Maximum (discontinuous)	6 A	11 A	20 A
Safety function	Integrated "safety stop"			
Braking resistor	Integrated			
EMC filter	Integrated			
Reference	DCX1701F10S1	DCX1701F17S2	DCX1701F28S3	



Drive type	Digital for brushless motors						
	Size 1	Size 2	Size 3	Size 1	Size 2	Size 3	
Supply voltage	230 VAC single phase			230 VAC 3-phase			
Output current	Continuous	3.2 A	7 A	9 A	3.2 A	7 A	9 A
	Maximum (discontinuous)	6 A	11 A	20 A	6 A	11 A	20 A
Safety function	Integrated "safety stop"						
Braking resistor	Integrated						
EMC filter	Integrated			Not integrated			
Reference	DCX1702F10S1	DCX1702F17S2	DCX1702F28S3	DCX1703N10S1	DCX1703N17S2	DCX1703N42S3	



Drive type	Digital for brushless motors		
	Size 2	Size 3	
Supply voltage	400/480 VAC 3-phase	400/480 VAC 3-phase	
Output current	Continuous	5 A	8 A
	Maximum (discontinuous)	7.5 A	18 A
Safety function	Integrated "safety stop"		
Braking resistor	Integrated		
EMC filter	Integrated		
Reference	DCX1704F14S2	DCX1704F34S3	





# Motion control

## Additional EMC input filters

Launch 1<sup>st</sup> quarter 2005



Supply voltage			Single phase 200...240 V	3-phase 200...240 V
Maximum cable length	Class A		50 m	5 m
	Class B		20 m	–
Reference	Drives	Size 1	DCX1701F10S1, DCX1702F10S1	DCX1703N10S1
	Filters		<b>VW3A31401</b>	<b>VW3A31402</b>
	Drives	Size 2	DCX1701F17S2, DCX1702F17S2	DCX1703N17S1, DCX1704F14S2
	Filters		<b>VW3A31403</b>	<b>VW3A31404</b>
Drives	Size 3		DCX1701F28S3, DCX1702F28S3	DCX1703N42S3, DCX1704F34S3
	Filters		<b>VW3A31405</b>	<b>VW3A31406</b>

## Line reactors



Supply voltage			Single phase 200...240 V	3-phase 200...240 V
Reference	Drives	Size 1	Size 1	Size 1
	Reactors		<b>VZL0007UM50</b>	<b>VW3A66502</b>
	Drives	Size 2	Size 2	Size 2
	Reactors		<b>VZL018UM20</b>	<b>VW3A66503</b>
Drives			Size 3	Size 3
Reactors			–	<b>VW3A366504</b>
Drives			Size 4	Size 4
Reactors			–	<b>VW3A366505</b>

## Holding brake controller

Controller type	Holding brake
Power supply	24 VDC
Maximum current	2.1 A
Maximum power	50 W
Degree of protection	IP20
Reference	<b>GEA3EB001</b>

## External braking resistors

Resistor type	External braking for Lexium 05 drives							
Resistance	10 Ω	27 Ω			72 Ω			
Power	400 W	100 W	200 W	400 W	100 W	200 W	400 W	
Reference (1)	<b>GEA</b>	<b>3ERA010C5A</b>	<b>3ERA027A5A</b>	<b>3ERA027B5A</b>	<b>3ERA027C5A</b>	<b>3ERA072A5A</b>	<b>3ERA072B5A</b>	<b>3ERA072C5A</b>

(1) In order to select the braking resistor, you need to calculate the continuous and peak power to be dissipated in it. Please consult our Lexium 05 catalog

Launch 1<sup>st</sup> quarter 2005



Multilingual configuration software		For PC
<b>Configuration of drives and starters</b>		Lexium 05/Altivar 71
<b>Environment</b>		Microsoft Windows ®
<b>Languages</b>		English - French - German - Italian - Spanish
<b>Reference</b>	PowerSuite CD-ROM (1)	<b>VW3A8104</b>
	PowerSuite update CD-ROM	<b>VW3A8105</b>
	Connection kit	<b>VW3A8106</b>

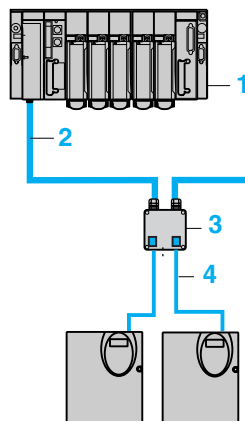
(1) Contents: Software, technical documentation and the ABC configurator software

4

### CANopen machine bus: connection accessories



Drives		Lexium 05
<b>Junction box</b>		<b>VW3CANTAP2</b>
<b>Cables</b>	Description	2 RJ 45 connectors
	Cable length	0.3 m <span style="float: right;">1 m</span>
<b>Reference</b>		<b>VW3CANCARR03</b> <span style="float: right;"><b>VW3CANCARR1</b></span>



- 1 PLC
- 2 CANopen trunk cable
- 3 CANopen junction box VW3 CAN TAP2
- 4 CANopen drop cable VW3 CAN CA RR●●



# Motion control

## Modbus serial link connection accessories

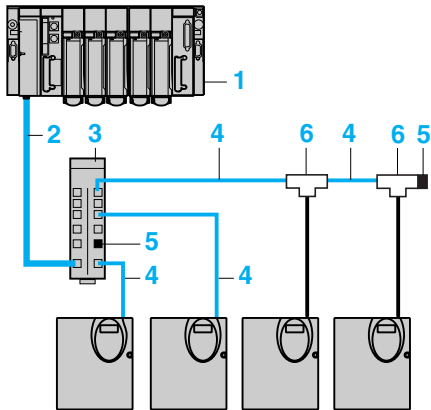
Launch 1<sup>st</sup> quarter 2005



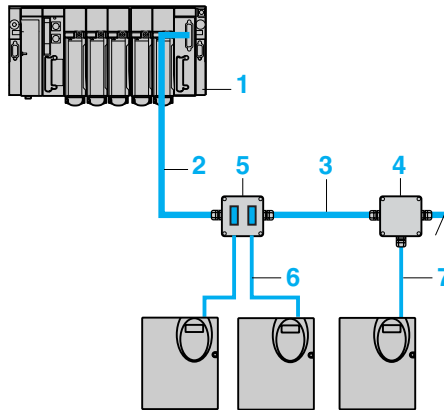
Drives		Lexium 05		
Connection type	Description	Splitter box with 10 RJ45 connectors and 1 screw terminal block	Junction box for drop cable VW3A8306D30	Subscriber socket for drop cable VW3A8306
	Reference	LU9GC3	TSXCSA50	TSXSCA62
Line terminators	For RJ 45 connector	R = 120 Ω, C = 1 nf		R = 150 Ω, C = 1 nf
	Reference	VW3A8306RC		VW3A8306R
	For screw terminals	R = 120 Ω, C = 1 nf		R = 150 Ω, C = 1 nf
	Reference	VW3A8306DRC		VW3A8306DR
T-junction boxes	With integrated cable 0.3 m	VW3A8306TF03		
	With integrated cable 1 m	VW3A8306TF10		
Cables	Description	2 RJ 45 connectors		
	Reference	0.3 m	VW3A8306R03	
		1 m	VW3A8306R10	
		3 m	VW3A8306R30	
RS 485 shielded twisted double pair cables	Description	1 RJ45 connector and one stripped end		
	Reference	3 m	VW3A8306D30	
	Description	Supplied without connector		
	Reference	100 m	TSXCSA100	
		200 m	TSXCSA200	
	500 m	TSXCSA500		

4

Connection with RJ45 splitter box and screw terminals



Connection with junction box or subscriber sockets



- 1 PLC (1)
- 2 Modbus cable depending on the controller or PLC type
- 3 Modbus splitter box LU9 GC3
- 4 Modbus drop cables VW3 A8 306R●●
- 5 Line terminators VW3 A8 306RC
- 6 Modbus T-junction boxes VW3 A8 306TF●● (with cable)

- 1 PLC (1)
- 2 Modbus cable depending on the controller or PLC type
- 3 Modbus cables TSX CSA●00
- 4 T-junction box TSX SCA 50
- 5 Subscriber socket TSX SCA 62
- 6 Modbus drop cables VW3 A8 306
- 7 Modbus drop cables VW3 A8 306 D30

Connection via screw terminals

In this case, a Modbus drop cable (VW3 A8 306D30) and line terminators (VW3 A8 306DRC) are used.



4

Motor type			SER brushless type					
Compatible single phase Lexium 05 drives			DCX1701F10S1	DCX1702F10S1	DCX1701F17S2	DCX1702F17S2	DCX1701F28S3	DCX1702F28S3
	Torque at standstill continuous/peak	Mechanical speed						
Reference (1)	0.29/0.85 Nm	12000 rpm	SER3643L3S●●●●					
	0.48/1.3 Nm	12000 rpm	SER3663L3S●●●●					
	0.7/1.62 Nm	12000 rpm	SER3683L3S●●●●					
	0.7/2.22 Nm	12000 rpm		SER3683L5S●●●●				
	0.7/2.5 Nm	12000 rpm			SER3683L3S●●●●			
	0.9/2.85 Nm	12000 rpm			SER36A3L3S●●●●			
	1.1/2.7 Nm	6000 rpm	SER39A4L3S●●●●					
	0.82/3.4 Nm	6000 rpm			SER39A4L3S●●●●			
	2.2/4.84 Nm	6000 rpm		SER39B4L3S●●●●				
	2.2/6.68 Nm	6000 rpm				SER39B4L3S●●●●		
	2.9/8.35 Nm	6000 rpm				SER39C4L3S●●●●		
	4.2/8.1 Nm	6000 rpm				SER3BA4L3S●●●●		
	4.2/11 Nm	6000 rpm					SER3BA4L3S●●●●	
	6.6/17.9 Nm	6000 rpm					SER3BB4L3S●●●●	
10/25.2 Nm	4500 rpm						SER3BC4L5S●●●●	

Compatible 3-phase Lexium 05 drives			DCX1703N10S1	DCX1703N17S2	DCX1703N42S3	DCX1704F14S2	DCX1704F34S3
	Torque at standstill continuous/peak	Mechanical speed					
Reference (1)	0.48/1.3 Nm	12000 rpm	SER3663L3S●●●●				
	0.7/2.22 Nm	12000 rpm	SER3683L5S●●●●				
	0.7/2.5 Nm	12000 rpm		SER3683L3S●●●●			
	0.9/2.84 Nm	12000 rpm		SER36A3L3S●●●●			
	1.1/2.73 Nm	6000 rpm	SER39A4L3S●●●●				
	2.2/4.84 Nm	6000 rpm	SER39B4L3S●●●●				
	2.2/6.2 Nm	6000 rpm				SER39B4L3S●●●●	
	2.9/7.3 Nm	6000 rpm				SER39C4L3S●●●●	
	2.9/7.5 Nm	6000 rpm	SER39C4L5S●●●●				
	2.9/8.35 Nm	6000 rpm		SER39C4L3S●●●●			
	2.9/9.5 Nm	6000 rpm				SER39C4L5S●●●●	
	4.2/8.1 Nm	6000 rpm		SER3BA4L3S●●●●			
	4.2/10.16 Nm	6000 rpm				SER3BA4L5S●●●●	
	4.2/11.7 Nm	6000 rpm			SER3BA4L3S●●●●		
	6.6/11.8 Nm	6000 rpm		SER3BB4L3S●●●●			
	6.6/12.8 Nm	6000 rpm				SER3BB4L5S●●●●	
	6.6/20 Nm	6000 rpm					SER3BB4L3S●●●●
	6.6/20.8 Nm	6000 rpm			SER3BB4L3S●●●●		
	10/28 Nm	4500 rpm					SER3BC4L5S●●●●
	10/30 Nm	4500 rpm			SER3BC4L5S●●●●		
13.4/31.5 Nm	4500 rpm					SER3BD4L5D●●●●	
13.4/36 Nm	4500 rpm			SER3BD4L5D●●●●			

(1) Complete the references using the table below

To order an SER motor, complete the above references									
Reference to be completed:	SER36/39/3B	4/6/8A/B/C/D	3L/4L	3/5	S/D	●●	●	●	●
Sensor integrated in the motor	SinCos single-turn absolute encoder					SO			
Shaft seal	IP41	without holding brake					A		
		with holding brake					1		
Without speed reduction gear								O	
With speed reduction gear	Shaft extension	Untapped							1
	Type	PLE60, PLE80, PLE120, PLE160						(2)	
	Reduction ratio	3:1, 5:1, 8:1							(2)

(2) For reference of SER motor with speed reduction gear: see the "Lexium 05 motion control" catalog.



# Motion control

## Selection of power connection cables and SinCos Hiperface single-turn encoder

Lexium 05 drive			Cable length				
			L = 3 m	L = 5 m	L = 10 m	L = 15 m	L = 20 m (1)
Power cable type	Size 1	1F10S1/2F10S1/ 3N10S1/4F14S2	GEA2MOAAAA0●●				
	Size 2	1F17S2/2F17S2/ 3N17S2/4F34S3			GEA2MOABAA0●●		
	Size 3	1F28S3/2F28S3/ 3N42S3/4F34S	GEA2EAAAAA0●●				
Cable type	SinCos Hiperface encoder		GEA2EAAAAA0●●				

(1) For cable lengths > 20 m, please consult your Schneider Electric agency.

4

## Connection cables between Lexium 05 drives and SER brushless motors

Cable type		Power		SinCos Hiperface single-turn encoder
Composition		4x1.5 mm <sup>2</sup> + 2x1 mm <sup>2</sup>	4x2.5 mm <sup>2</sup> + 2x1 mm <sup>2</sup>	
Cables equipped with connectors		1 connector at the motor end (flying leads at the drive end)		1 connector at each end
Reference	L = 3 m	GEA2M0AAAA003	GEA2M0ABAA003	GEA2EAAAAA003
	L = 5 m	GEA2M0AAAA005	GEA2M0ABAA005	GEA2EAAAAA005
	L = 10 m	GEA2M0AAAA010	GEA2M0ABAA010	GEA2EAAAAA010
	L = 15 m	GEA2M0AAAA015	GEA2M0ABAA015	GEA2EAAAAA015
	L = 20 m	GEA2M0AAAA020	GEA2M0ABAA020	GEA2EAAAAA020



Drive type		Digital for SER and BPH/BPL brushless motors Lexium 17D				
Supply voltage		208...480 VAC 3-phase 50/60 Hz (230 VAC single phase authorized with derating)				
Output current	Continuous	1.5 A	3 A	6 A	10 A	20 A
	Maximum (discontinuous, 5 s)	3 A	6 A	10 A	20 A	40 A
Anti-start		With or without				
Braking resistor		Integrated				
EMC filter		Integrated				
Reference (1)		MDHA1004●00	MDHA1008●00	MDHA1017●00	MDHA1028●00	MDHA1056●00

(1) For a drive without anti-start function, replace the ● at the end of the reference with N, or for one with integrated anti-start function, with A



Drive type		Digital for BPH brushless motors Lexium 17D HP	
Supply voltage		208...480 VAC 3-phase	
Output current	Continuous	40 A	70 A
	Maximum (discontinuous, 5 s)	80 A	140 A
Anti-start		Integrated	
Braking resistor		Not integrated	
EMC filter		Not integrated	
Reference		MDHA1112A00	MDHA1198A00

## Control and connectivity of Lexium 17D drives

Drive connectivity	Connectivity type	
Integrated Via an optional card (1 slot available)	+/- 10 V, Pulse/direction, CANopen	Reference
	High-speed SERCOS® digital ring	AM0SER001V000
	Fipio fieldbus	AM0FIP001V000
	Modbus Plus network	AM0MBP001V000
	Profibus DP fieldbus	AM0PBS001V000
	CANopen machine bus (standard medium)	AM02CA001V000
	Card with 14 I/O for controlling the integrated position indexer	AM0INE001V000

# Motion control

## Additional EMC input filters



<b>Supply voltage</b>	<b>3-phase</b> 208...480 VAC	
<b>Type of Lexium 17D HP drive</b>	MDHA1112	MDHA1198
<b>Input rms current</b>	42 A	75 A
<b>Reference</b>	<b>AM0EMC118</b>	<b>AM0EMC212</b>

4

## Line reactors



<b>Supply voltage</b>	<b>3-phase</b> 208...480 VAC	
<b>Type of Lexium 17D HP drive</b>	MDHA1112	MDHA1198
<b>Input current</b>	60 A	75 A
<b>Reference (1)</b>	<b>AM0CHK170</b>	<b>AM0CHK212</b>

(1) Must be ordered with the drive, unless an isolation transformer is being used with IT connection

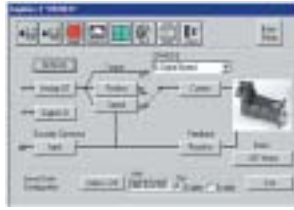
## External braking resistors

Resistor type	External braking for Lexium 17D/17 D HP drives				
<b>Drive type</b>	MDHA1004/1008		MDHA1017/1028/1056	MDHA1112	MDHA1198
<b>Resistance</b>	33 Ω		33 Ω	15 Ω	10 Ω
<b>Power</b>	250 W	500W	1500W	860 W	500 W
<b>Reference (1)</b>	Standard	<b>AM0RFE001V025</b>	<b>AM0RFE001V050</b>	<b>AM0RFE001V150</b>	<b>AM0RFE002V086</b>
	UL (Recognized)	<b>AM0RFE003V025</b>	<b>AM0RFE003V050</b>	<b>AM0RFE003V150</b>	–

(1) In order to select the braking resistor, you need to calculate the continuous and peak power to be dissipated in it. Please consult our Lexium 17 catalog

## Motor reactor

<b>Supply voltage</b>	<b>3-phase</b> 208...480 VAC
<b>Type of Lexium 17D drive</b>	MDHA1004/1008/1017/1028/1056
<b>Use</b>	Reactor for drive-motor cable length > 25 m
<b>Reference</b>	<b>AM0FIL001V056</b>



Unilink software is used to configure, set parameters and make adjustments on Lexium MHDA drives according to the associated SER/BPH brushless motor and the requirements of the application. During these debugging phases,

the PC-compatible terminal, supporting the Unilink software in Windows 95/98, 2000, NT 4.0 or XP, is connected to the MHDA drives via a serial link (9-way SUB-D connector marked X6).

There are three possible configurable operating modes:

- +/- 10 V analog control mode controlled by Premium or Quantum motion control module.
- Off line mode with integrated position indexer controlled by:
  - 5 I/2 O integrated in the Lexium 17D drive (or by 14 I/8 O option card)
  - CANopen, Fipio, Modbus Plus or Profibus DP bus
- SERCOS® mode, high-speed digital ring on optical fiber.

The initial screen providing access to the Unilink software services and functions is divided into three zones:

- 1 Banner at the top of the screen for accessing the main functions.
- 2 Mimic diagram for accessing configuration/parameter setting and realtime display of the various drive values.
- 3 Zone at the bottom of the screen indicating the drive status.

Configuration and adjustment software		“Lexium motion tools” for PC
Drive configuration		Lexium 17D
Environment		Microsoft Windows ®
Language		English, French, German, Italian and Spanish
Reference	CD-ROM (1)	AM0CSW001V350

(1) Contents: Unilink software + documentation

## Accessories

Type of accessory	Backup key
Use	Saving and instant retrieval of drive parameters (without a PC)
Reference	AM0PCM001V000





# Motion control

## SER brushless motors for Lexium 17D



Motor type			SER brushless type			
Compatible Lexium 17 drive type			MDHA1004●00	MDHA1008●00	MDHA1017●00	MDHA1028●00
	Torque at standstill continuous/peak	Mechanical speed				
Reference (1)	1.1/2.5 Nm	6000 rpm	SER39A4L7S●●●●●			
	1.1/4 Nm	6000 rpm		SER39A4L7S●●●●●		
	2.2/2.4 Nm	6000 rpm		SER39B4L3S●●●●●		
	2.2/8 Nm	6000 rpm			SER39B4L3S●●●●●	
	2.9/4.7 Nm	6000 rpm		SER39C4L3S●●●●●		
	2.9/9.4 Nm	6000 rpm			SER39C4L3S●●●●●	
	4.2/8.2 Nm	5500 rpm		SER3BA4L5S●●●●●		
	4.5/15 Nm	5500 rpm			SER3BA4L5S●●●●●	
	4.6/9.2 Nm	6000 rpm			SER3BA4L3S●●●●●	
	4.6/15.3 Nm	6000 rpm				SER3BA4L3S●●●●●
	6/12 Nm	6000 rpm			SER3BB4L3S●●●●●	
	6.6/20 Nm	6000 rpm				SER3BB4L3S●●●●●
	6.6/15.8 Nm	5800 rpm			SER3BB4L5S●●●●●	
	6.6/25 Nm	5800 rpm				SER3BB4L5S●●●●●
	8.3/16 Nm	2500 rpm		SER3BC4L7S●●●●●		
	8.6/17 Nm	4800 rpm			SER3BC4L5S●●●●●	
	10/28 Nm	4800 rpm				SER3BC4L5S●●●●●
	10/32 Nm	2500 rpm			SER3BC4L7S●●●●●	
	13.4/24 Nm	2750 rpm			SER3BD4L7S●●●●●	
	13.4/29 Nm	5000 rpm				SER3BD4L5D●●●●●
13.4/38 Nm	2750 rpm				SER3BD4L7S●●●●●	

(1) Complete the references using the table below

To order an SER motor, complete the above references										
Reference to be completed:		SER39/3B	A/B/C/D	4L	3/5/7	S/D	●●	●	●	●
Sensor integrated in the motor	Resolver with 1 pair of poles						RA			
	SinCos multi-turn absolute encoder						MO			
Shaft seal	IP41	without holding brake						A		
		with holding brake						1		
	IP56	without holding brake							B	
		with holding brake							2	
Without speed reduction gear									O	
	Shaft extension	Untapped								1
With speed reduction gear									(2)	
	Type	PLE80, PLE120, PLE160								
	Reduction ratio	3:1, 5:1, 8:1								(2)

(2) For an SER motor with speed reduction gear: see the "Lexium 17D motion control" catalog.

Lexium 17	MHDA drive	Cable length			
		L = 3 m	L = 10 m	L = 20 m/30 m (3)	30 m < L < 75 m
Cable type (1)	Power	MDHA1004A00	LXACPAAA●●●1	LXACPAAAB●●●1	(4)
		MDHA1008A00			
		MDHA1017A00			
		MDHA1028A00			
Cable type (2)	Resolver	LXACFACA●●●1			(4)
	Sincos Hiperface encoder	LXACFABA●●●1			(4)

(1) Cables equipped with 1 connector (motor end) and 1 connector to be fitted (drive end)

(2) Cables equipped with connectors at both ends

(3) For cable lengths between drive and motor > 25 m, use of a motor reactor is compulsory, placed as close to the drive as possible

(4) For cable lengths > 30 m, please consult your Schneider Electric agency

## Connection cables between Lexium 17D drive and SER motor

Cable type	Power	Resolver	SinCos Hiperface encoder
Composition	4x1.5 mm <sup>2</sup> + 2x1 mm <sup>2</sup>   4x2.5 mm <sup>2</sup> + 2x1 mm <sup>2</sup>	–	
Cables equipped with	1 connector at the motor end (1 connector to be fitted at the drive end)	1 connector at each end	
Reference	L = 3 m	LXACPAAA0031	LXACPAAAB0031
	L = 5 m	LXACPAAA0051	LXACPAAAB0051
	L = 10 m	LXACPAAA0101	LXACPAAAB0101
	L = 20 m	LXACPAAA0201	LXACPAAAB0201
	L = 30 m	–	–
		LXACFACA0031	LXACFABA0031
		LXACFACA0051	LXACFABA0051
		LXACFACA0101	LXACFABA0101
		LXACFACA0201	LXACFABA0201
		LXACFACA0301	LXACFABA0301



# Motion control

## BPH brushless motors for Lexium 17D



Motor type		BPH brushless type						
Compatible Lexium 17 drive type	MDHA	1004A00	1008A00	1017A00	1028A00	1056A00	1112A	1198A
Reference (1)	Torque at standstill							
	Mechanical speed							
	continuous/peak							
	BPH							
	0.4/1.1 Nm	8000 rpm	0552S500000					
	0.9/1.7 Nm	6000 rpm	0751N50000Ae					
	1.3/3.4 Nm	6000 rpm		0751N50000Ae				
	1.3/2.5 Nm	6000 rpm	0752N50000Ae					
	2.3/4.8 Nm	6000 rpm		0752N50000Ae				
	3.7/7.2 Nm	6000 rpm		0952N50000Ae				
	4.3/13.4 Nm	6000 rpm		0952N50000Ae				
	6/13.4 Nm	6000 rpm		0953N50000Ae				
	6/20.3 Nm	6000 rpm			0953N50000Ae			
	7.4/13.6 Nm	6000 rpm		1152N50000Ae				
	7.4/19.3 Nm	6000 rpm			1152N500000e			
	6.8/13.5 Nm	6000 rpm		1153N50000Ae				
	10.5/19.4 Nm	6000 rpm			1153N50000Ae			
	11.4/18 Nm	4000 rpm			1442N50000Ae			
	12/30 Nm	4000 rpm			1442N50000Ae			
	14.5/24.2 Nm	4000 rpm			1423N50000Ae	1423N50000Ae		
	17/42 Nm	4000 rpm				1902N50000Ae		
	25/37.5 Nm	4000 rpm				1903K50000Ae		
	36/57 Nm	4000 rpm				1904K50000Ae		
	46/76.2 Nm	4000 rpm					1907K50000Ae	
	75/157 Nm	4000 rpm					1907K50000Ae	
	90/163 Nm	4000 rpm					190AK50000Ae	
	100/230 Nm	4000 rpm						0190AK50000Ae

(1) Complete the references using the tables below

To order a BPH motor, complete the above references		BPH0552S5						
Reference to be completed:		●	●●	●	0	●		
Sensor integrated in the motor	Resolver with 1 pair of poles	U						
Holding brake	Without		A2					
	With		F2					
Shaft extension	Key			C				
	Untapped			L				
Degree of protection	IP65 (casing) IP54 (shaft extension)				0			

To order a BPH motor, complete the above references		BPH0751N5....BPH190AK5						
Reference to be completed:		●	●●	●	A	●		
Sensor integrated in the motor	Resolver with 1 pair of poles	M						
	Multi-turn high-resolution absolute encoder, Sincos Hiperface (4096 revolutions)	A						
	Single-turn high-resolution absolute encoder, Sincos Hiperface (4096 revolutions)	B						
Holding brake	Without		A2					
	With		F2					
Shaft extension	Key			C				
	Untapped			L				
Degree of protection	IP65 (casing and shaft extension)							1
	IP67 (casing and shaft extension)							2



Motor type			BPL brushless type	
Compatible Lexium 17 drive type			MDHA1008A00	MDHA101700
	Torque at standstill continuous/peak	Mechanical speed		
Reference (1)	1.1/2.4 Nm	6000 rpm	BPL0751V5●A2●A●	
	1.7/3.5 Nm	6000 rpm	BPL0951V5●A2●A●	
	2.8/7.3 Nm	6000 rpm		BPL0753N5●A2●A●
	2/5.5 Nm	6000 rpm		BPL0951V5●A2●A●
	5.4/13.4 Nm	6000 rpm		BPL0953N5●A2●A●

(1) Complete the references using the tables below

To order a BPL motor, complete the above references						
Reference to be completed:	BPL0751V5...953N5		●	A2	●	A ●
Sensor integrated in the motor	Resolver with 1 pair of poles		M			
	Multi-turn high-resolution absolute encoder, Sincos Hiperface (4096 revolutions)		A			
	Single-turn high-resolution absolute encoder, Sincos Hiperface		B			
Holding brake	Without			A2		
Shaft extension	Key				C	
	Untapped				L	
Degree of protection (casing and shaft extension)	IP65					1
	IP67					2



# Motion control

## Connection cables between Lexium 17D drives and BPH/BPL motor

Equipped with a connector at the motor end and a connector to be fitted at the drive end

Cable type		Power			
<b>Composition</b>		4x1.5 mm <sup>2</sup> + 2x1 mm <sup>2</sup>	4x2.5 mm <sup>2</sup> + 2x1 mm <sup>2</sup>		
<b>Drive type</b>		MDHA1004	MDHA1004/1008/ 10017/1028	MDHA1028/1056	MDHA1112/1198 (1)
<b>Motor type</b>		BPH0552	BPH0751...1153 BPL0751...953	BPH1422...1904	BPH1907...190A
<b>Reference</b>	L = 5 m	AGOKIT001M005	AGOKIT018M005	AGOKIT019M005	AGOKIT020M005
	L = 10 m	–	–	–	AGOKIT020M010
	L = 15 m	AGOKIT001M015	AGOKIT018M015	AGOKIT019M015	AGOKIT020M015
	L = 25 m (2)	AGOKIT001M025	AGOKIT018M025	AGOKIT019M025	AGOKIT020M025
	L = 50 m (2)	–	AGOKIT018M050	AGOKIT019M050	AGOKIT020M050
	L = 75 m (2)	–	AGOKIT018M075	AGOKIT019M075	AGOKIT020M075

(1) Cable supplied without connector to be fitted at the drive end, connection is made to the drive via screw terminals

(2) For cable lengths between drive (MDHA1004...1056) and motor > 25 m, use of an AM0FIL001V056 motor reactor is compulsory, placed as close to the drive as possible

Cable type		Resolver	SinCos Hiperface encoder	
<b>Composition</b>		4x2.5 mm <sup>2</sup> + 2x1 mm <sup>2</sup>		
<b>Drive type</b>		MDHA1004	MDHA●●●●	MDHA●●●●
<b>Motor type</b>		BPH0552	BPH0751...190A BPL0751...953	BPH0751...190A BPL0751...953
<b>Reference</b>	L = 5 m	AGOKIT025M005	AGOKIT024M005	AGOKIT023M005
	L = 15 m	AGOKIT025M015	AGOKIT024M015	AGOKIT023M015
	L = 25 m (2)	AGOKIT025M025	AGOKIT024M025	AGOKIT023M025
	L = 50 m (2)	–	AGOKIT024M050	AGOKIT023M050
	L = 75 m (2)	–	AGOKIT024M075	AGOKIT023M075

(2) For cable lengths between drive (MDHA1004...1056) and motor > 25 m, use of an AM0FIL001V056 motor reactor is compulsory, placed as close to the drive as possible

## Connection cables between Lexium 17 D drives and BPH/BPL motor

Equipped with 2 connectors at the motor end and drive end

Cable type		Power		Resolver	SinCos Hiperface encoder
<b>Drive type</b>		MDHA1004/1008/ 10017/1028	MDHA1004/1008/ 10017/1028	MDHA●●●●	MDHA●●●●
<b>Motor type</b>		BPH0751...1153 BPL0751...953	BPH1422...1904K	BPH0751...190AK BPL0751...953	BPH0751...190AK BPL0751...953
<b>Reference</b>	L = 10 m	AGOFRU015M010	AGOFRU016M010	AGOFRU014M010	AGOFRU013M010



Drive type		Digital for brushless motors Control integrated in the PLC			
Power supply	Voltage	230 VAC single phase	230...480 VAC 3-phase		
Motor	Power	0.75 kW rms	1.5 kW rms	3 kW rms	8 kW rms
Output current	Continuous	3 A rms	3 A rms	6 A rms	16 A rms
	Discontinuous (5 s)	6 A rms	6 A rms	20 A rms	32 A rms
Degree of protection		IP20			
Reference (1)	TLD13	22F2●●1●1	42F3●●1●1	62F3●●1●1	82F3●●1●1

(1) Complete the references using the table below

Drive type		Digital for brushless motors Command via discrete control, fieldbus or integrated programmable motion controller						
Power supply	Voltage	230 VAC single phase		230...480 VAC 3-phase				
Motor	Power	0.75 kW rms		1.5 kW rms	3 kW rms	8 kW rms		
Output current	Continuous	3 A rms		3 A rms	6 A rms	16 A rms		
	Discontinuous (5 s)	6 A rms		6 A rms	20 A rms	32 A rms		
Degree of protection		IP 20	IP 54	IP 20	IP 54	IP 20		
Command via (1)	Discrete control	TLC43	22F21●●●●●	25F21●●●●●	42F31●●●●●	45F31●●●●●	62F31●●●●●	82F31●●●●●
	Fieldbus	TLC53	22F2●●●●●	25F2●●●●●	42F3●●●●●	45F3●●●●●	62F3●●●●●	82F3●●●●●
Programmable motion controller (1)	TLC63	22F2●●●●●	25F2●●●●●	42F3●●●●●	45F3●●●●●	62F3●●●●●	82F3●●●●●	

(1) Complete the references using the table below

To order a TLD and TLC drives, complete the above references						
Reference to be completed:	TLD13 / TLC43/53/63...	●	●	●	●	●
Slot M1	Without module	1				
	RS 422C encoder module	2				
	PULSE-C module	3				
Slot M2	Sincos Hiperface		2			
	Resolver		3			
Slot M3	Without module (TLD13)			1		
	Without encoder simulation (TLD43/53/63)			1		
	ESIM3-C encoder simulation			2		
Slot M4 communication	Without module				1	
	RS 485C (TLC43/53/63), ESIM1-C module (TLD13)				2	
	INTERBus (TLC43/53/63), ESIM2-C module (TLD13)				3	
	CANopen/DeviceNet (TLC43/53/63), SSI-C module (TLD13)				4	
	Profibus DP (TLC43/53/63)				5	
Integrated holding brake controller	Without (TLC43/53/63)					1
	With (TLC43/53/63)					2

## Controller and braking resistor accessories

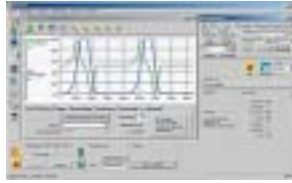
Type of accessory	Controller	Braking resistors Equipped with a cable L = 0.75 m, supplied with mounting bracket			
Use	TLD/TLC	TLABBO controller			
Resistance/power value	–	72 Ω/100 W	150 Ω/100 W	72 Ω/200 W	150 Ω/200 W
Reference	TLABBO	TLABRA	TLABRB	TLABRC	TLABRD

## Holding brake controller accessories

Type of accessory	Holding brake controller
Use	TLD/TLC
Reference	TLABHO

# Motion control

## Software for Twin Line drives



TLA PS CA configuration and adjustment software runs on a Windows 98/NT/XP operating system, connected to Twin Line TLD/TLC drives. The configuration and adjustment software is used to enable quick startup and set up diagnostics. It is ready to operate without any prior configuration.

TLA PS CA software functions:

- Entering and displaying drive parameters
- Archiving and reproducing drive parameters
- Manual position control of the motor with a PC
- Oscilloscope with recording, displaying and archiving of movements
- Offline/online management of parameters and positioning data
- Optimization of servo loops
- Displaying the mechanism frequency response (F.F.T).
- Diagnosing malfunctions
- Wizard to assist setup of Twin Line drives

TLA PS PB programming software runs on a Windows 98/NT operating system, in conjunction with Twin Line TLC 63 drives, and is compliant with standard IEC 61131-3.

The available programming languages are:

- LD : Ladder Diagram
- FBD : Function Block Diagram
- IL : Instruction List
- ST : Structured Text
- SFC : Sequential Function Chart, Grafcet language
- CFC : Continuous Function Chart

Software type	Configuration and adjustment	Programming
Use for Twin Line drives	TLD/TLC	TLC63
Operating system	Windows 98/NT/XP	
Reference	TLAPSCA	TLAPSPB

## Operator interface



The TLA PH OO operator interface is designed to control Twin Line TLD/TLC drives, and to set up the relevant diagnostics.

It offers a display of 3 x 16 characters in 4 languages (English, French, German and Italian). It is connected to the RS 232 communication interface either by plugging directly into the IP20 Twin Line drives, or using the TLA CDC B G cable (to be ordered separately), length 10 meters max.

The interface can be used to:

- View data concerning the motor status, and the drive mode and operating status.
- Check and modify internal parameters.
- Diagnose errors.
- Control movements in manual mode.
- Copy the configuration from one drive to another.

Type	Operator interface
Reference	Clips onto TLD/TLC (IP20), can be connected to TLC (IP54) (1) TLAPHOO



Motor type		SER brushless type				
Compatible Twin Line drive type		TL●●32	TL●●34	TL●●36	TL●●38	
Reference (1)	Torque at standstill continuous/peak					
	Mechanical speed					
	0.32/1.3 Nm	12000 rpm	SER3643L7S●●●●			
	0.54/2.15 Nm	12000 rpm	SER3663L7S●●●●			
	0.75/3 Nm	12000 rpm	SER3683L7S●●●●			
	0.9/3.6 Nm	12000 rpm	SER36A3L7S●●●●			
	1.1/4 Nm	6000 rpm	SER39A4L7S●●●●	SER39A4L7S●●●●		
	2.2/8 Nm	6000 rpm	SER39B4L7S●●●●	SER39B4L7S●●●●		
	2.9/11.5 Nm	6000 rpm	SER39C4L7S●●●●	SER39C4L7S●●●●		
	3.1/8 Nm	6000 rpm	SER39D4L5S●●●●	SER39D4L5S●●●●		
	3.6/14.5 Nm	6000 rpm			SER39D4L5S●●●●	SER39D4L5S●●●●
	4.2/15.8 Nm	6000 rpm	SER3BA4L7●●●●	SER3BA4L7●●●●		
	6.6/20 Nm	6000 rpm			SER3BB4L5S●●●●	
	6.6/25 Nm	6000 rpm			SER3BB4L7S●●●●	SER3BB4L5S●●●●
	6.6/18.4 Nm	6000 rpm	SER3BB4L7S●●●●	SER3BB4L7S●●●●		
	6.6/25 Nm	6000 rpm			SER3BB4L7S●●●●	
	8.3/21.5 Nm	4500 rpm	SER3BC4L7S●●●●	SER3BC4L7S●●●●		
	10/38 Nm	4500 rpm			SER3BC4L7S●●●●	SER3BC4L5S●●●●
	7.9/20.6 Nm	4500 rpm	SER3BD4L7S●●●●	SER3BD4L7S●●●●		
	13.4/45 Nm	4500 rpm			SER3BD4L7S●●●●	
13.4/48 Nm	4500 rpm				SER3BD4L7S●●●●	

(1) Complete references with the table below, for other SER motor references: see the "Twin Line motion control" catalog

To order an SER motor, complete the above references									
Reference to be completed:	SER36/39/3B	4/6/8/A/B/C/D	3L/4L	3/5/7	S	●	●	●	●
Sensor integrated in the motor	SinCos multi-turn absolute encoder						MO		
	SinCos single-turn absolute encoder						SO		
Shaft seal	IP41	without holding brake					A		
		with holding brake					1		
	IP56	without holding brake					B		
		with holding brake					2		
Without speed reduction gear	Shaft extension	Untapped						O	
		Key							1
With speed reduction gear	Type	PLE60, PLE80, PLE120 or PLE 160						(2)	
	Reduction ratio	3:1, 5/1 or 8:1							(2)

(2) For reference of SER motors with speed reduction gear: see our "Twin Line motion control" catalog.





# Motion control

## Selection of power connection cables and SinCos Hiperface encoder

Cable type	TLD/TLC drive	Cable length				
		L = 3 m	L = 5 m	L = 10 m	L = 15 m	L = 20 m (1)
Power (2)	TL●●32					
	TL●●34		TLACPAAA0●●1			
	TL●●36			TLACPAAB0●●1		
	TL●●38				TLACPAAC0●●1	
Encoder (3)	SinCos Hiperface	TLACFABA●●●1				

(1) For cable lengths > 20 m, please consult your Schneider Electric agency.

(2) Cables equipped with 1 connector (motor end) with flying leads at 1 end (drive end).

(3) Cables equipped with connectors at both ends.

4

## Connection cables between Twin Line drives and SER brushless motors

Cable type	Power			SinCos Hiperface encoder	
Composition	4 x 1.5 mm <sup>2</sup> + 2 x 1 mm <sup>2</sup>	4 x 2.5 mm <sup>2</sup> + 2 x 1 mm <sup>2</sup>	4 x 4 mm <sup>2</sup> + 2 x 1 mm <sup>2</sup>	5 x (2 x 0.25 mm) + 1 x (2 x 0.5 mm)	
Cables equipped with	1 connector at the motor end (flying leads at the drive end)			1 connector at each end	
Reference	L = 3 m	TLACPAAA0031	TLACPAAB0031	TLACPAAC0031	TLACFABA0031
	L = 5 m	TLACPAAA0051	TLACPAAB0051	TLACPAAC0051	TLACFABA0051
	L = 10 m	TLACPAAA0101	TLACPAAB0101	TLACPAAC0101	TLACFABA0101
	L = 15 m	TLACPAAA0151	TLACPAAB0151	TLACPAAC0151	TLACFABA0151
	L = 20 m	TLACPAAA0201	TLACPAAB0201	TLACPAAC0201	TLACFABA0201

## Accurate and reliable control of motors and electrical circuits

**TeSys**, **Altistart** and **Altivar** ranges provide you more *simplicity*, *compactness*, *openness* and *flexibility*: ready to use versions, PowerSuite software workshop, large choice of communication networks...

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For *each application*, a *solution* in soft starting and variable speed

Simple machines >>> *compact*



Starters  
**Altistart 01**  
■ 0.37 to 75 kW



Drives  
**Altivar 11**  
■ 0.18 to 2,2 kW



Drives  
**Altivar 31**  
■ 0.18 to 15 kW

Pumping and ventilation machines >>> *tailor-made*



Starters  
**Altistart 48**  
■ 4 to 1200 kW



Drives  
**Altivar 38**  
■ 0.75 to 315 kW

Complex machines, high power >>> *high performance*



Drives  
**Altivar 71**  
■ 0,37 to 500 kW

**The essential guide**  
A *simplified selection guide enabling you to quickly select motor starters.*

# Contents

## Motor control components

### TeSys contactors ..... 5/2 to 5/11

- Contactors, **models k, d, F, b**
- Variable composition contactors, **model CV**

### TeSys protection components ..... 5/12 to 5/31

- Thermal-magnetic circuit-breakers
- Magnetic circuit-breakers
- Fuse carriers, switch-disconnector-fuses
- Thermal overload relays
- Electronic thermal overload relays
- Electronic overload relays
- Multifunction protection relays
- Switch disconnectors **Mini Vario and Vario**

### TeSys starters ..... 5/32 to 5/39

- Combination motor starters
- Starter-controller, **Model U**
- Controller, **Model U**
- Enclosed motor starters

### Installation system ..... 5/40 to 5/41

- For motor starter components with spring terminals, **Quickfit** technology

## Components for power control applications ..... 5/42 to 5/48

- Lighting, capacitor switching, heating, changeover contactor pairs

## Soft starters and variable speed drives

### Altistart / Altivar selection guide ..... 5/49 to 5/51

- Soft starters **Altistart 01** ..... 5/52 to 5/53
- Soft starters **Altistart 48** ..... 5/54 to 5/55
- Variable speed drives **Altivar 11** ..... 5/56 to 5/57
- Variable speed drives **Altivar 31** ..... 5/58 to 5/59
- Variable speed drives **Altivar 38** ..... 5/60 to 5/61
- Variable speed drives **Altivar 71** ..... 5/62 to 5/67
  
- Dialogue and communication ..... 5/68 to 5/71



### PowerSuite:

With a single software programme, you can configure all Altistart and TeSys® model U starters and all Altivar drives.

Customise your settings with the **minimum of effort!**

- Simplified definition of the parameters
- Preparation and printing out of the configurations
- Comparison of files
- Quick reproduction of settings on all similar applications
- Remote monitoring, etc.





### Connections

#### ■ screw clamp terminals

Rated operational current	le max AC-3 (Ue ≤ 440V)	6 A	9 A	12 A
	le AC-1 (θ ≤ 40° C)	-	20 A	-
Rated operational power	220/240 V	1.5 kW	2.2 kW	3 kW
	in category AC3	380/400 V...415/440 V	2.2 kW	4 kW
	660/690 V...500 V	3 kW	4 kW	4 kW
Contactor type <sup>(1)*</sup>	~	LC1-K06**	LC1-K09**	LC1-K12**
	≡	LP1-K06** or LP4-K06**	LP1-K09 or LP4-K09**	LP1-K12 or LP4-K12**
Reversing contactor type *	~	LC2-K06	LC2-K09	LC2-K12
	≡	LP2-K06 or LP5-K06	LP2-K09 or LP5-K09	LP2-K12 or LP5-K12

#### ■ spring terminals

Add the figure 3 before the voltage code. Example LC1-K0610\*\* becomes LC1-K06103\*\*

#### ■ Faston connectors, 1 x 6.35 or 2 x 2.8

Add the figure 7 before the voltage code. Example LC1-K0610\*\* becomes LC1-K06107\*\*

#### ■ solder pins for printed circuit boards

Add the figure 5 before the voltage code. Example LC1-K0610\*\* becomes LC1-K06105\*\*

(1) Basic reference, to be completed by adding 01 for N/C auxiliary contact, or 10 for N/O auxiliary contact.

\* Basic reference to be completed by adding the coil voltage

### Standard control circuit voltages

#### ~ supply

##### Contactors LC1-K (0.8...1.15 Uc) (0.85...1.1 Uc)

Volts	12	20	24	36	42	48	110	115	120	127	200/208	220/230	230	230/240
50/60 Hz	J7	Z7	B7	C7	D7	E7	F7	FE7	G7	FC7	L7	M7	P7	U7
Volts	256	277	380/400	400	400/415	440	480	500	575	600	660/690			
50/60 Hz	W7	UE7	Q7	V7	N7	R7	T7	S7	SC7	X7	Y7			

Example of complete reference LC1-K0910P7

#### ≡ supply

##### Contactors LP1-K (0.8...1.15 Uc)

Volts	12	20	24	36	48	60	72	100	110	125	155	174	200	220	230	240	250
Code	JD	ZD	BD	CD	ED	ND	SD	KD	FD	GD	PD	QD	LD	MD	MPD	MUD	UD

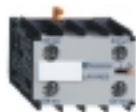
Coil with integral suppression device available, add 3 to the code required. Example JD3

#### Low consumption

##### Contactors LP4-K (0.7...1.30 Uc), coil suppression as standard

Volts	12	20	24	48	72	110	120
Code	JW3	ZW3	BW3	EW3	SW3	FW3	GW3

Example of complete reference LC1-K0910BD



## Auxiliary contact blocks

### ■ instantaneous, screw clamp connections

	■ for LC1, LP1-K, LP4			■ for LC1, LP1-K				
Composition	2N/O	- 2N/C	1N/O 1N/C	4N/O	3N/O 1N/C	2N/C 2N/C	1N/O 3N/C	- 4N/C
Reference	LA1-KN20	LA1-KN02	LA1-KN11	LA1-KN40	LA1-KN31	LA1-KN22	LA1-KN13	LA1-KN04

### ■ electronic time delay

Relay outputs, with common point changeover contact,  $\sim$  or  $\equiv$  24...48, 2 A maximum

Control voltage 0.85...1.1Uc

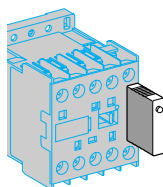
Maximum switching capacity 250 VA or 150 W

Operating temperature -10...+60°C

Reset time: 1.5 s for 0.5 s after the time delay period

Type	On-delay	
Timing range	1...30 s	
Composition	1	
Voltage	$\sim$ or $\equiv$ 24...48 V	$\sim$ 110...240
Reference	LA2-KT2E	LA2-KT2U

5



## Suppressor modules

### For LC1, LP1-K

Type	Varistor ( $\sim$ and $\equiv$ )				Diode ( $\equiv$ ) + zener		RC ( $\sim$ )
Voltage	12...24 V	32...48 V	50...129 V	130...250 V	12...24 V	32...48 V	220...250 V
Reference	LA4-KE1B	LA4-KE1E	LA4-KE1FC	LA4-KE1UG	LA4-KC1B	LA4-KC1E	LA4-KA1U



### Connections

#### ■ screw clamp terminals or connectors

<b>Rated operational voltage</b>		690 V				
<b>Rated operational current</b>	le max AC-3 (U <sub>e</sub> ≤ 440V)	9 A	12 A	18 A	25 A	32 A
	le AC-1 (θ ≤ 60° C)	25 A		32 A	40 A	50 A
<b>Rated operational power</b>	220/240 V	2.2 kW	3 kW	4 kW	5.5 kW	7.5 kW
<b>in category AC3</b>	380/400 V	4 kW	5.5 kW	7.5 kW	11 kW	15 kW
	415/440 V	4 kW	5.5 kW	9 kW	11 kW	15 kW
	500 V	5.5 kW	7.5 kW	10 kW	15 kW	18.5 kW
	660/690 V	5.5 kW	7.5 kW	10 kW	15 kW	18.5 kW
	1000 V	-	-	-	-	-
<b>Contactor type *</b>		<b>LC1-D09</b>	<b>LC1-D12</b>	<b>LC1-D18</b>	<b>LC1-D25</b>	<b>LC1-D32</b>
<b>Reversing contactor type * with mechanical interlock</b>		<b>LC2-D09</b>	<b>LC2-D12</b>	<b>LC2-D18</b>	<b>LC2-D25</b>	<b>LC2-D32</b>

#### ■ spring terminals <sup>(1)</sup>

Add the figure 3 before the voltage code. Example **LC1-D09P7** becomes **LC1-093P7**

#### ■ lug-clamps <sup>(2)</sup>

Add the figure 6 before the voltage code. Example **LC1-D09P7** becomes **LC1-096P7**

#### ■ Faston connectors <sup>(3)</sup> 2 x 6.35 (power) and 1 x 6.35 (control) up to D12 only

Add the figure 9 before the voltage code. Example **LC1-D09P7** becomes **LC1-099P7**

\* Basic reference to be completed by adding the coil voltage



(1)



(2)



(3)

### Standard control circuit voltages

#### ~ supply

Volts	24	42	48	110	115	220	230	240	380	400	415	440	500
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**Contactors LC1-D09...D50** (coils D115 and D150 with integral suppression device fitted as standard)

50/60 Hz	<b>B7</b>	<b>D7</b>	<b>E7</b>	<b>F7</b>	<b>FE7</b>	<b>M7</b>	<b>P7</b>	<b>U7</b>	<b>Q7</b>	<b>V7</b>	<b>N7</b>	<b>R7</b>	-
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**Contactors LC1-D40...D115**

50 Hz	<b>B5</b>	<b>D5</b>	<b>E5</b>	<b>F5</b>	<b>FE5</b>	<b>M5</b>	<b>P5</b>	<b>U5</b>	<b>Q5</b>	<b>V5</b>	<b>N5</b>	<b>R5</b>	<b>S5</b>
60 Hz	<b>B6</b>	-	<b>E6</b>	<b>F6</b>	-	<b>M6</b>	-	<b>U6</b>	<b>Q6</b>	-	-	<b>R6</b>	-

#### --- supply

Volts	12	24	36	48	60	72	110	125	220	250	440
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**Contactors LC1-D09...D38** (coils with integral suppression device fitted as standard)

U 0.7...1.25 U <sub>c</sub>	<b>JD</b>	<b>BD</b>	<b>CD</b>	<b>ED</b>	<b>ND</b>	<b>SD</b>	<b>FD</b>	<b>GD</b>	<b>MD</b>	<b>UD</b>	<b>RD</b>
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**Contactors LC1-D40...D95**

U 0.85...1.1 U <sub>c</sub>	<b>JD</b>	<b>BD</b>	<b>CD</b>	<b>ED</b>	<b>ND</b>	<b>SD</b>	<b>FD</b>	<b>GD</b>	<b>MD</b>	<b>UD</b>	<b>RD</b>
U 0.75...1.2 U <sub>c</sub>	<b>JW</b>	<b>BW</b>	<b>CW</b>	<b>EW</b>	-	<b>SW</b>	<b>FW</b>	-	<b>MW</b>	-	-

**Contactors LC1-D115 and D150** (coils with integral suppression device fitted as standard)

U 0.75...1.2 U <sub>c</sub>	-	<b>BD</b>	-	<b>ED</b>	<b>ND</b>	<b>SD</b>	<b>FD</b>	<b>GD</b>	<b>MD</b>	<b>UD</b>	<b>RD</b>
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#### Low consumption

**Contactors LC1-D09...D38** (coils with integral suppression device fitted as standard)

Volts ---	5	12	20	24	48	110	120	250
U 0.7...1.25 U <sub>c</sub>	<b>AL</b>	<b>JL</b>	<b>ZL</b>	<b>BL</b>	<b>EL</b>	<b>FL</b>	<b>ML</b>	<b>UL</b>

Example of complete reference **LC1-D09P7**



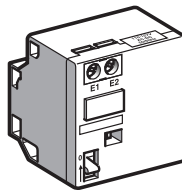


	1 000 V on ~ supply, 690 V on ≡ supply						
38 A	40 A	50 A	65 A	80 A	95 A	115 A	150 A
	60 A	80 A		125 A		200 A	
9 kW	11 kW	15 kW	18.5 kW	22 kW	25 kW	30 kW	40 kW
18.5 kW	18.5 kW	22 kW	30 kW	37 kW	45 kW	55 kW	75 kW
18.5 kW	22 kW	25/30 kW	37 kW	45 kW	45 kW	59 kW	80 kW
18.5 kW	22 kW	30 kW	37 kW	55 kW	55 kW	75 kW	90 kW
18.5 kW	30 kW	33 kW	37 kW	45 kW	45 kW	80 kW	100 kW
-	22 kW	30 kW	37 kW	45 kW	45 kW	75 kW	90 kW
<b>LC1-D38</b>	<b>LC1-D40</b>	<b>LC1-D50</b>	<b>LC1-D65</b>	<b>LC1-D80</b>	<b>LC1-D95</b>	<b>LC1-D115</b>	<b>LC1-D150</b>
<b>LC2-D38</b>	<b>LC2-D40</b>	<b>LC2-D50</b>	<b>LC2-D65</b>	<b>LC2-D80</b>	<b>LC2-D95</b>	<b>LC2-D115</b>	<b>LC2-D150</b>

### Mounting accessories for 3-pole reversing contactors

2 identical contactors with screw clamp terminals or connectors, horizontally mounted

Mechanical interlock	Set of connections	Mechanical interlock
<ul style="list-style-type: none"> <li>with an electrical interlocking kit for the contactors</li> </ul>		
LC1-D09...D38	LAD-9R1V	included
<ul style="list-style-type: none"> <li>with integral electrical interlocking</li> </ul>		
LC1-D40...D65	LA9-D6569	LA9-D4002
LC1-D80 and D95 (~)	LA9-D8069	LA9-D4002
LC1-D80 and D95 (≡)	LA9-D8069	LA9-D8002
LC1-D115 and D150	LA9-D11569	LA9-D11502
<ul style="list-style-type: none"> <li>without electrical interlocking</li> </ul>		
LC1-D09...D38	LA9-9R1	included
LC1-D40...D65	LA9-D6569	LA9-D50978
LC1-D80 and D95 (~)	LA9-D8069	LA9-D50978
LC1-D80 and D95 (≡)	LA9-D8069	LA9-D80978



### Mechanical latch blocks

Clip-on front mounting, manual or electrical unlatching control

For use on contactor	Reference	Standard control circuit voltages
LC1-D40...D65 3P ~ or ≡, LC1-D65 4P ~, LC1-D65 4P ≡	LA6-DK10•	B E F M Q
LC1-D80...D150 3P ~, LC1-D80 and D115 3P ~, LC1-D115 4P ≡	LA6-DK20•	B E F M Q
LC1-D09...D38 ~ or ≡, LC1-DT20...DT40 ~ or ≡	LA6-6K10•	B E F M Q



**Auxiliary contact blocks**

■ instantaneous, for connection by screw clamp terminals

■ time delay

■ front mounting				■ side mounting				■ front mounting		
Composition	Reference	Composition	Reference	Composition	Reference	Composition	Reference	Type	Range	Reference
N/O N/C		N/O N/C		N/O N/C		N/O N/C				
1 -	<b>LAD-N10</b>	1 1	<b>LAD-N11</b>	2 2	<b>LAD-N22</b>	1 1	<b>LAD-8N11</b>	On-delay	0.1...3 s	<b>LAD-T0</b>
- 1	<b>LAD-N01</b>	2 -	<b>LAD-N20</b>	1 3	<b>LAD-N13</b>	2 -	<b>LAD-8N20</b>		0.1...30 s	<b>LAD-T2</b>
		- 2	<b>LAD-N02</b>	4 -	<b>LAD-N40</b>	- 2	<b>LAD-8N02</b>		10...180 s	<b>LAD-T4</b>
				- 4	<b>LAD-N04</b>			Off-delay	0.1...3 s	<b>LAD-R0</b>
				3 1	<b>LAD-N31</b>				0.1...30 s	<b>LAD-R2</b>
									10...180 s	<b>LAD-R4</b>

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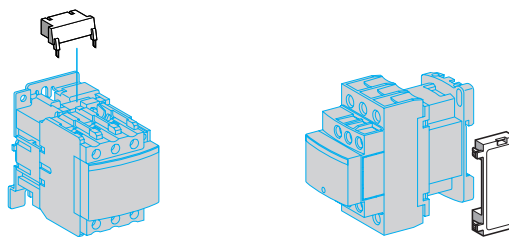
**Maximum number of auxiliary contacts that can be fitted**

Contactors

Type	Instantaneous auxiliary contact blocks					Time delay
	Number of poles and size	Side mounting	Front mounting			Front mounting
			1 contact	2 contacts	4 contacts	
~	3P <b>LC1-D09...D38</b>	1 on LH side and	-	1	or 1	or 1
	<b>LC1-D40...D95</b> (50/60 Hz)	1 on each side or	2	and 1	or 1	or 1
	<b>LC1-D40...D95</b> (50 or 60 Hz)	1 on each side and	2	and 1	or 1	or 1
	<b>LC1-D115 and D150</b>	1 on LH side	-	and 1	or 1	or 1
	4P <b>LC1-DT20...DT40</b>	1 on LH side	-	1	or 1	or 1
	<b>LC1-D65 and D80</b>	1 on each side or	1	or 1	or 1	or 1
	<b>LC1-D115</b>	1 on each side and	1	or 1	or 1	or 1
≡	3P <b>LC1-D09...D38</b>	-	-	1	or 1	or 1
	<b>LC1-D40...D95</b>	-	1	or 1	or 1	or 1
	<b>LC1-D115 and D150</b>	1 on LH side and	-	1	or 1	or 1
	4P <b>LC1-DT20...DT40</b>	-	-	1	or 1	or 1
	<b>LP1-D65 and D80</b>	-	2	and 1	or 1	or 1
	<b>LC1-D115</b>	1 on each side	-	and 1	or 1	or 1
	Low Consumption	3P <b>LC1-D09...D38</b>	-	-	1	-
	4P <b>LC1-DT20...DT40</b>	-	-	1		







## Suppressor modules

### Varistors (peak limiting)

Protection provided by limiting the transient voltage to 2 Uc max.

Maximum reduction of transient voltage peaks.

Slight increase in drop-out time (1.1 to 1.5 times the normal time)

Mounting	For use with contactor	Type		Reference	
		V ~	V =		
Clip-on	D09...D38 (3P)	12...24 V	-	LAD-4VE	
	DT20...DT40	50...127 V	-	LAD-4VG	
		110...240 V	-	LAD-4VU	
Screw fixing	D40...D115 (3P)	24...48 V	-	LA4-DE2E	
		50...127 V	-	LA4-DE2G	
	and	D65...D115 (4P)	110...250 V	-	LA4-DE2U
			D40...D115 (3P)	-	24...48 V
	and	D65...D115 (4P)		-	50...127 V
			-	110...250 V	LA4-DE3U

### Diodes

No overvoltage or oscillating frequency.

Increase in drop-out time (6 to 10 times the normal time).

Polarised component.

Screw fixing	D40...D95 (3P)	-	24...250 V	LA4-DC3U
	D65 and D80 (4P)	-		

### Bidirectional peak limiting diode

Protection provided by limiting the transient voltage to 2 Uc max.

Maximum reduction of transient voltage peaks.

Clip-on	D09...D38 (3P)	24 V	-	LAD-4TB	
	DT20...DT40	72 V	-	LAD-4TS	
Screw fixing	D40...D95 (3P)	24 V	-	LA4-DB2B	
		72 V	-	LA4-DB2S	
	and	D65 and D80 (4P)	-	24 V	LA4-DB3B
			-	72 V	LA4-DB3S

### RC circuits (Resistor-Capacitor)

Effective protection for circuits highly sensitive to "high frequency" interference.

For use only in cases where the voltage is virtually sinusoidal, i.e. less than - 5% total harmonic distortion.

Voltage limited to 3 Uc max and oscillating frequency limited to 400 Hz max.

Slight increase in drop-out time (1.2 to 2 times the normal time)

Clip-on	D09...D38 (3P)	12...24 V	-	LAD-4RCE	
	DT20...DT40	110...240 V	-	LAD-4RCU	
Screw fixing	D40...D150 (3P)	24...48 V	-	LA4-DA2E	
		50...127 V	-	LA4-DA2G	
	and	D65...D115 (4P)	110...240 V	-	LA4-DA2U
			380...415 V	-	LA4-DA2N



<b>Rated operational current</b>	le max AC-3 (U <sub>e</sub> ≤ 440V)	185 A	225 A	265 A	330 A
	le AC-1 (θ ≤ 40° C)	275 A	315 V	350 A	400 A
<b>Rated operational voltage</b>		1 000 V	1 000 V	1 000 V	1 000 V
<b>Number of poles</b>		3 or 4	3 or 4	3 or 4	3 or 4
<b>Rated operational power</b>	220/240 V	55 kW	63 kW	75 kW	100 kW
<b>in category AC3</b>	380/400 V	90 kW	110 kW	132 kW	160 kW
	415 V	100 kW	110 kW	140 kW	180 kW
	440 V	100 kW	110 kW	140 kW	200 kW
	500 V	110 kW	129 kW	160 kW	200 kW
	660/690 V	110 kW	129 kW	160 kW	220 kW
	1000 V	100 kW	100 kW	147 kW	160 kW
<b>Contactor type*</b>		<b>LC1-F185</b>	<b>LC1-F225</b>	<b>LC1-F265</b>	<b>LC1-F330</b>
<b>Reversing contactor type*</b>		<b>LC2-F185</b>	<b>LC2-F225</b>	<b>LC2-F265</b>	

\* Basic reference to be completed by adding the coil voltage

### Standard control circuit voltages

~ supply

Volts	24	48	110	115	120	208	220	230	240	380	400	415	440
<b>Contactors LC1-F115...F225 (0.85...1.1UC)</b>													
50 Hz (coil LX1)	<b>B5</b>	<b>E5</b>	<b>F5</b>	<b>FE5</b>	-	-	<b>M5</b>	<b>P5</b>	<b>U5</b>	<b>Q5</b>	<b>V5</b>	<b>N5</b>	-
60 Hz (coil LX1)	-	<b>E6</b>	<b>F6</b>	-	<b>G6</b>	<b>L6</b>	<b>M6</b>	-	<b>U6</b>	<b>Q6</b>	-	-	<b>R6U7</b>
40...400 Hz (coil LX9)	-	<b>E7</b>	<b>F7</b>	<b>FE7</b>	<b>G7</b>	<b>L7</b>	<b>M7</b>	<b>P7</b>	<b>U7</b>	<b>Q7</b>	<b>V7</b>	<b>N7</b>	<b>R7</b>
<b>Contactors LC1-F265...F330 U7</b>													
40...400 Hz (coil LX1)	<b>B7</b>	<b>E7</b>	<b>F7</b>	<b>FE7</b>	<b>G7</b>	<b>L7</b>	<b>M7</b>	<b>P7</b>	<b>U7</b>	<b>Q7</b>	<b>V7</b>	<b>N7</b>	<b>R7</b>
<b>Contactors LC1-F400...F630 U7</b>													
40...400 Hz (coil LX1)	-	<b>E7</b>	<b>F7</b>	<b>FE7</b>	<b>G7</b> <sup>(1)</sup>	<b>L7</b>	<b>M7</b>	<b>P7</b>	<b>U7</b>	<b>Q7</b>	<b>V7</b>	<b>N7</b>	<b>R7</b>
<b>Contactor LC1-F780 U7</b>													
40...400 Hz (coil LX1)	-	-	<b>F7</b>	<b>FE7</b>	<b>F7</b>	<b>L7</b>	<b>M7</b>	<b>P7</b>	<b>U7</b>	<b>Q7</b>	<b>V7</b>	<b>N7</b>	<b>R7</b>
<b>Contactor LC1-F800 U7</b>													
40...400 Hz (coil LX1)	-	-	<b>FE7</b>	<b>FE7</b>	<b>FE7</b>	-	<b>P7</b>	<b>P7</b>	<b>P7</b>	<b>V7</b>	<b>V7</b>	<b>V7</b>	<b>V7Y7</b>

= supply

Volts	24	48	110	125	220	230	250	400	440
<b>Contactors LC1-F115...F330 (0.85...1.1UC)</b>									
(coil LX4-F)	<b>BD</b>	<b>ED</b>	<b>FD</b>	<b>GD</b>	<b>MD</b>	<b>MD</b>	<b>UD</b>	-	<b>RD</b>
<b>Contactors LC1-F400...F630 (0.85...1.1UC)</b>									
(coil LX4-F)	-	<b>ED</b>	<b>FD</b>	<b>GD</b>	<b>MD</b>	-	<b>UD</b>	-	<b>RD</b>
<b>Contactor LC1-F780 (0.85...1.1UC)</b>									
(coil LX4-F)	-	-	<b>FD</b>	<b>GD</b>	<b>MD</b>	-	<b>UD</b>	-	<b>RD</b>
<b>Contactor LC1-F800 (0.85...1.1UC)</b>									
(coil LX4-F)	-	-	<b>FW</b>	<b>FW</b>	<b>MW</b>	<b>MW</b>	-	<b>QW</b>	-

Example: For a 630 A contactor with a 110 V ~ coil, order **LC1-F630F7**

(1) F7 for LC1-F630





400 A	500 A	630 A	780 A	800 A
500 A	700 A	1 000 A	1 600 A	1 000 A
1 000 V	1 000 V	1 000 V	1 000 V	1 000 V
2, 3 or 4	2, 3 or 4	2, 3 or 4	3 or 4	3
110 kW	147 kW	200 kW	220 kW	250 kW
200 kW	250 kW	335 kW	400 kW	450 kW
220 kW	280 kW	375 kW	425 kW	450 kW
250 kW	295 kW	400 kW	425 kW	450 kW
257 kW	355 kW	400 kW	450 kW	450 kW
280 kW	335 kW	450 kW	475 kW	475 kW
185 kW	335 kW	450 kW	450 kW	450 kW
<b>LC1-F400</b>	<b>LC1-F500</b>	<b>LC1-F630</b>	<b>LC1-F780</b>	<b>LC1-F800</b>

For customer assembly



### Auxiliary contact blocks

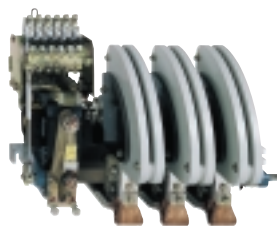
instantaneous				dust & damp protected contacts				time delay 1N/O + 1 N/C		
Composition	Reference	Composition	Reference	Composition	Reference	Composition	Reference	Type	Range	Reference
N/O N/C		N/O N/C		N/O N/C		N/O N/C				
1 -	<b>LAD-N10</b>	1 1	<b>LAD-N11</b>	2 2	<b>LAD-N22</b>	2 - - -	<b>LA1-DX20</b>	On-delay	0.1...3 s	<b>LAD-T0</b>
- 1	<b>LAD-N01</b>	2 -	<b>LAD-N20</b>	1 3	<b>LAD-N13</b>	2 2 - -	<b>LA1-DY20</b>		0.1...30 s	<b>LAD-T2</b>
		- 2	<b>LAD-N02</b>	4 -	<b>LAD-N40</b>	2 - 2 -	<b>LA1-DZ40</b>		10...180 s	<b>LAD-T4</b>
				- 4	<b>LAD-N04</b>	2 - 1 1	<b>LA1-DZ31</b>		1...30 s	<b>LAD-S2</b>
				3 1	<b>LAD-N31</b>			Off-delay	0.1...3 s	<b>LAD-R0</b>
				2 2	<b>LAD-C22</b>				0.1...30 s	<b>LAD-R2</b>
									10...180 s	<b>LAD-R4</b>

### Mounting accessories for 3-pole reversing contactors for motor control

2 identical contactors, horizontally mounted

#### Mechanical interlock with an electrical interlocking kit for the contactors

Contactor type	Set of connections	Mechanical interlock
<b>LC1-F115</b>	<b>LA9-FF976</b>	<b>LA9-FF970</b>
<b>LC1-F150</b>	<b>LA9-F15076</b>	<b>LA9-FF970</b>
<b>LC1-F185</b>	<b>LA9-FG976</b>	<b>LA9-FG970</b>
<b>LC1-F225</b>	<b>LA9-F22576</b>	<b>LA9-FG970</b>
<b>LC1-F265</b>	<b>LA9-FH976</b>	<b>LA9-FJ970</b>
<b>LC1-F330</b>	<b>LA9-FJ976</b>	<b>LA9-FJ970</b>
<b>LC1-F400</b>	<b>LA9-FJ976</b>	<b>LA9-FJ970</b>
<b>LC1-F500</b>	<b>LA9-FK976</b>	<b>LA9-FJ970</b>
<b>LC1-F630 or LC1-F800</b>	<b>LA9-FL976</b>	<b>LA9-FL970</b>



<b>Rated operational current</b>	le max AC-3 (Ue ≤ 440V)	750 A	1000 A	1500 A	1800 A
	le AC-1 (θ ≤ 40° C)	800 A	1250 V	2000 A	2750A
<b>Rated operational voltage</b>		1 000 V	1 000 V	1 000 V	1 000 V
<b>Number of poles</b>		1 to 4	1 to 4	1 to 4	1 to 4
<b>Rated operational power</b>	220/240 V	220 kW	280 kW	425 kW	500 kW
<b>in category AC3</b>	380/400 V	400 kW	500 kW	750 kW	900 kW
	415 V	425 kW	530 kW	800 kW	900 kW
	440 V	450 kW	560 kW	800 kW	900 kW
	500 V	500 kW	600 kW	700 kW	900 kW
	660/690 V	560 kW	670 kW	750 kW	900 kW
	1000 V	530 kW	530 kW	670 kW	750 kW
4 instantaneous contact configurations					
2 N/C + 2 N/O, 3 N/O + 1 N/C, 1 N/O + 3 N/C or 4 N/O					
<b>Contactor type*</b>		<b>LC1-BL</b>	<b>LC1-BM</b>	<b>LC1-BP</b>	<b>LC1-BR</b>

\* Basic reference to be completed by adding the coil voltage, followed by the instantaneous contact configuration.

<b>Standard control circuit voltages</b> (for other voltages, please consult your Regional Sales Office)												
Volts	48	110	125	127	220	230	240	380	400	415	440	500
~ 50...400 Hz	-	<b>F</b>	-	<b>G</b>	<b>M</b>	<b>P</b>	<b>U</b>	<b>Q</b>	<b>V</b>	<b>N</b>	<b>R</b>	<b>S</b>
☰	<b>ED</b>	<b>FD</b>	<b>GD</b>	-	<b>MD</b>	-	-	-	-	-	<b>RD</b>	-

Example: To order a 1500 A contactor with 127 V ~ coil with 3 N/O + 1 N/C, select **LC1-BP33G31**

<b>Mounting accessories</b>		
Description	For contactor	Reference
<b>Bar support bracket</b>	<b>LC1-BL to BR</b>	<b>LA9-B103</b>
for mounting on 120 or 150 mm centres		
<b>Mechanical interlock and locking device components</b>	<b>LC1-B</b>	<b>EZ2-LB0601</b>



Reference to compiled by the customer

Contactor type, according to required use		CV1-B																		
~ supply 690 V, = supply 220 V/pole																				
~ supply 1000 V, = supply 440 V/pole																				
<b>Contactor rating</b>	CV1: 80 A	CV3: 80 A																		
	CV1: 200 A	CV3: 170 A																		
	CV1: 300 A	CV3: 250 A																		
	CV1: 470 A	CV3: 320 A																		
	CV1: 630 A	CV3: 500 A																		
	CV1: 1000 A																			
<b>Number of poles (PN1 main poles for CV1 and PA3 main poles for CV3)</b>																				
Normally Open main poles	1 N/O				1															
	2 N/O				2															
	3 N/O				3															
	4 N/O				4															
	5 N/O				5															
Normally Closed main poles	1 N/C								1											
	2 N/C								2											
	3 N/C								3											
No main poles					0	Z			0	Z										
<b>Operational current</b>	10 A							E		E										
	20 A							N		N										
	40 A							P		P										
	80 A							F		F										
	125 A							R		R										
	170 A							W		W										
	200 A							G		G										
	250 A							S		S										
	300 A							H		H										
	320 A							T		T										
	470 A							J		J										
	500 A							V		V										
	630 A							K		K										
	1000 A							L		L										
<b>Control circuit voltage</b>	48 V													E						
	110 V													F						
	120 V													K						
	208 V													L						
	220 V													M						
	230 V													P						
	240 V													U						
	380 V													Q						
	400 V													V						
	440 V													R						
<b>Operating frequency</b>	50 Hz																		5	
	60 Hz																		6	
	50/60 Hz																		7	
	---																		D	
	--- + economy resistor																		R	
<b>Instantaneous auxiliary contacts</b>																				
<b>Normally Open</b>	1 N/O																			1
	2 N/O																			2
	3 N/O																			3
	4 N/O																			4
<b>Normally Closed</b>	1 N/C																			1
	2 N/C																			2
	3 N/C																			3
	4 N/C																			4
Without instantaneous contact																			0	0
On-delay	1 C/O																			J
Off-delay	1 C/O																			N

Example 1/ for single-phase capacitor switching: 400 V - 80 A - 1 N/O pole - Control circuit 220 V / 50 Hz, 1 N/O and 1 1N/C auxiliary contacts: **CV1-BF1F0ZM511**.

2/ for heating circuits, d.c. supply 800 V - 150 A - 2 N/O poles - Control circuit 48 V --- , 1 N/O + 1 N/O On-delay auxiliary contacts: **CV3-BG2W0ZED10J**



**Thermal-magnetic circuit-breakers GV2-ME and GV2-P for connection by screw clamp terminals**

GV2-ME with pushbutton control, GV2-P control by rotary knob

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Setting range	Magnetic	Reference	
400/415 V			500 V			690 V			of thermal	tripping		
P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	trips	current		
kW	kA		kW	kA		kW	kA		A	A (d ± 20%)		
-	-	-	-	-	-	-	-	-	0.1...0.16	1.5	GV2-ME01	GV2-P01
0.06	★	★	-	-	-	-	-	-	0.16...0.25	2.4	GV2-ME02	GV2-P02
0.09	★	★	-	-	-	-	-	-	0.25...0.40	5	GV2-ME03	GV2-P03
0.12	★	★	-	-	-	0.37	★	★	0.40...0.63	8	GV2-ME04	GV2-P04
0.18	★	★	-	-	-	-	-	-	0.40...0.63	8	GV2-ME04	GV2-P04
0.25	★	★	-	-	-	0.55	★	★-	0.63...1	13	GV2-ME05	GV2-P05
0.37	★	★	0.37	★	★	-	-	-	1...1.6	22.5	GV2-ME06	GV2-P06
0.55	★	★	0.55	★	★	0.75	★	★	1...1.6	22.5	GV2-ME06	GV2-P06
-	-	-	0.75	★	★	1.1	★	★	1...1.6	22.5	GV2-ME06	GV2-P06
0.75	★	★	1.1	★	★	1.5	3	75	1.6...2.5	33.5	GV2-ME07	
0.75	★	★	1.1	★	★	1.5	8	100	1.6...2.5	33.5		GV2-P07
1.1	★	★	1.5	★	★	2.2	3	75	2.5...4	51	GV2-ME08	
1.1	★	★	1.5	★	★	2.2	8	100	2.5...4	51		GV2-P08
1.5	★	★	2.2	★	★	3	3	75	2.5...4	51	GV2-ME08	
1.5	★	★	2.2	★	★	3	3	100	2.5...4	51		GV2-P08
2.2	★	★	3	50	100	4	3	75	4...6.3	78	GV2-ME10	
2.2	★	★	3	★	★	4	6	100	4...6.3	78		GV2-P10
3	★	★	4	10	100	5.5	3	75	6...10	138	GV2-ME14	
3	★	★	4	50	100	5.5	6	100	6...10	138		GV2-P14
4	★	★	5.5	10	100	7.5	3	75	6...10	138	GV2-ME14	
4	★	★	5.5	50	100	7.5	6	100	6...10	138		GV2-P14
5.5	15	50	7.5	6	75	9	3	75	9...14	170	GV2-ME16	
5.5	★	★	7.5	42	75	9	6	100	9...14	170		GV2-P16
-	-	-	-	-	-	11	3	75	9...14	170	GV2-ME16	
-	-	-	-	-	-	11	6	100	9...14	170		GV2-P16
7.5	15	50	9	6	75	15	3	75	13...18	223	GV2-ME20	
7.5	50	50	9	10	75	15	4	100	13...18	223		GV2-P20
9	15	40	11	4	75	18.5	3	75	17...23	327	GV2-ME21	
9	50	50	11	10	75	18.5	4	100	17...23	327		GV2-P21
11	15	40	15	4	75	-	-	-	20...25	327	GV2-ME22 <sup>(2)</sup>	
11	50	50	15	10	75	-	-	-	20...25	327		GV2-P22
15	10	50	18.5	4	75	22	3	75	24...32	416	GV2-ME32	
15	50	50	18.5	10	75	22	4	100	24...32	416		GV2-P32

★ > 100 kA

(1) as % of I<sub>cu</sub>

(2) combined with a recommended contactor

**Thermal-magnetic circuit-breakers GV2-ME for connection by spring terminals**

Add the figure 3 to the end of the reference. Example **GV2-ME223** (available up to **GV2-ME22**)





## Accessories

### Combination block

For mounting on	LC1-K or LP1-K	LC1-D09...D38	LAD-31 and LC1-D09...D38
	<b>GV2-AF01</b>	<b>GV2-AF3</b>	<b>GV2-AF4</b>

### Sets of 3-pole busbars

63 A	Pitch	45 mm	54 mm	72 mm
Number of tap-offs	2	<b>GV2-G245</b>	<b>GV2-G254</b>	<b>GV2-G272</b>
	3	<b>GV2-G345</b>	<b>GV2-G354</b>	
	4	<b>GV2-G445</b>	<b>GV2-G454</b>	<b>GV2-G472</b>
	5		<b>GV2-G554</b>	

### Protective end cover

For unused busbar outlets	<b>GV1-G10</b>	
---------------------------	----------------	--

### Terminal blocks

For supply to one or more GV2-G busbar sets	connection from the top	can be fitted with current limiter GV1-L3 (GV2-ME and GV2-P)
	<b>GV1-G09</b>	<b>GV1-G05</b>

### Padlockable external operator for GV2-P (150 to 290 mm)

Padlocking	In "On" and "Off" position	In "Off" position
Handle	black	red
Legend plate	blue	yellow
	IP 54	
	<b>GV2-AP01</b>	<b>GV2-AP02</b>

### Padlocking device

For all GV2 devices	For use with up to 6 padlocks (padlocks not supplied) Ø 6 mm shank max
	<b>GV2-V03</b>

5

## Add-on blocks

### Contact blocks

Contact types	N/O or N/C	N/O + N/C	N/O + N/O	(fault) + N/C	N/C + N/O	C/O common point
<b>Instantaneous auxiliary contacts</b>						
Mounting	front	<b>GV-AE1</b>	<b>GV-AE11</b>	<b>GV-AE20</b>		
	LH side		<b>GV-AN11</b>	<b>GV-AN20</b>		
<b>Fault signalling contact + instantaneous auxiliary contact</b>						
	LH side			<b>GV-AD1010</b>	<b>GV-AD1001</b>	<b>GV-AD0110</b>
					<b>GV-AD0101</b>	
<b>Short-circuit signalling contact</b>						
	LH side					<b>GV-AM11</b>

### Electric trips

<b>Undervoltage or shunt trips <sup>(1)</sup></b>			
Side mounting (1 block on RH side of circuit-breaker)	50 Hz	60 Hz	
Voltage	24 V	<b>GV-A*025</b>	<b>GV-A*026</b>
	48 V	<b>GV-A*055</b>	<b>GV-A*056</b>
	100 V	<b>GV-A*107</b>	
	100...110 V		<b>GV-A*107</b>
	110...115 V	<b>GV-A*115</b>	<b>GV-A*116</b>
	120...127 V	<b>GV-A*125</b>	
	127 V		<b>GV-A*115</b>
	200 V	<b>GV-A*207</b>	
	200...220 V		<b>GV-A*207</b>
	220...240 V	<b>GV-A*225</b>	<b>GV-A*226</b>
	380...400 V	<b>GV-A*385</b>	<b>GV-A*386</b>
	415...440 V	<b>GV-A*415</b>	
	415 V		<b>GV-A*416</b>

(1) Undervoltage trips: replace the • with U, shunt trips: replace the • with S



**Thermal-magnetic circuit-breakers GV3-ME for connection by screw clamp terminals**

**Pushbutton control**

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Setting range	Reference
400/415 V			500 V			660/690 V			of thermal	
P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	trips	
kW	kA		kW	kA		kW	kA		A	
0.37	100	100	0.37	100	100	0.75	100	100	1...1.6	<b>GV3-ME06</b>
0.55	100	100	0.55	100	100	1.1	100	100		
			0.75	100	100					
0.75	100	100	1.1	100	100	1.5	100	100	1.6...2.5	<b>GV3-ME07</b>
1.1	100	100	1.5	100	100	2.2	4	100	2.5...4	<b>GV3-ME08</b>
1.5	100	100	2.2	100	100	3	4	100		
2.2	100	100	3	100	100	4	4	100	4...6	<b>GV3-ME10</b>
3	100	100	4	8	100	5.5	4	100	6...10	<b>GV3-ME14</b>
4	100	100	5.5	8	100	7.5	4	100		
7.5	100	50	9	8	100	9	4	100	10...16	<b>GV3-ME20</b>
						11	4	100		
9	100	50	11	8	100	15	4	100	16...25	<b>GV3-ME25</b>
11	100	50	15	8	100	18.5	4	100		
15	35	50	18.5	8	75	22	4	75	25...40	<b>GV3-ME40</b> <sup>(2)</sup>
18.5	35	50	22	8	75	30	4	75		
22	35	50	30	8	75	37	4	75	40...63	<b>GV3-ME63</b> <sup>(2)</sup>
30	35	50	37	8	75	45	4	75		
37	15	50	45	4	100	55	2	100	56...80	<b>GV3-ME80</b> <sup>(2)</sup>

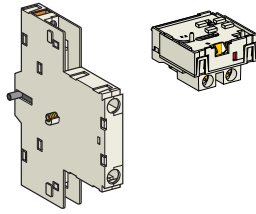
(1) as % of I<sub>cu</sub>

(2) combined with a recommended contactor

5







## Add-on blocks

### Contact blocks

#### Instantaneous auxiliary contacts (1 per breaker)

Normal early break type contacts	N/C + N/O	N/O + N/O	N/C + N/O + N/O	N/O + N/O + N/O	N/O + N/O <sup>(1)</sup>	N/C + N/O <sup>(1)</sup>
	<b>GV3-A01</b>	<b>GV3-A02</b>	<b>GV3-A03</b>	<b>GV3-A05</b>	<b>GV3-A06</b>	<b>GV3-A07</b>

#### Fault signalling contact

Normal early break type contacts	N/C	N/O
	<b>GV3-A08</b>	<b>GV3-A09</b>

### Electric trips

Voltage	50 Hz	110, 120, 127 V	220, 240 V	380, 415 V
	60 Hz	120, 127 V	277 V	440, 480 V
<b>Undervoltage trip</b>		<b>GV3-B11</b>	<b>GV3-B22</b>	<b>GV3-B38</b>
<b>Shunt trip</b>		<b>GV3-D11</b>	<b>GV3-D22</b>	<b>GV3-D38</b>

### Padlocking device

Start button (for bare device)	<b>GV1-V02</b>
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(1) + 2 volt free terminals



**Thermal-magnetic circuit-breakers GV7-R for connection by screw clamp terminals**

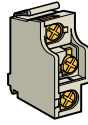
Control by rocker lever

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Setting range	Reference
400/415 V			500 V			660/690 V			of thermal	
P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	trips	
kW	kA		kW	kA		kW	kA		A	
7.5	25	100	9	18	100	11	8	100	12...20	GV7-RE20
9	25	100	11	18	100	15	8	100		
7.5	70	100	9	50	100	11	10	100	12...20	GV7-RS20
9	70	100	11	50	100	15	10	100		
9	25	100	11	18	100	15	8	100	15...25	GV7-RE25
11	25	100	15	18	100	18.5	8	100		
9	70	100	11	50	100	15	10	100	15...25	GV7-RS25
11	70	50	15	50	100	18.5	10	100		
18.5	25	100	18.5	18	100	22	8	100	25...40	GV7-RE40
			22	18	100					
18.5	70	100	18.5	50	100	22	10	100	25...40	GV7-RS40
22	25	100	30	18	100	30	8	100	30...50	GV7-RE50
37	25	100	45	18	100	55	8	100	48...80	GV7-RE80
			55	18	100					
37	70	100	45	50	100	55	10	100	48...80	GV7-RS80
			55	50	100					
45	25	100	-	18	100	75	8	100	60...100	GV7-RE100
45	70	100	-	50	100	75	10	100	60...100	GV7-RS100
55	35	100	75	30	100	90	8	100	90...150	GV7-RE150
75	70	100	90	30	100	110	8	100		
55	70	100	75	50	100	90	10	100	90...150	GV7-RS150
75	70	100	90	50	100	110	10	100		
90	35	100	110	30	100	160	8	100	132...220	GV7-RE220
110	35	100	132	30	100	200	8	100		
			160	30	100					
90	70	100	110	50	100	160	10	100	132...220	GV7-RS220

(1) as % of I<sub>cu</sub>

5





Add-on blocks						
Contact blocks						
<b>Auxiliary contacts</b>						
Contact type	C/O					
	GV7-AE11					
<b>Thermal or magnetic fault discrimination</b>						
	≈ 24...48 V or ≐ 24...72 V			≈ 110...240 V		
	GV7-AD111			GV7-AD112		
Electric trips						
Voltage	50/60 Hz	48 V	110... 130 V	200... 240 V	380...440 V	
	50 Hz					525 V
<b>Undervoltage trip</b> <sup>(1)</sup>		GV7-AU055	GV7-AU107	GV7-AU207	GV7-AU387	GV7-AU525
<b>Shunt trip</b> <sup>(1)</sup>		GV7-AS055	GV7-AS107	GV7-AS207	GV7-AS387	GV7-AS525

(1) For mounting of a GV7-AD or a GV7-AU or AS

Accessories			
<b>Terminal shields IP 405</b>			
Supplied with the sealing accessory	GV7-AC01		
<b>Phase barriers</b>			
Safety accessories used when fitting of shields is impossible	GV7-AC04		
<b>Insulating screens</b>			
Ensure insulation between the connections and the backplate	GV7-AC05		
<b>Kit for combination with contactor</b>			
Allowing link between the circuit-breaker and the contactor	LC1-F115 to F185	LC1-F225 and F26	LC1-D115 and D150
	GV7-AC06	GV7-AC07	GV7-AC08
<b>Rotary handles</b>			
Handle	black	red	
Legend plate	black	yellow	
■ direct	IP 40	GV7-AP03	GV7-AP04
■ extended	IP 55	GV7-AP01	GV7-AP02
<b>Conversion accessory</b>			
for mounting on enclosure door	IP 43	GV7-AP05	
<b>Locking device</b>			
For circuit-breaker not fitted with a rotary handle	GV7-V01		



**Magnetic circuit-breakers GV2-LE and GV2-L for connection by screw clamp terminals**

GV2-LE control by rocker lever, GV2-L control by rotary knob

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Magnetic protection	Tripping current	Use in association with thermal overload relay	Reference
400/415 V			500 V			690 V			rating	d ± 20%		
P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	A	A		
kW	kA		kW	kA		kW	kA					
0.06	★	★	-	-	-	-	-	-	0.4	5	LR2-K0302	GV2-LE03
0.09	★	★	-	-	-	-	-	-	0.4	5	LR2-K0304 or LRD-03	GV2-LE03 GV2-L03
0.12	★	★	-	-	-	0.37	★	★	0.63	8	LR2-K0304 or LRD-04	GV2-LE04 GV2-L04
0.18	★	★	-	-	-	-	-	-	0.63	8	LR2-K0305 or LRD-04	GV2-LE04 GV2-L04
-	-	-	-	-	-	0.55	★	★	1	13	LR2-K0305 or LRD-05	GV2-LE05 GV2-L05
0.25	★	★	-	-	-	-	-	-	1	13	LR2-K0306 or LRD-05	GV2-LE05 GV2-L05
-	-	-	-	-	-	0.75	★	★	1	13	LR2-K0306 or LRD-06	GV2-LE05 GV2-L05
0.37	★	★	0.37	★	★	-	-	-	1	13	LR2-K0306 or LRD-05	GV2-LE05 GV2-L05
0.55	★	★	0.55	★	★	1.1	★	★	1.6	22.5	LR2-K0307 or LRD-06	GV2-LE06 GV2-L06
-	-	-	0.75	★	★	-	-	-	1.6	22.5	LR2-K0307 or LRD-06	GV2-LE06 GV2-L06
0.75	★	★	1.1	★	★	1.5	3	75	2.5	33.5	LR2-K0308	GV2-LE07
0.75	★	★	1.1	★	★	1.5	4	100	2.5	33.5	LRD-07	GV2-L07
1.1	★	★	-	-	-	-	-	-	2.5	33.5	LR2-K0308 or LRD-08	GV2-LE08 GV2-L08
1.5	★	★	1.5	★	★	3	3	75	4	51	LR2-K0310	GV2-LE08
1.5	★	★	1.5	★	★	3	4	100	4	51	LRD-08	GV2-L08
-	-	-	2.2	★	★	-	-	-	4	51	LR2-K0312 or LRD-08	GV2-LE08 GV2-L08
2.2	★	★	3	50	100	4	3	75	6.3	78	LR2-K0312	GV2-LE10
2.2	★	★	3	★	★	4	4	100	6.3	78	LRD-10	GV2-L10
3	★	★	4	10	100	5.5	3	75	10	138	LR2-K0314	GV2-LE14
3	★	★	4	10	100	5.5	4	100	10	138	LRD-12	GV2-L14
4	★	★	5.5	10	100	-	-	-	10	138	LR2-K0316 or LRD-14	GV2-LE14 GV2-L14
-	-	-	-	-	-	7.5	3	75	10	138	LRD-14	GV2-LE14
-	-	-	-	-	-	7.5	4	100	10	138	LRD-14	GV2-L14
-	-	-	-	-	-	9	3	75	14	170	LRD-16	GV2-LE16
-	-	-	-	-	-	9	4	100	14	170	LRD-16	GV2-L16
5.5	15	50	7.5	6	75	11	3	75	14	170	LR2-K0321	GV2-LE16
5.5	50	50	7.5	10	75	11	4	100	14	170	LRD-16	GV2-L16
7.5	15	50	9	6	75	15	3	75	18	223	LRD-21	GV2-LE20
7.5	50	50	9	10	75	15	4	100	18	223	LRD-21	GV2-L20
9	15	40	11	4	75	18.5	3	75	25	327	LRD-22	GV2-LE22
9	50	50	11	10	75	18.5	4	100	25	327	LRD-22	GV2-L22
11	15	40	15	4	75	-	-	-	25	327	LRD-22	GV2-LE22
11	50	50	15	10	75	-	-	-	25	327	LRD-22	GV2-L22
15	10	50	18.5	4	75	22	3	75	32	416	LRD-32	GV2-LE32
15	50	50	18.5	10	75	22	4	100	32	416	LRD-32	GV2-L32

★ > 100 kA  
(1) as % of I<sub>cu</sub>



## Accessories

### Combination block

For mounting on	LC1-K or LP1-K	LC1-D09...D38	LAD-311 and LC1-D09...D38
	<b>GV2-AF01</b>	<b>GV2-AF3</b>	<b>GV2-AF4</b>

### Sets of 3-pole busbars

63 A	Pitch	45 mm	54 mm	72 mm
Number of tap-offs	2	<b>GV2-G245</b>	<b>GV2-G254</b>	<b>GV2-G272</b>
	3	<b>GV2-G345</b>	<b>GV2-G354</b>	
	4	<b>GV2-G445</b>	<b>GV2-G454</b>	<b>GV2-G472</b>
	5		<b>GV2-G554</b>	

### Protective end cover

For unused busbar outlets	<b>GV1-G10</b>
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### Terminal blocks

For supply to one or more GV2-G busbar sets	connection from the top	can be fitted with current limiter GV1-L3 (GV2-ME and GV2-P)
		<b>GV1-G09</b> <b>GV1-G05</b>

### Padlockable external operator

Padlocking	In "On" and "Off" position	In "Off" position
Handle	black	red
Legend plate	blue	yellow
for GV2-L (50 to 290 mm)	IP 54	<b>GV2-AP01</b>
for GV2-LE	IP 54	<b>GV2-AP03</b>

### Padlocking device

Up to 6 padlocks (padlocks not supplied) Ø 6 mm shank max.	<b>GV2-V03</b>
--	----------------

## Add-on blocks

### Contact blocks

Contact type	N/O or N/C	N/O + N/C	N/O + N/O	(fault) + N/C	N/C + N/O	C/O common point
<b>Instantaneous auxiliary contacts</b>						
Mounting	front	<b>GV-AE1</b>	<b>GV-AE11</b>	<b>GV-AE20</b>		
	LH side		<b>GV-AN11</b>	<b>GV-AN20</b>		
<b>Fault signalling contact + instantaneous auxiliary contact</b>						
	LH side			<b>GV-AD1010</b>	<b>GV-AD1001</b>	<b>GV-AD0110</b>
					<b>GV-AD0101</b>	
<b>Short-circuit signalling contact</b>						
	LH side					<b>GV-AM11</b>

### Electric trips

Undervoltage or shunt trips <sup>(1)</sup>		50 Hz	60 Hz
Side mounting (1 block on RH side of circuit-breaker)			
Voltage	24 V	<b>GV-A*025</b>	<b>GV-A*026</b>
	48 V	<b>GV-A*055</b>	<b>GV-A*056</b>
	100 V	<b>GV-A*107</b>	
	100...110 V		<b>GV-A*107</b>
	110...115 V	<b>GV-A*115</b>	<b>GV-A*116</b>
	120...127 V	<b>GV-A*125</b>	
	127 V		<b>GV-A*115</b>
	200 V	<b>GV-A*207</b>	
	200...220 V		<b>GV-A*207</b>
	220...240 V	<b>GV-A*225</b>	<b>GV-A*226</b>
	380...400 V	<b>GV-A*385</b>	<b>GV-A*386</b>
	415...440 V	<b>GV-A*415</b>	
	415 V		<b>GV-A*416</b>

(1) Undervoltage trips: replace the • with U, shunt trips: replace the • with S

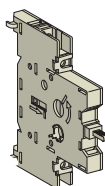


**Magnetic circuit-breakers GK3-EF for connection by screw clamp terminals**

**Control by rotary knob**

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Associated equipment		Circuit-breaker	
400/415 V			500 V			690 V			Contactor	Thermal	Short-circuit	
P	I <sub>cu</sub>	I <sub>cs</sub>	P	I <sub>cu</sub>	I <sub>cs</sub>	P	I <sub>cu</sub>	I <sub>cs</sub>	min. size	overload	protection	Reference
kW	kA		kW	kA		kW	kA			relay	Rating A	
15	50	30	18.5	20	30	-	-	-	LC1-D32	LRD-32	40	<b>GK3-EF40</b>
-	-	-	-	-	-	22	6	60	LC1-D40	LRD-3353	40	<b>GK3-EF40</b>
18.5	50	30	22	20	30	30	6	60	LC1-D40	LRD-3355	40	<b>GK3-EF40</b>
22	35	25	30	15	30	-	-	-	LC1-D50	LRD-3357	65	<b>GK3-EF65</b>
-	-	-	-	-	-	37	6	50	LC1-D65	LRD-3357	65	<b>GK3-EF65</b>
30	35	25	37	15	30	-	-	-	LC1-D65	LRD-3359	65	<b>GK3-EF65</b>
30	35	25	37	15	30	-	-	-	LC1-D65	LRD-3361	65	<b>GK3-EF65</b>
-	-	-	-	-	-	45	6	50	LC1-D80	LRD-3359	65	<b>GK3-EF65</b>
37	35	25	45	15	30	-	-	-	LC1-D80	LRD-3361	80	<b>GK3-EF80</b>
37	35	25	55	15	30	-	-	-	LC1-D80	LRD-3363	80	<b>GK3-EF80</b>

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**Add-on blocks**

**Contact blocks**

Contact types	N/O	N/O + N/O	N/C + N/O	N/C	N/O
<b>On-Off signalling contacts</b> and "Control circuit test" function (1 or 2 blocks per device) mounted on RH side of GK3-EF	<b>GK2-AX10</b>	<b>GK2-AX20</b>	<b>GK2-AX50</b>		
<b>Instantaneous fault signalling contacts</b> (1 or 2 blocks per device) mounted on LH side of GK3-EF	<b>GK2-AX12</b>	<b>GK2-AX22</b>	<b>GK2-AX52</b>		
<b>Fault signalling contact</b> <sup>(1)</sup>				<b>GV3-A08</b>	<b>GV3-A09</b>

(1) 1 trip OR 1 fault signalling contact to be fitted inside the circuit-breaker.

**Accessories**

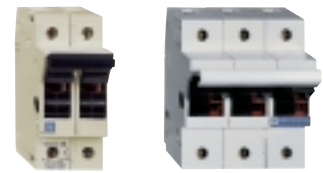
**Padlocking device**

for padlocking the operator, with up to 3 padlocks (padlocks not supplied) **GK3-AV01**

**External operator**

for mounting on enclosure door. **GK3-AP03**

Red Ø 40 pushbutton on yellow plate, can be locked in position O by means of up to 3 padlocks with door locked in position I, and door locked in position O when padlocked



**Fuse carrier**

<b>Rated operational voltage</b> with links, a.c. supply	480 V	480 V	690 V	690 V	690 V	690 V
<b>Maximum continuous current</b> for ambient temperature $\leq 40^{\circ}\text{C}$ <sup>(1)</sup>						
with links	20	20	32	32	50	125
with aM cartridge fuses	10	10	25	25	50	125
with gG cartridge fuses	20	20	30	30	40	100
<b>Conforming to standards</b> NF C 61-201	●	-	●	-	-	-
IEC 947-3	●	●	●	●	●	●
<b>Fuse carrier type</b>	<b>DF6-AB08</b>	<b>GK1-C</b>	<b>DF6-AB10</b>	<b>GK1-D</b>	<b>GK1-E</b>	<b>GK1-F</b>

5



**Fuse carrier**

<b>Composition</b>		1 P	1 N	3 P + N	2 P	3 P	3 P + N
<b>Size of cartridge fuse</b>	<b>Rated thermal current</b>						
or link							
8.5 x 31.5	20 A	<b>DF6-AB08</b>	<b>DF6-N10</b>	<b>GK1-CC</b>	<b>GK1-CD</b>	<b>GK1-CF</b>	<b>GK1-CH</b>
10 x 38	32 A	<b>DF6-AB10</b>	<b>DF6-N10</b>	<b>GK1-DC</b>	<b>GK1-DD</b>	<b>GK1-DF</b>	<b>GK1-DH</b>
14 x 51	50 A	<b>GK1-EB</b>	<b>GK1-EN</b>	<b>GK1-EC</b>	<b>GK1-ED</b>	<b>GK1-EF</b>	<b>GK1-EH</b>
22 x 58	125 A	<b>GK1-FB</b>	<b>GK1-FN</b>	<b>GK1-FC</b>	<b>GK1-FD</b>	<b>GK1-FF</b>	<b>GK1-FH</b>

**Fuse carrier assembly strips**

<b>Number of fuse carriers to be assembled</b>		2	3	4
<b>Type</b> DF6		<b>GK1-AP2</b>	<b>GK1-AP3</b>	<b>GK1-AP4</b>
GK1-E		<b>GK1-AP3</b>	<b>GK1-AP5</b>	<b>GK1-AP6</b>
GK1-F		<b>GK1-AP4</b>	<b>GK1-AP6</b>	<b>GK1-AP9</b>

**Blown fuse indicators** (neon)

<b>For use on fuse carriers</b>	DF6, GK1-C, D and E	
<b>Operational voltage</b>	80...400 V	<b>GK1-AS</b>



Fuse carriers					
Rated operational voltage with links, a.c. supply	690 V	690 V	690 V	690 V	
Maximum continuous current for ambient temperature ≤ 40° C					
with links	min cable Ø/le (mm²/A)	6/32 or 4/25 or 2.5/16	4/25 or 2.5/16	10/50 or 6/40	32/125 or 25/100
with aM fuses (mm²/A)		6/32 or 4/22 or 2.5/20	4/22 or 2.5/20	10/50 or 6/35	32/125 or 25/100
with gG fuses (mm²/A)		6/32 or 2.5/20 or 1.5/16	2.5/20 or 1.5/16	10/40 or 6/32	25/100 or 16/80
Conforming to standards	NF EN 60947-3	●	●	●	●
	IEC 947-3	●	●	●	●
Product certifications		BV, UR	-	-	-
Fuse carrier type		LS1-D32	LS1-D323	GK1-E•	GK1-F•

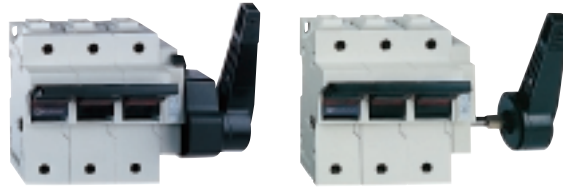
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Basic blocks						
Connection						
Rating	25 A	32 A	50 A		125 A	
Cartridge fuse size	10 x 38	10 x 38	14 x 51		22 x 58	
■ by spring terminals						
Number of early break contacts	-					
Single-phase protection device	Without	Without	Without	With	Without	With
3-pole	LS1-D323					
■ by screw clamp terminals or connectors						
Number of early break contacts	-	-	1		1	
3-pole		LS1-D32	GK1-EK	GK1-EV	GK1-FK	GK1-FV
4-pole		LS1-D32 + LA8-D324	GK1-EM	GK1-EY	GK1-FM	GK1-FY
Number of early break contacts			2		2	
3-pole			GK1-ES	GK1-EW	GK1-FS	GK1-FW
4-pole			GK1-ET	GK1-EX	GK1-FT	GK1-FX







Operators						
Handles	■ side			■ front		
	Number of poles, 3 or 4					
For fuse carrier rating	125 A			32, 50, 125 A		
For mounting on	RH side		LH side		Fitted as standard	
	GK1-AP07		GK1-AP08			
■ external						
For fuse carrier rating	32 A	50 A		125 A		
For mounting on	RH or LH side		LH side		RH side	LH side
	DK1-FB005	GK1-AP05	GK1-AP06	GK1-AP07	GK1-AP08	

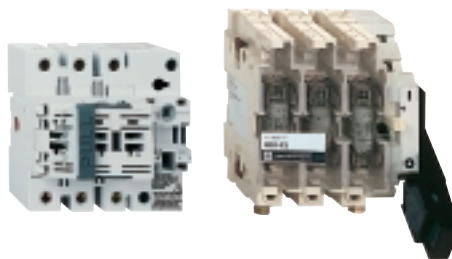
Padlocking devices						
For fuse carrier rating	32 A	50 A				
Number of poles	3 or 4	3		4		
Single-phase protection device	Without		With		Without	With
	Integral		GK1-AV07	GK1-AV08	GK1-AV08	GK1-AV09

Links			
Tubular links			
Number of poles, 3 or 4			
For fuse carrier rating	32 A	50 A	125 A
Reference	DK1-CB92 <sup>(1)</sup>	DK1-EB92 <sup>(2)</sup>	DK1-FA92 <sup>(2)</sup>

(1) For use on a neutral circuit, the tubular link can be interlocked with special device LA8-D25906.

(2) 4-pole fuse carriers GK1-50 and 125 A 4 are fitted with an interlocked neutral tubular link as standard.

Add-on blocks					
Contact blocks					
For use on	LS1-D32		LS1-D323		
Contact type	N/O + N/C	N/O + N/O	N/O + N/C	N/O + N/O	
Instantaneous auxiliary contacts					
Mounting	front	GV-AE11	GV-AE20	GV-AE113	GV-AE203



**Switch-disconnector-fuse switch bodies**

■ for use with NF C or DIN fuses

Number of poles		3	3 + N <sup>(1)</sup>	3	4	3	4	3	4	3
Switch rating		32 A		50 A		63 A		100 A		125 A
Fuse size		10 x 38		14 x 51		00C <sup>(2)</sup>		22 x 58		22 x 58
Type of operator:										
■ internal or external	RH or LH side and front	GS1-DD3	GS1-DD4							
	RH side			GS1-FD3	GS1-FD4	GS1-GD3	GS1-GD4	GS1-JD3	GS1-JD4	GS1-KD3
■ external	LH side			GS1-FG3	GS1-FG4	GS1-GG3	GS1-GG4	GS1-JG3	GS1-JG4	GS1-KG3
	front			GS1-F3	GS1-F4	GS1-G3	GS1-G4	GS1-J3	GS1-J4	GS1-K3
■ internal and external	front									

■ for use with BS fuses

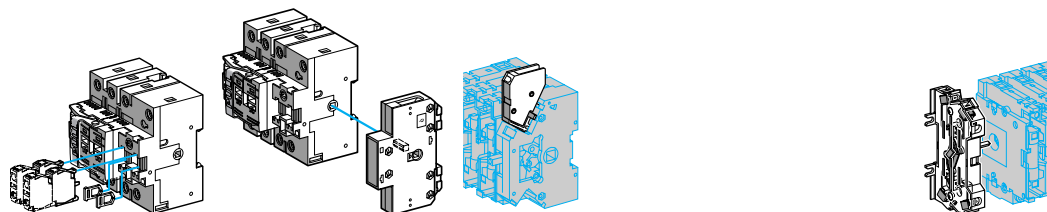
Switch rating		32 A		63 A		100 A		160 A		
Fuse size		A1		A2-A3		A4 Ø ≤ 31 mm		A4		B1-B2
Type of operator:										
■ internal or external	RH or LH side and front	GS1-DDB3	GS1-DDB4							
■ RH side				GS1-GBR3	GS1-GBR4	GS1-JBR3	GS1-JBR4	GS1-LLBR3	GS1-LLBR4	GS1-LBR3
■ external	front									
■ internal and external	front	GS1-DB3	GS1-DB4	GS1-GB3	GS1-GB4	GS1-JB3	GS1-JB4	GS1-LLB3	GS1-LLB4	GS1-LB3

(1) N = Switched Neutral

(2) Fuses for German market

**Auxiliary “blown fuse” signalling contacts for use with NF C or DIN fuses**

Contact type	1 <sup>st</sup> C/O					
Switch rating	50 A		100 and 125 A		160 A	
Fuse size	14 x 51		22 x 58		T0	
Number of poles	3	4	3	4	3	4
	GS1-AF13	GS1-AF14	GS1-AF23	GS1-AF24	GS1-AF33	GS1-AF34



**Auxiliary early break and/or signalling contacts**

Switch rating	32 A				50...400 A		630...1250 A		50...400 V	
Contact type	1 N/O	1 N/C	1 C/O	2 C/O	1 C/O	2 C/O	1 C/O	2 C/O	1 N/C + 1 N/O	2 N/C + 2 N/O
Standard contacts	GS1-AM110	GS1-AM101	GS1-AM111	GS1-AM211	GS1-AM1	GS1-AM2	GS1-AM3	GS1-AM4	GS1-AN11	GS1-AN22
Contacts with test facility									GS1-ANT11	GS1-ANT22





4	3	4	3	4	3	4	3	4	3	4	3	4	3	4	
			160 A			250 A			400 A		630 A		1250 A		
Size 00			Size 0			Size 00			Size 1		Size 2		Size 3		Size 4
GS1-KD4	GS1-KKD3	GS1-KKD4	GS1-LD3	GS1-LD4	GS1-LLD3	GS1-LLD4	GS1-ND3	GS1-ND4	GS1-QQD3	GS1-QQD4	GS1-SD3	GS1-SD4	GS1-VD3	GS1-VD4	
GS1-KG4	GS1-KKG3	GS1-KKG4	GS1-LG3	GS1-LG4	GS1-LLG3	GS1-LLG4	GS1-NG3	GS1-NG4	GS1-QQG3	GS1-QQG4					
GS1-K4	GS1-KK3	GS1-KK4	GS1-L3	GS1-L4	GS1-LL3	GS1-LL4	GS1-N3	GS1-N4	GS1-QQ3	GS1-QQ4					
											GS1-S3	GS1-S4	GS1-V3	GS1-V4	
200 A			250 A			315 A			400 V		630 A		800 A		1250 A
B1-B2			B1...B3			B1...B3			B1...B4		C1-C2		C1...C3		D1
GS1-LBR4	GS1-MMBR3	GS1-MMBR4	GS1-NBR3	GS1-NBR4	GS1-PPBR3	GS1-PPBR4	GS1-QQBR3	GS1-QQBR4	GS1-SBR3	GS1-SBR4	GS1-TBR3	GS1-TRB4	GS1-VRB3	GS1-VRB4	
GS1-LB4	GS1-MMB3	GS1-MMB4	GS1-NB3	GS1-NB4	GS1-PPB3	GS1-PPB4	GS1-QQB3	GS1-QQB4	GS1-SB3	GS1-SB4	GS1-TB3	GS1-TB4	GS1-VB3	GS1-VB4	

5

250 and 400 A				630 A		1250 A		2 <sup>nd</sup> C/O			
T1 and T2				T3		T4		50...400 A		630...1250 A	
-				-		-		-		-	
3		4		3		4		3		4	
GS1-AF43	GS1-AF44	GS1-AF63	GS1-AF64	GS1-AF73	GS1-AF74	GS1-AF	GS1-AF	GS1-AFF	GS1-AFF		



### Thermal overload relays, model d

adjustable from 0.1 to 140 A

Compensated relays with manual or automatic reset, with relay trip indicator, for a.c. or d.c.

	Relay setting range	Fuses to be used with selected relay			With contactor	Reference
		aM	gG	BS88		
<b>Class 10 A</b>	0.10...0.16 A	0.25 A	2 A	-	LC1-D09...D38	LRD-01
	0.16...0.25 A	0.5 A	2 A	-	LC1-D09...D38	LRD-02
	0.25...0.40 A	1 A	2 A	-	LC1-D09...D38	LRD-03
	0.40...0.63 A	1 A	1.6 A	-	LC1-D09...D38	LRD-04
	0.63...1 A	2 A	4 A	-	LC1-D09...D38	LRD-05
	1...1.7 A	2 A	4 A	6 A	LC1-D09...D38	LRD-06
	1.6...2.5 A	4 A	6 A	10 A	LC1-D09...D38	LRD-07
	2.5...4 A	6 A	10 A	16 A	LC1-D09...D38	LRD-08
	4...6 A	8 A	16 A	16 A	LC1-D09...D38	LRD-10
	5.5...8 A	12 A	20 A	20 A	LC1-D09...D38	LRD-12
	7...10 A	12 A	20 A	20 A	LC1-D09...D38	LRD-14
	9...13 A	16 A	25 A	25 A	LC1-D12...D38	LRD-16
	12...18 A	20 A	35 A	32 A	LC1-D18...D38	LRD-21
	16...24 A	25 A	50 A	50 A	LC1-D25...D38	LRD-22
	23...32 A	40 A	63 A	63 A	LC1-D25...D38	LRD-32
	30...38 A	50 A	80 A	80 A	LC1-D32 and D38	LRD-35
	17...25 A	25 A	50 A	50 A	LC1-D40...D95	LRD-3322
	23...32 A	40 A	63 A	63 A	LC1-D40...D95	LRD-3353
	30...40 A	40 A	100 A	80 A	LC1-D40...D95	LRD-3355
	37...50 A	63 A	100 A	100 A	LC1-D40...D95	LRD-3357
48...65 A	63 A	100 A	100 A	LC1-D50...D95	LRD-3359	
55...70 A	80 A	125 A	125 A	LC1-D50...D95	LRD-3361	
63...80 A	80 A	125 A	125 A	LC1-D65 and D95	LRD-3363	
80...104 A	100 A	160 A	160 A	LC1-D80 and D95	LRD-3365	
80...104 A	125 A	200 A	160 A	LC1-D115 and D150	LRD-4365	
95...120 A	125 A	200 A	200 A	LC1-D115 and D150	LRD-4367	
110...140 A	160 A	250 A	200 A	LC1-D150	LRD-4369	
80...104 A	100 A	160 A	160 A	(1)	LRD-33656	
95...120 A	125 A	200 A	200 A	(1)	LRD-33676	
110...140 A	160 A	250 A	200 A	(1)	LRD-33696	
<b>Class 20 A</b>	6 A	10 A	16 A		LC1-D09...D32	LRD-1508
	4...6 A	8 A	16 A	16 A	LC1-D09...D32	LRD-1510
	5.5...8 A	12 A	20 A	20 A	LC1-D09...D32	LRD-1512
	7...10 A	16 A	20 A	25 A	LC1-D09...D32	LRD-1514
	9...13 A	16 A	25 A	25 A	LC1-D12...D32	LRD-1516
	12...18 A	25 A	35 A	40 A	LC1-D18...D32	LRD-1521
	17...25 A	32 A	50 A	50 A	LC1-D25 and D32	LRD-1522
	23...28 A	40 A	63 A	63 A	LC1-D25 and D32	LRD-1530
	25...32 A	40 A	63 A	63 A	LC1-D25 and D32	LRD-1532
	17...25 A	32 A	50 A	50 A	LC1-D40...D95	LR2-D3522
	23...32 A	40 A	63 A	63 A	LC1-D40...D95	LR2-D3553
	30...40 A	50 A	100 A	80 A	LC1-D40...D95	LR2-D3555
	37...50 A	63 A	100 A	100 A	LC1-D50...D95	LR2-D3557
	48...65 A	80 A	125 A	100 A	LC1-D50...D95	LR2-D3559
	55...70 A	100 A	125 A	125 A	LC1-D65...D95	LR2-D3561
	63...80 A	100 A	160 A	125 A	LC1-D80 and D95	LR2-D3563

(1) Independent mounting

Screw clamp terminal connections or connectors. For spring terminal connections on LRD-01 to LRD-22, add 3 to the end of the reference. Example: LRD-01 becomes LRD-013.

For lug-clamp connections, add 6 to the end of the reference. Example: LRD-01 becomes LRD-016.

For thermal overload relays for use with class 10 A unbalanced loads, with connection by screw clamp terminals, change the prefix in the references above from LRD (except LRD-4\*\*\*) to LR3-D. Example LRD-01 becomes LR3-D01.



**Thermal overload relays, model k**  
adjustable from 0.11 to 12 A

Connection by screw clamp terminals, direct mounting on contactors LC1-K, manual or automatic reset

Relay setting range	Fuses to be used with selected relay			Reference
	aM	gG	BS88	
Class 10 A				
0.11...0.16 A	0.25 A	0.5 A	-	LR2-K0301
0.16...0.23 A	0.25 A	0.5 A	-	LR2-K0302
0.23...0.36 A	0.5 A	1 A	-	LR2-K0303
0.36...0.54 A	1 A	1.6 A	-	LR2-K0304
0.54...0.8 A	1 A	2 A	-	LR2-K0305
0.8...1.2 A	2 A	4 A	6 A	LR2-K0306
1.2...1.8 A	2 A	6 A	6 A	LR2-K0307
1.8...2.6 A	2 A	6 A	10 A	LR2-K0308
2.6...3.7 A	4 A	10 A	16 A	LR2-K0310
3.7...5.5 A	6 A	16 A	16 A	LR2-K0312
5.5...8 A	8 A	20 A	20 A	LR2-K0314
8...11.5 A	10 A	25 A	20 A	LR2-K0316

Thermal overload relays for use on class 10 A unbalanced loads: for above references LR2-K0305 to LR2-K0316 only, replace the prefix LR2 with LR7.

Example LR7-K0310.

**Accessories**

**Prewiring kit**

Allowing direct connection of the N/C contact of relay LRD-01...35 or LR3-D01... D35 to the contactor	For use on	
	LC1-D09...D18	LAD-7C1
	LC1-D25...D38	LAD-7C2

**Terminal blocks (1)**

For clip-on mounting on 35 mm mounting rail (AM1-DP200) or screw fixing	LRD-01...35 and LR3-D01...D35	LAD-7B10
	LRD-3***, LR3-D3***, LRD-35**	LA7-D3064 <sup>(2)</sup>
For independent mounting of the relay	LR2-K****	LA7-K0064

**Terminal block adapter**

For mounting a relay beneath an LC1-D115 or D150 contactor	LRD-3***, LR3-D3***, LRD-35**	LA7-D3058
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**Stop or electrical reset**

Remote <sup>(3)</sup>	LRD-01...35 and LR3-D01...D35	LAD-703 <sup>(4)</sup>
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**Tripping or electrical reset device**

Remote <sup>(3)</sup>	All relays except LRD-01...35 and LR3-D01...D35	LA7-D03 <sup>(4)</sup>
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(1) Terminal blocks are supplied with terminals protected against direct finger contact and screws in the open "ready-to-tighten" position.

(2) To order a terminal block for connection by lug-clamps, the reference becomes LA7-D30646.

(3) The time for which the coil of remote tripping or electrical resetting device LA7-D03 or LAD-703 can remain energised depends on its rest time: 1 s pulse duration with 9 s rest time; maximum pulse duration of 20 s with a rest time of 300 s. Minimum pulse time 200 ms.

(4) Reference to be completed by adding the code indicating the control circuit voltage.

**Standard control circuit voltages**

~ supply

Volts	12	24	48	96	110	220/230	380/400	415/440
50/60 Hz. Consumption, inrush and sealed < 100 VA	-	B	E	-	F	M	Q	N

= supply

Consumption, inrush and sealed < 100 W	J	B	E	DD	F	M	-	-
--	---	---	---	----	---	---	---	---



For use with contactor	LC1-D	LC1-F
Motor current	60...150 A	30...630 A
<b>Basic reference, to be completed</b>	<b>LR9-D</b>	<b>LR9-F</b>

5

Relay setting range	Fuse to be used with selected relay		For mounting beneath contactor LC1-	Compensated and differential		or not with alarm Class 10 or 20
	aM	gG		Class 10	Class 20	
60...100	100	160	D115 and D150	<b>LR9-D5367</b>	<b>LR9-D5567</b>	
90...150	160	250	D115 and D150	<b>LR9-D5369</b>	<b>LR9-F5569</b>	
30...50	50	80	F115...F185	<b>LR9-F5357</b>	<b>LR9-F5557</b>	<b>LR9-F57</b>
48...80	80	125	F115...F185	<b>LR9-F5363</b>	<b>LR9-F5563</b>	<b>LR9-F63</b>
60...100	100	200	F115...F185	<b>LR9-F5367</b>	<b>LR9-F5567</b>	<b>LR9-F67</b>
90...150	160	250	F115...F185	<b>LR9-F5369</b>	<b>LR9-F5569</b>	<b>LR9-F69</b>
132...220	250	315	F185...F400	<b>LR9-F5371</b>	<b>LR9-F5571</b>	<b>LR9-F71</b>
200...330	400	500	F225...F500	<b>LR9-F7375</b>	<b>LR9-F7575</b>	<b>LR9-F75</b>
300...500	500	800	F225...F500	<b>LR9-F7379</b>	<b>LR9-F7579</b>	<b>LR9-F79</b>
380...630	630	800	F400...F630 and F800	<b>LR9-F7381</b>	<b>LR9-F7581</b>	<b>LR9-F81</b>

Accessories		
Remote control		
Function	Reset	Stop and/or Reset
Electrical reset <sup>(1)</sup>	<b>LA7-D03</b> <sup>(2)</sup>	
Reset by flexible cable (length 0.5 m)	<b>LA7-D305</b>	
Adapter for door interlock mechanism		<b>LA7-D1020</b>
Operating head for pushbutton		
Spring return	<b>ZA2-BL639</b>	<b>ZA2-BL432</b>
Rod with snap-off end		
Adjustable from 17 to 120 mm	<b>ZA2-BZ13</b>	
Insulated terminal blocks		
For relays LR9-F5•57, F5•63, F5•67, F5•69, F57, F63, F67 and F69	Set of 2 blocks	
	<b>LA9-F103</b>	

(1) The time for which the coil of remote electrical reset device LA7-D03 can remain energised depends on its rest time: 1 s pulse with 9 s rest time; 5 s pulse duration with 30 s rest time; 10 s pulse duration with 90 s rest time: maximum pulse duration 20 s with rest time of 300 s. Minimum pulse time: 200 ms.

(2) Reference to be completed by adding the coil voltage code, see page 5/27





Relay type		Electronic over current relays model LR97D			
Relay setting range		0,3...1,5 A	1,2...7 A	5...25 A	20...38 A
For use with contactor		LC1D09...D38			LC1D25...D38
References	200... 240 VAC	LR97D015M7	LR97D07M7	LR97D025M7	LR97D038M7
	100... 120 VAC	LR97D015F7	LR97D07F7	LR97D025F7	LR97D038F7
	24 VAC/DC	LR97D015B	LR97D07B	LR97D025B	LR97D038B
	48 VAC/DC	LR97D015E	LR97D07E	LR97D025E	LR97D038E

**0,5...60 A**



Relay type		Electronic over current relays model LT47 with manual reset		
Relay setting range		0,5...6 A	3...30 A	5...60 A
References	200... 240 VAC	LT4706M7S	LT47D30M7S	LT4760M7S
	100... 120 VAC	LT47D06F7S	LT47D30F7S	LT4760F7S
	24 VAC/DC	LT47D06BS	LT47D30BS	LT4760BS
	48 VAC/DC	LT47D06ES	LT47D30ES	LT4760ES



Relay type		Electronic over current relays model LT47 with automatic reset		
Relay setting range		0,5...6 A	3...30 A	5...60 A
References	200... 240 VAC	LT4706M7A	LT47D30M7A	LT4760M7A
	100... 120 VAC	LT47D06F7A	LT47D30F7A	LT4760F7A
	24 VAC/DC	LT47D06BA	LT47D30BA	LT4760BA
	48 VAC/DC	LT47D06EA	LT47D30EA	LT4760EA

Accessories : please consult your Schneider Electric agency.



For use with contactor	LC1-D or LC1-F	LC1-D or LC1-F
Motor current	No limit	1...5 A
<b>Basic reference, to be completed</b>	<b>LT3-S</b>	<b>LT6-POM05FM</b>

### 3-pole multifunction protection relays

Operational current	A	0.2...1. 1...5	5...25
		<b>LT6-POM005FM</b>	<b>LT6-POM025FM</b>

### Protection units with automatic reset with thermistor short-circuit detection

#### without fault memory

Connection	Voltage	Output contact	Reference
by cage connectors	~ 50/60 Hz	N/C	<b>LT3-SE00F</b>
	---	N/C	<b>LT3-SE00M</b>
	---	N/C	<b>LT3-SE00F</b>
<b>On front panel: fault and voltage signalling indicator</b>			
~ 50/60 Hz	115/230 V	N/C + N/O	<b>LT3-SA00M</b>
---	24/48 V	N/C + N/O	<b>LT3-SA00ED</b>
~ 50/60 Hz or ---	24...230 V	2 C/O	<b>LT3-SA00MW</b>

#### with fault memory

<b>On front panel: fault and voltage signalling indicator, Test and Reset button</b>			
~ 50/60 Hz	400 V	N/C + N/O	<b>LT3-SM00V</b>
	24/48 V	N/C + N/O	<b>LT3-SM00E</b>
	115/230 V	N/C + N/O	<b>LT3-SM00M</b>
---	24/48 V	N/C + N/O	<b>LT3-SM00ED</b>
~ 50/60 Hz or ---	24...230 V	2 C/O	<b>LT3-SM00MW</b>

### Accessories

#### PTC thermistor probes for LT3 and LT6 relays

Normal operating temperature (NOT)	90 °C	110 °C	120 °C	130 °C	140 °C	150 °C	160 °C	170 °C
<b>Integrated triple probes</b>	<b>DA1-TT090</b>	<b>DA1-TT110</b>	<b>DA1-TT120</b>	<b>DA1-TT130</b>	<b>DA1-TT140</b>	<b>DA1-TT150</b>	<b>DA1-TT160</b>	<b>DA1-TT170</b>
Normal operating temperature (NOT)		60 °C	70 °C	80 °C	90 °C	100 °C		
<b>Surface probes</b>	<b>DA1-TS060</b>	<b>DA1-TS070</b>	<b>DA1-TS080</b>	<b>DA1-TS090</b>	<b>DA1-TS100</b>			

#### Configuration software for LT6 relays

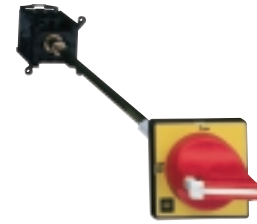
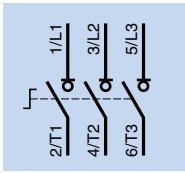
Languages: English, French, German, Italian, Spanish	Kit <sup>(1)</sup>	Diskette
For use with all relay sizes <b>LA9-P620</b>	<b>LA9-P621</b>	

#### Current transformers for LT6 relays

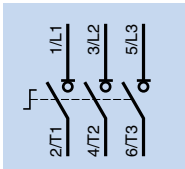
Operational current	primary	100 A	400 A	800 A
	secondary	1 A	1 A	1 A
		<b>LT6-CT1001</b>	<b>LT6-CT4001</b>	<b>LT6-CT8001</b>

(1) Comprising 2 x 3" 1/2 diskettes, 1 x 2 m connection cable with 2 SUB-D 9-pin connectors (female-female)





Type	Mini-Vario for standard applications		
	Mounting door		Backplate mounting in enclosure
Colour handle / Front plate	Red / Yellow	Black / Black	Red / Yellow
Front plate dimensions (mm)	60 x 60		60 x 60
Fixing	Ø 22.5 mm		
Degree of protection	IP 20		
Rated operational voltage (Ue)	690 V		
Thermal current in open air (Ith)	12 A	VCDN12	VBDN12
	20 A	VCDN20	VBDN20



Type	Vario for high performance applications								
	Mounting door			Backplate mounting in enclosure					
Colour handle / Front plate	Red / Yellow	Black / Black	Red / Yellow	Black / Black	Red / Yellow				
Front plate dimensions (mm)	60 x 60	60 x 60	90 x 90	60 x 60	90 x 90	90 x 90			
Fixing	Ø 22,5 mm		4 screws	4 screws	4 screws	4 screws			
Degree of protection	IP 20		IP 20	IP 20	IP 20	IP 20			
Rated operational voltage (Ue)	690 V		690 V	690 V	690 V	690 V			
Thermal current in open air (Ith)	12 A	VCD02	VBD02	VCF02	VBF02	–	VCCD02	VCCF02	–
	20 A	VCD01	VBD01	VCF01	VBF01	–	VCCD01	VCCF01	–
	25 A	VCD0	VBD0	VCF0	VBF0	–	VCCD0	VCCF0	–
	32 A	VCD1	VBD1	VCF1	VBF1	–	VCCD1	VCCF1	–
	40 A	VCD2	VBD2	VCF2	VBF2	–	VCCD2	VCCF2	–
	63 A	–	–	VCF3	VBF3	–	–	VCCF3	–
	80 A	–	–	VCF4	VBF4	–	–	VCCF4	–
	125 A	–	–	–	–	VCF5	–	–	VCCF5
	175 A	–	–	–	–	VCF6	–	–	VCCF6



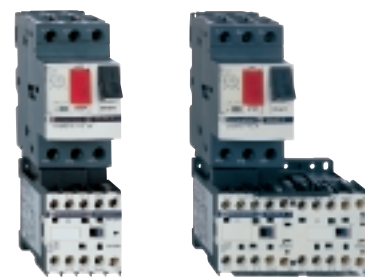
Add-on modules	For mini-Vario		For Vario						
	Main pole modules		Neutral pole module with early make and late break contacts						
Rating	12 A	20 A	12 A	20 A	25 A	32 A	40 A	63 A	80 A
References	VZN12	VZN20	VZ02	VZ01	VZ0	VZ1	VZ2	VZ3	VZ4
Rating	12...20 A		12...40 A		63 and 80 A		125 and 175 A		
References	VZN11		VZ11		VZ12		VZ13		
Earthing module	References		References		References		References		
	VZN14		VZ14		VZ15		VZ16		
Auxiliary contact block modules	Contact types		References		References				
	N/O	N/C	N/O + N/C		N/O + N/O				
	VZN05	VZN06	VZ7		VZ20				



**D.O.L. starters**

		with circuit-breaker		with fuse protection
Level of service	Coordination:	Type 1		Type 2
Power at 400 V	Up to:	5.5 kW	15 kW	37 kW
Type of components		Combination automatic motor starter with overload protection incorporated in the circuit-breaker		Fuse carrier + plate-mounted contactor
<b>Basic reference, to be completed</b>		<b>GV2-ME</b>	<b>GV2-DM</b>	<b>GV2-DP</b>
				<b>LC4-D</b>

5



**Starters GV2-ME**

				Setting		Fixed		For customer assembly		Non-reversing	Reversing
Standard power ratings of 3-phase motors			range of	magnetic	Motor	Contactor	Factory assembled		Basic reference, to be completed with code indicating control circuit voltage		
50/60 Hz in category AC-3 (kW)			thermal trips	tripping current	circuit-breaker						
400/415 V	440 V	500 V									
0.37	0.37	0.37	1...1.6	22.5	GV2-ME06	LC1-K06			GV2-ME06K1**	GV2-ME06K2**	
0.55	0.55	0.55									
-	-	0.75									
0.75	0.75	-	1.6...2.5	33.5	GV2-ME07	LC1-K06			GV2-ME07K1**	GV2-ME07K2**	
-	1.1	1.1									
1.1	-	1.5	2.5...4	51	GV2-ME08	LC1-K06			GV2-ME08K1**	GV2-ME08K2**	
1.5	1.5	2.2									
2.2	2.2	-	4...6.3	78	GV2-ME10	LC1-K06			GV2-ME10K1**	GV2-ME10K2**	
-	-	3									
3	-	4	6...10	138	GV2-ME14	LC1-K09			GV2-ME14K1**	GV2-ME14K2**	
4	4	5.5									
5.5	5.5	7.5	9...14	170	GV2-ME16	LC1-K12			GV2-ME16K1**	GV2-ME16K2**	

**Standard control circuit voltages** (for other voltages, please consult your Regional Sales Office)

Volts	24	110	220/230	230	230/240	380/400
~ 50...400 Hz	<b>B7</b>	<b>F7</b>	<b>M7</b>	<b>P7</b>	<b>U7</b>	<b>Q7</b>
≡ (1)	<b>BW3</b>	-	-	-	-	-

(1) Low consumption coil (1.5 W), wide range (0.7...1.3 Uc) and with integral suppression device as standard.





## D.O.L. starters GV2-DM and GV2-DP

D.O.L. starters GV2-DM and GV2-DP					Non-reversing	Reversing		
Standard power ratings of 3-phase motors 50/60 Hz in category AC-3 (kW)			Setting range of thermal trips	Fixed magnetic tripping current	For customer assembly Motor circuit-breaker	Factory assembled Basic reference, to be completed with code indicating control circuit voltage		
400/415 V	440 V	500 V		13 Irth				
0.06	0.06	-	0.16...0.25	2.4	GV2-ME02 GV2-P02	LC1-D09** LC1-D09**	GV2-DM102** GV2-DP102**	GV2-DM202** GV2-DP202**
0.09	0.09	-	0.25...0.40	5	GV2-ME03 GV2-P03	LC1-D09** LC1-D09**	GV2-DM103** GV2-DP103**	GV2-DM203** GV2-DP203**
-	0.12	-						
0.12	-	-	0.40...0.63	8	GV2-ME04 GV2-P04	LC1-D09** LC1-D09**	GV2-DM104** GV2-DP104**	GV2-DM204** GV2-DP204**
0.18	0.18	-						
0.25	0.25	-	0.63...1	13	GV2-ME05 GV2-P05	LC1-D09** LC1-D09**	GV2-DM105** GV2-DP105**	GV2-DM205** GV2-DP205**
0.37	0.37	-						
-	-	0.37	1...1.6	22.5	GV2-ME06 GV2-P06	LC1-D09** LC1-D09**	GV2-DM106** GV2-DP106**	GV2-DM206** GV2-DP206**
0.55	0.55	0.55						
-	-	0.75						
0.75	0.75	-	1.6...2.5	33.5	GV2-ME07 GV2-P07	LC1-D09** LC1-D09**	GV2-DM107** GV2-DP107**	GV2-DM207** GV2-DP207**
-	1.1	1.1						
1.1	-	1.5	2.5...4	51	GV2-ME08 GV2-P08	LC1-D09** LC1-D09**	GV2-DM108** GV2-DP108**	GV2-DM208** GV2-DP208**
1.5	1.5	2.2						
2.2	2.2	-	4...6.3	78	GV2-ME10 GV2-P10	LC1-D09** LC1-D09**	GV2-DM110** GV2-DP110**	GV2-DM210** GV2-DP210**
-	3	3						
3	-	4	6...10	138	GV2-ME14 GV2-P14	LC1-D09** LC1-D09**	GV2-DM114** GV2-DP114**	GV2-DM214** GV2-DP214**
4	4	5.5						
5.5	5.5	7.5	9...14	170	GV2-ME16 GV2-P16	LC1-D12** LC1-D25**	GV2-DM116** GV2-DP116**	GV2-DM216** GV2-DP216**
-	7.5	9						
7.5	9	-	13...18	223	GV2-ME20 GV2-P20	LC1-D18** LC1-D25**	GV2-DM120** GV2-DP120**	GV2-DM220** GV2-DP220**
9	11	11	17...23	327	GV2-ME21 GV2-P21	LC1-D25** LC1-D25**	GV2-DM121** GV2-DP121**	GV2-DM221** GV2-DP221**
11	-	15	20...25	327	GV2-ME22 GV2-P22	LC1-D25** LC1-D25**	GV2-DM122** GV2-DP122**	GV2-DM222** GV2-DP222**
15	15	18.5	24...32	416	GV2-ME32 GV2-P32	LC1-D32** LC1-D32**	GV2-DM132** GV2-DP132**	GV2-DM232** GV2-DP232**

### Standard control circuit voltages (for other voltages, please consult your Regional Sales Office)

Volts	24	220	230
~ 50...400 Hz	<b>B7</b>	<b>M7</b>	<b>P7</b>
— (1)	<b>BD</b>	-	-

(1) Low consumption coil (1.5 W), wide range (0.7...1.3 Uc) with integral suppression device as standard.



Power base for D.O.L. starter	■ Non reversing			■ Reversing		
Connection by screw clamp terminals						
Rated operational voltage	≤ 440 V	≤ 500 V	≤ 690 V	≤ 440 V	≤ 500 V	≤ 690 V
Power	12 A	12 A	9 A	12 A	12 A	9 A
	<b>LUB-12</b>			<b>LU2B-12**</b>		
Power	32 A	23 A	21 A	32 A	23 A	21 A
	<b>LUB-32</b>			<b>LU2B-32**</b>		

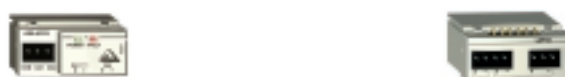
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Add-on blocks						
Contact blocks						
Signalling	Contact					
■ status of starter-controller power poles	N/O (53-54)				N/O (97-98)	
■ fault			N/C (95-96)		N/O (97-98)	
■ control handle in position O			N/O (17-18)		N/O (17-18)	
Connection	Item	1	1	1	1	1
■ screw clamp terminals	1 + 2	<b>LUA1-D11</b>		<b>LUA1-C11</b>		<b>LUA1-C20</b>
■ without connections	1	<b>LUA1-D110</b>		<b>LUA1-C110</b>		<b>LUA1-C200</b>
Auxiliary contact blocks						
		N/O	N/C	N/O	N/C	N/O
		2	-	1	1	-
■ screw clamp terminals	3	<b>LUF-N20</b>		<b>LUF-N11</b>		<b>LUF-N02</b>



Modules	
■ parallel wiring	<b>LUF-C00</b>
■ alarm	<b>LUF-W10</b>
■ communication	As-i <b>ASILUF-C5</b>
	Modbus <b>LUL-C033</b>
■ indication of motor load	4...20 mA <b>LUF-V2</b>
■ fault differentiation and reset	manual reset <b>LUF-DH11</b>
	automatic reset <b>LUF-DA10</b>





Control units							
■ standard					Class 10		
Standard power ratings of 3-phase motors 50/60 Hz in AC-3			Setting range	Clip-in mounting			
400/415 V	500 V	690 V		on power base			
0.09	-	-	0.15...0.6	12 and 32	LUCA-X6**		
0.25	-	-	0.35...1.4	12 and 32	LUCA-1X**		
1.5	2.2	3	1.25...5	12 and 32	LUCA-05**		
5.5	5.5	9	3...12	12 and 32	LUCA-12**		
7.5	9	15	4.5...18	32	LUCA-18**		
15	15	18.5	8...32	32	LUCA-32**		
■ advanced					Class 10		Class 20
For motor type					■ 3-phase	■ single-phase	3-phase
0.09	-	-	0.15...0.6	12 and 32	LUCB-X6**	LUCC-X6**	LUCD-X6**
0.25	-	-	0.35...1.4	12 and 32	LUCB-1X**	LUCC-1X**	LUCD-1X**
1.5	2.2	3	1.25...5	12 and 32	LUCB-05**	LUCC-05**	LUCD-05**
5.5	5.5	9	3...12	12 and 32	LUCB-12**	LUCC-12**	LUCD-12**
7.5	9	15	4.5...18	32	LUCB-18**	LUCC-18**	LUCD-18**
15	15	18.5	8...32	32	LUCB-32**	LUCC-32**	LUCD-32**
■ multifunction					Class 5 to 35		
0.09	-	-	0.15...0.6	12 and 32	LUCM-X6BL		
0.25	-	-	0.35...1.4	12 and 32	LUCM-1XBL		
1.5	2.2	3	1.25...5	12 and 32	LUCM-05BL		
5.5	5.5	9	3...12	12 and 32	LUCM-12BL		
7.5	9	15	4.5...18	32	LUCM-18BL		
15	15	18.5	8...32	32	LUCM-32BL		

Basic reference, to be completed by adding the voltage code <sup>(1)</sup>

Parameter entry, monitoring of parameter values and consultation of logs are carried out:

- either on the front panel, using the built-in display window/ keypad,
- or via an operator terminal,
- or via a PC or a PDA with PowerSuite software,
- or remotely, via a Modbus communication bus.

Programming of the product via the keypad requires a  $\sim$  24 V auxiliary power supply.



Standard control circuit voltages (for other voltages, please consult your Regional Sales Office)			
Volts	24	48...72	110...240
$\equiv$	<b>BL</b>	-	-
$\sim$	<b>B</b>	-	-
$\equiv$ or $\sim$	-	<b>ES</b> <sup>(1)</sup>	<b>FU</b> <sup>(2)</sup>

(1)  $\equiv$  48...72 V,  $\sim$  48 V. (2)  $\equiv$  110...220 V,  $\sim$  110...240 V.



Above 32 A, the model U controller provides a motor starter management solution identical to that provided by TeSys model U starter-controller.

Used in conjunction with a short-circuit protection device and a contactor, it provides a motor starter whose functions are the same as those of a TeSys model U starter-controller and, in particular, provides motor starter overload protection and control functions.

It consists of a control unit whose adjustment range is compatible with the secondary of current transformers, plus a control base which also allows fitment of a function module or a communication module.

It requires a  $\pm$  24 V external power supply.

<b>5</b>	<b>Control bases</b>		<b>For use with contactors</b>	
	<b>Current transformers</b> (auxiliary supply voltage 24 VDC)			
	Connection	screw	<b>LUT-M10BL</b> TeSys model d	
Control	screw	<b>LUT-M20BL</b> TeSys model F		



<b>Control units</b>		<b>Class 10</b>		<b>Class 20</b>		<b>Class 5 to 30</b>	
<b>For 3-phase motors</b>							
Setting range	0.35...1.05	<b>LUCB-T1BL</b>		<b>LUCD-T1BL</b>			
■ <b>advanced</b>							
■ <b>multifunction</b>						<b>LUCM-T1BL</b>	





### Accessories

Module		
■ alarm	LUF-W10	
■ communication		Modbus LUL-C033
■ indication of motor load		4...20 mA LUF-V2

### Current transformers

Operational current		30	50	100	200	400	800
■ primary							
■ secondary	1	LUT-C0301	LUT-C0501	LUT-C1001	LUT-C2001	LUT-C4001	LUT-C8001



### Starters

#### ■ D.O.L.

#### ■ standard

Standard power ratings of 3-phase motors in category AC3 400/415 V		4...37 kW	0.06...45 kW	0.55...30 kW	0.37...5.5 kW	0.25...45 kW
Starters	manual	●	●	●	-	-
	auto	-	-	-	●	●
Isolating device	switch-disconnector-fuse	●	-	-	-	-
	circuit-breaker	-	●	●	●	-
	fuse carrier	-	-	-	-	-
Protection	short-circuit	-	●	●	●	-
	overload	-	●	●	●	●
Communication		-	-	-	-	-
<b>Basic reference</b>	Non reversing	V•F	GV2-ME	GV2-LC	LE1-GVME	LE1-M
		VCFN	GV3-CE	GV-NGC		LE1-D
	Reversing	V•FX				LE2-K
						LE2-D

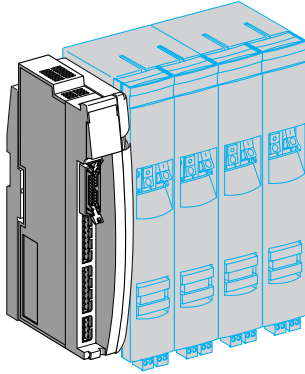
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					■ 2 stage		
	■ safety applications			■ AS-i bus		standard star-delta	
2.2...45 kW	0.06...11 kW	0.06...9 kW	0.06...9 kW	0.06...5.5 kW	5.5...132 kW	7.5...75 kW	
-	●	-	-	-	-	-	
●	-	●	●	●	●	●	
-	-	●	-	-	-	-	
-	●	●	●	●	-	-	
●	-	-	-	-	-	●	
●	●	●	●	●	-	●	
●	●	●	●	●	●	●	
-	-	-	-	●	-	-	
LE4-K	GV2-ME	LG1-K	LG7-K	LF1-M	LE3-K	LE6-D	
LE4-D		LG1-D	LG7-D	LF1-P	LE3-D	LE3-D	
			LJ7-K	LF7-P	LE3-F		
LE8-K			LG8-K	LF2-M			
LE8-D			LJ8-K	LF2-P			
LE2-D				LF8-P			



Tego Power is a modular system which standardises and simplifies the implementation of motor starters with its prewired control and power circuits.

Installation of a motor starter is therefore quick, simple, safe and flexible, with no wires needed for connection. In addition, this system enables the motor starter to be customised at a later date, reduces maintenance time and optimises panel space by reducing the number of terminals and intermediate interfaces and the amount of ducting.

Quickfit technology for TeSys motor starter components with spring terminals is designed for use with model d contactors (9 to 32 A) and with GV2-ME motor circuit-breakers.

## Communication modules

### ■ with terminal block

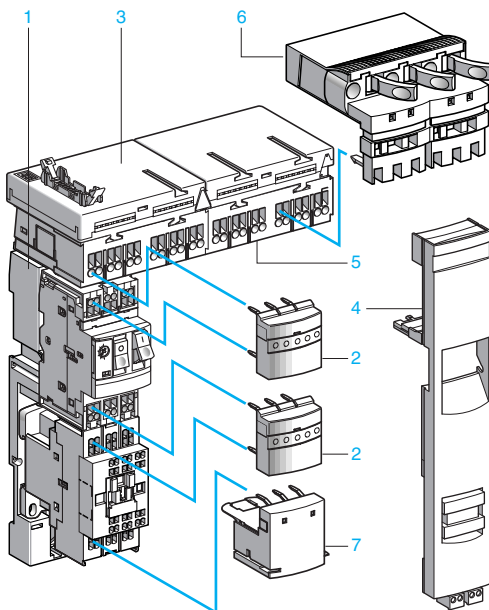
Number of HE10 connectors		-	2
Type of connection or bus:	screw terminals	<b>APP-1CV</b>	
	spring terminals	<b>APP-1CE</b>	

### ■ with connector

	HE10		<b>APP-1CH</b>
--	------	--	----------------

### ■ via bus

	AS-Interface		<b>APP-1CA32</b>	
	Fipio		<b>APP-1CFI0</b>	<b>APP-1CFI2</b>
	INTERBUS		<b>APP-1CIB0</b>	<b>APP-1CIB2</b>
	INTERBUS optical			<b>APP-1CIB5</b>
	Profibus DP		<b>APP-1CPF0</b>	<b>APP-1CPF2</b>
	CANopen		<b>APP-1CCO0</b>	<b>APP-1CCO2</b>
	DeviceNet		<b>APP-1CDN0</b>	<b>APP-1CDN2</b>



System using Quickfit technology, for TeSys motor starters with spring terminals.

The motor starters concerned are those formed by combining:

- GV2-ME circuit-breakers,
- with 9 to 25 A model d contactors (LC1).

Consisting of simple parts, Tego Power with Quickfit technology can be used to build motor starter assemblies up to 11.5 kW/400 V.

The main components which make up this range are:

#### ■ For the power circuit

- a power kit comprising, for each starter, a plate **1** for mounting the contactor and the circuit-breaker and two power connection modules **2**,
- a power splitter box **5** for 2 or 4 starters,
- an upstream terminal block **6** for a power supply up to 63 A (16 mm<sup>2</sup>),
- a downstream terminal block **7** for connection of the motor power supply cables and of the protection or earth cables (6 mm<sup>2</sup>).

#### ■ For the control circuit

- a control splitter box **3** for 2 or 4 starters, with control-command data on HE10 connector. The data on 4 or 8 starters can be fed back directly to the PLC via an 8I/8O or 16I/8O Advantys Telefast ABE7 cable, or to a fieldbus module (AS-Interface, Fipio, CANopen, DeviceNet, INTERBUS, Profibus),
- a control circuit connection module **4** which plugs directly into the contactor and the circuit-breaker on each starter. This module concentrates the motor starter control-command data. It incorporates the circuit-breaker status data in the prewiring of the contactor control circuit.

## Basic components

### Assembly and power connection kit comprising:

■ 1 mounting plate LAD-311 for GV2-ME	
■ 2 power connection modules LAD-341	<b>LAD-352</b>

### Reversing kit:

- 1 busbar set and 1 mechanical interlock <sup>(5)</sup>

### Upstream terminal blocks

Application	Max. connection c.s.a.	
Power supply to 1 or 2 power splitter boxes or a power control splitter box	16 mm <sup>2</sup> <sup>(6)</sup>	<b>LAD-3B</b>

### Downstream terminal blocks

Connection of motor cables	6 mm <sup>2</sup>	<b>LAD-331</b>
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## Prewired power connections

### (control connection factory wired)

	Type of control-command connection on control system side	No. of I/O per starter	Extension by	No. of starters	
<b>Power splitter box, 60 A</b>	-	-	LAD-32•	2 4	<b>LAD-322</b> <b>LAD-324</b>
<b>Power (60 A) and control splitter box</b>	1 x HE 10 8I/8O	1I/1O <sup>(1)</sup>	APP 2R•E	4	<b>APP-2R4H1</b>
	1 x HE 10 16I and 1 x HE 10 8O	2I/1O <sup>(1)</sup>	up to 8 starters	4	<b>APP-2R4H2</b>
	Via module APP-1C••• <sup>(2)</sup>	-		2 4	<b>APP-2R2E</b> <b>APP-2R4E</b>
	Model d coil voltage	Type of coil control relay		Type of starter	
<b>Control connection module</b>	~ 12...240 V or ~ 24...125 V	Electromechanical <sup>(3)</sup>		D.O.L.	<b>APP-2D1</b>
(incorporating contact block GV-AE20)				Reversing	<b>APP-2D2</b>
	~ 24 V	Without relay <sup>(4)</sup>		D.O.L.	<b>APP-2D1D</b>
				Reversing	<b>APP-2D2D</b>

## Spare or replacement parts

	Type of control-command connection on control system side	No. of I/O per starter	No. of starters	
<b>Plate for mounting a GV2-M circuit-breaker</b>	-	-	1	<b>LAD-311</b>
<b>Power connection module</b>	-	-	1	<b>LAD-341</b>
<b>Control-command splitter boxes</b>	1 x HE 10 8I/8O	1I/1O	4	<b>APP-2R4H3</b>
	1 x HE 10 16I and 1 x HE 10 8O	2I/1O	4	<b>APP-2R4H4</b>
(single, for mounting on a power splitter box)	Via module APP-1C••• <sup>(2)</sup>	-	2 4	<b>APP-2R2C</b> <b>APP-2R4C</b>
<b>Replacement electromechanical relay</b>		-	1	<b>ABR-7S23</b>
(for control connection module)				

(1) Cables with 20-way Advantys Telefast ABE7 HE 10 connector. (2) Connection to an APP-1C••• module via adapter APP-2CX. (3) Relay supplied mounted in the front panel of the control connection. (4) The use of model d low consumption contactors is recommended.

(5) The following are needed to build a model d reversing starter: 2 contactors LC1 D, 2 mounting plates LAD-311, 1 mechanical interlock LAD-9V2, 1 upstream power connection kit and 1 downstream connection kit: - upstream power connection kit LAD-9V10: installed in the Quickfit system with power connection module LAD-341 – downstream connection kit LAD-9V11: installed in the Quickfit system with outgoing terminal block LAD-331 (if LAD-331 is not used, replace LAD-9V11 with LAD-9V13).

(6) Cables with one end pre-crimped are available to allow fast connection. References: 1 set of 3 x 6 mm<sup>2</sup> cables (length 1 m LAD-3B061, length 2 m LAD-3B062 and length 3 m LAD-3B063), 1 set of 3 x 10 mm<sup>2</sup> cables (length 1 m LAD-3B101, length 2 m LAD-3B102 and length 3 m LAD-3B103), 1 set of 3 x 16 mm<sup>2</sup> cables (length 1 m LAD-3B161, length 2 m LAD-3B162 and length 3 m LAD-3B163).

# Components Lighting applications (AC5)

Sodium vapour lamps															
■ low pressure															
	Non corrected							With parallel compensation							
P (W)	3-	55	90	135	150	180	200	35	55	90	135	150	180	200	
IB (A)	1.2	1.6	2.4	3.1	3.2	3.3	3.4	0.3	0.4	0.6	0.9	1	1.2	1.3	
C (µF)	-	-	-	-	-	-	-	17	17	25	36	36	36	36	LC1-
Max. number of lamps	6	5	3	2	2	2	2	-	-	-	-	-	-	-	K09
accordint to P (W), per contactor	10	7	5	3	3	3	3	40	30	-	-	-	-	-	D09, D12
	12	9	6	4	4	4	4	50	37	25	-	-	-	-	D18
	15	11	7	6	5	5	5	63	47	31	21	19	15	14	D25
	21	16	10	8	8	7	7	86	65	43	28	26	21	20	D32, D38
	27	20	13	10	10	10	9	110	82	55	36	33	27	25	D40
	35	26	17	13	13	12	12	140	105	70	46	42	35	32	D50, D65
	50	37	25	19	18	18	17	200	150	100	66	60	50	46	D80, D95
	100	75	50	38	36	36	34	400	300	200	132	120	100	92	D115, D150
	140	104	70	54	52	50	48	560	420	280	186	168	140	128	F185
	152	114	76	58	56	54	54	606	454	302	202	182	152	140	F225
	174	130	88	68	66	64	62	700	524	350	232	210	174	162	F265
	198	148	98	76	74	72	70	792	594	396	264	238	198	182	F330
	250	188	124	96	94	90	88	1002	752	502	334	300	250	252	F400
	338	254	168	130	126	122	118	1352	1014	676	450	406	338	312	F500
	496	372	248	192	186	180	174	1982	1488	992	660	594	496	458	F600, F800
■ high pressure															
P (W)	150	250	400	700	1000			150	250	400	700	1000			
IB (A)	1.9	3.2	5	8.8	12.4			0.84	1.4	2.2	3.9	5.5			
C (µF)	-	-	-	-	-			20	32	48	96	120			LC1-
Max. number of lamps	4	2	1	-	-			-	-	-	-	-			K09
accordint to P (W), per contactor	6	3	2	1	-			-	-	-	-	-			D09, D12
	7	4	3	1	1			17	-	-	-	-			D18
	10	5	3	2	1			22	13	8	-	-			D25
	13	8	5	2	2			30	18	11	6	-			D32, D38
	17	10	6	3	2			39	23	15	8	6			D40
	22	13	8	4	3			50	30	19	10	7			D50, D65
	31	18	12	6	4			71	42	27	15	10			D80, D95
	62	36	24	12	8			142	84	54	30	20			D115, D150
	88	52	34	18	14			200	120	76	42	30			F185
	96	56	36	20	16			216	130	82	46	32			F225
	110	66	42	24	18			250	150	94	54	38			F265
	124	74	48	26	20			282	170	108	60	42			F330
	158	94	60	34	24			358	214	136	76	54			F400
	214	126	80	46	32			482	290	184	104	74			F500
	312	186	118	68	48			708	424	270	152	108			F630, F800
Metal iodine vapour lamps															
P (W)	250	400	1000	2000				250	400	1000	2000				
IB (A)	2.5	3.6	9.5	20				1.4	2	5.3	11.2				
C (µF)	-	-	-	-				32	32	64	140				LC1-
Max. number of lamps	3	2	-	-				-	-	-	-				K09
accordint to P (W), per contactor	4	3	1	-				-	-	-	-				D09, D12
	6	4	1	-				-	-	-	-				D18
	7	5	2	-				13	9	-	-				D25
	10	7	2	1				18	13	4	-				D32, D38
	13	9	3	1				23	16	6	-				D40
	16	11	4	2				30	21	7	-				D50, D65
	24	16	6	3				42	30	11	5				D80, D95
	48	32	12	6				84	60	22	10				D115, D150
	66	46	18	8				120	84	32	14				F185
	72	50	20	10				130	90	34	16				F225
	84	58	22	12				150	104	40	18				F265
	94	66	24	14				170	118	44	20				F330
	120	84	32	16				214	150	56	26				F400
	162	112	42	20				290	202	76	36				F500
	238	164	62	30				424	298	112	52				F630, F800

## Incandescent and halogen lamps

P (W)	60	75	100	150	200	300	500	750	1000	
IB (A)	0.27	0.34	0.45	0.68	0.91	1.40	2.30	3.40	4.60	LC1-
Max. number of lamps	35	28	21	14	10	6	4	2	2	K09
accordint to P (W), per contactor	59	47	35	23	17	11	7	4	3	D09, D12
	77	61	46	30	23	15	9	6	4	D18
	92	73	55	36	27	18	11	7	5	D25
	129	103	77	51	38	25	15	10	7	D32, D38
	163	129	97	64	48	31	19	13	9	D40
	207	164	124	82	62	40	24	16	12	D50, D65
	296	235	177	117	88	57	34	23	17	D80, D95
	430	340	256	170	126	82	50	34	24	D115
	466	370	280	184	138	90	54	36	26	D150
	710	564	426	282	210	136	82	56	40	F185
	770	610	462	304	228	148	90	60	44	F225
	888	704	532	352	262	170	104	70	52	F265
	1006	800	604	400	298	194	118	80	58	F330
	1274	1010	764	504	378	244	148	100	74	F400
	1718	1364	1030	682	508	330	200	136	100	F500
	2328	1850	1396	924	690	448	272	184	136	F600
	2776	2204	1666	1102	824	534	326	220	162	F800

## Fluorescent lamps with starter

### ■ single fitting

	Non-corrected					With parallel correction					
P (W)	20	40	65	80	110	20	40	65	80	110	
IB (A)	0.39	0.45	0.70	0.80	1.2	0.17	0.26	0.42	0.52	0.72	
C (μF)	-	-	-	-	-	5	5	7	7	16	LC1-
Max. number of lamps	24	21	13	12	8	56	36	22	18	-	K09
accordint to P (W), per contactor	41	35	22	20	13	94	61	38	30	22	D09, D12
	53	46	30	26	17	123	80	50	40	29	D18
	66	57	37	32	21	152	100	61	50	36	D25
	89	77	50	43	29	205	134	83	67	48	D32, D38
	112	97	62	55	36	258	169	104	84	61	D40
	143	124	80	70	46	329	215	133	107	77	D50, D65
	205	177	114	100	66	470	367	190	153	111	D80, D95
	410	354	228	200	132	940	614	380	306	222	D115, D150
	492	426	274	240	160	1128	738	456	368	266	F185
	532	462	296	260	172	1224	800	490	400	288	F225
	614	532	342	300	200	1412	922	570	462	332	F265
	696	604	388	340	226	1600	1046	648	522	378	F330
	882	764	490	430	286	2024	1322	818	662	478	F400
	1190	1030	662	580	386	2728	1724	1104	892	644	F500
	1612	1398	698	786	524	3700	2418	1498	1210	874	F630, F800

### ■ twin fitting

	2x20	2x40	2x65	2x80	2x110	2x20	2x40	2x65	2x80	2x110	
P (W)	2x20	2x40	2x65	2x80	2x110	2x20	2x40	2x65	2x80	2x110	
IB (A)	2x0.22	2x0.41	2x0.67	2x0.82	2x1.1	2x0.13	2x0.24	2x0.39	2x0.48	2x0.65	LC1-
Max. number of lamps	2x21	2x11	2x7	2x5	2x4	2x36	2x20	2x12	2x10	2x7	K09
accordint to P (W), per contactor	2x36	2x18	2x10	2x8	2x6	2x60	2x32	2x20	2x16	2x12	D09, D12
	2x46	2x24	2x14	2x12	2x8	2x80	2x42	2x26	2x20	2x16	D18
	2x58	2x30	2x18	2x14	2x10	2x100	2x54	2x32	2x26	2x20	D25
	2x78	2x42	2x26	2x20	2x14	2x134	2x72	2x44	2x36	2x26	D32, D38
	2x100	2x52	2x32	2x26	2x18	2x168	2x90	2x56	2x44	2x32	D40
	2x126	2x68	2x40	2x34	2x24	2x214	2x116	2x70	2x58	2x42	D50, D65
	2x180	2x96	2x58	2x48	2x36	2x306	2x166	2x102	2x82	2x60	D80, D95
	2x360	2x194	2x118	2x96	2x72	2x614	2x332	2x204	2x166	2x122	D115, D150
	2x436	2x234	2x142	2x116	2x86	2x738	2x400	2x246	2x200	2x148	F185
	2x472	2x254	2x154	2x126	2x94	2x800	2x432	2x266	2x216	2x160	F225
	2x544	2x292	2x178	2x146	2x108	2x922	2x500	2x308	2x250	2x184	F265
	2x618	2x332	2x202	2x166	2x124	2x1046	2x566	2x348	2x282	2x208	F330
	2x782	2x420	2x256	2x210	2x156	2x1322	2x716	2x440	2x358	2x264	F400
	2x1054	2x566	2x346	2x282	2x210	2x1784	2x966	2x594	2x482	2x356	F500
	2x1430	2x766	2x468	2x384	2x286	2x2418	2x1310	2x806	2x654	2x484	F630, F800

### On-load capacitor switching

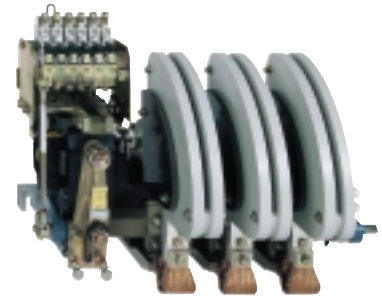
for bar-mounted contactors, a.c. control circuit

Rated operational voltage (V)	Without damping resistor			With damping resistor				
	Number of poles	Max. operational current (A)		Basic reference, to be completed	Number of poles	Max. operational current (A)		Basic reference, to be completed
		50 Hz	180 Hz			50 Hz	180 Hz	
1300	1	80	60	CE5-FB11•11	1 + 1 staggered pole	80	60	CE6-FB12•11
		160	125	CE5-GB11•11		160	125	CE6-GB12•11
		240	190	CE5-HB11•11		240	190	CE6-HB12•11
	2	80x2	60x2	CE5-FB21•11	2 + 2 staggered poles	240x2	190x2	CE6-HB22•11
		160x2	125x2	CE5-GB21•11				
		240x2	190x2	CE5-HB21•11				
3	80x3	60x3	CE5-FB31•11					
	160x3	125x3	CE5-GB31•11					
	240x3	190x3	CE5-HB31•11					
1500	2 poles in series	160	125	CE5-GB12•11	1 + 2 staggered poles	160	125	CE6-GB13•11
		280	220	CE5-HB12•11		280	220	CE6-HB13•11
	2 x 2 poles in series	280x2	220x2	CE5-HB22•11				
2000	2 poles in series	240	190	CS5-HB12•11	1 + 2 staggered poles	240	190	CS6-HB13•11
	2 x 2 poles in series	240x2	190x2	CS5-HB22•11				
3000	3 poles in series	280	220	CS5-HB13•11	1 + 3 staggered poles	280	220	CS6-HB14•11

### Standard control circuit voltages

~ supply

Volts	110	125	127	200	220	240	250	380	415	440	500
50 Hz (coil LX1)	F	-	G	L	M	U	-	Q	N	R	S



## Maximum operational power of contactors

### ■ standard contactors

Operational power at 50/60 Hz

	$\theta \geq 40\text{ }^{\circ}\text{C}$			$\theta \geq 55\text{ }^{\circ}\text{C}$			Peak current	Contactor size
	220 V	400 V	600 V	220 V	400 V	600 V		
	240 V	440 V	690 V	240 V	440 V	690 V		
	kVAR	kVAR	kVAR	kVAR	kVAR	kVAR	A	
6	11	15	15	6	11	15	560	LC1-D09, D12
9	15	20	20	9	15	20	850	LC1-D18
11	20	25	25	11	20	25	1600	LC1-D25
14	25	30	30	14	25	30	1900	LC1-D32, D38
17	30	37	37	17	30	37	2160	LC1-D40
22	40	50	50	22	40	50	2160	LC1-D50
22	40	50	50	22	40	50	3040	LC1-D65
35	60	75	75	35	60	75	3040	LC1-D80, D95
50	90	125	125	38	75	80	3100	LC1-D115
60	110	135	135	40	85	90	3300	LC1-D150
70	125	160	160	50	100	100	3500	LC1-F185
80	140	190	190	60	110	110	4000	LC1-F225
90	160	225	225	75	125	125	5000	LC1-F265
100	190	275	275	85	140	165	6500	LC1-F330
125	220	300	300	100	160	200	8000	LC1-F400
180	300	400	400	125	220	300	10000	LC1-F500
250	400	600	600	190	350	500	12000	LC1-F630
250	400	600	600	190	350	500	14200	LC1-F800
200	350	500	500	180	350	500	25000	LC1-BL
300	550	650	650	250	500	600	25000	LC1-BM
500	8350	950	950	400	750	750	25000	LC1-BP
600	1100	1300	1300	500	1000	1000	25000	LC1-BR

### ■ special contactors

Operational power at 50/60 Hz

	$\theta \geq 55\text{ }^{\circ}\text{C}$			Instantaneous auxiliary contacts		Tightening torque on cable end	Basic reference, to be completed
	220 V	400 V	660 V				
	240 V	440 V	690 V				
	kVAR	kVAR	kVAR	N/O	N/C	N.m	
6.7	12.5	18	18	1	1	1.2	LC1-DFK11**
				-	2	1.2	LC1-DFK02**
8.5	16.7	24	24	1	1	1.7	LC1-DGK11**
				-	2	1.7	LC1-DGK02**
10	20	30	30	1	1	1.9	LC1-DLK11**
				-	2	1.9	LC1-DLK02**
15	25	36	36	1	1	2.5	LC1-DMK11**
				-	2	2.5	LC1-DMK02**
20	33.3	48	48	1	2	5	LC1-DPK12**
25	40	58	58	1	2	5	LC1-DTK12**
40	60	92	92	1	2	9	LC1-DWK12**

## Standard control circuit voltages

~ supply

Volts	24	42	48	110	115	220	230	240	380	400	415	440
50/60 Hz (coil LX1)	<b>B7</b>	<b>D7</b>	<b>E7</b>	<b>F7</b>	<b>FE7</b>	<b>M7</b>	<b>P7</b>	<b>U7</b>	<b>Q7</b>	<b>V7</b>	<b>N7</b>	<b>R7</b>



### Maximum operational current (device in open air)

Contactors		LC1-/LP1-K09	LC1-/LP1-K12	LC1-D09	LC1-DT20	LC1-D12	LC1-D18	LC1-D25	LC1-D32	LC1-D38	LC1-D40	
■ 3-pole												
■ 4-pole												
<b>LC2- changeover contactor pairs, factory assembled</b>			K09004	K12004		DT20	DT25	DT32	DT40		D40004	
Operational current in AC-1, in A, $\geq 40^\circ\text{C}$	A	20	20	25	20	25	32	40	50	50	60	
according to ambient temperature $\geq 60^\circ\text{C}$	A	20	20	25	20	25	32	40	50	50	60	
	$\geq 70^\circ\text{C}$											
Maximum operational power $\leq 60^\circ\text{C}$	220/230 V	kW	8	8	9	8	9	11	14	18	18	21
	240 V	kW	8	8	9	8	9	12	15	19	19	23
	380/400 V	kW	14	14	15	14	15	20	25	31	31	37
	415 V	kW	14	14	17	14	17	21	27	34	34	41
	440 V	kW	15	15	18	15	18	23	29	36	36	43
	500 V	kW	17	17	20	17	20	23	33	41	41	49
	660/690 V	kW	22	22	27	22	27	34	43	54	54	65

### Increase in operational current by parallel connection of poles

Apply the following coefficients to the currents or powers above; these coefficients take into account an often unbalanced distribution of current between the poles:

- 2 poles in parallel K = 1.6
- 3 poles in parallel K = 2.25
- 4 poles in parallel K = 2.8

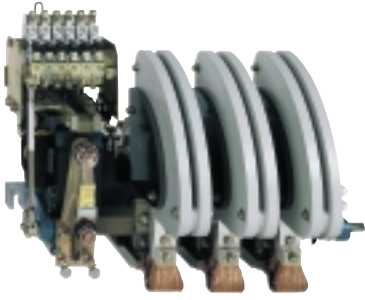


### Connection accessories for heating applications

Paralleling links for:		Reference
■ model k	2 poles	with screw clamp terminals LA9-E01
	4 poles	with screw clamp terminals LA9-E02
■ model d	2 poles	D09...D38 LA9-D2561
		DT20 and DT25 (4P) LA9-D1261
		DT32...DT40 (4P) LAD-D96061
	3 poles	D40...D65 LA9-D40961
		D80 LA9-D80961
		D09...D38 LAD-9P3 <sup>(1)</sup>
4 poles	D80 LA9-D80962	
	DT20...DT25 LA9-D1263	
	D40...D65 LA9-D40963	
■ model F	2 to 2	D80 LA9-D80963
		LC1-F1154 LA9-FF602
		LC1-F1504, F1854 LA9-FG602
		LC1-F2254, F2654, F3304, F4004 LA9-FH602
		LC1-F5004 LA9-FK602
LC1-F6304 LA9-FL602		

(1) Link that can be split, allowing parallel connection of 2 poles





LC1-D50	LC1-D65	LC1-D80	LC1-D115	LC1-F185	LC1-F225	LC1-F265	LC1-F330	LC1-F400	LC1-F500	LC1-F630	LC1-F780	LC1-F800	LC1-BL	LC1-BM	LC1-BP	LC1-BR
	<b>D65004</b>	<b>D80004</b>	<b>D115004</b>	<b>F1854</b>	<b>F2254</b>	<b>F2654</b>										
80	80	125	250	275	315	350	400	500	700	1000	1600	1000	800	1250	2000	2750
80	80	125	200	275	280	300	360	430	580	850	1350	850	700	1100	1750	2400
				180	200	250	290	340	500	700	1100	700	600	900	1500	2000
29	29	45	80	90	100	120	145	170	240	350	550	350	300	425	700	1000
31	31	49	83	100	110	125	160	180	255	370	570	370	330	450	800	1100
50	50	78	135	165	175	210	250	300	430	600	950	600	500	800	1200	1600
54	54	85	140	170	185	220	260	310	445	630	1000	630	525	825	1250	1700
58	58	90	150	180	200	230	290	330	370	670	1050	670	550	850	1400	2000
65	65	102	170	200	220	270	320	380	660	750	1200	750	600	900	1500	2100
86	86	135	235	280	300	370	400	530	740	1000	1650	1000	800	1100	1900	2700

### Mounting accessories for changeover contactor pairs

(for customer assembly)

Contactor type	Set of power connections	Mechanical interlock	Contactor type	Set of power connections	Mechanical interlock
<b>2 contactors, vertically mounted</b>					
■ 4-pole changeover pairs with locking device components					
LC1-B		EZ2-LB0601			
<b>2 identical contactors, horizontally mounted</b>					
■ with electrical interlocking kit for the contactors					
LC1-DT20...DT40	LAD-T9R1V <sup>(1)</sup>				
■ mechanical interlock with integral electrical interlocking					
LC1-D65004	LA9-D6570	LA9-D4002	LC1-D80004	LA9-D8070	LA9-D4002
LP1-D80004	LA9-D8070	LA9-D8002	LC1-D115004	LA9-D11570	LA9-D11502
■ without electrical interlocking <sup>(2)</sup>					
LC1-DT20...DT32	LAD-T9R1 <sup>(2)</sup>		LC1-DT40 and DT60	LAD-T9R2 <sup>(2)</sup>	
LC1 or LP1-D65004	LA9-D6570	LA9-D50978	LC1-D80004	LA9-D8070	LA9-D50978
LP1-D80004	LA9-D8070	LA9-D80978			
<b>2 contactors of identical rating, horizontally mounted</b>					
■ 4-pole changeover pairs					
LC1-F1154	LA9-FF977	LA9-FF970	LC1-F1504	LA9-F15077	LA9-FF970
LC1-F1854	LA9-FG977	LA9-FG970	LC1-F2254	LA9-F22577	LA9-FG970
LC1-F2654	LA9-FH977	LA9-FJ970	LC1-F3304	LA9-FJ977	LA9-FJ970
LC1-F4004	LA9-FJ977	LA9-FJ970	LC1-F5004	LA9-FK977	LA9-FJ970
LC1-F6304	LA9-FL977	LA9-FL970			
■ 3-pole changeover pairs with electrical interlocking					
LC1-D115 and D150	LA9-D11571	LA9-D11502			
<b>reversers assembled using 2 contactors, vertically mounted</b>					
■ 4-pole changeover pairs using contactors of identical rating <sup>(3)</sup>		■ 3 or 4-pole changeover pairs using contactors of different rating			
		At bottom		At top	
LC1-F1154 or F1505	(3)	LA9-FF4F	LC1-F115 or F1154	LC1-F185 or F1854	LA9-FG4F
LC1-F1854	(3)	LA9-FG4G	or LC1-F150 or F1504	LC1-F225 or F2254	LA9-FG4F
LC1-F2254	(3)	LA9-FG4G		LC1-F265 or F2654	LA9-FH4F
LC1-F2654 or F3304	(3)	LA9-FH4H		LC1-F300 or F3304	LA9-FH4F
LC1-F4004	(3)	LA9-FJ4J		LC1-F400 or F4004	LA9-FJ4F
LC1-F5004	(3)	LA9-FK4K		LC1-F500 or F5004	LA9-FK4F
LC1-F6304	(3)	LA9-FL4L		LC1-F630, F6304 or F800	LA9-FL4F
LC1-F7804	(4)	LA9-FX971 <sup>(4)</sup>	LC1-F185 or F1854	LC1-F265 or F2654	LA9-FH4G
			or LC1-F225 or F2254	LC1-F330 or F3304	LA9-FH4G
				LC1-F400 or F4004	LA9-FJ4G
				LC1-F500 or F5004	LA9-FK4G
				LC1-F630, F6304 or F800	LA9-FL4G
			LC1-F265 or F2654	LC1-F400 or F4004	LA9-FJ4H
			or LC1-F330 or F3304	LC1-F500 or F5004	LA9-FK4H
				LC1-F630, F6304 or F800	LA9-FL4H
			LC1-F400 or F4004	LC1-F500 or F5004	LA9-FK4J
				LC1-F630, F6304 or F800	LA9-FL4J
			LC1-F500 or F5004	LC1-F630, F6304 or F800	LA9-FL4K

(1) Including mechanical interlock, (2) Order separately 2 auxiliary contact blocks LAD-N\*1 to obtain electrical interlocking between the two contactors, (3) Power connections to be made by the customer. (4) Double mechanical interlock mechanism with 2 interlock connecting rods and 4 power connecting links.

# Soft starters and variable speed drives

For each application, a solution in soft starting and variable speed

Altistart/Altivar selection guide ..... pages 5/50-5/51

## Soft starters



Simple machines



■ 0.37 to 75 kW  
**Altistart 01** - pages 5/52-5/53



Pumping and ventilation machines



■ 4 to 1200 kW  
**Altistart 48** - pages 5/54-5/55

## Variable speed drives



Simple machines



■ 0.18 to 2.2 kW  
**Altistart 11** - pages 5/56-5/57



■ 0.18 to 15 kW  
**Altistart 31** - pages 5/58-5/59



Pumping and ventilation machines



■ 0.75 to 315 kW  
**Altivar 38** - pages 5/60-5/61



Complex, high-power machines



■ 0.37 to 500 kW  
**Altivar 71** - pages 5/62-5/67

Dialogue and communication ..... pages 5/68-5/71

# Selection guide

## Type of machine

## Simple machines



## Starters/drives

Soft starters and soft start/soft stop units

Variable speed drives

### Altistart 01

### Altivar 11

### Altivar 31



## Supply voltage ranges for 50/60 Hz line supply

Single phase 110...480 V  
Three phase 110...690 V

Single phase 100...120 V  
Single phase 200...240 V  
Three phase 200...230 V

Single phase 200...240 V  
Three phase 200...240 V  
Three phase 380...500 V  
Three phase 525...600 V

## Motor power

0.37...75 kW

0.18...2.2 kW

0.18...15 kW

## Drive

Output frequency  
Type of control   Asynchronous motor  
Synchronous motor  
Transient overtorque

–  
–  
–  
–

0.5...200 Hz  
Sensorless flux vector control  
–  
150...0.170% of the nominal motor torque

0.5...500 Hz  
–  
170...200% of the nominal motor torque

## Functions

Number of functions

1

26

50

Number of preset speeds

–

4

16

Number of I/O

Analog inputs

–

1

3

Logic inputs

3

4

6

Analog outputs

–

–

1

Logic outputs

1

1

–

Relay outputs

1

1

2

## Communication

Integrated

–

–

Modbus and CANopen

Available as an option

Combined with TeSys model U starter-controller

–

DeviceNet, Ethernet TCP/IP, Fipio, Profibus DP

## Cards (available as an option)

–

–

–

## Standards and certifications

IEC/EN 60947-4/2  
C-TICK - CSA - UL  
CE - CCC

EN 50178, EN 61800-3  
EN 55011 - EN 55022  
class B and class A gr.1  
NOM 117 - C-TICK - CSA  
UL - N998 - CE

EN 50178, EN 61800-3  
EN 55011 - EN 55022:  
class A, class B  
with option  
C-TICK - UL - N998 - CE - CSA

## Pumping and ventilation machines



## Complex, high-power machines



### Soft start/soft stop units

#### Altistart 48



Three phase 230...415 V  
Three phase 208...690 V

4...1200 kW

–  
TCS  
(Torque Control System)

–  
110% of the nominal motor torque for 60 seconds

36  
> 150

–  
8

1 PTC probe  
2...4

4  
6...20

1  
1...3

2  
0...8

3  
2...4

Modbus  
Modbus and CANopen

DeviceNet, Ethernet TCP/IP,  
Fipio, Profibus DP  
Ethernet TCP/IP, Modbus/Uni-Telway, Lonworks,  
METASYS N2, CANopen, AS-Interface, Profibus DP,  
DeviceNet, Fipio, Modbus Plus, INTERBUS

–  
Pump switching  
"Controller Inside" programmable card  
I/O extension card  
Encoder interface card  
I/O extension card  
"Controller Inside" programmable card

IEC/EN 60947-4-2  
EMC class A and B  
DNV - C-TICK - GOST  
CCIB - NOM - UL - CE  
CCC - CSA  
EN 50178  
IEC/EN 61800-3 (environments 1 and 2, C1 to C3)  
EN 55011 class A  
EN 55022 class B  
UL - N998 - CE  
IEC/EN 61800-5-1,  
IEC/EN 61800-3 (environments 1 and 2, C1 to C3)  
EN 55011, EN 55022,  
IEC/EN 61000-4-2/4-3/4-4/4-5/4-6/4-11  
CE, UL, CSA, DNV, C-Tick, NOM 117, GOST

### Variable speed drives

#### Altivar 38



Three phase 380...460 V

0.75...315 kW

0.1...500 Hz  
Sensorless flux vector control

–  
110% of the nominal motor torque for 60 seconds

44  
> 150

8

2...3  
2...4

4...6  
6...20

1...2  
1...3

0...1  
0...8

2  
2...4

Modbus  
Modbus and CANopen

Ethernet TCP/IP, Modbus/Uni-Telway, Lonworks,  
METASYS N2, CANopen, AS-Interface, Profibus DP,  
DeviceNet, Fipio, Modbus Plus, INTERBUS  
Pump switching  
"Controller Inside" programmable card  
I/O extension card  
Encoder interface card  
I/O extension card  
"Controller Inside" programmable card

EN 50178  
IEC/EN 61800-3 (environments 1 and 2, C1 to C3)  
EN 55011 class A  
EN 55022 class B  
UL - N998 - CE  
IEC/EN 61800-5-1,  
IEC/EN 61800-3 (environments 1 and 2, C1 to C3)  
EN 55011, EN 55022,  
IEC/EN 61000-4-2/4-3/4-4/4-5/4-6/4-11  
CE, UL, CSA, DNV, C-Tick, NOM 117, GOST

#### Altivar 71



Single phase 200...240 V  
Three phase 200...240 V  
Three phase 380...480 V

0.37...500 kW

0.1...1000 Hz  
Flux vector control with or without sensor, voltage/  
frequency ratio (2 or 5 points), ENA System

Vector control without speed feedback  
200% of the nominal motor torque for 2 seconds,  
170% for 60 seconds

> 150

16

2...4

6...20

1...3

0...8

2...4

Modbus and CANopen

Ethernet TCP/IP, Modbus/Uni-Telway, Fipio,  
Modbus Plus, Profibus DP, DeviceNet, INTERBUS  
Pump switching  
"Controller Inside" programmable card  
I/O extension card  
Encoder interface card  
I/O extension card  
"Controller Inside" programmable card

IEC/EN 61800-5-1,  
IEC/EN 61800-3 (environments 1 and 2, C1 to C3)  
EN 55011, EN 55022,  
IEC/EN 61000-4-2/4-3/4-4/4-5/4-6/4-11  
CE, UL, CSA, DNV, C-Tick, NOM 117, GOST

Dimensions (in mm)		width x height x depth
ATS01	N103FT / N106 FT	22.5 x 100 x 100
	N109FT / N112 FT / N125 FT	45 x 124 x 130
	N206●● / N209●● / N212●●	
	N222●● / N232●●	45 x 154 x 130



Type of starter		Soft starters	Soft start/soft stop units			
Motor power		0.37 to 11 kW	0.75 to 15 kW			
Degree of protection		IP 20				
Peak current reduction		No (1 controlled phase)	Yes (2 controlled phases)			
Adjustable starting time		1...5 s	1...10 s			
Adjustable stopping time		No: freewheel stop	Yes: 1... 10 s			
Adjustable starting torque		30...80% of DOL motor starting torque				
Logic inputs		–	3 logic inputs (run, stop and startup boost)			
Logic outputs		–	1 logic output			
Relay outputs		–	1 relay output			
Control supply voltage		110...240 VAC ± 10%, 24 VDC ± 10%				
Supply voltage		Single phase 110...230 V				
Motor power						
230 V		Nominal current				
kW		(IcL)				
0.37		3 A				
0.75		6 A				
1.1		9 A				
1.5		12 A				
2.2		25 A				
Supply voltage		Three phase 110...230 V	Three phase 200...240 V	Three phase 380...415 V	Three phase 440...480 V	
Motor power						
210 V	230 V		400 V	460 V	Nominal current	
HP	kW	HP	kW	HP	(IcL)	
–	0.37-0.55	0.5/–	1.1	0.5-1.5	3 A	
0.5	0.75-1.1	1-1.5	2.2-3	2-3	6 A	ATS01N103FT
1	1.5	2	4	5	9 A	ATS01N106FT
1.5	2.2	3	5.5	7.5	12 A	ATS01N109FT
–	4-5.5	5-7.5	7.5-11	10-15	22 A	ATS01N112FT
–	–	–	–	–	–	ATS01N206LU
2-3	3-4-5.5	5-7.5	7.5-9-11	10-15	25A	ATS01N209LU
–	7.5	10	15	20	32 A	ATS01N212LU
–	–	–	–	–	–	ATS01N212QN
–	–	–	–	–	–	ATS01N222QN
–	–	–	–	–	–	ATS01N222RT
–	–	–	–	–	–	ATS01N232LU
–	–	–	–	–	–	ATS01N232QN
–	–	–	–	–	–	ATS01N232RT

5



## Starters



Dimensions (in mm)		width x height x depth
ATS01	N230●● / N244●●	180 x 146 x 126
	N272●● / N285●●	180 x 254.5 x 126

Type of starter							Soft start/soft stop units		
Motor power							15 to 75 kW		
Degree of protection							IP 20 on front panel		
Peak current reduction							Yes		
Adjustable starting and stopping times							1... 25 s		
Adjustable starting torque							30... 80% of DOL motor starting torque		
Logic inputs							2 logic inputs (run and stop)		
Relay outputs							1 relay output		
Control supply voltage							110 VDC ± 10%		Built into the starter
Supply voltage							Three phase 230...690 V		Three phase 400 V
Motor power									
230 V		400 V		460 V	690 V	Nominal current			
kW	HP	kW	HP	HP	kW	(IcL)			
7.5	10	15	15	20	30	32 A	ATS01N230LY	-	
11	15	22	25	30	37	44 A	ATS01N244LY	ATS01N244Q	
18.5	25	37	40	50	55	72 A	ATS01N272LY	ATS01N272Q	
22	30	45	50	60	75	85 A	ATS01N285LY	ATS01N285Q	

5

## Starters with TeSys model U



Dimensions (in mm)		width x height x depth
ATSU01	N206LT / N209LT / N212LT	45 x 124 x 130
	N222LT / N232LT	45 x 154 x 130

Type of starter						Soft start/soft stop units			
Motor power						0.75 to 15 kW			
Degree of protection						IP 20			
Peak current reduction						Yes			
Adjustable starting and stopping times						1...10 s			
Adjustable starting torque						30... 80% of DOL motor starting torque			
Logic inputs						3 logic inputs (start, stop and startup boost)			
Logic outputs						1 logic output			
Relay outputs						1 relay output			
Control supply voltage						Built into the starter			
References						Soft start/soft stop units	TeSys model U starter-controller		Power connector
							Power base	Control unit (1)	between ATSU and TeSys model U
Supply voltage						Three phase 200...480 V			
Motor power									
230 V		400 V		460 V	Nominal current				
kW	HP	kW	HP	HP	(IcL)				
0.75	1	1.5	2	–	6 A	ATSU01N206LT	LUB12	LUC●05BL	VW3G4104
1.1	1.5	2.2	3	–	6 A	ATSU01N206LT	LUB12	LUC●12BL	VW3G4104
1.5	2	3	–	–	9 A	ATSU01N209LT	LUB12	LUC●12BL	VW3G4104
–	–	4	5	–	9 A	ATSU01N209LT	LUB12	LUC●12BL	VW3G4104
2.2	3	–	–	–	12	ATSU01N212LT	LUB12	LUC●12BL	VW3G4104
3	–	5.5	7.5	–	12 A	ATSU01N212LT	LUB32	LUC●18BL	VW3G4104
4	5	7.5	10	–	22 A	ATSU01N222LT	LUB32	LUC●18BL	VW3G4104
5.5	7.5	11	15	–	22 A	ATSU01N222LT	LUB32	LUC●32BL	VW3G4104
7.5	10	15	20	–	32 A	ATSU01N232LT	LUB32	LUC●32BL	VW3G4104

(1) To compose your reference, replace ● in the reference with: "A" for a standard control unit, "M" for a multifunction unit and "B" for an advanced unit.

Dimensions (in mm)		width x height x depth	
ATS48	D17Q to D47Q	<b>Size A:</b>	160 x 275 x 190
	D62Q to C11Q	<b>Size B:</b>	190 x 290 x 235
	C14Q to C17Q	<b>Size C:</b>	200 x 340 x 265
	C21Q to C32Q	<b>Size D:</b>	320 x 380 x 265
	C41Q to C66Q	<b>Size E:</b>	400 x 670 x 300
	C79Q to M12Q	<b>Size F:</b>	770 x 890 x 315



Supply voltage			Three phase 230...415 V (1)			
Type of application			Standard		Severe (2)	
Starter control supply voltage			220...415 V			
Protection	Degree of protection		IP 20: ATS48D17● to ATS48C11● starters IP 00: ATS48C14● to ATS48M12● starters			
	Motor thermal protection		Class 10		Class 20	
EMC	Class A		On all starters			
	Class B		On all starters up to 170 A			
Starting mode			Torque control (patented TCS: Torque Control System)			
I/O	Analog inputs		1 PTC probe			
	Logic inputs		4 logic inputs, 2 of which are configurable			
	Logic outputs		2 configurable logic outputs			
	Analog outputs		1 analog output			
	Relay outputs		3 relay outputs, 2 of which are configurable			
Dialogue			Integrated or remote display terminal, or PowerSuite software workshop (3)			
Communication (4)	Integrated		Modbus			
	Available as an option		DeviceNet, Ethernet TCP/IP, Fipio, Profibus DP			
Motor power						
230 V	400 V	Nominal current				
kW	kW	(IcL)				
3	5.5	12 A	–		ATS48D17Q	Size A
4	7.5	17 A	ATS48D17Q	Size A	ATS48D22Q	Size A
5.5	11	22 A	ATS48D22Q	Size A	ATS48D32Q	Size A
7.5	15	32 A	ATS48D32Q	Size A	ATS48D38Q	Size A
9	18.5	38 A	ATS48D38Q	Size A	ATS48D47Q	Size A
11	22	47 A	ATS48D47Q	Size A	ATS48D62Q	Size B
15	30	62 A	ATS48D62Q	Size B	ATS48D75Q	Size B
18.5	37	75 A	ATS48D75Q	Size B	ATS48D88Q	Size B
22	45	88 A	ATS48D88Q	Size B	ATS48C11Q	Size B
30	55	110 A	ATS48C11Q	Size B	ATS48C14Q	Size C
37	75	140 A	ATS48C14Q	Size C	ATS48C17Q	Size C
45	90	170 A	ATS48C17Q	Size C	ATS48C21Q	Size D
55	110	210 A	ATS48C21Q	Size D	ATS48C25Q	Size D
75	132	250 A	ATS48C25Q	Size D	ATS48C32Q	Size D
90	160	320 A	ATS48C32Q	Size D	ATS48C41Q	Size E
110	220	410 A	ATS48C41Q	Size E	ATS48C48Q	Size E
132	250	480 A	ATS48C48Q	Size E	ATS48C59Q	Size E
160	315	590 A	ATS48C59Q	Size E	ATS48C66Q	Size E
–	355	660 A	ATS48C66Q	Size E	ATS48C79Q	Size F
220	400	790 A	ATS48C79Q	Size F	ATS48M10Q	Size F
250	500	1000 A	ATS48M10Q	Size F	ATS48M12Q	Size F
355	630	1200 A	ATS48M12Q	Size F	–	

(1) Possible to connect the starter in the motor delta connection

(2) Starting time greater than 30 seconds (fans, high inertia machines and compressors)

(3) (4) PowerSuite software and communication protocols, see page 5/68

## Accessory



Accessory	Remote display terminal
Reference	VW3G48101



## Soft start/soft stop units

Dimensions (in mm)		width x height x depth	
ATS48	D17Y to D47Y	<b>Size A:</b>	160 x 275 x 190
	D62Y to C11Y	<b>Size B:</b>	190 x 290 x 235
	C14Y to C17Y	<b>Size C:</b>	200 x 340 x 265
	C21Y to C32Y	<b>Size D:</b>	320 x 380 x 265
	C41Y to C66Y	<b>Size E:</b>	400 x 670 x 300
	C79Y to M12Y	<b>Size F:</b>	770 x 890 x 315



Supply voltage												Three phase 208...690 V (1)			
Type of application												Standard		Severe (2)	
Starter control supply voltage												110...230 V			
Characteristics												Identical to 230...415 V starters			
Motor power															
208 V	230 V	460 V	575 V	230 V	400 V	440 V	500 V	525 V	660 V	690 V	Nominal current (IcL)				
HP				kW											
2	3	7.5	10	3	5.5	5.5	7.5	7.5	9	11	12 A	–		ATS48D17Y	Size A
3	5	10	15	4	7.5	7.5	9	9	11	15	17 A	ATS48D17Y	Size A	ATS48D22Y	Size A
5	7.5	15	20	5.5	11	11	11	11	15	18.5	22 A	ATS48D22Y	Size A	ATS48D32Y	Size A
7.5	10	20	25	7.5	15	15	18.5	18.5	22	22	32 A	ATS48D32Y	Size A	ATS48D38Y	Size A
10	–	25	30	9	18.5	18.5	22	22	30	30	38 A	ATS48D38Y	Size A	ATS48D47Y	Size A
–	15	30	40	11	22	22	30	30	37	37	47 A	ATS48D47Y	Size A	ATS48D62Y	Size B
15	20	40	50	15	30	30	37	37	45	45	62 A	ATS48D62Y	Size B	ATS48D75Y	Size B
20	25	50	60	18.5	37	37	45	45	55	55	75 A	ATS48D75Y	Size B	ATS48D88Y	Size B
25	30	60	75	22	45	45	55	55	75	75	88 A	ATS48D88Y	Size B	ATS48C11Y	Size B
30	40	75	100	30	55	55	75	75	90	90	110 A	ATS48C11Y	Size B	ATS48C14Y	Size C
40	50	100	125	37	75	75	90	90	110	110	140 A	ATS48C14Y	Size C	ATS48C17Y	Size C
50	60	125	150	45	90	90	110	110	132	160	170 A	ATS48C17Y	Size C	ATS48C21Y	Size D
60	75	150	200	55	110	110	132	132	160	200	210 A	ATS48C21Y	Size D	ATS48C25Y	Size D
75	100	200	250	75	132	132	160	160	220	250	250 A	ATS48C25Y	Size D	ATS48C32Y	Size D
100	125	250	300	90	160	160	220	220	250	315	320 A	ATS48C32Y	Size D	ATS48C41Y	Size E
125	150	300	350	110	220	220	250	250	355	400	410 A	ATS48C41Y	Size E	ATS48C48Y	Size E
150	–	350	400	132	250	250	315	315	400	500	480 A	ATS48C48Y	Size E	ATS48C59Y	Size E
–	200	400	500	160	315	355	400	400	560	560	590 A	ATS48C59Y	Size E	ATS48C66Y	Size E
200	250	500	600	–	355	400	–	–	630	630	660 A	ATS48C66Y	Size E	ATS48C79Y	Size F
250	300	600	800	220	400	500	500	500	710	710	790 A	ATS48C79Y	Size F	ATS48M10Y	Size F
350	350	800	1000	250	500	630	630	630	900	900	1000 A	ATS48M10Y	Size F	ATS48M12Y	Size F
400	455	1000	1200	355	630	710	800	800	–	–	1200 A	ATS48M12Y	Size F	–	

(1) Starter connection in the motor delta connection: add "S316" at the end of the reference

## Line chokes



Degree of protection			IP 20	IP 00
References	Starter	ATS48	D17● VZ1L015UM17T	D75● to C14● VZ1L150U170T
	Choke			C41● to C48● VZ1L530U045T
	Starter	ATS48	D22● VZ1L030U800T	C17● to C25● VZ1L0250U100T
	Choke			C59● to M10● VZ1LM10U024T
Starter	ATS48	D32● and D38● VZ1L040U600T	AC32● VZ1L325U075T	
Choke			M12● VZ1LM14U016T	
Starter	ATS48	D47● and D62● VZ1L070U350T		
Choke				

# Altivar 11

0.18 to 2.2 kW

## Simple machines Drives on heatsinks



<b>Dimensions</b> (in mm)	width x height x depth (1)
<b>Size 1:</b>	72 x 142 x 101 / <b>Size 2:</b> 72 x 142 x 125
<b>Size 3:</b>	72 x 142 x 138 / <b>Size 4:</b> 117 x 142 x 156

Range			Europe	America	Asia
<b>Output frequency</b>			0.5...200 Hz		
<b>Type of control</b>			Sensorless flux vector control		
<b>Speed range</b>			1 to 20		
<b>Degree of protection</b>			IP 20		
<b>I/O</b>	Analog inputs		1 configurable analog input		
	Logic inputs		4 assignable logic inputs		
	Outputs		1 PWM open collector output or assignable as logic output		
	Relay outputs		1 protected relay logic output		
<b>Dialogue</b>			Integrated display terminal or PowerSuite software workshop (2)		
<b>EMC</b>			Integrated class B filter	External filter available as an option	External filter available as an option
<b>Local controls (3) / Negative logic</b>			No	No	Yes
<b>Standard NEC 208 V 1999</b>			No	Yes	No
<b>Supply voltage</b>			<b>Single phase 100...120 V</b>		
<b>Motor power</b>	kW/HP	0.18/0.25	–	ATV11HU05F1U Size 1	ATV11HU05F1A Size 1
		0.37/0.5	–	ATV11HU09F1U Size 2	ATV11HU09F1A Size 2
		0.75/1	–	ATV11HU18F1U Size 4	ATV11HU18F1A Size 4
<b>Supply voltage</b>			<b>Single phase 200...240 V</b>		
<b>Motor power</b>	kW/HP	0.18/0.25	ATV11HU05M2E Size 1	ATV11HU05M2U Size 1	ATV11HU05M2A Size 1
		0.37/0.5	ATV11HU09M2E Size 2	ATV11HU09M2U Size 2	ATV11HU09M2A Size 2
		0.55	ATV11HU12M2E Size 3	–	–
		0.75/1	ATV11HU18M2E Size 3	ATV11HU18M2U Size 3	ATV11HU18M2A Size 3
		1.5/2	ATV11HU29M2E Size 4	ATV11HU29M2U Size 4	ATV11HU29M2A Size 4
		2.2/3	ATV11HU41M2E Size 4	ATV11HU41M2U Size 4	ATV11HU41M2A Size 4
<b>Supply voltage</b>			<b>Three phase 200...230 V</b>		
<b>Motor power</b>	kW/HP	0.18/0.25	–	ATV11HU05M3U Size 1	ATV11HU05M3A Size 1
		0.37/0.5	–	ATV11HU09M3U Size 2	ATV11HU09M3A Size 2
		0.75/1	–	ATV11HU18M3U Size 3	ATV11HU18M3A Size 3
		1.5/2	–	ATV11HU29M3U Size 4	ATV11HU29M3A Size 4
		2.2/3	–	ATV11HU41M3U Size 4	ATV11HU41M3A Size 4

(1) Asia range: Add 7 mm to depth (height of the potentiometer)

(2) PowerSuite software, see page 5/68

(3) Local controls: Run/Stop keys and potentiometer

## Drives on base plates



<b>Dimensions</b> (in mm)	width x height x depth (1)
<b>1 size:</b>	72 x 142 x 101

Range			Europe	America	Asia
<b>Supply voltage</b>			<b>Single phase 100...120 V</b>		
<b>Motor power</b>	kW/HP	0.37/0.5	–	ATV11PU09F1U	ATV11PU09F1A
<b>Supply voltage</b>			<b>Single phase 200...240 V</b>		
<b>Motor power</b>	kW/HP	0.37/0.5	ATV11PU09M2E	ATV11PU09M2U	ATV11PU09M2A
		0.55	ATV11PU12M2E	–	–
		0.75/1	ATV11PU18M2E	ATV11PU18M2U	ATV11PU18M2A
<b>Supply voltage</b>			<b>Three phase 200...230 V</b>		
<b>Motor power</b>	kW/HP	0.37/0.5	–	ATV11PU09M3U	ATV11PU09M3A
		0.75/1	–	ATV11PU18M3U	ATV11PU18M3A

(1) Asia range: Add 7 mm to depth (height of the potentiometer)



## Additional EMC input filters



Supply voltage			Single phase		Three phase
			100...120 V	200...240 V	200...230 V
Europe range	Drive	ATV11	–	HU05M2E to HU41M2E	–
	References	Filters	–	Integrated	–
America range	Drive	ATV11	HU05F1U, HU09F1U	HU05M2U to HU18M2U	HU05M3U to HU18M3U
	References	Filters	VW3A11401	VW3A11401	VW3A11403
	Drive	ATV11	HU18F1U	HU29M2U - HU41M2U	HU29M3U to HU41M3U
	References	Filters	VW3A11402	VW3A11402	VW3A11404
Asia range	Drive	ATV11	HU05F1A - HU09F1A	HU05M2A to HU18M2A	HU05M3A to HU18M3A
	References	Filters	VW3A11401	VW3A11401	VW3A11403
	Drive	ATV11	HU18F1A - HU18F1A	HU29M2A - HU41M2A	HU29M3A to HU41M3A
	References	Filters	VW3A11402	VW3A11402	VW3A11404

## Accessories

5



Accessory			Mounting plates for Omega rail		Substitution plate	Speed reference potentiometer	EMC grounding plate
Description			Width 35 mm		For replacing ATV08	2.2 kΩ	
References	Drive	ATV11	HU05●●●	HU18F1●	HU05M2●	All ATV11 models	All ATV11 models
			HU09●●●	HU29●●●	●HU09M2●●		
			HU12M2●	HU41●●●	●U12M2E		
			HU18●●	–	●U18M2●		
Accessories			VW3A11851	VW3A11852	VW3A11811	SZ1RV1202	VW3A11831

Braking resistors and modules...other accessories: Please consult [www.Telemecanique.com](http://www.Telemecanique.com).

# Altivar 31

0.18 to 15 kW

## Simple machines Drives on heatsinks



Dimensions (in mm)	width x height x depth
Size 1: 72 x 145 x 120	/ Size 2: 72 x 145 x 130
Size 3: 72 x 145 x 140	/ Size 4: 72 x 145 x 145
Size 5: 105 x 143 x 130	/ Size 6: 105 x 143 x 150
Size 7: 140 x 184 x 150	/ Size 8: 180 x 232 x 170
Size 9: 245 x 330 x 190	

Supply voltage		Single phase 200...240 V	Three phase 200...240 V	380...500 V	
Output frequency		0.5...500 Hz			
Type of control		Sensorless flux vector control			
Speed range		1 to 50			
Degree of protection		IP 31 and IP 41 on upper part and IP 21 on connection terminals			
I/O	Analog inputs	3 configurable analog inputs			
	Logic inputs	6 programmable logic inputs			
	Analog outputs	1 current analog output (assignable as logic output) and 1 voltage analog output			
	Relay outputs	2 relay logic outputs			
Dialogue		Integrated display terminal with or without local controls (1) or PowerSuite software workshop (see page 5/68)			
Communication (see page 5/68)	Integrated	Modbus and CANopen			
	Available as an option	DeviceNet, Ethernet TCP/IP, Fipio, Profibus DP			
EMC	Class A	Integrated class A filter	External filter available as an option	Integrated class A filter	
	Class B	External filter available as an option			
Motor power	kW/HP	0.18/0.25	ATV31H018M2 Size 3	ATV31H018M3X Size 1	–
		0.37/0.5	ATV31H037M2 Size 3	ATV31H037M3X Size 1	ATV31H037N4 Size 5
		0.55/0.75	ATV31H055M2 Size 4	ATV31H055M3X Size 2	ATV31H055N4 Size 5
		0.75/1	ATV31H075M2 Size 4	ATV31H075M3X Size 2	ATV31H075N4 Size 6
		1.1/1.5	ATV31HU11M2 Size 6	ATV31HU11M3X Size 5	ATV31HU11N4 Size 6
		1.5/2	ATV31HU15M2 Size 6	ATV31HU15M3X Size 5	ATV31HU15N4 Size 6
		2.2/3	ATV31HU22M2 Size 7	ATV31HU22M3X Size 6	ATV31HU22N4 Size 7
		3/–	–	ATV31HU30M3X Size 7	ATV31HU30N4 Size 7
		4/5	–	ATV31HU40M3X Size 7	ATV31HU40N4 Size 7
		5.5/7.5	–	ATV31HU55M3X Size 8	ATV31HU55N4 Size 8
		7.5/10	–	ATV31HU75M3X Size 8	ATV31HU75N4 Size 8
11/15	–	ATV31HD11M3X Size 9	ATV31HD11N4 Size 9		
15/20	–	ATV31HD15M3X Size 9	ATV31HD15N4 Size 9		

(1) For drive with local controls (Run/Stop keys and potentiometer) add an "A" at the end of the reference.

To order a drive intended for spooling applications, add a "T" at the end of the reference.

## Enclosed drives



Dimensions (in mm)	width x height x depth
Size 1: 210 x 240 x 163	/ Size 2: 215 x 297 x 192
Size 3: 230 x 340 x 208	/ Size 4: 320 x 512 x 276
Size 5: 440 x 625 x 276	

Supply voltage		Single phase 200...240 V	Three phase 380...500 V
Degree of protection		IP 55	
Description		Enclosure equipped with an ATV31 drive with external heatsink. Removable covers for adding 1 switch-disconnector or 1 circuit-breaker, 3 buttons and/or LEDs, 1 potentiometer	
Motor power	kW/HP	0.18/0.25	ATV31C018M2 Size 1
		0.37/0.5	ATV31C037M2 Size 1
		0.55/0.75	ATV31C055M2 Size 1
		0.75/1	ATV31C075M2 Size 1
		1.1/1.5	ATV31CU11M2 Size 2
		1.5/2	ATV31CU15M2 Size 2
		2.2/3	ATV31CU22M2 Size 3
		3/–	–
		4/5	–
		5.5/7.5	–
		7.5/10	–
11/15	–		
15/20	–		
		ATV31C037N4 Size 2	ATV31C055N4 Size 2
		ATV31C075N4 Size 2	ATV31CU11N4 Size 2
		ATV31CU15N4 Size 2	ATV31CU15N4 Size 2
		ATV31CU22N4 Size 3	ATV31CU22N4 Size 3
		ATV31CU30N4 Size 3	ATV31CU30N4 Size 3
		ATV31CU40N4 Size 3	ATV31CU40N4 Size 3
		ATV31CU55N4 (5) Size 4	ATV31CU55N4 (5) Size 4
		ATV31CU75N4 (5) Size 4	ATV31CU75N4 (5) Size 4
		ATV31CD11N4 (5) Size 5	ATV31CD11N4 (5) Size 5
		ATV31CD15N4 (5) Size 5	ATV31CD15N4 (5) Size 5

Drive kit (Altivar 31 drive on metal support plate with EMC filter): Please consult your Schneider Electric sales office. (5) Drive in metal enclosure without cover.



## Additional EMC input filters



Supply voltage			Single phase 200...240 V		Three phase 200...240 V		380...500 V	
Maximum length of shielded cable (1)			Class A	5 m	50 m	5 m	5 m	50 m
			Class B	–	20 m	–	–	20 m
<b>References</b>	Drive	ATV31	H018M2 to H075M2		H018M3X to H075M3X		H037N4 to HU15N4	
	<b>Filter</b>		<b>Integrated</b>	<b>VW3A31401</b>	<b>VW3A31402</b>		<b>Integrated</b>	<b>VW3A31404</b>
	Drive	ATV31	HU11M2 to HU15M2		HU11M3X to HU22M3X		HU22N4 to HU40N4	
	<b>Filter</b>		<b>Integrated</b>	<b>VW3A31403</b>	<b>VW3A31404</b>		<b>Integrated</b>	<b>VW3A31406</b>
	Drive	ATV31	HU22M2		HU30M3X - HU40M3X		HU55N4 - HU75 N4	
	<b>Filter</b>		<b>Integrated</b>	<b>VW3A31405</b>	<b>VW3A31406</b>		<b>Integrated</b>	<b>VW3A31407</b>
Drive	ATV31	–		HU55M3X - HU75M3X		HD11N4 - HD15N4		
<b>Filter</b>		–		<b>VW3A31407</b>		<b>Integrated</b>	<b>VW3A31409</b>	
Drive	ATV31	–		HD11M3X - HD15M3X		–		
<b>Filter</b>		–		<b>VW3A31408</b>		–		

(1) Maximum lengths for shielded cables connecting motors to drives for a switching frequency of 2 to 16 kHz

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## Line chokes



Supply voltage			Single phase 200...240 V		Three phase 200...240 V		380...500 V	
<b>References</b>	Drive	ATV31	H018M2 to H037M2		H018M3X to H075M3X		H037N4 to HU15N4	
	<b>Choke</b>		<b>VZ1 L004M010</b>		<b>VW3A4551</b>		<b>VW3A4551</b>	
	Drive	ATV31	H055M2 to H075M2		HU11M3X and HU15M3X		HU22N4 to HU40N4	
	<b>Choke</b>		<b>VZ1 L007UM50</b>		<b>VW3A4552</b>		<b>VW3A4552</b>	
	Drive	ATV31	HU11M2 to HU22M2		HU22M3X and HU30M3X		HU55N4 and HU75N4	
	<b>Choke</b>		<b>VZ1 L018UM20</b>		<b>VW3A4553</b>		<b>VW3A4553</b>	
Drive	ATV31	–		HU40M3X to HU75M3X		HD11N4 and HD15N4		
<b>Choke</b>		–		<b>VW3A4554</b>		<b>VW3A4554</b>		
Drive	ATV31	–		HD11M3X and HD15M3X		–		
<b>Choke</b>		–		<b>VW3A4555</b>		–		

**Braking resistors... accessories:** Please consult your Schneider Electric sales office.



Dimensions (in mm)	width x height x depth
Size 2: 150 x 230 x 184	/ Size 3 : 175 x 286 x 184
Size 4: 230 x 325 x 210	/ Size 5 : 230 x 415 x 210
Size 6: 240 x 550 x 283	/ Size 7 : 350 x 650 x 304
Size 8: 370 x 630 x 360	/ Size 9 : 480 x 680 x 400
Size 10: 660 x 950 x 440	/ Size 11 : 500 x 700 x 300.5
Size 12: 460 x 850 x 365.5	/ Size 13 : 570 x 1050 x 405.5

Type of drive		Drives on heatsinks		Ready-assembled "Energy" enclosures		
Supply voltage		Three phase 380...460 V		Three phase 380...460 V		
<b>Description</b>		Altivar 38 on heatsink		Ready-assembled enclosure equipped with an Altivar 38 drive, a line choke, an EMC filter, a Vario switch-disconnector, a potentiometer, a switch for selecting the direction of operation and an operator terminal.		
<b>Output frequency</b>		0.1...500 Hz				
<b>Type of flux vector control</b>		Sensorless flux vector control				
<b>Speed range</b>		1 to 10				
<b>Degree of protection</b>		IP 21 and IP 41 on the upper part for drives up to 75 kW. IP 00 on lower part and IP 20 on other sides for drives above 75 kW.		IP 55		
<b>I/O</b>	Analog inputs	1 voltage analog input and 1 current analog input				
	Logic inputs	4 assignable logic inputs				
	Analog outputs	1 assignable analog output				
	Logic outputs	2 relay logic outputs				
<b>Dialogue</b>		Integrated or remote display terminal, or PowerSuite software workshop (1)				
<b>Communication (2)</b>	Integrated	Modbus (3)				
	Available as an option	Ethernet TCP/IP, Modbus/Uni-Telway, Lonworks, METASYS N2, CANopen, AS-Interface, Profibus DP, DeviceNet, Fipio, Modbus Plus, InterBus				
<b>EMC</b>	Class A	Integrated class A filter up to 75 kW		Integrated class A filter		
	Class B	External filter available as an option				
<b>Motor power</b>	kW/HP	0.75/1	ATV38HU18N4	Size 2	--	
		1.5/2	ATV38HU29N4	Size 2	--	
		2.2/3	ATV38HU41N4	Size 2	--	
		3/-	ATV38HU54N4	Size 3	ATV38ED05N4	Size 11
		4/5	ATV38HU72N4	Size 3	ATV38ED07N4	Size 11
		5.5/7.5	ATV38HU90N4	Size 3	ATV38ED09N4	Size 11
		7.5/10	ATV38HD12N4	Size 4	ATV38ED12N4	Size 11
		11/15	ATV38HD16N4	Size 4	ATV38ED16N4	Size 11
		15/20	ATV38HD23N4	Size 5	ATV38ED23N4	Size 11
		18.5/25	ATV38HD25N4 (4)	Size 6	ATV38ED25N4	Size 12
		22/30	ATV38HD28N4 (4)	Size 6	ATV38ED28N4	Size 12
		30/40	ATV38HD33N4 (4)	Size 6	ATV38ED33N4	Size 12
		37/50	ATV38HD46N4 (4)	Size 6	ATV38ED46N4	Size 12
		45/60	ATV38HD54N4 (4)	Size 7	ATV38ED54N4	Size 13
		55/75	ATV38HD64N4 (4)	Size 7	ATV38ED64N4	Size 13
		75/100	ATV38HD79N4 (4)	Size 7	ATV38ED79N4	Size 13
		90/125	ATV38HC10N4X	Size 8	--	--
		110/150	ATV38HC13N4X	Size 9	--	--
		132/200	ATV38HC15N4X	Size 9	--	--
		160/250	ATV38HC19N4X	Size 9	--	--
200/300	ATV38HC23N4X	Size 10	--	--		
220/350	ATV38HC25N4X	Size 10	--	--		
250/400	ATV38HC28N4X	Size 10	--	--		
280/450	ATV38HC31N4X	Size 10	--	--		
315/500	ATV38HC33N4X	Size 10	--	--		

(1) (2) PowerSuite software and communication protocols, see page 5/68

(3) For simultaneous use with the operator terminal, choose the Modbus communication card, see page 5/71

(4) Without EMC filter, add an "X" at the end of the reference



## Additional EMC input filters



Supply voltage		Three phase 380...460 V	
Maximum length of shielded cable (1)	Class A	50 m	200 m
	Class B	20 m	100 m
References (2)	Drive	ATV38	HU18N4, HU29N4, HU41N4
	Filter		<b>VW3A58402</b>
	Drive	ATV38	HU54N4, HU72N4, HU90N4
	Filter		<b>VW3A58403</b>
	Drive	ATV38	HD12N4, HD16N4
	Filter		<b>VW3A58404</b>
	Drive	ATV38	HD23N4
	Filter		<b>VW3A58405</b>
Drive	ATV38	HD25N4X, HD28N4X	HD25N4, HD28N4
Filter		<b>VW3A58406</b>	<b>VW3A58406</b>
Drive	ATV38	HD33N4X, HD46N4X	HD33N4, HD46N4
Filter		<b>VW3A58407</b>	<b>VW3A58407</b>
Drive	ATV38	HD54N4, HD64N4, HD79N4	HD54N4, HD64N4, HD79N4
Filter		<b>VW3A58408</b>	<b>VW3A58408</b>

(1) Maximum lengths for shielded cables connecting motors to drives for a switching frequency of 0.5 to 12 kHz

(2) Above 75 kW, please consult [www.Telemecanique.com](http://www.Telemecanique.com)

5

## Line chokes



Supply voltage		Three phase 380...460 V		
Motor power		0.75 to 75 kW		90 to 315 kW (1)
References	Drive	ATV38	HU18N4, HU29N4	HC10N4X
	Choke		<b>VW3A4551</b>	<b>VW3A68501</b>
	Drive	ATV38	HU41N4, HU54N4, HU72N4	HC15N4X
	Choke		<b>VW3A4552</b>	<b>VW3A68503</b>
	Drive	ATV38	HU90N4, HD12N4	HC23N4X
	Choke		<b>VW3A4553</b>	<b>VW3A68505</b>
Drive	ATV38	HD16N4, HD23N4	HC25N4X, HC28N4X	
Choke		<b>VW3A4554</b>	<b>VW3A68506</b>	
Drive	ATV38	HD25N4● to HD79N4●	HC31N4X, HC33N4X	
Choke		<b>Integrated</b>	<b>VW3A68507</b>	

(1) The addition of a line choke is highly recommended

## I/O extension and specific cards



Type of card (1)	I/O extension	Pump switching
Description	2 logic inputs 24 VDC 1 open collector logic output 24 VDC 1 analog output 0/20 mA 1 bipolar analog input $\pm 10$ V	Control of an entire pumping or compression station
Reference	<b>VW3A58201</b>	<b>VW3A58210</b>

(1) "Controller Inside" programmable card: Please consult your Schneider Electric sales office.

# Altivar 71

0.37 to 500 kW

## Complex, high-power machines Drives on heatsinks



Dimensions (in mm)		width x height x depth	
Size 2	: 130 x 230 x 175	Size 3	: 155 x 260 x 187
Size 4	: 175 x 295 x 187	Size 5A	: 210 x 295 x 213
Size 5B	: 230 x 400 x 213	Size 6	: 240 x 420 x 236
Size 7A	: 240 x 550 x 266	Size 7B	: 320 x 550 x 266
Size 8	: 320 x 630 x 290	Size 9	: 320 x 920 x 377
Size 10	: 360 x 1022 x 377	Size 11	: 340 x 1190 x 377
Size 12	: 440 x 1190 x 377	Size 13	: 595 x 1190 x 377
Size 14	: 890 x 1390 x 377	Size 15	: 1120 x 1390 x 377

Type of drive		Single phase	Three phase	Three phase				
Supply voltage		200...240 V (6)	200...240 V (6)	380...480 V				
<b>Drive</b>	Output frequency	0...1000 Hz						
	Type of control	Asynchronous motor	Flux vector control with or without sensor, voltage/frequency ratio (2 or 5 points), ENA System					
		Synchronous motor	Vector control without speed feedback					
	Transient overtorque	220% of nominal motor torque for 2 seconds, 170% for 60 seconds						
<b>Speed range</b>		1...1000 in closed loop mode with encoder feedback, 1...100 in open loop mode						
<b>Degree of protection</b>		IP 21 for unprotected drives and IP 41 on the upper part						
<b>Functions</b>	Number of functions	> 150						
	Number of preset speeds	16						
	Number of I/O	Analog inputs	2...4					
		Logic inputs	6...20					
	Analog outputs	1...3						
	Logic outputs	0...8						
	Relay outputs	2...4						
Safety input	1							
<b>Dialogue</b>		Remote graphic display terminal or PowerSuite software workshop (1)						
<b>Communication (2)</b>	Integrated	Modbus and CANopen						
	Available as an option	Ethernet TCP/IP, Modbus/Uni-Telway, Fipio, Modbus Plus, Profibus DP, DeviceNet, INTERBUS						
<b>Cards (available as an option)</b>		Encoder interface cards, I/O extension cards, "Controller Inside" programmable card						
<b>Reduction of current harmonics</b>		Integrated DC choke (3)						
<b>EMC</b>	Class A	Integrated filter						
	Class B	External filter available as an option						
<b>Motor power</b>	kW/HP	0.37/0.5	ATV71H075M3	S2	ATV71H037M3	S2	–	–
		0.75/1	ATV71HU15M3	S2	ATV71H075M3	S2	ATV71H075N4 (6)	S2
		1.5/2	ATV71HU22M3	S3	ATV71HU15M3	S2	ATV71HU15N4 (6)	S2
		2.2/3	ATV71HU30M3	S3	ATV71HU22M3	S3	ATV71HU22N4 (6)	S2
		3/–	ATV71HU40M3 (4)	S3	ATV71HU30M3	S3	ATV71HU30N4 (6)	S3
		4/5	ATV71HU55M3 (4)	S4	ATV71HU40M3	S3	ATV71HU40N4 (6)	S3
		5.5/7.5	ATV71HU75M3 (4)	S5A	ATV71HU55M3	S4	ATV71HU55N4 (6)	S4
		7.5/10	–	–	ATV71HU75M3	S5A	ATV71HU75N4 (6)	S4
		11/15	–	–	ATV71HD11M3X (5)	S5B	ATV71HD11N4 (6)	S5A
		15/20	–	–	ATV71HD15M3X (5)	S5B	ATV71HD15N4 (6)	S5B
		18.5/25	–	–	ATV71HD18M3X (5)	S6	ATV71HD18N4 (6)	S5B
		22/30	–	–	ATV71HD22M3X (5)	S6	ATV71HD22N4 (6)	S6
		30/40	–	–	ATV71HD30M3X (5)	S7B	ATV71HD30N4 (6)	S7A
		37/50	–	–	ASV71HD37M3X (5)	S7B	ATV71HD37N4 (6)	S7A
		45/60	–	–	ASV71HD45M3X (5)	S7B	ATV71HD45N4 (6)	S8
		55/75	–	–	ATV71HD55M3X (5)	S9	ATV71HD55N4 (6)	S8
		75/100	–	–	ATV71HD75M3X (5)	S10	ATV71HD75N4 (6)	S8
		90/125	–	–	–	–	ATV71HD90N4	S9
		110/150	–	–	–	–	ATV71HC11N4	S10
		132/200	–	–	–	–	ATV71HC13N4	S11
		160/250	–	–	–	–	ATV71HC16N4	S12
		200/300	–	–	–	–	ATV71HC20N4	S13
		220/350	–	–	–	–	ATV71HC25N4	S13
		280/450	–	–	–	–	ATV71HC28N4	S13
		315/500	–	–	–	–	ATV71HC31N4	S14
		355/–	–	–	–	–	ATV71HC40N4	S14
		500/700	–	–	–	–	ATV71HC50N4	S15

(1) (2) PowerSuite software and communication protocols, see page 5/68

(3) For any additional requirements, optional chokes and passive filters, see page 5/64

(4) Must be used with a line choke, see page 5/65

(5) Drive supplied without EMC filter

(6) To order a reinforced version of the drive for specific environmental conditions, conforming to IEC 60721-3-3 class 3c2, add **S337** at the end of the reference.

Example: ATV71H075N4**S337**



## I/O extension and specific cards



Type of card	I/O extension Logic	Extended
Description	1 relay logic output ("C/O" contact) 4 x 24 VDC positive or negative logic input 2 x 24 VDC open collector positive or negative logic outputs 1 input for PTC probes	1 differential current analog input 0...20 mA 1 software-configurable voltage (0...10 VDC) or current (0...20 mA) analog input 2 software-configurable voltage ( $\pm 10V$ , 0...10 VDC) or current (0...20 mA) analog inputs 1 relay logic output ("C/O" contact) 4 x 24 VDC positive or negative logic inputs 2 x 24 VDC open collector positive or negative logic outputs 1 input for PTC probes 1 frequency control input
Reference	VW3A3201	VW3A3202

5

## Encoder interface cards



Type of card	Encoder interface with		
	Differential outputs (RS422)	Open collector outputs (NPN)	Push-pull outputs
Operating frequency	300 kHz		
References	5 V VW3A3401	–	–
	12 V –	VW3A3403	VW3A3405
	15 V VW3A3402	VW3A3404	VW3A3406
	24 V –	–	VW3A3407

## "Controller Inside" programmable card



Type of card	Programmable "Controller Inside"
Description	10 logic inputs, 2 of which can be used for 2 counters or 4 of which can be used for 2 incremental encoders 2 analog inputs 6 logic outputs 2 analog outputs A master port for the CANopen bus A PC port for programming with the PS 1131 software workshop
Reference	VW3A3501



Accessory	Remote graphic display terminal	Remote mounting kit (1)
<b>Description</b>	This display terminal is attached to the front of the drive. It includes the integrated 7-segment display terminal for drives supplied without a graphic display terminal.	A remote mounting kit for mounting on an enclosure door with IP 54 degree of protection. It includes: ■ All the mechanical fittings ■ Fixing accessories
<b>References</b>	<b>VW3A1101</b>	<b>VW3A1102</b>

(1) Use a VW3A1104R remote-mounting connection cable, to be ordered separately (please consult the "Soft starters and variable speed drives" catalogue)

5

## Reduction of current harmonics

### Optional DC chokes (1)



DC chokes are used to reduce current harmonics in order to comply with standard 61000-3-2 for drives in which the line current is more than 16 A and less than 75 A.

Type of drive Supply voltage	Three phase	
	200...240 V 50/60 Hz	380...480 V 50/60 Hz
ATV71H037M3 / ATV71H075N4	VW3A4501	VW3A4501
ATV71HU15N4	–	VW3A4502
ATV71H075M3 / ATV71HU22N4, HU30N4	VW3A4503	VW3A4503
ATV71HU40N4	–	VW3A4504
ATV71HU15M3 / ATV71HU55N4	VW3A4505	VW3A4505
ATV71HU22M3 / ATV71HU75N4	VW3A4506	VW3A4506
ATV71HU30M3 / ATV71HD11N4	VW3A4507	VW3A4507
ATV71HU40M3, HU55M3 / ATV71HD15N4, HD18N4	VW3A4508	VW3A4508
ATV71HU75M3	VW3A4509	–
ATV71HD11M3X, HD15M3X / ATV71HD22N4...HD37N4	VW3A4510	VW3A4510
ATV71HD18M3X, HD22M3X / ATV71HD45N4...HD75N4	VW3A4511	VW3A4511
ATV71HD30M3X... HD45M3X	VW3A4512	–

(1) For ATV 71HD55M3X, HD75M3X and ATV 71HD90N4... HC50N4 drives, the choke is supplied as standard with the drive.

## Reduction of current harmonics AC line chokes

A line choke can be used to provide improved protection against overvoltages on the line supply and to reduce harmonic distortion of the current produced by the drive.

Type of drive Supply voltage		Three phase	
		200...240 V 50/60 Hz	380...480 V 50/60 Hz
ATV71H037M3...H075M3 / ATV71H075N4, HU15N4		VW3A4551	VW3A4551
ATV71HU15M3...HU22M3 / ATV71HU22N4...HU40N4		VW3A4552	VW3A4552
ATV71HU30M3 / ATV71HU55N4, HU75N4		VW3A4553	VW3A4553
ATV71HU40M3 / ATV71HD11N4, HD15N4		VW3A4554	VW3A4554
ATV71HU75M3, HD11M3X / ATV71HD18N4, HD22N4		VW3A4555	VW3A4555
ATV71HD15M3X / ATV71HD30N4...HD55N4		VW3A4556	VW3A4556
ATV71HD18M3X...HD45M3X / ATV71HD75N4		VW3A4557	VW3A4557
ATV71HD90N4		–	VW3A4558
ATV71HC11N4		–	VW3A4559
ATV71HC13N4		–	VW3A4560
ATV71HC16N4		–	VW3A4561
ATV71HD55M3X / ATV71HC20N4		VW3A4562	VW3A4562
ATV71HD75M3X		VW3A4563	–
ATV71HC25N4	Motor P 220 kW	–	VW3A4562
	Motor P 250 kW	–	VW3A4563
ATV71HC28N4 / ATV71HC31N4		–	VW3A4564
ATV71HC40N4	Motor P 355 kW	–	VW3A4565
	Motor P 400 kW	–	VW3A4566
ATV71HC50N4		–	VW3A4567

5

## Passive filters

A passive filter is used to reduce current harmonics with total harmonic distortion factors of less than 16% or 10%. These factors may be less than 10% or 5% if used with a DC choke.

Type of drive	Three phase 400 V 50/60 Hz		Three phase 460 V 50/60 Hz	
	THDI 16% (1)	THDI 10% (2)	THDI 16% (1)	THDI 10% (2)
ATV71H075N4 / ATV71HU15N4 / ATV71HU22N4	VW3A4601	VW3A4621	VW3A4 641	VW3A4 661
ATV71HU30N4	VW3A4602	VW3A4622	VW3A4 641	VW3A4 661
ATV71HU40N4	VW3A4602	VW3A4622	VW3A4 642	VW3A4 662
ATV71HU55N4	VW3A4603	VW3A4623	VW3A4 642	VW3A4 662
ATV71HU75N4	VW3A4603	VW3A4623	VW3A4 643	VW3A4 663
ATV71HD11N4	VW3A4604	VW3A4624	VW3A4 643	VW3A4 663
ATV71HD15N4	VW3A4605	VW3A4625	VW3A4 644	VW3A4 664
ATV71HD18N4 / ATV71HD22N4	VW3A4606	VW3A4626	VW3A4 645	VW3A4 665
ATV71HD30N4	VW3A4607	VW3A4627	VW3A4 646	VW3A4 666
ATV71HD37N4	VW3A4607	VW3A4627	VW3A4 647	VW3A4 667
ATV71HD45N4	VW3A4608	VW3A4628	VW3A4 647	VW3A4 668
ATV71HD55N4	VW3A4608	VW3A4628	VW3A4 648	VW3A4 668
ATV71 HD75N4	VW3A4609	VW3A4629	VW3A4 648	VW3A4 668
ATV71HD90N4	VW3A4609	VW3A4629	VW3A4 649	VW3A4 669
ATV71HC11N4	VW3A4610	VW3A4630	VW3A4 649	VW3A4 669
ATV71HC13N4	VW3A4611	VW3A4631	VW3A4 650	VW3A4 670
ATV71HC16N4	VW3A4612	VW3A4632	VW3A4 650	VW3A4 670
ATV71HC20N4 / ATV71HC25N4	VW3A4613	VW3A4633	VW3A4 651	VW3A4 671
ATV71HC25N4	VW3A4614	VW3A4634	VW3A4 652	VW3A4 672
ATV71HC28N4 / ATV71HC31N4 / ATV71HC40N4	VW3A4615	VW3A4635	VW3A4 653	VW3A4 673
ATV71HC40N4	VW3A4616	VW3A4636	VW3A4 654	VW3A4 674
ATV71HC50N4	VW3A4617	VW3A4637	VW3A4 655	VW3A4 675

(1) By adding a DC choke, we get: THD ≤ 10%

(2) By adding a DC choke, we get: THD ≤ 15%

These reduced current harmonics are obtained on condition that the THDu is < 20% and the RSCE > 66%.

Above a certain motor cable length, it is advisable to insert a motor choke between the drive and the motor. This maximum length depends on the drive rating and the type of motor cable.

Type of drive	Max. motor cable length		Three phase	380...480 V 50/60 Hz	
	Shielded	Unshielded	200...240 V 50/60 Hz		
ATV71H037M3...HU22M3	150	300	VW3A5101	–	
ATV71HU30M3...HU75M3	200	260	VW3A5102	–	
	300	300	VW3A5103	–	
ATV71HD11M3X...HD22M3X	150	300	VW3A5103	–	
ATV71HD30M3X... HD45M3X	150	300	VW3A5 04	–	
ATV71HD55M3X, HD75M3X	150	300	VW3A5105	–	
ATV71H075N4...HU40N4	75	90	–	VW3A5101	
	85	95	–	VW3A5102	
	160	200	–	VW3A5103	
ATV71HU55N4...HD18N4	85	95	–	VW3A5102	
	160	200	–	VW3A5103	
	200	300	–	VW3A5104	
ATV71HD22N4...HD30N4	140	170	–	VW3A5103	
	150	300	–	VW3A5104 (1)	
ATV71HD37N4	97	166	–	VW3A5103	
	200	300	–	VW3A5104 (1)	
ATV71HD45N4...HD75N4	150	300	–	VW3A5104 (1)	
ATV71HD90N4	200	300	–	VW3A5104 (1)	
ATV71HC11N4, HC13N4	150	250	–	VW3A5105 (1)	
ATV71HC16N4...HC20N4	250	300	–	VW3A5106 (1)	
ATV71HC25N4	Motor P 220 kW	250	300	–	VW3A5106 (1)
	Motor P 250 kW	200	250	–	VW3A5107 (1)
ATV71HC28N4, HC31N4	200	250	–	VW3A5107 (1)	
ATV71HC40N4	Motor P 355 kW	200	250	–	VW3A5107 (1)
	Motor P 400 kW	250	300	–	VW3A5108 (1)
ATV71HC50N4	250	300	–	VW3A5108 (1)	

(1) 3 single-phase chokes are included with the drive.

Sinus filters allow Altivar 71 drives to operate with longer motor cables (up to 1000 m).

## Sinus filters

Type of drive	Supply voltage	Three phase	
		200...240 V 50/60 Hz	380...480 V 50/60 Hz
ATV71H037M3...HU15M3 (1)		VW3A5201	–
ATV71HU22M3, HU30M3		VW3A5202	–
ATV71HU40M3... HU75M3		VW3A5203	–
ATV71HD11M3X, HD15M3X		VW3A5204	–
ATV71HD18M3X, HD22M3X		VW3A5205	–
ATV71HD30M3X... HD45M3X		VW3A5206	–
ATV71HD55M3X, HD75M3X		VW3A5208	–
ATV71H075N4...HU40N4 (1)		–	VW3A5201
ATV71HU55N4		–	VW3A5202
ATV71HU75N4...HD15N4		–	VW3A5203
ATV71HD18N4... HD30N4		–	VW3A5204
ATV71HD37N4, HD45N4		–	VW3A5205
ATV71HD55N4, HD75N4		–	VW3A5206
ATV71 HD90N4, HC11N4		–	VW3A5207
ATV71 HC13N4, HC16N4		–	VW3A5208
ATV71 HC20N4		–	VW3A5209
ATV71 HC25N4	Motor P 220 kW	–	VW3A5209
	Motor P 250 kW	–	VW3A5210
ATV71 HC28N4, HC31N4		–	VW3A5210
ATV71 HC40N4	Motor P 355 kW	–	VW3A5210
	Motor P 400 kW	–	VW3A5211
ATV71 HC50N4		–	VW3A5211

(1) For ATV71H037M3...HU15M3 and ATV71H075N4...HU22N4 drives, it is advisable to use a lower category of motor with a sinus filter.

## Resistance braking units (integrated in ATV71 drives up to 160 kW)

ATV 71H●●●M3, ATV 71H●●●M3X and ATV71H075N4...HC16N4 drives have a built-in dynamic brake transistor.  
The braking resistor enables the Altivar 71 drive to operate while braking to a standstill or during slowdown braking, by dissipating the braking energy.

Supply voltage	Three phase 380...480 V	
Type of drive	ATV71HC20N4...HC28N4	ATV71HC31N4...HC50N4
Continuous power/Max (kW)	200/420	400/750
Reference	VW3A7101	VW3A7102

## Braking resistors

Drives	Braking resistor 40 s cycle	Braking resistor 200 s cycle	
<b>Supply voltage: 200...240 V 50/60 Hz</b>			
References	ATV71H037M3, H075M3	VW3A7701	VW3A7801
	ATV71HU15M3, HU22M3	VW3A7702	VW3A7802
	ATV71HU30M3, HU40M3	VW3A7703	VW3A7803
	ATV71HU55M3, HU75M3	VW3A7704	VW3A7804
	ATV71HD11M3X	VW3A7705	VW3A7805
	ATV71HD15M3X	VW3A7706	VW3A7806
	ATV71HD18M3X, HD22M3X	VW3A7707	VW3A7807
	ATV71HD30M3X	VW3A7708	VW3A7808
	ATV71HD37M3X, HD45M3X	VW3A7709	VW3A7809
	ATV71HD55M3X	VW3A7713	VW3A7810
	ATV71HD75M3X	VW3A7714	–
<b>Supply voltage: 380...480 V 50/60 Hz</b>			
	ATV71H075N4...HU40N4	VW3A7701	VW3A7801
	ATV71HU55N4, HU75N4	VW3A7702	VW3A7802
	ATV71HD11N4, HD15N4	VW3A7703	VW3A7803
	ATV71HD18N4...HD30N	VW3A7704	VW3A7804
	ATV71HD37N4	VW3A7705	VW3A7805
	ATV71HD45N4...HD75N4	VW3A7707	VW3A7806
	ATV71HD90N4	VW3A7710	VW3A7811
	ATV71HC11N4, HC13N4	VW3A7711	VW3A7812
	ATV71HC16N4	VW3A7712	VW3A7813
	ATV71HC20N4	VW3A7715	VW3A7814
	ATV71HC25N4, HC28N4	VW3A7716	VW3A7815
	ATV71HC31N4, HC40N4	VW3A7717	VW3A7816
	ATV71HC50N4	VW3A7701	VW3A7817

The network braking unit can be used to restore the following to the line supply:

- The energy from the motor
- The energy from the motors controlled by several drives connected on the same DC bus

## Network braking units

Line voltage	400 VAC	460 VAC
Continuous braking power (kW)	7	–
	13	–
	11	–
	–	VW3A7 231
	21.5	VW3A7 232
	26	VW3A7 233
	32	VW3A7 234
	38	VW3A7 235 / VW3A7 236 / VW3A7 237 / VW3A7 238
	86	VW3A7 239
	120	VW3A7 240
	135	–
	200	–
	240	VW3A7 241



Multilingual configuration software		For PC	For Pocket PC
Configuration of drives and starters		Altistart 48, Altivar and TeSys model U	
Environment		Microsoft Windows ®	
Languages		English - French - German - Italian - Spanish	
References	PowerSuite CD-ROM (1)	VW3A8104	
	PowerSuite update CD-ROM	VW3A8105	
	Connection kit for serial port	VW3A8106	VW3A8111

(1) Contents: Software, technical documentation and the ABC configurator program

## Accessories

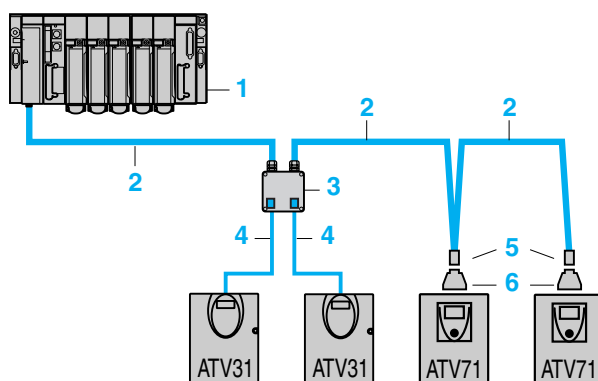
Multilingual configuration software		Bluetooth® adaptor	
Description		Modbus - Bluetooth®	USB - Bluetooth® for PC
References		VW3A8114 (1)	VW3A8115

(1) Can also be used to communicate between a Twido PLC and the TwidoSoft software workshop

## CANopen communication bus: connection accessories



Drives		Altivar 31		Altivar 71		
Tap junction		VW3CANTAP2		-		
Cables		2 RJ45 connectors				
Description		2 RJ45 connectors				
Cable length		0.3 m	1 m	50 m	100 m	300 m
References	CANopen	VW3CANCARR03	VW3CANCARR1	-	-	-
	CANopen LSZH	-	-	TSXCANCA50	TSXCANCA100	TSXCANCA300
	CANopen UL/IEC332-2	-	-	TSXCANCB50	TSXCANCB100	TSXCANCB300
	LSZH HD flexible CANopen	-	-	TSXCANCD50	TSXCANCD100	TSXCANCD300



- 1 PLC
- 2 CANopen trunk cable TSXCANC●●
- 3 CANopen tap junction VW3CANTAP2
- 4 CANopen drop cable VW3CANCARR●●
- 5 CANopen connector VW3CANKCDF180T
- 6 CANopen adaptor VW3CANA71

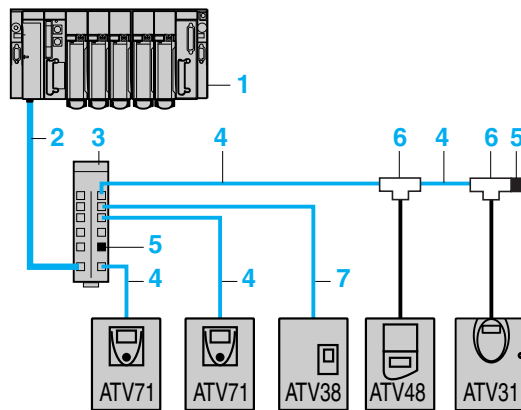


## Modbus communication bus: connection accessories



Starters/drives		Altistart 48	Altivar 31	Altivar 71	Altivar 38
<b>Splitter box</b>	Description	10 RJ45 connectors and 1 screw terminal block			
	Reference	<b>LU9GC3</b>			
<b>Line terminators</b>	For RJ 45 connector	R = 120 Ω, C = 1 nF			
	Reference	<b>VW3A8306RC</b>			
	For screw terminals	R = 120 Ω, C = 1 nF			
	Reference	<b>VW3A8306DRC</b>			
<b>T-junction boxes</b>	With integrated cable	0.3 m	<b>VW3A8306TF03</b>		
		1 m	<b>VW3A8306TF10</b>		
<b>Cables</b>	Description	2 RJ45 connectors			1 SUB-D9 connector and 1 RJ 45 connector
	References	0.3 m	<b>VW3A8306R03</b>	-	
		1 m	<b>VW3A8306R10</b>	<b>VW3A58306R10</b>	
		3 m	<b>VW3A8306R30</b>	<b>VW3A58306R30</b>	
<b>RS 485 double shielded twisted pair cables</b>	Description	1 RJ45 connector and one stripped end			
	Reference	3 m	<b>VW3A8306D30</b>		
	Description	Supplied without connector			
	References	100 m	<b>TSXCSA100</b>		
		200 m	<b>TSXCSA200</b>		
		500 m	<b>TSXCSA500</b>		

5



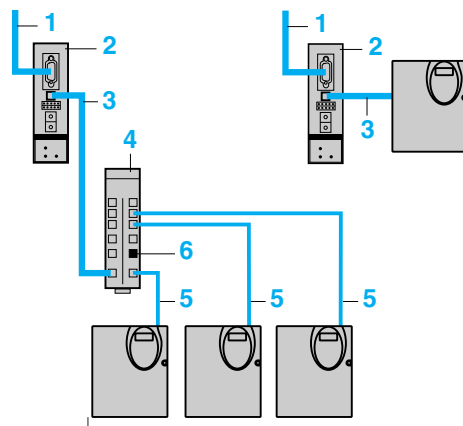
### Connection via splitter boxes and RJ 45 connectors

- 1 PLC
- 2 Modbus cable depending on the type of PLC
- 3 Modbus splitter box LU9GC3
- 4 Modbus drop cables VW3A8306R●●
- 5 Line terminators VW3A8306RC
- 6 Modbus T-junction boxes VW3A8306TF●● (with cable)
- 7 Modbus drop cable VW3A58306R●●



Starters/drives			Altistart 48/Altivar 31
Ethernet/Modbus	References	Bridge	174CEV30020
		Cable	VW3A8306D30
DeviceNet/Modbus	References	Gateway	LUFPP9
		0.3 m cable	VW3A8306R03
		1 m cable	VW3A8306R10
		3 m cable	VW3A8306R30
Fipio/Modbus	References	Gateway	LUFPP1
		0.3 m cable	VW3A8306R03
		1 m cable	VW3A8306R10
		3 m cable	VW3A8306R30
Profibus DP/Modbus	Parameter setting		Standard configurator
	References	Gateway	LA9P307
		1 m cable	VW3P07306R10
	Parameter setting		ABC configurator program
	References	Gateway	LUFPP7
		0.3 m cable	VW3A8306R03
		1 m cable	VW3A8306R10
		3 m cable	VW3A8306R30

5



- 1 To network
- 2 Communication modules
- 3 PLC cables VW3A8 306 R●●, VW3 P07 306 R10
- 4 Modbus splitter box LU9 GC3
- 5 Modbus drop cables VW3A8 306 R●●
- 6 Line terminator VW3A8 306 RC



## Communication cards and modules

Ready



Drives		Altivar 38	Altivar 71
AS-Interface	Max. no. of drives controlled	31	–
	Transmission speed	166 Kbps	
	<b>Reference</b>	<b>VW3A58305</b>	
CANopen	Max. no. of drives controlled	63	Integrated in ATV71 drive
	Transmission speed	125/250/500/1000 Kbps	
	<b>Reference</b>	<b>VW3A58308</b>	
DeviceNet	Max. no. of drives controlled	63	63
	Transmission speed	125/250/500 Kbps	125/250/500 Kbps
	<b>Reference</b>	<b>VW3A58309</b>	<b>VW3A3309</b>
Ethernet	Max. no. of drives controlled	–	–
	Transmission speed	10/100 Mbps	10/100 Mbps
	<b>Reference</b>	<b>VW3A58310</b>	<b>VW3A3310</b>
Fipio	Max. no. of drives controlled	62	62
	Transmission speed	1 Mbps	1 Mbps
	<b>Reference</b>	<b>VW3A58311 or VW3A58301</b>	<b>VW3A3311</b>
INTERBUS	Max. no. of drives controlled	64	64
	Transmission speed	1 Mbps	1 Mbps
	<b>Reference</b>	<b>VW3A58304E</b>	<b>VW3A3304</b>
METASYS N2	Max. no. of drives controlled	255	–
	Transmission speed	–	
	<b>Reference</b>	<b>VW3A58354U</b>	
Modbus	Max. no. of drives controlled	27	31
	Transmission speed	9600...19200 Kbps	4800...9600 - 19 200 - 38 400 bps
	<b>Reference</b>	<b>Integrated in drive</b>	<b>Integrated in drive</b>
Modbus Plus	Max. no. of drives controlled	64	64
	Transmission speed	1 Mbps	1 Mbps
	<b>Reference</b>	<b>VW3A58302</b>	<b>VW3A3302</b>
Profibus DP	Max. no. of drives controlled	126	126
	Transmission speed	9600 bps...12 Mbps	9600 bps...12 Mbps
	<b>Reference</b>	<b>VW3A58307</b>	<b>VW3A3307</b>
Modbus/Uni-Telway	Max. no. of drives controlled	Uni-Telway: 27 Modbus: 31	Uni-Telway: 27 Modbus: 31
	Transmission speed	4800...19200 Kbps	4800...19200 Kbps
	<b>Reference</b>	<b>VW3A58303</b>	<b>VW3A3303</b>

For connection accessories, please consult the "Soft starters and variable speed drives" catalogue.

## Power supplies to keep you running

### Phaseo *Creator of energy*

#### Regulated switch mode power supplies ABL1 / ABL7

Designed to supply the voltage required for control and power circuits of automation system equipment from 0.3 to 40 A.

With its dual upstream/downstream display for quick diagnostics, an output voltage that can be adjusted to compensate for voltage drops on the line, protection against overloads and short-circuits, the range of Phaseo power supplies is quite *simply* efficient.



Compact power supplies  
ABL7CEM



Modular power supplies  
ABL7RM



Universal power supplies  
ABL7RE/RP



AS-Interface dedicated power supplies  
ASiABL



Process power supplies  
ABL7U/REQ



Switch mode power supplies  
ABL1REM/RPM

#### Rectified and filtered power supplies ABL6

For applications which accept fluctuations in the power supply of + or - 10%, and transformers, for converting a 400 V voltage to an AC voltage between 24 V and 230 V.

Its wide range of input voltages ensures *simplicity* of choice due to fewer product references.



Single-phase power supplies  
ABL6RF



3-phase power supplies  
ABL6RT



Transformers with double or single winding  
ABL6TD / ABL6TS

#### The essential guide

A simplified selection guide enabling you to quickly select power supplies.

# Contents

■ Power supplies for control circuits <b>Phaseo ABL7, ABL1, ABL6</b> .....	6/2 to 6/4
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■ Transformers <b>Phaseo ABL6</b> .....	6/5
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## > Switch mode power supplies

### Phaseo ABL1

- Power supplies for single-phase 110...230 V dedicated automation systems
- Regulated single-phase 12 and 24 V DC
- Wide offer: power 60 to 240 W
- Anti harmonic filter
- Certification: UL and CSA

## > Switch mode power supplies

### Phaseo ABL7

- Compact, modular and universal power supplies for single-phase 100 - 240 V applications
- 2-phase/3-phase 380 - 520 V process power supplies
- Dual LED display
- Guaranteed output voltage
- Wide voltage range
- Book format
- Conformity to UL/CSA standards

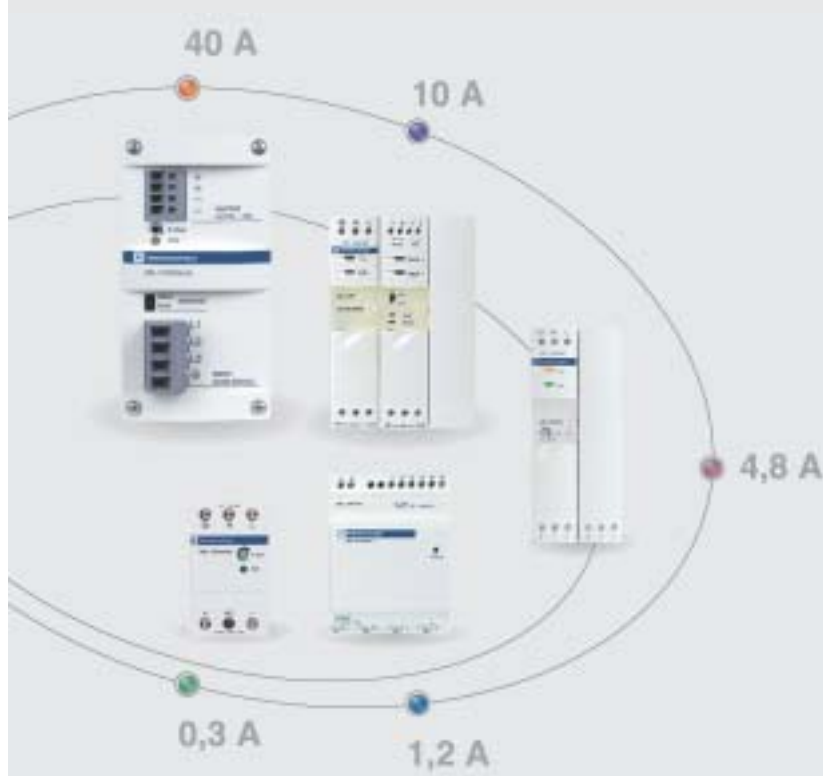
## > Rectified and filtered power supplies

### Phaseo ABL6R

- Fixed upstream and downstream voltage, power supplies for connection to single-phase and 3-phase mains supplies. Used to supply all machines and processes where a precise 24 V DC is not necessary.
- Single-phase power supply:  
1 > 40 A - 24 > 960 W
- 3-phase power supply:  
1 > 40 A - 24 > 960 W

## > Transformers: Phaseo ABL6T

- Primary voltage: single-phase  $\sim$  230 - 400 V AC  $\pm$  15 V
- Safety and circuit isolation transformers with nominal power ratings between 25 and 2500 VA





<b>Type of power supply</b>		<b>Compact, 1-phase regulated switch mode, wide range</b> AUTO reset of automatic protection		
<b>Input voltage</b>		100...240 V AC, 110...220 V DC (compatible)		
<b>Output voltage</b>		24 V DC		
<b>Nominal Power / Current</b>		7 W / 0.3 A	15 W / 0.6 A	30 W / 1.2 A
<b>Certifications</b>		cULus, TÜV		
<b>Conformity to standards</b>		UL508, IEC/EN 60950		
		EN 50081-2, EN 50082-2		
<b>Emission</b>		Conducted and radiated		EN 55011, EN 55022 class A
				EN 55011, EN 55022 class A
				EN 55011, EN 55022 class B
<b>Dimensions (WxDxH)</b>		45 x 70 x 75 mm		45 x 95 x 75 mm
<b>References</b>		ABL7CEM24003		ABL7CEM24006
				ABL7CEM24012



<b>Type of power supply</b>		<b>Modular, 1-phase regulated switch mode</b> AUTO reset of automatic protection		
<b>Input voltage</b>		100...240 V AC		
<b>Output voltage</b>		12 V DC		24 V DC
<b>Nominal Power / Current</b>		22 W / 1.9 A		30 W / 1.3 A
<b>Certifications</b>		UL, CSA, TÜV		
<b>Conformity to standards</b>		Safety IEC/EN 60950, IEC/EN 61131-2/A11		
		EMC EN 50081-2, IEC 61000-6-2 (EN 50082-2)		
<b>Emission</b>		Conducted and radiated		EN 55011, EN 55022 class B
<b>Dimensions (WxDxH)</b>		72 x 70 x 110 mm		
<b>References</b>		ABL7RM1202		ABL7RM2401



<b>Type of power supply</b>		<b>Universal, 1-phase regulated switch mode, wide range</b> AUTO reset of automatic protection				
<b>Input voltage</b>		100...240 V AC, 110...230 V DC (version ABL7RP**)				
<b>Output voltage</b>		24 V DC				
<b>Nominal Power / Current</b>		48 W / 2 A	72 W / 3 A	120 W / 5 A	240 W / 10 A	
<b>Certifications</b>		UL, CSA, TÜV, Ctick				
<b>Conformity to standards</b>		Safety IEC/EN 60950				
		EMC EN 50081-2, IEC 61000-6-2 (EN 50082-2)				
		Low frequency harmonic currents		–	EN 61000-3-2	–
<b>Emission</b>		Conducted and radiated		EN 55011, EN 55022 class B		
<b>Dimensions (WxDxH)</b>		27 x 120 x 120 mm		54 x 120 x 120 mm		135 x 120 x 120 mm
<b>References</b>		ABL7RE2402	ABL7RE2403	ABL7RE2405	ABL7RP2405(1)	ABL7RE2410
						ABL7RP2410(1)

(1) AUTO/MAN reset of automatic protection



## For control circuits



Type of power supply		Industrial, 2-phase regulated switch mode AUTO/MAN reset of automatic protection	
Input voltage		2 x 380...415 V AC	
Output voltage		24 V DC	
Nominal Power / Current		120 W / 5 A	240 W / 10 A
Conformity to standards	Safety	IEC/EN 60950	
	EMC	EN 50081-1, EN 50082-2	
	Low frequency harmonic currents	-	
Emission	Conducted and radiated	EN 55011, EN 55022 class B	
Dimensions (WxDxH)		68 x 130 x 127 mm	68 x 154 x 127 mm
References		<b>ABL7REQ24050</b>	<b>ABL7REQ24100</b>



Type of power supply		Industrial, 3-phase regulated switch mode, wide range AUTO/MAN reset of automatic protection			
Input voltage		3 x 400...520 V AC			
Output voltage		24 V DC			
Nominal Power / Current		120 W / 5 A	240 W / 10 A	480 W / 20 A	960 W / 40 A
Certifications		cULus, cULus			
Conformity to standards	Safety	IEC/EN 60950			
	EMC	EN 50081-1, EN 50082-2			
	Low frequency harmonic currents	-	EN 61000-3-2		
Emission	Conducted and radiated	EN 55011, EN 55022 class B			
Dimensions (WxDxH)		68 x 171 x 127 mm	84 x 240 x 209 mm	106 x 275 x 242 mm	
References		<b>ABL7UES24050</b>	<b>ABL7UPS24100</b>	<b>ABL7UPS24200</b>	<b>ABL7UPS24400</b>

6





Type of power supply		Industrial, regulated switch mode					
Input voltage		85 V...264 V AC				85 V...132 V AC / 170 V...264 V AC	
Output voltage		12 V DC		24 V DC		24 V DC	
Nominal Power / Current		60 W / 5 A	100 W / 8.3 A	60 W / 2.5 A	100 W / 4.2 A	150 W / 6.2 A	240 W / 10 A
Certifications		UL, c CSA us, CE, Ctick					
Conformity to standards		IEC/EN 60950-1, SELV					
Safety		EN 55011/55022 c1B, IEC/EN 61000-6-2/3, IEC/EN 61000-4-2, 43, 4, 5, 6, 8, 11, 12					
EMC							
Dimensions (WxDxH)		150 x 38 x 98	200 x 38 x 98	150 x 38 x 98	200 x 38 x 98	200 x 50 x 98	200 x 65 x 98
References		Without filter		With filter (1)			
		ABL1REM12050	–	ABL1REM24025	ABL1REM24042	ABL1REM24062	ABL1REM24100
		–	ABL1RPM12083	–	ABL1RPM24042	ABL1RPM24062	ABL1RPM24100

(1) Anti harmonic IEC/EN 61000-3-2



6

Type of power supply		Rectified and filtered										
Input voltage		215/230/245 or 385/400/415 V AC (±10%) 1-phase						380/400/420 V AC (±10%) 3-phase				
Output voltage		24 V DC										
Certifications		cULus										
Nominal power		24 W	60 W	120 W	240 W	360 W	480 W	240 W	480 W	720 W	960 W	
Nominal current		1 A	2.5 A	5 A	10 A	15 A	20 A	10 A	20 A	30 A	40 A	
Power supply references		1-phase		3-phase								
		ABL6RF24** (2)		ABL6RT24** (2)								
		01	02	05	10	15	20	–	–	–	–	
		–	–	–	–	–	–	10	20	30	40	

(2) Complete the reference according to the power and current using the adjacent table (example: ABL6RF2401)

# Transformers



Type of transformer		Safety and isolation								
<b>Primary voltage</b>		230/400 V AC ( $\pm 15\%$ ) 1-phase								
<b>Secondary</b>		Single or double winding (see references below)								
<b>Certifications</b>										
<b>Nominal power</b>		25 VA	40 VA	63 VA	100 VA	160 VA	250 VA	400 VA	630 VA	1000 VA
<b>References, single winding</b>		<b>ABL6TS... (1)</b>								
Secondary voltage		12 V	<b>02J</b>	<b>04J</b>	<b>06J</b>	<b>10J</b>	<b>16J</b>	<b>25J</b>	–	–
		24 V	<b>02B</b>	<b>04B</b>	<b>06B</b>	<b>10B</b>	<b>16B</b>	<b>25B</b>	<b>40B</b>	<b>63B</b>
		115 V	<b>02G</b>	<b>04G</b>	<b>06G</b>	<b>10G</b>	<b>16G</b>	<b>25G</b>	<b>40G</b>	<b>63G</b>
		230 V	<b>02U</b>	<b>04U</b>	<b>06U</b>	<b>10U</b>	<b>16U</b>	<b>25U</b>	<b>40U</b>	<b>63U</b>
<b>References, double winding</b>		<b>ABL6TD... (1)</b>								
Secondary voltage		24/48 V	<b>02B</b>	<b>04B</b>	<b>06B</b>	<b>10B</b>	<b>16B</b>	<b>25B</b>	<b>40B</b>	<b>63B</b>
		115/230 V	<b>02G</b>	<b>04G</b>	<b>06G</b>	<b>10G</b>	<b>16G</b>	<b>25G</b>	<b>40G</b>	<b>63G</b>

(1) Complete the reference according to the power and voltage using the table below (example: ABL6TS02J)

## Pre-wired system and distributed I/O solutions to help you put **everything together**

### Advantys

*Pre-wired system*



**Advantys Telefast ABE7**

*IP20: from the heart of the enclosure...*

**Simple, quick, reliable** and **powerful** It enables quick connection of inputs/outputs to the operative parts. It eliminates unnecessary cabling by replacing the use of PLC terminals and conventional terminal blocks. It comprises a connection cable and 3 types of connection sub-base.

*Distributed inputs/outputs*



**Advantys OTB**

**Open** and **modular**, this optimised block solution enables the creation of separate groups of industrial I/Os, each positioned as near to the machine as possible, that are managed by a master controller (PLC, PC or variable speed drive) via a fieldbus or communication network.



**Advantys STB**

This **open** I/O modular system integration solution is an I/O platform that also provides a very modular wiring system and a power supply management system.

Right from the start, you will appreciate its powerful and intelligent configuration software, its networking capabilities, its ease of setting-up and its wealth of parametering features.

*IP67: ...to the heart of the machine, put them to the test...*

*Pre-wired system*



**Passive splitter boxes  
Advantys ABE9**

**Compact**, they eliminate the need for long and difficult cable runs.

- 4 or 8 channel version with M12 connections

*Distributed inputs/outputs*



**Monobloc splitter boxes  
Advantys FTB**

They enable sensors and actuators to be connected in distributed automation systems using pre-assembled cables, thus reducing wiring time and costs whilst, at the same time, increasing the operational availability of the installation.

**Simple, robust** and **configurable**.

- Wide range of I/O combinations (16 I, 8 I 8 O, 12 I 4 O, 16 I/O configurable)



**Modular splitter boxes  
Advantys FTM**

**Powerful, compact** and **modular**.

- Up to 256 discrete I/Os per bus module

### The essential guide

*A simplified selection guide enabling you to quickly select all the products required for interfacing.*

#### Also see:

- **Advantys AS-Interface IP20 and IP67** cabling system  
(Chapter 8 "AS-Interface cabling system")





# Contents



## Distributed I/O solution Advantys STB

■ **The intelligence** integrated in Advantys STB and its software responds perfectly to your needs by simplifying the implementation of your automation systems.

■ **Simplicity:** Plug-in connectors accelerate and simplify installation and commissioning; removable memory cards enable bus configurations to be copied in a few seconds.

■ **Adaptability:** The modular and evolutionary design of the range, I/O modules, network interfaces and options available enable you to design a system suited to your needs.

■ **Open:** Advantys STB can be interfaced with the main fieldbuses: CANopen, DeviceNet, Ethernet, Fipio, INTERBUS, Modbus Plus, Profibus DP.

## Connection

- Terminal blocks **AB1** ..... 7/2
- Cable ends **DZ5/AZ5** ..... 7/3
- Cabling accessories **XZ** for sensors/actuators, IP67  
(see Chapter 1 “Detection”)

## Interfaces and pre-wired system

- IP20 plug-in relays, **Zelio Relay**  
(see Chapter 3 “Automation”)
- IP20 pre-wired system  
**Advantys Telefast ABE7** ..... 7/4
- IP20 connection interfaces for Twido  
**Advantys Telefast ABE7** ..... 7/6
- IP67 passive splitter boxes  
**Advantys ABE9** ..... 7/9

## Distributed inputs/outputs

- IP20 distributed I/O  
**Modicon Momentum** with processor  
(see Chapter 3 “Automation”)
- IP20 distributed I/O, optimised block  
**Advantys OTB** ..... 7/8
- IP67 distributed I/O, optimised block  
**Advantys FTB** ..... 7/9
- IP20 distributed I/O, modular system  
**Advantys STB** ..... 7/10 to 7/13
- IP67 distributed I/O, modular system  
**Advantys FTM** ..... 7/14

## AS-Interface cabling system

- IP20 interfaces  
**Advantys AS-Interface**  
(see Chapter 8 “AS-Interface cabling system”)
- IP67 interfaces  
**Advantys AS-Interface**  
(see Chapter 8 “AS-Interface cabling system”)

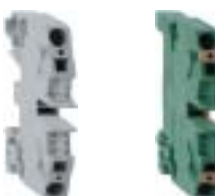
## Terminal blocks Insulation displacement technology



Clip-on mounting on 35 mm $\frac{25}{10}$ rails		2-way terminal blocks (sold in lots of 100)	End covers (sold in lots of 10)	2-pole commoning link (1) (sold in lots of 10)
1 mm <sup>2</sup> c.s.a.	Conducting	AB1AA135U2GR	AB1AAAC122GR	AB1RRAL22
	Protective earth conductor	AB1AATP135U2	AB1AAAC122VE	-
2.5 mm <sup>2</sup> c.s.a.	Conducting	AB1AA235U2GR	AB1AAAC122GR	AB1RRAL22
	Protective earth conductor	AB1AATP235U2	AB1AAAC122VE	-

(1) For a 3, 4, 5 or 10-pole commoning link replace the last number of the reference (2) by 3, 4, 5 or 10 respectively. (Example: AB1RAL22 becomes AB1RAL23).

## Spring clamp technology

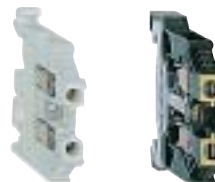


Clip-on mounting on 35 mm $\frac{25}{10}$ rails		Terminal blocks (sold in lots of 100)	End covers (sold in lots of 10)	2-pole commoning link (1) (sold in lots of 10)
2.5 mm <sup>2</sup> c.s.a.	Conducting	AB1RR235U2GR	AB1RRAC242GR	AB1RRAL22 (1)
	Protective earth conductor	AB1RRTP235U2	AB1RRTPAC242	-
4 mm <sup>2</sup> c.s.a.	Conducting	AB1RR435U2GR	AB1RRAC242GR	AB1RRAL42 (1)
	Protective earth conductor	AB1RRTP435U2	AB1RRTPAC242	-
6 mm <sup>2</sup> c.s.a.	Conducting	AB1RR635U2GR	-	AB1RRAL62
	Protective earth conductor	AB1RRTP635U2	-	-
10 mm <sup>2</sup> c.s.a.	Conducting	AB1RR1035U2GR (2)	-	AB1RRAL102
	Protective earth conductor	AB1RRTP1035U2 (2)	-	-
16 mm <sup>2</sup> c.s.a.	Conducting	AB1RR1635U2GR (2)	-	AB1RRAL162
	Protective earth conductor	AB1RRTP1635U2 (2)	-	-

(1) For a 3, 4, 5 or 10-pole commoning link replace the last number of the reference (2) by 3, 4, 5 or 10 respectively. (Example: AB1RRAL22 becomes AB1RRAL23).

(2) Sold in lots of 50.

## Screw clamp technology

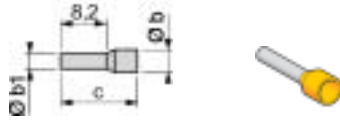


Clip-on mounting on 35 mm $\frac{25}{10}$ rails		Terminal blocks (sold in lots of 100)	End covers (sold in lots of 50)	2-pole commoning link (1) (sold in lots of 10)
2.5 mm <sup>2</sup> c.s.a.	Conducting	AB1VV235U	AB1AC24	AB1ALN22 (1)
	Protective earth conductor	-	-	-
4 mm <sup>2</sup> c.s.a.	Conducting	AB1VV435U	AB1AC24	AB1ALN42 (1)
	Protective earth conductor	AB1TP435U	-	-
6 mm <sup>2</sup> c.s.a.	Conducting	AB1VV635U	AB1AC6	AB1ALN62 (1)
	Protective earth conductor	AB1TP635U	-	-
10 mm <sup>2</sup> c.s.a.	Conducting	AB1VVN1035U (2)	AB1ACN10	AB1ALN102 (1)
	Protective earth conductor	AB1TP1035U (2)	-	-
16 mm <sup>2</sup> c.s.a.	Conducting	AB1VVN1635U (2)	AB1ACN16	AB1ALN162 (1)
	Protective earth conductor	AB1TP1635U (2)	-	-

(1) For a 3, 4, 5 or 10-pole commoning link replace the last number of the reference (2) by 3, 4, 5 or 10 respectively. (Example: AB1ALN22 becomes AB1ALN23).

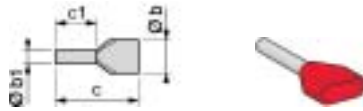
(2) Sold in lots of 50.

mm <sup>2</sup>	Øb	Øb1	c
0.5	3	1.4	13
0.75	3.1	1.6	13
1	3.4	1.8	13.5
1.5	4	2.1	13.5
2.5	4.6	2.7	14.5



Type		Single cable ends Sold in lots of 10 x 100			
Packaging		Individual or "strings" of bags	Dispenser pack	Strips of 50 in bag	
Conductor c.s.a. in mm <sup>2</sup>	0.5	White	DZ5CE005D	AZ5CE005D	DZ5CEB005D
	0.75	Grey	DZ5CE007D	AZ5CE007D	DZ5CEB007D
	1	Red	DZ5CE010D	AZ5CE010D	DZ5CEB010D
	1.5	Black	DZ5CE015D	AZ5CE015D	DZ5CEB015D
	2.5	Blue	DZ5CE025D	AZ5CE025D	DZ5CEB025D

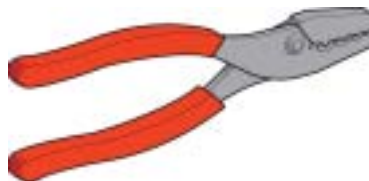
mm <sup>2</sup>	Øb	Øb1	c	c1
0.75	2.8 x 5	1.8	15	8
1	3.4 x 5.4	2.05	15	8
1.5	3.6 x 6.6	2.3	15	8
2.5	4.2 x 7.8	2.9	18.5	10



Type		Double cable ends Sold in lots of 5 x 100	
Packaging		Dispenser pack	
Conductor c.s.a. in mm <sup>2</sup>	2 x 0.75	Grey	AZ5DE007D
	2 x 1	Red	AZ5DE010D
	2 x 1.5	Black	AZ5DE015D
	2 x 2.5	Blue	AZ5DE025D

(1) For insulated cable ends conforming to standard NF C 63-023 , please refer to your Schneider Electric agency.

## Cabling accessories



Type	Pliers/cutters				
Functions	Stripping	Cutting/stripping	Crimping	Crimping (ratchet)	Cutting/stripping/crimping (2)
For cable c.s.a.	0.08 to 4 mm <sup>2</sup>	0.4 to 4 mm <sup>2</sup>	0.5 to 16 mm <sup>2</sup>	0.25 to 6 mm <sup>2</sup>	0.5 to 2.5 mm <sup>2</sup>
References	AT1PA7	AT2PE1	AT1PA2	AT2PA5	AT2TRIF01

(2) For use with cable ends packed in strips of 50.



Type of connection sub-base	Optimum			
Number of channels	16	16		
Max. current per channel	0.5 A	0.5 A		
Control voltage / output voltage	24 VDC / 24 VDC	24 VDC / 24 VDC		
LED per channel	–	With		
Number of terminals per channel/on row number	1/2	1/1	2/2	3/3
Dimensions (WxDxH)	55 x 59 x 67 mm	106 x 60 x 49 mm		
References	–	<b>ABE7H16C11</b>	<b>ABE7H16C21</b>	<b>ABE7H16C31</b>
Cable L = 1 m	<b>ABE7H20E100</b> (1)	–	–	–
Cable L = 2 m	<b>ABE7H20E200</b> (1)	–	–	–
Cable L = 3 m	<b>ABE7H20E300</b> (1)	–	–	–
Connection cable recommended for Modicon, TSX Micro and Premium PLCs, L = 1 m (2)	<b>ABFH20H100</b>			

(1) Connection cable supplied for PLCs.

(2) For a 2 m length cable, replace the number 1 in the reference by 2, and for a 3 m length, by 3. (Example: ABFH20H100 becomes ABFH20H200).



Type of connection sub-base	Universal					
Number of channels	16					
Max. current per channel	0.5 A					
Control voltage / output voltage	24 VDC / 24 VDC					
LED per channel	–	With	–	–	With	With
Number of terminals per channel/on row number	1/1	1/1	1/2	2/2	2/2	3/3
Dimensions (WxDxH)	125 x 58 x 70 mm		84 x 58 x 70 mm	125 x 58 x 70 mm		
References	<b>ABE7H16R10</b>	<b>ABE7H16R11</b>	<b>ABE7H16R50</b>	<b>ABE7H16R20</b>	<b>ABE7H16R21</b>	<b>ABE7H16R31</b>
Connection cable recommended for Modicon, TSX Micro and Premium PLCs, L = 1 m: <b>ABFH20H100</b> (2)						

(2) For a 2 m length cable, replace the number 1 in the reference by 2, and for a 3 m length, by 3. (Example: ABFH20H100 becomes ABFH20H200).



Type of connection sub-base	For counter and analogue channels		Passive distribution with shielding continuity	Distribution and supply of analogue channels
Number of channels	1 counter channel (3)		8	8
Max. current per channel	25 mA		25 mA	25 mA
Control voltage / output voltage	24 VDC / 24 VDC			
Number of terminals per channel	2		2 or 4	2 or 4
Dimensions (WxDxH)	143 x 58 x 70 mm		125 x 58 x 70 mm	125 x 58 x 70 mm
References	<b>ABE7CPA01</b>		<b>ABE7CPA02</b>	<b>ABE7CPA03</b>
Connection cable recommended for Modicon PLCs (4)	TSX Micro	L = 2.5 m	<b>TSXCCPS15</b>	–
	Premium	L = 3 m	<b>TSXCAP030</b>	–

(3) Or 8 inputs + 2 outputs, analogue .

(4) Connection cables available for other PLCs, please refer to your Schneider Electric agency.

## Sockets with plug-in relays and terminals



Type of connection sub-base	With soldered solid-state relay inputs		With soldered solid-state relay outputs		With soldered electro-mechanical relay outputs	
Number of channels	16		16		16	
Max. current per channel	12 mA		0.5 A		2 A	5 A
Input voltage / output voltage	24 VDC / -	110 VAC / -	- / 24 VDC		- / 5...30 VDC, 250 VAC	
Number of contacts	-		-		1 N/O	
Polarity distribution	-		-		(1)	Volt-free
Number of terminals per channel	2					
Dimensions (WxDxH)	206 x 58 x 77 mm					
References	ABE7S16E2B1	ABE7S16E2F0	ABE7S16S2B0(2)	ABE7S16S1B2	ABE7R16S111	ABE7R16S210

Connection cable recommended for Modicon, TSX Micro and Premium PLCs, L = 1 m: **ABFH20H100** (3)

(1) Contact common per group of 8 channels.

(2) With fault detection signal (can only be used with modules with protected outputs).

(3) For a 2 m length cable, replace the number 1 in the reference by 2, and for a 3 m length, by 3. (Example: ABFH20H100 becomes ABFH20H200).



Type of connection sub-base	With plug-in electromechanical relays					
Number of channels	16					
Max. current per channel	5 A	2.5 A			4 A	5 A
Control voltage / output voltage	24 VDC / 5...24 VDC, 230 VAC					
Number of contacts	1 N/O			1 C/O		2 C/O
Polarity distribution	(4)	(5)	Volt-free			
Number of terminals per channel	2	2 or 3		2 to 6		
Dimensions (WxDxH)	110x54x89 mm	211 x 64 x 89 mm		272 x 74 x 89 mm		
References	ABE7R16T111	ABE7R16T212	ABE7R16T210	ABE7R16T230	ABE7R16T330	ABE7R16T370

Connection cable recommended for Modicon, TSX Micro and Premium PLCs, L = 1 m: **ABFH20H100** (6)

(4) Contact common per group of 4 channels.

(5) Common on both poles.

(6) For a 2 m length cable, replace the number 1 in the reference by 2, and for a 3 m length, by 3. (Example: ABFH20H100 becomes ABFH20H200).

## Connection cables for PLCs <sup>(7)</sup>



Input/Output functions	Discrete	Analogue	Analogue and counter	Counter	Axis control
References					
Cable L = 1 m	ABFH20H100	-	-	-	-
Cable L = 2 m	ABFH20H200	ABFY25S200	-	-	TSXCXP213
Cable L = 2.5 m	-	-	TSXCPCS15	TSXCPCPH15	-
Cable L = 3 m	ABFH20H300	TSXCAP030	-	-	-
Cable L = 6 m	-	-	-	-	TSXCXP613

(7) Modicon, TSX Micro and Premium PLCs.

For other connection cables and accessories, please refer to your Schneider Electric agency.



Type of connection sub-base	Discrete inputs/outputs		Solid-state and relay
	Number of channels	20	20
Number of inputs	12 I (1 common for 12 channels)		
Number of outputs	8 O (1 common for 8 channels)	8 O, fuse protected (1 common for 8 channels)	2 O, solid-state 6 O, relay (1 common for 6 chnls.)
Voltage / current of inputs	24 VDC / 5...7 mA		
Voltage / current of outputs	24 VDC / 0.3 A		Solid-state: 24 VDC / 2 A Relay: 5...30 VDC, 250 VAC / 3 A
LED per channel	–	With	–
Number of terminals per channel/row number	2/2		
Dimensions (WxDxH)	130 x 62.5 x 83 mm		
References	ABE7B20MPN20	ABE7B20MPN22	ABE7B20MRM20

### Sub-base for input/output module



Type of connection sub-base	Discrete outputs			Relay
	Number of channels	16	16	16
Type of outputs	16 I (1 common for 16 channels)	16 O (1 common for 16 channels)	16 O, fuse protected (1 common for 16 channels)	16 O (1 common for 4 channels)
Voltage / current of outputs	24 VDC / 5 mA	24 VDC / 0.1 A		Relay: 5...30 VDC, 250 VAC / 3 A
LED per channel	–	With		–
Number of terminals per channel/row number	2/2			
Dimensions (WxDxH)	106 x 60 x 49 mm		130 x 62.5 x 83 mm	
References	ABE7E16EPN20	ABE7E16SPN20	ABE7E16SPN22	ABE7E16SRM20

### Connection cables for Twido



Type of cable	For linking Twido and Telefast sub-base		
For use with	TWDLMDA20DTK/40DTK		TWDDI16DK/32DK/DDO16TK/32TK
Type of connectors	HE10, 26-pin, at either end		HE10, 20-pin, at either end
References	Cable	L = 0.5 m	ABFT26B050
		L = 1 m	ABFT26B100
		L = 2 m	ABFT26B200
			ABFT20E050
			ABFT20E100
			ABFT20E200

### Accessories

Type of accessory	Optional clip-in terminals	
Number of linked terminals	20	12 + 8
References	ABE7BV20	ABE7BV20TB

# Advantys ABE9 Passive splitter boxes IP67



Type of connection		To PLC using multicore cable		
Number of channels		4	8	
Type of female connector		M12, 5-pin	M12, 5-pin	
Max. number of signals		8	16	
Max. current per channel		4 A		
Max. current per splitter box		16 A (1 mm <sup>2</sup> )		
Product certification		cULus		
Dimensions (WxDxH)		50.2 x 42 x 92.2 mm	50.2 x 42 x 149.2 mm	
References	Without LEDs	Cable L = 5 m	ABE9C1240L05	ABE9C1280L05
		Cable L = 10 m	ABE9C1240L10	ABE9C1280L10
	With LEDs (1)	Cable L = 5 m	ABE9C1241L05	ABE9C1281L05
		Cable L = 10 m	ABE9C1241L10	ABE9C1281L10

(1) Green LED: power supply status, yellow LED: channel status.



Type of connection		To PLC using M23 connector	
Number of channels		4	8
Type of female connector		M12, 5-pin	M12, 5-pin
Max. number of signals		8	16
Max. current per channel		4 A	
Max. current per splitter box		16 A	
Product certification		cULus	
Dimensions, W X D x H		50.2 x 36.5 x 92.2 mm	50.2 x 36.5 x 149.2 mm
References	Without LEDs	ABE9C1240C23	ABE9C1280C23
	With LEDs (1)	ABE9C1241C23	ABE9C1281C23

(1) Green LED: power supply status, yellow LED: channel status.

## Accessories



Type of accessory		Splitter boxes w/o cable		Terminal connectors		Sealing plugs (sold in lots of 10)
		Without LEDs	With LEDs	Cable L = 5 m	Cable L = 10 m	
References	4-channel	ABE9C1240M	ABE9C1241M	ABE9XCA1405	ABE9XCA1410	–
	8-channel	ABE9C1280M	ABE9C1281M	ABE9XCA1805	ABE9XCA1810	–
	for Ø12 connector	–	–	–	–	FTXCM12B

# Advantys OTB IP 20 distributed I/O, optimised block Interface modules



Discrete Type of bus	CANopen Machine bus	Ethernet TCP/IP network	Modbus Series network
Number of I/Os	20 I/O		
Number of inputs	12 inputs 24 VDC IEC type 1		
Number of outputs	6 relay outputs and 2 solid state 24 VDC outputs		
Connection method	Removable terminal block		
Number of I/O expansion modules (1)	7 discrete or analogue input/output modules, or connection accessories		
Maximum I/O configuration	With interface module base: 132 with screw terminal I/O expansion; 244 with HE10 connector I/O expansion; up to 48 analogue channels		
Supply voltage	24 VDC		
Counting	5 kHz	2 channels, 32 bits (0...4 294 967 295 points) dedicated discrete inputs -up counting/down counting with preset	
	20 kHz	2 channels, 32 bits (0...4 294 967 295 points) up/down counting, up counting, down counting, frequency meter	
Pulse generator, 7 kHz	2 PWM function channels (output with pulse width modulation) or PLS function (pulse generator output)		
Dimension (WxDxH)	55x70x90 mm		
References	OTB1C0DM9LP	OTB1E0DM9LP	OTB1S0DM9LP

(1) for the references of discrete I/O and analogue expansion modules, refer to the Twido or Advantys OTB catalogue

7

## Accessories

Type of accessory	Commoning modules	Documentation
Usage	For grouping input or output commons, max 8 A	User guides for hardware & software
Positioning	Inter-module	–
Référence	OTB9ZZ61JP	FTXES00







Type of module	CANopen machine bus	DeviceNet Fieldbus	Profibus Fieldbus	InterBus Fieldbus	
Number of channels	8				
Type of female connector	M12, 5-pin				
Max. voltage / current of inputs	24 VDC type 2/200 mA				
Max. voltage / current of outputs	24 VDC/1.6 A				
Max. current per splitter box	8 A				
Product certification	cULus				
Dimensions, W X D x H	63 x 50.5 x 220 mm			63 x 69 x 220 mm	
Diagnostics	Splitter boxes	By LED for: bus and I/O undervoltage + I/O short-circuit + I/O power supply			
	Channels	By LED for: I/O short-circuit + wire breakage fault + I/O fault			
References	16 inputs	FTB1CN16EP0	FTB1DN16EP0	FTB1DP16EP0	FTB1IB16EP0
	8 inputs/8 outputs	FTB1CN08E08SP0	FTB1DN08E08SP0	FTB1DP08E08SP0	FTB1IB08E08SP0
	12 inputs/4 outputs	FTB1CN12E04SP0	FTB1DN12E04SP0	FTB1DP12E04SP0	FTB1IB12E04SP0
	16 configurable inputs/outputs	FTB1CN16CP0	FTB1DN16CP0	FTB1DP16CP0	FTB1IB16CP0

## Interface modules, metal enclosure



Type of module	CANopen	DeviceNet	Profibus	
Number of channels	8			
Type of female connector	M12, 5-pin			
Max. voltage / current of inputs	24 VDC type 2/200 mA			
Max. voltage / current of outputs	24 VDC/1.6 A			
Max. current per splitter box	8 A			
Product certification	cULus			
Dimensions (WxDxH)	62.7 x 38.9 x 224.7 mm			
Diagnostics	Splitter boxes	By LED for: bus and I/O undervoltage + I/O short-circuit + I/O power supply		
	Channels	By LED for: I/O short-circuit + wire breakage fault + I/O fault		
References	16 inputs	FTB1CN16EM0	FTB1DN16EM0	FTB1DP16EM0
	8 inputs/8 outputs/configurable outputs	FTB1CN08E08CM0	FTB1DN08E08CM0	FTB1DP08E08CM0
	16 configurable inputs/outputs	FTB1CN16CM0	FTB1DN16CM0	FTB1DP16CM0



Type of module NIM		Ethernet TCP/IP network
<b>Binary speed</b>		10 Mbps
<b>Protocol</b>		Modbus TCP/IP
<b>Transparent Ready</b>	Class	B20
	Embedded Web server	Standard services
	Ethernet services	SNMP agent, FDR client (replacement of faulty equipment), BOOTP (allocation of IP addresses by a server)
<b>Max. number of addressable I/O modules</b>		32 per island
<b>Dimensions (WxDxH)</b>		40x70x128,3 mm
<b>Reference</b>	Standard	<b>STBNIP2212</b>



Type of module NIM		Machine bus CANopen	Fieldbus Fipio	INTERBUS	Profibus DP
<b>Max. number of addressable I/O modules</b>		32 per island (1) (2)	32 per island (1)	32 per island (1) (2)	32 per island (1) (2)
<b>Binary speed</b>		10 K...1 Mbps	1 Mbps	0.5 Mbps	9.6 K...12 Mbps
<b>Dimensions (WxDxH)</b>		40x70x128,3 mm			
<b>Reference</b>	Standard	<b>STBNCO2212</b>	<b>STBNFP2212</b>	<b>STBNIB2212</b>	<b>STBNDP2212</b>
	Basic	<b>STBNCO1010</b>	–	<b>STBNIB1010</b>	<b>STBNDP1010</b>

(1) On 7 segments max.

(2) 12 per island on 1 segment max for basic versions.



Type of module		Other networks	
		Modbus Plus	DeviceNet
<b>Max. number of addressable I/O modules</b>		32 per island	32 per island
<b>Speed</b>		1 Mbps	125, 250 or 500 Kbps
<b>Dimensions (WxDxH)</b>		40x70x128,3 mm	
<b>Reference</b>	Standard	<b>STBNMP2212</b>	<b>STBNDN2212</b>
	Basic	–	–
			<b>STBNDN1010</b>

## Connection accessories

Type of accessory		Removable terminals for 24 VDC power supply	DeviceNet
<b>Use</b>		All communication modules	Network link DeviceNet module
<b>Reference</b>	Screw terminals	<b>STBXTS1120</b> (1)	<b>STBXTS1111</b>
	Spring terminals	<b>STBXTS2120</b> (1)	<b>STBXTS2111</b>

(1) To be ordered separately, sold in lots of 10.



## Power distribution modules <sup>(1)</sup>



Type of module			PDM				Auxiliary Power supply	
Connection by removable terminals			Screw STBXTS1130 (2) Spring STBXTS2130 (2)				Screw STBXTS1120 (2) Spring STBXTS2120 (2)	
Supply voltage			24 VDC		115...230 VAC		24 VDC	
Maximum current	Inputs		4 A at 30°C, 2,5 A at 60°C	–	5 A at 30°C, 2,5 A at 60°C	–	–	
	Outputs		8 A at 30°C, 5 A at 60°C	–	10 A at 30°C, 2,5 A at 60°C	–	–	
	Inputs/Outputs		–	4 A at 30°C, 2,5 A at 60°C	–	5 A at 30°C, 2,5 A at 60°C	–	
	Logique interne 5 V		–	–	–	–	1,2 A	
Sensor/actuator bus voltage range			19.2...30 VDC		85...265 VAC		–	
Dimensions (WxDxH)			18.4x70x128.3 mm					
Reference	Module	Standard	STBPDT3100	–	STBPDT2100	–	STBCPS2111	
		Basic	–	STBPDT3105	–	STBPDT2105		
	Base		STBXBA2200		STBXBA2200		STBXBA2100	

(1) Process power supplies see chapter 6 "Power supply"

(2) To be ordered separately, sold in lots of 10.

## Bus extension modules for standard range



Type of module			"EOS" End of segment	"BOS" Beginning of segment	Extension for CANopen connection devices
Connection by removable terminals			–	Screw STBXTS1120 (2) Spring STBXTS2120 (2)	Screw STBXTS1110 (3) Spring STBXTS2110 (3)
Use			For placing at end of segment (except for the last)	For placing at head of each extension segment	For placing at end of last segment
Dimensions (WxDxH)			18.4x70x128.3 mm		
Reference	Module	Standard	STBXBE1000	STBXBE1200	STBXBE2100
	Base		STBXBA2400	STBXBA2300	STBXBA2000

(2) To be ordered separately, sold in lots of 10.

(3) To be ordered separately, sold in lots of 20.

## Software and memory card



Type	Advantys configuration software	Removable memory card
Use	Single station	–
Memory size	–	32 Kb
Reference	STBSPU1000	STBXMP4440

## Connection accessories

Type of accessory	Island bus extension cable				
Length	0.3 m	1 m	4.5 m	10 m	14 m
Reference	STBXCA1001	STBXCA1002	STBXCA1003	STBXCA1004	STBXCA1006

Connection accessories: See [www.telemecanique.com](http://www.telemecanique.com)

# Advantys STB IP20 Distributed I/O, modular system

## Discrete modules



Type of module			Discrete inputs				
Connection by removable terminals (1)			Screw STBXTS1100 Spring STBXTS2100		Screw STBXTS1110 Spring STBXTS2110		
Number of channels			2	4	6	2	
Input voltage			24 VDC		115 VAC	230 VAC	
Dimensions (WxDxH)			13.9x70x128.3 mm				
Reference	Module	Standard	STBDDI3230	STBDDI3420	STBDDI3610	STBDAI5230	STBDAI7220
		Basic	–	STBDDI3425	STBDDI3615	–	–
	Base		STBXBA1000			STBXBA2000	

(1) To be ordered separately, sold in lots of 20.



Type of module			Discrete solid state outputs					
Connection by removable terminals (1)			Screw STBXTS1100 Spring STBXTS2100					
Number of channels			2	4	6			
Output voltage			24 VDC		24 VDC			
Output current			0.5 A	2 A	0.25 A	0.5 A		
Dimensions (WxDxH)			13.9x70x128.3 mm					
Reference	Module	Standard	STBDDO3200	STBDDO3230	–	STBDDO3410	–	STBDDO3600
		Basic	–	–	STBDDO3415	–	STBDDO3605	–
	Base		STBXBA1000					

(1) To be ordered separately, sold in lots of 20.



Type of module			Discrete outputs		
			Triac	Relay	
Connection by removable terminals (1)			Screw STBXTS1110 Spring STBXTS2110		
Number of channels			2	2 NC/NO	2 NC+NO
Output voltage			115...230 VAC		
Output current			24 VDC or 115...230 VAC		
Output current			2 A at 30°C, 1 A at 60°C		
Output current			2 A per contact		7 A per contact
Dimensions (WxDxH)			18.4x70x128.3 mm		28.1x70x128.3 mm
Reference	Module	Standard	STBDAO8210	STBDR3210	STBDRA3290
		Basic	–	–	–
	Base		STBXBA2000		STBXBA3000

(1) To be ordered separately, sold in lots of 20.



## Analog modules



Type of module (3)			Analog inputs					
Connection by removable terminals			Screw STBXTS1100 (1) / Spring STBXTS2100 (1)					
Number of channels			2					
Input signal			- 10...+10 V	0...+10 V	0...20 mA	4...20 mA	Multi-range (2)	
Resolution			11 bits + sign	9 bits + sign	10 bits	12 bits	10 bits	15 bits + sign
Dimensions (WxDxH)			13.9x70x128.3 mm					
Reference	Module	Standard	STBAVI1270	–	–	STBACI1230	–	STBART0200
		Basic	–	STBAVI1275	STBAVI1255	–	STBACI1225	–
	Base	STBXBA1000						

(1) To be ordered separately, sold in lots of 20.

(2) Thermocouple B, E, J, K, R, S, T. Thermal probe Pt 100, Pt 1000, Ni 100, Ni 1000, cu 10, ± 80 mV.



Type of module (3)			Analog outputs				
Connection by removable terminals			Screw STBXTS1100 (1) / Spring STBXTS2100 (1)				
Number of channels			2				
Output signal			- 0...+10 V, - 10...+10 V	0...+10 V	-10 V...+10 V	0...20 mA	4...20 mA
Resolution			11 bits + sign or 12 bits	10 bits	9 bits + signe	12 bits	10 bits
Dimensions (WxDxH)			13.9x70x128.3 mm				
Reference	Module	Standard	STBAVO1250	–	–	STBACO1210	–
		Basic	–	STBAVO1255	STBAVO1265	–	STBACO1225
	Base	STBXBA1000					

(1) To be ordered separately, sold in lots of 20.

## Application-specific modules



Type of module (3)			For motor starters		Counter (1)
			Tego Power	TeSys model U	
Connection by connector			1 HE10 (30 contacts)	4 RJ45	Spring STBXTS2150 (2)
Number of inputs/outputs			16 E / 8 S	12 E / 8 S	4 E / 2 S
Input voltage			24 VDC		24 VDC
Output voltage/current			24 VDC/0.1 A per channel		24 VDC/0.5 A
Number of channels			8 non reversing motor starters	4 starters-controllers	1 counter channel 40 kHz
Dimensions (WxDxH)			18.4x70x128.3 mm	28.1x70x128.3 mm	
Reference	Module	Standard	STBEPI1145	STBEPI2145	STBEHC3020
		Base	STBXBA2000	STBXBA3000	
	Connection cables		STBXCA3002 (L= 1 m)	490NTW00002 (L= 2 m)	–
			STBXCA3003 (L= 2 m)	490NTW00005 (L= 5 m)	–

(1) For 2/3-wire PNP/NPN 24 VDC sensors, 24 VDC incremental encoders, mechanical contacts

(2) To be ordered separately

(3) Required grounding kit (conseilled for counter<40 kHz): STBXSP3000 (connecting support) + STBXSP3010 (1.5...6 mm<sup>2</sup> terminals) + STBXSP3020 (5...11 mm<sup>2</sup> terminals)

Connection accessories: See [www.telemecanique.com](http://www.telemecanique.com)

# Advantys FTM \_\_\_\_\_ IP67 distributed I/O, modular system

## Interface modules



Type of bus module	CANopen machine bus	DeviceNet fieldbus	Profibus fieldbus
Max. number of Discrete I/O	256		
Max. number of splitter boxes	16		
Bus module supply voltage	24 V DC		
Bus module max. supply current	9 A		
Product certification	UL/CSA	CULus	
Dimensions (WxDxH)	50 x 50.3 x 151 mm		
References	FTM1CN10	FTM1DN10	FTM1DP10

## Splitter boxes



Type of splitter box	Discrete inputs/outputs				
	Compact		Expandable		
Input voltage	24 V DC/type 2/200 mA		24 V DC/type 2/200 mA		
Output voltage	24 V DC		24 V DC		
Type of output	Solid-state		Solid-state		
Output current	0.5 A		0.5 A		
Maximum supply current by internal bus	4 A		4 A		
Diagnostics	Short-circuit on I/O, wire breakage fault, sensor/actuator fault				
Dimensions (WxDxH)	30 x 34.5 x 126 mm		30 x 34.5 x 151 mm		
I/O connection	M8 connector	M12 connector	M8 connector	M12 connector	
References	8 inputs	FTM1DE08C08	FTM1DE08C12	FTM1DE08C08E	FTM1DE08C12E
	8 configurable inputs/outputs	FTM1DD08C08	FTM1DD08C12	FTM1DD08C08E	FTM1DD08C12E
	16 inputs	–	FTM1DE16C12 (1)	–	FTM1DE16C12E (1)
	16 configurable inputs/outputs	–	FTM1DD16C12 (1)	–	FTM1DD16C12E (1)

(1) Dimensions: 50 x 34.5 x 126 mm.

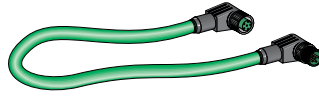


Type of splitter box	Analogue inputs/outputs				
	Compact				
Type of inputs/outputs	Current		Voltage		
Measuring range	0...20 mA/4...20 mA		± 10 V DC/0...10 V DC		
Diagnostics	Short-circuit on I/O, wire breakage fault, sensor/actuator fault				
Conversion time	≤ 2 ms per channel				
Dimensions (WxDxH)	30 x 34.5 x 126 mm				
Resolution	16 bit	12 bit	15 bit + sign	11 bit + sign	
References	4 inputs	FTM1AE04C12C	–	FTM1AE04C12T	–
	4 outputs	–	FTM1AS04C12C	–	FTM1AS04C12T



# Accessories for distributed I/O FTM <sup>(1)</sup>

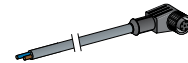
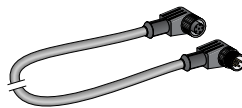
## Internal bus connection cables



(1) For sensor/actuator cabling accessories, see page 7/13

Type of cable			For linking bus module and splitter boxes	
Type of connector			Elbowed M12, 6-pin, at either end	
References	Cable	L = 0.3 m	FTXCB3203	
		L = 0.6 m	FTXCB3206	
		L = 1 m	FTXCB3210	
		L = 2 m	FTXCB3220	
		L = 3 m	FTXCB3230	
		L = 5 m	FTXCB3250	

## Auxiliary power supply connection cables

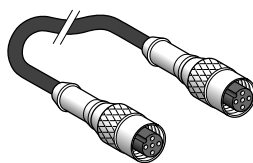


Type of cable			For connection of 24 V DC auxiliary power supply	
Type of connector			Elbowed M12, 6-pin, at either end	Elbowed M12, 6-pin, at one end (other end free)
References	Cable	L = 0.3 m	FTXCA3203	FTXCA3103
		L = 0.6 m	FTXCA3206	FTXCA3106
		L = 1 m	FTXCA3210	FTXCA3110
		L = 2 m	FTXCA3220	FTXCA3120
		L = 3 m	FTXCA3230	FTXCA3130
		L = 5 m	FTXCA3250	FTXCA3150

7

## Accessories

Type		Line terminator for end of internal bus	
Type of connector		M12	
References		FTXCBTL12	



(1) For sensor and actuator cabling accessories:  
see page 7/17

Type of bus			CANopen machine bus	DeviceNet fieldbus	Profibus fieldbus	INTERBUS fieldbus
Type of female connector			M12, 5-pin, at either end			–
Connector coding			A encoded		B encoded	–
References	Cable	L = 0.3 m	FTXCN3203		FTXDP3203	–
		L = 0.6 m	FTXCN3206		FTXDP3206	FTXIB1206 (2)
		L = 1 m	FTXCN3210		FTXDP3210	FTXIB1210 (2)
		L = 2 m	FTXCN3220		FTXDP3220	FTXIB1220 (2)
		L = 3 m	FTXCN3230		FTXDP3230	–
		L = 5 m	FTXCN3250		FTXDP3250	FTXIB1250 (2)

(2) Reference includes the Bus connection cable + the power supply cable.

## Power supply connection cables



Type of bus			CANopen machine bus	DeviceNet fieldbus	Profibus fieldbus
Type of female connector			Type 7/8, 5-pin, at either end		
References	Cable	L = 0.6 m	FTXDP2206		
		L = 1 m	FTXDP2210		
		L = 2 m	FTXDP2220		
		L = 5 m	FTXDP2250		
Type of female connector			Type 7/8, 5-pin, at one end (other end free)		
References	Cable	L = 1.5 m	FTXDP2115		
		L = 3 m	FTXDP2130		
		L = 5 m	FTXDP2150		

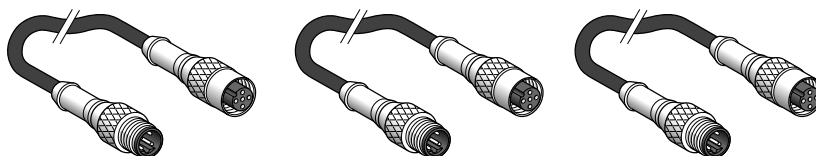
## Accessories

Type of bus		CANopen machine bus	DeviceNet fieldbus	Profibus fieldbus	INTERBUS fieldbus
References	Configuration CD-ROM	FTXES00			
	Diagnostics M12 adaptor	FTXDG12			
	Power supply T-connector	FTXCNT1			–
	Line terminator	FTXCNTL12		FTXDPTL12	–



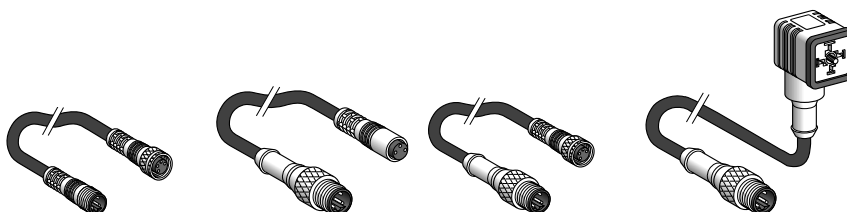
# Accessories for sensors/actuators

## M12 / M12 jumper cables



Type			Male / Female jumper cables		
Type of male connector, interface side			M12, 3-pin, straight, screw thread	M12, 4-pin, straight, screw thread	M12, 5-pin, straight, screw thread
Type of female connector, sensor side			M12, 3-pin, straight, screw thread	M12, 4-pin, straight, screw thread	M12, 5-pin, straight, screw thread
Cable			PUR, black	PUR, black	PUR, black
References	Cable	L = 1 m	XZCR1511040A1	XZCR1511041C1	XZCR1511064D1
		L = 2 m	XZCR1511040A2	XZCR1511041C2	XZCR1511064D2

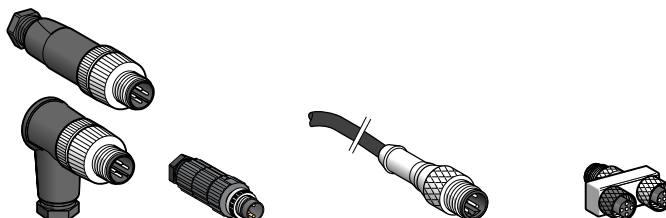
## M8/M8, M8/M12 and M12/DIN jumper cables



Type			Male / Female jumper cables			
Type of male connector, interface side			M8, 3-pin straight, screw thread	M12, 3-pin straight, screw thread	M12, 3-pin straight, screw thread	M12, 3-pin straight, screw thread
Type of female connector, sensor side			M8, 3-pin straight, screw thread	M8, 3-pin straight, clip together	M8, 3-pin straight, screw thread	DIN 43650A elbowed, screw thread
Cable			PUR, black	PUR, black	PUR, black	PUR, black
References	Cable	L = 1 m	XZCR2705037R1	XZCR1501040G1	XZCR1509040H1	XZCR1523062K1
		L = 2 m	XZCR2705037R2	XZCR1501040G2	XZCR1509040H2	XZCR1523062K2

7

## Pre-wired connectors and splitter box



Type			Connectors		Pre-wired connectors	Splitter box "Y"	
Type of male connector, interface side			M12, 4-pin	M8, 3-pin	M12, 5-pin, straight, screw thread	1 x M12	1 x M12
Type of female connector, sensor side			–	–	–	2 x M12	2 x M8
Cable			–	–	PUR, black	–	–
References	Straight connector, screw thread		XZCC12MDM40B	XZCC8MDM30V	–	FTXCY1212	FTXCY1208
	Elbowed connector, screw thread		XZCC12MCM40B	–	–	–	–
	Cable	L = 0.5 m	–	–	XZCP1564L05	–	–
L = 2 m		–	–	XZCP1564L2	–	–	

## The cabling system that meets your needs for industrial automation systems

AS-Interface With the «Smart Cable» opt for:



(Actuator Sensor Interface)

### ■ *Simplicity*

#### **A quick and expandable cabling system:**

- > Only 1 cable for connecting all the components of an automation system
- > Management of communications integrated in the products

### ■ *Maximum security*

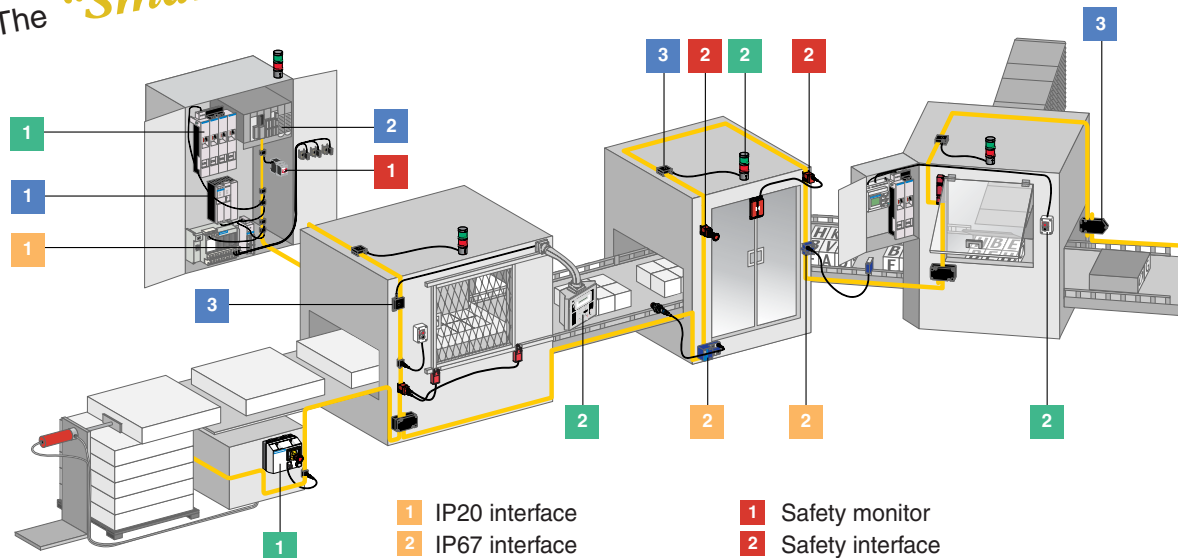
#### **AS-Interface significantly improves the reliability, availability and safety of your machine:**

- > Cabling errors are eliminated
- > Risk of electrical connection failure greatly reduced
- > High immunity to electromagnetic interference (EMC)
- > The machine's safety function is fully integrated with AS-Interface Safety at Work.

### ■ *Up to 40% savings in costs*

- > Savings in time for design, installation, setting-up and commissioning
- > Savings in space required in enclosures due to smaller products and elimination of intermediate boxes
- > Control cabling eliminated and reduction in cable ducting

The «Smart Cable»



- 1 IP20 interface
- 2 IP67 interface

- 1 Safety monitor
- 2 Safety interface

- 1 Dedicated control components
- 2 Dedicated dialogue components

- 1 Power supply units and earth fault detection
- 2 AS-Interface master
- 3

### The essential guide

A simplified selection guide enabling you to quickly select all the necessary products and accessories to build your installation.

# Contents

These IP20 or IP67 interfaces allow any standard automation component to be connected to the AS-Interface cable.

These handle automation functions and can be connected directly to the AS-Interface cable. An integrated circuit (ASIC) built into the products manages all interfacing functions and communication.

The incorporation of safety functions in the AS-Interface system is achieved by adding a safety monitor and safety interfaces, connected together with other standard AS-Interface components on the same yellow cable.

Sensors and actuators are connected to the processing unit by the AS-Interface system. This system comprises a cable, accessories, a master module and a power supply unit.

The terminals enable the assigning of an address to each interface and component in the system and diagnostics of the installation.

## Advantys interfaces for generic products ..... 8/2

### ■ IP20 interfaces



### ■ IP67 interfaces



## Dedicated components ..... 8/4

### ■ For control



### ■ For dialogue



## Safety solutions

(see Chapter 9 "Machine safety")

### ■ Safety monitors



### ■ Safety interfaces



## Installation system ..... 8/6 to 8/8

### ■ Master modules, power supply units



### ■ Cables, repeaters

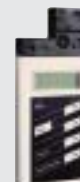


### ■ Accessories



## Tools ..... 8/9

### ■ Adjustment and addressing terminals





Modular interface, width 25 mm V2.1 with standard addressing	Analogue		Digital		
	Number of inputs	2 (0...10V)	2 (0/4...20mA)	4	4
Number of outputs	–	–	4 relay, 2A	4 solid state, 0.5A	4 solid state, 0.5A
Type of addressing	Standard				
Supply by AS-Interface	Inputs and sensor supply (200 mA max.)				–
Supply by 24 VDC external source (black AUX cable)	–	–	–	Outputs	(2)
AS-Interface profile	S.7.3.F.D	S.7.3.F.D	S.7.0.F.E	S.7.0.F.E	S.7.0.F.E
Maximum consumption from AS-Interface (excluding sensor supply)	60 mA	60 mA	110 mA	50 mA	20 mA
Dimensions (WxDxH)	25x77x87 mm	25x77x87 mm	25x77x87 mm	25x77x87 mm	25x77x87 mm
<b>References</b>	<b>ASI20MA2VU</b>	<b>ASI20MA2VI</b>	<b>ASI20MT4I4OR</b>	<b>ASI20MT4I4OS</b>	<b>ASI20MT4I4OSA</b>
<b>Accessory (1) for connection to flat cables</b>	<b>XZCG0122</b>	<b>XZCG0122</b>	<b>XZCG0122</b>	<b>ASIDCPFIL20</b>	<b>ASIDCPFIL20</b>

(1) Or direct screw terminal connection (without accessory), (other accessories, see page 8/9).

(2) Inputs, outputs and sensor supply (200 mA max.).



Modular interface, width 25 mm V2.1 with extended (A/B) addressing	Digital				
	Number of inputs	4	2	4	4
Number of outputs	–	1 triac, 2A	3 relay, 2A	3 solid state, 0.5A	3 solid state, 0.5A
Type of addressing	Extended (A/B)				
Supply by AS-Interface	Inputs and sensor supply (200 mA max.) (3)				–
Supply by 24 VDC external source (black AUX cable)	–	–	–	Outputs	(2)
AS-Interface profile	S.0.A.7.0	S.3.A.7.0	S.7.A.7.0	S.7.A.7.0	S.7.A.7.0
Maximum consumption from AS-Interface (excluding sensor supply)	50 mA	40 mA	90 mA	50 mA	20 mA
Dimensions (WxDxH)	25x77x87 mm	25x77x87 mm	25x77x87 mm	25x77x87 mm	25x77x87 mm
<b>References</b>	<b>ASI20MT4IE</b>	<b>ASI20MT2I1OTE</b>	<b>ASI20MT4I3ORE</b>	<b>ASI20MT4I3OSE</b>	<b>ASI20MT4I3OSAE</b>
<b>Accessory (1) for connection to flat cables</b>	<b>XZCG0122</b>	<b>XZCG0122</b>	<b>XZCG0122</b>	<b>ASIDCPFIL20</b>	<b>ASIDCPFIL20</b>

(1) Or direct screw terminal connection (without accessory), (other accessories, see page 8/9).

(2) Inputs, outputs and sensor supply (200 mA max.).

(3) Except ASI20MT4I3ORE (170 mA max.).



## IP67 for mounting on machine



Interface			Digital				
V2.1 with extended (A/B) addressing							
Number of inputs			4	2	–	4	4
Input cabling			Standard (1 x M12 input)			"Y" (2 x M12 inputs)	
Number of outputs			–	2 solid-state, 2A	3 solid-state, 2A	3 solid-state, 2A	3 solid-state, 2A
Type of addressing			Extended (A/B)				
Supply by AS-Interface			Inputs and sensor supply (200 mA max. except ASI67FFP22●: 100 mA)				
Supply by 24 VDC external source (black AUX cable)			–	Outputs	–	Outputs	Outputs
AS-Interface profile			S.0.A.7.0	S.B.A.7.0	S.8.A.7.0	S.7.A.7.0	S.0.A.7.2
Maximum consumption from AS-Interface (excluding sensor supply)			45 mA	32 mA	18 mA	48 mA	45 mA
Dimensions (WxDxH)			45x42x80 mm	45x42x80 mm	45x42x80 mm	60x30.5x151 mm	60x30.5x151 mm
Connection	IDC	Interface	ASI67FFP40E	ASI67FFP22E	ASI67FFP03E	ASI67FFP43E	ASI67FFP40EY
		Standard connection base	ASI67FFB01 (1)	ASI67FFB01 (1)	ASI67FFB01 (1)	ASI67FFB03	ASI67FFB01 (1)
	M12 connector	Interface + Connection base	ASI67FMP40E	ASI67FMP22E	ASI67FMP03E	ASI67FMP43E	ASI67FMP40EY

(1) A connection base with fixing centres that are compatible with the ASI67FFB01 connection base is available. Reference ASI67FFB02.



Interface			Digital				
V2.1 with standard addressing							
Number of inputs			4	2	–	4	4
Input cabling			Standard (1 x M12 input)			"Y" (2 x M12 inputs)	
Number of outputs			–	2 solid-state, 2A	4 solid-state, 2A	4 solid-state, 2A	4 solid-state, 2A
Type of addressing			Standard				
Supply by AS-Interface			Inputs and sensor supply (200 mA max. except ASI67FFP22●: 100 mA)				
Supply by 24 VDC external source (black AUX cable)			–	Outputs	Outputs	Outputs	Outputs
AS-Interface profile			S.0.0.F.E	S.3.0.F.E	S.8.0.F.E	S.7.0.F.E	S.7.1.F.E
Maximum consumption from AS-Interface (excluding sensor supply)			45 mA	32 mA	19 mA	49 mA	49 mA
Dimensions (WxDxH)			45x42x80 mm	45x42x80 mm	45x42x80 mm	60x30.5x151 mm	60x30.5x151 mm
Connection	IDC	Interface	ASI67FFP40D	ASI67FFP22D	ASI67FFP04D	ASI67FFP44D	ASI67FFP44DY
		Standard connection base	ASI67FFB01 (1)	ASI67FFB01 (1)	ASI67FFB01 (1)	ASI67FFB03	ASI67FFB03
	M12 connector	Interface + Connection base	ASI67FMP40D	ASI67FMP22D	ASI67FMP04D	ASI67FMP44D	ASI67FMP44DY

(1) A connection base with fixing centres that are compatible with the ASI67FFB01 connection base is available. Reference ASI67FFB02.



Interface			Digital				
V2.1 (V1 compatible) with standard addressing							
Number of inputs			4	2	–	4	
Input cabling			Standard (1 x M12 input)				
Number of outputs			–	2 solid-state, 2A	4 solid-state, 2A	4 solid-state, 2A	
Type of addressing			Standard				
Supply by AS-Interface			Inputs and sensor supply (200 mA max. except ASI67FFP22●: 100 mA)				
Supply by 24 VDC external source (black AUX cable)			–	Outputs	Outputs	Outputs	
AS-Interface profile			S.0.0.F.F	S.3.0.F.F	S.8.0.F.F	S.7.0.F.F	
Maximum consumption from AS-Interface (excluding sensor supply)			45 mA	32 mA	19 mA	49 mA	
Dimensions (WxDxH)			45x42x80 mm	45x42x80 mm	45x42x80 mm	60x30.5x151 mm	
Connection	IDC	Interface	ASI67FFP40A	ASI67FFP22A	ASI67FFP04A	ASI67FFP44A	
		Standard connection base	ASI67FFB01	ASI67FFB01	ASI67FFB01	ASI67FFB01	

# AS-Interface Dedicated components For control



Starter in insulated enclosure (1) V1	Control by		
	Black rotary knob (blue bkgnd.)	Pushbuttons	Red rotary knob (yellow bkgnd.)
Type of addressing	Standard	Standard	Standard
Supply by AS-Interface	Inputs, sensor supply (2)		Inputs, sensor supply
Supply by 24 VDC external source (black AUX cable)	(2)	(2)	Contactors
AS-Interface profile	S.7.D	S.7.D	S.7.F
Maximum consumption from AS-Interface	120 mA	120 mA	12 mA
Dimensions (WxDxH)	175x175x195 mm	175x175x195 mm	175x175x195 mm
References (3) (see table below)	Non reversing	LF1P●●D	LF7P●●D
	Reversing	LF2P●●D	LF8P●●D

Connection to AS-Interface and external supply (AUX) by accessory for flat cable: **ASIDCPM12D03** (AS-Interface and AUX cables) or **XZCG01205D** (AS-Interface cable).

(1) For an LF1 or LF2 starter in a metal enclosure, add the letter **M** after the 3rd digit in the references listed above (example: LF1P02D becomes **LF1MP02D**).

(2) Contactors supplied by AS-Interface or external source, configurable directly on terminal block.

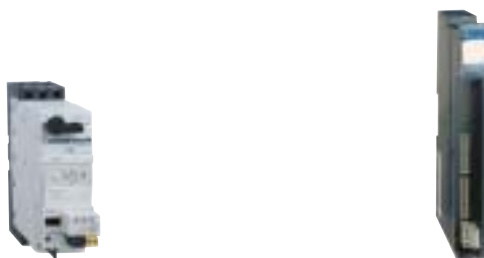
(3) To complete the reference, replace ●● by the numbers indicated in the table below. (Example: LF1P●●D becomes LF1P00D).

kW	A	●●	kW	A	●●
–	without MCB	00	0.75	1.6...2.5	07
0.06	0.16...0.25	02	1.1 / 1.5	2.5...4	08
0.09	0.25...0.40	03	2.2	4...6.3	10
0.12 / 0.18	0.40...0.63	04	3 / 4	6...10	14
0.25	0.63...1	05	5.5	9...14	16
0.37 / 0.55	1...1.6	06			

**kW**= Motor power ratings in category AC-3, 400/415V, in kilowatts.

**A**= Adjustable range of circuit-breaker thermal trips, in amperes.

8



Communication interface for	TeSys Model U V2.1	Tego Power V1
Type of addressing	Standard	Standard 2 addresses
Supply by AS-Interface	–	–
Supply by external source (AUX)	Coil	Contactors
AS-Interface profile	S.7.D.F.0	S.7.0
Maximum consumption from AS-Interface	30 mA280 mA	
Dimensions (WxDxH)	depending on LU model	35x129x254 mm
References	ASILUFC5	APP1CAS2
Recommended accessory for connection to AS-Interface cable (4)	ASIDCPFIL20	ASIDCPFIL20

(4) Or direct screw terminal connection to AS-Interface and external supply (AUX), (other accessories, see page 8/9).



## For dialogue



Keypads and Control stations V1	Control stations with 2 pushbuttons	
	Black and white	Illuminated
Type of addressing	Standard	Standard
Supply by AS-Interface	Buttons	Buttons and pilot lights
Supply by external source (AUX)	–	–
AS-Interface profile	S.3.F	S.3.F
Consumption from AS-Interface	< 40 mA	< 80 mA
Dimensions (WxDxH)	68x62x128 mm	68x68x128 mm
<b>References</b>	<b>XALS2001</b>	<b>XALS2003</b>
<b>Recommended accessory for connection to AS-Interface cable (4)</b>	<b>ASIDCPM12D03</b>	<b>ASIDCPM12D03</b>

(4) Or direct screw terminal connection to AS-Interface and external supply (AUX), (other accessories, see page 8/9).



Interface V1	For 2 control units and 2 pilot lights
Number of pages available	–
Number of inputs	2
Number of outputs	2 solid state, 0.5A
Type of addressing	Standard
Supply by AS-Interface	Inputs and pilot lights
AS-Interface profile	S.3.F
Maximum consumption from AS-Interface	80 mA
Dimensions (WxDxH)	52x15x38 mm
<b>References</b>	<b>XALSZ1</b>

Direct screw terminal connection to AS-Interface or by accessory for flat cable: **XZCG0122**, (other accessories, see page 8/9).



Indicator banks, Ø 70 mm (7) V1	Base units and cover		Illuminated units		Audible unit
	Standard	Standard	"Flash" discharge tube	Steady light	
Type of addressing	Standard	Standard	–	–	–
Connection to AS-Interface cable and AUX (male M12 connector)	yes	yes, remote L=1m	–	–	–
Supply by AS-Interface	(5)	(5)	–	–	–
Supply by external source (AUX)	(5)	(5)	–	–	–
AS-Interface profile	S.8.F	S.8.F	–	–	–
Consumption from AS-Interface, supply by AS-Interface / external	250 / 30 mA	250 / 30 mA	–	–	–
Light source	–	–	5 Joule	LED	–
Buzzer	–	–	–	–	70...80 db at 1m
<b>References</b>	<b>XVBC21A</b>	<b>XVBC21B</b>	<b>XVBC6B● (6)</b>	<b>XVBC2B● (6)</b>	<b>XVBC9B</b>
<b>Recommended accessory for connection to AS-Interface cable &amp; AUX</b>	<b>ASIDCPM12D03</b>	<b>XZCG0120</b>	–	–	–

(5) Illuminated units supplied by AS-Interface or externally, configurable by shunt.

(6) To complete the reference, replace the ● by the following number designating the colour: green: 3, red: 4, orange: 5, blue: 6, clear: 7, yellow: 8.

(7) To obtain a complete indicator bank, order a base unit + the illuminated or audible units (5 units maximum).

# AS-Interface Installation system

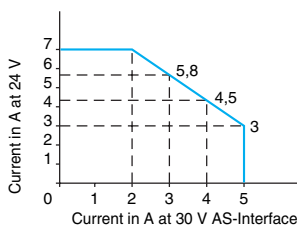
## Master modules



Platform	Twido	Premium	Micro	Quantum
Maximum number of master modules per PLC	2	2, 4 or 8 depending on processor	1	8 (1)
Compatibility with AS-Interface interfaces and components	V1 / V2.1	V1 / V2.1	V1	V1
Direct connection to AS-Interface cable	by terminal block	by terminal block	by terminal block	by terminal block
Maximum number of addresses	62	62	31	31
Type of addressing	Standard/Extended (A/B)	Standard/Extended (A/B)	Standard	Standard
Compatibility with analogue interfaces	Yes	Yes	–	–
Compatibility with safety interfaces	Yes	Yes	Yes	Yes
AS-Interface profile	M.3	M.2.E	M.2	M.2
<b>References</b>	<b>TWDNOI10M3</b>	<b>TSXSAY1000</b>	<b>TSXSAZ10</b>	<b>140EIA92100</b>

(1) 4 per local rack, 4 per remote I/O, 2 per distributed I/O.

## Power supply units



Type of supply	AS-Interface		AS-Interface + Auxiliary	
Input voltage	100...240 VAC	100...240 VAC	100...240 VAC	100...120 & 200...240 VAC
AS-Interface output voltage	30 VDC	30 VDC	30 VDC	30 VDC
Auxiliary output voltage	–	–	24 VDC	24 VDC
AS-Interface nominal power	73 W	146 W	73 W	61-153 W
Auxiliary nominal power	–	–	72 W	72-168 W
AS-Interface nominal current	2.4 A	4.8 A	2.4 A	5 A (2)
AUX nominal current	–	–	3 A	7 A (2)
Direct connection to AS-Interface cable	by terminal block	by terminal block	by terminal block	by terminal block
Dimensions (WxDxH)	54x120x120 mm	81x120x120 mm	81x120x120 mm	225x135x151.5 mm
<b>References</b>	<b>without earth fault detection</b>	<b>ASIABL3002</b>	<b>ASIABL3004</b>	<b>ASIABLM3024</b>
	<b>with earth fault detection</b>	<b>ASIABLD3002</b>	<b>ASIABLD3004</b>	–

(2) Power supply unit with constant maximum output, see curve above.





## Cables and repeater



Type	Yellow AS-Interface cable	Black Auxiliary cable	Repeater (4)
Wire c.s.a.	2 x 1.5 mm <sup>2</sup>	2 x 1.5 mm <sup>2</sup>	–
References	Cable L = 20 m	XZCB10201 (3)	–
	L = 50 m	XZCB10501 (3)	–
	L = 100 m	XZCB11001 (3)	–
Reference of repeater	–	–	ASIRPT01

(3) Standard cable. For TPE cable (oil and vapour resistant) add the letter **H** to the end of the reference, example: XZCB10201 becomes **XZCB10201H**.

(4) Enables an AS-Interface network to be extended by 100 m. Direct connection to the AS-Interface yellow cable by IDC.

## Tap-offs for flat cable

(For connecting interfaces and components)

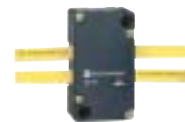


Connection to cable by IDC			AS-Interface IP54		AS-Interface + Auxiliary IP67	
Cable extremity			M12 connector (5)	Bared wires (6)	M12 connector (5)	Bared wires (7)
References	Cable	L = 0.3 m	–	–	ASIDCPM12D03	–
		L = 0.6 m	XZCG01205D	–	–	–
		L = 1 m	XZCG0121D	–	–	–
		L = 2 m	–	XZCG0122	ASIDCPM12D20	ASIDCPFIL20
		L = 5 m	–	–	–	ASIDCPFIL50

(5) Female 5-pin M12 end connector, screw threaded for connection with M12 male connector.

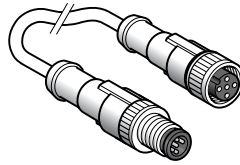
(6) 2 x 0.34 mm<sup>2</sup> for product with terminal block.

(7) 4 x 0.34 mm<sup>2</sup> for product with terminal block.



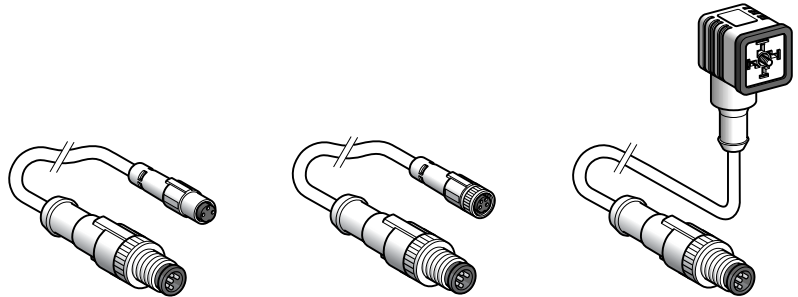
Connection to cable by IDC			AS-Interface	2 AS-Interface or 2 Auxiliary
Tap-off			1 x M12 connector 5-pin female, screw threaded	1 flat cable
References	Tap-off		XZCG0120	–
		IDC connection base	–	XZSDE1113
		Cover	–	XZSDP (8)

(8) For the complete product, include the connection base.



Type		Male / Female jumper cable		
Male connector type, interface side		M12, 3-pin, straight, screw thread.	M12, 4-pin, straight, screw thread.	M12, 5-pin, straight, screw thread.
Female connector type, sensor side		M12, 3-pin, straight, screw thread.	M12, 4-pin, straight, screw thread.	M12, 5-pin, straight, screw thread.
Cable		PUR, black	PUR, black	PUR, black
References	Cable L = 1 m	XZCR1511040A1	XZCR1511041C1	XZCR1511064D1
	L = 2 m	XZCR1511040A2	XZCR1511041C2	XZCR1511064D2

## Jumper cables M12 / M8 or DIN

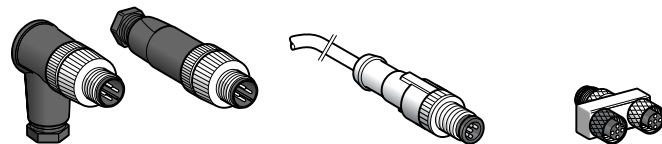


Type		Male / Female jumper cable		
Male connector type, interface side		M12, 3-pin, straight, screw thread.	M12, 3-pin, straight, screw thread.	M12, 3-pin, straight, screw thread.
Female connector type, sensor side		M8, 3-pin, straight (1)	M8, 3-pin, straight, screw thread.	DIN 43650A, elbowed, screw thrd.
Cable		PUR, black	PUR, black	PUR, black
References	Cable L = 1 m	XZCR1501040G1	XZCR1509040H1	XZCR1523062K1
	L = 2 m	XZCR1501040G2	XZCR1509040H2	XZCR1523062K2

(1) Clip together connector.

8

## Connectors, splitter box



Type	Connectors	Pre-wired connectors	Splitter box
Male connector type, interface side	M12, 4-pin	M12, 5-pin, straight, screw thread.	1 x M12, 5-pin, straight, screw thrd.
Female connector type, sensor side	–	–	2 x M12, 5-pin, straight, screw thrd.
Cable	–	PUR, black	–
References	Straight connector, screw thread.	XZCC12MDM40B	FTXCY1212
	Elbowed connector, screw thread.	XZCC12MCM40B	–
	Cable L = 0.5 m	–	XZCP1564L05
	Cable L = 2 m	–	XZCP1564L2



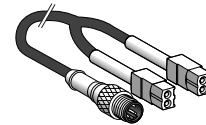
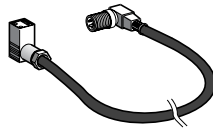
# Tools

## Adjustment and addressing terminals

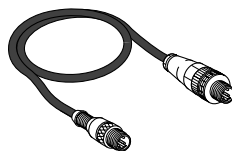


Display	25 mm LCD screen	13 mm LCD screen
Degree of protection	IP40	IP20
AS-Interface voltage / current measurement	yes	no
Addresses stored in memory	yes	no
Access to functions	direct by selector switch	by pull-down menu
Compatibility	V1/V2	V1/V2
Operating time	2500 addressing operations	250 read/write operations
<b>References</b>	<b>ASITERV2</b>	<b>XZMC11</b>
Reference with set of 7 leads + protective cover for terminal	ASITERV2SET	-

## Addressing accessories for terminals ASITERV2 and XZMC11



Product connection	Infrared addressing	Socket
For products	ASISL...	ABE8... / APP1 / ASILUF... / XBZS43 / ASI20M
<b>References</b>	<b>ASITERI1</b>	<b>XZMG12</b>



Product connection	M12, male	M12, female	Jack plug
For products	(2)	ASI67FMP XVB... / XAL... / LF...	ASI20M... / ASI67FFP...
<b>References</b>	<b>ASITERACC1M</b>	<b>ASITERACC1F</b>	<b>ASITERACC</b>

(2) Possibility to connect AS-Interface cable using T connector XZCG0120.

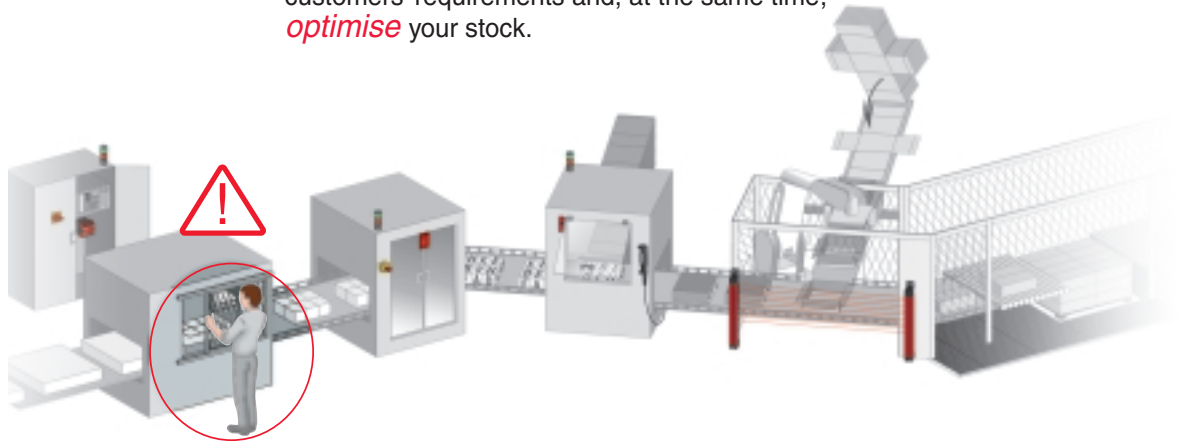
## Safety solutions using Preventa for better protection

### Preventa

*Ingenious* and innovative, Preventa safety solutions provide maximum protection in all the safety functions of your automation system.

#### Select Preventa:

- To export your machines to any location in the world, you expect solutions that are both *approved* and *conform* to international standards.
- To maintain productivity, you need solutions *quickly* to assist you, irrespective of the circumstances.
- You seek *universal* solutions to respond to the diversity of your customers' requirements and, at the same time, *optimise* your stock.



#### Level of Risk

The level of the respective risk (see also EN1050) determines the requirements and the category of EN954-1 to be met by the selected safety solution for the control system.

- S Result of an accident**  
 S1 Slight injury  
 S2 Serious, irreversible, injury or death of a person
- F Frequency and duration in the danger zone**  
 F1 Seldom to quite often and/or exposure time is short  
 F2 Frequent to continuous and/or exposure time is long
- P Possibility of avoiding the hazard**  
 P1 Possible in certain circumstances  
 P2 Virtually impossible

The essential guide  
 A simplified selection guide showing a selection of Preventa solutions covering the main safety applications likely to be encountered throughout the world.

		Category				
		B	1	2	3	4
S1	F1	•	●	○	○	○
	P1	•	●	●	○	○
S2	F2	•	•	●	○	○
	P2	•	•	•	●	○

Table shown in annex of the standard **EN 954-1**

- Preferred control system category
- Measures which may exceed minimum requirements for the relevant risk
- Possible categories which require additional measures

# Contents

## You have defined your control system category

The schematic library conceived by Schneider assists you in selecting your optimal solution, by:

- providing typical schematics for the various safety functions,
- enabling selection and integration of the schematic in Autocad format.



- Establishment of the ordering references by direct access to the electronic catalogue.

Symbol	Reference
S1	ZB4 BS844
	AND ZB4 BZ104
S2	ZB4 BA4
	AND ZB4 BZ104
S3	ZB4 BA1
	AND ZB4 BZ101
S4	XCS-M3910L•
S5	XCS-M3910L•
Module	XPS-MP11123
KM1	LC1
KM2	LC1



## Automation ..... 9/2 to 9/5

- Safety controllers and modules

## AS-Interface Safety at work ..... 9/6 to 9/7

- Safety monitors and interfaces

## Detection ..... 9/8 to 9/11

- Safety switches
- Safety limit switches and mats
- Safety light curtains

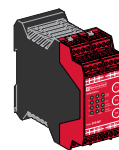
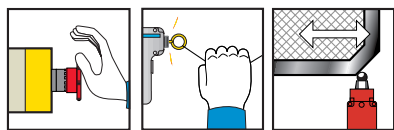
## Operator dialogue ..... 9/12 to 9/16

- Emergency stops
- Two-hand control and enabling switches
- Foot switches
- Products for explosive atmospheres  
(see chapter 10 "Explosive Atmospheres")

## Motor control ..... 9/17 to 9/19

- Switch disconnectors
- TeSys motor starters





Maximum category of the solution (EN 954-1)		Category 4	
Number of circuits	Safety	2x2N/O + 6 solid-state	2x3N/O per function
	Additional	–	3 solid-state
Display (number of LEDs)		30	12
Width of housing		74 mm	45 mm

**Universal solutions: safety controllers (for monitoring several safety functions simultaneously)**

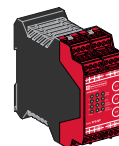
Supply voltage	24 VDC	XPSMC16X (1)(2)	XPSMP11123P (3)
----------------	--------	-----------------	-----------------

(1) Version with 16 inputs, for version with 32 inputs, replace 16 in the reference by 32 (example: XPSMC16X becomes XPSMC32X).

(2) XPSMCWIN configuration software, configuration cable, adapter and set of plug-in connectors with screw terminals XPSMCTS16 and XPSMCTS32 or set of plug-in connectors with spring terminals XPSMCTC16 and XPSMCTC32, to order separately.

(3) For version with non removable terminal block, delete the letter P from the end of the reference (example: XPSMP11123P becomes XPSMP11123).

**coded magnetic switches enabling switch**



Maximum category of the solution (EN 954-1)		Category 4	
For monitoring		magnetic switches and enabling switch	
Number of circuits	Safety	2x2N/O + 6 solid-state	2x3N/O per function
	Additional	–	3 solid-state
Display (number of LEDs)		30	12
Width of housing		74 mm	45 mm

**Universal solutions: safety controllers (for monitoring several safety functions simultaneously)**

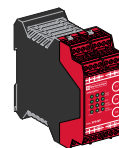
Supply voltage	24 VDC	XPSMC16X (1)(2)	XPSMP11123P (3)
----------------	--------	-----------------	-----------------

(1) Version with 16 inputs, for version with 32 inputs, replace 16 in the reference by 32 (example: XPSMC16X becomes XPSMC32X).

(2) XPSMCWIN configuration software, configuration cable, adapter and set of plug-in connectors with screw terminals XPSMCTS16 and XPSMCTS32 or set of plug-in connectors with spring terminals XPSMCTC16 and XPSMCTC32, to order separately.

(3) For version with non removable terminal block, delete the letter P from the end of the reference (example: XPSMP11123P becomes XPSMP11123).

**safety mats and edging**



Maximum category of the solution (EN 954-1)		Category 3	
Number of circuits	Safety	2x2N/O + 6 solid-state	2x3N/O per function
	Additional	–	3 solid-state
Display (number of LEDs)		30	12
Width of housing		74 mm	45 mm

**Universal solutions: safety controllers (for monitoring several safety functions simultaneously)**

Supply voltage	24 VDC	XPSMC16X (1)(2)	XPSMP11123P (3)
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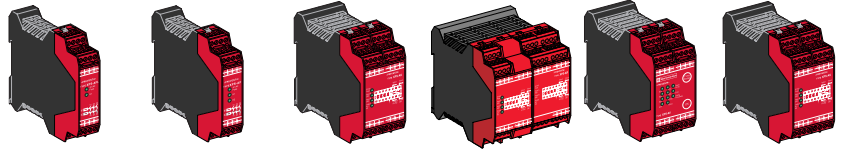
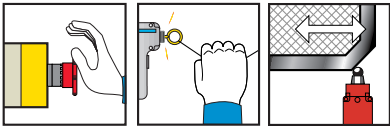
(1) Version with 16 inputs, for version with 32 inputs, replace 16 in the reference by 32 (example: XPSMC16X becomes XPSMC32X).

(2) XPSMCWIN configuration software, configuration cable, adapter and set of plug-in connectors with screw terminals XPSMCTS16 and XPSMCTS32 or set of plug-in connectors with spring terminals XPSMCTC16 and XPSMCTC32, to order separately.

(3) For version with non removable terminal block, delete the letter P from the end of the reference (example: XPSMP11123P becomes XPSMP11123).

# Safety modules for monitoring emergency stops and limit switches

Available 4<sup>th</sup> quarter 2005



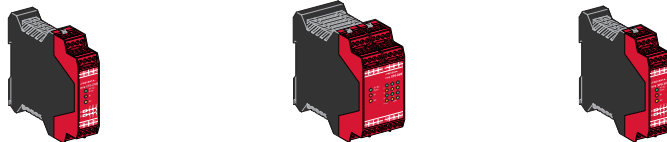
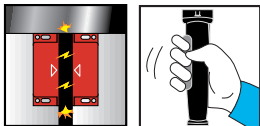
Maximum category of the solution (EN 954-1)		Category 3		Category 4			
Number of circuits	Safety	3N/O	3N/O	3N/O	7N/O	3N/O+3N/O time del.	2N/O+3N/O time del.
	Additional	1 solid-state	–	1N/C + 4 solid-state	2N/C + 4 solid-state	3 solid-state	4 solid-state
Display (number of LEDs)		2	3	4	4	11	4
Width of housing		22.5 mm	22.5 mm	45 mm	90 mm	45 mm	45 mm

Optimum solutions: safety modules (for monitoring 1 safety function)

Supply voltage (1)	24 VDC	–	–	–	–	XPSAV1113P	–
	24 VAC/DC	XPSAC5121P	XPSAF5130P	XPSAK311144P	XPSAR311144P	–	XPSATE5110P ▲
	230 VAC	–	–	–	–	–	XPSATE3710P ▲

(1) For version with non removable terminal block, delete the letter P from the end of the reference (example: XPSAV1113P becomes XPSAV1113).

## coded magnetic switches enabling switch



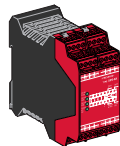
Maximum category of the solution (EN 954-1)		Category 4		
For monitoring		2 coded magnetic switches maximum	6 coded magnetic switches maximum	enabling switch
Number of circuits	Safety	2N/O	2N/O	2N/O
	Additional	2 solid-state	2 solid-state	2 solid-state
Display (number of LEDs)		3	15	3
Width of housing		22.5 mm	45 mm	22.5 mm

Optimum solutions: safety modules (for monitoring 1 safety function)

Supply voltage	24 VDC	XPSDMB1132P (1)	XPSDME1132P (1)	XPSVC1132P (1)
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(1) For version with non removable terminal block, delete the letter P from the end of the reference (example: XPSDMB1132P becomes XPSDMB1132).

## safety mats and edging

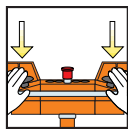


Maximum category of the solution (EN 954-1)		Category 3
Number of circuits	Safety	3N/O
	Additional	1N/C + 4 solid-state
Display (number of LEDs)		4
Width of housing		45 mm

Optimum solutions: safety modules (for monitoring 1 safety function)

Supply voltage	24 VAC/DC	XPSAK311144P (1)
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(1) For version with non removable terminal block, delete the letter P from the end of the reference (example: XPSAK311144P becomes XPSAK311144).



Universal



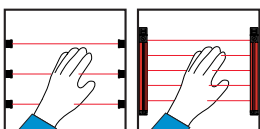
Maximum category of the solution (EN 954-1)		Category 4
Number of circuits	Safety	2x2N/O + 6 solid-state
	Additional	–
Display (number of LEDs)		30
Width of housing		74 mm

Universal solutions: safety controllers (for monitoring several safety functions simultaneously)

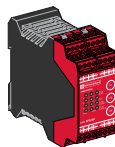
Supply voltage	24 VDC	XPSMC16X (1)(2)
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- (1) Version with 16 inputs, for version with 32 inputs, replace 16 in the reference by 32 (example: XPSMC16X becomes XPSMC32X).
- (2) XPSMCWIN configuration software, configuration cable, adapter and set of plug-in connectors with screw terminals XPSMCTS16 and XPSMCTS32 or set of plug-in connectors with spring terminals XPSMCTC16 and XPSMCTC32, to order separately.

**light curtains**



Universal



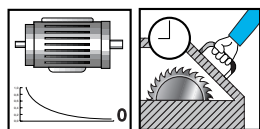
Maximum category of the solution (EN 954-1)		Category 4		2 light curtains monitoring max.
Number of circuits	Safety	2x2N/O + 6 solid-state	2x3N/O per function	6 PNP solid-state
	Additional	–	3 solid-state	1 PNP + 1 NPN
Display (number of LEDs)		30	12	14 + double display units
Width of housing		74 mm	45 mm	100 mm
Integral Muting function		Yes	No	Yes

Universal solutions: safety controllers (for monitoring several safety functions simultaneously)

Supply voltage	24 VDC	XPSMC16X (1)(2)	XPSMP11123P (3)	XPSLCM1150 (4)
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- (1) Version with 16 inputs, for version with 32 inputs, replace 16 in the reference by 32 (example: XPSMC16X becomes XPSMC32X).
- (2) XPSMCWIN configuration software, configuration cable, adapter and set of plug-in connectors with screw terminals XPSMCTS16 and XPSMCTS32 or set of plug-in connectors with spring terminals XPSMCTC16 and XPSMCTC32, to order separately.
- (3) For version with non removable terminal block, delete the letter P from the end of the reference (example: XPSMP11123P becomes XPSMP11123).
- (4) Removable terminal blocks

**zero speed, time delay**



Universal



Maximum category of the solution (EN 954-1)		Category 4
For monitoring		Motor zero speed condition
Number of circuits	Safety	2x2N/O + 6 solid-state
	Additional	–
Display (number of LEDs)		30
Width of housing		74 mm

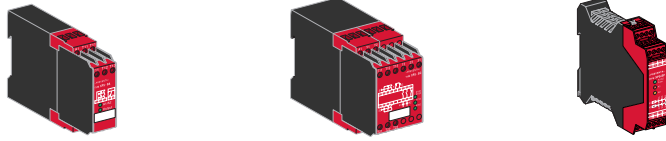
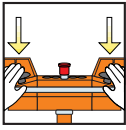
Universal solutions: safety controllers (for monitoring several safety functions simultaneously)

Supply voltage	24 VDC	XPSMC16X (1)(2)
----------------	--------	-----------------

- (1) Removable terminal block version only.
- (2) XPSMCWIN configuration software, configuration cable, adapter and set of plug-in connectors with screw terminals XPSMCTS16 and XPSMCTS32 or set of plug-in connectors with spring terminals XPSMCTC16 and XPSMCTC32, to order separately.



# Safety modules for monitoring two-hand control



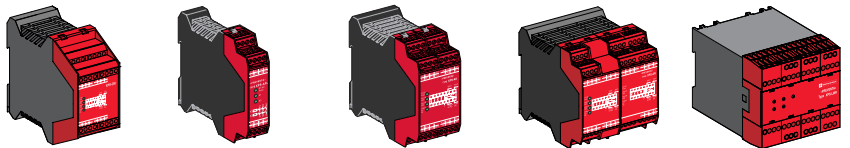
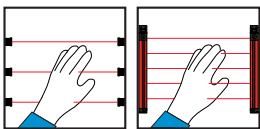
Maximum category of the solution (EN 954-1)		Category 1 (type IIIA to EN 574)	Category 4 (type IIIC to EN 574)	
Number of circuits	Safety	1N/O	2N/O	2N/O
	Additional	1N/C	1N/C	2 solid-state
Display (number of LEDs)		2	3	3
Width of housing		22.5 mm	45 mm	22.5 mm

Optimum solutions: safety modules (for monitoring 1 safety function)

Supply voltage	24 VDC	–	XPSBC1110	XPSBF1132P (1)
	24 VAC/DC	XPSBA5120	–	–

(1) For version with non removable terminal block, delete the letter P from the end of the reference (example: XPSBF1132P becomes XPSBF1132).

## light curtains



Maximum category of the solution (EN 954-1)		Category 2	Category 4			
Number of circuits	Safety	2N/O	3N/O	3N/O	7N/O	3N/O (2)
	Additional	4 solid-state	–	1N/C + 4 solid-state	1N/C + 4 solid-state	2 solid-state
Display (number of LEDs)		4	3	4	4	5
Width of housing		45 mm	22.5 mm	45 mm	90 mm	90 mm
Integral Muting function		Yes	No	No	No	Yes

Optimum solutions: safety modules (for monitoring 1 safety function)

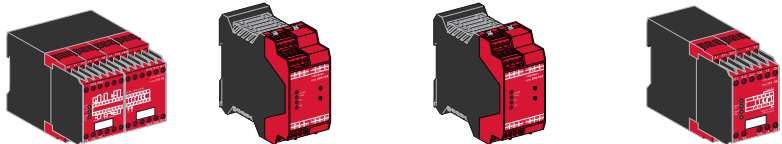
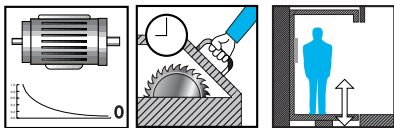
Supply voltage	24 VDC	XPSCM1144P (1)	–	–	–	XPSLMR1152 (3)
	24 VAC/DC	–	XPSAFL5130P (1)	XPSAK311144P (1)	XPSAR311144P (1)	–

(1) For version with non removable terminal block, delete the letter P from the end of the reference (example: XPSCM1144P becomes XPSCM1144).

(2) Version with 3 solid-state outputs instead of 3N/O: XPSCM1150.

(3) Removable terminal block version only.

## zero speed, time delay and lifts

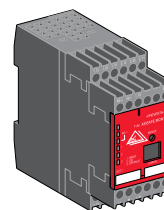
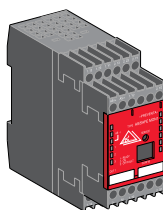


Maximum category of the solution (EN 954-1)		Category 3	Category 4	
For monitoring		Motor zero speed condition	Safety time delay	Lifts
Number of circuits	Safety	1N/O + 1N/C	1N/O time delay	1N/O pulse
	Additional	2 solid-state	2N/C + 2 solid-state	2N/C + 2 solid-state
Display (number of LEDs)		4	4	4
Width of housing		90 mm	45 mm	45 mm

Optimum solutions: safety modules (for monitoring 1 safety function)

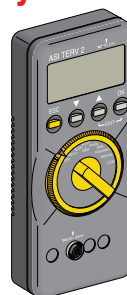
Supply voltage	24 VDC	XPSVN1142	–	–	–
	24 VAC/DC	–	XPSTSA5142P (1)	XPSTSW5142P (1)	XPSDA5142

(1) Removable terminal block version only.



Maximum category of the solution (EN 954-1)		Category 4	
Number of circuits	Safety	2N/O	2 x 2N/O
	Auxiliary	1 solid-state	2 solid-state
Display (number of LEDs)		5	8
Width of housing		45 mm	45 mm
AS-Interface profile		S.7.F	S.7.F
Master module compatibility		V1 / V2.1	V1 / V2.1
References monitor with	Enhanced functions	ASISAFEMON1B	ASISAFEMON2B
	Basic functions	ASISAFEMON1	ASISAFEMON2

**Configuration software, adjustment terminal and AS-Interface analyser**



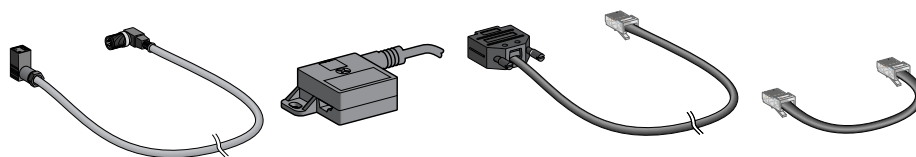
Available 3<sup>rd</sup> quarter 2005

Type	"Safety Suite" configuration software (1)	Adjustment terminal (2)	AS-Interface Analyser
Multilingual	FR / EN / DE / ES / IT / PT	–	■ Provides the local AS-Interface Master diagnostic
For use with	ASISAFEMON1/2, ASISAFEMON1B/2B	–	■ Diagnosis and analysis tool for AS-Interface and Safety at work
Media	CD-ROM PC	–	■ For service or release of AS-Interface networks
Environment	Windows	–	■ Printing test protocols of AS-Interface networks
Degree of protection	–	IP 20	
Supply	–	4 x LR6 batteries	
Dimensions W x D x H	–	70 x 50 x 170 mm	92 x 28 x 139 mm
References	ASISWIN2	ASITERV2	ASISA01 ▲

(1) Delivered with CD-Rom including hardware and software user guides  
(2) For addressing safety interfaces, use the infrared adaptor ASITERIR1.

9

**Accessories**



Type	Infrared adaptor for adjustment terminal	Tap-off for AS-Interface cable	Cable for monitor parametering RS 232	Cable for monitor to monitor transfer
Degree of protection	IP 67	IP 67	IP 20	IP 20
Cable length	1 m	2 m	2 m	0.2 m
References	ASITERIR1	XZCG0122	ASISPC	ASISCM



# Safety interfaces

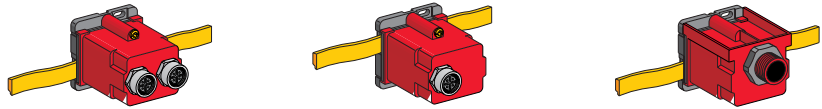
## For Ø 22 Emergency stop



Mushroom head pushbutton	Metal	Plastic
Degree of protection	IP 20	IP 20
Dimensions W x D x H	40 x 46.5 x 68 mm	40 x 40 x 64 mm
AS-Interface profile	S.O.B.F.F	S.O.B.F.F
Consumption from AS-Interface	45 mA	45 mA
Infrared addressing	Yes	Yes
Reference with N/C + N/C contact (head not included)	ASISSLB4	ASISSLB5
Reference of head (Ø40 latching mushroom head, turn to release)	ZB4BS844 (1)	ZB5AS844 (1)

(1) For other pushbutton heads, please refer to [www.Telemecanique.com](http://www.Telemecanique.com).

## For other safety products with M12 connector outputs or ISO M16/20

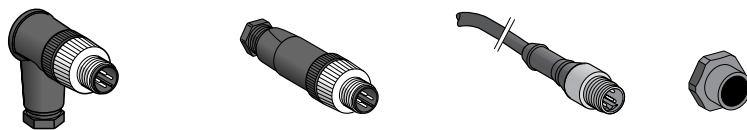


Type of entry	2 x M12 entries (2)	1 x M12 entry	1 x ISO M16 entry (3)
Degree of protection	IP 67	IP 67	IP 67
Dimensions W x D x H	40 x 40 x 58 mm	40 x 40 x 58 mm	40 x 40 x 57.5 mm
AS-Interface profile	S.O.B.F.F	S.O.B.F.F	S.O.B.F.F
Consumption from AS-Interface	45 mA	45 mA	45 mA
Infrared addressing	Yes	Yes	Yes
References	ASISSLC2	ASISSLC1	ASISLLS

(2) For connection using 2 pre-wired connectors, or 1 pre-wired connector + 1 connector.

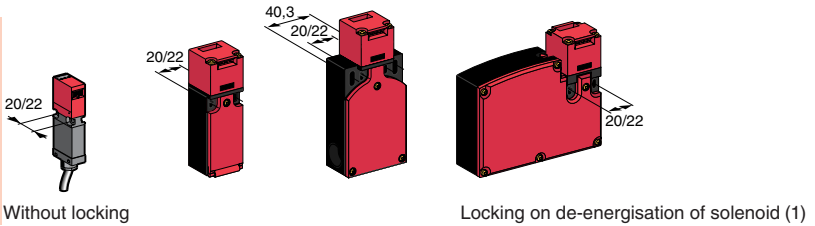
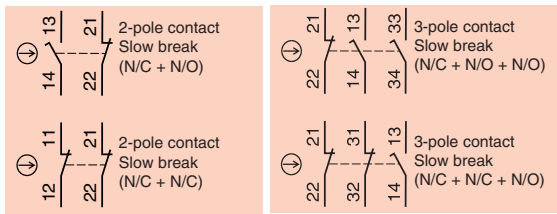
(3) For 1 x ISO M20 entry, use adaptor shown below.

## Accessories



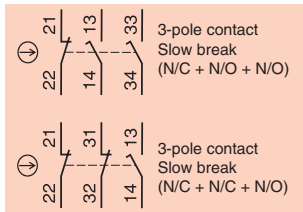
Type	Connectors		Pre-wired connector	Adaptor (sold in lots of 5)
Description	elbowed	straight	straight	ISO M16/M20
Degree of protection	IP 67	IP 67	IP 67	IP 67
Length of cable	–	–	2 m	–
References	XZCC12MCM40B	XZCC12MDM40B	XZCP1541L2	DE9RI2016

ISO entry (to EN 50262)

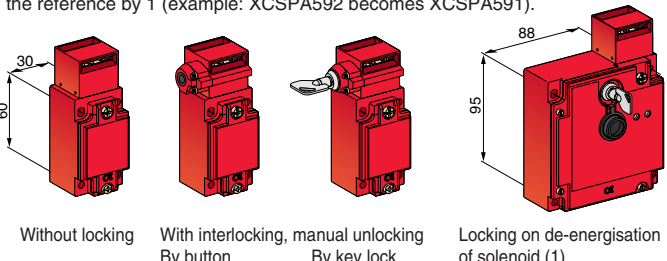


Plastic, double insulated switches	Type XCSMP pre-cabled, L = 2 m	Type XCSPA and TA 1xISO M16 entry. (2)   2xISO M16 entries. (2)		Type XCSTE 1 x ISO M16 cable entry (2)		
<b>Actuation speed</b> (min → max)	0.05 m/s → 1.5 m/s	0.1 m/s → 0.5 m/s		0.1 m/s → 0.5 m/s		
<b>Degree of protection</b>	IP 67	IP 67		IP 67		
<b>Rated operational characteristics</b> (conforming to IEC/EN 60947-5-1)	AC 15, C 300 DC 13, Q 300	AC 15, A 300 DC 13, Q 300		AC 15, B 300 DC 13, Q 300		
<b>Dimensions (body + head) W x D x H</b>	30 x 15 x 87 mm	30 x 30 x 93.5 mm	52 x 30 x 114.5 mm	110 x 33 x 93.5 mm		
<b>Solenoid supply voltage</b>	—	—	—	24 VAC/DC	120 VAC/DC	230 VAC/DC
<b>Complete switch</b> N/C+N/O stag. (XCSMP/PA/TE) N/C+N/O+N/O (XCSTA)	XCSMP59L2 (3) →	XCSPA592 →	XCSTA592 →	XCSTE5312 →	XCSTE5332 →	XCSTE5342 →
N/C+N/C (XCSMP/PA/TE) N/C+N/C+N/O (XCSMP/TA)	XCSMP79L2 (3) →	XCSPA792 →	XCSTA792 →	XCSTE7312 →	XCSTE7332 →	XCSTE7342 →

- (1) For locking on energisation of solenoid, refer to [www.Telemecanique.com](http://www.Telemecanique.com).  
 (2) With entry for n° 11 (Pg 11) cable gland, replace the last digit in the reference by 1 (example: XCSPA592 becomes XCSPA591).  
 (3) For other models, please refer to [www.Telemecanique.com](http://www.Telemecanique.com).



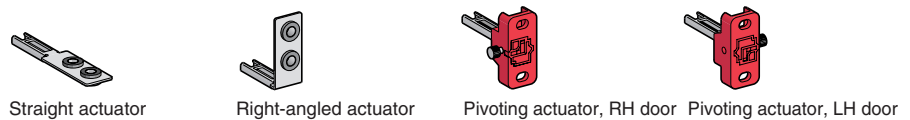
ISO entry (to EN 50262)



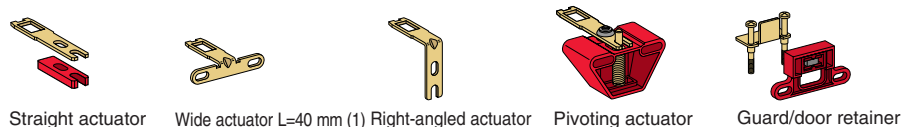
Metal switches	Type XCSA/B/C 1 x ISO M20 cable entry (2)			Type XCSE 2 x ISO M20 cable entries (2)		
<b>Actuation speed</b> (min → max)	0.1 m/s → 0.5 m/s			0.1 m/s → 0.5 m/s		
<b>Degree of protection</b>	IP 67			IP 67		
<b>Rated operational characteristics</b> (conforming to IEC/EN 60947-5-1)	AC 15, A 300 DC 13, Q 300			AC 15, B 300 DC 13, Q 300		
<b>Dimensions (body + head) W x D x H</b>	40 x 44 x 113.5 mm	52 x 44 x 113.5 mm	52 x 44 x 113.5 mm	98 x 44 x 146 mm		
<b>Solenoid supply voltage</b>	—	—	—	24 VAC/DC	110/120 VAC/DC	220/240 VAC/DC
<b>Complete switch</b> N/C + N/O + N/O	XCSA502 →	XCSB502 →	XCSC502 →	XCSE5312 →	XCSE5332 →	XCSE5342 →
N/C + N/C + N/O	XCSA702 →	XCSB702 →	XCSC702 →	XCSE7312 →	XCSE7332 →	XCSE7342 →

- (1) For locking on energisation of solenoid, refer to [www.Telemecanique.com](http://www.Telemecanique.com).  
 (2) With entry for n° 13 (Pg 13.5) cable gland, replace the last digit in the reference by 1 (example: XCSA502 becomes XCSA501).

## Accessories

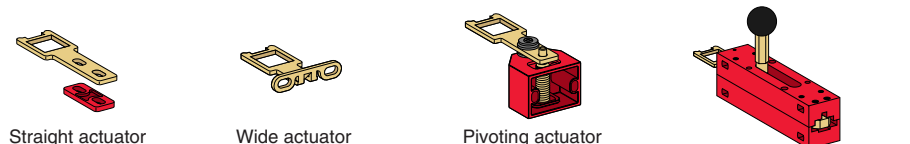


For safety switches XCSMP	Actuators			
References	XCSZ81	XCSZ84	XCSZ83	XCSZ85



For safety switches XCSPA/TA/TE	Actuators				Retaining device
References	XCSZ11	XCSZ12	XCSZ14	XCSZ13	XCSZ21

- (1) For L = 29 mm, reference = XCSZ15.

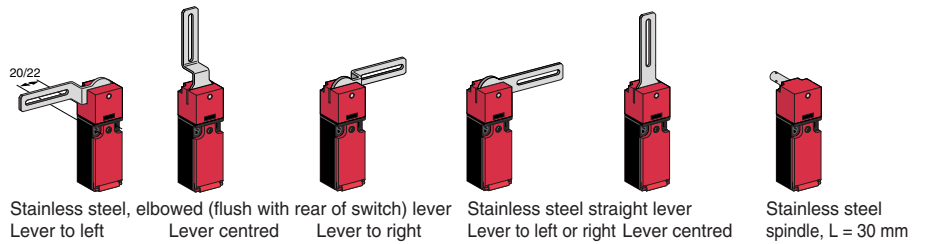
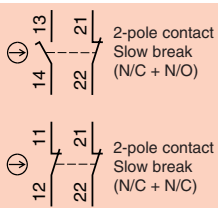


For safety switches XCSA/B/C/E	Actuators			Door lock
References	XCSZ01	XCSZ02	XCSZ03	XCSZ05



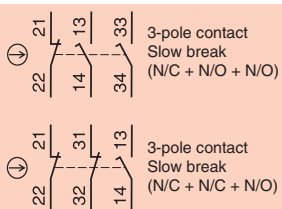
# Safety switches with rotary lever or spindle

ISO entry  
(to EN 50262)

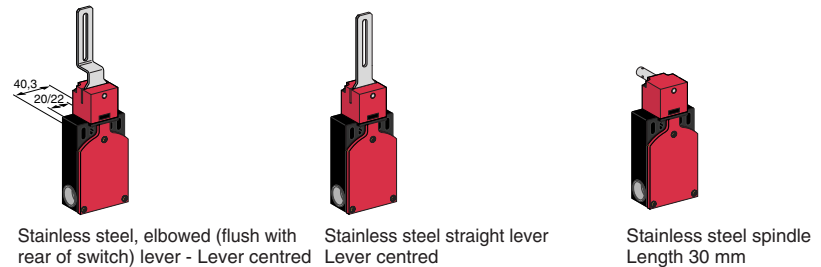


Plastic switches		Type XCSPL with rotary lever or XCSPR with spindle 1 x ISO M16 cable entry (1)					
Minimum torque (actuation / positive opening)		0.1 / 0.25 N.m	0.1 / 0.25 N.m	0.1 / 0.25 N.m	0.1 / 0.25 N.m	0.1 / 0.25 N.m	0.1 / 0.25 N.m
Degree of protection		IP 67	IP 67	IP 67	IP 67	IP 67	IP 67
Rated operational characteristics		AC 15, A 300 / DC 13, Q 300 (conforming to IEC/EN 60947-5-1)					
Dimensions (body + head) W x D x H		30 x 30 x 160 mm	30 x 30 x 160 mm	30 x 30 x 160 mm	30 x 30 x 160 mm	30 x 30 x 160 mm	30 x 30 x 96 mm
Tripping angle		5°	5°	5°	5°	5°	5°
Complete switch	N/C + N/O, break before make	XCSPL592 ↻	XCSPL582 ↻	XCSPL572 ↻	XCSPL562 ↻	XCSPL552 ↻	XCSPR552 ↻
	N/C + N/C	XCSPL792 ↻	XCSPL782 ↻	XCSPL772 ↻	XCSPL762 ↻	XCSPL752 ↻	XCSPR752 ↻

(1) With entry for n° 11 (Pg 11) cable gland, replace the last digit in the reference by 1 (example: XCSPL592 becomes XCSPL591).



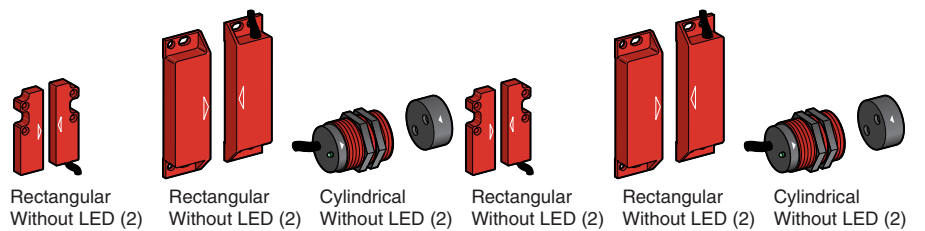
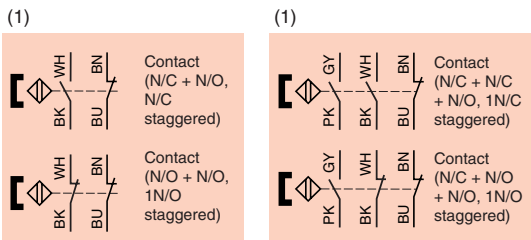
ISO entry  
(to EN 50262)



Metal switches		Type XCSTL with rotary lever or XCSTR with spindle 2 x ISO M16 cable entries (1)		
Minimum torque (actuation / positive opening)		0.1 / 0.45 N.m		0.1 / 0.45 N.m
Degree of protection		IP 67		IP 67
Rated operational characteristics		AC 15, A 300 / DC 13, Q 300 (conforming to IEC/EN 60947-5-1)		
Dimensions (body + head) W x P x H		52 x 30 x 180 mm	52 x 30 x 180 mm	52 x 30 x 117 mm
Tripping angle		5°		5°
Complete switch	N/C + N/O + N/O, 2 N/O staggered	XCSTL582 ↻		XCSTR552 ↻
	N/C + N/C + N/O, N/O staggered	XCSTL782 ↻		XCSTR752 ↻

(1) With entry for n° 11 (Pg 11) cable gland, replace the last digit in the reference by 1 (example: XCSTL582 becomes XCSTL581).

## Coded magnetic

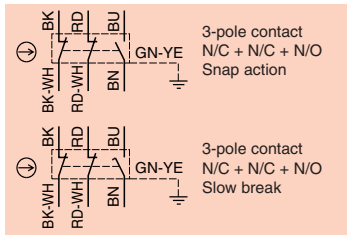


Plastic switches		Type XCSDM coded magnetic				
		Pre-cabled, L = 2 m			Moulded end connector, L = 10 cm	
Switches for actuation		Face to face, face to side, side to side	Face to face		Face to face, face to side, side to side	Face to face
Degree of protection		IP 66 + IP 67		IP 66 + IP 67		
Type of contact		REED		REED		
Rated operational characteristics		Ue = 24 VDC, Ie = 100 mA				
Dimensions W x D x H		16 x 7 x 51 mm	25 x 13 x 88 mm	M30 x 38,5 mm	16 x 7 x 51 mm	25 x 13 x 88 mm
Operating zone (3)		Sao = 5 / Sar = 15	Sao = 8 / Sar = 20		Sao = 5 / Sar = 15	Sao = 8 / Sar = 20
Switch with coded magnet	N/C + N/O, N/C staggered	XCSDMC5902	–	XCSDMR5902	XCSDMC590L01M8	XCSDMR590L01M12
	N/O + N/O, 1N/O staggered	XCSDMC7902	–	XCSDMR7902	XCSDMC790L01M8	XCSDMR590L01M12
	N/C + N/C + N/O, 1N/C staggered	–	XCSDMP5002	–	–	XCSDMP500L01D12
	N/C + N/O + N/O, 1N/O staggered	–	XCSDMP7002	–	–	XCSDMP700L01D12

(1) NB. Contact states shown are with the magnet present.

(2) For version with LED indicator, replace the last 0 in the reference by 1 (example: XCSDMC5902 becomes XCSDMC5912).

(3) Sao: assured operating distance. Sar: assured release distance.



Metal end plunger



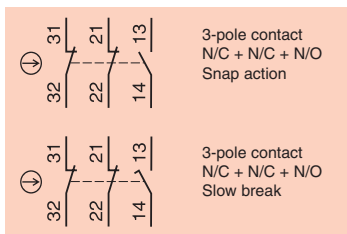
Roller plunger



Thermoplastic roller lever

Miniature switches	Type XCSM, metal pre-cabled, L = 1 m (1)		
Actuation speed maxi	0.5 m/s	0.5 m/s	1.5 m/s
Minimum force or torque (actuation / positive opening)	8.5 N / 42.5 N	7 N / 35 N	0.5 N.m / 0.1 N.m
Degree of protection	IP 66 + IP 67 + IP 68	IP 66 + IP 67 + IP 68	IP 66 + IP 67 + IP 68
Dimensions (body + head) W x D x H	30 x 16 x 60 mm	30 x 16 x 70.5 mm	30 x 32 x 92.5 mm
Complete switch	N/C + N/C + N/O snap action	XCSM3910L1 →	XCSM3915L1 →
	N/C + N/C + N/O slow break	XCSM3710L1 →	XCSM3702L1 →

(1) For a 2 m long cable, replace the last digit of the reference by 2 (example: XCSM3910L1 becomes XCSM3910L2).  
For a 5 m long cable, replace the last digit of the reference by 5 (example: XCSM3910L1 becomes XCSM3910L5).



Metal end plunger



Roller plunger



Thermoplastic roller lever



Metal end plunger



Roller plunger

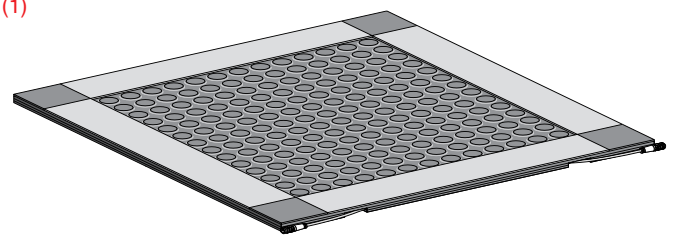


Thermoplastic roller lever

Compact switches	Type XCSD, metal 1 x ISO M20 x 1.5 cable entry (2)			Type XCSP, plastic 1 x ISO M20 x 1.5 cable entry (2)		
	Actuation speed maxi	0.5 m/s			1.5 m/s	
Minimum force or torque (actuation / positive opening)	15 N / 45 N	12 N / 36 N	10 N.m / 0.1 N.m	15 N / 45 N	12 N / 36 N	10 N.m / 0.1 N.m
Degree of protection	IP 66 + IP 67			IP 66 + IP 67		
Dimensions (body + head) W x D x H	34 x 34.5 x 89 mm	34 x 34.5 x 99.5 mm	34 x 43 x 121.5 mm	34 x 34.5 x 89 mm	34 x 34.5 x 99.5 mm	34 x 43 x 121.5 mm
Complete switch	N/C + N/C + N/O snap action	XCSD3910P20	XCSD3902P20	XCSD3918P20	XCSP3910P20	XCSP3902P20
	N/C + N/C + N/O slow break	XCSD3710P20	XCSD3702P20	XCSD3718P20	XCSP3710P20	XCSP3702P20

(2) For Pg 13.5 and 1/2" NPT cable entries, refer to [www.Telemecanique.com](http://www.Telemecanique.com).

## Safety mats (1)



(1) For simplification of installation, see the "Safety mat design" software configuration tool. Reference: SISCD2020001.

Maximum category usage (EN 954-1)	Category 3			
Degree of protection	IP 67			
Response time (s)	Mat itself: 20 ms, with module: XPSAK ≤ 40 ms, XPSMP < 30 ms			
Sensitivity	Single mat > 20 kg / Group of mats > 35 kg			
Maximum load	2000 N/cm²			
Connection (1)	By M8 jumper cable (1 male / 1 female), L = 100 mm			
Dimensions W x D x H	500 x 500 x 11 mm	500 x 750 x 11 mm	750 x 750 x 11 mm	750 x 1250 x 11 mm
References	XY2TP1	XY2TP2	XY2TP3	XY2TP4

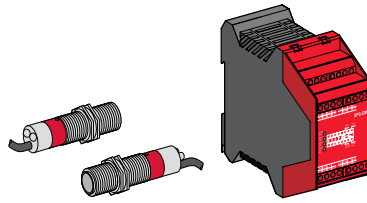
(1) For associated jumper cable and pre-wired connector, refer to [www.Telemecanique.com](http://www.Telemecanique.com).

		Accessories								
Rails (set of 2)	Length	194 mm	394 mm	444 mm	494 mm	644 mm	694 mm	744 mm	1194 mm	1244 mm
References		XY2TZ10	XY2TZ20	XY2TZ30	XY2TZ40	XY2TZ50	XY2TZ60	XY2TZ70	XY2TZ80	XY2TZ90

Corners and rail connectors	External corners (set of 4)	Internal corner + external corner	Rail connectors, L = 56 mm with outlet for cable (set of 2)	Rail connectors, L = 6 mm (set of 2)
References	XY2TZ4	XY2TZ5	XY2TZ1	XY2TZ2

# Light curtains

## Type 2 conforming to IEC/EN 61496-1



Light curtain		Single-beam, infrared transmission	
Height protected (conforming to prEN 999)		750 ... 1200 mm (1 to 4 beams)	
Nominal sensing distance (Sn)		8 m	
Number of circuits	Safety	2N/O	
	Additional	4 solid-state	
Response time		< 25 ms	
Modules (integral muting function)		24 VDC	XPSCM1144P (1)
Thru-beam pairs,		Pre-cabled, L = 5m	PNP XU2S18PP340L5 (2)
axially aligned		M12 connector	PNP XU2S18PP340D (2)

(1) For version with non removable terminal block, delete the letter P from the end of the reference (example: XPSCM1144P becomes XPSCM1144).

(2) For alignment at 90° to the mounting axes, insert the letter W in the reference before the last letter (example: XU2S18PP340L5 becomes XU2S18PP340WL5).

## Type 4 conforming to IEC/EN 61496-1

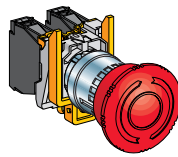
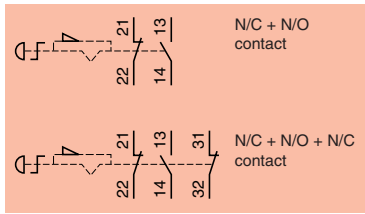
### Light curtain functions

- Auto/Manual,
- Monitoring of external switching devices (EDM: External Devices Monitoring),
- Test input (MTS: Monitoring Test Signal, XUSLT only),
- Blanking (ECS/B),
- Floating Blanking (FB),
- Blanking + Floating Blanking,
- Alignment aid by LED display of each light beam broken,
- LED display of operating modes and alarms.

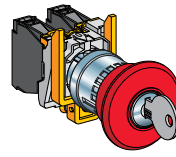


Compact range		Multi-beam, infrared transmission				height protected (mm)	
Flying lead with end connector, L = 0.25 m		Compact		Slim			
Nominal sensing distance (Sn)		0.3...7.5 m	0.3...9 m	0.3...4.5 m	0.3...7 m		
Detection capacity		14 mm "finger"	30 mm "hand"	14 mm "finger"	30 mm "hand"		
Number of circuits	Safety	2 solid-state PNP	2 solid-state PNP	2 solid-state PNP	2 solid-state PNP		
	Auxiliary (alarm)	1 solid-state PNP	1 solid-state PNP	1 solid-state PNP/NPN	1 solid-state PNP/NPN		
Response time (depending on model)		20...40 ms	20...30 ms	7...24 ms	7...15 ms		
Transmitter + receiver	height protected (mm)	260	XUSLTQ6A0260	–	XUSLMN6X0150	XUSLMP5X0150	150
		350	XUSLTQ6A0350	XUSLTR5A0350	XUSLMN6X0300	XUSLMP5X0300	300
		435	XUSLTQ6A0435	–	XUSLMN6X0450	XUSLMP5X0450	450
		520	XUSLTQ6A0520	XUSLTR5A0520	XUSLMN6X0600	XUSLMP5X0600	600
		610	XUSLTQ6A0610	–	XUSLMN6X0750	XUSLMP5X0750	750
		700	XUSLTQ6A0700	XUSLTR5A0700	XUSLMN6X0900	XUSLMP5X0900	900
		870	XUSLTQ6A0870	XUSLTR5A0870	XUSLMN6X1050	XUSLMP5X1050	1050
		955	XUSLTQ6A0955	–	XUSLMN6X1200	XUSLMP5X1200	1200
		1045	XUSLTQ6A1045	XUSLTR5A1045	XUSLMN6X1350	XUSLMP5X1350	1350
		1130	XUSLTQ6A1130	XUSLTR5A1045	XUSLMN6X1500	XUSLMP5X1500	1500
		1215	XUSLTQ6A1215	XUSLTR5A1215	XUSLMN6X1650	XUSLMP5X1650	1650
		1390	XUSLTQ6A1390	XUSLTR5A1390	XUSLMN6X1800	XUSLMP5X1800	1800
		1570	–	XUSLTR5A1570			
		1745	–	XUSLTR5A1745			
	1920	–	XUSLTR5A1920				
	2095	–	XUSLTR5A2095				

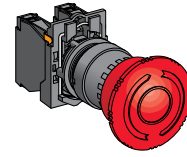
		Accessories					
Length		3 m	5 m	10 m	15 m	30 m	
Pre-wired connector for (screened cable)	XUSLT	for receiver	–	XSZTCR05	XSZTCR10	XSZTCR15	XSZTCR30
		for transmitter	–	XSZTCT05	XSZTCT10	XSZTCT15	XSZTCT30
	XUSLM	for receiver	XSZMCR03	–	XSZMCR10	–	XSZMCR30
		for transmitter	XSZMCT03	–	XSZMCT10	–	XSZMCT30



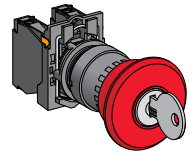
Turn to release



Key release  
(key n° 455)



Turn to release

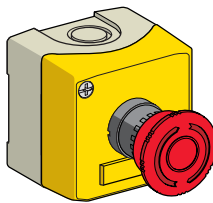
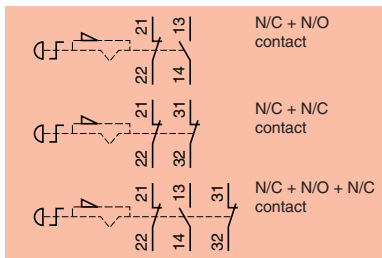


Key release  
(key n° 455)

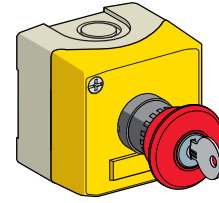
Pushbuttons	Metal		Plastic	
Mechanical life (millions of operating cycles)	0.3		0.3	
Shock / vibration resistance	10 gn / 5 gn		10 gn / 5 gn	
Degree of protection	IP 65		IP 65	
Rated operational characteristics	AC 15, A 600 / DC 13, Q 600 (conforming to IEC/EN 60947-5-1)			
Dimensions Ø x Depth	Ø 40 x 82 mm	Ø 40 x 104 mm	Ø 40 x 81.5 mm	Ø 40 x 103 mm
Contact	N/C + N/O	<b>XB4BS8445</b>	<b>XB5AS8445</b>	<b>XB5AS9445</b>
	N/C + N/O + N/C	<b>XB4BS84441</b>	<b>ZB4BS944 + ZB4BZ141</b>	<b>ZB5AS944 + ZB5AZ141</b>



## Ø 22 trigger action latching pushbutton stations



Turn to release



Key release (key n° 455)

Enclosure	Plastic	
	2 x ISO M20 cable entries or n° 13 (Pg 13.5) cable gland	
Mechanical life (millions of operating cycles)	0.1	
Shock / vibration resistance	10 gn / 5 gn	
Degree of protection	IP 65	
Rated operational characteristics	AC 15, A 600 / DC 13, Q 600 (conforming to IEC/EN 60947-5-1)	
Dimensions W x D x H	68 x 91 x 68 mm	67 x 113 x 68 mm
Contact	N/C + N/O	<b>XALK178E</b>
	N/C + N/C	<b>XALK178F</b>
	N/C + N/O + N/C	<b>XALK188G</b>

## Legends



With legend holder



Colour	Red with white lettering	Yellow with black lettering
Dimensions	30 x 40 mm, circular appearance	Ø 60 mm
Marking:	"Emergency stop"	<b>ZBY9330</b>
	"Arrêt d'urgence"	<b>ZBY9130</b>
	"Not Aus"	<b>ZBY9230</b>

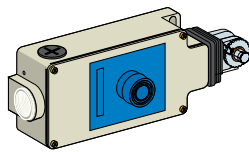
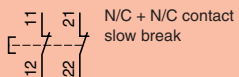
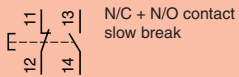




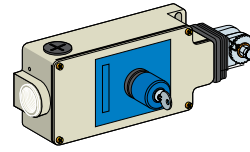
# Emergency stops

## Cable (tripwire) operated

ISO entry  
(to EN 50262)



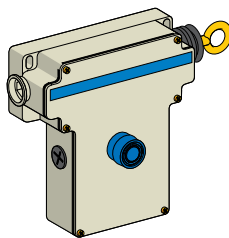
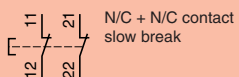
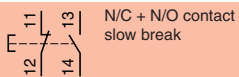
Booted pushbutton reset



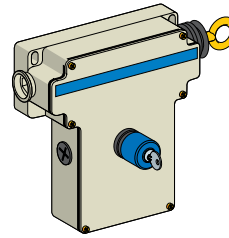
Key release pushbutton reset (key n° 421)

For operating cable length ≤ 15 m		Latching, without indicator light 1 x ISO M20 cable entry (1)	
Mechanical life (millions of operating cycles)		0.01	0.01
Shock / vibration resistance		50 gn / 10 gn	50 gn / 10 gn
Degree of protection		IP 65	IP 65
Rated operational characteristics		AC-15, A300 / DC-13, Q300 (conforming to IEC/EN 60947-5-1)	
Dimensions W x D x H		201 x 71 x 68 mm	201 x 71 x 68 mm
Operating cable length		≤ 15 m	≤ 15 m
Operating cable anchoring point		To right or to left	To right or to left
Contact	N/C + N/O slow break	<b>XY2CH13250H29</b>	<b>XY2CH13450H29</b>
	N/C + N/C slow break	<b>XY2CH13270H29</b>	<b>XY2CH13470H29</b>

(1) With entry for n° 13 (Pg 13.5) cable gland, delete H29 from the end of the reference (example: XY2-CH13250H29 becomes XY2-CH13250).



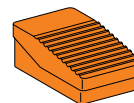
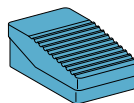
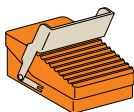
Booted pushbutton reset



Key release pushbutton reset (key n° 421)

For operating cable length ≤ 50 m		Latching, without indicator light 3 x ISO M20 cable entries or n° 13 (Pg 13.5) cable gland			
Mechanical life (millions of operating cycles)		0.01		0.01	
Shock / vibration resistance		50 gn / 10 gn		50 gn / 10 gn	
Degree of protection		IP 65		IP 65	
Rated operational characteristics		AC-15, A300 / DC-13, Q300 (conforming to IEC/EN 60947-5-1)			
Dimensions W x D x H		229 x 82 x 142 mm		229 x 82 x 142 mm	
Operating cable length		≤ 50 m		≤ 50 m	
Operating cable anchoring point		To left	To right	To left	To right
	Contact	N/C + N/O slow break	<b>XY2CE2A250</b>	<b>XY2CE1A250</b>	<b>XY2CE2A450</b>
	N/C + N/C slow break	<b>XY2CE2A270</b>	<b>XY2CE1A270</b>	–	<b>XY2CE1A470</b>

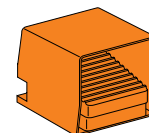
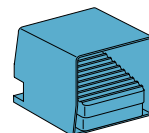
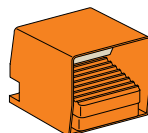
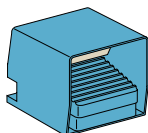
ISO entry  
(to EN 50262)



Type		Foot switches without protective cover			
		2 cable entries for n° 16 (Pg 16) cable gland (1)			
Trigger mechanism		With (positive operating action reqd.)	Without		
Colour		Orange	Blue	Orange	
Mechanical life (millions of operating cycles)		5			
Degree of protection		IP 66			
Rated operational characteristics		AC 15, A 300 / DC 13, Q 300 (conforming to IEC/EN 60947-5-1)			
Dimensions W x D x H		104 x 172 x 59 mm			
Contact operation	1 step	1 N/C + N/O	XPER810	XPEM110	XPER110
		2 N/C + N/O	–	XPEM111	XPER111
	2 step	2 N/C + N/O	XPER911	XPEM211	XPER211
		Analogue output	2 N/C + N/O	XPER929	–

(1) For entry for ISO M20 cable gland, also order adaptor DE9RA1620 (sold in lots of 5).

ISO entry  
(to EN 50262)

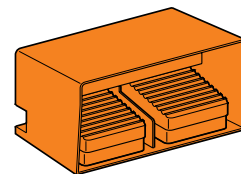
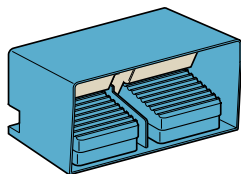


Type		Foot switches with protective cover			
		2 cable entries for n° 16 (Pg 16) cable gland (1)			
Trigger mechanism		With (positive operating action reqd.)	Without		
Colour		Blue	Orange	Blue	Orange
Mechanical life (millions of operating cycles)		5			
Degree of protection		IP 66			
Rated operational characteristics		AC 15, A 300 / DC 13, Q 300 (conforming to IEC/EN 60947-5-1)			
Dimensions W x D x H		160 x 186 x 152 mm			
Contact operation	1 step	1 N/C + N/O	XPEM510	XPER510	XPEM310
		2 N/C + N/O	XPEM511	XPER511	XPEM311
	1 step latching	1 N/C + N/O	–	–	XPEM410
	2 step	2 N/C + N/O	XPER711	XPER711	XPEM611
		Analogue output	2 N/C + N/O	XPEM529	XPER529
					–

(1) For entry for ISO M20 cable gland, also order adaptor DE9RA1620 (sold in lots of 5).

**Double pedal switches**

ISO entry  
(to EN 50262)



Type		Foot switches with protective cover			
		2 cable entries for n° 16 (Pg 16) cable gland (1)			
Trigger mechanism		With (positive operating action reqd.)	Without		
Colour		Blue	Orange	Blue	Orange
Mechanical life (millions of operating cycles)		5			
Degree of protection		IP 66			
Rated operational characteristics		AC 15, A 300 / DC 13, Q 300 (conforming to IEC/EN 60947-5-1)			
Dimensions W x D x H		295 x 190 x 155 mm			
Contact operation	1 step	2 x 1 N/C + N/O	XPEM5100D	XPER5100D	XPEM3100D
		2 x 2 N/C + N/O	XPEM5110D	XPER5110D	XPEM3110D

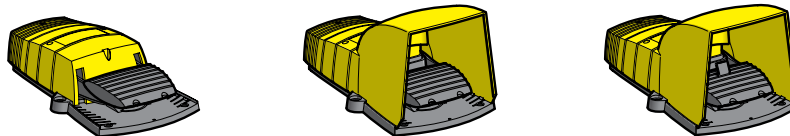
(1) For entry for ISO M20 cable gland, also order adaptor DE9RA1620 (sold in lots of 5).



# Foot switches - plastic

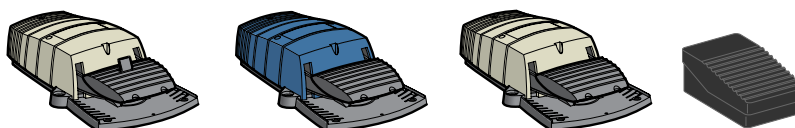
## Single pedal switches

ISO entry  
(to EN 50262)



Optimum series			Without protective cover		With protective cover	
			2 cable entries for ISO M20 cable gland			
Trigger mechanism			Without		With (positive operating action reqd.)	
Colour			Yellow		Yellow	
Mechanical life (millions of operating cycles)			2			
Degree of protection			IP 55			
Rated operational characteristics			AC 15, A 300 / DC 13, Q 300 (conforming to IEC/EN 60947-5-1)			
Dimensions W x D x H			160 x 280 x 70 mm		160 x 280 x 162 mm	
Contact operation	1 step	1 N/C + N/O	XPEY110	XPEY310	XPEY510	
		2 N/C + N/O	–	XPEY311	XPEY511	
	2 steps	2 N/C + N/O	XPEY211	XPEY611	XPEY711	

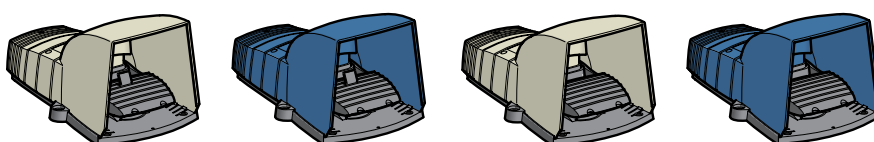
ISO entry  
(to EN 50262)



Universal series (conforming to NF E 09031)			Foot switches without protective cover			1 entry (1)	
			2 cable entries for ISO M20 cable gland				
Trigger mechanism			With (positive operating action reqd.)		Without	Without	
Colour			Grey	Blue	Grey	Black	
Mechanical life (millions of operating cycles)			5				2
Degree of protection			IP 66				IP 43
Rated operational characteristics			AC 15, A 300 / DC 13, Q 300 (conforming to IEC/EN 60947-5-1)				
Dimensions W x D x H			160 x 280 x 70 mm			94 x 161 x 54 mm	
Contact operation	1 step	1 N/C + N/O	XPEG810	XPEB110	XPEG110	XPEA110	
		2 N/C + N/O	–	XPEB111	XPEG111	XPEA111	
	2 step	2 N/C + N/O	XPEG911	XPEB211	XPEG211	–	

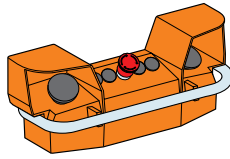
(1) Cable entry for ISO M16 or n° 9 (Pg 9) cable gland and for ISO M20 or n° 13 (Pg 13.5) cable gland.

ISO entry  
(to EN 50262)

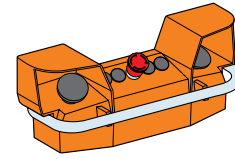


Universal series (conforming to NF E 09031)			Foot switches with protective cover			
			2 cable entries for ISO M20 cable gland			
Trigger mechanism			With (positive operating action reqd.)		Without	
Colour			Grey	Blue	Grey	Blue
Mechanical life (millions of operating cycles)			5			
Degree of protection			IP 66			
Rated operational characteristics			AC 15, A 300 / DC 13, Q 300 (conforming to IEC/EN 60947-5-1)			
Dimensions W x D x H			160 x 280 x 162 mm			
Contact operation	1 step	1 N/C + N/O	XPEG510	XPEB510	XPEG310	XPEB310
		2 N/C + N/O	XPEG511	XPEB511	XPEG311	XPEB311
	2 step	2 N/C + N/O	XPEG711	XPEB711	XPEG611	XPEB611

ISO entry  
(to EN 50262)



2 control pushbuttons and 1 mushroom head  
Emergency stop or Lock out pushbutton



2 control pushbuttons and 1 mushroom head Emergency  
stop or Lock out pushbutton, with pre-wired terminal block

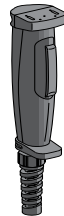
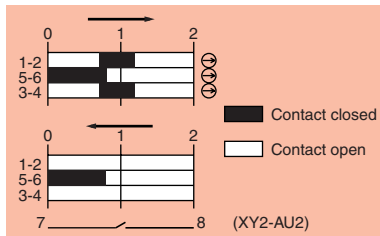
Type	Two-hand control stations	
	2 cable entries for ISO M20 or n° 13 (Pg 13.5) cable gland, 1 cable entry for n° 21 (Pg 21) cable gland (2)	
Mechanical life (millions of operating cycles)	1	1
Degree of protection	IP 65	IP 65
Rated operational characteristics	AC 15, A 600 / DC 13, Q 600 (conforming to IEC/EN 60947-5-1)	
Dimensions W x D x H	455 x 170 x 188.5 mm	
Red emergency stop (N/C + N/C slow break)	XY2SB71 (1)	XY2SB72 (1)
Yellow lock out (N/C + N/O break before make)	XY2SB75	XY2SB76

(1) To order a two-hand control station with pedestal XY2SB90, add 4 to the end of the reference (example: XY2SB71 becomes XY2SB714).

(2) For entry for ISO M25 cable gland, also order adaptor DE9RA2125 + fixing nut DE9EC21 (sold in lots of 5).

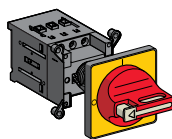
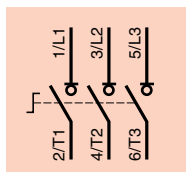
## Enabling switch

### Contact states

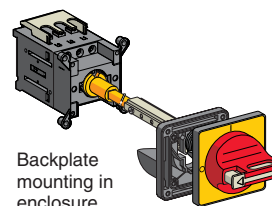


Type	Plastic grip	
	Entry for Ø 7 to 13 mm cable	
Number of contacts	3	3
Type of contacts	2 enabling, 3 positions + 1 N/C	2 enabling, 3 positions + 1 N/C + additional 1 N/O contact
Description	Without button	With button for N/O contact (auxiliary)
Shock / vibration resistance	10 gn / 6 gn	
Degree of protection	IP 66	IP 65
Rated operational characteristics	AC 15, C300 / DC 13, R300 (conforming to IEC/EN 60947-5-1)	
Dimensions W x D x H	46 x 58 x 261 mm	46 x 58 x 269 mm
References	XY2AU1	XY2AU2

For fixing accessories, refer to [www.Telemecanique.com](http://www.Telemecanique.com).

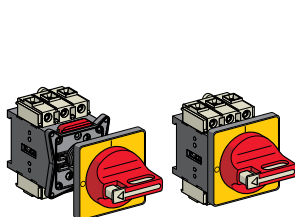
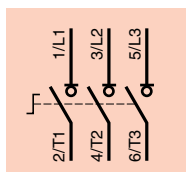


Door mounting

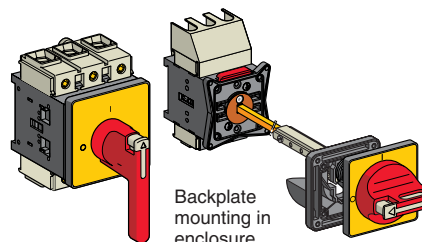


Backplate mounting in enclosure

Type	Mini-Vario for standard applications	
Front plate dimensions (mm)	60 x 60	60 x 60
Fixing	Ø 22.5 mm	Ø 22.5 mm
Degree of protection	IP 20	IP 20
Rated operational voltage (U <sub>e</sub> )	690 V	690 V
Thermal current in open air (I <sub>th</sub> )	12 A	VCDN12
	20 A	VCDN20

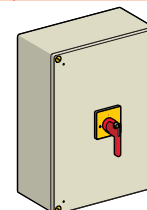
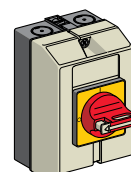
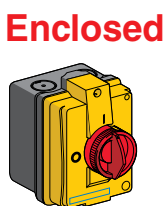
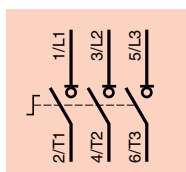


Door mounting



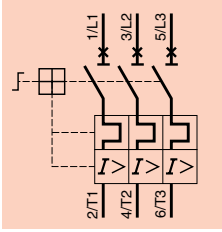
Backplate mounting in enclosure

Type	Vario for high performance applications					
Front plate dimensions (mm)	60 x 60	60 x 60	90 x 90	60 x 60	60 x 60	90 x 90
Fixing	Ø 22.5 mm	4 screws	4 screws	Ø 22.5 mm	4 screws	4 screws
Degree of protection	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20
Rated operational voltage (U <sub>e</sub> )	690 V	690 V	690 V	690 V	690 V	690 V
Thermal current in open air (I <sub>th</sub> )	12 A	VCD02	VCF02	–	VCCD02	VCCF02
	20 A	VCD01	VCF01	–	VCCD01	VCCF01
	25 A	VCD0	VCF0	–	VCCD0	VCCF0
	32 A	VCD1	VCF1	–	VCCD1	VCCF1
	40 A	VCD2	VCF2	–	VCCD2	VCCF2
	63 A	–	VCF3	–	–	VCCF3
	80 A	–	VCF4	–	–	VCCF4
	125 A	–	–	VCF5	–	–
	175 A	–	–	VCF6	–	–

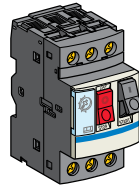


Type	Mini-Vario	Vario
Front plate dimensions (mm)	60 x 60	60 x 60
Dimensions W x D x H	82.5 x 106 x 131 mm	90 x 131 x 146 mm
Degree of protection	IP 55	IP 65
Rated operational voltage (U <sub>e</sub> )	690 V	690 V
Thermal current in enclosure (I <sub>the</sub> )	10 A	VCFN12GE
	16 A	VCFN20GE
	20 A	VCFN25GE
	25 A	VCFN32GE
	32 A	VCFN40GE
	50 A	–
	63 A	–
	100 A	–
	140 A	–

(1) Dimensions W x D x H: 150 x 152 x 170 mm

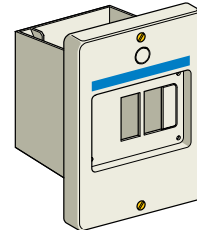
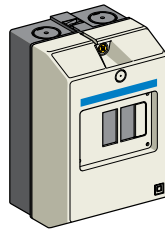


Complete circuit breaker: circuit-breaker + enclosure + safety device.  
Ex.: GV2ME01 + GV2MC02 + GV2K04.



Type	Thermal-magnetic motor circuit-breakers					
Motor power	kW (on 400 V)	–	0.06	0.09	0.12...0.18	0.25...0.37
Setting range	A	0.1...0.16	0.16...0.25	0.25...0.40	0.40...0.63	0.63...1
Current I <sub>d</sub> ± 20%	A	1.5	2.4	5	8	13
Current I <sub>the</sub> (in enclosure)	A	0.16	0.25	0.40	0.63	1
Reference		<b>GV2ME01</b>	<b>GV2ME02</b>	<b>GV2ME03</b>	<b>GV2ME04</b>	<b>GV2ME05</b>
Motor power	kW (on 400 V)	0.37...0.55	0.75	1.1...1.5	2.2	3...4
Setting range	A	1...1.6	1.6...2.5	2.5...4	4...6.3	6...10
Current I <sub>d</sub> ± 20%	A	22.5	33.5	51	78	138
Current I <sub>the</sub> (in enclosure)	A	1.6	2.5	4	6.3	9
Reference		<b>GV2ME06</b>	<b>GV2ME07</b>	<b>GV2ME08</b>	<b>GV2ME10</b>	<b>GV2ME14</b>
Motor power	kW (on 400 V)	5.5	7.5	9...11	11	15
Setting range	A	9...14	13...18	17...23	20...25	24...32
Current I <sub>d</sub> ± 20%	A	170	223	327	327	416
Current I <sub>the</sub> (in enclosure)	A	13	17	21	23	24
Reference		<b>GV2ME16</b>	<b>GV2ME20</b>	<b>GV2ME21</b>	<b>GV2ME22</b>	<b>GV2ME32</b>

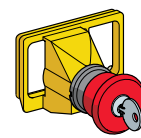
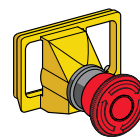
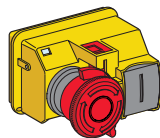
## Enclosure



Type	Empty enclosure	
Mounting	Surface mounting	Flush mounting
Degree of protection	IP 55	IP 55 (front face)
Dimensions W x D x H (1)	93 x 145.5 x 147 mm	93 x 55 x 126 mm
References	<b>GV2MC02</b>	<b>GV2MP02</b>

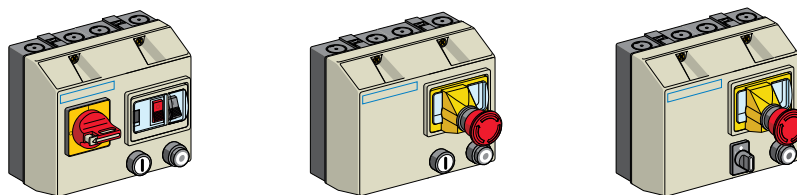
(1) Dimensions with safety device GV2K04 fitted.

## Safety device

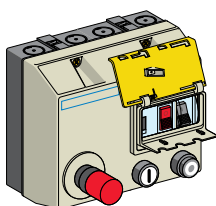


Type	Safety devices		
With red mushroom head	Turn to release Padlockable in "Off" position	Turn to release	Key release (key n° 455)
References	<b>GV2K04</b>	<b>GV2K031</b>	<b>GV2K021</b>

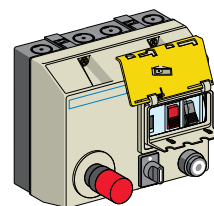




Type				Non reversing		Reversing
Degree of protection				IP 657		IP 657
Standard motor power ratings (kW), category AC3				Basic reference, to be completed by code indicating voltage (1)		
220/230 V	400/415 V	440 V	lth setting range (A)			
–	0.06	0.06	0.16...0.25	LG1K065●●02	LG7K06●●02	LG8K06●●02
0.06	0.09	0.12	0.25...0.40	LG1K065●●03	LG7K06●●03	LG8K06●●03
–	0.18	0.18	0.40...0.63	LG1K065●●04	LG7K06●●04	LG8K06●●04
0.12	0.25	0.25	0.63...1	LG1K065●●05	LG7K06●●05	LG8K06●●05
0.25	0.55	0.55	1...1.6	LG1K065●●06	LG7K06●●06	LG8K06●●06
0.37	0.75	1.1	1.6...2.5	LG1K065●●07	LG7K06●●07	LG8K06●●07
0.75	1.5	1.5	2.5...4	LG1K065●●08	LG7K06●●08	LG8K06●●08
1.1	2.2	3	4...6.3	LG1K065●●10	LG7K06●●10	LG8K06●●10
1.5	4	4	6...10	LG1K095●●14	LG7K09●●14	LG8K09●●14
3	5.5	5.5	9...14	LG1D122●●16	LG7D12●●16	LG8K12●●16
4	7.5	9	13...18	LG1D182●●20	LG7D18●●20	–
4	9	9	17...23	LG1D182●●21	LG7D18●●21	–



With integral control transformer, 400/24 V



With integral control transformer, 400/24 V

Type				Non reversing		Reversing
Degree of protection				IP 657		IP 657
Standard motor power ratings (kW), category AC3				Basic references (The code Q7 (380/400 V) designates the power supply voltage to which the starter will be connected)		
380/400 V			lth setting range (A)			
0.06			0.16...0.25	LJ7K06Q702	LJ8K06Q702	
0.09			0.25...0.40	LJ7K06Q703	LJ8K06Q703	
0.18			0.40...0.63	LJ7K06Q704	LJ8K06Q704	
0.25			0.63...1	LJ7K06Q705	LJ8K06Q705	
0.55			1...1.6	LJ7K06Q706	LJ8K06Q706	
0.75			1.6...2.5	LJ7K06Q707	LJ8K06Q707	
1.5			2.5...4	LJ7K06Q708	LJ8K06Q708	
2.2			4...6.3	LJ7K06Q710	LJ8K06Q710	
4			6...10	LJ7K09Q714	LJ8K09Q714	

**Control circuit voltages available**

Volts 50/60 Hz	24 V	230 V	400 V	415 V
(1) Voltage code	B7	P7	V7	N7

The control circuit must be cabled by the user.



## A wide range of products designed to operate in environments subject to risks!



*A reference for installations in ATEX Dust explosive atmospheres.*

### What is an explosive atmosphere according to the Directive?

It is the mixing with air, in atmospheric conditions, of flammable substances in the form of gas, vapour, mist or dust which, in the event of combustion, spreads throughout the non burning mix.

### Implementation of European Directives

#### ■ Directive 99/92/EC

This requires that a risk analysis be performed for all industrial processes.

If there is any risk of an explosion:

- the zones are defined and physically identified,
- the installation is classified by governing bodies.

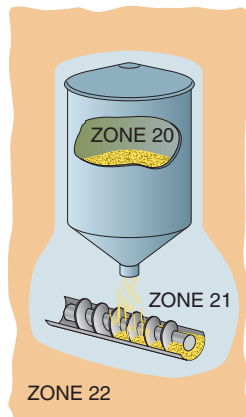
#### ■ Directive 94/9/EC

This requires certification of the products in accordance with the classification of the zones of use

#### ■ Dust zones

- Zone 20: area where an explosive atmosphere exists in the form of combustible clouds of dust in the air, either permanently, for long periods or frequently.
- Zone 21: area where an explosive atmosphere exists in the form of combustible clouds of dust in the air during normal operation occasionally.
- Zone 22: area where an explosive atmosphere in the form of combustible clouds of dust in the air is unlikely to occur during normal operation but, if it does occur, it is only for a short period.

The products in this catalogue are certified by a European Union Commission notified body.



Flour mills



Bagging



### Main sectors of activity subject to a higher risk of explosion or fire

Grain silos



Grain drying areas



Bulk conveying



Wood and aluminium workshops



### The essential guide

*A selection of certified products, conforming to the European Directive ATEX94/9/EC, to ensure maximum safety for your installations in a zone where the risk of explosion or fire is high.*



# Contents



## Detection

pages

- Inductive proximity sensors ..... 10/2
- Universal and Analogue XS**
- Proximity sensors ..... 10/3 and 10/4
- Rotation monitoring and capacitive XS/XT**
- Namur XS**
- Intrinsically safe enclosures ..... 10/5
- Processing module NY3**
- Limit switches ..... 10/6 to 10/9
- Miniature XCM**
- Compact XCKD**
- Classic XCKM**
- Application - hoisting, handling and conveying**
- Pressure and vacuum switches ..... 10/10 and 10/11
- Adjustable differential XMLB**

## Control and signalling units

- Pushbuttons and mushroom heads Ø 22 ..... 10/12
- Harmony XB4**
- Selector switches and key switches Ø 22 ..... 110/3
- Harmony XB4**
- Illuminated pushbuttons and pilot lights Ø 22 ..... 10/14
- Harmony XB4**
- Control stations ..... 10/15
- Harmony XAW**

## Machine safety

- Tripwire operated Emergency stops ..... 10/16
- Preventa XY2**
- Foot switches ..... 10/16
- Preventa XPE**


## Automation

- Weighing system ..... 10/17
- Modicon Premium**
- I/O modules ..... 10/17
- Modicon Quantum**

# Inductive proximity sensors


## Universal, metal case



Sensor type	3-wire DC PNP, flush mountable in metal			
Conformity	Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1			
Zone D (dust)	21 - 22			
EC type examination certificate number / marking	INERIS 04ATEX0022X /  II 2 D-Ex tD A21 IP68 T90°C			
Nominal sensing distance Sn	4 mm	8 mm	15 mm	
Operating zone	0...3.2 mm	0...6.4 mm	0...12 mm	
Temperature range	- 20...+ 60°C			
Degree of protection (conforming to IEC 60529)	IP68			
Connection	Pre-cabled, PvR, L = 10 m			
Dimensions	M12 x 50 mm	M18 x 60 mm	M30 x 60 mm	
Supply voltage (including ripple)	10...58 VDC			
Maximum switching capacity	200 mA			
Overload and short-circuit protection	Yes			
LED output state indicator	Yes			
Voltage drop, closed state, at I nominal	≤ 2 V			
Switching frequency	2500 Hz	1000 Hz	500 Hz	
References	NO function	XS612B1PAL10EX	XS618B1PAL10EX	XS630B1PAL10EX
	NC function	XS612B1PBL10EX	XS618B1PBL10EX	XS630B1PBL10EX

## Analogue, metal case



Sensor type	Analogue, 2-wire AC/DC, flush mountable in metal			
Conformity	Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1			
Zone D (dust)	21 - 22			
EC type examination certificate number / marking	INERIS 04ATEX0022X /  II 2 D-Ex tD A21 IP67 T90°C			
Nominal sensing distance Sn	2 mm	5 mm	10 mm	
Operating zone	0.2...2 mm	0.5...5 mm	1...10 mm	
Temperature range	- 20...+ 60°C			
Degree of protection (conforming to IEC 60529)	IP67			
Connection	Pre-cabled, PvR, L = 2 m			
Dimensions	M12 x 50 mm	M18 x 60 mm	M30 x 60 mm	
Supply voltage (including ripple)	10...38 VAC/DC			
Linearity error	10%			
Operating frequency	1500 Hz	500 Hz	300 Hz	
References	4...20 mA output	XS1M12AB120EX	XS1M18AB120EX	XS1M30AB120EX

# Proximity sensors

## Rotation monitoring, metal case



M30

<b>Sensor type</b>	<b>3-wire DC PNP, flush mountable in metal</b>	
<b>Conformity</b>	Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1	
<b>Zone D (dust)</b>	21 - 22	
<b>EC type examination certificate number / marking</b>	INERIS 04ATEX0022X /  II2 D-Ex tD A21 IP67 T90°C	
<b>Nominal sensing distance Sn</b>	10 mm	
<b>Operating zone</b>	0...8 mm	
<b>Temperature range</b>	-20...+60°C	
<b>Degree of protection (conforming to IEC 60529)</b>	IP67	
<b>Connection</b>	Pre-cabled, PVR, L = 2 m	
<b>Dimensions</b>	M30 x 81 mm	
<b>Supply voltage (including ripple)</b>	10...58 VDC	
<b>Maximum switching capacity</b>	200 mA	
<b>Overload and short-circuit protection</b>	Yes	
<b>LED output state indicator</b>	Yes	
<b>Voltage drop, closed state, at I nominal</b>	≤ 2 V	
<b>Version</b>	Slow	Fast
<b>Maximum speed of passing object</b>	6000 impulses/minute	48,000 impulses/minute
<b>Adjustable frequency range</b>	6...150 impulses/minute	120...3000 impulses/minute
<b>References</b>	NC function XSAV11373EX	XSAV12373EX

## Capacitive, metal case



M18




M30

<b>Sensor type</b>	<b>3-wire DC PNP, flush mountable in metal</b>	
<b>Conformity</b>	Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1	
<b>Zone D (dust)</b>	21 - 22	
<b>EC type examination certificate number / marking</b>	INERIS 04ATEX0022X /  II2 D-Ex tD A21 IP67 T90°C	
<b>Nominal sensing distance Sn</b>	5 mm	10 mm
<b>Operating zone</b>	0...3.6 mm	0...7.2 mm
<b>Temperature range</b>	-20...+60°C	
<b>Degree of protection (conforming to IEC 60529)</b>	IP67	
<b>Connection</b>	Pre-cabled, PVC, L = 2 m	
<b>Dimensions</b>	M18 x 60 mm	M30 x 60 mm
<b>Supply voltage (including ripple)</b>	10...38 VDC	
<b>Maximum switching capacity</b>	300 mA	
<b>Overload and short-circuit protection</b>	Yes	
<b>LED output state indicator</b>	Yes	
<b>Voltage drop, closed state, at I nominal</b>	≤ 2 V	
<b>Switching frequency</b>	100 Hz	
<b>References</b>	NO function XT1M18PA372EX	XT1M30PA372EX
	NC function XT1M18PB372EX	XT1M30PB372EX

# Namur inductive sensors


## Metal or plastic case



<b>Sensor type</b>	<b>2-wire DC, flush mountable in metal</b>					
<b>Case type</b>	Metal			Plastic		
<b>Conformity</b>	Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, EN 50020, EN 50284, pr IEC 61241-0, pr IEC 61241-1					
<b>Zone D (dust)</b>	20 (to be used in conjunction with intrinsically safe enclosures, see page 5)					
<b>EC type examination certificate number / marking</b>	INERIS 04ATEX0016X /  II 1 D-Ex iaD 20 IP66/67 T85°C					
<b>Nominal sensing distance Sn</b>	0.8 mm	1.5 mm	2 mm	5 mm	10 mm	
<b>Operating zone</b>	0...0.6 mm	0...0.8 mm	0...1.2 mm	0...1.6 mm	0...4 mm	0...8 mm
<b>Temperature range</b>	-20...+60°C					
<b>Degree of protection (conforming to IEC 60529)</b>	IP67					
<b>Connection</b>	Pre-cabled, PvR, L = 2 m					
<b>Dimensions</b>	M5 x 30 mm	M8 x 26.5 mm		M12 x 38.5 mm	M18 x 41 mm	M30 x 43.5 mm
<b>Supply voltage (including ripple)</b>	7...12 VDC					
<b>Maximum switching capacity</b>	≤ 1 mA					
<b>Overload and short-circuit protection</b>	Yes					
<b>Residual current, open state</b>	≥ 3 mA					
<b>Switching frequency</b>	1500 Hz		1000 Hz	800 Hz	500 Hz	300 Hz
<b>References</b>	NC function	XSMN08122EX	XSAN01122EX	XSPN01122EX	XSPN02122EX	XSPN05122EX
				XSPN10122EX		

## Plastic case



<b>Sensor type</b>	<b>2-wire DC, non flush mountable in metal</b>					
<b>Case type</b>	Plastic					
<b>Conformity</b>	Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, EN 50020, EN 50284, pr IEC 61241-0, pr IEC 61241-1					
<b>Zone D (dust)</b>	20					
<b>EC type examination certificate number / marking</b>	INERIS 04ATEX0016X /  II 1 D-Ex iaD 20 IP66/67 T85°C					
<b>Nominal sensing distance Sn</b>	4 mm	8 mm	15 mm	15 mm	40 mm	
<b>Operating zone</b>	0...3.2 mm	0...6.4 mm	0...12 mm	0...12 mm	0...32 mm	
<b>Temperature range</b>	-20...+60°C					
<b>Degree of protection (conforming to IEC 60529)</b>	IP67					
<b>Connection</b>	Pre-cabled, PvR, L = 2 m			Screw terminals		
<b>Dimensions</b>	M12 x 38.5 mm	M18 x 41 mm	M30 x 43.5 mm	40 x 40 x 122.5 mm	100 x 80 x 40 mm	
<b>Supply voltage (including ripple)</b>	7...12 VDC					
<b>Maximum switching capacity</b>	≤ 1 mA					
<b>Overload and short-circuit protection</b>	Yes					
<b>LED output state indicator</b>	Yes					
<b>Residual current, open state</b>	≥ 3 mA					
<b>Switching frequency</b>	400 Hz	300 Hz	200 Hz	100 Hz	25 Hz	
<b>References</b>	NC function	XSPN04122EX	XSPN08122EX	XSPN15122EX	XSCN151229EX (1)	XSDN401229EX

(1) Flush mountable in metal



# Intrinsically safe enclosures

## Processing module



Module type		Discrete					
		Inputs		Relay inputs/outputs			
<b>Conformity</b>		Directive ATEX 94/9/EC, EN 50014, EN 50020, EN 50021-1&2, EN 50082-1&2					
<b>Zone D (dust)</b>		Mounted outside zone (to be used in conjunction with products for zone 20, 21 or 22)					
<b>EC type examination certificate number / marking</b>		LCIE 00ATEX6034X /  II(1) G/D-[EEx ia] IIC					
<b>Zone 20</b>	Number of input channels	2	4	2	2		
	Number of output channels	-		1	1		
	Type of output channel, load excitation	-		Low consumption solenoid valve, < 7 mA	High consumption solenoid valve, < 40 mA		
				- with hysteresis	- with hysteresis		
<b>Outside zone</b>	Number of recopying channels	2	4	2	2		
	Switching voltage	5...230 VAC; 5...24 VDC					
	Switching current	10 mA...0.5 A (AC); 10 mA...0.5 A, L/R 48 ms (DC)					
<b>Temperature range</b>		-20...+ 60°C					
<b>Connection</b>		Removable screw terminal blocks					
<b>Mounting</b>		On 35 mm DIN rail					
<b>Dimensions, W x D x H</b>		29.5 x 120 x 90 mm					
<b>Supply voltage (including ripple)</b>		24 VDC (0.95...1.1 Un)					
<b>Consumption</b>		5 W					
<b>References</b>		NY320N2RB1	NY340N4RB1	NY321L2RB1	NY321L1RB1	NY321H2RB1	NY321H1RB1



Module type		Discrete			
		Load excitation outputs			
<b>Conformity</b>		Directive ATEX 94/9/EC, EN 50014, EN 50020, EN 50021-1&2, EN 50082-1&2			
<b>Zone D (dust)</b>		Mounted outside zone (to be used in conjunction with products for zone 20, 21 or 22)			
<b>EC type examination certificate number / marking</b>		LCIE 00ATEX6034X /  II(1) G/D-[EEx ia] IIC			
<b>Zone 20</b>	Number of load excitation channels	2		4	
	Maximum current	< 7 mA	< 40 mA	< 7 mA	< 40 mA
<b>Outside zone</b>	Control voltage	24 VDC ± 10%			
	Control current	State 1 = 6.5 < I < 9 mA and 21.6 < U < 26.4 V; State 0 = I ≤ 0.4 mA and U ≤ 1.2 V			
<b>Temperature range</b>		-20...+ 60°C			
<b>Connection</b>		Removable screw terminal blocks			
<b>Mounting</b>		On 35 mm DIN rail			
<b>Dimensions, W x D x H</b>		29.5 x 120 x 90 mm			
<b>Supply voltage (including ripple)</b>		24 VDC (0.95...1.1 Un)			
<b>Consumption</b>		5 W			
<b>References</b>		NY302L0NB1	NY302H0NB1	NY304L0NB1	NY304H0NB1



Osiriswitch

## Limit switches Miniature, fixing by the body



<b>Limit switch type</b> With head for movement	<b>XCMD metal, pre-cabled</b> Linear (plunger)			
<b>Conformity</b>	Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1			
<b>Zone D (dust)</b>	21 - 22			
<b>EC type examination certificate number / marking</b>	INERIS 04ATEX0014X /  II2 D-Ex tD A21 IP66/67 T85°C			
<b>Type of operator</b>	Metal end plunger	Metal end plunger with elastomer boot	Steel roller plunger	Retractable steel roller lever plunger
<b>Mechanical durability</b> (millions of operating cycles)	10			
<b>Actuation speed</b>	0.5 m/s			
<b>Switches conforming to standard IEC 947-5-1 section 3</b>	⊕			
<b>Temperature range</b>	- 20...+ 60°C			
<b>Degree of protection</b> (conforming to IEC 60529)	IP66 and IP67			
<b>Rated operational characteristics</b>	AC15; C300 (Ue = 240 V, Ie = 0.75 A)/DC13; R300 (Ue = 250 V, Ie = 0.1 A)			
<b>Short-circuit protection</b>	By 6 A cartridge fuse type gG (gl)			
<b>Cable entry</b>	Pre-cabled, adjustable direction, length = 5 m			
<b>Fixing centres</b>	20 mm			
<b>Body dimensions, W x D x H</b>	30 x 16 x 50 mm			
<b>References</b>	2 N/C + 2 N/O snap action	<b>XCMD4110L5EX</b>	<b>XCMD4111L5EX</b>	<b>XCMD4102L5EX</b> <b>XCMD4124L5EX</b>

## Compact, fixing by the body



<b>Limit switch type</b> With head for movement	<b>XCKD metal conforming to standard EN 500047</b> Linear (plunger)				
<b>Conformity</b>	Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1				
<b>Zone D (dust)</b>	21 - 22				
<b>EC type examination certificate number / marking</b>	INERIS 04ATEX0014X /  II2 D-Ex tD A21 IP66/67 T85°C				
<b>Type of operator</b>	Metal end plunger	Metal end plunger with elastomer boot	Steel roller plunger	Thermoplastic roller lever plunger, horiz. actuation in 1 direct.	Thermoplastic roller lever plunger, vert. actuation in 1 direct.
<b>Mechanical durability</b> (millions of operating cycles)	15		10	15	
<b>Actuation speed</b>	0.5 m/s			1 m/s	
<b>Switches conforming to standard IEC 947-5-1 section 3</b>	⊕				
<b>Temperature range</b>	- 20...+ 60°C				
<b>Degree of protection</b> (conforming to IEC 60529)	IP66 and IP67				
<b>Rated operational characteristics</b>	AC15; B300 (Ue = 240 V, Ie = 1.5 A)/DC13; R300 (Ue = 250 V, Ie = 0.1 A)				
<b>Short-circuit protection</b>	By 6 A cartridge fuse type gG (gl)				
<b>Cable entry</b>	1 entry fitted with ISO M16 cable gland				
<b>Fixing centres</b>	20 mm				
<b>Body dimensions, W x D x H</b>	31 x 30 x 65 mm				
<b>References</b>	N/C + N/C + N/O snap action	<b>XCKD3910P16EX</b>	<b>XCKD3911P16EX</b>	<b>XCKD3902P16EX</b> <b>XCKD3921P16EX</b>	<b>XCKD3927P16EX</b>

Other characteristics: please refer to the "Global Detection" catalogue

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## Miniature, fixing by the head



### XCMD metal, pre-cabled

Rotary (lever)

Linear (plunger)

Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1

21 - 22

INERIS 04ATEX0014X / II2 D-Ex tD A21 IP66/67 T85°C

Steel roller lever	Thermoplastic roller lever	Roller lever with ball bearing mounted roller	Variable length thermoplastic roller lever	M12 with metal end plunger	M16 with metal end plunger with elastomer boot	M12 with steel roller plunger
10				0.5 m/s		0.1 m/s
1.5 m/s						
⊖						
-20...+60°C						
IP66 and IP67						
AC15; C300 (Ue = 240 V, Ie = 0.75 A)/DC13; R300 (Ue = 250 V, Ie = 0.1 A)						
By 6 A cartridge fuse type gG (gl)						
Pre-cabled, adjustable direction, length = 5 m						
20 mm				M12 x 1	M16 x 1	M12 x 1
30 x 16 x 50 mm						
<b>XCMD4116L5EX</b>	<b>XCMD4115L5EX</b>	<b>XCMD4117L5EX</b>	<b>XCMD4145L5EX</b>	<b>XCMD41F0L5EX</b>	<b>XCMD41G1L5EX</b>	<b>XCMD41F2L5EX</b>

## Compact, fixing by the head



### XCKD metal conforming to standard EN 500047

Linear (plunger) | Rotary (lever)

Multi-directional

Linear (plunger)

Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1

21 - 22


INERIS 04ATEX0014X / II2 D-Ex tD A21 IP66/67 T85°C

Thermoplastic roller lever plunger, horiz. or vert. actuation in 1 dir.	Thermoplastic roller lever	Thermoplastic roller lever, Ø 50 mm	Variable length thermoplastic roller lever	Variable length thermoplastic roller lever, Ø 50 mm	"Cat's whisker"	M18 with metal end plunger	M18 with steel roller plunger
15	10				5	10	
1 m/s	1.5 m/s				1 m/s	0.5 m/s	
⊖					-	⊖	
-20...+60°C							
IP66 and IP67							
AC15; B300 (Ue = 240 V, Ie = 1.5 A)/DC13; R300 (Ue = 250 V, Ie = 0.1 A)							
By 6 A cartridge fuse type gG (gl)							
1 entry fitted with ISO M16 cable gland							
20 mm						M18 x 1	
30 x 16 x 50 mm							
<b>XCKD3928P16EX</b>	<b>XCKD3918P16EX</b>	<b>XCKD3939P16EX</b>	<b>XCKD3945P16EX</b>	<b>XCKD3949P16EX</b>	<b>XCKD3906P16EX</b>	<b>XCKD39H0P16EX</b>	<b>XCKD39H2P16EX</b>

# Limit switches

## Classic, fixing by the body




<b>Limit switch type</b> With head for movement	<b>XCKM metal, 3 cable entries</b>				
	Linear (plunger)		Rotary (lever)		Multi-directional
<b>Conformity</b>	Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1				
<b>Zone D (dust)</b>	21 - 22				
<b>EC type examination certificate number / marking</b>	INERIS 04ATEX0014X /  II2 D-Ex tD A21 IP66/67 T85°C				
<b>Type of operator</b>	Metal end plunger	Steel roller plunger	Thermoplastic roller lever plunger, horiz. actuation in 1 direct.	Thermoplastic roller lever	"Cat's whisker"
<b>Mechanical durability</b> (millions of operating cycles)	20			10	
<b>Actuation speed</b>	0.5 m/s		1.5 m/s		0.5 m/s
<b>Switches conforming to standard IEC 947-5-1 section 3</b>	☉			-	
<b>Temperature range</b>	- 20...+ 60°C				
<b>Degree of protection</b> (conforming to IEC 60529)	IP66				
<b>Rated operational characteristics</b>	AC15; B300 (Ue = 240 V, Ie = 1.5 A)/DC13; R300 (Ue = 250 V, Ie = 0.1 A)				
<b>Short-circuit protection</b>	By 6 A cartridge fuse type gG (gl)				
<b>Cable entry</b>	3 tapped entries for ISO M20 cable gland (1)				
<b>Fixing centres</b>	41 mm				
<b>Body dimensions, W x D x H</b>	63 x 30 x 64 mm				
<b>References</b>	N/C + N/C + N/O snap action	XCKM3910H29EX	XCKM3902H29EX	XCKM3921H29EX	XCKM3915H29EX   XCKM3906H29EX

(1) 2 entries fitted with blanking plugs, 1 entry fitted with ISO M20 cable gland

## Application - hoisting, handling, conveying



<b>Limit switch type</b> With head for movement	<b>XCKMR metal, 3 cable entries</b>	
	Rotary (lever)	
<b>Conformity</b>	Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1	
<b>Zone D (dust)</b>	21 - 22	
<b>EC type examination certificate number / marking</b>	INERIS 04ATEX0014X /  II2 D-Ex tD A21 IP66/67 T85°C	
<b>Type of operator</b>	Metal rod levers, "crossed"	Metal rod levers, "crossed" reversed head
<b>Mechanical durability</b> (millions of operating cycles)	2	
<b>Actuation speed</b>	1.5 m/s	
<b>Switches conforming to standard IEC 947-5-1 section 3</b>	☉	
<b>Temperature range</b>	- 20...+ 60°C	
<b>Degree of protection</b> (conforming to IEC 60529)	IP66	
<b>Rated operational characteristics</b>	AC15; A300 (Ue = 240 V, Ie = 3 A)/DC13; Q300 (Ue = 125 V, Ie = 0.55 A)	
<b>Short-circuit protection</b>	By 10 A cartridge fuse type gG (gl)	
<b>Cable entry</b>	3 tapped entries for ISO M20 cable gland (1)	
<b>Fixing centres</b>	61.5 mm	
<b>Body dimensions, W x D x H</b>	118 x 59 x 77 mm	
<b>2 x N/C + N/C staggered, slow break contacts</b>	XCKMR54D1H29EX	XCKMR54D2H29EX
<b>2 x N/C + N/O snap action contacts, both actuated in each direction</b>	-	
<b>2 x N/C + N/O snap action contacts, 1 actuated in each direction</b>	-	
<b>2 x single-pole C/O snap action contacts</b>	-	

(1) 2 entries fitted with blanking plugs, 1 entry fitted with ISO M20 cable gland

Other characteristics: please refer to the "Global Detection" catalogue

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### XCKJ metal, fixed body, conforming to standard EN 50041

Linear (plunger) | Rotary (lever)

Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1

21 - 22

INERIS 04ATEX0014X / II 2 D-Ex tD A21 IP66/67 T85°C

Metal end plunger	Steel roller plunger	Steel roller lever	Thermoplastic roller lever	Variable length thermoplastic roller lever	Polyamide rod lever, Ø 6 x 200 mm
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30	25	30		20	
0.5 m/s	1 m/s	1.5 m/s			

⊖					
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- 20...+ 60°C

IP66

AC15; B300 (Ue = 240 V, Ie = 1.5 A)/DC13; R300 (Ue = 250 V, Ie = 0.1 A)

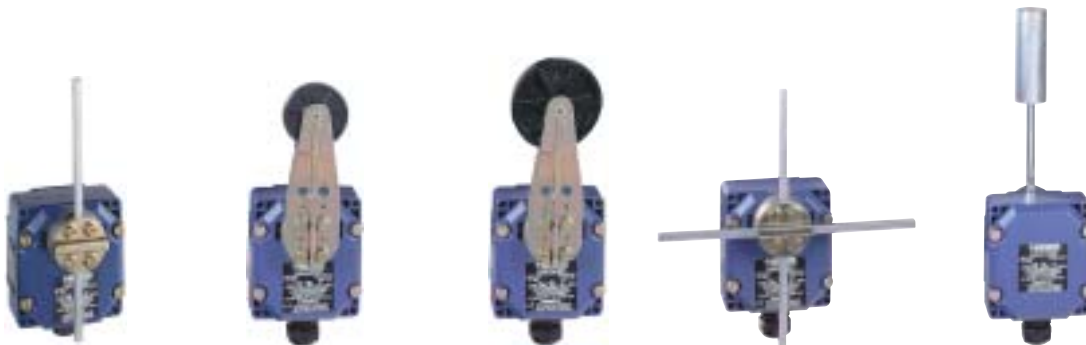
By 6 A cartridge fuse type gG (gl)

1 entry fitted with ISO M20 cable gland

30 x 60 mm

40 x 44 x 77 mm

XCKJ3961H29EX	XCKJ3967H29EX	XCKJ390513H29EX	XCKJ390511H29EX	XCKJ390541H29EX	XCKJ390559H29EX
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### XCR metal

Rotary (lever)

Conveyor belt shift monitoring switches

Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1

21 - 22

INERIS 04ATEX0024X / II 2 D-Ex tD A21 IP65 T85°C

Square (6 mm) rod lever, spring return to off position	Thermoplastic roller (Ø 30 mm) lever, spring return to off position	Large thermoplastic roller (Ø 50 mm) lever, spring return to off position	Metal rod levers, "crossed", stay put	Galvanised steel operating lever	Stainless steel operating lever
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10				0.3	
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1.5 m/s					
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⊖					
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- 20...+ 60°C

IP65

AC15; A300 (Ue = 240 V, Ie = 3 A)/DC13; Q300 (Ue = 250 V, Ie = 0.27 A)

By 10 A cartridge fuse type gG (gl)

1 entry fitted with n° 13 cable gland

85 x 75 mm

85 x 75 x 95 mm

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XCRA111EX	XCRA121EX	XCRA151EX	XCRE181EX (2)	-	
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XCRB111EX	XCRB121EX	XCRB151EX	XCRF171EX (3)	-	
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-				XCRT115EX	XCRT215EX
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(2) "Crossed" rods (3) "T" rods



Type		Vacuum switches and vacu-pressure switches with setting scale		
Size		- 1 bar	- 0.2 bar	5 bar
Conformity		Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1		
Zone D (dust)		21 - 22		
EC type examination certificate number / marking		INERIS 04ATEX0058 /  II 2 D-Ex tD A21 IP66 T85°C		
Fluid connection		1/4" BSP female		
Electrical connection		Screw terminals, 1 entry fitted with ISO M20 cable gland		
Temperature range		- 20...+ 60°C		
Degree of protection		IP66		
Rated operational characteristics		AC15; B300 (Ue = 240 V, Ie = 1.5 A; Ue = 120 V, Ie = 3 A)/DC13; R300 (Ue = 250 V, Ie = 0.1 A)		
Short-circuit protection		By 10 A cartridge fuse type gG (gl)		
Setting range of upper limit (PH)		-0.14...-1 bar	-0.02...-0.2 bar	-0.5...5 bar
Body dimensions, W x D x H		55 x 77.5 x 158 mm	150 x 155.5 x 145 mm	113 x 35 x 75 mm
Fluids controlled		Oil, water, air, up to +70°C	Oil, air, up to +160°C	Oil, water, air, up to +70°C
Possible differential (subtract from PH to give PB) (1)	Min. at low setting	0.13 bar	0.018 bar	0.5 bar
	Min. at high setting	0.13 bar	0.018 bar	0.5 bar
	Max. at high setting	0.8 bar	0.18 bar	6 bar
Single-pole snap action contact		XMLBM02V2S12EX	XMLBM03R2S12EX	XMLBM05A2S12EX

(1) For XMLBM02V2S12EX and XMLBM03R2S12EX vacuum switches add to PB to give PH



Type		Pressure switches with setting scale		
Size		10 bar	20 bar	35 bar
Conformity		Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1		
Zone D (dust)		21 - 22		
EC type examination certificate number / marking		INERIS 04ATEX0058 /  II 2 D-Ex tD A21 IP66 T85°C		
Fluid connection		1/4" BSP female		
Electrical connection		Screw terminals, 1 entry fitted with ISO M20 cable gland		
Temperature range		- 20...+ 60°C		
Degree of protection		IP66		
Rated operational characteristics		AC15; B300 (Ue = 240 V, Ie = 1.5 A; Ue = 120 V, Ie = 3 A)/DC13; R300 (Ue = 250 V, Ie = 0.1 A)		
Short-circuit protection		By 10 A cartridge fuse type gG (gl)		
Setting range of upper limit (PH)		0.7...10 bar	1.3...20 bar	3.5...35 bar
Body dimensions, W x D x H		35 x 75 x 113 mm		
Fluids controlled		Oil, water, air, up to +70°C		
Possible differential (subtract from PH to give PB)	Min. at low setting	0.57 bar	1 bar	1.7 bar
	Min. at high setting	0.85 bar	1.6 bar	2.55 bar
	Max. at high setting	7.5 bar	11 bar	20 bar
Single-pole snap action contact		XMLB010A2S12EX	XMLB020A2S12EX	XMLB035A2S12EX




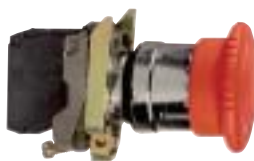
Pressure switches with setting scale				
0.05 bar	0.35 bar	1 bar	2.5 bar	4 bar
Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1				
21 - 22				
INERIS 04ATEX0058 /  II2 D-Ex tD A21 IP66 T85°C				
1/4" BSP female				
Screw terminals, 1 entry fitted with ISO M20 cable gland				
- 20...+ 60°C				
IP66				
AC15; B300 (Ue = 240 V, Ie = 1.5 A; Ue = 120 V, Ie = 3 A)/DC13; R300 (Ue = 250 V, Ie = 0.1 A)				
By 10 A cartridge fuse type gG (gl)				
0.026...0.05 bar	0.045...0.35 bar	0.05...1 bar	0.3...2.5 bar	0.25...4 bar
200 x 204 x 145 mm	110 x 110 x 162 mm		55 x 77.5 x 158 mm	55 x 77.5 x 158 mm
Oil, air, up to +160°C			Oil, water, air, up to +70°C	
0.0014 bar	0.042 bar	0.04 bar	0.16 bar	0.2 bar
0.004 bar	0.05 bar	0.06 bar	0.21 bar	0.25 bar
0.04 bar	0.3 bar	0.75 bar	1.75 bar	2.4 bar
<b>XMLBL05R2S12EX</b>	<b>XMLBL35R2S12EX</b>	<b>XMLB001R2S12EX</b>	<b>XMLB002A2S12EX</b>	<b>XMLB004A2S12EX</b>




Pressure switches with setting scale			
70 bar	160 bar	300 bar	500 bar
Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1			
21 - 22			
INERIS 04ATEX0058 /  II2 D-Ex tD A21 IP66 T85°C			
1/4" BSP female			
Screw terminals, 1 entry fitted with ISO M20 cable gland			
- 20...+ 60°C			
IP66			
AC15; B300 (Ue = 240 V, Ie = 1.5 A; Ue = 120 V, Ie = 3 A)/DC13; R300 (Ue = 250 V, Ie = 0.1 A)			
By 10 A cartridge fuse type gG (gl)			
7...70 bar	10...160 bar	22...300 bar	30...500 bar
35 x 75 x 113 mm			
Oil, up to +160°C			
4.7 bar	9.3 bar	19.4 bar	23 bar
8.8 bar	20.8 bar	37 bar	52.6 bar
50 bar	100 bar	200 bar	300 bar
<b>XMLB070D2S12EX</b>	<b>XMLB160D2S12EX</b>	<b>XMLB300D2S12EX</b>	<b>XMLB500D2S12EX</b>



Type		Ø 22 pushbuttons with metal bezel					
<b>Conformity</b>		Directive ATEX D 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1					
<b>Zone D (dust)</b>		21 - 22					
<b>EC type examination certificate number / marking</b>		INERIS 04ATEX9004U /  II D-Ex tD A21 IP65/66					
<b>Mechanical durability</b> (millions of operating cycles)		5					
<b>Temperature range</b>		- 20...+ 60°C					
<b>Degree of protection</b>		IP65 and IP66					
<b>Mounting</b>	Panel cut-out	Ø 22.5 mm (22.4 <sup>+0.4</sup> <sub>0</sub> recommended)					
	Mounting centres	30 x 40 mm					
<b>Depth below head</b>		43 mm					
<b>Connection</b>		Screw clamp terminals					
<b>Rated operational characteristics</b>		AC15; A600 (Ue = 600 V, Ie = 1.2 A or Ue = 240 V, Ie = 3 A or Ue = 120 V, Ie = 6 A DC13; Q600 (Ue = 600 V, Ie = 0.1 A or Ue = 250 V, Ie = 0.27 A or Ue = 125 V, Ie = 0.55 A)					
<b>Short-circuit protection</b>		By 10 A cartridge fuse type gG (gl)					
<b>Pushbutton type</b>		Flush with transparent silicone boot					
<b>Contact</b>		N/O			N/C	N/O	
<b>Colour of push</b>		● white	● black	● green	● red	● yellow	● blue
<b>References</b>	Insertion of legend not possible	–	<b>XB4BP21EX</b>	<b>XB4BP31EX</b>	<b>XB4BP42EX</b>	<b>XB4BP51EX</b>	<b>XB4BP61EX</b>
	Insertion of legend possible	<b>XB4BP181EX</b>	–	<b>XB4BP381EX</b>	<b>XB4BP482EX</b>	<b>XB4BP581EX</b>	<b>XB4BP681EX</b>
<b>Pushbutton type</b>		Flush with coloured silicone boot					
<b>Contact</b>		N/O			N/C	N/O	
<b>Colour of silicone boot</b>		● white	● black	● green	● red	● yellow	● blue
<b>References</b>		<b>XB4BPS11EX</b>	<b>XB4BPS21EX</b>	<b>XB4BPS31EX</b>	<b>XB4BPS42EX</b>	<b>XB4BPS51EX</b>	<b>XB4BS61EX</b>
<b>Ø 40 mushroom head pushbutton type</b>		Spring return					
<b>Contact</b>		N/O			N/C	N/O	
<b>Colour of push</b>		● black	● green	● red	● yellow	● blue	
<b>References</b>		<b>XB4BC21EX</b>	<b>XB4BC31EX</b>	<b>XB4BC42EX</b>	<b>XB4BC51EX</b>	<b>XB4BC61EX</b>	



Type		Ø 40 mushroom head Emergency stop pushbuttons		
<b>Conformity</b>		Directive ATEX D 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1, IEC/EN 60947-5-5		
<b>Zone D (dust)</b>		21 - 22		
<b>EC type examination certificate number / marking</b>		INERIS 04ATEX9004U /  II D-Ex tD A21 IP65/66		
<b>Mechanical durability</b> (millions of operating cycles)		0.3		
<b>Temperature range</b>		- 20...+ 60°C		
<b>Degree of protection</b>		IP65		
<b>Mounting</b>	Panel cut-out	Ø 22.5 mm (22.4 <sup>+0.4</sup> <sub>0</sub> recommended)		
	Mounting centres	30 x 40 mm		
<b>Depth below head</b>		43 mm		
<b>Connection</b>		Screw clamp terminals		
<b>Rated operational characteristics</b>		AC15; A600 (Ue = 600 V, Ie = 1.2 A or Ue = 240 V, Ie = 3 A or Ue = 120 V, Ie = 6 A DC13; Q600 (Ue = 600 V, Ie = 0.1 A or Ue = 250 V, Ie = 0.27 A or Ue = 125 V, Ie = 0.55 A)		
<b>Short-circuit protection</b>		By 10 A cartridge fuse type gG (gl)		
<b>Ø 40 latching mushroom head pushbutton type</b>		Push-pull with trigger action	Key release ( n° 455)	Turn to release
<b>Contact(s)</b>		N/C + N/O	N/C	N/C
<b>Colour of push</b>		● red	● red	● red
<b>References</b>		<b>XB4BT845EX</b>	<b>XB4BS142EX</b>	<b>XB4BS542EX</b>

# Selector switches and key switches


## Contact functions




Type		Ø 22 selector switches and key switches with metal bezel	
<b>Conformity</b>		Directive ATEX D 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1	
<b>Zone D (dust)</b>		21 - 22	
<b>EC type examination certificate number / marking</b>		INERIS 04ATEX9004U /  II2 D-Ex tD A21 IP65/66	
<b>Mechanical durability</b> (millions of operating cycles)		3	
<b>Temperature range</b>		- 20...+ 60°C	
<b>Degree of protection</b>		IP65	
<b>Mounting</b>	Panel cut-out	Ø 22.5 mm (22.4 <sup>+0.4</sup> recommended)	
	Mounting centres	30 x 40 mm	
<b>Depth below head</b>		43 mm	
<b>Connection</b>		Screw clamp terminals	
<b>Rated operational characteristics</b>		AC15; A600 (Ue = 600 V, Ie = 1.2 A or Ue = 240 V, Ie = 3 A or Ue = 120 V, Ie = 6 A) DC13; Q600 (Ue = 600 V, Ie = 0.1 A or Ue = 250 V, Ie = 0.27 A or Ue = 125 V, Ie = 0.55 A)	
<b>Short-circuit protection</b>		By 10 A cartridge fuse type gG (gl)	
<b>Selector switch type</b>		<b>Standard handle</b>	
<b>Contacts</b>		N/C + N/O	N/O + N/O
<b>Colour</b>		● black	● black
<b>References</b>	2 position stay put	<b>XB4BD25EX</b>	-
	3 position stay put	-	<b>XB4BD33EX</b>
	3 position spring return to centre	-	<b>XB4BD53EX</b>
<b>Selector switch type</b>		<b>Long handle</b>	
<b>Contact(s)</b>		N/O	N/O + N/O
<b>Colour</b>		● black	● black
<b>References</b>	2 position stay put	<b>XB4BJ21EX</b>	-
	3 position stay put	-	<b>XB4BJ33EX</b>
	3 position spring return to centre	-	<b>XB4BJ53EX</b>
<b>Key switch type</b>		<b>Key n° 455</b>	
<b>Contact(s)</b>		N/O	N/O + N/O
<b>Colour</b>		● black	● black
<b>References</b>	2 position stay put, key withdrawal in LH position	<b>XB4BG21EX</b>	-
	2 position stay put, key withdrawal in both positions	<b>XB4BG41EX</b>	-
	2 position spring return, key withdrawal in LH position	<b>XB4BG61EX</b>	-
	3 position stay put, key withdrawal in centre position	-	<b>XB4BG33EX</b>
	3 position stay put, key withdrawal in all 3 positions	-	<b>XB4BG03EX</b>

Other characteristics: please refer to the "Human-Machine Interface components" catalogue



Type		Ø 22 illuminated pushbuttons with metal bezel					
<b>Conformity</b>		Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1					
<b>Zone D (dust)</b>		21 - 22					
<b>EC type examination certificate number / marking</b>		INERIS 04ATEX9004U /  II 2 D-Ex tD A21 IP65/66					
<b>Mechanical durability</b> (millions of operating cycles)		5					
<b>Service life</b>		100,000 hours at ambient temperature					
<b>Temperature range</b>		- 20...+ 60°C					
<b>Degree of protection</b>		IP65					
<b>Mounting</b>	Panel cut-out	Ø 22.5 mm (22.4 <sup>+0.4</sup> <sub>0</sub> recommended)					
	Mounting centres	30 x 40 mm					
<b>Depth below head</b>		43 mm					
<b>Connection</b>		Screw clamp terminals					
<b>Rated operational characteristics</b>		AC15; A600 (Ue = 600 V, Ie = 1.2 A or Ue = 240 V, Ie = 3 A or Ue = 120 V, Ie = 6 A DC13; Q600 (Ue = 600 V, Ie = 0.1 A or Ue = 250 V, Ie = 0.27 A or Ue = 125 V, Ie = 0.55 A)					
<b>Short-circuit protection</b>		By 10 A cartridge fuse type gG (gl)					
<b>Light source</b>		Integral LED					
Illuminated pushbutton type, with integral LED		Flush with transparent silicone boot					
<b>Contact</b>		N/O		N/C		N/O	
<b>Colour of push</b>		● white	● green	● red	● yellow	● blue	
<b>References</b>	LED voltage	24 VAC/DC	<b>XB4BP183B5EX</b>	<b>XB4BP383B5EX</b>	<b>XB4BP483B5EX</b>	<b>XB4BP583B5EX</b>	<b>XB4BP683B5EX</b>
		48...120 VAC	<b>XB4BP183G5EX</b>	<b>XB4BP383G5EX</b>	<b>XB4BP483G5EX</b>	<b>XB4BP583G5EX</b>	<b>XB4BP683G5EX</b>
		240 VAC	<b>XB4BP183M5EX</b>	<b>XB4BP383M5EX</b>	<b>XB4BP483M5EX</b>	<b>XB4BP583M5EX</b>	<b>XB4BP683M5EX</b>
		24...120 VAC/DC	<b>XB4BP183BG5EX</b>	<b>XB4BP383BG5EX</b>	<b>XB4BP483BG5EX</b>	<b>XB4BP583BG5EX</b>	<b>XB4BP683BG5EX</b>



Type		Ø 22 pilot lights with metal bezel					
<b>Conformity</b>		Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1					
<b>Zone D (dust)</b>		21 - 22					
<b>EC type examination certificate number / marking</b>		INERIS 04ATEX9004U /  II 2 D-Ex tD A21 IP65/66					
<b>Service life</b>		100,000 hours at ambient temperature					
<b>Temperature range</b>		- 20...+ 60°C					
<b>Degree of protection</b>		IP65					
<b>Mounting</b>	Panel cut-out	Ø 22.5 mm (22.4 <sup>+0.4</sup> <sub>0</sub> recommended)					
	Mounting centres	30 x 40 mm					
<b>Depth below head</b>		43 mm					
<b>Connection</b>		Screw clamp terminals					
<b>Rated operational characteristics</b>		AC15; A600 (Ue = 600 V, Ie = 1.2 A or Ue = 240 V, Ie = 3 A or Ue = 120 V, Ie = 6 A DC13; Q600 (Ue = 600 V, Ie = 0.1 A or Ue = 250 V, Ie = 0.27 A or Ue = 125 V, Ie = 0.55 A)					
<b>Short-circuit protection</b>		By 10 A cartridge fuse type gG (gl)					
<b>Light source</b>		Integral LED					
Pilot light type		Pilot lights with integral LED, plain lens					
<b>Colour of LED</b>		● white	● green	● red	● yellow	● blue	
<b>References</b>	LED voltage	24 VAC/DC	<b>XB4BVB1EX</b>	<b>XB4BVB3EX</b>	<b>XB4BVB4EX</b>	<b>XB4BVB5EX</b>	<b>XB4BVB6EX</b>
		48...120 VAC	<b>XB4BVG1EX</b>	<b>XB4BVG3EX</b>	<b>XB4BVG4EX</b>	<b>XB4BVG5EX</b>	<b>XB4BVG6EX</b>
		240 VAC	<b>XB4BVM1EX</b>	<b>XB4BVM3EX</b>	<b>XB4BVM4EX</b>	<b>XB4BVM5EX</b>	<b>XB4BVM6EX</b>
		24...120 VAC/DC	<b>XB4BVBG1EX</b>	<b>XB4BVBG3EX</b>	<b>XB4BVBG4EX</b>	<b>XB4BVBG5EX</b>	<b>XB4BVBG6EX</b>

# Control stations

## Complete stations, metal or plastic



Type		Complete control stations			
Type of operators		Ø 22 flush pushbuttons			
Conformity		Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1			
Zone D (dust)		21 - 22			
EC type examination certificate number / marking		INERIS 04ATEX0023 /  II 2 D-Ex tD A21 IP65 T85°C			
Temperature range		- 20...+ 60°C			
Degree of protection		IP65			
Connection		1 entry fitted with ISO M20 cable gland			
Rated operational characteristics of contact blocks		AC15; A600 (Ue = 600 V, Ie = 1.2 A or Ue = 240 V, Ie = 3 A or Ue = 120 V, Ie = 6 A) DC13; Q600 (Ue = 600 V, Ie = 0.1 A or Ue = 250 V, Ie = 0.27 A or Ue = 125 V, Ie = 0.55 A)			
Short-circuit protection		By 10 A cartridge fuse type gG (gl)			
Function		1 function, Start or Stop	2 functions, Start - Stop	3 functions	
Composition		1 spring return pushbutton	2 spring ret. pushbuttons	3 spring ret. pushbuttons	
Contact(s)		N/O	N/C	N/O + N/C	N/O + N/C + N/O
Colour of pushbutton(s)		● green	● red	● green + ● red	● green + ● red + ● black
Metal control stations	Dimensions, W x D x H	80 x 77 x 80 mm		80 x 77 x 130 mm	80 x 77 x 175 mm
	Fixings: 4 x Ø 5.6 mm, centres	50 x 65 mm		50 x 115 mm	50 x 160 mm
References		XAWF100EX	XAWF110EX	XAWF210EX	XAWF310EX
Plastic control stations	Dimensions, W x D x H	85 x 70 x 146 mm		85 x 70 x 226 mm	
	Fixings: 4 x Ø 5.6 mm, centres	70 x 105 mm		70 x 108 mm	
References		XAWG100EX	XAWG110EX	XAWG210EX	XAWG310EX



Type		Complete control stations				
Type of operator		Ø 22 selector switch or key switch with metal bezel		Ø 40 mushroom head Emergency stop		
Conformity		Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1				
Zone D (dust)		21 - 22				
EC type examination certificate number / marking		INERIS 04ATEX0023 /  II 2 D-Ex tD A21 IP65 T85°C				
Temperature range		- 20...+ 60°C				
Degree of protection		IP65				
Connection		1 entry fitted with ISO M20 cable gland				
Rated operational characteristics of contact blocks		AC15; A600 (Ue = 600 V, Ie = 1.2 A or Ue = 240 V, Ie = 3 A or Ue = 120 V, Ie = 6 A) DC13; Q600 (Ue = 600 V, Ie = 0.1 A or Ue = 250 V, Ie = 0.27 A or Ue = 125 V, Ie = 0.55 A)				
Short-circuit protection		By 10 A cartridge fuse type gG (gl)				
Function		1 function, Start/Stop		Emergency stop		
Composition		1 selector switch (1) standard black handle	1 key switch (1) key n° 455	1 Ø 40 mushroom head turn to release	1 Ø 40 mushroom head key release	1 push/pull Ø 40 with trigger action
Contact		N/O + N/C	N/O + N/C	N/C + N/C	N/C + N/C	N/C + N/C
Colour of operator		● black	● black	● red	● red	● red
Metal control stations	Dimensions, W x D x H	80 x 77 x 80 mm				
	Fixings: 4 x Ø 5.6 mm, centres	50 x 65 mm				
References		XAWF130EX	XAWF140EX	XAWF174EX	XAWF184EX	XAWF198EX
Plastic control stations	Dimensions, W x D x H	80 x 70 x 146 mm				
	Fixings: 4 x Ø 5.6 mm, centres	70 x 105 mm				
References		XAWG130EX	XAWG140EX	XAWG174EX	XAWG184EX	XAWG198EX


(1) 2 position stay put

Other characteristics: please refer to the "Human-Machine Interface components" catalogue

# Emergency stops and foot switches


## Cable (tripwire) operated Emergency stops



For operating cable up to 50 m long		Latching, without indicator light			
<b>Conformity</b>		Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1			
<b>Zone D (dust)</b>		21 - 22			
<b>EC type examination certificate number / marking</b>		INERIS 04ATEX0015 / 			
<b>Mechanical durability</b> (millions of operating cycles)		0.01			
<b>Temperature range</b>		- 20...+ 60°C			
<b>Degree of protection</b>		IP65			
<b>Connection</b>		3 entries for ISO M20 cable gland			
<b>Rated operational characteristics</b>		AC15; A300 (Ue = 240 V, Ie = 3 A)/DC13; Q300 (Ue = 250 V, Ie = 0.27 A)			
<b>Short-circuit protection</b>		By 10 A cartridge fuse type gG (gl)			
<b>Dimensions, W x D x H</b>		229 x 82 x 142 mm		229 x 105 x 142 mm	
<b>Reset</b>		By booted pushbutton		By key release pushbutton (key n° 421)	
<b>Operating cable length</b>		≤ 50 m		≤ 50 m	
<b>Operating cable anchoring point</b>		To left	To right	To left	To right
<b>References</b>	N/C + N/O slow break	<b>XY2CE2A250EX</b>	<b>XY2CE1A250EX</b>	<b>XY2CE2A450EX</b>	<b>XY2CE1A450EX</b>
	N/C + N/C slow break	<b>XY2CE2A270EX</b>	<b>XY2CE1A270EX</b>	<b>XY2CE2A470EX</b>	<b>XY2CE1A470EX</b>

## Foot switches, metal



Type		Single pedal switches			
<b>Conformity</b>		Directive ATEX 94/9/EC, EN 50014, EN 50281-1-1, pr IEC 61241-0, pr IEC 61241-1			
<b>Zone D (dust)</b>		21 - 22			
<b>EC type examination certificate number / marking</b>		INERIS 04ATEX0025 / 			
<b>Mechanical durability</b> (millions of operating cycles)		5			
<b>Temperature range</b>		- 20...+ 60°C			
<b>Degree of protection</b>		IP66			
<b>Connection</b>		2 entries for n° 16 (Pg 16) cable gland (1)			
<b>Rated operational characteristics</b>		AC15; A300 (Ue = 240 V, Ie = 3 A)/DC13; Q300 (Ue = 250 V, Ie = 0.27 A)			
<b>Short-circuit protection</b>		By 10 A cartridge fuse type gG (gl)			
<b>Dimensions, W x D x H</b>		104 x 172 x 59 mm			
<b>Colour</b>		Blue		Orange	
<b>Contact operation</b>		1 step	2 step	1 step	2 step
<b>References</b>	1 N/C + N/O	<b>XPEM110EX</b>	–	<b>XPER110EX</b>	–
	2 N/C + N/O	<b>XPEM111EX</b>	<b>XPEM211EX</b>	<b>XPER111EX</b>	<b>XPER211EX</b>

(1) 1 entry fitted with blanking plug, 1 entry fitted with n° 16 (Pg 16) cable gland





# Automation platform

## Weighing system for Modicon Premium



Module type		ISP Plus
		Supplied calibrated
Conformity		Directive ATEX 94/9/EC, EN 50014, EN 50020, EN 50039, EN 50284, EN 50281-1-1
Zone D (dust)		Mounted outside zone (to be used in conjunction with products for zone 20, 21 or 22)
EC type examination certificate number / marking		LCIE 03ATEX6399X /  II(2) G or/and D-EEEx ib IIC T6 or IIB T6
Connection		By connectors: Sub-D 15-way male for sensors and Sub-D 9-way male for transfer of weights
Load cell inputs		50 measurements (for 1 to 8 load cells)
Outputs		2 discrete and 1 RS 485 for display
References	Without display	TSXISPY101
	With display TSXXBTH100	TSXISPY111

## Intrinsically safe I/O modules for Modicon Quantum



Module type	Inputs/outputs				
	Discrete		Analogue		
Conformity	Directive ATEX 94/9/EC, EN 50014, EN 50020, EN 50284, EN 50281-1-1				
Zone D (dust)	Mounted outside zone (to be used in conjunction with products for zone 20, 21 or 22)				
EC type examination certificate number / marking	SIRA 02ATEX2345X /  II(1) G/D-[EEEx ia] IIC				
Connection	By screw terminal block 140XTS33200 (to be ordered separately)				
Number of inputs	8	–	8	–	–
Number of outputs	–	8	–	–	8
Signal inputs	–	–	Thermal probes	0...25/20 mA	
			Thermocouple (1)	4...25 mA	
Resolution			12 bits + sign	0...25,000 points	15 bits
References	140DII33000	140DIO33000	140AII33000	140AII33010	140AIO33000

(1) Type J, K, E, T, S, R, B, mV



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Up-dated: 28-07-2003

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# Schneider Electric worldwide

Up-dated: 28-07-2003

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Up-dated: 28-07-2003

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