Sensors
Quick Look

A fast reference guide to Proximity, Photoelectric, and Ultrasonic Sensors, Limit Switches, Pressure Sensors, Machine Safety, Encoders, RFID, and Machine Cabling

Catalog

Telemecanique
Sensors

Telemecanique™ Sensors

Simply easy!℠

Telemecanique brand has a nine-decade history of manufacturing factory automation and safety sensors with a wide range of robust and reliable products.

Our goal is to simplify the life of our customers, allowing them to concentrate on their core added value and machine performance. Telemecanique Sensors products are designed and manufactured based on the following values:

- Simplicity and modularity
- Ease of selection
- Ease of installation and maintenance
- Availability of expert services to share our know-how

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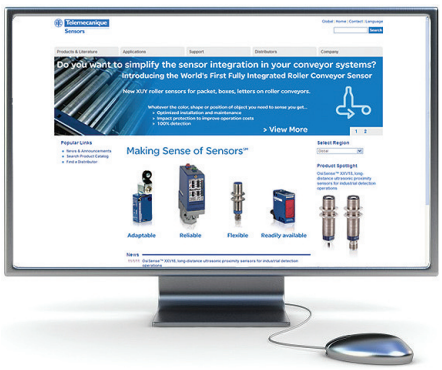

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Detection

Limit switches, ***OsiSense™ XC and Square D™ 9007*** ..... 6 to 15
Detection by contact with rigid objects

Sensors for pressure control, ***OsiSense XM*** ..... 20 to 23
Detection by contact with fluid

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Detection of metal objects without contact

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Detection of insulating, conductive, or fluid materials

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Safety relays, ***Preventa XPS*** ..... 69 and 70

Telemecanique Sensors
Simply easy!

New

• Safety and limit switches

Preventa XCSLF and **XCSLE**, the new safety interlock switches for protecting operators of potentially dangerous machines with inertia

Osisense XCKVR, the new economical cross limit switches for hoisting applications

• Pressure sensors for control applications

OsiSense XMLP, a new range of compact pressure transmitters with a gasket-free design for industrial operations

• Inductive proximity sensors

OsiSense XS7, XS8, C2, and C4, the new range of cubic and rectangular inductive sensors for material handling applications

• Ultrasonic sensors

OsiSense XXV18, long-distance ultrasonic proximity sensors for industrial detection operations

OsiSenseXX, thru-beam mode—sensing technology well-suited to the accuracy, the high switching frequencies, and the detection of small objects required in applications like conveying

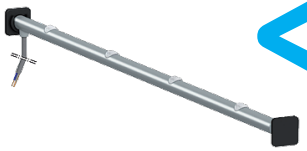
• Rotary encoders

OsiSense XCC stainless steel rotary encoders—a range of absolute and incremental IP69K encoders, including a hygenic design especially for food and beverage environments

• Radio frequency identification

OsiSense XGSZ RFID, with a new Ethernet/IP network connection box for connecting smart antennas on industrial networks

• Photoelectric sensors



OsiSense XUY Roller Sensors, the new photoelectric sensors for simple integration into your roller conveyors system

OsiSense XUKS stainless steel, a new range of photoelectric sensors for the food and beverage industry

OsiSense XUK8, compact photoelectric sensors with efficient detection in diffuse mode with background suppression and embedded timing functions for AC/DC applications

OsiSense XUE, a reliable photoelectric sensor for distance measurement and long distance detection in diffuse mode with background suppression

OsiSense XUVE, optical fork sensor for labeling applications that utilizes fast integration with small heel, very precise, one step teach for simple set-up

OsiSense XUM8, the miniature photoelectric sensors with efficient detection in diffuse mode with background suppression

OsiSense XUMT, the miniature photoelectric specialist for transparent materials

OsiSense XUK Laser, a new range of long sensing distance photoelectric laser sensors that provide an accurate beam for very precise detection, even on small objects, and are also highly resistant to harsh environments (IP69K, Ecolab)

OsiSense XUVF optical frames with dynamic and static functions

• Cabling system

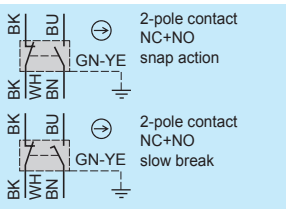
OsiSense XZ PVC, a new economic offer of prewired connectors and jumpers with PVC cable for environments with low mechanical constraints, completing the offer of PUR cable for severe environments and reinforced PVC for food and beverage environments

Limit switches

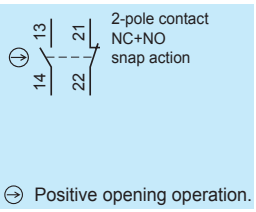
Compact and miniature, complete switches

(variable composition, see pages 8–9)

XCMD



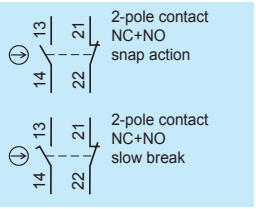
XCKT



Miniature XCMD metal, precabled; mounting by the body or by the head

Type of operator		Metal end plunger	Steel roller plunger	Thermoplastic roller lever	Steel roller lever	Variable length thermoplastic roller lever	M12 head metal end plunger
Mechanical durability (millions of operating cycles) *(5)*		10	10	10	10	10	10
Actuation speed (m/s)		0.5	0.5	1.5	1.5	1.5	0.5
Switches conforming to standard IEC 947-5-1 section 3		⊖	⊖	⊖	⊖	⊖	⊖
Product certification		CE, UL, CSA, CCC					
Degree of protection conforming to IEC 60529		IP66 and IP67					
Rated operational characteristics (conforming to EN IEC 60947-5-1)		AC-15; B300 (Ue = 240 V, Ie = 1.5 A) / DC-13; R300 (Ue = 250 V, Ie = 0.1 A)					
Mounting centers: mm (in.)		20 (0.79)					M12 x 1
Body dimensions, W x D x H: mm (in.)		30 x 16 x 50 (1.18 x 0.63 x 1.97)					
Connection	Cable	Precabled, adjustable direction, 1 m (other lengths available on request)					
Complete switch	2-pole NC+NO snap action	**XCMD2110L1**	**XCMD2102L1**	**XCMD2115L1**	**XCMD2116L1**	**XCMD2145L1**	**XCMD21F0L1**
	2-pole NC+NO break before make, slow break	**XCMD2510L1**	**XCMD2502L1**	**XCMD2515L1**	**XCMD2516L1**	**XCMD2545L1**	**XCMD25F0L1**
	Connector	M12					
Complete switch	NC+NO snap action (M12-5 pins)	**XCMD2110C12**	**XCMD2102C12**	**XCMD2115C12**	**XCMD2116C12**	**XCMD2145C12**	**XCMD21F0C12**
	1C/O snap action (M12-4 pins) *(1)*	**XCMD2110M12**	**XCMD2102M12**	**XCMD2115M12**	**XCMD2116M12**	**XCMD2145M12**	**XCMD21F0M12**

XCKP/XCKD

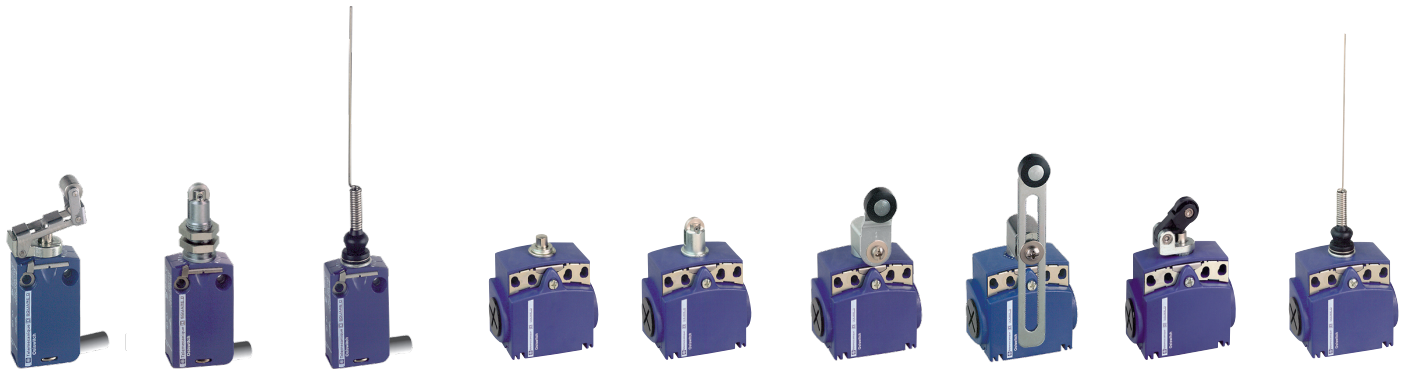


⊖ Positive opening operation.

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) *(5)*		15	10	15	10	10
Actuation speed (m/s)		0.5	0.5	1	0.5	0.5
Switches conforming to standard IEC 947-5-1 section 3		⊖	⊖	⊖	⊖	⊖
Product certification		CE, CSA, CCC, GOST				
Degree of protection conforming to IEC 60529		IP66 and IP67				
Rated operational characteristics (conforming to EN IEC 60947-5-1)		AC-15; A300 (Ue = 240 V, Ie = 3 A) / DC-13; Q300 (Ue = 250 V, Ie = 0.27 A)				
Cable entry		1 tapped entry for 1/2"-14 NPT conduit *(3)* or M12 connector				
Mounting centers: mm (in.)		20 (0.79)	20 (0.79)	20 (0.79)	M18 x 1	M18 x 1
Body dimensions, W x D x H: mm (in.)		31 x 30 x 65 (1.22 x 1.18 x 2.56)				
Metal switches						
Complete switch	2-pole NC+NO snap action	**XCKD2110N12**	**XCKD2102N12**	**XCKD2121N12**	**XCKD21H0N12**	**XCKD21H2N12**
	2-pole NC+NO break before make, slow break	**XCKD2510N12**	**XCKD2502N12**	**XCKD2521N12**	**XCKD25H0N12**	**XCKD25H2N12**
	2-pole NC+NO snap action (M12-5 pins)	**XCKD2110M12**	**XCKD2102M12**	**XCKD2121M12**	**XCKD21H0M12**	**XCKD21H2M12**
Plastic, double insulated switches						
Complete switch	2-pole NC+NO snap action	**XCKP2110N12**	**XCKP2102N12**	**XCKP2121N12**	**XCKP21H0N12**	**XCKP21H2N12**
	2-pole NC+NO break before make, slow break	**XCKP2510N12**	**XCKP2502N12**	**XCKP2521N12**	**XCKP25H0N12**	**XCKP25H2N12**
	2-pole NC+NO snap action (M12-4 pins)	**XCKP2110M12**	**XCKP2102M12**	**XCKP2121M12**	**XCKP21H0M12**	**XCKP21H2M12**

(1) Although their design is identical to the precabled switches, the switches incorporating an M12 4-pin connector cannot be marked with the ⊖ symbol because they are single-pole C/O.
(2) For ISO M16 x 1.5 cable entries, replace **N12** with **P16**. Example: XCKT2110**N12** becomes XCKT2110**P16**.
(3) For Pg 11 cable entries, replace **N12** with **G11**. Example: XCKD2110**N12** becomes XCKD2110**G11**. For other cable entries, see "Customized assembly" on page 8.
(4) For Pg 13.5 cable entries, replace **N12** with **G13**. Example: XCDR2110**N12** becomes XCDR2110**G13**. For other cable entries, see "Customized assembly" on page 9.
(5) Depending on the application.



Compact XCKT plastic, 2 cable entries

Retractable steel roller lever plunger	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	Cat's whisker
10	10	5	15	10	10	15	5	5
0.5	0.1	1	0.5	0.5	1.5	1	1	1
⊖	⊖	–	⊖	⊖	⊖	⊖	–	–
			CE, CSA, CCC, GOST					
			IP66 and IP67					
			AC-15; A300 (Ue = 240 V, Ie = 3 A) / DC-13; Q300 (Ue = 250 V, Ie = 0.27 A)					
20 (0.79)	M12 x 1	20 (0.79)	20 (0.79) or 40 (1.58)					
			58 x 30 x 51 (2.28 x 1.18 x 2.01)					
			3 entries tapped ISO Pg 11, supplied with one conduit adapter DE9RA1012, Pg 11 to 1/2"-14 NPT *(2)*					
XCMD2124L1	**XCMD21F2L1**	**XCMD2106L1**	**XCKT2110N12**	**XCKT2102N12**	**XCKT2118N12**	**XCKT2145N12**	**XCKT2121N12**	**XCKT2106N12**
XCMD2524L1	**XCMD25F2L1**	**XCMD2506L1**	**–**	**–**	**–**	**–**	**–**	**–**
XCMD2124C12	**XCMD21F2C12**	**XCMD2106C12**	**–**	**–**	**–**	**–**	**–**	**–**
XCMD2124M12	**XCMD21F2M12**	**XCMD2106M12**	**–**	**–**	**–**	**–**	**–**	**–**

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
⊖	⊖	⊖	–	⊖	⊖	⊖	⊖	⊖
				CE, CSA, CCC, GOST				
				IP66 and IP67				
				AC-15; A300 (Ue = 240 V, Ie = 3 A) / DC-13; Q300 (Ue = 250 V, Ie = 0.27 A)				
				1 tapped entry for 1/2"-14 NPT conduit *(4)*				
20 (0.79)	20 (0.79)	20 (0.79)	20 (0.79)	20 (0.79)	20 (0.79)	20 (0.79)	20 (0.79)	20 (0.79)
				31 x 30 x 95 (1.22 x 1.18 x 3.74)				
XCKD2118N12	**XCKD2145N12**	**XCKD2139N12**	**XCKD2106N12**	**XCDR2110N12**	**XCDR2102N12**	**XCDR2121N12**	**XCDR2127N12**	**XCDR2118N12**
XCKD2518N12	**XCKD2545N12**	**XCKD2539N12**	**XCKD2506N12**	**XCDR2510N12**	**XCDR2502N12**	**XCDR2521N12**	**XCDR2527N12**	**XCDR2518N12**
XCKD2118M12	**XCKD2145M12**	**XCKD2139M12**	**XCKD2106M12**	**–**	**–**	**–**	**–**	**–**
XCKP2118N12	**XCKP2145N12**	**XCKP2139N12**	**XCKP2106N12**	**XCPR2110N12**	**XCPR2102N12**	**XCPR2121N12**	**XCPR2127N12**	**XCPR2118N12**
XCKP2518N12	**XCKP2545N12**	**XCKP2539N12**	**XCKP2506N12**	**XCPR2510N12**	**XCPR2502N12**	**XCPR2521N12**	**XCPR2527N12**	**XCPR2518N12**
XCKP2118M12	**XCKP2145M12**	**XCKP2139M12**	**XCKP2106M12**	**–**	**–**	**–**	**–**	**–**

Limit switches

Customized assembly of miniature and compact switches

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
					
Catalog number	⊖ **ZCE10**	⊖ **ZCE11**	⊖ **ZCE02**	⊖ **ZCE24** (2)	⊖ **ZCE21**

Metal rotary head and levers

Description	Rotary head without lever, spring return, for actuation from LH and 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)
					
Catalog number	⊖ **ZCE01**	⊖ **ZCY15** *(2)*	⊖ **ZCY16** *(2)*	⊖ **ZCY25** *(2)*	⊖ **ZCY25** *(2)*

Bodies

Miniature

Type of contact	2-pole NO+NC Snap action	3-pole 2 NC+1 NO Snap action	2-pole NC+NO Slow break	3-pole 2 NC+1 NO Slow break	2-pole NC+NO Snap action Connector 5 pin	1-pole 1 C/O Snap action Connector 4 pin	4-pole 2 NC+2 NO Snap action
Catalog number of metal body	**ZCMD21**	**ZCMD39**	**ZCMD25**	**ZCMD37**	**ZCMD21C12**	**ZCMD21M12**	**ZCMD41**
Cable 1 m	**ZCMD21L1**	**ZCMD39L1**	**ZCMD25L1**	**ZCMD37L1**	**ZCMD21C12L1**	**ZCMD21M12L1**	**ZCMD41L1**
2 m	**ZCMD21L2**	**ZCMD39L2**	**ZCMD25L2**	**ZCMD37L2**	**ZCMD21C12L2**	**ZCMD21M12L2**	**ZCMD41L2**
5 m	**ZCMD21L5**	**ZCMD39L5**	**ZCMD25L5**	**ZCMD37L5**	**ZCMD21C12L5**	**ZCMD21M12L5**	**ZCMD41L5**

Connection of miniature bodies

Specific precabled connection components	for ZCMD21	for ZCMD39	for ZCMD25	for ZCMD37
				
1 m	**ZCMC21L1**	**ZCMC39L1**	**ZCMC25L1**	**ZCMC37L1**
2 m	**ZCMC21L2**	**ZCMC39L2**	**ZCMC25L2**	**ZCMC37L2**
5 m	**ZCMC21L5**	**ZCMC39L5**	**ZCMC25L5**	**ZCMC37L5**

Option: PUR prewired M12 connector, 2 m. For other cable options see page 53.

5-pin	4-pin
	
XZCP1164L2	**XZCP1141L2**

(1) Recommended for use with bodies **ZCD••• / ZCP••• / ZCT•••**.
(2) Recommended for use with bodies **ZCMD•••**.
⊖ Positive opening operation.

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 fiber rod lever Ø 3 mm 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	2-pole NC+NO Snap action	3-pole 2 NC+1 NO Snap action	2-pole NC+NO Slow break	2-pole NC+NC Slow break	2-pole NO+NO Slow break	2-pole NC+NC Snap action	3-pole 2 NC+1 NO Slow break	2-pole NC+NO – Snap action: Connector 5-pin	2-pole NC+NO – Snap action: Connector 4-pin	2-pole NC+NO Snap action	2-pole NC+NO Slow break
Metal body	**ZCD21**	**ZCD39**	**ZCD25**	**ZCD27**	**ZCD28**	**ZCD29**	**ZCD37**	**ZCD21M12**	**–**	**–**	**–**
Plastic body	**ZCP21**	**ZCP39**	**ZCP25**	**ZCP27**	**ZCP28**	**ZCP29**	**ZCP37**	**–**	**ZCP21M12**	**ZCT21P16** *(3)*	**ZCT25P16** *(3)*

Connection of compact bodies

Interchangeable outlet for cable connector						
Description	For ISO M16 cable connector	For ISO M20 cable connector	For Pg 11 cable connector	For Pg 13.5 cable connector	For 1/2" NPT cable connector	For PF 1/2 (G12) cable connector
Metal	**ZCDEP16**	**ZCDEP20**	**ZCDEG11**	**ZCDEG13**	**ZCDEN12**	**ZCDEF12**
Plastic	**ZCPEP16**	**ZCPEP20**	**ZCPEG11**	**ZCPEG13**	**ZCPEN12**	**ZCPEF12**

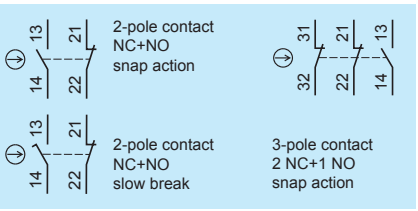
Option: PUR prewired M12 connector, 2 m. For other cable options see page 53.

5-pin	4-pin
	
XZCP1164L2	**XZCP1141L2**

(3) ZCT Pg 11 cable connector versions: replace the suffix **P16** with **G11**. Example: ZCT21**P16** becomes ZCT21**G11**.
ZCT 1/2" NPT versions: replace the suffix **P16** with **N12** (adapter). Example: ZCT21**P16** becomes ZCT21**N12** (2 Pg11 cable entries with 1 1/2"-14 adapter).

Limit switches
Classic—XCKM, XCKL, complete switches

XCKM



Type XCKM metal, 3 cable entries, XCKL metal, 1 cable entry

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) *(6)*		20	20	20	15	10
Actuation speed (in m/s)		0.5	0.5	1.5	1.5	0.5
Product certification		CE, UL, CSA, CCC, GOST, C-TICK, BV				
Degree of protection conforming to IEC 60529		IP665				
Rated operational characteristics (conforming to EN IEC 60947-5-1)		AC-15; A300 (Ue = 240 V, Ie = 3 A) / DC-13; Q300 (Ue = 250 V, Ie = 0.27 A)				
Cable entry	XCKM *(1) (2)*	3 tapped entries 1/2"-14 NPT (2 entries fitted with blanking plugs)				
	XCKL *(1)*	1 bottom cable entry tapped for 1/2"-14 NPT conduit				
Mounting centers: mm (in.)		41 (1.61)				
Body dimensions, W x D x H: mm (in.)	XCKM / XCKL	64 x 30 x 64 (2.52 x 1.18 x 2.52) / 52 x 30 x 72 (2.05 x 1.18 x 2.84)				

Complete switch	**XCKM**					
	2-pole NC+NO snap action	⊖ **XCKM110H7**	⊖ **XCKM102H7**	⊖ **XCKM121H7**	⊖ **XCKM115H7**	**XCKM106H7**
	2-pole NC+NO, break before make, slow break	⊖ **XCKM510H7**	⊖ **XCKM502H7**	⊖ **XCKM521H7**	⊖ **XCKM515H7**	–
Complete switch	**XCKL**					
	2-pole NC+NO snap action	⊖ **XCKL110H7**	⊖ **XCKL102H7**	⊖ **XCKL121H7**	⊖ **XCKL115H7**	**XCKL106H7**

Classic—XCKM, XCKL,
Customized assembly—Body/contact sub-assemblies

Type XCKM metal, 3 cable entries

Type of contact

	2-pole NC+NO snap action	2-pole NC+NO slow break	3-pole 2 NC+1 NO snap action	3-pole 2 NC+1 NO slow break
Catalog number of body with contact block	⊖ **ZCKM1H7**	⊖ **ZCKM5H7**	⊖ **ZCKMD39H7**	⊖ **ZCKMD37H7**
XCKL catalog number of body with contact block *(3)*	⊖ **ZCKL1H7**	⊖ **ZCKL5H7**	⊖ **ZCKLD39H7**	⊖ **ZCKLD37H7**
Catalog number of contact block only	⊖ **XE2SP2151**	⊖ **XE2NP2151**	⊖ **XE3SP2141**	⊖ **XE3NP2141**

(1) For Pg 11 cable entries, remove **H7** suffix. Example: XCKL110**H7** becomes XCKL110.
(2) For ISO M20 x 1.5, replace **H7** suffix with **H29**. Example: XCKM110**H7** becomes XCKM110**H29** (XCKM only).
(3) For Pg 11 cable entry, remove **H7** suffix. Example: ZCKL1**H7** becomes ZCKL1**.**
(6) Depending on the application.
⊖ Positive opening operation.

Operating heads, complete or for customer assembly

Complete switch

=

Body/contact assembly

+

Head

+

Lever

Rotary or multi-directional heads

	Metal head with thermoplastic roller lever	Metal head with steel roller lever	With variable length thermoplastic roller lever *(4)*	With ø 6 mm thermoplastic rod 200 mm *(5)*	With thermoplastic roller lever *(5)* for actuation from left **and** right or left **or** right	With cat's whisker	With spring rod
Catalog number	⊖ **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 steel roller plunger and protective boot	With thermoplastic roller lever plunger, horizontal actuation in 1 direction	With steel roller lever plunger, horizontal actuation in 1 direction
Catalog number	⊖ **ZCKD10**	⊖ **ZCKD109**	⊖ **ZCKD02**	⊖ **ZCKD029**	⊖ **ZCKD21**	⊖ **ZCKD23**

Rotary heads and separate levers

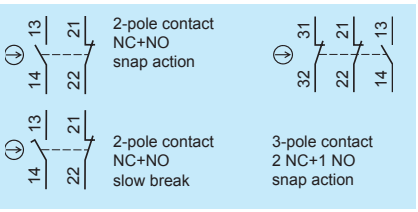
	Spring return, selectable, for actuation from left **AND** right or left **OR** right	Spring return, selectable, for actuation from left **AND** right or left **OR** right	Lever with thermoplastic roller *(4)*	Lever with steel roller *(4)*	Variable length lever with thermoplastic roller *(4)*	Variable length lever with steel roller *(4)*	Rod, ø 6 mm thermoplastic 200 mm *(4)*
Catalog number	⊖ **ZCKG00**	⊖ **ZCKD05**	⊖ **ZCKY31**	⊖ **ZCKY33**	**ZCKY41**	**ZCKY43**	**ZCKY59**

(4) Adjustable throughout 360° in 5° steps, or in 90° steps by reversing the notched washer.
(5) Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever mounting.
⊖ Positive opening operation.

Limit switches

Industrial—XCKJ, complete switches

XCKJ

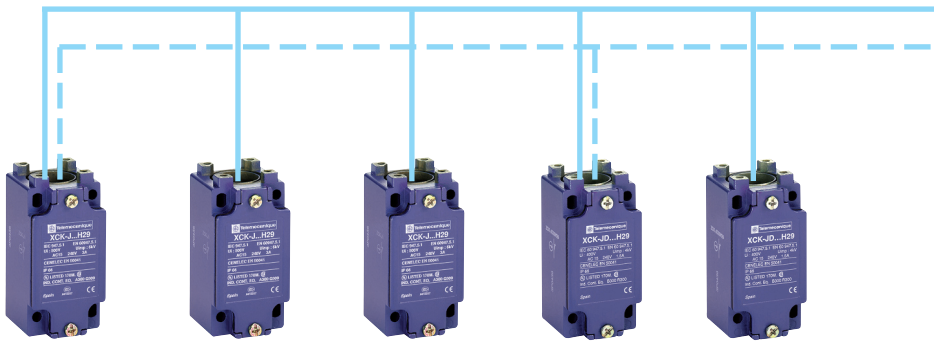


Type XCKJ metal, mounted body, conforming to standard EN 50041

Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever	Steel roller lever	Variable length thermoplastic roller lever	Polyamide Ø 6 mm rod lever 200 mm
Mechanical durability (millions of operating cycles) *(2)*	30	25	30	30	30	30
Actuation speed (in m/s)	0.5	1	1.5	1.5	1.5	1.5
Product certification	CE, UL, CSA, CCC, GOST, C-TICK, BV					
Degree of protection conforming to IEC 60529	IP667					
Rated operational characteristics (conforming to EN IEC 60947-5-1)	AC-15; A300 (Ue = 240 V, Ie = 3 A) / DC-13; Q300 (Ue = 250 V, Ie = 0.27 A)					
Cable entry *(1)*	1 tapped entry for 1/2"-14 NPT conduit entry					
Mounting centers: mm (in.)	30 x 60 (1.18 x 2.36)					
Body dimensions, W x D x H: mm (in.)	40 x 44 x 77 (1.58 x 1.73 x 3.03)					

Complete switch	**1/2"-14 NPT**	2-pole NC+NO snap action	⊖ **XCKJ161H7**	⊖ **XCKJ167H7**	⊖ **XCKJ10511H7**	⊖ **XCKJ10513H7**	**XCKJ10541H7**	**XCKJ10559H7**
		2-pole NC+NO break before make, slow break	⊖ **XCKJ561H7**	⊖ **XCKJ567H7**	⊖ **XCKJ50511H7**	⊖ **XCKJ50513H7**	**XCKJ50541H7**	**XCKJ50559H7**
	Pg 13.5	2-pole NC+NO snap action	⊖ **XCKJ161**	⊖ **XCKJ167**	⊖ **XCKJ10511**	⊖ **XCKJ10513**	**XCKJ10541**	**XCKJ10559**
	M12 (5 pin)	2-pole NC+NO snap action	⊖ **XCKJ161D**	⊖ **XCKJ167D**	⊖ **XCKJ10511D**	⊖ **XCKJ10513D**	**XCKJ10541D**	**XCKJ10559D**

Industrial—XCKJ, Customized assembly—Body/contact sub-assemblies



Type XCKJ metal, 1 cable entry

Type of contact		2-pole NC+NO snap action	2-pole NC+NO slow break	2 C/O snap action Simultaneous	3-pole 2 NC+1 NO snap action	3-pole 2 NC+1 NO slow break
Cable entry *(1)*		1 tapped entry or M12 connector entry				
Body with contact block	**1/2"-14 NPT**	⊖ **ZCKJ1H7**	⊖ **ZCKJ5H7**	**ZCKJ2H7**	⊖ **ZCKJD39H7**	⊖ **ZCKJD37H7**
	Pg 13.5	⊖ **ZCKJ1**	⊖ **ZCKJ5**	**ZCKJ2**	⊖ **ZCKJD39**	⊖ **ZCKJD37**
	M20	⊖ **ZCKJ1H29**	⊖ **ZCKJ5H29**	**ZCKJ2H29**	⊖ **ZCKJD39H29**	⊖ **ZCKJD37H29**
	M12 (5 pin)	⊖ **ZCKJ1D**	⊖ **ZCKJ5D**	**–**	**–**	**–**
Contact block only		⊖ **XE2SP2151**	⊖ **XE2NP2151**	**–**	⊖ **XE3SP2141**	⊖ **XE3NP2141**

(1) For M20 x 1.5mm conduit entry, change suffix **H7** to **H29**. Example: XCKJ161**H7** becomes XCKJ161**H29**.
(2) Depending on the application.
⊖ Positive opening operation.

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	End steel roller plunger with protective boot
							
Catalog number	ZCKE67	ZCKE61	ZCKE21	ZCKE23	ZCKE62	ZCKE66	ZCKE629

	Metal side plunger	Side steel roller plunger, horizontal	Side steel roller plunger, vertical	Spring rod	Cat's whisker		
							
Catalog number	ZCKE63	ZCKE64	ZCKE65	ZCKE08	ZCKE06		

Separate rotary heads and levers

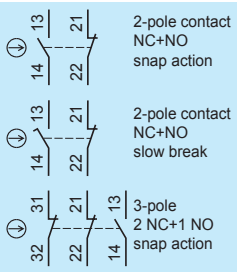
	Spring return for actuation from left **AND** right or left **OR** right	Lever with thermoplastic roller *(2)*	Lever with steel roller *(3)*	Variable length lever with thermoplastic roller *(3)*	Variable length lever with steel roller *(3)*	Rod, Ø 6 mm thermoplastic 200 mm *(3)*	Square rod lever, steel, ⍁ 3 mm 125 mm *(3)*	Round rod lever, steel, Ø 3 mm 125 mm *(3)*	Spring lever with thermoplastic end *(4)*	Spring-metal rod lever *(4)*
										
Catalog number	ZCKE05	ZCKY11	ZCKY13	ZCKY41	ZCKY43	ZCKY59	ZCKY51	ZCKY53	ZCKY81	ZCKY91

	Stay put for actuation from left **AND** right	Forked arm lever with thermoplastic rollers, 1 track *(3)*	Forked arm lever with thermoplastic rollers, 2 track *(2)*
			
Catalog number	ZCKE09	ZCKY71	ZCKY61

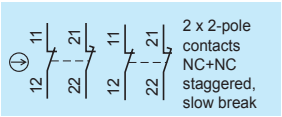
(3) Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever mounting.
(4) Adjustable throughout 360° in 5° steps, or in 90° steps by reversing the notched washer.

Limit switches
Classic—XCKS, complete switches

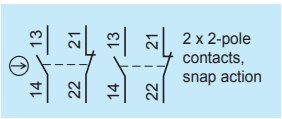
XCKS



XCKMR



XCR



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 200 mm
Mechanical durability (millions of operating cycles) *(3)*	25	15	20	20	20	20
Actuation speed (in m/s)	0.5	0.5	1.5	1.5	1	1
Product certification	CE, UL, CSA, CCC, GOST, C-TICK					
Degree of protection conforming to IEC 60529	IP653					
Rated operational characteristics (conforming to EN IEC 60947-5-1)	AC-15; A300 (Ue = 240 V, Ie = 3 A) / DC-13; Q300 (Ue = 250 V, Ie = 0.27 A)					
Cable entry *(1)*	1 tapped entry for use with Pg 13.5 cable connector or DE9RA1212 1/2"-14 NPT conduit adapter					
Mounting centers: mm (in.)	30 x 60 (1.18 x 2.36)					
Body dimensions, W x D x H: mm (in.)	40 x 36 x 72.5 (1.58 x 1.42 x 2.85)					

Complete switch	2-pole NC+NO snap action	⊖ **XCKS101**	⊖ **XCKS102**	⊖ **XCKS131**	**XCKS141**	**XCKS139**	**XCKS159**
	2-pole NC+NO break before make, slow break	⊖ **XCKS501**	⊖ **XCKS502**	⊖ **XCKS531**	**XCKS541**	**XCKS539**	**XCKS559**
Body	2-pole NC+NO snap action	⊖ **ZCKS1**	⊖ **ZCKS1**	⊖ **ZCKS1**	⊖ **ZCKS1**	⊖ **ZCKS1**	⊖ **ZCKS1**
	2-pole NC+NO break before make, slow break	⊖ **ZCKS5**	⊖ **ZCKS5**	⊖ **ZCKS5**	⊖ **ZCKS5**	⊖ **ZCKS5**	⊖ **ZCKS5**
	3-pole 2 NC+1 NO snap action	⊖ **ZCKSD39**	⊖ **ZCKSD39**	⊖ **ZCKSD39**	⊖ **ZCKSD39**	⊖ **ZCKSD39**	⊖ **ZCKSD39**
Associated head (including operator)		⊖ **ZCKD01**	⊖ **ZCKD02**	⊖ **ZCKD31**	**ZCKD41**	**ZCKD39**	**ZCKD59**
Rotary operating head only *(2)*		–	–	**ZCKD05**	**ZCKD05**	**ZCKD05**	**ZCKD05**
Operating lever for rotary head		–	–	⊖ **ZCKY31**	**ZCKY41**	**ZCKY39**	**ZCKY59**
Complete switch	Snap-action 2-pole 2X (1 NC + 1 NO) contact	–	–	–	–	–	–
	Both contacts act in each direction of actuation	–	–	–	–	–	–
	1 contact operates in each direction	–	–	–	–	–	–
Complete switch	2 C/O staggered snap action contacts	–	–	–	–	–	–
	2 x 2 pole NC+NC staggered, slow break contacts	–	–	–	–	–	–

Separate components

Adapter
Pg 13.5 to 1/2"-14 NPT

Catalog number	**DE9RA1212**

(1) For ISO M20 x 1.5 mm cable entry, add suffix **H29**. Example: XCKS161 becomes XCKS161**H29**.
For 1/2"-14 NPT order Pg 13.5 version and use with DE9RA1212 Pg 13.5 to 1/2"-14 NPT adapter.
(2) ZCKD05 uses same levers as XCKL/M series. See page 11.
(3) Depending on the application.
⊖ Positive opening operation.

Severe duty for hoisting and materials handling applications
XCKMR, XCKVR and XCR, complete switches

Types XCKMR, XCKVR and XCR, Application—hoisting, materials handling, conveying

	Square rod levers ∅ 6 mm, crossed	Square rod levers ∅ 6 mm, crossed	Square rod lever ∅ 6 mm	Large roller rod lever Ø 50 mm	Square rod levers ∅ 6 mm, crossed or T	Conveyor belt shift monitoring switches Galvanized steel operating lever	 Stainless steel operating lever
	2	1	10	10	10	0.3	0.3
	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	CE, CSA, CCC, GOST						
	IP66	IP65	IP 54			IP66	
	AC-15; A300 (Ue = 240 V, Ie = 3 A) / DC-13; Q300 (Ue = 250 V, Ie = 0.27 A)						
	3 x ISO M20 x 1.5 entries	1x ISO M20 x 1.5 entry and 2 holes for ISO M20 cable connector	1 Pg 13.5 tapped entry. For 1/2"-14 NPT conduit entry, order DE9RA1212 adapter (sold separately)				*(8)*
	61.5 (2.42)		85 x 75 (3.35 x 2.95)				105 x 70 (4.13 x 2.76)
	118 x 59 x 77 (4.65 x 2.32 x 3.03)	116 x 66 x 77 (4.57 x 2.60 x 3.03)	85 x 75 x 95 (3.35 x 2.95 x 3.74)				85 x 87 x 146 (3.35 x 3.43 x 5.75)
	–	–	–	–	–	–	–
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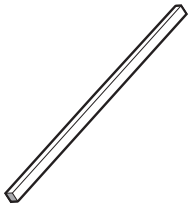
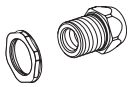
	–	–	–	–	–	–	–
	–	–	⊖ **XCRA11H2** *(4)*	⊖ **XCRA15H2**	⊖ **XCRE18H2** *(4)*	–	–
	–	–	⊖ **XCRB11H2** *(4)*	–	⊖ **XCRF17H2** *(5)*	–	–
	–	–	–	–	–	**XCRT115H2**	**XCRT315H2** *(6)*
	XCKMR54D1H29 *(4)*	**XCKVR54D1H29** *(4)(7)*	–	–	–	–	–

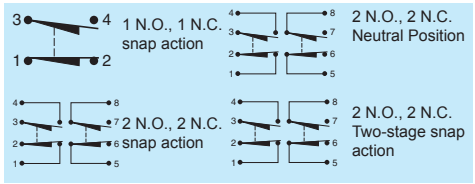
Separate components

	Rod ∅6 mm, 200 mm (7.87 in.)	Rod ∅6 mm, 200 mm (7.87 in.) with red mark	Adapter M20 x 1.5 to 1/2"-14 NPT	Plastic cable connector ISO M20	Adapter Pg 13.5 to 1/2"-14 NPT For use with XCRA/B/E/F, XCRT115, and XCRT215	Adapter For use with XCRT315. Comes with mounting nut to attach it to the switch housing, which has an untapped plain entry.
						
Catalog number	**XCRZ03**	**XCRZ03R**	**DE9RA2012**	**DE9PEM20010**	**DE9RA1212**	**DE9RA12121**

(4) Steel rods, 200 mm.
(5) Steel T rods, L = 200 mm, W = 300 mm.
(6) Polyester enclosure².
(7) Plastic enclosure.
(8) 1 Pg 13.5 unthreaded hole. DE9RA12121 conduit adapter (13.5 blind hole to 1/2"-14 NPT) included.

Square D 9007C Limit switches

Industrial Heavy Duty–9007C



9007C metal, plug-in style body, conforming to UL508

Type of operator		Top metal end-plunger	Top steel roller plunger	Rotary level arm type *(1)*	Plastic wobble stick	Metal wire cat's whisker	Side push rod plunger
Mechanical durability (millions of operating cycles) *(2)*		30					
Pretravel: mm (in.)		2 (0.08)		10°	10°	20°	2 (0.08)
Product certification		UL, CSA, CE					
Degree of protection conforming to NEMA and UL, oil-tight		NEMA Types 1, 2, 4, 6, 6P, 12, 13, and IP67 conforming to IEC 60529					
Rated operational characteristics		NEMA A600,(Ue=600V, Ie=1.2A, 240 V Ie=A3) NEMA Q600 (Ue=600V, Ie=0.1A, 250 V Ie=0.27 A, two-pole 250 V Ie=0.11 A)					
Cable entry		1/2"-14 NPT standard, optional M20 x 1.5 mm					
Mounting hole centers: mm (in.)		30 x 60 (1.18 x 2.36)					
Body dimensions, without head, W x D x H: mm (in.)		39 x 45 x 75 (1.54 x 1.77 x 2.95)					
Complete switch *(4)*	SPDT-DB Form Z NO+NC snap action	**9007C54E**	**9007C54D**	**9007C54B2**	**9007C54J**	**9007C54L**	**9007C54G**
	DPDT-DB Form ZZ 2 NO+2 NC snap action	**9007C62E**	**9007C62D**	**9007C62B2**	**9007C62J**	**9007C62L**	**9007C62G**
	SPDT-DB ISO M20 x 1.5 mm metric threads	**9007C54EM11**	**9007C54DM11**	**9007C54B2M11**	**9007C54JM11**	**9007C54LM11**	**9007C54GM11**
	DPDT-DB ISO M20 x 1.5 mm metric threads	**9007C62EM11**	**9007C62DM11**	**9007C62B2N11**	**9007C62JM11**	**9007C62LM11**	**9007C62GM11**

Industrial—9007C, Customized Assembly–Body/Contact Sub-Assemblies

9007C metal, 1 conduit/cable entry

Type of contact					
Terminology: SPDT = single pole, double throw DPDT = double pole, double throw DB = double break	SPDT-DB Form Z NO + NC snap action single pole	DPDT-DB Form ZZ 2NO + 2NC snap action two pole	DPDT-DB Form ZZ 2NO + 2NC snap action two stage	DPDT-DB Form ZZ 2NO + 2NC snap action neutral position	SPDT-DB Form Z NO + NC snap action compact body
Plug-in switch top (includes contact block)	**9007CO54**	**9007CO62**	**9007CO66**	**9007C068**	**9007CO52**
1/2"-14 NPT standard *(3)*	**9007CT54**	**9007CT62**	**9007CT62**	**9007CT62**	**9007CT52**

(1) Over 200 lever arms and roller types available, order separately.
(2) Depending on the application.
(3) For ISO M20 x 1.5 mm threads, add **M11** to the end of the part number. Example: 9007CT54 becomes 9007CT54**M11**.
(4) See the Sensors master catalog, 9006CT1007, for more assemblies.

Operating heads, complete or for customer assembly

Plunger or multi-directional heads

9007L	9007K	9007J	9007KC

9007E	9007ED	9007D	9007JKC	9007R

9007H	9007G	9007F	9007GD

Separate rotary heads and levers *(shown below are just a few examples of the over 200 rotary style operators available)*

9007MA11	9007HA1	9007FA1	9007EA1	9007FA6	9007LA19 *(5)*

9007AA1	9007LA4 *(5)*	9007KB11	9007CA11	9007MA12	9007BA3

9007A, B, C *(5)*, N, T10, T5

9007HA5	9007KA11	9007HA21	9007RA11	9007HA23	9007DA1

(5) 9007LA• style forked levers recommended for use with 9007C maintained (stay put) operating head.

Square D 9007MS/ML_ Limit switches
Miniature

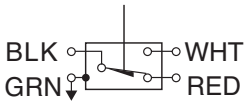
- 25 mm (0.98 in.) mounting hole centers
- 0.9 m (3.0 ft) cable, standard

General characteristics

Temperature range	–4 to +220 °F (–20 to 104 °C)
Enclosure rating	NEMA Types 1, 2, 4, 6, 6P, 12, 13, IP67
Vibration resistance	10 G (75 to 1200 Hz)
Shock resistance	35 G
Cable Entry	18 AWG SJTO

Type MS circuit form C

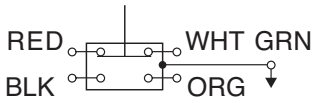
1 N.O. or 1 N.C.



Electrical Ratings / SPDT			
	Silver Contacts		Gold Contacts
Volts	**Make**	**Break**	
120 Vac	60 A	6 A	100 mA @ 125 Vac
240 Vac	30 A	3 A	
10.0 A continuous			30 mA
DC contact rating: 5 A (resistance), 28 Vdc			28 Vdc

Type ML circuit form Z

1 N.O. or 1 N.C



Electrical Ratings / SPDT-DB		
Silver Contacts		
Volts	**Make**	**Break**
120 Vac	60 A	6 A
240 Vac	30 A	3 A
10.0 A continuous		
DC contact rating: 5 A (resistance), 28 Vdc		

Contact characteristics

Rated thermal current	10 A (standard)
Rated insulation voltage	300 Vac and Vdc (standard)
Gold contact switching ratings	0.1 A, 24 Vdc; 0.24 VA

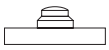
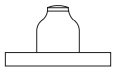
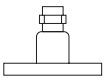
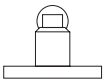
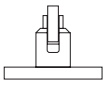
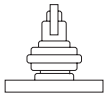
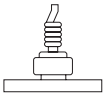
Lever arm selection

	Length		Catalog suffix 6 mm wide (0.25 in.)		Catalog suffix 13 mm wide (0.5 in.)		Catalog suffix 19 mm wide (0.75 in.)	Catalog suffix 25 mm wide (1.0 in.)
	in.	**mm**	**Nylon**	**Steel**	**Nylon**	**Steel**	**Nylon**	**Nylon**
Style 7: 18 mm (0.75 in.) diameter, nylon or steel roller	0.875	22.23	7A2N	7A2	7B2N	7B2	7F2N	7J2N
	1.375	34.93	7A3N	–	7B3N	–	7F3N	7J3N
	1.50	38.10	7A1N	7A1	7B1N	–	7F1N	7J1N
	1.75	44.45	7A7N	–	7B7N	–	7F7N	7J7N
	2.0	50.80	7A4N	–	7B4N	–	7F4N	7J4N
Style 7X: 18 mm (0.75 in.) diameter, nylon or steel roller	0.875	22.23	7XA2N	7XA2	7XB2N	7XB2	7XF2N	7XJ2N
	1.375	34.93	7XA3N	–	7XB3N	–	7XF3N	7XJ3N
	1.50	38.10	7XA1N	7XA1	7XB1N	–	7XF1N	7XJ1N
	1.75	44.45	7XA7N	–	7XB7N	–	7XF7N	7XJ7N
	2.0	50.8	7XA4N	–	7XB4N	–	7XF4N	7XJ4N

Specialty Arms and Options

Description	Length	Diameter	Width	Catalog Number
Style 7D adjustable length, metal roller	35 to 85.8 mm (1.38 to 3.38 in.)	19 mm (0.75 in.)	6.35 mm (0.25 in.)	7D
Style 7DN adjustable length, nylon roller	35 to 85.8 mm (1.38 to 3.38 in.)	19 mm (0.75 in.)	6.35 mm (0.25 in.)	7DN
Style 7E rod arm	254 mm (10.0 in.)	3.175 mm (0.125 in.)	–	7E
Style 7N nylon rod	127 mm (5.0 in.)	7.6 mm (0.3 in.)	–	7N
Style 7S spring nylon rod	152.4 mm (6.0 in.)	7.6 mm (0.3 in.)	–	7S

Rotary and plunger head descriptions

Rotary and plunger head descriptions		Standard	Bushing Mounted	Booted	Adjustable (no boot)
Top plunger					
	Operating Force/Torque	**80 oz (0.6 N)**			
Contact type	Form Z, Silver	**9007ML01S0100**	**9007ML06S0100**	**9007ML10S0100**	**9007ML09S0100**
	Form C, Silver	**9007MS01S0100**	**9007MS06S0100**	**9007MS10S0100**	**9007MS09S0100**
	Form C, Gold	**9007MS01G0100**	**9007MS06G0100**	**9007MS10G0100**	**9007MS09G0100**
Parallel roller plunger					
	Operating Force/Torque	**80 oz (0.6 N)**			
Contact type	Form Z, Silver	**9007ML02S0100**	**9007ML07S0100**	**9007ML12S0100**	
	Form C, Silver	**9007MS02S0100**	**9007MS07S0100**	**9007MS12S0100**	
	Form C, Gold	**9007MS02G0100**	**9007MS07G0100**	**9007MS12G0100**	
Cross roller plunger					
	Operating Force/Torque	**80 oz (0.6 N)**			
Contact type	Form Z, Silver	**9007ML03S0100**	**9007ML08S0100**	**9007ML13S0100**	
	Form C, Silver	**9007MS03S0100**	**9007MS08S0100**	**9007MS13S0100**	
	Form C, Gold	**9007MS03G0100**	**9007MS08G0100**	**9007MS13G0100**	
Rotary lever, CW and CCW					
	Operating Force/Torque	**48 oz-in (0.3 N•m)**			
Contact type	Form Z, Silver	**9007ML04S0100**			
	Form C, Silver	**9007MS04S0100**			
	Form C, Gold	**9007MS04G0100**			
Omni-directional, cat's whisker **(NEMA types 1, 2, 12, 13 only)**					
	Operating Force/Torque	**15 oz-in (0.1 N•m)**			
Contact type	Form Z, Silver	**9007ML05S0100**			
	Form C, Silver	**9007MS05S0100**			
	Form C, Gold	**9007MS05G0100**			

Sensors for pressure control

Electronic sensors XMLK

Electrical connection by DIN 43650A, Packard® Metri-pak or M12 connectors

For pumping applications

Pressure range (psi) *(1)*		**0 to 100**	**0 to 150**	**0 to 200**	**0 to 300**	**0 to 100**	**0 to 150**	**0 to 200**	**0 to 300**
Fluids controlled		**air, fresh water**							
Ambient air temperature		+32 to +176 °F (0 to +80 °C)							
Degree of protection (conforming to IEC 60529)		IP65							
Product certification		CE, UL, CSA							
Voltage limits		8 to 33 Vdc for 4 to 20 mA, 16.2 to 33 Vdc for 0 to 10 V							
Dimensions Ø x L: mm (in.)		36 x 67.5 (1.42 x 2.66) (not including connector)							
Fluid connection		1/4"-18 NPT (male) or G 1/4" A (male)							
Electrical connection *(2)*		Packard® Metri-Pak				M12, 3-pin male			
Type of output		4 to 20 mA, 2-wire technique, 0 to 10 V, 3-wire technique							
Analog output	4 to 20 mA	**XMLK100P2P23**	**XMLK150P2P23**	**XMLK200P2P23**	**XMLK300P2D23**	**XMLK100P2D23**	**XMLK150P2D23**	**XMLK200P2D23**	**XMLK300P2D23**
	0 to 10 V	**XMLK100P2P73**	**XMLK150P2P73**	**XMLK200P2D73**	**XMLK300P2P73**	**XMLK100P2D73**	**XMLK150P2D73**	**XMLK200P2D73**	**XMLK300P2D73**

Available in bulk packs for selling in lots. Add **TQ** suffix to the catalog number. Example: XMLK100P2D23 becomes XMLK100P2D23**TQ**.

Electronic sensors XMLP

Electrical connection by DIN 43650A, Packard® Metri-pak or M12 connectors

For industrial applications (hydraulic circuits, HVac, pumps and compressors)

Pressure range (psi) *(3) (4)*		**0 to 100**	**0 to 150**	**0 to 200**	**0 to 300**	**0 to 600**	**0 to 1000**	**0 to 2000**	**0 to 3000**
Fluids controlled		**Hydraulic oils, air, fresh water, gas, refrigeration fluids from –22 to +248 °F (–30 to +120 °C)**							
Ambient air temperature		–22 to +212 °F (–30 to +100 °C)							
Degree of protection (conforming to IEC 60529)		IP65 (DIN 43650A), IP65, IP67 and IP69K (M12 and Packard® Metri-Pak connector)							
Product certification		CE, UL, CSA							
Voltage limits		8 to 30 Vdc for 4 to 20 mA, 14 to 30 Vdc for 0 to 10 V							
Dimensions Ø x L: mm (in.)		30 x 26 (1.18 x 1.02) (not including connector)							
Fluid connection *(4)*		1/4"-18 NPT male, G1/4A male and 7/16-20UNF male or female							
Electrical connection *(5)*		DIN 43650A, Packard® Metri-Pak, and M12 4 pin connector							
Type of output		4 to 20 mA, 2-wire technique, 0 to 10 V, 3-wire technique, 0.5 to 4.5 ratiometric							
Analog output 4 to 20 mA	Packard® Metri-Pak	**XMLP100PP23**	**XMLP150PP23**	**XMLP200PP23**	**XMLP300PP23**	**XMLP600PP23**	**XMLP1K0PP23**	**XMLP2K0PP23**	**XMLP3K0PP23**
	M12 connector	**XMLP100PD23**	**XMLP150PD23**	**XMLP200PD23**	**XMLP300PD23**	**XMLP600PD23**	**XMLP1K0PD23**	**XMLP2K0PD23**	**XMLP3K0PD23**
Analog output 0 to 10 V	Packard® Metri-Pak	**XMLP100PP73**	**XMLP150PP73**	**XMLP200PP73**	**XMLP300PP73**	**XMLP600PP73**	**XMLP1K0PP73**	**XMLP2K0PP73**	**XMLP3K0PP73**
	M12 connector	**XMLP100PD73**	**XMLP150PD73**	**XMLP200PD73**	**XMLP300PD73**	**XMLP600PD73**	**XMLP1K0PD73**	**XMLP2K0PD73**	**XMLP3K0PD73**

Available in bulk packs for selling in lots. Add **Q** suffix to the catalog number. Example: XMLP100PC23 becomes XMLP100PC23**Q**.

(1) Also available with bar range.

(2) Also available with DIN 43650A shown above.

(3) Also available with bar range.

(4) Also available in 6,000 and 10,000 psi range. Insert **06KP** into the catalog number for 6,000 psi version, and **10KP** for 10,000 psi version. Example: XMLP**06KP**D23 or XMLP**10KP**D23.

(5) Replace **D** in the catalog number with **P** or **C** to indicate Packard® or DIN electrical connection. Example: XMLP100PD23 (M12 version) becomes XMLP100P**P**23 for Packard® and XMLP100P**C**23 for DIN connector.

Electronic sensors XMLG

Electrical connection by M12 connector

For industrial and vacuum applications

Pressure range: bar (psi) *(1)*		**-1 to 0 (-14.5 to 0)**	**0 to 1 (0 to 14.5)**	**0 to 6 (0 to 87)**	**0 to 10 (0 to 145)**	**0 to 16 (0 to 232)**	**0 to 25 (0 to 362.5)**	**0 to 100 (0 to 1450)**	**0 to 250 (0 to 3625)**	**0 to 400 (0 to 5800)**
Fluids controlled		**Hydraulic oils, air, fresh water, some corrosive fluids from +5 to +257 °F (–15 to +125 °C)**								
Ambient air temperature		+5 to +185 °F (–15 to +85 °C)								
Degree of protection (conforming to IEC 60529)		IP66 and IP67, NEMA 4								
Product certification		CE, UL, CSA, GOST								
Voltage limits		8 to 33 Vdc for 4 to 20 mA, 11.4 to 33 Vdc for 0 to 10 V								
Dimensions Ø x L: mm (in.)		Ø 22.8 x 58 (Ø 0.90 x 2.28) not including connector								
Fluid connection *(2)*		1/4" NPT male								
Electrical connection *(3)* *(5)*		M12 connector								
Type of output *(4)*		4 to 20 mA, 2-wire technique, 0 to 10 V, 3-wire technique								
Analog output	4 to 20 mA	**XMLGM01D23**	**XMLG001D23**	**XMLG006D23**	**XMLG010D23**	**XMLG016D23**	**XMLG025D23**	**XMLG100D23**	**XMLG250D23**	**XMLG400D23**
	0 to 10 V	**XMLGM01D73**	**XMLG001D73**	**XMLG006D73**	**XMLG010D73**	**XMLG016D73**	**XMLG025D73**	**XMLG100D73**	**XMLG250D73**	**XMLG400D73**

Available in bulk packs for selling in lots. Add **TQ** suffix to the catalog number. Example: XMLGM01D21 becomes XMLGM01D21**TQ**.

Electronic sensors XMLF

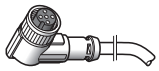
Electrical connection by M12 connector

Adjustable pressure range: bar (psi) *(6)*		**-0.08 to -1 (-1.15 to -14.5)**	**0.2 to 2.5 (2.9 to 36.25)**	**0.8 to 10 (11.6 to 145)**	**3.2 to 40 (46.4 to 580)**	**20 to 250 (290 to 3625)**	**32 to 400 (464 to 5800)**
Fluids controlled		**Hydraulic oils, air, fresh water, some corrosive fluids from +5 to +176 °F (–15 to +80 °C)**					
Ambient air temperature		DC models: –13 to +176 °F (–25 to +80 °C); AC models: –13 to +167 °F (–25 to +75 °C)					
Degree of protection (conforming to IEC 60529)		IP67					
Product certification		CE, UL, CSA, VIT-SEPRO, GOST					
Voltage limits (V)		Supply voltage 120 V = Voltage limit 102 to 132 V; Supply voltage 24 V = Voltage limit 17 to 33 V					
Dimensions H x W x D: mm (in.)		103 x 46 x 58 (4.06 x 1.81 x 2.28) not including connector					
Fluid connection *(7)*		1/4"-18 NPT female					
Electrical connection *(9)*		M12 connector					
Configurable with digital display							
Universal sensors,	4 to 20 mA	**XMLFM01D2026**	**XMLF002D2026**	**XMLF010D2026**	**XMLF040D2026**	**XMLF250D2026**	**XMLF400D2026**
solid-state output, 200 mA *(8)*	0 to 10 V	**XMLFM01D2126**	**XMLF002D2126**	**XMLF010D2126**	**XMLF040D2126**	**XMLF250D2126**	**XMLF400D2126**
Dual stage pressure switches, solid-state output, 200 mA		**XMLFM01D2036**	**XMLF002D2036**	**XMLF010D2036**	**XMLF040D2036**	**XMLF250D2036**	**XMLF400D2036**
Analog sensors	4 to 20 mA	**XMLFM01D2016**	**XMLF002D2016**	**XMLF010D2016**	**XMLF040D2016**	**XMLF250D2016**	**XMLF400D2016**
	0 to 10 V	**XMLFM01D2116**	**XMLF002D2116**	**XMLF010D2116**	**XMLF040D2116**	**XMLF250D2116**	**XMLF400D2116**
Possible differential: bar (psi)	Min. at low setting	0.03 (0.44)	0.08 (1.09)	0.3 (4.4)	1.2 (17.4)	7.5 (108.8)	12 (174)
(pressure switches)	Min. at high setting	0.03 (0.44)	0.08 (1.09)	0.3 (4.4)	1.2 (17.4)	7.5 (108.8)	12 (174)
	Max. at high setting	0.95 (13.77)	2.38 (34.51)	9.5 (137.75)	38 (551)	237.5 (3443.7)	380 (5510)

(1) For additional pressure ranges consult our web site.
(2) Also available with G 1/4A male, 1/4" NPT female, and 7/16-20 UNF male fluid entries.
(3) Also available with an integrated quick connection.
(4) Also available with pressure switch function (digital output).
(5) To specify the quick connect version, replace **D** with **Q** in the catalog number. Example: XMLG001**D**23 M12 version becomes XMLG001**Q**D23 for integrated quick connect version.
(6) Additional pressure ranges are available up to 600 bar (8700 psi). Consult our website.
(7) Also available with G 1/4A BSP female and 7/16-20 UNF female fluid entry.
(8) Programmable NPN or PNP and NO or NC.
(9) Also available with 7/8-16 UN2A on the AC version.

Suitable female plug-in connectors

PUR prewired connectors, 5 m
(without LED)
For other cable options see page 53.



Elbowed
XZCP1241L5

Straight
XZCP1141L5

Other connectors

Screw terminal
XZCC12FCM40B

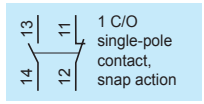
Female, DIN 43650A, elbowed
XZCC43FCP40B

OsiSense XM

Sensors for pressure control

Electromechanical pressure and vacuum switches

XMLA and B



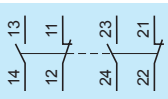
1 C/O single-pole contact, snap action

Size: bar (psi)	**-.28 to -1 (-4.06 to -14.5)**	**-0.5 to 5 (-7.25 to 72.5)**	**0.03 to 1 (0.435 to 14.5)**	**0.15 to 2.5 (2.17 to 36.25)**
Environmental characteristics	Ambient air temperature: –13 to +158 °F (–25 to +70 °C) , IP66: screw terminal models, IP65: connector models			
Rated operational characteristics (conforming to EN IEC 60947-5-1)	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)			
Product certification	CE, UL, CSA, CCC, BV, LROS, RINA, GL, DNV, VIT-SEPRO, GOST			
Fluid connection	1/4" NPT (female) (other connections possible; consult the Customer Care Center)			
Electrical connection *(1)*	Screw terminals, tapped entry for 1/2" NPT cable connector.			

Fluids controlled	Hydraulic oils, fresh water, sea water, air up to +158 °F (+70 °C)		Hydraulic oils, air up to +320 °F (+160 °C)	Hydraulic oils, fresh water, sea water, air up to +158 °F (+70 °C)
Type XMLA—fixed differential, for detection of a single threshold				
Setting range bar (psi) of upper limit (PH): pressure switches	-0.28 to -1 (-4.06 to -14.5) *(4)*	–	0.03 to 1 (.435 to 14.5)	0.15 to 2.5 (2.17 to 36.25)
Dimensions H x W x D: mm (in.)	113 x 35 x 75 (4.45 x 1.38 x 2.95)	–	162 x 110 x 110 (6.38 x 4.33 x 4.33)	158 x 55 x 77.5 (6.22 x 2.17 x 3.05)
With setting scale 1 C/O single-pole, snap action contact	**XMLAM01V2S13**	**–**	**XMLA001R2S13**	**XMLA002A2S13**
Natural differential: bar (psi) at low setting	0.24 ± 0.05 (3.48 ± 0.72) *(2)*	–	0.02 ± 0.01 (0.29 ± 0.14)	0.13 ± 0.03 (1.88 ± 0.43)
subtract from PH to give PB at high setting	0.24 ± 0.05 (3.48 ± 0.72) *(2)*	–	0.04 ± 0.01 (0.58 ± 0.14)	0.13 ± 0.03 (1.88 ± 0.43)
Type XMLB—adjustable differential, regulation between 2 thresholds				
Setting range bar (psi) of upper limit (PH): pressure switches	-0.14 to -1 (-2.03 to -14.5) *(4)*	-0.5 to 5 (-7.25 to 72.5)	0.05 to 1 (0.72 to 14.5)	0.3 to 2.5 (4.35 to 36.25)
With setting scale 1 C/O single-pole, snap action contact	**XMLBM02V2S13**	**XMLBM05A2S13**	**XMLB001R2S13**	**XMLB002A2S13**
Possible differential: bar (psi) Min. at low setting	0.13 ± 0.02 (1.88 ± 0.29) *(3)*	0.5 ± 0.05 (7.25 ± 0.72)	0.04 ± 10 mbar (0.58 ± 0.14)	0.16 -0.08 mbar +1.1 mbar (2.32 -0.01, +0.02)
subtract from PH to give PB Min. at high setting	0.13 ± 0.02 (1.88 ± 0.29) *(3)*	0.5 ± 0.05 (7.25 ± 0.72)	0.06 ± 20 mbar (0.87 ± 0.29)	0.21 ± 1.4 mbar (3.04 ± 0.02)
Max. at high setting	0.8 (11.6) *(3)*	6 (87)	0.75 (10.87)	1.75 (25.37)

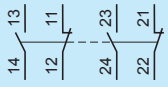
XMLC and D

XMLC

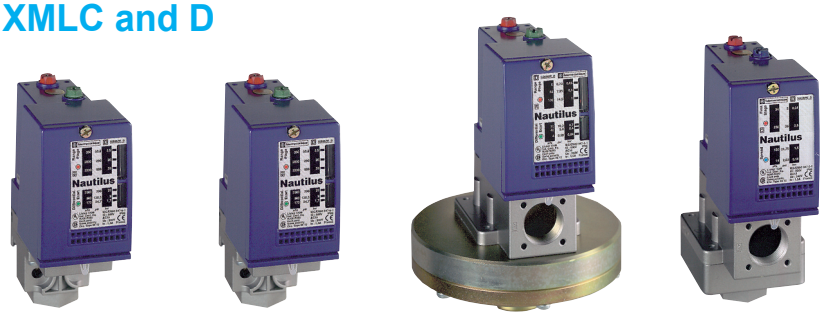


2 C/O single-pole contacts, simultaneous snap action

XMLD



2 C/O single-pole contacts, snap action (1 per stage)



Fluids controlled	Hydraulic oils, fresh water, sea water, air up to +158 °F (+70 °C)		Hydraulic oils,air up to +320 °F (+160 °C)	Hydraulic oils, fresh water, sea water, air up to +320 °F (+160 °C)
Type XMLC—adjustable differential, regulation between 2 thresholds				
Setting range bar (psi) of upper limit (PH): pressure switches	-0.14 to -1 (-2.03 to -14.5) *(4)*	-0.55 to 5 (-7.97 to 72.5)	0.05 to 1 (0.725 to 14.5)	0.3 to 2.5 (4.35 to 36.25)
Dimensions (mm) H x W x D	158 x 55 x 90	158 x 55 x 90	150 x 110 x 110	145 x 55 x 90
With setting scale 2 C/O single-pole, snap action contacts	**XMLCM02V2S13**	**XMLCM05A2S13**	**XMLC001R2S13**	**XMLC002B2S13**
Possible differential: bar (psi) Min. at low setting	0.13 ± 0.02 (1.89 ± 0.29) *(4)*	0.45 ± 0.1 (6.52 ± 1.45)	0.03 ± 0.01 (0.43 ± 0.14)	0.13 ±0.02 (1.89 ± 0.29)
subtract from PH to give PB Min. at high setting	0.14 ± 0.02 (2.03 ± 0.29) *(4)*	0.45 ± 0.1 (6.52 ± 1.45)	0.04 ± 0.03 (0.58 ± 0.43)	0.17 ± 0.03 (2.47 ± 0.43)
Max. at high setting	0.8 (11.6) *(4)*	6 (87)	0.8 (11.6)	2 (29)
Type XMLD—fixed differential, dual stage, for detection at each threshold				
Setting range bar (psi) 2nd stage switching point (PB2)	-0.12 to -1 (-1.74 to -14.5) *(4)*	–	0.12 to 1 (1.74 to 14.5)	0.34 to 2.5 (4.93 to 36.25)
1st stage switching point (PB1)	-0.10 to -0.98 (-1.45 to -14.21)	–	0.04 to 0.92 (0.58 to 13.34)	0.2 to 2.36 (2.90 to 34.22)
Spread between 2 stages (PB2 – PB1)	-0.02 to -0.88 (0.29 to 12.76)	–	0.08 to 0.73 (1.16 to 10.59)	0.14 to 1.5 (2.03 to 21.75)
Without setting scale 2 C/O single-pole, snap action contacts (1 per stage)	**XMLDM02V1S13**	**–**	**XMLD001R1S13**	**XMLD002B1S13**
Natural differential: bar (psi) at low setting	0.1 ± 0.035 (1.45 ± 0.51) *(2)*	–	0.03 ± 0.01 (0.44 ± 0.14)	0.14 ± 0.04 (2.03 ± 0.58)
subtract from PH 1/2 to give PB 1/2 at high setting	0.1 ± 0.02 (1.45 ± 0.29) *(2)*	–	0.07 ± 0.04 (1.02 ± 0.58)	0.19 ± 0.07 (2.76 ± 1.02)

(1) For electrical connection by DIN 43650A connector (IP65), replace the suffix **S13** in the catalog number with **C11**. Example: XMLB010A2**S13** becomes XMLB010A2**C11**.
(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 (psi) of lower limit (PB): vacuum switch.

	0.3 to 4 (4.35 to 58)	0.6 to 10 (8.7 to 145)	1 to 20 (14.5 to 290)	1.5 to 35 (21.75 to 507.5)	5 to 70 (72.5 to 1015)	10 to 160 (145 to 2320)	22 to 300 (319 to 4350)	30 to 500 (435 to 7250)
	conforming to IEC 947-5-1 Appendix A, EN 60 947-5-1							
	Hydraulic oils, fresh water, sea water, air up to +158 °F (+70 °C)				Hydraulic oils up to +320 °F (+160 °C)			
	0.4 to 4 (5.8 to 58)	0.6 to 10 (8.7 to 145)	1 to 20 (14.5 to 290)	1.5 to 35 (21.75 to 507.5)	5 to 70 (72.5 to 1015)	10 to 160 (145 to 2320)	20 to 300 (290 to 4350)	30 to 500 (435 to 7250)
	113 x 35 x 75 (4.45 x 1.38 x 2.95)							
	XMLA004A2S13	**XMLA010A2S13**	**XMLA020A2S13**	**XMLA035A2S13**	**XMLA070D2S13**	**XMLA160D2S13**	**XMLA300D2S13**	**XMLA500D2S13**
	0.35 ± 0.03 (5.07 ± 0.43)	0.5 ± 0.05 (7.25 ± 0.72)	0.4 ± 0.2 (5.8 ± 2.9)	1.25 ± .25 (18.12 ± 3.62)	3 ± 1 (43.5 ± 14.5)	5.5 ± 1 (79.75 ± 14.5)	16.5 ± 3 (239.25 ± 43.5)	20 ± 6 (290 ± 87)
	0.35 ± 0.03 (5.07 ± 0.43)	0.5 ± 0.05 (7.25 ± 0.72)	1 ± 0.1 (14.5 ± 1.45)	1.25 ± .25 (18.12 ± 3.62)	7.5 ± 1 (108.75 ± 14.5)	18 ± 3 (261 ± 43.5)	35 ± 6 (507.6 ± 87)	45 ± 10 (652.5 ± 145)
	0.25 to 4 (3.62 to 58)	0.7 to 10 (10.15 to 145)	1.3 to 20 (18.9 to 290)	3.5 to 35 (50.75 to 507.5)	7 to 70 (101.5 to 1015)	10 to 160 (145 to 2320)	22 to 300 (319 to 4350)	30 to 500 (435 to 7250)
	XMLB004A2S13	**XMLB010A2S13**	**XMLB020A2S13**	**XMLB035A2S13**	**XMLB070D2S13**	**XMLB160D2S13**	**XMLB300D2S13**	**XMLB500D2S13**
	0.02 ± 0.01 (2.9 ± 0.14)	0.57 ± 0.05 (8.26 ± 0.72)	1 ± 0.25 (14.5 ± 3.63)	1.7 -0.05, +0.7 (24.65 -7.25, +10.15)	4.7 -0.4, +0.7 (68.15 -5.8, +10.15)	9.3 -1.8, +1.5 (134.85 -26.1, +21.75)	19.4 -1.5, +1.7 (281.3 -21.75, +24.65)	23 -2.6, +3.8 (333.5 -37.7, +55.1)
	0.25 -0.03, +0.05 (3.62 -0.43, +0.72)	0.85 -0.1, +0.15 (12.32 -1.45, +2.17)	1.6 ± 0.25 (23.20 ± 3.63)	2.55 -0.5, +0.7 (36.97 -7.25, +10.15)	8.8 -0.6, +0.8 (127.6 -8.7, +11.6)	20.8 -1.9, +1.6 (301.6 -27.55, +23.2)	37 -1, +4 (536.5 -14.5, +58)	52.6 -14.8, +11.2 (762.7 -214.6, +162.4)
	2.4 (34.8)	7.5 (108.75)	11 (159.5)	20 (290)	50 (725)	100 (1450)	200 (2900)	300 (4350)

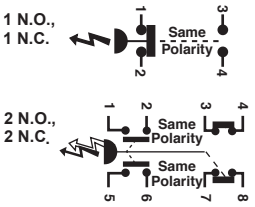
	0.3 to 4 (4.35 to 58)	0.7 to 10 (10.15 to 145)	1.3 to 20 (18.85 to 290)	3.5 to 35 (50.75 to 507.5)	7 to 70 (101.5 to 1015)	12 to 160 (174 to 2320)	22 to 300 (319 to 4350)	30 to 500 (435 to 7250)
	Hydraulic oils, fresh water, sea water, air up to +320 °F (+160 °C)				Hydraulic oils up to +320 °F (+160 °C)			
	113 x 46 x 90	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
	XMLC004B2S13	**XMLC010B2S13**	**XMLC020B2S13**	**XMLC035B2S13**	**XMLC070D2S13**	**XMLC160D2S13**	**XMLC300D2S13**	**XMLC500D2S13**
	0.15 ± 0.02 (2.18 ± 0.29)	0.45 ± 0.05 (6.53 ± 0.72)	0.7 ± 0.02 (10.15 ± 2.9)	1 ± 0.2 (14.5 ± 2.9)	4.5 ± 0.8 (65.25 ± 11.6)	9 ± 0.9 (130.5 ± 13.05)	16 ± 0.9 (232 ± 13.05)	19 ± 0.9 (275.5 ± 13.05)
	0.17 ± 0.02 (2.47 ± 0.29)	0.7 ± 0.01 (10.15 ± 1.45)	1 ± 0.2 (14.5 ± 2.9)	1.5 ± 0.5 (21.75 ± 7.25)	8.9 ± 0.8 (129.05 ± 11.6)	21 ± 0.9 (304.5 ± 13.05)	35 ± 0.9 (507.5 ± 13.05)	52 ± 0.9 (754 ± 13.05)
	2.5 (36.25)	8 (116)	11 (159.5)	22 (319)	60 (870)	110 (1590)	240 (3480)	340 (4930)
	0.40 to 4 (5.8 to 58)	1.2 to 10 (17.4 to 145)	2.14 to 20 (31.03 to 290)	4.4 to 35 (63.8 to 507.5)	9.4 to 70 (136.3 to 1015)	16.5 to 160 (239.25 to 2320)	36 to 300 (522 to 4350)	41 to 500 (594.5 to 7250)
	0.19 to 3.79 (2.76 to 54.96)	0.52 to 9.32 (7.54 to 135.14)	0.9 to 18.76 (13.05 to 272.02)	1.9 to 32.5 (27.55 to 471.25)	6.6 to 67.2 (95.7 to 974.4)	10.5 to 154 (152.25 to 2233)	25 to 289 (362.5 to 4190.5)	25 to 484 (362.5 to 7018)
	0.21 to 2.18 (3.05 to 31.61)	0.68 to 5.8 (9.86 to 84.1)	1.24 to 9.55 (17.98 to 138.48)	2.5 to 20.4 (36.25 to 295.8)	2.8 to 46 (40.6 to 667)	6 to 83 (87 to 1203.5)	11 to 189 (159.5 to 2740.5)	16 to 244 (16 to 244)
	XMLD004B1S13	**XMLD010B1S13**	**XMLD020B1S13**	**XMLD035B1S13**	**XMLD070D1S13**	**XMLD160D1S13**	**XMLD300D1S13**	**XMLD500D1S13**
	0.15 ± 0.03 (2.18 ± 0.43)	0.45 ± 0.05 (6.53 ± 0.72)	0.7 ± 0.15 (10.15 ± 2.18)	1.5 ± 0.03 (21.75 ± 4.35)	5 ± 1.5 (72.25 ± 21.75)	8.8 ± 1.5 (127.6 ± 21.75)	17 ± 2.5 (246.5 ± 36.25)	21 ± 3 (304.5 ± 43.5)
	0.19 ± 0.03 (2.76 ± 0.43)	0.6 ± 0.1 (8.7 ± 1.45)	1.3 ± 0.3 (18.85 ± 4.35)	2.6 ± 0.7 (37.7 ± 10.15)	9.5 ± 2 (137.75 ± 29)	20 ± 7 (290 ± 101.5)	42 ± 9 (609 ± 130.5)	65 ± 10 (942.5 ± 145)

Square D 9012G Electromechanical pressure switches

NEMA Type 4, 4X, 13 enclosure adjustable differential

9012GAW5

9012GCW1



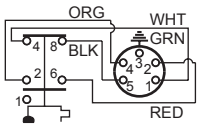
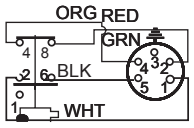
Contact Blocks

Range on decreasing pressure, psig	Adjustable differential *(1)* approximate at mid range	Maximum allowable pressure, psig	Class 9012 Type	
			SPDT	DPDT
Diaphragm actuated—Buna-N nitrile diaphragm, zinc plated steel housing				
0.2–10	.7–2	100	GAW1	GAW21
1–40	2.4–8	100	GAW2	GAW22
1.5–75	3.9–15	240	GAW4	GAW24
3–150	6.6–30	475	GAW5	GAW25
5–250	11–49	750	GAW6	GAW26
13–425	20–82	850	GBW1	GBW21
20–675	35–130	2000	GBW2	GBW22
Piston actuated—#440 stainless steel piston #303 Stainless steel housing, Viton® fluorocarbon diaphragm and O-ring, Teflon® retaining ring				
20–1000	65–200	1000	GCW1	GCW21
90–2900	187–560	15,000	GCW2	GCW22
170–5600	425–1050	20,000	GCW3	GCW23
270–9000	580–1500	25,000	GCW4	GCW24

Specifications

Fluids controlled	Air, water, hydraulic oils, gases, steam (depending on model)	
Fluid connections	1/4" NPT (female) standard, forms include G 1/4 (BSP) female, 1/4" NPTF, or 1/4"-18 NPT *(2) (3)*	
Weight (approximate)	3 lb (1.36 kg)	
Voltage limits	600 V	
Continuous current	10 A	
Electrical connections	1/2"-14 NPTF, Pg 13.5, or ISO M20. For 20 x 1.5 mm electrical conduit entry, add "**M**" after the "**W**" in the catalog number on all Types.	
Standards/ratings	CE, IEC 60957.5.1, UL 508, CSA 3211-03. UL Marine listed for use on vessels greater than 65 ft long where ignition protection is not required.	
Degree of protection	NEMA Type 4, 4X, 13 enclosures	
Temperature ratings	**Minimum**	**Maximum**
Ambient	–10 °F (–23 °C)	+185 °F (+85 °C)
Media	Diaphragm: –40 °F (–40 °C) Piston: –15 °F (–26 °C) all with form Q4	+250 °F (+120 °C)

Connection

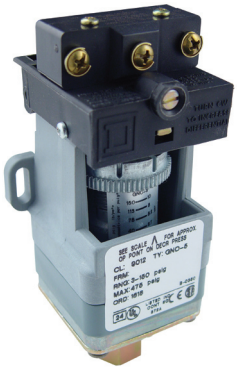
Form H10	Form H11	
		**SPDT** snap switches contain two double-break contact elements (1 N.O., 1 N.C.) that must be used on circuits of the same polarity. **DPDT** snap switches contain two electrically separated sets of contact elements allowing use on circuits of opposite polarity. Each set contains two double-break contact elements. (1 N.O., 1 N.C.) that must be used on circuits of the same polarity.

Acceptable wire sizes: 12-22 AWG **Recommended terminal clamp torque:** 7 lb-in

(1) The differential adds to the range setting and determines the operating point on rising pressure.
(2) Form M12 includes 1/4"-19 BSP pressure connection and Pg 13.5 electrical conduit entry.
(3) Other connections possible; please consult the Customer Care Center.

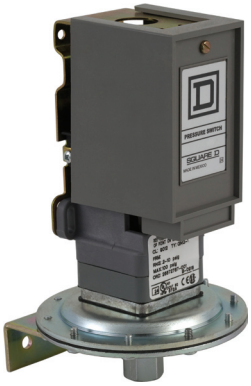
Form	Description
G17	120 Vac or Vdc neon pilot light—clear lens
G18	120 Vac or Vdc neon pilot light—red lens
G21	24 Vdc only LED—clear lens
G22	24 Vdc only LED—red lens
H3	SPDT snap switch rated 1.1 A at 125 Vdc (minimum differential doubles)
H10, H11	Prewired 5-pin male receptacle (see the connection diagram above)
M12	Pg 13.5 electrical conduit thread and 1/4"-19 BSP pressure connection (Available on 9012G•WM only)
V1	Range scale window
Y1	Special factory setting specified
Z	1/4" – 18 NPT external thread pressure connection

9012 NEMA Type 1 enclosure adjustable differential



9012GNO5

9012GQO2



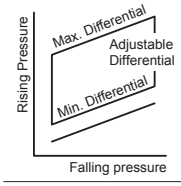
9012GNG1

Range on decreasing pressure, psig	Approximate mid range *(1)* differential (adds to the decreasing set point)	Maximum allowable pressure, psig	Class 9012 Type	
			Open Type	NEMA Type 1
Diaphragm actuated—Buna-N nitrile diaphragm, zinc plated steel housing				
0.2–10	0.6–1	100	GNO1	GNG1
1–40	1.6–5	100	GNO3	GNG3
1.5–75	2.5–6.5	240	GNO4	GNG4
3–150	4.8–13	475	GNO5	GNG5
5–250	8.5–20.5	750	GNO6	GNG6
13–425	20–41	850	GPO1	GPG1
20–675	35–66	2000	GPO2	GPG2
Piston actuated—#440 stainless steel piston #303 Stainless steel housing, Viton® fluorocarbon diaphragm and O-ring, Teflon® retaining ring				
20–1000	56–98	1000	GQO1	GQG1
90–2900	162–308	15,000	GQO2	GQG2
170–5600	355–563	20,000	GQO3	GQG3
270–9000	481–1050	25,000	GQO4	GQG4

Specifications

Fluids controlled		Air, water, hydraulic oils, gases, steam (depending on the model)	
Fluid connections		1/4" NPT (female) standard, forms include G 1/4 (BSP) female, 1/4" NPTF, or 1/2"-14 NPT *(2)*	
Weight (approximate)		**Type 1:** 2 lb (0.91 kg); **Open:** 1.7 lb (0.77 kg)	
Voltage limits		600 V	
Continuous current		10 A	
Electrical connections		1/2" conduit entry, unthreaded	
Standards/ratings		CE, IEC 60957.5.1, UL 508, CSA 3211-03	
Degree of protection		NEMA Type 1 Enclosure	
Temperature ratings		**Minimum**	**Maximum**
Ambient		–10 °F (–23 °C)	+185 °F (+85 °C)
Media	**Diaphragm**	–40 °F (–40 °C)	+250 °F (+120 °C)
	Piston	–15 °F (–26 °C)	
	All with Form Q	–15 °F (–26 °C)	

Operating curves



Contact blocks

SPDT form C contacts

Acceptable wire sizes:
12-22 AWG

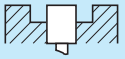
Recommended terminal clamp torque:
7 lb-in

(1) Determines the operating point on rising pressure.
(2) Other connections possible; please consult the Customer Care Center.

Available modifications for 9012G pressure switches, Open Type or NEMA Type 1 enclosure UL listed and CSA certified as industrial control equipment

Modification	Applies to	Form
Standard Buna-N nitrile diaphragm in #316 stainless steel housing	GNG, GNO, GPG, GPO, GRG, GRO, GSG, GSO. Not available on 9012GRO1, GRG1, GNO1, GNG1.	Q1
Ethylene propylene diaphragm in #316 stainless steel housing	GNG, GNO, GPG,GPO, GRG, GRO, GSG, GSO. Not available on 9012GRO1, GRG1, GNO1, GNG1.	Q3
Viton fluorocarbon diaphragm in #316 stainless steel housing	GNG, GNO, GPG, GPO, GRG, GRO, GSG, GSO. Not available on GRO1, GRG1, GNO1, GNG1	Q4
1/4-18 NPT external thread pressure connection	GNG, GNO, GRG, GRO	Z
1/2-14 NPT external thread, 1/4-18 NPTF internal thread pressure connection pressure connection. Standard actuator only.	GNG, GNO, GRG, GRO	Z16
7/16-20 UNF-2B internal thread pressure connection	GNG, GNO, GPG, GPO, GQG, GQO, GRG, GRO, GSG, GSO, GTG, GTO	Z18

Inductive proximity sensors
Cylindrical metal


Non-flush mountable


Flush mountable

			Flush standard and increased range			
			M8		M12	
Nominal sensing distance Sn			**1.5** mm	**2.5** mm	**2** mm	**4** mm
Usable sensing distance S (mm) flush mountable / non-flush mountable			0 to 1.2	0 to 2	0 to 1.6	0 to 3.2
Temperature range			–13 to +158 °F (–25 to +70 °C)			
Product certification			CE, UL, CSA, CCC (in progress), C-TICK			
Degree of protection (conforming to IEC 60529)			IP67		precabled: IP69K conforming to DIN 40050, IP68	

Sensors for DC applications

Output function	**NO**		**A**	**A**	**A**	**A**
	NC		**B**	**B**	**B**	**B**
Dimensions Ø x L Cable / Connector: mm (in.)			M8 x 33 (1.30) / M8 x 42 (1.65)		M12 x 35 (1.38) / M12 x 50 (1.97)	
3-wire	**PNP**	Cable (2 m)	**XS508B1PAL2**	**XS108B3PAL2**	**XS512B1PAL2**	**XS112B3PAL2**
		Connector M8 / M12	**XS508B1PAM8**	**XS108B3PAM8**	**XS512B1PAM12**	**XS112B3PAM12**
	NPN	Cable (2 m)	**XS508B1NAL2**	**XS108B3NAL2**	**XS512B1NAL2**	**XS112B3NAL2**
		Connector M8 / M12	**XS508B1NAM8**	**XS108B3NAM8**	**XS512B1NAM12**	**XS112B3NAM12**
2-wire	**non polarized** *(1)*	Cable (2 m)	**XS508BSCAL2**	**XS608B3CAL2**	**XS512BSDAL2**	**XS612B3DAL2**
		Connector M12	**XS508BSCAL01M12**	**XS608B3CAL01M12**	**XS512BSDAM12**	**XS612B3DAM12**
Supply voltage limits, min./max. (V) including ripple			10 to 36	10 to 36	10 to 36	10 to 36
Switching capacity, max. (mA) 3-wire / 2-wire			200 / 100	200 / 100	200 / 100	200 / 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 3-wire / 2-wire			≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / ≤ 4
Switching frequency (Hz) 3-wire / 2-wire			5000 / 4000	2500 / 3000	5000 / 4000	2500 / 2000
Dimensions Ø x L Cable / Connector: mm (in.)			M8 x 51 (2.01) / M8 x 62 (2.44)		M12 x 53 (2.09) / M12 x 62 (2.44)	
3-wire	**PNP**	Cable (2 m)	**XS508BLPAL2**	**XS608B1PAL2**	**XS512BLPAL2**	**XS612B1PAL2**
		Connector M12	**XS508BLPAM12**	**XS608B1PAM12**	**XS512BLPAM12**	**XS612B1PAM12**
	NPN	Cable (2 m)	**XS508BLNAL2**	**XS608B1NAL2**	**XS512BLNAL2**	**XS612B1NAL2**
		Connector M12	**XS508BLNAM12**	**XS608B1NAM12**	**XS512BLNAM12**	**XS612B1NAM12**
2-wire	**non polarized**	Cable (2 m)	**XS508B1DAL2**	**XS608B1DAL2**	**XS512B1DAL2**	**XS612B1DAL2**
		Connector M12	**XS508B1DAM12**	**XS608B1DAM12**	**XS512B1DAM12**	**XS612B1DAM12**
Supply voltage limits, min./max. (V) including ripple			10 to 58	10 to 58	10 to 58	10 to 58
Switching capacity, max. (mA) 3-wire / 2-wire			200 / 100	200 / 100	200 / 100	200 / 100
Overload and short-circuit protection (★) / LED output state indicator (⊗)			★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗
Residual current, open state (mA) 2-wire			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Voltage drop, closed state (V) at I nominal 3-wire / 2-wire			≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / ≤ 4
Switching frequency (Hz) 3-wire / 2-wire			5000 / 4000	2500 / 3000	5000 / 4000	2500 / 2000

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

Dimensions Ø x L Cable / Connector: mm (in.)			–	–	M12 x 53 (2.09) / M12 x 62 (2.44)	
2-wire		Cable (2 m)	**–**	**–**	**XS512B1MAL2**	**XS612B1MAL2**
		Connector 1/2"-20 UNF	**–**	**–**	**XS512B1MAU20**	**XS612B1MAU20**
Supply voltage limits, min./max. (V) including ripple			–	–	20 to 264	20 to 264
Switching capacity, max. (mA)			–	–	200	200
LED output state indicator (⊗)			–	–	⊗	⊗
Residual current, open state (mA)			–	–	≤ 0.8	≤ 0.8
Voltage drop, closed state (V) at I nominal			–	–	≤ 5.5	≤ 5.5
Switching frequency (Hz)			–	–	25 AC / 1000 DC	25 AC / 1000 DC

(1) polarized for M8 short

Accessories

Mounting for cylindrical sensors

Mounting clamp with indexing pin for cylindrical sensors.

M8	**XSZB108**
M12	**XSZB112**
M18	**XSZB118**
M30	**XSZB130**

Suitable female plug-in connectors

M8	Straight	Elbowed
Metal ring	**XZCC8FDM30S**	**XZCC8FCM30S**
M12 (4 pin)		
Metal ring	**XZCC12FDM40B**	**XZCC12FCM40B**
Plastic ring	**XZCC12FDP40B**	**XZCC12FCP40B**





	M18		M30		Non-flush increased range M12	M18	M30
	5 mm	8 mm	10 mm	15 mm	7 mm	12 mm	22 mm
	0 to 4	0 to 6.4	0 to 8	0 to 12	0 to 5.6	0 to 9.6	0 to 17.6
	–13 to +158 °F (–25 to +70 °C)				- 25 to + 70		
	CE, UL, CSA, CCC (in progress), C-TICK				CE, UL, CSA, CCC (in progress), C-TICK		
	(with connector: IP67)				precabled: IP69K conforming to DIN 40050, IP68 (with connector: IP67)		
	A B	A B	A B	A B	A B	A B	A B
	M18 x 39 (1.54) / M18 x 50 (1.97)		M30 x 43 (1.69) / M30 x 55 (2.17)		–		
	XS518B1PAL2	**XS118B3PAL2**	**XS530B1PAL2**	**XS130B3PAL2**	**–**		
	XS518B1PAM12	**XS118B3PAM12**	**XS530B1PAM12**	**XS130B3PAM12**	**–**		
	XS518B1NAL2	**XS118B3NAL2**	**XS530B1NAL2**	**XS130B3NAL2**	**–**		
	XS518B1NAM12	**XS118B3NAM12**	**XS530B1NAM12**	**XS130B3NAM12**	**–**		
	XS518BSDAL2	**XS618B3DAL2**	**XS530BSDAL2**	**XS630B3DAL2**	**–**		
	XS518BSDAM12	**XS618B3DAM12**	**XS530BSDAM12**	**XS630B3DAM12**	**–**		
	10 to 36	10 to 36	10 to 36	10 to 36	–		
	200 / 100	200 / 100	200 / 100	200 / 100	–		
	★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗	–		
	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	–		
	≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / ≤ 4	–		
	2000 / 3000	1000 / 1000	1000 / 2000	500 / 500	–		
	M18 x 62 (2.44) / M18 x 74 (2.91)		M30 x 62 (2.44)		M12 x 55 (2.17) / M12 x 65 (2.56)	M18 x 62 (2.44) / M18 x 74 (2.91)	M30 x 62 (2.44) / M30 x 74 (2.91)
	XS518BLPAL2	**XS618B1PAL2**	**XS530BLPAL2**	**XS630B1PAL2**	**XS612B4PAL2**	**XS618B4PAL2**	**XS630B4PAL2**
	XS518BLPAM12	**XS618B1PAM12**	**XS530BLPAM12**	**XS630B1PAM12**	**XS612B4PAM12**	**XS618B4PAM12**	**XS630B4PAM12**
	XS518BLNAL2	XS618B1NAL2	XS530BLNAL2	XS630B1NAL2	**XS612B4NAL2**	**XS618B4NAL2**	**XS630B4NAL2**
	XS518BLNAM12	XS618B1NAM12	XS530BLNAM12	XS630B1NAM12	**XS612B4NAM12**	**XS618B4NAM12**	**XS630B4NAM12**
	XS518B1DAL2	XS618B1DAL2	XS530B1DAL2	XS630B1DAL2	–	–	–
	XS518B1DAM12	XS618B1DAM12	XS530B1DAM12	XS630B1DAM12	–	–	–
	10 to 58	10 to 58	10 to 58	10 to 58	10 to 58	10 to 58	10 to 58
	200 / 100	200 / 100	200 / 100	200 / 100	200 / –	200 / –	200 / –
	★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗
	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	–	–	–
	≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / –	≤ 2 / –	≤ 2 / –
	2000 / 3000	1000 / 1000	1000 / 2000	500 / 500	2500 / –	1000 / –	500 / –
	M18 x 62 (2.44) / M18 x 73 (2.87)		M30 x 62 (2.44) / M30 x 73 (2.87)		–	M18 x 60 (2.36) / M18 x 72 (2.84)	M30 x 63 (2.48) / M30 x 74 (2.91)
	XS518B1MAL2	**XS618B1MAL2**	**XS530B1MAL2**	**XS630B1MAL2**	**–**	**XS618B4MAL2**	**XS630B4MAL2**
	XS518B1MAU20	**XS618B1MAU20**	**XS530B1MAU20**	**XS630B1MAU20**	**–**	**XS618B4MAU20**	**XS630B4MAU20**
	20 to 264	20 to 264	20 to 264	20 to 264	–	20 to 264	20 to 264
	300 AC / 200 DC	300 AC / 200 DC	300 AC / 200 DC	300 AC / 200 DC	–	300 AC / 200 DC	300 AC / 200 DC
	⊗	⊗	⊗	⊗	–	⊗	⊗
	≤ 0.8	≤ 0.8	≤ 0.8	≤ 0.8	–	≤ 0.8	≤ 0.8
	≤ 5.5	≤ 5.5	≤ 5.5	≤ 5.5	–	≤ 5.5	≤ 5.5
	25 AC / 1000 DC	25 AC / 1000 DC	25 AC / 500 DC	25 AC / 500 DC	–	25 AC / 1000 DC	25 AC / 300 DC

PUR prewired connectors *(1)*


Straight

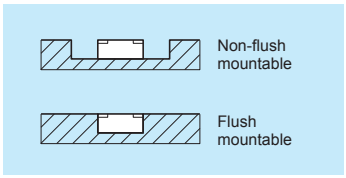

Elbowed

	M8 (3 pin)		1/2"			M12 (4 pin)			
	Straight	Elbowed		Straight	Elbowed		Straight	Elbowed	Elbowed PNP LED
2 m	**XZCP0566L2**	**XZCP0666L2**	2 m	**XZCP1865L2**	**XZCP1965L2**	2 m	**XZCP1141L2**	**XZCP1241L2**	**XZCP1340L2**
5 m	**XZCP0566L5**	**XZCP0666L5**	5 m	**XZCP1865L5**	**XZCP1965L5**	5 m	**XZCP1141L5**	**XZCP1241L5**	**XZCP1340L5**
10 m	**XZCP0566L10**	**XZCP0666L10**	10 m	**XZCP1865L10**	**XZCP1965L10**	10 m	**XZCP1141L10**	**XZCP1241L10**	**XZCP1340L10**

(1) For other cable options see page 53.

OsiSense XS — Inductive proximity sensors

Rectangular plastic



mm (in.)	Ø 8 x 22 x 8 (0.32 x 0.87 x 0.32)	Ø 15 x 32 x 8 (0.59 x 1.26 x 0.32)	Ø 26 x 26 x 13 (1.02 x 1.02 x 0.51)	Ø 40 x 40 x 15 (1.58 x 1.58 x 0.59)	Ø 80 x 80 x 26 (3.15 x 3.15 x 1.02)
Nominal sensing distance Sn	**2.5** mm	**5** mm	**10** mm	**15** mm	**40** mm
Usable sensing distance S (mm) flush mountable / non-flush mountable	0 to 2	0 to 4	0 to 8	0 to 12	0 to 32
Fine adjustment zone (mm) flush mountable / non-flush mountable	–	–	–	–	–
Suitability for flush mounting (metal environment)	flush mountable	flush mountable	flush mountable	flush mountable	flush mountable
Temperature range	–13 to +158 °F (–25 to +70 °C)				
Product certification	CE	CE, UL, CSA, C-TICK			
Degree of protection (conforming to IEC 60529)	precabled: IP68 (with connector: IP67)				

Sensors for DC applications

Connection				**Precabled, PvR (2 m)**				
2-wire (non-polarized)		**NO or NC**	programmable	–	–	–	–	–
2-wire	**non polarized**	NO function		**XS7J1A1DAL2**	**XS7F1A1DAL2**	**XS7E1A1DAL2**	**XS7C1A1DAL2**	**XS7D1A1DAL2**
		NC function		**XS7J1A1DBL2**	**XS7F1A1DBL2**	**XS7E1A1DBL2**	**XS7C1A1DBL2**	**XS7D1A1DBL2**
4-wire	**PNP**	**NO + NC**	complementary outputs	–	–	–	–	–
	NPN	**NO + NC**	complementary outputs	–	–	–	–	–
3-wire	**PNP**	**NO** function		**XS7J1A1PAL2**	**XS7F1A1PAL2**	**XS7E1A1PAL2**	**XS7C1A1PAL2**	**XS7D1A1PAL2**
		NC function		**XS7J1A1PBL2**	**XS7F1A1PBL2**	**XS7E1A1PBL2**	**XS7C1A1PBL2**	**XS7D1A1PBL2**
	NPN	**NO** function		**XS7J1A1NAL2**	**XS7F1A1NAL2**	**XS7E1A1NAL2**	**XS7C1A1NAL2**	**XS7D1A1NAL2**
		NC function		**XS7J1A1NBL2**	**XS7F1A1NBL2**	**XS7E1A1NBL2**	**XS7C1A1NBL2**	**XS7D1A1NBL2**
Connection				**M8 connector**				**M12 connector**
2-wire	**non polarized**	NO function		**XS7J1A1DAL01M8** *(1)*	**XS7F1A1DAL01M8** *(1)*	**XS7E1A1DAM8**	**XS7C1A1DAM8**	**XS7D1A1DAM12**
		NC function		**XS7J1A1DBL01M8** *(1)*	**XS7F1A1DBL01M8** *(1)*	**XS7E1A1DBM8**	**XS7C1A1DBM8**	**XS7D1A1DBM12**
3-wire	**PNP**	**NO** function		**XS7J1A1PAL01M8** *(1)*	**XS7F1A1PAL01M8** *(1)*	**XS7E1A1PAM8**	**XS7C1A1PAM8**	**XS7D1A1PAM12**
		NC function		**XS7J1A1PBL01M8** *(1)*	**XS7F1A1PBL01M8** *(1)*	**XS7E1A1PBM8**	**XS7C1A1PBM8**	**XS7D1A1PBM12**
	NPN	**NO** function		**XS7J1A1NAL01M8** *(1)*	**XS7F1A1NAL01M8** *(1)*	**XS7E1A1NAM8**	**XS7C1A1NAM8**	**XS7D1A1NAM12**
		NC function		**XS7J1A1NBL01M8** *(1)*	**XS7F1A1NBL01M8** *(1)*	**XS7E1A1NBM8**	**XS7C1A1NBM8**	**XS7D1A1NBM12**
Supply voltage limits, min./max. (V) including ripple				10 to 36	10 to 36	10 to 36	10 to 36	10 to 36
Switching capacity, max. (mA)				100	100	100	100	100
Short-circuit protect. (★) / LED output state indicator (⊗) / Power on LED (⊗)				★ / ⊗ / –	★ / ⊗ / –	★ / ⊗ / –	★ / ⊗ / –	★ / ⊗ / –
Voltage drop, closed state (V) at I nominal cable / Connector				≤ 4 / ≤ 2	≤ 4 / ≤ 2	≤ 2	≤ 2	≤ 2
Switching frequency (Hz) cable / Connector				4000 / 2000	5000 / 2000	1000	1000	100

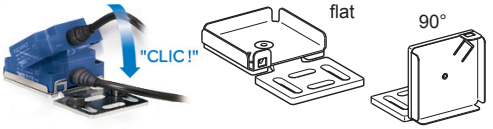
Multi-current/multi-voltage sensors for AC/DC applications

Connection								
2-wire		**AC/DC**	**NO** function	–	–	–	–	–
			NC function	–	–	–	–	–
		AC	**NO** or **NC** programmable	–	–	–	–	–
		AC/DC	**NO** or **NC** programmable	–	–	–	–	–
Connection								
2-wire		AC/DC	**NO** function	–	–	–	–	–
			NC function	–	–	–	–	–
Supply voltage limits, min./max. (V) including ripple				–	–	–	–	–
Switching capacity, max. (mA)				–	–	–	–	–
Short-circuit protect. (★) / LED output state indicator (⊗) / Power on LED (⊗)				–	–	–	–	–
Residual current, open state (mA)				–	–	–	–	–
Voltage drop, closed state (V) at I nominal				–	–	–	–	–
Switching frequency (Hz)				–	–	–	–	–

(1) M8 connector on pigtail connector (0.15 m).

Accessories

Mounting for flat sensors



	flat	90 °
8x22x8	**XSZBJ00**	**XSZBJ90**
15x32x8	**XSZBF00**	**XSZBF90**
26x26x13	**XSZBE00**	**XSZBE90**
40x40x15	**XSZBC00**	**XSZBC90**

Suitable female plug-in connectors

M8	Straight	Elbowed
Metal ring	**XZCC8FDM30S**	**XZCC8FCM30S**
M12 (4 pin)		
Metal ring	**XZCC12FDM40B**	**XZCC12FCM40B**
Plastic ring	**XZCC12FDP40B**	**XZCC12FCP40B**

Other versions: **please visit our website at** www.tesensors.us



Ø 40 x 40 x 70 (1.58 x 1.58 x 2.76)			Ø 40 x 40 x 117 (1.58 x 1.58 x 4.61)		Ø 26 x 26 x 13 (1.02 x 1.02 x 0.51)	Ø 40 x 40 x 15 (1.58 x 1.58 x 0.59)	Ø 80 x 80 x 26 (3.15 x 3.15 x 1.02)
15 mm	**20** mm	**40** mm	**20** mm	**40** mm	**15** mm	**25** mm	**60** mm
0 to 12	0 to 16	0 to 32	0 to 16	0 to 32	0 to 8 / 0 to 12	0 to 12 / 0 to 20	0 to 32 / 0 to 48
					5 to 10 / 5 to 15	8 to 15 / 8 to 25	20 to 40 / 20 to 60
flush mountable	flush mountable	non-flush mountable	flush mountable	non-flush mountable	flush mountable or non-flush mountable via teach mode		
–13 to +158 °F (–25 to +70 °C)			–13 to +158 °F (–25 to +70 °C)		–13 to +158 °F (–25 to +70 °C)		
CE, UL, CSA, CCC, C-TICK			CE, UL, CSA, CCC, C-TICK		CE, UL, CSA, CCC, C-TICK		
IP67 and IP69K			IP67 and IP69K		precabled: IP68 (with connector: IP67)		
M12 connector			**Screw terminals** *(2)*		**Precabled (2 m)**		
–	–	–	**XS8C4A1DPN12**	**XS8C4A4DPN12**	–	–	–
XS7C2A1DAM12	**XS8C2A1DAM12**	**XS8C2A4DAM12**	–	–	–	–	–
XS7C2A1DBM12	**XS8C2A1DBM12**	**XS8C2A4DBM12**	–	–	–	–	**v**
XS7C2A1PCM12	**XS8C2A1PCM12**	**XS8C2A4PCM12**	**XS8C4A1PCN12**	**XS8C4A4PCN12**	–	–	–
XS7C2A1NCM12	**XS8C2A1NCM12**	**XS8C2A4NCM12**	**XS8C4A1NCN12**	**XS8C4A4NCN12**	–	–	–
XS7C2A1PAM12	–	–	–	–	**XS8E1A1PAL2**	**XS8C1A1PAL2**	**XS8D1A1PAL2**
XS7C2A1NAM12	–	–	–	–	**XS8E1A1PBL2**	**XS8C1A1PBL2**	**XS8D1A1PBL2**
XS7C2A1PBM12	–	–	–	–	**XS8E1A1NAL2**	**XS8C1A1NAL2**	**XS8D1A1NAL2**
XS7C2A1NBM12	–	–	–	–	**XS8E1A1NBL2**	**XS8C1A1NBL2**	**XS8D1A1NBL2**
					M8 connector		**M12 connector**
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	–	–	–	–	**XS8E1A1PAM8**	**XS8C1A1PAM8**	**XS8D1A1PAM12**
	–	–	–	–	**XS8E1A1PBM8**	**XS8C1A1PBM8**	**XS8D1A1PBM12**
	–	–	–	–	**XS8E1A1NAM8**	**XS8C1A1NAM8**	**XS8D1A1NAM12**
	–	–	–	–	**XS8E1A1NBM8**	**XS8C1A1NBM8**	**XS8D1A1NBM12**
12 to 48					10 to 36	10 to 36	10 to 36
4-wire version = 200 – 2-wire version = 1.5 to 100					100	200	200
4-wire version = ★ / ⊗ / ⊗ – 2-wire version = ★ / ⊗ / –					★ / ⊗ / ⊗	★ / ⊗ / ⊗	★ / ⊗ / ⊗
4-wire version = ≤ 2 – 2-wire version = ≤ 4					≤ 2	≤ 2	≤ 2
flush version: 300 – Non-flush version: 200					2000	1000	150
1/2"- 20 UNF connector			**Screw terminals** *(2)*		**Precabled (2 m)**		
XS7C2A1MAU20	**XS8C2A1MAU20**	**XS8C2A4MAU20**	–	–	**XS8E1A1MAL2**	**XS8C1A1MAL2**	**XS8D1A1MAL2**
XS7C2A1MAU20	**XS8C2A1MBU20**	**XS8C2A4MBU20**	–	–	**XS8E1A1MBL2**	**XS8C1A1MBL2**	**XS8D1A1MBL2**
	–	–	–	–	–	–	–
	–	–	**XS8C4A1MPN12**	**XS8C4A4MPN12**	–	–	–
					1/2"-20 UNF connector		
	–	–	–	–	**XS8E1A1MAL01U20**	**XS8C1A1MAL01U20**	**XS8D1A1MAU20**
	–	–	–	–	**XS8E1A1MBL01U20**	**XS8C1A1MBL01U20**	**XS8D1A1MBU20**
20 to 264					20 to 264	20 to 264	20 to 264
AC/DC version = 300 / 200					200 AC or DC	300 AC / 200 DC	300 AC / 200 DC
– / ⊗ / –					– / ⊗ / ⊗	– / ⊗ / ⊗	– / ⊗ / ⊗
AC/DC version = ≤ 1.5					≤ 1.5	≤ 1.5	≤ 1.5
≤ 5.5					≤ 5.5	≤ 5.5	≤ 5.5
25 AC / 50 DC					2000	1000	150

(2) Sensors supplied with 1/2 NPT conduit fitting and screw terminals. Also available with M20 connector, Pg 13.5 cable entry and 7/8 mini style connector. To specify for ordering:
For M20 change suffix from **N12** to **P20**. Example: XS8C4A4MP**P20.**
For Pg 13.5 Cable entry change **N12** to **G13**. Example: XS8C4A4PC**G13.**
For 7/8 inch mini style connector change **N12** to **U78**. Example: XS7C4A1MP**U78**.

PUR prewired connectors *(3)*


Straight


Elbowed

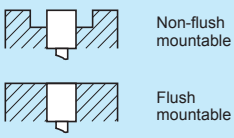
M8 (3 pin)		
	Straight	Elbowed
2 m	**XZCP0566L2**	**XZCP0666L2**
5 m	**XZCP0566L5**	**XZCP0666L5**
10 m	**XZCP0566L10**	**XZCP0666L10**

1/2"		
	Straight	Elbowed
2 m	**XZCP1865L2**	**XZCP1965L2**
5 m	**XZCP1865L5**	**XZCP1965L5**
10 m	**XZCP1865L10**	**XZCP1965L10**

M12 (4 pin)			
	Straight	Elbowed	Elbowed PNP LED
2 m	**XZCP1141L2**	**XZCP1241L2**	**XZCP1340L2**
5 m	**XZCP1141L5**	**XZCP1241L5**	**XZCP1340L5**
10 m	**XZCP1141L10**	**XZCP1241L10**	**XZCP1340L10**

(3) For other cable options see page 53.

Inductive proximity sensors
Cylindrical Plastic



	M8	M12	M18	M30
Nominal sensing distance Sn	**2.5** mm	**4** mm	**8** mm	**15** mm
Operating zone (mm)	0 to 2	0 to 3.2	0 to 6.4	0 to 12
Suitability for flush mounting (metal environment)	non-flush mountable			
Temperature range	–13 to +158 °F (–25 to +70 °C)			
Product certification	CE, UL, CSA, CCC, C-TICK			
Degree of protection (conforming to IEC 60529)	IP67	precabled: IP68 (with connector: IP67)		

Sensors for DC applications

Connection				**Precabled, PvR (2 m)**			
Dimensions Ø x L: mm (in.)				M8 x 33 (1.30)	M12 x 33 (1.30)	M18 x 33.5 (1.32)	M30 x 40.5 (1.59)
2-wire (non-polarized)		**NO or NC**	programmable	–	–	–	–
4-wire	**PNP**	**NO + NC**	complementary outputs	–	–	–	–
	NPN	**NO + NC**	complementary outputs	–	–	–	–
3-wire	**PNP**	**NO** function		**XS4P08PA340**	**XS4P12PA340**	**XS4P18PA340**	**XS4P30PA340**
		NC function		**XS4P08PB340**	**XS4P12PB340**	**XS4P18PB340**	**XS4P30PB340**
	NPN	**NO** function		**XS4P08NA340**	**XS4P12NA340**	**XS4P18NA340**	**XS4P30NA340**
		NC function		**XS4P08NB340**	**XS4P12NB340**	**XS4P18NB340**	**XS4P30NB340**
Connection				**M8 connector**	**M12 connector**		
Dimensions Ø x L: mm (in.)				M8 x 42 (1.65)	M12 x 48 (1.89)	M18 x 48 (1.89)	M30 x 50 (1.97)
3-wire	**PNP**	**NO** function		**XS4P08PA340S**	**XS4P12PA340D**	**XS4P18PA340D**	**XS4P30PA340D**
		NC function		**XS4P08PB340S**	**XS4P12PB340D**	**XS4P18PB340D**	**XS4P30PB340D**
	NPN	**NO** function		**XS4P08NA340S**	**XS4P12NA340D**	**XS4P18NA340D**	**XS4P30NA340D**
		NC function		**XS4P08NB340S**	**XS4P12NB340D**	**XS4P18NB340D**	**XS4P30NB340D**
Supply voltage limits, min./max. (V) including ripple				10 to 38	10 to 38	10 to 38	10 to 38
Switching capacity, max. (mA)				200	200	200	200
Short-circuit protect. (★) / LED output state indicator (⊗)				★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗
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				**Precabled, PvR (2 m)**			
Dimensions (mm) Ø x L				M8 x 50 (1.97)	M12 x 50 (1.97)	M18 x 60 (2.36)	M30 x 60 (2.36)
2-wire		**AC/DC**	**NO** function	**XS4P08MA230**	**XS4P12MA230**	**XS4P18MA230**	**XS4P30MA230**
not short-circuit protected *(1)*			**NC** function	**XS4P08MB230**	**XS4P12MB230**	**XS4P18MB230**	**XS4P30MB230**
		AC	**NO** or **NC** programmable	–	–	–	–
		AC/DC	**NO** or **NC** programmable	–	–	–	–
Connection				**1/2" connector**			
Dimensions (mm) Ø x L				M8 x 61 (2.40)	M12 x 61 (2.40)	M18 x 70 (2.76)	M30 x 70 (2.76)
2-wire		AC/DC	**NO** function	**XS4P08MA230K**	**XS4P12MA230K**	**XS4P18MA230K**	**XS4P30MA230K**
not short-circuit protected *(1)*			**NC** function	**XS4P08MB230K**	**XS4P12MB230K**	**XS4P18MB230K**	**XS4P30MB230K**
Supply voltage limits, min./max. (V) including ripple				20 to 264	20 to 264	20 to 264	20 to 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

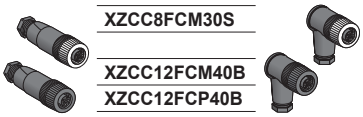
Mounting for cylindrical sensors

Mounting clamp with indexing pin for cylindrical sensors.

M4	**XSZB104**	M12	**XSZB112**
M5	**XSZB105**	M18	**XSZB118**
M6.5	**XSZB165**	M30	**XSZB130**
M8	**XSZB108**		

Suitable female plug-in connectors

M8	Straight	Elbowed
Metal ring	**XZCC8FDM30S**	**XZCC8FCM30S**
M12 (4 pin)		
Metal ring	**XZCC12FDM40B**	**XZCC12FCM40B**
Plastic ring	**XZCC12FDP40B**	**XZCC12FCP40B**





			Ø 4	M5	Ø 6.5	
Nominal sensing distance Sn			1 mm	1 mm	1.5 mm	2.5 mm
Operating zone (mm)			0 to 0.8	0 to 0.8	0 to 1.2	0 to 2
Suitability for flush mounting (metal environment)			flush mountable			
Temperature range			–13 to +158 °F (–25 to +70 °C)			
Product certification			CE, UL, CSA, CCC, C-TICK			
Degree of protection (conforming to IEC 60529)			IP67			

Sensors for DC applications

Connection			**Precabled, PvR (2 m)**			
Dimensions Ø x L: mm (in.)			Ø 4 x 29 (0.16 x 1.14)	M5 x 29 (1.14)	Ø 6.5 x 33 (0.26 x 1.30)	
3-wire	**PNP**	**NO** function	**XS1L04PA310**	**XS1N05PA310**	**XS506B1PAL2**	**XS106B3PAL2**
		NC function	**–**	**–**	**XS506B1PBL2**	**XS106B3PBL2**
	NPN	**NO** function	**XS1L04NA310**	**XS1N05NA310**	**XS506B1NAL2**	**XS106B3NAL2**
		NC function	**–**	**–**	**XS506B1NBL2**	**XS106B3NBL2**
2-wire (polarized)		**NO** function	**–**	**–**	**XS506BSCAL2**	**XS606B3CAL2**
		NC function	**–**	**–**	**XS506BSCBL2**	**XS606B3CBL2**
Connection			**M8**			
Dimensions Ø x L: mm (in.)			Ø 4 x 29 (0.16 x 1.14)	M5 x 29 (1.14)	Ø 6.5 x 33 (0.26 x 1.30)	
3-wire	**PNP**	**NO** function	**XS1L04PA310S**	**XS1N05PA311S** *(1)*	**XS506B1PAM8**	**XS106B3PAM8**
		NC function	**–**	**–**	**XS506B1PBM8**	**XS106B3PBM8**
	NPN	**NO** function	**XS1L04NA310S**	**XS1N05NA311S** *(1)*	**XS506B1NAM8**	**XS106B3NAM8**
		NC function	**–**	**–**	**XS506B1NBM8**	**XS106B3NBM8**
Connection			**M12**			
2-wire (polarized)		**NO** function	**–**	**–**	**XS506BSCAL01M12**	**XS506B3CAL01M12**
Supply voltage limits, min./max. (V) including ripple			5 to 30	5 to 30	10 to 36	
Switching capacity, max. (mA) 3-wire / 2-wire			100 / –	100 / –	200 / 100	
Short-circuit protect. (★) / LED output state indicator (⊗)			★ / ⊗	★ / ⊗	★ / ⊗	
Voltage drop, closed state (V) at I nominal 3-wire / 2-wire			≤ 2 / –	≤ 2 / –	≤ 2 / ≤ 4	
Switching frequency (Hz) 3-wire / 2-wire			5000 / –	5000 / –	5000 / 4000	2500 / 3000

(1) Stainless steel sensors, Sn = 0.8 mm.

PUR prewired connectors *(1)*


Straight


Elbowed

M8 (3 pin)		
	Straight	Elbowed
2 m	**XZCP0566L2**	**XZCP0666L2**
5 m	**XZCP0566L5**	**XZCP0666L5**
10 m	**XZCP0566L10**	**XZCP0666L10**

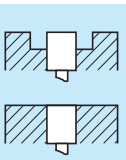
1/2"		
	Straight	Elbowed
2 m	**XZCP1865L2**	**XZCP1965L2**
5 m	**XZCP1865L5**	**XZCP1965L5**
10 m	**XZCP1865L10**	**XZCP1965L10**

M12 (4 pin)			
	Straight	Elbowed	Elbowed PNP LED
2 m	**XZCP1141L2**	**XZCP1241L2**	**XZCP1340L2**
5 m	**XZCP1141L5**	**XZCP1241L5**	**XZCP1340L5**
10 m	**XZCP1141L10**	**XZCP1241L10**	**XZCP1340L10**

(1) For other cable options see page 53.

OsiSense XS

Inductive proximity sensors
Multi-voltage with short-circuit protection



		M12	M18	M30
Sensing distance Sn	flush mountable	**2** mm	**5** mm	**10** mm
	non-flush mountable	**4** mm	**8** mm	**15** mm
Operating zone (mm)	flush mountable	0 to 1.6	0 to 4	0 to 8
	non-flush mountable	0 to 3.2	0 to 6.4	0 to 12
Suitability for flush mounting (metal environment)		flush mountable or non-flush mountable depending on model		
Case M (metal) P (plastic)		M		
Temperature range		–13 to +158 °F (–25 to +70 °C)		
Degree of protection (conforming to IEC 60529)		IP68 (with connector: IP67)		
Product certification		CE, UL, CSA, CCC, C-TICK		
Dimensions Ø x L Cable / Connector: mm (in.)		M12 x 55 (2.17) / M12 x 66 (2.60)	M18 x 60 (2.36) / M18 x 72 (2.84)	M30 x 60 (2.36) / M30 x 72 (2.84)

Sensors for DC applications

Connection						
4-wire	**PNP**	**NO + NC**	flush mountable	–	–	–
			non-flush mountable	–	–	–
	NPN	**NO + NC**	flush mountable	–	–	–
			non-flush mountable	–	–	–
	PNP+NPN	**NO/NC**	flush mountable (metal)	–	–	–
	programmable		non-flush mntbl. (metal)	–	–	–
			non-flush mntbl. (plastic)	–	–	–
Connection						
4-wire	**PNP**	**NO + NC**	flush mountable	–	–	–
			non-flush mountable	–	–	–
	NPN	**NO + NC**	flush mountable	–	–	–
			non-flush mountable	–	–	–
	PNP+NPN	**NO/NC**	flush mountable (metal)	–	–	–
	programmable		non-flush mntbl. (metal)	–	–	–
			non-flush mntbl. (plastic)	–	–	–
Supply voltage limits, min./max. (V) including ripple				–	–	–
Switching capacity, max. (mA)				–	–	–
Short-circuit protection (★) / LED output state indicator (⊗)				–	–	–
Voltage drop, closed state (V) at I nominal				–	–	–
Switching frequency (Hz)				–	–	–

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

Connection				**Precabled, PvR (2 m)**		
2-wire AC/DC	**NO** function		flush mountable	**XS1M12MA250**	**XS1M18MA250**	**XS1M30MA250**
			non-flush mountable	**XS2M12MA250**	**XS2M18MA250**	**XS2M30MA250**
	NC function		flush mountable	**XS1M12MB250**	**XS1M18MB250**	**XS1M30MB250**
			non-flush mountable	**XS2M12MB250**	**XS2M18MB250**	**XS2M30MB250**
Connection				**1/2"-20 UNF connector**		
2-wire AC/DC	**NO** function		flush mountable	**XS1M12MA250K**	**XS1M18MA250K**	**XS1M30MA250K**
			non-flush mountable	**XS2M12MA250K**	**XS2M18MA250K**	**XS2M30MA250K**
	NC function		flush mountable	**XS1M12MB250K**	**XS1M18MB250K**	**XS1M30MB250K**
			non-flush mountable	**XS2M12MB250K**	**XS2M18MB250K**	**XS2M30MB250K**
Supply voltage limits, min./max. (V) 50-60 Hz				20 to 264		
Switching capacity, max. (mA)				5 to 200	5 to 200 AC, 5 to 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)*

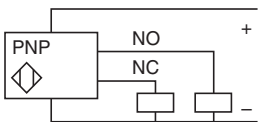
(1) 25 AC, 1000 DC for non-flush mountable Ø 30 mm.

PNP or NPN
NO + NC Complementary outputs

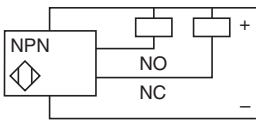
PNP + NPN outputs,
NO or NC programmable

	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 to 1.2	0 to 1.6	0 to 4	0 to 8	0 to 1.6	0 to 4	0 to 8
	0 to 2	0 to 3.2	0 to 6.4	0 to 12	0 to 3.2	0 to 6.4	0 to 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		
	–13 to +158 °F (–25 to +70 °C)				–13 to +158 °F (–25 to +70 °C)		
	IP67	IP68 (with connector: IP67)			IP68 (with connector: IP67)		
	CE, UL, CSA, CCC, C-TICK				CE, UL, CSA, CCC, C-TICK		
	M8 x 50 (1.97) / M8 x 61 (2.40)	M12 x 33 (1.30)/ M12 x 48 (1.89)	M18 x 36.5 (1.44) / M18 x 49 (1.93)	M30 x 40.5 (1.59) / M30 x 53 (2.09)	M12 x 50 (1.97) / M12 x 61 (2.40)	M18 x 60 (2.36) / M18 x 72 (2.84)	M30 x 60 (2.36) / M30 x 72 (2.84)
	Precabled, PvR (2 m)				**Precabled, PvR (2 m)**		
	XS1M08PC410	**XS1N12PC410**	**XS1N18PC410**	**XS1N30PC410**	–	–	–
	XS2M08PC410	**XS2N12PC410**	**XS2N18PC410**	**XS2N30PC410**	–	–	–
	XS1NM08NC410	**XS1N12 NC410**	**XS1N18NC410**	**XS1N30NC410**	–	–	–
	XS2M08NC410	**XS2N12 NC410**	**XS2N18NC410**	**XS2N30NC410**	–		
	–	–	–	–	**XS1M12KP340**	**XS1M18KP340**	**XS1M30KP340**
	–	–	–	–	**XS2M12KP340**	**XS2M18KP340**	**XS2M30KP340**
	–	–	–	–	**XS4P12KP340**	**XS4P18KP340**	**XS4P30KP340**
	M12 connector				**M12 connector**		
	XS1M08PC410D	**XS1N12PC410D**	**XS1N18PC410D**	**XS1N30PC410D**	–	–	–
	XS2M08PC410D	**XS2N12PC410D**	**XS2N18PC410D**	**XS2N30PC410D**	–	–	–
	XS1M08NC410D	**XS1N12 NC410D**	**XS1N18NC410D**	**XS1N30NC410D**	–	–	–
	XS2M08NC410D	**XS2N12 NC410D**	**XS2N18NC410D**	**XS2N30NC410D**	–	–	–
	–	–	–	–	**XS1M12KP340D**	**XS1M18KP340D**	**XS1M30KP340D**
	–	–	–	–	**XS2M12KP340D**	**XS2M18KP340D**	**XS2M30KP340D**
	–	–	–	–	**XS4P12KP340D**	**XS4P18KP340D**	**XS4P30KP340D**
	10 to 36				10 to 36		
	200				200		
	★ / ⊗				★ / –		
	≤ 2				≤ 2.6		
	5000	5000	2000	1000	5000	2000	1000

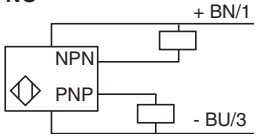
PNP



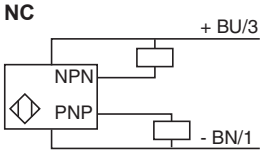
NPN



NO



NC



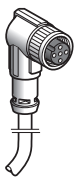
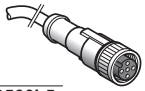
Accessories

Mounting clamps

With indexing pin for cylindrical sensors.

M8	**XSZB108**
M12	**XSZB112**
M18	**XSZB118**
M30	**XSZB130**

Suitable female plug-in connectors, including PUR prewired versions *(1)*

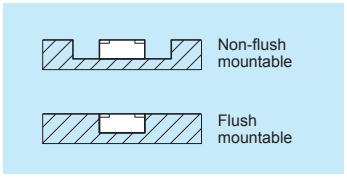
	5 m without LED	prewired, elbowed	prewired, straight	screw terminal
				
M8 (or S)		**XZCP0666L5**	**XZCP0566L5**	**XZCC8FCM30S**
M12 (or D)		**XZCP1241L5**	**XZCP1141L5**	**XZCC12FCM40B**
1/2" (or K)		**XZCP1965L5**	**XZCP1865L5**	**XZCC20FCM30B**

(1) For other cable options see page 53.

Inductive proximity sensors—Application

Rotation control

Mounted sensing distance
(for ferrous or non-ferrous materials)



	26 x 26 x 13	40 x 40 x 15	M30	M18	M30
Nominal sensing distance Sn	**10** mm	**15** mm	**10** mm	**5** mm	**10** mm
Operating zone (mm)	0 to 8	0 to 12	0 to 8	0 to 4	0 to 8
Suitability for flush mounting (metal environment)	flush mountable			flush mountable	
Case M (metal) P (plastic)	P	P	M	M	M
Temperature range	–13 to +158 °F (–25 to +70 °C)			+32 to +122 °F (0 to +50 °C)	
Degree of protection (conforming to IEC 60529)	IP67			precabled: IP68 (with connector: IP67)	
Product certification	CE, UL, CSA, CCC, C-TICK			CE, UL, CSA, CCC, C-TICK	
Dimensions Ø x L or W x H x D Cable / Connector: mm (in.)	26 x 26 x 13 (1.02 x 1.02 x 0.51)	40 x 40 x 15 (1.58 x 1.58 x 0.59)	M30 x 81 (3.19)	M18 x 60 (2.36) / M18 x 70 (2.76)	M30 x 60 (2.36)
Maximum speed of passing object (impulses/min)	48000	48000	6000 to 48000 *(1)*	–	–
Adjustable frequency range (impulses/min)	6 to 6000	6 to 6000	6 to 150 / 120 to 3000 *(1)*	–	–

Sensors for DC applications

Connection			**Precabled, PvR (2 m)**				
4-wire	**PNP/NPN NO/NC**	programmable	–	–	–	**XS1M18KPM40**	**XS1M30KPM40**
3-wire	**PNP** **NC** function	slow version	–	–	**XSAV11373**	–	–
		fast version	–	–	**XSAV12373**	–	–
	0 to 10 V output	plastic	–	–	–	–	–
	4 to 20 mA output	metal, flush mountable	–	–	–	–	–
		plastic, flush mountable	–	–	–	–	–
		plastic, non-flush mountable	–	–	–	–	–
Connection			**M8 or M12 connector**				**M12** on 0.8 m pigtail connector
4-wire	**PNP/NPN NO/NC**	programmable	–	–	–	**XS1M18KPM40D**	**XS1M30KPM40LD**
3-wire	**PNP** **NC** function		**XS9E11RPBL01M12** *(3)*	**XS9C11RPBL01M12** *(3)*	–	–	–
	0 to 10 V output		–	–	–	–	–
	4 to 20 mA output		–	–	–	–	–
Supply voltage limits, min./max. (V) including ripple			10 to 36	10 to 36	10 to 58	10 to 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)			–	–	–	–	

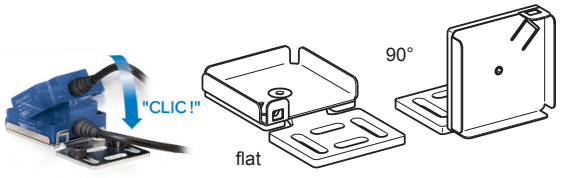
Multi-current/multi-voltage sensors for AC/DC applications

Connection			**Precabled, PvR (2 m)**				
2-wire	**AC/DC** **NC** function		**XS9E11RMBL01U20** *(5)*	**XS9C11RMBL01U20** *(5)*	–	–	–
not short-circuit protected *(2)*	**NC** function	slow version	–	–	**XSAV11801**	–	–
		fast version	–	–	**XSAV12801**	–	–
Supply voltage limits, min./max. (V) 50-60 Hz			20 to 264	20 to 264	20 to 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

Mounting

for flat sensors



	flat	90°	substitution of block type sensors XSE / XSC / XSD
8x22x8	**XSZBJ00**	**XSZBJ90**	–
15x32x8	**XSZBF00**	**XSZBF90**	**XSZBE10**
26x26x13	**XSZBE00**	**XSZBE90**	**XSZBC10**
40x40x15	**XSZBC00**	**XSZBC90**	**XSZBD10**

Mounting clamp with indexing pin for cylindrical sensors.

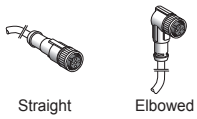
M12	**XSZB112**
M18	**XSZB118**
M30	**XSZB130**

Analog (Position control)

	8 x 32 x 8	26 x 26 x 13	40 x 40 x 15	80 x 80 x 26	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 to 4	1 to 10	2 to 15	5 to 40	M: 0.2 to 2 / P: 0.4 to 4	M: 0.5 to 5 / P: 0.8 to 8	M: 1 to 10 / P: 1.5 to 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
	–13 to +140 °F (–25 to +60 °C)	–13 to +158 °F (–25 to +70 °C)					
	precabled: IP68 (with connector: IP67)				IP67		
	CE, UL, CSA, CCC, C-TICK						
	15 x 32 x 8 (0.59 x 1.26 x 0.32)	26 x 26 x 13 (1.02 x 1.02 x 0.51)	40 x 40 x 15 (1.58 x 1.58 x 0.59)	80 x 80 x 26 (3.15 x 3.15 x 1.02)	Ø 12 x 50 (Ø 0.47 x 1.97)	Ø 18 x 50 (Ø 0.71 x 1.97)	Ø 30 x 52.5 (Ø 1.18 x 2.07)
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	XS9F111A1L2	**XS9E111A1L2**	**XS9C111A1L2**	**XS9D111A1L2**	**XS4P12AB110**	**XS4P18AB110**	**XS4P30AB110**
	–	–	–	–	**XS1M12AB120**	**XS1M18AB120**	**XS1M30AB120**
	XS9F111A2L2	**XS9E111A2L2**	**XS9C111A2L2**	**XS9D111A2L2**	–	–	–
	–	–	–	–	**XS4P12AB120**	**XS4P18AB120**	**XS4P30AB120**
	M8 or M12 connector						
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	XS9F111A1L01M8 *(4)*	**XS9E111A1L01M12** *(4)*	**XS9C111A1L01M12** *(4)*	**XS9D111A1M12**	–	–	–
	XS9F111A2L01M8 *(4)*	**XS9E111A2L01M12** *(4)*	**XS9C111A2L01M12** *(4)*	**XS9D111A2M12**	–	–	–
	10 to 36	10 to 36	10 to 36	10 to 36	10 to 38	10 to 38	10 to 38
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	± 1 V for 0 to 10 V version / ± 2 mA for 4 to 20 mA version						
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	2000	1000	1000	100	1500	500	300

Accessories

PUR prewired connectors *(6)*



Straight Elbowed

M8 (3 pin)		
	Straight	Elbowed
2 m	**XZCP0566L2**	**XZCP0666L2**
5 m	**XZCP0566L5**	**XZCP0666L5**
10 m	**XZCP0566L10**	**XZCP0666L10**

1/2"		
	Straight	Elbowed
2 m	**XZCP1865L2**	**XZCP1965L2**
5 m	**XZCP1865L5**	**XZCP1965L5**
10 m	**XZCP1865L10**	**XZCP1965L10**

M12 (4 pin)			
	Straight	Elbowed	Elbowed PNP LED
2 m	**XZCP1141L2**	**XZCP1241L2**	**XZCP1340L2**
5 m	**XZCP1141L5**	**XZCP1241L5**	**XZCP1340L5**
10 m	**XZCP1141L10**	**XZCP1241L10**	**XZCP1340L10**

Suitable female plug-in connectors

M8	Straight	Elbowed
Steel ring	**XZCC8FDM30S**	**XZCC8FCM30S**
M12 (4 pin)		
Steel ring	**XZCC12FDM40B**	**XZCC12FCM40B**
Plastic ring	**XZCC12FDP40B**	**XZCC12FCP40B**

(1) 6 to 150 and 6000 impulses/min for XSAV11373 and XSAV11801 (slow version); 120 to 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) Pigtail connector (0.15 m) with end mounted remote control incorporating M12 connector.
(4) Pigtail connector (0.15 m) with end connector.
(5) Pigtail connector (0.15 m) with end mounted remote control incorporating 1/2"-20 UNF connector.
(6) For other cable options see page 53.

Inductive proximity sensors—Application

Food and beverage processing

Type	M12	M18	Ø 18 plain	M30
Nominal sensing distance Sn	**7** mm	**12** mm	**12** mm	**22** mm
Operating zone (mm)	0 to 5.6	0 to 9.6	0 to 9.6	0 to 17.6
Suitability for flush mounting (metal environment)	non-flush mountable			
Case M (metal) *(1)*	M stainless steel 316 L			
Product certification	CE, UL, CSA, CCC, C-TICK			
Temperature range	–13 to +185 °F (–25 to +85 °C)			
Degree of protection (conforming to IEC 60529)	precabled: IP68 (with connector: IP67) and IP69K conforming to DIN 40050			

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

Connection			**Precabled, non-poisonous PVC (2 m)**			
Dimensions: mm (in.)			M12 x 55 (2.17)	M18 x 60 (2.36)	Ø 18 x 60 (2.36)	M30 x 62 (2.44)
3-wire	**PNP**	**NO** function	**XS212SAPAL2**	**XS218SAPAL2**	**XS2L2SAPAL2**	**XS230SAPAL2**
	NPN	**NO** function	**XS212SANAL2**	**XS218SANAL2**	**XS2L2SANAL2**	**XS230SANAL2**
Connection			**M12 connector**			
Dimensions: mm (in.)			M12 x 61 (2.40)	M18 x 70 (2.76)	Ø 18 x 70 (2.76)	M30 x 70 (2.76)
3-wire	**PNP**	**NO** function	**XS212SAPAM12**	**XS218SAPAM12**	**XS2L2SAPAM12**	**XS230SAPAM12**
	NPN	**NO** function	**XS212SANAM12**	**XS218SANAM12**	**XS2L2SANAM12**	**XS230SANAM12**
Supply voltage limits, min./max. (V) including ripple	10 to 36					
Switching capacity, max. (mA)	≤ 200					
Switching frequency (Hz)	2500	1000	1000	500		
Short-circuit protection (★) / LED output state indicator (⊗)	★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗		
Voltage drop, closed state (V) at I nominal	≤ 2					

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

Connection			**Precabled, non-poisonous PVC (2 m)**			
Dimensions: mm (in.)			–	M18 x 60 (2.36)	–	M30 x 62 (2.44)
2-wire *(2)*	**AC/DC**	**NO** function	**–**	**XS218SAMAL2**	**–**	**XS230SAMAL2**
Connection			**1/2"-20 UNF connector**			
Dimensions: mm (in.)			–	M18 x 72 (2.84)	–	M30 x 74 (2.91)
2-wire *(2)*	**AC/DC**	**NO** function	**–**	**XS218SAMAU20**	**–**	**XS230SAMAU20**
Supply voltage limits, min./max. (V) 50-60 HZ	–	20 to 264	–	20 to 264		
Switching capacity, max. (mA)	–	300 AC / 200 DC	–	300 AC / 200 DC		
Switching frequency (Hz)	–	25 AC / 1000 DC	–	25 AC / 300 DC		
LED output state indicator (⊗)	–	⊗	–	⊗		
Voltage drop, closed state (V) at I nominal	–	≤ 5.5	–	≤ 5.5		
Residual current, open state (mA)	–	≤ 0.8	–	≤ 0.8		

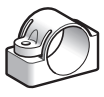
(1) Plastic range available. M12, M18, M30: To order, replace the second letter **S** in the catalog number with **A**. Example: XS212**S**APAL2 becomes XS212**A**APAL2.

(2) For these sensors without short-circuit protection, you must connect a 0.4 A quick-blow fuse in series with the load.

Accessories

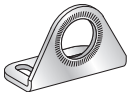
Mounting clamps

Plastic mounting centers 24.1 mm, with locking screw



for sensor	
Ø 18 plain	**XUZB2005**

Stainless steel



for sensor	
Ø 12	**XSZBS12**
Ø 18	**XUZA118**
Ø 30	**XSZBS30**

M12 prewired connector

female, 4-pin, stainless steel clamping ring

Straight connector

5 m cable	**XZCPA1141L5**

Elbowed connector

5 m cable	**XZCPA1241L5**

M12 jumper cable

male, 3-pin, stainless steel clamping ring

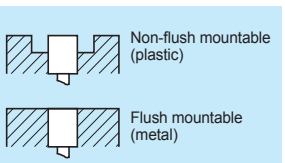
Straight connector	5 m	**XZCRA151140A5**

1/2" prewired connector

Straight	5 m	**XZCP1865L5**
Elbowed	5 m	**XZCP1965L5**

OsiSense XT

Capacitive proximity sensors
Detection of insulating materials or conductive materials



Suitability for flush mounting		M12	M18	M30	Ø 32	40 x 40 x 117
Nominal sensing distance Sn	flush mountable	2 mm	5 mm	10 mm	15 mm	15 mm
	non-flush mountable	–	8 mm	15 mm	20 mm	–
Operating zone Sa (mm) *(2)*	flush mountable	0 to 1.44	0 to 3.6	0 to 7.2	0 to 10	0 to 11
	non-flush mountable	–	0 to 5.8	0 to 11	0 to 15	–
Case M (metal) P (plastic)	flush mountable	M	M	M	M	P
	non-flush mountable	–	P	P	P	–
Product certification		CE, c ETL us (All XT1); CE, UL (All XT2)				CE, UL, CSA
Temperature range		–13 to +158 °F (–25 to +70 °C)				
Degree of protection (conforming to IEC 60529)		IP67				
Dimensions Ø x L or H x W x D: mm (in.)		M12 x 70 (2.76)	M18 x 80 (3.15)	M30 x 80 (3.15)	M32 x 80 (3.15)	117 x 40 x 40 (4.61 x 1.58 x 1.58)

Sensors for DC applications

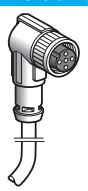
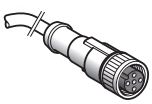
Connection				**Precabled, PVC (2 m)**				
3-wire	**PNP**	**NO** function	flush mountable	**XT112S1PAL2**	**XT118B1PAL2**	**XT130B1PAL2**	**–**	**–**
			non-flush mountable	**–**	**XT218A1PAL2**	**XT230A1PAL2**	**–**	**–**
		NO + NC functions	flush mountable	**XT112S1PCL2**	**XT118B1PCL2**	**XT130B1PCL2**	**–**	**–**
			non-flush mountable	**–**	**–**	**–**	**–**	**–**
	NPN	**NO** function	flush mountable	**XT112S1NAL2**	**XT118B1NAL2**	**XT130B1NAL2**	**–**	**–**
			non-flush mountable	**–**	**XT218A1NAL2**	**XT230A1NAL2**	**–**	**–**
Connection				**M12 connector**				**Screw terminals**
3-wire	**PNP**	**NO + NC** functions	flush mountable	**XT112S1PCM12**	**XT118B1PCM12**	**XT130B1PCM12**	**–**	**XT7C40PC440H7**
			non-flush mountable	**–**	**XT218A1PCM12**	**XT230A1PCM12**	**–**	**–**
	NPN	**NO + NC** functions	flush mountable	**–**	**–**	**–**	**–**	**XT7C40NC440H7**
Supply voltage limits, min./max. (V) including ripple				10 to 38				10 to 58
Switching capacity, max. (mA)				200				200
Short circuit-protection (★) / LED output state indicator (⊗)				★ / ⊗				★ / ⊗
Voltage drop, closed state (V) at I nominal				≤ 2				≤ 2
Switching frequency (Hz)				300	100 (XT2) / 200 (XT1)	100 (XT2) / 150 (XT1)	–	100

Multi-current/multi-voltage sensors for AC applications

Connection				**Precabled, PVC (2 m)**				
2-wire AC *(1)*		**NO** function	flush mountable	**–**	**XT118B1FAL2**	**XT130B1FAL2**	**XT132B1FAL2**	**–**
			non-flush mountable	**–**	**XT218A1FAL2**	**XT230A1FAL2**	**XT232A1FAL2**	**–**
		NO function	flush mountable	**–**	**XT118B1FBL2**	**XT130B1FBL2**	**XT132B1FBL2**	**–**
			non-flush mountable	–	–	**XT230A1FBL2**	**XT232A1FBL2**	–
Connection				**Screw terminals**				
2-wire AC *(1)*		**NO or NC** programmable	flush mountable	–	–	–	–	**XT7C40FP262H7**
Supply voltage limits, min./max. (V) 50-60 Hz				–	–	–	–	20 to 264
Switching capacity, max. (mA)				–	–			350 (2 A inrush) *(1)*
LED output state indicator (⊗) / Power on LED (⊗)				⊗ / –				
Voltage drop, closed state (V) at I nominal				–	–	–	–	≤ 5.5
Switching frequency (Hz)				–	–	–	–	25

Accessories

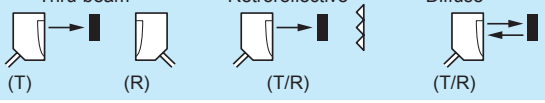
Suitable female plug-in connectors, including PUR prewired versions *(3)*

5 m without LED	prewired, elbowed	prewired, straight	screw terminal
			
M12	**XZCP1241L5**	**XZCP1141L5**	**XZCC12FCM40B**

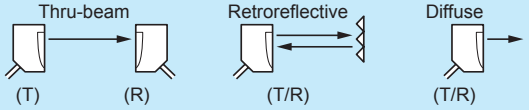
(1) For these sensors without short-circuit protection, you must connect a 0.4 A quick-blow fuse in series with the load.
(2) The operating distance depends on the object material.
(3) For other cable options see page 53.

OsiSense XU Photoelectric sensors
General purpose

NO function: Object present / Output ON



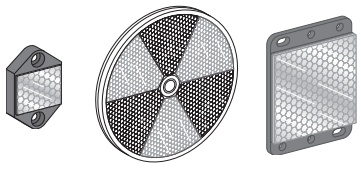
NC function: No object present / Output ON



			M18 Metal *(1)*		M18 Plastic	
			Cable	M12 connector	Cable	M12 connector
Diffuse	**Sensing distance**		**0.6 m** *(2) (3)*		**0.6 m** *(2) (3)*	
Output type	DC3 NO	PNP	**XUB5BPANL2**	**XUB5BPANM12**	**XUB5APANL2**	**XUB5APANM12**
		NPN	**XUB5BNANL2**	**XUB5BNANM12**	**XUB5ANANL2**	**XUB5ANANM12**
	AC/DC 1C/O relay		–	–	–	–
Polarized Retroreflective	**Sensing distance** *(4)*		**2 m**		**2 m**	
Output type	DC3 NO	PNP	**XUB9BPANL2**	**XUB9BPANM12**	**XUB9APANL2**	**XUB9APANM12**
		NPN	**XUB9BNANL2**	**XUB9BNANM12**	**XUB9ANANL2**	**XUB9ANANM12**
	AC/DC 1C/O relay		–	–	–	–
Retroreflective	**Sensing distance** *(4)*		**4 m**		**4 m**	
Output type	DC3 NO	PNP	**XUB1BPANL2**	**XUB1BPANM12**	**XUB1APANL2**	**XUB1APANM12**
		NPN	**XUB1BNANL2**	**XUB1BNANM12**	**XUB1ANANL2**	**XUB1ANANM12**
	AC/DC 1C/O relay		–	–	–	–
Thru-beam	**Sensing distance**		**15 m**		**15 m**	
Output type	DC3 NO	PNP	**XUB2BPANL2R**	**XUB2BPANM12R**	**XUB2APANL2R**	**XUB2APANM12R**
		NPN	**XUB2BNANL2R**	**XUB2BNANM12R**	**XUB2ANANL2R**	**XUB2ANANM12R**
	AC/DC 1C/O relay		–	–	–	–
Output function	**NO**		**A**	**A**	**A**	**A**
	NC		**B**	**B**	**B**	**B**
Thru-beam Transmitter		DC	**XUB2BKSNL2T**	**XUB2BKSNM12T**	**XUB2AKSNL2T**	**XUB2AKSNM12T**
		AC/DC	–	–	–	–
Multimode	Sensing distance		Background suppression: **0.12 m** – Diffuse: **0.4 m** Polarized retroreflective: **3 m** – Thru-beam: **20 m**			
Output type	DC3 NO/NC	PNP	**XUB0BPSNL2**	**XUB0BPSNM12**	**XUB0APSNL2**	**XUB0APSNM12**
		NPN	**XUB0BNSNL2**	**XUB0BNSNM12**	**XUB0ANSNL2**	**XUB0ANSNM12**
		PNP/NPN	–	–	–	–
	AC/DC 1C/O relay		–	–	–	–
Thru-beam Transmitter		DC	**XUB0BKSNL2T**	**XUB0BKSNM12T**	**XUB0AKSNL2T**	**XUB0AKSNM12T**
		AC/DC	–	–	–	–
Mounting			M18 x 1		M18 x 1	
Dimensions: mm (in.)			M18 x 64 (2.52) / M18 x 78 (3.07)			
Product certifications			CE, UL, CSA, C-Tick		CE, UL, CSA, C-Tick	
DC common characteristics						
Supply voltage limits, min./max. (V) including ripple			10 to 36		10 to 36	
Switching frequency (Hz)			500		500	
Common characteristics for DC versions			Switching capacity max.: 100 mA / Overload and short-circuit protection (★) / LED output state			
AC/DC common characteristics						
Supply voltage limits, min./max. (V) including ripple			–		–	
Switching frequency (Hz)			–		–	
LED output state indicator (⊗) / power on LED (⊗)			–		–	

Accessories

Reflectors



XUZC24 **XUZC80** **XUZC50**

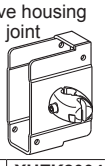
Reflectors (mm)	
Ø 21	**XUZC21**
24 x 21	**XUZC24**
11 x 33	**XUZC08**
Ø 39	**XUZC39**
Ø 80	**XUZC80**
50 x 50	**XUZC50**
100 x 100	**XUZC100**

3D mountings with ball joint

Bracket with ball joint for sensors and reflector XUZC50

for	
XUB•••	**XUZB2003**
XUM0•••	**XUZM2003**
XUK•••	**XUZK2003**
XUX•••	**XUZX2003**

Protective housing with ball joint



for	
XUK•••	**XUZK2004**
XUX •••	**XUZX2004**

M12 rod for ball joint

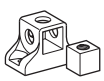
XUZ2001

(1) Brass. Also available in stainless steel. See page 45 for the food/beverage processing series.
(2) For a sensing distance 0.1 m without sensitivity adjustment, replace digit **5** with **4** in the catalog number. Example: XUB**5**BPANL2 becomes XUB**4**BPANL2.
(3) With sensitivity adjustment.
(4) With reflector XUZC50 to be ordered separately.
(5) For other cable options see page 53.

Miniature		Compact 50 x 50 mm		Compact 92 x 71 mm	
Cable	M8 connector	Cable	M12 connector	Screw terminal	M12 connector
1 m *(3)*		**1** m *(3)*		**2.1** m *(3)*	
XUM5APCNL2	**XUM5APCNM8**	**XUK5AP ANL2**	**XUK5AP ANM12**	**XUX5AP ANT16**	**XUX5AP ANM12**
XUM5ANCNL2	**XUM5ANCNM8**	**XUK5AN ANL2**	**XUK5AN ANM12**	**XUX5AN ANT16**	**XUX5AN ANM12**
–	**–**	**XUK5ARCNL2**	**–**	**XUX5ARCNT16**	**–**
5 m *(3)*		**5** m		**11** m *(3)*	
XUM9APCNL2	**XUM9APCNM8**	**XUK9AP ANL2**	**XUK9AP ANM12**	**XUX9AP ANT16**	**XUX9AP ANM12**
XUM9ANCNL2	**XUM9ANCNM8**	**XUK9AN ANL2**	**XUK9AN ANM12**	**XUX9AN ANT16**	**XUX9AN ANM12**
–	**–**	**XUK9ARCNL2**	**–**	**XUX9ARCNT16**	**–**
–		**7** m		**14** m *(3)*	
–	**–**	**XUK1AP ANL2**	**XUK1AP ANM12**	**XUX1AP ANT16**	**XUX1AP ANM12**
–	**–**	**XUK1AN ANL2**	**XUK1AN ANM12**	**XUX1AN ANT16**	**XUX1AN ANM12**
–	**–**	**XUK1ARCNL2**	**–**	**XUX1ARCNT16**	**–**
15 m *(3)*		**30** m		**40** m *(3)*	
XUM2APCNL2R	**XUM2APCNM8R**	**XUK2AP ANL2R**	**XUK2AP ANM12R**	**XUX2AP ANT16R**	**XUX2AP ANM12R**
XUM2ANCNL2R	**XUM2ANCNM8R**	**XUK2AN ANL2R**	**XUK2AN ANM12R**	**XUX2AN ANT16R**	**XUX2AN ANM12R**
–	**–**	**XUK2ARCNL2R**	**–**	**XUX2ARCNT16R**	**–**
NO or NC	**NO or NC**	**A**	**A**	**A**	**A**
		B	**B**	**B**	**B**
XUM2AKCNL2T	**XUM2AKCNM8T**	**XUK2AKSNL2T**	**XUK2AKSNM12T**	**XUX0AKSAT16T**	**XUX0AKSAM12T**
–	**–**	**XUK2ARCNL2T**	**–**	**XUX0ARCTT16T**	**–**
Background suppression: **0.1** m – Diffuse: **0.4** m Polarized Retroreflective: **3** m – Thru-beam: **10** m		Background suppression: **0.28** m – Diffuse: **0.8** m Polarized Retroreflective: **4** m – Thru-beam: **30** m		Background suppression: **1.3** m – Diffuse: **2** m Polarized Retroreflective: **11** m – Thru-beam: **40** m	
XUM0APSAL2	**XUM0APSAM8**	**–**	**–**	**–**	**–**
XUM0ANSAL2	**XUM0ANSAM8**	**–**	**–**	**–**	**–**
–	**–**	**XUK0AKSAL2**	**XUK0AKSAM12**	**XUX0AKSAT16**	**XUX0AKSAM12**
–	**–**	**XUK0ARCTL2**	**–**	**XUX0ARCTT16**	**–**
XUM0AKSAL2T	**XUM0AKSAM8T**	**XUK0AKSAL2T**	**XUK0AKSAM12T**	**XUX0AKSAT16T**	**XUX0AKSAM12T**
–	**–**	**XUK0ARCTL2T**	**–**	**XUX0ARCTT16T**	**–**
Direct mounting centers 25.5, M3 screws		Direct mounting centers 40 x 40, M4 screws		Direct mounting centers 30/38 to 40/50/74, M5 screws	
12 x 34 x 20 (0.47 x 1.34 x 0.79)		18 x 50 x 50 (0.71 x 1.97 x 1.97)		30 x 92 x 71 (1.18 x 3.62 x 2.80)	
CE, UL, CSA, C-Tick		CE, UL, CSA, CCC, C-Tick		CE, UL, CSA, CCC, C-Tick	
10 to 30		10 to 30		10 to 36	
1000		500		500	
indicator (⊗): yes / power on LED (⊗): yes					
–		20 to 264		20 to 264	
–		20		20	
–		⊗ / ⊗		⊗ / ⊗	

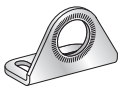
Simple mountings

Mounting support for M12 rod



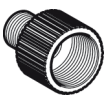
XUZ2003

Single bracket



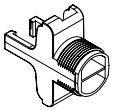
for	standard
XUB•••	**XUZA118** (stainless steel)
XUM•••	**XUZAM02**
XUK•••	**XUZA51**
XUX•••	**XUZX2000**

Conduit adapter (ISO 16 to 1/2" NPT)



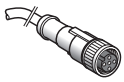
XUZX2001

Plastic Ø18 mounting adapter (XUM2, XUM5, and XUM9)



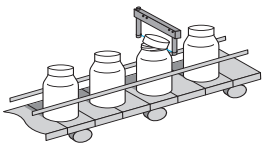
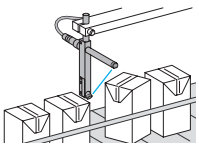
XUZASM001

Suitable female plug-in connectors, including PUR prewired versions *(5)*



5 m without LED	prewired, elbowed	prewired, straight
M8	**XZCP1041L5**	**XZCP0941L5**
M12	**XZCP1241L5**	**XZCP1141L5**

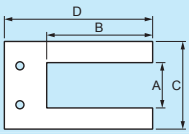
Optical forks without setting and frames

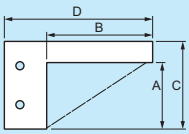



System	Thru-beam with modular red LED light source
Sensing distance	**30 to 150** mm
Minimum size of object detected: mm (in.)	0.8 (0.03)
Case M (metal)	M
Temp. range / Degree of protection (conforming to IEC 60529)	+14 to +140 °F (–10 to +60 °C) / IP65 & IP67
Product certification	CE, cULus

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

Connection				**M8 connector** 3-pin					**Precabled:** 2 m.				
Dimensions: mm (in.)					A	B	C	D		A	B	C	D
Transmitter / Receiver	3 wire	NO function	PNP	**XUVR0605P ANM8**	50 (1.97)	60 (2.36)	74 (2.91)	77.5 (3.05)	**XUVR0303PANL2**	30 (1.18)	40 (1.58)	54 (2.13)	57.5 (2.26)
			NPN	**XUVR0605N ANM8**									
		NO function	PNP	**XUVR0608P ANM8**	80 (3.15)	60 (2.36)	104 (4.09)	77.5 (3.05)					
			NPN	**XUVR0608N ANM8**									
		NO function	PNP	**XUVR1212P ANM8**	120 (4.72)	120 (4.72)	144 (5.67)	142 (5.59)					
			NPN	**XUVR1212N ANM8**									
		NO function	PNP	**XUVR1218P ANM8**	180 (7.09)	120 (4.72)	204 (8.03)	142 (5.59)					
			NPN	**XUVR1218N ANM8**									
		NO function	PNP	**XUVA0505P ANM8**	44 (1.73)	44 (1.73)	71 (2.80)	71 (2.80)					
		NO function	PNP	**XUVA0808P ANM8**	74 (2.91)	74 (2.91)	101 (3.98)	101 (3.98)					
		NO function	PNP	**XUVA1212P ANM8**	112 (4.41)	112 (4.41)	142 (5.59)	142 (5.59)					
		NO function	PNP	**XUVA1515P ANM8**	142 (5.59)	142 (5.59)	172 (6.77)	172 (6.77)					
Output function	**NO**			**A**									
	NC			**B**									
Supply voltage limits, min./max. (V) including ripple				10 to 30									
Switching capacity, max. (mA) / Switching frequency (Hz)				100/4kHz									
Overload and short-circuit protection (★) / LED output state indicator (⊗)				★ / ⊗									








System		Thru-beam with infrared emission				
Passageway dimensions: mm (in.)		30 x 30 (1.18 x 1.18)	60 x 60 (2.36 x 2.36)	200 x 120 (7.87 x 4.72)	200 x 180 (7.87 x 7.09)	200 x 250 (7.87 x 9.84)
Connection		M8 (4 pin)		M12 (4 pin)		
Minimum size of object to be detected	Ø 2 mm	**XUVF30M8**	**XUVF60M8**	–	–	–
	Ø 4 mm	–	–	**XUVF120M12**	**XUVF180M12**	**XUVF250M12**
	Ø 10 mm	–	–	**XUYFRS120S**	**XUYFRS180S**	**XUYFRS250S**
Type and output function		4-wire, PNP and NPN Output function On or Off on passage of object, programmable				
Function type		Dynamic (XUVF30M8, XUVF60M8), Dynamic or static (XUVF120M12, XUVF180M12, XUVF250M12)				
Supply voltage limits, min./max. (V) including ripple		18 to 30				
Switching capacity, max. (mA) / Switching frequency (Hz)		≤ 100 mA / 500 Hz				
Overload and short-circuit protection (★) / LED output state indicator (⊗)		★ / ⊗				

Accessories

Suitable female PUR prewired plug-in connectors *(1)*


Straight


Elbowed

M8 (3 pin) For optical forks without setting		
	Straight	Elbowed
2 m	**XZCP0566L2**	**XZCP0666L2**
5 m	**XZCP0566L5**	**XZCP0666L5**

M8 (4 pin) For optical forks and frame with setting		
	Straight	Elbowed
2 m	**XZCP0941L2**	**XZCP1041L2**
5 m	**XZCP0941L5**	**XZCP1041L5**

M12 (4 pin) For frame with setting		
	Straight	Elbowed
2 m	**XZCP1141L2**	**XZCP1241L2**
5 m	**XZCP1141L5**	**XZCP1241L5**

(1) For other cable options see page 53.

Forks with teach mode *(1)*

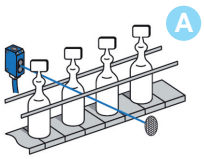
System, with teach mode	Thru-beam	Thru-beam laser
Sensing distance	**2 to 120** mm	**2 to 120** mm
Mounting: mm (in.)	(see column E below)	
Minimum size of object detected: mm (in.)	0.2 (0.008)	0.05 (0.002)
Case M (metal) / Setup assistance LEDs ⊗	M / ⊗	
Temp. range / Degree of protection (conforming to IEC 60529)	–13 to +140 °F (–25 to +60 °C) / IP65	
Product certification	CE, cULus	

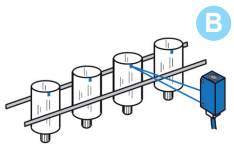
Sensors for DC applications (solid-state output: transistor)

Connection	**M8 connector** – 4 Pin											
Type of output	3-wire PNP/NPN programmable NO/NC											
Dimensions: mm (in.)		A	B	C	D	E		A	B	C	D	E
Transmitter / Receiver	**XUYFANEP40002**	2 (0.1)	42 (1.7)	32 (1.3)	57 (2.2)	14 (0.6)	**XUYFALNEP40002**	2 (0.1)	42 (1.7)	41 (1.6)	57 (2.2)	14 (0.6)
	XUYFANEP60002	2 (0.1)	59 (2.3)		77 (3.0)		**XUYFALNEP60002**	2 (0.1)	59 (2.3)		77 (3.0)	
	XUYFANEP100002	2 (0.1)	95 (3.7)		110 (4.3)		**XUYFALNEP100002**	2 (0.1)	95 (3.7)		110 (4.3)	
	XUYFANEP40005	5 (0.2)	42 (1.7)	35 (1.4)	57 (2.2)	14 (0.6)	**XUYFALNEP40005**	5 (0.2)	42 (1.7)	44 (1.7)	57 (2.2)	14 (0.6)
	XUYFANEP60005	5 (0.2)	59 (2.3)		77 (3.0)		**XUYFALNEP60005**	5 (0.2)	59 (2.3)		77 (3.0)	
	XUYFANEP100005	5 (0.2)	95 (3.7)		110 (4.3)		**XUYFALNEP100005**	5 (0.2)	95 (3.7)		110 (4.3)	
	XUYFANEP40015	15 (0.6)	42 (1.7)	45 (1.8)	57 (2.2)	27 (1.1)	**XUYFALNEP40015**	15 (0.6)	42 (1.7)	54 (2.1)	57 (2.2)	27 (1.1)
	XUYFANEP60015	15 (0.6)	59 (2.3)		77 (3.0)		**XUYFALNEP60015**	15 (0.6)	59 (2.3)		77 (3.0)	
	XUYFANEP100015	15 (0.6)	95 (3.7)		110 (4.3)		**XUYFALNEP100015**	15 (0.6)	95 (3.7)		110 (4.3)	
	XUYFANEP40030	30 (1.2)	42 (1.7)	60 (2.4)	57 (2.2)	42 (1.7)	**XUYFALNEP40030**	30 (1.2)	42 (1.7)	69 (2.7)	57 (2.2)	42 (1.7)
	XUYFANEP60030	30 (1.2)	59 (2.3)		77 (3.0)		**XUYFALNEP60030**	30 (1.2)	59 (2.3)		77 (3.0)	
	XUYFANEP100030	30 (1.2)	95 (3.7)		110 (4.3)		**XUYFALNEP100030**	30 (1.2)	95 (3.7)		110 (4.3)	
	XUYFANEP40050	50 (2.0)	42 (1.7)	80 (3.1)	57 (2.2)	40 (1.6)	**XUYFALNEP40050**	50 (2.0)	42 (1.7)	89 (3.5)	57 (2.2)	40 (1.6)
	XUYFANEP60050	50 (2.0)	59 (2.3)		77 (3.0)		**XUYFALNEP60050**	50 (2.0)	59 (2.3)		77 (3.0)	
	XUYFANEP100050	50 (2.0)	95 (3.7)		110 (4.3)		**XUYFALNEP100050**	50 (2.0)	95 (3.7)		110 (4.3)	
	XUYFANEP40080	80 (3.1)	42 (1.7)	110 (4.3)	57 (2.2)	70 (2.8)	**XUYFALNEP40080**	80 (3.1)	42 (1.7)	119 (4.7)	57 (2.2)	70 (2.8)
	XUYFANEP60080	80 (3.1)	59 (2.3)		77 (3.0)		**XUYFALNEP60080**	80 (3.1)	59 (2.3)		77 (3.0)	
	XUYFANEP100080	80 (3.1)	95 (3.7)		110 (4.3)		**XUYFALNEP100080**	80 (3.1)	95 (3.7)		110 (4.3)	
	XUYFANEP40120	120 (4.7)	42 (1.7)	150 (5.9)	57 (2.2)	110 (4.3)	**XUYFALNEP40120**	120 (4.7)	42 (1.7)	159 (6.3)	57 (2.2)	110 (4.3)
	XUYFANEP60120	120 (4.7)	59 (2.3)		77 (3.0)		**XUYFALNEP60120**	120 (4.7)	59 (2.3)		77 (3.0)	
	XUYFANEP100120	120 (4.7)	95 (3.7)		110 (4.3)		**XUYFALNEP100120**	120 (4.7)	95 (3.7)		110 (4.3)	
Supply voltage limits, min./max. (V) including ripple	10 to 30						10 to 30					
Switching capacity, max. (mA) / Switching frequency (Hz)	100/10 kHz						100/10 kHz					
Overload and short-circuit protection (★) / LED output state indicator (⊗)	★ / ⊗						★ / ⊗					

System		Ultrasonic thru-beam Special transparent labels	Thru-beam For all other opaque labels
Sensing distance	3 mm version	**XUVU06M3●SNM8** *(2)*	**XUVE04M3●SNM8** *(2)*
Switching frequency (Hz)		1500	10 000
Sensitivity adjustment		numeric potentiometer *(3)*	numeric potentiometer *(3)*
Connection		M8 (4 pin)	
Temp. range / Degree of protection (conforming to IEC 60529)		+41 to +131 °F (+5 to +55 °C) / IP65	–4 to +140 °F (–20 to +60 °C) / IP65
Product certification		CE	CE, cULus

(1) To order a fork without teach mode, delete **A** from the catalog number. Example: XUYF**A**NEP40002 becomes XUYFNEP40002.
(2) Replace ● with **P** for PNP, **N** for NPN, or **K** for PNP/NPN for output type.
(3) Remote adjustment available for P (PNP) or N (NPN) versions.





Accurate detection or very long sensing distance

Robust and compact

Application							
						A	B
System			**Thru-beam**	**Diffuse**	**Diffuse** *(1)*	**Retroreflective**	**Diffuse contrast**
Sensing distance			**100** m *(2)*	**0.07** m	**0.07** m	**10 to 1000** mm *(3)*	**40 to 150** mm
Mounting (mm)			M18 x 1	M8 x 1	Direct, 2 M3 holes, mtg. centers 20 mm	Direct, 2 M3 holes, mounting centers 24 mm	
Sensitivity adjustment			Teach mode	–	Potentiometer	Teach mode	
Case M (metal) P (plastic) / Setup assistance LEDs ⊗			P / ⊗	M / –	M / ⊗	P	
Temperature range			+14 to +113 °F (–10 to +45 °C)	–13 to +131 °F (–25 to +55 °C)	–25 to +140 °F (–25 to +60 °C)	–4 to +140 °F (–20 to +60 °C)	
Degree of protection (conforming to IEC 60529)			IP67	IP67	IP67, IP69K	IP67	
Product certification			CE, UL, CSA	CE, cULus	CE, cULus, C-TICK	CE, cULus	
Dimensions Ø x L or H x W x D: mm (in.)			Ø18 x 64 (2.52)	Ø8 x 40 (1.58)	40.8 x 16.2 x 29.5 (1.61 x 0.64 x 1.16)	35.8 x 12 x 20 (1.41 x 0.47 x 0.79)	

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

Connection		**Precabled**		**PVR (2 m)**	**PVC (2 m)**		
Transmitter / Receiver	3-wire PNP	NO function	**–**	**XUAH0515**	**XUM5BPANL2**	**–**	**–**
Connection		**Connector**	**M12**	**M8** 4-pin			
Transmitter / Receiver	3-wire PNP	NO function	**–**	**XUAH0515S**	**–**	**–**	**–**
	3-wire PNP	programmable NO / NC	**XUBLAPCNM12**	**–**	**–**	**XUYBCO929LSP**	**XUYPCCO929LSP**
	3-wire NPN	programmable NO / NC	**XUBLANCNM12**	**–**	**–**	**–**	**–**
Supply voltage limits, min./max. (V) including ripple			10 to 30	10 to 30	10 to 30	10 to 30	10 to 30
Switching capacity, max. (mA) / Switching frequency (Hz)			100 / 1500	100 / 700	100 / 1000	100 / 1000	100 / 1000
Overload and short-circuit protection (★) / LED output state indicator (⊗)			★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗

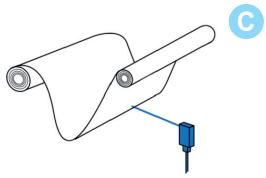
Application						
System			**Retroreflective polarized**	**Thru-beam**	**Back ground suppression**	**Diffuse**
Sensing distance			**12** m *(5)*	**25** m	**0.8** m	**1.2** m
Mounting (mm)			2 x Ø 4.3 holes / mounting centers 30			
Sensitivity adjustment			Teach mode	Teach mode	potentiometer	Teach mode
Case P (plastic) / Setup assistance LEDs ⊗			P / ⊗			
Temperature range / Degree of protection (conforming to IEC 60529)			–4 to +140 °F (–20 to +60 °C) / IP67 & IP69K			
Product certification			CE, Ecolab			
Dimensions H x W x D: mm (in.)			50 x 50 X 23 (1.97 x 1.97 x 0.91)			

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

Connection			**M12 connector** – 4 pin			
	PNP	**NO** function	–	–	–	–
	NPN	**NO** function	–	–	–	–
	PNP	programmable **NO / NC**	**XUK9LAPSMM12** *(4)*	**XUK2LAPSMM12R** *(4)*	**XUK8LAPPNM12** *(4)*	**XUK5LAPSMM12** *(4)*
Transmitter			–	**XUK2LAKSMM12T** *(4)*	–	–
Supply voltage limits, min./max. (V) including ripple			12 to 30			
Switching capacity, max. (mA) / Switching frequency (Hz)			100 / ≤ 2000	100 / ≤ 3500	100 / ≤ 1000	100 / ≤ 600
Overload and short-circuit protection (★) / LED output state indicator (⊗)			★ / ⊗			

(1) Retroreflective and thru-beam systems also available.
(2) or min. size of object: 0.2 mm.
(3) With specific reflector XUY1111, format 50 x 50 mm. To be ordered separately.
(4) Mounting bracket: XUZA51S to be ordered separately.
(5) With reflector XUZC50HP to be ordered separately.

Materials handling series—Conveying
Analog output



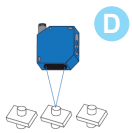
Analog output
Position control

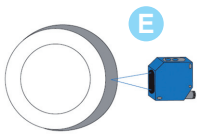
High access
gain for resistance
to accumulation of dirt

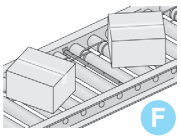
Application	C			C	
System	**Diffuse**	**Retroreflective**	**Diffuse**	**Diffuse**	**Thru-beam**
Sensing distance	**0.20 to 0.80** m	**0.20 to 30** m *(1)*	**0.20 to 6** m *(2)*	**0.05 to 0.40** m	**50** m
Mounting (mm)	mtg ctrs: 30 – 11P cable connector	3 holes 5.8 mm		M18 x 1	M18 x 1
Sensitivity adjustment	–	Teach mode		Potentiometer	Potentiometer
Case M (metal) P (plastic) / Setup assistance LEDs ⊗	P / ⊗	P / ⊗		M / ⊗	M / ⊗
Temperature range / Degree of protection (conforming to IEC 60529)	–25 to +140 °F (–25 to +60 °C) / IP67	–4 to +122 °F (–20 to +50 °C) / IP67		–13 to +131 °F (–25 to +55 °C) / IP67	
Product certification	CE, UL, CSA	CE, cULus		CE, UL, CSA	CE, UL, CSA, C-TICK
Dimensions Ø x L or H x W x D: mm (in.)	86 x 27 x 83 (3.39 x 1.06 x 3.27)	93 x 42 x 95 (3.66 x 1.65 x 3.74)		M18 x 95 (3.74)	

Sensors for DC applications

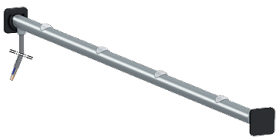
Connection		Screw terminals	M12 connector – 5 pins		M12 connector	M12 connector
Transmitter / Receiver	analog 4-20 mA / 0-10 V	**XUJK803538** *(3)*	–	–	–	–
	analog 4-20 mA	–	–	–	**XU5M18AB20D**	–
	analog 4-20 mA + 1 PNP	–	–	–	–	**XU2M18AP20D** *(2)*
	analog 4-20 mA + 2 PNP	–	**XUE1AA2NM12**	**XUE5AA2NM12**	–	–
Supply voltage limits, min./max. (V) including ripple		20 to 30	18 to 30		10 to 30	10 to 30
Switching capacity, max. (mA) / Switching frequency (Hz)		max: 20, min: 4 / 10000	100 / 38 (fast mode), 16 (slow mode)		max: 20, min: 4 / 20	100 / 30
Overload and short-circuit protection (★) / LED output state indicator (⊗)		★ / ⊗	★ / ⊗		★ / ⊗	★ / ⊗







Laser
class II



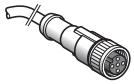
Application	D	E	F
System	**Diffuse, analog output**		**Diffuse**
	0-10 V	**4-20 mA**	
Sensing distance	**40 to 60** mm	**80 to 300** mm	**0 to 100** mm
Minimum size of object	1 mm	1.5 x 3.5 mm	85 mm
Mounting (mm)	direct: 3 M4 holes, mounting centers 40 mm		direct on conveyor with specific mounting parts
Sensitivity adjustment	Potentiometer		No
Case P (plastic) / Setup assistance LEDs ⊗	P / ⊗		Aluminium tube / x
Temperature range	+32 to +113 °F (0 to + 45 °C)		–13 to +131 °F (–25 to +55 °C)
Product certification	CE, cULus		CE, UL
Dimensions H x W x D: mm (in.)	50 x 17 x 50 (1.97 x 0.67 x 1.97)		Tube Ø 12, variable length from 200 to 900 mm (7.87 to 35.43 in.)

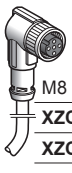
Sensors for DC applications (solid-state output: transistor)

Connection		M12 connector	M12 connector	Remote M12 connector
Transmitter / Receiver	0 to 10 V	**XUYPCO925L1ANSP**	**XUYPCO925L3ANSP**	**XUY415N4HL03M12**
Supply voltage limits, min./max (V) including ripple		18 to 28		18 to 30
Switching capacity, max.		3 mA / 0 to 10 V analog output	3 mA / 4 to 20 mA analog output	100 mA
Switching frequency (Hz)		40		1000
Overload and short-circuit protection (★) / LED output state indicator (⊗)		★ / ⊗		★ / ⊗

Accessories

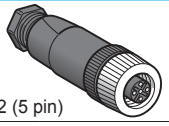
Suitable female PUR prewired plug-in connectors *(4)*





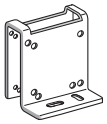
	M8 straight	M12 straight	M8 elbowed	M12 elbowed
2 m	**XZCP0941L2**	**XZCP1141L2**	**XZCP1041L2**	**XZCP1241L2**
5 m	**XZCP0941L5**	**XZCP1141L5**	**XZCP1041L5**	**XZCP1241L5**

Female connectors



	M12 (5 pin)
straight	**XZCC12FCM50B**
elbowed	**XZCC12FDM50B**

Mounting for XUYPCO925

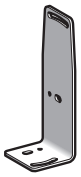


With protective cover
XUY 9251-DF525567

Simple
XUY 925-DF525568

Mounting for XUE

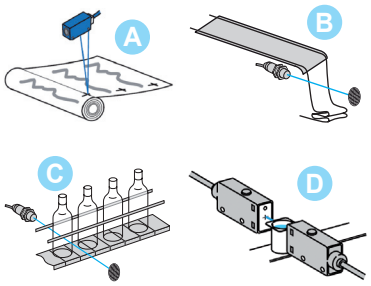
For compact
XUZA618



(1) With reflector XUZC250 to be ordered separately.
(2) On white and gray object 0.2 to 6 m, on black object 0.2 to 2.5 m.
(3) With 3-wire PNP output.
(4) For other cable options see page 53.

Photoelectric sensors—Application

Packaging series



A Contrast sensors — Color sensors — D Detection of aqueous liquids

Application	A		D
System	**Diffuse** (with teach mode)	**Diffuse** (with teach mode)	**Diffuse**	**Thru-beam infrared**
Sensing distance	**19** mm	**9** mm *(2)*	**0.02** m	**0.2** m *(1)*
Mounting (mm)	direct: mounting centers 40 x 40	direct: 21 x 28, M5 screws	direct: mounting centers 40x40	direct: mounting centers 20
Sensitivity adjustment	Teach button	Teach button	Teach button	Potentiometer
Case M (metal) P (plastic) / Setup assistance LEDs ⊗	P / ⊗	M / ⊗	P / ⊗	P / ⊗
Temperature range / Degree of protection (conforming to IEC 60529)	+14 to +131 °F (–10 to +55 °C) / IP65	+14 to +131 °F (–10 to +55 °C) / IP67	+14 to +131 °F (–10 to +55 °C) / IP65	+32 to +104 °F (0 to +40 °C) / IP65
Product certification	CE, cULus	CE	CE, cULus	CE
Dimensions (mm) Ø x L or H x W x D	50 x 15 x 50 (1.97 x 0.59 x 1.97)	96 x 31 x 64 (3.78 x 1.22 x 2.52)	50 x 25 x 50 (1.97 x 0.98 x 1.97)	47 x 13 x 33 (1.85 x 0.51 x 1.30)

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

Connection			**M12 connector**	**M12 connector**	**M12 connector** – 8 pin	**Precabled (2 m)**
Transmitter / Receiver	3-wire PNP	NO function	**XUKR1PSMM12**	**–**	**XUKC1PSMM12**	**–**
	3-wire NPN	NO function	**XUKR1NSMM12**	**–**	**XUKC1NSMM12**	**–**
	3-wire PNP / NPN	programmable NO / NC	**–**	**XURK1KSMM12**	**–**	**XUMW1KSNL2**
Supply voltage limits, min./max. (V) including ripple			10 to 30	10 to 30	10 to 30	10.8 to 26.4
Switching capacity, max. (mA) / Switching frequency (Hz)			100 / 5000	200 / 10000	100 / 1500	100 / 1000

Luminescence sensors — Detection of transparent materials

Application			B C	B C	B C
System			**Diffuse** (manual)	**Retroreflective** (potentiometer)	**Retroreflective** (with teach mode) (50 x 50 reflector included)	
Sensing distance			**0.02 to 0.08** m	**0.1 to 2** m	**0 to 1.4** m *(4)*	**1.5** m
Mounting (mm)			M18 x 1	M3 holes, mounting centers 24	M18 x 1	direct: mounting centers 40 x 40
Sensitivity adjustment			Potentiometer	Potentiometer	Teach button	
Case M (metal) P (plastic) / Setup assistance LEDs ⊗			M / ⊗	P / ⊗	P / ⊗	
Temperature range / Degree of protection (conforming to IEC 60529)			–13 to +131 °F (–25 to +55 °C) / IP67		+32 to +131 °F (0 to +55 °C) / IP67	–13 to +131 °F (–25 to +55 °C) / IP65
Product certification			CE, CSA, UL	CE, cURus	CE, UL, CSA, C-TICK	
Dimensions Ø x L or H x W x D: mm (in.)			Ø 18 x 95 (3.74)	33 x 20 x 11 (1.30 x 0.79 x 0.43)	Ø 18 x 64 (2.52)	50 x 18 x 50 (1.97 x 0.71 x 1.97)

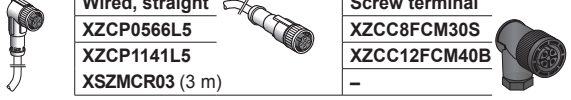
Sensors for DC applications (solid-state output: transistor)

Connection			**Precabled, PVC** (2 m)			
Transmitter / Receiver	3-wire PNP	programmable NO / NC	–	**XUMTAPCNL2**	**XUBTAPSNL2** *(5)*	–
	3-wire NPN	programmable NO / NC	–	**XUMTANCNL2**	**XUBTANSNL2** *(5)*	–
	3-wire PNP / NPN	programmable NO / NC	–	–	–	**XUKT1KSML2**
Connection			**M12 connector**	**M8 connector**	**M12 connector**	**M12 connector**
Transmitter / Receiver	3-wire PNP	**NO** function	**XU5M18U1D**	–	–	–
	3-wire PNP	programmable NO / NC	–	**XUMTAPCNM8** *(3)*	**XUBTAPSNM12** *(5)*	–
	3-wire NPN	programmable NO / NC	–	**XUMTANCNM8** *(3)*	**XUBTANSNM12** *(5)*	–
	3-wire PNP / NPN	programmable NO / NC	–	–	–	**XUKT1KSMM12**
Supply voltage limits, min./max. (V) including ripple			10 to 30	10 to 30	10 to 32	10 to 30
Switching capacity, max. (mA) / Switching frequency (Hz)			100 / 1000	100 / 1000	100 / 1000	100 / 1500

Accessories

Suitable female plug-in connectors, including PUR prewired versions *(6)*

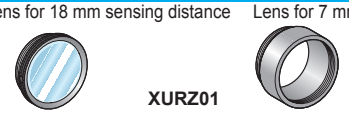
	Wired, elbowed	Wired, straight	Screw terminal
5 m, without LED			
M8 (or S) 4 pin	**XZCP0666L5**	**XZCP0566L5**	**XZCC8FCM30S**
M12 (or D) 4 pin	**XZCP1241L5**	**XZCP1141L5**	**XZCC12FCM40B**
M12 8 pin	–	**XSZMCR03** (3 m)	–



Lenses for color mark

Lens for 18 mm sensing distance — **XURZ01**

Lens for 7 mm sensing distance — **XURZ02**



(1) Nominal sensing distance 50 m. Use between 10 and 20 cm, depending on the application.
(2) 7 mm with XURZ02; 18 mm with XURZ01.
(3) Also available with M12 remote connector with 0.3 m cable: replace **M8** with **L03M12**.
(4) 0 to 0.8 m for versions with 90° head. To order, replace the 8th digit **N** with **W**. Example: XUBTAPS**N**L2 becomes XUBTAPS**W**L2.
(5) Also available in stainless steel for food/beverage processing applications. To order, replace the letter **A** with **S** in the catalog number. Example: XUBT**A**PSNL2 becomes XUBT**S**PSNL2.
(6) For other cable options see page 53.

Food/beverage processing series

ECOLAB®



Application	Stainless steel version for resistance to harsh agents		
System	**Retroreflective polarized**	**Background suppression**	**Thru-beam**
Sensing distance	**0.4 to 11** m (1)	**0.03 to 0.55** m	**0 to 15** m
Mounting (mm)	2 x Ø 4.3 holes		
Case M (metal)	M (stainless steel 316L)		
Temperature range / Degree of protection (conforming to IEC 60529)	–4 to +140 °F (–20 to +60 °C) / +212 °F (+100 °C) for cleaning and sterilization phase while not in service / IP67, IP69K		
Product certification	CE, Ecolab		
Dimensions H x W x D: mm (in.)	50 x 50 x 23 (1.97 x 1.97 x 0.91)		

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

Connection		**M12 connector** – 4 pin		
Transmitter / Receiver	4-wire PNP	**XUK9SPSMM12**	**XUK8SPSMM12**	**XUK2SKSMM12T** (transmitter) **XUK2SPSMM12R** (receiver)
Supply voltage limits, min./max. (V) including ripple		10 to 30		
Switching capacity, max. (mA) / Switching frequency (Hz)		100 / 600	100 / 400	100 / 500




Stainless steel version for resistance to harsh agents

System	Multimode (3)	Retroreflective polarized 50x50 mm reflector included (2)	Diffuse (2)	Thru-beam (2)
Sensing distance	(4)	**3 / 2** m	**0.15 / 0.10** m	**20 / 15** m
Mounting (mm)	M18 x 1	M18 x 1	M18 x 1	M18 x 1
Case M (metal)	M (stainless steel)	M (stainless steel)	M (stainless steel)	M (stainless steel)
Temperature range (°C) / Degree of protection (conforming to IEC 60529)		–13 to +131 °F (–25 to +55 °C) / IP67		
Product certification	CE, UL, CSA, C-TICK			
Dimensions Ø x L: mm (in.)	Ø 18 x 64 (2.52)	Ø 18 x 62 (2.44)	Ø 18 x 62 (2.44)	Ø 18 x 64 (2.52)

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

Connection			**Precabled, PvR (2 m)**			
Transmitter / Receiver	3-wire PNP	programmable NO / NC	**XUB0SPSNL2**	**XU9N18PP341**	**XU5N18PP341**	**XU2N18PP341**
	3-wire NPN	programmable NO / NC	**XUB0SNSNL2**	**XU9N18NP341**	**XU5N18NP341**	**XU2N18NP341**
Connection			**M12 connector**			
Transmitter / Receiver	3-wire PNP	programmable NO / NC	**XUB0SPSNM12**	**XU9N18PP341D**	**XU5N18PP341D**	**XU2N18PP341D**
	3-wire NPN	programmable NO / NC	**XUB0SNSNM12**	**XU9N18NP341D**	**XU5N18NP341D**	**XU2N18NP341D**
Thru-beam transmitter accessory		precabled (2 m)	**XUB0SKSNL2T**	**–**	**–**	
		connector	**XUB0SKSNM12T**	**–**	**–**	
Supply voltage limits, min./max. (V) including ripple			10 to 36	10 to 30	10 to 30	
Switching capacity, max. (mA) / Switching frequency (Hz)			100 / 250	100 / 500	100 / 500	

Accessories

Prewired connectors

5 m

Elbowed
XZCPA1241L5

Straight
XZCPA1141L5

Ecolab reflector 50x50 (5)

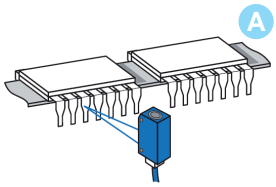
XUZC50CR

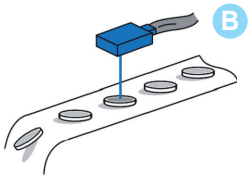
Stainless steel mounting bracket

XUZA118
(for M18)

XUZA51S
(for compact)

(1) With reflector XUZC100 to be ordered separately.
(2) Also available with 90° head. To order, add the letter **W** after the numbers 341 in the catalog number. Example: XU9N18PP341 becomes XU9N18PP341**W** or XU9N18PP341D**W**.
(3) Also available with 90° head. To order, replace the 8th digit **N** with **W**. Example: XUB0SPS**N**L2 becomes XUB0SPS**W**L2.
(4) Background suppression: **0.12 m** – Diffuse: **0.3 m** – Polarized Retroreflective: **3 m** – Thru-beam: **20 m**.
(5) Sensing distance for XUK9S: 3 m with XUZC50CR or 6 m with XUZC50.

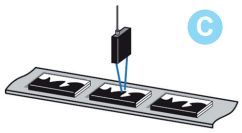


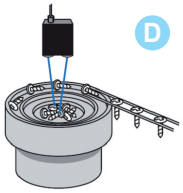


Application	A	B
System	**Diffuse with background suppression**	
	Sensing distance 1	**Sensing distance 2**
Sensing distance	**10 to 60** mm	**30 to 110** mm
Minium size of object	0.3 mm	0.7 mm
Mounting (mm)	direct: 2 M3 holes, mounting centers 24 mm	
Sensitivity adjustment	Teach mode	
Case P (plastic) / Setup assistance LEDs ⊗	P	
Temperature range / Degree of protection (conforming to IEC 60529)	–4 to +140 °F (–20 to +60 °C) / IP67	
Product certification	CE, cULus	
Dimensions H x W x D: mm (in.)	35.8 x 12 x 20 (1.41 x 0.47 x 0.79)	

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

Connection			M8 connector- 4 Pin	M8 connector- 4 Pin
Transmitter / Receiver	**PNP**	**NO** function	–	–
	NPN	**NO** function	–	–
	PNP	programmable **NO / NC**	**XUYPSCO929L1SP**	**XUYPSCO929L2SP**
Supply voltage limits, min./max. (V) including ripple			10 to 30	10 to 30
Switching capacity, max. (mA) / Switching frequency (Hz)			100 / 1000	100 / 1000
Overload and short-circuit protection (★) / LED output state indicator (⊗)			★ / ⊗	★ / ⊗





Application	C	D
System	**Background suppression**	**Background suppression, 2 channels**
Sensing distance	**50 to 300** mm	**50 to 600** mm
Minimum size of object	0.5 mm	–
Mounting (mm)	direct: 2 M4 holes, mounting centers 54 mm	2 x Ø 4 holes, mounting centers 54 mm
Sensitivity adjustment	Potentiometer	Potentiometer
Case P (plastic) / Setup assistance LEDs ⊗	P / ⊗	P / ⊗
Temperature range / Degree of protection (conforming to IEC 60529)	+32 to +122 °F (0 to +50 °C) / IP65	+32 to +140 °F (0 to +60 °C) / IP 40
Product certification	CE, cULus	
Dimensions H x W x D: mm (in.)	60 x 18 x 60 (2.36 x 0.71 x 2.36)	

Sensors for DC applications (solid-state output: transistor). Sensors with overload and short-circuit protection

Connection			M8 connector	
Transmitter / Receiver	3-wire PNP / NPN	programmable NO / NC	**XUYPS1LCO965S**	**XUYPS2CO945S**
Supply voltage limits, min./max. (V) including ripple			10 to 30	10 to 30
Switching capacity, max. (mA) / Switching frequency (Hz)			100 / 5000	100 / 370

Accessories

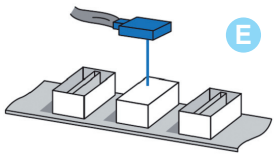
PUR Prewired connectors *(1)*


Straight


Elbowed

	M8 (4 pin)		M12 (4 pin)		7/8" (5 pin)	
	Straight	Elbowed	Straight	Elbowed	Straight	
2 m	**XZCP0941L2**	**XZCP1041L2**	**XZCP1141L2**	**XZCP1241L2**	**XZCP1764L2**	
5 m	**XZCP0941L5**	**XZCP1041L5**	**XZCP1141L5**	**XZCP1241L5**	**XZCP1764L5**	

(1) For other cable options see page 53.



Objects on conveyor

Application	E
System	**Diffuse with adjustable background suppression**
Sensing distance	**20 to 300** mm / **0 to 1** m / **1.2** m / **2** m
Mounting (mm)	Mounting: M3 holes, mounting centers 24 / direct: mounting centers 40 x 40 / M30 x 1.5 or M5, mounting centers 30 / direct: mounting centers 30/38 to 40/50/74 M5 screw
Sensitivity adjustment	Potentiometer / – / Potentiometer / –
Case P (plastic) / Setup assistance LEDs ⊗	P / ⊗ / P / ⊗ / P / ⊗ / P / ⊗
Temperature range	-13 to +131 °F (–25 to +55 °C)
Degree of protection (conforming to IEC 60529)	IP67 / IP65 / IP67, NEMA 4X / IP67
Product certification	CE- cURus / CE, UL, CSA / CE, UL, CSA / CE, UL, CSA
Dimensions H x W x D: mm (in.)	33 x 20 x 11 (1.30 x 0.79 x 0.43) / 50 x 18 x 50 (1.97 x 0.71 x 1.97) / 95 x 45 x 44 (3.74 x 1.77 x 1.73) / 92 x 30.5 x 71 (3.62 x 1.20 x 2.80)

Sensors for DC applications (solid-state output: transistor). Sensors with overload and short-circuit protection

Connection			**Precabled**	**Precabled, PVC** (2 m)		**Screw terminals**
Transmitter / Receiver	3-wire PNP / NPN	programmable NO / NC	–	**XUK8AKSNL2**	**XUC8AKSNL2**	**XUX8AKSAT16**
	PNP	programmable NO / NC	**XUM8APCNL2**	–	–	–
	NPN	programmable NO / NC	**XUM8ANCNL2**	–	–	–
Connection			**M8 connector**	**M12 connector**		
Transmitter / Receiver	3-wire PNP / NPN	programmable NO / NC	–	**XUK8AKSNM12**	**XUC8AKSNM12**	**XUX8AKSAM12**
	PNP	programmable NO / NC	**XUM8APCNM8** *(1)*	–	–	–
	NPN	programmable NO / NC	**XUM8ANCNM8** *(1)*	–	–	–
Supply voltage limits, min./max. (V) including ripple				10 to 36	10 to 38	10 to 36
Switching capacity, max. (mA) / Switching frequency (Hz)				100 / 250	100 / 500	100 / 150

System	**Diffuse with adjustable background suppression**
Sensing distance	**70 to 120** mm / **10 to 750** mm / **1.2** m / **2** m
Mounting (mm)	M18 x 1 / M30 x 1.5 or M5, mounting centers 30 / M30 x 1.5 or M5, mounting centers 30 / direct: mounting centers 30/38 to 40/50/74 M5 screw
Sensitivity adjustment	Potentiometer / teach mode / Potentiometer / –
Case M (metal) P (plastic) / Setup assistance LEDs ⊗	M / ⊗ / P / ⊗ / P / ⊗ / P / ⊗
Temperature range	-13 to +131 °F (–25 to +55 °C)
Degree of protection (conforming to IEC 60529)	IP67 / IP65 / IP67, NEMA 4X / IP67
Product certification	CE, UL, CSA / CE, UL, CSA / CE, UL, CSA / CE, UL, CSA
Dimensions Ø x L or H x W x D: mm (in.)	M18 x 82 (3.23) / 50 x 18 x 50 (1.97 x 0.71 x 1.97) / 95 x 45 x 44 (3.74 x 1.77 x 1.73) / 92 x 30.5 x 71 (3.62 x 1.20 x 2.80)

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

Connection			**Cable 2 m**	**Cable**	**Cable 2 m / Connector 7/8"**	**Screw terminals**
Transmitter / Receiver	**AC/DC**	**NO** function	**XU8M18MA230**	–	**–**	**–**
		programmable **NO / NC**	**–**	**XUK8ARCTL2**	**XUC8ARCTL2 / XUC8ARCTU78**	**XUX8ARCTT16**
Supply voltage limits, min./max. (V) including ripple			20 to 264	20 to 264	20 to 264	20 to 264
Switching capacity, max. (mA) / Switching frequency (Hz)			200 / 25	3000 / 20	3000 / 20	3000 / 20
Overload and short-circuit protection (★) / LED output state indicator (⊗)			*(2)* / ⊗	–	–	–

(1) Also available with M12 remote connector with 0.3 m cable. To order, replace **M8** with **L03M12** in the catalog number.
(2) Sensor not short-circuit protected. Therefore, you must connect a 0.4 A quick-blow fuse in series with the load.

Accessories

Simple mountings

Conduit adapter
(ISO 16 to 1/2" NPT)

XUZX2001

Photoelectric sensors, fiber optic

Amplifier

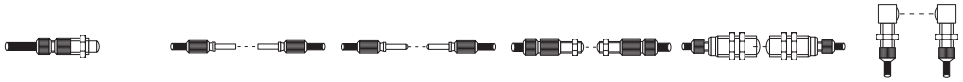
	+/- potentiometer	Teach	Teach + Timer	Teach + Timer
Max. / usable sensing distance	Depending on fiber used, plastic only			
Mounting (mm)	DIN rail or direct: mounting centers 25, M3 screws			
Sensitivity adjustment	+/- numeric potentiometer	using teach mode	+/- numeric potentiometer	using teach mode
Case P (plastic) / Setup assistance LEDs ⊗	P / ⊗	P / ⊗	P / ⊗	P / ⊗ and 4-digit display
Temperature range	+32 to +140 °F (0 to +60 °C)	+14 to +131 °F (–10 to +55 °C)	+32 to +140 °F (0 to +60 °C)	+14 to +131 °F (–10 to +55 °C)
Degree of protection (conforming to IEC 60529)	IP65	IP65 *(1)*	IP65	IP65 *(1)*
Product certification	CE, cULus	CE, cULus, cURus	CE, cULus	CE, cULus, cURus
Dimensions L x H x W: mm (in.)	60 x 30 x 13 (2.36 x 1.18 x 0.51)	65 x 40 x 10 (2.56 x 1.58 x 0.39)	60 x 30 x 13 (2.36 x 1.18 x 0.51)	65 x 40 x 10 (2.56 x 1.58 x 0.39)

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

Connection			**Precabled, PVC (2 m)**			
Catalog numbers	3-wire **PNP** programmable	**NO / NC**	–	**XUDA1PSML2**	–	**XUDA2PSML2**
Amplifier	3-wire **NPN** programmable	**NO / NC**	–	**XUDA1NSML2**	–	**XUDA2NSML2**
Connection			**M8 connector** – 4 Pin			
Catalog numbers	3-wire **PNP** programmable	**NO / NC**	–	**XUDA1PSMM8**	–	**XUDA2PSMM8**
Amplifier	3-wire **NPN** programmable	**NO / NC**	–	**XUDA1NSMM8**	–	**XUDA2NSMM8**
	3-wire **PNP/NPN** programmable	**NO / NC**	**XUYAFVCO966S** (Glass)	–	**XUYAFVCO946S** (Glass)	–
			XUYAFPCO966S (Plastic)	–	**XUYAFPCO946S** (Plastic)	–
Supply voltage limits, min./max. (V) including ripple			10 to 30	10.8 to 26.4	10 to 30	10.8 to 26.4
Switching capacity, max. (mA) / Switching frequency (Hz)			100 / 1000	100 / 1000	100 / 1000 time delayable	100 / 1000 time delayable
Overload and short-circuit protection (★) / LED output state indicator (⊗)			★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗

Ecofiber system, assemble your own plastic fibers

Fiber Ø 1 mm	10 m	20 m	50 m
Catalog numbers	**XUFZ910**	**XUFZ920**	**XUFZ950**

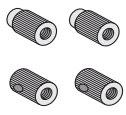


End fittings						
Sensing distance (mm)	**70**	**200**	**800**	**1200**	**4000**	**1200**
Type	with threaded end fitting	with plain end fitting, Ø 3, 9 mm	with plain end fitting, Ø 3, 9 mm	with threaded end fitting	with threaded end fitting	90 ° mirror, with threaded end fitting
Thread	M8 x 1, 10 mm	–	–	M6 x 1, 10 mm	M6 x 1, 10 mm	M6 x 1, 3 to 10 mm
Lens	yes	no	yes	yes	yes	yes
Catalog numbers	**XUYA110**	**XUYA210**	**XUYA211**	**XUYA212**	**XUYA213**	**XUYA220**

Accessories

For thru-beam system plastic fiber optics

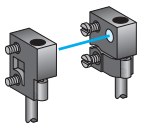
Lenses



For increasing sensing distance (pair) **XUFZ01**

With 90° mirror (pair) **XUFZ02**

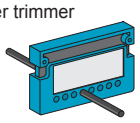
Mounting clamp with lens (set of 2)



Front screw mounting for fiber optics XUFZ920 **XUFZ04**

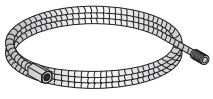
For all system plastic fiber optics

Fiber trimmer



For trimming fibers to length (included with all fiber optics) **XUFZ11**

Protective metal tubing

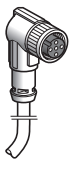


1 m, for fibers with threaded end fittings
For M4 thread **XUFZ210**
For M6 thread **XUFZ310**

Plug-in PUR prewired female connectors *(2)*

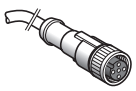
Cable length 5 m, without LED

prewired, elbowed



XZCP1041L5

prewired, straight



XZCP0941L5

(1) IP65 with Ø 1 fiber/ IP64 with Ø 0.5 fiber.
(2) For other cable options see page 53.

Plastic fiber optic light guides (2 m)

M4 / M2.6 (1) | M4 / 90 mm | M3 / M2.6 (1) | Long range fibers with integrated lens M8 / 20 mm | Long range fibers M4 / M2.6 (1) | Flexible fibers M4 / M2.6 (1)

System	Thru-beam					
Sensing distance (mm)	200 or 1500 (2)	180	50 or 1000 (2)	2500	300 or 2000 (2)	100 or 750 (2)
Fiber cross-section						
Fiber Ø (mm)	Ø 1	Ø 1	Ø 0.5	Ø 1	Ø 1.5	Ø 1
Sheath Ø (mm)	Ø 2.2	Ø 2.2	Ø 1	Ø 2.2	Ø 2.2	Ø 2.2
Temperature range	–13 to +140 °F (–25 to +60 °C)					
Catalog numbers	**XUFN12301**	**XUFN12311**	**XUFN35301**	**XUFN2L01L2**	**XUFN2P01L2**	**XUFN2S01L2**
Mounting	M4 x 0.7	M4 x 0.7	M3 x 0.5	M8 x 1.25	M2.6 x 0.45 / M4 x 0.7	M2.6 x 0.45 / M4 x 0.7

(1) Can be used with 90° mirror XUFZ02 (see page 48).
(2) With lens accessory XUFZ01 (see page 48)

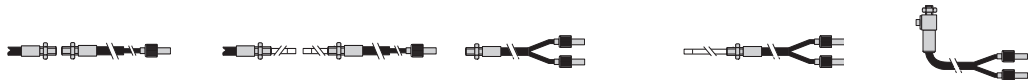
M6 | M4 / M6 | M6/90 mm | M4 / M2.6

System	Diffuse			
Sensing distance (mm)	70	60	60	15
Fiber cross-section				
Fiber Ø (mm)	Ø 1	Ø 1+16 Ø 0.265	Ø 1	Ø 0.5 + 4 Ø 0.23
Sheath Ø (mm)	Ø 2.2 x 2	Ø 2.2 x 2	Ø 2.2 x 2	Ø 1 x 2
Temperature range (°C)	–13 to +140 °F (–25 to +60 °C)			
Catalog numbers	**XUFN05321**	**XUFN05323**	**XUFN05331**	**XUFN02323**
Mounting	M6 x 0.75	M6 x 0.75 / M4 x 0.7	M6 x 0.75	M4 x 0.7

M4 / 90 mm | M4 / M2.6 | Long range fibers M6 / 15 mm

System	Diffuse		
Sensing distance (mm)	18	18	95
Fiber cross-section			
Fiber Ø (mm)	Ø 0.5	Ø 0.5	Ø 1.5
Sheath Ø (mm)	Ø 1 x 2	Ø 1 x 2	Ø 2.2 x 2
Temperature range	–13 to +140 °F (–25 to +60 °C)		
Catalog numbers	**XUFN01331**	**XUFN01321**	**XUFN5P01L2**
Mounting	M4 x 0.7	M4 x 0.7	M6 x 0.75

Glass fiber optic light guides (0.6 m)



M4 | M4 / Ø 2.5 x 89 | M4 | M4 / Ø 2.5 x 89 | M4

System		Thru-beam		Diffuse		
Sensing distance (mm)		200		80		
Fiber cross- section						
End fitting		Straight	Adaptable	Straight	Adaptable	90 °
Fiber Ø (mm)		1		1		
Sheath Ø (mm)		2.2		2.2		
Temperature range		PVC sheath: –13 to +140 °F (–25 to +60 °C) / Metal wound: –13 to +248 °F (–25 to +120 °C) / Flexible stainless steel: –13 to +392 °F (–25 to +200 °C)				
Catalog numbers	PVC sheath	**XUYFVERSD61**	**XUYFVERSC61**	**XUYFVPSD61**	**XUYFVPSC61**	**XUYFVPSL61**
	Metal wound	**XUYFVERMD61**	**XUYFVERSC61**	**XUYFVPMD61**	**XUYFVPMC61**	**XUYFVPML61**
	Flexible stnl. steel	**XUYFVERTD61**	**XUYFVERTC61**	**XUYFVPTD61**	**XUYFVPTC61**	**XUYFVPTL61**



		M12	M18	M18
Nominal sensing distance Sn	**Mode proximity or retroreflective** *(1)*	**5** or **10** cm depending on model	**15** or **50** cm depending on model	**50** mm
	Mode thru-beam	**20** cm	**61** or **100** cm depending on model	
Operating zone for proximity mode		0.64 to 5.1 cm (XX512A1) 0.64 to 10.2 cm (XX512A2)	1.9 to 15.2 cm (XX518A1) 5.1 to 50.8 cm (XX518A3)	2 to 50 mm
Sensitivity adjustment		Mounted	Adjustable using remote control for XX518 A3. Mounted for XX518A1, XXT18, XXR18	Mounted
Case M (metal), P (plastic)		P	P	M
Product certification		CE	CE	CE
Temperature range		–4 to +149 °F (–20 to +65 °C)	+32 to +122 °F (0 to +50 °C) *(3)* –4 to 149 °F (–20 to +65 °C) *(4)* +32 to +140 °F (0 to +60 °C) *(5)*	+32 to +140 °F (0 to +60 °C)
Degree of protection (conforming to IEC 60529)		IP67		
Dimensions Ø x L: mm (in.)		M12 x 50 (1.97)	M18 x 65 (2.56)	M12: M18 x 75 (2.95) Cable: M18 x 65 (2.56)

Proximity or Retroreflective *(1)* mode with Discrete output for DC applications (24 V)

Connection			**M8 connector**	**M12 connector**	**Precabled (2 m), M12 connector**
3-wire	**PNP**	**NO** function	**XX512A2PAM8** (10 cm)	**XX518A3PAM12** (50 cm)	**XXV18B1PAL2** (cable), **XXV18B1PAM12** (M12)
	NPN	**NO** function	**XX512A2NAM8** (10 cm)	**XX518A3NAM12** (50 cm)	**XXV18B1NAL2** (cable), **XXV18B1NAM12** (M12)
4-wire	**PNP/NPN**	**NO** function	**XX512A1KAM8** (5 cm)	**XX518A1KAM12** (15 cm)	**–**
Application—monitoring levels					
	2 emptying levels	**PNP NO** function	**–**	**XX218A3PHM12** *(2)*	**–**
	2 filling levels	**PNP NO** function	**–**	**XX218A3PFM12** *(2)*	**–**
Supply voltage limits, min./max. (V) including ripple			10 to 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
Transmission frequency (Hz)			500	300	

Proximity mode with Analog output for DC applications (24 V)

Connection			**M12 connector**		
4-wire	**Analog**	**0 to 10 V** output	**–**	**XX918A3F1M12**	**–**
		4 to 20 mA output	**–**	**XX918A3C2M12**	**–**
Supply voltage limits, min./max. (V) including ripple			–	10 to 28	–
Short-circuit protection (★)			–	★	–
LED output state indicator (⊗) / Power on LED (⊗)			–	⊗ / ⊗	–
Transmission frequency (Hz)			–	300	–

Thru-beam mode with Discrete output for DC applications (24 V)

Connection		**M8 connector**	**M12 connector**	
4-wire	Receiver (NO/PNP + NO NPN)	**XXR12A8KAM8**	**XXR18A3KAM12** (0.61 m) **XXR18A4KAM12** (1 m)	**–**
	Receiver (NC/PNP + NC NPN)	**XXR12A8KBM8**	**XXR18A3KBM12** (0.61 m) **XXR18A4KBM12** (1 m)	**–**
	Transmitter	**XXT12A8M8**	**XXT18A3M12** (0.61 m) **XXT18A4M12** (1 m)	**–**

Accessories

See page 51 for progamming and connectors, and page 52 for mounting

(1) Retroreflective mode only for sensor with adjustable sensitivity.
(2) 1 NO.
(3) XX518A1●●●.
(4) XX518A3●●●.
(5) XXT18, XXR18.

Ultrasonic sensors
Detection of any material

	M30			M30 Long range
Nominal sensing distance Sn **Mode proximity or retroreflective** *(1)*	1 m	1 m	2 m	8 m
Operating zone for proximity mode	0.1 to 1 m	0.05 to 0.99 m	0.12 to 2 m	0.2 to 8 m
Sensitivity adjustment	Adjustable using remote control	Adjustable using teach mode		
Case M (metal), P (plastic)	P			P
Product certification	CE			CE
Temperature range	+32 to +158 °F (0 to +70 °C)	+32 to +158 °F (0 to +70 °C)		–4 to +140 °F (–20 to +60 °C)
Degree of protection (conforming to IEC 60529)	IP67	IP65		
Dimensions Ø x L: mm (in.)	M30 x 78 (3.07)	M30 x 85 (3.35)		M30 x 106 (4.17)

Proximity or Retroreflective *(1)* mode with Discrete output for DC applications (24 V)

Connection			**M12 connector**			**M12 connector**
3-wire	**PNP**	**NO** function	**XX6V3A1PAM12** **XXBV3A1PAM12** *(1)*	–	–	–
	NPN	**NO** function	**XX6V3A1NAM12**	–	–	–
4-wire	**PNP/NPN**	**NO** function	–	**XX630A1KAM12**	–	–
	PNP	**NO + NC** function	–	**XX630A1PCM12** *(2)*	–	**XX630A3PCM12**
	NPN	**NO + NC** function	–	**XX630A1 NCM12** *(2)*	–	**XX630A3NCM12**
Application—monitoring levels						
	2 emptying levels	**PNP NO** function	–	**XX230A10PA00M12** *(3)*	**XX230A20PA00M12** *(3)*	–
	2 filling levels	**PNP NO** function	–	**XX230A11PA00M12** *(3)*	**XX230A21PA00M12** *(3)*	–
Supply voltage limits, min./max. (V) including ripple			10 to 28			
Switching capacity, max. (mA)			<100			
Short-circuit protection (★)			★			
LED output state indicator (⊗) / Power on LED (⊗)			⊗ / ⊗			
Voltage drop, closed state (V) at I nominal			<1			
Switching frequency (Hz)			70	10		2
Transmission frequency (Hz)			180	200		75

Proximity mode with Analog output for DC applications (24 V)

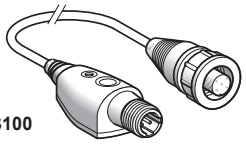
Connection			**M12 connector**			
4-wire	**Analog**	**0 to 10 V** output	**XX9V3A1F1M12**	**XX930A1A1M12** *(2)*	–	**XX930A3A1M12**
		4 to 20 mA output	**XX9V3A1C2M12**	**XX930A1A2M12** *(2)*	–	**XX930A3A2M12**
Supply voltage limits, min./max. (V) including ripple			10 to 28	10 to 28	–	10 to 28
Short-circuit protection (★)			★	★	–	★
LED output state indicator (⊗) / Power on LED (⊗)			⊗ / ⊗	⊗ / ⊗	–	⊗ / ⊗
Transmission frequency (Hz)			180	200	–	75

Accessories

Programming

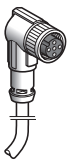
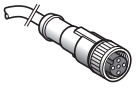
Remote control

teach button for use with sensors XX●18A3●●●, XX●V1●●●, XX●V3●●● and XX●D1



XXZPB100

Suitable female plug-in connectors

		PUR Prewired connectors *(4)* elbowed	straight	**Other connectors** screw terminal
				
5 m (without LED)				
M8	for XX512A1•••	**XZCP1041L5**	**XZCP0941L5**	**XZCC8FCM40V**
	for XX512A2•••	**XZCP0666L5**	**XZCP0566L5**	**XZCC8FCM30V**
M12	for all sensors except XX512•••	**XZCP1241L5**	**XZCP1141L5**	**XZCC12FCM40B**

For mounting see page 52

(1) Retroreflective mode only for sensor with adjustable sensitivity.
(2) Stainless steel 303 version also available. To order, replace the first letter **A** in the catalog number with **S**. Example: XX630**A**1PCM12 becomes XX630**S**1PCM12.
(3) 2 NO.
(4) For PVC cable see page 53.




		Mini flat	Flat	Combined multi-mounting	Flat 80 x 80
Nominal sensing distance Sn	**Mode proximity or retroreflective** *(1)*	**10** cm	**25** cm	**50** cm	**1** m
	Mode thru-beam	**20** cm	**61** or **100** cm depending on model	–	–
Operating zone for proximity mode		0.62 to 10.2 cm	5.1 to 25.4 cm	5.1 to 50.8 cm	0.1 to 1 m
		–	–	–	–
Sensitivity adjustment		Mounted	Mounted	Adj. using remote control	Adj. using remote control
Case P (plastic)		P	P	P	P
Product certification		CE	CE	CE	CE
Temperature range		–4 to +149 °F (–20 to +65 °C)	+32 to +122 °F (0 to +50 °C)	–4 to +149 °F (–20 to +65 °C)	+32 to +158 °F (0 to +70 °C)
Degree of protection (conforming to IEC 60529)		IP67			
Dimensions Ø x L or H x W x D: mm (in.)		33 x 19 x 7.6 (1.30 x 0.75 x 0.30)	74 x 30 x 16 (2.91 x 1.18 x 0.63)	M18 / 18 x 33 x 60 (0.71 x 1.30 x 2.36)	80 x 80 x 34 (3.15 x 3.15 x 1.34)

Proximity or Retroreflective *(1)* mode with Discrete output for DC applications (24 V)

Connection			**M12** on 0.15 m pigtail connector	**M12 connector**		
3-wire	**PNP**	**NO** function	**XX7F1A2PAL01M12**	**XX7K1A2PAM12**	**XX7V1A1PAM12**	**XX8D1A1PAM12**
	NPN	**NO** function	**XX7F1A2NAL01M12**	**XX7K1A2NAM12**	**XX7V1A1NAM12**	**XX8D1A1NAM12**
Supply voltage limits, min./max. (V) including ripple			10 to 28			
Switching capacity, max. (mA)			<100			
Short-circuit protection (★)			★			
LED output state indicator (⊗) / Power on LED (⊗)			⊗ / ⊗			
Voltage drop, closed state (V) at I nominal			<1			
Switching frequency (Hz)			100	80	40	70
Transmission frequency (Hz)			500	500	300	180

Proximity mode with Analog output for DC applications (24 V)

Connection			–		**M12 connector**	
4-wire	**Analog**	**0 to 10 V** output	**–**	**–**	**XX9V1A1F1M12**	**XX9D1A1F1M12**
		4 to 20 mA output	**–**	**–**	**XX9V1A1C2M12**	**XX9D1A1C2M12**
Supply voltage limits, min./max. (V) including ripple			–	–	10 to 28	10 to 28
Short-circuit protection (★)			–	–	★	★
LED output state indicator (⊗) / Power on LED (⊗)			–	–	⊗ / ⊗	⊗ / ⊗
Transmission frequency (Hz)			–	–	300	180

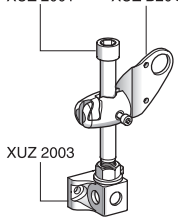
Thru-beam mode with Discrete output for DC applications (24 V)

Connection		–			
4-wire	Receiver (NO/PNP + NO/NPN)	**XXRF1A8KAM12L**	**XXRK1A3KAM12** (0.61 m) **XXRK1A4KAM12** (1 m)	–	–
	Receiver (NC/PNP + NC/NPN)	**XXRF1A8KBM12L**	**XXRK1A3KBM12** (0.61 m) **XXRK1A4KBM12** (1 m)	–	–
	Transmitter	**XXT1A8M12L**	**XXTK1A3M12** (0.61 m) **XXTK1A4M12** (1 m)	–	–

Accessories

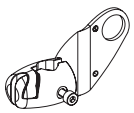
Mountings—3D mountings with ball joint

XUZ 2001 XUZ B20●●



3D kit example

Bracket with ball joint for cylindrical sensors

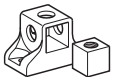


for	
Ø 12	**XUZB2012**
Ø 18	**XUZB2003**
Ø 30	**XUZB2030**

M12 rod for ball joint

XUZ2001

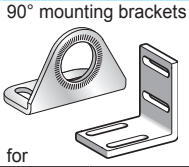
Mounting support for M12 rod



XUZ2003

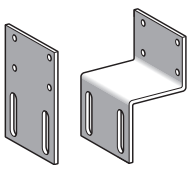
Simple mountings

90° mounting brackets



for	
Ø 12	**XXZ12**
Ø 18	**XUZA118**
Ø 30	**XXZ30**
XX7F	**XXZ1933**

Mounting plates for XX7K



flat	**XXZ3074F**
cranked	**XXZ3074S**

See page 51 for progamming and connectors

(1) Retroreflective mode only for sensor with adjustable sensitivity.

Cabling system

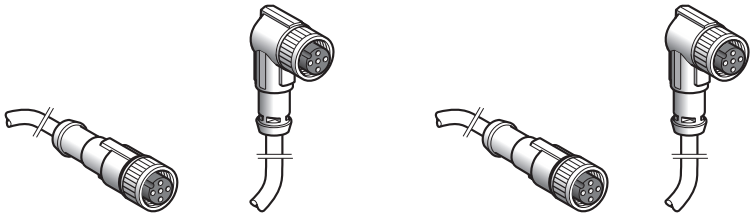
Prewired female connectors

PVC cable
M8 and M12 connector

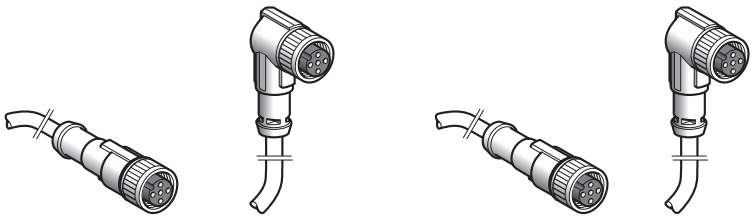
PVC cable
1/2" and 7/8" connector

PUR cable halogen free
M8, M12, 1/2" and 7/8" connector

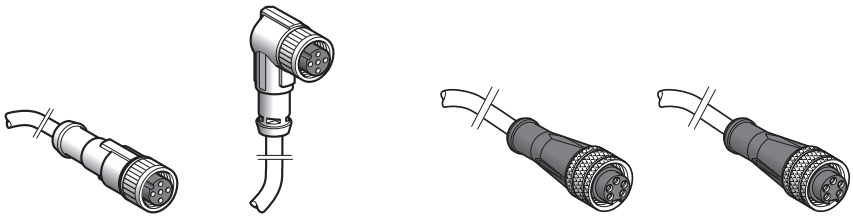
Reinforced PVC cable, stainless steel ring
M8, M12, and 1/2" connector (IP69K)



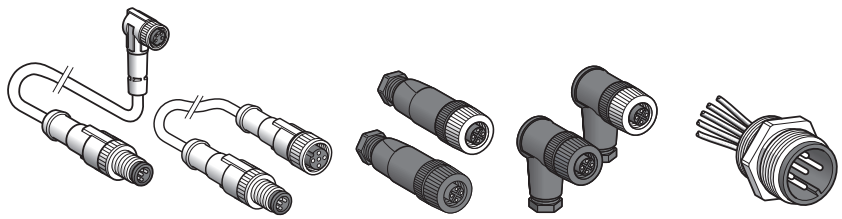
Connector Size		M8			
		Straight 3 pin	Elbowed 3 pin	Straight 4 pin	Elbowed 4 pin
Catalog numbers	PVC cable	XZCPV0566L●	XZCPV0666L●	XZCPV0941L●	XZCPV1041L●
	PUR cable	XZCP0566L●	XZCP0666L●	XZCP0941L●	XZCP1041L●
	PVC cable IP69K	XZCPA0566L●	–	XZCPA0941L●	–



Connector Size		M12			
		Straight 4 pin	Elbowed 4 pin	Straight 5 pin	Elbowed 5 pin
Catalog numbers	PVC cable	XZCPV1141L●	XZCPV1241L●	XZCPV1164L●	XZCPV1264L●
	PUR cable	XZCP1141L●	XZCP1241L●	XZCP1164L●	XZCP1264L●
	PVC cable IP69K	XZCPA1141L●	XZCPA1241L●	XZCPA1164L●	–



Connector Size		1/2"		7/8"	
		Straight 3 pin	Elbowed 3 pin	Straight 3 pin	Straight 5 pin
Catalog numbers *(2)*	PVC cable	XZCPV1865L●	XZCPV1965L●	XZCPV1670L●	XZCPY1764L● *(1)*
	PUR cable	XZCP1865L●	XZCP1965L●	XZCP1670L●	XZCP1764L●
	PVC cable IP69K	XZCPA1865L●	XZCPA1965L●	–	–



Other accessories *(3)*	Jumpers	Connector	Receptacle
Catalog numbers	XZCR•••	XZCC•••	XZCE•••

(1) Cable material is yellow PVC & STOOW .
(2) Complete each catalog number by adding the length of cable (**2** for 2 m, **5** for 5 m and **10** for 10 m).
Example: XZCPV1141L**2** is a prewired M12 connector with 4 contacts and a 2 m PVC cable.
(3) For more information on XZ jumpers, connectors, and receptacles, please see TEsensors.com or the Sensors master catalog, 9006CT1007.







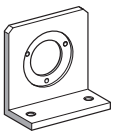
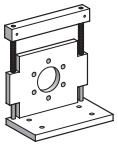
Diameter of housing (mm)		Ø 40	Ø 40	Ø 58	Ø 58	Stainless steel	Ø 58 Parametrable	Ø 90
Shaft Ø (mm)		**Ø 6**	**Ø 6**	**Ø 6**	**Ø 10**		**Ø 14** *(1)*	**Ø 12**
Type of shaft *(2)*		**solid shaft**	**through shaft**	**solid shaft**	**solid shaft**		**through shaft**	**solid shaft**
Maximum rotational speed (rpm)		9000	9000	9000	9000		6000	6000
Maximum frequency (kHz)		100	100	300	300		300	100
Maximum load (daN)		2	2	10	10	25	5	20
Torque (N.cm)		0.2	0.25	0.4	0.4		0.6	1
Product certification		CE	CE	CE	CE		CE	CE
Temperature range		–4 to +176 °F (–20 to +80 °C)	–4 to +176 °F (–20 to +80 °C)	–22 to +212 °F (–30 to +100 °C)	–22 to +212 °F (–30 to +100 °C)		–22 to +158 °F (–30 to +70 °C)	–4 to +176 °F (–20 to +80 °C)
Degree of protection (conforming to IEC 60529)		IP 54	IP 52	IP65 / IP67 *(3)*	IP65 / IP67 *(3)*	IP69K	IP65	IP66
Supply voltage	5 V, RS 422	4.5 to 5.5 V	4.5 to 5.5 V	4.75 to 30 V	4.75 to 30 V		4.75 to 30 V	4.5 to 5.5 V
	Push-pull	11 to 30 V	11 to 30 V	5 to 30 V	5 to 30 V		5 to 30 V	11 to 30 V
Connection		**Precabled (2 m)**, radial		**M23 male connector**, radial		Precabled (2 m), axial	**M23 male connector**, radial	
Resolution (Points)	Output stage							
100	5 V, RS 422	**XCC1406PR01R**	**XCC1406TR01R**	**XCC1506PS01X**	**XCC1510PS01X**	–	–	**XCC1912PS01RN**
	Push-pull	**XCC1406PR01K**	**XCC1406TR01K**	**XCC1506PS01Y**	**XCC1510PS01Y**	–	–	**XCC1912PS01KN**
360	5 V, RS 422	**XCC1406PR03R**	**XCC1406TR03R**	**XCC1506PS03X**	**XCC1510PS03X**	–	–	**XCC1912PS03RN**
	Push-pull	**XCC1406PR03K**	**XCC1406TR03K**	**XCC1506PS03Y**	**XCC1510PS03Y**	**XCC1510SPA03Y**	–	**XCC1912PS03KN**
500	5 V, RS 422	**XCC1406PR05R**	**XCC1406TR05R**	**XCC1506PS05X**	**XCC1510PS05X**	–	–	**XCC1912PS05RN**
	Push-pull	**XCC1406PR05K**	**XCC1406TR05K**	**XCC1506PS05Y**	**XCC1510PS05Y**	–	–	**XCC1912PS05KN**
1000	5 V, RS 422	**XCC1406PR10R**	**XCC1406TR10R**	**XCC1506PS10X**	**XCC1510PS10X**	–	–	**XCC1912PS10RN**
	Push-pull	**XCC1406PR10K**	**XCC1406TR10K**	**XCC1506PS10Y**	**XCC1510PS10Y**	–	–	**XCC1912PS10KN**
1024	5 V, RS 422	**XCC1406PR11R**	**XCC1406TR11R**	**XCC1506PS11X**	**XCC1510PS11X**	–	–	**XCC1912PS11RN**
	Push-pull	**XCC1406PR11K**	**XCC1406TR11K**	**XCC1506PS11Y**	**XCC1510PS11Y**	**XCC1501SPA11Y**	–	**XCC1912PS11KN**
2500	5 V, RS 422	–	–	**XCC1506PS25X**	**XCC1510PS25X**	–	–	**XCC1912PS25RN**
	Push-pull	–	–	**XCC1506PS25Y**	**XCC1510PS25Y**	–	–	**XCC1912PS25KN**
3600	5 V, RS 422	–	–	–	–	–	–	**XCC1912PS36RN**
	Push-pull	–	–	–	–	–	–	**XCC1912PS36KN**
256 to 4096	5 V, RS 422	–	–	–	–	–	**XCC1514TSM02X**	–
	Push-pull	–	–	–	–	–	**XCC1514TSM02Y**	–
5000	5 V, RS 422	–	–	**XCC1506PS50X**	**XCC1510PS50X**	–	–	**XCC1912PS50RN**
	Push-pull	–	–	**XCC1506PS50Y**	**XCC1510PS50Y**	**XCC1510SPA50Y**	–	**XCC1912PS50KN**
360 to 5760	5 V, RS 422	–	–	–	–	–	**XCC1514TSM03X**	–
	Push-pull	–	–	–	–	–	**XCC1514TSM03Y**	–
500 to 8000	5 V, RS 422	–	–	–	–	–	**XCC1514TSM05X**	–
	Push-pull	–	–	–	–	–	**XCC1514TSM05Y**	–
10 000	5 V, RS 422	–	–	–	–	–	–	**XCC1912PS00RN**
	Push-pull	–	–	–	–	–	–	**XCC1912PS00KN**
1024 to 16 384	5 V, RS 422	–	–	–	–	–	**XCC1514TSM11X**	–
	Push-pull	–	–	–	–	–	**XCC1514TSM11Y**	–
5000 to 80 000	5 V, RS 422	–	–	–	–	–	**XCC1514TSM50X**	–
	Push-pull	–	–	–	–	–	**XCC1514TSM50Y**	–

Accessories

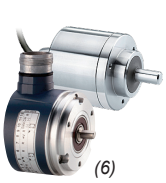
Shaft couplings

		Bore diameter (encoder side)	Bore diameter (machine side)	Catalog number
with spring		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**

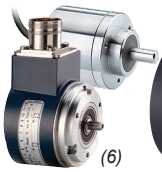
Mounting brackets

Plain bracket		for Ø 58 mm	**XCCRE5SN**
		for Ø 90 mm	**XCCRE9SN**
Bracket with play compensator		for Ø 58 mm	**XCCRE5RN**
		for Ø 90 mm	**XCCRE9RN**

Absolute - single turn


(6)

Absolute - multiturn


(6)

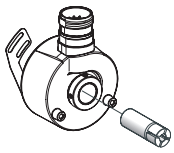
Communicating multiturn absolute

Diameter of housing (mm)			**Ø 58**	**Ø 90**	**Ø 58**	**Ø 90**	**Ø 58 CANopen**	**Ø 58 Profibus-DP**
Shaft Ø (mm)			**Ø 10**	**Ø 12**	**Ø 10**	**Ø 12**	**Ø 10**	**Ø 10**
Type of shaft *(2)*			**solid shaft**	**solid shaft**	**solid shaft**	**solid shaft**	**solid shaft** *(4)*	**solid shaft** *(4)*
Maximum rotational speed (rpm)			9000	6000	6000	6000	6000	6000
Maximum frequency (kHz)			100	100 (1000 SSI)	100 (500 SSI)	100 (500 SSI)	800	800
Maximum load (daN)			10 / 25 *(6)*	20	10	20	11	11
Torque (N.cm)			0.4	1	0.4	1	0.3	0.3
Product certification			CE	CE	CE	CE	CE	CE
Temperature range			–4 to +194 °F (–20 to +90 °C)	–4 to +185 °F (–20 to +85 °C)	–4 to +185 °F (–20 to +85 °C)	–4 to +185 °F (–20 to +85 °C)	–40 to +185 °F (–40 to +85 °C)	–40 to +185 °F (–40 to +85 °C)
Degree of protection (conforming to IEC 60529)			IP65 / IP67 *(3)* / IP69K *(6)*	IP66	IP65 / IP67 *(3)* / IP69K *(6)*	IP66	IP64	IP64
Supply voltage			11 to 30 V					
Connection			**M23 male connector**, radial / 2 m Axial cable *(6)*				**2** x **M12** + **1** x **Pg 9**	**3** x **Pg 9**
Resolution	Output stage	Code						
to 8192 points	Push-pull	Binary	**XCC2510PS81KB**	**XCC2912PS81KBN**	–	–	–	–
		Gray	**XCC2510PS81KGN** **XCC2510SPA81KGN** *(6)*	**XCC2912PS81KGN**	–	–	–	–
	SSI, 13 bits	Binary	**XCC2510PS81SBN**	**XCC2912PS81SBN**	–	–	–	–
		Gray	**XCC2510PS81SGN** **XCC2510SPA81SGN** *(6)*	**XCC2912PS81SGN**	–	–	–	–
4096 points / 8192 turns	SSI, 25 bits *(5)*	Gray	–	–	**XCC3510PS48SGN** **XCC3510SPA48SGN** *(6)*	–	–	–
8192 points / 4096 turns	SSI, 25 bits *(5)*	Binary			**XCC3510PS84SBN**	**XCC3912PS84SBN**	–	–
		Gray	–	–	**XCC3510PS84SGN**	**XCC3912PS84SGN**	–	–
8192 points / 4096 turns	CANopen, 25 bits	Binary	–	–		–	–	–
			–	–	–	–	**XCC3510PS84CBN**	**–**
	Profibus-DP, 25 bits	Binary	–	–	–	–	–	**XCC3510PV84FBN**

(1) Anti-rotation device included with through shaft version encoders. To achieve Ø 6, 8, 10 or 12 mm through shafts, use the reduction collars.
(2) All versions are also available with through shaft and anti-rotation device.
(3) IP67 with sealed collar XCCRB3.
(4) Versions available with hollow shaft and anti-rotation device.
(5) Parallel outputs possible for multiturn absolute encoders using deserialization jumper cables XCCRM23SUB37●●.
(6) Product in stainless steel 316L.

Reduction collars

For Ø 58 mm incremental encoders with through shaft



Ø 14 to Ø 6 mm	**XCCR158RDA06**
Ø 14 to Ø 8 mm	**XCCR158RDA08**
Ø 14 to Ø 10 mm	**XCCR158RDA10**
Ø 14 to Ø 12 mm	**XCCR158RDA12**

IP67 sealed collar

For encoders XCC1510, 2510, 3510

Ø 58 mm	**XCCRB3**

Prewired connectors and jumper cables

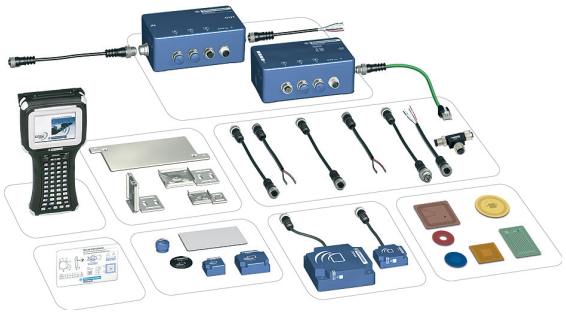
Prewired M23 female connectors (cable length 5 m)

8-wire for SSI encoders	**XCCPM23122L5**
10-wire for incremental encoders	**XCCPM23121L5**
16-wire for parallel single turn absolute encoders	**XCCPM23161L5**

Deserialization jumper cables (M23 F – SUB-D37 M) (0.5 m)

SSI Gray – // Gray PNP	**XCCRM23SUB37PG**
SSI binary – // binary NPN	**XCCRM23SUB37PB**

Radio frequency identification
13.56 MHz RFID



Introduction
The OsiSense XG RFID is open to the majority of ISO 18000-3, ISO 15693, and ISO 14443 electronic tags. OsiSense XG is designed to provide easy integration. Our smart antennas communicate directly with Modbus RTU and Uni-Telway network protocols over an RS-485 serial interface and connect easily to other communication protocols with the use of a network connection box. Connection to a Modbus TCP/IP is simplified with the use of the XGSZ33ETH network connection box. Ethernet/IP is accomplished via our XGSZ33EIP network connection box and Profibus-DP with the XGSZ33PDP network connection box.
The OsiSense XG RFID offer includes:
- 2 models of 13.56 MHz smart antennas (read/write station)
- 11 models of 13.56 MHz electronic tags
- 1 portable RFID diagnostics terminal
- 3 models of network connection boxes plus connection and mounting accessories

Setup
OsiSense XG smart antenna are simple to set up:
- Integrated RFID and network functions
- Programming performed in user PLC language
- Automatic detection of the RFID electronic tags (read or write)
- Automatic setting of the communication parameters such as speed, format, parity, and protocol
- Configuration of the network address (1 to 15) using the badge included with the smart antenna
- Low sensitivity to metal environments

Installation
OsiSense XG smart antennas easily integrate in flexible manufacturing production lines:
- Quick connection using M12 connector
- Screw mounting or clip-on mounting

Smart antenna, 13.56 MHz		Flat form 40	Flat form 80
Dimensions W x H x D: mm (in.)		40 x 40 x 15 (1.58 x 1.58 x 0.59)	80 x 80 x 26 (3.15 x 3.15 x 1.02)
Nominal sensing distance depending on tag (mm)		18 to 70	20 to 100
Type of associated tag		ISO 15693 and ISO 14443 standard tags. Automatic detection and communication over ISO 15693 or ISO 14443 protocols.	
Display		1 dual color LED for the communication network, 1 dual color LED for the RFID communication	
Conformity to standards		CE, EN 301489-1, EN 301489-3, ETS 300330-1 and ETS 300330-2, FCC part 15 – UL	
Degree of protection conforming to IEC 60529		IP67	
Serial link	Type	RS 485	
	Protocol	Modbus and Uni-Telway	
	Speed (baud rate)	9600 to 115,200 (automatic detection)	
Ambient air temperature		For operation: –13 to +158 °F (–25 to +70 °C), for storage: –40 to +185 °F (–40 to +85 °C)	
Nominal supply voltage		24 Vdc PELV (Protective Extra Low Voltage)	
Connection		M12, 5-pin male, shielded connector on pigtail connector for connection to communication network and 24 Vdc power supply.	
Catalog numbers		**XGCS4901201**	**XGCS8901201**

Electronic tags	Flat form 40			ISO badge *(1)*	Disc		Flat form 26	Cylindrical	
Dimensions W x H x D: mm (in.)	40 x 40 x 15 (1.58 x 1.58 x 0.59)	40 x 40 x 15 (1.58 x 1.58 x 0.59)	40 x 40 x 15 (1.58 x 1.58 x 0.59)	54 x 85.5 x 0.8 (2.13 x 3.37 x 0.03)	Ø 30 x 3 (0.12)	Ø 30 x 3 (0.12)	26 x 26 x 13 (1.02 x 1.02 x 0.51)	M18 x 1 x 12 (x 0.04 x 0.47)	Ø 40 x 11 (1.58 x 0.43)
Type of memory	FRAM	FRAM	FRAM	EEPROM	EEPROM	FRAM			EEPROM
Memory capacity (bytes)	2000	8192	32768	256	112	2000	256	256	64
Nominal sensing distance (mm) with station XGCS49●	45	25	25	70	48	45	40	18	30 – 39
Read/Write with station XGCS89●	65	39	39	100	65	65	55	20	35 – 46
Time (ms) *(2)* Read	7 + 2 x n	6 + 0.25 x n	6 + 0.25 x n	12 + 0.825 x n	12 + 0.825 x n	7 + 2 x n	12 + 0.825 x n	12 + 0.825 x n	12 + 0.825 x n
Write	7 + 2.4 x n	6 + 0.25 x n	6 + 0.25 x n	20 + 11.8 x n	12 + 5.6 x n	7 + 2.4 x n	20 + 11.8 x n	19 + 4.1 x n	20 + 11.8 x n
Degree of protection conforming to IEC 60529	IP68	IP68	IP68	IP65	IP65	IP65	IP68	IP68	IP68
Standard supported	ISO 15693	ISO 14443B	ISO 14443B	ISO 15693	ISO 15693	ISO 15693			
Mounting on metal support	Yes	Yes	Yes	Insulator req'd	Insulator req'd	Insulator req'd	Yes	No	Yes
Catalog numbers	**XGHB440245**	**XGHB440845**	**XGHB443245**	**XGHB90E340**	**XGHB320345**	**XGHB320246**	**XGHB221346**	**XGHB211345**	**XGHB411346**

(1) Customized versions on request.
(2) n = number of 16-bit words.

Connection boxes	Ethernet Modbus TCP/IP box	Profibus box	Ethernet/IP box
Dimensions W x H x D: mm (in.)	130 x 80 x 51 (5.19 x 3.15 x 2.01)	158 x 100 x 60 (6.22 x 3.94 x 2.36)	130 x 80 x 51 (5.19 x 3.15 x 2.01)
Protocols	Modbus TCP/IP	Profibus DP	Ethernet/IP
Supply voltage	24 Vdc PELV. M12, 4-pin male, A coding connector		
Conformity to standards	CE, UL	CE	CE
Station connection	M12, 5-pin female, A coding connector		
Degree of protection conforming to IEC 60529	IP65		
Catalog numbers	**XGSZ33ETH**	**XGSZ33PDP**	**XGSZ33EIP**

Terminal		Portable 13.56 MHz RFID diagnostics terminal
Dimensions W x H x P: mm (in.)		78 x 153 x 27 (3.07 x 6.02 x 1.06)
Function		Read/Write operations on electronic tags
Operating system		Proprietary OS
Conformity to standards		CE, FCC class A, Part 15
Display		53 x 95 mm color OLED touchscreen, 272 x 480 pixels resolution
Degree of protection conforming to IEC 60529		IP 40
Memory	RAM	256 Mb
	Storage	internal 2 GB + USB socket for memory stick
Catalog number		**XGST2422** (includes terminal plus battery, battery charger, 2 GB USB memory stick, and carrying case). RFID reader to be ordered separately: **XGCS4901201** integrated reader or **XGW4F111** remote reader

Connection accessories	for Modbus network			for Profibus	for Ethernet	Prewired connector	T connector
Description	Modbus connecting cable, M12 connectors, male to female	Prewired connector M12 male to bare wires	Modbus connecting cable, M12 female to mini-DIN 8	Profibus connecting cables, M12 connectors, male to female	Ethernet connecting cable, M12 male to RJ45	Prewired supply connector, M12 female	Network M12 T connector 1 male to 2 female
Application	RS485 connection between a smart antenna and a connection box or between 2 Modbus boxes	Connection between a Modbus box and a Modbus / Uni-Telway network	Connection between a Modbus box and a PLC	Connection between a Profibus box and a Profibus network	Connection between an Ethernet box and the Ethernet network	24 Vdc supply to connection boxes	For chaining of smart antennas on RS485 network
2 m cable	**TCSMCN1M1F2**	**TCSMCN1F2**	**TCSMCN1F9M2P**	**FTXDP1220**	**XGSZ12E4503** (3)	**XGSZ09L2**	**TCSCTN011M11F**
5 m cable	**TCSMCN1M1F5**	**TCSMCN1F5**	**–**	**FTXDP1250**	**XGSZ12E4510** (4)	**XGSZ09L5**	

(3) 3 m cable. (4) 10 m cable.

Field expander

To be associated with a smart antenna XGCS4901201 for conveying and handling applications

50 x 400 mm **XGFEC540**

50 x 200 **XGFEC520**

250 x 250 mm **XGFEC2525**

RS232/RS485 converter

For connecting a PC to an OsiSense XG smart antenna

XGSZ24

Technical documentation

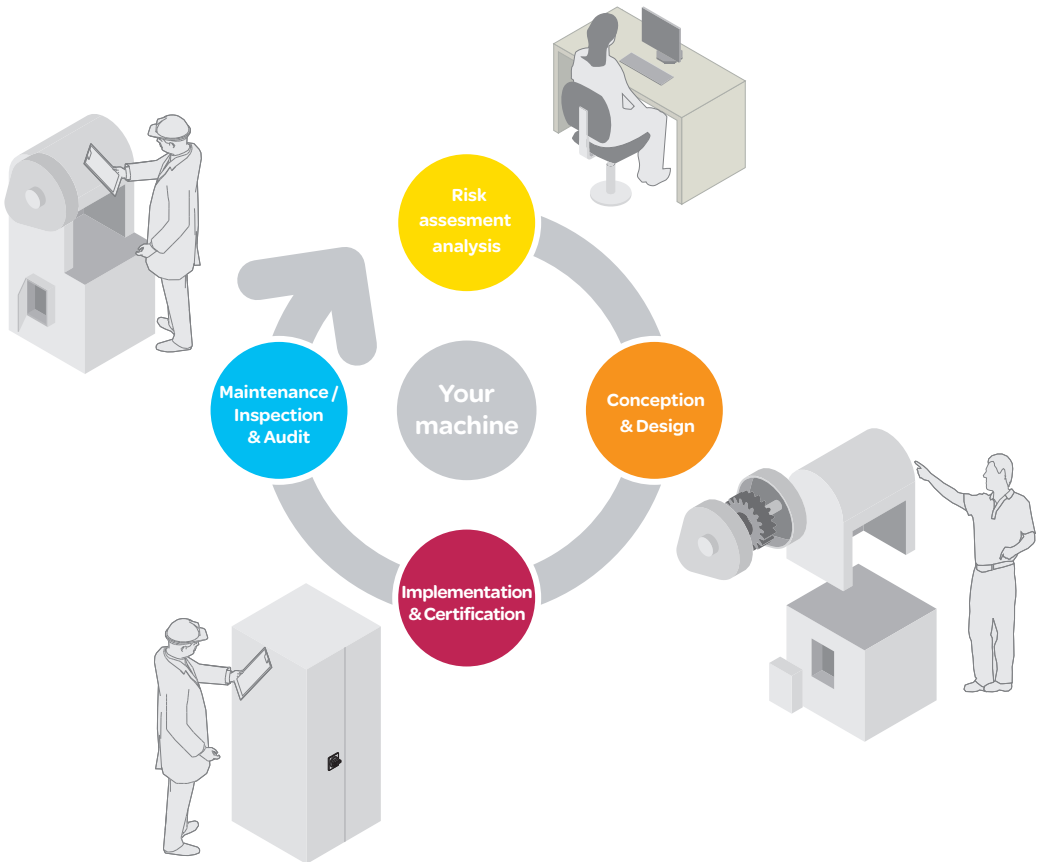
OsiSense XG RFID catalog

9006CT0902

Preventa, the safety attitude around your machine life cycle

The Preventa range enhances safety throughout a machine's entire life cycle from design, manufacture, installation, adjustment, operation and servicing right through to decommissioning.

The Preventa product line offers an extensive range of safety products, compliant with US, Canadian, and international standards, designed to provide the most comprehensive protection for personnel and equipment.



> New machines—the Machinery Directive

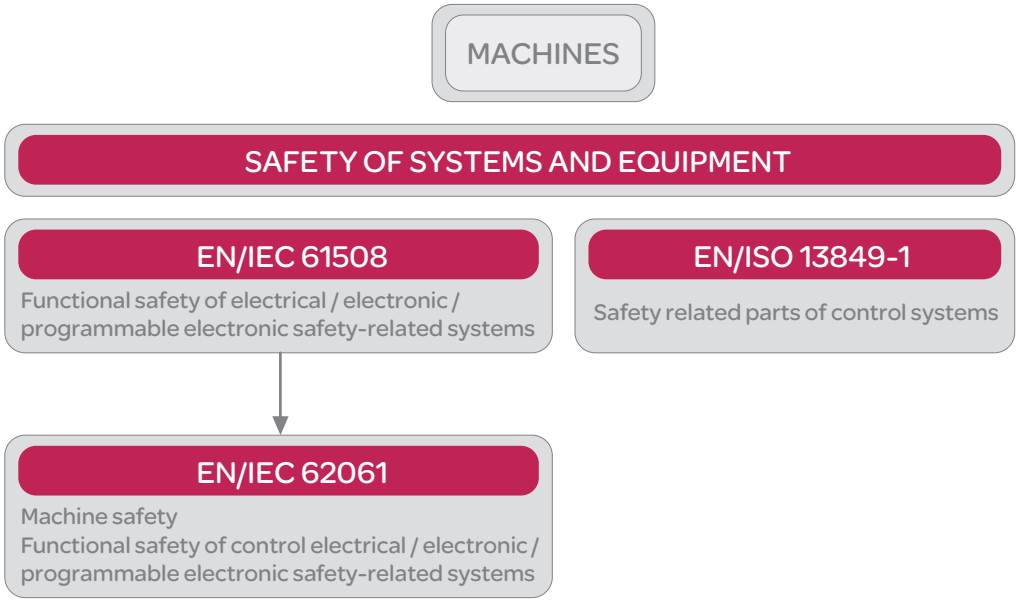
The previous Machinery Directive 98/37/EC was elaborated to help manufacturers ensuring a minimum safety level for machinery and equipment sold within the EU (European Union).

The new European Machinery Directive 2006/42/EC went into effect on December 29, 2009. Machines must comply with the Essential Health and Safety Requirements (EHSRs) listed in Annex I of the Directive, which sets a common minimum level of protection across the EEA (European Economic Area).

Machine manufacturers, or their authorized representatives within the EU, must ensure that the machine is compliant with all requirements from this Directive.

Functional safety

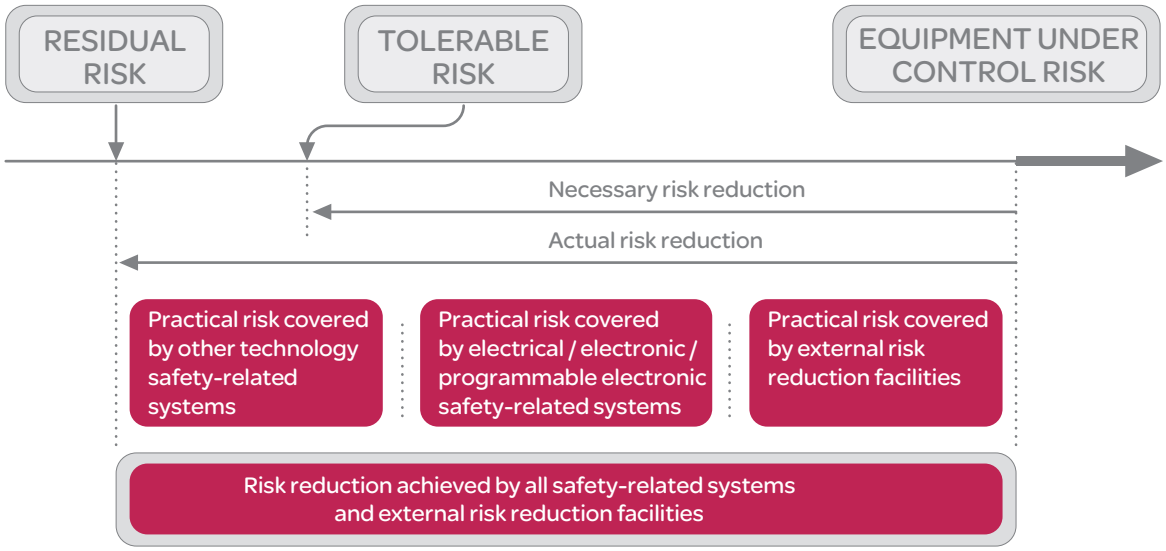
> Safety integrity level (SIL), Performance level (PL)



Risk reduction according to EN/IEC 61508 and EN/ISO 13849-1

- **Safety** is achieved by risk reduction (for those hazards that cannot be designed out).
- **Residual risk** is the risk remaining after protective measures have been taken.
- **Protective measures** realized by E/E/PE* safety related systems contribute to risk reduction.

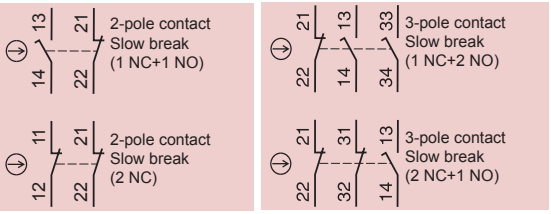
* Electric / Electronic / Programmable electronic

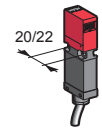


For more information on Machine Safety, please refer to our Preventa™ Machine Safety Products Catalog (MKTED208051EN-US).

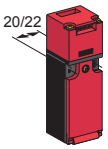
Safety switches
and actuators

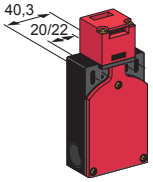
Illustration of contacts with the actuator inserted in the head of the switch





Without locking





Plastic, double insulated switches		Type XCSMP	Type XCSPA		Type XCSTA
Maximum safety level *(3)*		PL=e, category 4 conforming to EN/ISO 13849-1 and SIL CL3 conforming to EN/IEC 62061			
Actuation speed (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
Rated operational characteristics (conforming to EN IEC 60947-5-1)		AC 15, C 300 / DC 13, Q 300			
Degree of protection conforming to IEC 60529		IP67			
Reliability data B_{10d}		5,000,000 value given for a service life of 20 years, limited by mechanical or contact wear			
Body + Head dimensions W x D x H: mm (in.)		30 x 15 x 87 (1.18 x 0.59 x 3.43)	30 x 30 x 93.5 (1.18 x 1.18 x 3.68)		52 x 30 x 114.5 (2.05 x 1.18 x 4.51)
Resistence to forcible withdrawal of actuator		8 N	10 N *(1)*		10 N *(1)*
Wiring connection		precabled, 2 m	1 x 1/2"-14 NPT entry	1 x PG 11 entry	1/2"-14 NPT entry *(2)*
Safety contacts	1 NC+1 NO break before make, slow break	**XCSMP59L2** ⊖	**XCSPA593** ⊖	**XCSPA591** ⊖	–
	2 NC slow break	**XCSMP79L2** ⊖	**XCSPA793** ⊖	**XCSPA791** ⊖	–
	1 NC+2 NO break before make, slow break	–	–	–	**XCSTA593** ⊖
	2 NC+1 NO break before make, slow break	**XCSMP70L2** ⊖	–	–	**XCSTA793** ⊖
	3NC slow break	**XCSMP80L2** ⊖	–	–	**XCSTA893** ⊖

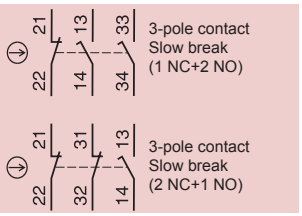
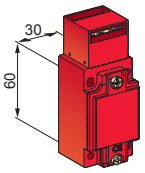
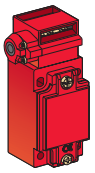
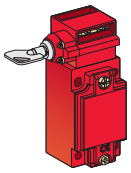


Illustration of contacts with the actuator inserted in the head of the switch



Without locking




With interlocking, manual unlocking
By button By key lock

Metal, double insulated switches		Type XCSA		Type XCSB	Type XCSC
Maximum safety level *(3)*		PL=e, category 4 conforming to EN/ISO 13849-1 and SIL CL3 conforming to EN/IEC 62061			
Actuation speed (min --> max)		0.01 m/s --> 0.5 m/s		0.01 m/s --> 0.5 m/s	
Rated operational characteristics (conforming to EN IEC 60947-5-1)		AC 15, A 300 / DC 13, Q 300			
Degree of protection conforming to IEC 60529		IP67			
Reliability data B_{10d}		5,000,000 value given for a service life of 20 years, limited by mechanical or contact wear			
Body + Head dimensions W x D x H: mm (in.)		40 x 44 x 113.5 (1.58 x 1.73 x 4.47)		52 x 44 x 113.5 (2.05 x 1.73 x 4.47)	
Resistence to forcible withdrawal of actuator		20 N		1500 N	
Wiring connection		1 x 1/2"-14 NPT entry	1 x Pg 13.5	1 x 1/2"-14 NPT entry *(4)*	1 x 1/2"-14 NPT *(4)*
Safety contacts	1 NC+2 NO break before make, slow break	**XCSA503** ⊖	**XCSA501** ⊖	**XCSB503** ⊖	**XCSC503** ⊖
	2 NC+1 NO break before make, slow break	**XCSA703** ⊖	**XCSA701** ⊖	**XCSB703** ⊖	**XCSC703** ⊖
	3NC slow break	**XCSA803** ⊖	**XCSA801** ⊖	**XCSB803** ⊖	**XCSC803** ⊖

Accessories

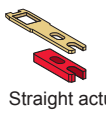

Straight actuator


Right-angled actuator

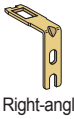

Pivoting actuator, RH door

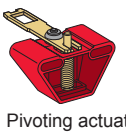

Pivoting actuator, LH door

For safety switches XCSMP	Actuators			
Catalog numbers	**XCSZ81**	**XCSZ84**	**XCSZ83**	**XCSZ85**


Straight actuator


Wide actuator, 40 mm *(5)*


Right-angled actuator

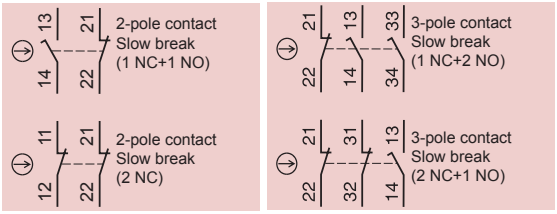

Pivoting actuator


Guard/door retainer

For safety switches XCSPA/TA	Actuators				Retaining device
Catalog numbers	**XCSZ11**	**XCSZ12**	**XCSZ14**	**XCSZ13**	**XCSZ21**

(1) In order to increase the resistance to 50 N, you must add the accessory XCSZ21 to the key actuators XCSZ12.
(2) With entry for no. 11 (Pg 11) cable connector, replace the last digit in the catalog number with **1.** Example: XCSTA59**3** becomes XCSTA59**1**.
Each device is supplied with 2 Pg 11 cable connector entries, one Pg 11 to 1/2"-14 DE9RA1012 adapter, and one Pg 11 end cap.
(3) Using an appropriate and correctly connected control system.
(4) For Pg 13.5 entry, change last digit to 1. Example: XCSC50**3** becomes XCSC50**1**.
(5) For 29 mm, catalog number = **XCSZ15.**

Illustration of contacts with the actuator inserted in the head of the switch



Safety interlock switches Standard version and Connector version			Type XCSLF, metal	Type XCSLE, plastic
Maximum safety level *(2)*			PL=e, category 4 conforming to EN/ISO 13849-1 and SIL CL3 conforming to EN/IEC 62061	
Degree of protection conforming to IEC 60529			IP66 and IP67	IP66 and IP67
Reliability data B10d			5,500,000 value given for a service life of 20 years, limited by mechanical or contact wear	
Body + Head dimensions W x D x H: mm (in.)			43.5 x 51 x 205 (1.71 x 2.01 x 8.07)	
Resistence to forcible withdrawal of actuator			3 000 N	1 400 N
Locking			on de-energization *(1)*	on de-energization *(1)*
Power supply for the solenoid and the LEDs			24 Vac/Vdc	
Material case			Zamak	Polyamide
Wiring connection *(2)*			1/2"-14 NPT entry	1/2"-14 NPT entry
Safety contacts	2 NC	(simultaneous, slow break)	**XCSLF2727313** ⊕	**XCSLE2727313** ⊕
	1 NC+2 NO	(break before make, slow break)	**XCSLF3535313** ⊕	—
	2 NC+1 NO	(break before make, slow break)	**XCSLF3737313** ⊕	**XCSLE3737313** ⊕
	3NC	(simultaneous, slow break)	**XCSLF3838313** ⊕	—

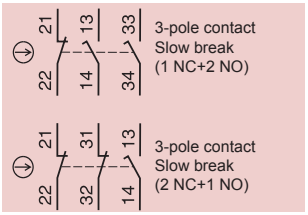
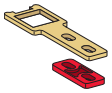


Illustration of contacts with the actuator inserted in the head of the switch

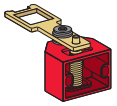
Safety interlock switches Push button version and Push button with connector version			Type XCSLF, metal	
Maximum safety level *(2)*			PL=e, category 4 conforming to EN/ISO 13849-1 and SIL CL3 conforming to EN/IEC 62061	
Degree of protection conforming to IEC 60529			IP66	IP66
Reliability data B10d			5,500,000 value given for a service life of 20 years, limited by mechanical or contact wear	
Body + Head dimensions W x D x H: mm (in.)			43.5 x 51 x 205 (1.71 x 2.01 x 8.07)	
Resistence to forcible withdrawal of actuator			3 000 N	
Locking			on de-energization *(1)*	on de-energization *(1)*
Push button with or without key no. 455 to release			Without	With
Power supply for the solenoid and the LEDs			24 Vac/Vdc	
Material case			Zamak	
Wiring connection *(2)*			1/2"-14 NPT entry	1/2"-14 NPT entry
Safety contacts	2 NC+1 NO	(break before make, slow break)	**XCSLF3737413** ⊕	**XCSLF3737613** ⊕

Accessories

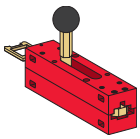


Straight actuator

Wide actuator



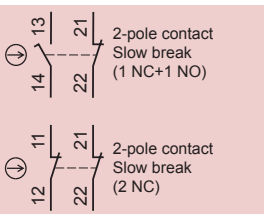
Pivoting actuator

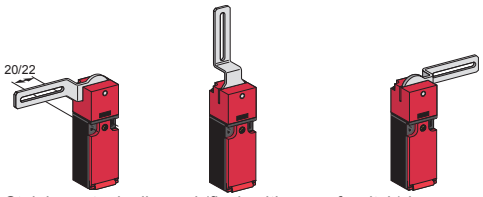


For safety switches XCSA/B/C/LE/LF	Actuators			Padlockable actuator
Catalog numbers	**XCSZ01**	**XCSZ02**	**XCSZ03**	**XCSZ05**

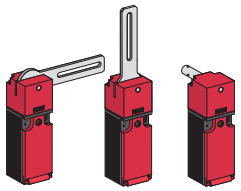
(1) For locking on energization of solenoid, please refer to www.tesensors.com.
(2) Using an appropriate and correctly connected control system. Other systems: consult our Customer Care Center.

Safety switches
with rotary lever or spindle





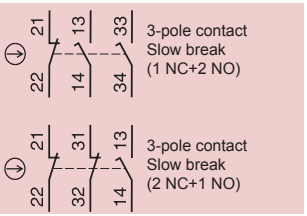
Stainless steel, elbowed (flush with rear of switch) lever

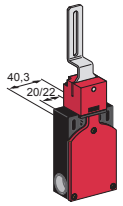


Stainless steel straight lever

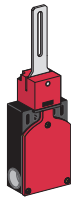
Stainless steel spindle, 30 mm

Plastic switches		Type XCSPL with rotary lever or XCSPR with spindle 1 x 1/2"-14 NPT entry *(1)*				
Maximum safety level *(3)*		PL=e, category 4 conforming to EN/ISO 13849-1 and SIL CL3 conforming to EN/IEC 62061				
Minimum torque (actuation / positive opening)		0.1 / 0.25 N•m				
Degree of protection		IP67				
Rated operational characteristics (conforming to EN IEC 60947-5-1)		AC 15, A 300 / DC 13, Q 300				
Dimensions (body + head) W x D x H: mm (in.)		30 x 30 x 160 (1.18 x 1.18 x 6.30)				30 x 30 x 96 (1.18 x 1.18 x 3.78)
Lever position		Lever to left	Lever centered	Lever to right	to left or right/centered	–
Tripping angle		5°				
Reliability data B10d		5,000,000 (value given for a service life of 20 years, limited by mechanical or contact wear)				
Complete switch	1 NC+1 NO break before make, slow break	**XCSPL593**	**XCSPL583**	**XCSPL573**	**XCSPL563**	**XCSPR553**
	2 NC slow break	**XCSPL793**	**XCSPL783**	**XCSPL773**	**XCSPL763**	**XCSPR753**

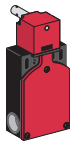




Stainless steel, elbowed (flush with rear of switch) lever



Stainless steel straight lever

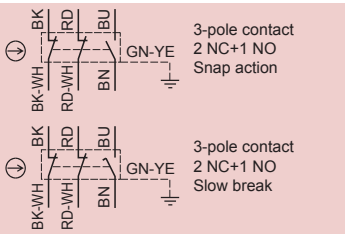


Stainless steel spindle 30 mm

Plastic switches		Type XCSTL with rotary lever or XCSTR with spindle 2 x 1/2"-14 NPT entry *(1) (2)*		
Maximum safety level *(3)*		PL=e, category 4 conforming to EN/ISO 13849-1 and SIL CL3 conforming to EN/IEC 62061		
Minimum torque (actuation / positive opening)		0.1 / 0.45 N•m		
Degree of protection		IP67		
Rated operational characteristics (conforming to EN IEC 60947-5-1)		AC 15, A 300 / DC 13, Q 300		
Dimensions (body + head) W x P x H: mm (in.)		52 x 30 x 180 (2.05 x 1.18 x 7.09)		52 x 30 x 117 (2.05 x 1.18 x 4.61)
Lever position		Lever centered	Lever centered	–
Tripping angle		5°		
Reliability data B10d		5,000,000 (value given for a service life of 20 years, limited by mechanical or contact wear)		
Complete switch	1 NC+2 NO break before make, slow break	**XCSTL583**	**XCSTL553**	**XCSTR553**
	2 NC+1 NO break before make, slow break	**XCSTL783**	**XCSTL753**	**XCSTR753**

(1) With entry for no. 11 (Pg 11) cable connector, replace the last digit in the catalog number with **1**. Example: XCSPL59**3** becomes XCSPL59**1**.
(2) Each device is supplied with 2 Pg 11 cable connector entries, one Pg 11 to 1/2"-14 DE9RA1012 adapter, and one Pg 11 end cap.
(3) Using an appropriate and correctly connected control system.

Limit switches
Safety limit switches

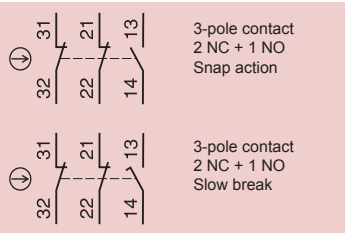



Metal
end plunger


Roller plunger


Thermoplastic
roller lever

Miniature switches		Type XCSM, metal precabled, 2 m *(1)*		
Maximum safety level *(2)*		PL=e, category 4 conforming to EN/ISO 13849-1 and SIL CL3 conforming to EN/IEC 62061		
Maximum actuation speed		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		IP66 + IP67 + IP68	IP66 + IP67 + IP68	IP66 + IP67 + IP68
Dimensions (body + head) W x D x H: mm (in.)		30 x 16 x 60 (1.18 x 0.63 x 2.36)	30 x 16 x 70.5 (1.18 x 0.63 x 2.78)	30 x 32 x 92.5 (1.18 x 1.26 x 3.64)
Reliability data B10d		50,000,000 (value given for a service life of 20 years, limited by mechanical or contact wear)		
Complete switch	2 NC+1 NO snap action	**XCSM3910L2** →	**XCSM3902L2** →	**XCSM3915L2** →
	2 NC+1 NO slow break	**XCSM3710L2** →	**XCSM3702L2** →	**XCSM3715L2** →




Metal
end plunger


Roller
plunger


Thermoplastic
roller lever


Metal
end plunger


Roller
plunger

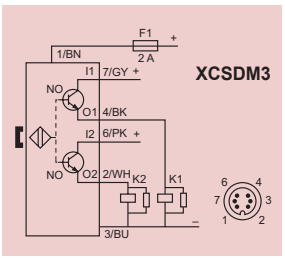

Thermoplastic
roller lever

Compact switches		Type XCSD, metal 1/2"-14 NPT conduit entry *(3)*			Type XCSP, plastic 1/2"-14 NPT conduit entry *(3)*		
Maximum safety level *(2)*		PL=e, category 4 conforming to EN/ISO 13849-1 and SIL CL3 conforming to EN/IEC 62061					
Maximum actuation speed		0.5 m/s		1.5 m/s	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		IP66 + IP67			IP66 + IP67		
Dimensions (body + head) W x D x H: mm (in.)		34 x 34.5 x 89 (1.34 x 1.34 x 3.50)	34 x 34.5 x 99.5 (1.34 x 1.34 x 3.92)	34 x 43 x 121.5 (1.34 x 1.69 x 4.78)	34 x 34.5 x 89 (1.34 x 1.39 x 3.50)	34 x 34.5 x 99.5 1.34 x 1.39 x 3.92)	34 x 43 x 121.5 1.34 x 1.69 x 4.78)
Reliability data B10d		50,000,000 (value given for a service life of 20 years, limited by mechanical or contact wear)					
Complete switch	2 NC+1 NO snap action	**XCSD3910N12**	**XCSD3902N12**	**XCSD3918N12**	**XCSP3910N12**	**XCSP3902N12**	**XCSP3918N12**
	2 NC+1 NO slow break	**XCSD3710N12**	**XCSD3702N12**	**XCSD3718N12**	**XCSP3710N12**	**XCSP3702N12**	**XCSP3718N12**

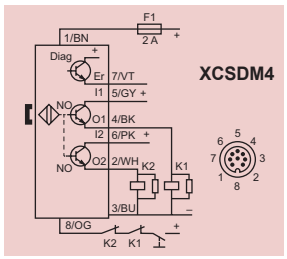
(1) For a 1 m cable, replace the last digit of the catalog number with **1**. Example: XCSM3910L**2** becomes XCSM3910L**1**.
For a 5 m cable, replace the last digit of the catalog number with **5**. Example: XCSM3910L**2** becomes XCSM3910L**5**.
(2) Using an appropriate and correctly connected control system.
(3) For Pg 13.5 entry, change suffix **N12** to **G13**. Example: XCSP3710**N12** becomes XCSP3710**G13**.

Coded magnetic technology
Plastic coded magnetic system

(1)



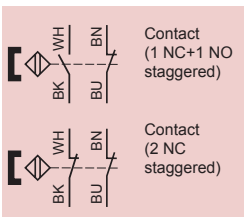
(1)



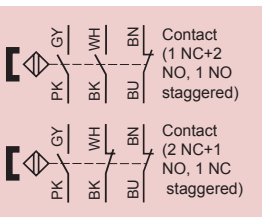
Type of system With integrated safety module			SIL2/Category 3 XCSDM3	SIL3/Category 4 XCSDM4
Maximum safety level			SIL 2 conforming to EN/IEC 61508,PL=d, category 3 conforming to EN/ISO 13849-1	SIL 3 conforming to EN/IEC 61508, PL=e, category 4 conforming to EN/ISO 13849-1
Switches for actuation			**Face to face, face to side, side to side**	
Degree of protection			Precabled: IP66 / IP67, IP69K, connector: IP67	
Type of contact			2 solid-state output PNP/NO, 1.5 A / 24 Vdc (2 A up to 60 °C)	
Rated operational characteristics (conforming to EN IEC 60947-5-1)			Ub: 24 Vdc +10% –20%	
Dimensions W x D x H: mm (in.)			34 x 27 x 100 (1.34 x 1.06 x 3.94)	
Operating zone			Sao= 10 mm / Sar= 20 mm	
Reliability data			MTTFd = 182 years; PFH = 3.94E -9; PFD = 1.15E -5; SFF = 92.5%; HFT = 1	
Catalog numbers	Connection	2 m cable	**XCSDM379102**	**XCSDM480102**
		5 m cable	**XCSDM379105**	**XCSDM480105**
		10 m cable	**XCSDM379110**	**XCSDM480110**
		M12 connector	**XCSDM3791M12** *(3)*	**XCSDM4801M12** *(3)*

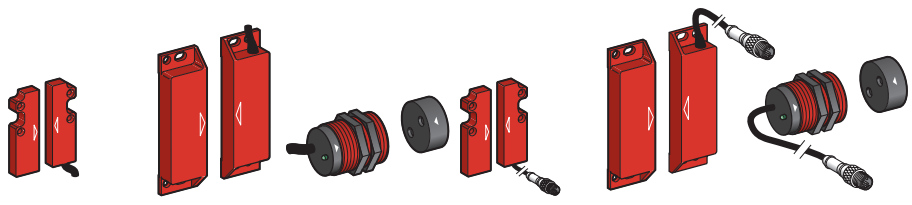
Plastic coded magnetic

(1)



(1)



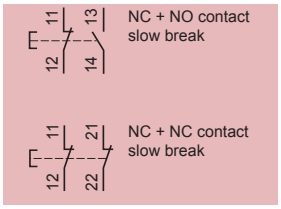


Rectangular Without LED *(2)* | Rectangular Without LED *(2)* | Cylindrical Without LED *(2)* | Rectangular Without LED *(2)* | Rectangular Without LED *(2)* | Cylindrical Without LED *(2)*

Plastic switches		Type XCSDM coded magnetic					
		Precabled, 2 m			Connector on pigtail connector, 10 cm *(3)*		
Maximum safety level *(5)*		PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508					
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		IP66 + IP67			IP66 + IP67		
Type of contact		REED			REED		
Rated operational characteristics (conforming to EN IEC 60947-5-1)		Ue = 24 Vdc, Ie = 100 mA			Ue = 24 Vdc, Ie = 100 mA		
Dimensions W x D x H: mm (in.)		16 x 7 x 51 (0.63 x 0.28 x 2.01)	25 x 13 x 88 (0.98 x 0.51 x 3.47)	M30 x 38.5 (1.52)	16 x 7 x 51 (0.63 x 0.28 x 2.01)	25 x 13 x 88 (0.98 x 0.51 x 3.47)	M30 x 38.5 (1.52)
Operating zone *(4)*		Sao = 5 / Sar = 15	Sao = 8 / Sar = 20		Sao = 5 / Sar = 15	Sao = 8 / Sar = 20	
Reliability data B10d		50,000,000 (value given for a service life of 20 years, limited by mechanical or contact wear)					
Switch with coded magnet	1 NC+1 NO staggered	**XCSDMC5902**	**XCSDMP5902**	**XCSDMR5902**	**XCSDMC590L01M8**	**XCSDMP590L01M12**	**XCSDMR590L01M12**
	2 NC staggered	**XCSDMC7902**	**XCSDMR7902**	**XCSDMR7902**	**XCSDMC790L01M8**	**XCSDMP790L01M12**	**XCSDMR790L01M12**
	1 NC+2 NO, 1 NO staggered	–	**XCSDMP5002**	–	–	**XCSDMP500L01M12**	–
	2 NC+1 NO, 1 NC staggered	–	**XCSDMP7002**	–	–	**XCSDMP700L01M12**	–

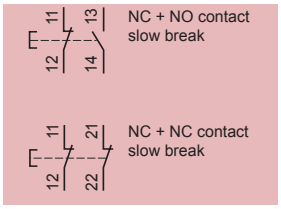
(1) Illustration of contacts with the magnet in front of the switch.
(2) For version with LED indicator, replace the last **0** in the catalog number with **1**. Example: XCSDMC59**0**2 becomes XCSDMC59**1**2.
(3) For associated prewired female connectors, please refer to the Sensors catalog.
(4) Sao: assured operating distance. Sar: assured release distance.
(5) Using an appropriate and correctly connected control system.

Emergency stops
Emergency stop cable pull switches



Booted push button reset

For operating cable ≤ 30 m		Latching, without indicator light 3 x 1/2"-14 NPT conduit entries *(1)*
Maximum safety level *(2)*		PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508
Mechanical life		1 million operating cycles
Shock / vibration resistance		50 gn / 10 gn
Degree of protection		IP65
Conformity to standards		EN/IEC 60947-5-5, EN/ISO 13850: 2006, UL 508 and CSA C 22-2 no. 14 (with suffix H7)
Dimensions W x D x H: mm (in.)		201 x 71 x 68 (7.91 x 2.80 x 2.68)
Operating cable length		≤ 30 m
Operating cable anchoring point		To right or to left
Reliability data B10d		5,000,000 (value given for a service life of 20 years, limited by mechanical or contact wear)
Contact	1 NC + NO slow break	**XY2CH13250H7**
	1 NC + NC slow break	**XY2CH13270H7**
	2 NC+1 NO slow break	**XY2CH13290H7**



Booted pusbutton reset

For operating cable ≤ 70 m		Latching, without indicator light 3 x 1/2"-14 NPT conduit entries	
Maximum safety level *(2)*		PL=e, category 4 conforming to EN/ISO 13849-1 and SIL 3 conforming to EN/IEC 61508	
Mechanical life (millions of operating cycles)		0.01	
Shock / vibration resistance		50 gn / 10 gn	
Degree of protection		IP65	
Conformity to standards		EN/IEC 60947-5-5, EN/ISO 13850: 2006, UL 508 and CSA C 22-2 no. 14 (with suffix H7)	
Dimensions W x D x H: mm (in.)		229 x 82 x 142 (9.02 x 3.23 x 5.59)	
Operating cable length		≤ 70 m	
Operating cable anchoring point		To left	To right
Reliability data B10d		50.000 (value given for a service life of 20 years, limited by mechanical or contact wear)	
Contact	1 NC + NO slow break	**XY2CE2A250H7**	**XY2CE1A250H7**
	1 NC + NC slow break	**XY2CE2A270H7**	**XY2CE1A270H7**
	2 NC + NO slow break	**XY2CE2A290H7** *(3)*	**XY2CE1A290H7** *(3)*

(1) With entry for no. 13 (Pg 13.5) cable connector, delete **H7** from the end of the catalog number. Example: XY2CH13250**H7** becomes XY2CH13250.
(2) Using an appropriate and correctly connected control system.
(3) With protected LED, 24 V or 130 V supply voltage pilot light, replace the **0** in the catalog number with **6**. Example: XY2CE1A29**0**H7 becomes XY2CE1A29**6**H7.
With protected LED, 230 V supply voltage pilot light, replace the **0** in the catalog number with **7**. Example: XY2CE1A29**0**H7 becomes XY2CE1A29**7**H7.

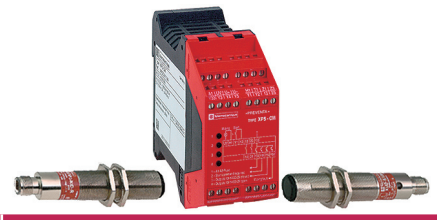
Light curtains
Type 2 conforming to IEC 61496-2

Light curtain functions
- Auto/Manual,
- Monitoring of external switching devices (EDM: External Devices Monitoring),
- LED display of operating modes

Maximum safety level achieved by the solution (EN ISO 13849-1)			**PLc/cat2**	
Type			**Multi-beam, infrared transmission**	
Slim range			**Manual starting**	**Automatic starting**
Nominal sensing distance (Sn)			**0.3 to 15 m**	
Detection capacity			**30 mm “hand”**	
Number of safety circuits			**2 solid-state PNP**	
Response time (depending on model)			**14 to 24 ms**	
Connection			**M12 Connector**	
Reliability data			PFHd = 2.29E -7 conforming to EN/IEC 61508	
Height protected (mm)		**150**	**XUSLNG5D0150**	**XUSLNG5C0150**
		300	**XUSLNG5D0300**	**XUSLNG5C0300**
		450	**XUSLNG5D0450**	**XUSLNG5C0450**
		600	**XUSLNG5D0600**	**XUSLNG5C0600**
		750	**XUSLNG5D0750**	**XUSLNG5C0750**
		900	**XUSLNG5D0900**	**XUSLNG5C0900**
		1050	**XUSLNG5D1050**	**XUSLNG5C1050**
		1200	**XUSLNG5D1200**	**XUSLNG5C1200**
		1350	**XUSLNG5D1350**	**XUSLNG5C1350**
		1500	**XUSLNG5D1500**	**XUSLNG5C1500**

		Accessories		
Cable length		3 m	10 m	30 m
Prewired connector for XUSLN (shielded cable)	For receiver	**XSZNCR03**	**XSZNCR10**	**XSZNCR30**
	For transmitter	**XSZNCT03**	**XSZNCT10**	**XSZNCT30**

Type 2 conforming to IEC 61496-1 and 2



Light curtain functions
- Auto/Manual,
- Monitoring of external switching devices (EDM: External Devices Monitoring),
- LED display of operating modes
- Integral muting function.

Maximum safety level achieved by the solution (EN ISO 13849-1, EN/IEC 62061)			**PLc/cat2, SILCL1**
Type			**Single-beam with infrared emission**
Height protected (conforming to prEN 999)			**750 to 1200 mm (1 to 4 beams)**
Nominal sensing distance (Sn)			**8 m**
Number of circuits	**Safety**		**2 N/O**
	Additional		**4 solid-state**
Response time			**< 25 ms**
Reliability data			PFHd = 4.6E -7 conforming to EN/IEC 61508 PFHd = 5.5E -7 conforming to EN/IEC 61508, with "muting" function
Modules (integral muting function)		**24 Vdc**	**XPSCM1144P**
Thru-beam pairs, axially aligned	**Precabled, 5 m**	**PNP**	**XU2S18PP340L5** *(1)*
	M12 connector	**PNP**	**XU2S18PP340D** *(1)*

(1) For alignment at 90° to the mounting axes, insert the letter **W** in the catalog number before the last letter. Example: XU2S18PP340L5 becomes XU2S18PP340**W**L5.

Type 4 conforming to IEC 61496

Functions accessible by cabling alone
- Automatic start
- Auxiliary output (PNP, status signaling)
- Alignment aid by display of each light beam broken
- LED display of operating modes and faults

Maximum safety level achieved by the solution (EN ISO 13849-1, EN/IEC 62061)			**PLe/cat4, SILCL3**			
Type			**Multi-beam, infrared transmission Light curtains**		**Cascadable light curtains**	
Nominal sensing distance (Sn)			0.3 to 7 or 3 m with PDM *(2)*	0.3 to 8 or 20 m with PDM *(2)*	0.3 to 7 or 3 m with PDM *(2)*	0.3 to 20 or 8 m with PDM *(2)*
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	
	Auxiliary (alarm)		1 solid-state PNP		1 solid-state PNP or NPN	
Response time (depending on model)			23 to 41 ms	23 to 32 ms	23 to 41 ms	23 to 32 ms
Connection			M12 connector			
Reliability data			PFHd = 4.9E -8 conforming to EN/IEC 61508			
Functions accessible via programming and diagnostic module			■ Auto/Manual ■ Monitoring of external switching devices (EDM: External Device Monitoring) ■ Test (MTS: Monitoring Test Signal), ■ Light beam coding (A or B) ■ Sensing distance (short, long) ■ Programming and downloading of configuration settings, via programming and diagnostic module (PDM) ■ Display of operating modes and faults by LED and/or PDM *(2)*		■ Auto/Manual, manual 1st cycle ■ Monitoring of external switching devices (EDM: External Device Monitoring) ■ Test (MTS: Monitoring Test Signal), ■ Blanking (ECS/B), Monitored Blanking, Floating Blanking (FB) ■ Reduction of resolution ■ Response time (normal, slow) ■ Light beam coding (A or B) ■ Sensing distance (short, long) ■ Auxiliary output (alarm or status signaling, PNP or NPN) ■ Start button (N/O or N/C, 0 V or 24 V) ■ Muting ■ Display of operating modes and faults by LED and/or PDM *(2)*	
Transmitter + receiver	***(1)* Height protected: mm (in.)**	280 (11.02)	**XUSLBQ6A0280**	**–**	**XUSLDMQ6A0280**	**–**
		320 (12.60)	**XUSLBQ6A0320**	**XUSLBR5A0320**	**XUSLDMQ6A0320**	**XUSLDMY5A0320**
		360 (14.17)	**XUSLBQ6A0360**	**XUSLBR5A0360**	**XUSLDMQ6A0360**	**XUSLDMY5A0360**
		440 (17.32)	**XUSLBQ6A0440**	**XUSLBR5A0440**	**XUSLDMQ6A0440**	**XUSLDMY5A0440**
		520 (20.47)	**XUSLBQ6A0520**	**XUSLBR5A0520**	**XUSLDMQ6A0520**	**XUSLDMY5A0520**
		600 (23.62)	**XUSLBQ6A0600**	**XUSLBR5A0600**	**XUSLDMQ6A0600**	**XUSLDMY5A0600**
		680 (26.77)	**–**	**XUSLBR5A0680**	**–**	**XUSLDMY5A0680**
		720 (28.35)	**XUSLBQ6A0720**	**–**	**XUSLDMQ6A0720**	**XUSLDMY5A0720**
		880 (34.65)	**XUSLBQ6A0880**	**XUSLBR5A0880**	**XUSLDMQ6A0880**	**XUSLDMY5A0880**
		1040 (40.95)	**XUSLBQ6A1040**	**XUSLBR5A1040**	**XUSLDMQ6A1040**	**XUSLDMY5A1040**
		1200 (47.24)	**XUSLBQ6A1200**	**XUSLBR5A1200**	**XUSLDMQ6A1200**	**XUSLDMY5A1200**
		1400 (55.12)	**–**	**XUSLBR5A1400**	**–**	**XUSLDMY5A1400**
		1560 (61.42)	**–**	**XUSLBR5A1560**	**–**	**XUSLDMY5A1560**

Type			**Segments for cascadable light curtains**	
Detection capacity			14 mm (finger)	30 mm (hand)
Transmitter + receiver	**Height protected: mm (in.)**	280 (11.02)	**XUSLDSQ6A0280**	**–**
		320 (12.60)	**XUSLDSQ6A0320**	**XUSLDSY5A0320**
		360 (14.17)	**XUSLDSQ6A0360**	**XUSLDSY5A0360**
		440 (17.32)	**XUSLDSQ6A0440**	**XUSLDSY5A0440**
		520 (20.47)	**XUSLDSQ6A0520**	**XUSLDSY5A0520**
		600 (23.62)	**XUSLDSQ6A0600**	**XUSLDSY5A0600**
		680 (26.77)	**–**	**XUSLDSY5A0680**
		720 (28.35)	**XUSLDSQ6A0720**	**–**
		880 (34.65)	**XUSLDSQ6A0880**	**XUSLDSY5A0880**
		1040 (40.95)	**XUSLDSQ6A1040**	**XUSLDSY5A1040**
		1400 (55.12)	**–**	**XUSLDSY5A1400**
		1560 (61.42)	**–**	**XUSLDSY5A1560**

(1) For other height protected products, see the catalog, "Preventa Safety Solutions."
(2) PDM module: programming and diagnostic module—see page 68.

Preventa
Detection

Light curtains
Type 4 conforming to IEC 61496-2

Light curtain functions
- Auto/Manual/Manual 1st cycle
- Monitoring of external switching devices (EDM: External Devices Monitoring),
- Test input (MTS: Monitoring Test Signal),
- Alignment aid by LED display of each light beam broken,
- LED display of operating modes and alarms,
- Coding of the beams

Maximum safety level achieved by the solution (EN ISO 13849-1, EN/IEC 62061)			PLe/cat4, SILCL3	
Type			**Single-beam and multi-beam, infrared transmission**	
Compact range			**Transmitter/receiver**	**Transmitter/passive receiver**
Nominal sensing distance (Sn)			0.8 to 20 or 70 m (according to config)	0.8 to 8 m
Detection capacity			Body	
Number of circuits	**Safety**		2 solid-state PNP	
	Auxiliary (alarm or following)		1 solid-state PNP	
Response time (depending on model)			16 to 24 ms	
Connection			M12 Connector *(1)*	M12 Connector
Reliability data			PFHd = 2.7E -9 conforming to EN/IEC 61508	
Beam	**Interval**	**Number**		
	–	**1**	**XUSLPZ1AM**	**–**
	300 mm	**4**	**XUSLPZ4A300M**	**–**
		5	**XUSLPZ5A300M**	**–**
		6	**XUSLPZ6A300M**	**–**
	400 mm	**3**	**XUSLPZ3A400M**	**–**
	500 mm	**2**	**XUSLPZ2A500M**	**XUSLPB2A500M**
		3	**XUSLPZ3A500M**	**–**
	600 mm	**2**	**XUSLPZ2A600M**	**XUSLPB2A600M**

Cabling accessories

Type			Prewired connectors			
Length			5 m	10 m	15 m	30 m
Prewired connector (shielded cable)	**XUSLB/XUSLDM**	receiver	**XSZBCR05**	**XSZBCR10**	**XSZBCR15**	**XSZBCR30**
		transmitter	**XSZBCT05**	**XSZBCT10**	**XSZBCT15**	**XSZBCT30**
	XUSLP	receiver	**XSZPCR05**	**XSZPCR10**	**XSZPCR15**	**XSZPCR30**
		transmitter	**XSZPCT05**	**XSZPCT10**	**XSZPCT15**	**XSZPCT30**

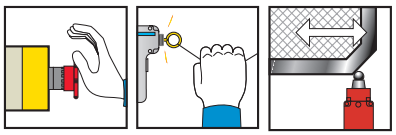
Type		Jumper cables for segments XUS LDS						
Cable length		0.3 m	0.5 m	1 m	2 m	2 m	5 m	10 m
Catalog number	receiver	**XSZDCR003**	**XSZDCR005**	**XSZDCR010**	**XSZDCR020**	**XSZDCR030**	**XSZDCR050**	**XSZDCR100**
	transmitter	**XSZDCT003**	**XSZDCT005**	**XSZDCT010**	**XSZDCT020**	**XSZDCT030**	**XSZDCT050**	**XSZDCT100**

Setup accessories

Type	Programming and Diagnostic Module (PDM)	Laser alignment tool
For light curtains	**XUSLB / XUSLDM**	**All type XUSL**
Catalog number	**XUSLPDM**	**XUSLAT1**

(1) Light curtain with M12 connector output. For terminal block output, replace **M** at the end of the catalog number with **B**. Example: XUSLPZ1A**M** becomes XUSLPZ1A**B.**

Safety modules for monitoring
Emergency stops and limit switches

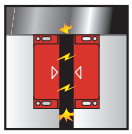


Maximum safety level of the solution attained (EN ISO 13849-1, EN/IEC 62061)		PL e / Cat. 4, SILCL 3							
Number of circuits	Safety	3 N/O	3N/O	3 N/O	3 N/O	7 N/O	3 N/O + 3 N/O time delay	2 N/O + 1 N/O time delay	2 N/O + 3 N/O time delay
	Additional	1 solid-state	1 N/C	–	1 N/C + 4 solid-state	2 N/C + 4 solid-state	3 solid-state	–	4 solid-state
Display (number of LEDs)		2	2	3	4	4	11	3	4
Width of housing		22.5 mm	22.5 mm	22.5 mm	45 mm	90 mm	45 mm	22.5 mm	45 mm

Optimum solutions: safety modules (for monitoring 1 safety function)

Supply voltage *(1)*	24 Vdc	–		–	–	–	**XPSAV11113P**	**XPSABV11330P** *(1)*	–
	24 Vac/Vdc	**XPSAC5121P**	**XPSAXE5120P** *(1)*	**XPSAF5130P**	**XPSAK311144P**	**XPSAR311144P**	–	–	**XPSATE5110P**

Coded magnetic switches



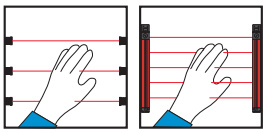
Maximum safety level of the solution attained (EN ISO 13849-1, EN/IEC 62061)		PL e / Cat. 4, SILCL 3	
For monitoring		2 coded magnetic switches maximum	6 coded magnetic switches maximum
Number of circuits	**Safety**	**2 N/O**	**2 N/O**
	Additional	2 solid-state	2 solid-state
Display (number of LEDs)		3	15
Width of housing: mm (in.)		22.5 (0.89)	45 (1.77)

Optimum solutions: safety modules (for monitoring 1 safety function)

Supply voltage	24 Vdc	**XPSDMB1132P**	**XPSDME1132P**

(1) For a version with spring terminals, replace the letter **P** with the letter **C** at the end of the catalog number. Example: XPSAXE5120**P** becomes XPSAXE5120**C**.

Safety modules for monitoring
Light curtains

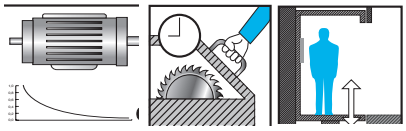


Maximum safety level of the solution attained (EN ISO 13849-1, EN/IEC 62061)		PL c / Cat. 2, SILCL 1	PL e / Cat. 4, SILCL 3		
Number of circuits	Safety	2 N/O	3N/O	3N/O	7N/O
	Additional	4 solid-state	–	1 N/C + 4 solid-state	1 N/C + 4 solid-state
Display (number of LEDs)		4	3	4	4
Width of housing: mm (in.)		45 (1.77)	22.5 (0.89)	45 (1.77)	90 (3.54)
Integral Muting function		Yes	No	No	No

Optimum solutions: safety modules (for monitoring 1 safety function)

Supply voltage	24 Vdc	**XPSCM1144P**	–	–	–
	24 Vac/Vdc	–	**XPSAFL5130P**	**XPSAK311144P**	**XPSAR311144P**

Zero speed, time delay and lifts



Maximum safety level of the solution attained (EN ISO 13849-1, EN/IEC 62061)		PL d / Cat. 3, SILCL 2		
For monitoring		Motor zero speed condition	Safety time delay	
Number of circuits	Safety	1 N/O + 1 N/C	1 N/O time delay	1 N/O pulse
	Additional	2 solid-state	2 N/C + 2 solid-state	2 N/C + 2 solid-state
Display (number of LEDs)		4	4	4
Width of housing: mm (in.)		45 (1.77)	45 (1.77)	45 (1.77)

Optimum solutions: safety modules (for monitoring 1 safety function)

Supply voltage	24 Vdc	**XPSVNE1142P** *(1)*	–	–
	24 Vac/Vdc	–	**XPSTSA5142P**	**XPSTSW5142P**

(1) Motor frequency ≤ 60 Hz. For frequencies ≥ 60 Hz, please refer to the Sensors catalog.

Telemecanique Sensors

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