

Technical Data

small electric Part-turn Actuators 2SG7



ECOTRON



PROFITRON

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Technical Data

General data

SIPOS actuators are suitable for automatic and safe operation of industrial valves in accordance with EN 15714-2.

Mounting position

The actuator can be mounted in **any position**. To make local operation easier, e.g. reading information on the display, a regular mounting is recommended, meaning the electronics unit above the gear unit.

The electronics unit of the actuator can be **mounted separately** (e.g. wall bracket) using our separate mounting kit (e.g. order add-on **S41**).

Duty classifications

2SG70..-

- o ON-OFF duty, class **A** according to EN 15714-2
- o Short-time duty **S2-15 min** according to DIN EN 60034

2SG73..-

- o Inching/positioning duty, class **B** according to EN 15714-2

2SG75..-

- o Modulating duty, class **C** according to EN 15714-2
- o Intermittent duty **S4/S5 min**. 25 % ED duty cycle, 1200 c/h according to DIN EN 60034
 In S4 duty (without electr. braking) and S5 duty (with electr. braking) with at least 25 % relative on-time, 1,200 cycles per hour are ensured.

The actuators can be operated for all torque and positioning time combinations for the entire temperature range from -20 °C to +60 °C.

Noise level

The noise level caused by the actuator (sound pressure level at 1 m distance) is **< 70 dB (A)**.

Paint finish and corrosion protection

All outside screws are exclusively made of **stainless steel**. The housing material consists of a **corrosion-resistant aluminum alloy** for normal atmospheric ambient conditions. Small part-turn actuators 2SG7 can be used without coating but are painted with a 2K-PUR-single layer coat (two-component polyurethane single layer coating) as standard.

The single layer coating is UV-resistant and decontaminable. It is applied with a minimum coating thickness of 80 µm when dry, in color similar to **RAL 7037** (silver-gray). Other RAL colors (add Y35 + number of RAL color to order) are available.

After roughening and cleaning the surfaces, the single layer coating can be painted with all common painting material. This includes epoxid lacquers, nitrocellulose lacquers etc.

Protection against corrosion from outside is stipulated in corrosivity categories in accordance with EN15714-2 (EN ISO 12944-2):

Version	Standard version: Corrosivity category C5	Very high corrosion protection, corrosivity category C5 with long protection time
Installation / Environmental condition	- Industrial areas with high humidity and aggressive atmosphere - Areas with almost permanent condensation and with high pollution	- Coastal and offshore areas with high salinity - Industrial areas with high humidity and aggressive atmosphere - Areas with almost permanent condensation and with high pollution
Order add-on	---	L38

Technical Data

Lubrication

The gears are filled with durable gear oil and are maintenance free for lifetime.

Degree of protection

The actuators meet the requirements of **IP68** protection as standard (DIN EN 60529). They are fully screen-protected (electrical voltage and moving parts) and protected against the ingress of foreign bodies (dust), and against harmful quantities of water on continuous immersion up to max. 3 m head of water for a duration of max. 72 hours. During flooding up to 10 motor operations (switching cycles) are permitted.
 IP68-8, continuous immersion up to max. 8 m head of water, on request!

Vibration performance

Small electric part-turn actuators 2SG7 are certified according to:

	Acceleration	Frequency range	Throughput speed	Test duration
Germanischer Lloyd	0.7 g	5 – 200 Hz	in the resonance frequencies	min. 1.5 h / in 3 directions
EN 60068-2-6	2 g	5 – 500 Hz	1 octave/min	20 sweeps (10 cycles) / in 3 directions

Loads according to EN 60068-2-6 up to **5 g** for separate mounting of electronics and gear unit on request.
 The actuators can withstand a continuous load caused by plant-generated vibrations within a frequency range of 5 Hz – 200 Hz at up to **0.5 g**.

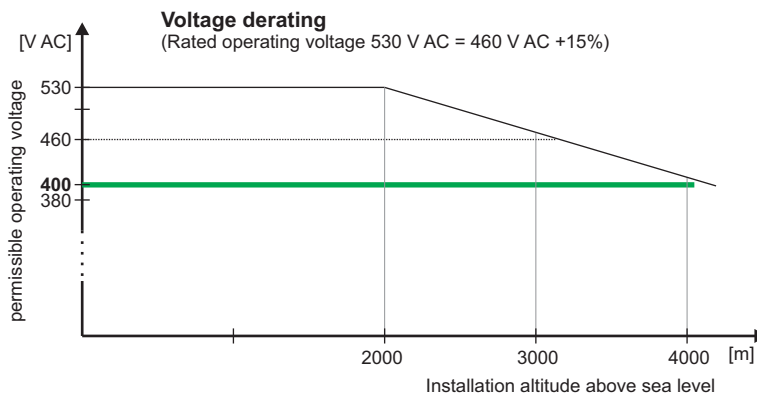
Ambient temperature

There are no functional restrictions for the temperature range of **-20 °C to +60 °C**. Lower or higher temperatures on request!

Installation altitude above sea level

The actuators are designed for an installation altitude up to 2,000 m above sea level. Since the insulating properties of air decrease with increasing installation altitude, a voltage derating for the maximum permissible operating voltage has to be considered at installation altitudes above 2,000 m.

Installation altitude above sea level [m]	Derating factor	permissible operating voltage [V AC]
2000	1	460 + 15% (530 + 0%)
3000	0.88	405 + 15% (465 + 0%)
4000	0.77	355 + 15% (410 + 0%)

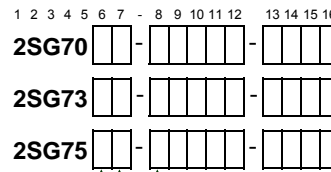


When considering a limited permissible voltage tolerance, SIPOS actuators can be safely operated at installation altitudes of up to 4,000 m with 3-phase 400 V AC (-15%/+0%).

Technical Data

Mechanical data

- ON-OFF duty
- Inching/positioning duty
- Modulating duty



Cut-off torque

Max. act. torque (modulating torque)	Cut-off torque T_C [Nm]			Flange ISO 5211	Weight \approx [kg]
	typical running torque $\geq 87\%$ max. torque $T_{C \max}$				
Direct mounting					
28	32			F04	15
				F05 / F07	
55		63		F04	17
				F05 / F07	
110			125	F05 / F07	21
Base + lever arm					
28	32				18
55		63			18
110			125		21

Force for manual mode >> 13,5 revolutions / 90° <<	
Hand wheel dia.	at $T_{C \max}$
100 mm	50 N
	100 N
	200 N
Hand wheel dia.	at T_C
100 mm	50 N
	100 N
	200 N

Torque dependent cut-off fixed at 100% max. torque $T_{C \max}$.

Cut-off torque [Nm]	perm. tolerance [Nm]	Ratio
32	± 3	i = 2000
63	± 6	
125	± 12	

Manual mode

>> Manual operation is activated by simply turning the hand wheel – not by pushing in or change-over.
The hand wheel does not rotate during motor operation! <<

Turning the hand wheel during motor operation results in extension or reduction of the operating time, depending on the direction of rotation.

Direction of rotation: Turning hand wheel clockwise results clockwise rotation of coupling resp. lever arm (standard: gear box of the part-turn unit in version RR). For RL version the hand wheel has to be turned anti-clockwise for closing. This results in an anti-clockwise rotation of the coupling resp. lever arm.

Self-locking: The hand wheel acts indirectly on the motor shaft when turned by hand; the self-locking function is thus retained for self-locking actuators.

Gear ratio i

small part-turn actuators 2SG7 are self-locking.
Gear ratio: see table on the left.

Valve connection

Valve connection (coupling or lever arm)					
Direct mounting ¹⁾ (standard dimensions / max dimensions) for the torques [Nm]					
Coupling ISO 5211	with flange	32 / 63		125	
		F04	F05/F07	F05/F07	
unbored					0
bore \varnothing [mm]		15 / 15	18 / 20	with 1 keyway acc. to DIN 6885 Part 1	1
square bore [mm]					2
bore with two flats [mm]		11 / 14	14 / 17		3
Base + lever arm					
Lever arm lengths [mm]	for the torques [Nm]			Bore Cone 1:10	suitable damper rod
100 / 150	32	63		16 H8	2SX5304-0KG00
150 / 200			125		8

Dimensions to coupling, see page 6

1) without spigot at the connecting flange; with spigot ==> option „S18“

Technical Data

1 2 3 4 5 6 7 - 8 9 10 11 12 13 14 15 16
 2SG7. - -

Positioning time

Positioning range	Positioning time [sec/90°] (Positioning time $t_{120^\circ} = 1.33 \times t_{90^\circ}$)			default setting
	for the torques [Nm]			
80 - 20 ¹⁾	32	63	125	28
80 - 10				

Positioning time setting

Positioning time is set via the hermetically sealed control button "DriveController" of the local control, via fieldbus or the PC programming software "COM SIPOS".

In PROFITRON version, different positioning times can be set for OPEN, CLOSE, EMERGENCY OPEN and EMERGENCY CLOSE.

7-stage selectable positioning time within selected positioning range; step factor 1.4

Positioning range [sec/90°]	Positioning time set to stage ... [sec/90°]						
	1	2	3	4	5	6	7
80 - 20 ¹⁾	80	56	40	28	20	---	---
80 - 10						14	10

Positioning time stage 4 is default setting

C

1) reduced positioning time range for 110 – 115 V connection voltage

Technical Data

Coupling dimensions – Direct mounting

Flange dimensions

Part-turn actuator type	2SG7. □□	00 / 01 / 10 / 11			21	
		Flange size EN ISO 5211		F04	F05	F07
d1		54	90		90	
d2 _{FR}		30	35	55	35	55
d3		42	50	70	50	70
d4		M5	M6	M8	M6	M8
d5 ^{H8}		35	40	40	40	40
d6		26	32	35	32	35
h1		2.5			2.5	
h2		8	9	12	9	12
h3		3			3	
l max		35			45	
z 1)		4			4	

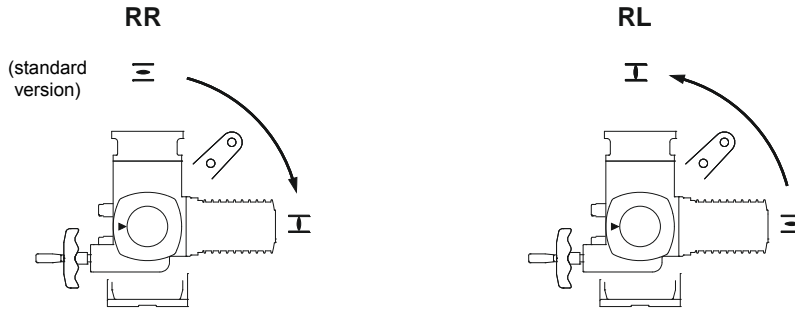
Coupling dimensions

<p>unbored</p>	<p>D</p> <p>l4</p> <p>M</p> <p>Z (No. of teeth)</p>	<p>24.8</p> <p>25</p> <p>17</p> <p>24</p>	<p>31.75</p> <p>35</p> <p>20</p> <p>24</p>
<p>Bore with keyway 2) acc. to EN ISO 5211 and DIN 6885 part 1</p>	<p>b JS9 3)</p> <p>d7^{H8}</p> <p>d7 max.</p> <p>d9</p> <p>l5</p> <p>t 3)</p>	<p>5</p> <p>15</p> <p>15</p> <p>M4</p> <p>5</p> <p>17.3</p>	<p>6</p> <p>18</p> <p>20</p> <p>M4</p> <p>8</p> <p>20.8</p>
<p>Square bore 2) acc. to EN ISO 5211</p>	<p>d8 min.</p> <p>d8 max.</p> <p>d9</p> <p>l5</p> <p>l6 min.</p> <p>sH11</p> <p>sH11 max.</p>	<p>14.1</p> <p>18.1</p> <p>M4</p> <p>5</p> <p>25</p> <p>11</p> <p>14</p>	<p>18.1</p> <p>22.2</p> <p>M4</p> <p>8</p> <p>30</p> <p>14</p> <p>17</p>
<p>Bore with two-flats 2) acc. to EN ISO 5211</p>	<p>d8 min.</p> <p>d8 max.</p> <p>d9</p> <p>l5</p> <p>l6 min.</p> <p>sH11</p> <p>sH11 max.</p>	<p>14.1</p> <p>18.1</p> <p>M4</p> <p>5</p> <p>25</p> <p>11</p> <p>14</p>	<p>18.1</p> <p>22.2</p> <p>M4</p> <p>8</p> <p>25</p> <p>14</p> <p>17</p>
<p>Mounting position of coupling</p>	<p>x max.</p> <p>y max.</p>	<p>10</p> <p>0</p>	<p>8</p> <p>2</p> <p>8</p> <p>2</p> <p>5</p> <p>8</p>

1) number of tapped holes d4
2) thread with grub screw
3) dimensions depend on ø d7, refer to DIN 6885 part 1

Technical Data

Gear box version



Gear box versions (with view at the pointer cover)

1 2 3 4 5 6 7 - 8 9 10 11 12 13 14 15 16
 2SG7. - -

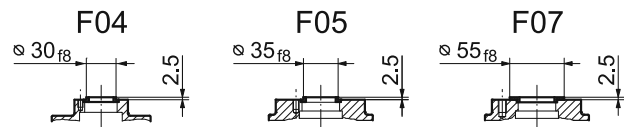
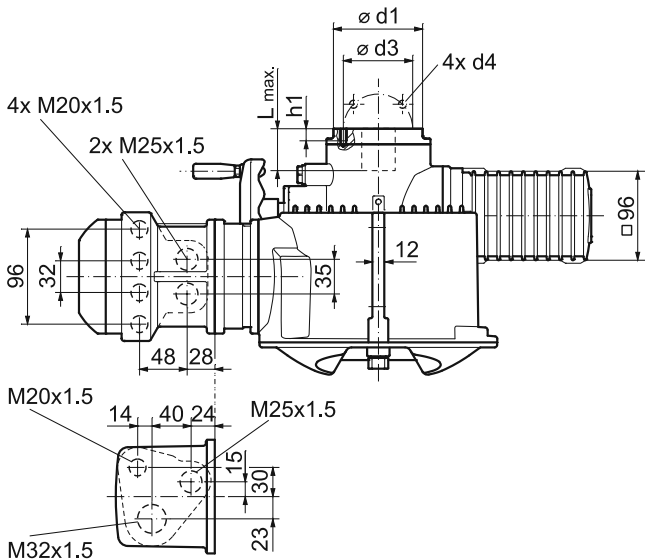
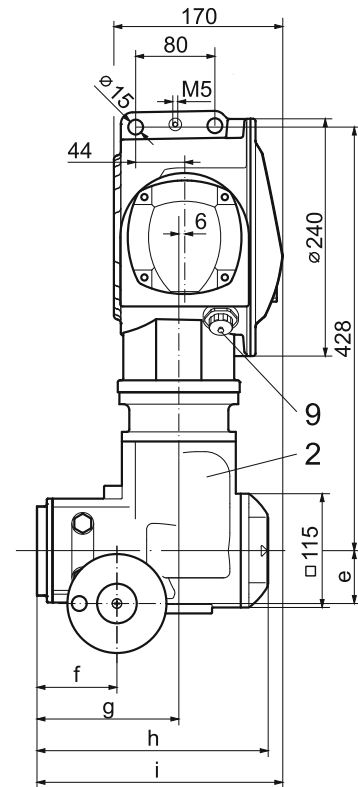
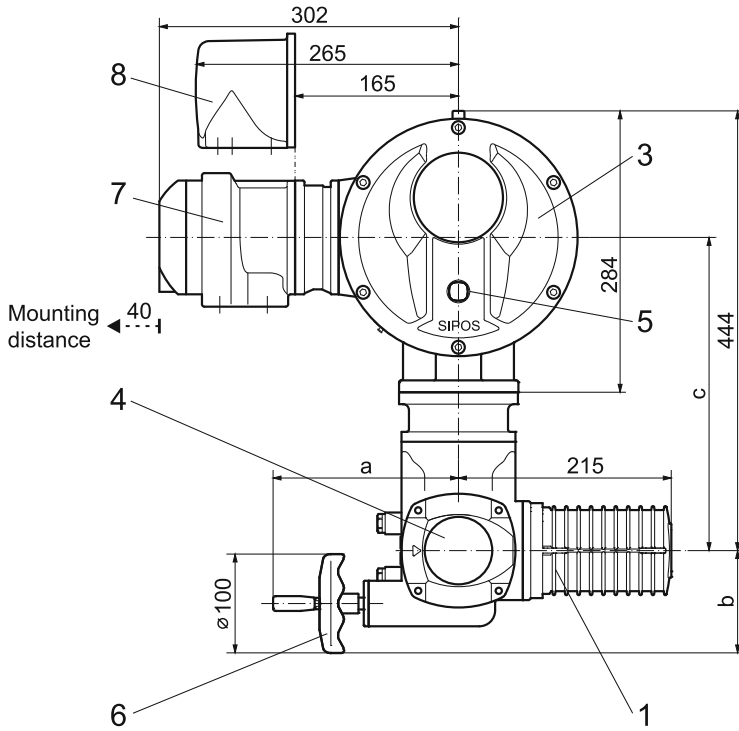
Gear box version	Direction of rotation at output/lever arm	Swing angle	
RR	clockwise closed	90°	0
		120°	4
RL	anti-clockwise closed	90°	2
		120°	6

Technical Data

Dimensional drawing **2SG7.00, 2SG7.01, 2SG7.10, 2SG7.11, 2SG7.21**

R866871

R866872



Version with spigot ring (option "S18")

Dimensions	2SG7.00, 2SG7.01, 2SG7.10, 2SG7.11			2SG7.21	
	F04	F05	F07	F05	F07
a		166		187	
b		92		104	
c		316		316	
e		42		54	
f	71		69		81
g	120		118		144
h	210		208		234
i	224		222		248
L max.		35		45	
ø d1	54		90		90
ø d3	42	50	70	50	70
d4	M5	M6	M8	M6	M8
h1	8	9	12	9	12

- 1 Motor
- 2 Gear unit
- 3 Electronics unit

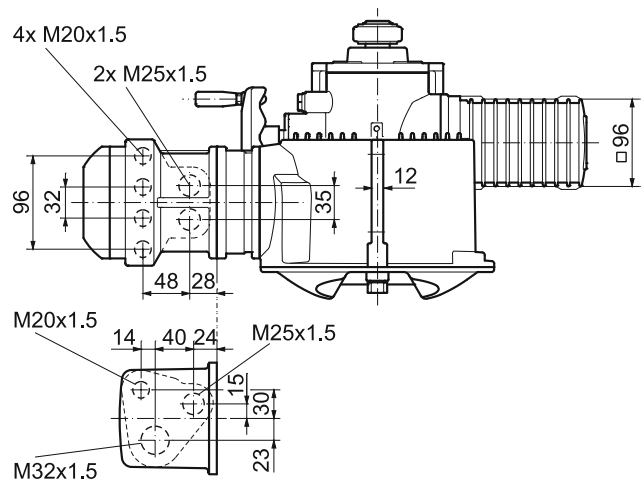
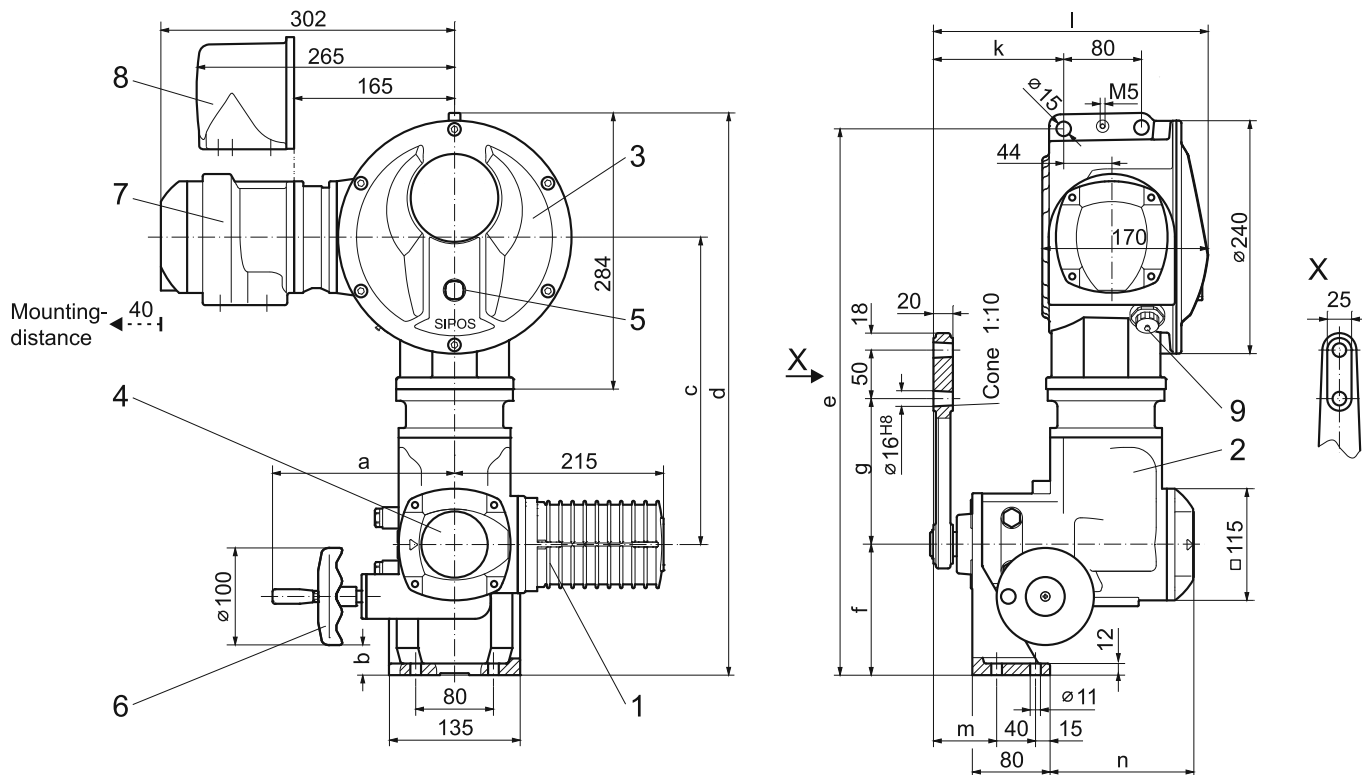
- 4 Position indicator
- 5 Local control station
- 6 Hand wheel

- 7 Field bus connection
- 8 Plug connection
- 9 USB interface (only PROFITRON)

Technical Data

Dimensional drawing **2SG7.08, 2SG7.18, 2SG7.28**

R866873
R866874



Dimensions	2SG7.08, 2SG7.18	2SG7.28
a	166	187
b	33	32
c	316	316
d	569	579
e	554	564
f	125	135
g	100	150
k	110	134
l	258	282
m	71	65
n	118	147

- 1 Motor
- 2 Gear unit
- 3 Electronics unit
- 4 Position indicator
- 5 Local control station
- 6 Hand wheel
- 7 Field bus connection
- 8 Plug connection
- 9 USB interface (only PROFITRON)

Technical Data

Electrical data – Power supply of ON-OFF duty (2SG70) and Inching/positioning duty (2SG73)

Connection voltage U_N 1-phase, 110 – 115 V AC (40 – 70 Hz)
 permissible voltage tolerance: -10% / +15%

Type 2SG70.. 2SG73..	$t_{min.}$ [sec/90°]	$T_C max.$ [Nm]	Current (110 V) ^{2) 3)}		Power P_N ⁴⁾ [W]	Motor power [W]	Fuse slow blowing [A]
			Nominal current I_N ⁴⁾ [A]	$\approx I_{max.}$ ⁵⁾ [A]			
..... 0. -CB	20	32	0.5	0.5	20	20	6
..... 1. -CB		63	0.6	0.6	25	25	
..... 2. -CB		125	1.0	1.0	50	50	

↓
small electronics-unit
↓

Connection voltage U_N 1-phase, 220 – 230 V AC (40 – 70 Hz)
 permissible voltage tolerance: -10% (-30%¹⁾ / +15%

Type 2SG70.. 2SG73..	$t_{min.}$ [sec/90°]	$T_C max.$ [Nm]	Current (230 V) ^{2) 3)}		Power P_N ⁴⁾ [W]	Motor power [W]	Fuse slow blowing [A]
			Nominal current I_N ⁴⁾ [A]	$\approx I_{max.}$ ⁵⁾ [A]			
..... 0. -CD	10	32	0.5	0.5	20	20	6
..... 1. -CD		63	0.6	0.6	25	25	
..... 2. -CD		125	1.0	1.0	50	50	

↓
small electronics-unit
↓

Connection voltage U_N 3-phase, 190 – 200 V AC (40 – 70 Hz)
 permissible voltage tolerance: -10% (-30%¹⁾ / +15%

Type 2SG70.. 2SG73..	$t_{min.}$ [sec/90°]	$T_C max.$ [Nm]	Current (200 V) ^{2) 3)}		Power P_N ⁴⁾ [W]	Motor power [W]	Fuse slow blowing [A]
			Nominal current I_N ⁴⁾ [A]	$\approx I_{max.}$ ⁵⁾ [A]			
..... 0. -CJ	10	32	0.4	0.4	20	20	6
..... 1. -CJ		63	0.4	0.4	25	25	
..... 2. -CJ		125	0.7	0.7	50	50	

↓
small electronics-unit
↓

Connection voltage U_N 3-phase, 380 – 460 V AC (40 – 70 Hz)
 permissible voltage tolerance: -10% (-30%¹⁾ / +15%

Type 2SG70.. 2SG73..	$t_{min.}$ [sec/90°]	$T_C max.$ [Nm]	Current (400 V) ^{2) 3)}		Power P_N ⁴⁾ [W]	Motor power [W]	Fuse slow blowing [A]
			Nominal current I_N ⁴⁾ [A]	$\approx I_{max.}$ ⁵⁾ [A]			
..... 0. -CE	10	32	0.2	0.2	20	20	6
..... 1. -CE		63	0.2	0.2	25	25	
..... 2. -CE		125	0.4	0.4	50	50	

↓
small electronics-unit
↓

Motor operation

The frequency converter generates a frequency/amplitude adjustable 3-phase AC voltage for the motor from the single or 3-phase main voltage supply. Motor speed and thus actuator positioning time are internally adjusted via the frequency.

Motor protection

The motor has a thermistor-type motor protection against thermal damage. The winding temperature is monitored continuously by the microcontroller. The response after exceeding the permitted winding temperature is programmable on the PROFITRON. On the ECOTRON the motor protection cannot be inhibited.

Motor space heater (programmable for PROFITRON, for ECOTRON only with option „M18“)

When the motor space heater is activated by the program, the motor winding is heated by a DC voltage via the frequency converter depending on the cooling characteristic of the motor winding when the motor is switched off.

- 1) full torque for voltage fluctuations between -30 % and +15 %
 (in case of undervoltage from U_N -30% to -10%, operation may be performed with increased positioning time t)
- 2) lower voltage increases the current, higher voltage reduces the current
- 3) starting current $I_A \leq$ nominal current I_N
- 4) at 35% of the maximum torque $T_C max.$
- 5) maximum current $I_{max.}$ is present for torque-dependent cut-off mode and for a running torque of 50% the maximum torque $T_C max.$

Technical Data

Electrical data – Power supply of Modulating duty (2SG75)

Connection voltage U_N 1-phase, 110 – 115 V AC (40 – 70 Hz)

permissible voltage tolerance: -10% / +15%

Type 2SG75..	$t_{min.}$ [sec/90°]	$T_C max.$ [Nm]	Current (110 V) ^{2) 3)}		Power P_N ⁴⁾ [W]	Motor power [W]	Fuse slow blowing [A]
			Nominal current I_N ⁴⁾ [A]	$\approx I_{max.}$ ⁵⁾ [A]			
..... 0. -CB	20	32	0.5	0.5	20	20	6
..... 1. -CB		63	0.6	0.6	25	25	
..... 2. -CB		125	1.0	1.0	50	50	

↓
small
electronics-
unit
↓

Connection voltage U_N 1-phase, 220 – 230 V AC (40 – 70 Hz)

permissible voltage tolerance: -10% (-30%¹⁾) / +15%

Type 2SG75..	$t_{min.}$ [sec/90°]	$T_C max.$ [Nm]	Current (230 V) ^{2) 3)}		Power P_N ⁴⁾ [W]	Motor power [W]	Fuse slow blowing [A]
			Nominal current I_N ⁴⁾ [A]	$\approx I_{max.}$ ⁵⁾ [A]			
..... 0. -CD	10	32	0.5	0.5	20	20	6
..... 1. -CD		63	0.6	0.6	25	25	
..... 2. -CD		125	1.0	1.0	50	50	

↓
small
electronics-
unit
↓

Connection voltage U_N 3-phase, 190 – 200 V AC (40 – 70 Hz)

permissible voltage tolerance: -10% (-30%¹⁾) / +15%

Type 2SG75..	$t_{min.}$ [sec/90°]	$T_C max.$ [Nm]	Current (200 V) ^{2) 3)}		Power P_N ⁴⁾ [W]	Motor power [W]	Fuse slow blowing [A]
			Nominal current I_N ⁴⁾ [A]	$\approx I_{max.}$ ⁵⁾ [A]			
..... 0. -CJ	10	32	0.4	0.4	20	20	6
..... 1. -CJ		63	0.4	0.4	25	25	
..... 2. -CJ		125	0.7	0.7	50	50	

↓
small
electronics-
unit
↓

Connection voltage U_N 3-phase, 380 – 460 V AC (40 – 70 Hz)

permissible voltage tolerance: -10% (-30%¹⁾) / +15%

Type 2SG75..	$t_{min.}$ [sec/90°]	$T_C max.$ [Nm]	Current (400 V) ^{2) 3)}		Power P_N ⁴⁾ [W]	Motor power [W]	Fuse slow blowing [A]
			Nominal current I_N ⁴⁾ [A]	$\approx I_{max.}$ ⁵⁾ [A]			
..... 0. -CE	10	32	0.2	0.2	20	20	6
..... 1. -CE		63	0.2	0.2	25	25	
..... 2. -CE		125	0.4	0.4	50	50	

↓
small
electronics-
unit
↓

Motor operation

The frequency converter generates a frequency/amplitude adjustable 3-phase AC voltage for the motor from the single or 3-phase main voltage supply. Motor speed and thus actuator positioning time are internally adjusted via the frequency.

Motor protection

The motor has a thermistor-type motor protection against thermal damage. The winding temperature is monitored continuously by the microcontroller. The response after exceeding the permitted winding temperature is programmable on the PROFITRON. On the ECOTRON the motor protection cannot be inhibited.

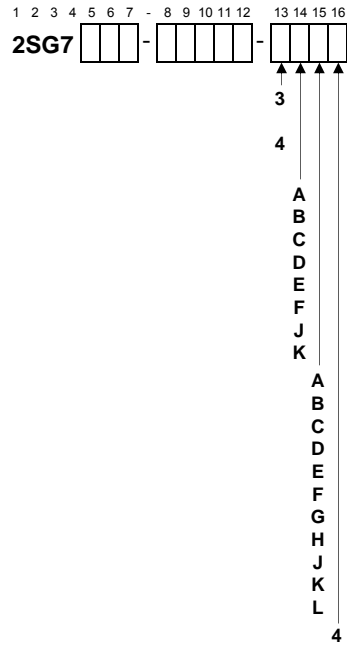
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When the motor space heater is activated by the program, the motor winding is heated by a DC voltage via the frequency converter depending on the cooling characteristic of the motor winding when the motor is switched off.

- 1) full torque for voltage fluctuations between -30 % and +15 %
(in case of undervoltage from U_N -30% to -10%, operation may be performed with increased positioning time t)
- 2) lower voltage increases the current, higher voltage reduces the current
- 3) starting current $I_N \leq$ nominal current I_N
- 4) at 35% of the maximum torque $T_C max.$
- 5) maximum current $I_{max.}$ is present for torque-dependent cut-off mode and for a running torque of 70% the maximum torque $T_C max.$

Technical Data

Electrical data – Control and feedback signals



ECOTRON: 3 binary inputs 24/48 V DC (OPEN, CLOSE, STOP), 5 binary outputs 24/48 V DC
 1 analog output 4 – 20 mA (actual position value), segment display (symbols for parameterization/commissioning)

PROFITRON: 5 binary inputs 24/48 V DC (OPEN, CLOSE, STOP, EMERGENCY, Mode), 8 binary outputs 24/48 V DC,
 1 analog output 0/4 – 20 mA (actual position value), multicolor graphic display with status indication

electronics unit without hardware extension
 relay board with 5 outputs for ECOTRON, 8 for PROFITRON
 PROFIBUS DP 1 channel - with V1 and V2 services
 PROFIBUS DP 2 channel - with V1 and V2 services
 MODBUS RTU 1 channel
 MODBUS RTU 2 channel
 HART (only PROFITRON)
 HART + relay board (only PROFITRON)

	ECOTRON		PROFITRON	
	2SG7.	2SG70	2SG73	2SG75
A	X	X	X	X
B			X	X
C				X
D		X	X	X
E			X	X
F		X	X	X
G			X	X
H			X	X
J		X	X	X
K			X	X
L				X

Note: All set and parameterized values are stored in non-volatile memories (EEPROM)!

Signal assignment for the binary outputs

- for ECOTRON (also refer to wiring diagrams, signals 1-5):

Output	Signaling set (set 1 to 4 can be adjusted locally in the segment display of the actuator)							
	default setting		optional sets				with option „Y12“	
	Set 1		Set 2		Set 3		Set 4	
1	Travel end OPEN	NO	End position OPEN	NO	End position OPEN	NO	Travel end OPEN	NO
2	Travel end CLOSE	NO	End position CLOSED	NO	End position CLOSED	NO	Travel end CLOSE	NO
3	Torque CL/OP reached	NC	Blinker	NO	Fault	NC	Ready+Remote	NO
4	Ready+Remote	NO	Ready+Remote	NO	Local	NO	Torque OPEN reached	NC
5	Fault motor temperature	NC	Fault motor temperature	NC	Fault motor temperature	NC	Torque CLOSE reached	NC

NO = active high, NC = active low

- for PROFITRON (also refer to wiring diagrams, signals 1-8):

Output	default setting		with option „Y12“		with option „Y15“		with option „Y90“	
1	End position OPEN	NO	Intermediate contact OP	NO	Intermediate contact OP	NO	Intermediate contact OP	NO
2	End position CLOSED	NO	Intermediate contact CL	NO	Intermediate contact CL	NO	Intermediate contact CL	NO
3	Torque OPEN reached	NC	Ready+Remote	NO	Torque OPEN reached	NO	Torque OPEN reached	NO
4	Torque CLOSE reached	NC	Torque OPEN reached	NC	Torque CLOSE reached	NO	Torque CLOSE reached	NO
5	Fault	NC	Torque CLOSE reached	NC	Ready+Remote	NO	Local	NC
6	Local	NO	Local	NO	Local	NO	Fault	NC
7	Blinker	NO	Fault motor temperature	NO	Blinker	NO	Not used	
8	Fault motor temperature	NC	Fault external voltage	NC	Fault motor temperature	NO	Not used	

NO = active high, NC = active low

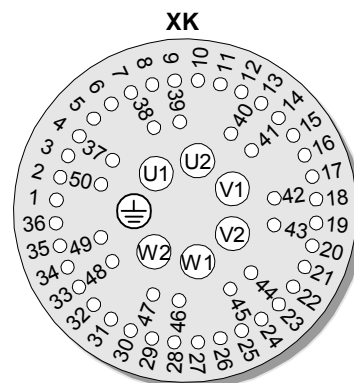
Optional free assignment of outputs,
 NO/NC optional
 (can be changed locally)

- End position CLOSED
- End position OPEN
- Torque CLOSE reached
- Torque OPEN reached
- Torque CL/OP reached
- Fault
- Blinker
- Ready
- Ready+Remote
- Local
- Intermediate contact CL
- Intermediate contact OP
- Fault motor temperature
- Fault external voltage
- Maintenance
- Run indication CLOSE
- Run indication OPEN
- Run indication OPEN/CLOSE
- Blinker+ End position CLOSED
- Blinker+ End position OPEN

Technical Data

Connections at round plug (plug assignment)

Inputs and outputs		ECOTRON	PROFITRON	
		2SG7.	2SG70	2SG73 2SG75
Binary	Inputs	2, 3, 4 and 5	2, 3, 4, 5, 9, 10 and 27	
	Outputs	16 ¹⁾ , 17, 19, 20, 21, 22 and 23	16 ¹⁾ , 17, 19, 20, 21, 22, 23, 24, 25 and 26	
Analog	Inputs	---	11 and 12 (option)	11 and 12 (option), 13 and 14 (option)
	Outputs	7 and 8	7 and 8, 48, 49 and 50 (option)	
Relay outputs (option)		28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 40, 41, 42, 43 and 44	28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 40, 41, 42, 43, 44, 45, 46 und 47	
Fieldbus (option)	1 channel	28, 29, 30 and 31	28, 29, 30 and 31	
	2 channel	28, 29, 30, 31, 32, 33, 34 and 35	28, 29, 30, 31, 32, 33, 34 and 35	
Voltage output „P24 int.“ resp. „P24 gal.“		1, 6, 15 ¹⁾ and 18 ¹⁾	1, 6, 15 ¹⁾ and 18 ¹⁾	
Auxiliary 24 VDC supply for electronics unit „P24 ext.“		38 and 39	38 and 39	



Plug assignment for the external round plug connection

Position recording

The position is detected by a precision potentiometer evaluation by microcontroller.

Positioner

Defining an analog position setpoint (0/4–20mA) for the positioner results in precise control of the position corresponding to this value.

The **positioner** works adaptively. This leads to a continuous automatic adaptation of the threshold value to the controlled system:

hysteresis	0.4% of the travel
response threshold (dead band)	adjustable, default setting: 0.2 to 2.5 % of the travel
upward adaptation	response threshold is enlarged by 0.1 %, if an OPEN ==> CLOSE ==> OPEN command sequence occurs within 6 seconds
downward adaptation	response threshold is reduced by 0.01 %, when no control has taken place within 10.8 seconds

1) Not applicable for version with relay board.

Technical Data

Power and consumption values

Binary inputs and outputs

- binary inputs** - Control inputs OPEN, CLOSED, STOP, Emergency and Mode (Emergency and Mode only on PROFITRON)
- binary outputs** - 8 binary electronic outputs for signals on PROFITRON, 5 outputs on ECOTRON

All binary inputs and outputs are galvanically isolated and potential-free.
 Exception: For ECOTRON with relay board, the binary outputs refer to the potential of the electronics.
 Binary outputs are resistant to both short-circuits and overloads.

			Input		Output	
			24 V DC	48 VDC	24 V DC	48 VDC
Level	L - potential (low -)	[V DC]	0 - 4	0 - 4	0 - 2.5	0 - 2.5
	H - potential (high -)	[V DC]	16 - 30	16 - 60	18 - 30	18 - 60
Current (per input or output)		[mA]	4 - 7	7 - 15	max. 100	max. 50
Resistance		[Ω]	4000	4000	max. 10	max. 10

Analog inputs and outputs

- analog inputs** - AE1: 0/4-20mA
- AE2: 0/4-20mA (add-on PCB)
- analog outputs** - AA1: Position actual value (0/4-20mA) active, i.e. with internal power supply 24 V DC
- AA2: Position actual value (0/4-20mA) passive, i.e. with external power supply 24 V DC (add-on PCB)

Analog inputs and outputs are galvanically isolated (only PROFITRON).
 AE2 and AA2 are located on a common add-on PCB and have the same potential.
 For existing add-on PCB (AE2+AA2), assignment of AE1 and AE2 analog inputs as well as AA1 and AA2 analog outputs is freely programmable.
 Analog outputs are resistant to both short-circuits and overloads.

		Input	Output
Current	[mA]	0 - 20 (max. 24)	0 - 20 (max. 21)
Resistance / load	[Ω]	45	max. 600

Ranges 0-20mA or 4-20mA with rising or falling level can be adjusted for PROFITRON; for ECOTRON, the curve is rising (4-20mA).

Relay outputs

Relay outputs are galvanically isolated.

	DC for resistive load			AC
max. switching capacity	180 W (for 30 V)			1500 VA
max. switching voltage	30 V	50 V	300 V	250 V
max. switching current	6 A	0.6 A	0.15 A	6 A

The PROFITRON relay board has 8 relay outputs (5 NO, 1 NC and 2 change-over contacts), the 5 relay outputs of the ECOTRON are all designed as change-over contacts.

Internal 24 V power supply

Only for PROFITRON are the binary inputs and outputs galvanically isolated from the electronics in case of internal 24V DC power supply via „P24 gal.“.

External 24 V power supply

During power failure, both actual position value and device state are still sent via the external 24V DC supply „P24 ext.“ to the binary signal outputs (signals 1-8) and communication via COM-SIPOS or fieldbus is available.
 During mains operation, own supply via actuator.

External 24V power supply Input P24 ext.		Current consumption	
		min. 20 V (21 V with relay board)	typ. 24 V
Σ current standard version	[mA]	155	140
additional load:			
with Fieldbus, 1 channel	[mA]	+20	+20
with Fieldbus, 2 channel	[mA]	+40	+40
with HART	[mA]	+18	+21
with relay board	[mA]	+50	+60
with actual position value	[mA]	+20	+20
with Bluetooth	[mA]	+10	+10

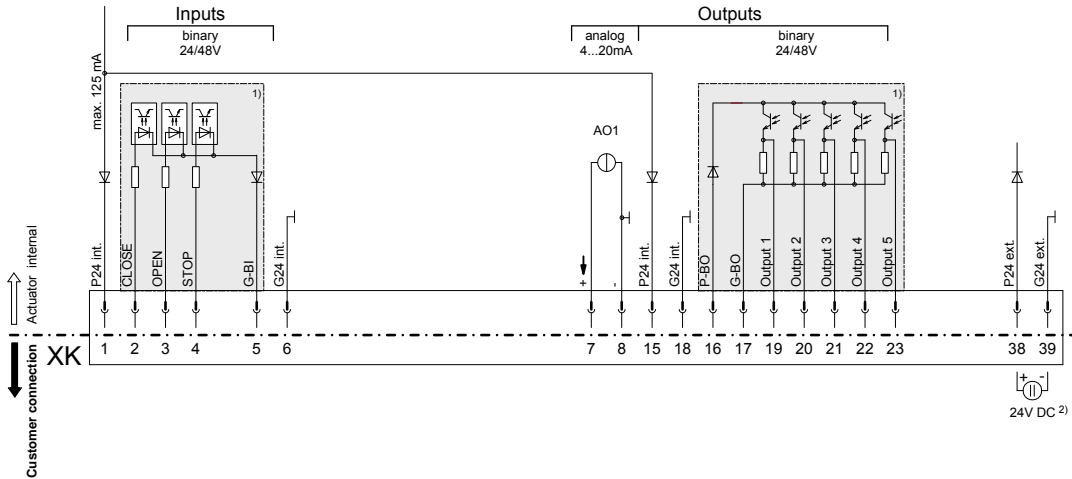
Technical Data

Wiring diagram

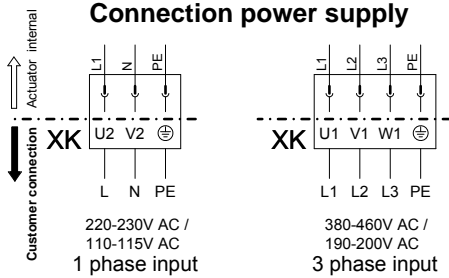
ECOTRON

Y070.243

Connection control and feedback signals



Connection power supply

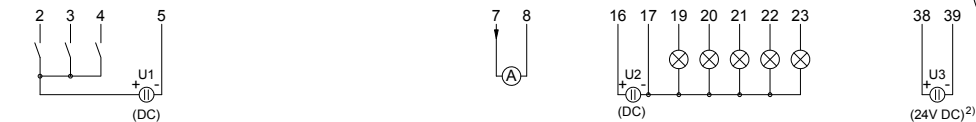


Customer connection - wiring examples:

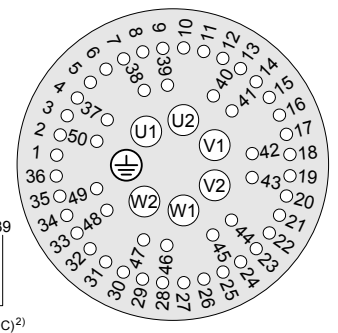
Wiring example I: „internal 24V DC supply“
(here all inputs and outputs are supplied internally from the electronics unit with 24V DC)



Wiring example II: „external 24/48V DC supplies“
(in this example all galvanically isolated areas are supplied externally from different 24/48V DC power sources)



Plug assignment XK



- 1) galvanically isolated areas: can be supplied from different sources with 24/48V DC
- 2) auxiliary 24V DC supply for electronics unit (if required)
(In case of mains failure both actual position value and actuator status (binary outputs 1-5) will continued to be signalled.
Communication via COM-SIPOS – changes of parameters resp. download of actuator data – is possible.)

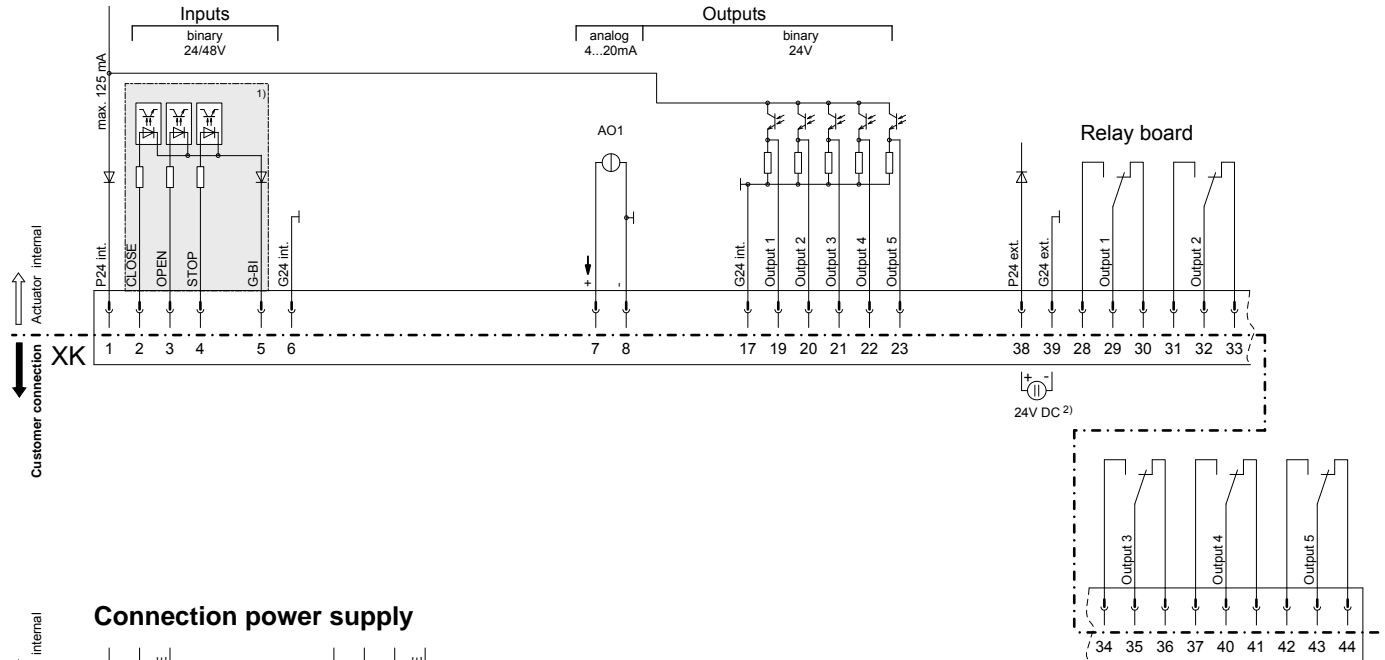
Wire cross-section max.:
- 6 mm² Power supply
- 2.5 mm² Control and feedback signals
The control/feedback wire **must** be shielded!

Technical Data

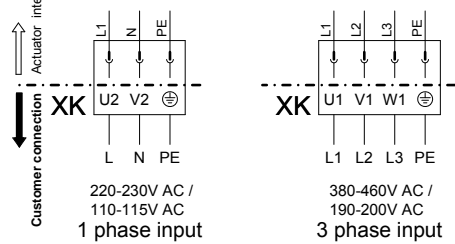
Wiring diagram ECOTRON with relay board

Y070.244

Connection control and feedback signals



Connection power supply



Customer connection - wiring examples:

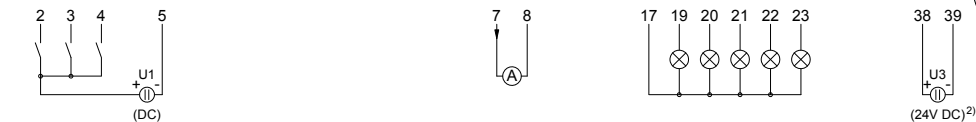
Wiring example I: „internal 24V DC supply“

(here all inputs and outputs are supplied internally from the electronics unit with 24V DC)

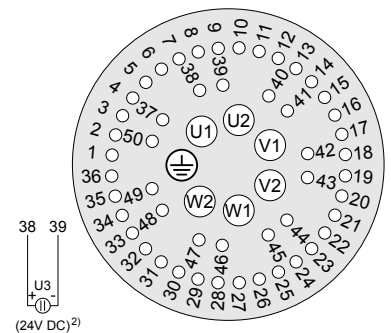


Wiring example II: „external 24/48V DC supplies“

(in this example the galvanically isolated area is supplied externally from a different 24/48V DC power source)



Plug assignment XK



- 1) galvanically isolated area: can be supplied from different source with 24/48V DC
- 2) auxiliary 24V DC supply for electronics unit (if required)
(In case of mains failure both actual position value and actuator status (binary outputs 1-5) will continued to be signalled.
Communication via COM-SIPOS – changes of parameters resp. download of actuator data – is possible.)

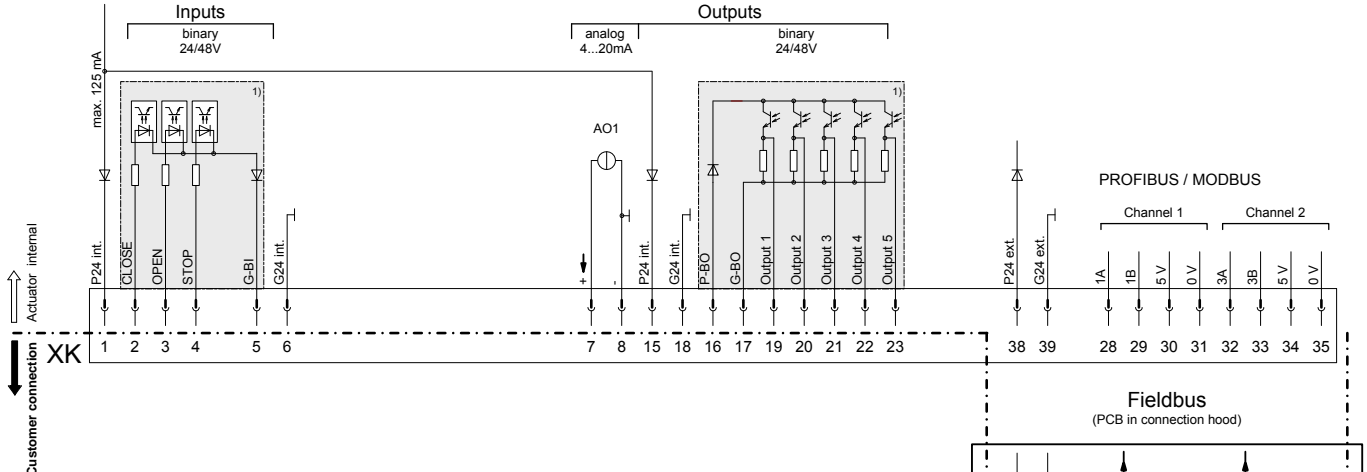
Wire cross-section max.:
 - 6 mm² Power supply
 - 2.5 mm² Control and feedback signals
 The control/feedback wire **must** be shielded!

Technical Data

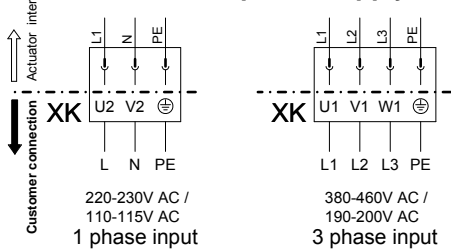
Wiring diagram **ECOTRON with Fieldbus**

Y070.245

Connection control and feedback signals



Connection power supply



Customer connection - wiring examples:

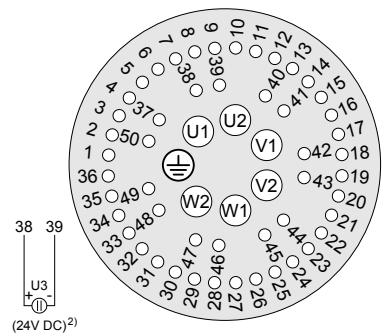
Wiring example I: „internal 24V DC supply“
(here all inputs and outputs are supplied internally from the electronics unit with 24V DC)



Wiring example II: „external 24/48V DC supplies“
(in this example all galvanically isolated areas are supplied externally from different 24/48V DC power sources)



Plug assignment XK



- 1) galvanically isolated areas: can be supplied from different sources with 24/48V DC
- 2) auxiliary 24V DC supply for electronics unit (if required)
(In case of mains failure both actual position value and actuator status (binary outputs 1-5) will continued to be signalled.
Communication via COM-SIPOS or fieldbus – changes of parameters resp. download of actuator data – is possible.)

5) up to 4 connectors P24 and M on the fieldbus connection PCB

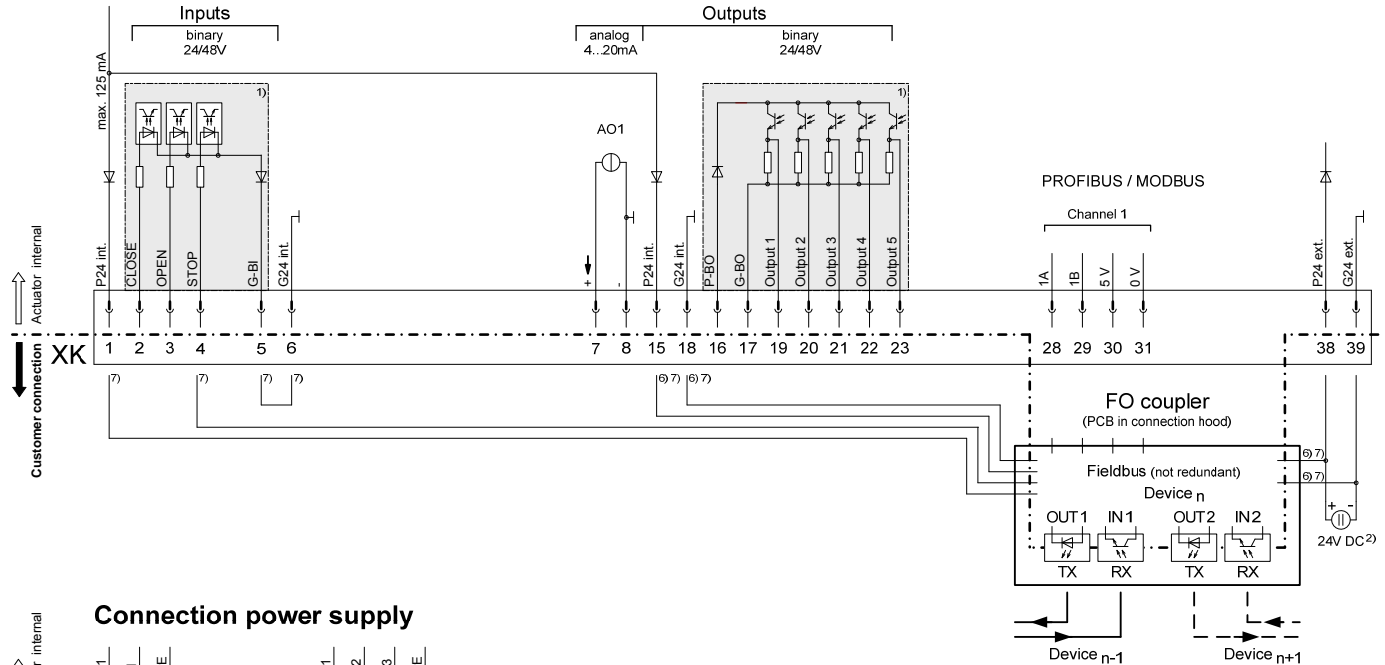
Wire cross-section max.:
 - 6 mm² Power supply
 - 2.5 mm² Control and feedback signals
 The control/feedback wire **must** be shielded!

Technical Data

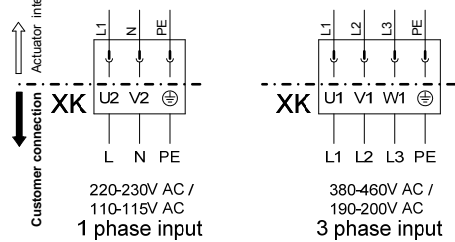
Wiring diagram ECOTRON with Fieldbus and FO

Y070.360

Connection control and feedback signals



Connection power supply



Customer connection - wiring examples:

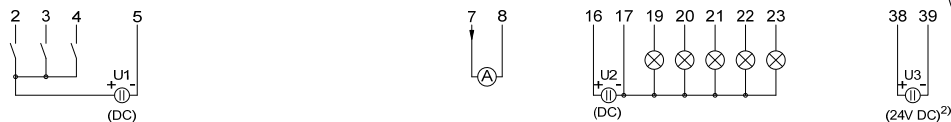
Wiring example I: „internal 24V DC supply“

(here all inputs and outputs are supplied internally from the electronics unit with 24V DC)

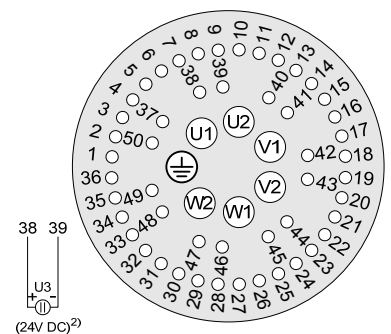


Wiring example II: „external 24/48V DC supplies“

(in this example all galvanically isolated areas are supplied externally from different 24/48V DC power sources)



Plug assignment XK



- 1) galvanically isolated areas: can be supplied from different sources with 24/48V DC
- 2) auxiliary 24V DC supply for electronics unit (if required)
 (In case of mains failure both actual position value and actuator status (binary outputs 1-5) will continued to be signalled.
 Communication via COM-SIPOS or fieldbus – changes of parameters resp. download of actuator data – is possible.)

- 6) factory-wired connection cable only with option „C17“ (FO in linear or star topology)
- 7) factory-wired connection cable only with option „C18“ (PROFIBUS, FO in ring topology)

Wire cross-section max.:
 - 6 mm² Power supply
 - 2.5 mm² Control and feedback signals
 The control/feedback wire **must** be shielded!

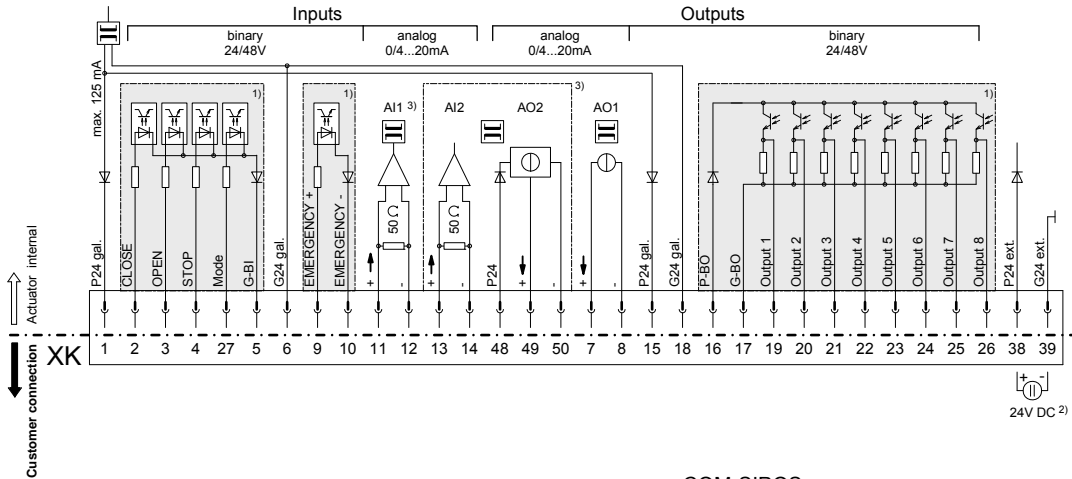
Technical Data

Wiring diagram

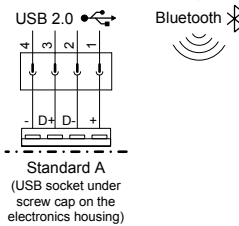
PROFITRON

Y070.247

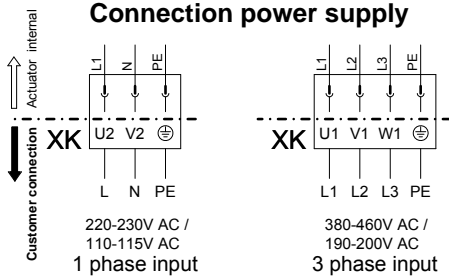
Connection control and feedback signals



COM-SIPOS



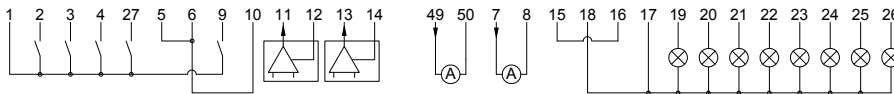
Connection power supply



Customer connection - wiring examples:

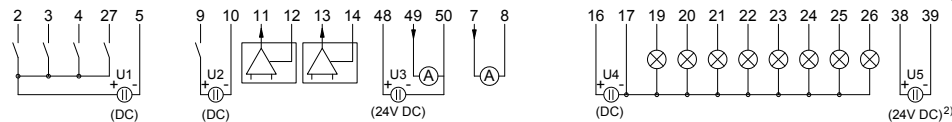
Wiring example I: „internal 24V DC supply“

(here all inputs and outputs are supplied internally from the electronics unit with 24V DC)

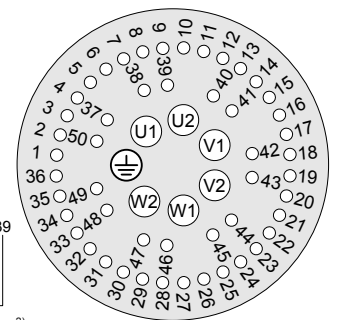


Wiring example II: „external 24/48V DC supplies“

(in this example all galvanically isolated areas are supplied externally from different 24/48V DC power sources)



Plug assignment XK



- 1) galvanically isolated areas: can be supplied from different sources with 24/48V DC
- 2) auxiliary 24V DC supply for electronics unit (if required)
(In case of mains failure both actual position value and actuator status (binary outputs 1-8) will continued to be signalled.
Communication via COM-SIPOS – changes of parameters resp. download of actuator data – is possible.)
- 3) option

Wire cross-section max.:

- 6 mm² Power supply
- 2.5 mm² Control and feedback signals

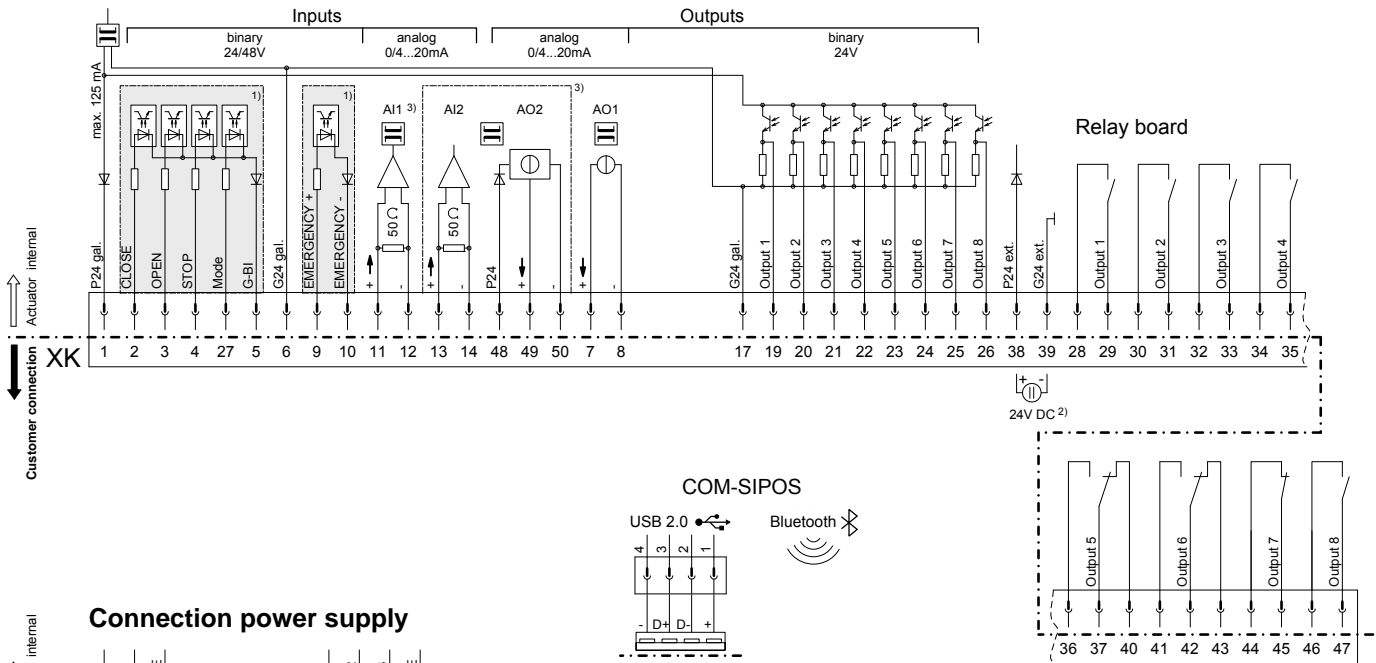
The control/feedback wire **must** be shielded!

Technical Data

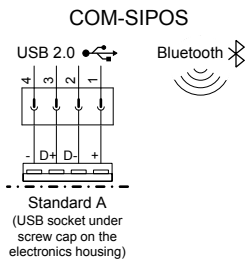
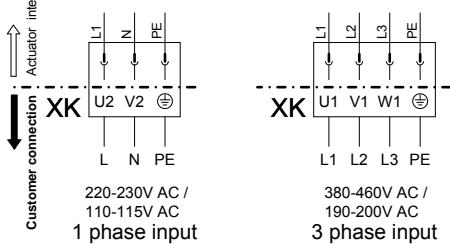
Wiring diagram PROFITRON with relay board

Y070.248

Connection control and feedback signals

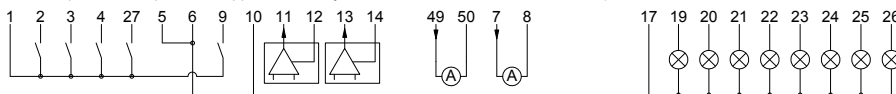


Connection power supply

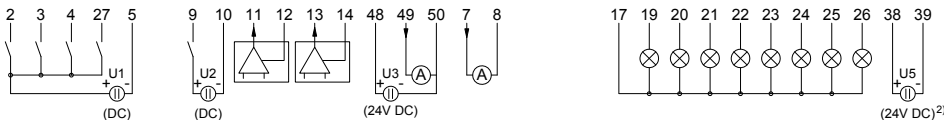


Customer connection - wiring examples:

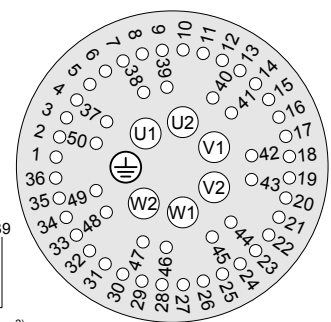
Wiring example I: „internal 24V DC supply“
(here all inputs and outputs are supplied internally from the electronics unit with 24V DC)



Wiring example II: „external 24/48V DC supplies“
(in this example all galvanically isolated areas are supplied externally from different 24/48V DC power sources)



Plug assignment XK



- 1) galvanically isolated areas: can be supplied from different sources with 24/48V DC
- 2) auxiliary 24V DC supply for electronics unit (if required)
(In case of mains failure both actual position value and actuator status (binary outputs 1-8) will continued to be signalled.
Communication via COM-SIPOS – changes of parameters resp. download of actuator data – is possible.)
- 3) option

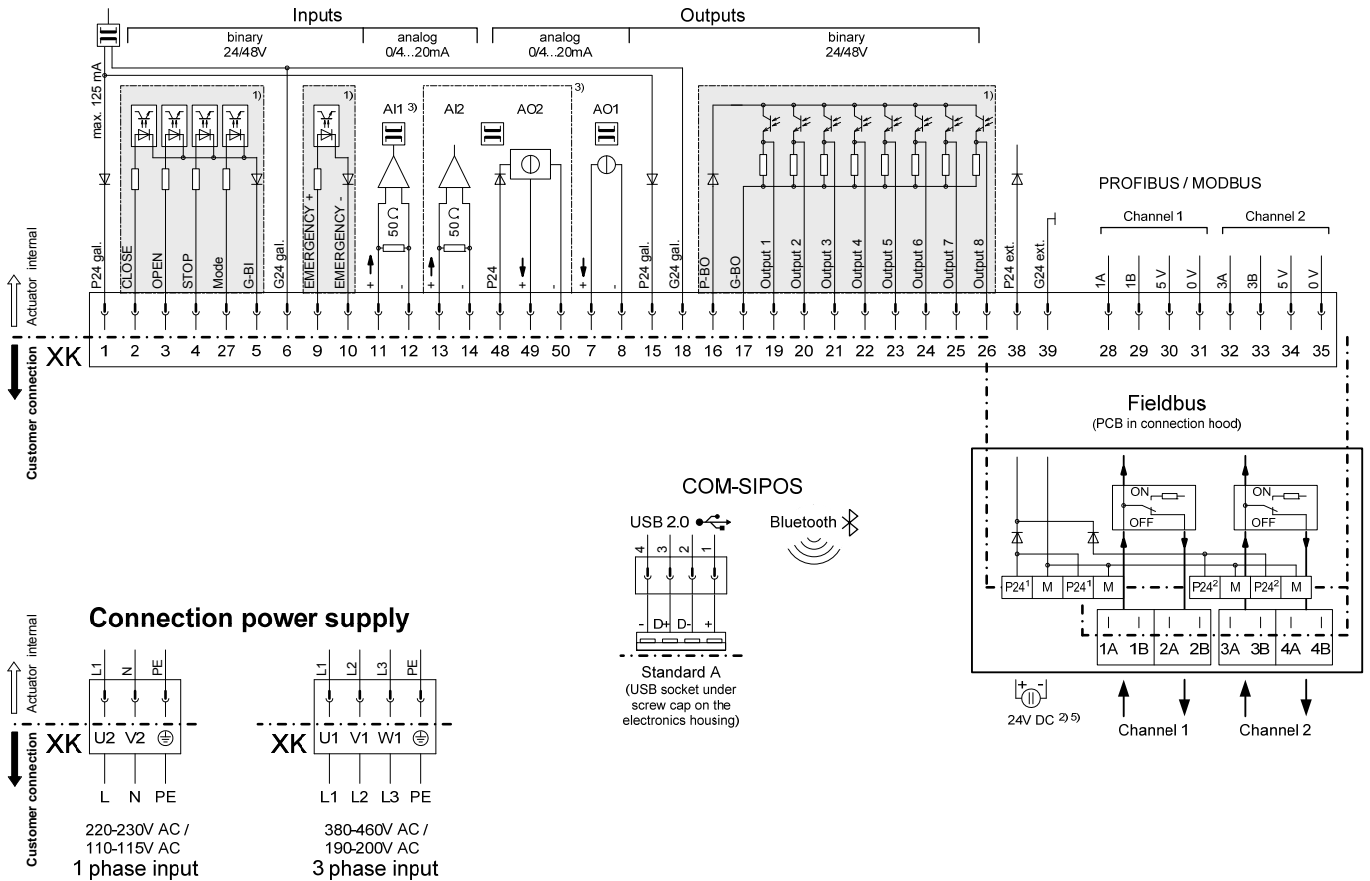
Wire cross-section max.:
- 6 mm² Power supply
- 2.5 mm² Control and feedback signals
The control/feedback wire **must** be shielded!

Technical Data

Wiring diagram PROFITRON with Fieldbus

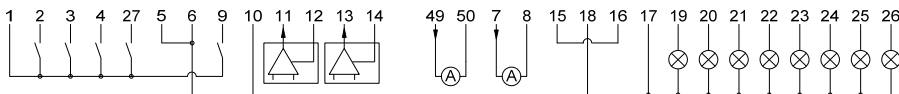
Y070.249

Connection control and feedback signals

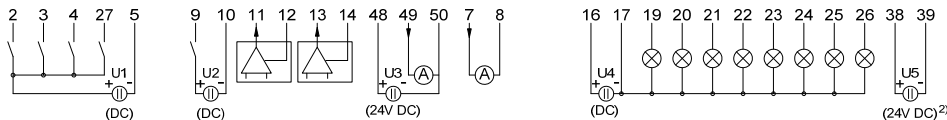


Customer connection - wiring examples:

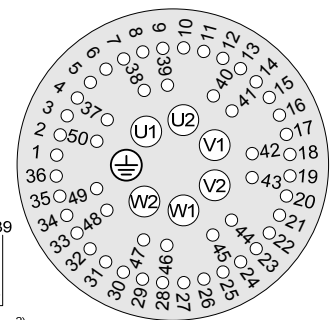
Wiring example I: „internal 24V DC supply“
(here all inputs and outputs are supplied internally from the electronics unit with 24V DC)



Wiring example II: „external 24/48V DC supplies“
(in this example all galvanically isolated areas are supplied externally from different 24/48V DC power sources)



Plug assignment XK



- 1) galvanically isolated areas: can be supplied from different sources with 24/48V DC
- 2) auxiliary 24V DC supply for electronics unit (if required)
(In case of mains failure both actual position value and actuator status (binary outputs 1-8) will continued to be signalled.
Communication via COM-SIPOS or fieldbus – changes of parameters resp. download of actuator data – is possible.)
- 3) option
- 5) up to 4 connectors P24 and M on the fieldbus connection PCB

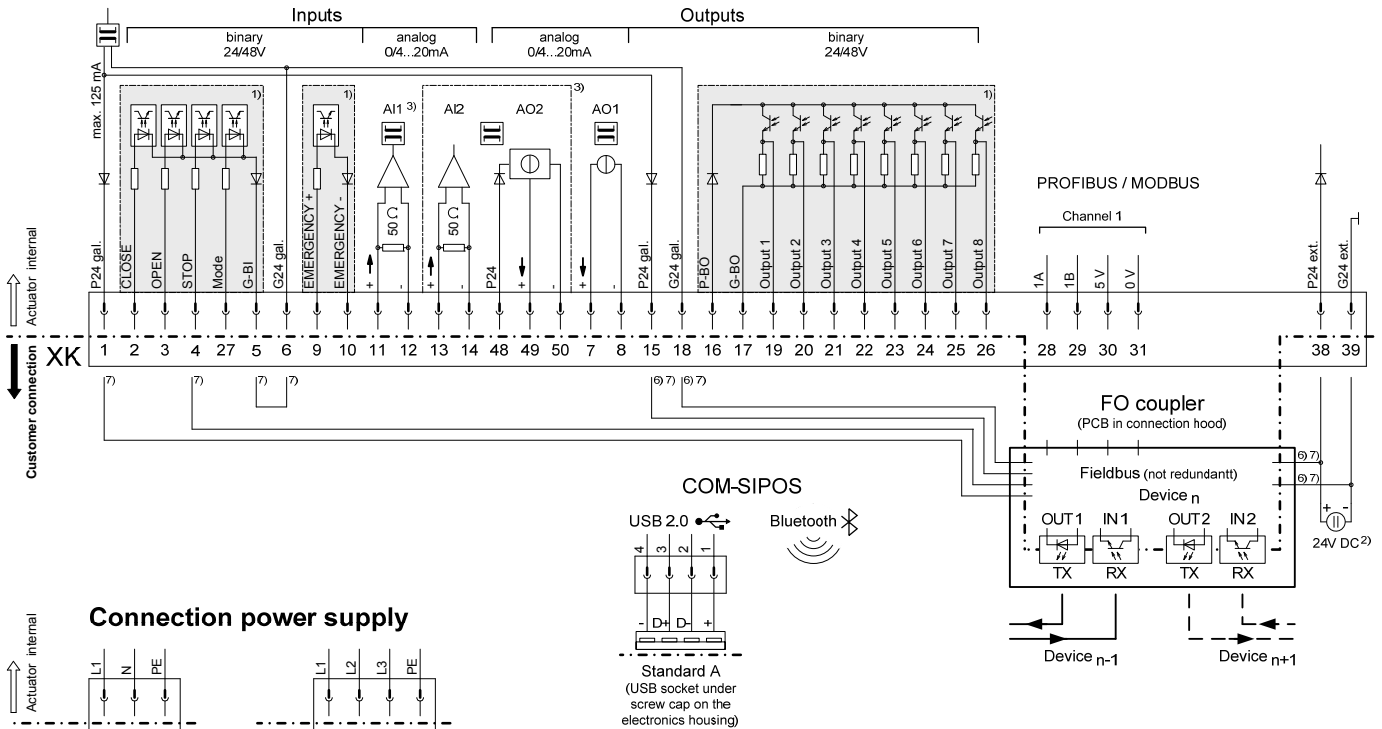
Wire cross-section max.:
 - 6 mm² Power supply
 - 2.5 mm² Control and feedback signals
 The control/feedback wire **must** be shielded!

Technical Data

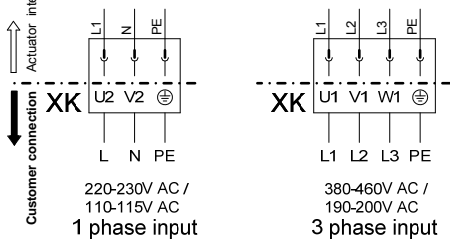
Wiring diagram PROFITRON with Fieldbus and FO

Y070.361

Connection control and feedback signals



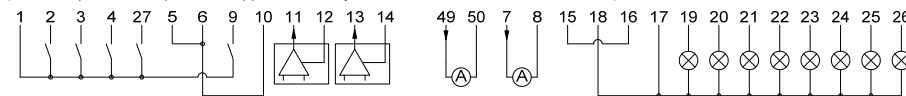
Connection power supply



Customer connection - wiring examples:

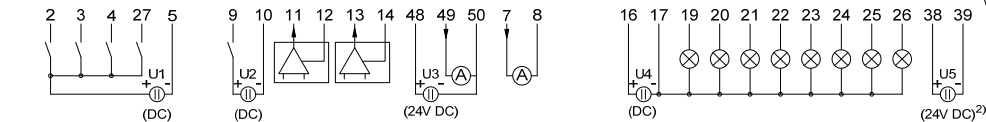
Wiring example I: „internal 24V DC supply“

(here all inputs and outputs are supplied internally from the electronics unit with 24V DC)

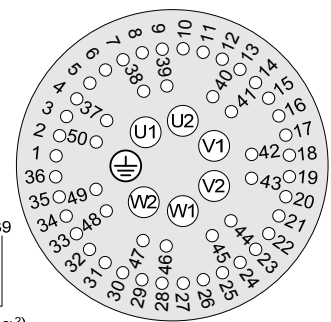


Wiring example II: „external 24/48V DC supplies“

(in this example all galvanically isolated areas are supplied externally from different 24/48V DC power sources)



Plug assignment XK



- 1) galvanically isolated areas: can be supplied from different sources with 24/48V DC
- 2) auxiliary 24V DC supply for electronics unit (if required)
(In case of mains failure both actual position value and actuator status (binary outputs 1-3) will continued to be signalled.
Communication via COM-SIPOS or fieldbus – changes of parameters resp. download of actuator data – is possible.)
- 3) option
- 6) factory-wired connection cable only with option „C17“ (FO in linear or star topology)
- 7) factory-wired connection cable only with option „C18“ (PROFIBUS, FO in ring topology)

Wire cross-section max.:

- 6 mm² Power supply
- 2.5 mm² Control and feedback signals

The control/feedback wire **must** be shielded!

Technical Data

Technical Data
