

MANUFACTURER

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PURPOSE

Explosion protected control units type SKX 12 - SKX 15 are intended for use in control, distribution and signaling circuits in areas where an explosive gas and/or dust atmosphere may be present, respectively in hazardous areas 1, 2, 21, 22 in accordance with the standards EN 60079-10-1:2009 and EN 60079-10-2:2009.

DEGREE OF PROTECTION

Explosion protection is in accordance with the "General requirements" in the types of protection "Flameproof enclosure", "Increased safety", "Intrinsic safety", "Encapsulation" and "Protection by enclosure" in accordance with standards: EN 60079-0:2009, EN 60079-1:2007, EN 60079-11:2012, EN 60079-18:2009, EN 60079-31:2009.

Explosion protection marking:



II 2G Ex de IIC T6 Gb
II 2G Ex de mb IIC T6 Gb
II 2G Ex e IIC T6 Gb
II 2G Ex ia/ib IIC T6 Gb
II 2D Ex tb IIIC T80°C Db

Ambient temperature: $-20^{\circ}\text{C} \div +40^{\circ}\text{C}$ or $-20^{\circ}\text{C} \div +50^{\circ}\text{C}$ - depends on component I_{the}

Mechanical protection: IP 66 category 1, in accordance with EN 60529:1991/C1:1993/A1:2000

Resistance to shock: IK 08 in accordance with EN 62262:2002

Degree of protection: I (protective grounding) in accordance with EN 60947-1:2007/A1:2011

Design and construction of products are in accordance with apparatus standards EN 60947-1:2007/A1:2011, EN 60947-5-1:2004/C1:2005/A1:2009, EN 60947-5-5:2007, EN 60204:2006/C1:2010 and all other related standards.

Control units are in conformity with EU Directives: ATEX Directive 94/9 EC, LV Directive 2006/95/EC, EMC Directive 2004/108 EC, RoHS Directive 2002/95/EC.

Control units are designed, produced and tested in conformity with the Quality management systems in accordance with EN ISO 9001:2008 and EN ISO/IEC 80079-34:2011.

TECHNICAL DATA

Rated insulation voltage U_i :	- 630 V AC (type with mantle terminals type SL $U_i = 400\text{V AC}$)
Rated operational voltage U_e :	- depends on the built-in components
Conventional enclosed component thermal current I_{the} :	- 16 A max. for ambient temperature $-20^{\circ}\text{C} \div +40^{\circ}\text{C}$ - 10 A max. for ambient temperature $-20^{\circ}\text{C} \div +50^{\circ}\text{C}$
PE terminals (inside of the enclosure):	- $2 \times 6 \text{ mm}^2$ max. solid, stranded, flexible, - tightening torque 2,5 Nm
Tightening torque for build-in component terminals:	- 0,8 Nm
PE/N bus bar, SKX 15 only:	- max. $11 \times (2 \times 2,5 \text{ mm}^2)$ solid, stranded, flexible; Tightening torque 0,8 Nm
Cover fixing:	- four cheese head screw M5x25/10-Z4 A2 ISO 7045 with plate 4,5 A2 DIN 6905, - tightening torque 2,0 Nm
The outer cable diameter for cable gland SPU 25:	- \square 6-10/15 mm
Tightening torque for cable gland SPU 25 pressing screw:	- 2,5 Nm
Tightening torque for plug SPC 25:	- 4,0 Nm
Wiring:	- H07V-K 1.5 mm^2
Enclosure:	- SMC black, RAL 9005 - resistance to impact 7 J - surface resistance $< 10^9 \Omega$
Gasket:	- TPE 35 ShA
Dimension (without cable glands):	SKX 12 : 100 x 100 x 80 mm SKX 13 : 150 x 100 x 80 mm SKX 14 : 200 x 100 x 80 mm SKX 15 : 200 x 150 x 80 mm SKX 15H: 200 x 150 x 135 mm
Mounting:	SKX 12: 75 x 50 mm SKX 13: 75 x 100 mm SKX 14: 75 x 150 mm SKX 15/15H: 125 x 150 mm

MODEL CODE

The program consists of serial control units and control units according to customer's request.

Model code of serial control units:

Enclosure / Type no.	Built-in components - Actuating components - Cable glands and plugs
Control unit SKX 12/1	SLP - SPO 02/1 - SPU 25
Control unit SKX 12/2	SLP - SPO 02/2 - SPU 25
Control unit SKX 12/3	SLP - SPO 02/4 - SPU 25
Control unit SKX 12/21	SMS 03/1 - SMO 17/1 - SPU 25
Control unit SKX 12/22	SMS 03/8 - SMO 17/2 - SPU 25
Control unit SKX 12/23	SMS 03/6 - SMO 17/4 - SPU 25
Control unit SKX 12/31	PBT 01 - GHG 410 1906 R0005 - SPU 25
Control unit SKX 12/32	PBT 01 - SPO 01/1 - SPU 25
Control unit SKX 12/33	PBT 01 - SPO 01/2 - SPU 25
Control unit SKX 12/34	PBT 01 - GHG 410 1905 R0005 - SPU 25
Control unit SKX 12/35	PBT 01 - GHG 410 1906 R0005 with protector - 2xGHG 960 1955 R0002
Control unit SKX 12/36	PBT 011 - GHG 410 1906 R0005 - 2xGHG 960 1955 R0002
Control unit SKX 12/37	GHG 4101901 R0193 - GHG 410 1944 R0010 - SPU 25
Control unit SKX 12/62	5x4 mm2 EURO 4/35 grey on rail TH 35-7,5 - 2x SPU 25
Control unit SKX 12/63	5x4 mm2 EURO 4/35 blue on rail TH 35-7,5 - 2x SPU 25 blue
Control unit SKX 13/1	2xPBT 01 - SPO 01/1 - SPO 01/2 - SPU 25
Control unit SKX 13/11	PBT 01 - SPO 01/1 - SLP - SPO 02/2 - SPU 25
Control unit SKX 13/21	SL8 - 6xSPU 25
Control unit SKX 13/71	GHG 23. ...R.... (Ex 23 4 024) - SMO 17/2 - SPU 25
Control unit SKX 13/72	GHG 23. ...R.... (Ex 23 8 067) - SMO 17/1 - SPU 25
Control unit SKX 13/10	SMS 03/1 - SMO 17/1 - SPU 25
Control unit SKX 13/20	SMS 03/4 - SMO 17/2 - SPU 25
Control unit SKX 13/30	SMS 03/5 - SMO 17/2 - SPU 25
Control unit SKX 13/40	SMS 03/6 - SMO 17/2 - SPU 25
Control unit SKX 13/60	SMS 03/3 - SMO 17/3 - SPU 25
Control unit SKX 13/70	SMS 03/2 - SMO 17/1 - SPU 25
Control unit SKX 13/80	SMS 03/7 - SMO 17/1 - SPU 25
Control unit SKX 13/100	SMS 03/8 - SMO 17/5 - SPU 25
Control unit SKX 13/110	SMS 03/9 - SMO 17/1 - SPU 25
Control unit SKX 13/120	SMS 03/11 - SMO 17/2 - SPU 25
Control unit SKX 14/1	2xPBT 01 - SPO 01/1 - SPO 01/2 - SLP - SPO 02/2 - SPU 25
Control unit SKX 14/11	3xPBT 01 - SPO 01/1 - SPO 01/2 - SPO 01/3 - SPU 25
Control unit SKX 14/21	SL 8 - 8xSPU 25
Control unit SKX 14/22	3xSLP - SPO 02/1 - SPO 02/2 - SPO 02/3 - SPU 25
Control unit SKX 14/31	3xPBT 01 - SPO 01/1 - SPO 01/2 - GHG 410 1906 R0005 - SPU 25
Control unit SKX15/1	2xPBT 01- SPO 01/1 - SPO 01/2 - 2xSLP - SPO 02/1 - SPO 02/2 - 2xSPU 25
Control unit SKX15/11-11	2xPBT 01 - SPO 01/1 - SPO 01/2 - AM 72 100/1 A - 2xSPU 25
Control unit SKX15/11-12	2xPBT 01 - SPO 01/1 - SPO 01/2 - AM 72 50/1 A - 2xSPU 25
Control unit SKX15/11-21	2xPBT 01 - SPO 01/1 - SPO 01/2 - AM 72 100/5 A - 2xSPU 25
Control unit SKX15/11-22	2xPBT 01 - SPO 01/1 - SPO 01/2 - AM 72 50/1 A -2xSPU 25
Control unit SKX15/21-11	GHG 23. ...R.... (Ex 23 8 067) - SMO 17/1 - AM 72 100/1 A - 2xSPU 25
Control unit SKX15/21-12	GHG 23. ...R.... (Ex 23 8 067) - SMO 17/1 - AM 72 50/1 A - 2xSPU 25
Control unit SKX15/21-21	GHG 23. ...R.... (Ex 23 8 067) - SMO 17/1 - AM 72 100/5 A - 2xSPU 25
Control unit SKX15/21-22	GHG 23. ...R.... (Ex 23 8 067) - SMO 17/1 - AM 72 50/5 A - 2xSPU 25
Control unit SKX15/34	4xPBT/1 - 2xSPO 01/1 - 2xSPO 01/2 - 2xSPU 25
Control unit SKX15/41	SMS 03/1 - 2xCTS16U - 2xSPU 25
Control unit SKX15/50	SMS 03/12 - SMO 17/2 - SPU 25
Control unit SKX15/90	SMS 03/10 - SMO 17/3 - SPU 25
Control unit SKX15/51	SMS 03/9 - SMO 17/1 - 2xPBT/1 - SPO 01/1 - SPO01/2- 2xSPU 25
Control unit SKX15/61	GHG 23. ...R.... (Ex 23 4 024) - SMO 17/2 - 5xCTS4UN - SPU 25
Control unit SKX15/62	GHG 23. ...R.... (Ex 23 8 067) - SMO 17/1 - 5xCTS4UN - SPU 25
Control unit SKX15/65	4xSL5 - 8xSPU 25

Control unit according to customer's request is marked with standard model code - SKX 12, SKX13, SKX 14, SKX 15 and MSRU number. MSRU number represents the factory serial number.

For example SKX 15/MSRU 1234.12

Control unit, as a single unit formed of more enclosures, are marked with standard model code of each used enclosure - SKX 12, SKX13, SKX 14, SKX 15 and MSRU number. MSRU number represents the factory serial number.

For example SKX 14-15/MSRU 1235.13

CONTROL UNIT COMPONENTS

Enclosures (without cable glands):

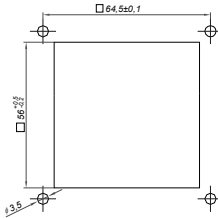
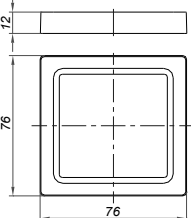
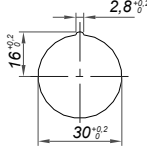
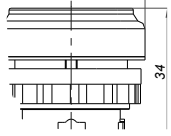
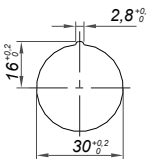
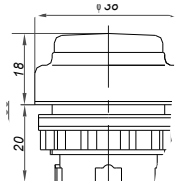
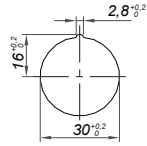
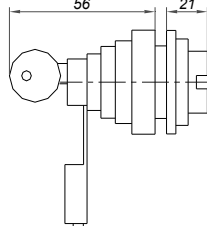
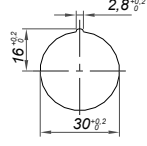
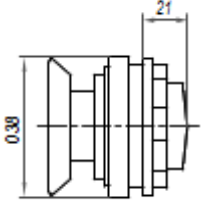
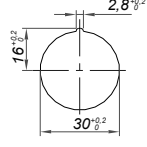
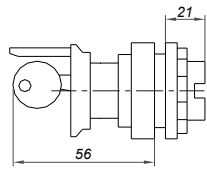
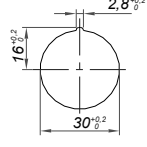
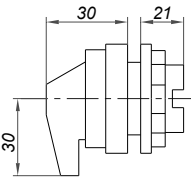
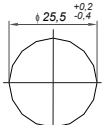
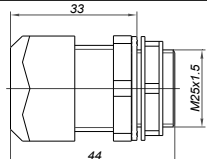
Type: MMK 12 - MMK 15

Explosion protection: II 2GD Ex e II IP66

SKX 12/ ..	SKX 13/ ..
SKX 14/ ..	SKX 15/ .., SKX 15 H/ ..

Actuator and indicator:

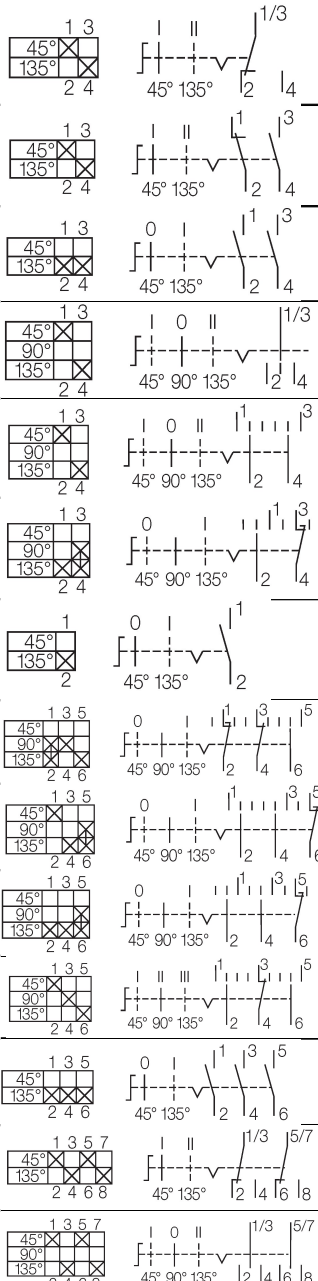
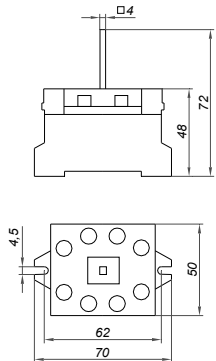
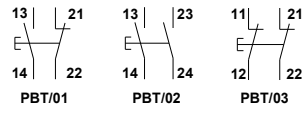
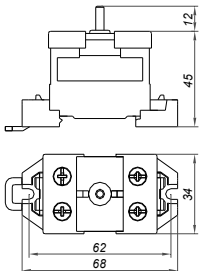

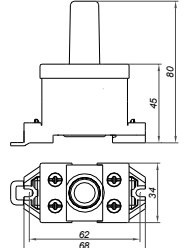
Type	Technical data	Mounting	Dimensions
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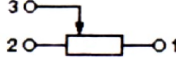
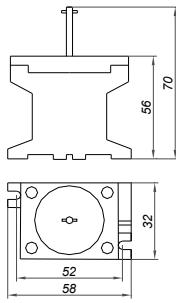
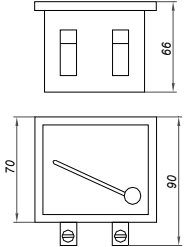
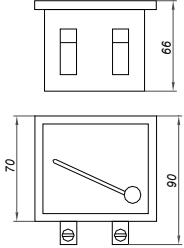
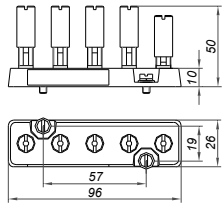
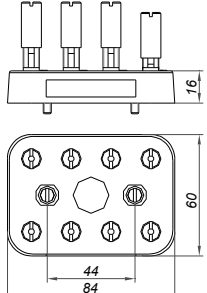
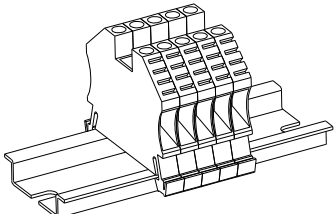
<p>SAM 72</p>	<p>FRONT ELEMENT OF MEASURING INSTRUMENTS</p> <p>Explosion protection: II 2G Ex e IIC Gb II 2D Ex tb IIIC Db</p>																								
<p>SPO 01/.</p>	<p>PUSHBUTTON ACTUATOR</p> <p>Explosion protection: II 2G Ex e IIC Gb II 2D Ex tb IIIC Db</p>		 <table border="1" data-bbox="1209 324 1476 689"> <thead> <tr> <th colspan="2">Type SPO 01/.</th> </tr> </thead> <tbody> <tr> <td>SPO 01/01</td> <td>0</td> </tr> <tr> <td>SPO 01/02</td> <td>I</td> </tr> <tr> <td>SPO 01/03</td> <td>II</td> </tr> <tr> <td>SPO 01/04</td> <td>RED</td> </tr> <tr> <td>SPO 01/05</td> <td>GREEN</td> </tr> <tr> <td>SPO 01/06</td> <td>WHITE</td> </tr> <tr> <td>SPO 01/07</td> <td>START</td> </tr> <tr> <td>SPO 01/08</td> <td>STOP</td> </tr> <tr> <td>SPO 01/09</td> <td>ON</td> </tr> <tr> <td>SPO 01/10</td> <td>OFF</td> </tr> </tbody> </table>	Type SPO 01/.		SPO 01/01	0	SPO 01/02	I	SPO 01/03	II	SPO 01/04	RED	SPO 01/05	GREEN	SPO 01/06	WHITE	SPO 01/07	START	SPO 01/08	STOP	SPO 01/09	ON	SPO 01/10	OFF
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<p>SPO 02/.</p>	<p>SIGNAL LAMP FRONT ELEMENT</p> <p>Explosion protection: II 2G Ex e IIC Gb, II 2D Ex tb IIIC Db</p>		 <table border="1" data-bbox="1209 772 1476 936"> <thead> <tr> <th colspan="2">Type SPO 02/.</th> </tr> </thead> <tbody> <tr> <td>SPO 02/01</td> <td>RED</td> </tr> <tr> <td>SPO 02/02</td> <td>GREEN</td> </tr> <tr> <td>SPO 02/03</td> <td>YELLOW</td> </tr> <tr> <td>SPO 02/04</td> <td>TRANSPARENT</td> </tr> </tbody> </table>	Type SPO 02/.		SPO 02/01	RED	SPO 02/02	GREEN	SPO 02/03	YELLOW	SPO 02/04	TRANSPARENT												
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<p>GHG 410 1905 R0005</p>	<p>MUSHROOM-HEAD PUSHBUTTON ACTUATOR (EMERGENCY-STOP)</p> <p>Explosion protection: II 2G Ex e II II 2D Ex tD A21 IP66</p>																								
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<p>GHG 410 1944 R0010</p>	<p>POTENTIOMETER ACTUATOR</p> <p>Explosion protection: II 2G Ex e II II 2D Ex tD A21 IP66</p>																								
<p>SPU 25</p>	<p>CABLE GLAND ISO 25</p> <p>Explosion protection: II 2GD EEx e II IP66</p>																								

GHG 96092..P....	CABLE GLAND ISO 16 - ISO 40 Explosion protection: II 2G Ex e II II 2D Ex tD A21 IP66			A = M16-M40
FGA1 – FGA4	CABLE GLAND ISO 16 - ISO 40 Explosion protection: II 2G Ex e II II 2D Ex tD A21 IP66/67			A = M16-M40
SPC 25	PLUG ISO 25 Explosion protection: II 2GD EEx e II IP66			
GHG 960 663 P....	PLUG ISO 16 - ISO 40 Explosion protection: II 2G Ex e II II 2D Ex tD A21 IP66			A = M16-M40

Build-in components:

Type	Technical data	Scheme	Dimensions
SMS 03/.	CONTROL SWITCH Explosion protection: Rated insulation voltage: 690 V Rated thermal current: 16 A Switching capacity AC 23: 690 V/8 A Switching capacity AC 3: 380 V/10 A Switching capacity DC 21: 60 V/10 A 110 V/1,85 A 220 V/0,6 A Terminals: 2 x 1,0 - 2,5mm ²	 SMS 03/1	
		 SMS 03/4	
		 SMS 03/5	
		 SMS 03/6	
		 SMS 03/12	
		 SMS 03/3	
		 SMS 03/2	
		 SMS 03/7	
		 SMS 03/10	
		 SMS 03/8	
		 SMS 03/9	
 SMS 03/11			

<p>GHG 23. ... R....</p>	<p>CONTROL SWITCH</p> <p>Explosion protection: II 2G Ex de IIC Rated insulation voltage: 690 V Rated thermal current: 10 A Switching capacity AC 11: 230 V/10 A 500 V/6 A Switching capacity DC 11: 24 V/2 A 230 V/0,4 A Terminals: 2 x 1,0 - 2,5mm²</p>		
<p>PBT/ . PTB/ . G</p>	<p>PUSHBUTTON</p> <p>Explosion protection: II 2GD Ex de IIC Gb Rated insulation voltage: 690 V Rated thermal current: 16 A Switching capacity AC 15: 250 V/6 A 500 V/4 A Switching capacity DC 13: 24 V/6 A 60 V/0,8 A 110 V/0,5 A Terminals: 2 x 1,0 - 2,5mm²</p> <p>PTB/ . G - gold plated contacts For voltages up to 60 V and currents 1,0 mA to 200 mA</p>		
<p>SLP</p>	<p>SIGNAL LAMP</p> <p>Explosion protection: II 2G Ex de II Rated insulation voltage: 690 V Rated voltage: 12 to 250 V AC/DC Rated current: 12 to 2,5 mA Terminals: 2 x 1,0 - 2,5 mm²</p>		

<p>GHG 410 1901 R....</p>	<p>POTENTIOMETER</p> <p>Explosion protection: II 2G Ex de IIC Rated voltage: up to 250 V Rating: 1 W Turning range: 270° Scale: 0-100% Terminals: 2 x 1,0 - 2,5 mm²</p>		
<p>AM 72</p>	<p>MEASURING INSTRUMENT</p> <p>Explosion protection: II 2G Ex e II Movement: moving iron Measuring range: n / 1 A, up to 25 A direct Overload range: 1 : 1,5 Measuring accuracy: class 2,5 Terminals: 2 x 1,5 - 4 mm² Explosion protection: II 2G Ex ib IIC Movement: moving coil Measuring range: 0 - 20 mA, 4 - 20 mA Measuring accuracy: class 1,5 Overload range: 1 : 1,2 Terminals: 2 x 1,5 - 4 mm² Intrinsic parameters: L_i = 0,1 mH max. C_i = 0,1 nF max. U_i = 30 V max. U_i = 150 mA max. U_m = 690 V_{rms}</p>	<p>-</p>	
<p>VM 72</p>	<p>MEASURING INSTRUMENT</p> <p>Explosion protection: II 2G Ex e mb II Movement: moving iron Measuring range: 6 - 660 V Measuring accuracy: class 2,5 Overload range: 1 : 1,5 Terminals: 2 x 1,5 - 4 mm²</p>	<p>-</p>	
<p>SL 5</p>	<p>MANTLE TERMINALS BLOCK</p> <p>Explosion protection: II 2GD Ex e II Rated voltage: 400 V Thermal current: 10/16 A Terminals: 3 x 4 mm², 2 x 4 mm² + 2 x 2,5 mm²</p>	<p>-</p>	
<p>SL 8</p>	<p>MANTLE TERMINALS BLOCK</p> <p>Explosion protection: II 2GD Ex e II Rated voltage: 400 V Thermal current: 10/16 A Terminals: 3 x 4 mm², 2 x 4 mm² + 2 x 2,5 mm²</p>	<p>-</p>	
<p>2 x 16 mm² CTS16U 5 x 4 mm² CTS4UN 5 x 4 mm² CTS4UN RAL 5012</p>	<p>TERMINAL BLOCK</p> <p>Terminals 2x16 mm² or 5 x 4 mm² on rail TH 35-7,5 Explosion protection: II 2G II(2) D Ex e IIC Rated voltage: 630 V Thermal current: 10/16 A Terminals 5 x 4 mm² RAL 5012 on rail TH 35-7,5 Explosion protection: II 2G Ex ia/ib IIC Maximum safe voltage: 60 V</p>	<p>-</p>	

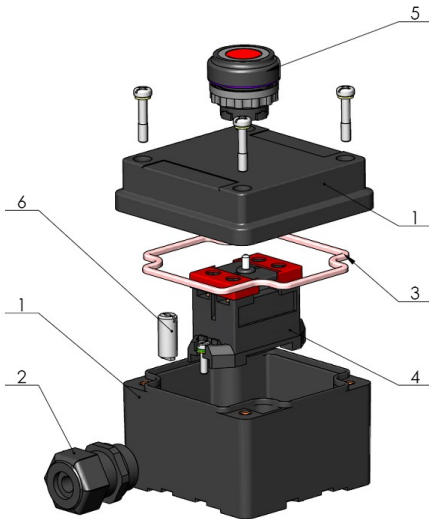
INSPECTION, MAINTENANCE, REPAIR, OVERHAUL

Inspection and maintenance have to be performed in accordance with standard EN 60079-17:2007/C1:2008, manufacturer's user manual, national regulations, and user policy.

Repair should be done by the manufacturer or a person legally authorized by the manufacturer, with original parts according to products documentation, in accordance with standard EN 60079-19:2011.

In case of improper installation, failure of inspection and maintenance, unauthorized repair or any overhaul on the product, the manufacturer is free of all responsibility, and the Declaration of Conformity becomes invalid

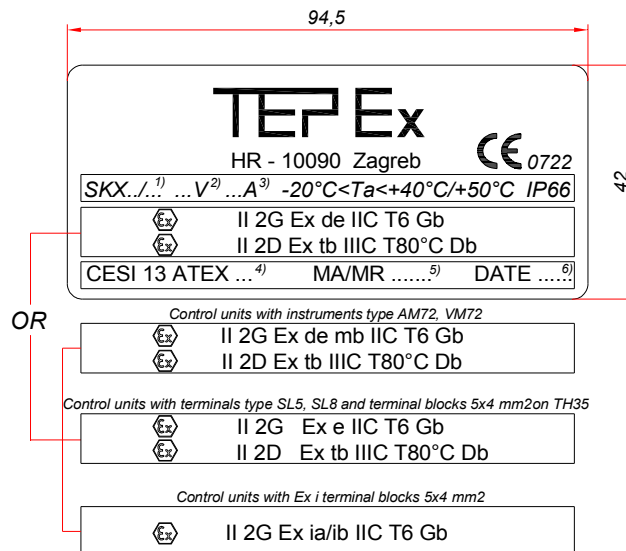
SPARE PARTS (according component specification)



1. Enclosure and cover SKX 12-15 with cover screw and PE terminal body
2. Cable glands and plugs; according to specification
3. Cover gasket SKX . .
4. Build-in components; according to specification
5. Actuators and indicators; according to specification
6. Terminal PE

MARKING

Explosion protected control units type SKX 12 - SKX 15 are labeled internal and external:



¹⁾ Model code

²⁾ Rated voltage U_e - depends on the built-in components

³⁾ Thermal current I_{the} - depends on the built-in components and ambient temperature

⁴⁾ Type examination certificate number

⁵⁾ Factory number

⁶⁾ Date, month/year

Warning label:

WARNING
DO NOT OPEN WHEN ENERGIZED