

MANUFACTURER

TEP Ex d.o.o. , Medarska 69, HR-10090 Zagreb
tel. 049/222-900, fax 049/426-450, e-mail: tepex@tepex.hr, www.tepex.hr

PURPOSE

Explosion protected control units type SKX 12 – SKX 15, independently or in combination coupled record (combination), are intended for the management, distribution and signaling in the power circles::

- in hazardous areas due to the presence of flammable and explosive gases, vapors or mists in Zones 1 and 2 in accordance with EN 60079-10,
- in hazardous areas due to the presence of flammable and explosive dust in Zones 21, 22 in accordance with EN 61241-10

TYPE OF PROTECTION

The explosion protection ensure utilizing types of protection:

"General requirements" according to EN 60079-0:2005, EN 60079-7:2006, type of protection "Increased safety", „Flameproof enclosure“, " encapsulation" and " intrinsic safety" in according with HRN EN 60079-0, HRN EN 60079-7, HRN EN 60079-1, HRN EN 60079-18 and HRN EN 60079-11 and type of protection „protection by enclosures“ in according with HRN EN 61241-0 i HRN EN 61241-1.

Apparatus category and marking of explosion-protection:

- II 2G Ex e II T6 Ex em II T6 Ex ed IIC T6 Ex edm IIC T6 Ex e ia/ib CT6
Ex em ia/ib CT6 Ex ed ia/ib IIC T6 Ex edm ia/ib IIC T6
- II 2D tD A21 IP66 T80°C

Degree of protection: IP 66 category 1, in accordance with EN 60529 +A1

Resistance to shock: IK 08 in accordance with EN 62262

Insulation class: I-protective earthing, inner PE terminal, inner PE and external PA terminal, with the use of metal cable glands, in accordance with EN 61140+A1.

CONSTRUCTION

In and on the Ex e enclosure or combination of enclosures are installed " Ex e d m ia/ib" build in and Ex e actuator and indicator elements. Possible combination and formation of build in and actuator and indicator elements is determined by certification documentation of enclosure. Build in components are mounted in enclosure with screwed accessories on boss with pressed nuts, to ensure clearance in conformity with the norm (creepage distances are determined with components construction), that is minimum 12mm of clearance between Ex e connecting terminals and minimum of 50mm between Ex e and Ex i connecting terminals.

For intrinsic safety "i" circles, blue connecting terminals are used (RAL 5012). For cable installing at intrinsic safety "i" circles into the enclosure will be used cable glands with blue pressure nut.

Usually, control units are not manufactured with wiring cables inside. But, when they are delivered wired, wire type H07V-K 1,5 mm² is used. Distribution intrinsic and nonintrinsic conduits is made separately, without crossing between themselves.

Construction of control units is according to EN 60493-1+A1, EN 60947-7-1,2,3, and with all related norms.

TECHNICAL DATA

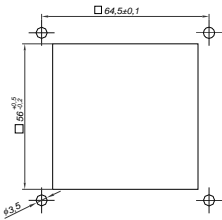
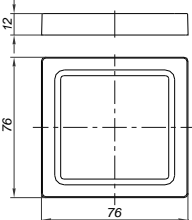
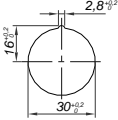
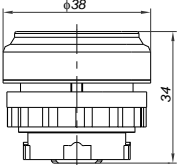
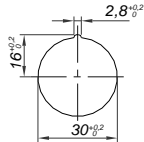
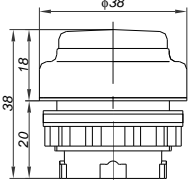
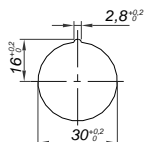
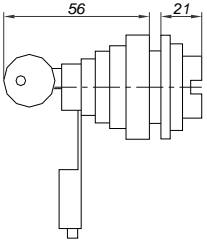
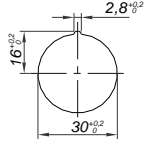
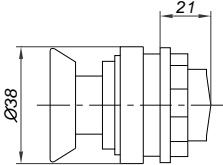
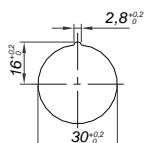
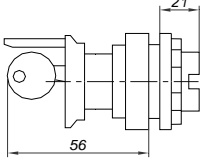
Rated insulation voltage U_i :	690 V AC (terminal type SL.. $U_i=400V$ AC)
Nominal current I_{th} :	16 A
PE terminals (inside the enclosure):	max. 2x4 mm ² +2x2,5 mm ² , 3x4 mm ² , 2x6 mm ² – solid, stranded, flexible
Cover screw:	Screw M5x30 (Z4) - 4.8 A2 Tightening torque 1,5 Nm
Cable glands:	Tightening torque of cable gland nut 2,5 Nm Tightening torque of cable gland body 3,5 Nm
Surface resistance:	$< 10^9 \Omega$
Energy shock:	7 J
Colour:	Black , RAL 9005

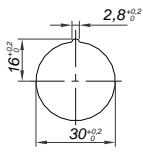
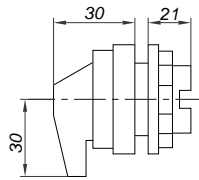
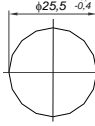
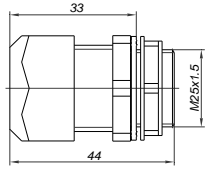
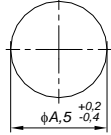
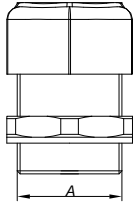
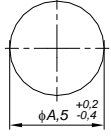
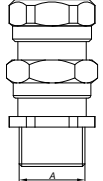
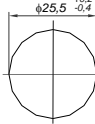
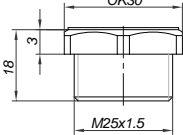
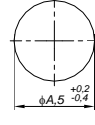
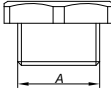
Dimension drawings for moulded plastic enclosures (without cable glands):

SKX 12/	SKX 13/
SKX 14/	SKX 15/

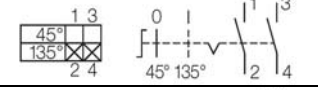
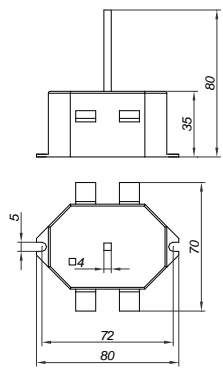

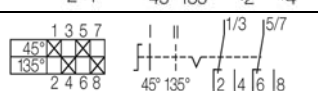
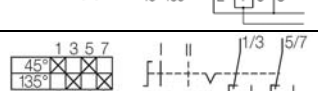
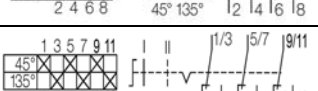
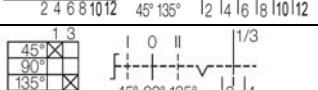
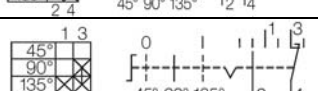
ACTUATORS AND INDICATOR ELEMENTS:

TYPE	DESCRIPTION	MOUNTING	DIMENSION
SMO 17/.	<p>SWITCH ACTUATOR</p> <ul style="list-style-type: none"> - manufacturer: TEP Ex d.o.o. - explosion protection: I M2 II 2GD Ex e I/II IP66 - certificate: HREx T 06.025U 		


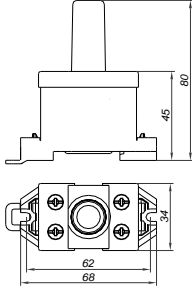
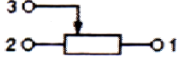
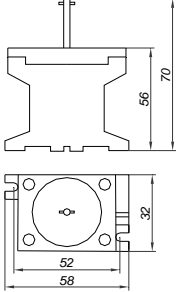
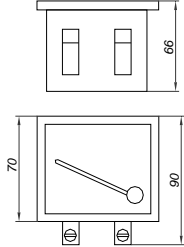
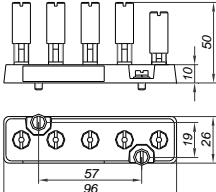
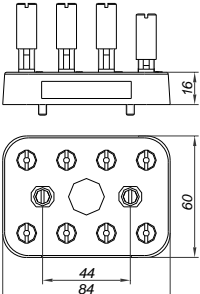
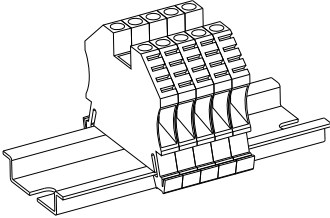
<p>SAM 72</p>	<p>FRONT ELEMENT OF MEASURING INSTRUMENTS</p> <ul style="list-style-type: none"> - manufacturer: TEP Ex d.o.o. - explosion protection: II 2GD Ex e II IP66 - certificate: HREx T 06.026U 																								
<p>SPO 01/.</p>	<p>PUSCHBUTTON ACTUATOR</p> <ul style="list-style-type: none"> - manufacturer: TEP Ex d.o.o. - explosion protection: II 2GD EEx e II T80°C IP66 - certificate: HREx T 04.020U 		 <table border="1" data-bbox="1098 528 1278 808"> <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
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																								
<p>SPO 02/.</p>	<p>FRONT ELEMENT OF SIGNAL LAMP</p> <ul style="list-style-type: none"> - manufacturer: TEP Ex d.o.o. - explosion protection: II 2GD EEx e II T80°C IP66 - certificate: HREx T 04.020U 		 <table border="1" data-bbox="1070 1048 1284 1200"> <thead> <tr> <th colspan="2">Type SPO 02/.</th> </tr> </thead> <tbody> <tr> <td>SPO 02/01</td> <td>RED TRANSP.</td> </tr> <tr> <td>SPO 02/02</td> <td>GREEN TRANSP.</td> </tr> <tr> <td>SPO 02/03</td> <td>YELLOW TRANSP.</td> </tr> <tr> <td>SPO 02/04</td> <td>TRANSPARENT</td> </tr> </tbody> </table>	Type SPO 02/.		SPO 02/01	RED TRANSP.	SPO 02/02	GREEN TRANSP.	SPO 02/03	YELLOW TRANSP.	SPO 02/04	TRANSPARENT												
Type SPO 02/.																									
SPO 02/01	RED TRANSP.																								
SPO 02/02	GREEN TRANSP.																								
SPO 02/03	YELLOW TRANSP.																								
SPO 02/04	TRANSPARENT																								
<p>GHG 410 1904 R0012</p>	<p>KEY-OPERATED PUSHBUTTON ACTUATOR</p> <ul style="list-style-type: none"> - manufacturer: CEAG GmbH - explosion protection: certificirano unutar GHG 41...R... II 2G/D EEx e II IP66 - certificate: PBT 00 ATEX 3117 																								
<p>GHG 410 1905 R0005</p>	<p>MUSHROOM-HEAD PUSHBUTTON ACTUATOR (EMERGENCY-STOP)</p> <ul style="list-style-type: none"> - manufacturer: CEAG GmbH - explosion protection: II 2G/D EEx e II IP66 - certificate: PBT 00 ATEX 3117 																								
<p>GHG 410 1905 R0006</p>	<p>KEY-OPERATED MUSHROOM-HEAD PUSHBUTTON ACTUATOR (EMERGENCY-STOP)</p> <ul style="list-style-type: none"> - manufacturer: CEAG GmbH - explosion protection: II 2G/D EEx e II IP66 - certificate: PBT 00 ATEX 3117 																								

GHG 410 1944 R0010	SWITCH ACTUATOR - manufacturer: CEAG GmbH - explosion protection: II 2G/D EEx e II IP66 - certificate: PBT 00 ATEX 3117		
SPU 25 (M25)	CABLE GLAND - manufacturer: TEP Ex d.o.o. - explosion protection: II 2GD EEx e II IP66 - certificate: HREx T 00.005X		
GHG 960 1955	CABLE GLAND - manufacturer: CEAG GmbH - explosion protection: II 2GD EEx e II IP66 - certificate: PBT 99 ATEX 3101X, PTB 99 ATEX 3128X		 A = M16-M40
FGA1 – FGA4	CABLE GLAND - manufacturer: ELFIT S.p.A - explosion protection: II 2GD EEx d IIC Eex e II IP66/67 - certificate: CESI 02 ATEX 081 X		 A = M16-M40
SPC 25 M25	PLUG - manufacturer: TEP Ex d.o.o. - explosion protection: II 2GD EEx e II IP66 - certificate: HREx T 04.009		
GHG 960	PLUG - manufacturer: CEAG GmbH - explosion protection: II 2GD EEx e II IP66 - certificate: PBT 99 ATEX 3130		 A = M16-M40

BUILD-IN COMPONENTS:

TYPE	DESCRIPTION + technical data	WIRING DIAGRAM	DIMENSION
SMS 03/.	CONTROL SWITCH - manufacturer: TEP Ex d.o.o. - explosion protection: I M2 Ex de I II 2G Ex de IIC - rated voltage: 660V - rated current: 16A - rated section: 2,5mm ² - certificate: HREx T 01.016U	 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	
GHG 23. GHG 29.	CONTROL SWITCH <ul style="list-style-type: none"> - manufacturer: CEAG GmbH - explosion protection: II 2G Ex de IIC - rated voltage: 690V - rated current: 10/20A - rated section: 2,5/6 mm² - certificate: GHG 23. - PTB 98 ATEX 1116U GHG 29. - PTB 98 ATEX 1118U 		060	
			062	
			065	
			061	
			063	
			067	
			011	
			034	
			037	
			049	
			023	
			019	
			033	
			024	
		PBT/.	PUSHBUTTON <ul style="list-style-type: none"> - manufacturer: TEP Ex d.o.o. - explosion protection: I M2 Ex de I II 2GD Ex de IIC T6 - rated voltage: 690V - rated current: 16A - rated section: 2,5mm² - certificate: HREx T 06.028U 	
	PBT/02			
	PBT/03			

SLP	<p>SIGNAL LAMPS</p> <ul style="list-style-type: none"> - manufacturer: TEP Ex d.o.o. - explosion protection: I M2 Ex de I II 2GD Ex de IIC - rated voltage: 20-250V AC/DC - I_{max}: 20mA - rated section: 2,5mm² - certificate: HREx T 06.027U 		
GHG 41.	<p>POTENTIONMETER</p> <ul style="list-style-type: none"> - manufacturer: CEAG GmbH - explosion protection: II 2G Ex de IIC - rated voltage: 250V - resistance range: 100-10 000Ω - scale: 0-100% - connection terminal: 2,5mm² - certificate: PBT 97 ATEX1081U 		
AM 45/72, VM 45/72	<p>MEASURING INSTRUMENTS</p> <ul style="list-style-type: none"> - manufacturer: CEAG GmbH - explosion protection: II 2G EEx em IIC EEx ib Iic - measuring range: AM: n/1A 0-20mA 0-25A direct 4-20mA VM: n/1A 6-415V 6-660V - scale: 0-600A, 20 tipova - connection terminal: 1,5-4mm² - certificate: PBT 99 ATEX 2032U 	-	
SL 5	<p>MANTLE TERMINALS</p> <ul style="list-style-type: none"> - manufacturer: TEP Ex d.o.o. - explosion protection: I M2 Ex e I II 2GD Ex e IIC - rated voltage: 400V - connection terminal: 4mm² - certificate: HREx T 05.002U 	-	
SL 8	<p>MANTLE TERMINALS</p> <ul style="list-style-type: none"> - manufacturer: TEP Ex d.o.o. - explosion protection: I M2 Ex e I II 2GD Ex e IIC - rated voltage: 400V - connection terminal: 4mm² - certificate: HREx T 05.002U 	-	
EURO 4/35 EURO 16-25/35	<p>TERMINALS</p> <p>5 terminals 4 mm² with rail 35-7,5 TH</p> <ul style="list-style-type: none"> - manufacturer: MORSETTITALIA - explosion protection: II 2GD EEx e II - certificate: KEMA 03ATEX2118 U <p>2 terminals 16 mm² with rail TH 35-7,5</p> <ul style="list-style-type: none"> - manufacturer: MORSETTITALIA - explosion protection: II 2GD EEx e II - certificate: KEMA 03ATEX2118 U 	-	

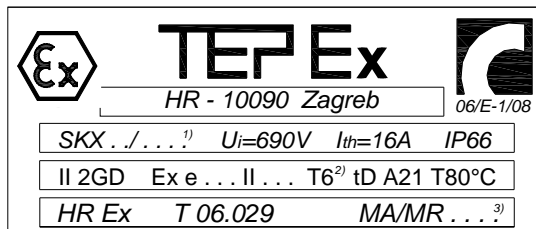
MAINTANCE, REPAIR AND OVERHAUL

Maintenance is performed in accordance with EN 60079-17:2007, the national rules and user policy. Repair and overhaul is performed in accordance with EN 60079-19:2007 and applicable national rules. Repairs that affect the explosion protection, may only be carried out by TEP Ex or a qualified electrician in compliance with the national rules. Modifications to the control units or changes of its design are not permitted. Every improper usage, as well as every unofficial repair or modification of the product, release the manufacturer of all responsibilities..

MARKING

Explosion protected control units, types SKX 12 - SKX 15, are labeled with:

- marking labels



- warning label:

WARNING
DO NOT OPEN WHEN ENERGIZED
UPOZORENJE
NE OTVARAJ POD NAPONOM

RESPONSIBILITY AND AUTHORIZATION

Responsibility and authorization are defined by the "Regulation on technical supervision over the electrical stations, installations and equipment intended for usage in potentially explosive atmospheres" . This Manual represents the most relevant information about the product. Adequate national laws and regulations supplement it. The person in charge is required to secure its employment in the industrial unit. Every improper usage, as well as every unofficial restructuring, repair or restoration of the product, release the manufacturer of all responsibilities.

STORAGE AND TRANSPORT

Transport and storage is only allowed in the original packaging, on the way pointed out on the carton box.

All rights reserved.