

TEPEX d.o.o. tel. 049 222 900 fax. 049 426 450 e-mail: tepex@tepex.hr www.tepex.hr	USER MANUAL FOR EXPLOSION PROTECTED BUSBAR ENCLOSURE SKX 20/1-120, SKX 20/2-185, SKX 20/3-185		
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CONTENT

1.	Manufacturer	1
2.	General safety information's	1
3.	Purpose	2
4.	Product compliance	2
5.	Degree of protection and technical data	2
6.	Type	3
7.	Mounting and dimensions	4
8.	Installation and commissioning	5
9.	Inspection, maintenance, repair and overhaul	5
10.	Spare parts and accessories	6
11.	Responsibility and authorization	6
12.	Storage and transport	7
13.	Manufacturer's warranty	7
14.	Marking	7

1. MANUFACTURER

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2. OPĆE SIGURNOSNE INFORMACIJE



WARNING !

The user manual contains basic information about the product. Mounting, installation, usage and maintenance should be carried out under this user manual to provide and ensure safe operation within the nominal characteristics. This user manual complement national Regulation and Standards. The responsible person shall ensure their implementation. Failure off implement this user manual can reduce explosion protection and endanger people, property and the environment. Any improper and illegal actions as well as non-compliance with the provisions of this user manual excludes all responsibility by manufacturer side.

Before installation/commissioning:

- Carefully read all instructions,
- Execute proper training of responsible personnel,
- Check that the contents of these instructions is fully understandable by the responsible personnel,
- Make sure that all the requirements and national Regulations as well as all special security measures are applied.

In lack of understanding:

- Contact the manufacturer.

During operation:

- Ensure that this user manual and other work instructions are available to the responsible staff at all times,
- Check the implementation of these instructions and all other safety user's instructions.

3. PURPOSE

Explosion protected busbar enclosure, type: SKX 20/1-120, SKX 20/2-185, SKX 20/3-185 is intended for connecting and distributing armored and unarmored cables with cross-sections from 50 mm² to 185 mm² and currents from 65 A to 430 A in industrial areas in places with potentially explosive atmospheres of gases, vapors and dust in hazard zones 1, 2, 21, 22, in accordance with standards EN 60079-10-1 and EN 60079-10-2.

4. PRODUCT COMPLIANCE

The product complies with the standards:

- EN IEC 60079-0:2018,
- EN IEC 60079-7:2015/A1:2018,
- EN 60079-31:2014.

The product was developed, manufactured and tested according to the current state of the art, in accordance with EN ISO 9001, EN ISO 80079-34 and EN ISO 14001 standards.

The product complies with the ATEX Directive 2014/34/EU.

The product complies with the LVD Directive 2014/35/EU.

The product complies with the RoHS Directive 2011/65/EU.

The product complies with the EMC Directive 2014/30/EU.

5. DEGREE OF PROTECTION AND TECHNICAL DATA

Certificate:	FIDI 19 ATEX 0008
Category and explosion protection:	 II 2G Ex eb IIC T6/T5 Gb II 2D Ex tb IIIC T80°C Db
Ambient temperature:	-20°C ≤ Ta ≤ +40°C / +50°C
Mechanical protection:	IP 66, category 1
Resistance to shock:	IK 07
Class of protection:	II
Nominal voltage U _n :	630 V AC
Operating voltage:	630 V AC ± 10%
Maximal current I _{max} :	according to the table of maximal current
Short circuit peak current IPK	SKX/1-120 – 75 kA SKX/2-185 – 70 kA SKX/3-185 – 65 kA
Short circuit current Ik:	22 kA/1s
Number of poles:	3L + N + PE / 3L + PE
Number of entry's	max. 2 x Ø 63,5(+0,2/-0,4) per housing
Cables:	PP40 (NYCY, N2XCY) max. 4x120/70mm ² PP00 (NYY, N2XY) max. 5x185mm ² i max. 4x185mm ² PP41 (NYBY, N2XBY) max. 4x185mm ² PP44 (NYRY, N2XRY) max. 4x185mm ²
Cable glands:	Manufactured in types of protection Ex eb / Ex tb protection degree IP66, max. M63
Busbar:	SKX 20/1-120 – cooper busbar 20x10 - E-Cu57 - 99,90% HRN EN 13601 SKX 20/2-185, SKX 20-3/185 – cooper busbar 30x10 - E-Cu57 - 99,90% HRN EN 13601
Connection terminals of the incoming and outgoing cable	300 mm ² terminal for 150 mm ² and 185 mm ² cables with a screw tightening torque of 30 Nm, 185 mm ² terminal for 120 mm ² cable with a screw tightening torque of 22 Nm 120 mm ² terminal for 50 mm ² , 70 mm ² and 95 mm ² cables with a screw tightening torque of 15 Nm, 35 mm ² terminal for 25 mm ² cable with a screw tightening torque of 6 Nm for grounding the base plate Cable conductors - multi-wire round s(r) or multi-wire sector s(s)
Terminal for internal grounding of the busbar enclosure:	Screw terminal M8 for cable lug DIN 46235: - grounding of the base plate 25mm ² H07V-K
Removing insulation:	Terminal 300 mm ² - 35 mm Terminal 185 mm ² - 25 mm

	Terminal 120 mm ² - 25 mm Terminal 35 mm ² - 20 mm
Cover screw:	- Combi screw M5x25/10 or M5x65/10 - Z4 A2 ISO 7045 with washer 4.5 A2 DIN 6905, - screw tightening torque 3.0 Nm
Dimension of one enclosure (LxWxH):	MMK 20/1 - 600 x 250 x 120 mm (without cable glands and brackets) MMK 20/2 - 600 x 250 x 160 mm (without cable glands and brackets)
Mounting:	Suspension brackets and M8 screws
Housing and cover material:	SMC RAL 9005, surface resistance < 109 Ω

Table of maximum currents:

Terminal	Cable cross-section	Max. thermal current of the terminal /cable			
		-20°C ≤ T _{amb} ≤ +40°C		-20°C ≤ T _{amb} ≤ +50°C	
		Cable tip: NYBY, NYRY, NYCY, NYV Cable stability 70°C Temperature class T6, Max. surface temp. of the housing 80°C	Cable tip: N2XBY, N2XRY, N2XCY, N2XY Cable stability 90°C Temperature class T5, Max. surface temp. of the housing 80°C	Cable tip: NYBY, NYRY, NYCY, NYV Cable stability 70°C Temperature class T6, Max. surface temp. of the housing 80°C	Cable tip: N2XBY, N2XRY, N2XCY, N2XY Cable stability 90°C Temperature class T5, Max. surface temp. of the housing 95°C
300mm ²	185mm ²	330A	430A	280A	370A
	150mm ²	270A	350A	230A	300A
185mm ²	120mm ²	200A	280A	160A	240A
120mm ²	95mm ²	160A	215A	130A	185A
	70mm ²	120A	160A	95A	140A
	50mm ²	85A	115A	65A	100A

As standard, busbar systems are supplied without cable glands. If required, busbar systems are supplied with ATEX certified Ex eb / Ex tb IP66 cable glands. Additionally, busbar systems with 4F cable glands for armoured cables are supplied with an external earthing tag for each cable gland.).

6. TYPE

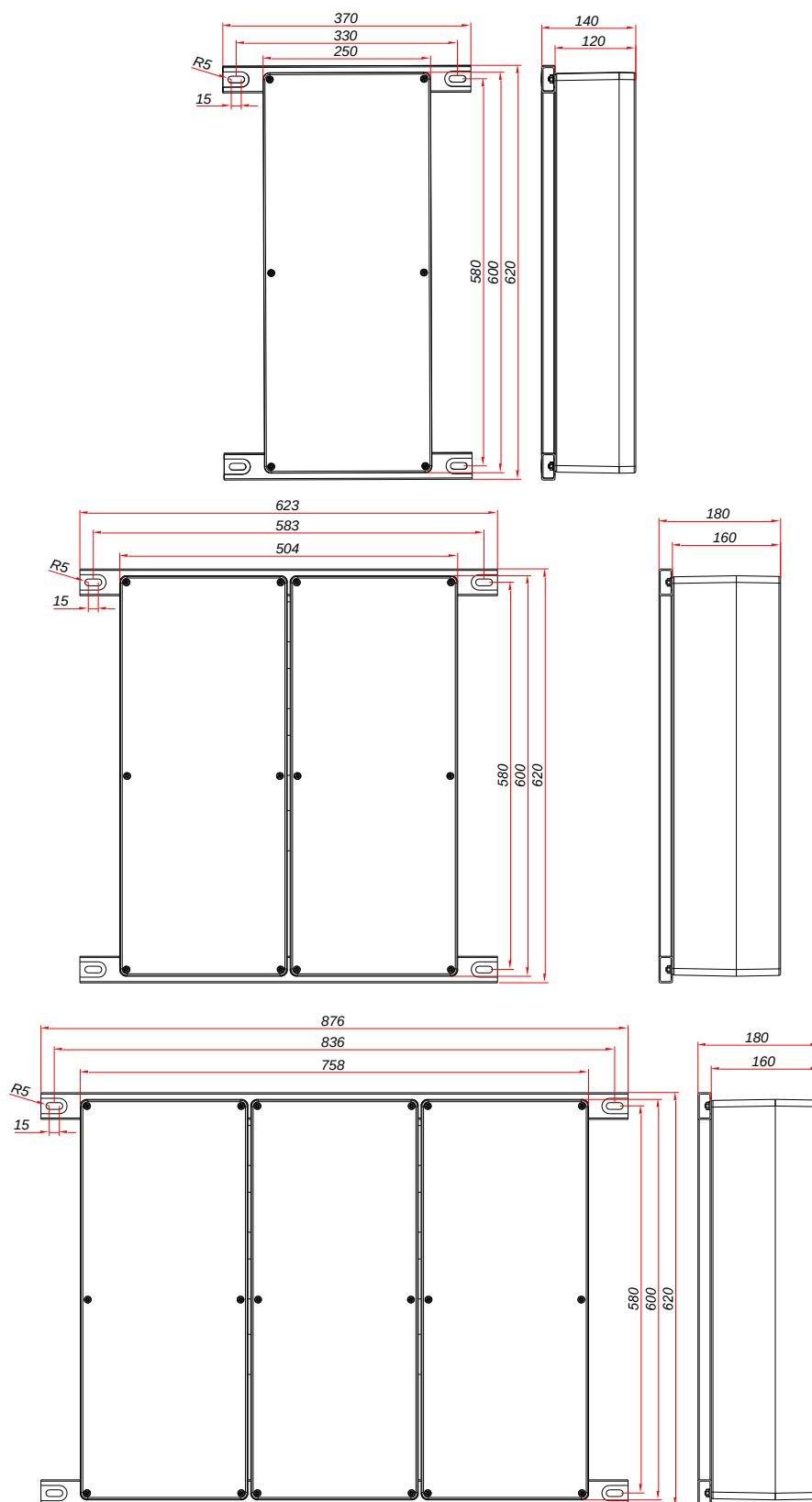
SKX 20/1-120 – 60mm busbar system,
 – Copper busbars 20x10mm
 – 3L + N + PE
 – one MMK 20/1 housing
 – maximum cross section of input cable 120mm²

SKX 20/2-185 – 100mm busbar system,
 – Copper busbars 30x10mm
 – 3L + PE
 – two MMK 20/2 housings
 – maximum cross section of input cable 185mm²

SKX 20/2-185 – 100mm busbar system,
 – Copper busbar 30x10mm
 – 3L + PE
 – three MMK 20/2 housings
 – maximum cross section of input cable 185mm²

7. MOUNTING AND DIMENSIONS

The busbar cabinet is mounted on a flat surface or wall using M8 screws according to the dimensions shown in the drawing:



8. INSTALLATION AND COMMISSIONING

The cable should be untangled for the connection of the conductors to the busbar terminal and prepared for the acceptance to the cable gland according to the instructions of the cable gland manufacturer. The insulation of the conductors should be removed to the length according to the technical data. The cables should be introduced into the housing, relieved with clamps and the conductors should be connected to the appropriate terminals on the busbars. Tighten the terminal screws with the torque according to the technical data. Tighten the gland pressure nuts with the torque according to the technical data of the gland manufacturer.

Close the housing with a cover. Tighten the cover screws with the torque according to the technical data.

If a short-term short-circuit withstand current $I_{k.s.(r.s.m.)} > 15 \text{ kA}$ is expected, considering the tripping time of the protective device, it should be checked in accordance with IEC 60364-5-54 whether the cross-section of the protective earth conductor of the housing is sufficiently dimensioned.

The busbar cabinet is individually tested at the factory for dielectric strength of $(2U_n + 1000 \text{ V}) \text{ r.m.s.}, 1 \text{ min.}$

When commissioning, the relevant national regulations and standards for electrical installations in areas with potentially explosive atmospheres must be respected.

9. INSPECTION, MAINTENANCE, REPAIR AND OVERHAUL



WARNING!

Before every opening of the busbar cabinet, the warning must be followed:

DO NOT OPEN WHEN ENERGIZED

It is necessary to carry out inspections and maintenance of all parts on which explosion protection depends in accordance with the EN 60079-17 standard, the general and special conditions of the manufacturer and the User Regulations, and in particular:

- that the case, all parts of the case, the cover and the cover seal are complete without cracks or damage, and that the cover screws are tightened to the nominal torque,
- that the screws of the clamps and the screws of the terminal for cable relief are tightened with rated torques,
- that the cable glands and plugs are installed according to the manufacturer's instructions and that the cable glands seals are undamaged and the compression nuts are tightened to the nominal torque.

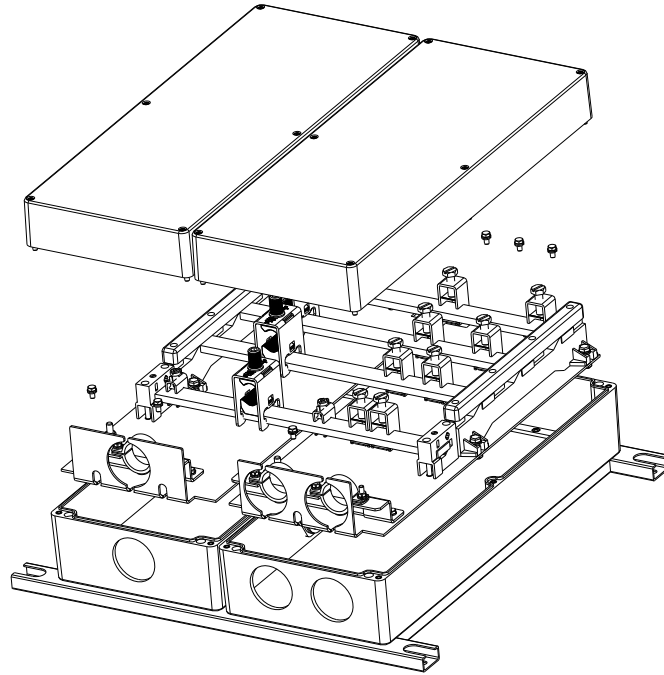
The scope of maintenance also includes the replacement of parts provided by the manufacturer and specified in the list of spare parts.

All other procedures have a repair character. The repair is performed by the manufacturer or a legal entity authorized by the manufacturer, with original parts according to the production documentation, and everything in accordance with the norm EN 60079-19.

Reconstruction and renovation are not allowed.

If the repair or any other operation on the product is performed by an unauthorized person, all responsibility of the manufacturer for the product ends, and the manufacturer's warranty and declaration of conformity become invalid.

10. SPARE PARTS



SKETCH	DESCRIPTION	CODE	SKETCH	DESCRIPTION	CODE
	Housing cover MMK 20/1	SKX 20 / 10-110		Terminal 300 mm ²	SKX 20 / 10-180
	Housing cover MMK 20/2	SKX 20 / 10-120		Terminal 185 mm ²	SKX 20 / 10-190
	Cover gasket	SKX 20 / 10-130		Terminal 120 mm ²	SKX 20 / 10-200
	Cover screw M5x25 or M5x65	SKX 20 / 10-140		Copper busbar ECu 30x10	SKX 20 / 10-210
	Busbar support 1p	SKX 20 / 10-150		Copper busbar ECu 20x10	SKX 20 / 10-220
	Busbar support 3p 100mm	SKX 20 / 10-160		Cable strain relief assembly	SKX 20 / 10-230
	Busbar support 3p 60mm	SKX 20 / 10-170			

11. RESPONSIBILITY AND AUTHORIZATION

This instruction is the basic information about the product. It is completed by the corresponding national laws and regulations.

Production, use, certification and supervision are determined at the national level:

- Regulations concerning equipment and protective systems intended for use in potentially explosive atmospheres EU directive 2014/34/EU and
- Regulations on minimum requirements for safety and health protection of workers and technical inspection of facilities, equipment, installations and equipment in hazardous areas EU directive 1999/92/EC (ATEX 137).

The responsible person shall ensure their implementation at the working facility.

12. STORAGE AND TRANSPORT

Transport and storage should only be carried out in the original packaging, as indicated on the cardboard box.

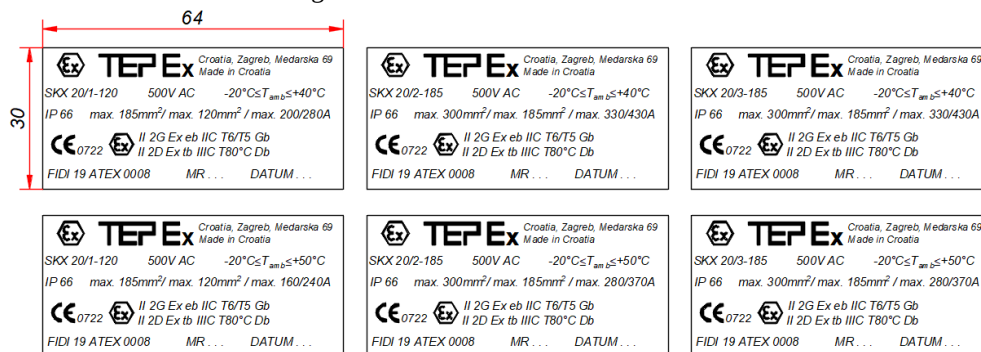
13. MANUFACTURER'S WARRANTY

The manufacturer gives guarantee on the product for a period of one year under the provisions of the Law on Obligations. This statement has the force of the guarantee list.

14. MARKING

Explosion protected busbar cabinet SKX 20/-... is marked:

- plate with technical data on the housing cover:



- a label with technical data on the inside of the housing

Technical data labels for TEPEX SKX 20/-... busbar cabinets. The labels are arranged in two rows of three. Each label shows dimensions (107mm width, 56mm height), model number, voltage (500V AC), temperature range (-20°C to +40°C), IP rating (IP 66), and cable cross-sections. It also includes explosion protection symbols (II 2G Ex eb IIC T6/T5 Gb) and certification marks (CE 0722, FIDI 19 ATEX 0008).

Terminal	Cross section Cu - r, mm, s, sm	NBY, NRY, NVCY, NYI (T6)	N2BX, N2RY, N2CY, N2XY (T5)
185mm ²	120mm ²	200A	280A
	95mm ²	160A	215A
120mm ²	70mm ²	120A	160A
	50mm ²	85A	115A

Terminal	Cross section Cu - r, mm, s, sm	NBY, NRY, NVCY, NYI (T6)	N2BX, N2RY, N2CY, N2XY (T5)
300mm ²	185mm ²	330A	430A
	150mm ²	270A	350A
185mm ²	120mm ²	200A	280A
	95mm ²	160A	215A
120mm ²	70mm ²	120A	160A
	50mm ²	85A	115A

Terminal	Cross section Cu - r, mm, s, sm	NBY, NRY, NVCY, NYI (T6)	N2BX, N2RY, N2CY, N2XY (T5)
300mm ²	185mm ²	330A	430A
	150mm ²	270A	350A
185mm ²	120mm ²	200A	280A
	95mm ²	160A	215A
120mm ²	70mm ²	120A	160A
	50mm ²	85A	115A

- warning plate on the housing cover:

WARNING
WARNING - DO NOT OPEN WHEN ENERGIZED
DO NOT OPEN WHEN AN EXPLOSIVE DUST
ATMOSPHERE IS PRESENT
USE CABLE SUITABLE FOR A MINIMUM
TEMPERATURE +90°C
(only for temperature class T5)