

 GENERI, s.r.o. Uničovská 50 787 01 ŠUMPERK Czech Republic tel.: +420583221500, fax: +420583214183	OPERATING INSTRUCTIONS		Page: 1 of 3
	EXPLOSION-PROOF SOCKET AND TRANSFORMER BOXES		N740062 – 3 rd issue
	TYPE: X.XS(T) . (0 - aluminium, 1- polyester, 2 – stainless steel)		

GENERAL

These operating instructions (OI) are valid only for socket boxes equipped with Marechal Electric socket-outlets. When the box is equipped with other manufacturer socket-outlets, it is necessary to use these OI together with OI valid for specific socket-outlet.

These operating instructions conform to:

- Technical requirements for equipment and protective systems intended for use in potentially explosive atmospheres (2014/34/EU).
- Technical requirements for products from the point of their electromagnetic compatibility (2014/30/ EU).

2.3. Not mentioned external influences are in accordance with IEC 60 364-5-51 normal.

2.4. Use in areas and environments according to regulations

Areas	Name of standard	Standard
ZONE 1 ZONE 2	Explosive atmospheres - Part 10-1: Classification of areas - Explosive gas atmospheres	EN 60 079-10-1
ZONE 21 ZONE 22	Explosive atmospheres - Part 10-2: Classification of areas - Combustible dust atmospheres	EN 60 079-10-2

2.5. Operating position: vertical

3. TECHNICAL DATA

3.1. General

Name	Specification	Standard, note.
Type of protection ¹⁾	Ex dbomb IIC T* Gb Ex tb IIIC T* C Db	EN 60 079-0 EN 60 079-1 EN 60 079-7 EN 60 079-18 EN 60 079-31
Ingress protection ¹⁾	IP 66 / IP 65	EN 60 529
Group and category	II 2G, II 2D	2017/34/EU
Certification	FTZÚ06 ATEX0049X	FTZÚ NB 1026, CZ
Electromagnetic compatibility	Resistant to elm. interference Radiating short-term elm. interference	Acc.to EN 60 947-3 no other verification is required
Material	X.XS(T)0	Al-pressure die casting DIN 1725 (AISI12)
	X.XS(T)1	Glass fibre reinforced polyester (GRP) with addition of graphite black, equivalent to RAL 9011 or RAL 9005
	X.XS(T)2	stainless steel plate 1.4301 / 304 ²⁾ DIN / ASTM Other quality on request
Surface finish of X.XS(T)0	Powder baking coating	Grey, RAL 7001
Combustibility of X.XS(T)1	Hardly inflammable and self-extinguishing	UL-S94.V-0 (also halogen-free)
External PE	16 mm ² (for X.XS(T)0,2)	2x screw M5 with shim or stud for cable lug

1) Concrete data are mentioned on rating plate.

2) Other materials on request

1. USE

The socket / transformer boxes X.XS(T). are determined for disconnectable connection of electrical equipment and/or for transformation of voltage in explosive gas and combustible dust atmospheres.

2. OPERATING CONDITIONS

2.1. External influences acc.to IEC 60 364-5-51-cat.A: ENVIRONMENT

Code	Description of external influence	Specification
AA	Ambient temperature (max. range) *	-55°C to +60°C
AB	Atmospheric humidity	to +30°C ... 100% to +40°C ... 70%
AD5 AD6	Presence of water	Jets Waves
AE6	Presence of foreign solid bodies or dust	Heavy dust
AF4	Presence of corrosive or polluting substances	Continuous
AG3	Mechanical shock	High severity (7J)
AH	Vibrations	See art. 6. – Rev.

* Concrete temperature range depends on used components and it is always mentioned on name plate, if the equipment is produced for ambient temperature range different than standard range -20°C to +40°C.

2.2. External influences acc.to IEC 60 364-5-51-cat.B: USE

Code	Description of external influence	Specification
BE3N1	Danger of explosion of inflammable dusts	see point 2.4
BE3N2	Danger of explosion of inflammable gases and vapours	see point 2.4
BE3N3	Danger of fire or explosion of explosives	see point 2.4
BA5	Capability of persons	skilled
BC3	Contact of persons with earth potential	frequent

3.2. Electrical data - see rating plate and enclosed wiring diagram.

3.3. Socket-outlets, plugs

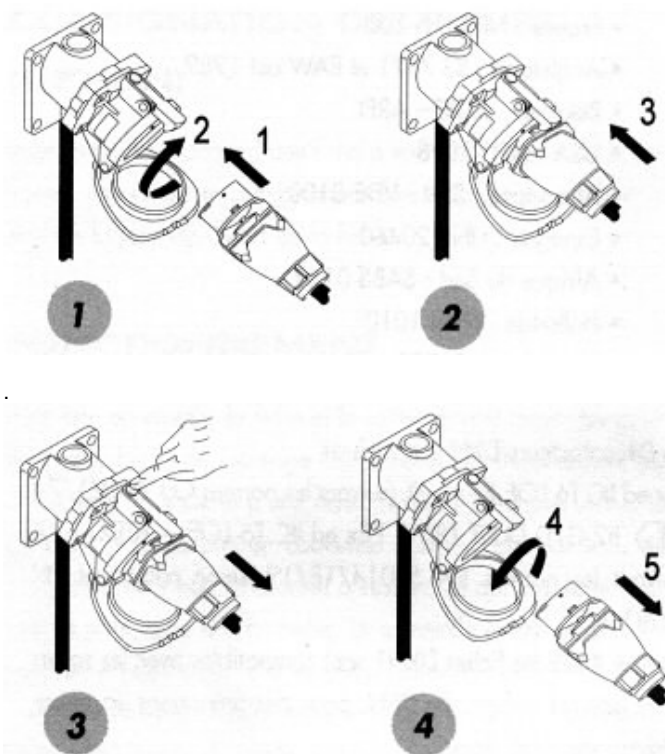
Use only the plug by the same manufacturer as the socket-outlet is, with compatible ratings (voltage, current) and contact configuration. The DXN DECONTACTOR™ system consists from socket-outlet and plug with integral switching device acc.to EN 60 309-1 (similar to "interlock system" of other manufacturers). It allows safely break current.

3.4. Connection

Depress the latch on socket-outlet to release protective lid. Align red marks on the socket-outlet and plug, insert the plug and rotate clockwise until the stop. The plug is in the rest / OFF position now, circuit is open and all live parts are inaccessible (1). Only from the rest / OFF position can be the plug fully inserted into the socket-outlet to ON position. Push the plug until latched (2).

3.5. Disconnection

Depress the latch on socket-outlet, the plug returns to the rest / OFF position (3). Turn the plug to opposite direction to remove the plug (4). Shut socket-outlet protective lid.



3.6. Fusing

Fusing of sockets is expected outside the box. Always use protection element with no more nominal current than nominal current of particular circuit is – see rating plate!

With transformer boxes fuses are always part of the secondary circuit of the transformer.

Where the **automatic disconnection of supply** protection type is used and it is expected feeding of **portable hand tool or mobile equipment** used in the **outdoor** environment from sockets with nominal current not exceeding **32A**, it is according to IEC 60 364-4-41 necessary to use a **residual current device** with the differential current not exceeding **30mA** !

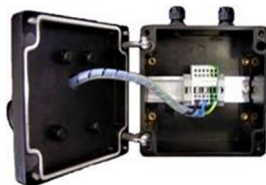
4. INSTALLATION INSTRUCTION

4.1 Mounting

4.1.1 Boxes X.XS(T)0, X.XS(T)1

Spacing of mounting holes is stated on the bottom of the box. Lift off the cover and insert attachment screws into holes and mount the box.

If an internal hinges are used, remove both hinges at first (by screwing off two screws M3) and mount them back when the box is fixed. Then properly tighten cover screws to attach the cover to the box so that the sealing compressed by the cover provides the required degree of protection.



4.1.2 Boxes X.XS(T)2

There are two various ways:

- By screws M6 that you screw up into "blind" holes in the box bottom from outwards.
- By stainless steel screws M6 from outwards of the box you screw up into the "blind" holes in the box bottom and herewith by them you fix special stainless steel flanges (all is delivered as accessories of box). The box equipped by this way you can fix from the front by screws M8 that you put into the whole in flanges.

4.2 Cable entries

Each cable gland can seal only a specific range of outside cable diameters. In case of more cable glands placed on the box flange, start with cable gland on the lower row and insert and tighten the cable into the cable glands subsequently from one side to the other side (for instance from the left to the right). Than continue with the cable glands on the next row. Tighten the cable glands properly by specified tightening torques.



For easier mounting you can use special tighten tongs (optional delivery) - see the picture.

Unused holes and openings for cable entries must be closed by certified plugs that comply with required degree and type of protection - see art.6.

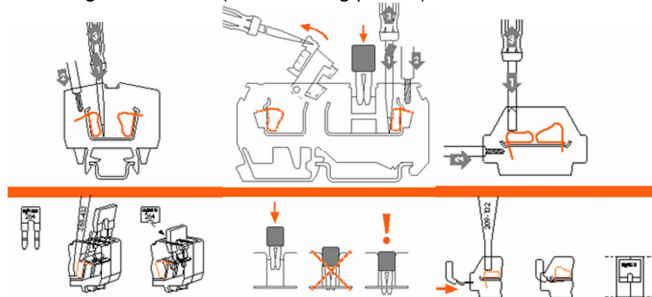
4.3 Connection of wires to terminals

Either the cage clamp or screw terminals are used. Their function is clear from the following pictures.

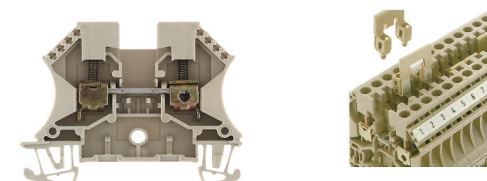
4.3.1 Spring-cage terminals

Press a cage clamp of the terminal (1) e.g. with a suitable screwdriver (or a special WAGO screwdriver) wherewith you open a window for the wire. Push-in the wire (2) and release the cage clamp (3).

Two or more terminals can be **interconnected** using a special **jumper**. Strongly push-in the jumper into terminals so that it does not overhang the terminal (see following picture).

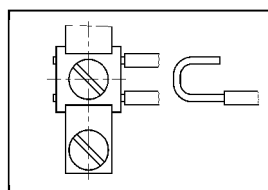


4.3.2 Screw terminals



Connect wires from the side of the terminal and properly tight the connection.

Two or more terminals can be **interconnected** using a special **jumper**. Insert it into terminals and properly tight jumper screws.



If PE or FE rail is provided, and there is only one wire to be connected to terminal, bend the stripped wire end into a "U" shape so that the clamping plate compressing the wire is in-plane and the function of the flexible washer between the clamping plate and the screw head is not reduced.

4.3.3 General requirements

Stranded wires must be provided with ferrules (tubes). We recommend use **ferrules** also for full copper wires without surface protection and when using in **aggressive atmosphere**. Termination of stranded wires only by soft solder is not permitted!!!

If a 2,5 mm² wire is terminated with a ferrule at some types of terminals with cage clamp, it will not already fit in a 2,5 mm² terminal block and it is necessary to use a terminal block of a higher series, i.e. 4,0 mm² one.

Only one wire can be inserted to the connecting point of terminal and **its maximum cross section must not exceed nominal size of the terminal or size indicated on the rating plate.**

The **wire** insulation must reach as close the current-carrying connection as possible. The **wire must not be damaged.**

We recommend regularly **treat connection points of protection wires** (or other corrosive metal surfaces) with **grease**, at least 1 a year (depending on the environment). It is not valid for stainless steel boxes.

Unused dead wires should be **connected to unoccupied terminal** (including of protective wires) **or terminated** in a way complying with valid regulations

The application of Al-wires with the cross section < 16 mm² is PROHIBITED!

5. INSTALLATION ACC. TO VALID REGULATIONS

A decision to use a given type of equipment in particular areas must comply with above mentioned operating conditions, local operating regulations, **EN 60 079-14**, and other valid regulations.

Electrical accident protection is, in addition to above mentioned regulations, stipulated by **IEC 60 364-4-41**, **EN 61 140** and other related regulations.

Safety regulations for operating personnel and work on electrical equipment are identified by **EN 50 110-1**.

6. INSPECTION AND PREVENTIVE MAINTENANCE

Inspection and preventive maintenance of electrical devices is defined in **EN 60 079-17**, unless it is defined otherwise by a notice, local regulations etc.

Boxes X.XS(T) can be opened only while are not energized!

All **mechanical and electrical connections are protected from self-loosening** (EN 60 079-7). Vibration tests of equipment (external effects AH1, 2, 3 by IEC 60 364-5-51) in relation to classes of climatic conditions by EN 60 721-3-3 and EN 60 721-3-4 are not however performed. That is why, in case of **mobile equipment**, we recommend **carry out inspections at least 2-times a year as a detailed inspection** according to EN 60 079-17.

Cable glands and plugs can be **replaced** only by types with appropriate type of **Ex and ingress protection** and **certified** by the notified body.

Where it is not possible to provide fixed installation of cables, it is necessary to use cable glands with a **protection against pulling out** (usually with clamping module) - it relates mostly to mobile equipment.

Other spare parts - see point 10.

For **socket-outlets/plugs check the fastening screws tightening**, except screws with a spring. Check the **cleanliness of the contact surfaces**, especially on the plug side, where they are exposed to external influences. **Remove any grime** by a clean cloth. **Do not spray**, it causes clumping of grime. Regularly check **flat seals** between the socket-outlet and plug (at least every six months) and replace them when damaged.

Always use only original parts of the manufacturer.

7. REPAIRS AND MAJOR INSPECTIONS, SERVICE

Repairs and major inspections of explosion-proof electrical equipment are based on **EN 60 079-19**. Repairs should be carried out only by the manufacturer or an organization authorized by the manufacturer.

Following parts cannot be repaired and must be replaced if damaged:

- Ex components (terminals, sockets, signal lamps)
- Cable glands and plugs
- Sealing box-cover
- Stainless steel screws in the cover

In case of any repairs and renovations, Ex type of protection and ingress protection must be preserved.

Service is performed right in the manufacturing plant in Šumperk.

In case of any problems regarding the GENERI products (such as loss of accompanying documents, technical defects etc.), just read the two data on the rating plate:

- 1) TYPE OF EQUIPMENT
- 2) SERIAL NUMBER

On the basis of these data it is possible to find any accompanying and technical documents of concrete product at manufacturer.

8. STORAGE, PACKING AND TRANSPORT

Boxes X.XS(T) are **stored** at the ambient temperature of +5°C to +40°C, in non-aggressive interior areas without the UV radiation and weather conditions where the quality does not deteriorate (climatic conditions 1K2, biological conditions 1B1, active chemical compounds 1C2, mechanically active substances 1S1, and mechanical conditions 1M2 according to EN 60 721-3-1).

Boxes are **packed** in protective foils and supplied in cardboard boxes (bigger boxes can be attached to pallets).

Transport is provided by an express transport company within 24 hours, or depending of a customer's wish. It is also possible to cash on delivery.

Transport conditions are 2K2, 2B1, 2C2, 2S1, 2M2 by EN 60 721-3-2.

9. DELIVERY TERMS

Price of goods, delivery terms, methods of payment and transport are mentioned in a purchase contract which is sent by the business department after receiving your order. If it is not specified otherwise in the contract, a standard warranty 12 months for goods is provided.

10. SPARE PARTS

Detailed specification of particular electrical components is listed in wiring diagram supplied with each box.

11. PRODUCT DISPOSAL



Useless products should be disposed in accordance with valid regulations.

!!! All components may produce harmful exhalations during combustion!!!

12. ACCOMPANYING DOCUMENTATION

- EU declaration of conformity
- These operation instructions incl. of warranty
- Wiring diagram inserted inside the box
- Delivery note

Certificates according to point 3 are available on www.generi.cz (optional documentation supply).

WARRANTY

	X.XS0	X.XS1	X.XS2
Product TYPE:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	X.XST0	X.XST1	X.XST2
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Serial number No.:	from:		to:

You are provided with a warranty for a period of 12 months (if it is not specified otherwise in the purchase contract) valid from the day the product was handed over. We guarantee quality of work and material. Despite this, faults unidentifiable in the manufacturing plant may occur due to storage, during transport or use. If they were caused by faulty material or production, we shall restore the product to a trouble-free state at our own costs. The warranty does not apply to defects resulting from mishandling or mechanical damage and not following instructions for assembly and maintenance.

FINAL INSPECTION

Authorized person:	Result:	Stamp and signature:
	OK	

ISO 9001



WE WISH YOU MAXIMUM SATISFACTION WITH OUR PRODUCTS AND SERVICES