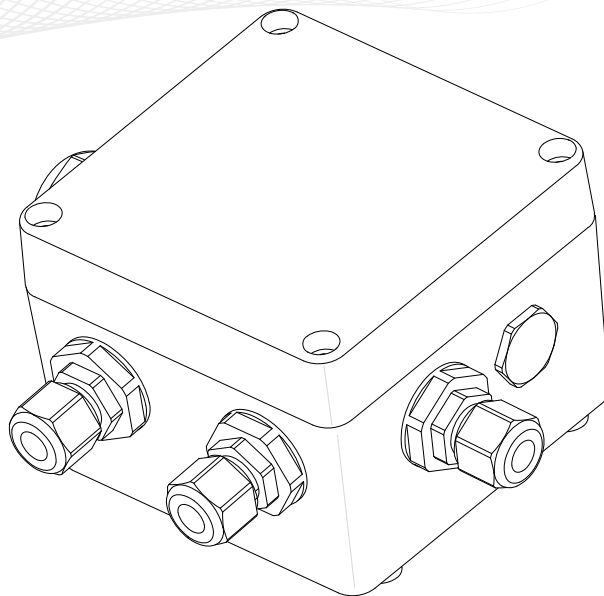


OPERATION MANUAL



ELAK-Ex

Installation and Operation
of ELAK-Ex 2.XX; 4.XX & 9.XX junction boxes
in hazardous areas

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INHALT

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IMPORTANT INFORMATION

- RETAIN FOR LATER USE



Please follow these instructions for proper and safe use of the ELAK-Ex junction boxes.
Please retain these instructions for later reference purposes (for example in the system documentation)

- FOR DISPOSAL



The WEE Logo indicates that this product must not be disposed of with residential waste.
Further information about disposal and recycling of old electrical and electronic devices and where to find collection points is available from your local disposal company or from the manufacturer from which you bought the product.



ATTENTION

Refers to a potentially dangerous situation.
If it is not prevented, there is a risk of damage or malfunction.



DANGER

Refers to an extremely dangerous situation. If it is not prevented there is risk of death or at least a high risk of serious injuries.



NOTE

Important information and instructions for safe, effective and environmentally compatible usage.



WARNING

Refers to a dangerous situation. If it is not prevented there is risk of injury or at least a high risk of material damage

Proviso

We reserve the right to make technical changes. Changes, errors or misprints shall not form the basis for any claim to compensation for damages. Comply with the applicable and currently valid standards and regulations for safety-related components and systems.

eltherm GmbH Ernst-Heinkel-Str. 6-10 57299 Burbach T.: +49 2736 4413-0 F.: +49 2736 4413-50 info@eltherm.com	Document: 8643050X85XX		Operation manual ELAK-Ex 2.xx; 4.xx & 9.xx Junction boxes in hazardous areas	
	Author:	Peter Schmidt	Datum:	14.12.2021
	Revision: 6	Julian Engel	Datum:	12.02.2025

INTRODUCTION

The junction boxes series ELAK-Ex-2.XX; 4.XX; 9.XX are suitable for power connection power connection of heating cables, as well as distribution of heating cables (with certified connection) in hazardous areas according to Ex directives.

The junction box is made of glass fiber-reinforced polyester and the construction ensures IP66 protection against moisture and dust penetration.

The cover of the ELAK junction box is fastened with captive screws (Phillips) made of stainless steel.

The ELAK junction boxes can be mounted both on the wall and on pipes or surfaces using a mounting bracket or variable mounting bracket.

The ELAK junction boxes can be used in hazardous areas of zone 1 and 2 with certified explosion subgroup II and temperature class T5/T6 as well as in zones 21 and 22 with certified max. surface temperature. The maximum number of conductors for each enclosure size, which depends on the cross-section and the permissible continuous current, is shown in the supplements.

RECEIPT OF GOODS

Upon receipt of goods, check the controllers and accessories and compare the information on the type plate with the information on the delivery bill to ensure that the correct material has been delivered.



DANGER

Ensure that a valid certificate from a notified body is available for applications in Zone 1. The number stated in the certificate must match the labelling on the product. The label on the terminal boxes contains the following information (see chapter LABELLING).

TRANSPORT & STORAGE



NOTE

The product should be stored in a dry place at an ambient temperature of 0°C bis 50°C.



ATTENTION

Avoid damage due to improper transport or storage. Store the ELAK junction boxes in the original packaging in a suitable place (dry and clean) until installation. Transport the ELAK junction boxes with care Do not drop them.

SCOPE OF DELIVERY

The scope of delivery of an ELAK-Ex-2, 4 or 9 includes an assembled connection housing (the respective assembly can be found in the chapter "Assembly and connection diagrams") with instructions in German and English.

TECHNICAL DATA & EXPLOSION PROTECTION

TECHNICAL DATA

Housing

Ambient temperature range	- 40°C to +55°C
Max. permissible voltage	550 V
Nominal current	see Appendix 1, Tab.1 & 2
Permissible power loss	depending on type and application, see Appendix 1, Tab.1 & 2
Housing material	glass fiber reinforced polyester, housing antistatic, black
Protection class	IP66
Weight	approx. 1kg

Cable gland

Cable glands with seal

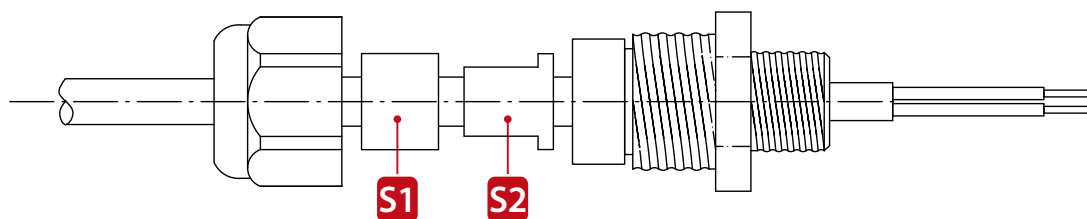
Model/Type	HITP-X1C	HITP-X2C	ESKE/1e 25 LT
Thread	M20	M25	M25
Clamping range [mm]	-	-	10 - 17
Torque [Nm]	-	-	2
Wrench size [mm]	23	28	29
Torque [Nm]*	2	2.5	3

* Cable gland with housing

Cable glands with double seal

Model/Type	EHIBM(I)-OX5(DS)C	EHIBM-SX1(DS)C	EHIBM-MX2(DS)C	EHIBM(I)-XEU25(DS)C	EHIBM-XEU32(DS)L
Thread	M12	M16	M20	M25	M32
Clamping range S1+S2 [mm]	3 - 4	4 - 5	4 - 7	9 - 13	12 - 16
Clamping range S1 [mm]	4 - 6.5	5 - 8	7 - 13	13 - 17	16 - 21
Torque S1+S2 [Nm]	1	3.5	3.5	5	4.5
Torque S1 [Nm]	2	4	4.5	5	6
Wrench size[mm]	15	19	25	29	36
Torque [Nm]*	2	4	4.5	5	6

* Cable gland with housing



Terminal blocks

See appendix 1

Table 1 - for mounting in the housing

Table 2 - for currents, cross-sections and resistances

EXPLOSION PROTECTION

ATEX / UKEx

II 2G Ex eb IIC T6/T5 Gb

II 2D Ex tb IIIC T85°C/T100°C Db

APPROVALS

CML 21ATEX3429 X

CML 21 UKEX3430 X

STANDARDS

EN 60079-0:2018

EN 60079-7:2015+A1:2018

EN 60079-31:2014

EN 60079-11:2012

EN 60079-26:2014

EN 60079-28:2015

SPECIAL CONDITIONS

SAFETY INSTRUCTIONS

Strict compliance with the relevant safety regulations in hazardous areas is a prerequisite for the safety of persons, systems and equipment. The persons entrusted with the planning, installation and maintenance have a special responsibility and must therefore be fully aware of the applicable regulations. These instructions are aimed at this group of people and contain all the important information required for safe handling of the ELAK junction boxes. The instructions must be kept with the system documentation for future reference and must be kept and available for the entire service life of the product.



ATTENTION

Operation only with closed cover, tightened cable glands / blind plugs and installed seals.



WARNING

If cable glands need to be replaced, they must have at least the IP protection class and temperature range specified on the terminal box label as well as a "high" degree of mechanical protection (7J).

LABELING

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57299 Burbach, Germany

eltherm® 
www.eltherm.com

ELAK-Ex-4.01

Art. Nr. / Part No.: 0X85401

Serien Nr. / Serial No.:

CML21ATEX3429X; CML 21UKEX3430X; IECExCML21.0061X
rating 9.378W / 2.00W (T6 Ta<=+40°C, T5 Ta<=+55°C / T6 Ta<=+55°C)
Ex eb IIC T6/T5 Gb
Ex tb IIIC T85°C/T 100°C Db
Tamb: -40°C to + 40°C/+55°C



WARNING !

Do not open when an explosive atmosphere is present. Live terminals! Isolate elsewhere before opening enclosure static hazard! Clean only with a damp cloth! Cable insulation to be rated at 30 °C greater than max operational ambient!

Beispiel

The junction boxes are labeled as a device including the associated terminals and cable glands.

The maximum permissible power dissipation of this terminal box is indicated on the label and identified by "rating x.xxxW / x.xxxW". (varies depending on the type)

The ambient temperature range for which this product is suitable is indicated on label and identified by Tamb: **-40°C to +40°C/+55°C**. The "T" rating is variable depending on the ambient temperature range and power loss. It must be equal to or better than the "T" rating applicable to the hazardous area in which the device is installed.

The Ex eb marking can be replaced by Ex ia or Ex ib.

Junction boxes marked Ex ia or Ex ib may only be used to terminate corresponding intrinsically safe circuits. Non-intrinsically safe circuits are not permitted in junction boxes marked Ex ia or Ex ib.

Junction boxes marked Ex eb may be used to terminate Ex ib and non-IS circuits, provided that a minimum circuit separation of 50 mm is used.

INSTALLATION



DANGER

Only qualified personnel authorized for the assembly of electrical components in potentially explosive atmospheres may carry out assembly, disassembly, installation and commissioning activities on the ELAK junction boxes. All relevant local installation and operating regulations and codes (e.g. Betr.SichV, IEC/EN 60079-14 and DIN VDE 0100 series) for the installation and operation of explosion-protected electrical equipment must be observed. Suitable tools must be used for all work on the ELAK junction boxes.



ATTENTION

Choose the installation location carefully with regard to the mechanical load capacity of the housing and cable entries, the permissible ambient temperature range and possible chemical influences. Industry-standard vibrations are acceptable. It is recommended to protect the device from direct sunlight and the effects of the weather. The ambient temperature must not exceed 55°C.

Secure the equipment to appropriate support in the following way:

- Using the mounting dimensions data provided, either in the product catalogue data sheets or on the drawings supplied, (as part of the project documentation), mark out the positions for the mounting holes on the surface where installation is required.
 - Drill the mounting holes for M4 fixing studs (for size ELAK-Ex-1 to ELAK-Ex-2 types) or M6 fixing studs (for size ELAK-Ex-4 to ELAK-Ex-15 types) as applicable
 - For metal substrates, cut threads in the mounting holes.
 - Place a mounting screw through one mounting hole in the box so that the thread of the screw protrudes from the back of the box. Lift the box into place, using such assistance as may be necessary to avoid personal injury.
 - If clearance mounting holes are used, insert the protruding thread through the appropriate clearance hole and secure with a nut on the other side of the mounting surface.
- or
- If threaded holes are used, place the end of the mounting screw over the threaded hole and tighten the screw with a suitable screwdriver.
 - Rotate the box to line up the remaining mountings and repeat the steps mentioned before above until all mounting screws have been fitted.
 - before installation of devices into unused threads it is to be verified that the threads are undamaged and clean and that the thread of the device is of the correct type.
 - install and secure the cable entry devices, cable glands and blanking plugs in accordance with the manufacture's instructions. Ensure that the torque applied during the installation of these devices does not exceed 20 Nm.
 - entry threads may be reduced by a suitable reduction gland. Reduction glands must not be interleaved.
 - the seals of the cable entries must not be exchanged or interleaved.
 - pull the cables into the box, leaving trailing leads of a length specified by site practice or the site engineer and secure any cable armour in accordance with site practice.

- terminate the cables in terminals provided in accordance with the requirements of IEC EN 60079-14. Consideration must be given to any use limitations or special conditions detailed on the certificates for the terminals fitted.
- screws of unused terminals are to be tightened.
- all openings (cover, installation entries for cable glands, cable entries) are to be tightly closed after connection of the cables. Torque for cover screws is 1.5 - 2 Nm. Cable entries are to be tightened by means of suitable wrenches. The torques given in chapter "Technical Data" are to be observed.
- fixed installation of all cables is required. They need to be secured outside the box as near as possible to the cable entry.



WARNING

Excessive torque can affect the IP rating in a negative way.



ATTENTION

Make sure that connections and terminations are protected against external damage and the ingress of water or other contaminants that could adversely affect their suitability.



ATTENTION

Ensure that the connection terminals are the correct size and dimensioned to accommodate the conductors.



ATTENTION

The following steps are to be followed after completion of the heating circuit installation:

- visual check of the terminal box for possible mechanical damage. Damaged boxes must not be taken into operation and need to be exchanged.
- visual check of the terminal box for possible mechanical damage. Damaged boxes must not be taken into operation and need to be exchanged.
- All holes must be closed by means of appropriate devices rated Ex e and Ex t.

COMMISSIONING, OPERATION & MAINTENANCE

COMMISSIONING

Before commissioning, check the following points:

- The ELAK junction box has been installed according to the instructions.
- The ELAK junction box is clean and not damaged.
- All cables have been connected in accordance with the instructions and all connected cables have been laid correctly.
- All screws and glands are tightened and all holes are closed
- The ELAK junction box functions correctly.



ATTENTION

After maintenance, repair, or modification, the operation of the ground fault protection device for each affected circuit must be tested.



ATTENTION

When performing repairs, it is important that the repaired system retains, as required, its suitability for the zone classification of the potentially explosive atmosphere, its UV resistance, mechanical properties, and weather resistance. If this cannot be guaranteed, replacement is recommended.

OPERATION & MAINTENANCE



DANGER

The ELAK junction boxes and the cable entries must not be opened while energized!



WARNING

The effective regulations regarding the operation of electrical equipment in hazardous areas shall be observed

- Operation is only permitted within the limits given in chapter 1 "Technical Data" and on the label (Voltage, Current, Permissible power dissipation, Ambient Temperature, IP Rating).
- The power dissipation calculated as per EN IEC 60079-2:2015+A1:2018 Annex E, E2 for the intended application, T-class and max. ambient temperature must not be exceeded the applicable values listed in Annex 1 table 1.
- In case of questions please contact an eltherm engineer via info@eltherm.com.
- Cable entries must not be operated in areas with combustible dust when covered by a dust layer > 50 mm.
- A visual check of junction boxes, cover seal, cable entries and cables for integrity and tight fit is recommended in suitable intervals (depending on the local electrical code as well as operating and environmental conditions). If required, cable entries are to be tightened; damaged junction boxes or cable entries are to be replaced by experienced personnel.
- If repair work is done on heated components, the heating tape/ -cable has to be protected against damages.
- After completion of repair works on heated components and after any opening of the junction box, it has to be tested again according to section "Testing" on page 6.
- Damaged junction boxes or cable entries must not be operated and must be replaced by experienced personnel.
- Circuits connected in the enclosure must be externally protected using suitable circuit interruption devices to prevent overloading.



NOTE

Any maintenance, repair or modification must be recorded in the trace heating documentation.

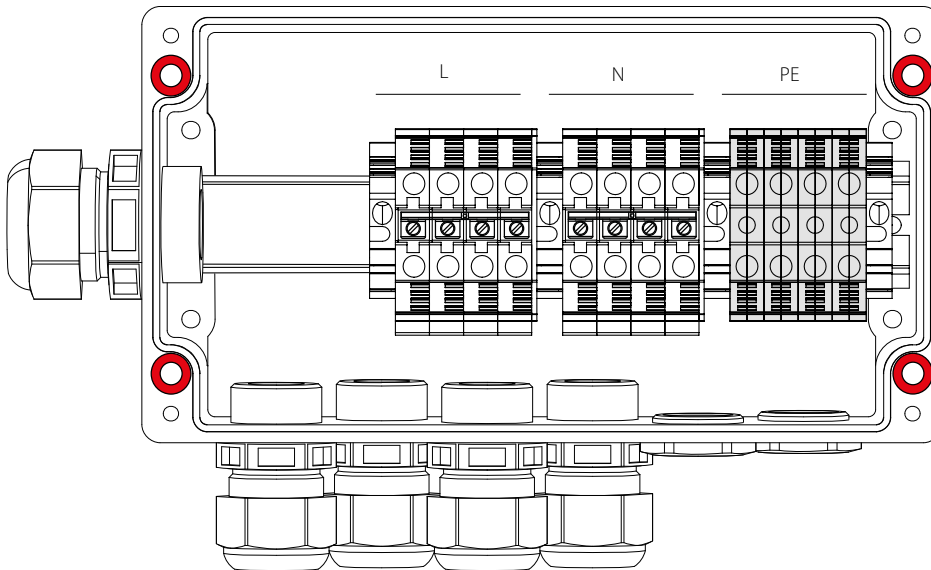


NOTE

The trace heating system documentation must be consulted prior any maintenance, repair or modification.

ASSEMBLY & WIRING DIAGRAMS

ELAK-Ex-9.01 [0X85901] Marshalling box

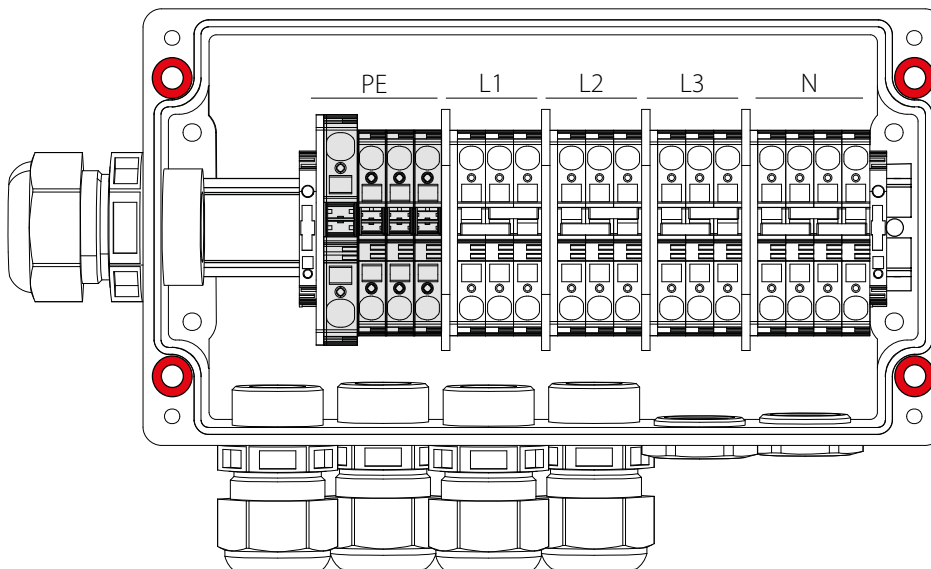


- 1x cable gland M32
- 4x cable gland M25
- 2x blind plug M25
- 8x feed-through terminal 10 mm²
- 4x ground terminal block 10 mm²
- 2x jumper for terminals 10 mm²

260 x 160 x 90 mm,  hole pattern 240 x 110 mm, $\varnothing$ 7,5 mm

 Clamp for earthing or electrical protection

ELAK-Ex-9.02 [0X85902] Marshalling box

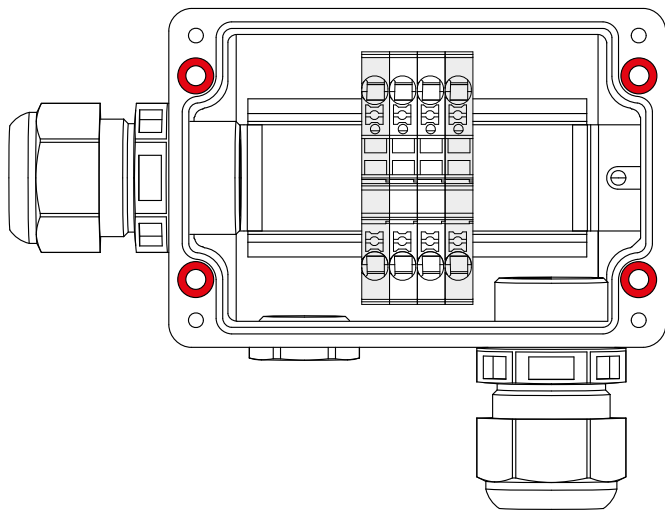


- 1x cable gland M32
- 4x cable gland M25
- 2x blind plug M25
- 13x feed-through terminal 10 mm²
- 1x ground terminal block 16 mm²
- 3x ground terminal block 10 mm²
- 9x cross-connector ZQV 10 / 2

260 x 160 x 90 mm,  hole pattern 204 x 110 mm, $\varnothing$ 7,5 mm

 Clamp for earthing or electrical protection

**ELAK-Ex-2.00 [0X85200] Junction box
ELK-AG, ELK-MI and with separate
connection set for ELSR* and ELP**

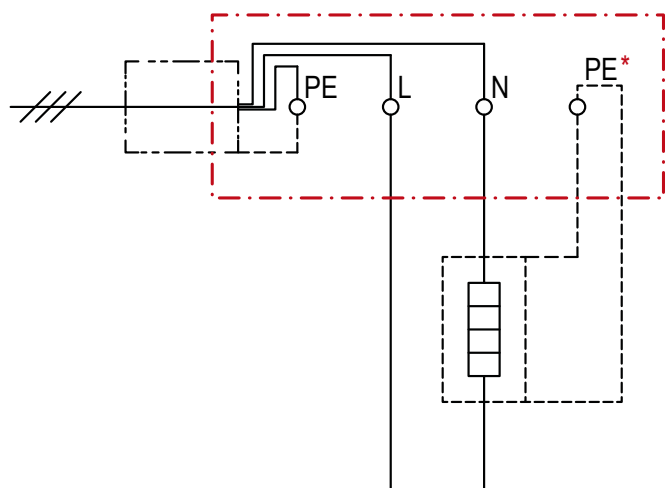


110 x 75 x 57 mm,  hole pattern 98 x 45 mm, $\varnothing$ 4,5 mm

- 1x M20 blind plug
- 1x cable gland M25 1-fold
- 1x cable gland M25 2-fold
- 1x reduction M25 to M20*
- 2x feed-through terminal PT4
- 2x ground terminal block PT4-PE

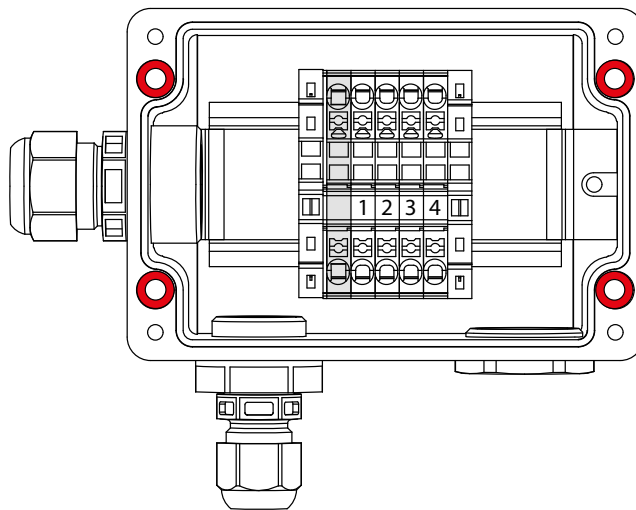
*Enclosed, loose

 Clamp for earthing or electrical protection



* for ELK-AG and ELK-MI-Single

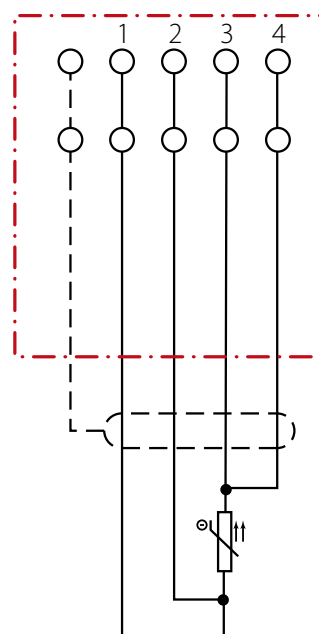
**ELAK-Ex-2.80 [0X85280] Junction box
1x Pt100 4-wire**



110 x 75 x 57 mm,  hole pattern 98 x 45 mm, $\varnothing$ 4,5 mm

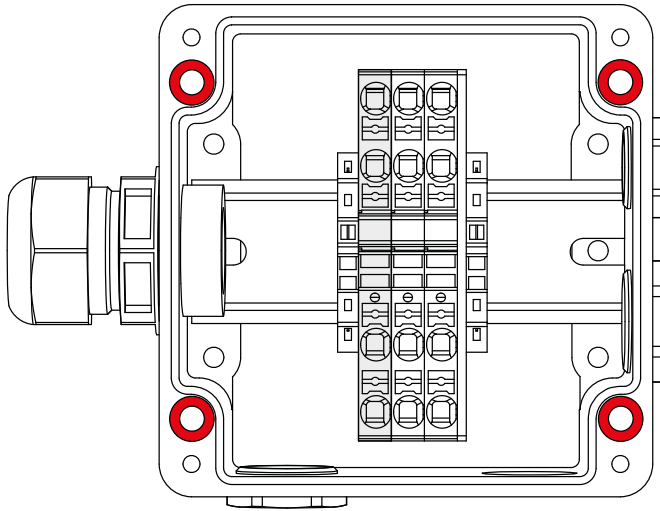
- 1x cable gland M12x1,5
- 1x cable gland M20x1,5
- 1x M25 blind plug
- 1x reduction M25 to M20
- 1x reduction M20 to M12
- 4x feed-through terminal PT 2,5
- 1x ground terminal PT-2,5

 Clamp for earthing or electrical protection



*When using an Ex-Con-SR with connection cable, a suitable cable gland for the connection cable must be ordered separately.

ELAK-Ex-4.01 [0X85401] Junction box ELSR* & ELP

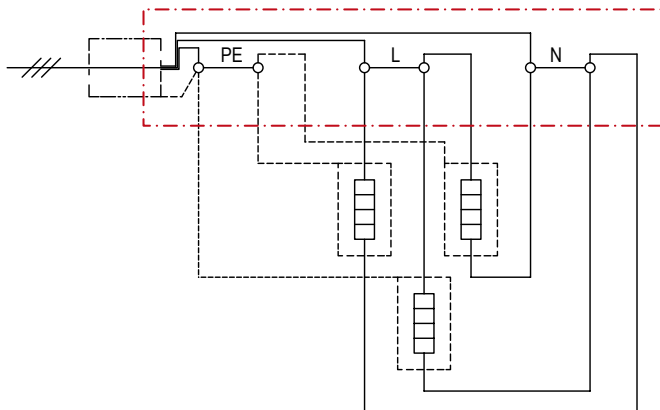


122 x 120 x 90 mm,  hole pattern 106 x 82 mm, $\varnothing$ 6,5 mm

- 2x M25 blind plug
- 1x M20 blind plug
- 1x cable gland M25 1-fold*
- 1x cable gland M32 1-fold
- 1x reduction M32 to M25*
- 2x feed-through terminal PT6-Quattro
- 1x ground terminal block PT6-Quattro-PE

*Enclosed, loose

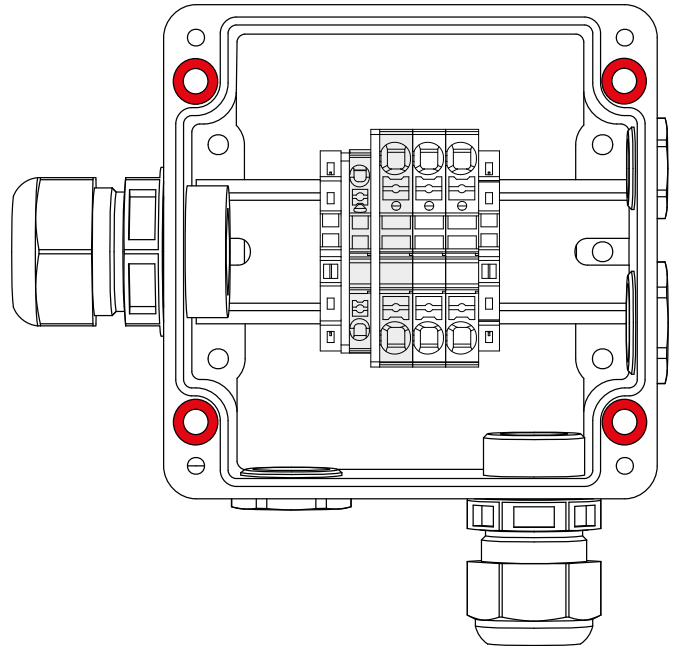
 Clamp for earthing or electrical protection



*When using an Ex-Con-SR with connection cable, a suitable cable must be fitted for the connection cable must be ordered separately.

➤ Contact us: +49 2736 4413-0 • info@eltherm.com

ELAK-Ex-4.11 [0X85411] Junction box ELK-AG

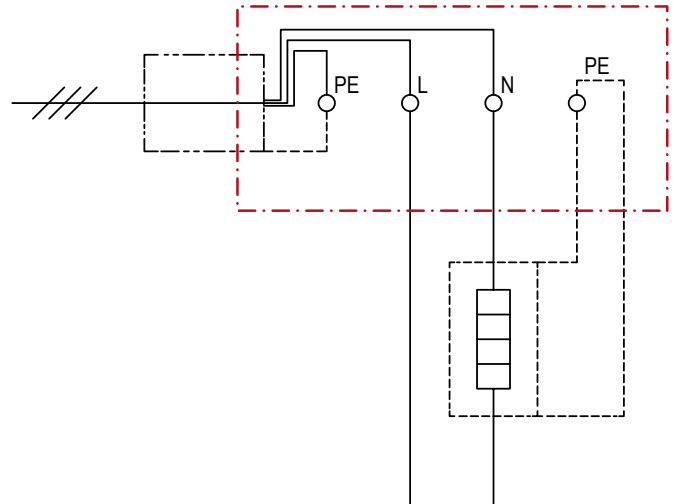


122 x 120 x 90 mm,  hole pattern 106 x 82 mm, $\varnothing$ 6,5 mm

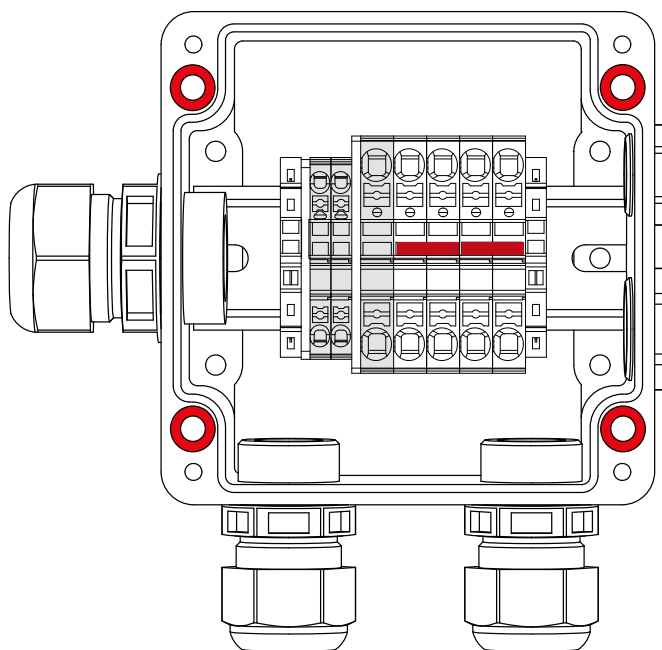
- 2x M25 blind plug
- 1x M20 blind plug
- 1x cable gland M25 1-fold*
- 1x cable gland M32 1-fold
- 1x reduction M32 to M25*
- 2x feed-through terminal PT6
- 1x ground terminal block PT6-PE
- 1x ground terminal block PT2,5-PE

*Enclosed, loose

 Clamp for earthing or electrical protection



ELAK-Ex-4.12 [0X85412] Junction box ELK-AG

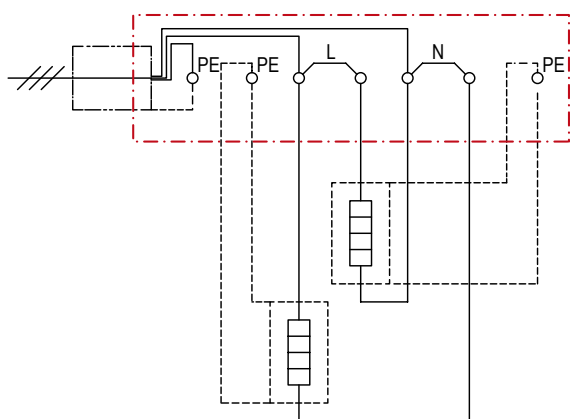


- 1x M25 blind plug
- 1x M20 blind plug
- 1x cable gland M25 1-fold*
- 1x cable gland M32 1-fold
- 2x cable gland M25 2-fold
- 1x Reduction M32 to M25*
- 4x feed-through terminal PT6
- 1x ground terminal block PT6-PE
- 2x ground terminal block PT2,5-PE

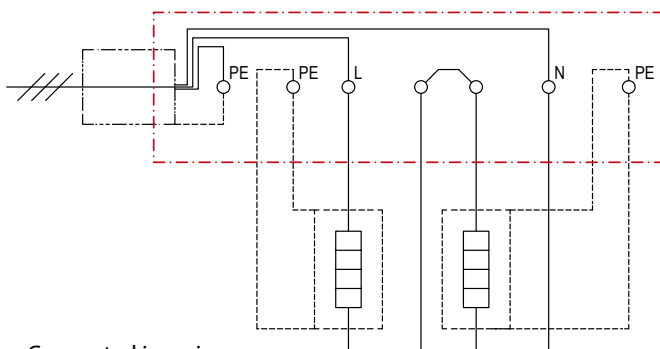
*Enclosed, loose

-  Clamp for earthing or electrical protection
-  Jumper (removable)

122 x 120 x 90 mm,  hole pattern 106 x 82 mm, $\varnothing 6,5$ mm

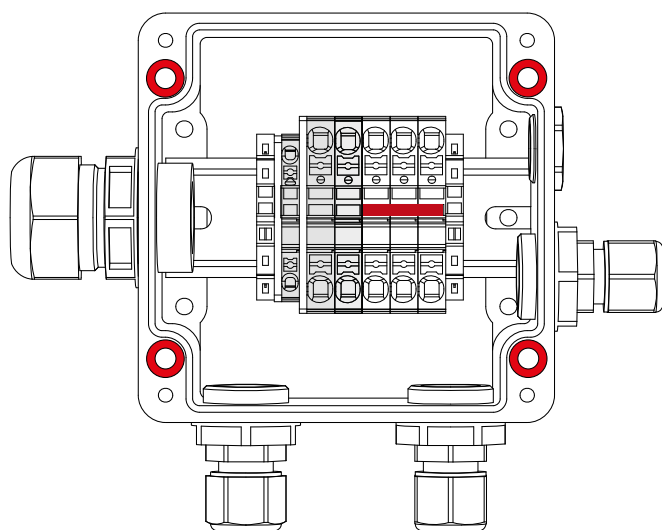


Connected in parallel



Connected in series

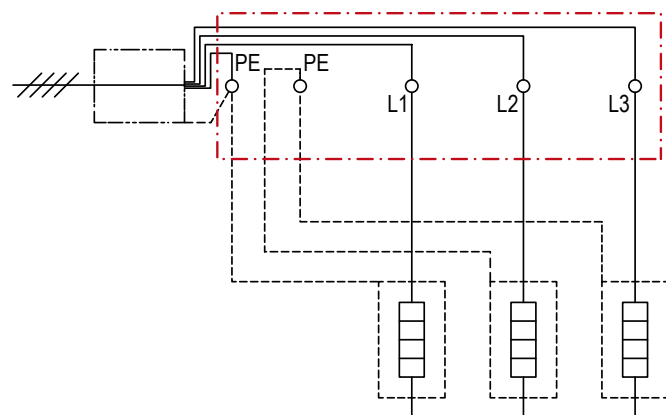
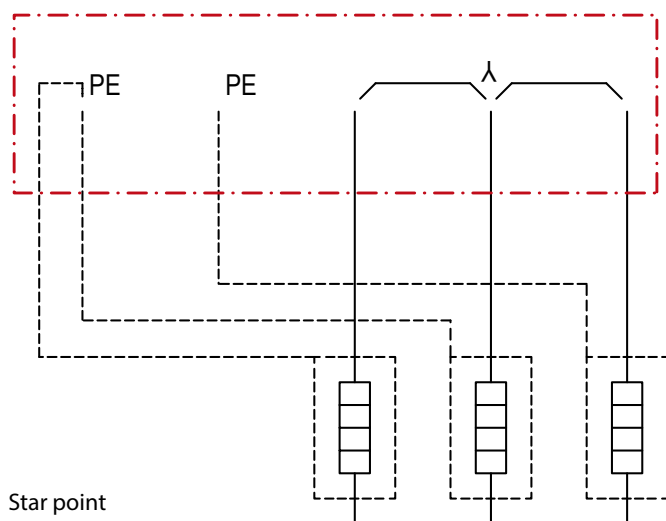
ELAK-Ex-4.13 [0X85413] Junction box ELK-AG



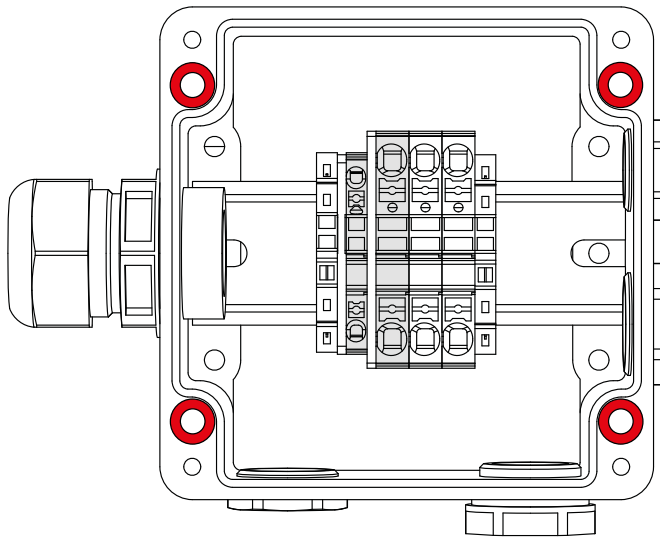
- 1x M25 blind plug*
 - 1x M20 blind plug
 - 1x cable gland M321-fold
 - 1x cable gland M25 1-fold*
 - 3x cable gland M16 1-fold
 - 1x reduction M32 to M25*
 - 1x reduction M25 to M16
 - 3x feed-through terminal PT6
 - 2x ground terminal block PT6-PE
 - 1x ground terminal block PT2,5-PE
- *Enclosed, loose

-  Clamp for earthing or electrical protection
-  Jumper (removable)

122 x 120 x 90 mm,  hole pattern 106 x 82 mm, $\varnothing$ 6,5 mm



**ELAK-Ex-4.21 [0X85421] Junction box
ELK-MI**

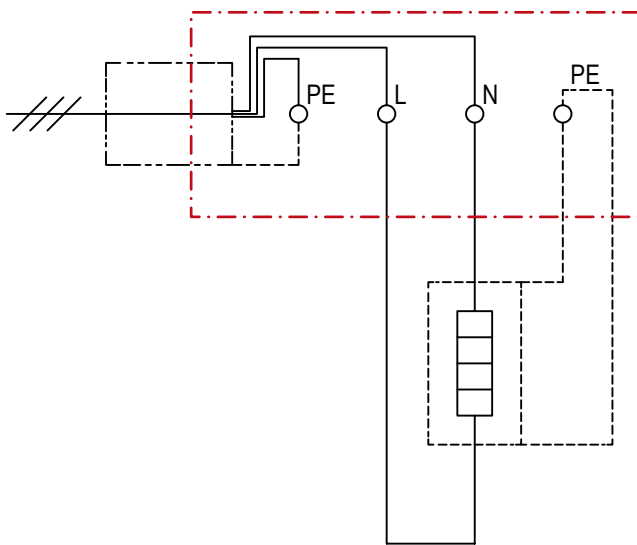


- 2x M25 blind plug
- 1x M20 blind plug
- 1x cable gland M25 1-fold*
- 1x cable gland M32 1-fold
- 1x reduction M32 to M25*
- 1x reduction M25 to M20
- 2x feed-through terminal PT6
- 1x ground terminal block PT6-PE
- 1x ground terminal block PT2,5-PE

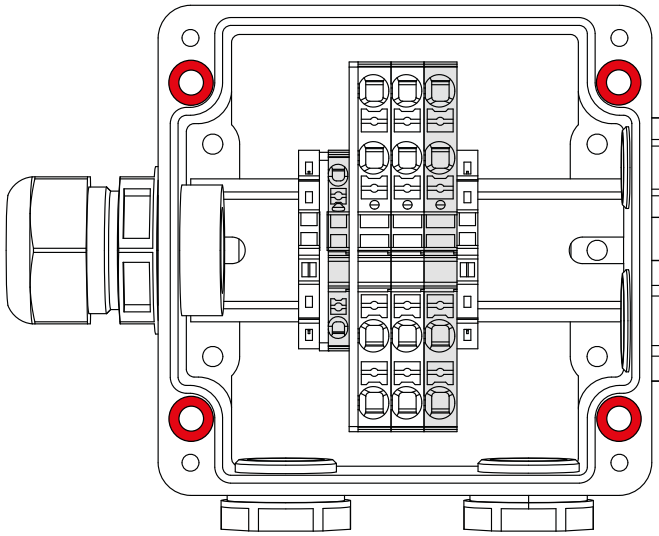
*Enclosed, loose

 Clamp for earthing or electrical protection

122 x 120 x 90 mm,  hole pattern 106 x 82 mm, $\varnothing$ 6,5 mm



ELAK-Ex-4.22 [0X85422] Junction box ELK-MI

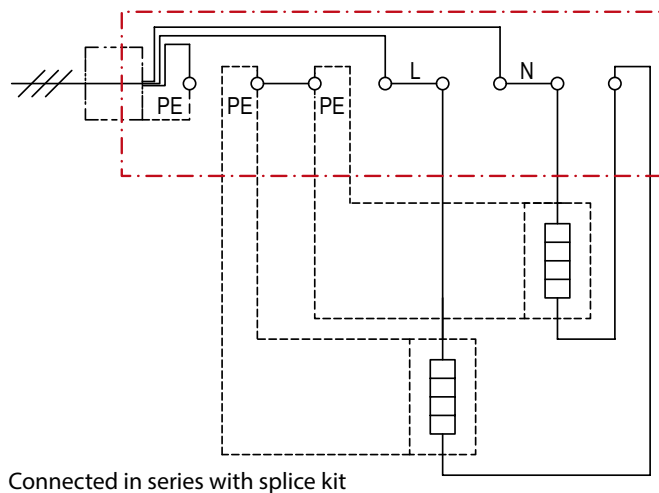
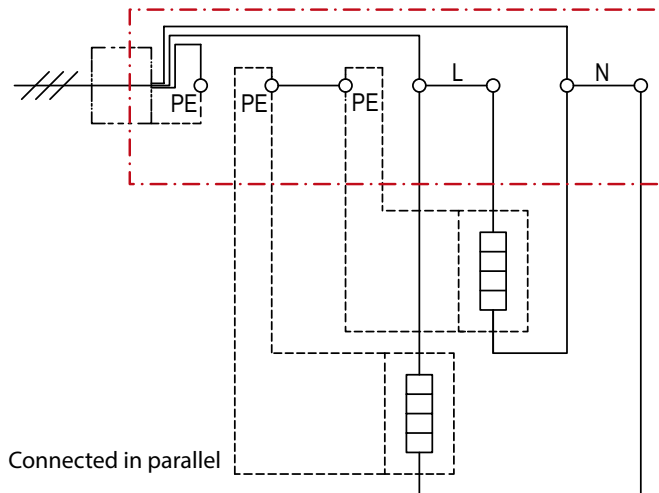


- 1x M25 blind plug
- 1x M20 blind plug
- 1x cable gland M25 1-fold*
- 1x cable gland M32 1-fold
- 1x reduction M32 to M25*
- 2x reduction M25 to M20
- 1x reduction M25 to M20*
- 2x feed-through terminal PT6-Quattro
- 1x ground terminal block PT6-Quattro-PE
- 1x ground terminal block PT2,5-PE

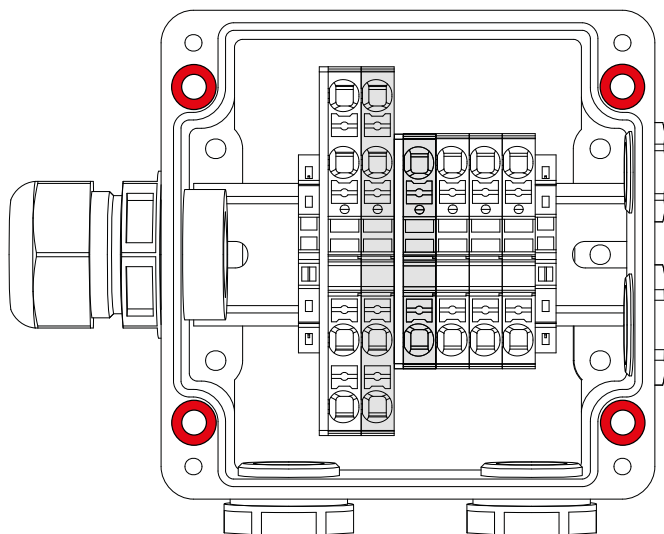
*Enclosed, loose

■ Clamp for earthing or electrical protection

122 x 120 x 90 mm,  hole pattern 106 x 82 mm, $\varnothing$ 6,5 mm



ELAK-Ex-4.23 [0X85423] Junction box ELK-MI

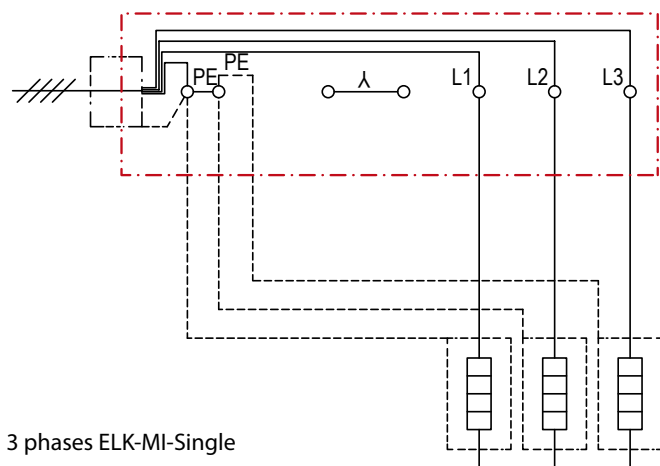


122 x 120 x 90 mm,  hole pattern 106 x 82 mm, $\varnothing$ 6,5 mm

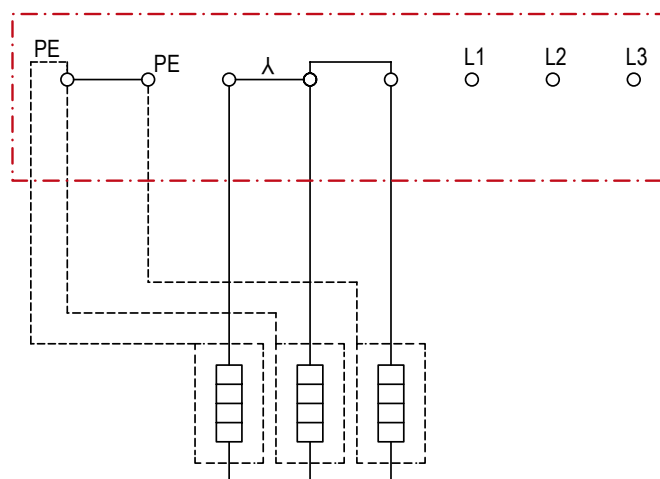
- 1x M25 blind plug*
- 1x M25 blind plug
- 1x M20 blind plug
- 1x cable gland M25 1-fold*
- 1x cable gland M32 1-fold
- 1x reduction M32 to M25*
- 2x reduction M25 to M20
- 1x reduction M25 to M20*
- 3x feed-through terminal PT6
- 1x feed-through terminal PT6-Quattro
- 1x ground terminal block PT6-Quattro-PE
- 1x ground terminal PT6-PE

*Enclosed, loose

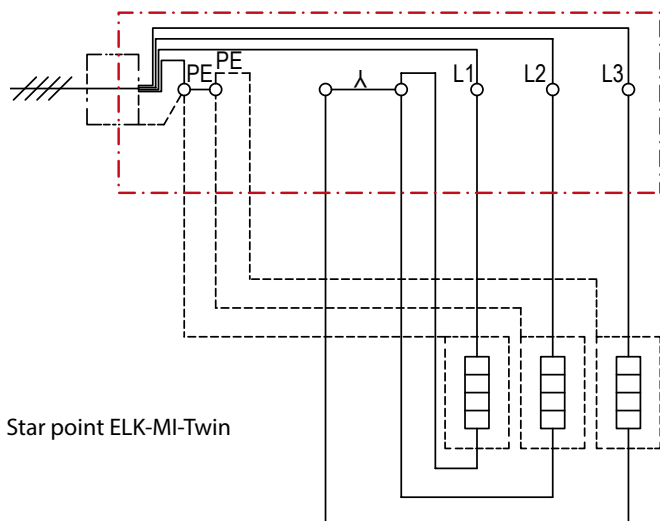
 Clamp for earthing or electrical protection



3 phases ELK-MI-Single

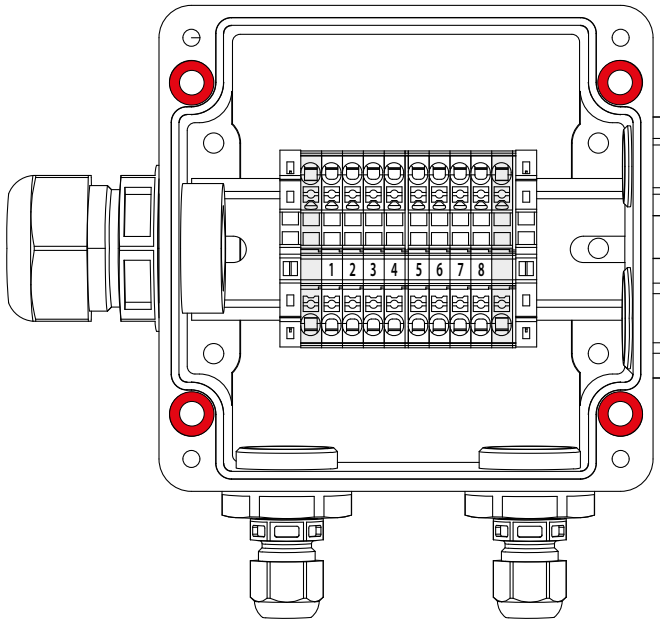


Star point ELK-MI-Single



Star point ELK-MI-Twin

ELAK-Ex-4.80(i) [0X85480] & [0X85480IB] Junction box PT100 & PT100 [i]



122 x 120 x 90 mm,  hole pattern 106 x 82 mm, $\varnothing$ 6,5 mm

Both variants

- 1x M20 blind plug
- 1x reduction M32 to M25
- 1x M25 blind plug*
- 1x M25 blind plug
- 2x reduction M25 to M12
- 2x ground terminal PT2,5-PE

*Enclosed, loose

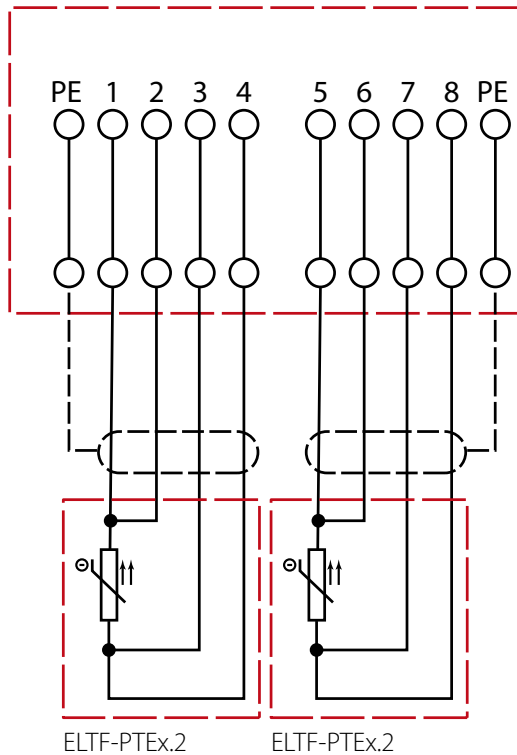
Only ELAK-4.80 [0X85480]

- 1x cable gland M25 x 1,5
- 2x cable gland M12 x 1,5
- 8x feed-through terminal PT2,5

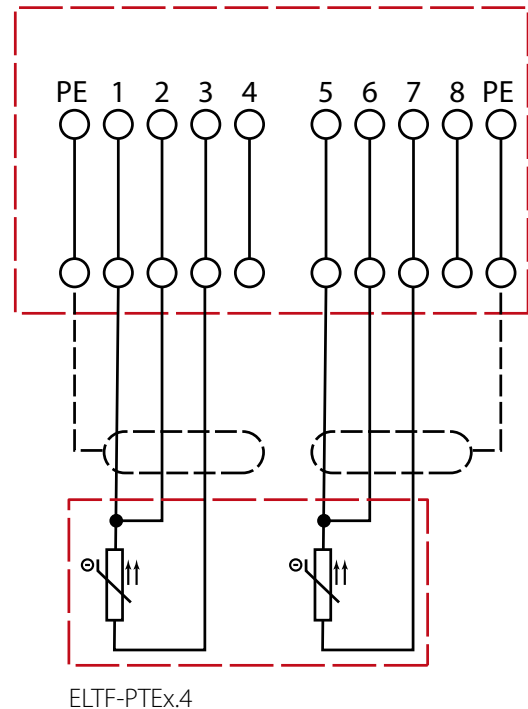
Only ELAK-4.80i [0X85480IB]

- 1x cable gland M25 x 1,5 blue
- 2x cable gland M12 x 1,5 blue
- 8x feed-through terminal PT2,5 BU

 Clamp for earthing or electrical protection



Connection of 1 to 2 single PT100



Connection of 1x double PT100

ANNEX 1

TECHNICAL DATA REQUIRED FOR CALCULATION OF POWER DISSIPATION

Table 1: permissible power dissipation

Item No.	Type	Calculatory wire length [m]	Type and No. of terminals						Permissible power dissipation[W]			
			PT2,5	PT4	PT6	PT6 Quattro	ZDU 10	WDU 10	T6 / T85°C, Ta max. 40°C	T6 / T85°C, Ta max. 55°C	T6 / T85°C, Ta max. 60°C	T5 / T100°C, Ta max. 55°C
OX85200	ELAK-Ex-2.00	0,059	-	2	-	-	-	-	8,551	2	1,7	8,551
OX85280	ELAK-Ex-2.80	0,059	4	-	-	-	-	-	8,551	2	1,7	8,551
OX85401	ELAK-Ex-4.01	0,083	-	-	-	2	-	-	9,378	2	1,7	9,378
OX85411	ELAK-Ex-4.11	0,083	-	-	2	-	-	-	9,378	2	1,7	9,378
OX85412	ELAK-Ex-4.12	0,083	-	-	4	-	-	-	9,378	2	1,7	9,378
OX85413	ELAK-Ex-4.13	0,083	-	-	3	-	-	-	9,378	2	1,7	9,378
OX85421	ELAK-Ex-4.21	0,083	-	-	2	-	-	-	9,378	2	1,7	9,378
OX85422	ELAK-Ex-4.22	0,083	-	-	-	2	-	-	9,378	2	1,7	9,378
OX85423	ELAK-Ex-4.23	0,083	-	-	3	1	-	-	9,378	2	1,7	9,378
OX85480	ELAK-Ex-4.80	0,083	8	-	-	-	-	-	9,378	2	1,7	9,378
OX85480IB	ELAK-Ex-4.80i	0,083	8*	-	-	-	-	-	9,378	2	1,7	9,378
OX85901	ELAK-Ex-9.01	0,15	-	-	-	-	-	12	11,933	2,30	1,7	11,933
OX85902	ELAK-Ex-9.02	0,15	-	-	-	-	16	1	11,933	2,30	1,7	11,933

*Terminal as BU version

Table 2: resistances of terminals

Terminal	Max. current [A]	Resistance [Ohm]	Conductor cross section [mm ²]
PT2,5	19	0,00093	0,14 - 4
PT2,5 BU	19	0,00093	0,14 - 4
PT4	26	0,001	0,2 - 6
PT6	36,5	0,0008	0,5 - 10
PT6 Quattro	41	0,0008	0,5 - 10
WDU10	57	0,00056	0,5 - 10
ZDU10	51	0,00051	1,5 - 16

Table 3: wire resistances

Cross section [mm ²]	Trace heater	Wire resistance [Ohm/m]
1	n.a.	0,0185
1,1	ELSR-SHH	0,0169
1,23	ELSR-H, -H+, -LS, -N, -SH	0,015
1,5	ELP/PFA	0,0117
2,5	n.a.	0,0072
4	n.a.	0,0044
6	n.a.	0,0029
10	n.a.	0,0018
16	n.a.	0,0011

CALCULATION OF POWER DISSIPATION

NOTE

The power dissipation as per EN IEC 60079-7:2015+A1:2018 Annex E, E2 is the sum of the power dissipations of all terminated wires and of all terminals

- power dissipation of terminated wire

$$= I_{\text{wire}}^2 \times R_{\text{specific resistance of wire}} \times \text{calculatory wire length}$$

- power dissipation of terminated wire

$$= I_{\text{Terminal}}^2 \times R_{\text{resistance of terminal}}$$

- permissible power dissipation**

$$W_{\text{total power dissipation}} = \Sigma_{\text{power dissipation wires}} + \Sigma_{\text{power dissipation terminals}}$$

(all currents and resistances are to be considered nominal at 20°C)

NOTES



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