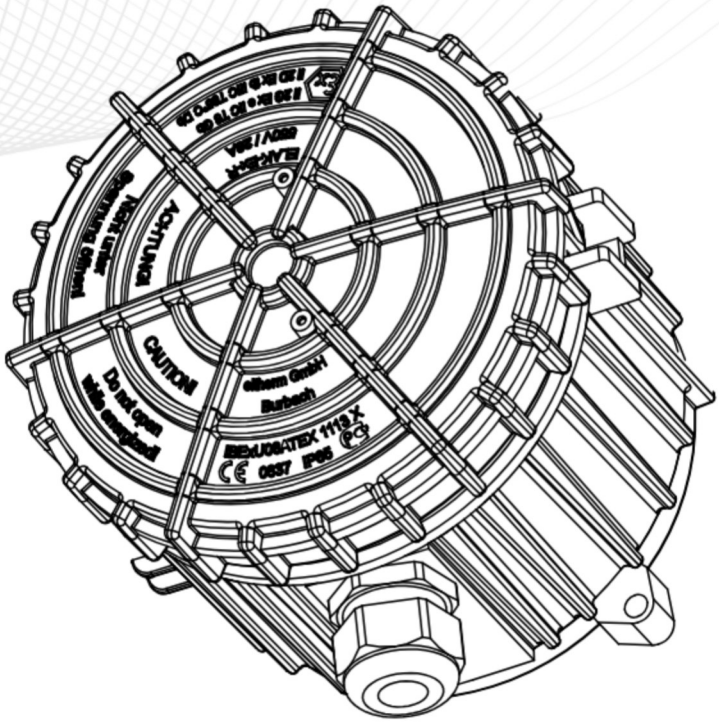
eltherm®

OPERATION MANUAL



ELAK-Ex-R

Installation and Operation

eltherm GmbH
Ernst-Heinkel-Strasse 6-10
57299 Burbach, Germany

P.: +49 2736 4413-0
F.: +49 2736 4413-50
info@eltherm.com

QAA 090

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IMPORTANT INFORMATION FOR STORAGE

For proper and safe use of the ELAK-Ex-R connection boxes, please follow these instructions.
Please keep these instructions for future reference (e.g. in the system documentation).

IMPORTANT DISPOSAL INFORMATION

The WEEE logo indicates that this product should not be disposed of with other waste.
For more information on the disposal and recovery of waste electrical and electronic equipment (WEEE) and collection points, please contact your local waste disposal company or the manufacturer from whom you purchased the product.

⚠ ATTENTION

Refers to a potentially dangerous situation. If it is not prevented, there is a risk of danger 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
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T.: +49 2736 4413-0
F.: +49 2736 4413-50
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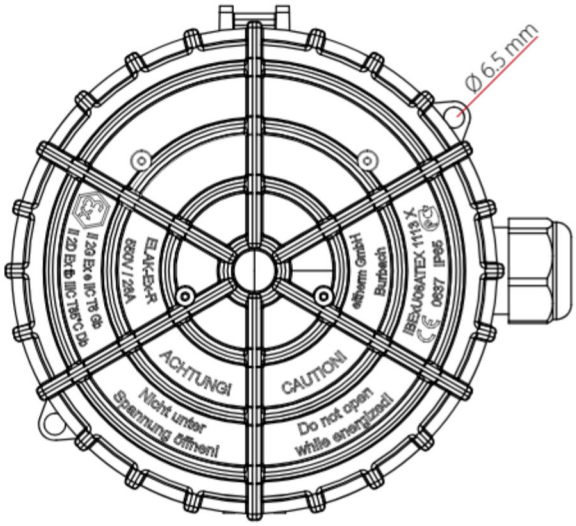
Autor:	Peter Schmidt	Date:	29.02.2020
Revision: **6**	Detlef Matthes	Date:	19.01.2022

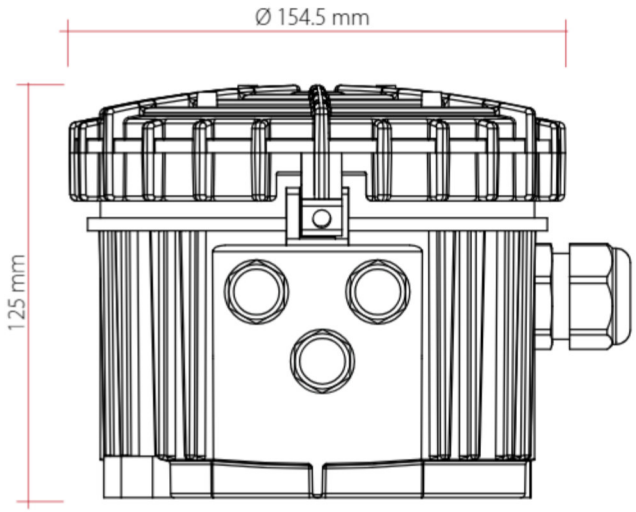
DESCRIPTION & TECHNICAL DATA

DESCRIPTION

The innovative junction box (ELAK-Ex-R) is suitable for use in hazardous areas and offers the user many advantages. For example, due to the shape of the box, the inserted cable only needs to be bent slightly, which protects against mechanical stress and damage. A safety gland prevents unauthorized opening of the junction box, or unintentional sliding of the cover (special tool included).
Additional fastening options for marking labels enable reliable identification of heating circuits in complex systems and allow customer-specific markings.

MODEL VIEWS





EXPLOSION PROTECTION

ATEX	II 2G Ex eb IIC T6 Gb
	II 2D Ex tb IIIC T 85°C Db
IEC-Ex	Ex eb IIC T6 Gb
	Ex tb III C T85°C Db

CERTIFICATION

IBExU 08 ATEX 1113 X
IECEx IBE 16.0001 X

STANDARDS

EN 60079-0:2012 + A11:2013, IEC 60079-0 Ed. 6
EN 60079-7:2015, IEC 60079-7 Ed. 5
EN 60079-31:2014, IEC 60079-31 Ed. 2

MARKING

II 2G Ex eb IIC T6 Gb II 2D Ex tb IIIC T85°C Db

TEST STANDARDS

EN 60079-0:2012 + A11:2013, IEC 60079-0 Ed. 6,
EN 60079-7:2015, IEC 60079-7 Ed. 5
EN 60079-31:2014, IEC 60079-31 Ed. 2.

TECHNICAL DATA

Nominal voltage (max.)	550 V AC
Nominal current	max 24 A (see terminals)
Ambient temperature	- 45 °C up to +50 °C
Nominal cross-section*	Power cable max. 6 mm^2 (ELAK-Ex-R8 max. 2.5 mm^2)
Material	Polyamid, glass fiber reinforced, black
Cable glands / blind plugs	Polyamid
Dimmensions	(ca.) Ø 154,5 mm, Height 125 mm
Protection level	IP 65
Impact strength	7 Joule
Installation Type	Wall mounting
Weight	ca. 0,7 kg

* Connection cross-section (solid or fine-stranded without wire end sleeve); terminals heating cable max. 4 mm^2 (AWG11); Terminals temperature sensor max. 2.5 mm^2 (AWG 13)

CABLE GLANDS

Size	Clamping range	Wrench size	Torques	
			Thread	Screw
	[mm]	[mm]	[Nm]	
M16	4 - 7	15	2,5	2 - 1,65
M20	5,5 - 13	24	3,75	3,5 - 2,5
M25	8 - 17	29	5	5 - 3

TERMINALS

Nominal cross-section	Wire cross-section	Current
[mm^2]	[mm^2]	[A]
1.5	0,5 - 2,5	15
2,5	0,5 - 4,0	21
4,0	0,5 - 6,0	24

⚠ DANGER

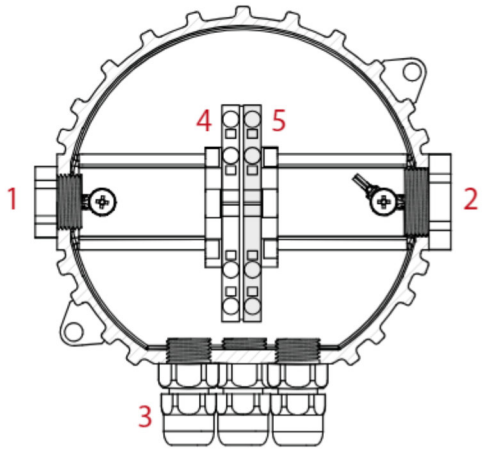
SPECIAL CONDITIONS according to Type Ex certificate

The ambient temperature range, depending on the cable glands used, is specified from -45°C or -40°C (Type R. STAHL 8161/5 & STAHL 8161/6) to +50°C.

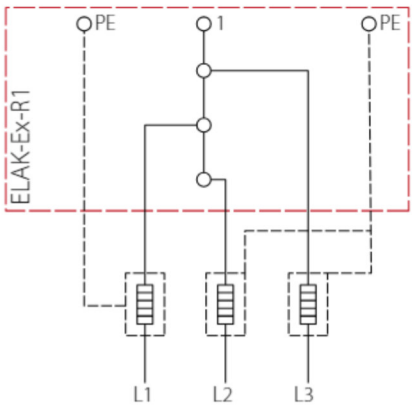
MODELL OVERVIEW

ELAK-Ex-R1 (0X80071)

Star point for connection ELKM-AG-**

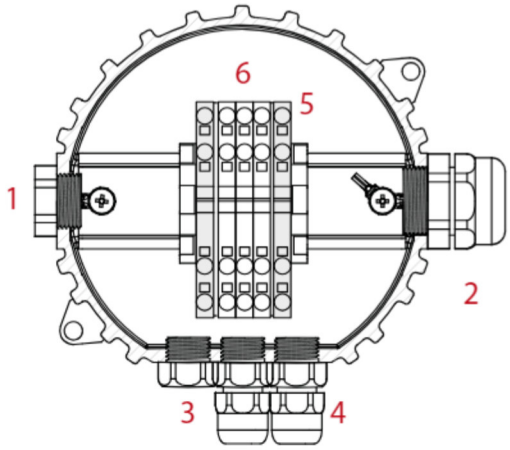


Pos.	Type	Quantity	Clamp-range
1	Blind plug M20x1.5	1	-
2	Blind plug M25x1.5	1	-
3	Cable gland M16x1.5	3	4 - 10 mm
4	Feed through-terminal	1	6 mm²
5	Protective earth terminal	1	6 mm²

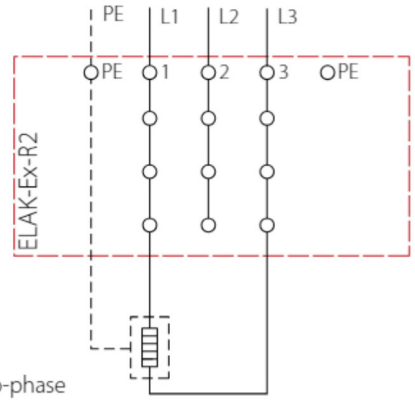


ELAK-Ex-R2 (0X80072)

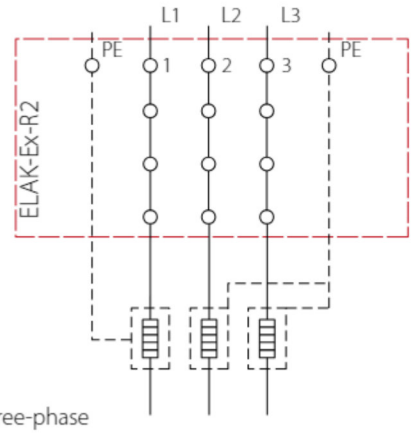
2 Phase or star connection ELKM-AG-**



Pos.	Type	Quantity	Clamp-range
1	Blind plug M20x1.5	1	-
2	Cable gland M25x1.5	1	9-13/12-17 mm
3	Blind plug M16x1.5	1	-
4	Cable gland M16x1.5	2	4 - 10 mm
5	Protective earth terminal	2	6 mm²
6	Feed through-terminal	3	6 mm²



0X80072 two-phase

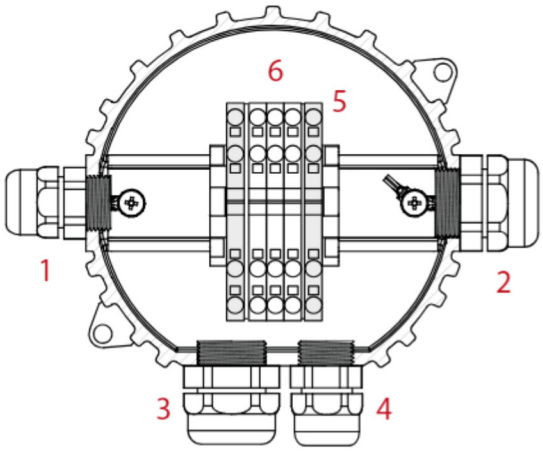


0X80072 three-phase

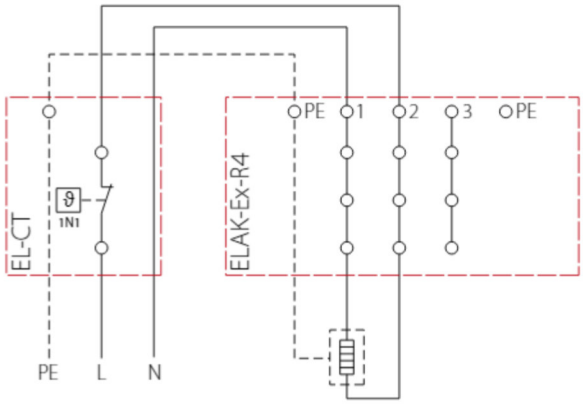
Terminal for earthing or electrical protection

ELAK-Ex-R4 (0X80074)

Connection of 1 ELKM-AG-** + EL-CT

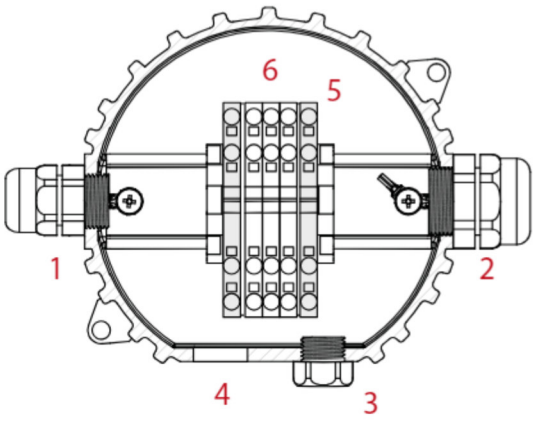


Pos.	Type	Quantity	Clamp-range
1	Cable gland M20x1.5	1	9 - 12 mm
2	Cable gland M25x1.5	1	9-13/12-17 mm
3	Cable gland M25x1.5	1	9-13/12-17 mm
4	Cable gland M20x1.5	1	9 - 12 mm
5	Protective conductor terminal	2	6 mm²
6	4 Wire Through clamp	3	6 mm²

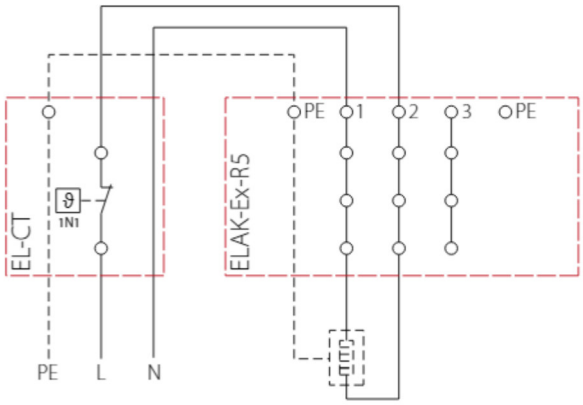


ELAK-Ex-R5 (0X80075)

Connection of 1 ELSR + EL-CT



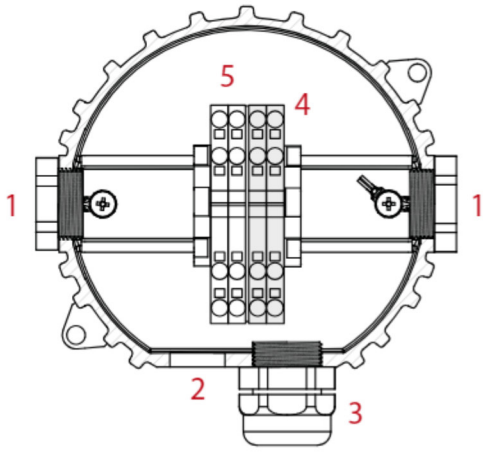
Pos.	Type	Quantity	Clamp-range
1	Cable gland M20x1.5	1	7 - 12 mm
2	Cable gland M25x1.5	1	9-13/12-17 mm
3	Blind plug M16x1.5	1	-
4	Borehole M20	1	-
5	Protective conductor terminal	2	6 mm²
6	Feed through-terminal	3	6 mm²



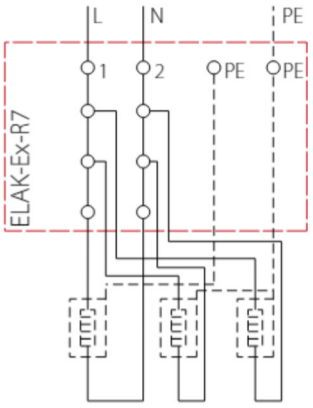
Terminal for earthing or electrical protection

ELAK-Ex-R7 (0X80077)

Connection of 1 up to 3 ELSR & ELP

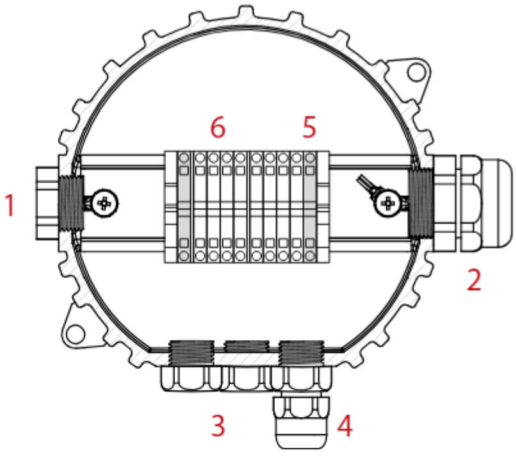


Pos.	Type	Quan-tity	Clamp-range
1	Blind plug M25x1.5	2	-
2	Borehole M25	1	-
3	Cable gland M25x1.5	2	9-13/12-17 mm
4	Protective earth terminal	2	6 mm²
5	Feed through-terminal	2	6 mm²



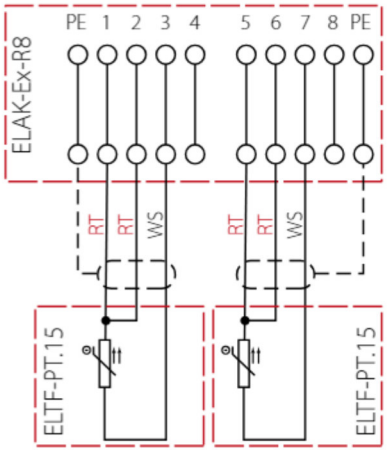
ELAK-Ex-R8i (0X80078IB)

Connection of one or two [ib] PT100 Temperature sensor



Terminal for earthing or electrical protection

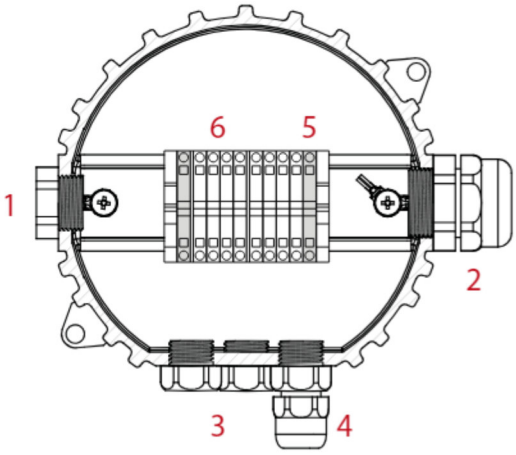
Pos.	Type	Quan-tity	Clamp-range
1	Blind plug M20x1.5	1	-
2	Cable gland M25x1.5	1	9 - 17 mm
3	Blind plug M16x1.5	1	-
4	Cable gland M16x1.5 blue	2	6 - 10 mm
5	Protective earth terminal	2	2,5 mm²
6	Feed through-terminal	8	2,5 mm²



Connection of 1 or 2 ELTF-PT.15 [Ex ib]

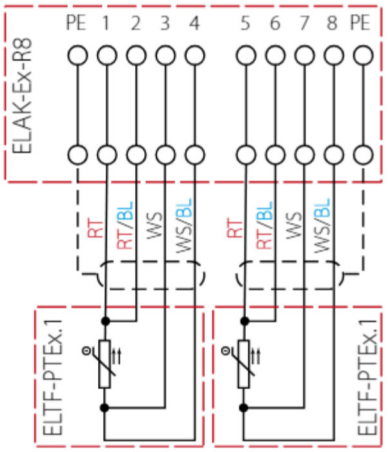
ELAK-Ex-R8 (0X80078)

Connection of one or two PT100 temperature sensors

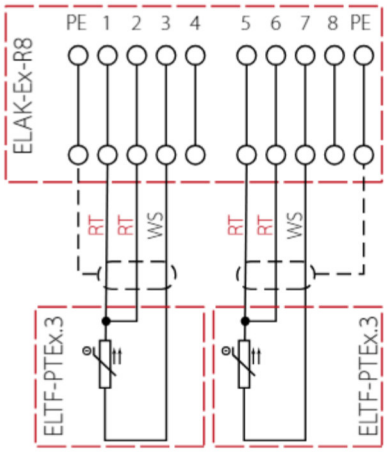


Pos.	Type	Quan-tity	Clamp-range
1	Blind plug M20x1.5	1	-
2	Cable gland M25x1.5	1	9 - 17 mm
3	Blind plug M16x1.5	2	-
4	Cable gland M16x1.5	1	6 - 10 mm
5	Protective conductor terminal	2	2,5 mm²
6	Feed through-terminal	8	2,5 mm²

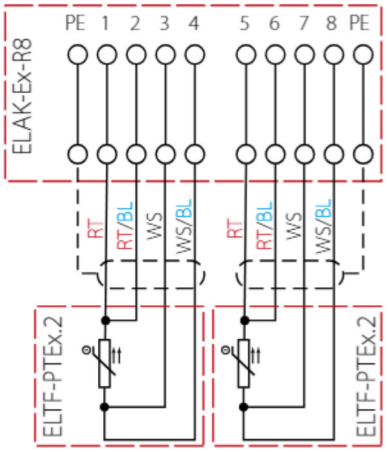
Terminal for earthing or electrical protection



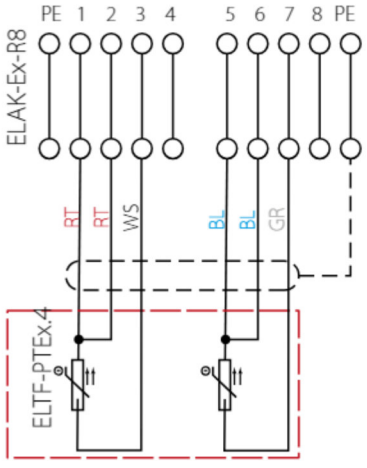
Connection of one or two ELTF-PTEx.1



Connection of 1 or 2 ELTF-PTEx.3



Connection of 1 or 2 ELTF-PTEx.2



Connection of 1 ELTF-PTEx.4 (Double-PT100)

INSTALLATION

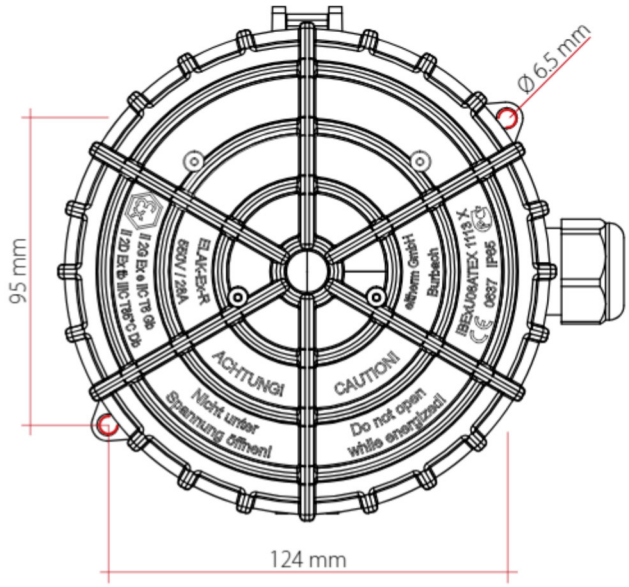
SAFETY INSTRUCTIONS

ATTENTION

- The following steps should only be carried out by persons trained in handling explosive equipment.
- Strict compliance with the relevant safety regulations in potentially explosive atmospheres is a requirement for the safety of persons, plants and equipment.
- The persons entrusted with the planning, installation and maintenance bear a special responsibility and must therefore be thoroughly familiar with the applicable regulations.
- These instructions are intended for this group of people and contain all the important information required for the safe handling of the ELAK-Ex-R junction boxes.
- The instructions must be kept together with the system documentation for later use and must be kept and be available during the entire service life of the product.

PREPARATION OF WALL MOUNTING

Drill two Ø 8 mm holes (see drilling diagram) and insert the appropriate dowels into the holes. Use screws with a max. diameter of 6 mm to fasten the enclosure.



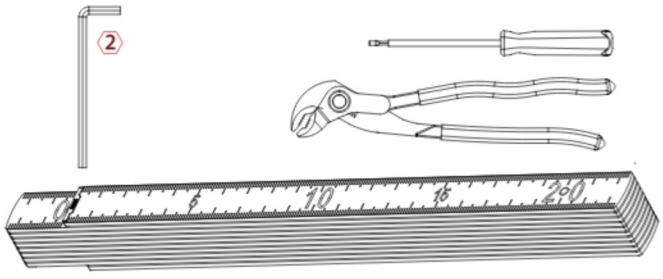
RECEIPT OF THE GOODS

On receipt of the goods, check the junction boxes and the accessories and compare the type information with the information on the delivery note to ensure that the correct material has been delivered.

STORAGE

Storage should be in a dry, clean place at an ambient temperature from 0°C to 50°C.

RECOMMENDED TOOLS



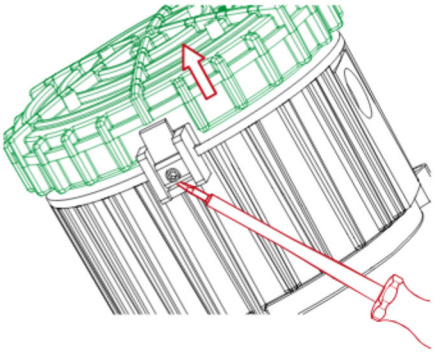
ASSEMBLY INSTRUCTIONS

ATTENTION

- In the version with borehole Ø 42 mm, mounting only with mounting bracket „eltherm Ex-It" according to the QAA-073.
- When selecting the mounting location, take into account the degree of mechanical danger to the junction box and the cable entries as well as the permissible ambient temperature.
- Ensure that the surface on which the junction box is mounted is capable of bearing loads.
- Cables inserted into the junction box must be laid firmly and secured against being pulled out of the cable entry (e.g. by a cable clamp).
- Unused clamping points must be tightened.
- All cable entries, reducers and blind plugs may only be used in conjunction with threaded connection seals, O-rings or moulded sealing elements and must be separately tested and approved for type of protection „e" or „t" with EPL Gb or Db.
- Seals in the cable entries must not be exchanged or nested.
- Threaded boreholes can be reduced in size. However,

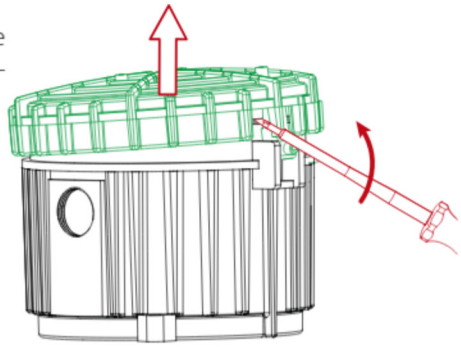
several reducers must not be reductions must not be nested.

- Before inserting blind plugs, reducers or conduit entries into free threaded boreholes, make sure that the threaded borehole is clean and undamaged and that the respective threads fit together.
- After connection, all openings must be closed tightly (cover, threaded boreholes, cable entries). Use suitable open-end, ring or socket spanners to tighten the cable entries. The test torques listed in the chapter „Technical data" must be observed.
- ATTENTION: Excessive tightening may impair the IP protection class!
- The lid of the junction box is designed to mount a identification plate provided by the customer. Use screws Ø 2.2 x 6 mm for fastening.



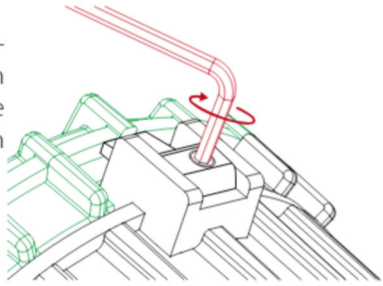
4 Lift the lid (using the screwdriver)

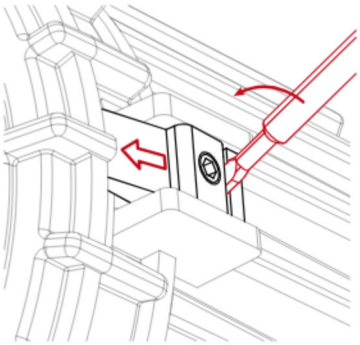
5 Open the lid (using the screwdriver)



OPEN THE ENCLOSURE

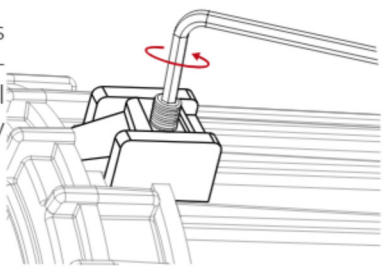
1 Tighten the headless screw with an Allen wrench (size 2) until the locking arm is flush with the side bars



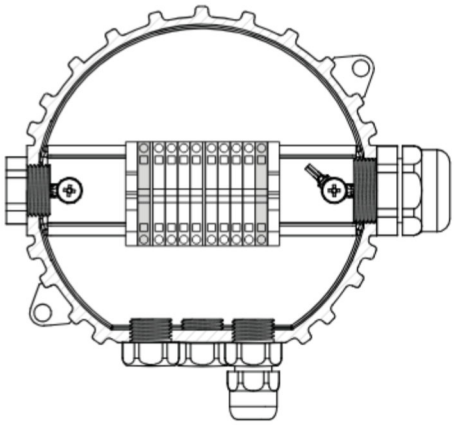


2 Insert a flat-tip screwdriver between the locking arm and the rear bar and push the locking arm forward a few millimetres by turning the screwdriver

3 Turn the headless screw back with the Allen wrench (size 2) until it is protruding slightly out of the locking arm



FASTEN THE ENCLOSURE



6 Fasten the enclosure on the wall or on the mounting bracket.

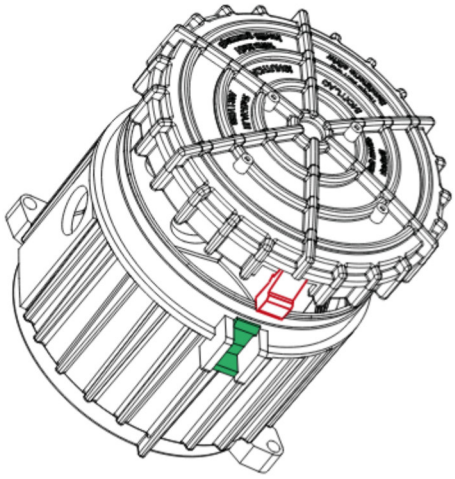
CONNECT THE TRACE HEATER / PT 100

⚠ ATTENTION

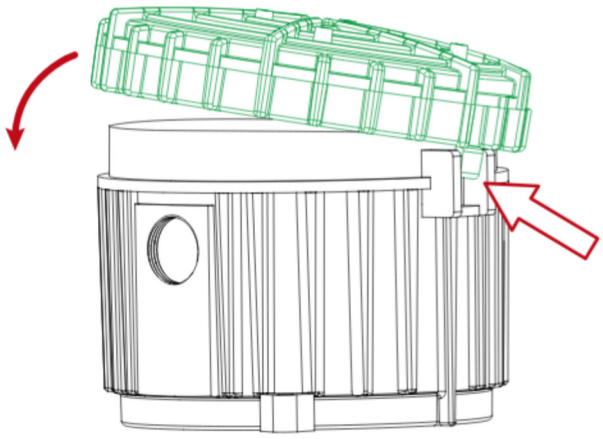
- Please observe the respective installation instructions for the heating cables / sensors to be connected.
- Make sure that all terminals and cable glands are tightened according to the instructions.
- Before closing the terminal box, carry out the installation check of the heating cables.

CLOSE THE ENCLOSURE

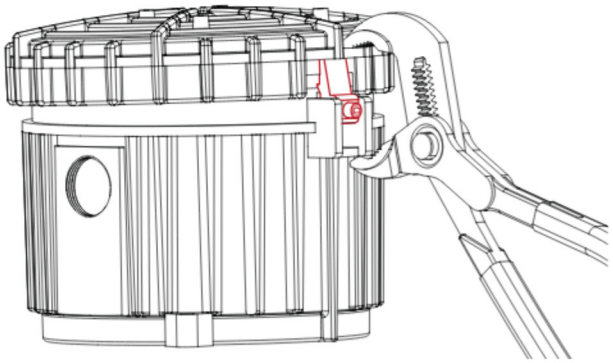
1 Visual inspection of housing and lid to ensure they are not damaged. The lid can only be inserted in one position (locking arms / twist protection recesses have different width). Move the lid to the appropriate position.



2 Attach the lid with the narrower locking arm (without a headless screw), close the lid and…



3 Use the pliers to lock the lid.



CHECK AFTER INSTALLATION

⚠ ATTENTION

After completing the installation, the following steps must be taken:

- Visual inspection of the junction boxes for possible mechanical damage.
- Damaged junction boxes must not be put into operation and must be replaced.
- Check the cover of the junction box and its attachments (cable entries) for tight fit.
- All threaded openings must be fitted with cable entries or blind plugs, which must be firmly tightened and tight.

OPERATION & MAINTENANCE

⚠ DANGER

- The junction boxes may only be opened (this also includes loosening cable entries!) in a de-energised state. disconnected from the power supply.
- Damaged junction boxes must not be put into operation.

⚠ ATTENTION

When operating the junction boxes, the permissible ambient temperature must be observed.

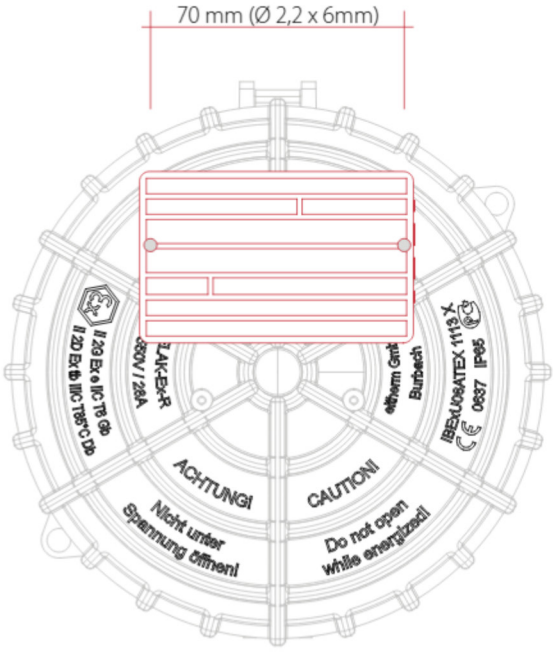
- The locally applicable safety regulations must be observed.
- The permissible operating conditions according to „Technical data" or labelling (voltage, current, operating temperature, maximum ambient temperature, IP protection class) must be observed.
- The cable entries must not be operated in dust explosion hazardous areas with dust deposits >= 50 mm.
- It is recommended to visually check the integrity and tight fit of the cable gland and the connected cable at suitable intervals depending on the installation location and application.
- If necessary, the cable entries must be retightened, damaged junction boxes or cable entries must be replaced by qualified personnel.
- If repair work is to be carried out on heated system parts, the junction boxes must be protected against damage.
- After completion of the repair work, the junction box must be checked again.

MARKING (made by customer)

NOTE

Customer-side labeling with an identification plate is possible.

- The size of the marking plate must not exceed 2000 mm².



NOTES

You can also find this document on the eltherm website.
Please visit our download area.

eltherm®

eltherm GmbH
Headquarters
Ernst-Heinkel-Straße 6-10
57299 Burbach. Germany

T.: +49 2736 4413-0
F.: +49 2736 4413-50
info@eltherm.com

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