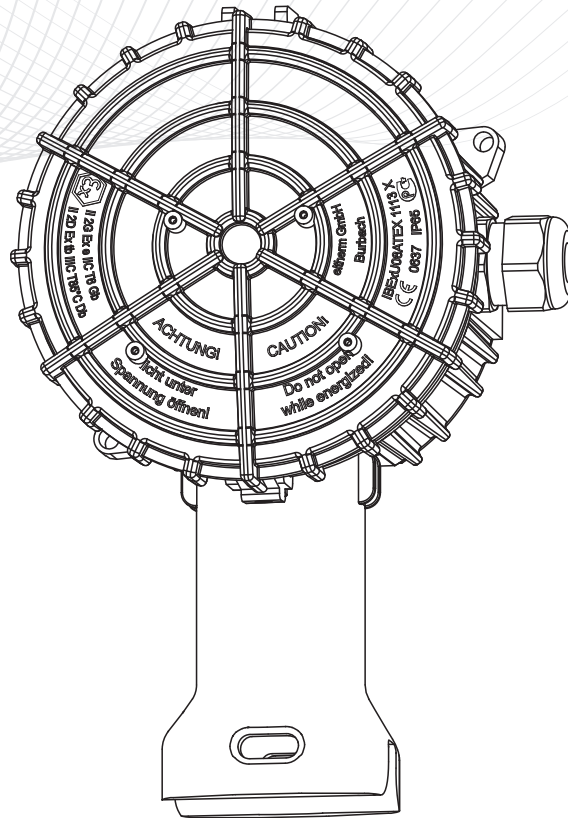


OPERATION- MANUAL



Ex-It-R

Operation, assembly and technical data

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IMPORTANT INFORMATION

- RETAIN FOR LATER USE



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

- FOR DISPOSAL



The WEEE 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.

RECEIPT OF GOODS

Check the goods on receipt for transport damage or mechanical damage. Damaged junction boxes must not be used. Compare the model specifications with the information on the delivery bill to ensure that the correct material was delivered.

STORAGE



NOTE

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

SCOPE OF DELIVERY

The scope of delivery of the article includes:
One junction box ELAK-Ex-R incl. mounting base Ex-It.



CAUTION

Indicates an potential dangerous situation. If it is not avoided, there is a risk of damage or malfunction.



DANGER

Indicates an extremely dangerous situation. If it is not avoided, there is a danger to life or at least a high risk of serious injury.



NOTE

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



WARNING

Indicates a dangerous situation. If it is not avoided, there is a risk of injury or at least a high risk of damage.

Reservation

We reserve the right to make technical changes. Changes, errors and misprints do not justify any claim for compensation. For safety components and systems, the installation instructions and the relevant standards and regulations must be observed.

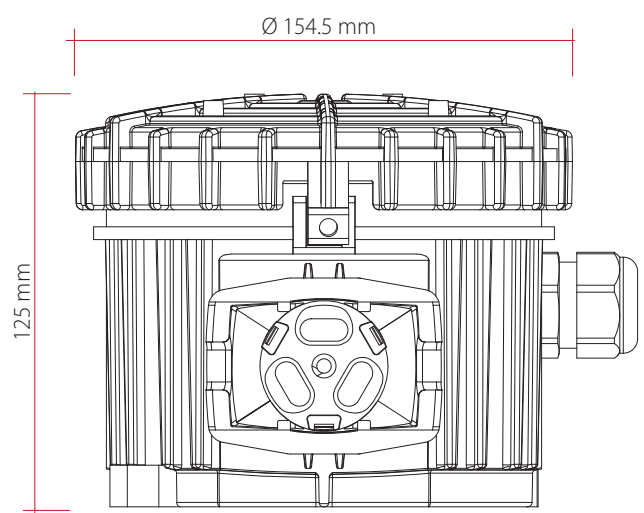
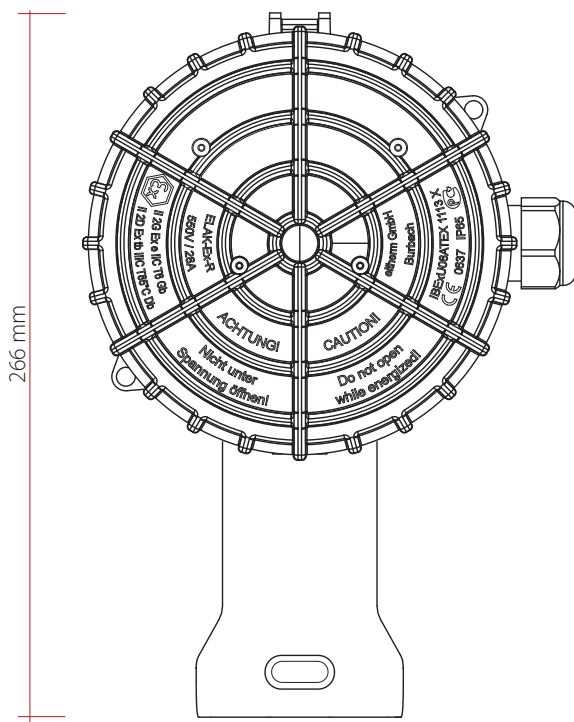
eltherm GmbH Ernst-Heinkel-Str. 6-10 57299 Burbach T.: +49 2736 4413-0 F.: +49 2736 4413-50 info@eltherm.com	Document: 8643040X800XX		Operation Manual Ex-it-R	
	Autor:	Detlef Matthes		Date: 12.05.2023
	Revision: 01	Maximilian Georg		Date: 14.07.2026

DESCRIPTION & TECHNICAL DATA

Description

The innovative junction box (ELAK-Ex-R) with mounting base (Ex-it) is suitable for use in areas subject to explosion hazard and offers many advantages. The cable that is led in does not have to be bent sharply thanks to the shape of the box. This protects the cable against damage. Thanks to the integrated mounting base, no mounting bracket is needed. This is especially advantageous with pipe trace heating systems, since the cable can be led in directly through the mounting base. No more cable glands are required for heating conductors and sensors. A safety screw connection with enclosed tool prevents the cover from moving. Additional fastening possibilities for identification plates make it possible to label heating circuits reliably in complex systems.

Modell views



Certificate Numbers

IBExU 08 ATEX 1113 X

IECEx IBE 16.0001 X

IBExU 09 ATEX 1023 U

Test standards

EN 60079-0:2018, IEC 60079-0:2017 Ed. 7

EN 60079-7:2015/A1:2018, IEC 60079-7:2017 Ed. 5.1

EN 60079-31:2014, IEC 60079-31:2022 Ed. 3

Marking

ATEX

IEC-Ex

Ex II 2G Ex eb IIC T6 Gb

Ex II 2D Ex tb IIIC T 85°C Db

Ex eb IIC T6 Gb

Ex tb IIIC T85°C Db



ATTENTION

-45 °C to +50 °C (T6, T85 °C) Terminal box.

The minimum operating temperature depends on the use of the cable glands, blanking plugs or reducers and may vary.

Technical data

Operating voltage (max.)	800 V AC
Rated current	max. 32 A each terminal 6 mm ² (Ex-It-R-ELTf max. 24 A)
Ambient temperature	-20 °C up to +50 °C
Nominal cross-section*	Power cable max. 10 mm ² , Ø 9 - 17 mm
Junction box material	Polyamid, glass fiber reinforced, black
Dimensions	(approx.) Ø 154.5 mm, Height 266 mm, Depth 125 mm
Protection class	IP 65
Operating temperature mounting base	max. +200 °C
Material mounting base	PPS (Cable entries: 3 x flat heater; 1 x sensor cable)
Possible cable dimensions	Ø 3 – 5 mm; 4 x 11 mm – 5.5 x 14 mm
Possible jacket materials	TPE min. 0.7 mm; Fluoropolymer min. 0.4 mm
Max. insulation thickness	100 mm
Min. pipe diameter	≥ NW3/4" / OD 20 mm (max. width of tightening strap: 16 mm)
Weight	approx. 0.7 kg

* Connection cross-section (solid or fine-stranded without wire end sleeve); terminals trace heater max. 6 mm² (AWG10); Terminals temperature sensor max. 2.5 mm² (AWG 13)

DANGER

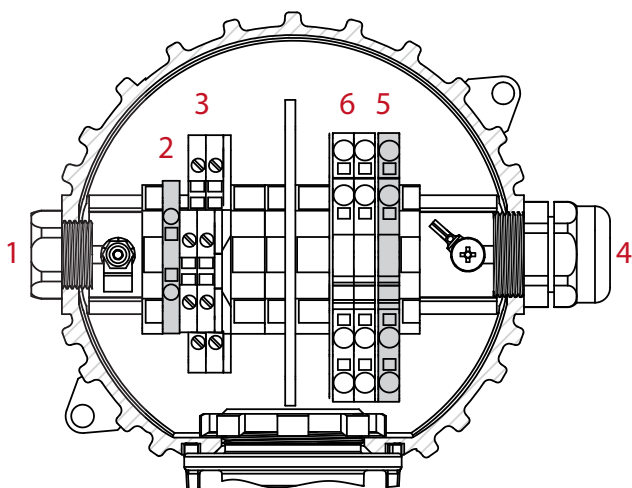
SPECIAL CONDITIONS according to Type Ex certificate

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

Modells

Ex-It-R (0X80070)

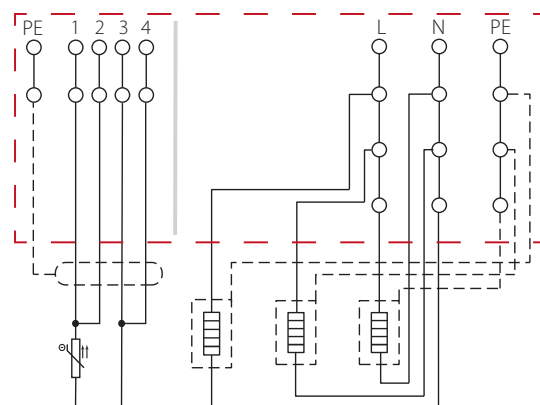
Junction box incl. mounting base, for up to
3 ELSR-N/-LS/-H+/-SH+/-SHH, 1 connection line,
1 sensor line (Pt100 4-wire)



 Terminal for earthing or electrical protection

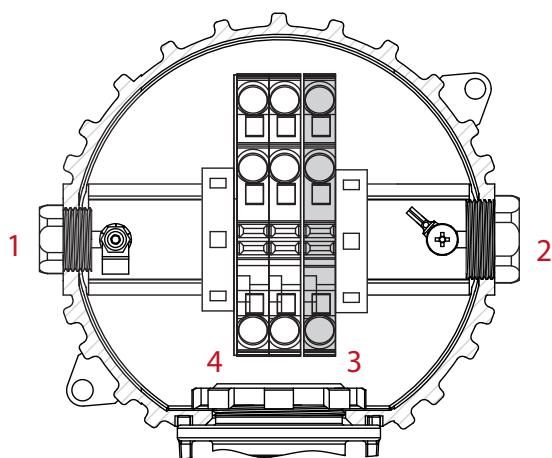
Nº.	Type	pcs	Clamp range
1	Blind plug M20x1.5	1	-
*	Blind plug M25x1.5	1	-
2	Ground terminal	1	2.5 mm ²
3	Double-level terminal	2	2.5 mm ²
4	Cable gland M25x1.5	1	9-13/12-17 mm
*	Cable gland M20x1.5	1	9-13 mm
5	Ground terminal	1	4 mm ²
6	4-wire feed-through terminal	2	4 mm ²

* Enclosed, loose



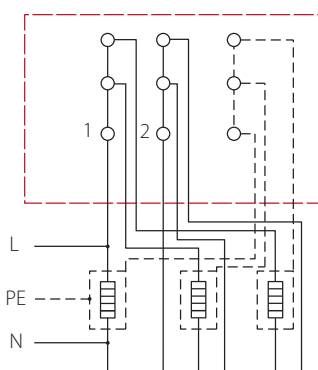
Ex-It-R-T (OX80082)

Junction box incl. mounting base, for splice or T-connection, up to 3 ELSR-N/-LS/-H+/-SH+/-SHH



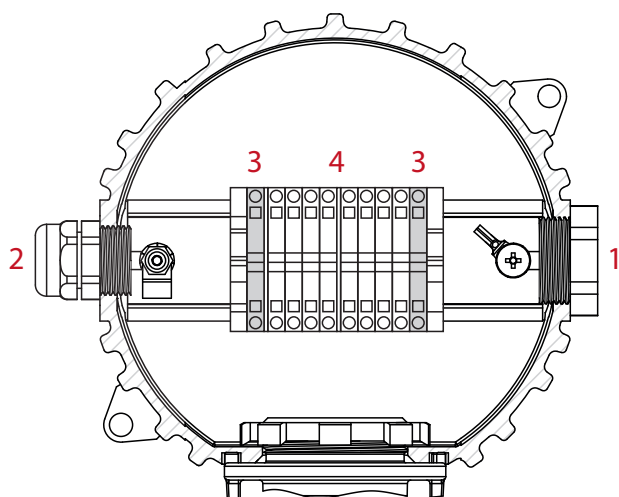
■ Terminal for earthing or electrical protection

Nº.	Type	pcs	Clamp range
1	Blind plug M20x1.5	1	-
2	Blind plug M25x1.5	1	-
3	3-wire ground terminal	1	10 mm ²
4	3-wire feed-through terminal	2	10 mm ²



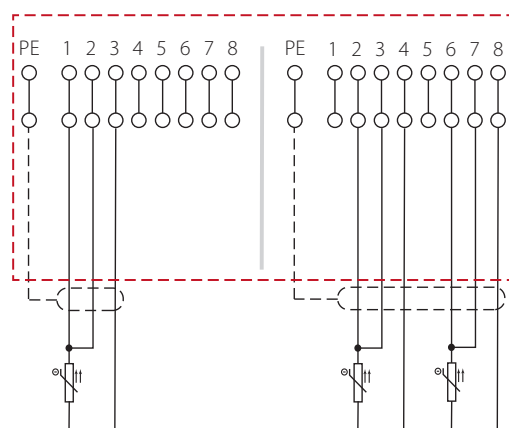
Ex-It-R-ELTf (OX80092)

Junction box incl. mounting base, 1 Pt100 or 1 double Pt100



■ Terminal for earthing or electrical protection

Nº.	Type	pcs	Clamp range
1	Blind plug M25x1.5	1	-
2	Cable gland M20x1.5	1	9 - 12 mm
3	Ground terminal	2	2.5 mm ²
4	Feed-through terminal	8	2.5 mm ²



INSTALLATION

Safety instructions



ATTENTION

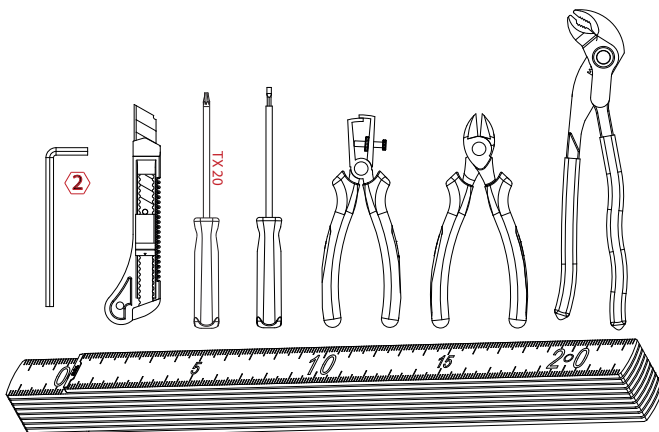
- The following steps should only be carried out by persons trained in handling explosive equipment.
- Strict compliance with the relevant safety regulations in potentially explosive atmospheres is a requirement for the safety of persons, plants and equipment.
- The persons entrusted with the planning, 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.



ATTENTION

- 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 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 torques (see before) 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.

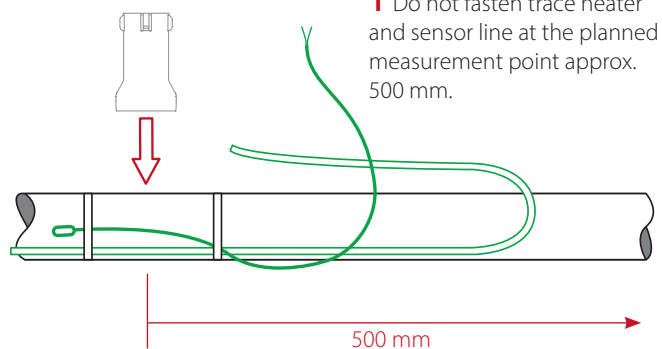
Recommendet tools



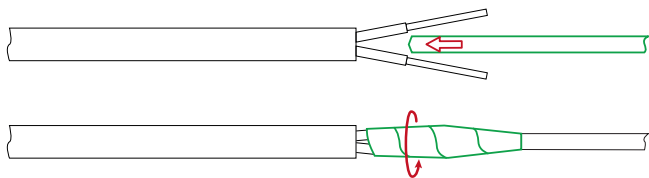
Required wrench sizes

Size	Clamping range	Wrench size	Torques	
			Thread	Screw
	[mm]	[mm]	[Nm]	
M20	5.5 - 13	24	3.75	3.5 - 2.5
M25	8 - 17	29	5	5 - 3

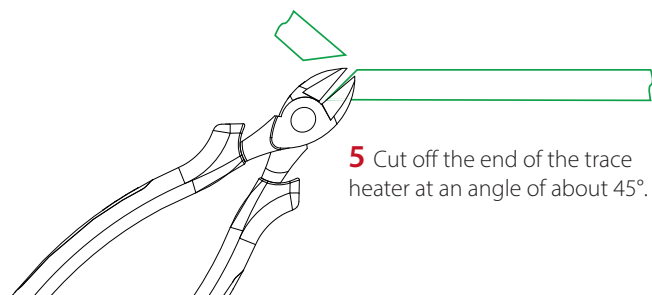
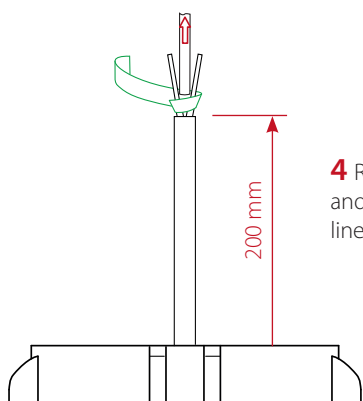
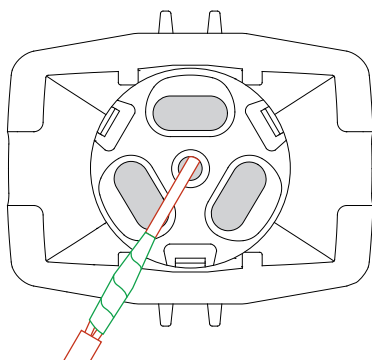
Mounting on the pipe



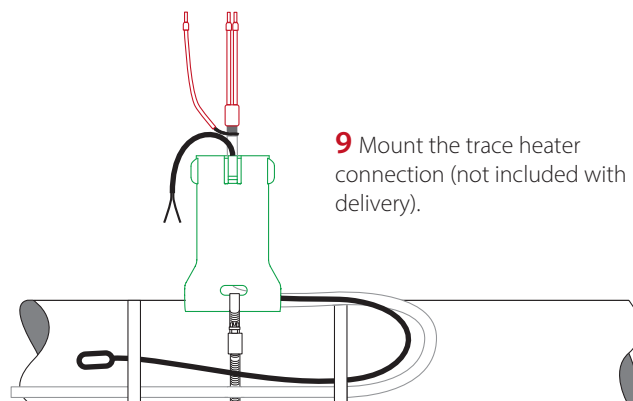
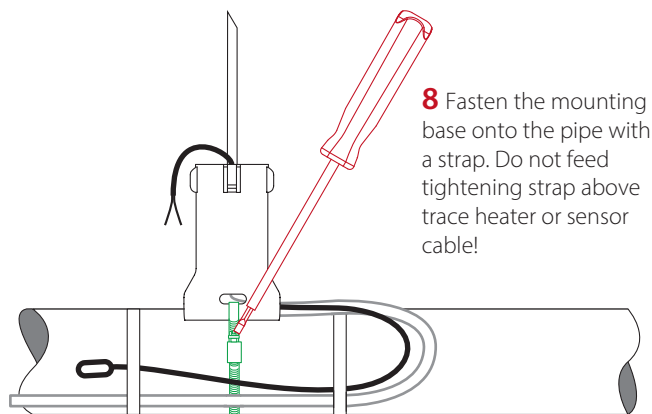
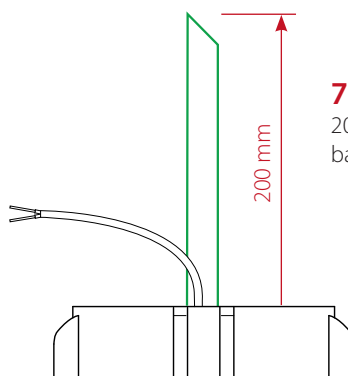
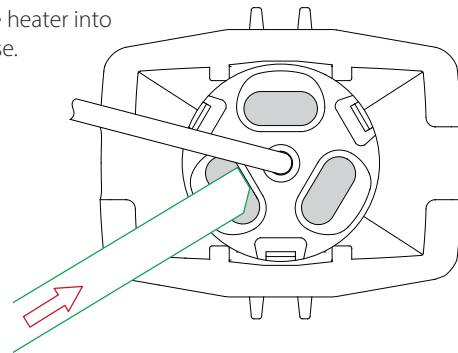
2 Prepare the end of the sensor line with a strong wire and by using adhesive tape to lead a sensor line into the mounting base.



3 Lead a sensor line into the opening provided and pull it about 200 mm into the mounting base.

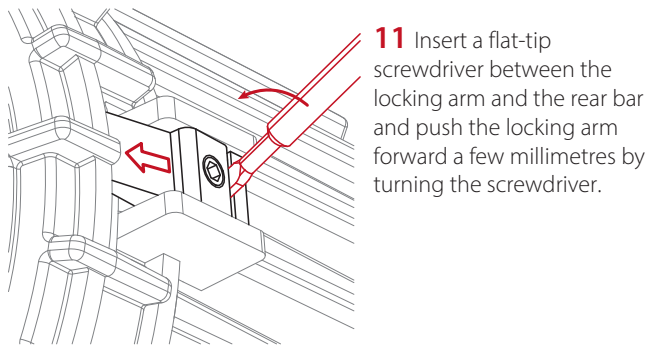
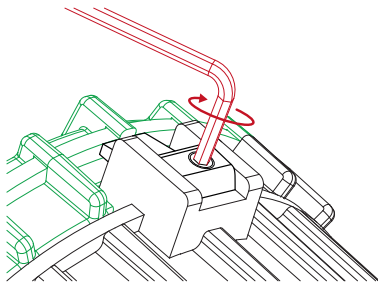


6 Guide the trace heater into the mounting base.



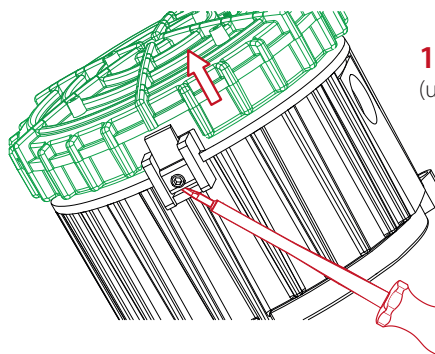
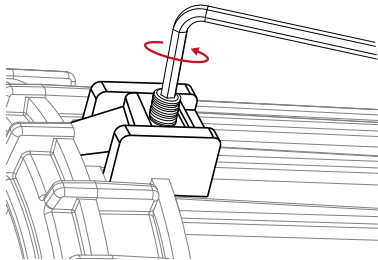
Opening the junction box

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



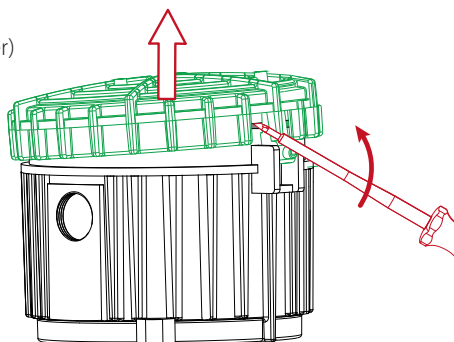
11 Insert a flat-tip screwdriver between the locking arm and the rear bar and push the locking arm forward a few millimetres by turning the screwdriver.

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



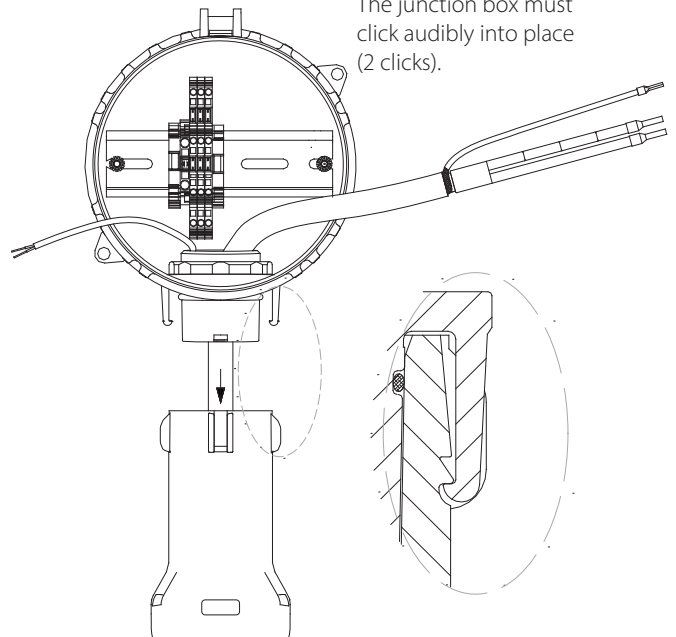
13 Lift the cover.
(using the screwdriver)

14 Open the cover.
(using the screwdriver)



Fasten the junction box

15 Attach the junction box to the Ex-it mounting base. The junction box must click audibly into place (2 clicks).



Connect the trace heater & Pt100

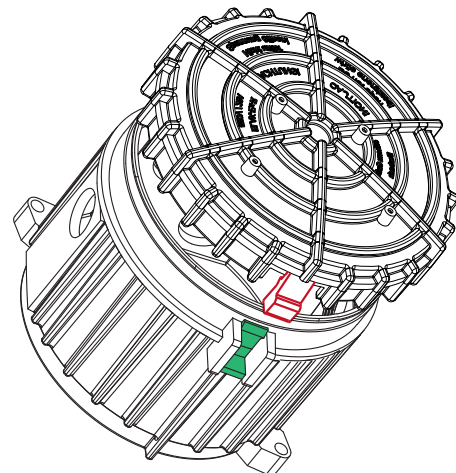


ATTENTION

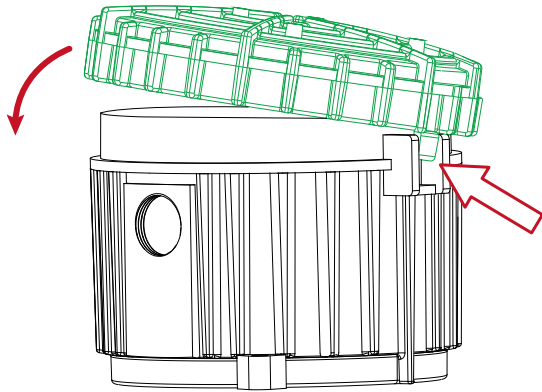
- Please observe the respective installation instructions for the trace heaters / temperature sensors to be connected.
- Make sure that all terminals and cable glands are tightened according to the instructions.
- Before closing the junction box, carry out the installation check of the heating cables.

Close the junction box

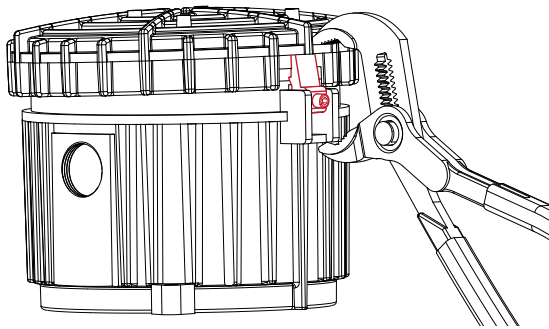
16 Visual inspection of junction box and cover to ensure they are not damaged. Cover can only be inserted in one position (locking arms / twist protection recesses have different width). Move the cover to the appropriate position.



17 Attach the cover with the narrower locking arm (without a headless screw), close the cover and...



18 Use the pliers to lock the cover.



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 sealed.

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.

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