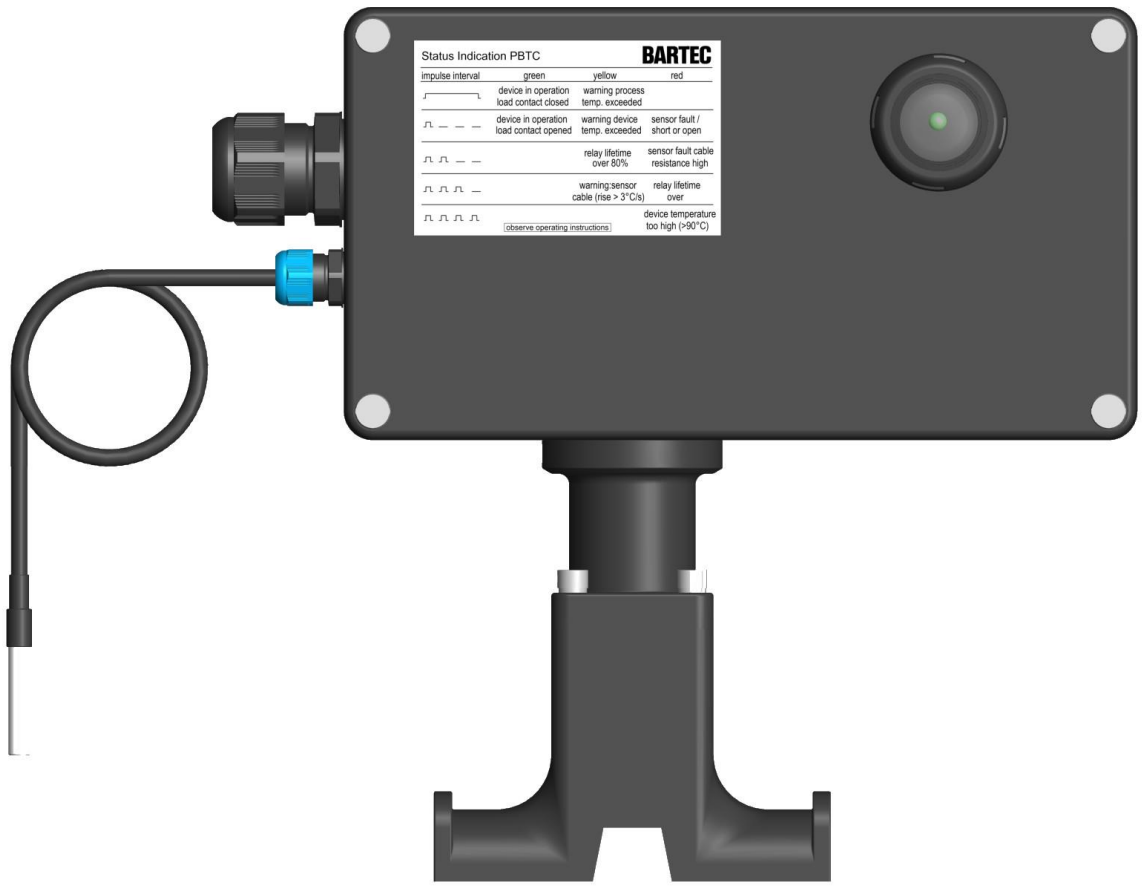
Operation and Installation Manual

Junction Box with Electronic Thermostat Module PBTC-200-E

27-54C2-4412/E210



Origin Operation and Installation Manual – keep for future reference

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1 About this Manual

1.1 Product Safety

The Junction Box with Electronic Thermostat Module PBTC-200-E is designed and approved for use in hazardous areas. It is built according to the state of the art and is safe to use. To ensure safe operation, it is essential to plan the system accurately, transport it properly, install it professionally, and to commission and maintain it. The necessary personal protective equipment (PPE) must be worn when working on the product or on the system in which it is installed.

The Junction Box with Electronic Thermostat Module PBTC-200-E may only be operated and used in accordance with their intended purpose and in compliance with these operating instructions and the applicable national standards and approvals.

⚠ WARNING

Injuries due to misuse

Improper use of the product can lead to an explosion, serious injury or death. The warnings and instructions must be read and understood.

1.2 How to use the Operating and Installation Instructions

This manual is part of the Junction Box with Electronic Thermostat Module PBTC-200-E. It is intended for safe and efficient handling of the product. The manual must be kept for future reference and kept close to the Junction Box with Electronic Thermostat Module PBTC-200-E so that it is always available to all personnel involved.

Read these instructions carefully and completely before working with the product. The contents of the manual must be read and understood thoroughly before installing, commissioning, using or maintaining the product. This manual must be passed on to future owners or operators if necessary.

The safety notes and instructions in this manual and in the documents provided are a requirement for safe working and must be observed. The technical data and applicable standards must be observed.

The illustrations in this manual are for basic understanding and may differ from the actual design

1.3 Symbols and Signs

The Warning signs warn of dangerous situations. They are intended to protect against personal injury and damage to property.

In the operating instructions, the severity of the possible dangers is indicated by the following signal words:

⚠ DANGER

DANGER draws attention to a danger, which will lead to death or serious injury if not avoided.

⚠ WARNING

WARNING draws attention to a danger, which can lead to death or serious injury if not avoided.

⚠ CAUTION

CAUTION draws attention to a danger, which can lead to minor or moderate injury if not avoided.

NOTICE

Important instructions and information on effective, economical & environmentally compatible handling.

Reference to important information to which special attention is drawn:

Disposal

The device must be disposed of properly in accordance with the local laws and regulations for electrical and electronic equipment.

The device must not be disposed of with household waste.

Notice: Technical data subject to change without notice.
No claims for damage arising from alternations, errors or misprints shall be allowed.

1.4 Terms and Definitions

These Operation and Installation Manual describe the Junction Box with Electronic Thermostat Module PBTC-200-E and may be referred in these Operation and Installation Manual as Junction Box with Electronic Thermostat Module. In this case, it refers to the Junction Box with Electronic Thermostat Module PBTC-200-E.

A Resistance Temperature Device Pt100 is connected to the Junction Box with Electronic Thermostat Module. In this document, it may only be referred as a Resistance Temperature Device. In this case, the Resistance Temperature Device Pt100 is meant.

The individual components of the Junction Box with Electronic Thermostat Module PBTC-200-E are described in Chapter 5 (Device Description) and used in this manual.

2 Safety Instructions

⚠ WARNING

Risk of fire or electrical shock due to electric Trace Heating System.
Follow these guidelines to avoid personal injury or material damage.

For safe installation of the Junction Box with Electronic Thermostat Module PBTC-200-E the technical requirements and instructions given in this manual must be followed. Keep these instructions for future reference. If applicable, leave them with the end user.

All electrical systems and installations must comply with BARTEC GmbH requirements and be installed in accordance with the relevant electrical codes and any other applicable national and local codes.

Use the Junction Box with Electronic Thermostat Module PBTC-200-E in accordance with the intended use and strictly comply with the operational data specified in section Technical Data.

Install all components of the Trace Heating System carefully, especially the connection kit, trace heater and end seal.

Any defective component of the kit must be replaced before installation. Replace each defect component of the Trace Heating System.

This kit contains silicone adhesive. Keep out of reach of children. Store at below 25 °C. Follow the safety instructions given on the packaging.

Use only original BARTEC accessories and spare parts.

Note that the Applicable Documents listed below shows further important information and must be observed in addition to this manual.

Applicable Documents

DesignGuide System (for PSB and MSB)	21-1S00-7D0001
DesignGuide Enclosure (for HSB, HSB+ and HTSB)	21-5400-7D0001
Installation Instructions Self-regulating trace heating cables	01-5800-7D0003
Storage conditions	21-0000-7Q0001

2.1 Intended Use

The Junction Box with Electronic Thermostat Module PBTC is intended for use as a temperature controller in electrical Trace Heating Systems.

The Junction Box with Electronic Thermostat Module may only be installed in Trace Heating Systems that have been designed by trained and qualified personnel with specific expertise and experience in explosion protection and Trace Heating Systems.

It can be operated only with

- Resistance Temperature Device Pt100
- Appropriately designed over-current protection device
- The self-limiting BARTEC Heating Cables types PSB (07-5853-*), MSB (07-5854-*), HSB (07-5855-*), HSB+ (07-584B-*) or HTSB (07-584C-*)
- Completely filled out acceptance and test report

The Junction Box with Electronic Thermostat Module may only be operated with one Heating Cable and one kind of Heating Cable in each heating circuit. The maximum permissible heating cable length must be observed. See the corresponding DesignGuide.

The approval and marking of the respective heating system, the data sheet of the heating cable type and the DesignGuide must be observed.

For use with electrical systems, the relevant installation and operating conditions (e.g. according to ATEX Directive 2014/34/EU, EN 60079-0, EN 60079-14, EN 60079-17, EN 60079-30-2 and any other relevant national standards) must be observed. Information on the type plate, the EU type examination certificate must be observed. Technical data on the thermostat module and in the operating instructions must be observed.

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Specific Conditions of Use

All power and data line cable entries to the trace heater boxes shall be installed with Ex eb or Ex tb cable glands or blanking elements providing a minimum ingress protection of IP66.

Supply cables and power cable entry glands shall be selected per manufacturer's installation instructions for appropriate conductor size and temperature range (refer to DesignGuide, chapter "Checklist customized entry port").

PBTC shall be applied for maintenance temperature control only. The Pt100 wiring shall be part of a fixed installation and shall be effectively clamped to prevent pulling or twisting.

Trace heater boxes, Aluminium housing type 07-5180-****/****
The enclosure must not be used in areas affected by charge-producing processes, mechanical friction and separation processes, electron emission (e.g. in the vicinity of electrostatic coating equipment), and pneumatically conveyed dust.

Temperature Controller Type 27-54C*-****/****
- Shall be applied for maintaining temperature only.
- The Pt100 wiring shall be part of a fixed installation and shall be effectively clamped to prevent pulling or twisting.

2.2 Certifications / Approvals / Marking

According to system certificate:

IECEx DEK 20.0055X
DEKRA 20ATEX0093 X

Junction Box with Electronic Thermostat Module PBTC-200-E
for BARTEC PSB, MSB trace heaters

IECEx DEK 20.0055X	
	Ex eb mb [ib] 60079-30-1 IIC T6…T3[1] Gb
	Ex tb [ib] 60079-30-1 IIIC T80 °C… T170 °C[1] Db
DEKRA 20ATEX0093 X	
	II 2G Ex eb mb [ib] 60079-30-1 IIC T6…T3[1] Gb
	II 2D Ex tb [ib] 60079-30-1 IIIC T80 °C… T170 °C[1] Db

According to enclosure certificate:

IECEx DEK 21.0074X
DEKRA 21ATEX0118 X

Junction Box with Electronic Thermostat Module PBTC-200-E
for BARTEC PSB, MSB, HSB, HSB+ or HTSB trace heaters

IECEx DEK 21.0074X	
	Ex eb mb [ib] 60079-30-1 IIC T6…110 °C (T4)[1] Gb
	Ex tb [ib] 60079-30-1 IIIC T_L 80 °C…T_L 110 °C[1] Db
DEKRA 21ATEX0118 X	
	II 2G Ex eb mb [ib] 60079-30-1 IIC T6…110 °C (T4)[1] Gb
	II 2D Ex tb [ib] 60079-30-1 IIIC T_L 80 °C…T_L 110 °C[1] Db

2.3 Reasonably foreseeable Misuse

The following activities are a misuse of the product and are not allowed:

- Use of the Junction Box with Electronic Thermostat Module PBTC for purposes other than those described in the intended use
- Installation, commissioning, operation, maintenance or disposal by unauthorised or unqualified personnel
- Work on live parts or circuits without switching off the Junction Box with Electronic Thermostat Module PBTC or the system
- Commissioning of damaged or faulty system components or incomplete installation
- Unauthorized technical modification of the Junction Box with Electronic Thermostat Module PBTC or its components

[1] For maximum surface temperature, see heating system design documentation

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2.4 Personal Qualification

The Junction Box with Electronic Thermostat Module may only be handled by qualified personnel in all phases of its life.

The Junction Box with Electronic Thermostat Module may only be transported by instructed and qualified personnel with special knowledge of transport.

The system design, Installation and Assembly, Commissioning, Operation, Maintenance, Decommissioning and Recommissioning of the Junction Box with Electronic Thermostat Module may only be carried out by trained, instructed and qualified personnel with specific expertise in the electrical engineering.

Disposal of the Junction Box with Electronic Thermostat Module may only be carried out by trained, instructed and qualified personnel with specialist knowledge of disposal.

For system planning, Installation and Assembly, Commissioning, Operation and Maintenance the requirements for personnel qualification according to DIN/EN 60079-14 must also be observed.

3 Performance Description

The Junction Box with Electronic Thermostat Module is intended for use in Trace Heating Systems in hazardous areas. The operation together with a Resistance Temperature Device Pt100 and BARTEC Heating Cables type PSB, MSB, HSB, HSB+ or HTSB is certified.

The Thermostat Module is a temperature controller type ETM-25Ex-C and meets the requirements of IEEE/IEC/EN 60079-30-1.

The LED status display shows the current operating status of the device by means of color and flash codes. The connection of the Resistance Temperature Device Pt100 is intrinsically safe. The temperature setpoint is set by means of 3 rotary coding switches.

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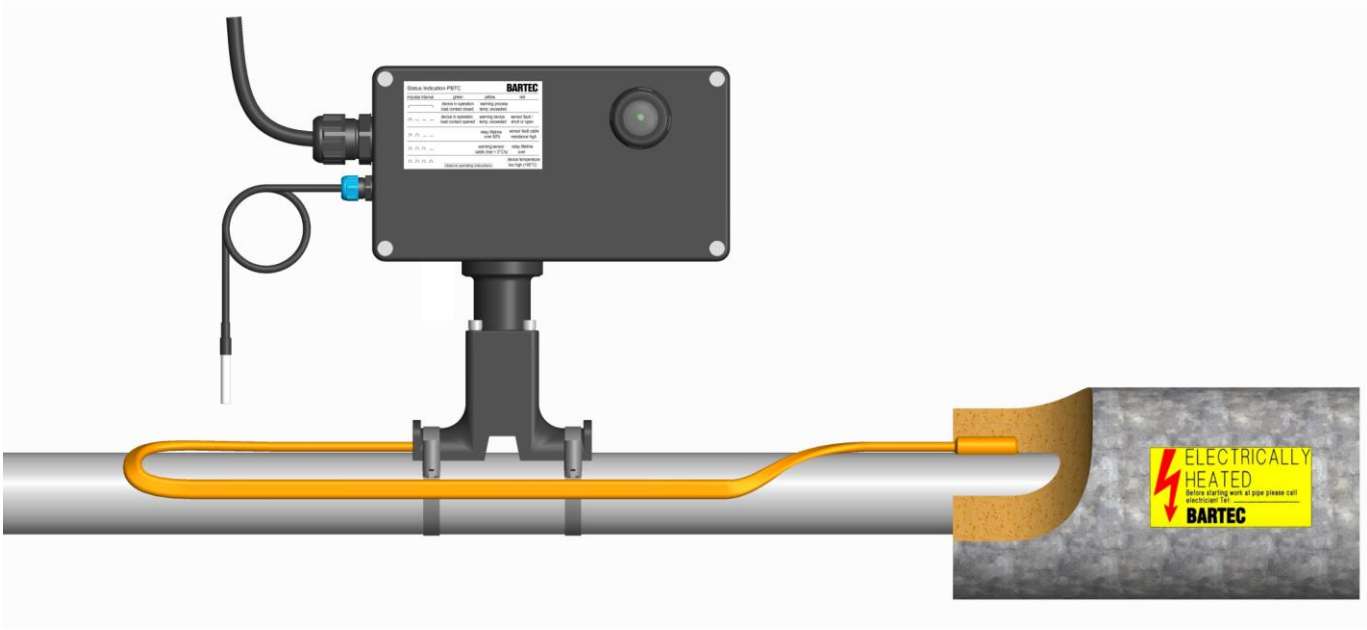
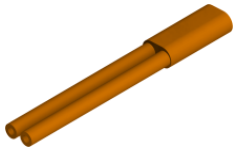
4 Scope of Delivery



Product view after mounting: PBTC-200-E



1 x
Silicone pants

1 x
End seal

1 x
Green/yellow tube
for grounding braid

2 x
Trace heater
grommet

1 x
Silicone adhesive

1 x
Cover for junction box
incl. 4 fixing screws

1 x
Junction box with thermostat module and
Resistance Temperature Device Pt100 M

Notice: Technical data subject to change without notice.
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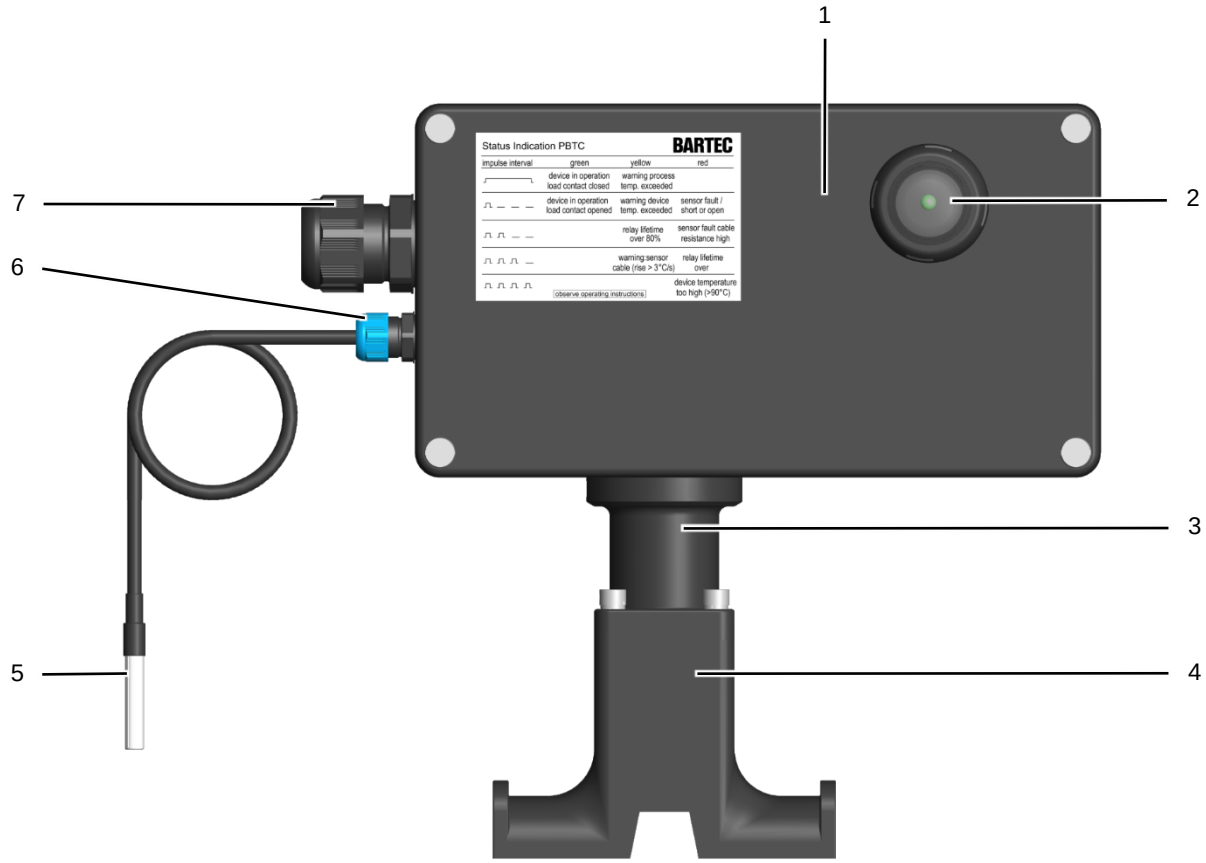
1 x
Top unit of the mounting stand
incl. sealing ring and lock nut

1 x
Base unit of the mounting stand

5 Device Description

5.1 Thermostat Module with Junction Box

Illustration with cover for Junction Box



No.	Description
1	Junction Box with Electronic Thermostat Module
2	LED Status Indication
3	Top unit of the Mounting Stand
4	Base Unit of the Mounting Stand
5	Resistance Thermometer Pt100
6	Cable gland Resistance Thermometer Pt100
7	Cable gland power connection

Notice: Technical data subject to change without notice.
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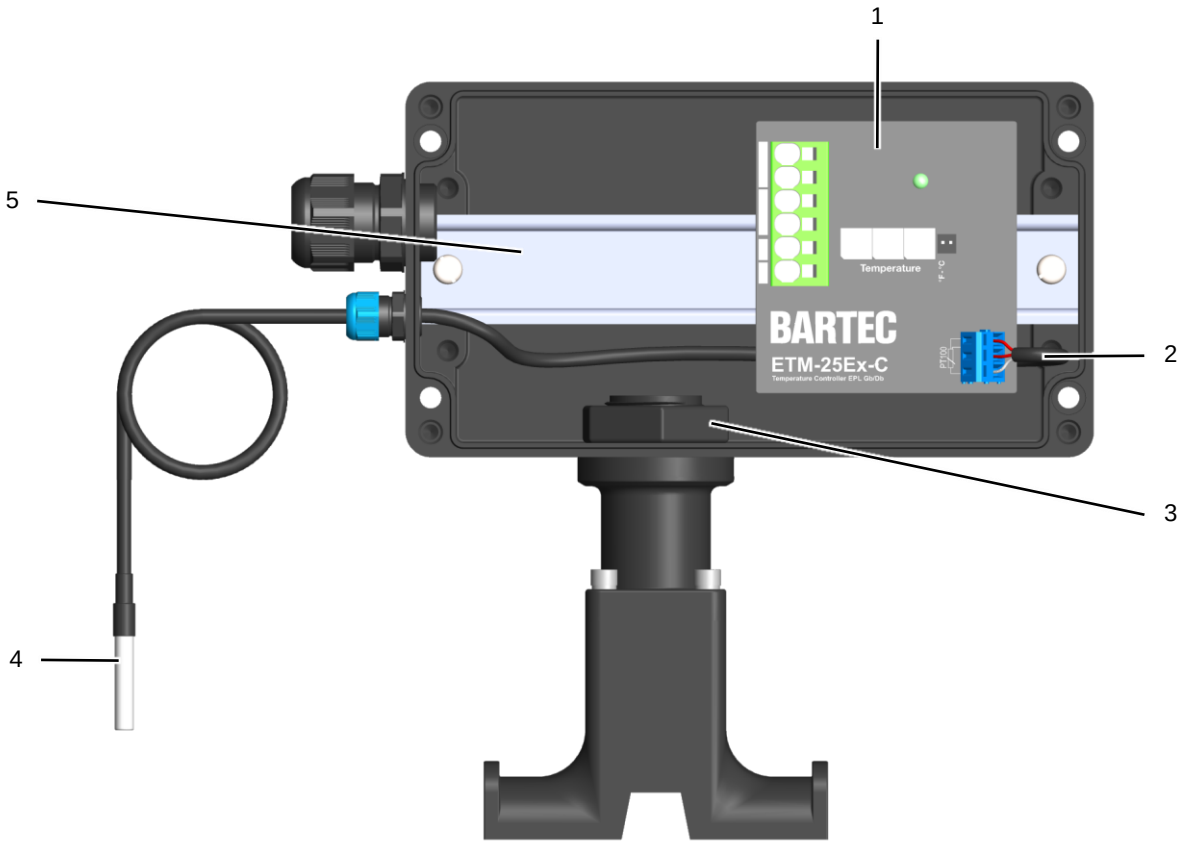
Illustration without cover for Junction Box



No.	Description
1	Electronic Thermostat Module ETM-25Ex-C
2	Connection Cable Resistance Temperature Device Pt100
3	Lock Nut
4	Resistance Thermometer Pt100
5	DIN Rail TS35

Notice: Technical data subject to change without notice.
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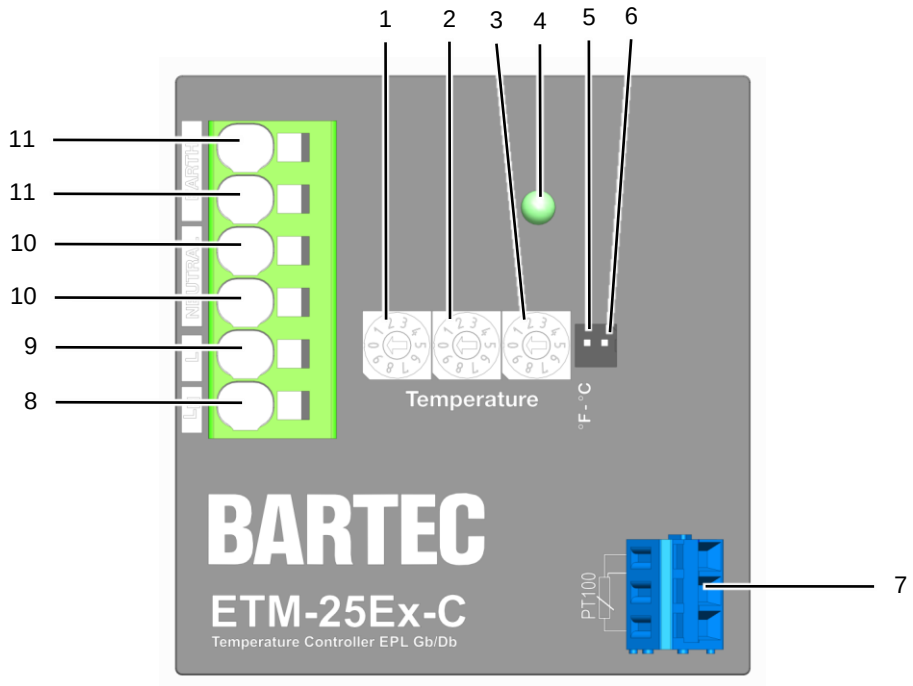
5.2 Thermostat Module



No.	Short code/ Labelling	Designation	Function
1		Rotary coding switch 100's	Adjustment of the temperature setpoint: Digit for 100s value
2		Rotary coding switch 10's	Adjustment of the temperature setpoint: Digit for 10s value
3		Rotary coding switch 1's	Adjustment of the temperature setpoint: Digit for for 1 value
4		LED- Status Indication	Display of the operating status as color and blink code
5		Selector Switch °F - °C	Switch Temperature unit
6		switch not used	without Function
7	Pt100	Connection Terminal Resistance Device Pt100	-
8	LH	Connection load/El. Trace heating	-
9	L	Power connection (Phase)	-
10	Neutral (N)	Connection neutral lead, Connection load/el. Trace heating	-
11	Earth (PE)	Protective earth connection, Connection of protective conductor load/el. Trace heating	-

For information:

The second selector switch (No. 6) is in this case without function.

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5.3 LED-Status Indication

The Operating Status of the Thermostat Module is indicated by the LED status display. This is indicated by color and flashing codes.

Description of the color and flashing codes:

Status LED display	Continuous ON	1 flash impulse	2 flash impulse	3 flash impulse	4 flash impulse
OK Green	Thermostat Module in operation, Heating cable in operation	Thermostat module is ready for operation	-	-	-
Warning Yellow	Temperature-WARNING, Temperature at the Resistance Temperature Device Pt100 outside the set temperature warning thresholds	Device temperature of the thermostat module exceeds the defined warning limits	80% lifetime of the thermostat module reached, plan and prepare replacement of the thermostat module	Contact problem at the Resistance Temperature Device Pt100 or temperature rise at the Resistance Temperature Device Pt100 too high	-
Alarm Red	-	Resistance Temperature Device Pt100 short-circuited or defect	Cable connection to Resistance Temperature Device Pt100 too long, cable cross section too small (connection resistance too high) or Resistance Temperature Device Pt100 not connected	100% lifetime of the thermostat module reached, heating cable switched off, replace thermostat module	Temperature of thermostat module too high, heating circuit is switched off

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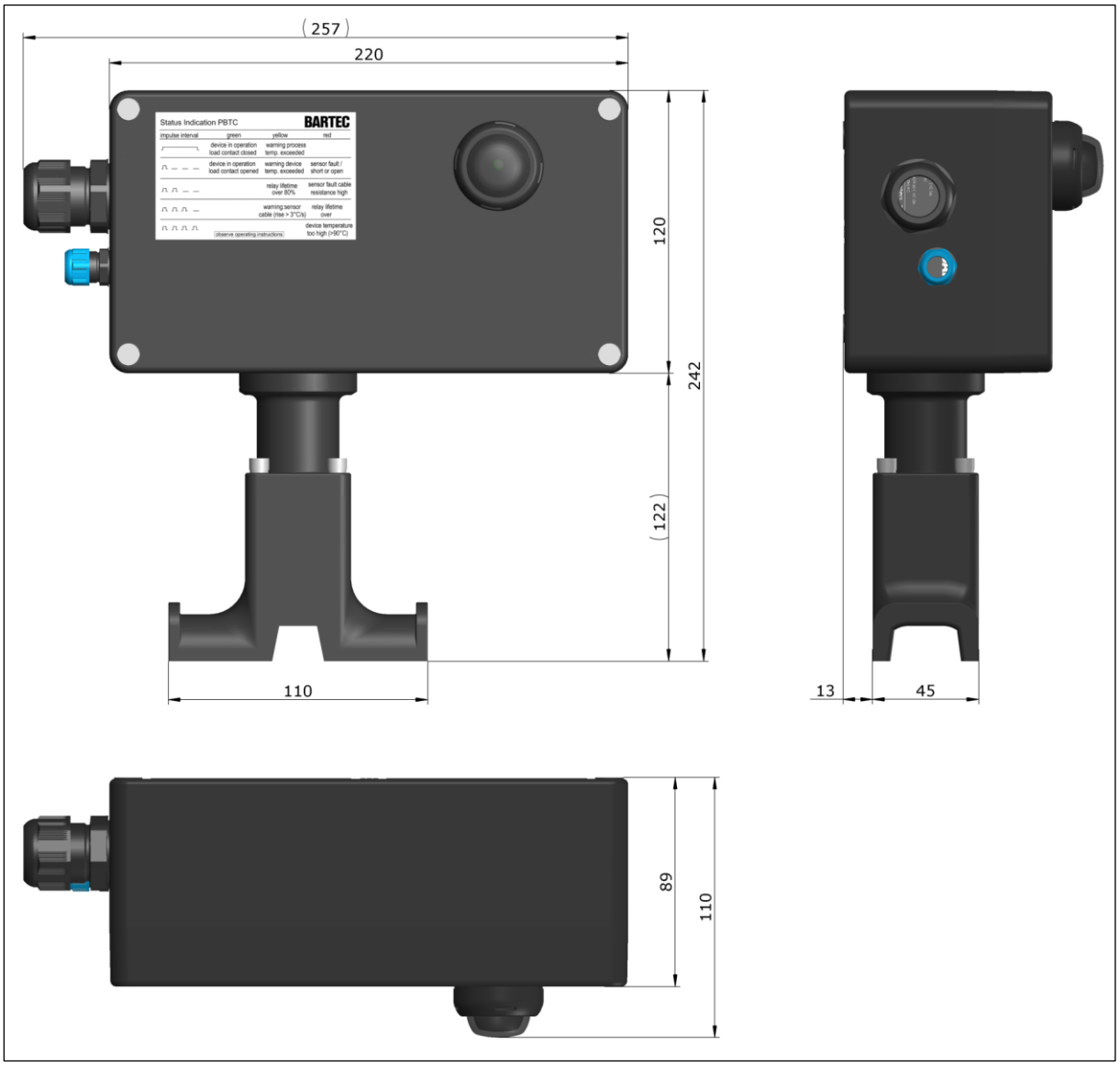
6 Technical Data

6.1 Dimensions



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6.2 Operating Data

Parameter	Values
Nominal operating / control voltage	80 - 277 VAC (50/60Hz)
U_m	305 VAC
Rated power without load	4,5 W
Ambient temperature T_a	-40 °C to 55 °C
Storage temperature	-50 °C to 70 °C
Max. pipe temperature	max. 240 °C; Observe max. temperature of Heating Cable type and note information and picture 38
Number of control circuits	1 Heating circuit
Connection RTD temperature Pt100	3-wire cable, 100 Ohm at 0 °C (32 °F) Platinum Resistance Temperature Device, Intrinsically safe input circuit, connection cable resistance max. 14 Ohm
Temperature unit	°C / °F
Temperature control range	0 °C to 500 °C (32 °F to 932 °F)
Temperature measuring range thermostat module	-60 °C to 500 °C (-76 °F to 932 °F)
Default temperature warning thresholds	-40 °C and 500 °C (-40 °F and 932 °F)
Temperature Measuring Range Resistance Temperature Device Pt100	-50 °C to 200 °C; max. operating temperature 200 °C (-58 °F to 392 °F; max. operating temperature 392 °F) (technical data of the included Pt100)
Length of connecting lead Resistance Temperature Device Pt100	1.5 m
Measurement accuracy	±0.5 % of the entire measuring range
Control method	On/off control
Switching capacity of the load contact	See table "Maximum heating circuit length/max. heating cable length"
Temperature adjustment	by rotary coding switch
Hysteresis	Default 5K (9 °F)

Resistance Temperature Device Pt100

The Junction Box with Electronic Thermostat Module can also be operated with a different Resistance Temperature Device Pt100 than the one installed by the manufacturer. Compliance with the max. permissible connected load at the connection terminal must be ensured:

Max. connected load Resistance Temperature Device Pt100:

	Ex ib IIC	Ex ib IIB Ex ib IIIB Ex ib IIIC
U_0	6,6 V	
I_0	827 mA	
P_0	1,28 W	
L_0	32 µH	128 µH
C_0	6,7 µF	484 µF

The ground connection of the Junction Box with Electronic Thermostat Module to the equipotential bonding system (PE) must be connected in accordance with the applicable installation standard EN 60079-14 with a cable cross-section of min. 4mm². There is no galvanic isolation between intrinsically safe circuits or between intrinsically safe circuits and non-intrinsically safe circuits.

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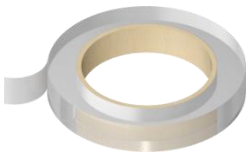
6.3 Accessories



Glass cloth tape

Used to fix the heating cable on pipes.

11 mm x 50 m per roll
Maximum withstand temperature: 180 °C
(short term (1h) 250 °C)

For heating cable PSB, MSB, HSB, HSB+, HTSB and EKL Light, EKL Medium and EKL Premium.

Gluing below 10 °C should be avoided. Observe processing instructions on datasheet.

Catalog No.: GT-164
Part No.: 02-5500-0047

Tip: Refer to the following table to estimate the required number of tape rolls for your installation:

Pipe diameter in inch (DN)	1/4" (DN8)	1/2" (DN15)	3/4" (DN20)	1" (DN25)	1 1/4" (DN32)	1 1/2" (DN40)	2" (DN50)	2 1/2" (DN65)	3" (DN80)	4" (DN100)	6" (DN150)	8" (DN200)	10" (DN250)	12" (DN300)	14" (DN350)	16" (DN400)	18" (DN450)	20" (DN500)	24" (DN600)
Required no. of tape rolls per 100 ft (30 m) of piping	1	1	1	1	1	1	2	2	2	3	4	5	6	7	7	8	9	10	12

Polyester adhesive tape

Used to fix the heating cable on pipes.

19 mm x 50 m per roll
Maximum withstand temperature: 100 °C

For heating cable PSB.

Gluing below 10 °C should be avoided. Observe processing instructions on datasheet.

Catalog No.: PT-164
Part No.: 02-5500-0005

Tip: Refer to the following table to estimate the required number of tape rolls for your installation:

Pipe diameter in inch (DN)	1/4" (DN8)	1/2" (DN15)	3/4" (DN20)	1" (DN25)	1 1/4" (DN32)	1 1/2" (DN40)	2" (DN50)	2 1/2" (DN65)	3" (DN80)	4" (DN100)	6" (DN150)	8" (DN200)	10" (DN250)	12" (DN300)	14" (DN350)	16" (DN400)	18" (DN450)	20" (DN500)	24" (DN600)
Required no. of tape rolls per 100 ft (30 m) of piping	1	1	1	1	1	1	2	2	2	3	4	5	6	7	7	8	9	10	12

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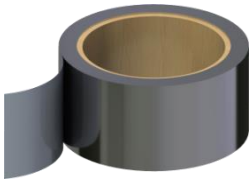

Aluminum adhesive tape

Used to fix the heating cable on pipes.

AT80: 50 mm x 50 m per roll
AT150: 50 mm x 55 m per roll
AT230: 50 mm x 50 m per roll

AT80:
Maximum withstand temperature: 80 °C
For heating cable PSB

AT150:
Maximum withstand temperature: 150 °C
For heating cable MSB, HSB and EKL Light, EKL Medium and EKL Premium

AT230:
Maximum withstand temperature: 230 °C
For heating cable HSB+ and HTSB, EKL Light, EKL Medium and EKL Premium

Gluing below 10 °C should be avoided. Observe processing instructions on datasheet.

AT80:
Catalog No.: AT80-164
Part No.: 02-5500-0003

AT150:
Catalog No.: AT150-164
Part No.: 02-5500-0014

AT230:
Catalog No.: AT230-164
Part No.: 02-5500-0043

Electrically traced warning label

Warning label for trace heater circuits

Recommended: electrical warning label every 3 m on the outside of the thermal cladding on a clearly visible place.

German:
Catalog No.: HTWL-DE
Part No.: 05-2144-0046

English:
Catalog No.: HTWL-EN
Part No.: 05-2144-0047

French:
Catalog No.: HTWL-FR
Part No.: 05-2144-0703

Russian:
Catalog No.: HTWL-RU
Part No.: 05-2144-0860

Stainless steel pipe straps

Stainless steel, for attaching mounting stands on pipes etc. No special tooling required.

for pipe ø up to *DN80:*
Catalog No: PC-1
Part No.: 03-6510-0228

for pipe ø up to DN250:
Catalog No: PC-2
Part No.: 03-6510-0229

Small pipe adaptor PBS

Mounting stand adaptor for pipe diameters of less than 35 mm. For use in mounting stands when using 1 or 2 heating cable, e.g. PBS-, ELL- or PBTC junction boxes.

Catalog No.: PBS-SPA
Part No.: 05-1105-0071

Notice: Technical data subject to change without notice.
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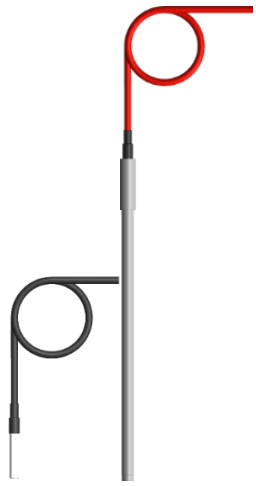
ELS-200 high profile end seal

End seal for access above the insulation.

2 pipe straps per mounting stand required.
For a complete list of kit contents and approvals see data sheet.

Catalog No.: ELS-200
Part No.: 27-54E2-AA120000



Resistance Temperature Device Pt100

Enables measurement of the process temperature in the measuring range -50°C to 200°C, protection class IP65

Connection cable length 1,5 m, Sensor length 40 mm
Order No.: 122776
Part No.: 03-9040-0006

Connection cable length 5,0 m, Sensor length 40 mm
Order No.: 128628
Part No.: 03-9040-0010

Resistance Temperature Device Pt100 (mineral insulated)

Enables measurement of the process temperature in the measuring range -50°C to 500°C, protection class IP54

See data sheet for further technical data

Connection cable length 1,5 m, Sensor length 1,0 m
Order No.: -
Part No.: 03-9040-0017

6.4 Spare parts

On pipe cable gland kit and end seal

Spare parts kit for use with heating cable PSB, MSB, HSB, HSB+, HTSB for replacement of damaged or lost parts.

Catalog No.: CAK-SRS
Part No.: 27-59CX-9C010001

Multi-kits available on request.

CAK-E5/E10 Cold applied end seal

Silicone end seal for insulation of the end of the trace heater. Suitable to all Bartec parallel trace heating cable. Approved accordingly IECEx, ATEX, CSA, FM (ordinary and hazardous locations)

CAK-E5 *5 pcs.*
CAK-E10 *10 pcs.*

CAK-E5:
Catalog No.: CAK-E5
Part No.: 27-59CZ-90000005

CAK-E10:
Catalog No.: CAK-E10
Part No.: 27-59CZ-90000010

Notice: Technical data subject to change without notice.
No claims for damage arising from alternations, errors or misprints shall be allowed.

7 Functional Description

The Thermostat Module ETM-25Ex-C switches the connected heating load or Heating Cable on or off by means of a built-in relay. It switches on when the temperature measured at the Resistance Temperature Device Pt100 is lower than the temperature setpoint. It switches off if the measured temperature is higher than the set temperature plus hysteresis. The Thermostat Module switches the heating load or the Heating Cable on when the temperature at the Resistance Temperature Device Pt100 falls below the adjusted temperature set point.

Selector switch °F / °C is used to switch the temperature unit, 3 rotary coding switches are used to set the temperature setpoint.

The connected Resistance Temperature Device Pt100 measures the actual temperature and ensures the temperature control function.

In case of a malfunction of the Thermostat Module or Resistance Temperature Device Pt100, the Thermostat Module switches off the connected heating load or the Heating Cable.

The Electronic Thermostat Module has a limited service life, which depends on the switching cycles performed. A color and blinking code of the LED status display indicates the achieved 80% service life. It is an indication that the Thermostat Module needs to be replaced. When the 100% service life is reached, the Thermostat Module switches off the connected heating load or Heating Cable. The LED status display shows a further color and blinking code.

8 Transport

Sensitive components such as sensors are installed inside and outside the Junction Box with Electronic Thermostat Module. These must be protected from damage such as impact, moisture and dirt. Careful transport of the Junction Box with Electronic Thermostat Module must be ensured.

NOTICE

Plant damage possible due to improper transport
Transport connection housing with thermostat module properly
Transport connection housing with thermostat module only in original packaging
Protect the connection housing with thermostat module from damage (e.g. due to impacts, moisture, contamination).

⚠ WARNING

Danger of crushing due to moving parts
Danger of serious injuries
Transport connection housing with thermostat module properly
Observe accident prevention regulations
Do not stand under suspended loads
Avoid standing in the danger zone

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9 Installation and Assembly

Required Tools / Equipment

The following tools and equipment are required for installation of the PBTC-200-E:

- Wire cutters
- Flat screwdriver 2.5 mm
- Flat screwdriver 3.5 mm
- Electricians screwdriver
- 4 mm hex wrench
- Tape measure
- Utility knife
- Needle-nose pliers (2x)
- Adjustable wrench (2x)
- Tongue and groove pliers

- Insulation resistance meter with a minimum test voltage of 500 Vdc. BARTEC strongly recommends a test device with a test voltage of 1000 Vdc and 2500 Vdc.

1

Safety Instructions

⚠ WARNING

Risk of fire or electrical shock due to Electric Trace Heating System.

De-energize all power circuits before Installation or Servicing. Always use ground fault equipment protection with the Trace Heating System.

Keep the trace heater ends dry before and during Installation. Observe the Design Guide of the Trace Heating System.

- Double-check that all power circuits are de-energized before you begin your work.
- Make sure that you do not exceed the maximum heating circuit length for the trace heater type you use.
- Observe the bending radius of each type of trace heater. Do not bend on the narrow axis.
- To avoid short circuits, do not connect the trace heater bus wires together. Installing the End Seal properely
- Keep all components and the trace heaters dry before and during Installation.

2

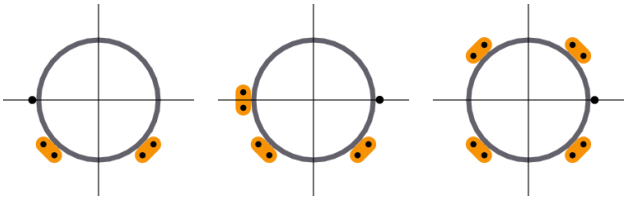
Installing the Heating Cable

⚠ CAUTION

Risk of injury and/or material damage. Never step on or drive over the trace heater. Do not use it as a loop for stepping on.

- Install the Heating Cable in a straight line along the pipe if possible

- If possible, install the Heating Cable in the lower half of the pipe, but not at the lowest point
- If necessary, return the Heating Cable Loop to the Heating Cable at the greatest possible distance
- Install the Resistance Temperature Device directly on the pipe
- Install the Resistance Temperature Device in the lower area of the pipe cross section
- Install the Resistance Temperature Device at the greatest possible distance from the Heating Cable



- Observe additionally required Heating Cable Lengths (assembly of connections, T-branches and end terminations, each approx. 0.5 m)
- Avoid damage to the Heating Cable and the Resistance Temperature Device: no bending, pinching or pulling over sharp edges

3

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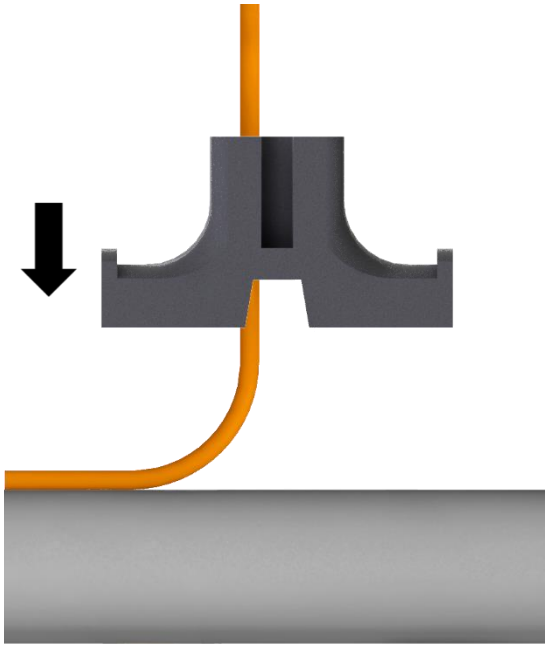
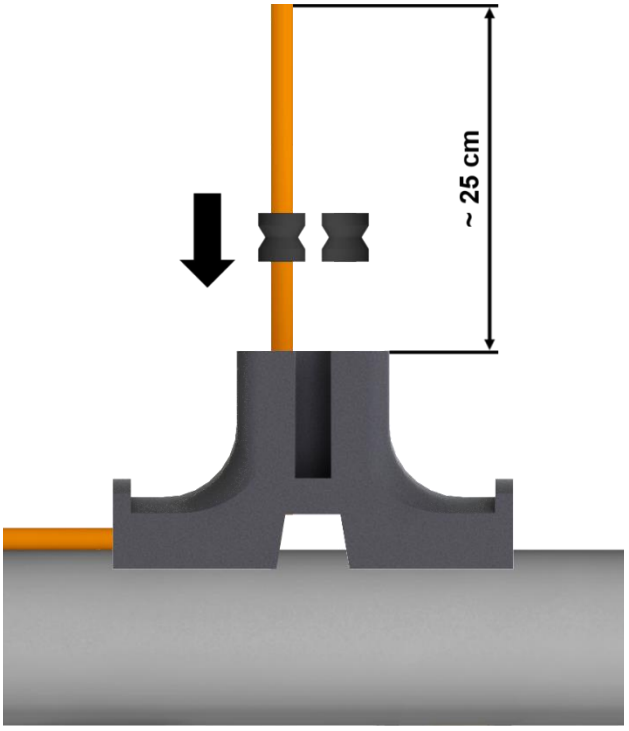
Pre-assembling the Mounting Stand

- Feed the Heating Cable through the lower part of the Mounting Stand.
- Do not fix the Mounting Stand on the pipe yet.



4

- Slide a Trace Heater Grommet onto the Trace Heater and into the seal seat.
- Slide the other Trace Heater Grommet into the free seal seat.
- Make sure that the Trace Heater stands out approximately 25 cm. This makes cable preparation easier.
- Ensure that all Heating Cable Feed-Throughs of the lower part of the Mounting Stand are filled with Heating Cable Seals



5

Notice: Technical data subject to change without notice.
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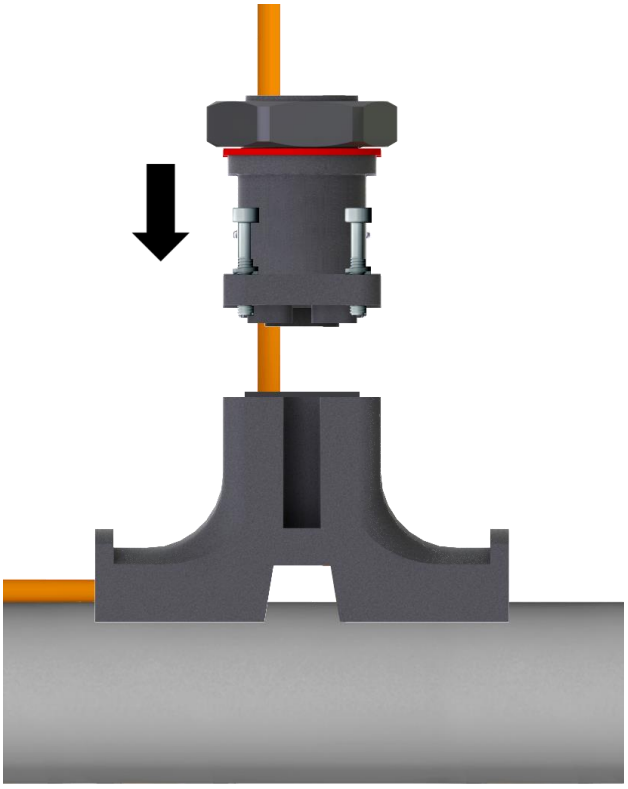
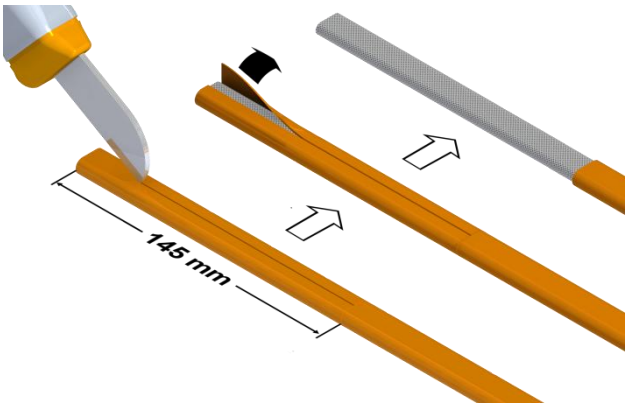
- Slide the top unit of the Mounting Stand over the Trace Heater(s).
- Slightly tighten the 4 fixing screws using a hex wrench. Do not tighten them fully yet to allow the Trace Heaters to be moved.



6

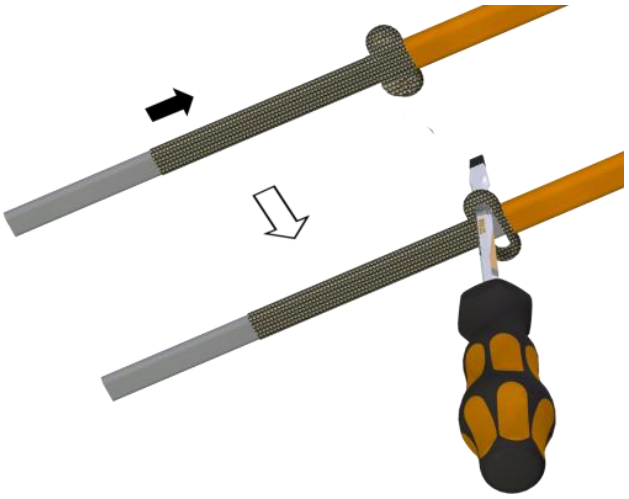
Preparing the Heating Cable

- Remove 145 mm of the outer jacket on the end of the Trace Heater.



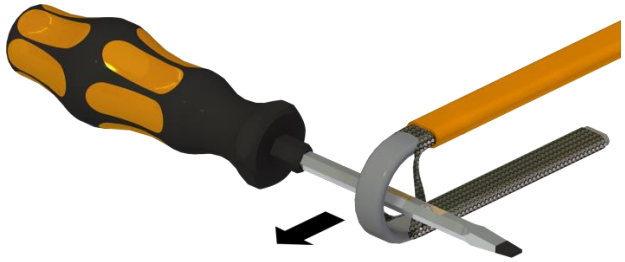
7

- Push back the grounding braid. Use the screwdriver to form an eyelet. Be careful not to damage the internal insulation jacket.



8

- Bend the Trace Heater and pull the heating element out of the grounding braid.



9

- Twist the grounding braid in order to form a pigtail.

10

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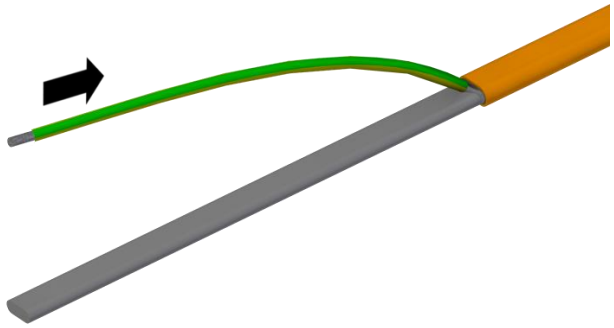
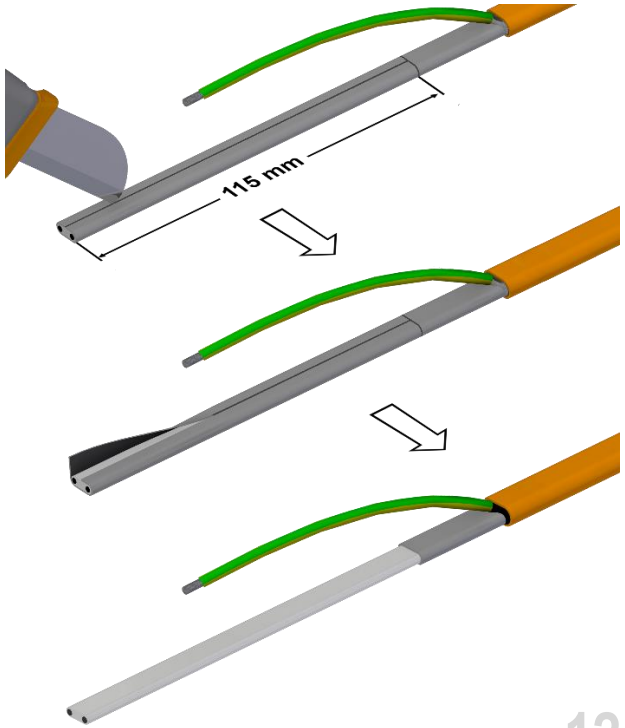
No claims for damage arising from alternations, errors or misprints shall be allowed.

- Slide the green/yellow tube onto the twisted grounding braid.



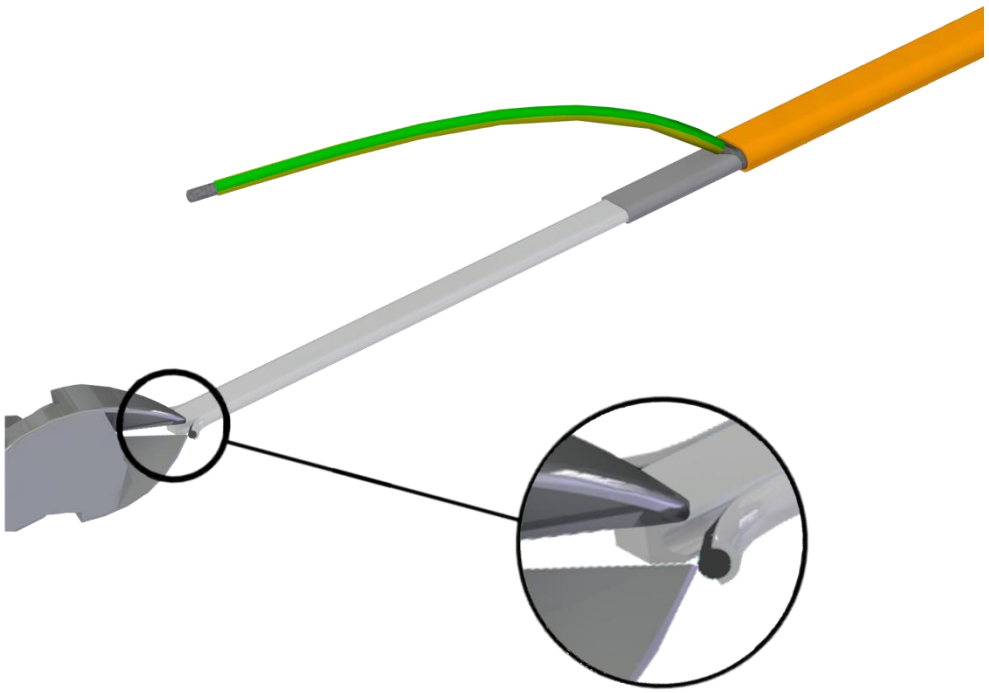
11

- Remove 115 mm of the internal insulation jacket.
- Take care not to damage the bus wires.



12

- Carefully make an incision into the edges of the heating element.
- Take care not to damage the bus wires.



13

Notice: Technical data subject to change without notice.
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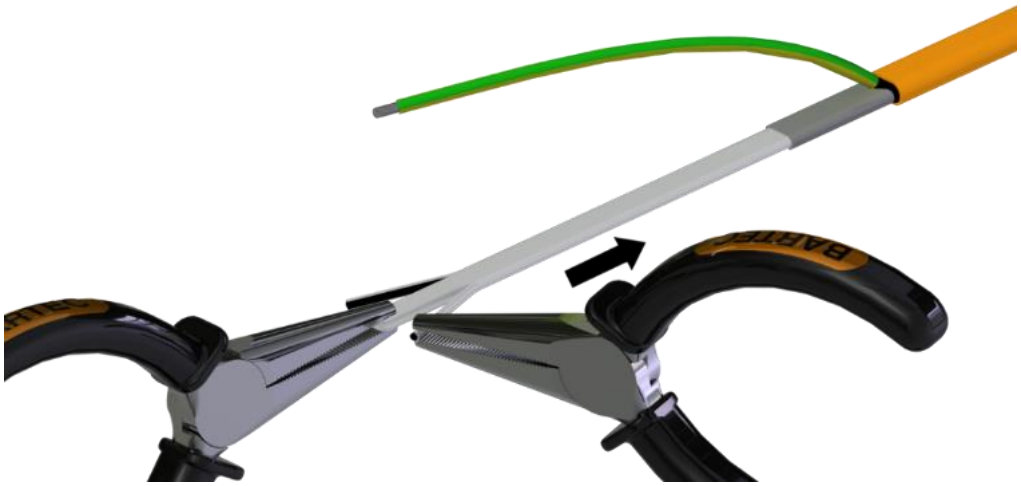
- Pull off the bus wires while holding the heating element.
- Take care not to damage the bus wires

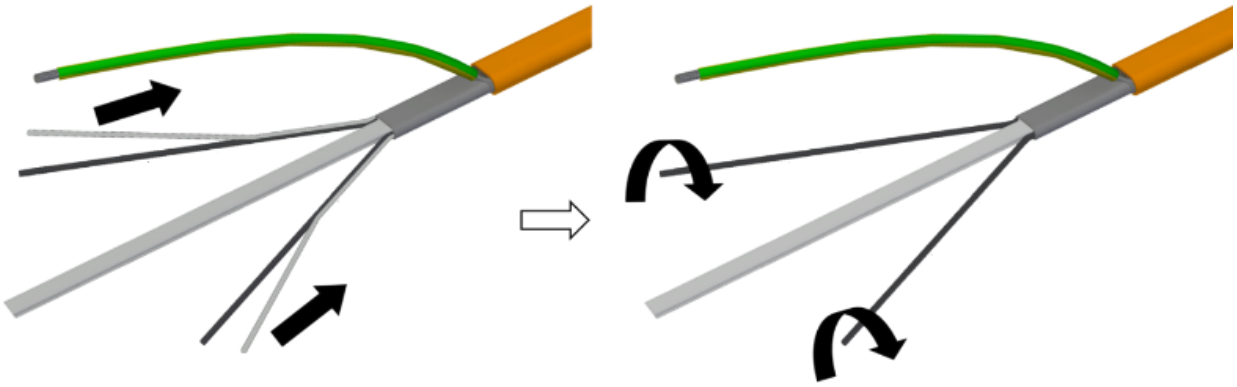


14

NOTICE

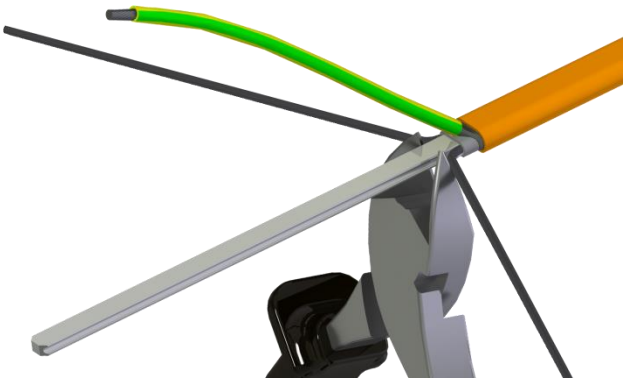
Risk of malfunction of the Heating System. Before you continue, make sure that the bus wires are intact and not nicked or damaged.

- Remove any remaining heating element that sticks to the bus wires.
- Twist the bus wires



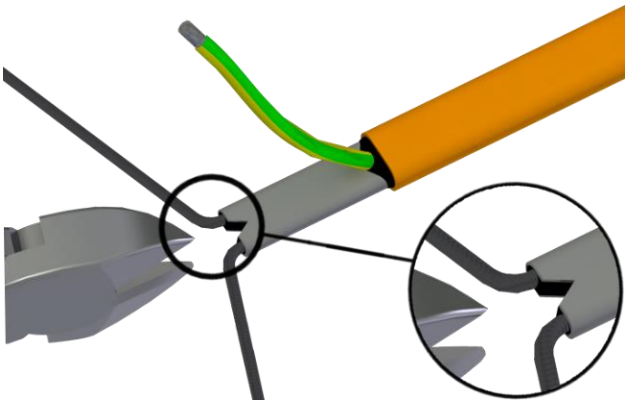
15

- Remove the remaining heating element.
- Take care not to damage the bus wires.



16

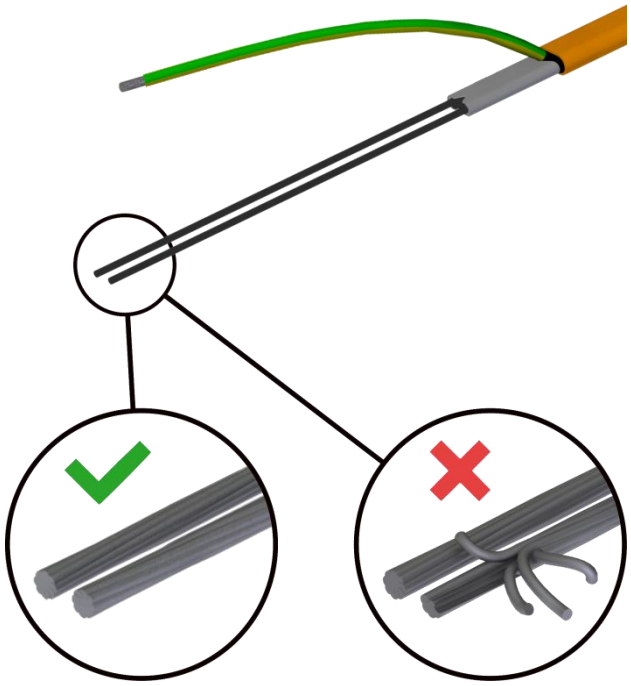
- Carefully cut in a triangle (5 mm) between the bus wires.
- Take care not to damage the bus wires



17

Notice: Technical data subject to change without notice.
No claims for damage arising from alternations, errors or misprints shall be allowed.

- Make sure that all bus wires are intact and not nicked or damaged.

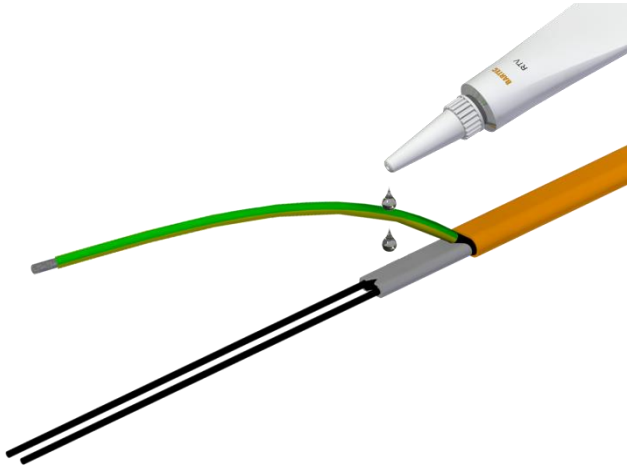


18

⚠ CAUTION

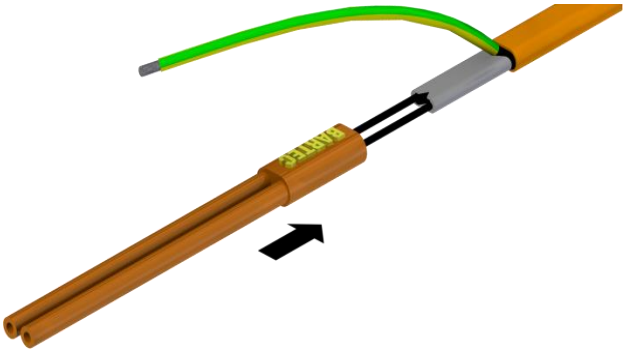
The silicone adhesive may cause irritation to skin and eyes. Avoid eye contact. Avoid repeated or prolonged skin contact. In case of contact with eyes, rinse with water and seek medical advice.

- Put silicone adhesive onto the exposed heating element and insulation jacket.



19

- Thread the silicone pants onto the bus wires.
- You might add further silicone adhesive to ensure optimal sealing.
- Slide the silicone pants all the way onto the heating element.



20

Notice: Technical data subject to change without notice.
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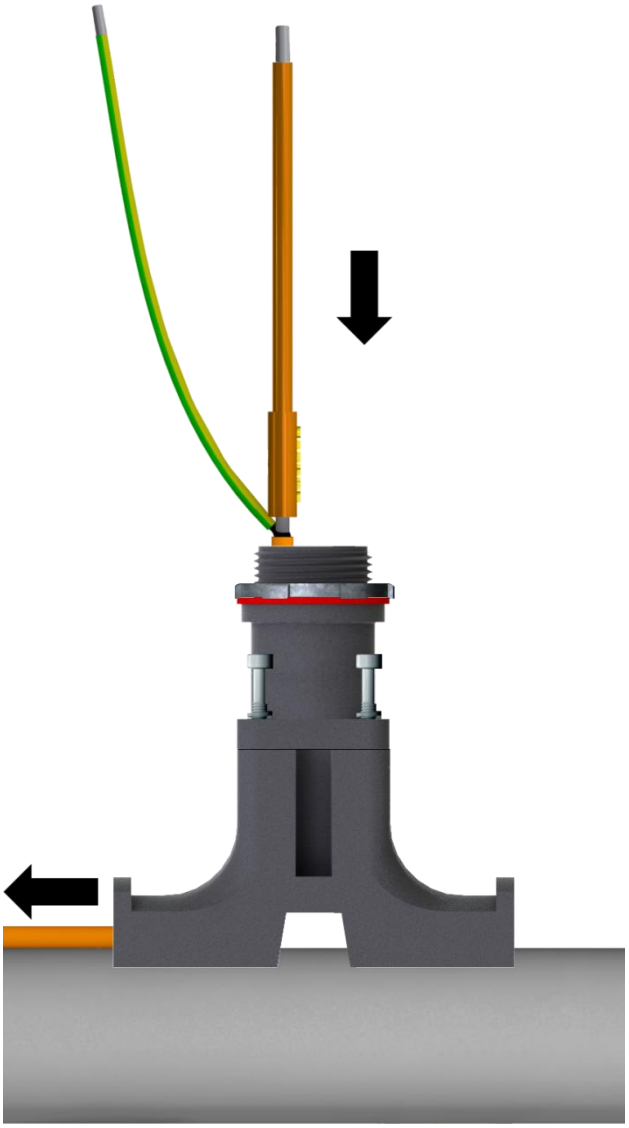
Installing the Mounting Stand

- Pull back the Trace Heaters. For easy cable connection, it is enough when the silicone pants stands out of the Mounting Stand.



21

- Now, tighten the 4 fixing screws of the top unit of the Mounting Stand using a 4 mm hex wrench

22

Notice: Technical data subject to change without notice.
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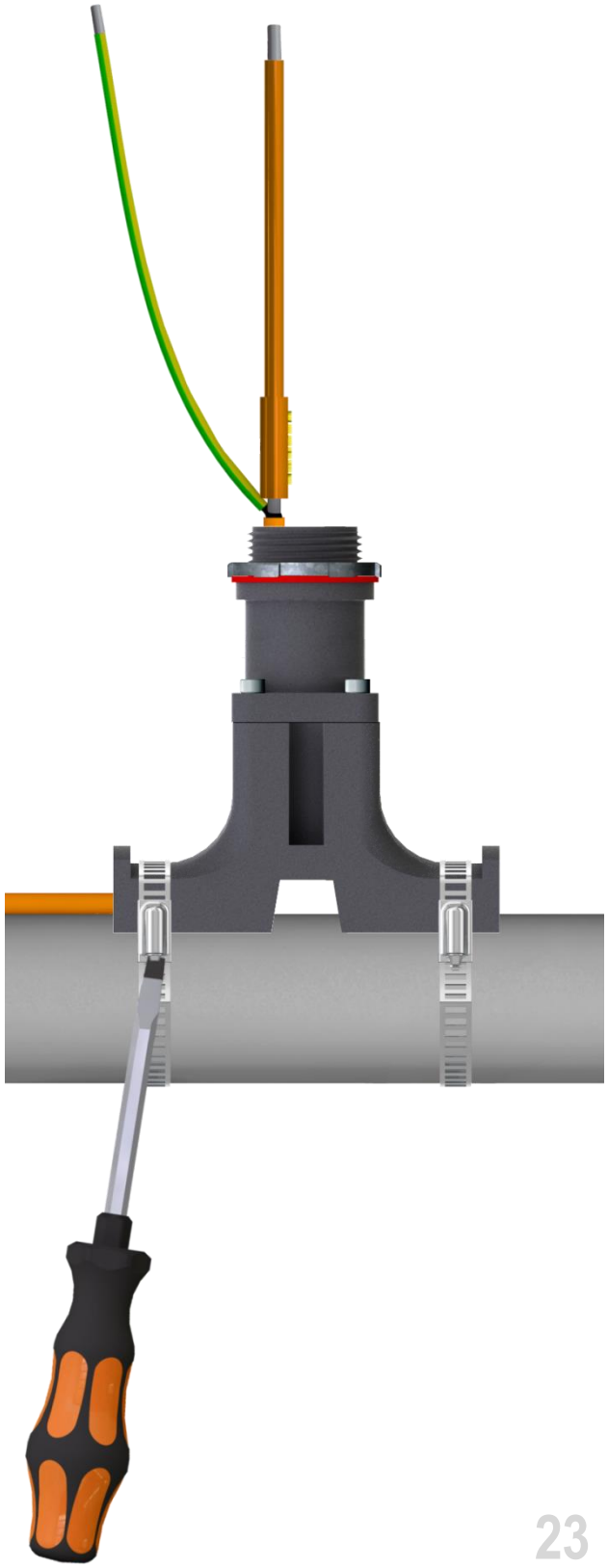
- Install the pipe straps and tighten them firmly using a screwdriver.



Notice: Technical data subject to change without notice.
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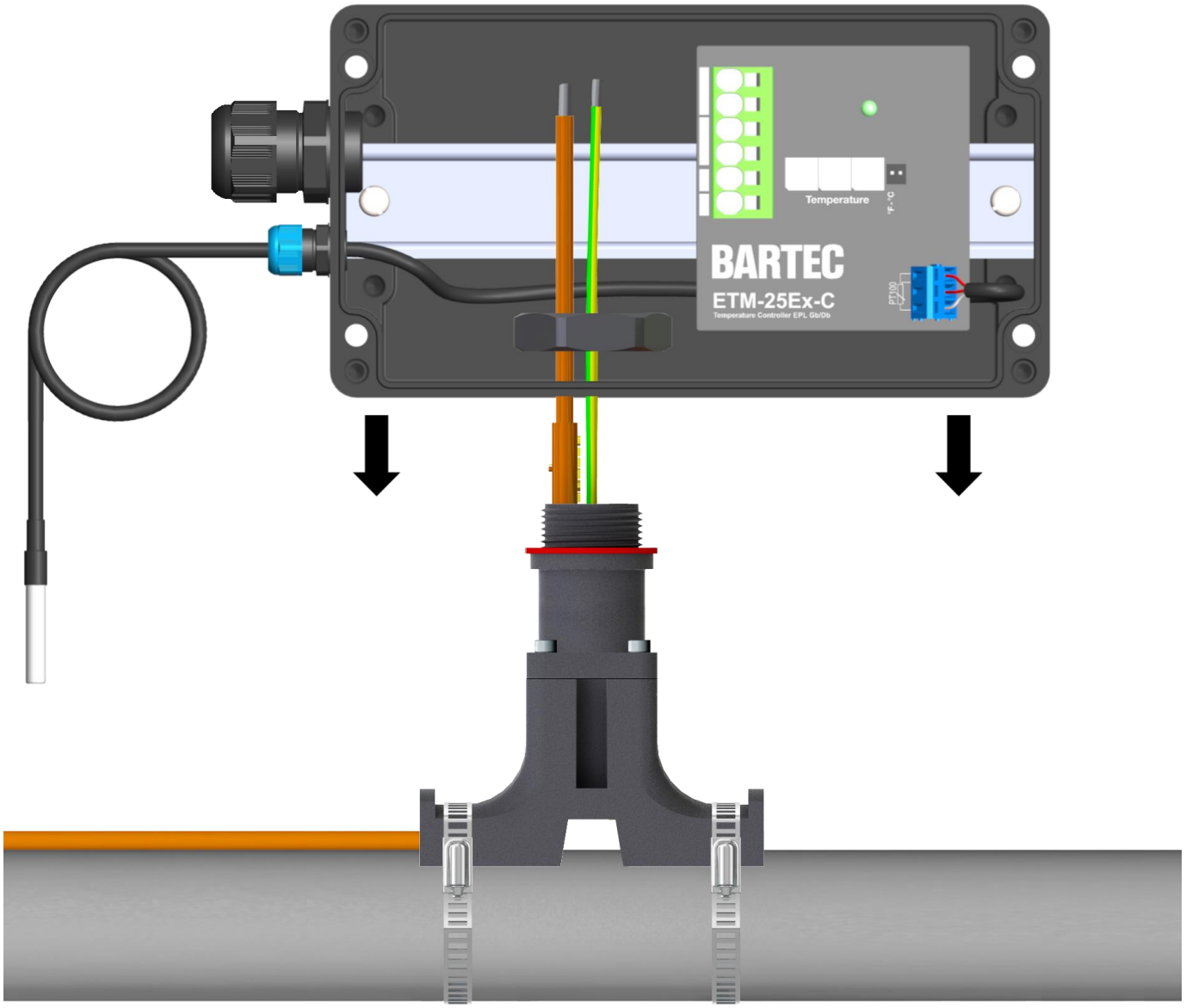
Connecting the Heating Cable and Power Supply

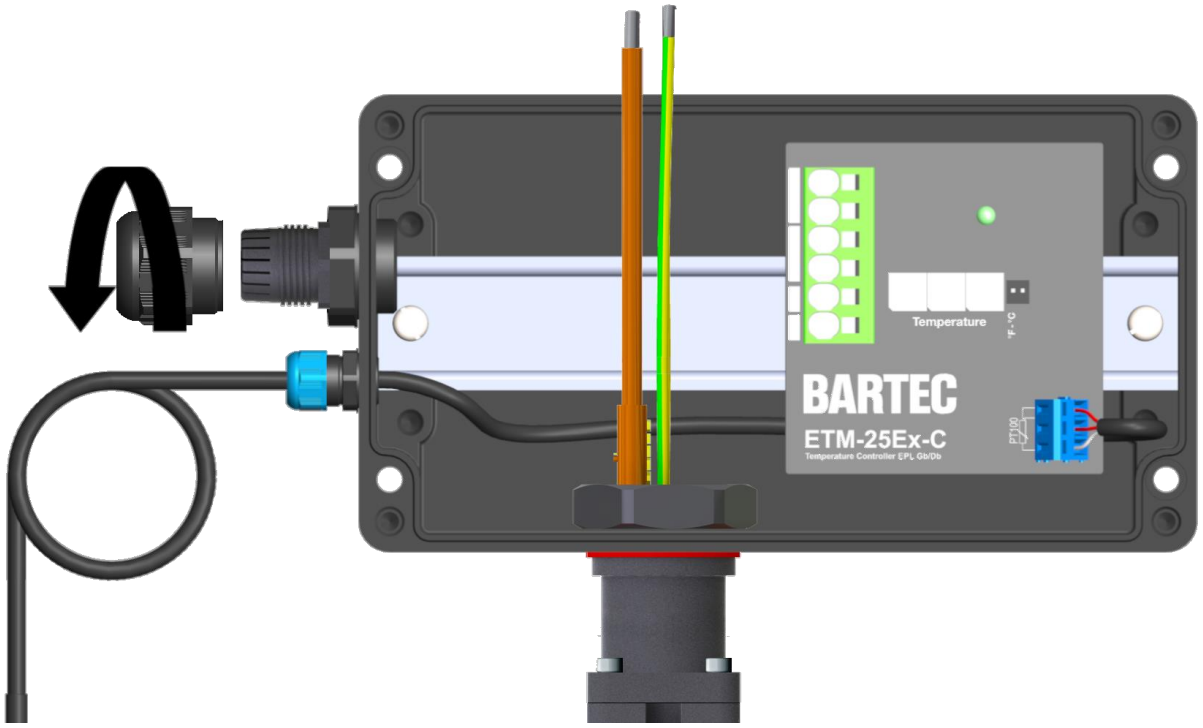
- Screw the lock nut off the upper part of the mounting foot
- Insert Heating Cable into Junction Box
- Position Junction Box on the upper part of the Mounting Stand
- Screw the lock nut onto the thread of the Mounting Stand, tighten the lock nut using a wrench



24

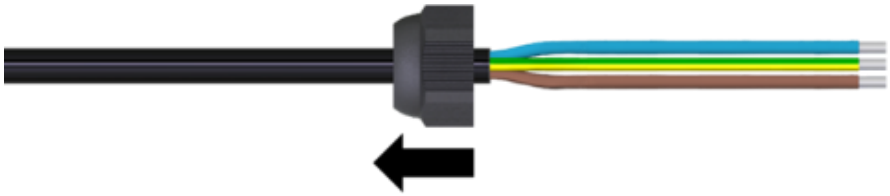
Notice: Technical data subject to change without notice.
No claims for damage arising from alternations, errors or misprints shall be allowed.

- Unscrew and remove the screw cap from the cable gland body of the cable bushing. Using a wrench if needed.



25

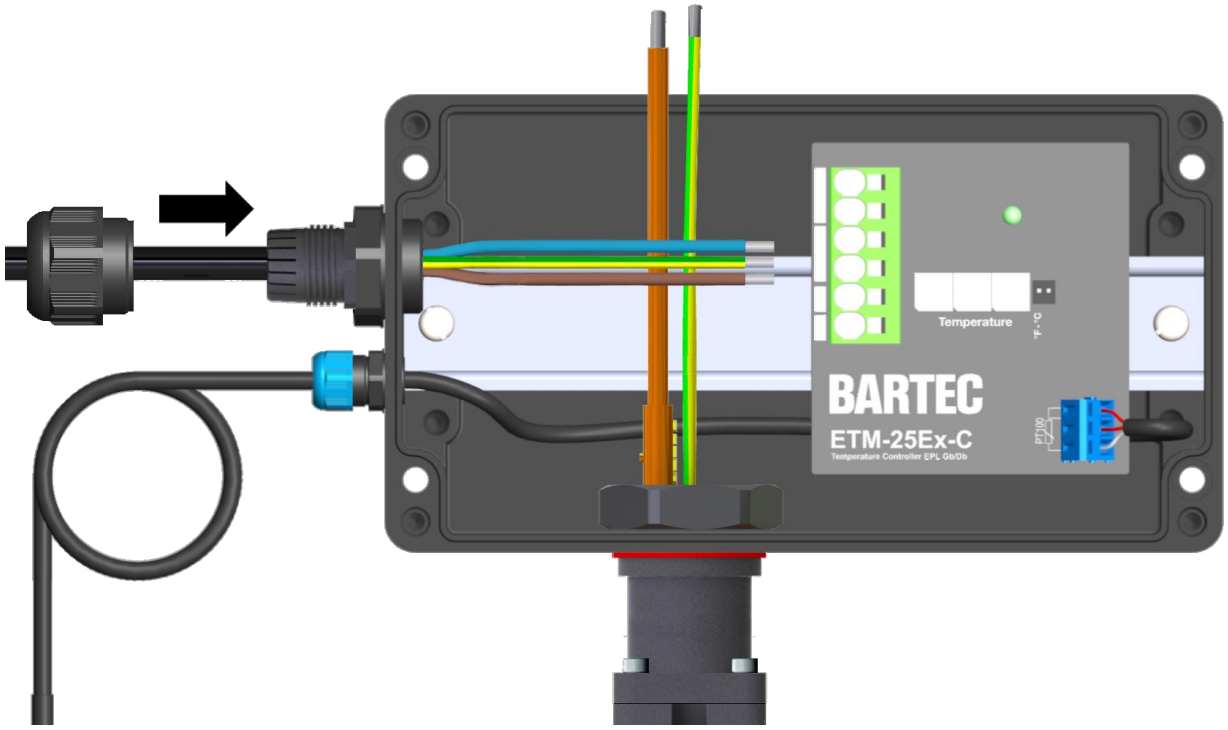
- Slide the screw cap onto the power cable.



26

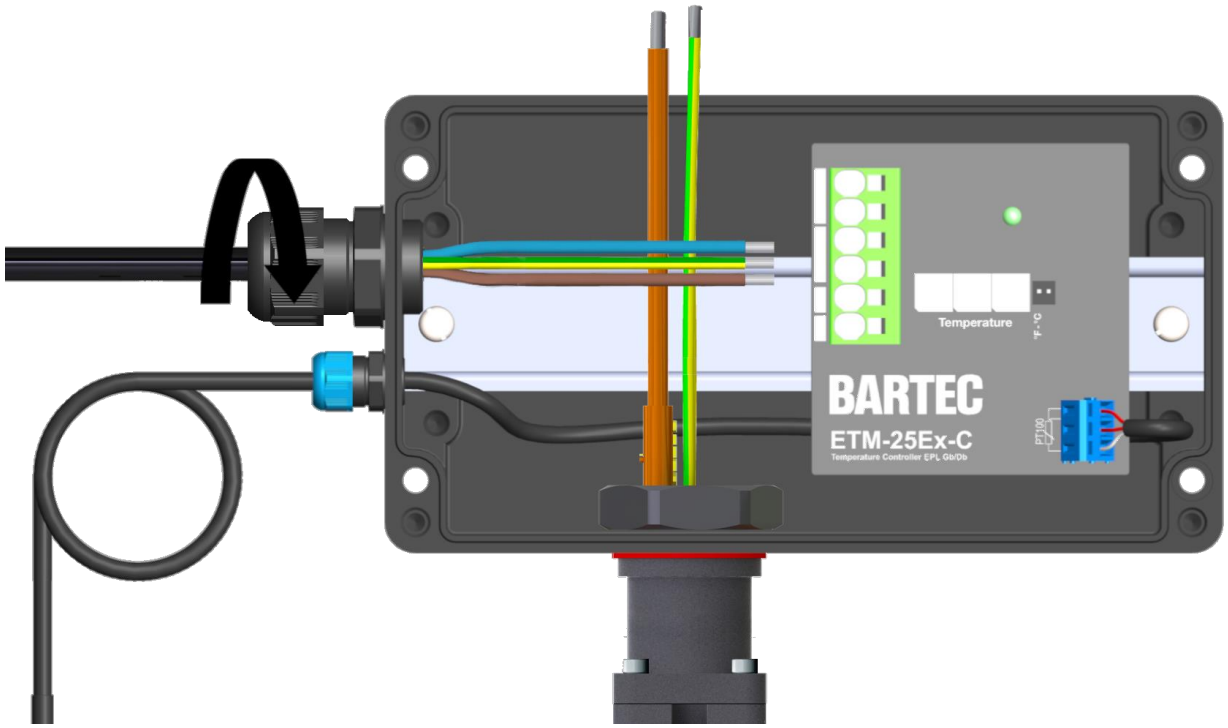
Notice: Technical data subject to change without notice.
No claims for damage arising from alternations, errors or misprints shall be allowed.

- Feed the power cable through the cable gland body and into the Junction Box.



27

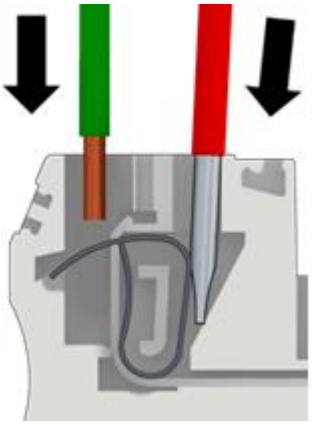
- Tighten the fixing nut while encountering the gland body. Using two adjustable wrenches.
  Observe the tightening torque of 5 Nm.

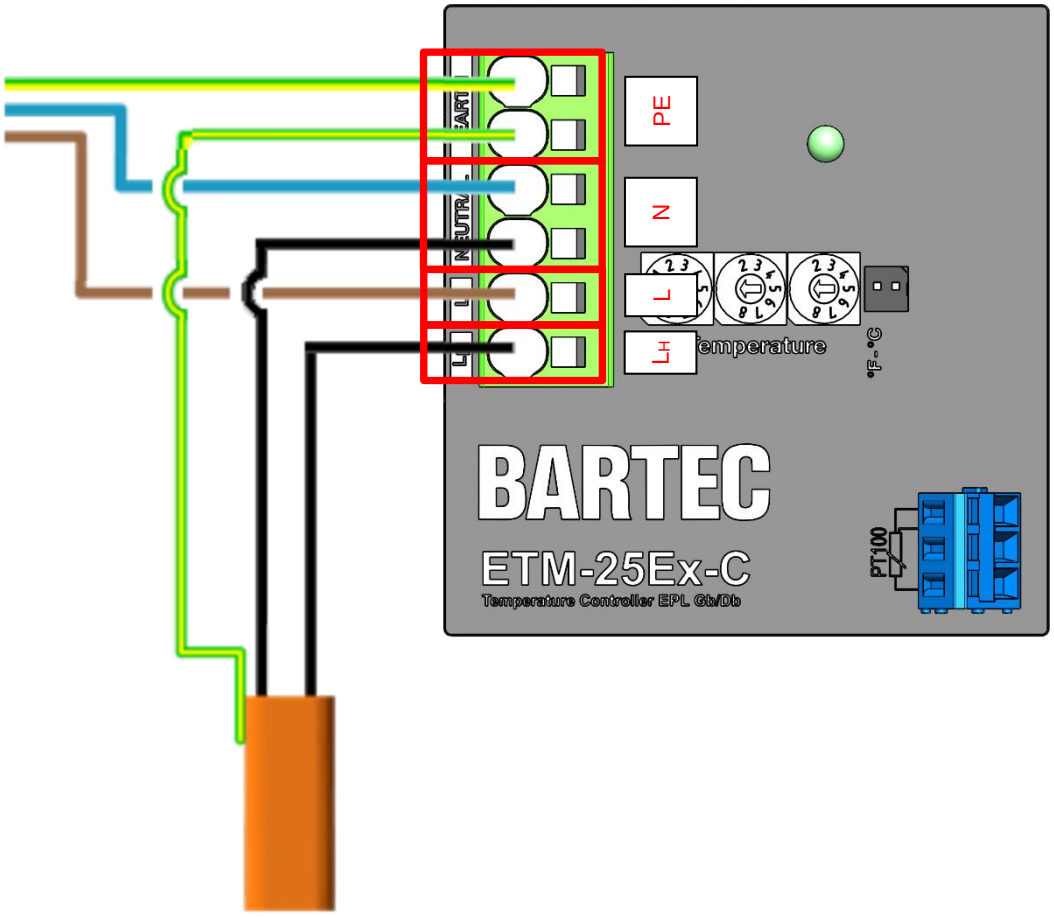


28

Notice: Technical data subject to change without notice.
No claims for damage arising from alternations, errors or misprints shall be allowed.

- Connect the wires to the Thermostat Module according to the wiring diagram:
- Open the locking mechanism of the terminals with a 3.5 mm slotted screwdriver and connect all wires as shown

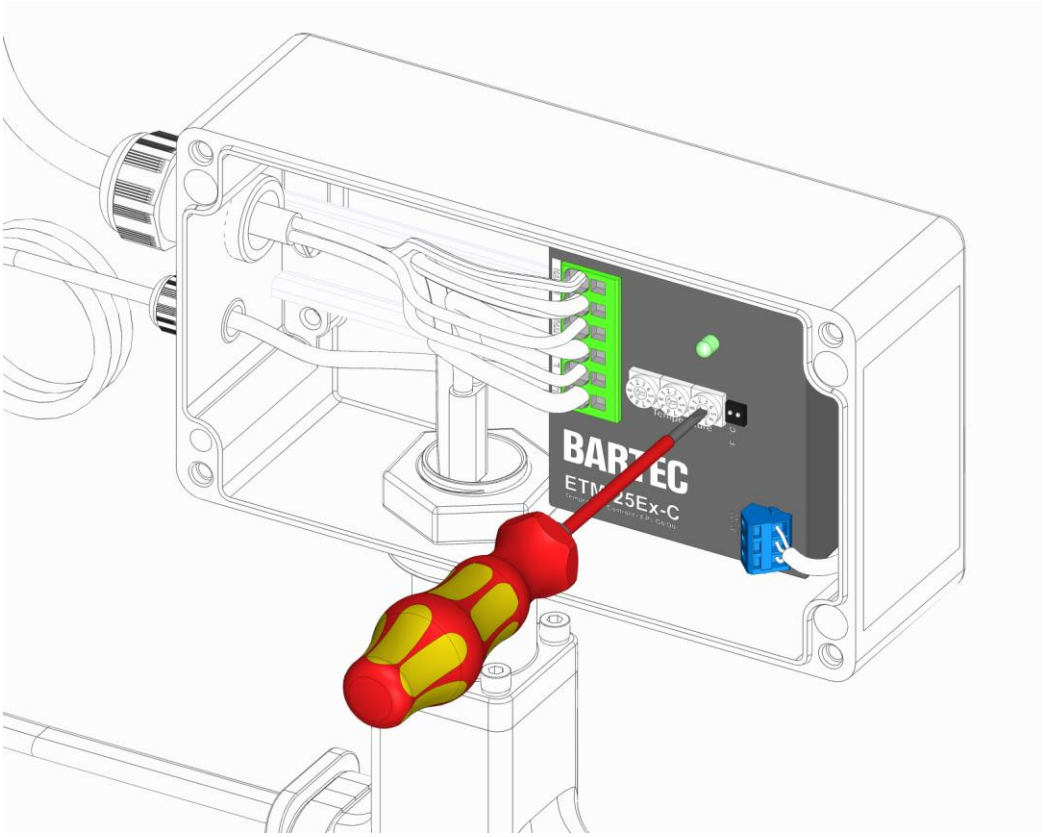




29

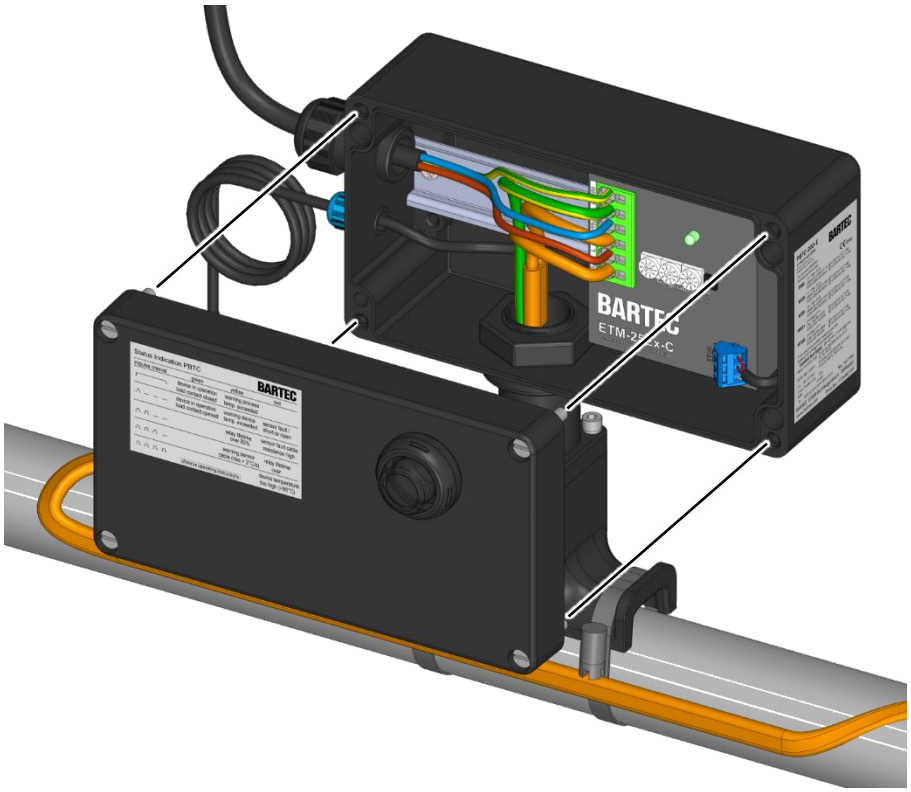
Notice: Technical data subject to change without notice.
No claims for damage arising from alternations, errors or misprints shall be allowed.

- Adjust the temperature unit (°F or °C) at the selector switch °F - °C
- Adjust the temperature setpoint at the rotary coding switch (enter the 100s-, 10s-, 1s- digit values, for the minimum/maximum value of the temperature control range, see chapter 6.2 Operating Data). Use a 2.5 mm slotted screwdriver.



30

- Mounting the Junction Box Cover, tighten 4 screws with slotted screwdriver

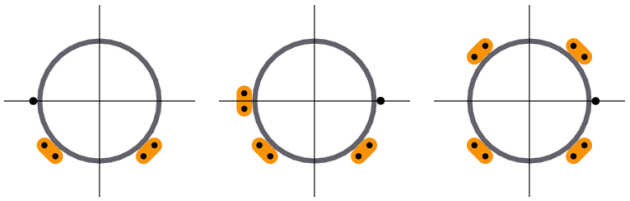


31

Notice: Technical data subject to change without notice.
No claims for damage arising from alternations, errors or misprints shall be allowed.

Mounting the Resistance Temperature Device Pt100

- Mount the Resistance Temperature Device directly on the pipe
- Mount the Resistance Temperature Device in the lower area of the pipe cross section
- Mount the Resistance Temperature Device at the greatest possible distance from the Heating Cable
- Fasten Resistance Temperature Device with aluminium adhesive tape if necessary



32

Installing the End Seal

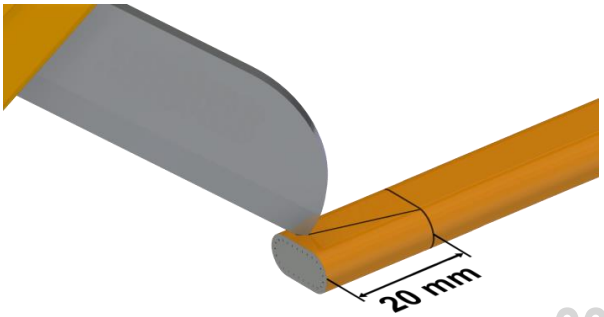
⚠ WARNING

Risk of fire and electric shock from Heating Cable

Risk of injury due to electric voltage

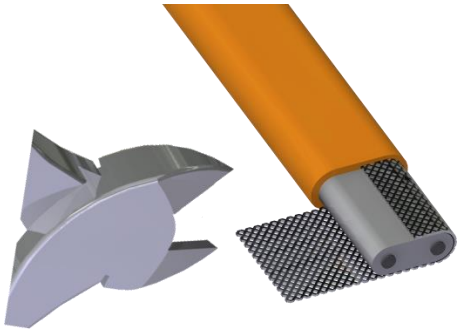
Mount the End Seal on the open end of the Heating Cable; Commissioning of the Junction Box is only permitted with the End Seal mounted

- Cut the Trace Heater off straight.
- Remove the outer jacket on 20 mm.



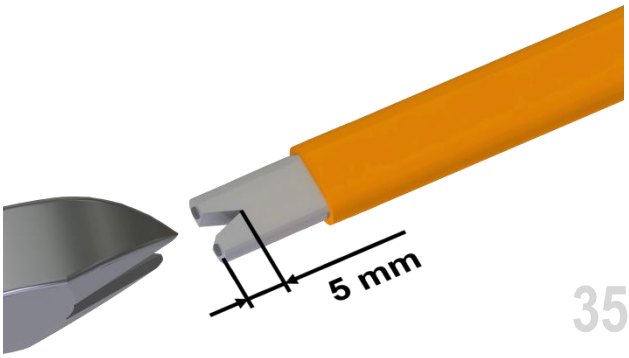
33

- Remove the exposed grounding braid.
- Make sure that the insulation jacket is not damaged



34

- Cut in a triangle (5 mm) between the bus wires.



35

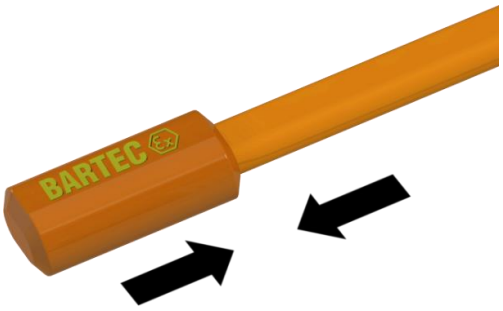
⚠ CAUTION

The silicone adhesive may cause irritation to skin and eyes. Avoid eye contact. Avoid repeated or prolonged skin contact. In case of contact with eyes, rinse with water and seek medical advice.

- Put silicone adhesive onto the exposed insulating jacket and into the End Seal.

36

- Slide the End Seal over the end of the Trace Heater.



NOTICE

Allow the adhesive to cure for 20 minutes, then visually inspect. Full strength is reached after 24 hours.

37

Notice: Technical data subject to change without notice.
No claims for damage arising from alternations, errors or misprints shall be allowed.

NOTICE

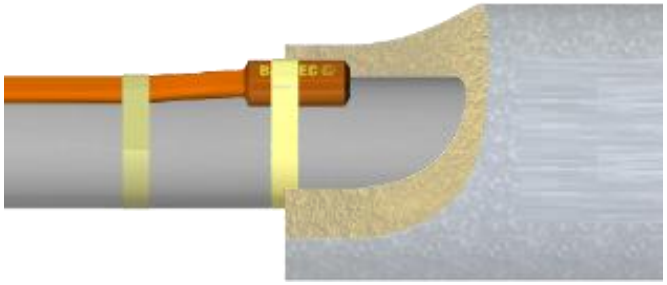
Manufacturer recommendation:
Measure insulation resistance before proceeding further
Make sure that it is free of any faults, eliminate faults if necessary
Procedure for insulation resistance measurement in Chapter 10 Commissioning.

NOTICE

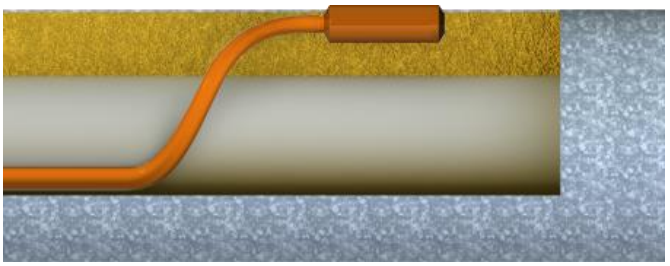
Insulation resistance measurement is recommended at certain stages:

- Preliminary test (on the reel, before installation of the trace heater on the construction site)
- Acceptance test (after installation of the heating circuit and before installation of the thermal insulation)
- Final inspection (immediately after completion of work on the thermal insulation)
- Upon commissioning
- Before switching on the installation

- Observe the
  Maximum withstand Temperature / Max. service Temperature End Seal and the
  Max. continuous Operating Temperature, energized and
  Max. continuous Exposure Temperature, de-energized of the Heating Cable
- Recommendation for use of Heating Cable PSB, MSB and HSB:
  Installation of Heating Cable and End Seal directly on the workpiece



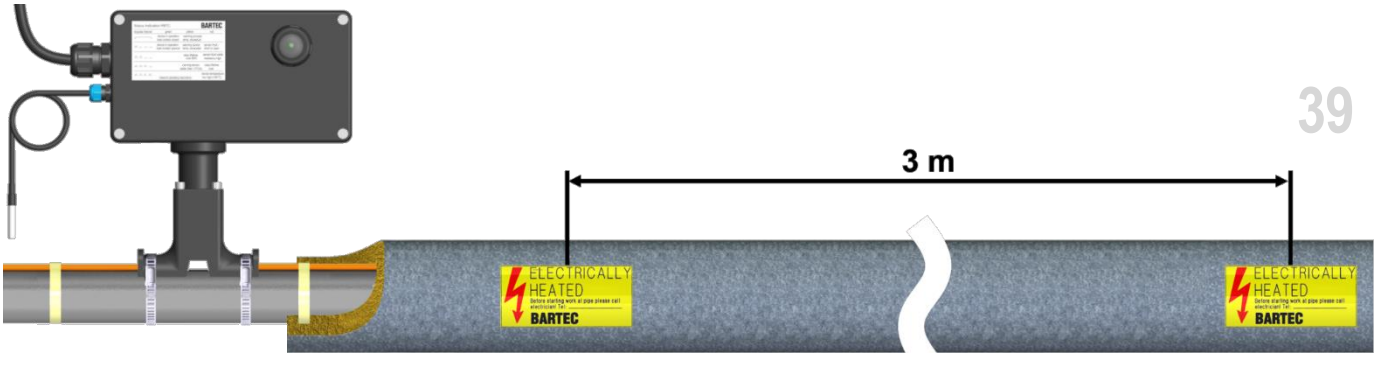
- Recommendation for use of Heating Cable HSB+ and HTSB:
  Install the End Seal for protection of excessive heat above the insulation but below the outer cladding



38

Applying the Pipe Insulation

- Apply the pipe insulation according to the manufacturer's installation instructions.
- Apply an electrical warning label every 3 m on a clearly visible place.



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No claims for damage arising from alternations, errors or misprints shall be allowed.

10 Commissioning

The Thermostat Module may only be commissioned by qualified personnel in accordance with their qualifications.

Before carrying out further work on the system or on the Junction Box with Electronic Thermostat Module, it must be ensured that

- The End Seal is installed
- The maximum permissible heating circuit length is observed
- The installation is carried out according to the system design

For commissioning, an Insulation Resistance Measurement must be carried out and a functional test must be performed. Finally, it must be checked that the Acceptance Test has been carried out and that the Acceptance Protocol has been completed.

Insulation Resistance Measurement of the Heating Circuit

⚠ WARNING

Fire and electric shock hazard!
If the insulation resistance value is not sufficient, there is a risk of injury from fire and electric current
Perform insulation resistance measurement carefully!
Repair the heating circuit if Insulation Resistance Measurement produces unexpected results!

NOTICE

The Insulation Resistance Measurement is recommended at certain stages:

- Preliminary test (on the reel, before installation of the Trace Heater on the construction site)
- Acceptance test (after installation of the heating circuit and before installation of the thermal insulation)
- Final inspection (immediately after completion of work on the thermal insulation)
- Upon commissioning
- Before switching on the installation

The Insulation Resistance Measurement serves as a test method to determine whether the Heating Cable is free of damage and to eliminate possible installation errors on connections and joints.

Preparation of the measurement:

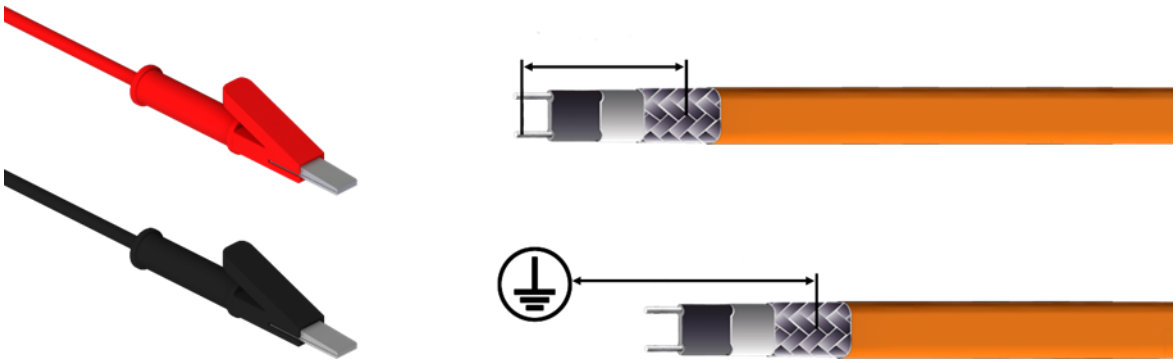
- De-energize the heating circuit.
- Disconnect the Thermostat Module or controller, if installed.
- Disconnect the bus wires and PE wires from the terminal block, if installed.
- For the measurement you need an Insulation resistance meter with minimum test voltage 500 Vdc. BARTEC strongly recommend a higher test voltage of 1000 Vdc and 2500 Vdc. Installation faults can be detected more reliably with a test voltage of 1000 Vdc and 2500 Vdc.

Test 1 - Conducting the measurement between the bus wires and the grounding braid:

- Set the test voltage to 0 Vdc.
- Connect the negative (-) lead to the grounding braid of the trace heater.
- Connect the positive (+) lead to both trace heater bus wires simultaneously.
- Turn on the megohmmeter and set the voltage to 500 Vdc.
- Apply the voltage for 1 minute. The meter reading should stabilize. Rapid changes in the reading indicate a breakdown of the insulation.
- Record the insulation resistance value in the Inspection Record.
- Repeat the measurement at 1000 Vdc and 2500 Vdc strongly recommended.

Test 2 - Conducting the measurement between the grounding braid and PE:

- Repeat the measurement between the grounding braid and PE again (at 500 Vdc, 1000 Vdc and 2500 Vdc strongly recommended).



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Results:

- Properly installed dry and clean Trace Heater sets should measure thousands of megohms, regardless of the Trace Heater length or measuring voltage (500 – 2500 Vdc). Even if optimum conditions may not apply, all insulation resistance values should be greater than the IEC 60079-30-2:2015 minimum recommendation of 20 megohms. However, BARTEC strongly recommends a minimum reading of 1000 megohms. If the reading is lower or fluctuating, refer to section Troubleshooting on page 37.
- Insulation resistance values for Test 1 and 2; for any particular circuit, should not vary more than 25 percent as a function of measuring voltage. Greater variances may indicate a problem with your Trace Heating System. Confirm proper installation and/or contact your local BARTEC representative for assistance.

After the measurement:

If the Trace Heater meets all resistance criteria:

- Reconnect the bus wires and PE wires to the terminal block.
- Reconnect any Thermostat Module or controller.
- Reenergize the heating circuit.

Function Test of the Thermostat Module

The following steps must be carried out to perform the functional test of the Thermostat Module:

- Set Temperature unit (°C or °F) on the selector switch
- Remove quality inspection seal on rotary coding switch if necessary
- Set the temperature setpoint at the rotary coding switch (enter the 100, 10, 1 digit digits, observe temperature control range)
- Required tools: screwdriver 2,5mm
- Switch on power supply
- Check for error indications by means of LED status display, eliminate error if necessary

If the Thermostat Module is free of faults, i.e. if no LED status display shows error messages, a function test is recommendable. This can be carried out by setting a higher and a lower temperature set point in comparison to the actual temperature at the Resistance Temperature Device Pt100. This checks whether the thermostat module switches as expected at the corresponding temperature set points. Measurement uncertainties and the preset hysteresis must be taken into account.

Required tools: Voltage tester

Test procedure:

- Determine the actual temperature in the area of the Resistance Temperature Device Pt100
- Connect voltage tester between terminals LH and N
- Set the temperature setpoint at the rotary coding switch in such a way that the actual temperature in the area of the Resistance Temperature Device is approached from a higher and lower temperature setpoint
- Let the value of the temperature setpoint on the rotary coding switch overlap with the actual temperature near the resistance thermometer
- When the voltage tester is de-energized, determine the setpoint temperature value currently set on the rotary coding switch

Switching behaviour of temperature controller test:

Situation	Description	Result
1	Temperature setpoint is higher than current temp. at Pt100	voltage applied
2	Temperature setpoint plus hysteresis is lower than current temp. at Pt100	no voltage applied
3	Temperature setpoint is higher than current temp. at Pt100	Voltage applied

The function test is successfully completed when the set temperature setpoint of the rotary coding switch corresponds to the value of the actual temperature in the vicinity of the Resistance Temperature Device at the moment when the voltage tester is free of voltage.

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Complete the Acceptance Report

⚠ WARNING

Fire and electric shock hazard!
Risk of injury due to insufficiently tested system.
The Junction Box with Thermostat Module can only be operated with a completely filled out Acceptance Report.
Fill in the Acceptance Report for each heating circuit completely and carefully!

It must be ensured that the Insulation Resistance Measurement is carried out completely during Commissioning and results are entered in the Acceptance Report. In particular, the installed heating circuit length and the maintenance and ambient temperatures must be specified.

The Acceptance Report is available in the concerning Design Guide.

Each Trace Heating System may only be put into Operation if

- The acceptance tests for each heating circuit have been carried out and the acceptance reports are available
- The correct condition of the Trace Heating has been confirmed
- The thermal insulation has been completely installed and is in a dry state.
- It is ensured that the heating circuit is operated within the data specified by BARTEC.

NOTICE

Complaints can only be accepted within the warranty period with a completely filled out Acceptance Report.

NOTICE

Additional heating energy required to heat up empty or already filled pipelines is usually not taken into account in the project planning. When the system is cold started, you should therefore allow sufficient time for the pipeline to reach the desired temperature.
For further information on heating processes, please contact your local BARTEC representative.

11 Operation

During the Operation of the Electrical Trace Heating System, it must be ensured that all components of the system are operated within the Technical Data specified by BARTEC. This applies in particular to the observance of maximum maintenance and ambient temperatures. Operation within these Technical Data ensures safe operation and is a precondition for any subsequent warranty claims.

During Operation, the Thermostat Module installed in the Junction Box operates automatically and switches the connected heating load on or off. If error messages occur, they can be indicated by the flashing codes of the LED status display.

Error message on the Thermostat Module: Determine and eliminate the fault with the aid of the LED status display. The Thermostat Module automatically identifies the fault-free status and continues to operate independently after the fault has been eliminated.

If 80% of the Thermostat Module's service life has been reached, the built-in status light flashes yellow twice. The replacement of the Thermostat Module shall be planned and prepared. If the service life of the Thermostat Module has reached 100%, the built-in status light flashes red 3 times and the connected Heating Cable is switched off. The Thermostat Module has reached the end of its service life and must be replaced.

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12 Maintenance

⚠ WARNING

Risk of fire and electric shock from electrical Trace Heating System

Risk of injury due to electric current

When starting installation and maintenance work, disconnect all circuits from the power supply and check that they are voltage-free!

Operate electrical Trace Heating Systems with residual current protection device!

The Junction Box with Electronic Thermostat Module is maintenance-free. However, the following inspection and maintenance activities are required for repair work after malfunctions or defects or conversions:

Check the thermal insulation for possible damage, missing seals, cracks, damage to the outer sheath, missing thermal insulation feed-throughs for heating lines and cables, infiltrated water or chemicals. In case of damage to the thermal insulation, check the Heating Cable for possible to check for damage.

Damaged Heating Cables must be replaced with new ones, worn parts must be replaced (e.g. seals, locking plates, etc.). After a Heating Cable has been removed from the base of the Junction Box, a new suitable CAK kit must be used when installing a new Heating Cable.

Check the Thermostat Module connection cables and Resistance Temperature Device for damage and to ensure that they are installed in such a way that they cannot be mechanically damaged.

Wipe off any dirt with a damp cloth, do not use cleaning agents or solvents. Observe the danger of electrostatic charge, do not damage cable connections. Absorb any existing moisture. Find the cause of the moisture penetration and remove it.

Check mechanical and electrical condition: Check cables and cable connections for faultlessness and good condition (signs of overheating, loose cables, loosened insulation). Eliminate faulty condition.

The Thermostat Module contains no parts that can be repaired or must be repaired or need to be replaced. In the event of damage, malfunction or when 100% of the service life is reached, the Thermostat Module must be replaced. To do this, it must be switched off, the connecting cables disconnected and the Thermostat Module dismantled. It must not be operated any further.

Check the Junction Box for corrosion damage and mechanical damage. Make sure that all housing covers are mounted and correctly closed.

The Maintenance carried out must be documented in a maintenance log. The date of the maintenance point and the maintenance activity has to be described.

13 Decommissioning

⚠ WARNING

Risk of fire and electric shock from electrical Trace Heating System

Risk of injury due to electric current

When starting installation and maintenance work, disconnect all circuits from the power supply and check that they are voltage-free!

The steps necessary to Decommission the system vary depending on the customer's situation and the desired duration of the Decommissioning. In any case, the power supply of the Thermostat Module must be switched off and power connection disconnected. The Thermostat Module must be checked for good condition and kept in accordance with the Storage Conditions. It can be electrically and mechanically uninstalled or left in the assembled state. In the event of damage, malfunction or when 100% of its service life has been reached, the Thermostat Module must be replaced. To do this, it must be switched off, the connecting cables disconnected and dismantled. It must not be operated any further or be intended for Operation and must be disposed of.

Procedure for Decommissioning:

1.) Disconnect the Thermostat Module from the power supply

2.) Wipe off any dirt with a damp cloth, do not use any cleaning agents or solvents, observe the danger of electrostatic charge, do not damage cable connections; absorb any moisture, find the cause of moisture penetration and remove it

3.) check mechanical and electrical condition; check cables and cable connections for faultlessness and good condition signs of overheating, loose cables, loose insulation

4.) if necessary, uninstall electrically and mechanically and store according to the Storage Conditions

Notice: Technical data subject to change without notice.
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14 Recommissioning

⚠ WARNING

Risk of fire and electric shock from electrical Trace Heating System

Risk of injury due to electric current

When starting installation and maintenance work, disconnect all circuits from the power supply and check that they are voltage-free!

Operate electrical Trace Heating Systems with residual current protection device!

The steps required to put the unit back into Operation depend on the state of Disassembly, the steps taken when the unit is taken out of Operation and the state of the Junction Box with Electronic Thermostat Module. It must be ensured that it is in a safe and operational condition.

Before the Junction Box with Electronic Thermostat Module is put into Operation again after it has been taken out of service, the entire Operation and Installation Manual must be observed, especially the safety rules. The instructions in Chapters Installation and Assembly, Commissioning and Maintenance must be observed.

Recommissioning is only permitted if the insulation resistance measurement has been carried out again and the Acceptance Report has been completed in full.

After removing a Heating Cable from the base of the Junction Box, a new suitable CAK kit must be used when installing a new Heating Cable.

15 Disposal and Recycling

The Junction Box with Electronic Thermostat Module must be disposed of properly in accordance with the legal regulations. It consists mainly of glass fiber reinforced plastic, metal and electrical components. The Junction Box with Electronic Thermostat Module must be dismantled into its components and fed back into the recycling system according to its components.

Disposal

The device must be disposed of properly in accordance with the local laws and regulations for electrical and electronic equipment.

The device must not be disposed of with household waste.

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16 Troubleshooting

Problem	Possible cause	Remedy
Trace heater remains cold	No power supply	Check the power wiring for continuity to circuit breaker.
	Trace heater bus wires or power wiring not properly connected	Connect the trace heater and power wiring according to the installation instructions.
	Temperature setpoint incorrectly set at the thermostat module	Adjust the thermostat module according to the installation instructions.
Automatic circuit breaker tripped	Automatic circuit breaker defective	Replace the automatic circuit breaker.
	Automatic circuit breaker has wrong tripping characteristics, e. g. “B” instead of “C”	Install an automatic circuit breaker with Type-C tripping characteristics or contact the factory for Type-B tripping characteristics.
	Nominal circuit breaker size is insufficient	Install an automatic circuit breaker with higher capacity. Observe the maximum amperage of all components of the trace heating circuit!
	Maximum heating circuit length has been exceeded	Split the heating circuit into separate circuits.
	End seal has not been installed	Install the end seal according to the installation instructions.
	Short circuit	Identify the cause and remedy the fault (e. g. ensure that trace heater bus wires are not twisted together).
	Moisture inside the connection system or end seal	Dry the components. For junction boxes, be sure that the cable gland is correctly installed and sealing properly.
Ground fault protection is disengaged	Trace heater damaged	Replace the trace heater at the point where it is damaged.
	Moisture in the components	Dry the components. For junction boxes, be sure that the cable gland is correctly installed and sealing properly.
	Ground fault protection defective	Replace the ground fault protection device(s).
Insulation resistance too low or fluctuating	Trace heater damaged	Replace the trace heater at the point where it is damaged.
	Moisture in the components	Dry the components. For junction boxes, be sure that the cable gland is correctly installed and sealing properly
	Arcing due to damaged trace heater insulation	Replace the trace heater at the point where it is damaged.
	Arcing due to inadequate stripping distance between heating element and grounding braid	Check the stripping distance between bus wires/heating element and grounding braid at all power, splice and end seal connections to ensure adequate separation.
	Shortcircuit between the grounding braid and the heating element or the grounding braid and the pipe	Check for cut or damaged cable or inadequate stripping length.
	Test leads touching the junction box	Relocate test leads and retest.
Note: High pipe temperature may lower the insulation resistance reading relative to earlier readings on a cold pipe.		

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17 Acceptance and Test Report

The Acceptance Test Report is available in the concerning DesignGuide.

18 Limited Product Warranty

Scope

BARTEC warrants that all BARTEC products and accessories that are the subject of this manual will be free from defects in materials and workmanship from and after its date of purchase for a period of 12 (twelve) months.

For the avoidance of doubt, this limited product warranty will **not** cover any damage caused by:

- accidents,
- misuse, improper installation, operation, maintenance or repairs,
- neglect, or
- alteration.

Furthermore, BARTEC cannot be held liable under this warranty for:

- installation or removal costs,
- loss or damage to property,
- indirect, special, incidental or consequential damages (including, without limitation, loss of revenue or anticipated profits), or
- any other damages or costs directly or indirectly related to the warranty issue.

If all warranty conditions are met (as set forth below), BARTEC will, at its sole discretion:

- repair the product,
- replace the product, or
- refund the purchase price paid for the product.

This warranty gives you specific legal rights, and you may also have other rights which vary by country, state or province. Except as specifically provided otherwise in this limited product warranty, the BARTEC Group General Terms and Conditions shall apply.

General terms and conditions

BARTEC Global Terms and conditions are available at: https://bartec.com/general-terms-and-conditions-for-deliveries-and-services

Conditions

The limited product warranty is subject to the following conditions:

- proper installation, operation and maintenance in compliance with the state of the technology and the product documentation, and
- presence of completely filled in acceptance reports for all installation, maintenance and repairwork operations.

How to claim the warranty

To file a claim under the limited product warranty:

- Notify BARTEC or your local BARTEC representative by written correspondence or email within 30 days after identification of a possible warranty issue.
- If requested, you must provide any warranty-related information and documentation to BARTEC, including, without limitation:
  - project planning documents, and
  - acceptance reports for installation, operation, maintenance or repairwork.

Contact

Bartec GmbH, Max-Eyth-Strasse 16, 97980 Bad Mergentheim
Phone: +49 7931 597-0
Fax: +49 7931 591-499
info@bartec.com

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19 EU Declaration of Conformity

EU Konformitätserklärung
EU Declaration of Conformity
Déclaration UE de conformité
№ 21-1S00-7C0001

Wir	We	Nous
	BARTEC GmbH Max-Eyth-Straße 16 97980 Bad Mergentheim Germany	
erklären in alleiniger Verantwortung, dass das Produkt	declare under our sole responsibility that the product	attestons sous notre seule responsabilité que le produit
PSB / MSB Heizsystem	**PSB / MSB Heating system**	**PSB / MSB Système de Chauffage**
	Typen 27-1S3*-**/**** 27-1S4*-****/****	
auf das sich diese Erklärung bezieht den Anforderungen der folgenden **Richtlinien (RL)** entspricht	to which this declaration relates is in accordance with the provision of the following **directives (D)**	se référant à cette attestation correspond aux dispositions des **directives (D)** suivantes
ATEX-Richtlinie 2014/34/EU	**ATEX-Directive 2014/34/EU**	**Directive ATEX 2014/34/UE**
RoHS-Richtlinie 2011/65/EU	**RoHS-Directive 2011/65/EU**	**Directive RoHS 2011/65/UE**
EMV-Richtlinie 2014/30/EU	**EMC-Directive 2014/30/EU**	**Directive CEM 2014/30/UE**
RED-Richtlinie 2014/53/EU	**RED-Directive 2014/53/EU**	**Directive RED 2014/53/UE**
und mit folgenden Normen oder normativen Dokumenten übereinstimmt	and is in conformity with the following standards or other normative documents	et est conforme aux normes ou documents normatifs ci-dessous

EN IEC 60079-0:2018
EN 60079-1 :2014
EN 60079-7:2015/A1:2018
EN 60079-30-1:2017
EN 60079-31:2014
EN 60079-11 :2012
EN 60079-18:2015 + A1 :2017
EN 60529:1991
+ A1:2000 + A2:2013/AC :2019
EN 50495:2010

EN 300328 V2.1.1
EN 62395-1:2013

EN 60947-7-1 :2009
EN 60947-7-2 :2009
EN 60068-2-27 :2009
EN 61000-6-2 :2005
EN61000-6-4 :2007 + A1 :2001
EN 60730-1:2011
EN 60730-2-9:2010
EN 61326-1:2013
EN 61000-4-2:2009
EN 61000-4-3:2006+A1:2007
+A2:2010
EN 61000-4-4:2012
EN 61000-4-5:2014 +A1:2017
EN 61000-4-6:2014
EN 61000-4-8:2010
EN 61000-4-11:2004+A1:2017

Verfahren der EU-Baumusterprüfung / Benannte Stelle	Procedure of EU-Type Examination / Notified Body	Procédure d'examen UE de type / Organisme Notifié
	DEKRA 20ATEX0093 X	
	0344, DEKRA Certification B.V., Meander 1051, 6825 MJ Arnhem, NL	

CE 0044

Bad Mergentheim, 22.02.2023

i.V. Tobias Dold
Head of Business Unit EHT

i.A. Ulrich Mann
Certification Manager

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EU Konformitätserklärung
EU Declaration of Conformity
Déclaration UE de conformité
№ 21-54C2-7C0001

Wir	We	Nous
	BARTEC GmbH Max-Eyth-Straße 16 97980 Bad Mergentheim Germany	
erklären in alleiniger Verantwortung, dass das Produkt **PBTC** **Temperaturregler** **und CAK** **An-/Abschlusstechnik**	declare under our sole responsibility that the product **PBTC** **Temperature Controller** **and CAK** **Power-/termination technique**	attestons sous notre seule responsabilité que le produit **PBTC** **Contrôleur de température** **et CAK** **Connexion-/terminaison technique**
	Typen 27-54C2-**/****** **27-59CX-****/******	
auf das sich diese Erklärung bezieht den Anforderungen der folgenden **Richtlinien (RL)** entspricht **ATEX-Richtlinie 2014/34/EU** **RoHS-Richtlinie 2011/65/EU** **EMV-Richtlinie 2014/30/EU** und mit folgenden Normen oder normativen Dokumenten übereinstimmt	to which this declaration relates is in accordance with the provision of the following **directives (D)** **ATEX-Directive 2014/34/EU** **RoHS-Directive 2011/65/EU** **EMC-Directive 2014/30/EU** and is in conformity with the following standards or other normative documents	se référant à cette attestation correspond aux dispositions des **directives (D)** suivantes **Directive ATEX 2014/34/UE** **Directive RoHS 2011/65/UE** **Directive CEM 2014/30/UE** et est conforme aux normes ou documents normatifs ci-dessous

EN IEC 60079-0:2018
EN 60079-7:2015/A1:2018
EN 60079-30-1:2017
EN 60079-31:2014
EN 60079-11 :2012
EN 60079-18:2015 + A1 :2017
EN 60068-2-27 :2009
EN 61000-6-2 :2005
EN 61000-6-4 :2007 +A :2001

EN 60529:1991
+ A1:2000 + A2:2013/AC :2019
EN 61000-4-2:2009
EN 61000-4-3:2006+A1:2007
+A2:2010
EN 61000-4-4:2012
EN 61000-4-5:2014 +A1:2017
EN 61000-4-6:2014
EN 61000-4-8:2010
EN 61000-4-11:2004+A1:2017

Verfahren der EU-Baumusterprüfung / Benannte Stelle	Procedure of EU-Type Examination / Notified Body	Procédure d'examen UE de type / Organisme Notifié
	DEKRA 21ATEX0118 X	
	0344, DEKRA Certification B.V., Meander 1051, 6825 MJ Arnhem, NL	

CE 0044

Bad Mergentheim, 31.01.2023

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BARTEC

21-54C3-7D0001/B 04/2025-EHT-441168

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