

# PBTC-400E\*/PBTL-400E\*/PBTCL-400E\*

Power Junction Box / Local Control Station



The PBTC-400E, PBTL-400E, and PBTCL-400E series are compact, field-ready control and safety devices designed for use in industrial heating applications. Each unit is housed in an Ex e certified polyester enclosure and features a built-in electronic thermostat with LED status indication and an intrinsically safe Pt100 sensor.

These devices are ideal for freeze protection and temperature maintenance on pipelines and heating using BARTEC EKL/EMK or other suitable electric heaters. The integrated LED provides clear visual feedback on operating status via color and flashing codes. All variants are equipped with spring clamp terminals for fast and secure wiring. The Pt100 sensor included supports exposure temperatures up to 200 °C; for higher requirements, suitable sensors are available separately. In addition to the standard versions, the AI variants (PBTC-400E-AI, PBTL-400E-AI, PBTCL-400E-AI) feature an integrated potential-free changeover alarm relay for fault indication. The PBTCL-400E-AI offers two alarm contacts—one for the controller and one for the limiter—which can be wired individually or in series, depending on system requirements.

- Pt100 sensor included
- for freeze protection and temperature maintenance
- remote fault indication (optional)

### PBTC-400-E / PBTC-400-E-AI

#### Compact electronic temperature controller

The PBTC-400-E is a robust ON/OFF controller housed in a compact 160×160×90 mm polyester enclosure. It is a temperature controller designed for use in the field and intended for electric heaters, providing reliable temperature control for freeze protection and temperature maintenance.

The extended version PBTC-400-E-AI includes an integrated alarm relay with a potential-free changeover contact. This enables remote fault indication, enhancing system safety and monitoring capabilities.

### PBTL-400-E / PBTL-400-E-AI

#### High-reliability temperature limiter

The PBTL-400-E is a dedicated safety limiter for series resistance trace heating systems, housed in a 160×160×90 mm enclosure. It ensures that the system operates within safe temperature limits and complies with the Ex-trace heating standard IEC/EN 60079-30-1, supporting performance level Gb/Db.

The extended version PBTL-400-E-AI features an integrated alarm relay with a potential-free changeover contact, allowing early fault detection and remote signaling for critical safety applications.

### PBTC-400-E / PBTC-400-E-AI

#### Integrated controller-limiter combination for trace heating systems

The PBTC-400-E combines temperature control and safety limiting in a single 260×160×90 mm enclosure, making it ideal for demanding applications in hazardous areas. It is designed for use with series resistance trace heaters and complies with the Ex-trace heating standard IEC/EN 60079-30-1, supporting electrical performance level Gb/Db.

The extended version PBTC-400-E-AI includes two integrated alarm relays with potential-free changeover contacts --one for the controller and one for the limiter. The user can choose to wire these contacts individually for separate fault signaling or connect them in series for combined alarm output, offering flexible integration into monitoring systems.

### Explosion protection Thermostat

Marking	Ex eb mb [ib] IIC T4, T5 Gb Ex tb [ib] IIC T135°C, T95°C, Db
Certification	IBExU 12 ATEX 1099 X IECEX IBE 12.0031 X

### Explosion protection Thermostat Module ETM-25Ex

Marking	Ex eb mb [ib] [60079-30-1] IIC Gb Ex tb [ib] [60079-30-1] IIC Db
Certification	DEKRA 20ATEX0021 U IECEX DEK 20.0009 U
	Other approvals and certificates, see <a href="http://bartec.com">bartec.com</a>

### Technical data

Power and load terminal	6mm <sup>2</sup> / spring type / Ex eb
Rated voltage U supply	80 - 277 VAC
Rated impulse voltage U <sub>m</sub>	305 VAC
Rated power without load	4.5 W / 9W
Load Current	depending on max. ambient temperature Resistive load only
Protection class	IP 66
Min. ambient temperature	-40 °C
Max. ambient temperature	40 °C / 50 °C / 55 °C depending on load current
Storage temperature	-55 °C to +65 °C
Sensortype	Pt100 Class B
Sensor cable	Silicone cable, length 1500 mm (others on request), sensor diameter 6mm
Sensor service temperature	-50 °C to +200 °C
Hysteresis	Temperature Controller +5K Temperature Limiter -5K

### Technical Data · Alarm Relay

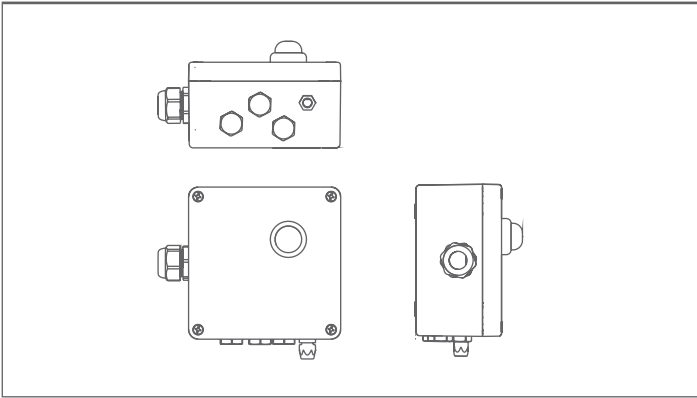
Contact type	floating changeover contact
Rated voltage	277 VAC or 36 VDC
Rated current (resistive load)	2 A
Rated impulse voltage U <sub>m</sub>	305 VAC
Connection terminal	Spring clamp terminal, 2.5 mm <sup>2</sup>
Type of protection	Ex eb
Function	Fault indication via relay contact

### Load current / Max. Ambient Temp. / T-Class / Max. Surface Temperature

PBTC-400-E / PBTL-400-E	
	T5 / T95 °C
Ta 40 °C	18 A
Ta 50 °C	16 A
Ta 55 °C	13 A
PBTC-400-E	
	T5 / T95 °C
Ta 40 °C	18 A
Ta 55 °C	13 A

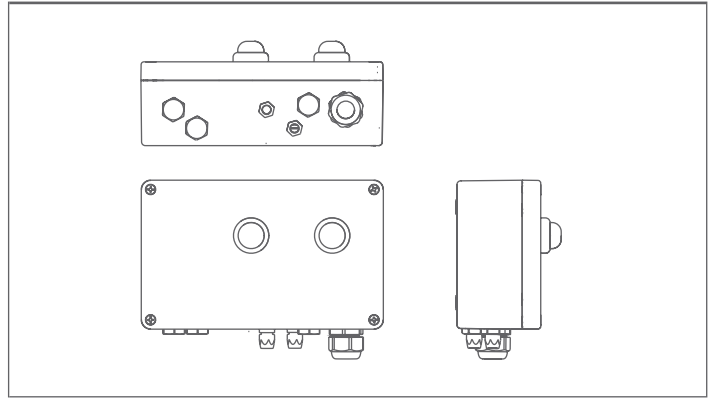
**Drawing: Single Controller Device**

PBTC-400-E / PBTL-400-E



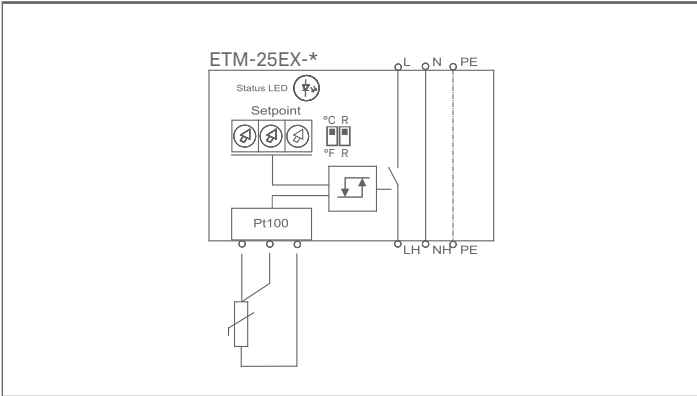
**Drawing: Controller-Limiter Combination**

PBTC-400-E



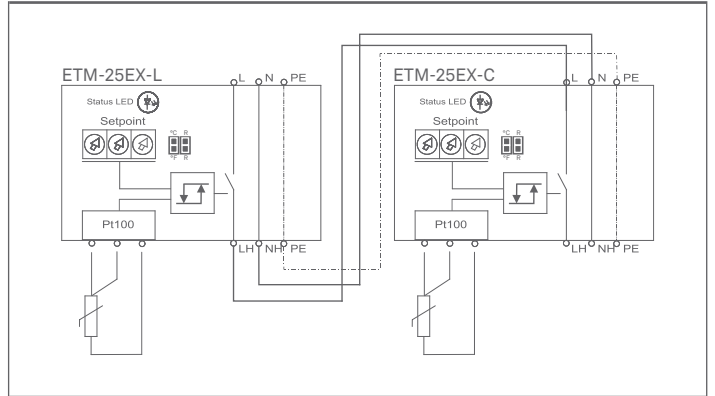
**Wiring Diagram: Single Controller Device**

PBTC-400-E / PBTL-400-E



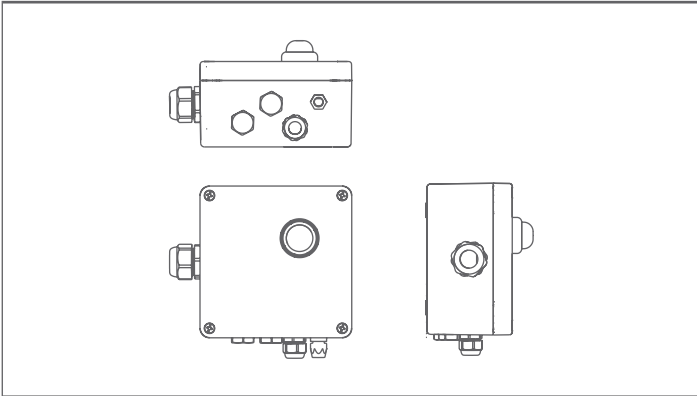
**Wiring Diagram: Controller-Limiter Combination**

PBTC-400-E



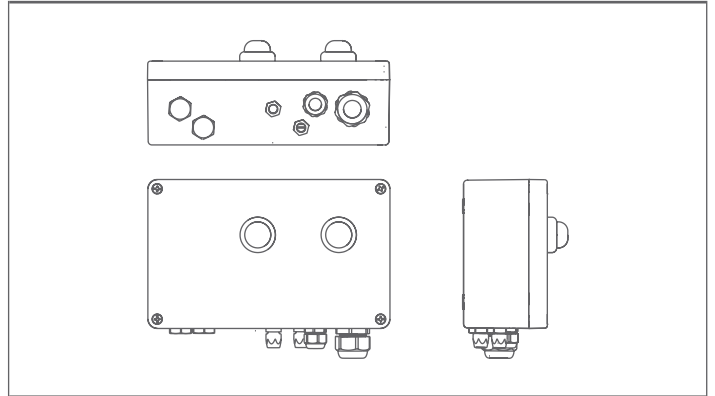
**Drawing: Single Controller Device With alarm Contact**

PBTC-400-E / PBTL-400-E



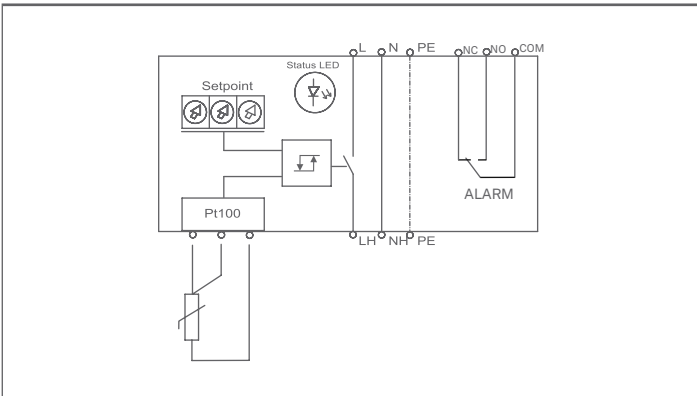
**Drawing: Controller-Limiter Combination With alarm Contact**

PBTC-400-E



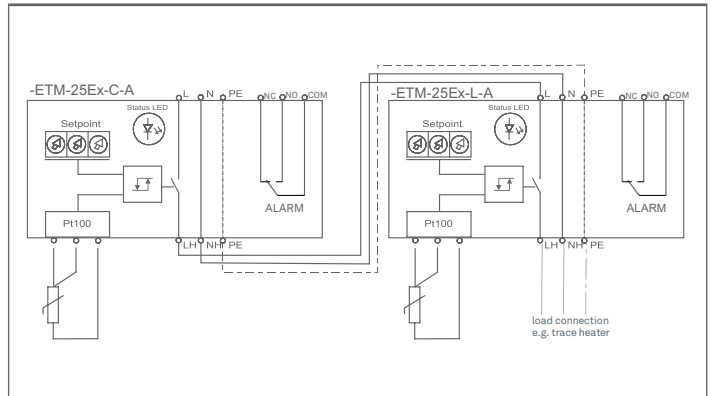
**Wiring Diagram: Single Controller Device With alarm Contact**

PBTC-400-E / PBTL-400-E



**Wiring Diagram: Controller-Limiter Combination With alarm Contact**

PBTC-400-E



### Kit Content / Ordering Information

	PBTC-400-E Single Controller	PBTL-400-E Single Limiter	PBTCL-400-E Controller-Limiter Combination
Kit contents	1 Junction Box with 1 Thermostat ETM-25Ex-C 1 Pt100 M	1 Junction Box with 1 Thermostat ETM-25Ex-L 1 Pt100 M	1 Junction Box with 1 Thermostat ETM-25Ex-C 1 Thermostat ETM-25Ex-L 2 Pt100 M
Box Size	160 mm x 160 mm x 90 mm	160 mm x 160 mm x 90 mm	260 mm x 160 mm x 90 mm
Power entry	M25 cable gland	M25 cable gland	M25 cable gland
Load connection cable entry	2 x M20 x 1,5 Threaded hole closed with blind plug	2 x M20 x 1,5 Threaded hole closed with blind plug	2 x M20x1,5 Threaded hole closed with blind plug
Terminals	Spring Type 6 mm <sup>2</sup> , Ex e, 1 supply phase, 1 supply neutral, 1 heater phase, 1 heater neutral, 4 ground	Spring Type 6 mm <sup>2</sup> , Ex e, 1 supply phase, 1 supply neutral, 1 heater phase, 1 heater neutral, 4 ground	Spring Type 6 mm <sup>2</sup> , Ex e, 1 supply phase, 1 supply neutral, 1 heater phase, 1 heater neutral, 4 ground
Terminal size	6 mm <sup>2</sup>	6 mm <sup>2</sup>	6 mm <sup>2</sup>
Order no.	07-3103-1609W004	07-3103-1609W005	07-3103-2609W005

	PBTC-400-E-AI Single Controller with alarm relay	PBTL-400-E-AI Single Limiter with alarm relay	PBTCL-400-AI Controller-Limiter Combination with alarm relay
Kit contents	1 Junction Box with 1 Thermostat ETM-25Ex-C-A 1 Pt100 M	1 Junction Box with 1 Thermostat ETM-25Ex-L-A 1 Pt100 M	1 Junction Box with 1 Thermostat ETM-25Ex-C-A 1 Thermostat ETM-25Ex-L-A 2 Pt100 M
Box Size	160 mm x 160 mm x 90 mm	160 mm x 160 mm x 90 mm	260 mm x 160 mm x 90 mm
Power entry	M25 cable gland	M25 cable gland	M25 cable gland
Load connection cable entry	2 x M20 x 1.5 Threaded hole closed with blind plug	2 x M20 x 1.5 Threaded hole closed with blind plug	2 x M20x1.5 Threaded hole closed with blind plug
ALARM CONTACT cable entry	M20 cable gland	M20 cable gland	M20 cable gland
Terminal	Spring Type 6 mm <sup>2</sup> , Ex e, 1 supply phase, 1 supply neutral, 1 heater phase, 1 heater neutral, 4 ground	Spring Type 6 mm <sup>2</sup> , Ex e, 1 supply phase, 1 supply neutral, 1 heater phase, 1 heater neutral, 4 ground	Spring Type 6 mm <sup>2</sup> , Ex e, 1 supply phase, 1 supply neutral, 1 heater phase, 1 heater neutral, 4 ground
Terminals ALARM CONTACT	3 x 2.5 mm <sup>2</sup> (NO/NC/COM)	3 x 2.5mm <sup>2</sup> (NO/NC/COM)	3 x 2.5mm <sup>2</sup> (NO/NC/COM)
Order no.	07-3103-1609W008	07-3103-1609W009	07-3103-2609W008

### Accessories

03-9040-0010 Pt100 M (5m)	Silicone cable length 5000 mm / diameter 6 mm Sensor service temperature 50 °C to +200 °C / IP 65
03-9040-0017 Pt100 M (max. exposure temp. +500 °C)	MI Sensor length 1000mm / Sensor diameter 3 mm, measuring range -50 °C to 500 °C Silicon connection cable 1.5 m, service temperature -50 °C to 200 °C / IP54
05-0091-0013 Mounting plate SS 160	for polyester enclosure with dimensions 160 mm x 160 mm x 90 mm
05-0091-0014 Mounting plate SS 260	for polyester enclosure with dimensions 260 mm x 160 mm x 90 mm
05-0091-0051 Mounting bracket VA	Mounting bracket MWG/MWU 270 stainless steel
05-0005-0017 Mounting plate galvanised steel 160	Mounting plate for polyester enclosure dimensions 160 mm x 160 mm x 90 mm
05-0005-0018 Mounting plate galvanised steel 260	Mounting plate for polyester enclosure dimensions 260 mm x 160 mm x 90 mm
05-0105-0163 Mounting bracket, U-shaped	Mounting bracket galvanised steel, U-shaped, mounting distance 200 mm
05-0105-0162 Mounting bracket, twisted	Mounting bracket galvanised steel, twisted, mounting distance 200 mm