

## Operating and Installation Instructions

### Electronic Thermostat Module

### ETM-25Ex-C / ETM-25Ex-L

07-6E\*\*-\*\*\*\* \*\*\*\*





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## 1 About This Manual

### 1.1 Product Safety

The ETM-25Ex-C and ETM-25Ex-L electronic thermostat modules are intended and approved for use in potentially explosive atmospheres. They are built according to the state-of-the-art and are safe to operate. To ensure safe operation, the following are required: careful system planning; proper transport; professional installation, commissioning, and maintenance.

The thermostat modules may only be operated and used in accordance with their intended use and in compliance with these operating and installation instructions and the applicable national standards and authorizations.

**⚠ WARNING**

**Risk of serious injury through misuse**  
 Improper use of the product may result in explosion, serious injury or death.

- All warnings and instructions must be read and understood.

### 1.2 Using the Operating Instructions

These operating and installation instructions are part of the electric thermostat module. They are intended for the safe and efficient handling of the thermostat module. It must be kept for further use and made available near the thermostat module. It must always be accessible to all persons involved.

Read these instructions carefully and completely before working with the thermostat module. You must read and understand the contents of the operating and installation instructions thoroughly before installing, operating, using, or servicing the thermostat module. These instructions must be passed on to future owners or operators, if applicable.

The safety notes and instructions in these operating and installation instructions are a prerequisite for safe working and must be observed. The technical data and applicable standards must also be observed.

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

### 1.3 Symbols and Information Signs

The warnings are intended to protect against dangerous situations and property damage.

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

**⚠ DANGER**

**Indicates an imminent danger to the life and health of persons.**  
 Failure to comply will result in serious injury or death.

**⚠ WARNING**

**Indicates a possible danger to the life and health of persons.**  
 Failure to observe such warnings may result in serious injury or death.

**⚠ CAUTION**

**Indicates a possible hazard.**  
 Failure to observe this warning may result in injury if the warning is ignored.

**NOTICE**

**Indicates possible damage to property.**  
 Failure to observe this notice can lead to device damage.

Reference to important information requiring special attention:

**Disposal**  
 The device must be disposed of properly in accordance with the country-specific regulations for electrical and electronic devices.  
 The device must not be disposed of with household waste.

### 1.4 Type Codes

The type code describes the product configuration of the ETM-25Ex-C or ETM-25-L thermostat module in code form:

07-6E	*	*	-	*	*	*	*	-	*	*	*	*
A	B	C	D	E	F	G	H	I	J	K		
Pos.	Meaning	Val.	Comment									
A	Model name	07-6E	ETM-Family									
B	Number of control circuits	1	1 control circuit									
C	Load Current	1	30 A									
D	Alarm relay	0	no alarm relay									
E	Display	0	no LED- status display									
		L	with LED-status display									
F	Setting	1	via rotary coding switch									
G	Modbus	0	no Modbus									
H	Bluetooth	0	no Bluetooth									
I	Device type	C	Controller ETM-25Ex-C									
		L	Limiter ETM-25Ex-L									
		D	with top-hat rail clamp on top-hat rail TS35									
J	Mounting type	P	Fitting with threaded screws									
K	Variations	0	none									

### 1.5 Terms

These operating and installation instructions describe electronic thermostat modules of the temperature controller and temperature limiter types. If the term "thermostat module" is used in this manual, both temperature controllers and temperature limiters are meant. If the reference explicitly refers only to "temperature controllers" or "temperature limiters," the corresponding statement refers to the respective type.

## 2 Safety Instructions

### 2.1 Intended Use

The electronic thermostat modules

- ETM-25Ex-C
- ETM-25Ex-L

depending on their type, are suitable for use as

- temperature controller (controller, designation '-C') or
- temperature limiter (Limiter, designation '-L')

intended for electric trace heating.

The 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. The thermostat module may only be operated with Pt100 resistance thermometers.

According to its type, the electronic thermostat module can also be used in explosion-proof control cabinets as a temperature controller or limiter. It may only be operated together with appropriately designed overcurrent protection equipment.

The electronic thermostat module has a limited service life, which depends on the number of switching cycles achieved. It may only be operated until the end of this service life. The LED status display indicates when 80% and 100% of the service life is reached.

For use in electrical systems, the relevant installation, and operating conditions (e.g., according to ATEX RL 2014/34/EU, EN 60079-0, EN 60079-14, EN 60079 17 and other relevant national regulations) must be observed. The information on the nameplate, on the certificate and on the approval must be observed. Technical data on the thermostat module and in the operating and installation instructions must also be observed!

According to the approval certificate:



- The thermostat module must be mounted in an enclosure that complies with the IP65 protection class and meets the requirements of the EN 60079-0 and EN 60529 standards. The thermostat module must be installed in this housing in such a way that it is protected against UV light.
- Observe the dependence between ambient temperature range, maximum load current and maximum surface area (technical data)
- Observe dependence between operating temperature range, maximum load current and maximum surface area (technical data)
- The power cable to be connected and the heat tracing cable must comply with the IEC60079-7 and IEC60079 30 1 standards
- When used in hazardous areas, the trace heating system in which the thermostat module is installed must be examined and, if necessary, certified according to IECEx and ATEX (incl. housing and heating cable) before commissioning
- The intrinsically safe terminals and the integrated wiring must be separated from all non-intrinsically safe circuits, including grounding. The design must be made in accordance with EN 60079-11.
- The thermostat modules of types 07-6E11-\*L\*\* \*\*\*\* (with LED status display) may have a component surface temperature of max. 150 °C if faults according to EN 60079 11, chapter 5.2, 5.3 or 5.4 occur at the operating temperature.
- The following applies to temperature limiters:

The housing in which the temperature limiter is installed must be secured against unauthorized access to the rotary coding switches, the °F - °C changeover switch, and the reset switch.

- For temperature limiters of type 07-6E11-\*\*\*\*\* \*L\*\* the following applies: During electrical planning, the manufacturer of the entire system must determine a temperature set point of the limiter. This is set on the rotary coding switch during installation or commissioning of the thermostat module. The user of the temperature limiting function of the Thermostat, Types 07-6E11-\*\*\*\* \*L\*\* and/or 07-6E11-\*\*\*\* \*2\*\* shall demonstrate his ability to predict the offset ( $\Delta T_{\text{offset}}$ ) between the trace heating sheath temperature and the Thermostat's set point in accordance with clause 4.5.3.1 of IEC/IEEE 60079-30-1 : 2017.

### 2.2 Certifications, Marking

Certifications or Marking of the thermostat modules ETM-25Ex-C and ETM-25Ex-L:

Thermostat module ETM-25Ex-C, ETM-25Ex-L	
IECEx DEK 20.0009U	
	Ex eb mb [ib] [60079-30-1] IIC Gb
	[Ex ib 60079-30-1 Db] IIIC
DEKRA 20ATEX 0021 U	
	II 2G Ex eb mb [ib] [60079-30-1] IIC Gb
	II (2)D [Ex ib 60079-30-1 Db] IIIC
CML 21UKEX 3986U	
	II 2G Ex eb mb [ib] [60079-30-1] IIC Gb
	II (2)D [Ex ib 60079-30-1 Db] IIIC

### 2.3 Foreseeable Misuse

- Use of the electronic thermostat modules for purposes other than those described in the intended use
- Assembly, commissioning, operation, maintenance, or disposal by unauthorized or untrained qualified personnel
- Work on live parts or circuits without switching off the thermostat module or the device or system
- Altering, removing, or obscuring signs, notices, or warnings
- Use of prohibited system components
- Commissioning of damaged or faulty facility components
- Technical modification of the electronic thermostat module
- Operation of the electronic thermostat module beyond the defined service life

### 2.4 Personnel Qualification

The thermostat module may only be handled by qualified personnel in all phases of its life. The life cycle phases mainly concern system planning, transport, installation, assembly, commissioning, operation, maintenance, decommissioning, recommissioning and disposal.

- **Transport:**  
The thermostat modules may only be transported by trained and qualified personnel with specific expertise in the field of transport.
- **Installation, Assembly**  
The installation/mounting of the thermostat modules may only be carried out by trained, instructed, and qualified personnel with specific expertise in the electrical field.

- **Commissioning**

The commissioning of the thermostat modules may only be carried out by trained, instructed, and qualified personnel with specialized knowledge in the electrical field.

- **Operation**

The installation/mounting of the thermostat modules may only be carried out by trained, instructed, and qualified personnel with specific expertise in the electrical field.

- **Maintenance/Repair**

Maintenance/repair of the thermostat modules may only be carried out by trained, instructed, and qualified personnel with specific expertise in the electrical field.

- **Decommissioning, recommissioning**

The decommissioning and recommissioning of the thermostat modules may only be carried out by trained, instructed, and qualified personnel with specific expertise in the electrical field.

- **Disposal**

The thermostat modules may only be disposed of by trained, instructed, and qualified personnel with specialist knowledge.

For system planning, installation, assembly, commissioning, operation, and maintenance, the requirements for the qualification of personnel according to DIN/EN 60079-14 must also be met.

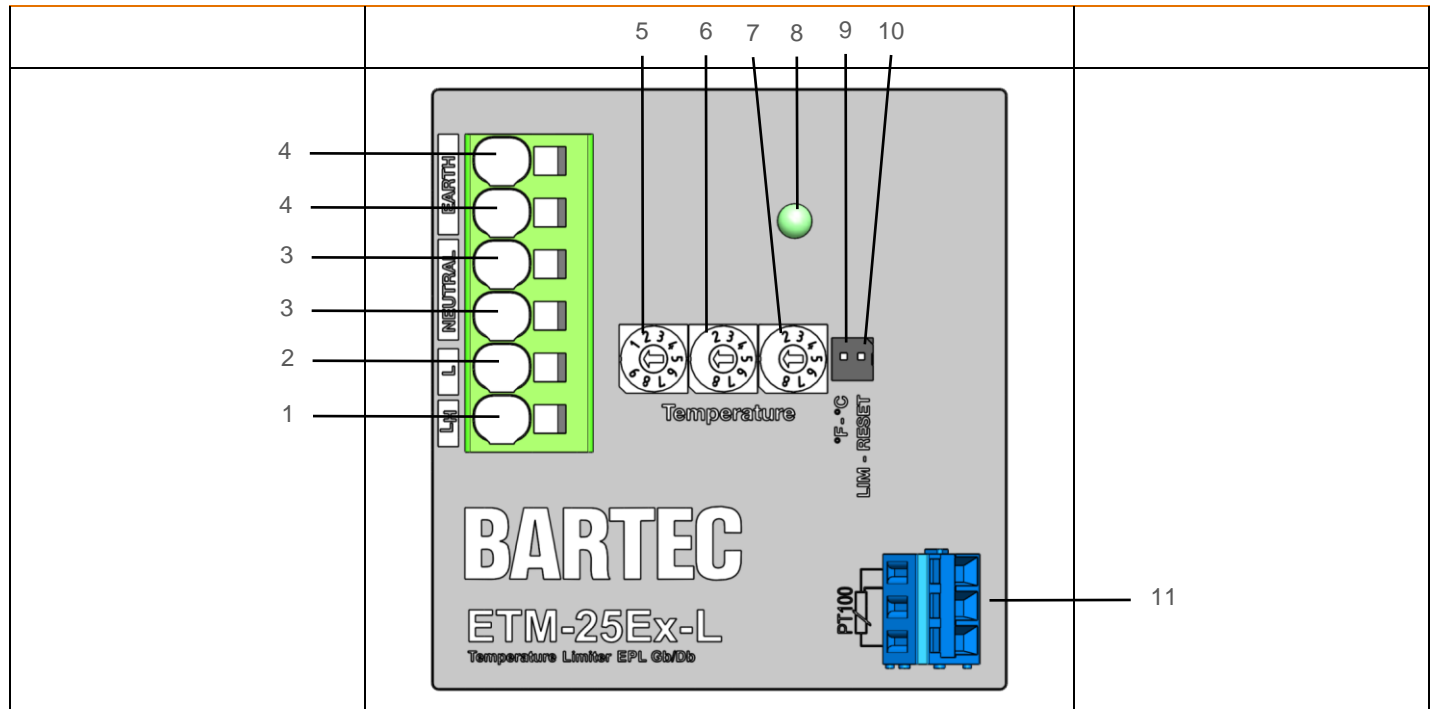
### 3 Performance Description

The thermostat modules type ETM-25Ex are intended for use in trace heating systems in hazardous areas. They are available as temperature controllers (type ETM-25Ex-C) or as temperature limiters (type ETM-25Ex-L) and meet the requirements of IEC/EN 60079-30-1.

The LED status display shows the current operating status of the device by color- and flash-codes. The connection of the Pt100 resistance thermometer is intrinsically safe. Using a standard industrial resistance thermometer is possible. The temperature set point is adjusted with three rotary coding switches.

## 4 Device Description

### 4.1 Device Design



No.	Abbreviation/ Label	Naming	Function
1	LH	Connection load/el. Trace heating	-
2	L	Power supply connection (Phase)	-
3	N	Connection neutral, Connection load/el. Trace heating	-
4	PE	Ground connection, Ground connection Load/el. Trace heating	-
5		Rotary coding switch 100s	Setting the temperature setpoint: digit for 100s-value
6		Rotary coding switch 10s	Setting the temperature setpoint: digit for 10s-value
7		Rotary coding switch 1s	Setting the temperature setpoint: digit for 1s-value
8		LED status display	Operating status display as color- and blink-codes
9		Toggle switch °F - °C	Toggle switch for temperature units
10		Reset switch (type ETM-25Ex-L)	Reset thermostat module
11	Pt100	Resistance thermometer Pt100 connection terminal	-

4.2 LED Status Display

The operating status of the thermostat module is shown in the LED status display. The display shows color- and blink-codes.

Meaning of color- and blink-codes:

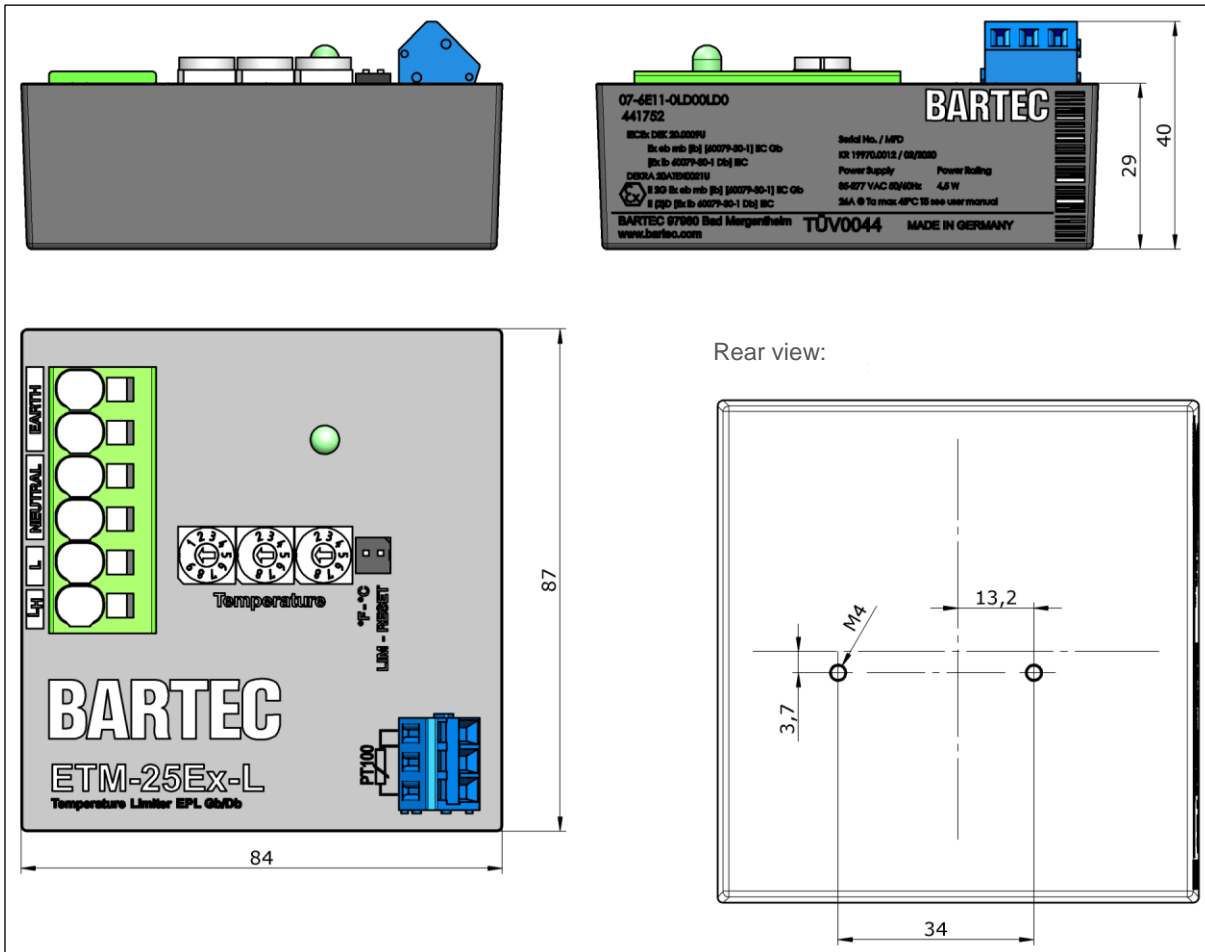
State of LED status display	Steady light	1 blink pulse	2 blink pulse	3 blink pulse	4 blink pulse
OK Green	Thermostat module in operation, Heating cable in operation	Thermostat module ready	-	-	-
Warning Yellow	<p><u>Limiter:</u> Temperature warning, temperature at resistance thermometer Pt100 too warm, temperature is within the warning limit before the temperature set-point is reached or the alarm is triggered</p> <p><u>Controller:</u> Temperature warning, temperature at resistance thermometer Pt100 too warm or too cold, temperature is outside the warning limit value</p>	Device temperature of the thermostat module outside the defined warning limits	80% service life of the thermostat module reached: plan and prepare for replacement of the thermostat module	Contact problem at Pt100 resistance thermometer or temperature rise at Pt100 resistance thermometer too high	-
Alarm Red	<p><u>Limiter:</u> Temperature limiter has been triggered, temperature at resistance thermometer has reached or exceeded temperature set-point of thermostat module, troubleshooting and resetting of temperature limiter is necessary</p> <p><u>Controller:</u> -</p>	Resistance thermometer Pt100 short-circuited or defective	Cable connection to resistance thermometer Pt100 too long or cable cross-section too small (connection resistance too high)	100% service life of thermostat module reached; heating line switched off: replace thermostat module	Temperature of the thermostat module too high; heating circuit is switched off



## 5 Technical Data

### 5.1 Dimensions

Shown without TS35 top-hat rail clamp:



### 5.2 Operating Data

The following operating specifications apply to the ETM-25Ex-C and ETM-25Ex-L thermostat modules:

Parameter	Value
Nominal operating/control voltage	80 - 277 VAC (50/60Hz)
DC-link voltage $U_m$	305 VAC
Rated power without load	4,5 W
Service temperature	-40°C - 70°C (Load current depends on operating temperature)
Storage temperature	-50°C – 70°C
Control capacity	1 heating circuit
Temperature input	2- or 3-wire cable, 100 ohms at 0°C (32°F) platinum resistance thermometer per heat-tracing circuit, intrinsically safe input circuit (max. cable resistance 14 ohm)
Temperature unit	°C/°F
Temperature control range	0°C – 500°C (32°F – 932°F)
Temperature measurement range	-60°C – 500°C (-76°F – 932°F)
Mounting/Assembly	on top hat rail TS35, screw connection with 2 pcs. M4 threaded screws
Measurement accuracy	±0.5 % of the entire measuring range
Control method	Two-point control
Control relay switching capacity	see Determination of Max. Load Tables regarding ambient or operating temperature range
Temperature setting	via rotary coding switches
Hysteresis	Standard 5K (9°F)

### 5.3 Max. Load of the Switching Relay

The respective maximum load at defined surface temperature can be determined based on the ambient temperature or operating temperature.

When used within the stated specifications (ambient temperature or operating temperature range), components of the thermostat module with a surface area of less than 1000 mm<sup>2</sup> will have a maximum of 143 °C outside the potting compound. This applies to product types where the type designation is 07-6E11-\*L\*\* \*\*\*\* (with LED status display). For all other variants (without LED status display), the respective tables (ambient temperature or operating temperature range) apply

#### Determination of the maximum load with respect to the ambient temperature range

The dependence between ambient temperature range of the housing ( $T_a$ ), max. load current, and max. surface temperature of the thermostat module in a non-metallic housing applies according to the following table for a minimum enclosure size of 120x120x90mm (width, height, depth):

Ambient temperature range $T_a$ [°C]	Surface temperature ≤80°C $I_{max\ Last}$ [A]	Surface temperature ≤95°C $I_{max\ Last}$ [A]
-40 bis +10	21,7	24,2
-40 bis +15	20,8	23,3
-40 bis +20	19,1	22,5
-40 bis +25	16,9	21,7
-40 bis +30	14,3	20,8
-40 bis +35	11,2	19,8
-40 bis +40	6,9	18,8

-40 bis +45	-	17,8
-40 bis +50	-	16,4
-40 bis +55	-	13,8
-40 bis +60	-	10,5
-40 bis +65	-	5,6

#### Determination of the maximum load with respect to the service temperature range

The dependence between operating temperature range (temperature around the thermostat module), max. load current and max. surface temperature of the thermostat module applies according to the table:

Operating temperature range [°C]	Surface temperature ≤80°C $I_{max\ Last}$ [A]	Surface temperature ≤95°C $I_{max\ Last}$ [A]
-40 bis +15	30,0	30,0
-40 bis +20	29,1	30,0
-40 bis +25	27,8	30,0
-40 bis +30	26,4	30,0
-40 bis +35	24,9	29,1
-40 bis +40	23,4	27,8
-40 bis +45	16,3	26,4
-40 bis +50	-	24,9
-40 bis +55	-	23,4
-40 bis +60	-	21,7
-40 bis +65	-	19,9
-40 bis +70	-	12,5

**5.4 Electrical Data Sensor Circuit**

Max. values of the Pt100 resistance thermometer connection terminal for protection type Ex ib:

	Ex ib IIC	Ex ib IIB Ex ib IIIB Ex ib IIIC
U <sub>0</sub>		6,6 V
I <sub>0</sub>		827 mA
P <sub>0</sub>		1,28 W
L <sub>0</sub>	32 µH	128 µH
C <sub>0</sub>	6,7 µF	484 µF

**6.2 Limiter**

The limiter switches on the electrical trace heating during operation. It switches the electrical trace heating off when the actual temperature at the resistance thermometer has reached or exceeded the set temperature setpoint. Sensor errors also cause the thermostat module to switch off. These are both recognizable by a continuous red light on the LED status display. For further operation, some troubleshooting and a manual resetting of the limiter is necessary. Resetting is only possible if the actual temperature at the resistance thermometer is below the set temperature setpoint minus hysteresis. The necessary steps are described in the chapter "Operation".

**⚠ WARNING**

The Ex ib sensor circuit is not infallibly galvanically separated from all other non-intrinsically safe circuits.

Therefore the earth connection of the equipment shall be connected to the potential equalizing (P.E.) system in accordance with the applicable in-stallation standard (e.g. EN60079-14).

**6 Functional Description**

The thermostat module ETM-25Ex-C (temperature controller) or ETM-25Ex-L (temperature limiter) switches the connected heating load on or off by means of a built-in relay.

The °C or °F toggle switch is used to change the temperature unit to °C or °F.

The temperature setpoint is set with the 3 rotary coding switches.

With the connected Pt100 resistance thermometer, the temperature monitoring function is ensured and the temperature is detected at the desired measuring point.

In case of a malfunction of the thermostat module or the Pt100 resistance thermometer, the connected load or heating cable is switched off.

**Controller warning limit:**

The warning limit value describes the permissible tolerance range below and above the temperature setpoint value.

Within this tolerance range, the connected load/electric trace heating is automatically switched on or off. If the warning limit value is over- or undershot, a warning is issued.

**Limiter warning limit:**

Warning limit value describes the range below the temperature setpoint. If the Pt100 resistance thermometer temperature reaches a temperature within the range of the warning limit value, a warning is issued before the temperature setpoint is reached. The connected load/ electric trace heating is then switched off.

**6.1 Controller**

The connected load or heating cable is switched on when the measured temperature is lower than the set temperature. The heater turns off when the measured temperature is higher than the set temperature plus hysteresis. The heating is switched on again when the measured temperature is lower than the set temperature.

## 7 Transport

The ETM-25Ex-C or ETM-25Ex-L thermostat module contains sensitive components such as sensors in its housing. These components must be protected against moisture, shocks, and contamination. The thermostat module must be transported carefully and protected against damage.

### NOTICE

**System damage possible due to improper transport**  
**Transport the thermostat module properly**  
**Transport thermostat module only in original packaging**  
**Protect the thermostat module from damage (e.g., due to impact, moisture, contamination)**

### ⚠ WARNING

**Fire and Electrical Shock Hazard!**  
**Risk of injury from electric current**  
**Transport the thermostat module properly**  
**Protect against damage (e.g., due to impact, moisture, dirt)**

## 8 Installation, Assembly

### ⚠ WARNING

**Fire and electric shock hazard due to electrical trace heating system.**  
**Risk of injury due to electric current**  
**Before starting installation and maintenance work, disconnect all circuits from the power supply and ensure that they are discharged!**  
**Operate electrical trace heating systems with residual current device**

The installation or assembly of the thermostat module may only be carried out by qualified personnel in accordance with a personnel qualification. Correspondingly, valid national standards must be observed, including the installation standard (EN/IEC 60079-14 or EN/IEC 60079-17).

### 8.1 Mechanical Assembly

Mounting options of the thermostat module in the housing:

- Mounting with top-hat rail clamp on top-hat rail TS35
- Mounting with 2 pcs. threaded screws M4; hole spacing 34 mm

The mounting option provided in each case is stored in the type code. For mounting on a TS35 top-hat rail, the top-hat rail clamp is preassembled on the thermostat module. Mounting on the top-hat rail is done without tools.

For mounting with threaded screws, suitable screws must be provided by the customer.

Select screw head according to intended use and observe maximum screw length!

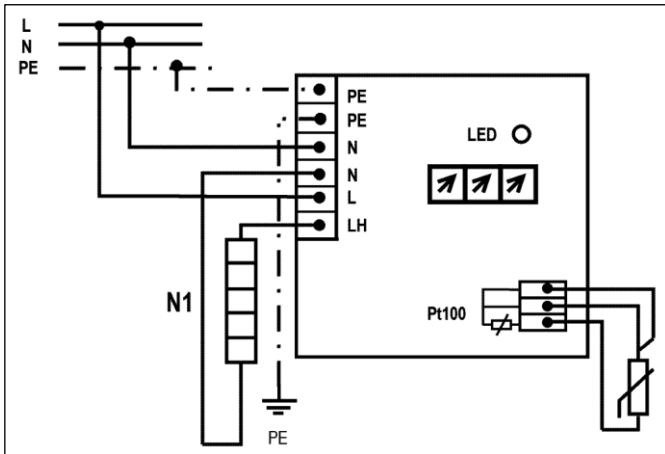
### 8.2 Electrical Assembly

**Tools required:**

- Wire cutters
- Screwdriver 3.5 mm
- Wire stripper

The electrical installation or the electrical connection is carried out according to the wiring diagram. The 5 safety rules must be observed during the electrical installation.

**Thermostat module wiring diagram:**



The Ex ib sensor circuit is not infallibly galvanically separated from all other non-intrinsically safe circuits. Therefore the earth connection of the equipment shall be connected to the potential equalizing (P.E.) system in accordance with the applicable installation standard (Potential equalization according to EN60079-14 with wire cross-section min. 4mm<sup>2</sup>).

**⚠ WARNING**

The Ex ib sensor circuit is not infallibly galvanically separated from all other non-intrinsically safe circuits. Therefore the earth connection of the equipment shall be connected to the potential equalizing (P.E.) system in accordance with the applicable in-stallation standard (e.g. EN60079-14).

**Wiring of the power supply and the heating cable:**

Notice:

- Connect one wire per terminal
- Connect wire cross sections of 2.5 - 6mm<sup>2</sup> (14 - 10 AWG) without wire end ferrule, Connect wire cross sections of 2.5 - 4mm<sup>2</sup> (14 - 12 AWG) with wire end ferrule

Electrical connection procedure:

- Remove 13±1mm core insulation
- Open spring clamp terminal with screwdriver and insert wire until it reaches the lower stop of the terminal
- Wiring of the power supply and heating cable:  
Connect the conductor (L), neutral conductor (N) and ground connection (PE) to the terminal of the thermostat module
- Check for a tight fit of the cables

**Wiring the Pt100 resistance thermometer:**

Notice:

- Connect one wire per terminal
- Use two- or three-wire cable with max. 14-ohm cable resistance. Observe the max. terminal connection table values of the Pt100 resistance thermometer
- Connect wire cross-sections of 0.8 - 2.5mm<sup>2</sup> (18 - 12 AWG) and, if necessary, use ferrules without insulation

Electrical connection procedure:

- Remove 4 - 5mm cable insulation
- Open spring clamp terminal with screwdriver and insert wire until it reaches the lower stop of the terminal
- Check for a tight fit of the cables

## 9 Commissioning

### **WARNING**

**Fire and electric shock hazard due to electrical trace heating system.**

**Risk of injury due to electric current**

**Before starting installation and maintenance work, disconnect all circuits from the power supply and ensure that they are discharged!**

**Operate electrical trace heating systems with residual current device!**

Commissioning of the thermostat module may only be performed by qualified personnel in accordance with a personnel qualification.

To put the thermostat module into operation, the following activities must be performed:

- Check mechanical and electrical installation
- Set the temperature unit (°C or °F) on the temperature unit toggle switch
- Set the temperature setpoint on the rotary coding switch (enter the 100s, 10s, 1s digits; take the minimum/maximum value from the temperature control range)  
Required tools: 2,5mm screwdriver
- Switch on the power supply
- Check for error messages with LED status display, correct error if necessary

If the system works without malfunctions, a function test should be performed. This can be done by setting a higher and lower temperature setpoint compared to the defined temperature at the Pt100 resistance thermometer. This checks whether the thermostat module switches as expected at the corresponding temperature setpoints.

The basis for the defined temperature at the resistance thermometer can be a known temperature of the component on which the resistance thermometer is attached. If the resistance thermometer is not yet mounted on a component, the ambient temperature can also serve as a reference for the function test.

**Required tool:**

- Voltage tester

**Testing procedure:**

- Establish or detect a defined temperature in the vicinity of the Pt100 resistance thermometer
- Connect voltage tester between terminals LH and N
- Set the temperature setpoint on the rotary coding switch so that a higher and a lower temperature setpoint approach the defined temperature in the vicinity of the resistance thermometer
- Let the value of the temperature setpoint on the rotary coding switch intersect with a defined temperature near the resistance thermometer
- Determine the currently set temperature setpoint of the rotary coding switch at the time the voltage is removed from the voltage tester

**Schaltverhalten Temperaturregler prüfen:**

Step	Description	Result
1.	Temperature setpoint is higher than defined temperature at Pt100	Voltage is applied
2.	Temperature setpoint plus hysteresis is lower than defined temperature at Pt100	No voltage is applied
3.	Temperature setpoint is higher than defined temperature at Pt100	Voltage is applied

**Schaltverhalten Temperaturbegrenzer prüfen:**

Step	Beschreibung, Tätigkeit	Resultat
1.	Temperature setpoint is higher than defined temperature at Pt100	Voltage is applied
2.	Temperature setpoint is lower than defined temperature at Pt100	No voltage applied; limiter function is triggered
3.	Temperature setpoint is higher than defined temperature at Pt100	No voltage applied; limiter function is triggered
	Resetting the temperature limiter by user	
4.	Temperature setpoint is higher than defined temperature at Pt100	Voltage is applied

The functional test is successfully completed when the rotary coding switch's currently set temperature setpoint corresponds to the defined temperature value in the vicinity of the resistance thermometer at the moment when no voltage occurs at the voltage tester.

## 10 Operation

During operation, the thermostat module works independently as a controller or limiter according to its type and switches the connected heating load on or off. If error messages occur, they can be recognized by LED status display blink-codes.

### Error message on controller/temperature controller:

Detect and eliminate errors with the help of the LED status display. The controller detects the faultless state itself and continues to operate independently after the error has been eliminated.

### Error message on limiter/temperature limiter:

1. Search for and eliminate errors
2. Ensure that the actual temperature at the resistance thermometer is below the set temperature setpoint minus hysteresis
3. Manual reset of the temperature limiter

### Resetting the temperature limiter:

- Switch off the power supply of the thermostat module
- Open housing cover
- Toggle reset switch 1x (change switch position 1x, switch position On or Off is irrelevant)
- Close housing cover
- Switch on the power supply of the thermostat module
- Determine freedom from errors
- Observe/determine freedom from error after an on/off cycle

When the service life of the thermostat module has reached 80%, the built-in status light blinks 2x yellow. The replacement of the thermostat module must be planned and prepared for.

If the service life of the thermostat module is 100%, the built-in status light blinks red 3 times. The thermostat module must not be operated any further and must be replaced.

## 11 Maintenance

To ensure safe and trouble-free operation of the thermostat module, it must be serviced regularly. Maintenance may only be performed by qualified personnel in accordance with a personnel qualification. Valid national standards must be observed, including the installation standard (EN/IEC 60079-14 or EN/IEC 60079-17).

The thermostat module does not contain any parts that can or must be repaired or replaced. If the thermostat module is damaged, malfunctions, or reaches 100% of its service life, it must be replaced. For this purpose, it must be switched off, the connection cables must be disconnected, and the thermostat module must be disassembled. It must not be operated any further.

The following inspections must be performed at least 1x per year. The cycle starts with commissioning.

### Check for:

- Ready-to-operate status (display of status messages of the LED status display)
- Dirt, moisture
- good mechanical and electrical condition

### Test procedure:

1. Disconnect the thermostat module from the power supply
2. Wipe off any dirt with a damp cloth. Do not use any cleaning agents, detergents, or solvents. Observe the danger of electrostatic charging. Do not damage cable connections. Absorb any moisture that may be present. Find the cause of moisture penetration and eliminate it.
3. Check mechanical and electrical condition. Check cables and cable connections for freedom from defects and for good condition. Check for overheating, loose cables, and loosened insulation.
4. The maintenance performed must be documented in a maintenance book. This records the maintenance date and describes the maintenance activity.

## 12 Decommissioning

The activities required for decommissioning vary depending on the customer's situation and the desired duration of the decommissioning. In all cases, the thermostat module power supply must be switched off and de-energized. The thermostat module must be checked for good condition and stored according to the storage conditions. It can be electrically and mechanically uninstalled or remain in a mounted condition. If the thermostat module is damaged, malfunctions, or reaches 100% of its service life, it must be replaced. For this purpose, it must be switched off, and the connection lines disconnected and disassembled. It must not be operated any further or be intended for further operation. It must be properly disposed of.

### Check for:

- Ready state (display of status messages on LED status display)
- Dirt, moisture
- Good mechanical and electrical condition

### Decommissioning procedure:

1. Disconnect the thermostat module from the power supply
2. Wipe off any dirt with a damp cloth. Do not use any cleaning agents, detergents, or solvents. Observe the danger of electrostatic charging. Do not damage cable connections. Absorb any moisture that may be present. Find the cause of moisture penetration and eliminate it
3. Check mechanical and electrical condition. Check cables and cable connections for freedom from defects and for good condition.: Check for overheating, loose cables, and loosened insulation.
4. If necessary, uninstall both electrically and mechanically and store according to the storage conditions.

## 13 Recommissioning

The activities required for recommissioning depend on the state of disassembly, the activities performed during decommissioning, and the condition of the thermostat module. It must be ensured that it is in a safe and operational condition.

Before the thermostat module is put into operation, the entire operating and installation instructions must be observed, especially the safety instructions. The instructions in the chapters Installation, Assembly, and Commissioning must be observed.

## 14 Disposal, Recycling

The thermostat module must be disposed of properly in accordance with legal regulations. It consists mainly of glass-fiber reinforced plastic, metal, and electrical components. The thermostat module cannot be dismantled into its components and must be disposed of as electronic waste.

## 15 Warranty

The scope of warranty is based on the legal warranty and the current General Terms and Conditions of BARTEC GmbH. Prerequisite for the recognition of warranty claims is the observance of the operating instructions including the intended use, personnel qualifications, and legal requirements. The entire system must be designed properly and in accordance with the technical data of the thermostat module.

No liability is assumed for resulting damages and consequential damages.



**16 Declaration of Conformity (EU)**

EU Konformitätsbescheinigung EU Attestation of Conformity Attestation UE de conformité			
N° 01-6E00-7C0001_			
Wir	We	Nous	
<b>BARTEC GmbH</b> 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	
<b>ETM-25Ex*</b>	<b>ETM-25Ex*</b>	<b>ETM-25Ex*</b>	
<b>Typ 07-6E**-****/****</b>			
auf das sich diese Erklärung bezieht den Anforderungen der folgenden Richtlinien (RL) entspricht <b>ATEX-Richtlinie 2014/34/EU</b> <b>EMV-Richtlinie 2014/30/EU</b> <b>RoHS-Richtlinie 2011/65/EU</b> <b>RoHS-Richtlinie 2015/863/EU</b> und mit folgenden Normen oder normativen Dokumenten übereinstimmt	to which this declaration relates is in accordance with the provision of the following directives (D) <b>ATEX-Directive 2014/34/EU</b> <b>EMC-Directive 2014/30/EU</b> <b>RoHS-Directive 2011/65/EU</b> <b>RoHS-Directive 2015/863/EU</b> and is in conformity with the following standards or other normative documents	se référant à cette attestation correspond aux dispositions des directives (D) suivantes <b>Directive ATEX 2014/34/UE</b> <b>Directive CEM 2014/30/UE</b> <b>Directive RoHS 2011/65/UE</b> <b>Directive RoHS 2015/863/UE</b> et est conforme aux normes ou documents normatifs ci-dessous	
EN IEC 60079-0:2018 EN 60079-7:2015 +A1:20018 EN 60079-11:2012 EN 60079-18:2015 +A1:2017 EN 60079-30-1:2017	EN 61000-4-2:2009 EN 61000-4-3:2006 +A1:2007 +A2:2017 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	
<b>DEKRA 20 ATEX0021U<sup>(*)</sup></b> <b>0344, DEKRA Certification B.V., Meander 1051, 6825 MJ Arnhem, NL</b>			
(*) Die Ex Komponente ist Teil eines elektrischen Betriebsmittels oder eines Moduls, gekennzeichnet mit dem Symbol „U“, das nicht für sich allein verwendet werden darf und über dessen Einbau in elektrische Betriebsmittel oder Systeme zur Verwendung in explosionsgefährdeten Bereichen gesondert entschieden werden muss.  Merkmale dieser Komponente sowie die Bedingungen für ihren Einbau in Geräte und Schutzsysteme siehe Betriebsanleitung der Komponente.	(*) The Ex component is a part of an electrical apparatus or a module, marked with the symbol "U", which is not intended to be used alone and requires additional consideration when incorporated into electrical apparatus or systems for use in explosive atmospheres.  Characteristics and how the component must be incorporated into equipment or protective systems see operation manual of the component.	(*) Le composant Ex est partie de matériel électrique ou de module, marquée du symbol « U », ne devant pas être utilisée seule et nécessitant une certification complémentaire lorsqu'elle est incorporée à un matériel électrique ou à un système pour atmosphères explosives.  Les caractéristiques du composant ainsi que les conditions d'incorporation dans des appareils ou des systèmes de protection regartie voir l'instruction d'emploi du composant.	
<b>0044</b> Bad Mergentheim, 18.05.2020			
 i.V. Tobias Dold Head of Product Management Heating Technology	 i.V. Team Leader Certification Center		
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**17 Declaration of Conformity (UK)**

UK Attestation of Conformity  N <sup>o</sup> 01-6E00-7CU001	
We <b>BARTEC GmbH</b> Max-Eyth-Straße 16 97980 Bad Mergentheim Germany	
declare under our sole responsibility that the product Thermostat Type: <b>07-6E**-**** ***)</b>	
to which this declaration relates is in accordance with the provision of the following regulations	
<b>Statutory Instrument 2016 No. 1107 - The Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016</b> <b>Statutory Instrument 2016 No. 1091 - The Electromagnetic Compatibility Regulations 2016</b> <b>Statutory Instrument 2012 No. 3032 - The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012</b>	
and is in conformity with the following standards or other normative documents	
<b>EN IEC 60079-0:2018</b> <b>EN 60079-7:2015 +A1:20018</b> <b>EN 60079-11:2012</b> <b>EN 60079-18:2015 +A1:2017</b> <b>EN 60079-30-1:2017</b> <b>EN 61000-4-2:2009</b>	<b>EN 61000-4-3:2006 +A1:2007 +A2:2017</b> <b>EN 61000-4-4:2012</b> <b>EN 61000-4-5:2014 +A1:2017</b> <b>EN 61000-4-6:2014</b> <b>EN 61000-4-8:2010</b> <b>EN 61000-4-11:2004 +A1: 2017</b>
<b>Procedure of UK-Type Examination / Approved Body</b>	
<b>CML 21UKEX3986U-0</b> <b>2503, Eurofins E&amp;E CML Limited, Newport Business Park, CH65 4LZ</b>	
<small>(*) The Ex-component is a part of an electrical apparatus or a module, marked with the symbol "U", which is not intended to be used alone and requires additional consideration when incorporated into electrical apparatus or systems for use in explosive atmospheres.                  Characteristics and how the component must be incorporated into equipment or protective systems see operation manual of the component.</small>	
<b>2503</b> Bad Mergentheim, 06.12.2021	
 i.V. Tobias Dold Head of Product Management Heating Technology	 i.A. Dr. Ulrich Mann Certification Manager
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