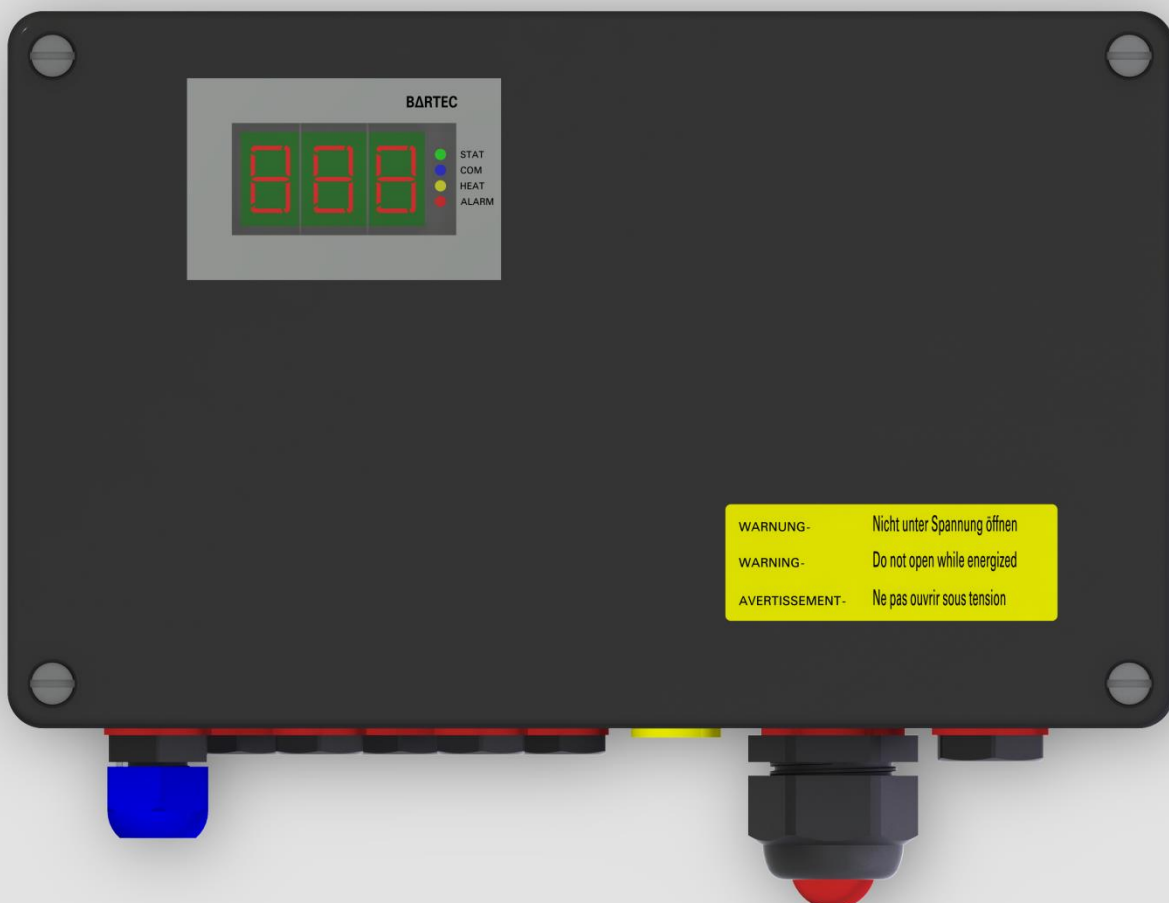


Installation instructions

ESTM / ESTM-L 17-88C1-*22H* ****



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2. Intended use

The Temperature controller / Temperature controller with Limiter Types ESTM / ESTM-L, is designed for use in Zone 1 / 2 and Zone 21 / 22.

The device is available in 2 configurations:

- Temperature controller ESTM
- Temperature controller and a limiter ESTM-L

The 17-88C1-*22H* **** is suitable and approved for the direct connection of BARTEC heating systems. For further information see section 6.8 *Direct connection of self-regulating trace heaters* on page 12.

3. Safety


3.1. Safety marking

Particularly important points in these instructions are marked with a warning message:

 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.

3.2. Safety Instructions

For safe installation of the BARTEC ESTM / ESTM-L the technical requirements and instructions given in this manual must be followed.

 WARNING
Risk of injury or property damage. Follow these guidelines to avoid personal injury or material damage.

- All generally applicable statutory regulations and other binding guidelines for occupational safety, accident prevention and environmental protection must be observed.
- For electrical systems the relevant installation and operating conditions (e.g. Directive 1999/92/EC, Directive 2014/34/EU, EN/IEC 60079-0, EN/IEC 60079-14, EN/IEC 60079-17 and the VDE 0100 series or other relevant national regulations) and the details on the type label must be observed.
- Read this operating manual carefully, before you take the device into operation. Keep this operating manual at an easily accessible place.
- Subject to technical changes without notice. Changes, incorrect information and printing errors do not constitute grounds for a claim for damages. For safety components and systems, the relevant standards and regulations as well as the corresponding operating and assembly instructions must be observed.
- Utilisation in areas other than those specified or the modification of the product by anyone other than the manufacturer is not permitted and will exempt BARTEC from liability for defects or any further liability.
- We reserve the right for technical modifications. Errors and printing errors do not establish any claims to damage. For safety components and systems the relevant standards and regulations must be observed as well as the according operating and installation instructions.
- For technical requests, contact your local BARTEC representative.

4. General information

WARNING

Risk of injury or property damage. Read the technical documentation of the trace heating system prior to maintenance / repair / modification.

4.1. Special conditions

Only cable glands certified for applicable type of protection and having suitable ratings shall be used. For EPL Db only cable glands with integrated seal or gasket may be used.

In order to ensure safe operation of the Ex ib circuits the ground or earth connections of all electrical circuits, connected to the Temperature controller, shall be installed using potential equalization between the hazardous area and the non-hazardous area.

The users of the Temperature controller with limiter ESTM-L, 17-88C1 V** **** shall demonstrate their ability to predict the offset (ΔT_{offset}) between the trace heating sheath temperature and the limiter temperature set point in accordance with clause 4.5.3.1 of IEC/IEEE/EN 60079-30-1: 2017.

4.2. Maintenance

The relevant provisions of the EN/IEC 60079-14, if applicable, and the appropriate series of standards EN/IEC 60079-30-1, EN/IEC 60079-30-2 or EN/IEC 62086-1 as well as EN/IEC 62086-2 for maintenance / repair / examination must be adhered to. The device itself is maintenance free.

4.3. Repair

Repairs may only be carried out by the manufacturer. The device should be sent to the manufacturer for inspection and repair.

5. Description

5.1. General

The Temperature controller / Temperature controller with Limiter Types ESTM / ESTM-L, 17-88C1-*22H* **** is suitable for use with remotely installed heaters and trace heating. The enclosure is designed to allow connection of cold lead cables for heaters or series resistance trace heaters and additionally for the direct connection of parallel trace heaters.

The controller supports Bluetooth connection for programming and monitoring purpose. The configuring can be done by using the Bluetooth Android end device, like tablet or smartphone. The configuring device must be suitable for use in the environment where the controller is installed.

Compatible Bluetooth programming device e.G. BARTEC TC 75_{ex} B7-A264-****.

Remote programming and monitoring is also possible by utilizing the MODBUS RTU data communication terminals (protection type: Ex eb). An end of line MODBUS termination resistor is configurable by using a bridge on the Modbus terminal (protection type: Ex eb).

For the type designation, thermal and electrical data see Annex 1 to the Certificates.

5.2. Variations

ESTM Controller:

The Temperature controller measures the temperatures by using Pt100 resistance thermometers. The corresponding settings and alarm values can be set using our Bluetooth app BARTEC TRACE COMMAND. The device is designed as two-point controller. The parameters are made available using a DCS interface. On site, the actual value is visualized on a 7-segment display and the status of the controller is indicated by four status LEDs. To enable maintenance to be carried out easily, the device is equipped with a remote off function (steam flushing function).

ESTM-L Controller / Limiter combination (SIL 2):

- The ESTM-L includes a SIL II Limiter in to the ESTM.
- Reference setting is realized via encoded module.

The Limiter ESTM-L, 17-88C1-V22H **** complies with all requirements for limiters as specified in EN/IEC/IEE 60079-30-1.

For setting up key features of the Temperature controller with optional Limiter Type ESTM/-L 17-88C1-V22H ****, an Ex eb terminal is provided inside the enclosure to connect a proprietary temperature limiter set module that prevents changing the set point. See section 6.11 *Limiter Setup* on page 12.

5.3. Sensor

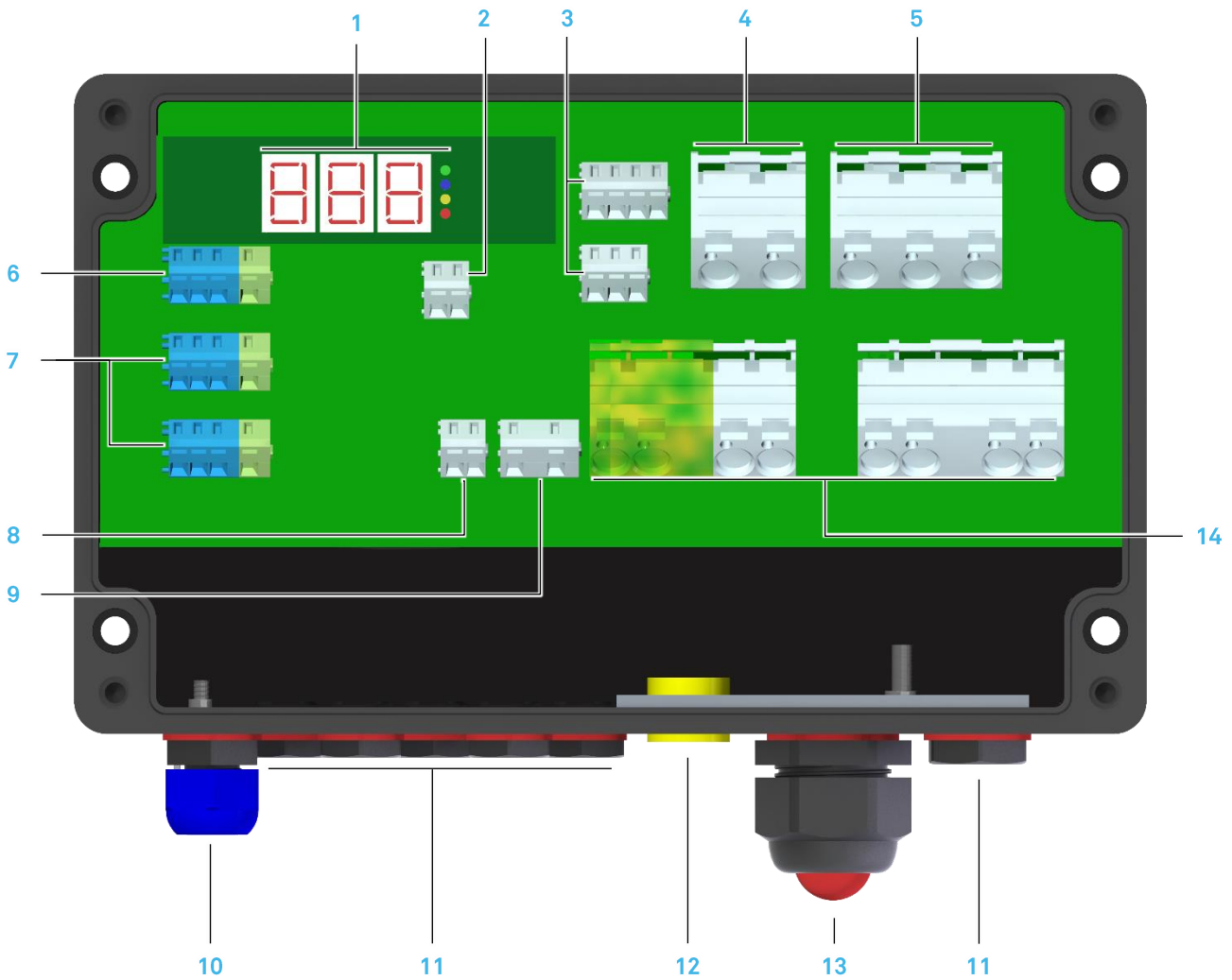
The Pt100 are not in the scope of this certificate.

All sensors comply with the following criteria can be used:

Sensors are passive components and fall in the category "simple electrical equipment" in accordance with EN/IEC 60079-11. It shall conform to all relevant requirements, the equipment shell meet the relevant requirements of EN/IEC 60079-0 and -11, especially the aspects under EN/IEC 60079-11, paragraph 5.7. This includes required distances of Ex i- to non Ex i circuits, IP-protection, electrostatics etc. When used in gas hazardous areas an accordance to a temperature class (T1...T6) according to EN/IEC 60079-11, paragraph 4 is necessary.

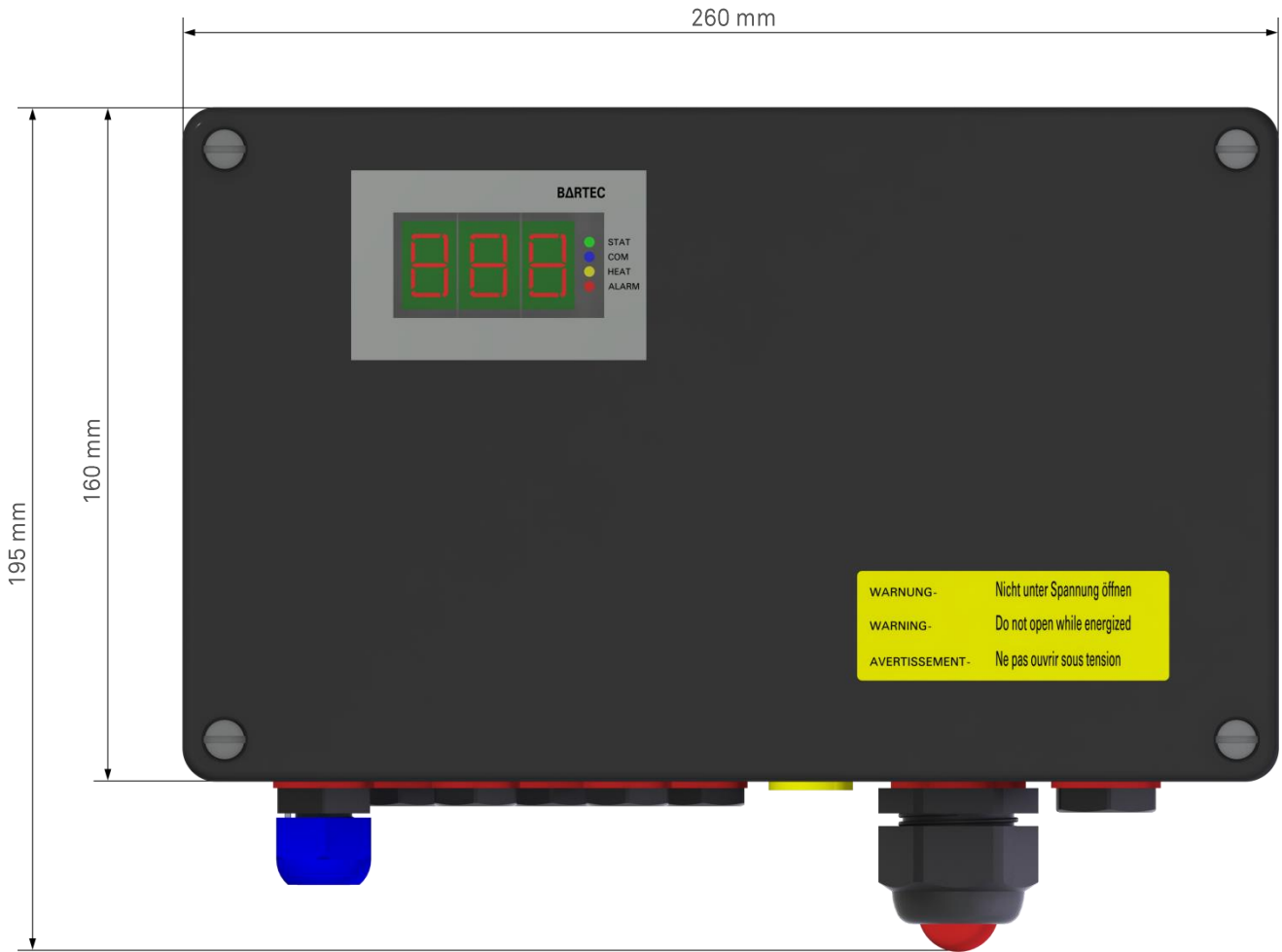
For sensor circuit data see section 8.2 Electrical data, page 14.

5.4. Device overview (example)



- | | |
|----|---|
| 1 | Display and status indication lights |
| 2 | Terminal coding element (set point limiter) |
| 3 | Terminal RS485 IN/OUT |
| 4 | Heating circuit terminal |
| 5 | Terminal choice N/C/L2 |
| 6 | Terminal Pt100 limiter |
| 7 | 2x terminal Pt100 controller |
| 8 | Extension terminal |
| 9 | Fault contact |
| 10 | Cable gland Pt100 Ex i (M16. blue) |
| 11 | M 16 blind plugs for optional use (fault contact, Pt100, Modbus IN/OUT) |
| 12 | Dust cap M20x1,5 thread for heating circuit connection |
| 13 | Cable gland feeder cable M25 |
| 14 | Power supply terminal 2xPE/2xL1 / 2xN/2xL2 |

5.5. Dimensions

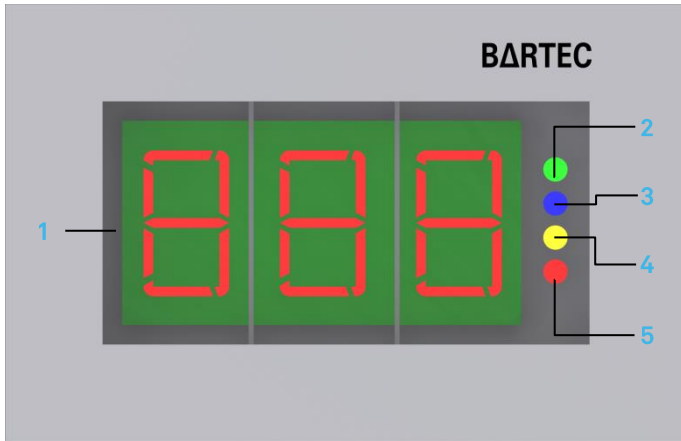


5.6. Cable gland positions

The following drawing shows the standard version of the ESTM (see order documentation for customised cable gland positions).



5.7. Display and indication lights



- 1 7 segment display = Actual value / Status indication

- 2 Green Status LED = Operative status ON

- 3 Blue Status LED = Communication; flashing at BUS activity; On Bluetooth active;

- 4 Yellow Status LED = Heating ON

- 5 Red Status LED = Failure / limiter alarm

In normal operation, the currently measured values are shown in sequence on the display. The corresponding sensor is displayed before the respective temperature value. When all active sensors have been shown, the unit presently set (°C/°F) is shown.

- 1- for the first Pt100 of the controller,

- 2- for the second Pt100 of the controller

- L- for the Pt100 of the limiter

Other possible indications are

- AHC** for the Automatic Heating Check

- LIA** Limiter Alarm

- F99** Internal Error

- ooo** over range Pt100

- uuu** under range Pt100

5.8. Type label and marking (example)

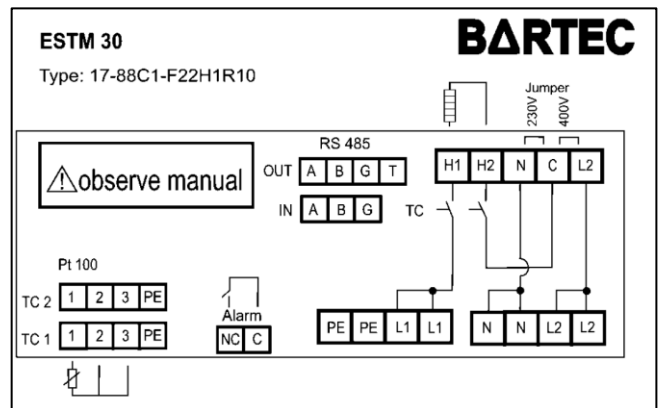
You can find the type label on the right side of the Enclosure.



5.9. Connection drawing

You can find the connection-drawing label of each ESTM / ESTM-L kit on the inside of the lid.

Exempel:



6. Installation and startup

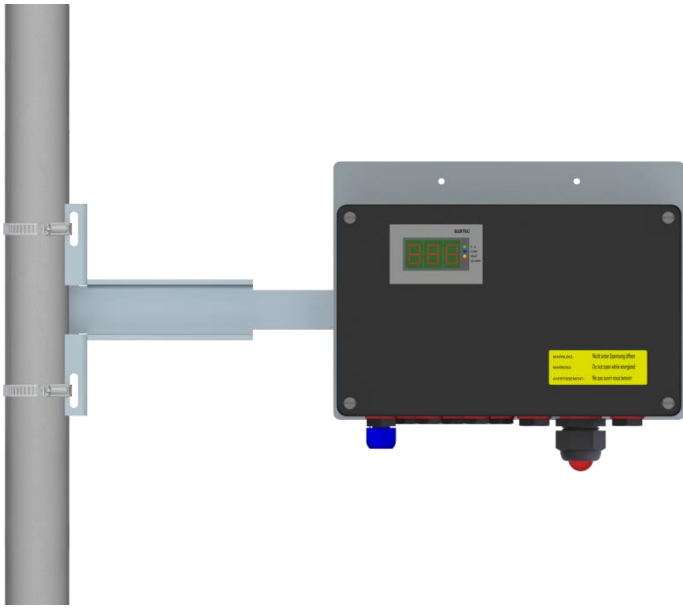
6.1. Installation enclosure

Install the ESTM / ESTM-L on a wall or with mounting plates and brackets on a pipe or workpiece as shown below.

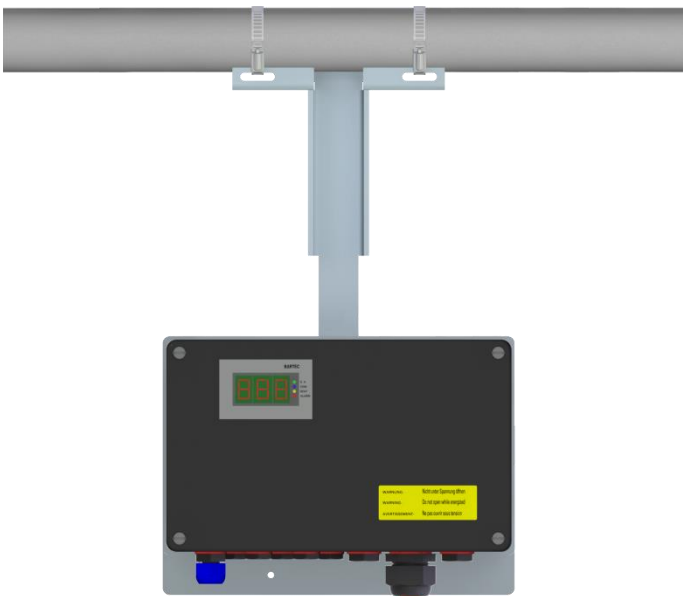
⚠ CAUTION

Risk of crushing or property damage. Use appropriate installation materials that are suitable to support the weight of the device (4.7 kg).

On a vertical pipe:



On a horizontal pipe:



6.2. Installation of PT100 sensors

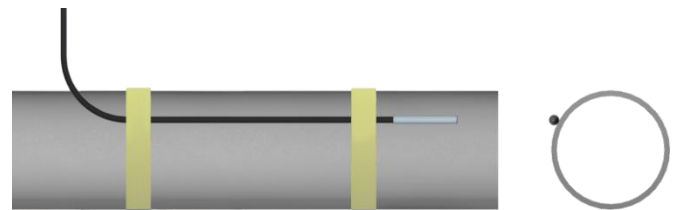
Specify a suitable spot for the resistance thermometer installation. The following selection criteria may be helpful:

Prerequisites:

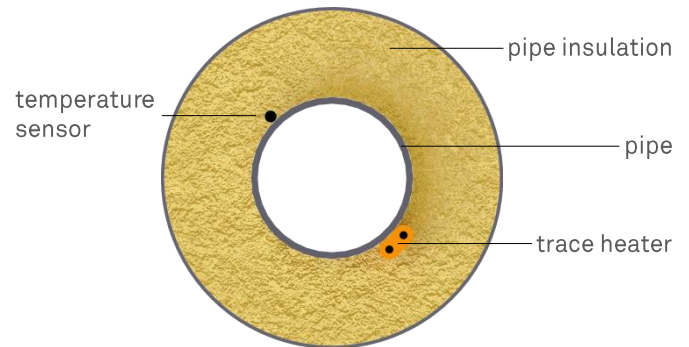
- For the Limiter Pt100 the please observe the IEC 60079-30-1 chapter 4.5.3
- For the Limiter Pt100 it is recommended to use shielded wires

Mounting location:

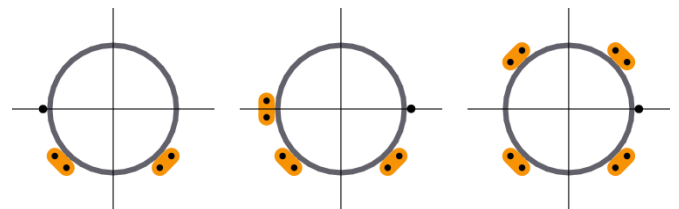
- The location should be easy accessible for future test and servicing purposes.
- Use polyester adhesive tape or glass cloth tape that suits the expected temperatures to attach the temperature sensor to the pipe.



- Ensure a proper heat transfer between the surface of the measured object and the sensing element, e.g. by using aluminium adhesive tape.
- If possible, leave a minimum distance of ≥ 2 m between the measuring point and heat-dissipating components such as fittings, pumps, flanges, pipe supports, etc.
- Install the temperature sensor directly on the pipe (below the pipe insulation):



- If you use multiple trace heaters, position them as shown in the following figure.



6.3. Tightening torque for screws and glands

	Type	Nominal size	Tightening torque [Nm]		Min/max diameter of cables [mm]
Cable gland BIMED	EHIBMI-SX1(DS)	M16x1,5	S1+S2	3,5	4-8
			S1	4	
	EHIBM-XEU25L(DS)	M25x1,5	S1+S2	5,5	9-17
			S1	5	
M6 screws of the enclosure lid:			1,4		
Cable glands used in BARTEC heating systems			see respective manual		

NOTICE
Cable glands are not covered by the certificate of the ESTM / ESTM-L. Please see respective manufacturer documentation and certificates.

6.4. Minimum requirements for cable glands

The entry to the enclosure shall be provided with IP65 rated Ex eb IIC or Ex tb III C approved glands or blind plugs suitable for the size of entry, the cable size and shape, the environment and the application.

- Ta -55°C to +55°C
- Ingress protection: IP66 according to EN/IEC60079-0
- Impact resistance: 7J according to EN/IEC60079-0
- Operation temperature range: -55°C to +70°C

WARNING
Risk of explosion, fire or malfunction. Use only system certified cable glands (M20 TG-x-1) for self-regulating trace heaters.

6.5. Minimum requirements for wiring material

Wiring material for temperature power cables and leads for heating circuit must be suitable for at least 90°C.

	Min crossection [mm ²]	Max crossection [mm ²]	Strip length [mm]	
Power supply / leads for load connection	2,5	16	12...13	
Pt 100 Cable	0,2	1,5	5...6	if longer than 2m use a shielded cable
Bus connection	0,2	1,5	5...6	use a shielded cable
Fault contact	0,2	1,5	5...6	

6.6. Electrical installation

WARNING
Risk of explosion, fire or malfunction. The relevant regulations must be observed when making electrical connections in an explosion hazardous area. Only a qualified electrician may perform the electrical connection.

WARNING
Risk of electrical shock. Disconnect the device from the mains completely if there is a risk of live parts being touched during work on the device.

When selecting the conductor material, installing and electrically connecting the device, the regulations in VDE 0100 for the “erection of power installations with rated voltages up to 1000 V” and the respective national regulations must be observed.

The PE terminal on the device shall be connected to the PE conductor. This lead with a cross-section that is at least as large as that of the supply cable. Run the earthing conductors in a radial pattern to a common earthing point which is connected to the protective earth conductor of the power supply. The earthing conductors shall not be daisy chained, i.e. do not run them from one device to another.

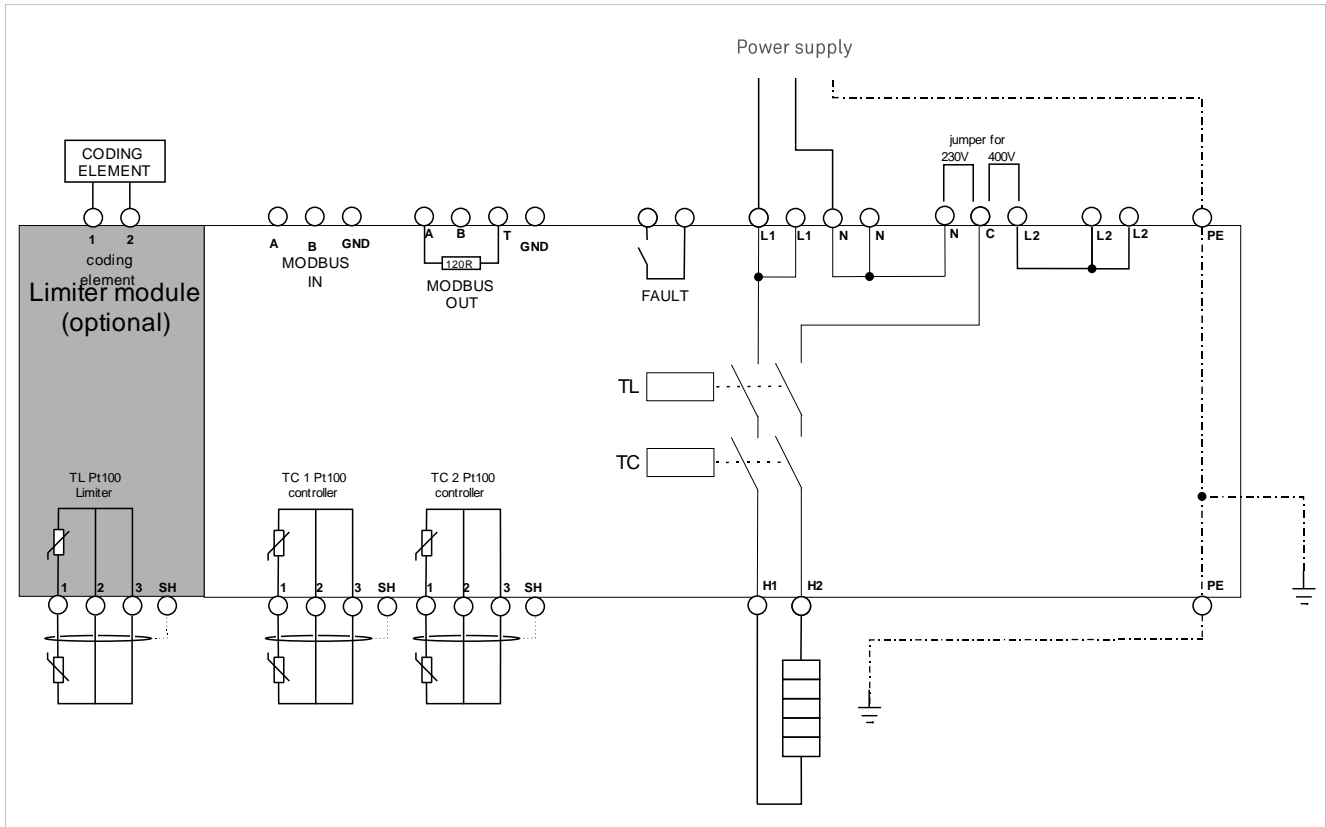
If an armoured control cable is used for Pt100 connection the cable armour and cable glands shall be properly earthed by using the appropriate earth tags.

An over-current protection must be provided (see section 8.2 Electrical data on page 14).

6.7. Electrical connection drawings

Connection accordance with the following wiring diagram. The connection cables must be conducted to the terminals intended for that purpose. All load circuits connected to the device shall be protected by means of power circuit breakers, which are suitable for the connected load.

230V/30A controller / limiter (example)



6.8. Direct connection of self-regulating trace heaters

The ESTM / ESTM-L 17-88C1-*22H* **** fulfils the requirements of a custom enclosure for the following trace heating systems:

PSB heating system 27-1680-*910

KEMA 08 ATEX 0111 X - IECEX KEM 09.0084X

MSB heating system 27-1980-*910

KEMA 08 ATEX 0110 X - IECEX KEM 09.0083X

HSB heating system 27-1780-*910

KEMA 08 ATEX 0110 X - IECEX KEM 09.0083X

System label of the heating system will be attached to the lid and the enclosure type label will be marked as "custom enclosure".

⚠ CAUTION

CAUTION
Direct connection for a one bench heating circuit

6.9. Initial start-up and setup

For the initial startup a Bluetooth handheld device is mandatory.

The App (BARTEC TRACE COMMAND) will be provided by BARTEC. For detailed information, see Bluetooth Quick Start Guide.

As handheld device we suggest e.G. BARTEC TC 75_{ex} B7-A264****.

After the initial start-up (Bus address has been set) the Parameters can be shown and changed via MODBUS.

⚠ WARNING

Be aware that all faults and mistake at settings and values can interrupt or damage the device and the process. All changes shall be carried out by outraised and trained person.

6.10. Controller Setup

Refer to the Quick start guide Bluetooth 11-88C1-7E0001.

6.11. Limiter Setup

The Limiter value is set by set coding element. Coding element will be connected to a marked terminal in the enclosure. Only use Original BARTEC coding element. Order numbers please see section 0 Coding resistors on page 16.

Reset of the tripped limiter is realized by Bluetooth or MODBUS (refer to the Bluetooth and MODBUS manual). Reset is only possible if the measured temperature is below the set-point of the limiter (coding element). To reset the device a MODBUS communication or a Bluetooth device is needed. Both access methods use password protection. For detailed information see Bluetooth and MODBUS manual.

7. Setup and operation

7.1. Fault messages

Fault indication LED (see section 5.7 Display and indication on page 8)

All faults are programmable and can be monitored by the red LED on the front cover.

Fault contact is a potential free contact SPST-NC. It will open in case of

- sensor malfunction
- limiter has tripped
- adjustable alarm values
- internal error/fault

The fault signal relay responds to any alarm or fault (contact opened). It is equipped with a potential-free make contact.

To identify the detailed failure, connect via Bluetooth or Modbus.

Bus and Bluetooth

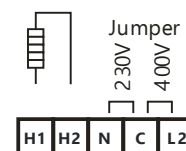
Detailed fault information can be monitored by Bluetooth and MODBUS.

7.2. Measuring fault

If measuring circuit is shorted or a sensor break is detected the Load will be cut off and the limiter will be activated. A fault message will be indicated.

7.3. Setup for 230V or 400V (phase to neutral / phase to phase)

An Ex eb terminal with a Jumper is provided for selecting single (phase-neutral) or two phase (phase-phase) power supply to the load.



See section 6.7 Electrical connection drawings on page 11.

⚠ WARNING

During the assembly of the jumper please make sure that the jumper is completely pushed in. Otherwise the corresponding contact may break down.

7.4. Automatic restart in case of power failure

In the case of a power failure, the device restarts five seconds after the power failure and the last state is restored.

All previous functions are automatically switched on again after voltage recovery unless the limiter is blocked by over-temperature or an earlier fault condition.

7.5. Fault message during power failure

The fault contact is a normally closed contact. In the event of a power failure, the relay interrupts the fault loop.

7.6. Internal temperature monitoring

For safety purpose and self-protection a Hot Spot measuring is included. If the internal temperature exceeds 110°C the load will be switched off.

7.7. Remote off / steam purging function

This function will switch off the load circuit (Limiter and Controller Relays are switched off) for Maintenance purpose. All

High and Low Temp Alarms and the Automatic Heater Check will be blocked. When this function is reset to operation mode, all previous functions are automatically switched on again unless the limiter is blocked by high temperature or previous fault condition.

7.8. Current measurement

Important parameters for preventive maintenance are leakage and load currents measurement. This information can be used to determine the condition of the trace heating system.

7.9. Automatic Heater Check

If the heater is not in use for a longer period of time, the ESTM/ESTM-L can be activated at adjustable cycles. The measured current can be used to evaluate operational reliability of the Heat tracing System.

7.10. Non-volatile memory

The device is equipped with a non-volatile memory. Data retention period is min. 20 years at 85°C

8. Technical data

supply voltage	230V +10%-20% 50Hz
Ambient temperature range Ta	-55°C to +55°C
Storage temperature	-60°C to +60°C
Dimensions	Width 260mm / Height 160mm / Depth 90mm
Units	°C / °F
Cable gland threads	Standard: 6xM16 2xM20 1xM25 (additional variants see order code)
Ingress protection	IP65 according to ATEX DIN 60529 (depending on connection set conductor system)

8.1. Thermal and electrical data load connection

Heating circuit with sheathed cables

Min. cross section of power cables [mm²]	Ambient temperature [°C]	Uload [VAC]	I _{max} load [A]	T-Class	Maximum surface temperature "T"
6	-55 to +45	230/400	27/25	T6	+80°C
6		230/400	30/25	T5	
4	-55 to +55	230/400	22	T5	

Constant watt trace heaters remote (EKL / EMK cold lead)

Cold lead cross-section [mm²]	Ambient temperature [°C]	Uload [VAC]	I _{max} load [A]	T-Class	Maximum surface temperature "T"
2,5	-55 to +45	230/400	22	T6	+80°C
		230/400	25	T5	
6	-55 to +55	230/400	30/25		
2,5			230/400	25	

Self-regulating trace heaters

Self-limiting tape type	Ambient temperature [°C]	Uload [VAC]	Max. Load	T-Class	Maximum surface temperature "T"
PSB MSB HSB	-55 to +55	230			

The T-classes and requirements of the separately certified BARTEC heating systems must be observed in accordance with the system design details and operating instructions the maximum heating circuit length must be conform to the specifications of the system.

8.2. Electrical data

Supply circuit (terminals L1 - N) in type of protection Ex eb:

Rated voltage	230VAC
Um	250VAC
Rated power without load	15VA
Prospective short circuit current	200A

Load circuit primary side (terminals and bridges L1 - N / L2) in type of protection Ex eb:

Rated load voltage U load (L1 - N)	230VAC
Rated load voltage U load (L1 - L2)	400VAC (phase-phase)
Um	250VAC (phase-neutral)
Prospective short circuit current	200A

For use with trace heating (resistive load):

Maximum breaker size	32A
Ground-fault protective device	nominal 30mA

Load circuit secondary side (terminals H1 and H2) in type of protection Ex eb:

Rated voltage	equal to U load, mentioned above
Rated load current, I _{max} load, resistive load	see thermal and electrical data

TL SET circuit in type of protection Ex eb:

Um	250VAC
Rated voltage	5VDC

For use with proprietary temperature limiter set module.

Fault / alarm, potential free contacts in type of protection Ex eb:

Um	250VAC
Rated voltage	230VAC or 30VDC
Rated switch current, resistive load	2A

MODBUS RTU In (terminals A - B and T) / MODBUS RTU Out (terminals A - B) in type of protection Ex eb:

Um	250VAC
Rated voltage	5VDC

Ext. BUS Ethernet TCP/IP circuit in type of protection Ex eb:

Um	250VAC
Rated voltage	5VDC

Sensor circuits (terminals TC 1, TC2 and TL):

In types of protection intrinsic safety Ex ib IIB, Ex ib IIC, Ex ib IIIB and Ex ib IIIC with the following maximum values per circuit:

U₀ = 5.0V; I₀ = 84mA; P₀ = 105mW; linear characteristic; C₀ = see table below; L₀ = see table below.

Ex ib IIC	Lo [mH]	5.0	2.0	1.0	0.5	0.2
	Co [µF]	1.9	2.7	3.4	4.1	5.4
Ex ib IIB Ex ib IIIB	Lo [mH]	20	10	5.0	1.0	0.2
	Co [µF]	7.9	10	13	20	33

The Ex ib sensor circuits are not infallibly galvanically separated from each other, nor from the non-intrinsically safe circuits. The earth connection of the equipment shall be connected to the potential equalizing (PE) system in accordance with the applicable installation standards. (Potential equalisation according to EN60079-14 with wire cross-section min. 4mm²)

8.3. Technical data controller

Control element Switching cycles	>500K at DPST 230VAC 30A / 400VAC 25A / AC-1
Fault signal relay	SPST 230V/2A
Bluetooth	Class 1 (100m) password protected
Rated value steps controller	1K
Interfaces	Bluetooth / RS 485 Modbus RTU
Load current measuring	0.3 up to 30A
Fault current measuring	10mA up to 300mA

8.4. Technical data SIL 2 limiter

Temperature range	0°C up to 500°C
Setting	Coding resistors of T1 to T6
Control element Switching cycles	100K at DPST 230VAC 30A / 400VAC 25A / AC-1
Limiter resetting	Via password
ESD protection	According to DIN EN 61340-5-1
Measuring accuracy	0,2°C or rather 1 digit
Switching accuracy	2°C
Switching hysteresis	< 2K
Ambient temperature	≤ 0,02% / K
Cable length compensation	1K at conductor 3 x 1,5mm ² , length 1,0km
Tripping time	30ms
Fault tolerance time	30ms
Measuring circuit monitoring	
Conductor break	≤ 350Ω
Conductor end	< 70Ω

Pt100 input - intrinsically safe	
1 PT 100 input	Three-wire technology
max. current	7mA
max. voltage	5,88V
max. power	112mW
Measuring current	1mA
Limiter relay	
DPST	
Rated voltage	230 / 400V
max. current	30 / 25A
Safety integrity level limiter SIL 2 (Test cycle 3 years)	
PFH	3,42 x 10 ⁻⁷ 1/h
PFD	1,51 x 10 ⁻³ 1/h
Safety integrity Level SIL 2 (Test cycle 1 year)	
PFH	3,42 x 10 ⁻⁷ 1/h
PFD	4,51 x 10 ⁻³

8.5. Technical data Bluetooth

This device contains a Bluetooth class 1

8.6. Standards and certificates

EU - type examination certificate

DEKRA 18ATEX0020 X

ATEX classification

- ⊕ II 2 G Ex eb mb [ib] [60079-30-1] IIC T6...T5 Gb
- ⊕ II 2 D Ex tb [ib] [60079-30-1] IIIC T80°C Db

Designation temperature class see 8.1 Thermal and electrical data, design documentation, Annex 1 of the test certificate

- **IECEx Certificat of Conformity**

IECEx DEK 18.0015X

IECEx classification

- Ex eb mb [ib] [60079-30-1] IIC T6...T5 Gb
- Ex tb [ib] [60079-30-1] IIIC T80°C Db

Designation temperature class see 8.1 Thermal and electrical data, design documentation, Annex 1 of the test certificate

8.7. Type codes

ESTM / ESTM-L kit

17-88C1 - * * 2 H - * * * *
I **II** **III** **IV** **V** **VI** **VII** **VIII** **IX**

Designation	Explanation	Value	Explanation
I	Model	17-88C1	Temperature controller / limiter ESTM / ESTM-L
II	Function	F	Temperature controller
		V	Temperature controller with temperature limiter
III	Supply voltage	2	230Vac
IV	Load voltage	2	230 / 400V
V	Load contactors	H	max. 230 / 400V, 30 / 25A *
VI	Entries	1	1xM25, 2xM20, 6xM16 (standard)
		2...9	Special (within limitations of applied enclosure)
VII	Data communication interface	R	Bluetooth with MODBUS RTU
		T	Bluetooth with Ethernet TCP/IP
VIII	Display	0	Remote via Bluetooth
		1	3 digit 7 segment + status LED's
IX	Extensions		For future use

NOTE For further details see section 8.1 *Thermal and electrical data load connection* on page 13.

Coding resistors

Type	Description	SP +/-2K
17-88CZ-	0001	T1 coding resistor for +437°C
	0002	T2 coding resistor for +287°C
	0003	T3 coding resistor for +193°C
	0004	T4 coding resistor for +127°C
	0005	T5 coding resistor for +92°C
	0006	T6 coding resistor for +77°C

Further coding elements available upon request.

The assessment of the coding elements is based on the temperature classes according to EN/IECEx 60079-0. And the Requirement's of the EN/IECEx 60079-30-1

9. Service address

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10. Acceptance and test report

Keep the acceptance and test report together with each trace heating circuit for as long as the system is in use.

NOTICE

All warranty claims are subject to the submission of a correctly and completely filled-in acceptance report. Make sure to add date and signature.

General data

Device type number	17-88C1 - _ _ _ _ _
Serial number	
Heating circuit no.	

Pipe-/Vessel No.	
Building	
Product	

Controller

Set point _____ °C / °F

Location of the controller sensor: _____

Limiter

Set point

Limiter coding element TYPE:	17-88CZ- _ _ _ _
T-Class	T1 <input type="checkbox"/> T2 <input type="checkbox"/> T3 <input type="checkbox"/> T4 <input type="checkbox"/> T5 <input type="checkbox"/> T6 <input type="checkbox"/>
or special coding element	_____ °C

Sensing method (see IEC/IEEE 60079-30-1 4.5.3.1 (2))

a) maximum work piece temperature	<input type="checkbox"/>
b) sensor attached to the trace heater which is installed on the workpiece	<input type="checkbox"/>
c) artificial hot spot	<input type="checkbox"/>

Location of the Limiter sensor: _____

(Pipe / work piece / e.g. "2 m behind valve XYZ.")

Power supply cable / leads for load connection

Cable type (e.g. NYM)	
Number of wires	

Cross-section	
Max. operating temperature of the lead	

Heating circuit data

Heating cable	
Type	
Lot no. heating cable	
Maximum process / exposure temperature	

Heating cable length		m
Operating voltage		V
Output power heating cable		W/m
Resistance heating cable		Ω
Trace ratio		

System marking

Ambient temperature	The lower ambient temperature results from the lower ambient temperature of the BARTEC heating system The upper ambient temperature depends on the connected load (refer to section 8.1 Thermal and electrical data load connection on page 13). _____ °C ← Ta ← _____ °C
Temperature class	The temperature class depends on the device type (trace heater/trace heating system), the above information on the load connection and the maximum ambient temperature. Select according to section 8.1 Thermal and electrical data load connection on page 13.
IP-class	IP____
Ex marking compiled system (as applicable)	⊕ II 2G Ex eb mb [ib] [60079-30-1] IIC T_____ Gb ⊕ II 2D Ex tb [ib] [60079-30-1] IIIC T_____ °C Db

NOTICE

The direct entry of the BARTEC heating systems PSB, MSB and HSB to the Temperature Control and Monitoring Unit 17-88C1-*22H **** ESTM / ESTM-L will be consider as a custom junction box of the heating system. The type label supplied with the corresponding heating systems must be placed on the ESTM / ESTM-L enclosure and filled in conformance to the operating manual of the heating system.

11. EU Declaration of conformity

EU Konformitätserklärung
 EU Declaration of Conformity
 Déclaration UE de conformité
 N° 11-88C1-7C0001_A

BARTEC

Wir	We	Nous
BARTEC GmbH Max-Eyth-Straße 16 97980 Bad Mergentheim Germany		
erklären in alleiniger Verantwortung, dass das Produkt ESTM / ESTML Elektronischer Sicherheits- Temperaturregler /-begrenzer	declare under our sole responsibility that the product ESTM / ESTML Electronic safety temperature controller /-limiter	attestons sous notre seule responsabilité que le produit ESTM / ESTML Contrôleur de température de sécurité électronique / limiteur

17-88C1-*22H****

auf das sich diese Erklärung bezieht den Anforderungen der folgen- den Richtlinien (RL) entspricht ATEX-Richtlinie 2014/34/EU EMV-Richtlinie 2014/30/EU RoHS-Richtlinie 2011/65/EU RED-Richtlinie 2014/53/EU und mit folgenden Normen oder nor- mativen Dokumenten übereinstimmt	to which this declaration relates is in accordance with the provision of the following directives (D) ATEX-Directive 2014/34/EU EMC-Directive 2014/30/EU RoHS-Directive 2011/65/EU RED-Directive 2014/53/EU and is in conformity with the following standards or other normative documents	se référant à cette attestation correspond aux dispositions des direc- tives (D) suivantes Directive ATEX 2014/34/UE Directive CEM 2014/30/UE Directive RoHS 2011/65/UE Directive RED 2014/53/UE et est conforme aux normes ou docu- ments normatifs ci-dessous
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EN IEC 60079-0:2018 EN 60079-7:2015 + A1 :2018 EN 60079-11:2012 EN 60079-18:2015 +A1:2017 EN60079-31:2014 EN 60079-30-1:2017	EN 50495:2010 EN 61326-1:2013 EN 300328 V2.1.1
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Verfahren der EU-Baumuster- prüfung / Benannte Stelle	Procedure of EU-Type Examination / Notified Body	Procédure d'examen UE de type / Organisme Notifié
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DEKRA 18ATEX0020X

0344, DEKRA Certification B.V., Meander 1051, 6825 MJ Arnhem, NL

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Bad Mergentheim, 27.05.2021


 i.V. Tobias Doid

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