

# EE300Ex-xT



## Temperature Transmitter for Intrinsically Safe Applications

The EE300Ex temperature transmitter fulfils the requirements of the ATEX directives on intrinsically safe operating equipment for use in potentially explosive atmospheres in zone 0 / 20 and up to T6 temperature class.

Accurate measurement over the range -70...200°C (-94...392°F) is also possible in applications under pressure from 0.1...20bar (1.5...300psi).

With a stainless steel enclosure and sensing probe the EE300Ex is the ideal transmitter for challenging industrial applications. The 2-part construction facilitates easy installation and fast replacement of the measuring section without time consuming wiring for both models: wall mounted and remote sensing probe up to 10m (32.8ft).

The entire EE300Ex can be placed in the explosion hazardous area. Based on 2-wire technology, the transmitter can be powered by any intrinsically safe power source or via Zener barriers. The measured temperature values are available on a 4...20mA analog output and on the optional display.

The EE300Ex is factory-set to the required measuring range. When outside the hazardous area, the transmitter setup can be easily customized by using the supplied configuration software. This includes the configuration of the analog output and the calibration of temperature during service.



EE300Ex - wall mounting



EE300Ex - remote sensing probe

### Typical Applications

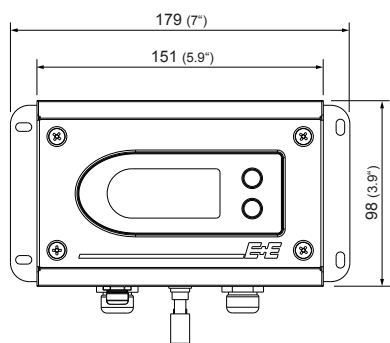
- chemical process control
- pharmaceutical industry
- explosive / hazardous storage rooms
- oil and gas industry

### Features

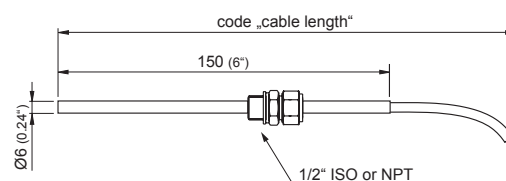
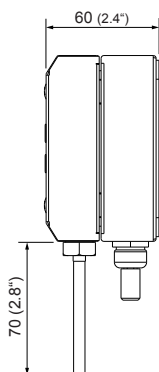
- approved to EPL Ga / Da (gas/dust)
- installation in zone 0
- stainless steel housing and probe
- highest accuracy up to 200°C (392°F)
- pressure tight up to 20bar (300psi)

## Models and Dimensions [mm]

Model	pressure range	working range temperature	Ø-probe
A - wall mounting		-40...60°C (-40...140°F)	6mm (0.24")
M - remote sensing probe	0.1...20bar (1.5...300psi)	-70...200°C (-94...392°F)	6mm (0.24")



**EE300Ex - Model A / H**  
wall mounting /  
housing remote sensing probe



**EE300Ex - Model H**  
remote sensing probe 20bar (300psi) with cut-in fitting

## Technical Data EE300Ex

### Measuring values

#### Temperature

Temperature sensor

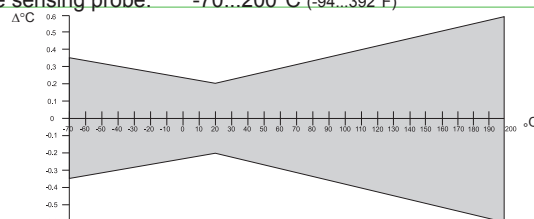
Pt1000 (Tolerance class A, DIN EN 60751)

Measuring range sensor head

wall mounting: -40...60°C (-40...140°F)

remote sensing probe: -70...200°C (-94...392°F)

Accuracy<sup>1)</sup>



Temperature dependence of electronics

typ. 0.005 °C/°C

### Outputs

Scaleable analogue output

4 - 20 mA (2-wire)

$R_L = (V_{CC} - 9V) / 20mA$

### General

Supply voltage (Class III)

$V_{CC \min} = (9 + R_L \cdot 0.02) VDC$   $V_{CC \max} = 28VDC$

Current consumption

max 20mA

Pressure range for pressure tight sensor probe

0.1 ... 20bar (1.5...300psi)

Serial interface for communication <sup>2)</sup>

RS232

System requirements for software

WINDOWS XP or later

Protection class of housing

IP65 / Nema 4

Cable gland

M16 for cable diameter 5 - 10 mm (0.2 - 0.4")

Electrical connection

screw terminals max. 1.5 mm<sup>2</sup> (AWG 16)

Temperature range

sensor head

according measuring range

electronic -40...60°C (-40...140°F)

electronic with display -20...60°C (-4...140°F)

Storage temperature range

electronic and sensor head -20...60°C (-22...140°F)

Electromagnetic compatibility according

EN61326-1

EN61326-2-3

ICES-003 ClassB  
FCC Part15 ClassB



Material

housing

Industrial Environment

probe cable

stainless steel 1.4404

temperature probe

PTFE  
stainless steel 1.4541

1) The accuracy statement includes the uncertainty of the factory calibration with an enhancement factor k=2 (2-times standard deviation). The accuracy was calculated in accordance with EA-4/02 and with regard to GUM (Guide to the Expression of Uncertainty in Measurement).

2) Configuration adapter HA011050 and cable HA011061 necessary.

## Ex - Classifications

ATEX

TPS 13 ATEX 38892 003 X

Safety factors

$U_i = 28V$ ;  $I_i = 100mA$ ;  $P_i = 700mW$ ;  $C_i = 2,2nF$ ;  $L_i \approx 0mH$

### Ex-Designation

Transmitter without display II 1 G Ex ia IIC T4 Ga / II 1 D Ex ia IIIC T80°C Da

Transmitter with display II 2 G Ex ia IIC T4 Gb / II 1 G Ex ia IIB T4 Ga

Remote sensing probe II 1 G Ex ia IIC T6-T1 Ga / II 1 D Ex ia IIIC T80°C...200°C Da

### Working temperature range for the probes:

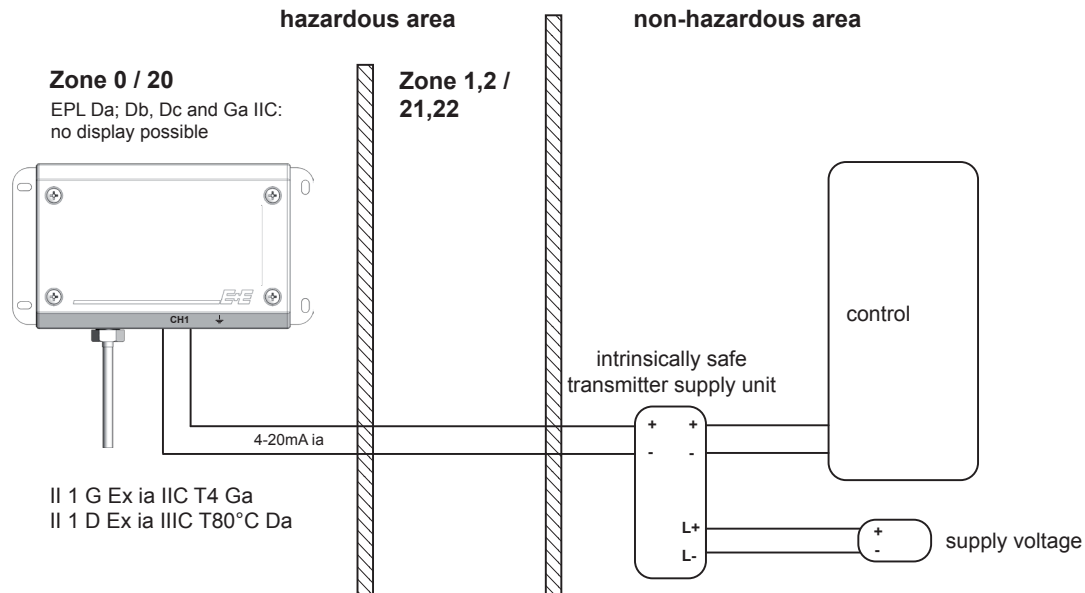
Specification of the temperature class „TKG“ for use in gas area exposed to explosion hazards and „TKD“ for use in dust area exposed to explosion hazards as a function of the ambient temperature „Tamb“ for the temperature probe:

TKG	TKD	Temperature Probe
T6	80°C	$-70^{\circ}C \leq T_{amb} \leq +60^{\circ}C$
T5	95°C	$-70^{\circ}C \leq T_{amb} \leq +75^{\circ}C$
T4	130°C	$-70^{\circ}C \leq T_{amb} \leq +110^{\circ}C$

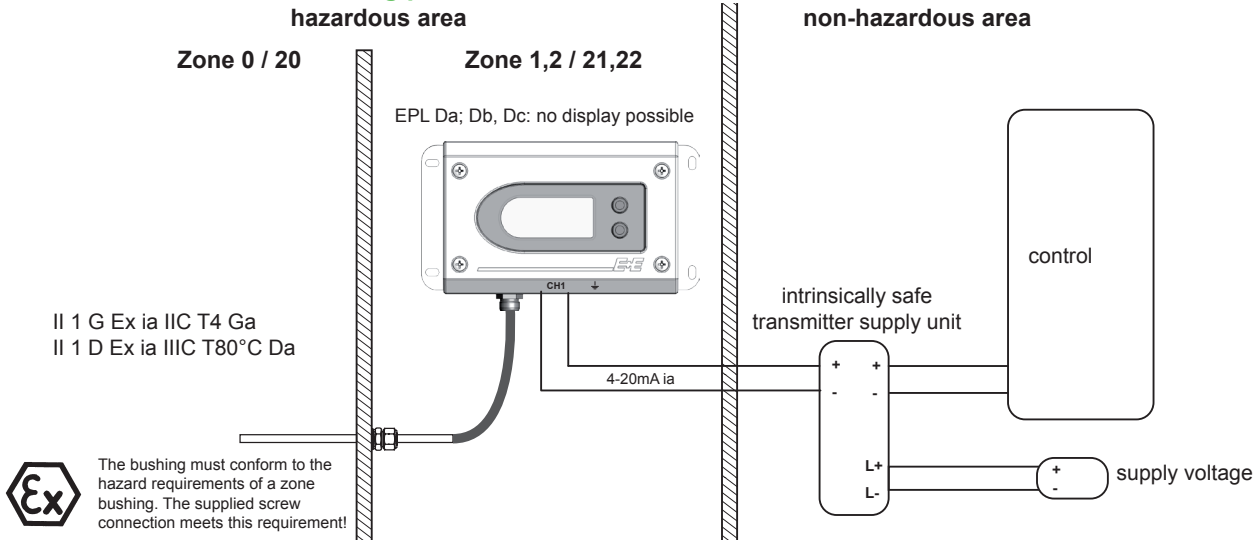
TKG	TKD	Temperature Probe
T3	195°C	$-70^{\circ}C \leq T_{amb} \leq +175^{\circ}C$
T2	220°C	$-70^{\circ}C \leq T_{amb} \leq +200^{\circ}C$
T1	220°C	$-70^{\circ}C \leq T_{amb} \leq +200^{\circ}C$

## Mounting Examples

### EE300Ex - wall mounting in zone 0 / 20:



### EE300Ex - remote sensing probe in zone 0 / 20 and electronics in zone 1 / 21 or 2 / 22:



## Ordering Guide EE300Ex-xT

		EE300Ex-xT6S	EE300Ex-xT6S	
Hardware Configuration	<b>Model</b>	wall mounting remote sensing probe	A H	
	<b>Display</b>	without display with display <sup>1)</sup>	x D	
	<b>Electrical Connection</b>	M16 cable gland	B B	
	<b>Probe - Cable Length</b>	wall mounting	x	
		1m (3.3ft) cable length		C
		2m (6.6ft) cable length		E
		5m (16.4ft) cable length 10m (32.8ft) cable length		G H
	<b>Probe Length</b>	wall mounting remote sensing probe - 150mm (6")	x E	
<b>Zone Feedthrough (probe fitting)</b>	without probe fitting	x	x	
	1/2" ISO - cut-in fitting; 6mm (0.24") 1/2" NPT - cut-in fitting; 6mm (0.24")		I J	
<b>Ex-Certification</b>	ATEX approval	AT	AT	
Setting	<b>Measured Value Units</b>	metric [°C]	M	M
		non-metric [°F]	N	N
	<b>Scaling Range</b>	temperature	Tx	Tx
		yyy (select according table „scaling ranges“)		

<sup>1)</sup> No display possible in the presence of combustible dust (EPL Da, Db, Dc) and EPL Ga IIC

## Scaling Ranges

Tx - Temperature [°C or °F]											
yyy	scaling	yyy	scaling	yyy	scaling	yyy	scaling	yyy	scaling		
002	-40...60	007	0...60	015	20...120	081	-40...250	153	-70...200		
003	-10...50	008	-30...70	022	-40...80	082	-40...350	154	-94...392		
004	0...50	012	-40...120	024	-20...80	085	0...140	155	-40...140		
005	0...100	014	-20...100	077	20...140	095	32...300				

Please observe the maximum adjustable scaling of the outputs (see Technical Data). Other scaling ranges on request.

## Order Example

Example 1:

**EE300Ex-xT6SHDBHEIAT/MTx005**

Model: remote sensing probe  
Display: with display  
Electrical Connection: M16 cable gland  
Probe - Cable Length: 10m  
Probe Length: 150mm  
Zone Feedthrough: 1/2" ISO - cut-in fitting  
Ex-Certification: ATEX

Measured Value Units: metric  
Scaling Range Temperature: 0...100°C

Example 2:

**EE300EX-xT6SAxBxxxAT/MTx002**

Model: wall mounting  
Display: without display  
Electrical Connection: M16 cable gland  
Probe - Cable Length: wall mounting  
Probe Length: wall mounting  
Zone Feedthrough: without probe fitting  
Ex-Certification: ATEX

Measured Value Units: metric  
Scaling Range Temperature: -40...60°C

## Accessories

Configuration adapter for PC (HA011050)  
ATEX Connection cable with protective circuit (HA011061)  
EE300Ex to configuration adapter (HA011401)  
Blank cover for housing base (HA011410)  
Safety Barrier, 1-channel, STAHL 9002/13-280-093-001 (HA011405)  
Intrinsically safe Transmitter Supply Unit, 1-channel, STAHL 9160/13-11-11 (HA011406)  
Intrinsically safe Transmitter Supply Unit, 2-channel, STAHL 9160/23-11-11 (HA011402)  
Sealing plug for unused cable glands