

EE300Ex-xT

Temperature Transmitter for Intrinsically Safe Applications

The EE300Ex-xT intrinsically safe transmitter measures reliably temperature (T) in explosion hazard areas. It complies with the classifications for Europe (ATEX), International (IECEX), USA / Canada (FM) and China (NEPSI) for flammable gas and dust applications.

The entire device can be placed in the explosion endangered area. The remote sensing probe allows for classification up to T6.

Measurement performance

EE300Ex-xT stands for highly accurate and long term stable measurement over the full range -70...200 °C (-94...392 °F), with pressure rating up to 20 bar (300 psi).

Supply and outputs

The device can be powered by any intrinsically safe supply unit or via Zener barriers. The measured data is available on a 4...20 mA, 2-wire output and on the LCD display.

Robust, functional design

EE300Ex-xT is available for wall mount and with remote probe up to 10 m (32.8 ft) The stainless steel enclosure and probe are suitable for harsh environment in challenging industrial applications. The EE300Ex-xT design facilitates the installation as well as the replacement of the measuring section (electronics and probe) without time consuming wiring for both models.



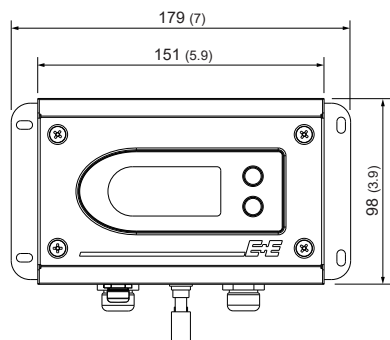
Typical Applications

process control
 chemical and pharmaceutical industry
 hazardous storage rooms
 oil and gas industry

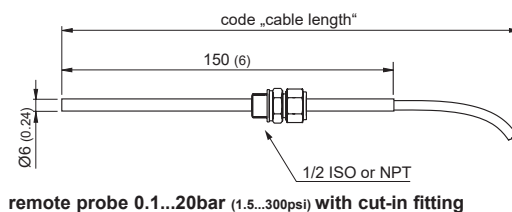
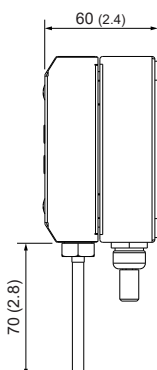
Features

approved for gas and dust
 installation in zone 0 / 20 and Div. 1
 stainless steel enclosure and probe
 highest accuracy up to 200°C (392°F)
 pressure rating 20bar (300psi)

Dimensions in mm (inches)



Enclosure



remote probe 0.1...20bar (1.5...300psi) with cut-in fitting

Technical Data

Measurand

Temperature

Temperature sensor

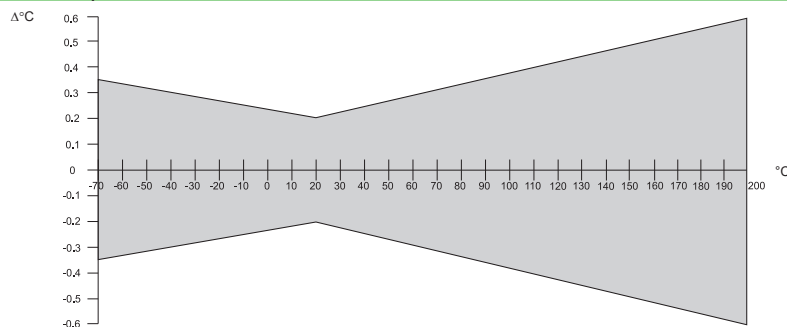
Pt1000 (Tolerance class A, DIN EN 60751)

Measuring range

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

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

Accuracy¹⁾



Temperature dependence of electronics

typ. 0.005 °C/°C

Outputs

Scalable analogue output

4-20 mA (2-wire) $R_L = (V_{CC} - 9 \text{ V}) / 20 \text{ mA}$

General

Supply voltage

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

Current consumption

max 20 mA

Temperature range

probe according measuring range

electronics -40...60 °C (-40...140 °F)

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

Material

enclosure stainless steel 1.4404

probe cable PTFE

probe stainless steel 1.4541

Protection class of housing

IP65 / Nema 4

Cable gland

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

M20 for cable diameter 10 - 14 mm (0.4" - 0.6")

Electrical connection

screw terminals max. 1.5 mm² (AWG 16)

Electromagnetic compatibility according

EN61326-1 EN61326-2-3 ICES-003 ClassB
Industrial Environment FCC Part15 ClassB



Storage temperature range

electronics and probe -20...60 °C (22...140 °F)

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).

Ex - Classifications

Europe (ATEX)

Certificate:	TPS 13 ATEX 38892 003 X by TÜV SÜD Product Service GmbH
Safety factors:	Ui = 28V; li = 100mA; Pi = 700mW; Ci = 2.2nF; Li ≈ 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 probe	II 1 G Ex ia IIC T6-T1 Ga / II 1 D Ex ia IIIC T80°C...220°C Da

International (IECEx)

Certificate:	IECEx FMG 14.0017 X by FM Approvals
Safety factors:	6.4 Vdc ≤ Ui ≤ 28Vdc; li = 100mA; Pi = 700mW; Ci = 2.2nF; Li = 0mH
Ex-Designation:	
Transmitter without display	Ex ia IIC T4 Ta = -40°C to 60°C Ga / Ex ia IIIC T131°C Da
Transmitter with display	Ex ia IIC T4 Ta = -40°C to 60°C Gb / Ex ia IIB T4 Ta = -40°C to 60°C Ga
Remote probe	Ex ia IIC T6-T1 Ta = -70°C to 200°C Ga / Ex ia IIIC T80°C Da

China (NEPSI)

Certificate:	Cert NO. GYJ16.1417X by NEPSI
Safety factors:	Ui = 28Vdc; li = 100mA; Pi = 700mW; Ci = 2.2nF; Li = 0mH
Ex-Designation:	
Transmitter without display	Ex ia IIC T4 Ga, Ex iaD 20 T131
Transmitter with display	Ex ia IIC T4 Gb, Ex ia IIB T4 Ga
Remote probe	Ex ia IIC T1~T6 Ga, Ex iaD 20 T80

USA (FM)

Certificate:	No. FM17US0302X by FM Approvals
Safety factors:	6.4 Vdc ≤ Vmax (or Ui) ≤ 28Vdc; Imax (or li) = 100mA; Pi = 700mW; Ci = 2.2nF; Li = 0mH

Ex-Designation:

Equipment Group I: EE300Ex without display

Class I, II, III, Division 1, Groups A, B, C, D, E, F and G; T4 Ta = -40°C to +60°C; Entity – M1_139080; IP65

Class I, II, III, Division 2, Groups A, B, C, D, E, F and G; T4 Ta = -40°C to +60°C

Class I, Zone 0, AEx ia IIC T4 Ta = -40°C to +60°C Ga; Entity – M1_139080; IP65

Zone 20, AEx ia IIIC T131°C Ta = -40°C to +60°C Da; Entity – M1_139080; IP65

Remote Probe:

Class I, II, III, Division 1, Groups A, B, C, D, E, F and G; T6...T1; Entity – M1_139080; IP65

Class I, II, III, Division 2, Groups A, B, C, D, E, F and G; T6...T1

Class I, Zone 0, AEx ia IIC T6...T1 Ga; Entity – M1_139080; IP65

Zone 20, AEx ia IIIC T80°C Da; Entity – M1_139080; IP65

Equipment Group II: EE300Ex with display

Class I, Division 1, Groups C, and D; T4 Ta = -40°C to +60°C; Entity – M1_139080

Class I, Division 2, Groups A, B, C and D; T4 Ta = -40°C to +60°C; Entity – M1_139080

Class I, Zone 0, AEx ia IIB T4 Ta = -40°C to +60°C Ga; Entity – M1_139080

Class I, Zone 1, AEx ia IIC T4°C Ta = -40°C to +60°C Gb; Entity – M1_139080

Remote Probe:

Class I, II, III, Division 1, Groups A, B, C, D, E, F and G; T6...T1; Entity – M1_139080; IP65

Class I, II, III, Division 2, Groups A, B, C, D, E, F and G; T6...T1

Class I, Zone 0, AEx ia IIC T6...T1 Ga; Entity – M1_139080; IP65

Zone 20, AEx ia IIIC T80°C Da; Entity – M1_139080; IP65

CANADA (FM)

Certificate: No. FM17CA0154X by FM Approvals
Safety factors: $6.4 \text{ Vdc} \leq V_{\text{max}} \text{ (or } U_i) \leq 28 \text{ Vdc}$; $I_{\text{max}} \text{ (or } I_i) = 100 \text{ mA}$; $P_i = 700 \text{ mW}$;
 $C_i = 2.2 \text{ nF}$; $L_i = 0 \text{ mH}$

Ex-Designation:

Equipment Group I: EE300Ex without display

Class I, II, III, Division 1, Groups A, B, C, D, E, F and G; T4 Ta = -40°C to +60°C; Entity – M1_139080; IP65

Class I, II, III, Division 2, Groups A, B, C, D, E, F and G; T4 Ta = -40°C to +60°C

Zone 0, Ex ia IIC T4 Ta = -40°C to +60°C Ga; Entity – M1_139080; IP65

Zone 20, Ex ia IIIC T131°C Ta = -40°C to +60°C Da; Entity – M1_139080; IP65

Remote Probe:

Class I, II, III, Division 1, Groups A, B, C, D, E, F and G; T6...T1; Entity – M1_139080; IP65

Class I, II, III, Division 2, Groups A, B, C, D, E, F and G; T6...T1

Zone 0, Ex ia IIC T6...T1 Ga; Entity – M1_139080; IP65

Zone 20, Ex ia IIIC T80°C Da; Entity – M1_139080; IP65

Equipment Group II: EE300Ex with display

Class I, Division 1, Groups C, and D; T4 Ta = -40°C to +60°C; Entity – M1_139080

Class I, Division 2, Groups A, B, C and D; T4 Ta = -40°C to +60°C; Entity – M1_139080

Zone 0, Ex ia IIB T4 Ta = -40°C to +60°C Ga; Entity – M1_139080

Zone 1, Ex ia IIB T4 Ta = -40°C to +60°C Gb; Entity – M1_139080

Remote Probe:

Class I, II, III, Division 1, Groups A, B, C, D, E, F and G; T6...T1; Entity – M1_139080; IP65

Class I, II, III, Division 2, Groups A, B, C, D, E, F and G; T6...T1

Zone 0, Ex ia IIC T6...T1 Ga; Entity – M1_139080; IP65

Zone 20, Ex ia IIIC T80°C Da; Entity – M1_139080; IP65

The USA and Canada approvals are valid for air and gas measurement only.

Ordering Guide

		EE300Ex-xT6S	EE300Ex-xT6S
Hardware Configuration	Model	wall mount remote probe	A H
	Display	without display with display ¹⁾	x D
	Electrical Connection	2 x M16 cable gland 1/2" NPT conduit adapter 2 x M20 cable gland	B C G
	Probe Cable	wall mount 1 m (3.3 ft) 2 m (6.6 ft) 5 m (16.4 ft) 10 m (32.8 ft)	x C E G H
	Probe Length	wall mount 150 mm (5.9")	x E
	Feedthrough (probe fitting)	without probe fitting 1/2" ISO - cut-in fitting; 6mm (0.24") 1/2" NPT - cut-in fitting; 6mm (0.24")	x x I J
	Ex-Certification	ATEX (Europe) IECEX (International) NEPSI (China) FM (Canada) FM (USA)	AT IC CN CA FM
	Units	metric [°C] non-metric [°F]	M N
Setup	Output	temperature	Tx
	Scaling Output	range	yyy select according data sheet „Scaling Outputs“

¹⁾ No display possible for environments with combustible dust, fibers and flyings and in gases with EPL Ga IIC (Groups A, B)

Order Examples

EE300Ex-xT6SHDBHEIAT/MTx005

Model: remote probe
 Display: with display
 Electrical Connection: 2 x M16 cable gland
 Probe Cable: 10 m (32.8 ft)
 Probe Length: 150 mm (5.9")
 Feedthrough: 1/2" ISO - cut-in fitting
 Ex-Certification: ATEX (Europe)

Units: metric
 Output: temperature
 Scaling Output: 0...100 °C

EE300EX-xT6SAxBxxxFM/NTx083

Model: wall mount
 Display: without display
 Electrical Connection: 2 x M16 cable gland
 Probe Cable: wall mount
 Probe Length: wall mount
 Feedthrough: without probe fitting
 Ex-Certification: FM (USA)

Units: non metric
 Output: temperature
 Scaling Output: -40...140 °F

Accessories

Blank cover	HA011401
Safety Barrier, 1-channel, STAHL 9002/13-280-093-001	HA011410
Intrinsically safe Transmitter Supply Unit, 1-channel, STAHL 9160/13-11-11	HA011405
Intrinsically safe Transmitter Supply Unit, 2-channel, STAHL 9160/23-11-11	HA011406
Sealing plug for unused M16 cable glands	HA011402
Sealing plug for unused M20 cable glands	HA011404

