EE300Ex-xT

Temperature Transmitter for Intrinsically Safe Applications

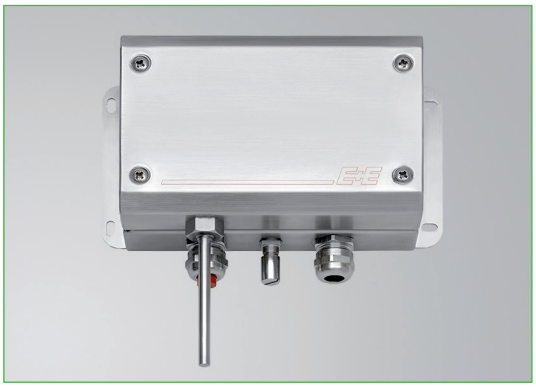
The EE300Ex temperature transmitter fulfils the requirements of the ATEX directives on intrinsically safe operating equipment for use in potentially explosive atmospheres in zone 0 / 20 and up to T6 temperature class.

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

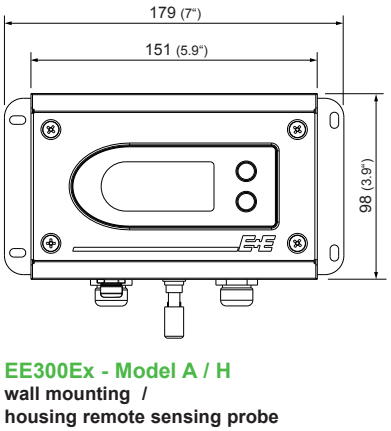
chemical process control
pharmaceutical industry
explosive / hazardous storage rooms
oil and gas industry

Features

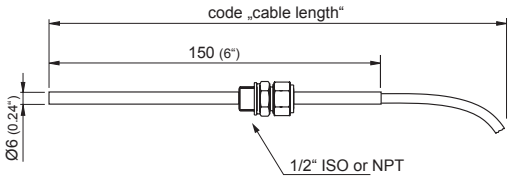
approved to EPL Ga / Da (gas/dust)
installation in zone 0
stainless steel housing and probe
highest accuracy up to 200°C (392°F)
pressure tight up to 20bar (300psi)

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

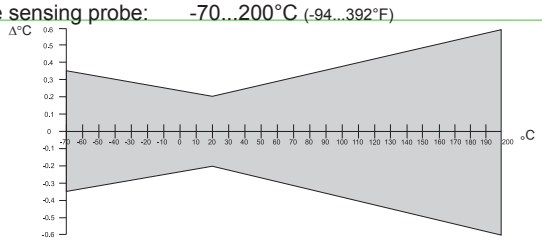


EE300Ex - Model H
remote sensing probe 20bar (300psi) with cut-in fitting

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[1)]		
Temperature dependence of electronics	typ. 0.005 °C/°C	

Outputs

Scaleable analogue output	4 - 20 mA (2-wire)	R_L=(Vcc-9V)/20mA

General

Supply voltage (Class III)	$V_{cc\ min}$=(9+R_L*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 [2)]	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 mm² (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 Industrial Environment	EN61326-2-3	ICES-003 ClassB FCC Part15 ClassB
Material	housing	stainless steel 1.4404	
	probe cable	PTFE	
	temperature probe	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:

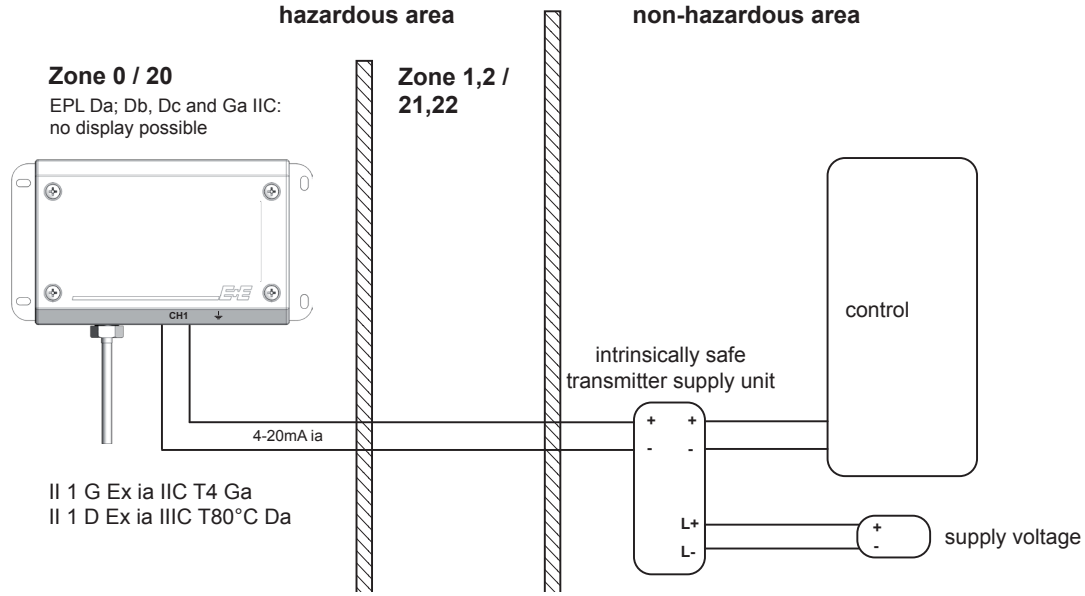
Specification of the temperature class „TKG“ for use in gas area exposed to explosion hazards and „TKD“ for use in dust area exposed to explosion hazards as a function of the ambient temperature „Tamb“ for the temperature probe:

TKG	TKD	Temperature Probe
T6	80°C	-70°C ≤ Tamb ≤ +60°C
T5	95°C	-70°C ≤ Tamb ≤ +75°C
T4	130°C	-70°C ≤ Tamb ≤ +110°C

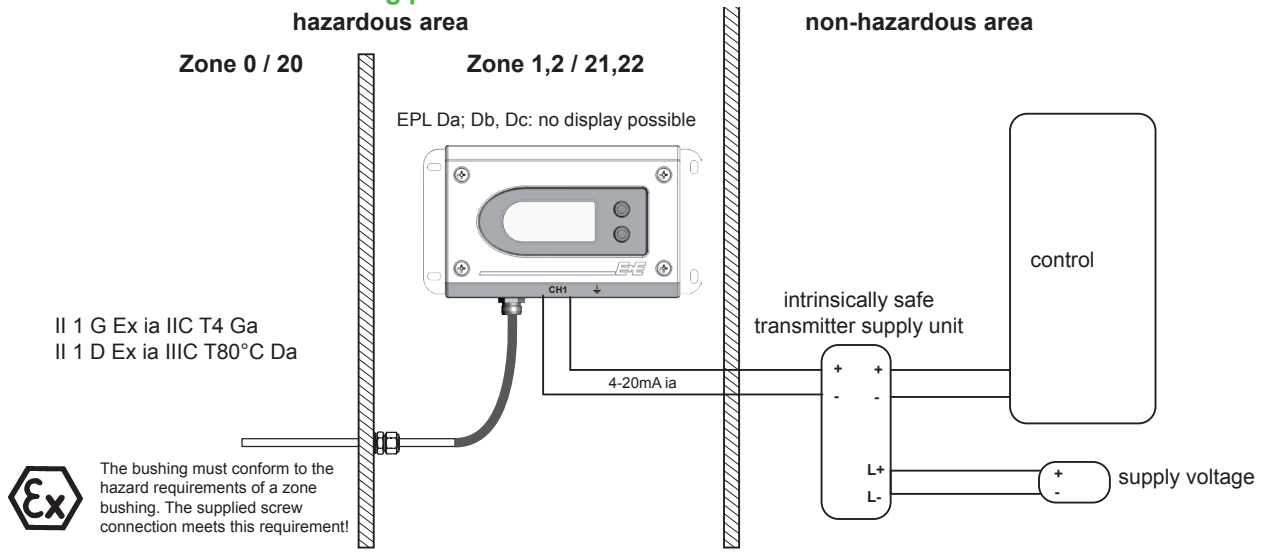
TKG	TKD	Temperature Probe
T3	195°C	-70°C ≤ Tamb ≤ +175°C
T2	220°C	-70°C ≤ Tamb ≤ +200°C
T1	220°C	-70°C ≤ Tamb ≤ +200°C

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

[1] 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	
EE300Ex to configuration adapter	(HA011061)
Blank cover for housing base	(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 cable glands	(HA011402)