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Datasheet EE300Ex-M1

Humidity and Temperature Sensor for Intrinsically Safe Applications



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EE300Ex-M1

Humidity and Temperature Sensor for Intrinsically Safe Applications

The EE300Ex intrinsically safe sensor reliably measures relative humidity (RH) and temperature (T) in explosion hazard areas. It complies with the classifications for Europe (ATEX), International (IECEx), China (NEPSI), USA / Canada (FM) and Korea (KCs) for flammable gas and dust applications. The EE300Ex it is also certified for gas applications according Japan (TIIS) certifications.
The entire device can be placed in the explosion endangered area. The remote sensing probe allows for classification up to T6.

Measurement Performance

The well proven E+E humidity sensors and competence in calibration allow for highly accurate and long term stable measurement over the full range of 0…100 %RH and -40…+180 °C (-40...+356 °F), with pressure rating up to 20 bar (300 psi). Besides the RH and T measurement, the EE300Ex calculates all humidity related parameters such as dew point temperature (Td), frost point temperature (Tf), absolute humidity (dv) or mixing ratio (r).

Moisture in Oil Measurement

The EE300Ex with ATEX, IECEx, NEPSI and KCs approval is suitable also for measuring water content (x) in ppm and water activity (aw) in isolation, lubrication and hydraulic oils. Typical applications include oil purifiers and online monitoring of lubrication and hydraulic oils.

Supply and Outputs

The device can be powered by an intrinsically safe supply unit or via Zener barriers. The measured or calculated data is available on two 4 - 20 mA, 2-wire outputs and on the LC display.

Robust, Functional Design

The stainless steel enclosure and sensing probe are suitable for harsh environment in challenging industrial applications. The EE300Ex design facilitates the installation as well as the replacement of the measuring section (electronics and probe) without time consuming wiring.

Easy Configuration and Adjustment

The setup of the analogue outputs as well as the adjustment of the RH and T reading can be easily performed with the optional EE-PCA Product Configuration Adapter and the free PCS10 Product Configuration Software.



EE300Ex-M1 wall mount without display



EE300Ex-M1 with display and remote probe

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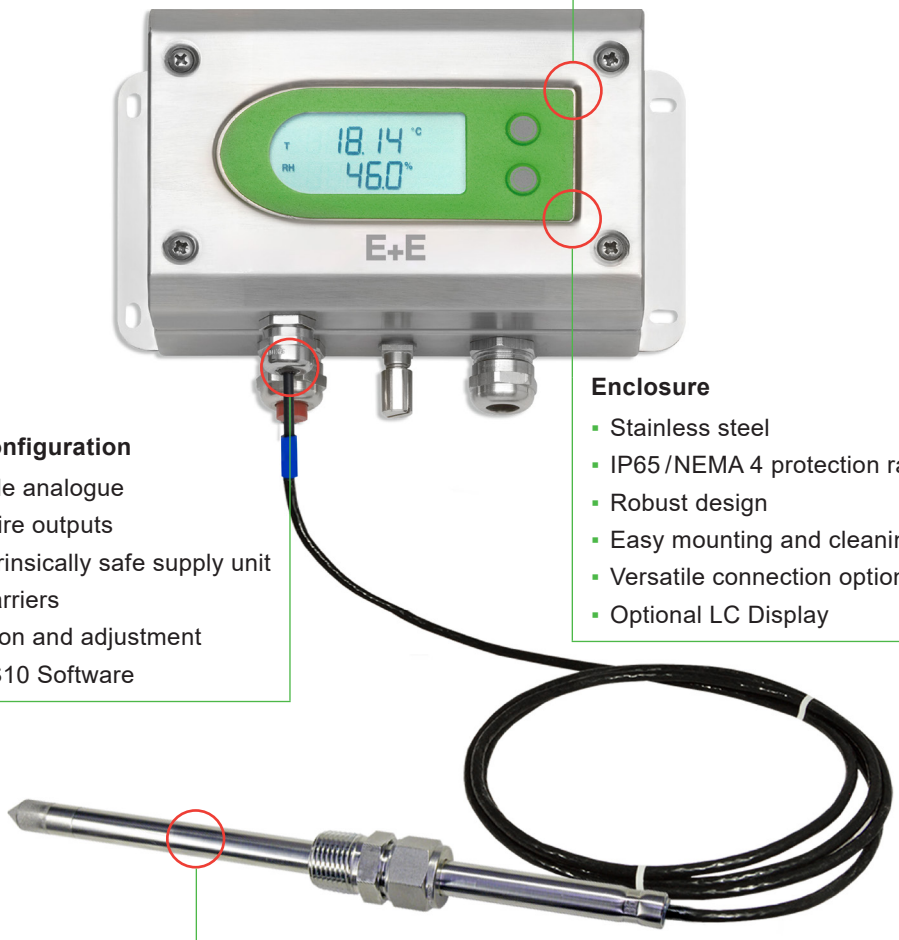
Features

Measurement performance

- Highest RH / T accuracy
- Working ranges:
  -40 to +180 °C (-40...+356 °F),
  up to 20 bar (300 psi)
- Calculation of all RH related physical quantities

Classifications

- Europe (ATEX)
- International (IECEx)
- China (NEPSI)
- USA / Canada (FM)
- Korea (KCs)
- Japan (TIIS) (for gas applications)



Enclosure

- Stainless steel
- IP65 / NEMA 4 protection rating
- Robust design
- Easy mounting and cleaning
- Versatile connection options
- Optional LC Display

Outputs and Configuration

- 2 freely scalable analogue
  4 - 20 mA, 2-wire outputs
- Supply with intrinsically safe supply unit or via Zener barriers
- Full configuration and adjustment using free PCS10 Software

Remote Probe

- Rugged construction
- Protective coating for sensing elements
- Outstanding long term stability
- Various probe and cable lengths
- Wide choice of filter caps

Inspection certificate

According to DIN EN 10204-3.1

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Features

Protective Sensor Coating

The E+E proprietary sensor coating is a protective layer applied to the sensing elements, their leads and soldering points. The coating substantially extends sensor lifetime and ensures optimal measurement performance in corrosive environment (salts, off-shore applications). Additionally, it improves the long term stability in dusty, dirty or oily applications by preventing stray impedance caused by deposits on the active sensor surface or on the electrical connections.

Types

Type		Pressure Range	Working Range	Probe Ø
T1	Wall mount		-40...+60 °C (-40...+140 °F)	12 mm (0.47")
T7	Remote probe with cut-in fitting, pressure tight	0.01...20 bar (0.15...300 psi)	-40...+180 °C (-40...+356 °F)	12 mm (0.47")
T10	Remote probe with sliding fitting for assembly / disassembly under pressure, pressure tight	0.01...20 bar (0.15...300 psi)	-40...+180 °C (-40...+356 °F)	13 mm (0.51")

Accredited Traceable Calibration Certificate



Internationally recognised certificates for the calibration of measuring instruments from accredited laboratories document the traceability of the measurements to the International System of Units (SI). The E+E Elektronik calibration laboratory offers two levels of traceable calibrations.

- As a Designated Institute (DI) of the Republic of Austria, the E+E calibration laboratory maintains Austria's national measurement standards for humidity, dew point temperature, air velocity and CO_2. This authorises the E+E calibration laboratory to issue calibration certificates at the level of a National Metrological Institute (NMI).
- The E+E calibration laboratory is accredited by Akkreditierung Austria in accordance with DIN EN ISO/IEC 17025 with the identification number 0608. This allows the laboratory to issue ISO 17025 certificates for the measurands humidity, temperature, dew point temperature, air velocity, flow, pressure and CO_2.

Visit www.eplusecal.com for detailed information on calibration and to enquire a certificate of accredited traceable calibration for the EE300Ex from the Designated Institute.

ISO 9001 Calibration Certificate

An ISO 9001 calibration certificate documents the comparative measurement of a device against high quality reference equipment (factory level standard). The comparison is performed in accordance with internal procedures that comply with ISO 9001 and provides information on the specimen's measuring accuracy. The reference equipment is traceable to national standards, however, the calibration process is not accredited. Therefore, an ISO 9001 calibration is neither traceable nor internationally comparable.

Visit www.epluse.com for detailed information on calibration and to enquire an ISO 9001 calibration certificate.

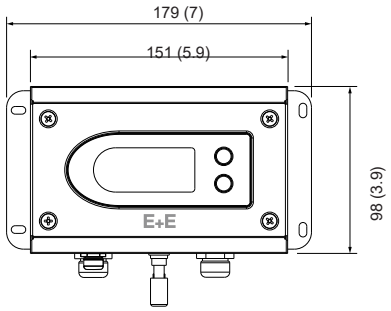
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Dimensions

Values in mm (inch)

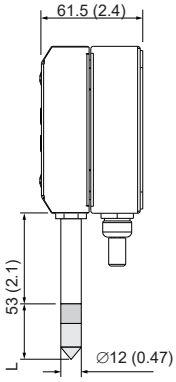
Enclosure

Types: T1 / T7 / T10



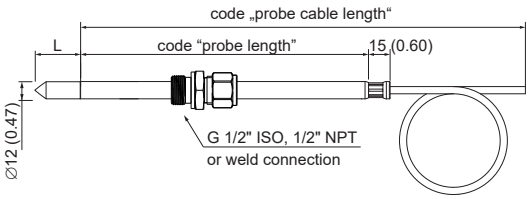
Type

T1: Wall mount



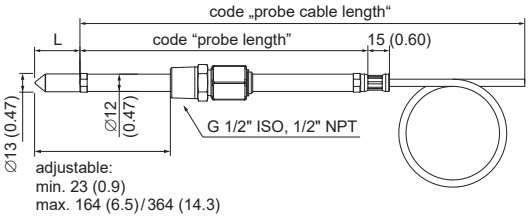
Type

T7: Remote probe 20 bar (300 psi)



Type

T10: Remote probe 20 bar (300 psi) with sliding fitting for assembly / disassembly under pressure



L - filter length	mm (inch)
Stainless steel sintered filter	33 (1.3)
PTFE filter, H_2O_2 filter	33 (1.3)
Stainless steel grid filter	39 (1.5)
Oil filter	32 (1.26)

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Technical Data

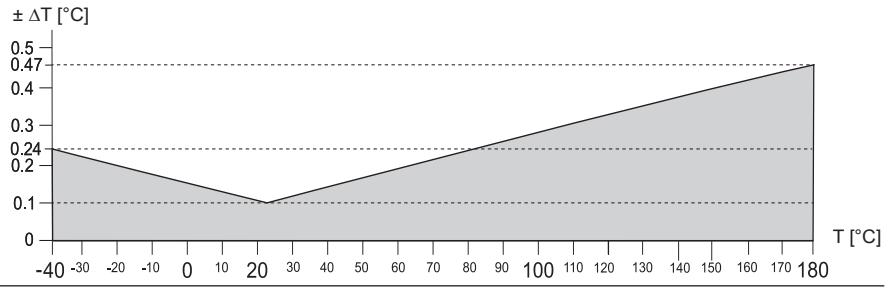
Measurands

Relative Humidity (RH)

Measuring range	0...100 %RH
Accuracy[1] incl. hysteresis, non-linearity and repeatability **-15...+40 °C (5...104 °F) RH ≤90 %** **-15...+40 °C (5...104 °F) RH >90 %** **-25...+70 °C (-13...+158 °F)** **-40...+180 °C (-40...+356 °F)**	 ±(0.95 + 0.0013 * mv) %RH ±1.8 %RH ±(1.05 + 0.0084 * mv) %RH ±(1.15 + 0.013 * mv) %RH mv = measured value
Factory calibration uncertainty[2] **0...90 %RH** **90...100 %RH**	±(0.7 + 0.003 * mv) %RH ±1 %RH mv = measured value
Temperature dependency of electronics, typ.	0.03 %RH/°C (0.017 %RH/°F)
Response time t_{90} with stainless steel filter at 20 °C (68 °F)	<30 s

1) Defined against E+E calibration reference.
2) Defined at 23 °C with a coverage factor factor k=2, corresponding to a confidence level of 95 %.

Temperature (T)

Measuring range[1] **Wall mount** **Remote probe**	 -40...+60 °C (-40...+140 °F) -40...+180 °C (-40...+356 °F)
Accuracy[2]	
Factory calibration uncertainty[3] @23 °C (73 °F)	±0.1 °C
Temperature dependency of electronics, typ.	±0.005 °C / °C

1) For TIIS (Japan): models T1, T7, T10: -40...+60 °C (-40...+140 °F).
2) Defined against E+E calibration reference. For model T1, the accuracy data is valid only for air speed higher than 0.2 m/s.
3) Defined at 23 °C with an coverage factor of k=2, corresponding to a confidence level of 95 %.

Calculated Quantities

		from		up to				unit	
				Wall Mount		**Remote Probe**			
Dew point temperature	Td	-40	(-40)	60	(140)	100	(212)	°C	(°F)
Frost point temperature	Tf	-40	(-40)	60	(140)	100	(212)	°C	(°F)
Wet bulb temperature	Tw	-10	(14)	60	(140)	100	(212)	°C	(°F)
Water vapour partial pressure	e	0	(0)	200	(3)	1100	(15)	mbar	(psi)
Mixing ratio	r	0	(0)	425	(2900)	999	(9999)	g/kg	(gr/lb)
Absolute humidity	dv	0	(0)	150	(60)	700	(300)	g/m³	(gr/ft³)
Specific enthalpy	h	0	(0)	400	(150000)	2800	(999999)	kJ/kg	(BTU/lb)
Water activity	aw	0		-		1		1	
Water content	x	0		-		100000		ppm	

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Technical Data

Outputs

Analogue

Two analogue outputs freely selectable and scalable	2x 4 - 20 mA (2-wire) galvanically isolated R_L (V_{CC}-9V) / 20 mA R_L = load resistance Output 1 (CH1) must be connected!
Accuracy @ 23 °C (68 °F)	±0.06 %FS FS = full scale (20 mA)
Temperature dependency[1)]	±0.008 %FS/°C (±0.0044 %FS/°F) FS = full scale (20 mA)

1) Deviating from 23 °C (68 °F), defined at 12 mA.

General

Supply Voltage	$V_{CC\ min}$ = (9+R_L*0.02) V DC $V_{CC\ max}$ = 28 V DC R_L = load resistance
Current consumption, max.	20 mA per channel
Electrical connection	Screw terminals max. 1.5 mm² (AWG 16)
Cable glands **M16** **M20**	 Cable Ø5...10 mm (0.2...0.4") Cable Ø10...14 mm (0.4...0.6")
Pressure range for pressure-tight probe	0.01...20 bar (0.15...300 psi)
Working temperature range **Probe** **Electronics without display** **Electronics with display**	 According to measuring range -40...+60 °C (-40...+140 °F) -20...+60 °C (-4...+140 °F)
Storage temperature range **Electronics and probe**	 -20...+60 °C (-4...+140 °F)
Material **Enclosure** **Probe without Filter** **Probe cable**	Stainless steel 1.4404 Stainless steel 1.4404 PFA (Perfluoralkoxy)
Protection rating **Enclosure**	IP65 / NEMA 4
Electromagnetic compatibility	EN 61326-1 EN 61326-2-3 Industrial Environment FCC Part15 Class B ICES-003 Class B
Conformity	CE

Ex - Classifications

Europe (ATEX with order code “EX1”)

Certificate	TPS 13 ATEX 38892 003 X by TÜV SÜD Product Service GmbH
Safety factors	Ui = 28 V; Ii = 100 mA; Pi = 700 mW; Ci = 2.2 nF; Li ≈ 0 mH
Ex-Designation Transmitter without display Transmitter with display Remote probe	 II 1 G Ex ia IIC T4 Ga / II 1 D Ex ia IIIC T_{200} 80°C Da II 2 G Ex ia IIC T4 Gb / II 1 G Ex ia IIB T4 Ga II 1 G Ex ia IIC T6...T1 Ga / II 1 D Ex ia IIIC T_{200} 80°C...220°C Da

International (IECEx with order code “EX2”)

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

China (NEPSI with order code “EX4”)

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

Korea (KCs with order code “EX5”)

Certificate gas Remote probe Transmitter without display Transmitter with display	 20-AV4BO-0253X 20-AV4BO-0254X 20-AV4BO-0257X (EPL Ga - Zone 0) 20-AV4BO-0258X (EPL Gb - Zone 1)
Certificate dust Remote probe Transmitter without display	 20-AV4BO-0256X 20-AV4BO-0255X
Safety factors	6.4 V DC ≤ Ui ≤ 28 V DC; Ii = 100 mA; Pi = 700 mW; Ci = 2.2 nF; Li = 0 mH
Ex-Designation Transmitter without display Transmitter with display Remote probe	 Ex ia IIC T4 -40°C ≤ Tamb ≤ +60°C Ex iaD 20 IP6X T131°C -40°C ≤ Tamb ≤ +60°C Ex ia IIC T4 -40°C ≤ Tamb ≤ +60°C (up to Zone 1) Ex ia IIB T4 -40°C ≤ Tamb ≤ +60°C (up to Zone 0) Ex ia IIC T6-T1 / Ex iaD 20 IP6X T80 °C -40°C ≤ Tamb ≤ +60°C

Japan (TIIS with order code “EX6”)

Certificate	Nr. TC22061 by TIIS
Safety factors	Ui = 28 Vdc; Ii = 100 mA; Pi = 700 mW; Ci = 2.2 nF; Li = 0 mH Ta = -40 °C to +60 °C
Ex-Designation only for gas	Ex ia IIC T4 Gb

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Ex - Classifications

USA (FM with order code “EX3”)

Certificate	No. FM17US0302X by FM Approvals
Safety factors	6.4 Vdc ≤ Vmax (or Ui) ≤ 28 Vdc; Imax (or Ii) = 100 mA; Pi = 700 mW; Ci = 2.2 nF; Li = 0 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 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 with order code “EX9”)

Certificate	No. FM17CA0154X by FM Approvals
Safety factors	6.4 Vdc ≤ Vmax (or Ui) ≤ 28 Vdc; Imax (or Ii) = 100 mA; Pi = 700 mW; Ci = 2.2 nF; Li = 0 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.

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Ordering Guide

	Feature	Description	Code				
			EE300Ex-M1A6HS2				
Hardware Configuration	**Type**	Wall mount	T1				
		Remote probe for cut-in fitting, pressure-tight, 20 bar (300 psi)		T7			
		Remote probe for sliding fitting, pressure-tight, 20 bar (300 psi)				T10	
	Display[1]	Without display	D0				
		Display	D1				
	Electrical connection	2x M16 cable gland	E2				
		1/2" NPT conduit	E13				
		2x M20 cable gland	E15				
	Probe cable length	Wall mount	K0				
		1 m (3.3 ft)		K1		K1	
		2 m (6.6 ft)		K2		K2	
		5 m (16.4 ft)		K5		K5	
		10 m (32.8 ft)		K10		K10	
	Probe length	Wall mount, 50 mm (1.97")	L50				
		65 mm (2.56")[2]		L65			
		100 mm (3.95")		L100			
		200 mm (7.84")		L200		L200	
		400 mm (15.75")		L400		L400	
	Process connection (Zone feed-through)	Without probe fitting	PA0	PA0			
		G1/2" ISO - cut-in fitting, Ø12 mm (0.47")		PA20			
		1/2" weld cut-in fitting, Ø12 mm (0.47")		PA21			
		1/2" NPT - cut-in fitting, Ø12 mm (0.47")		PA22			
		G1/2" ISO - sliding fitting, Ø13 mm (0.51")				PA23	
		1/2" NPT - sliding fitting, Ø13 mm (0.51")				PA25	
	Filter	Stainless steel sintered	F4	F4		F4	
		PTFE (Polytetrafluoroethylene)[3]	F5	F5		F5	
		Stainless steel - metal grid (up to 180 °C / 356 °F)	F9	F9		F9	
		Catalytic for H_2O_2 sterilisation[3]	F12	F12		F12	
		Stainless steel with boreholes Ø 3 mm (0.12")			F13		F13
	Sensing element protection	Without coating			C0		C0
		E+E proprietary coating[4]	C1	C1		C1	
	Ex-approval	ATEX (Europe)	EX1				
		IECEx (International)	EX2				
		FM (USA)	EX3				
		NEPSI (China)	EX4				
		KCs (Korea)	EX5				
		TIIS (Japan)[5]	EX6				
		FM (Canada)	EX9				
Analog.Outp.	**Output 1 measurand**[6]	Measurand (*xx* see measurand code below)[7]	MA*xx*				
	Output 1 scaling low	Value	SAL*Value*				
	Output 1 scaling high	Value	SAH*Value*				
	Output 2 measurand	Measurand (*xx* see measurand code below)[7]	MB*xx*				
	Output 2 scaling low	Value	SBL*Value*				
	Output 2 scaling high	Value	SBH*Value*				
	Accredited Traceable Calibration Certificate in accordance with DIN EN ISO/IEC 17025		see www.eplusecal.com				
	ISO 9001 Calibration Certificate		see www.epluse.com				

1) No display possible for environments with EPL Ga IIC (EX1/EX2/EX3/EX9) / Gas Groups A, B for Division 1 (EX3/EX9) / Zone 0 IIC (EX5).
2) Allowed only in combination with PA0.
3) May not be used in EPL Ga IIC (EX1/EX2/EX3/EX9) / Gas Groups A, B for Division 1 (EX3/EX9) / Zone 0 IIC (EX5). For TIIS (Japan) approval not allowed in models T1, T7 and T10.
4) Not appropriate for moisture in oil measurement, obligatory for all other applications, free of charge.
5) Only gas Ex up to EPL Gb (Zone 1).
6) Assign the most relevant measurand to output 1.
7) For TIIS (Japan) approval, models T1, T7, and T10 have a maximum temperature working range of -40...+60 °C (-40...+140 °F).

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Measurand Code

For Output 1 and 2 in the Ordering Guide

Measurand		Unit	Code
			MA*xx* / MB*xx*
Relative humidity	RH	%	10
Temperature	T	°C °F	1 2
Dew point temperature	Td	°C °F	52 53
Frost point temperature	Tf	°C °F	65 66
Mixing ratio	r	g/kg gr/lb	60 61
Absolute humidity	dv	g/m^3 gr/ft^3	56 57
Wet bulb temperature	Tw	°C °F	54 55
Water vapour partial pressure	e	mbar psi	50 51
Specific enthalpy	h	kJ/kg BTU/lb	62 64
Water activity[1)]	aw	1	67
Water content in mineral transformer oil[1)]	x	ppm	70
Water content in customer specific oil[1)2)]	x	ppm	70PPM*xxx*

1) Not allowed for FM (USA / Canada) and TIIS (Japan) approval.
2) Procedure for customer specific oil: see table below.

PLEASE NOTE

No mix of SI/US units allowed.

Procedure for customer specific oil

Option	Description	Code
Oil number is known	Replace the *xxx* by the corresponding number	
Obtaining new oil parameters via oil analysis	Contact and provide E+E HQ the datasheet of the oil before sending us 2 litres of oil. After determination of the oil specific parameters, the corresponding oil number is available, insert this in place of the *xxx*.	Oil-ppmcal
Obtaining new oil parameters via saturation curve	Contact and provide E+E HQ the datasheet of the oil together with the saturation curve. After calculation of the oil specific parameters, the corresponding oil number is available, insert this in place of the *xxx*.	Oil-calc

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Order Examples

EE300Ex-M1A6HS2T7D1E2K10L200PA20F4C1EX1MA1SAL-40SAH180MB10SBL0SBH100

Feature	Code	Description
Type	**T7**	Remote probe for cut-in fitting, pressure tight, 20 bar (300 psi)
Display	**D1**	Display
Electrical connection	**E2**	2x M16 cable gland
Probe cable length	**K10**	10 m (32.8 ft)
Probe length	**L200**	200 mm (7.87")
Process connection (Zone feed-through)	**PA20**	G1/2" ISO - cut-in fitting, Ø12 mm (0.47")
Filter	**F4**	Stainless steel sintered
Sensing element protection	**C1**	E+E proprietary coating
Ex-approval	**EX1**	ATEX (Europe)
Output 1 measurand	**MA1**	Temperature T [°C]
Output 1 scaling low	**SAL-40**	-40
Output 1 scaling high	**SAH180**	180
Output 2 measurand	**MB10**	Relative humidity RH [%]
Output 2 scaling low	**SBL0**	0
Output 2 scaling high	**SBH100**	100

EE300Ex-M1A6HS2T1D0E2K0L50PA0F9C1EX3MA2SAL-40SAH140MB53SBL-40SBH140

Feature	Code	Description
Type	**T1**	Wall mount
Display	**D0**	Without display
Electrical connection	**E2**	2x M16 cable gland
Probe cable length	**K0**	Wall mount
Probe length	**L50**	Wall mount, 50 mm (1.97")
Process connection (Zone feed-through)	**PA0**	Without probe fitting
Filter	**F9**	Stainless steel - metal grid (up to 180 °C / 356 °F)
Sensing element protection	**C1**	E+E proprietary coating
Ex-approval	**EX3**	FM (USA)
Output 1 measurand	**MA2**	Temperature T [°F]
Output 1 scaling low	**SAL-40**	-40
Output 1 scaling high	**SAH140**	140
Output 2 measurand	**MB53**	Dew point temperature Td [°F]
Output 2 scaling low	**SBL-40**	-40
Output 2 scaling high	**SBH140**	140

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Accessories

For further information see datasheet Accessories.

Description	Code
Blind front cover for EE300Ex	**HA011401**
Safety barrier, 1-channel, STAHL 9002/13-280-093-001	**HA011410**
Intrinsically safe supply unit, 1-channel, STAHL 9160/13-11-11	**HA011405**
Intrinsically safe 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**
Ball valve with 1/2" ISO female thread, ATEX certified	**HA011403**
Intrinsically safe supply unit, 1-channel, PC MACX MCR-EX-SL-RPSSI-I[2)]	**HA011411**
Intrinsically safe supply unit, 2-channel, PC MACX MCR-EX-SL-RPSS-2I-2I[2)]	**HA011412**
O-ring 13x1.5 mm (0.5"x 0.06") - FKM-60	**HA050308**
PCS10 Product Configuration Software (Free download: www.epluse.com/pcs10)	**PCS10**
Adapter Kit for configuration and adjustment (must be ordered together, see datasheet EE-PCA at www.epluse.com/ee-pca) **Pos. 1: Product Configuration Adapter** **Pos. 2: Connection cable**	 **EE-PCA** **HA011068**

1) For use with Type T22
2) Only for ATEX and IECEx

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datasheet_EE300Ex-M1 | Version v2.14 | 06-2026
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