EE35

Industrial Transmitter for Dew Point Measurement

Exact dew point monitoring is increasingly playing a more important role in many industrial applications, such as drying processes, air pressure pipelines, etc. For these purposes the multifunctional EE35 Series offers the ideal features.

The EE35 Series is based on a functional, user-friendly housing concept and on the proven polymer humidity sensors of the HC Series.
A specially developed autocalibration process enables measurements in a measurement range of -60...60°C Td (-76...140°F Td), with a Td measurement accuracy of ±2°C (±3.6°F).
Two freely configurable and scalable analogue outputs are available for the two measurement values (Td, T).
An optional hygrostat output, which can be set by means of a potentiometer, provides an alarm signal in a simple way when a threshold of the permitted dew point is exceeded.
An optional display for the measurement values and the associated MIN/MAX values allows a quick overview of the current situation.

Autocalibration

Dew points in the range of -60...-20°C (-76...-4°F) at room temperatures correspond to relative humidity values of 0.08...5.37% RH. The measurement of such low humidity values is not possible with conventional capacitive measurement methods. For the EE35 Series, a special autocalibration process is used to compensate for the usual drift effects and thus to achieve high accuracy measurements also at -60°C Td (-76°F Td).

Installation

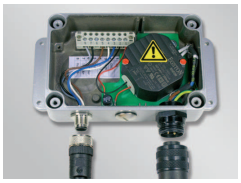
In addition to the direct mounting of the dew point probe, a ball valve installation enables the mounting and removal of the probe without having to interrupt the running process.

Alarm Output

An optional alarm module with one relay output is available for control and alarm purposes. The setting of the Td threshold can be easily done with the potentiometer on the printed circuit board.

Integrated power supply

A power supply, integrated in the back module of the housing, can be ordered optionally (100...240V AC, 50/60Hz; ordering code V01). The power supply V01 is available for both polycarbonate and metal housing and comes standard with two plugs for supply and outputs to allow an easy connection.



Typical Applications

industrial processes
monitoring of air pressure pipelines
warehouses
drying processes
paper industries
chemical industries

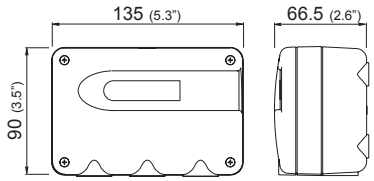
Features

measuring range -60...60°C Td (-76...140°F Td)
accuracy of measurement ±2°C Td (±3.6°F Td)
traceable calibration
alarm output for dew point
autocalibration

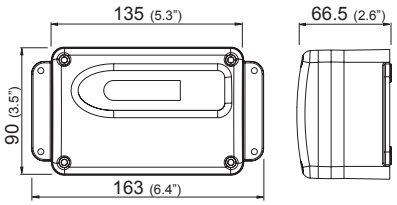
Housing Dimensions (mm)

Housing:

polycarbonate housing

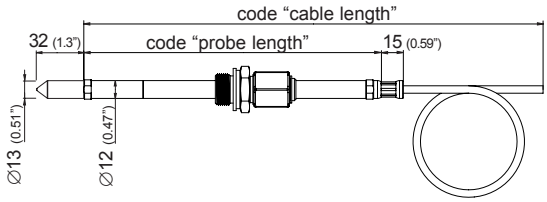


metal housing

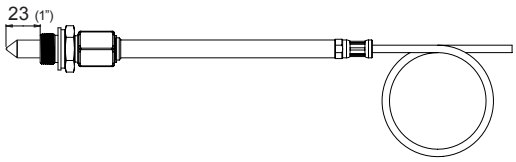


For use in harsh industrial environments the EE35 series is available in a robust metal housing.

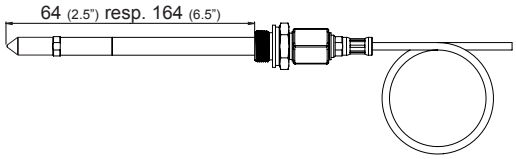
Model:



EE35-xEx
Remote probe for T up to 60°C (140°F) and pressure-tight up to 20bar (290psi)
Probe material: stainless steel



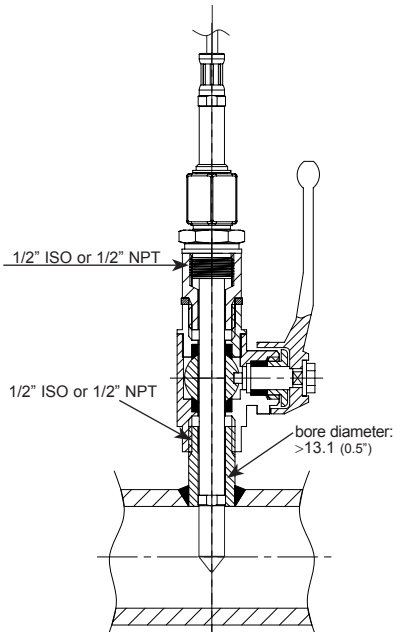
minimum installation depth



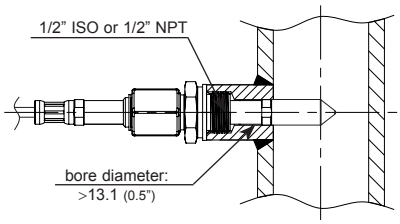
maximum installation depth

Installation Example

ball valve installation
(pressure-tight up to 20bar/290psi)

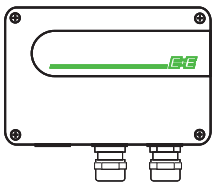


fixed installation
(pressure-tight up to 20bar/290psi)



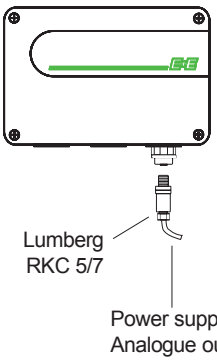
Connection Versions

Standard

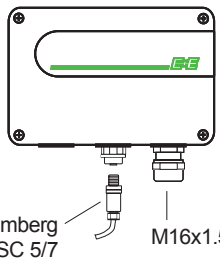


2x M16x1.5

Plug Option C03



Plug Option C06

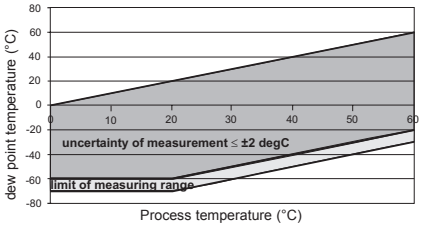


Technical Data

Measuring Quantities

Dew point

Humidity sensor	HC1000-400
Measuring range	standard calibration: -40...60°C (-40...140°F)
(below 0°C / 32°F the transmitter outputs frostpoint)	special calibration: -60...60°C (-76...140°F)
Accuracy	≤ ±2°C (≤ ± 3.6°F)
Traceable to intern. standards, administrated by NIST, PTB, BEV...	



Response time t_{90}	80 sec.	-20°C → -40°C	(-4°F → -40°F)
	10 sec.	-40°C → -20°C	(-40°F → -4°F)

Temperature

Sensor	Pt1000 DIN A
Measuring range	0...60°C (32...140°F)
Accuracy of temperature measurement at 20°C (68°F)	±0.2°C (±0.36°F)
Sensitivity error at full scale	±0.1°C (±0.18°F)
Temperature dependence of electronics	< 0.005°C/°C

Outputs

Two freely selectable and scaleable analogue outputs xx...yy°C T, Td/Tf / xx...yy°C respectively	0 - 5V	-1mA < I_L < 1mA
	0 - 10V	-1mA < I_L < 1mA
	4 - 20mA	R_L < 500 Ohm
	0 - 20mA	R_L < 500 Ohm

General

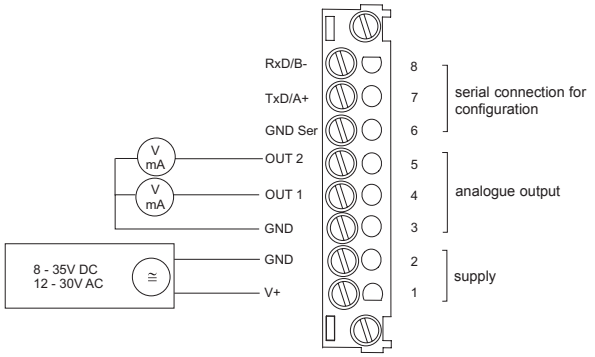
Supply voltage	8...35V DC	
	12...30V AC	(optional 100...240V AC, 50/60Hz)
Current consumption	- voltage output	typ. 40mA, with autocalibration: 100mA
	- current output	typ. 80mA, with autocalibration: 140mA
Pressure range	0...20bar (0...300psi)	
Housing / protection class	PC or Al Si 9 Cu 3 / IP65; Nema 4	
Cable gland	M16 x 1.5 (option: plug)	cable Ø 4.5 - 10 mm (0.18 - 0.39")
Electrical connection	screw terminals up to max. 1.5mm² (AWG 16)	
Sensor protection	stainless steel sintered filter	
Working temperature range	probe:	-40...60°C (-40...140°F)
	electronic:	-40...60°C (-40...140°F)
	with LC display:	-20...50°C (-4...122°F)
	with alarm module:	-40...60°C (-40...140°F)
Storage temperature range	-40...60°C (-40...140°F)	
Electromagnetic compatibility according to	EN 61326-1 EN61326-2-3	ICES-003 ClassB
	Industrial Environment	FCC Part15 ClassB

CE

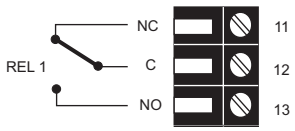
Technical Data for Options

Display	graphical LC display (128x32 pixels), with integrated push-buttons for selecting parameters Td or T and MIN/MAX functions
Alarm output for Td/Tf	- range: -60...40°C Td (-60...40°F Td) adjustable with the potentiometer on the printed circuit board - 1 switch contact - 250V AC/6A or 28V DC/6A

Connection Diagram



Terminal configuration - Alarm output



Ordering Guide EE35

		EE35-
Hardware Configuration		
Housing	metal housing	M
	polycarbonate housign	P
Type	pressure tight	E
Cable length (incl. probe length)	1m (3.3ft)	01
	2m (6.6ft)	02
	5m (16.4ft)	05
Probe length	100mm (3.9")	3
	200mm (7.9")	5
Pressure tight feedthrough	1/2" male thread	HA03
	1/2" NPT thread	HA07
Display	without display	
	with display	D05
Alarm output[1]	without relay	
	with relay	SW
Plug	cable glands	
	1 plug for power supply and outputs	C03
	1 cable thread / 1 plug for RS232	C06
Probe	fixed	
	pluggable	P01
Td-Calibration	standard -40...60°C (-40...140°F)	
	special calibration -60...60°C (-76...140°F)	CA02
Supply voltage	8...35V DC / 12...30V AC	
	integrated power supply 100...240V AC, 50/60Hz[2]	V01

Software Configuration								
Physical parametres of the outputs	temperature		T	[°C/°F]			output 1	B
	dew point temperature		Td	[°C/°F]			output 2	C
	frost point temperature		Tf	[°C/°F]				D
Type of output signals	0-5V							2
	0-10V							3
	0-20mA							5
	4-20mA							6
T / Td / Tf Einheit	°C							
	°F							E01
Scaling of T-output	-40...60	(T02)	-60...20	(T65)	-40...100	(T79)	output T	Select accorcding to ordering guide (Txx)
	-50...50	(T27)	-50...100	(T66)	-40...140	(T83)		
	-80...20	(T63)	-20...70	(T73)	-60...120	(T97)		Other T-scaling refer to data sheet „„T-Scalings““
	-60...60	(T64)	20...140	(T77)				
Scaling of Td/Tf-output	-40...60	(T02)	0...60	(T07)	-60...60	(T64)	output Td resp.Tf	Select accorcding to ordering guide (Tdxx resp. Tfxx)
	-10...50	(T03)	0...80	(T21)	32...120	(T90)		
	0...50	(T04)	-40...80	(T22)	32...140	(T91)		Other Td/Tf-scaling refer to data sheet „„T-Scalings““
	0...100	(T05)	-20...80	(T24)	32...132	(T96)		

1) Combination alarm output and plugs is not possible (with cable glands only) / combination alarm output and integrated power supply is not possible
2) Integrated power supply includes 2 plugs for power supply and outputs / further plug options are not possible

Accessories

- Ball valve set 1/2" ISO (HA050101)
- Ball valve set 1/2" NPT (HA050104)
- Display + housing cover in metal („D05M“)
- Display + housing cover in polycarbonate („D05P“)
- Stainless steel sintered filter („HA010103“)
- Interface cable for PCB („HA010304“)
- Interface cable for plug C06 („HA010311“)
- Bracket for installation onto mounting rails* („HA010203“)
- Sealing element (HA050308)

*Note: Only for plastichousing, not for metalhousing

Order Example

EE35-ME025HA03D05P01/BC5-T02-Td02

Housing:	metal housing
Type:	pressure tight
Cable length:	2m (6.6ft)
Probe length:	200mm (7.9")
Pressure tight feedthrough:	1/2" male thread
Display:	with display
Alarm output:	without relay
Plug:	cable glands
Sensing probe:	pluggable
Td Calibration:	standard
Supply voltage:	8...35V DC / 12...30V AC

Output 1:	T
Output 2:	Td
Output signal:	0-20mA
Measured value unit:	metric
Scaling of T-output:	-40...60°C
Scaling of Td-output:	-40...60°C