EE354

Miniature Dew Point Transmitter up to -20 °C Td (-4 °F Td)

The EE354 was developed for monitoring dew point up to -20 °C Td (-4 °F Td). The high measurement accuracy of ±1 °C Td (±1.8 °F Td) in the typical working range of a refrigeration dryer makes the EE354 the ideal solution for OEM manufacturers.

Integration into the measurement task is considerably simplified thanks to its highly compact design and exceptional robust stainless steel housing. The measurement values are issued on an analog 4-20 mA and a digital Modbus RTU output. Furthermore, excellent long-term stability and temperature compensation across the entire measurement range are important features of the EE354.

Using the free EE-PCS configuration software and the Modbus USB converter (available as an accessory), the scaling of the analog output can be modified. This also permits one and two-point adjustments by the user.

EE354

Typical Applications

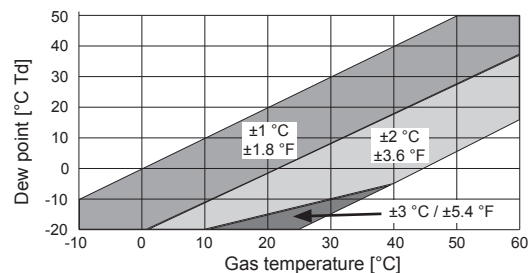**Compressed air monitoring**

Refrigeration dryer

Features

Measurement range -20...50 °C Td (-4...122 °F Td)

Accuracy ±1 °C (±1.8 °F) for refrigerant dryers

Output 4...20 mA

MODBUS RTU digital interface

Pressure-tight up to 80 bar (1160 psi)

Technical Data

Measured Values

Dew point (Td)

Sensor	HC1000
Measurement range	-20...50 °C Td (-4...122 °F Td)
Accuracy at 20 °C[1]	

Response time t_{90} at 20°C	< 30 sec.

Output

Analog output (scalable)	4 - 20 mA (3-wire technology)	R_L < 500 Ohm
Maximum adjustable scaling	-40...80 °C Td (-40...176 °F Td)	
Digital interface	MODBUS RTU	
Temperature dependence	±0.005 % of the measuring span / °C	

General

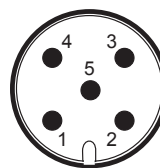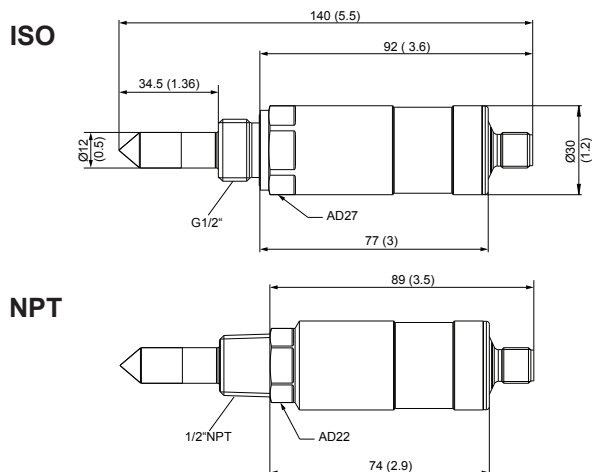|		
Supply voltage	10[*)]...28 V DC	*) 10V+0.02*R_L
Power consumption at 24V DC	<40 mA	
Pressure range of use	0...80 bar (0...1160 psi)	
Housing / protection rating	Stainless steel 1.4404 / IP65	
Electrical connection[2]	M12x1 5-pin plug	
Sensor protection	Stainless steel sinter filter	
Temperature / humidity operating range	-40...60 °C (-40...140 °F) / 0...100 % rh	
Storage temperature range	-40...60 °C (-40...140 °F)	
Electromagnetic compatibility in accordance with	EN61326-1 EN61326-2-3	
	Industrial environment	

1) The accuracy statement includes the uncertainty of the factory calibration with an enhancement factor k=2 (2 x 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) Flange receptacle for self assembly included in scope of supply.

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Dimensions in mm (inch)

ISO

NPT

Connection Diagram

Plug

1...V+
2...Analog output 4-20mA
3...GND
4...RS485 A (=D+)
5...RS485 B (=D-)

Modbus Map

The measured values are 32Bit *float* values. The factory-set slave ID is 243 as *integer* 16Bit value. This ID can be customised in the register 0x00 (value range 1 - 247 permitted). For Modbus setting please see Application Note AN0103. The factory setting of the transmission rate is: baud rate 9600, parity even, and stop bit 1.

FLOAT:

Register address	Protocol address	Parameter name
30032	0x1F	dew point Td
30042	0x29	frost point Tf

INTEGER:

Register address	Protocol address	Parameter name
60001	0x00	Slave-ID
60002	0x01	RS485 setting

Ordering Information

				EE354-T63G
Pressure-tight screw connection	G1/2" thread			A
	1/2" NPT thread			C
Software configuration				
Physical parameters	Dew point temperature Td	[°C/°F]		TD
Analog output	Frost point temperature Tf	[°C/°F]	at dew point <0°C, the frost point is issued	TF
Td/Tf output scaling (in °C or °F)				xxx (acc. to table scaling ranges)
Measured value unit	metric [°C]			M
	non metric [°F]			N

Scaling Range

TD or TF											
002	-40...60	007	0...60	024	-20...80	048	-20...50	090	32...120		
003	-10...50	008	-30...70	025	-20...60	060	-20...40	091	32...140		
004	0...50	022	-40...80	047	-20...150	083	-40...140				

Accessories

M12x1 5pin mating plug suitable for customer-specific assembly	HA010708	sampling cell with quick connector	HA050102
M12x1 5pin connection cable socket/flying leads 1.5m	HA010819	basic sampling cell	HA050103
M12x1 5pin connection cable socket/flying leads 5m	HA010820	stainless steel sinter filter	HA010103
M12x1 5pin connection cable socket/flying leads 10m	HA010821	Modbus - USB converter for EE35x	HA011013

Order example

EE354-T63GA/TD060M

Pressure-tight screw connection:	G1/2" thread
Output:	Dew point Td
Scaling of output:	4-20 mA = -20...40 °C Td
Measured value unit:	metric [°C]