EE071

Low Power OEM Humidity / Temperature Transmitter with modbus interface

The digital humidity / temperature transmitter EE071 is optimized for the flexible use in bus applications. The standard modbus RTU protocol is implemented on the RS485 interface. The modbus transmitter EE071 is extremely energy efficient and also ideal for use in battery-powered devices.

Calibration data and all other measurement features like linearization and temperature compensation are stored in the electronic inside the probe.

By this EE071 is interchangeable and the plug connection allows replacement within seconds. The humidity and temperature measured values as well as the calculated variables dew point and mixing ratio is available on the bus interface.

EE071 + M12x1 flange coupling

Metall

Polycarbonat

Typical Applications

battery powered equipment
data loggers
handheld meters

Features

highest accuracy
extreme low power consumption
calculated dew point and mixing ratio
replaced within seconds
digital output

Technical Data

Measuring values

Relative Humidity

Sensor element	HCT01-00D
Digital output (2 wire)[1]	output value: 0.00...100.00% RH
Working range	0...100% RH
Accuracy incl. hysteresis and nonlinearity	±2% RH (0...90% RH) ±3% RH (90...100% RH)
Temperature dependence	$< (0.025 + 0.0003 \times RH)$ [% rH/°C]

Temperature

Sensor element	Pt1000 (tolerance class B, DIN EN 60751)
Digital output (2 wire)[1]	output value: -40.00...+80.00°C (-40...176°F)

Accuracy:
±0.2°C at 20°C
±0.6°C at the end of scale
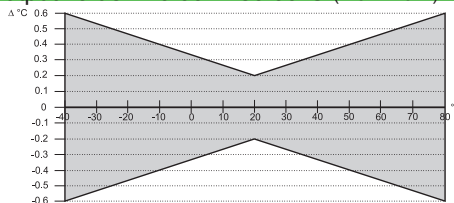
General

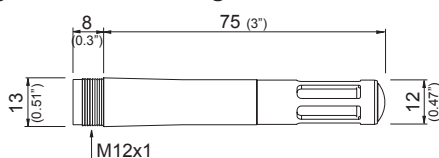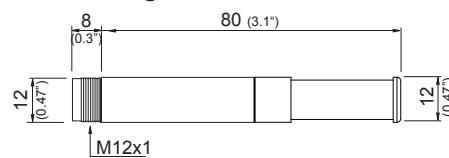|	
Supply voltage	4 - 18V DC
Current consumption	typ. 0.4mA (at a measuring rate of 1 sec. and without communication)
Max. current pulse during power-up) (with serial resistance 100 Ohm)	at UB 7V: I_{max} 60mA <10mA after 350µs at UB 12V: I_{max} 110mA <10mA after 400µs
Response Time	< 300ms
Output load	no bus termination no pullup or pulldown resistor } within probe
Interface / Bus	RS485 / Modbus in slavemode
Interface setting	9600 baud, 8 data bits, 1 stop bit, even parity
Housing	polycarbonat / IP65
Sensor protection	membrane filter, PTFE filter, metal grid filter (polycarbonate), metal grid filter (stainless steel)
Electromagnetic compatibility [2]	EN61326-1 EN61326-2-3
Temperature range	working temperature: -40...80°C (-40...176°F) storage temperature: -40...80°C (-40...140°F)
Max. cable length	100m (328,1ft)

CE

1) Modbus protocol
2) Module is not protected against surge

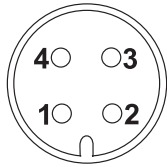## Housing Dimensions in mm (inch)

polycarbonate housing - EE071-HTPx

8 (0.3") 75 (3") 13 (0.51") 12 (0.47") M12x1

metal housing - EE071-HTMx

8 (0.3") 80 (3.1") 12 (0.47") 12 (0.47") M12x1

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Connection Diagram

EE071:

4○ ○3
1○ ○2
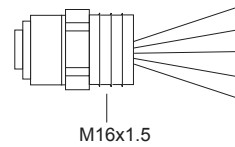
1...+UB
2...B-RS485
3...A-RS485
4...GND

M12x1 flange coupling with 50mm (2") litz wire (HA010705):

brown...+UB
white.....B-RS485
blue......A-RS485
black....GND
grey......shielding

M16x1.5

Modbus Map

The measured values are saved as a 32Bit *float* value from 0x19 to 0x25 and as 16Bit *signed integer* between 0x27 and 0x2D. The factory setting for the Slave-ID is 247 as an *integer* 16Bit value.
This ID can be customised in the register 0x00 (value margin 1 - 247 permitted).

FLOAT:

Register address	Protocol address	Parameter name	
30026	19	Temperature	[°C]
30028	1B	Temperature	[°F]
30030	1D	Rel Humidity	[%]
30032	1F	Abs Humidity	[g/m³]
30034	21	Dew Point	[°C]
30036	23	Dew Point	[°F]
30038	25	Mixing ratio	[g/kg]

INTEGER:*

Register address	Protocol address	Parameter name	
30040	27	Temperature	[°C]
30041	28	Temperature	[°F]
30042	29	Rel Humidity	[%]
30043	2A	Abs Humidity	[g/m³]
30044	2B	Dew Point	[°C]
30045	2C	Dew Point	[°F]
30046	2D	Mixing ratio	[g/kg]

* Values are stored with a scaling of 1:100
(e.g.: 2550 is equivalent to 25.5°C)

INTEGER:

Register address	Protocol address	Parameter name
40001	00	Slave-ID

The serial number is located as a128Bit value from 0x1D.

Ordering Guide

MODEL		HOUSING		FILTER		BAUD RATE		PARITY		STOPBITS	
Humidity and Temperature	(HT)	polycarbonat	(P)	membrane filter	(B)	9600	(A)	odd	(O)	1 stopbit	(1)
		metal	(M)	metal grid filter (polycarbonat)	(C)	19200	(B)	even	(E)	2 stopbits	(2)
				PTFE - filter	(E)	38400	(C)	no parity	(N)		
				metal grid filter (stainless steel) ¹⁾	(I)						
EE071-											

1) The metal grid filter (stainless steel) is only available in combination with metal housing (M).

Accessories

- M12x1 flange coupling with 50mm (2") litz wire   (HA010705)
- filter caps   (HA0101xx)

Order Example

EE071-HTPBAE1

Model:	humidity & temperature
Housing:	polycarbonat
Filter:	membrane filter
Configuration:	baud rate 9600, even parity, 1 stopbit