

EE071

Low Power OEM Humidity and Temperature Probe with Modbus Interface

EE071 is optimized for use in demanding OEM applications. Beside humidity and temperature measured values calculated variables like dew point and mixing ratio are also available at the output. The standard modbus RTU protocol is implemented on the RS485 interface.

The E+E HCT01 humidity sensor element is perfectly protected against dust and dirt by the E+E proprietary coating and all solder pads are completely sealed to withstand corrosion. Together with the choice of appropriate filter cap EE071 offers outstanding long term stability in harsh, polluted environment.

Due to extremely low power consumption EE071 is ideal for use in battery-powered devices. The M12 connector allows easy installation and replacement within seconds.



Typical Applications

- stables, incubators, hatchers
- storage rooms
- wireless transmitters
- data loggers and handhelds

Key Features

- highest accuracy
- excellent protection against pollution
- outstanding long term stability
- temperature compensation
- calculated parameters like dew point and mixing ratio

Technical Data

Measured values

Relative Humidity

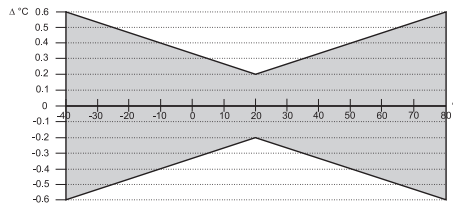
Sensor element	HCT01-00D
Modbus output range	0.00...100.00% RH
Accuracy incl. hysteresis and nonlinearity	±2% RH (0...90% RH) ±3% RH (90...100% RH)
Temperature dependence	< (0.025 + 0.0003 x RH) [% rH/°C]

Temperature

Sensor element	Pt1000 (tolerance class B, DIN EN 60751)
Modbus output range	output value: -40.00...+80.00°C (-40...176°F)

Accuracy:

- ±0.2°C at 20°C
- ±0.6°C at the end of range



General

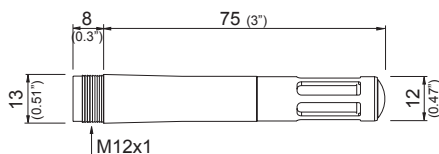
Supply voltage	4 - 18V DC
Current consumption	typ. 0.4mA at a measuring rate of 1 sec.
Current pulse during power-up (with serial resistance 100 Ohm)	at UB 7V: I _{max} 60mA; current draw drops below 10mA within 350µs at UB 12V: I _{max} 110mA; current draw drops below 10mA within 400µs
Warmup Time	< 300ms
Output load	no bus termination } within probe no pullup or pulldown resistor
Interface	RS485 / Modbus in slavemode
Electromagnetic compatibility ¹⁾ (Industrial environment)	EN61326-1 EN61326-2-3
Working and storage temperature	-40...80°C (-40...176°F)
Max. cable length	100m (328.1ft)

1) Not protected against surge

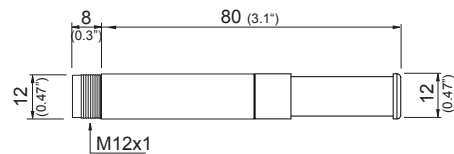


Housing IP65, Dimensions in mm (inch)

polycarbonate housing - EE071-HTPx

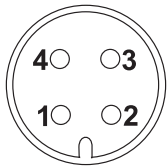


metal housing - EE071-HTMx



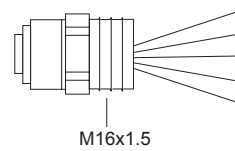
Connection Diagram

EE071:



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

M12x1 flange



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

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).

The serial number as ASCII-code is located at register address 30001-30008.

FLOAT:

Register address	Protocol address	Parameter name
30026	0x19	Temperature [°C]
30028	0x1B	Temperature [°F]
30030	0x1D	Rel Humidity [%]
30032	0x1F	Abs Humidity [g/m ³]
30034	0x21	Dew Point [°C]
30036	0x23	Dew Point [°F]
30038	0x25	Mixing ratio [g/kg]

INTEGER:*

Register address	Protocol address	Parameter name
30040	0x27	Temperature [°C]
30041	0x28	Temperature [°F]
30042	0x29	Rel Humidity [%]
30043	0x2A	Abs Humidity [g/m ³]
30044	0x2B	Dew Point [°C]
30045	0x2C	Dew Point [°F]
30046	0x2D	Mixing ratio [g/kg]

INTEGER:

Register address	Protocol address	Parameter name
60001	0x00	Slave-ID

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

Ordering Guide

MODEL	HOUSING	FILTER	BAUD RATE ²⁾	PARITY ²⁾	STOPBITS ²⁾
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).

2) Factory setup: Baud rate: 9600 (A) / Parity: even (E) / Stopbit: 1 (1)

Order Example

EE071-HTPBAE1

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

Accessories (For further information, see data sheet "Accessories")

M12x1 flange coupling with 50mm (2") litz wire	HA010705
Female connector 4pol. self assembly M12x1	HA010707
Filter caps	HA0101xx
T-coupler M12 - M12	HA030204
Connecting cable	HA0108xx
Modbus/USB configuration adapter	HA011012

Support literature

www.epluse.com/EE071