

USER'S GUIDE

EE071 - Humidity and Temperature Probe with Modbus Interface

GENERAL

The EE071 probe is designed for the measurement of humidity and temperature in OEM applications. It incorporates the E+E humidity and temperature sensor HCT01, which is very well protected against environmental influences.

For use in special applications do not hesitate to contact E+E Elektronik or a local distributor.

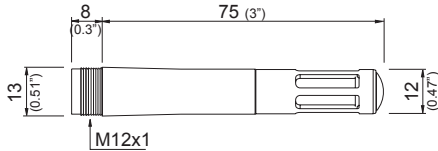
CAUTION

For accurate measurement it is essential that the temperature of the probe and mainly of the sensing head is same as the temperature of the air to measure. Avoid mounting the EE071 transmitter in a way which creates temperature gradients along the probe.

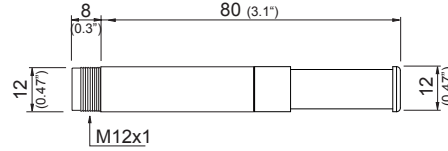
- The device and mainly the sensing head shall not be exposed to extreme mechanical stress.
- The device must be operated with the filter cap on at all times. Do not touch the sensors inside the sensing head.
- While replacing the filter cap (because of pollution for instance) against an original E+E spare one please take very good care to not touch the sensors.

DIMENSIONS

polycarbonate housing - EE071-HTPx

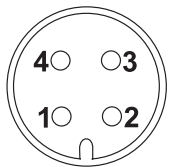


metal housing - EE071-HTMx



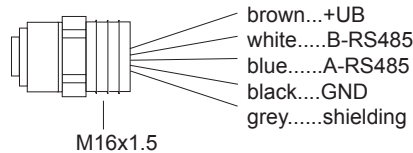
CONNECTION DIAGRAM

EE071:



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

M12x1 flange



Important:

The metal enclosure of EE071-HTM shall not be connected to the ground (electrical isolation necessary). Alternatively, the GND of the EE071 power supply shall be connected to the earth potential.

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 (read register):

Register address	Protocol address	Parameter name
30026	0x19	Temperature [°C]
30028	0x1B	Temperature [°F]
30030	0x1D	Rel Humidity [%]
30032	0x1F	Abs Humidity [g/m³]
30034	0x21	Dew Point [°C]
30036	0x23	Dew Point [°F]
30038	0x25	Mixing ratio [g/kg]

INTEGER (read register):*

Register address	Protocol address	Parameter name
30040	0x27	Temperature [°C]
30041	0x28	Temperature [°F]
30042	0x29	Rel Humidity [%]
30043	0x2A	Abs Humidity [g/m³]
30044	0x2B	Dew Point [°C]
30045	0x2C	Dew Point [°F]
30046	0x2D	Mixing ratio [g/kg]

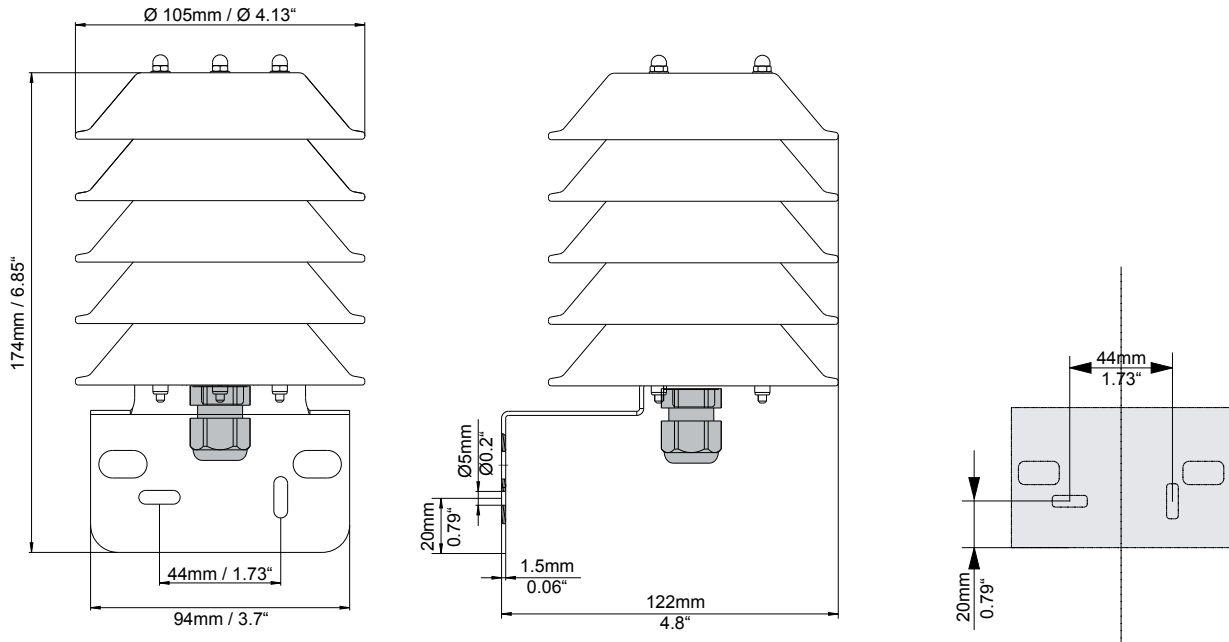
INTEGER (write register):

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)

OUTDOOR USE

For outdoor use EE071 shall be used with the radiation shield HA010502.



TECHNICAL DATA

(Modification rights reserved)

Measuring values

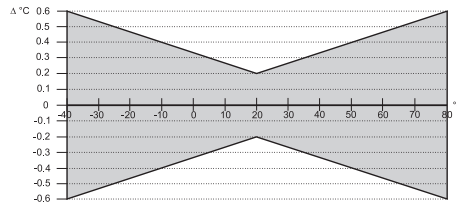
Relative Humidity

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⁾	EN61326-1 EN61326-2-3 Industrial environment Fcc Part 15 Class B ICES-003 Issue 5 Class B
Working and storage temperature	-40...80°C (-40...176°F)
Max. cable length	100m (328.1ft)

¹⁾ Not protected against surge

SETUP AND ADJUSTMENT

The EE071 probe is ready to use and does not require any configuration by the user. The factory setup of EE071 corresponds to the type number ordered. (Ordering guide please see data sheet at www.epluse.com/EE071.)

If needed, the user can change the factory setup by using the optional Modbus Configuration Adapter HA011012 (see data sheet „Accessories“ at www.epluse.com/EE071) and the E+E Product Configuration Software EE-PCS (free download from www.epluse.com/configurator). One can set the Slave-ID and the Modbus parameter (baud rate, parity and stop bits) and perform an offset, one or two point adjustment for humidity and temperature.

MAINTENANCE

When employed in dusty, polluted environment:

- The filter cap shall be replaced once in a while with an E+E original one. A polluted filter cap causes longer response time of the device.
- If needed, the sensing head can be cleaned. For this remove first very carefully the filter cap. Take care not to hit the sensing head. Shake slowly the sensing head for one minute in a solution of 50% isopropyl alcohol with 50% distilled water. Then the sensing head shall be rinsed with cold tap water and let dry freely. Do not touch or rub the sensing head! After cleaning the sensors install carefully a new E+E original filter cap.

USA

FCC notice:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the installation manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which thereceiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CANADIAN

ICES-003 Issue 5:

CAN ICES-3 B / NMB-3 B

INFORMATION

+43 7235 605 0 / info@epluse.com

Langwiesen 7 • A-4209 Engerwitzdorf, Austria
Tel: +43 7235 605-0 • Fax: +43 7235 605-8
info@epluse.com • www.epluse.com

LG Linz Fn 165761 t • UID-Nr. ATU44043101
Place of Jurisdiction: A-4020 Linz • DVR0962759

