

+ Quick Guide

EE072 - Humidity and Temperature Probe with Digital Interface

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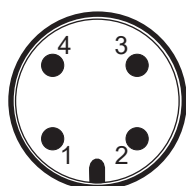
i PLEASE NOTE

Find this document and further product information on our website at www.epluse.com/ee072.

Electrical Connection

⚠ WARNING

Incorrect installation, wiring or power supply may cause overheating and can therefore lead to personal injuries or damage to property. For correct cabling of the device, always observe the presented wiring diagram for the product version used. The manufacturer cannot be held responsible for personal injuries or damage to property as a result of incorrect handling, installation, wiring, power supply and maintenance of the device.



M12 device plug
front view

Pin number	Function	Wire colors for accessories: - Coupling flange HA010705 - Connection cable HA010819/820/821
1	Supply voltage	brown
2	RS485 B (D-)	white
3	GND	blue
4	RS485 A (D+)	black

Installation

i PLEASE NOTE

For accurate measurement it is essential that the temperature of the probe body and the sensing head is the same as the temperature of the air to measure. Avoid mounting the EE072 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 sensing element 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 not to touch the sensing elements.

Modbus Setup

	Factory settings	User selectable values (via PCS10)
Baud rate	9600	9600, 19200, 38400, 57600, 76800, 115200
Data bits	8	8
Parity	Even	None, odd, even
Stop bits	1	1, 2
Modbus address	234	1...247

The recommended settings for multiple devices in a Modbus RTU network are 9600, 8, Even, 1. The EE072 represents 1 unit load in a Modbus network.

Device address, baud rate, parity and stop bits can be set via:

- PCS10 Product Configuration Software and the appropriate configuration cable.
The PCS10 can be downloaded free of charge from www.epluse.com/pcs10.
- Modbus protocol in the register 1 (0x00) and 2 (0x01).
See Application Note Modbus AN0103 (available at www.epluse.com/ee072).

The serial number as ASCII-code is located in read-only registers 1 - 8 (0x00 - 0x07, 16 bits per register).

The firmware version is located in register 9 (0x08) (bit 15...8 = major release; bit 7...0 = minor release).

The sensor name as ASCII-code is located in read-only registers 10 - 17 (0x09 - 0x11, 16 bits per register).

Communication settings (INT16)

Parameter	Register number ¹⁾ [Dec]	Register address ²⁾ [Hex]
Write register: function code 0x06		
Modbus address	1	00
Modbus protocol settings ³⁾	2	01

Device information (INT16)

Parameter	Register number ¹⁾ [Dec]	Register address ²⁾ [Hex]
Read register: function code 0x03/0x04		
Serial number (as ASCII)	1	00
Firmware version	9	08
Sensor name (as ASCII)	10	09
Device status (bit decoded)	602	259

Application parameter (FLOAT32)

Parameter	Register number ¹⁾ [Dec]	Register address ²⁾ [Hex]
Read and write register: Read function code 0x03 / Write function code: 0x10		
Air pressure ⁴⁾	5001	1388

1) Register number (decimal) starts from 1.

2) Register address (hexadecimal) starts from 0.

3) For Modbus protocol settings see Application Note Modbus AN0103 (available on www.epluse.com/ee072).

4) Ambient pressure in mbar, with 2 decimal digits (e.g. 1008.25), factory setting: 1013.25 mbar.

Modbus Register Map

FLOAT32				INT16			
Parameter	Unit	Register number ¹⁾ [DEC]	Register address ²⁾ [HEX]	Unit	Scale	Register number ¹⁾ [DEC]	Register address ²⁾ [HEX]
Read register: function code 0x03 / 0x04				Read register: function code 0x03 / 0x04			
Temperature	°C	1003	3EA	°C	*100	4002	0xFA1
	°F	1005	3EC	°F	*50	4003	0xFA2
	K	1009	3F0	K	*50	4005	0xFA4
Relative humidity RH, Uw	%RH	1021	3FC	%RH	*100	4011	0xFAA
Water vapour partial pressure e	mbar	1101	44C	mbar	*10	4051	0xFD2
	psi	1103	44E	psi	*1 000	4052	0xFD3
Dew point temperature Td	°C	1105	450	°C	*100	4053	0xFD4
	°F	1107	452	°F	*100	4054	0xFD5
	K	1147	47A	K	*100	4074	0xFE9
Wet bulb temperature Tw	°C	1109	454	°C	*100	4055	0xFD6
	°F	1111	456	°F	*100	4056	0xFD7
	K	1145	478	K	*100	4073	0xFE8
Absolute humidity dv	g/m ³	1113	458	g/m ³	*10	4057	0xFD8
	gr/ft ³	1115	45A	gr/ft ³	*10	4058	0xFD9
Mixing ratio r	g/kg	1121	460	g/kg	*10	4061	0xFDC
	gr/lb	1123	462	gr/lb	*10	4062	0xFDD
Specific enthalpy h	[kJ/kg]	1125	464	[kJ/kg]	*1	4063	0xFDE
	[ft lbf/lb/kg]	1127	466	[ft lbf/lb/kg]	*1	4064	0xFDF
	[BTU/lb]	1129	468	[BTU/lb]	*1	4065	0xFE0
Frost point temperature Tf	°C	1131	46A	°C	*100	4066	0xFE1
	°F	1133	46C	°F	*100	4067	0xFE2
	K	1149	47C	K	*100	4075	0xFEA
Ice bulb temperature Ti	°C	1237	4D4	°C	*100	4119	0x1016
	°F	1239	4D6	°F	*100	4120	0x1017
	K	1241	4D8	K	*50	4121	0x1018

1) Register number (decimal) starts from 1.

2) Register address (hexadecimal) starts from 0.

* 100 is scale 1:100 (2 550 is equivalent to 25.5 °C)

* 50 is scale 1:50 (2 550 is equivalent to 51 °F)

* 50 is scale 1:50 (13 500 is equivalent to 270 K)

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