

QUICK GUIDE

EE074 - T Probe with Modbus RTU

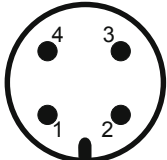
(Full User Guide at www.epluse.com/EE074)

Connection Diagram



Important note:

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: - Couplig flange HA010705 - Connection cable HA010819/820/821
1	supply voltage	brown
2	B RS485 (D-)	white
3	GND	blue
4	A RS485 (D+)	black

Caution

For accurate measurement it is essential that the temperature of the probe and the sensing head is the same as the temperature of the air to measure. Avoid mounting the EE074 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.

Modbus Setup

Factory default setup:

Baudrate	Data	Parity	Stop bits	Modbus address
9600	8	Even	One	233

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

1. PCS10 Product Configuration Software and the appropriate configuration cable.
2. Modbus protocol in the registers 60001 (0x00) and 60002 (0x01).
See Application Note Modbus AN0103 (available on www.epluse.com/EE074)

The EE074 factory setting for the slave-ID (Modbus address) is 233 as an integer 16 bit value.

The measured values are saved as a 32 bit float value and 16 bit signed integer.

The serial number as ASCII-code is located at read register address 30001-30008 (16 bit per address).

The firmware version is located at register address 30009 (bit 15...8 = major release; bit 7...0 = minor release).

FLOAT (read register):

Function code / Register number ⁽¹⁾ [Dec]	Register address ⁽²⁾ [HEX]	Parameter name
31003	0x3EA	Temperature [°C]
31004	0x3EC	Temperature [°F]
31009	0x3F0	Temperature [K]

INTEGER (read register):

Function code / Register number ⁽¹⁾ [Dec]	Register address ⁽²⁾ [HEX]	Parameter name / Scaling
34002	0xFA1	Temperature [°C] / scale 1:100 (2550 is equivalent to 25.5 °C)
34003	0xFA2	Temperature [°F] / scale 1:50 (2550 is equivalent to 51 °F)
34005	0xFA4	Temperature [K] / scale 1:50 (13500 is equivalent to 270 K)

INFO (read register):

Function code / Register number ⁽¹⁾ [Dec]	Register address ⁽²⁾ [HEX]	Parameter name
30001	0x00	Serial number (as ASCII)
30009	0x08	Firmware
30010	0x09	Name

INTEGER (write register):

Function code / Register number ⁽¹⁾ [Dec]	Register address ⁽²⁾ [HEX]	Parameter name
60001	0x00	Modbus address
60002	0x01	Modbus protocol settings ⁽³⁾

1) Register number starts from 1

2) Register address starts from 0

3) For Modbus protocol setting please see Application Note Modbus AN0103 at www.epluse.com

Modbus RTU Example

Example of MODBUS RTU command for reading the temperature (float value) T = 26,953624 °C from the register 0x3EA

Device EE074; slave ID 233 [E9 in HEX]

Reference document, chapter 6.3: http://www.modbus.org/docs/Modbus_Application_Protocol_V1_1b.pdf

	Modbus ID address	Function code	Starting address Hi	Starting address Lo	No. of register Hi	No. of register Lo	CRC	
Request [Hex]:	E9	03	03	EA	00	02	F2	93

	Modbus ID address	Function code	Byte count	Register 1 value Hi	Register 1 value Lo	Register 2 value Hi	Register 2 value Lo	CRC	
Response [Hex]:	E9	03	04	A1	06	41	D7	21	CE

For decoding of float values (stored according standard IEEE754), please refer to AN0103, chapter 7

7.2 Modbus floating point format

E+E devices use the Modbus floating point format. The byte pairs 1, 2 and 3, 4 are inverted as follows:

MMMMMMMM	MMMMMMMM	SEEEEEEE	EMMMMMMM
Byte 3	Byte 4	Byte 1	Byte 2

Example:

Response [Hex]				Value in decimal
Byte 1 (Register 2 - Hi)	Byte 2 (Register 2 - Lo)	Byte 3 (Register 1 - Hi)	Byte 4 (Register 1 - Lo)	
41	D7	A1	06	26.953624

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