Quick Guide

HTP501 - Humidity/Temperature Probe with Modbus RTU

E+E

_your partner
in sensor
technology._
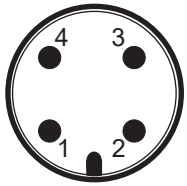
ℹ PLEASE NOTE

Find this document and further product information on our website at www.epluse.com/htp501.

Electrical Connection

⚠ WARNING

Incorrect installation, wiring or power supply may cause overheating and therefore 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.

Pin number	Function
1	Supply voltage 24 V DC class III ⬦ (Europe) / class 2 (North America)
2	RS485 B (D-)
3	GND
4	RS485 A (D+)

M12 device plug
front view

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 HTP501 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 Register Map

FLOAT 32

Parameter	Unit	Register number[1] [DEC]	Protocol address[2] [HEX]
Read register: function code 0x03 / 0x04			
Temperature	°C	1003	0x3EA
	°F	1005	0x3EC
	°K	1009	0x3F0
Relative humidity RH, Uw	%RH	1021	0x3FC
Water vapour partial pressure e	mbar	1101	0x44C
	psi	1103	0x44E
Dew point temperature Td	°C	1105	0x450
	°F	1107	0x452
	°K	1147	0x47A
Wet bulb temperature Tw	°C	1109	0x454
	°F	1111	0x456
	°K	1145	0x478
Absolute humidity dv	g/m^3	1113	0x458
	gr/ft^3	1115	0x45A
Mixing ratio r	g/kg	1121	0x460
	gr/lb	1123	0x462
Specific enthalpy h	[kJ/kg]	1125	0x464
	[ft lbf/lb/kg]	1127	0x466
	[BTU/lb]	1129	0x468
Frost point temperature Tf	°C	1131	0x46A
	°F	1133	0x46C
	°K	1149	0x47C
Ice bulb temperature Ti	°C	1237	0x4D4
	°F	1239	0x4D6
	°K	1241	0x4D8

Modbus Setup

	Factory settings	User selectable values (via PCS10)
Baud rate	9 600	9 600, 19 200, 38 400, 57 600, 76 800, 115 200
Data bits	8	8
Parity	Even	None, odd, even
Stop bits	1	1, 2
Modbus address	69	1...247

ⓘ PLEASE NOTE

Customer specific factory settings deviating from the above are indicated directly on the probe.

Example: Modbus RTU (19 200 8-E-1 ID: 40)

Baud rate
Data bits
Parity
Stop bit   Modbus address
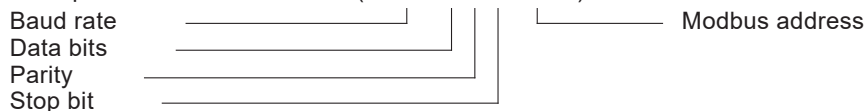
The recommended settings for multiple devices in a Modbus RTU network are 9600, 8, Even, 1. The HTP501 represents 1 unit load in a Modbus network.

Device address, baud rate, parity and stop bits can be set via:
- PCS10 Product Configuration Software and the the appropriate configuration cable HA011018.
  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/htp501).

The serial number in ASCII format is located in read-only register 1 - 8 (16 bits per address). The firmware version is located in register 9 (bit 15...8 = major release; bit 7...0 = minor release). The sensor name is located in register 10 (0x09).

Communication settings (INT16)

Parameter	Register number[1] [Dec]	Register address[2] [Hex]
Write register: function code 0x06		
Modbus address	1	0x00
Modbus protocol settings[3]	2	0x01

Device information (INT16)

Parameter	Register number[1] [Dec]	Register address[2] [Hex]
Read register: function code 0x03 / 0x04		
Serial number (as ASCII)	1	0x00
Firmware version	9	0x08
Sensor name	10	0x09
Device status (bit decoded)	602	0x259

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	0x1388

1) Register number starts from 1.
2) Protocol address starts from 0.
3) For Modbus protocol settings see Application Note Modbus AN0103 (available on www.epluse.com/htp501).
4) Ambient pressure in mbar, with 2 decimal digits (e.g. 1 008.25), factory setting: 1 013.25 mbar

E+E Elektronik Ges.m.b.H.
Langwiesen 7
4209 Engerwitzdorf | Austria
T +43 7235 605-0
F +43 7235 605-8
info@epluse.com
www.epluse.com