

+ Quick Guide

EE160 - Humidity and Temperature Sensor for Building Automation



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technology.

i PLEASE NOTE

Find this document and further product information on our website at www.epluse.com/ee160.

Electrical Connection

! WARNING

Incorrect installation, wiring or power supply may cause overheating and therefore personal injuries or damage to property. It is essential that the cables are not under voltage during installation. No voltage must be applied when the product is connected or disconnected. 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.

Hardware Bus Termination

If required, the bus termination shall be realized with 120 Ohm resistor, by the jumper on the PCB.

Jumper mounted → bus terminated

Jumper not mounted → bus not terminated

Address Setting

| Address Switch | Option |
|--|---|
|  | Address setting via PCS10 Product Configuration Software (= factory setting) All DIP switches at position 0 → factory-set default address (245 _{DEC} , 0xF5) applicable, can be changed via software (PCS10 or Modbus protocol, permitted values: 1...247). Example: Address is set via configuration software. |
|  | Address setting via DIP switches DIP switches in any other position than 0 indicate the effective Modbus address which overrules the factory setting and any Modbus address set via PCS10 or Modbus command (permitted values: 1...247). Example: Address set to 11 _{DEC} (0000 1011 _{BIN}). |

Modbus Register Map

The measurement data is saved as 32 bit float and as 16 bit signed integer values, see the Modbus Register map below.

FLOAT32

| Parameter | Unit | Register number ¹⁾ [DEC] | Register address ²⁾ [HEX] |
|--|----------------------|-------------------------------------|--------------------------------------|
| Read register: function code 0x03 / 0x04 | | | |
| Temperature T | °C, °F ³⁾ | 26 | 19 |
| Relative humidity RH, Uw | %RH | 28 | 1B |

1) Register number starts from 1.

2) Register address starts from 0.

3) The choice of measurement units (metric or non-metric) is done at the time of ordering, see the ordering guide in the EE160 data sheet. It is not possible to switch from metric to non-metric or vice versa by means of the PCS.

INT16

| Parameter | Unit | Scale ¹⁾ | Register number ²⁾ [DEC] | Register address ³⁾ [HEX] |
|--|----------------------|---------------------|-------------------------------------|--------------------------------------|
| Read register: function code 0x03 / 0x04 | | | | |
| Temperature T | °C, °F ⁴⁾ | 100 | 301 | 12C |
| Relative humidity RH, Uw | %RH | 100 | 302 | 12D |

1) Example: For scale 100, reading of 2550 is equivalent to 25.5.

2) Register number starts from 1.

3) Register address starts from 0.

4) The choice of measurement units (metric or non-metric) shall be done when ordering, see the ordering guide in the datasheet. Switching from metric to non-metric or vice versa using the PCS is not possible.

Modbus Setup

| | Factory settings | User selectable values (via PCS) |
|----------------|------------------|--|
| 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 | 245 | 1...247 |

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

The EE160 represents 1 unit load in a Modbus network.

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

- PCS Product Configuration Software and the appropriate configuration cable HA011018.
- Modbus protocol in the register 1 (0x00) and 2 (0x01).

See Application Note Modbus AN0103 (available at www.epluse.com/ee160).

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] | Size ³⁾ |
|--|-------------------------------------|--------------------------------------|--------------------|
| Write register: function code 0x06 | | | |
| Modbus address ⁴⁾ | 1 | 00 | 1 |
| Modbus protocol settings ⁴⁾ | 2 | 01 | 1 |

Device information (INT16)

| Parameter | Register number ¹⁾ [Dec] | Register address ²⁾ [Hex] | Size ³⁾ |
|--|-------------------------------------|--------------------------------------|--------------------|
| Read register: function code 0x03/0x04 | | | |
| Serial number (as ASCII) | 1 | 00 | 8 |
| Firmware version | 9 | 08 | 1 |
| Sensor name (as ASCII) | 10 | 09 | 8 |

1) Register number (decimal) starts from 1.

2) Register address (hexadecimal) starts from 0.

3) Number of registers

4) For Modbus address and protocol settings see Application Note Modbus AN0103 (available at www.epluse.com/ee160).

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