Quick Guide

HTS401 with RS485 Interface

your partner in sensor technology.

PLEASE NOTE

Find this document and further product information on our website at www.epluse.com/hts401.

Electrical Connection

WARNING

Incorrect installation, wiring or power supply may cause overheating and result in personal injury or property damage.

Cables must not be under voltage during electrical installation and connection or disconnection, especially at terminal connections on circuit boards. For correct cabling, always observe the presented wiring diagram for the product version used.

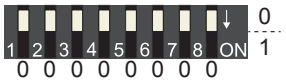
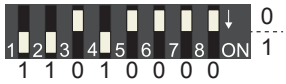
The manufacturer cannot be held responsible for personal injury or damage to property caused by incorrect handling, installation, wiring, power supply or maintenance of the device.

Hardware Bus Termination

If required, the bus termination shall be realised with a 120 Ohm resistor via the jumper on the PCB.

Jumper mounted (left position) → bus terminated
Jumper not mounted (right position) → 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 applicable, can be changed via software (PCS10 or Modbus protocol, permitted values: 1…247). Example: Address is factory set / 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 Setup

	Factory settings	User selectable values
Baud rate	According to ordering code	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	49 (0x31)	1...247

The recommended settings for multiple devices in a Modbus RTU network are 9600, 8, Even, 1. The HTS401 represents 1 unit load in a Modbus network.

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

- PCS10 Product Configuration Software and the USB-C Configuration Stick HA011070.
  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/hts401).

Device-related configuration and information registers:

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 starts from 1.
2) Register address starts from 0.
3) Number of registers
4) For Modbus address and protocol settings see Application Note Modbus AN0103 (available on the product page at www.epluse.com/hts401).

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.
For the full Modbus map including all calculated quantities, please refer to the HTS401 User Manual at www.epluse.com/hts401.

FLOAT32

Parameter	Unit	Register number[1] [DEC]	Register address[2] [HEX]
Read register: function code 0x03 / 0x04			
Temperature T	°C	1003	3EA
	°F	1005	3EC
Relative humidity RH, Uw	%RH	1021	3FC
Dew point temperature Td	°C	1105	450
	°F	1107	452

INT16

Parameter	Unit	Scale[3]	Register number[1] [DEC]	Register address[2] [HEX]
Read register: function code 0x03 / 0x04				
Temperature T	°C	100	4002	FA1
	°F	50	4003	FA2
Relative humidity RH, Uw	%RH	100	4011	FAA
Dew point temperature Td	°C	100	4053	FD4
	°F	100	4054	FD5

1) Register number (decimal) starts from 1
2) Register address (hexadecimal) starts from 0
3) Examples: For scale 100, the reading of 2550 means a value of 25.5. For scale 50, the reading of 2550 means a value of 51.

Application Specific Parameters

Application settings (INT16)

Parameter	Register number[1] [Dec]	Register address[2] [Hex]	Size[3]
Write register: function code 0x06			
ARC start	509	1FC	1

Device information (INT16)

Parameter	Register number[1] [Dec]	Register address[2] [Hex]	Size[3]
Read register: function code 0x03			
ARC remaining seconds	510	1FD	1
Device status (bit decoded)[4]	602	259	1

Application parameters

Parameter	Register number[1] [Dec]	Register address[2] [Hex]	Size[3]
Write registers: function code 0x10 / Read registers: function code 0x03 / 0x04			
Air pressure [hPa]	5001	1388	2

1) Register number (decimal) starts from 1.
2) Register address (hexadecimal) starts from 0.
3) Number of registers
4) For details, please refer to User Manual chapter 5.7 Device Status Indication.

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