Quick Guide

EE872 - Modular CO_2 Probe for Demanding Applications

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PLEASE NOTE

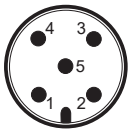
Find this document and further product information on our website at www.epluse.com/ee872.

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.

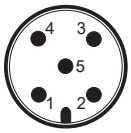
Plug for supply and analogue output



Front view on device

Pin	Assignment	Wire colors for accessories: Couplig flange HA010705 Connection cable HA010819/820/821
1	Supply voltage 24 V DC class III (Europe) / class 2 (North America)	Brown
2	Voltage output	White
3	GND	Blue
4	Current output	Black
5	Configuration pin	Grey

Plug for supply and RS485 connection



Front view on device

Pin	Assignment	Wire colors for accessories: Couplig flange HA010705 Connection cable HA010819/820/821
1	Supply voltage 24 V DC class III (Europe) / class 2 (North America)	Brown
2	B RS485 (D-)	White
3	GND	Blue
4	A RS485 (D+)	Black
5	Configuration pin	Grey

Hardware Selection between Analogue Output and RS485 Interface Options

The “default output” of the EE872 can be analogue or Modbus RTU, corresponding to the ordered type number, refer to the EE872 datasheet. Depending on the pin level configuration, the EE872 waits for connection to the PCS10 Product Configuration Software during the first 10 seconds after power-up.

Pin	Default: analogue	Default: Modbus RTU
Pin 5 open (=HIGH)	10 s timeout[1)], then analogue output	Modbus RTU
Pin 5 GND (=LOW)	Analogue	Analogue

1) For configuration purposes, during the first 10 seconds after power on the EE872 awaits connection with the PCS10 Product Configuration Software.

Protocol Settings

	Modbus	
	Factory settings	User selectable values (via PCS10)
Baud rate	Acc. to order code	9600, 19200, 38400
Data bits	8	8
Parity	Even	None, odd, even
Stop bits	1	1, 2
Address	237	1…247

Modbus Setup

The recommended settings for multiple devices in a Modbus RTU network are 9600, 8, even, 1.
Modbus address, baud rate, parity and stop bits can be set via:

- PCS10 Product Configuration Software and the USB configuration adapter 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/ee872).

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/ee872).

Modbus Register Map

The measured data is saved as a 32 bit float and as a 16 bit signed integer:

FLOAT32

Parameter	Unit[1]	Register number[2] [DEC]	Register address[3] [HEX]
Read register: function code 0x03 / 0x04			
CO_2 (average)	ppm	1061	424
CO_2 (raw)	ppm	1063	426
Pressure*	mbar	1201	4B0
	psi	1203	4B2
Relative humidity**	%	1021	3FC
Temperature**	°C	1003	3EA
	°F	1005	3EC
	K	1009	3F0
Dew point temperature***	°C	1105	450
	°F	1107	452
	K	1147	47A

INTEGER16

Parameter	Unit[1]	Scale[4]	Register number[2] [DEC]	Protocol address[3] [HEX]
Read register: function code 0x03 / 0x04				
CO_2 (average)	ppm	1	4031	FBE
CO_2 (raw)	ppm	1	4032	FBF
Pressure*	mbar	10	4101	1004
	psi	100	4102	1005
Relative humidity**	%	100	4011	FAA
Temperature**	°C	100	4002	FA1
	°F	50	4003	FA2
	K	50	4005	FA4
Dew point temperature***	°C	100	4053	FD4
	°F	100	4054	FD5
	K	100	4074	FE9

* Available for version M13.
** Only available with the M13 version if the probe is not heated (default setting).
*** Always available for the M13 version: Activating or deactivating the probe heating has no effect on the Td measurement.

1) The choice of measurement units (metric or non-metric) must be done according to the ordering guide, refer to EE872 datasheet. Switching from metric to non-metric or vice versa by using the PCS10 is not possible.
2) Register number (decimal) starts from 1
3) Register address (hexadecimal) starts from 0
4) 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.

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EE872 User Manual

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