ENVMETER-485 PRO®

USER MANUAL

hw rev. 95.00.-00.20

GENERAL DESCRIPTION

Envmeter-485 Pro is a temperature and humidity sensor for meteorological uses with RS485 Modbus output, based on a top-of-the-range hygrometer and on a microcontroller that manages the information and transmits it in RS485.

FEATURES

Misure:

Temperature range:	-40 ÷ 125 °C
Relative humidity range:	0 ÷ 100 %HR

Output:

serial:	RS485, standard Modbus RTU protocol

Resolution: 0.1 of given value

Accuracy:

Temperature:	± 0,1 °C (1)
Relative humidity:	± 1,5 %HR (2)

Non-linearity: ≤0.3%

Working temperature range: -40 ÷ +125 °C

Supply voltage: 7,5 ÷ 28Vdc (See page 2)

Consumption (@ 12V): < 5 mA

Encapsulation: resin conformal coating

Casing: 6 plates in white resin resistant to atmospheric agents and UV

Connector: Male M8 4 pin

Dimensions: height 160mm, diameter 75mm

(1) in the range 20 °C ÷ 60 °C - for measurement precision outside this range, consult the technical data sheet.
(2) in the range 0 ÷ 80 %RH - for measurement accuracy outside this range, consult the technical data sheet.

Supplied material:
- Instrument
- User manual
- M8 4 pin female connector
- Support bracket for pole mounting (optional)

PRODUCTION BATCH DETAILS:

- Date:..... Operator: …....
- S/N:..... Modbus Node: ….....

MECHANICAL INSTALLATION

Unscrew the fixing screw from the sunshade casing and fix it on a suitable support or on the supplied bracket. For overall dimensions and dimensions see Fig. 1.

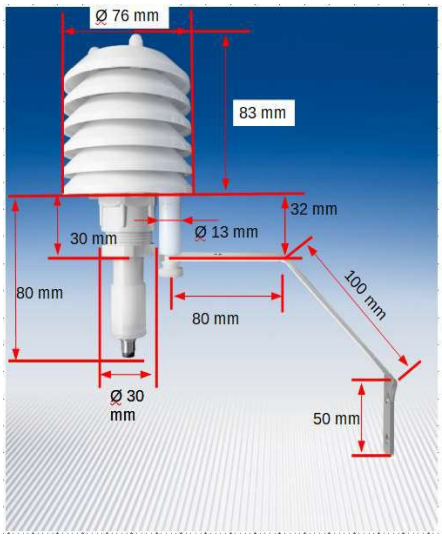

Fig. 1: Fixing complete with optional stainless steel or white bracket, equipped with two pipe clamps per pole.

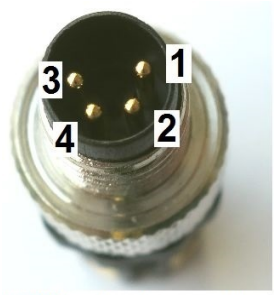

Fig. 3 **Front male connector**

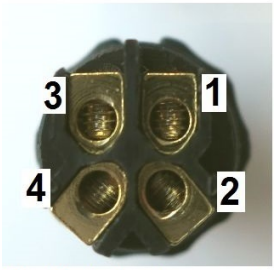

Fig. 4 **Back female connector**

WIRINGS

See table 1 and fig. 3 and 4.

Connector	
# pin	**Description**
1	RS485+/B, non inverting bus line RS485
2	Power supply +7,5 ÷ 28Vdc
3	RS485-/A, inverting bus line RS485
4	Common (0V)

Tab. 1

Connector: figure 3 shows the male connector already mounted on our sensor.
Connection: for easier wiring we recommend the use of lubricants suitable for electrical connections.

Data is accessible through registers read via Modbus. Below is the map of accessible logs in this release:

Envmeter-485 PRO: register map

<table>
<tr><th>Registro #</th><th>Descrizione</th><th>Accesso</th><th>NV save</th></tr>
<tr><td>0x0101</td><td>Current air temperature [°C], range -40÷ +100, decimal x 10</td><td>R</td><td></td></tr>
<tr><td>0x0102</td><td>Current HR [%], range 0÷ +100, decimal x10</td><td>R</td><td></td></tr>
<tr><td>0x0103</td><td>Status bit coded
<table>
<tr><th>Bit</th><th>Description</th></tr>
<tr><td>0</td><td>Factory calibration/configuration
1= OK; 0= need recalibration</td></tr>
<tr><td>1</td><td>Not volatile parameters
1=OK; 0= default loaded, need to be changed/saved</td></tr>
<tr><td>2</td><td>Sensor type
1= redundant sensor; 0= base sensor</td></tr>
<tr><td>3</td><td>Temperature reading status</td></tr>
</table></td><td>R</td><td></td></tr>
</table>

		1= sensor error; 0=OK		
	4	HR reading status 1= sensor error; 0=OK		
	5	Watchdog 1= reset by watchdog timeout occured; 0 = normal operation		
		Bits 6÷15 are reserved for internal diagnotic		
0x8001	Serial number, least significant word		R	
0x8002	Serial number, most significant word		R	
0x8003	Firmware main version, hexadecimal		R	
0x8004	Firmware minor version, hexadecimal		R	
0x8005	Node address, range 1÷247, decimal, default 1		R/W	Y
0x8006	Bitrate, coded, range 0÷4, decimal, default 1 0 – 9600 bps 1 – 19200 bps 2 – 38400 bps 3 – 57600 bps 4 – 115200 bps		R/W	Y
0x8007	Serial configuration, coded, range 0÷3, decimal, default 0 0 – 8N1 (8 bit / no parity /1 stop bit) 1 – 8E1 (8 bit / even parity / 1 stop bit) 2 – 8O1 (8 bit / odd parity / 1 stop bit) 3 - 8N2 (8 bit / no parity / 1 stop bit)		R/W	Y
0x8008	Serial reply delay [ms] range 0÷100, decimal, default 1		R/W	Y
0x8101	Not volatile params save command, write 1 to execute (then wait 1 s before sending next message)		W	
0x8102	Software reset command, write 1 to execute (then wait 6 s before sending next message)		W	

GoodWe EZLogger-Smx-485	Growatt Shinemaster -Smx-485	Huawei SmartLogger 1000/2000/3000	SMA Data Manager M	Sungrow COM100

CALIBRATION

We recommend sending it to the manufacturer for calibration verification every two years of outdoor use or in the presence of anomalous readings.

CONTACT US

Further information on the device can be found at the site:
https://soluzionesolare.it/prodotti/

For technical assistance contact:
support@soluzionesolare.it

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DICHIARAZIONE CE DI CONFORMITA'
CE DECLARATION OF CONFORMITY

Il costruttore/ *The manufacturer:*

Soluzione Solare Srl
Via R. Berica, 621 – 36100 – Vicenza (VI) - Italia

Dichiara sotto la propria responsabilità che i prodotti:
declares under our sole responsibility thet the product:

ENVMETER PRO , ENV-485PRO

al quale si riferisce questa dichiarazione, sono conformi alle norme europee armonizzate come pubblicato nella Gazzetta Ufficiale della CE, basato sul seguente standard:
to which this declaration relates, is in conformity with European Harmonised Standards as published in the Official Journal of the EC, based on the following standard:

[EMC – Emissions] EN 61000-6-3:2021;
[EMC – Immunity] EN 61000-6-2:2019;
EN 50581

seguendo la disposizione:
following the provision:
EMC-directive 2014/30/EC
EMC-directive 2014/30/EC
EMC-directive 2011/65/EC

Vicenza, 30 November 2021

Il legale rappresentante
Legal rapresentative

A. Calatroni