EVOSER devices series warranty

Customer's name: Address: Phone No.:	
Dealer's name: Address: Phone No.:	
Guarantee period	12 months from date of purchase
Date of purchase	

Provisions for Free Repair

1. If the unit does not work properly despite the fact that the customer used it properly and in line with the User's Manual, the unit shall be repaired free of charge through the distributor from which the unit was purchased.
2. If the customer requests free repair because of trouble within the warranty period, bring or send the unit along with the warranty to the distributor.
3. Free repair is not available in the following cases even though it is within the warranty period:

a:Trouble or damage was caused by careless operation, natural disaster, fire, public pollution, or use of a power source other than specified.
b: If repair, adjustment, disassembly or modification of the unit has been carried out by a person other than a Italcoppie Sensori authorized engineer.
c:Trouble or damage was caused by transportation, movement or dropping of the unit after purchase.
d:Failure to submit the Warranty or failure to fill in all items required in the Warranty.

4. The Warranty cannot be reissued.

This Warranty only promises customers free repair within the period and conditions clarified in this Warranty. Therefore, the customer's legal rights will not be limited by this Warranty. For further information on repair and other service questions after the termination of the warranty period, contact your distributor.

GRUPPO ITALCOPPIE
italcoppie
ISO 9001:2000
SENSORI

EVOSER-T

INTRODUCTORY MANUAL

DIGITAL TEMPERATURE SENSOR WITH SERIAL INTERFACE RTU MODBUS PROTOCOL

UK

July '14 Rev. 1
Cod. IMB133

Information

- In order to properly use this product, please carefully read this manual before using the device.
- All the relative rights to this user manual are property of Italcoppie sensori. It is forbidden the duplication and/or modification, partial or total, of this manual without the authorization of Italcoppie sensori.
- Italcoppie sensori is not responsable for any malfunction or trouble caused by the use of this product or by any problem caused by the use of measurement results of our unit. Please be fully aware of this before using our product.
- Italcoppie sensori accepts no responsability for any damage or loss of income caused by the use of our product
-This product has been designed for private or industrial use only. It is not for use in situations where strict safety precautions are necessary such as in connection with medical equipement, whether directly or indirectly.
- The figures and illustrations in the present manual may vary slightly from the actual message.
- Specifications, design and other contents outlined in this manual are subject to change without notice.

Safety Precautions and Instructions

***Please carefully observe the following safety measures when using our product**

To prevent any loss or damage to our customers, other people and/or property, and to ensure the proper use of this product we ask that before using it you carefully read, understand and follow the safety rules and precautions for our products as outlined below.

[Explanation of the warning symbols]

⚠ DANGER	These entries are actions that absolutely under no circumstance should be taken. The taking of such an action may cause serious personal physical damage or death.
⚠ CAUTION	These entries are actions that if taken may lead to physical injury or damage to persons or things.

△	This symbol denotes an important warning or caution. Inside or near the symbol will appear another symbol giving details. (Ex. ⚠ Stands for ELECTROCUTION)
⊘	This symbol denotes a forbidden action Inside or near the symbol will appear another symbol giving details. (Ex. ⊘ stands for DO NOT TAKE APART)
●	his symbol denotes an action that you must take. Inside or near the symbol will appear another symbol giving details. (Ex. ❗ stands for TAKE PLUG OUT OF SOCKET)

⚠ DANGER

- Do not take apart, repair or modify the main unit. It may cause fire, electrocution or damage. For any problem ask to Italcoppie sensori.
- If any smoke or strange smells are emitted from the unit, immediately cease using it. Continued use may cuase fire, electrocution or damage.
- Do not use the device in the place subject to flammable or explosive gas.
- To make sure that the supply voltage is correspondent to that on the nameplate.
- If there is a danger of a serious which had incident to one breakdown or to a defect of this instrument, is necessary to equip the apparatus of a appropiata external protection
- The unit is planned in order to only work in industrale atmosphere.

⚠ CAUTION

- Italcoppie sensors is not responsible for eventual disadvantages or malfunzionamenti provoked from the use of this product or for any other problem provoked from the malfunctioning of the unit. Before using the product, carefully estimating eventual correlated risks
- **This product has been planned exclusively for industrial applications and are not destined to the use in situations in which it is necessary to observe rigid safety precautions, as an example for applications directly or indirectly correlated to medical equipment.**
- **Not to make to fall the unit or esporla to hits rapes**
- **Do not place any foreign objects in the inputs cable jack.**
- **The safety normative require a power supply line switch to cut a device power supply. As ulterior security, insert a protection delayed fuse (T250mA 250Vca).**

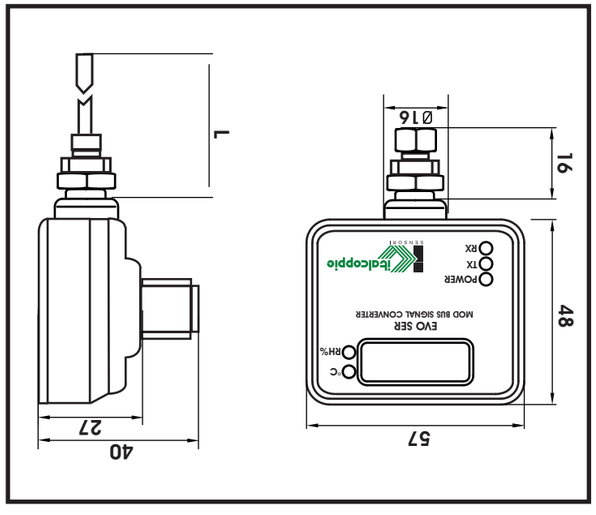
  If the installation previews more evo serveur online, to insert a fuse adapted to the absorption of the installed devices.
- **This unit doesn't have parts that can be repaired.**
- **The unit is not equipped with an ON-OFF switch, therefore will turn on immediately when power supply is applied.**
- **The unit must be wired with appropiate cables with reference at the limited voltage and current values reported on this user's manual.**
- **Do not use or store the unit in places such as listed below. It may cause electrocution, fires or damages at the unit.**
  - Areas exposed to water or high-pressure water flow.
  - Areas exposed to organic solvents and corrosive gas.
  - Areas exposed to strong magnetic fields.
  - Areas exposed to static elecdtricity.
  - Areas exposed to fire or overheating.
  - Areas exposed to excessive dust or smoke

Before installing the device please read carefully the user's manual available for download from www.italcoppie.it

Technical data

Body:	Thermoplastic material color gray
Probe type:	Compact mineral insulated cable AISI316 s.s
Dimensions:	57x48x40 mm (only body)
Installation:	Through the appropria wall mounting bracket [AMEC192]
Degree of protection:	Ip65 and IP67 in accordance to IEC60529
Connectors:	N° 2 M12-5 pole male in accordance to IEC 751
Enviroment conditions:	-20÷65°C (0÷100% rel. Humidity) EMC: in accordance to IEC60529
Power supply:	12÷30Vdc (polarity protected)
Consumption:	0,25W without display, 0,5W with display
Sensor:	Pt1000 class A up to 300°C in accordance to VDE0627
Probe minimum bending radius:	Three-times the diameter (except the sensing tip wich length is 30 mm)
Range:	-50,0÷450,0°C
Accuracy:	See graph «Uncertainty total on the measure»
Output:	RS485 serial interface (not isolated) Communication protocol: Modbus RTU (max. boud rate 38.400bps) Max. connection distance: 1.200 m. (*) Max. number of devices on the network: 32 (*) The max distance is in according to power supply and type of cable used to connect the devices.
Display:	4 digits with 7 red segments + °C indicator led
Led indicators:	Green: Power on (Power) Red: Serial transmission active (Tx) Red: Serial reception active (Rx)

Mechanical dimensions



CE

GRUPPO ITALCOPPIE
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SENSORI

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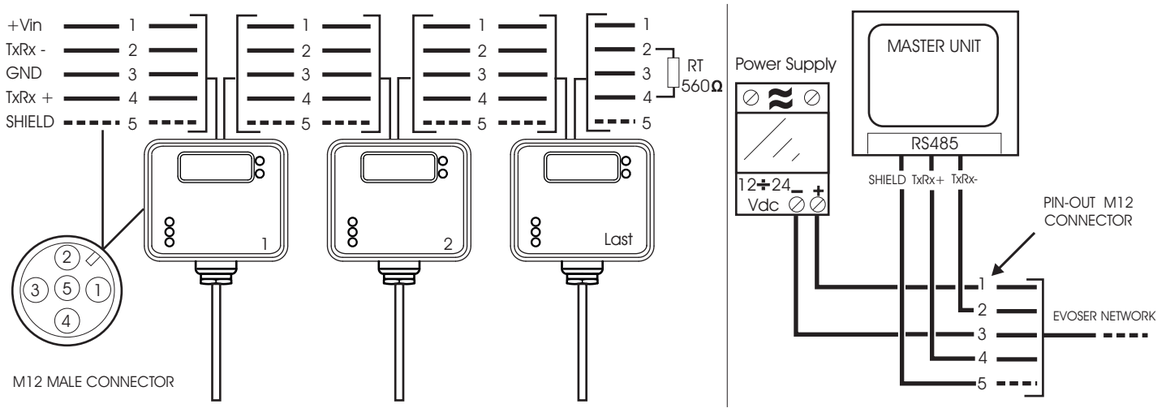
http://www.italcoppie.it

ELECTRICAL CONNECTIONS



- The device must be cabled with wiring suited to the limit voltage and current specifications given in the technical data: we recommend using the appropriate Italcoppie 4 pole + shield cable (see 'Evo ser options'); The cable can be used to install a network of up to 32 devices.
-The device or network must be powered with a DC voltage in the range12 to 30Vdc: power supply in excess of 30 Vdc will cause the entire network to fail. It is advised to use the power supply unit [STR129] (till 32 units).
-The RS485 serial interface is NOT galvanically isolated: if the network is controlled by a master unit equipped with RS232 interface, we recommend using an isolated converter(EVO006),or a repetitor(EVO005);
-Make sure that the working environment falls within the range specified 'Technical specifications"
-Incorrect power hookup to serial terminal 2 and 4 can break the device/s

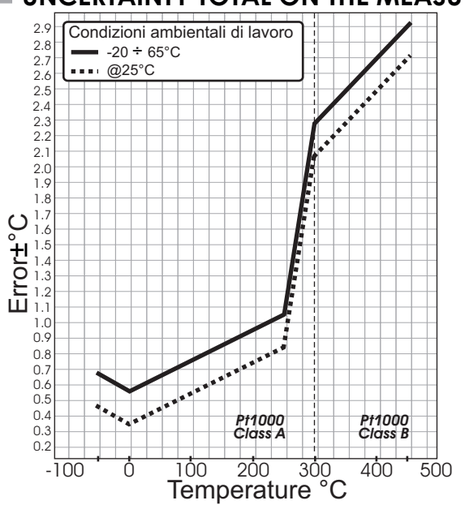
LED ERROR MESSAGES

✱ Power o Tx o Rx	Fast flashing: temperature over/under range Slow flashing: Temperature sensor failure (technical service required)
✱ Power ✱ Tx o Rx	Power + Tx leds flashing: EEprom write error (technical service required)
✱ Power o Tx ✱ Rx	Power + Rx leds flashing: System ready for firmware update

DISPLAY ERROR MESSAGES

0000	Temperature over-range. (temperature over 450°)
0000	Temperature under-range (temperature below -50°)
- - - -	Temperature sensor failure (technical service required)
EE	System error: Corrupted Eeprom (technical service required)

UNCERTAINTY TOTAL ON THE MEASURE



Note: beyond 300°C the accuracy of the sensor it is from considering itself relative to the class B

EVOSER SERIES ACCESSORIES

Wall mounting bracket [AMEC192]
Serial repeater [EVO005]
RS485-->PC (RS232) isolated serial converter [EVO006]
M12-5 connector poles female 90° [CONV109]
Terminal resistor integrated to M12 connector [EVO001]
EVOSER 4 pole + shielding cable [CAVV071] Extensions of various lengths with co-moulded M12-5 poles connectors for connecting EVOSER units [the PRV#]
Power supply 92-265Vac / 24Vdc 2,5A [STR129]
Configuration KIT [EVOSERSET]

EVOSER CABLE

+VIN	**1**	RED	AWG22(0,33mm²)
GND	**2**	BLACK	
-RxTx	**3**	BLUE	AWG24(0,20mm²) Twisted
+RxTx	**4**	WHITE	
SHIELD	**5**	-	

MODBUS TABLE

Registers

Modbus address	Parameter name	Range	Note	E²P
0[0x00]	Temperature	-50.0÷450.0°C	Read Only	
1[0x01]	Temperature bias	-12.5÷12.5°C	R/W	X
2[0x02]	Max Temperature peak	--	Read Only	X
3[0x03]	Min Temperature peak	--	Read Only	X
4[0x04]	Reset peaks	1	R/W	
5[0x05]	Modbus address	0÷255	R/W	X
6[0x06]	Baud Rate modbus 0 – 2400 bps 1 – 4800 bps 2 – 9600 bps 3 – 19200 bps 4 – 38400 bps	0÷7	R/W	X
7[0x07]	Parity 0 – None 1 – Even 2 – Odd	0÷2	R/W	X
8[0x08]	Number of data bits 0 – 8 Bits 1 – 7 Bits	0÷1	R/W	X
9[0x09]	Number of stop bits 0 – 1 Stop bits 1 – 2 Stop bits	0÷1	R/W	X
10[0x0A]	Modbus delay	0÷255	R/W (x2mS)	X
11[0x0B]	System errors 0 – OK 1- Sensor failure 2 – EEprm Error 3 – Over Range 4 – Under Range	0÷4	Read only	
12[0x0C]	Show zero on display 0- No zero 1- Yes zero	0÷1	R/W	X
13[0x0D]	Device name	2 characters ASCII	R/W	X
14[0x0E]	Device 1 name	2 characters ASCII	R/W	X
15[0x0F]	Watchdog time	0÷250	R/W (*0,5sec)	X
16[0x10]	Software version	0.0÷99.9	Read only	
17[0x11]	Hardware version	0.0÷99.9	Read only	
18[0x12]	Serial Number	0-65535	Read only	X
19[0x13]	Production lot	0-65535	Read only	X
20[0x14]	Reserved	--	--	
21[0x15]	Default Parameters	0xAAAA	Write Only	
22[0x16]	Reserved	----	--	
23[0x17]	Reserved	----	--	
24[0x18]	Reserved	----	--	

Coils

Modbus address	Parameter name	Range	Note	E2P
0	Enable Watchdog Event	0÷1	R/W	
1	Watch dog Event	0÷1	R/W	
2	Power-UP Event	0÷1	R/W	

Note:the registers and the coils marked in column "E2P" come saved in EEprom (permanent memory) every time that come written.
For more information on Modbus protocol download the instruction's manual available from our web site www.italcoppie.it site

DEFAULT REGISTERS

Temperature bias	0,0°C
Modbus address	1
Baud rate	9600 bps
Parity	None
Number of data bits	8
Number of stop bits	1
Modbus delay **Tx/Rx**	2mS
Watchdog time	0,5 sec.

RESET TO FACTORY DEFAULT

✱ Power
o Tx
o Rx

o Power
✱ Tx
o Rx

o Power
o Tx
✱ Rx

It is possible to reset the communication parameters at the factory default values by the application «Evoser Factory Default», available for download from our web site www.italcoppie.it.
The reset is only possible in the first 4 seconds after the power-on when the three leds Power / Tx / Rx blink as the sequence showed beside.
(For more information read carefully the user's manual included in the application «Evoser Factory Default»).

Before installing the device, read the user's manual, available for download from www.italcoppie.it site