
EVOWL



Wireless Temperature System ***Transmitter unit***



Operating manual



Read and scrupulously follow the instructions given in this manual

Before installing the device, read the following warnings:

- ✘ Make sure that the working environment falls within the range specified in 6 'Technical characteristics'.
- ✘ When replacing batteries, follow the instructions provided in 3 'Removing and Replacing Batteries' to the letter: only use batteries of the specified type.
- ✘ Follow the device storage instructions provided in 5 'Storing the Device'.
- ✘ The device is not designed for operation in hazardous atmospheres (flammable or explosive): its use in such conditions is therefore **prohibited**.
- ✘ The device is intended for industrial use only and not for use in situations where compliance with strict safety precautions is required, such as applications directly or indirectly correlated with medical equipment.
- ✘ The device may not be dismantled or repaired by unauthorised staff. Contact your local dealer for any repairs.
- ✘ Take special care when handling the pointed metal stem, which could cause serious cuts or wounds: the protective rubber cap should be fitted when the probe is not in use.
- ✘ Wear a protective glove when handling the probe if it is removed from the working zone at particularly high ($\sim 80^{\circ}\text{C}$) or low ($\sim -40^{\circ}\text{C}$) temperatures: it could cause burns or frostbite.
- ✘ Before unscrewing the handle of the probe to ensure that the device is at room temperature (between 18 and 25 ° C): DO NOT do this at different temperatures than those indicated.

Italcoppie sensori s.r.l. is not liable in any way for damage or injury caused by tampering or incorrect or improper use of the device.

1 Introduction

The EVOWL-Tx remote unit is used in association with the EVOWL-Rx receiver unit for monitoring temperatures inside blast chillers, cold stores, refrigerated counters, etc.; it is user-friendly and does not require configuration.

The use of radio frequency (RF) technology significantly cuts installation costs and makes the operator's task much simpler since there are no longer any connection cables to cause a hindrance: the temperature can be monitored at any point of the blast chiller or tunnel, with no need to coil and stow cables.

Its solid handle and the absence of connection cables ensure durability and constant performance over time.

The 4 temperature measurement points allow these probes to be used in all systems where product core temperature monitoring is required.

The probe is suitable for contact with foods: its light weight (less than 60 g. including the battery) makes it ideal even in the confectionery sector, or in any context where the product core temperature has to be measured.

1.1 How the EVOWL system works

The EVOWL system consists of a receiver unit (EVOWL-Rx) and one or more remote units (EVOWL-Tx probes).

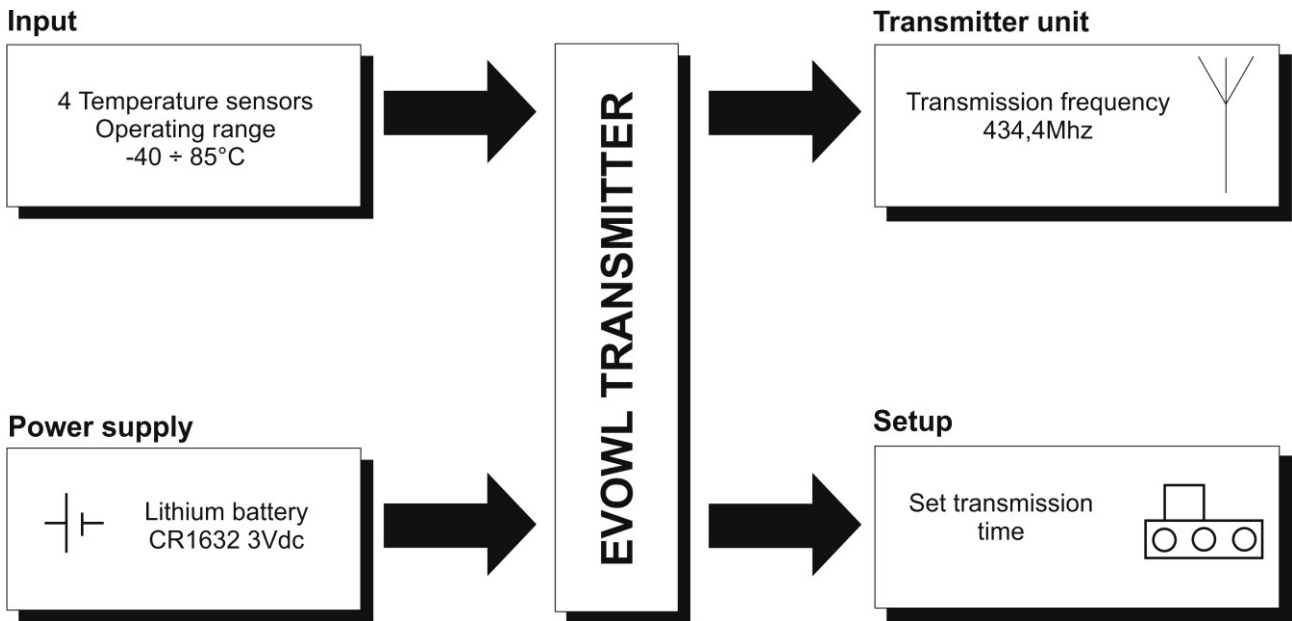
The EVOWL-Tx remote units transmit the data cyclically by wireless (4 temperatures and battery status) every 30 seconds* or every 7 seconds if the temperature variation in the working environment exceeds 1°C. The data are acquired by the EVOWL-Rx receiver, which makes them available on the Modbus RTU network.

Each EVOWL-Tx unit is factory-coded with a unique number (ID): no configuration is required.

**If the working temperature is below 0°C the cyclical transmission rate may vary from 30 up to 40 seconds.*

For further information on operation of the system, see point 1.1 of the "EVOWL receiver unit" operating manual.

1.2 Block diagram



2 Installation

Warning: systems must only be installed by qualified staff.

The EVOWL-Tx probe does not need configuration, meaning that it can be installed in the zone for monitoring immediately.

Unless specifically requested by the customer, the EVOWL-Tx is delivered fitted into the docking station, with the battery installed; in this condition the probe is not active and is in energy-saving status. As soon as the probe is removed from the docking station, it switches on automatically (indicated by a flashing red light in its handle) and starts the wireless transmission of data to its associated receiver.

If the probe has been delivered without the battery fitted refer to chapter 3 "Removing and replacing the Battery".

2.1 Associating the probe to the transmitter

The probe for installation needs to be associated to the transmitter; this procedure is described in the EVOWL-Rx operating manual.

Note on coding of the ID number

The ID number (different for each probe) indelibly marked on the metal stem is 4 digits in hexadecimal format (eg 9C03 ID = 39939 in decimal).

2.2 Docking Station

The docking station is the wall-mounted support for the EVOWL-TX probe, which also allows it to be switched off when not in use.

When the probe is fitted into the docking station it switches to energy-saving mode; as soon as it is removed from the support, the probe switches on automatically, ready for use (indicated by a flashing red light in its handle).

To activate the energy-saving mode, the EVOWL-Tx probe must be fitted into the docking station (it doesn't matter the direction of insertion): this state is communicate to the associated receiver.



WARNING: the docking station should be installed in a location with room temperature between 18 ° and 30 °C.

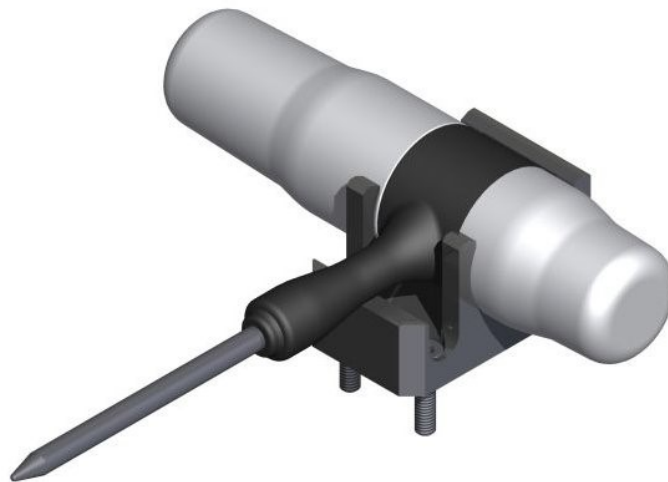
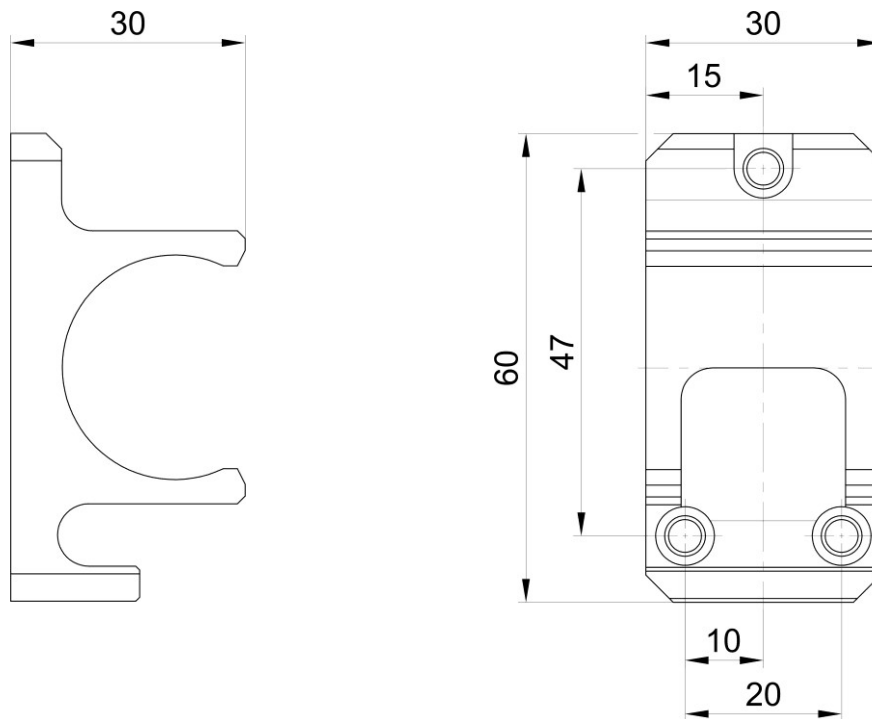
Do not install it inside the environment for monitoring, where temperatures vary within the range from -40° to +85°C.

As described above, the docking station is used to set the probe in standby mode when not in use, in order to save battery power. The lithium battery is very sensitive to temperature, and so for the longest possible lifetime it should be kept in a location with temperature between 20° and 30°C. At 23°C the battery's annual self-discharge is less than 1%, but at extreme temperatures (-40°C and 80°C) its self-discharge rate is much, much higher.

The docking station have to be mounted on the wall using two M4 screws or by using the supplied double-sided adhesive.

It is manufactured in food-approved material and is designed to operate within the range -40÷+85°C.

2.2.1 Mechanical dimensions



3 Removing and replacing the battery

Warning: the battery must only be changed by skilled, authorised staff.

⚠ CAUTION

- ✘ Make sure that no dirt, moisture or vapour enters the device: change the battery in a clean place with low relative humidity.
- ✘ The probe will not work if the battery is fitted with the poles incorrectly connected; this may damage both the battery and the probe. Take care to connect the battery poles correctly.
- ✘ Fitting unsuitable batteries may write off the device. Unsuitable batteries could put the operator's safety at serious risk. Only use the battery supplied in the maintenance kit code EVO020.
- ✘ Comply strictly with the instructions provided below

The EVOWL-Tx probe is powered by a button cell battery, model RENATA CR1632, with capacity 137mAh and voltage 3 V DC. Use only this model of battery, supplied in the EVOWL maintenance kit (order code EVO020); the probe's performance, safety and reliability are not guaranteed if other types of battery are used.

The battery's lifetime depend on how it is used and the operating conditions; at 25°C, with a transmission time of 30 seconds, the estimated lifetime is about 2 years.

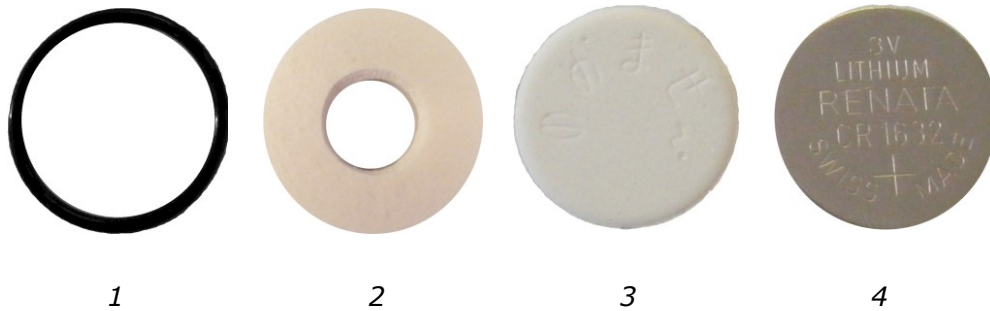
For the technical specifications and safety of the lithium, battery, visit the www.renata.com website or download the technical info and the relative guidelines from the www.italcoppie.it site, in the EVOWL-Tx product technical info.

*Battery data-sheet: www.italcoppie.it/Download/SchTecUK/CR1632_data_sheet_v07.pdf

**Guideline: www.italcoppie.it/Download/SchTecUK/Battery_Safety_Guidelines.pdf

When changing the battery, the rubber gasket and the silica gel tablet inside the probe's handle must also be replaced.

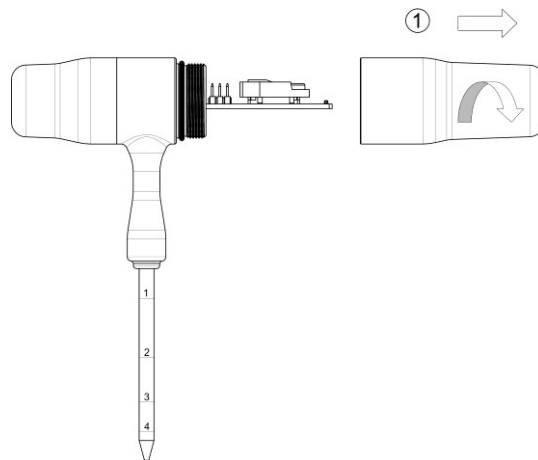
The EVO020 maintenance kit contains everything required for replacing the battery and the relative expendable parts.



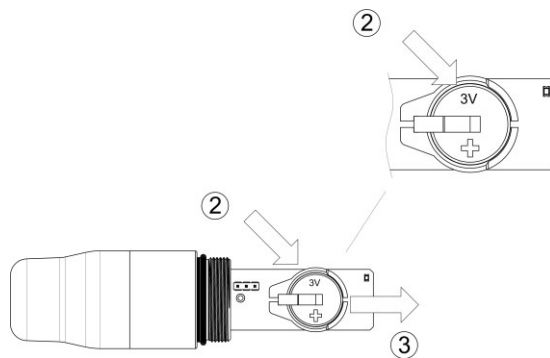
- 1- Rubber gasket
- 2- Anti-vibration rubber
- 3- Silica gel
- 4- Battery model RENATA CR1632 3Vdc

3.1 Removal and replacement procedure

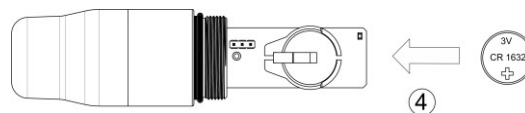
1 - Unscrew the long part of the probe handle, turning it anticlockwise.



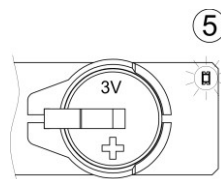
2 / 3 - Gently remove the battery from the battery compartment as shown here:



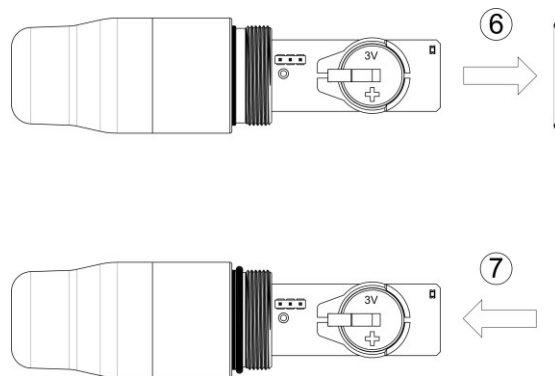
4 - Fit the new battery in the battery compartment: make sure that the polarity is correct. The positive side, marked "+" must be facing upward, see below:



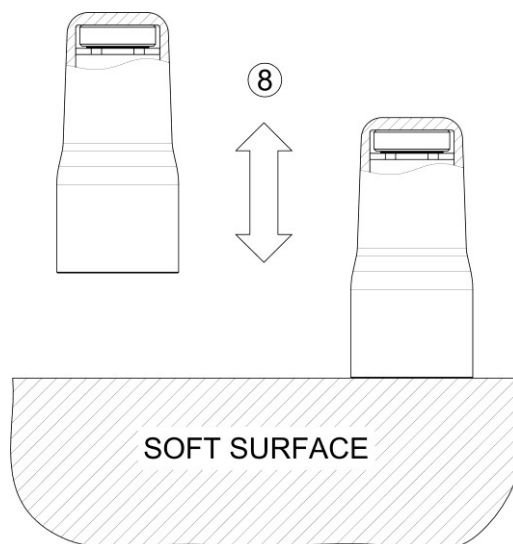
5 - If the battery has been fitted correctly, the red LED will flash once.



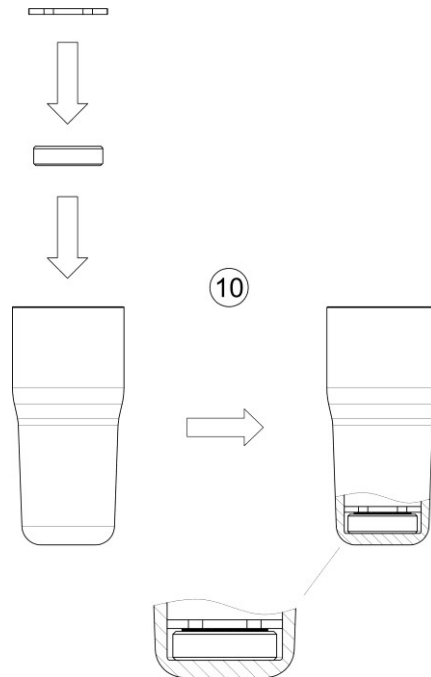
6 / 7 - Remove the rubber gasket and fit the new one.



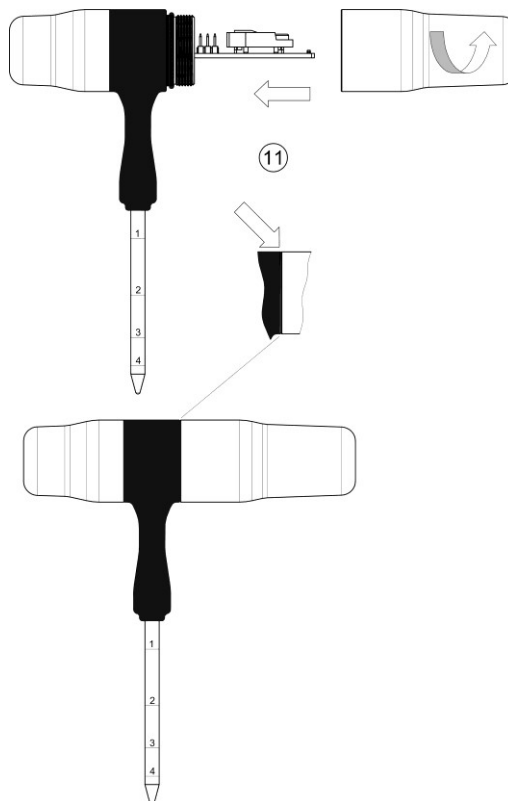
8 - Remove the silica gel tablet and the anti-vibration rubber pad from the part of the handle unscrewed in step 1, tapping it gently against a soft surface: dispose of the old parts in accordance with the relevant regulations.



9 - First insert the silica gel tablet, and then the anti-vibration rubber in the bottom of the handle, taking care to fit them as shown (the silica gel tablet at the bottom with the anti-vibration rubber on top).



11 - Screw the handle back together, turning clockwise, taking care to screw it right down onto the black part of the probe.



WARNING: if the handle is not screwed together properly, the probe may not be airtight, meaning that it will not operate correctly.

3.2 Disposing of lithium batteries

The disposal of lithium batteries with ordinary household waste is strictly forbidden.

Dispose of the batteries in the special containers provided at recycling stations, in accordance with the relevant national legislation.

4 Setting the transmission interval

The transmission interval can be changed from 30 seconds (7 sec. for variations in temperature of more than 0,3°C) to 60 seconds (30 sec. for variations in temperature of more than 0,3°C) using a jumper on the PCB.

The probe is delivered by the factory with the transmission interval set at 30 seconds.

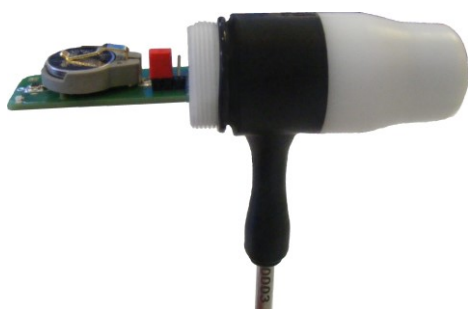
If a transmission interval of 60 seconds is set, the battery lifetime is extended by about 40%* compared to the default setting (30 sec.)

* N.B.: battery lifetime depends on the operating conditions.

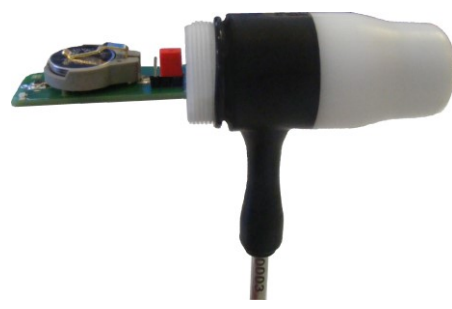
Warning: the transmission interval jumper must only be set by skilled, authorised staff.

4.1 Jumper setting procedure

- 1 - Unscrew the long part of the probe handle, turning it anticlockwise.
- 2 - Set the jumper for the transmission interval required. Refer to the illustrations below:



30 / 7 sec.



60 / 30 sec.

3 - Screw the handle back together, turning clockwise, taking care to screw it right down onto the black part of the probe (see point 11 in section 3.1).

WARNING: if the handle is not screwed together properly, the probe may not be airtight, meaning that it will not operate correctly.

4 - Place the probe on the docking station; the next time it is removed, the transmission interval will be in accordance with the new jumper setting.

5 Storing the device

If the EVOWL-Tx probe is placed in store for a long time, the battery must be removed; in this case the storage temperature may be from -40 to +80°C.

If the EVOWL-Tx probe is placed in store for a short period (a few weeks), ensure that it is fitted into its docking station so that the energy-saving mode is active; in this case, the probe should be stored in a location with a temperature between 20° and 30°C.

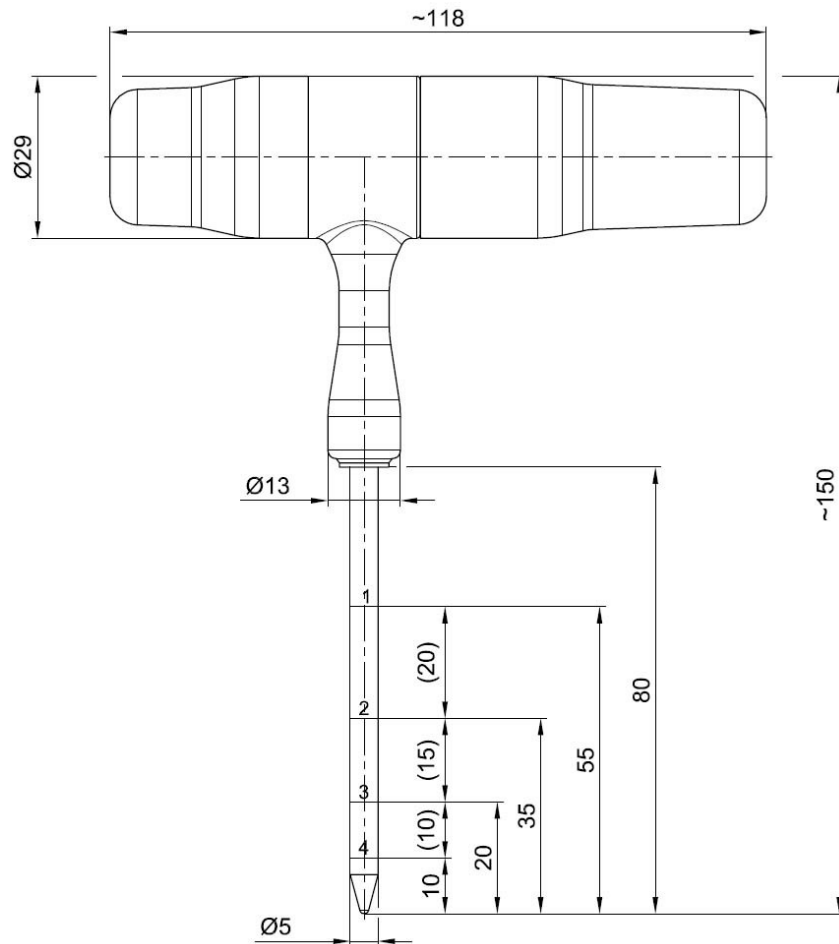
6 Technical characteristics

Operating conditions: Body temperature: Sensor section temperature: Storage temperature*: Relative Humidity: Degree of protection:	-40 ÷ 85°C -40°÷120°C 20°C ÷ 30°C 0÷100% IP67 (hermetic sealing)
Housing material: Body: Stem:	Food-approved polymers Stainless steel
Electrical characteristics: Power source: Battery lifetime: Average power consumption: Temperature measurement points: Accuracy: Transmission interval: Transmission frequency: Wireless transmission range: ID (unique identifier of the probe) Battery replacement Mechanical characteristics: Dimensions: Weight: Operating position:	CR1632, 3Vdc 137mAh lithium battery 2 years @ 25°C 3 µA 4 ±0,3°C, -40°÷85°C / ±1°C in the whole range 30 sec. (7sec. with variations > 0,3°C) 434,4MHz (PPM) 10 meters (if direct and unobstructed) 4 digit in hexadecimal format (factory setting) Use only the preset maintenance kit EVO020 118 x 135 mm diameter ~29mm approx. 60 grams Any

**This storage condition refers to the probe engaged with the docking station, with the battery fitted. If the battery is not fitted in the probe, the storage temperature is between -40° and 80°C.*

6.1 Mechanical dimensions

(The dimensions are in mm)



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Warranty: We warrant that the products will be free from defects in material and workmanship for 1 years. The warranty above shall not apply for any failure caused by the use of the product not in line with the instructions reported on this manual.

Product return: the instruments can be returned under warranty only after Italcoppie sensori authorization.

ITALCOPPIE SENSORI s.r.l.
Via A. Tonani, 10
26030 Malagnino (Cremona) Italy
Tel. +39 0372-441220
Fax. +39 0372-441238
<http://www.italcoppie.it>

This product must be disposed of according to the European WEEE (Waste Electrical & Electronic equipment)



Engineered and manufactured in Italy

Made in Italy

Pensato, progettato e prodotto in Italia

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Man-UK EVOWL-Tx