

PRESSURE AND TEMPERATURE RECORDER



1. USE

1.1 The device records on a tape, the progress of the two most significant variables (pressure and temperature) in the management and testing of gas and water distribution network

2 TECHNICAL SPECIFICATIONS

2.1 Rolls chart

- Theoretical height and effective record space 100mm.
- Monthly advance of 20 mm/h, or weekly advance of 2 mm/h.
- Linear range

2.2 Paper move mechanism

- Powered by weekly manual spring winding.
- Operated by electric motor powered by a special 1.5 V battery in Ex-I execution (CESI 19 ATEX 023 - II Ex ia II CH4 Certificate).
- Electric, with power supply 220V-50Hz, or 24V-50Hz, where this use is allowed.

2.3 Casing

Made of die-cast aluminum treated with scratch-resistant paint.

Appropriate gaskets on the door guarantee an IP-54 degree of protection.

Front dimensions: 288 x 432 mm.

Designed for panel mounting or for fixing to a 2" pole.

3 TECHNICAL SPECIFICATIONS

3.1 Pressure

- CuBe2 alloy bourdon spring measuring element.
Measuring ranges:
0 ÷ 1 / 1,6 / 2,5 / 4/6/10/16/25/40/60/100/160/200 bar
Accuracy: ± 1% of F.S.
Connection: ½ "NPT F.
- Bronze bellows measuring element for measuring ranges: 0 ÷ 40/60 mbar.
Accuracy: ± 2% of F.S.
Connection: ½ "NPT F.
- Bellow measuring element in AISI 316 stainless steel for measuring ranges: 0 ÷ 100/160/250/400/600 mbar
Accuracy: ± 2% of F.S.
Connection: ½ "NPT F.

3.2 Temperature

- Inert gas expansion measuring element (nitrogen)
- Standard execution with capillary protective coating in PVC, bulb with connection for thermowell ¾ "GAS F, thermowell in galvanized steel with process connection ¾" NPT M.
- On request, capillary protection coating in AISI 316 stainless steel, bulb with connection for thermowell ¾ "NPT M, thermowell in AISI 316 stainless steel with process connection ¾" NPT M.
- Standard length of the capillary 2 m; capillaries with a length of 10-15-20 m and over are available on request.
- Scale range: -10 ° C +40 ° C; -20 ° C + 60 ° C; -other scale ranges available on request.
- Accuracy: ± 1% of the scale width.

4 USER INSTRUCTIONS

4.1 Input

The recorders carry two writing pens.

The pen holder rods and nibs are of different lengths to allow for due overlap (fig. 1).

The pens are in synthetic fiber with ink filled cartridge, disposable type with writing autonomy of about 400 m.

When the ink has run out, the old pen is removed and the new one is inserted, taking care to advance it along the shaft of the pen until it reaches the appropriate stop.

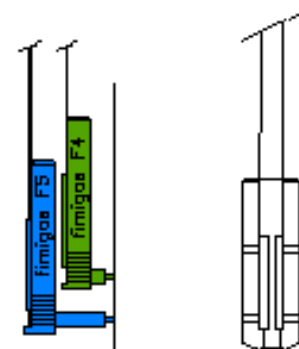


Fig. 1

The pens are made of colored fiber (blue and green like the colors of the recordings) and have the initials on the side that identify the length: this is used to request spare parts.

4.2 Paper mover mechanism (Fig. 2)

It consists of a series of rollers, mounted between two sides that perform a support and fixing function, on which the diagram is unwound and rewound, and a mechanism determines its movement.

Between the conveyor roller and the rewinding roller, the diagram runs on a writing plate which acts as a support for the nibs.

To activate the mechanical version of the paper shifter, move the lever (2) to "M". To stop, return the lever to "A".

The spring loaded charge is obtained by raising and lowering the lever (1) several times.

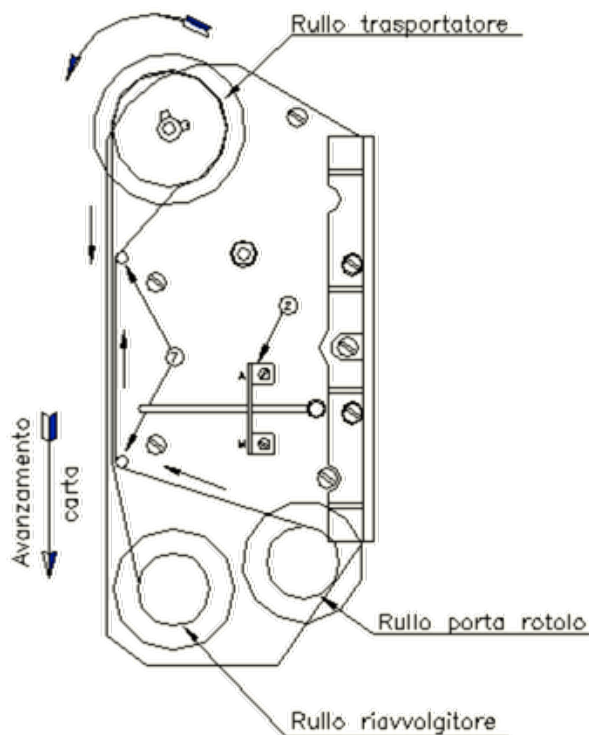
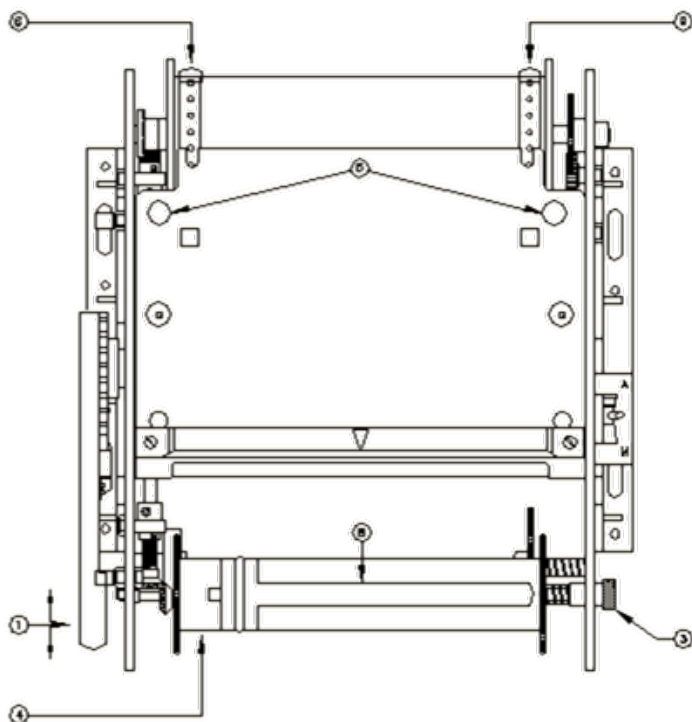
To avoid damaging the winding spring, do not force the winding excessively.

The electric version features an ON - OFF switch in place of the charging lever (1).

In the version powered by a 1.5 V battery, the start and stop function is operated by inserting or removing the plug of the battery in the seat in place of the stop and start lever (2).

To insert the chart roll you must:

- unscrew the knurled knob (3) located on the right side, but without removing it,
- remove the re-winder roller (4), pushing it axially to the right,
- overturn the writing plate by pulling the two knobs (5) forward,
- insert the chart roll by pushing it to the right in its seat,
- lift the paper guide (6),
- pass the ribbon of diagram paper over the two mobile guide rollers (7), under the next fixed roller and then under the paper guide and therefore over the conveyor roller,
- lower the writing plate and then the paper guide,
- manually operate the knurled discs (9) of the toothed roller, translate the diagram downwards, cut the end of the diagram into a point and insert it under the tab (8) of the rewinding roller,
- after two rewinding turns, position the roller and adjust the paper tension and time, always operate the knurled discs of the conveyor roller



4.3 Power battery

- 1,5 V alkaline battery with INTRINSICALLY SAFE operation.
- Female connection, DIN unified, not reversible.
- Label with date, manufacturing number, CE marking and INTRINSICALLY SAFE certification details.
- Max operating autonomy: 12 months.
- Storage size: up to 15 months from the date of manufacture.

Warning

For the purpose of proper disposal, we specify that the 1,5V TERMICS - FIMIGAS batteries are to be considered special waste according to the classification provided for in art. 7 of Legislative Decree no. 22 of 05/02/97, and therefore must be disposed of according to the criteria provided for by the decree itself.

5 INSTALLATION INSTRUCTIONS

5.1 Panel Mounting

Panel mounting is the most common used, particularly when multiple devices are installed. TERMICS can supply sheet metal panels of different sizes and characteristics (for indoor or outdoor, open or closed with doors etc.); any other panel is suitable as long as it is of adequate thickness (3 mm) and with the perforations of the required dimensions. Assembly takes place by simply inserting the instrument and tightening the special circular plates on the fixing screws (Fig. 3).

5.2 Wall Mounting

This mounting is well suited for single instruments or instruments with limited space available. A frame must be installed on the suitable wall, or n. 4 brackets, with the holes for the instrument fixing screws (Fig. 4). The distance of the instrument from the wall should be at least 400 mm.

5.3 Pipe Mounting

This type of mounting is well suited for devices installed on a skid or when the recorder needs to be placed in proximity of other devices. If requested, the device will be supplied with a support for vertical pipe mounting of 2" (Fig. 5)

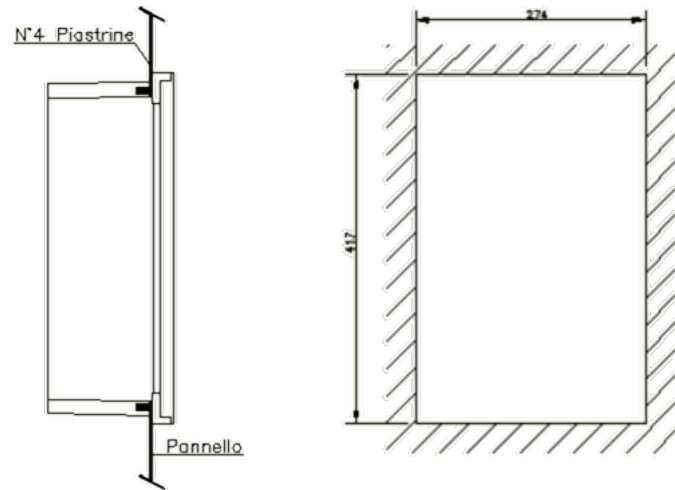


Fig. 3

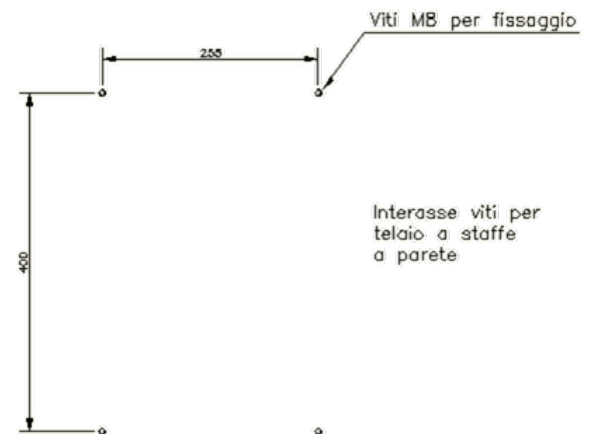


Fig. 4

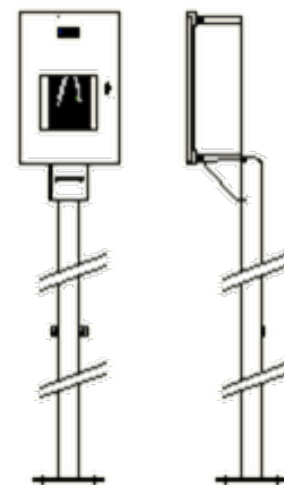


Fig. 5

5.4 Pressure Detection

Pressure input in the device is via a ½”NPT F fitting on the back of the enclosure, using the supply pipe (AUSU 10x1mm) (Fig.6).

It is good practice to interpose, before the device's input and lowered, the canister for the collection and purge of gas condensation.

At the ingress of the canister there must be installed a gas interception tap.

Connections between parts from the supply connection are made with compression fitting: and it's advisable to ensure that they are perfectly tight, with normal leak detection devices, after the instrument has been put under pressure.

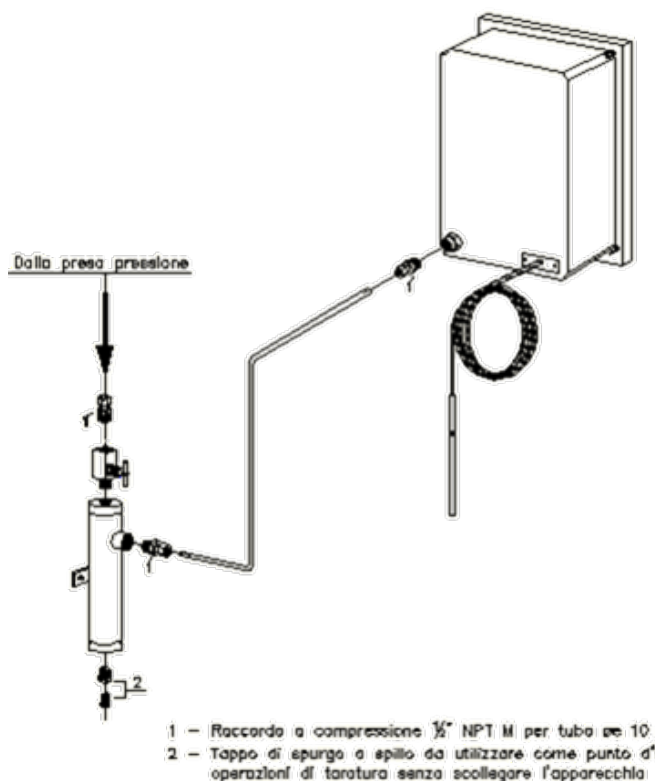


Fig. 6

5.5 Temperature Detection

The recorder is fitted with a thermometric element that comes out on the back of the case.

The thermometric element is a whole consisting of the sensitive bulb, the protection well, the capillary connection and the expansion spring located inside the casing.

The capillary has a thickness of 3 mm and, even if

always protected from a specific coating, needs to be treated with care when installing the thermometric element. If the capillary suffers a strong pull or an abrupt bending it could break, and if this happens the entire thermal element must be substituted.

The recorder will be correctly installed at the correct distance from the tubes, to facilitate an easy deployment of the capillary from the insertion point to the bulb.

The operation will then be :

- Separate the components at the extremes of the thermal element extracting the bulb from the well after unscrewing the tightening nut.
- Weld the sleeve in the position indicated on the tube and then insert the well screwing it until obtaining a perfect seal.

Insert the bulb in the thermowell, after pouring a thin layer of mineral oil to guarantee a better thermal connection: in the end block the bulb with the tightening nut.

