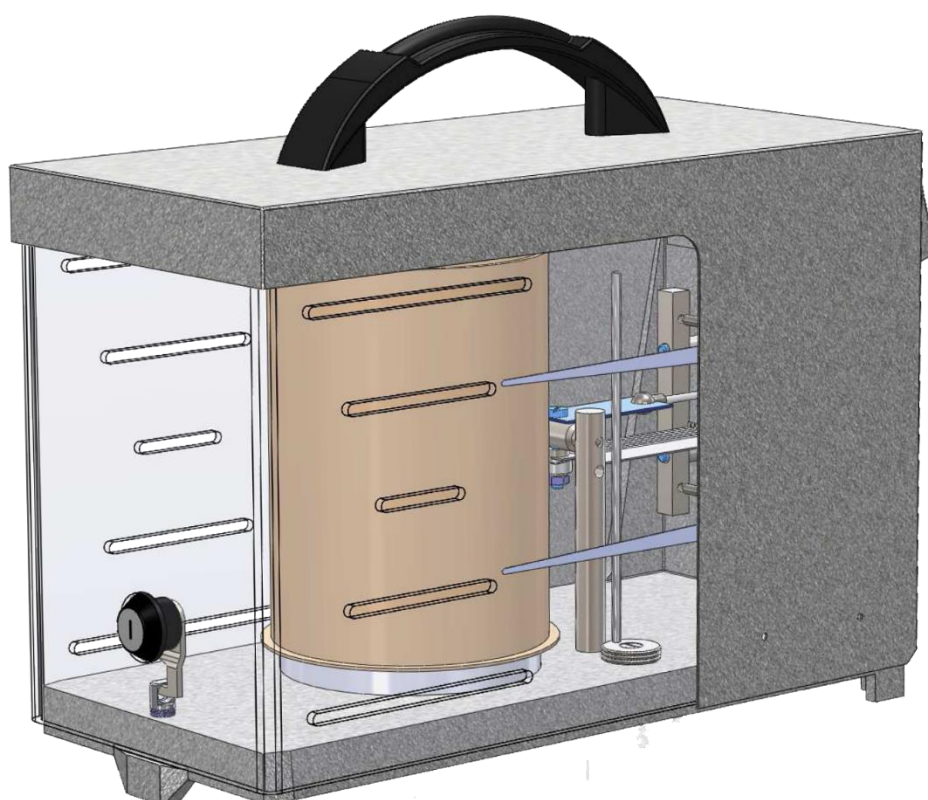




USER MANUAL

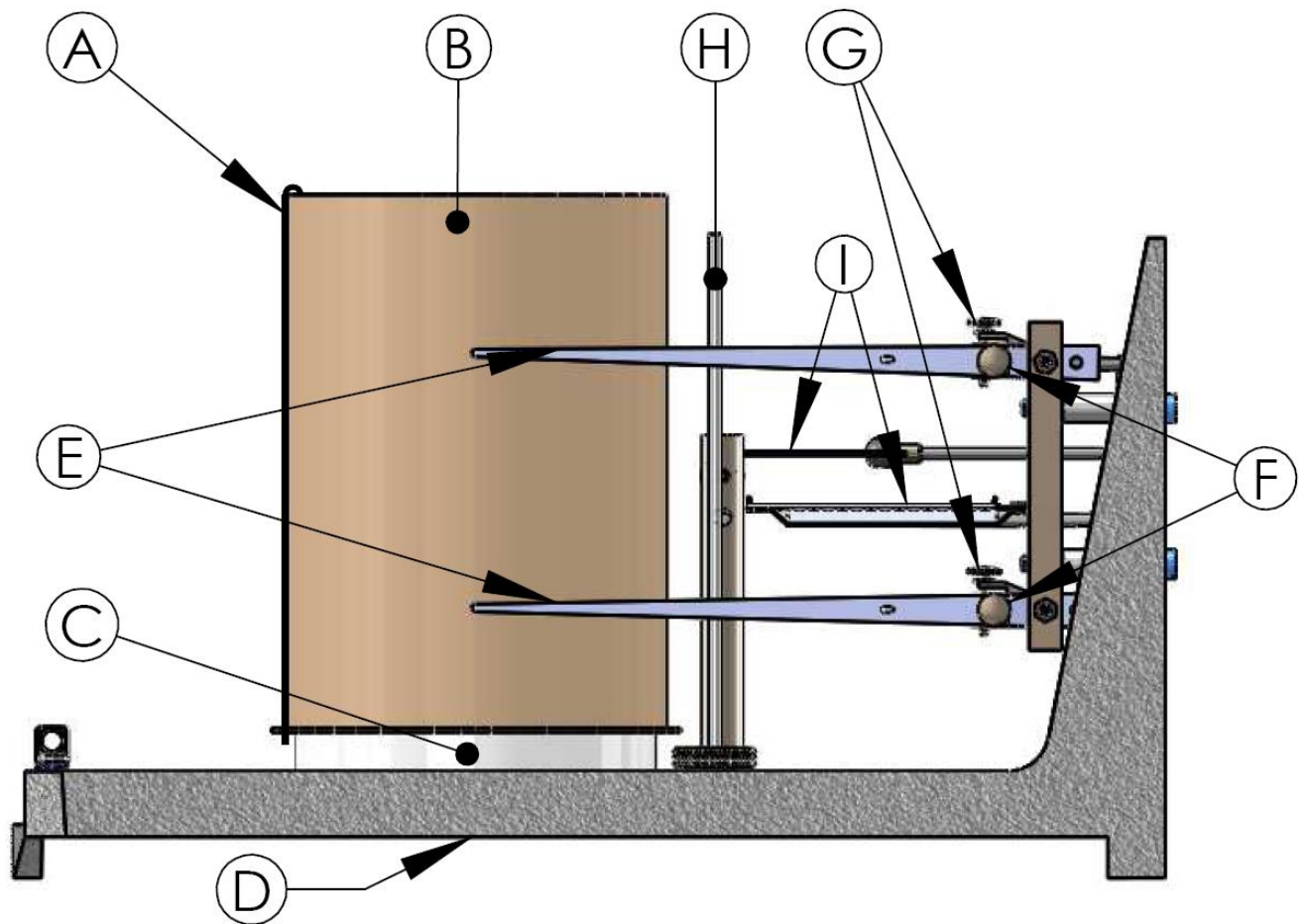
VISIOTAMBOUR AMBIENT T, H OR TH RECORDERS



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I. DESCRIPTION



A	CHART PAPER FASTENER
B	DRUM (Height: 97mm 1-channel Model or Height:130mm 2-channel Model)
C	MOVEMENT (QUARTZ/MECHANICAL)
D	FIXING OF THE MOVEMENT (MECHANICAL MOVEMENT)
E	PEN SLIDE HOLDER (1 PER MEASURING CHANNEL)
F	RECORDING PRESSURE ADJUSTMENT SCREWS
G	ADJUSTMENT SCREW
H	PEN LEVER SYSTEM
I	SENSORS

II. PRESENTATION

The ambient Visiotambour Thermo-Hygrometers are direct action instruments (the sensing element operates directly), intended to be placed directly in an environment to measure and record one or two variables on chart paper using one or two fibre-tip pens. The measured variables are

- Temperature (Thermographs)
- Relative humidity (Hygrographs).

The chart paper is wound round a cylinder which is rotated by a fully independent clockwork mechanism

- Electric with crystal oscillator, with battery backup operation or
- Mechanical spring type.

Two recording periods are proposed as a standard feature: 24 hours and 7 days.

The recorders are protected by a rugged grey metal casing and come with a transport handle. The crystal plastic panoramic cover makes it possible to inspect the chart over the complete circumference of the drum, without having to remove the cover.

Each instrument, delivered in an anti-shock packaging, is provided with

- 1 fibre-tip pen, in a sealed envelope
- 1 key
- 1 user manual
- 100 charts (24 hours or 7 days)
- Models equipped with a quartz crystal movement are supplied with a 1.5V LR6 battery.

III. PUTTING INTO SERVICE

1. To open the instrument

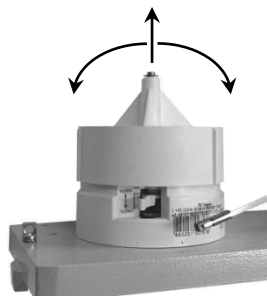
- Unlock the cover with the key..
- Remove the cover by making it swivel.

2. Starting a quartz crystal movement

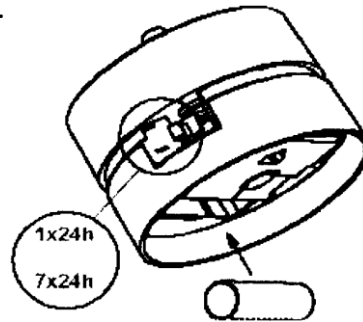
To start a quartz crystal movement you need to install the battery

➤ Installing a new battery:

- Move the pen(s) (E) away from the drum by moving the pen lever (H) located on the recorder base.
- Immobilize the middle axis with your finger. Withdraw the drum from the casing.
- Then remove the movement from its support by pulling and oscillating it simultaneously.



- The access to the battery is situated under the mechanism. Respect the polarity marks on the mechanism.
- For the multi-speed versions it is possible to access the gearshift once the drum has been removed.



To shift gear push the lever up (1x24 hours) or down (7x24 hours).

Note: The standard CEI R6 or LR6 battery lasts for more than a year at 23°C. Use a waterproof alkaline type battery.

To put into service again, reverse the procedure.

➤ Starting mechanical movement

- Wind up the spring by turning the key counter-clockwise. Do not force; when resistance is encountered this indicates maximum wind up. The characteristic operating noise of the clock-work movement should be audible.

➤ Fitting a chart paper

- 24 hours/7 days model:

- Move the pen (E) away from the drum by moving the pen slide holder lever (E) on the recorder base.
- Remove the chart paper fastener (A), holding the chart against the drum, by pulling its top part backwards; this applies to the beige drum models (quartz movement) or pulling it up for grey drum (mechanical movement).
- Place the chart paper on the drum and make sure to stretch it and that it rests on the base flange and that both ends overlap where the chart pen fastener is positioned.
- Replace the fastener to keep the chart paper in place.

3. *Attaching the fibre-tip pen* ATTACHING THE FIBRE-TIP PEN

Slide the tip of the pen slide holder into the pen slides, until the width of the pen slide holder acts as a stop.



Remove the point protector by pulling and turning it simultaneously.

The pen is now ready to record. Do not touch the tip with your fingers.

The average service life of the pen is 4 to 6 months (tracing of approximately 90m).

4. *Time and date setting*

Rotate the drum manually so as to set the pen point on the abscissa at the beginning of the chart paper, taking care to allow for gear play, by rotating the cylinder backwards without forcing.

To clearly indicate the start of the recording, make a “timing mark” by lowering the pen slightly.

5. *Pen pressure adjustment*

To obtain regular recordings, the pen must rub lightly against the paper.

Set the pen pressure on the drum using the small knurled knob (F) at the head of the stylus. The pressure must be light, and just sufficient to obtain adequate inscription over the complete height of the drum.

The pressure can be checked by tilting the recorder by approximately 45° towards yourself. The pen should then lift gently off the paper. (The vertical rod of the pen lever system should be behind the pen without touching it).

Once these operations have been carried out, close and lock the cover.

IV. TECHNICAL FEATURES

Sensors		Drum dimensions (mm)	Effective chart height (mm)	Accuracy	Standard measurement ranges *(M.R.)
Bi-metallic strip	silk bundle				
X		Ø 93 x 97	80	±0,5°C ou ±1 % EM.	0 +30°C -15 +40°C -15 +65°C -20 +60°C -35 +45°C
	X	Ø 93x97	80	±5%HR	0 – 100% R.H.
X	X	Ø 93x 130	57,5 x 2	±0,5°C ou ±1 % EM ± 5 % HR.	+5 +35°C / 0-100%HR -10 +65°C / 0 - 100% HR. -20 +40°C / 0-100% HR.

Storage conditions	- 35°C +65°C
Operating conditions With quartz movement With mechanical movement:	- 30°C et + 65°C
Weight Quartz model with battery Mechanical model	2 kg 2.180 kg


V. CALIBRATION TESTS

Each instrument is factory calibrated, but during transport it may be subject to shocks likely to offset the stylus.

Consequently, when put into service the first time and prior to use after transportation, and also periodically, it is recommended to check the instrument calibration proceeding as follows:

1. *Temperature*


Compare the indication to that of a reference thermometer placed in the immediate proximity of the sensor (cover open).

After an adaptation period long enough to ensure the stability of the measurements, compare the two devices and correct the thermograph indications if necessary by adjusting the knurled knob  after having removed the cover.

2. *Humidity*

When putting into service, or after a long period of use, it is recommended to check the calibration of the high point proceeding as one of the both following means:

- wet the silk bundle with a soft brush and distilled water or with an atomizer
- place the instrument in an almost saturated environment

After an adaptation period, the stylus should reach 95 to 100 %; if not, adjust turning knob 

Note : If used in dirty surroundings , the silk bundle must first of all be cleaned with a brush and ether.

3. *Both Temperature and humidity*

Calibrate each element separately, as described above starting with the temperature (psychromatic effect).

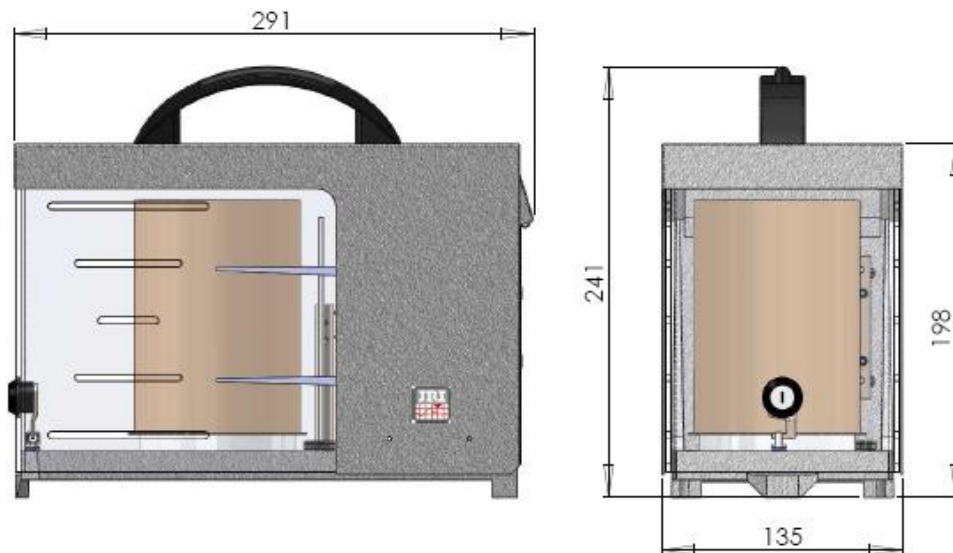
VI. INSTALLATION

The recorders are suitable both for inside and outside installation. However, the base must be kept in an horizontal position.

If installed outside, they must be placed in a well-ventilated shelter, protected from bad weather.

In general, instruments must not be exposed to heat radiation (sunlight, lamps, radiators, etc.) and must not be placed close to cold or wet walls.

VII. DIMENSIONS



Dimensions (mm)

VIII. GUARANTEE

Our products carry a one-year guarantee against defects in components or workmanship, working defects or abnormal wear. This guarantee is limited to the replacement of the defective pieces and the repair of the involved instruments, returned carriage paid to our factory, and excludes any damages or ancillary costs.

The guarantee starts from the date of the invoicing of the concerned product. For any guarantee application request, the purchase invoice should be produced. The under guarantee repairs or intervention do not extend the guarantee limit granted at the sale of the product. The guarantee does not cover damage caused by incorrect use or abnormal storage conditions.