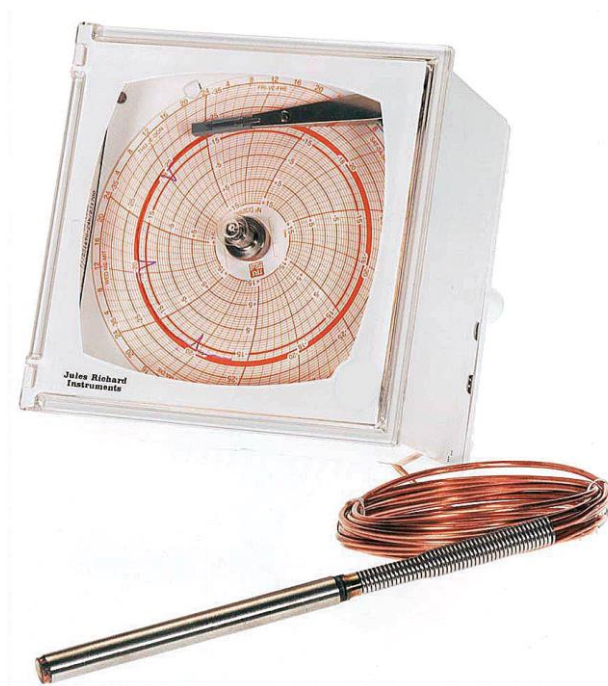




USER MANUAL

THERMALIM II
SELF-CONTAINED CIRCULAR CHART RECORDER



03128B

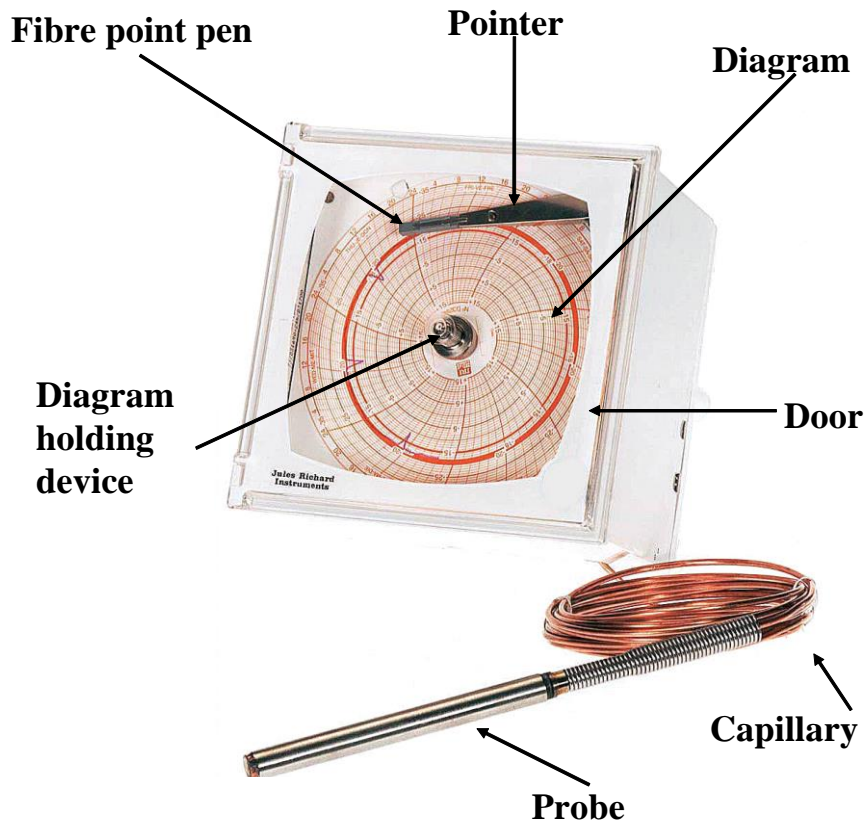
REFERENCES

THERMALIM II S	00060
THERMALIM II R	00006

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I. GENERAL DESCRIPTION



THERMALIM II S and THERMALIM II R are self-contained instruments used to monitor the temperature in cold rooms, refrigerated and deep-frozen storage warehouses. These instruments are in compliance with the European standard **EN 12830**.

They consist of a neutral-gas thermometer and permit to record the temperature by means of a pen over a circular chart.

The chart is driven by a quartz-clock mechanism powered by a battery. The nominal motion has a speed of 1 revolution every seven days.

The sensor consists of a rigid stainless steel tube 10 mm in diameter filled with high pressure nitrogen, linked to the recorder by means of a copper capillary tube. (Lg: 3m)

The housing consists of a closed body and one back perforated cover made of white ABS plastic material. The housing contains:

- the clockwork and chart,
- the measuring driving component,
- the device providing the mechanical amplification and recording through a replaceable fibre pen.

The housing front panel consists of a transparent polycarbonate door locked with a magnetic enclosure.

Every THERMALIM II is shipped in shock-proof packing with:

- 100 charts,
- 1 fibre pen in sealed bag,
- 1 plate for wall mounting,
- 1 bracket for panel mounting
(optional kit for THERMALIM II S).

II. INSTALLATION

a) Placing the recorder

The recorder front panel should preferably be installed in a vertical position. It may be slanted backward provided that the angle is not greater than 30°.

- Panel mounting

Provide the panel mounting cut-out (refer to Fig. in chapter 5).

Insert the instrument body in the cut-out together with the sensor and the capillary tube. Install the instrument on the panel, place plate E and the 2 hexagonal head screws C. Gently tighten the latter.

- Wall mounting

Secure plate S on the back panel of the casing using both countersunk head screws (dia.4, length 10). Secure the instrument to the wall using both side holes of plate S. (refer to Fig. in chapter 5).

b) To install the sensor and the capillary tube

The capillary tube, supplied wound in a disk of 10 cm dia. approx., should be unwound within the plane of the disk and not pulled in a perpendicular direction which could involve a twisting motion (min. bending radius 10 mm).

The sensor is placed where the temperature is to be monitored.

The sensor should preferably be placed in the most appropriate location to avoid being directly affected by, for example, the cooling equipment in the enclosure, or solar radiation or any other heat source.

III. BATTERY, CHART AND FIBRE PEN REPLACEMENT

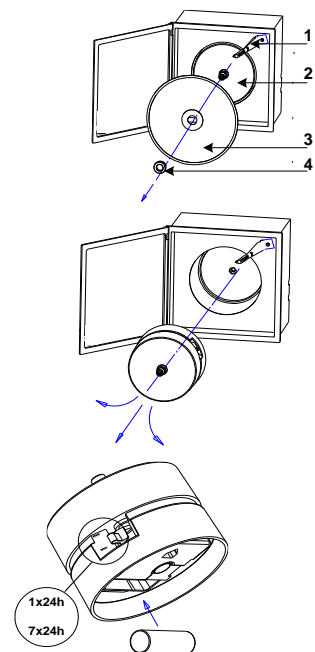
a) Installing the battery

The standard LR6 (AA) leak proof alkaline battery should be replaced every year.

A tag placed on the clockwork is used to write down the next battery replacement.

CAUTION : NEVER REMOVE THE CENTRAL SCREW OF THE KNURLED NUT.

To achieve the operation:



- Open the recorder door
- Lift the pointer (1) so as to release the diagram (3).
- Unscrew the knurled nut (4) and remove the diagram (3).

- Firmly hold the case in one hand and, with the other, pull the mechanism (2) axis toward the outside by alternatively swinging up and down to release it from its base.

- Change the battery located behind the mechanism, replace the mechanism in its case up to the stop.

For two-speed versions, the mechanism thus taken out allows access to the speed-changing lever.

- **Tighten the nut, the knurled part toward the outside, up to the stop.**

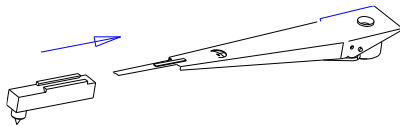
- To set the time, turn the milled axis clockwise by using the end of the fibre point pen as a mark. This direction is imperative to eliminate the looseness in the clockwork mechanism.

b) Installing the chart

- Release the pen from its support.
- Loosen the knurled nut, set the chart on the driving pin making sure it rests on the holding lugs. Tighten the knurled knob over the chart in order to make it integral with the clockwork drive.
- Place the pen close to the chart, set the actual time and gently release the pen.
-
- To set the time, turn the axis clockwise by hand, to set the recorder on the date and time of the mechanism by using the end of the fibre point pen as a mark. This direction is imperative to eliminate the looseness in the clockwork mechanism.

c) Installing the fibre pen

- Release the pen from its support,
- Remove pen tip protection, pulling and rotating the latter at the same time.
- Insert the pen end in the slides until it reaches the stop.



- Gently place the pen back on the chart.
- Do not touch the pen tip with fingers.

IV. TECHNICAL FEATURES

Designation	Temperature recorder SA2 / -35°C + 15°C / EN 12830
Measuring range	-35°C to +15°C
Accuracy within nominal	
Operating range	± 2°C
Charts	125 mm diameter
Measuring scale	throughout a 47 mm sector
Recording time	7 days
Clockwork	quartz-controlled /electrical
Self-operation time	1 year with alkaline battery, LR6 type at 25°C
Overall dimensions	144 x 144 x 119 mm
Weight	1 kg
Storage temperature	-15°C to +60°C
Rated operating conditions	+5°C to +40°C
Protection level	IP20

Compliance with the European standard EN 12830 is warranted by JRI providing that genuine fibre pens and charts are used.

Charts (in sets of 100 units)	THERMALIM II S	00059
	THERMALIM II R	00001
Fibre pens (in sets of 5 units)		00005
Kit for panel mounting	THERMALIM II S	00469

V. EN 12830 ACCORDANCE

DATA FORM DESCRIBING SUITABILITY FOR USE OF THERMALIM II R IN ACCORDANCE WITH STANDARD EN12830

Name of test body:	Number of test report:	Date:	
J. R. I.	REMT0019	2000/12/27	
RECORDER THERMALIM IIR reference: 00006...			
Type of recorder			Type A
Suitable for storage			YES
Suitable for transport			NO
I – General requirements			
Measuring range (see 4.2)			-35°C +15°C
Chart (disk, tape) (see 4.4.3)			Paper disk
Autonomous power supply (see 4.5)			LR6 battery
Degree of protection provided by the enclosure (see 4.6 and 5.6.7)			IP20 conform
Supply voltage (see 4.8.1 or 4.8.2 and 5.6.2)			Not suitable
Frequency (see 4.8.3)			Not suitable
Power cut-offs (see 4.8.4)			Not suitable
II – Requirements for metrological characteristics			
Maximum permissible error and resolution (see 4.9.2.1) and temperature measurement error (see 5.3)			Conform to class 2 Resolution 0.5°C
Recording interval (see 4.9.2.2)			Conform recording
Recording duration (see 4.9.2.3)			7 days
Maximum relative timing error (see 4.9.2.4) and time recording error (see 5.5)			Conform <0,2%
Response time (see 4.9.2.5 and 5.4)			Conform <20mn
Climatic environment (see 4.9.3.1) and influence of ambient temperature (see 5.6.3)			Conform to class 2
Mechanical vibrations (see 4.9.3.2 and 5.6.5)			Not suitable
Shock resistance (see 4.9.3.3 and 5.6.6)			Not suitable
Climatic environment (see 4.9.3.1) and temperature testing under storage and transport conditions for the recorder (see 5.6.4) (Without fibre pen and battery)			Conform to -20°C at +60°C
Electrical power disturbances and susceptibility to radiated electromagnetic field (see 4.8.5) and dielectric strength (see 5.6.9)			Conform

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2000/12/27
L. PALESTRI

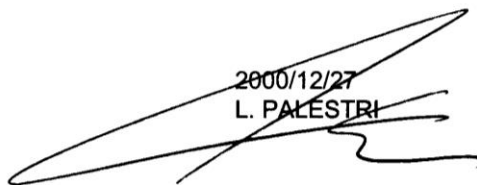


**DATA FORM DESCRIBING SUITABILITY FOR USE OF THERMALIM II S
IN ACCORDANCE WITH STANDARD EN12830**

Name of test body:	Number of test report:	Date:	
J. R. I. RECORDER THERMALIM IIS reference: 00060	REMT0015	2000/12/27	
Type of recorder			Type A
Suitable for storage			YES
Suitable for transport			NO
I – General requirements			
Measuring range (see 4.2)			-35°C +15°C
Chart (disk, tape) (see 4.4.3)			Paper disk
Autonomous power supply (see 4.5)			LR6 battery
Degree of protection provided by the enclosure (see 4.6 and 5.6.7)			IP20 conform
Supply voltage (see 4.8.1 or 4.8.2 and 5.6.2)			Not suitable
Frequency (see 4.8.3)			Not suitable
Power cut-offs (see 4.8.4)			Not suitable
II – Requirements for metrological characteristics			
Maximum permissible error and resolution (see 4.9.2.1) and temperature measurement error (see 5.3)			Conform to the class 2 Resolution 0.5°C
Recording interval (see 4.9.2.2)			Continuous recording
Recording duration (see 4.9.2.3)			7 days
Maximum relative timing error (see 4.9.2.4) and time recording error (see 5.5)			Conform <0,2%
Response time (see 4.9.2.5 and 5.4)			Conform <20mn
Climatic environment (see 4.9.3.1) and influence of ambient temperature (see 5.6.3)			Conform to the class 2
Mechanical vibrations (see 4.9.3.2 and 5.6.5)			Not suitable
Shock resistance (see 4.9.3.3 and 5.6.6)			Not suitable
Climatic environment (see 4.9.3.1) and temperature testing under storage and transport conditions for the recorder (see 5.6.4) (Without fibre pen and battery)			Conform to -20°C at +60°C
Electrical power disturbances and susceptibility to radiated electromagnetic field (see 4.8.5) and dielectric strength (see 5.6.9)			Conform

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VI. DIMENSIONS

