

1. Description.

The **M1-GT** globe thermometer, or Vernon globe, is a painted 15 cm diameter very thin-copper sphere, with thermal emittance (ϵ) of 0.95, equipped with a Pt100 probe inside.

The sphere shape is used because of its proximity to the shape of a human body (*thermally speaking*).

The surface is painted black, therefore the instrument is also known as “black globe thermometer”.

The value measured with **M1-GT** can be used to calculate the average radiant temperature (MRT).



Picture 1 - Product Image

2. Equation for the calculation of average radiant temperature.

$$MRT = \left[(GT + 273)^4 + \frac{1,1 \cdot 10^8 \cdot v_a^{0,6}}{\epsilon \cdot D^{0,4}} (GT - T_a) \right]^{1/4} - 273$$

MRT	mean radiant temperature (°C)
GT	globe temperature (°C)
v_a	air speed at the level of the globe (m/s)
ϵ	emissivity of the globe (<i>no dimension</i>)
D	globe diameter
T_a	air temperature (°C)

3. Technical Information.

Class A sensor	Pt100 (<i>or Pt1000 if requested</i>)
Resistance	DIN IEC 751*
Operating temperature	-30°C ÷ +70°C
Accuracy	± 0.2°C
Output	RTD (<i>or 0 – 5 V / 4-20 mA</i>)
Diameter	150 mm
Cable length	On request
Connector	7 pin
Conductors	4 wires

4. Reference standards.

EN 61010 -1

For electromagnetic compatibility

EN 61000 - 3 - 2

EN 61000 - 3 - 3

EN 300 220 -2

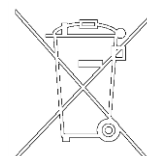
EN 301 489 - 03

EN 61000 - 6 -1

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The "WEEE" logo on the label indicates that this product is compliant with the "WEEE" EC Directive. This symbol (valid only in the European Union countries) indicates that the product it is applied to, MUST NOT be discarded with ordinary household or industrial waste, but must be sent to an authorized reception point. The end user should contact the device provider, either the manufacturer or the reseller, in order to agree a collection and disposal process, after having checked the terms and conditions of sale.



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