

Digital Thermometer

HERMetric **onecal**

Intrinsically Safe Portable Digital Thermometer

The **HERMetric Onecal** has been designed for use in hazardous environment with outstanding characteristics regarding safety, easiness of operation, accuracy, reliability and cost efficient maintenance. Onecal stands for: One reference point only for calibration. The reference point is the ice point which can easily be reproduced. The calibration is done by simply pushing a button. The characteristics of the RTD sensor are stored in the memory of the instrument and are the same for any individual sensor. Therefore a change of a sensor requires only an offset calibration. Replacing the cable only does not require a new calibration because of the built-in automatic cable compensation routine. Up to 9 individual values can be stored in the memory. An automatic average of the stored values can be achieved by entering the calculation menu.

The ergonomic and rugged design of the housing allows for an easy and safe cable storage. The cable guides keeps the cable secured at all times. By counting the number of cable loops the fed cable length can be determined. **1 cable loop = 2 feet, 3 cable loops = 2 metres.**

With:



&



* Option Load 300 gr.



Application

Temperature measurement represents an important part in tank gauging since the density of petroleum products changes approximately by 0.1 % per degree Celsius. An error in the observed temperature will result in an error of the correction factor, which is used to calculate the standard volume. This electronic thermometer has been designed for field inspection of custody transfer of bulk liquids and meets all relevant standards in the industry.

Ambient temperature drift “SCS Surroundings Compensation System”

In most cases, a PET will be checked or calibrated at room temperature ambient conditions, i.e. around +20°C/+68°F, although they can work in a wide range of operational ambient temperatures. From areas such as Alaska to equatorial climates, these conditions can vary over a range of around +100°C/+180°F. This difference can result in another form of drift error. The new concept named “SCS Surroundings Compensation System”(Patented) of the Onecal incorporates an internal reference that is constant and does not depend on the ambient temperature over a wide operational range, i.e. from -20°C / -4°F to +60°C / +96°F. This means, the accuracy of the measurements made with the Onecal is unaffected by the ambient temperature, and this error is avoided.

Re-calibration when exchanging the PET cable “CRC Cable Resistance Compensation”

A traditional PET needs to be re-calibrated each time the cable is renewed, as the intrinsic resistance of the cable is incorporated in the temperature measurement sequence and any change in its value can affect the accuracy of reading, unless the unit is properly re-calibrated. The new concept named “CRC Cable Resistance Compensation”(Patented) of the Onecal measures the actual resistance of the cable every time the PET is used, and compensates for any change to eliminate this source of error. Changing the cable, whatever length it has, will not affect the accuracy of the thermometer and therefore does not require a re-calibration in a laboratory.

Response time

This thermometer has a response time (time to achieve 90% of the final temperature) of 15 seconds in water and 35 seconds in lubrication oil under dynamic conditions.

Maintenance

This instrument has been designed for users which require a high precision thermometer that is always ready to operate. Users can change the cable, the sensor or the display unit, and recalibrate it without the need of special tools or training. The unit cannot be calibrated incorrectly.

Technical specifications :

Measurement range : -40°C to 163°C / -40°F to 325°F
 Sensor temperature range: -40°C to 200°C / -40°F to 392°F
 Ambient temperature range: -20°C to 40°C / -4°F to 104°F
 Resolution : 0.1° or 0.01° selectable
 Temperature scale : °C or °F selectable
 Temperature accuracy :
 -40°C to -30°C / -40°F to -22°F ± 0.15°C / ± 0.3°F
 -30°C to 100°C / -22°F to 212°F ± 0.1 °C / ± 0.2°F
 100°C to 163°C / 212°F to 325°F / ± 0.15°C / ± 0.3°F
 163°C to 200°C / 325°F to 392°F / ± 0.3°C / ± 0.5°F
 Repeatability: exceeds API MPMS Chapter 7
 -40°C to 163°C / -40°F to 325°F +/- 0.1°C / +/- 0.2°F
 Calibration : Digital, one point only 0°C / 32°F
 Memory : up to 9 individuals
 Display : LCD 8 digits, 10 mm character height
 Power : Approved 9 Volt battery
 Battery saving: aut. shut off /10 minutes after last action
 Battery life : Approximately 100 hours
 Low battery indication: On LCD display
 Overall dimensions length x width x depth: 336 x 202 x 94 mm
 Weight with 22.8 m cable : 13.2" x 8" x 3.7" < 1.4 kg
 75 ft cable : < 3 lbs

Probe size : diam. 16 mm , 150 mm long
 diam.5/8 “ , 6” long
 Probe material : Stainless steel 316L
 Cable length : 7.6 m / 25 ft
 22.8 m / 75 ft
 33.5 m / 110 ft
 Cable material : FEP Teflon jacket
 Instrument protection : IP 54
 Frame material : Antistatic Polyamide base
 Electronic box material: Coated aluminium
 Temperature sensor: PT 1000 element

Hazardous environment Approvals:

ATEX II 1 G EEx ia IIB T4
 Factory Mutual CL I, DIV 1, C&D, T4 and CL I, ZN 0, AEx ia IIB T4
 Russia: GOSGORTECHNADZOR 0EExiaIIBT4X

Metrology approval:

Germany: Electronic thermometer
 China: Electronic thermometer

Complies with:

EMC EC directive 89/336/EEC
 ATEX EC directive 94/9/EC

Cable replacement without new calibration



** Option*

Fully-cushioned carrying box
 This special box protects against any damage during storage and daily use .

The modular design of the HERMetic makes the exchange of components extremely easy and cost efficient as no special training or tools are required.

HERMetic Onecal without frame, 2 m / 7 ft cable



The HERMetic Onecal can also be used in laboratories for verification of existing temperature measuring equipment. The high accuracy of this thermometer allows a reliable temperature reading. The HERMetic Onecal can be supplied without frame and with a 2 m / 7 ft cable. This type of unit can very well be used for temperature verification anywhere in a laboratory or on a railtrain tank if the opening is bigger than 16 mm / 5/8” in order to allow the penetration of the sensor.

Alternative to above specifications

Measurement range: - 40°C to 100°C
 Probe size: up to 500 mm long
 Tip diameter: 5 mm

75 mm up to 500 mm

