

FLUID

PORTABLE LIQUID TEMPERATURE CALIBRATOR



Operating range:

-18 °C / +250 °C
(-0,4 °F / 482 °F)

Applications:

Check and calibration of temperature sensor in the laboratory as well as in the field in compliance of ISO 9000 regulations

Checking glass thermometers

Checking thermostats





FLUID

PORTABLE LIQUID
TEMPERATURE CALIBRATOR

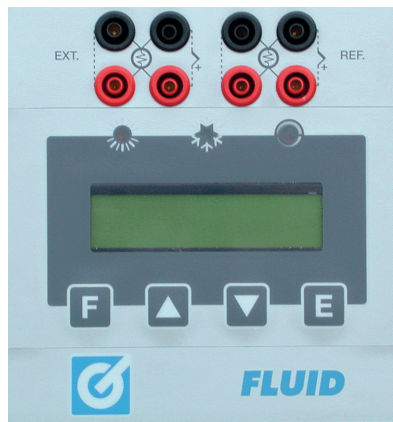
FLUID are portable thermostatic liquid calibrators used for checking thermocouples and platinum resistance thermometers in the laboratory as well as in the field. It consists of an aluminium vessel whose capacity is about 400 cc and it is constantly kept homogenous by a magnetic mixer whose speed is adjustable according to the viscosity of the fluid used.

The mixing process ensures a proper heat transmission, excellent stability and uniformity values; the large size of the well makes it possible to test sensors of various lengths and diameters.

FLUID models are suitable both for low and high temperature ranges. In addition, they are available with a double built-in temperature indicator in order to compare the reference probe with the external probe. Fluid can be used with different kind of accessories: dry blocks, dry bodies, extension tubes, liquids and so forth.

Using **FLUID** is possible to calibrate temperature sensors with the same accuracy and precision of a thermostatic bath.

Both low and high temperature **FLUID** are available in two different models. All these models can be accessorized with a double thermocouples and a RTD (Resistance Temperature Detector) reader.



FLUID 100

In **FLUID100** the internal tank is heated and cooled by Peltier elements. FLUID100 is equipped with a new PID microprocessor controller with a resolution up to 0,01 °C, setting of the standard of measurement in °C, °F and K, programming of ascent/descent ramps and storage of the thermostats operative temperature.

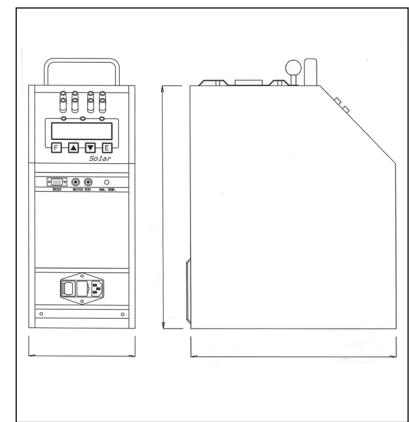
The mixing process ensures a proper heat transmission, excellent stability and uniformity values; the large size of the well makes it possible to test sensors of various lengths and diameters.

In the **FLUID100-2I** version, the instrument is equipped with an acquisition card having two adjustable inputs (Pt100 3/4 wires; thermocouples: E, J, K, N, R, S) with bushes fitted with gold-plated contacts and automatic compensation of the cold junction.

The REF input is provided for the reference sample probe, thus obtaining a complete calibration system which can be certified by Accredia centres, in compliance with ISO 9000 regulations.

The EXT input is provided for probes that are being tested; hence, the instrument can display the temperature of the well, the temperature of the sensor to be checked and the temperature of the reference sample probe, at the same time.

Furthermore, **FLUID100** is equipped with the RS232 serial interface; it can operate in automatic mode connected to the PC by means of the AQ2sp software which enables to carry out probe calibrations, thermostats test and cyclical life tests; test results can be stored and printed, so they are easily traceable in compliance with ISO 9000 standards.



FLUID 200

In **FLUID200** the internal tank is heated with two electrical resistances and cooled by a fan.

FLUID200 is equipped with a new PID microprocessor controller with a resolution up to 0,01 °C, setting of the standard of measurement in °C, °F and K, programming of ascent/descent ramps and storage of the thermostats operative temperature.

The mixing process ensures a proper heat transmission, excellent stability and uniformity values; the large size of the well makes it possible to test sensors of various lengths and diameters.

In the **FLUID200-2I** version, the instrument is equipped with an acquisition card having two adjustable inputs (Pt100 3/4 wires, thermocouples: E, J, K, N, R, S) with bushes fitted with gold-plated contacts and automatic compensation of the cold junction.

The REF input is provided for the reference sample probe, thus obtaining a complete calibration system which can be certified by Accredia centres, in compliance with ISO 9000 regulations.

The EXT input is provided for probes that are being tested; hence, the instrument can display the temperature of the well, the temperature of the sensor to be checked and the temperature of the reference sample probe, at the same time.

Furthermore, **FLUID200** is equipped with the RS232 serial interface; it can operate in automatic mode connected to the PC by means of the AQ2sp software which enables to carry out probe calibrations, thermostats tests, and cyclical life tests; test results can be stored and printed, so they are easily traceable in compliance with ISO 9000 standards.

COMPARISON TABLE:

Technical specification	FLUID 100	FLUID H100	FLUID 200	FLUID H200
Operating range	-18 °C ÷ + 125 °C (*) [-0,4 °F ÷ 257 °F]	-18 °C ÷ + 140 °C (*) [-0,4 °F ÷ 284 °F]	Room temp. ÷ +200 °C Room temp. ÷ +392 °F	Room temp. ÷ +250 °C Room temp. ÷ +482 °F
Average heating time (stabilization included)	12 °C/min (53 °F/min)	12 °C/min (53 °F/min)	10 °C/min (50 °F/min)	10 °C/min (50 °F/min)
Average cooling time (stabilization included)	5 °C/min (41 °F/min)	5 °C/min (41 °F/min)	4 °C/min (39 °F/min)	4 °C/min (39 °F/min)
Axial uniformity	±0,05°C / ±0.09°F at 0°C / 32°F (for 60 mm from the bottom)	±0,05°C / ±0.09°F at 0°C / 32°F (for 60 mm from the bottom)	±0,05°C / ±0.09°F at 0°C / 32°F (for 60 mm from the bottom)	±0,05°C / ±0.09°F at 0°C / 32°F (for 60 mm from the bottom)
Radial uniformity (at 40 mm)	±0,02 °C (at -5 °C) ±0.03 °F (at 23 °F)	±0,02 °C (at -5 °C) ±0.03 °F (at 23 °F)	±0,05 °C (at 50 mm) ±0.09 °F (at 50 mm)	±0,05 °C (at 50 mm) ±0.09 °F (at 50 mm)
Hole depth	170 mm (6.6 in.)	170 mm (6.6 in.)	170 mm (6.6 in.)	170 mm (6.6 in.)
Hole diameter	60mm (2.3 in.)	60mm (2.3 in.)	60mm (2.3 in.)	60mm (2.3 in.)
Display accuracy	±0,15 °C (±0.27 °F)	±0,15 °C (±0.27 °F)	±0,15 °C (±0.27 °F)	±0,2°C (±0.3 °F)
Stability	±0,02 °C at -5°C (±0.03 °F at 23 °F)	±0,02 °C at -5°C (±0.03 °F at 23 °F)	±0,02 °C at -5°C (±0.03 °F at 23 °F)	±0,03 °C at 150 °C (±0.05 °F at 302 °F)
Display Resolution	All temperatures 0,1 °C / 0,01 °F	All temperatures 0,1 °C / 0,01 °F	All temperatures 0,1 °C / 0,01 °F	All temperatures 0,1 °C / 0,01 °F
Units of measure	°C - °F - K	°C - °F - K	°C - °F - K	°C - °F - K
Switch test	yes	yes	yes	yes
Calibrator size	160 x 340 x 330 mm (6,2x13,3x12,9 in.)	160 x 340 x 330 mm (6,2x13,3x12,9 in.)	160 x 340 x 330 mm (6,2x13,3x12,9 in.)	160 x 340 x 330 mm (6,2x13,3x12,9 in.)
Calibrator weight	8 kg (17 lb)	8 kg (17 lb)	8 kg (17 lb)	8 kg (17 lb)
Power supply	115 or 230 VAC - 50/60 Hz	115 or 230 VAC - 50/60 Hz	115 or 230 VAC - 50/60 Hz	115 or 230 VAC - 50/60 Hz
Electric power	300 W	300 W	500 W	500 W

*Ambient temperature: 20 °C

ALUMINIUM RIGID CASE


Code:
2DC505-000

Size:
37 x 29 x 42 mm
(1,4 x 1,1 x 1,6 in.)

Weight:
6.5 Kg
(14 lb)

Shipping size:
37 x 45 x 60 mm
(1,4 x 1,7 x 2,3 in.)

CORDURA® SHOULDER BAG


Code:
2TRMBAG-FLUID

Size:
42 x 23 x 38 mm
(1,6 x 0,9 x 1,4 in.)

Weight:
1.4 Kg
(3 lb)

Shipping size:
37 x 45 x 60 mm
(1,4 x 1,7 x 2,3 in.)



STANDARD EQUIPMENT:

- Cover, used for transport
- Fluid emptying system
- Support for sensors
- Power supply cable
- Fuses kit
- Thermostat connection cables
- Test report
- Instruction manual
- RS232 serial interface
- Cordura® soft bag
- Kit of clamp connections (only 2I version)

FLUID 100

- Bottle (500 cc) of silicon oil 200C5.

FLUID H100

- Bottle (500 cc) of silicon oil 47V10.

FLUID 200

- Bottle (500 cc) of silicon oil 47V20.
- Bottle (500 cc) of silicon oil 200C5.

FLUID H200

- Bottle (500 cc) of silicon oil 47V50.

ACCESSORIES ON DEMAND:

- Aluminium insert - 2D2846
- Blank aluminium insert
- Custom aluminium insert
- Extension tube - PROLUNGA FLUID
- AQ2sp software.
- Pt100 sample probe.
- RS232 serial cable.
- USB/RS232 converter.
- Accredia certificate (only 2I version) performed by a sample probe connected to FLUID

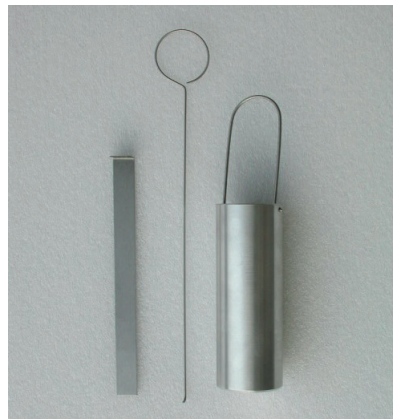
ALUMINIUM INSERT

2D2846 (Size 59,5 x 170mm) used to convert Fluid in a dry block calibrator.

Holes and diameters:

- 2 x 4 mm
- 1 x 4,5 mm
- 1 x 5,5 mm
- 1 x 6,5 mm
- 1 x 8,5 mm
- 1 x 10,5 mm
- 1 x 12,5 mm

Every hole has a 160 mm (6,2in.) depth



EXTENTION TUBE

PROLUNGA FLUID.

The extension tube is suitable for increasing the depth of the liquid tank.

Total depth: 230 mm (9 in.)



HOW TO ORDER:

Standard version

FLUID 100 - - 115 V 50/60 Hz
 - - 230 V 50/60 Hz

Version fitted with 2 adjustable inputs

FLUID 100 - - 115 V 50/60 Hz
 - - 230 V 50/60 Hz

Standard version

FLUID H100 - - 115 V 50/60 Hz
 - - 230 V 50/60 Hz

Version fitted with 2 adjustable inputs

FLUID H100 - - 115 V 50/60 Hz
 - - 230 V 50/60 Hz

Standard version

FLUID200 - - 115 V 50/60 Hz
 - - 230 V 50/60 Hz

Version fitted with 2 adjustable inputs

FLUID 200 - - 115 V 50/60 Hz
 - - 230 V 50/60 Hz

Standard version

FLUID H200 - - 115 V 50/60 Hz
 - - 230 V 50/60 Hz

Version fitted with 2 adjustable inputs

FLUID H200 - - 115 V 50/60 Hz
 - - 230 V 50/60 Hz

