

MicroCal TCS Series

Multifunction Temperature Calibrators



**TEMPERATURE
CALIBRATORS**

- ▶ Simple to Use
- ▶ Multifunction
- ▶ Ranges -55°C from T Ambient to $+1200^{\circ}\text{C}$
- ▶ Resolution $0.1^{\circ}\text{C}/^{\circ}\text{F}$
- ▶ Interchangeable Inserts:
 - Liquid Stirred Bath (TCS 140 only)
 - Dry Block with Multi-Hole
 - Black Body
 - Surface Sensor (TCS 140 only)
- ▶ **CalPMan 2007**
Automatic Calibration Procedure Manager for Windows™ Based System



Introduction

The MicroCal TCS Series are designed to verify and calibrate temperature sensors, thermometers, and process transmitters both in laboratory and in-field. All the three available models are fast, high stability and uniformity, easy to use temperature calibrators.

The temperature parameter represents the most important factor to fulfill quality, operational safety and reliability of industrial processes. Thermocouples, RTDs and any other temperature sensors, when installed in an industrial process, they are subjected to mechanical, thermal and chemical stresses which accelerate their aging. Therefore it is a recommended procedure to inspect, check and calibrate each sensor during the commissioning phase and at regular and programmed time intervals.

MicroCal TCS temperature source find applications in checks and calibration of: Thermocouples, Resistance thermometers, Temperature transmitters, thermostats, glass thermometers, and NTC/PTC.

Low temperature applications



Medium temperature applications



High temperature applications



MicroCal TCS140

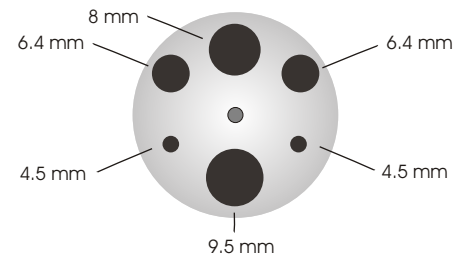
Low Temperature Furnace

The MicroCal TCS140 portable source offers fast temperature calibration in an easy to use unit designed for low temperature (-55°C Ta to +140°C) applications.

The calibrator can be used as a Dry Block, a Liquid Bath, and a Black body source for infrared thermometers.

The standard configuration includes both the 6 holes 157mm deep metal block insert and the liquid container.

Standard insert



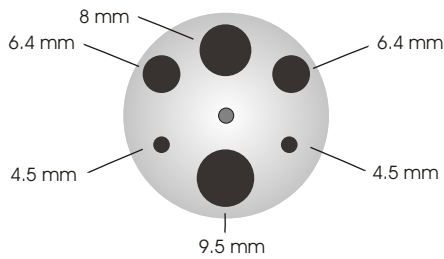
	MicroCal TCS 140	MicroCal TCS 650	MicroCal TCS 1200
Range	-55°C (-67°F) from Tamb to 140°C (285°F)	from 35°C (95°F) to 650°C (1200°F)	from 150°C (300°F) to 1200°C (2190 °F)
Absolute Stability			
(dry block)	±0.035°C@140°C	±0.03°C@650°C	±0.2°C@1100°C
(liquid bath)	±0.02°C@140°C		
Radial Uniformity			
(dry block)	±0.02°C@140°C	±0.08°C@650°C	±0.2°C@1100°C
(liquid bath)	±0.004°C@140°C		
Measurements Units	°C or °F / ITS90	°C or °F / ITS90	°C or °F / ITS90
Heating speed	-30°C to 140°C in 15 minutes	50°C to 600°C in 30 minutes	100°C to 1100°C in 20 minutes
Cooling speed	140°C to 0°C in 15 minutes	600°C to 150°C in 30 minutes	1100°C to 800°C in 50 minutes
Stabilization Time	10 min	10 min	15 min
Block diameter	35 mm	35 mm	36 mm
Block depth	160 mm	148 mm	130 mm
Wells depth	157 mm	140 mm	80 mm
Standard insert	2 x 4.5 mm (0.18") 2 x 6.4 mm (0.25") 1 x 9.5 mm (0.37") 1 x 8 mm (0.31")	2 x 4.5 mm (0.18") 2 x 6.4 mm (0.25") 1 x 9.5 mm (0.37") 1 x 8 mm (0.31")	4 x 8 mm (0.31")
Computer Interface	RS485	RS485	RS485
Dimensions (WxHxD)	340 x 300 x 170 mm 13.4" x 11.8" x 6.7"	340 x 300 x 170 mm 13.4" x 11.8" x 6.7"	340 x 300 x 170 mm 13.4" x 11.8" x 6.7"
Weight (nett)	13.6 Kg (30.0 lb)	9.6 Kg (20.7 lb)	9.0 Kg (19.8 lb)

MicroCal TCS650
Medium Temperature Furnace

The MicroCal TCS650 portable medium temperature (35°C Ta to +650°C) source offers fast temperature calibration and high stability. The temperature controlled allows very fast temperature stabilization and high stability.

The standard configuration includes the 6 holes 140mm deep metal block insert.

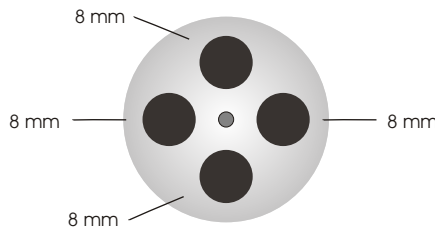
Standard insert



MicroCal TCS1200
High Temperature Furnace

The MicroCal TCS1200 portable very high temperature (150°C to 1200°C) calibration in an easy to use, portable and rugged unit. The calibrator can be used as a Dry Block and a Black body source for infrared thermometers. The temperature controlled allows very fast temperature stabilization and high stability. The standard configuration includes the 4-holes 80 mm deep metal block.

Standard insert



**Automatic Calibration
Procedure Manager**

For over 20 years, Eurotron Instruments has combined its own ISO 9001, electric, thermoelectric and pressure measurements, and development of software application experiences. CalpMan 2007 has been designed to be used industries, where there are both laboratory and maintenance on field needs. The CalpMan 2007 is a Windows™ 2000/XP software designed to plan, manage and document all the calibrations and the certifications of the process instrumentation. The software can manage the automatic procedures of the Eurotron calibrators.

Two software versions are available: the **CalpMan 2007** and the **CalpMan 2007 Advanced**.

The main features are:

- Easy to use;
- Compliant with ISO9001 requirements;
- Standards and instruments expired date management;
- Automatic procedure run
- Built-in communication with documenting calibrators
- Traceable and editable calibration documents
- Database backup/Restore ability

The **CalpMan 2007 Advanced** has the following advanced features:

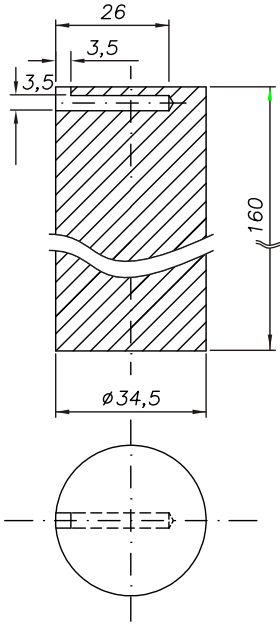
- Up to 3 instruments of simultaneous management;
- Advanced control of the test point;
- Multi-parameter procedures run;
- Simultaneous certification of more than one temperature sensors;
- Password manager and advanced data security ability.



Inserts and Accessories

Surface Sensor Insert

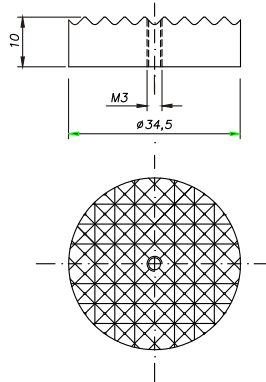
for TCS 140 and TCS 650 models - EE180051
Stability: $\pm 0.5^{\circ}\text{C}$



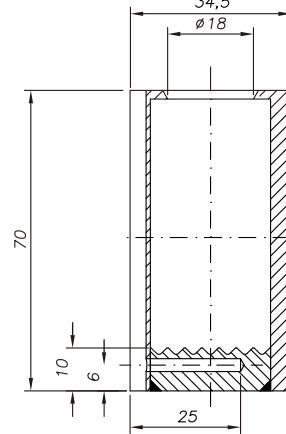
Black body insert

Convert your dry block in a black body reference oven. The insert is extremely recommended for calibration of non-contact infrared thermometers.

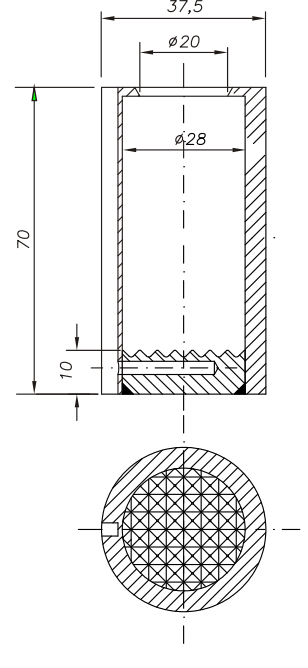
MicroCal TCS 140 EE180046



MicroCal TCS 650 EE180052



MicroCal TCS 1200 EE180049



Stirred Liquid Bath Insert

Convert your MicroCal TCS 140 dry block in a liquid bath with adjustable speed agitator.

The container standard included is extremely recommended for calibration of liquid in glass Thermometers and for short Thermocouples and Thermoresistances (shorter than 160 mm).



EE180057 500cc Silicon oil for MicroCal TCS140 (operative range -35°C to 145°C)

Undrilled Customizable Inserts

- EE180045** Undrilled metal block insert for MicroCal TCS 140
- EE180047** Undrilled metal block insert for MicroCal TCS 650
- EE180048** Undrilled metal block insert for MicroCal TCS 1200

Ask to our technical office quotation and feasibility of required drilling.

BB530219 USB serial interface cable.

Reference Temperature Sensors

To increase the performance of a dry block calibrator add a reference thermometer to the system. A wide range of working standard and high accuracy thermometers (e.g. MicroCal 20T) are available from Eurotron.

- 2184** Pt100 Class A working standard
- 2160** TC S 1400°C working standard
- 2168** TC K 1100°C working standard
- EE180050** Probe support kit

MicroCal 20T

2-Channel High Accuracy Documenting Thermometer



- Accuracy: $\pm 0.01\%$ rdg.
- Resolution: $\pm 0.01^{\circ}\text{C}$
- All normalized IEC, DIN, JIS thermocouples Pt, Ni, Cu resistance thermometers
- mV & mA (active and passive loop)
- Temperature switch test

Ordering Code

Code	Model
8161	MicroCal TCS 140 , standard 6 holes insert, liquid container, vinyl carrying case, instruction manual and report of calibration.
8165	MicroCal TCS 650 , standard 6 holes insert, vinyl carrying case, instruction manual and report of calibration.
8167	MicroCal TCS 1200 , standard 4 holes insert, vinyl carrying case, instruction manual and report of calibration.

Table A	Line Charger
USA	120V 50/60 Hz with USA plug
SCK	230V 50/60 Hz with Schuko plug
UK	230V 50/60 Hz with UK plug
EUR	230V 50/60 Hz with European plug
JAP	100V 50/60 Hz with USA/Japan plug

8161 - EUR Typical ordering code