TEMPSENS

Dry Block Calibrators

- Wide Temperature Range from 50°C to 650°C

- High Accuracy

- Enhance Temperature Homogeneity

- Metrology Performance in Stability and Uniformity

- Fast Temperature Calibration

- 4 Thermometer Calibration at Same Time

- Optional External Temperature Control

- Quick Push Connectors

- Self Calibration Features

- Easy to Use

- Bright Color Touch Display

- Automation Features

- LAN/Erhenet Connection for Easy Communication with PC

CALsys 650 M

Metrology grade Highly Accurate Automatic TemperatureCalibrator for Industrial/Laboratory Field Use

The Tempsens make metrology grade calsys 650 M is a user friendly, highly accurate easy to use dry block calibrator. with the inhanced speed and portability its offers best in class accuracy stability, axial uniformity, radial uniformity, loading and hysteresis. all persmeters featurings the highest available performance and well adopted for characterization and performance validation for contact type temperature sensors like thermocouple RTD temperature guages for a wide temperature ranges. The comparison volume is a metallic block of special material, which has a diameter of 38mm and 180mm long. The CALsys 650 M Upgraded with automatic temperature calibration system for the Thermocouple and RTD's. The system consists of Temperature bath and PC softwa re, which together contribute to the whole cycle of auto calibration process. The system accept 4 channels,4 Thermocouples or 4 RTD's.The connection for these channels through special type of locking connectors. The channel configuration can be done with LCD display via touch screen keypad.The thermocouple microvolt & RTD ohm reading for each channel is monitored with CJC compensation. After the calibration process complete the PC software generates a report of actual calibrated values for the inputs.

With the Tempsens make Compact Temperature Calibrator, you have chosen an extremely effective instrument which we hope will live up to all your expectations. This is a fast, timesaving, and reliable true industrial temperature calibrator designed for on-site use.

Enhance Temperature Uniformity
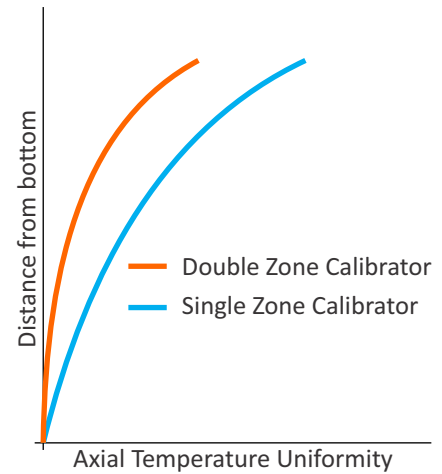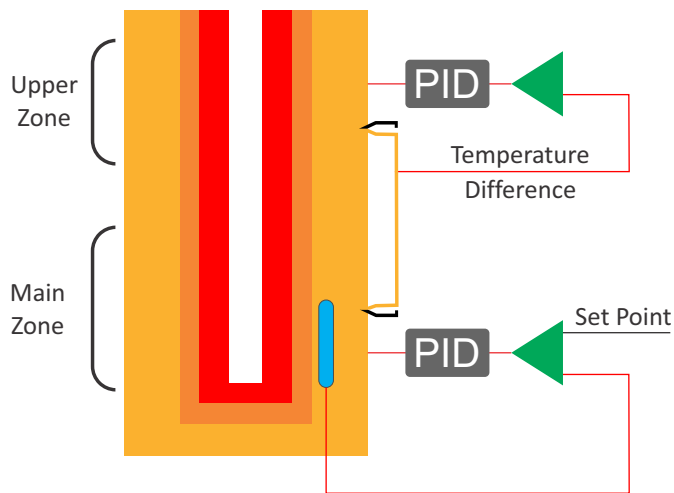
With Tempsesns dual zone heating technology each zone is independently controlled by PID for presize temperature control for each zone. The bottom zone has a build in high accuracy thermometer and the upper zone compensates the heat loss thus ensure perfect temperature homogeneity within 60mm from bottom part

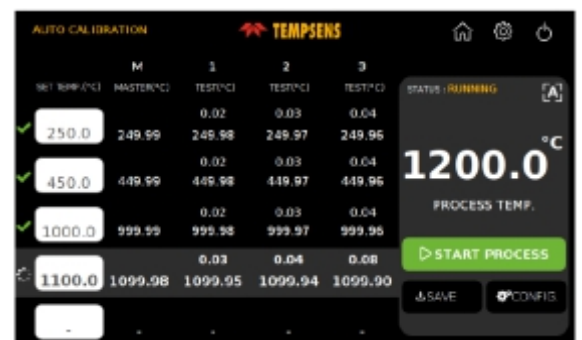## Bright Color Touch Screen Display

The 5 inch bright color touch screen display provides intuitive nevigation and provides nessessory calibration procedure information to the user the touch screen is very easy to read and monitor calibration parameters.

Auto Steping Mode

User can set upto 5 different temperature stemps and that can be programmed including holding time for each step. Universal temperature sensor inputs and the auto stepping features provides user a complete automatic solution to calibrate upto 4 thermometer at same time and store and visual calibration information for each sensor under calibration.

4 Thermometers Calibration at a Time

Connection for First TEST Sensor
Connection for MASTER Sensor

Connection for Second TEST Sensor
Connection for Third TEST Sensor
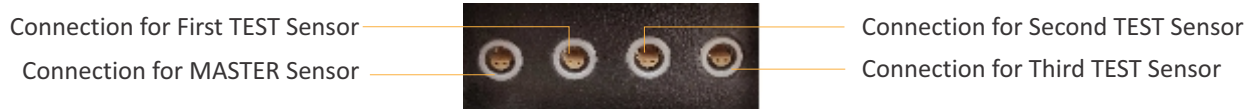
The Calibration system provides calibration upto four channels i.e. one master and three test sensors .We use high quality universal LEMO connector i.e. suitable both for T/C and RTD.

Special Dry Block Capacity

Tempsens offers customized insert with user define pre-drilled holes ranging from 3 mm to 28 mm. We are able to design and manufacture custom inserts to meet calibration requirements. We provide 38mm Diameter Interchangable insert with CALsys 650M Insert made of Special Material and coating for better thermal distribution.
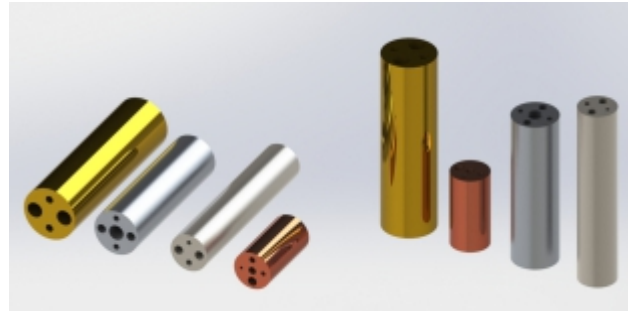
Self Calibration

In comparisons based temperature calibrator an external reference pro is the best option to perform temperature calibration but sometime it is not convenient depending on the application and internal control sensor could be preferred calsys 650 M allowing build in a self calibration features allowing customer to run automated calibration of the internal control sensor using external reference which will improve its accuracy.
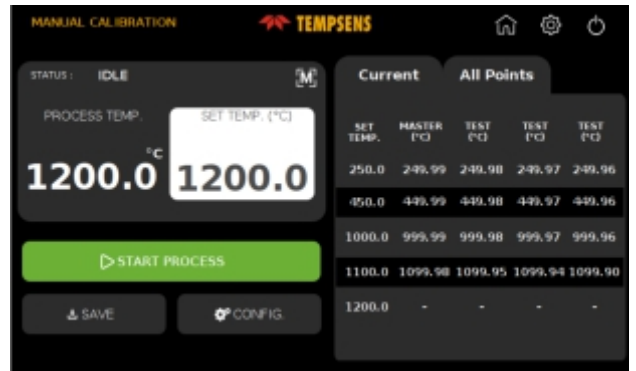
Customized Calibration Software

Tempsens make Easy to use Customized software enables end user to access temperature data both for Manual mode and Automode.In User friendly software interface end user can save and Generate calibration Data and specify Master and Test sensor details.

On Board Documantation

Tempsens can offer customized data saving option both for manual and Automode. After completion manual / Automode automatic calibration report can be generated at PC side based on predefined format. It can generate Customized Test certificate as per user lab format with expended uncertainty calculation of UUT.

Specifications

CALsys 650 M

|	
Temperature range	5O °C to 650 °C
Display Accuracy	±0.5°C
Stability	±0.01°C at 50°C ±0.02°C at 350°C ±0.05°C at 650°C
Axial uniformity (40mm)	±0.09°C at 100°C ±0.22°C at 400°C ±0.35°C at 650°C
Axial uniformity (60mm)	±0.12°C at 100°C ±0.30°C at 400°C ±0.60°C at 650°C
Radial uniformity	±0.03°C at 50°C ±0.05°C at 350°C ±0.09°C at 650°C
Loading effect (with a 6.35 mm reference probe and three 6.35 mm probes)	±0.05°C
Hysteresis	±0.07°C
Insert OD dimensions	38 mm
Immersion depth	160 mm
Cooling time	70 Min (650 °C to 100 °C)
Heating time	20 Min.
Stability time	15 Min
Set Point Resolution	0.1°C
Units	°C, °F and K
Display	5Inch LCD, Color Touch Display
Power requirements	230 VAC,1KW (50 Hz)
Calibration	Accredited calibration certificate provided (Optional)
Environmental operating conditions	0°C to 40°C, 0% to 90% RH (non-condensing)
Specifications valid in environmental conditions	I5°C ... 30°C
PC Interface	Ethernet port
Size (H x W x D)	383(H)x230(W)x304(D) mm
Weight	14 kg
Input	Four channels (one master and three test sensors).high quality universal LEMO connector suitable both for T/C K, N,T,R,S, B type) and Rtd
RTD Input Channel Accuracy	±0.05°C ±0.005% RDG
TC Input Channel Accuracy	E.J.K.N.T: ±0.3°C, R,S,B: ±0.5°C
CJC Accuracy	±0.35°C (15°C to 30°C)
Software	The calibrator will be provided with software for data recording (Manual Mode) and Excel generation in Auto Mode
Data logging	Data logging facility with logged data export to computer through LAN port (optional USB)

User Interface

Home Screen: In this screen user can select sensor configuration (for selection of type of sensors), mode of operation (auto / manual) and data transfer (file transfer). This window also shows the on going process.
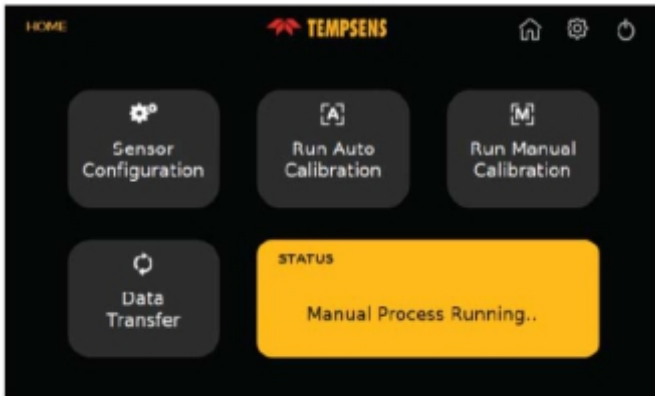
Sensor Configuration: In this screen user select the sensors Thermocouple (J, K, B, N, R, S, T type) / RTD (PT 100, PT 1000, PT50 etc.) for calibration with their serial number and temperature unit (C/F/K).
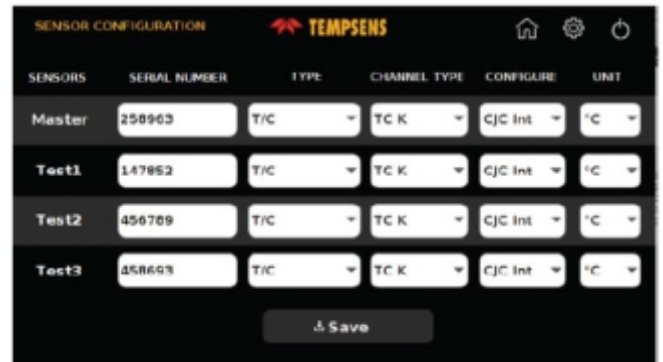
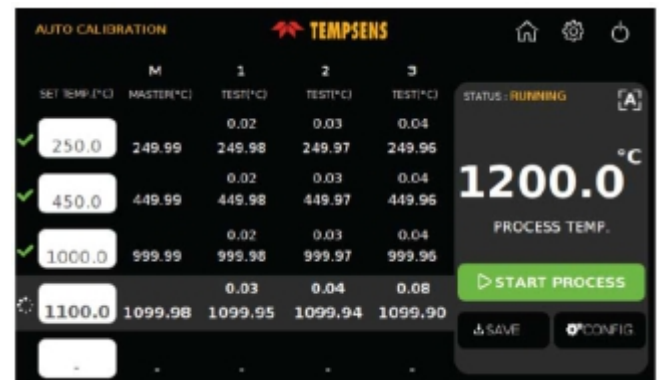## CALsys 650 M have two operating modes i.e. Manual and Auto mode

Manual Mode: In this screen user set the temp. Point for calibration and on clicking start process button the process of calibration starts
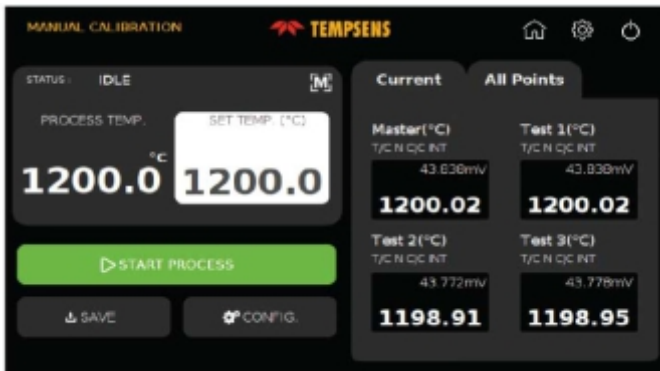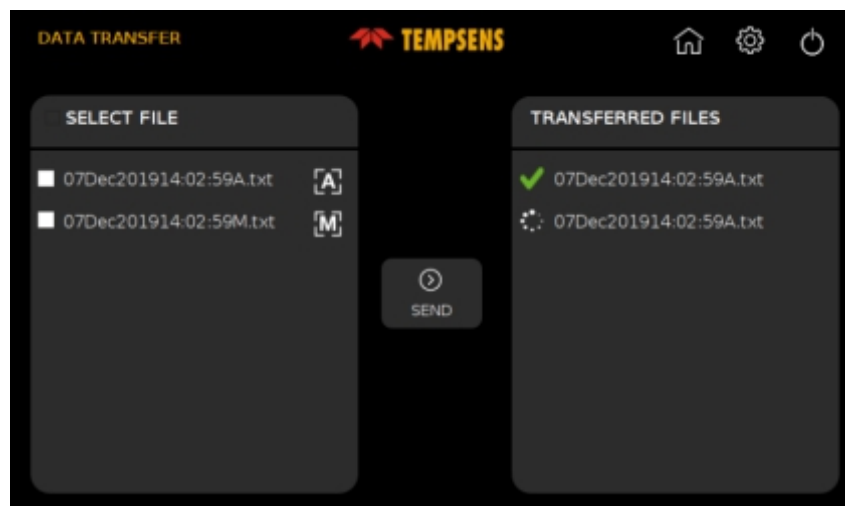
Auto Mode : In this screen user sets the temperature Points for calibration (Max 5 Points)
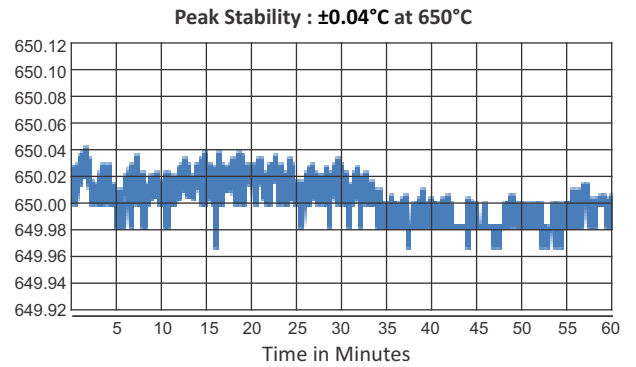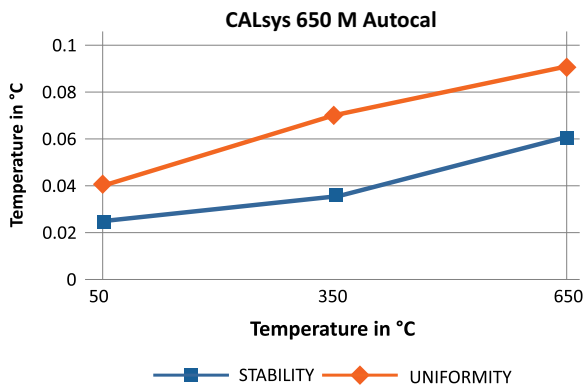

Data Transfer
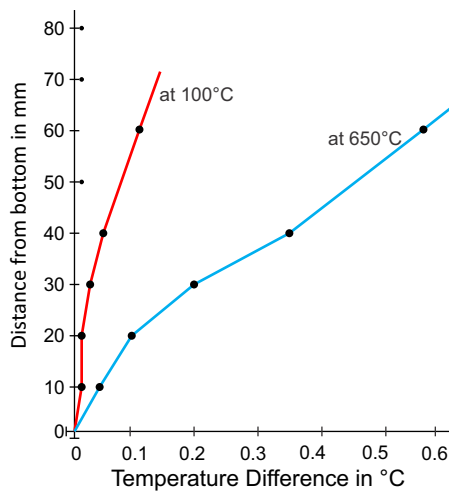
In this screen the files are transferred to pc for report generation.

Stability & Radial Uniformity

CALsys 650 M Autocal

Temperature in °C (y-axis: 0, 0.02, 0.04, 0.06, 0.08, 0.1)
Temperature in °C (x-axis: 50, 350, 650)

— STABILITY — UNIFORMITY

Peak Stability : ±0.04°C at 650°C

(y-axis: 649.92 to 650.12)
Time in Minutes (x-axis: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60)

Axial Uniformity

Distance from bottom in mm (y-axis: 0, 10, 20, 30, 40, 50, 60, 70, 80)
Temperature Difference in °C (x-axis: 0, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6)
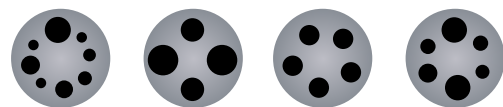
at 100°C
at 650°C
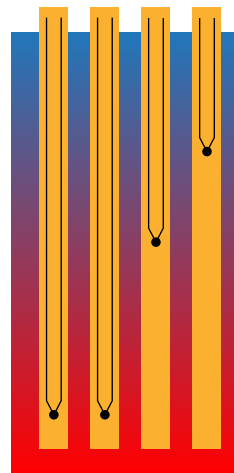
Accessories

Inserts for CALsys 650 M models

Inserts for CALsys 650 M are made of Brass. All specifications on hole size based on outer diameter of the sensor under test. We also offer customized hole size based on Customer requirements.

Inserts	Description
Ci1	Multihole 4X6.5mm
Ci2	Special (Customized)

Customized Equalizing Block....Part No. EQ1

Master Sensor (Optional)

- Reference Standard High Accuracy Thermocouple ("K" type T/C)

- NABL accredited calibration certificate - 3 point **(Optional)**
- Operational Manual

Carry Case

- Tempsens makes customized carry case is a rugged, safe perfectly designed to carry our new CALsys Calibrator and different accessories.

Universal Lemo Connector

- 4 No. Universal Lemo Connector for Connect RTD & Thermocouples