MBW calibration

Thermometer T12

Precision Multichannel Thermometer System

- Twelve channel temperature measurement
- Integrated scanner
- High precision, stability and repeatability
- Negligible temperature coefficient
- Internal reference resistors
- PC software for system control and data acquisition
- Simple to configure and use
- Pt 100 Ω, Pt 500 Ω and Pt 25 Ω versions

Typical applications:

- Climatic chamber validation
- Temperature calibration
- Energy performance testing
- Sensor production calibration systems

ISO/IEC 17025
ACCREDITED
SCS 0125

Thermometer T12

Multi-Channel Reference Thermometer

The T12 is a precise and stable platinum resistance thermometer (PRT) multi-channel temperature measurement system. Based on a high precision resistance bridge, 22 bit analog to digital converter and multiplexor sampling, the T12 provides 12 channels of low uncertainty temperature data for calibration, validation, development and test engineers. Using one of three user selectable current settings, the T12 scans all 12 channels in a continuous cycle. Polarity related errors inherent with DC measuring techniques are eliminated by the use of current reversal in every measurement cycle, and precision is optimised by the inclusion of high stability internal reference resistors.

Gecko R2 software is included with the T12 and this includes functions to configure each measurement channel with PRT specific ITS90 or Callendar-Van Dusen coefficients. The T12 connects to a PC using an RS232 interface with a USB converter included, and Gecko R2 software provides numerical and graphical data display and automatic data acquisition.

Internal Reference Resistors

During each measurement cycle, the T12 measures low and high range reference resistance values to confirm linearity and quantify any thermal effects on the measurement circuit. This means that for all measurement and operational conditions, the uncertainty component for linearity and temperature coefficients is minimized.

Fast Sampling Rates

For applications where fast sampling rates are needed, the T12 is the ideal choice. The system can be configured to sample all 12 channels in under five seconds. When needed, faster sampling of individual input channels can be programmed.

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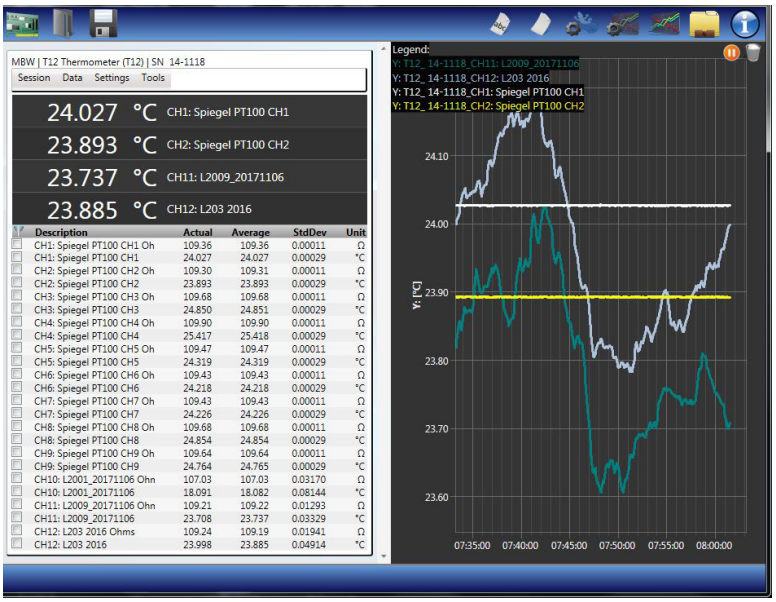

Intelligent Data Acquisition

The T12 is supplied with Gecko R2 software for configuration, data display and recording of measurement data. As soon as the T12 is connected to Gecko, data acquisition starts automatically and a date and time stamped data file is created so that all measurement data is recorded.

Gecko R2 includes the feature to simultaneously connect different types of instruments such as dew point mirrors, humidity generators and temperature baths. On request, any metrology product with a serial interface can be integrated within Gecko.

Probe Choice

The T12 is equipped with 5-pin Lemo sockets for shielded connection of user's own 4-wire, 100 Ω, PRT probes. MBW also supplies probes in a variety of types, sizes and specifications with connectors pre-fitted ready for immediate use.

473 - showing with SH2 Measuring Head

Climatic Chamber Validation

The T12 is ideally suited for climatic chamber validation applications where temperature uniformity can be a significant contribution to the overall uncertainty. The high precision and long temperature stability of the T12 and Pt100 probes allows test engineers to precisely define temperature and its distribution.
In combination with a dew point mirror, the temperature data from the T12 can be combined with dew or frost point data to define relative humidity distribution within a test or stability chamber. This methodology is defined within test standards and guidelines such as EC60068-1, DKD-R 5-7, Euramet-cg-20 and NF X 15-140.

Thermometer T12

Base Model Version	**Thermometer T12** Pt100	**Thermometer T12** Pt25	**Thermometer T12-E** Pt100
Measuring Ranges Temperature Resistance Excitation currents	 -200...800 °C 1...380 Ω 0.33, 0.66 mA	 -200…500 °C 1…70 Ω 1, 1.14 mA	 -200...800 °C 1...380 Ω 0.33, 0.66 mA
Performance (measured) Range Resolution Accuracy (T12 only) Temperature coefficient **Performance extended Range** Range Resolution	 -200...250 °C 0.12 mK ≤ ± 2 mK @ 23 °C 0.1 mK / °C -200…850 °C 0.25 mK	 -200…500 °C 0.18 mK	 -200...250 °C 0.12 mK ≤ ± 20 mK @ 23 °C 0.2 mK / °C -200…850 °C 0.25 mK
Standard Features Available inputs Input type Supported coefficients Reference resistors Data output Control and data acquisition Logging intervals Sampling rate Enclosure type Power supply Operating instructions Factory calibration certificate CE compliance”	 12 channels Platinum Resistance Thermometer (PRT), 4-wire, shielded ITS-90, Callendar-Van Dusen 2 internal, low and high end of Ω Range RS-232 (incl. USB adapter) Control Software “Gecko” R2 User programmable from 5 seconds to 60 minutes < 0.5 seconds per channel Aluminum External AC/DC power supply with 1.5 m cable (indoor use only) English Resistance calibration Safety and EMC”		
Accessories Probes Connectors	 Calibrated and uncalibrated PRT’s available, see seperate datasheet Lemo plugs (305 FGG.1B CLAD42)		
Additional Information Digital I/O AC power DC power Maximum operating conditions Storage temperature	 Bi-directional RS-232 Power supply 110-230 V, 50/60 Hz 12 V, 0.3 A 0 °C...+50 °C, maximum 98 %rh, non-condensing -20 °C...+50 °C		
Weight & Dimensions Dimensions (W x H x D) Weight	**Instrument** 235 x 40 x 180 mm 1.8 kg		

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MBW Calibration Ltd.
Seminarstrasse 55/57
CH-5430 Wettingen
Switzerland

Phone +41 56 437 28 30
Fax +41 56 437 28 40

www.mbw.ch
sales@mbw.ch

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Thermometer T12

Ordering Information

Description	Order Code
Thermometer T12 Pt100 (12 channel, 4-wire PRT-inputs)*	104158
Thermometer T12-E Pt100 (12 channel, 4-wire PRT-inputs)*	141678
Thermometer T12 Pt25 (12 channel, 4-wire PRT-inputs)*	141679
(* incl. PC software, serial cable with USB adapter and transport case)	
Options	
T12-Upgrade to SCS accredited calibration (ISO 17025), up to 12 probes, 5 temp points in the range -100…+100 °C	105092
Accessories	
Lemo connector 305 FGG.1B CLAD42, per piece (for users to fit own PRTs to T12)	102596
Temperature Probe, Ø3 x 40 mm, 1/10th wire wound PRT, with 3 m cable and Lemo connector	105042
Temperature Probe, Ø3 x 40 mm, 1/10th wire wound PRT, calibrated** -50 ... +100 °C, with 3 m cable and Lemo connector	105043
Additional 1 year warranty upgrade (max. 3 years)	103632
(** Calibrated together with T12 when ordered at the same time)	
For a complete range of options and accessories, please contact us and request our pricelist.	

Scan this QR-Code to get the product page online

MBW Calibration Ltd.
Seminarstrasse 55/57
CH-5430 Wettingen
Switzerland

Phone +41 56 437 28 30
Fax +41 56 437 28 40

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