



TMM-100

Temperature Measurement Module

PRECISION USB MODULE SIMPLIFIES THERMAL TEST CHIP TEMPERATURE MEASUREMENTS

DESCRIPTION

The TMM-100 is designed to simplify the gathering of temperature data from Thermal Test Chip diode temperature sensors. The system contains a precision current source for supplying diode measurement current (I_M), voltmeter capability for diode measurement (V_M), and Type-T thermocouple and 10K Ω NTC thermistor measurement capability for monitoring the environment temperature. Front-panel mounted connectors provide connection for up to eight temperature sensing diodes, two thermocouples and two thermistors. Each temperature sensor is selected under software control.



The internal precision I_M current source provides 1.00mA. Voltage compliance is 2V. The internal voltage measurement circuit provides measures to 1.999V with mV resolution for any of the selected eight diode temperature sensing channels. The diode voltage can be automated converted to temperature measurements using the software's built-in calibration capability. The temperature measurement resolution of 0.01°C for all sensors provides for accurate temperature differential measurements.

An internal relay all for control of environmental components under software control and can be synchronized to the measurement scan.

The TMM is powered through its USB connection to a computer.

FEATURES

- **Self-contained for easy setup and operation**
- **Full Kelvin Connection for highest accuracy and repeatability**
- **MilliVolt diode voltage resolution**
- **Built-in diode voltage-to-temperature conversion**
- **Integrated Type-T thermocouple measurement circuitry**
- **USB connection for programming, data collection and data analysis**

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SPECIFICATIONS

Diode Current Source	
Number of Channels	8
Measurement Current	1.00mA
Accuracy	0.1%
Voltage compliance	1.999V
Polarity	- or + to GND
Connection	Front Panel, IDC Ribbon Cable Connector
Diode Voltage Measure	
Number of Channels	8 (integrated with Current Source)
Range	1.999V
Resolution	1mV
Accuracy	0.01% of fs ±1 mV
Temperature Measure (Thermocouple)	
Number of Channels	2
Type	T
Range	0 to +199°C
Resolution	0.01°C
Accuracy	0.1% of fs ±1.4°C
Connector	Front Panel, Miniature Jack (Omega NMP-T or equivalent)
Temperature Measure (Thermistor)	
Number of Channels	2
Type	10KΩ (nominal @ 25°C)
Operating Current	100µA
Range	0 to +199°C
Resolution	0.01°C
Accuracy	0.1% of fs ±1.4°C
Connector	Front Panel, (4-pin Molex Mini-Grid)
Power Indicator	
Type	LED
Color	Green
Data Indicator	
Type	LED
Tx Color	Green
Rx Color	Red
Computer Connection	
Type	USB 2.0 or higher
Connector	Rear Panel, USB Type B
Relay Connection	
Configuration Type	Single Pole, Double Throw (SPDT)
Current Rating	1A max
Voltage Rating	50V max
Connector	Rear Panel, (3-pin Molex Mini-Grid)

ORDERING INFORMATION

Model Number	Description
TMM-100	Base Unit (8 channels) Includes USB Cable, 2 Type-T Thermocouples, Diode & Thermistor Cable & Connector, and User Manual in electronic form on USB drive
TMM-100-01	LabView Virtual Instrument (VI) Option Includes Application Manual in electronic form on USB drive