

Universal Calibrator (Model UNICAL 3001M)

3001 M



Masibus' UNICAL 3001M is a micro-controller based innovative multi function calibrator that combines a total of 16 functions & range. UNICAL 3001M provides a high accuracy, high precision and multi function calibration designed with ease of use concept. It can be used in both laboratory and site calibration purpose with an easy to use concept.

UNICAL 3001M has 5 digit 0.56" RED high efficiency LED display. At the heart of the instrument is an 8-bit micro-controller, an 18-bit serial ADC and indigenously developed dedicated software, that makes this calibrator an unique and a highly reliable product. UNICAL 3001M goes through an auto calibration cycle every 3 minutes during which instrument reading will freeze for 2 seconds. Same 'Auto Cal' loop is repeated when a new range is selected. This 'Auto Cal' cycle corrects for drifts in instrument because of self heating.

Facilities like independent settings for zero/span, switch selectable digital nulling for offset cancellation and differential measurement enables higher calibration functionality. UNICAL 3001M provides additional facility to measure/simulate 2 user defined thermocouples as an option. UNICAL 3001M is equipped with rechargeable battery with built in charger that the calibrator to perform onsite calibration and provides full 24 VDC compliance voltage even in battery mode in the field.

UNICAL 3001M has versatile feature for calibrating and checking temperature indicator / controllers, recorders, temperature transmitters, single conditioners, etc. with RTD and thermocouple source / measure capability. It can also source mV signals for load cell amplifiers and can simulate resistance for position indicators.

Features

- *Micro-controller based multi function calibrator*
- *Unique 'Auto Cal' & 'Auto Zero' function*
- *5 digit, 0.56" RED LED display*
- *16 calibration function*
- *User friendly operation using dedicated switches*
- *Special calibration function for Cu-53, 2 custom T/C & resistance simulation*
- *Mains-Cum-Rechargeable battery operated*

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TECHNICAL SPECIFICATIONS 3001M

Display

5 Digit, 0.56" red high efficiency LED.

Rechargeable Battery

Built-in 7.2V, 2.2 AH Power Pack

Battery Operation

Approximately 5 Hours in measurement mode or 4 Hours with 20mA output.

Battery charging time

14 Hours for full charge.

Lo Bat indication provided.

Protection

Voltage Source Short Circuit

Current Source Open Circuit

Input impedance

Greater than 10 M Ω for mV, V, t/c. 10 Ω in mA.

Operating Temperature

0 to 55 °C

Humidity Range

0 to 80% RH non-condensing

Cold Junction Compensation

Automatic from 0 °C to 50 °C in both measure and simulation mode. C J C switch off with 0 °C reference provided.

Temperature Coefficient

$\pm 0.002\%$ Rdg / °C

Thermocouple Linearisation

ANSI Standard.

Sampling Time

400 mSec.

Enclosure

General Purpose.

TECHNICAL SPECIFICATIONS 3001M

Standard Accessories

Carrying Case, 2 sets test leads, 2 shorting links, RTD Simulator Module and Instruction Manual.

Mains Power Supply

230/110V AC +/- 10%, 50 Hz (Please specify)

Dimension

240(W) X 135(H) X 185(D) (all in mm)

OPTIONS

- Additional facility to Measure / Simulate 2 user defined Thermocouples.
- Panel mounting kit.

ORDERING CODE

Model	Option 1		Mounting	
3001M	X		X	
	N	None	T	Table-top
	1	2 nos. custom T/C*	P	Panel

X - Specify from table

* - Please specify T/C types

FUNCTION	RANGE	RESOLUTION	ACCURACY	SOURCE LOADING CAPABILITY
Amb	0 to 50 °C	0.1 °C	$\pm (0.2 \text{ °C} + 1 \text{ Count})$	---
20mV	0 to +20mV	1 V	$\pm (0.03\% \text{ FS} + 1 \text{ Count})$	10mA max.
200mV	0 to +200mV	10 V	$\pm (0.03\% \text{ FS} + 1 \text{ Count})$	10mA max.
2V	0 to +2V	0.1mV	$\pm (0.03\% \text{ FS} + 1 \text{ Count})$	10mA max.
10V	0 to +10V	1mV	$\pm (0.03\% \text{ FS} + 1 \text{ Count})$	10mA max.
20mA	0 to +20mA	1 A	$\pm (0.03\% \text{ FS} + 1 \text{ Count})$	Compliance Voltage 24V DC
60mA	0 to +60mA	10 A	$\pm (0.03\% \text{ FS} + 1 \text{ Count})$	Compliance Voltage 24V DC
B type	450 to 1750 °C	0.1 °C	$\pm (2.0 \text{ °C} + 1 \text{ Count})$	10mA max.
E type	-200 to 1000 °C	0.1 °C	$\pm (0.5 \text{ °C} + 1 \text{ Count})$	10mA max.
J typ	-200 to 1200 °C	0.1 °C	$\pm (0.5 \text{ °C} + 1 \text{ Count})$	10mA max.
K type	-200 to 1370 °C	0.1 °C	$\pm (0.5 \text{ °C} + 1 \text{ Count})$	10mA max.
R type	0 to 1750 °C	0.1 °C	$\pm (1.0 \text{ °C} + 1 \text{ Count})$	10mA max.
S type	0 to 1750 °C	0.1 °C	$\pm (1.0 \text{ °C} + 1 \text{ Count})$	10mA max.
T type	-160 to 400 °C	0.1 °C	$\pm (0.5 \text{ °C} + 1 \text{ Count})$	10mA max.
Pt - 100	-200 to 850 °C	0.1 °C	$\pm (0.5 \text{ °C} + 1 \text{ Count})$	0.5 mA Injection Current
CU - 53	-100 to 200 °C	0.1 °C	$\pm (0.5 \text{ °C} + 1 \text{ Count})$	0.5 mA Injection Current
2K Ohm	0 to 2K Ohm	0.1 Ohm	$\pm (0.03\% \text{ FS} + 1 \text{ Count})$	0.5 mA Injection Current

Note : For mV, V and 20 mA ranges 25% over range provided.

All specifications are subject to change without notice due technology reasons.
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