

INTRODUCTION

The Metravi CAL-400T is a high-precision Universal Calibrator, designed for professionals who require versatile and reliable calibration for electrical and temperature measurements.

This advanced device supports 100mV/30V DC Voltage measurement, 20mA DC Current measurement, and switching value measurement, ensuring accurate diagnostics and troubleshooting.

Beyond measurement, the Metravi CAL-400T offers 100mV/30V DC Voltage Output, 20mA DC Current output, and SIMULATE output, making it ideal for testing and calibration applications.

It features manual step and automatic waveform output, with a simultaneous display of Voltage (V), Current (mA), and percentage for enhanced convenience.

Equipped with a loop detection function, this calibrator provides a 24 V loop power supply while measuring current, essential for process control and industrial automation.

Additionally, it supports eight thermocouple types (R, S, B, K, E, J, T, and N) for both measurement and output, along with temperature display in Celsius and Fahrenheit. With automatic and manual cold junction compensation, it ensures precise temperature calibration.

Built for safety and durability, the Metravi CAL-400T includes overload protection, making it a robust and indispensable tool for instrumentation engineers, process control specialists, and maintenance professionals.



GENERAL SPECIFICATIONS

Sampling Time	2-3 times / second
Overload Protection	50mA/30V
Working Environment	0° ~ 40°C ; below 85% RH (no condensation)
Storage Environment	-20° ~ 60°C ; below 90% RH (no condensation)
Accuracy Defined as per Environment	23°±5°C ; below 75% RH (no condensation)
Temperature Coefficient	0.1 × basic precision / °C (temperature range <18°C or >28°C)
Ambient Condition for Usage	Indoor and outdoor use (not waterproof), with an elevation of 0~2000 m
Overrange Display	OL
Power Source	3 x 1.5V (LR03/AAA) Alkaline Batteries
Power Consumption	When alkaline battery is used: Loop current measurement and DC current output (SOURCE) 20mA (a load of 1000Ω): approx. 1000mVA Other work function: approx. 300mVA
Low Battery Indication	Shows battery sign
Auto Shutdown	After 15 min of non-operation
Warm-up Time	10 mins
Dimensions	151 x 75 x 42 mm
Weight	Approx. 230 gms
Calibration Cycle	One year

*Technical Specifications & Appearance are subject to change without prior notice

TECHNICAL SPECIFICATIONS

MEASUREMENT					
	Range	Measuring Range	Resolution	Accuracy	Notes
DC Voltage	100mV	-10.0mV ~ 110.0mV	100uV	0.2%+4	<ul style="list-style-type: none"> Input impedance: 30V: 300kΩ (nominal value) mV: >1MΩ (nominal value) Common mode rejection: 50Hz or 60Hz >80dB Series mode rejection: 50Hz or 60Hz > 40dB Overvoltage protection: 30V (peak to peak value)
	30V	-5.00V ~ 30.00V	10mV		
DC Current	20mA	0.00mA ~ 22.00mA	0.01mA		<ul style="list-style-type: none"> Overload protection: 50mA/30V Load voltage: approx. 18mV/mA
Thermocouple (Only for CAL-400T)	R	0° ~ 1760°C	1°C	0.2% + 4	Thermocouple measurement adopts ITS 90 thermometric scale, whose precision does not include error of the cold junction compensation, and the impact of thermoelectrical potential
	S	0° ~ 1760°C			
	B	400° ~ 1820°C			
	K	-200° ~ 1370°C			
	E	-200° ~ 1000°C			
	J	-200° ~ 1200°C			
	T	-200° ~ 400°C			
	N	-200° ~ 1300°C			

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TECHNICAL SPECIFICATIONS

OUTPUT					
	Range	Output Setting Range	Resolution	Accuracy	Notes
DC Voltage	100mV	0.0mV ~ 110.0mV	100uV	0.2%+4	• Maximum output current 1mA
	10V	0.00V ~ 11.00V	10mV		• Maximum output current 5 mA (<10V)
DC Current	20mA	0.00mA ~ 22.00mA	0.01mA		• 20mA maximum load 1kΩ
Analogue Transmitter SIMULATE	-20mA	0.00mA ~ 22.00mA	0.01mA		• External power supply: 5 ~ 28V • 20mA maximum load 1kΩ
Loop Power Supply LOOP	24V			±10%	• Maximum output current 25mA
Thermocouple (Only for CAL-400T)	R	0° ~ 1760°C	1°C	0.2% + 4	Thermocouple measurement adopts ITS 90 thermometric scale, whose precision does not include error of the cold junction compensation, and the impact of thermoelectrical potential
	S	0° ~ 1760°C			
	B	400° ~ 1800°C			
	K	-200° ~ 1350°C			
	E	-200° ~ 700°C			
	J	-200° ~ 950°C			
	T	-200° ~ 400°C			
	N	-200° ~ 1300°C			
Capacitive Load ≥ 0.01μF					

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