PCAL500 - Multifunction Process Calibrator

Source and Measure with ±0.01% High Precision

The PCAL500 is a high-performance, all-in-one solution designed for precise and efficient calibration of industrial instruments. It features the ability to simultaneously measure and source signals, enabling real-time verification and adjustment during calibration tasks. Engineered for accuracy, the device delivers an impressive ±0.01% precision for DC voltage and current measurement and sourcing, making it suitable for demanding applications where reliability is critical. In addition to these core capabilities, it supports resistance and frequency measurement and simulation, offering flexibility across a wide range of calibration scenarios. The comprehensive temperature function supports 16 types of thermocouples and 9 types of RTDs, ensuring accurate testing and validation of temperature instrumentation.



Key Features:

- **Simultaneously measure and source with large dual backlit display**
- **High precision of ±0.01% accuracy for DC Voltage, DC Current, and Resistance measurement and sourcing**
- **Functions include Resistance and Frequency**
- **Temperature function supports 16 types of Thermocouples and 9 types of RTDs**
- **Resistance function with support for 2-wire, 3-wire, and 4-wire configurations for accurate RTD simulation and measurement**
- **Switchable 0 to 20mA and 4 to 20mA ranges with % readout for rapid loop verification**
- **Auto sawtooth and triangular current outputs for efficient loop testing**
- **0 to 10VDC output with high resolution for precise calibration**
- **Built-in flashlight, auto power off, and low-battery indicator for field use**
- **Optional Traceable Calibration model includes a Certificate of Traceability to N.I.S.T. for quality assurance and compliance documentation**

Applications:

- Calibration Labs
- Process Control
- Electronic Circuit Testing
- Instrumentation Development
- Automotive manufacturing and testing
- Educational Laboratories
- Research and Development

Users:

- Electrical and electronics engineers
- Calibration and metrology technicians
- Maintenance and service engineers
- Field service technicians
- Process control engineers
- QA/QC and test engineers
- R&D engineers and lab technicians

Specifications

Specifications	Range	Resolution	Basic Accuracy
Measure:			**±(% reading +% range)**
DC Voltage	50mV, 500mV, 5V, 30V	0.001mV, 0.01mV, 0.1mV, 0.001V	±(0.01%+0.01%)
DC Current	50mA	0.001mA	±(0.01%+0.01%)
Resistance (2-wire, 3-wire, 4-wire)	500Ω, 5kΩ	0.01Ω, 0.1Ω	±(0.01%+0.01%)
Frequency CPM (Cycle per Minute)	500Hz, 5kHz, 50kHz, 1 to 100,000CPM	0.01Hz, 0.1Hz, 1Hz, 1CPM	±2 digits

CE RoHS COMPLIANT 2 LIMITED PRODUCT WARRANTY YEARS

+1 603-607-7114 • info@triplett.com • www.triplett.com

PCAL500 - Multifunction Process Calibrator

Specifications (continued)

Specifications	Range	Resolution	Basic Accuracy
Type K Thermocouple (w/Reference Junction Compensation)	-148°F to 2501°F (-100.0°C to 1372.0°C)	0.1°	±1.5°F/0.8°C (32°F to 752°F/ 0°C to 1372.0°C)
Thermocouple Types	J, K, R, S, E, T, N, A, B, C, D, L, U, G, P, M		
RTD Types (2-wire, 3-wire, 4-wire)	Pt100 (385), Pt200 (385), Pt500 (385), Pt1000 (385), Pt100 (3916), Pt100 (3926), Ni120, Cu10, Cu50		
Source:			**±(% reading +% range)**
DC Voltage	100mV, 1V, 10V	0.001mV, 0.01mV, 0.1mV, 0.001V	±(0.01%+0.01%)
DC Current	33mA	0.001mA	±(0.01%+0.01%)
Resistance	400Ω, 4000Ω	0.01Ω, 0.1Ω	±(0.01%+0.01%)
Frequency CPM (Cycle per Minute)	100Hz, 1kHz, 10kHz, 50kHz; 1 to 1200CPM	0.01Hz, 1Hz, 0.1kHz, 2kHz; 1CPM	±2 digits
Type K Thermocouple (w/Reference Junction Compensation)	-328°F to 2501°F (-200.0°C to 1372.0°C)	0.1°	±0.9°F/0.5°C (-148 to 752°F/ -100.0 to 400.0°C)
Thermocouple Types	J, K, R, S, E, T, N, A, B, C, D, L, U, G, P, M		
RTD Types (3-wire)	Pt100 (385), Pt200 (385), Pt500 (385), Pt1000 (385), Pt100 (3916), Pt100 (3926), Ni120, Cu10, Cu5		
Loop Supply	24V (±10% accuracy)		
Power	3 × AA batteries (included)		
Dimensions	7 × 3.6 × 2" (180 × 90 × 52mm)		
Weight	2.2lbs (1kg)		



What's In the Box

- PCAL500 Calibrator
- Industrial Test Leads with Clips
- Spare Fuses
- Thermocouple Adapter
- Latch Key
- 4 × AA Batteries
- Quick Start Guide

Ordering Information

PCAL500 ..... Multifunction Process Calibrator
PCAL500-NIST ..... Multifunction Process Calibrator with Certificate Traceable to NIST

For more information about PCAL500, please scan or click:

Imagery for illustration purposes only. Specifications subject to change without notice.
Copyright © 2026 Triplett Test Equipment & Tools. All rights reserved. PCAL500_DS_en. Revised: 2026-09-16