PIECAL 211

Automated RTD Calibrator

Actual Size

- **Easy to use**
  With the PIECAL 211 you can check & calibrate all your RTD instruments and measure RTD Sensors. Automatic indication of connections on the display for simple hookups.

- **Take it into the shop, plant or field**
  Carry it without worry - it comes protected with a rubber boot and rugged, low profile switch. Easy to operate even in the dark areas of the plant with the backlit display.

- **Calibrate directly in temperature (°C & °F)**
  Stop carrying around a decade box and RTD resistance tables. The PIECAL 211 works with the RTDs you use including Platinum 100 (alpha = 3850, 3902, 3926) & 1000 (alpha = 3850, 3750) Ohm, Copper 10 & 50 Ohm, Nickel 100 and 120 Ohm. Easily set any value quickly to within 0.1° with the adjustable digital potentiometer "**DIAL**" plus store any three temperatures for instant recall with the EZ-CHECK™ switch. Or use like a decade box from 0.00 to 410.00 and from 410.0 to 2010.0 Ohms.

- **Fast calibration with automatic output stepping**
  Choose between 2, 3, 5, 11 and 21 steps to automatically increment the output in 100%, 50%, 25%, 10% or 5% of span. Select the step time to match your system from 5, 6, 7, 8, 10, 15, 20, 25, 30 and 60 seconds.

- **Compatible with *ALL* process instruments**
  No competitor's calibrator is compatible with as many process instruments! Connect directly to the RTD inputs of smart transmitters, PLCs, DCS and multichannel recorders and verify their outputs or displays. Works with older instruments with fixed excitation currents and newer multichannel instruments that switch the excitation current between input channels.

- **Measure RTD sensors**
  Trouble shoot sensor connections and find broken wires with patented technology. Connect your two, three or four wire RTDs and the PIECAL 211 automatically detects the connections and measures the RTD in degrees C or F.

- **Evolutionary design**
  PIECAL Calibrators are designed and built by members of the same team that designed and built the calibrators manufactured by Fluke* under the Altek* label. The PIECAL 211 improves upon other brands by including a rubber boot, tilt stand, backlit display with larger digits, rugged switches and a battery compartment for fast battery changes.

* PIECAL Calibrators are not manufactured or distributed by Fluke Corp or Altek Industries Inc, manufacturers of Altek Calibrators.

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PIECAL 211 Specifications

(Unless otherwise indicated all specifications are rated from a nominal 23°C, 70% RH for 1 year from calibration)

General	
Accuracy	±(0.025% of Reading + 0.05 Ohms)
Temperature Drift	± 0.01% of span outside of 23°C ±10 °C (73°C ±18 °F)
Operating Temperature Range	-25 to 60 °C (-10 to 140 °F)
Relative Humidity Range	10 % ≤RH ≤90 % (0 to 35 °C), Non-condensing
	10 % ≤RH≤ 70 % (35 to 60 °C), Non-condensing
Size	L=5.63 x W=3.00 x H=1.60 inches
Weight	12.1 ounces (including boot & batteries)
Batteries	Four "AA" Alkaline 1.5V (LR6)
Battery Life	50 Hours
Optional NiMh Rechargeable battery kit	120 VAC for North America Only; charger, four NiMh batteries, AC & DC cords [Part # 020-0103]
Low Battery	Low battery indication with nominal 1 hour of operation left
Protection against misconnection	Over-voltage protection to 60 V dc (rated for 30 seconds)
Display	High contrast graphic liquid crystal display. LED backlighting for use in low lit areas.

Ranges & Accuracies

RTD Type	Alpha	Degrees C Range	°C	Degrees F Range	°F
Pt 100 Ohm DIN/IEC/JIS 1989 Based on ITS-90	1.3850 (0.00385)	-200.0 to 200.0 200.0 to 600.0 600.0 to 850.0	±0.2° ±0.3° ±0.4°	-328.0 to 392.0 392.0 to 1112.0 1112.0 to 1562.0	±0.4° ±0.6° ±0.7°
Pt 100 Ohm (Burns)	1.3902 (0.003902)	-195.6 to 200.0 200.0 to 648.9	±0.2° ±0.3°	-320.0 to 392.0 392.0 to 1200	±0.4° ±0.6°
Pt 100 Ohm (Old JIS 1981)	1.3916 (0.003916)	-200.0 to 200.0 200.0 to 648.9	±0.2° ±0.3°	-328.0 to 392.0 392.0 to 1200	±0.4° ±0.6°
Pt 100 Ohm (US Lab)	1.3926 (0.003926)	-200.0 to 100.0 100.0 to 700.0 700.0 to 850.0	±0.2° ±0.3° ±0.4°	-328.0 to 212.0 212.0 to 1292.0 1292.0 to 1562.0	±0.4° ±0.6° ±0.7°
Pt 1000 Ohm DIN/IEC/JIS 1989	1.3850 (0.00385)	-200.0 to 200.0 200.0 to 266.0	±0.2° ±0.3°	-328.0 to 392.0 392.0 to 511.0	±0.4° ±0.6°
Pt 1000 Ohm Hy-Cal HVAC	1.3750 (0.00375)	-200.0 to 200.0 200.0 to 274.0	±0.2° ±0.3°	-328.0 to 392.0 392.0 to 525.0	±0.4° ±0.6°
Copper 10 Ohm (Minco)	1.4274 (0.004274)	-200.0 to 260.0	±2.0°	-328.0 to 500.0	±4.0°
Copper 50 Ohm	1.4280 (0.00428)	-50.0 to 150.0	±1.0°	-58.0 to 302.0	±1.6°
Ni 120 Ohm (Pure)	1.6720 (0.00672)	-80.0 to 260.0	±0.1°	-112.0 to 500.0	±0.2°
Ni 110 (Bristol 7 NA)	1.5801 (0.005801)	-100.0 to 260.0	±0.2°	-148.0 to 500.0	±0.3°

Read	
Excitation Current	0.5 mA nominal
Normal Mode Rejection	50/60 Hz, 50 dB
Common Mode Rejection	50/60 Hz, 120 dB

Source	
Accuracy From 1 to 10.2 mA External Excitation Current	±(0.025% of Reading + 0.05 Ohms)
Below 1 mA of External Excitation Current	$\pm(0.025\%\ \text{of Rdg} + \frac{0.025\ \text{mV}}{\text{mA Excitation Current}} + 0.05\ \text{Ohms})$
Resistance Ranges	0.00 to 410.00, 410.1 to 2001.0 Ohms
Allowable Excitation Current Range	<410 Ohms: 10.2 mA max; steady or pulsed/intermittent 410 to 2001 Ohms: 1 mA max; steady or pulsed/intermittent
Pulsed Excitation Current Compatibility	DC to 0.01 second pulse width

Accessories

Included:

Rubber Boot, Four "AA" Alkaline batteries, Certificate of Calibration

Small Carrying Case with PIE Logo — Part No. 020-0205

Evolution RTD Wire Kit — Part No. 020-0208

2 Red & 2 Black Leads with Retractable Shield Banana Plugs & Spade Lugs

Optional:

Ni-MH 1 Hour Charger with 4 Ni-MH AA Batteries — Part No. 020-0103

(100-120 V AC input for North America Only)

Additional Information

PIE Calibrators are manufactured in the USA. This product is calibrated on equipment traceable to NIST and includes a Certificate of Calibration. Test Data is available for an additional charge.

Practical Instrument Electronics recommends a calibration interval of one year. Contact your local representative for recalibration and repair services.

Warranty

Our equipment is warranted against defective material and workmanship (excluding batteries) for a period of three years from the date of shipment. Claims under warranty can be made by returning the equipment prepaid to our factory. The equipment will be repaired, replaced or adjusted at our option. The liability of Practical Instrument Electronics (PIE) is restricted to that given under our warranty. No responsibility is accepted for damage, loss or other expense incurred through sale or use of our equipment. Under no condition shall Practical Instrument Electronics, Inc. be liable for any special, incidental or consequential damage.

Available From:

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