

PIECAL CALIBRATORS

Milliamp • Thermocouple • RTD • Voltage • Frequency



Accurate - Exceeds Expectations
Reliable - Three Year Warranty
Troubleshoot Loops - Automatic Diagnostics
NIST Traceable - Certificate Included
Easy to Use - Technician Friendly
World Wide Support - Made in USA

Practical Instrument Electronics

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Milliamp Loop Diagnostic Calibrators

Diagnostic Calibrator for Milliamp & Voltage



Model 532

Calibrate & Troubleshoot Loop Problems with the Model 532!

- Calibrate Milliamp & Voltage Instruments**
 Source 0.000 to 24.000 mA & 0.000 to 24.000 Volts DC
 Read 0.000 to 24.000 mA, 0.000 to 24.000 V, 24.01 to 30.00 V
 Simulate 2-Wire Transmitters, Power & Read 2-Wire Transmitters
 Selectable 250 Ω resistor for HART compatibility
- Calibrate with confidence**
 Current: Accurate to ±(0.012% of Reading + 0.002 mA)
 Voltage: Accurate to ±(0.012% of Reading + 0.004 V)
- Troubleshoot Loops & Find Ground Faults**
 Patented loop diagnostics take dynamic loop readings under operating conditions. Automatic indication of Loop Current, DC Voltage, Resistance and Leakage Current. Also displays AC Voltage and presence of HART signals.
- Locate Loop Current Leakages**
 Measures ground current leakage from faulty wiring, flooded conduit and corrosion bridges.
- Faster Calibrations**
 Instantly select three outputs with EZ-CHECK switch
 Easily find trip points with two speed EZ-DIAL knob
 Automatic Stepping & Ramping with EZ-STEP Button
- Includes Attached Test Leads & Carrying Case (020-0204)**
- Optional Accessories**
 AC Adaptor for 120 VAC (020-0101); AC Adaptor for 240 VAC (020-0100)

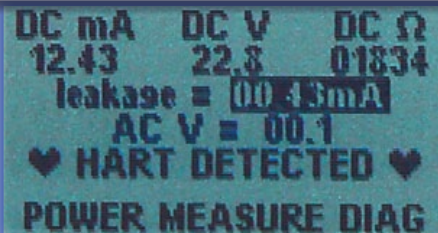
See All Loop Parameters with Patented Loop Diagnostic Technology

Solve tricky loop problems faster than ever.

Measure loop current, voltage and resistance while checking for current leaks

Complete Loop Diagnostics at a Glance

The Model 532 gives you a complete view of the loop in a single display. The first line indicates Loop Current, Voltage & Resistance. The next three lines indicate problems like current leaks and the presence of AC voltage due to misconnection. Detect the presence of HART signals without a HART Communicator or oscilloscope. In this loop current (0.43 mA) is leaking around the control element due to incorrect grounding, corrosion or moisture.



Milliamp Loop Diagnostic Calibrators



Automated Milliamp Calibrator with Loop Diagnostics

Do More with the 334Plus!

- **Calibrate Milliamp Instruments**
Source 0.000 to 24.000 mA & -25.00 to 125.00% of 4-20 mA
Read 0.000 to 52.000 mA, -99.99 to 99.99 V
Simulate 2-Wire Transmitters, Power & Read 2-Wire Transmitters
Selectable 250 Ω resistor for HART compatibility
- **Calibrate with confidence**
Accurate to $\pm 0.025\%$ of Span at 4.000 & 20.000 EZ-CHECK outputs
- **Easy-to-Read Display**
Turn on the backlight to read in dark areas of the plant
- **Locate Loop Current Leakages**
Measures ground current leakage from faulty wiring, flooded conduit and corrosion bridges. Automatic indication of Loop Current and Leakage Current.
- **Faster Calibrations**
Instantly select three outputs with EZ-CHECK switch
Easily find trip points with two speed EZ-DIAL plus Automatic Stepping & Ramping
- **Includes Rubber Boot and Attached Test Leads**
- **Optional Accessories**
AC Adaptor for 120 VAC (020-0101); AC Adaptor for 240 VAC (020-0100)
NiMh Batteries & Charger 120 VAC/12V DC (020-0103)

**NEW
More
Than A
334!**



PIECAL 334Plus

Troubleshoot Loop Problems with Patented Loop Diagnostic Technology

Recently calibrated two-wire transmitter controlling at 12.000 mA.
Control room reports "Loop Out of Tolerance."

Problem Indicated

PIECAL 334Plus powers the loop with Current Leakage Detector.
Current (0.28 mA) is leaking around the control element due to incorrect grounding, corrosion or moisture.

FULL SCALE OUT
12.280 mA
LEAKAGE: 00.28 mA

Problem Found & Corrected!

Moisture was found in unsealed junction box. Loop is operating correctly without costly instrument replacement or recalibration.
Hours of troubleshooting saved!

FULL SCALE OUT
12.000 mA
LEAKAGE: 00.00 mA



Milliamp/Voltage Calibrators

Precision Milliamp Loop Calibrator with Loop Diagnostics

PIECAL MODEL 334

**NOT
Just
Another
334!**

Rubber Boot & Rugged Switches
Larger Display & Fast Dialing
Longer Battery Life
Easier (no tools) Battery Changes



- **Calibrate Milliamp Instruments**
Source 0.000 to 24.000 mA & -25.00 to 125.00% of 4-20 mA
Read 0.000 to 52.000 mA, -99.99 to 99.99 V
Simulate 2-Wire Transmitters, Power & Read 2-Wire Transmitters
- **Calibrate with confidence**
Accurate to $\pm 0.025\%$ of Span at 4.000 & 20.000 EZ-CHECK outputs
- **Includes Rubber Boot and Attached Test Leads**
- **Optional Accessories**
AC Adaptor for 120 VAC (020-0101)
AC Adaptor for 240 VAC (020-0100)
NiMh Batteries & Charger 120 VAC/12V DC (020-0103)

**PIECAL MODEL 334
(Actual Size)**

The PIECAL 334 is functionally equivalent to similar calibrators with four digit displays, knobs and switches. Improvements over 334s from other manufacturers include better long term stability, accuracy, reliability and ruggedness *plus* improved battery life.

The PIECAL 334 gives you advantages of an updated design while maintaining the familiar, time proven ease of use of similar calibrators. The PIECAL 334 is the perfect replacement for your worn out milliamp calibrators!

Milliamp/Voltage Calibrators



10-50/4-20 Milliamp/Volt Calibrator

- **Calibrate Milliamp & Voltage Instruments**
Source 0.000 to 52.000 mA & 0.000 to 24.000 V
Read 0.000 to 52.000 mA, 0.00 to 30.00 V DC
Simulate 2-Wire Transmitters
Power & Read 2-Wire Transmitters
- **Calibrate with confidence**
mA: Accurate to $\pm(0.025\%$ of Rdg + 0.004 mA)
V: Accurate to $\pm(0.025\%$ of Rdg + 0.004 V)
- **Drive 10-50 mA Valves**
Loop compliance > 46 V for I/Ps
- **Faster Calibrations**
Instantly select three outputs with EZ-CHECK switch
Easily find trip points with two speed EZ-DIAL knob
Automatic Stepping & Ramping with EZ-STEP Button
- **Includes Accessories**
Carrying Case (020-0204)
Test Leads (020-0207)
AC Adaptor for 120 VAC (020-0102) or
240 VAC (020-0104)
- **Optional Accessories**
NiMh Batteries & Charger 120 VAC/12V DC
(020-0103) - North America Only



Model 535

Still
Got
10-50?

10-50/4-20 mA/Volt Temperature Kit

- **10-50 mA/Temperature Kit (1050T Not Pictured)**
Model 535 10-50/4-20 mA/V
Calibrator & Model 525 High
Accuracy Thermocouple & RTD
Calibrator with Accessories in a
rugged, hard sided carrying case.

Pocket-Mate Milliamp Calibrator



Model 531

- **Calibrate Milliamp Instruments**
Source & Read 0.00 to 24.00 mA & -25.00 to 125.0% of 4-20 mA
Simulate 2-Wire Transmitters
Power & Read 2-Wire Transmitters
Selectable 250 Ω resistor for HART compatibility
- **Calibrate with confidence**
Accurate to $\pm(0.05\%$ of Reading + 0.01 mA)
- **Compact & Affordable**
Pocket sized with built-in belt clip
- **Faster Calibrations**
Instantly select three outputs with EZ-CHECK switch
Easily find trip points with two speed EZ-DIAL knob
- **Includes Attached Test Leads**
- **Optional Accessories**
Carrying case with belt clip (020-0200)



Temperature Calibrators

High Accuracy Thermocouple and RTD Calibrator

- **Calibrate with Precision**
High resolution to 0.1° and 0.01° F & C; Accurate to 0.2°
- **Source and Read Multiple Thermocouple Types plus mV**
J, K, T, E, R, S, N and B; -13.000 to 80.000 mV
- **Source and Read Multiple RTD Curves plus Ohms**
Platinum 100 Ω: $\alpha=1.385, 1.3902, 1.3926$
Copper 10 & 50 Ω; Nickel 110 & 120 Ω; 0.000 to 400.000 Ohms
- **Automatically Detect 2, 3 & 4 Wire Connections**
Troubleshoot sensor connections & find broken wires with patented technology
- **Guaranteed Compatible with all Instrumentation**
Works with Rosemount & Honeywell Smart Transmitters, PLCs, DCSs, Multi-Channel Recorders and other pulsed excitation devices
- **Faster Calibrations**
Instantly select three outputs with EZ-CHECK switch
Easily find trip points with two speed EZ-DIAL knob & Automatic Stepping
- **Includes Carrying Case (020-0205) and RTD Wire Kit (020-0206)**
- **Optional Accessories**
Wire & Mini T/C Plug
Types J, T, E, K (020-0202)
Types B, R/S, K (020-0203)



Model 525

Thermocouple Calibrators

Model 522

- **Source and Read Multiple Thermocouple Types plus mV**
J, K, T, E, R, S, N and B; -13.000 to 80.000 mV
- **Calibrate with Confidence**
Resolution of 0.1° F & C; Accurate to 0.2°
- **Faster Calibrations**
Instantly select three outputs with EZ-CHECK switch
Easily find trip points with two speed EZ-DIAL & Automatic Stepping
- **Optional Accessories for 522, 521 & 520**
Carrying case (020-0205)
Wire & Mini T/C Plug - Types J, T, E, K (020-0202)
Wire & Mini T/C Plug - Types B, R/S, K (020-0203)



Model 522

Model 521 (not pictured)

- **Source Only - Multiple Thermocouple Types plus mV**
Same as Model 522

Model 520 (not pictured)

- **Source Only - One T/C Type**

RTD Calibrators

Model 512

- **Source and Read Multiple RTD Curves plus Ohms**
Platinum 100 Ω: $\alpha=1.385, 1.3902, 1.3926$
Copper 10 & 50 Ω; Nickel 110 & 120 Ω; 0.000 to 400.000 Ohms
- **Calibrate with Confidence**
Resolution of 0.1° F & C; Accurate to 0.2°
- **Faster Calibrations**
Instantly select three outputs with EZ-CHECK switch
Easily find trip points with two speed EZ-DIAL knob
Automatic Stepping with selectable step size (Model 512S)
- **Includes Attached Test Leads for 512, 511 & 510**



Model 512

- **Optional Accessories for 512, 511 & 510**
Carrying case (020-0205)

Model 511 (not pictured)

- **Source Only - Multiple RTD Curves plus Ohms**
Same as Model 512

Model 510 (not pictured)

- **Source Only - One RTD Curve**

Frequency Calibrator with Totalizer



Model 541

- **Calibrate Flow Meters and Frequency Instruments**
Generate Sine Waves, Zero based & Zero crossing Square Waves
Adjust wave amplitude from 100 mV-12V peak-to-peak
- **Read with Built-in Frequency counter**
Measures waveforms from 0.1V-120V peak-to-peak
- **Calibrate with confidence**
Accurate to $\pm 0.005\%$ of Range
- **Compatible with Process Signal Ranges**
0.001 kHz to 20.000 kHz
0.1 Hz to 2000.0 Hz
0.01 Hz to 200.00 Hz
0.1 CPM (Counts-per-minute) to 2000.0 CPM
1 CPH (Counts-per-hour) to 20000 CPH
- **Calibrate Totalizers**
Totalize Inputs/Outputs from 1 to 99999 counts in 0.1 to 100.0 minutes
- **Includes Attached Leads**
- **Optional Accessories**
AC Adaptor for 120 VAC (020-0101);
AC Adaptor for 240 VAC (020-0100)

PIECAL CALIBRATORS

What kind of calibration do you do? With PIECAL calibrators you can do the job...faster, easier and more accurately. PIECAL calibrators source, simulate and measure virtually all electronic process signals.

Troubleshoot loop problems on-the-fly. The PIECAL Models 532 and 334Plus include patented technology (US Patent # 7,248,058) to find problems like faulty wiring, flooded conduits and corrosion bridges.

Calibrate with high resolution and laboratory accuracy. PIECAL Calibrators are designed to exceed the specifications required by the latest process control equipment. Each comes with a Certificate of Calibration.

Made for PIE GUYS - Process Instrument Experts! PIECAL Calibrators are designed and manufactured in the USA by a team of experts with decades of experience in the field of handheld calibrators.

PIECAL Calibrators - EZ as PIE!

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Product Protection Plus (P3)

Warranty Plans

- **Standard Three Year Warranty**
Three years of protection from any defects in materials or workmanship
Included with every calibrator
- **Repair/Replacement Three Year Warranty (-RW)**
Three years of protection from any defects in materials or workmanship
Three years of protection from any kind of damage
Available for a small additional charge at time of purchase
- **Extended Six Year Warranty (-EW)**
Extends Standard Warranty from Three to Six years
Provides protection from any defects in materials or workmanship
Available for a small additional charge at time of purchase

Calibrators get hard use and need to be replaced frequently. Companies want to keep the total cost of ownership down over many years of use. The P3 Warranty Plans address these very different needs.

If your calibrator should happen to fail, and is physically undamaged, we will repair it free of charge under our Standard Three Year Warranty,

If you use calibrators frequently and under extreme conditions, the Repair/Replacement Warranty is the best choice. This warranty provides for the repair or replacement of the covered calibrator during the first 3 years no matter what happens to the calibrator. That means if the unit is dropped, is run over by a forklift or is just abused to death, we will repair or replace the unit at no charge. No questions asked.

If you use our equipment under conditions that are more favorable to longer life, you might prefer the Extended Warranty. It tacks an additional 3 years of warranty on to our standard 3 year warranty. Six years of protection from any defects in materials or workmanship provides peace of mind and low Total Cost of Ownership.

Certification & Recalibration

- **Certificate of Calibration**
Free - Included with every calibrator
Includes a Statement of Calibration, Date of Calibration and Technician's Signature
- **Test Data**
Provided at an additional charge at time of purchase
- **Recalibration Services**
Recommended on an annual basis (1 year from In-Service Date) Includes Certificate of Calibration & Test Data
- **Contact PIE for a Return Materials Authorization (RMA) Number**
Phone, Fax or E-mail to sales@piecal.com
Include the RMA number, contact information and return shipping instructions
- **Calibration Procedures Available at No Charge**
Download all calibrations procedures at www.piecal.com
- **Repair and Recalibration of Altek* & Transmation* Calibrators**
Our technicians have years of experience of Altek & Transmation repair
* Not associated with Altek Industries Inc or Transmation Inc

Interested in renting a PIE Calibrator?
Contact PIE for you nearest rental location.

Available From:



Practical Instrument Electronics
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