

PIECAL CALIBRATORS

EVOLUTIONARY



Milliamp • Thermocouple • RTD



The New Generation Handheld Calibrators

Accurate • Rugged • Reliable • Easy to Use
Troubleshoot Loops - Automatic Diagnostics
World Wide Support - Made in USA

Practical Instrument Electronics

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The Evolutionary Milliamp Calibrator

Loop Calibrator Piecal Model 334

PIECAL MODEL 334



The NEW PIECAL Model 334!

- **Calibrate Milliamp Instruments**
Source 0.00 to 24.00 mA & -25.0 to 125.0% of 4-20 mA
Read 0.00 to 52.00 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
- **Use in the Plant, Field or Shop**
Includes Rubber Boot and Attached Test Leads
Low profile switches resist accidental damage
- **Simple Battery Changes**
Separate compartment for no-tool battery changes
Four inexpensive "AA" batteries
- **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)

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!

Competitor's 334



- **Smaller Display**
- **Prone to Accidental Damage**
No Rubber Boot and Easily Broken Toggle Switches
- **No Separate Battery Compartment**
Housing must be removed with screwdriver to replace three expensive 9V batteries. Battery replacement requires breaking calibration seals.

WHY PIE?

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. This includes Altek's former Director of Engineering, Applications Engineer, Embedded Software Engineer, Engineering Technician and Production Assembler.

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

The Evolutionary Automated Calibrator



Automated mA Calibrator with Loop Diagnostics Piecal 434

PIECAL 434



Do More with the PIECAL 434!

- **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
Menu 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**
Automatic indication of Loop Current and Leakage Current. Measure ground current leakage from faulty wiring, flooded conduit and corrosion bridges. Leakage appears as a *Zero Shift* and helps you decide if the transmitter needs calibration or if there is some problem in the loop wiring.
- **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)

Competitor's 434



- **Smaller Display**
- **Difficult to Access 250 Ω Hart Compatible Resistor**
Requires disassembly to move internal jumper
- **Hard-to-Read Display (No Backlight)**
- **No Detection of Loop Current Leakages**
- **No Automatic Stepping & Ramping**
- **No Rubber Boot**

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 434 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



The Evolutionary Thermocouple Calibrator

Four Thermocouple Type Calibrator Piecal 322

PIECAL MODEL 322



The NEW PIECAL 322!

- **Source and Read Four T/C Types plus mV**
J, K, T, & E; -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
- **Easily Change Thermocouple Types & Scale**
Double click knob to select T/C type and ° F & C
- **Easy-to-Read Display**
Turn on the backlight to read in dark areas of the plant
- **Use in the Plant, Field or Shop**
Includes Rubber Boot and Attached Test Leads
Low profile switches resist accidental damage
- **Simple Battery Changes**
Separate compartment for no-tool battery changes
Four inexpensive "AA" batteries
- **Optional Accessories for 322**
Wire & Mini T/C Plug - Types J, T, E, K (020-0202)

Competitor's 322



- **No Automatic Stepping & Ramping**
- **Hard-to-Read Display (No Backlight)**
- **Prone to Accidental Damage**
No Rubber Boot and Easily Broken Toggle Switch
- **No Separate Battery Compartment**
Housing must be removed with screwdriver to replace expensive 9V batteries. Battery replacement requires breaking calibration seals.
- **Hard to Change Thermocouple Types**
Must be turned off and back on to make changes

The PIECAL 322 is functionally equivalent to similar calibrators with five digit displays, knobs and switches.

The PIECAL 322 gives you advantages of an updated design while maintaining the familiar, time proven ease of use of similar calibrators. Choose the PIECAL 322 and get a thermocouple calibrator with a backlit display, a rubber boot and rugged switches with the same high accuracy.

Multiple Thermocouple Type Calibrator Piecal 422

PIECAL MODEL 422



The NEW PIECAL 422!

- **Source and Read 14 T/C Types plus mV**
J, K, T, E, R, S, B, N, G, C, D, L (J DIN), U (T DIN) & P (Platinel);
-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
- **Easily Change Thermocouple Types & Scale**
Double click knob to select T/C type and ° F & C
- **Easy-to-Read Display**
Turn on the backlight to read in dark areas of the plant
- **Use in the Plant, Field or Shop**
Includes Rubber Boot and Attached Test Leads
Low profile switches resist accidental damage
- **Simple Battery Changes**
Separate compartment for no-tool battery changes
Four inexpensive "AA" batteries
- **Verify Cold Junction Temperature & Output**
Secondary display of compensated millivolt setting and cold junction temperature
- **Optional Accessories for 422**
Wire & Mini T/C Plug - Types J, T, E, K (020-0202)
Wire & Mini T/C Plug - Types B, R/S, K (020-0203)

Competitor's 422



- **No Automatic Stepping & Ramping**
- **Hard-to-Read Display (No Backlight)**
- **Prone to Accidental Damage**
No Rubber Boot and Easily Broken Toggle Switch
- **No Separate Battery Compartment**
Housing must be removed with screwdriver to replace expensive 9V batteries. Battery replacement requires breaking calibration seals.
- **Hard to Change Thermocouple Types**
Must be turned off and back on to make changes
- **No Verification of Cold Junction Temperature and Millivolt Output**

The PIECAL 422 is functionally equivalent to similar calibrators with five digit displays, knobs and switches.

The PIECAL 422 gives you advantages of an updated design while maintaining the familiar, time proven ease of use of similar calibrators. Choose the PIECAL 422 and get a thermocouple calibrator with a backlit display, automatic stepping, simultaneous display of temperature and millivolt reading, a rubber boot and rugged switches with the same high accuracy.



The Evolutionary RTD Calibrator

Multiple RTD Type Calibrator Piecal 211

PIECAL MODEL 211



The NEW PIECAL 211!

- **Calibrate with Confidence**
Resolution to 0.1° F & C; Accurate to 0.2°
- **Source and Read Multiple RTD Curves plus Ohms**
Platinum 100 Ω: α=1.3850, 1.3902, 1.3926
Platinum 1000 Ω: α=1.3850, 1.3750
Copper 10 & 50 Ω; Nickel 110 & 120 Ω; 0.00 to 4010.0 Ω
- **Automatically Detect 2, 3 & 4 Wire Connections**
Connect to any transmitter or sensor and the 311 automatically makes the right connection. 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. Accurate at all excitation current levels.
- **Faster Calibrations**
Instantly select three outputs with EZ-CHECK switch
Easily find trip points with two speed EZ-DIAL knob & Automatic Stepping
- **Easily Change RTD Types & Scale**
Double click knob to select T/C type and ° F & C
- **Easy-to-Read Display**
Turn on the backlight to read in dark areas of the plant
- **Simple Battery Changes**
Separate compartment for no-tool battery changes
Four inexpensive "AA" batteries
- **Use in the Plant, Field or Shop**
Includes Rubber Boot and RTD Wire Kit (020-0208)
Low profile switches resist accidental damage

Competitor's 211



- **Not Compatible with Newer Instrumentation**
Doesn't work with Rosemount & Honeywell Smart Transmitters, PLCs, DCSs, Multi-Channel Recorders and other pulsed excitation devices. Reduced accuracy at low excitation currents.
- **No Automatic Stepping & Ramping**
- **Hard-to-Read Display (No Backlight)**
- **Prone to Accidental Damage**
No Rubber Boot and Easily Broken Toggle Switch
- **No Separate Battery Compartment**
Housing must be removed with screwdriver to replace expensive 9V battery. Battery replacement requires breaking calibration seals.
- **Hard to Change RTD Types**
Must be turned off and back on to make changes

The PIECAL 211 is functionally equivalent to similar calibrators with five digit displays, knobs and switches.

The PIECAL 211 gives you advantages of an updated design while maintaining the familiar, time proven ease of use of similar calibrators. Choose the PIECAL 211 and get an RTD calibrator with a backlit display, a rubber boot and rugged switches.

Multiple RTD Type Automated Calibrator Piecal 311

PIECAL MODEL 311



The NEW PIECAL 311!

- **Calibrate with Precision**
Resolution to 0.01° F & C; Accurate to 0.2°
- **Source and Read Multiple RTD Curves plus Ohms**
Platinum 100 Ω: α=1.3850, 1.3902, 1.3926
Platinum 1000 Ω: α=1.3850, 1.3750
Copper 10 & 50 Ω; Nickel 110 & 120 Ω; 0.00 to 4010.0 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
- **Easily Change RTD Types & Scale**
Double click knob to select T/C type and ° F & C
- **Easy-to-Read Display**
Turn on the backlight to read in dark areas of the plant
- **Simple Battery Changes**
Separate compartment for no-tool battery changes
Four inexpensive "AA" batteries
- **Use in the Plant, Field or Shop**
Includes Rubber Boot and RTD Wire Kit (020-0208)
Low profile switches resist accidental damage

Competitor's 311



- **Not Compatible with Newer Instrumentation**
Unstable with Rosemount & Honeywell Smart Transmitters, PLCs, DCSs, Multi-Channel Recorders and other pulsed excitation devices
- **No Automatic Stepping & Ramping**
- **Hard-to-Read Display (No Backlight)**
- **Prone to Accidental Damage**
No Rubber Boot and Easily Broken Toggle Switch

The PIECAL 311 is functionally equivalent to similar calibrators with five digit displays, knobs and switches.

The PIECAL 311 gives you advantages of an updated design while maintaining the familiar, time proven ease of use of similar calibrators. Choose the PIECAL 311 and get an RTD calibrator with a more digits (0.01° resolution), automatic stepping, backlit display, a rubber boot and rugged switches. It is also compatible with more instruments in the field.



The Evolutionary Milliamp Calibrator

Pocket Sized Milliamp Calibrator Piecal 134

PIECAL 134



The NEW PIECAL 134!

- **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)

Competitor's I34



- **Difficult to Access 250 Ω Hart Compatible Resistor**
Requires disassembly to move internal jumper
- **Smaller LCD - No Bargraph**
Pocket sized (No built-in belt clip)
- **Instantly select three outputs**
- **Includes Attached Test Leads**
- **No Separate Battery Compartment**
Housing must be removed with screwdriver to replace batteries

The PIECAL 134 is functionally equivalent to similar calibrators with four digit displays, knobs and switches.

The PIECAL 134 gives you advantages of an updated design while maintaining the familiar, time proven ease of use of similar calibrators. Choose the PIECAL 134 and get an milliamp calibrator with a battery compartment and a built-in belt clip.

PIECAL Calibrators - *EZ as PIE!*

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 Model 434 includes 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 Statement of Calibration Practices and Standard Three Year Warranty. Optional Certificates of Calibration, Repair/Replacement Warranty and Extended Six Year Warranty available.

Made for PIE GUYS - Process Instrument Experts! 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. This includes Altek's former Director of Engineering, Applications Engineer, Embedded Software Engineer, Engineering Technician and Production Assembler.



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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

- **Statement of Calibration Practices**
Free - Included with every calibrator (*Doesn't include a Traceable Certificate of Calibration*)
- **Traceable Certificate of Calibration**
Includes a Statement of Calibration, Date of Calibration and Technician's Signature
Included Free with Repair/Replacement and Extended Six Year Warranties
- **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 & 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
* PIECAL Calibrators are not manufactured or distributed by Fluke Corp., Altek Industries Inc, or Transmation; manufacturers of Altek & Transmation Calibrators.

Available From:

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