

PIE Process Calibrators

PIE (Practical Instrument Electronics) offers replacements for discontinued Altek models

Loop Calibrators

- Source to 24mA, Read to 52mA
- Measure to $\pm 99.99V$ DC
- Quickly Simulate 2-wire Transmitters
- Dial Knob for Easy Adjustment
- Large Backlit Display
- Tilt Stand & Protective Rubber Boot

The versatile **PIECAL 334** will check, calibrate and troubleshoot all the signals in a 4-20mA process loop. Simultaneously power and measure two-wire transmitters up to 24V. Simulate the transmitter in circuits from 2 to 100V. Overload protected to 135VAC.



PIECAL 334

The **PIECAL 334Plus** adds automatic output stepping and ramping. Patented loop diagnostic technology helps troubleshoot ground faults and current leakage. A built-in 250 Ω resistor can be used to power HART transmitters.

Milliamp Calibrator

- Source and Read 0-24mA
- Simulate 2-wire Transmitters
- Bargraph Display 0-100%
- Hi/Lo Power Modes

Use the **PIECAL 134** to check, calibrate and measure all devices in a 4-20mA loop. Quickly dial-in the desired value with the large adjustment knob. Simultaneously power a 2-wire transmitter and measure its output. Use with existing loop power from 2 to 42VDC to check loop wiring and receivers.



PIECAL 134

Voltage Calibrator

- Source to 20V, Measure to 60V DC
- Power Loops up to 24V & 1000 Ω
- Check Live mA Loops
- Store 3 Output Settings
- Automatic Stepping & Ramping

The **PIE235** easily checks DC voltage instrumentation, even in live loops. Use the EZ-Chek switch to recall saved settings. Simulate pH probes from 0 to 14 pH ($\pm 414.12mV$).



PIECAL 235

All models (except PIECAL134) include batteries, rubber boot, tilt stand, carrying case, Certificate of Calibration and 3 year warranty. Made in U.S.A.

LOOP CALIBRATOR SPECIFICATIONS

mA Read	
Range:	0.00 to 52.00mA or -25.0 to 300.0% of 4-20mA
Accuracy:	$\pm 0.01mA$ below 24.01mA; $\pm 0.03mA$ above 24.01mA
Burden:	$< 2V$ at 50mA
Voltage Read	
Range:	-99.99 to 99.99VDC
Accuracy:	$\pm 0.05%$ of full span
Input Resistance:	$\geq 2M\Omega$
Source/Measure 2-Wire Transmitter	
Ranges:	0.00 to 24.00mA or -25.0 to 125.0% of 4-20mA
Accuracy:	$\pm 0.012mA$ (0-24mA)
EZ-Check Accuracy:	$\pm 0.005mA$ at 4mA & 20mA
Loop Compliance:	$\geq 24V$ at 20mA
Loop Drive:	1200 Ω at 20mA
Transmitter Simulation	
Accuracy:	Same as Source/Measure mode
Burden:	$< 2V$ at 20mA
Current Limit:	24mA nominal overload protection
Loop Voltage Limit:	2-100VDC (fuse-less protection from polarity reversal)
Overvoltage Protection:	135Vrms for 30 seconds; 240Vrms for 15 seconds
Display:	Backlit LCD with 0.315" digits
Operating Temperature:	-20 to 60 $^{\circ}C$ ($< 90\%$ RH up to 35 $^{\circ}C$)
Battery / Life (nominal):	4 AA alkaline / 125 hrs reading, 15 hours sourcing 20mA
Dimensions:	5.63" x 3.0" x 1.6" (143x76x41mm)
AC adapter & NiMH batteries/charger available.	

MILLIAMP CALIBRATOR SPECIFICATIONS

Ranges:	0.00 to 24.00mA or -25.0 to 125.0% of 4-20mA
Accuracy:	$\pm 0.05%$ of reading $\pm 0.01mA$
Burden @ 20mA:	$< 1V$ when reading mA; $< 2V$ for transmitter simulation
Loop Compliance:	Hi Power: $\geq 24V@20mA$, Lo Power: $\geq 15V@20mA$
Loop Drive:	Hi Power: 1200 Ω @20mA (950W with Hart resistor enabled) Lo Power: 600 Ω @20mA (350W with Hart resistor enabled)
Overvoltage Protection:	135Vrms for 30 seconds
Display:	Graphic LCD with 0.45" digits and 100 segment bar
Operating Temperature:	-20 to 60 $^{\circ}C$ ($< 90\%$ RH up to 35 $^{\circ}C$)
Battery Life (nominal):	220 hrs reading mA, 8 hours sourcing 20mA at hi power
Dimensions:	4.75" x 2.6" x 1.5" (120x66x38mm)
Carry case & NiMH batteries/charger available.	

VOLTAGE CALIBRATOR SPECIFICATIONS

Range/Accuracy:	-500.00 to 999.00mV / $\pm 0.02%$ of reading $\pm 0.01%$ of FS (source & read) 1.000 to 5.000V / $\pm 0.02%$ of reading $\pm 0.002V$ 0.000 to 20.000V / $\pm 0.02%$ of reading $\pm 0.01%$ of FS -25.0 to 125.0% of 1-5V / $\pm 0.1%$ Read only: 0.00 to 60.00V / $\pm 0.02%$ of reading $\pm 0.02V$
Impedance:	Input: $> 1M\Omega$; Output: $< 0.3\Omega$ at 20mA load
Source/Sink:	$\geq 20mA$ / $> 16mA$
Protection:	Overvoltage to 60Vrms for 30 seconds (audible & flashing alarm)
Display:	Backlit LCD with 0.35" digits (0.2" digits for mA display)
Operating Temperature:	-20 to 60 $^{\circ}C$ ($< 90\%$ RH up to 35 $^{\circ}C$)
Battery Life (nominal):	> 50 hours from 4 AA alkaline batteries
Dimensions:	5.63" x 3.0" x 1.6" (143x76x41mm)
NiMH batteries/charger available.	

ORDERING INFORMATION

PIECAL334	Milliamp Loop Calibrator
PIECAL334plus	Automated Milliamp Loop Calibrator
PIECAL134	PocketMate Milliamp Calibrator (no boot or carrying case)
PIECAL235	Process Voltage Calibrator