

PIE Multifunction Calibrators

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



PIECAL 820

Multifunction Calibrator

- 6 Functions: Milliamps, Volts, Frequency, Thermocouples, RTDs, Ohms
- Calibrate Directly in °C/°F
- Power Transmitters & Loops
- Check Loop & Wiring Continuity
- Calibrate Flow Meters & Speed Sensors
- Simulate 2-Wire Transmitters
- 3 Saved Settings + MIN/MAX Recall
- Automatic Step & Ramp
- Easy Dial Operation & Backlit LCD



PIECAL 830

High Accuracy Calibrator

- 8 Functions
- 0.02% Basic Accuracy
- Diagnose Ground Faults & Current Leakage
- Simulate pH Probes
- Check Pressure with Optional Modules

Two Channel Calibrator

- 8 Functions + 5 Troubleshooting Tools
- Diagnose Ground Faults & Current Leakage
- Simultaneously Display Loop Current, Voltage & Resistance
- Isolated Transmitter for Millivolts, Temperature, Frequency, or Pressure
- 3 Saved Settings plus Step & Ramp

The rugged **PIECAL 820** combines the functions of RTD, thermocouple, process voltage & loop calibrators in one handheld instrument. It will also source and measure resistance to 4kohms and frequency to 20kHz. Continuity check and DC voltage measurements aid system troubleshooting. The intuitive EZ-DIAL Double Click Menu makes it simple to setup. Icons on the display indicate where to plug in the test leads. Store any three output settings for instant recall with the EZ Check switch. Choose between 2, 3, 5 & 11 steps to automatically increment the output in 100%, 50%, 25% or 10% of span. Select RAMP to smoothly increase and decrease the output between Zero and Span. Set a step/ramp time of 5-60sec to match the system response. HART™ resistor included.

The **PIECAL 820Elite** adds pH sourcing and pressure calibration to the PIECAL 820 capabilities. It features an extra decade of resolution on mA, Volts & ohms, plus tighter accuracies on all functions. Loop problems are easier to troubleshoot with patented diagnostics for ground fault and current leakage detection.

The deluxe **PIECAL 830** expands the capabilities of the 820Elite by adding sophisticated troubleshooting tools. It displays the condition of a live loop by showing current, voltage & resistance on one screen. The isolated universal transmitter channel can substitute for a faulty transmitter to verify loop operation. The 830 will simultaneously simulate the temperature, frequency, pH or pressure input to a transmitter while outputting 24V DC to power the transmitter & displaying the 2 Wire Transmitter output.

MULTIFUNCTION CALIBRATOR SPECIFICATIONS

FUNCTION	RANGE	ACCURACY 820	820Elite & 830
mA Source/Read	0.00 to 24.00mA, -25.0 to 125.0% of 4-20mA *	±0.03% of FS	±0.02% of rdg ± 0.003mA
V Source DC	-10.00 to 80.00mV, 0.00 to 10.25V	±0.03% of FS	----
V Read	0.00 to 80.00mV, 0.00 to 10.25V, 0.0 to 60.0V	±0.03% of FS	----
V Source DC	-20.000 to 99.99mV, -500.00 to 999.99mV, 0.000 to 10.250V	----	±0.02% of rdg ± 0.01% of FS
V Read	±99.999mV, ±999.99mV, 0.000 to 10.250V, 0.00 to 60.00V	----	±0.02% of rdg ± 0.01% of FS
TC Source/Read	J, K, T, E, R, S, B, N, G, C, D, P, L, U (14 types)	Type J ±0.5°C	Type J ±0.2°C
Cold Junction		±0.1°C	±0.05°C
RTD Source/Read	Pt100, Pt1000, Cu10, Cu50, Ni120, Ni110 (9 types)	Pt100/385 ±0.5°C	Pt100/385 ±0.3°C
Ohms Source/Read	0.0 to 401.0Ω, 0 to 4010Ω *	±0.03% of FS ±0.075Ω	±0.025% of FS ±0.075Ω
Frequency Source/Read	1-2000 CPM, 0.01-999.99Hz, 0.1-9999.9Hz, 0.001-20.000kHz	±0.03% of FS	±0.02% of rdg ± 0.01% of FS
pH Source	0.000 to 14.000 pH (-414.12 to 414.12V)	----	±0.003 pH

* Extra digit of resolution provided on 820Elite and 830 (24.000mA, 125.00%, 401.00Ω, 4010.0Ω)

mA Current Limit:	25mA nominal current limit protection
ma Compliance:	≥24VDC @20mA (max 2V burden at 24mA)
Loop Drive:	1200Ω @20mA (950Ω with Hart resistor or leak detect)
V Source Current:	≥20mA source / >16mA sink
Frequency Source:	Square wave, zero crossing, -1 to 5V p-p, >1mA rms @20kHz Optical coupling Green LED flashes at output frequency
Frequency Read:	Trigger Level 1V rms, DC coupled

Impedance:	Input Read >10MΩ, Output Source <1Ω
Open Thermocouple:	10kΩ threshold, pulse <5μA for 300msec
Isolation (830 only):	60Vrms from mA/Vread to Vsource/TC/RTD/Ω/freq/pressure
Overvoltage Protection:	60VDC for 30 seconds
Operating Temperature:	-20 to 60°C (<90% RH up to 35°C)
Battery / Life (nominal):	4 AA alkaline / 20 hrs (NiMH batteries & charger available)
Dimensions:	5.63" x 3.0" x 1.6" (143x76x41mm)

Model 820	Standard Accuracy	Single Channel	mA, V, TC, Ohms RTD, Hz
-----------	-------------------	----------------	-------------------------

Model 820-ELITE	High Accuracy	Single Channel	mA, V, TC, Ohms RTD, Hz	Loop & RTD Diagnostics	Read Pressure	Source pH
-----------------	---------------	----------------	-------------------------	------------------------	---------------	-----------

Model 830	High Accuracy	Isolated Dual Channel	mA, V, TC, Ohms RTD, Hz	Advanced Diagnostics	Read Pressure	Source pH	Power Xmtr while sourcing	Transmitter Replacement	Monitor Loop mA, V & Ohms
-----------	---------------	-----------------------	-------------------------	----------------------	---------------	-----------	---------------------------	-------------------------	---------------------------

ORDERING INFORMATION

Includes batteries, rubber boot, tilt stand, carrying case, test leads, Certificate of Calibration, 3 year warranty. Made in U.S.A.

PIECAL820	Multifunction Process Calibrator
PIECAL820Elite	High Accuracy Multifunction Process Calibrator
PIECAL830	Two Channel Multifunction Process Calibrator