

## Features

### 4 to 20 mA Loop Functions

Source and Read 0.000-24.000 mA

Simulate 2-Wire Transmitters

Power 2-Wire Transmitters and Read 0.000-24.000 mA

Display current in mA or -25.00-125.00 % of 4-20 mA

### Read & Source Voltage Function

Read 0.00 to  $\pm 30.00$  VDC with 4X over range ability

Source 0.000 to 24.000 VDC with up to 20 mA output

Direct Calibration 1.000V to 5.000V

### Full 5 Digit Display

True  $\pm 0.012\%$  of reading accuracy

Bar graph for quick reference of input and output levels

High contrast graphic display viewable in all lighting conditions and angles

### Loop Diagnostic

Displays loop current, voltage, resistance, AC voltage and mode of operation simultaneously eliminating multiple DMM connections.

Make DYNAMIC loop readings under actual operating conditions

DC mA	DC V	DC $\Omega$
00.37	24.0	01423
leakage = 00.16mA		
AC V = 00.0		

POWER MEASURE DIAG

Included in the loop diagnostic features is its ability to measure ground current leakage from faulty wiring, flooded conduit, and corrosion bridges. This leakage subtracts from the signal current sensed by the receiving system (ie: DCS), causing a measurement error.

### EZ-Dial™ Knob

Change the speed of dialing your test point by just pushing down on the knob

Easily adjust output by 0.001 mA (0.01 %) or 0.100 mA (1.00 %)

### EZ-Check™ Switch with EZ-Step™ Button

3 position tactile switch with push button for true one handed calibrations

Push button for stepping through calibration points

16 different step sizes

### Hands-free auto step and auto ramp modes

Selectable soak and step time for working with valves

### Uses a standard 9V Alkaline Battery

Superior battery life of 40 hours under typical continuous usage

Easy access to battery compartment

### 240 VAC Tolerant

Fuse-less protection from accidental misuse

### Lightweight and rugged with a solid feel

Convenient Velcro® hand strap allows for a firm confident grip or attachment to pipes and ladders.

### HART® protocol compatibility mode

Power on selectable 250 $\Omega$  resistor in series with the output for compatibility with HART® protocol enabled devices.



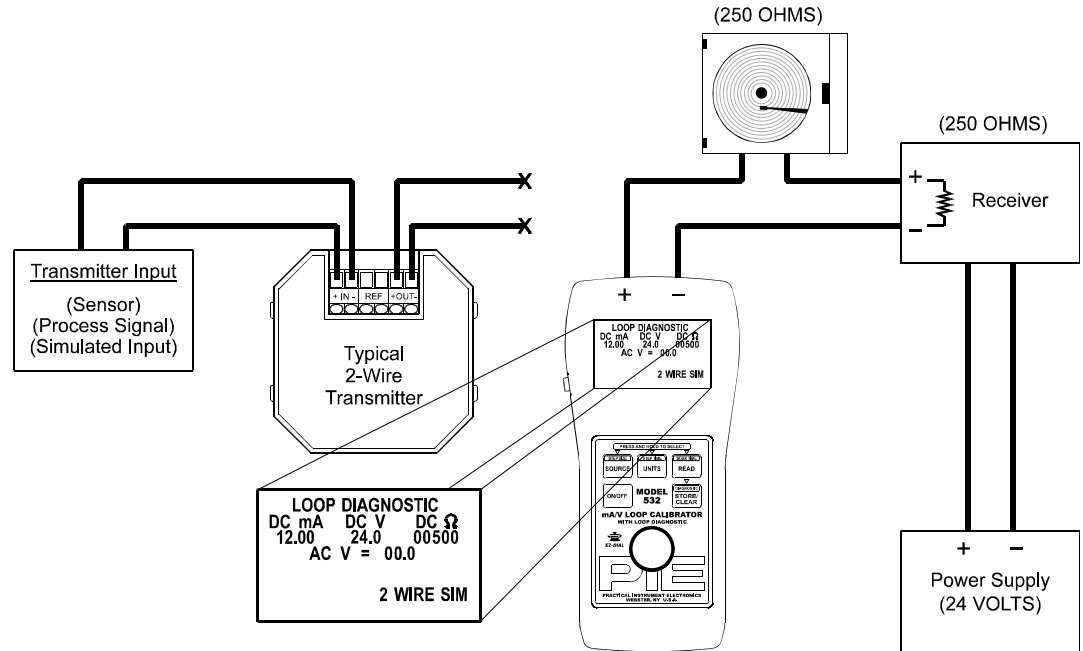
**CE APPROVED!**

## Description

The Practical Instrument Electronics' Model 532 is the best tool for calibration, test, and diagnosing process loops. The Model 532 brings all the features you would expect from a loop calibrator and timesaving new ones. Make adjustments with the EZ-Dial™ Knob or test limits with the dual action EZ-Check™ Switch. Powerful ramping functions are only a button away on the Model 532. Save potentially hours of troubleshooting time on problem loops with the 532's unique Loop Diagnostic Mode. In Loop Diagnostic Mode, the loop current, voltage, resistances, AC voltage, and mode of operation are all displayed simultaneously; without the need of multiple DMM connections. Loop diagnostic is available in every mode of operation and truly is a diagnostic monitor, as parameters are continuously updated in real time. The smart diagnostic tool even indicates the most likely cause of loop failure!

## Loop Diagnostic Mode

The Model 532 can detect loop current, voltage, resistance, AC voltage and HART® protocol if present in the loop. You are able to connect the 532 to either side of the loop and in every operation mode diagnose what is happening in the loop without the need of a DMM. Just press the loop diagnostic button once connected and see if there is a problem with the loop.



## Specifications

### General Specifications:

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

Operating Temperature Range	-20 to 60 °C (-5 to 140 °F)
Storage Temperature Range	-30 to 60 °C (-22 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	7.00 X 3.30 X 2.21 inches (177.8 x 83.8 x 56.1mm)
Weight	12.0 oz (340 grams)
Battery	9V Alkaline Optional 120 VAC 50/60 Hz AC adaptor available
Miscellaneous	Low battery indication with nominal 1 hour of operation left Over-voltage protection to 120 Vrms (rated for 30 seconds) or 240 Vrms (rated for 15 seconds) Bar graph display with 1% resolution of 4-20 mA signal scale High contrast graphic liquid crystal display with 0.45" (11.4 mm) high digits

### Common Specifications for all Current Modes:

Ranges	0.000 to 24.000 mA, -25.00 to 125.00% of 4-20 mA
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# Model 532 Datasheet

Accuracy	$\leq \pm (0.012 \% \text{ of reading} + 0.002 \text{ mA})$
Temperature Effect	$\leq \pm 50 \text{ ppm}/^\circ\text{C}$ of range
Resolution(s)	0.001 mA and 0.01 %

### Source/Power and Measure 2-Wire Transmitter Specifications:

Loop Compliance Voltage	$\geq 24 \text{ Volts}$
Loop Drive Capability	1200 $\Omega$ at 20 mA for entire battery life, 950 $\Omega$ w/HART <sup>®</sup> mode enabled
Miscellaneous	<p>Open loop or out of compliance conditions are indicated by appropriate error display</p> <p>Battery life in:</p> <p>Source mode <math>\geq 18 \text{ hrs}</math> at 12mA typical (HART<sup>®</sup> disabled)</p> <p>Power measure <math>\geq 10 \text{ hrs}</math> at 12mA typical</p> <p>HART<sup>®</sup> protocol mode is a selectable option at turn on. HART<sup>®</sup> protocol mode places a 250<math>\Omega</math> resistor in series with the output</p> <p>Selectable EZ-Step(s) for Source Mode/2-Wire Transmitter Simulation:</p> <p>2 to 16 selectable step settings</p> <p><b>Step size is determined by the selected high &amp; low ranges</b></p> <p>Selectable time settings for stepping and soak:</p> <p>STEP: 5 to 900 seconds SOAK: 0 to 900 seconds</p>

### Read mA Specifications:

Voltage Burden	$\leq 2\text{V}$ at 20 mA
Overload/Current Limit Protection	nominal $\leq 24 \text{ mA}$
Battery Life	typical $\geq 40 \text{ Hours}$

### 2-Wire Transmitter Simulation Specifications:

Voltage Burden	$\leq 2 \text{ V}$ at 20 mA
Overload/Current Limit Protection	nominal $\leq 24 \text{ mA}$
Loop Voltage Limits	2-60 VDC
Miscellaneous	<p>Open loop or out of compliance conditions are indicated by appropriate error display</p> <p>Battery life <math>\geq 40 \text{ hour}</math> typical</p> <p>Selectable EZ-Step(s) for Source Mode/2-Wire Transmitter Simulation:</p> <p>2 to 16 selectable step settings</p> <p><b>Step size is determined by the selected high &amp; low ranges</b></p> <p>Selectable time settings for stepping and soak:</p> <p>STEP: 5 to 900 seconds SOAK: 0 to 900 seconds</p>

### Voltage Specifications (Read Range):

Read Range:	0.000 to 24.000 VDC then 24.01 to 30.00 (with 4X over range) Auto Ranging
Resolutions	0.001 V up to 24 V, 0.01 V up to 30.00 V
Temperature Effect	$\leq \pm 100 \text{ ppm}/^\circ\text{C}$ of range
Input Resistance	$\geq 1 \text{ M}\Omega$
Accuracy	<p>0.000 to 24.000 VDC <math>\leq \pm (0.012\% \text{RDG} + 0.004 \text{ V})</math></p> <p>24.01 to 30.00 VDC <math>\leq \pm (0.025 \% \text{ of reading} \pm 0.04 \text{ V})</math></p>

### Voltage Specifications (Source Range):

Source Range:	0.000 to 24.000 VDC
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# Model 532 Datasheet

Output Resistance	$\leq 0.3 \Omega$
Source Current	$\geq 20.000 \text{ mA}$ with Flashing indicator for over range
Accuracy	$\leq \pm(0.012\%RDG + 0.004 \text{ V}) \pm 50\text{ppm}/^\circ\text{C}$ of range
Battery life	> 40 hour typical

### Calibration Certificate:

	NIST Traceable Certificate provided
Option:	Test data available upon request at additional charge.

### Available Options:

Option:	Part Number:
AC adaptor	020-0100 – 60 HZ US 020-0101 – 50 HZ European
Carrying Case	020-0200

### Other Products Available:

RTD Source (Single Type/1° resolution)	Model 510
RTD Source (7 Types, $\Omega/0.1^\circ$ resolution)	Model 511
Pt100: $\alpha=1.3850, 1.3902, 1.3916, 1.3926$	
Cu10: $\alpha=1.427$	
Ni110: $\alpha=1.530$	
Ni120: $\alpha=1.672$	
RTD Calibrator (Source/Read 7 Types, $\Omega /0.1^\circ$ resolution)	Model 512
T/C Source (Single Type/1° resolution)	Model 520
T/C Source (8 Types, mV/0.1° resolution)	Model 521
B, E, J, K, N, R, S, T, mV	
T/C Calibrator (Source/Read 8 Types, mV/0.1° resolution)	Model 522
B, E, J, K, N, R, S, T, mV	
4-20 Milliamp Loop Calibrator	Model 530
4-20/10-50 Dual Range Loop Calibrator	Model 535

## Warranty

*Our equipment is guaranteed against defective material and workmanship (excluding batteries) for a period of three years from the date of shipment. Claims under guarantee 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 guarantee. 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.*

## Your Local PIE Representative