



Model 532 4-20 Milliamp/Voltage Loop Calibrator with Loop Diagnostic

Features

True $\pm 0.012\%$ of reading accuracy

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 ± 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
Bar graph for quick reference of input and output levels

High contrast graphic display viewable in all lighting conditions and angles

Loop Diagnostic – PATENT PENDING FEATURE

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

LOOP POWER MEASURE DIAG	
CURRENT	= 20.00 mA
VOLTAGE	= 24.2 V
RESISTANCE	= 01210 Ω
GND FAULT ERROR	= 00.16 mA
AC V	= 0.0 V
HART® COMM DETECTED	

Make DYNAMIC loop readings under actual operating conditions

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 Ω resistor in series with the output for compatibility with HART® protocol enabled devices.





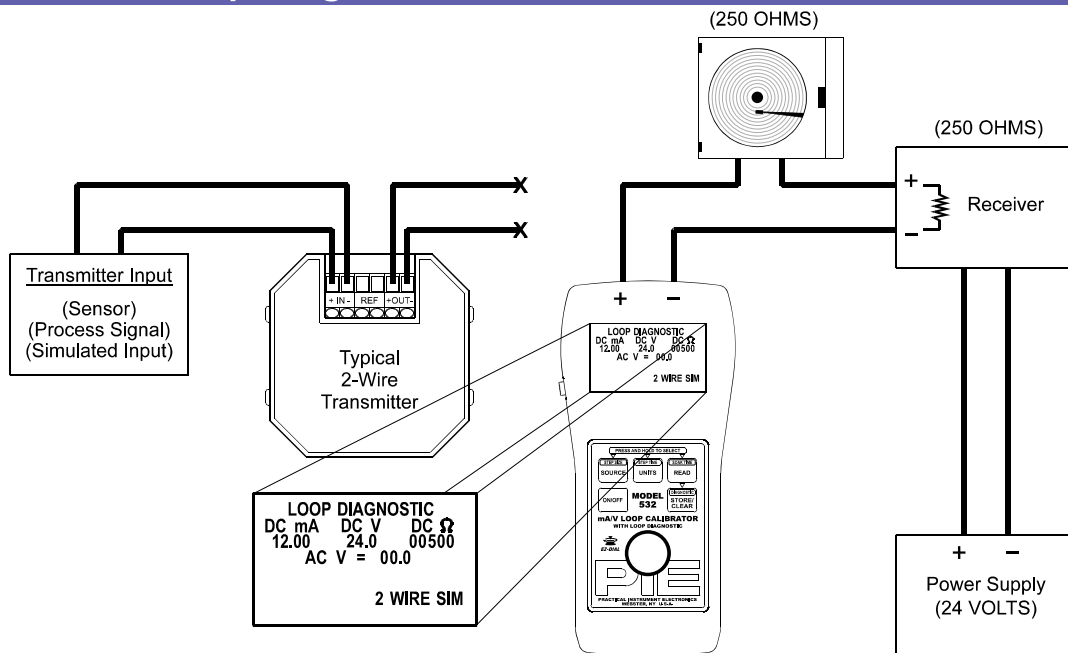
Model 532 Datasheet

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
Miscellaneous	Optional 120 VAC 50/60 Hz AC adaptor available 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



Model 532 Datasheet

Common Specifications for all Current Modes:

Ranges	0.000 to 24.000 mA, -25.00 to 125.00% of 4-20 mA
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	≥ 24 Volts
Loop Drive Capability	1200 Ω at 20 mA for entire battery life, 950 Ω w/HART® mode enabled
Miscellaneous	Open loop or out of compliance conditions are indicated by appropriate error display Battery life in: Source mode ≥ 18 hrs at 12mA typical (HART® disabled) Power measure ≥ 10 hrs at 12mA typical HART® protocol mode is a selectable option at turn on. HART® protocol mode places a 250 Ω resistor in series with the output Selectable EZ-Step(s) for Source Mode/2-Wire Transmitter Simulation: 2 to 16 selectable step settings <i>Step size is determined by the selected high & low ranges</i> Selectable time settings for stepping and soak: STEP: 5 to 900 seconds SOAK: 0 to 900 seconds

Read mA Specifications:

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

2-Wire Transmitter Simulation Specifications:

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

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	0.000 to 24.000 VDC $\leq \pm (0.012\% \text{RDG} + 0.004 \text{ V})$ 24.01 to 30.00 VDC $\leq \pm (0.025 \% \text{ of reading} \pm 0.04 \text{ V})$



Model 532 Datasheet

Voltage Specifications (Source Range):

Source Range:	0.000 to 24.000 VDC
Output Resistance	≤0.3 Ω
Source Current	≥20.000 mA with Flashing indicator for over range
Accuracy	≤±(0.012%RDG + 0.004 V) ±50ppm/°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	020-0204

Other Products Available:

RTD Source (Single Type/1° resolution)	Model 510
RTD Source (7 Types, Ω/0.1° resolution) Pt100: α=1.3850, 1.3902, 1.3916, 1.3926 Cu10: α=1.427, Ni110: α=1.530, Ni120: α=1.672	Model 511
RTD Calibrator (Source/Read 7 Types, Ω /0.1° resolution)	Model 512
RTD Calibrator (Source/Read 7 Types, Ω /0.1° resolution) With Auto Stepping	Model 512S
T/C Source (Single Type/1° resolution)	Model 520
T/C Source (8 Types, mV/0.1° resolution) B, E, J, K, N, R, S, T, mV	Model 521
T/C Calibrator (Source/Read 8 Types, mV/0.1° resolution) B, E, J, K, N, R, S, T, mV	Model 522
Dual RTD – T/C Read & Source Calibrator With Auto Stepping	Model 525
4-20 Milliamp Loop Calibrator	Model 530
4-20 Pocket-Mate Milliamp Calibrator	Model 531
4-20/10-50 Dual Range/Voltage Loop Calibrator	Model 535
Frequency Read & Source with Totalizer	Model 541

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.