

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 Voltage Function**

Read 0.00 to ± 60.00 VDC with 2X over range ability

- **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

- **EZ-Dial 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

6 different step sizes

Hands-free auto step and auto ramp modes

- **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**

User selectable 250 Ω resistor in series with the output for compatibility with HART® protocol enabled devices.

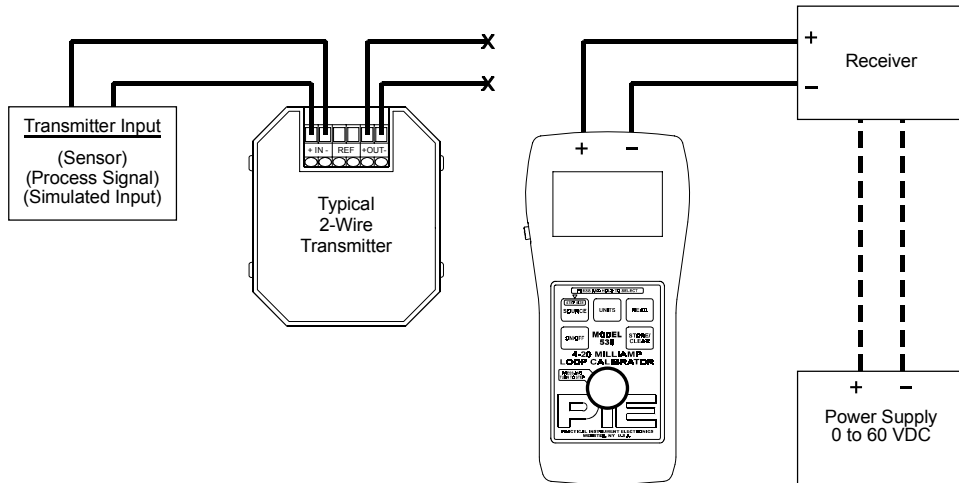


Description

The Practical Instrument Electronics Model 530 is the result of 30+ years of experience manufacturing and designing calibrators for the process control industry. Almost all of the Fortune 500 manufacturers use calibrators designed by our engineers. The Model 530 calibrator incorporates all of this knowledge and experience and combines it into one superior product. It has simple, easy to use controls featuring a large high contrast display with easy visibility without the need for contrast adjustments. The Model 530 is designed to be a tool with all the practical functions required to get the job done easily without the confusing extras or reading through a complicated manual.

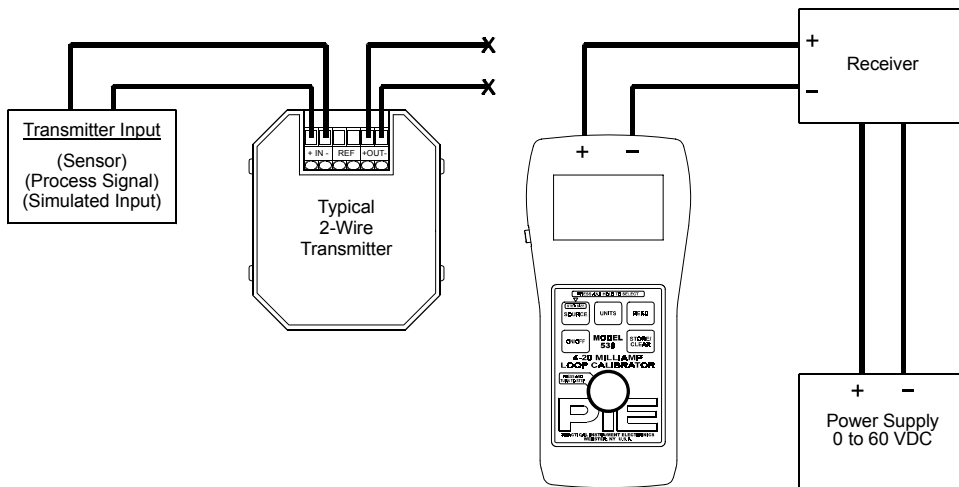
The Model 530 can source and read current in the process loop and simulate, power and measure 2-wire transmitters. It can read voltage to 60.00 VDC with over 2X over range ability.

Source Mode



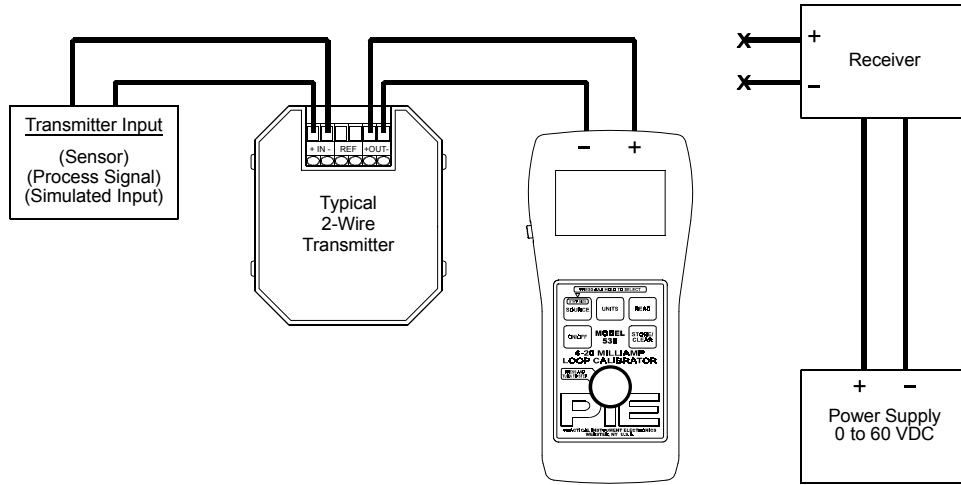
Source mode uses internal power to supply current from 0.000-24.000 mA into as much as 1200 Ω (with HART resistor disabled) until the end of useful battery life. The calibrator will indicate "HIGH Ω " if connected improperly. The three-position EZ-Check switch provides instant zero and span calibration outputs. EZ-Checks from 0-24 mA can be stored in the zero and span switch positions. The output is adjusted in 0.001 or 0.100 mA increments (0.01 or 1.00 % in percent display units) with the EZ-Dial knob. Step the output by pressing the EZ-Step button. Six different user-selected step sizes are available. Hold the EZ-Step button to activate hands-free auto step/ramp function.

2-Wire Transmitter Simulation Mode



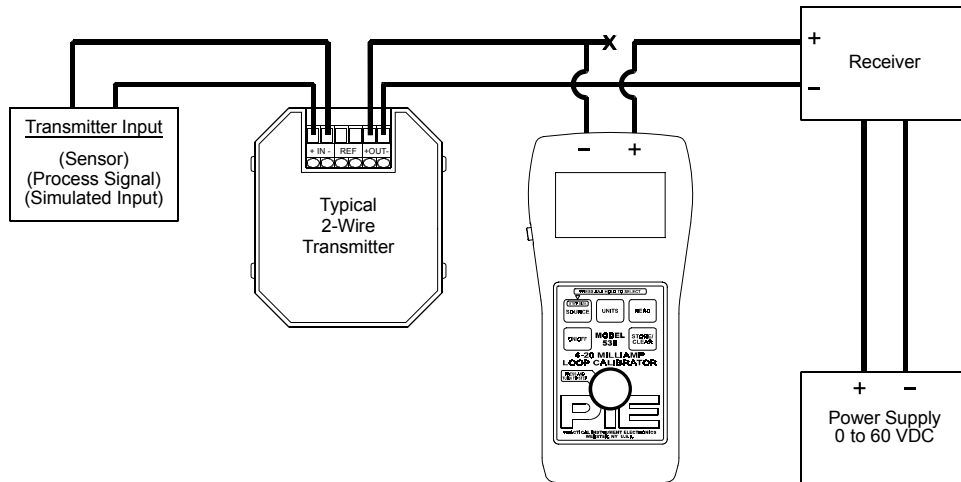
The Model 530 can simulate a 2-wire transmitter in the 4-20 mA process loop. The calibrator will indicate "LOW SUPPLY" if improperly connected. The EZ-Check switch and EZ-Dial knob allow rapid and fine control of loop current. The EZ-Step button and hands-free auto step/ramp function allow a complete check of calibration points.

Power and Measure Transmitter Mode



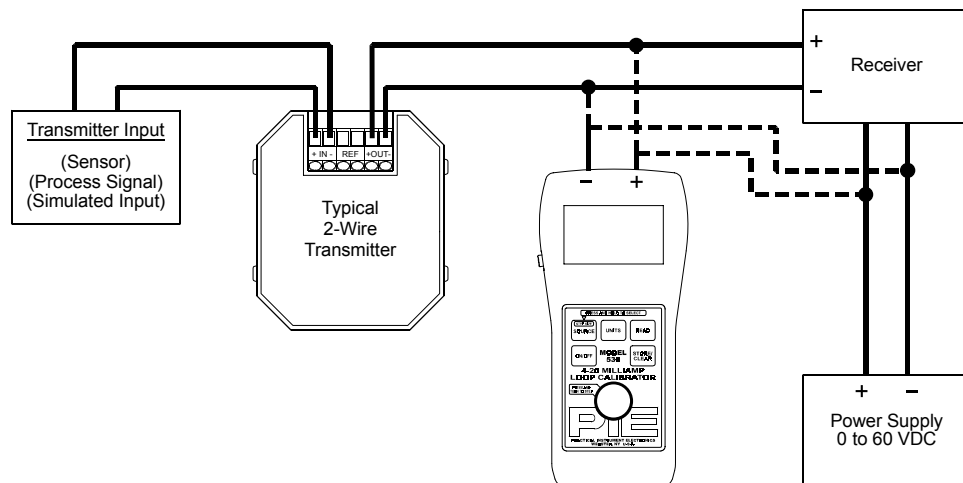
The Model 530 supplies 24 Volts to the transmitter and displays the output in mA or % on the Model 530 display. If the Model 530's HART[®] protocol mode is selected, an internal 250 Ω load resistor is connected in series with the output as specified for proper communication by HART devices. This eliminates the requirement of connecting a separate 250 Ω load resistor in the field as indicated in field hookup diagrams of HART[®] enabled devices.

Read Mode



The Model 530 can read loop currents from 0-24 mA. The Model 530 limits current in read mode to less than 24 mA to protect the devices in the loop from over voltage or over current conditions.

Measure DC Volts Mode



The Measure DC Volts Mode reads voltage from 0.00 to ± 60.00 VDC. This mode can be used to check loop power, measure voltage drop across 250 Ω load loop resistors, 1 to 5V signals, I/V converters and battery voltages.

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 % \leq RH \leq 90 % (0 to 35 °C), Non-condensing 10 % \leq RH \leq 70 % (35 to 60 °C), Non-condensing
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

Common Specifications for all current modes

Ranges	0.000 to 24.000 mA, -25.00 to 125.00% of 4-20 mA
Accuracy	$\leq \pm (0.012 \% \text{ of Reading} + 0.004 \text{ mA})$
Temperature effect	$\leq \pm 50 \text{ ppm}/^\circ\text{C}$ of Range
Resolution(s)	0.001 mA and 0.01 %



Model 530 Datasheet

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
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 250Ω resistor in series with the output Selectable EZ-Step(s) for Source Mode/2-Wire Transmitter Simulation: In mA mode: 0.001, 0.010, 0.100, 1.000, 4.000(default), 8.000 mA % of 4-20 mA mode: 0.01, 0.10, 1.00, 10.00, 25.00(default), 50.00 %

Read mA Specifications:

Voltage burden	≤ 2V at 20 mA
Overload/Current limit protection	nominal ≤ 24 mA
Battery life	Typical ≥ 40 Hours

2-Wire Transmitter Simulation Specifications:

Voltage burden	≤ 2V 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: In mA mode: 0.001, 0.010, 0.100, 1.000, 4.000(default), 8.000 mA % of 4-20 mA mode: 0.01, 0.10, 1.00, 10.00, 25.00(default), 50.00 %

Voltage Read Specifications:

Range	0.00 to 60.00 VDC (with 2X over range)
Accuracy	≤ ± (0.1 % of Reading ± 0.1 V)
Temperature effect	≤ ± 200 ppm/°C of Reading
Resolution	0.01 V
Input resistance	≥ 1 MΩ Battery life > 40 hour typical Flashing indicator for over range

Available Options:

Option:	Part Number:
AC adaptor	020-0100
Carrying Case	020-0200
10-50 Milliamp Loop Calibrator	Model 535



Model 530 Datasheet

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.