

LP400 LOOP POWERED DISPLAY



DESCRIPTION

The LP400 Loop-Powered Display provides digital indication of a 4/20 mA or 10/50 mA process loop signal. The display takes its operating power from the loop current and requires no other source of power.

Wide-ranging zero and span adjustments plus switch selectable decimal point location and trailing zero allow the display to be calibrated in engineering units. A front-panel Engineering Units/Loop Current switch permits a quick check of the process signal without recalibration.

Designed for field mounting, the LP400 splashproof and corrosion-resistant and operates from -13 to 185°F (-25 to 85°C). The circuit board is conformally-coated for protection from humidity and contamination.

A companion product, Model LP410, provides a similar loop-powered display in a standard 1/8 DIN panel-mount enclosure.

OPTIONS

R Reverse-Acting Display. The engineering-units display goes downscale as the input current is increased.

CONTROLS

25-turn ZERO and SPAN trimpots, along with ten DIP switches, provide Engineering Units range calibration and decimal/trailing zero selection. These controls are accessible from the front of the instrument: simply remove the "Calibration Controls" panel.

The front-panel DISPLAY switch allows the selection of either Engineering Units or Loop Current. In the Loop Current position the display range will be either 400 to 1999 (4.00 to 19.99 2 mA) or 100 to 500 (10.0 to 50.0 mA). The DISPLAY switch does not affect either the decimal point location or the trailing zero.

CALIBRATION

Engineering Units Range

To calibrate or change the Engineering Units range, set the ten DIP switches per TABLES 1, 2 and 3. Ignore the decimal point or trailing zero when determining the zero and span settings.

For zero settings between:	Switch Settings
+501 and +1999 counts	S5 ON
-500 and + 500 counts	S5 & S6 ON
-1999 and - 501 counts	S6 ON

Table 1: Zero Settings (4 mA or 10 mA input)

For spans between	Switch Settings
0 and 1000 counts	S3 and S4 ON
1001 and 2000 counts	(none)
2001 and 3000 counts	S2 and S3 ON
3001 and 3998 counts	S1 and S3 ON

Table 2: Span settings (full scale minus zero)

For	Switch Settings
Dec Pt 1 (1.000)	S7 ON
Dec Pt 2 (10.00)	S8 ON
Dec Pt 3 (100.0)	S9 ON
Trailing Zero (10000)	S10 ON
No decimal, no trailing zero	(none)

Table 3: Decimal points and trailing zero

Connect a calibration current source to the LP400's input terminals. If a precision calibrator is not available, the LP400 may be used to measure the input by switching temporarily to the "Loop Current" display range.

Set the input to the low end of its range (4.00 or 10.00 mA). With the DISPLAY switch in the "Engineering Units" position, adjust the "Z" (zero) trimpot for the desired low-end display reading.

Increase the input to full scale (20.00 or 50.00 mA) and adjust the "S" (span) trimpot for the desired full-scale reading.

Repeat until both readings are correct.

Loop Current Range

The Loop Current range is factory-calibrated. If there is a need to recalibrate, proceed as follows:

Connect a precision DC current source to the LP400's input.

Set the input to the low end of its range (4.00 or 10.00 mA). With the DISPLAY switch in the "Loop Current" position, adjust trimpot R19 on the circuit board for a low-end display of 400 (4.00 mA) or 100 (10.0 mA). (The decimal point or trailing zero will remain in its "Engineering Units" setting.)

Increase the input to either 19.00 or 50.00 mA and adjust trimpot R9 for a full-scale reading of 1900 (19.00 mA) or 500 (50.0 mA).

Repeat until both readings are correct.

INSTALLATION AND MOUNTING

The LP400 may be mounted on a wall or panel or on the end of a 3/4 inch NPT conduit or pipe stub.

For wall-mounting, use the four 0.24 inch diameter holes. Remove the cover and mount the base, using screws or fasteners appropriate to your installation.

The large, 1-3/32 inch diameter hole is sized to accept a standard 3/4 inch NPT conduit hub, such as Scru-Tite (Myers) type ST-2. Remove the cover to install the hub.

Electrical connections are screened on the PC board. Wire the LP400 in series with the current loop as illustrated in the Block Diagram and Terminal Connections. The two tie points may be useful as connection points as shown in the Typical Connection diagram.

WARRANTY

The LP400 Loop-Powered Series of products carry a limited warranty of 5 + 5 years. In the event of a failure due to defective material or workmanship, during the 5 year period, the unit will be repaired or replaced at no charge. For a period of 5 years after the initial 5 year warranty, the unit will be repaired, if possible, for a cost of 10 % of the original purchase price.

Relays are not covered by the warranty.

SPECIFICATIONS

INPUT RANGE

4/20 mA or 10/50 mA DC

INPUT VOLTAGE DROP

3.5 V max

(Equivalent to 175 ohms at 20 mA or 70 ohms at 50 mA)

DISPLAY

Digit Size

0.8" LCD, 3 1/2 digits, ± 1999

Switchable decimal points and trailing zero
 $\pm 1.9.9.9.0$

Control Range Zero

± 1999

Span (full scale minus zero)

min span 10

max span 3998

Update

3/sec

DISPLAY SWITCH

Allows quick check of loop current (400/1999 or 100/500). Decimal point remains in "engineering units" position.

CALIBRATION ACCURACY

$\pm(0.05\%$ of reading plus 1 digit)

OPERATING TEMPERATURE

-13°F to 185°F (-25°C to 85°C)

TEMPERATURE STABILITY

$\pm(0.01\%$ of span plus 0.01% of display zero offset) $^{\circ}\text{C}$

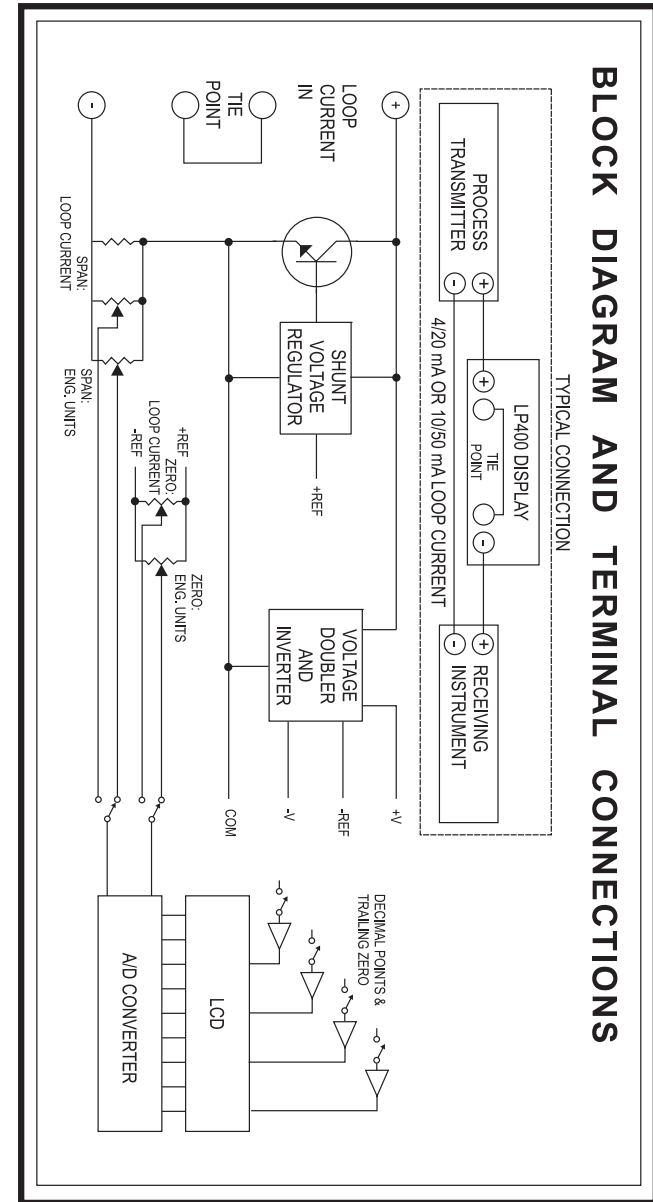
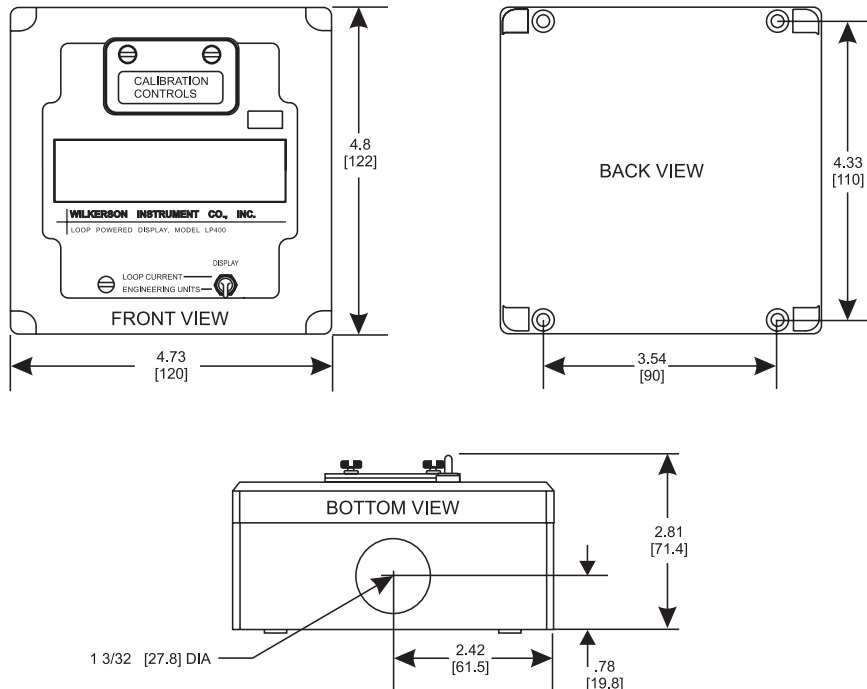
POWER

supplied by input current
no separate power required

HOUSING

splashproof and corrosion resistant

DIMENSIONS INCHES [mm]



Specifications are subject to change without notice. ©2007 Wilkerson Instrument Co., Inc.

DWG#W101312A 4/07



2915 Parkway Street
Lakeland, FL 33811-1391 · USA

800-234-1343

Tel: 863-647-2000 · Fax: 863-644-5318
www.wici.com · E-mail: sales@wici.com