

MODEL LPPI - LOOP POWERED PROCESS INDICATOR



- DUAL RANGE, 4 TO 20 mA or 10 TO 50 mA
- 3½-DIGIT, 0.35" (9 mm) LCD READOUT
- NEMA 4/IP65 SEALED METAL FRONT BEZEL
- NEGATIVE & OVERRANGE INDICATION
- SELECTABLE DECIMAL POINTS

DESCRIPTION

The Model LPPI, Loop Powered Process Indicator is designed to operate in 4 to 20 mA or 10 to 50 mA current loop signal circuits. When equipped with the proper sensor, the LPPI can be used to indicate temperature, pressure, humidity, flow, level and other process variables. The unit has a wide range of scaling and offsetting capabilities. The unit is calibrated, at the factory, for 4 to 20 mA operation with a 0.0 displayed when 4 mA is input and 100.0 displayed when 20 mA is input. The unit utilizes the 4 to 20 or 10 to 50 mA loop current to derive its operating power.

The rugged construction and sealed metal bezel meet the requirements of NEMA 4/IP65. This allows the LPPI to be used in dirty environments and in wash-down areas.

SPECIFICATIONS

1. **DISPLAY:** 3½-digit (-1999 to 1999), 0.35" (9 mm) high LCD display.
 Minus sign is displayed when indicator is adjusted for a negative offset.
Overrange: Overage is indicated by a one in the most significant digit and the blanking of the three least significant digits.
2. **DECIMAL POINTS:** Three, DIP switch selectable, decimal point positions allow the display to be read in tenths, hundredths or thousandths.
3. **VOLTAGE DROP:** 3 volts max
4. **EQUIVALENT RESISTANCE:**
 @ 20 mA (4 to 20 mA) 150 Ω max
 @ 4 mA (4 to 20 mA) 750 Ω max
EQUIVALENT RESISTANCE:
 @ 50 mA (10 to 50 mA) 60 Ω max
 @ 10 mA (10 to 50 mA) 300 Ω max
5. **MAXIMUM ALLOWABLE INPUT CURRENT:** 100 mA
6. **SCALING RANGE:**
Span: Two potentiometers provide a coarse and fine span adjustment. Span range = 0 to 2000
Offset: Two potentiometers provide a coarse and fine zero offset adjustment. Offset range = -1999 to 1999.
7. **LINEARITY:** ±(0.1% + 1 digit)
8. **READING RATE:** 2.5 per second, nominal
9. **RESPONSE TIME:** 1.5 seconds to settle for a step change
10. **NORMAL MODE REJECTION:** 60 dB 50/60 Hz
11. **TEMPERATURE EFFECTS:**
Operating Range: 0° to 60°C
Storage Temperature: -40° to 80°C
Span Temperature Coefficient: 100 PPM/°C
Offset Temperature Coefficient: 0.2 digits/°C

12. **CONSTRUCTION:** Die cast metal bezel with black, high impact plastic insert. Front panel meets NEMA 4/IP65 requirements for wash-down and dusty environments when properly installed. (Panel gasket and mounting clips included.)
13. **WEIGHT:** 5.4 oz (153 g).

SPAN (Adjustments)

Span is defined as the numerical range that the display traverses, disregarding decimal points, when the input signal is varied from minimum to maximum (4 to 20 mA or 10 to 50 mA).

For example, if a unit is to display 25.0 @ 4 mA and 100.0 @ 20 mA, the span is 750 (the difference between 250 and 1000). Had the minimum display been -25.0 the span would be 1250 [1000 - (-250) = 1250].

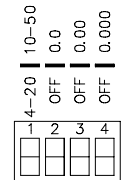
The LPPI can be set up to operate over a wide span range by adjusting the Coarse and Fine Span adjustment pots. The Coarse Span Pot is used to get the display to within a couple of counts of the desired reading, and the Fine Span Pot is used to hone in on the desired reading.

OFFSET (Adjustments)

With 4 to 20 mA and 10 to 50 mA signals, the minimum currents are not zero based. In order to obtain a zero minimum display reading, the display must be offset. The display on the LPPI can be offset by adjusting the Coarse and Fine Offset pots.

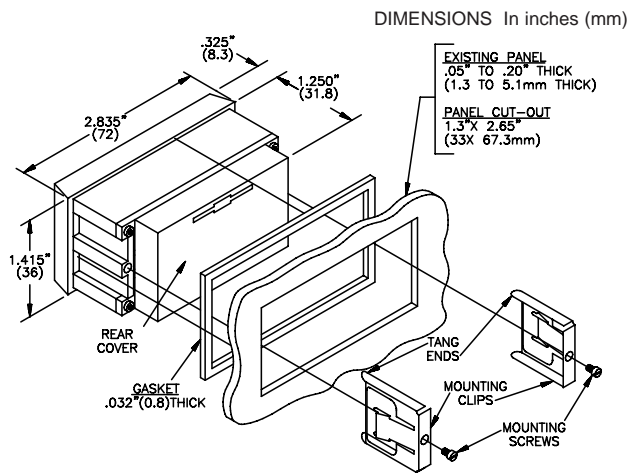
DIP SWITCH SET-UP

Four DIP switches are located behind the rear cover. These DIP switches select the current range and the desired decimal point position.



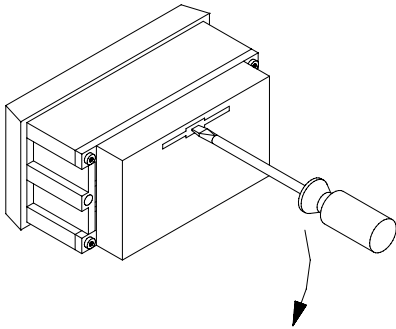
PANEL INSTALLATION

The Model LPPI is designed to be panel-mounted. A cut-out of the size given below should first be cut in the panel. After cutting the opening in the panel, slide the panel gasket over the rear of the Model LPPI up against the rear of the bezel. Slide the unit through the panel cut-out. Install mounting clips on each side of the unit body with the recesses in the side of the body so that the "tang ends" wedge between the panel opening and the body as the screws are tightened.



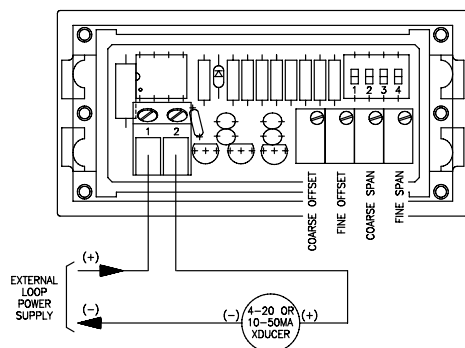
REAR COVER REMOVAL

The rear cover can be removed by placing a small screwdriver in the slot and applying a small amount of downward pressure. (See drawing below)



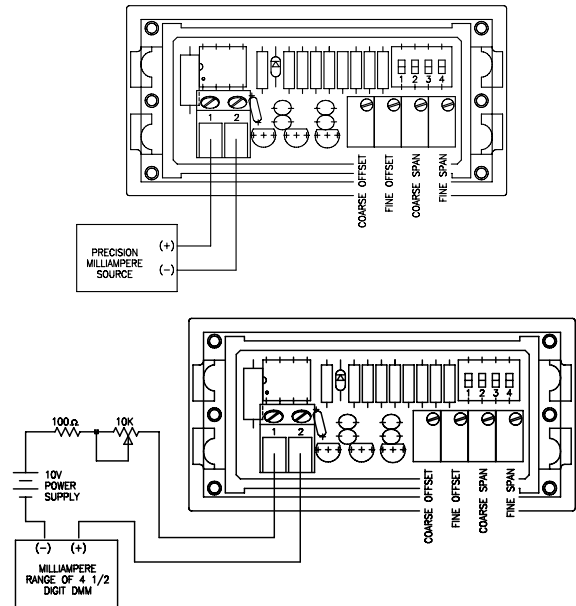
CONNECTION EXAMPLE

The diagram below shows how the LPPI is connected in the current loop with a two wire transmitter and power supply.



CALIBRATION

In order to calibrate the LPPI, some additional equipment will be required. Either a precision milliamper source or power supply, 4 1/2-digit DMM, 10 K pot and 100 Ω resistor can be used. Refer to the figures below for set-up.



When calibrating the LPPI, there will be interaction between the Scale and Offset pots. This interaction will require alternately checking the min and max readings while making the adjustments.

The following procedure should be followed.

Set DIP switch position 1 for the desired current range 4 to 20 mA or 10 to 50 mA.

1. At the minimum input current (4 or 10 mA), adjust the coarse offset pot so that the display is within a couple of counts of the desired minimum reading.
2. At the maximum input current (20 or 50 mA), adjust the coarse span pot so that the display reading is within a couple of counts of the desired "full scale" reading.
3. Repeat steps 1 and 2 using the coarse adjustment pots until both the "zero" and "full scale" reading are within a couple of counts of the desired readings. Then repeat steps 1 and 2 using the fine adjustment pots to narrow in on the correct display readings.

ORDERING INFORMATION

MODEL NO.	DESCRIPTION	PART NUMBER
LPPI	Loop Powered Process Indicator	LPPI0000