



IM-0526 Rev. E
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PT-1300 SERIES ROTARY POSITION TRANSMITTER

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I. General Description

The PT-1300 series are two-wire 4 to 20 mA dc rotary position transmitters. They modulate the current on the supply line from 4 to 20 mA proportional to the angular position of the input shaft. The PT-1330 spans between 20° to 300°

The sensor is powered by a customer supplied power supply rated between 12.5 and 36 V dc, 20 mA.

II. Specifications

Model	PT-1330
Range Limits	20 and 300 Deg.
Linearity	±1.0%
Max Operating Temp.	200 ° F

A. Enclosure Ratings

Explosion - Proof for Class 1, Division 1, Groups C, D
Dust-Ignition- Proof for Class 2, Division 1, Groups E, F, G
NEMA Type 4 - Indoor/Outdoor

$$\text{Maximum Load (OHMS)} = \frac{\text{supply voltage}}{0.02\text{A}} = 12\text{ V}$$

$$\text{Example: (24 V dc Power supply) - } \frac{24\text{V}}{0.02\text{A}} = 12\text{V} = 600\text{ ohms load Max}$$

III. Storage

If the actuator will not be installed, it should be stored in a clean, dry area where the ambient temperature is not less than -20°F. The actuator should not be stored in a corrosive environment.

IV. Installation and Wiring

Prior to installing the transmitter, locate the wiring diagram and physical installation drawing that was included with in. Check the prints to ensure compatibility with your system.

Access to the wiring terminals is obtained by first removing the transmitter cover. Turning it counterclockwise removes it. The cover threads are lightly lubricated to prevent seizing. Keep the threads clean and lubricated.

Next, remove the plastic, snap-on cover on the transmitter body. Underneath you will find two wiring posts, Span and Zero adjustment potentiometer, and a connector. Install your supply wiring to the positive and negative posts as shown on the diagram on the top of the snap-on cover. No damage will occur to the transmitter if the polarity is reversed, however, the transmitter will not function.

A. Rotation

Note: All references to input shaft rotation are as viewed from the input shaft end of the position transmitter.

As shipped from the factory, CW rotation of the input shaft results in increasing output signal.

If it is desired to have a DECREASING signal for CW rotation, simply snap open the cover of the transmitter, gently remove the connector, rotated 180 degrees, reinsert it, and calibrate the transmitter.

B. Calibration

The primary position sensing element in the PT-1300 series transmitter is a precision potentiometer. This potentiometer is connected to the input shaft through an anti-backlash coupling which prevents side-loading of the potentiometer shaft. An encapsulated electronic module converts the potentiometer signal to a 4 to 20 mA signal.

IV. Installation and Wiring cont

For the transmitter to operate properly, one "end" of the potentiometer must be set to 50 ohms when the input shaft is at its minimum position. To decide which "end" of the potentiometer to set for 50 ohms, determine if your application requires a CW or CCW shaft rotation for an increasing signal. If you desire CW rotation for an increasing signal, remove the connector, and using an ohm meter, measure resistance between the blue and white wires. If it is not 50 ohms, turn the pot shaft until 50 ohms is measured and insert the connector in the CW position as shown on the snap-on cover.

For an increasing signal for CCW shaft rotation, follow the procedure describe above, except measure resistance between the white and yellow wires and plug the connector in the CCW position when completed.

Next, the output signal ZERO and SPAN adjustments must be set. The ZERO adjustment is used to set the 4 mA point, and SPAN adjustment is used to set the 20 mA point. Follow these steps:

- 1) Ensure the 50 ohm point is set on the potentiometer. (See page 3)
- 2) Install a mA meter in series with the supply line. To ensure accuracy, make sure ALL loads are connected at this time.
- 3) Apply power.
- 4) Rotate the input shaft to the position where a 4 mA output signal is desired.
- 5) Adjust the ZERO potentiometer until the mA meter reads 4 mA.
- 6) Rotate the input shaft to the position where a 20 mA output signal is desired.
- 7) Adjust the SPAN potentiometer until the mA meter reads 20 mA.
- 8) Since there is some interaction between the ZERO and SPAN circuits, you may have to repeat steps 4 through 7 to ensure proper calibration settings.

To ensure the best performance, always re-calibrate using ALL of the calibration procedure noted in this manual.