TW301
POTENTIOMETER INPUT
TWO-WIRE
TRANSMITTER

DESCRIPTION

The TW301 potentiometer transmitter regulates the current in a two-wire 4/20 mA current loop to be proportional to the position of a potentiometer slidewire. It is useful in converting mechanical position information to current.

The TW301 is connected in series between a source of DC power and a readout, controller or other receiving device. An internal voltage regulator feeds a controlled portion of the transmitter's current to its internal circuitry. The block diagram at the end of these instructions illustrates the transmitter's operation.

An internally-generated DC reference voltage is applied across the measurement potentiometer. The slidewire taps a portion of this voltage and feeds it to an amplifier which, in turn, feeds a voltage-to-current converter. The converter regulates the current which flows between the transmitter's output terminals.

CONTROLS

Zero and span controls *(accessible through the top of the TW301 housing)* calibrate the output current.

OUTPUT CALIBRATION

The TW301's output range may be calibrated to represent full 0-100% potentiometer travel, or to represent any 50% or wider portion of its travel. Other, nonstandard, ranges may also be ordered and will be reflected in the data on the instrument's label.

To calibrate, connect the transmitter's output in series with a 24 volt DC power supply and a precision digital current meter per the "Typical Connection" shown in the Block Diagram. Connect the input potentiometer as shown in the Block Diagram.

(If it is not convenient to use the actual measurement potentiometer for calibration and if its calibration positions are known, a precision potentiometer may be used for calibration.)

Set the input potentiometer to the low end of its travel and adjust the "Z" (zero) control for 4.00mA output. Raise the potentiometer to the high end of its travel and adjust the "S" (span) control for 20.00mA output. Repeat, as the controls may interact slightly.

OPTIONS

U All circuit boards conformal coated for protection against moisture.

MOUNTING

The TW301 may be mounted in a thermocouple-type connection head or other convenient location using the two 11/64 inch holes provided.

WARRANTY

The TW 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 5% of the original purchase price.

SPECIFICATIONS

Potentiometer Input
1K to 50K pot

Output
4/20 mA (2-wire TX)

Minimum Span
50% rotation

Maximum Span
100% rotation

Temperature Stability
±0.02% of span per ° C

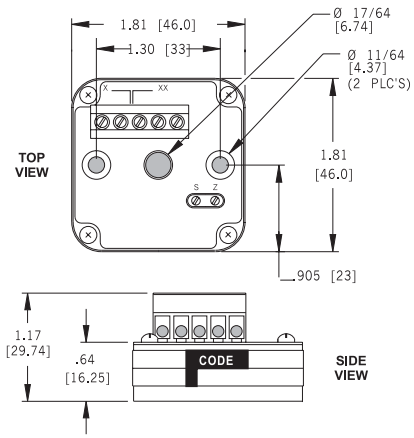
Power Supply
12 to 48 volts DC

Maximum Load Resistance
R max = (V supply -12)/I out max

Supply Voltage Effect
0.02% of span max, 12 to 48 volts

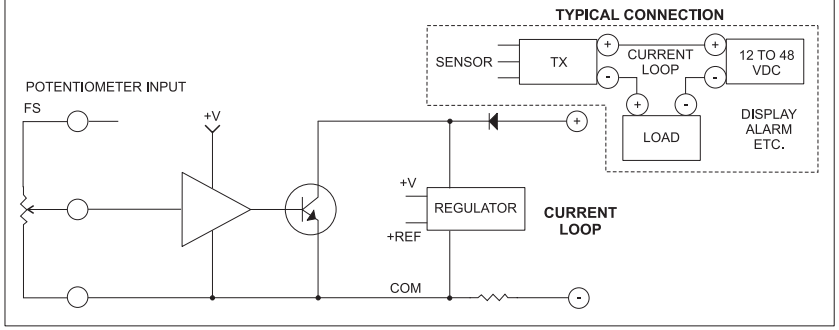
Temperature, Operating
-25 to 80°C (-13 to 176°F)

CASE DIMENSIONS INCHES [mm]



NOTE:
Do not ground input potentiometer unless output current loop is isolated.

BLOCK DIAGRAM AND TERMINAL CONNECTIONS



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