TT-40

Temperature Transmitter Series 40

TT LINE
TEMPERATURE TRANSMITTER

ORDERING CODE

SEE PAGE 22 FOR ORDERING OPTIONS

Features and Benefits

- Two wire 4 - 20mA loop.
- Fits in a standard ANSI or DIN head.
- Low cost and easy to installation.
- Saves on costs of the compensating cable in thermocouple installation.
- Auto cold junction compensation.
- Excellent RF immunity.

Description of Operation

The **Series 40** temperature transmitters are designed to fit into standard (ANSI or DIN) weatherproof heads. RTD or thermocouple assemblies provide a 4-20mA transmission signal. The use of these transmitters reduces the possibility of induced EMC in cables, and also eliminates the high cost of compensating cable in thermocouple installation.

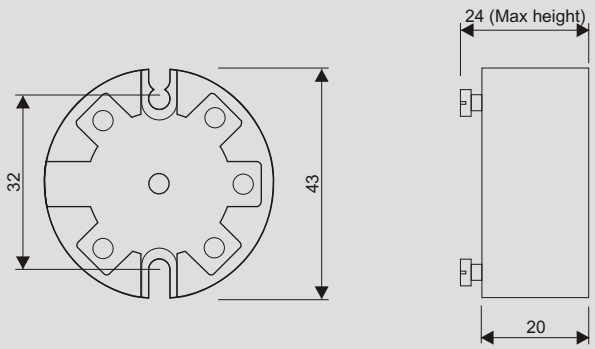
The transmitters may be ordered for any type of thermocouple and for any temperature range with a minimum span of 4mV.

When used with a thermocouple input the unit incorporates an automatic cold junction compensation circuit. Two versions are available. The first has an output signal proportional to the millivolt input, and the second has an output signal proportional to temperature.

For resistance input the unit is designed to accept 3 wire PT100 sensor with linearised output.

In both RTD and thermocouple models the units are provided with MOV protection against surges produced in transmission lines, as well as stray voltages which may be picked up by measuring elements. Care has also be taken in the design to minimise interference from RF transmission. An LED illuminates to indicate when the transmitter is powered and operational.

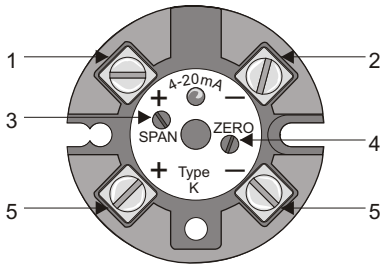
Dimensional Diagram



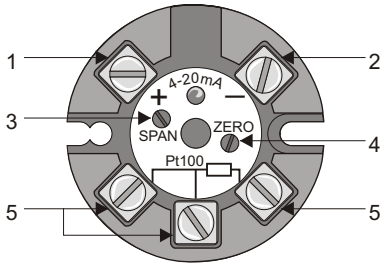
Dimensions in mm

Description of Controls

Thermocouple



PT100



1. Positive output: } 4-20mA Linear to input.
2. Negative output: }
3. Span adjustment: To adjust to 20mA.
4. Zero adjustment: To adjust the 4mA.
5. Input from temperature sensor: Polarity sensitive on thermocouple inputs.

Wiring and Connection

A 4-20mA loop is typically powered by a 24V DC power supply. A temperature transmitter is basically a current sink which pulls current from the power supply.

For most transmitters a stabilised supply is not required as they are true voltage to current converters, however there is usually a small error introduced by changes in voltage.

To function correctly a typical transmitter requires a minimum of 12 volts across its supply terminals. This means that 12 volts is left for the rest of the loop. Using Ohms Law this means that all the other units in the same loop must have a total impedance of less than 600 ohms.

If the impedance of the instruments is greater than 600 ohms (and this may be the case in Intrinsically Safe circuits where zener barrier are used), then problems arise.