

kos203pmanual.doc

30728091

Jun.99

1.0 DESCRIPTION

The transmitter is an in head 4-20mA transmitter that connects to any standard Pt100 sensor and converts the sensor temperature to a 4-20mA signal.

An LED provides a visual indication of sensor fault and programming mode. The transmitter is simply ranged and calibrated on the bench by using a single on-board push button switch, without the need for soldering links. Digital technology ensures accurate and drift free linearisation to all common curves, providing a level of performance not possible with earlier analogue types.

2.0 SPECIFICATION @20°C

2.1 INPUT

Input Type	3 wires Pt 100 (Pt500 or Pt1000 to special order).
Range	-200 to 850°C
Minimum Span	20°C
Linearisation	BS EN60751, BS1904, DIN43760
Accuracy	±0.1°C ±0.1% of reading range -100 to 850 ±0.2°C ±0.1% of reading range -200 to 850
Thermal drift	Zero 0.01 °C / °C, Span 50 ppm
Excitation Current	1mA MAX
Lead Resistance	<10Ω / cable
Sample rate	500mS per Reading
Burnout	22mA (Red programming Led illuminates when temperature is outside -200 to 850 range)

2.2 OUTPUT

Output	4 to 20mA, 2 wire loop powered
Maximum Output Range	3.8 to 22mA
Accuracy	±5µA
Thermal drift	Zero 0.2µA/°C Span 0.5µA/°C
Operating Voltage	8 to 30V
Response Time	500mS to reach 70% of final value
Loop Resistance	800Ω @ 24V DC
Loop Sensitivity	0.4µA/V
Loop Noise	±0.001µA
Protection	Reverse Polarity Protected
Input/Output Isolation	Not isolated
Warm-up Time	2 Minutes to full accuracy

2.3 GENERAL

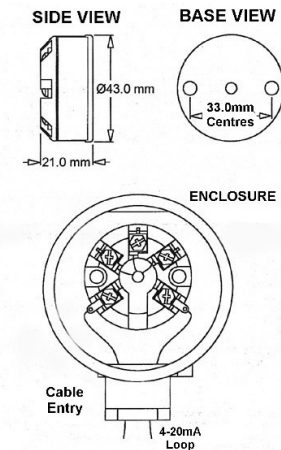
Ambient	
Temperature range	0 to 70°C
Storage	-40 to 70°C
Humidity	10 to 90% HR non condensing
EMC	
Emissions	EN50081
Susceptibility	EN50082
Mechanical	
Weight	26g
Dimension	43mm diameter x 21mm
Default range	0-100°C.

Contact sales office for factory configuration to any other range.

3.0 INSTALLATION

3.1 Mechanical

This transmitter has been specifically designed to be mounted inside a DIN Standard probe head enclosure, which must provide adequate protection from moisture, corrosive atmosphere etc. All cable entries should be sealed using the correct size cable gland. Care must be taken when locating the transmitter to ensure the ambient temperature will remain inside the specified range of 0 to 70°C. The diagrams show the mechanical layout and a typical application of the transmitter mounted inside a probe head enclosure, with sensor wires entering through the center hole.



3.2 Electrical

Connections to the transmitter are made to the screw terminals provided on the top face. To maintain CE compliance, input wires must be less than 3 metres in length and output wiring must be screened cable with the screen earthed at one end only. All three input wires must have the same core diameter to maintain equal lead resistance in each wire. A hole is provided through the center of the transmitter body, direct to the input screw terminals. The screw terminals have been designed to allow all connection wires to enter from either an inner or outer direction.

The transmitter is protected against reverse connection, therefore incorrect connection of output wires will result near zero current flow in the loop. Incorrect connection of the sensor wires will result in the transmitter output going to burnout condition.

GARANTÍA

Los instrumentos están garantizados contra cualquier defecto de fabricación o fallo de materiales por un periodo de 3 AÑOS desde la fecha de su adquisición.

En caso de observar algún defecto o avería en la utilización normal del instrumento durante el período de garantía, diríjase al distribuidor donde fue comprado quien le dará instrucciones oportunas.

Esta garantía no podrá ser aplicada en caso de uso indebido, conexiónado o manipulación erróneos por parte del comprador.

El alcance de esta garantía se limita a la reparación del aparato declinando el fabricante cualquier otra responsabilidad que pudiera reclamársele por incidencias o daños producidos a causa del mal funcionamiento del instrumento.

SERIE KOSMOS

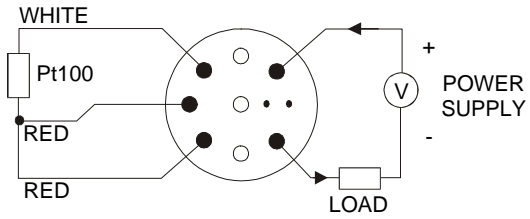


Figure shows the method of connection to provide a 4-20mA current loop output. The Pt100 sensor shown normally take the form of a probe assembly with a three wire output. The output loop shows a 24VDC power supply, used to provide loop excitation, the transmitter, and a load, all connected in series. The load symbol represents other equipment in the loop e.g. indicators, controllers, loggers, etc.

Burnout

Due to the sensing method, certain combinations of open circuit sensor wires may result in the output current dropping for approximately 500ms before rising to upscale output..

Care must be taken when designing the 4-20mA circuit to ensure that the total burden of the loop, that is the total voltage requirements of all the equipment in the loop added together, does not exceed the power supply voltage. If a number of devices are connected in the loop ensure that only one instrument is tied to ground. Grounding the loop at two points will result in shorting out part of the loop and therefore any transmitters in that part of the loop will not operate. Maximum load resistor, R_L is calculated as follows:

$$R_L = (V - 8) / 20 \times 100$$

For 24V supply:

$$R_L = (24 - 8) / 20 \times 100$$

3.3 EMC

This transmitter conforms with EC directives BS EN 50081-1 and BS EN 50082-2 when correctly installed in a termination head providing at least IP20 protection and filled with a sensor with less than 3 metres of cable.

4.0 RANGES

This transmitter is normally supplied ranged 0 to 100°C, unless a special range has been requested at the time of order. With the aid of suitable equipment, this transmitter can be programmed to a different range by following the simple procedure listed below.

4.1 Equipment

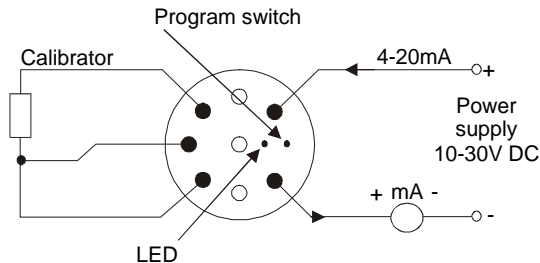
The following apparatus will be required in order to re-range the transmitter.

- Power supply voltage between 10-30VDC, 30mA min. current
- RTD Calibrator or Precision resistance box (0-390Ω)
- Connecting cables.
- 3mm Diameter screw driver or similar device.
- Current meter 0-20mA to monitor loop current.

4.2 Method

1. Connect circuit as shown in figure and set RTD calibrator for temperature required at 4mA.
2. Press and hold the programming switch by inserting a 3mm diameter screw driver blade through the programming hole located in the top face of the transmitter housing. Hold the switch for approximately 5 seconds, until the RED programming led flashes. Release the switch.
3. Set the RTD Calibrator for the required temperature at 20mA. Allow 10 Seconds setting time, then press and release the programming switch. The programming LED will flash quickly for a few moments, then go out. The transmitter is now ranged..
4. Check the transmitter output range is correct by setting the RTD calibrator to the 4mA and then 20mA settings, checking the output current reading on the meter.

4.3 Calibration Circuit



DISEÑOS Y TECNOLOGIA, S.A.

Polígono Industrial Les Guixeres
C/ Xarol 8 C
08915 BADALONA-SPAIN
Tel : +34 - 93 339 47 58
Fax : +34 - 93 490 31 45
E-mail : dtl@ditel.es

www.ditel.es

