

KOS1503P

Pt100 TRANSMITTER

Y2K
YEAR 2000
COMPLIANT



kos1503pmanualB.doc

30727050

Oct.99

WARRANTY



The instruments are warranted against defective materials and workmanship for a period of three years from date of delivery.

If a product appears to have a defect or fails during the normal use within the warranty period, please contact the distributor from which you purchased the product.

This warranty does not apply to defects resulting from action of the buyer such as mishandling or improper interfacing.

The liability under this warranty shall extend only to the repair of the instrument. No responsibility is assumed by the manufacturer for any damage which may result from its use.

KOSMOS SERIES

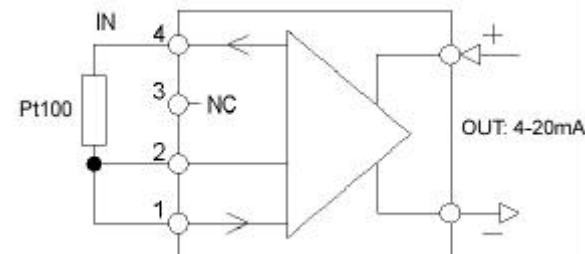
1.0 DESCRIPTION

Temperature transmitter designed to accept a standard platinum resistance sensor Pt100 according to DIN 43760 and convert to a 4-20mA. It is housed in a purpose designed DIN rail mount enclosure.

The transmitters are supplied to standard factory calibrated ranges, but can be user re-ranged to operate over most of the temperature ranges encountered in industrial and building management applications. The enclosure provides trim potentiometer acces, allowing fine re-calibration adjustments to be made at both ends of the scale.

2.0 SPECIFICATIONS @ 20°C

INPUT	Type	Pt100 2 / 3 wire DIN 43760
	Accuracy	$\pm 0.15^{\circ}\text{C} \pm \% \text{ reading s/table}$ 500°C + 600°C 0.4% rdg. 200°C + 560°C 0.2% rdg. 0°C + 200°C 0.1% rdg. 0°C + -100°C 0.1% rdg. -100°C + -180°C 0.1% rdg.
	Selection Range	Coarse Settings by side entry 16 position rotary screw adjustment switches. Fine Settings by front access pots.
	Excitation	2mA nominal.
OUTPUT	Type	Passive 2 wire current output
	Rango	4-20mA (MAX. 30mA).
	Protection	Reverse connection plus over voltage
	Voltage	10-30V DC
	Thermal Stability	Typical 100ppm/°C overall.
	Ripple	< 40µA/V (measures at 1V ripple 50Hz.)
	Response	100mS to reach 70% final value.
	Max. Load	700Ω @ 24 V.
GENERAL	Ambient	0 + 50°C, 10 + 95 R.H. Non condensing.
	Connection	Captive clamp screws.
	Cable Size	4mm ² solid / 2.5mm ² stranded.
	Case Material	Grey Polyamide .
	Flammability	UL94-V0 VDE 0304 Parte 3 Nivel IIIA
	Protection	IP20
	Dimensions	60 x 75 x 12.5, 45 grams.
	Mounting	Rail DIN 50022-35
	Cumpliant with	EN50081-1, EN50082-1



3.0 INTALLATION

3.1 MECHANICAL

This transmitter must be housed within a suitable enclosure that will provide protection from the external environment, ensuring that the stated temperature and humidity operating ranges are not exceeded. It is good practice to mount the transmitter away from sources of electrical noise, such as switchgear and transformers. The transmitter enclosure is designed to snap fit onto a standard "TOP HAT" DIN rail. To remove from rail, apply pressure at the bottom face at the back upwards towards the rail to release the spring clip and tip away from the top. The transmitter may be mounted in any arientation and stacked side by side along the rail.

3.2 ELECTRICAL

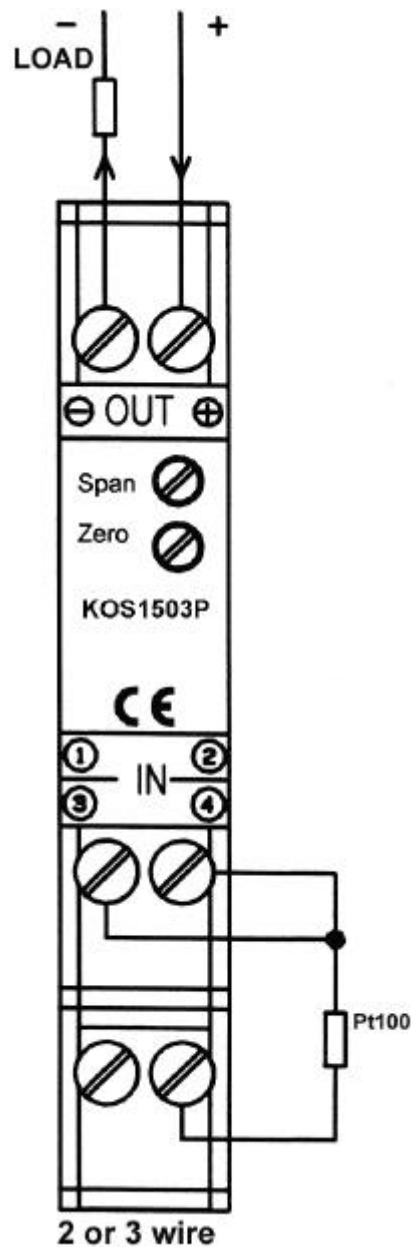
Connections to the transmitter are made via screw terminals, with wire protection plates provided on each terminal. To maintain CE compliance twisted pair (screened) cables should be used for the signal connections with screens grounded at one end only.

The sensoris connected with two or three wires, the third is used to compensate for cable resistance, all three wires must be of the same size and type in order for this compensation to work correctly. Incorrect sensor connection or sensor wire break will result in the output current saturating either up or down scale. It is good practice to ensure all 4-20mA signal loops are grounded at one point.

Care must be taken when designing a 4-20mA circuit to ensure that the total burden of the loop, (that is the total voltage requirement of all equipment connected in the loop at 20mA) does not exceed the power supply voltage.

To operate correctly the transmitter requires a minimum of 10V across its output terminals. The transmitter is protected agains reverse connection and over voltage.

Figure shows a typical 4-20mA circuit, the resistor represents equipments such as indicators, loggers PLC, etc.



4.0 RANGE SETTINGS AND CALIBRATION

The following equipment is required:

- Precision resistors or resistance decade box to simulate Pt100
- DC milliamp meter (digital) ; accuracy 0.05% on 0-20mA range
- Power Supply 24V DC @ 30mA Min.
- Trim tool and Pt100 resistance tables.

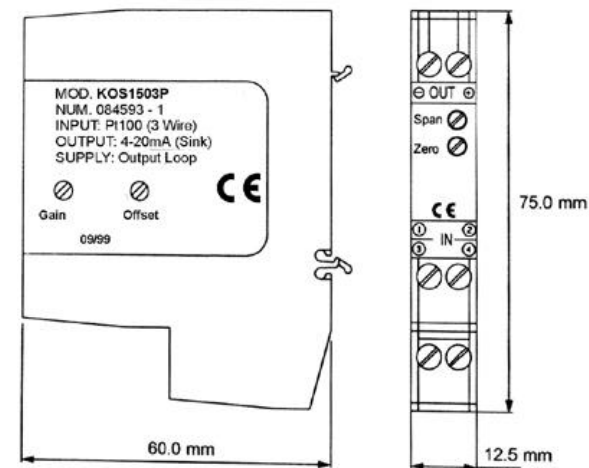
Decide on the range you require and ensure the transmitter is capable of this range. If a range has not been specified at time of order, the transmitter will leave the factory set as 0-100°C (see identification label).

- 1 Connect Resistance box to input terminals. Ensure 3 identical wires are used on the KOS1503P.
Connect + Signal Terminal to + power supply terminal. Connect mA meter in series with the return wire from the - Signal terminal to - terminal on power supply. Turn on. Allow a few minutes before calibration for the transmitter to stabilise after handling.

Let T_l = Temperature a 4mA output
 T_h = Temperature a 20mA output

- 2 Set resistance box to simulate T_l , first rotate coarse offset to obtain a output reading close to 4mA. Use fine adjuster to trim reading to $4.000\text{mA} \pm 0.05\text{mA}$ (if fine trim hits end of travel re-adjust coarse adjuster one step readjust fine offset).
- 3 Set resistance box to simulate T_h , first rotate coarse gain to obtain a output reading close to 20mA. Use fine span adjuster to trim reading to $20.000\text{mA} \pm 0.05\text{mA}$ (If fine trim hits end of travel re-adjust coarse adjuster one step re-adjust fine span. Note clockwise rotation of the coarse adjuster reduces output current).
- 4 Set resistance box to T_l , adjust fine offset for $4.000\text{mA} \pm 0.005\text{mA}$
- 5 Set resistance box to T_h , adjust fine span for $20.000\text{mA} \pm 0.005\text{mA}$
- 6 Repeat steps 4 ,5 until both points are in calibration.
- 7 Turn off power and remove wires. Mark transmitter with the new range.

5.0 MECHANICALS



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