KOS210

PROGRAMMABLE IN-HEAD TEMPERATURE TRANSMITTER

Y2K YEAR 2000 COMPLIANT

CE

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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 responsability is assumed by the manufacturer for any damage which may result from its use.

KOSMOS SERIES

1.0 GENERAL

The transmitter is a second generation "Smart" in head temperature transmitter that accepts any commonly used temperature sensor, slide wire transducer or millivolt signal and converts the output to the industry standard 4-20mA transmission signal.

2.11 RTD INPUT (Pt100)

Sensor Range	-200 to 850ºC (18 to 390Ω)
Minimum Span[1]	25ºC
Linearisation	BS EN60751, BS1904, DIN43760, JISC 1604
Basic Measurement Accuracy[2]	±0.01% FRI ±0.05% Rdg FRI=Full Range Input
Thermal drift	Zero 0.008 ºC / ºC, Span 100 ppm / ºC
Excitation current	300µA to 550µA
Maximum Lead Resistance	50Ω / leg
Lead Resistance Effect	0.002ºC / Ω

2.12 Thermocouple input

Sensor Ranges

Thermocouple Type	Measuring range ºC[4]	Minimum Span[1] ºC
K	-200 a 1370	50
J	-200 a 1200	50
T	-210 a 400	25
R	-10 a 1760	100
S	-10 a 1760	100
E	-200 a 1000	50
F(L)	-100 a 600	25
N	-180 a 1300	50

Basic Measurement Accuracy[2]	±0.04% FRI ±0.04% Rdg or 0.5ºC (which ever is greater)
Thermal drift	Zero 0.1 µV/ºC, Span 100ppm/ºC
Cold junction error	±0.5ºC
Cold junction tracking	0.05ºC/ºC
Cold junction range	-40 to 85ºC

2.13 Millivolt Input

Input	Voltage source
Range	-10 to +75mV
Minimum Span[1]	5mV
Basic Measurement Accuracy[2]	±10µV ±0.07% Rdg
Input Impedance	10MΩ
Thermal drift	Zero 0.1 µV/ºC, Span 100ppm /ºC

Slidewire Input

Input	3 wire potentiometer
Resistance Range	10Ω to 390Ω (Larger values can be accomodated by external resistor)
Minimum Span[1]	5%
Basic Measurement Accuracy[2]	0.1% FRI
Temperature Drift	100 ppm/ºC

Notes
1 Any Span may be selected, full accuracy is only guaranteed for spans greater than the minimum recomended
2 Basic Measurement Accuracy includes the effects of calibration, linearisation and repeatability.
4...Consult thermocouple reference standards for practical temperature spans.

2.2 OUTPUT

Output range	>3.8 to <20.2mA
Maximum output	23mA
Accuracy	±5µA
Voltage Effect	0.2µA / V
Thermal drift	1µA / ºC
Supply voltage	10 to 35V
Maximum output load	$[(V_{supply}-10) / 20]$ KΩ ie. 700Ω @ 24V)

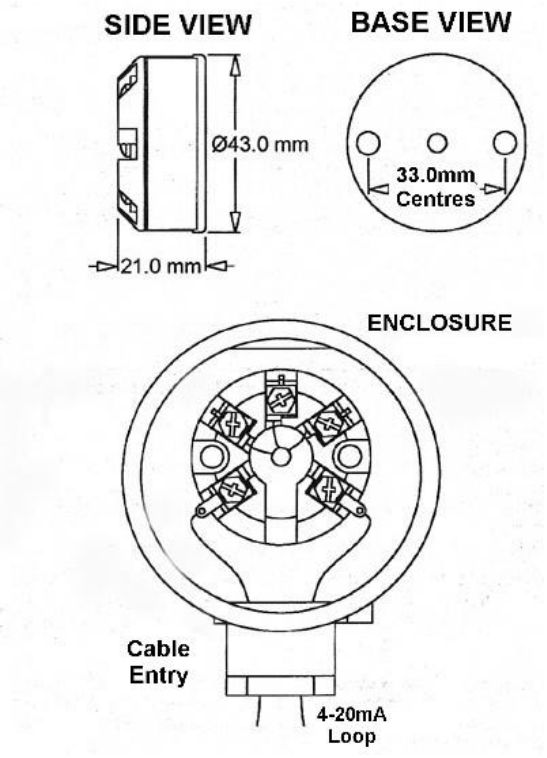
2.3 GENERAL

Input/Output isolation	500VAC rms
Update Time	250 mS Maximum
Time constant (filter Off)	< 1 Sec (Time to reach 63% final value)
Filter factor Programmable	Off, 2 Sec, 10 Sec, or adaptative
Warm-up time	2 minutes to full accuracy
Enviromental	
Ambient Operating Range	-40 to 85ºC
Ambient storage temperature	-50 to 100ºC
Ambient humidity range	10 to 90% RH non condensing
Approvals	
Emissions	EN50081
Immunity	EN50082
Mechanical	
Enclosure	DIN standard terminal block size
Material	NORYL™
Weight	25g
Flammability	SEI UL94 VI
Safety	IEC 1010-1
Dimensions	43mm diameter x 21mm
Comunications	
PC Interface	RS232 via configurator
Minimum output load	100Ω for in loop programming
Maximum cable lenght	1000m
Configurable paremeters	Sensor type: Burnout: ºC/ºF: Output :Hi/Lo: Filter: Tag: user offset
Comms Protocol	ANSI X3.28 1976
Data rate	1200 baudios

3.0 INSTALLATION

3.1 Mechanical

The transmitter is mounted using two 5.5mm diameter holes, on standard 33mm fixing centres and will fit a DIN standard termination head. The transmitter should be installed with adequate protection from moisture and corrosive atmospheres.
Care must be taken when locating the transmitter to ensure the ambient temperature remains within the especified operating range. Figure 1 shows the mechanical layout and a typical application of the transmitter mounted inside a termination head enclosure, with sensor wires entering through the centre of the transmitter body.

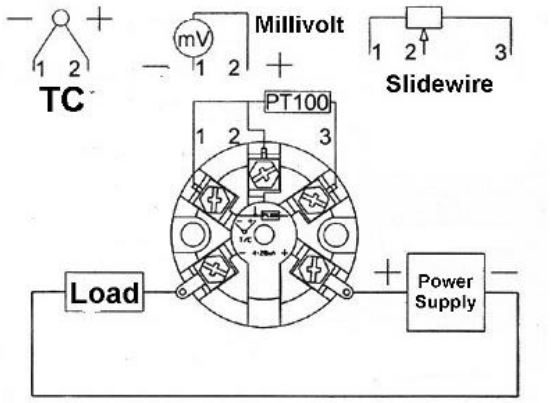


3.2 Electrical

Connections to the transmitter are made to the screw terminals provided on the top face . No special wires are required for the output connections, but screened twisted pair cable are the most suitable for long runs. It is recommended that screened cable is used for the three input signal wires for cable runs greater than one meter. All three input wires must have the same core diameter to maintain equal lead resistance in each wire. A hole is provided throught the centre of the transmitter to allow sensor wires to be threaded through the transmitter body direct to the input screw terminals. The screw terminals have been designed to allow all connection wires to enter from an inner or an outer direction.

Figure 2 shows the method of connection to provide a 4-20mA current loop output. The Pt100 sensor shown would normally take the form of a probe assembly with a three wire connection. The output loop has a voltage power supply used to provide loop excitation. The load symbol represents other equipment in the loop, normally indicators, controllers or loggers. Care must be taken when designing the 4-20mA circuit to ensure that the total voltage requeriments of all the equipment in the loop added together, does not exceed the power supply voltage. If a number of instruments are connected in the loop, ensure that only one instrument is tied to ground. Grounding the loop at two points will cause a short circuit of part of the loop leading to measurement errors.

To guarantee CE compliance, sensor leads must be less than 3 metres long and the trasnmitter housing should prevent access to the transmitter during normal operation.



4. CONFIGURATION

The transmitter can be completely reconfigured by the user, modifying the following parameters:

Units	ºC,ºF, mV or %
Low range (Lo)	Corresponds to 4mA output
High range (Hi)	Corresponds to 20mA output
Tag No	Transmitter reference details
Offset	User calibration adjustment

Configuration of the transmitter is achieved by connecting a PC running RCPW configuration software to the transmitter via the Configurator Unit.

4.1 Connection of Configuration Module

When configuration is done using an existing loop, the loop power supply must be capable of supplying 30mA and the load resistor chosen so that at least 10V remains across the transmitter, taking into account all other volt drops within the loop.

4.2 PC installation RCPW

Minimum PC operating system	Windows™ 3.1
Minimum PC requirement:	IBM® compatible 386 or above 4Mb RAM and available serial port

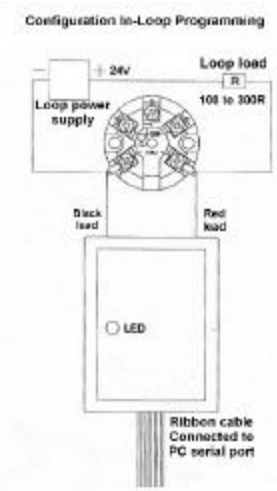
To install RCPW, log File Manager on to drive A: (or as appropriate) and run the installation program. **Note: if no "Product Licence Number" is entered when prompted the program will operate in evaluation mode only.**

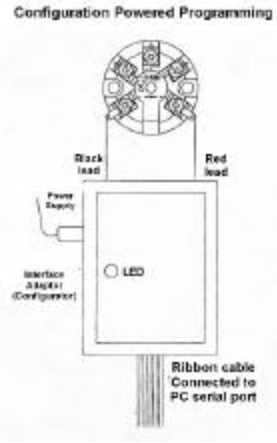
4.3 Operation of RCPW

The configuration software has a list of main menu options which are: File, View, Option, Devices and Help. These options can be selected by the mouse or by simultaneously depressing <ALT> and the letter underlined as above. Once a menu option has been selected, the status bar shows a brief description of functions.

For more details see RCPW onscreen help.

There are two possible methods of connecting the PC and interface Adaptor (Configurator) to the transmitter. Figure show the options.





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