

# KOS1000

## 4-20mA LOOP ISOLATOR

**Y2K**  
YEAR 2000  
COMPLIANT



kos1000manualB.doc

30727039

Sep.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 SPECIFICATIONS

#### 1.1 KOS1000

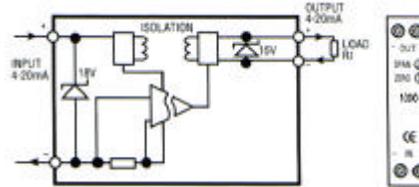
The **KOS1000** isolator is designed to be series connected into a new or existing 4-20mA current loop and provide an isolated 4-20mA capable of driving into 500Ω. The output is powered from the input loop.

#### INPUT

Type Current input 2 wire Loop powered.  
Range 4-20mA (30mA MAX.)  
Protection Reverse connection.  
Voltage Drop 5.0V typical, 5.5V MAX.  
(+Output Load) 5.5V (load\*0.02).  
MAX. Loop Supply 35V.

#### OUTPUT

TYPE 4-20mA source(Powered from input).  
Load 0 to 500Ω (o/c limits at approximately 15V).



#### 1.2 GENERAL SPECIFICATION @ 20°C

Isolation	500V AC(flash test @ 1kV). (Isolation method, opto-coupler/ transformer)
Electrical Safety	BS EN61010-1 POLLUTION DEGREE 2; INSTALLATION CAT. II; CLASS I
Ambient	0-70°C; 10-95% RH Non condensing.
Accuracy	0.05% full range output.
Stability	100ppm/°C.
Response Time	Less than 100mS to reach 63% of final value.
EMC	Compliant with BS EN 50081-1, BS EN 50082-1
Connection	Captive clamp screws.
Cable size	MAX. 4mm <sup>2</sup> solid / 2.5mm <sup>2</sup> stranded.
Case Material	Grey Polyamide.
Flammability	UL94-VO VDE 0304 part 3, Level IIIA.
Dimensions	60x60x12.5 (67.5 above rail).
Mounting	Snap on "top hat" Rail DIN EN 50022-35
Adjustments	Zero and Span Adjustment.

### 2.0 INSTALLATION

#### 2.1 Mechanical

This unit 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 unit away from sources of electrical noise, such as switchgear and transformers. The unit 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 the rail to release the spring clip and tip away from the top. The unit may be mounted in any orientation and stacked side by side along the rail.

#### 2.1 Electrical

Connections to the isolator are made via screw terminals. Wire protector plates are provided inside each terminal. To maintain CE compliance twisted pair (screened) cables are recommended. It is also good practice to ensure that all 4-20mA loops are grounded at a single point in the loop. Before installation, care must be taken to ensure enough voltage is available in the loop to drive the total loop load. Refer to the specifications listed for the voltage drop. In the case of the KOS1000 the additional voltage drop of the load connected in the isolated circuit, will be added to the loop drop of the isolator, for example a KOS1000 isolator driving into a 250Ω load will have a total drop of 10.5V maximum.

Refer to the KOS1000 series data sheet for further information on applications of this series of isolators. Please note the isolation provided by this device is only suitable for providing isolation between two process signals and therefore must not be used to provide isolation from hazardous voltages, such as mains supplies.

#### 3.0 OPERATION

This isolator requires no user adjustment during commissioning. Minor adjustments can be made to the calibration of the device by means of the two front panel accessible calibration potentiometers. Incorrect connection in the loop will not damage the device as long as the specified maximum currents/voltages are not exceeded. If the isolator fails to operate, check loop for bad connections. Ensure enough voltage is available in the loop to power the isolator. In the unlikely event of the isolator not working, it should be returned to the supplier for repair or replacement.

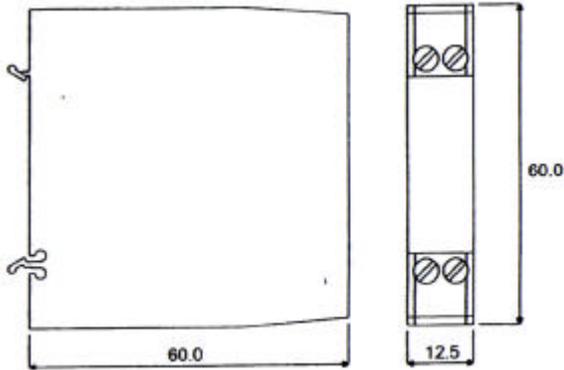
#### 4.0 CALIBRATION

- 4.1 Connect a precision current calibrator to the input and a precision current meter to the output of the device to be calibrated. (\*<sup>1</sup>)
- 4.2 Inject 4.000mA ±0.001mA into the input and adjust zero potentiometer for 4.000mA ±0.001mA output. (\*<sup>2</sup>)
- 4.3 Inject 20.000mA ±0.001mA into the input and adjust span potentiometer for 20.000mA ±0.001mA output. (\*<sup>2</sup>)
- 4.4 Repeat steps 4.2 and 4.3 until both points are in calibration.

#### Notes.\*

- 1 Current calibrator must be capable of driving the expected loop drop.
- 2 Please note that the above reading accuracies quoted in 4.2 and 4.3 are absolute values and do not include test equipment tolerances.

## 5.0 MECHANICAL DETAIL



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