

# KOS1020

## 4-20mA ISOLATOR/ LOOP BOOSTER

**Y2K**  
YEAR 2000  
COMPLIANT



kos1020manualB.doc

30727047

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 KOS1020

The **KOS1020** isolator is designed for use when power is available at both sides of the isolation barrier.

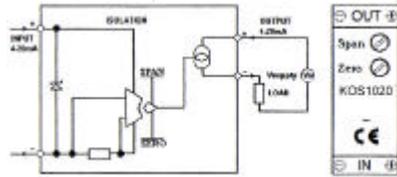
#### INPUT

Type Current input 2 wire Loop powered.  
Range 4-20mA (30mA MAX.)  
Protection Reverse connection.  
Voltage drop 2.7V maximum.  
MAX. Loop volts 35V.

#### OUTPUT

Type 2 wire Current Sink 4-20mA.  
Loop voltage 5-32V DC (reverse protected)  
Loop volt drop = 2.7V DC CARGA 900 Ohm @ Vs = 24V DC  
CARGA 1200 Ohm @ Vs = 30V DC

Loads must be >250R for ambients >50°C



#### 1.2 GENERAL SPECIFICATIONS @ 20°C

ISOLATION	500V AC (flash tested @ 1kV DC) Isolation method, opto coupler / transformer)
ENVIRONMENT	BS EN61010-1 POLLUTION DEGREE 2 INSTALLATION CAT II; CLASS I
AMBIENT	0-70°C; 10-95RH non condensing
LINEARITY	0.05%
STABILITY	100ppm/°C
RESPONSE TIME	Less than 100mS to reach 70% of final value.
EMC Testet to	IEC 801-2 Susceptibility to E.S.D. IEC 801-3 Radiated Susceptibility IEC 801-4 Susceptibility to conducted interferences EN 55022 Radiated Emissions
CONNECTION	Captive clamp screw
CABLE SIZE	Max. 4mm sq solid/ 2.5mm sq stranded
CASE MATERIAL	Grey Polyamide
FLAMMABILITY	To UL94-V0 VDE 0304 Part 3, Level IIIA
DIMENSIONS	60 X 60 X 12.5 (67.5 above rail)
MOUNTING	Snap on "top hat" rail (DIN EN 50022-35)
ADJUSTMENT	Front Entry Fine Zero and Span Adjustment

### 2.0 INSTALLATION

#### 2.1 Mechanical

This isolator is designed to be housed within a suitable enclosure that will provide protection from the external environment, and ensure the stated temperature and humidity ranges are not exceeded. The isolator case is designed to snap fit onto a standard "top hat" DIN rail. The isolator may be removed if required by applying pressure with one hand, to the bottom face of the enclosure, in a direction parallel with DIN rail and at the same time gripping the top of the isolator and pulling away from the rail. The isolator may be mounted in any orientation and stacked side by side along the rail.

#### 2.2 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 above for the loop drop voltage. The KOS1020 in most applications, requires a separate supply for the secondary loop, this may be provided from a separate power supply or from the instrument monitoring the output loop.

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, apart from an initial test, to ensure it operates correctly over its full working range. Minor adjustments can be made to the calibration of the device by means of the two front panel accessible calibration potentiometers. Incorrect connections in the loop will not damage the device as long as the specified maximum current/ 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.

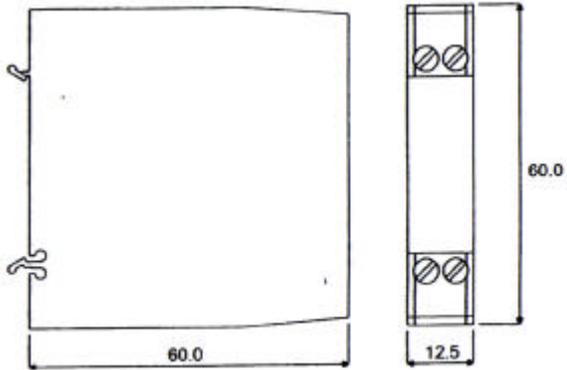
#### 4.0 CALIBRATION

- 4.1 Connect a precision current calibrator to the input, and a precision current meter in series with the output loop. Power output loop with 24V DC.
- 4.2 Inject 4.000mA ±0.001mA into the input and adjust zero potentiometer for 4.000mA ±0.001mA output.
- 4.3 Inject 20.000mA ±0.001mA into the input and adjust span potentiometer for 20.000mA ±0.001mA output.
- 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 reading accuracies in 4.2 and 4.3 above are absolute values and include test equipment tolerances.

## 5.0 MECHANICAL DETAIL



### DISEÑOS Y TECNOLOGÍA

Travessera de Les Corts, 180  
08028 BARCELONA, Spain  
Tel: +34 - 93 339 47 58  
Fax: +34 - 93 490 31 45  
e-mail: dtl@ditel.es



### DITEL FRANCE, s.a.r.l.

Les Costes, D18  
30360 CRUVIERS-LASCOURS, France  
Tel: +33 -(0)4 66 542 770  
Fax: + 33 -(0)4 66 542 771  
e-mail: Jean-Paul.Etienne@wanadoo.fr

### DITEL CORP.

379 Rye Beach Avenue  
Rye, NY 10580, USA  
Tel: +1 914-967 2957  
Fax: +1 914-967 0658  
e-mail: m.vives@worldnet.att.net