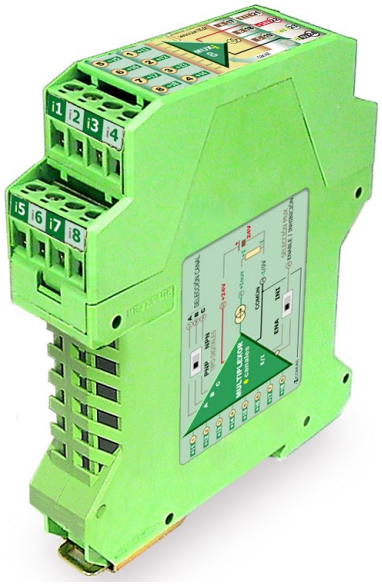
# DATA SHEET — QUICK INSTALLATION GUIDE

## ANALOGUE MULTIPLEXER FOR 16 INPUTS

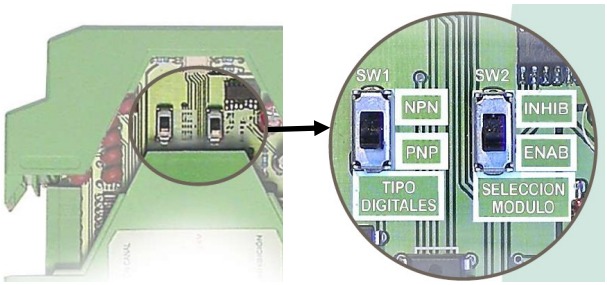
- 16 x PROTECTED 0/4-20mA INPUTS
- 1 x ACTIVE 0/4-20mA OUTPUT
- 4 x NPN / PNP DIGITAL INPUTS
- 1 x ENABLE / INHIBIT (E/I) DIGITAL INPUT
- EXPANDABLE TO 32, 48, …. INPUTS
- MAXIMUM MULTIPLEX SPEED 7 ms
- POWER SUPPLY 24 V DC



## DESCRIPTION

Analog multiplexer for sixteen 0/4 -20mA inputs and one active 0/4 -20mA output controlled by 4 digital inputs with a maximum multiplexing speed of 7ms per channel.
Both the analog inputs and the output are protected against overcurrents by resettable protectors.
Digital control inputs programmable in positive (PNP) or negative (NPN) logic.
E/I digital input to cascade several 16x1 modules to obtain 32, 48...inputs with a single output.

## ACCES TO SETTINGS



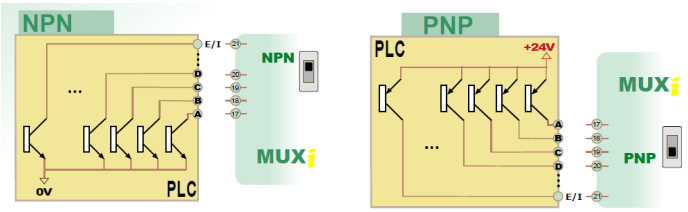

Via 2 slide switches, accesible from the inside, you can select the type of control of the digital lines and the control of the module, when they are linked to expand input channels (32, 64. ...)

MODULE CONTROL SELECTION (**SW2**)
The module control is used to extend the analog inputs by linking them with other multiplexers. When using the multiplexer independently, do not use the terminal and set the switch to INI.
It can be selected by ENABLE or by inverse control INHIBITION, thus providing greater flexibility.

ENABLE :
Activated (ON) allows the module to work, obtaining the selected channel at its output.
Deactivated (OFF) does not authorize the module to function.
At the output, 0mA would be obtained.

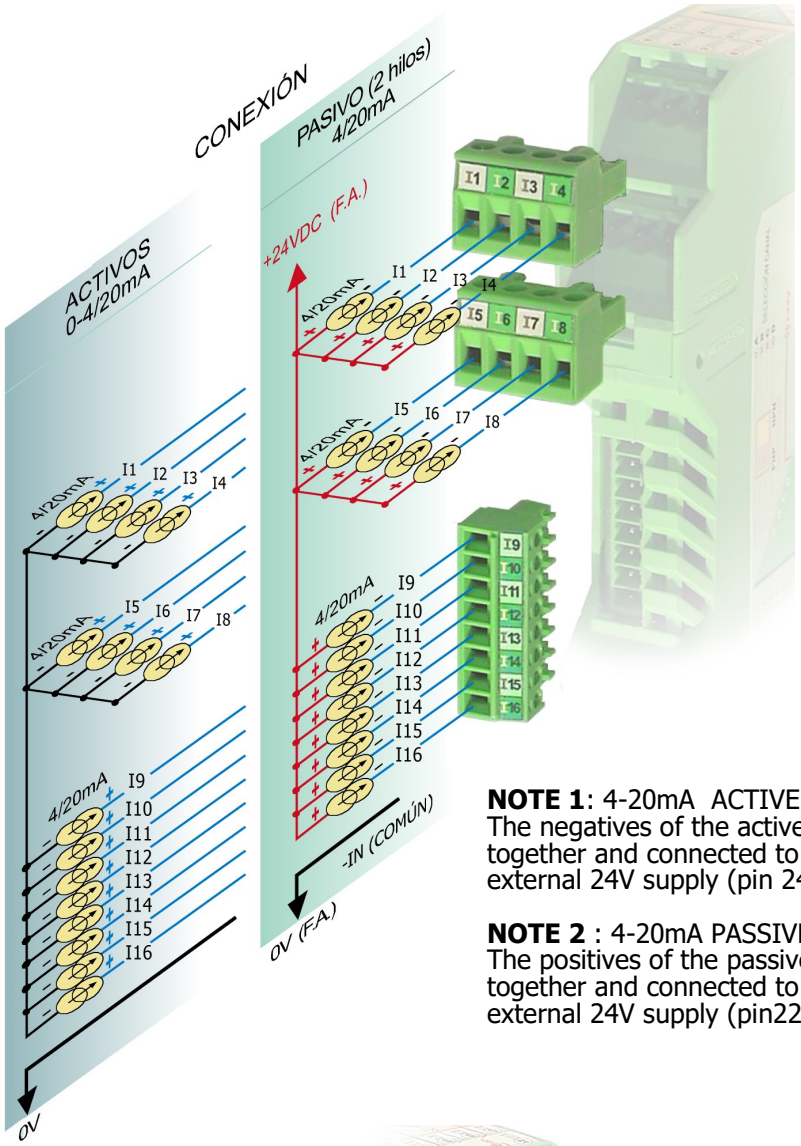
INHIBITION :
Activated (ON) it blocks the module, obtaining 0mA at the output.
Deactivated (OFF) allows the module to work, obtaining the selected channel at its output.

## INPUT CONTROL DIGITAL INPUTS SELECTION (SW1)




NPN/PNP SELECTION
It is recommended that channel selection (1.. 16) and module control be done with transistors.
So the number of switching actions will be unlimited and the speed faster.
NPN or PNP transistors can be used, configuring the switch (**SW1**).
The channel is selected by binary code.

## ANALOG INPUTS WIRING




| 4-20 mA (SINK) | |
|---|---|
| PIN 1 | - I1 |
| PIN 2 | - I2 |
| PIN 3 | - I3 |
| PIN 4 | - I4 |

| 0/4-20 mA (SOURCE) | |
|---|---|
| PIN 1 | +I1 |
| PIN 2 | + I2 |
| PIN 3 | + I3 |
| PIN 4 | + I4 |

| 4-20 mA (SINK) | |
|---|---|
| PIN 5 | - I5 |
| PIN 6 | - I6 |
| PIN 7 | - I7 |
| PIN 8 | - I8 |

| 0/4-20 mA (SOURCE) | |
|---|---|
| PIN 5 | +I5 |
| PIN 6 | + I6 |
| PIN 7 | + I7 |
| PIN 8 | + I8 |

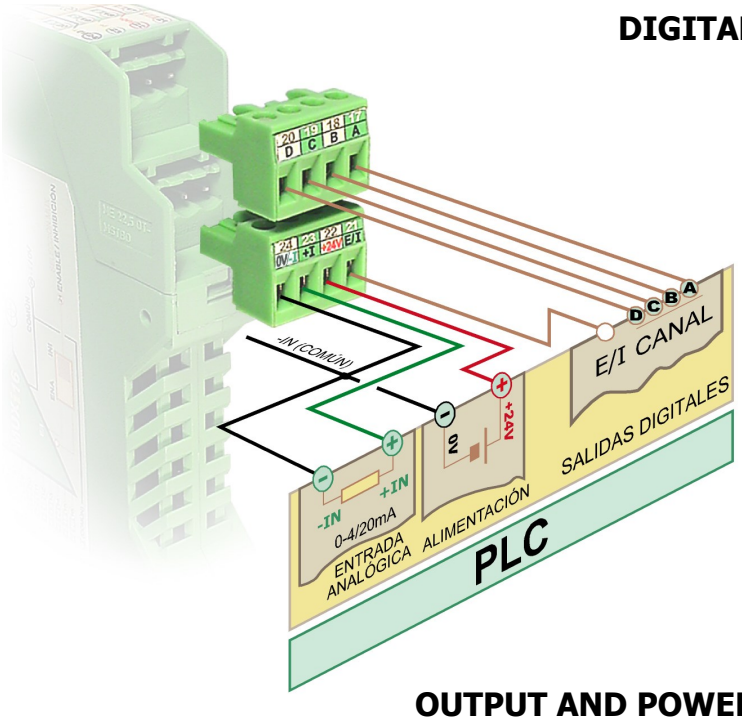
| 4-20 mA (SINK) | |
|---|---|
| PIN 9 | - I9 |
| PIN 10 | - 10 |
| PIN 11 | - I11 |
| PIN 12 | - I12 |
| PIN 13 | - I13 |
| PIN 14 | - I14 |
| PIN 15 | - I15 |
| PIN 16 | - I16 |

| 0/4-20 mA (SOURCE) | |
|---|---|
| PIN 9 | + I9 |
| PIN 10 | + I10 |
| PIN 11 | + I11 |
| PIN 12 | + I12 |
| PIN 13 | + I13 |
| PIN 14 | + I14 |
| PIN 15 | + I15 |
| PIN 16 | + I16 |

**NOTE 1**: 4-20mA ACTIVE (SOURCE) inputs
The negatives of the active sensors will be tied together and connected to the negative of the external 24V supply (pin 24:0V/- IOUT).

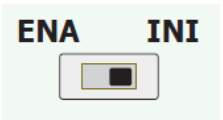
**NOTE 2** : 4-20mA PASSIVE (SINK) inputs
The positives of the passive sensors will be tied together and connected to the positive of the external 24V supply (pin22:+24V)

## DIGITAL INPUTS WIRING




| DIGITAL INPUTS | |
|---|---|
| PIN 17 | A |
| PIN 18 | B |
| PIN 19 | C |
| PIN 20 | D |

## SW1 SELECTOR



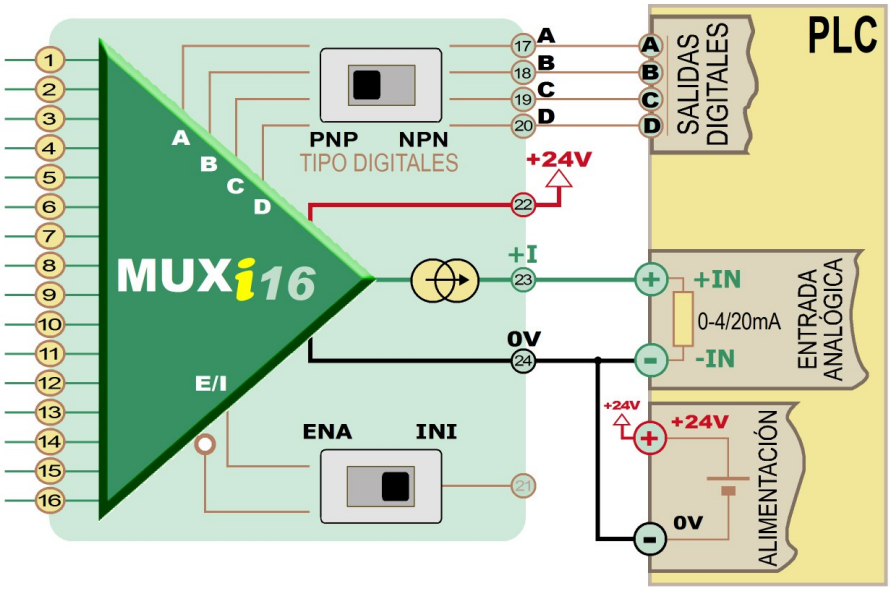

For 8 or 16 channels it is not necessary to connect. Set selector **E/I** in INI.

| POWER SUPPLY + OUT | |
|---|---|
| PIN 21 | E/I |
| PIN 22 | + 24V |
| PIN 23 | + I OUT |
| PIN 24 | - I OUT / 0V |

## OUTPUT AND POWER SUPPLY WIRING

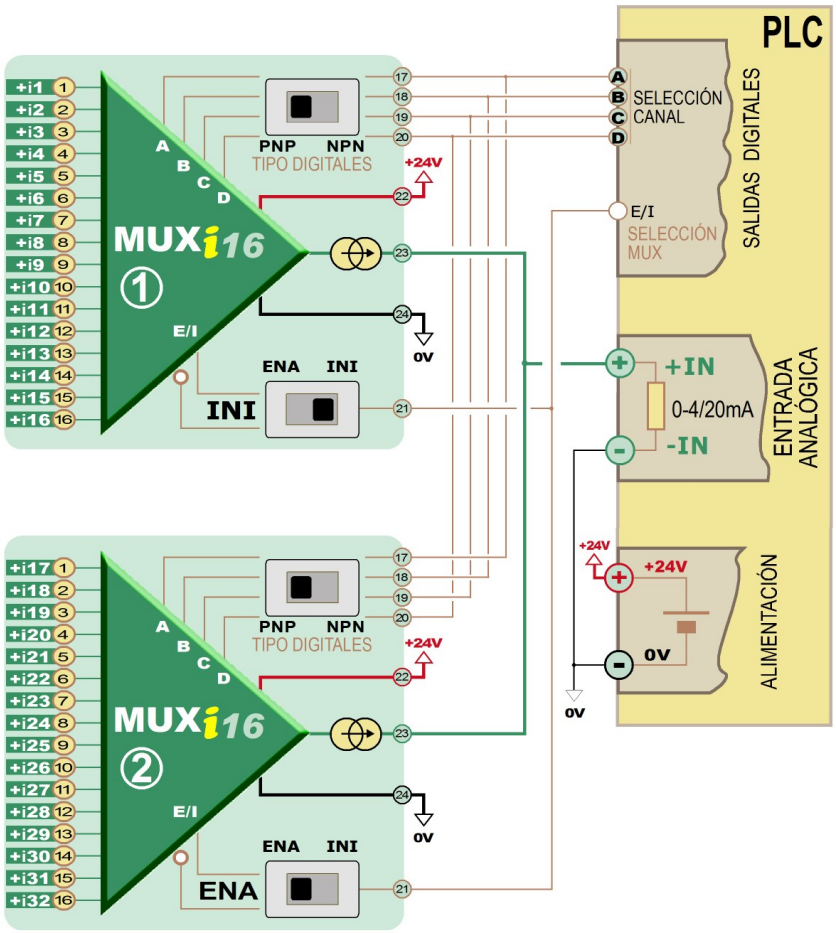
## WIRING FOR 16 ANALOG INPUTS

| A | B | C | D | Nº CANAL |
|---|---|---|---|---|
| OFF | OFF | OFF | OFF | 1 |
| ON | OFF | OFF | OFF | 2 |
| OFF | ON | OFF | OFF | 3 |
| ON | ON | OFF | OFF | 4 |
| OFF | OFF | ON | OFF | 5 |
| ON | OFF | ON | OFF | 6 |
| OFF | ON | ON | OFF | 7 |
| ON | ON | ON | OFF | 8 |
| OFF | OFF | OFF | ON | 9 |
| ON | OFF | OFF | ON | 10 |
| OFF | ON | OFF | ON | 11 |
| ON | ON | OFF | ON | 12 |
| OFF | OFF | ON | ON | 13 |
| ON | OFF | ON | ON | 14 |
| OFF | ON | ON | ON | 15 |
| ON | ON | ON | ON | 16 |



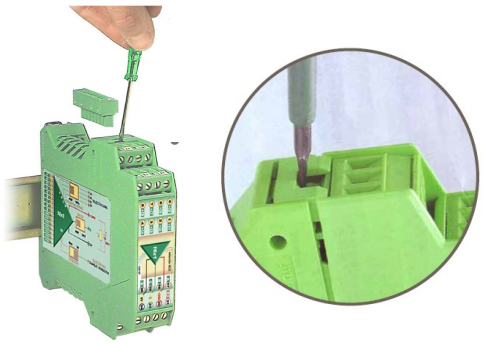

## WIRING FOR 32 ANALOG INPUTS

| A | B | C | D | ENA/INI | Nº CANAL |
|---|---|---|---|---|---|
| OFF | OFF | OFF | OFF | OFF | 1 |
| ON | OFF | OFF | OFF | OFF | 2 |
| OFF | ON | OFF | OFF | OFF | 3 |
| ON | ON | OFF | OFF | OFF | 4 |
| OFF | OFF | ON | OFF | OFF | 5 |
| ON | OFF | ON | OFF | OFF | 6 |
| OFF | ON | ON | OFF | OFF | 7 |
| ON | ON | ON | OFF | OFF | 8 |
| OFF | OFF | OFF | ON | OFF | 9 |
| ON | OFF | OFF | ON | OFF | 10 |
| OFF | ON | OFF | ON | OFF | 11 |
| ON | ON | OFF | ON | OFF | 12 |
| OFF | OFF | ON | ON | OFF | 13 |
| ON | OFF | ON | ON | OFF | 14 |
| OFF | ON | ON | ON | OFF | 15 |
| ON | ON | ON | ON | OFF | 16 |
| OFF | OFF | OFF | OFF | ON | 17 |
| ON | OFF | OFF | OFF | ON | 18 |
| OFF | ON | OFF | OFF | ON | 19 |
| ON | ON | OFF | OFF | ON | 20 |
| OFF | OFF | ON | OFF | ON | 21 |
| ON | OFF | ON | OFF | ON | 22 |
| OFF | ON | ON | OFF | ON | 23 |
| ON | ON | ON | OFF | ON | 24 |
| OFF | OFF | OFF | ON | ON | 25 |
| ON | OFF | OFF | ON | ON | 26 |
| OFF | ON | OFF | ON | ON | 27 |
| ON | ON | OFF | ON | ON | 28 |
| OFF | OFF | ON | ON | ON | 29 |
| ON | OFF | ON | ON | ON | 30 |
| OFF | ON | ON | ON | ON | 31 |
| ON | ON | ON | ON | ON | 32 |




## BOX OPENING

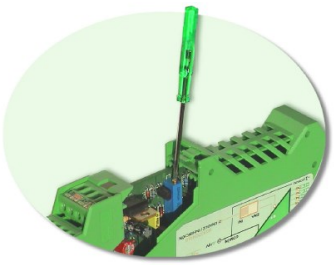
Pressing with a screwdriver on the side tabs, the box jumps up, partially extracting the card, to proceed to the configuration or adjustment of the multiplexer.



**NOTE** : Special application for 32 analog inputs 0/4 -20mA (with only 4 digital lines).
In order to control the two modules with one an only signal the 2 ㉑ E/I terminals will have to be connected together.
Module 1 is configured as INhibit, and module 2 as ENAble. In this way one will act contrary to the other with the same digital line.

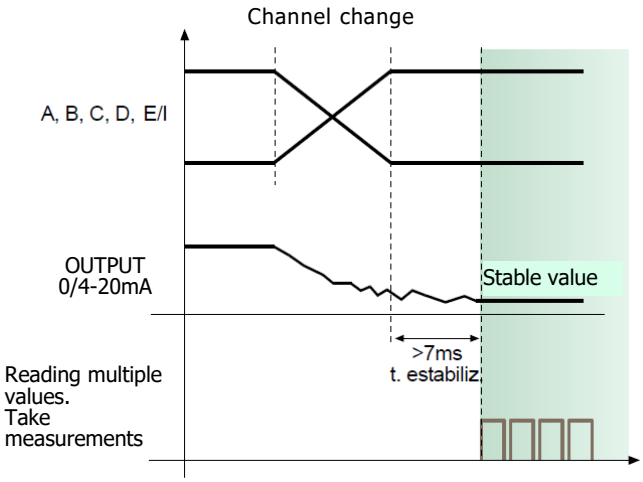
## SPAN ADJUSTMENT (end of scale)

1. To proceed with the recalibration of the Multiplexer, access the SPAN adjuster by sliding the card.
2. Keep the measuring instruments and the KOSMUX16 switched on for at least 15 minutes prior to calibration.
3. Introduce a signal as close to 20mA through one of the 16 input channels, digitally selecting the channel.
4. Adjust the output, using the SPAN potentiometer until obtaining a value identical to the one of the input.



## SELECTION SEQUENCE

1. Select the E/I multiplexer module (only in case of having more than 16 channels with modules linked)
2. Select channel in binary A , B , C, D
3. Wait, at least, the stabilization time, (>7 msg).
4. Capture various analog signal values, then perform the average. (a more stable uptake will be obtained)
5. Go back to point 2




## TECHNICAL SPECIFICATIONS

### ANALOG INPUTS

Current ..... 16 x 0/4-20mA
Impedance .....≤ 260Ω
Protected against permanent overcurrents by means of resettable fuses when the anomaly ceases.
Current circulating constantly in all loops of inputs, even if they are not selected.

### DIGITAL INPUTS

Optocoupled and Selectables .....NPN / PNP
Consumption intensity/channel ..... 9 mA
Module selection .....ENABLE / INHIBT

### OUTPUT

Current .....0/4-20mA (SOURCE)
Amplified load capacity .....≤750Ω
Output current protection .....<28mA
Expandable to join another output
Stabilization time om each channel ..... <7s
SPAN setting .....±10% F.S.

### POWER SUPPLY

Voltage .....24 VDC (20V to 30V)
Maximum consumption .....50mA
Protected against reverse polarity

### ENVIRONMENTAL CONDITIONS

Operating temperature ..... -40ºC to÷ 85ºC
Overall máximum error .....<0.05%

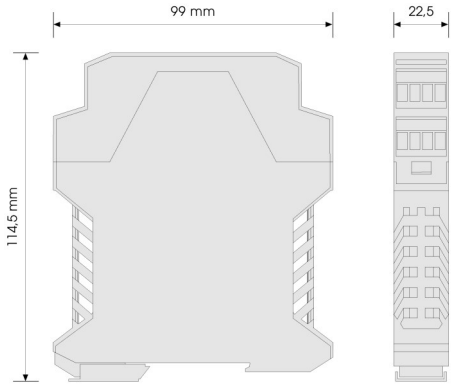
### FORMAT

Protection ..... IP20
Material.....Polyamide PA6.6
Weight .....150g
UL Combustibility ..... V0
Mounting ..... rail EN50022

### WIRINGS

Screw terminals M3 ..... ..... torque 0.5Nm
Connection cable .....≤2.5mm² (12AWG)
Connection cable inputs (9 to 16) ..... ≤1.5mm² (16AWG)

## DIMENSIONS




**CE Conformity.**

| | | |
|---|---|---|
| Directives | EMC 2014/30/EU | LVD 2014/35/EU |
| Standarts | EN 61000-6-2<br>EN 61000-6-3 | EN 61010-1 |

**ATTENTION: If this instrument is not installed and used in accordance with these instructions, the protection it provides against hazards may be impaired.**

To meet the requirements of EN 61010-1, where the unit is permanently connected to the main power supply, it is mandatory to install a circuit-breaking device easily accessible to the operator and clearly marked as a disconnect device.

According to 2012/19/EU Directive, You cannot dispose of it at the end of its lifetime as unsorted municipal waste. You can give it back, without any cost, to the place where it was adquired to proceed to its controlled treatment and recycling.

DITEL
DISEÑOS Y TECNOLOGÍA, S.A.
Xarol, 6B P.I. Les Guixeres
08915 Badalona (Barcelona) - Spain
Tel. +34 933 394 758
Fax +34 934 903 145
Email: dtl@ditel.es ; web: www.ditel.es

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