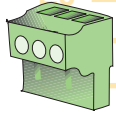


# MULTIPLEXER

## 16/8 input 0-4/20mA

### 1 OUTPUT active 0-4/20mA

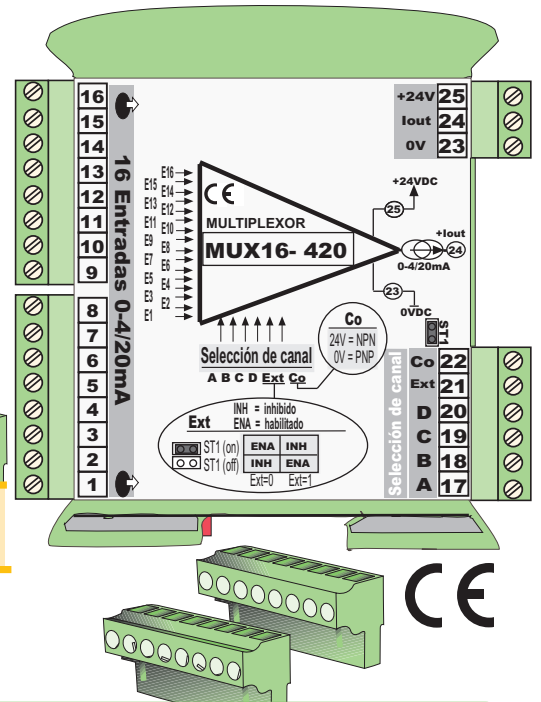
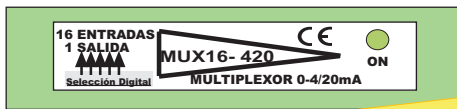
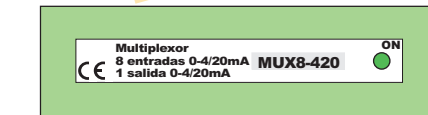


Surge protection

expandable

Supply  
24 VDC

With plug-in connectors



APPLICATIONS, are indicated in all installations or processes that employ a large number of signals 0-4 / 20mA (intelligent control, control in chemical processes, ovens, purifiers, warehouses, dryers, etc ...)

## DESCRIPTION

The inputs are protected against overvoltages and permanent overcurrent by resettable fuses when the fault ceases.

- This multiplexer allows to switch statically 16 or 8 analog channels of 0-4 / 20 mA current loop, depending on the model.
- Achieve a considerable saving of analog inputs (only uses 1 analog input of the PLC).
- It allows to chain several multiplexers using 1 single output 0-4 / 20 mA active, since it incorporates control (ENABLE / INH) for the selection of different multiplexer modules.
- The current circulates constantly in all input loops, even if they are not selected.

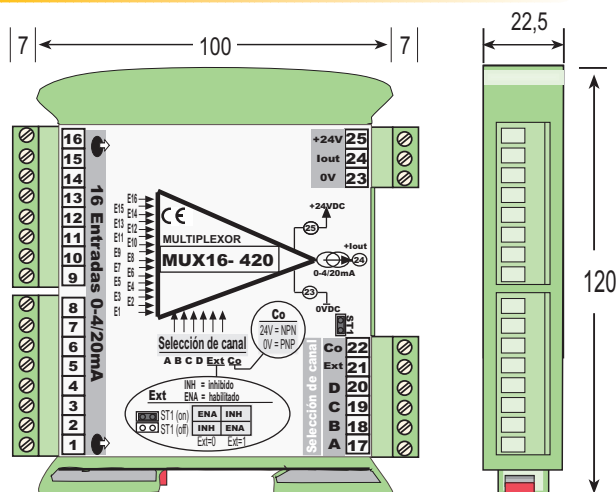
## PRECISION

Max global error	0,05 %
Linearity error	0,08 %
Thermal drift	0,5µA / °C

## MECHANICAL

Protection:	IP 20
Connection: screw terminals	< 2.5mm, 12 AWG
Torque tightening screws (M3)	0.5Nm
Case:	PC / ABS self-extinguishing UL94. V0
Weight:	100 / 150 gr.
Rail:	DIN EN 6071S

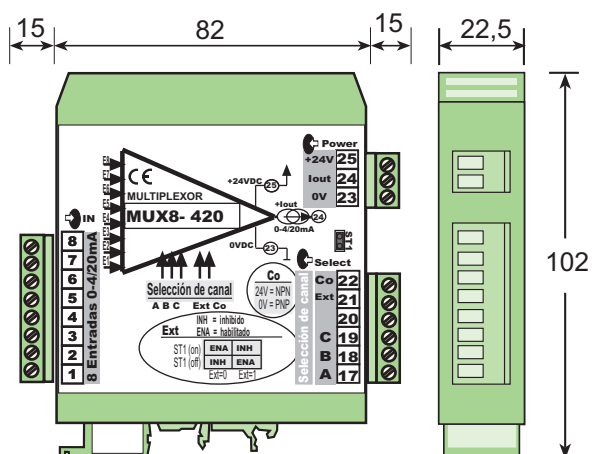
## DIMENSIONS (mm)



REFERENCE

MUX16-420

## DIMENSIONS (mm)



REFERENCE

MUX8-420

## GENERAL CHARACT.

- INPUT: 16 Analog signal channels 0-4 / 20 mA (Active and / or passive loops).
- OUTPUT: 1 output 0-4 / 20 mA ACTIVE (with amplified load capacity)  
Expandable: Ready to join when multiple multiplexers are used, with a single output.
- CONTROL: · 4 digital optocoupled channel selection inputs, in binary code (NPN or PNP)
- 1 optocoupled digital input "Ext", to be used as a module selection, with several cascaded multiplexers.
- Internal ST1: Strap for selection of signal type "Ext" (ENABLE / DISABLE)

## TECHNICAL CHARACT.

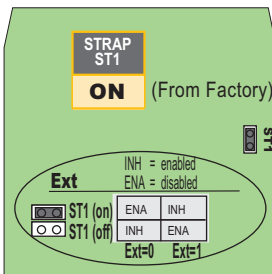
- Resistance to the internal load R in + R on (Load-impedance in the input loop) < 260 Ohm
- Stabilization time in each channel < 7mseg
- Optocoupled bi-directional digital inputs at 24VDC, for NPN and PNP. Intensity consumption with channel < 5 mA
- Output loop load capacity 0-4 / 20 mA amplified < 750 Ohm
- Internal maximum current 60 mA
- Auxiliary power supply 24VDC +/- 20%

## REGULATIONS COMPLIANCE

Electromagnetic Compatibility	2004 / 108 / CE
Low voltage for amb. industrial	2006/95/CEE
Electromagnetic emissions	UNE-EN 50081-2
Electromagnetic immunity	UNE-EN 50082-2
Waste electronics(WEEE)	2002 / 96 / CE

## AMBIENTALS

Working temp.	-10 / +60 °C
Storage temp.	-40 / +80 °C
T <sup>a</sup> coefficient	50 ppm / °C
Warm up time	5 min.



- For individual use, ST1 = on and Ext = 0
- To link-expand with other MUXs, use The control signal "Ext"

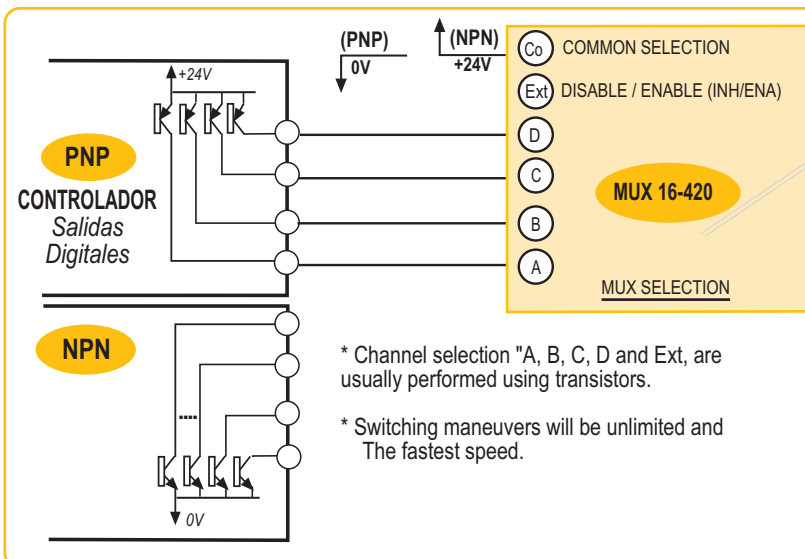
STRAP-ST1: Access to the interior, By one side of the box.

Factory setting ST1 is ON

## CHANNEL SELECTION (with ST1-ON)

Ext	D	C	B	A	Nº CANAL
1	X	X	X	X	no one
0	0	0	0	0	1
0	0	0	0	1	2
0	0	0	1	0	3
0	0	0	1	1	4
0	0	1	0	0	5
0	0	1	0	1	6
0	0	1	1	0	7
0	0	1	1	1	8
0	1	0	0	0	9
0	1	0	0	1	10
0	1	0	1	0	11
0	1	0	1	1	12
0	1	1	0	0	13
0	1	1	0	1	14
0	1	1	1	0	15
0	1	1	1	1	16

## PNP or NPN SELECTION. Digital Lines



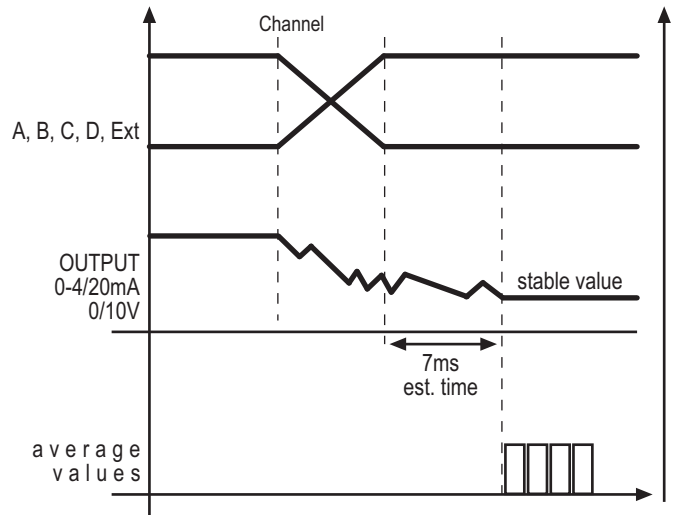
\* The channel is selected in binary code

1 = ON  
0 = OFF

## SELECTION SEQUENCE

- 1.- Select the channel in binary (A, B, C, D, Ext).  
(The Ext signal only in case of having expansion modules)
- 2.- Wait, at least, 7ms. for the stabilization time.
- 3.- Capture several values of the signal 0-4 / 20mA, then perform the average, (you will get a more stable uptake).
- 4.- Return to point 1, until scanning the first 16 channels.

If you have expansion cards, select a new module with the Ext signal, and return to point 1.



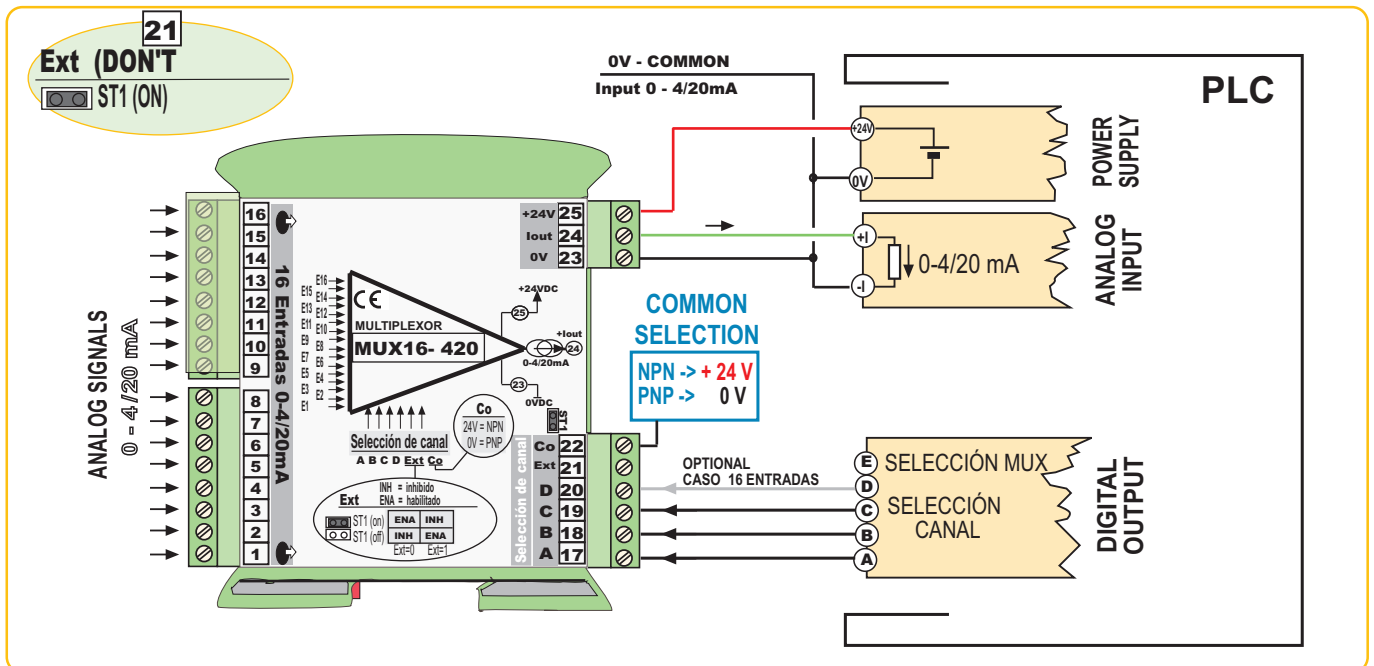
### \* Alarm readings and false alarms.

When the readed signals are used to activate alarms, it is convenient to ensure that this has occurred.

Therefore, it is very important, in case of reading an alarm, to repeat the reading, to ensure if the alarm has occurred or not.

## MULTIPLEXER BASIC CONNECTION

## individual connection (8-16channels)



## MUX SELECTION \*-420 (ST1 - internal)

## cascade connection

- The Ext selection is only used when more than 1 MUX module with 8 or 16 channels is used.

- The Ext selection can be enabled for INHIBITION signal or ENABLE signal, depending on the position of Strap ST1.

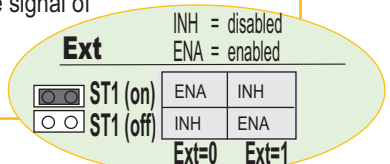
- Strap ST1 (ON) - Ext signal: "0" selected --- "1" deactivated. (Factory setting ST1 is ON)

- Strap ST1 (OFF) - Ext signal: "1" selected --- "0" deactivated.

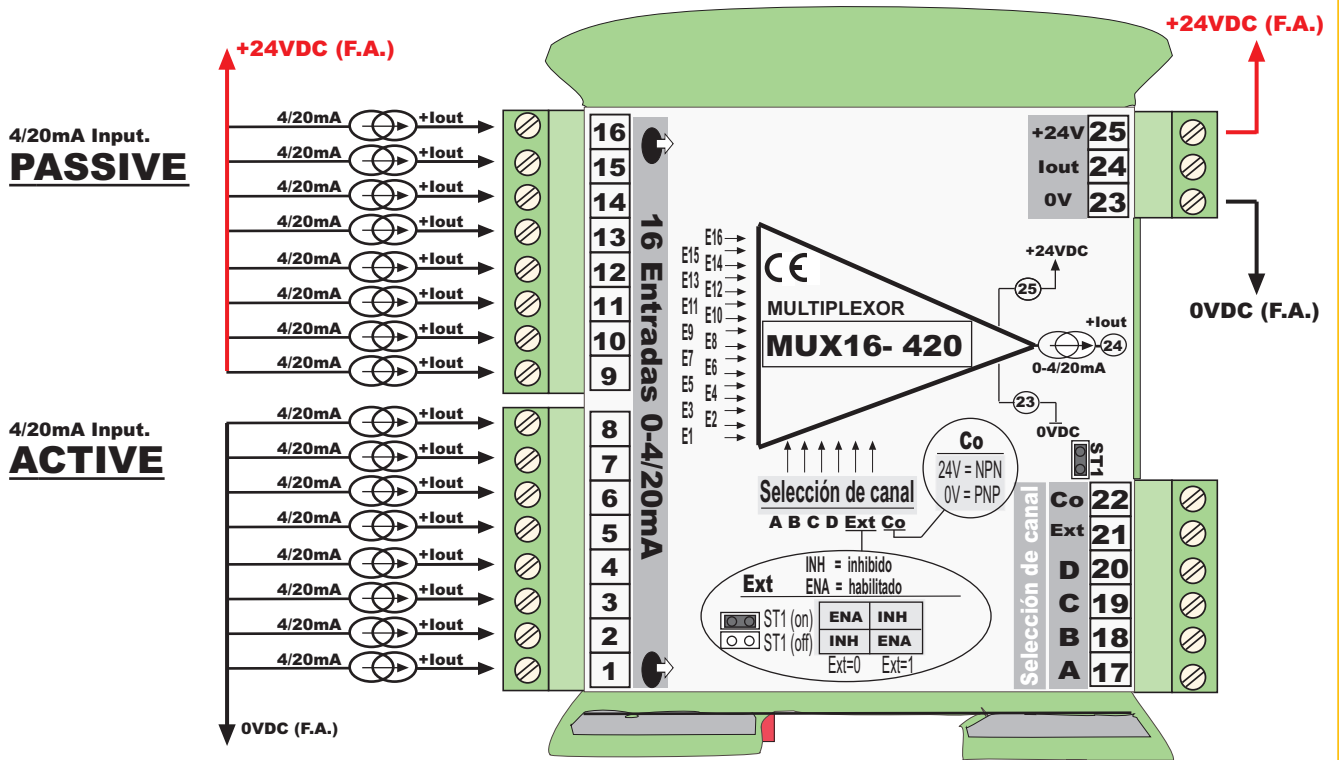
- MUX \* 1 Using only one MUX-420 module, select ST1 (ON), and it will be selected, without terminal 21 (Ext).

- MUX \* 2 Using two MUX-420 (base + expansion) select one module with ST1 (ON) and another with ST1 (OFF). In this way, by connecting the same Ext line in the two modules, it will be controlled with a single signal of Selection, both modules (when "0" one and when "1" the other).

- MUX \* n Using "n" modules mux-420, select all modules with ST1 in ON or OFF According to preferences. You will need 1 control line for each module.



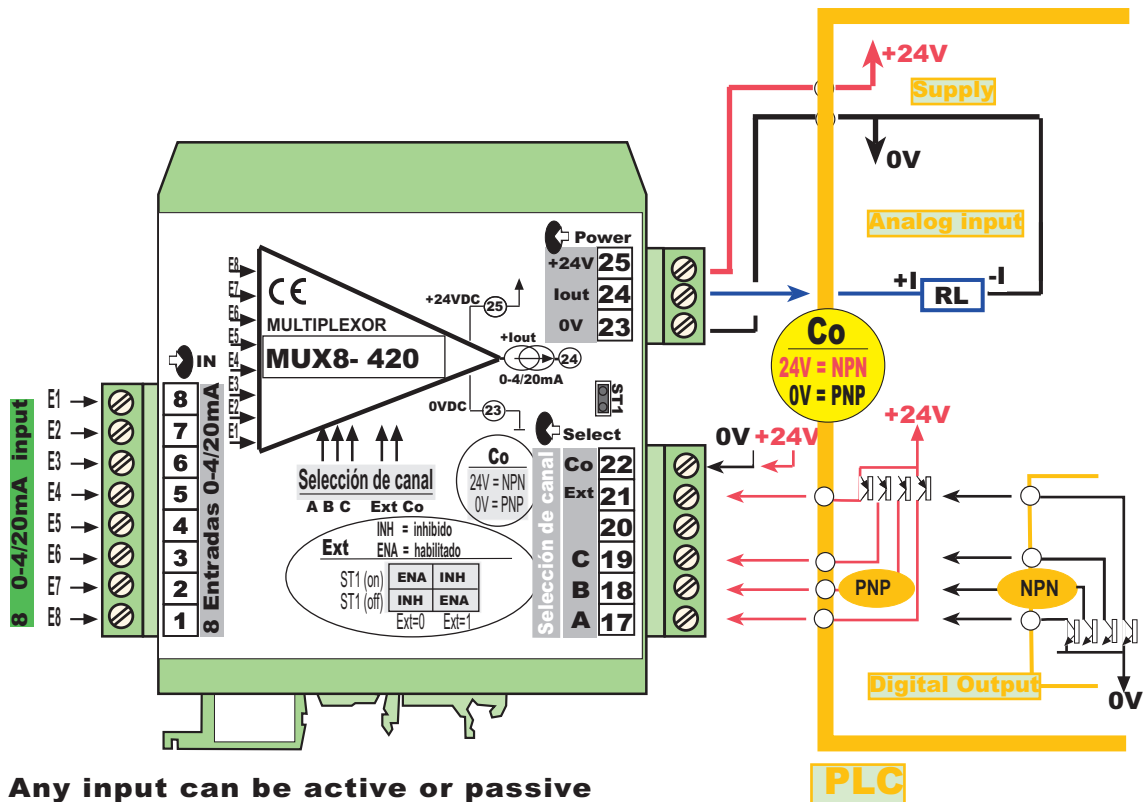
Passive (2 wires) and active input connection example.



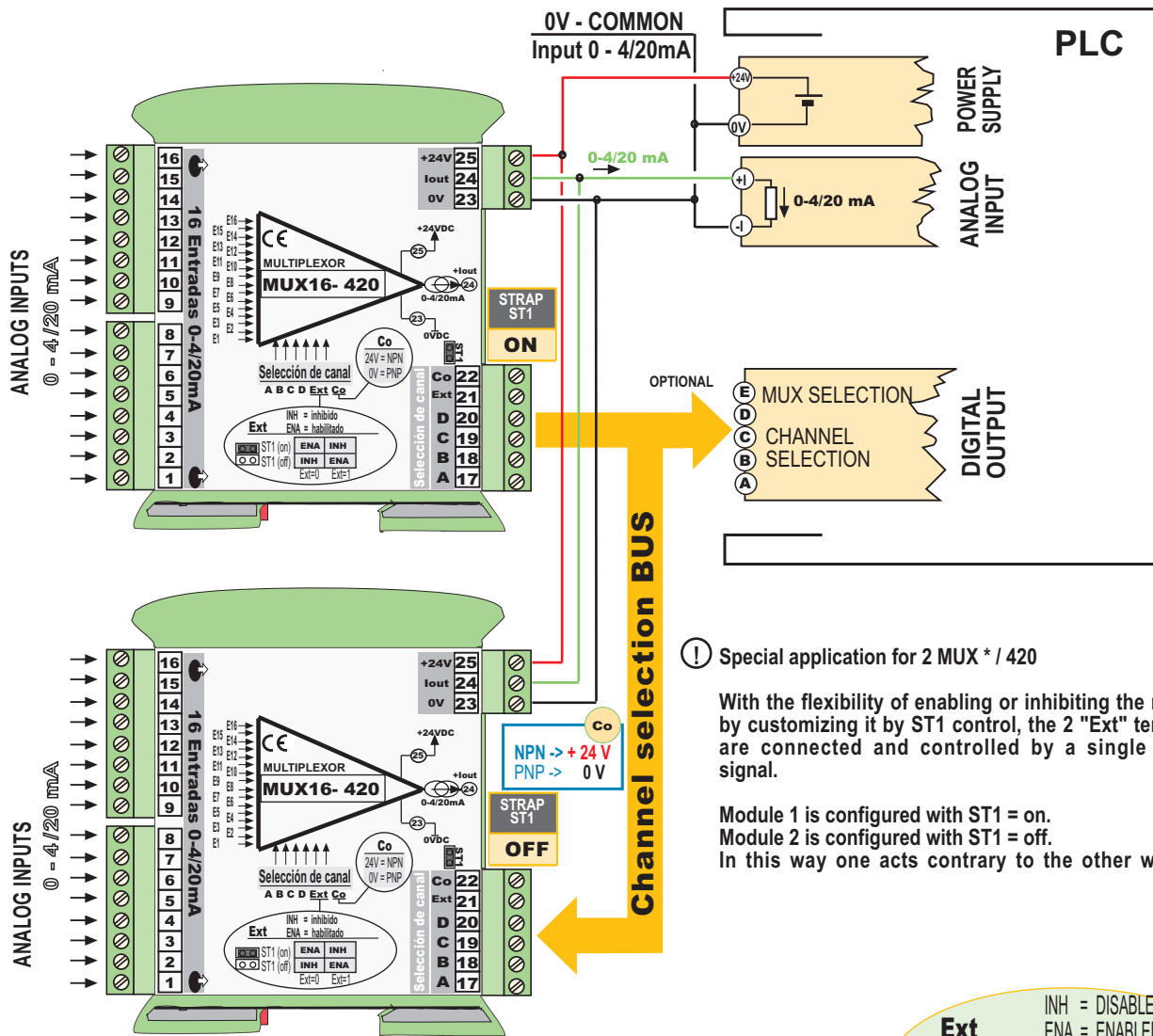
\*\* Any input can be active or passive

**CONNECTIONS**

**MUX8-420**



\*\* Any input can be active or passive



! Special application for 2 MUX\* / 420

With the flexibility of enabling or inhibiting the module by customizing it by ST1 control, the 2 "Ext" terminals are connected and controlled by a single digital signal.

Module 1 is configured with ST1 = on.  
Module 2 is configured with ST1 = off.  
In this way one acts contrary to the other with the

**Ext** INH = DISABLED  
ENA = ENABLED

<input checked="" type="checkbox"/> ST1 (on)	ENA	INH
<input type="checkbox"/> ST1 (off)	INH	ENA

Ext=0 Ext=1

**CHANNEL SELECTION**

D	C	B	A
0	0	0	0
0	0	0	1
0	0	1	0
0	0	1	1
0	1	0	0
0	1	0	1
0	1	1	0
0	1	1	1
1	0	0	0
1	0	0	1
1	0	1	0
1	0	1	1
1	1	0	0
1	1	0	1
1	1	1	0
1	1	1	1

**(con ST1-ON)**

Ext	Nº CANAL
0	1
0	2
0	3
0	4
0	5
0	6
0	7
0	8
0	9
0	10
0	11
0	12
0	13
0	14
0	15
0	16

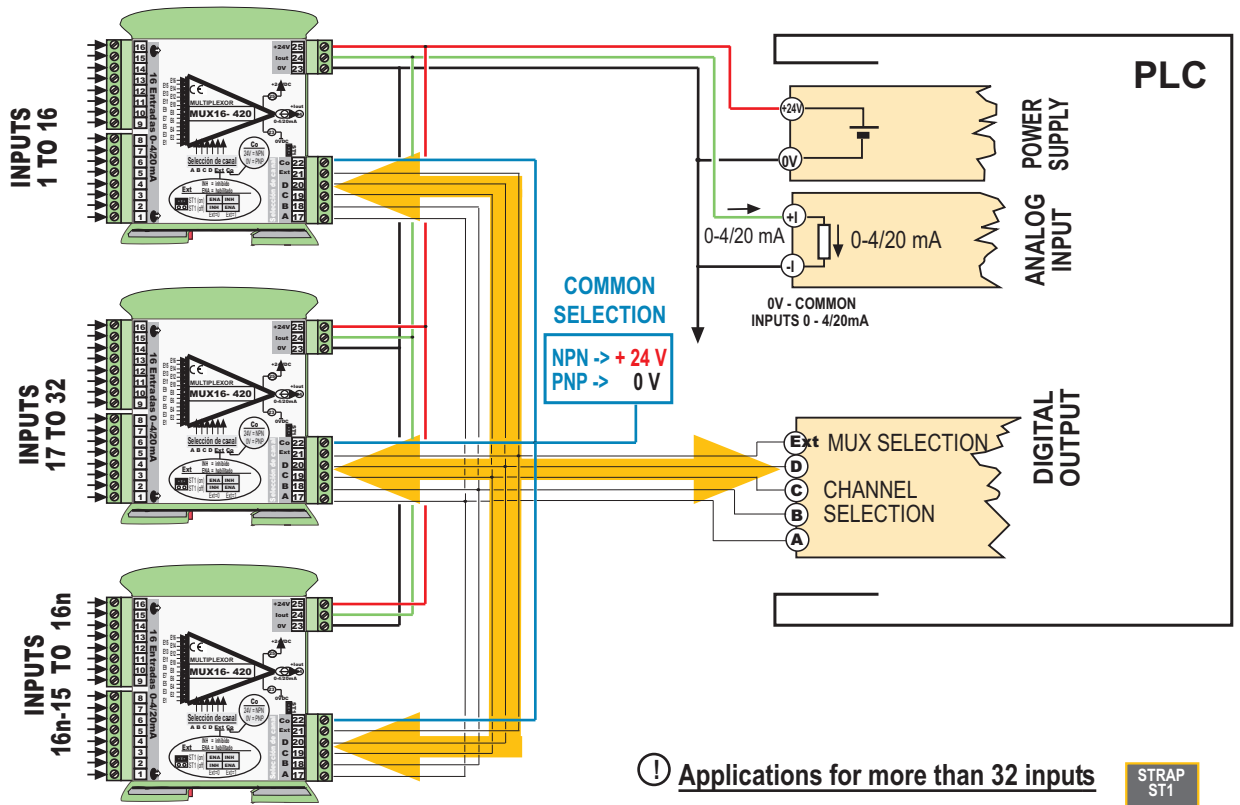
**(con ST1-OFF)**

Ext	Nº CANAL
1	17
1	18
1	19
1	20
1	21
1	22
1	23
1	24
1	25
1	26
1	27
1	28
1	29
1	30
1	31
1	32

1 = ON  
0 = OFF

\* The channel is selected with binary code

# Connection example of various linked multiplexers



! Applications for more than 32 inputs

All the modules are configured with ST1 in

STRAP  
ST1  
OFF

(All with ST1-OFF)

## CHANNEL SELECTION

\* The channel is selected with binary code

D	C	B	A	CH N°	CH N°	CH N°
0	0	0	0	1	17	16n-15
0	0	0	1	2	18	16n-14
0	0	1	0	3	19	16n-13
0	0	1	1	4	20	16n-12
0	1	0	0	5	21	16n-11
0	1	0	1	6	22	16n-10
0	1	1	0	7	23	16n-9
0	1	1	1	8	24	16n-8
1	0	0	0	9	25	16n-7
1	0	0	1	10	26	16n-6
1	0	1	0	11	27	16n-5
1	0	1	1	12	28	16n-4
1	1	0	0	13	29	16n-3
1	1	0	1	14	30	16n-2
1	1	1	0	15	31	16n-1
1	1	1	1	16	32	16n

Ext INH = Disabled  
ENA = Enabled

ST1 (on)	ENA	INH
ST1 (off)	INH	ENA

Ext=0 Ext=1

1 = ON  
0 = OFF