

Technical Manual

CN050



SYEL srl
Via Liguria, 1 - 56030 loc. Gello - Pontedera (PI)
Tel. ++39-0587 294096 r.a. Fax ++39-0587 270798
e-mail syel@syel.it - www.syel.it

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Specifications

Man-machine interface/Display: a graphic LCD with 256 x 64 pixels (32 x 8 digits max.)

Power Supply: 24 Vdc **Absorption:** 300 mA **Consumption:** 7.2 W

Dimensions (LxHxD):

outer size: 200 x 100 x 115 mm

inner size: 192 x 92 x 115 mm (hole template)

Weight: 1 Kg

Installation: Panel installation.

Connections: Weidmüller connectors with cable screwing up.

Temperature: Storing temperature: from -10 to +60°C
Working temperature: from 0 to +40°C.

Processing speed: 10,000,000 op./sec. (bit); 2,500,000 op./sec. (byte/word); 100,000 op./sec. (Floating point).

Programming: SYEL PNC language (Programmable Numerical Control - BASIC syntax)

Moreover

- Thermoformed keyboard with 30 keys.
- Two serial lines in TTL format or RS232, convertible into optical fibre (optional). Max. transmission speed (baud-rate) programmable up to 625 KBauds with signal repeaters.

Input/Output

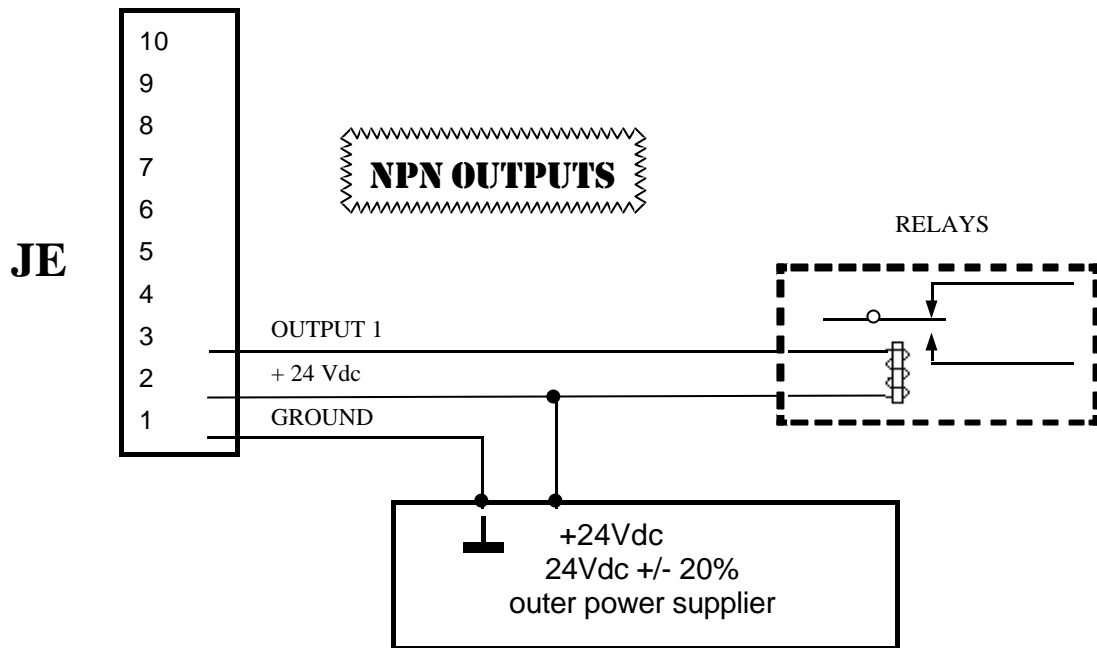
- 3 inputs for as many NPN bidirectional encoders complete with fourfold multiplier (software division). Counting speed: 1250 KHz.
- 16 digital inputs with NPN or PNP transistors.
- 16 24-Vdc digital outputs with open collector NPN or PNP transistors. Every eight outputs can support a max. 400mA I_{max}.
- Possible unlimited expansion of digital I/Os with external modules.
- 8 analogic 0-5 Vdc 12-bit (4096-step) inputs with a 10 µsec reading refresh per channel.
- 3 +/- 10 Vdc analogic outputs with a 16-bit programmable resolution.
- Possible expansion of 8-bit analogic I/Os with external modules.

- A Siemens 80C166 **16-bit CPU** structure with a **40-MHz** clock.
- Numerical control over three incremental axes (counting speed = 1250 KHz each).
- Linear, circular and helicoidal interpolation.
- Control of brushless, DC or AC motors and inverters.
- 8 0-5 Vdc 12-bit (4096-step) analogic inputs, also usable as inputs for potentiometric position transducers, to detect temperatures, pressures etc.
- 3 +/- 10Vdc analogic outputs with a 16-bit resolution.
- 16 digital inputs +16 digital outputs with NPN or PNP transistor on board.
- Unlimited expansibility of both analogic (8-bit) and digital I/Os.
- Also usable as a simple peripheral unit (without keyboard and display) of a PC or a central NC, that is in the Master and Slave configuration
- Two serial lines in TTL format or RS232, convertible into optical fibre (optional).
- Visualization with LCD graphic display with 256 x 64 pixels
- A 256-Kbyte RAM
- A 128-Kbyte EPROM
- A 4-Mbit (512-Kbyte) Flash memory
- Unit programmable as PLC with the PNC language, a programming software developed by SYEL.

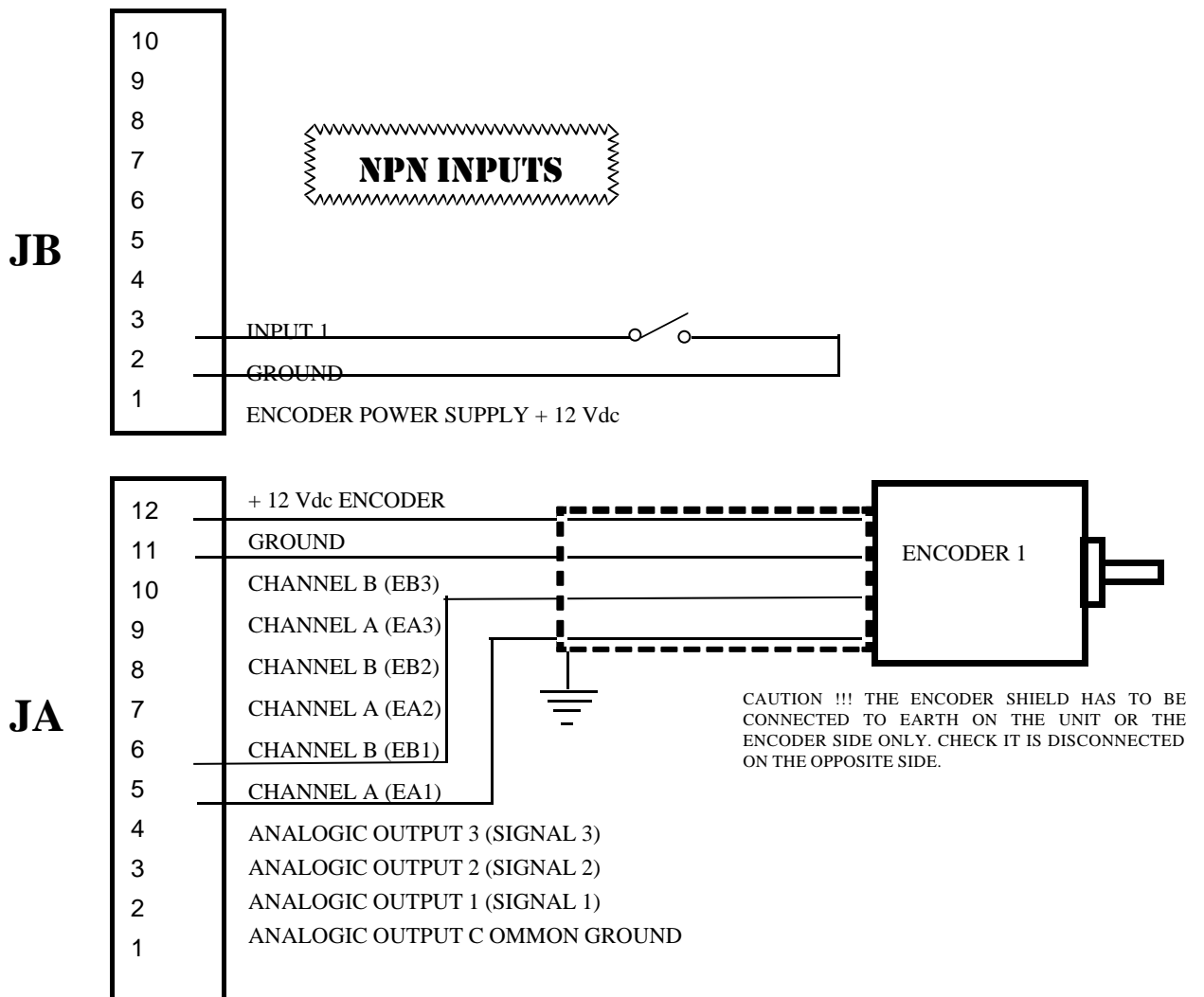
A 3-year warranty except for batteries and display which have a one-year warranty.



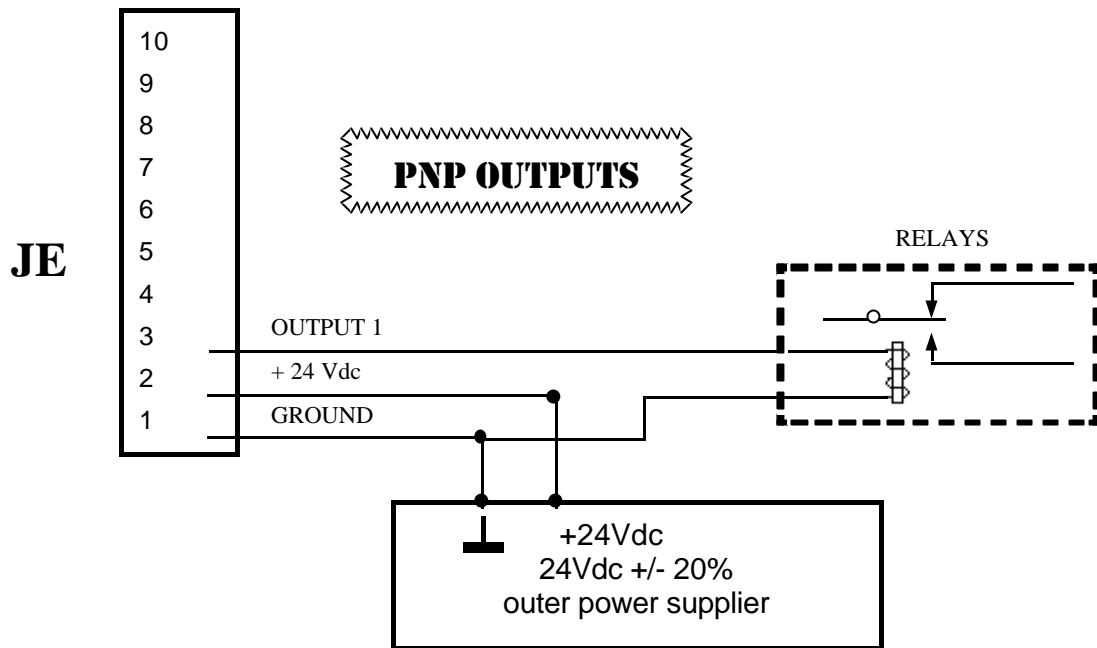
CONNECTIONS OF POWER SUPPLY AND NPN OUTPUTS



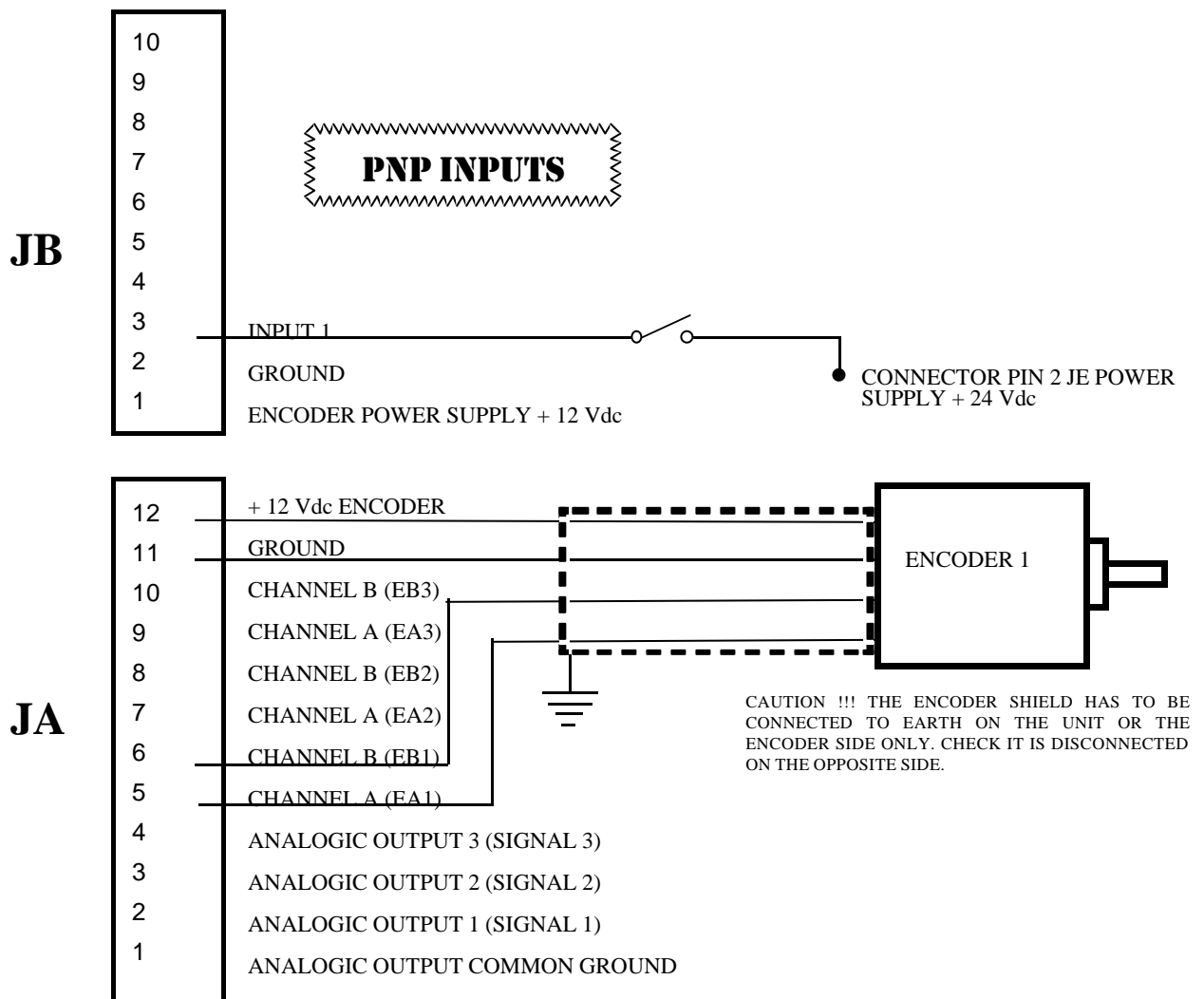
CONNECTIONS OF NPN INPUTS, ENCODERS AND ANALOGIC OUTPUTS

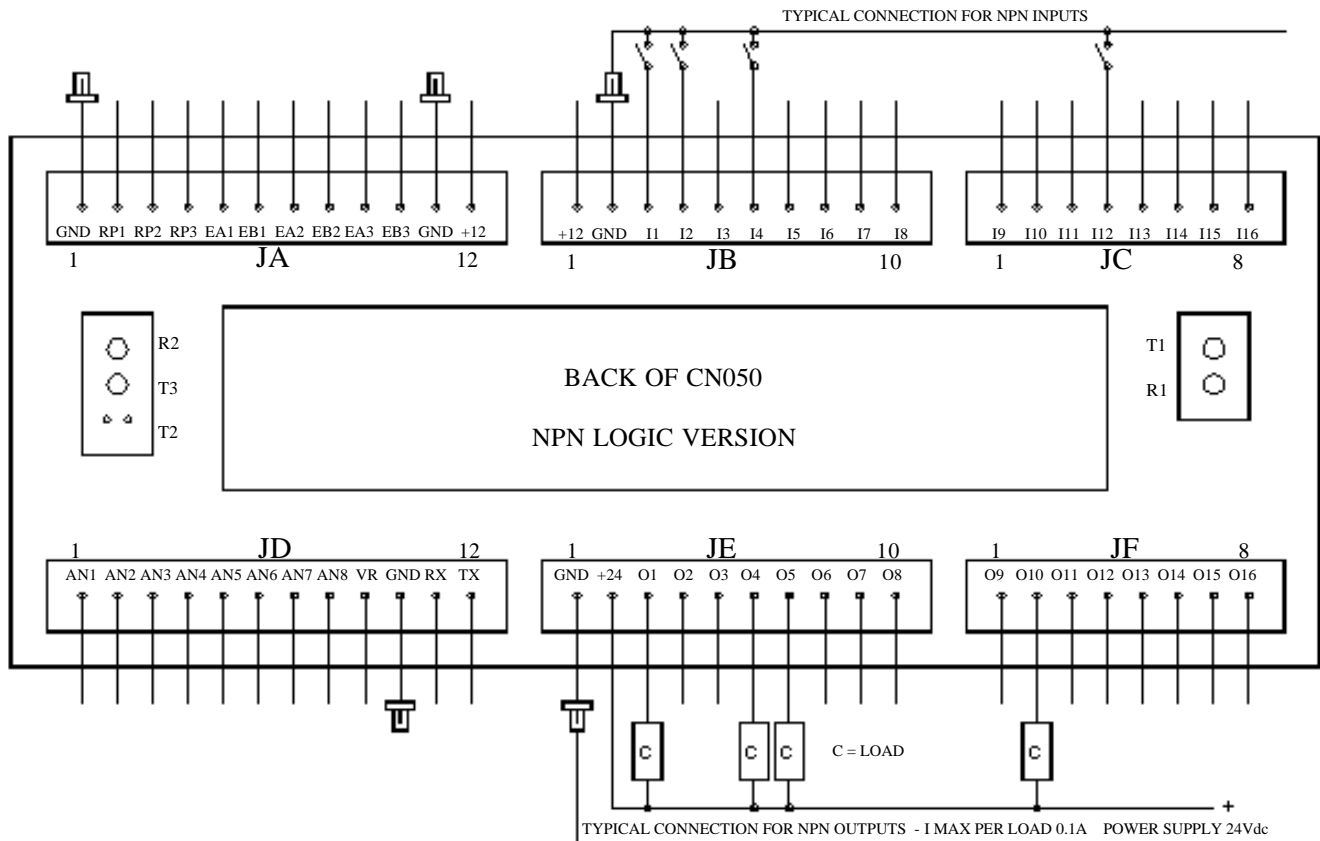


CONNECTIONS OF POWER SUPPLY AND PNP OUTPUTS



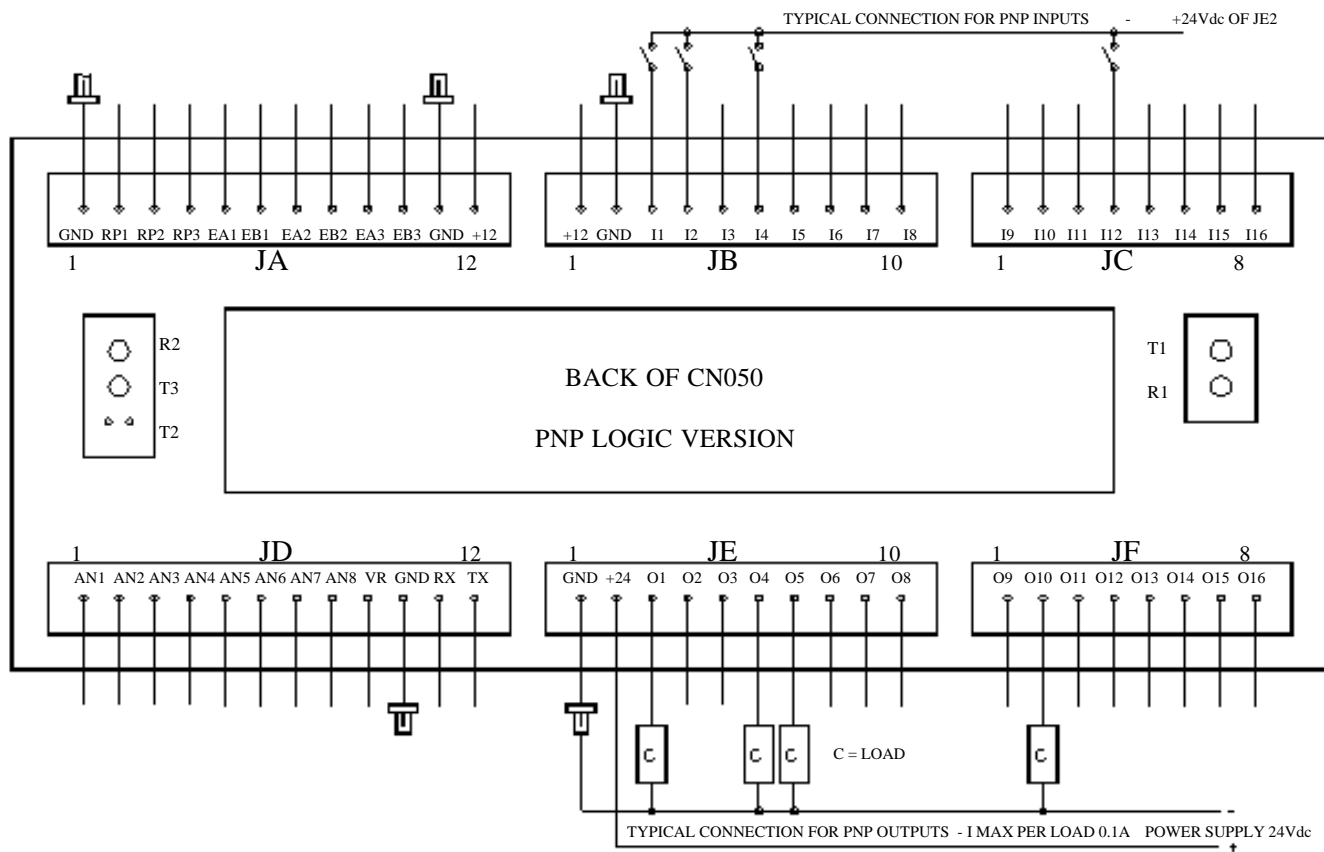
CONNECTIONS OF PNP INPUTS, ENCODERS AND ANALOGIC OUTPUTS





AN* _____ = 0-5 Vdc ANALOGIC INPUTS
 VR _____ = REFERENCE VOLTAGE FOR ANALOGIC INPUTS
 RX _____ = RECEIVING OF RS232 SERIAL LINE (COM 2)
 TX _____ = TRANSMISSION OF RS232 SERIAL LINE (COM 2)
 GND _____ = GROUND
 O* _____ = DIGITAL OUTPUTS IN NPN LOGIC
 I* _____ = DIGITAL INPUTS IN NPN LOGIC
 RP* _____ = +/- 10 Vdc ANALOGIC OUTPUTS
 T1 and R1 _____ = TRANSMISSION AND RECEIVING OF OPTICAL FIBRE SERIAL LINE (COM 1)
 T3 and R2 _____ = TRANSMISSION AND RECEIVING OF OPTICAL FIBRE SERIAL LINE (COM 2)
 T2 _____ = JUMPER TO ENABLE REPEATING INCOMING DATA FROM R2 TO T3
 E* _____ = CHANNELS "A" AND "B" OF ENCODERS 1, 2 AND 3
 JA1 _____ = COMMON GROUND FOR ANALOGIC OUTPUTS
 JA11 _____ = ENCODER COMMON GROUND
 JA12 and JB1 _____ = + 12 Vdc ENCODER
 JB2 _____ = COMMON GROUND OF NPN INPUTS
 JE2 _____ = + 24 Vdc POWER SUPPLY
 JE1 _____ = GROUND POWER SUPPLY
 JD10 _____ = COMMON GROUND FOR ANALOGIC INPUTS





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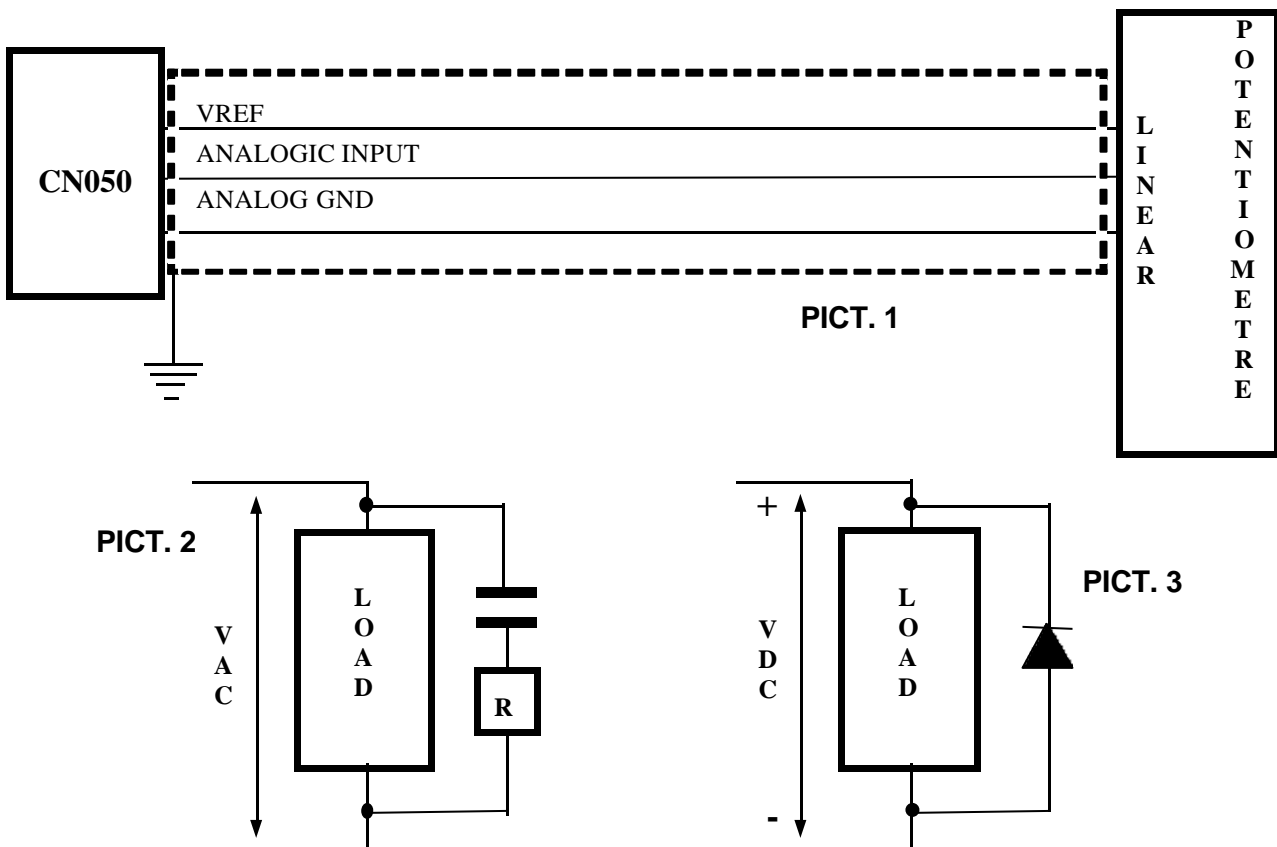
SUGGESTIONS

FIRST OF ALL WE WISH TO UNDERLINE THAT SYEL UNITS COMPLY WITH EC REGULATIONS. WE HOWEVER RECOMMEND YOU TO TAKE THE FOLLOWING PRECAUTIONS JUST AS A PREVENTIVE MEASURE:

- A We suggest you wire the machine so as to avoid the interweaving between the input-output connection wires and those of the electric part. It is absolutely necessary to AVOID accidental contact between *any input-output wire* and the A.C. line.
- B Analogic inputs have to be connected to the transducer by a three-wire shield cable whose shield has usually to be grounded on one side only (Pict. 1). Despite a correct connection, the reading of the magnitude to be measured may appear unstable. In this case we suggest you set up the potentiometer on insulated supports, connect its body with the shield, and then connect the shield to earth by the unit.
- C It is absolutely necessary to equip all inductive loads with proper transient suppressors in order to prevent electric noise due to the commutation of inductive loads to cause unwanted signals in the line, which may affect the correct functioning of electronic units, even if in rare cases only. We suggest you use RC groups for A.C. loads (Pict. 2) and diodes for D.C. loads (Pict. 3). Note that the value measured, for analogic inputs, corresponds to the same voltage expressed in mVs.

N O T E Even if our units are equipped with proper protections (filters, optocouplers etc.) we suggest you use such suppressors all the same, in order to prevent false signals to reach similar characteristics to those of useful signals.

EXAMPLE OF A CONNECTION TO A POTENTIOMETRE TRANSDUCER AND PROTECTIONS TO BE USED



“Blind” CN050

Just like all of the other SYEL NCs, also CN050 can be used in its “blind” version, that is without the operator/man-machine interface (keyboard and display).

In practice it is used like a rack to be connected to a PC for Industries or offices with a fiber optic serial line.

*“Blind” CN050 has on board boards for axis control,
digital and analogic I/O
and PLC,*

and is equipped with WEIDMUELLER connectors with cable screwing up.

Example of a PC+ “blind” NC application.

