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INSTRUCTION MANUAL

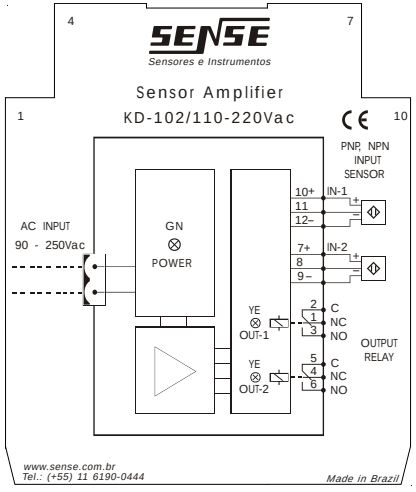
Power Supply with Relay KD-102.../110-220Vac

Pic. 1

Function:

Economical version for two sensors, with two independent channels, and relay output of one SPDT reversible contact per channel, mounted in a box with 12 terminals.

Wiring Diagram:

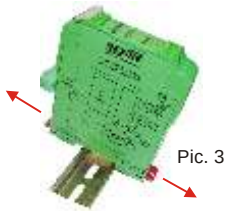


Pic. 2

Power Supply Mounting:

The mounting of the source internally in the panel should be made using 35 mm rails (DIN-46277).

1° With the aid of a screwdriver, push the locking tab of the unit outwards (Pic.03)

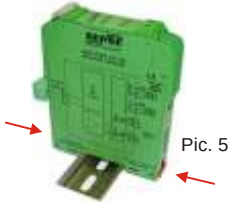


Pic. 3

2 ° Lower the power supply until it clicks into the rail (Pic. 04)

Pic. 4

3 ° Fasten the locking tab to the end (fig.05) and make sure that the power supply is securely fastened.



Pic. 5

Horizontal Mounting:

We recommend mounting in the horizontal position in order to have better air circulation and that the panel be provided with a ventilation system to prevent overheating of the internal components.

Pic. 6

Electrical Installation:

This unit has 12 terminals according to the table below:

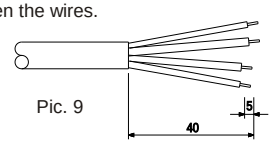
Terminal	Description
1	Closed relay contact (NC)
2	Relay Common Contact (C)
3	Open relay contact (NO)
4	Closed relay contact (NC)
5	Relay Common Contact (C)
6	Open relay contact (NO)
7	Positive for sensor 1 (+)
8	Sensor 1 input signal
9	Negative for sensor 1 (-)
10	Positive for sensor 2 (+)
11	Sensor 2 input signal
12	Negative for sensor 2 (-)

Pic. 7

Pic. 8

Wire Preparation:

Make the ends of the wires as shown below:
Be careful when removing the protective cover so as not to make small cuts on the wires as this may cause a short circuit between the wires.



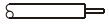
Pic. 9

Procedures:

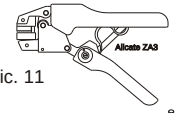
Remove the protective cover, attach the terminals and tighten them, if desired, tip the tips for better attachment.

Terminals:

To avoid bad contact and short circuit problems we recommend the use of pre-insulated terminals (tips) inserted in the wires.



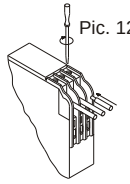
Pic. 10



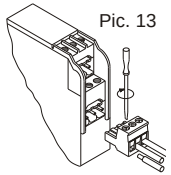
Pic. 11

Plug-in System:

In the basic model the connections of the input, output and power cables are made by throught of compression-type terminals mounted on the part itself.
Optionally the instruments of the KD line, can be provided with the plug-in system of connections.
In this system the cable connections are made in three-pole connectors which on one side have compression terminals, and the other side is connected to the equipment.
For the instrument to be supplied with the plug-in system, add the suffix "-P" in the end of equipment code.



Pic. 12



Pic. 13

Sensors Power Supply:

The unit internally has a power supply that provides 24Vdc for the sensors.
Caution: We do not advise people not authorized to open the source, because we use switching techniques that produce high voltages, and can cause electric shock.

Power Supply Voltage:

Nominally the power supply provides 24Vdc, but the output voltage may vary with the current consumed by the load and with the AC voltage of the electrical network
In extreme cases with the power supply in a vacuum the voltage can reach close to 27Vdc (depending on the electrical network) and under full load conditions with the AC electrical network below the nominal the voltage can reach close to 23Vdc.

Current Capacity:

The unit can provide up to 100mA, make sure it is sufficient to power the sensor used. Never exceed this value because the unit will overheat and above 140 mA will trigger the short-circuit protection.

Conexão dos Sensores:

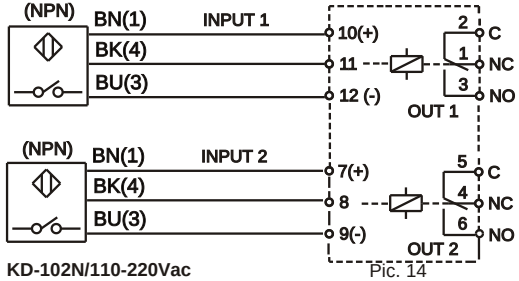
Existem duas possibilidades de ligações, sendo elas: lógica positiva (PNP), lógica negativa (NPN).

Sensors Connection:

There are two models, one for positive logic (PNP) and one for negative logic (NPN).

What is NPN Sensors?

They are sensors that have in the output stage a transistor that has function to switch (turn on or off) the negative terminal of the power supply.

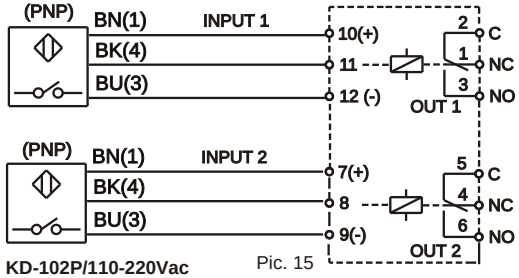


KD-102N/110-220Vac

Pic. 14

What is PNP Sensors?

They are sensors that have in the output stage a transistor that has function to switch (turn on or off) the negative terminal of the power supply.



KD-102P/110-220Vac

Pic. 15

C - Common / NO - Normally Open / NC - Normally Closed

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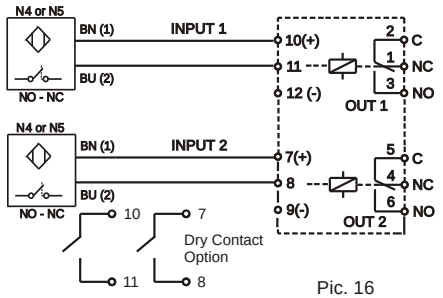
2-Wire Continuous Current Sensors:

The unit accepts the connection of 2-wire direct current sensors, versions N4 (NO) or N5 (NC).

What is a 2-Wire Sensor?

They are sensors in direct current similar to the PNP and NPN, but without the third wire that feeds the sensor.
The internal circuitry of the sensor is supplied through a small current flowing through the load.



Pic. 16

Dry Contacts:

The power supply also supports the use of dry contacts on the input, which must be connected exactly like the 2-wire sensors.

Sensor Wire Color:

The colors of the sensor wires are internationally standardized and their function is indicated in the table below:

Color	Function
Brown (BN)	Positive
Blue (BU)	Negative
Black (BK)	NO
White (WH)	NC

Tab. 17

Note 1: Incorrect connection may cause permanent damage to the unit.
Note 2: When using 4-wire sensors, you can choose either the NO or NC output of the sensor, even setting the relay to operate normally powered with the sensor off (NC output) and be sure to isolate the unused output.

Sensors Association

The unit allows the association of sensors both in series and in parallel, taking due care.

Series Association:

It must be ensured that the voltage that effectively reaches the power supply input is sufficient for its activation.
Both PNP and NPN sensors must guarantee a minimum of 15V at the input.

Parallel Association:

In this type of connection a diode must be placed in each output, to avoid that when activating a sensor, does not light the led of the other sensors.

Operation Test:

With Sensor :

Connect the power supply, and the sensor according to wiring diagram and note that when the sensor (NO) is triggered, it is necessary to check the immediate activation of the output relay by through of the yellow LED that will light up.

Pic. 18

Without Sensor:

Make a jumper on the terminals according to the type of sensor:

PNP Type:

To test the PNP type sensor, make a jump on terminals 10 and 11 for inputs 1 and 7 and 8 for input 2, then check that the relay and the warning light are on (Pic. 19).

Pic. 19

NPN Type:

To test the NPN type sensor, make a jump on terminals 12 and 11 for inputs 1 and 8 and 9 for input 2, then check that the relay and the LED are on.

Power Supply AC Connection:

The unit can be powered in both 110 and 220Vac, but we recommend using fuse protection or circuit breaker:

Voltage	Current	Consumption
110 Vac	16,5mA	1,9VA
220 Vac	10,5mA	2,3VA

Tab. 20

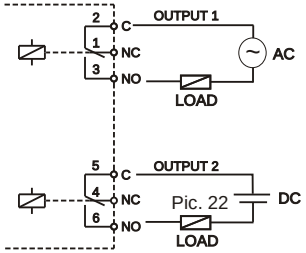
Caution! Do not touch AC terminals, danger of electric shock.

Pic. 21

Load Connection:

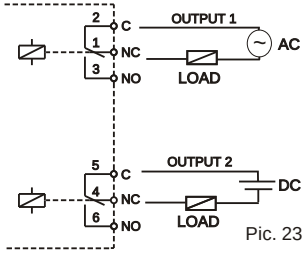
The load must be connected to the relay terminals and can be: NO or NC simply select the desired function at the terminals.

Normally Open Conact:



Pic. 22

Normally Closed Contact:



Pic. 23

Output Contacts Capacity:

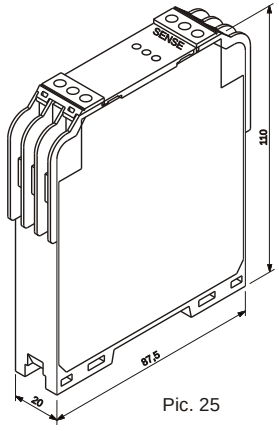
Check that the load does not exceed the maximum contact capacity shown in the table below:

Capacity	AC	DC
Voltage	250Vac	30Vdc
Current	5Aac	3Adc
Power	600VA	90W

Tab. 24

Important: If the switching capacity of the relay contacts is exceeded, it will permanently damage the unit.

Mechanical Dimensions:



Pic. 25

C - Common / NO - Normally Open / NC - Normally Closed

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