

SLA2X

Technical data

Case: **panel mount 48x96 frontal IP54
for external installation with enclosure IP65**

Case material: **Noryl**

Keyboard: **4 membrane pushbuttons**

Display: **5+1 digit, max displayed value +99999**

LEDs : **4 red**

Connections: **2 terminal strips, 12 pole**

Power supply: **24 115 230Vca, 24Vdc; +-10%
depending on model**

Power consumption: **3,3VA (3W)**

Measuring input: **4÷20mA Ri = 100 ohm**

Self-calibration input: **IN1, IN2 max 18Vdc, 4mA**

Data memory: **EEPROM**

Transmitter supply output: **24Vdc-45mA max**

Alarm limits: **2 o 4 with relays up to 6 with NPN
out depending on model**

Relays rating: **5A 250V**

Analog exit: **0÷10V (min.1KW) o 4÷20mA (max.500W)**

Serial port: **RS232**

Converter resolution: **±20000 punti**

Linearity: **0,0025%**

Operating temperature: **-10°C ÷ +50°C**

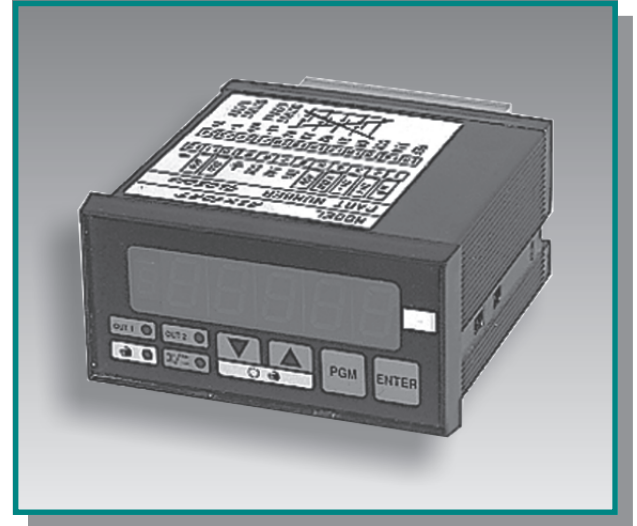
Conformity to CEE guidelines: **93/68 CEE**

to CEE guidelines: **93/68 CEE**

SLA2X

825B032E

Display and control unit



L'SLA2X is an unit suitable for the connection with capacitance and ultrasonic level transmitter. It display the input analog variable and depending of model, it can provide 2 or 4 relays or up to 6 NPN static switches. Each threshold can be programmed with different kinds of hysteresis. Two analog exit 0-10V and 4-20mA, and RS232 serial port are available again depending of the model. Designed to be mached with 4-20mA transmitter, it is specially used to be directly connected to TC21 Capacitance level transmitter. A special function allows a remote self-calibration facility; it can memorized empty-situation by press a pushbutton and the level-condition (from 20 to 100%) pressing another pushbutton. This function can help during the calibration when using capacitance transmitter and is not easy to change the level from 0 to 100% as riquired from capacitance transmitter.

SLA2X Models

SLA2X		
0		Power supply
1		115Vac 3VA -15 +10%
2		230Vac 3VA -15 +10%
3		24Vac 3VA -15 +10%
		24Vdc 4VA +10, -10%
		Alarm limits
0		None
2		2 Relays
4		4 Relays
6		6 NPN-static outputs
		Analog/Serial exit
A		None
T		4-20mA
R		RS232
		Linearizzation
A		None
L		max 20 programmable points
		Galvanic insulation
A		None
DCI		Input insulated

SLA2X Mechanical installation

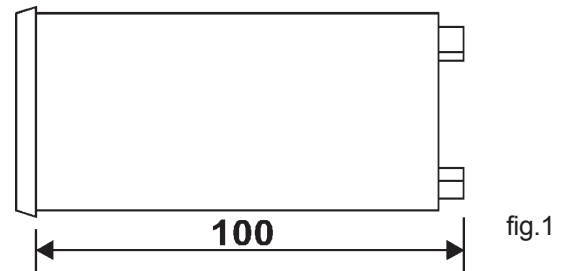


fig.1

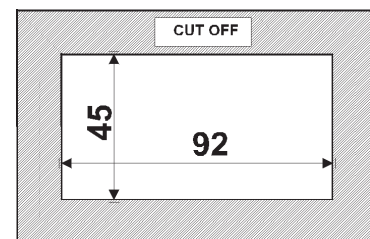


fig.2

The SLA2X is a 48 x 96 panel instrument for mounting in a 45 x 92mm template. Installation depth is 100mm connection terminals included.

Accessories

IP65 enclosure for external mounting IP65

546A012Z frontal windows IP65



applied solutions for the applications

SLA2X Measuring function

When switched on, SLA2X.. is set automatically in measurement condition following the already programmed parameters (default parameters). It shows the analog signal present in the input (for instance, 4-20mA coming from a TC21 Capacitance level transmitter).

During SLA2X.. factory check procedure, for each parameter is memorized a value in order to have a friendly programming approach, the values factory setted are called "default parameters".

By pressing during measurement the **PGM** key, direct access to the threshold values (limits) and their setting is given. Same access could be obtained also in the protected configuration programs **PASS** and **L.PASS**. The threshold values (limits) could be set Sequentially.

The threshold values (limits) are SET1; SET2 for the 2-Relays model, SET1; SET2; SET3; SET4 for the 4-Relays model and up to SET6 for 6-NPN outputs model.

After programming the parameters of one relay or NPN-output, the subsequent relay could be programmed by pressing **PGM** or it is possible to switch over to the displaying of the input by pressing **ENTER**. After pressing **PGM** the display shows for one second "SET1" and than the actually memorized value for this parameter. This value could be changed acting on **UP** and **DOWN** keys. By pressing **PGM** the second threshold value (limit) could be programmed in the same way.

SLA2X Structure of the programming

The switch from the "Measurement Function", in which is possible change only the "SETx" values, to the others parameters programming (different depending to the SLA2X model) **it is possible by pressing constantly PGM key for at least 3-4s when reached the latest parameter value display of the relevant section**; for instance, for a unit with 4 relays built in, the jump from "Measurement Function" to the first programming section (Setting "DIF") happens pressing a few time **ENTER** up to reach the display SET4, successively at its automatically value display, press continuously **PGM** key for 3-4s until you see the display of the first parameter of the new section..

The SLA2X unit structure programming has the following sections:

MEASUREMENT FUNCTION
 SETTING "DIF"
 CONFIGURATION
 ADJUSTMENT WITH SELF-CALIBRATION
 MANUAL FUNCTION (access directly from "Measurement Function")

SLA2X Setting "DIF"

In this section it is possible to complete thresholds setting. This section is reached as above see, from the "Measurement Function" allows to set the threshold differential parameters that depend from the alarm type selection in the section "CONFIGURATION" (see Tabella1). The access could be obtained also in the protected configuration programs **PASS** and **L.PASS**. The display shows for one second "dif1" than display automatically its value that can be changed with **UP** e **DOWN** key, pressing the **PGM** key you can reach the next step, while, pressing **ENTER** key switch back to "Measurement Function".

SLA2X Configuration

Access is allowed by setting "dif 2" (model with 2 relays) or "dif 4" (model with 4 relays) or "dif 6" for the 6 NPN outputs model and pressing for at least 3 seconds **PGM** (before pressing). The access to programming could be obtained immediately or protected with the use of the **PASS** and **L.PASS** parameters. After each setting, exit is possible by pressing **ENTER**, otherwise by pressing **PGM** the programming continues.

In this section the following parameters could be programmed (some parameter can be missed depend on the SLA2X.. model):

CODE	PARAMETER	DEFAULT
rS232	Serial connection operating mode	[0]
baud	baud-rate	[0]
Add	peripheral address	[1]
Out 0	analogue exit begin scale	[0]
Out FS	analogue exit end scale	[1000]
4-20	input scale	[4-20]
99999.	decimal-point	[none]
Zeri	fixed zeroes	[0]
4 o IS	scale beginning value	[0]
20 o FS	scale end value	[1000]
Out t	value set with input IN2	[1000]
range	scale limits	[0]
Int	measurement integration	[1]
Out 1	alarm type for set 1	[max - direct]
Out 2	alarm type for set 2	[max - direct]
Out 3	alarm type for set 3	[max - direct]
Out 4	alarm type for set 4	[max - direct]
Out 5	alarm type for set 5	[max - direct]
Out 6	alarm type for set 6	[max - direct]
ALL n	signal cable broken alarm	[All n]
F 1 2	state out 1 and 2 if broken-cable	[OFF-OFF]
F 3 4	state out 3 and 4 if broken-cable	[OFF-OFF]
F 5 6	state out 3 and 4 if broken-cable	[OFF-OFF]
PASS	Password	[0]
L.PASS	Password level	[0]

In the above parameter list, all available parameter are showed (except for the linearization that will be discussed in a specific section), naturally depends on the model selected some parameter s will be automatically excluded.

rS232 - SERIAL INTERFACE OPERATING MODE

The display shows "rS232" for one second. This parameter allows to select the working mode of the serial port. At the present release the selection is blocked to "0" (communication with immediate addressing).

Baud - BAUD- RATE

The display shows "baud" for 1s. Set the baud-rate necessary selecting the following number:

- 0 = 150 baud;
- 1 = 300 baud;
- 2 = 600 baud;
- 3 = 1200 baud
- 4 = 2400 baud;
- 5 = 4800 baud;
- 6 = 9600 baud

Add - PERIPHERAL ADDRESS

The display shows "Add" for 1s. By UP e DOWN set the address in the range 1 - 254.

Out 0 - ANALOGUE EXIT Begin Scale

Set the display value to be associated at the analogue exit begin scale (0V o 4mA). The display shows "Out 0" and successively the memorised value. By pressing UP e DOWN this value can be modified.

Out FS - ANALOGUE EXIT End Scale

Set the display value to be associated at the analogue exit end scale (10V o 20mA). The display shows "Out FS" and successively the memorised value. By pressing UP e DOWN this value can be modified.

4-20 - INPUT SCALE

The display shows "4-20"; by pressing UP it can be modified in "0-20". The selection "4-20" enables the input signal cable control (signal cable broken alarm).

99999. - DECIMAL POINT

The display shows "99999." (no decimal point). By pressing UP the decimal point shift to left "9999.9" "999.99" "99.999" "9.9999".

Zeri - FIXED ZEROES

The display shows for 1s "Zeri"; by pressing UP and DOWN, set one of the following:

- 0 = none
- 1 = unit digit display blocked to 0
- 2 = unit and tens display blocked to 0

This parameter is suggested when unstable reading

4 o 0 - SCALE BEGINNING VALUE

Set the display value to be associated at the input begin scale. The display shows "4-20" (or "0-20") with the 4 (or 0) flashing. After 1 second automatically shows the memorised value. By pressing UP and DOWN the value can be modified.

20 o FS - SCALE END VALUE

Set the display value to be associated at the input end scale. The display shows "4-20" (or "0-20") with the 20 flashing. After 1 second automatically shows the memorised value. By pressing UP and DOWN the value can be modified

Out t - VALUE SET WITH INPUT IN2

Set the reading value on the display to be associated to the analogue input signal during the IN2 input is enabled. The display shows "Out t". After 1 second automatically shows the memorised value. By pressing UP and DOWN the value can be modified.; The range values must be internally to the "Scale beginning value" and "Scale end value".

Range - SCALE LIMITS

The scale may be free or limited. If it is free the display go on over the calibration limits (for values lower to the beginning scale and over the end scale), it can be programmed in reverse mode (begin scale > end scale); the sets are free setted. If the scale is limited the display shows UFL when the input in Under the begin scale and OFL when the input variable is over the end scale, the end scale MUST be greater than begin scale (the unit controls automatically the settings); the values are accepted only if it is inside. The display shows for 1s "range"; By pressing UP and DOWN, set one of the following number:

- 0 = not limited reading scale;
- 1 = limited reading scale

Int - MEASUREMENT INTEGRATION

The display shows "Int" for 1s. By pressing UP and DOWN is possible to modify memorised value from 0 to 4. 1 low integration, 4 high integration..

Out 1 - ALARM TYPE FOR SET 1

The display shows "OUT 1" for 1s than, the type of memorised alarm (see Tabella 1 pag.4). by pressing UP and DOWN is possible to select in sequence one of the 8 possibilities.

Out 2 - same of OUT1

" "

Out 6 - same of OUT1

All n - SIGNAL CABLE BROCKEN ALARM

The display shows "ALL n" (means normal working condition). By pressing UP change in "ALL F" and select the output status of the relays and NPN outputs depends to the following parameters steps.

F 1 2 - STATE OUT 1 and 2 IF BROCKEN CABLE

The display shows "F 1 2" and the two leds set1 e set2 are off. The led denote what must be the out status in case of broken cable (led off] relay deenergized; led lighted: relay energised. By pressing UP you can select sequentially all the possible combination.;

-Set1ON Set2 OFF; -Set1 OFF Set2ON;-Set1 ON Set2 ON

F 3 4 - as F 1 2

F 5 6 - as F 1 2

PASS - PASSWORD

Set the desired value of the password; the number must be inside in the range 1...99999. If set "0" the password is disabled. If after setting the password it is forgotten, is possible to access to the parameters with value 21204.

L.PASS - PASSWORD LEVEL

This parameter is showed only if was setted a password different from "0". The display shows for 1s "L.PASS". Select which section you want protect with the password selecting the following number:

- 0 = configuration
- 1 = setting "DIF" + configuration
- 2 = measurement function +setting "DIF" + configuration

SLA2X Relay/NPN output configuration

SLA2X Table 1

Max alarm direct

Energised at memorised SET and de-energised at SET - DIF

Code showed on the display



Max alarm reverse

De-energised at memorised SET and energised at SET - DIF

Code showed on the display



Min alarm direct

Energised at SET memorised and de-energised at SET + DIF

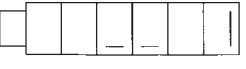
Code showed on the display



Min alarm reverse

De-energised at SET memorised and energised at SET + DIF

Code showed on the display



Windows alarm direct

Energised inside in the window. Windows wide is 2xDIF. Hysteresis is fixt

Code showed on the display



Windows alarm reverse

De-energised inside in the window. Windows wide is 2xDIF. Hysteresis is fixt

Code showed on the display



Hysteresis alarm direct

Energised at SET + DIF and de-energised at SET - DIF

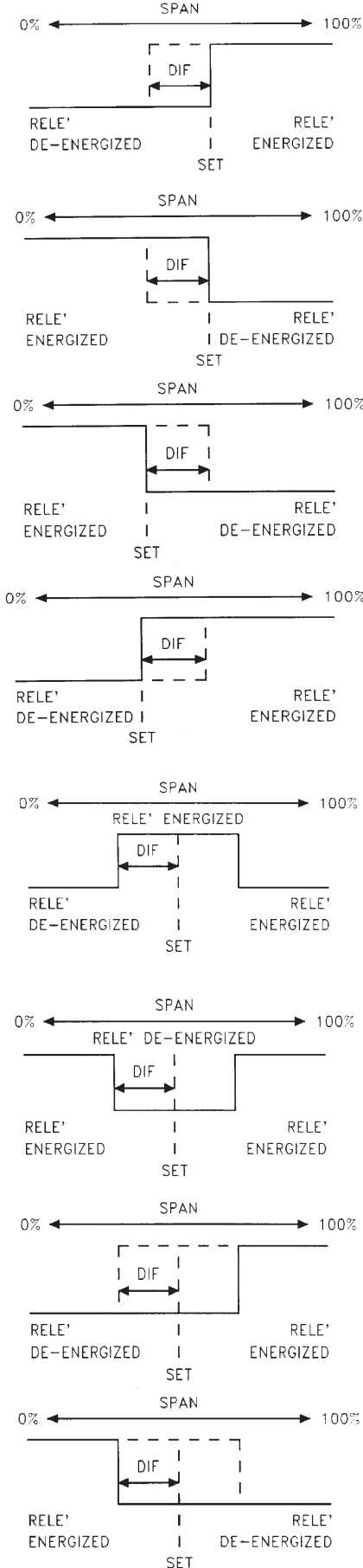
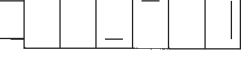
Code showed on the display



Hysteresis alarm reverse

De-energised at SET + DIF and energised at SET - DIF

Code showed on the display



SLA2X Adjustment with self-calibration

After the latest parameter value of the calibration access to this section by pressing continuously **PGM** for 3-4s. Need for this section to have connect the input of the SLA2X.. to the analogue process variable (example, 4-20mA output from TC21 capacitance transmitter) or simulator.

PROCEDURE BY USING KEYBOARD

The procedure make the following actions:

Begin scale calibration

Memorised and related the analogue mA value input, coming from current transmitter (level), to the **Scale beginning value** parameter in "CONFIGURATION" section. The calibration will be accepted if the value during the acquisition is different of at least 0,1mA from the memorised **Scale end value** parameter . To memorised a real value of analogue variable the SLA2X.. unit takes a time displaying "Attend" to make an average input value. The display shows "tar 0" - means ready for the acquisition, than. if pressing **ENTER** the display shows "attend" and memorised the input value (the time isn't fix but depend to the input signal stability).

It is possible avoid the acquisition "jumping" the calibration pressing **PGM** instead of **ENTER**.

End scale calibration

Memorised and related the analogue mA value input, coming from current transmitter (level), to the **Scale end value** parameter in "CONFIGURATION" section. The calibration will be accepted if the value during the acquisition is different of at least 0,1mA from the memorised **Scale beginning value** parameter . To memorised a real value of analogue variable the SLA2X.. unit takes a time displaying "Attend" to make an average input value.

The display shows "tar 20" - means ready for the acquisition, than. if pressing **ENTER** the display shows "attend" and memorised the input value (the time isn't fix but depend to the input signal stability).

It is possible avoid the acquisition "jumping" the calibration pressing **PGM** instead of **ENTER**.

PROCEDURE BY USING INPUT IN1 e IN2

The procedure make the following actions:

Begin scale calibration

Memorised and related the analogue mA value input, coming from current transmitter (level), to the **Scale beginning value** parameter in "CONFIGURATION" section. The calibration will be accepted if the value during the acquisition is different of at least 0,1mA from the memorised **Scale end value** parameter. The acquisition is immediate at the short circuit between IN1 and COM , the display shows "attend" for a few seconds and make the self calibration.

The short circuit can remain indefinitely closed it is active on the negative slope.

SLA2X Adjustment with self-calibration

Begin scale calibration

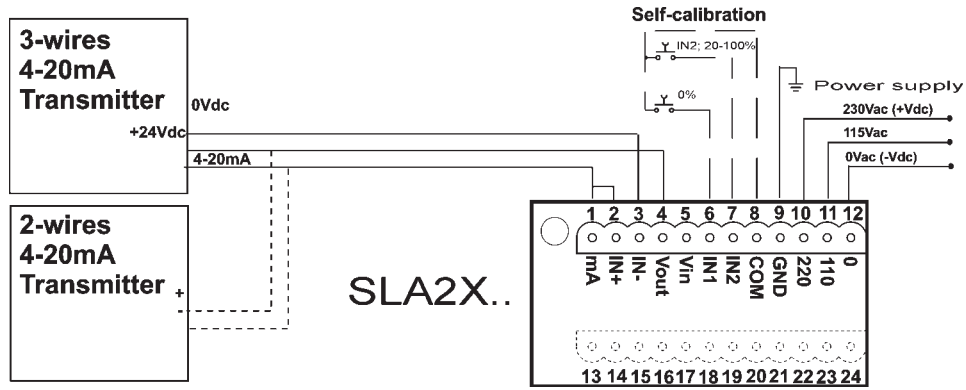
Memorised and related the analogue mA value input, coming from current transmitter (level), to the **Value set with input IN2** parameter in "CONFIGURATION" section. The calibration will be accepted if the value during the acquisition is different of at least 0,1mA from the memorised **Scale begin value** parameter. The acquisition is immediate at the short circuit between IN2 and COM , the display shows "attend" for a few seconds and make the self calibration.

The short circuit can remain indefinitely closed it is active on the negative slope.

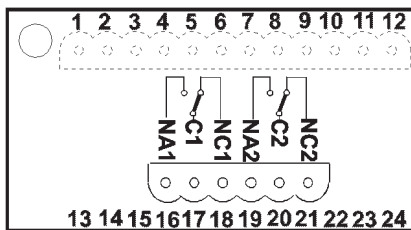
SLA2X Manual Function

This section is used for the start-up of the system. The access is possible only from "Measurement Function" by pressing simultaneously **UP+DOWN** for 3-4s. When "Manual Function is active the led MAN is lighted. Independent from the previous relays/NPNs status they de-energised . The display shows "Out1", by pressing **ENTER** is possible energised the relay1 (or NPN 1). By pressing **UP** is selected the second output and so on. By pressing simultaneously **UP+DOWN** for 3-4s is possible to exit from the "Manual Function" to return to "Measurement Function" and all the out puts will be in the previously states, again the led MAN will be off.

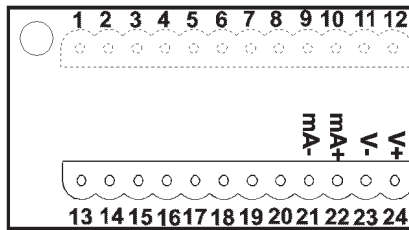
SLA2X Electrical Connection



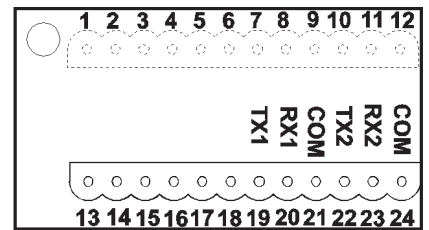
SLA2X_2



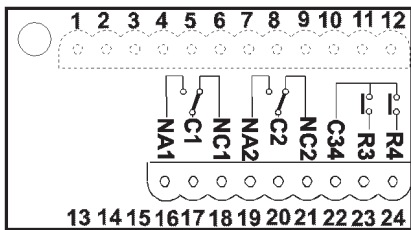
SLA2X_0T



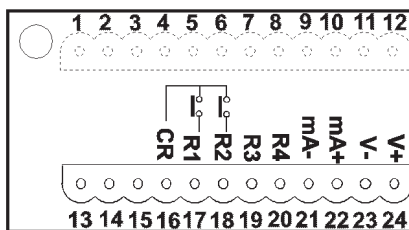
SLA2X_0R



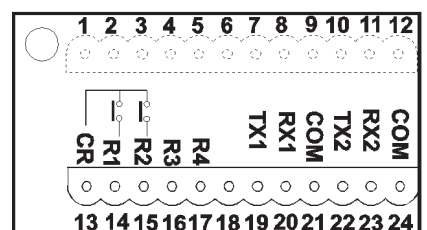
SLA2X_4



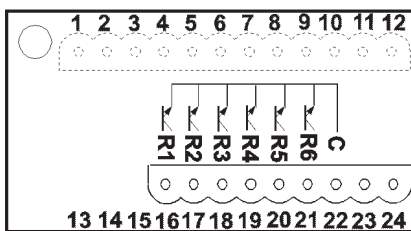
SLA2X_2T



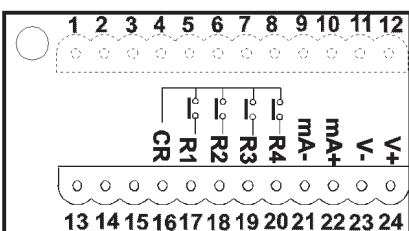
SLA2X_2R



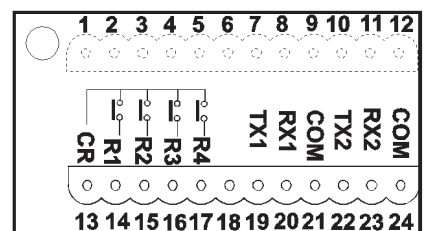
SLA2X_6



SLA2X_4T



SLA2X_4R



Relays output
or
Static outputs

Analog outputs
+
Relays outputs

RS232 Comm. port
+
Relays outputs

TC26-9 Capacitance Level
4-20mA Transmitter

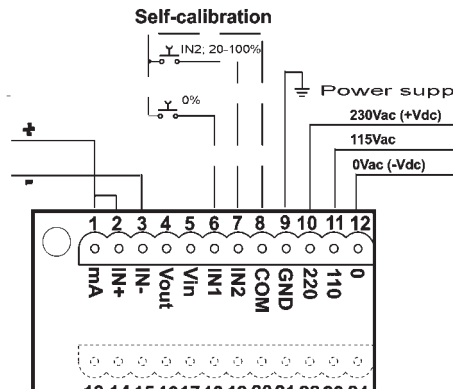
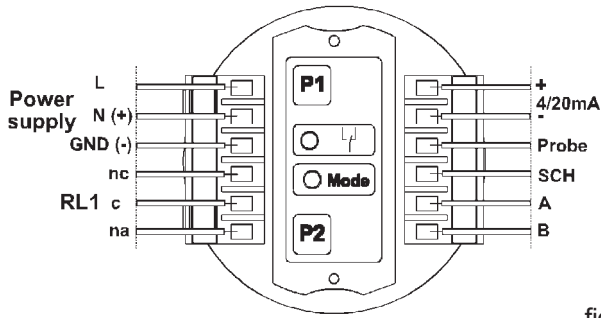


fig.4

Capacitance Level
4-20mA Transmitter

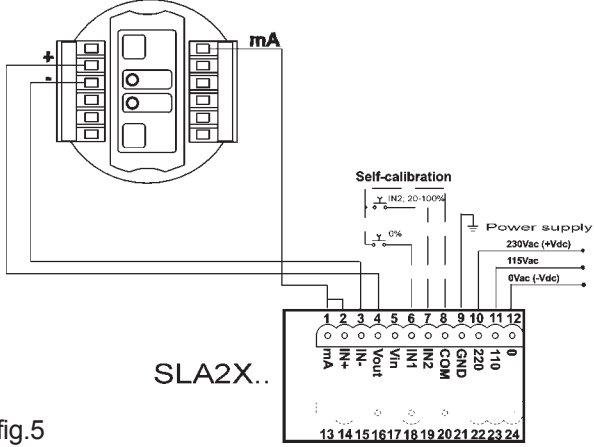


fig.5

SLA2X..

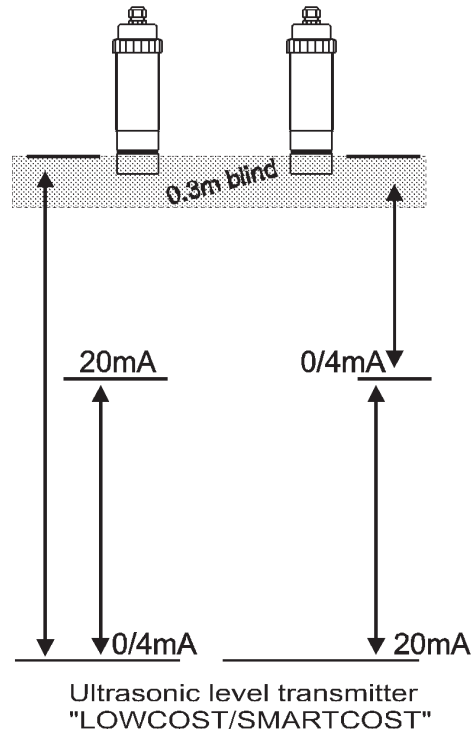
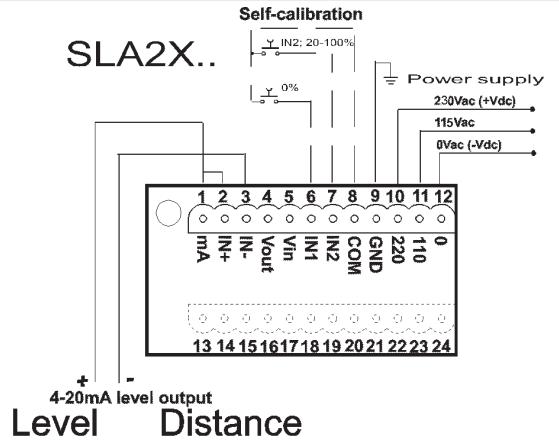


fig.6

SLA2X Warranty

Products supplied by SGM LEKTRA are guaranteed for a period of 12 (twelve) months from delivery date according to the conditions specified in our sale conditions document. SGM LEKTRA can choose to repair or replace the Product. If the Product is repaired it will maintain the original term of guarantee, whereas if the Product is replaced it will have 12 (twelve) months of guarantee. The warranty will be null if the Client modifies, repair or uses the Products for other purposes than the normal conditions foreseen by instructions or Contract. In no circumstances shall SGM LEKTRA be liable for direct, indirect or consequential or other loss or damage whether caused by negligence on the part of the company or its employees or otherwise howsoever arising out of defective goods.

SLA2X Factory check Certificate

Conforming to the production procedure herewith we certify that the device:

SLA2X serial number

complies with the values specified in the TECHNICAL DATA and it is made in conformity to the procedure

Quality control manager

Date of manufacture:

SGM LEKTRA s.r.l.

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web: www.sgm-lektra.com e-mail: info@sgm-lektra.com