TC22/23/24/25

Capacitance level transmitter - electronic preamplifier

technical documentation EN Rev. S

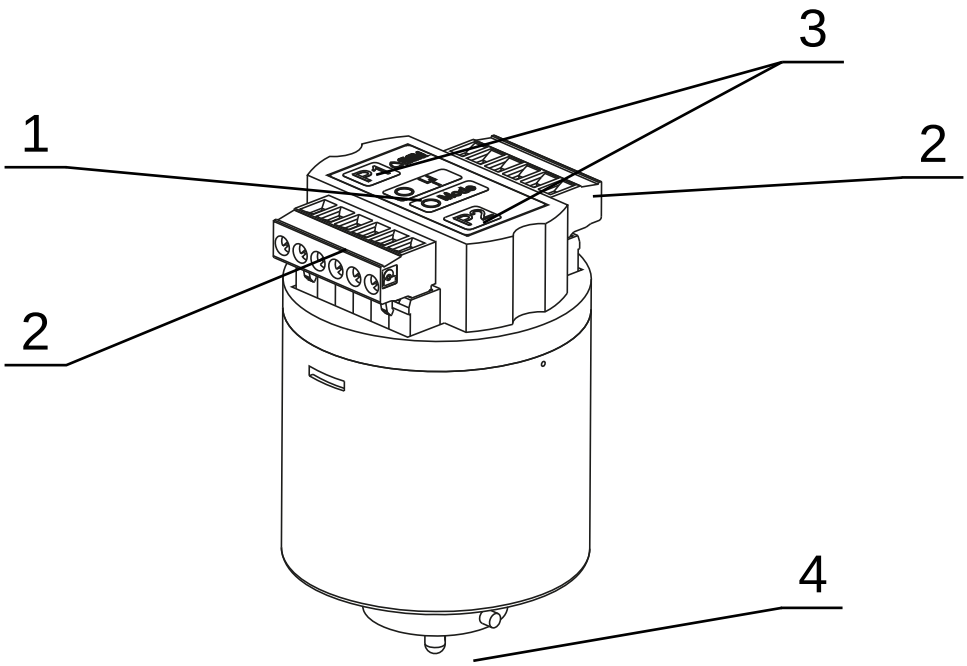
SGM LEKTRA

CONTENTS

1-WARRANTY

Products supplied by SGM LEKTRA are guaranteed for a period of 12 (twelve) months from delivery date according to the conditions specifi ed 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 modifi es, 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.

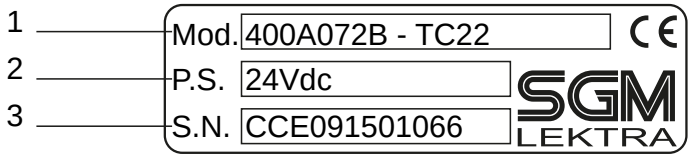
2-PRODUCT



1. Led indicators
2. Terminals for electrical connections
3. Programming buttons
2. Fixing system to the probe

1.2 IDENTIFICATION

Each instrument has an adhesive identifi cation plate on which are the meter main data. The following picture describes the information and data on the identifi cation plate.



1. Product code
2. Power supply
3. Serial number

3-TECHNICAL FEATURES

Housing material
Nylon; metallized Nylon

Mechanical fitting
Bajonet (to be insert into IP66/67 enclosure)

IP rating
IP50

Electrical connection
1 x 6 pole plug-in connector

Working temperature
-30 ÷ +80°C

Power supply
TC22 24Vdc
TC23 24 Vac 50Hz
TC24 115 Vac 50Hz
TC25 230 Vac 50Hz

Measure range
30pF ÷ 10.000pF

Consumption
Max 2.5W (1.5W Vdc)

Analog output
4÷20 mA (max 500ohm)

Serial output
RS485

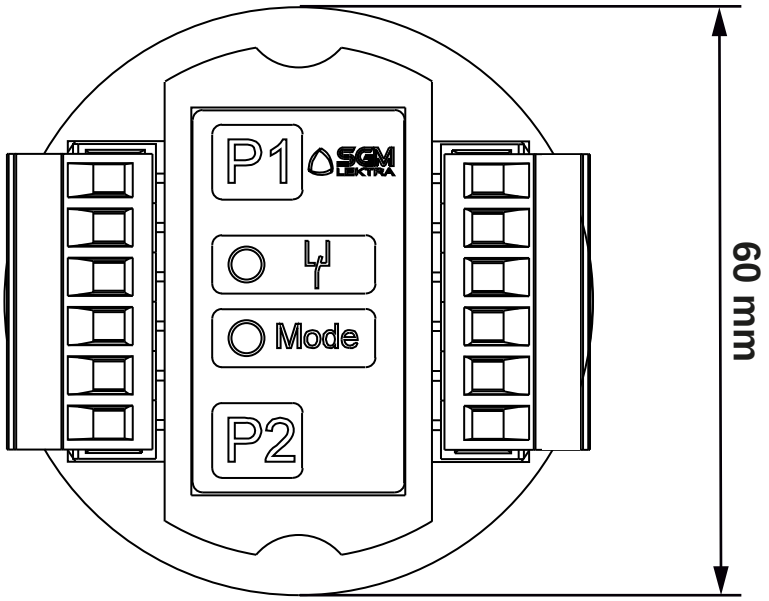
Termichal drift compensation
by ref. internal capacitor

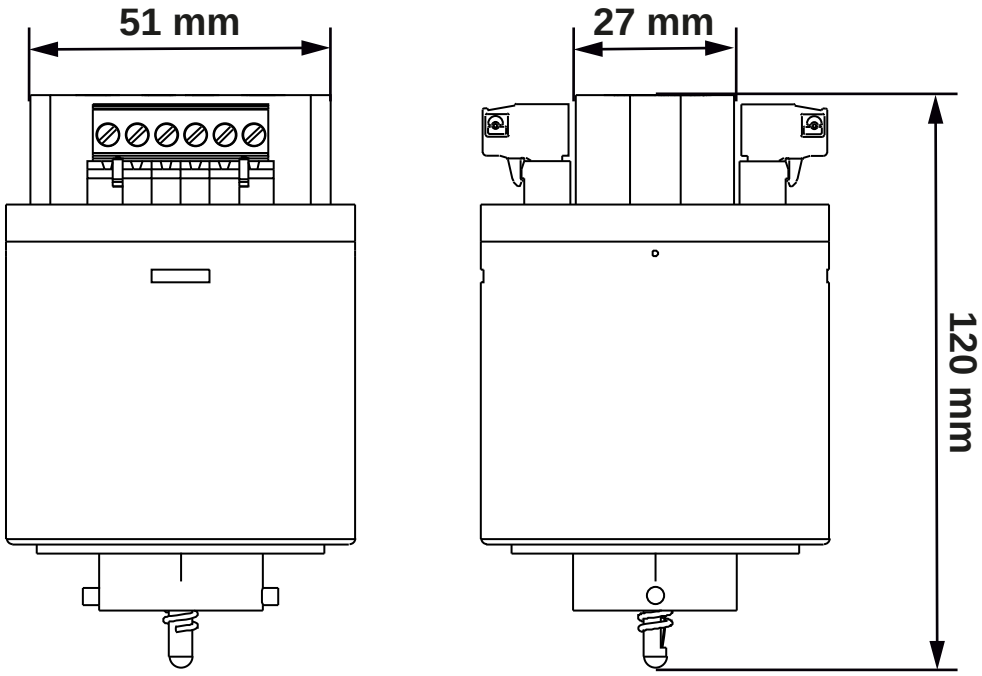
Linearity
±0.5%

Calibration
two push-buttons, for self-acquisition

Led display
Flashing LED: run mode
Fixed LED: calibration mode

4-DIMENSIONS





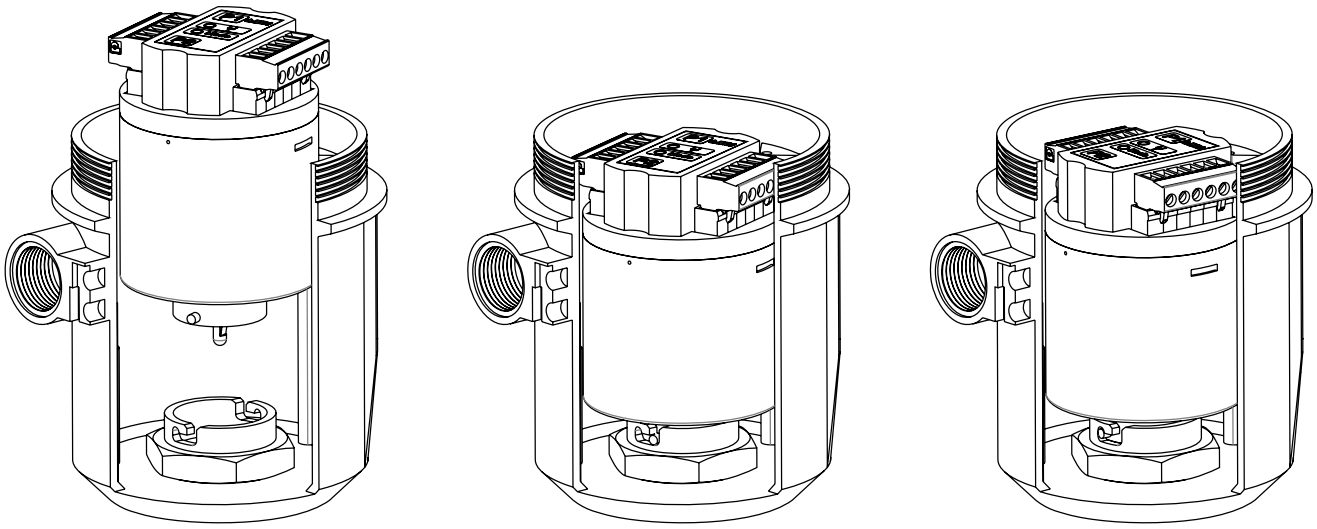
5-MECHANICAL INSTALLATION

5.1 SAFETY MEASURE

- Installation must be only performed by qualifi ed personnel and in accordance with local governing regulations.
- The equipment must be used only after having correctly transposed the instructions of this manual
- The power supply and electrical connections plate data must always be respected
- Improper device use would cause serious damage to people, to the product and connected equipment

5.2 INSTALLATION

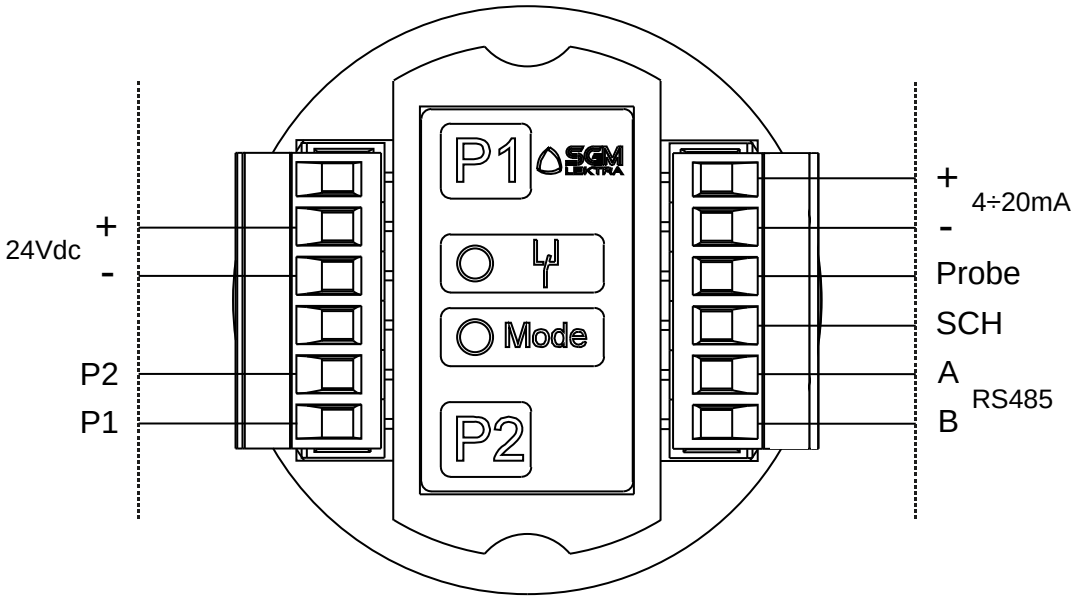
The TC22÷25 insert must be lodge into the IP66/67 capacitancesensor head connection. Important to screw tight the cover of the head connection and the cable gland in order to grant the sensor IP66/67. Thanks to the bayonet fi xing-system, to insert or remove the TC22÷25 from the head connection need to push and rotate. Rotate clock-wise to fi x into the head Rotate reverse-clock-wise to remove from the head. No screws or conventional mounting system required. Important! Fully tighten the cap and cable glands to prevent water infi ltration and ensure the IP66/67 protection.



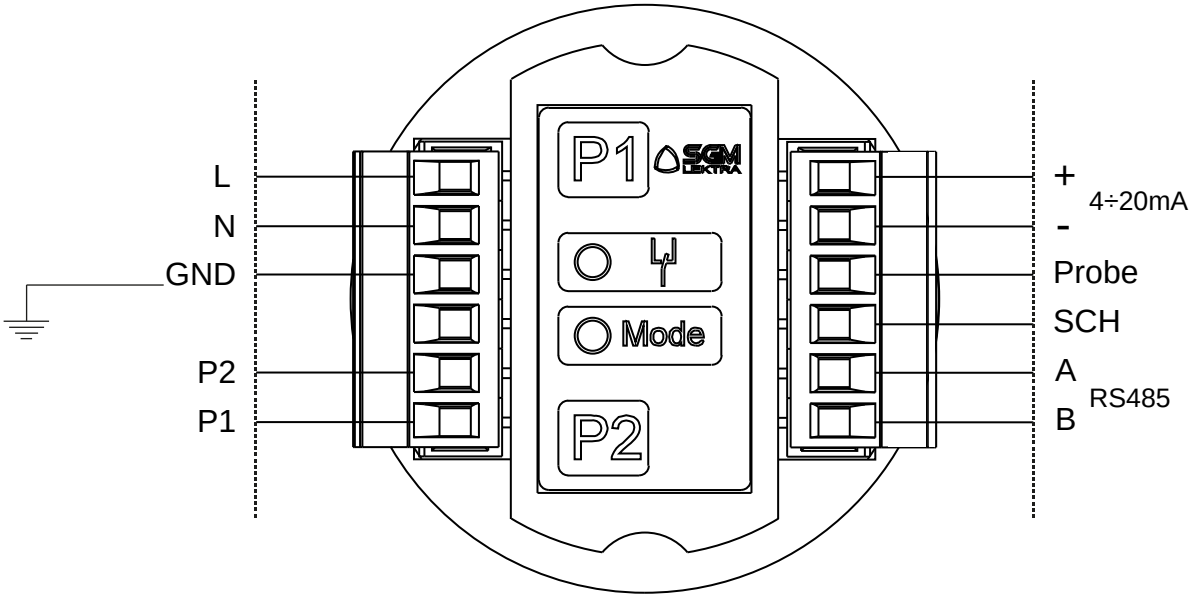
6-ELECTRICAL CONNECTION

6.1 CONNECTIONS

The TC22÷25 capacitive transmitter can be supplied in DC or AC voltage depending on the model as shown in the following images.
The current consumption is less than 1,5W for Vdc power supply and 2,5W for Vac power supply. The TC22÷25 capacitance trannsmitters are lodged into the sensor capacitance head connections; remove the cover unscrewing and opening the upper part, gain the access to two 6-pole plug-in connectors. Electrical connection must be made with a multi-wires round cable of proper diameter, otherwise the seal of the cable gland may be impaired. No special cable or coax-cable are requests for compact version, and no practice distance limits. For the Vdc power supply take in consideration that the negative of the power supply is electrically connected to the negative output current. For the Vac power supply versions, from the power supply and the output current there is a galvanically separation.



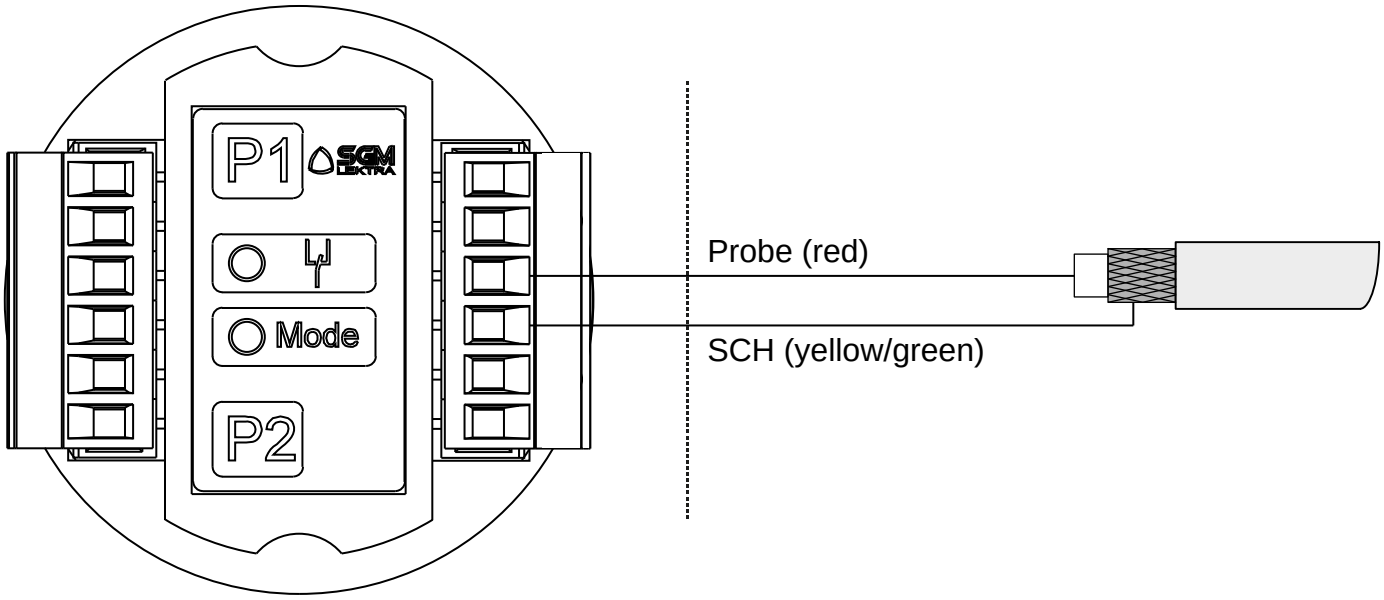
TC22 24Vdc



TC23 24Vac **TC24** 115Vac **TC25** 230Vac

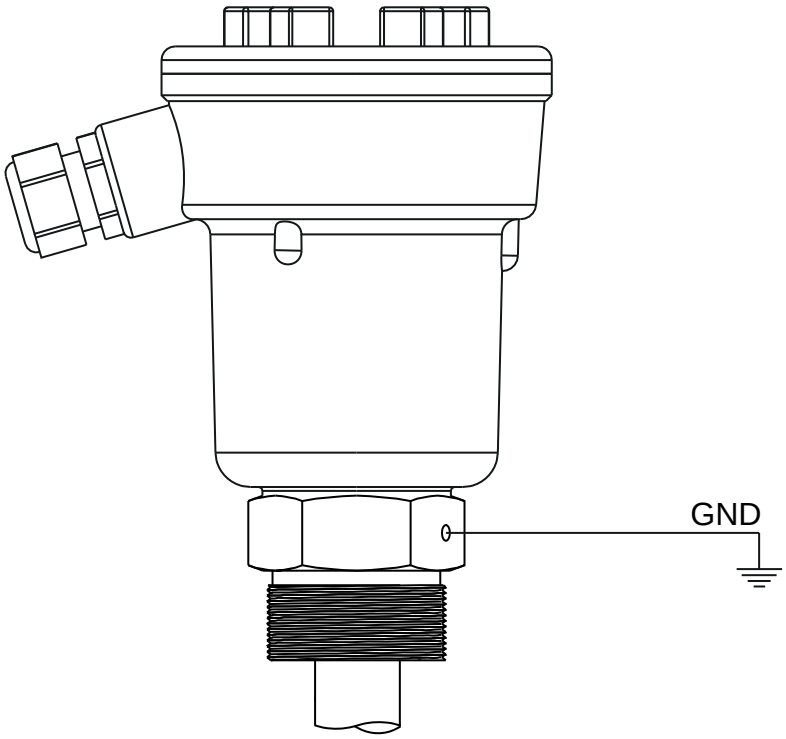
6.2 REMOTE ELECTRODES CONNECTIONS

Connecting the coaxial cable for probes version with electronic separate from the electrode.



6.3 GROUNDING CONNECTION

Always connect the electrode to vessel ground. For this purpose there is a terminal on the side of the housing or on the mechanical connection. This connection is also used to supply the ground reference potential as well as to drain off electrostatic charges.



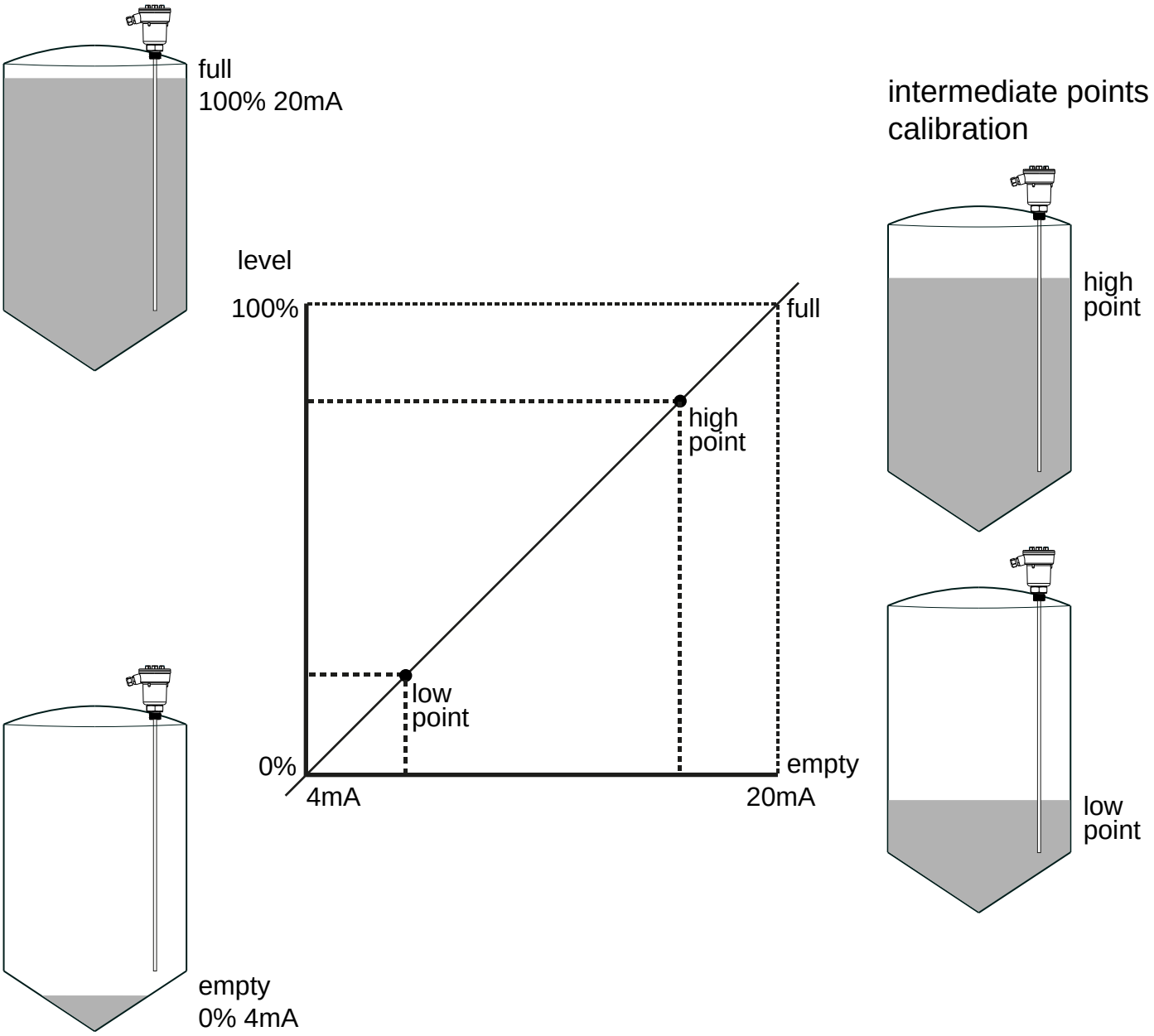
7-CALIBRATION

7.1 CALIBRATION

The TC22÷25 calibration can be made by means the P1 and P2 push-buttons in two different procedures:
a) Full-Empty Calibration.
b) High and Low-point Calibration.

To calibrate, needs to lodge the “TC22÷25” into the head connection of the capacitance sensor installed into the vessel or tank in which needs the level measurement. Depends to the possibility to reach easily 0% and 100% level is possible to use: “Full-Empty Calibration” or, when 0% and 100% level can’t be reached “High and Low-point Calibration” procedure can be used, see fig.below.

Important!
The calibration can be done first with empty and than with full (as the above procedure) or first with full and than with empty as well.

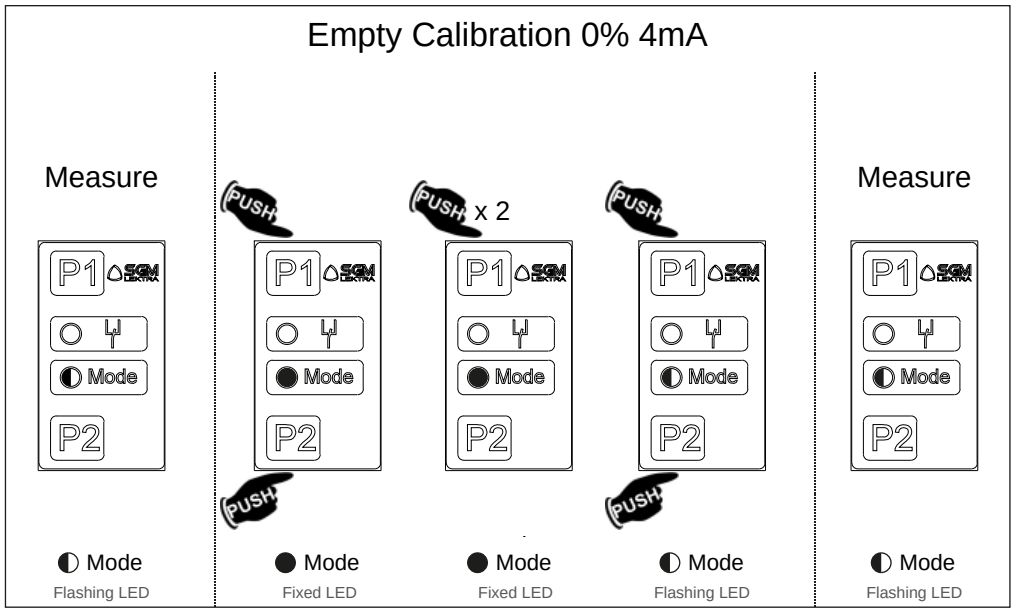


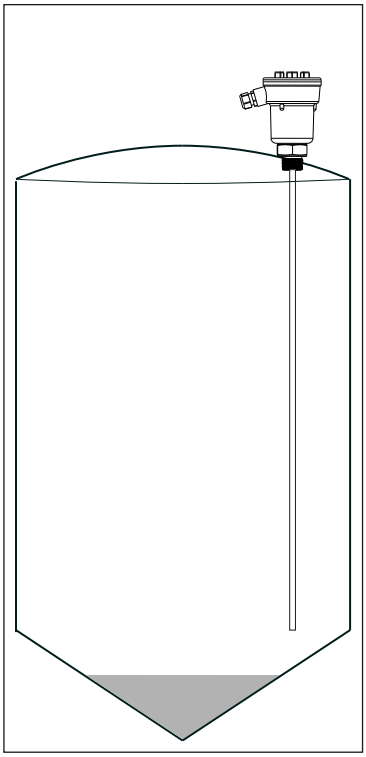
7.2 EMPTY AND FULL 4÷20mA CALIBRATION

The TC22÷25 transmitter can be calibrate in respectively at the level of 0% and 100% level, in order to memorise the relevant capacity electronically.

7.2.1 0% (4mA) calibration

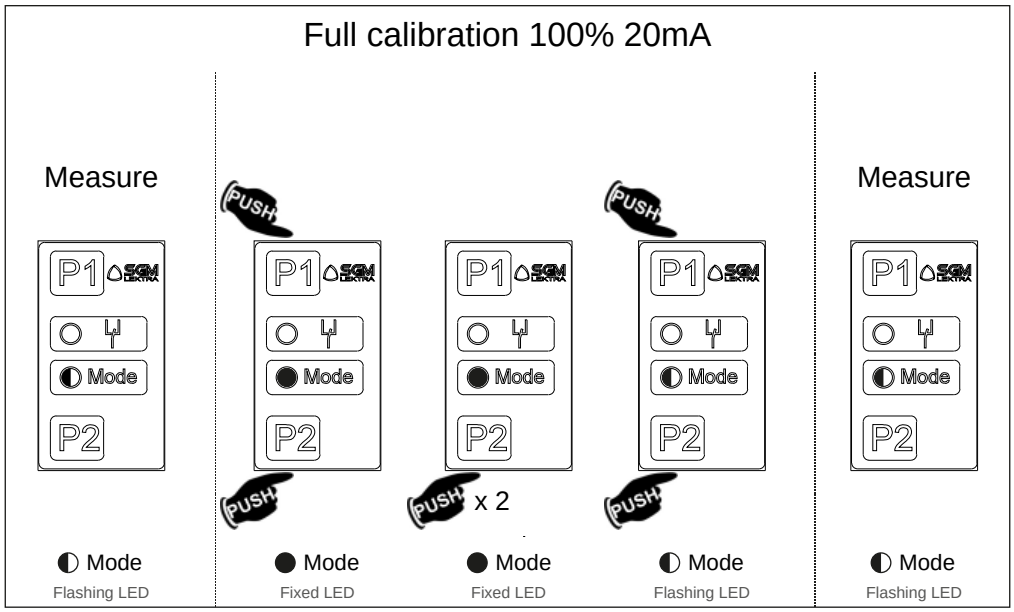
needs to have the level at the 0%.
Press simultaneously P1 and P2, release them and verify that “Mode led” will stay fix lightened.
Press two times P1. The measured capacity has been memorised and associated to 4mA output.
Press simultaneously P1 and P2 again to switch in measure mode (Mode led flashing).

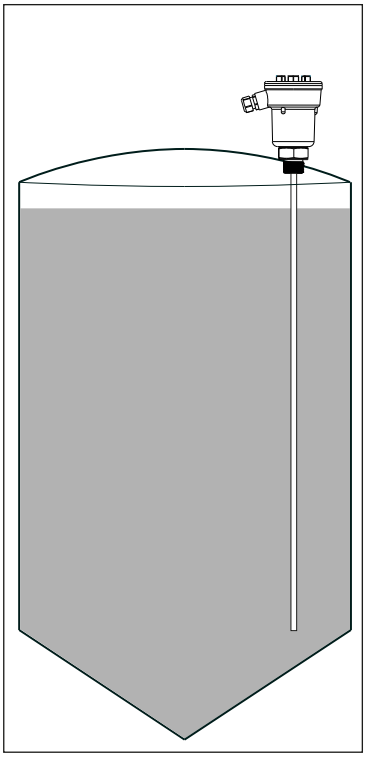




7.2.2 100% (20mA) calibration

needs to have the level at the 100%.
Press simultaneously P1 and P2, release them and verify that “Mode led” will stay fix lightened.
Press two times P1. The measured capacity has been memorised and associated to 20mA output.
Press simultaneously P1 and P2 again to switch in measure mode (Mode led flashing).



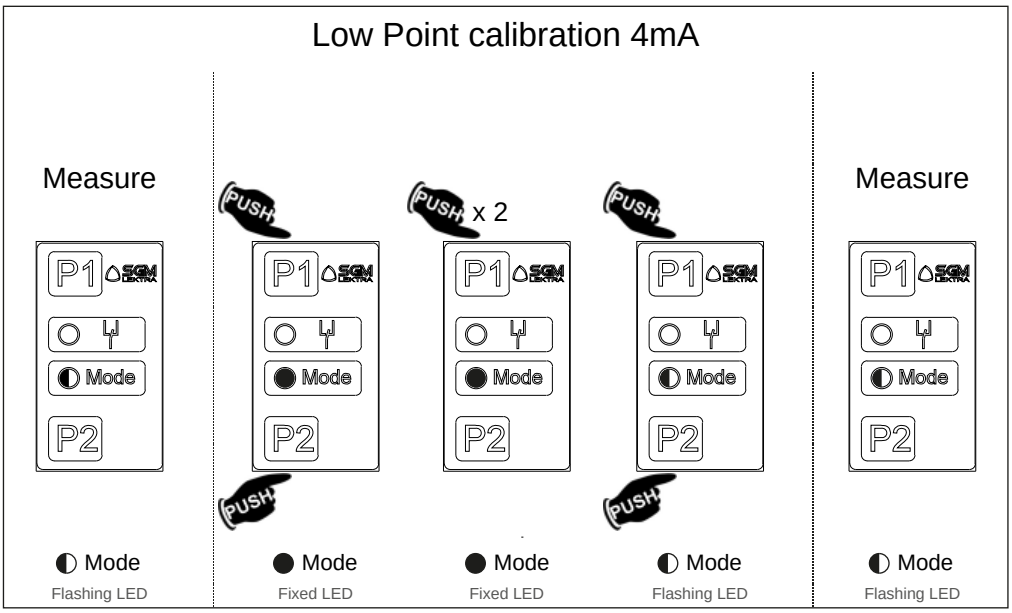


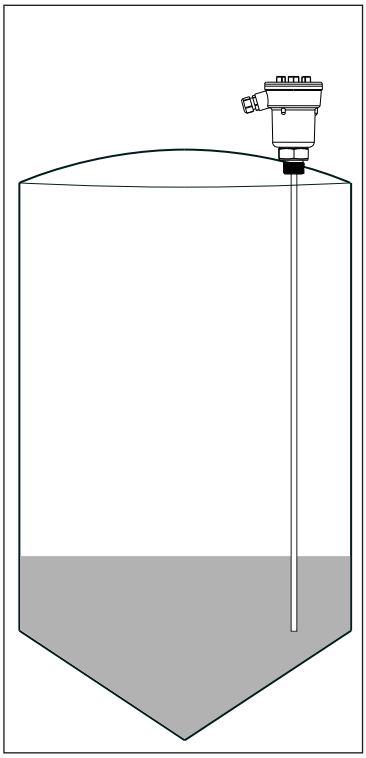
7.3 HIGH AND LOW POINT CALIBRATION

7.3.1 Low Point calibration

If only a limitate level variation is possible, the calibration of the TC22-5 is still possible. Need to connect a current-meter on the TC22-5 output current and verify the present level point at which make the calibration. Supposely you are on the Low-point calibration, and the relevant level is 26%(8,16mA) than;

Press simultaneously P1 and P2, release them and verify that “Mode led” will stay fix lightened, Open the calibration mode. Press two times P1. The measured capacity has been associated at the moment to 4mA output. Now, pushing few times the P2 key, increase the output current from 4mA to 8,16mA, (P1 decrease the value). Once the correct current-output is displayed in to the current meter; press simultaneously P1 and P2 again to Exit from calibration going in measure mode (Mode led flashing).

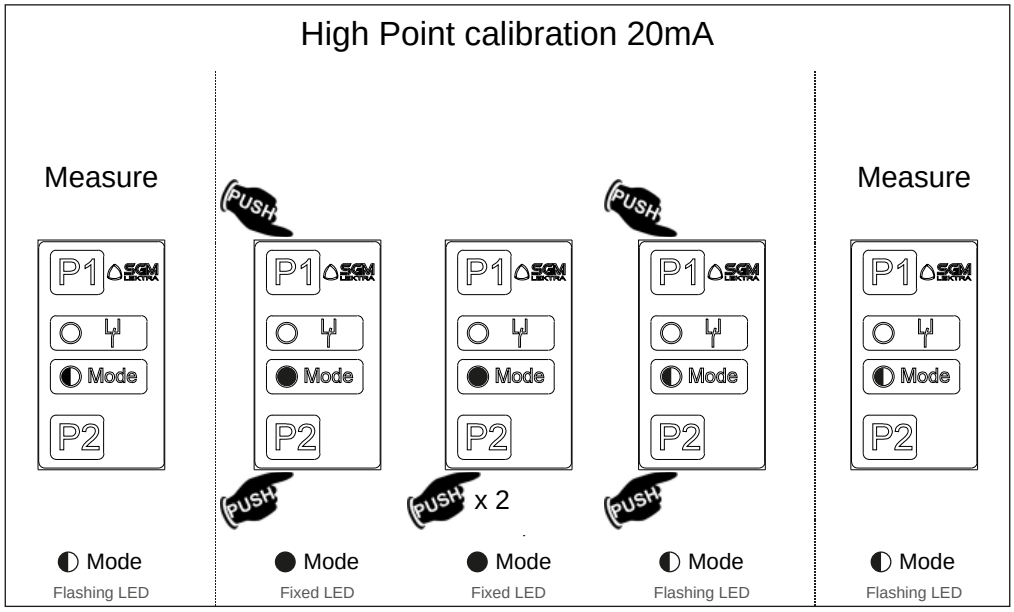


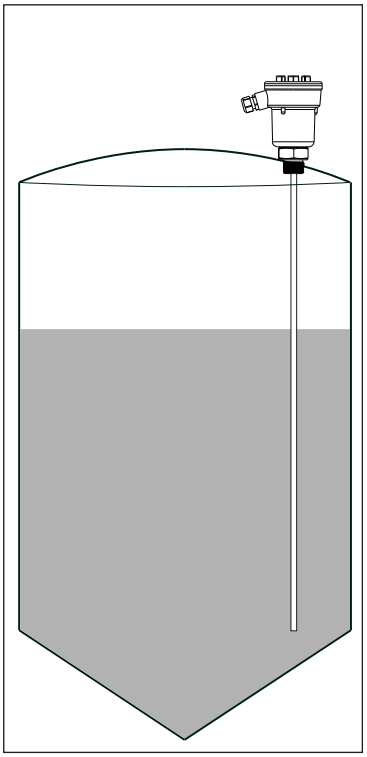


7.2.2 High Point calibration

Increase the level of your product as much as possible, for instance up to 58%(13,28mA) than; Press simultaneously P1 and P2, release them and verify that “Mode led” will stay fix lightened, Open the calibration mode. Press two times P2. The measured capacity has been associated at the moment to 20mA output. Now, pushing few times the P1 key, decrease the output current from 20mA to 13,28mA, (P2 increase the value) ; press simultaneously P1 and P2 again to Exit from calibration going in measure mode (Mode led flashing).

Important!
The calibration can be done first with low-point and than with high-point (as the above procedure) or first with high-point and than with low-point as well.





8-REMOTE VERSION WITH FIXING BASE

The **R** and **S** versions of the **CLTx** capacitive probes have an aluminum base. It is used to fix the housing and connect the coaxial cable from the electrode.

To connect the coaxial cable, proceed as follows:

A - Unscrew the four screws on the base bottom

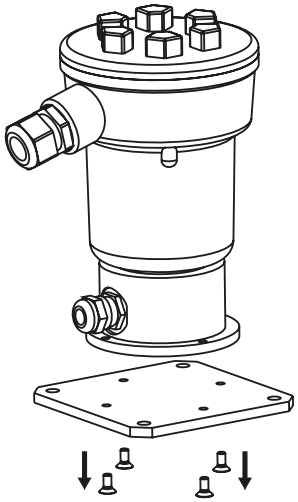
B - Rotate the housing to access the inside of the aluminum base

C - Connect the red wire to the central connection point (electrode signal) and the yellow-green cable to the lateral connection point (cable shield)

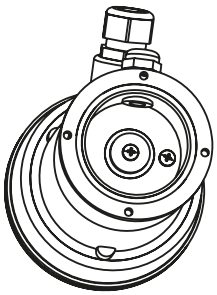
D - Tighten the 4 screws on the base bottom

E - Tighten the cable gland

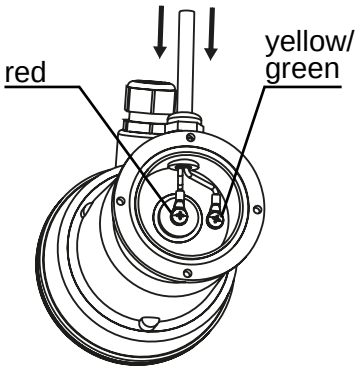
F - Fix the housing



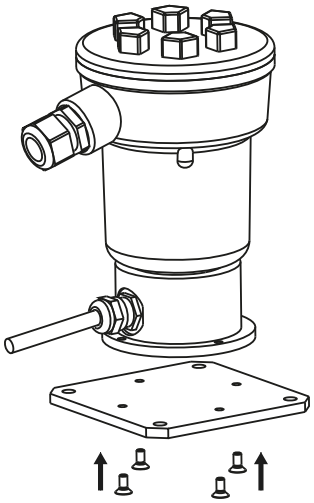
A



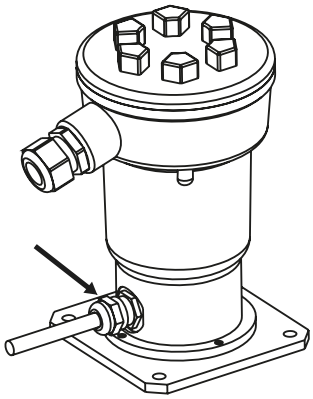
B



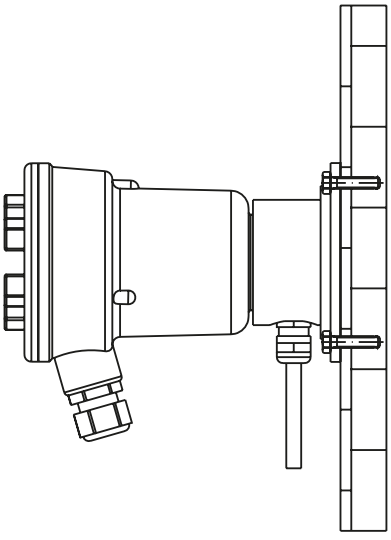
C



D



E



F

9-FACTORY TEST AND QUALITY CERTIFICATE

CE

In conformity to the company and check procedures I certify that the equipment:

(electronic preamplifier)	(capacitive probe)

is conform to the technical requirements on Technical Data and it is made in conformity to the procedure

Quality Control Manager: ..... Production and check date: .....

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