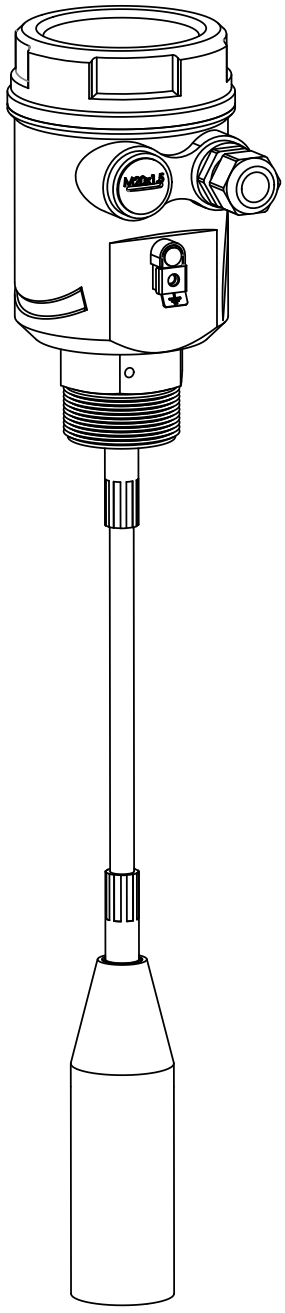
CLS5

capacitive level control



technical documentation EN Rev. of 27/09/2022

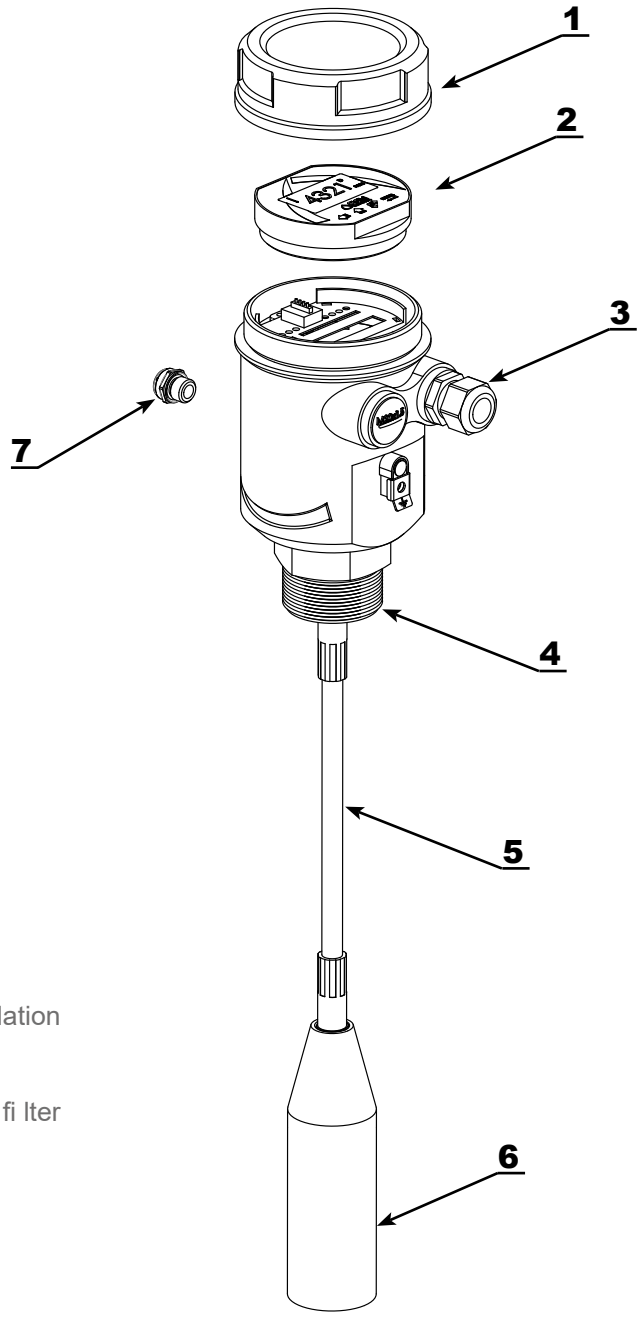
sgm lektra

CONTENTS

1-WARRANTY

Products supplied by SGM LEKTRA are guaranteed for a period of 12 (twelve) months from delivery date according to the conditions 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 warranty, whereas if the Product is replaced it will have 12 (twelve) months warranty.
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

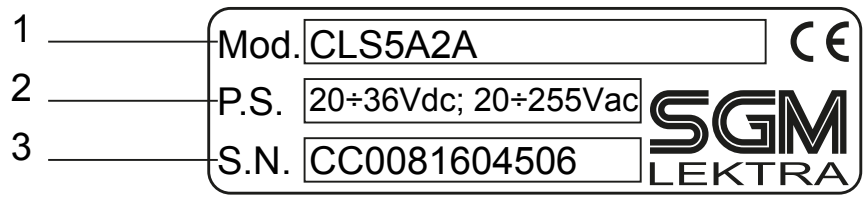
2- PRODUCT



1. Cover
2. VL602 (opt.)
3. Skintop M20
4. Mechanical installation
5. Rope
6. Sensor
7. Anticondensation fi lter

2.1 IDENTIFICATION

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



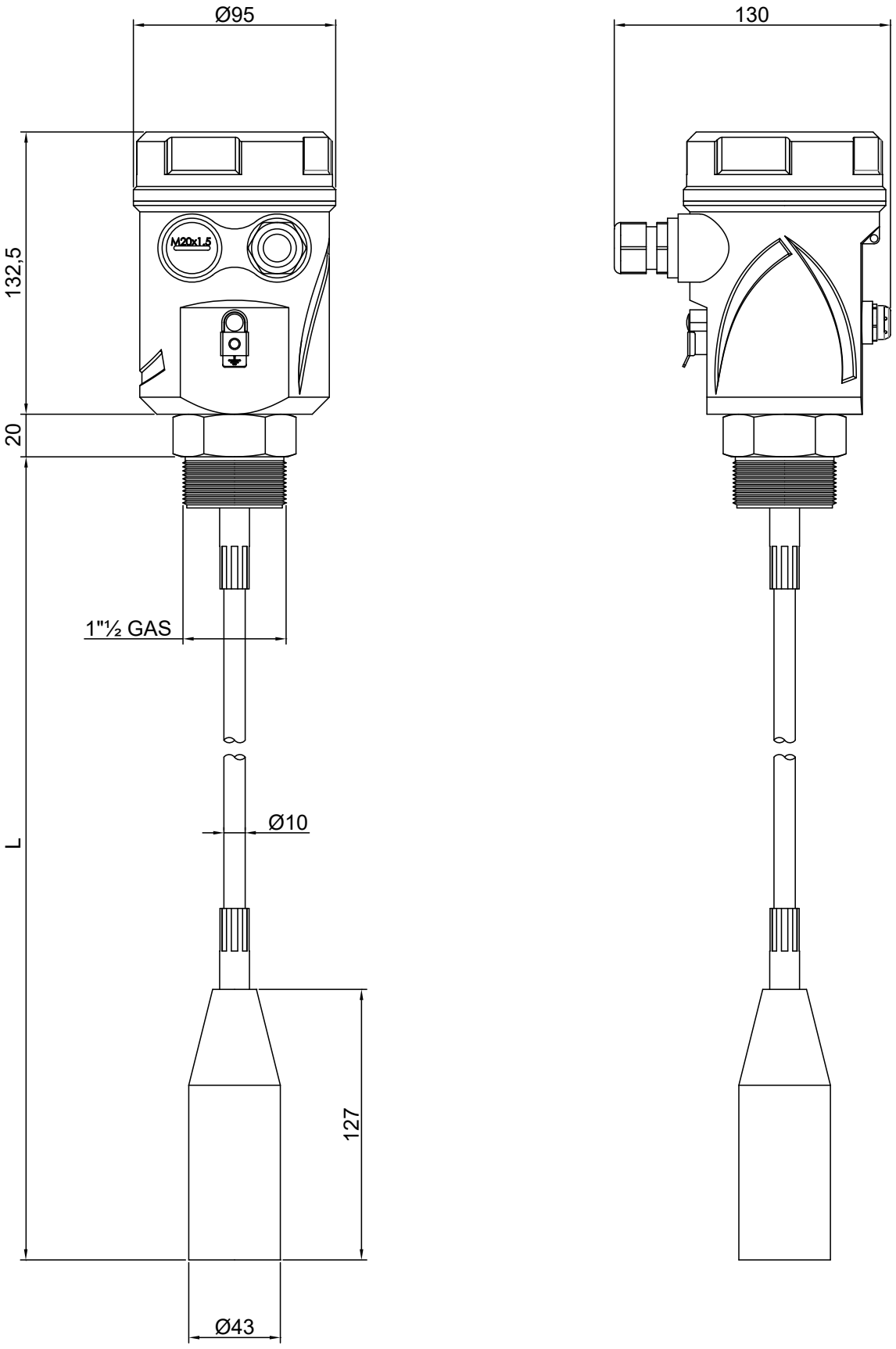
1. Product code 2.Power supply 3. Serial number

3-FEATURES

Housing material
PC
Process connection material
galvanized steel
Rope material
PEHD (high density PE)
Sensor material
PP
Mechanical installation
1”½GAS M (opt. PP DN80 flange)
Protection degree
IP67
Tensile strength
max 3000N (<40°C); max 2800N (80°C)
Pressure
-1 ÷ +6bar
Working temperature
-30 ÷ +70°C; +80°C non-continuous
Power supply
universal voltage (20÷36Vdc; 20÷255Vac 50/60Hz)
Max consumption
130mA
Cable glands
M20x1,5
Electrical connection
Spring-cage
Relay output
3A 230Vac
Intervention mode
min. or max.
Delay time
0÷30s (programmable)
Programming
via VL602 removable module
Empty calibration
automatic acquisition, via VL602 removable module
Warm-up
1 minute typical
Data View
dot matrix LCD display on VL602 removable module
yellow LED: power on
red LED: relay status (switched on with energized relay)

4-DIMENSIONS

5.1 MECHANICAL DIMENSIONS



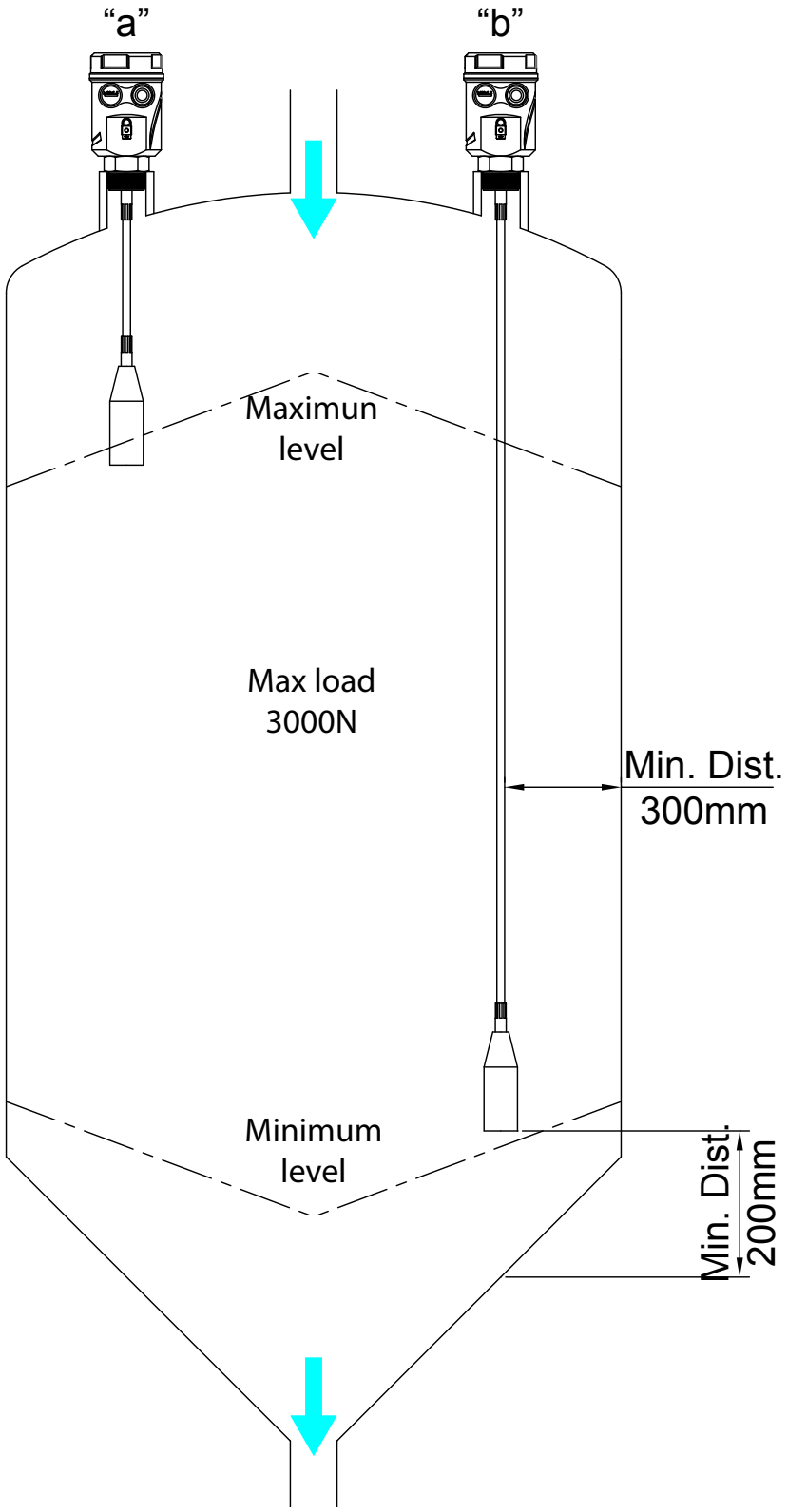
5-INSTALLATION

5.1 INSTALLATION PRECAUTIONS

5.1.1 CORRECT INSTALLATION

CLS5 correct installation examples for a maximum (a) or a minimum (b) level control.
To avoid malfunction observe the following information:

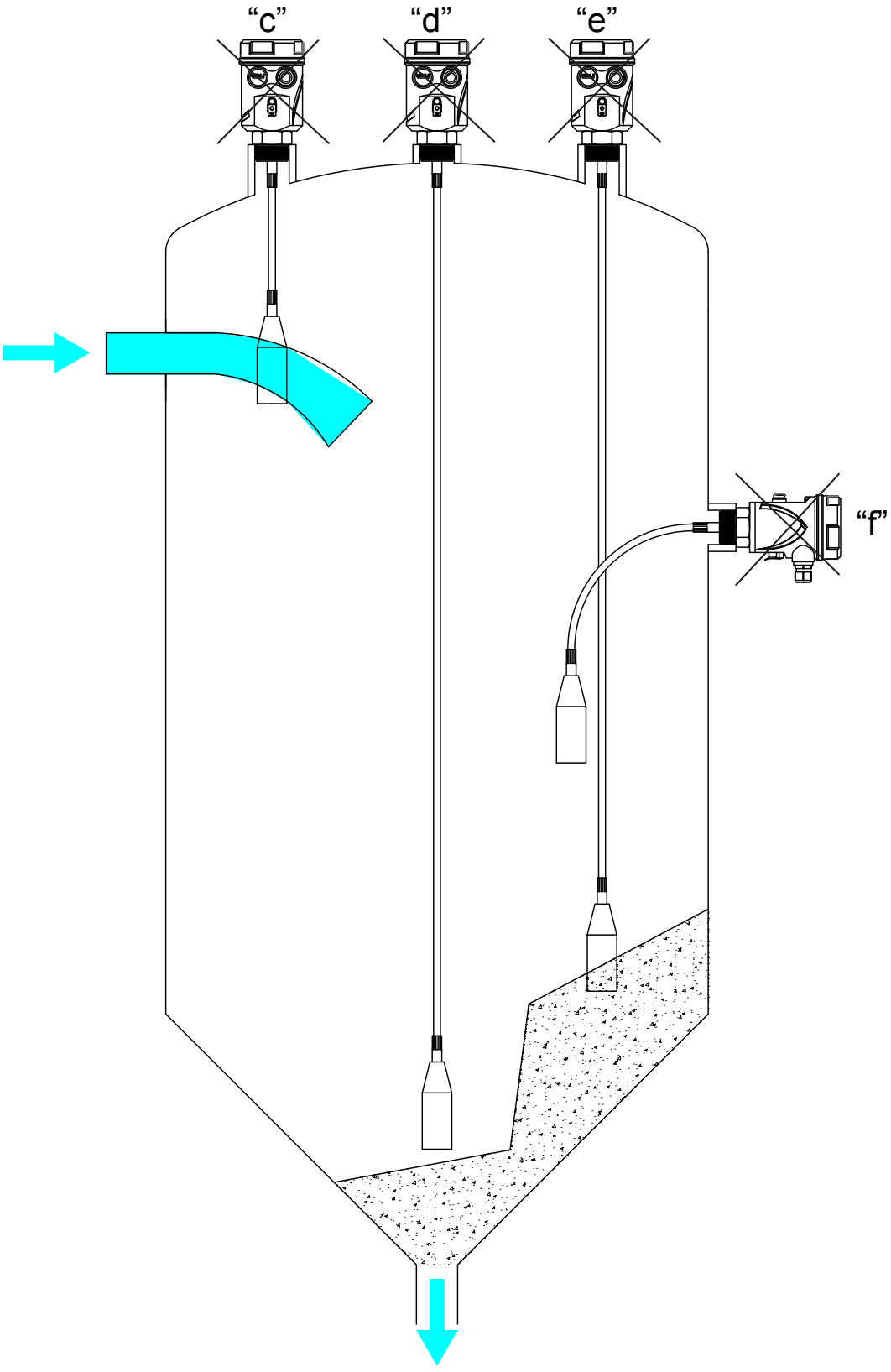
- Install away from loading areas and maintain a 300mm minimum distance from the silo walls.
- When ordering, select the appropriate length extension rope to position the sensing element at least 200mm from the silo bottom.
- Particular attention to CLS5 maximum load in minimum level applications (b).
  During the emptying phase the mechanical load should not exceed the value of:
  3000N for process temperatures below 40°C
  2800N for process temperatures with max. 70°C
  (80° non-continuous)



5.1.2 Incorrect installation

CLS5 incorrect installation.

- Do not install near the loading zone (c); false alarm can be generated, also the CLS5 can be damaged by the material loading flow.
- Do not install at the silo discharge point center (d); the CLS5 and/or the silo roof can be damaged, broken due to the high mechanical tensile force that is generated on this point.
- Do not install in locations where product accumulations can be created (e); the CLS5 can remain locked in the product presence condition: max level false alarm or failure min. level alarm.
- do not install the CLS5 sideways (f)



5.1.3 Rope

Too long rope (g)

The CLS5 rope can't be shortened on site, therefore, when ordering select the "Extension Length" code that allows the correct installation (i).

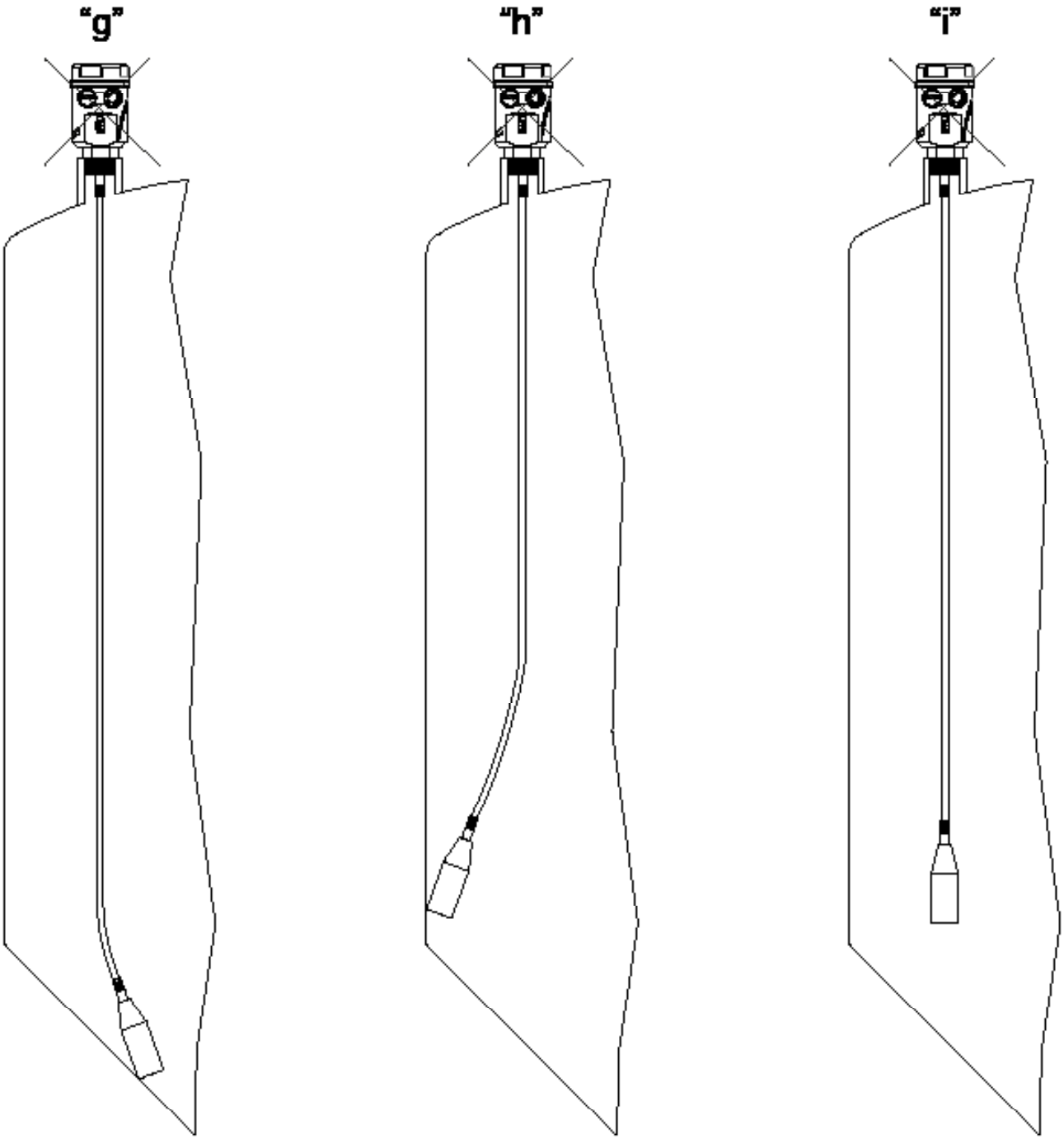
The available standard lengths codes are:

1 - L = 1500mm
2 - L = 2500mm
3 - L = 3000mm
4 - L = 4000mm
5 - L = 6000mm

For special lengths please contact our office.

Bent rope (h)

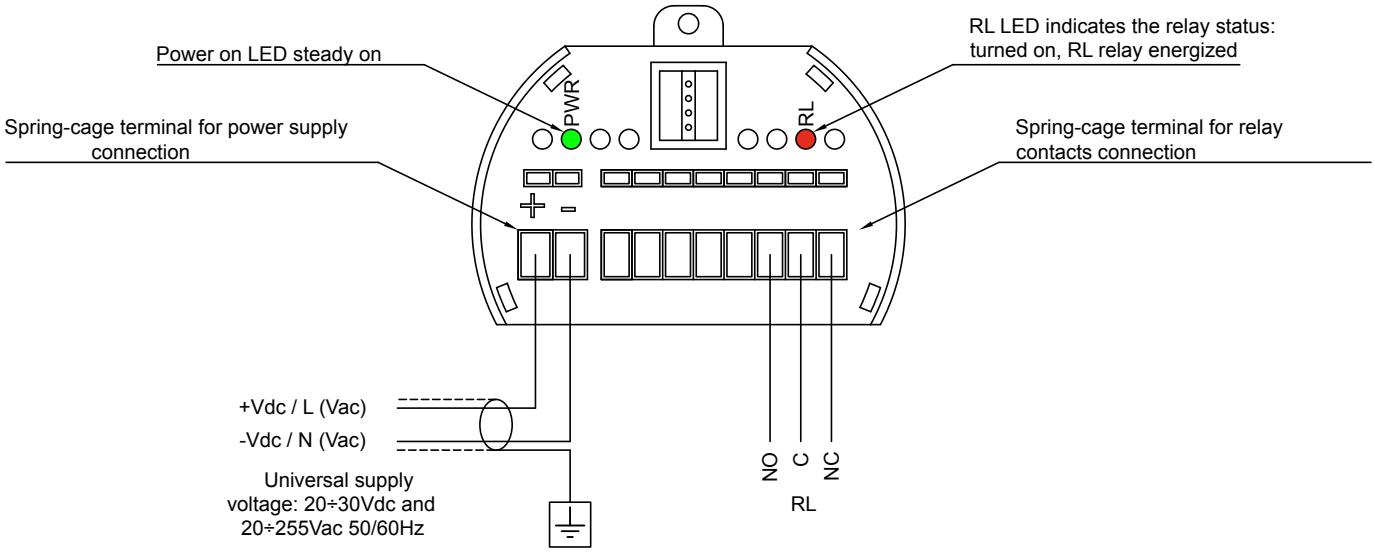
The rope should be straightened (i) to avoid that the sensitive element, touching the silo walls, sends a false product presence condition: max level false alarm or failure min. level alarm.



6-ELECTRICAL CONNECTIONS

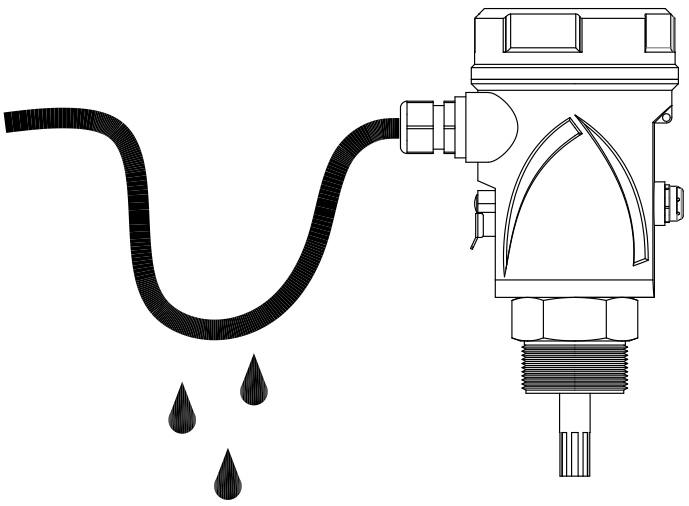
6.1 CONNECTIONS

1) Before powering up, make sure that all the connections have been made correctly and your main voltage corresponds to the voltage shown on the rating plate.
2) Tighten the cable glands and the cap to ensure the CLS5 IP67 protection.
3) To prevent water or humidity infiltration that can damage the CLS5 level control, do not remove the caps on unused cable glands.



6.2 MOISTURE PROTECTION

To avoid the humidity infi ltration inside the housing is recommended:
- for electrical connections, use a cable with a 6÷12mm outer diameter and fully tighten the M20 cable gland
- fully tighten the cap
- position the cable so that it forms a downward curve at the M20 output; in this way the condensation and/or rain water will tend to drip from the curve bottom



7-LOCAL OPERATOR INTERFACE (LOI) - VL602

CLS5 capacitive level controls are programmed and calibrated via the VL602 display module.

7.1 FEATURES VL602

The VL602 programming module can be mounted and removed from the CLS5 without affecting the unit operation.
he VL602 module has a dot matrix LCD display and allows simple and rapid start-up by the 4 programming keys.

The 

symbol on the display indicates that the relay is energized: normal condition.

The 

symbol on the display indicates that the relay is de-energized, alarm condition.

1. From RUN mode, press  to select the parameter to be programmed.
2. Press 

to confirm the selection.
3. To select the parameter option press  .
4. Press 

to confirm and save the selection, press 

to exit without saving the change.

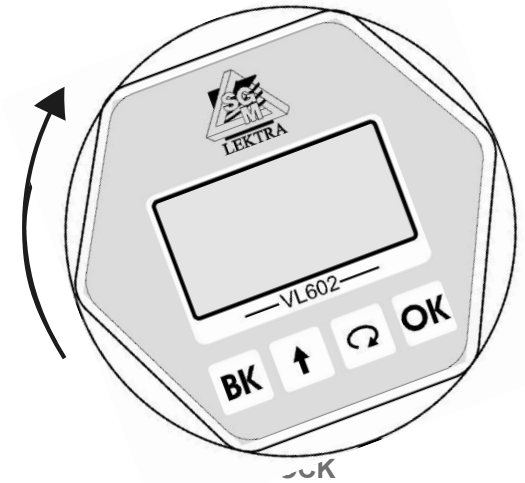
BK button:
- **Exit without saving**
- **Pressed, with the ENTER button calibrate the empty**

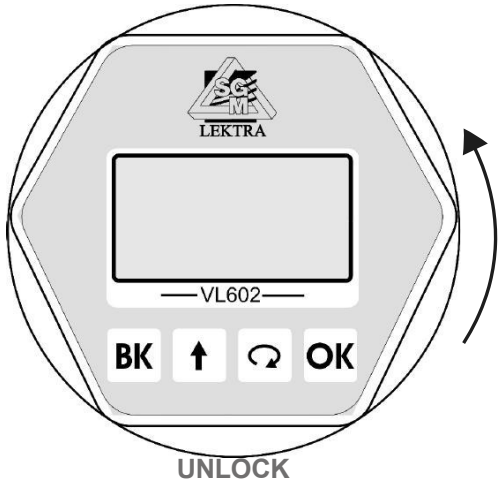
UP ARROW button:
- **Parameter option selection**

SCROLL button:
- **Parameters scroll**

OK button:
- **Parameter selection confirmation**
- **Parameter options confirmation**

The VL602 programming module can be mounted and removed from the CLS5 without affecting the unit operation.
Unscrewing the cap, the VL602 module can be mounted (by clockwise rotation until it clicks) or dismounted
(by rotation counterclockwise) as shown in figure.



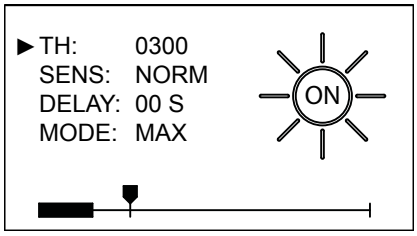


UNLOCK

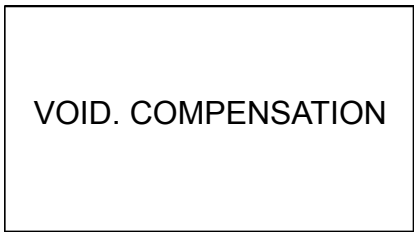
8-SENSOR CALIBRATION

WARNING: For the sensor proper calibration, to have the real level to the uncovered sensitive element condition.

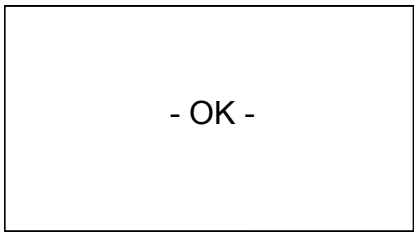
From “RUN” mode simultaneously press the BK and OK



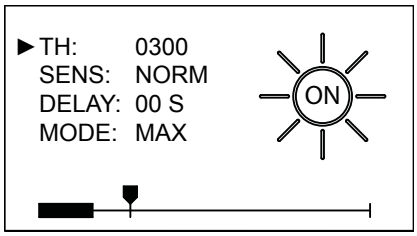
During the sensor calibration phase, the VL602 will display module the “VOID.COMPENSATION”.



Once the sensor calibration and the data acquisition are completed the VL602 module will display “OK”.



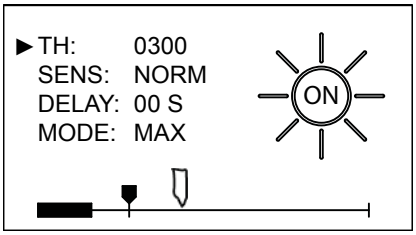
After the sensor calibration phase, the system automatically returns to “RUN” mode.



9-PARAMETERS SETTING

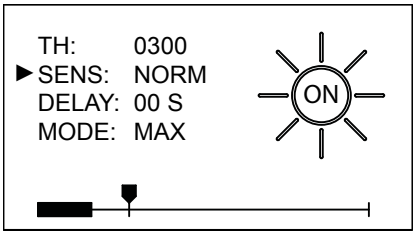
9.1 TH

Press OK to change the threshold value.
Use UP arrow to adjust the threshold from 0 to 1000; during the programming it will be displayed a “transparent” cursor that indicates the new positioning of the recognition level alarm threshold.
Press OK to confirm.



9.2 SENS

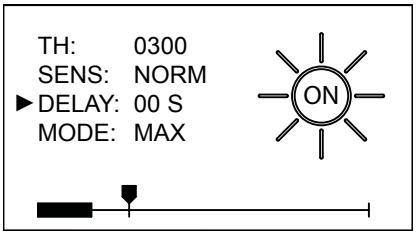
Press OK to change the setting.
Set the sensor sensibility: LOW or HIGH.
In the next table there are some “SENS” setting examples in relation to the material.



HIGH sensibility	LOW sensibility
Sunflower seeds	Corn flour
ABS plastic chips	Wheat flour
PA plastic chips	Rice
Bran	Cement

9.2 DELAY

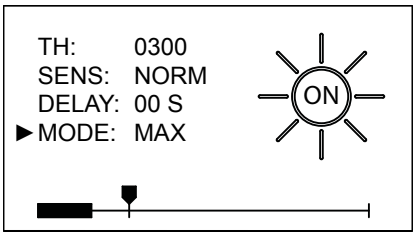
Press OK to change the setting.
By pressing the UP ARROW adjust from 0 to 30 seconds the sensor switching delay time from the normal to the alarm condition (for MAX alarm, relay de-energized with the product presence, for MIN alarm, relay de-energized with the product absence).
When the process stops to be in alarm condition, the sensor switches instantly, the alarm condition to normal without the delay time (for MAX alarm, relay energized in the product absence, or MIN alarm, relay energized in product presence).



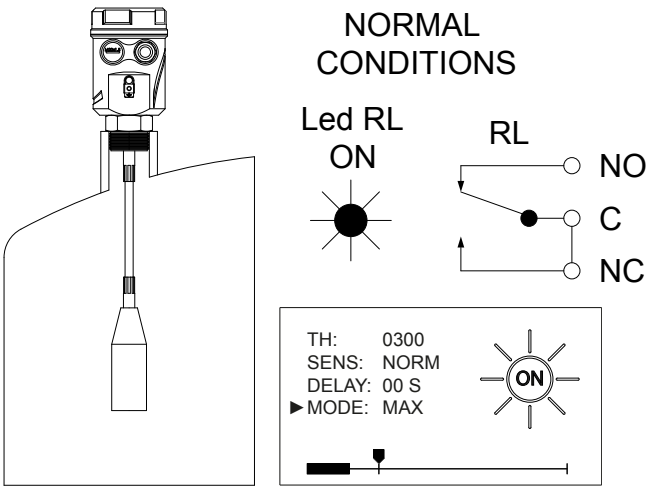
9.3 MODE

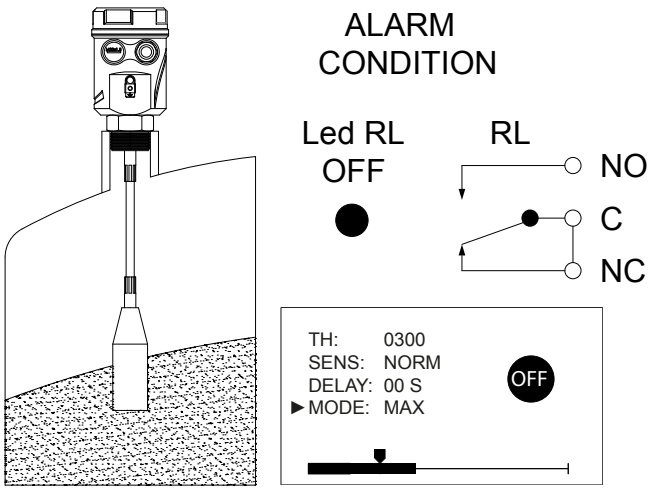
Press OK to change the setting.
Set the sensor alarm mode.

Use UP ARROW to change the alarm mode, MAX or MIN, highlighted in inverse.
Press OK to confirm.

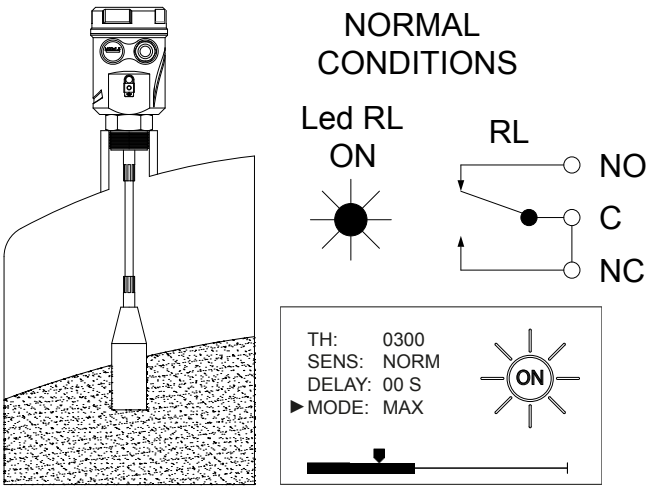


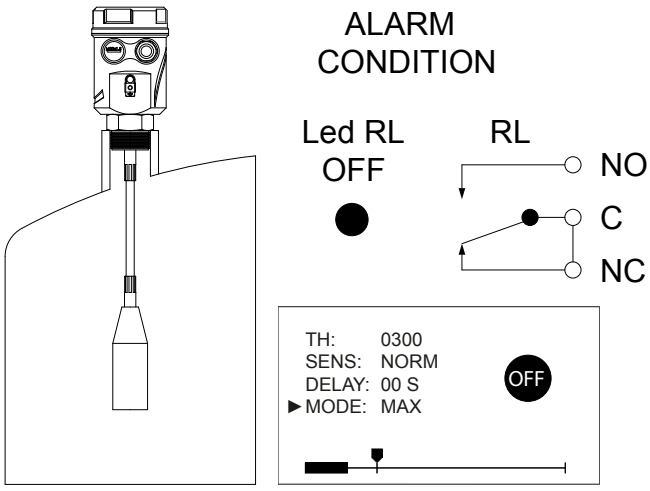
Setting the MODE parameter with the “MAX” option, the CLS5 sensor is operating in maximum alarm level modality:
- Normal condition, relay energized with product absence
- Alarm condition; relay de-energized with product presence.





Setting the MODE parameter with the “MIN” option, the CLS5 sensor is operating in minimum alarm level modality:
- Normal condition, relay energized with product presence.
- Alarm condition; relay de-energized with product absence.





10-FACTORY TEST AND QUALITY CERTIFICATE

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

(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: .....

SGM-LEKTRA S.r.l.
Via Papa Giovanni XXIII, 49
20090 Rodano (MI) - ITALY
tel: ++39 02 95328257
fax: ++39 02 95328321
e-mail: info@sgm-lektra.com
web: sgm-lektra.com