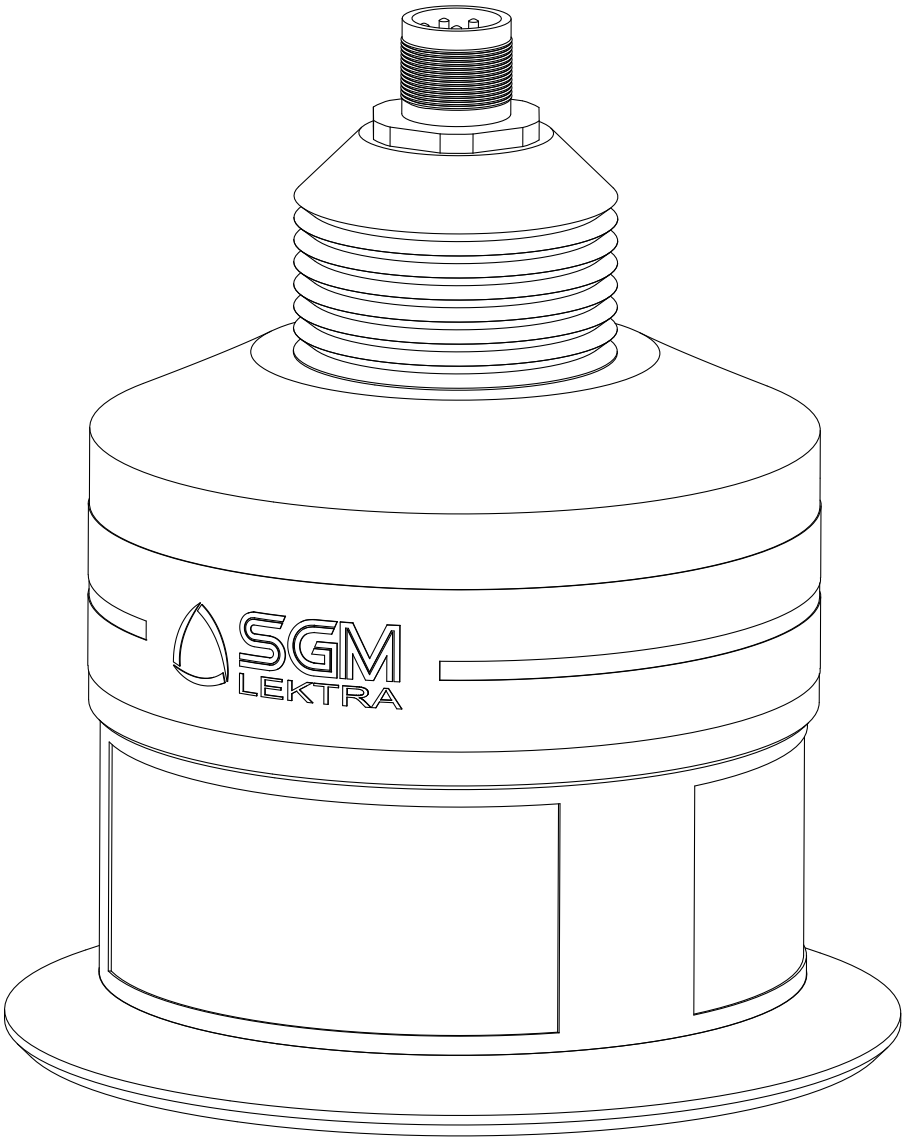
Flow51

ultrasonic flow transmitter



technical documentation EN Rev. del 21/03/2023

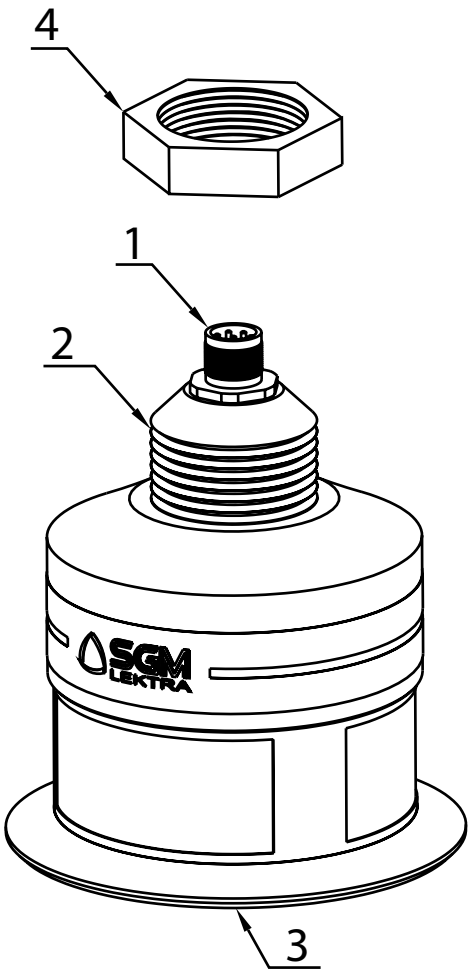
sgm lektra

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

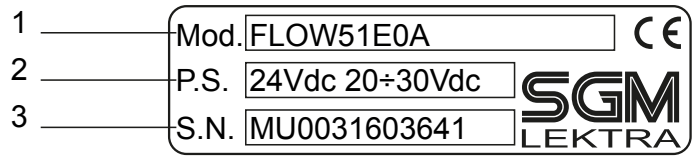
2-PRODUCT



1. Connector
2. 1” GAS
3. Sensor
4. PP fixing bolt

2.1 IDENTIFICATION

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



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

3-FEATURES

Housing material
Polypropylene (PP)

Mechanical installation
1”GAS M - PP flange DN100 opt.

Protection degree
IP68

Electrical connection
IP68 male connector with 5/10/15/20m linking cable

Working temperature
-20°C ÷ +60°C

Pressure
From 0,5 to 1,5 bar (absolute)

Power supply
20÷30Vdc

Power consumption
1.5W

Analog output
4÷20mA max 750ohm

Digital communication
MODBUS RTU

Max measure range
0.3÷6m (distance from sensor to water)
In case of non perfectly reflecting surfaces, the maximum distance value will be reduced

Temperature compensation
Digital in the working temperature

Accuracy
±0,2% (of the measured distance) not better than ±3mm

Resolution
1mm

Calibration
VLW601 prog. module with 4 buttons or by MODBUS RTU communication software (010F119A)

Warm-up
30 minutes typical

LCD Display
Matrix LCD display on VLW601 module (opt.) or on monitor with MODBUS RTU communication software (010F119A)

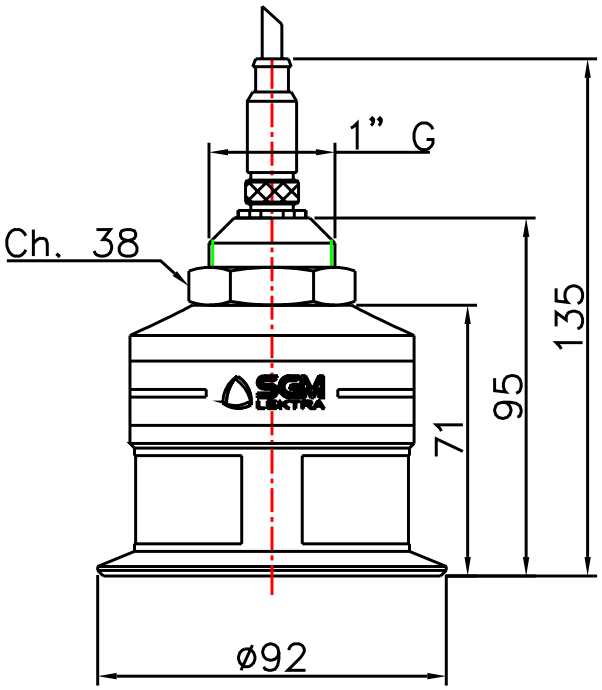
4-DIMENSIONS

4.1 MECHANICAL DIMENSIONS

The FLOW51 transmitter has 1“ GAS M thread, equipped with 1” PP fixing bolt.

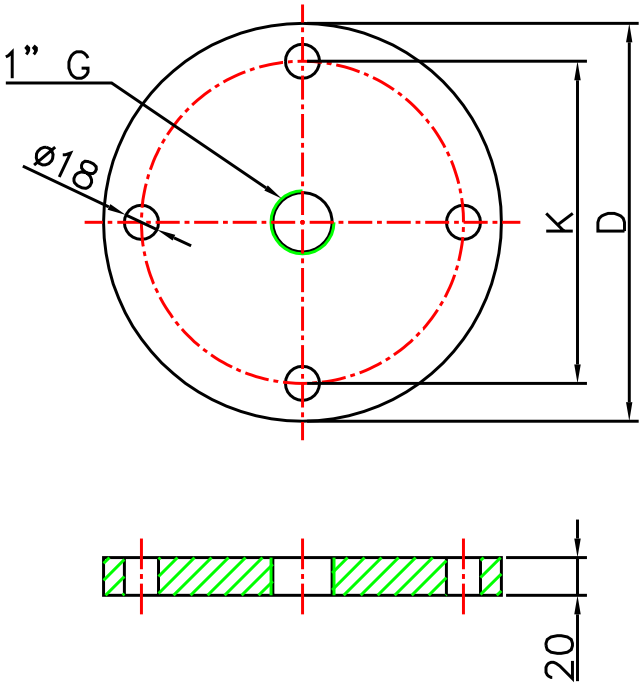
Also available with:

DN100 PN6 UNI 1092-1/PP flange (optional accessory)



Flange DN100/ PN6
UNI 1092-1/PP
(optional accessories)

D: ø210
K: ø170

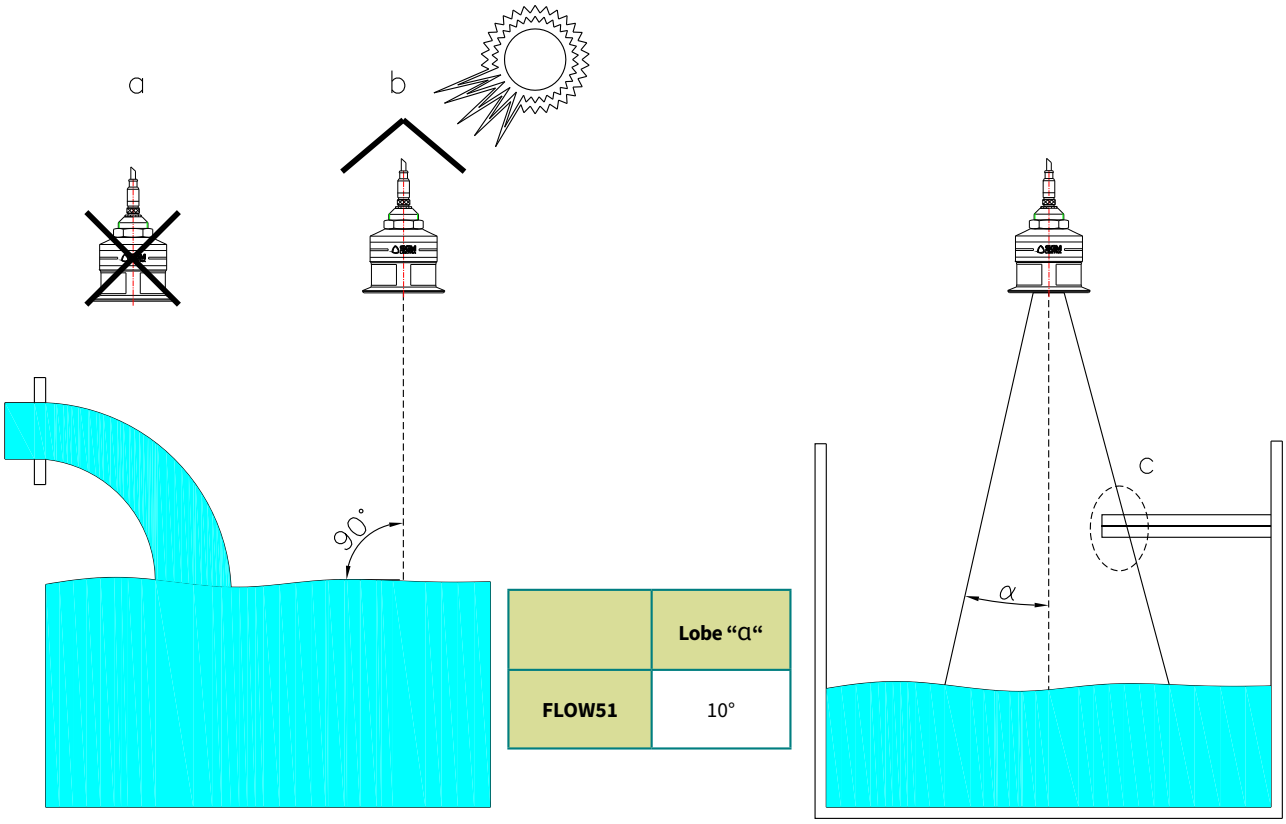


5-INSTALLATION

5.1 MOUNTING PRECAUTIONS

5.1.1 Mounting position

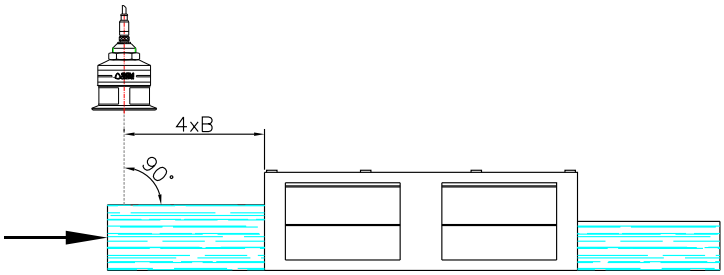
- Use a protective cover to protect the sensor from weather and direct sunlight (b).
- Do not install the sensor near the load zone (a).
- Make sure that in the sensor emission beam (lobe “α”) there are no obstacles (c) that can be intercepted as level.
- Make sure that there is not foam presence on the product surface to be measured.

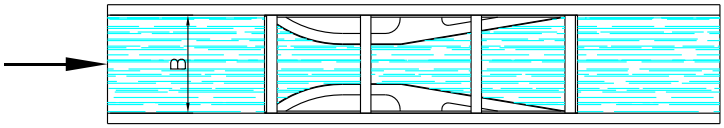


	Lobe “α“
FLOW51	10°

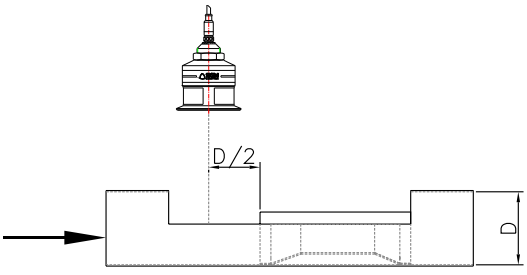
Make sure that the FLOW51 distance from the weir or channel point is equal or greater than to the minimum allowed distance (blind distance). In the following figure, the example with a Venturi channel (min. dist.4xB), a prefabricated Palmer-Bowlus channel (min. dist. D/2) (available in our catalog) and a neir.

Venturi channel

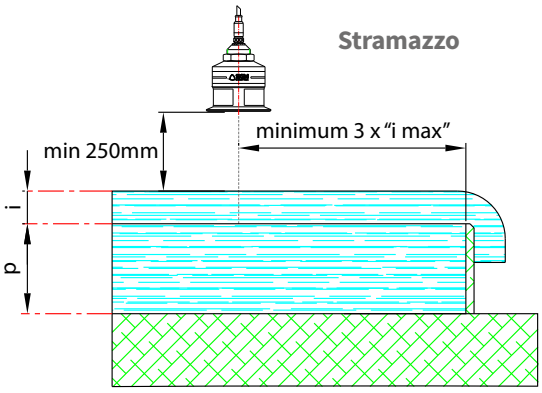




Palmer Bowlus

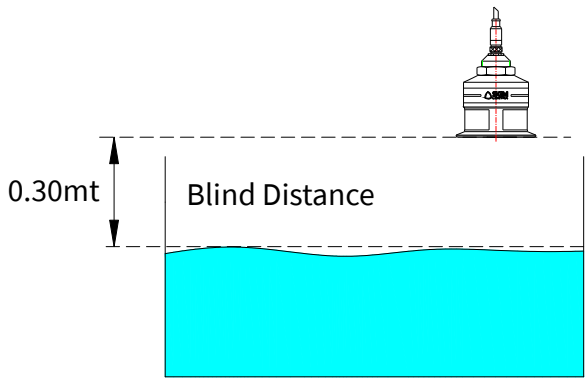


Stramazzo



5.1.2 Blind distance

During installation is important to remember that in the sensor proximity there is a blind zone (or BLIND DISTANCE) of 0.30m where the sensor can not measure.

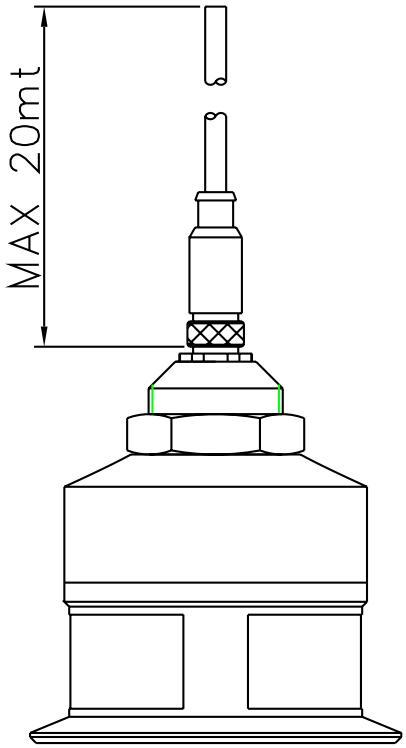


6-ELECTRICAL CONNECTIONS

6.1 WIRING

1) Separate the engine control cables or power cables from the FLOW51 connection cables
2) Isolate unused wires of the cable.
3) Fully tighten the connector ring nut.

Brown	GND (0V)
Red	+24 Vdc
White	SDA Display
Yellow	+4÷20mA
Gree	A (RS485)
Blue	B (RS485)
Pink	+3.3V Display
Grey	SCL Display

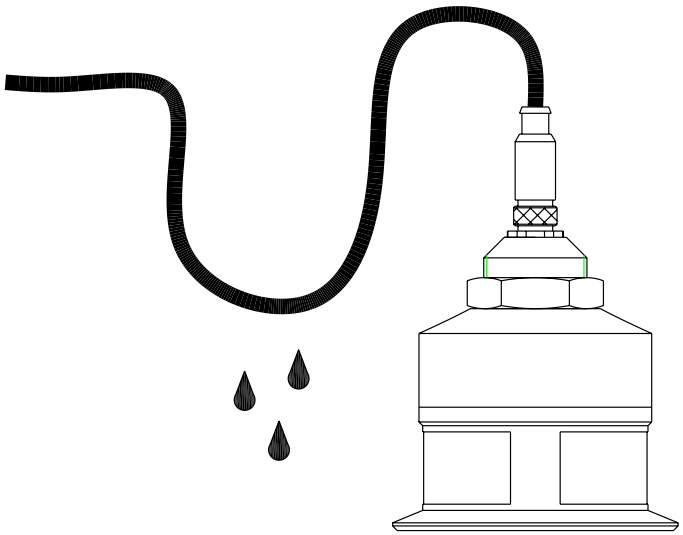


6.2 MOISTURE PROTECTION

In order to avoid moisture infiltration on connector, we strongly suggest to:

- Fully tighten the connector ring nut.

- Position the cable so that it forms a downward curve; in this way the condensation and/or rain water will tend to drip from the curve bottom

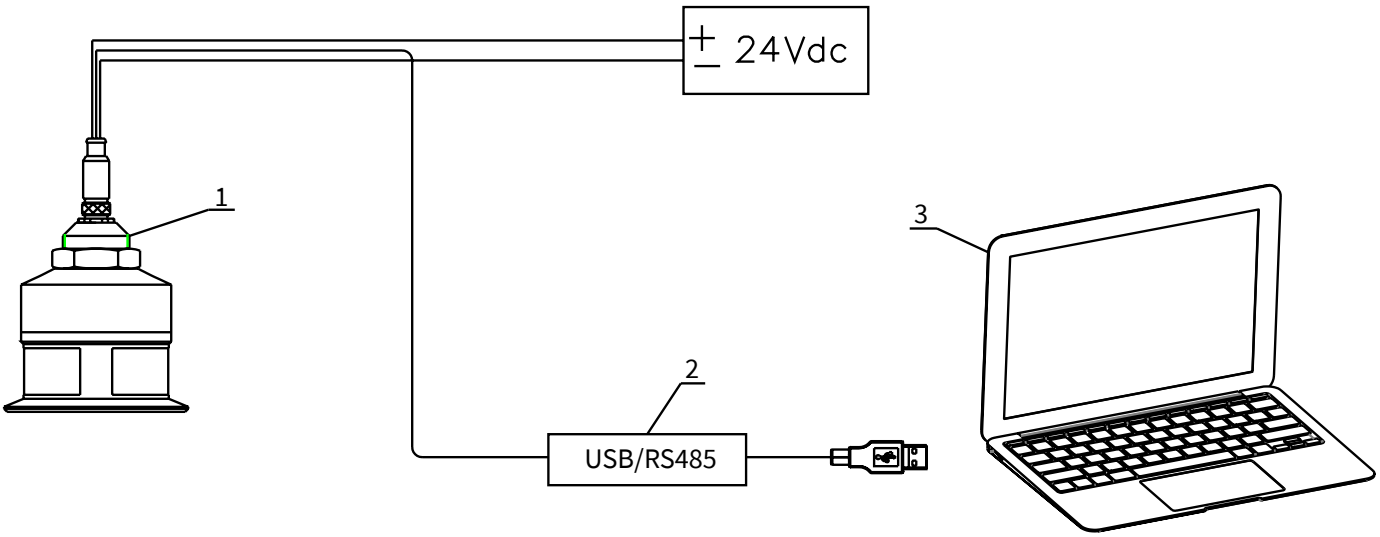


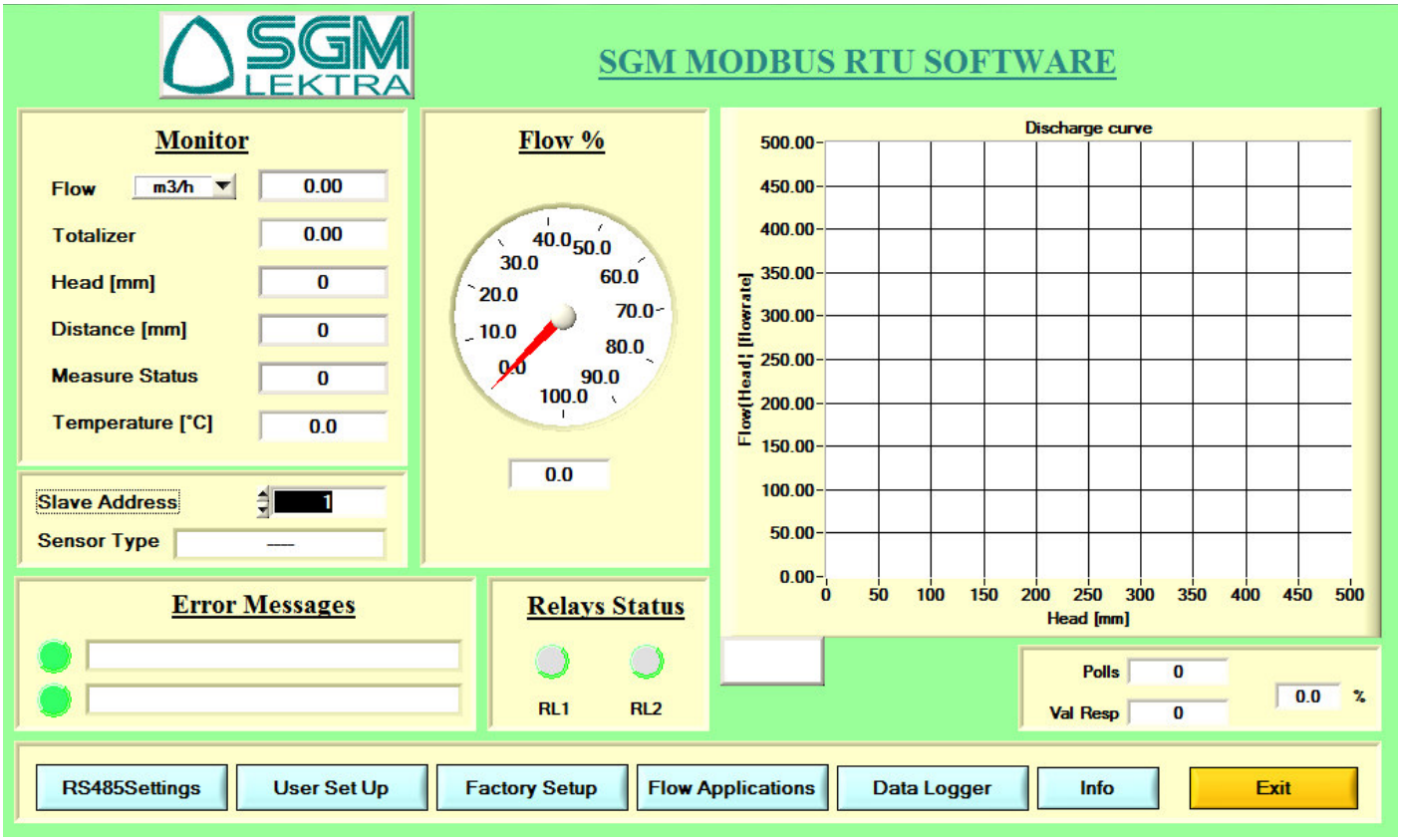
6.3 DIGITAL COMMUNICATIONS CONNECTION

6.3.1 Via MODBUS RTU

1) FLOW51 with MODBUS RTU communication protocol
2) USB/RS485 interface module, cod.694A004A
3) MODBUS RTU communication S/W, cod.010F119A

With this software it is possible:
- connect, by selecting the UID address, the FLOW51 transmitter in MODBUS RTU network
- read on your PC monitor all measures in reading and operation data
- program to all configuration parameters
- storing on files, data logger function; measures in reading and operating states





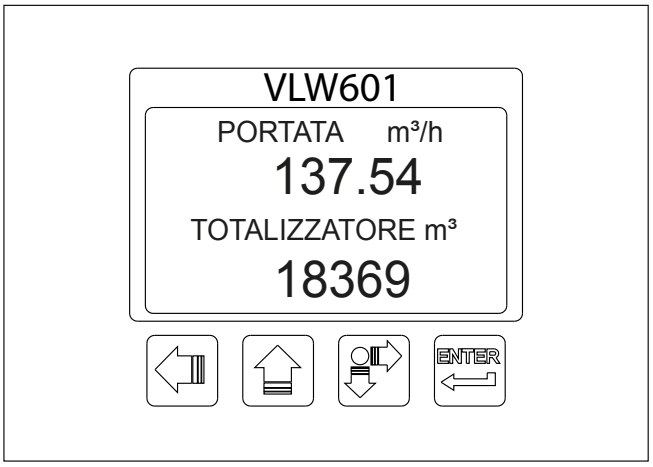
7-LOCAL OPERATOR INTERFACE (LOI) - VLW601

LOI is an operator communications center for the FLOW51. Through the LOI, the operator can access any transmitter function for changing configuration parameter settings or other functions.

7.1 VLW601 FEATURES

The VLW601 program module has 4 buttons which allow to perform all operational, control and programming instrument functions.
In the configuration menus, it is possible:

1. To access submenus and parameters; press  to select and press  to access.
2. To parameter options chode: Press  to select the option and press  to store the option.
   Press  to exit without storing.
3. To configure the parameter values; in some parameters the configuration is done by setting a value (eg., in the SET MAX FLOW parameter is possible to change the value of flow that correspond to 20mA output):
   press  to select the digit to be modified (the digit is highlighted in inverse), press  to change the high lighted digits number, press  to save the set value and exit automatically.
   Press  to exit without storing.

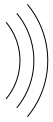


LEFT ARROW button:
- **Exit configuration**
- **Back to previous menu**
- **Echo map (from RUN mode)**

UP ARROW button:
- **Parameter values modification**
- **Parameter scroll**

SCROLL button:
- **Cursor movement (to the right)**
- **Parameter scroll**

ENTER button:
- **Configuration access**
- **Options confirmation**
- **Parameters values confirmation**



Displayed at the bottom indicates the correct echo signal reception

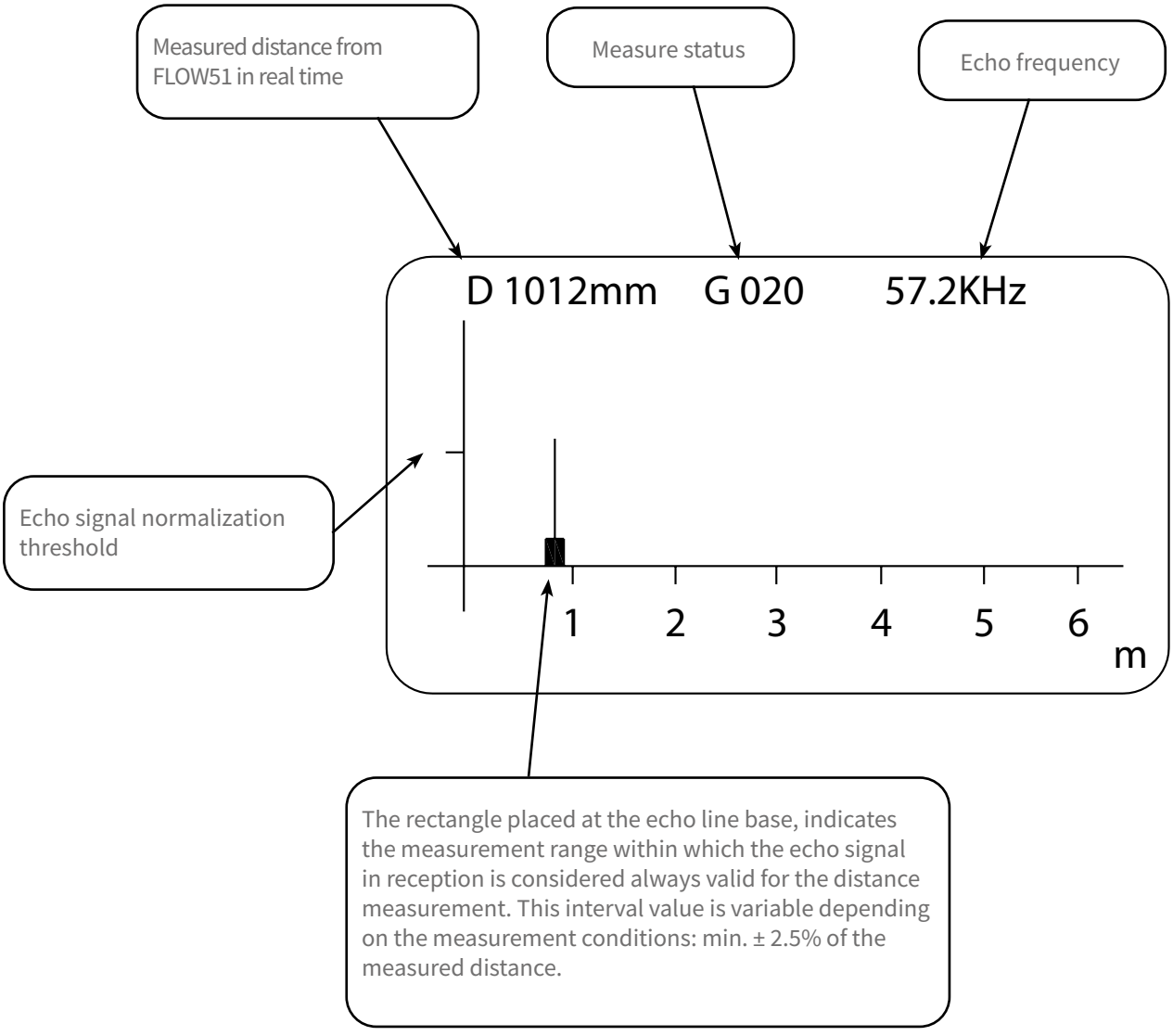
!

Displayed at the top alerts that there is a generic error; press SCROLL to show the message that indicates the present error type.
The FLOW51 returns automatically to RUN mode.

7.2 - ECHO MAP

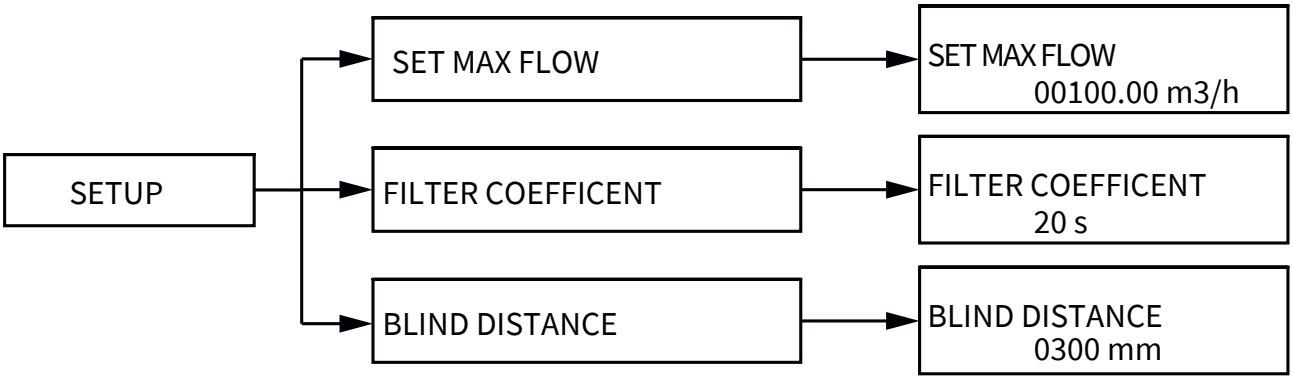
Press LEFT ARROW, from RUN mode, to access directly to the echoes digital map display, which are in FLOW51 receiving.
This function is useful to:

- properly orient the transducer pointing.
- verify the echoes in acquisition correctness.
- identify any false echo signals that may cause measurement errors.

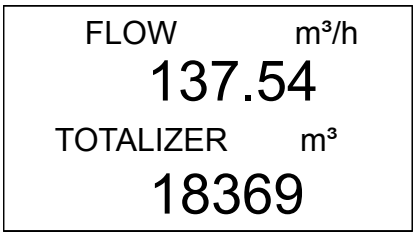


8-SETUP

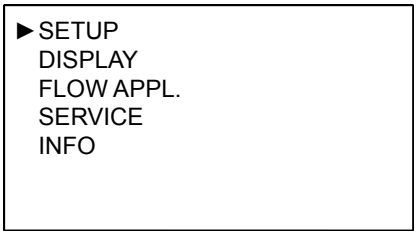
8.1 - "SETUP" menu



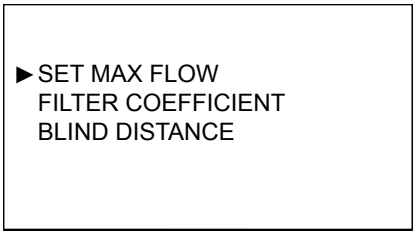
8.2 - SETUP



From "RUN" mode press ENTER to access the configuration mode

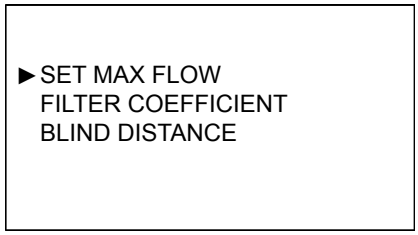


Press SCROLL to select the menu and press ENTER to access.
Press LEFT ARROW to exit



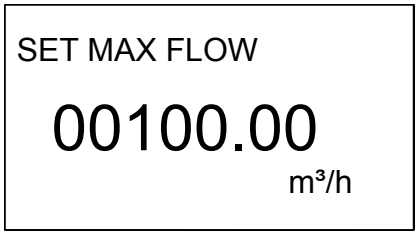
8.2.1 - SET MAX FLOW

Position the cursor on SET MAX FLOW, press ENTER to confirm



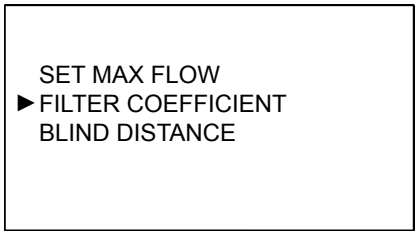
In this sub-menu it's possible to setup the MAX flow rate value associated with 20mA.
Use UP ARROW and SCROLL to modify the value.
Press ENTER to confirm. LEFT ARROW to exit without changes

Default value: 100



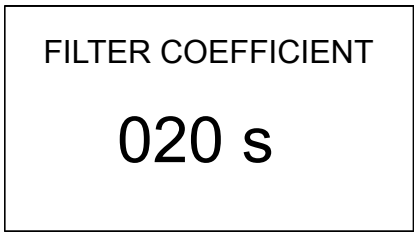
8.2.2 - FILTER COEFFICIENT

Position the cursor on FILTER COEFFICIENT, ENTER to confirm



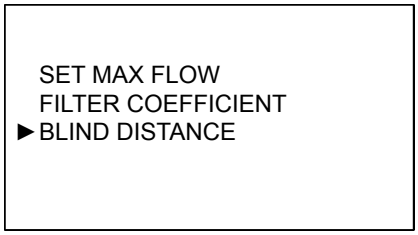
Enter a value from 1 to 99: 1 = fastest response, 99 = slowest response.
The function is deactivated with 0 (measurement without filter)
Use UP ARROW and SCROLL to modify the value.
Press ENTER to confirm. LEFT ARROW to exit without changes

Default value: 20



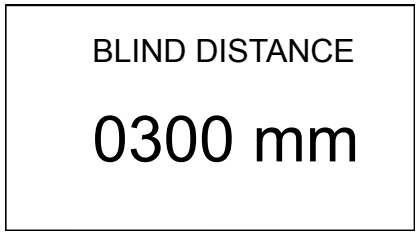
8.2.3 - BLIND DISTANCE

Position the cursor on BLIND DISTANCE, ENTER to confirm

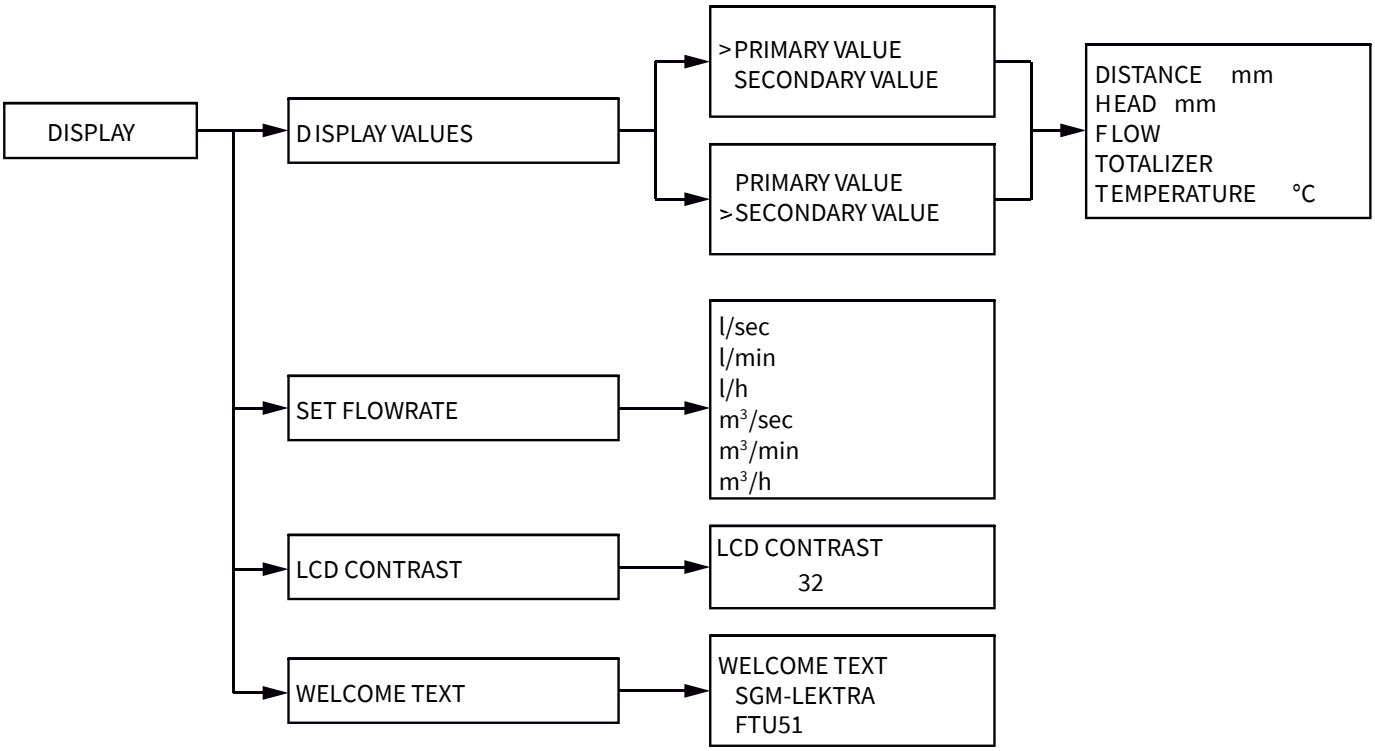


Represent the "BLIND ZONE" of the sensor. Input the desired value in order to avoid measures near the surface of the sensor (if necessary).
The minimum value is 300mm
Use UP ARROW and SCROLL to modify the value.
Press ENTER to confirm. LEFT ARROW to exit without changes

Default values: 300mm



8.3 - DISPLAY MENÙ



8.4 - DISPLAY

Press SCROLL to select the menu and press ENTER to access.
Press LEFT ARROW to exit.

SETUP
▶DISPLAY
FLOW APPL.
SERVICE
INFO

8.4.1 - DISPLAY VALUES

Position the cursor on DISPLAY VALUES, press ENTER to access

▶DISPLAY VALUES
SET FLOWRATE
LCD CONTRAST
WELCOME TEXT

It's possible to select the two values that are shown on the display in "RUN" mode
Press SCROLL button to select the parameter to be programmed.
Press ENTER to confirm. LEFT ARROW to exit without changes.

▶PRIMARY VALUE

SECONDARY VALUE

8.4.1.1 - PRIMARY/SECONDARY VALUES

Position the cursor on primary/secondary VALUES,press ENTER to access

▶PRIMARY VALUE

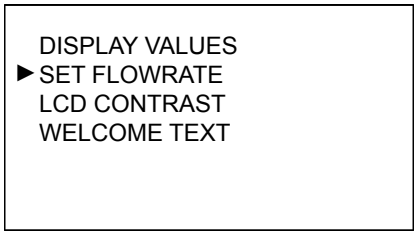
SECONDARY VALUE

Two values are displayed; it's possible to choose which one is the primary and which is the secondary, each with a choice of 5 parameters
Press SCROLL button to select data to display
Press ENTER to confirm. LEFT ARROW to exit without changes

DISTANCE mm
HEAD mm
▶FLOW
TOTALIZER
TEMPERATURE °C

8.4.2 - SET FLOWRATE

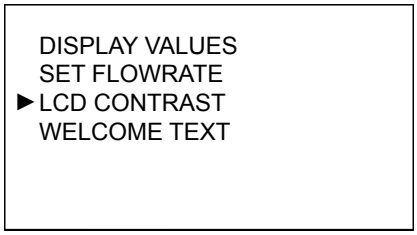
Position the cursor on SET FLOWRATE, press ENTER to confirm



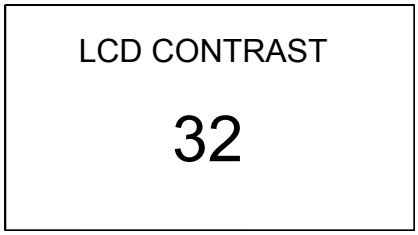
Press SCROLL button to select the instantaneous flow rate measure unit to be programmed.
Press ENTER to confirm. LEFT ARROW to exit without changes.

8.4.3 - LCD CONTRAST

Position the cursor on LCD CONTRAST, press ENTER to confirm



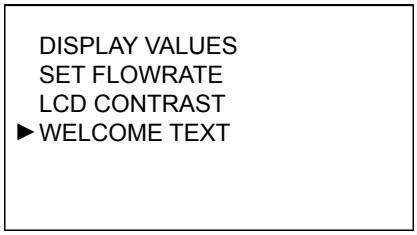
it's possible to adjust the contrast of LCD, simply increasing or decreasing the value of a parameter from 0 to 63.
Use UP ARROW and SCROLL to modify the value.
Press ENTER to confirm. LEFT ARROW to exit without changes



Default value: 32

8.4.4 - WELCOME TEXT

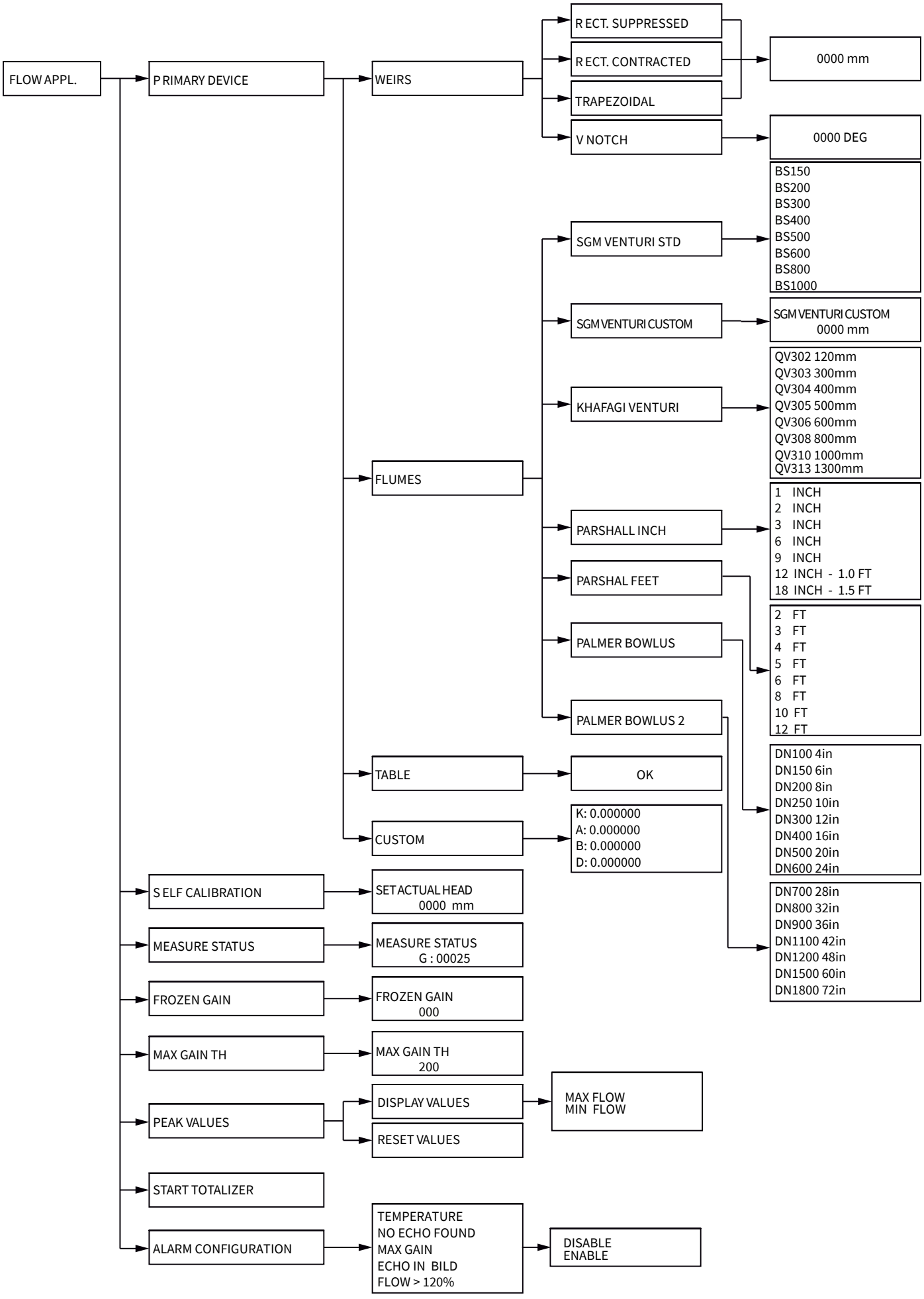
Position the cursor on WELCOME TEXT, press ENTER to confirm



It's possible to edit or delete the message that is displayed by the FLOW51 during the startup.
Use UP ARROW (up scroll) and SCROLL (down scroll) to change the digit; ENTER to move the digit to the right. To confirm press ENTER repeatedly until reach the end of second row. LEFT ARROW to exit without changes.

Default value: SGM-LEKTRA FLOW51

8.5 FLOW APPL. menu



8.6 - FLOW APPL.

Press SCROLL to select the menu and press ENTER to access.
Press LEFT ARROW to exit.

▶ PRIMARY DEVICE
SELF CALIBRATION
MEASURE STATUS
FROZEN GAIN
MAX GAIN TH
PEAK VALUE
START TOTALIZER
ALARM CONFIGURATION

8.6.1 - PRIMARY DEVICE

Position the cursor on primary device, press ENTER to access.

▶ PRIMARY DEVICE
SELF CALIBRATION
MEASURE STATUS
FROZEN GAIN
MAX GAIN TH
PEAK VALUE
START TOTALIZER
ALARM CONFIGURATION

In this sub-menu it's possible to select and set the primary device available in the channel
Press SCROLL button to select the primary device to be setted.
Press ENTER to confirm. LEFT ARROW to exit without changes

▶ WEIRS
FLUMES
TABLE
CUSTOM

8.6.1.1 - WEIRS

Position the cursor on WEIRS, press ENTER to access

▶ WEIRS
FLUMES
TABLE
CUSTOM

In this sub-menu it's possible to select and set the weir kind available in the channel
Can be selected: Rectangular Suppressed,
Rectangular Contracted, Trapezoidal and V Notch
Press SCROLL button to select the weir kind to be setted.
Press ENTER to confirm. LEFT ARROW to exit without changes

▶ RECT. SUPPRESSED
RECT. CONTRACTED
TRAPEZOIDAL
V NOTCH

8.6.1.1.1 - RECT. SUPPRESSED

Position the cursor on RECT. SUPPRESSED (or no constriction rectangular), press ENTER to access

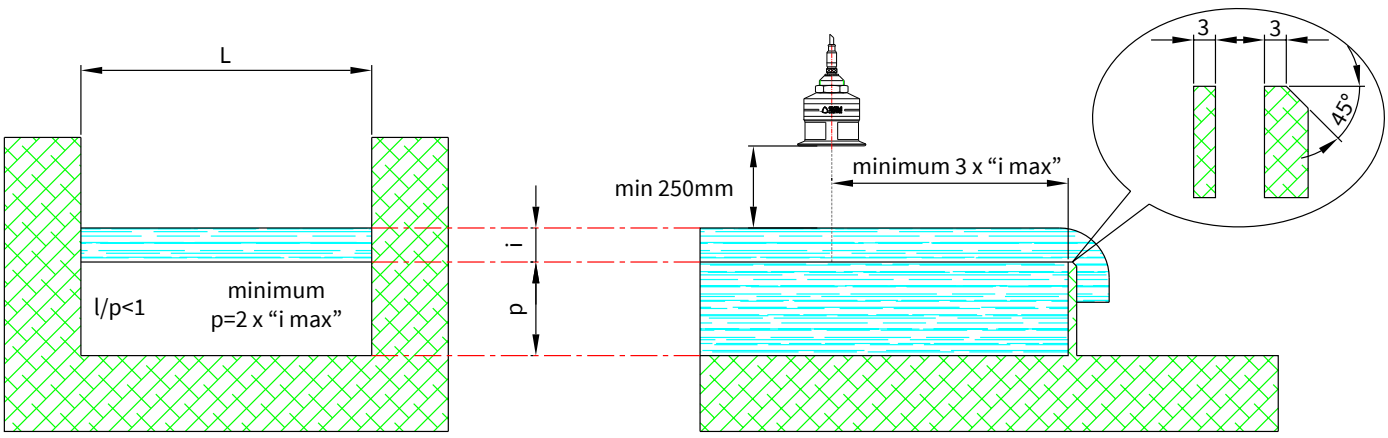
▶ RECT. SUPPRESSED
RECT. CONTRACTED
TRAPEZOIDAL
V NOTCH

To set it, simply insert the "L" size (see drawing below).
Use UP ARROW and SCROLL to modify the value.
Press ENTER to confirm. LEFT ARROW to exit without changes.

RECT. SUPPRESSED

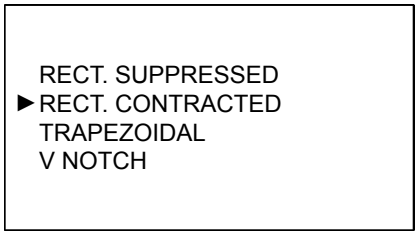
0000 mm

NO CONSTRICTION RECTANGULAR WEIR - "Bazin"

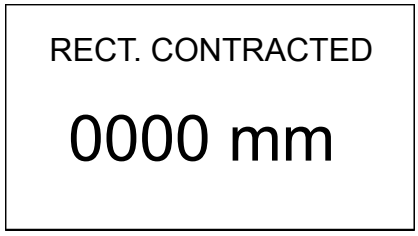


8.6.1.1.2 - RECT. CONTRACTED

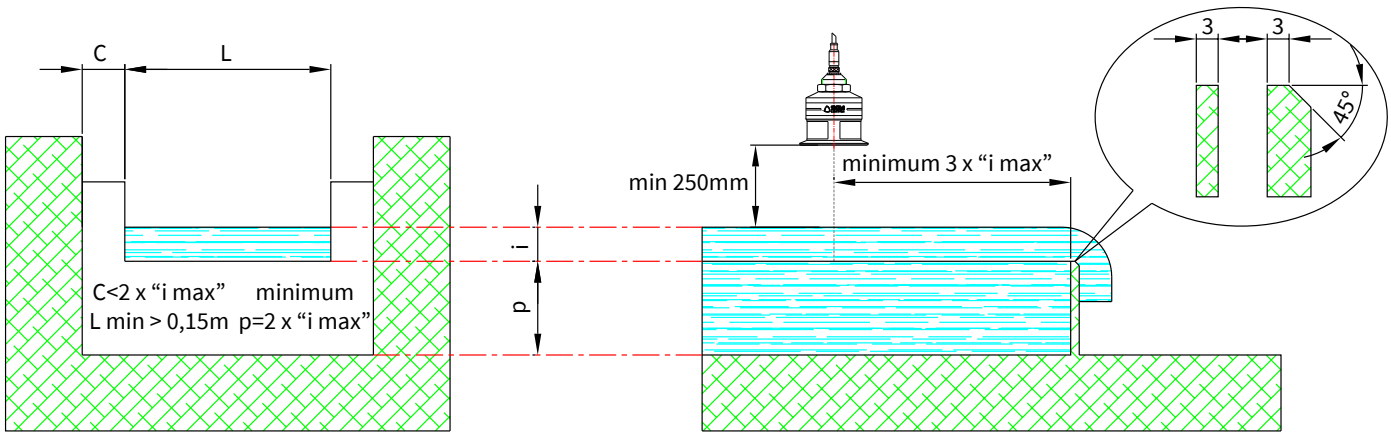
Position the cursor on RECT. CONTRACTED (or constriction rectangular), ENTER to confirm



To set it, simply insert the “L” size (see drawing below).
Use UP ARROW and SCROLL to modify the value.
Press ENTER to confirm. LEFT ARROW to exit without changes

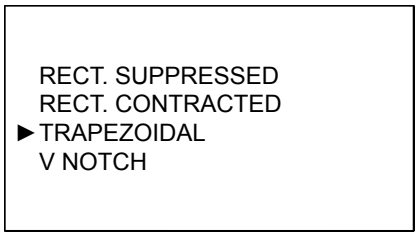


CONSTRICTION RECTANGULAR WEIR - “Francis”



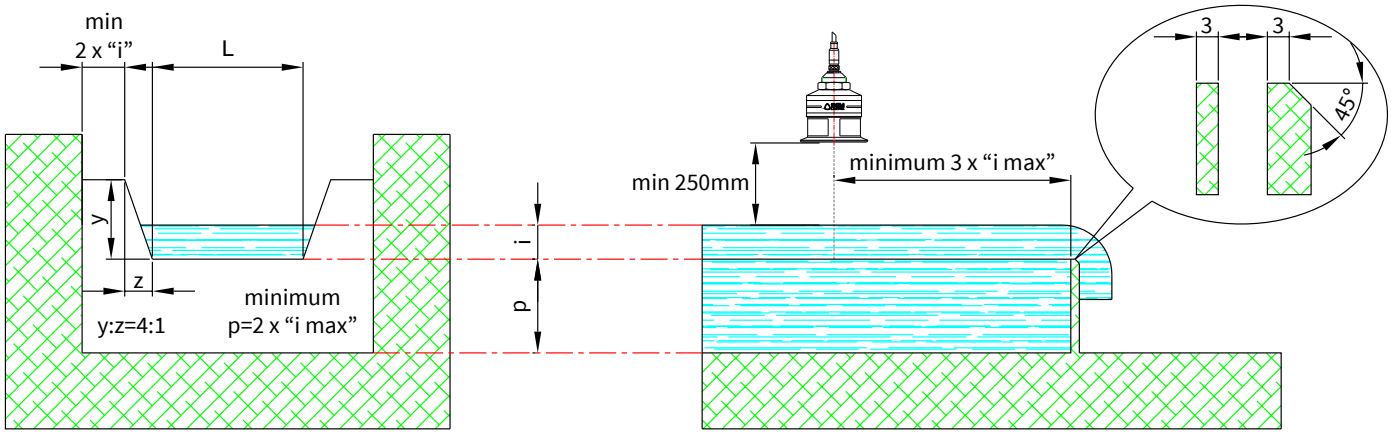
8.6.1.1.3 - TRAPEZOIDAL

Position the cursor on TRAPEZOIDAL (or Cipolletti), ENTER to confirm.



To set it, simply insert the “L” size (see drawing below).
Use UP ARROW and SCROLL to modify the value.
Press ENTER to confirm. LEFT ARROW to exit without changes

TRAPEZOIDAL OR CIPOLLETTI WEIR



8.6.1.1.4 - V NOTCH

Position the cursor on V NOTCH (or triangular), ENTER to confirm

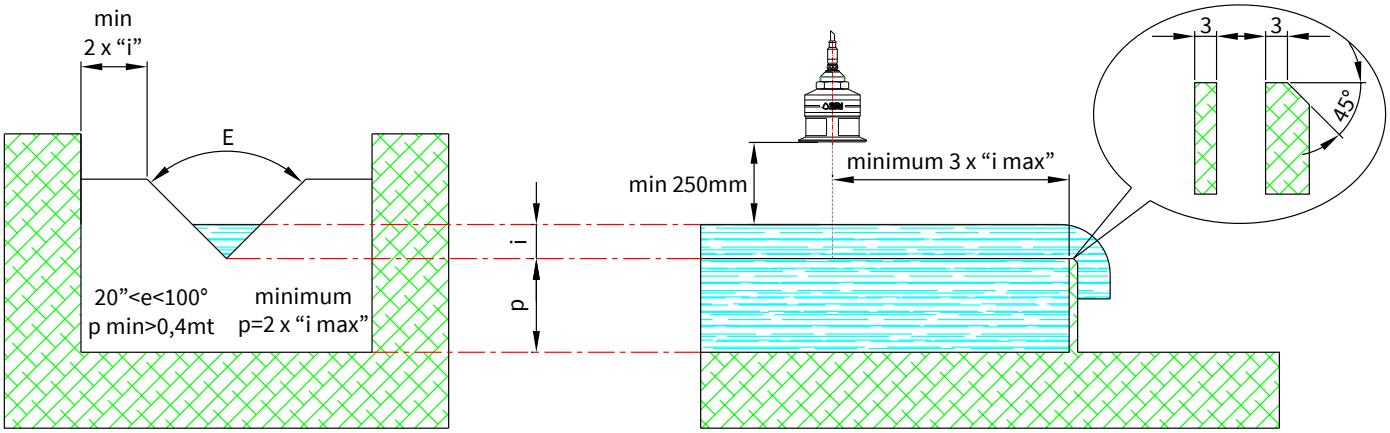
```
  RECT. SUPPRESSED
  RECT. CONTRACTED
  TRAPEZOIDAL
▶ V NOTCH
```

To set it, simply insert the “E” angle (see drawing below).
Use UP ARROW and SCROLL to modify the value.
Press ENTER to confirm. Left arrow to exit without changes

```
V NOTCH

000.0
```

TRIANGULAR WEIR



8.6.2 - FLUMES

Position the cursor on flumes, press ENTER to confirm

```
  WEIRS
▶ FLUMES
  TABLE
  CUSTOM
```

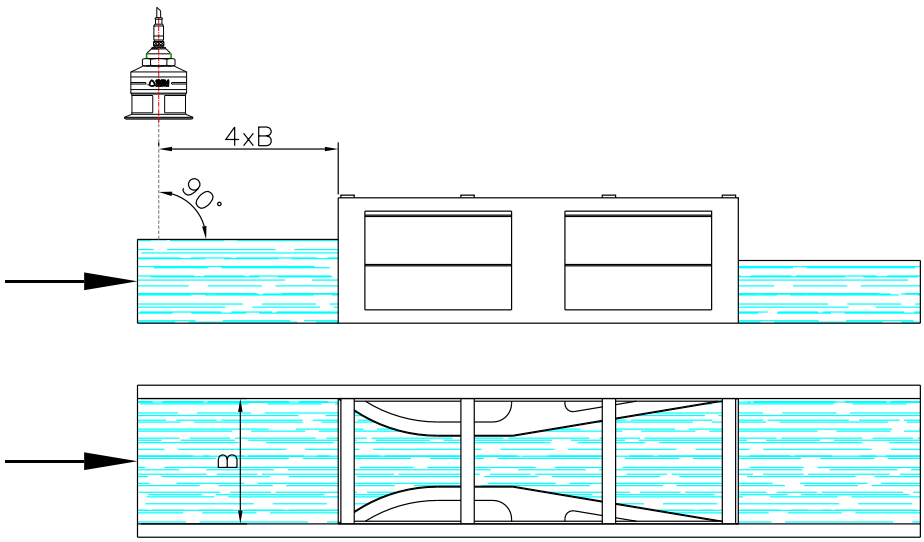
In this sub-menu it’s possible to select and set the flumes kind available in the channel.
Press SCROLL button to select the flumes kind to be setted.
Press ENTER to confirm. Left arrow to exit without changes

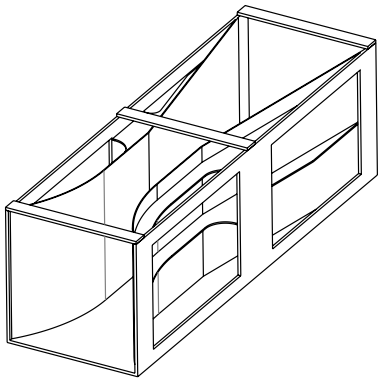
```
▶ SGM VENTURI STD
  SGM VENTURI CUSTOM
  KHAFAGI VENTURI
  PARSHALL INCH
  PARSHALL FEET
  PALMER BOWLUS
  PALMER BOWLUS 2
```

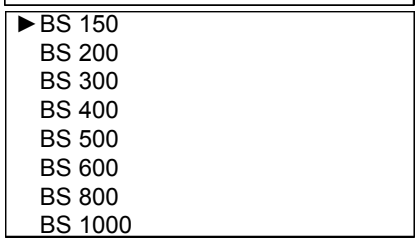
8.6.1.2.1 - SGM VENTURI STD

Position the cursor on SGM VENTURI STD, press ENTER to confirm. “SGM VENTURI STD” are prefabricated Venturi channels and are designed by SGM LEKTRA in collaboration with Pavia University

To set it, simply select the Venturi channel model, identifiable with the “B” size.
Ex.: B = 300mm; SGM VENTURI STD = BS 300
Press SCROLL button to select the SGM VENTURI STD kind to be setted.
Press ENTER to confirm. LEFT ARROW to exit without changes.



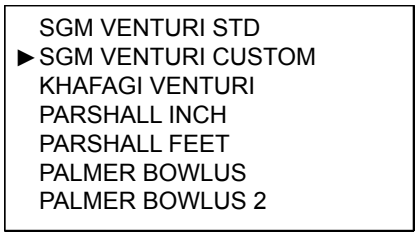


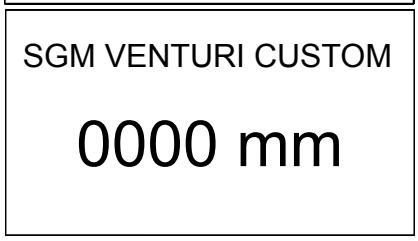


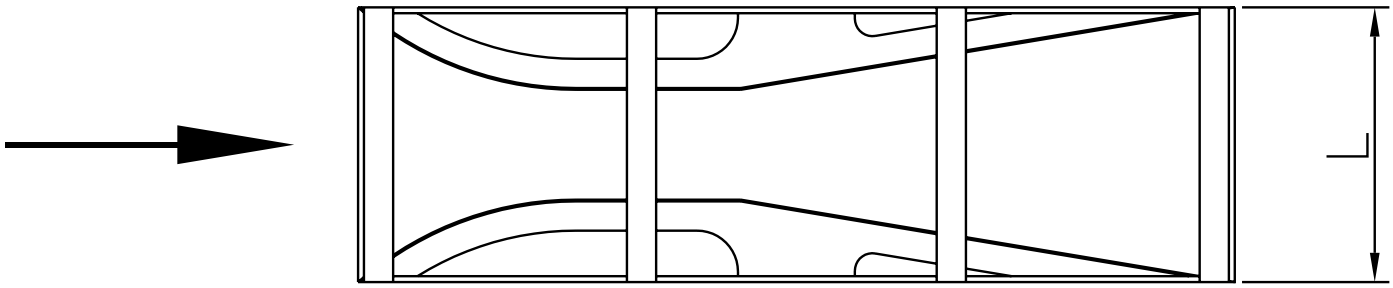
8.6.1.2.2 - SGM VENTURI CUSTOM

Position the cursor on SGM VENTURI CUSTOM, press ENTER to confirm. “SGM VENTURI” are custom Venturi channels and are designed by SGM LEKTRA in collaboration with Pavia University.

To set it, simply insert the “L” size.
Use UP ARROW and SCROLL to modify the value.
Press ENTER to confirm. LEFT ARROW to exit without changes.







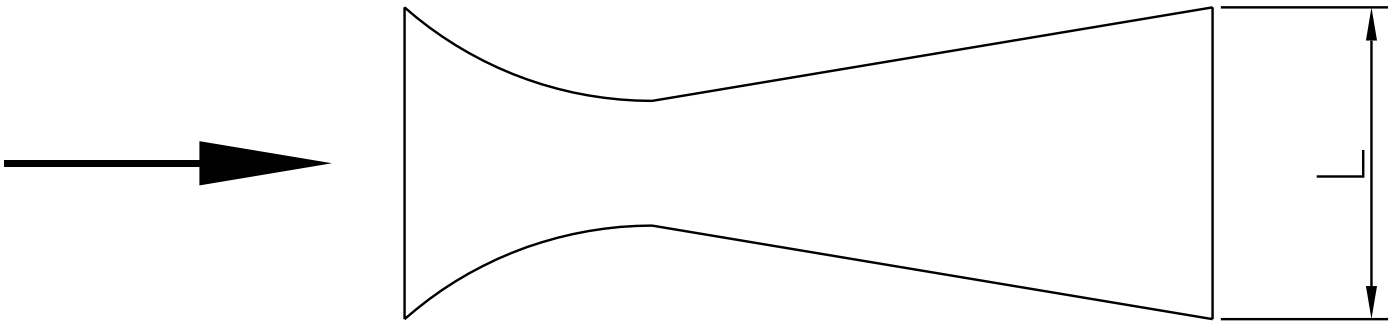
8.6.1.2.3 - KHAFAGI VENTURI

Position the cursor on KHAFAGI VENTURI, press ENTER to confirm

```
  SGM VENTURI STD
  SGM VENTURI CUSTOM
► KHAFAGI VENTURI
  PARSHALL INCH
  PARSHALL FEET
  PALMER BOWLUS
  PALMER BOWLUS 2
```

To set it, simply select the “L” size.
Use UP ARROW and SCROLL to select the value.
Press ENTER to confirm. LEFT ARROW to exit without changes.

```
► QV302 120mm
  QV303 300mm
  QV304 400mm
  QV305 500mm
  QV306 600mm
  QV308 800mm
  QV310 1000mm
  QV313 1300mm
```



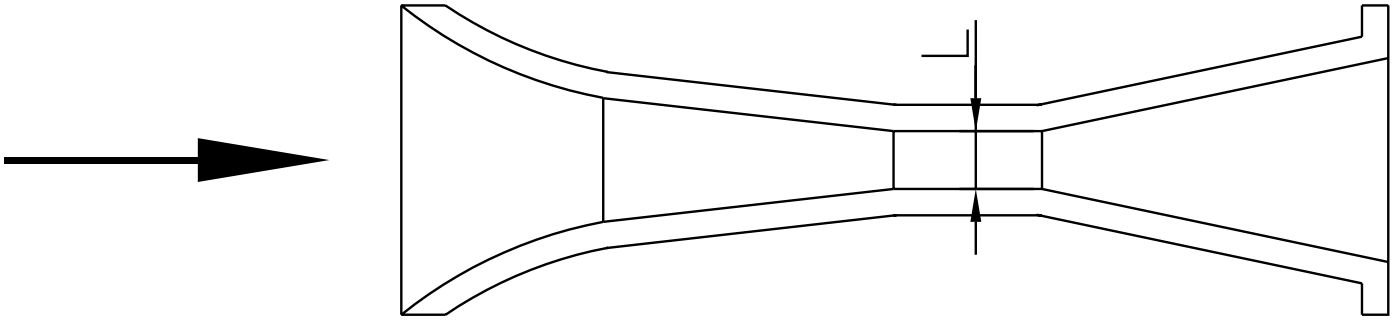
8.6.1.2.4 - PARSHALL INCH

Position the cursor on PARSHALL INCH, press ENTER to confirm.
PARSHALL INCH are the Parshall channels with the “L” dimension in inches.

```
  SGM VENTURI STD
  SGM VENTURI CUSTOM
  KHAFAGI VENTURI
► PARSHALL INCH
  PARSHALL FEET
  PALMER BOWLUS
  PALMER BOWLUS 2
```

To set it, simply select the “L” size.
Use UP ARROW and SCROLL to select the value.
Press ENTER to confirm. LEFT ARROW to exit without changes

```
► 1 inch
  2 inch
  3 inch
  6 inch
  9 inch
  12 inch - 1.0 ft
  18 inch - 1.5 ft
```



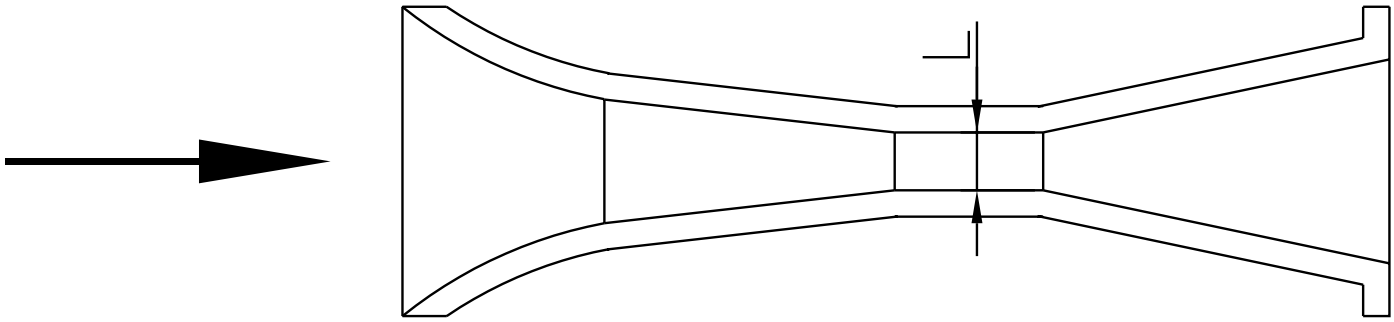
8.6.1.2.5 - PARSHALL FEET

Position the cursor on PARSHALL FEET, press ENTER to confirm.
PARSHALL FEET are the Parshall channels with the “L” dimension in feet.

To set it, simply select the “L” size.
Use SCROLL to select the value.
Press ENTER to confirm. LEFT ARROW to exit without changes

```
  SGM VENTURI STD
  SGM VENTURI CUSTOM
  KHAFAGI VENTURI
  PARSHALL INCH
► PARSHALL FEET
  PALMER BOWLUS
  PALMER BOWLUS 2
```

```
► 2 ft
  3 ft
  4 ft
  5 ft
  6 ft
  8 ft
  10 ft
  12 ft
```



8.6.1.2.6 - PALMER BOWLUS / PALMER BOWLUS 2

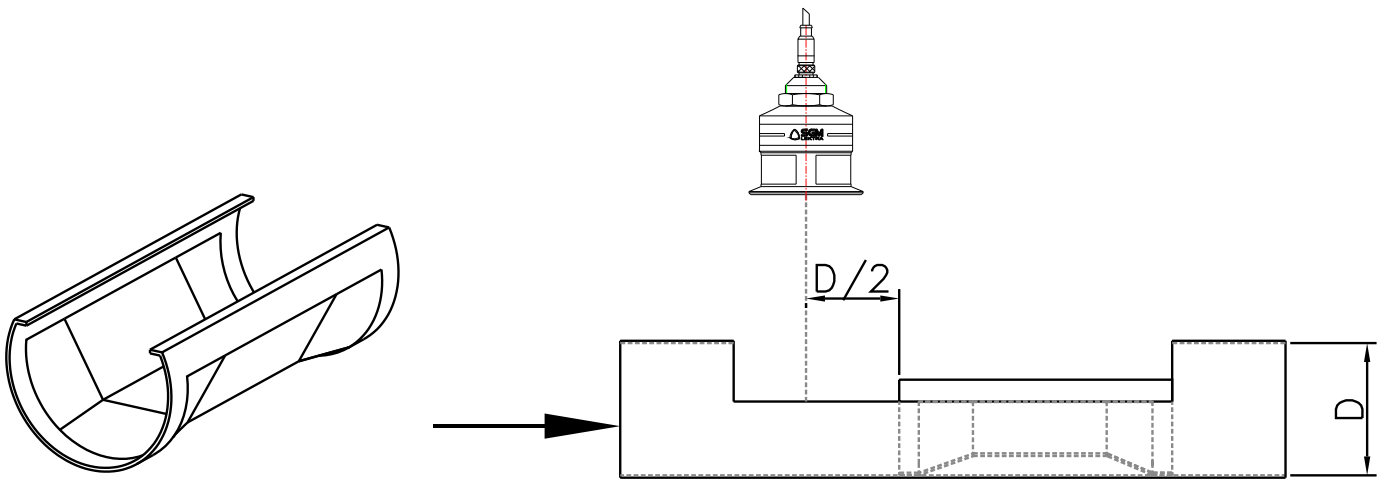
Position the cursor on palmer bowlus or palmer bowlus 2, press ENTER to confirm.
“PALMER BOWLUS” are prefabricated Palmer-Bowlus channels

To set it, simply select the Palmer bowlus channel model.
Press SCROLL button to select the Palmer-Bowlus model to be setted.
Press ENTER to confirm. LEFT ARROW to exit without changes

```
  SGM VENTURI STD
  SGM VENTURI CUSTOM
  KHAFAGI VENTURI
  PARSHALL INCH
  PARSHALL FEET
► PALMER BOWLUS
  PALMER BOWLUS 2
```

```
► DN100 4in
  DN150 6in
  DN200 8in
  DN250 10in
  DN300 12in
  DN400 16in
  DN500 20in
  DN600 24in
```

```
► DN700 28in
  DN800 32in
  DN900 36in
  DN1100 42in
  DN1200 48in
  DN1500 60in
  DN1800 72in
```



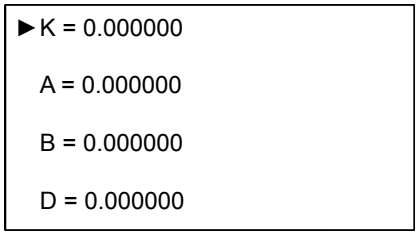
8.6.1.3 - TABLE

Position the cursor on TABLE, press ENTER to confirm.
The table setting is available only with the MUDBUS communication software (code 010F119A)

8.6.1.4 - CUSTOM

Position the cursor on Custom, press ENTER to confirm.

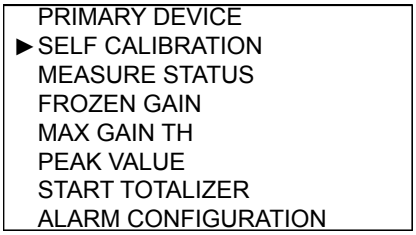
It's only possible to see those parameters.
The parameters setting is available only with the MUDBUS communication program (code 010F119A)



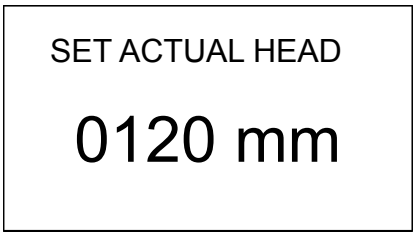
WARNING - Proper programming of this parameter is essential for correct flow measurement.
Do not proceed without having carefully read the below described instructions

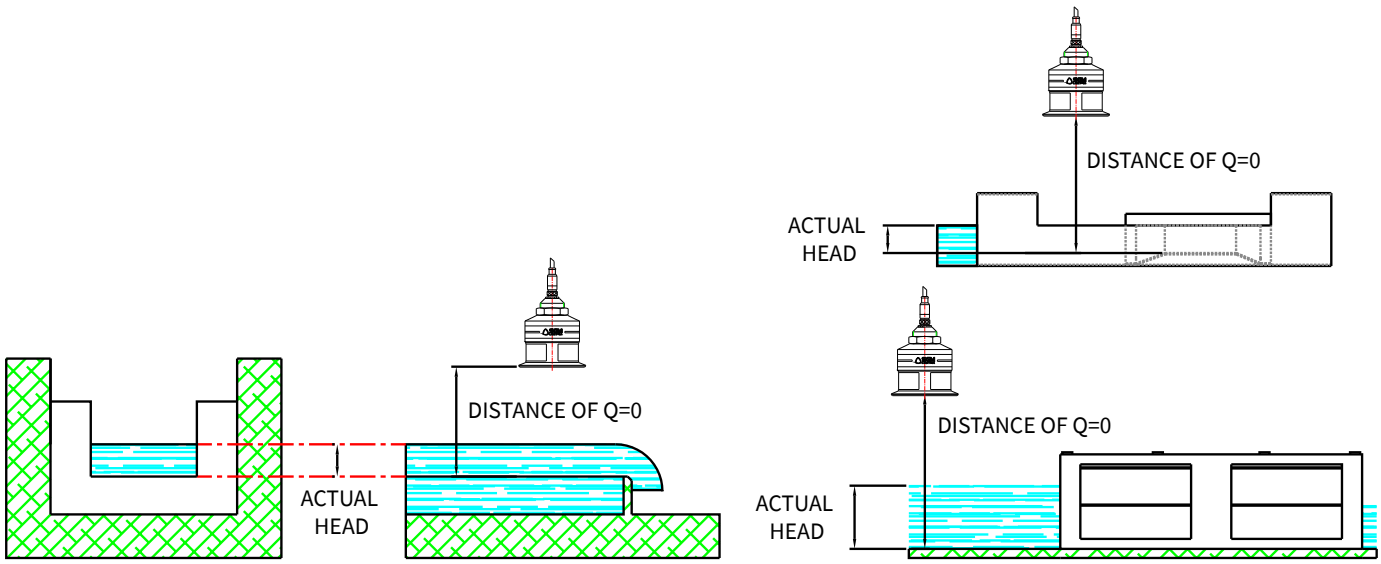
8.6.2 - SELF CALIBRATION

Position the cursor on SELF CALIBRATION, press ENTER to confirm.

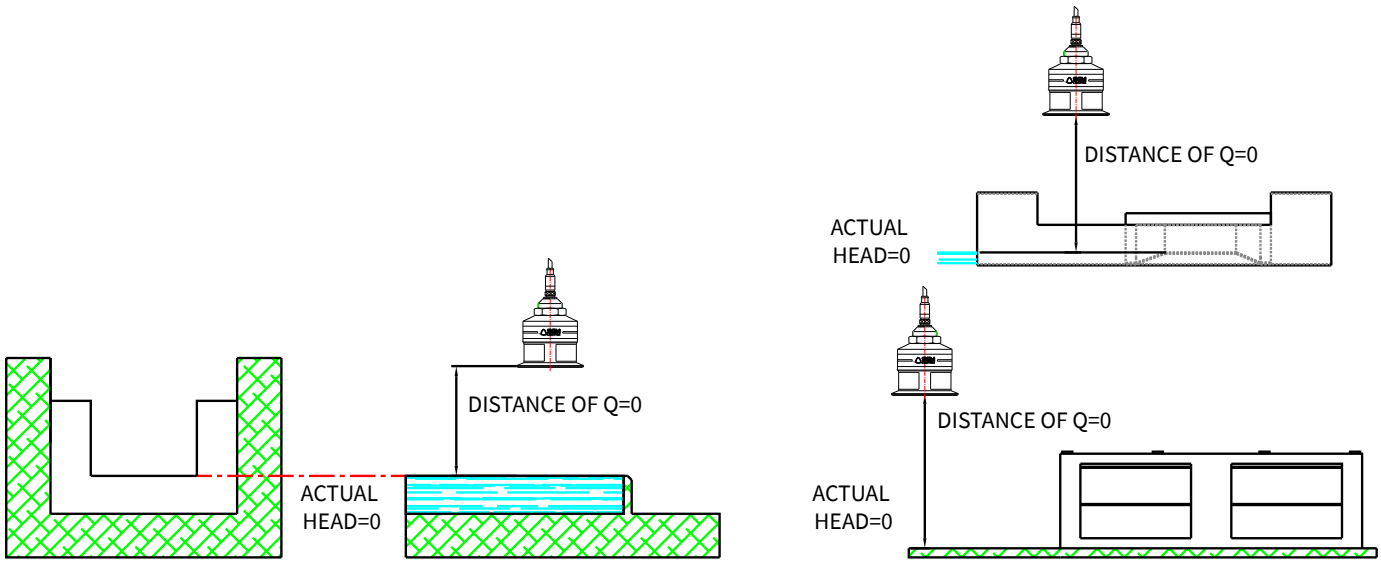


Manually measure in mm the “ACTUAL HEAD” and insert the data, the unit will automatically calculate the fluid distance to the “Q=0” point (zero flow distance).
Use UP ARROW and SCROLL to modify the value.
Press ENTER to confirm. LEFT ARROW to exit without changes.



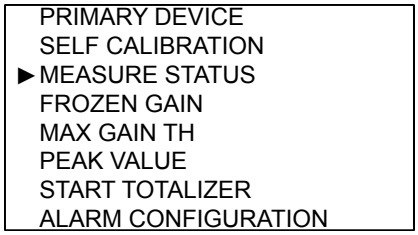


It is recommended to use the “SELF CALIBRATION” system with the zero flow condition, because in doing so the “ACTUAL HEAD” manually measurement distance errors are avoided.

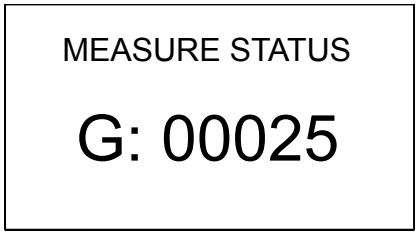


8.6.3 - MEASURE STATUS

Position the cursor on MEASURE STATUS, press ENTER to confirm

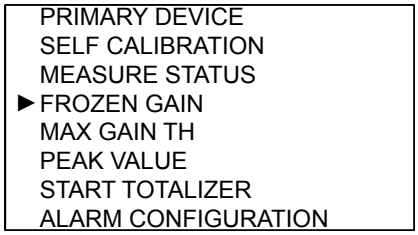


It's possible to display the gain of the system, with values from 0 to 255.
While displayed, the automatic gain control is not active.
LEFT ARROW to exit



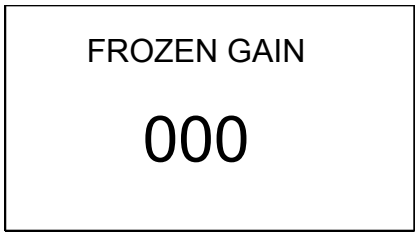
8.4.6 - FROZEN GAIN

Position the cursor on FROZEN GAIN, press ENTER to confirm.



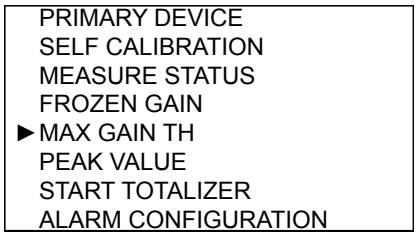
It's possible to fix a value of gain (from 1 to 255) and consequently disable the automatic gain control. Once the value is 000 the automatic gain control restarts.
Use UP ARROW and SCROLL to modify the value.
Press ENTER to confirm. LEFT ARROW to exit without changes

Default value: 000



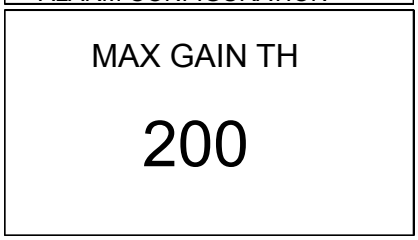
8.6.5 - MAX GAIN TH

Position the cursor on MAX GAIN TH, press ENTER to confirm.



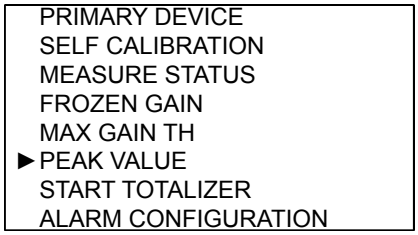
It's possible to input a value of gain that it can be reached in normal operation. If the gain reaches this value, the "GAIN" error code is activated.
Use UP ARROW and SCROLL to modify the value.
Press ENTER to confirm. LEFT ARROW to exit without changes

Default value: 200 (Max gain)



8.6.6 - PEAK VALUES

Position the cursor on PEAK VALUES, press ENTER to confirm

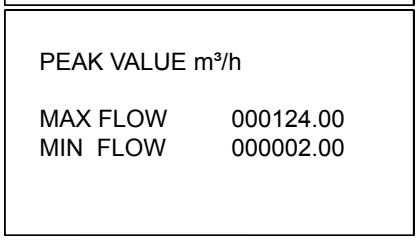


In this sub-menu it's possible to display or reset the flow rate peak values.
Press SCROLL button to select.
Press ENTER to confirm.
LEFT ARROW to exit

8.6.6.1 - DISPLAY VALUES

Position the cursor on DISPLAY VALUES, press ENTER to confirm

Displays the max. and min. distance measured from power on.
LEFT ARROW to exit.
NB - The peak values stored are erased every time the FLOW51 turns-off

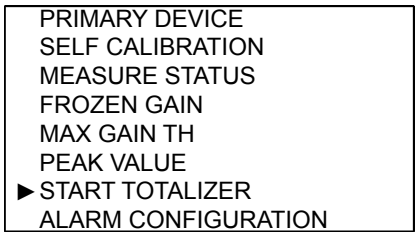


8.6.6.2 - RESET VALUES

Position the cursor on RESET VALUES, press ENTER to confirm
LEFT ARROW to return to the previous menu.

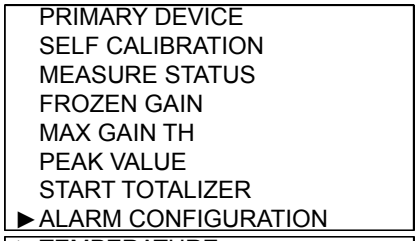
8.6.7 - START TOTALIZER

Position the cursor on RESET VALUES, press ENTER to start the the flow totalizer.
After starting the totalizer is not possible to stop the totalization.

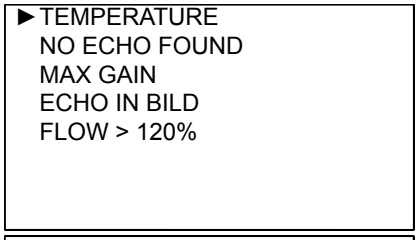


8.6.8 - ALARM CONFIGURATION

Position the cursor on ALARM CONFIGURATION, press ENTER to confirm

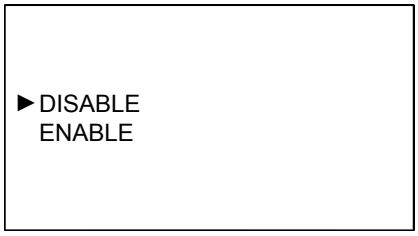


To enable or disable each diagnostic alarms:
- with SCROLL chose the desired item and press

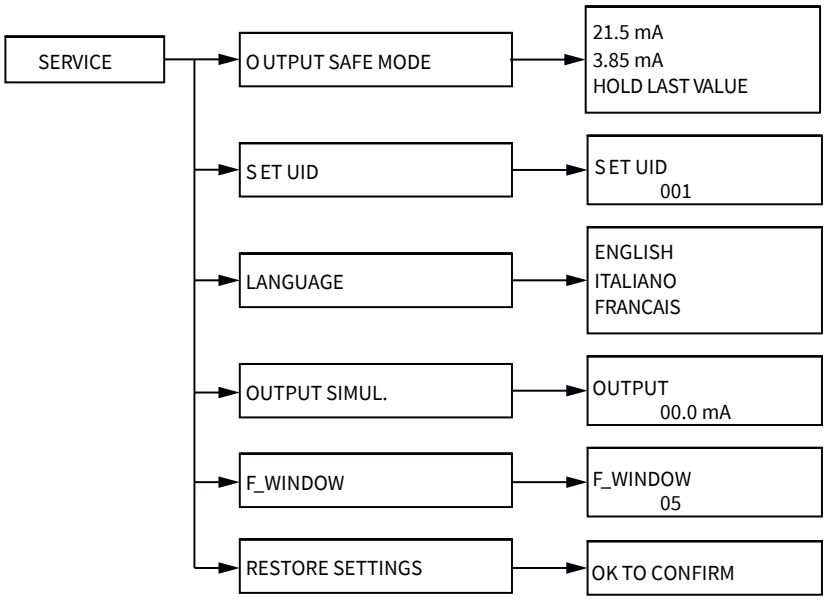


- with SCROLL enable or disable the alarm signal and press ENTER to confirm.

LEFT ARROW to exit.

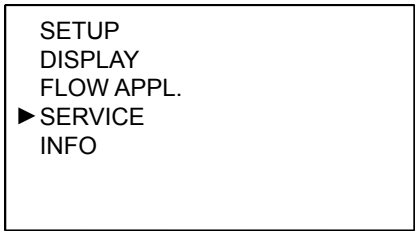


8.7 SERVICE menu



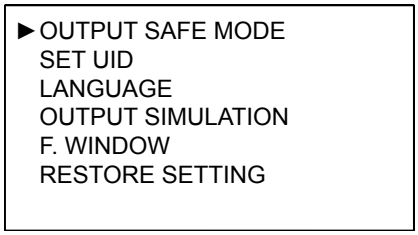
8.8 - SERVICE

Press SCROLL to select the menu and press ENTER to access.
Press LEFT ARROW to exit.



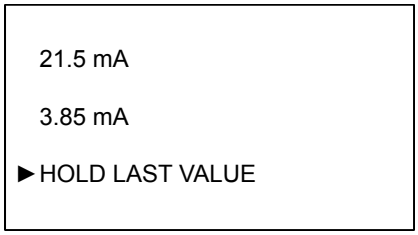
8.8.1 - OUTPUT SAFE MODE

Position the cursor on OUTPUT SAFE MODE, press ENTER to confirm
It's possible to choose an analog output value during diagnostic errors.



"21.5 mA" forces the current output to 21,5mA
"3.85 mA" forces the current output to 3,85mA
"HOLD LAST VALUE" maintains the output at the last valid value.
With the SCROLL button you can select the operation mode.
Press ENTER to confirm. LEFT ARROW to exit without changes

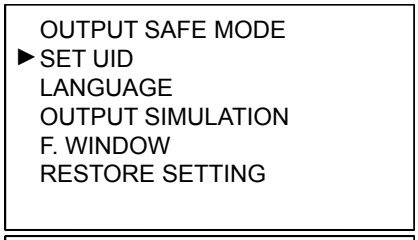
Default value: HOLD LAST VALUE



8.8.2 - SET UID

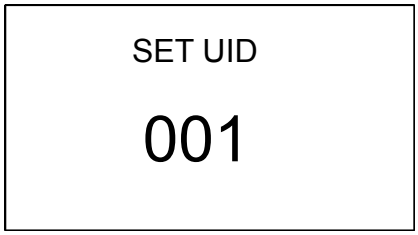
Position the cursor on SET UID, press ENTER to access.

Can assign the address UID in this parameter, for a MUDBUS RTU network.



Use UP ARROW and SCROLL to modify the value.
Press ENTER to confirm.
LEFT ARROW to exit without changes

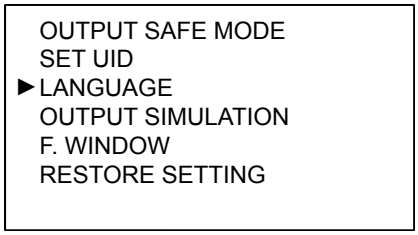
Default value: 001



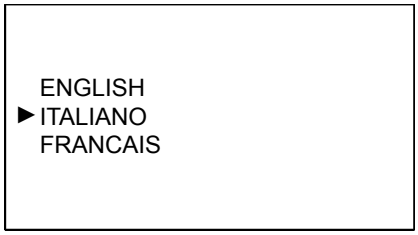
8.8.3 - LANGUAGE

Position the cursor on LANGUAGE, press ENTER to access.

Sets the menu language: English, Italian, French

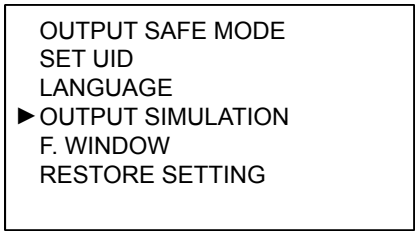


Press SCROLL to select the menu language.
Press ENTER to confirm.
LEFT ARROW to exit without changes



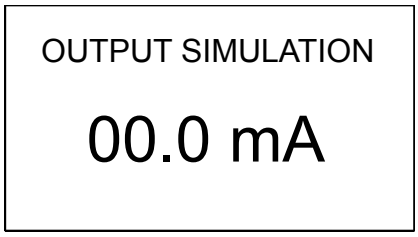
8.8.4 - OUTPUT SIMULATION

WARNING - entering in the SIMULATION function, the current output is not in function of the level measurement. To restore the current as a measured level function, press the LEFT ARROW button 3 times (RUN mode)

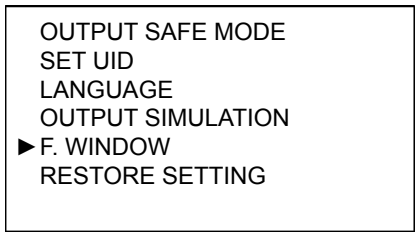


Position the cursor on OUTPUT SIMULATION, press ENTER to access.

It's possible to force the analog output to a desired value, from 3,5 to 21mA.
Use UP ARROW and SCROLL to modify the value.
LEFT ARROW to return to the previous menu.



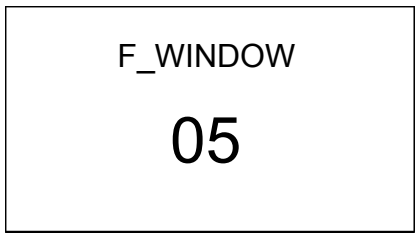
8.8.5 - F_ WINDOWS



Position the cursor on F_WINDOWS, press ENTER to access.

It is the increase value (in cm), step to step, of the window width during the echo signal research phase.
The "F_WINDOWS" is the area where the echo detection is active.
Normally it is positioned around the real echo signal and all echoes detected within the F_WINDOW are considered valid.
Example: F_WINDOW parameter set to 5.
- The FLOW51 detects an echo signal which is 4 meters from the sensor.
- Suddenly, the echo signal disappears and a new echo signal to 3.5 mt away from the sensor is detected.
- Each time the echo signal will be emitted, the FLOW51 will enlarge "F_WINDOW" with 5cm step, until covering the new eco detected area. Now the F_WINDOW will start to tighten around the new echo signal and the new measurement of 3,5mt distance will be used to calculate the level measurement, alarm thresholds, etc..

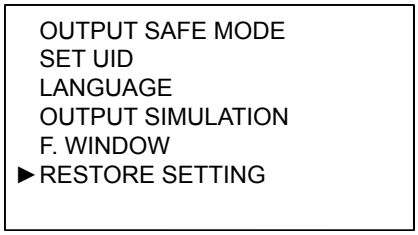
F_WINDOW filters false echo signals products, for example, by the agitator blades
Range: 05÷20
Use UP ARROW and SCROLL to modify the value.
Press ENTER to confirm.
LEFT ARROW to exit without changes



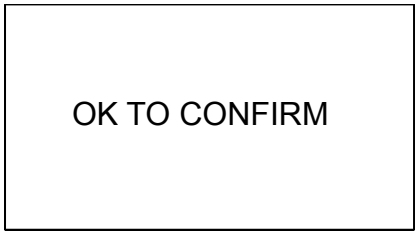
Default value: 05

8.8.6 - RESTORE SETTING

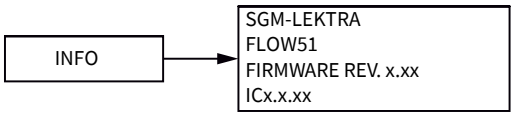
Position the cursor on SET UID, press ENTER to access.



Press ENTER to restore the FLOW51 default settings
LEFT ARROW to exit without restored the FLOW51 default settings

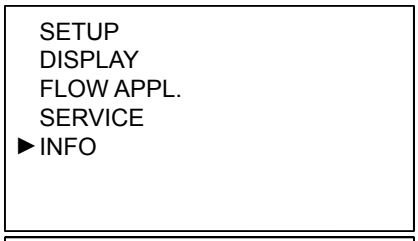


8.9 INFO MENU

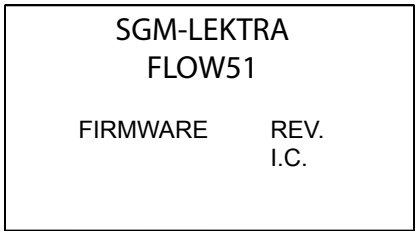


8.10 - INFO

Position the cursor on INFO, press ENTER to access.



In addition to information about the manufacturer, are displayed the firmware revision and the configuration index.



9-FACTORY TEST AND QUALITY CERTIFICATE

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

(Ultrasonic sensor)

conforms to the technical requirements on Technical Data and it is made in compliance with assembly and checking procedures

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

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Only for version bluetooth

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