FLOWMETER
Ultrasonic flow transmitter

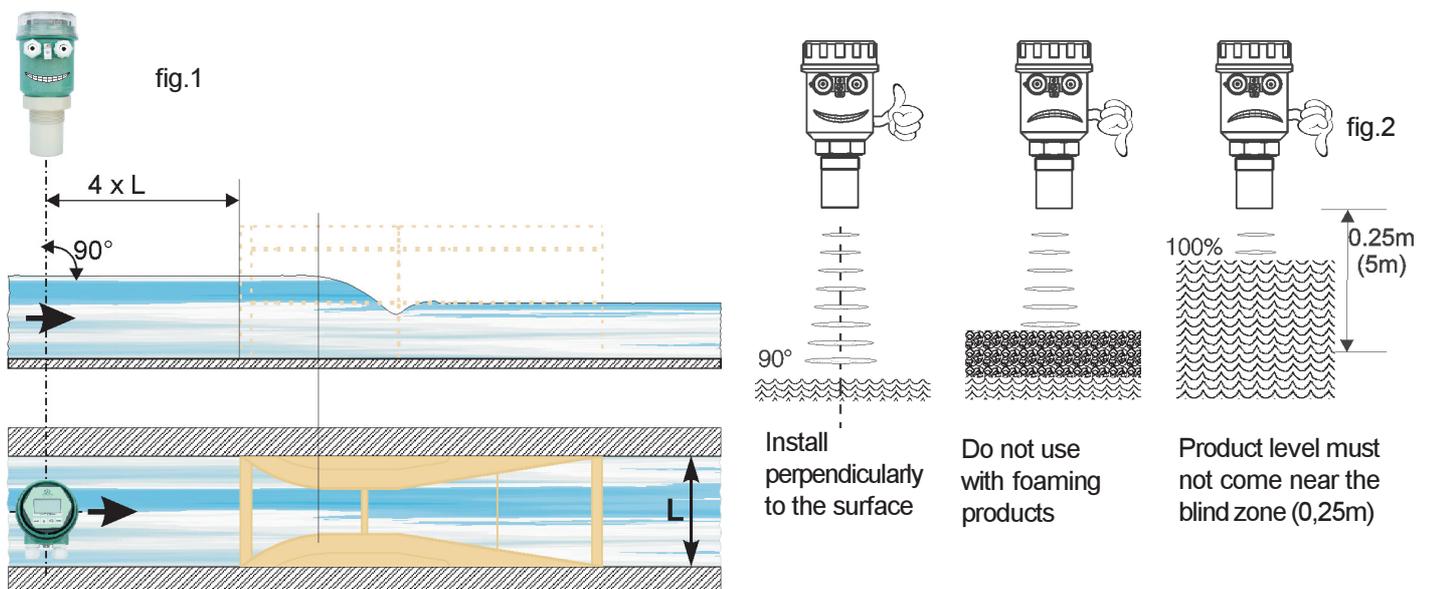825B119A

Technical Data

Housing material:	PC or PBT / PP wetted part
Mechanical installation:	2"GAS M on request PP flange DN80
Protection degree:	IP67 PC hous./ IP66 PBT hous.
Electrical connection:	Internal push actuators connectors
Working temperature:	-30 ÷ +70°C; +80°C non-continuous
Pressure:	from 0,5 to 1,5 bar (absolute)
Power supply:	24Vdc
Power consumption:	1,5W
Analog output:	4÷20mA max 750ohm
Relè in uscita:	n°2 3A 230Vac (n.a.)
Digital communication:	MUDBUS
Measure range:	0.25÷5m
	(In case of non perfectly reflecting surfaces, the maximum distance value will be reduced)
Blind distance:	0,25m
Temperature compensation:	digital from -30 to 80°C
Accuracy:	0,2% (of the measured distance) not better than ±3mm
Resolution:	1mm
Calibration:	4 buttons or by MUDBUS
Warm-up:	1 minute typical
LCD Display:	Plug-in display/keyboard 4 buttons matrix LCD

FLOWMETER Mechanical Installation

Important!!! close to the sensor there is a "blind zone" of 0.25m where the instrument can't measure (see fig.2). To reach a good and safe measurement, avoiding spurious echoes (not reflected by the surface), take care of the positioning of the FLOWMETER sensor and check that no obstacles are interfering with the ultrasonic waves emission lobe.

fig.1

4 x L

90°

L

fig.2

90°

Install perpendicularly to the surface

Do not use with foaming products

100%

0.25m (5m)

Product level must not come near the blind zone (0,25m)

applied solution for the application

1. DIMENSIONS

1.1 E cod. housing

Ø102

130

133

237

22

22

60

Ø55

M20x1,5

Ch 70

G 2"

Fig.3

1.5 D cod. housing

131

128

Ø98

135

Ø98

239

22

22

60

Ø55

PG13,5

CH 70

G 2"
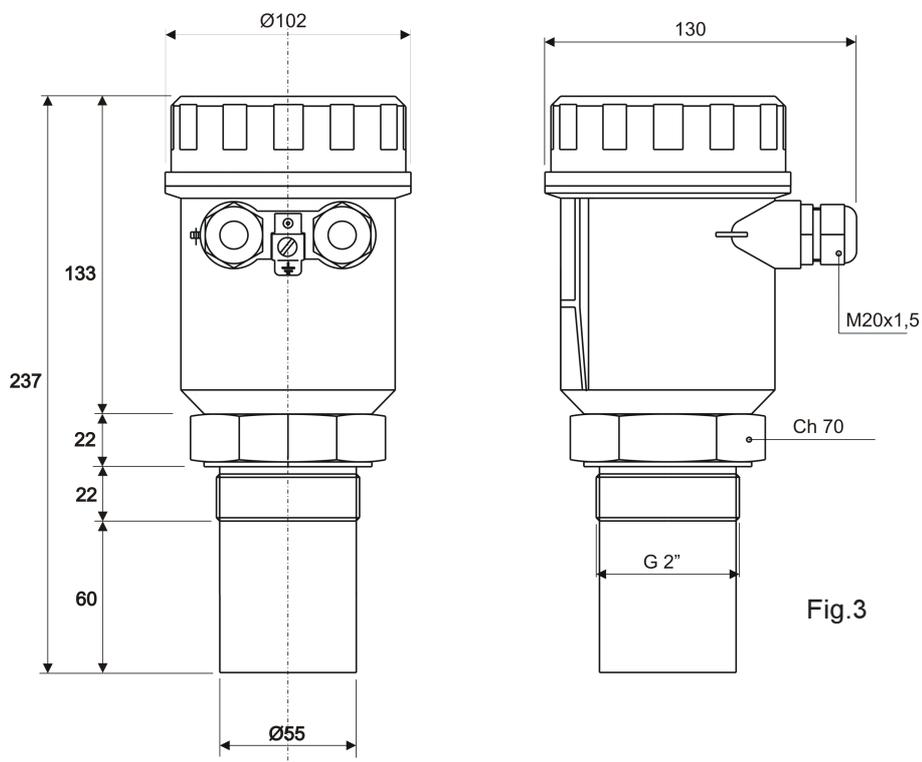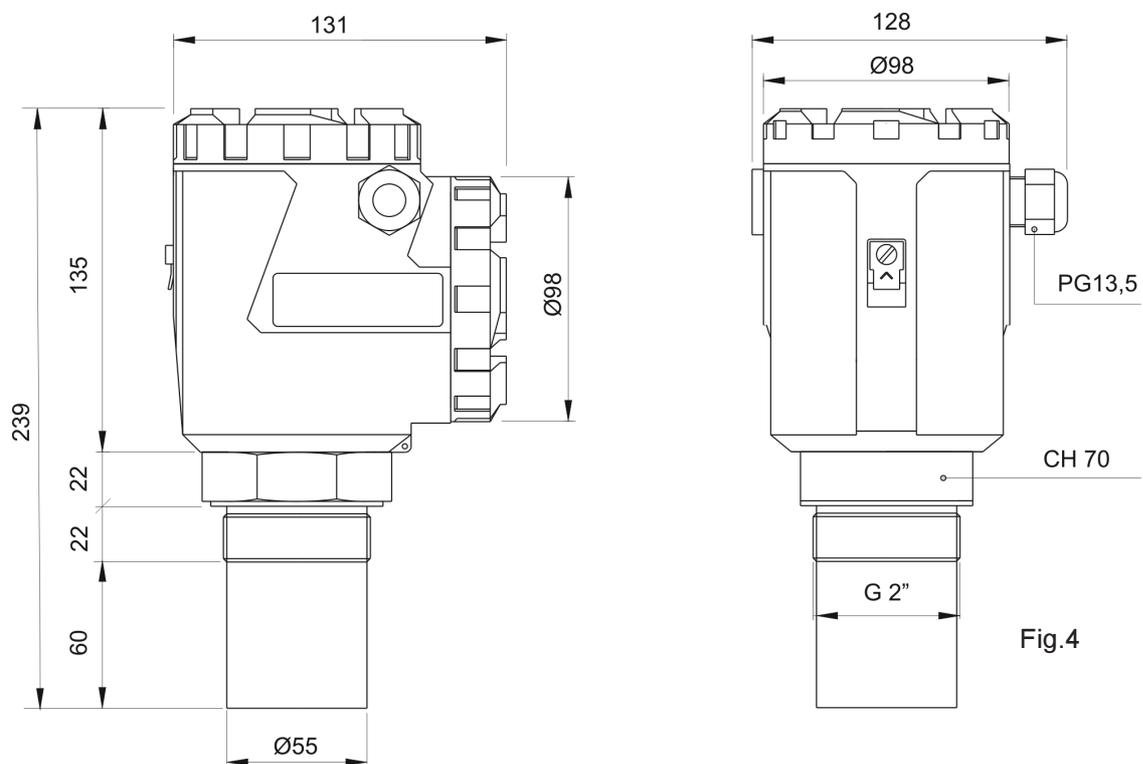
Fig.4

2. CONNECTIONS

Unscrew the cover to reach the terminal boards.

Unlock / Lock

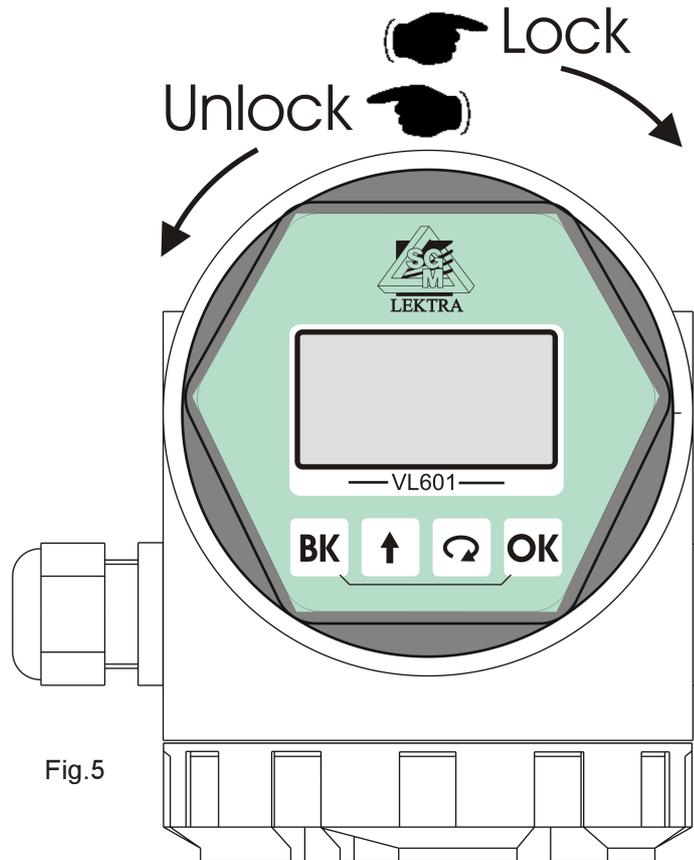Fig.5

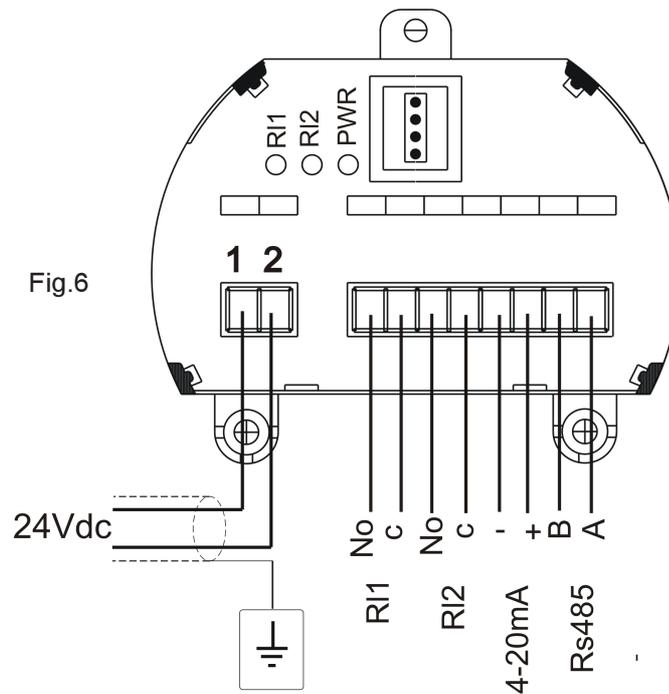Fig.6

24Vdc

RI1: No, c
RI2: No, c
4-20mA: -, +
Rs485: B, A

3. CONFIGURATION

The METER configuration and calibration can be done in two different ways:
- by the PC (via **MODBUS**)
- by the **VL601** plug-in / keyboard module

3.2 _Via MODBUS_

3.2.1 MODBUS PC connection(fig.7)

1) RS232 connector

2) FLOWMETER with MODBUS communication protocol
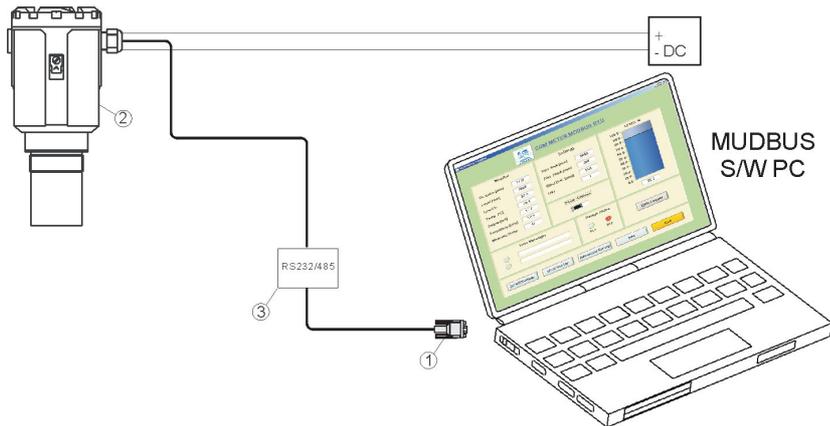
3) RS485/RS232 converter module

Fig.7

3.3 _Via VL601_

3.3.1 Keyboard/display module VL601 (fig.9)

The display module VL601 can be easily mounted and removed without affecting the METER running.
Unscrew the transparent cap an turn the display clockwise to mount it, or anticlockwise to remove it (fig.8).
The VL601module has a large matrix LCD (fig.9).
It is possible to choose the measurement display of 1 value (big characters, fig 9b) or of 2 values
(small characters, fig 9c).
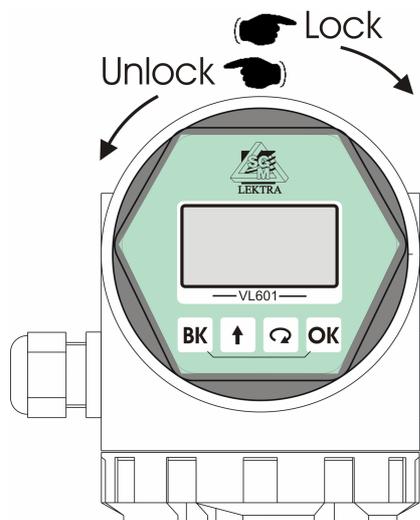The operating manual allows an easy and fast start-up through the keyboard.

Fig.8

4. VL601 MODULE

From "RUN" mode, press [OK] to enter "PROGRAM" mode. Press [BK] to quit

Press [↻] to move the cursor on the parameter you want to use and confirm with [OK]

To edit numbers, press [↑] to modify the digit shown in negative, press [↻] to edit the next digit, press [OK] to confirm and store the number. Press [BK] to quit
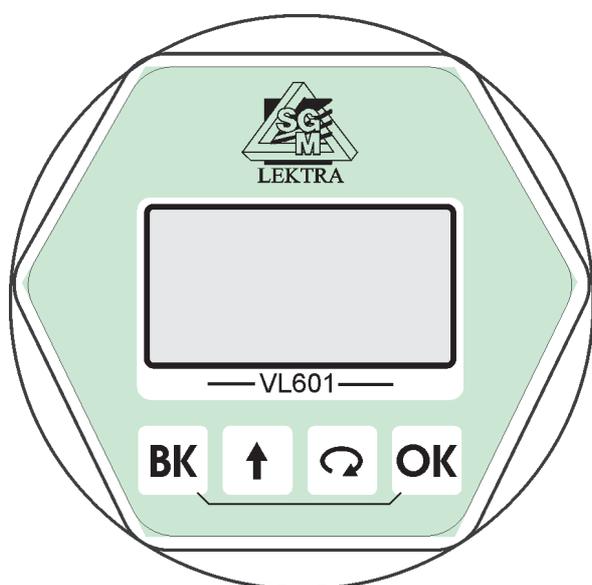
Fig.9

Note. The five selectable values are displayed on window 2.1.1

```
                                    2.1.1
  ▶DISTANCE mm
   HEAD mm
   FLOW                                         a)
   TOTALIZER
   TEMP. °C
```

$$4.21 \; ^{F}_{m^3/h}$$ b)

```
       FLOW
       4.21 m³/h
                                               c)
       TOTALIZER
       3458 m³
```

VL601

[BK] [↑] [↻] [OK]
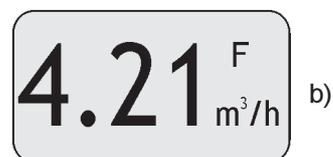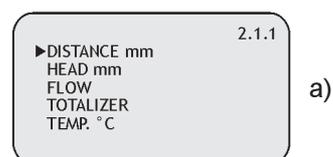
[OK]
- Configuration access
- Options confirmation
- Parameters values confirmation

[↻]
- Parameters values selection
- Parameters scroll

[↑]
- Parameters values modification

[BK]
- Exit configuration
- Back to previous menu

5. PROGRAMMING MENÙ

1. **SETUP**   - in this menù it's possible to set the basic adjustment of the sensor (fig. 10).

2. **DISPLAY**   - in this menù it's possible to setup the sensor display mode an adjust the B/W contrast of LCD (fig. 11).

3. **FOLW APPL.** - in this menù it's possible to test and check the sensor, display peak values and measure status (fig. 12).

4. **SERVICE**   - in this menù it's possible to set com mode, output mode, language, input password to enable parameters (fig. 13).

5. **INFO**   - this menù show firmware revision, serial number and manufacturer information (fig. 14).

5.1 SETUP

Fig.10

5.1 DISPLAY

```
┌─────────────┐ 2.1.1
│ DISTANCE mm │
└─────────────┘

┌─────────────┐ 2.1.1
│ HEAD mm     │
└─────────────┘

┌─────────────┐ 2.1.1
│ FLOW        │
└─────────────┘

┌─────────────┐ 2.1.1
│ TOTALIZER   │
└─────────────┘

┌─────────────┐ 2.1.1
│ TEMP. C°    │
└─────────────┘
```

```
┌───────────────┐ 2.1        ┌─────────────────┐ 2.1
│ PRIMARY VALUE │            │ SECONDARY VALUE │
└───────────────┘            └─────────────────┘

┌────────┐ 2.2
│ L/SEC  │
└────────┘

┌────────┐ 2.2
│ L/MIN  │
└────────┘

┌────────┐ 2.2
│ L/H    │
└────────┘

┌────────┐ 2.2
│ M3/SEC │
└────────┘

┌────────┐ 2.2
│ M3/MIN │
└────────┘

┌────────┐ 2.2
│ M3/H   │
└────────┘

┌──────────────┐ 2.3
│ LCD CONTRAST │
│     16       │
└──────────────┘
```

```
┌────────────────┐ 2          ┌───────────────┐ 2          ┌──────────┐ 2
│ DISPLAY VALUES │            │ SET FLOWRATE  │            │ CONTRAST │
└────────────────┘            └───────────────┘            └──────────┘
```

```
┌──────────┐ 2
│ DISPLAY  │
└──────────┘
```

Fig.11

5.3 *FOLW APPL.*

FLOW APPL. [3]

PRIMARY DEVICE [3]

- **WEIRS** [3.1]
  - **RECT. SUPPRESSED** [3.1.1] → **SET DIMENSION** [3.1._.1] 0000 mm
  - **RECT. CONTRACTED** [3.1.1] → **SET DIMENSION** [3.1._.1] 0000 mm
  - **TRAPEZOIDAL** [3.1.1] → **SET DIMENSION** [3.1._.1] 0000 mm
  - **V NOTCH** [3.1.1] → **SET ANGLE °** [3.1.1.2] 000.0
- **FLUMES** [3.1]
  - **SGM VENTURI STD** [3.1.2] → **BS150-BS200-.... ....-BS800-BS1000** [3.1.2.1]
  - **SGM VENTURI** [3.1.2] → **SET DIMENSION** [3.1.2.2] 0000 mm
  - **KAFAGI VENTURI** [3.1.2] → **SET DIMENSION** [3.1.2.2] 0000 mm
  - **PARSHALL INCH** [3.1.2] → **ENABLE / DISABLE** [1.1.2.5]
  - **PARSHALL FEET** [3.1.2] → **ENABLE / DISABLE** [1.1.2.5]
- **TABLE** [3.1]
- **CUSTOM** [3.1]

SELF CALIBRATION [3] → **SET ACTUAL HEAD** [3.2] 0000 mm

MEASURE STATUS [3] → **MEASURE STATUS** [3.3] GAIN: 000

MAX GAIN TH [3] → **RL2 THRESHOLD** [1.1]

PEAK VALUES [3]
- **DISPLAY VALUES** [3.5] → **MAX FLOW   00000** [3.5.1]   **MIN FLOW   00000**
- **RESET VALUES** [3.5]

Fig.12

5.4 SERVICE

```
                           ┌─────────────────────┐4.1    ┌─────────────────────┐4.2
                     ┌────▶│ OUTPUT SAFE MODE    │──────▶│ 21.5 mA             │
                     │     └─────────────────────┘       │ 3.85 mA             │
                     │                                    │ HOLD LAST VALUE     │
                     │                                    └─────────────────────┘
                     │     ┌─────────────────────┐4.1    ┌─────────────────────┐4.2
                     ├────▶│ SLAVE ADDRESS       │──────▶│     SET UID         │
  ┌──────────────┐4  │     └─────────────────────┘       │      000            │
  │              │───┤                                    └─────────────────────┘
  │   SERVICE    │   │     ┌─────────────────────┐4.1    ┌─────────────────────┐4.3
  └──────────────┘   ├────▶│ CHECK FREQUENCY     │──────▶│   FREQUENCY         │
                     │     └─────────────────────┘       │   00.0 KHz          │
       Fig.13        │                                    └─────────────────────┘
                     │     ┌─────────────────────┐4.1    ┌─────────────────────┐4.4
                     └────▶│ OUTPUT SIMULATION   │──────▶│    OUTPUT           │
                           └─────────────────────┘       │    00.0 mA          │
                                                          └─────────────────────┘
```

5.5 INFO

```
  ┌──────────────┐5        ┌─────────────────────────┐5.1
  │              │────────▶│ FLOWMETER  REV. 0.00     │
  │    INFO      │         │       IC 1.101           │
  └──────────────┘         │  WWW.SGM-LEKTRA.COM      │
                           └─────────────────────────┘
```

Fig.14

6. CONFIGURATION

6.1 SETUP (1)

From "RUN" mode, press [OK] then move the cursor on "SETUP" and confirm with [OK]

```
▶SETUP
 DISPLAY
 FLOW APPL.
 SERVICE
 INFO
```

6.1.1 RELAY

In this sub-menù it's possible to setup onboard relays. RL1 is enabled to do a counter for the measured volume; RL2 can be set as threshold relay or diagnostic relay

Select the parameters by moving the cursor with [↻] and confirm with [OK]

```
▶RELAY                1
 SET MAX FLOW
 FILTER COEFFICIENT
 BLIND DISTANCE
```

6.1.1.1   RL1 COUNTER

it's possible to input the measured volume that is associated to a pulse.

```
                    1.1
   SET RELAY MODE
▶RL1 COUNTER
 RL2 THRESHOLD
 RL2 DIAGNOSTIC
```

To edit numbers, press [↑] to modify the digit shown in negative,

press [↻] to edit the next digit.

With a value of 000.0 the function is disabled

Press [OK] to confirm

```
                  1.1.1
   SET VOL/PULSE

     000.0
```

6.1.1.2   RL2 THRESHOLD

Select the parameters by moving the cursor with [↻] and confirm with [OK].

```
                    1.1
   SET RELAY MODE

 RL1 COUNTER
▶RL2 THRESHOLD
 RL2 DIAGNOSTIC
```

```
                  1.1.2
▶VALUE
 MIN / MAX
 DELAY
 SAFETY
 ENABLE / DISABLE
```

6.1.1.2.1   VALUE

It's possible to input the threshold value, in terms of pencentage of flow.

```
                  1.1.2
▶VALUE
 MIN / MAX
 DELAY
 SAFETY
 ENABLE / DISABLE
```

To edit numbers, press [↑] to modify the digit shown in negative,

press [↻] to edit the next digit.

Press [OK] to confirm

```
                1.1.2.1
   SET TH. VALUE

     000 %
```

6.1.1.2.2 MIN / MAX

It's possible to select if the relay works as maximum level threshold or minimum level threshold

```
                                      1.1.2
  VALUE
▶ MIN / MAX
  DELAY
  SAFETY
  ENABLE / DISABLE
```

Select by moving the cursor with [↻] and confirm with [OK].

```
                                    1.1.2.2
  MIN / MAX

▶ MIN
  MAX
```
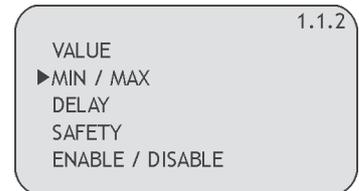
6.1.1.2.3 DELAY

It's possible to select the delay of activation for the selected relay, from 0 to 99 sec. (0s default).

```
                                      1.1.2
  VALUE
  MIN / MAX
▶ DELAY
  SAFETY
  ENABLE / DISABLE
```

To edit numbers, press [↑] to modify the digit shown in negative, press [↻] to edit the next digit.
Press [OK] to confirm

```
                                    1.1.2.3
      SET DELAY VALUE

           00 s
```
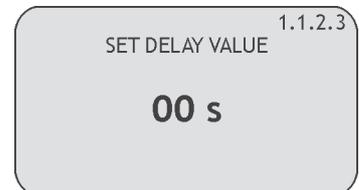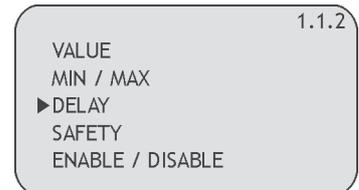
6.1.1.2.4 SAFETY

It's possible to selct if the coil of relay is normally EXCITED (YES) or normally DISEXCITED (NO).

```
                                      1.1.2
  VALUE
  MIN / MAX
  DELAY
▶ SAFETY
  ENABLE / DISABLE
```

Select by moving the cursor with [↻] and confirm with [OK].

```
                                    1.1.2.4
  SAFETY

▶ YES
  NO
```
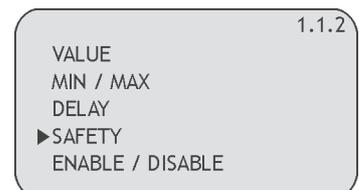
6.1.1.2.5 ENABLE/DISABLE

Select ENABLE to allow the relay to work in the selected mode (Threshold/Pump or Threshold/Diagnostic)

```
                                      1.1.2
  VALUE
  MIN / MAX
  DELAY
  SAFETY
▶ ENABLE / DISABLE
```

Select by moving the cursor with [↻] and confirm with [OK].

```
                                    1.1.2.5
  ENABLE/DISABLE

  ENABLE
▶ DISABLE
```
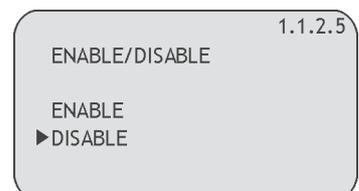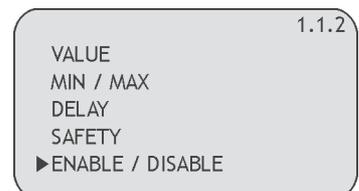
6.1.1.3 RL2 DIAGNOSTIC

it's possible to enable RL2 to activate its contact in case of error as:
- TEMP, temperature out of range
- ECHO, no echo is detected
- GAIN, the sensor's gain exceed the value setted in Max Gain TH (3.4)
- FLOW, the measured flow exceed the 120% of SET MAX FLOW (1.2) in setup.

Select by moving the cursor with [↻] and confirm with [OK].

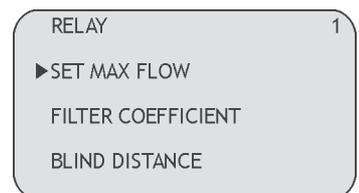NOTE: when an error occours, a "!" is flashing on the display: press [↻] to show a message that indicate what kind of error is present.

```
                               1.1
        SET RELAY MODE

   RL1 COUNTER
   RL2 THRESHOLD
 ▶ RL2 DIAGNOSTIC
```

```
                             1.1.3
   ENABLE/DISABLE

 ▶ ENABLE
   DISABLE
```
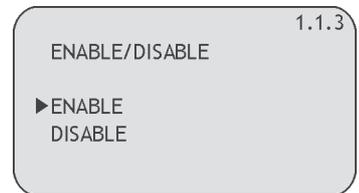
6.1.2 SET MAX FLOW

it's possible to input the maximum value of flow (this value is associated to 20mA)

To edit numbers, press [↻] to modify the digit shown in negative, press [↑] to edit the next digit.

Press [OK] to confirm

```
   RELAY                        1

 ▶ SET MAX FLOW

   FILTER COEFFICIENT

   BLIND DISTANCE
```

```
                              1.2
       SET MAX FLOW

        00000.00
```

6.1.3 FILTER COEFFICENT

input a value from 1 to 100 (10 default) to smooth the response of the sensor: the biggest is the value, the smoothest is the response

To edit numbers, press [↻] to modify the digit shown in negative, press [↑] to edit the next digit.

Press [OK] to confirm

```
   RELAY                        1

   SET MAX FLOW

 ▶ FILTER COEFFICIENT

   BLIND DISTANCE
```

```
                              1.3
     FILTER COEFFICENT

          010
```
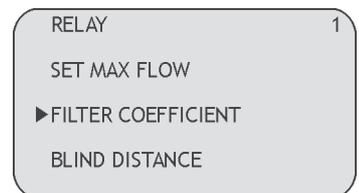
6.1.4 BLIND DISTANCE

represent the "BLIND ZONE" of the sensor. Input the desired value in order to avoid measures near the surface of the sensor (if necessary).
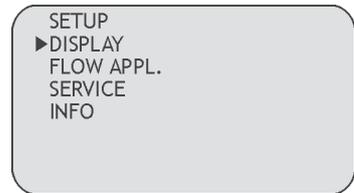The minimum value is 250mm

To edit numbers, press [↻] to modify the digit shown in negative, press [↑] to edit the next digit.
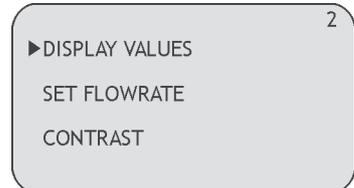Press [OK] to confirm

```
   RELAY                        1

   SET MAX FLOW

   FILTER COEFFICIENT

 ▶ BLIND DISTANCE
```

```
                              1.4
      BLIND DISTANCE

        0250 mm
```
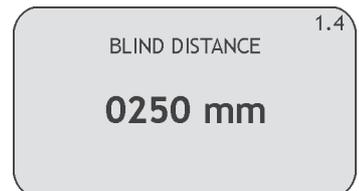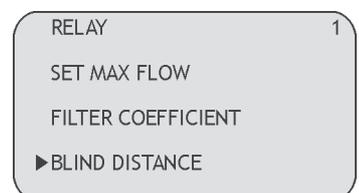
6.2 DISPLAY(2)

From "RUN" mode, press [OK] then move the cursor on "DISPLAY" and confirm with [OK]

```
SETUP
▶DISPLAY
 FLOW APPL.
 SERVICE
 INFO
```
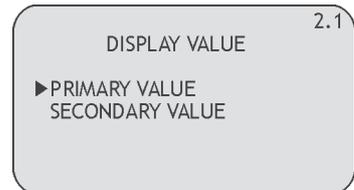
6.2.1 DISPLAY VALUE

it's possible to select if one value with big digits or two values are shown on the display in "RUN" mode. 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
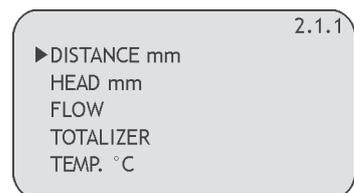
Select by moving the cursor with [↻] and confirm with [OK]

```
                              2
▶DISPLAY VALUES

 SET FLOWRATE

 CONTRAST
```

```
                            2.1
    DISPLAY VALUE

▶PRIMARY VALUE
 SECONDARY VALUE
```

6.2.1.1 PRIMARY VALUE

To select the first data on the display.

```
                            2.1
    DISPLAY VALUE

▶PRIMARY VALUE
 SECONDARY VALUE
```

Select by moving the cursor with [↻] and confirm with [OK]

```
                          2.1.1
▶DISTANCE mm
 HEAD mm
 FLOW
 TOTALIZER
 TEMP. °C
```

6.2.1.2 SECONDARY VALUE

To select the second data on the display.

```
                            2.1
    DISPLAY VALUE

 PRIMARY VALUE
▶SECONDARY VALUE
```

Select by moving the cursor with [↻] and confirm with [OK]

```
                          2.1.1
▶DISTANCE mm
 HEAD mm
 FLOW
 TOTALIZER
 TEMP. °C
```
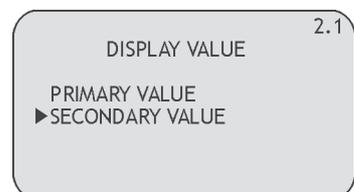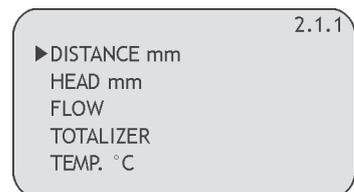
6.2.2 SET FLOWRATE

it's possible to choose the flowrate for the measured flow. This choice affects the measure unit's for the totalizer (liters or cubic meters)

```
                              2
 DISPLAY VALUES

▶SET FLOWRATE

 CONTRAST
```

Select by moving the cursor with [↻] and confirm with [OK]

```
                            2.2
▶L/SEC
 L/MIN
 L/H
 M3/SEC
 M3/MIN
 M3/H
```
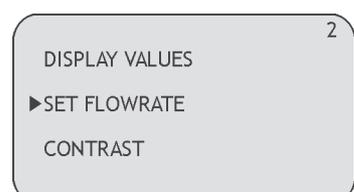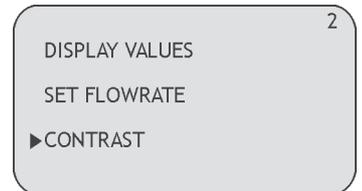
6.2.3 CONTRAST

it's possible to adjust the contrast of LCD, simply increasing or decreasing the value of a parameter from 0 to 63 (16 default)

To edit numbers, press ⬆ to modify the digit shown in negative,

press ↻ to edit the next digit.

Press OK to confirm

```
                                    2
 DISPLAY VALUES

 SET FLOWRATE

 ▶ CONTRAST
```

```
                                   2.3
 LCD CONTRAST

          16
```

6.3 FLOW APPL. (3)

From "RUN" mode, press `OK` then move the cursor on "FLOW APPL." and confirm with `OK`

```
SETUP
DISPLAY
▶FLOW APPL.
SERVICE
INFO
```

6.3.1 PRIMARY DEVICE

it's possible to choose which primary device is used

```
                                    3
▶PRIMARY DEVICE
 SELF CALIBRATION
 MEASURE STATUS
 MAX GAIN TH
 PEAK VALUE
```

6.3.1.1   WEIRS

it's possible to choose from 4 type of weirs: Rectangular Suppressed, Rectangular Contracted, Trapezoidal and V Notch.

```
                        3.1
▶WEIRS
 FLUMES
 TABLE
 CUSTOM
```

6.3.1.1.1 RECT. SUPPRESSED

For Rectangular Suppressed it's necessary to input the "**L**" dimension (width) of the weir (see fig.15)

```
                         3.1.1
▶RECT. SUPPRESSED
 RECT. CONTRACTED
 TRAPEZOIDAL
 V NOTCH
```

To edit numbers, press `↑` to modify the digit shown in negative, press `↻` to edit the next digit.
Press `OK` to confirm

```
                    3.1.1.1
    SET DIMENSION

     0000 mm
```

Fig.15   **NO CONSTRICTION RECTANGULAR WEIR "Bazin"**
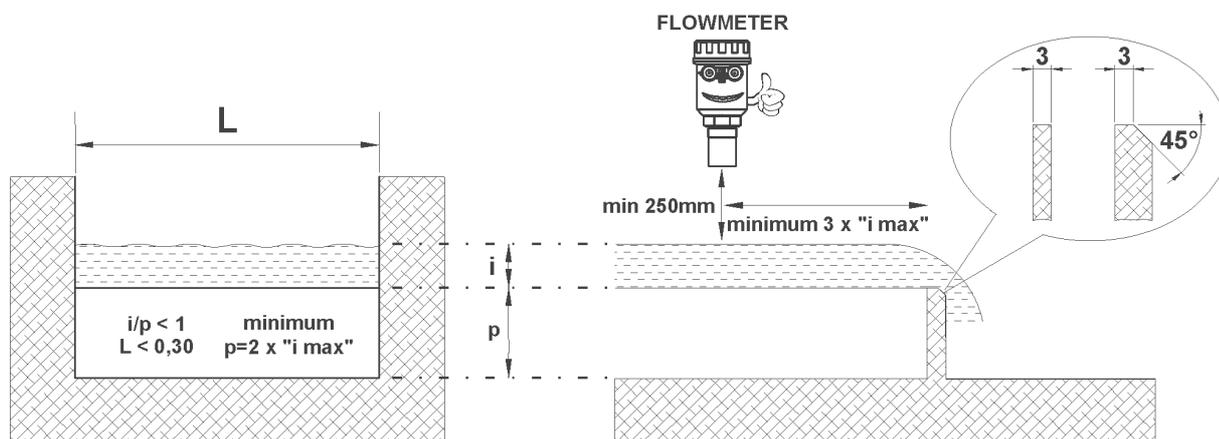
6.3.1.1.1 RECT. CONTRACTED

For Rectangular Suppressed it's necessary to input the "**L**" dimension (width) of the weir (see fig.16)

To edit numbers, press $\boxed{\uparrow}$ to modify the digit shown in negative,

press $\boxed{\curvearrowright}$ to edit the next digit.

Press $\boxed{\text{OK}}$ to confirm

```
                                    3.1.1
  RECT. SUPPRESSED
▶ RECT. CONTRACTED
  TRAPEZOIDAL
  V NOTCH
```

```
                                  3.1.1.1
      SET DIMENSION

      0000 mm
```

Fig.16   **CONSTRICTION RECTANGULAR WEIR "Francis"**
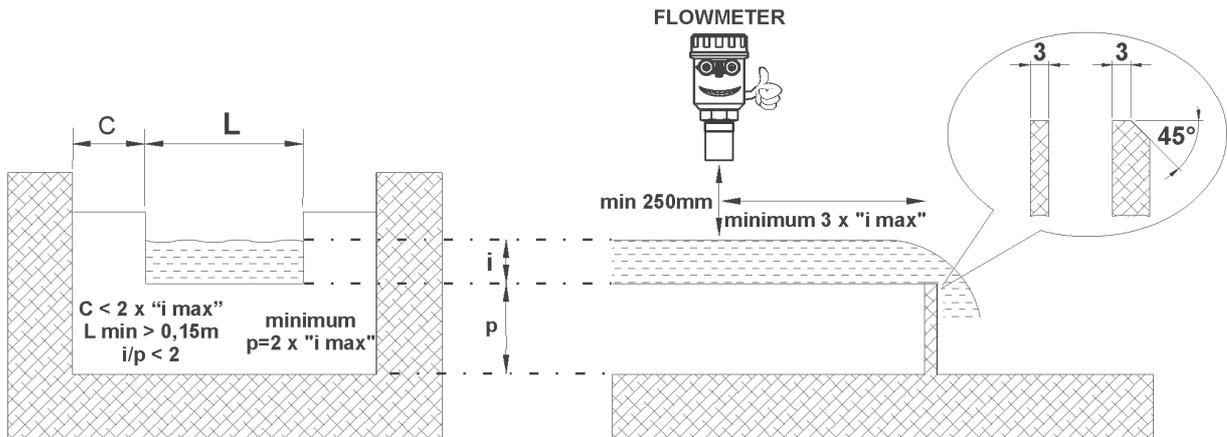
6.3.1.1.1 TRAPEZOIDAL

For Rectangular Suppressed it's necessary to input the "**L**" dimension (width) of the weir (see fig.17)

To edit numbers, press $\boxed{\uparrow}$ to modify the digit shown in negative,

press $\boxed{\curvearrowright}$ to edit the next digit.

Press $\boxed{\text{OK}}$ to confirm

```
                                    3.1.1
  RECT. SUPPRESSED
  RECT. CONTRACTED
▶ TRAPEZOIDAL
  V NOTCH
```

```
                                  3.1.1.1
      SET DIMENSION

      0000 mm
```

Fig.17   **TRAPEZOIDAL OR CIPOLETTI WEIR**
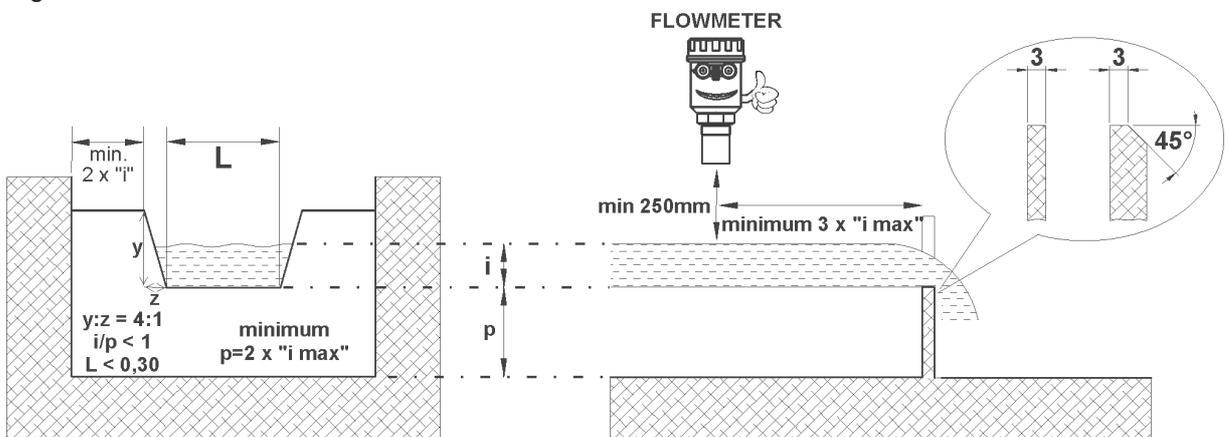
6.3.1.1.1 V NOTCH

For Rectangular Suppressed it's necessary to input the "**E**" angle (in degree) of the weir (see fig.18)

To edit numbers, press ⬆ to modify the digit shown in negative, press ↻ to edit the next digit.
Press [OK] to confirm
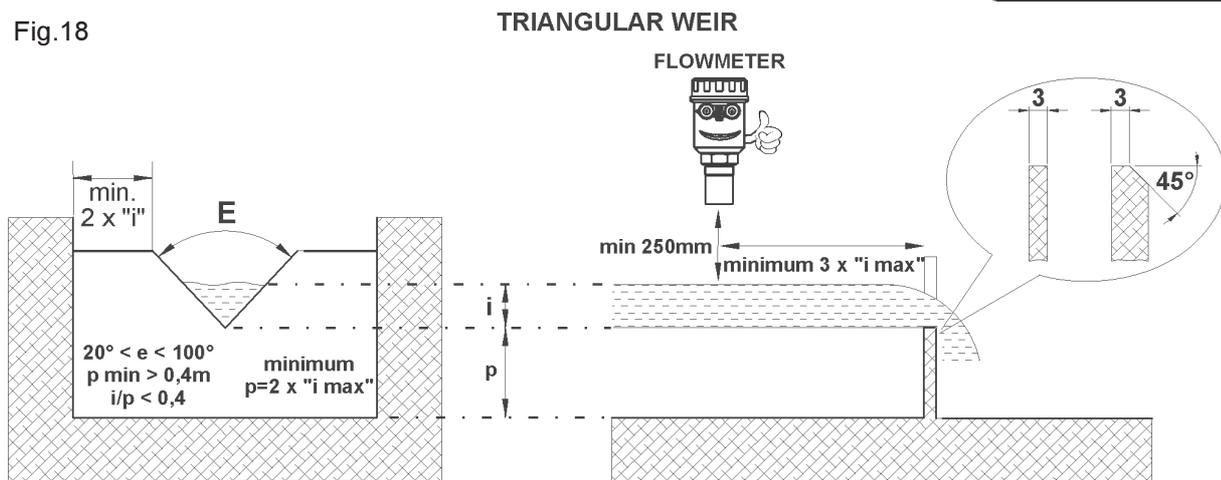
```
                                           3.1.1
  RECT. SUPPRESSED
  RECT. CONTRACTED
  TRAPEZOIDAL
▶ V NOTCH
```

```
                                          3.1.1.2
         SET ANGLE °

          000.0
```

Fig.18

TRIANGULAR WEIR

min. 2 x "i"

E

$20° < e < 100°$
$p\ min > 0{,}4m$
$i/p < 0{,}4$

minimum
$p = 2 \times$ "i max"

FLOWMETER

min 250mm

minimum 3 x "i max"

3   3

45°

6.3.1.2 FLUMES

It's possible to choose which flume is used

```
                                            3.1
  WEIRS
▶ FLUMES
  TABLE
  CUSTOM
```

6.3.1.2.1 SGM VENTURI STD

Select the SGM LEKTRA venturi model installed (see fig.19)

Select by moving the cursor with ↻ and confirm with [OK].

```
                                            3.1.2
▶ SGM VENTURI STD
  SGM VENTURI
  KAFAGI VENTURI
  PARSHALL INCH
  PARSHALL FEET
```


Fig.19
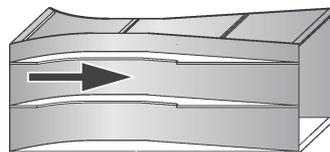
```
▶ BS 150                                   3.1.2.1
  BS 200
  BS 300
  BS 400
  BS 500
  BS 600
  BS 800
  BS 1000
```

6.3.1.2.2 SGM VENTURI

For SGM Venturi it's necessary to input the "**L**" dimension (width) of the flume (see fig.20)

To edit numbers, press ⬆ to modify the digit shown in negative, press ↻ to edit the next digit.
Press [OK] to confirm

Fig.20

```
                                    3.1.2
   SGM VENTURI STD
 ▶ SGM VENTURI
   KAFAGI VENTURI
   PARSHALL INCH
   PARSHALL FEET
```
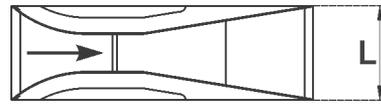
```
                                  3.1.2.2
           SET DIMENSION

           0000 mm
```

6.3.1.2.3 KAFAGI VENTURI

For KAFAGI Venturi it's necessary to input the "**L**" dimension (width) of the flume (see fig.21)

To edit numbers, press ⬆ to modify the digit shown in negative, press ↻ to edit the next digit.
Press [OK] to confirm

Fig.21

```
                                    3.1.2
   SGM VENTURI STD
   SGM VENTURI
 ▶ KAFAGI VENTURI
   PARSHALL INCH
   PARSHALL FEET
```

```
                                  3.1.2.2
           SET DIMENSION

           0000 mm
```

6.3.1.2.4 PARSHALL INCH

For PARSHALL INCH it's necessary to select the (**L**) dimension (width) of the flume (see fig.22)
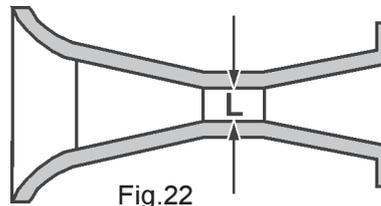
Select by moving the cursor with ↻ and confirm with [OK].

Fig.22

```
                                    3.1.2
   SGM VENTURI STD
   SGM VENTURI
   KAFAGI VENTURI
 ▶ PARSHALL INCH
   PARSHALL FEET
```

```
 ▶ 1 inch                         3.1.2.3
   2 inch
   3 inch
   6 inch
   9 inch
   12 inch (1 ft)
   18 inch (1.5 ft)
```

6.3.1.2.5 PARSHALL FEET

For PARSHALL FEET it's necessary to select the "**L**" dimension (width) of the flume (see fig.23)
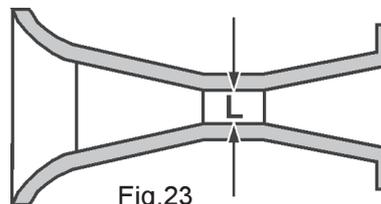
Select by moving the cursor with ↻ and confirm with [OK].

Fig.23

```
                                    3.1.2
   SGM VENTURI STD
   SGM VENTURI
   KAFAGI VENTURI
   PARSHALL INCH
 ▶ PARSHALL FEET
```

```
 ▶ 1 ft                           3.1.2.4
   2 ft
   3 ft
   6 ft
   9 ft
   12 ft
   18 ft
```
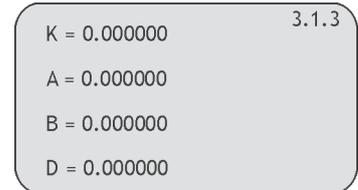
6.3.1.3 TABLE

The flow is calculated by using a table that is stored in the system memory. the table setting is available only with the communication program MUDBUS.

```
                                3.1
  WEIRS
  FLUMES
▶ TABLE
  CUSTOM
```
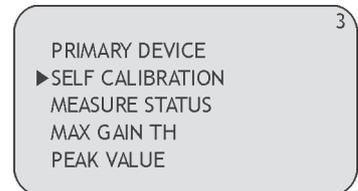
6.3.1.4 CUSTOM

the flow is calculated by using 4 parameter that are stored in the system memory. It's possible to see those parameters.
The parameters setting is available only with the MUDBUS communication program

```
                                3.1
  WEIRS
  FLUMES
  TABLE
▶ CUSTOM
```

```
                                3.1.3
  K = 0.000000
  A = 0.000000
  B = 0.000000
  D = 0.000000
```
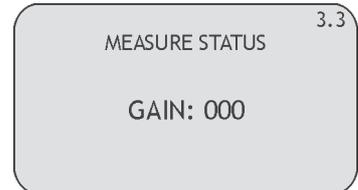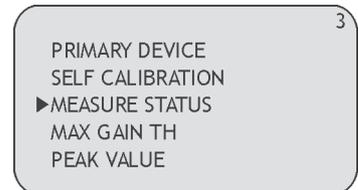
6.3.2 SELF CALIBRATION

it's possible to input the actual head measured; the system will automaticly find the "0" head (level) which correspond to a 4mA analog output (minimum flow).

To edit numbers, press [↑] to modify the digit shown in negative, press [↻] to edit the next digit.
Press [OK] to confirm.

```
                                 3
  PRIMARY DEVICE
▶ SELF CALIBRATION
  MEASURE STATUS
  MAX GAIN TH
  PEAK VALUE
```

```
                                3.2
      SET ACTULA HEAD

        0000 mm
```
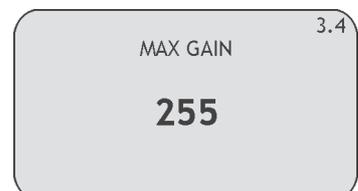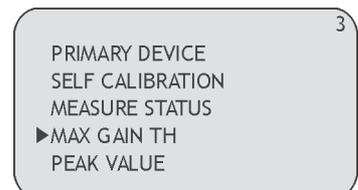
6.3.3 MEASURE STATUS

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.

```
                                 3
  PRIMARY DEVICE
  SELF CALIBRATION
▶ MEASURE STATUS
  MAX GAIN TH
  PEAK VALUE
```

```
                                3.3
      MEASURE STATUS

        GAIN: 000
```

6.3.4 MAX GAIN TH

it's possible to input a value of gain that it should be not reached.
If the gain is above this value, an error occours.

To edit numbers, press [↑] to modify the digit shown in negative, press [↻] to edit the next digit.
Press [OK] to confirm.

```
                                 3
  PRIMARY DEVICE
  SELF CALIBRATION
  MEASURE STATUS
▶ MAX GAIN TH
  PEAK VALUE
```

```
                                3.4
        MAX GAIN

          255
```
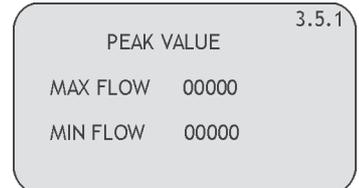
6.3.5 PEAK VALUE

the system store the maximum flow and the minimum flow measured since the power is turned ON. It's possible to see those values or reset them

```
                                          3
  PRIMARY DEVICE
  SELF CALIBRATION
  MEASURE STATUS
  MAX GAIN TH
 ▶PEAK VALUE
```
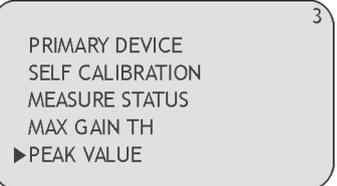
6.3.5.1   DISPLAY VALUE

In this submenu you can view the low and high flowrate reading peaks

```
                                        3.5

 ▶DISPLAY VALUE

  RESET VALUE
```

```
                                      3.5.1
         PEAK VALUE

  MAX FLOW     00000

  MIN FLOW     00000
```

6.3.5.2   RESET VALUE

Select RESET VALUE by moving the cursor with [↻] and confirm with [OK]

```
                                        3.5


  DISPLAY VALUE

 ▶RESET VALUE
```

6.4 SERVICE (4)

From "RUN" mode, press [OK] then move the cursor on "SERVICE" and confirm with [OK]

```
  SETUP
  DISPLAY
  FLOW APPL.
 ▶SERVICE
  INFO
```
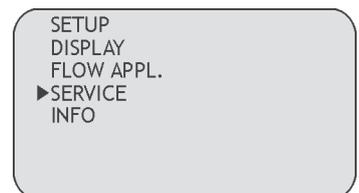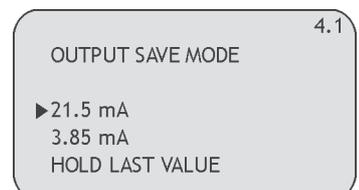
6.4.1 OUTPUT SAVE MODE

it's possible to choose a value of analog output durin condition of system's internal errors. Hold last value keep the output at the level corresponding at last valid measure.
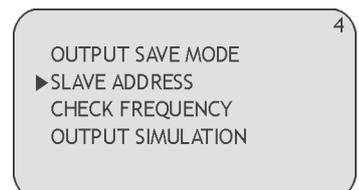
Select RESET VALUE by moving the cursor with [↻] and confirm with [OK]

```
                                          4
 ▶OUTPUT SAVE MODE
  SLAVE ADDRESS
  CHECK FREQUENCY
  OUTPUT SIMULATION
```

```
                                        4.1
  OUTPUT SAVE MODE

 ▶21.5 mA
  3.85 mA
  HOLD LAST VALUE
```
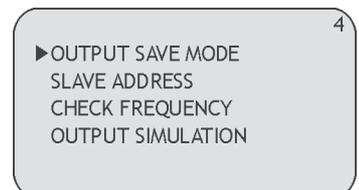
6.4.2 SLAVE ADDRESS

it's possible to input the UID of the instrument, in order to properly communicate with a MODBUS master

```
                                          4
  OUTPUT SAVE MODE
 ▶SLAVE ADDRESS
  CHECK FREQUENCY
  OUTPUT SIMULATION
```
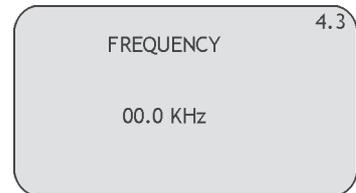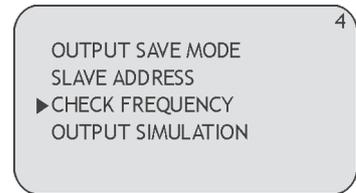
To edit numbers, press [↑] to modify the digit shown in negative,
press [↻] to edit the next digit.
Press [OK] to confirm.

```
                                        4.2
         SET UID


         000
```
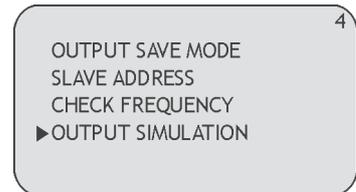
6.4.3 CHECK FREQUENCY

It's possible to check the computed emission frequency of the sensor
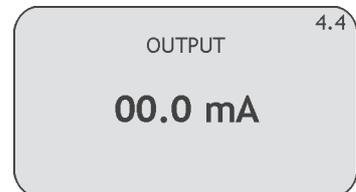
```
                                        4
OUTPUT SAVE MODE
SLAVE ADDRESS
▶CHECK FREQUENCY
OUTPUT SIMULATION
```

```
                                      4.3
         FREQUENCY


         00.0 KHz
```

6.4.4 OUTPUT SIMULATION

It'possible to force the analog output to a desired value

```
                                        4
OUTPUT SAVE MODE
SLAVE ADDRESS
CHECK FREQUENCY
▶OUTPUT SIMULATION
```

To edit numbers, press ⬆ to modify the digit shown in negative,
press ↻ to edit the next digit.
Press OK to confirm.

```
                                      4.4
           OUTPUT

         00.0 mA
```

6.4 INFO (5)

From "RUN" mode, press OK then move the cursor on "INFO" and confirm with OK

Informations about manufacturer, firmware version and serial number are displayed

```
  SETUP
  DISPLAY
  FLOW APPL.
  SERVICE
▶ INFO
```

```
                          5
FLOWMETER        REV. 0.00
                 IC 1.1.01


WWW.SGM-LEKTRA.COM
```

FLOWMETER - 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 mantein 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 consequiential 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

FLOWMETER - Factory Test Certificate

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

FLOWMETER ....   Serial n.   ....

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

Quality Control Manager   ....

Production and check date   ....

MODBUS

CE