METER

Trasmettitore di livello ad ultrasuoni

825A105C

Dati tecnici

Materiale della custodia:	**PBT / PP nel processo**
Installazione meccanica:	**2"GAS M su richiesta con flange in PP DN50 o DN80**
Grado di protezione:	**IP65**
Connessione elettrica: -	**Morsettiere a pressione**
Temperatura di lavoro:	**-30 ÷ +70°C; +80°C non continuo**
Pressione:	**da 0,5 a 1,5 bar (assoluti)**
Alimentaz.:	**20 ÷30Vdc (vers.2 fili) - 24Vdc (vers.4 fili)**
Potenza assorbita:	**0,6W (2 fili) - 1,5W (4 fili)**
Uscita analogica:	**(vers.4 fili) 4÷20mA max 750ohm**
Relè in uscita:	**(vers. 4 fili) n°2 3A 230Vac (n.a.)**
Comunicazione digitale:	**(vers.4 fili) RS485 - HART optional**
Campo di misura massimo:	**standard max 0.25÷5m**
	range esteso (opz.) max 0.4÷7m

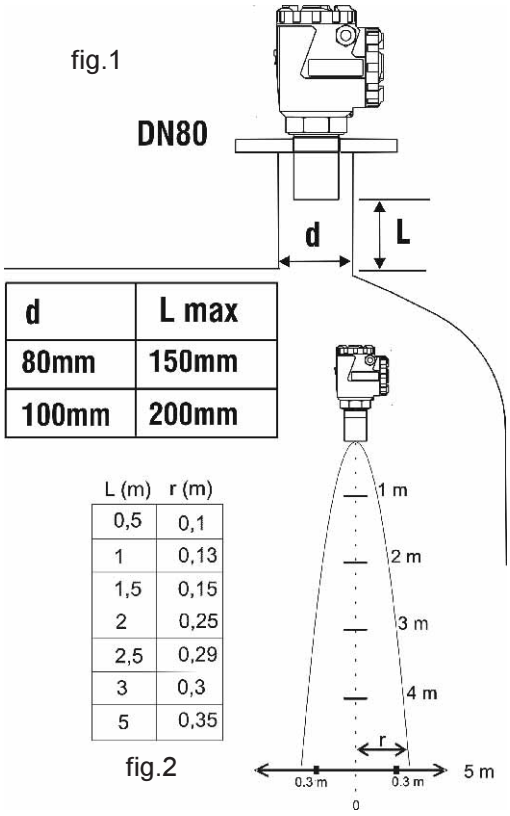
[Le distanze espresse si intendono valide per misure da superfici perfettamente riflettenti, in caso contrario viene degradata la massima distanza misurabile]

Distanza di blocco:	**0.25m**
Compensazione temperatura:	**digitale nel range30 ÷ +80°C**
Accuratezza:	**0,15% (della distanza misurata) comunque non meglio di ±3mm**
Risoluzione:	**1mm**
Calibrazione:	**4 pulsanti o a mezzo HART/RS485**
Stabilizzazione termica:	**1 minutio tipico**
Visualizzazione :	**Display/tastiera estraibile 4 tasti ed LCD a matrice di punti**

METER

Trasmettitori di livello ad ultrasuoni

fig.1



d	L max
80mm	150mm
100mm	200mm

L (m)	r (m)
0,5	0,1
1	0,13
1,5	0,15
2	0,25
2,5	0,29
3	0,3
5	0,35

fig.2

METER Installazione meccanica

Durante l'installazione è importante ricordare che in prossimità della sonda c'è una zona "blind" (o zona morta) di 0.25m entro la quale il sensore non può misurare, vedi fig.3.Per rilevare un livello, senza echi spuri (non riflessi dalla superficie da misurare), è necessario stabilire con cura il posizionamento del trasmettitore METER e assicurarsi che non vi siano ostacoli che possano interferire con il lobo di emissione delle onde ultrasonore vedi fig.2

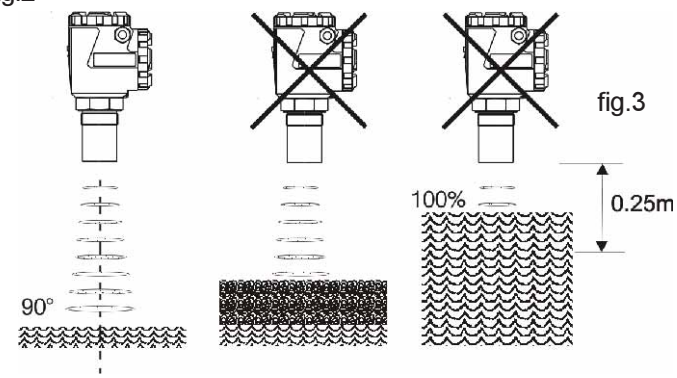


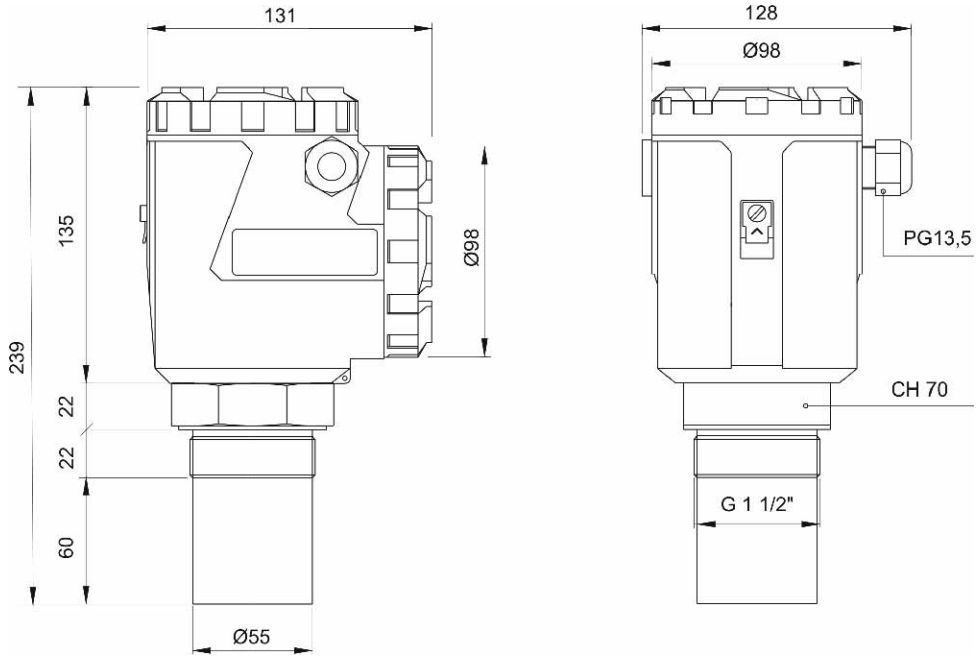
fig.3

Installare perpendicolarmente alla superficie da misurare

Non usare con prodotti schiumogeni

Evitare installazioni dove il livello del prodotto da misurare si avvicini sotto i 0,25m

METER Dimensioni meccaniche



METER Connessioni elettriche

Svitando il coperchio si ha accesso al modulo estraibile Tastiera/Display.Premendo la molla di estrazione come evidenziato nella Fig.6 -part.1si può estrarre il modulo Tastiera/Display tramite la molla di estrazione e quindi accedere alle morsettiere di collegamento elettrico. Il tipo ed il numero delle morsettiere dipende dal modello selezionato.
Le versioni METER sono due: Versione 2-fili (Fig.7) METER-1;METER-2 (HART); METER-3 (ATEX)
Versione con due relè (Fig.8) METER-4

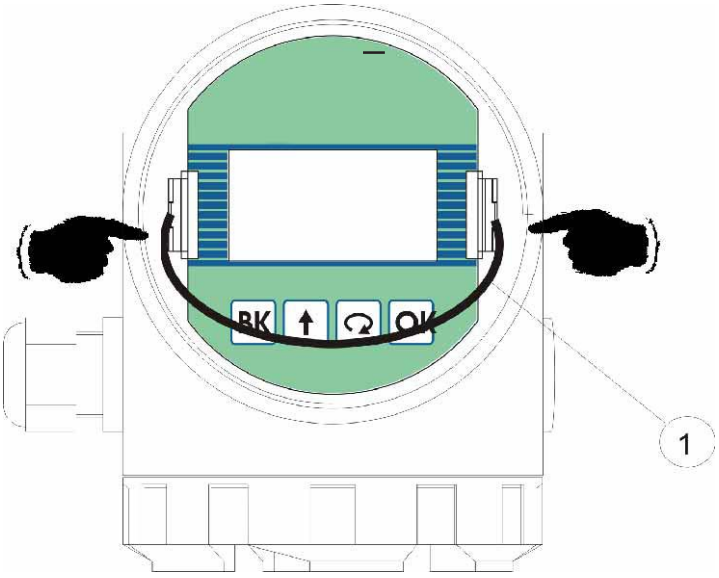


Fig.6

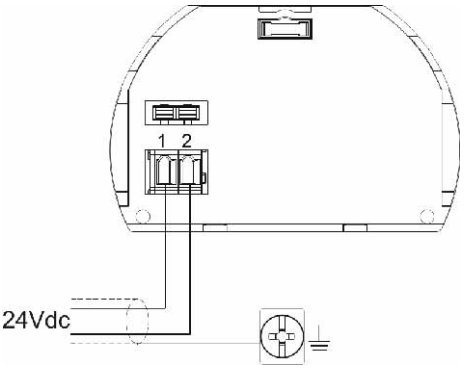


Fig.7

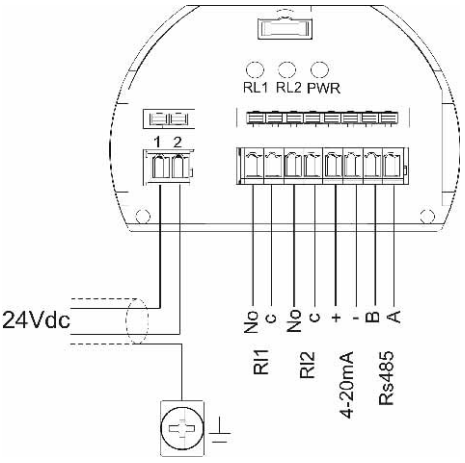


Fig.8

Configurazione

I trasmettitori di livello ad ultrasuoni hanno 2 modalità di configurazione e calibrazione:

- tramite Hand-Held e/o portatile HART se l'opzione è disponibile nella versione utilizzata
- tramite PC/Modem

Connessione tramite programmatore HART Hand Held (fig.9)

1) Programmatore HART
2) METER con protocollo di comunicazione HART
3) Resistenza 250ohm

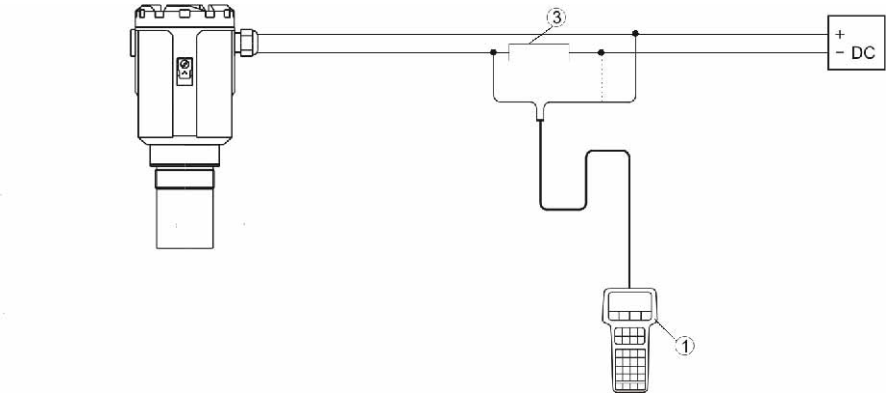


Fig.9

Connessione tramite PC/MODEM HART (fig.10)

1) Connettore RS232
2) METER con protocollo di comunicazione HART
3) Resistenza 250ohm
5) HART MODEM

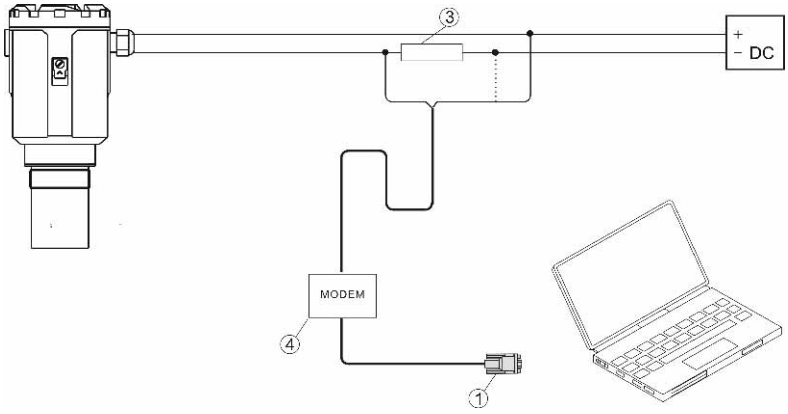


Fig.10

Display di programmazione

Il display di programmazione (fig.11) è dotato di un ampio display di visualizzazione.

fig.11

The menù structure is shown on pages 17/18.

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

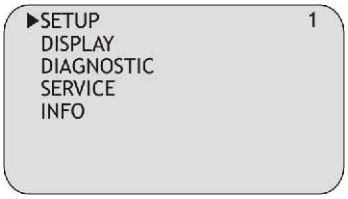
To edit numbers, press ↑ to modify the digit shown in negative, press ↻ to edit the next digit, press OK to confirm and store the number. Press BK to quit

Programming menù

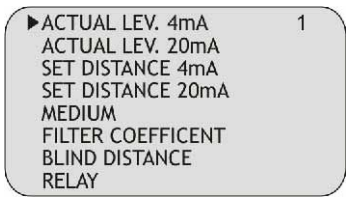
1. SETUP – in this menù it’s possible to set the basic adjustment of the sensor
2. DISPLAY – in this menù it’s possible to setup the sensor display mode an adjust the B/W contrast of LCD
3. DIAGNOSTIC - in this menù it’s possible to test and check the sensor, display peak values and measure status.
4. SERVICE - in this menù it’s possible to set com mode, output mode, language, input password to enable parameters
5. INFO - this menù show firmware revision, serial number and manufacturer information

SETUP (1)

From “RUN” mode press OK then move the cursor on “SETUP” and confirm with



Select the parameters by moving the cursor with ↻, and confirm with OK



ACTUAL LEV. 4mA :

press OK to associate the actual measure with 4mA output value;the following message will be displayed:
OK TO CONFIRM press OK to confirm

ACTUAL LEV. 20mA:

press OK to associate the actual measure with 20mA output value;the following message will be displayed:
OK TO CONFIRM press OK to confirm

SET DISTANCE 4mA:

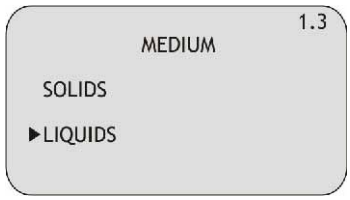
press OK to display the value of distance associated with 4mA output; use ↑ and ↻ to modify that value. Confirm with OK

SET DISTANCE 20mA:

press OK to display the value of distance associated with 20mA output; use ↑ and ↻ to modify that value. Confirm with OK

MEDIUM:

select LIQUIDS if the sensor is measuring a liquid level, else select SOLIDS



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

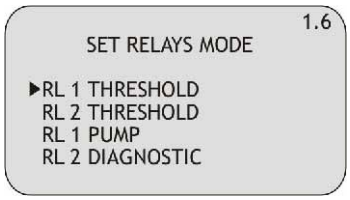
BLIND DISTANCE:

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

RELAY:

in this sub-menù it’s possible to setup onboard relays (only LOW-4 model).

RL1 can be set as **threshold** relay or **pump-control** relay; RL2 can be set as **threshold** relay or **diagnostic** relay



RL1 THRESHOLD/RL2 THRESHOLD:

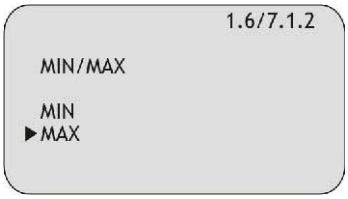
select the parameter by moving the cursor with  and confirm with 

VALUE:

it’s possible to input the threshold value, **<u>in terms of pencentage of level</u>**

MIN/MAX:

itís possible to select if the relay works as maximum level threshold or minimum level threshold

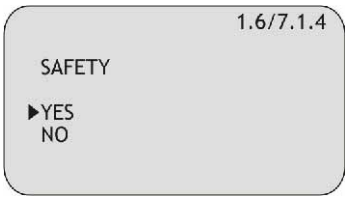


DELAY:

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

SAFETY:

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

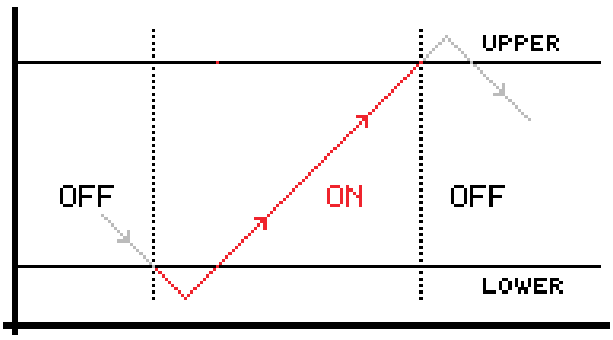


ENABLE/DISABLE:

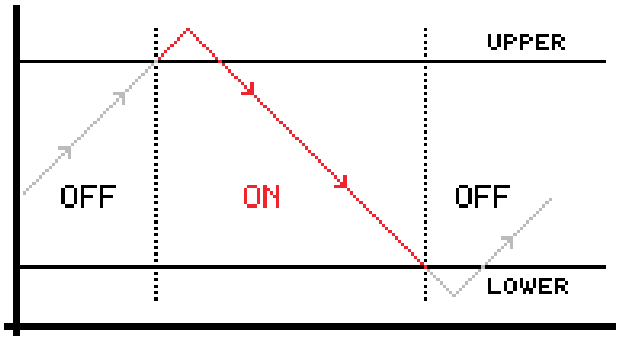
select ENABLE to allow the relay to work in the selected mode (Threshold/Pump or Threshold/Diagnostic)

RL1 PUMP:

it's possible to allow **pump control** with RL1, also in **FILLING** mode or **EMPTYING** mode.

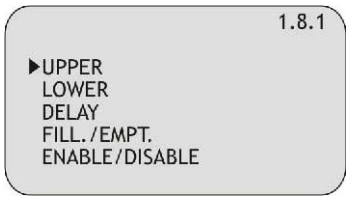


FILLING MODE



EMPTYING MODE

Select the parameter by moving the cursor with and confirm with OK

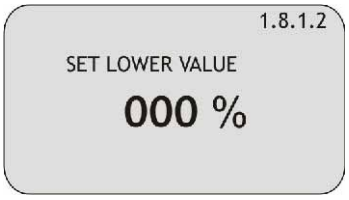


UPPER:

it's possible to input the upper level value, to enable start emptying or stop filling.

LOWER:

it's possible to input the lower level value, to enable stop emptying or start filling.

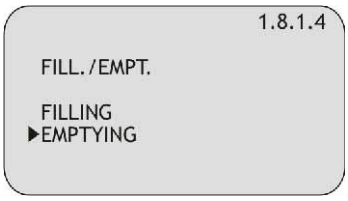


DELAY:

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

FILL./EMPT.:

it's possible to select the mode of pump control (filling or emptying)



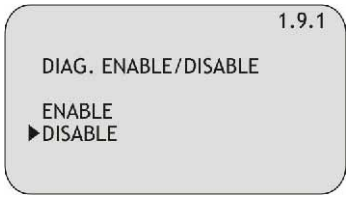
ENABLE/DISABLE:

select ENABLE to allow the relay to work in the selected mode

RL2 DIAGNOSTIC:

it's possible to enable RL2 to activate its contact in case of error as:

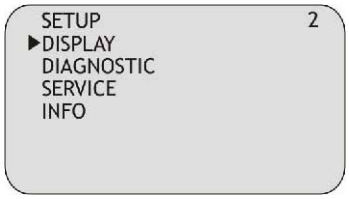
- TEMP.: temperatutre out of range
- ECHO: no echo is detected
- GAIN: the sensor's gain exceed the value setted in Max Gain TH (3.4)
- DIST.: the measured distance exceed the 120% of the maximum distance in setup



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

DISPLAY (2)

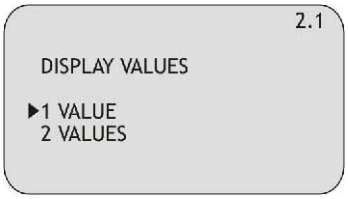
From “RUN” mode press OK, then move the cursor on “DISPLAY” and confirm with OK



Select the parameters by moving the cursor with , and confirm with

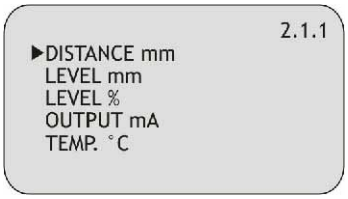
DISPLAY VALUES:

It’s possible to select if one value with big digits or two values are shown on the display in “RUN” mode



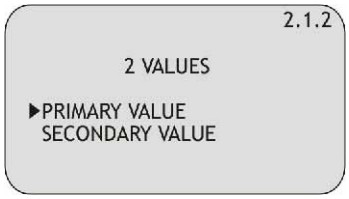
1 VALUE:

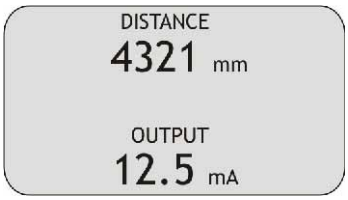
only one value is displayed; it’s possible to choose from 5 parameters:



2 VALUES:

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





ECHO MAP:

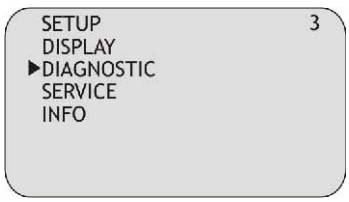
NOT YET AVAILABLE

CONTRAST:

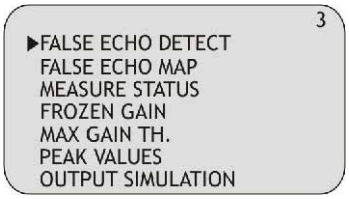
it's possible to adjust the contrast of LCD, simply increasing or decreasing the value of a parameter from 0 to 63 (16 default)

DIAGNOSTIC (3)

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



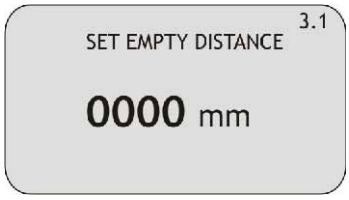
Select the parameters by moving the cursor with , and confirm with OK



FALSE ECHO DETECT:

It's possible to scan the empty tank in order to avoid obstacles like agitators' blades,limit switces,mechanical struts

It's necessary to imput the empty distance (distance from the instrument to the bottom of the tank) and confirm with OK



The system will automatically scan and store all echoes separating false echoes from the real one that match the empty distance. After this,the following message is displayed: **FALSE ECHO DETECT DONE**

If something's not corretct (e.g wrong empty distance value, obstacles that hides the bottom) the following message is displayed **FALSE ECHO DETECT ERROR**

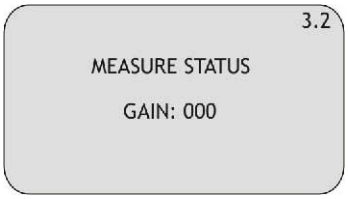
Note: False echo detect procedure is not recommended for pipe and stand-pipe applications

FALSE ECHO MAP:

NOT YET AVAILABLE

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



FROZEN GAIN:

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

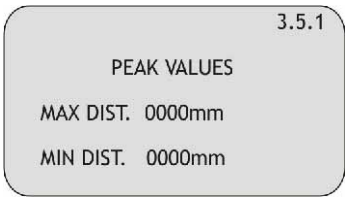
MAX GAIN TH:

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

PEAK VALUES:

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

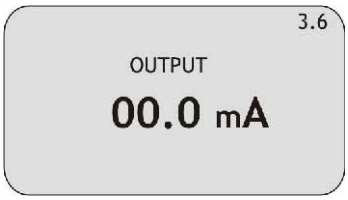
Select DISPLAY VALUES and confirm with OK



Select RESET VALUES an confirm with OK in order to cancel the stored values

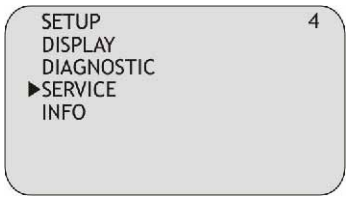
OUTPUT SIMULATION:

it'possible to force the analog output to a desired value, simply by using ↑ and ↻ to modify that value. Confirm with OK. The output returns to its normal function in only in "RUN" mode.

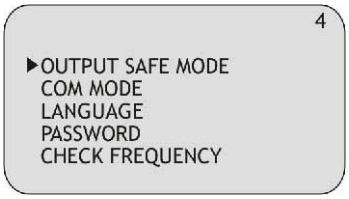


SERVICE (4)

From “RUN” mode press OK, then move the cursor on “SERVICE” and confirm with OK

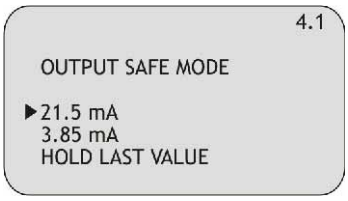


Select the parameters by moving the cursor with , and confirm with OK



OUTPUT SAFE 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.



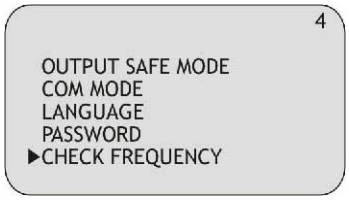
COM MODE:
NOT YET ACTIVE

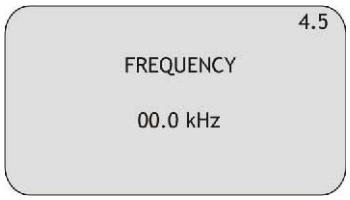
LANGUAGE:
NOT YET ACTIVE

PASSWORD:
NOT YET ACTICE

CHECK FREQUENCY:

it's possible to check the computed emission frequency of the sensor.

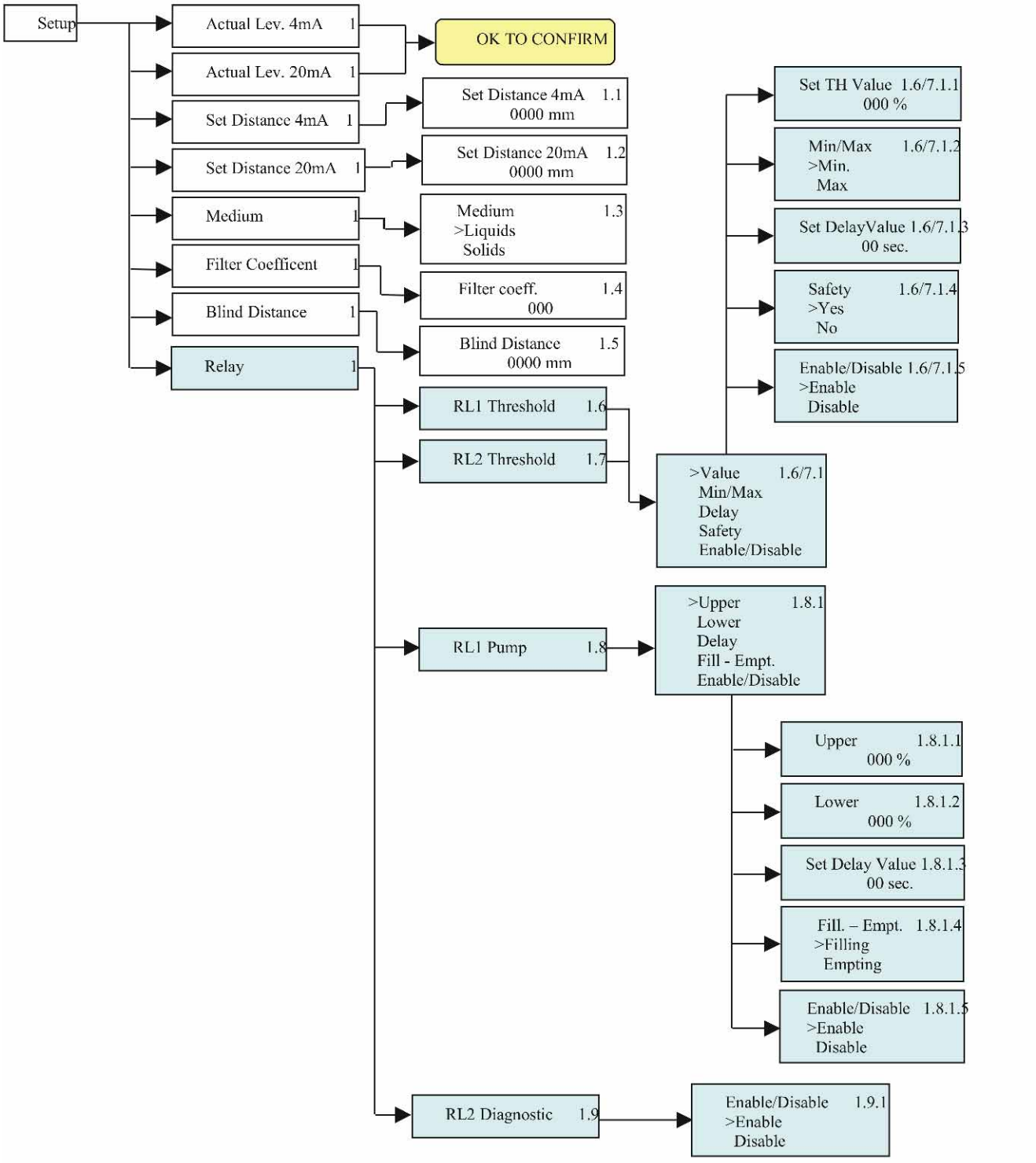




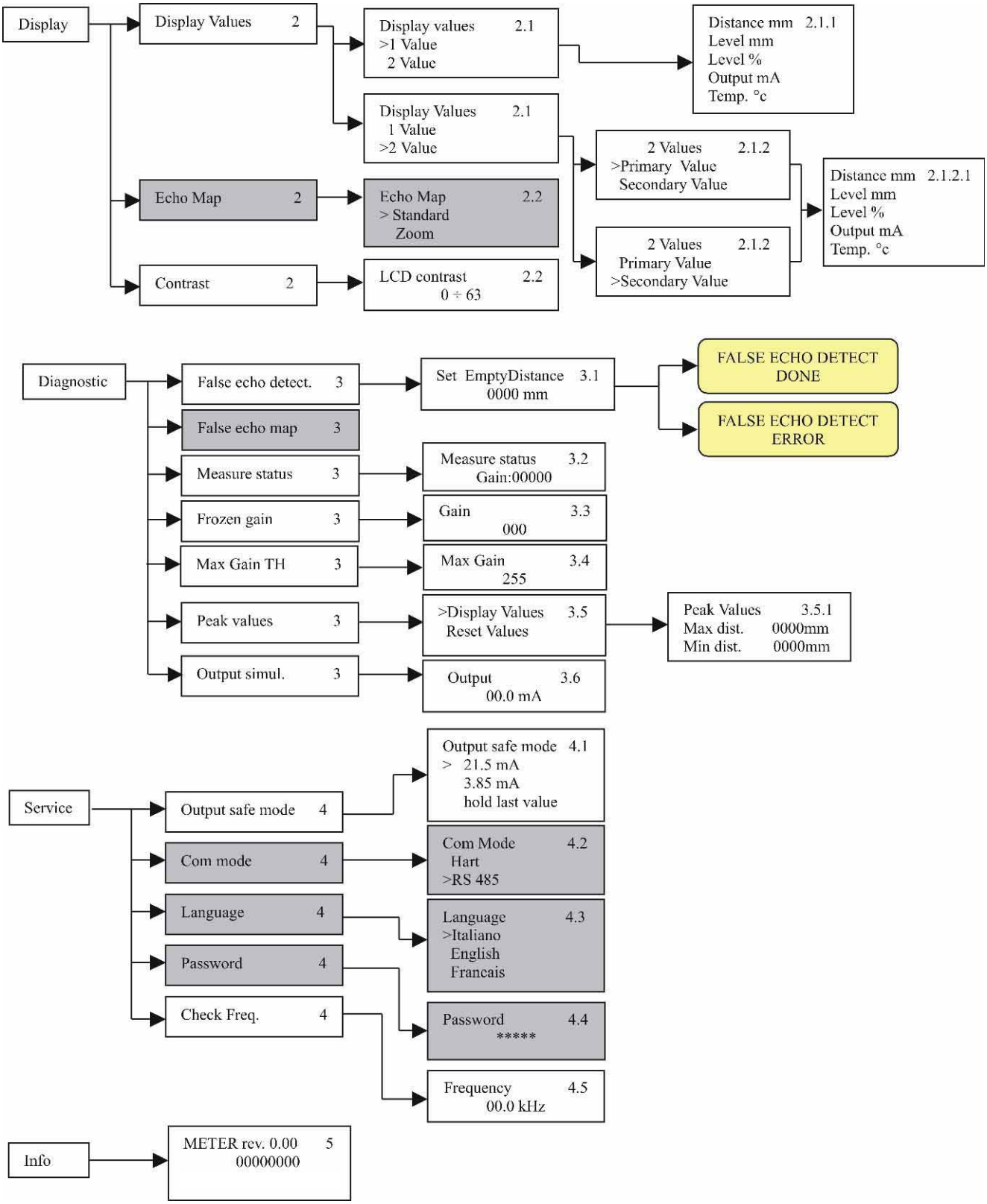
INFO (5)

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
Actual Lev. 4mA 1
Actual Lev. 20mA 1
Set Distance 4mA 1
Set Distance 20mA 1
Medium 1
Filter Coefficent 1
Blind Distance 1
Relay 1
OK TO CONFIRM
Set Distance 4mA 1.1
0000 mm
Set Distance 20mA 1.2
0000 mm
Medium 1.3
>Liquids
Solids
Filter coeff. 1.4
000
Blind Distance 1.5
0000 mm
RL1 Threshold 1.6
RL2 Threshold 1.7
>Value 1.6/7.1
Min/Max
Delay
Safety
Enable/Disable
Set TH Value 1.6/7.1.1
000 %
Min/Max 1.6/7.1.2
>Min.
Max
Set DelayValue 1.6/7.1.3
00 sec.
Safety 1.6/7.1.4
>Yes
No
Enable/Disable 1.6/7.1.5
>Enable
Disable
RL1 Pump 1.8
>Upper 1.8.1
Lower
Delay
Fill - Empt.
Enable/Disable
Upper 1.8.1.1
000 %
Lower 1.8.1.2
000 %
Set Delay Value 1.8.1.3
00 sec.
Fill. – Empt. 1.8.1.4
>Filling
Empting
Enable/Disable 1.8.1.5
>Enable
Disable
RL2 Diagnostic 1.9
Enable/Disable 1.9.1
>Enable
Disable

METER Struttura menù programmazione



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