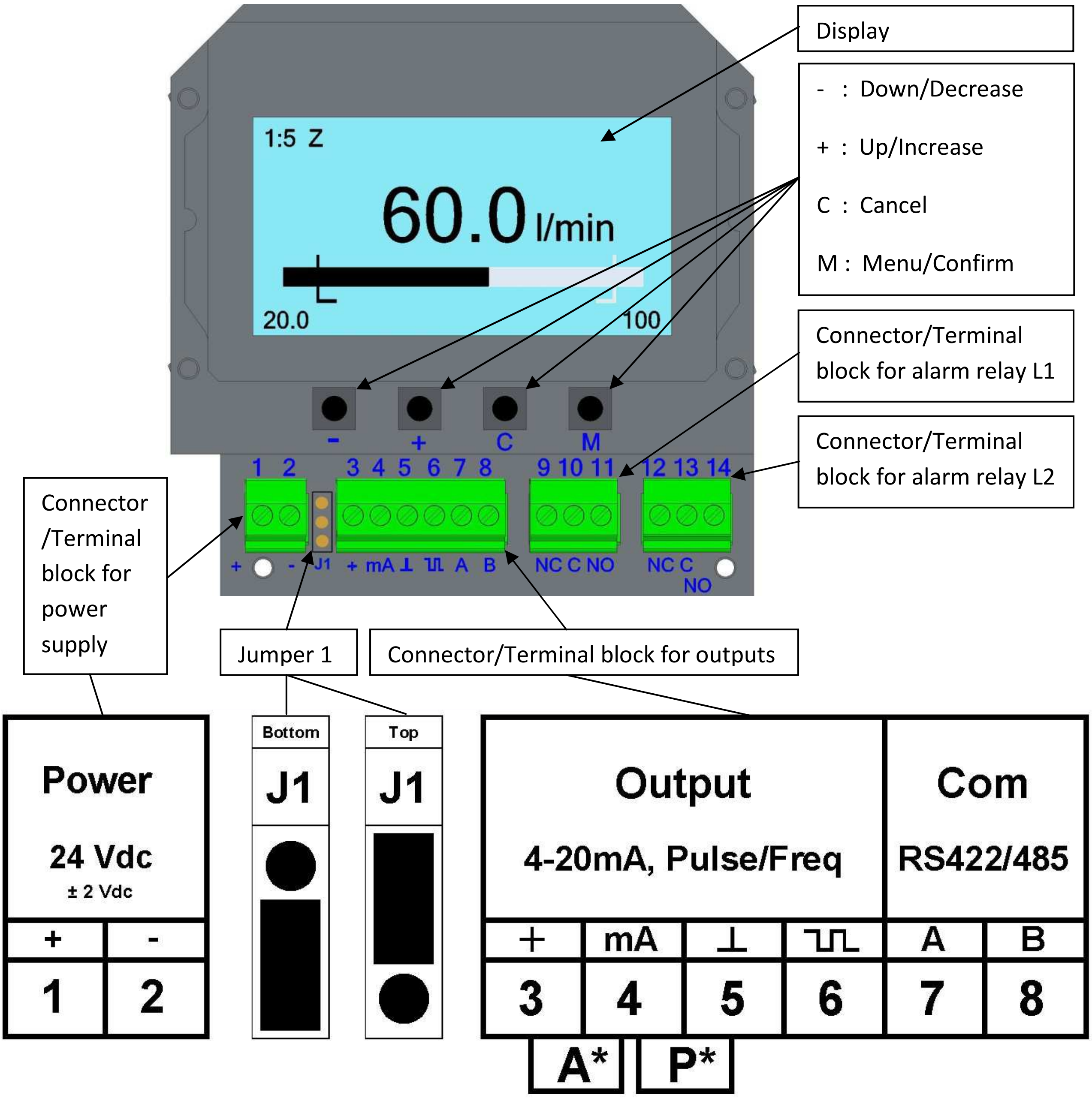
Configuration guide for D-series display

Overview



Note! The jumper fitting only affect the Pulse/freq output.

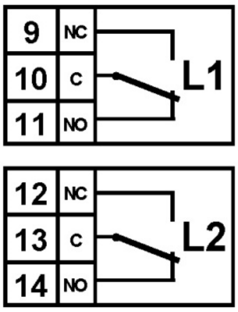
1	+	Power supply
2	-	24 Vdc, ± 2 Vdc

3	+24V OUT
4	mA*
5	SIGNAL GROUND
6	PULSE/FREQ**
7	RS422/485 A***
8	RS422/485 B***

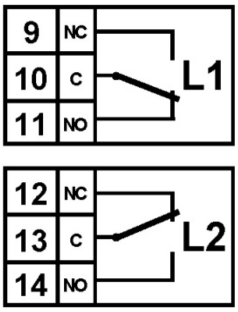
* A (Active mA drive)	Max external load 1000 ohms.
* P (Passive mA load)	Max external voltage 25V.
** J1 (Top fitted)	24V Signal out, 1000 ohms.
** J1 (Bottom fitted)	Open Drain, Max 25V 1A, Non-inductive load.
*** RS422/485 COM	Currently not active.
*** RS422/485 COM	Currently not active.

Connect the unit according to the diagram above. Note that it possible to release the upper part of the connectors to make it easier to connect the cable. Use cable type shielded twisted pair, min 0,2 mm².

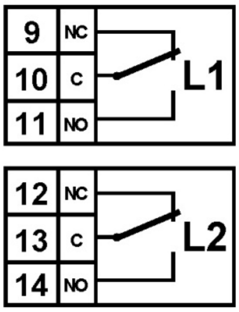
Status of alarm Relays



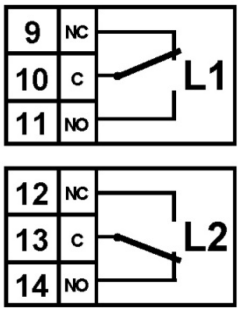
Non-activated status.
No-supply voltage.



Low flow alarm on.
Flow rate less than
L1 limit.

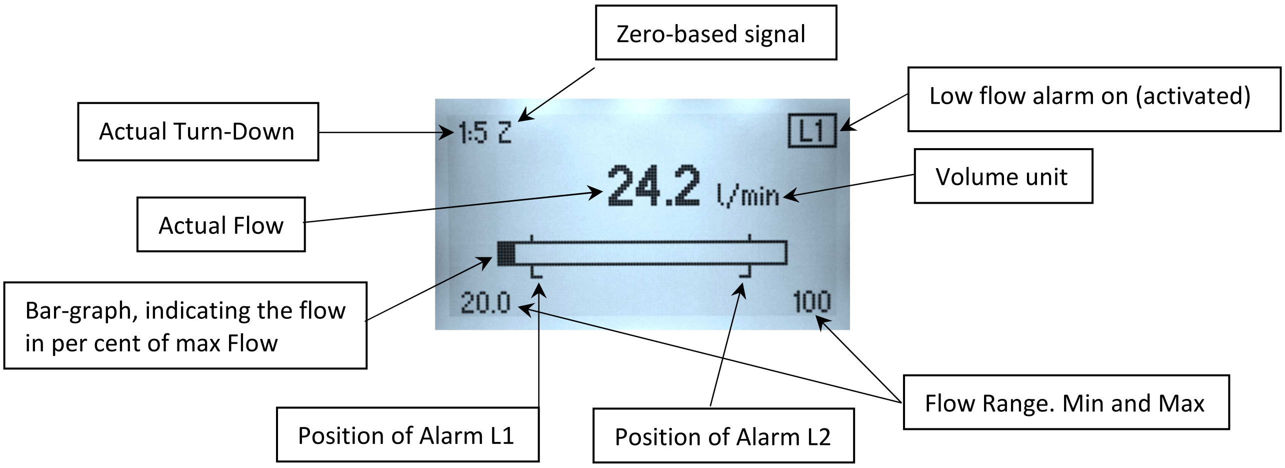


Normal flow.
Flow rate between
L1 and L2 limit.

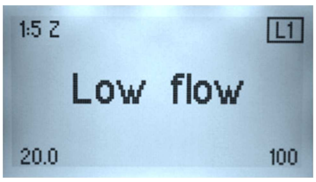


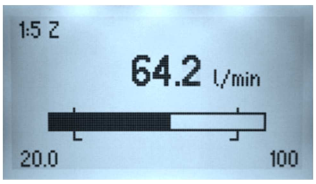
High flow alarm on.
Flow rate more than
L2 limit.

Display

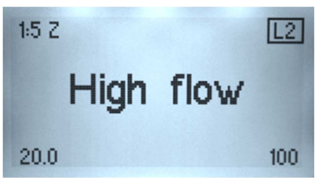


When you connect the power supply, the display lightens up, *"Low flow"* and *"L1"* will flash (if you don't have any flow in process pipe).





The flow value shows constantly as long as the flow is within the flow range. Within 2% below Q min and above Q max, the value will flash before it goes over to show *"Low flow"* or *"High flow"*

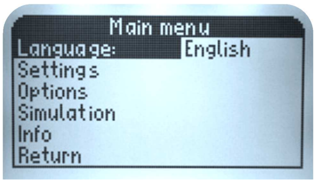


Configuration of Display

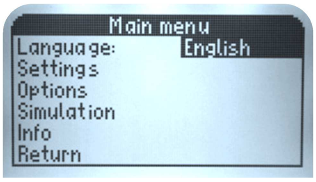
To change any information on the display, press the button *"M"* and hold for 2 sec. to reach the "*Main menu.*

Note!
No changes you make in the "*Main menu*" except Alarm and Simulation will have an effect on the flow meter function; it's only a change of the displayed information.

Language



Scroll in the menu up and down with the buttons + or -.
When the text is highlighted (black), it means that you can change the parameters.
To change "Language"; press once more on the *"M"* button, to move to the right and change language with the buttons "+" or "-".

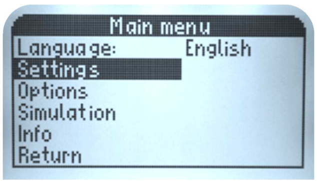


You can choose between:
English, French, German, Swedish, Spanish, or Chinese.

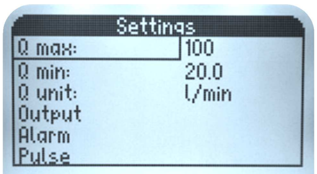
Confirm the choice with *"M" button.*

To leave this menu, scroll down to *"Return"* and press *"M"*, or hold *"C"* button during 2 sec. *"Return"* takes you back one step in the menu, the "C" button takes you back directly to the operating mode.

Settings

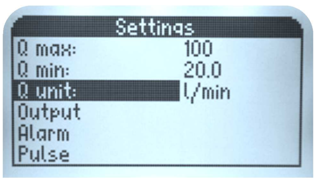


Scroll down to *"Settings"* with the "–" button, press the *"M"* once.



When there is only a frame around the word, you can't change anything as this is only an information field. In the example to the left you can see the actual flow range, Q max and Q min

Volume unit



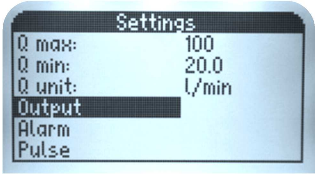
Scroll down to *"Q unit"* with the "-" button and press *"M"*, to move to the right and now you can change the displayed units with "+/-" and choose between:
% (of Q max), **l/s**, **l/min**, **l/h**, **m^3/min**, **m^3/h**, **USGpm**, **CFM**, **CFH**.

Confirm the choice with *"M"*
To leave this menu, scroll down to *"Return"* and press *"M"*, or hold *"C"* button during 2 sec. *"Return"* takes you back one step in the menu, the "C" button takes you back directly to the operating mode.

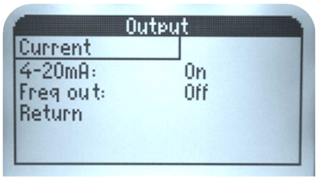
Note! For these changes you don't need to change the orifice, all figures will be recalculated to the displayed unit.

ELETTA
FLOW MONITORS

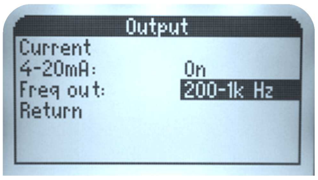
Output



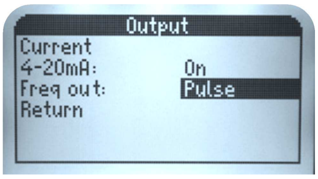
Scroll down to *“Output”* with the “-“ button and press the *“M”* button.



In this menu you can activate the frequency output. The output is an open collector type, max 24 VDC/100mA. It gives a frequency of 200 to 1000 Hz or pulse.



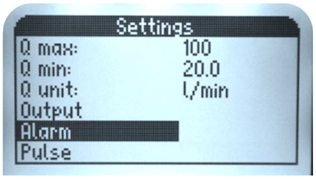
To activate the output, scroll down to *"Freq out"* and press the “*M*” button.



Use +/- to change to *"200-1k Hz"* or *"pulse"*
Confirm the choice with the *“M” button*

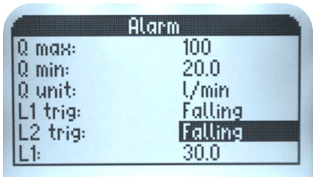
To leave this menu, scroll down to *“Return”* and press *“M”*, or hold *“C”* button during 2 sec. *“Return”* takes you back one step in the menu, the *“C”* button takes you back directly to the operating mode.

Alarm



To change the alarm settings, scroll down with the “-“ button to *“Alarm”* and press the *“M”* button

Scroll down with the “-“ button to L1 trig or L2 trig and press the *“M”* button to set L1 or L2 to falling or rising. L1 is set to falling and L2 is set to rising by default from the factory.



L1 and L2 can both be set to falling/falling or rising/rising.

Scroll down with the “-“ button to L1 or L2 and press the *“M”* button and the input box will light up.

To set the value of the alarm, you change the figure by figure with “+/-“ and confirm with *“M”*. Next figure will be highlighted and you repeat until you get your desired value.

Note! It is not possible to set the alarm outside the flow range (Q min/Q max) Also the hysteresis effects on the alarm settings. L1 cannot be set higher than Q max - *“Hyst1”*, and L2 can’t be set lower than Q min + *“Hyst2”*.

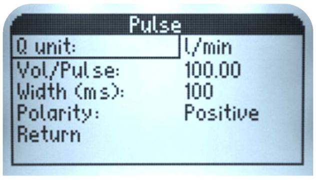
Hysteresis

The hysteresis is necessary to avoid the alarm to ripple (go on and off) when the flow is close to the set point.
The hysteresis is changeable separate for each alarm between 2.5, 5 and 10% (of Q max).
To change the hysteresis, you scroll to that value you want to change and then press the *"M"* button so the value highlights and then use "+/-" to change and confirm with the *"M"* button.

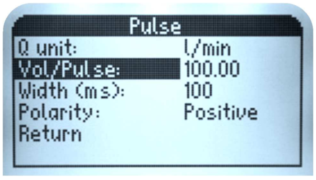
To leave this menu, scroll down to *"Return"* and press *"M"*, or hold *"C"* button during 2 sec. *"Return"* takes you back one step in the menu, the "C" button takes you back directly to the operating mode.

Pulse

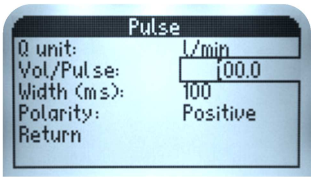
To change the pulse settings, scroll down with the "-" button to *"Pulse"* and press the *"M"* button



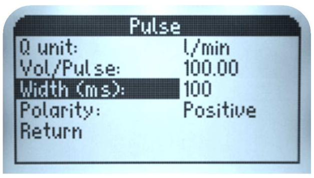
Note! The pulse needs to activated in the *"Output"* menu for the pulse to work.



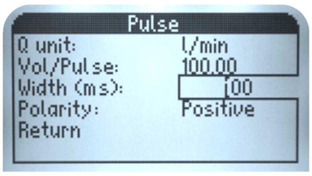
Scroll down with the "-" button to *"Vol/Pulse"* and press the *"M"* button and the input box will light up.



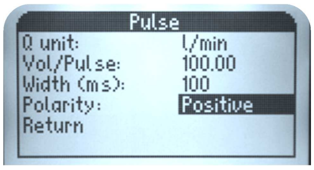
To set the pulse per unit volume, you change the figure by figure with "+/-" and confirm with *"M"*. Next figure will be highlighted and you repeat until you get your desired value.



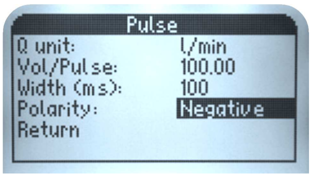
Scroll down with the "-" button to *"Width (ms)"* and press the *"M"* button and the input box will light up.



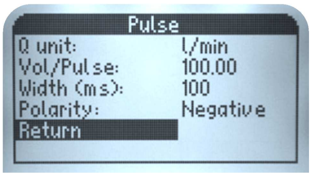
To set the pulse width, you change the figure by figure with "+/-" and confirm with *"M"*. Next figure will be highlighted and you repeat until you get your desired value.



Scroll down with the “-“ button to *"Polarity"* and press the *"M"* button to set the polarity to positive or negative.

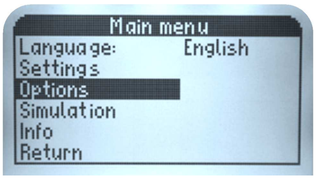


Confirm the choice with *“M” button.*



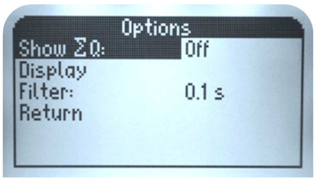
To leave this menu, scroll down to *“Return”* and press *“M”*, or hold *“C”* button during 2 sec. *“Return”* takes you back one step in the menu, the “C” button takes you back directly to the operating mode.

Options

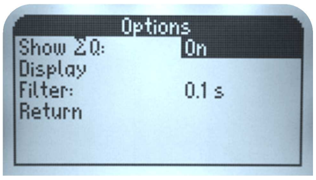


Scroll down to "*Options*" and press "*M*"
Here you can find the Totalizer, Display orientation and the Low pass filter.

Totalizer

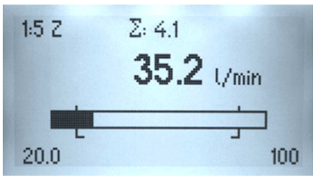


To activate the totalizer; when "*Show ΣQ*" is highlighted press "*M*" to move to the right.



Use "+ or -" to set "*On*" and confirm with "*M*".
The totalizer will start in the same time you confirm "*On*". Press "*C*" 2 sec. to go back to operating view.

The value of the totalizer is the same as the displayed unit, so if you have l/min, l/s or l/h, the unit is liters, and if you have m^3/min, m^3/h the totalized value will be in m^3.



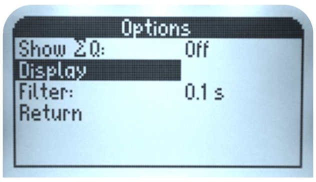
If you have the displayed unit in "%", the totalizer will not work

The totalizer works as long the flow is within the flow range. If the flow should go outside the range or there is a power failure, the totalizer goes back to "*Off*" and also disappear from the display. If you want to go back to totalizing mode, you need to reactivate it.

It is also possible to restart the counter by press "-" in the "*Operating mode*".

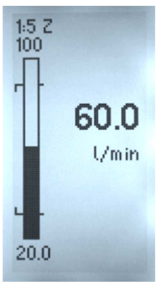
Note! The end value for the totalizer is 99999, when this value is reached the counter stops.

Display



Depending on the mounting orientation of the Flow meter, the display can be rotated in 4 different angles, 0°, 90°, 180°and 270°.

To change the orientation, scroll down to "*Display*" and press "*M*" and when "*Rotate*" is highlighted press "*M*" to move to the right. Use "+" or "-" to rotate to the angle you want, and confirm with "*M*".

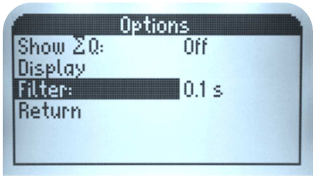


To leave this menu, scroll down to *"Return"* and press *"M"*, or hold *"C"* button during 2 sec. *"Return"* takes you back one step in the menu, the "C" button takes you back directly to the operating mode.

Back light

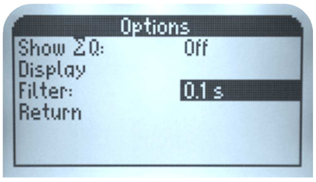
The backlight can be changed in 5 different levels, *Off, 25, 50, 75* and *100%*
To change it, press "*M*" when "*Back light*" is highlighted and use "+" or "-" to set the desired value. Confirm with "*M*".
To leave this menu, scroll down to *"Return"* and press *"M"*, or hold *"C"* button during 2 sec. *"Return"* takes you back one step in the menu, the "C" button takes you back directly to the operating mode.

Filter



This filter will slow down the response time for the output signal and the displayed flow value.
It can be necessary to use this function if you are facing problems in your pipe system with pressure chocks or variations in the flow, giving the display and the output signal an instable value.
The filter can be set between 0 and 26 seconds, where level 0,1 sec is factory default setting.

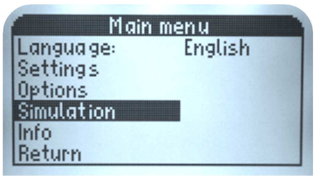
Note! Don't set the filter higher than necessary as this will have an effect on detecting "true" changes in the flow.



To change the filter value, scroll down in the "*Options*" menu until "*Filter*" will be highlighted. Then press "*M*" and the input box will light up.
To set the value you can change figure by figure with "+/-" if necessary and you confirm with *"M"*. Next figure will be highlighted and you repeat until you get the desired value and then confirm with the *"M"* button

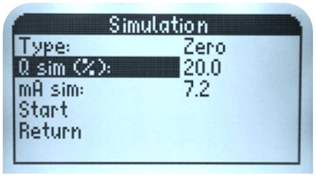
To leave this menu, scroll down to *"Return"* and press *"M"*, or hold *"C"* button during 2 sec. *"Return"* takes you back one step in the menu, the "C" button takes you back directly to the operating mode.

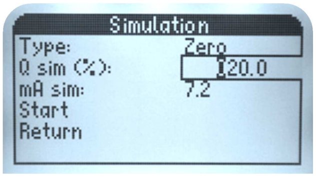
Simulation



This function gives you the possibility to create and simulate a real mA-signal from the unit even if you don't have any flow. For example you want to check other instruments or functions in your system. In this case you can simulate a desired flow or mA-signal from the unit.
Note! It's only possible the simulate the mA-signal, not the frequency output

Warning!!!
Before using this function, be sure that there is no flow in the system, as this simulation will disconnect the real signal and then disturb receiving instruments.

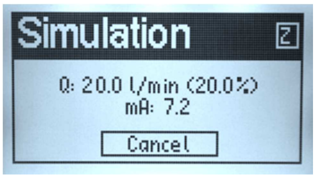




To activate the simulation, scroll down in the "*Main menu*" until "*Simulation*" will be highlighted and press the "*M*" button. Scroll down to "*Q sim*" or "*mA sim*" and press the "*M*" button, and the input box will light up.
To set your desired value you change figure by figure with "+/-" and confirm with the *"M"* button. The next figure will be highlighted and you repeat until you get the right value.

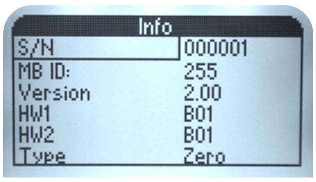
Confirm with the *"M"* button.

Scroll down to "Start" and press the "*M*" button to start the simulation



The display will flash between black/white during the simulation.
To cancel, press the "*C*" button.

Info



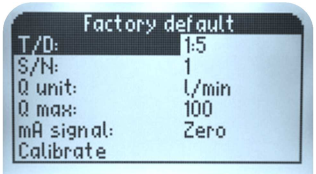
This menu will give you information about the version of software and hardware and also the type of output signal i.e. zero-based or Non-zero based.

Factory default

Warning!! Warning!!

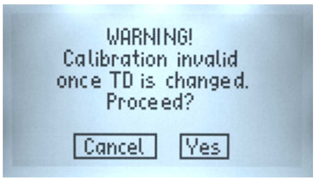
All changes in this menu will have an effect on the function of the flow meter.

This menu is only necessary when you change to a new orifice (another flow range), or want to change the output signal from Zero-based to Non-Zero-based or opposite or make a recalibration of meter. All other configurations will be made in the “*Main menu*”



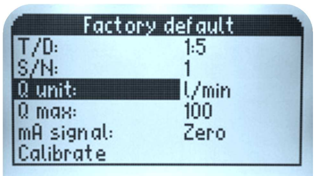
From the operating mode you reach the “*Factory default*” menu by holding the buttons -, +, and C simultaneously and keep them pressed for 2 sec until the menu lights up.

T/D: show you the actual flow turn down, in this case 1:5 (Q min is five times less than Q max).

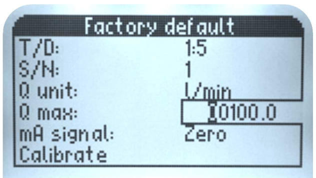


Warning!!!
If you change turn down you need to change both the orifice plate and springs within the diaphragm housing, you also need to do a recalibration. **Do not** change turn down without consulting with the Eletta factory first.

Changing of flow range for a new orifice

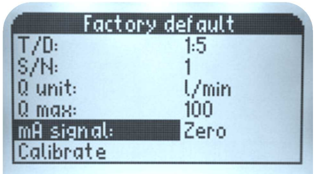


Scroll down to “*Q unit*” and press the “M” button to move to the right.
Set the right unit for the new orifice by using “-/+”, and confirm with the “*M*” button.
l/s, **l/min, l/h**, **m³/min**, **m³/h**, **USGpm**, **CFM**, or **CFH**



Scroll down to “*Q max*” and press the “M” button and the input box will light up. Set the right value according to the new orifice
To set the value you change figure by figure with “+/-“ if necessary and confirm with the *“M”* button. Then next figure will be highlighted and you repeat until you get the right value.

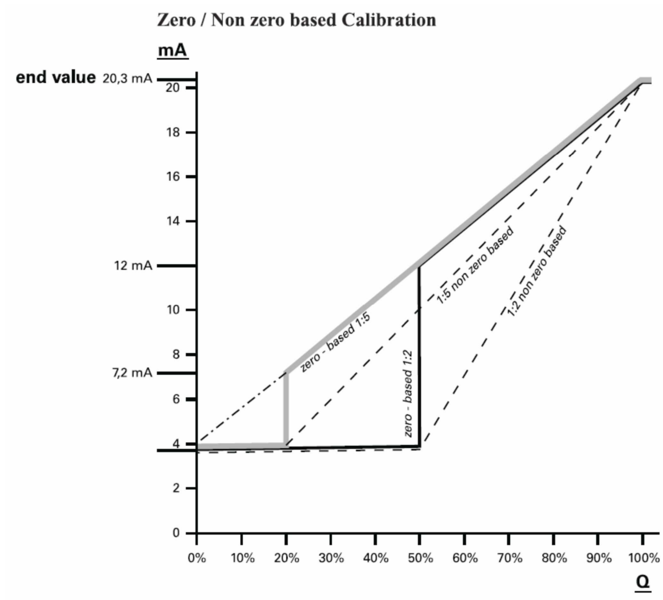
Output signal



The output signal can be set in two different ways; “*Zero*” (zero-based) means that 4-20 mA represent 0-100% of Q max. This is most common and the factory default.
“*Non-Zero*” (non-zero-based) means that 4-20 mA represent the flow range (4 mA = min value of the flow range), see the graph on next page

To change, scroll down to “*mA signal*” and press the “*M*” button to move to the right, and then change by using “-/+” and confirm with the “*M*” button

To leave this menu, scroll down to *“Return”* and press *“M”*, or hold *“C”* button during 2 sec. *“Return”* takes you back one step in the menu, the “C” button takes you back directly to the operating mode.

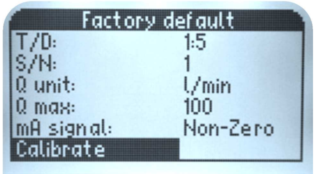


On Zero-based units, the signal goes from 20 mA down to the min value (20% or 50% depends of the turn down), 2% below min the signal drop down to 4 mA.

On Non zero-based the signal goes from 20 mA down to 4 mA at the min value (20% or 50% depends of turn down), 2% below min the signal stop at 3,7 mA.

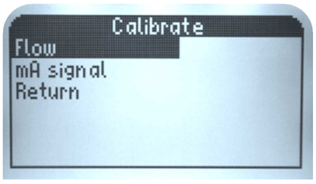
The signal have an end value at max, 20,3 mA.

Calibrate

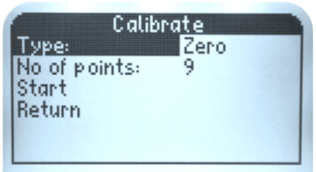


The meter is already calibrated from factory and shall normally not be necessary to recalibrate.
If you still want to do this, you need a master meter so you can adjust to a correct flow.
A new flow calibration will overwrite the old factory calibration and it's not possible to recall it.

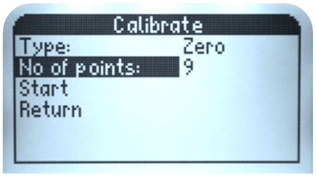
Flow



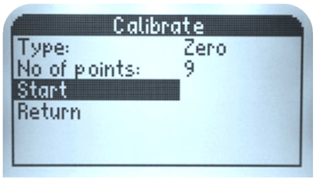
Scroll down to "*calibrate*" and press the "*M*" button and when "*Flow*" is highlighted press the "*M*" button once more.



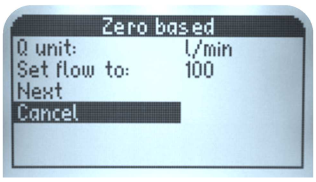
Chose "*Type*"; Zero or Non-zero, by pressing the "*M*" button and use "-/+" to change and confirm with the "*M*" button.



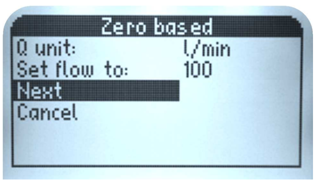
Scroll to "*No of points*" and choose how many calibration points you want to set. From factory, Turn down 1:5 is calibrated at 9 points and Turn down 1:2 at 6 points (D5 and D2 respectively).
Change the number of points by pressing the "M" button and the input box will light up.
Set the value with "+/-" and confirm with the *"M"* button.



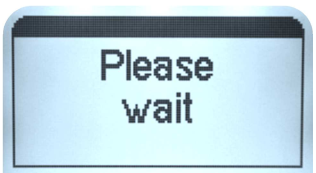
Scroll down to "*Start*" with "-" and press the "*M*" button



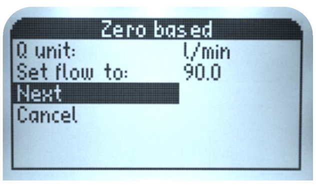
If you have come this far by mistake, you can interrupt the calibration without causing any changes here or you can go on with the calibration by adjusting a stable flow through your reference meter matching the value on the display *"Set flow to".*



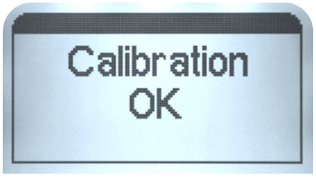
Move with "+" so "*Next*" will be highlighted and press the "*M*" button to confirm

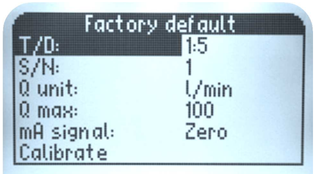


The adjusting of the calibration takes some seconds and during this time you need to keep the flow stable.



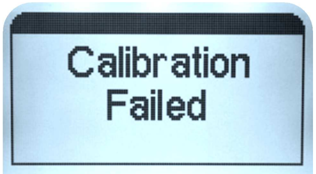
Next step in the calibration lights up and you can adjust to the flow the software ask for and press the "*M*" button to confirm.
The calibration always start on Q max and finish on Q min and split automatically the calibration points proportional over the flow range.
Repeat this procedure through the whole calibration.

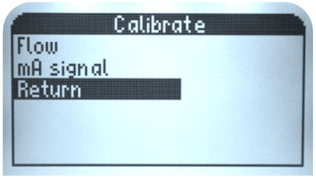




After the last calibration point you get a confirmation whether the calibration was "*OK*" or "*Failed*".
If the calibration was OK, the new calibration will be saved as default in the E²-memory and the display goes back to the factory default menu.

To leave the menu, scroll down to *"Return"* and press the *"M" button*, or hold the *"C"* button during 2 sec.



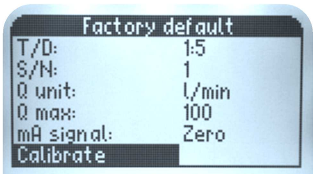


If the calibration Failed, the display goes back to the "*Calibrate menu*", and you have to do a new calibration by start from the beginning of the calibration procedure.

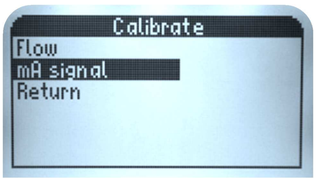
The old calibration is still saved in the E²-memory as long a new calibration not passed OK.

To leave this menu, scroll down to *"Return"* and press *"M"*, or hold *"C"* button during 2 sec. *"Return"* takes you back one step in the menu, the "C" button takes you back directly to the operating mode.

mA signal

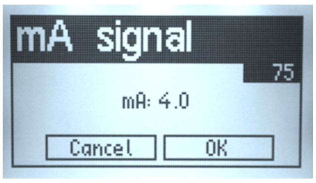


The output mA-signal from the meter is also possible to calibrate. It is already done before leaving the factory, but if you, for some reason to suspect that it is not correct, there is a possibility to adjust the mA-signal as follows;.
Disconnect the cables from the mA-output (3 and 4 on the terminal block)
Connect a calibrated mA-meter (multimeter) to terminal 3 and 4.



Scroll down to "*Calibrate*" and press the "*M*" button.

Scroll to "*mA signal*" and press the "*M*" button.



4 mA will be displayed and now you shall compare this value with your multimeter and if necessary you can adjust the signal from the flow meter 10 step up and down with the "-/+" buttons. Each step is 0.05 mA. Adjust as close as possible and confirm with the "*M*" button.

The program will jump automatically to 20 mA. Repeat the adjusting sequence as above and press the "*M*" button to confirm.

Reconnect the cables on terminal 3 and 4.

To leave this menu, scroll down to *"Return"* and press *"M"*, or hold *"C"* button during 2 sec. *"Return"* takes you back one step in the menu, the "C" button takes you back directly to the operating mode.

Please note that this manual is available as a PDF-file on our website www.eletta.com along with other information such as leaflets and application reports.

www.eletta.com

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