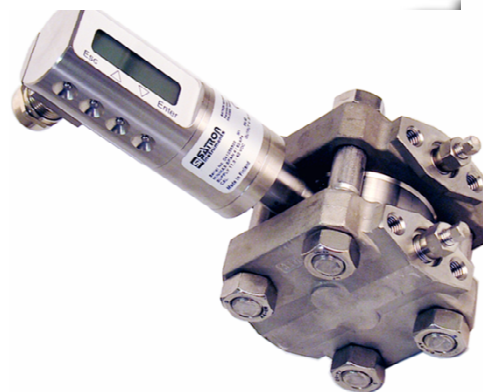
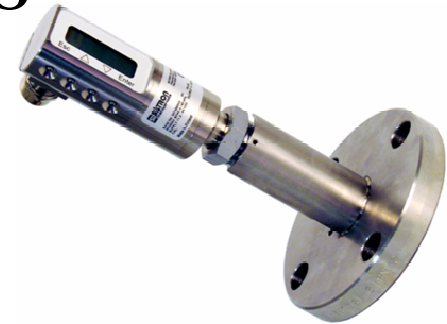
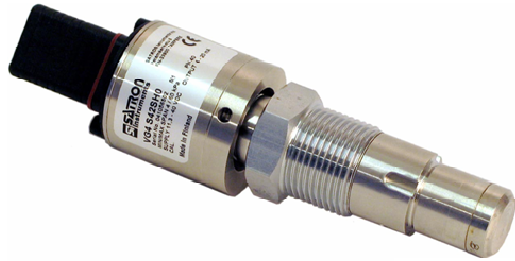


Satron instruments



SATRON V-SERIES



NEW SATRON VO-SERIES



SATRON VO-M

- optical turbidity
analyzer

Satron Instruments Inc.
is well-known for its
innovative measurements
in the process and
food industries all around
the world.

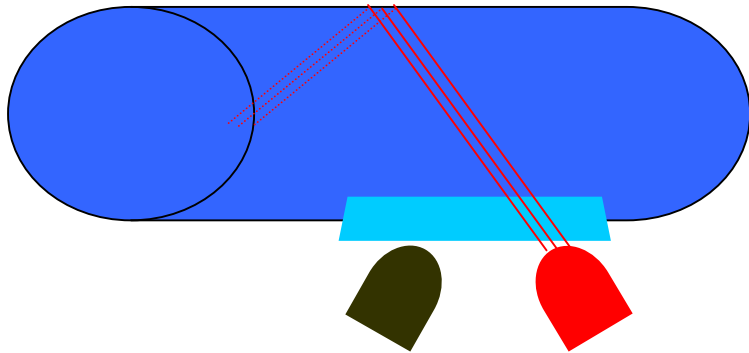
The new Satron VO-M turbidity analyzer
is suitable for many different liquid
measurements, the first applications
have been found in food industry.



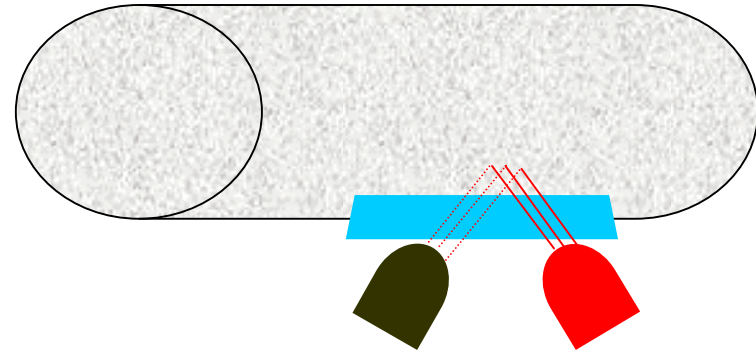
Satron VO-M
is based on the optical
measuring technology.



Vo working principle



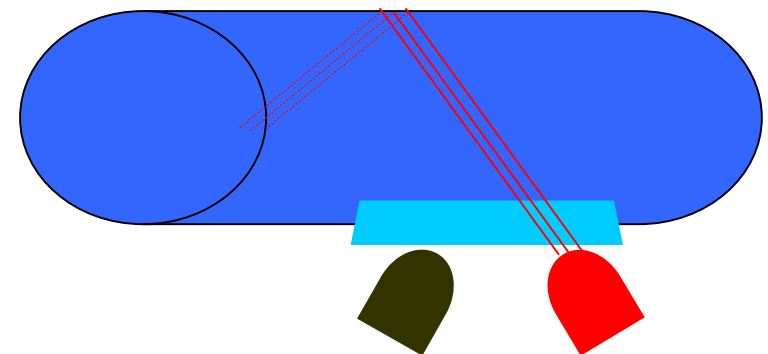
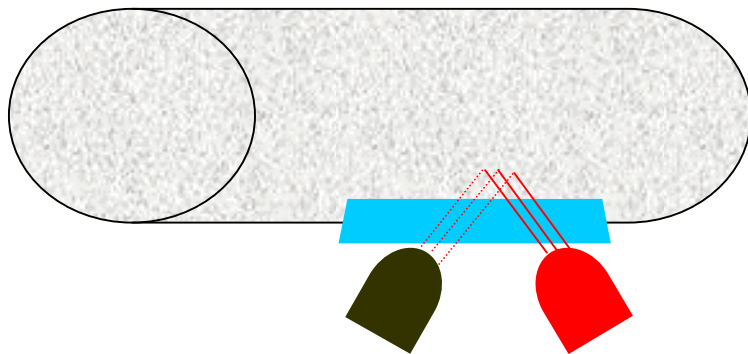
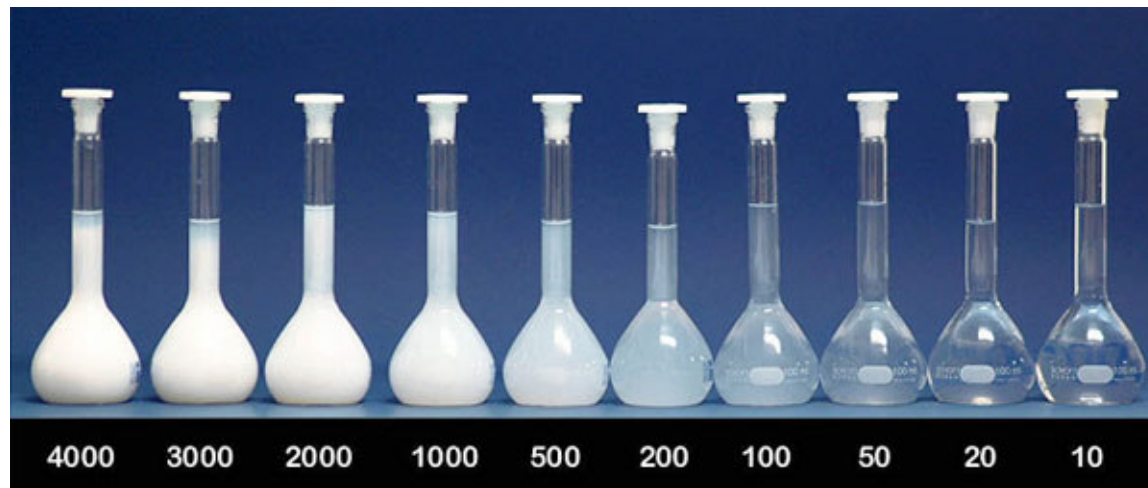
Water = 4 mA



Milk = 20 mA

What is FTU ?

- Formazine turbidity unit

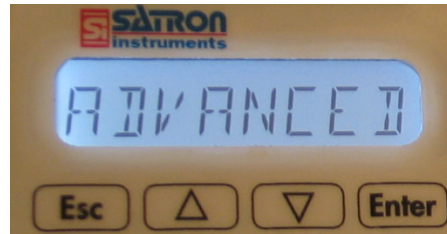


3 easy ways to operate the VO!

- 1 Using display with pushbuttons.
- 2 Using the Vo-advisor software on a pc or laptop with the Satron USB hart modem.
- 3 Using a hart handheld, in example the 375 hart communicator.



1 Operate the VO-M using the display



OPERATING KEYS:

With the **UP/DOWN** arrow keys and the **ENTER** and **ESC** you can move in the menus.

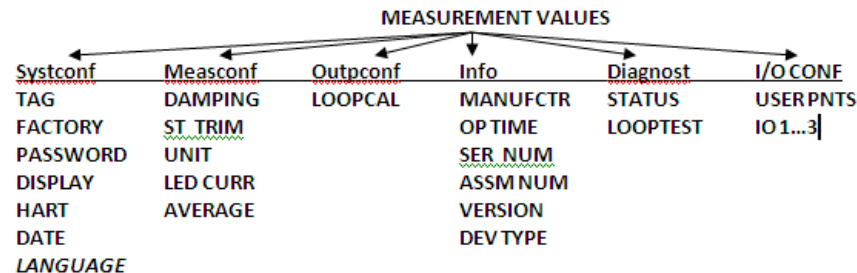
ENTER: Press ENTER to move to a lower level in a menu or to accept a command or parameter value.

UP: Use the UP arrow key to move up on the current menu level or to increase the selected parameter value.

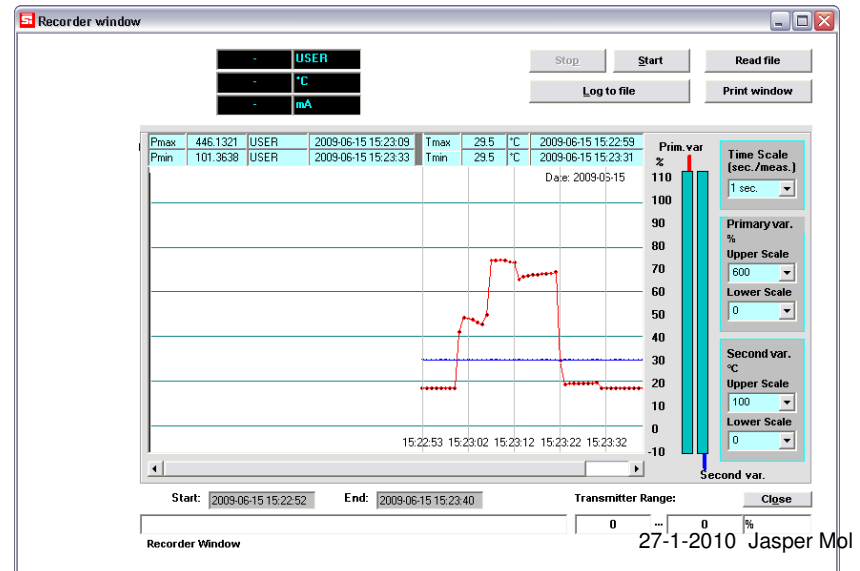
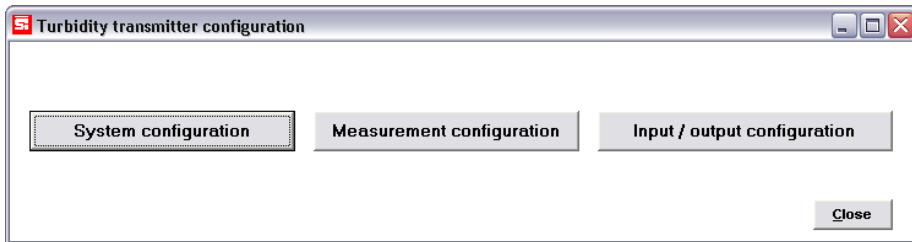
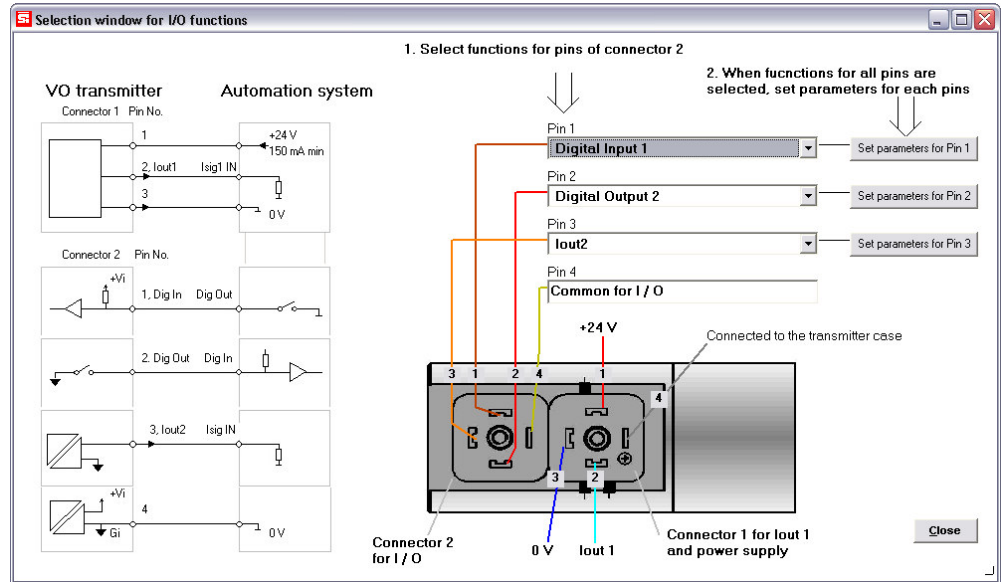
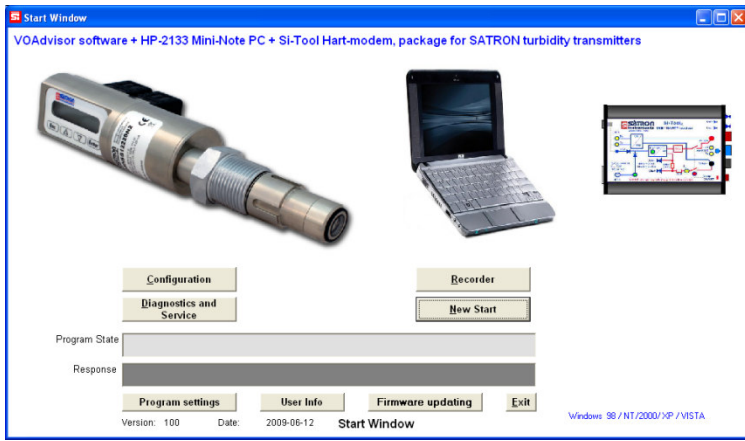
DOWN: Use the DOWN arrow key to move down on the current menu level or to decrease the selected parameter values

ESC: Press the ESC to move back towards the top of the main menu or cancel the current action.

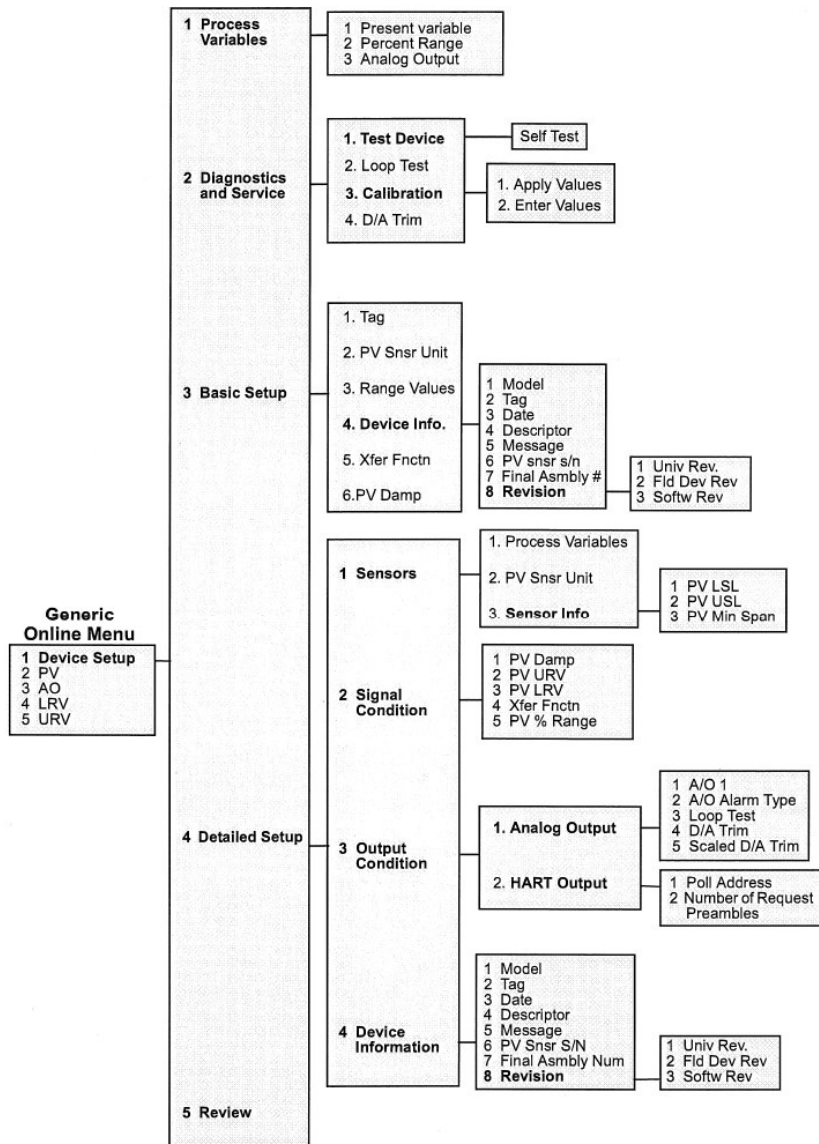
Under the main menu are 7 submenus: System configuration, Measurement configuration, Output configuration, Info, Diagnostics Input Output configuration and Advanced. To enter these submenus press **ESC**.



2 Operating the VO using VoAdvisor.



3 Operate VO with hart communicator



How to calibrate the VO-M ?

1 Using the units own display.

- Enter the User function and select how many calibration points you would like to insert. This is called POINT.CNT. 1...16 points.
- Example 2 point calibration.
Point 1 = 4mA
Point 2 = 20mA
- With the easy online sampling mode the sensor will measure and store the data values corresponding to the 4 mA and 20 mA.

How to calibrate the VO-M ?

2 Using the Vo-Advisor software.

Calibration
_ □ ×

Upload values from transmitter

Range settings: Set range with 2.. 16 samples

Unit selection: %

Sample points count: 2

Transfer function: Linear

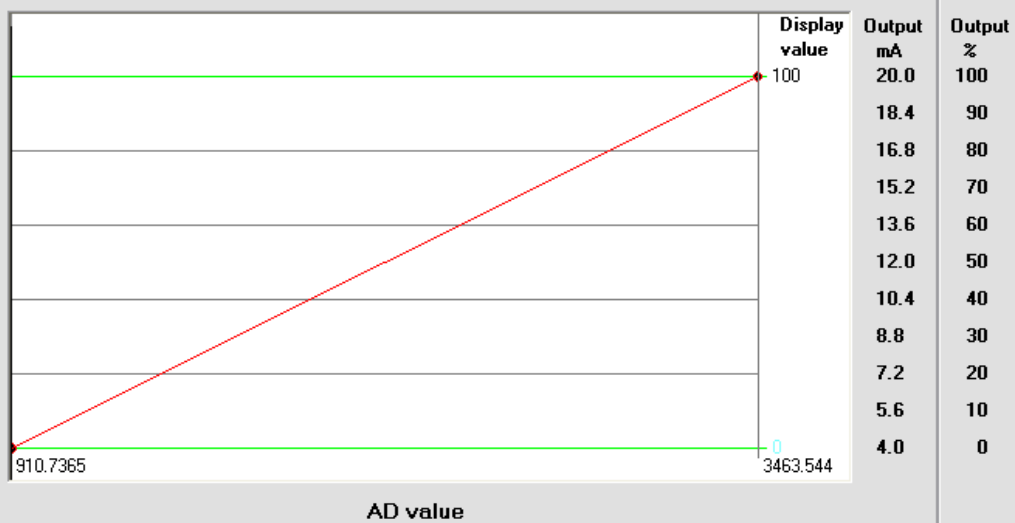
Measure	AD value	Display value	Output
	AD-unit	%	mA
Meas.1	910.7365	0	4
Meas.2	3463.544	100	20

Apply

Download values to transmitter

Calibration with 2... 16 points

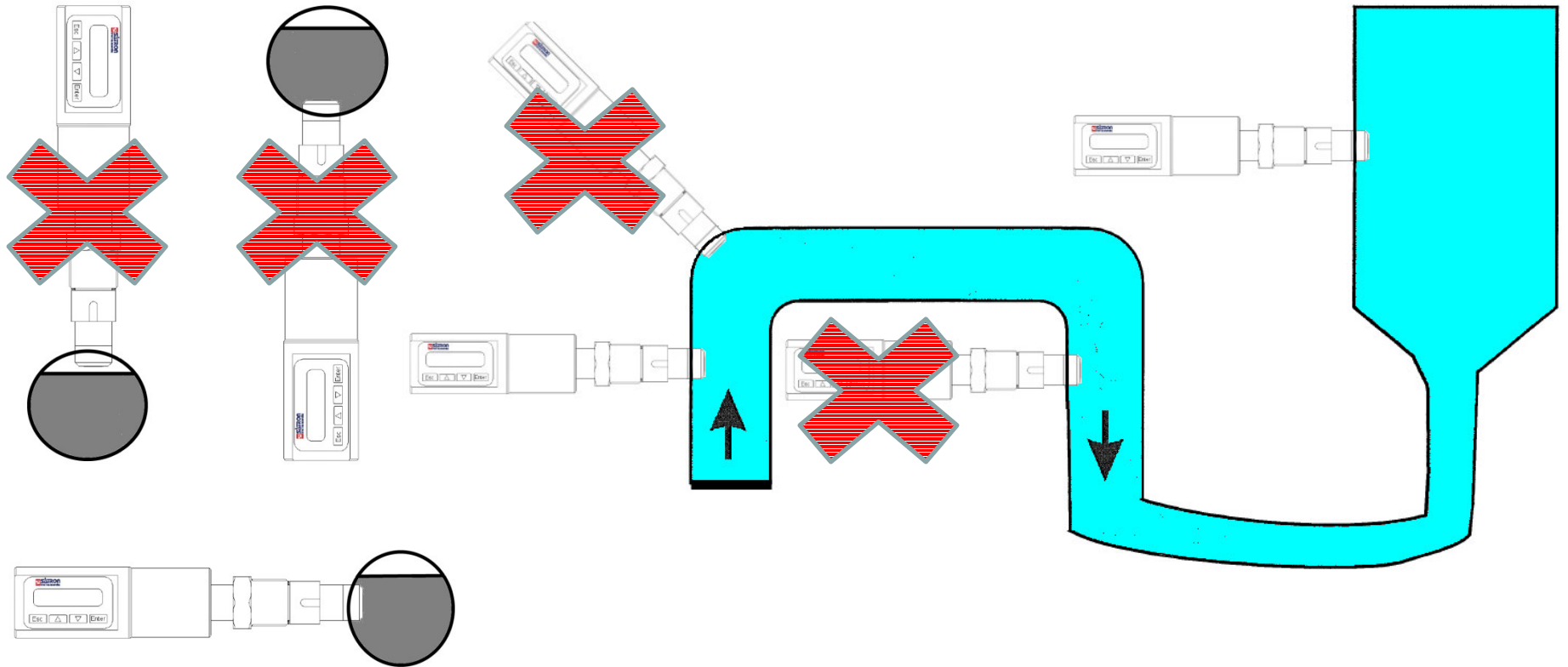
1. Select used sample points count, 2... 16 (first point = 4 mA, last point = 20 mA).
2. Put sensor into the knowing sample fluid, give sample value to the 'Display value' column in the first row.
3. Click 'Meas.1' -button. When reading is accepted, stop measurement by clicking 'Meas1' button again.
4. Make same actions with all follow samples/rows.
5. When all measurements are done and all sample values are given to the table, click 'Apply'- buttons.
6. Click finally 'Download values to transmitter'- button.



Display value	Output mA	Output %
100	20.0	100
18.4	18.4	90
16.8	16.8	80
15.2	15.2	70
13.6	13.6	60
12.0	12.0	50
10.4	10.4	40
8.8	8.8	30
7.2	7.2	20
5.6	5.6	10
4.0	4.0	0

Close

Installation.



For best results, mount the sensor horizontal in an upwards flow.

Hygienic coupling

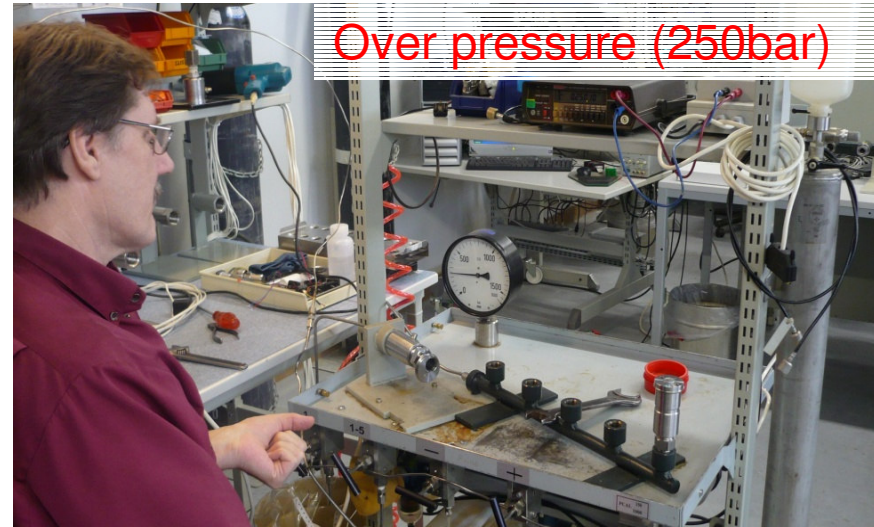


Satron quality

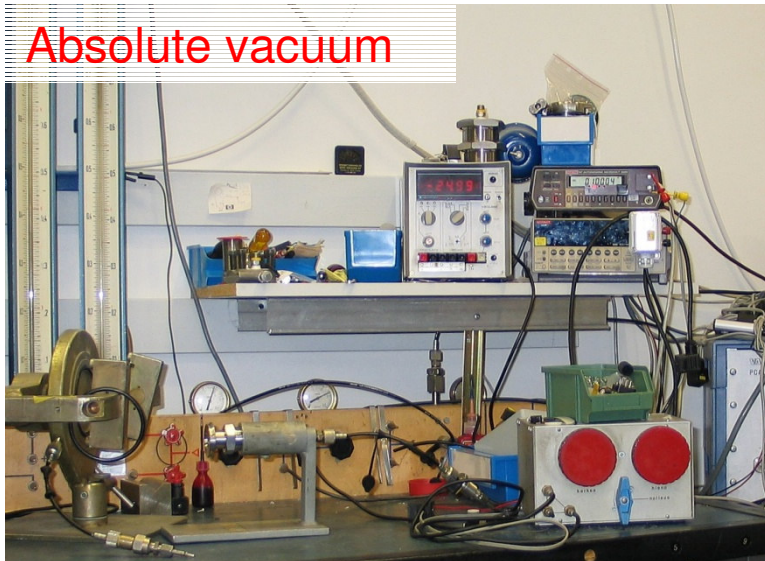
Vibrations



Over pressure (250bar)



Absolute vacuum



Helium test



VO features

- Stainless Steel is standard
- Compact size
- Hart protocol
- Backlight LCD display
- 4 pushbuttons to control all settings
- 2 mA loops
- Galvanic isolated relays and mA loop # 2
- Free configurable binary in and outputs (3 in, 3 out. Combinations limited)
- USB port
- Fast and accurate sampling rate,
- 2 temperature measurements
- Electronics are temperature compensated
- Save calibrations to/from pc
- Download new firmware from internet
- Memory chip
- 4 calibrations can be stored and recalled with the binary inputs
- EHEDG certified

Thank you,

