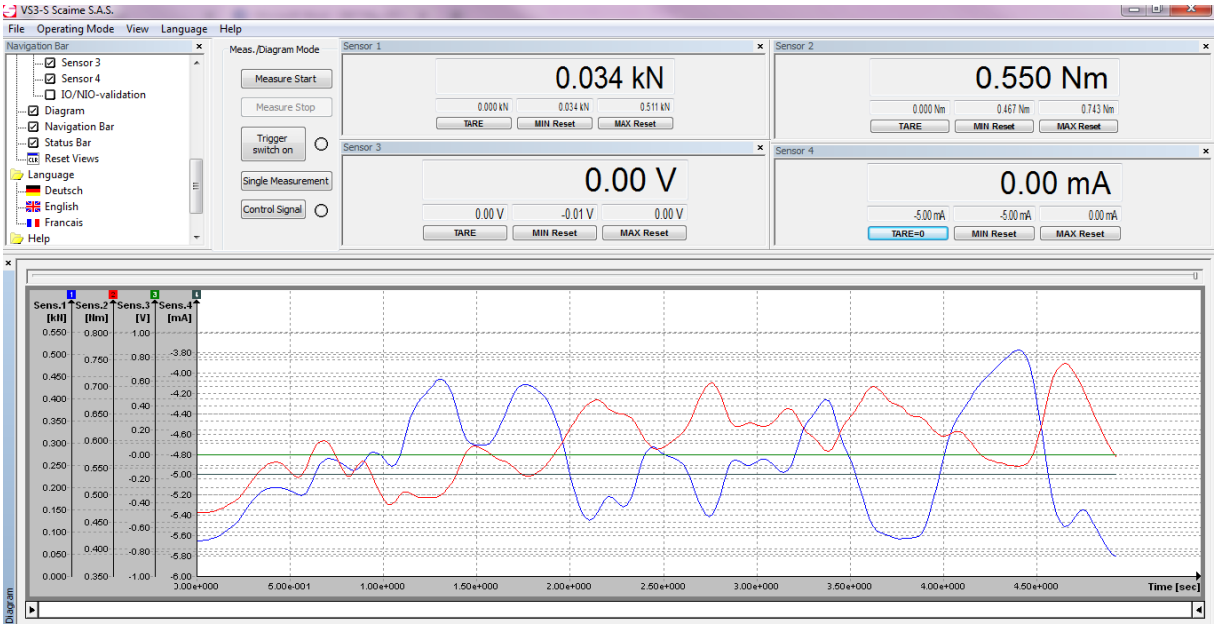
User manual

Data acquisition module SI-USB3



NU-Logiciel SI-USB3-E-0219

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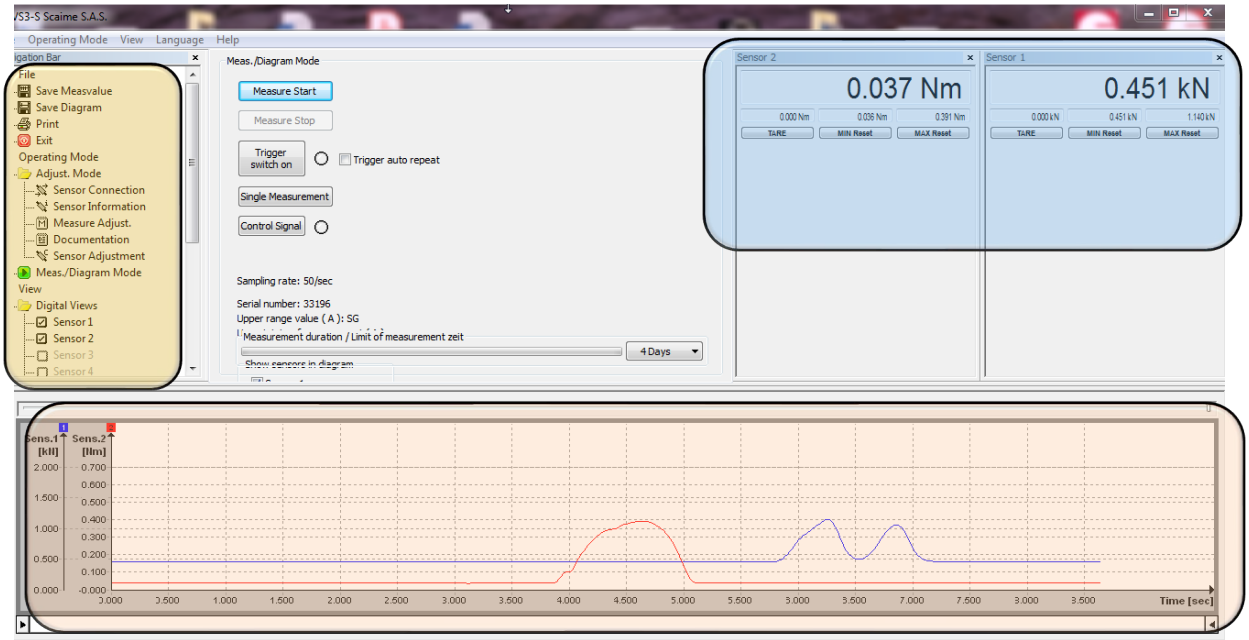
1. Index

2. Introduction

This software allows to visualize in numerical and/or graphic form and to save the values coming from the sensors.
The connection to the PC is made directly through the USB connection, do not forget to upload the driver.
When the software is launched, it automatically scans the different ports to find the SI-USB3 unit's connected.



On the screen, the software is presented in 3 parts:
The left part allowing the parameter setting, the right part, the numerical display of the values (current, min, max values), the tare value (display reset) and the lower part for the display in the form of curves of the values coming from the connected sensors.

3. Menu

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  - Exit
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4. Save Measvalue

Allows to store on the PC the values coming from the sensors in cvs format (possibility that this can be done automatically at the end of the cycle).

5. Save Diagram

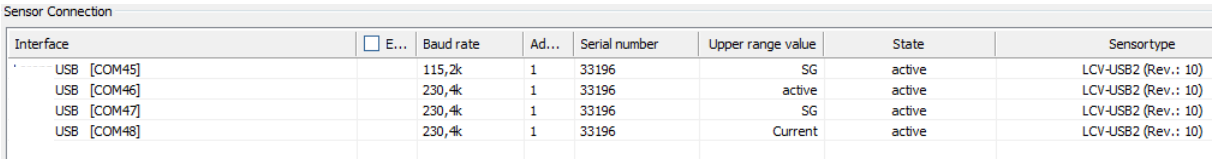
Allows to save the diagram/graph in .bmp format

6. Print

Allows to print the diagram

7. Sensor connection

Allows you to view the communication port and various information…

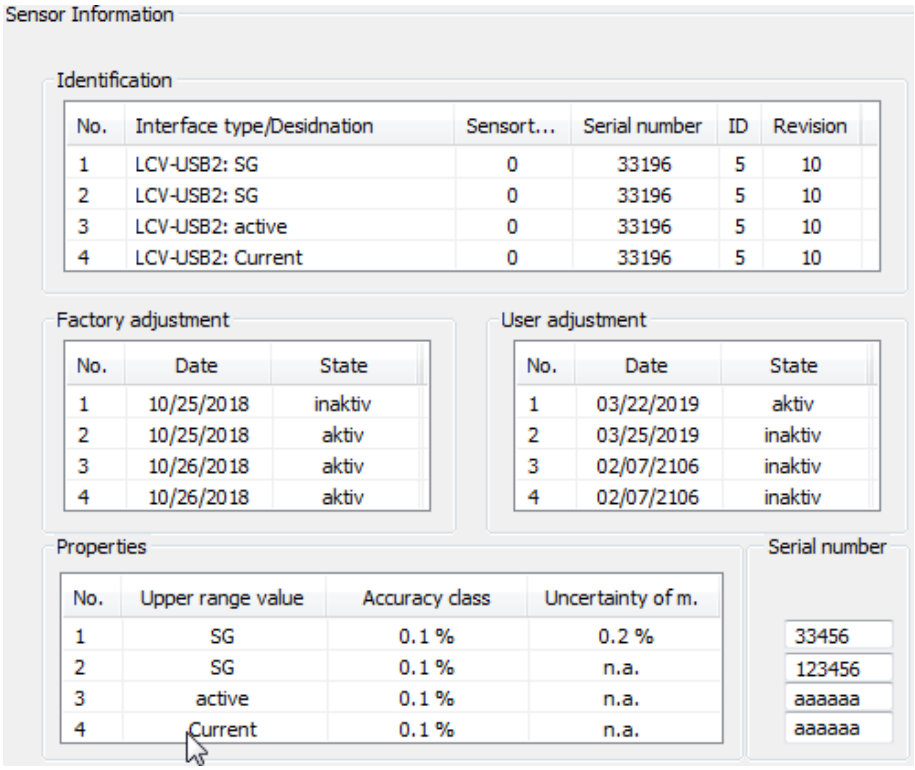

Sensor Connection

Interface	E...	Baud rate	Ad...	Serial number	Upper range value	State	Sensortype
USB [COM45]		115,2k	1	33196	SG	active	LCV-USB2 (Rev.: 10)
USB [COM46]		230,4k	1	33196	active	active	LCV-USB2 (Rev.: 10)
USB [COM47]		230,4k	1	33196	SG	active	LCV-USB2 (Rev.: 10)
USB [COM48]		230,4k	1	33196	Current	active	LCV-USB2 (Rev.: 10)

Upper range value: SG = strain gages sensor, active : tension input, Current : 4/20mA input, (-200°C; 860°C) PT100 sensor …

8. Sensor Information

Allows you to view the different cards mounted inside the unit.


Sensor Information

Identification

No.	Interface type/Desidnation	Sensort...	Serial number	ID	Revision
1	LCV-USB2: SG	0	33196	5	10
2	LCV-USB2: SG	0	33196	5	10
3	LCV-USB2: active	0	33196	5	10
4	LCV-USB2: Current	0	33196	5	10

Factory adjustment

No.	Date	State
1	10/25/2018	inaktiv
2	10/25/2018	aktiv
3	10/26/2018	aktiv
4	10/26/2018	aktiv

User adjustment

No.	Date	State
1	03/22/2019	aktiv
2	03/25/2019	inaktiv
3	02/07/2106	inaktiv
4	02/07/2106	inaktiv

Properties

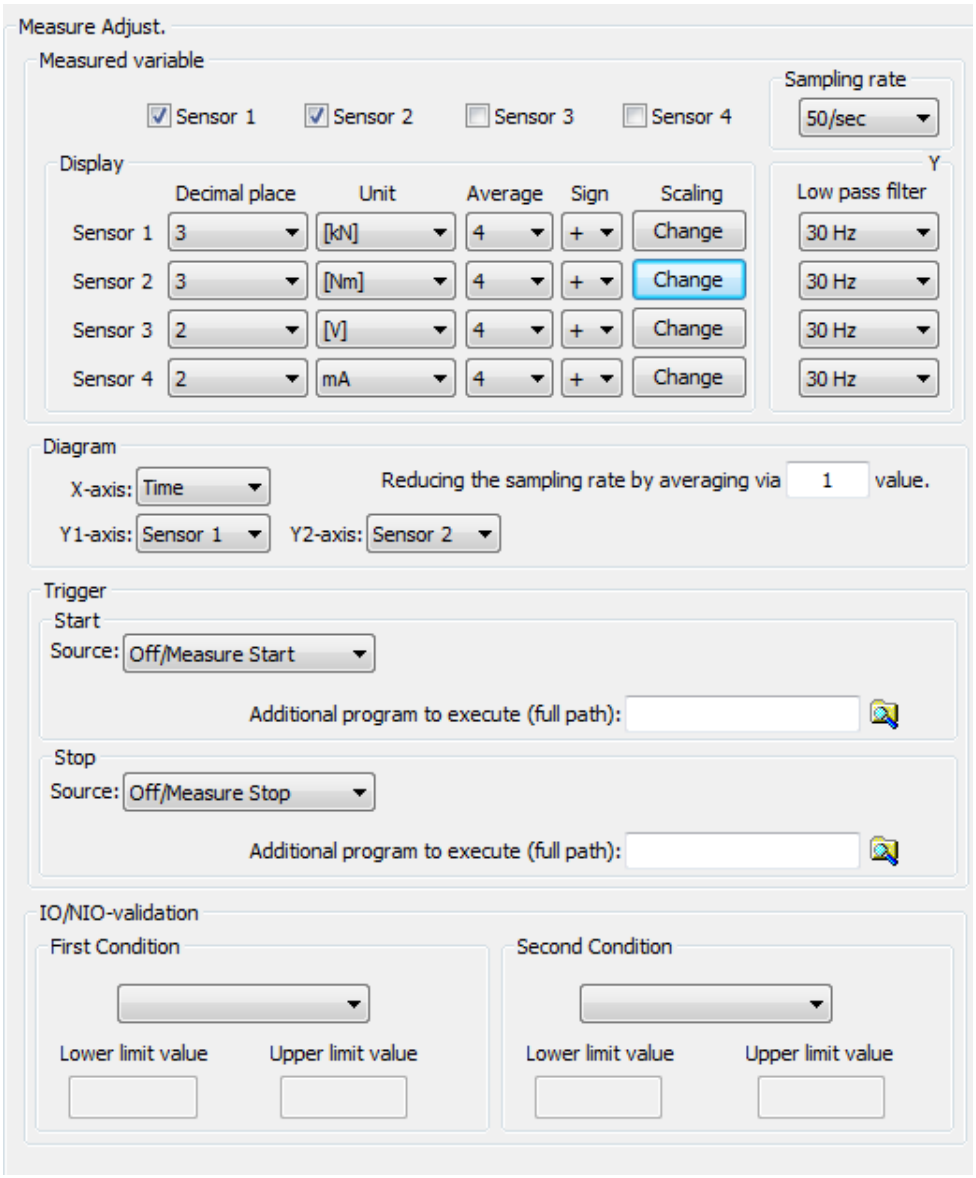
No.	Upper range value	Accuracy class	Uncertainty of m.
1	SG	0.1 %	0.2 %
2	SG	0.1 %	n.a.
3	active	0.1 %	n.a.
4	Current	0.1 %	n.a.

Serial number

33456
123456
aaaaaa
aaaaaa

9. Measure Adjust.

Allows the scaling of data, to define the number of functional channels, the measurement speed (sampling rate), the start condition (trigger), stop condition and evaluation (for control at the end of cycle).



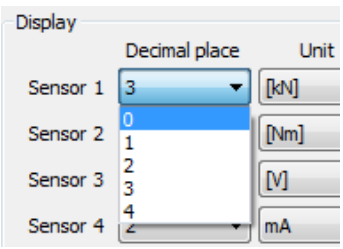
Measured variable

- Sensor x : select the channels will be displayed
- Sampling rate : Speed of measurements/records per second

Display

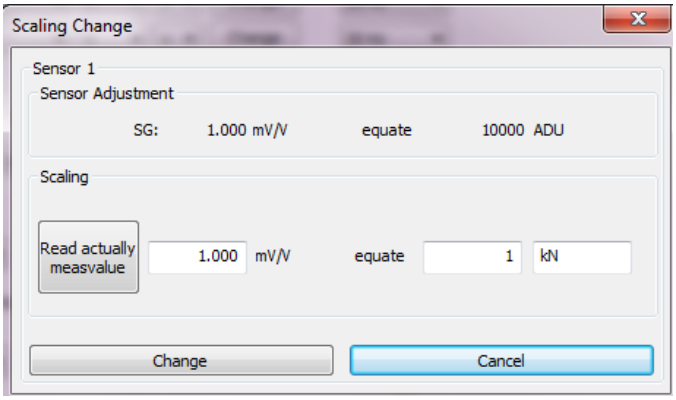
Scaling of each channel

- Decimal place



Define the resolution or number of digits behind the decimal point (from 0 to 4)

- Unit: unit displayed, click on Change to modify
- Average: corresponds to the number of values for the moving average (from 1 to 512) which allows to filter the displayed/stored values
- Sign: + or – reverse the measurement sign
- Scaling:



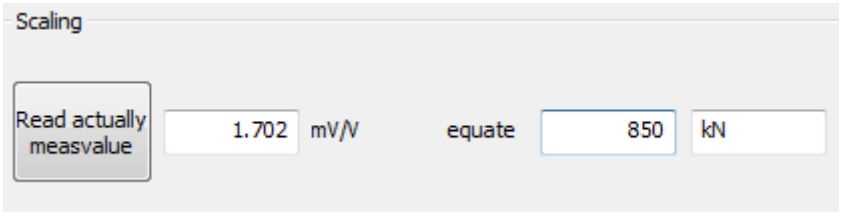
Possibility to set or modify unit (maximum 5 alphanumeric characters) example kN

- Either the theoretical value and the corresponding value are set (ex : M12-1000kN -> 2.002mV/V correspond to 1000 kN)

The sensitivity of the sensor is entered in the mV/V window and the corresponding value is entered in the "equate" window. Confirm with Change.

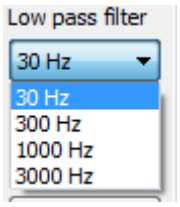
- Either a known load is applied, click on "Read actually measvalue" and note the value of this load in "equate". Confirm with Change.

If the sensor does not deliver 0mV/V without load. Sensor without load, click on "Read actually measvalue" and note the value (ex: 0.156). The known load is applied to the sensor (e. g. 850kN) and click on "Read actually measvalue" and the new value is displayed (e. g. 1,858). This means that for a load of 850 kN, the sensor signal varied from 1.858 - 0.156 = 1.702 mV/V. It will therefore be necessary to put 1.702 equate to 850 kN.



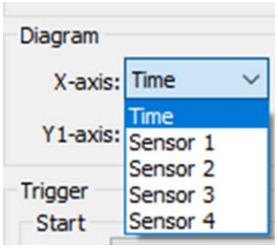
Confirm with Change.

- Low pass filter: filter 2° order for filtering the signal to obtain a better stability.



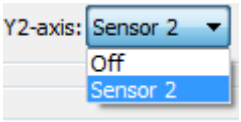
Diagram

Select the channels to be displayed on the diagram (curves):



X – Axis: set Time, X (horizontal) axis will be the time.

Axis Y (vertical, similar for each channel)

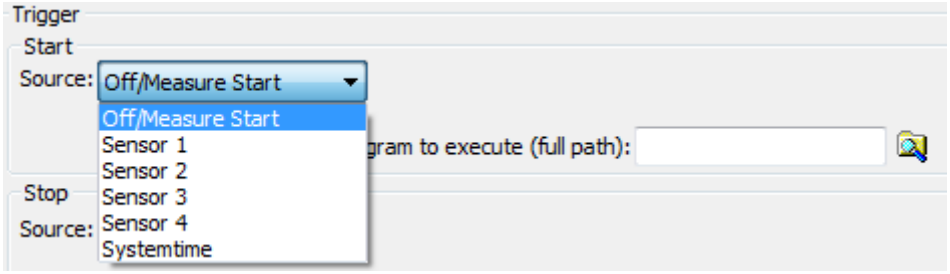


Off: this channel will not be displayed, Sensor X: this channel can be displayed

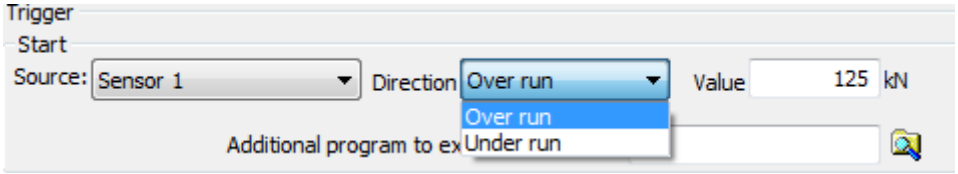
Trigger

Condition to start the measure

<u>Start</u>

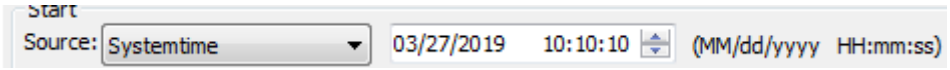


- Off/Measure start : Start and stop the measure manually, click on "Measure Start"
- Sensor X : set the sensor which the start condition will applied

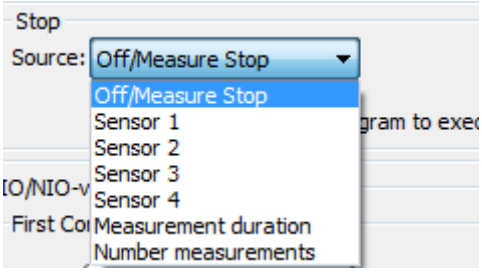


Over run: as soon as the value is higher than the value defined in "value", the measurement will start.
Under run: as soon as the value is lower than the value defined in "value", the measurement will start.

- Systemtime : Start at a date, time set

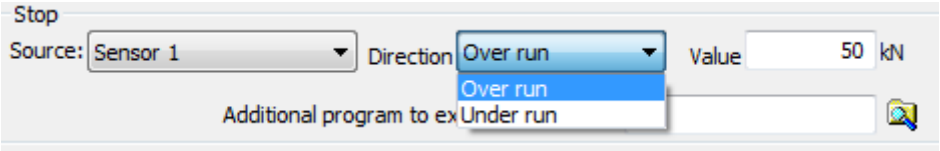


<u>Stop</u>



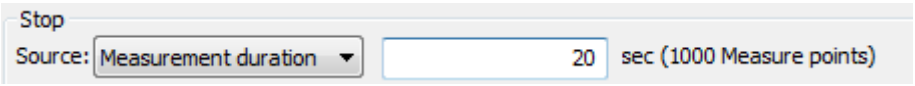
Off / Measure stop: stop the measure manually, click on "Measure Stop"

Sensor x : set the sensor which the stop condition will applied

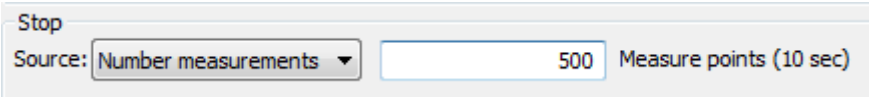


Over run: as soon as the value is higher than the value defined in "value", the measurement will be stopped.
Under run: as soon as the value is lower than the value defined in "value", the measurement will be stopped.

Measurement duration: set a measurement time in second before the measurements will be stopped

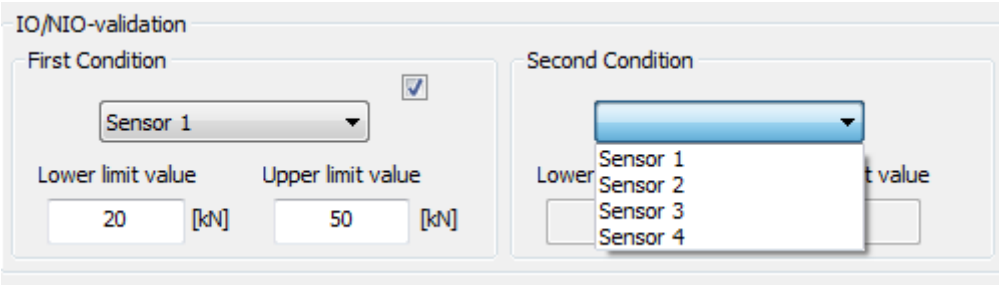


Number measurements: set the number of values before the measurements will be stopped



IO/NIO-validation

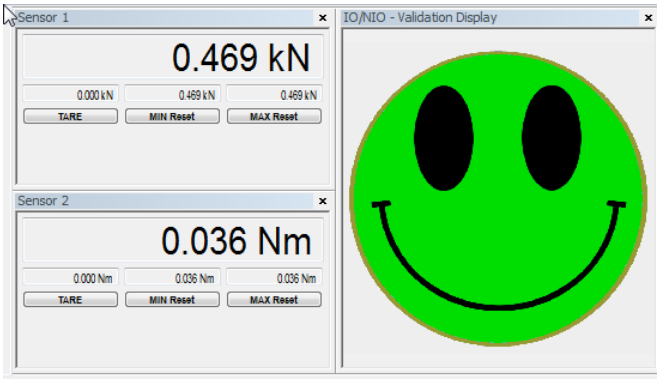
Possibility to make a control during the measurement with 1 or 2 conditions



Sensor x: set the sensor for the control

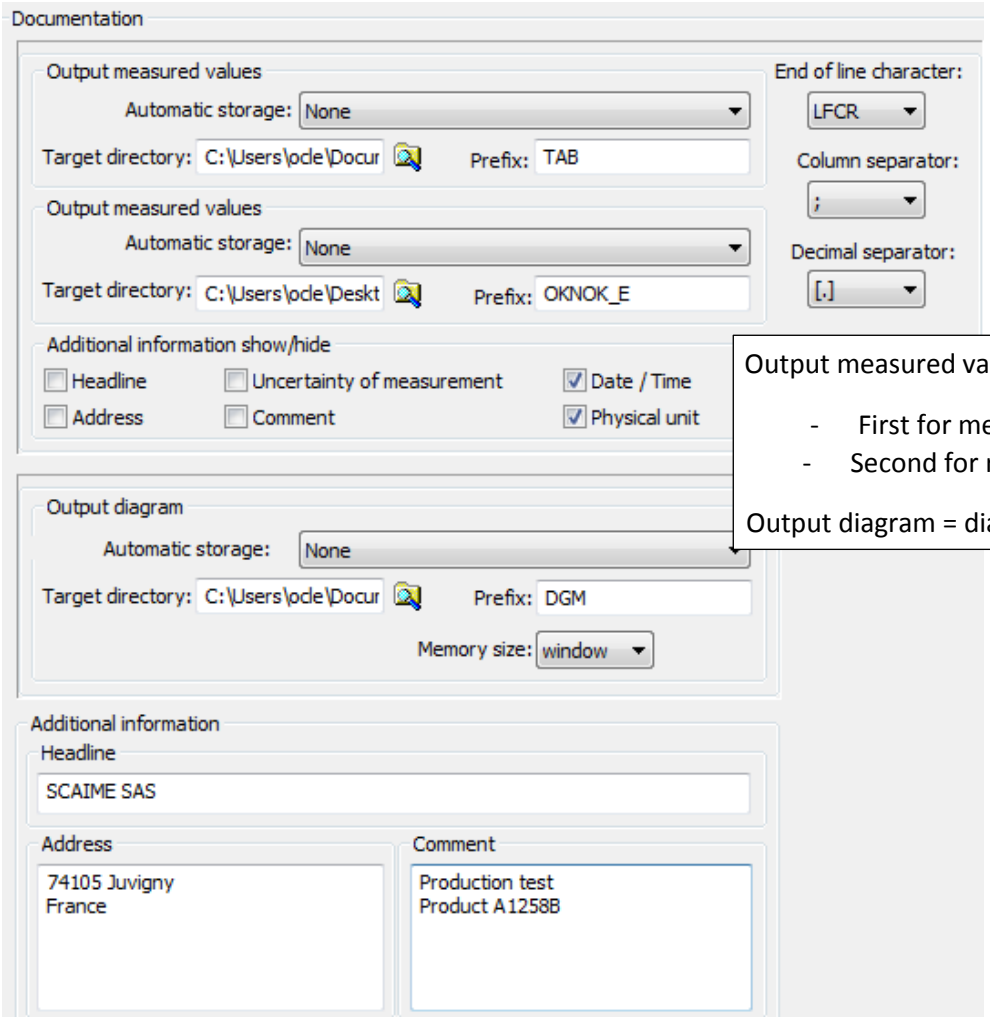
The control will be compliant if the maximum value is between the lower and upper limit value:

At the end of the cycle, a green or red "smylet" will easily identify whether the control was compliant or not.



Documentation (PC storage measurement)

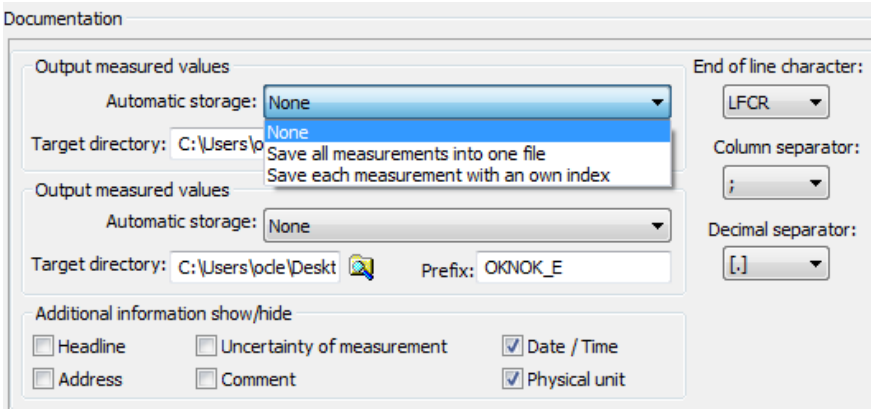
Allows you to configure the different parameters for saving data in the PC.



Output measured values = file .csv

- First for measurements
- Second for result IO/NIO

Output diagram = diagram picture



None: Values are not automatically recorded, it will have to be done manually by "Save Measvalue".

Save all measurements into one file: if several measurements are performed (with a stop and a start between each measurement), only one csv file will be created automatically.

Save each measurements with their own index: if several measurements are performed (with a stop and a start between each measurement), a csv file will be created per measurement.

Column separator: character that will separate the columns (TAB or ; or , or . or "space")

Decimal separator: character defining the decimal point (. or ,)

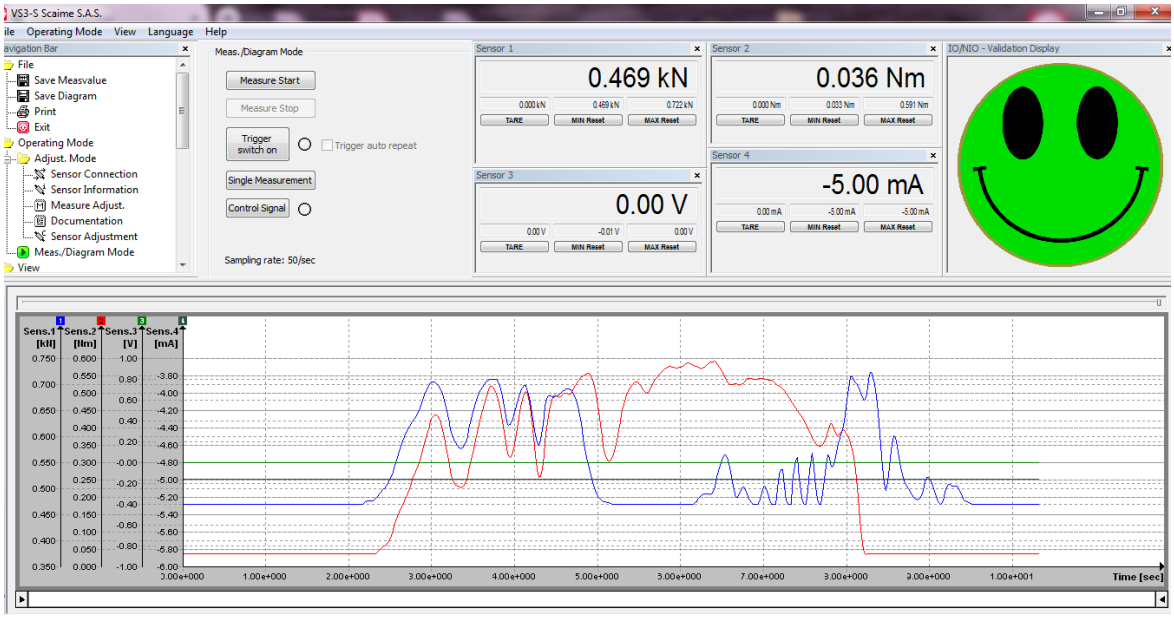
End of line character: character of end line (LFCR or CR or LF)

10. Sensor adjustment

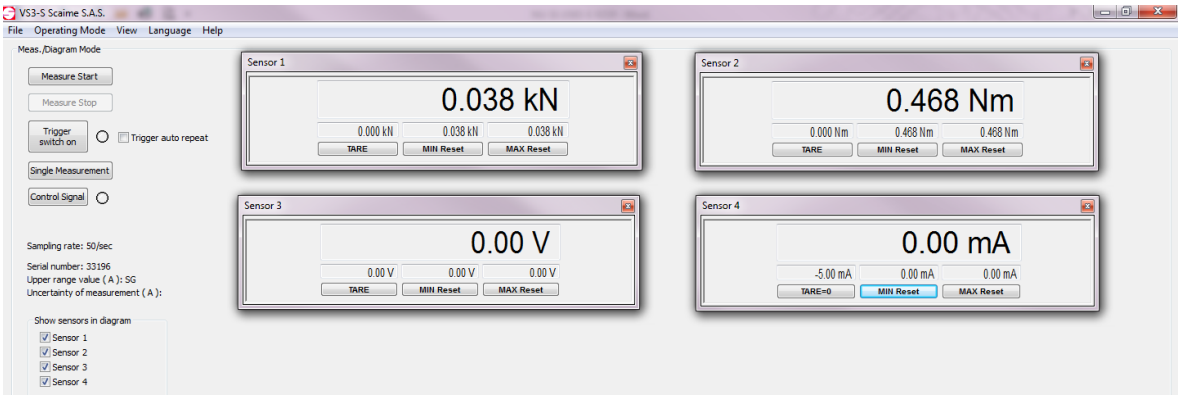
Reserved for factory

11. Measurement mode: displays possible

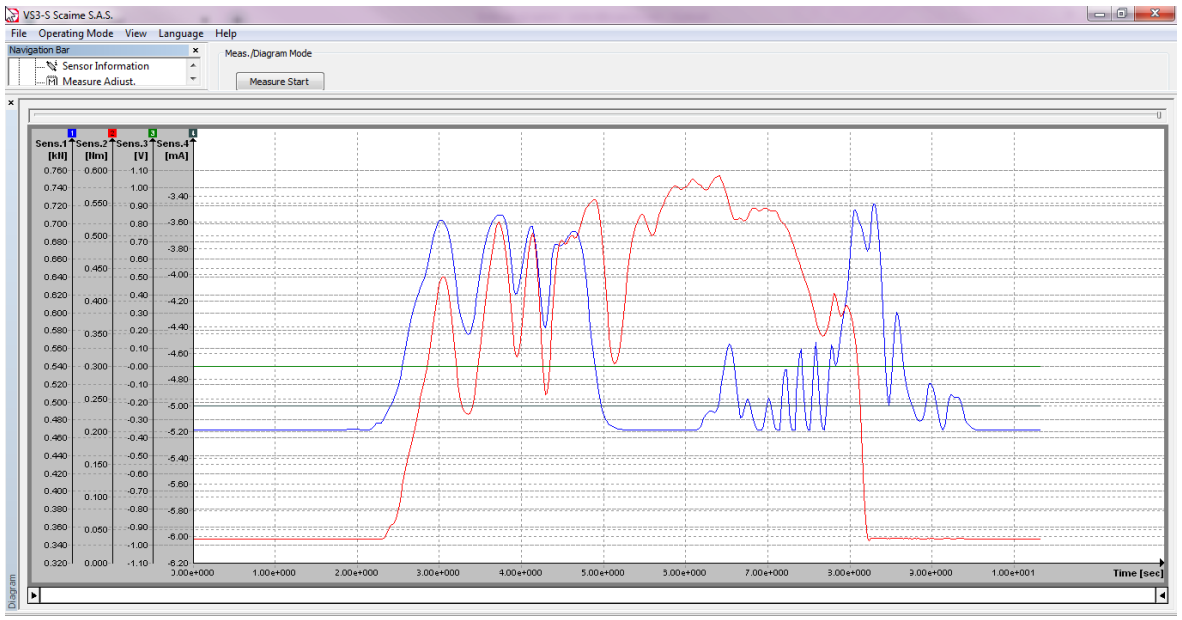
11.1 Display: numerical values, diagram and validation result



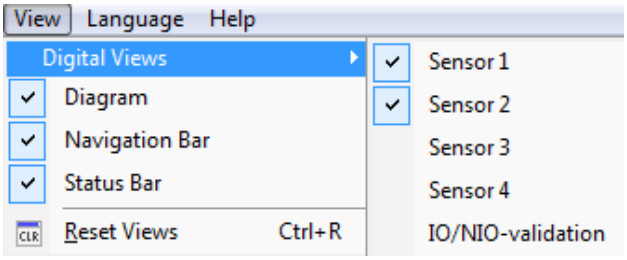
11.2 Display: only numerical values displayed (digital display)

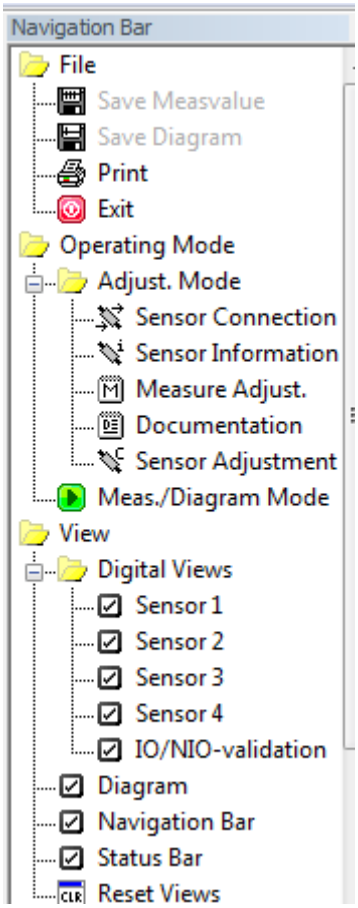


11.3 Display: only diagram displayed



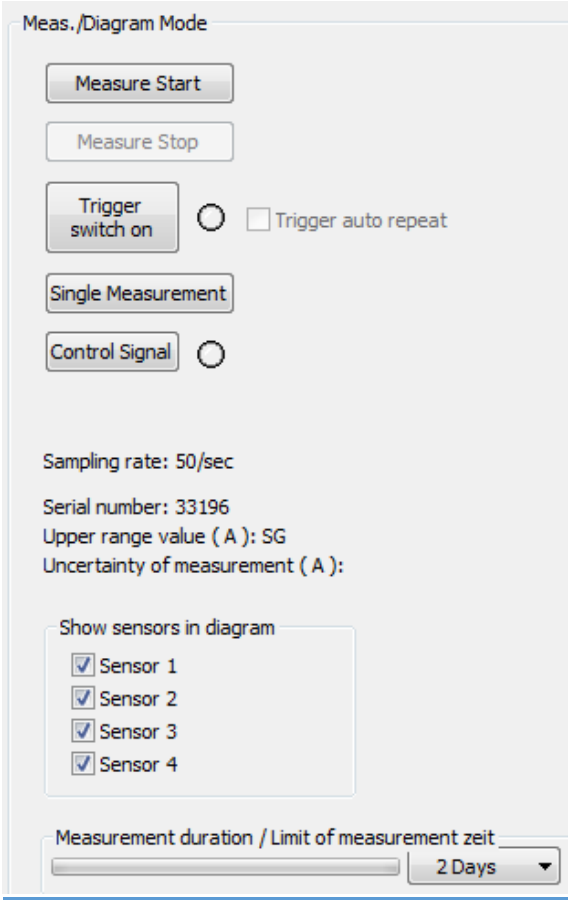
The choice can be done via "View" or via Navigation Bar





12. Meas./Diagram mode

Start / stop measurement

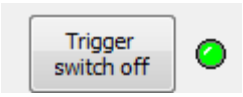


Measure Start: start the measurement

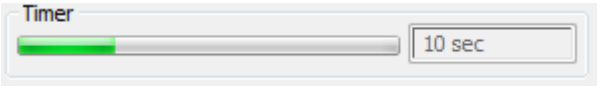
Measure Stop: stop the measurement

Trigger switch on: if a start by a trigger condition has been set

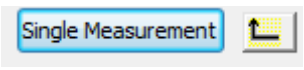
Click on this button, the light turns flashing yellow, when the start condition is reached, the light turns green indicating that the measurement is running.



If a trigger stop has been programmed, the progress of the recording is visible on the line below

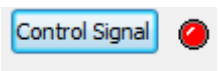


Single Measurement: one click -> a single measure

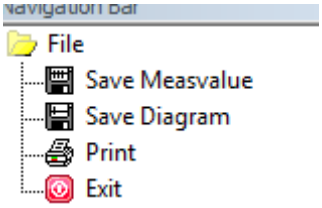


Click on the arrow to revalidate the "Measure Start" button.

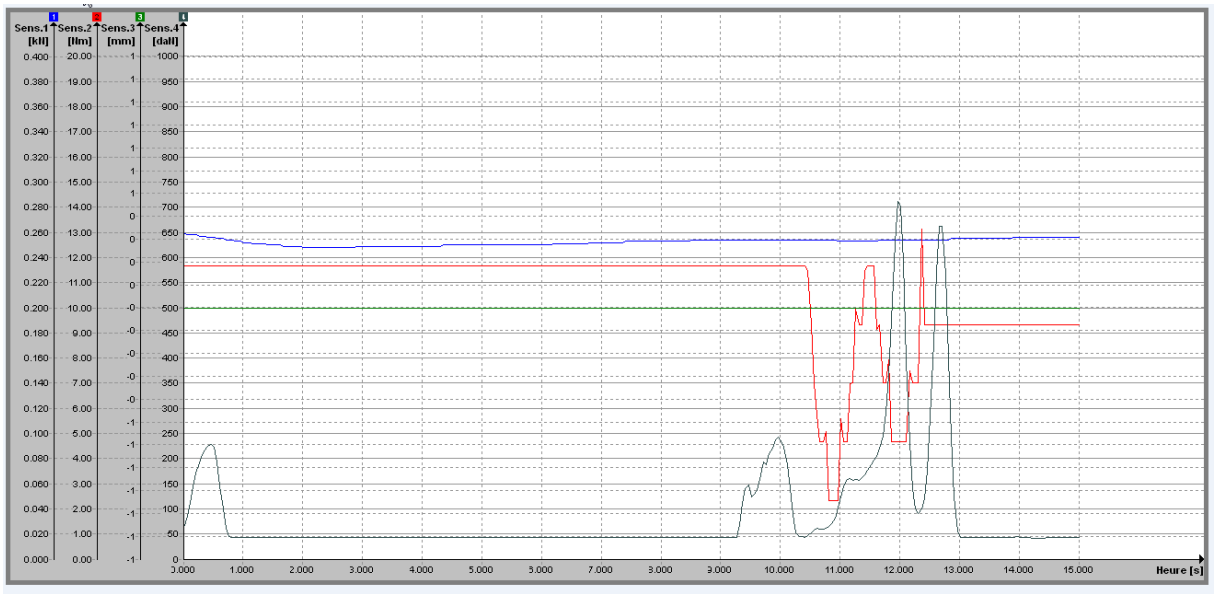
Control Signal: if the sensor is equipped with Cal Control signal, this function will be activated, the LED turns red and the display shows the value of this function (in general full scale). Click again to stop this function, LED switch off.



13. Save Diagram:



Save the picture of the diagram (format .bmp)



14. Save Measvalue

If automatic recording has not been programmed, it is possible to record all measurements (.cvs format).

15. Print

Printing the diagram

16. Accessory , wall bracket or foot (option)

Housing disassembly:

Take off the 4 blinders and unscrew the 4 screws "torx T10"

Wall bracket: remove the 2 blue covers on the sides and insert the 2 wall brackets.

Foot: Remove only one blue cover to insert the foot.

Insert the accessory.

Put the face back in place, taking care to replace the seal, the 4 screws and the covers.

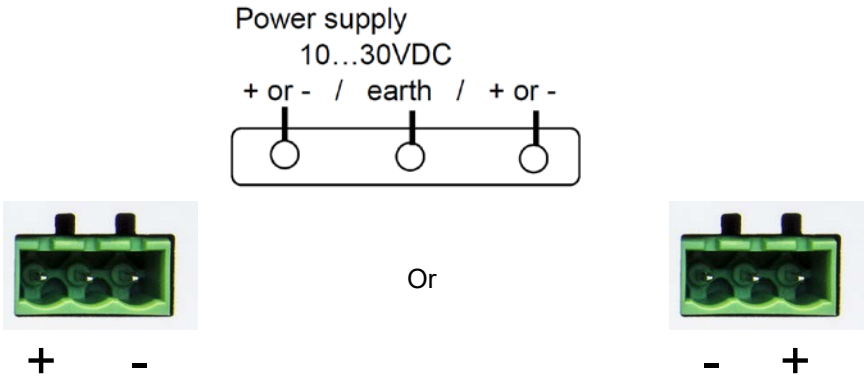
17. Electrical connection

Power supply 10…30VDC (I < 900mA)

Use the main power supply adaptor provided or connect a power supply on the connector 3 pins.

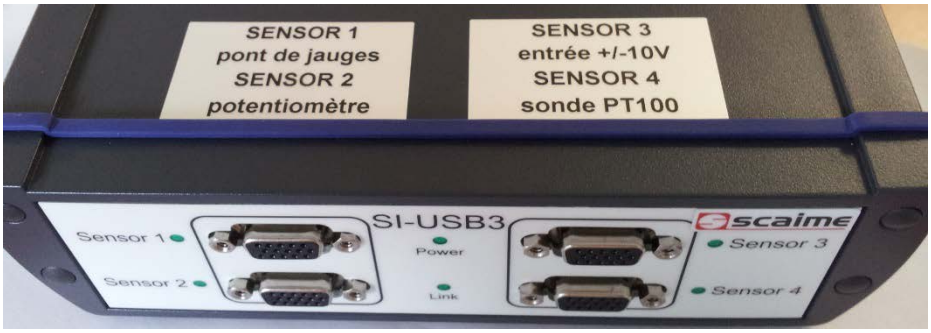
Connector 3 pins:

Earth to be connected to the center, no polarity, + and - can be connected independently on the 2 external terminals.



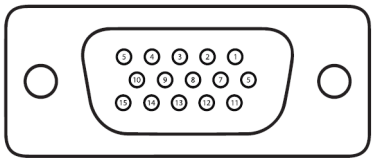
Sensors

Make sure to connect the sensor correctly to the card and the settings made.



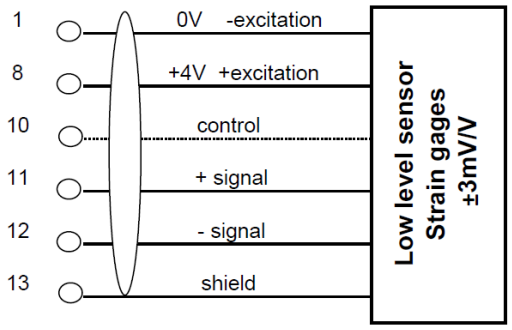
Connector SUB-D 15 pins

CONNECTEUR SUB-D 15 POUR CHAQUE CARTE	*SUB-D15 CONNECTOR FOR EACH CARD*	BORNE - *PIN*
- alimentation / commun (0 V)	*- excitation / commun (0 V)*	1
+ alimentation (12 V)	*+ excitation (12 V)*	2
NC	*NC*	3
Signal A	*Signal A* 5V TTL	4
Signal B	*Signal B* 5V TTL	5
0 V	*0 V*	6
NC	*NC*	7
+ alimentation capteur à jauges (4 V)	*+ excitation strain gages sensor (4 V)*	8
NC	*NC*	9
control signal	*control signal*	10
+ signal	*+ signal*	11
-signal / (commun 0 V sauf pour PDJ)	*-signal / (commun 0 V except SG)*	12
blindage	*shield*	13
NC	*NC*	14
+5 V référence	*+ 5 V reference*	15

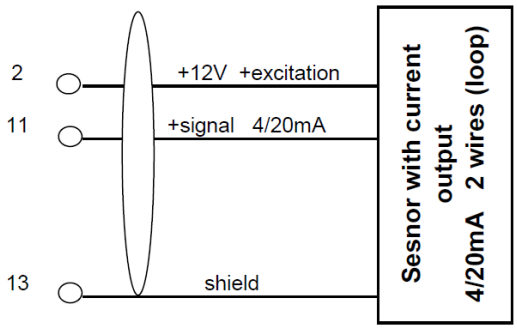


Connection

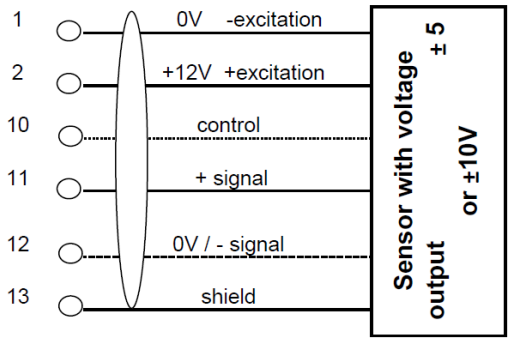
Be sure to follow the wiring plan carefully
sensor/signal connected to SUB-D 15 connector



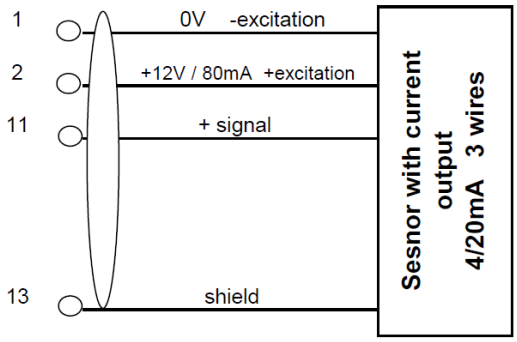
Sensor without electronic, signal in mV/V
Nota: control is connected only if the sensor is equipped with this function



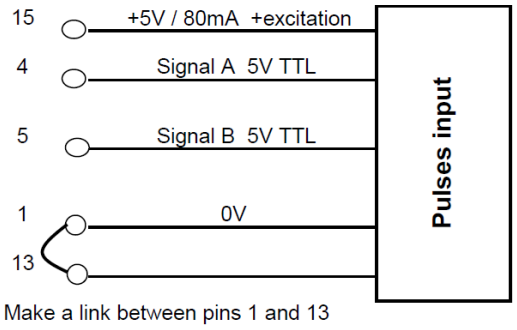
Sensor with signal mA output



Sensor with signal Voutput
Nota: control is connected only if the sensor is equipped with this function

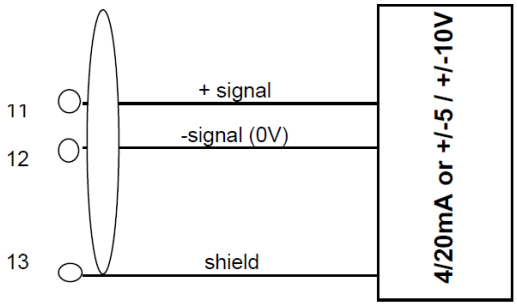


Sensor with signal mA output

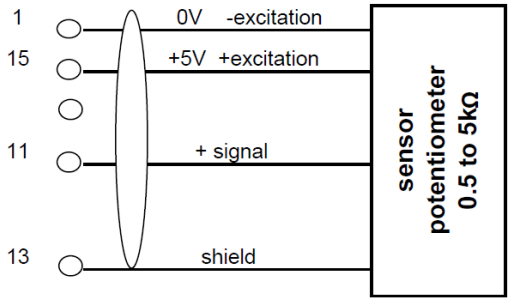


Make a link between pins 1 and 13

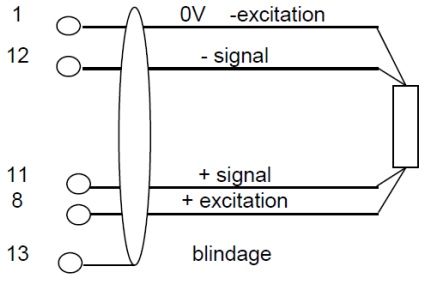
Pulses TTL input



Signal 4/20 mA or tension



potentiometer



PT100 probe

For PT100 probe: connect the wires as close as possible to the PT100 probe wires + and - signal