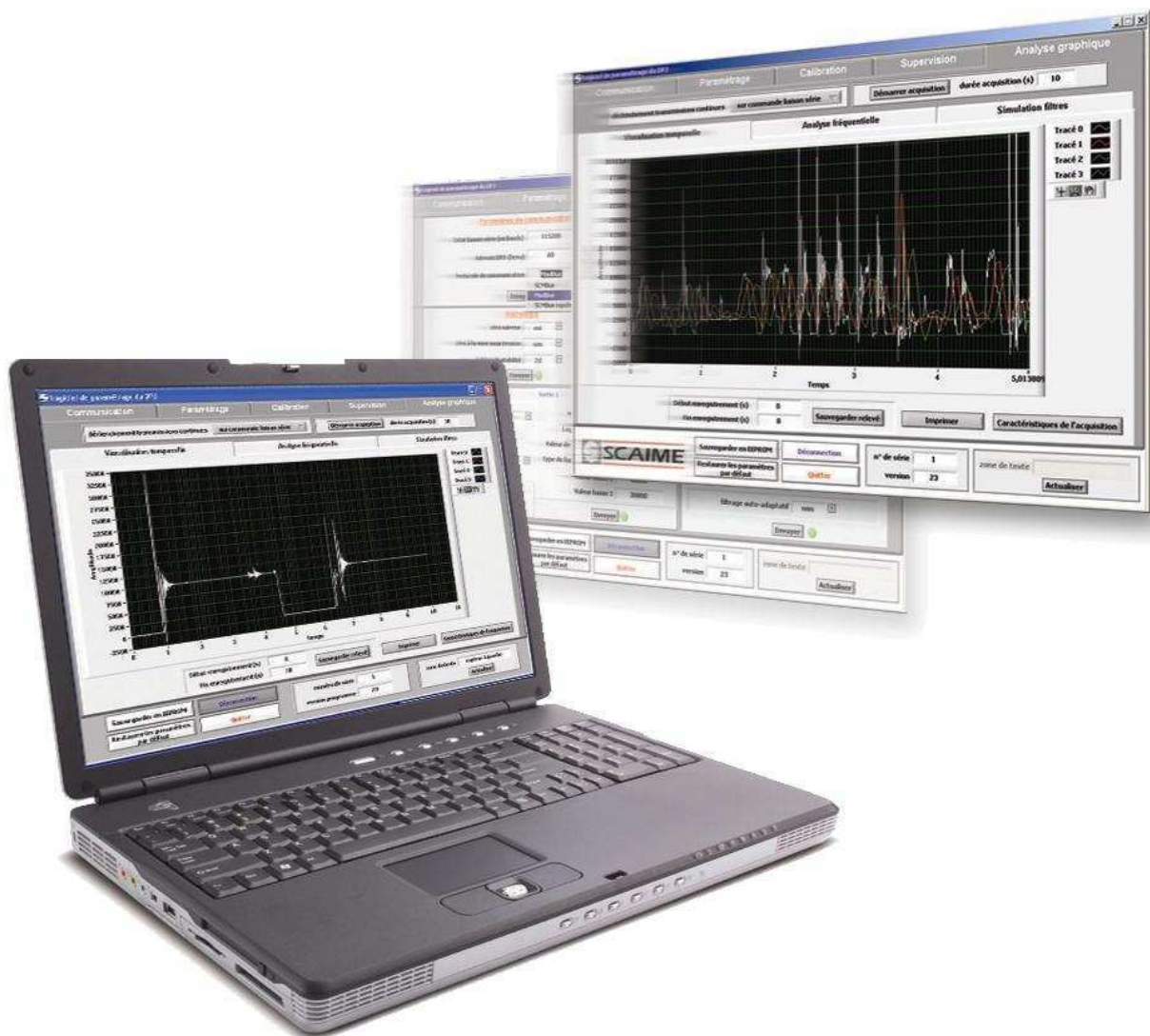




## eNodView

SCAIME numerical transmitters and load cells settings software



NU-eNodView-E\_165712\_D

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## 1. PRESENTATION

eNodView is a software designed for setting SCAIME numerical transmitters and load cells from a PC. Its graphical interface eases the configuration.

eNodView integrates tools and functions which allow to :

- Save/change all parameters
- Get and visualize measure
- Simulate numerical filters
- Make a FFT analysis
- Manage the process

eNodView can be downloaded from our Web site <http://www.scaime.com>.

## 2. INSTALLATION GUIDE

### 2.1. Operating system

eNodView is compatible to the following operating system :

- Windows XP Professional (SP3 or more)
- Windows 7 32/64-bit (Professional or Ultimate Edition)
- Windows Vista 32/64-bit (Professional or Ultimate Edition)
- Windows 10

### 2.2. Minimal requirement resources

Check that minimum system performances are

- Processor: 1.2GHz (recommended 3.0 GHz)
- Memory: 1024 MB (2048 MB recommended)
- Display: 800x600, 256 colours (1024x768 recommended)
- HDD available space: 600 Mo (recommended 2 GB)
- Serial Port or USB port

### 2.3. Installation

Once the software downloaded, double click on the exe and follow installation instructions.

### 2.4. Connection and compatibility

eNodView software allows you to set a transmitter or a load cell using USB or serial port connection.



It allows you to set the following products:

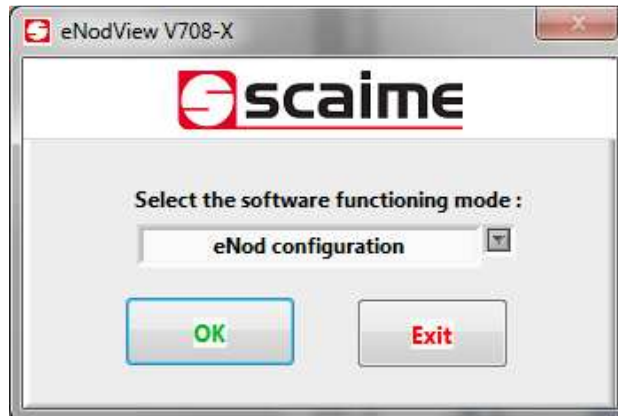
- eNod1-T
- eNod3-T/-C/-D
- eNod4-T/-C/-D/-B/-F
- AXD/AAD/DVX/DVS

#### **Warning**

***If you use Schneider software (especially So Machine), deactivate the "Schneider Gateway" (icon at the bottom left of your screen for Windows) before any eNodView start.***

### 3. FUNCTIONNING MODES

**eNodView** proposes 3 independent functioning modes, depending on used connection.



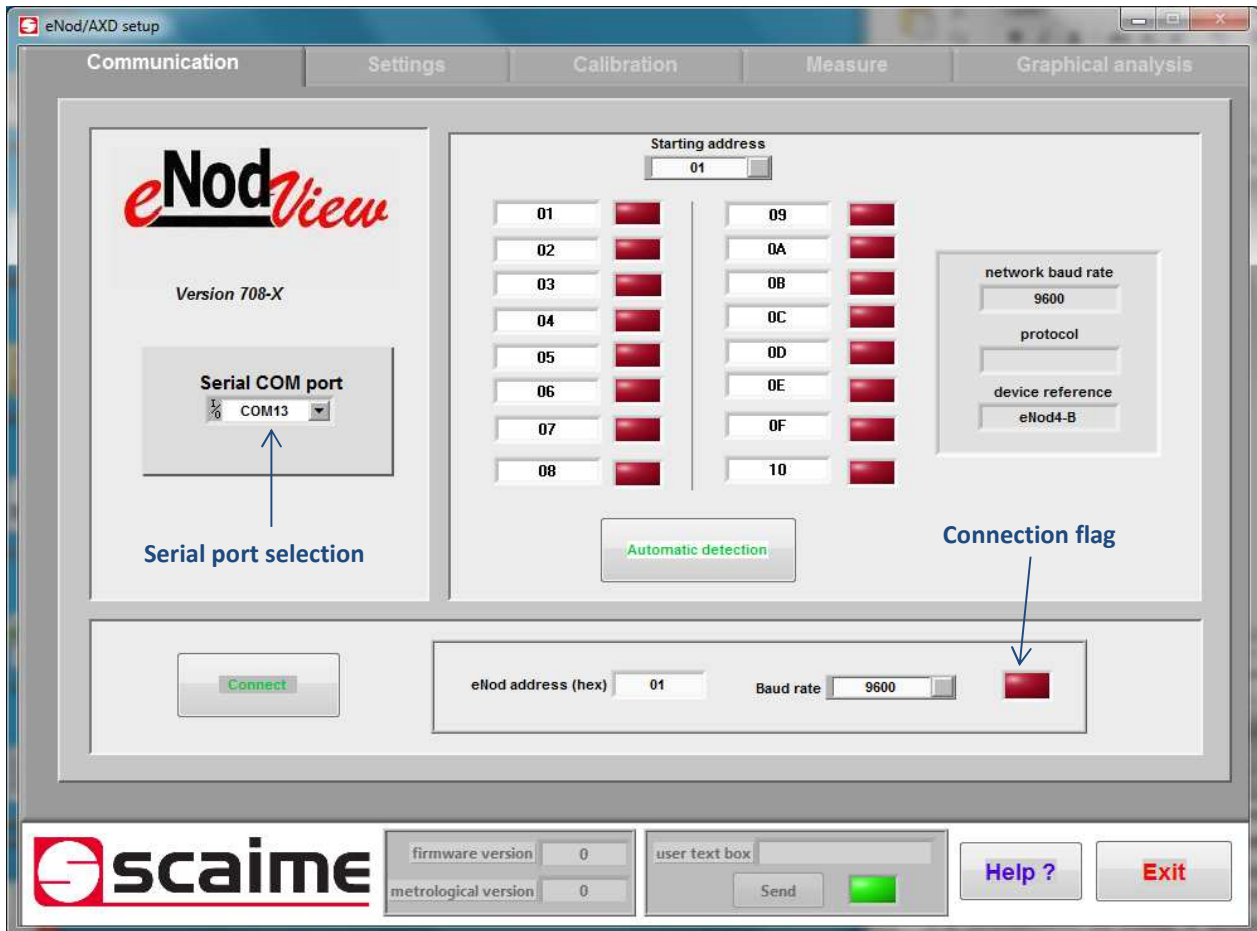
- eNod configuration, which gives access to the configuration parameters of your product (communication, settings, calibration, visualization and signal acquisition).
- eNod Network monitoring (transmitter or load cell network), to display on the same page up to 16 products connected to a same network
- Graphical analysis, to simulate numerical filter effects on your measure. You can record signal in an acquisition file (\*.txt) using eNodView, and visualize temporal and frequency response.

#### 3.1. eNod configuration

So as to carry out data transfers between eNodView and a product on the network, it is necessary to choose the right software communication options. The different steps are as follows

- Select in the list the serial COM port connected to the network
- Enter product address you want to dialog with (in hexadecimal).
- Choose in the list the serial baudrate
- Click on the “**Connect**” button

Note: If the address and/or the baud rate are unknown, use the “Auto detection” button. If you click on the field address or on the green indicator, they are retyped in the connection area at the bottom of the screen.



### ***Connection windows, eNod configuration***

If connection cannot be carried out, an error message may appear. In this case, check the address and the baud rate entered then the installation and product power supply.

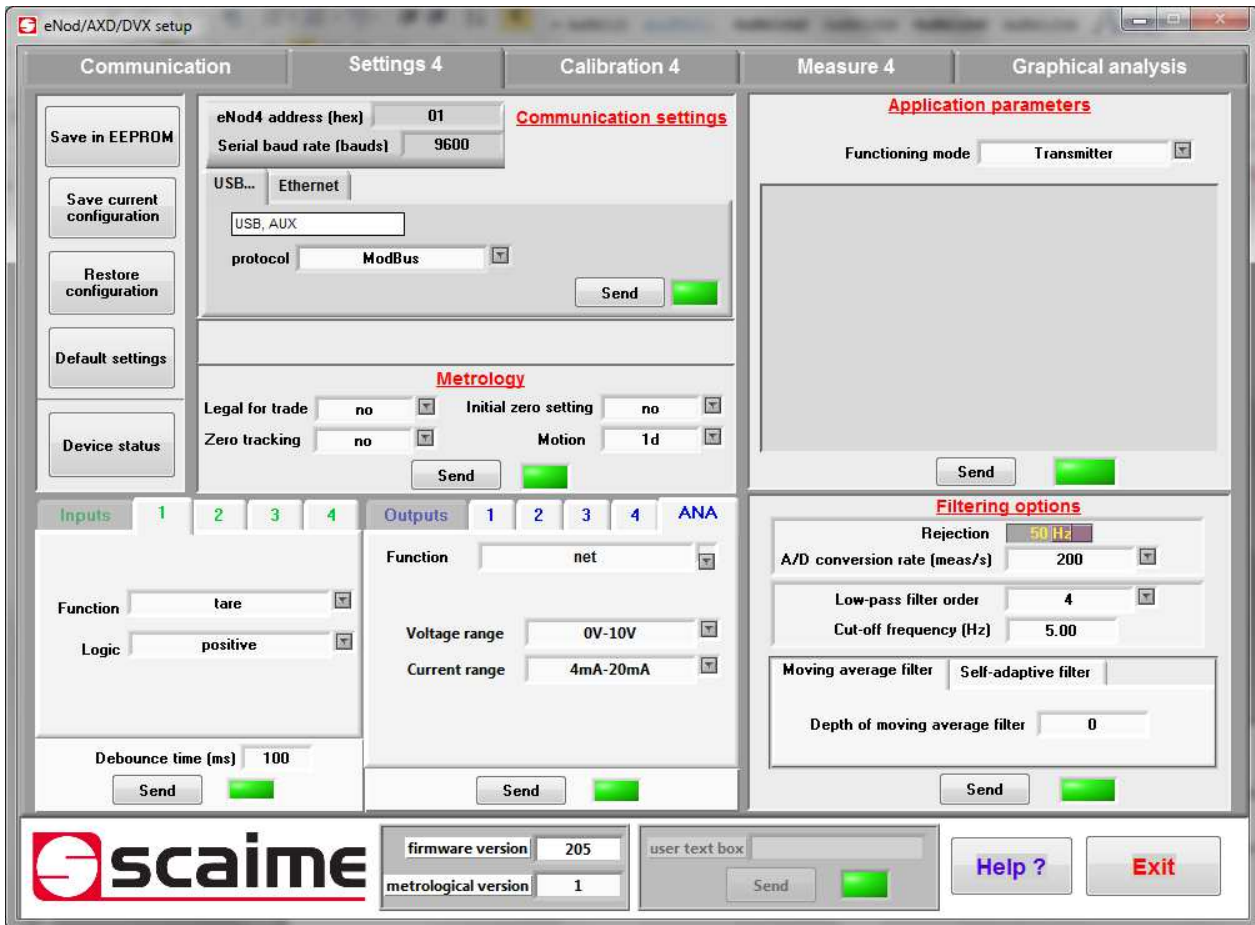
If connection is successful, the connection status indicator turns to green and you can access to different tabs at the top of the window.

The following settings are read during connection:

- firmware version (read only)
- user text box (read/write)

#### **3.1.1 Settings tab**



The setting tab is unique for each product. It regroups the whole configuration parameters (see relative user manuals).



*eNod4 software configuration window*

Product configuration is read in this tab at connection.

### 3.1.2 [Help](#)

A help can be displayed on the software. If you click on the  button (at the bottom of the window) you will see indications when moving the mouse pointer over the windows. It disables buttons. To quit this mode, click again on the  button.

### 3.1.3 [Data transfers to memory](#)

Data transferred to memory are carried out by clicking on the “Send” buttons located on the page.

Parameters can be saved in 2 types of memory:

- RAM memory: volatile memory that can be modified at any time
- EEPROM memory : non-volatile memory (saved after a reset) in which data are stored on request

At power-up or after a reset command, the product configuration stored in EEPROM is loaded in RAM where real-time modifications can occur and become immediately effective.

A few others, such as:

- an address change
- a baud rate modification
- a communication protocol change
- a functioning mode change
- an A/D converter configuration modification
- a stability criterion modification

- analog output configuration modification

require a storage in EEPROM followed by a reset command or a power-up to become effective.

On eNodView, indicator's colours allow the user to be aware of the current memorization status. There is an indicator on the right of each "Send" button, with the following colours:



Red: Parameters modified in eNodView but not sent to the product



Yellow: Parameters sent to the product but need an EEPROM save and a reset to be effective.



Green: Parameters send to the product and effective.

Storage in EEPROM can be done by clicking on the "Save in EEPROM" button that is located at the left top corner of the Settings window. It requests storage in EEPROM followed by a reset.

eNodView enables the saving of all parameters in a configuration file (\*.txt) thanks to the "Save current configuration" button. The contents of the file might then be exported to any product with "Restore configuration" command.

For reliability reasons, the device can recover its initial configuration of same reference (corresponding to the one on delivery). It is performed by clicking on the "Default settings" button.

**Note:**

- Default memory restoration causes the product to lose the stored calibration.
- If a communication parameter is changed, an EEPROM save will disconnect the product. eNodView will go back to "communication" tab.

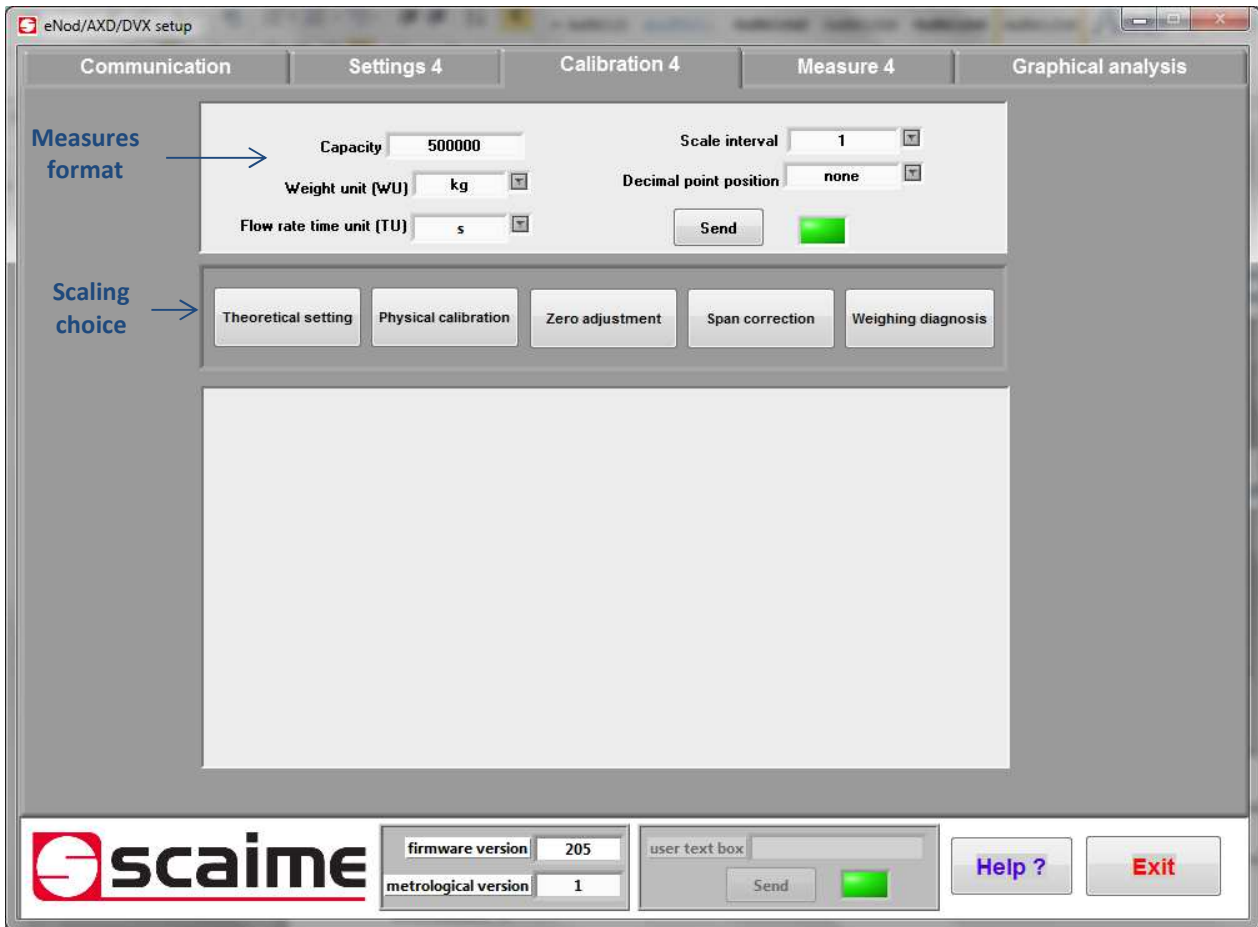
### **3.1.4 Calibration tab**

Before to adjust your system, format your measures (max capacity, scale interval, weight unit, and decimal point position).

Select then one of the 4 types of scaling (depends on product: theoretical calibration, physical calibration , zero adjustment, span adjustment), and follow instructions on window.

Please refer to products user manual for more information on calibration.

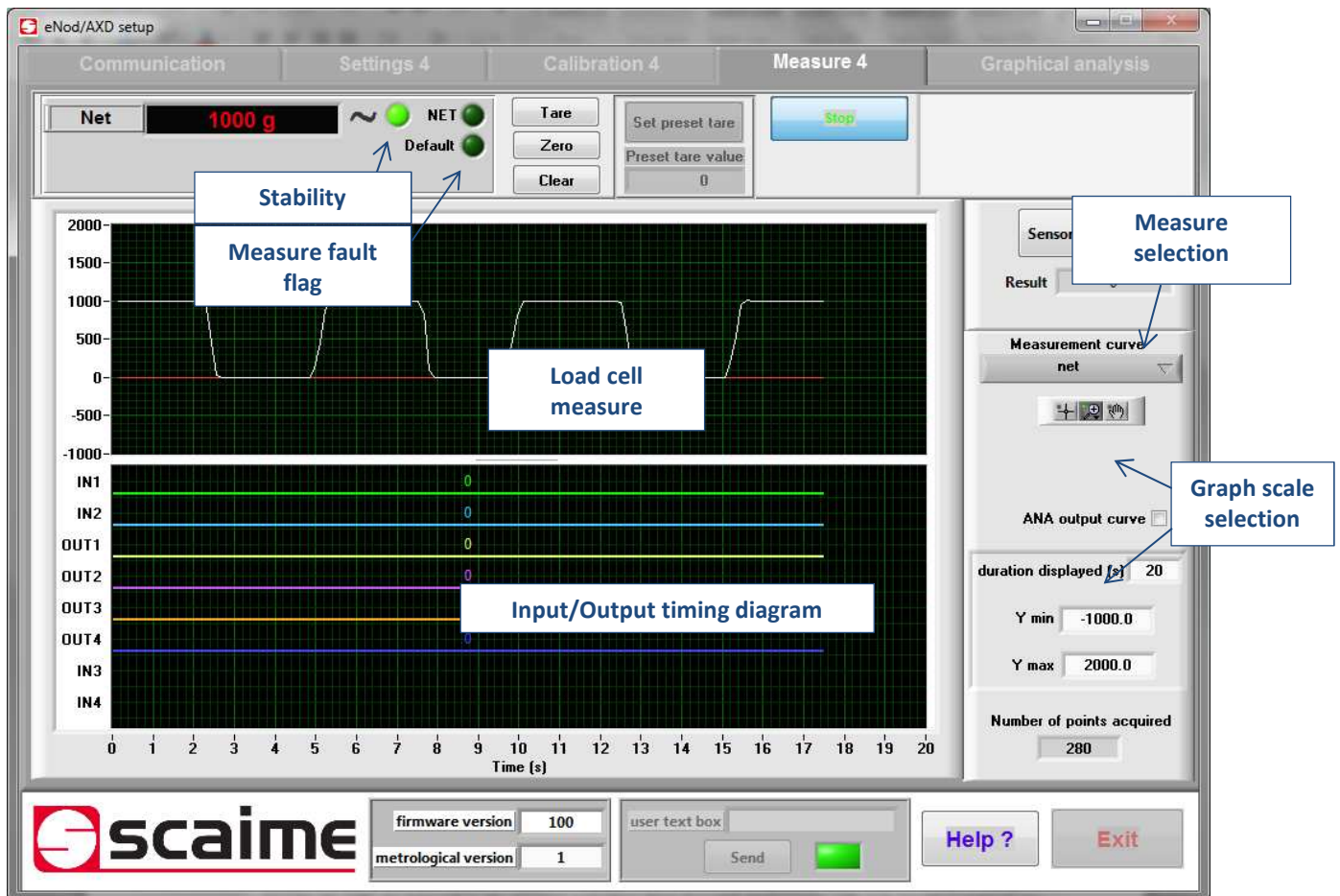




*eNodView calibration window for eNod4*

#### 4. MEASURE TAB

This tab offers real-time visualization tools. Measurements and values calculated by product can be displayed on a sizable graph. Depend on the connected product, different data are available: instantaneous measurement (net, gross or A/D converter points), applicative process results, inputs state, and outputs state.



*eNod4 Measure tab*

**Motion indicator:** Display the current measurement status. Its color is green if this measurement is stable, else it is red.

**Commands:**

- **Tare:** requests a Tare operation whatever the functioning mode is. The tare is done when stability is reached.
- **Zero:** requests a Zero acquisition whatever the functioning mode is. The zero is only acquired if measurement is stable and if measurement is within a band of  $\pm 10\%$  of the specified capacity (on calibration page).
- **Clear:** depends on the product functioning mode: in Transmitter mode, Cancels the tare ; in Checkweigher functioning mode, resets the cycle result ; in Peak control functioning mode, sets the Peak to peak value to zero ; in dosing mode resets the cycle in progress and the calculated values.

**Start:** triggers the transmissions and the curves plotting. In case of interruption followed by a restarting, the time basis is reset. The graph options modifications (set points and trigger level activation, axis configuration) are taken into account when clicking on "Start".

**Graph scale selection:** Horizontal and vertical axis can be changed. They are updated at start. 3 tools allow zooming.

**Logical Input/output time diagram:** Display Input/output with same timeline as measurement.

**Note:** Other commands, data can be displayed depending on product options, please refer to products user manuals.

## 5. GRAPHIC ANALYSIS

The Graphical analysis displays up to 800 measurements per second in time and frequency domain. It allows you to set filters according to your needs of precision versus response time.

### 5.1. Get measurements

Before any acquisition, check the following product parameters:

- communication protocol : fast SCMBus
- baud rate : 115200
- functioning mode : Transmitter
- sampling period : 0
- A/D conversion rate : 800 or 960 meas/s
- Digital low-pass filter : inactive
- Band-stop digital filter : inactive
- self-adaptive filter : inactive

These parameters must be “saved in EEPROM”.

In the “In the transmission trigger source field, select “serial command request” or “logical input” (if an input is assigned to “measurement window”).

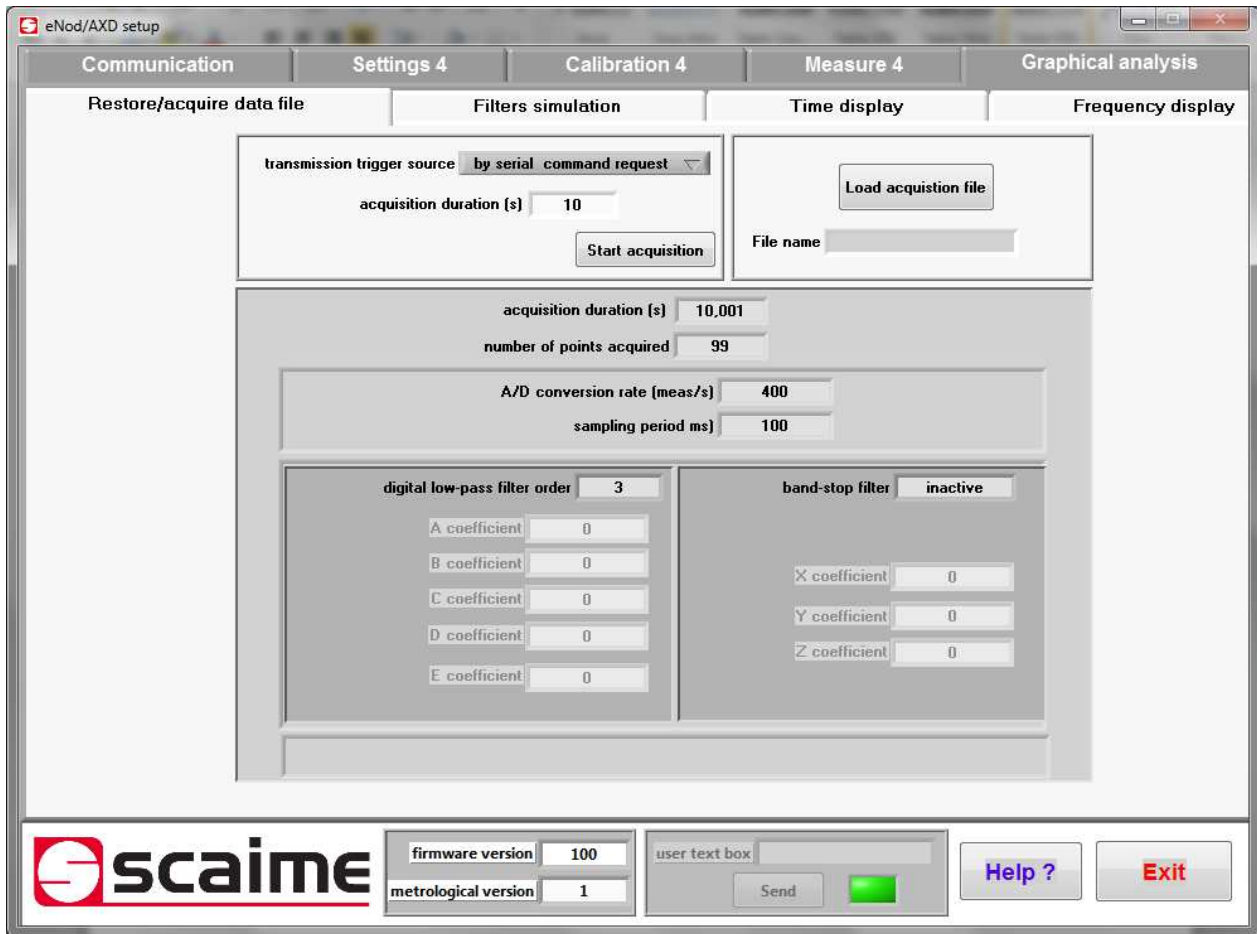
If the transmission trigger source is a serial command request, enter the acquisition duration in seconds ( $\leq 300$ ).

Click on the “Start acquisition” command. Acquisition can be interrupted before it ends without any effect on the analysis.

Curves are plotted by the software and all characteristics about the acquisition are displayed.

Open the “Time display” representation then click on the “Save acquisition” button after entering the recording start and end instants.

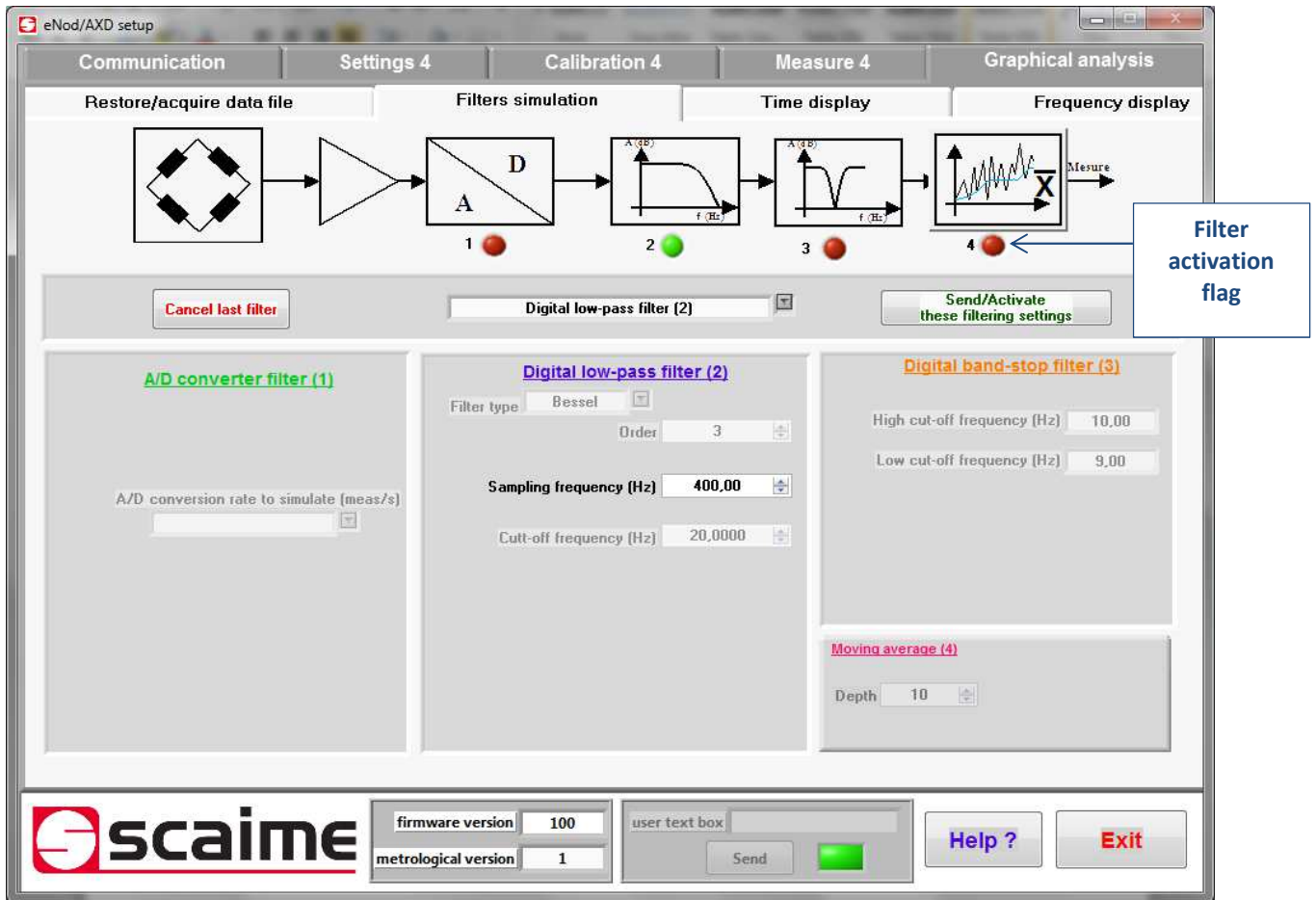
The zoom and displacement tools used in Vizualisation are also available for time and frequency graphs.They are located in the upper right corner of the window.



*Graphical analysis acquisition window*

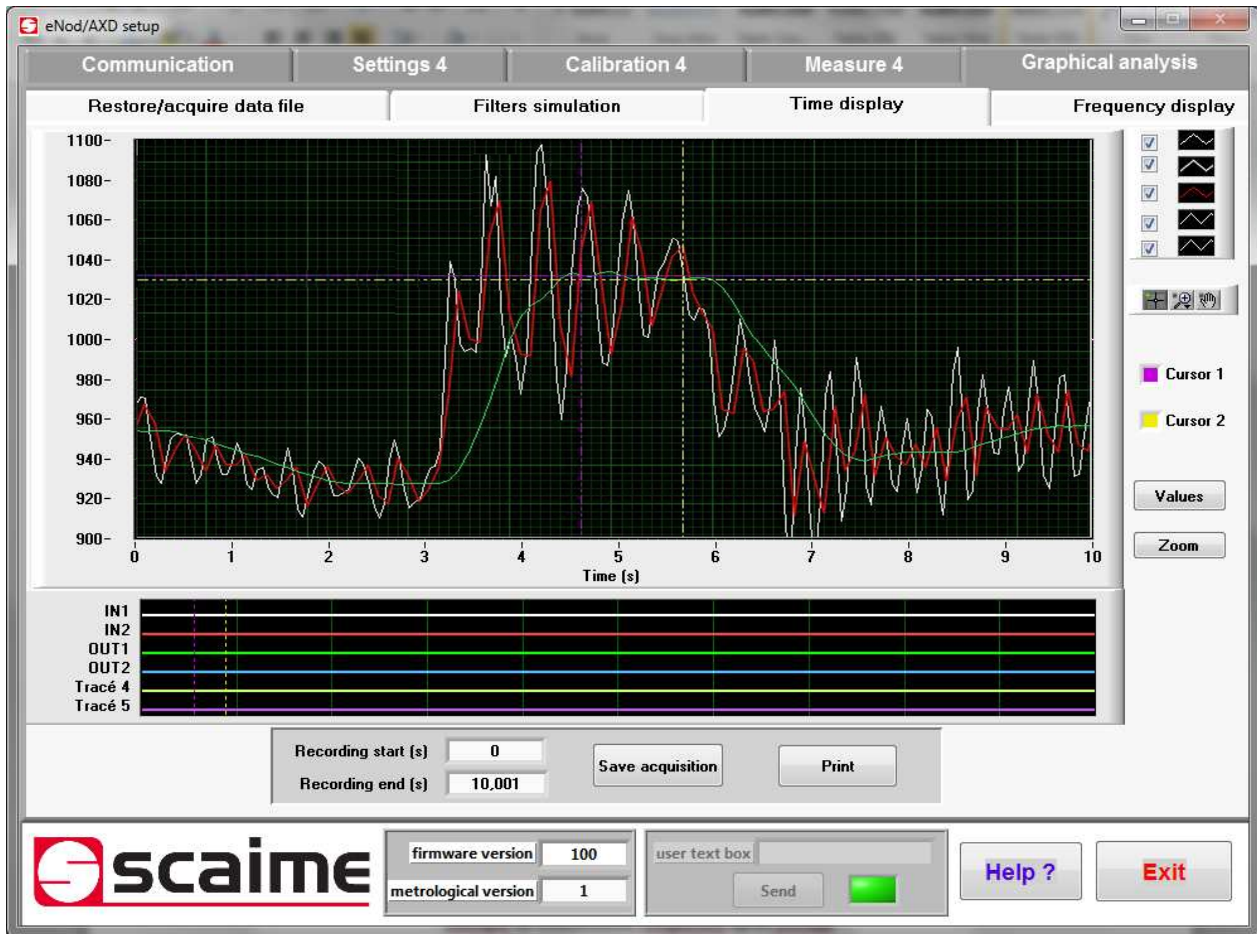
## 5.2. [Filter simulation](#)

To set your filters, the “filters simulation” tab simulates the filter used by your product, and visualizes the effect on your measures. (“Time display” tab). A flowchart allows you to see the sequence of filter application in your product.



The screenshot shows the 'eNod/AXD setup' software interface. At the top, there are tabs for 'Communication', 'Settings 4', 'Calibration 4', 'Measure 4', and 'Graphical analysis'. Below these are sub-tabs: 'Restore/acquire data file', 'Filters simulation', 'Time display', and 'Frequency display'. The 'Filters simulation' section contains a block diagram with four stages: 1 (A/D converter filter), 2 (Digital low-pass filter), 3 (Digital band-stop filter), and 4 (Moving average). Each stage has a colored indicator (red, green, red, red). A callout box labeled 'Filter activation flag' points to the red indicator for stage 4. Below the diagram are control buttons: 'Cancel last filter', a dropdown menu for 'Digital low-pass filter (2)', and 'Send/Activate these filtering settings'. The 'Graphical analysis' section has three panels: 'A/D converter filter (1)' with 'A/D conversion rate to simulate (meas/s)', 'Digital low-pass filter (2)' with 'Filter type: Bessel', 'Order: 3', 'Sampling frequency (Hz): 400.00', and 'Cutt-off frequency (Hz): 20,000', and 'Digital band-stop filter (3)' with 'High cut-off frequency (Hz): 10,00' and 'Low cut-off frequency (Hz): 9,00'. A 'Moving average (4)' panel has 'Depth: 10'. At the bottom, there is a 'SCAIME' logo, 'firmware version: 100', 'metrological version: 1', a 'user text box' with a 'Send' button and a green light, and 'Help?' and 'Exit' buttons.

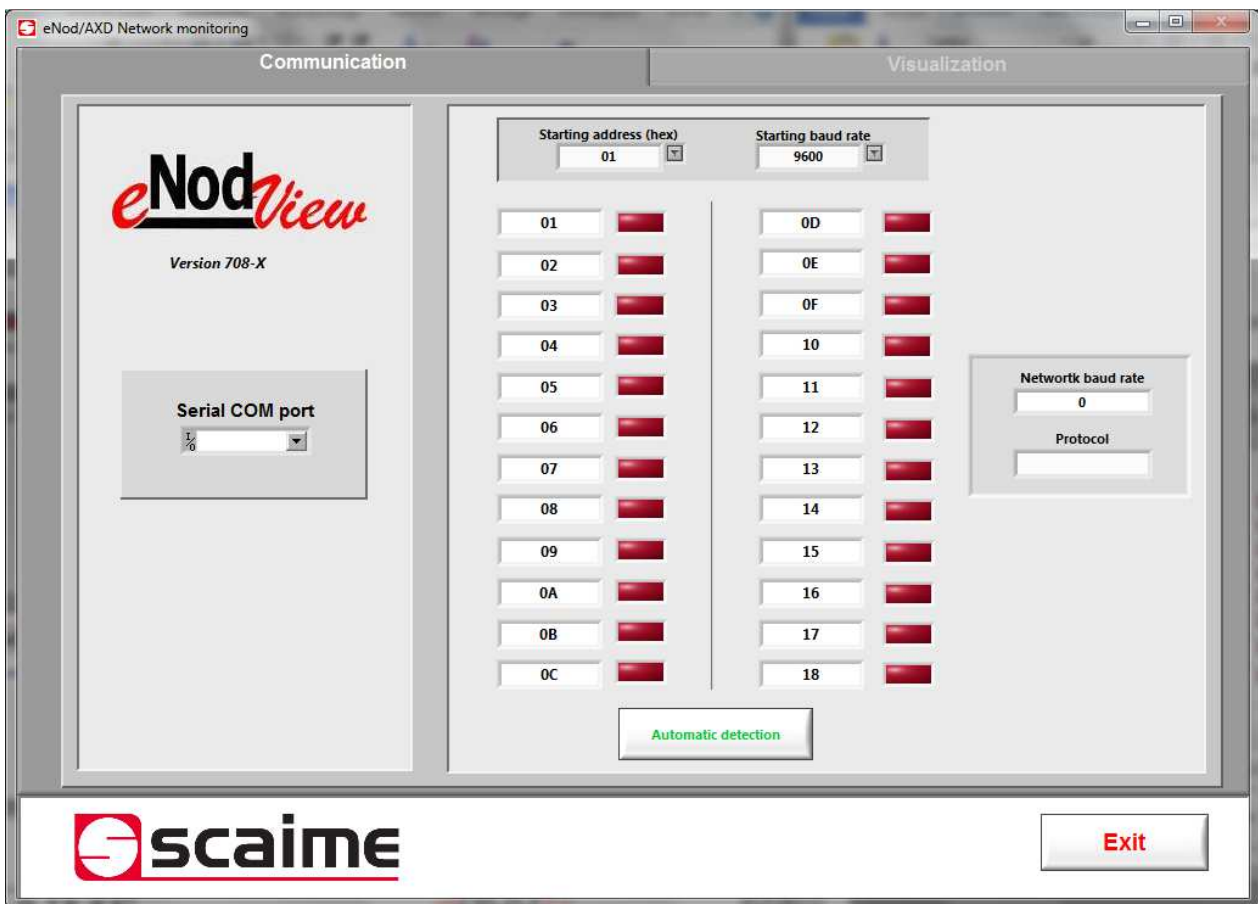
Signal before and after simulation can be visualized simultaneously on the time display. The frequency display plots only the FFT of the last filtered signal. Filters must be simulated from left to right.



*Time display after filtering*

## 6. ENOD NETWORK MONITORING

This mode allows you to display on the same page up to 16 products connected to a same network. Addresses must be consecutive.



**Connection window for network monitoring**

To connect products, software needs to have the following network information:

- communication protocol
- baud rate
- addresses and product name

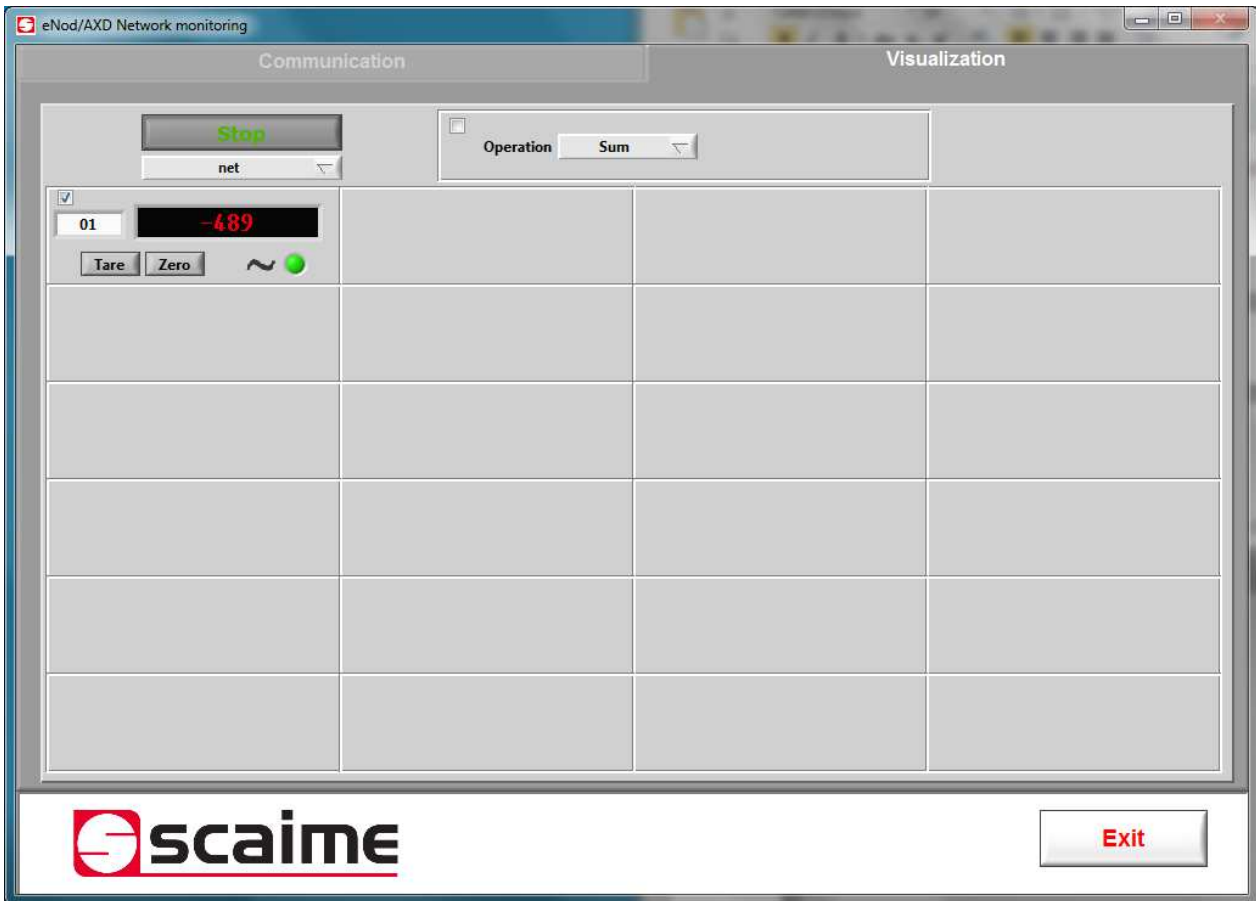
To get these parameters, follow these steps:

- Select in the dropdown list the COM port linked to your network
- Select the start address of the 16 consecutive ones
- Launch scanning using “automatic detection “ button

The scan processes at different baud rates (9600, 19200, 38400, 57600 and 115200 bauds) and addresses. It is recommended to wait the scan to finish.

Once automatic detection finished, it is possible to switch on measurement display window, clicking on “visualization”.

You can command a Tare, a Zero, or display sum or mean of displayed measures.

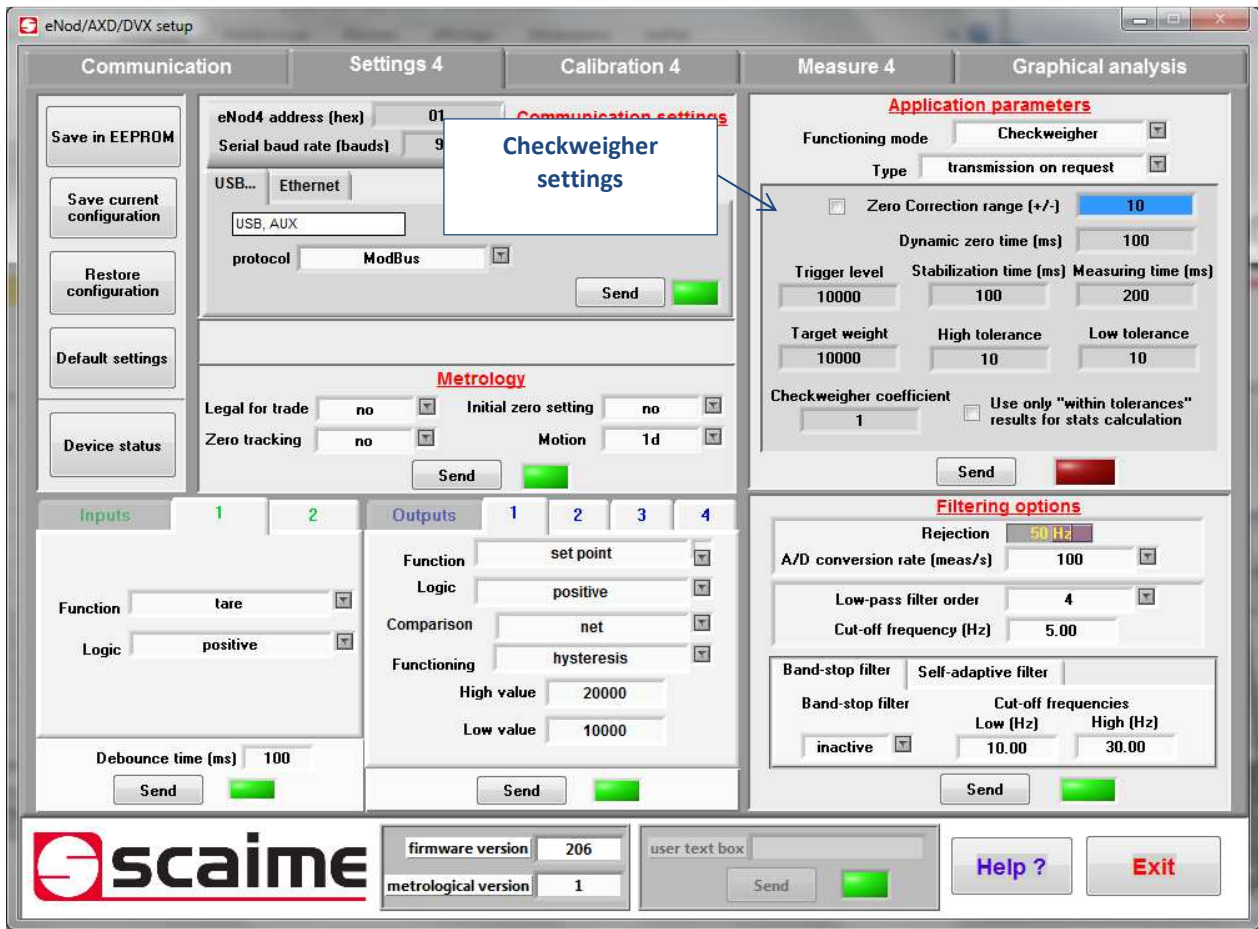


Network monitoring window



## 7. ENOD4 EXAMPLE : DEDICATED CONFIGURATION SCREENS

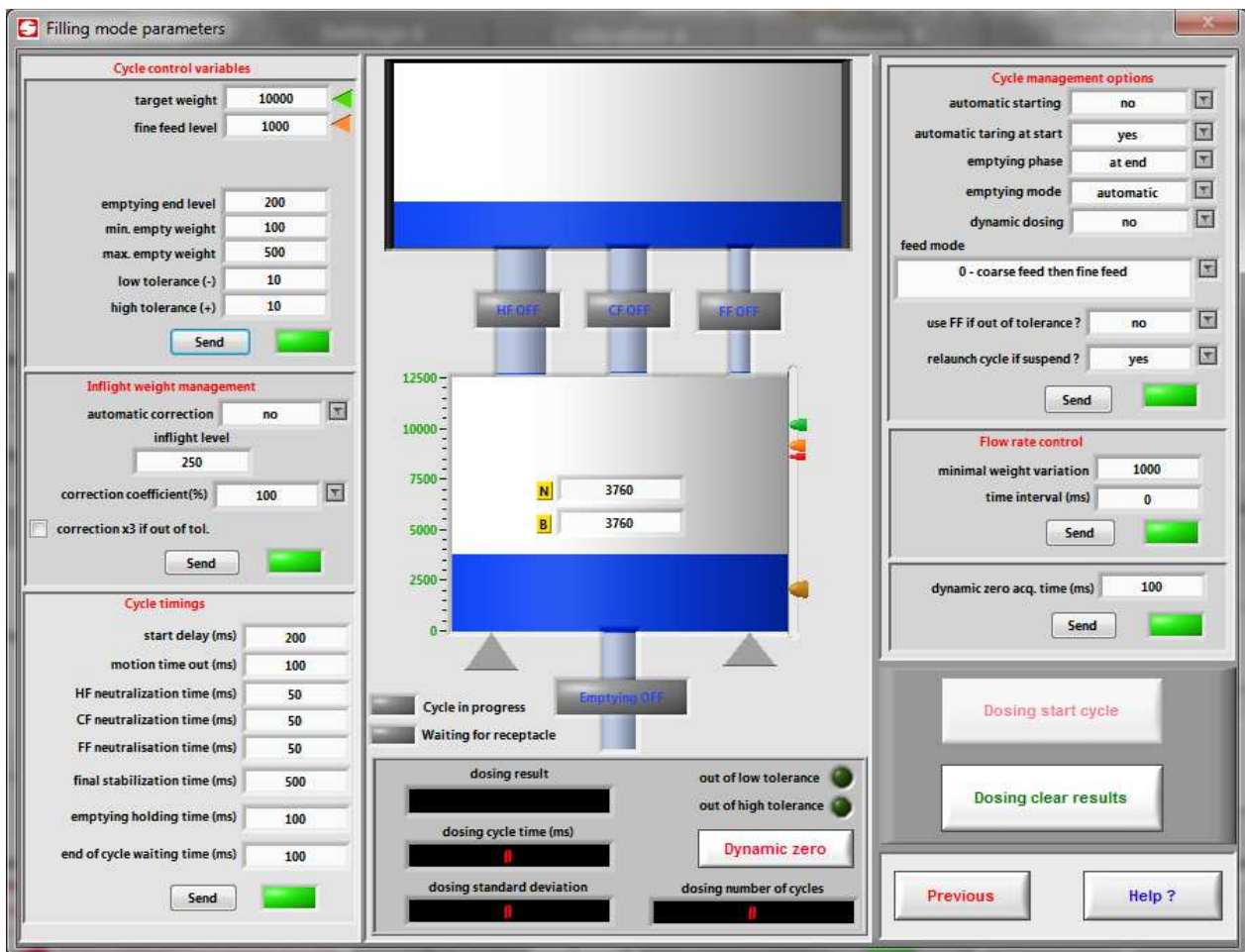
### 7.1. eNod4-C: Checkweigher



The screenshot displays the 'eNod/AXD/DVX setup' software interface for configuring a Checkweigher. The interface is organized into several functional areas:

- Communication:** Includes options to 'Save in EEPROM', 'Save current configuration', 'Restore configuration', 'Default settings', and 'Device status'. It also shows 'eNod4 address (hex)' (01), 'Serial baud rate (bauds)' (9), and 'protocol' (ModBus).
- Settings 4:** Contains 'Communication settings' (highlighted by a callout box) and 'Metrology' settings such as 'Legal for trade' (no), 'Initial zero setting' (no), 'Zero tracking' (no), and 'Motion' (1d).
- Calibration 4:** Features 'Inputs' (1, 2) and 'Outputs' (1, 2, 3, 4) with various function and logic settings.
- Measure 4:** Contains 'Application parameters' (highlighted by a callout box) including 'Functioning mode' (Checkweigher), 'Type' (transmission on request), 'Zero Correction range (+/-)' (10), 'Dynamic zero time (ms)' (100), 'Trigger level' (10000), 'Stabilization time (ms)' (100), and 'Measuring time (ms)' (200). It also includes 'Filtering options' (Rejection: 50 Hz, A/D conversion rate: 100) and 'Band-stop filter' (inactive).
- Graphical analysis:** This section is currently empty.
- Footer:** Displays the SCAIME logo, 'firmware version' (206), 'metrological version' (1), a 'user text box', and 'Help ?' and 'Exit' buttons.

7.2. eNod4-D: Filling and unloading



**Filling mode parameters**

**Cycle control variables**

target weight: 10000  
fine feed level: 1000

emptying end level: 200  
min. empty weight: 100  
max. empty weight: 500  
low tolerance (-): 10  
high tolerance (+): 10

**Inflight weight management**

automatic correction: no  
inflight level: 250  
correction coefficient(%): 100  
correction x3 if out of tol.

**Cycle timings**

start delay (ms): 200  
motion time out (ms): 100  
HF neutralization time (ms): 50  
CF neutralization time (ms): 50  
FF neutralisation time (ms): 50  
final stabilization time (ms): 500  
emptying holding time (ms): 100  
end of cycle waiting time (ms): 100

**Cycle management options**

automatic starting: no  
automatic taring at start: yes  
emptying phase: at end  
emptying mode: automatic  
dynamic dosing: no

feed mode: 0 - coarse feed then fine feed  
use FF if out of tolerance?: no  
relaunch cycle if suspend?: yes

**Flow rate control**

minimal weight variation: 1000  
time interval (ms): 0  
dynamic zero acq. time (ms): 100

**Filling simulation**

HF OFF, CF OFF, FF OFF

Scale: 12500, 10000, 7500, 5000, 2500, 0

N: 3760, B: 3760

Emptying OFF

Cycle in progress, Waiting for receptacle

dosing result: out of low tolerance, out of high tolerance

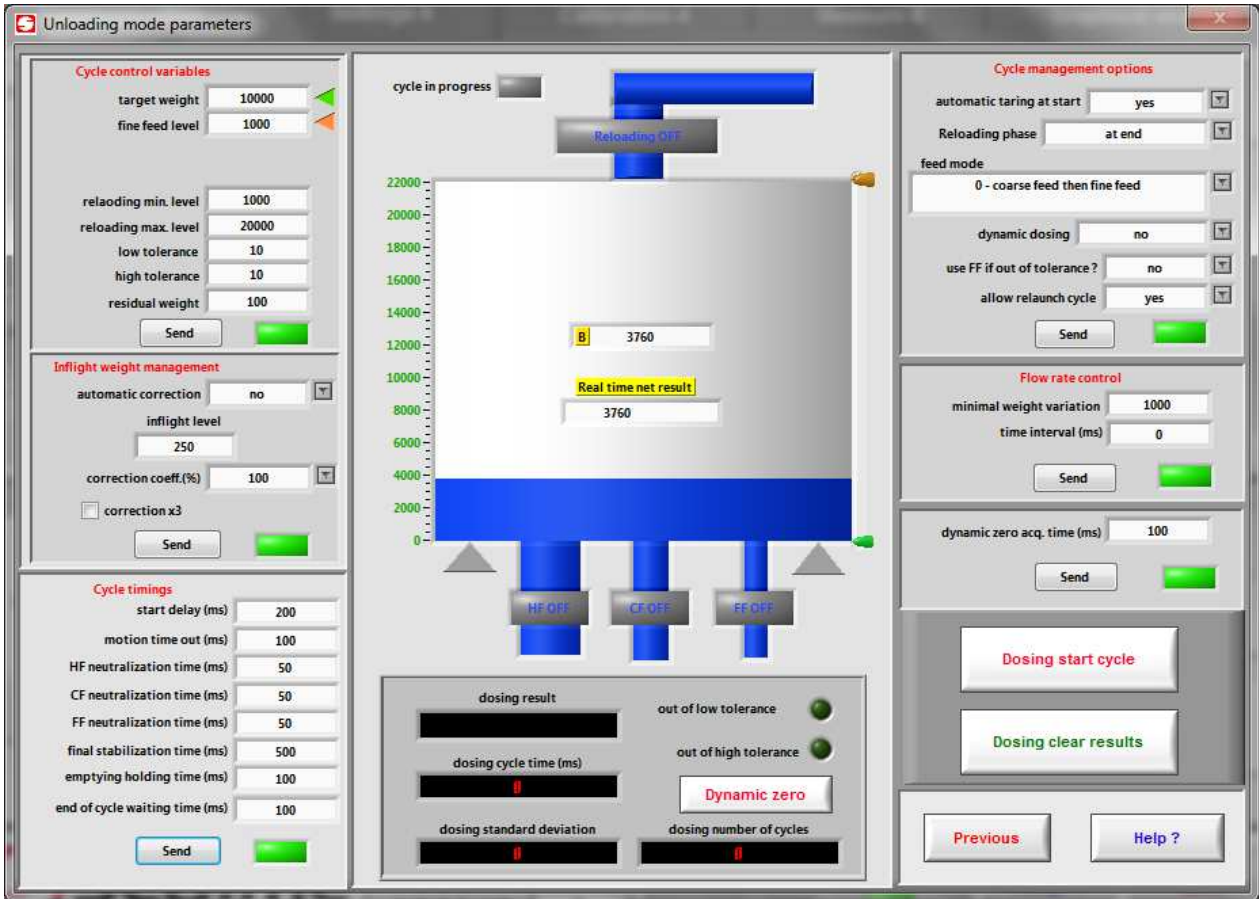
dosing cycle time (ms), dosing standard deviation, dosing number of cycles

Dynamic zero

Dosing start cycle, Dosing clear results

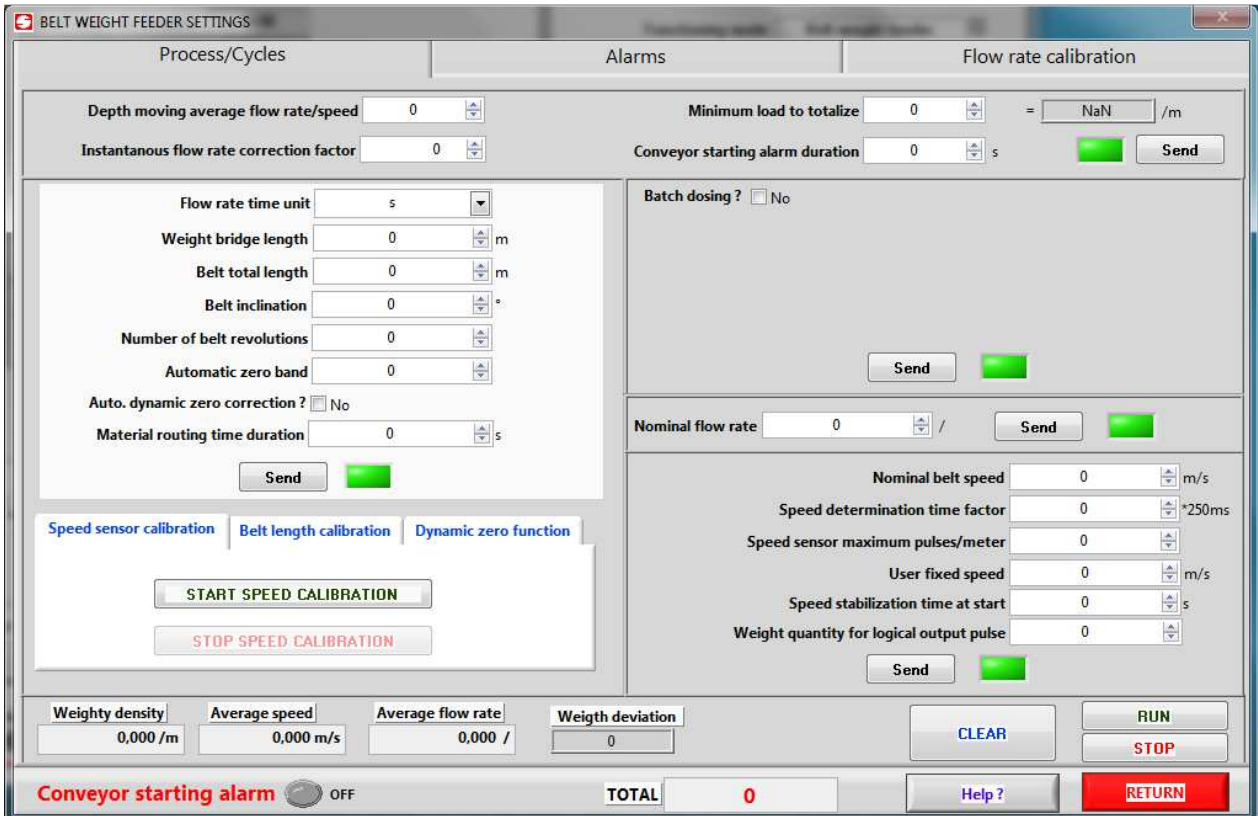
Previous, Help ?

Filling simulation



Unloading simulation

### 7.3. eNod4-B: Belt weight feeder



**Belt weight feeder settings**

Process/Cycles
Alarms
Flow rate calibration

\* alarm inactive if 0

Stop dosing / suspend batch at alarm ?  No

Maximum permissible flow rate *	<input type="text" value="0"/>	0,1% of nominal flow rate	=	<input type="text" value="0"/>	/
Minimum permissible flow rate *	<input type="text" value="0"/>	0,1% of nominal flow rate	=	<input type="text" value="0"/>	/
Maximum permissible load *	<input type="text" value="0"/>	0,1% of nominal belt load	=	<input type="text" value="NaN"/>	/m
Minimum permissible load *	<input type="text" value="0"/>	0,1% of nominal belt load	=	<input type="text" value="NaN"/>	/m
Maximum permissible speed *	<input type="text" value="0"/>	0,1% of nominal speed	=	<input type="text" value="0"/>	m/s
Minimum permissible speed *	<input type="text" value="0"/>	0,1% of nominal speed	=	<input type="text" value="0"/>	m/s
Maximum permissible output control *	<input type="text" value="0"/>	0,1% of nominal flow rate	=	<input type="text" value="0"/>	/
Minimum permissible output control *	<input type="text" value="0"/>	0,1% of nominal flow rate	=	<input type="text" value="0"/>	/

Flow rate/load alarms inhibition time at start  s

Flow rate/load alarms inhibition time in service  s

Speed alarm inhibition time at start  s

Speed alarm inhibition time in service  s

■

Alarm default

Conveyor starting alarm  OFF
 TOTAL

**Alarm threshold settings**

Process/Cycles
Alarms
Flow rate calibration

Segments number for the calibration curve of flow rate

Flow rates	Control output / analog output
<input type="text" value="0"/>	<input type="text" value="0"/> % of full scale
<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="text" value="0"/>	<input type="text" value="0"/>

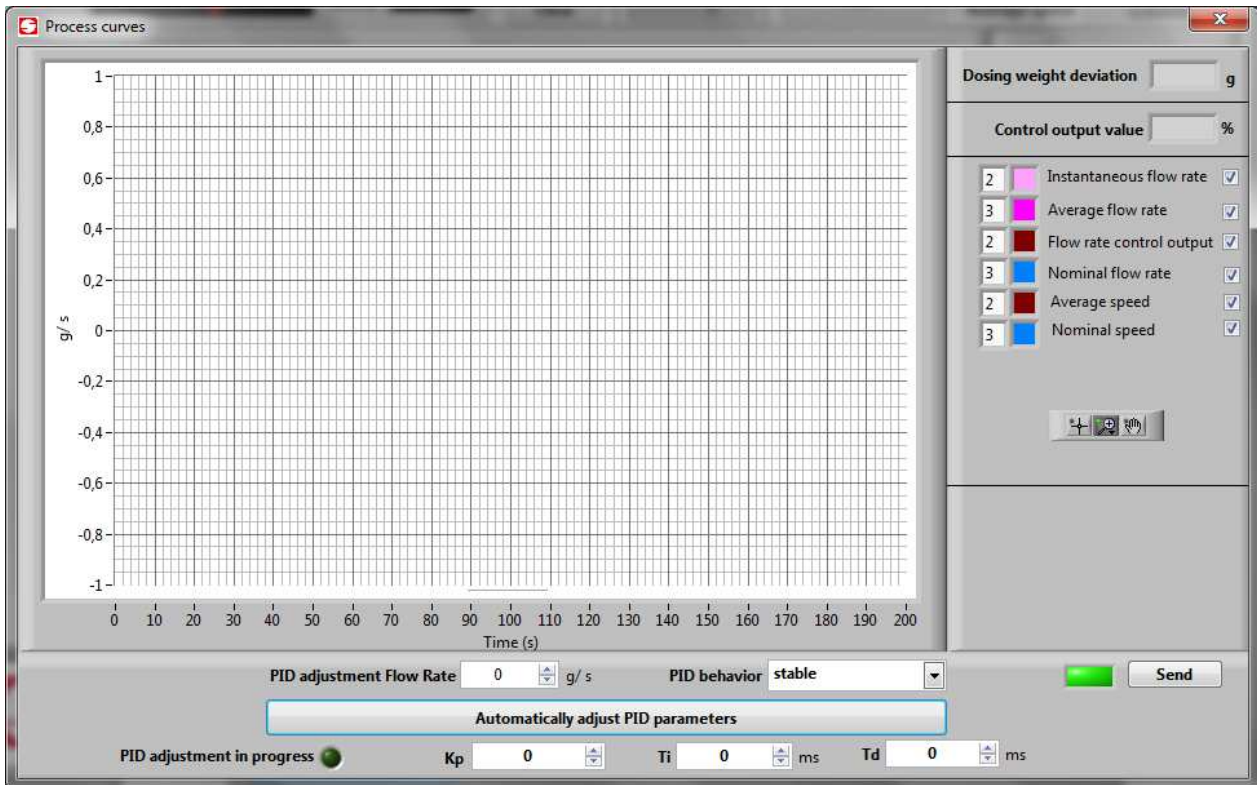
Flow rate calibrated ?  No ■

PID activation ?  No Control output connected to

■

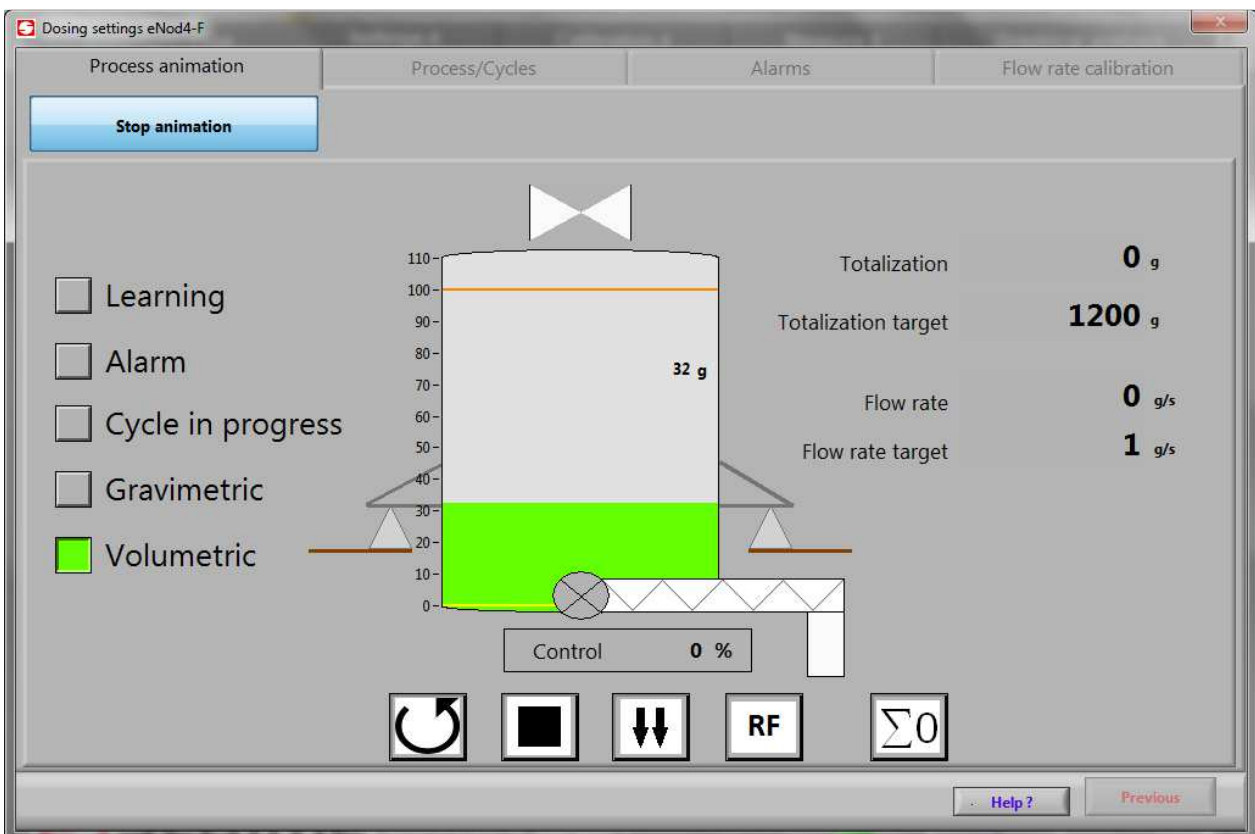
Conveyor starting alarm  OFF
 TOTAL

**Flow rate calibration**



*PID parameters adjustment curve: Instantaneous curve, average curve, flow rate control output, Nominal flow rate, Average speed, Nominal speed.*

#### 7.4. [eNod4-F: continuous feeder](#)



*Animation: continuous feeder view*

Dosing settings: eNod4-F

Process animation | Process/Cycles | Alarms | Flow rate calibration

Instant flow rate determination time 5 s    Tolerance of clipping filter on instant flow \* 0    0,1% of nominal flow rate = 0 g/s  
 Instant flow rate correction factor 1    Average flow rate determination depth 128    \* disabled if 0  **Send**

Smart refill mode     Batch dosing

Fixed flow rate during refilling 0 g/s

Nominal flow rate 1 g/s     **Send**

Auto refilling     Refilling high level 100 g  
 Refilling inflight value 0 g  
 Refilling low level 0 g

End of refill stabilization time 2 s     **Send**

Weight quantity per pulse on logical output 100 g    Dynamic zero acquisition time 100 ms     **Send**

**Help ?**    **Previous**

**Dosing configuration**

Dosing settings: eNod4-F

Process animation | Process/Cycles | Alarms | Flow rate calibration

\* alarm disabled if 0

Empty hopper level \* 0 g     **Send**

Max permissible instant flow rate \* 0    0,1% of nominal flow rate = 1 g/s  
 Min permissible instant flow rate \* 0    0,1% of nominal flow rate = 1 g/s  
 Max permissible flow rate control output \* 0    0,1% of nominal flow rate = 1 g/s  
 Min permissible flow rate control output \* 0    0,1% of nominal flow rate = 1 g/s

Inhibit time of flow rates alarms at start 0 s    Inhibit time of flow rates alarms in service 0 s

Maximum batch time \* 0 s    Stop dosing and refilling / suspend batch on alarm      **Send**

Maximum time of refilling start \* 0 s    Time interval for weight variation control on refilling \* 0 s

Maximum refilling time \* 0 s     **Send**

**Help ?**    **Previous**

**Alarm threshold settings**

Dosing settings: eNod4-F

Process animation | Process/Cycles | Alarms | Flow rate calibration

Segments number for the calibration curve of flow rate: 9

Flow rates	Control output / analog output
0	0
1	100
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0

Flow rate calibrated:  No ■ Send

PID activation:  ■ Send

Help? Previous

Flow rate calibration, up to 9 segments

Flow rates

Dosing weight deviation: -1,00 g

Control output value: 0,00 %

- Instant flow rate
- Average flow rate
- Flow rate control output
- Nominal flow rate
- Totalization flow rate

displayed duration (s): 40

Step: 01: Stop, 02: Refilling, 04: Learning cycle end of refill delay, 08: End of refilling stabilization

Nominal flow rate: 1 g/s

Control external analog output value: 0 % of the full scale

PID adjustment Flow Rate: 1 g/s | PID behavior: fast

Automatically adjust PID parameters

PID adjustment in progress: ● Kp: 0,75 | Ti: 800 ms | Td: 0 ms

**PID Settings: Display instantaneous flow rate, mean flow rate, output flow rate, nominal flow rate and totalization flow rate.**