

**Operation Instructions**  
**for**  
**HART Configuration Software**  
**Model: NUS-NTB-NRM-SW Software**

## 1. Contents

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1. Contents .....	2
2. Instruction .....	5
3. Measurement system .....	6
4. Software installation.....	6
5. Usage of NUS-NTB-NRM-SW Software .....	7
5.1 Installation of NUS-NTB-NRM-SW Software.....	7
5.2 Add network .....	9
5.3 Scanning devices .....	11
5.4 Select device(s).....	12
5.5 Device settings .....	13
5.6 Start measurement.....	14
5.7 Trend logging .....	16
6. Detailed description of the software.....	20
6.1 Running the application.....	20
6.2 Running the application.....	20
6.3 Elements of the main screen .....	21
6.4 Connection settings.....	23
6.5 Toolbar .....	24
6.6 Device settings .....	29
7. The Popup menu .....	37
7.1 Elements of the Popup menu .....	37
7.2 Trend diagram.....	38
7.3 Status .....	42
7.4 Linearization (VMT - <u>V</u> olume <u>M</u> ass <u>T</u> able) .....	43
8. Tools menu.....	47
8.1 Parameter file editor and viewer.....	47
9. Disposal.....	51

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## 2. Instruction

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The HART ("Highway Addressable Remote Transducer") is a popular digital communication protocol designed for industrial process measurement applications. The special feature is that it uses a low-level modulation superimposed on the standard 4-20 mA current loop, which is now widely used for such measurements. Since the HART signal is small, and composed of sine waves, its average value is zero and does not significantly affect the accuracy of the analogue current signal, which can therefore still be used. This provides compatibility with existing systems, while allowing simultaneous digital communication for device configuration, status checking, diagnostics and so forth.

### **The NUS-NTB-NRM SW Software**

has been designed for detection, polling and displaying primary measurement data as well as remote programming of KOBOLDS HART-capable transmitters. The NUS-NTB-NRM-SW is able to handle maximum 15 units in one Node and able to handle up to 10 Nodes.

Installed in a PC the software allows the menu driven remote programming (device parameters + HART commands). The software can collect data from the detected KOBOLD units and perform cyclic polling and displaying the measurement data.

Provided functions of NUS-NTB-NRM-SW Software:

- Detection of the connected devices (also in Multidrop operation mode)
- Universal HART commands - for (only) viewing of primary measurement
- data of non-KOBOLD field devices
- KOBOLD manufactured device specific commands:
  - Downloading parameters from field device
  - Editing, uploading parameters into the field device
  - Loading parameter list from file, saving parameter list to file
  - Downloading linearization table from field device
  - Editing, uploading linearization table into the field device
  - Loading linearization table from file, saving linearization table to file
  - Display Echo Map (for non-contact principle devices)
  - Downloading service and information parameters
  - Security password (protection against unauthorized usage)



**Note! However, the NUS-NTB-NRM-SW Software makes setting of parameters easier in remote programming, the profound knowledge of the parameter system of the kobold transmitters is indispensable.**

**The NUS-NTB-NRM-SW Software provides data logging capability for max. 3 hours.**

**The NUS-NTB-NRM-SW software is acting as primary master on the network. While running the software, the use of an active secondary master unit (for example a hand held communicator) is strictly FORBIDDEN!**

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## 3. Measurement system

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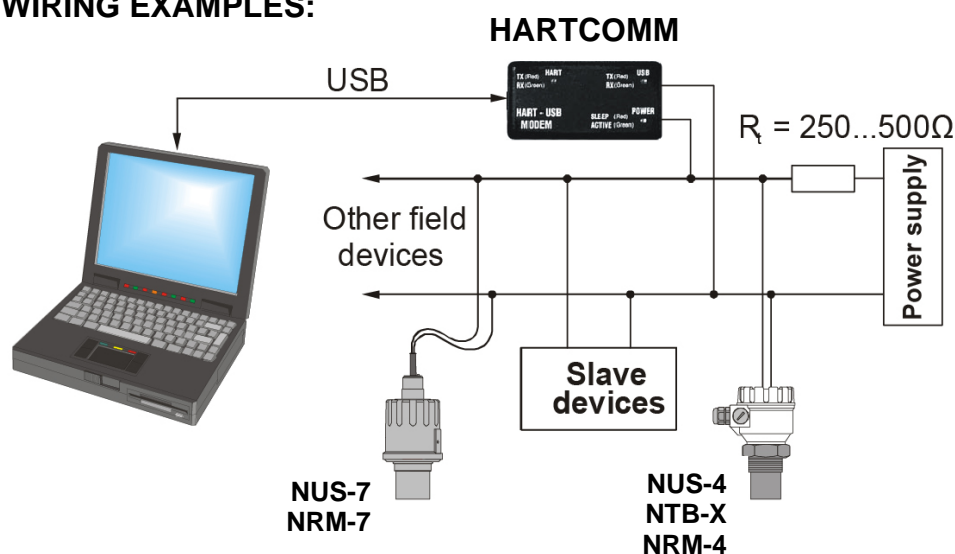
System requirements:

- Win XP, Win 7 32 or 64 bit
- HART modem (e.g.: KOBOLD's HARTCOMM) connected to a virtual COM port

The HART modem establishes communication line between HART-capable field devices and process controller computer.

The HART modem is applicable for all HART-capable transmitters which use standard HART communication.

### WIRING EXAMPLES:



## 4. Software installation

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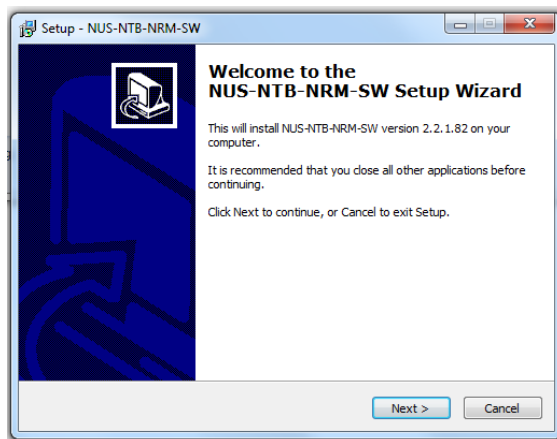
The software does not require installation, however prior to run the application we recommend installing the FTDI Driver (Virtual COM-PORT), available to download from the website of FTDI (<http://www.ftdichip.com/Drivers/VCP.htm>).

## 5. Usage of NUS-NTB-NRM-SW Software

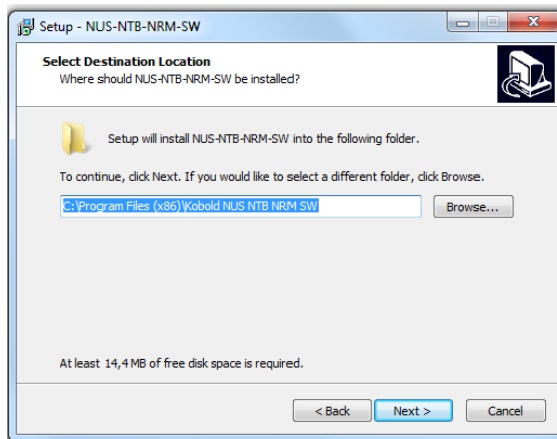
### 5.1 Installation of NUS-NTB-NRM-SW Software

Please download the HART-configuration-software for the NUS, NTB and NRM devices from our homepage [www.kobold.com](http://www.kobold.com) under product search “NUS”, “NTB” or “NRM”, selecting the device type.

Install the software on the PC, start the setup.exe file and follow the instructions on the screen.



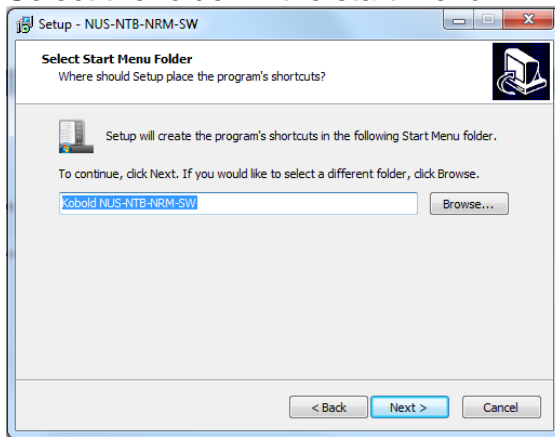
Select destination and click next.



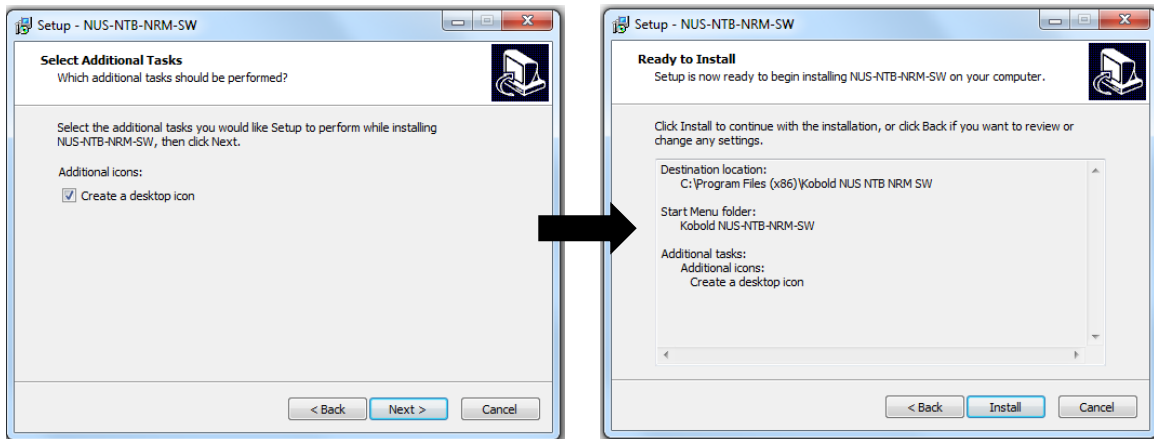
# NUS-NTB-NRM-SW Software

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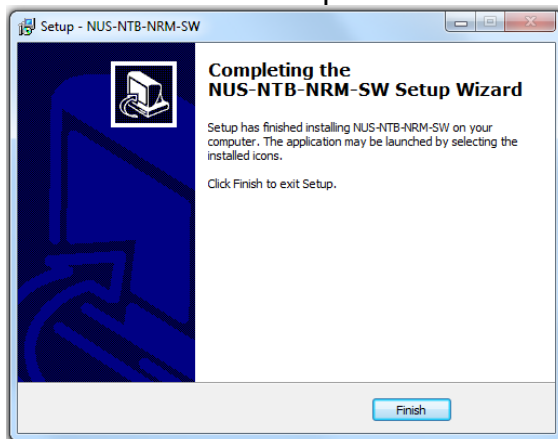
Select the folder in the start menu.



Click install to continue with the installation.

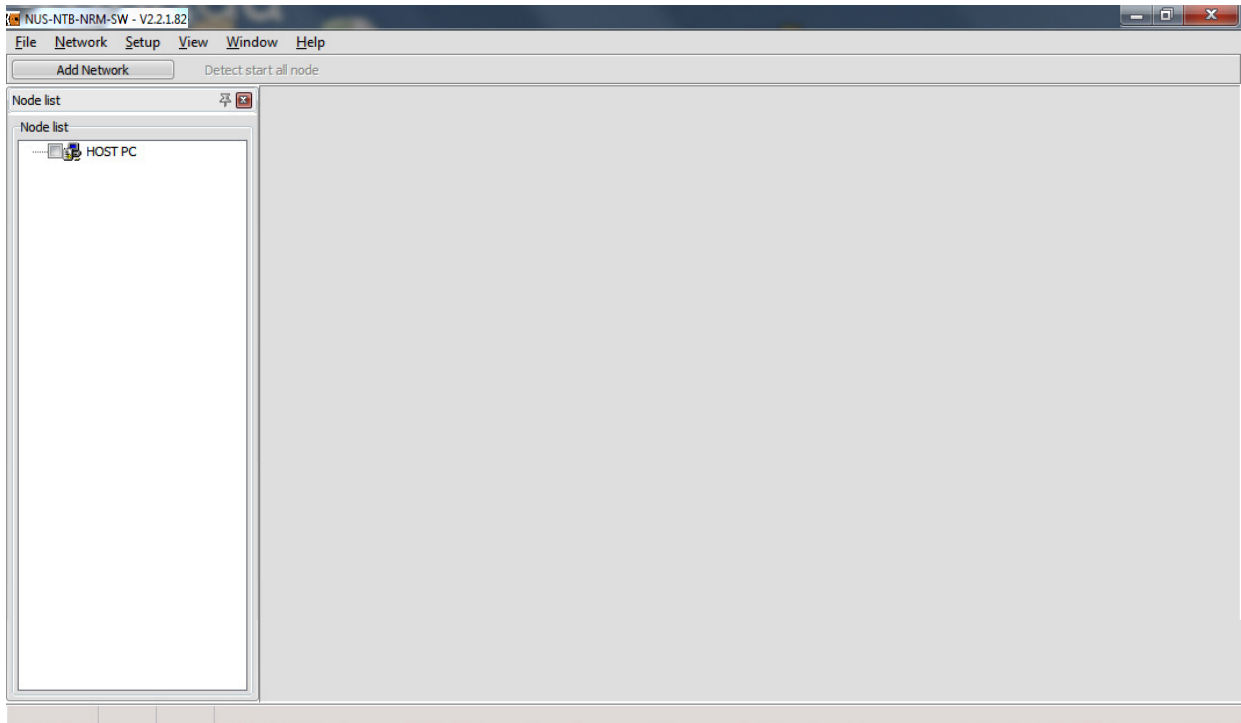


Click finish to exit setup.

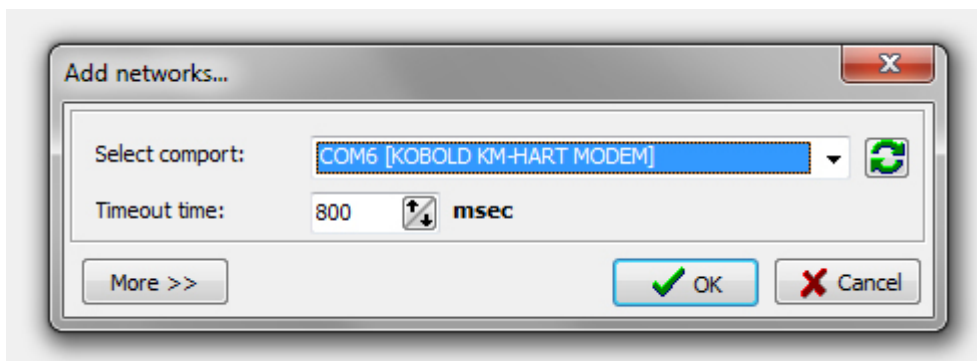


## 5.2 Add network

Click the **Add Network** button. (Further details are described in chapter 6.4.)

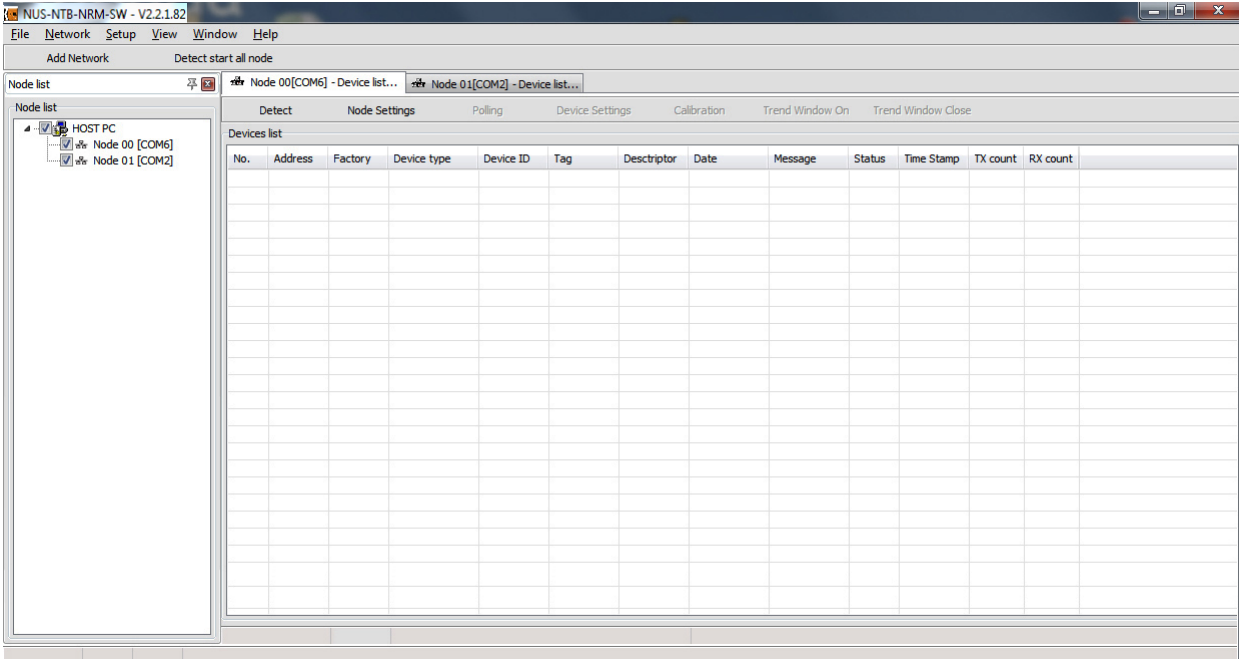


Choose the communication port.



**Note!** The NUS-NTB-NRM-SW Software is able to handle multiple (Nodes) current loop networks (maximum up to 10). If there is more than one current loop click again on the „Add Network” button (and repeat the same procedure as before) to add further current loops to the Node list. Switching between the loops can be done with the pages on the upper bar and the networks also appear in the „Node List” window.

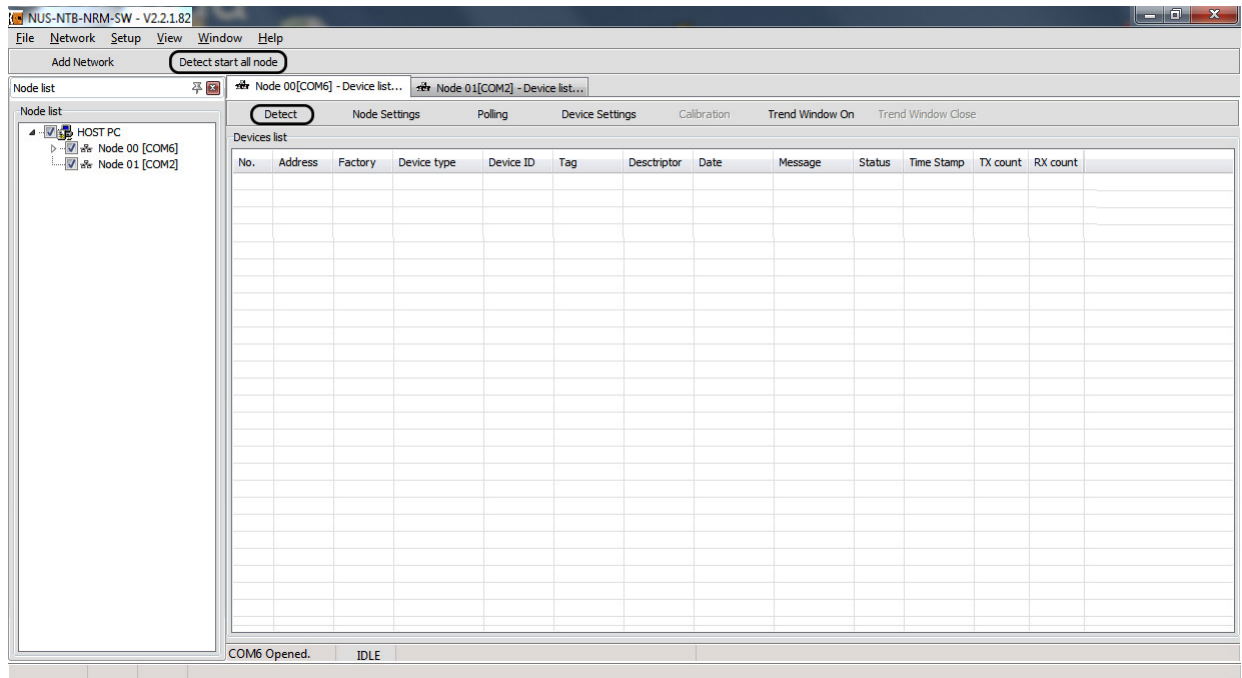
# NUS-NTB-NRM-SW Software



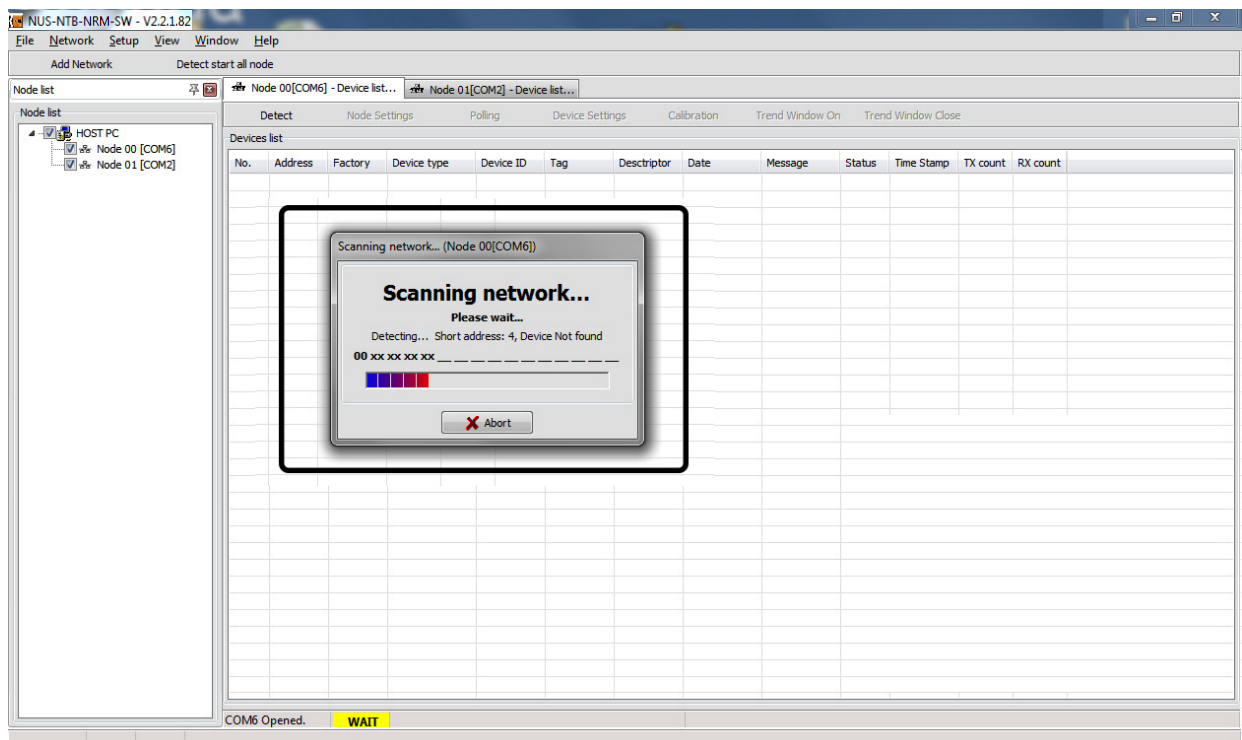
## 5.3 Scanning devices

Click the **Detect** button.

The **Detect start all node** button in the upper menu bar starts the device detection in all the connected communication ports, and the **Detect** button in the lower toolbar starts the device detection only on the selected communication port. (Further details are described in chapter 6.5.2.)



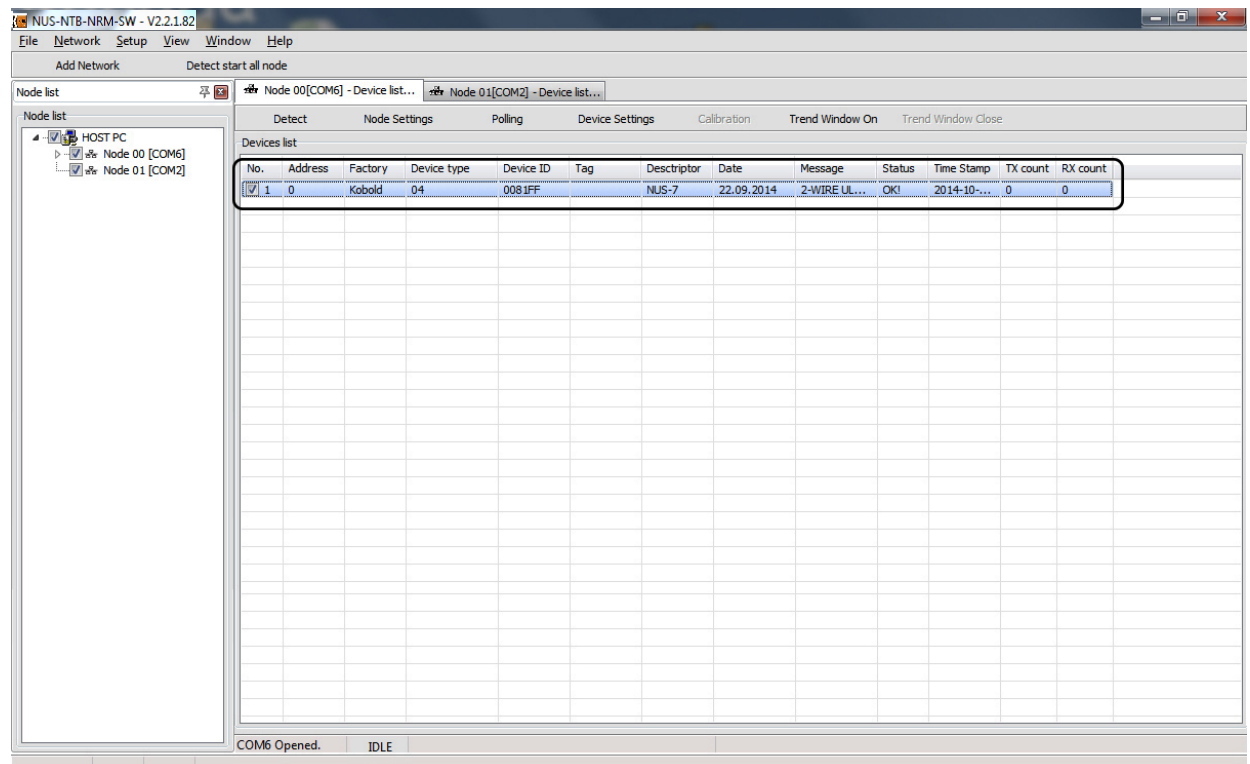
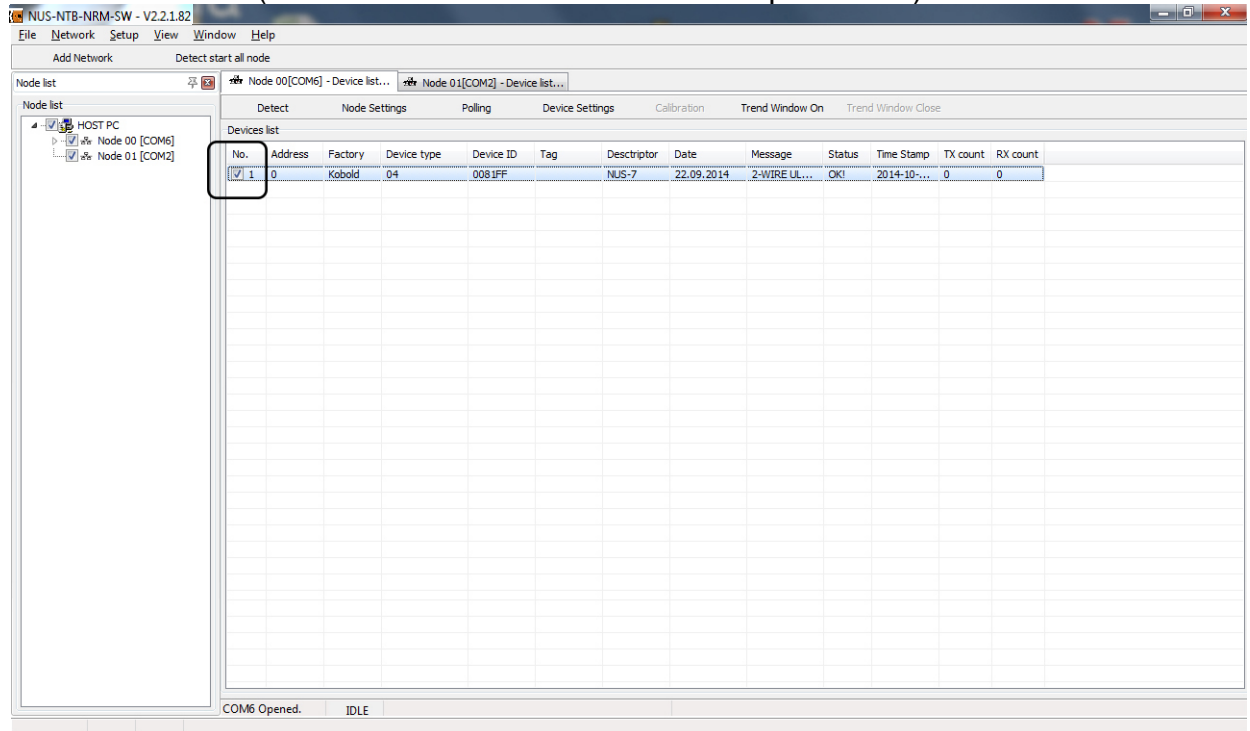
The below **Scanning network** window appears when the detection starts.



# NUS-NTB-NRM-SW Software

## 5.4 Select device(s)

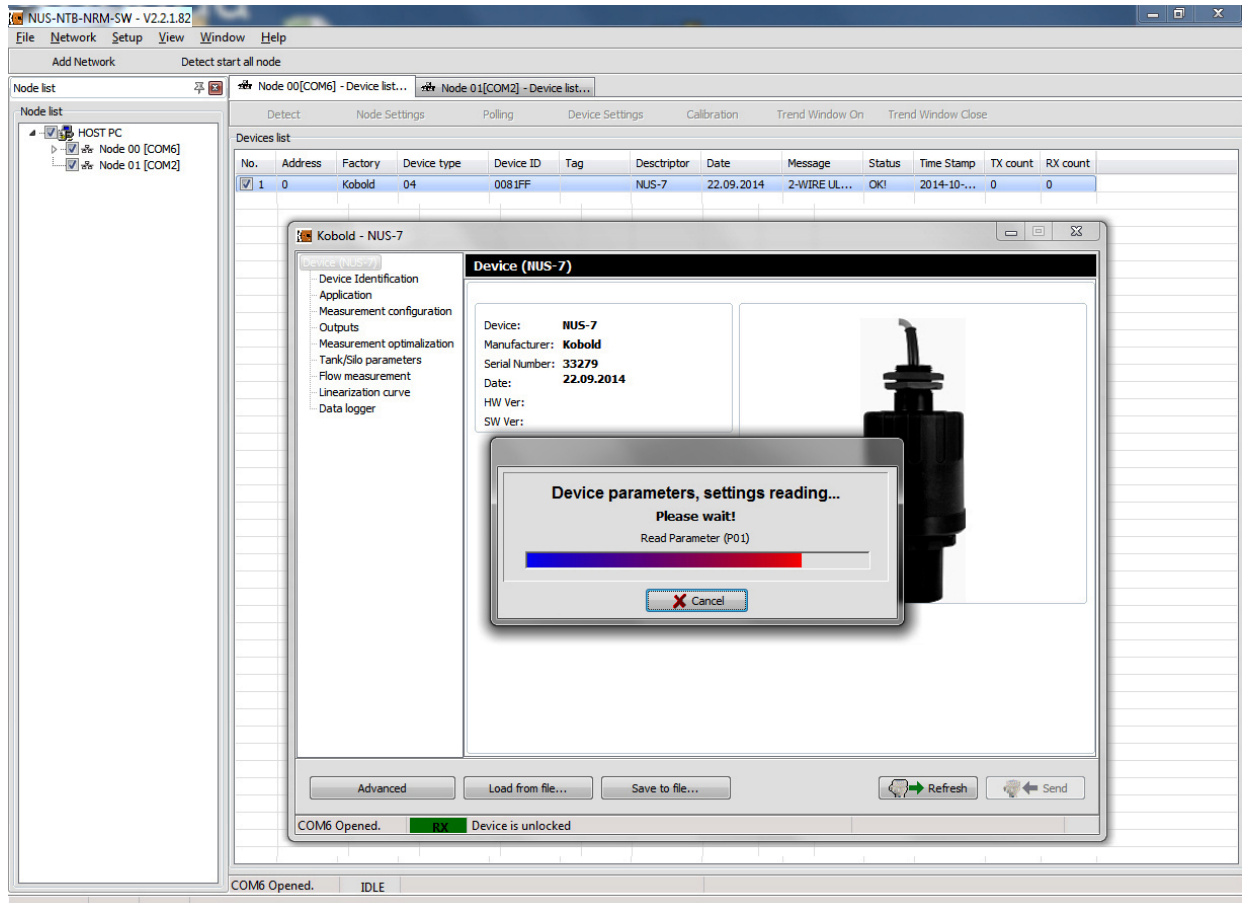
To select between the detected devices tick the checkbox next to the list number or insert the line. (Further details are described in chapter 6.5.2.)



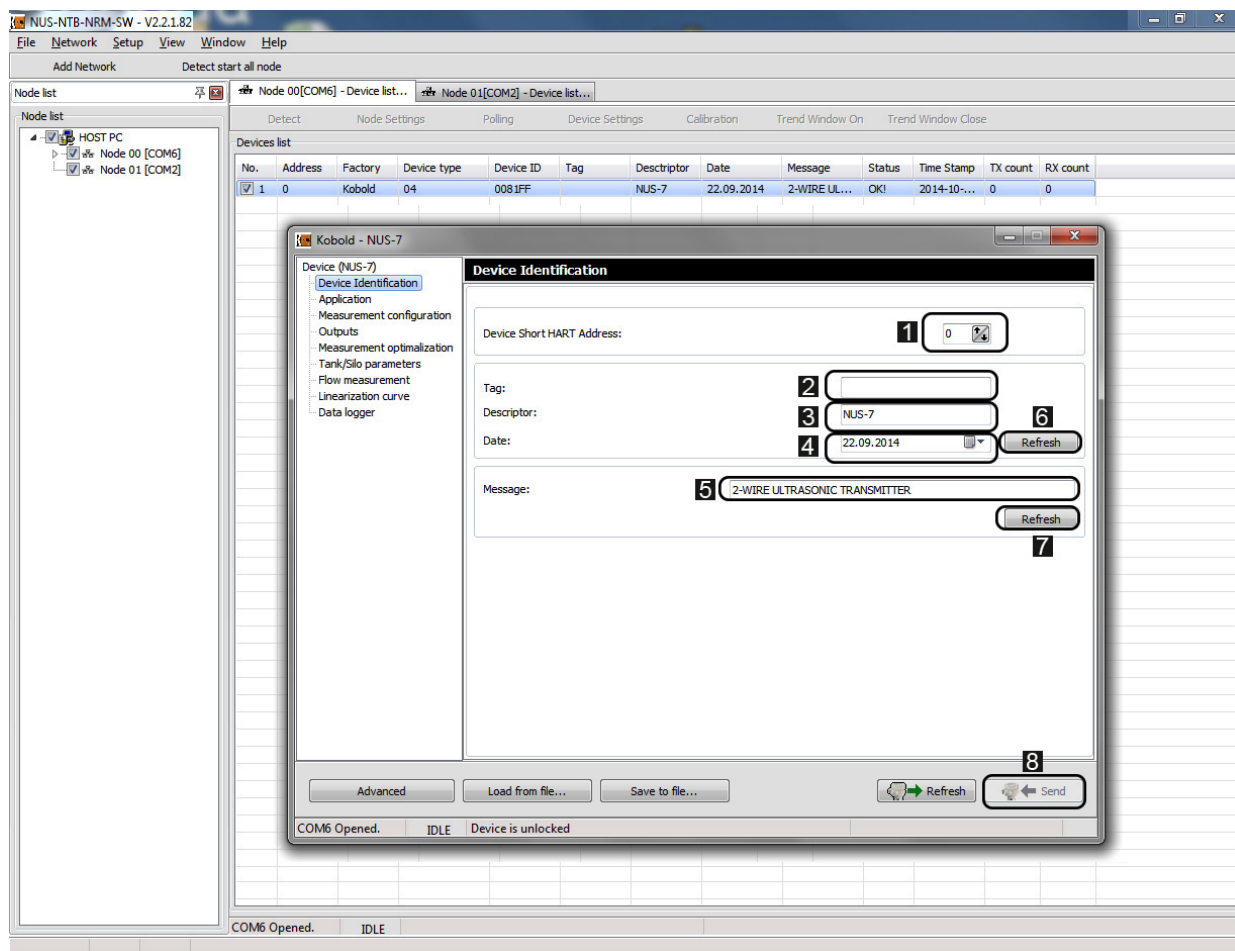


## 5.5 Device settings

The software reads out all device parameters by clicking the **Device settings** button and opens the remote programming and user settings window of the selected device. The software reads out the parameter values automatically. (Further details are described in chapter 6.6.)



# NUS-NTB-NRM-SW Software



This window shows the device specific settings. The window consists of two main parts, on the left there is a navigation screen and on the right the modifiable settings are listed.

The user selectable parameters of the **Device Identification** menu are the following:

Short (HART) address **1**

Name tag **2**

Descriptor **3**

Date **4**

Message **5**

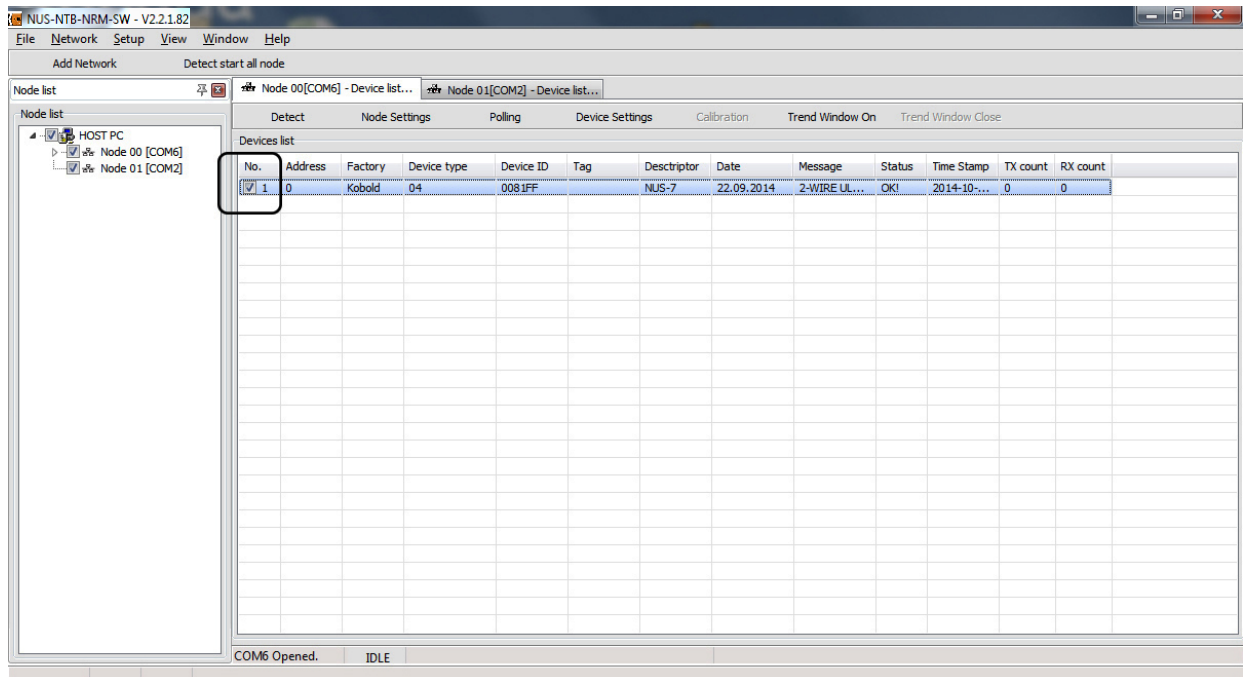
The previous values (before the modification) can be read out by clicking the **Refresh** **6**, **7** button.

The modifications can be applied and send to the transmitter by clicking the **Send** **8** button. To exit from the Device settings window just simply close the window.

## 5.6 Start measurement

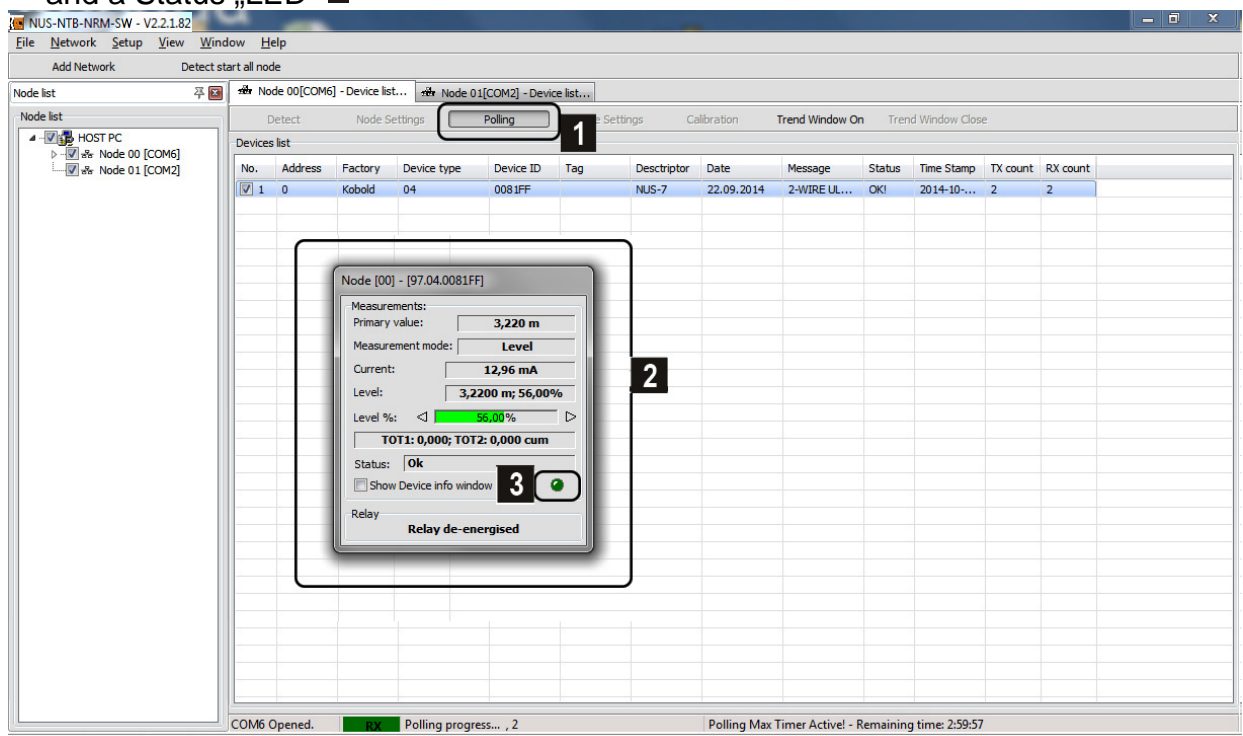
To start the measurement, tick the checkbox next to the list number of the detected device. Then the inactive **Polling** button becomes active.  
(Further details are described in the end of chapter 6.5.)

# NUS-NTB-NRM-SW Software

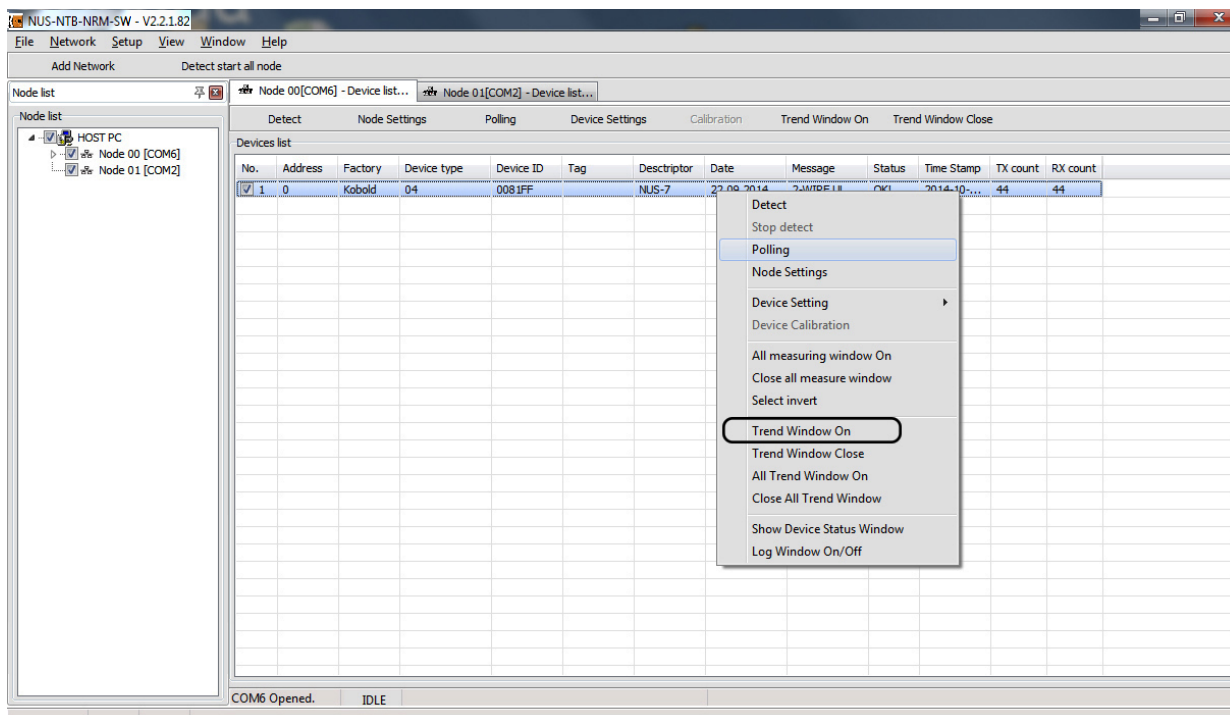


To start visualize the measurement values click **Polling** 1 button.

The opened small window shows cycle queried information, measured values 2 and a Status „LED” 3



## 5.7 Trend logging

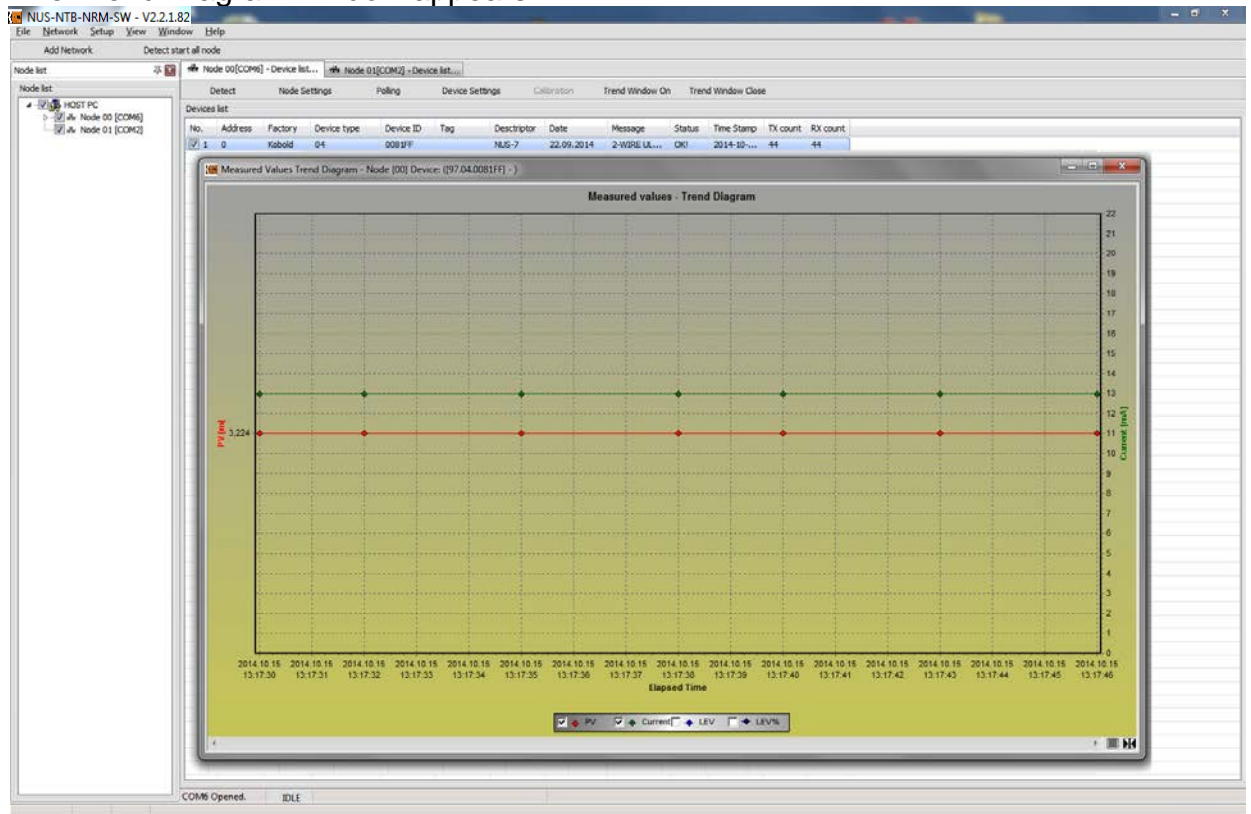


Since the Polling (querying the measurement data) is started (the maximal time limit is 3 hours) then the values can be displayed on a Trend Diagram.

Click the **Trend Window On** button in the upper menu bar or in the Device list window click the right mouse button on the line of the selected device to see the popup command list menu with more functions. Choose the **Trend Window On** command from this list menu. (Further details are described in chapter 7.2.)

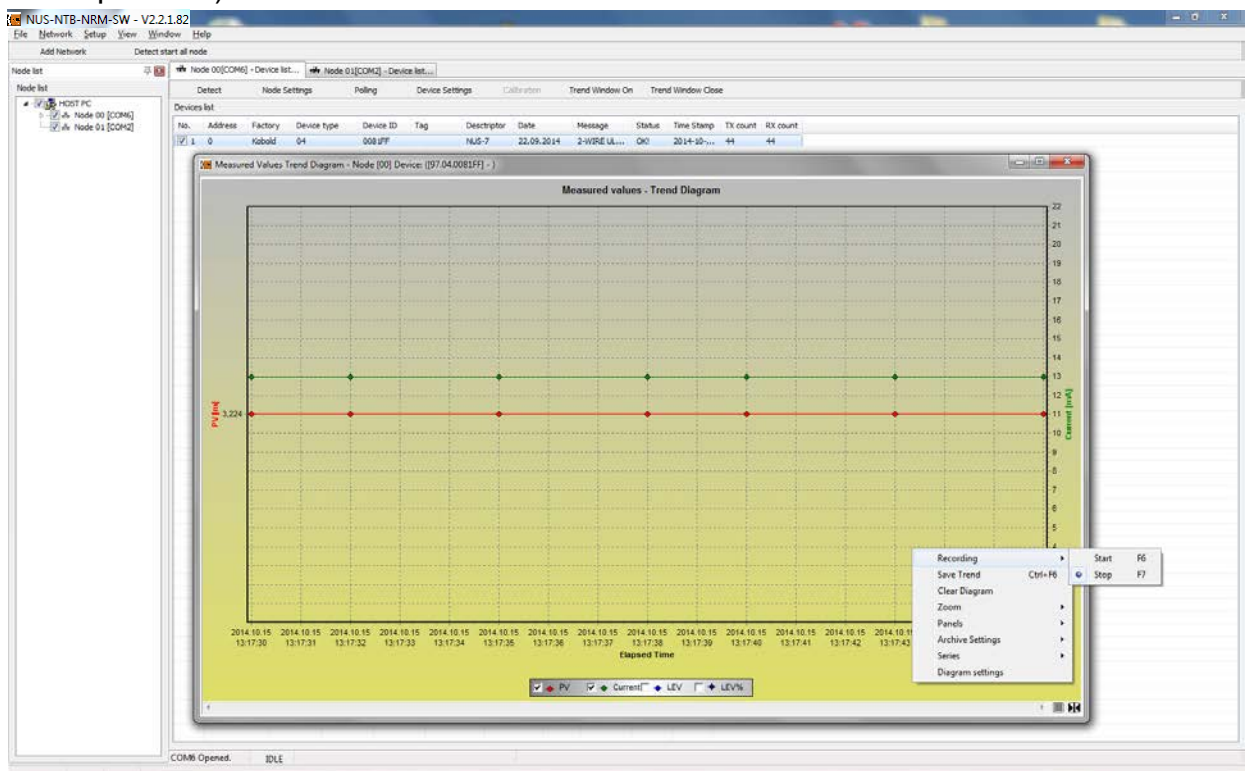
# NUS-NTB-NRM-SW Software

The Trend Diagram window appears.



In the Trend Diagram window the right click popup menu provides many new settings.

For example here you can find the data-logging settings or start the Recording by pressing F6 or click **Recording** → **Start** command in the menu. Then the recorded Trend Diagram can be saved. (Further details are described in chapter 7.2.)



# NUS-NTB-NRM-SW Software

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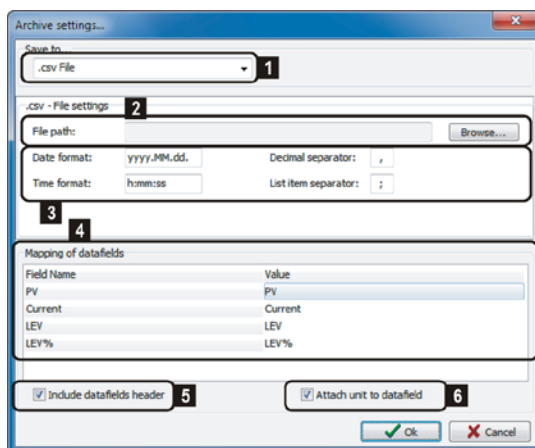
Then a new window appears where the following settings should be selected for saving into file:

- File type **1**,
- File path **2**,
- Date and time format **3**,

The header settings of the saved file can be selected:

- Name of the header datafields **4**,
- Whether include the header datafields **5**, and attach units to the datafields **6**

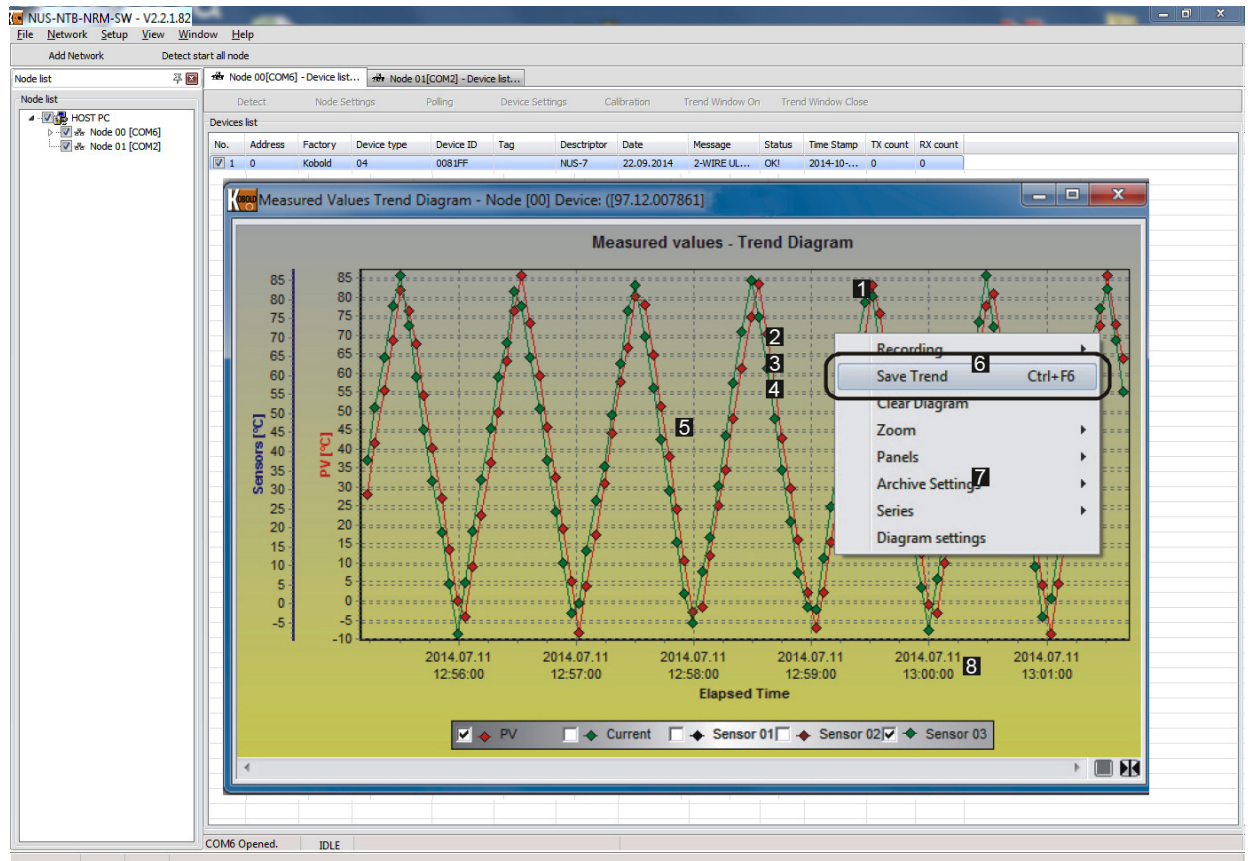
Click the **OK** button to apply the settings.





# NUS-NTB-NRM-SW Software

Click the **Save Trend** command (Ctrl+F6) to save the measurement data to file and also select the saving settings when the Recording is in Stop state. In this case the above setting window appears again with the same saving settings.  
(Further details are described in chapter 7.2.)



## 6. Detailed description of the software

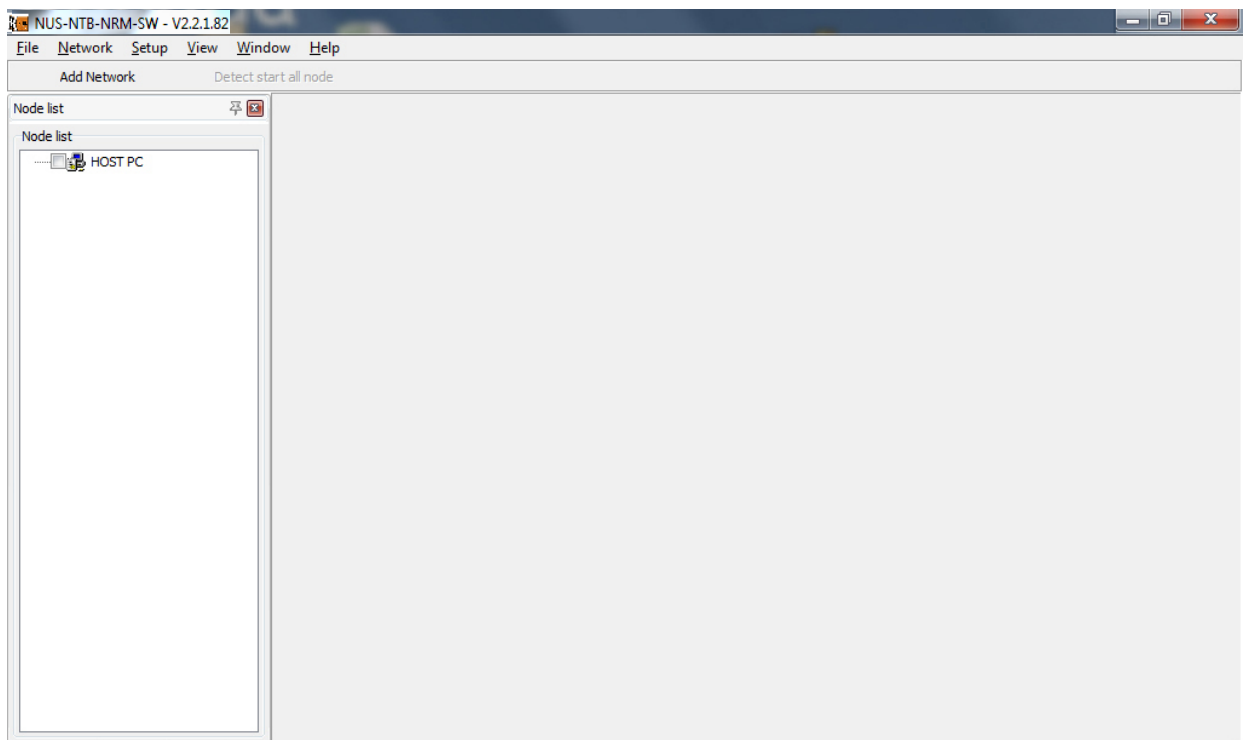
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### 6.1 Running the application

Run the application with NUS-NTB-MRM-SW.exe file.

### 6.2 Running the application

The following main screen appears as welcome screen:



The main screen contains the following elements:

Menu bar: File, Device, Network, Setup, Tools, View, Window, Help

Quick buttons: Add network, Detect start all node

The language (English, etc...) can be selected at the **Language** menu point in the **Setup** menu.



## 6.3 Elements of the main screen

In the drop-down menus of the menu bar the following functions can be reached:

### 6.3.1 File menu

Exit from NUS-NTB-NRM-SW (Alt+F4).

### 6.3.2 Network menu

**From this menu Add Network (Ctrl + H), Del Network (Shift + Ctrl + D) and Del all Network can be selected.**

### 6.3.3 Setup

**In the Setup menu the language (English, etc... ) can be selected at the Language menu point.**

### 6.3.4 Tools

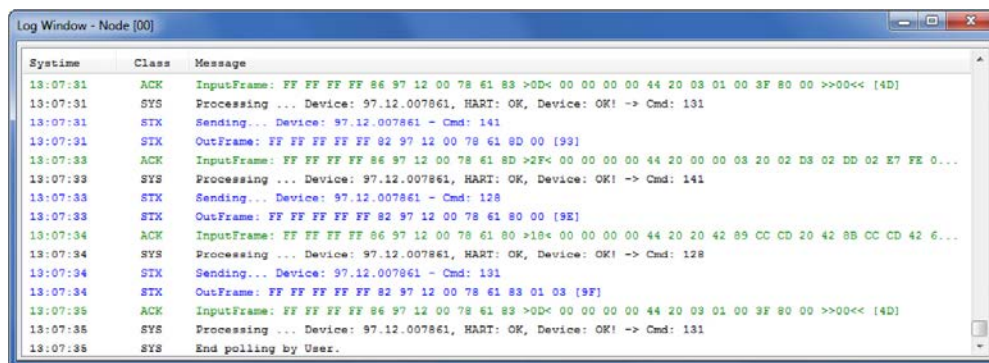
**In the Tools menu there are integrated tools like the Parameter File Editor & Viewer and the Record File Viewer. (Further details are described in chapter 8.)**

### 6.3.5 View

**Two functions can be found here: Node Log Window(s) and Project (F3).**

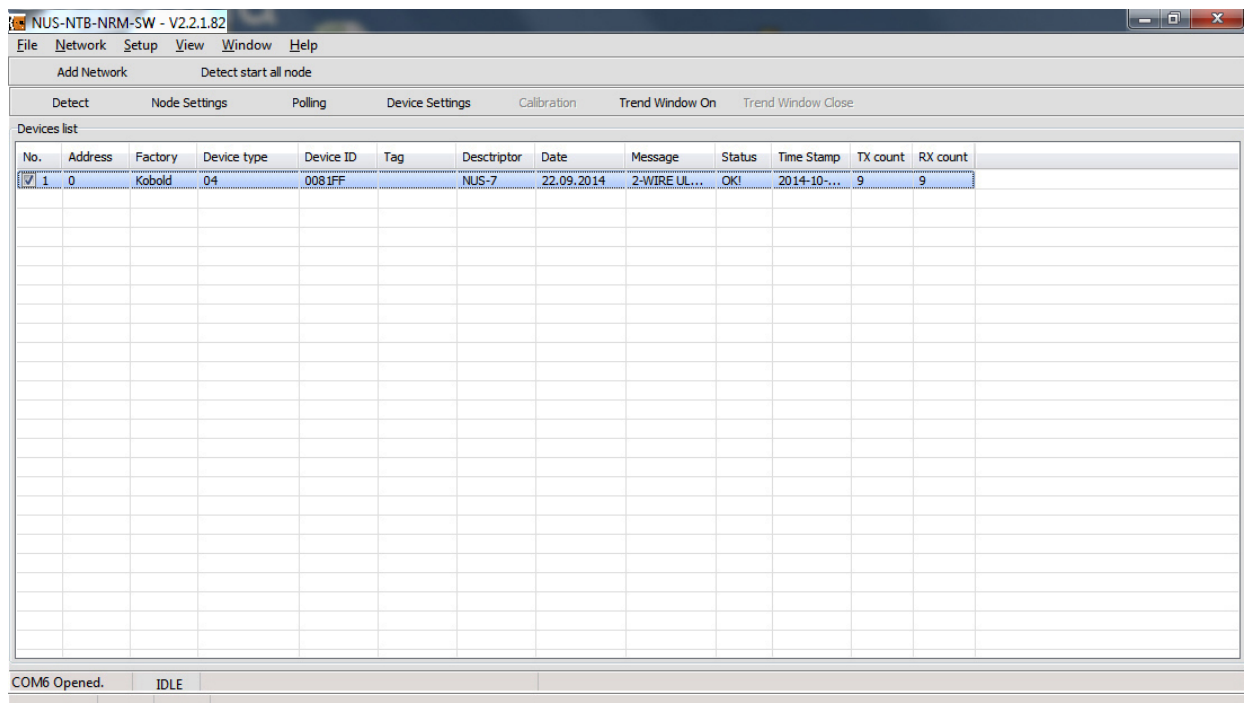
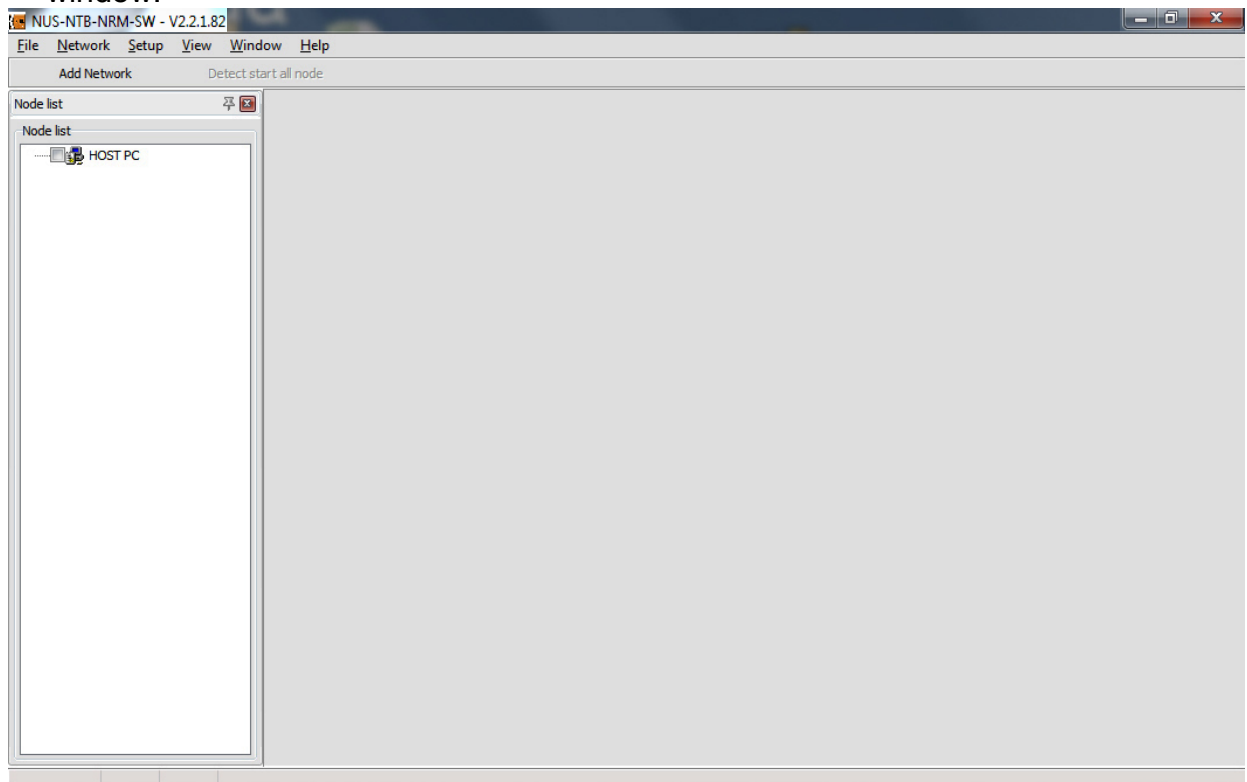
In the Node Log Window(s) menu point you can hide the communication log for the "Node window". With the "Show All"/"Hide All" options all communication logs can be opened or closed with one click.

The Communication Log displays all incoming and outgoing communication messages including warning and error messages are monitored.



# NUS-NTB-NRM-SW Software

The Project menu command (F3) activates the Node list on the left side. If the tick is deactivated in the menu the Device list fills the entire place available in the window.



### 6.3.6 Window

In this menu you can select between the windows. The two options: Next window, Previous window can be used in case of multiple Nodes to scroll between the Nodes.

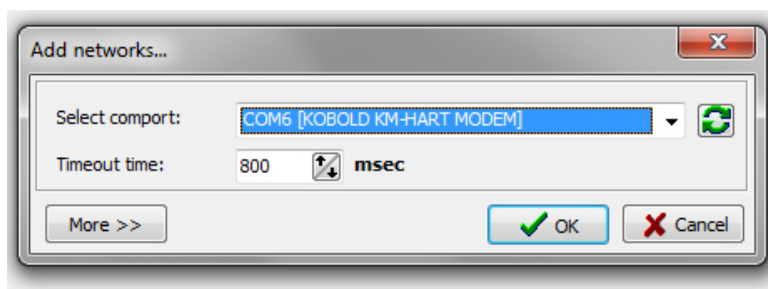
## 6.3.7 Help

The About window shows the general information of NUS-NTB-NRM-SW, such as version number, registered user, date of release, contact e-mail address.

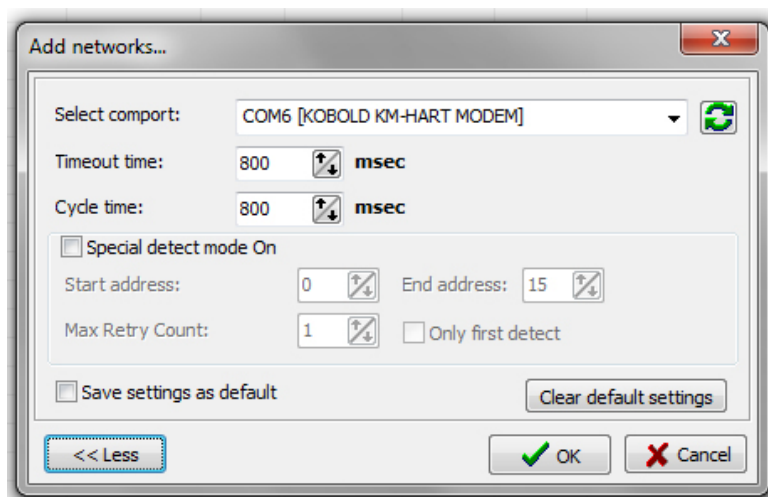


## 6.4 Connection settings

Click the **Add network** quick button to choose the communication port of the network to be added. The following window appears:

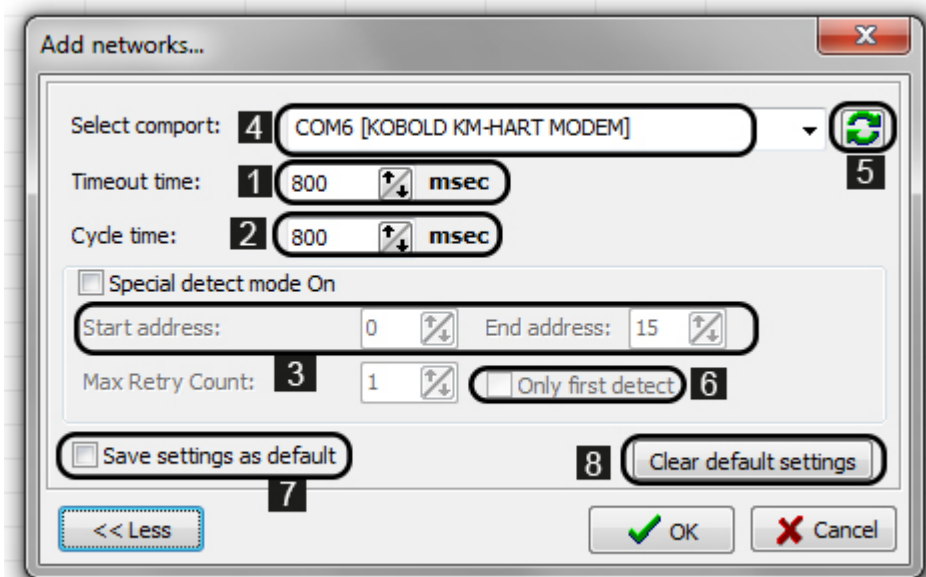


Click the **More** button to reach further settings. New settings appear in addition to the Add networks window:



# NUS-NTB-NRM-SW Software

Tick the **Special detect mode On** to activate the special settings of the detection mode to be modified. The special settings are described in the following figure:



- 1 Timeout time is the time until the software is waiting for the answer packets.
- 2 Cycle time is the time until the software is waiting for the queried information.
- 3 The HART short address range can be specified for the Device Detection.
- 4 Modem selection
- 5 Refresh
- 6 When the 'Only first detect' checkbox is ticked the Device Detection ends when the first unit is detected.
- 7 Ticking the 'Save settings as default' checkbox and clicking on the OK button will save the actual network settings as default.
- 8 With the 'Clear default settings' button you can delete the user-saved default setting and can reset to factory default values.

Click the **OK** button to apply the network selection. Then the device list appears and a new toolbar including the Detection button becomes available.

## 6.5 Toolbar

The appearing new toolbar contains the following menu points:

- Detect, Node settings, Polling, Device settings, Calibration, Trend window on, Trend window close

## 6.5.1 Device list information

- No.: List number (list numbers of the detected devices)
- Address: HART® Short address („0” for single device, „1..15” for multiple devices on the HART® loop)
- Factory: KOBOLD – given by HART® Communication Foundation
- Device type: Type identification number of the HART® capable KOBOLD transmitters, - cannot be user modified
- Device ID: The manufacturer’s electronic production number, - cannot be user modified
- Tag: 8 byte device descriptor, usually order code, - can be modified by the user
- Descriptor: Max. 16 byte arbitrary comment that can be assigned to the device and is generally operation principle-related, - can be modified by the user
- Date: Can be assigned to the device (for example last modification of the Tag or Descriptor) - can be modified by the user
- Message: Max. 32 byte arbitrary comment that can be assigned to the device and is generally operation-related, - can be modified by the user
- Status: result of last programming or query data request: OK! or Error!
- Time stamp: date of last data request
- TX count: number of outgoing messages sent to a given device
- RX count: number of incoming messages received from a given device



Note! All data in the device list are queried from the devices.

## 6.5.2 Overview on the toolbar

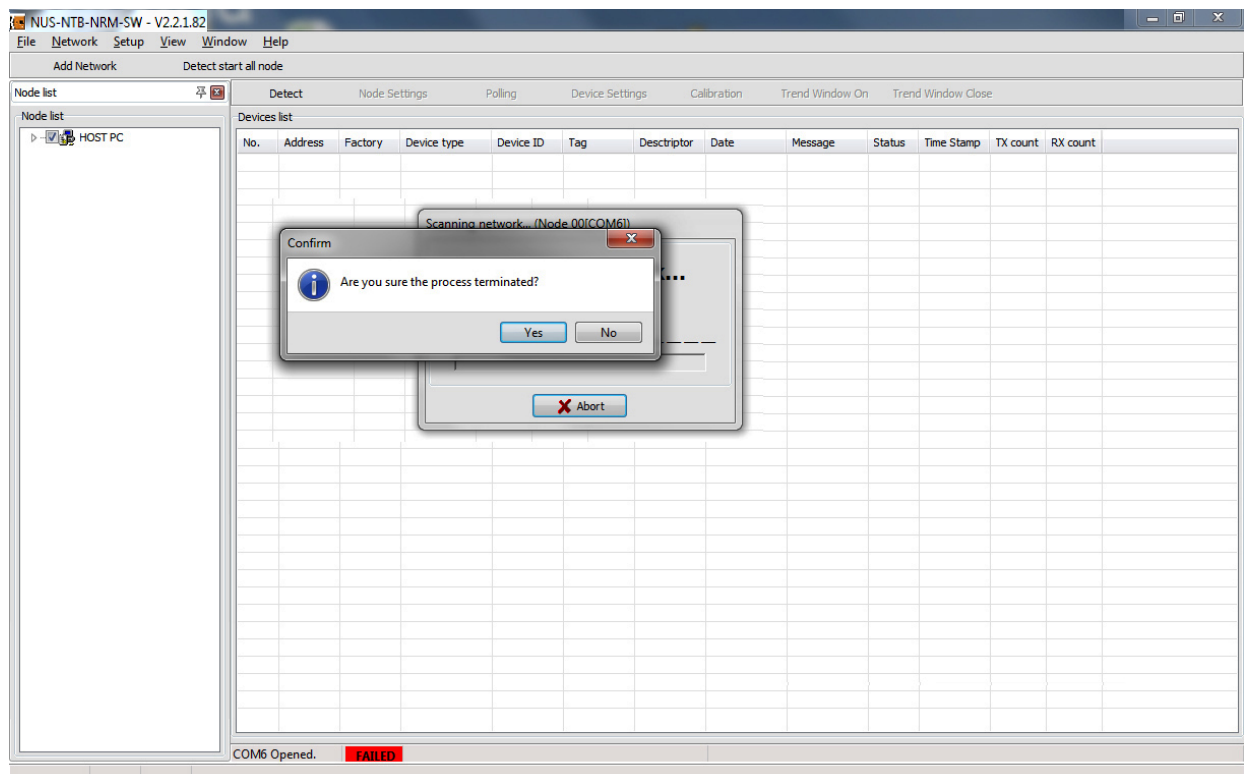
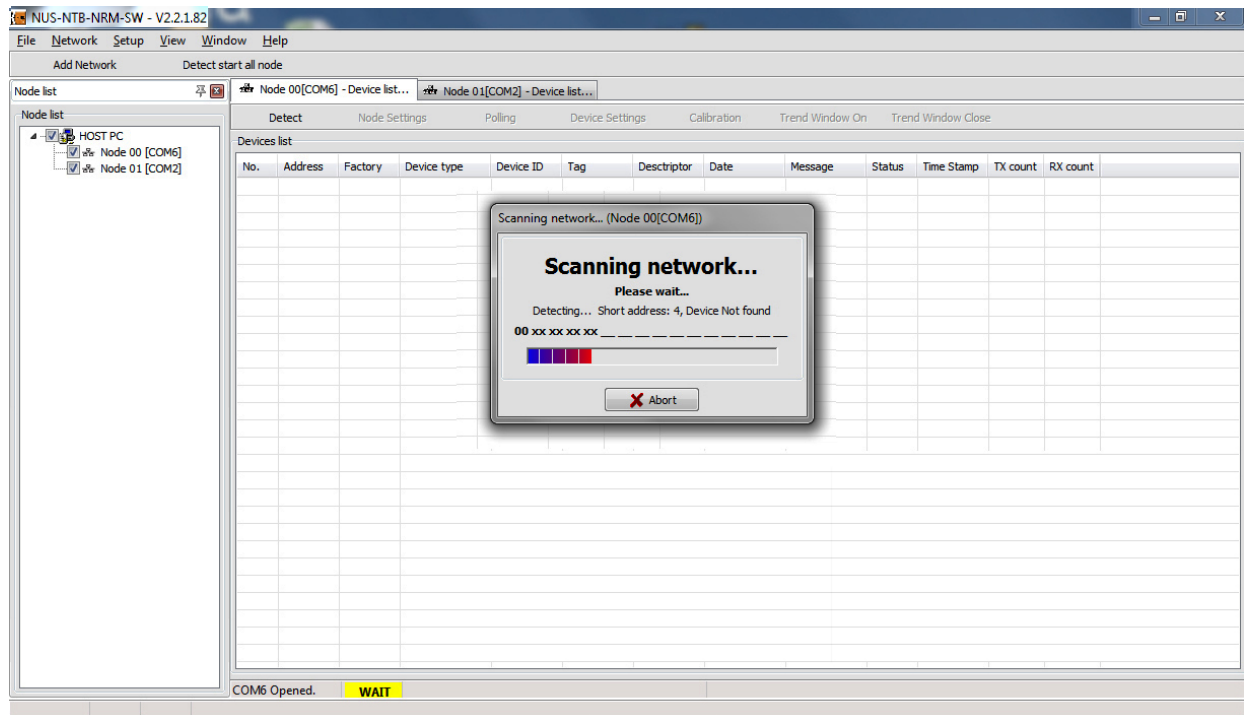
With starting the **Detect** the connected devices appear in the device list.

The software queries the transmitters through the HART® loop from address 0 to 15 and lists them with a list number. The software detects the devices in accordance to the „Short address” that is why two or more devices must not have the same Short address. The „Short address” and the list number are not the same. The devices receive the „Short address” by the factory calibration by the manufacturer.

The device detection procedure can be stopped or aborted by clicking the **Abort** button. Then a new window appears in order to confirm the abortion or go back to continue the detection.

After the successfully finished device detection new command buttons became active in the toolbar (Polling - only if a device is selected by its checkbox next to its list number, Device Settings - with selecting the line of the device in the list, Calibration - only for pH analytical transmitters, Trend Window On - with selecting the line of the device in the list, Trend Window Close - when the trend window is opened).

# NUS-NTB-NRM-SW Software



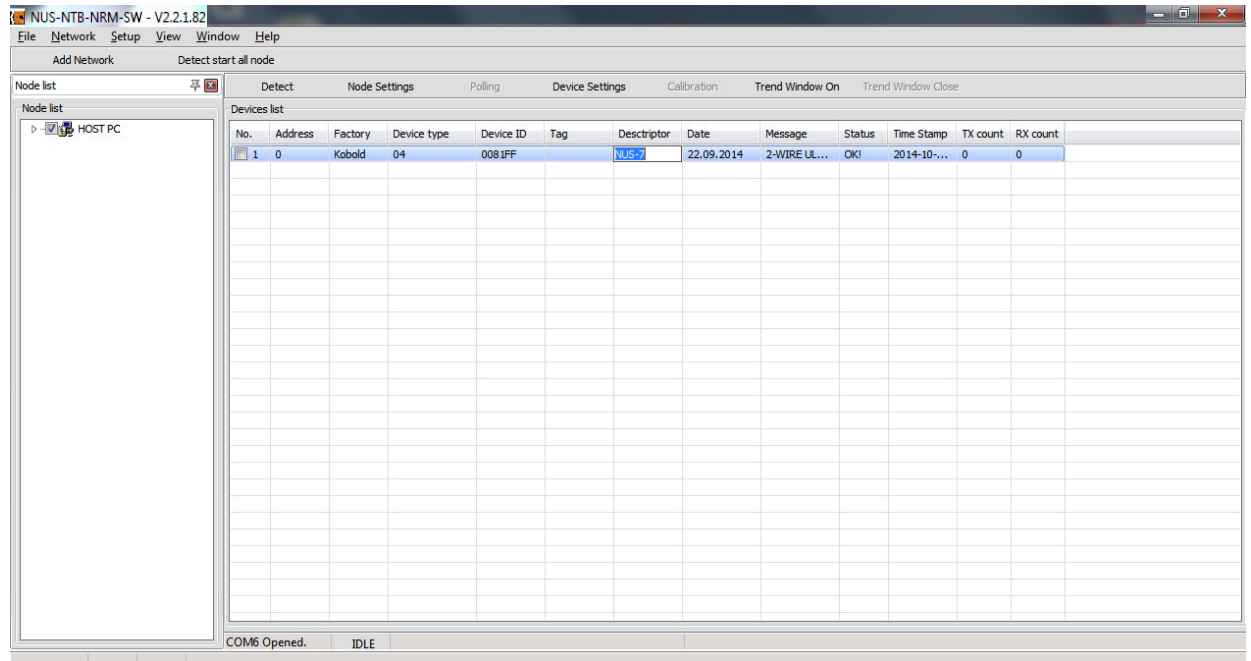
Ticking the checkbox next to the list number of the selected device and clicking the activated 'Polling' a new window appears. To select all devices in the list use the right mouse button popup menu and click the All measuring window On command.

# NUS-NTB-NRM-SW Software

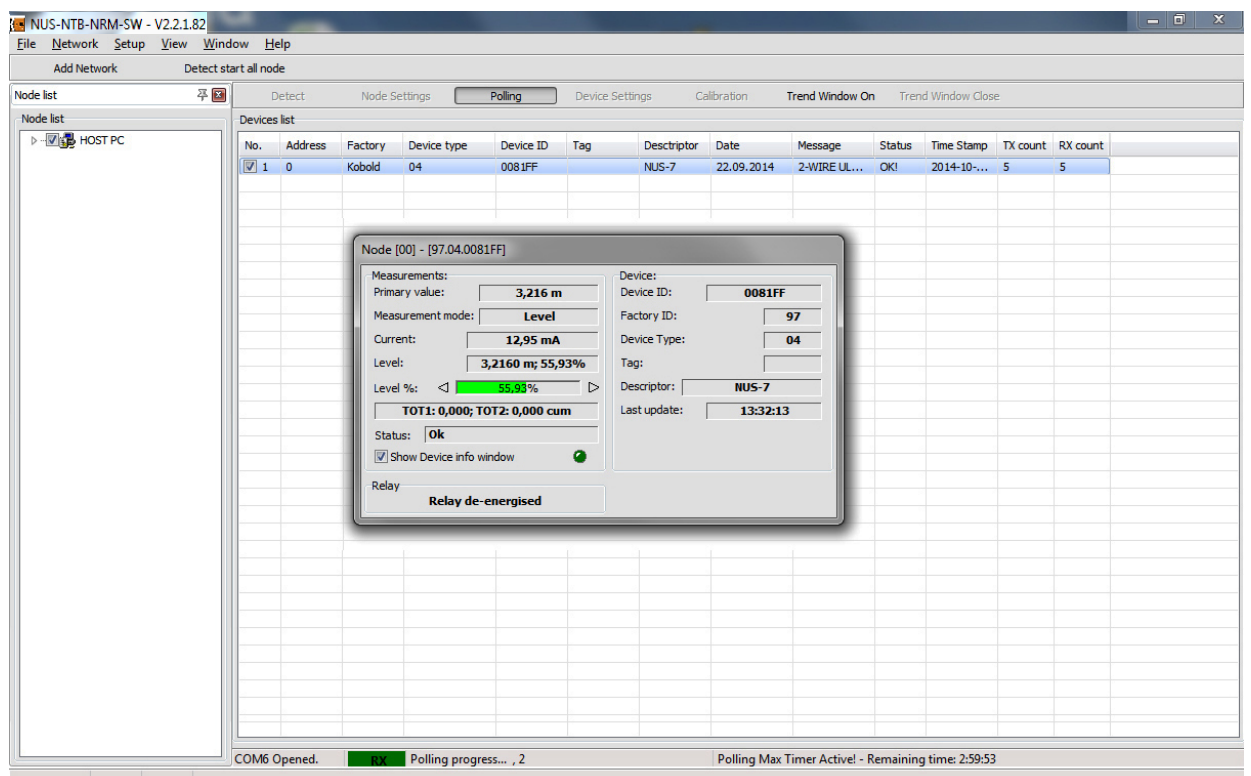
The data fields such as 'Short address', 'Tag', 'Descriptor', 'Message', which are allowed for user modification which fields can be easily edited by double click on the device list.



**Warning! Modifying these parameters will result immediate changes in the device after pressing the Enter button.**



When the **Show device info window** checkbox is ticked at the bottom, the Polling window will be added with further identification datafields.



# NUS-NTB-NRM-SW Software

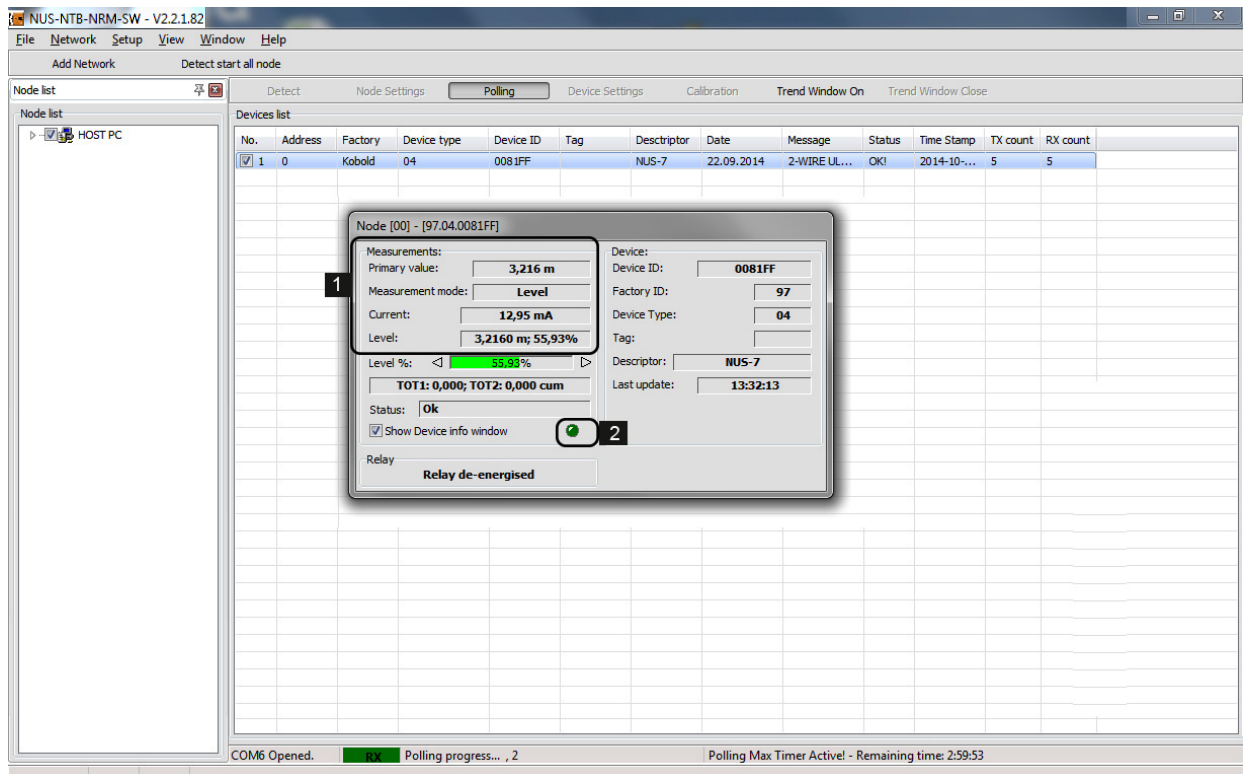
When the **Polling** button is clicked, the polling is started and the small window appears the continuous measurement data query starts. The maximum time interval of the Polling is 3 hours and the remaining time is indicated at the bottom status bar. To stop the measurement data query click again the **Polling** button. To close the Polling window untick the checkbox of the selected device or use the right mouse button popup menu and click the **Close all measure window** command.

1

- Cyclically queried information,
- Measurement values,
- Devices specific data, further details are described in the user's and programming manuals of the selected instruments

2

## Status LED





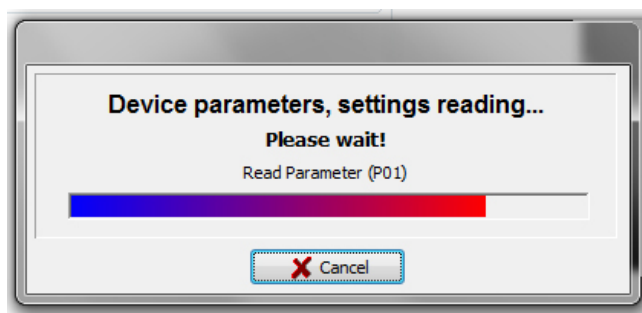
## 6.6 Device settings

After the successfully finished device detection all the connected devices appear in the device list. To modify device settings and perform remote programming the line of the device should be inserted.

**Opening the Device Settings window is possible only when the Polling is stopped.**

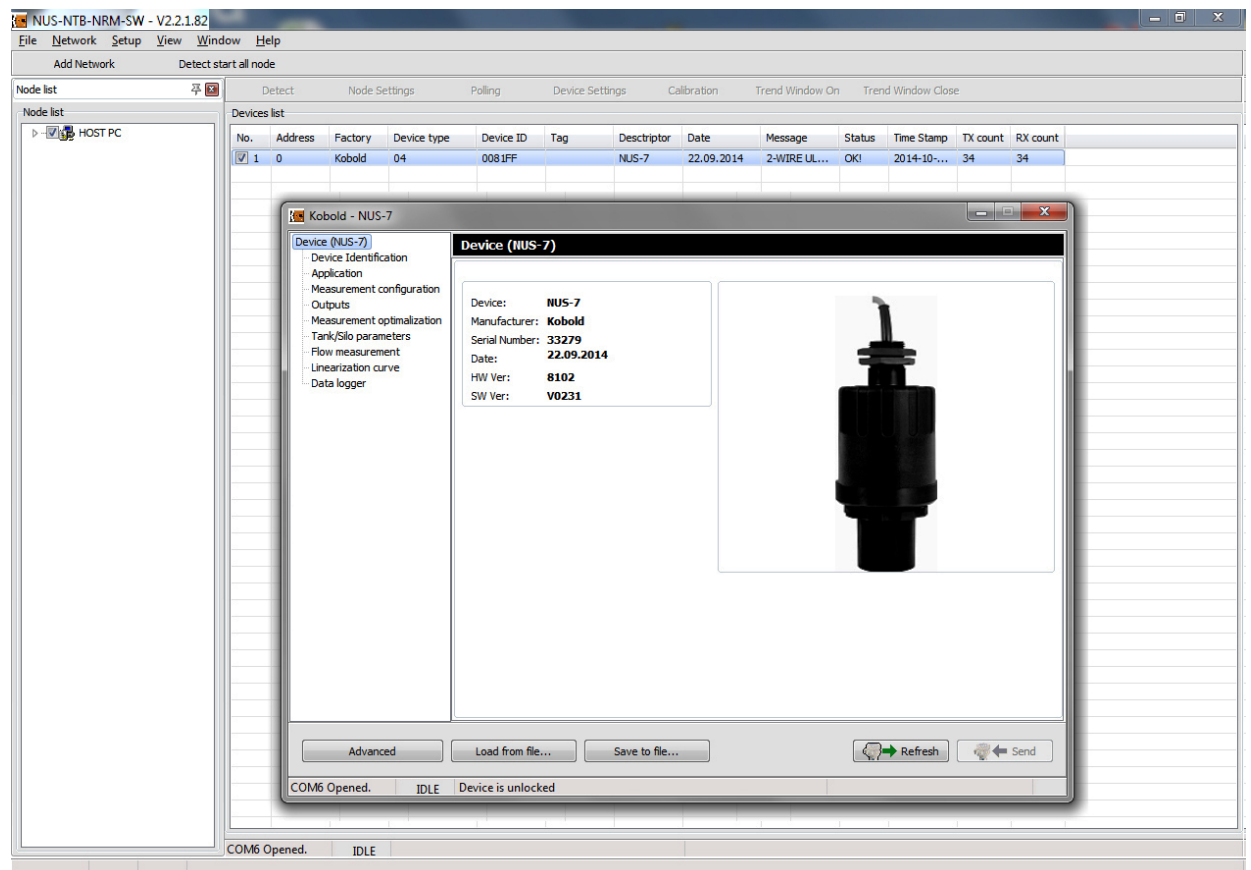
The device specific data and the detailed description of the programmable parameters of the transmitters can be found in the User's & Programming manual of the selected device. The factory default parameter values can be also found in the manuals.

By clicking the **Device settings** button a new window appears:



The device settings (specified for the given instrument) are accessible by the following tabs on the left.

If the device parameters are received from the device a new window appears containing the device settings specified for the given instrument:



# NUS-NTB-NRM-SW Software

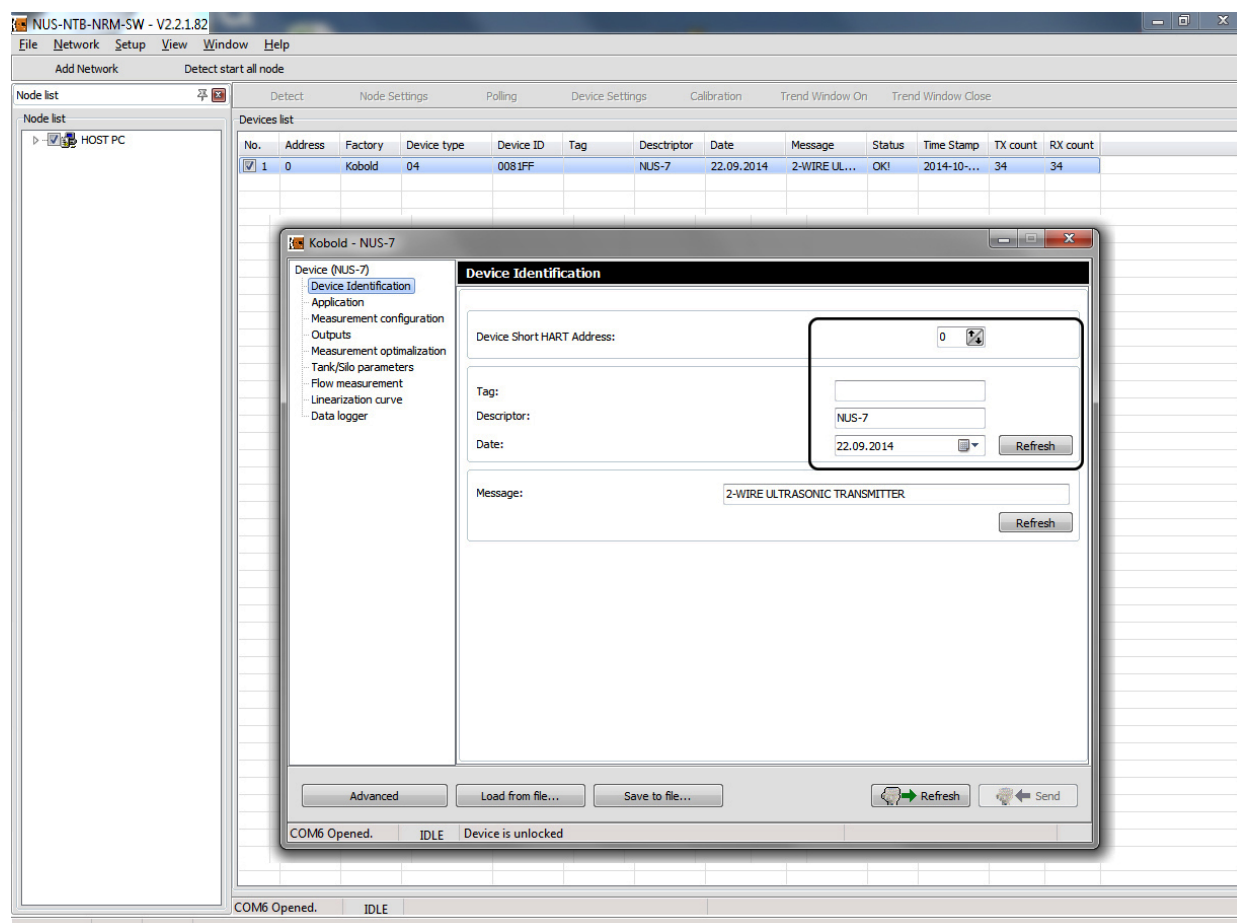
Displayed Information screen contains:

**Device:** Device name (series), Manufacturer, Serial number, Date, Hardware (HW) version, Firmware (SW) version

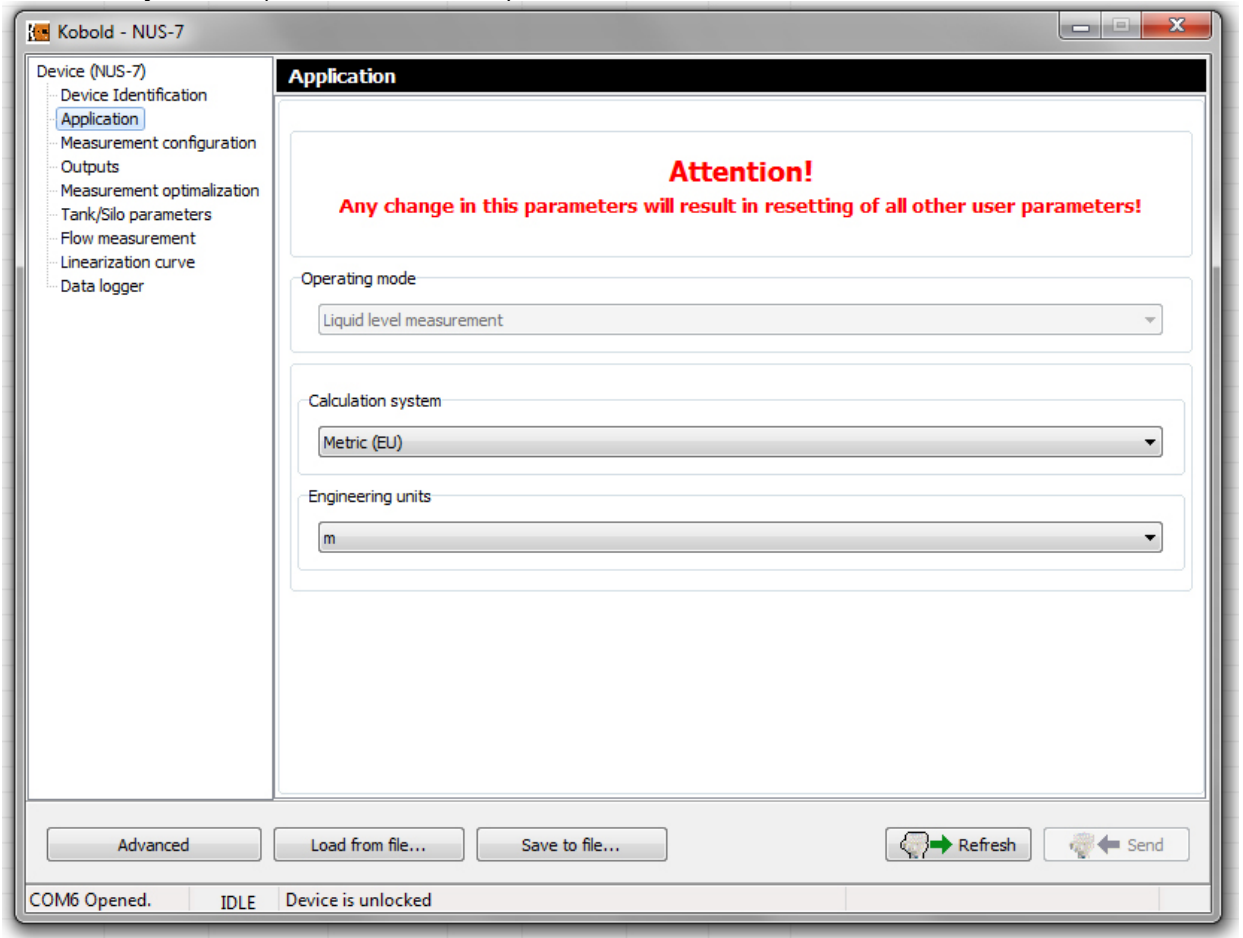
**Device Identification:** Device Short HART® Address, Tag, Descriptor, Date, Message, - the last two options can be refreshed

The settings are described in details in the user's and programming manual of the given instrument.

To apply any parameter modifications click the **Send** button to send the new parameter values to the instrument.

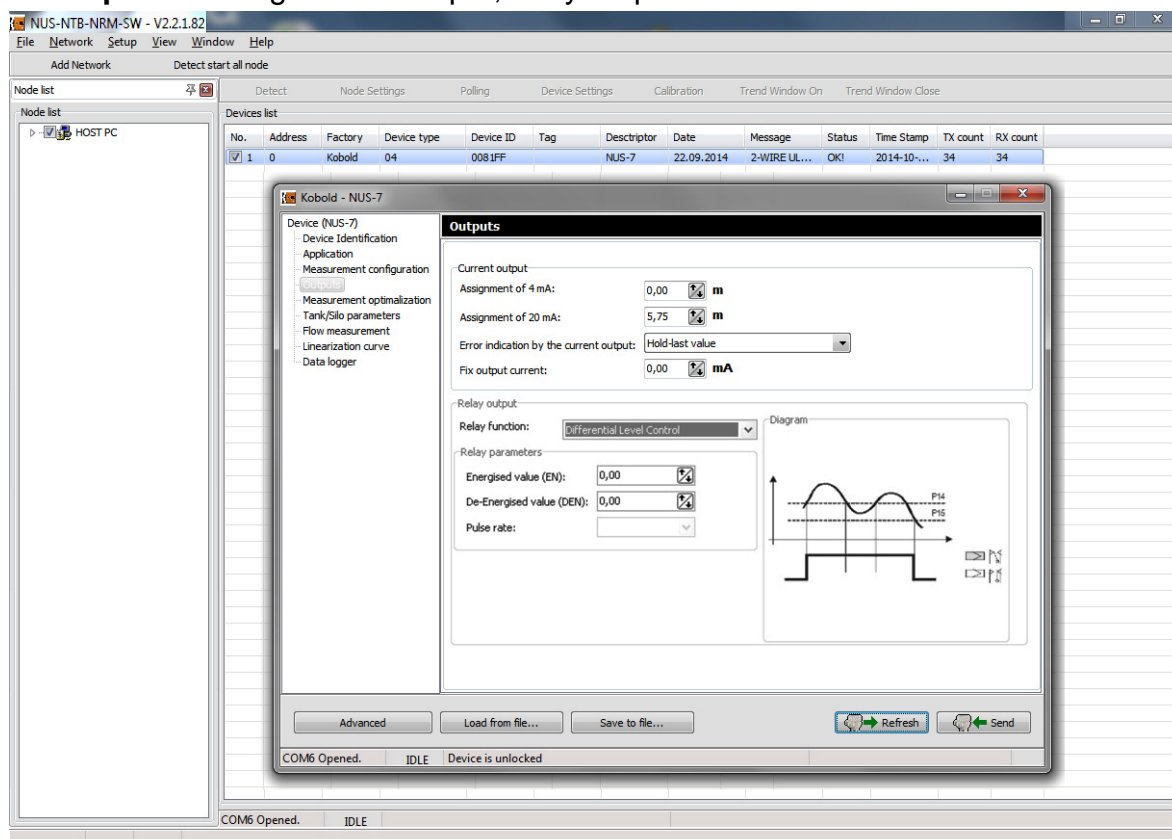


**Application:** Selecting operation mode (level measurement in liquids or in solids), Selecting engineering system (Metric - EU, Imperial - US), Selecting unit for Primary Value (mm, cm, m; in, ft)

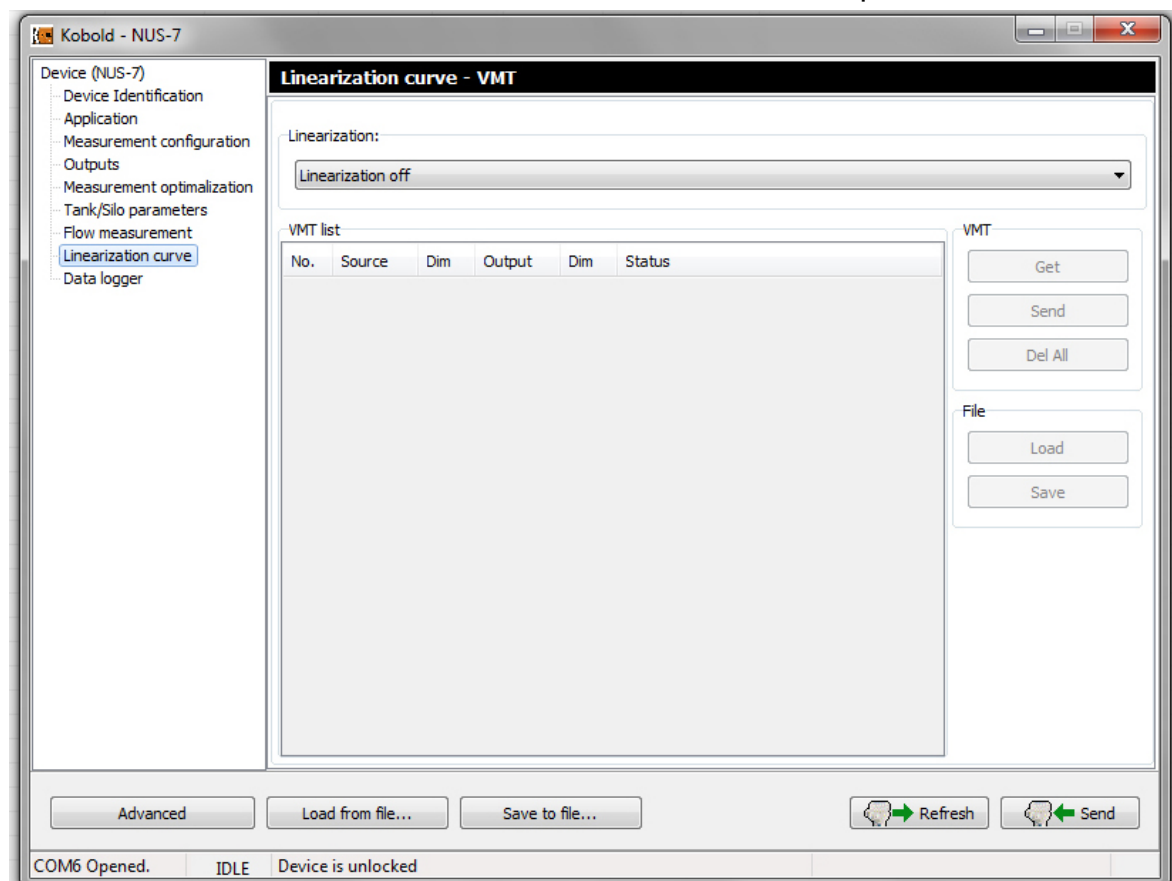


# NUS-NTB-NRM-SW Software

## Outputs: Editing current output, relay output values



**Linearization curve:** Further details are described in chapter 7.4.



# NUS-NTB-NRM-SW Software

Click the **Advanced** button on the bottom left corner to reach further device settings specified for the given instrument, for example: Tag and Descriptor, Sensor info, Output and PV, Calibration, Parameters, VMT, Special, Echo map.



**These advanced functions are allowed to be modified only by trained personnel for own risk, because modifications in these parameters may have serious effects on the used processes controlled by the measurement instruments.**

By clicking the **Advanced** new menu points appear allowing configure additional device-specific features:

At the **Addressing** section the Polling (HART® Short) address can be selected. (Further details are described in chapter 6.5 -Detection)

**Tag and Descriptor** section: The Tag, Descriptor and the Date can be read out and modified. Click the Write button to apply the changes.

**Message** section: An operation related message can be set here.

The screenshot displays the 'Kobold - NUS-7' software window. On the left, a sidebar lists menu items: Device (NUS-7), Device Identification (selected), Sensor Info, Output and PV, Calibration, Parameters, Linearisation table (VMT), Special, and Echo map. The main area is titled 'Device Identification' and contains several input fields and buttons:

- Polling Address:** A numeric field set to '0' with a 'Write' button.
- Device ID:** A numeric field set to '33279' with a 'Write' button.
- Tag:** An empty text field.
- Descriptor:** A text field containing 'NUS-7' with a 'Read' button.
- Date:** A date field set to '22.09.2014' with a 'Write' button.
- Message:** A text field containing '2-WIRE ULTRASONIC TRANSMITTER' with 'Read' and 'Write' buttons.

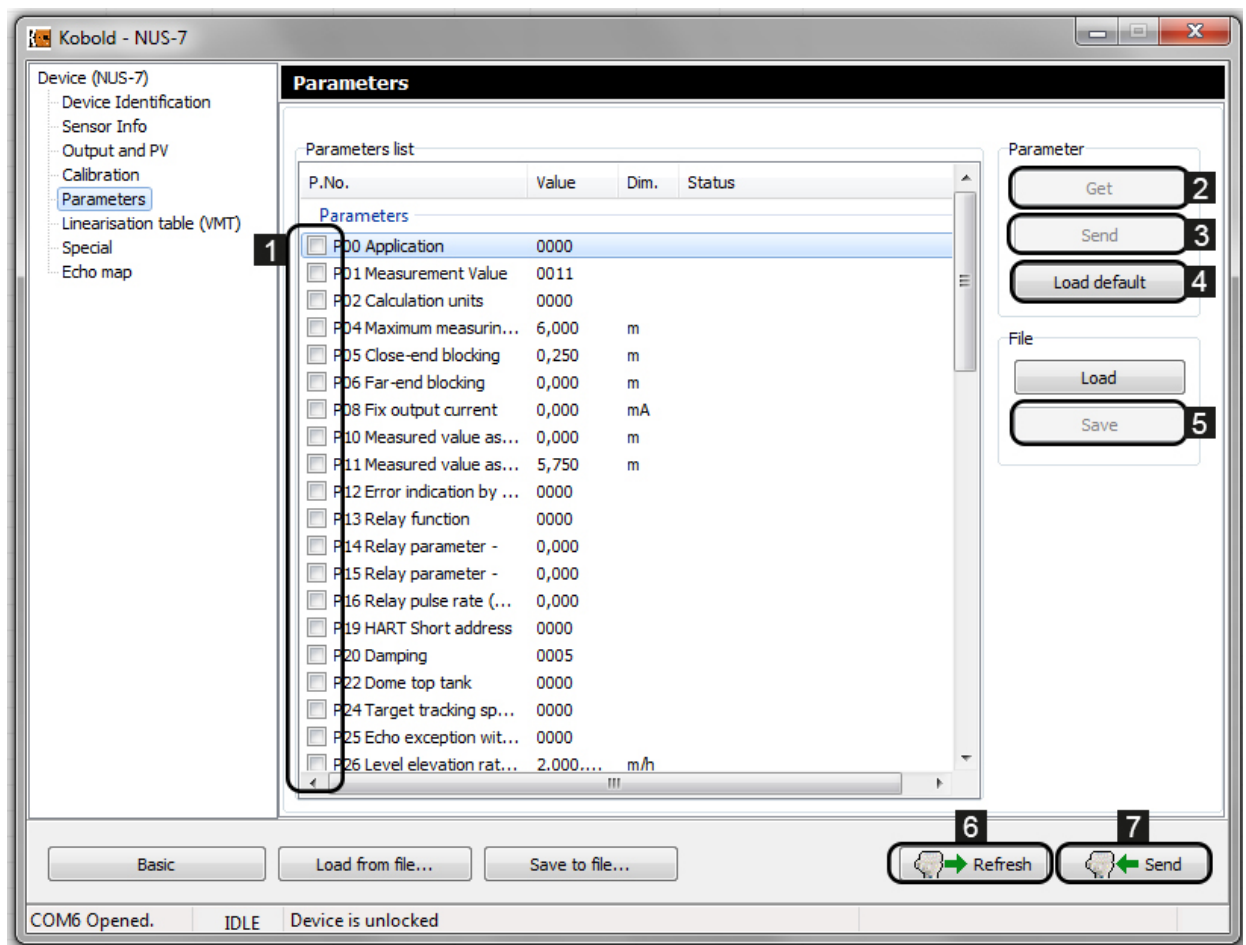
At the bottom of the window, there are buttons for 'Basic', 'Load from file...', and 'Save to file...'. On the right, there are 'Refresh' and 'Send' buttons. The status bar at the very bottom shows 'COM6 Opened.', 'IDLE', and 'Device is unlocked'.




# NUS-NTB-NRM-SW Software

At the **Parameters** menu all user programmable device parameters are listed. Each parameter can be selected and then edited, get from the device or sent to the device, load from file and save to file.

Perform the following step to modify the device parameters:

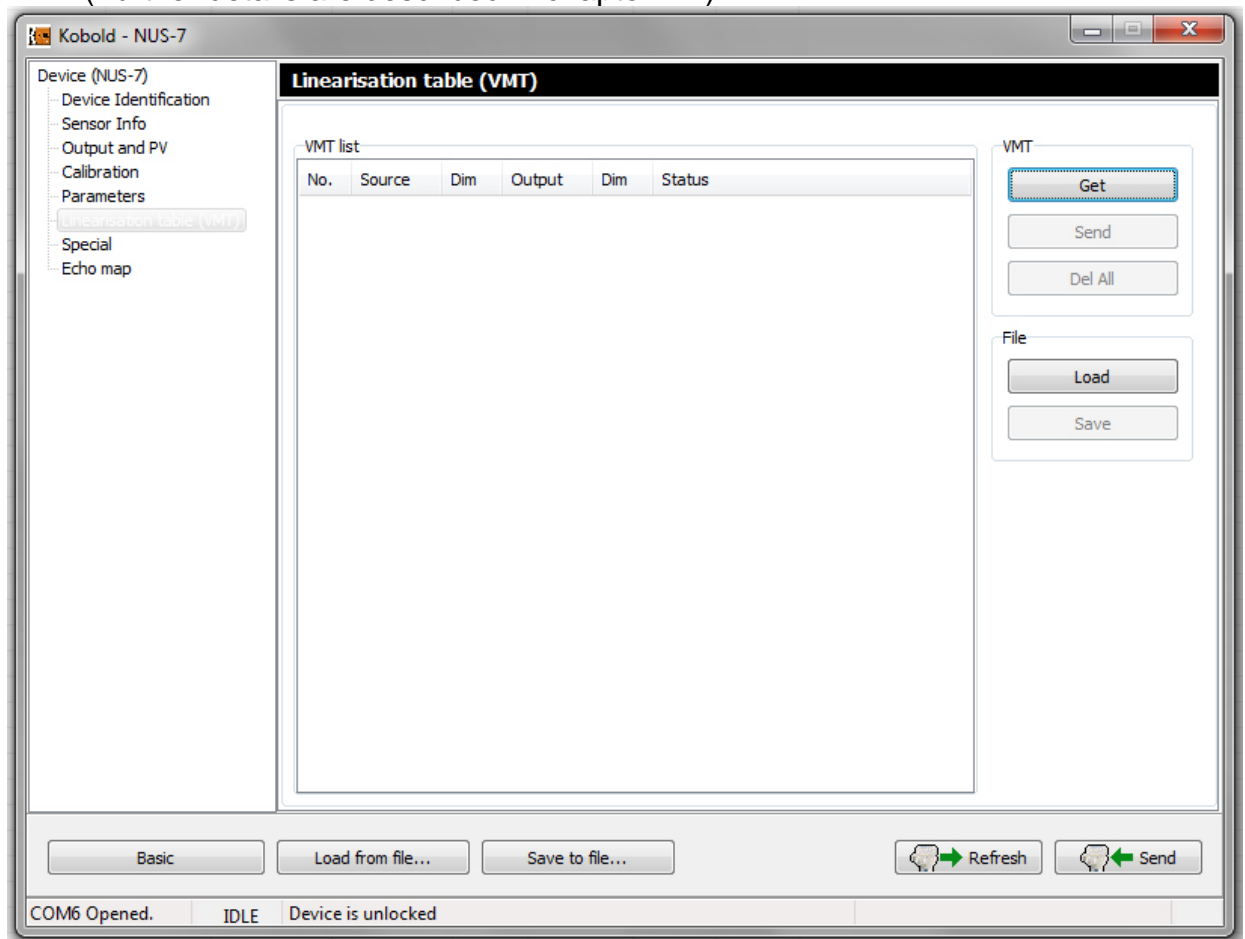
1. Tick the checkbox of the selected Parameter **1**.
2. Click the **Get** **2** button to query to current parameter value.
3. The modified parameters can be applied and saved by clicking the **Send** **7** button, this case the parameters will be saved unless the procedure got cancelled.
4. To save all parameters to a parameter list file click the **Save** **5** button.



To load the factory default values click the **Load default**  button. Then a 'Warning' window appears in order to confirm loading the default values or cancel. The **Refresh**  (Refresh) button queries again all parameters from the instrument. If any modification is made the **Send**  button became active and all modifications can be sent to the instrument.

By selecting any parameter with inserting the line use the right mouse button to open the popup menu for further commands: Select all, Deselect all, Select invert, Only select the parameters, Only select the info parameters, Edit parameters, Set to default value, Set to last value.

**VMT** (Further details are described in chapter 7.4)



**Echo map** is a device specific (for non-contact principle) function.

By clicking the **Get** button the following echo data will be displayed: List number of the echoes, Distance, Amplitude in dB, Status.

By clicking the **Show Diagram** button an Echo Map appears displaying the place of the received echo in the distant axis. The screen can be zoomed in and out and can be scrolled with the scrollbar tool at the bottom.

# NUS-NTB-NRM-SW Software

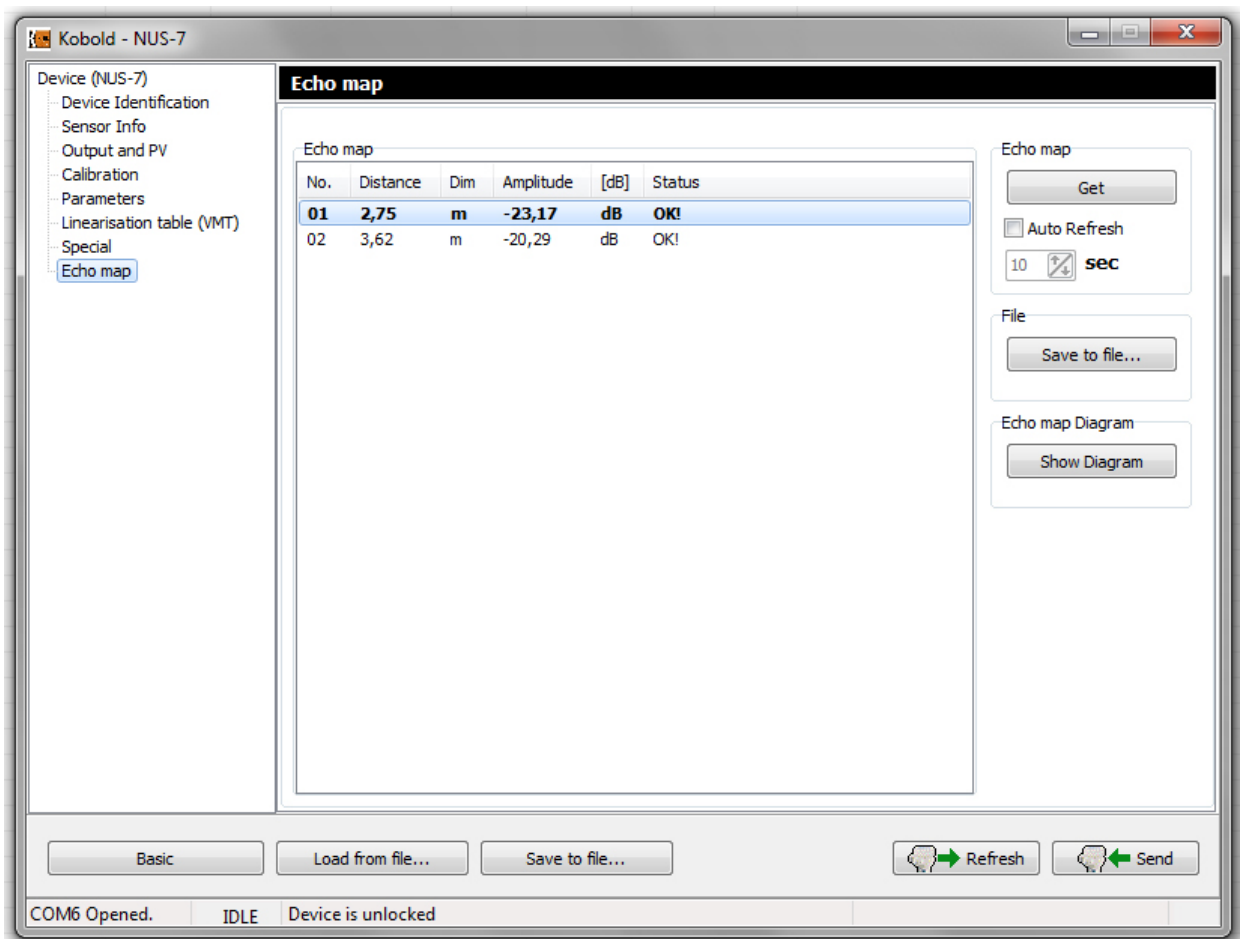


**Warning! Please note that the echo diagram does not show the real echo map, but only gives visual equivalent to the data in the echo table!**

When ticking the 'Auto Refresh' checkbox under the Get button and click the **Get** button a continuous cyclic Echo map querying will start with the selected cycle time. The cyclic querying can be stopped by clicking Cancel, or stops automatically if you leave the Echo Map window or close the Device Settings window between two cycles. With inserting the line of the received echo use the right mouse button to open the popup menu list with the following commands: Get, Auto refresh, Show Diagram, Save to file

By clicking the **Save to file..** button the Echo Map can be saved to an Echo Map file in 'csv' format. To leave the Advanced menu and go back to the Basic settings click the **Basic** button.

To go back to the Device list simply close the window (Alt+F4).



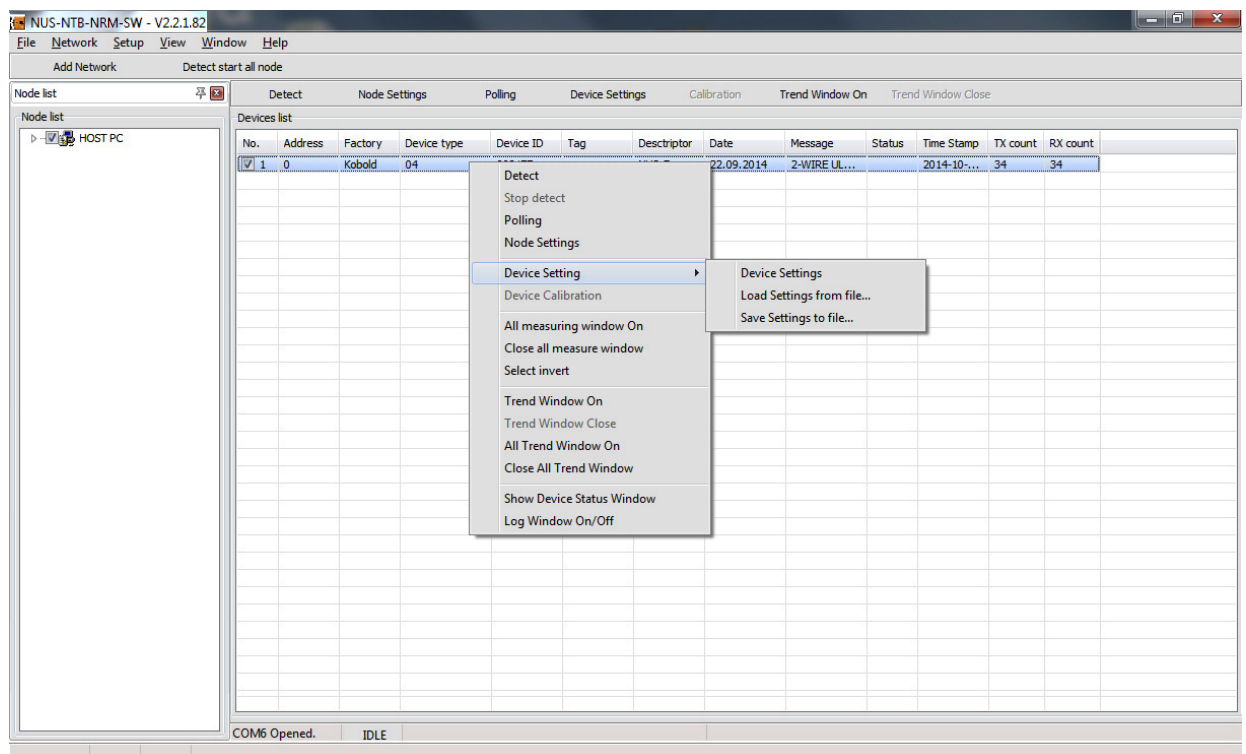


## 7. The Popup menu

### 7.1 Elements of the Popup menu

Many commands are available in the right mouse button popup menu; however some of them are only available after the successful device detection. The elements of the right mouse button popup menu are the following:

- Detect
- Stop detect
- Polling on/off
- Node settings
- Device settings
- Device calibration
- All measuring window on
- Close all measuring window
- Select invert
- Trend window on
- Trend window close
- All Trend window on
- Close all Trend window
- Show Device Status Window
- Log window On/Off



The commands of the popup menu such as Detect, Stop detect, Polling On/Off, and the Node settings has exactly the same function as the equivalent quick buttons in the menu bar.

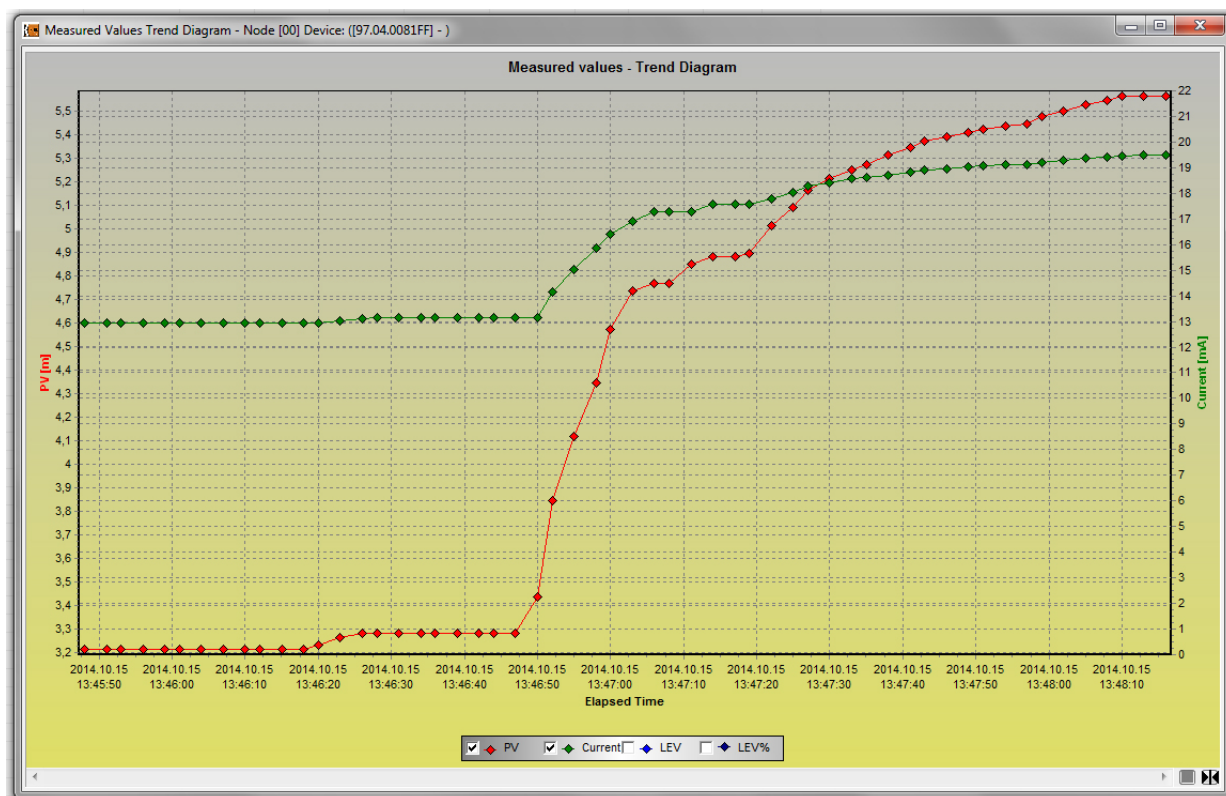
The **All measuring window On** command selects all detected devices in the device list by ticking the checkboxes. Then the **Polling** command (or button) will open all measuring windows and start the query of all measurement data.

The multiple measurement windows can be closed by one click with the **All measuring window close** command.

## 7.2 Trend diagram

When the Polling is running the Trend Diagram function becomes available to open:

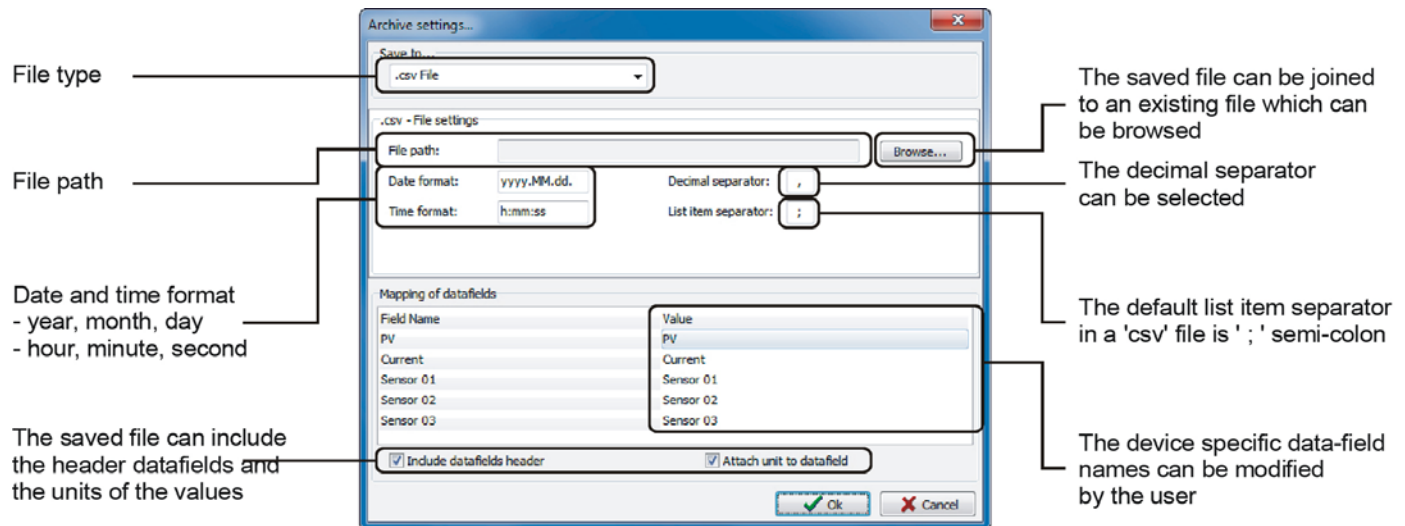
The selected measurement value is displayed, marked with the checkbox.



At the bottom section the measured value to be displayed can be selected: Primary Value, Current value, Lev, Lev%. Of course the displayable measurement values are in accordance to the selected instrument. Since the running Polling function is needed for the operation of the Trend Diagram, the maximal time interval is also 3 hours.

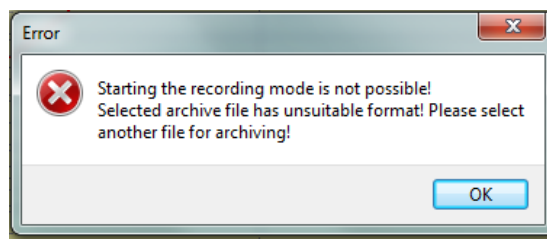
The right mouse button popup menu provides further commands to use: Recording, Save Trend, Clear diagram, Zoom, Panels, Archive settings, Series, Diagram settings. The drop-down popup menu has many elements with multiple sub-menus.

In the **Recording** drop-down menu Start and Stop commands can be selected. Both Start and Stop functions are available with F6 / F7 keyboard quick buttons. By clicking the **Start** button a new window appears with the file saving settings.



In the Archive settings window the File type, Folder path, Date & Time format, Header options can be set. When clicking the **Stop** command the saving into file will be stopped. If we want to continue to saving, click again the **Start** command to continue the saving into the previously selected file. If we want to use a new file for saving use the right mouse button popup menu and select the **Archive settings** menu and then click the **Settings** command to open the above described Archive settings window. After filling the required settings click the **OK** button to start saving into the new file.

If the header function "Attached unit to data field" is marked, the data are saved into the same selected file. If not you'll get an error popup!



The **Save Trend** command (or button in the Right panel) opens the above described Archive settings window if the saving path was not set previously. The **Save Trend** command is counted from the first moment (when the Polling was started) and takes only until the moment of clicking the Save trend command or the OK button of the Archive settings window.

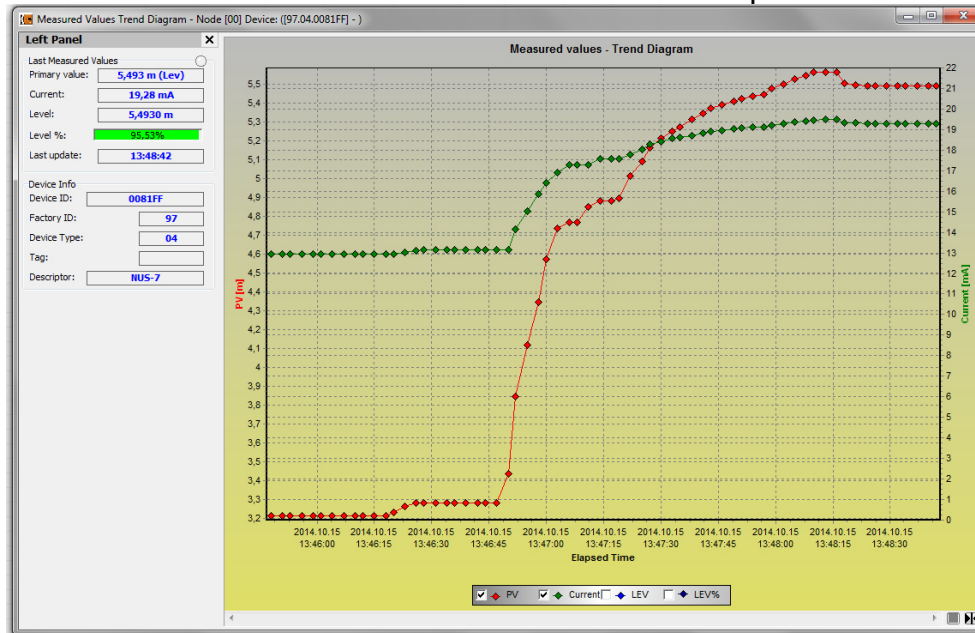
Click the **Clear diagram** command to clear the previously made Trend diagram. This function has no effect on the saved trend diagram files.

In the **Zoom** menu there are many possible options for customizing the diagram: **Zoom+**, **Zoom-**, **Reset Zoom**.

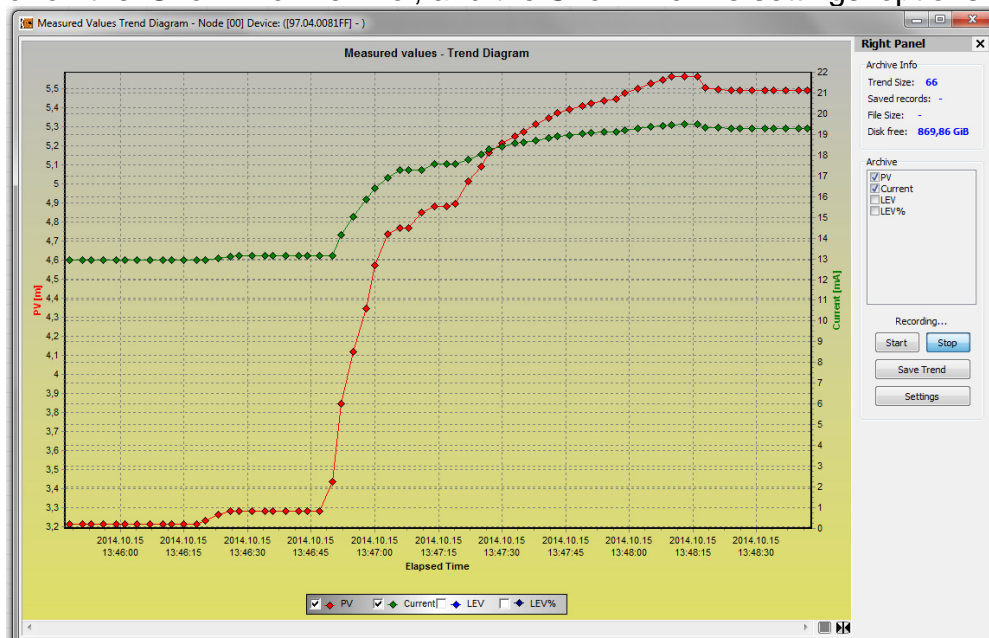
The **Panel** menu has multiple drop-down menus: Left Panel, Right Panel, Bottom panel, Buttons panel, All Panels On/Off. All menu points have other sub-menus allowing further setting possibilities.

# NUS-NTB-NRM-SW Software

The **Left Panel** which is a toolbar panel on the left side includes the measurement values and the device info screen of the Polling window. The Left Panel can be customized by the right click popup menu with turning on or off the 'Show Measured Value' and the 'Show device info' options.

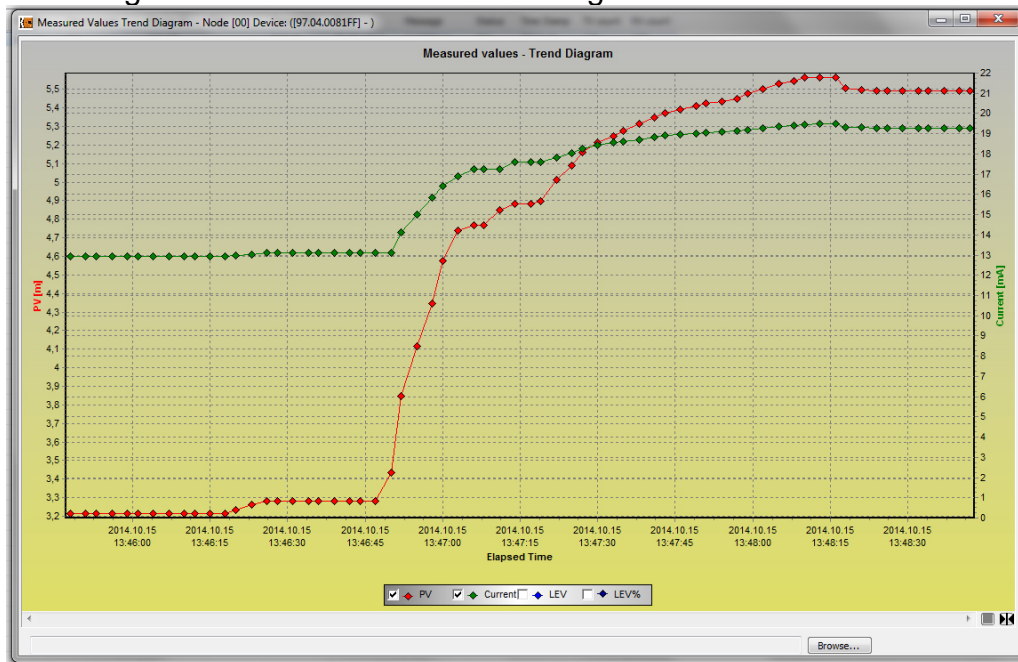


The **Right Panel** which is also a toolbar panel but on the right side including Archive Info, Archive settings and quick buttons related to the Recording menu. The Right Panel can be customized by the right click popup menu with turning on or off the 'Show Archive Info', and the 'Show Archive settings' options.



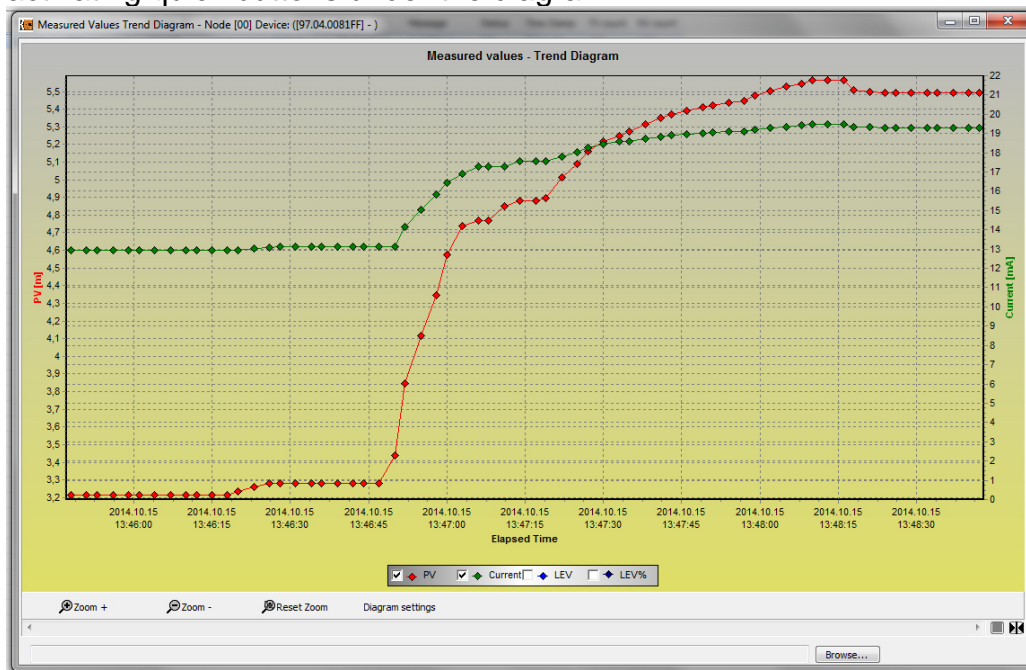
In the Archive settings the measured values can be selected which will be saved to file. Clicking the Start or the Save Trend will perform saving in accordance to the above described. The Settings button opens the Archive settings window.

In the **Panels -> Bottom Panel** menu there is a **Show Bottoms Panel** command activating a Browse toolbar under the diagram.



When the saving path has been already selected it is displayed here.

In the **Panels -> Button Panel** menu there is a **Show Buttons Panel** command activating quick buttons under the diagram:

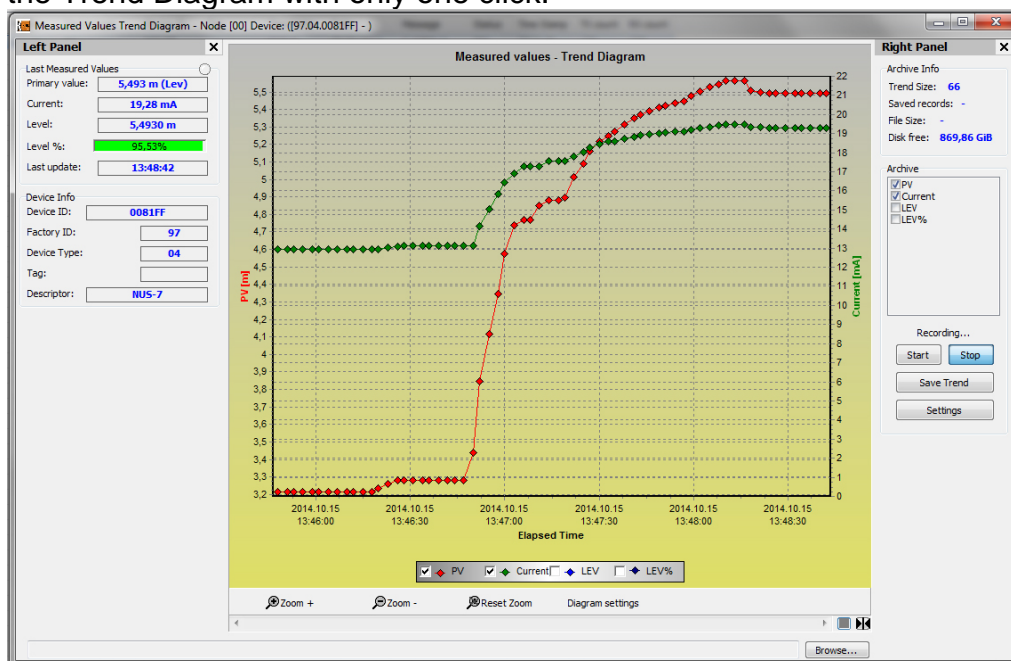


The appeared quick buttons: Zoom+, Zoom-, Reset Zoom, Diagram settings



# NUS-NTB-NRM-SW Software

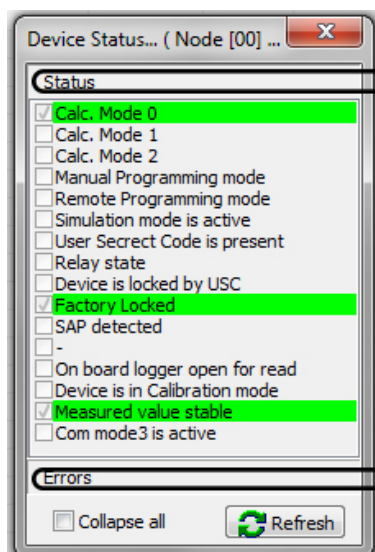
The **All Panels On/Off** command is able to open or close all additional panels of the Trend Diagram with only one click.



## 7.3 Status

By clicking the **Show Device Status Window** command in the right mouse button popup menu a Status and error information window appears. This information window is read-only and the actual status can be queried by clicking the **Refresh** button at the bottom. When any data transfer (read or write) is happening the status information is automatically get refreshed and the Refresh button became inactive.

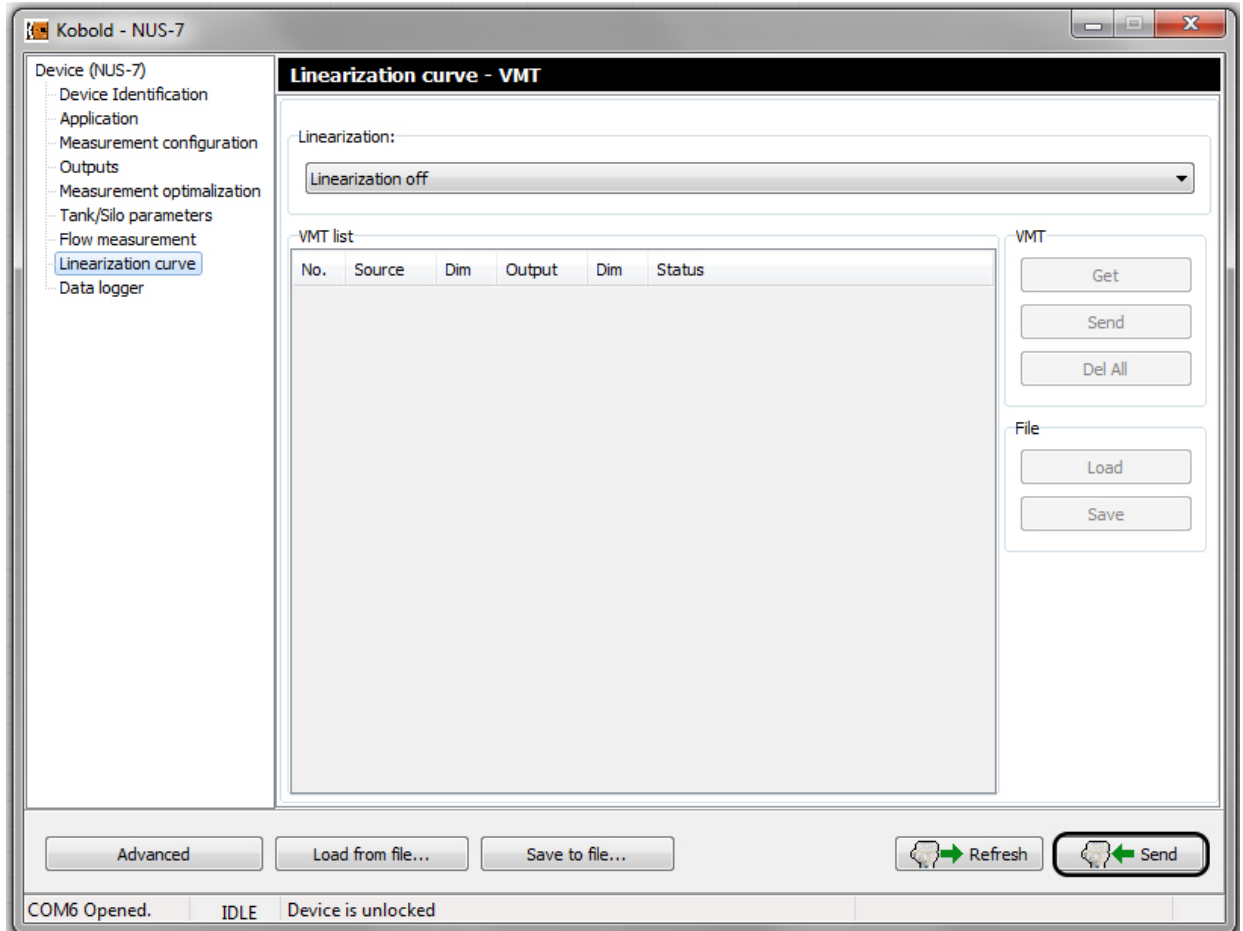
In the Status window there are device specific information displayed such as: Calculation mode, Relay operation, Factory settings, Simulation, etc.. Error indication is displayed in the Error window.



By clicking the Status or the Error line the two status windows can be collapsed

## 7.4 Linearization (VMT - Volume Mass Table)

In the **Linearization curve** menu point of the **Device settings** (see chapter 6.6.) the linearization can be turned ON or OFF.



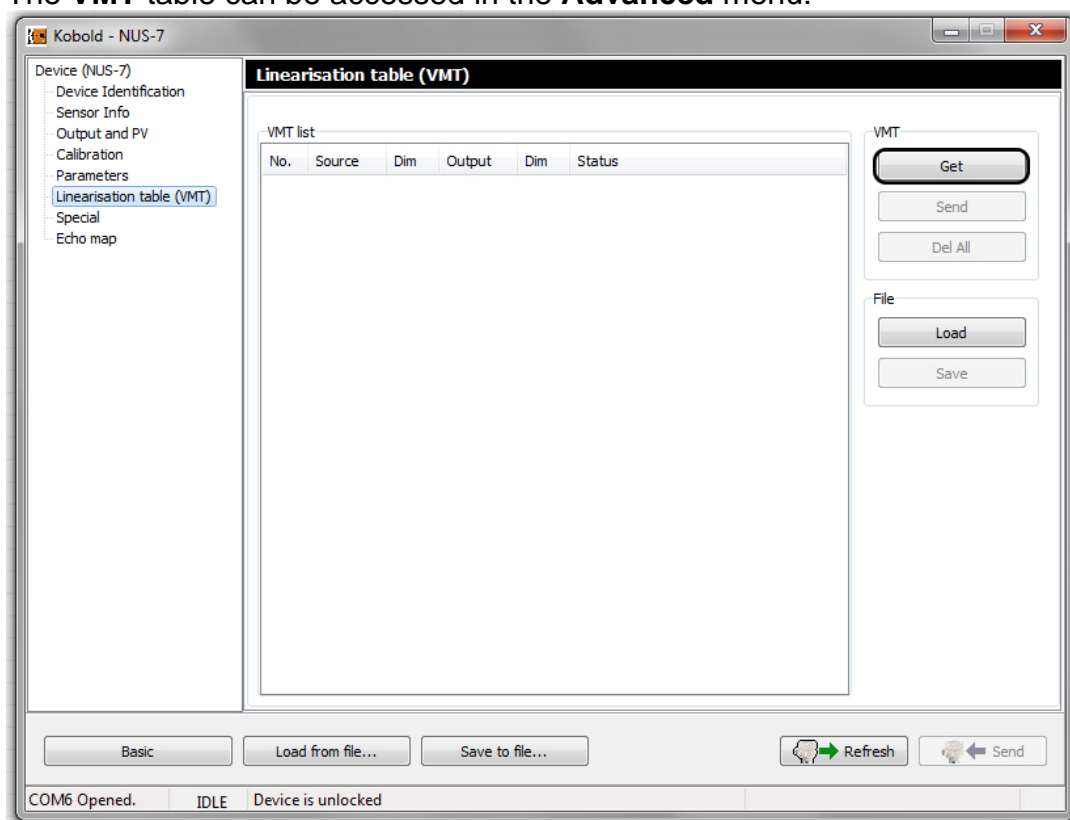
The required setting can be applied by **Send** button.

The level, volume or flow values can be assigned to the measured values with the help of linearization. This can be advantageous in case of (level – level assignment for) different sound velocity (various gaseous media then the air) or lying cylindrical tank (level – volume assignment).

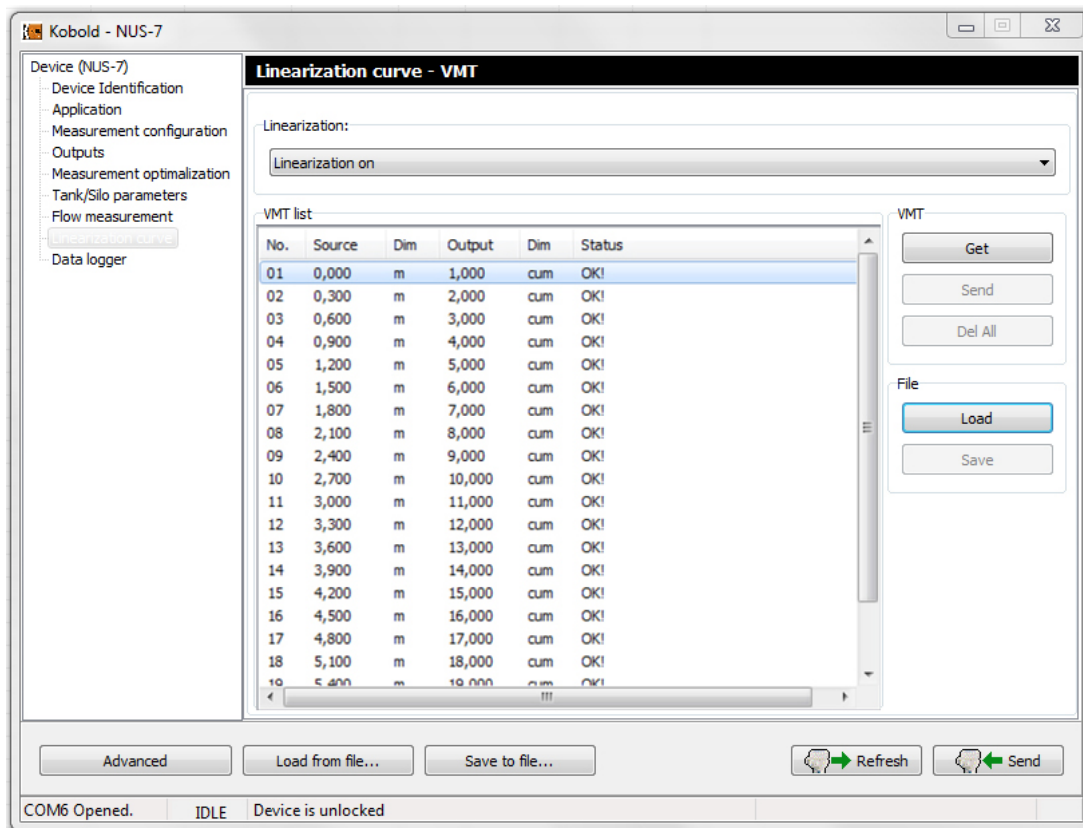
The point pairs of the linearization table forms a max. 2x99 matrix displayed in 5 columns with separated columns for the dimensions for the source and the output values. The Source column contains the measurement values and the Output column contains the calibrated or calculated values.

# NUS-NTB-NRM-SW Software

The **VMT** table can be accessed in the **Advanced** menu:



Click the **Get** button to read out the linearization table data from the device:

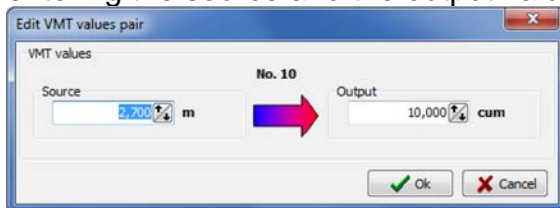




The right mouse button popup menu provides the following options:

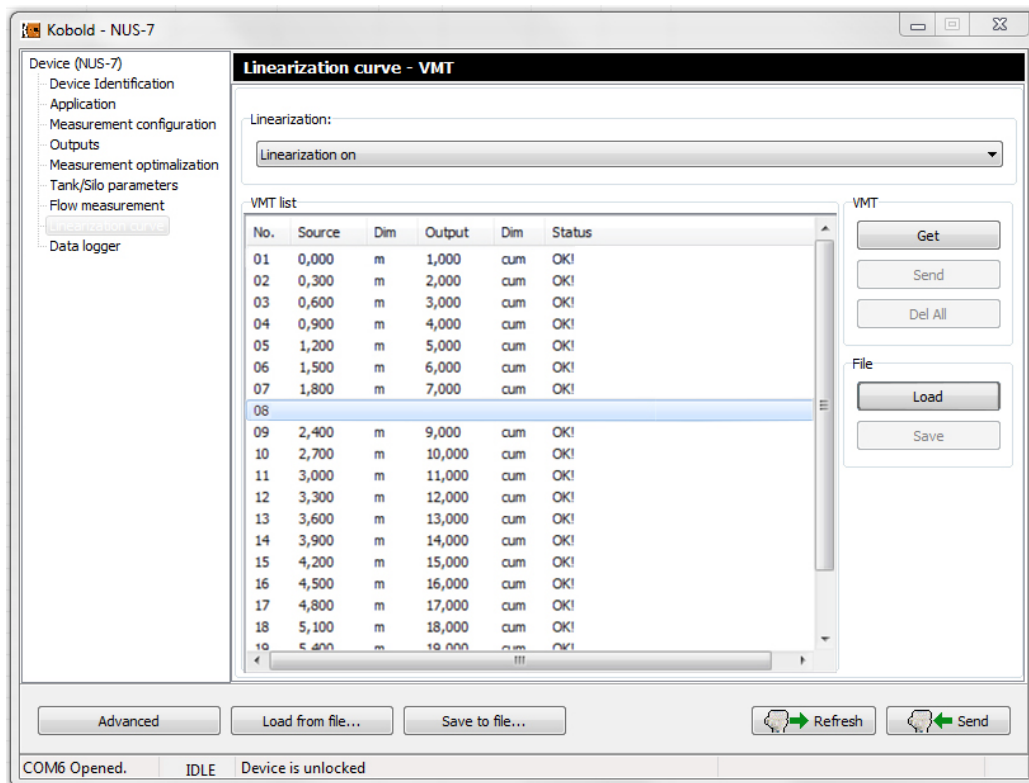
- Edit item,
- Add new item,
- Insert new item,
- Delete the contents,
- Delete item,
- Select all,
- Deselect all,
- Select invert,
- Delete the contents of the all items,
- Delete „Empty” items,
- Renumbering,
- Get VMT items from the device,
- Send VMT items to the device,
- Delete all VMT items from the device,
- Load VMT list items from file,
- Save VMT list items to file.

The **Edit item** command opens a new window for editing a VMT value pair by entering the source and the output value.



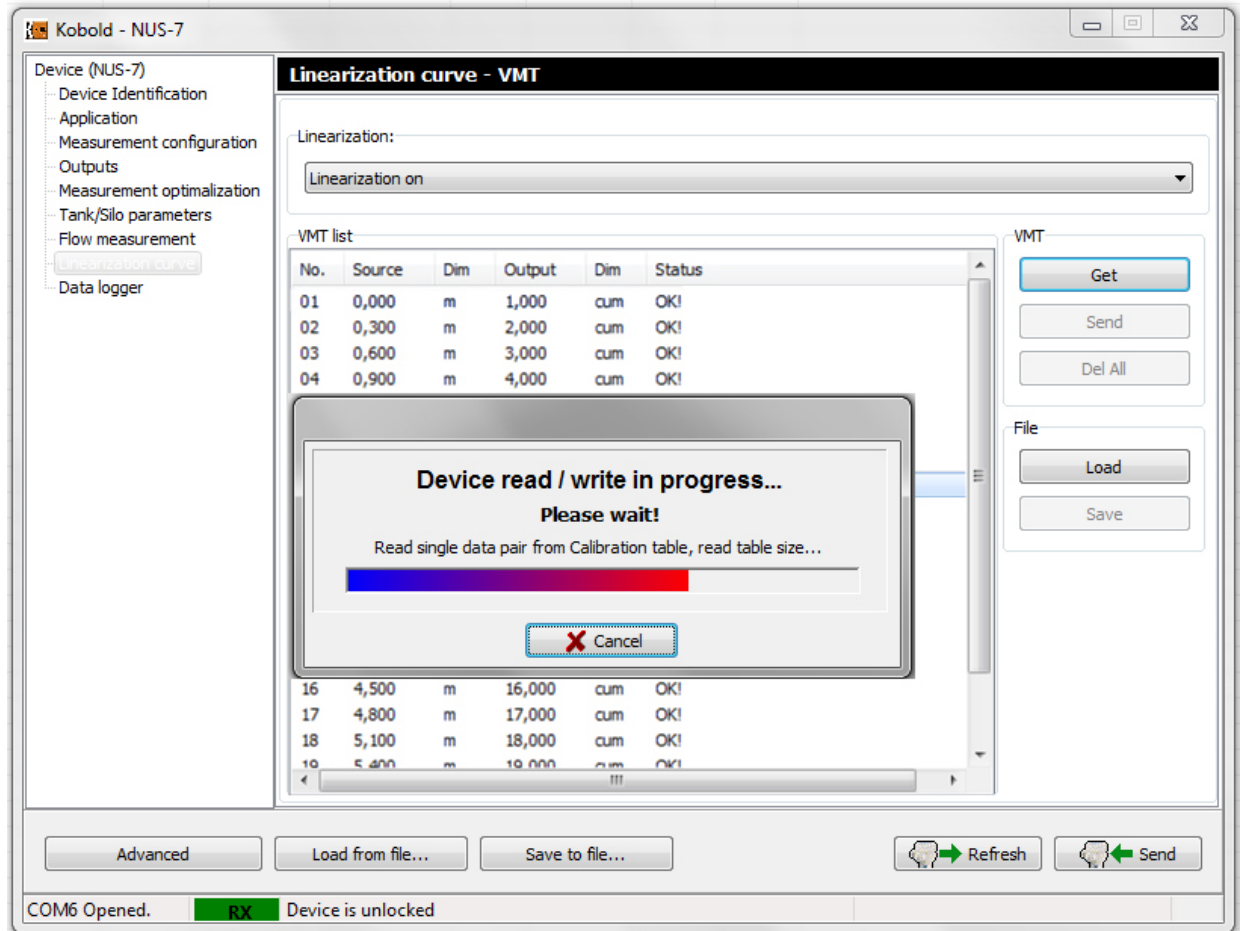
If the linearization table is not full and there is free space then the **Add new item** and **Insert new item** command is active in the right mouse button popup menu.

Click the **Delete the contents of the selected items** command to delete the content from more selected VMT items:



# NUS-NTB-NRM-SW Software

Click the **Get VMT items from the device**. Command to query the content of the linearization table:

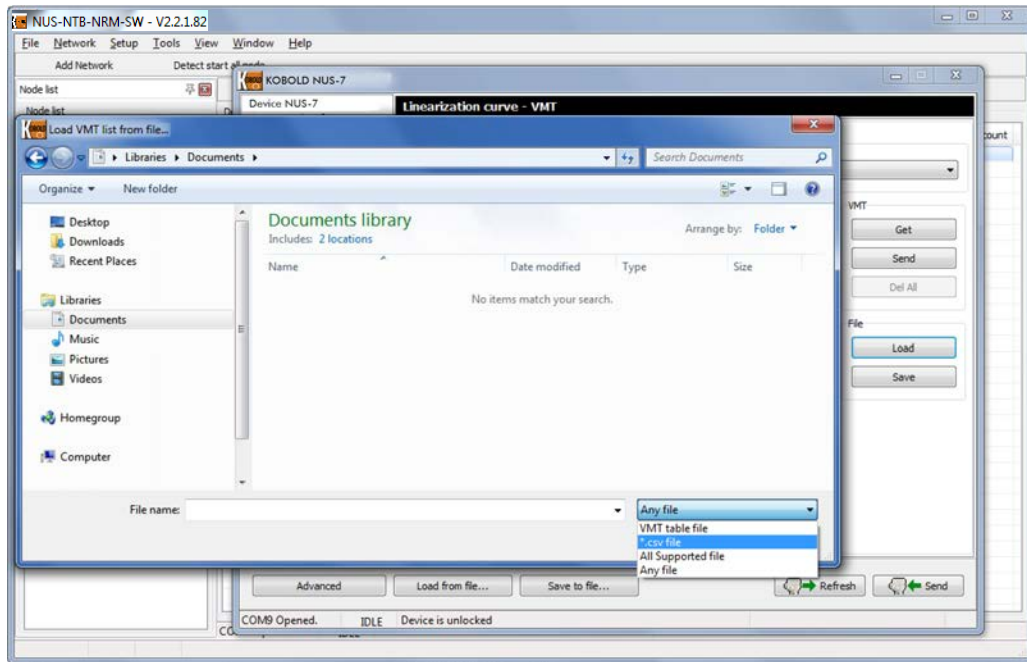


Click the **Delete item(s)** command to delete entirely the selected VMT item(s)

Click the **Delete „empty” items** command to delete the VMT items not containing value pairs.

Click the **Renumbering** command to refresh the list numbers of the VMT items. The **Send VMT items to the device..** command uploads the linearization data to the device.

If we have an existing VMT list file we can load it by clicking the **Load VMT list items from file** command. Then a new window appears where the file can be browsed:



The VMT list can be saved to file by clicking the **Save VMT list items to file** command. Then the above described new window appears where the folder can be browsed where the file will be saved with the entered file name.

We can choose from multiple file formats for the loading / saving, the VMT data can be saved in \*.csv file format which can be read and write with Excel if the header format is standard.

## 8. Tools menu

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In the Tools menu there are integrated, the configuration software related tools which perform handy features like the Parameter File Editor & Viewer and the Record File Viewer.

### 8.1 Parameter file editor and viewer

The Parameter File Editor & Viewer is an additional tool which provides possibility to view, handle and even edit the operation parameters of any unconnected transmitter (in offline mode).

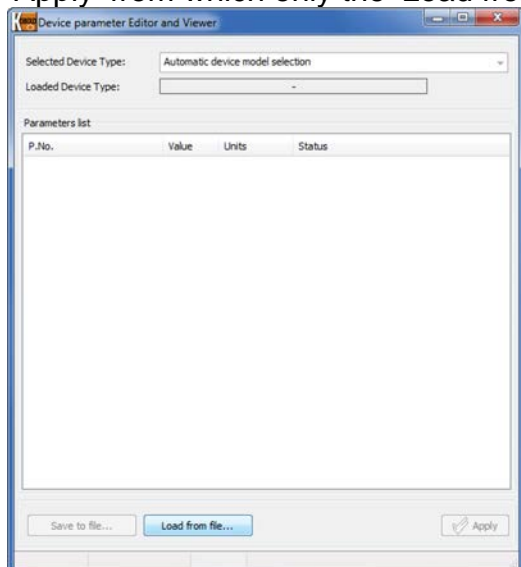
Its usage is very simple; the operation of this tool is very similar to the Advanced mode / Parameters window.

By clicking the Parameter File Editor & Viewer menu point in the Tools menu the following window appears:

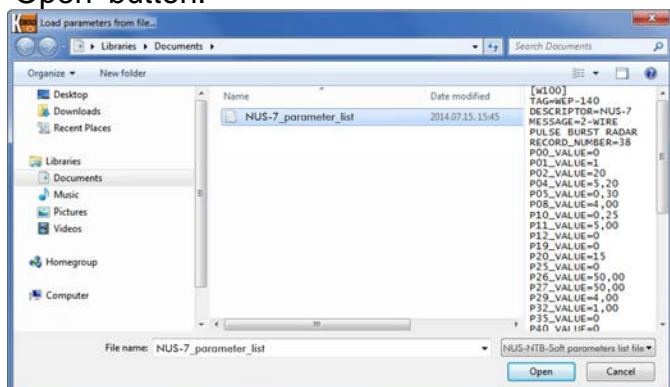
# NUS-NTB-NRM-SW Software

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There are 3 buttons at the bottom part, 'Save to file...', 'Load from file...' and the 'Apply' from which only the 'Load from file...' is active by default.

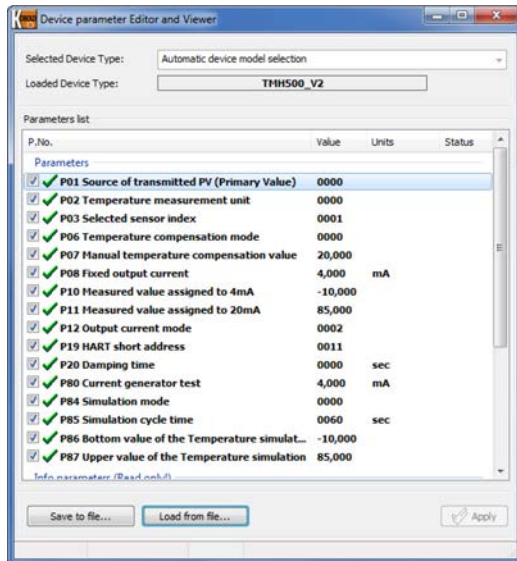


By clicking the 'Load from file...' button a browsing window appears where a previously saved parameter list file can be browsed and opened by clicking the 'Open' button.

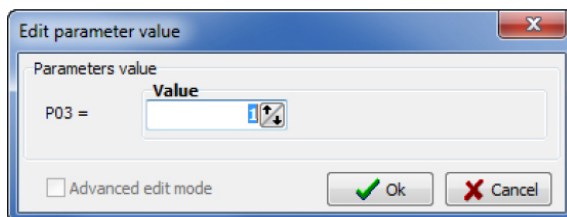


The software automatically evaluates the parameter values during the loading and checks if the values are within the acceptable range and marks the elements which have wrong value.

After the successful loading the parameters and the values are displayed in table form:



In the upper side the 'Loaded Device Type' indicates the device type which parameters are listed, and the rest of the window shows the parameters and the values. The first column of the table (P.No.) contains the number and the name of the parameter, the second contains the parameter values, the third contains the possible units. The selected parameter values can be edited by double-click or pressing the 'Enter' button, or by the right-click popup menu 'Edit parameters' command. If the selected parameter is allowed for user modification (or it is not a read-only parameter) then an Edit window appears.



This window provides possibility to modify a parameter value in accordance to the User's and programming manual of the given transmitter. Click the 'OK' button to modify the value. When pressing the 'ESC' key or clicking the 'Cancel' button the parameter value will not be modified.

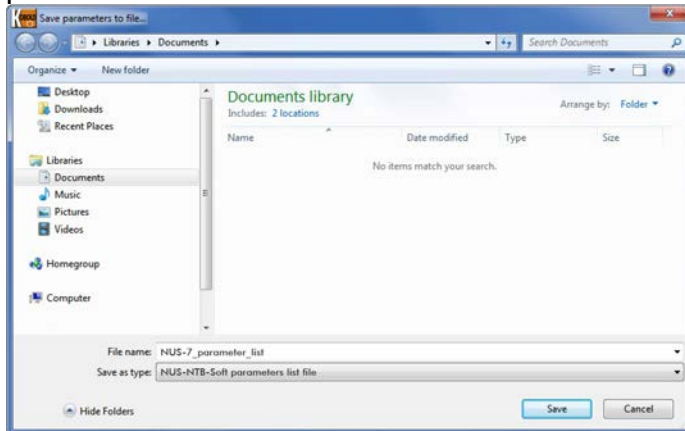
The modified parameter values can be saved with overwriting the previously used parameter list file, or create a new one by clicking the 'Save to file..' button. The parameters to be saved can be selected by ticking the checkbox.

# NUS-NTB-NRM-SW Software

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**Note!** Only the selected (by ticking the checkbox) parameters will be saved!

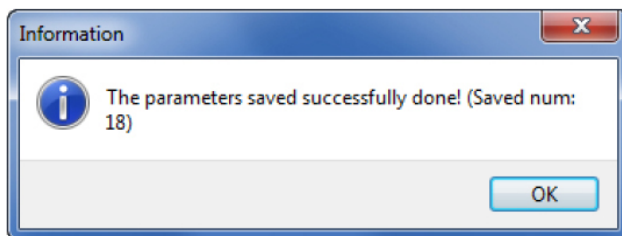
By clicking the 'Save to file..' button a browsing window appears where the saving path should be selected and the file name should be entered.



After entering the file name click the 'Save' button for saving the selected parameters to file. By clicking the 'Cancel' button or pressing the 'ESC' key we can go back to the Parameter File Editor and Viewer window without saving the parameters to file.

After the successful saving to file an Information window appears notifying that the parameters saved successfully done and indicating the number of the saved parameters.

By clicking the 'Ok' button you get back to the Parameter File Editor and Viewer window.



To go exit from the Parameter File Editor & Viewer simply close the window (Alt+F4).

## 9. Disposal

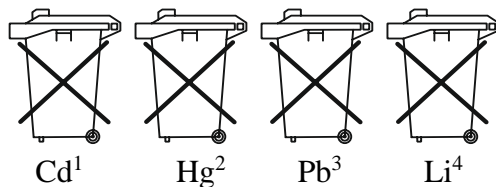
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### **Note!**

- Avoid environmental damage caused by media-contaminated parts
- Dispose of the device and packaging in an environmentally friendly manner
- Comply with applicable national and international disposal regulations and environmental regulations.

### **Batteries**

Batteries containing pollutants are marked with a sign consisting of a crossed-out garbage can and the chemical symbol (Cd, Hg, Li or Pb) of the heavy metal that is decisive for the classification as containing pollutants:



1. „Cd" stands for cadmium
2. „Hg" stands for mercury
3. „Pb" stands for lead
4. „Li" stands for lithium

### **Electrical and electronic equipment**

