OPERATION MANUAL
QN9 PC SOFTWARE

Made in
Germany

QNix® 9500

AUTOMATION Dr. NIX

Index

1. Introduction

Systematics and documentation are necessary for execution and supervision of coating works. In order to verify the different layers of a coating, control areas are defined that normally depend on the size of the object. These areas have to be measured by a specific number of measurements.

Together with a QNix® 9500 handheld measuring device the QNix® QN9 software can transfer the coating measurements to a PC, process, evaluate and edit the data and finally document them by a PDF report. This enables users to evaluate and document measurement results quickly, comfortably and reliably. The design of reports offers a great variety of possibilities.

Our thanks go to many of our customers, who contributed to the software development with their wishes and demands as well as their expertise. We will continue to consider the input of our users to develop QNix® products and software. This will enable us to meet the requirements of our customers and their needs.

2. How to use the software

2.1. System Requirements

- Operating system MS Windows 7 / 8 / 8.1 / 10, only 64 Bit
- Read and write permissions in the installation path
- TCP/UDP-Ports 8080 and 8081 have to be enabled and unused

Recommended
- PDF-Reader, e. g. Acrobat Reader DC

Optional for the export of measurement data
- A program to open XLSX files, e.g. MS Excel or compatible

Hardware requirements
- Hard disk space 1 GB min.
- USB-2.0 port A
- Compatibility of handheld devices
    - QNix® 9500 Basic (not all functions are supported)
    - QNix® 9500 Premium (not all functions are supported)
    - QNix® 9500 Premium+

3. Introduction and terms

3.1. Jobs

Measurement orders are called jobs. A job is always related to a process or an order. A report is always generated from a single job using a template. One job contains 1 to 100 areas depending on the gauge model.

3.2. Areas

An area is the bundling of several measurement points. Areas are intended to manage a lot of measurement data in a job. It is possible to set limits for areas.

3.3. Standards and limit settings to be supported

The QN9 software supports these international standards:

Setting	Standard	Notes
No limits	-	
Simple limits	-	
Individual limits	-	Own requirements can be set
ISO 19840	ISO 19840: 2012-09	Corrosion protection of steel structures
IMO PSPC	IMO PSPC (Performance Standard for Protective Coatings)	See MSC.215
SSPC PA2 Level1	SSPC-PA 2 (Level 1)	
SSPC PA2 Level2	SSPC-PA 2 (Level 2)	
SSPC PA2 Level3	SSPC-PA 2 (Level 3)	Default with all SSPC limit settings
SSPC PA2 Level4	SSPC-PA 2 (Level 4)	
SSPC PA2 Level5	SSPC-PA 2 (Level 5)	

Standards are set in the job menu. Each area can have its own limits. The name of the parameters depend on the used standard. Of course, it is also possible to work without limit settings.

3.4. Data Storage

Data (jobs, reports and templates) are saved as files in the gauge and on the PC. Folder names are the same on the handheld device as on the PC. Folder paths and names can be changed in the software which is helpful if several QN9 installations are intended to have access to global data (server).

By default data are saved in predefined directories as listed below. The drive (drive letter) is assigned automatically by the Windows operating system.

Handheld (USB drive)	QN9 PC application	Notes
Drive:/JOBS	C:/user/public/Automation/jobs	Location for jobs
Drive:/TEMPLATES	C:/user/public/Automation/templates	Location for job templates
Drive:/REPORTS	C:/user/public/reports	Location for reports (PDF reports and Excel export)
Drive:/REPORTTEMPLATES	C:/user/public/reportTemplates	Location for report templates

Paths can be viewed and changed via the PROGRAMM SETTINGS / FILEPATHS menu. In case of un-installation of the QN9 software directories are preserved. The Automation directory should be backed up regularly to prevent the loss of data.

4. Software Installation

4.1. Installation from the gauge

• Please connect the handheld to the PC using the USB cable that is part of the delivery bundle.

• After a few seconds the handheld will be recognized as a new drive. The new drive QNix® 9500 appears.
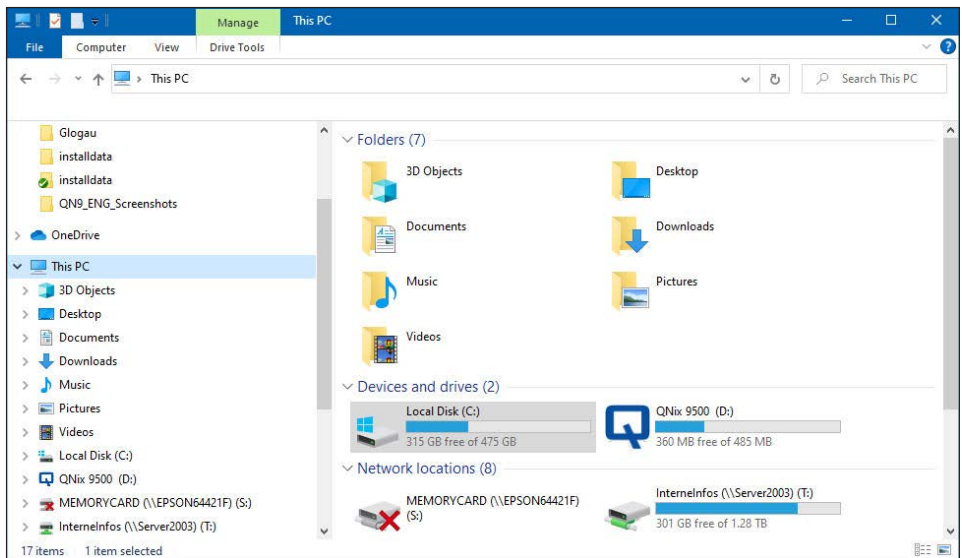
• According to the running operating system and to system settings a window (Explorer) should open automatically. If this should not be the case, you have to open the drive manually (our example is D:). The USB memory of the gauge is displayed.
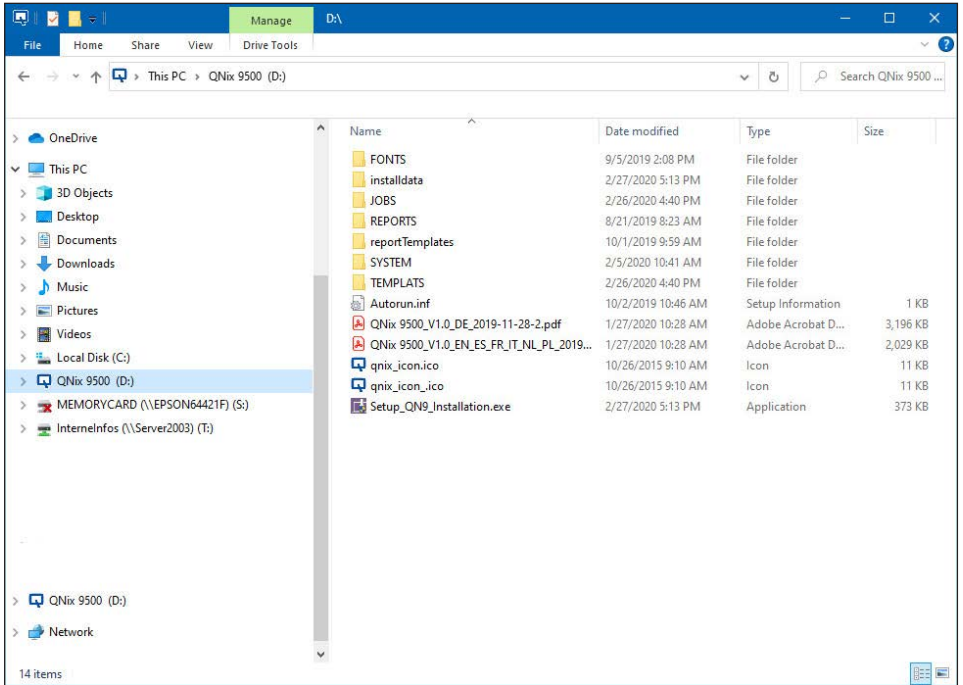
• Installation is started by a double click on the file Setup_QN9_Installation.exe. A Windows warning (user account control) pops up which has to be confirmed.

• You then will be asked for the installer language.

• After language selection a dialog box opens. In general, no changes are to be made – installation will continue with the button NEXT.
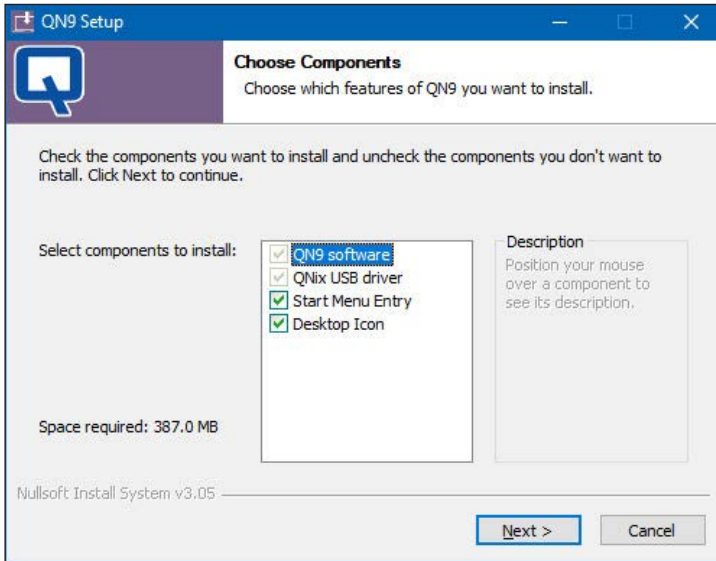
• A last dialog appears. If necessary, it is possible to change the destination folder on the PC here.
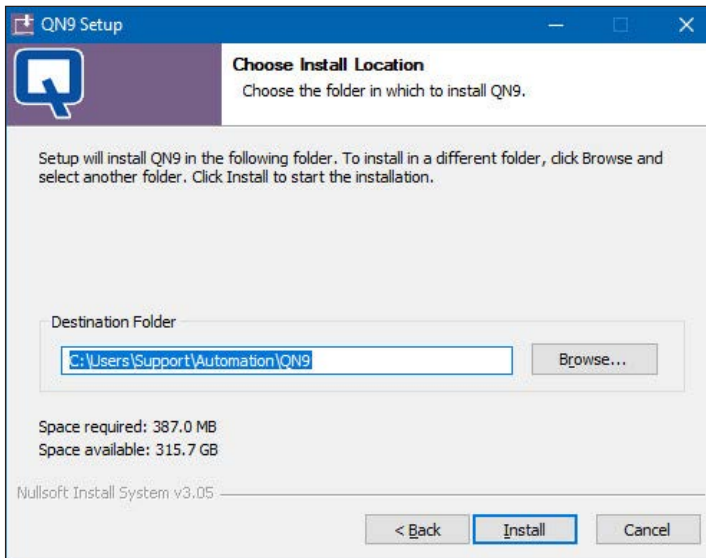
> **⚠ Notice**
>
> **The programm has to have writing permission within the installation folder. If you work with several user accounts, you will have to chose the "public" directory of Windows in order to enable other users to run the software without problems.**

• Pressing the button INSTALL will install the software.
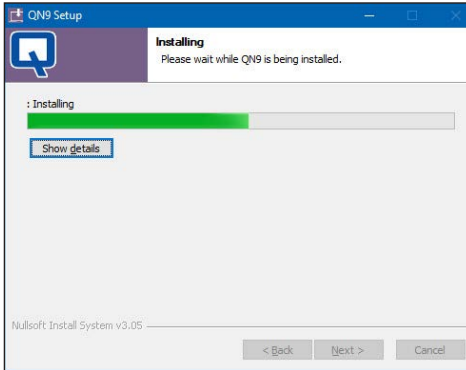
• The installation takes some minutes, because the software will be installed from the gauge to the PC via USB. Afterwards the serial USB driver for the handheld is installed, please press NEXT >.
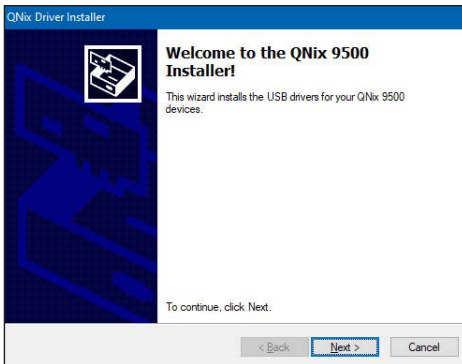
• If the USB driver has been installed correctly, this window will be displayed.
  By pressing FINISH the window closes.
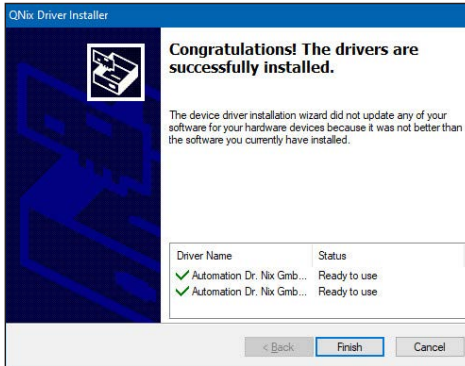
• Finally this window appears. By pressing the button FINISH, the QN9 software will be started, if the hook
  "RUN QN9" has not been removed.
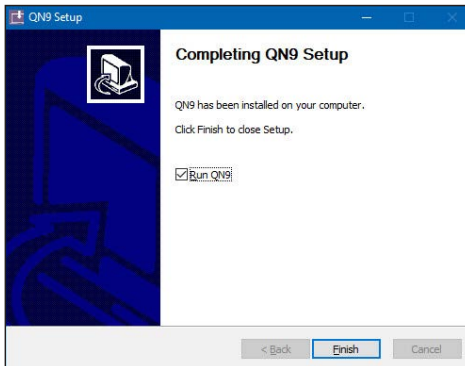
4.2. Installation from the website

The most actual software version can be downloaded from: www.q-nix.com/fileadmin/qnix/oeffentliche_
downloads/firmware/QN9-Installation.zip. A ZIP archiv is downloaded. After unpacking this archive
installation can be started by running Setup_QN9_Installation.exe. The installation is done as described
above.

4.3. Software Backup

The software can be copied from the handheld to the PC to install it even without a handheld. So you have a backup of the QN9 software. The "unvisible" directory installdata and the executable program Setup_QN9_Installation.exe have to be copied from the USB memory of the handheld. Installdata and the installation program must be together in the same directory, in order to install it successfully.
Start the Setup_QN9_Installation.exe and the QN9-Software will be installed.

5. Start menu

5.1. Overview

After QN9 software being started an overview window opens showing quick menu, tab menu, support and connection buttons. Pressing the home button in the upper right corner of the program window will bring you back to the overview at any time.

The following figure shows these controls in the overview window with its areas.

5.2. Quick Menu

The quick menu shows four coloured buttons which lead to the areas "JOBS", "LIVE MEASUREMENT", "GENERATING" und "SUPPORT". If you move the mouse over one of the buttons, a detailed list of subtopics will appear.

5.3. Tab Menu

The tab menu gives access to all menus of the program. Moving the mouse over one of the tabs a pull-down-menu opens to change directly to one of the submenus.

5.4. Support Button

The support button has the same function as the support button of the quick menu. In the left part of the menu assistance topics are accessible which will appear within the right part of the window:

Display of the user manual
Contact Automation
Name and version
Remote maintenance by TeamViewer
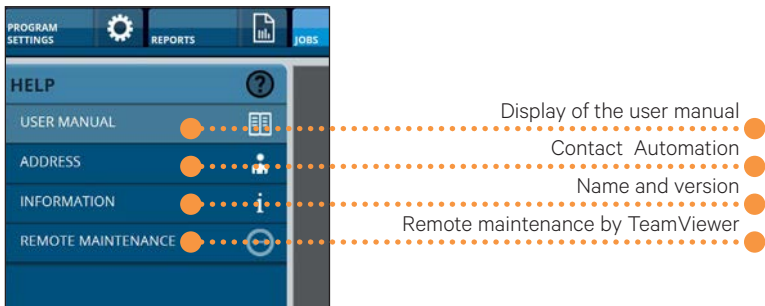
5.5. Connection Buttons

The buttons at the lower part show the connection status.
Pressing FILE SYNC opens the synchronisation window, if a handheld is connected.

The USB EJECT button should be pressed before disconnecting the handheld device. Alternatively, the Windows function "Safely remove hardware and eject media" can be executed if the application does not have administrator rights.

If no handheld device has been connected, the FILE SYNC and USB buttons are disabled.

6. Quick start

6.1. Connection/Separation of the gauge

The handheld can be connected to the PC by means of the delivered USB cable. The necessary driver is installed together with the QN9 software. A successful connection is indicated by the connection buttons that change from grey to colour. If the buttons FILE SYNC and USB appear grey, the gauge is not connected or either the USB handheld driver ist not installed correctly.

If the connected handheld device is not recognized, the connection can be re-initiated by pressing the USB CHECK button.
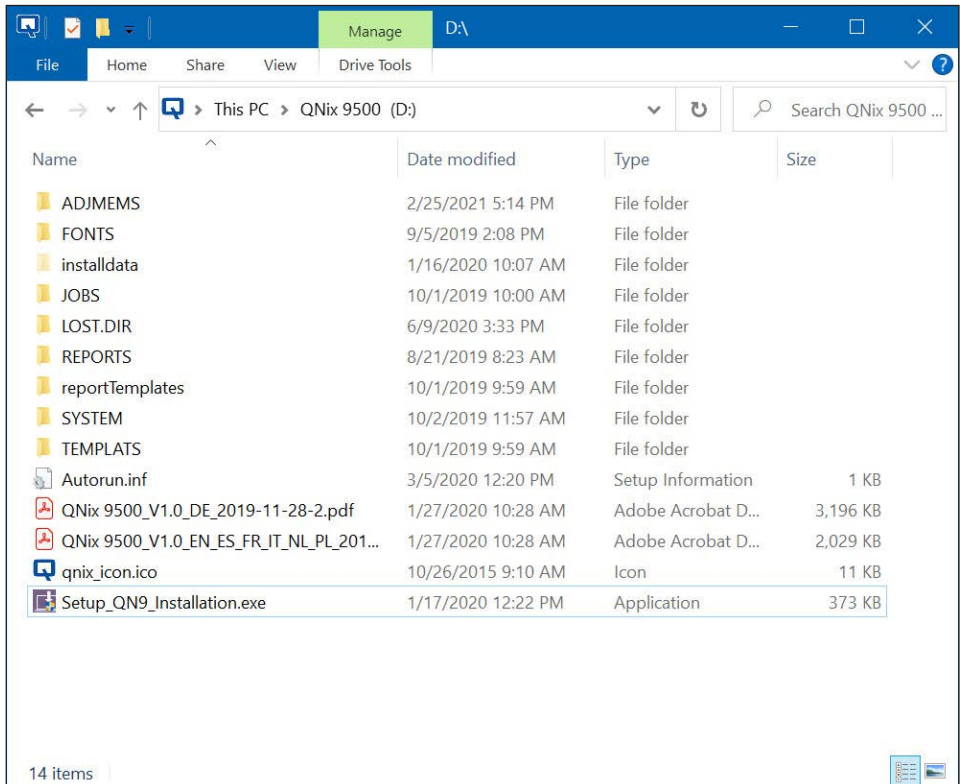

This button has a dual function and is also used for safe removal of the handset.

After connecting the gauge to the PC, a window opens (depending on the operating system and system settings) showing the files on the handheld. This window is not needed, it can be closed.

6.2. Transfer of measurement data to the PC

FILE SYNC

The transfer of these data from the handheld to the PC is executed by the synchronisation dialogue (click on the button FILE SYNC).

The dialogue shows or either hides the filtered files. The example here shows jobs exclusively. The button "arrow to the right" transfers the selected job including content to the software.
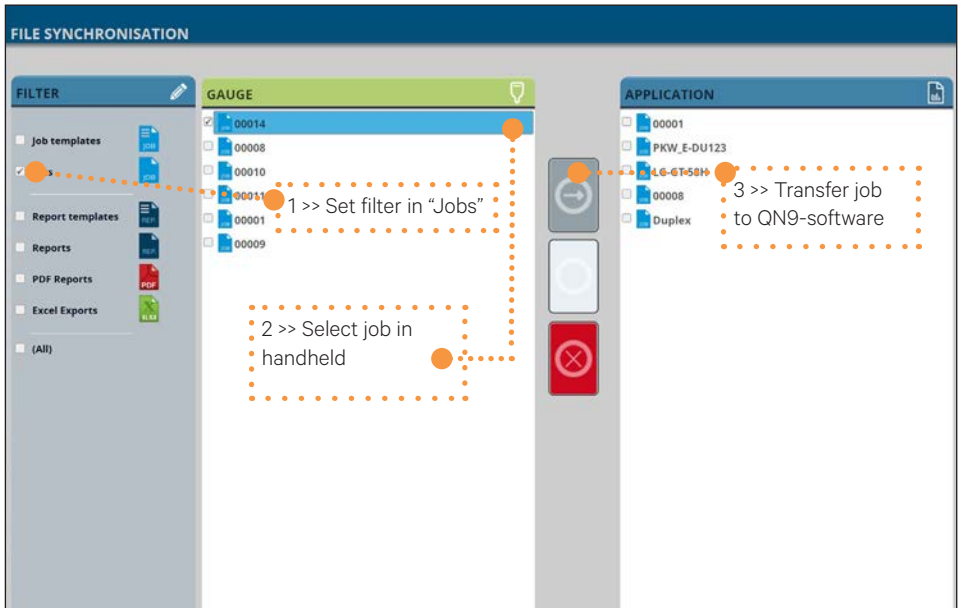
The transferred job will appear at the right side now within the area "APPLICATION". Measurement data are available now in the QN9 software.

Of course, data can be transferred to the gauge in order to have available newly designed job templates for example. As soon as the transfer is completed, the window can be closed. Before the handheld unit is disconnected from the PC, the USB EJECT button should be pressed (see chapter 8.2.).
Alternatively, the Windows function "Safely remove hardware and eject medium" can be used if the application wasn't started with administrator rights.

6.3. Measurement Preparations

6.3.1. Create a job template

Job templates can be accessed via the quick menu of the overview or quicker via the tab JOBS.

Job templates are used to create jobs according to a predesigned template.
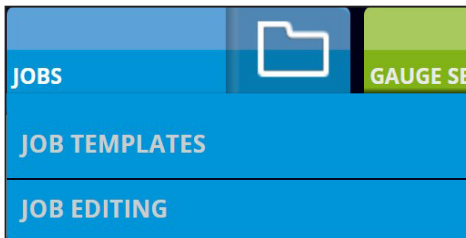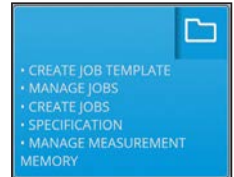
Choose JOB TEMPLATES in the left menu list. TEMPLATE EXPLORER appears in the middle. There you can select a template. Click the button NEW TEMPLATE.
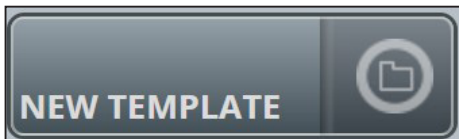
In the following dialog the template name is entered, then click OK. The new template is shown in the area TEMPLATE STRUCTURE within the template explorer. The template has been created but does not yet include areas, where measurement results for a group of measurements are saved.
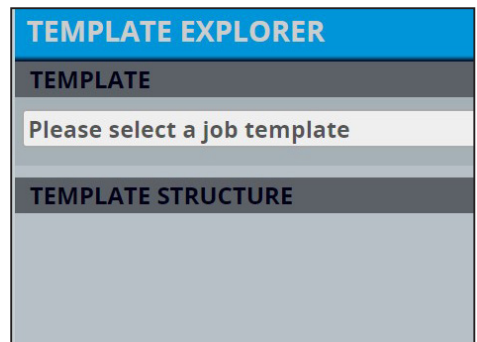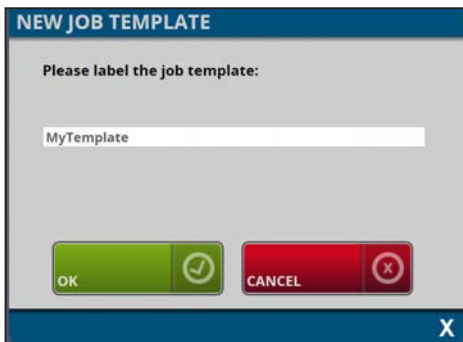
Areas are added by a right mouse click within the window TEMPLATE STRUCTURE or by clicking the button NEW AREA below the left menu.
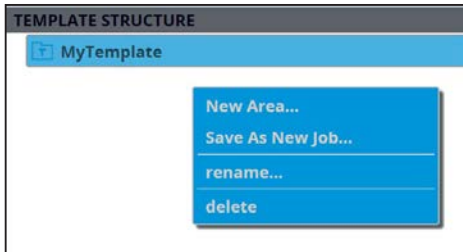
A dialog opens to label the area. Click OK to complete the process. This way new template areas can be created.

Here three areas (component1, component2 and component3) for the storage of measurement results have been created. If cou click an area, the right part SETTINGS > LIMIT SETTINGS shows the limits for measurement requirements. SIMPLE LIMITS are preset. This setting can be individualized by preselecting a template or locally selecting single areas.

The possibilities for limit settings correspond 100 % to the possibilities of the highest level of the QNix® 9500 handheld series.
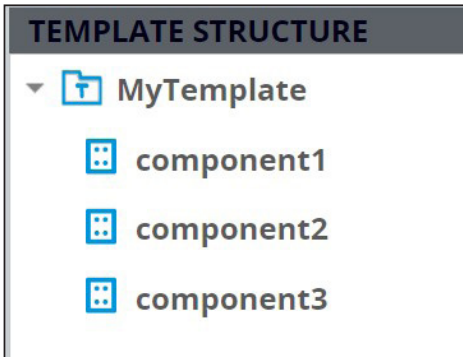
When all settings have been made, the button ACCEPT has to be clicked.
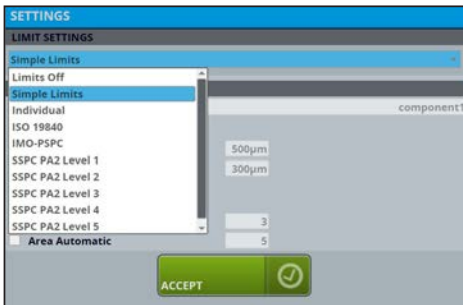
⚠ **Caution**

General limit settings in the template overwrite local settings of all areas in the template.

A warning message is displayed.

The template is saved by pressing the button SAVE below the left part of the menu.

6.3.2. Transfer Templates

To transfer a job template to the gauge, it has to be connected to the PC via USB cable. The connection is successful if the buttons appear coloured instead of grey. Click the button FILE SYNC to open the dialog for data exchange between gauge and QN9 software.
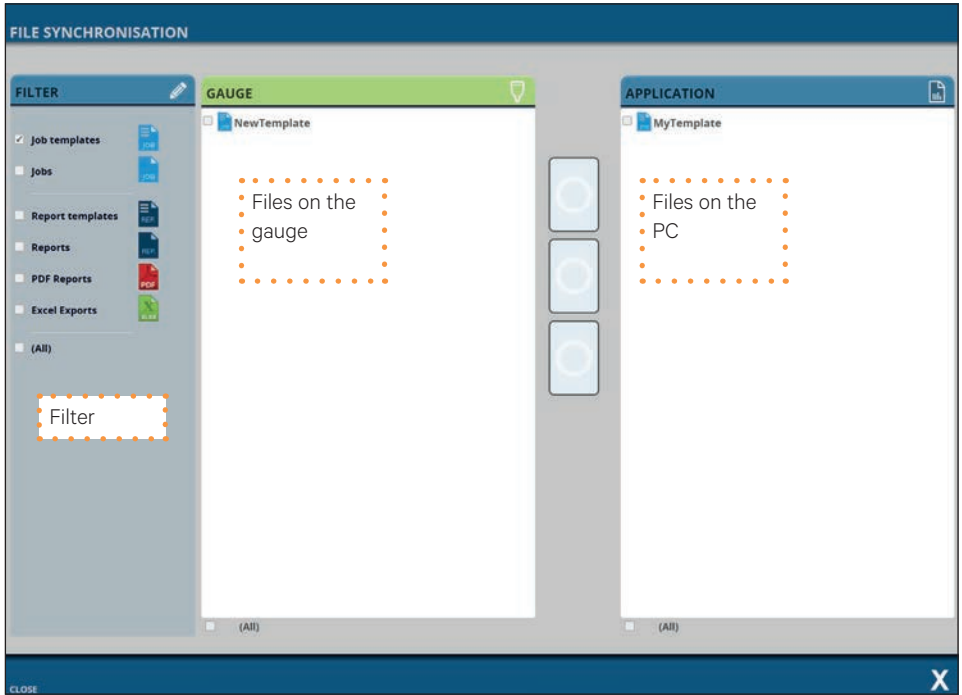
Now the job template can be selected and transferred to the gauge by pressing the transfer button. If successful, the job template is displayed within the window GAUGE. The dialog can now be closed.

6.3.3. Using Job Templates

only with QNix® 9500 Premium+

After having transferred a job template to the gauge, a new job for a measurement can be created. To do this, select the "Jobs" tab in the gauge menu, then "New Job". OK gives access to the selection "New empty job" or "My template" (the name depends on the naming in the QN9 software).

There the template is selected and confirmed by OK. A new job will be created and opened immediately. The job itself is named automatically in the gauge. The content of the new job is immediately displayed there.

To save measurements to this job, an area has to be selected. The example shows this as area "Component_1". A click to OK leads to more options. The area "Component_1" can be activated now. All measurements made are saved there – according to the settings of this area.

There is another possibility to prepare measuring work on the PC. A job can directly be created out of a job template. After the transfer to the gauge, thus the jobs can be used instantaniously (the Premium gauges are able to use only this function). The advantage is that jobs with individual names can be created in the QN9 software (only QNix® 9500 P+ supports several jobs). See more in chapter 7.3.2.

6.4. Create Report Templates

6.4.1. Import Report Templates

To open a report template, select the tab "REPORTS" within the overview menu.
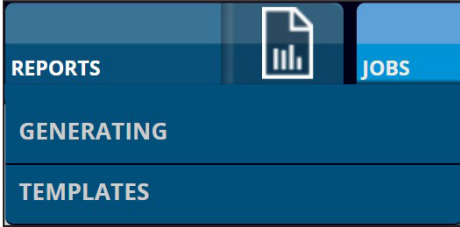
Every existing report template can be selected. The middle part of the window shows the elements of the report structure. Unfold them with a mouse click and reveal the different features.
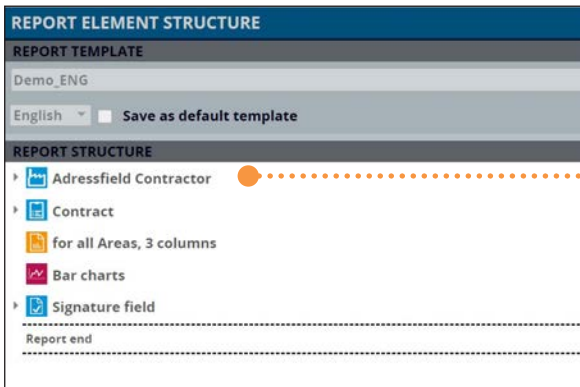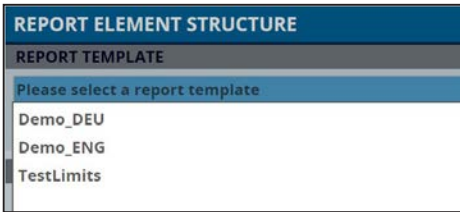
6.4.2. Create a new report template

Please choose NEW TEMPLATE. A dialog opens to label the template. Enter the name to the text field and click OK to confirm.
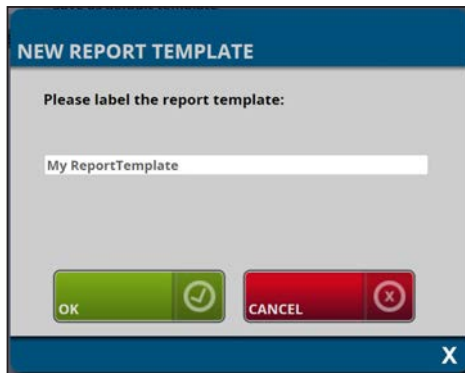
Now you can start building the template structure. Having selected the tab ELEMENT SELECTION on the right side, the listed elements can be dragged and dropped (left mouse click and hold) to the report structure on the left.
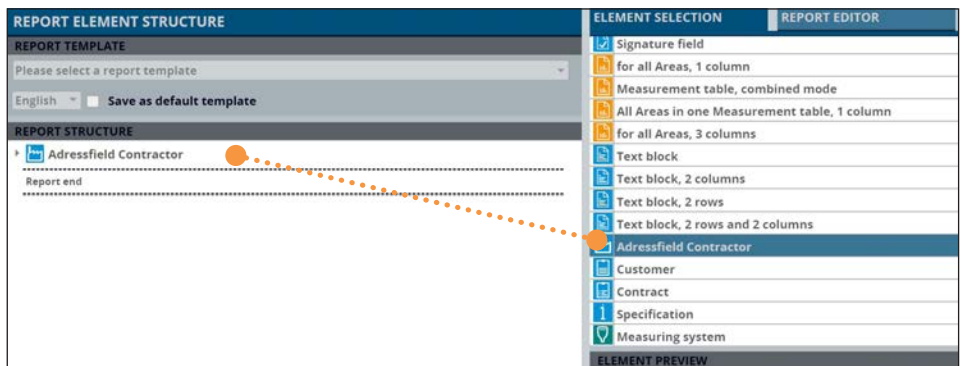
Element preview displays the selected report element. Possibly the preview only shows sample data. Most of the report elements can be unfolded to define further setting options and entries.
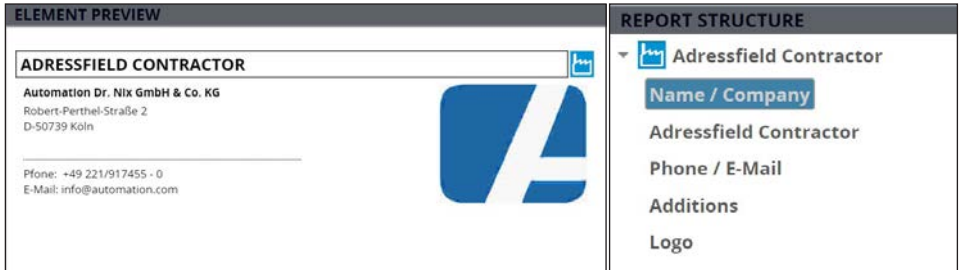
After having selected an element it can be edited with REPORT EDITOR.
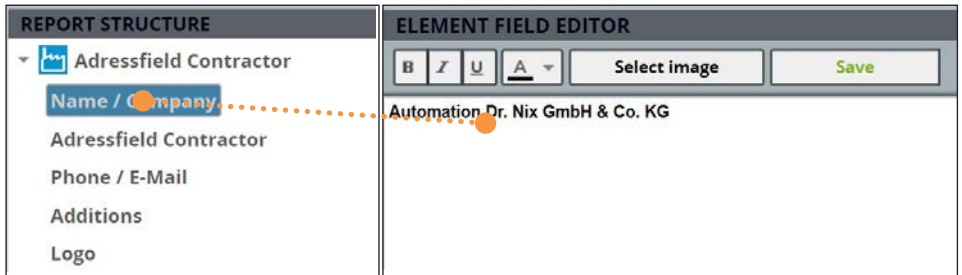
Changes always have to be confirmed by SAVE – exception: "Select image" for importing images.

Then REPORT STRUCTURE is displayed showing different elements. These elements can be moved up and down as needed. Single positions can be deleted. A dotted line helps to get the position.
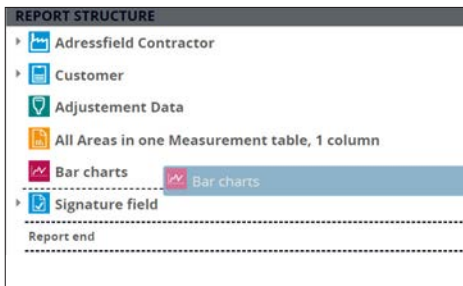
6.4.3. Saving Report Templates

Click the button SAVE to save the template which now is available for the creation of reports.

6.5. Create a report

6.5.1. Introduction

Reports (measurement protocols) are created and edited in the area REPORTS/GENERATING. To create a report a job (measurement data) and a report template are necessary. The saved report structure can no longer be changed. Of course, texts and pictures can be adjusted.

6.5.2. Import a report

The LOAD button is used to call up a saved report. A window opens to list all available reports on the PC at the left side. If a report of this list is selected, its first page is displayed as a preview.
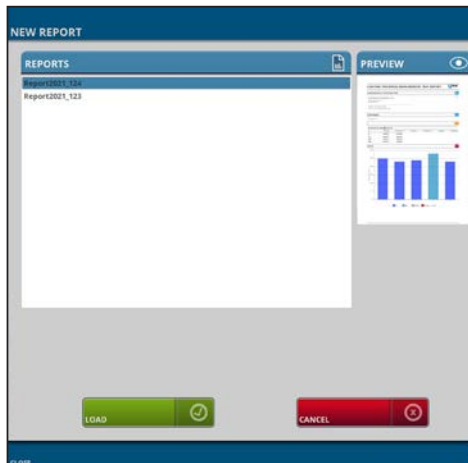
6.5.3. Generate a report

A report is created by the program area NEW REPORT. NEW REPORT will open the window JOBS and REPORT TEMPLATES.
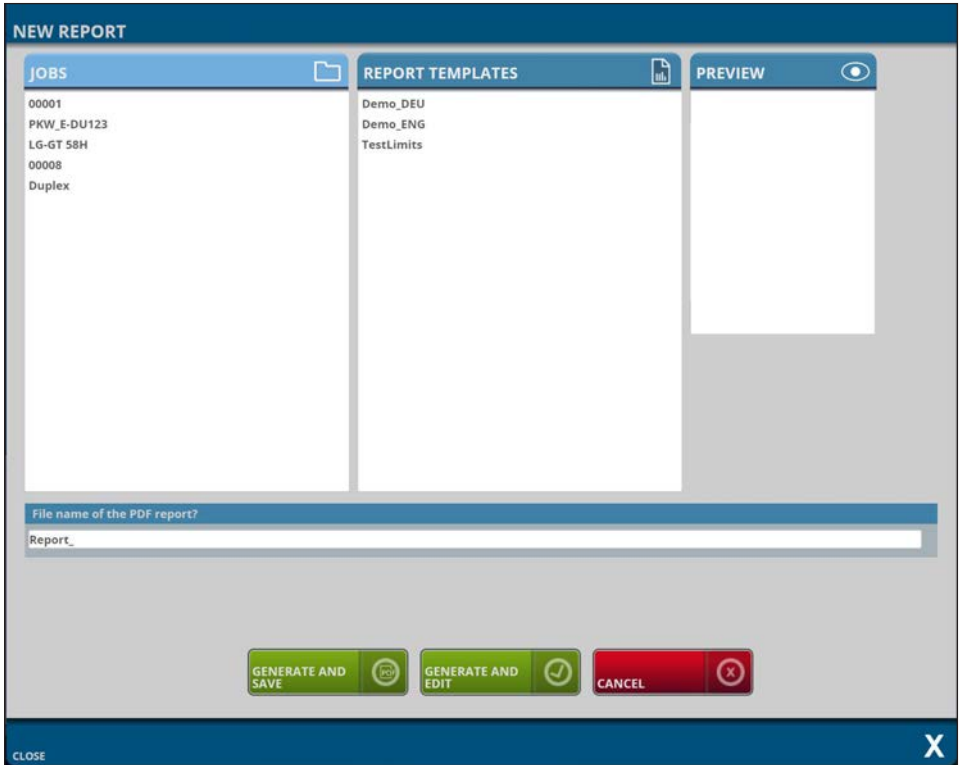
To create a report a job (measurement data) and a report template have to be selected. The entry at the lower part of the window requires the file name of the PDF report. A file name is suggested for convenience.

⚠️ **Caution**

For saving an new report a new file name has to be used. Using an already existing file name will overwrite the existing file without warning.

After that there are three possible decisions (buttons):

• GENERATE AND SAVE:
The report will be created immediately. It will be displayed as a report structure, the PDF file is created, saved and opened afterwards.

• GENERATE AND EDIT:
The report will be created and can be edited. Report elements like text and pictures can be changed. Report structure cannot be changed as it is firmly designed in the template.

• CANCEL:
Cancellation of the operation.

The button SAVE saves the report (not as a PDF file) to be reused later.

6.5.4. Edit a report

A created report template cannot be used for each and every measurement job. You may want to make adjustments (e.g. date, customer etc.). You therefore will have to create a new report to integrate the current measurement data. How to create a report is described in chapter 6.5.3.

To create the report press the GENERATE AND EDIT button to avoid the output as PDF file and to preserve editability. Then this report is listed under REPORT STRUCTURE.

With the creation of report templates (see 6.4.2), the features of report elements can be unfolded to select the required feature. REPORT STRUCTURE displays the content which is editable or can be newly entered. The figure below shows the feature "Number" which has been selected. This number corresponds to a transaction number/order number which is inserted on every page of the report in the foot area. The "Number" field can contain numbers, letters as well as special characters.

REPORT STRUCTURE

▸ 📈 **Adressfield Contractor**

▸ 📄 **Contract**

📄 **for all Areas, 3 columns**

📊 **Bar charts**

▸ ☑ **Signature field**

Report end
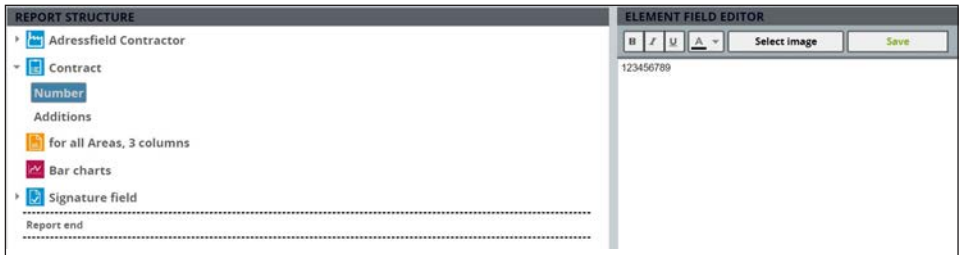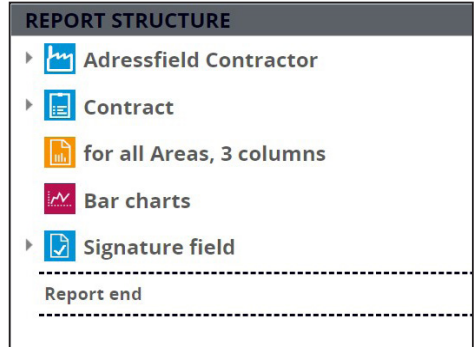
Currently, the "number" field is a single line and can have a maximum of 30 characters.
Changes will be confirmed with the OK button.
Of course, other features can be changed as well.

NEW REPORT

Please label the report:

NewReport2021_124

OK   CANCEL
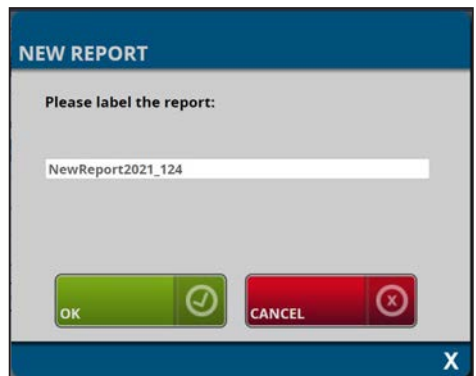
> ⚠ **Caution**
>
> **Please do not forget: After each change of a feature the SAVE button must be pressed, otherwise the change will not be saved. Changes of picture sources do not have to be confirmed by SAVE. Saving is done directly via the file selection dialog IMAGE SELECTION.**

All entries and changes of features have to be completed by pressing the button SAVE. Only this way it will be saved as a file.

> ⓘ **Notice**
>
> **Preview update changes only after pressing the SAVE button. Consequently, a report has to be saved first to get an actual preview and/or to create it as a PDF file.**

6.5.5. Export and print a report

The button EXPORT saves a loaded report as PDF file. After this, its name can be changed.

> ⚠ **Caution**
>
> **For saving an new report a new file name has to be used. Using an already existing file name will overwrite the existing file without warning.**
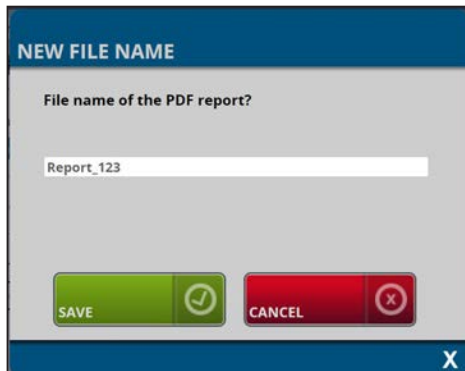
Confirmation with the SAVE button will create the PDF file. Depending on the size of the report this can take some time. The working process is indicated by a small animated circle.

Upon completion a new window opens showing the report as a PDF file.
This PDF report can be printed if necessary. If not the window can be closed.
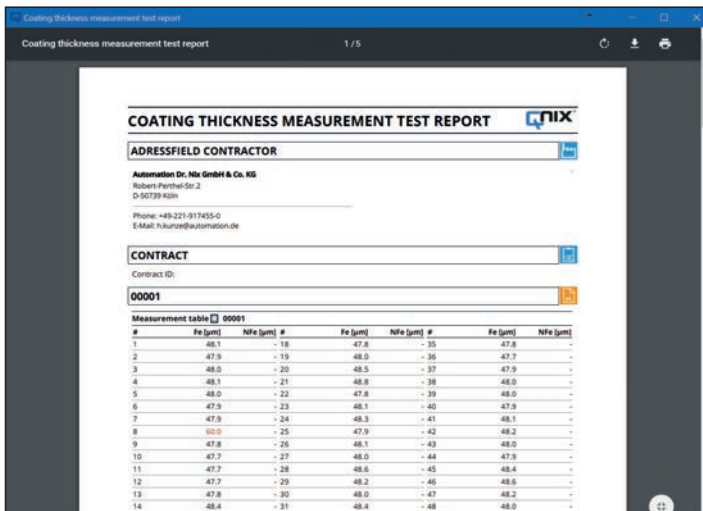
To print the document, move the mouse within the PDF window towards the upper edge. Several controls appear, you will find the printing symbol on the right side. Pressing it, the display changes and the active file can be printed via system menu for printing.

6.6. Data Backup

6.6.1. QN9 Data (jobs, templates, reports)

The QN9 application manages the various types of data like jobs, reports etc. The individual files are automatically saved in predefined folders. This is described in chapter 3.4. To backup or archive files they can be copied from there using the Windows file manager.

6.6.2. Gauge Settings

QN9 offers the possibility to save gauge settings as well. If another QNix® 9500 device is in use, the settings can also be copied to that device. For that, it has to be connected to the PC via USB.
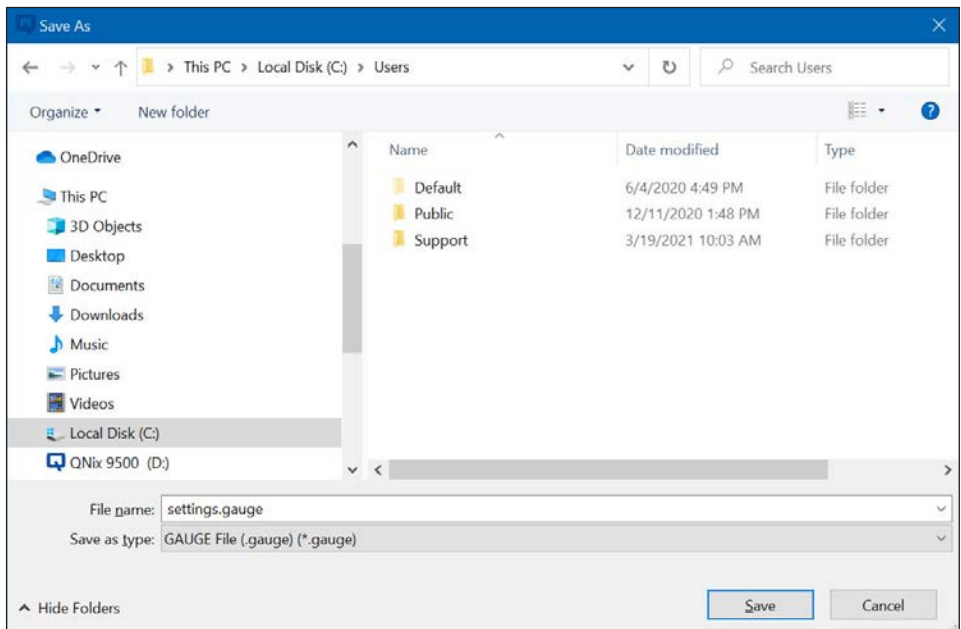
Settings can be saved using the menus GAUGE SETTINGS / PROBE or SYSTEM or LIMIT SETTINGS. Generally all settings are saved. You do not have to do it in every menu (PROBE, SYSTEM or LIMIT SETTINGS). Saving of settings is initiated by pressing the button SAVE. The dialog SAVE AS opens: An editable file name will be proposed. Data type GAUGE file has to stay selected. Pressing the button SAVE generates and saves a file with the device settings.

Pressing the RESTORE button a dialog box to import the settings file will be opened.

The settings file is selected (our exmaple: settings.gauge). Pressing the button OPEN will import the settings. Pressing the button TRANSFER will transfer the settings to the gauge. Other original settings in the gauge remain unchanged.
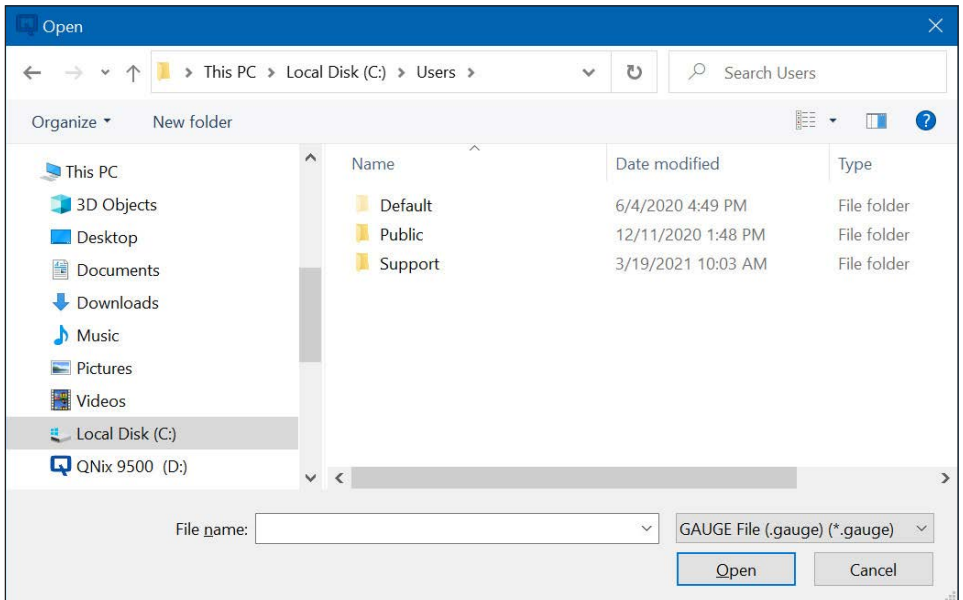
7. Menu description

7.1. Program Settings

This menu allows to check and edit the specific settings of the QN9 software.
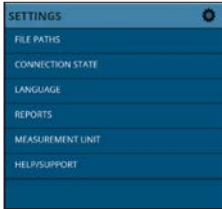
7.1.1. File Paths

Here the folders to be used for QN9 data can be edited.

Please also see chapter 3.4.

7.1.2. Connection Status

This site displays eventual connection problems. If the connection to the gauge is active similar data should be displayed. The operating system provides default names for USB drive and serial port.
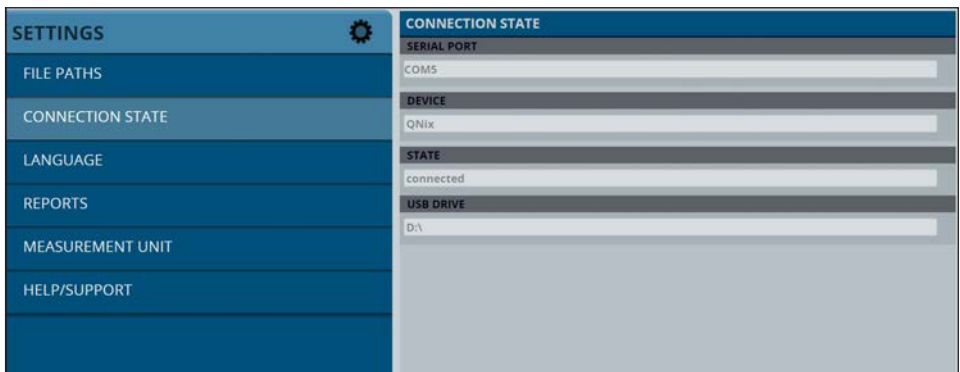
7.1.3. Language

This area offers the possibility to choose the language for application and reports. Default language is English.

After choosing your preferred language via the pull down list the button SAVE has to be pressed in order to save the changes you made. The selected language is active without a restart.

The language for reports can be set separately from the application language.
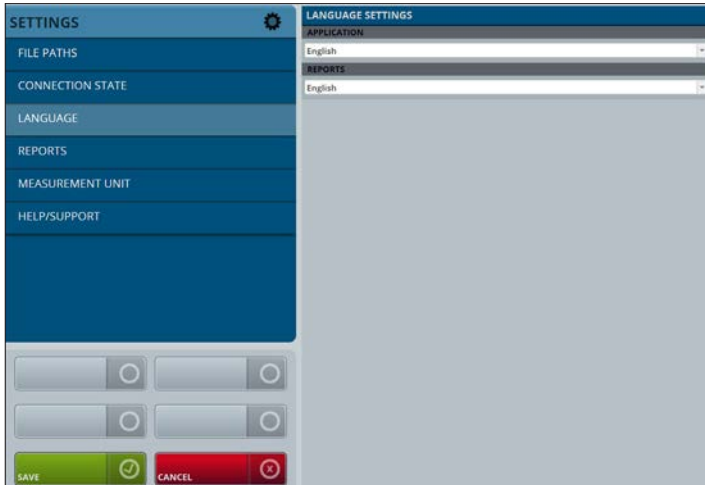
⚠ **Notice**

The language you chose translates the predefined headlines and texts of the report elements but not your own texts. Please notice: It is not possible to change the language subsequently.

7.1.4. Reports

You can choose the page format (DIN-A4 or letter) via the pull-down-menu REPORT SETTING.

7.1.5. Measurement Unit

This is the area to set the unit of measurement for the coating thickness which also will effect the reports. You can choose between μm (micrometer, SI length unit 10^{-6} m) and mil (UK/US length unit).

7.1.6. Support

Here you can open the support area. Please also see chapter 9.

7.2. Reports

This is the starting area to generate report templates and reports respectively.
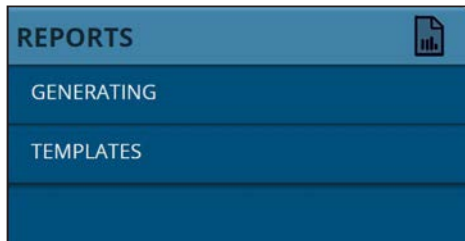
⚠ **Notice**

Actually, max. 2.500 pages and max. 250.000 measurement results per joband max. 5.000 measurement results per bar chart (area) can be handled. The more pages your report includes, the longer it takes to generate it.

7.2.1. Generating

Here reports can be generated. Texts as well as pictures can be edited before creating the report. Please see chapter 6.5. where the creation of reports (measurement protocols) has been generally described.

7.2.2. PDF or Excel report export

Default setting is PDF. Another possibility is the Excel export will simply list measurement data while ignoring any templates.. Each area will be displayed in a seperate excel sheet.

To perform an Excel export you have to choose the option EXCEL export all areas from the short setting list REPORT DATA FORMAT.
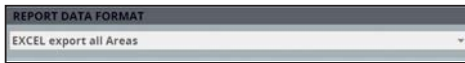
As described in chapter 6.5. the button CREATE REPORT brings you to the window JOB AND REPORT TEMPLATE SECTION. Here you can choose a job and a report template (even if it is not necessary for the Excel export). Press the button GENERATE AND EDIT. The button GENERATE AND SAVE will directly generate a PDF report without any change possibility.
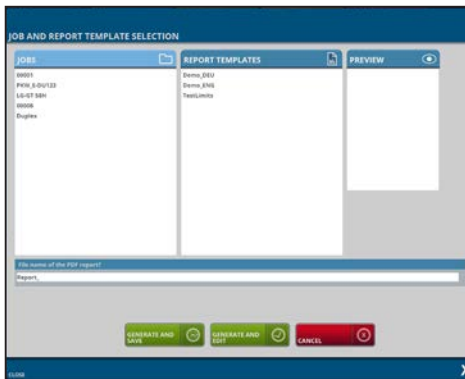
Afterwards a corresponding report should be loaded. After pressing the button EXPORT a little window opens requiring an Excel file name. Enter the name and press OK.
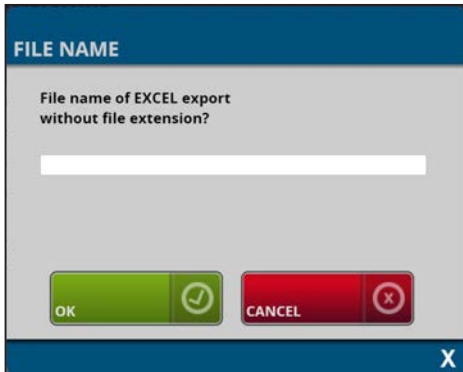
⚠ **Caution**

For saving an new report a new file name has to be used. Using an already existing file name will overwrite the existing file withour warning.

The Excel export is saved as XLSX file in the report folder (also see chapter 3.4.). The Excel file will not be opened automatically.

The export looks like the example below:
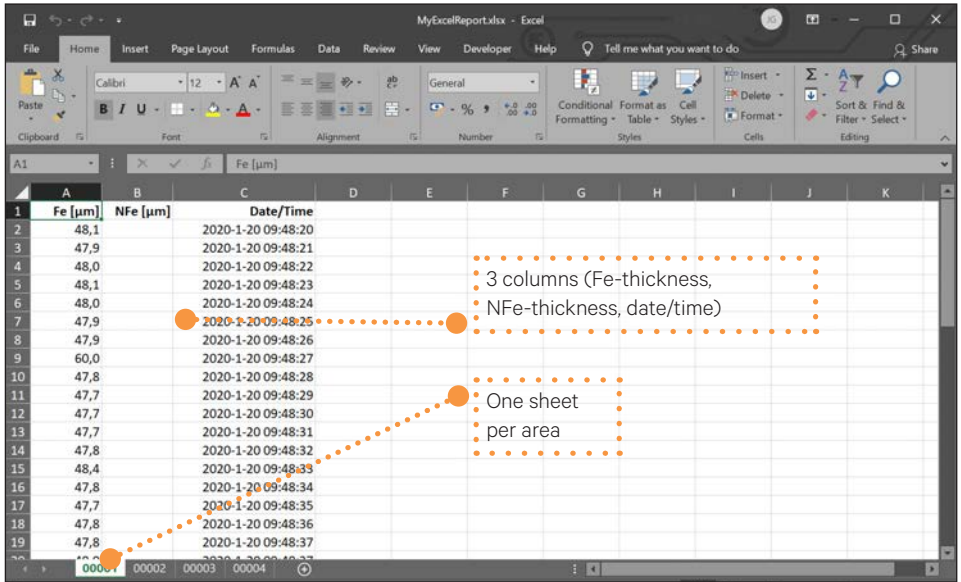
7.2.3. Elements of report templates

Chapter 6.4. has shown how to create report templates. More details will follow here. The list of elements is displayed in the window ELEMENT SELECTION:

7.2.3.1. Text Blocks

• Text block: Free text that can include several lines.

• Text block, 2 columns: Each column is entered separately.

• Textblock, 2 rows: Each row is entered sepatately. Blocks are separated by a dashed line.

• Textblock, 2 rows and 2 columns: Four text blocks as a combination of text block of 2 rows and text block of 2 columns.

Text blocks are simple elements with 1 to 4 features, that can contain text elements: The report displays the text block (2 rows, 2 columns) like in the example below:

7.2.3.2. Special Text Blocks

• Adress Contractor

Contact details: name, address, phone, additional information and a logo

The report shows it like in the example below:

• Adress Customer

Client's information (contact details): adress and customer number

• Order

Order number/process number and additional text if required. The order number is implemented auto-matically on the left footer of each page. Order number can be one line, not more.

• Specification

Here information on the coating system and substrate can be entered.

• Inspection

This report element offers the possibility to insert a selection field for report printing (max. 3 freely editable options). Default settings are: ok, post processing and not ok. At the bottom an additional field for comments is available.. This way predefined options can be manually checked on a printed report.

The report shows it like in the example below:

• Signature

Fields for date and signature can be changed. Above the fields dashed lines are inserted for handwritten signatures on the print.

The report displays it like in the example below:

7.2.3.3. Elements of measuring devices

• Adjustment data

This element enables you to insert a list of the adjustment history of the probe. The element does not provide adjustable features. The report displays this element like below:

• Measuring system

This field contains information on the type of the device (product key and serial number).

⚠ **Caution**

The handheld unit must be connected.

The report displays it like that (example):

7.2.3.4. Measurement Data Tables

There are 4 table elements. Values not fulfilling the limit specification appear red.

- One measurement table per area, 1 column
  Each area is listed in a separate table and with statistics of average x̄, standard deviation σ_{n-1}, smallest and highest measurement of the area at the end of the table. The table looks like in the example below:

JOB 123

Measurement table 00001

#	Fe [µm]	NFe [µm]	Date/Time
0	275.2	-	2021-01-15 08:51:48
1	275.1	-	2021-01-15 08:51:50
2	275.4	-	2021-01-15 08:51:51
3	71.9	-	2021-01-15 08:52:26
4	72.0	-	2021-01-15 08:52:29
5	275.7	-	2021-01-15 08:52:44
6	275.8	-	2021-01-15 08:52:46
7	300.1	-	2021-01-15 08:54:33
x̄	227.7	-	

- Measurement table, combined mode
  This single table type supports the combined mode as well as the duplex mode (2 coatings: galvanizing on steel/iron + paint coating). The table looks like in the example below:

MEASUREMENT TABLE

Job: Duplex

Area	NFe [µm]	Fe [µm]	∑ [µm]	Date/Time
00001	1516.8	1121.0	2637.8	2021-01-20 15:30:15
00001	1518.6	1155.5	2674.1	2021-01-20 15:30:18
00001	1023.9	1143.2	2167.1	2021-01-20 15:30:21
00001	1025.1	1153.7	2178.8	2021-01-20 15:30:23
00001	1027.6	1149.3	2176.8	2021-01-20 15:30:26
00001	-0.1	1168.6	1168.6	2021-01-20 15:30:28
00001	1025.8	1139.7	2165.5	2021-01-20 15:30:31
00001	0.0	1209.2	1209.2	2021-01-20 15:30:49
00001	1024.6	1163.3	2188.0	2021-01-20 15:30:56
00001	0.9	1971.2	1972.1	2021-01-20 15:31:24
00001	248.2	2046.2	2294.4	2021-01-20 15:31:38

• All areas in a measurement table, 1 column

This is a simple listing as a table including all measurement results of all areas. Each row shows one measuring point (1 column). The report displays the table like in the example below:

MEASUREMENT TABLE		
Job: 00001		
Area	**Fe [µm]**	**NFe [µm]**
00001	48.1	-
00001	47.9	-
00001	48.0	-
00001	48.1	-
00001	48.0	-
00001	47.9	-
00001	47.9	-
00001	60.0	-
00001	47.8	-
00002	-	48.6
00002	-	48.8
00002	-	48.2
00002	-	48.2
00002	-	48.0
00002	-	48.1

• One measurement table per area, 3 columns

One table is generated out of one area. Measurement data are displayed in 3 columns in order to consider as many data as possible. Additional statistic data per area are listed at the end of each table: average $\bar{x}$, standard deviation σn_{-1}, lowest and highest measurement within the area.

The report displays the table like in the example below:

00001

Measurement table ⊞ 00001

#	Fe [μm]	NFe [μm]	#	Fe [μm]	NFe [μm]	#	Fe [μm]	NFe [μm]
1	48.1	-	18	47.8	-	35	47.8	-
2	47.9	-	19	48.0	-	36	47.7	-
3	48.0	-	20	48.5	-	37	47.9	-
4	48.1	-	21	48.8	-	38	48.0	-
5	48.0	-	22	47.8	-	39	48.0	-
6	47.9	-	23	48.1	-	40	47.9	-
7	47.9	-	24	48.3	-	41	48.1	-
8	60.0	-	25	47.9	-	42	48.2	-
9	47.8	-	26	48.1	-	43	48.0	-
10	47.7	-	27	48.0	-	44	47.9	-
11	47.7	-	28	48.6	-	45	48.4	-
12	47.7	-	29	48.2	-	46	48.6	-
13	47.8	-	30	48.0	-	47	48.2	-
14	48.4	-	31	48.4	-	48	48.0	-
15	47.8	-	32	47.9	-	49	48.1	-
16	47.7	-	33	48.5	-	50	47.9	-
17	47.8	-	34	47.8	-	51	-	-
$\bar{x}$	48.3	-						
σ_{n-1}	1.7	-						
Min.	47.7	-						
Max.	60.0	-						

7.2.3.5. Measurement Diagrams

There are three types of diagrams available by now. The diagrams will be generated automatically without having to specify parameters. Accordingly, these report elements do not offer features. A diagram is designed for each area.

• Histograms
  A histogram is a graphic showing the frequency distribution within the measurements. The data are classified automatically (coating sections). The lower part additionally provides statistical information. The limit settings have the effect that measurement data outside the specification range are displayed red.

A diagram for one area may look like that:

$\bar{x}$ [µm]	48.3		
σ [µm]	1.7	$\pm 3\sigma_{n-1}$ [µm]	5.1
Readings within $\pm 3\sigma_{n-1}$	49	Readings outside $\pm 3\sigma_{n-1}$	1
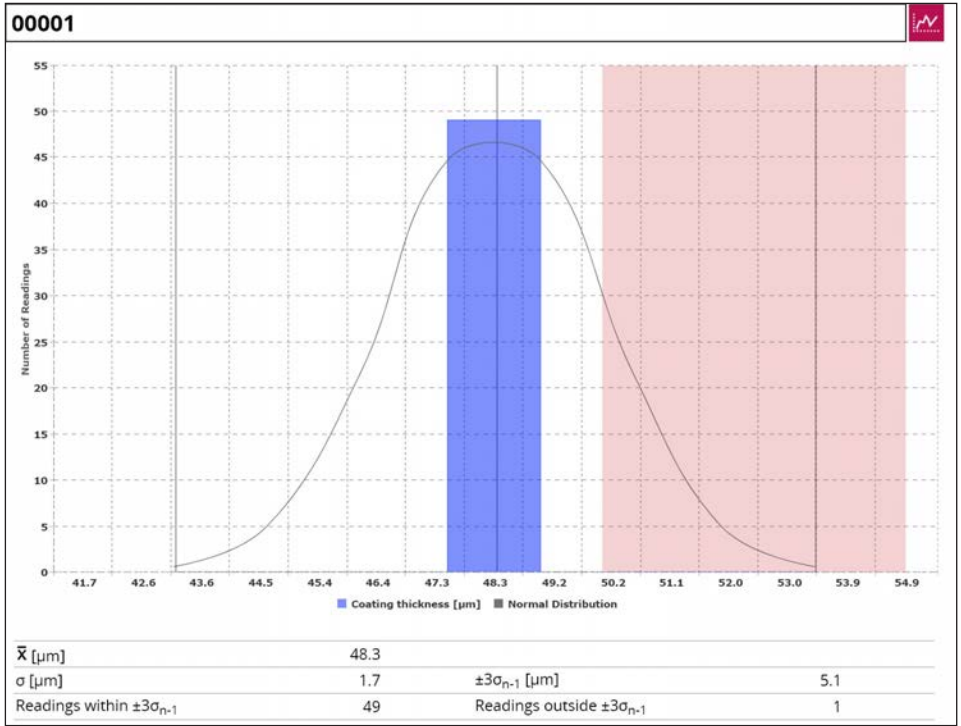
• Bar charts and Bar charts Duplex

This type displays a measurement as a bar. The width of the bars depends on the number of measurements. One diagram per area is displayed. Results exceeding the specification appear red. Currently, a maximum of 5,000 measurements is supported.

Only one bar chart type can be used in a report at a time, "Bar charts" or "Bar charts Duplex".

The diagram "Bar chart" for one area looks like shown below:
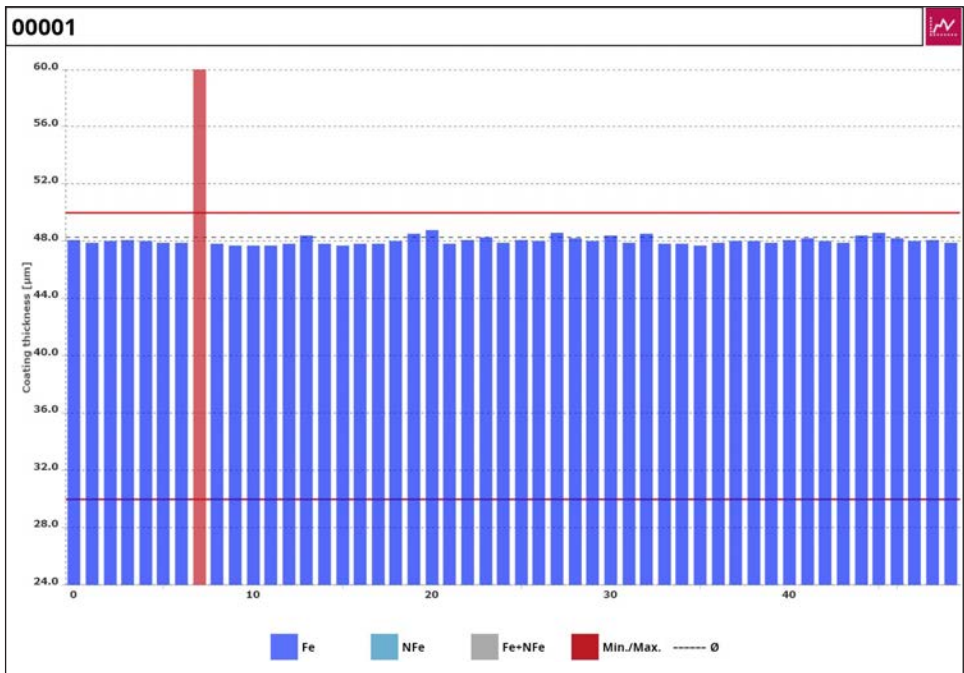
The diagram "Bar chart Duplex" for one area looks like shown below:
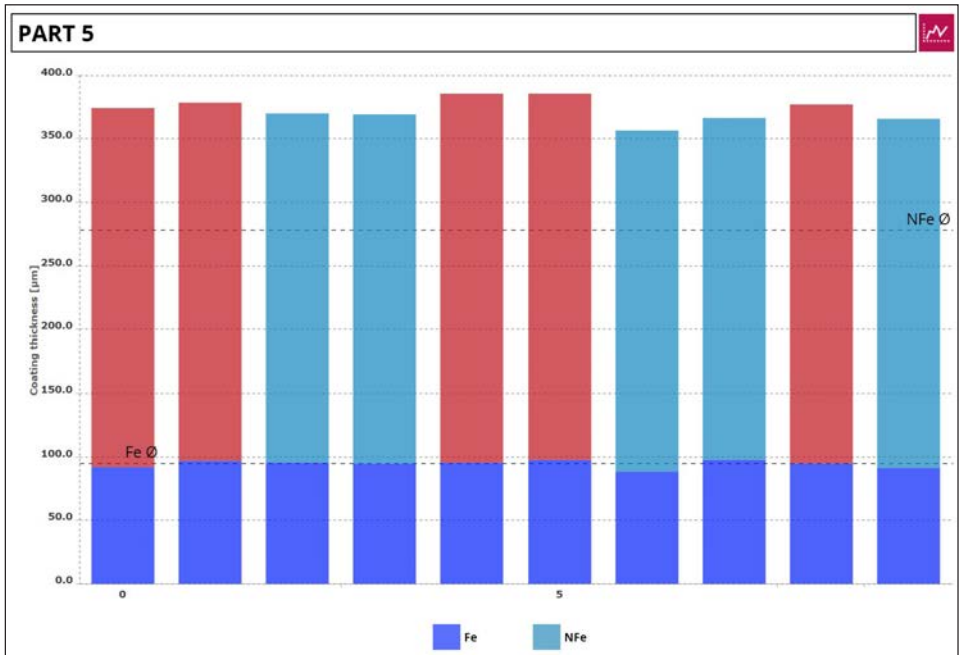
7.2.3.6. Calibration Certificate

A calibration certificate generated as shown in 7.4.5. can be inserted into a report. This may be useful as an official certification of the measurement instrument.

⚠️ **Caution**

The adjustment certificate has to be loaded before generating the report (see 7.4.5.). Currently, the inclusion of a certificate is only supported by one probe.

COATING THICKNESS MEASUREMENT TEST REPORT **QNIX**

CALIBRATION CERTIFICATE

QNIX
QUALITY BY EXCELLENCE

KOPIE /
COPY

Automation Dr. Nix GmbH & Co. KG
Robert-Perthel-Straße 2
D-50739 Köln
Germany
☎ +49 (0)221 / 917455 - 0
✉ info@automation.com

KALIBRIER-ZERTIFIKAT
CALIBRATION CERTIFICATE

SN 3003864

Produkt:	**QNIX® Sonde P3**
Device:	**QNIx® Probe P3**
Produktschlüssel:	PQN3CNDU3.0/3.0-P---
Product Key:	
Produkt SN:	3000232
Product SN:	
Genauigkeit Fe:	≤2mm: ±(2% +1µm); >2mm: ±3%
Accuracy Fe:	≤78.7mil: ±(2% +0.039mil); >78.7mil: ±3%
Genauigkeit NFe:	≤2mm: ±(2% +2µm); >2mm: ±3%
Accuracy NFe:	≤78.7mil: ±(2% +0.079mil); >78.7mil: ±3%

Gebrauchsnormal:	**AQNXCS--CAL/N--B----**
Working Standard:	
Kalibrierdatum:	07.10.2020
Date of Calibration:	
Seriennummer:	3002890
Serial number:	

Bezugsnormal:	**Heidenhain CT 2501**
Reference Standard:	
Kalibrierdatum:	02.01.2019
Date of Calibration:	
Seriennummer:	29066198
Serial number:	
DAkkS Kalibrierzeichen:	D-K-19057-01-00
DAkkS Calibration Mark:	

Hiermit bestätigen wir, dass das werksinterne Kalibrierlabor ein Managementsystem nach EN ISO 9001:2015 benutzt. Die für die Kalibrierung verwendeten Messeinrichtungen werden in den vorgeschriebenen Zeitabständen kalibriert und sind rückführbar auf die nationalen Normale zur Darstellung der Einheiten in Übereinstimmung mit dem internationalen Einheitensystem.

We hereby confirm that the manufacturer's calibration laboratory uses a management system according to EN ISO 9001:2015. The measurement equipment used for calibration is subject to the prescribed time intervals and is traceable to national standards in accordance with the International System of Units.

Sample

KALIBRIERBEDINGUNGEN
CALIBRATION CONDITIONS

Temperatur:	22°C ±2°C	Luftdruck:	1010hPa ±30hPa
Temperature:	71.6°F ±35.6°F	Air Pressure:	

KONFORMITÄTSAUSSAGE
DECLARATION OF CONFORMITY

[✓] Messwerte innerhalb der zulässigen Abweichung.
Measured values within the specified range.

[ ] Messwerte außerhalb der zulässigen Abweichung.
Measured values outside the specified range.

18.03.2021	Uwe Regnery	Diana Hilden
Datum	Fachverantworlicher	Bearbeiter
Date	Supervisor	Technician

AUTOMATION Dr. NIX

1/2

7.2.4. Report Element Structure

The field REPORT ELEMENT STRUCTURE lists all report elements for the according report. Different report elements can be dragged and dropped from ELEMENT SELECTION to REPORT ELEMENT STRUCTURE where they can be moved up and down easily.
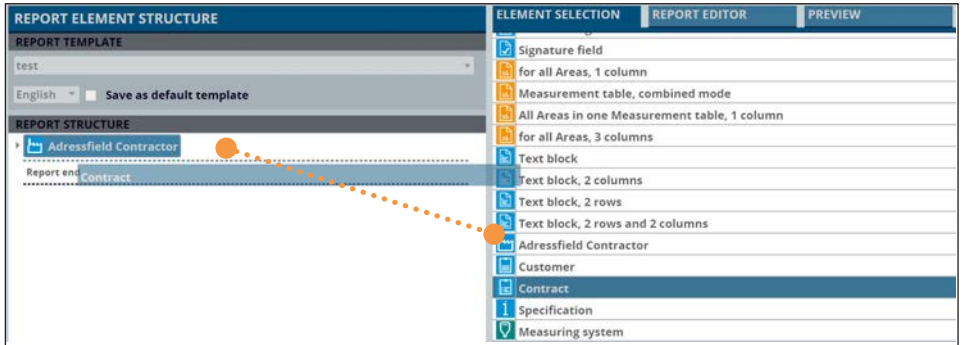
To delete elements, they have to be selected. Then press the button DELETE. Or even quicker: drag and drop the element out of the field REPORT ELEMENT STRUCTURE and release the mouse. The element will be deleted. There are a lot of report elements, whose ELEMENT TITLE (headline) can be changed. Here is an example for the element "Contract":

If the report element has been selected within REPORT STRUCTURE the text of the field ELEMENT TITEL can be edited. As an example we changed it into "Customer process". SAVE confirms the changes. PREVIEW shows the result within the tab REPORT EDITOR.

7.2.5. Default Template

A report template can be marked as the default template. It will be automatically selected within the window JOB AND REPORT TEMPLATE SELECTION when generating the report. You only have to select the job you want and insert a name for the PDF file.

REPORT ELEMENT STRUCTURE

REPORT TEMPLATE

MyTemplate

English   ☐ **Save as default template**

REPORT STRUCTURE

▸ 🏭 **Adressfield Contractor**

▸ 📋 **Contract**

Report end

JOB AND REPORT TEMPLATE SELECTION

JOBS 📁	REPORT TEMPLATES 📊	PREVIEW 👁
00001	Demo_DEU	
00008	Demo_ENG	
	TestLimits	
	MyTemplate	

File name of the PDF report?
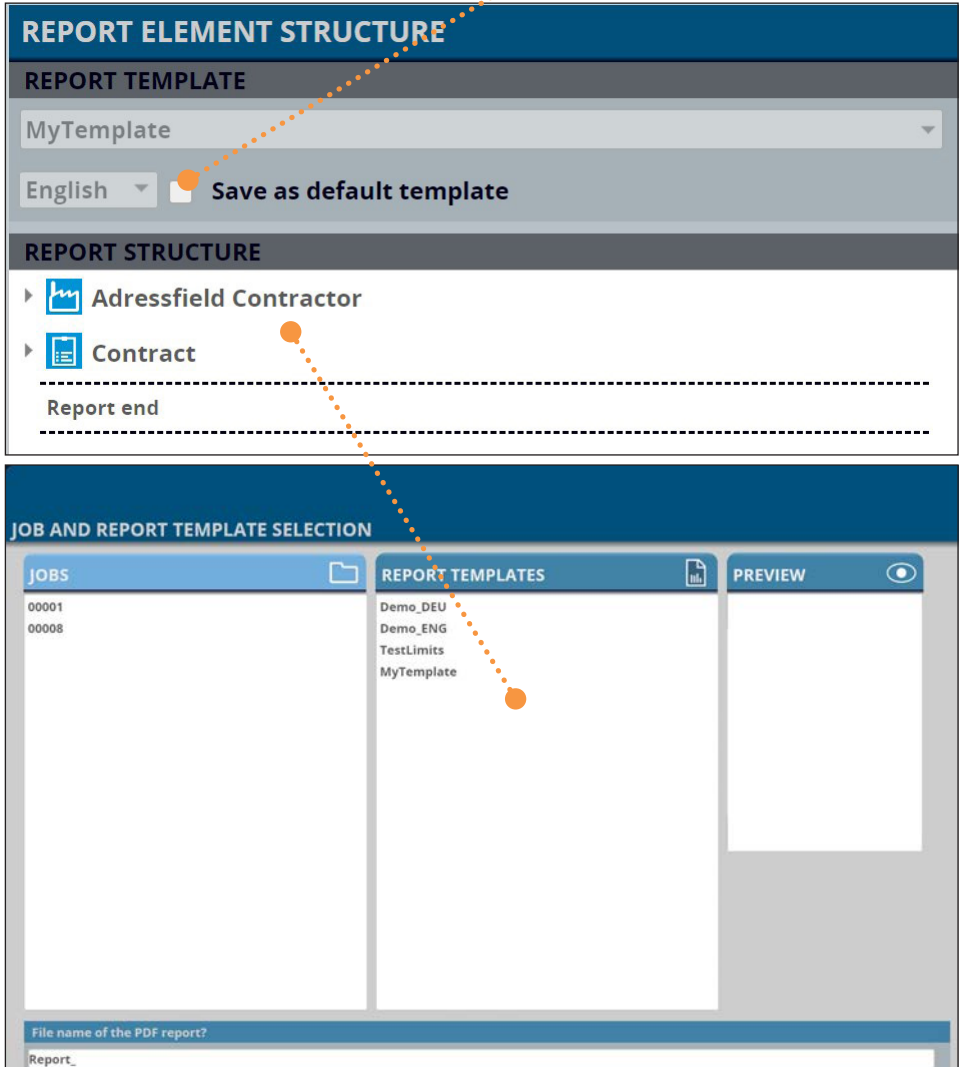
Report_

7.2.6. Elements Preview

The selected report elements are displayed within PREVIEW.

For example. "Text block, 2 rows and 2 columns" provides four independent features. ELEMENT PREVIEW shows them, if the element has been selected. Please notice that this can be only as an example as no job data have been provided when creating the template.

7.2.7. Report editor

REPORT EDITOR enables you to edit a selected feature:
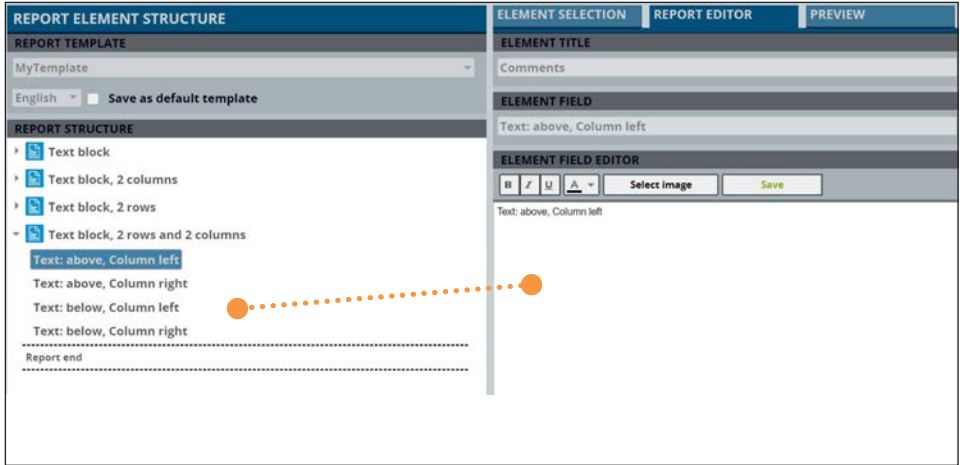
Setting elements are:

Text attributes: bold, italic and underlined.

These elements can be used together.

Selection of text color

Image selection (only for images)

Inputs are taken over. Not necessary for image sources.

Chapter 7.2.4. explains how to edit the element title within a template. The element's field displays the selected feature of the report element as feedback.

7.2.8. Templates/Preview

The draft of the report can be previewed. Right and left arrows scroll through the pages.

Please notice that page breaks can vary in the final report. This is related to the fact, that measurement data have not yet been provided and the template thus does not know how many measurements a job will provide. Therefore, tables and diagrams only show placeholder. This preview is intended to check the texts.

7.2.9. Generating/Previewing

PREVIEWING shows the final report. Scroll through the pages using the arrows on both sides. A click to the magnifier in the middle will open a new zoomed preview window.
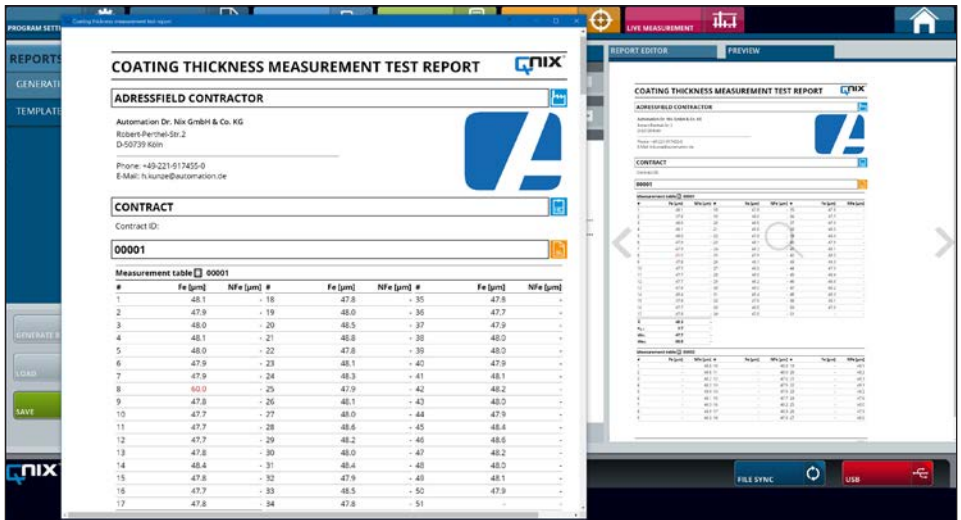
7.3. Jobs/Templates

7.3.1. Job Templates

The basic process how to edit a job template has been described in chapter 6.3.
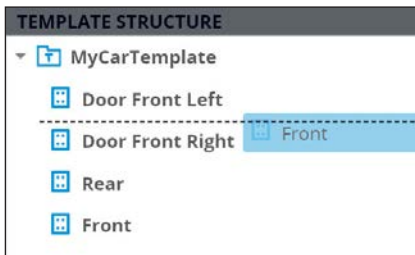
TIP Areas can be moved up or down within the TEMPLATE STRUCTURE. A dotted line indicates the new position.

The context menu (right mouse click) enables you to delete or rename areas if they have been selected.

(!) Notice

Before accessing the context menu by a right mouse click the selection has to be activated by a left mouse click. Otherwise a wrong area may be deleted!

7.3.2. Save job template as job

Via the context menu within the field TEMPLATE STRUCTURE it is possible to generate an empty job out of a job template. You will be asked for a job name. This function is particularly interesting for the QNix® 9500 Premium.
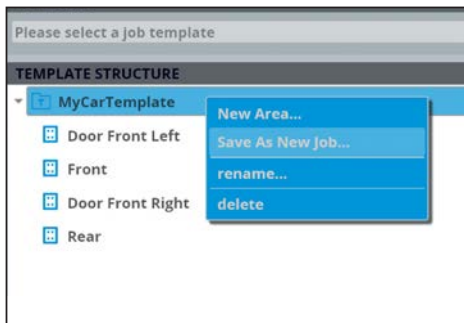
Background information:

Unlike the Premium+, the Premium device cannot create a job from a job template in the handheld device. But the QN9 software is able to create a job directly out of a job template which can be transferred to the gauge (see chapter 8.2.). The unnecessary job (default 00001) should be deleted in the handheld. The premium gauge does not support the job management; only 1 job can be used.

But also the QNix® 9500 Premium+ benefits from this function since the job designations in the QN9 can be freely named which is currently not possible in the handheld without alphanumeric entries. This way it is possible to prepare several jobs in order to select and use them directly on the gauge. This may be useful for vehicle experts who have to check coating thickness orders on various vehicles in one day (vehicle valuation, leasing returns).

7.3.3. Limit settings

Limit settings define thickness ranges of the coating system in order to document and check compliance with the specifications. Results outside the range between minimum and maximum values appear red. They will also be indicated within the diagrams. Individual limits can be set for every single area by selecting it.
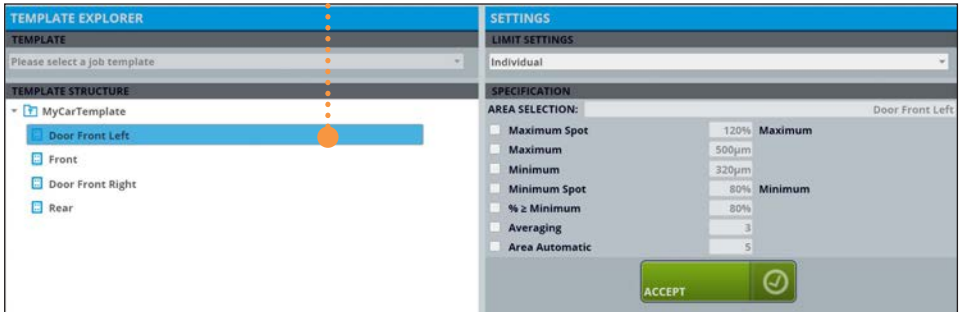
Identical settings for all areas are made by selecting the parent job name. This saves time. The list within LIMIT SETTINGS shows "…".
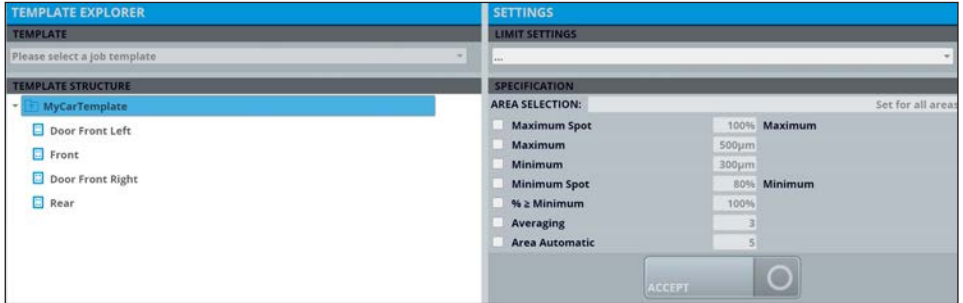
The list LIMIT SETTINGS provides predefined settings to be selected, e.g. important international norms and standards. Parameters can also be adjusted according to your requirements, they can be activated or disabled. Designations may vary according to standard settings. Values are suggested or set directly.
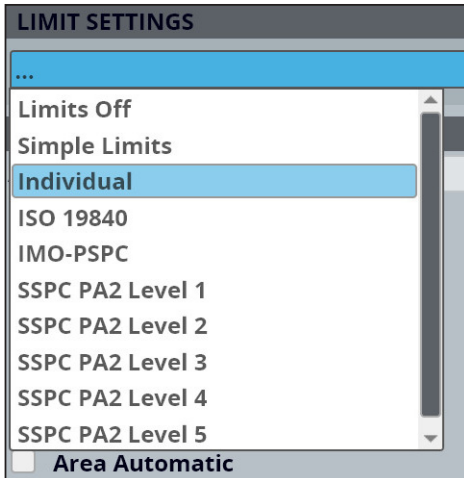
Check boxes enable or disable some parameters. If a field is grey (disabled) entries are not possible.

After setting the limits they are saved by pressing the ACCEPT button.
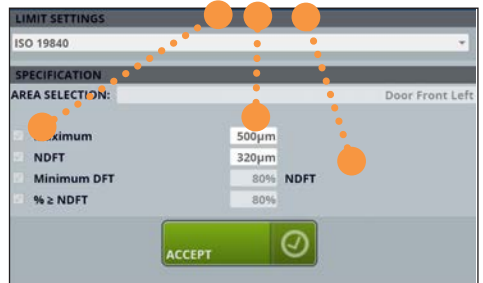
Feature	Description
Maximum spot	Maximum value within the spot indicated as %-value, related to maximum coating thickness.
Maximum	Maximum thickness value permitted in µm (single value or via averaging).
Minimum	Minimum thickness value permitted in µm (single value or via averaging).
Minimum spot	Minimum thickness value permitted within the spot indicated as %-value, related to minimum coating thickness.
Target coating thickness (NDFT)	Nominal coating thickness in µm (average).
Min. coating thickness	% of target coating thickness (NDFT)
% ≥ Minimum	Number of measurements in percent, that have to exceed minimum thickness within one area.
Averaging	Number of measurements, that have to be the base for averaging.
Automatic range control	Number of measurements to be recorded in one area prior to automatically switch to the next area. If no next area exists a new one will be generated and enabled for further measurements.

7.3.4. Job Editing

The JOB EDITING tab provides various options to check and edit measurements (jobs):

- Change names of jobs and areas
- Delete a selected job
- Delete measurement data
- Delete whole areas
- Move measurement data between areas
- Quick evaluation of measurement data
- Set limit values
- Export measurement data (Excel)
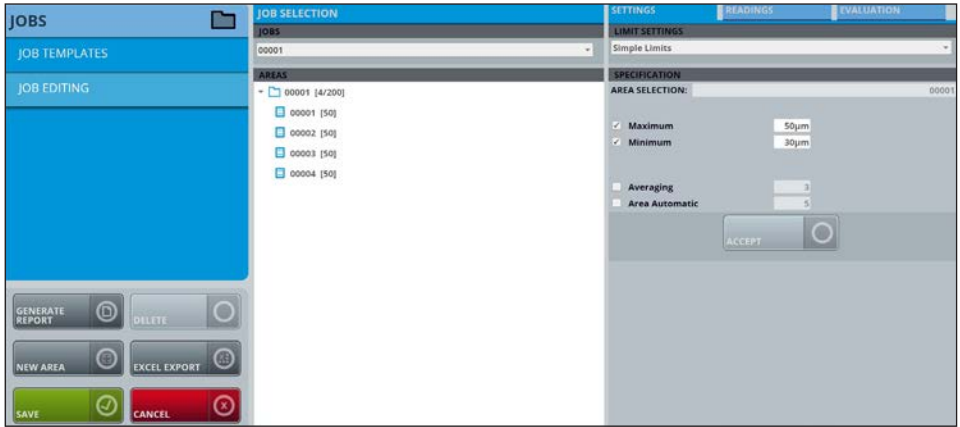
To edit a job it has to be selected in the drop-down-list JOBS. Of course, the according job has to be copied before from the handheld to the PC (FILE SYNC). Subsequently the job is loaded and displays its content in the field AREAS. The figure shows an example.

[4/200] › Job 0001 with 4 areas and 200 measurements
[50] › Area 00001 includes 50 measurements

Selecting the tab MEASUREMENTS will list the data within this job.

There are two types of visualization:

• Selection of the job (select job name). All measurements are listed in area defined groups.

JOB SELECTION		SETTINGS	READINGS		EVALUATION
JOBS			Area	Fe[µm]	NFe[µm]	Date/Time
00015	▾	▾ Area: Hood (6)				
AREAS		Hood			266.8	03-25 08:42:54
▾ 📁 00015 [7/30]		Hood			257.8	03-25 08:42:55
📄 Hood [6]		Hood			266.9	03-25 08:42:56
📄 Door Rear Left [4]		Hood			260.1	03-25 08:42:57
📄 Door Front Left [4]		Hood			260.6	03-25 08:42:58
📄 Fender Left [4]		Hood			257.7	03-25 08:42:59
📄 Fender Right [4]		▾ Area: Door Rear Left (4)				
📄 Door Front Right [4]		Door Rear Left			260.8	03-25 08:42:44
📄 Door Rear Right [4]		Door Rear Left			264.9	03-25 08:42:45
		Door Rear Left			266.8	03-25 08:42:46
		Door Rear Left			260.8	03-25 08:42:47
		▾ Area: Door Front Left (4)				
		Door Front Left			265.8	03-25 08:42:34
		Door Front Left			271.8	03-25 08:42:35
		Door Front Left			265.9	03-25 08:42:36
		Door Front Left			266.4	03-25 08:42:37
		▾ Area: Fender Left (4)				
		Fender Left			345.5	03-25 08:42:26
		Fender Left			344.8	03-25 08:42:27
		Fender Left			336.2	03-25 08:42:28
		Fender Left			343.8	03-25 08:42:29
		▾ Area: Fender Right (4)				

• Selecting an area will list the measurement results in this area.

JOB SELECTION		SETTINGS	READINGS	EVALUATION
JOBS		Fe [µm]	NFe[µm]	Date/Time
00015	▾		260.8	21-03-25 08:42:44
AREAS			264.9	21-03-25 08:42:45
▾ 📁 00015 [7/30]			266.8	21-03-25 08:42:46
📄 Hood [6]			260.8	21-03-25 08:42:47
📄 Door Rear Left [4]				
📄 Door Front Left [4]				
📄 Fender Left [4]				
📄 Fender Right [4]				
📄 Door Front Right [4]				
📄 Door Rear Right [4]				

7.3.4.1. Edit Measurement Values

Double click on a measurement result and you are able to edit it in order to delete digits after point, for example. More editable functions are available via the context menu (right mouse click) .

Selected results can be deleted or extracted in order to paste them to other areas. This can be useful if measurements have been saved in a wrong area.

The field AREAS also provides a context menu in order to delete all results of one area. Like always, changes are confirmed by pressing the button SAVE.

7.4. Gauge Settings

In the QN9 application all gauge settings can be easily made. The handheld has to be connected (via USB) to the PC. Actual settings will be displayed. Please notice that all changes must be confirmed by pressing the TRANSFER button.

Chapter 6.6.2. described how to save and restore settings and how to transfer them to another handheld. Please use the buttons SAVE and RESTORE.

(!) Notice

All gauge settings done with the QN9 application (don't forget the button TRANSFER) are active in the handheld only after disconnecting it from the PC.
Before disconnecting the handheld device, the button USB Eject should be pressed, or alternatively the Windows function "Safely remove hardware …" should be executed.

7.4.1. Probe

This area provides setting possibilities for the probe (measurement settings).

PROBE SETTINGS

SUBSTRATE
- Fe
- NFe
- Automatic
- Duplex

MEASUREMENT TRIGGER
- Immediately
- Continuous
- By Button
- Delayed 0.5s

WAKE ON PROBE
- Off
- On

Probe settings	Value	Explanation
Substrate (depends on probe type)	Fe	Coating substrate ferromagnetic (e.g. iron/steel)
	NFe	Coating substrate non ferromagnetic metal (e.g. aluminium)
	Automatically	The substrate is set automatically; Fe or NFe
	Duplex	For measurements on a multiple coating (Fe and NFe), e.g. galvanized steel with paint coating
Measurement recording	Immediately	Measurement immediately upon touchdown
	Continuously	Measurement continuously upon touchdown
	Per button	Measurement by pressing the Q button
	Delayed	Measurement delayed (delay adjustable)
Wake up by probe	Off	The device is switched on by the key
	On	The device switches on when the probe touches down

7.4.2. System and Display

This area provides the settings for handheld and display (system settings).
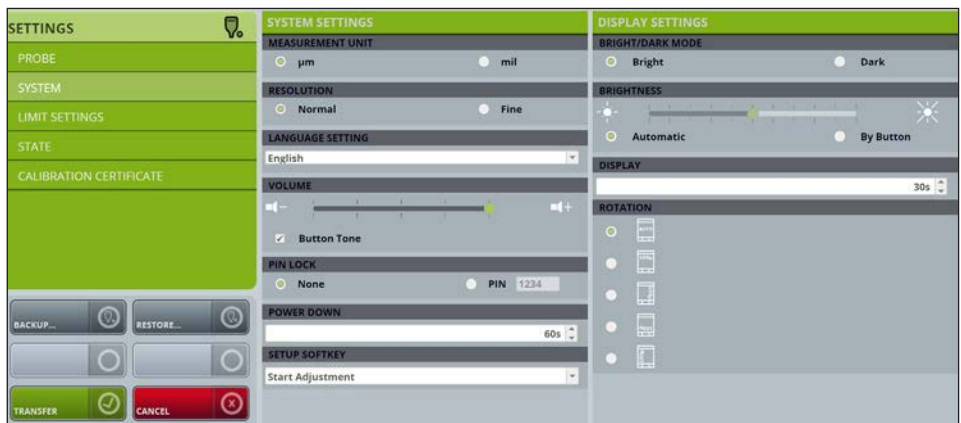
System Settings	Value	Explanation
Unit	µm	Values in µm
	mil	Values in mil (in 1/1000 Inch, approx. 25,4 µm)
Resolution	normal	Normal resolution of value display
	high	High resolution of value display: An additional decimal place is shown.
Language	English	English
	German	German
	Français	French
	Italiano	Italian
	Español	Spanish
	Türkçe	Turkish
	Nederlands	Dutch
	Polski	Polish
	Magyar	Hungarian
	中文 (simplified)	Chinese simplified
	中文 (traditional)	Chinese traditional
	한글	Korean
	日語	Japanese
Volume	Value	Volume of the acoustic signal
PIN lock	None	PIN is enabled
	PIN	4-digit PIN to lock measurement settings
Turn off	Value	The duration, in seconds, after which the handset switches off in case of no activity
Softkey Settings	None	No use of the Q key
	Start adjustment	Adjustment process is started
	Advance area	Next area is enabled

System Settings	Value	Explanation
Day/night mode	Day	Bright background, dark texts
	Night	Dark background, white texts
Brightness	Value	Value of brightness
	Automatically	Brightness is set automatically
	By key	Setting manually by a slider
Display	Value	Time after which the display turns off in case of inactivity
Rotation	Auto	Automatic alignment depending on position of the handheld
	Top	Display above (default)
	Right	Display right
	Bottom	Display below
	Left	Display left

7.4.3. Limit Settings

The area LIMIT SETTINGS provides the settings of general limits. This will be important if in the handheld no area is active and a new area is to be created. If this is the case the new area automatically receives those settings. The input mask is identic to that one in the job menu (see 6.3.1. and 7.3.3.)

7.4.4. Status

The site STATUS offers information on the connected gauge and its probe when the button RECALL is pressed.

GAUGE		PROBE	
Designation:	QNix 9500 Premium+	Designation:	QNix Probe P3 3/3
Product Key:	GQN9C+DUX.X/X.X-D---	Product Key:	PQN3CNDU3.0/3.0-P---
Serial number:	3000076	Serial number:	3000232
FW Version:	1.10.11221	FW Version:	1.2.11208

By pressing the button RESTORE FACTORY SETTINGS the data setting of the gauge can be restored.

⚠ **Caution**

Please only use this function if the file system on the gauge is defect or has been accidentally deleted. Before starting the recovery, the handheld memory should be formatted.
This action resets all settings, templates and measurement data on the handheld.
The QN9 application should have been saved before, as this will not be restored.
More details are described in the Troubleshooting chapter.

7.4.5. Calibration Certificate

It is possible to create an calibration certificate (factory adjustment) as copy from the current probe.
The calibration certificate can be displayed and printed. It is furthermore saved automatically in the background in order to import it later into a report (see 7.2.3.6.).

Adjustment data are called up by pressing the button RECALL within the menu GAUGE SETTINGS / CALIBRATION CERTIFICATE. Handheld with probe has to be connected. It takes a few seconds to display the current certificate and to save it as a PDF file.

> **⚠ Caution**
>
> The calibration certificate cannot be created out of probes firmware version 1.1.10399 or older! If this is the case you will get an according warning on the screen. In order to avoid problems with master data always the newest QN9 version should be used. The application only allows one copy of the certificate. It does not replace the original calibration certificate which is part of the measuring device when delivered.

7.5. Adjustment

7.5.1. Gauge Settings

Here you can choose the adjustment settings of the gauge. Please notice the adjustment can be only carried out in the gauge. To do this the handheld has to be disconnected from the PC. That is why within the QN9 application you can only choose the settings related to user's adjustment. This depends on individual measurement requirements.

The column ADJUSTMENT SETTINGS requires your method choice. Texts in the HELP field offer additional informationon the appropriate adjustment choice.

According to the adjustment method more settings can be chosen out of the right column. For example, how many measuring points should be recorded for the adjustment averaging. Furthermore, average roughness possibly leading to a wrong thickness reading can be defined.
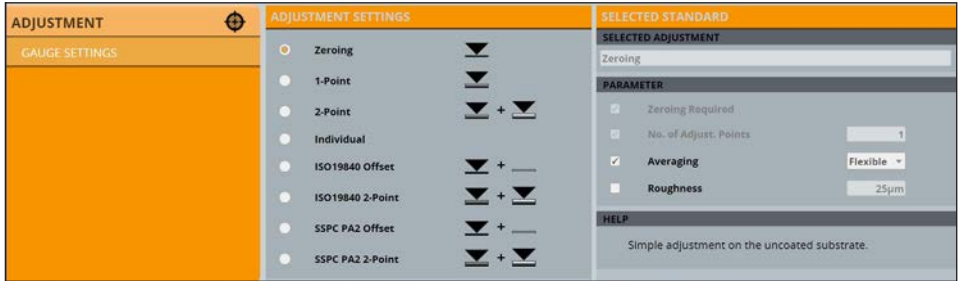
7.6. Live Measurement

Via LIVE MEASURMENT your measurements can be displayed directly in the application. The handheld has to be set accordingly (substrate etc.). The handheld has to be connected to the PC via USB.

7.6.1. Imaging

Software readings are identical to those on the handheld display. Pressing the button RESET will reset the display to start again with n1 (1st measurement value). The button FULL IMAGE displays the measurement in a separate, bigger window. Live measurement data can be saved.

The button SAVE will open a new input window:

There are two options.
• A new job with a mandatory name is created. The name should not be used by another existing job.
• Measurement data are saved in a new area (batch) of an existing job. This job has to be selected and a new name for the area has to be entered.

Both options save the measurement data in the new area (batch). The default name "LiveBatchDate_Time" can be changed. Please notice that the name within the job has to be new.

7.6.2. Settings

Here limit settings for minimum and maximum coating thickness can be entered. Checkmarks have to be set accordingly before entering the limit values. Pressing the button SAVE will enable the new limits.

8. Data Synchronization

Pressing the button FILE SYNC will open the corresponding window. Some program modes, however, do not allow to open File Sync. A warning message will be displayed.

8.1. Connection/Separation of the gauge

The window DATA SYNCHRONISATION can only open if the handheld is connected to the PC. The connection buttons have several meanings.

No connection to the handheld.

Connection to the handheld (serial connection closed).

Full connection to the handheld.
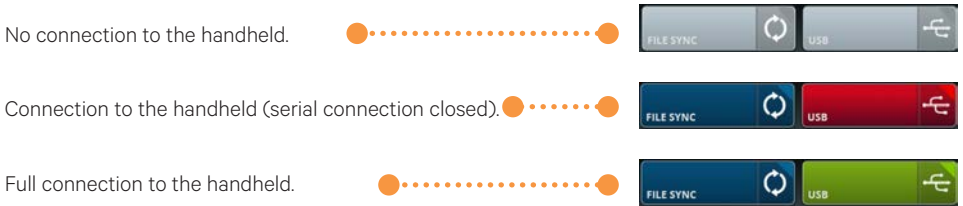
The serial connection (USB button) is usually controlled automatically, that is its activation or deactivation. The connection can also be established manually. Pressing the button will connect or separate the gauge in case of connection errors..

⚠️ **Caution**

If the USB driver has not been properly installed together with the application problems with the device connection may occur.

## 8.2. Save disconnection of the handset

We strongly recommend pressing the USB Eject button each time before disconnecting your handset from the PC. This forces a "secure hardware removal" from the Windows operating system.
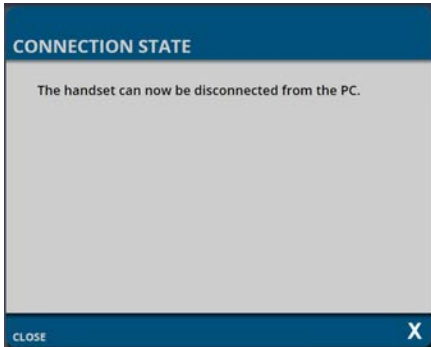

Caution

This function is only available if the QN9 application has administrator rights. If the user has restricted user rights, a message appears:

Before disconnecting the device from the PC, the Windows function "Safely Remove Hardware and Eject Media" should then be called.
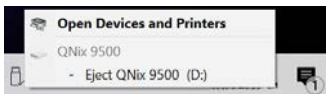
The USB connection should only be disconnected to the handheld device afterwards.

CONNECTION STATE

The handset can now be disconnected from the PC.

CLOSE   **X**

⚠ **Caution**

The application can be started with administrator rights, among others, if the start (desktop icon) is performed via the context menu "Run as administrator". The context menu is called via the right mouse button.
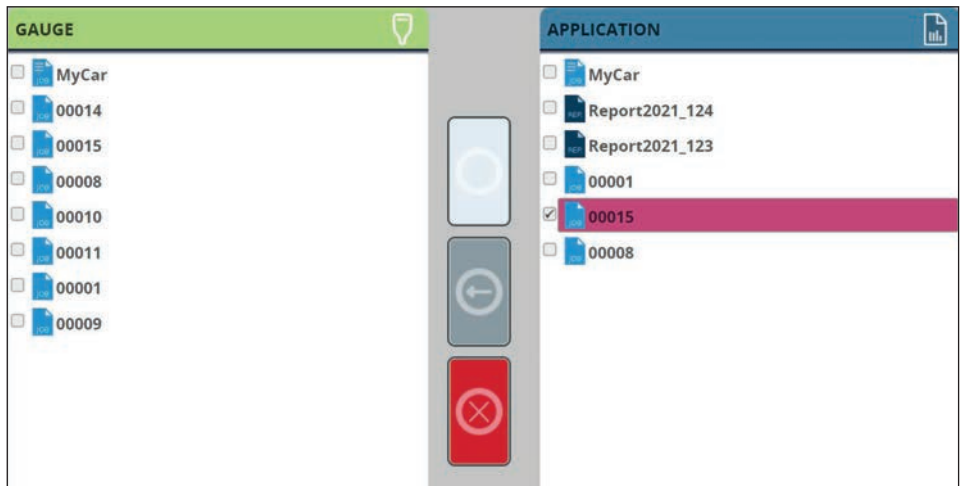
🛡 Run as administrator

8.3. Synchronisation Window

Synchronisation has been described in chapter 6.3.2. Proceed analogously to transfer other data types between gauge and PC.

In principle data are copied from the PC to the handheld or vice versa, or data can be deleted. Several files can be selected.
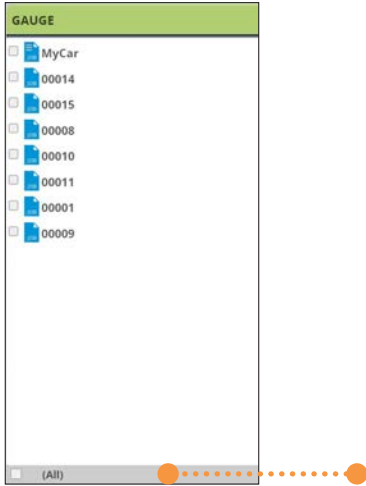

Please choose only one site (source) to define the transfer direction.

This button deletes selected files.

⚠ **Caution**
**Deletion of selected files is irreversible, without any safety query.**

Please checkmark ALL to select all files.

According to the size of the files the transfer process may take some time. Please do not interrupt this process which is indicated by a little animated gif.

During the transfer process conflicts may arise in case that file names are identical at the source and the target site. A warning appears offering 3 options:

- Overwrite file at the target site
- Rename transfer file automatically
- Do not transfer file (button SKIP)
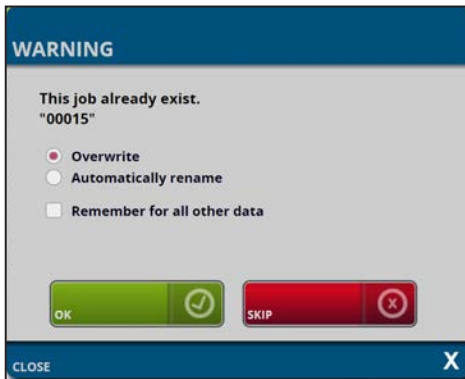
All files are selected by setting the checkbox REMEMBER FOR ALL OTHER DATA.

The transfer process is continued by pressing OK. The transfer process is cancelled with SKIP.

9. Support

9.1. User's Manual

User's manual can be found under HELP/SUPPORT. It can be printed by pressing the printing button.

9.2. Address

See here contact details of Automation Dr. Nix GmbH & Co. KG. Links will lead you to the website as well as to the according YouTube chanel. To reach the sites internet connection has to be active. Of course, you can contact Automation Dr. Nix GmbH & Co. KG by email through an actual mail account (e.g. Outlook).

9.3. Information

Here information on the QN9 software are given

| INFORMATION	
Designation	QNix® 9500 Software
Version	1.3.9

9.4. Remote Maintenance

⚠️ **Caution**

Please contact us if any problem occurs. Probably a phone support is able to answer your questions. Also use emails to describe your problem. Please notice that remote support without prior coordination is not possible. Thanks for your understanding.

The button START TEAMVIEWER starts the remote maintenance tool. This may take some time. The following warning may appear on the screen.
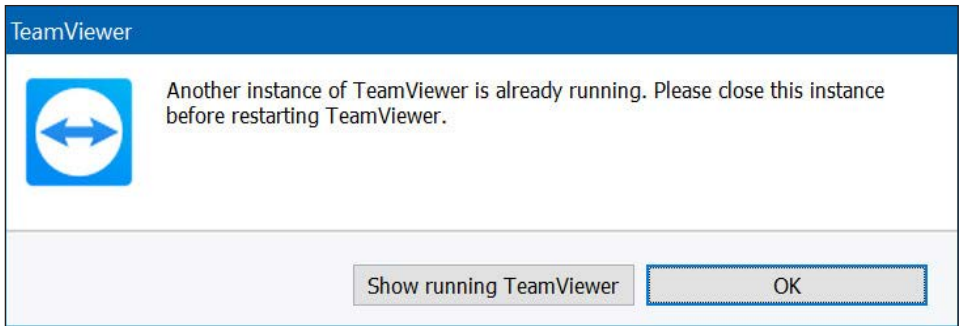
This means that the system detected another teamviewer application on your PC. You should close it, if necessary use the Windows task manager. Our TeamViewer, which is version 12, may probably not be compatible to your version. Windows shows a warning whether to trust TeamViewer. Please confirm and the remote maintenance application will start.
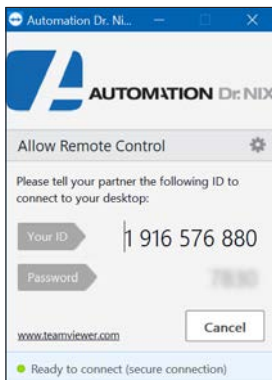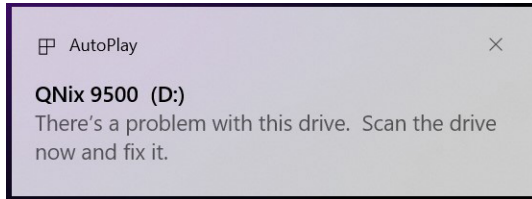

Please give us ID and password by phone – we then are able to carry out the maintenance.

9.5. Troubleshooting

9.5.1. Occurrence of errors when using the handset

Should the case arise that a memory or system error is reported on the gauge:

or

Then you have the following options to choose from:

1. Perform a drive check and repair, or
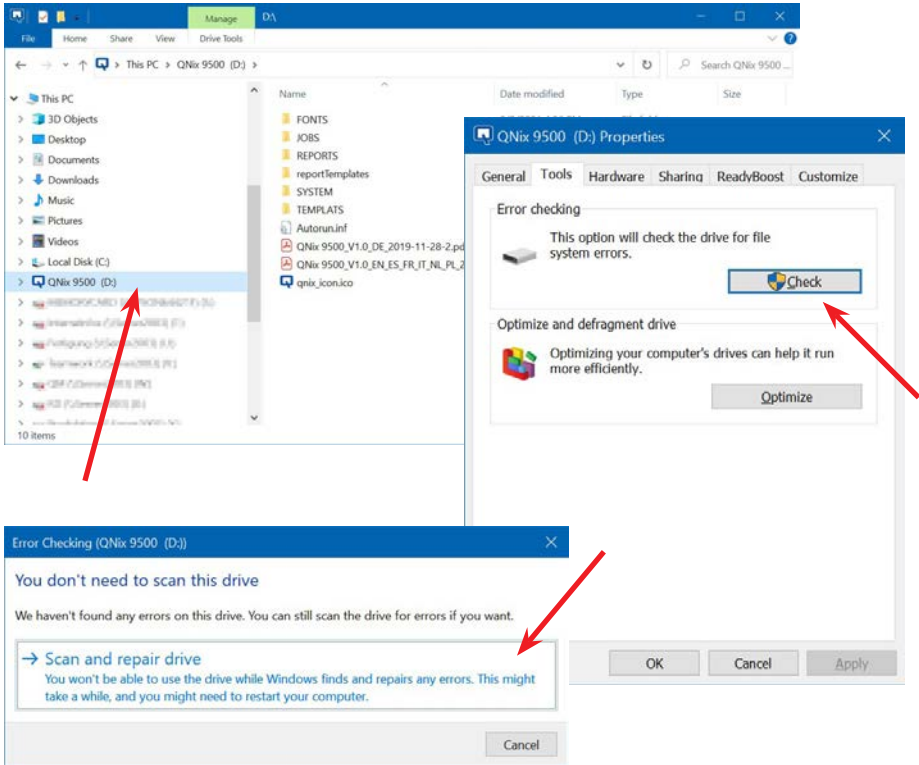2. Perform a format of the QNix® 9500 memory.

We suggest that drive scan and repair should only be used to enable backup of your measurement data. After that, formatting the QNix® 9500 memory should always be performed to ensure operational safety.

⚠️ **Achtung**

All data on the QNix® 9500 will be lost (measured values, templates, settings, etc.) when formatting. Before formatting, however, if necessary it may still be possible to save data (measurements).

**1.) Checking the QNix® 9500 drive (memory) and repairing it**

You can initiate this process via the drive properties:

2.) Performing the formatting

The QNix® 9500 must be formatted via the internal handset menu – not via Windows!

Open the menu, select "Systems > Settings" and execute the command "Format Memory". Then answer all security questions with [✔] ("YES") and the button (OK) to confirm. Then "Please wait"...:
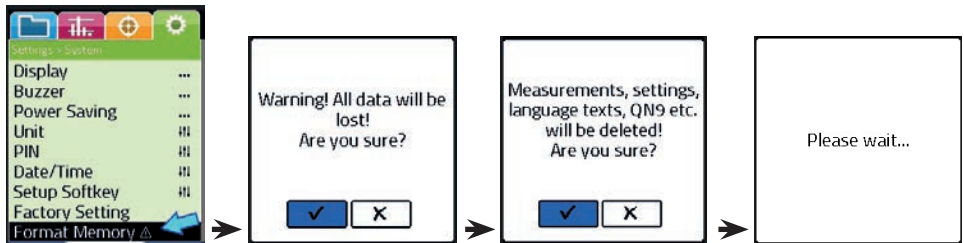
After successful formatting, the measurement window appears again:
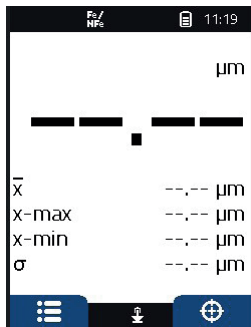
Afterwards, the factory state can be restored via the QN9 software (MANUAL SETUP / STATUS / button MANUFACTURE STATE).

After pressing the button USB EJECT

two warnings are displayed as a dialogue box, each of which must be confirmed with **Yes**.

Afterwards, a final note is displayed:

The restore process is started with **Yes**, which can take several minutes.

Only when the progress indicator disappears is the process completed.

Before the handset is disconnected from the PC, a disconnection should be carried out via the button USB EJECT, or via the Windows function "Safely Remove Hardware…".

For further information, see chapter 8.2.!

Only then is it recommended to disconnect the USB connection from the PC.

Then, the handset is ready for use again.

Displayed messages can be closed.