



# HEIDENHAIN



## QUADRA-CHEK 2000 Demo

User's Manual

Evaluation Unit

English (en)  
06/2018

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# 1

## Fundamentals

## 1.1 Overview

This chapter contains information about the product and these instructions.

## 1.2 Information on the product

### 1.2.1 Demo software for demonstration of the device functions

QUADRA-CHEK 2000 Demo is a software application you can install on a computer independently of the device. QUADRA-CHEK 2000 Demo helps you to become familiar with, try out or present the functions of the device.

### 1.2.2 Demo software features

Because of the missing hardware environment, the range of features of the demo software does not correspond to the complete functional range of the device.

With QUADRA-CHEK 2000 Demo you can try out or present the following features:

- "Conducting a measurement"
- "Displaying and editing the measurement results"
- "Creating a measurement report"

The following features cannot be tried out or presented with QUADRA-CHEK 2000 Demo:

- Connecting measuring devices
- Connecting a network drive
- Connecting a USB mass storage device
- Connecting a printer

### 1.3 Intended use

The products of the QUADRA-CHEK 2000 series are advanced digital evaluation electronics for the measurement of 2-D features in metrology applications. The products are used primarily on measuring machines and profile projectors.

QUADRA-CHEK 2000 Demo is a software product for demonstration of the basic features of the QUADRA-CHEK 2000 series products. QUADRA-CHEK 2000 Demo may be used only for presentation, training or testing purposes.

### 1.4 Improper use

QUADRA-CHEK 2000 Demo is not intended for any use other than the intended use. Any use for other purposes is prohibited, specifically:

- For productive purposes in production systems
- As part of production systems

### 1.5 Demo software for demonstration of the device functions

QUADRA-CHEK 2000 Demo is a software application you can install on a computer independently of the device. QUADRA-CHEK 2000 Demo helps you to become familiar with, try out or present the functions of the device.

### 1.6 Notes on reading the documentation

#### **Would you like to see any changes made, or have you found any errors?**

We are continuously striving to improve our documentation for you. Please help us by sending your requests to the following e-mail address:

**[userdoc@heidenhain.de](mailto:userdoc@heidenhain.de)**

## 1.7 Symbols and fonts used for marking text

In these instructions the following symbols and fonts are used for marking text:

Depiction	Meaning
▶ ...	Identifies an action and the result of this action
> ...	Example: <ul style="list-style-type: none"> <li>▶ Tap <b>OK</b></li> <li>&gt; The message is closed</li> </ul>
■ ...	Identifies an item of a list
■ ...	Example: <ul style="list-style-type: none"> <li>■ TTL interface</li> <li>■ EnDat interface</li> <li>■ ...</li> </ul>
<b>Bold</b>	Identifies menus, displays and buttons <p>Example:</p> <ul style="list-style-type: none"> <li>▶ Tap <b>Shut down</b></li> <li>&gt; The operating system shuts down</li> <li>▶ Turn the power switch off</li> </ul>

# 2

**Software  
Installation**

## 2.1 Overview

This chapter provides all of the information needed for downloading and properly installing QUADRA-CHEK 2000 Demo on a computer.

## 2.2 Downloading the installation file

Before you can install the demo software on a computer, you need to download an installation file from the HEIDENHAIN Portal.



To download the installation file from the HEIDENHAIN Portal, you need access rights to the **Software** portal folder in the directory of the appropriate product.

If you do not have access rights to the Portal's **Software** folder, you can request the access rights from your HEIDENHAIN contact person.

- ▶ Download the latest version of QUADRA-CHEK 2000 Demo here:  
**www.heidenhain.de**
- ▶ Select the download folder of your browser
- ▶ Unpack the downloaded file with the extension **.zip** into a temporary storage folder
- > The following files will be unpacked into the temporary storage folder:
  - Installation file with the extension **.exe**
  - File **DemoBackup.mcc**

## 2.3 System requirements

If you want to install QUADRA-CHEK 2000 Demo on a computer, the computer system must meet the following requirements:

- Microsoft Windows 7 or higher
- Screen resolution of at least 1280 × 800 recommended

## 2.4 Installing QUADRA-CHEK 2000 Demo under Microsoft Windows

- ▶ Select the temporary storage folder into which you unpacked the downloaded file with the **.zip** extension  
**Further information:** "Downloading the installation file", Page 12
- ▶ Run the installation file with the extension **.exe**
- ▶ The installation wizard is opened:

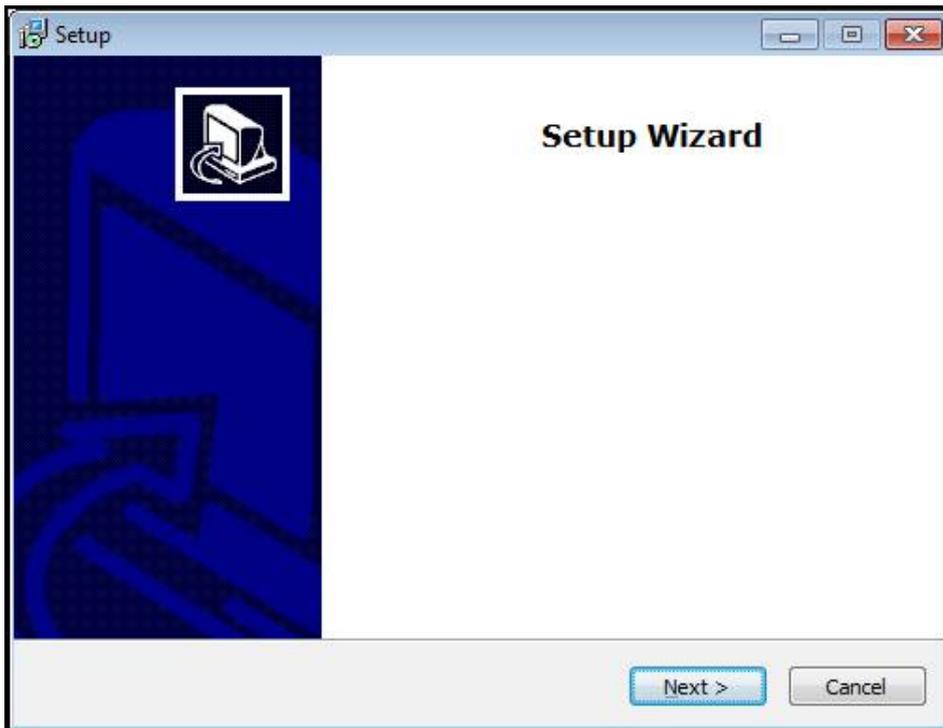


Figure 1: **Installation wizard**

- ▶ Tap **Next**
- ▶ In the **License Agreement** installation step, accept the terms of the license
- ▶ Tap **Next**



In the **Select Destination Location** installation step, the installation wizard suggests a storage location. We recommend retaining the suggested storage location.

- ▶ In the **Select Destination Location** installation step, select the storage location to which you want to save QUADRA-CHEK 2000 Demo
- ▶ Tap **Next**



In the **Select Components** installation step, the ScreenshotClient program is also installed by default. ScreenshotClient enables you to take screenshots of the active screen.

If you want to install ScreenshotClient

- ▶ In the **Select Components** installation step, leave the default settings unchanged

**Further information:** "ScreenshotClient", Page 83

- ▶ In the **Select Components** installation step:

- Select the type of installation
- Activate or deactivate the option **Screenshot Utility**

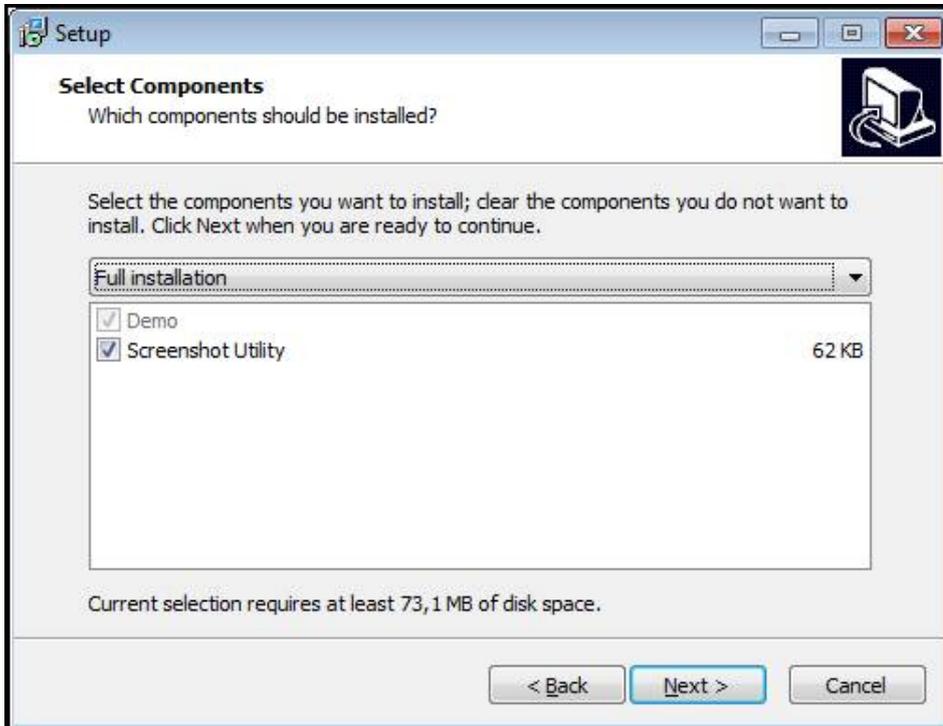


Figure 2: Installation wizard with activated **demo software** option and **Screenshot Utility**

- ▶ Tap **Next**
- ▶ In the **Select Start Menu Folder** installation step, select the storage location at which you want to create the start menu folder
- ▶ Tap **Next**
- ▶ In the **Select Additional Tasks** installation step, select or deselect **Desktop icon**
- ▶ Tap **Next**
- ▶ Tap **Install**
- > Installation starts—the status of installation is shown in the progress bar
- ▶ After installation has been completed successfully, use **Finish** to close the installation wizard
- > The program has been successfully installed on your computer

## 2.5 Uninstalling QUADRA-CHEK 2000 Demo

- ▶ Select in succession in Microsoft Windows:
  - **Start**
  - **All programs**
  - **HEIDENHAIN**
  - **QUADRA-CHEK 2000 Demo**
- ▶ Tap **Uninstall**
- > The uninstallation wizard opens
- ▶ To confirm unistallation, tap **Ja**
- > Unistallation starts, and the progress bar indicates the status of the unistallation process
- ▶ After uninstallation has been completed successfully, close the uninstallation wizard with **OK**
- > The program has been successfully removed from your computer



# 3

**Basic Operation**

## 3.1 Overview

This chapter describes the user interface, operating elements, and basic functions of QUADRA-CHEK 2000 Demo.

## 3.2 Using the touchscreen and input devices

### 3.2.1 Touchscreen and input devices

The operating elements on the user interface from QUADRA-CHEK 2000 Demo are operated via a touchscreen or a connected mouse.

To enter data, you can use the screen keyboard of the touchscreen or a connected keyboard.

### 3.2.2 Gestures and mouse actions

To activate, switch or move the operating elements of the user interface, you can use QUADRA-CHEK 2000 Demo's touchscreen or a mouse. Gestures are used to operate the touchscreen and the mouse.

**i** The gestures for operating the touchscreen may differ from the gestures for operating the mouse.  
If the gestures for operating the touchscreen differ from those for operating the mouse, then these instructions describe both operating options as alternative actions.  
The alternative actions for operating the touchscreen or the mouse are identified by the following symbols:



Operation using the touchscreen



Operation using the mouse

The following overview describes the different gestures for operating the touchscreen or the mouse:

#### Tapping



Means touching the screen briefly with your fingertip



Means pressing the left mouse button once

#### The actions initiated by tapping include

- Selection of menus, features or parameters
- Entering characters with the screen keyboard
- Closing dialogs
- Displaying and hiding the main menu in the **Measure** menu
- Displaying and hiding the Inspector in the **Measure** menu

#### Holding



Means touching the screen and holding your finger(s) on it for a few seconds



Means pressing the left mouse button once and holding it down

#### The actions initiated by holding are

- Quickly changing the values in input fields with plus and minus buttons

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### Dragging

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Is a combination of long press and then swipe, moving a finger over the touchscreen when at least the starting point of motion is defined



Means pressing the left mouse button once and holding it down while moving the mouse; at least the starting point of the motion is defined

#### The actions initiated by dragging include



- Scrolling through lists and texts
- Opening the **Details** dialog in the Inspector

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### Two-finger drag

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Refers to the movement of two fingers across the touchscreen when at least the starting point of the movement is clearly defined



Refers to pressing the right mouse button once and holding it down while moving the mouse; at least the starting point of the movement is defined

#### Two-finger dragging initiates the following action



- In the **Measure** menu, moving the features view within the workspace

### 3.3 General operating elements and functions

The operating elements described below are available for configuration and operating the product via the touchscreen or input devices.

#### Screen keyboard

With the screen keyboard, you can enter text into the input fields of the user interface. The displayed screen keyboard is either numeric or alphanumeric, depending on the input field.

- ▶ To enter values, tap an input field
- > The input field is highlighted
- > The screen keyboard is displayed
- ▶ Enter text or numbers
- > In some input fields, a green check mark indicates that the entry is correct
- > If the entry is incomplete or incorrect, a red exclamation mark is displayed. The entry cannot be concluded in this case
- ▶ To apply the values, confirm the entry with **RET**
- > The values are displayed
- > The screen keyboard disappears

#### Input fields with plus and minus buttons

To adjust a numerical value, use the + (plus) and - (minus) buttons to the left and right of the numerical value.



- ▶ Tap + or - until the desired value is displayed
- ▶ Long-press + or - to scroll through the values more quickly
- > The selected value is displayed

#### Toggle switch

Use the toggle switch to switch between functions.



- ▶ Tap the desired function
- > The active function is shown in green
- > The inactive function is shown in light gray

#### Slide switch

With the sliding switch, you can activate or deactivate a function.



- ▶ Drag the sliding switch to the desired position or tap the sliding switch
- > The function is activated or deactivated

#### Slider

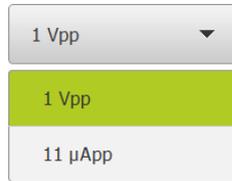
With the slider, you can continuously adjust values.



- ▶ Drag the slider to the desired position
- > The selected value is displayed graphically or in percent

### Drop-down list

Buttons that open drop-down lists are indicated by a triangle pointing down.



- ▶ Tap the button
- > The drop-down list opens
- > The active entry is highlighted in green
- ▶ Tap the desired entry
- > The selected entry is applied

### Undo

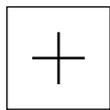
With this button, you can undo the last action.

Processes that have already been concluded cannot be undone.



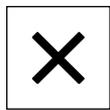
- ▶ Tap **Undo**
- > The last action is undone

### Add



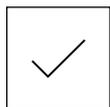
- ▶ To add a feature, tap **Add**
- > The new feature is added

### Close



- ▶ Tap **Close** to close a dialog

### Confirm



- ▶ Tap **Confirm** to conclude an activity

### Back



- ▶ Tap **Back** to return to the higher level in the menu structure

## 3.4 QUADRA-CHEK 2000 Demo – startup and shut-down

### 3.4.1 Starting QUADRA-CHEK 2000 Demo



Before using QUADRA-CHEK 2000 Demo, you need to perform the steps for configuring the software.



- ▶ Tap **QUADRA-CHEK 2000 Demo** on the Microsoft Windows desktop

or

- ▶ Select in succession in Microsoft Windows:
  - **Start**
  - **All programs**
  - **HEIDENHAIN**
  - **QUADRA-CHEK 2000 Demo**



Two executable files with different modes of appearance are available:

- **QUADRA-CHEK 2000 Demo** starts within a Microsoft Windows window
- **QUADRA-CHEK 2000 Demo (full screen)**: starts in full-screen mode



- ▶ Tap **QUADRA-CHEK 2000 Demo** or **QUADRA-CHEK 2000 Demo (full screen)**
- > QUADRA-CHEK 2000 Demo starts an output window in the background. The output window is not relevant for operation and is closed again when QUADRA-CHEK 2000 Demo is shut down
- > QUADRA-CHEK 2000 Demo starts the user interface with the **User login** menu

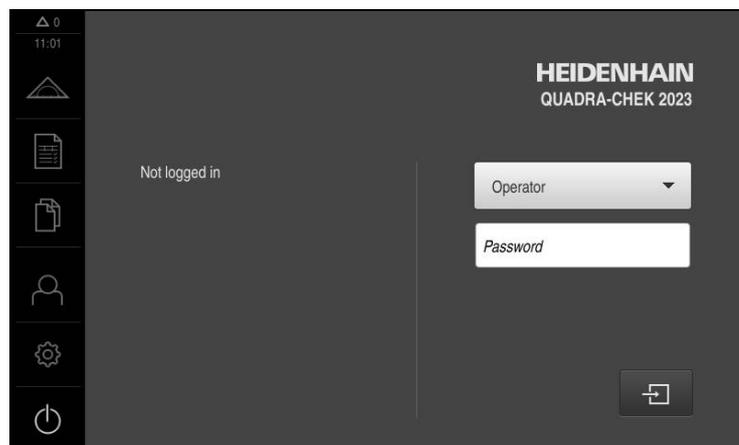


Figure 3: **User login** menu

### 3.4.2 Shutting down QUADRA-CHEK 2000 Demo



- ▶ Tap **Switch off** in the main menu



- ▶ Tap **Shut down**
- > QUADRA-CHEK 2000 Demo is shut down



To shut down QUADRA-CHEK 2000 Demo in the Microsoft Windows window, also use the **Switch-off** menu.

If you use **Close** to close the Microsoft Windows window, all settings will be lost.

## 3.5 User login and logout

In the **User login** menu, you can log in and out of the product as a user.

Only one user can be logged in to the product at a time. The logged-in user is displayed. Before a new user can log in, the logged-in user has to log out.



The product provides various authorization levels that grant the user full or restricted access to management and operation functionality.

### 3.5.1 User login



- ▶ Tap **User login** in the main menu
- ▶ In the drop-down list, select the **OEM** user
- ▶ Tap the **Password** input field
- ▶ Enter the password "**oem**" of the **OEM** user
- ▶ Confirm entry with **RET**



- ▶ Tap **Log in**
- > The user is logged in and the **Measure** menu is displayed

### 3.5.2 User logout



- ▶ Tap **User login** in the main menu



- ▶ Tap **Log out**
- > The user is logged out
- > All functions of the main menu are inactive, except for **Switch off**
- > The product can only be used again after a user has logged in

## 3.6 Setting the language

The default language for the user interface is English. You can switch the user interface to the desired language.



- ▶ Tap **Settings** in the main menu



- ▶ Tap **User**
- > The logged-in user is indicated by a check mark
- ▶ Select the logged-in user
- > The language selected for the user is indicated by a national flag in the **Language** drop-down list
- ▶ Select the flag for the desired language in the **Language** drop-down list
- > The user interface is displayed in the selected language

## 3.7 User interface

### 3.7.1 User interface after Startup

#### User interface after startup

If automatic user login is active and the last user who logged in was of the **Operator** type, the **Measure** menu with the workspace and the Inspector is displayed after the product has started up.

If automatic user login is not active, the product opens the **User login** menu.

**Further information:** "User login menu", Page 33

### 3.7.2 Main menu of the user interface

#### User interface with QUADRA-CHEK 2000 OED software option

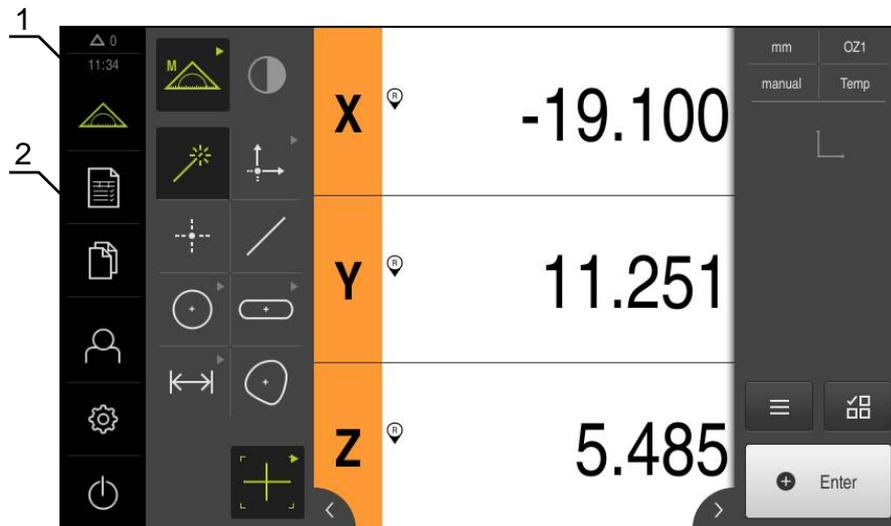


Figure 4: User interface with QUADRA-CHEK 2000 OED software option

- 1 Message display area, which displays the time and the number of unclosed messages
- 2 Main menu with operating elements

#### Operating elements of the main menu

The main menu is displayed regardless of the activated software options.

Operating element	Function
	<p><b>Message</b></p> <p>Display of an overview of all messages as well as the number of messages that have not been closed</p>
	<p><b>Measure</b></p> <p>Manual measurement, construction, and definition of features by means of measuring programs and predefined geometries</p> <p><b>Further information:</b> "Measure menu", Page 28</p>
	<p><b>Measurement report</b></p> <p>Creation of measurement reports based on templates</p> <p><b>Further information:</b> "Measurement report menu", Page 31</p>
	<p><b>File management</b></p> <p>Management of the files that are available on the product</p> <p><b>Further information:</b> "File management menu", Page 32</p>
	<p><b>User login</b></p> <p>Login and logout of the user</p> <p><b>Further information:</b> "User login menu", Page 33</p>

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Operating element	Function
	<b>Settings</b> Settings of the unit, such as setting up users, configuring sensors, and updating the firmware <b>Further information:</b> "Settings menu ", Page 34
	<b>Switch-off</b> Shutdown of the operating system or activation of energy-saving mode <b>Further information:</b> "Switch-off menu", Page 35

### 3.7.3 Measure menu

#### Activation



- ▶ Tap **Measure** in the main menu
- The user interface for manual measuring, constructing and defining is displayed

#### Measure menu with QUADRA-CHEK 2000 OED software option

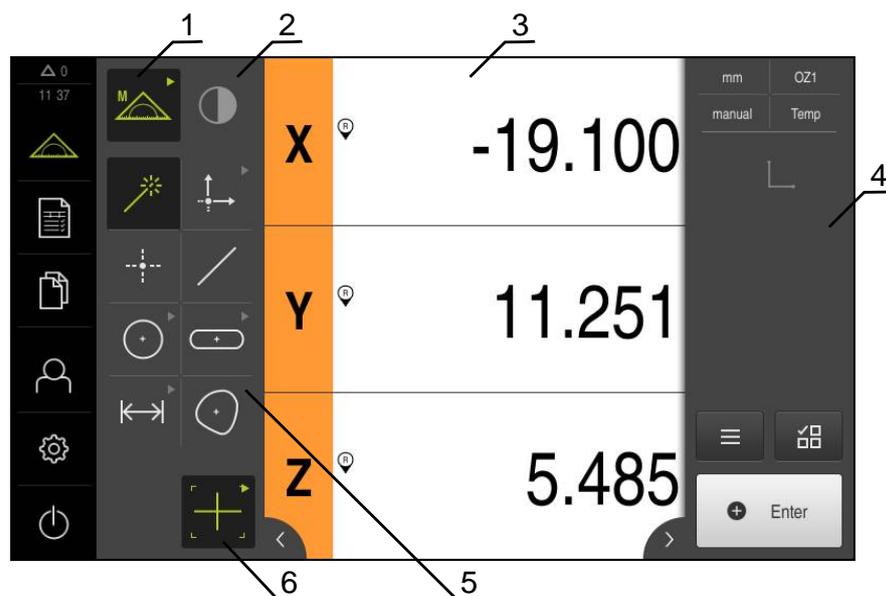


Figure 5: **Measure** menu with QUADRA-CHEK 2000 OED software option

- 1 The function palette provides functions for manual measuring and defining. The selected function is displayed as an active operating element.
- 2 The sensor palette contains the optional sensors (e.g., OED). It is only visible if the software option is active.
- 3 The workspace displays, for example, the position display or the input area for constructing and defining features.
- 4 The Inspector contains the quick access menu, the position preview, the features preview, and the feature list or the program step list. The feature list contains the features that have been measured, constructed, or defined.
- 5 The geometry palette provides all of the geometries for manual measuring, constructing, and defining. The geometries are partially combined into geometry groups. The selected geometry is displayed as an active feature. The geometries available on the geometry palette depend on the selected function.
- 6 The tool palette provides the measuring tools required for conducting the selected measurement.

## Operating elements of the function palette

**Manual  
measuring**



**Defining**



## Operating elements of the sensor palette

The operating elements of the sensor palette are only available if software options are active. If one software option is active, the software option is displayed. If multiple software options are active, you can choose between the options.

**Optical edge  
detection  
(OED)**



## Operating elements of the geometry palette

### Measure Magic

---



### Point

---



### Line

---



### Circle



### Arc



### Ellipse



### Slot



### Rectangle



### Distance



### Angle



### Blob

---



### Zero point



### Alignment



### Reference plane



The **Reference plane** operating element is only available if the Z axis is active.

## Operating elements of the OED tool palette

The operating elements of the tool palette are only available if a software option is active. They are only displayed in the manual measuring function if optical edge detection is activated.

### Crosshair



### OED



### Auto OED



### 3.7.4 Measurement report menu

#### Activation



- ▶ Tap **Measurement report** in the main menu
- The user interface for displaying and creating the measurement reports appears

#### Short description

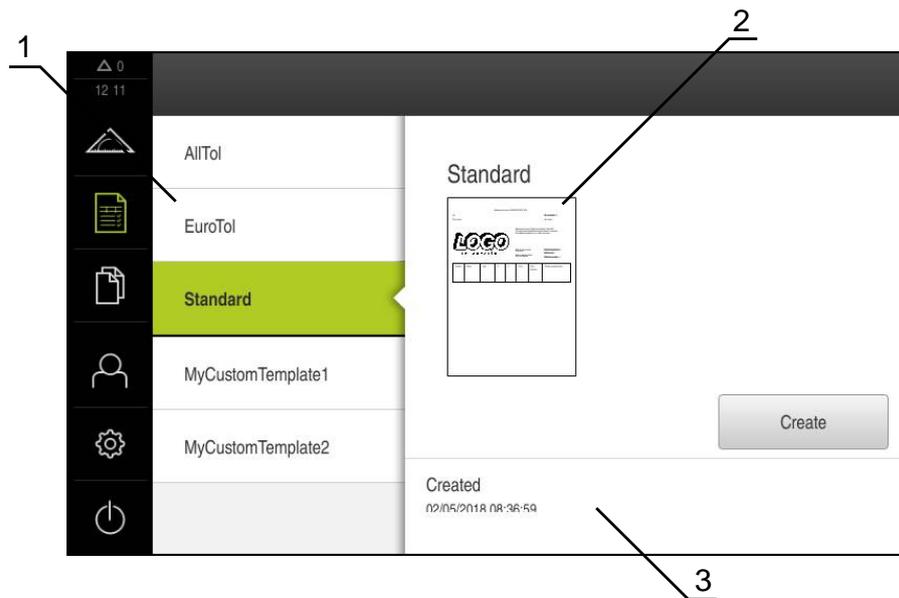


Figure 6: **Measurement report** menu

- 1 List of default templates
- 2 Preview of the selected template
- 3 Display of information on the selected template

In the **Measurement report** menu, you can select report templates. A list of the templates is shown in the left-hand column. A preview of the selected template is displayed in the right-hand column.

### 3.7.5 File management menu

#### Activation



- ▶ Tap **File management** in the main menu
- > The user interface for file management is displayed

#### Short description

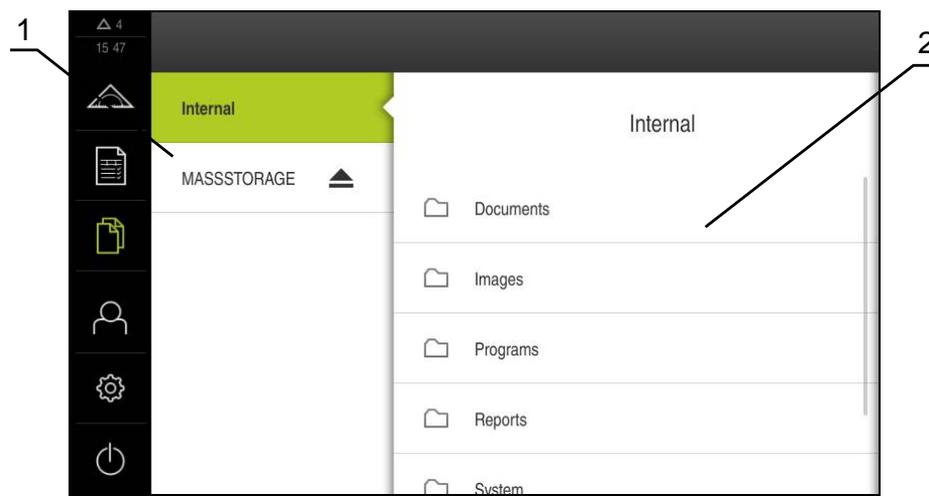


Figure 7: **File management** menu

- 1 List of available storage locations
- 2 List of folders in the selected storage location

The **File management** menu shows an overview of the files stored in the unit's memory.

### 3.7.6 User login menu

#### Activation



- ▶ Tap **User login** in the main menu
- > The user interface for user login and logout is displayed

#### Short description

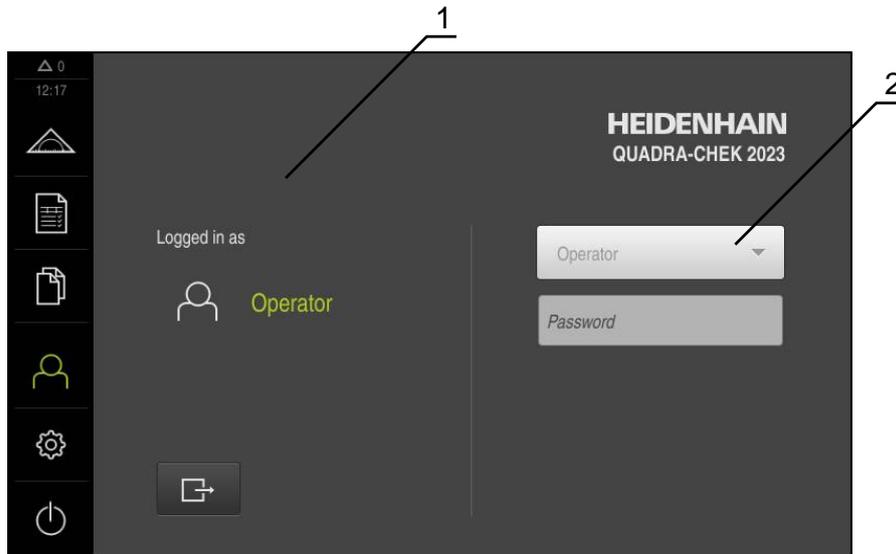


Figure 8: **User login** menu

- 1 Display of the logged-in user
- 2 User login

The **User login** menu shows the logged-in user in the column on the left. The login of a new user is displayed in the right-hand column.

To log in another user, the logged-in user must first log out.

**Further information:** "User login and logout", Page 24

### 3.7.7 Settings menu

#### Activation



- ▶ Tap **Settings** in the main menu
- The user interface for the device settings is displayed

#### Short description

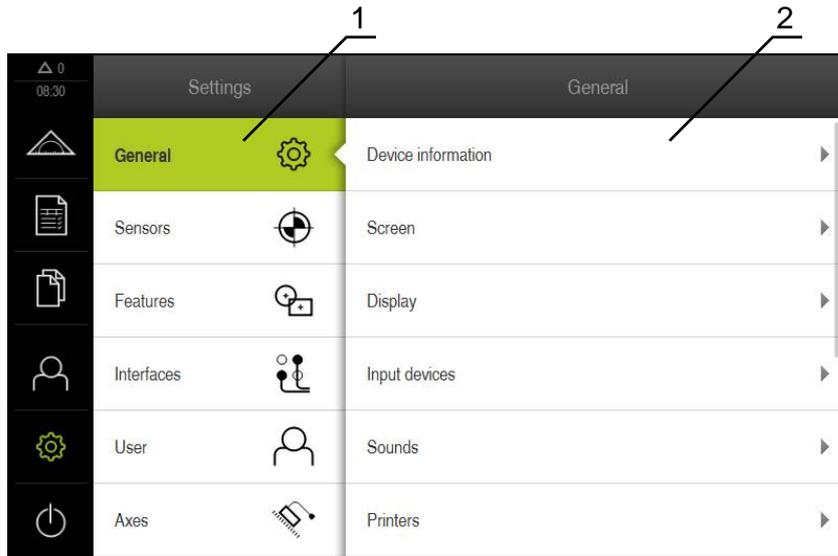


Figure 9: **Settings** menu

- 1 List of setting options
- 2 List of setting parameters

The **Settings** menu shows all options for configuring the product. With the setting parameters, you can adapt the product to on-site requirements.



The product provides various authorization levels that grant the user full or restricted access to management and operation functionality.

### 3.7.8 Switch-off menu

#### Activation



- ▶ Tap **Switch off** in the main menu
- The operating elements for shutting down the operating system, for activating the energy-saving mode and for activating the cleaning mode are displayed

#### Short description

The **Switch off** menu provides the following options:

Operating element	Function
	<b>Shut down</b> Shuts down QUADRA-CHEK 2000 Demo
	<b>Energy saving mode</b> Switches the screen off and puts the operating system into energy-saving mode
	<b>Cleaning mode</b> Switches the screen off; the operating system continues unchanged

**Further information:** "QUADRA-CHEK 2000 Demo – startup and shut-down", Page 23

## 3.8 Position display

The unit's position display shows the axis positions and additional information about the configured axes (if applicable).

### 3.8.1 Operating elements of the position display

Symbol	Meaning
	Axis key <b>Axis key functions:</b> <ul style="list-style-type: none"> <li>■ Tapping the axis key: Opens the input field for position value</li> <li>■ Holding down the axis key: sets the current position as zero point</li> </ul>
	Reference mark search performed successfully
	Reference mark search not performed or no reference mark detected

## 3.9 Working in the workspace

The workspace is only available in the Measure menu.

### Activation



- ▶ Tap **Measure** in the main menu
- The user interface for manual measuring, constructing and defining is displayed

### 3.9.1 Operating elements in the workspace

#### Operating elements of the manual measuring function for adjusting the features view in the case of reduced workspace

##### Display annotations



##### Zoom functions

Regardless of the size of the workspace, the available functions are gathered together in the **Zoom functions**.

##### Zoom functions



##### Zoom to all



##### Zoom to selection



##### Magnify graphic



##### Reduce graphic



#### Operating elements of the definition function

Depending on the selected geometry, the input fields required for definition are displayed in the workspace.

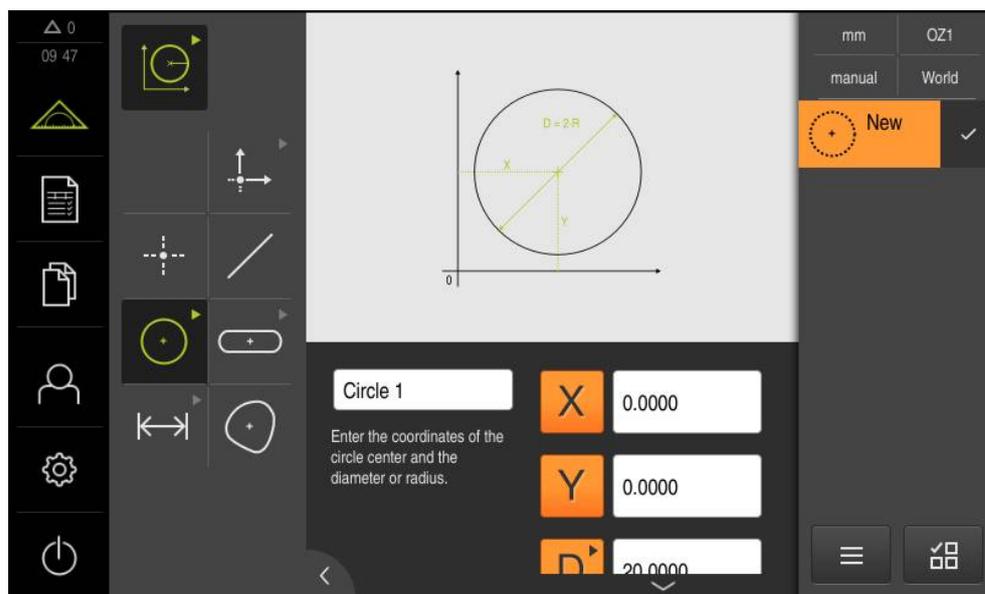


Figure 10: Operating elements of the **Define** function for the **Circle** geometry

## 3.10 Using the Inspector

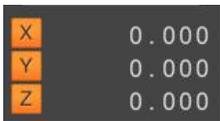
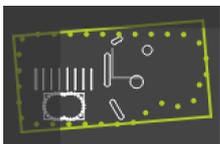
The Inspector is only available in the Measure menu.

### Activation

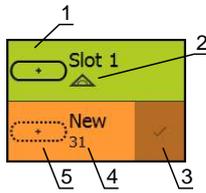


- ▶ Tap **Measure** in the main menu
- > The user interface for measuring, constructing and defining is displayed

### 3.10.1 Operating elements of the Inspector

Operating element	Short description
	<p><b>Quick access menu</b></p> <p>The quick access menu displays the current settings for manual measuring, constructing and defining:</p> <ul style="list-style-type: none"> <li>■ Unit of measurement for linear values (millimeters or inches)</li> <li>■ Magnification used</li> <li>■ Type of measuring point acquisition (automatic or manual)</li> <li>■ Coordinate system used</li> </ul> <ul style="list-style-type: none"> <li>▶ To adjust the settings of the quick access menu, tap the quick access menu</li> </ul>
	<p><b>Position preview</b></p> <p>The position preview is only available in the manual measuring function.</p> <p>The current axis positions are displayed. If no reference mark search has been performed, the axis positions are displayed in red.</p> <ul style="list-style-type: none"> <li>▶ To display the position preview in the workspace, tap the <b>Position preview</b></li> <li>&gt; The position preview is displayed in the workspace</li> <li>&gt; The current content of the workspace switches to the Inspector</li> </ul>
	<p><b>Features preview</b></p> <p>The features preview is available only in the measuring function.</p> <p>The features preview displays a reduced view of the measured, constructed and, defined features.</p> <ul style="list-style-type: none"> <li>▶ To display the features view in the workspace, tap <b>Features preview</b></li> <li>&gt; The features view is displayed in the workspace</li> <li>&gt; The current content of the workspace switches to the Inspector</li> </ul>

### Operating element



### Short description

#### Feature list

The feature list contains a list of all features that have been measured, constructed, or defined. The feature list provides the following information:

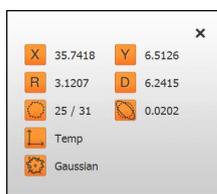
- **1:** Measured feature with symbol, name, and consecutive number
- **2:** Function that was used for creating the feature

Symbol	Meaning
	Measured feature
	Constructed feature
	Defined feature

- **3:** Concludes the measuring point acquisition
- **4:** Number of measuring points that have been acquired
- **5:** Newly acquired feature with symbol

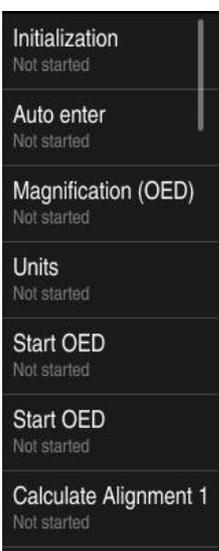
Each feature contains details on the measurement results as well as selectable tolerances.

- ▶ To display the measured values and adjust the tolerances, drag a feature into the workspace
- ▶ The detail window with the **Overview** and **Tolerance** tabs opens in the workspace
- ▶ To select or deselect features, tap the features in succession
- ▶ The selected features are highlighted in green
- ▶ To delete a feature, drag the feature to the right and out of the Inspector



#### Measurement result preview

The measurement result preview is displayed in the workspace after a measurement process is concluded and shows information about the measured feature. For each geometry type, it is possible to define which parameters are shown in the measurement result preview. The respective geometry type determines which parameters are available.

Operating element	Short description
	<p><b>Program step list</b></p> <p>The program step list shows all actions that occur during the measurement. It is displayed instead of the feature list in the Inspector.</p> <p>The program steps can be combined and saved as measuring programs.</p>
	<p><b>Auxiliary functions</b></p> <p>The auxiliary functions contain the following functions:</p> <ul style="list-style-type: none"> <li>■ Switching the display between feature list and program step list</li> <li>■ Creating, saving, and opening a program</li> <li>■ Calling the program control in the workspace</li> <li>■ Opening and saving a coordinate system</li> <li>■ Deleting selected features or all features from the feature list</li> </ul>
	<p><b>Feature selection</b></p> <p>Multiple selection of features of the same geometry type</p> <ul style="list-style-type: none"> <li>▶ Tap <b>Feature selection</b></li> <li>▶ To select all features of a geometry type in the feature list, tap the desired geometry type</li> <li>▶ Confirm with <b>OK</b></li> <li>▶ The selected features are highlighted in green</li> </ul>
	<p><b>Enter</b></p> <p>Acquisition of measuring points with the following options:</p> <ul style="list-style-type: none"> <li>■ If measuring point acquisition is deactivated, then the measuring points will be acquired manually</li> <li>■ If automatic measuring point acquisition is active, then a red dot will be shown in the operating element. The measuring points will be acquired after expiration of the set timeout</li> </ul>

## 3.11 Using measuring tools



The operating elements of the tool palette are only available if an optical sensor is active. They are shown in the manual measuring function with the following views of the workspace:

With OED optical sensor, if the position display or the features view is in the workspace

### 3.11.1 Measuring tools

Depending on the optical sensor, various measuring tools are available for acquiring the measuring points. The measuring tools can be operated by gestures in the workspace.

#### OED measuring tools

Symbol	Measuring tool	Functions and characteristics
	Crosshair	<ul style="list-style-type: none"> <li>Manual acquisition of single measuring points</li> <li>No automatic acquisition of light-to-dark transitions</li> </ul>
	OED	<ul style="list-style-type: none"> <li>Active measuring tool</li> <li>Acquisition of light-to-dark transitions</li> <li>Buffering of a single measuring point (manual confirmation required)</li> </ul> <p>If the OED sensor traverses an edge, a measuring point is buffered in the clipboard. If the OED sensor traverses a further edge, the buffered measuring point is overwritten. By tapping <b>Enter</b>, the previously buffered measuring point is added to the feature calculation.</p>
	Auto OED	<ul style="list-style-type: none"> <li>Active measuring tool</li> <li>Automatic acquisition of measuring points, e.g. on circles and circular arcs</li> <li>Acquisition of light-to-dark transitions</li> </ul> <p>If the OED sensor traverses an edge, a measuring point is automatically acquired and added to the feature calculation.</p>

# 4

## Software Configuration

## 4.1 Overview



Make sure that you have read and understood the "Basic Operation" chapter before carrying out the actions described below.

**Further information:** "Basic Operation", Page 17

Before you can use QUADRA-CHEK 2000 Demo correctly after successful installation, you need to configure QUADRA-CHEK 2000 Demo. This chapter describes how to perform the following settings:

- Activating a license key
- Copying the configuration file
- Uploading the configuration file
- Setting the language
- Selecting the product version (optional)

## 4.2 Activating a license key

With QUADRA-CHEK 2000 Demo, you can also simulate functions that are dependent on a software option. To do so, you must enable the software option with a license key. The required license key is stored in a license file in the folder structure of QUADRA-CHEK 2000 Demo.

You must upload the license file in order to enable the available software options.



- ▶ Tap **Settings** in the main menu
- > The unit's settings appear



Figure 11: **Settings** menu



- ▶ Tap **Service**
- ▶ Open in the sequence
  - **Software options**
  - **Activate options**
  - Tap **Read license file**
- ▶ Select the storage location in the dialog:
  - Select **Internal**
  - Select **User**
- ▶ Select the **PcDemoLicense.xml** license file
- ▶ Confirm your selection with **OK**
- ▶ Tap **OK**
- > The license key is activated
- ▶ Tap **OK**
- > You are prompted to restart
- ▶ Use **Cancel** to deny restarting
- > The functions dependent on the software options are available

### 4.3 Copying the configuration file

Before you can load the configuration data in QUADRA-CHEK 2000 Demo, you must first copy the downloaded configuration file **DemoBackup.mcc** to an area that can be accessed by QUADRA-CHEK 2000 Demo.

- ▶ Move to the temporary storage folder
- ▶ For example, copy the configuration file **DemoBackup.mcc** to the following folders: **C: ▶ HEIDENHAIN ▶ [product name] ▶ Metrology ▶ ProductsMGE5 ▶ [product designation] ▶ user ▶ User**



In order for QUADRA-CHEK 2000 Demo to access the configuration file **DemoBackup.mcc**, you must retain the following part of the path when you save the file: ▶ **[product name]**  
▶ **ProductsMGE5 ▶ Metrology ▶ [product abbreviation] ▶ user**  
▶ **User.**

- > The configuration file can be accessed by QUADRA-CHEK 2000 Demo

## 4.4 Uploading the configuration file



Before you can upload the configuration data, you must first activate the license key.

**Further information:** "Activating a license key", Page 43

In order to configure QUADRA-CHEK 2000 Demo for the application on the computer, you must upload the configuration file **DemoBackup.mcc**.



- ▶ Tap **Settings** in the main menu
- > The product settings are displayed

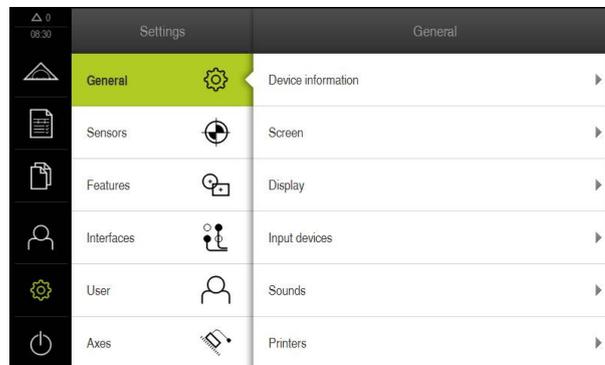


Figure 12: **Settings** menu



- ▶ Tap **Service**
- ▶ Open in the sequence
  - **Back up and restore**
  - **Restore settings**
  - **Complete restoration**
- ▶ Select the storage location in the dialog:
  - **Internal**
  - **User**
- ▶ Select the **DemoBackup.mcc** configuration file
- ▶ Confirm your selection with **OK**
- > The settings are applied
- > You are prompted to shut down the application
- ▶ Tap **OK**
- > QUADRA-CHEK 2000 Demo is shut down, and the Microsoft Windows window is closed
- ▶ Restart QUADRA-CHEK 2000 Demo
- > QUADRA-CHEK 2000 Demo is ready for use

## 4.5 Setting the language

The default language for the user interface is English. You can switch the user interface to the desired language.



- ▶ Tap **Settings** in the main menu



- ▶ Tap **User**
- > The logged-in user is indicated by a check mark
- ▶ Select the logged-in user
- > The language selected for the user is indicated by a national flag in the **Language** drop-down list
- ▶ Select the flag for the desired language in the **Language** drop-down list
- > The user interface is displayed in the selected language

## 4.6 Selecting the product version (optional)

QUADRA-CHEK 2000 is available in different versions. These versions differ in their interfaces for connectible encoders:

- QUADRA-CHEK 2013 version for encoders with 1 V<sub>PP</sub> interface
- QUADRA-CHEK 2023 version for encoders with TTL interface
- The QUADRA-CHEK 2093 version for encoders with various interfaces (1 V<sub>PP</sub> and TTL)

In the **Settings** menu, you can select the version that is to be simulated with QUADRA-CHEK 2000 Demo



- ▶ Tap **Settings** in the main menu



- ▶ Tap **Service**
- ▶ Tap **Product designation**
- ▶ Select the desired version
- > You are now prompted to perform a restart
- > QUADRA-CHEK 2000 Demo is ready for use in the desired version

# 5

**Quick Start**

## 5.1 Overview

In this chapter an example is used to describe the steps of a typical measuring sequence. The steps range e.g. from aligning the measured object and measuring the features through to creating the measurement report.



For a detailed description of the individual activities, please refer to the "Measuring," "Measurement evaluation" and "Measurement reports" chapters in the QUADRA-CHEK 2000 operating instructions.



Make sure that you have read and understood the "Basic Operation" chapter before carrying out the actions described below.

**Further information:** "Basic Operation", Page 17

## 5.2 Conducting a measurement

### 5.2.1 Measuring with an OED sensor



The measurements shown here cannot be simulated with QUADRA-CHEK 2000 Demo, because the corresponding measuring point acquisition is not possible without a measuring device and OED sensor. However, you can use the descriptions to familiarize yourself with the most important functions and the user interface.

For the measurement of edges and contours with an OED sensor, various measuring tools are available to you for the acquisition of measuring points.

**Further information:** "Measuring tools", Page 40

#### Aligning the measured object

Before you can evaluate the measuring points, you need to align the measured object. During this process, the coordinate system of the measured object (workpiece coordinate system) is determined, which is specified in the technical drawing.

This makes it possible to compare the measured values with the data in the technical drawing and assess them.

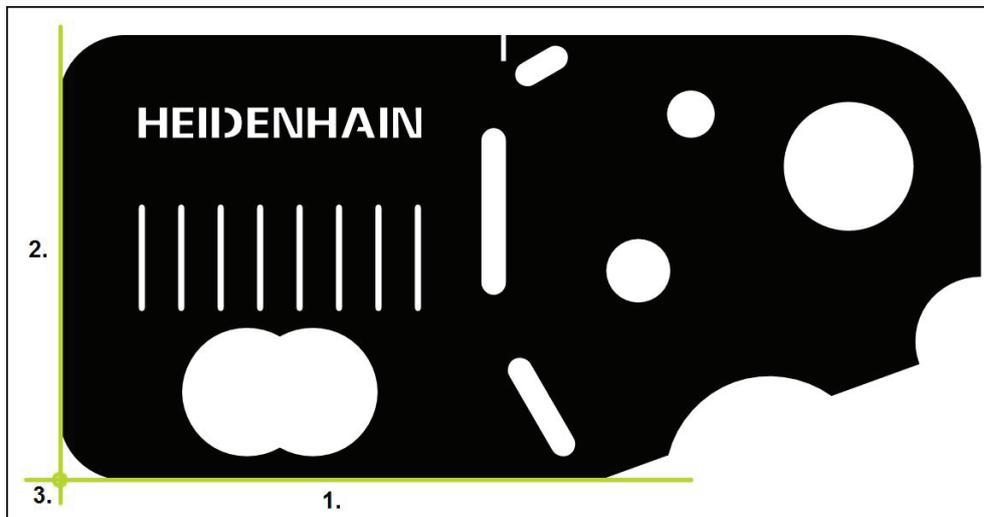


Figure 13: Example of aligning a 2-D demo part

Measured objects are usually aligned in the following steps:

- 1 Measuring the alignment
- 2 Measuring a straight line
- 3 Constructing the zero point

## Measuring the alignment

Define the reference edge for the alignment according to the technical drawing.

- ▶ Tap **Measure** in the main menu
  - ▶ Select **Manual measuring** in the function palette
  - ▶ If multiple sensors are activated, then select **OED sensor** in the sensor palette
  - ▶ The geometry palette and the OED measuring tools are now displayed
  - ▶ The workspace now shows the position display
  - ▶ In the quick access menu, select the magnification that is set on the measuring machine
  - ▶ Select **Alignment** in the geometry palette
  - ▶ Select **Auto OED** in the tool palette
  - ▶ Cross over the reference edge multiple times with the OED sensor
  - ▶ A new feature is displayed in the feature list of the Inspector
  - ▶ A new measuring point is added for each pass over the reference edge
- i** Distribute the measuring points along the entire length of the edge, as far as possible. This minimizes the angular error.
- ▶ Tap **Finish** in the new feature
  - ▶ The alignment is displayed in the feature list of the Inspector
  - ▶ The measurement result preview is now displayed

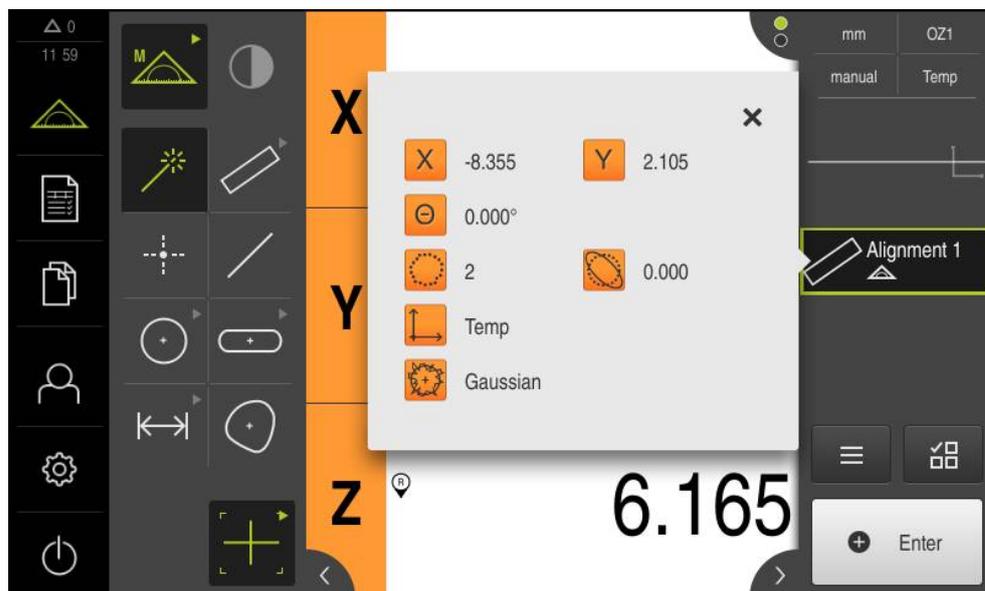


Figure 14: **Alignment** feature in the feature list with **Measurement result preview**

## Measuring a straight line

A straight line is measured as the second reference edge.



- ▶ Select **Line** in the geometry palette



- ▶ Select **Auto OED** in the tool palette
- ▶ Cross over the reference edge multiple times with the OED sensor
- > A new feature is displayed in the feature list of the Inspector
- > A new measuring point is added for each pass over the reference edge



Distribute the measuring points along the entire length of the edge, as far as possible. This minimizes the angular error.



- ▶ Tap **Finish** in the new feature
- > The line is displayed in the feature list of the Inspector
- > The measurement result preview is now displayed

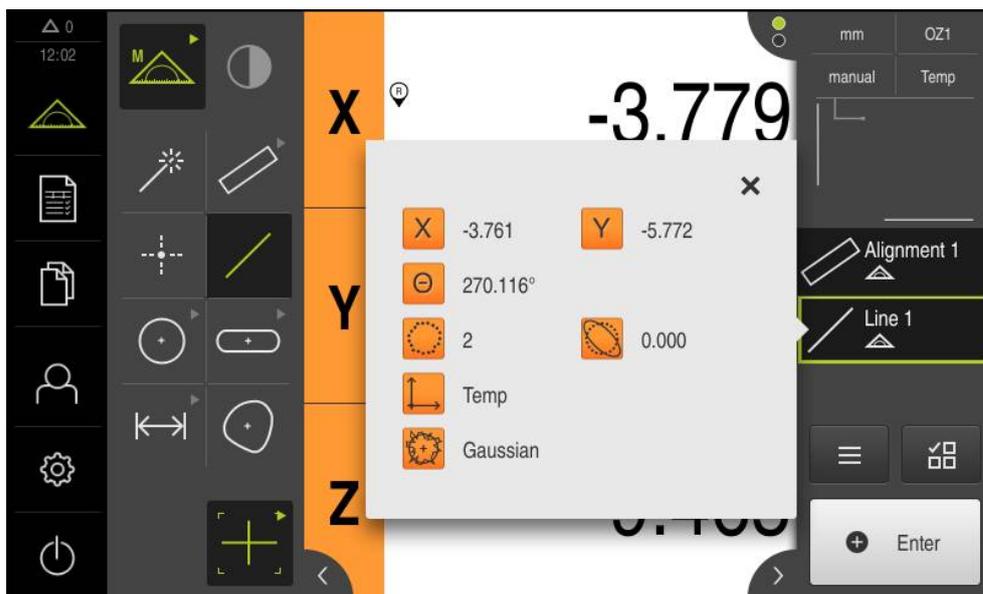


Figure 15: **Line** feature in the feature list with **Measurement result preview**

### Constructing the zero point

The zero point is constructed from the point of intersection between the alignment and the straight line.



- ▶ Select **Zero point** in the geometry palette
- ▶ Select the **Alignment** and **Line** features in the Inspector or in the features view
- > The selected features are displayed in green
- > A new feature with the selected geometry is displayed



- ▶ Tap **Finish** in the new feature
- > The zero point is created
- > The workpiece coordinate system for the measured object has been determined
- ▶ Tap **Features preview**
- > The coordinate system is shown in the workspace

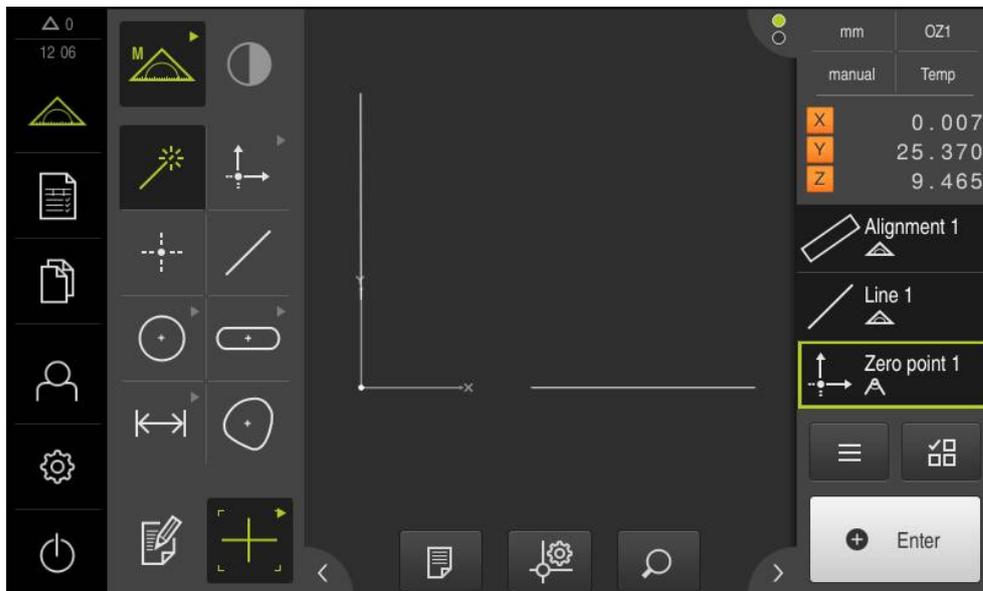


Figure 16: Workspace with zero point displayed in the coordinate system

### Measuring features

To measure features, you can use the geometries of the geometry palette.

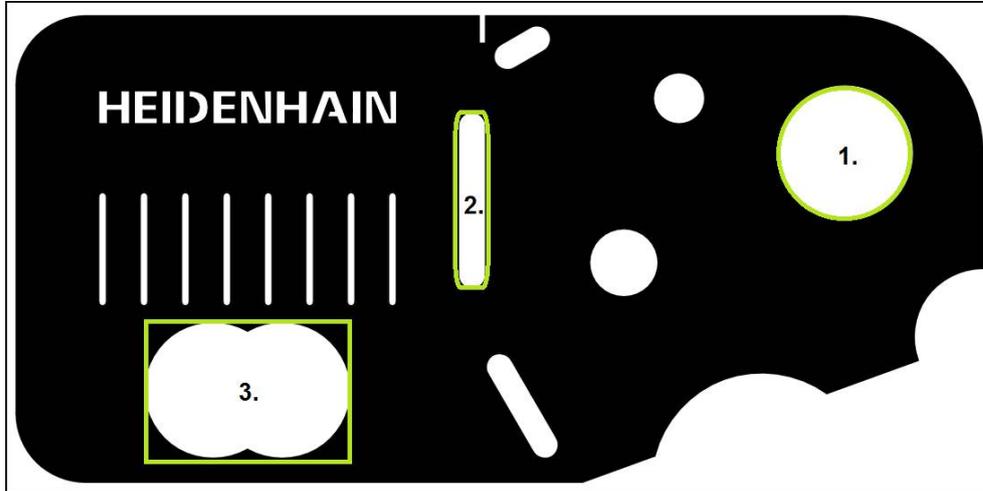


Figure 17: Examples of measuring a 2-D demo part

The section below describes measuring the following features:

- 1 Circle
- 2 Slot
- 3 Blob

## Measuring a circle

A minimum of three measuring points is required to measure a circle. For measuring point acquisition, you can use the **OED** measuring tool, for example.



- ▶ Tap **Measure** in the main menu



- ▶ Select **Manual measuring** in the function palette



- ▶ If multiple sensors are activated, then select **OED sensor** in the sensor palette
- > The geometry palette and the OED measuring tools are displayed
- > The workspace now shows the position display
- ▶ In the quick access menu, select the magnification that is set on the measuring machine



- ▶ Select **Measure Magic** in the geometry palette

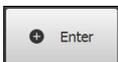
or



- ▶ Select **Circle** in the geometry palette



- ▶ Select **OED** in the tool palette
- ▶ Cross over the edge of the circle with the OED sensor multiple times



- > The unit records the measuring point in the clipboard
- ▶ To confirm the measuring point acquisition, tap **Enter** in the Inspector
- > A new feature is displayed in the feature list



A new measuring point is recorded every time you cross over an edge of the feature to be measured using the OED sensor. The clipboard is updated with the newly recorded measuring point. If you tap **Enter** in the Inspector, then only the most recently acquired measuring point is confirmed.

- ▶ To acquire more than one measuring point along the edge, repeat the process
- ▶ Tap **Finish** in the new feature
- > A new feature is calculated from the captured measuring points and the selected geometry
- > The measured circle is displayed in the features preview
- > The measurement result preview is now displayed



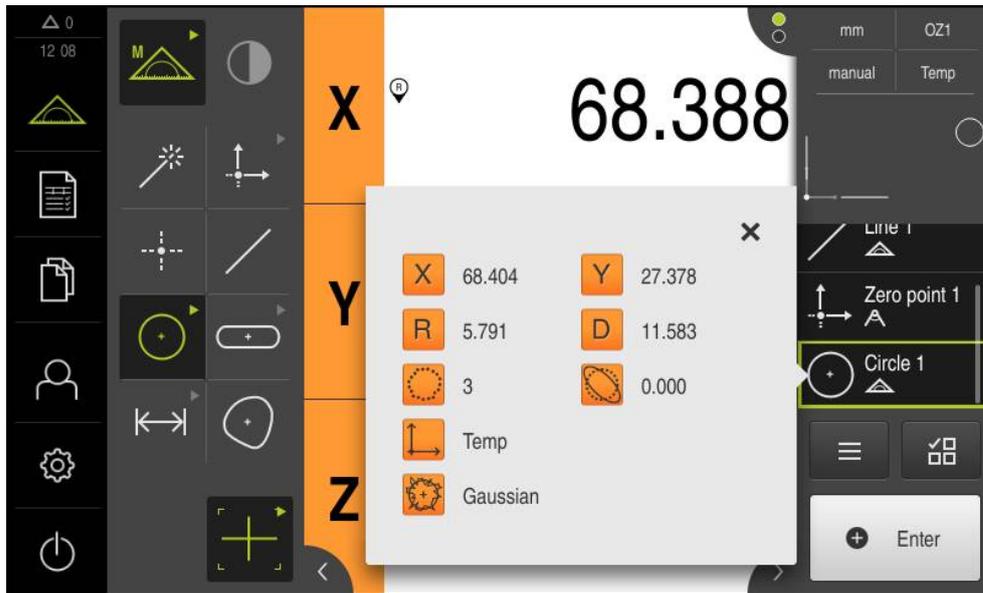


Figure 18: Circle feature in the feature list with Measurement result preview

## Measuring a slot

A minimum of five measuring points is required in order to measure a slot. For measuring point acquisition, you can use the **Auto OED** measuring tool, for example. Place at least two measuring points on the first long side and one measuring point on the second long side, and at least one measuring point on each arc of the slot. You can capture the points in any sequence.



- ▶ Select **Slot** in the geometry palette



- ▶ Select **Auto OED** in the tool palette
- ▶ Cross over the edge of the slot multiple times with the OED sensor
- > A new feature is displayed in the feature list
- > A new measuring point is added for each pass over the reference edge



Distribute the measuring points along the entire length of the first side, as far as possible.



- ▶ Tap **Finish** in the new feature
- > A new feature is calculated from the captured measuring points and the selected geometry
- > The measured slot is displayed in the features preview
- > The measurement result preview is now displayed

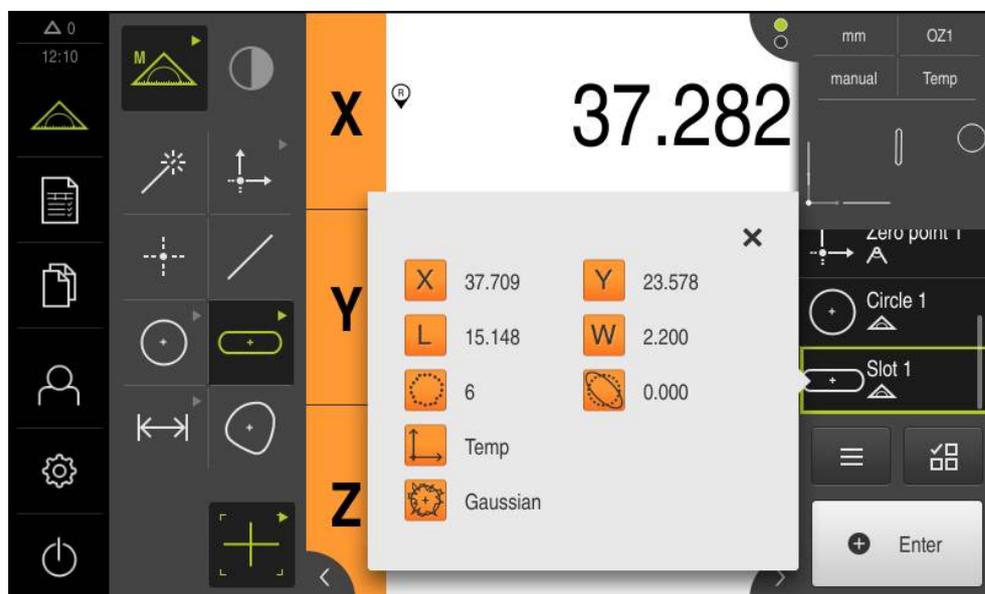


Figure 19: **Slot** feature in the feature list with **Measurement result preview**

## Measuring a blob

A minimum of three measuring points is required to measure a blob. For measuring point acquisition, you can use the **Auto OED** measuring tool, for example. Multiple measuring points are automatically distributed along the entire contour according to the specified settings.



- ▶ Select **Blob** in the geometry palette



- ▶ Select **Auto OED** in the tool palette
- ▶ Cross over the edge of the blob multiple times with the OED sensor
- > A new feature is displayed in the feature list
- > A new measuring point is added for each pass over the reference edge



Distribute the measuring points as evenly as possible along the contour of the feature.



- ▶ Tap **Finish** in the new feature
- > A new feature is calculated from the captured measuring points and the selected geometry
- > The measured blob is displayed in the features preview
- > The measurement result preview is now displayed

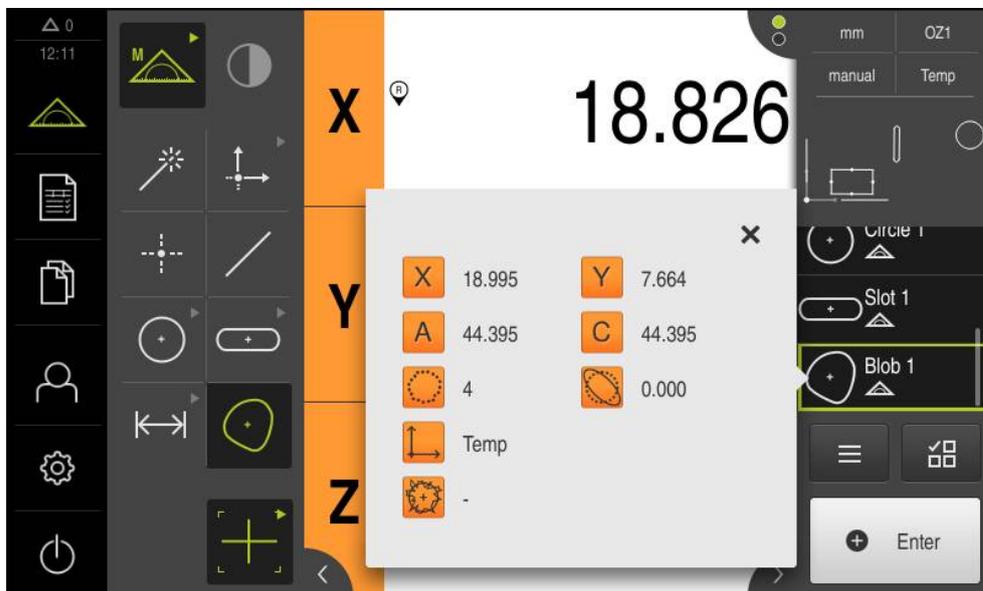


Figure 20: **Blob** feature in the feature list with **Measurement result preview**

### 5.2.2 Displaying and editing the measurement results

You can edit the measured features immediately after capturing the measuring points. Drag individual features into the workspace and edit them in the **Details** dialog.

### Short description

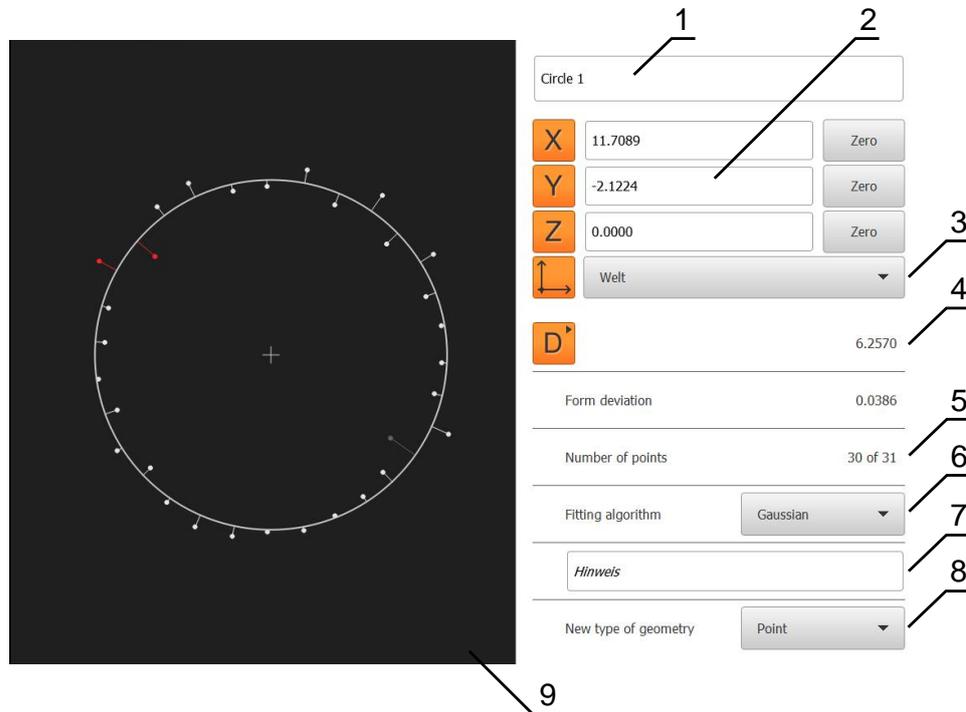


Figure 21: **Overview** tab in the **Details** dialog

- 1 Name of the feature
- 2 Axis positions of the center point
- 3 The coordinate system to which the coordinate values of the feature are referenced
- 4 Feature parameter dependent on the geometry type: For the circle geometry type, it is possible to switch between radius and diameter
- 5 Number of measuring points used for calculating the feature
- 6 Fitting algorithm used for calculating the feature; depends on the geometry and the number of measuring points
- 7 Informational text field; if an annotation is active, then its contents are shown in the features view as an annotation
- 8 List of geometry types to which the feature can be converted
- 9 View of the measuring points and the form

### Renaming a feature

- ▶ Drag the feature from the feature list into the workspace
- ▶ The **Details** dialog appears with the **Overview** tab selected
- ▶ Tap the input field containing the current name
- ▶ Enter a new name for the feature
- ▶ Confirm entry with **RET**
- ▶ The new name is displayed in the feature list
- ▶ Tap **Close** to close the dialog



## Changing the Fitting algorithm

You can adjust the fitting algorithm depending on the measured feature. The Gaussian fitting algorithm is used by default.

- ▶ Move a feature (e.g., a **Circle**) from the features list into the workspace
- > The **Details** dialog appears with the **Overview** tab selected
- > The fitting algorithm used is shown in the **Fitting algorithm** drop-down list
- ▶ In the **Fitting algorithm** drop-down list, select the desired fitting algorithm (e.g., **Min. circumscribed**)
- > The feature is displayed according to the selected fitting algorithm

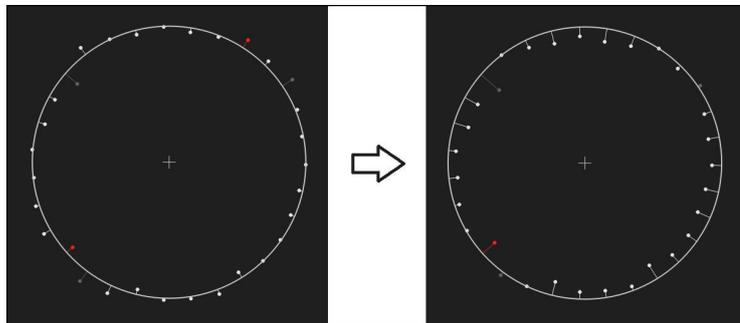


Figure 22: **Circle** feature with new fitting algorithm



- ▶ Tap **Close** to close the dialog

## Converting a feature

The feature can be converted to a different type of geometry. The list of possible geometry types is provided as a drop-down list in the **Details** dialog.

- ▶ Drag the **Slot** feature from the feature list into the workspace
- ▶ The **Details** dialog appears with the **Overview** tab selected
- ▶ The geometry type of the feature is displayed
- ▶ In the **New type of geometry** drop-down list, select the **Point** type of geometry



The **2-D profile** geometry type is currently not yet supported.

- ▶ The feature is displayed in the new form

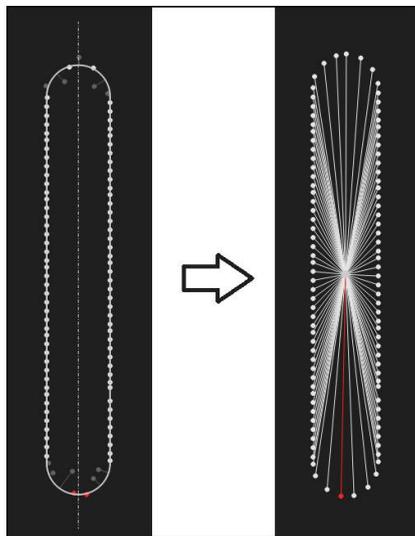


Figure 23: Type of geometry changed from **Slot** to **Point**

- ▶ Tap **Close** to close the dialog



## Changing Tolerances

On the **Tolerances** tab, you can adjust the tolerances for a measured feature. The tolerances are grouped.

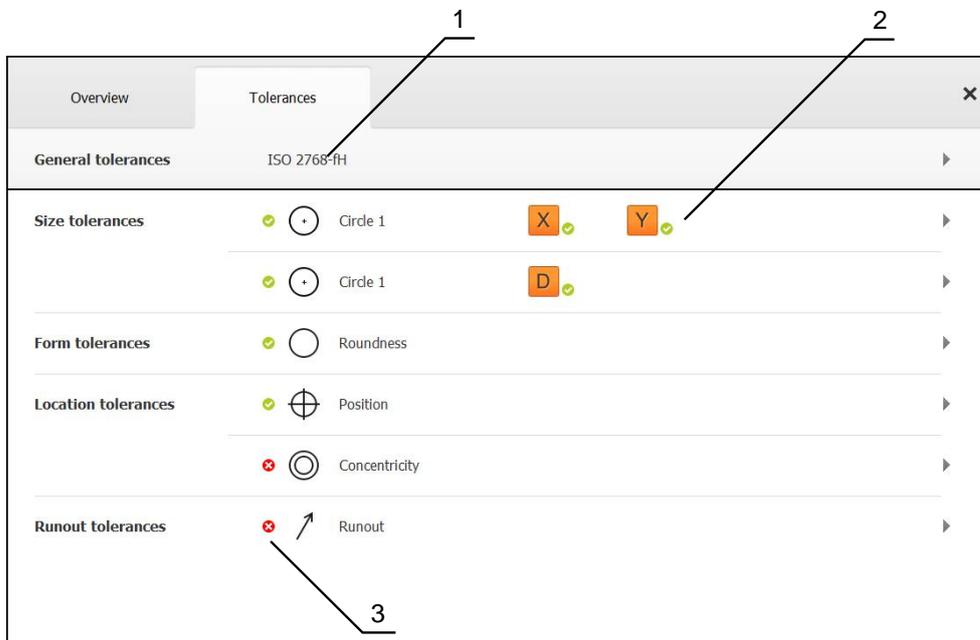


Figure 24: **Details** dialog with **Tolerances** tab

- 1 Display of general tolerance
- 2 List of tolerances, depending on feature
- 3 Status of the tolerance: Active and within the tolerance or active and outside the tolerance

In the **Tolerances** tab, you can define the geometrical tolerancing of a feature. The tolerances are grouped.

- ▶ Drag a feature (e.g., **Circle**) from the feature list into the workspace
- > The **Details** dialog appears with the **Overview** tab
- ▶ Tap the **Tolerances** tab
- > The tab for tolerancing the selected feature is displayed
- ▶ Tap the size tolerance **X**
- > An overview of the selected size tolerance appears

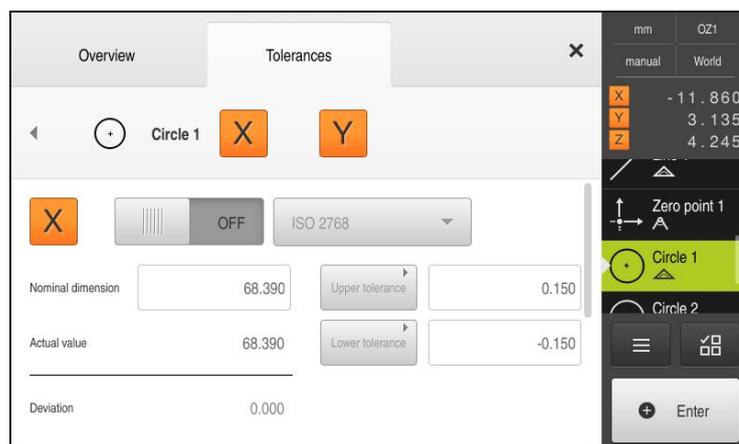


Figure 25: Overview of **Size tolerance** with activated size tolerance **X**



- ▶ Activate tolerancing of the measured value with the **ON/OFF** slide switch
- > The selection and input fields become active
- ▶ Tap the **Nominal dimension** input field and enter **76.2**
- ▶ Confirm entry with **RET**
- ▶ Tap the **Upper tolerance** input field and enter **0.1**
- ▶ Confirm entry with **RET**
- ▶ Tap the **Lower tolerance** input field and enter **0.1**
- ▶ Confirm entry with **RET**
- > The nominal value is shown in red if it is out of tolerance
- > The nominal value is shown in green if it is within tolerance
- ▶ Tap **Back**
- > The **Tolerances** tab is displayed
- > Symbols are used to display the result of the tolerance check on the **Tolerances** tab and, after closing the dialog, in the feature list



Activated tolerances are maintained



One or more activated tolerances are exceeded

## Adding annotations

You can add an annotation to every feature in the features view (e.g., measurement information or informational texts).

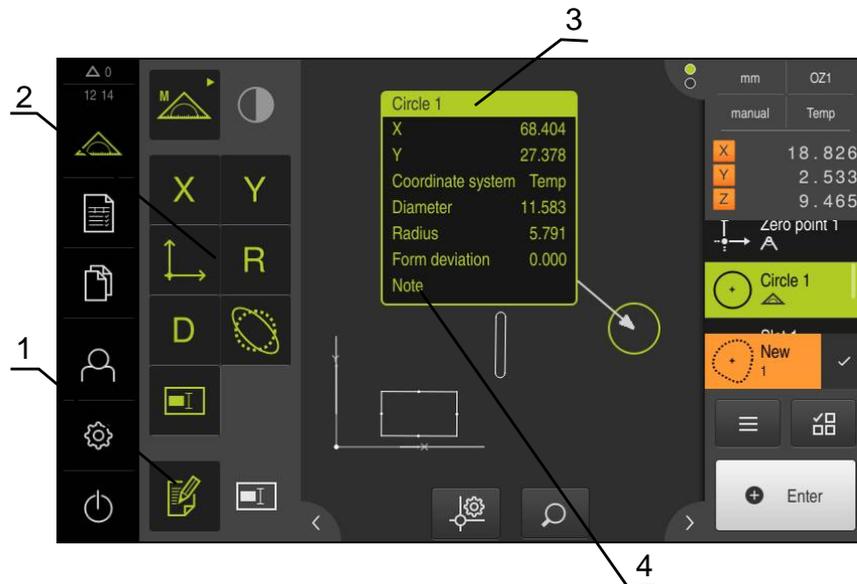


Figure 26: Operating elements for annotations and feature with annotations

- 1 **Edit annotations** operating element
- 2 Operating elements for adding annotations
- 3 Measurement information
- 4 Explanatory text

### 5.2.3 Creating a measurement report

You can create a measurement report in four steps:

- "Selecting the template and features"
- "Entering information on the measuring task"
- "Selecting document settings"
- "Exporting a measurement report"

#### Selecting the template and features



- ▶ Tap **Measurement report** in the main menu
- ▶ The user interface for editing the measurement reports appears
- ▶ Select the **Standard** template
- ▶ The preview of the selected template is displayed
- ▶ Tap **Create** to create the measurement report
- ▶ The **Features** menu appears with a list of all features that have been measured, constructed, and defined
- ▶ To add all features to the measurement report, tap **Select all** in the **Select** drop-down list
- ▶ All features in the list and in the features preview are activated and displayed in green

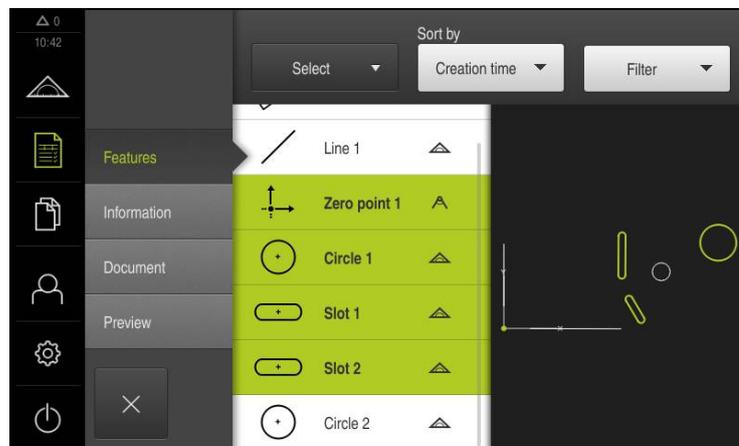


Figure 27: **Measurement report** menu with feature list and features view

### Filtering features

You can filter the feature list in the **Features** menu by various criteria. By this means, only those features are shown that fulfill the filter criteria (e.g., only circles with a certain minimum diameter).

You can use any combination of filters.

- 
  - ▶ Tap the **Filter** drop-down list
  - ▶ Select the desired filter criterion in the dialog
  - ▶ Select the operator
  - ▶ Select the function
- 
  - ▶ In order to deactivate a filter criterion, deselect it
- 
  - ▶ Tap **Close** to activate the filter criteria

Filter precondition	Operator	Function
<b>Type</b>	<b>Is</b>	Only features of the selected geometry type are shown.
	<b>Is not</b>	Only features of the non-selected geometry type are shown.
<b>Size</b>	<b>Equal</b>	Only features of the specified size are shown.
	<b>Greater than</b>	Only features that are larger than the specified size are shown.
	<b>Less than</b>	Only features that are smaller than the specified size are shown.
<b>Tolerance</b>	<b>Is</b>	Only features that fulfill the selected characteristic are shown: <ul style="list-style-type: none"> <li>■ <b>Passed</b></li> <li>■ <b>Failed</b></li> <li>■ <b>Inactive</b></li> </ul>
	<b>Is not</b>	Only features that do not fulfill the selected characteristic are shown.
<b>Selection</b>	<b>Is</b>	Only the selected features are shown.
	<b>Is not</b>	Only the non-selected features are shown.
<b>Creation type</b>	<b>Is</b>	Only features that fulfill the selected characteristic are shown.
	<b>Is not</b>	Only features that do not fulfill the selected characteristic are shown.

## Entering information on the measuring task

**i** The information entered depends on the configuration of the template.

- ▶ Tap the **Information** menu
- ▶ In the **Job** input field, enter **Demo1** to identify the measurement job
- ▶ Confirm entry with **RET**
- ▶ Enter the part number **681047-02** of the measured object into the **Part number** input field
- ▶ Confirm entry with **RET**

## Selecting document settings

- ▶ Tap the **Document** menu
- ▶ Select the **YYYY-MM-DD hh:mm** (date and time) format in the **Date and time format** drop-down list
- ▶ Tap the **Preview** menu
- > The preview of the measurement report is displayed

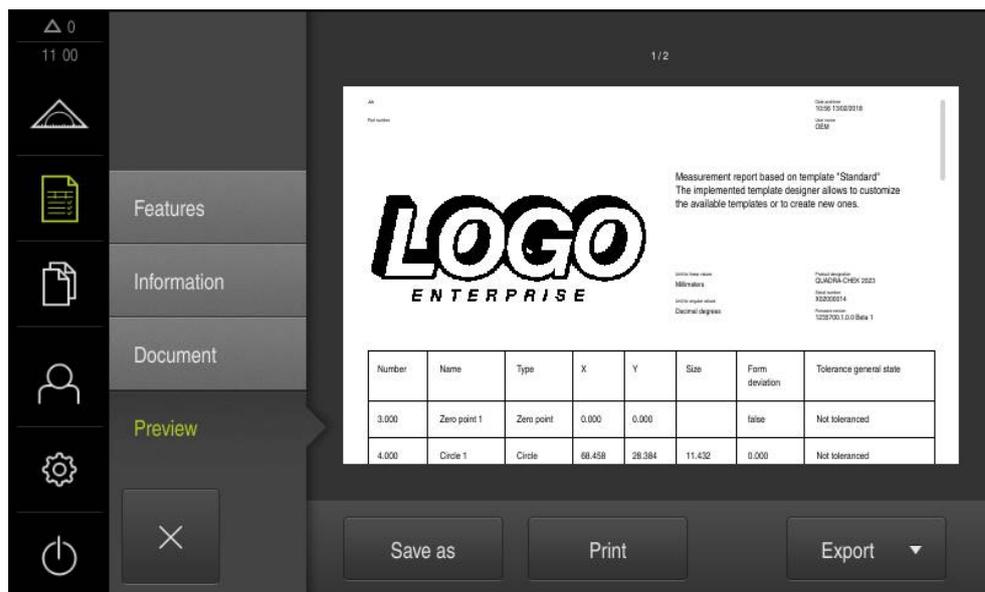


Figure 28: Preview of the measurement report

## Exporting a measurement report

Measurement reports can be exported as PDF or CSV files.

- ▶ Select the **Export as PDF** export format in the **Export** drop-down list
- ▶ Select the **Internal/Reports** storage location in the dialog
- ▶ Enter the name **Demo1** for the measurement report
- ▶ Confirm entry with **RET**
- ▶ Tap **Save as**
- > The measurement report is exported in the selected format and stored in the storage location

## Canceling a measurement report or closing it after saving



- ▶ Tap **Close**
- ▶ Close the message with **OK**
- ▶ The measurement report is closed

## Opening a measurement report

In the **File management** main menu, you can open the saved report.



- ▶ Tap **File management** in the main menu
- ▶ Select the **Internal/Reports** storage location
- ▶ Select the desired **Demo1.pdf** file
- ▶ A preview image as well as information about the file are displayed

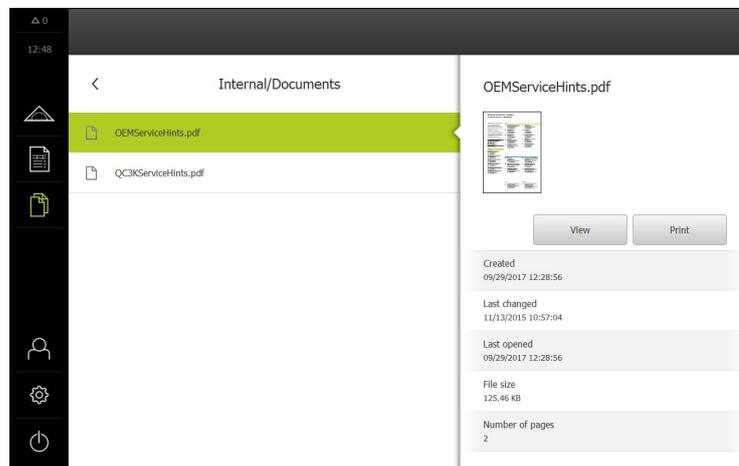


Figure 29: Preview of the measurement report and file information

- ▶ To display the measurement report, tap **View**
- ▶ The file contents are displayed
- ▶ Tap **Close** to close the view





# 6

## **Measurement Report Template**

## 6.1 Overview

This chapter describes how you can create your own measurement report templates with QUADRA-CHEK 2000 Demo and transfer them to your unit so that you can use the templates for creating measurement reports on your unit.



Make sure that you have read and understood the "Basic Operation" chapter before carrying out the actions described below.

**Further information:** "Basic Operation", Page 17

### Short description

In the **Measurement report** menu, you can create detailed reports for your measuring tasks. You can document one or more measured features in a measurement report. The measurement reports can be printed, exported and saved. For the creation of measurement reports, you can choose between several standard templates.

With the QUADRA-CHEK 2000 Demo PC software, you can create your own report templates and then transfer them to your unit. Your own custom templates then appear next to the standard templates in the **Measurement report** menu and can be used for creating measurement reports.

### Activation



- Tap **Measurement report** in the main menu

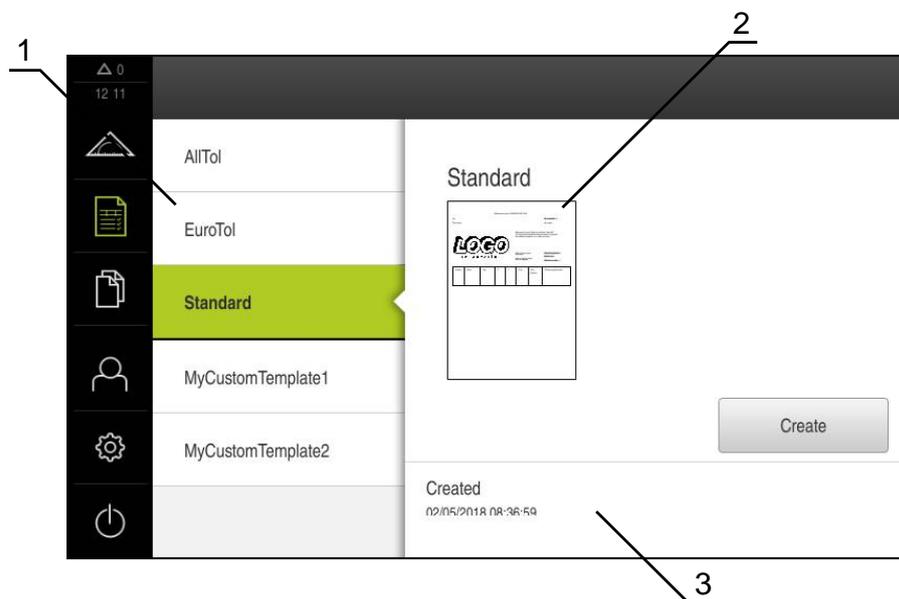


Figure 30: **Measurement report** menu

- 1 List of default templates
- 2 Preview of the selected template
- 3 Display of information on the selected template

## 6.2 Creating and editing a template

With the editor, you can create your own custom measurement report templates:

- ▶ Opening a new template with the editor
- ▶ Editing the default settings for the measurement report
- ▶ Configuring the page header
- ▶ Configuring the report header
- ▶ Defining the data for the measurement report
- ▶ Saving the template

## 6.2.1 Opening a new template with the editor



- ▶ Tap **Measurement report** in the main menu
- ▶ Maximize the window of the software on the computer screen
- ▶ The **Add** button appears in the list of templates

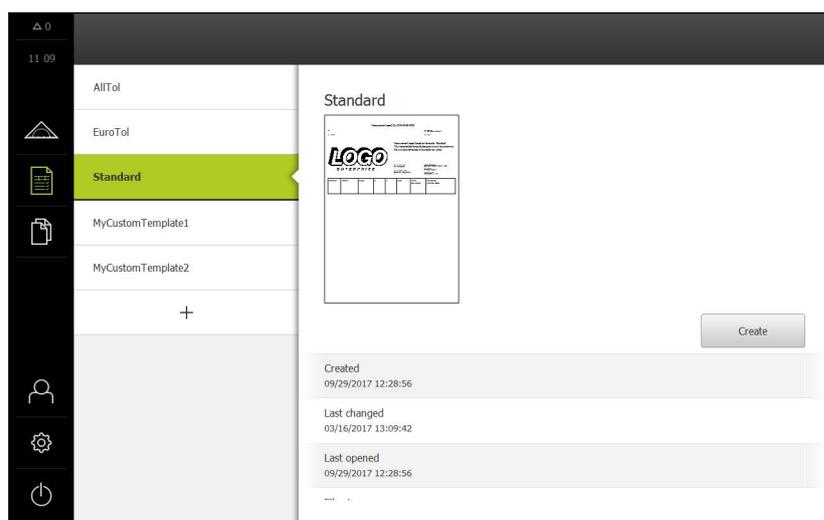


Figure 31: **Measurement report** menu with the list of templates and the **Add** button



- ▶ Tap **Add** to create a new template
- ▶ The **Default settings** for the template are displayed

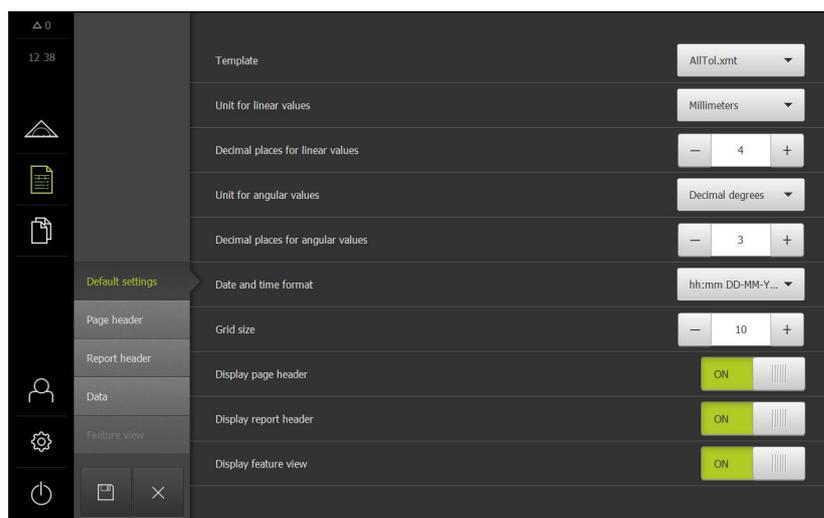


Figure 32: Editor for measurement report templates

## 6.2.2 Editing the default settings for the measurement report

- ▶ Select the default template you want to use as the basis in the **Template** drop-down list
- ▶ Select the desired unit of measurement in the **Unit for linear values** drop-down list
- ▶ To reduce or increase the number of displayed **Decimal places for linear values**, tap – or +
- ▶ Select the desired unit of measurement in the **Unit for angular values** drop-down list
- ▶ Select the desired format in the **Date and time format** drop-down list
- ▶ To reduce or increase the **Grid size**, tap - or +



The grid for the auxiliary lines can be set between 5 and 50. The auxiliary lines are displayed only in the editor. The smaller the spacing is between the auxiliary lines, the more precisely the fields and columns of the form can be positioned.

- ▶ To show the page header in the template, activate **Display page header** with the **ON/OFF** sliding switch
- ▶ To show the report header in the template, activate **Display report header** with the **ON/OFF** sliding switch

### 6.2.3 Configuring the page header

- ▶ Tap **Page header**



The menu is only available if the **Display page header** setting is active in the **Default settings** menu.



Figure 33: The page header of a measurement report template

- 1 The different sections of the template can be edited in the editor menu.
- 2 The form fields for the template are adjustable.
- 3 The list shows the form fields that can be inserted into the selected section of the template.
- 4 "Grid" operating element for displaying and hiding the auxiliary lines in the editor.



- ▶ Tap **Grid** to display or hide the grid of auxiliary lines



The grid of auxiliary lines is always active. All fields of the form are automatically aligned with it.

### Inserting or removing form fields

The form fields listed below can be inserted into the page header of the measurement report. During the creation of the measurement report, the form fields are filled according to the entries made.

- ▶ To insert or remove a form field, tap the **form field** in the list
- > Active form fields are indicated by a check mark
- > The form field is inserted into the template or removed from the template

Form field	Meaning and application
<b>Timestamp</b>	The date and time are inserted.
<b>Job</b>	The job is inserted.
<b>User name</b>	The user name is inserted.
<b>Part number</b>	The part number is inserted.
<b>Fixed text</b>	Fixed text is inserted into the template. <ul style="list-style-type: none"> <li>▶ Tap the <b>Fixed text</b> form field in the template</li> <li>&gt; An input field opens</li> <li>▶ Enter the desired text</li> <li>▶ To close the input field, tap anywhere outside the input field</li> </ul>
<b>Variable text</b>	Variable text is inserted. You can type the variable text into the template. When creating the measurement report, you can overwrite the text as needed.
<b>Logo</b>	A logo is inserted. <ul style="list-style-type: none"> <li>▶ Tap the <b>Logo</b> form field in the template</li> <li>&gt; A dialog appears</li> <li>▶ Select the desired logo in the storage location</li> <li>▶ Tap <b>OK</b> to close the dialog</li> <li>&gt; The logo is inserted into the template</li> </ul>

### Resizing a form field

You can adjust the size of the form field using the square handles at the corner of the field.

- ▶ Tap **Grid** to use auxiliary lines for easy alignment
- ▶ Drag the square handle of the corresponding form field to the desired size
- > If form fields overlap, the affected area is highlighted in red
- > The change to the form field is applied

### Positioning a form field

You can position the form fields in the template according to your own preferences.

- ▶ Tap **Grid** to use auxiliary lines for easy alignment
- ▶ Drag the form field to the desired position in the template
- > If form fields overlap, the affected area is highlighted in red
- > The change to the form field is applied

## 6.2.4 Configuring the report header

### ► Tap Report header



The menu is only available if the **Display report header** parameter is active in the **Default settings** menu.

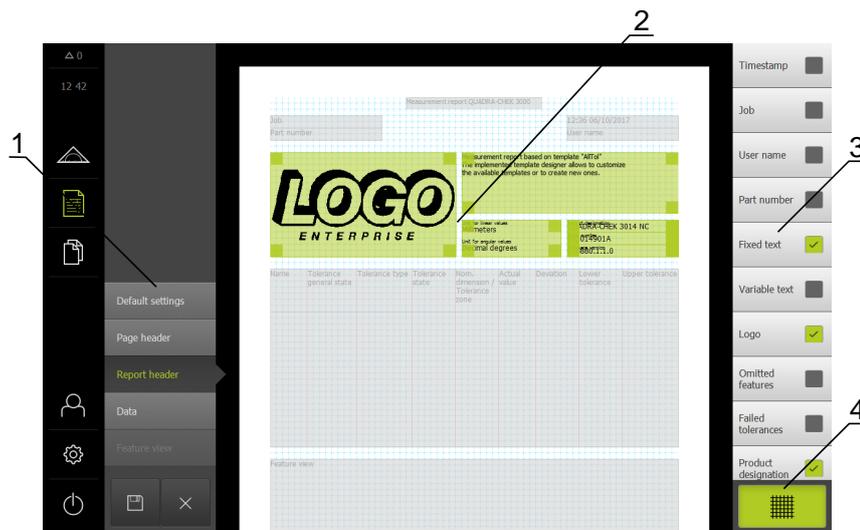


Figure 34: Report header of a measurement report template

- 1 The different sections of the template can be edited in the editor menu.
- 2 The form fields for the template are adjustable.
- 3 The list shows the form fields that can be inserted into the selected section of the template.
- 4 "Grid" operating element for displaying and hiding the auxiliary lines in the editor.

### Inserting or removing form fields

The form fields listed below can be inserted into the report header of the measurement report. During the creation of the measurement report, the form fields are filled according to the entries made.

- ▶ To insert or remove a form field, tap the **form field** in the list
- > Active form fields are indicated by a check mark
- > The form field is inserted into the template or removed from the template

Form field	Meaning and application
<b>Timestamp</b>	The date and time are inserted.
<b>Job</b>	The job is inserted.
<b>User name</b>	The user name is inserted.
<b>Part number</b>	The part number is inserted.
<b>Fixed text</b>	Fixed text is inserted into the template. <ul style="list-style-type: none"> <li>▶ Tap the <b>Fixed text</b> form field in the template</li> <li>&gt; An input field opens</li> <li>▶ Enter text</li> <li>▶ To close the input field, tap anywhere outside the input field</li> </ul>
<b>Variable text</b>	Variable text is inserted. You can type the variable text into the template. When creating the measurement report, you can overwrite the text as needed.
<b>Logo</b>	A logo is inserted. <ul style="list-style-type: none"> <li>▶ Tap the <b>Logo</b> form field in the template</li> <li>&gt; A dialog appears</li> <li>▶ Select the desired logo in the storage location</li> <li>▶ Tap <b>Select</b> to close the dialog</li> <li>&gt; The logo is inserted into the template</li> </ul>
<b>Omitted features</b>	The number of measured features that are not displayed in the measurement report is inserted.
<b>Failed tolerances</b>	The number of features that are out of tolerance is inserted.
<b>Product designation</b>	The product designation of the product is inserted.
<b>Serial number</b>	The serial number of the product is inserted.
<b>Firmware version</b>	The firmware version currently installed on the product is inserted.

### Resizing a form field

You can adjust the size of the form field using the square handles at the corner of the field.

- ▶ Tap **Grid** to use auxiliary lines for easy alignment
- ▶ Drag the square handle of the corresponding form field to the desired size
- > If form fields overlap, the affected area is highlighted in red
- > The change to the form field is applied

### Positioning a form field

You can position the form fields in the template according to your own preferences.

- ▶ Tap **Grid** to use auxiliary lines for easy alignment
- ▶ Drag the form field to the desired position in the template
- ▶ If form fields overlap, the affected area is highlighted in red
- ▶ The change to the form field is applied

## 6.2.5 Defining data for a measurement report

- ▶ Tap **Data**



Figure 35: The data table of a measurement report template

- 1 The different sections of the template can be edited in the editor menu.
- 2 The data table in the template can be adjusted.
- 3 The list shows the form fields that can be inserted into the data table.
- 4 "Grid" operating element for displaying and hiding the auxiliary lines in the editor.



- ▶ Tap **Grid** to display or hide the grid of auxiliary lines



The grid of auxiliary lines is always active. All fields of the form are automatically aligned with it.

### Selecting the data for the measurement report

The form fields listed below can be inserted into the data table of the measurement report. During the creation of the measurement report, the data are filled in according to the entries made and depending on the measured features.

- ▶ To insert or remove a form field, tap the **form field** in the list
- Active form fields are indicated by a check mark
- The form field is inserted as a column into the data table or removed from the data table.

Form field	Meaning and application
<b>Name</b>	The name of the feature is inserted.
<b>Number</b>	The number of the feature is inserted.
<b>Type</b>	The feature type is inserted.
<b>Cartesian position</b>	The position in Cartesian coordinates is inserted.
<b>Polar position</b>	The position in polar coordinates is inserted.
<b>X</b>	The X coordinate (Cartesian) is inserted.
<b>Y</b>	The Y coordinate (Cartesian) is inserted.
<b>Z</b>	The Z coordinate (Cartesian) is inserted.
<b>Coordinate system</b>	The coordinate system that is used for the feature is inserted.
<b>r</b>	The radial coordinate (polar) is inserted.
<b><math>\varphi</math></b>	The angular coordinate (polar) is inserted.
<b>Size</b>	The main dimension of the feature (e.g., the length of a straight line) is inserted.
<b>Length</b>	The length of the feature is inserted.
<b>Width</b>	The width of the feature is inserted.
<b>Radius</b>	The radius of the feature is inserted.
<b>Diameter</b>	The diameter of the feature is inserted.
<b>Angle</b>	The angle of the feature is inserted.
<b>Fitting algorithm</b>	The fitting algorithms used on the feature or on the activated tolerances are inserted.
<b>No. of points / parent features</b>	For measured features, the number of measuring points is inserted. For constructed features, the number of parent features is inserted.
<b>Form deviation</b>	The maximum deviation from the calculated ideal form is inserted.
	<div style="border: 1px solid black; padding: 5px;">  Applies only to features that have been measured using more than the mathematically required number of points.         </div>
<b>Creation type</b>	The symbol for the process with which the feature has been generated is inserted (measuring, constructing, or defining).

<b>Form field</b>	<b>Meaning and application</b>
<b>Tolerance general state</b>	The overall status of all of the tolerances that have been inserted into the feature are inserted (e.g., <b>Passed</b> , if all of the individual tolerances are good).
<b>Tolerance type</b>	The tolerance types applied to the feature are inserted.
<b>Tolerance state</b>	The statuses of the tolerances applied to the feature are inserted.
<b>Nom. dimension / Tolerance zone</b>	The nominal dimension or the value of the tolerance zone of a tolerance applying to a feature is inserted.
<b>Actual value</b>	The actual dimension of a tolerance applied to the feature is inserted.
<b>Deviation</b>	The difference between nominal dimension and actual dimension is inserted.
<b>Lower tolerance</b>	The lower tolerance limit of a tolerance applied to the feature is inserted.
<b>Upper tolerance</b>	The upper tolerance of a tolerance applied to the feature is inserted.
<b>Lower limit</b>	The lower limit of a tolerance applied to the feature is inserted.
<b>Upper limit</b>	The upper limit of a tolerance applied to the feature is inserted.
<b>Trend [-/+]</b>	<p>The trend of the deviation is inserted.</p> <p>The tolerance zone is divided into seven segments. The result is assigned to the corresponding segment. The corresponding segment is shown as a trend:</p> <ul style="list-style-type: none"> <li>■ Segment -3: ---</li> <li>■ Segment -2: --</li> <li>■ Segment -1: -</li> <li>■ Segment 0: .</li> <li>■ Segment +1: +</li> <li>■ Segment +2: ++</li> <li>■ Segment +3: +++</li> </ul>
<b>Reference, bonus</b>	<p>The reference feature of a tolerance applied to the feature is inserted.</p> <p>If a material requirement is being used, the existing tolerance bonus is inserted.</p>

### Adjusting the data table

You can resize the data table with the square handles at the corners of the data table. The sequence of form fields in the list determines how the columns are arranged in the table. To adjust the width of the columns in the data table, use the diamond-shaped handles.

- ▶ Tap **Grid** to use auxiliary lines for easy alignment
- ▶ Use the square handles to resize and position the data table as needed
- ▶ To rearrange the columns, long press the form field in the list and drag it to the desired position in the list
- ▶ Adjust the column width with the diamond-shaped handles
- > Columns that are outside the print area are marked red
- > The changes to the data table are applied

### 6.2.6 Saving a template

The templates are saved in the XMT data format.



- ▶ To save the template, tap **Save as**
- > The **Save as** dialog appears
- ▶ Select the storage location (e. g., **Internal/Reports**)
- ▶ Enter a name for the template
- ▶ Confirm entry with **RET**
- ▶ Tap **Save as**
- > The template is saved and can be used for measurement reports

### 6.2.7 Exiting or canceling the creation of a template

 When creating a template, you need to save the template before closing it. Otherwise, the editing process will be canceled and the changes will be discarded.

**Further information:** "Saving a template", Page 81



- ▶ Tap **Close** to exit or cancel the creation of the template or measurement report
- ▶ Tap **OK** to close the message
- > The editor is closed

## 6.3 Transferring a measurement report template to the unit

You can transfer a measurement report template from a computer to the unit over a network or via a USB mass storage device.

### Storing a file to a network drive or USB mass storage device

- ▶ In your computer's file storage area, navigate to the folder in which have saved the measurement report template (e.g.,  
**C: ▶ HEIDENHAIN ▶ [product designation]**
  - ▶ **ProductsMGE5 ▶ [product code] ▶ user ▶ Reports**
  - ▶ **custom\_templates**
- ▶ Copy the file to a network drive or USB mass storage device

### Import the file into the unit



- ▶ Tap **File management** in the main menu
- ▶ On the USB mass storage device or network drive, navigate to the file you want to import
- ▶ Drag the icon of the file to the right
- > The operating elements are displayed



- ▶ To copy the file, tap **Copy file**
- ▶ In the dialog, select the following storage location:
  - ▶ **Internal ▶ Reports ▶ custom\_templates**
- ▶ Tap **Select**
- > The file is stored on the product
- > The template appears in the **Measurement report** menu and can be used for creating measurement reports

# 7

**ScreenshotClient**

## 7.1 Overview

The standard installation of QUADRA-CHEK 2000 Demo also contains the ScreenshotClient program. With ScreenshotClient, you can take screenshots of the demo software or the unit.

This chapter describes how ScreenshotClient is configured and used.

## 7.2 Informationen about ScreenshotClient

With ScreenshotClient, you can take screenshots of the active screen of the demo software or the unit from a computer. Before taking a screenshot, select the desired user interface language, as well as the file name and the location where you want to store the screenshots.

ScreenshotClient creates image files of the desired screen:

- In .PNG format
- With the configured name
- With the appropriate language code
- With the time information of year, month, day, hour, minute, and second

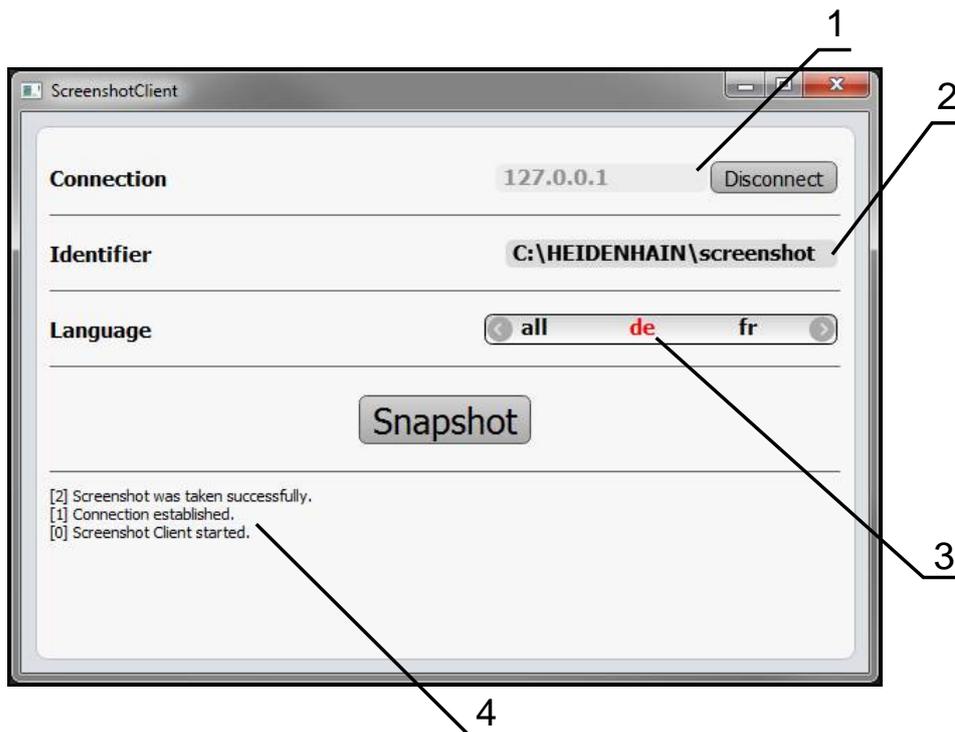


Figure 36: ScreenshotClient user interface

- 1 Connection status
- 2 File path and file name
- 3 Language selection
- 4 Status messages

## 7.3 Starting ScreenshotClient

- ▶ Select in succession in Microsoft Windows:
  - **Start**
  - **All programs**
  - **HEIDENHAIN**
  - **QUADRA-CHEK 2000 Demo**
  - **ScreenshotClient**
- > ScreenshotClient is started:



Figure 37: ScreenshotClient has been started (not connected yet)

- > You cannot connect ScreenshotClient with the demo software or with the unit

## 7.4 Connecting ScreenshotClient with the demo software



Before establishing a connection with ScreenshotClient, first start the demo software or switch on the unit. Otherwise ScreenshotClient will show the status message **Connection close.** when trying to connect

- ▶ Start the demo software if you have not already done so  
**Further information:** "Starting QUADRA-CHEK 2000 Demo", Page 23
- ▶ Tap **Connect**
- > A connection with the demo software is established
- > The status message is updated
- > The **Identifier** and **Language** input fields become active

## 7.5 Connecting ScreenshotClient with the unit

**Prerequisite:** The network must be configured on the device.



For detailed information on configuring the network at the unit, please refer to the "Setup" chapter in the operating instructions of QUADRA-CHEK 2000.



Before establishing a connection with ScreenshotClient, first start the demo software or switch on the unit. Otherwise ScreenshotClient will show the status message **Connection close**. when trying to connect

- ▶ Switch on the unit if you have not already done so
- ▶ Enter the **IPv4 address** of the interface in the **Connection** input field.  
You will find the address in the unit settings under: **Interfaces ▶ Network ▶**
- ▶ Tap **Connect**
- > A connection with the unit is established
- > The status message is updated
- > The **Identifier** and **Language** input fields become active

## 7.6 Configuring ScreenshotClient for taking screenshots

Once you have started ScreenshotClient, you can make the following configurations:

- Location at which screenshots are stored, and what the file names are
- User interface language in which the screenshots are created

### 7.6.1 Configuring the storage location and file name for screenshots

By default, ScreenshotClient saves screenshots to the following storage location:

**C: ▶ HEIDENHAIN ▶ [product designation] ▶ ProductsMGE5 ▶ Metrology ▶ [product code] ▶ sources ▶ [file name]**

You can define a different storage location, if necessary.

- ▶ Tap the **Identifier** input field
- ▶ Enter the path to the storage location and the name for the screenshots into the **Identifier** input field



Use the following syntax to enter the path and file name for screenshots:

**[drive]:\{folder}\{file name}**

- > ScreenshotClient will save all screenshots to the storage location entered

## 7.6.2 Configuring the user interface language of screenshots

The **Language** input field shows all of the user interface languages available for the demo software or the unit. Once you have selected a language code, ScreenshotClient will take screenshots in the corresponding language.



The user interface language you are using in the demo software or on the unit does not have any effect on the screenshots. Screenshots are always created in the language that you have selected in ScreenshotClient.

### Screenshots in the desired user interface language

To take screenshots in a desired user interface language



- ▶ Use the arrow keys to select the desired language code in the **Language** input field



- > The selected language code is shown in red
- > ScreenshotClient creates the screenshots in the desired user interface language

### Screenshots of all available user interface languages

To create screenshots in all available user interface languages



- ▶ Use the arrow keys to select **all** in the **Language** input field
- > The **all** language code is shown in red



- > ScreenshotClient creates the screenshots in all available user interface languages

## 7.7 Creating screenshots

- ▶ In the demo software or on the unit, call the view from which you would like to take a screenshot
- ▶ Switch to **ScreenshotClient**
- ▶ Tap **Snapshot**
- > The screenshot is created and saved to the configured storage location



The screenshot is saved in the format [file name]\_[language code]\_[YYYYMMDDhhmmss]  
(e.g. **screenshot\_en\_20170125114100**)

- > The status message is updated:

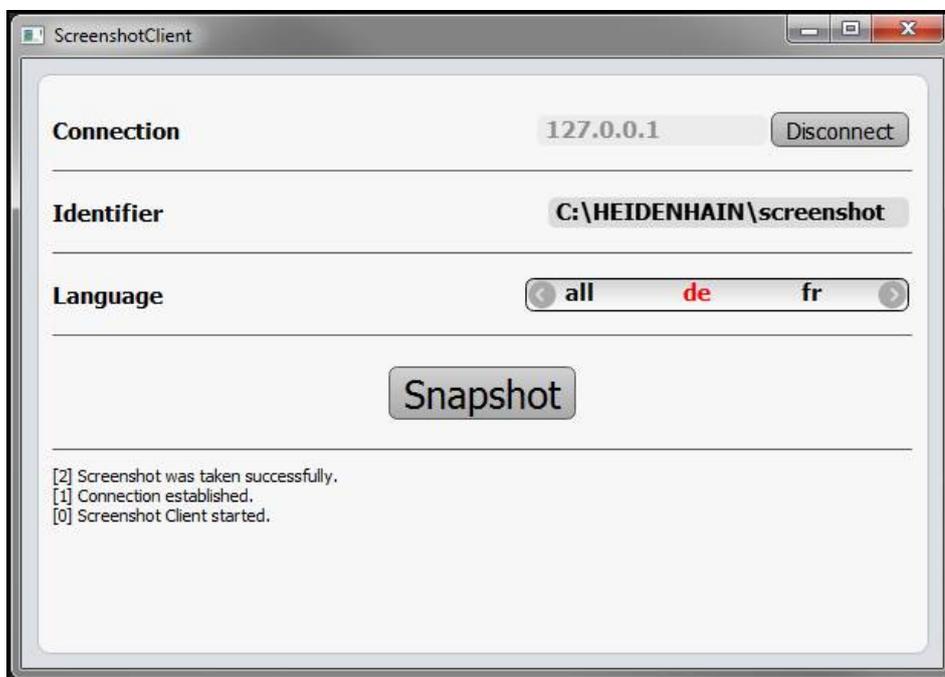


Figure 38: ScreenshotClient after screenshot has been created successfully

## 7.8 Exiting ScreenshotClient

- ▶ Tap **Disconnect**
- > The connection to the demo software or the unit is terminated
- ▶ Tap **Close**
- > ScreenshotClient is exited

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