User manual

PC-DMIS Operator Interface

Version: 2025.1

16 December 2024

HEXAGON

Contents

1. Information about this document

This document applies to version 2024.2 of the Operator Interface.

1.1. Document history

Version	Date	Author(s)	Modifications / Remarks
1.0	12.02.2024	SR	Initial release
1.2	02.09.2024	SR	Adaptation to software version 2024.2.11
1.3	12.11.2024	SR	Adaptation to software version 2024.2.31
2.1	16.12.2024	SR	Adaptation to software version 2025.1

2. General

2.1. Introduction

The aim of this manual is to support you in dealing with the PC-DMIS Operator Interface (referred to below as “Operator Interface”).

We have tried to describe all options of this software as best as possible and in a way that is understandable. However, we ask for you’re understanding that all features may possibly not be described. This may be due among other things to technical innovations, new options or similar influences.

PC-DMIS Operator is used among other things for the control of top-quality measurement technology. Settings in this software have a direct influence on the measurement routine sequence and therefore must be selected carefully.

For this reason we point out by way of precaution that this manual cannot replace training. Should you be interested in a course in this respect, we look forward to hearing from you. You can find the corresponding data at the end of this text.

Even after careful checking, errors in this user manual cannot be ruled out.

For this reason we reserve the right to make typographical errors and mistakes.

Irrespective of this, we are thankful for suggestions, tips and proposals for improvements resulting from daily dealings with PC-DMIS Operator Interface.

If you need assistance, please contact your local Hexagon support.

2.2. Notes on the use of this user manual

- ### Find terms or functions that are not listed in the table of contents

  The terms used in this user manual for functions etc. are identical to those used in the software. If certain functions cannot be found via the table of contents, use the search function in the PDF. To do this, enter the desired term in the notation in which it is used in the user interface.

- ### Use links

  If text passages are related to other chapters, they are linked to each other. These links can be recognized by the underlined and blue colored text. Clicking on this text jumps to the corresponding passage.

  In order to be able to find these passages in a printed operator's manual, the complete outline is preferably given.

  Example:

  Chapter: The Tabs, section: Single run, point: Starting a measurement routine.

  In principle, the last term will lead to the desired information (in the example above: point: Starting a measurement routine).

  The complete structure is not indicated if the linked passage is located in the immediate vicinity of the text (example: see Example above).

  If the text passage to which you jumped does not contain a link to the original text, you can jump to the source text using the key combination "Alt" + "⇦" (To-Left).

- ### Meaning mouse click, click or similar.

  This term is used for the left mouse button. If the right mouse button must be clicked, this is explicitly mentioned.

- ### Meaning scanner

  The term "Scanner" refers to all technical devices that can read a specific code (e.g.: barcode or QR code) and send the result as simulated keyboard input.

- ### Used symbols

Despite various plausibility checks, it cannot be ruled out that selected parameters may lead to probe collisions, for example. This symbol serves as a hint to take special care of the selected settings.

2.3. Recommended qualification

- ### Installation of the software

  The software should be installed by personnel who have the following knowledge and permissions:

  - PC skills PC skills
  - Windows skills
  - Installation of Windows – programs
  - Extract compressed files
  - Changing access permissions in the File System and Registry

  → Typical: Network administrators

- ### Using the software as administrator

  The use and configuration of the software in administrator mode (see also chapter: Menu option "Extras", section: Safety) should be carried out by personnel who have the following knowledge:

  - PC skills
  - Windows skills
  - Detailed training by the Hexagon application engineering department
  - PC-DMIS knowledge

  → Typical: employees in quality assurance or work preparation

- ### Using the software in operator mode

  The use of the software in operator mode (see also chapter: Menu option "Extras", section: Safety) should be carried out by personnel who have the following knowledge:

  - PC basic skills
  - Windows basic skills
  - Short instruction in the software - e.g.: in-house by personnel with knowledge in administrator mode (see above)

  → Typical: Employees in production (workers)

3. Software licence agreement

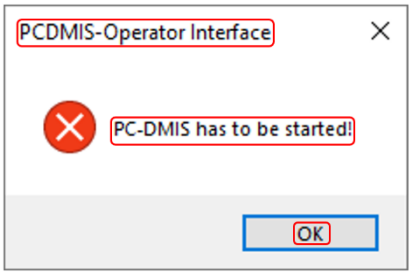
The use of the software is subject to acceptance of all provisions contained in the software license agreement. For details, refer to the document "EN_EULA.pdf", which you will find in the same folder in which the user manual is located.

4. Operation

4.1. Starting the Operator Interface

If the checkbox at menu option "Extras" ➞ Settings in the "PC-DMIS" tab ➞ Start automatically is not active, PC-DMIS must be started first. Afterwards, the Operator Interface can be started by double-clicking on the shortcut on the desktop. Both PC-DMIS and the Operator Interface must have identical permissions (see also chapter: Configuration of the software).

If PC-DMIS is not started (and the checkbox at Start automatically is not active), the following note appears:



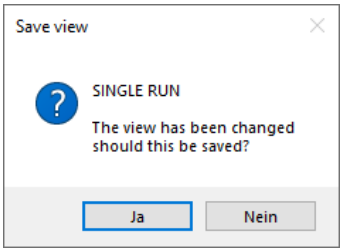
After confirming the message per click on the “OK” button, the message is closed. The Operator Interface can then be started as described above after starting PC-DMIS.

If the checkbox Start automatically is activated, both PC-DMIS and the Operator Interface are started.

4.2. Closing the Operator Interface

The Operator Interface can be closed using the menu option "File ➞ Exit". Alternatively, you can click on the "x" symbol in the upper right corner.

If measurement routines were removed or added in the respective tabs without saving them, the query appears (here in the example: Single run):



If "Yes" is selected, the view (not the list) is saved. The next start will be with this view. Since no list was loaded with the menu option "List", no path and name of a list is displayed in the header line

If "No" is selected, no further action is taken.

4.3. User interface (Scanner deactivated)

1. Loaded list
2. Menu options
3. Button for scanner (deactivated: Scanner / activated: Scanner)
4. Tabs
5. Sequence number
6. Column for image to the measurement routine
7. Name of the measurement routine
8. Path of the measurement routine
9. Start code
10. Status bar

5. Configuration of the software

For the configuration of the software, the knowledge and permissions recommended in chapter: Operation, section: Recommended Qualification, point: Using the software as administrator must be taken into account.

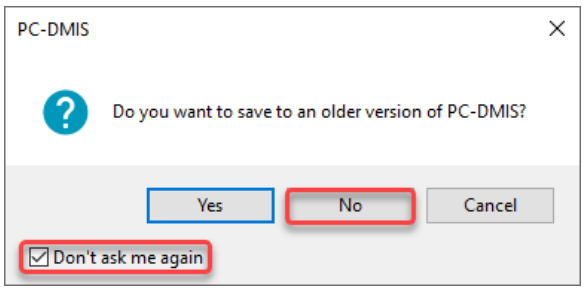
Before you use the software, it must be adjusted to your environment. Both PC-DMIS and Operator Interface must be started with administrator rights for this purpose. After configuration has been carried out these are no longer required.

5.1. Language setting

The operator interface starts in the last language selected.
In the menu "File → Language" the language can be changed.

5.2. Setting under PC-DMIS™

In order for the measurement routines to run smoothly (especially “save after execution”) the warning “Do you want to save an older version of PC-DMIS?” must be deactivated. The checkbox for "Don´t ask me again" must be activated and the query answered with "No" (warning message is deactivated).

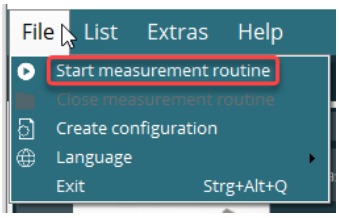


6. Menu option “File”

6.1. Start measurement routine

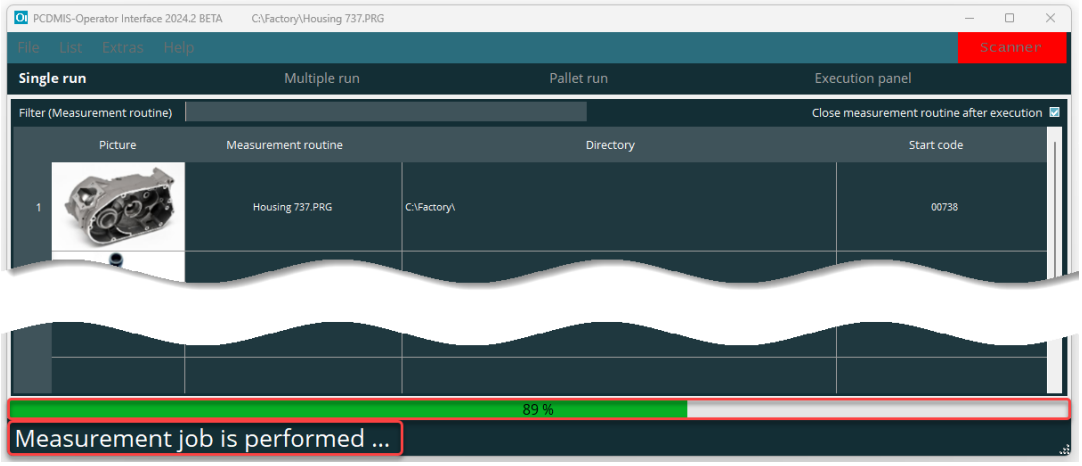
This function is only available if the tab “Single run” is active in the operator interface (see chapter: The tabs, section: Single run). Under chapter: Menu option “Extras”, section: Settings the function: “Do not allow manual selection of the measurement routines” may not be activated.

Any measurement routine can be started with “Start measurement routine”. This does not have to be integrated into the interface or stored in a list (see chapter: The tabs, section: Single run, point: Inserting measurement routine into a list).



Under chapter: Menu option “Extras”, section: Settings, point: “General” tab and point: Single run tab are to be taken into consideration.

While the measurement routine is being processed a green bar at the bottom of the screen shows the progress and the message “Measurement job is being executed” appears.



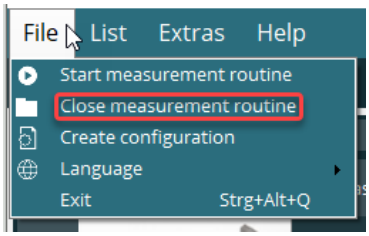
If the measurement routine is available in the list currently loaded, the row is shown after the routine is ended as is described in the chapter: The tabs, section: Single run, point: Measurement process.

If the measurement routine is not found in the list, it is not marked in color.

The execution window is available during the measurement (see chapter: The tabs, section: Execution panel).

6.2. Close measurement routine

If a measurement routine is open in PC-DMIS, this function can be used to close it. This can be necessary among other things if a routine was loaded or the function “Close measurement routine” was not activated via “Create configuration" (see chapter: The tabs, section: Single run, point: Measurement process ➝ Close measurement routine after end execution).



If none of these functions has been executed or no measuring routine is loaded in PC-DMIS, this function is not available (see picture above).

6.3. Create configuration

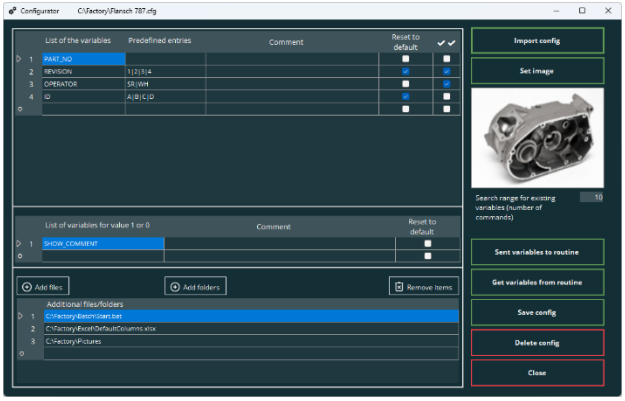
This function enables variables to be defined and inserted into a PC-DMIS measuring routine. If the variables were written into the PC-DMIS routine using "Sent variables to routine" (see below), create a CFG file using "Save config" (see below) and use the "Show input dialog when starting the measurement routine " function (see chapter: Menu optin "Extras", section: Settings, point: "Single Run" tab ➝ Show input dialog when starting the measurement routine and point: "Multi run" tab ➝ Show input dialog when starting the measurement routine and point: "Pallet run" tab ➝ Show input dialog when starting the measurement routine active, the variables can be displayed and edited at the start of the measurement.

If no measuring routine is loaded in PC-DMIS or if it was closed by means of "Close measurement routine" (see above), the desired measuring routine must be selected. The measuring routine is opened in PC-DMIS and then the input mask opens.

If the display is not in full screen mode, the size of the input mask can be changed by dragging the borders or diagonals with the mouse, as is usual under Windows.

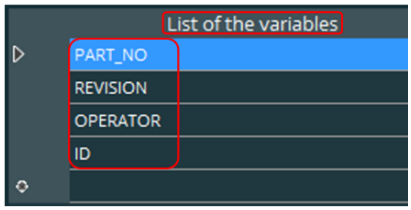
Changes made are saved with “Save config” (see below).

To create a new file, the measurement routine must be closed via chapter: Menu option “File”, section: Close measurement routine and a new one opened (as described above).



- List of the variables

At this point the name for variables can be defined, to which values are to be passed in the measurement routine. The variables must exist in the measurement routine (see below: Send variables to routine) and the file (see below: Save config). By single click or double click with the mouse button in the line the name can be entered.



If no more rows are available, a new row is created for the next variable.

Depending on settings in chapter: Menu option “Extras”, section: Settings, point: “Single run" tab ➞ Show input dialog when starting the measurement routine and point: “Multiple run" tab ➞ Show input dialog when starting the measurement routine as well as point: "Pallet run" tab ➞ Show input dialog when starting the measurement routine done during execution, query the variables. If values are entered in the "Comment" area (see below), these are queried instead of the variable names.

If the measurement routine is started with a scanner, the values from the scanned code can be transferred to these variables (see chapter: Menu option “Extras”, section: Scanner, point: By separator and point: "By length").

To delete a variable, the line is marked by clicking with the left mouse button in the left column with the symbol " ▸ ". Then delete the line with the "Del" key.

If the left mouse button is pressed and held, moving the mouse up or down can mark several connected lines.

If the "⇧" key is held, a block can be marked, and "Ctrl" can be used to mark individual rows.

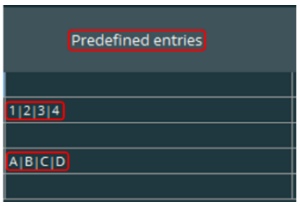
To change the end line when the block is selected, the "⇧ " key is pressed and held. Then click in the desired row.

To unmark individual lines, press and hold "Ctrl". Then click to deselect the relevant row.

If you want to delete the complete list, left-click in the upper left field (header, to the left of the column "List of variables") to highlight all variables. Afterwards all variables can be deleted with the "Del" key.

- Predefined entries

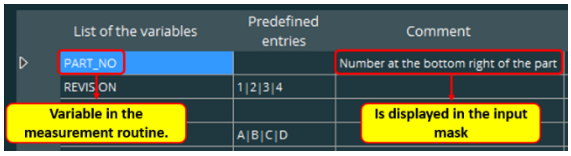
  The values entered here can be selected in the context menu after starting the measuring routine in the input mask. If more than one value is to be selectable, the individual data must be separated by character "|".



If the checkbox under menu option "Extras" ➔ Settings in the "PC-DMIS" tab is activated at Suggest same variable value for each measurement routine, the values should be checked again before starting the measuring routine.

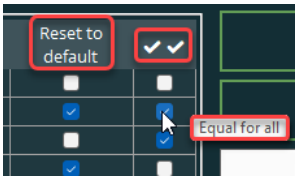
- Comment

  After starting the measurement routine, the entry entered here is displayed in the input mask instead of the variables (see: List of variables above). In the measuring routine, the entered value is passed to the variable in the "List of variables" column (see above).The comment is not written into the measurement routine using "Send variables to routine" (see below). Thus it is possible to display helpful hints to the operator despite short variable names.



- Reset to default

If the fields in the input mask are to be empty when starting the measuring routine, the checkbox must be activated. After starting the routine, these can be selected by clicking with the right mouse button in the context menu (see also "Predefined entries" above).



If the checkbox is deactivated, the last used value for the variable is suggested.

- Column: ✓✓

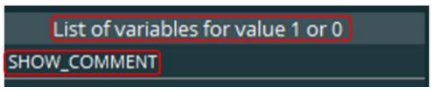
  This column is only available if the "Pallet run" tab has been selected in the user interface.

  If the checkbox is activated, the values defined under "Predefined entries" (see above) are transferred to all clamping stations when the measurement routine is started.

  If the checkbox at "Reset to default" is activated, the fields in the input mask are empty. If a value is defined for a variable, it is passed to all clamping stations.

  If the mouse pointer is moved over a checkbox, the tooltip "Equal for all" appears.

- List of variables for value 1 or 0



At this point variables can be defined which are to assigned “1” or “2”. The name can be entered by double clicking in the row.

If no more rows are available, a new row for the next variable is created.

Depending on the settings carried out under chapter: Menu option “Extras”, section: Settings, point: “Single run” tab → Show input dialog when starting the measurement routine and point: “Multiple run” tab → Show input dialog when starting the measurement routine as well as point: "Pallet run" tab → Show input dialog when starting the measurement routine , the query appears during execution in an additional window with a checkbox that can be enabled or disabled.

The procedure for deleting variables is identical to the List of the variables at the top of the text.

Example:

A variable “SHOW_COMMENT” was defined. If the measurement routine is started, the input mask appears for the variables defined in columns “List of the variables” and “List of variables for value 1 or 0”.

The values for "Variable ID" can be changed by double-clicking in the "Value" column (see also chapter: Menu option “Extras”, section: Settings, point: “PC-DMIS“ tab → Suggest same variable value for each measurement routine).

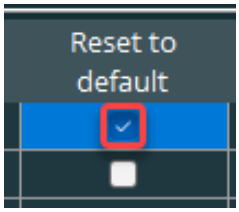
The variable “SHOW_COMMENT” is listed in the column “Variables (value 1 or 0)”. This can be activated with the check box (value: “1”) or deactivated (value: “0”). The variable in the measurement routine can now be used further (see example further below).

Example PC -DMIS (excerpt abbreviated):

```
ASSIGN/SHOW_COMMENT="1„

IF/SHOW_COMMENT==1

        COMMENT/OPER,NO,FULL SCREEN=YES,AUTO-CONTINUE=NO,
        Check Part Position

      END_IF/
```

The comment can then be shown (checkbox active) or skipped over (checkbox inactive).

- Reset to default



If the checkboxes are to be deactivated when starting the measuring routine in the input mask, this checkbox must be activated.

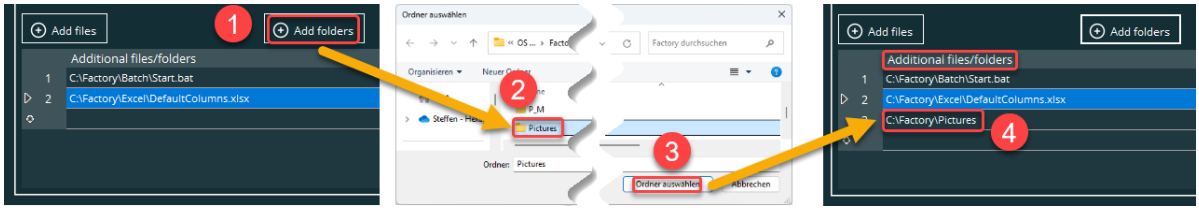
If the checkbox is deactivated, the last state for the checkbox is suggested.

- Additional files/folders

If the "Measurement with local measurement routines copy" checkbox is activated in the "Extras" → "Settings" menu option on the "General" tab, you can decide here which files and / or folders are to be copied in addition to the measurement routine files. This is helpful if, for example, a batch file is called up in the measurement routine that is located in the directory of the measurement routine (call up in the measurement routine without specifying the path).

To select files or folders for copying, click on the "Add files" or "Add folder" button. Then select the file or folder in the Windows file manager. Multiple items can also be selected. After clicking on "Open" or "Select folder", the selected elements are displayed below the "Additional files/folders" column.

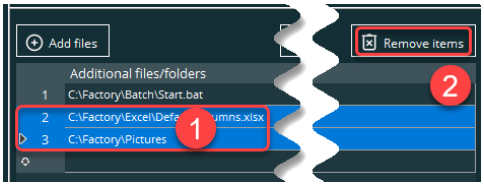
Example (add folder):



Alternatively, files and folders can be inserted by "drag and drop" as usual in Windows. To do this, select the elements and drag them into the "Additional files/folders" area with the mouse. After releasing the mouse button, the selected elements are displayed below the "Additional files/folders" column.

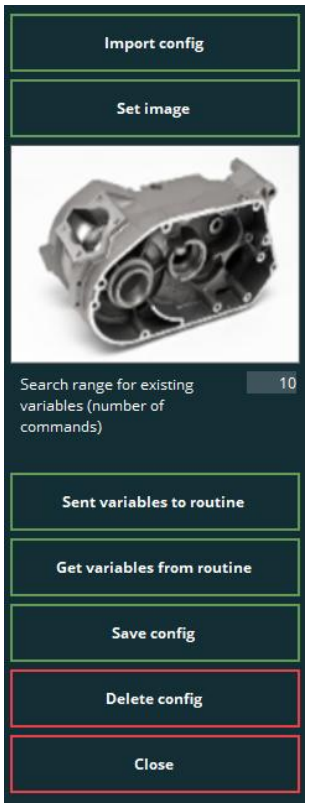
Example (add folder):

To delete elements, they are selected and deleted using the “Remove items” button.



- Import config

  If a *.cfg file was created with “Save config”, it can be loaded. This is helpful if available variables are to be used for a further measurement routine or are to be supplemented. To do this left click on the button and select the file.



- Set picture

  To be able to assign the variables to a measurement routine more easily, a picture can be set for the *.cfg file with this function. The picture is shown in the window below the button.

  The picture is used in the pallet run. (See chapter: The tabs, section: Pallet run, point: Pallet settings view ➔ Load measurement routine and Execute measurement routine).

- Search range for existing variables (number of commands)

  To avoid variables being written into the routine twice, a search range can be defined with this function. If the variable is found within the defined number of commands (elements, alignments etc. count as one command in each case), it is not written into the measurement routine.

  If the number of variables in the measurement routine is greater than the value of the search range, this must be adjusted accordingly.

- Send variables to routine

  The variables are written as a string into a measurement routine (see also: "Get variables from routine" below). These are not displayed for the time being during the process and cannot be edited. They are only displayed in the corresponding mask after a *.cfg file has been created using "Save config".

- Get varaibles from routine

  With this function variables can be read from a PC-DMIS measurement routine. It does not matter whether or not these variables have been written to the routine using the function "Send variables to routine" (see above).

  Regardless of "Search range for existing variables (number of commands)" (see above), all variables are read from the routine.

  Variables that are declared as strings (example: ASSIGN/TEST = "0") are displayed in the "List of the variables" column (see above). Variables that are declared as numbers (example: ASSIGN / TEST = 0) are displayed in the column "List of variables for value 1 or 0" (see above).

  The variables can be edited as described above and assigned to the routine by "Send variables to routine" (see above) and "Save config" (see below).

- Save config

  If all variables are defined, a *.cfg file can be created.

  This file is, among other things, necessary for displaying the variable at the routine start (see also chapter: Menu option “Extras“, section: “Single run“tab, point: Show input dialog when starting the measurement routine and section: ”Multiple run” tab, point: Show input dialog when starting the measurement routine and section: "Pallet run" tab point: Show input dialog when starting the measurement routine).

- Delete file

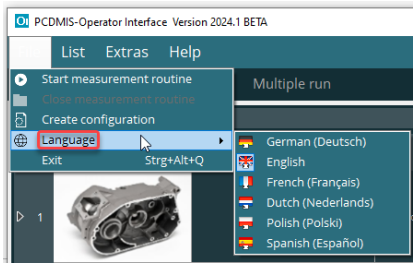
  The *.cfg file saved under “Save config” is deleted.

- Close

  Closes the window and opens the main screen of the Operator Interface.

6.4. Language

The language of the Operator Interface can be changed (see also chapter: Configuration of the software, section: Language setting).

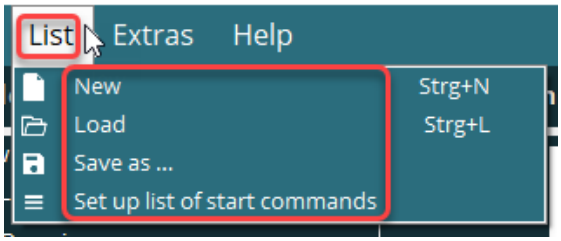


6.5. Exit

Closes the software (see also chapter: Operation, section: Closing the Operator Interface.

7. Menu option "List"

The following functions are available in the "Single Run" tab of this menu option:



Depending on the view selected according to chapter: The tabs, section: Multiple run and section Pallet run, this menu option is not available.

7.1. New

A new (empty) list is created.

7.2. Load

A saved list can be loaded.

The path defined under chapter: Menu option “Extras”, section: Settings, point: "Set list path" will be suggested as a path.

7.3. Save as...

A list completed by further or newly created measurement routine can be saved.

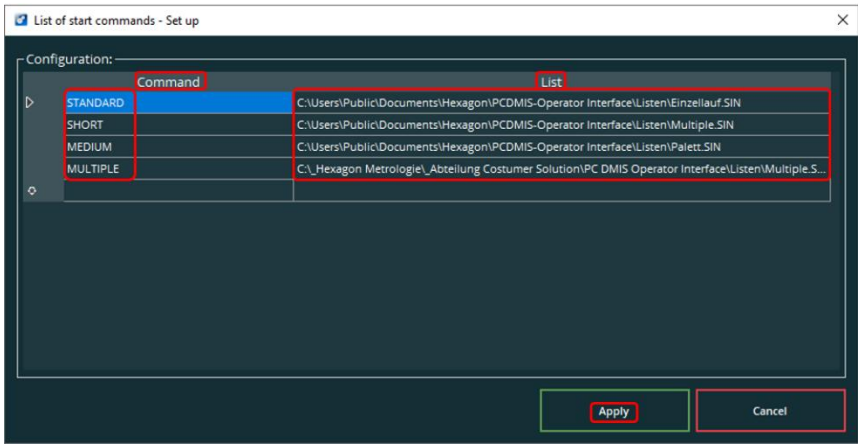
The path defined under chapter: Menu option “Extras”, section: Settings, point: "Set list path" will be suggested as a path.

7.4. Set up list of start commands

This function is only available in the administrator mode (see chapter: Menu option “Extras”, section: Safety).

To load a specific list when the Operator Interface starts, you can use this function to define which list shall be loaded.

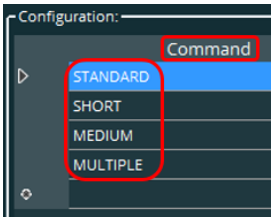
If this option is selected, the window "List of start commands – Set up” opens:



If the display is not in full screen mode, the size of the window can be changed by dragging the borders or diagonals with the mouse, as is usual in Windows.

The changes made are saved using the "Apply” button.

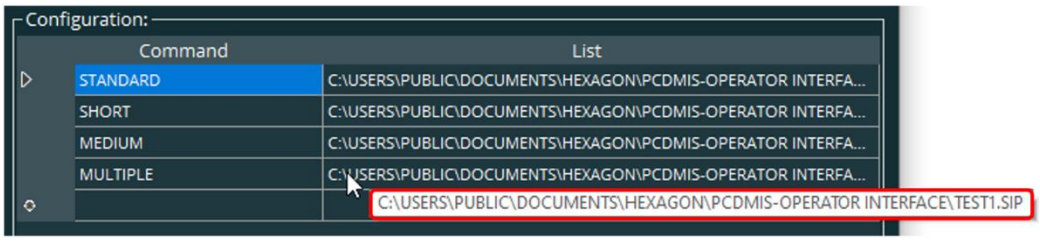
- ### Command



In the column "command" any name for the desired list can be assigned. The name can be entered by double clicking the row with the left mouse button.

- ### List

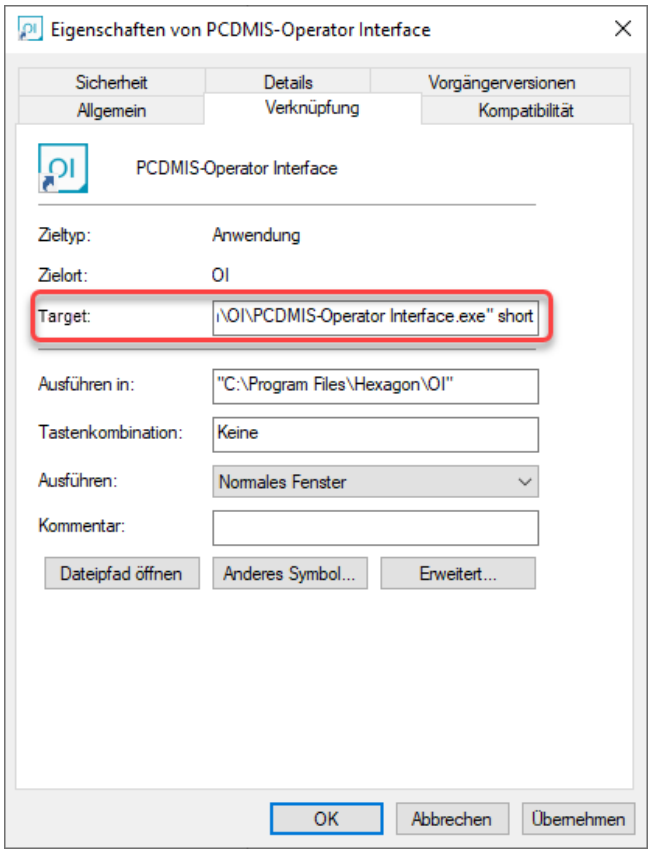
The list assigned to the name is selected in the "list” column. To select the list, right click on the row. If no name has been assigned in the "command" column, this feature is not active.
If the file name is longer than the input field, a tooltip appears with the complete path when the mouse pointer is moved into the line.



The name of the list, which has been defined under "command", has to be entered on the start icon under "Properties → Link" in the "To path" field. A space followed by the command (in this example "short") is written behind the EXE call. The dialog box is closed with "Apply" and "OK".

This list will now be loaded when Operator Interface is started.

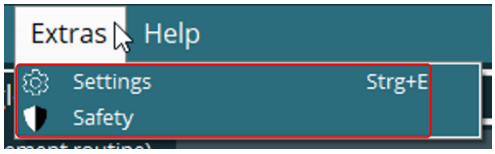
You can create start icons for different lists by using "Copy" and "Paste".



This feature is available for all tabs.

8. Menu option “Extras”

The following functions are available under this menu option.



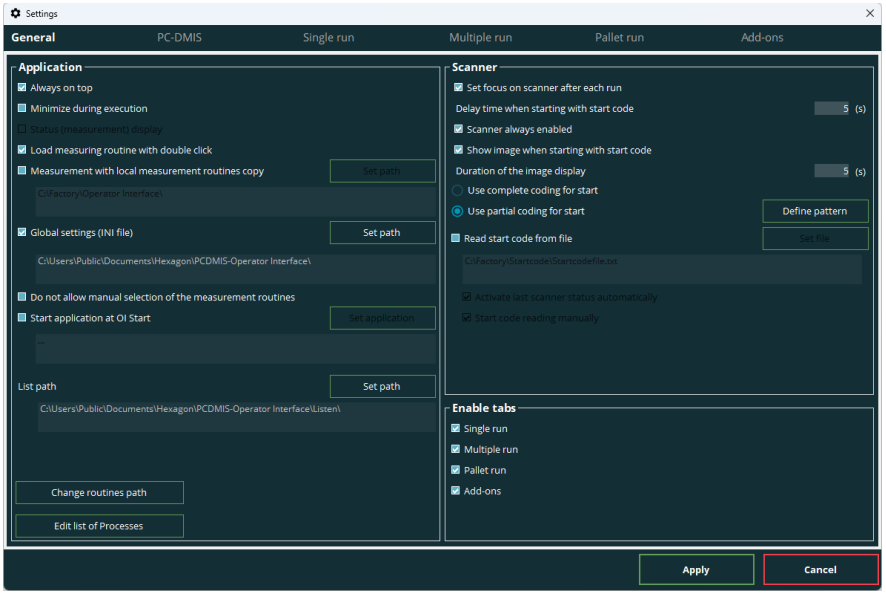
8.1. Settings

This menu is used for global settings.

This function is not available in operator mode (see chapter: Menu option “Extras”, section: Safety).

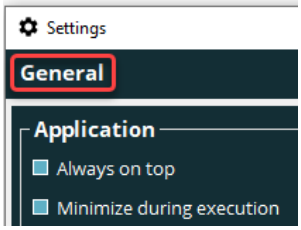
If you want to save the changes made in this area permanently, confirm them with the "Apply" button.

The tab from which you switched to the settings in the user interface is opened.



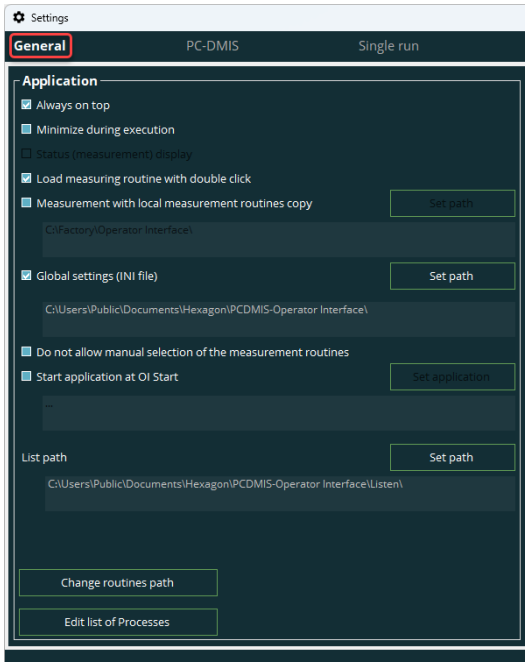
- “General” tab

  In this area the global settings for the tabs "Single run", “Multiple run" and "Pallet run” can be entered.



- Application

  In this area you can make various settings for the main screen and handling of the application.



  - Always on top

    If this field is activated, the Operator Interface is always shown on top. Once the measurement is complete, the operator interface is maximized again.

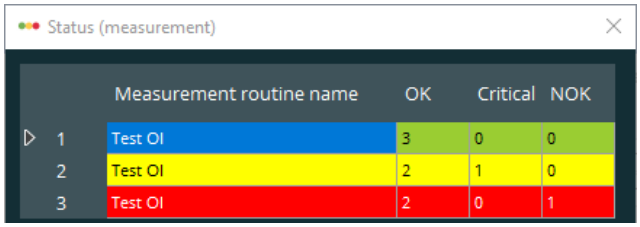
  - Minimize during execution

    During the execution of a measurement routine the Operator Interface main screen is minimized.

  - Status (measurement) display

    It is a requirement for the use of this function that the PC-DMIS Ergebnis Konverter (version 4.201x.21) is installed and a *.bat file created with this installation. This approach requires training in the use of PC-DMIS Ergebnis Konverter and is not the subject of this manual. The *.bat file must be called by an external command at the end of the measuring routine.

    If the checkbox is activated, the “Status (measurement” window opens after each execution.



The window shows the number of features sorted by OK (green: all values are within the tolerance), "Critical" (yellow: at least one value violated the action limit) and NOK (red: at least one value is out of tolerance) is shown (the picture below illustrates this for a pallet measurement).

By clicking the left mouse button on the corresponding row of the “measurement routine name” column the associated Excel table is opened.

- Load measuring routine with double click

  This function determines whether a single or a double click on the picture belonging to the measurement routine is necessary for an interaction in the user interface.

  If the function is deactivated, a single click is sufficient. This has the disadvantage that if the click is accidental, the interaction will be executed.

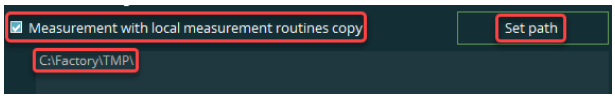
  When the function is activated, a double click must be made.

  The type of interaction depends on the settings made under menu option "Extras" ➝ Settings.

- Measurement with local measurement routines copy

  If the operator interface is installed on several measuring machines and the measuring routines are located centrally in the network, faults can occur if two machines want to start the same measuring routines. This function can be used to prevent this.

  For this purpose, the checkbox at "Measurement with local measurement routine copy" is activated. With the now available button "Set path" the directory is defined, in which the routine copy is to be created.

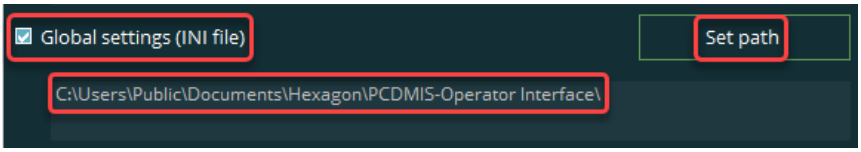


  All files belonging to the measurement routine are copied to this directory. If additional files and / or folders are copied using the menu option “File” ➝ “Create configuration”, these are also stored here.

  This measurement routine copy is used for the execution. After the measurement, all copied data will be deleted.

- Global settings (INI file)

  If the checkbox is activated, a directory can be defined using the “Set path” button that is now available. The settings made are saved in this directory in the “PCDMIS-Operator Interface.ini” file. This setting is recommended.



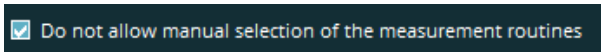
  This is also helpful if identical settings for the Operator Interface are to be used on several measuring machines. If this function is active on all measuring machines and the path is identical (e.g. to a network drive), changes to the settings are applied to these machines after the Operator Interface is restarted.

If the checkbox is deactivated (not recommended), the settings for the logged-in user are saved in the registry in the key "Computer\HKEY_CURRENT_USER\SOFTWARE\VB and VBA Program Settings\PCDMIS-OI\Settings".

Note: The settings in the "PCDMIS-Operator Interface.ini" and the registry may be different. If the status of the checkbox is changed, the settings must be checked and adjusted if necessary. If the checkbox is activated or deactivated, a corresponding message appears.

- Do not allow manual selection of the measurement routines

  This function must be activated if only those routines set up in the Operator Interface's main screen are to be started. If the "Safety" function (see section: Menu option "Extras", section: Safety) is used to enable the user mode, manual selection of the measurement routines is no longer possible.

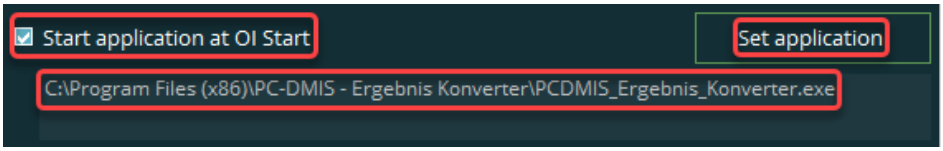
  

  In the "Single run" tab, the "Start measurement routine" function is not available in the menu option "File" option item.

  In the "Multiple run" and "Pallet run" tabs, the "" symbol has no function and is grayed out.

- Start application at OI start

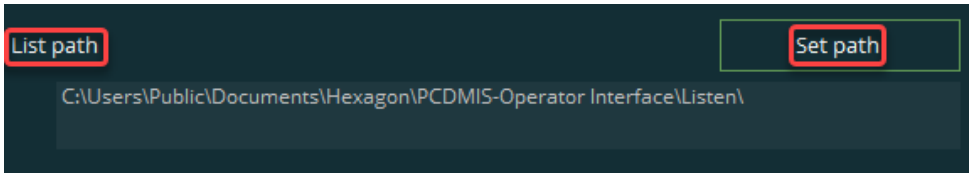
  If the checkbox is activated, the "Set application" button is available. This button can be used to select the application (or a file, image, etc.) that will be executed when the operator interface is started. The path and name of the application is displayed in the lower field.

  If the checkbox is deactivated, the "Set application" button is not available and no further action is performed when the operator interface is started.

- List path

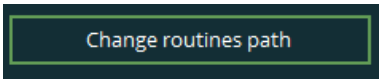
  Click on the "Set path" button to define a default path. This is suggested for the "Load list" and "Save list as" functions (see chapter: Menu option "List", section: "Load" and "Save as...").

- Change routines path

  This function can be used to change the paths for the measurement routines in all tabs in the user interface. This is useful if, for example, folders with the measurement routines converted to the respective PC-DMIS version are created for different PC-DMIS versions.

  Click on the “Change routines path” button to open the “Change routine path” dialog box.

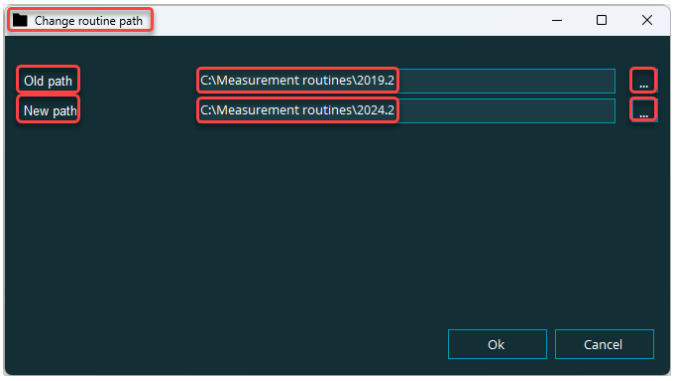
  - Old path

    Click on the “...” button to open the Windows file manager and select the folder. The selected folder must correspond to the folder that was selected in the interface. After selection, this is displayed in the input field.

    Alternatively, the path can also be inserted using the keyboard or by “drag and drop” (dragging the folder into the input field with the mouse).

  - New path

    The new path is defined. The procedure is identical to “Old path” (see above).

  If the respective path is defined with the “...“ button, the last selected path is always suggested (regardless of whether ’Old path” or “New path” was selected last).

  After clicking on “Ok”, a further dialog opens with the information that all lists for the measurement routines in the user interface will be changed.

  The following options are available:

  - Yes

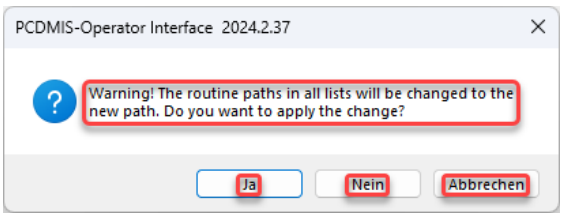
    The paths of all measurement routines in the user interface are changed (only for the measurement routines with the “old” path). It must be ensured that the corresponding measurement routines including the original folder structure (subfolders) are present.

  - No

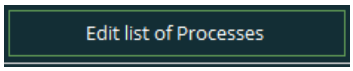
    The Operator Interface returns to the “Change routine path” dialog box.

  - Cancel

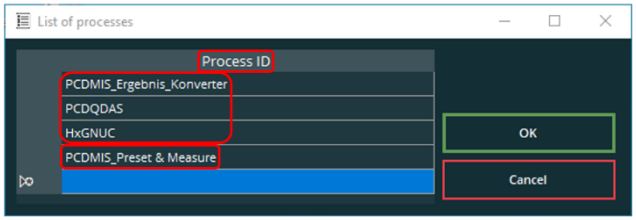
    The Operator Interface returns to the “Settings” dialog box (see above).

- Edit list of processes



This function prevents the termination of a measuring routine before another executed software is closed. It is irrelevant whether this software is started from PC-DMIS or “Externally”.



The “Edit list of Processes” button opens the "List of processes” window.

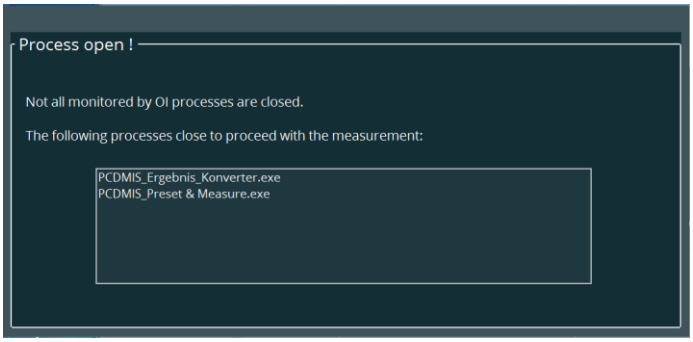
If the display is not in full screen mode, the size of the window can be changed by dragging the borders or diagonals with the mouse, as is usual in Windows.

The processes "PCDMIS_Ergebnis_Konverter", "PCDQDAS" and “HxGNUC” are preset. A further process can be added by clicking with the right mouse button in the free space and selecting the start file (*.exe).

The process is then displayed and monitored (in the example above: “PCDMIS_Preset & Measure”).

The changes are saved permanently with the “OK” button.

A flashing note appears when the process is open before the measurement routine is ended:



The message is closed after the processes are ended.

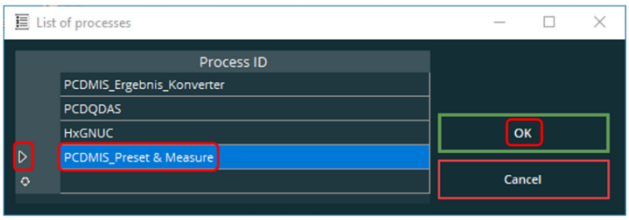
To delete a process from the list, the corresponding row in the left column is selected with the left mouse button. The “▷“ icon appears. You can use the "Delete" key to remove the process from the list.

By pressing and holding the left mouse button and moving the mouse up or down you can select several consecutive rows.

By holding the “⇧” button you can highlight a block and by using the "Ctrl" key individual lines.

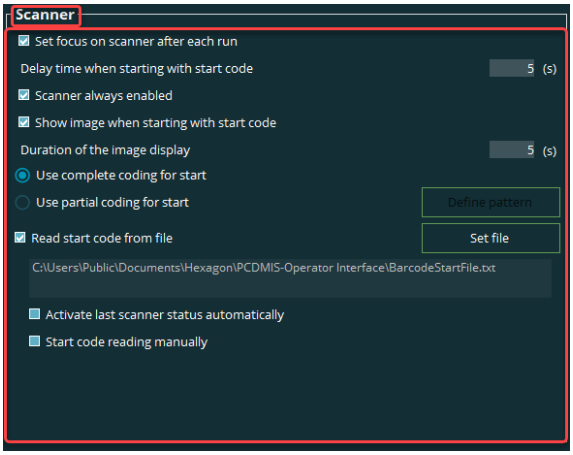
The selected processes can then be deleted with the “Delete” key.

The changes are saved permanently with the OK button.



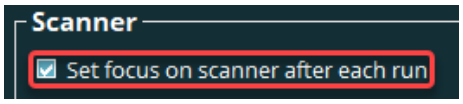
- Scanner

  Settings for handling the operator interface when using a scanner can be made in this area.



The use of a scanner is described in detail in the respective tabs (see chapter: The tabs, section: Single run, option: Starting a measurement routine ➞ Start with scanner and section: Multiple run, point: List of measurement routine view ➞ Start of a measuring job ➞ Start with scanner as well as section: Pallet run, point: List of measurement routine view ➞ Starting a measurement routine ➞ Start with scanner).

- Set focus on scanner after each run



  If this function is active, the focus (mouse pointer) is placed on the input field for the start code after the measurement. This means that the next start code can be entered or scanned directly. In the "Multiple run" and "Pallet run" tabs, the view "Measuring routine list" is always switched to after the measurement.

  If this function is deactivated, the focus (mouse pointer) is not on the input field for the start code after the measurement. This means that you have to click once in this field to enter a new start code. As the view from which the measurement was started is always active in the "Multiple run" and "Pallet run" tabs after the measurement, the view may need to be changed.

  Details on this can be found in chapter: The tabs, section: Single run, point: Starting a measurement routine ➞ Start with scanner and section: Multiple run, point: View List of measurement routine view ➞ Start of a measuring job ➞ Start with scanner as well as section: Pallet run, point: List of measurement routine view ➞ Starting a measurement routine ➞ Start with scanner.

- Delay time when starting with start code

  If, for example, several start codes are required for the measurement routine start and these cannot be read completely, the delay time can be entered here in seconds.

- Scanner always enabled

  It the user mode is active (see chapter: Menu option “Extras”, section: Safety) and this option is disabled, the status of the scanner mode (active or inactive) can only be changed by the administrator (scanner mode, see: Chapter: The tabs, section: Single run, point: Starting a measurement routine ➞ Start with scanner and section: Multiple run, point: Start of a measuring job ➞ Start with scanner as well as section: Pallet run, point: Starting a measurement routine ➞ Start with scanner). The current setting therefore corresponds to the status that was defined by the administrator or the status when the operator interface was last closed.

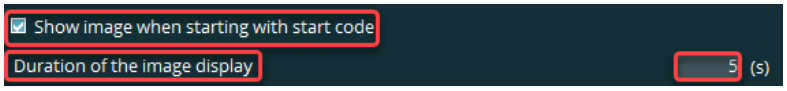
  If this function is activated, the scanner status can be modified irrespective of the administrator.

- Show image when starting with start code

  If this function is activated and a measurement routine is tarted with a start code, the picture for this is displayed in full-screen mode. By double-clicking in the dark upper area, the image can be reduced or minimized (as usual under Windows).

  The “Duration of the image display” option sets the time as to how long the picture is shown in seconds. If the checkbox at "Confirm measurement order" ➞ "loaded with start code" is active in the "Single run" and/or "Pallet run" tabs (see below), the measurement must be confirmed manually. The setting for "Duration of the image display" is ignored.

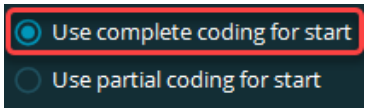
  The measurement routine is not executed during the display.



  If the checkbox is deactivated, the checkbox in the "Single run" and / or "Pallet run" tabs (see below) at "Confirm measuring order" ➞ "loaded with start code" will be displayed paler, but can be activated or deactivated.

- Use complete coding for start

  The complete code is used for starting the measurement routine. It is important to note that the read (or entered) code must match exactly with the code of the measurement routine.

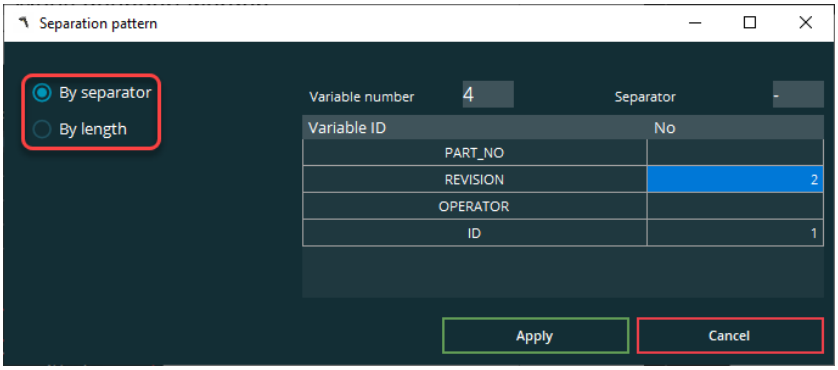


- Use partial coding for start

  If only parts of the scanned code are to be used, this function must be activated.

  The “Define pattern” button is then available.

After clicking on the button the "Separation pattern” window opens and the functions "By separator" or "By length" can be selected. If the display is not in full screen mode, the size of the window can be changed by dragging the borders or diagonals with the mouse, as is usual in Windows.



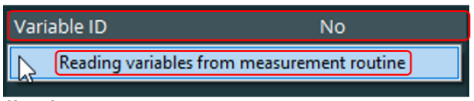
- “By separator“
  The areas that are to be used from the scanned (or entered) code are defined with “Variable number” and “Separator”

  In this case, “Variable number” describes the number of "blocks" and "Separator" the separator type.

  By entering the number of variables a table with the columns "Variable ID" and "No" is created. The number of rows corresponds to the value from "Variable number".

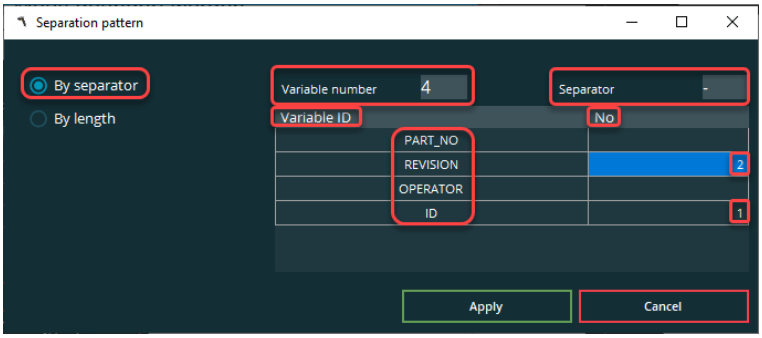
  Names can be assigned in the column "Variable ID”. The desired name can be entered by double-clicking the corresponding row with the left mouse button. If these names already exist as variables in the measurement routine, the determined values are passed to these variables (see also chapter: Menu option “File”, section: Create configuration, point: List of variables).

  Alternatively, the variables can be read from the measurement routine. To do this, click on “Variable ID” or “No” in the header. The measurement routine can be selected by clicking on “Reading variables from measurement routine”. Subsequently, all variables available in the measuring routine are displayed and can be edited.

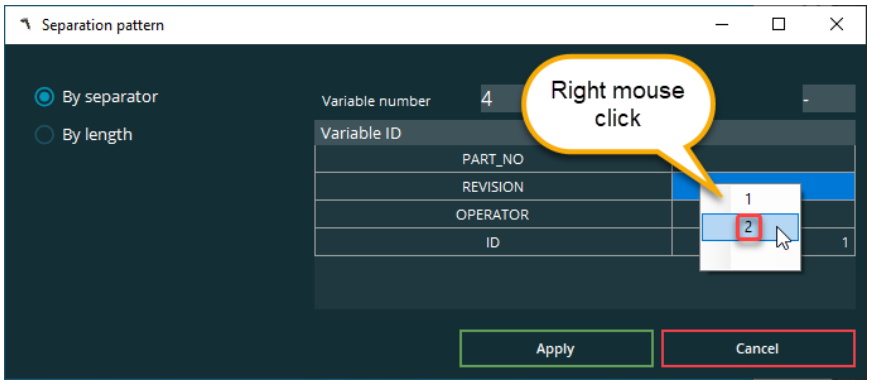


  The position and sequence of the area in the scanned (or entered) code for the start code of the measurement routine is defined in the “No.” column.

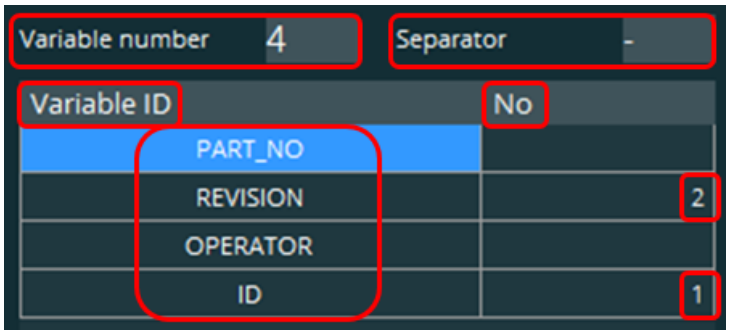
  Any changes will be saved with the "Apply" button.



To change the values in the "No." column a window, in which the required values can be entered, is opened by clicking the right mouse button.



Example:



The scanned (or entered) code is: 40024-323-0265-9-..... (more characters may follow).

Four blocks are used for the evaluation (defined "Variables number" field).

"-" is defined as separator.

According to the columns "Variable ID" and "No." the variable "REVISION" (second position in the code) and "ID" (fourth position in the code) should be used.

According to the column "No." the start code shall use the "ID" value at first and then "REVISION" as second value.

The following values are passed to or used for the start code of the measurement routine:

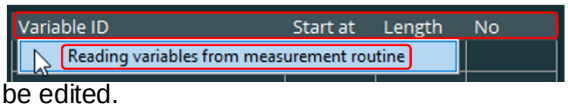
Complete code	40024-323-0265-9	
PART_NO	40024	first block
REVISION	323	second block and *second position* for the *start code*
OPERATOR	0265	third block
ID	9	fourth block and *first position* for the *start code*
Start code for measurement routine	9323	This value is entered in the "*Start code*" column in the user interface.

- “By length”
  The areas that are to be used from the scanned (or entered) code are defined with “Variable number”.

  By entering the number of variables a table with the columns "Variable ID", “Start at”, “Length” and "No." is created. The number of rows corresponds to the value from "Variable number".

  Names can be assigned in the "Variable ID” column. The desired name can be entered by double-clicking on the corresponding row. If these names already exist as variables in the measurement routine, the determined values are passed to these variables (see also chapter: Menu option “File”, section: Create configuration, point: List of the variables).

  Alternatively, the variables can be read from the measurement routine. To do this, click on “Variable ID”, “Start at”, “Length” or “No” in the header. The measurement routine can be selected by clicking on “Reading variables from measurement routine”. Subsequently, all variables available in the measuring routine are displayed and can be edited.

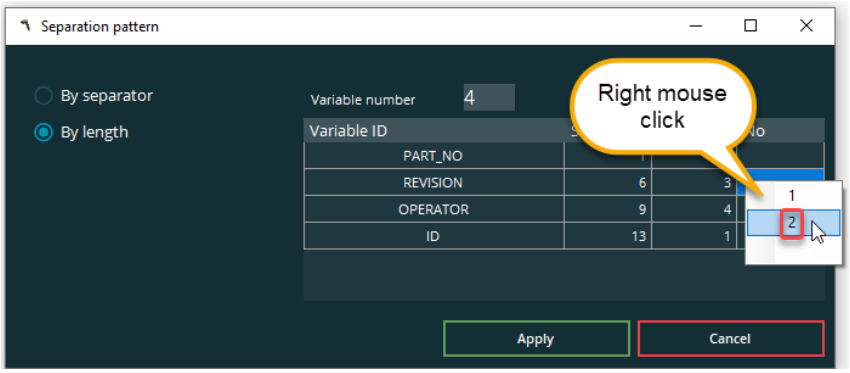


  The start position is defined in the “Start at” column and the number of characters in the scanned (or entered) code for the start code of the measurement routine is defined in the “Length” column.

  The position and sequence of the area in the scanned (or entered) code for the start code of the measurement routine is defined in the “No.” column. At least one position must be defined.

  Any changes will be saved with the "Apply" button.

  To change the values in the "No." column a window, in which the required values can be entered, is opened by clicking the right mouse button.



  Example:

Variable ID	Start at	Length	No
PART_NO	1	5	
REVISION	6	3	2
OPERATOR	9	4	
ID	13	1	1

  The scanned (or entered) code is: 4002432302659..... (there may be other characters before and after it).

Four blocks are used for the evaluation ("Variables number" field).

The first block starts in the code at the first place ("Start at"), is five characters long ("Length") and thus corresponds to "40024".

The second block starts in the code at the sixth position, is three characters long and thus corresponds to "323".

The third block starts in the code at the ninth position, is four characters long and thus corresponds to "0265".

The fourth block starts in the code at the 13th position, is one character long and thus corresponds to "9".

According to the columns "Variables ID" and "No." the variable "REVISION" (second position in the code) and "ID" (fourth position in the code) should be used.

According to the column "No." the start code shall use the "ID" value at first and then "REVISION" as second value.

The following values are passed to or used for the start code of the measurement routine:

Complete code	400243230265 9	
PART_NO	40024	first block
REVISION	323	second block and *second position* for the *start code*
OPERATOR	0265	third block
ID	9	fourth block and *first position* for the *start code*
Start code for measurement routine	9323	This value is entered in the "*Start code*" column in the user interface.

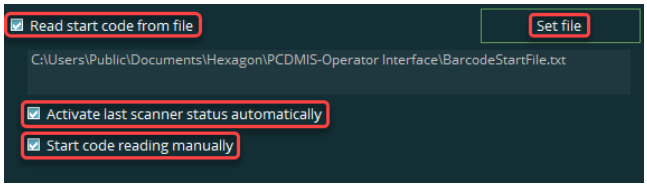
- Read start code from file

  This function reads a code from a file.

  The start of a measurement routine using a scanner is described in detail under: chapter: The tabs, section: Single run, point: Start with scanner and section: Multiple run, point: Start with scanner as well as section: Pallet run, point: Start with scanner. Depending on the other settings, the code will be read immediately, or the Operator Interface waits for the corresponding file.

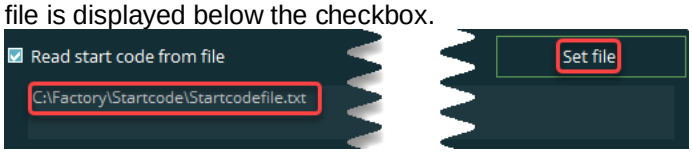
  The settings "Regardless of the start code just start this measurement routine" must be taken into account (see chapter: Menu option "Extras", section: Settings, point: "Single run" tab → Regardless of the start code just start this measurement routine and point: "Pallet" tab → Regardless of the start code just start this measurement routine).

  If the checkbox is activated, the following settings are possible:



- Set file

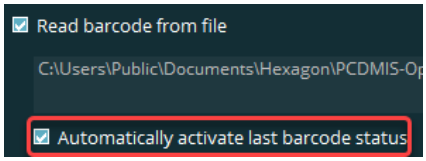
  The file can be selected using the “Set file” button. The path and name of the file is displayed below the checkbox.



- Activate last scanner status automatically

This checkbox is only available if the “Start code reading manually” checkbox (see below) is *inactive*, as manual reading is always active after the restart if the checkbox is *activated*.

The last scanner status is used with this setting (see Start code reading manually ➝ checkbox inactive below).



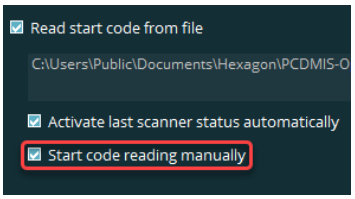
  - Checkbox inactive

    After restarting the Operator Interface, the automatic reading of the file must be started again by double-clicking (see below: Start code reading manually ➝ Checkbox inactive),

  - Checkbox active

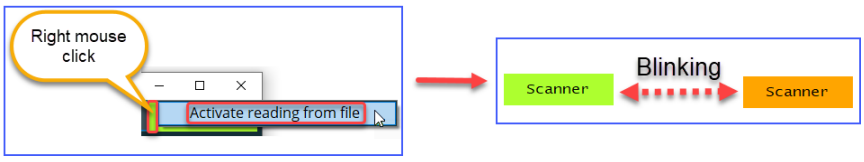
    After restarting the operator interface, the last selected scanner mode setting is activated (see below: Start code reading manually ➝ Checkbox inactive ➝ Activate reading from file ➝ Deactivate reading from file).

- Start code reading manually



  - Checkbox inactive:

    If you right-click on the green rectangle (Scanner) in the user interface and select "Activate reading from file" in the context menu, it starts to flash. This indicates that the corresponding file is being waited for. As soon as the file is available, the code is read, the measurement routine is started and the file is deleted.



As the measurement starts immediately after the file has been found in the directory (without operator influence), it must be ensured that the measurement routine matches the measurement task to be carried out.

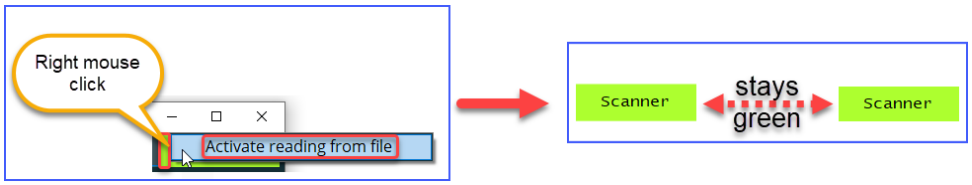
After completion of the measurement the rectangle flashes again and waits for the next file.

By right-clicking on the flashing rectangle again, you can select "Deactivate reading from file" in the context menu and end the function.

If the checkbox at "Activate last scanner status automatically" (see above) is activated, the last selected setting (blinking or not) is automatically active after restarting the operator interface.

- Checkbox active:

  In the user interface, reading the file is started by clicking with the right mouse button on the green rectangle (Scanner) and selecting "Activate reading from file" in the context menu. The color *remains green*.



The file with the code must be available *before* selecting "Activate reading from file" (see above).

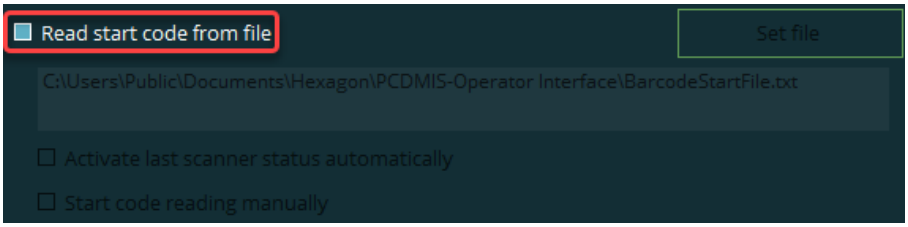
If the file exists, the code is read, the measurement is started and the file is deleted. After completion of the measurement, this process must be repeated for the next file.

If the file is not available, the process must also be restarted before the file is available.

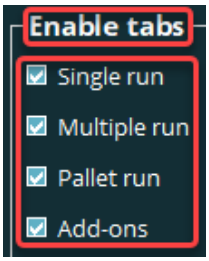
After restarting the operator interface, this setting is always active if the checkbox is activated. This is why the “Activate last scanner status automatically” checkbox is not available.

This function is also useful for the start with optical measuring machines (see chapter: Start a measurement on an optical measuring machine using a file).

If the checkbox is deactivated, the functions "Set file", “Activate last scanner status automatically“ and "Start code reading manually” are not available.



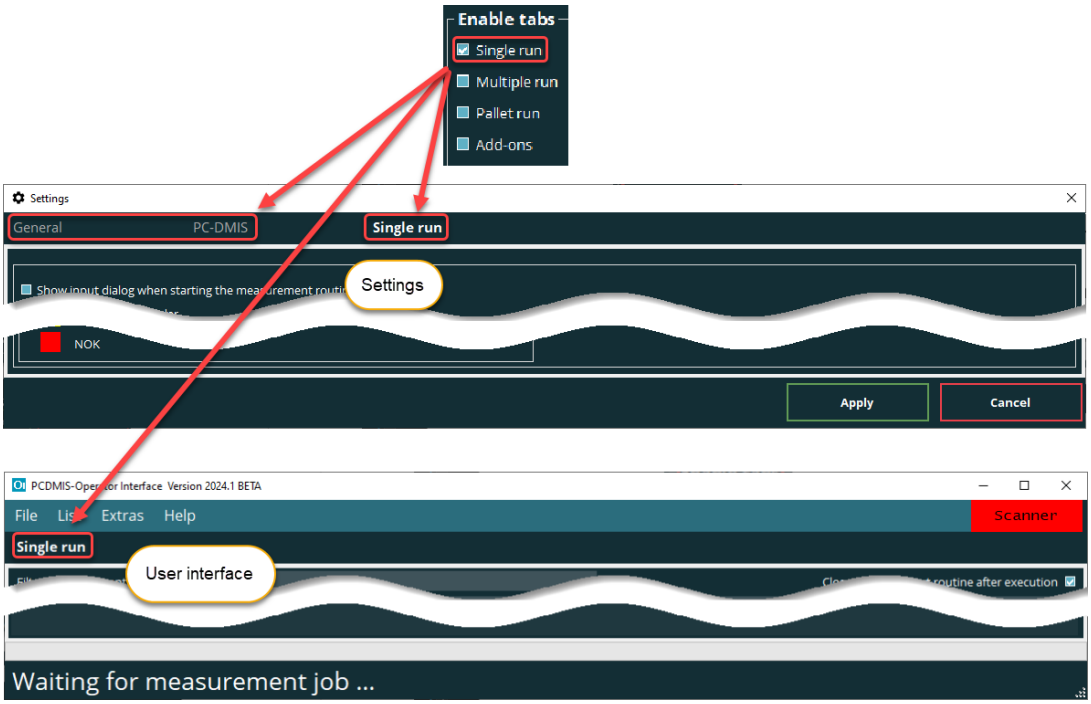
- Enable tabs



By activating or deactivating the checkboxes, you can determine which tabs are available.

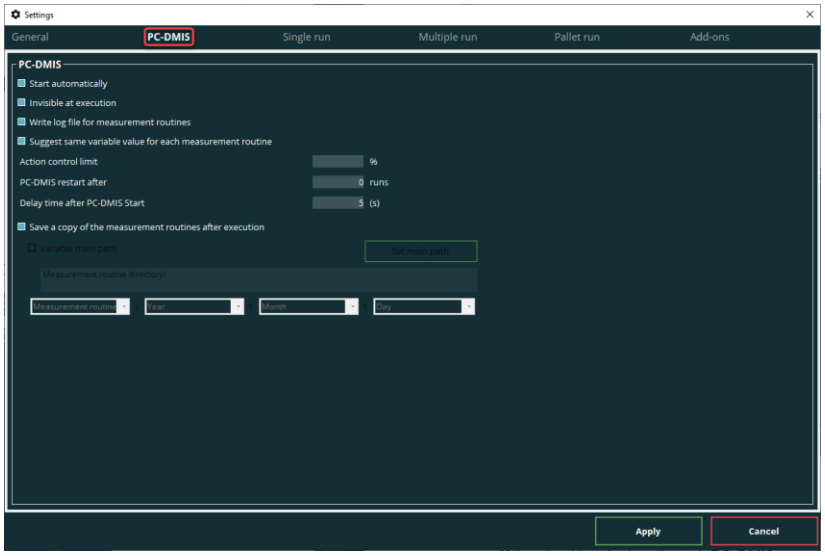
In the user interface (see below), only the tabs for which the checkboxes are activated are available. In the menu option "Extras" ➝ "Settings" (see above), the "General" and "PC-DMIS" tabs are available in addition to the tabs for which the checkboxes are activated.

Example (only “Single run” active):



- “PC-DMIS” tab

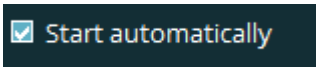
  The PC-DMIS settings can be carried out in this area while running the measurement routine.



  - Start automatically:

    If the checkbox is activated and PC-DMIS is not started, the last PC-DMIS version used is started when the operator interface is started.

    If the checkbox is deactivated, PC-DMIS must be started manually before the operator interface is started (see also chapter: Operation, Section: Starting the operator interface).

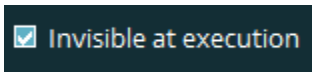


  - Invisible at execution:

    If this function is enabled, PC-DMIS is not available while running the Operator Interface.

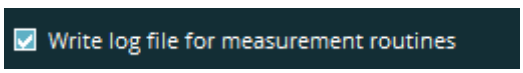
    If this function is deactivated, PC-DMIS is minimized during execution, but available.

    If the function "always on top" is active, the Operator Interface must be minimized manually to be able to display PC-DMIS (see chapter: Menu option “Extras”, section: Settings, point: “General” tab ➝ Always on top).



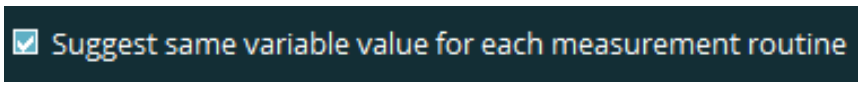
  - Write log file for measurement routines

    If this function is activated, an ASCII file (PP.log) is created in the installation directory (default: C:\Users\Public\Documents\Hexagon\PCDMIS-Operator Interface\PP.log). This file contains follow information: date, time, start mode (e.g. manual, Start code etc.), username and measurement routine or status of the execution.



- Suggest same variable value for each measurement routine

  If this function is activated and the same variables are used in different routines, the last value for the corresponding variable is suggested.

  A prerequisite for the use of this function is that variables are passed to a measurement routine by using "File" ➝ "Create configuration file" and a corresponding file was created (see chapter: Menu option "File", section: „Create configuration", point: „Save config").

  Furthermore, it is important that you have activated the option "Show input dialog when starting the measurement routine" in the tabs "Single Run", "Multiple run" and "Pallet run" under "Extras" ➝ "Settings".

  This has the following effect in the user interface:

  - „Single run"
    For each routines to be executed the last used value is suggested for the variable (see chapter: The tabs, section: Single run, point: Starting a measurement routine).
  - "Multiple run"
    For each routines to be executed in the List of measurement routines under "Execution panel" the last used value is suggested for the variable (see chapter: The tabs, section: Multiple run, point: Overview view ➝ Starting a measuring job).
  - "Pallet run"
    For each clamping place defined under "Pallet settings" the last used value is suggested for the variable (see chapter: The tabs, section: Pallet run, point: Pallet settings view ➝ Execute measurement routine).

    If the checkbox for "Load default values" is active in the "Palette run" tab under the menu option "Extras" ➝ "Settings", the default values for the variables are used instead of the values last used.

  If this function is disabled, the variable value from the respective measurement routine is suggested. If the checkbox at "Load default values" is active in the "Palette run" tab, the default values for the variables are used.

- ## Action control limit

  The action control limit offers the possibility to limit the tolerance limit in percent. If, for example, a tolerance of ±0.1 mm is set and an action limit of 80% is defined, features with deviations greater than ±0.08 mm are considered critical. After the measurement has been completed, the lines are displayed in the selected colors in the "Single run" and "Multiple run" tabs. Changing the color is described in detail in Section: "Single Run" tab, point: Color and Section: "Multiple Run" tab, point: Color in this chapter.

  In the "Pallet Run" tab, the icons (in the Pallet settings view) are displayed in the corresponding color.

  If no value (or “100”) is entered, the action limit is not taken into account.

- ## PC-DMIS restart after

  To prevent the data from growing in the background, an interval is defined after which number of measurement routines starts PC-DMIS is closed and restarted. If the value is exceeded, PC-DMIS restarts before starting the next measurement and the Operator Interface waits until the next action.

  If "0" is entered, this function is deactivated and PC-DMIS does not restart.

- ## Delay time after PC-DMIS Start

  To ensure that PC-DMIS is started in full and all necessary settings have been loaded, a time window in seconds is defined. The Operator Interface does not carry out any actions in this time window after the PC-DMIS restart (see also point: “PC-DMIS restart after“).

  During the restart of PC-DMIS the following message appears:

Note:

The time window for the restart must be selected so that PC-DMIS is completely started. Especially with optical machines this can take a longer time. It is recommended to start PC-DMIS manually and measure the time until a new measurement can be started. This value can then be used here (slightly increased if necessary).

- Save a copy of the measurement routines after execution

  If this option is set a copy of routine is generated after each execution.

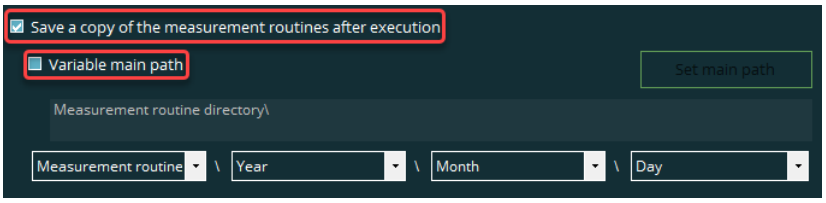
  The copy will be named "Date__Time____CopyOf_(Name of the measurement routine.PRG)"

  If the function is activated, the checkbox "Variable main path" will be available:

  - "Variable main path" checkbox deactivated:

    The copy is stored in the directory of the measurement routine.

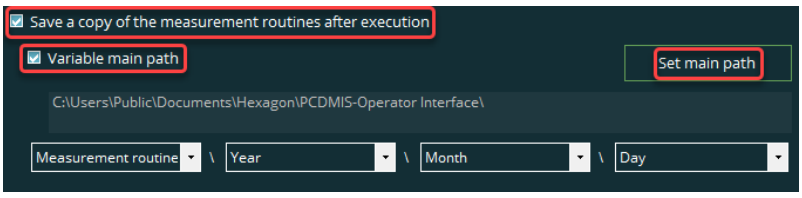
    Under the checkbox is the path "Measurement routine directory\".



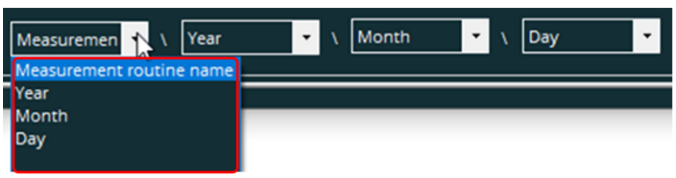
  - "Variable main path" checkbox activated.

    The "Set main path" button can be used to select the path and folder for the copy of the measurement routine.

    The selected path and folder is displayed below the checkbox.

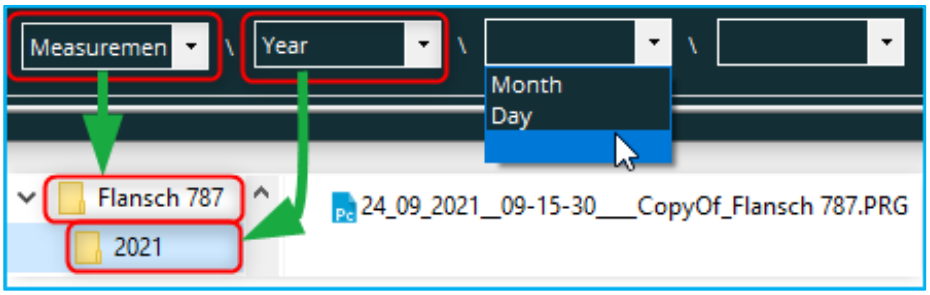


  The "Measurement routine name \ Year \ Month \ Day" buttons can be used to define the names, order and number of subfolders in which the copy of the routine is stored



Select an empty field if you don’t want to create a subfolder. Thus, the number of subfolders can be set.

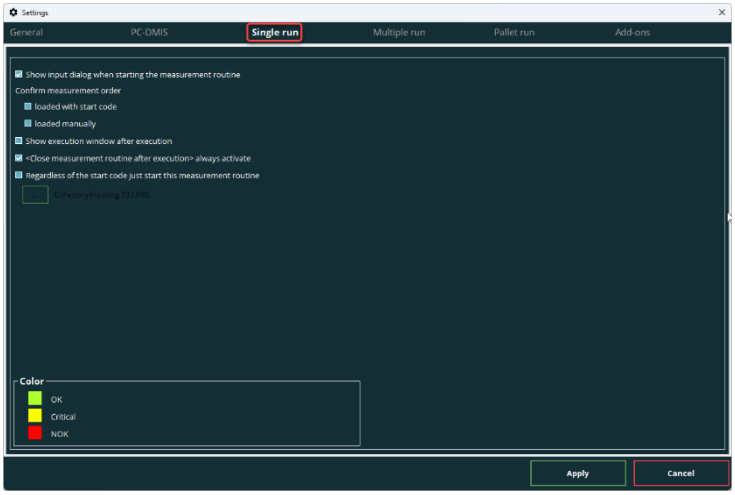
In the example below, the copy of the routine is stored in the subfolder "Measurement routine " (Flansch 737), which contains the subfolder "Year" (2021).



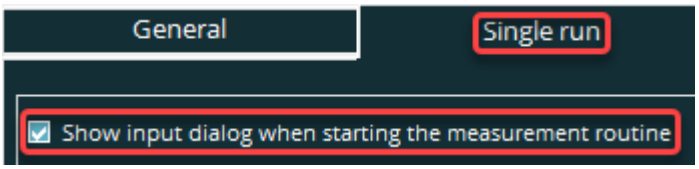
- “Single run" tab

  In this area, settings can be made for the "Single run" tab in the user interface of the operator interface.

  If you would like to save your changes, they have to be confirmed with the "Apply" button.



  - Show input dialog when starting the measurement routine

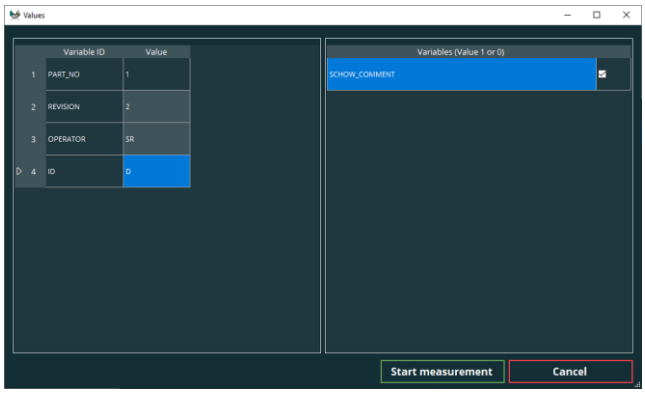


    If a measurement routine is started and variables are transferred to this routine using “Create configuration” option and saved with the "Save config" option in the *.cfg file, they will be displayed (see section: Menu option “File”, section: Create configuration, point: Save config).

    If comments were defined in the measurement routine configuration file (see section: Menu option “File”, section: Create configuration, point: Comment), these are displayed instead of the variables.

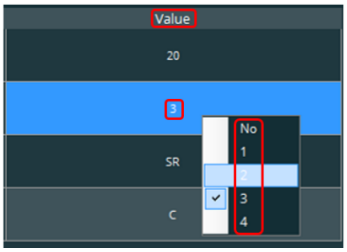
    The settings made according to chapter: Menu option “Extras“, section: Settings, point: “PC-DMIS” tab ➜ Suggest same variable value for each measurement routine will have a direct influence on these values.

Example for the display of variables:



If the display is not in full screen mode, the size of the input mask can be changed by dragging the borders or diagonals with the mouse, as is usual under Windows.

The values for the variables can be changed by clicking with the left mouse button in the respective field. When exiting the line, the values are accepted.



If variables are defined under "Create configuration“ ➞ “Predefined entries", the field in the "Value" column is displayed in light grey. These values can be selected from the context menu by clicking with the left or right mouse button.

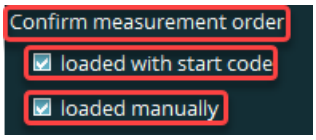
Alternatively, you can select the column using the "⇆" key and then open the context menu using the "↵" key.

The values are transferred to the measurement routine with the "Start measurement" button and the measurement is started.

If this function is not active, there is no display of the variables after the start of the measurement.

- ## Confirm measurement order

The checkboxes can be used to decide whether the start of a measurement routine must be confirmed manually or not.

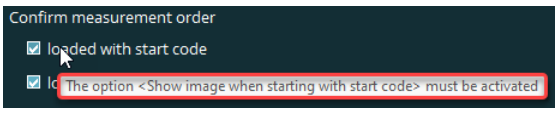


The function “Show image when starting with start code” must be active (see chapter: Menu option “Extras“, section: Settings, point: Scanner ➞ Show image when starting with start code). If this is not the case, the checkbox is displayed paler, but can be activated or deactivated. If the checkbox at "Show image when starting with start code” is activated, the state of the checkbox set here is used.

The function Regardless of the start code just start this measurement routine must be deactivated (see below).

- Checkbox: loaded with start code

  In order to use this function, the checkbox "Show image when starting with start code" (see also above) must be activated in the "General" tab. If the mouse pointer is moved over the text, a tooltip appears with a corresponding note.



  If the checkbox is activated and a measurement is started by means of start code, the image selected for the associated measurement routine is displayed in the user interface in full screen mode. By double-clicking in the dark upper area, the image can be reduced or minimized (as usual under Windows).

  In operator mode (see chapter: Menu option “Extras“, section: Safety), the setting “Scanner always enabled” must be taken into account (see chapter: Menu option “Extras“, section: “Scanner”, point: Scanner always enabled).

  If the checkbox is deactivated, the measurement will be started after the time defined under "General” tab ➝ Scanner ➝ Show image when starting with start code.

- Checkbox: loaded manually

  If the checkbox is activated and a measurement is started without a start code, the image selected for the associated measurement routine is displayed in the user interface in full screen mode. By double-clicking in the dark upper area, the image can be reduced or minimized (as usual under Windows).

  If the checkbox is deactivated, the measurement will be started after the time defined under "General” tab ➝ Scanner ➝ Show image when starting with start code.

The following buttons are available:

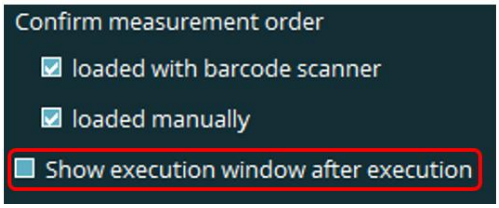
The "Next" button (or "Enter" on the keyboard) starts the sequence.

With the "Cancel" button the execution is interrupted.

- Show execution window after execution

  If this function is active, the "Execution panel” tab is displayed during the execution of a measurement routine (see chapter: The tabs, section: Execution panel).

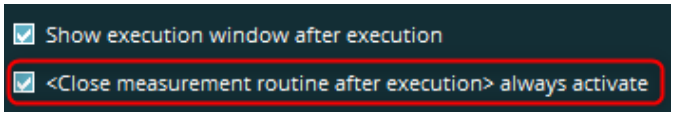
  After the routine has been executed, the current tab will be shown again.



  If this function is disabled, the view of the currently selected tab is kept unchanged (see chapter: The tabs, section: Single run).

- <Close measurement routine after execution> always activate

  If this function is active and the Operator Interface is closed and re-started, the “Close measurement routine after execution” option is enabled in the main screen, regardless of the setting which was active when the Operator Interface was closed (see chapter: The Tabs, section: Single run, point: Measurement process ➙ Close measurement routine at the end).

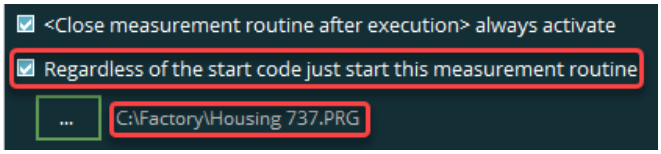


  In order to use this feature, the function “PC-DMIS at execution ➙ invisible" must be enabled under "Extras ➙ Settings" in the "General" tab (see chapter: Menu option “Extras“, section: Settings, point: ”PC-DMIS” tab ➙ Invisible at execution).

  If this function is not active, the Operator Interface will start with the setting which was active at the last closing.

- Regardless of the start code just start this measurement routine

  If this function is activated, the "Set measurement routine" button is available. After clicking this button a measurement routine can be selected. This is started independently of the start code read in.



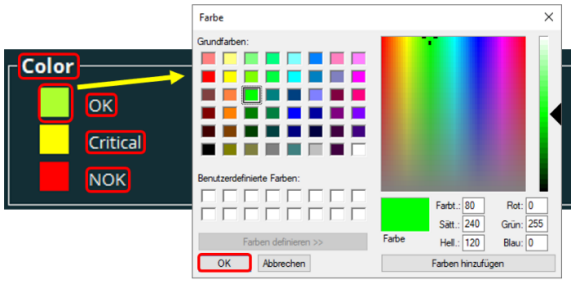
  If this function is not enabled, the measurement routine matching the start code is started.

- Color

  At this point the colors in which the measurement routine line shall be displayed in the user interface after the end of the measuring cycle can be defined.

  - OK:
    This color is used if all measuring values are within the tolerance.
  - Critical
    If the action control limit is exceeded (see section: “PC-DMIS” tab ➙ Action control limit further above), this color is used.
  - NOK:
    This color is used if one measuring value or more are out of tolerance.

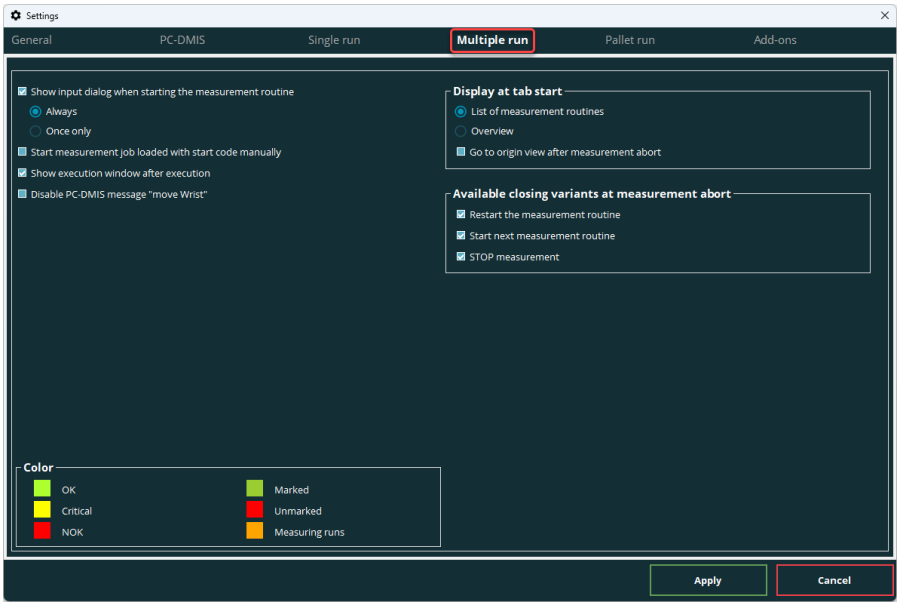
  The colors can be changed by clicking on the colored rectangle. A Color dialog is opened in which you can select the desired color. Then confirm with “OK”.



- “Multiple run" tab

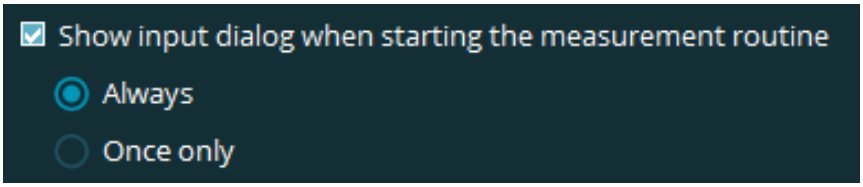
  In this area, settings can be made for the "Multiple run" tab in the user interface of the operator interface.

  If you would like to save your changes, they have to be confirmed with the "Apply" button.



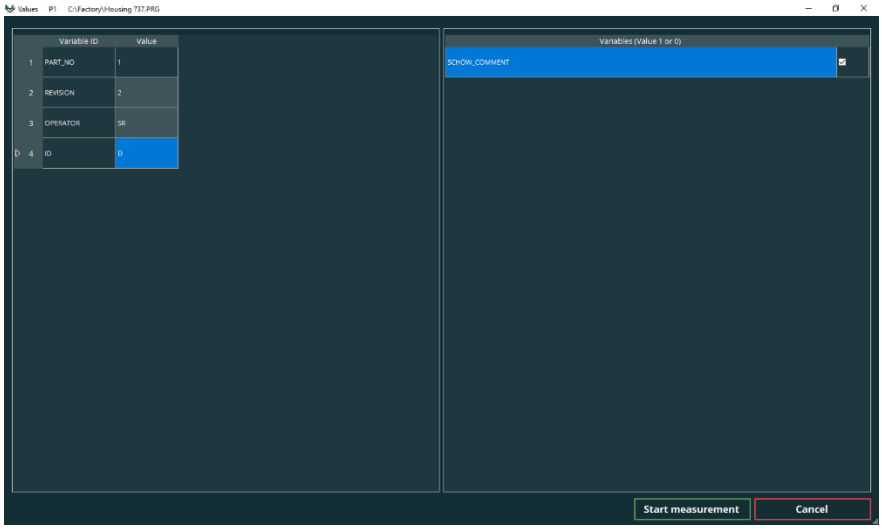
- Show input dialog when starting the measurement routine

  If a measurement routine is started and variables are transferred to the routine using the “Create configuration” option and saved with the "Save config" option in the *.cfg file, they will be displayed when the checkbox is active (see section: Menu option “File”, section: Create configuration, point: Save config). If comments were defined in the measurement routine configuration file (see section: Menu option “File”, section: Create configuration, point: Comment), these are displayed instead of the variables.



  The settings made according to chapter: Menu option “Extras”, section: Settings, point: “PC-DMIS” tab ➔ Suggest same variable value for each measurement routine will have a direct influence on these values.

Example for the display of variables:

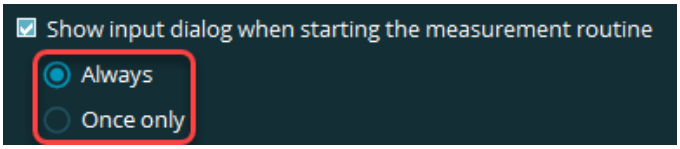


If the display is not in full screen mode, the size of the input mask can be changed by dragging the borders or diagonals with the mouse, as is usual under Windows.

Available options are:

- Always

  When the multiple run is started, all entry forms for the variables in each consecutive measurement routine are displayed. The header shows the path and name of the routine. If all entries for the routine are completed, they will be executed.

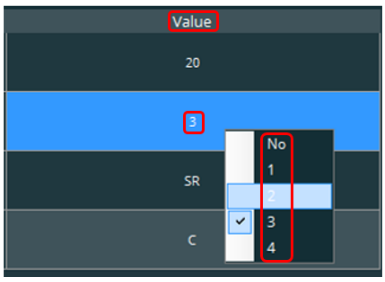
- Only once

  At the start of the multiple run, the form for the first measurement routine is displayed. Entry forms for the other routines are not displayed.

  If the function "Suggest same variable value for each measurement routine" is active (see section: Menu option "Extras", section: Settings, point: "PC-DMIS" tab ➝ Suggest same variable value for each measurement routine), the value from the first form is passed to the following variables when the same variables are used in different routines.

The values for the variables can be changed by clicking in the corresponding field. When exiting the line, the values are accepted.

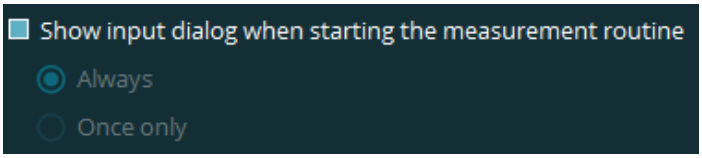
If variables are defined under "Create configuration“ → “Predefined entries", the field in the "Value" column is displayed in light grey. These values can be selected from the context menu by clicking with the left or right mouse button.



Alternatively, you can select the column using the "⇆" key and then open the context menu using the "↵" key.

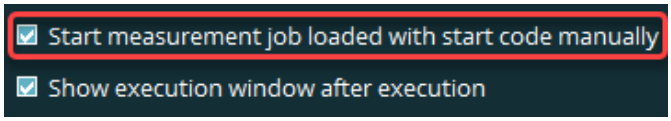
The values are transferred to the measurement routine with the "Start measurement" button and the measurement is started.

If this function is not active, no variables are displayed. The options "Always" and "Only once" are not available.



- Start measurement job loaded with start code manually

  If this function is active, the view on the user interface changes from List of measurement routines to Overview (see section: The tabs, section: Multiple run, point: List of measurement routine view and point: Overview view).

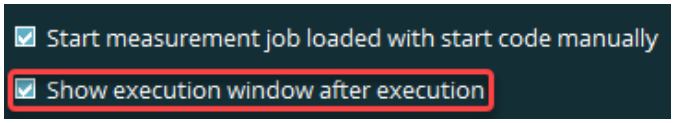


  The multiple run must be started manually with this button .

  If the checkbox is deactivated, the measurement routine is started immediately.

- Show execution window after execution

  If this function is active, the "Execution panel” tab will be displayed during the execution of a measurement routine (see chapter: The tabs, section: Execution panel). After the measurement routine has been executed, the current tab will be shown again.

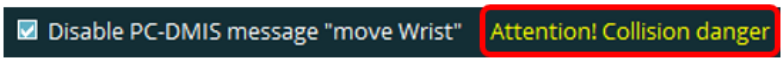


  If this function is disabled, the view of the currently selected tab is kept unchanged (see chapter: The tabs, section: Multiple run).

- Disable PC-DMIS message „move Wrist“
  - Checkbox activated

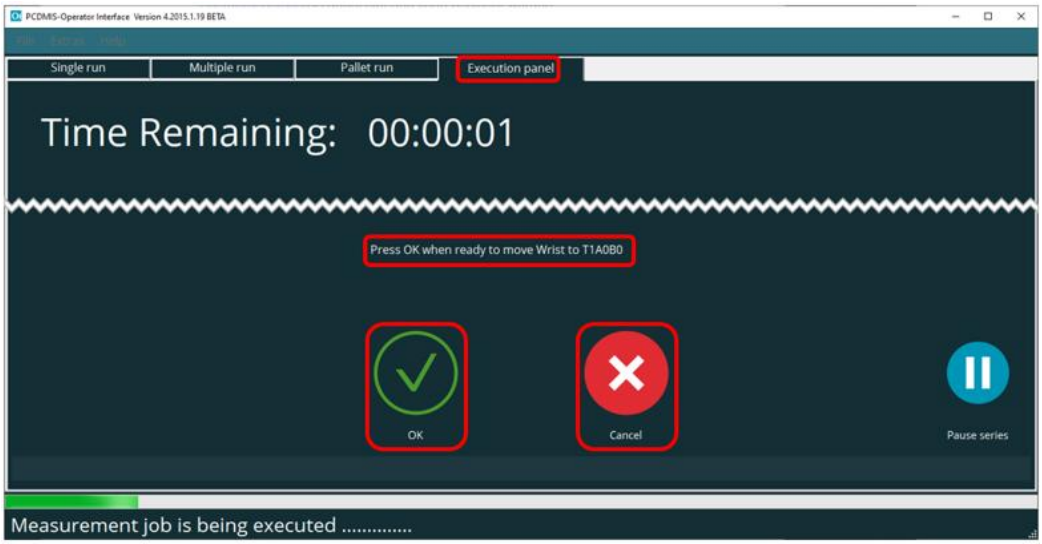
    If a rotary swivel unit is used on the measurement machine, the PC-DMIS message "Press OK when ready to move Wrist to {angle}" deactivated.

    It must be ensured that probe can be rotated and swiveled during all measurement sequences. Therefore, when the check box is activated, the text is supplemented with the note "Attention! Collision danger".

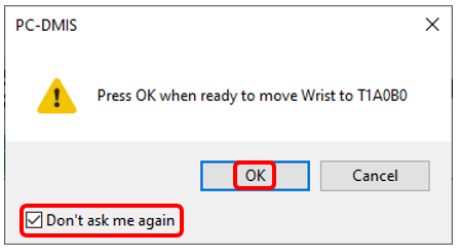
    

    “Cancel" cancels the measurement and closes the message in PC-DMIS.
  - Checkbox deactivated

    The PC-DMIS message "Press OK when ready to move Wrist to {angle}." is displayed in the "Execution panel" tab (see chapter: The Tabs, section: Execution panel) and can be confirmed. The message appears for every measurement routine that requires the probe to be rotated or swiveled.

    To prevent this, the checkbox at "Do not ask again" can be activated in PC-DMIS and the message confirmed with "OK".

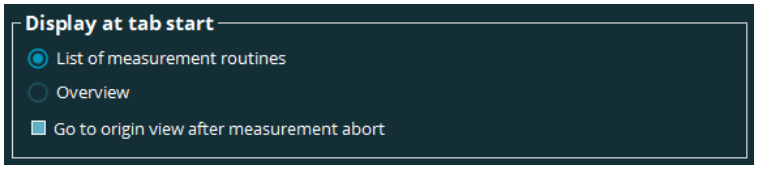
    

    However, this has the disadvantage that the message is not displayed for any other measuring routine to be executed (not even in the "Single run" and "Multiple run" tabs). The message also no longer appears if a measurement routine is executed without the operator interface.

    It must be ensured that the rotation and swiveling of the probe can be carried out without collision at all clamping stations.

- ## Display at tab start

  This area is used to specify which view is displayed first when switching to the "Multiple run" tab in the user interface (see chapter: The tabs, section: Multiple run, point: List of measurement routine view and point: Overview view).

  - List of measurement routines:

    The List of measurement routines is displayed.

  - Overview:

    The Overview is displayed.

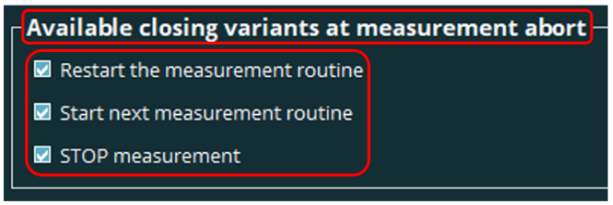
  - Go to origin view after measurement abort

    If this checkbox is activated, the view that was selected above (List of measurement routines or Overview) is switched to after the measurement is aborted. To be compatible with older versions of the operator interface, this checkbox is deactivated after the initial installation.

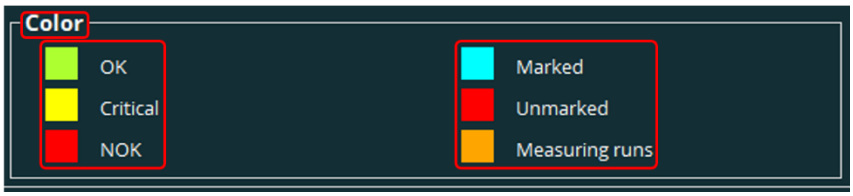
- ## Available closing variants at measurement abort

  The checkboxes can be used to decide which closing variants are available when a measurement is aborted. All closing variants for which the checkbox is activated are offered after the measurement is aborted. Details can be found in Chapter: "Pallet run", Section: "Stop, cancel or continue measurement job".

- Color

  At this point you can define the colors for presenting the various functions of the main screen (see also chapter: The tabs, section: Multiple run).



  - OK:

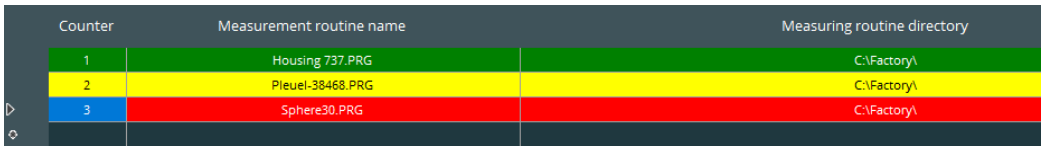
    If all measurements are within the tolerance, the row in the overview view is displayed in this color at the end of the measurement routine (here green).

  - Critical

    If the action control limit is exceeded (see section: "PC-DMIS" tab ➝ Action control limit further above), this color is used.

  - NOK:

    If a measured value or several measured values are out of tolerance, the row in the overview view is displayed in this color at the end of the measurement routine (here red).



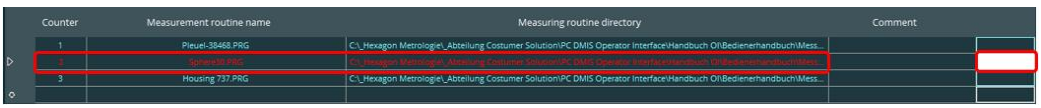
  - Marked:

    If the measuring routine is executed in the Overview view (not skipped), the font in the line is displayed in this color. If the color is changed (see below), the view or tab must be changed. Alternatively, an already loaded list can be reloaded (see chapter: The tabs, section: Multiple run, point: Menu option "Meas order" ➝ Load).

    A newly created list is immediately displayed in the selected color (see chapter: The tabs, section: Multiple run, point: Insert measurement routines list).

  - Unchecked:

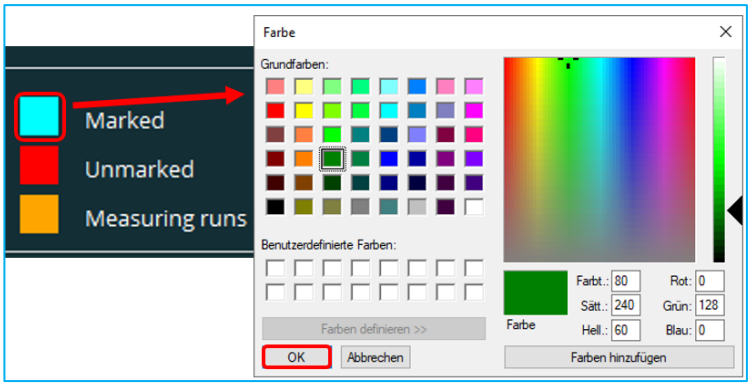
    If the measurement routine is not executed in the overview view (skipped), the font in the is displayed in this color (here red).



- Measurement in progress:

  During execution, the row is displayed in this color in the sequence overview (here orange).

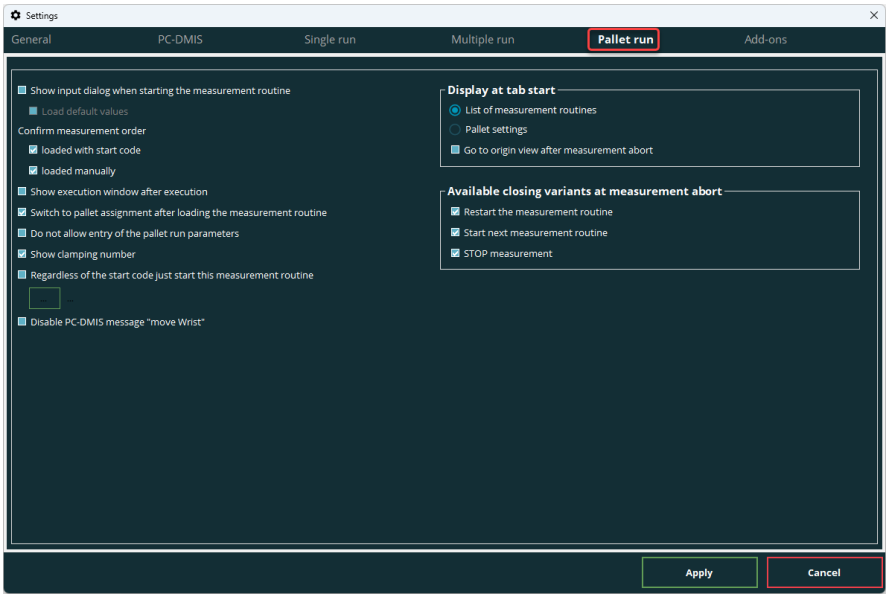
The colors can be changed by clicking on the colored rectangle. A Color dialog is opened in which you can select the desired color. You can save your selection by left clicking on the OK button.



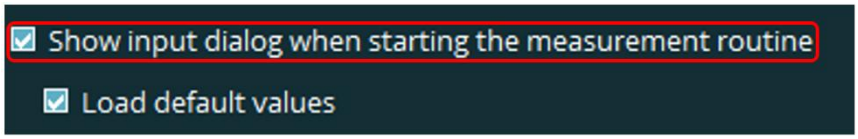
- ## "Pallet run" tab

  In this area, settings can be made for the "Pallet run" tab in the user interface of the operator interface.

  If you would like to save your changes, they have to be confirmed with the "Apply" button.



  - ### Show input dialog when starting the measurement routine



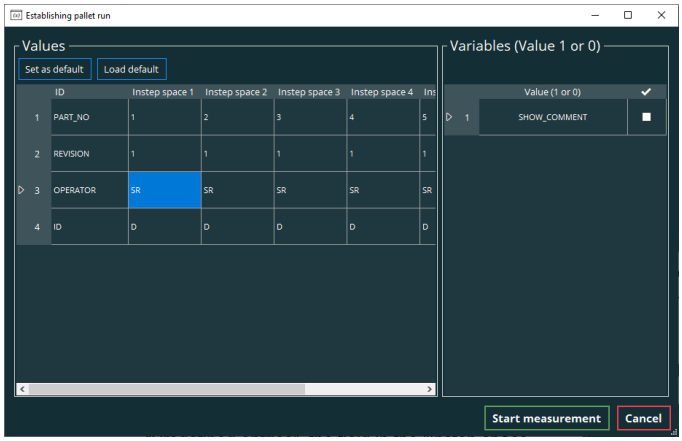
    If the checkbox is active, the checkbox "Load default values" is available and after starting the measuring routine the input mask for the variables (see below) is opened.

    If variables are transferred to a measuring routine with "Create configuration" and these are saved in the *.cfg file with "Save config", these are displayed in the input mask (see section: Menu option “File”, section: Create configuration, point: “Save config“). If comments were defined in the measurement routine configuration file (see section: Menu option “File”, section: Create configuration, point: Comment), these are displayed instead of the variables.

The settings made according to chapter: Menu option “Extras“, section: Settings, point: “PC-DMIS” tab ➔ Suggest same variable value for each measurement routine will have a direct influence on these values.

The settings for "Load default values" must be taken into account

Example of the input mask for the variables:



The configuration of the clamping stations is explained below after the description of the standard assignment.

- “Set as default" button

  This function is only available in administrator mode (see chapter: Menu option "Extras", section: "Safety").

  With this function, the current configuration for the clamping stations can be saved as the standard for this measurement routine.

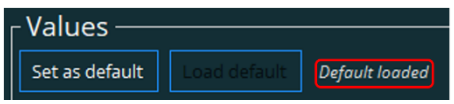
- “Load default" button

  The settings at menu option: File ➔ Create configuration (e.g.: "Reset to default" and / or "Equal for all" above) and "Load default values" (see below) must be taken into account.

  This function can be used to load the original configuration if values have changed in the meantime.

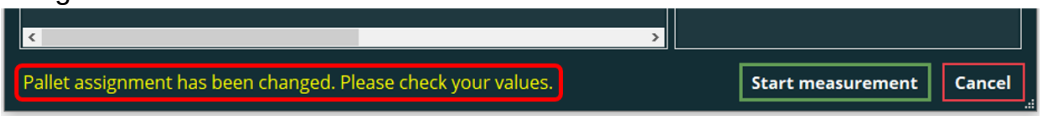
  The button is available only under the following conditions:

  - With the "Set as default" button (see above), a default assignment of the clamping lstationss must have been saved.
  - In the input mask, the value for at least one clamping place has been changed.
  - No standard assignment may be loaded. If a standard assignment is loaded, the message "Default loaded" appears.



  If the checkbox at "Load default values" is active (see below), the default assignment is always loaded after starting the measurement and the button is not available.

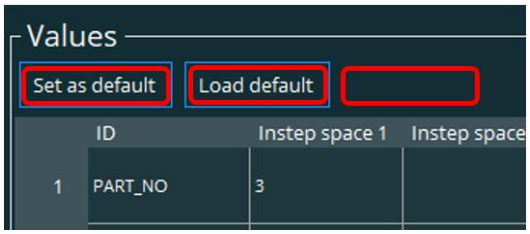
If the size of the palette is changed from the saved default assignment, the following message appears at the bottom: "Pallet assignment has been changed. Please check your values". The prerequisite is that a measurement was carried out on at least one clamping station before changing the pallet assignment.



The message serves as a hint to check the pallet assignment (especially if more clamping places are now available). Depending on the settings made under menu option: File → Create configuration, the new clamping positions are filled as follows:

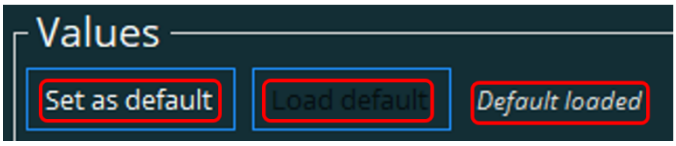
- Checkbox "Equal for all" activated:
  The value from the first clamping place is copied to all new clamping places.
- Checkbox "Equal for all" deactivated:
  Only the clamping places that were saved with the "Set as default" button (see above) are filled with default values. New clamping locations remain empty.
- "Reset to default" checkbox activated:
  All clamping places are emptied.

If the value for at least one clamping place is changed when the default assignment is loaded (in the image below, the value was changed from "1" to "3"), the "Set as default" and "Load default" buttons are available. The note "Default loaded" disappears.



In the administrator mode (see chapter: Menu option "Extras", section: "Safety") the new palette assignment can be saved as default.

If the palette assignment was changed by mistake, for example, the original assignment can be restored with the "Load default" button. The message "Default loaded" appears and the "Load default" button is no longer available.

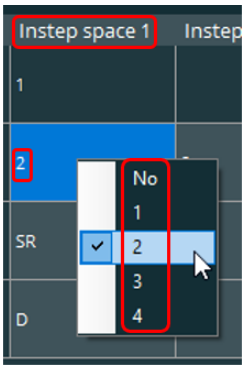


If the display of the input mask is not in full screen mode, the size can be changed by dragging the borders or diagonals with the mouse, as is usual under Windows.

The variables for all fixtures (instep spaces) are displayed.

The variables can be changed by clicking with the left mouse button in the corresponding field. When exiting the line, the values are accepted.

If variables are defined under "Create configuration“ → “Predefined entries", the field in the "Instep space {Number}" column is displayed in light grey. These values can be selected from the context menu by clicking with the left or right mouse button.

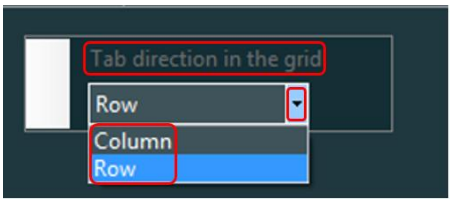


The values of all fixtures can be checked and, if necessary, be changed with the horizontal scroll bar below the variables. You can use " ◂ " and " ▸ " to show the next or previous instep space.

Alternatively, the fixture can be selected using the "⇆" key. In addition, it can be decided whether to jump in the direction of the rows or columns. To do this, right-click in the area outside the table. The drop-down list "Tab direction in the grid" opens. By clicking on the " ▾ " symbol you have the following options:

- Column:

  By means of the "⇆" key, the marking jumps one row lower within the selected instep space. When the last line is reached, the marker jumps to the first row of the next instep space etc.

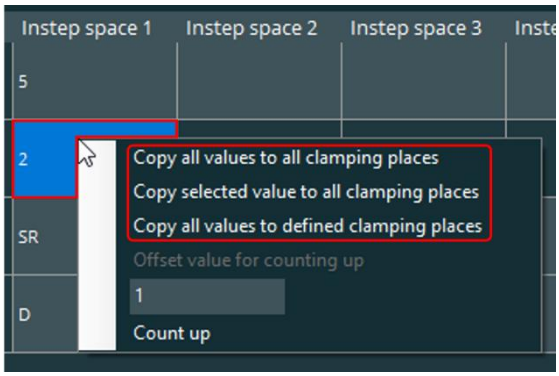


- Row:

  By means of the "⇆" key, the marking jumps to the line of the next instep space. When the last clamping position has been reached, the marking jumps one line lower into the first instep space etc.

If predefined entries are assigned in the configuration file (see above) (row is highlighted in light gray), the following description "Copy" and “Offset value for counting up has” no function.

You can use the "Copy" option to pass identical instep space values quickly to other instep spaces. Click with the right mouse button on the desired line and open the context menu. There are the following options:



- Copy all values to all clamping places:

  By clicking on this function, all values from the current column are copied to all clamping places (in the picture above: the values 5, 2, SR and D are copied to all clamping places).

- Copy selected value to all clamping places:

  By clicking on this function, the value of the currently selected row is copied to all clamping places in this line (in the picture above: the value 2 is copied to all clamping places in this line).

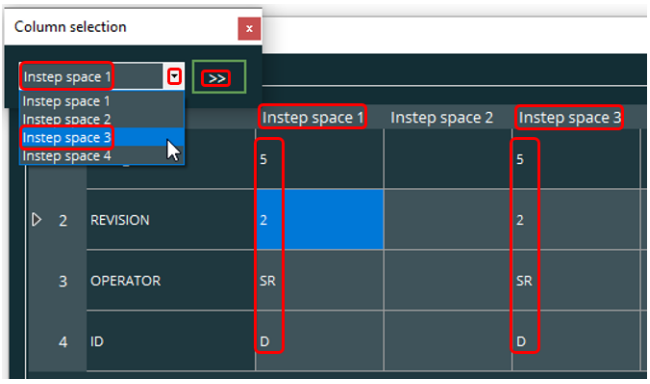
- Copy all values to defined clamping places:

  By clicking on this function, all values from the current column are copied to a specific clamping place.

  In the "Column selection" window, the clamping place can be determined.

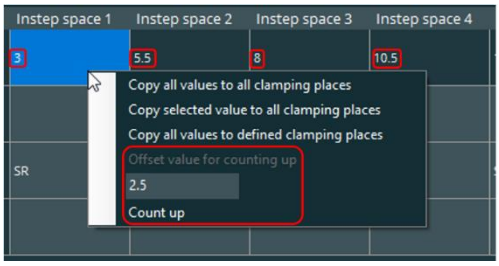
  To do this, click on "▾" to select the clamping place to which the values are to be copied. Use the "**>>**" button to assign the values to the clamping place. To transfer the value to further clamping places, the process is repeated.

  In the example below, the values are copied from "Instep space 1" to "Instep space 3".



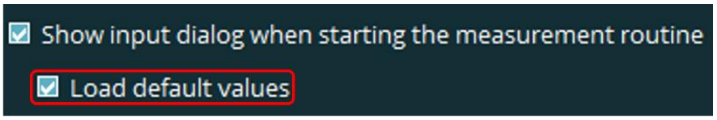
If there is a value (number) in the line, the function "Offset values" is available. This allows the values of the clamping locations (only numbers, no text) to be automatically increased by a fixed factor from a desired clamping location. To do this, open the context menu at the clamping place from which you want to increment using the right mouse button (a number must be entered).

The incremental value is entered in the field below "Offset value for counting up". This value is confirmed with the "Enter" key. Then click on "Count up". All of the following instep spaces are increased by the incremental value set in the " Offset value for counting up".



The values are transferred to the measurement routine with the "Start measurement" button and the measurement is started.

- “Load default values” checkbox



The "Set as default" function is only available in administrator mode (see chapter: Menu option "Extras", section: "Safety").

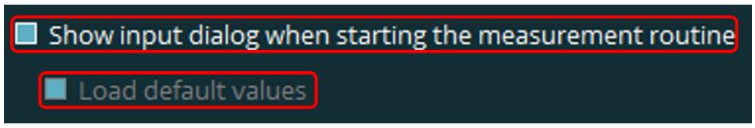
If the checkbox is active, the standard assignment is loaded after the start of the measurement. The prerequisite is that a standard assignment has been defined with the "Set as default" button (see above). The state of the checkbox at menu option "Extras" ➜ Settings in the “PC-DMIS” tab at Suggest same variable value for each measurement routines has no influence on this.

The settings at menu option: File ➜ Create configuration (e.g.: "Reset to default" and / or "Equal for all" above) must be taken into account.

Changing the default assignment is described in detail from button "Set as default" (see above).

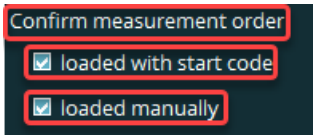
If the checkbox is deactivated, depending on the state of the checkbox at Suggest same variable value for each measurement routines (complete path see above) the last used values or the values from the measurement routine are suggested for the variables.

If the checkbox is deactivated, the input mask for the pallet assignment is not displayed after the start of the measuring routine. The "Load default values" checkbox is not available.



- Confirm measurement order

  The checkboxes can be used to decide whether the start of a measurement routine must be confirmed manually or not.

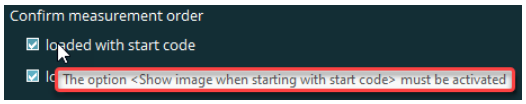
  

  The function “Show image when starting with start code” must be active (see chapter: Menu option “Extras“, section: Settings, point: Scanner ➞ Show image when starting with start code). If this is not the case, the checkbox is displayed paler, but can be activated or deactivated. If the checkbox at "Show image when starting with start code" is activated, the state of the checkbox set here is used.

  The function Regardless of the start code just start this measurement routine must be deactivated (see below).

  - Checkbox: loaded with start code

    In order to use this function, the checkbox "Show image when starting with start code" (see also above) must be activated in the "General" tab. If the mouse pointer is moved over the text, a tooltip appears with a corresponding note.

    If the checkbox is activated and a measurement is started by means of start code, the image selected for the associated measurement routine is displayed in the user interface in full screen mode. By double-clicking in the dark upper area, the image can be reduced or minimized (as usual under Windows). Click on the image to close it.

    The setting “Scanner always enabled” (see chapter: Menu option “Extras“, section: “Scanner”, point: Scanner always enabled) must always be taken into account in the user mode (see chapter: Menu option “Extras“, section: Safety).

    If the checkbox is deactivated, the measurement will be started after the time defined under "General” tab ➞ Scanner ➞ Show image when starting with start code.

  - Checkbox: loaded manually

    If the checkbox is activated and a measurement is started without a start code, the image selected for the associated measurement routine is displayed in full screen mode after clicking on it in the user interface. By double-clicking in the dark upper area, the image can be reduced or minimized (as usual under Windows). Click on the image to close it.

    If the checkbox is deactivated, the measurement will be started after the time defined under "General” tab ➞ Scanner ➞ Show image when starting with start code.

After starting the measurement, the following buttons are available:

The "Next" button (or "Enter" on the keyboard) starts the sequence.

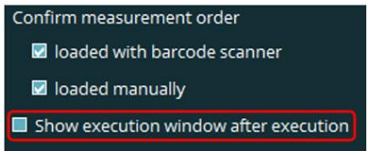
By pressing the “Pallet assignment” button the Pallet setting view for this measurement routine appears in the main screen. The pallet parameters can be checked and the routine can be started manually. The image is not displayed again

“Cancel" cancels the sequence. In the "Display at tab start" area (see below) you can define which view is returned to.

- Show execution window after execution

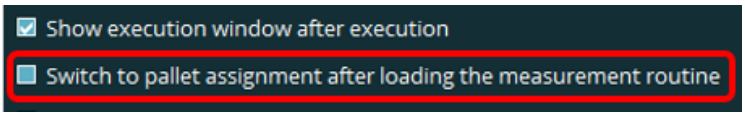
  If this function is active, the Execution panel tab will be displayed during the execution of a measurement routine (see chapter: The tabs, section: Execution panel). After the measurement routine has been executed, the current tab will be shown again.

  If this function is disabled, the view of the currently selected tab is kept unchanged (see chapter: The tabs, section: Pallet run).



- Switch to pallet assignment after loading the measuring routine

  If a measurement routine has been loaded in the "List of measurement routines" view in the user interface (a measurement routine must be displayed in "Selected measurement routine"), the system switches to the "Palette settings" view and *automatically* activates the fixture view (pallet assignment) (see chapter: The tabs, section: Pallet run, point: Pallet settings view).

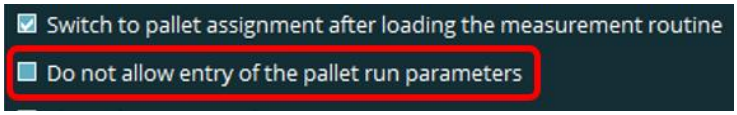


  If this function is not activated, the last selected view is displayed in the "Palette settings" view after loading the measurent routine (palette assignment on or off).

  If the checkboxes are active under chapter: Menu option "Extras", section: Settings, point: "Pallet run" tab ➞ Confirm measurement order, the image belonging to the measuring routine is displayed instead of the pallet assignment and the start must be confirmed manually.

- Do not allow entry of pallet run parameters

  If this function is active, the parameters “Start offsets”, “Parameters”, “Quantity” and “Offsets” can no longer be changed in the “Pallet settings” view of the user interface (see chapter: The tabs, section: Pallet settings view, point: Define pallet).



If this function is activated, the view for palette assignment (on/off) can no longer be changed. If the palette assignment is to be active (recommended), this view must be selected before activating the check box.

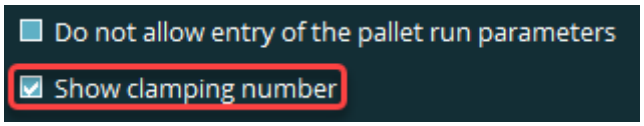
If this function is not active, the parameters and the view can be changed.

- Show clamping number

  If the checkbox is activated, the clamping station number is displayed in the user interface directly at the clamping station.

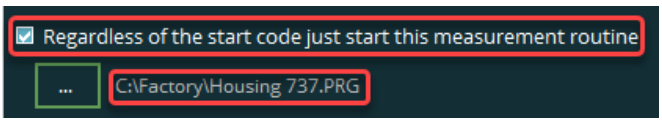
  If the checkbox is deactivated, the number of the clamping station is displayed in the header of the user interface when the mouse pointer is moved over the corresponding clamping station.

  For details, see chapter: Pallet run, section: Pallet settings view , point: Define pallet ➝ Show pallet assignment.



- Regardless of the start code just start this measurement routine

  If this function is activated, the "..." button is available. By clicking on it with the left mouse button you can select a measurement routine. This is started independently of the start code read in.

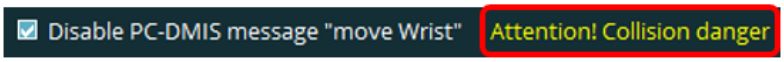


If this function is not enabled, the measurement routine matching the start code is started.

- Disable PC-DMIS message „move Wrist“
  - Checkbox activated

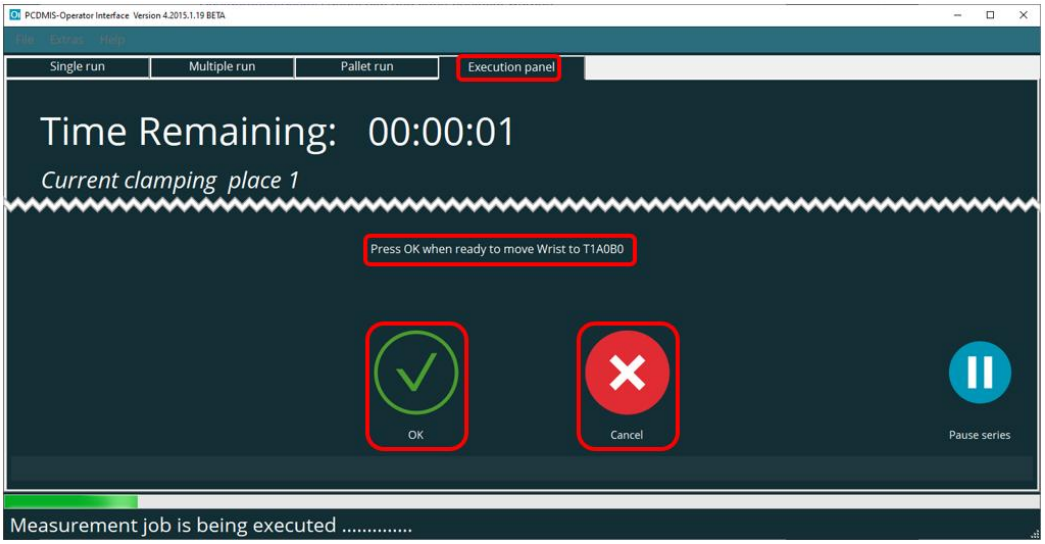
    If a rotary swivel unit is used on the measurement machine, the PC-DMIS message "Press OK when ready to move Wrist to {angle}" deactivated.

    It must be ensured that the rotation and swiveling of the probe can be carried out without collision at all clamping stations. Therefore, when the check box is activated, the text is supplemented with the note "Attention! Collision danger".

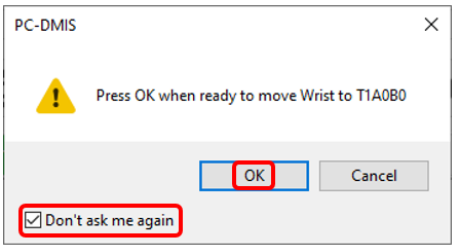
    

    “Cancel" cancels the measurement and closes the message in PC-DMIS.
  - Checkbox deactivated

    The PC-DMIS message "Press OK when ready to move Wrist to {angle}." is displayed in the "Execution panel" tab (see chapter: The Tabs, section: Execution panel) and can be confirmed. The message appears for every clamping station.

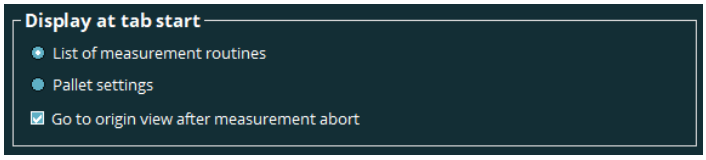
    To prevent this, the checkbox at "Do not ask again" can be activated in PC-DMIS and the message confirmed with "OK". However, this has the disadvantage that the message is not displayed for any other measuring routine to be executed (not even in the "Single run" and "Multiple run" tabs). The message also no longer appears if a measurement routine is executed without the operator interface.

    It must be ensured that the rotation and swiveling of the probe can be carried out without collision at all clamping stations.

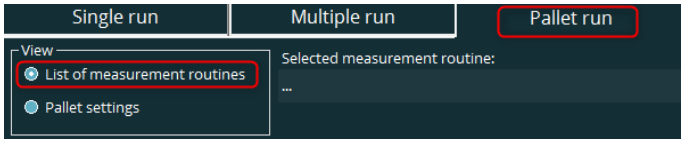
- ## Display at tab start

  This function is used to determine which view is displayed first when you switch to the "Pallet run" tab on the main screen (see chapter: The tabs, section: Pallet run, point: List of measurement routine view and point: Pallet settings view).

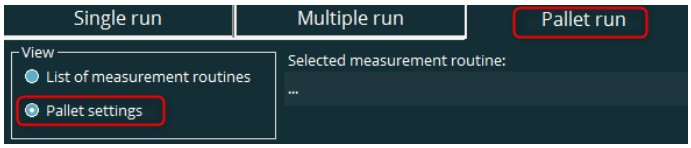
  - List of measurement routines:

    The measurement routines list will be displayed.

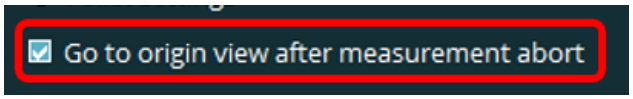
  - Pallet settings:

    The pallet settings will be displayed.

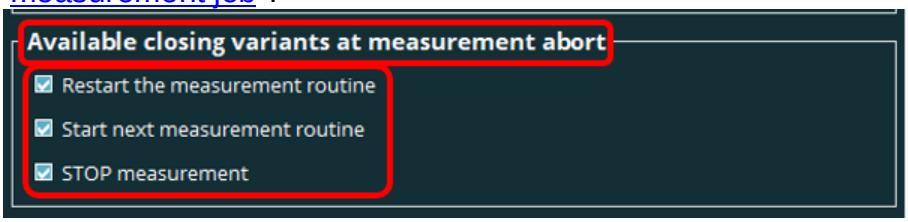
  - Go to origin view after measurement abort

    If this checkbox is activated, the system switches to the view selected above (List of measurement routines or Pallet settings / pallet assignment on or off) after the measurement is aborted. To be compatible with older versions of the operator interface, this checkbox is deactivated after the initial installation.

- ## Available closing variants at measurement abort

  The checkboxes can be used to decide which closing variants are available when a measurement is aborted. All closing variants for which the checkbox is activated are offered after the measurement is aborted. Details can be found in Chapter: "Pallet run", Section: "Stop, cancel or continue measurement job".

- ## Add-Ons tab

  If specific functions are required, which are not shown in the Operator Interface, you can order a custom-tailored *.dll file for your requirements at your expense.

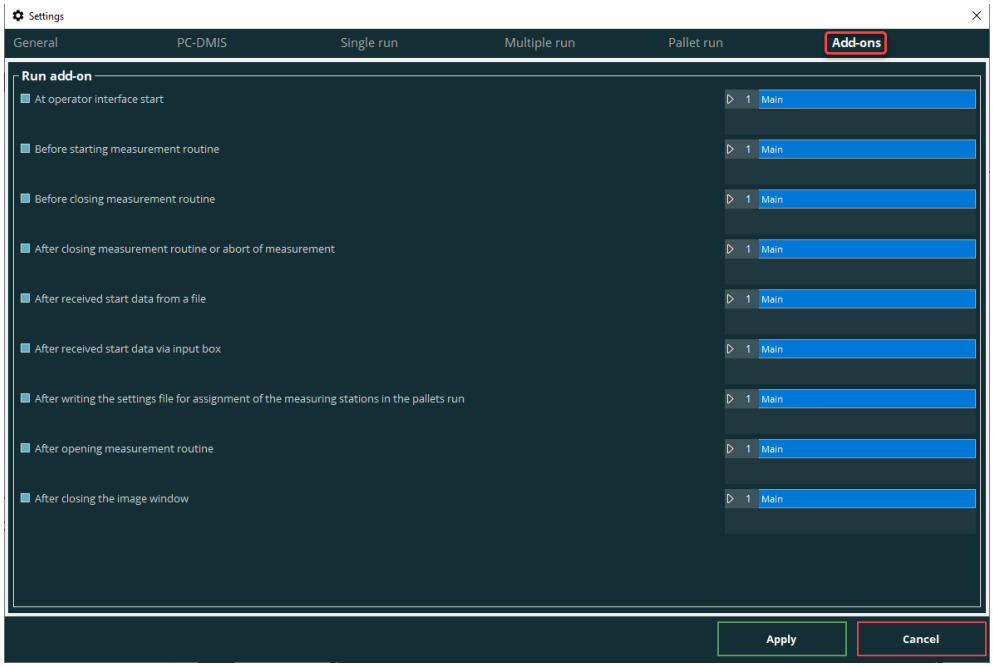
  For the creation of the file please contact us at:

  Email: DESoftwareWETZLAR@hexagon.com

  Under "Use Add-ons by" you can enable, configure and disable the functions (included in the .dll file).

  The text for disabled checkboxes is displayed in light gray, and for enabled checkboxes it is highlighted in white.

  The changes can be saved permanently with the Apply button.

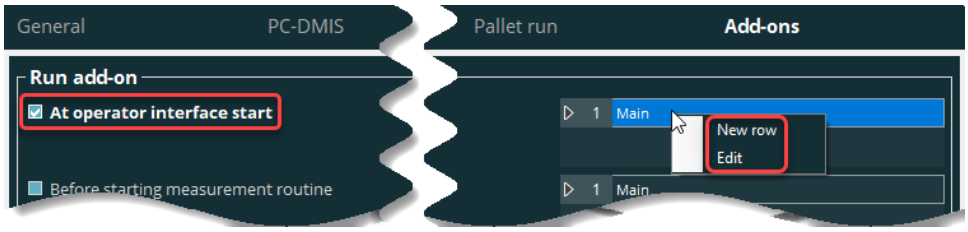


- ## At Operator Interface start

  If this checkbox is activated, the function present in the dll - is executed when the operator interface is started.

  By default the main function (Main) is pre-allocated to this field.

You can change the name or, if necessary, add further actions, by right-clicking on the field to the right of the arrow “▷“button with the checkbox enabled. You can then select "Edit" or "New row" in the context menu.



- New row

  If the dll-file contains further actions, these can be added. After your selection a new, blue highlighted row is created. By clicking in the new field you can make the entry. Changes are confirmed with the ↵ (Enter) key. In order to insert additional rows, the process is repeated.

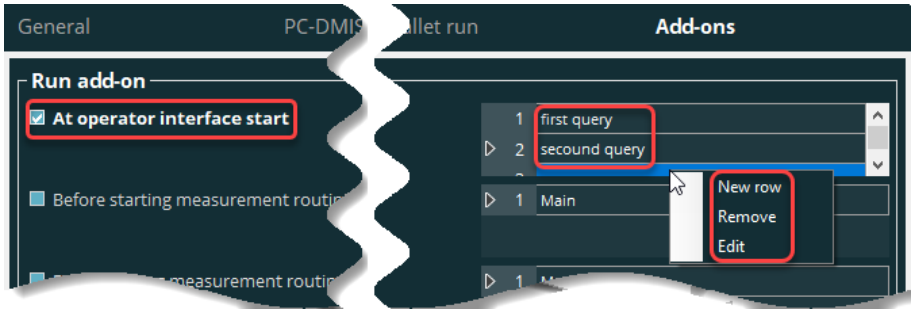
  If more than three entries are made, a scroll bar appears on the right side of the field.

  Entries can be searched by using the mouse wheel.

  Alternatively, you can use the "▲" and "▼" symbols to scroll up and down through individual rows.

- Remove

  If a new row was added with the New row option, it can be deleted after clicking with the right mouse button in the field to the right of the ”▷“ arrow. This function is only available from the second entry on.



- Edit

  The entry will be highlighted in blue and can be changed. For this purpose, right click in the row and select “Edit”. Changes are confirmed with the ↵ (Enter) key.

- Before starting measurement routine

  If this checkbox is activated, the function contained in the .dll file is executed before the measurement routine is started.

  By default the main function (Main) is pre-allocated to this field.

  Changing the names or adding further actions is identical to the above point: "At Operator Interface start".

- Before closing measurement routine

  If this checkbox is activated, the function contained in the .dll is executed before the measurement routine is closed.

  By default the main function (Main) is pre-allocated to this field.

  Changing the names or adding further actions is identical to the above point: "At Operator Interface start".

- After closing measurement routine or abort of measurement

  If this checkbox is activated, the function contained in the .dll is executed after the measurement routine was closed or cancelled.

  By default the main function (Main) is pre-allocated to this field.

  Changing the names or adding further actions is identical to the above point: "At Operator Interface start".

- After received start data from a file

  If this checkbox is activated, the function available in the DLL is executed when the start data is read from a file.

  For this purpose, the checkbox at "Read start code from file" (see chapter: Menu option "Extras", section: Settings, point: Scanner ➔ Read start code from File) must be activated. It is irrelevant whether the "Start code reading manually" function is active or not.

  By default the main function (Main) is pre-allocated to this field.

  Changing the names or adding further actions is identical to the above point: "At Operator Interface start".

- After received start data via input box

  If this checkbox is activated, the function available in the .dll is executed when receiving a start code.

  It is irrelevant whether the data is read by a scanner, entered via the keyboard or read from a file (see chapter: The tabs, section: Single run, point: Starting a measurement routine ➔ Start with scanner and section: Multiple run, point: Start of a measuring job ➔ Start with scanner as well as section: Pallet run, point: Execute measurement routine ➔ Start with scanner).

  By default the main function (Main) is pre-allocated to this field.

  Changing the names or adding further actions is identical to the above point: "At Operator Interface start"

- After writing the settings file for assignment of the measuring stations in the pallets run

  If this checkbox is activated, the function available in the DLL - is executed when the number of clamping positions is changed in the tab "Palette Run" in the view "Pallet settings" (see chapter: The tabs, section: Palett run, point: Pallet settings view ➝ Define palett ➝ Quantity). To do this, the function "Show pallet assignment view" must be active (green pallet symbol).

  By default the main function (Main) is pre-allocated to this field.

  Changing the names or adding further actions is identical to the above point: "At Operator Interface start".

- After opening measurement routine

  If this checkbox is activated, the function present in the dll - will be executed after opening the measuring routine.

  As default the field is preset with the main function (Main).

  Changing the names or adding further actions is identical to the above point: "At Operator Interface start"

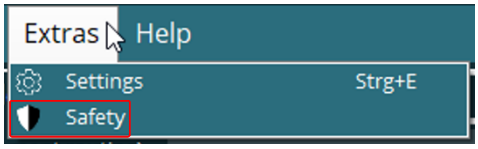
- After closing the image window

  This function is customer-specific and not the subject of this operator manual.

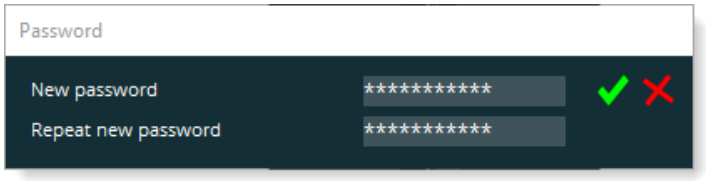
8.2. Safety

This function can be used to select either the user or administrator mode.

All functions are available in the administrator mode.



The user mode is enabled by clicking on the menu option "Safety". In the following "Password" window, enter the password and repeat it.

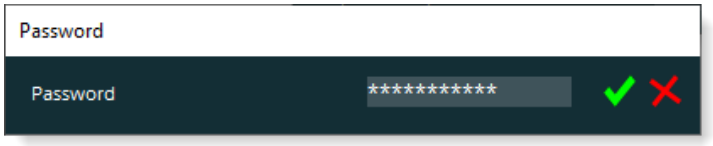


Double-click on the text or in the input field to display the password in plain text.

To encrypt the password, repeat the process.

After clicking on the "✔" symbol, various functions are no longer available, depending on the tab selected.

In order to exit the user mode and to enable the administrator mode, the menu option "Safety" must be clicked again and the previously defined password must be entered in the following dialog box:

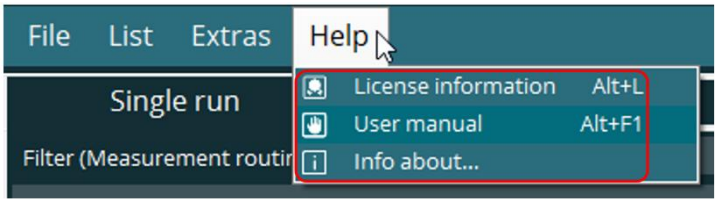


The color of the menu bar indicates the active mode.

If the Operator Interface is closed and re-started the user mode is active, regardless of whether it was disabled before closing.

To deactivate the operator mode permanently, the fields "New password" and "Repeat new password" must be left empty in the "Password" window in the administrator mode and the window must be closed with "OK".

9. Menu option “Help”

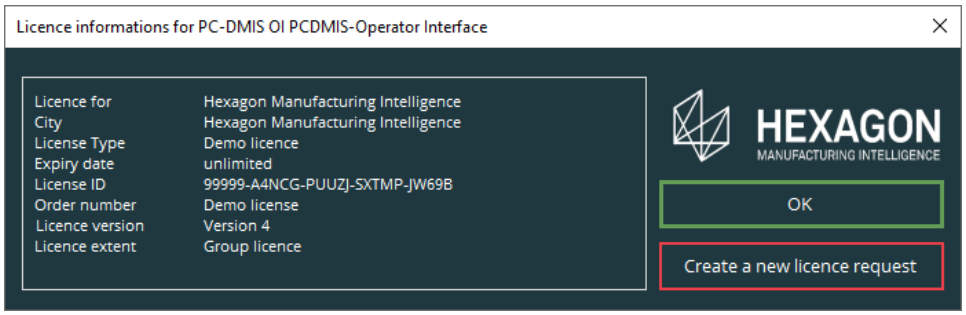


9.1. License information

By means of "License information" you get information about your software license (e.g.: type of license type and expiry date).

In the following window "License information for PC-DMIS OI PCDMIS Operator Interface", you will receive information about your software license (e.g.: type of license type and expiry date).

A new license request can be generated by the button "Create a new license request".



9.2. User manual

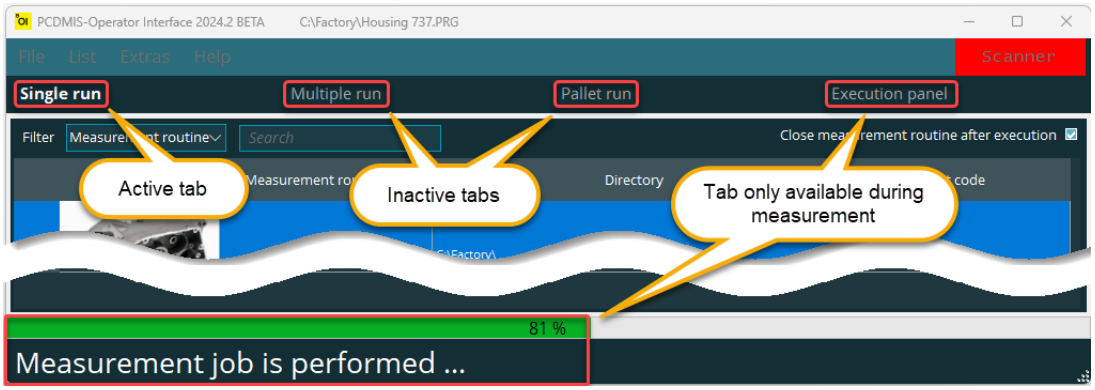
This opens the user manual.

9.3. Info about …

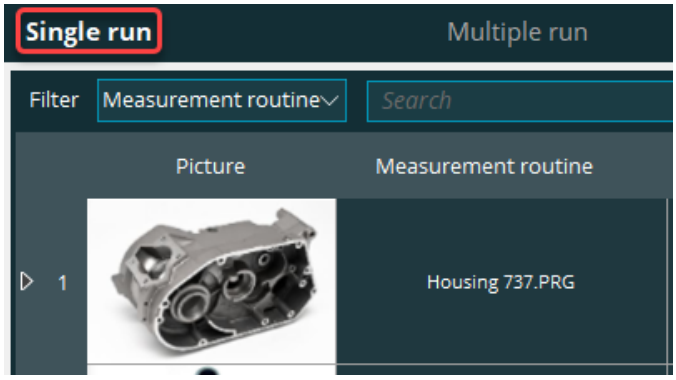
By means of "Info about … " you get further information (e.g. version number of the software) about this application.

10. The Tabs

The active tab is displayed in white, all others are grayed out. The Execution window tab is only available during the measurement (-s).



10.1. Single run



The settings made according to chapter: Menu option “Extras“, section: Settings, point: “General” tab and point: “Single run" tab are to be taken into account for starting, running and closing a measurement routine.

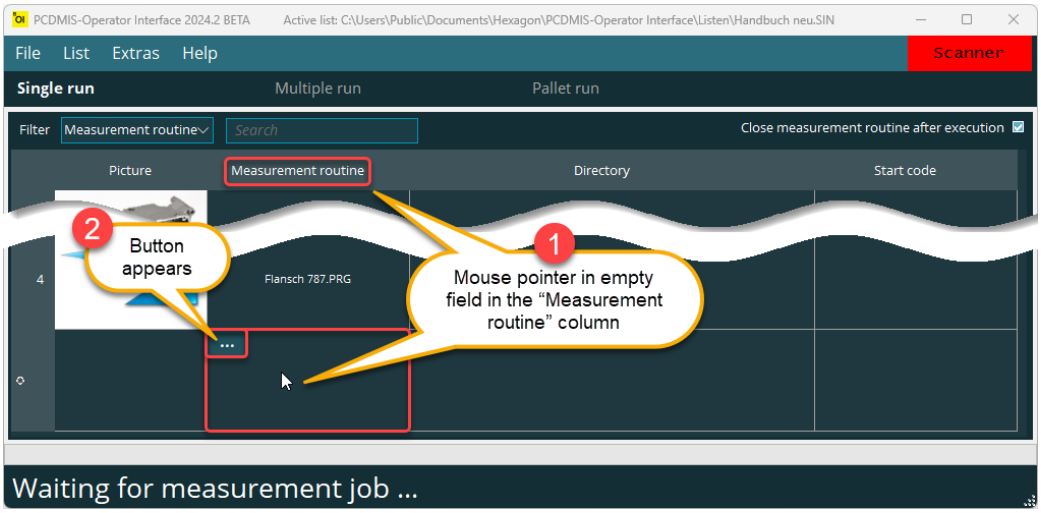
For detailed information on how a measurement routine, which is not integrated into the user interface, is started, executed and closed please see chapter: Menu option “File”, section: Start measurement routine.

- ### Inserting measurement routine into a list

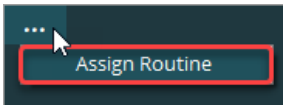
  This option is only available in the administrator mode (see chapter: Menu option “Extras“, section: Safety).

  When first starting the Operator Interface there are no routines. Alternatively, an empty list can be created with “List ➝New“ (see chapter: Menu option List, section: New).

To insert a measurement routine into a list, move the mouse pointer over an empty field in the "Measurement routine" column. The "..." button appears in the top left-hand corner.



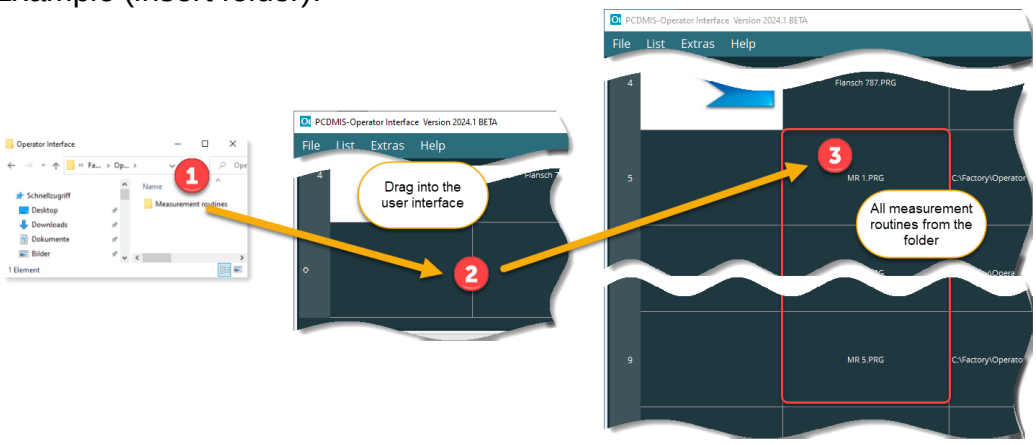
Then click on the "..." button and select "Assign Routine".
Select the desired measurement routine in the file manager. The measurement routine is added to the list.



Alternatively, measurement routines can be inserted by "drag and drop" as is usual under Windows. To do this, select the measurement routine(s) and drag them into the user interface with the mouse. After releasing the mouse button, the selected routines are inserted in the free area (below the last measurement routine).

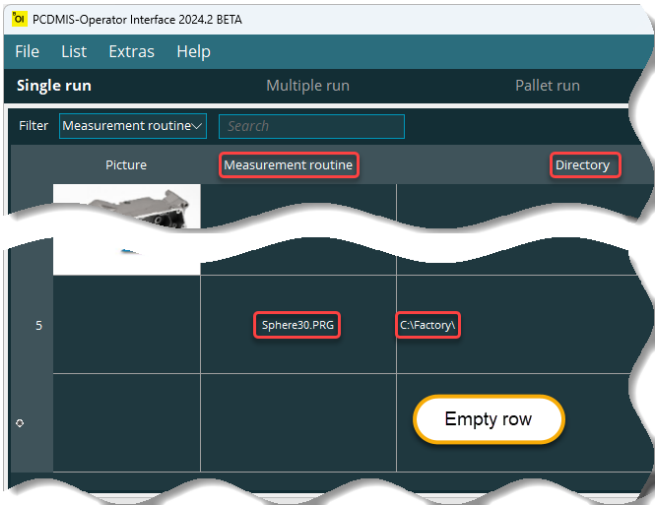
It is also possible to drag and drop a complete folder (or several folders) into the user interface. After releasing the mouse button, all measurement routines in this folder and the associated subfolders are inserted into the user interface. If files other than measurement routines (*.PRG) are present in the folder, they are ignored.

Example (insert folder):



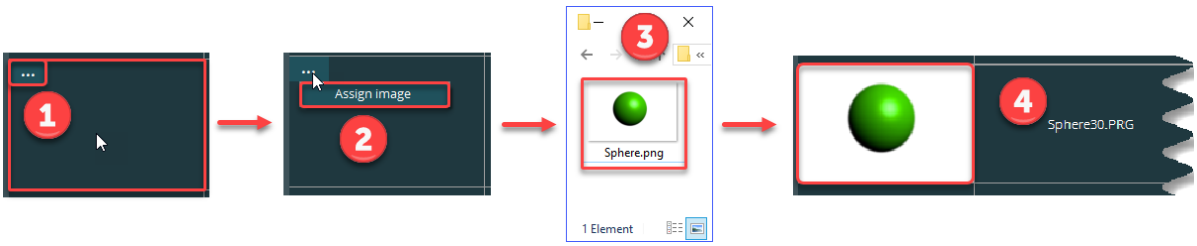
Another option is to open the file manager by clicking with the right mouse button in the "Measurement routine" column. The measurement routine can then be selected.

After inserting the measurement routine (regardless of the selected method), the name is displayed in the "Measurement routine" column and the corresponding path of the measurement routine is displayed in the "Directory" column. A new empty row is created.



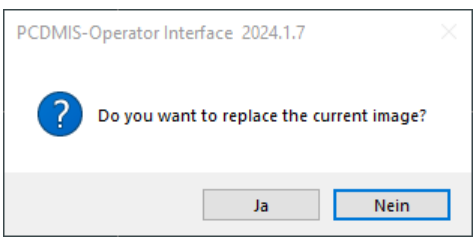
To assign an image to the measurement routine, move the mouse pointer into the "Picture" column. The "..." button appears in the top left-hand corner. Then click on the button and select "Assign image". Select the image in the file manager. This is inserted accordingly.

Example:



Alternatively, the picture can be inserted using "drag and drop" as is usual in Windows. To do this, select the picture and drag it with the mouse to the row of the user interface to which the picture is to be assigned. After releasing the mouse button, the picture is inserted. The process is identical to inserting a measurement routine or several measurement routines from a folder (see screenshot above).

If an picture is already assigned to the measurement routine and this is to be replaced, the following message appears:

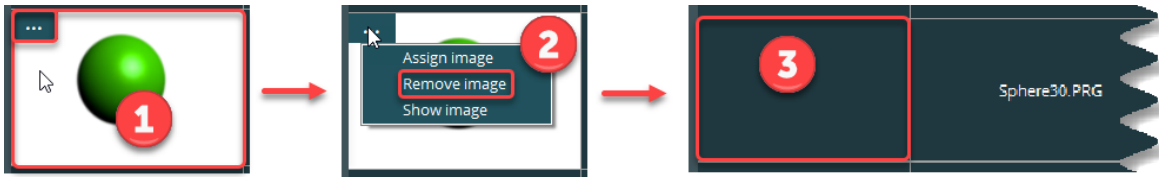


If this message is confirmed with "YES", the picture is replaced and the message is closed.

If “No” is selected, the note is closed without replacing the picture.

Another way to assign an image to the measurement routine is to right-click in the "Picture" column. The desired image can then be selected in the file manager.

To remove the image, move the mouse pointer over the image to be deleted. The "..." button appears in the top right-hand corner. Then click on the button and select "Remove image" from the drop-down list. The image is deleted.



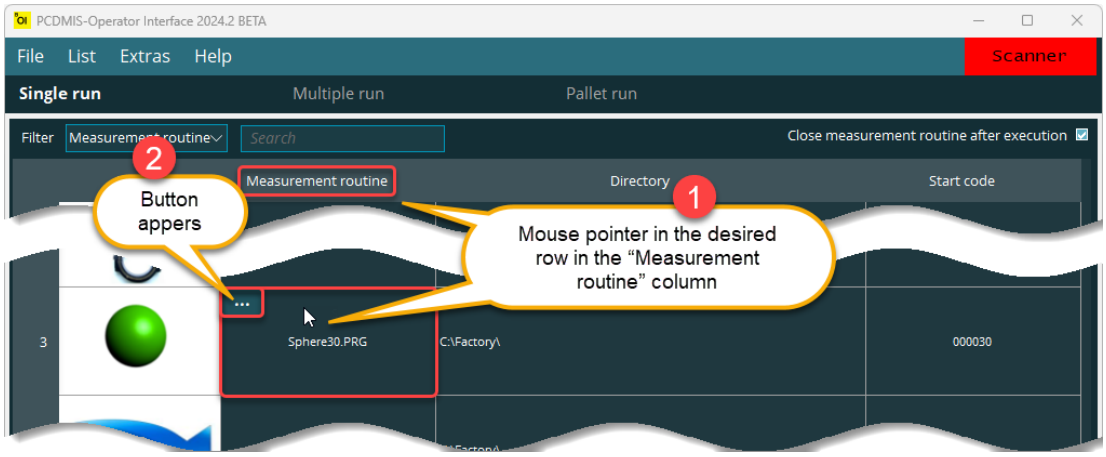
To add further measurement routines, the steps described above are repeated with the next free row.

If the name or path is longer than the width of the column, a tooltip with the complete name or path appears when the mouse pointer is moved into the corresponding field (in the example below: "Path").

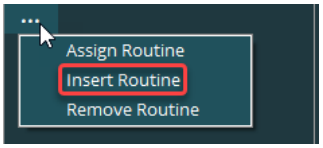
If there are more rows filled with measurement routines than can be displayed on the screen, a vertical scroll bar appears on the right side. The desired routine can be searched by using the mouse wheel.

Alternatively, the "▲" and "▼" icons above and below the scroll bar can be used to scroll up or down one line at a time.

If a measurement routine is not to be inserted at the end of the list, but between two measurement routines, the mouse pointer is moved to the desired line in the "Measurement routine" column. The "..." button appears in the top right-hand corner.

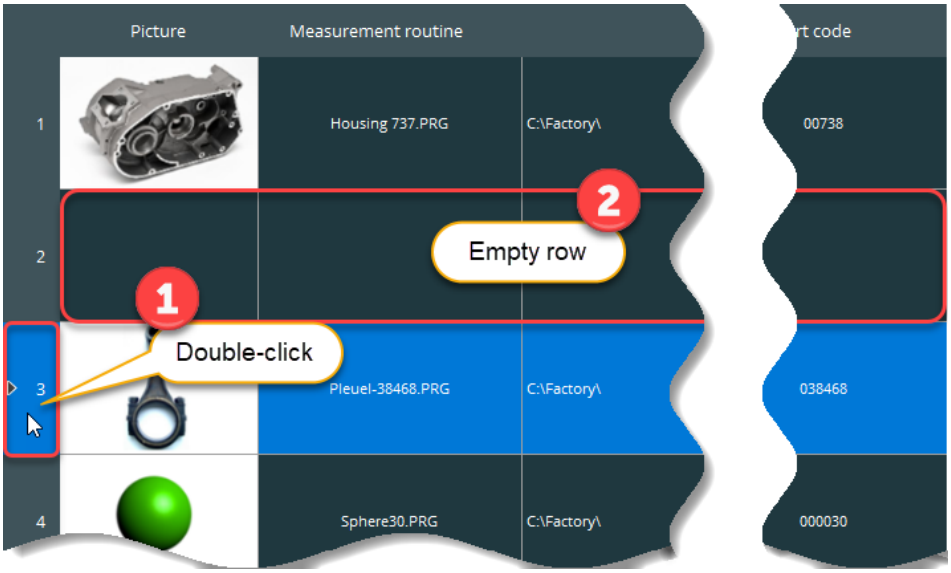


Then click on the "..." button and select "Insert Routine".



Select the desired measurement routine in the file manager. The measurement routine is inserted into the row. The previous row is moved down.

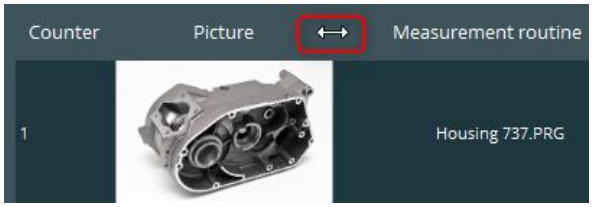
Alternatively, double-click in the left-hand column to create an empty row. The desired measurement routine can then be inserted into this as described above.



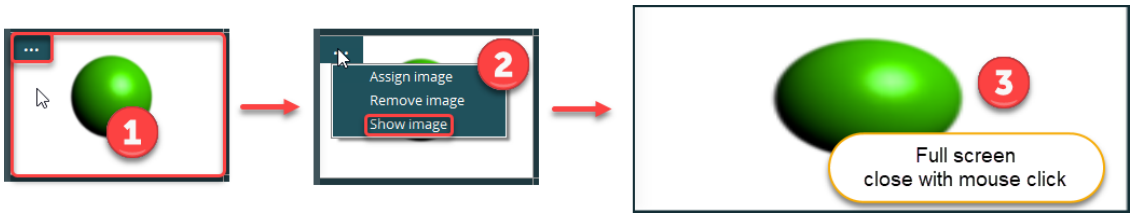
An image can then be assigned to the measurement routine as described above.

The process for changing a measurement routine is identical to inserting a measurement routine in an empty line (see above). Alternatively, you can right-click in the "Measurement routine" column and select the measurement routine. An image can then be assigned to the measurement routine as described above.

If the picture is too small, you can move the mouse pointer in the header to the right margin of the Picture column. The appearance of the mouse pointer changes to "⇔". By clicking and holding the left mouse button the size of the column can now be maximized or minimized at a ratio of 3:2 (W:H). The change is saved permanently.



To display the image in full screen mode, move the mouse pointer over the desired image. The "..." button appears in the top right-hand corner. Then click on the button and select "Show image" from the drop-down list.



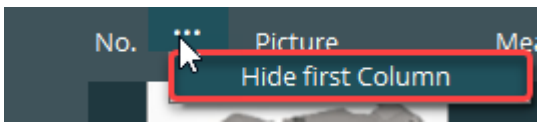
Alternatively, right-click in the column with the consecutive number in the corresponding row.

Regardless of the variant selected, the image can be reduced or minimized by double-clicking in the dark upper area. Click on the image to close it.

Click in the "Measurement routine", "Directory" or "Start code" column to sort the display in ascending (symbol: ▲) or descending (symbol: ▼) order.

If the sorting is to be based on the sequential number, the mouse pointer is moved to the header of the "Picture" column. The "..." button appears in the top right-hand corner. Then click on the button and select "Show first Column". A "No." column is displayed to the left of the "Image" column. You can now sort in ascending or descending order by clicking on "No.".

To hide the "No." column, click on the "..." button (see above) and select "Hide first Column".



Alternatively, the column can be hidden by changing the tab.

If all the measurement routines are inserted, the list can be saved (see chapter: Menu option “List”, section: Save as...). A file with the extension “SIN” will be created.

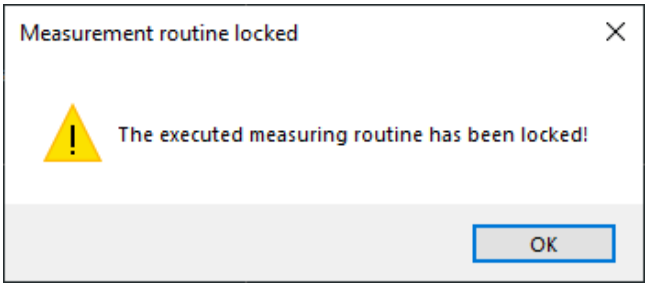
This list can be loaded using the "Load → list" option (see section: Menu option “List”, section: Load). An existing or loaded list can be changed at any time or additional routines can be added to the list. For this purpose, the above steps are repeated.

- Lock measurement routine

  This function is only available in the administrator mode (see chapter: Menu option “Extras“, section: Safety).

  To lock a measurement routine, select the entire line by clicking in the left-hand column (consecutive number). Alternatively, you can click in the "Measurement routine", "Directory" or "Start code" columns. The measurement routine is then locked with the "F3" function key and the text in the corresponding line is grayed out.

This measurement routine cannot be started. The following message appears:

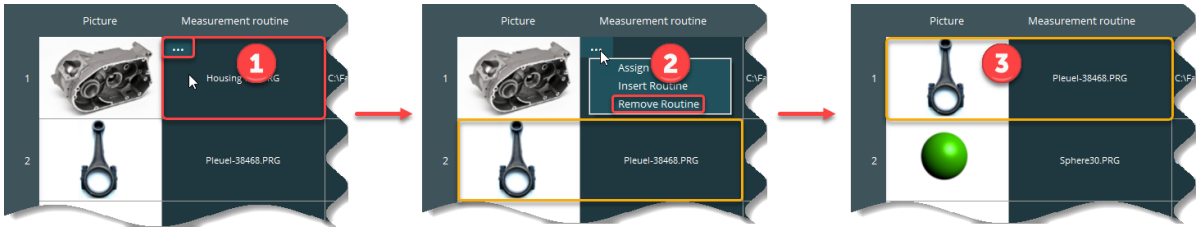


To unblock the measurement routine, the procedure described above must be repeated in administrator mode.

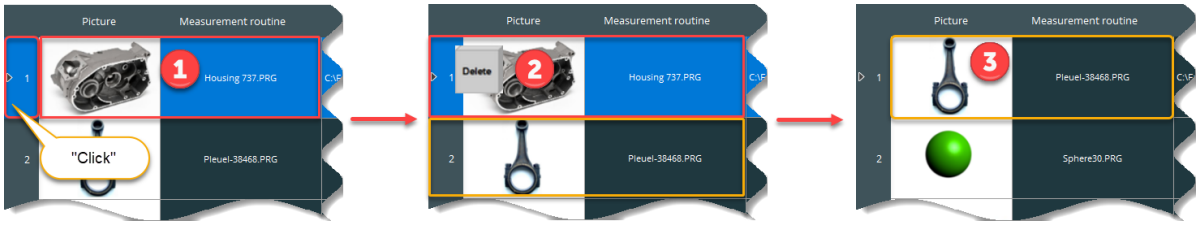
- Remove measurement routine from list

  This option is only available in administrator mode (see chapter: Menu option “Extras“, section: Safety). The scanner mode must not be active (see below: Start with scanner).

  To remove a measurement routine from a list, move the mouse pointer into the "Measurement routine" column. The "..." button appears in the top right-hand corner. Then click on the button and select "Remove Routine". The measurement routine is deleted from the list. The next measurement routine takes its place.



  Alternatively, the entire line can be selected by clicking in the left-hand column (consecutive number). The measurement routine is deleted with the "Del" key. The next routine takes its place.



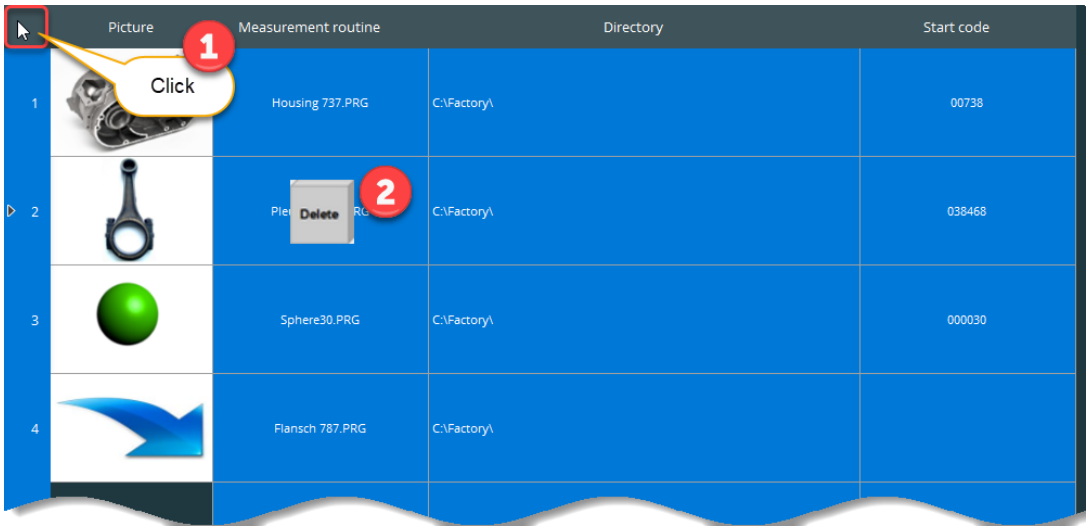
  By pressing and holding the left mouse button and moving the mouse up or down you can select several consecutive rows.

  By holding the “⇧” button you can highlight a block and by using the "Ctrl" key individual lines.

  You can change the end line on a marked block by pressing and holding down the "⇧" key. Then, you can click in the desired row.

  In order to deselect individual rows, press and hold the “Ctrl” key. Then click to deselect the corresponding rows.

If the entire list is to be deleted, all measurement routines can be selected by clicking in the top left-hand field (above the consecutive number "1"). You can then delete all routines with the “Delete” key.



If you want to save these changes permanently, use the menu option "List ➝ Save as..." (see chapter: Menu option “List”, section: Save as...). A file with the extension “SIN” will be created. This file can be loaded and processed with the "List ➝ Load" option (see section: Menu option List, section: Load).

- ## Starting a measurement routine

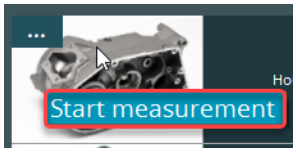
The settings made according to chapter: Menu option “Extras”, section: Settings, point: “General” tab and point: "Single run" tab are to be taken into account for starting, running and closing a measurement routine.

For detailed information on how a measurement routine, which is not integrated into the user interface, is started, executed and closed please see chapter: Menu option “File”, section: Start measurement routine.

- Start by mouse

  In order to start a measurement routine using the mouse, the scanner mode must not be active (see Start with scanner below).

  You can start a measurement routine by single- or double-clicking on a field of the Picture column with the left mouse button in (see: chapter: Menu option “Extras”, section: Settings, point: "General" tab, ➝ Load measurement routine with double click). If the mouse pointer is moved over the image and the "Load measurement routine with double click" checkbox is *not* activated, a tooltip appears with the message "Start measurement".

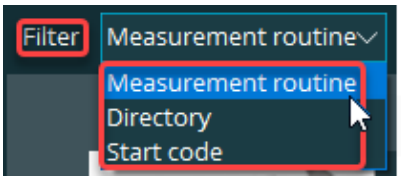


If there are more measurement routines in the user interface than can be displayed on the screen, you can use the vertical scroll bar to search for the desired measurement routine (see chapter: The tabs, section: Single run, point: Inserting measurement routine into a list ➔ Scroll bar).

- Filter

  This function can be used to apply a filter to reduce the number of measurement routines displayed.

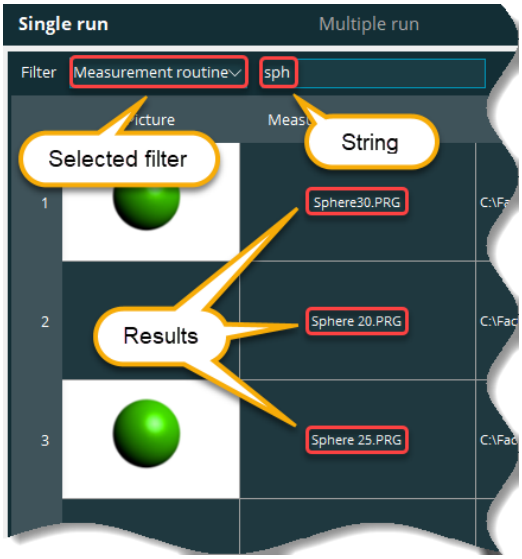
  To do this, click on the button to the right of “Filter”. The filter to be applied can now be selected from the drop-down list.

  The following filters are possible:

  - Measurement routine

    The search takes place in the "Measurement routine" column. If the complete name is entered, only this routine (if available) is displayed. If parts of the name are entered, all lines containing this string (if available) are displayed.

  - Directory

    The search takes place in the "Directory" column. If the complete path is entered, only the measuring routines in this path (if available) are displayed. If parts of the path are entered, all lines containing this character string (if available) are displayed.

  - Start code

    The search takes place in the "Start code" column. If the complete start code is entered, only the measuring routine linked to this start code (if available) is displayed. If parts of the start code are entered, all lines containing this character string (if available) are displayed.

If new measurement routines have been added, the list must be saved before using the filter.

After the initial installation of the operator interface, the “Measurement routine” filter is selected as the default. If the operator interface is updated using a software update, the setting selected in the previous version is adopted.

If the checkbox "loaded manually" is active under chapter: Menu option "Extras", section: Settings, point: ”Single run” tab ➔ Confirm measurement order, the start must be confirmed manually.

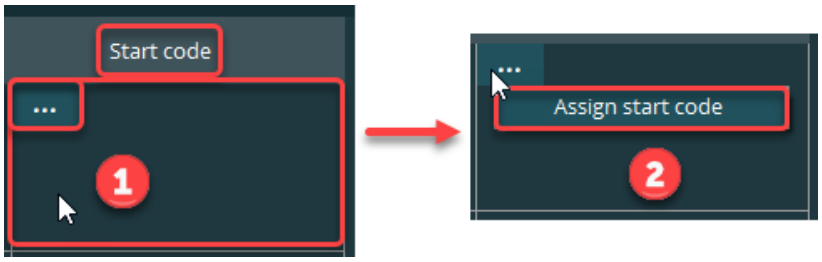
Depending on the settings made according to chapter: Menu option “Extras”, section: Settings, point: "Single Run" tab ➔ Show input dialog when starting the measurement routine, the entry form for the variables is displayed or the measurement routine is directly started.

- Start with scanner

  In order to start measurement routines using a start code, they must be assigned to the respective start codes in the list.

  This can be done only in administrator mode (see chapter: Menu option “Extras“, section: Safety).

  To assign a start code to a measurement routine, move the mouse pointer into the "Start code" column. The "..." button appears in the top right-hand corner (only if scanner mode is deactivated - see below). Then click on the button and select "Assign start code".



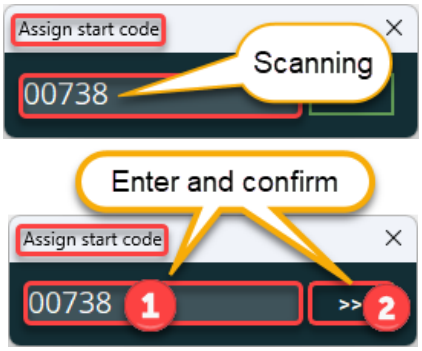
The "Assign start code" dialog box opens. The start code can be entered here using a scanner or the keyboard:

- Input with scanner

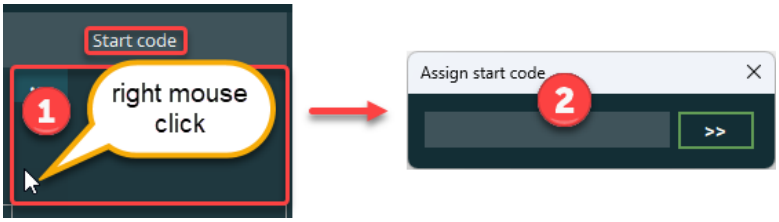
  The start code is scanned. The dialog window is then closed and the scanned start code is assigned to the measurement routine.

- Input with keyboard

  The start code is entered. Click on the ">>" button to close the dialog box and assign the start code to the measurement routine.



Alternatively, the "Assign start code" dialog box can be opened by clicking with the right mouse button on the desired row in the "Start code" column.



The start code can then be entered as described above.

The steps described above are repeated for other start codes.

Once all start codes have been entered, the list can be saved (see chapter: Menu option “List”, section: Save as...). A file with the extension “SIN” will be

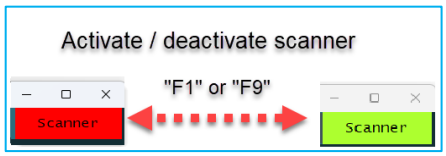
created. This file can be loaded and further processed using the menu option "List" ➔ "Load".

When starting a measurement routine by start code the settings under: Menu option “Extras”, section: Settings, point: “General” tab ➔ Scanner are to be taken into account.

Scanner mode must be active. This can be activated or deactivated using the mouse or keyboard.

- With keyboard

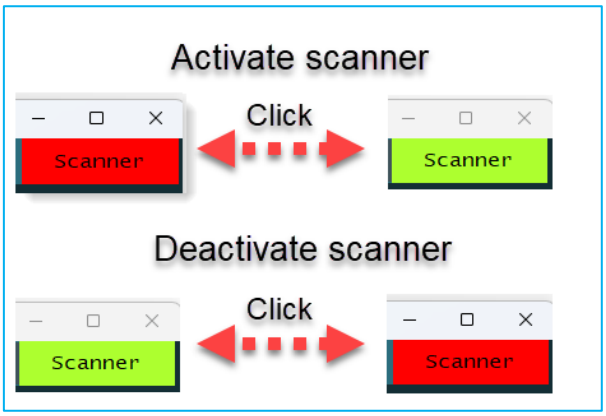
  Use the “F1” or “F9” function keys to activate or deactivate the “Scanner” button at the top right. The button turns green (scanner activated) or red (scanner deactivated).



- With mouse

  To do this, click on the red “Scanner” button at the top right. The button turns green.

  To deactivate the "Scanner" function, repeat the process with the green field. The button turns red.



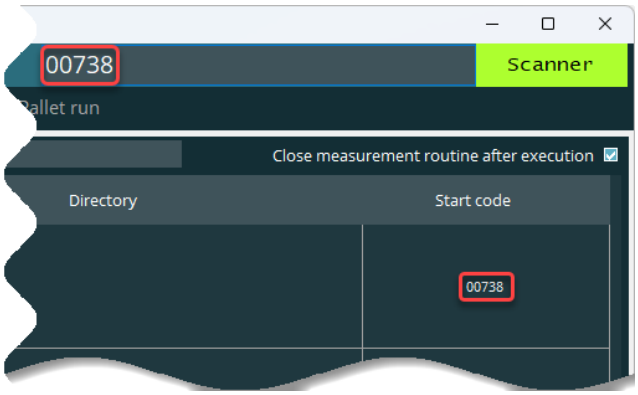
If the mouse pointer is moved over the button, a tooltip appears indicating what the mouse click will do.

To be able to process a code, you must ensure that the focus of the mouse pointer is in the input field to the left of the green button (flashing line).

When the scanner is activated, the buttons for manually starting the measurement routines (”Picture“ column) are deactivated..

The code is shown to the right of the scanner icon (if you are using a scanner) or entered using the keyboard. The code is processed after the time defined under chapter: Menu option “Extras”, section: Settings, point: Scanner ➞ Delay time when starting with start code has been exceeded.

If the code matches the start code of a measurement routine, this is started.

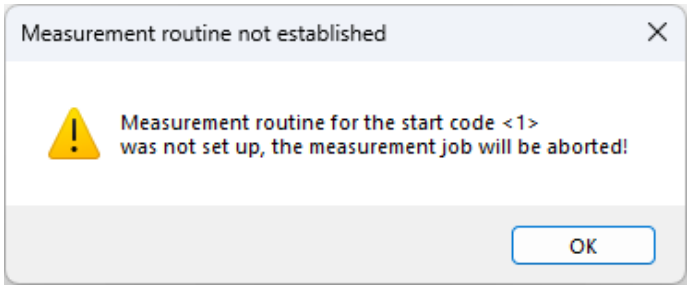


Depending on the settings made according to chapter: Menu option “Extras”, section: Settings, point: “General" tab ➞ Scanner ➞ Show image when starting with start code the measurement routine is started with or without displaying the image.

If the checkbox "loaded with start code" is active under chapter: Menu option "Extras", section: Settings, point: "Single run” tab ➞ Confirm measurement order, the start must be confirmed manually.

Depending on the settings made according to chapter: Menu option “Extras”, section: Settings, point: “Single run” tab ➞ Show input dialog when starting the measurement routine, the entry form for the variables is displayed or the routine is directly started.

If no start code matching a measurement routine is found, the following message appears:



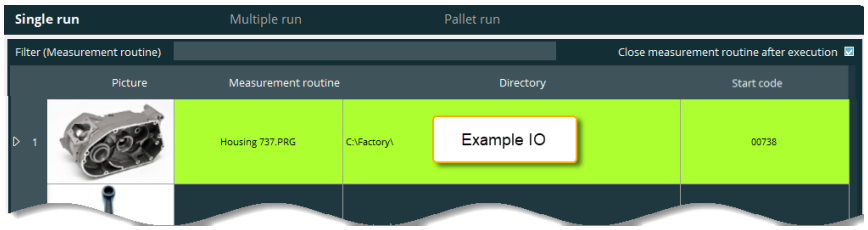
Depending on the settings made under Chapter: Menu option “Extras”, section: Settings, point: "General" tab ➞ Set focus on scanner after each run, a new start code can be processed directly after the measurement has been completed or the focus of the mouse pointer must be set to the start code again by clicking in the input field.

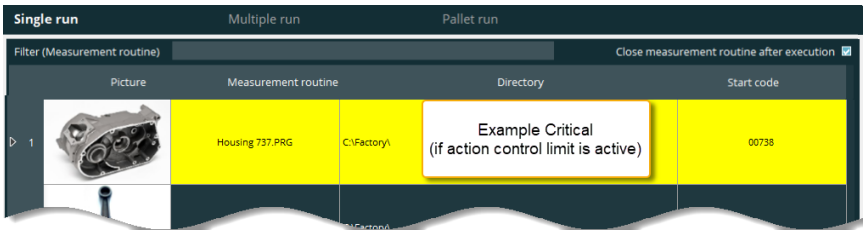
Alternatively, the start can be started with a start code from a file. For further details see chapter: Menu option “Extras”, section: Settings, point: “General“ tab ➞ Scanner ➞ Read start code from file.

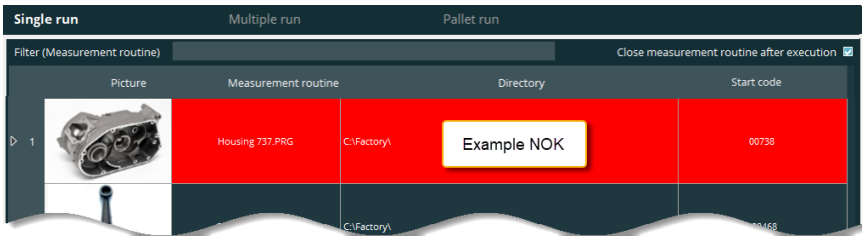
- ## Measurement process

While the measurement routine is being processed a green bar at the bottom of the screen shows the progress and the message “Measurement job is being executed” appears.

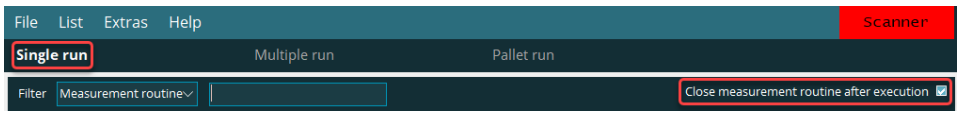
After the end of the measurement job, the corresponding row in the user interface is displayed in the color set under chapter: Menu option “Extras“, section: Settings, point: “Single run" tab ➙ Color.







If the routine is to be closed automatically after execution, the checkbox at “Close measurement routine after execution” must be activated.

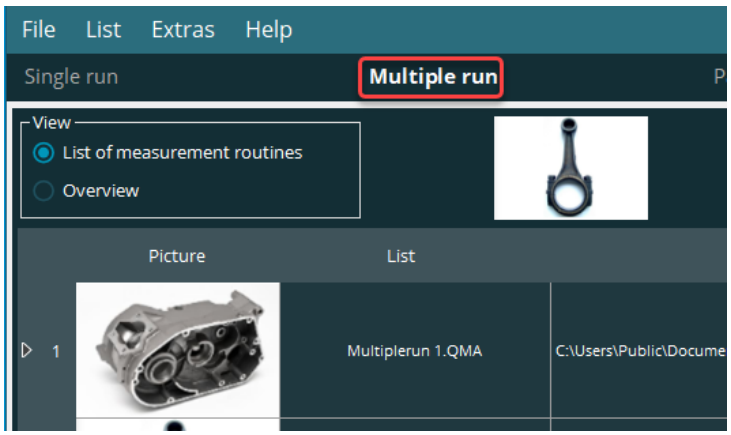


If this function is not active, the measurement routine remains open when ending and can be closed via the Menu option "File" ➙ Close measurement routine or by starting the next routine.

- ## Stop, cancel or continue a measurement

You can use the “Execution panel” tab to delete manual measuring points and to stop, continue and cancel measurements during execution (see chapter: The tabs, section: Execution panel).

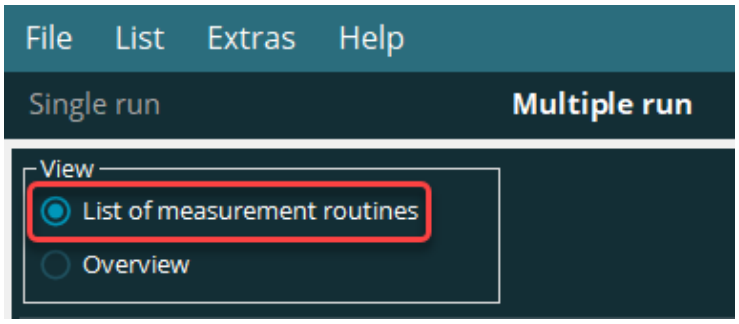
10.2. Multiple run



The settings made according to chapter: Menu option “Extras“, section: Settings, point: “General” tab and point: “Multiple run” tab are to be taken into account for starting, running and closing a measuring task.

- ### List of measurement routines view

  Depending on the settings made according to chapter: Menu option “Extras”, section: Settings, point: "Multiple run" tab ➝ Display at tab start the “List of measurement routines” or “Overview” view is displayed when you navigate to the "Multiple run" tab.

  Alternatively, you can switch to the other view using the radio buttons.

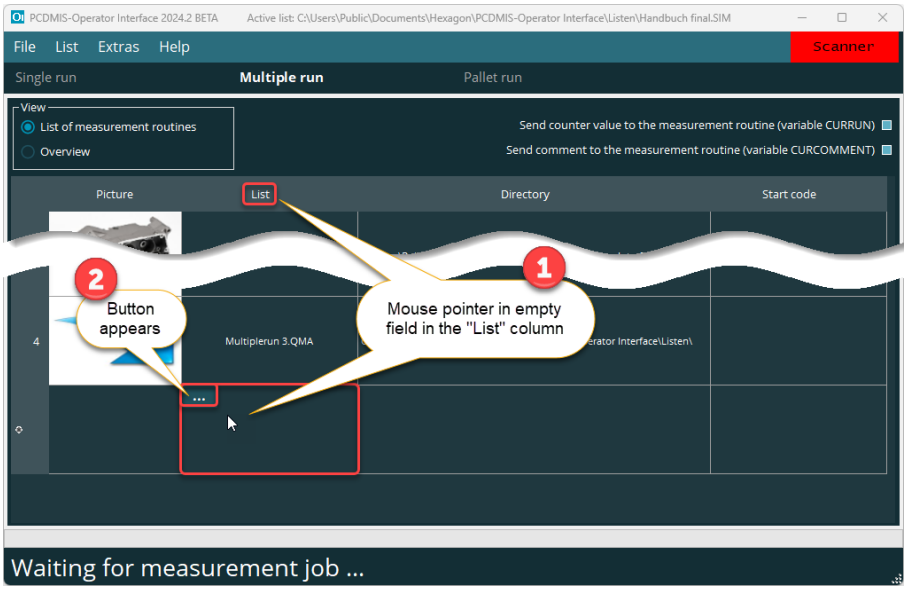
  - ### Insert measurement routines list

    This option is only available in administrator mode (see chapter: Menu option “Extras“, section: Safety).

    The lists created in the overview can be inserted into the List of measurement routines view and pictures can be added to the respective lists (see chapter: The tabs, section: Multiple run, point: Overview view). If you haven’t saved any lists in overview, the operation cannot be carried out.

When first starting the Operator Interface there are no lists of measurement routines. Alternatively, an empty list can be created with “List ➝New” (see chapter: Menu option “List”, section: New).

To insert a measurement routine list (*.QMA), move the mouse pointer over an empty field in the "List" column. The "..." button appears in the top left-hand corner.



Then click on the "..." button and select "Assign order list".

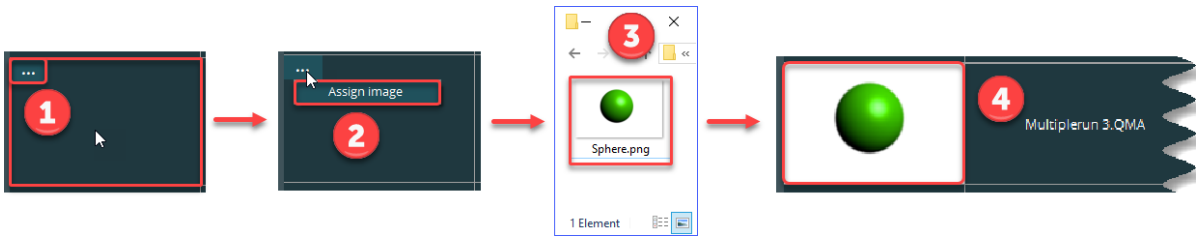
Select the desired measurement routine list (*.QMA) in the file manager. The measurement routine list is added.

Alternatively, a measurement routine list can be inserted by clicking with the right mouse button in the "List" column. The list (*.QMA) can then be selected.

After inserting the measurement routine list (regardless of the selected method), the list name is displayed in the "List" column and the corresponding list path in the "Directory" column. A new empty line is created.

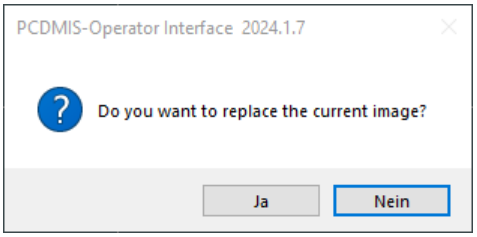
To assign an image to the measurement routine, move the mouse pointer into the "Picture" column. The "..." button appears in the top left-hand corner. Then click on the button and select "Assign image". Select the image in the file manager. This is inserted accordingly.

Example:



Alternatively, the picture can be inserted using "drag and drop" as is usual in Windows. To do this, select the picture and drag it with the mouse to the row of the user interface to which the picture is to be assigned. After releasing the mouse button, the picture is inserted.

If an picture is already assigned to the measurement routine and this is to be replaced, the following message appears:



If this message is confirmed with "YES", the picture is replaced and the message is closed.

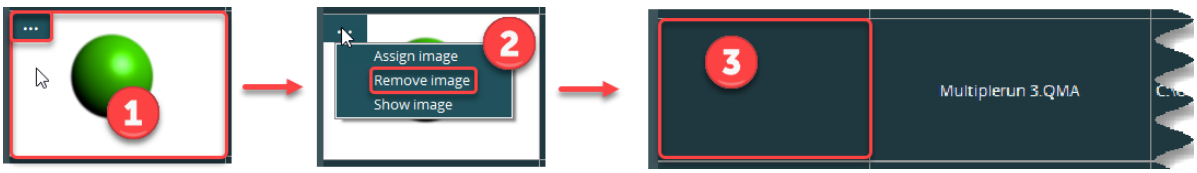
If “No” is selected, the note is closed without replacing the picture.

Another way to assign an image to the measurement routine list is to right-click in the "Picture" column. The desired image can then be selected in the file manager.

If an image is assigned to the loaded list in the "Overview" view with menu option "Meas order" → "Save as..." in the "Image selection" dialog box, this process is not necessary. The image saved with the measurement routine list is used, but can be changed as described above. If you switch to the overview by clicking on the image in the "Image" column, the image saved with the measurement routine list is also displayed above the "List" column. This can be changed or deleted in the "Overview" view (see below). If you switch to the "Measurement routine list" view, this image is still displayed above the "List" column.

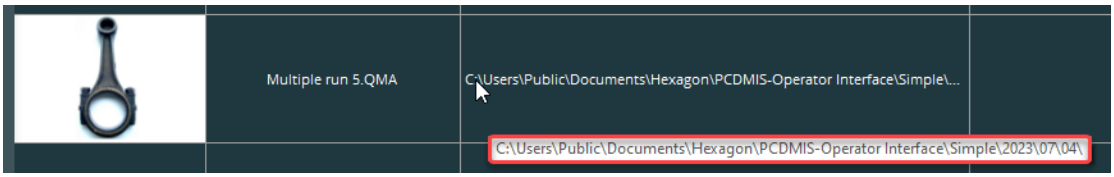
If no image is assigned to a list in the overview view (see also above), the last image used in the "Overview" view is displayed above the "List" column. When using images, it is recommended to assign an image to each measurement routine list in the overview.

To remove the image (in the Image column), move the mouse pointer over the image to be deleted. The "..." button appears in the top right-hand corner. Then click on the button and select "Remove image" from the drop-down list. The image is deleted.



To add further lists, the steps described above are repeated with the next free row.

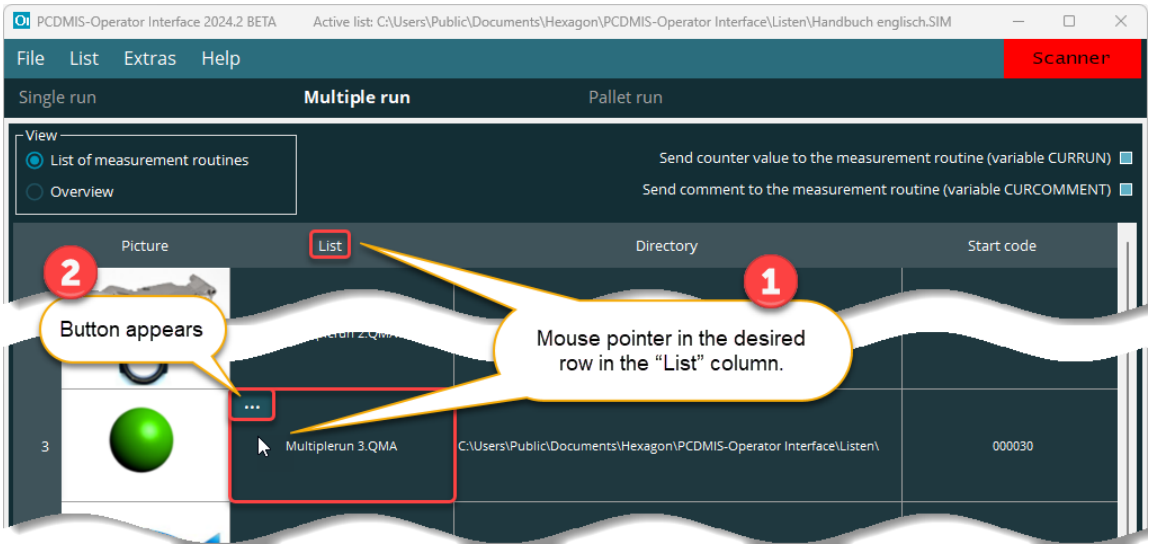
If the path is longer than the column width, a tooltip with the complete path appears when the mouse pointer is moved into the corresponding field (in the image below at the example: "Directory").



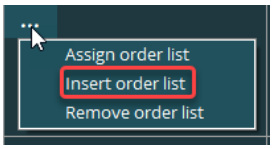
If there are more rows filled with lists than can be displayed on the screen, a vertical scroll bar appears on the right side. The desired lis can be searched by using the mouse wheel.

Alternatively, the "▲" and "▼" icons above and below the scroll bar can be used to scroll up or down one line at a time.

If a measurement routine list is not to be inserted at the end of the list, but between two measurement routines, the mouse pointer is moved to the desired line in the "List" column. The "..." button appears in the top right-hand corner.

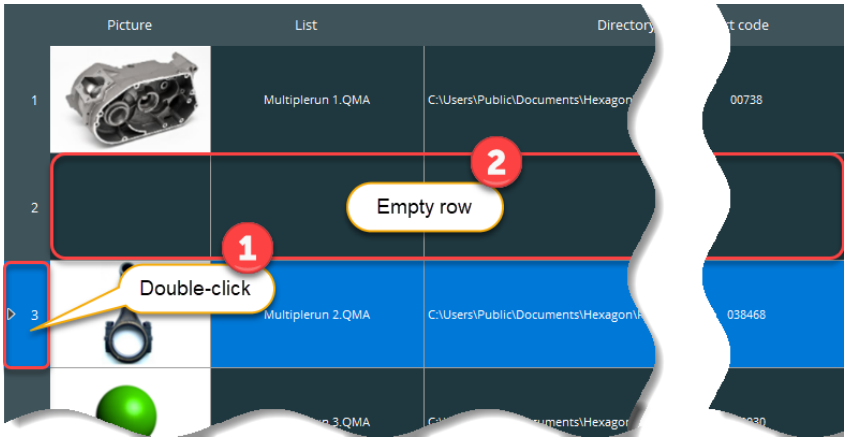


Then click on the "..." button and select "Insert order list".



Select the desired measurement routine list in the file manager. The measurement routine is inserted into the row. The previous row is moved down.

Alternatively, double-click in the left-hand column to create an empty row.

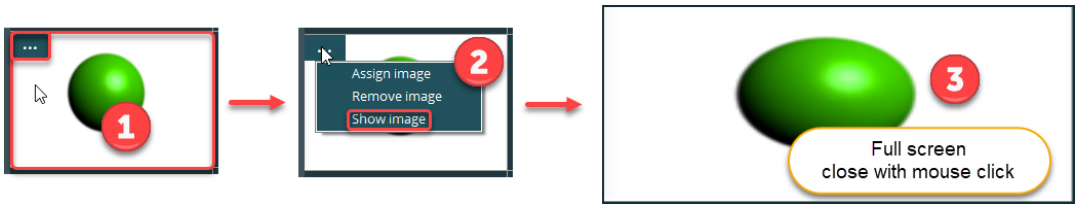


The desired measurement routine list can then be inserted into this list as described above and an image assigned.

The process for changing a measurement routine list is identical to inserting a measurement routine list in an empty line (see above). Alternatively, you can right-click in the "Measurement routine" column and select the measurement routine. An image can then be assigned to the measurement routine as described above.

If the picture is too small, you can move the mouse pointer in the header to the right margin of the Picture column. The appearance of the mouse pointer changes to "⇔". By clicking and holding the left mouse button the size of the column can now be maximized or minimized at a ratio of 3:2 (W:H). The change is saved permanently.

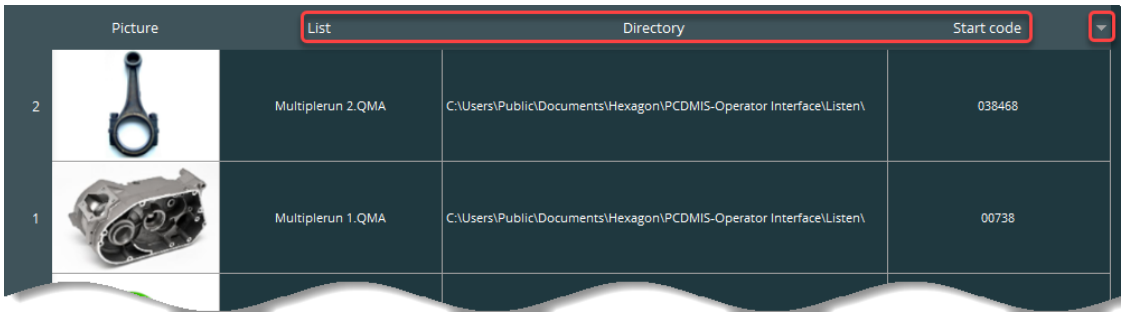
To display the image in full screen mode, move the mouse pointer over the desired image. The "..." button appears in the top right-hand corner. Then click on the button and select "Show image" from the drop-down list.



Alternatively, right-click in the column with the consecutive number in the corresponding row.

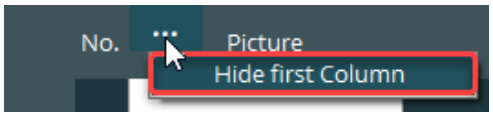
Regardless of the variant selected, the image can be reduced or minimized by double-clicking in the dark upper area. Click on the image to close it.

Click in the "Lis", "Directory" or "Start code" column to sort the display in ascending (symbol: ▲) or descending (symbol: ▼) order.



If the sorting is to be based on the sequential number, the mouse pointer is moved to the header of the "Picture" column. The "..." button appears in the top right-hand corner. Then click on the button and select "Show first Column". A "No." column is displayed to the left of the "Image" column. You can now sort in ascending or descending order by clicking on "No.".

To hide the "No." column, click on the "..." button (see above) and select "Hide first Column".



Alternatively, the column can be hidden by changing the tab.

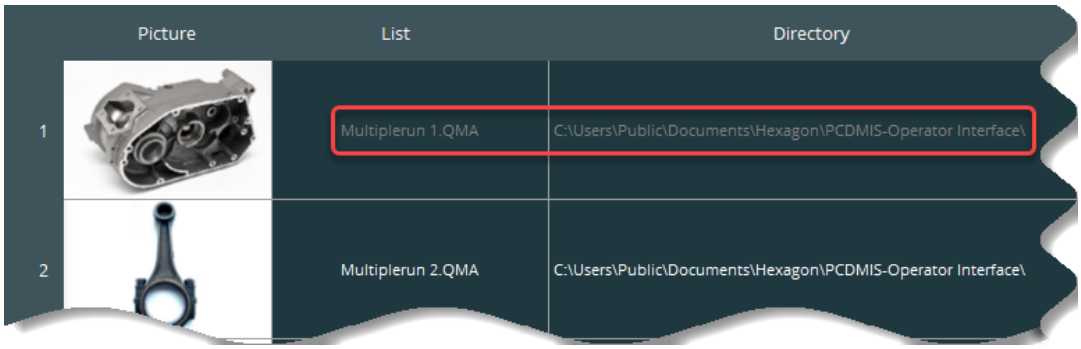
After having inserted all lists you can save the list (see chapter: Menu option List, section: Save as...). A file with the extension “SIM” will be created.

This list can be loaded using the "Load → list" option (see section: Menu option List, section: Load). You can add additional lists to an existing or loaded list at any time. For this purpose, repeat the above steps.

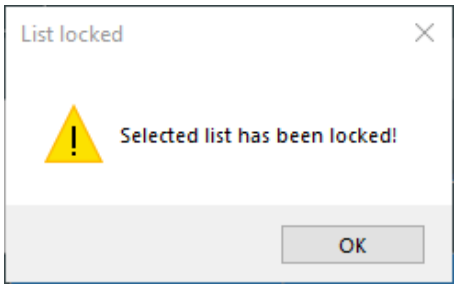
- Lock measurement routines list

  This function is only available in administrator mode (see chapter: Menu option “Extras”, section: Safety).

  To lock a measurement routine list, select the complete line by clicking in the left-hand column (consecutive number). Alternatively, you can click in the "List", "Directory" or "Start code" columns. Then press the "F3" function key to lock the measurement routine list and the text in the corresponding line is grayed out.



  This measurement routine cannot be started. The following message appears:

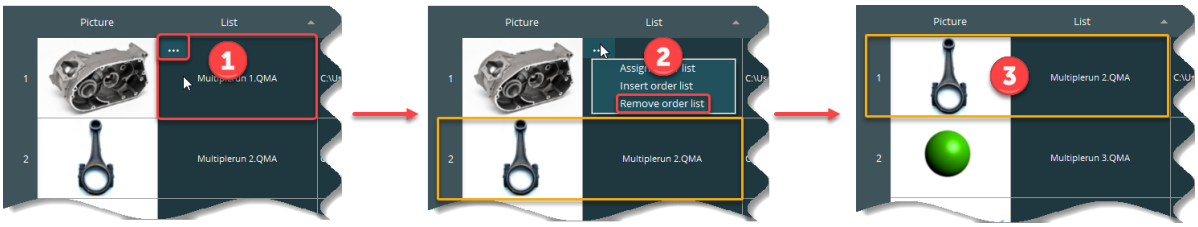


  To unblock the measurement routine, the procedure described above must be repeated in administrator mode.

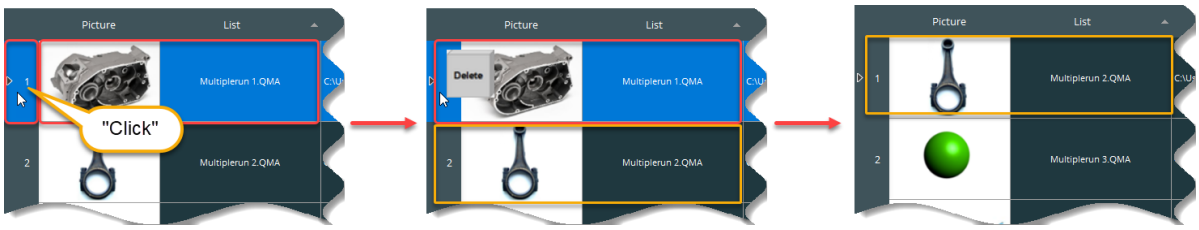
- Remove measurement routines list

  This option is only available in administrator mode (see chapter: Menu option “Extras”, section: Safety). The scanner mode must not be active (see below: Start with scanner).

  To remove a measurement routine list from a list, move the mouse pointer into the "List" column. The "..." button appears in the top right-hand corner. Then click on the button and select "Remove order list". The measurement routine list is deleted from the list. The next measurement routine list takes its place.



  Alternatively, the entire line can be selected by clicking in the left-hand column (consecutive number). The measurement routine list is deleted with the "Del" key. The next measurement routine list takes its place.



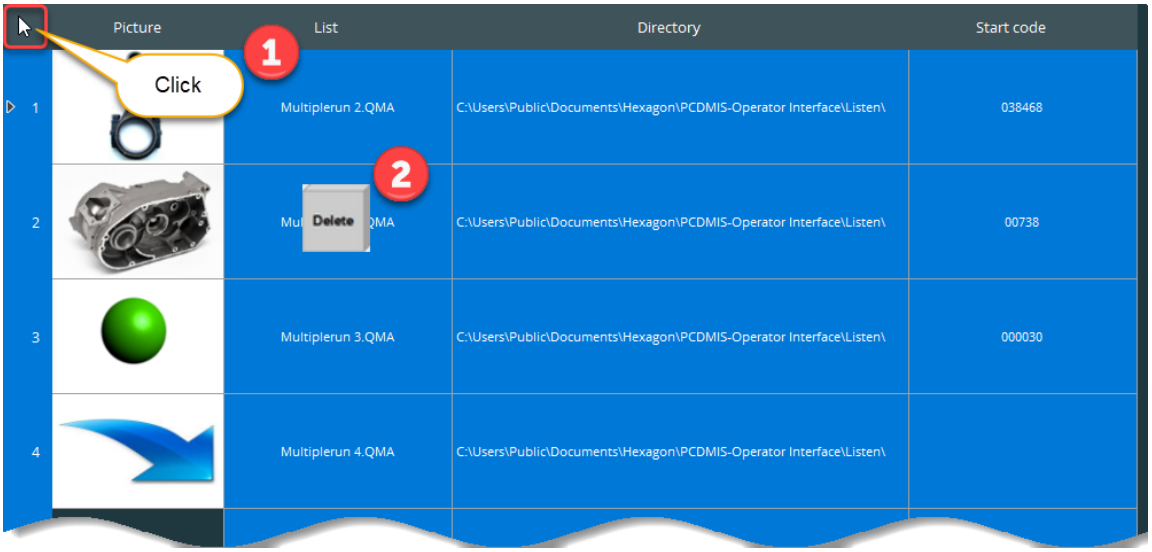
  By pressing and holding the left mouse button and moving the mouse up or down you can select several consecutive rows.

  By holding the “⇧” button you can highlight a block and by using the "Ctrl" key individual lines.

  You can change the end line on a marked block by pressing and holding down the "⇧" key. Then, you can click in the desired row.

  In order to deselect individual rows, press and hold the “Ctrl” key. Then click with the left mouse button to deselect the corresponding rows.

If the entire list is to be deleted, all measurement routines lists can be selected by clicking in the top left-hand field (above the consecutive number "1"). You can then delete all routines with the “Delete” key.



If you want to save these changes permanently, use the menu option "List ➝ Save as..." (see chapter: Menu option List, section: Save as...). A file with the extension “SIM” will be created. This file can be loaded and processed with the "List ➝ Load" option (see section: Menu option List, section: Load).

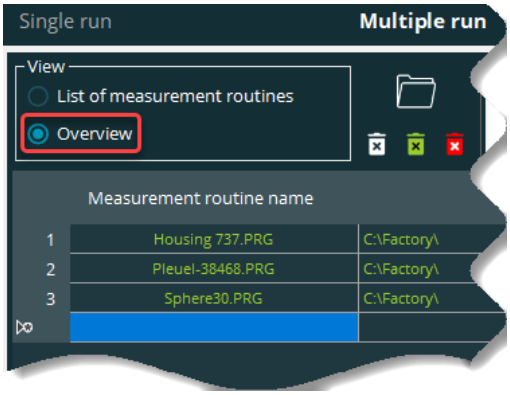
- Start of a measuring job

The settings made according to chapter: Menu option “Extras”, section: Settings, point: “General” tab and point: “Multiple run” tab are to be taken into account for starting, running and closing a measuring task.

- Start by mouse

  In the "Measuring routines list" view, a list can only be started directly with a start code (see below).

  A manual start with the mouse is only possible in the "Overview" view. To do this (depending on the settings made under Chapter: Menu option “Extras”, section: Settings, point: "General" tab ➞ Load measuring routine with double click), single-click or double-click on the desired screen. The "Overview" view is displayed.



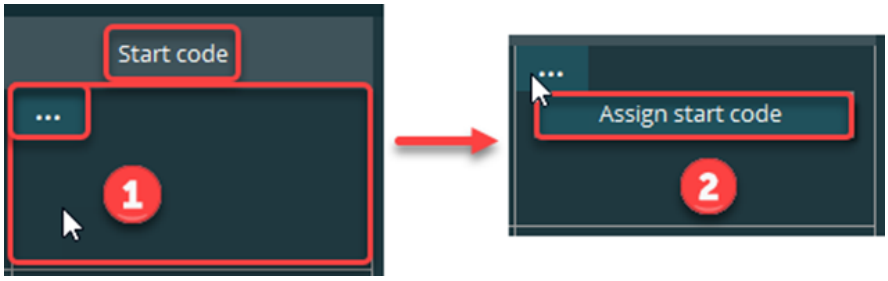
  Starting a measurement routine with the mouse is described in section: Overview view, point: Starting of a measuring job ➞ Start by mouse (see below).

- Start with scanner

  To start measurement routines lists by means of start codes, the corresponding start codes must be assigned to them in the list.

  This can be done only in administrator mode (see chapter: Menu option “Extras”, section: Safety).

  To assign an start code to the measurement routine list, move the mouse pointer into the "Start code" column. The "..." (only if Scanner mode is deactivated - see below) button appears in the top left-hand corner. Then click on the button and select "Assign start code".



The "Assign start code" dialog box opens. The start code can be entered here using a scanner or the keyboard:

- Input with scanner

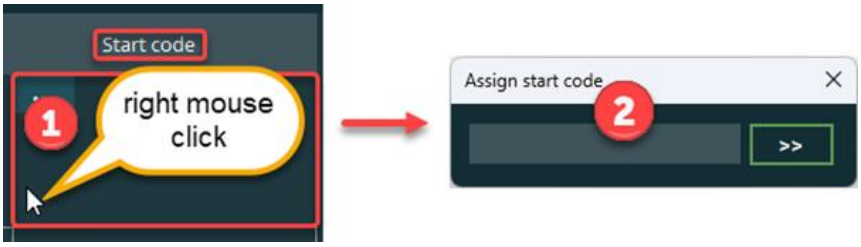
  The start code is scanned. The dialog window is then closed and the scanned start code is assigned to the measurement routine.

- Input with keyboard

  The start code is entered. Click on the " 

" button to close the dialog box and assign the start code to the measurement routine.

Alternatively, the "Assign start code" dialog box can be opened by clicking with the right mouse button on the desired row in the "Start code" column.



The start code can then be entered as described above.

The steps described above are repeated for other start codes.

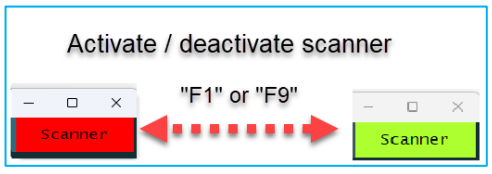
After having entered all start codes the list can be saved (see chapter: Menu option “List”, section: Save as...). A file with the extension “SIM” will be created. This file can be loaded and further processed using the menu option "List" ➔ "Load".

When starting a measurement routine by start code the settings under: Menu option “Extras”, section: Settings, point: “General” tab ➔ Scanner are to be taken into account.

Scanner mode must be active. This can be activated or deactivated using the mouse or keyboard.

- With keyboard

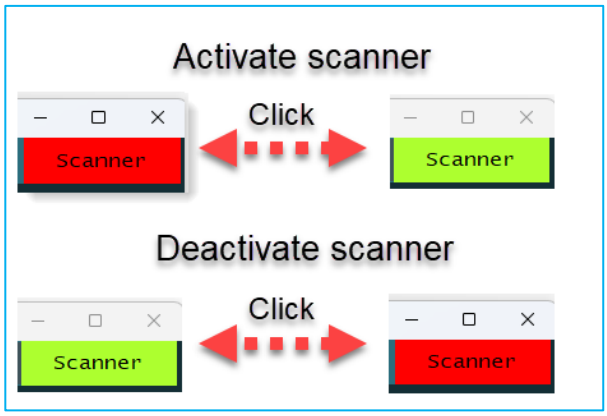
  Use the “F1” or “F9” function keys to activate or deactivate the “Scanner” button at the top right. The button turns green (scanner activated) or red (scanner deactivated).



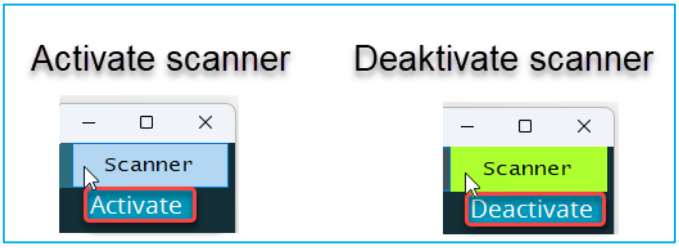
- With mouse

  To do this, click on the red “Scanner” button at the top right. The button turns green.

  To deactivate the "Scanner" function, repeat the process with the green field. The button turns red.



  If the mouse pointer is moved over the button, a tooltip appears indicating what the mouse click will do.

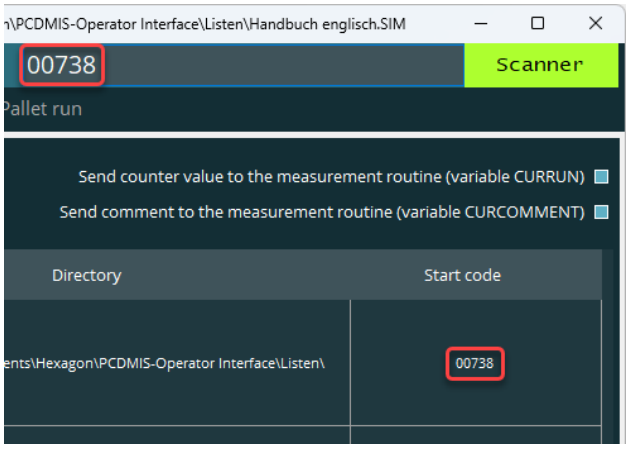


To be able to process a code, you must ensure that the focus of the mouse pointer is in the input field to the left of the green button (flashing line).

The buttons for manually starting the measurement routine are not available while the scanner is enabled.

The code is shown to the right of the scanner icon (if you are using a scanner) or entered using the keyboard. The code is processed after the time defined under chapter: Menu option “Extras”, section: Settings, point: Scanner ➝ Delay time when starting with start code has been exceeded.

If the code matches the start code of a measurement routine, this is started.

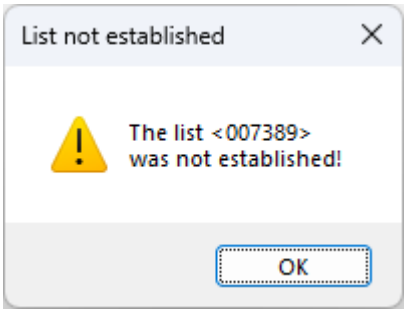


Depending on the settings made according to chapter: Menu option “Extras”, section: Settings, point: “General" tab ➞ Scanner ➞ Show image when starting with start code the measurement routine is started with or without displaying the image.

If the checkbox under chapter: Menu option "Extras", section: Settings, point: "Multiple run” tab ➞ Start measurement job loaded with start code manually is active, the start must be confirmed manually.

Depending on the settings made according to chapter: Menu option “Extras”, section: Settings, point: "Multiple run” tab ➞ Show input dialog when starting the measurement routine, the entry form for the variables is displayed or the routine is directly started.

If no start code matching a measurement routine is found, the following message appears:

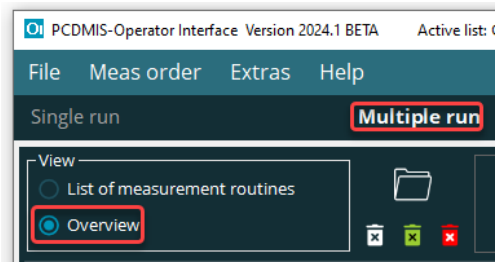


Depending on the settings made under Chapter: Menu option “Extras”, section: Settings, point: "General" tab ➞ Scanner ➞ Set focus on scanner after each run, a new start code is expected immediately after the measurement has been completed or the focus of the mouse pointer must be set to the start code again by clicking in the input field.

Alternatively, the start can be started with a start code from a file. For further details see chapter: Menu option “Extras”, section: Settings, point: “General“ tab ➞ Scanner ➞ Read start code from file.

Overview view

Depending on the settings made according to chapter: Menu option “Extras”, section: Settings, point: "Multiple" tab ➔ Display at tab start the “List of measurement routines” or “Overview” view is displayed when you navigate to the "Multiple run" tab.



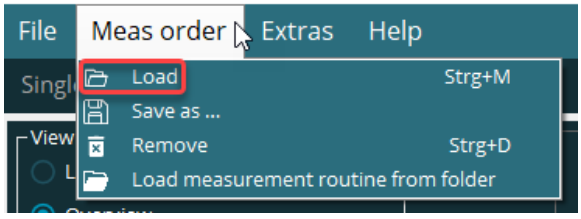
Alternatively, you can open the view by clicking on the view and activating the radio buttons.

Menu option "Meas order"

This option is only available in the “Multiple run” tab of the “Overview view”.

- Load:

  This function is used for loading a measurement task created according to chapter: The tabs, section: Multiple run, point: Overview view ➔ Inserting a measurement routine into the overview

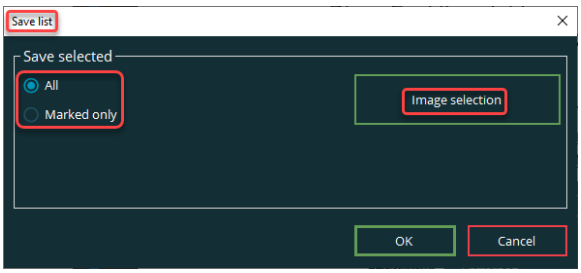


- Save as...:

  This function is used for saving a measurement task created according to chapter: The tabs, section: Multiple run, point: Overview view ➔ Inserting a measurement routine into the overview.

  Using the "Save as..." function opens the "Save list” dialog.

  "Save selected" can be used to specify how the measurement routines from the list will be stored.



- All:

  Regardless of whether individual rows are marked or unmarked, the entire list is saved.

- Only marked:

  Only the measurement routines that are running and not skipped are saved after having specified their directories and names (see chapter: The tabs, section: Multiple run, point: Inserting a measurement routine into the overview ➝ Lock measurement routine).

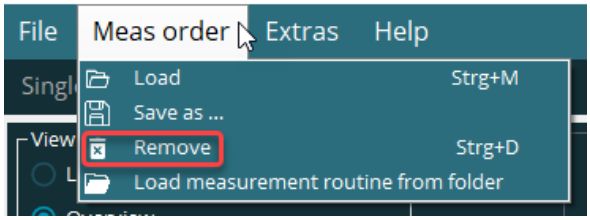
- Image selection:

  After selecting the directory and picture, the routines list is associated with a picture. The picture will be displayed in the List of measurement routines view when loading the “QMA” file in the user interface (see chapter: The tabs, section: Multiple run, point: Insert measurement routines list ➝ Assign image). The image can be changed as described below.

The "OK" button will save the measurement task with the file extension "QMA” after having specified its path and name. The Cancel button doesn’t carry out any action.

- Remove:

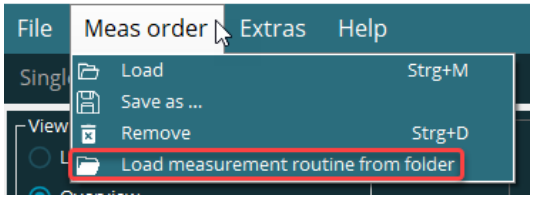
  This function will remove all measurement routines from the list, regardless of whether they are marked or unmarked (see link under point: Only marked earlier in this section).



  As a result, an empty list is generated that can be processed (see chapter: The tabs, section: Multiple run, point: Insert measurement routines list).

- Load measurement routine from folder:

  This function allows to load all measurement routines from a folder into a measurement job. To do this, select the desired folder. All routines in this folder are added to the list.

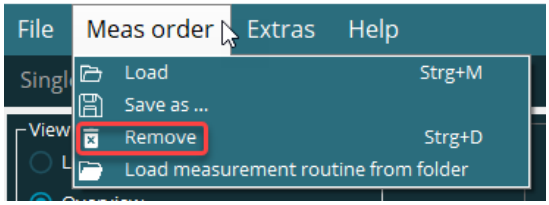


  Further details on inserting measurement routines are described in "Insert measurement routines list" (see above).

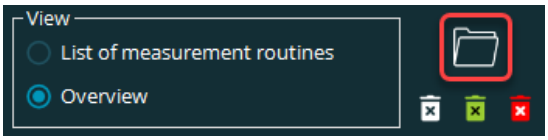
- ## Inserting a measurement routine into the overview

  The "Overview" view can be used to create, store and process a list of measurement routines. The saved list can be included in the user interface according to chapter: The tabs, section: Multiple run, point: List of measurement routines view ➝ Insert measurement routines list.

  When first starting the Operator Interface after the installation there are no lists. Alternatively, an empty list can be created with menu option “Meas order” ➝ “Remove“.

  Inserting a measuring routine into a list is done by clicking the "  " button next to the "View" area.

  In the following "Open" window, one (or more) measurement routine can be selected, which will be included in the list. The window remains open and further routines can be inserted. Each further measurement routine receives a consecutive number in the left column.

  To insert several measuring routines at once, a block can be marked by holding the "Ctrl" key and clicking on the desired first and last measuring routine. By holding the "⇧" key and clicking on the respective measuring routine, individual lines can be marked.

  To end the process, click on the "Cancel" button in the file manager.

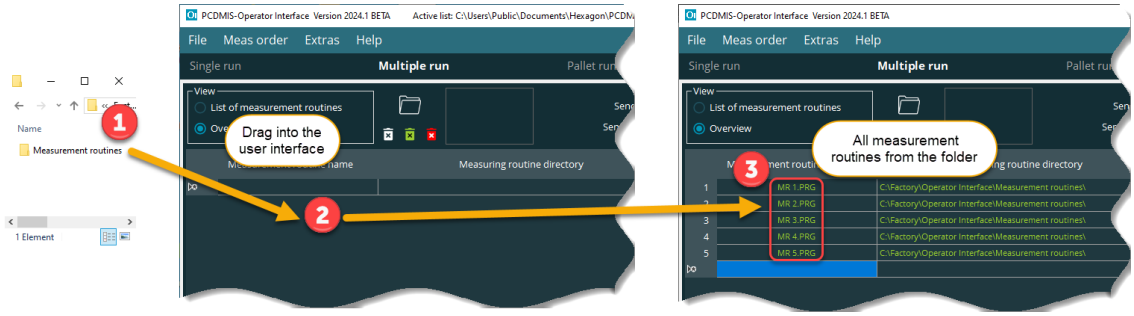
  Alternatively, as described in this chapter in the section above: Menu option “Meas order”, point: Load and point: Load measurement routine from folder, a measurement task can be created.

  Measurement routines can also be inserted by "drag and drop", as is usual in Windows. To do this, select the measurement routine(s) and drag them into the user interface with the mouse. After releasing the mouse button, the selected routines are inserted in the free area (below the last measurement routine).

It is also possible to drag and drop a complete folder (or several folders) into the user interface. After releasing the mouse button, all measurement routines in this folder and the associated subfolders are inserted into the user interface.

If files other than measurement routines (*.PRG) are present in the folder, they are ignored.

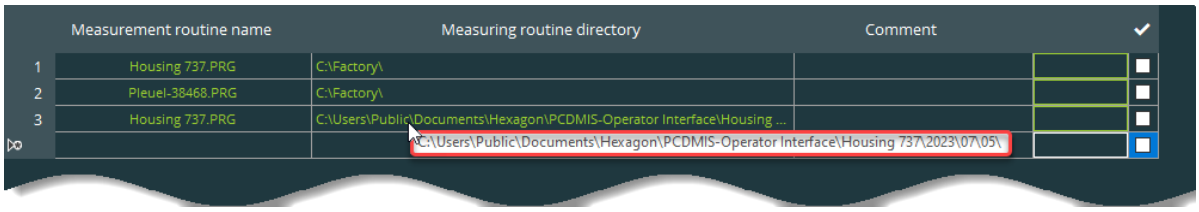
Screenshot as an example for folders:



The name is displayed in the "Measurement routine name" column and the path is displayed in the "Measuring routine path" column.

A comment can be added to the measurement routine by double-clicking on the Comment column.

If the name, path or comment is longer than the column width, a tooltip with the complete path appears when the mouse pointer is moved into the corresponding field.

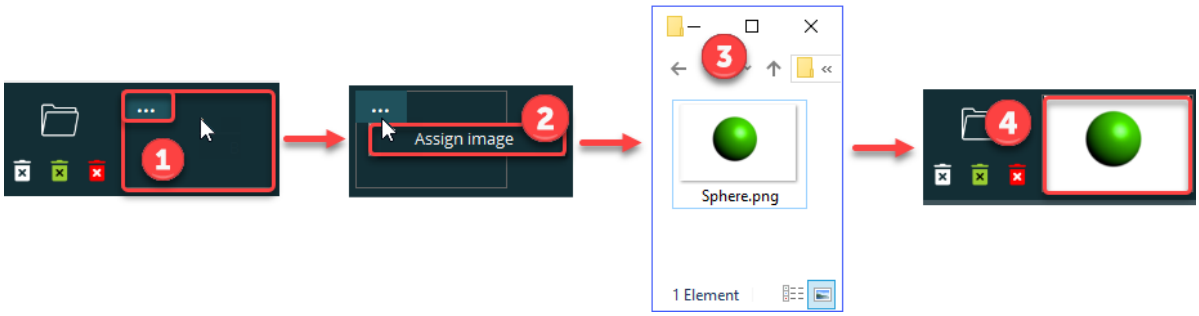


If there are more rows filled with measurement routines than can be displayed on the screen, a vertical scroll bar appears on the right. The desired routine can be searched by using the mouse wheel.

Alternatively, you can use the "▲" and "▼" symbols to scroll up and down through individual rows.

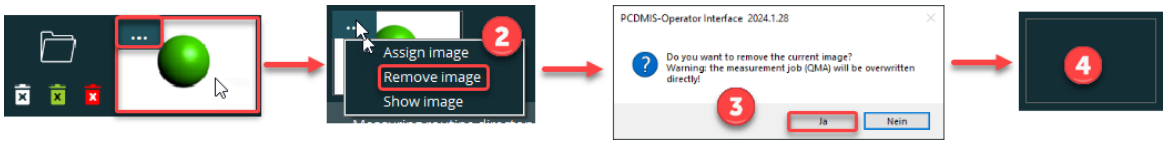
By clicking in the "Measurement routine name", "Measurement routine directory" or "Comment" column, the display is sorted in ascending (symbol: "▲") or descending (symbol: "▼") order.

If no image is assigned to the measurement job with "Save as ..." (see above), an image can be assigned to it, which is displayed above the table with the measurement routines. To do this, move the mouse pointer into the rectangle at the top. The "..." button appears in the top right-hand corner. Then click on the button and select "Assign image". Select the image in the file manager. This is inserted accordingly.



The *.QMA file is updated directly without saving it manually (see below). This means that the image is displayed when the measurement job is loaded (see below).

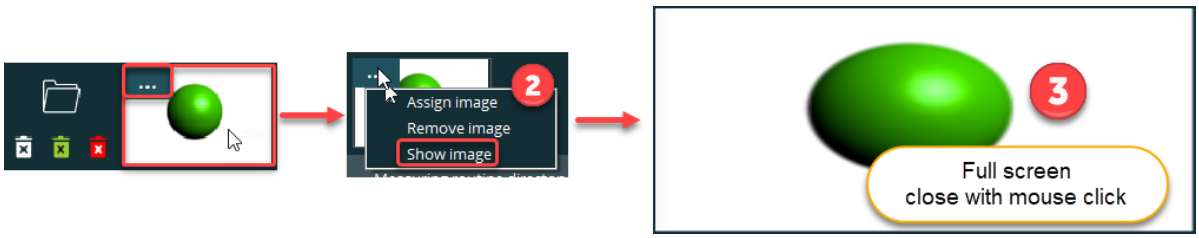
To remove the image, move the mouse pointer over the image to be deleted. The "..." button appears in the top right-hand corner. Then click on the button and select "Remove image" from the drop-down list. The image is



deleted.

The *.QMA file is updated directly without saving it manually (see below). This means that the image is displayed when the measurement job is loaded (see below).

To display the image in full screen mode, move the mouse pointer over the image. The "..." button appears in the top right-hand corner. Then click on the button and select "Show image".



If an image is assigned to the loaded list with the menu option “Meas order” ➝ “Save as ...“" in the dialog window with "Image selection", the image is displayed. This can be changed as described above. If you switch to the "List of measurement routines" view, this image is still displayed above the "List" column.

If no image is assigned to a list (see also above), the last image used in the "Overview" view is displayed in the "List of measurement routines" view. When using images, it is therefore recommended to assign an image to each measurement routine list in the overview.

After having defined all settings and specified the directory and name the measurement task can be stored with the "Meas order" ➝ "Save as…" menu option. A "*.QMA" file is created.

This measurement job can be loaded with "Meas order" ➝ "Load" (see above). The *.QMA file can be integrated in the "List of measurement routines” view (see above: Insert measurement routines list).

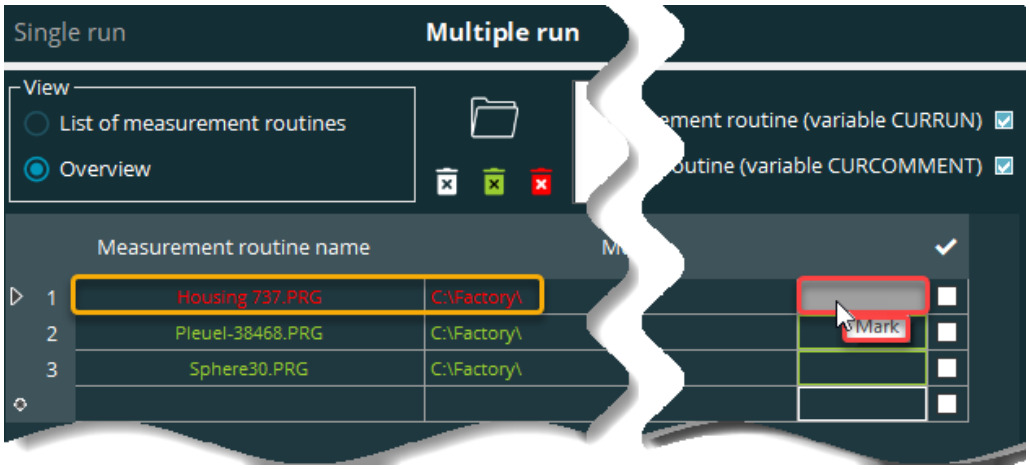
- ## Lock measurement routine

Using the buttons in the right column, measurement routines can be marked and unmarked.

This allows measurement routines that are not to be executed to be skipped.

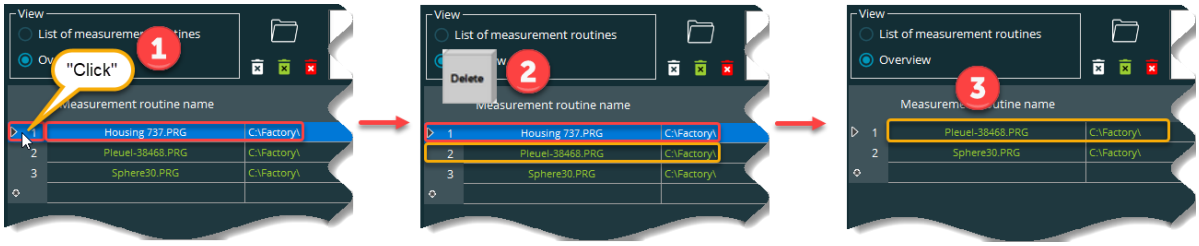
Depending on whether the measurement routine is to be executed or not, the row will be displayed in the color set according to chapter: Menu option “Extras”, section: Settings, point: "Multiple run" tab ➝ Color.

If the mouse pointer is moved over the button, a tooltip with the message "Mark" or "Unmark" appears (depending on the current status).



- Remove measurement routine from list

To remove a measurement routine from a list, click in the left-hand column (consecutive number) to select the entire line. Press the "Delete" key to delete the measurement routine. The next routine takes its place.



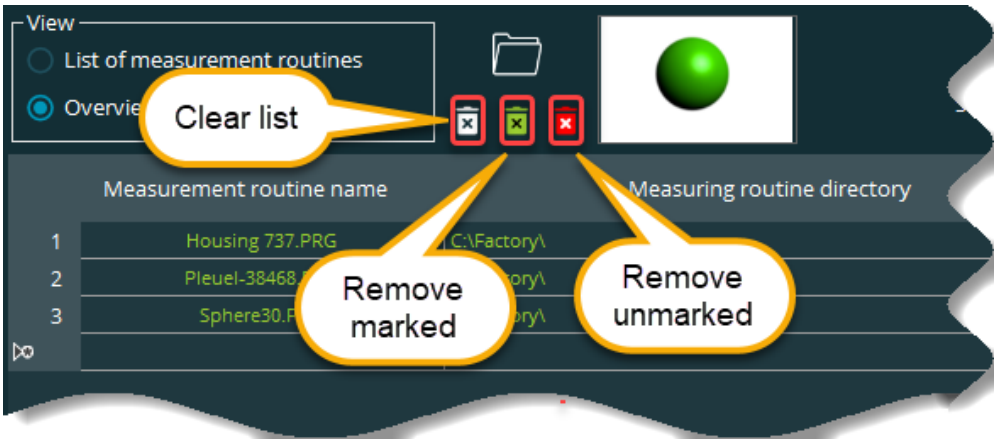
By pressing and holding the left mouse button and moving the mouse up or down you can select several consecutive rows.

If the "⇧" key is held down and the first and last lines are clicked, a block can be selected and by holding down the "Ctrl" key and clicking, individual lines can be selected.

You can change the end line on a marked block by pressing and holding down the "⇧" key. Then, you can click in the desired row.

To deselect individual lines, press and hold "Ctrl". Then click to deselect the corresponding lines.

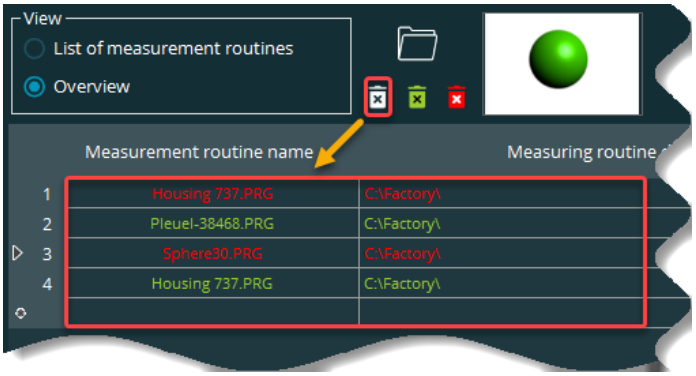
Alternatively, measurement routines can be deleted using the 3 symbols above the table header. The individual symbols have the following meaning:



If the mouse pointer is moved over an icon, a tooltip appears with the corresponding information.

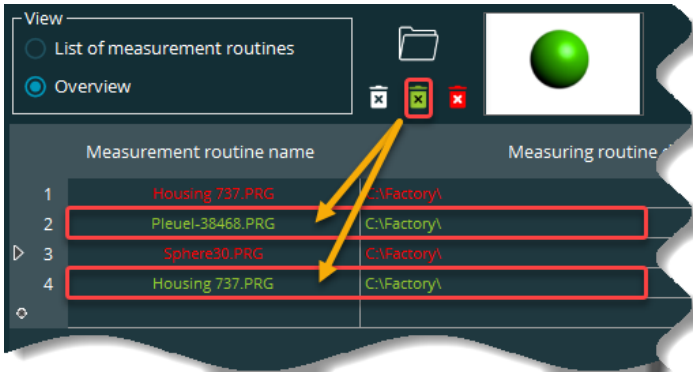
- Clear list „“

  All measurment routines are removed from the list. It does not matter whether measurement routines are selected or not. This function is identical to the procedure described below (delete complete list).



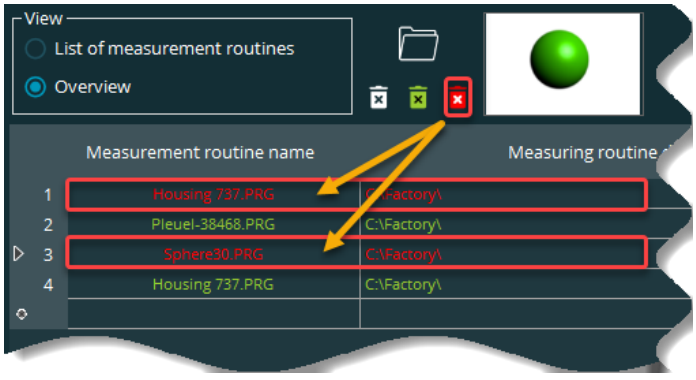
- Remove marked „“

  Only the marked measurment routines are removed from the list. In the example below, the measurement routines from lines "2" and "4".

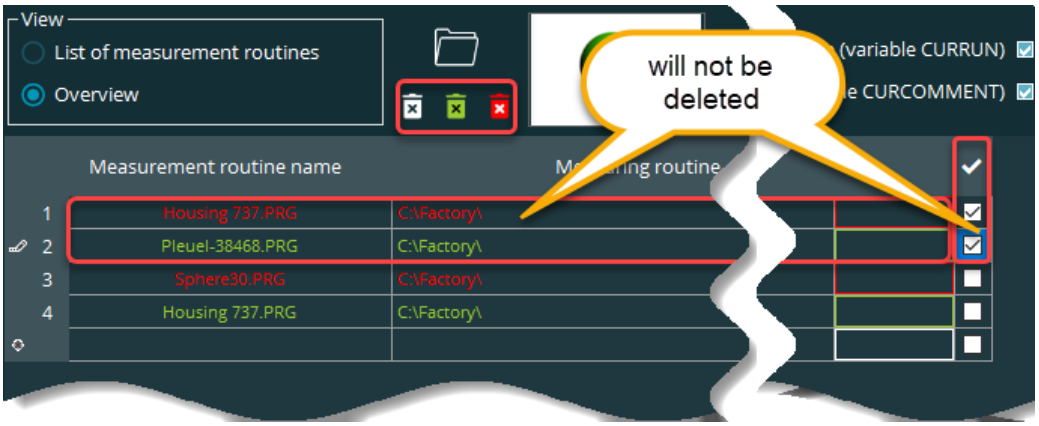


- Remove unmarked „“

  Only the unmarked measurment routines are removed from the list. In the example below, the measurement routines from lines "1" and "3".

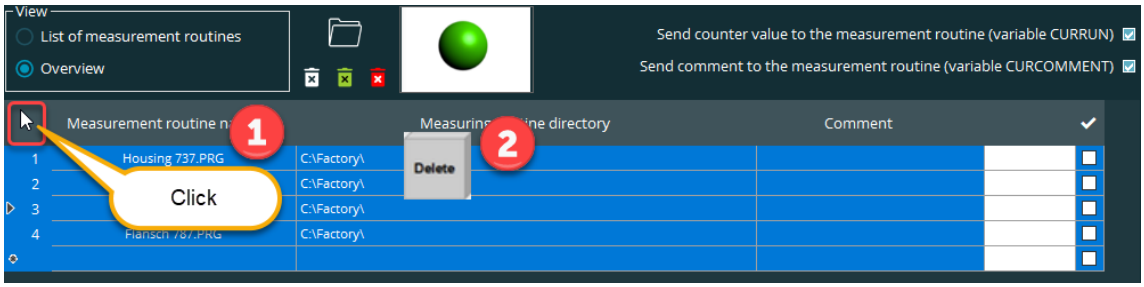


If measurement routines are not to be removed from a list, they can be protected by activating the checkboxes in the "✓" column. Regardless of whether they are marked or not and which of the three options for removal (see above) is selected, they remain in the measurement routine list. This does not apply if the complete list is selected as described below.



If the entire list is to be deleted, all measurement routines can be selected by clicking in the top left-hand field (above the consecutive number "1"). All measurement routines can then be deleted using the "Del" button. It does not matter whether measurement routines are marked or protected (see above) or not.

Then press the "Delete" button to delete all measurement routines.



Alternatively, the entire list can be deleted using the menu option "Meas order" → "Remove" or the key combination "Ctrl" and "D". Protected measurement routines (see above) remain in the list.

All the changes described above are temporary, i.e. if the measurement job is reloaded from the "List of measurement routines" view, the changes are discarded. If the changes are to be saved permanently, this can be done using the menu option "Meas order" → "Save as…". A file with the extension "QMA" is created. This file can be loaded and further processed using "Meas order" → "Load". The *.QMA can be integrated in the "List of measurement routines"" view (see above: Insert measurement routines list).

- ## Start of a measuring job

The settings made according to chapter: Menu option “Extras”, section: Settings, point: “General” tab and point: “Multiple run” tab are to be taken into account for starting, running and closing a measuring task.

- Start by mouse

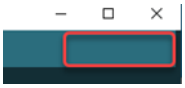
  The start of a measuring job is done with the "▶" button in the lower right corner or with the key combination "Ctrl" + "Q".

  If no measuring routine is available (e.g.: all deleted - see above) the button is not available.

- Start by start code

  It is not possible to start a measurement task in the Overview view using a start code.

  The “Scanner” button is not available.

  If the scanner mode is activated with the "F1" or "F9” function keys, the Operator Interface switches to the "List of measurement routines” view. In this view, the measurement task can be started with a start code (see section: The tabs, section: Multiple run, point: List of measurement routines view ➞ Start of a measuring job ➞ Start with scanner).

- ## Execution and end of a measurement task

The settings made according to chapter: Menu option “Extras”, section: Settings, point: “General” tab and point: "Multiple run" tab are to be taken into account for starting, running and closing a measuring task.

Depending on the settings made according to chapter: Menu option “Extras”, section: Settings, point: "Multiple run" tab ➞ Show execution window after execution the List of measurement routines or the Execution panel tab is displayed after the start of the measurement task.

If the "Execution panel" view is active, you can open the Multiple run tab view by clicking with the left mouse button. Regardless of whether the routine has been started in the List of measurement routines or Overview view, the Overview view is shown (see section: The tabs, section: Multiple run, point: List of measurement routines view ➞ Start of a measuring job and point: Overview view ➞ Start of a measuring job).

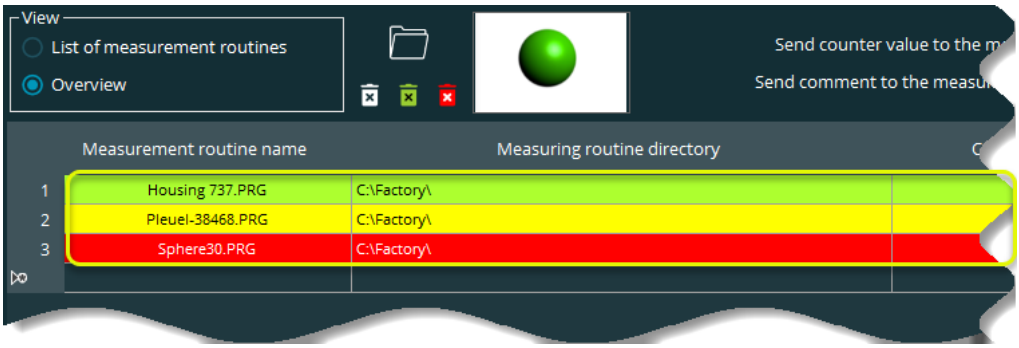
The measurement routine currently to be processed is displayed in the color set for OK (all values within the tolerance) or NOK (at least one value is out of tolerance) according to chapter: Menu option “Extras”, section: Settings, point: “Multiple run” tab ➞ Color.

Already executed measurement routines are also displayed in the color set for OK (all values are within the tolerance) or NOK (at least one value is out of tolerance) according to chapter: Menu option “Extras”, section: Settings, point: "Multiple run" tab ➞ Color.

While the measurement task is being processed a green bar at the bottom of the screen shows the progress and the message “Measurement job is being executed” appears.

After the measuring routine has been completed, the "Multiple run" tab is displayed in the "Measuring routines list" view.

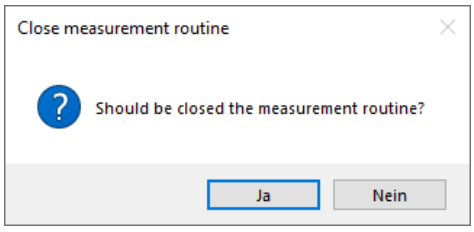
After selecting the "Overview view" view, the complete measuring job is displayed in the colors selected under Chapter: Menu option “Extras”, section: Settings, point: “Multiple run” tab → Color for "OK" (all values within the tolerance), “NOK" (one or more values outside the tolerance) and "Critical" (if the action control limit has been defined).



- ## Stop, cancel or continue measuring job

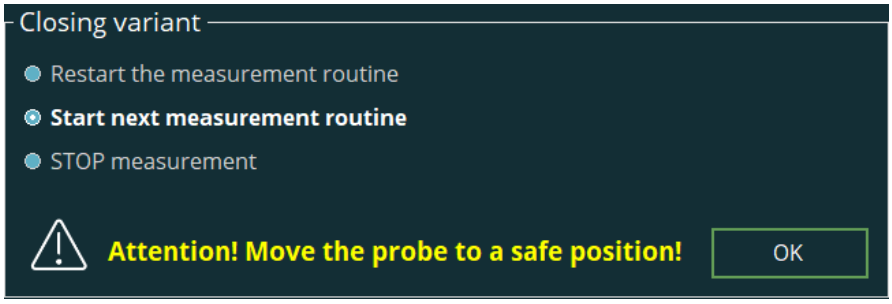
You can use the “Execution panel” tab to delete manual measuring points and to stop, continue and cancel measurements during execution (see chapter: The tabs, section: Execution panel).

If a measurement routine is cancelled during execution the following message will appear in administrator mode (see chapter: Menu option “Extras”, section: Safety):



To interrupt the execution, this prompt must be answered with "Yes".

The "Closing variant" window is displayed regardless of the administrator mode (see above). Depending on the settings made under the menu option "Extras" ➔ "Settings" in the "Multiple run" tab under "Available closing variants at measurement is aborted", the following options are available:



The "Cancel measurement" radio button is suggested by default (if this has been enabled [see above]). The text at the selected variant (by clicking on the radio button) is highlighted (in the example above: "Start next measurement routine").

By clicking on the "OK" button, the selected closing variant is executed.

- Restart the measurement routine

  The currently loaded measurement routine is executed again and the measurement job is processed further.

- Start next measurement routine

  The currently loaded measurement routine is terminated and the next one in the sequence overview is started. The measurement job continues to be processed.

  If only this option is available and the measurement is aborted at the last measurement routine, no radio button can be selected. After confirming with "OK" the measurement is aborted.

- STOP measurement

  The measurement is aborted. The measurement routines executed up to this point are displayed in the color selected for "OK" (all values within tolerance), "NOK" (one or more values outside tolerance) and "Critical" (if the action control limit has been defined) under chapter: Menu option "Extras", section: Settings, point: "Multiple run" tab ➔ Color .

The note: "⚠ Attention! Move the probe to a safe position”" must be observed, otherwise collisions cannot be ruled out.

If the checkbox under "Extras" ➔ "Settings" in the "Multiple run" tab is active for "Go to origin view after measurement abort", the system switches to the view that was selected in the "Display at start of tab" area. If this checkbox is not active, the system switches to the "Overview" view.

- ## Send counter value to the measurement routine (variable CURRUN)

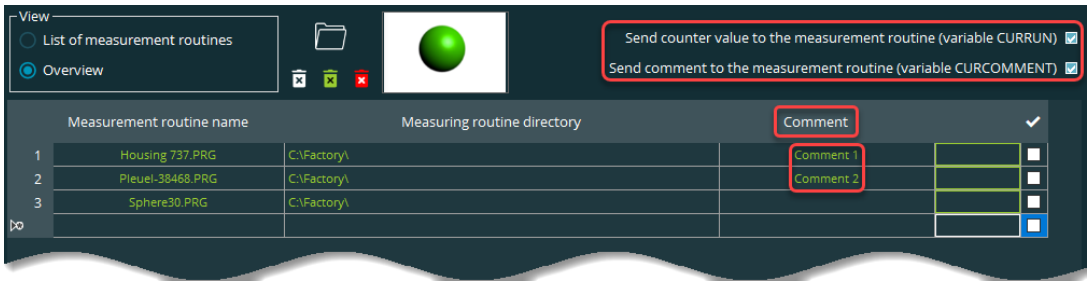
  Prerequisite for this function is that the CURRUN variable has been passed to the measurement routine according to chapter: Menu option “File”, section: Create configuration, point: Send variables to routine.

  If the checkbox is activated, the value of the counter from the left-hand column in the overview view is transferred to this variable duringexecution.

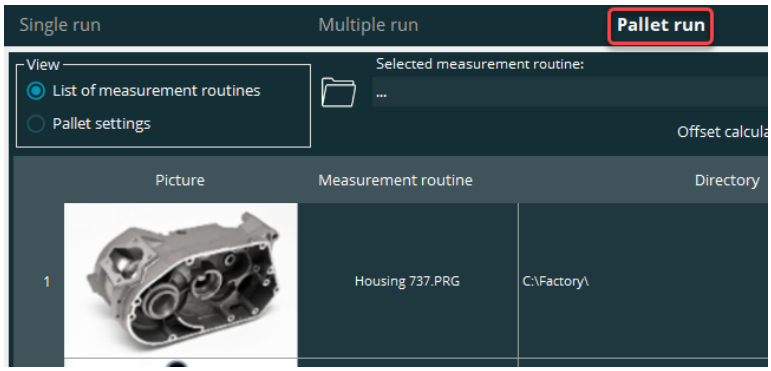
- ## Send comment to the measurement routine (variable CURRCOMMENT)

  Prerequisite for this function is that the CURCOMMENT variable has been passed to the routine according to chapter: Menu option “File”, section: Create configuration, point: Send variables to routine.

  If this checkbox is activated, the value from the “Comment” column of the overview view will be passed to this variable while the routine is executed.



10.3. Pallet run

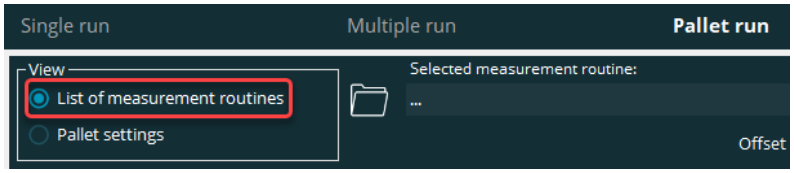


The settings made according to chapter: Menu option “Extras”, section: Settings, point: “General” tab and point: "Pallet run" tab are to be taken into account for starting, running and closing a measuring task.

For detailed information on how a measurement routine, which is not integrated into the user interface, is started, executed and closed please see chapter: Pallet run, section: Pallet settings view, point: Load measurement routine and point: Execute measurement routine.

- ### List of measurement routines view

Depending on the settings made according to chapter: Menu option “Extras”, section: Settings, point: ”Pallet run” tab → Display at tab start the “List of measurement routines” or “Pallet settings” view is displayed when you move to the "Pallet run" tab.



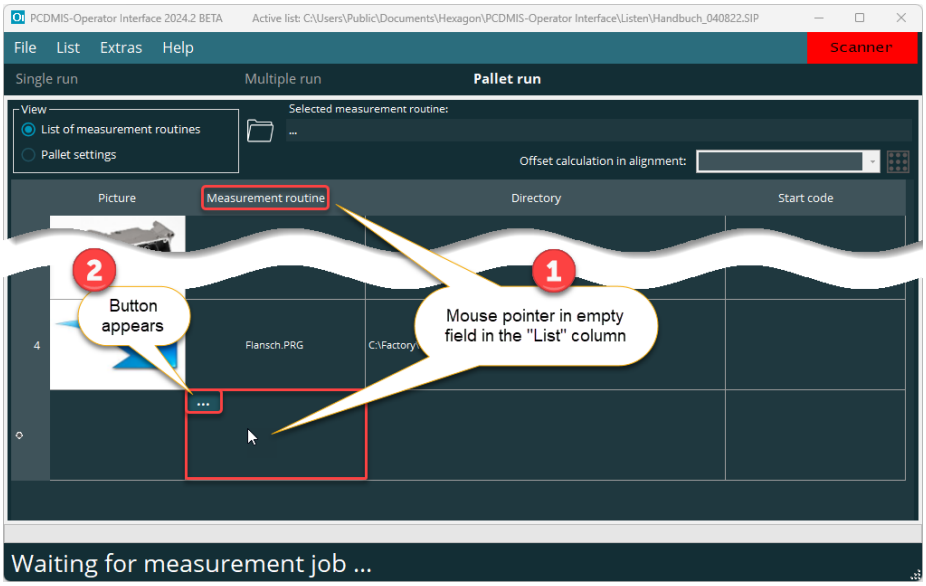
Alternatively, you can open the view by clicking on the view and activating the radio buttons.

  - #### Inserting measurement routine into the a list

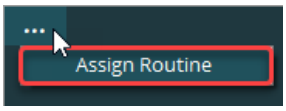
This option is only available in administrator mode (see chapter: Menu option “Extras”, section: Safety).

When first starting the Operator Interface there are no measurement routines. Alternatively, an empty list can be created with “List →New” (see chapter: Menu option List, section: New).

To insert a measurement routine into a list, move the mouse pointer over an empty field in the "Measurement routine" column. The "..." button appears in the top left-hand corner.



Then click on the "..." button and select "Assign Routine".

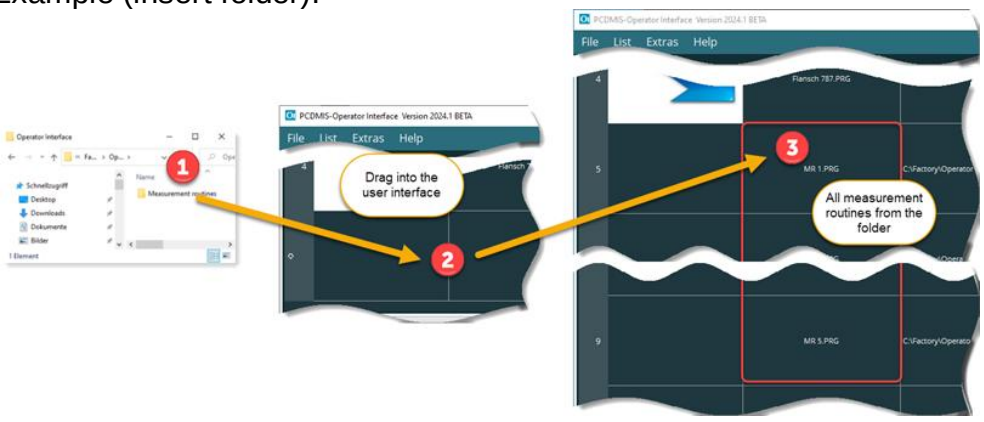


Select the desired measurement routine in the file manager. The measurement routine is added to the list.

Alternatively, measurement routines can be inserted by "drag and drop" as is usual under Windows. To do this, select the measurement routine(s) and drag them into the user interface with the mouse. After releasing the mouse button, the selected routines are inserted in the free area (below the last measurement routine).

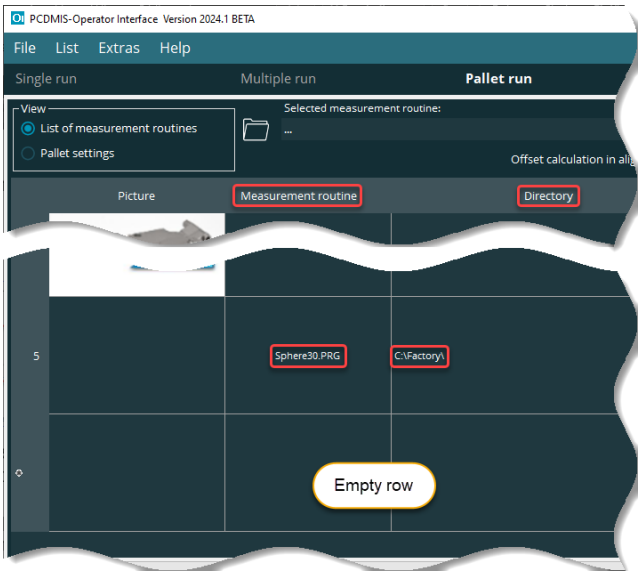
It is also possible to drag and drop a complete folder (or several folders) into the user interface. After releasing the mouse button, all measurement routines in this folder and the associated subfolders are inserted into the user interface. If files other than measurement routines (*.PRG) are present in the folder, they are ignored.

Example (insert folder):



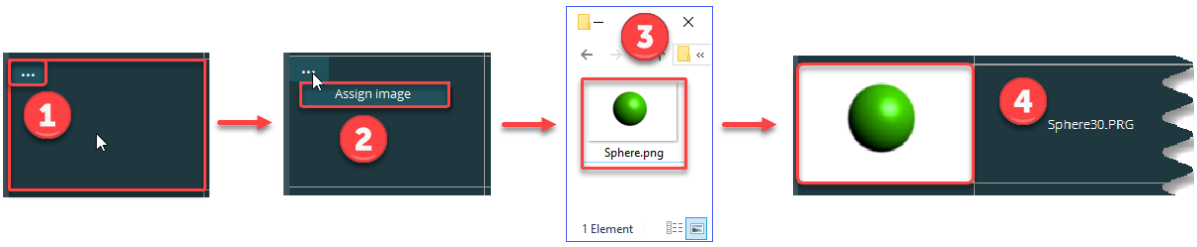
Another option is to open the file manager by clicking with the right mouse button in the "Measurement routine" column. The measurement routine can then be selected.

After inserting the measurement routine (regardless of the selected method), the name is displayed in the "Measurement routine" column and the corresponding path of the measurement routine is displayed in the "Directory" column. A new empty row is created.



To assign an image to the measurement routine, move the mouse pointer into the "Picture" column. The "..." button appears in the top left-hand corner. Then click on the button and select "Assign image". Select the image in the file manager. This is inserted accordingly.

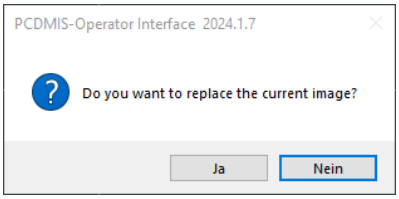
Example:



Alternatively, the picture can be inserted using "drag and drop" as is usual in Windows. To do this, select the picture and drag it with the mouse to the row of the user interface to which the picture is to be assigned. After releasing the mouse button, the picture is inserted. The process is identical to inserting a measurement routine or several measurement routines from a folder (see screenshot above). If an picture is already assigned to the measurement routine and this is to be replaced, the following message appears:

If this message is confirmed with "YES", the picture is replaced and the message is closed.

If “No” is selected, the note is closed without replacing the picture.



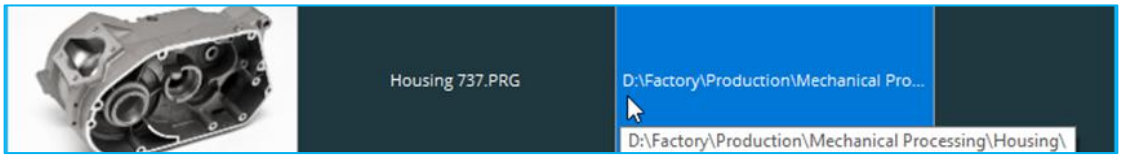
Another way to assign an image to the measurement routine is to right-click in the "Picture" column. The desired image can then be selected in the file manager.

To remove the image, move the mouse pointer over the image to be deleted. The "..." button appears in the top right-hand corner. Then click on the button and select "Remove image" from the drop-down list. The image is

deleted.

To add further measurement routines, the steps described above are repeated with the next free row.

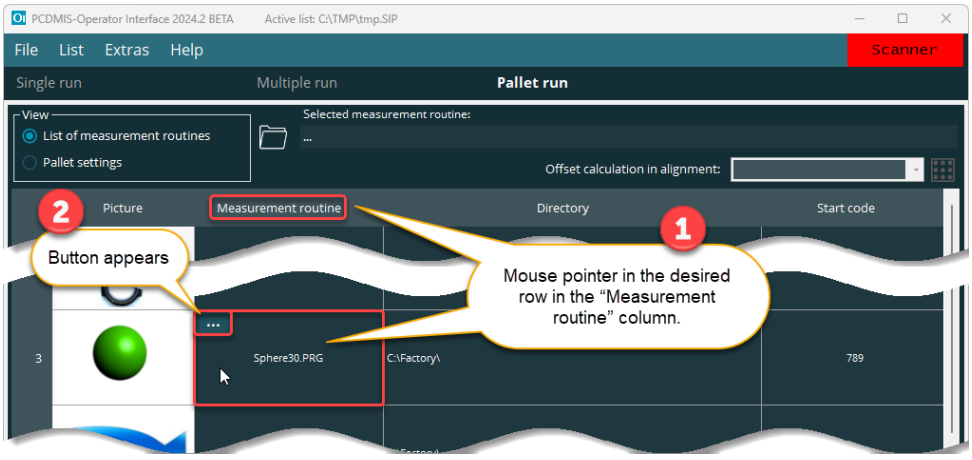
If the name or path is longer than the width of the column, a tooltip with the complete name or path appears when the mouse pointer is moved into the corresponding field (in the example below: "Path").



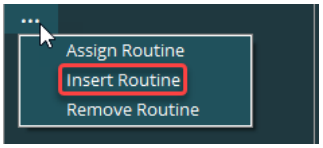
If there are more rows filled with measurement routines than can be displayed on the screen, a vertical scroll bar appears on the right side. The desired routine can be searched by using the mouse wheel.

Alternatively, the "▲" and "▼" icons above and below the scroll bar can be used to scroll up or down one line at a time.

If a measurement routine is not to be inserted at the end of the list, but between two measurement routines, the mouse pointer is moved to the desired line in the "Measurement routine" column. The "..." button appears in the top right-hand corner.

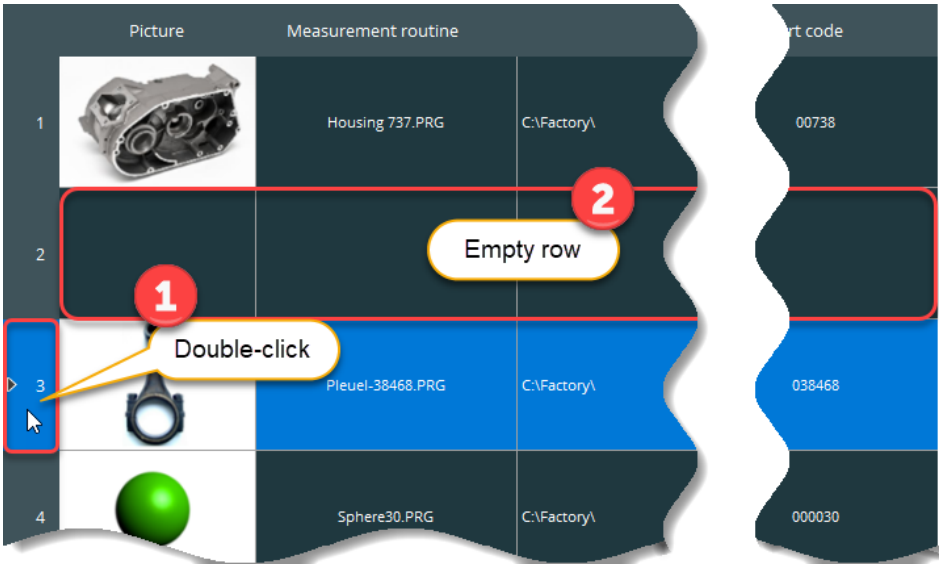


Then click on the "..." button and select "Insert Routine".



Select the desired measurement routine in the file manager. The measurement routine is inserted into the row. The previous row is moved down.

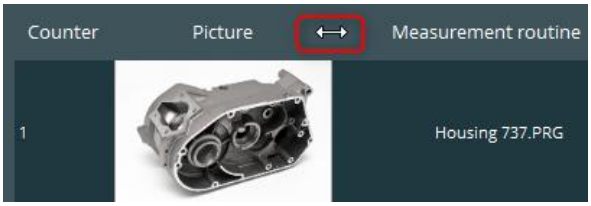
Alternatively, double-click in the left-hand column to create an empty row. The desired measurement routine can then be inserted into this as described above.



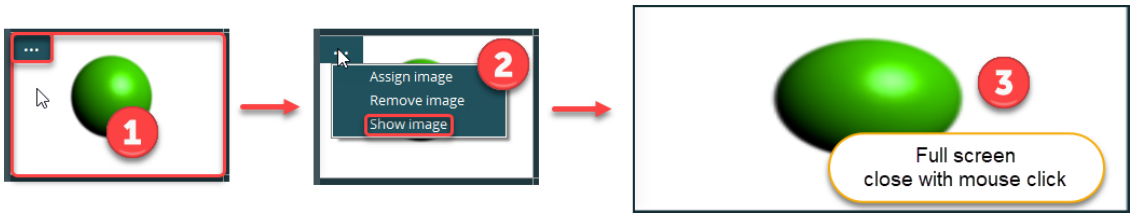
An image can then be assigned to the measurement routine as described above.

The process for changing a measurement routine is identical to inserting a measurement routine in an empty line (see above). Alternatively, you can right-click in the "Measurement routine" column and select the measurement routine. An image can then be assigned to the measurement routine as described above.

If the picture is too small, you can move the mouse pointer in the header to the right margin of the Picture column. The appearance of the mouse pointer changes to "⇦⇨". By clicking and holding the left mouse button the size of the column can now be maximized or minimized at a ratio of 3:2 (W:H). The change is saved permanently.



To display the image in full screen mode, move the mouse pointer over the desired image. The "..." button appears in the top right-hand corner. Then click on the button and select "Show image" from the drop-down list.

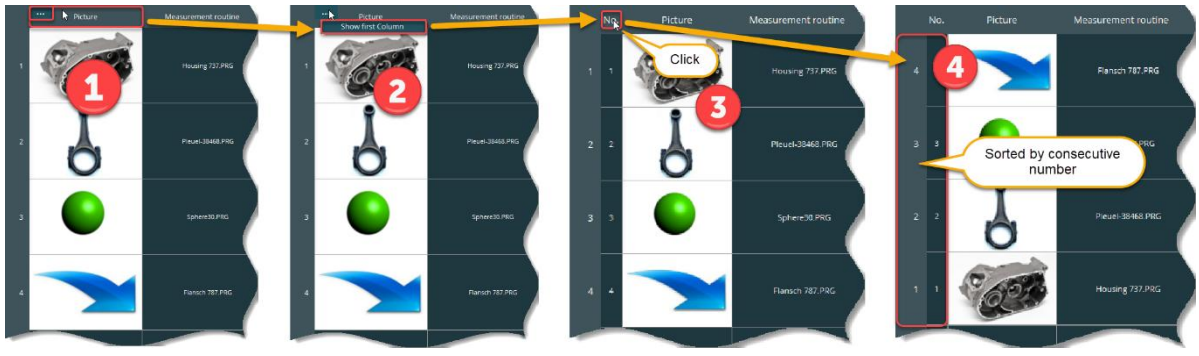


Alternatively, right-click in the column with the consecutive number in the corresponding row.

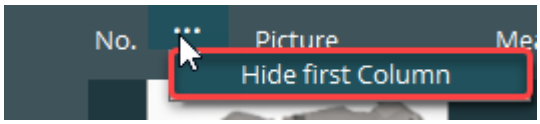
Regardless of the variant selected, the image can be reduced or minimized by double-clicking in the dark upper area. Click on the image to close it.

Click in the "Measurement routine", "Directory" or "Start code" column to sort the display in ascending (symbol: ▲) or descending (symbol: ▼) order.

If the sorting is to be based on the sequential number, the mouse pointer is moved to the header of the "Picture" column. The "..." button appears in the top right-hand corner. Then click on the button and select "Show first Column". A "No." column is displayed to the left of the "Image" column. You can now sort in ascending or descending order by clicking on "No.".



To hide the "No." column, click on the "..." button (see above) and select "Hide first Column".



Alternatively, the column can be hidden by changing the tab.

If all the measurement routines are inserted, the list can be saved (see chapter: Menu option “List”, section: Save as...). A file with the extension “SIP” will be created.

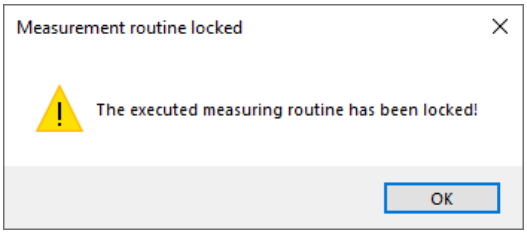
This list can be loaded using the "Load → list" option (see section: Menu option “List”, section: Load). An existing or loaded list can be changed at any time or additional routines can be added to the list. For this purpose, the above steps are repeated.

- ## Lock measurement routine

This function is only available in the administrator mode (see chapter: Menu option “Extras”, section: Safety).

To lock a measurement routine, select the entire line by clicking in the left-hand column (consecutive number). Alternatively, you can click in the "Measurement routine", "Directory" or "Start code" columns. The measurement routine is then locked with the "F3" function key and the text in the corresponding line is grayed out.

The measurement routine cannot be started. The following message appears:

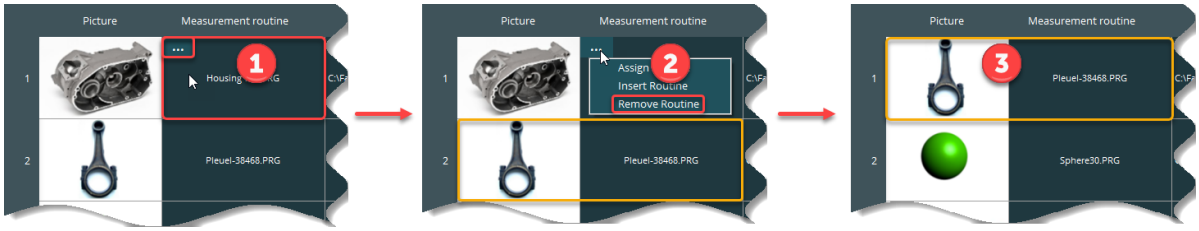


To unblock the measurement routine, the procedure described above must be repeated in administrator mode.

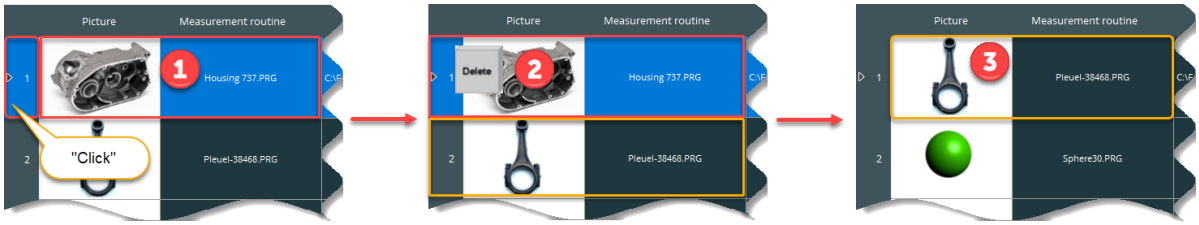
- ## Remove measurement routine from list

This option is only available in administrator mode (see chapter: Menu option “Extras”, section: Safety). The scanner mode must not be active (see below: Start with scanner).

To remove a measurement routine from a list, move the mouse pointer into the "Measurement routine" column. The "..." button appears in the top right-hand corner. Then click on the button and select "Remove Routine". The measurement routine is deleted from the list. The next measurement routine takes its place.



Alternatively, the entire line can be selected by clicking in the left-hand column (consecutive number). The measurement routine is deleted with the "Del" key. The next routine takes its place.



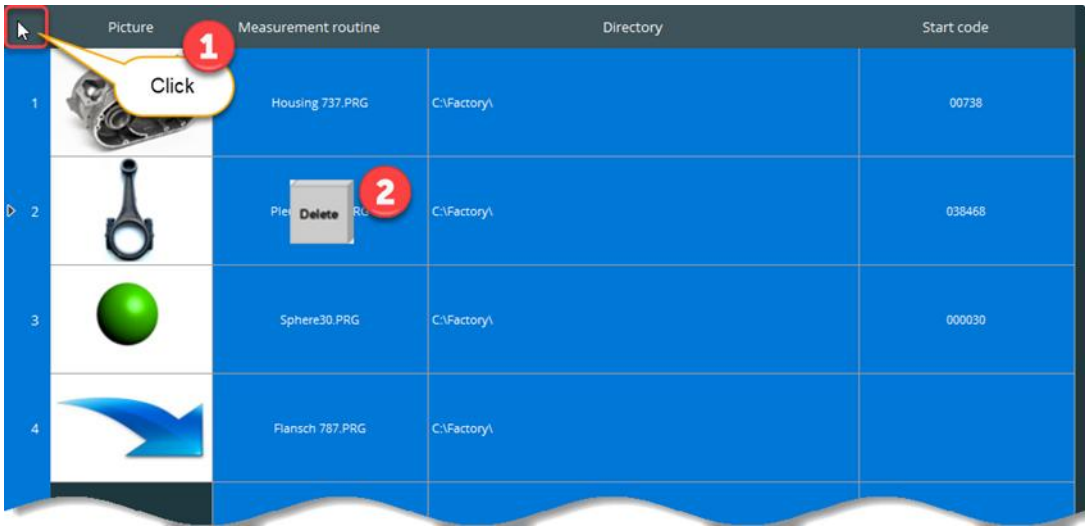
By pressing and holding the left mouse button and moving the mouse up or down you can select several consecutive rows.

By holding the “⇧” button you can highlight a block and by using the "Ctrl" key individual lines.

You can change the end line on a marked block by pressing and holding down the "⇧" key. Then, you can click in the desired row.

In order to deselect individual rows, press and hold the “Ctrl” key. Then click to deselect the corresponding rows.

If the entire list is to be deleted, all measurement routines can be selected by clicking in the top left-hand field (above the consecutive number "1"). You can then delete all routines with the “Delete” key.



If you want to save these changes permanently, use the menu option "List ➞ Save as..." (see chapter: Menu option “List”, section: Save as...). A file with the extension “SIP” will be created. This file can be loaded and processed with the "List ➞ Load" option (see section: Menu option List, section: Load).

Starting a measurement routine

The settings made according to chapter: Menu option “Extras”, section: Settings, point: “General” tab and point: "Pallet run" tab are to be taken into account for starting, running and closing a measuring task.

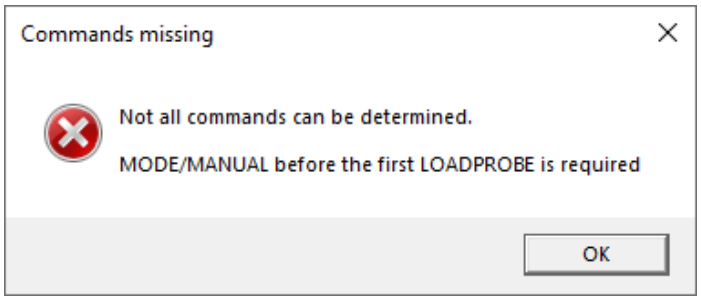
A copy is created in the folder of the measurement routine, which is deleted after expiry. Under "Extras" → "Settings" you can define an alternative folder (see chapter: Menu option “Extras”, section: Settings, point: "General" tab → Measurement with local measurement routines copy).

To be able to start a measurement routine, the following conditions must be met:

- A routine must be loaded.
- The probe for the first clamping station must be loaded in the measurement routine before the start of the pallet measurement.
- The DCC - mode must be in the measuring routine *after* the alignment, which is used for the measurement of the pallet (zero point for the distances of the individual pallet places).
- The complete area between " LOADPROBE" (TIP) and the DCC mode is skipped . Therefore, no commands relevant for the measurement may be located in this area (see: "Example structure measurement routine" below). The last alignment called up before CNC mode is used for the pallet measurement.

  Note: Text passages marked in color correspond to the colored passages in the screenshots.

If these conditions are not met, the following message appears:



After confirming with OK, the execution is aborted.

Example structure measurement routine:

```
START       =ALIGNMENT/START,RECALL:USE_PART_SETUP,LIST=YES
             ALIGNMENT/END
             MODE/MANUAL
             MOVESPEED/ 100
             LOADPROBE/WRIST
             TIP/T1A0B0, SHANKIJK=0, 0, 1, ANGLE=0
$$ NO,

             ---------- Start skipped area ----------

             ASSIGN/OPERATOR="John"
             MOVE/POINT,NORMAL,<0,0,100>
PLN1        =FEAT/CONTACT/PLANE/DEFAULT,CARTESIAN,NONE,LEAST_SQR
             THEO/<30.276,0,20.819>,<0,-1,0>
             ACTL/<30.276,0,20.819>,<0,-1,0>
             TARG/<30.276,0,20.819>,<0,-1,0>
             ANGLE VEC=<1,0,0>,SQUARE
             SHOW FEATURE PARAMETERS=NO
             SHOW CONTACT PARAMETERS=NO
A1          =ALIGNMENT/START,RECALL:START,LIST=YES
               ALIGNMENT/LEVEL,ZPLUS,PLN1
               ALIGNMENT/TRANS,ZAXIS,PLN1
             ALIGNMENT/END
LIN1        =FEAT/CONTACT/LINE/DEFAULT,CARTESIAN,UNBOUNDED
             THEO/<30.276,0,20.819>,<0,-0.9927771,0.1199731>,<-1,0,0>,<0,-1,0>,76.532
             ACTL/<30.276,0,20.819>,<0,-0.9927771,0.1199731>,<-1,0,0>,<0,-1,0>,76.532
             TARG/<30.276,0,20.819>,<0,-0.9927771,0.1199731>,<-1,0,0>,<0,-1,0>
             SHOW FEATURE PARAMETERS=NO
             SHOW CONTACT PARAMETERS=NO
A2          =ALIGNMENT/START,RECALL:A1,LIST=YES
               ALIGNMENT/ROTATE,XPLUS,TO,LIN1,ABOUT,ZPLUS
               ALIGNMENT/TRANS,YAXIS,LIN1
             ALIGNMENT/END
PNT1        =FEAT/CONTACT/VECTOR POINT/DEFAULT,CARTESIAN
             THEO/<30.276,0,20.819>,<0,-1,0>
             ACTL/<30.276,0,20.819>,<0,-1,0>
             TARG/<30.276,0,20.819>,<0,-1,0>
             SNAP=NO
             SHOW FEATURE PARAMETERS=NO
             SHOW CONTACT PARAMETERS=NO
$$ NO,

             ---------- End skipped area ----------

A3          =ALIGNMENT/START,RECALL:A2,LIST=YES
               ALIGNMENT/TRANS,XAXIS,PNT1
             ALIGNMENT/END
             MODE/DCC
$$ NO,

             ---------- Start pallet measurement ----------

PNT2        =FEAT/CONTACT/VECTOR POINT/DEFAULT,CARTESIAN
             THEO/<30.276,0,20.819>,<0,-1,0>
             ACTL/<30.276,0,20.819>,<0,-1,0>
             TARG/<30.276,0,20.819>,<0,-1,0>
```

Example of measurement routine structure during execution (additions via the operator interface):

```
START       =ALIGNMENT/START,RECALL:USE_PART_SETUP,LIST=YES
             ALIGNMENT/END
             MODE/MANUAL
             MOVESPEED/ 100
             LOADPROBE/WRIST
             TIP/T1A0B0, SHANKIJK=0, 0, 1, ANGLE=0
             GOTO/VORRICHTUNG
$$ NO,

             ---------- Start skipped area ----------------------------------------

             ASSIGN/OPERATOR="John"
             MOVE/POINT,NORMAL,<0,0,100>
PL          =FEAT/CONTACT/ /DEFAULT,CARTES .LEAST_SQR

             SHOW FEATURE PARAMETERS=NO
             SHOW CONTACT PARAMETERS=NO
$$ NO,

             ---------- End skipped area ------------------------------------------

VORRICHTUNG=LABEL/
A3          =ALIGNMENT/START,RECALL:A2,LIST=YES
               ALIGNMENT/TRANS,XAXIS,PNT1
             ALIGNMENT/END
             MODE/DCC
$$ NO,
             ------------------------- OI PART BEGIN ------------------------
             ASSIGN/VX="0"
             ASSIGN/VY="0"
             ASSIGN/VZ="0"
             ASSIGN/NX=0
             ASSIGN/NY=0
             ASSIGN/NZ=0
             ASSIGN/NI=0
             ASSIGN/NJ=0
             ASSIGN/NK=1
             ASSIGN/CURRUN="1"
             ASSIGN/PARTNUMBERINROW="1"
             ASSIGN/CURROWNUMBER="1"
             ASSIGN/FIRSTFIXTUREPLACE="True"
             ASSIGN/LASTFIXTUREPLACE="True"
HP          =FEAT/POINT,CARTESIAN,YES
             THEO/<VX,VY,VZ>,<NI,NJ,NK>
             ACTL/<0,0,0>,<0,0,1>
             CONSTR/POINT,OFFSET,ORIGIN,VX,VY,VZ
HA          =ALIGNMENT/START,RECALL:A3,LIST=YES
               ALIGNMENT/TRANS,ZAXIS,HP
               ALIGNMENT/TRANS,XAXIS,HP
               ALIGNMENT/TRANS,YAXIS,HP
             ALIGNMENT/END
$$ NO,
             ------------------------- OI PART END --------------------------
$$ NO,

             ---------- Start pallet measurement ----------------------------------

PNT2        =FEAT/CONTACT/VECTOR POINT/DEFAULT,CARTESIAN
             THEO/<30.276,0,20.819>,<0,-1,0>
             ACTL/<30.276,0,20.819>,<0,-1,0>
             TARG/<30.27  19>,<0,-1,0>
```

- Start by mouse

  If there are more measurement routines in the user interface than can be displayed on the screen, you can search for the desired one using the vertical scroll bar (see chapter: The tabs, point: Pallet run, section: Inserting measurement routine into a list ➝ Scroll bar).

  - Start by picture

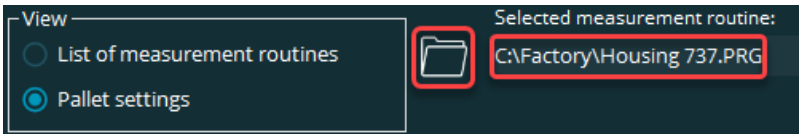
    By single- or double-clicking (see: chapter: Menu option “Extras”, section: Settings, point: "General" tab ➝ Load measuring routine with double click) in the field in the Picture column you can move to the Pallet settings view.

    If the checkbox Switch to palett assignment after loading the measuring routine is active under Menu option "Extras" ➝ Settings in the "Pallet run" tab, the "Show pallet assignment" button (see below) is activated and the pallet is displayed. If the palette has not yet been defined, the palette will be displayed regardless of the state of this checkbox. If the checkbox Switch to palett assignment after loading the measuring routine is deactivated, the system switches to the last selected view (pallet assignment on or off).

  - Start by “Selected measurement routine” function

    This function can be used to start a measurement routine that is not integrated into the user interface.

    A measurement routine is selected by clicking on the "  " button next to the "View" area. Alternatively, you can right-click in the "Selected measurement routine" field.

    If the checkbox Switch to palett assignment after loading the measuring routine is active under Menu option "Extras" ➝ Settings in the "Pallet run" tab, the "Show pallet assignment" button (see below) is activated and the pallet is displayed. If the palette has not yet been defined, the palette will be displayed regardless of the state of this checkbox. If the checkbox Switch to palett assignment after loading the measuring routine is deactivated, the system switches to the last selected view (pallet assignment on or off).

  The path and name of the measuring routine is displayed in the "Selected measuring routine" field.

  The start of a measuring job is done with the "  " button in the lower right corner or with the key combination "Ctrl" + "Q".

  If the checkbox "loaded manually" is active under chapter: Menu option "Extras", section: Settings, point: “Palett run” tab ➝ Confirm measurement order, the start must be confirmed manually

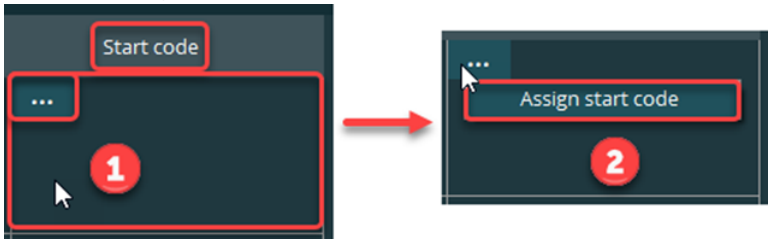
.

- Start with scanner

  To start a measuring routine by using a start code, the corresponding start codes must be assigned to them in the list.

  This can be done only in the administrator mode (see chapter: Menu option “Extras”, section: Safety).

  To assign a start code to a measurement routine, move the mouse pointer into the "Start code" column. The "..." button appears in the top right-hand corner (only if scanner mode is deactivated - see below). Then click on the button and select "Assign start code".



The "Assign start code" dialog box opens. The start code can be entered here using a scanner or the keyboard:

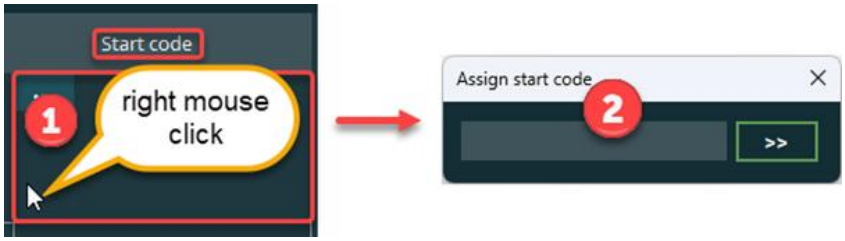
- Input with scanner

  The start code is scanned. The dialog window is then closed and the scanned start code is assigned to the measurement routine.

- Input with keyboard

  The start code is entered. Click on the ">>" button to close the dialog box and assign the start code to the measurement routine.

Alternatively, the "Assign start code" dialog box can be opened by clicking with the right mouse button on the desired row in the "Start code" column.



The start code can then be entered as described above.

The steps described above are repeated for other start codes.

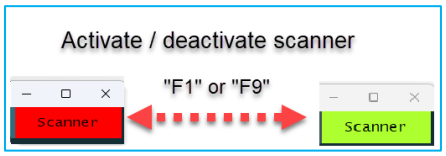
After having entered all start codes the list can be saved (see chapter: Menu option “List”, section: Save as...). A file with the extension “SIP” will be created. This file can be loaded and further processed using the menu option "List" ➝ "Load".

When starting a measurement routine by start code the settings under: Menu option “Extras”, section: Settings, point: “General” tab ➜ Scanner are to be taken into account.

Scanner mode must be active. This can be activated or deactivated using the mouse or keyboard.

- With keyboard

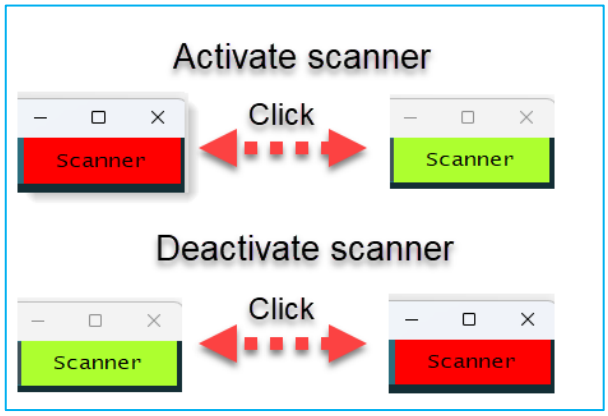
  Use the “F1” or “F9” function keys to activate or deactivate the “Scanner” button at the top right. The button turns green (scanner activated) or red (scanner deactivated).



- With mouse

  To do this, click on the red button at the top right. The button turns green.

  To deactivate the "Scanner" function, repeat the process with the green field. The button turns red.



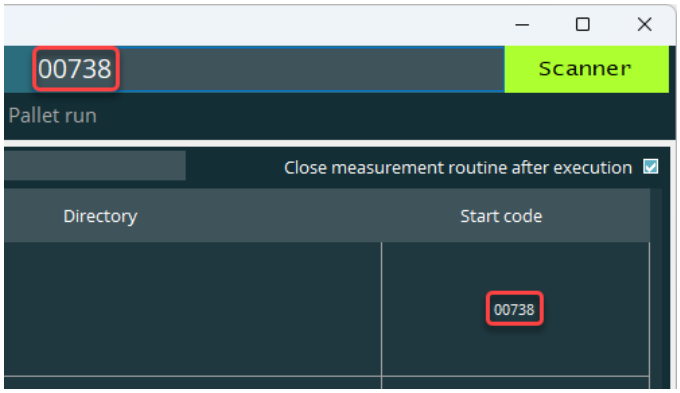
If the mouse pointer is moved over the button, a tooltip appears indicating what the mouse click will do.

To be able to process a code, you must ensure that the focus of the mouse pointer is in the input field to the left of the green button (flashing line).

When the scanner is activated, the buttons for manually starting the measurement routines (”Picture“ column) are deactivated.

The code is shown to the right of the scanner icon (if you are using a scanner) or entered using the keyboard. The code is processed after the time defined under chapter: Menu option “Extras”, section: Settings, point: Scanner ➜ Delay time when starting with start code has been exceeded.

If the code matches a measuring routine, this is started.

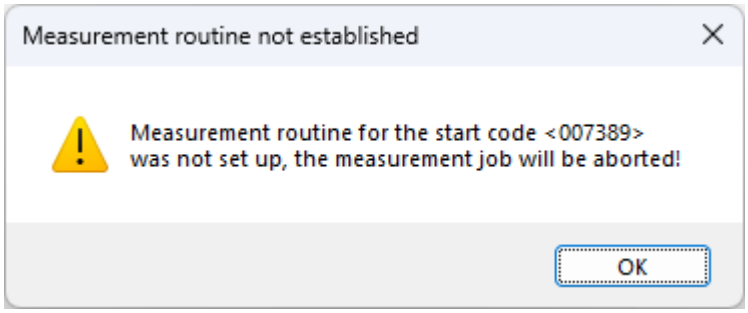


Depending on the settings made according to chapter: Menu option “Extras”, section: Settings, point: “General" tab ➞ Scanner ➞ Show image when starting with start code the measurement routine is started with or without displaying the image.

If the checkbox "loaded with start code" is active under chapter: Menu option "Extras", section: Settings, point: ”Pallet run” tab ➞ Confirm measurement order, the start must be confirmed manually.

Depending on the settings made according to chapter: Menu option “Extras”, section: Settings, point: ”Pallet run” tab ➞ Show input dialog when starting the measurement routine, the entry form for the variables is displayed or the routine is directly started.

If no start code matching a measurement routine is found, the following message appears:



Depending on the settings made under Chapter: Menu option “Extras”, section: Settings, point: "General" tab ➞ Set focus on scanner after each run, a new start code is expected immediately after the measurement has been completed or the focus of the mouse pointer must be set to the start code again by clicking in the input field.

Alternatively, the start can be started with a start code from a file. For further details see chapter: Menu option “Extras”, section: Settings, point: “General“ tab ➞ Scanner ➞ Read start code from file.

- ## Pallet settings view

  Depending on the settings made according to chapter: Menu option “Extras”, section: Settings, point: “Pallet run” tab ➞ Display at tab start the “List of measurement routines” or “Pallet settings” view is displayed when you move to the "Pallet run" tab.

  Alternatively, the view can be changed by clicking on the image in the "List of measurement routines" view or activating the radio button.

  The Menu option "List" is not available.

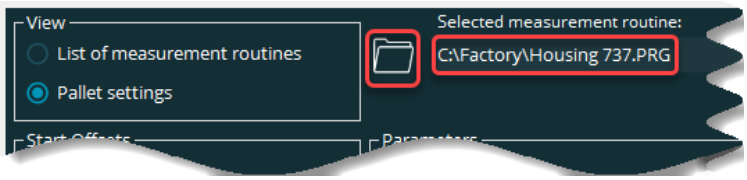
- ## Load measurement routine

  If an picture is clicked or a measurement routine is selected (with "Selected measuring routine") in the "List of measuring routines" view, the "Palette settings" view is switched to and this measurement routine is active (see chapter: The tabs, section: Pallet run, point: List of measurement routines view ➞ Starting a measurement routine ➞ Start by mouse and Start by "Selected measurement routine" function).

  Alternatively, a measurement routine that is not integrated into the user interface can be loaded.

  - Load using the “Selected measurement routine” function

    A measurement routine is selected by clicking on the "" button next to the "View" area. Alternatively, right-click in the "Selected measurement routine" field.

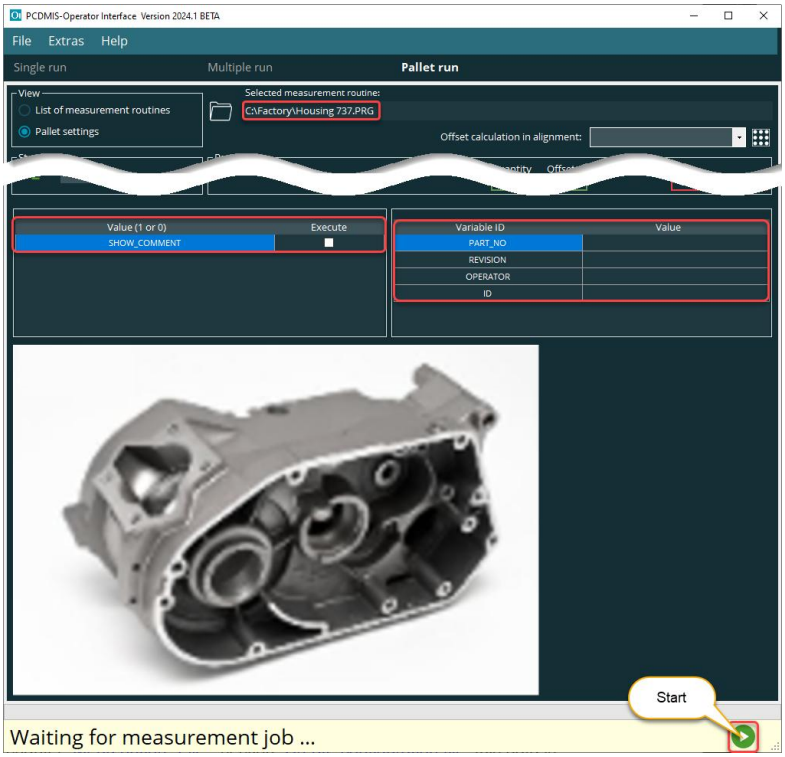
  If the checkbox Switch to palett assignment after loading the measuring routine is active under Menu option "Extras" ➞ Settings in the "Pallet run" tab, the "Show pallet assignment" button (see below) is activated and the pallet is displayed. If the palette has not yet been defined, the palette will be displayed regardless of the state of this checkbox. If the checkbox Switch to palett assignment after loading the measuring routine is deactivated, the system switches to the last selected view (pallet assignment on or off).

The path and name of the measuring routine is displayed in the "Selected measuring routine" field.

The start of a measuring job is done with the "" button in the lower right corner or with the key combination "Ctrl" + "Q".

If the checkbox "loaded manually" is active under chapter: Menu option "Extras", section: Settings, point: "Palett run" tab ➔ Confirm measurement order, the start must be confirmed manually.

If data has been assigned to the measurement routine as described in chapter: Menu option "File", section: Create configuration, this data is displayed when the pallet assignment is switched off (see below). Prerequisite is that under menu option "Extras" ➔ Settings in the "Palette run" tab the checkbox at "Show input dialog when starting the measurement routine" is active.



If this view is selected, the current data for each clamping position is displayed during the measurement.

- Define pallet

  In this area, various settings can be made, regardless of whether or not the pallet utilization is displayed.

  It is a requirement that a measurement routine is displayed in the "Selected measurement routine" field.

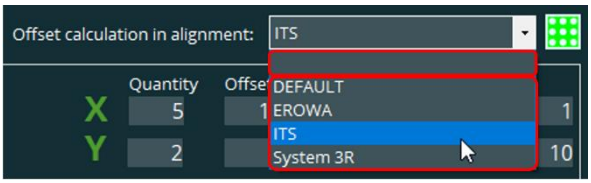
  The settings cannot be change while executing a measurement routine.

  After the end of the routine, the defined pallet is saved with the measurement routine (see chapter: Pallet run, section: Execution and end of a pallet measurement).

  - Offset calculation in alignment

    If you want to use an external alignment, it can be selected in the field "Offset calculation in alignment". Click in the field with the "▾" symbol and select the required alignment in the following dialog window. All alignments existing in PC-DMIS will be displayed.

    Select an empty field if you don't want to use an alignment.

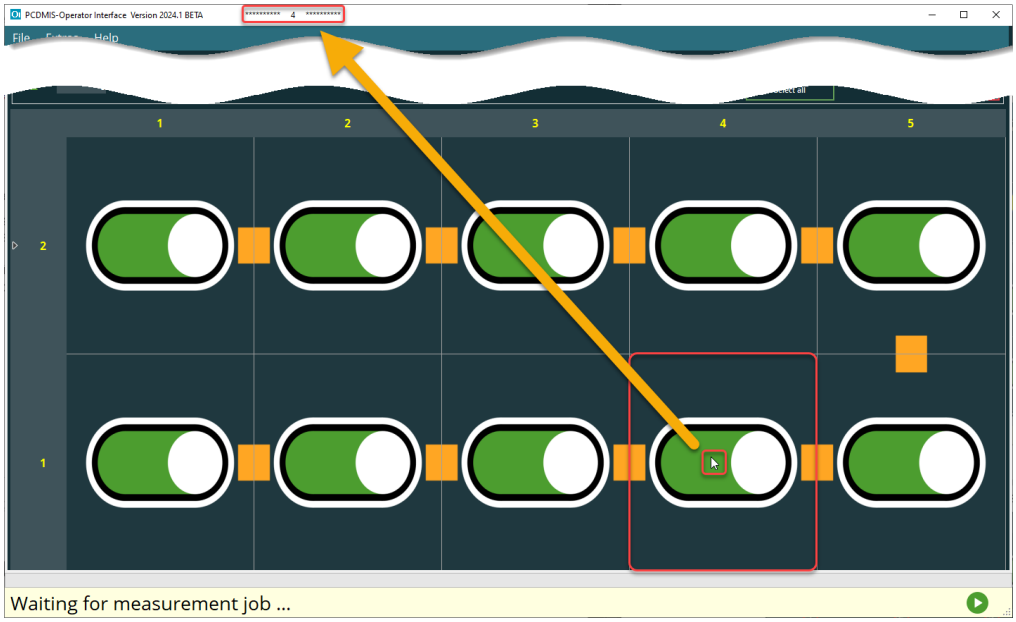
    

  - Show pallet assignment

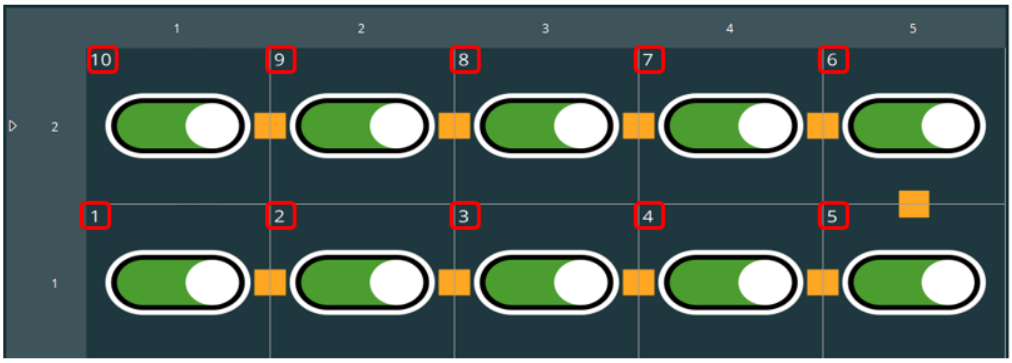
    The pallet can be displayed for viewing the pallet assignment graphically. For this purpose, click on the pallet icon. If the icon is green, the palette is displayed, if the icon is dark, the palette is hidden.

If the "Show clamping number" checkbox under menu option "Extras" ➔ Settings tab "Pallet run" is deactivated and the mouse pointer is moved over a clamping station, the number of the current station is displayed at the top of the screen.

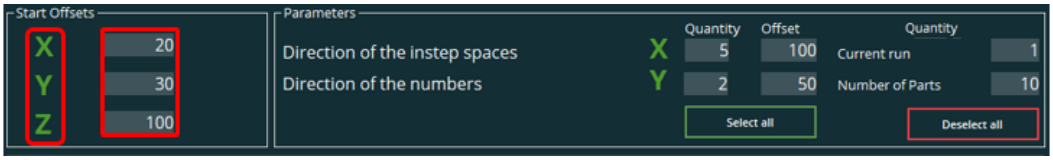


If the "Show clamping number" checkbox under menu option "Extras" ➔ Settings tab "Pallet run" is activated, the clamping station number is displayed directly at the clamping station. The display at the top of the screen is omitted.



- Start Offsets

  The position of the first instep space in relation to the coordinate system selected in the Offset calculation in alignment field is defined.

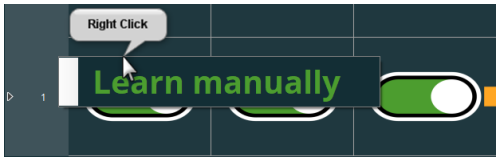


Alternatively, the first instep space can be taught manually. For this purpose, select the "Show pallet assignment" button.

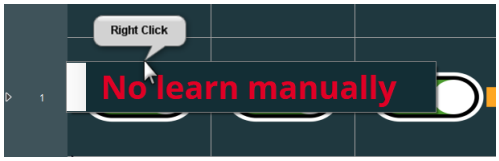
An external alignment must not be selected in the "Offset calculation in alignment" field.

The measuring machine will then move to the starting position. In the Operator Interface, right-click on the first instep space and select “Learn manually” in the following dialog window.

The position of the first instep space is not saved with the measurement routine and must be repeated after the execution, if necessary.



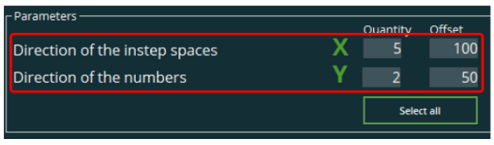
To end manual measurement, repeat the process and select "No manual measurement".



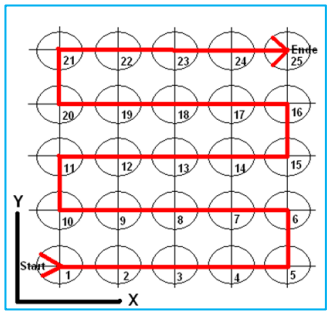
- Parameters

  The parameters for the pallets and pallet execution are defined.

  - Direction of the instep spaces / direction of the numbers

    The direction and sequence in which the instep spaces are processed is specified. The first axis (major axis) is defined by left clicking on the blue axis (direction of instep spaces). The second axis (minor axis) is defined with the “Direction of numbers” option. If X was set for “Direction of instep spaces”, then only Y and Z can be selected for “Direction of numbers”.

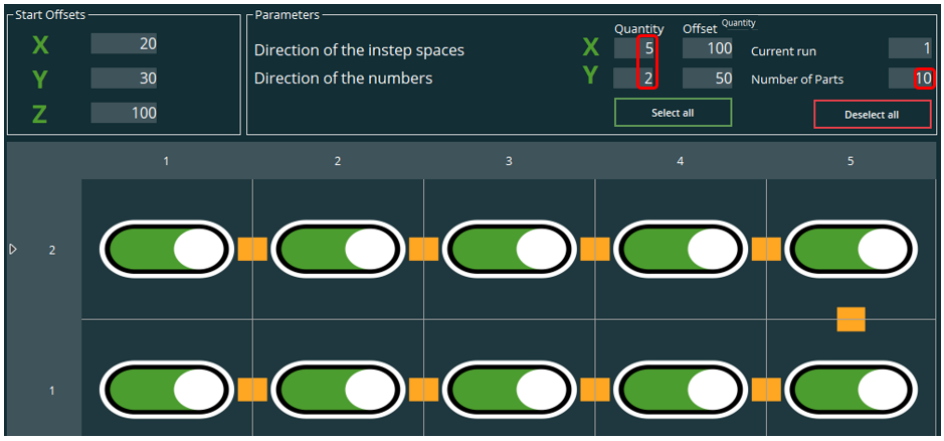
    The processing direction starts from the first to the last instep space of the major axis, and then, after a move in the minor axis, is continued from the last to the first instep space of the major axis (shortest path). For example: If "X" was selected as a major axis and "Y" as a minor axis, the pallet is processed as shown in the picture.

  - Quantity

    It is recommended to check the plausibility of the parameters when the pallet view is enabled (see chapter: The tabs, section: Pallet run, point: Define pallet ➜ Show pallet assignment.

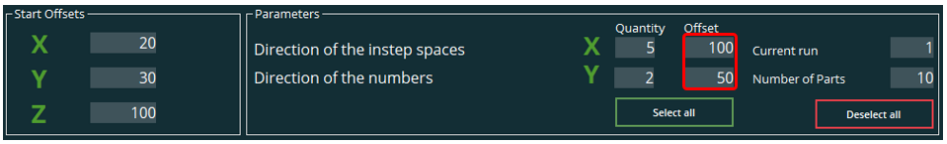
    The number defines how many instep spaces are present in the direction of the major and minor axis.

From these values, the number of instep spaces is determined automatically and displayed in the "Number of parts" field (see point: Current Run / Number of parts in the following text).



- Offset

  The spacing between each instep space

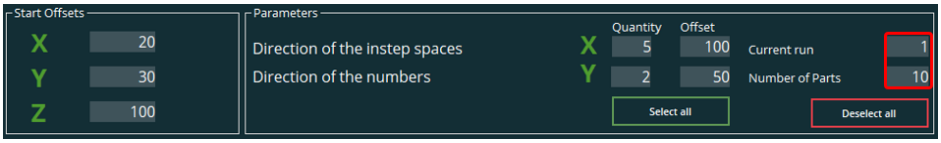


- Current Run / Number of parts

  It is recommended to check the plausibility of the parameters when the pallet view is enabled (see chapter: The tabs, section: Pallet run, point: Define pallet ➝ Show pallet assignment.

  "Current Run" is used to set the instep space at which the measurement starts. During the measurement routine execution the number is automatically incremented by one if the measurement is continued on the next instep space.

  "Number of parts" is used to specify how many parts are located on the pallet. By default, the total from the "Number" field is rendered in this field (see point: Quantity as described above).

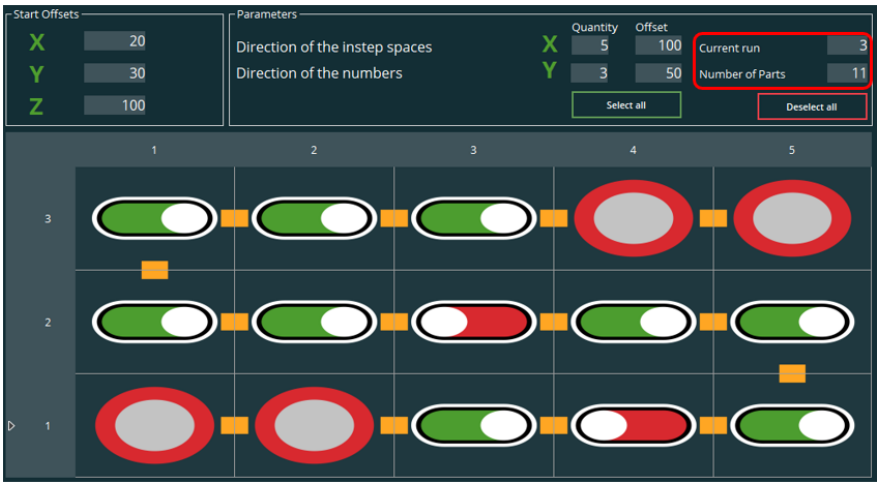


- Change pallet assignment

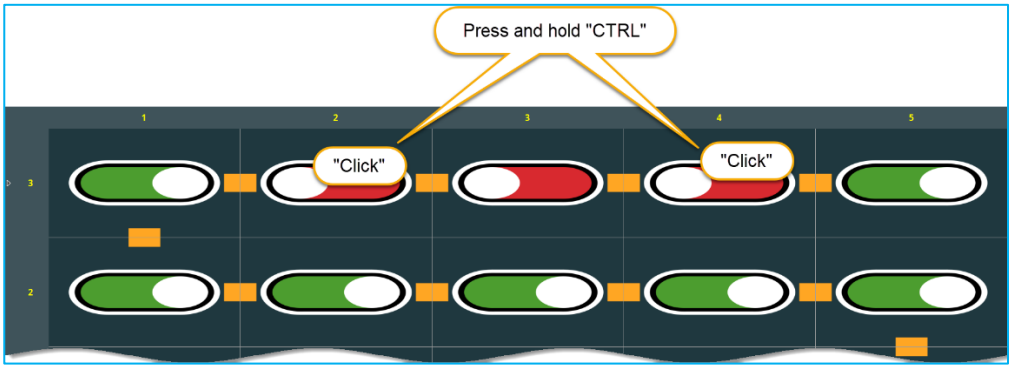
  If the start place is changed in the "Current run" option, the number of parts in the "Number of parts" field is reduced accordingly. The start places to be skipped are highlighted with a red circle.

  If the value of the "Number of parts" field is changed, the last pallet places are skipped accordingly.

  Individual unused instep spaces are disabled by clicking with the left mouse button on the respective instep space. The green icon “” turns red “” and the instep space will be skipped. To activate this instep space, the procedure is repeated.



If several instep spaces points are to be deactivated, the process need not be repeated for each individual instep space. By pressing and holding the "Ctrl" key and then clicking on the first and then last instep space, all instep spaces in this area are deactivated. This process can be performed as often as desired.



To activate the instep spaces, the procedure is repeated.

The "Select all" button activates all clamping positions, while "Deselect all" deactivates them all.

- Execute measurement routine

The settings made according to chapter: Menu option “Extras”, section: Settings, point: “General” tab and point: "Pallet run" tab are to be taken into account for starting, running and closing a measuring task.

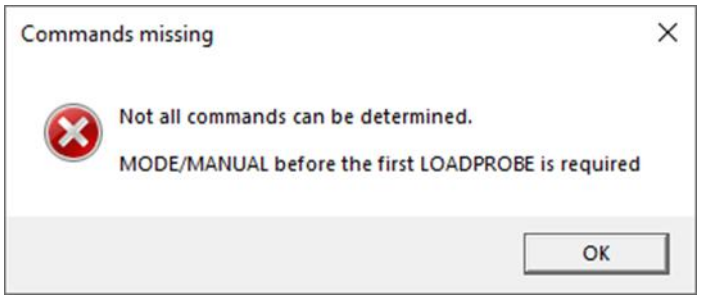
A copy is created in the folder of the measurement routine, which is deleted after execution. Under "Extras" → "Settings" you can define an alternative folder (see chapter: Menu option “Extras”, section: Settings, point: “General” tab → Measurement with local measurement routines copy).

For starting a measurement routine, the following conditions must be fulfilled:

- A routine must be loaded.
- The probe for the first clamping station must be loaded in the measurement routine before the start of the pallet measurement.
- The DCC - mode must be in the measuring routine *after* the alignment, which is used for the measurement of the pallet (zero point for the distances of the individual pallet places).
- The complete area between " LOADPROBE" (TIP) and the DCC mode is skipped. Therefore, no commands relevant for the measurement may be located in this area (see: "Example structure measurement routine" below). The last alignment called up before CNC mode is used for the pallet measurement.

  Note: Text passages marked in color correspond to the colored passages in the screenshots.

If these conditions are not met, the following message appears:



After confirming with OK, the execution is aborted.

Example structure measurement routine:

```
START       =ALIGNMENT/START,RECALL:USE_PART_SETUP,LIST=YES
             ALIGNMENT/END
             MODE/MANUAL
             MOVESPEED/ 100
             LOADPROBE/WRIST
             TIP/T1A0B0, SHANKIJK=0, 0, 1, ANGLE=0
$$ NO,

             ---------- Start skipped area ----------

             ASSIGN/OPERATOR="John"
             MOVE/POINT,NORMAL,<0,0,100>
PLN1        =FEAT/CONTACT/PLANE/DEFAULT,CARTESIAN,NONE,LEAST_SQR
             THEO/<30.276,0,20.819>,<0,-1,0>
             ACTL/<30.276,0,20.819>,<0,-1,0>
             TARG/<30.276,0,20.819>,<0,-1,0>
             ANGLE VEC=<1,0,0>,SQUARE
             SHOW FEATURE PARAMETERS=NO
             SHOW CONTACT PARAMETERS=NO
A1          =ALIGNMENT/START,RECALL:START,LIST=YES
               ALIGNMENT/LEVEL,ZPLUS,PLN1
               ALIGNMENT/TRANS,ZAXIS,PLN1
             ALIGNMENT/END
LIN1        =FEAT/CONTACT/LINE/DEFAULT,CARTESIAN,UNBOUNDED
             THEO/<30.276,0,20.819>,<0,-0.9927771,0.1199731>,<-1,0,0>,<0,-1,0>,76.532
             ACTL/<30.276,0,20.819>,<0,-0.9927771,0.1199731>,<-1,0,0>,<0,-1,0>,76.532
             TARG/<30.276,0,20.819>,<0,-0.9927771,0.1199731>,<-1,0,0>,<0,-1,0>
             SHOW FEATURE PARAMETERS=NO
             SHOW CONTACT PARAMETERS=NO
A2          =ALIGNMENT/START,RECALL:A1,LIST=YES
               ALIGNMENT/ROTATE,XPLUS,TO,LIN1,ABOUT,ZPLUS
               ALIGNMENT/TRANS,YAXIS,LIN1
             ALIGNMENT/END
PNT1        =FEAT/CONTACT/VECTOR POINT/DEFAULT,CARTESIAN
             THEO/<30.276,0,20.819>,<0,-1,0>
             ACTL/<30.276,0,20.819>,<0,-1,0>
             TARG/<30.276,0,20.819>,<0,-1,0>
             SNAP=NO
             SHOW FEATURE PARAMETERS=NO
             SHOW CONTACT PARAMETERS=NO
$$ NO,

             ---------- End skipped area ----------

A3          =ALIGNMENT/START,RECALL:A2,LIST=YES
               ALIGNMENT/TRANS,XAXIS,PNT1
             ALIGNMENT/END
             MODE/DCC
$$ NO,

             ---------- Start pallet measurement ----------

PNT2        =FEAT/CONTACT/VECTOR POINT/DEFAULT,CARTESIAN
             THEO/<30.276,0,20.819>,<0,-1,0>
             ACTL/<30.276,0,20.819>,<0,-1,0>
             TARG/<30.276,0,20.819>,<0,-1,0>
```

Example of measurement routine structure during execution (additions via the operator interface):

```
START       =ALIGNMENT/START,RECALL:USE_PART_SETUP,LIST=YES
             ALIGNMENT/END
             MODE/MANUAL
             MOVESPEED/ 100
             LOADPROBE/WRIST
             TIP/T1A0B0, SHANKIJK=0, 0, 1, ANGLE=0
             GOTO/VORRICHTUNG
$$ NO,

             ---------- Start skipped area ----------------------------------------

             ASSIGN/OPERATOR="John"
             MOVE/POINT,NORMAL,<0,0,100>
PL          =FEAT/CONTACT/     /DEFAULT,CARTESI        .LEAST_SQR

             SHOW FEATURE PARAMETERS=NO
             SHOW CONTACT PARAMETERS=NO
$$ NO,

             ---------- End skipped area ----------------------------------------

VORRICHTUNG=LABEL/
A3          =ALIGNMENT/START,RECALL:A2,LIST=YES
               ALIGNMENT/TRANS,XAXIS,PNT1
             ALIGNMENT/END
             MODE/DCC
$$ NO,
             ------------------------- OI PART BEGIN ------------------------
             ASSIGN/VX="0"
             ASSIGN/VY="0"
             ASSIGN/VZ="0"
             ASSIGN/NX=0
             ASSIGN/NY=0
             ASSIGN/NZ=0
             ASSIGN/NI=0
             ASSIGN/NJ=0
             ASSIGN/NK=1
             ASSIGN/CURRUN="1"
             ASSIGN/PARTNUMBERINROW="1"
             ASSIGN/CURROWNUMBER="1"
             ASSIGN/FIRSTFIXTUREPLACE="True"
             ASSIGN/LASTFIXTUREPLACE="True"
HP          =FEAT/POINT,CARTESIAN,YES
             THEO/<VX,VY,VZ>,<NI,NJ,NK>
             ACTL/<0,0,0>,<0,0,1>
             CONSTR/POINT,OFFSET,ORIGIN,VX,VY,VZ
HA          =ALIGNMENT/START,RECALL:A3,LIST=YES
               ALIGNMENT/TRANS,ZAXIS,HP
               ALIGNMENT/TRANS,XAXIS,HP
               ALIGNMENT/TRANS,YAXIS,HP
             ALIGNMENT/END
$$ NO,
             ------------------------- OI PART END --------------------------
$$ NO,

             ---------- Start pallet measurement ----------------------------------

PNT2        =FEAT/CONTACT/VECTOR POINT/DEFAULT,CARTESIAN
             THEO/<30.276,0,20.819>,<0,-1,0>
             ACTL/<30.276,0,20.819>,<0,-1,0>
             TARG/<30.27      819>,<0,-1,0>
```

- Start by mouse
  - Pallet assignment is hidden:

    If data values were assigned to the measurement routine according to chapter: Menu option “File”, section: Create configuration, they will be displayed.

    The start of a measuring job is done with the " " button in the lower right corner or with the key combination "Ctrl" + "Q".
  - The pallet assignment is shown:

    The start of a measuring job is done with the " " button in the lower right corner or with the key combination "Ctrl" + "Q".

  If the checkbox "loaded manually" is active under chapter: Menu option "Extras", section: Settings, point: ”Palett run” tab → Confirm measurement order, the start must be confirmed manually.

  Depending on the settings made according to chapter: Menu option “Extras”, section: Settings, point: “Pallet run” tab → Show input dialog when starting the measurement routine, the entry form for the variables is displayed or the routine is directly started.

- Start with scanner

  It is not possible to start a measurement task in the Pallet settings view using a start code.

  The button for the "Scanner" function is not available.

  If the scanner mode is activated with the "F1" or "F9” function keys, the Operator Interface switches to the "List of measurement routines” view. In this view, the measurement task can be started with a start code. For detailed information on the start function see chapter: The tabs, section: Pallet run, point: List of measurement routine view → Starting a measurement routine → Start with scanner).

• Execution and end of a pallet measurement

The settings made according to chapter: Menu option “Extras”, section: Settings, point: “General” tab and point: “Pallet run” tab are to be taken into account for starting and closing a measuring task.

A copy is created in the folder of the measurement routine, which is deleted after execution. Under "Extras" ➝ "Settings" you can define an alternative folder (see chapter: Menu option “Extras”, section: Settings, point: “General” tab ➝ Measurement with local measurement routines copy).

Depending on the settings made according to chapter: Menu option “Extras”, section: Settings, point: “Pallet run” tab ➝ Show execution window after execution, the "Pallet settings" view or the "Execution panel” view is displayed.

If the Execution panel view is active, you can open the “Pallet run” tab by clicking with the left mouse button.

Regardless of whether the measurement routine was started in the "Measurement routines list" or " Pallet settings" view, the "Pallet settings" view is displayed (see chapter: The tabs, section: Pallet run, point: List of measurement routines view ➝ Starting a measurement routine and point: Pallet settings view ➝ Execute measurement routine).

A probe symbol indicates the position of the instep space to be measured.

Already measured instep spaces are displayed with a green symbol for "IO" (all values within tolerance) or a red symbol for "NOK" (at least one measured value outside tolerance). If a value for the action control limit is defined under menu option "Extras" ➝ Settings ➝ “PC-DMIS” tab, a yellow symbol is displayed when this value is exceeded.

While the measurement task is being processed a green bar at the bottom of the screen shows the progress and the message “Measurement job is being executed” appears.

After the execution, the "Pallet run" tab is displayed in the " Measurement routines list" view.

If the Pallet settings view was selected using the radio button, you can check which instep spaces are within the tolerance (green thumb) or out of tolerance (red thumb).

If you switch to the List of measurement routines view by clicking in the Picture column of the Pallet settings view, the pallet is shown in its original state (no colored marking).

If you have created a measurement routine copy according to chapter: Menu option “Extras”, section: Settings, point: PC-DMIS ➝ Save a copy of the measurement routines after execution, the name consists of the following values:

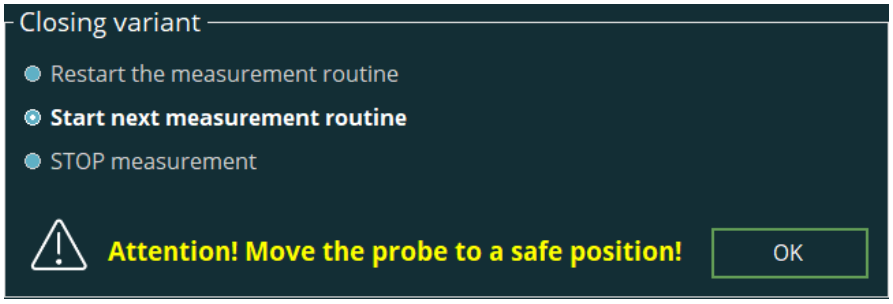
- Date
- Time
- Direction of the sequence (see Direction of the instep spaces / direction of the numbers)
- Number of instep space
- Location of instep space
- Copy of measurement routine

Stop, cancel or continue measuring job

You can use the “Execution panel” tab to delete manual measuring points and to stop, continue and cancel measurements during execution (see chapter: The tabs, section: Execution panel).

If a measuring sequence being processed is aborted, the "Closing variant" window appears.

Depending on the options defined in chapter "Menu option "Extras"", section: "Pallet run" tab, point: "Available closing variants at measurement abort", the following options are available:



If available, the radio button "Stop measurement" is suggested as default. The text at the selected variant (by clicking on the radio button) is highlighted (in the example above: "Start next measurement routine").

By clicking on the "OK" button, the selected closing variant is executed.

- Restart the measurement routine

  The measurement on the current instep space is executed again. The measurement of the other instep spaces is continued afterwards.

- Start next measurement routine

  The measurement on the instep space is completed and the next instep space will be processed.

  If only this option is available and the measurement is aborted at the last clamping position, no radio button can be selected. After confirming with "OK", the measurement is aborted.

- STOP measurement

  The measurement is aborted. Instep spaces already measured are indicated with a green thumb for "OK" (pass = all values are within the tolerance) or a red thumb for "NOK" (fail = at least one measured value is out of tolerance). If a value for the action control limit is defined under Menu option "Extras" ➞ Settings ➞ "PC-DMIS" tab, a yellow symbol is displayed when this value is exceeded.

  It the measurement is re-started as described in the chapter: The tabs, section: Pallet run, point: Pallet settings view ➞ Execute measurement routine, it is resumed at is the position at which it was aborted.

  If the measurement is to begin with the instep space, it must be started as described in chapter: The tabs, section: Pallet run, point: List of measurement routines view ➞ Starting a measurement routine.

The note: "⚠ Attention! Move the probe to a safe position"" must be observed, otherwise collisions cannot be ruled out.

If the checkbox under "Extras" ➞ "Settings" in the "Pallet run" tab is active for "Go to origin view after measurement abort", the system switches to the view that was selected in the "Display at start of tab" area. If this checkbox is not active, the system switches to the "Pallet settings" view.

- ### Query of the first location (FIRSTFIXTUREPLACE)

  If the measurement is performed at the first instep space, this variable is given the value "True". For all other instep spaces, the value is "False".

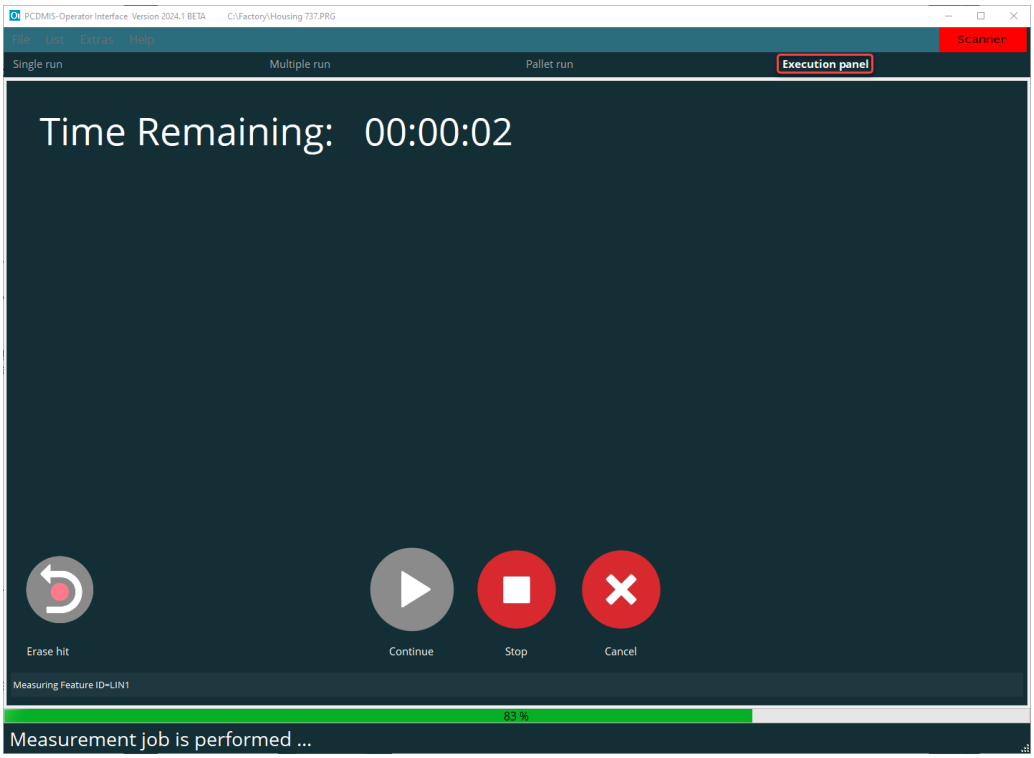
- ### Query of the last location (LASTFIXTUREPLACE)

  If the measurement is performed at the last instep space, this variable is given the value "True". For all other instep spaces, the value is "False".

- ### Query of the current clamping position (CURRUN)

  The variable "CURRUN" is automatically written into the measurement routine and can be used to query the current clamping position.

10.4. Execution panel

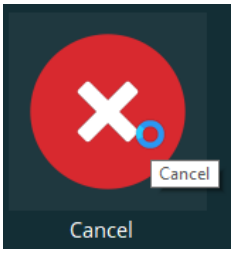


The Execution panel is available only during execution.

Depending on the settings made for the "Show execution window after execution" function in the "Single run", "Multiple run" and "Palette run" tabs under the Menu option “Extras” ➔ Settings , the "Execution panel" tab is displayed after startup or the operator interface remains in the current tab.

Independently of this, the tab can be displayed during a measurement process.

In addition to the label, a tooltip is displayed when the mouse pointer is moved over the button.



The symbols have the following meaning:

- Manually delete acquired measuring point

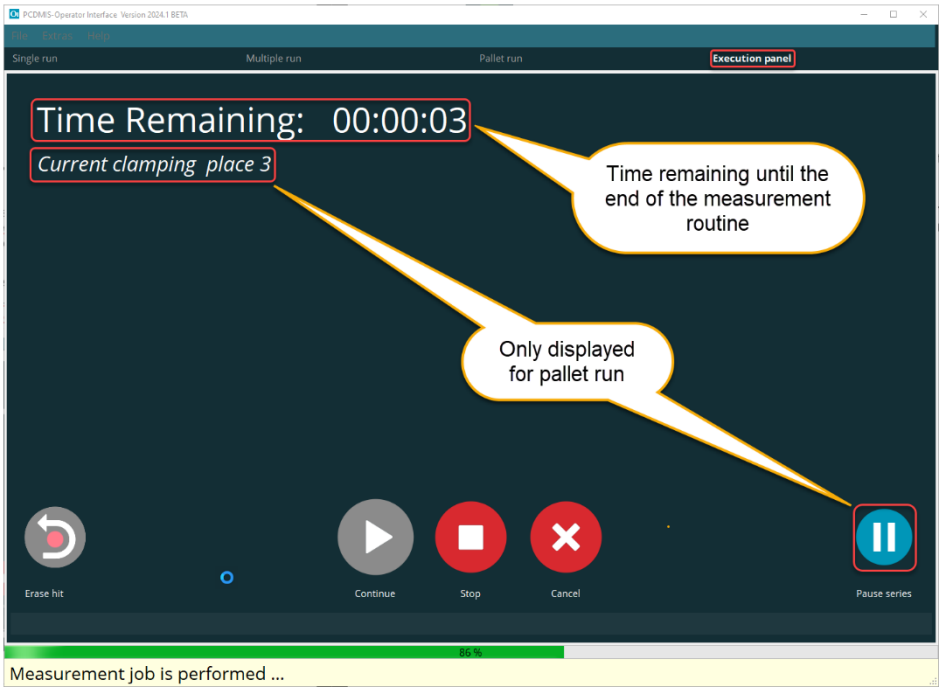
- Continue measurement

- Stop measurement

- Cancel measurement

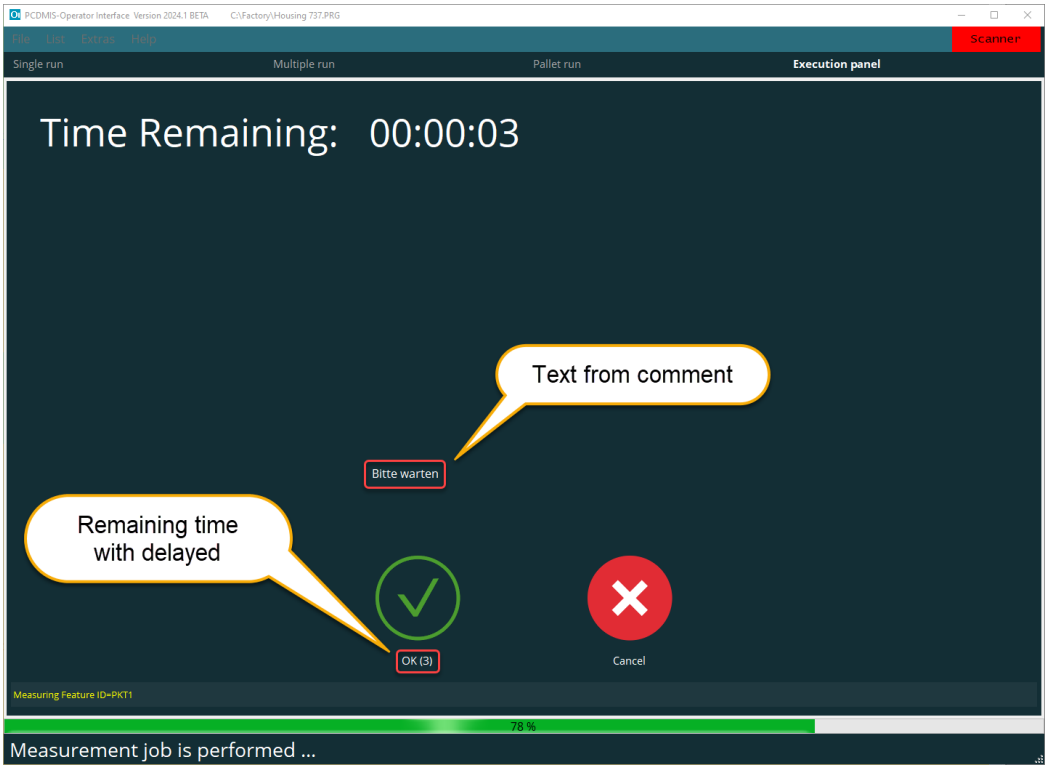
- This button is only available when you started a measurement routine through with the "Pallet run" tab. By clicking on this button, the icon changes to “▶”. The measurement on the current instep space will be exited and the pallet measurement is stopped. Click the button again to continue the measurement on the next instep space.

In the upper area, the remaining time until the end of the measurement is displayed. If the measurement is carried out in the pallet run, the current clamping position and the "Pause series" button are also displayed.



If there is a comment in the measurement routine, the comment text is displayed.

If the measurement is to be continued with a delay ("Auto-continue" active in the comment), the remaining time is displayed below the "OK" button.



11. Query of the run type

If the variable "RUNTYPE" is inserted into the measuring routine, the following values are passed to it:

Single run:

```
ASSIGN/RUNTYPE=“EINZELLAUF“
```

Multiple run:

```
ASSIGN/RUNTYPE =“MEHRFACHLAUF“
```

Pallet run:

```
ASSIGN/RUNTYPE =“PALETTENLAUF“
```

12. Start a measurement on an optical measuring machine using a file

If a measurement routine can be assigned directly to a part to be measured using a barcode, QR code etc., this code can be used for directly starting the routine by an optical measuring machine.

However, it is a requirement that the code is in reach of the camera and can be completely localized and captured within its field of view.

The followings processing steps are carried out:

- a picture is taken with the camera and saved as a file
- the content of the code is read from the file and stored in a file
- this file can be read with the Operator Interface and be used as a boot file for the measurement routine

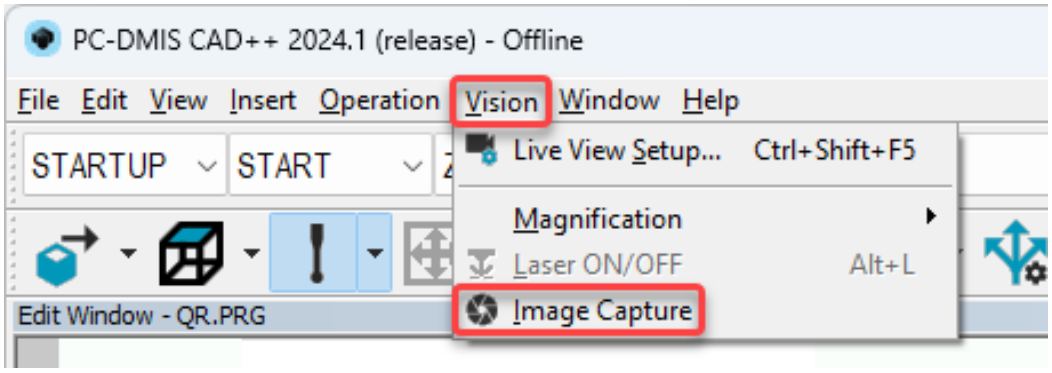
For this purpose, a measurement routine must be created which is able to read the ode and create the file. The above requirements must be met for this routine. If there are codes in different positions, a routine must be created for each code.

The following are some examples taken from PC-DMIS as a proposal for the realization of this function. Their implementation may vary according to your expertise in PC-DMIS.

At first, the path and respective name for the image acquired and the boot file for the Operator Interface must be defined.

```
ASSIGN/PATH="D:\QR_Codes\QR_Code_BMP\\"
ASSIGN/IMAGE_NAME="QR_Code_1.bmp"
ASSIGN/FILE_NAME="QR_TEXT.txt"
```

Then, the acquired image must be saved as a file. This is done in PC-DMIS using the menu option: Vision" ➙ "Image Capture":



The path and name confirmed above for the screen copy can now be used in the measurement routine.

```
IMAGECAPTURE/<89.793,20.589,25>,0.614, Top Light=<OFF,0,ON>,Bottom Light=<OFF,62.3,ON>,Ring Light=<OFF,0,ON>

FILENAME=PATH+IMAGE_NAME
```

Using an optional add-on tool, the code can be read. This tool is available on request. The integration into PC-DMIS is described in the instructions delivered with the tool. This tool can process all common codes (barcode, QR code, DataMatrix etc.).

The value read will be passed to a variable (in the example: QR):

```
ASSIGN/QR=TOOLKIT DATA("Barcode","BarcodeReaderCommand1")
```

Finally, this value will be written in a .txt file:

```
DAT     = FILE/OPEN,PATH+FILE_NAME,WRITE
          FILE/WRITELINE,DAT,QR
          FILE/CLOSE,DAT,KEEP
```

The created measurement routine can be integrated into the Operator Interface. These steps as well as the options for starting the routine are described in detail in the individual tabs (see chapter: The tabs section: Single run, Multiple run and Pallet run).

To use the code from the file, the "Read start code from file" function must be active. This function is described in detail in chapter: Menu option “Extras”, section: Read start code from file.

13. About Hexagon

Hexagon is a global leader in sensor, software and autonomous solutions. We are putting data to work to boost efficiency, productivity, and quality across industrial, manufacturing, infrastructure, safety, and mobility applications.

Our technologies are shaping urban and production ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future.

Hexagon's Manufacturing Intelligence division provides solutions that utilise data from design and engineering, production and metrology to make manufacturing smarter. For more information, visit hexagonmi.com.

Learn more about Hexagon (Nasdaq Stockholm: HEXA B) at hexagon.com and follow us @HexagonAB.