HEXAGON

USER MANUAL

PC-DMIS PRESET & MEASURE SUPERVISOR
VERSION 2.XXXX.Y.ZZ

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HEXAGON

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1. General

1.1. Introduction

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

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 your understanding that all features may possibly not be described. This may be due among other things to technical innovations, new options or similar influences.

The Supervisor is used among other things for the control of top-quality measurement technology. Settings in this software have a direct influence on the measuring process and must therefore 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.

It cannot be ruled out even after careful examination that this manual is not free of errors.

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 the Supervisor.

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

1.2. Notes on the use of this user´s 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: User interface, section: Connection_with_Preset & Measure, point: Connection / disconnection in the user interface

  or (corresponds to the navigation in the software):

  Menu option „Extras“ ➝ Settings ➝ Set ➝ Application

  In principle, the last term will lead to the desired information (in the example above: point: Connection / disconnection in the user interface).

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

  If text passage to which was jumped does not contain a link to the original text, it is possible to jump to the source text with the key combination "Alt" + "⇦" (To-Left).

- ### Used symbols

This symbol serves as a hint to read the corresponding text particularly carefully.

1.3. 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.

1.4. Recommended qualification

- ### Installation of the software

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

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

→ Typical: Network administrators

- ### Configuration of the software

The software should be configured by personnel who have the following knowledge:

- PC skills
- Windows skills
- If a PLC is connected (see Chapter: Menu option "Extras", Section: Settings, point: Set → PLC Configuration): appropriate knowledge regarding hardware and input signals
- Detailed training by the Hexagon application engineering department

→ Typical: employees in quality assurance or work preparation

- ### Use of the software

The software should be used 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)

2. 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.

3. Operation

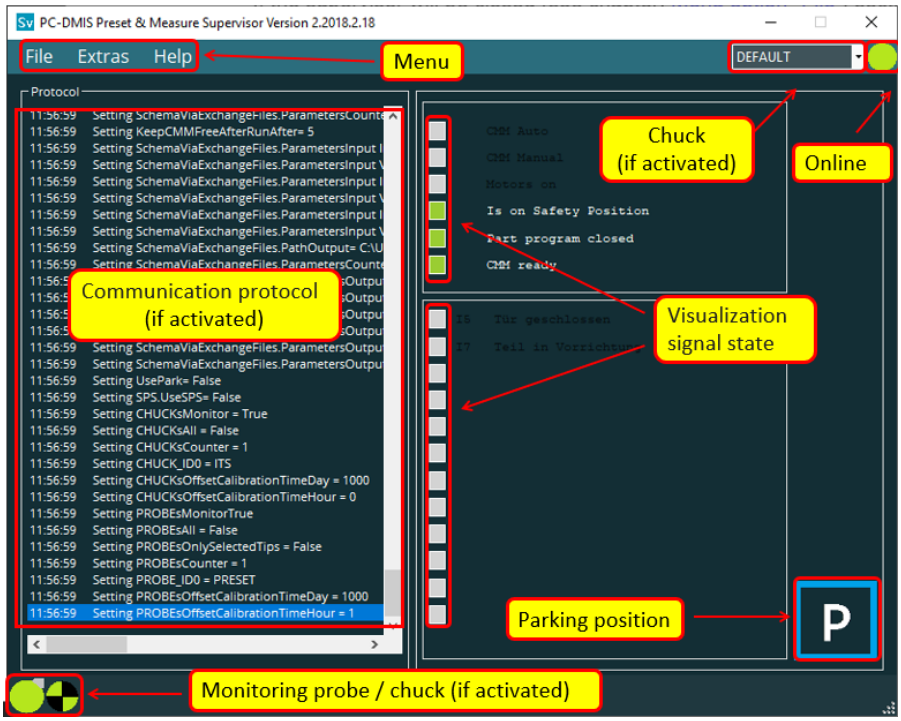
3.1. Starting the Supervisor

The Supervisor can be started by double-clicking with the left mouse button on the shortcut on the desktop. If not already done, PC-DMIS (the last used version) and Preset & Measure will be started automatically. It is recommended to start PC-DMIS manually before Supervisor. PC-DMIS, Preset & Measure and the Supervisor must have identical permissions.

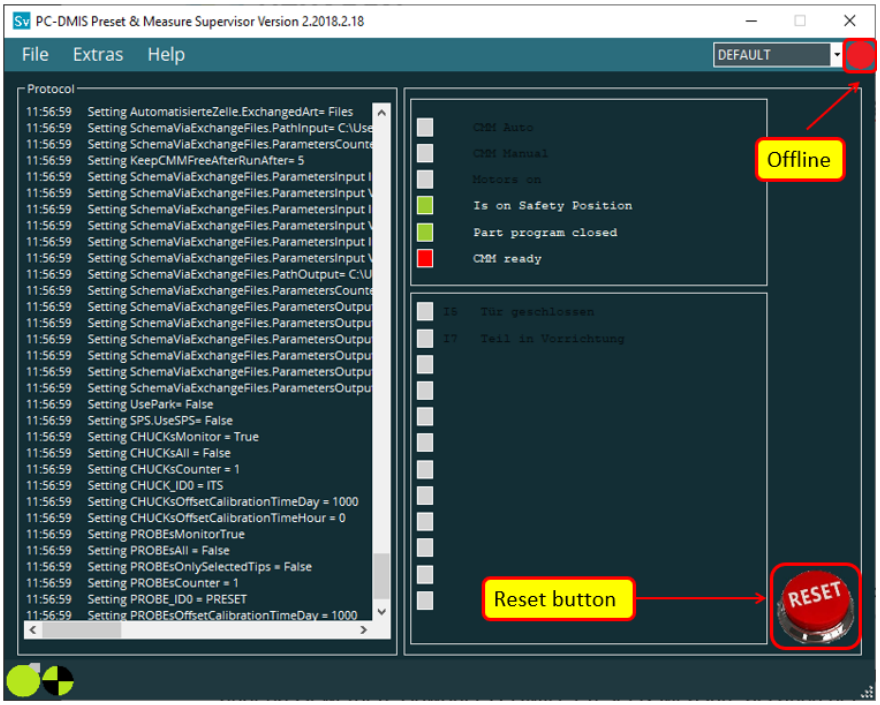
If the supervisor will be closed (see chapter: Menu option "File", section: Exit), both Preset & Measure and PC-DMIS are closed.

3.2. Terms used

- Example: User interface (online / parking position)



- Example: User interface (offline / reset)



4. Configuration of the software

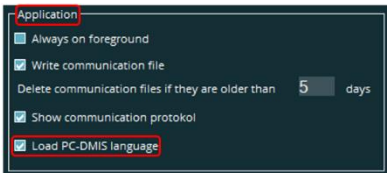
For the configuration of the software, the knowledge and permissions recommended in chapter: General, section: Recommended Qualification, point: Configuration of the software must be taken into account.

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

4.1. Language setting

The desired language can be set in the menu “File ➝ Language”.

If no changes are carried out in the settings, the language selected in PC-DMIS has no influence on the Supervisor.

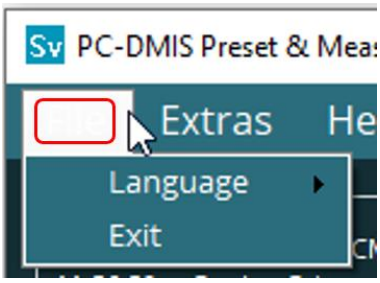


If the Supervisor is to start in the language selected in PC-DMIS, then the checkbox at “Load PC-DMIS language” under ““Extras” ➝ Settings ➝ Application” must be activated (default: checkbox deactivated).

Should a language be required which is not available for selection, please get in contact with the supplier of the software or the manufacturer.

5. Menu option “File”

The “File” menu contains “Language” and “Exit”.



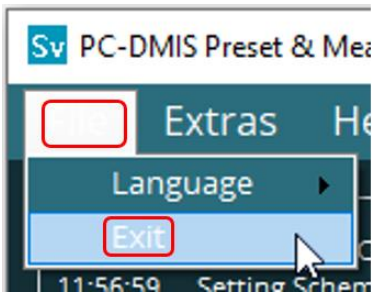
5.1. Language

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

5.2. Exit

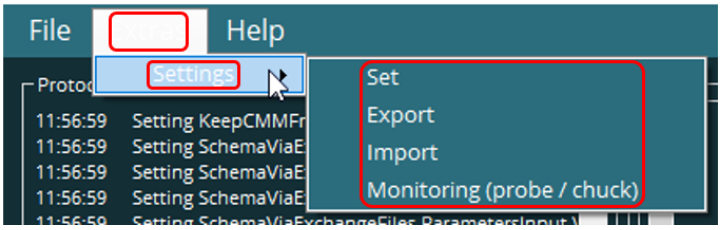
The software can be terminated via the "Exit" menu option.

If Preset & Measure exits first, PC-DMIS and the Supervisor are automatically closed.



6. Menu option “Extras”

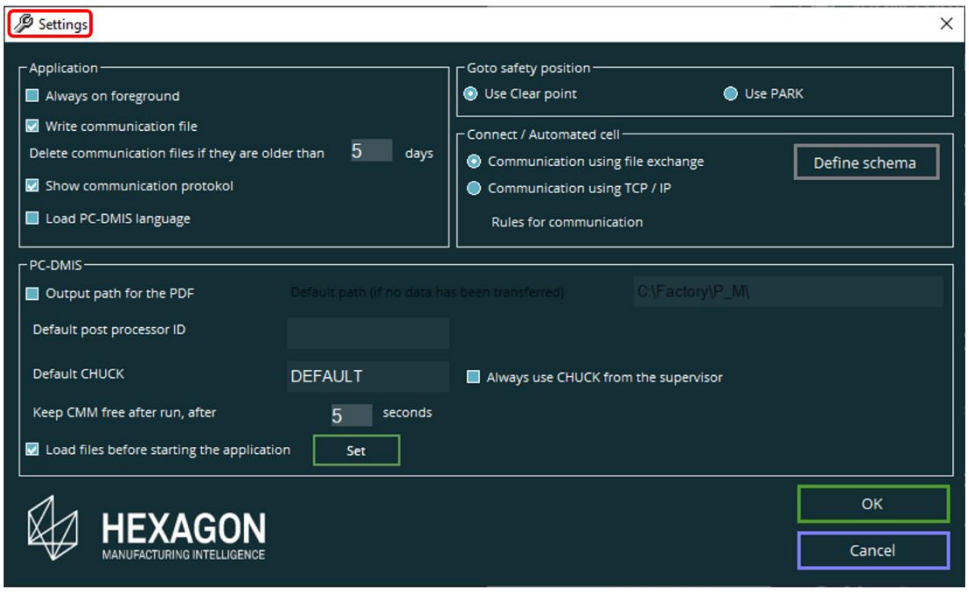
At this point, various settings can be made regarding the hardware and software, for saving and restoring the configuration and monitoring the probes and/or alignments (chuck).



6.1. Settings

- ### Set

If this option is selected, the Supervisor is switched offline (see chapter: User interface, section: Connection with Preset & Measure) and the “Settings” window opens in which various settings for the software, communication, and, if available, the hardware are carried out.

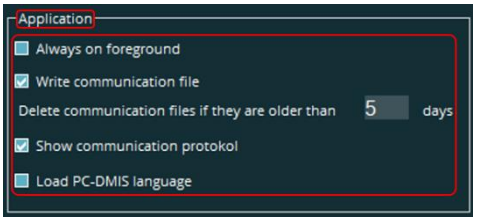


- Area: Application

The following functions can be selected under "Application" area:

- Always on foreground:

  If the checkbox is activated, the supervisor is displayed in the foreground. If the checkbox is deactivated, the supervisor can be covered by other applications.



- Write communication file:

  If the checkbox is activated, a daily text file is generated which is permanently supplemented by current events. The file can be found in the folder:"C:\Users\Public\Documents\Hexagon\Hexmet_CMM_Supervisor\Communication".

  If the checkbox is deactivated, no communication file is generated.

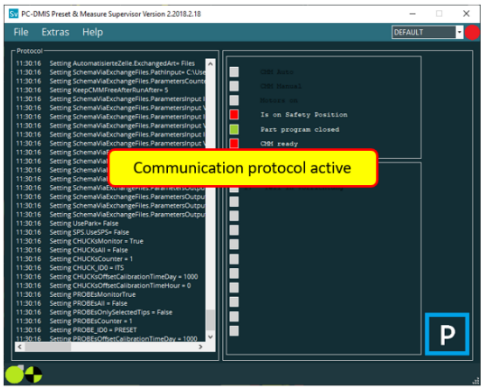
  - Delete communication files if they are older than ... days:

    In order to limit the number of communication files, a time interval in days can be defined. Files that exceed this interval are deleted. If the checkbox under "Write communication file" (see above) is deactivated, this field cannot be edited.

- Show communication protocol:

  If the checkbox is activated, the communication protocol is displayed in the "Protocol" area of the user interface.

  If the checkbox is not activated, it is not shown and the field is hidden.



- Load PC-DMIS language:

  If the Supervisor is to start in the language selected in PC-DMIS, the checkbox must be activated (see also chapter: Configuration of the software, section: Language setting).

- Area: PC-DMIS

  - Output path for the PDF:

    The name and the folder of the measuring protocol for the quality measurement is specified.

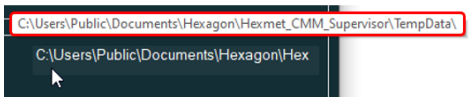
    - Checkbox activated:

      By clicking with the right mouse button the directory can be defined.

      If no path and name are transferred with the start file (see chapter: Additional information, section: Start file), the path defined here is used. The name is the name of the executed measurement routine and (if passed) the part name.

      If information about the path and name is transferred with the start file, the data from this file will be used.

      If the mouse is moved over the field, the complete path for the measuring protocol appears in a tooltip.

    - Checkbox deactivated:

      The area for path definition is not available.

      If no path and name are transferred with the start file (see chapter: Additional information, section: Start file), no measuring protocol will be generated.

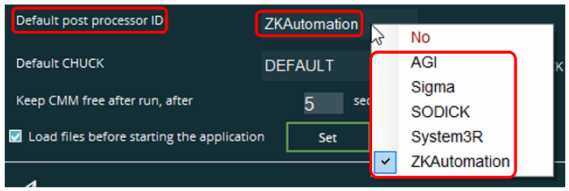
      If information about the path and name is transferred with the start file, the data from this file will be used.

  - Default post processor ID

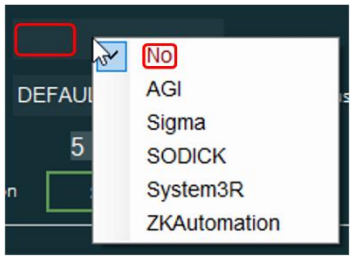
    A default post processor can be stipulated. This is used if no post processor is transferred with the start file (see chapter: Additional information, section: Start file).

    The selection is made by right-clicking in the corresponding field.

    A context menu opens in which all defined post processors are shown and the one desired can be selected.

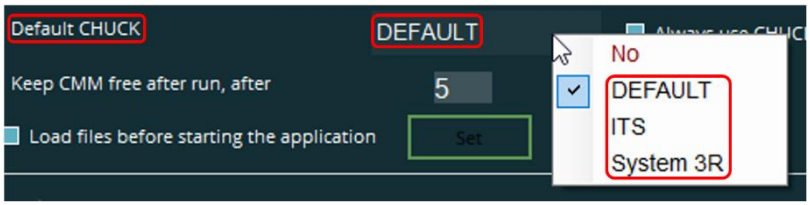
    

    If no post processor is to be used or one selected is to be removed, this can be carried out by selecting “No”.

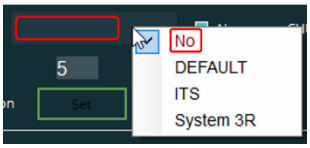
    

- Default chuck

  A default chuck can be stipulated (corresponds to “Alignment”). This is used if no chuck is transferred with the start file (see chapter: Additional information, section: Start file). The selection is made by right-clicking in the corresponding field. A context menu opens in which all calibrated chucks are shown and the one desired can be selected.



If no chuck is to be used or one selected is to be removed, this can be carried out by selecting “No”.

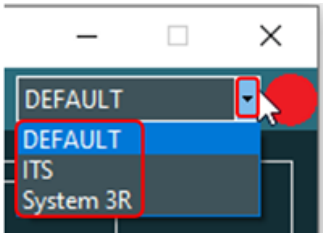


If the default chuck selected in the Supervisor is always to be used irrespective of the chuck transferred with the start file (see below) the “Always use chuck from supervisor” checkbox must be activated. The chuck can be changed as described above. In the context menu (see above), "No" is not available.

The selected chuck is shown in the user interface.

To change it, click on the symbol "▾" to open a drop-down list in which the chuck can be selected. All fixtures created with Preset & Measure are available.

The selected fixture is also displayed under "Default chuck" (see above).



- Keep CMM free after run, after

  To ensure that the measurement has been carried out in full, a time window in seconds is defined. The feedback to the automated cell takes place only after the time window has been exceeded. Depending on how the communication is defined, the feedback takes place as follows:

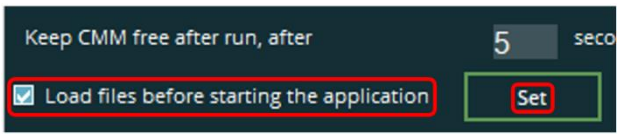
  - Communication via file exchange:

    The feedback is done with the file that is sent after the measurement. (see chapter: Menu option „Extras“, section: Settings, point: Connect / Automated cell – Communication using file exchange ➞ Robot and PCDMIS ➞ Part program end
  - Communication via TCP/IP:

    The feedback takes place via TCP/IP (see chapter: Menu option „Extras“, section: Settings, point: Set ➞ Connect / Automated cell – Communication using TCPIP).

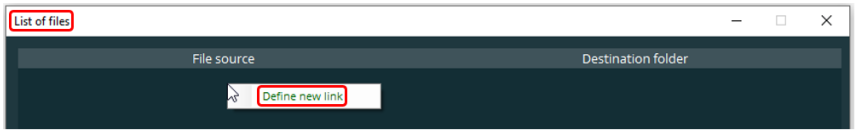
- Load files before starting the application

  With this function it is possible to copy any files into a target directory before starting. This can be useful, for example, if changes in the supervisor settings are only of a temporary nature and are not to be taken into account at the next start.



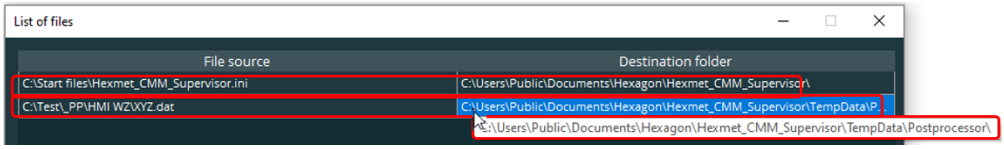
  - Checkbox activated

    Before starting the supervisor, the files defined by the "Set" button are copied from the source directory to the destination directory. After clicking the "Set" button, the "List of files" window opens. Clicking the right mouse button opens the context menu: "Define new link".



    If this function is selected, first the source file and then the destination folder are selected and a new line with the corresponding data is created.

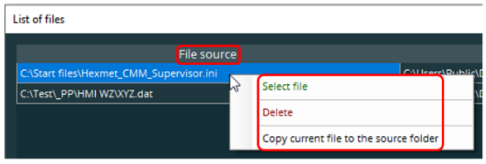
    By clicking with the right mouse button in the area below the row, this procedure can be repeated until all desired files are selected. If the path is longer than the corresponding column, a tooltip with the complete path appears when the mouse pointer is moved over the line.



Right-clicking on a row in the "File source" column opens a context menu with the following functions:

- Select file:

  The selected source file can be selected and thus changed as described above.



- Delete:

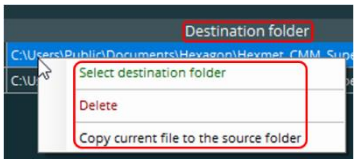
  The row is deleted. The file can still be selected.

- Copy current file to the source folder:

  This function is only available if the file exists in the destination folder. This can be done manually by copying with the Windows Explorer or by closing and starting the Supervisor once.

  When this function is selected, the destination file is copied to the source folder.

If you right-click a row in the „Destination folder" column, the following functions are available in the context menu:



- Select destination folder:

  The selected destination folder can be selected and thus changed as described above.

- Delete:

  The row is deleted. The file can still be selected.

- Copy current file to the source folder:

  This function is only available if the file exists in the destination folder. This can be done manually by copying with the Windows Explorer or by closing and starting the Supervisor once.

  When this function is selected, the destination file is copied to the source folder.

The changes made are saved with the "OK" button or discarded with "Close".

Example of changes in the supervisor with temporary character:

The file " Hexmet_CMM_Supervisor.ini " is copied manually or with "Copy current file to the source folder" (see above) from C:\Users\Public\Documents\Hexagon\Hexmet_CMM_Supervisor\" to "C:\Start files\".

In the column "File source" (see above) "C:\Startdateien\ Hexmet_CMM_Supervisor.ini\" is selected. As "Destination folder" (see above) "C:\Users\Public\Documents\Hexagon\Hexmet_CMM_Supervisor\" is selected.

If changes (such as: menu option "Extras" ➝ Settings) are made in the Supervisor and confirmed with "OK", the file "Hexmet_CMM_Supervisor.ini" is updated in the destination folder "C:\Users\Public\Documents\Hexagon\Hexmet_CMM_Supervisor\".

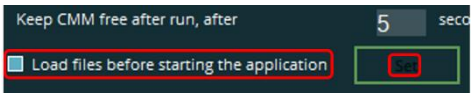
Since the file is copied from the source folder to the destination folder after closing and restarting, the changes made before closing are no longer effective.

If changes are to apply permanently, the option "Copy current file to the source folder" (see above) must be used after the changes have been made (and confirmed with "OK"). The file in the source folder will now be overwritten with the changes made and these will take effect the next time the Supervisor is started.

- Checkbox deactivated:

  No files are copied before the Supervisor starts. If files have been defined when the checkbox is activated (see: checkbox activated above), this will be ignored.

  The button "Set" is not available.



- Area: Go to safety position

Depending on the hardware connected (controller, SPS), the safety position is defined. It is a requirement that this position is defined in PC-DMIS or the controller. The parking position in the controller of the measuring machine and the safety point in PC-DMIS must be identical.

- Use Clear point:

  If a PLC is connected and the signal state "Is on Safety Position" is present, the feedback to the supervisor (on safety position: Yes or No) takes place on the hardware side.

  If a PLC is connected, but the signal state “Is on Safety Position” is not present, the response comes via the software (see chapter: Menu option “Extras”, section: Settings, point: Set ➞ PLC configuration ➞ Configure the input signals).

  If no PLC is connected, the response comes via the software.

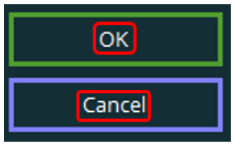
- Use PARK:

  When the parking position is reached the response comes via the hardware.

  For this purpose, the checkbox at "With PLC Controler" under "Connect / Automated cell ➞ Define scheme ➞ PLC configuration" must be activated and the signal state "Is on Safety Position" must be present (see chapter: Menu option “Extras”, section: Settings, point: Set ➞ PLC configuration ➞ Configure the input signals).

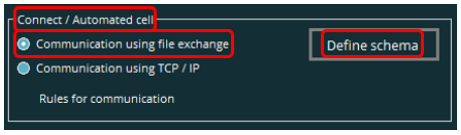
If the changes carried out are to be taken over, this is saved with “OK”.

If the changes carried out are not to be taken over, they are thrown out with ”Cancel”.

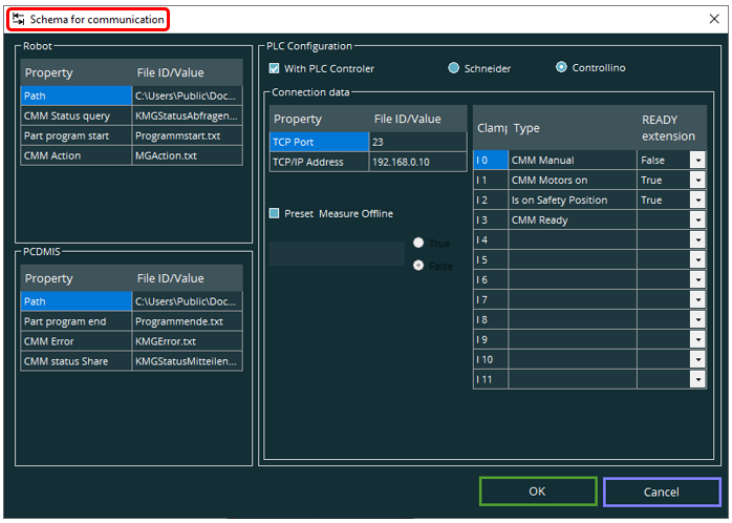


- ## Area: Connect / Automated cell – Communication using file exchange

  Communication with the automated cell takes place via file exchange, regardless of whether a PLC (see "PLC Configuration" below) is connected or not. The "Define schema" button is used to define the corresponding parameters.



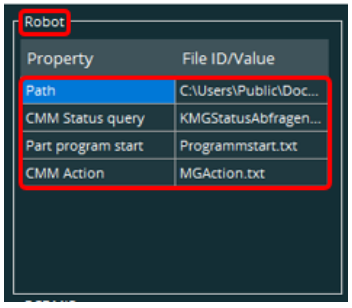
  The window "⇆ Schema for communication" opens:



  - Robot

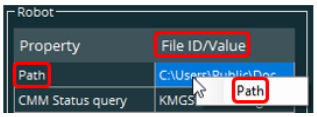
    The software-based data exchange between the supervisor and the automated cell (hereinafter referred to as the "control system") is defined. After installing the Supervisor, these fields will be preassigned with default values.

    These can be changed anytime as described below.



- Path:

  The path and the folder for the communication between the Supervisor and the control system are defined. Both the Supervisor and the control system must be able to access this folder and have the corresponding entitlements.

  For details about the required rights, see the document: "EN PCD Supervisor Installation.pdf", which is available on the FTP server at the following address:

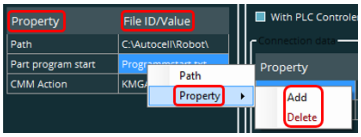
  ftp://ftp.hexmet.de/PC-DMIS/PC-DMIS_Preset_&_Measure%20Suite/PC-DMIS_Preset_&_Measure_Supervisor/Docs/.

  The path can be changed by right clicking in the column “File ID/Value”.

  Alternatively, the path can be entered manually. By clicking with the left mouse button in the corresponding field the complete value can be overwritten.

- “CMM Status query” / “Part program start” / “CMM Action”:

  These files are important for the communication between the Supervisor and the control system.

  With the right mouse button, a context menu is opened in which by selecting the item "Property" this data can be deleted and / or changed.

  To change the names in the "File ID/Value" column, the corresponding line is marked. Then you can enter the desired name.

  If the parameter was deleted with "Delete" from the "Property" column, it can be restored. To do this, right-click and select “Add” from the drop-down list. An empty line is created, which is clicked on again with the right mouse button. All deleted parameters can now be selected in the context menu. In the "File ID/Value" column, the name of the TXT file must be entered as described above.

  If the function "Path" is selected in the context menu, the folder in which the file is stored is opened. If another folder is selected, the folder defined in "Path" (see above) will be changed.

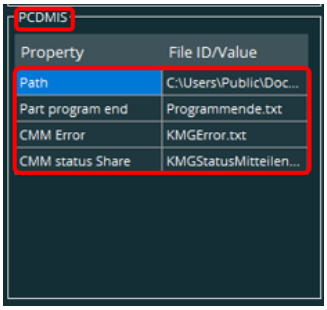
  The names, formats and contents must tally with the data expected by the control system.

  It is recommended to carry out a backup before changing the data (see chapter: Menu option “Extras”, section: Settings, point: Set ➔ Export).

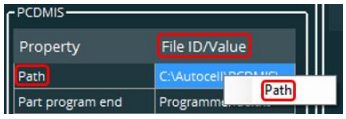
- PCDMIS

  The file exchange between the Supervisor and PC-DMIS on the software side are defined. After installing the supervisor, these fields will be preassigned with default values.

  These can be changed anytime as described below.



- Path:

  The path and the folder for the communication between the Supervisor and PC-DMIS are stipulated. Both the Supervisor and PC-DMIS must be able to access this folder and have the corresponding entitlements (see comment and link at the end of this point).

  For details about the required rights, see the document: "EN PCD Supervisor Installation.pdf", which is available on the FTP server at the following address:

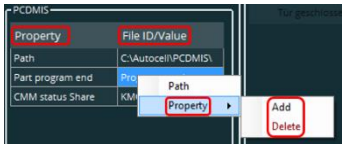
  ftp://ftp.hexmet.de/PC-DMIS/PC-DMIS_Preset_&_Measure%20Suite/PC-DMIS_Preset_&_Measure_Supervisor/Docs/.

  This directory should not be changed (see the notes under "Part program end" / "CMM error" / "CMM status Share" below).

  The path can be changed by right clicking in the column “File ID/Value”.

  Alternatively, the path can be entered manually. By clicking with the left mouse button in the corresponding field the complete value can be overwritten.

- “Part program end” / “CMM error” and “CMM status Share”:

  These files are important for the communication between the Supervisor and the control system .

  With the right mouse button, a context menu is opened in which by selecting the item "Property" this data can be deleted and / or changed.

  To change the names in the column “File ID/Value”, mark the corresponding rows per left mouse click. Then enter the desired names.

  If the parameter was deleted with "Delete" from the "Property" column, it can be restored. To do this, right-click and select “Add” from the drop-down list. An empty line is created, which is clicked on again with the right mouse button. All deleted parameters can now be selected in the context menu. In the "File ID/Value" column, the name of the TXT file must be entered as described above.

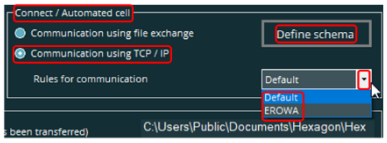
  If the function "Path" is selected in the context menu, the folder in which the file is stored is opened. If another folder is selected, the folder defined in "Path" (see above) will be changed.

  For smooth communication between the Supervisor and PC-DMIS the default settings carried out during the installation should not be changed.

  It is recommended to carry out a backup before changing the data (see chapter: Menu option Extras, section: Settings, point: Set ➝ Export).

- Area: Connect / Automated cell – Communication using TCPIP

Communication with the automated cell is done via TCP/IP (default) or TCP/IP and file exchange (EROWA), regardless of whether a PLC (see "PLC Configuration" below) is connected or not.



At "Scheme for communication" a dropdown list can be opened by clicking on the "⏷" symbol.

The following entries can be selected:

- Default

  The communication takes place completely via TCP/IP.

- EROWA

  The communication takes place via TCP/IP and file exchange.

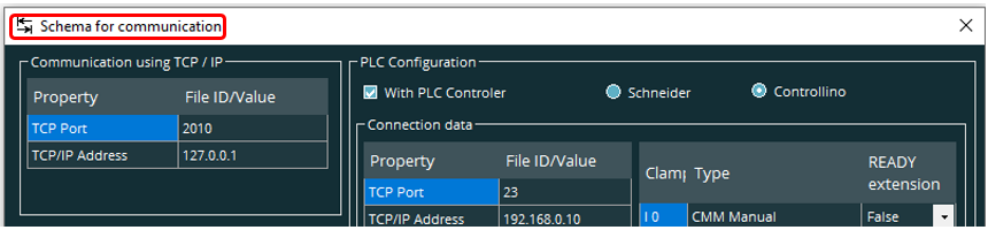
  The path and name of the measurement routine is transmitted via TCP/IP.

  The parameters for the start of the measurement are transferred with a file. This is located in the folder in which the measurement routine is present and has the name: {name of the measurement routine} followed by "EMC.XML" (example: Part1EMC.XML).

  All other information is exchanged via TCP/IP (e.g.: Status of the measurement machine etc.).

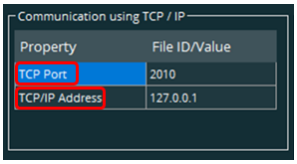
The "Define schema" button is used to define the corresponding parameters.

The window "⇆ Schema for communication" opens:



- TCP Port

  The number of the TCP port of the automated cell is entered.



- TCP/IP Adress

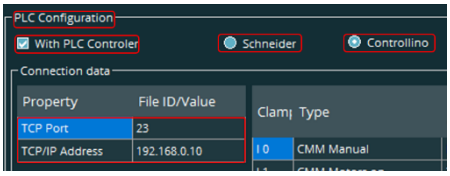
  The IP address of the automated cell is entered.

- Area: PLC Configuration

It is a requirement that the controller provides the CMM with a corresponding interface and that the connected hardware is supported.

In this case the checkbox must be activated at “With PLC controller”. Then you can decide between "Schneider" and "Controllino" (see below) with the radio buttons. These two I / O modules are currently supported. Please contact us if you have any questions relating to hardware (see chapter: General, section: Introduction, point: Contact data).

In the area "Connection data" the TCP port and the IP address are defined (in the picture at the example of "Controllino"). By clicking into the corresponding field the complete value can be changed. If the field is marked, a single number can be changed with a double click (cursor jumps to the position of the mouse pointer).



- Connection Schneider I/O module (Type: OTB1E0DM9LP):

  The value for the TCP/IP port is 502 and is entered in the "TCP port" field (see above).

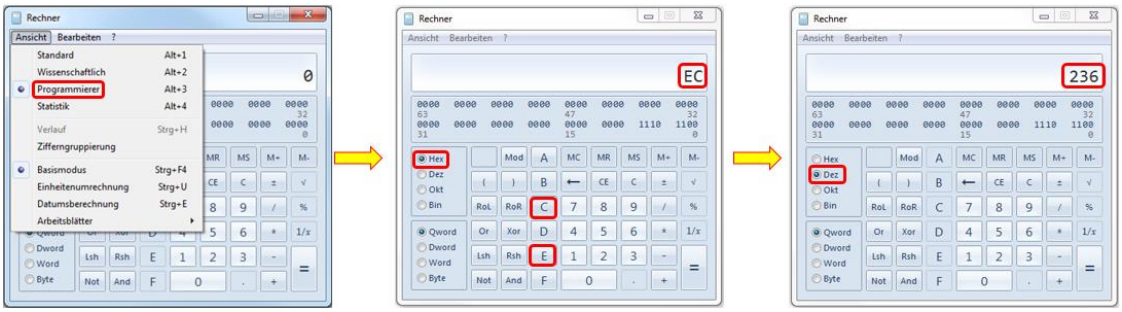
  There is a number on the housing (see picture on the right) which is necessary to determine the IP address.

  The IP address is composed as follows: 85.16.xxx.yyy. The prefix 85.16. is used for all Schneider I/O modules. The values for “xxx” and “yyy” are determined from the last two blocks of the number shown on the housing. These values are hexadecimal and must be converted to the decimal number format. For this purpose the computer available on the PC can be used, for example.

  Example:

  Values of the last two blocks: EC and F7

  Conversion (example: EC):



This procedure is repeated with "F7". The IP address is then formed as follows:

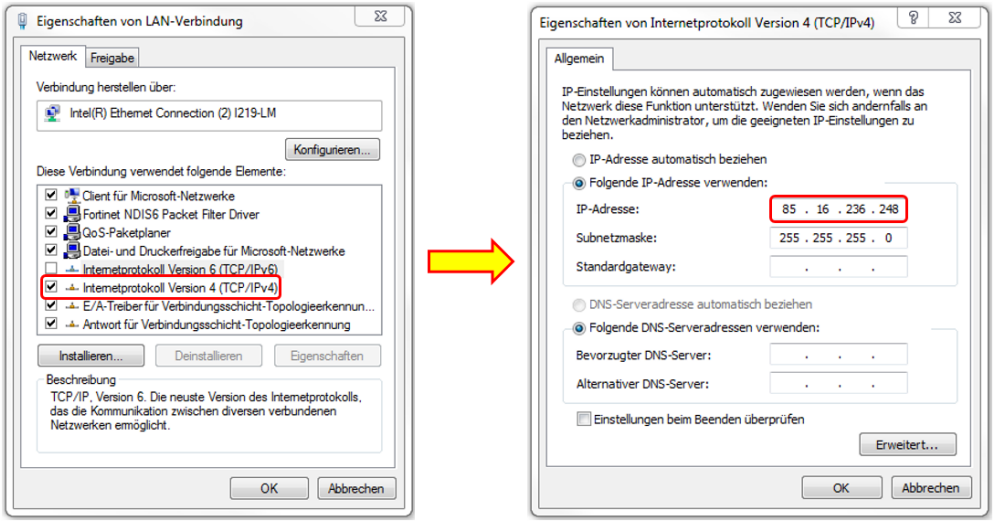
EC (Hex) = 236 (Dez)

F7 (Hex) = 247 (Dez)

IP Adresse: 85.16.236.247

This IP address is entered in the "TCP/IP address" field in the Supervisor (see above).

The IP address of the network card must be larger or smaller by the value "1" at the last position (in this case e.g. 85.16.236.248).

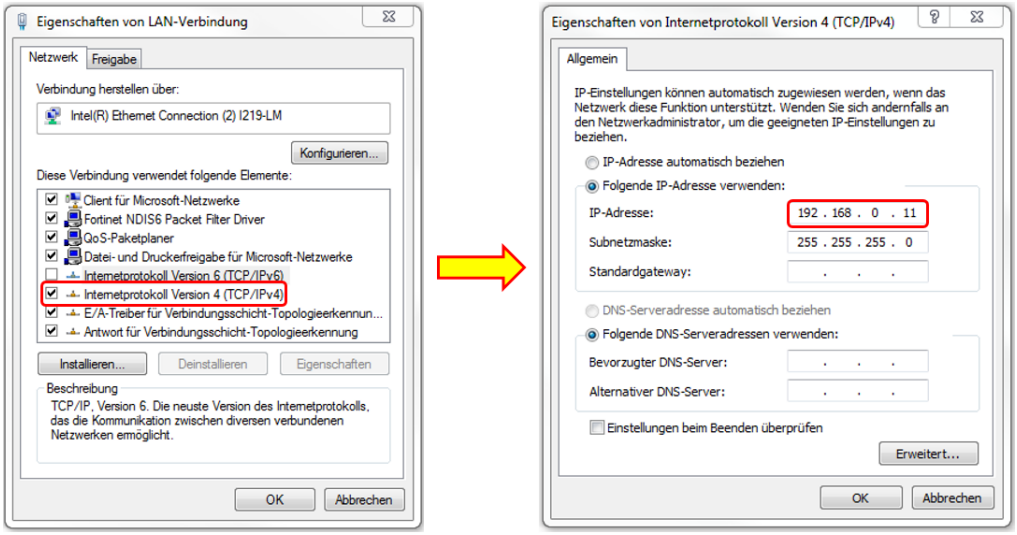


- Connection Controllino:

  The value for the TCP port is 23 and is entered in the "TCP Port" field (see above).

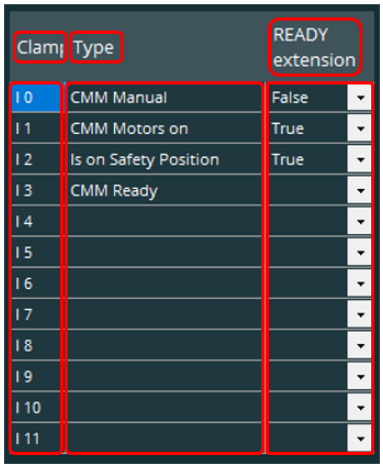
  The default IP address is 192.168.0.10. This is entered in the "TCP/IP Address" field (see above).

  The IP address of the network card must be larger or smaller by the value "1" at the last position (here, for example: 192.168.0.11).

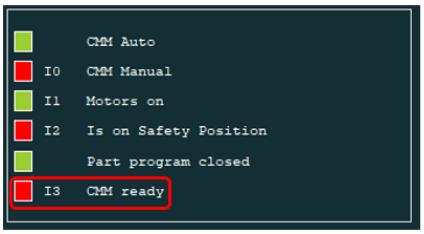


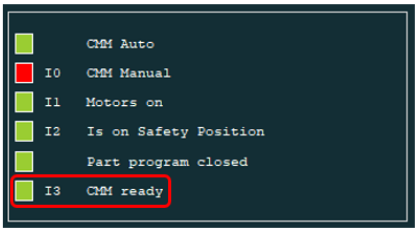
- Configure the input signals:

  At this point the signal type (“Type”) and the interpretation of this signal (“Ready extension”) can be defined for each input (“Clamp”). Up to 12 inputs can be configured.

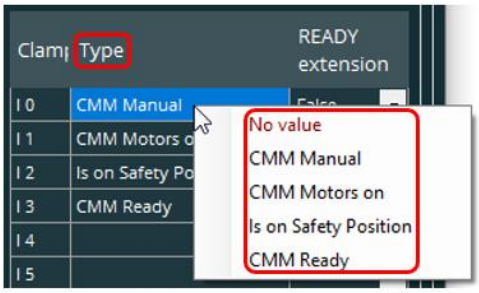


This has a direct influence on the status “CMM ready”, which is signalled in the user interface via “red” (CMM not ready) or “green” (CMM ready”).

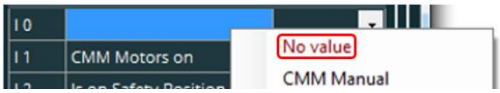




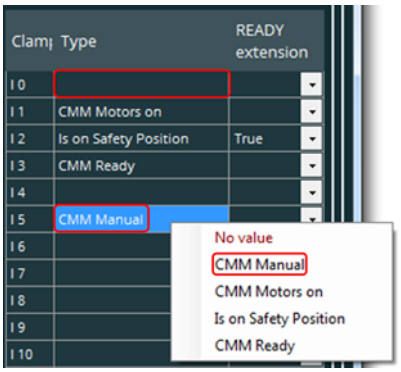
After installation of the Supervisor the inputs “I0” to “I3” are prefilled. This can be changed by right clicking in the corresponding row of the column “Type”. Clicking with the right mouse button on the corresponding line of the "Type" column opens a context menu. In this the signal type can be selected, changed or removed:



- No value:
  The value is removed.

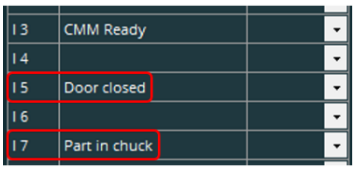


- CMM Manual / CMM Motors on / Is on Safety Position / CMM Ready:
  By selecting one of these signal types it can be assigned to another input. If this signal type is assigned to an input, the original value is removed. This rules out double allocation.
  Example in the picture:
  Input “0” was originally assigned CMM Manual. By marking input “5” and selecting “CMM Manual”, this signal type is assigned to input “5” and automatically removed from input “0”.



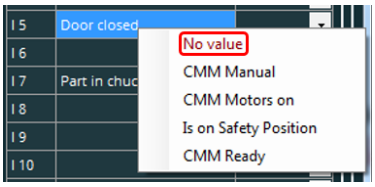
Alternatively, the value can be entered manually. By clicking in the corresponding field the complete value can be overwritten. If the field is marked, a single letter (the cursor jumps to the position of the mouse pointer) can be changed by double-clicking.

Any types of signal can be defined and assigned to the corresponding inputs.



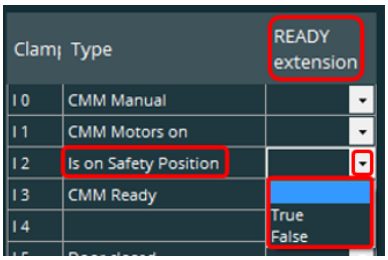
By clicking in the corresponding row in the column "Type" the desired signal type can be entered. If a value already exists and the field is marked, a single letter (cursor jumps to the position of the mouse pointer) can be changed by double-clicking.

In order to remove the value, repeat the process and delete the value. Alternatively, “No value” can be selected per right mouse click in the following context menu.



It can be defined for each input how a signal (or state) is to be interpreted. This monitors the state “CMM ready”.

Select the desired row per left mouse click on the symbol "▾" in the column “Ready extension”. By clicking again, a drop-down list opens in which the following options can be selected:



- Empty field:

  The interpretation of the input signal corresponds to the state "True" (see below).
- True:

  If there is a signal on the input, a report is sent to the Supervisor that the condition for the state “CMM ready” being reached has been fulfilled.

  If there is no signal, this condition has not been fulfilled.
- False:

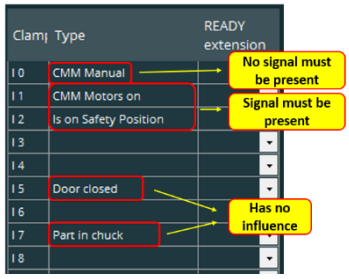
  If there is a no signal on the input, a report is sent to the Supervisor that the condition for the state “CMM ready” being reached has been fulfilled.

  If there is a signal, this condition has not been fulfilled.

There are the following three options for monitoring the state “CMM ready”:

- "CMM Ready" is not assigned to any input (deleted from the list - see above) and in the column "Ready extension" for the defined inputs "Empty field" (see above) is selected. Then the message "CMM ready" is send if the following conditions are fulfilled:

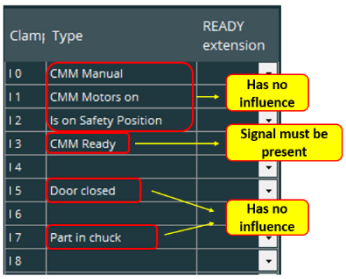
  - “CMM Manual” ➙ no signal must be present
  - “CMM Motors on” ➙ a signal must be present
  - “Is on safety position” ➙ a signal must be present
  - No measurement routine may be opened in PC-DMIS ("Part program closed" must be green - see chapter: User interface, section: Visualisation signal state).

  All conditions must be fulfilled to reach the state “CMM ready”. If fewer signal types are defined (e.g.: "CMM Manual" deleted from the list), only the remaining signal types influence the state "CMM ready". Other defined signal types (see above) have no influence on the state "CMM ready".

- "CMM Ready" is assigned to an input and in the column "Ready extension" for the defined inputs "Empty field" (see above) is selected. Then the message "CMM ready" is send if the following conditions are fulfilled:

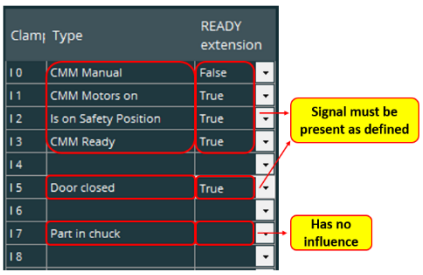
  - A signal must be present at the input of "CMM Ready".
  - No measurement routine may be opened in PC-DMIS ("Part program closed" must be green - see chapter: User interface, section: Visualisation signal state).

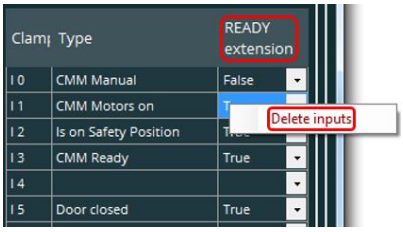
  The signals of other inputs have no influence on the state “CMM ready”.

- One or more inputs are assigned "True" or "False" (see above) in the "Ready extension" column. Then the message "CMM ready" is send if the following conditions are fulfilled:
  - Each defined input must fulfil the condition in the column “Ready extension” for the state “CMM ready”.
  - No measurement routine may be opened in PC-DMIS ("Part program closed" must be green - see chapter: User interface, section: Visualisation signal state).

  If one input does not fulfil the condition, the state “CMM ready” is not reached. Inputs which are defined with "Empty field" (see above) have no influence on “CMM ready”.



To set the definition to "empty" for all inputs, right-click in the "Ready" column. Then select "Delete inputs" in the context menu. All states defined until then are reset (see above: Empty field).



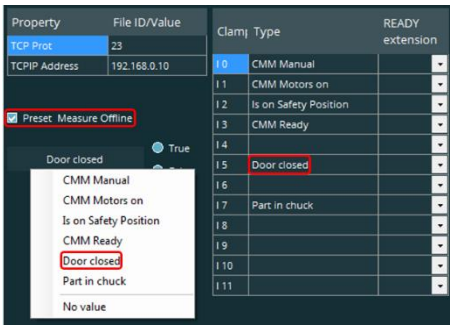
- Preset measure offline:

  This setting allows the Supervisor to automatically go offline given a certain signal type.

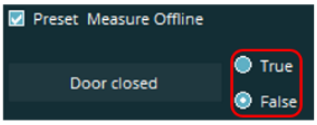
  This allows any measurement to be performed in Preset & Measure (see also chapter: User interface, section: Connect with Preset & Measure).

  To do this set the “Preset measure offline” activate the checkbox, right click in the field and select the desired signal type.

  The desired signal can be selected from all available signal types.



  Subsequently, the condition for the offline mode must be set with "True" (signal present) or "False" (signal not present). Preset & Measure is switched offline when this condition is reached. The interpretation defined under "Ready extension" (see above) must be considered as follows:



  - Ready Extension = "Empty" or "True" ➞ Preset Measure Offline = "False
  - Ready Extension = "False" ➞ Preset Measure Offline = "True

  Example (see screenshot above):

  On the hardware side, it is defined that no signal is present when the door is open. If the door is closed, a signal is present.

  The configuration must be carried out as follows:

The signal type "Door closed" (designation freely selectable) is assigned to input "I5". In the "Ready extension" column (see above), "Empty field" is selected (since an empty field was also selected for all other signal types).

This signal type is now available in the context menu "Preset Measure Offline". The interpretation of the signal type for "Preset Measure Offline" is set to "False" (see above).

Since there is no signal when the door is opened (see above), the Supervisor is switched offline and Preset & Measure opens with the last used list (e.g.: electrodes). Now a measurement can be performed with Preset & Measure.

When the door is closed, a signal is present (see above), Preset & Measure is minimized and the supervisor is switched online (see also chapter: User interface, section: Connection with Preset & Measure).

If no corresponding hardware is connected, communication takes place exclusively by file exchange, via TCP/IP (default) or TCP/IP (EROWA) and file exchange:

- Communication via file exchange:

  The communication is given by means of the file „Programmende.txt“ (see chapter: Menu option „Extras“, section: Settings, point: Set ➝ Connect / Automated cell – Communication using file exchange) .

- Communication via TCP/IP:

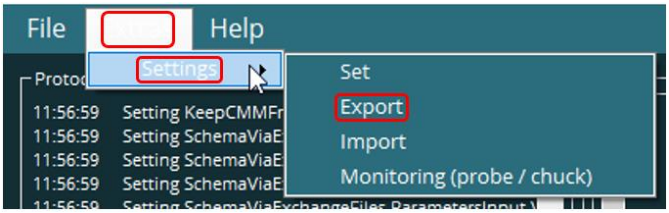
  The communication takes place via TCP/IP or TCP/IP and file exchange (see chapter: Menu option „Extras“, section: Settings, point: Set ➝ Connect / Automated cell – Communication using TCP/IP).

The checkbox must be deactivated. No changes can be made in the “Connection data” area (see chapter: Menu option „Extras“, section: Settings, point: Set ➝ PLC Configuration).

- ## Export

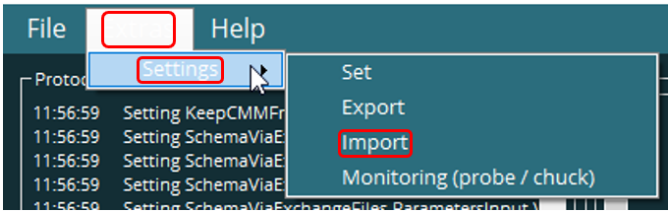
After selecting this function, a window opens in which the path and the name for the data export can be selected. All settings carried out are backed up.

It is recommended to carry out a data backup after installation and configuration of the Supervisor via this function.

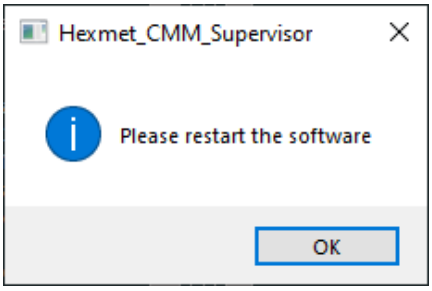


- ## Import

After selecting this function, a window opens in which the path and the name for the data import can be selected.



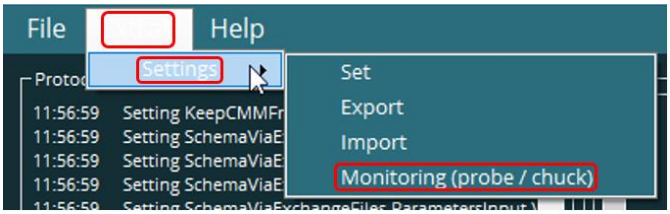
After selecting the file, the message “Please restart the software” appears.



After confirming the message with “OK” the Supervisor, Preset & Measure and PC-DMIS will be closed automatically. After the manual restart all settings at the time the data backup was carried out are restored.

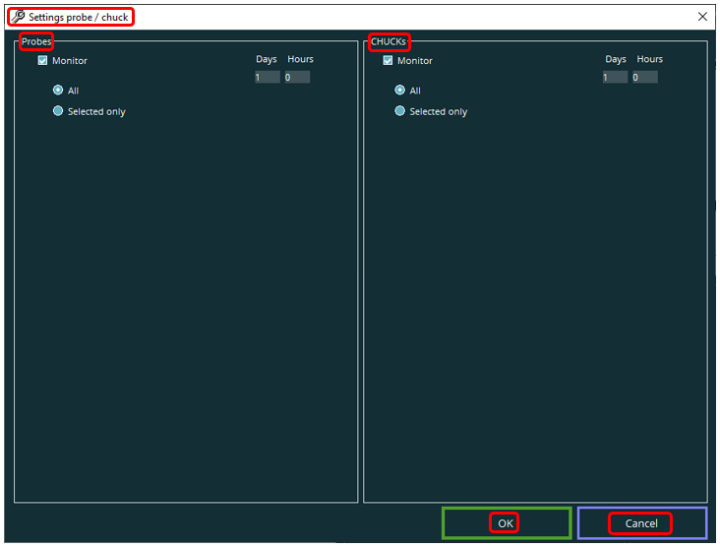
- ## Monitoring probe / chuck

  By means of the menu option "Extras" → "Settings" → "Monitoring (probe / chuck)" it is possible to define a time window for the calibration of the probes and chucks (clamping means, corresponds to alignment) adequately to PC-DMIS Preset & Measure (see section: Area: Probes, point: Checkbox “Monitor” activated and section: Area: Chucks, point: Checkbox “Monitor” activated).



  The "Settings probe / chuck” window opens, in which various settings can be made in the "Probes" and "CHUCKs" areas.

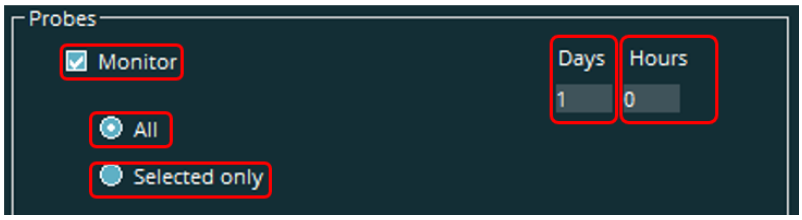
  Changes made can be accepted using the "OK" button or discarded using "Cancel".



- Area: Probes

  - Checkbox “Monitor" activated

    If the checkbox is activated, a time window in days and hours can be defined for calibrating the probes. The radio buttons "All" or "Selected only" (see below) are available.

    In the user interface, the status of the probes selected by means of the radio button "All" or "Selected only" (see below) is displayed as follows:

    - Probe within the time window:

      A green icon is displayed in the lower left corner of the user interface.

      If the status of the measuring machine is queried by means of the control system, the following feedback is given: Are probes ready=True.

      The next measurement can be started.

    - One or more probes outside the time window:

      A red icon is displayed in the lower left corner of the user interface.

      If the status of the measuring machine is queried by means of the control system, the following feedback is given: Are probes ready=False.

      Independently of this, the next measurement can be started. To further guarantee the accuracy of the measurement results, it is recommended to calibrate the selected probe(s).

      If monitoring for the chucks (see section: Area: Chucks, point: Checkbox “Monitor” activated) is also active, the status for the probe and chuck is displayed symbolically (in the example: both within the time window).

By means of the radio buttons "All" or "Selected only" it can be defined for which probes the time window (see above) for the calibration is valid.

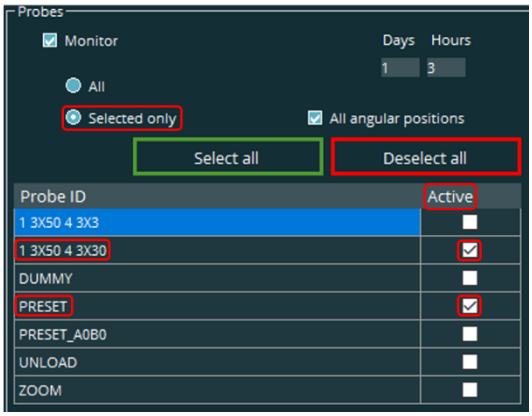
The prerequisite is that the probes have been created and calibrated in PC-DMIS before starting the supervisor.

- All:

  The time window (see above) applies to all probes created and calibrated in PC-DMIS. The probe list (see: Selected only below) is not available.

- Selected only:

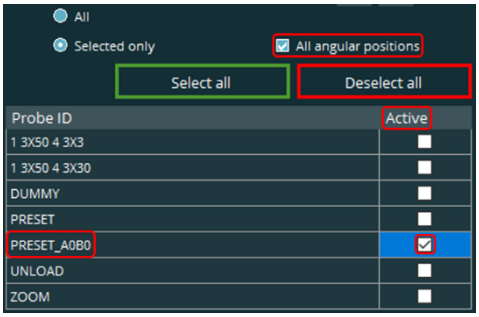
  Individual probes can be selected for which the time window (see above) applies. To do this, activate the checkbox in the "Active" column for the desired probe(s) in the probe list



If a rotary-swivel system is available on the measuring machine, the "All angular positions" checkbox can be used to specify the angular positions for which the time window (see above) applies.

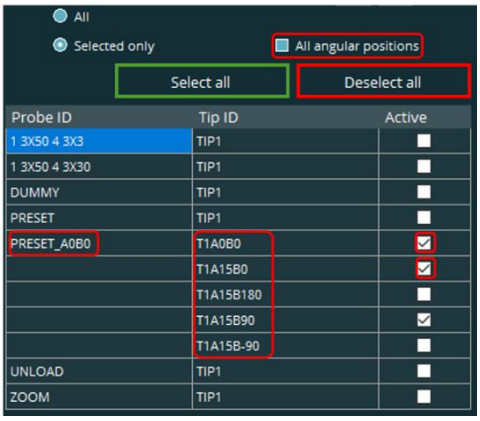
- Checkbox activated

  The time window applies to all angle positions. Only one angular position of the probe can be selected in the probe list. To do this, activate the checkbox in the "Active" column.



- Checkbox deactivated

  In the probe list, all probes are listed with their respective angular positions. By activating the checkbox in the "Active" column, you can select the probes for which the time window (see above) is to apply.



The "Select all" button activates all checkboxes.

The "Deselect all" button deactivates all checkboxes.

- Checkbox “Monitor" deactivated

  There is no monitoring of the time window (see above) for calibrating the probes. Further settings are not possible.

A display in the user interface (see above) does not take place.

If the status of the measuring machine is queried by means of the control system, no feedback is given.

The next measurement can be started

- Area: CHUCKs

  - Checkbox “Monitor" activated

    If the checkbox is activated, a time window in days and hours can be defined for the calibration of the clamping systems (called chuck in the following, corresponds to the alignment in PC-DMIS Preset & measure). The radio buttons "All" or "Selected only" (see below) are available.

    In the user interface, the status of the chucks selected by means of the radio button "All" or "Selected only" (see below) is displayed as follows:

    - Chuck within the time window:

      A green icon is displayed in the lower left corner of the user interface.

      If the status of the measuring machine is queried by means of the control system, the following feedback is given: Are chucks ready=True.

      The next measurement can be started.

    - One or more chucks outside the time window:

      A red icon is displayed in the lower left corner of the user interface.

      If the status of the measuring machine is queried by means of the control system, the following feedback is given: Are chucks ready =False.

      Independently of this, the next measurement can be started. To further guarantee the accuracy of the measurement results, it is recommended to calibrate the selected chuck(s).

      If monitoring is also active for the probes (see section: Area: Probes, point: Checkbox “Monitor” activated), the status for pushbuttons and chucks is displayed symbolically (in the example: both within the time window).

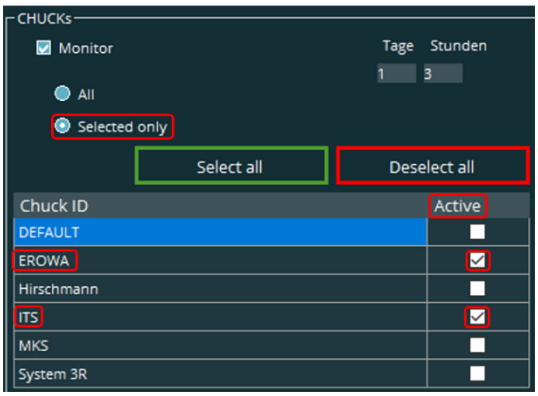
By means of the radio buttons "All" or "Selected only" you can define for which chucks the time window (see above) for the calibration is valid.

The prerequisite is that the chucks have been created and calibrated in the user interface

- All:

  The time window (see above) applies to all created and calibrated chucks. The list of chucks (see: Selected only below) is not available.
- Selected only:

  Individual chucks can be selected for which the time window (see above) applies. To do this, activate the checkbox in the "Active" column of the desired chuck in the list of chucks.



The "Select all" button activates all checkboxes.

The "Deselect all" button deactivates all checkboxes.

- “Monitor" checkbox deactivated

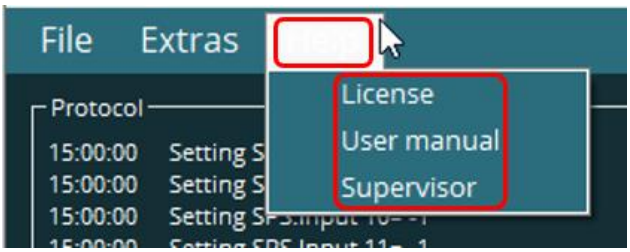
  There is no monitoring of the time window for calibrating the chucks. Further settings are not possible.

A display in the user interface (see above) does not take place.

If the status of the measuring machine is queried by means of the control system, no feedback is given.

The next measurement can be started.

7. Menu option “Help”



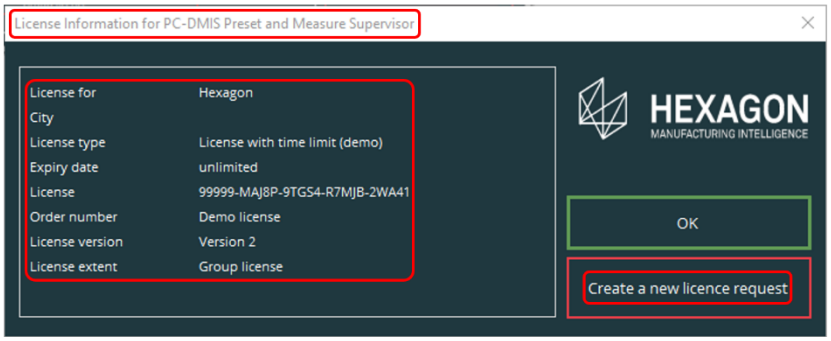
7.1. User manual

This opens the user manual.

7.2. License

With "License" you get in the following window "License information for PC-DMIS Hexmet_CMM_Supervisor" information about your software license (for example: license type and expiration date).

A new license request can be generated with the button “Create a new license request”.



7.3. Supervisor

With "Supervisor" you get further information (e.g.: version number of the software).

8. User interface

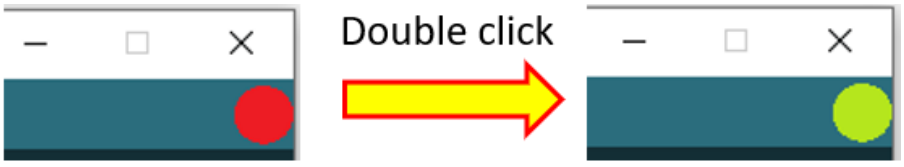
8.1. Connection with Preset & Measure

The Supervisor represents an interface between an automatic solution (control system), Preset & Measure and PC-DMIS. These three software packages are therefore required for online or offline operation.

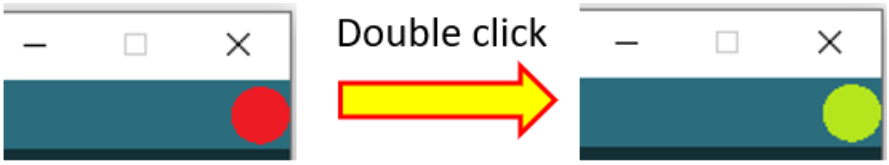
The Supervisor can be used automatically only if connected with Preset & Measure (online).

- ### Connection / disconnection in the user interface

The Supervisor is connected to Preset & Measure by double-clicking the red button in the top right corner of the Supervisor user interface. The button turns green and Preset & Measure is minimized (online mode). In this case, manual work with Preset & Measure is not possible, since the lists etc. are not available (green button in the user interface of Preset & Measure and the Supervisor).



To disconnect (offline mode) the process is repeated. The green button turns red and Preset & Measure is maximized (red button in the user interface of Preset & Measure and the Supervisor). It is now possible to work with Preset & Measure as usual, as the lists etc. are available.



The On - or Offline mode can only be established with the Supervisor. The red or green button in the Preset & Measure user interface is only used to visualize the current status.

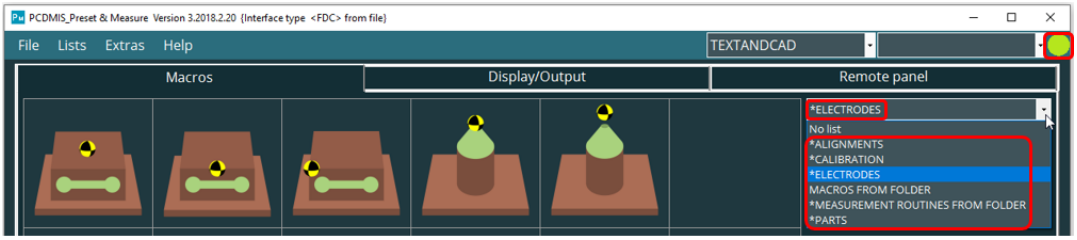
- ### Connection / disconnection via PLC configuration

Switching between online and offline mode is done using the PLC configuration (see chapter: Menu option “Extras”, section: Settings, point: Set → PLC Configuration → Preset measure offline).

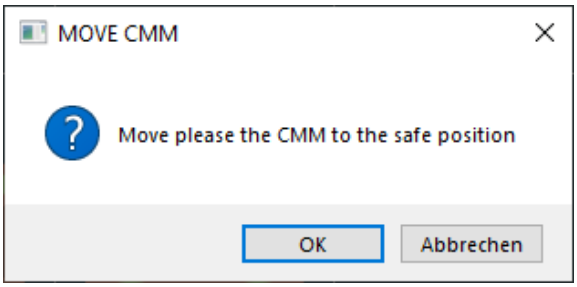
Connection / disconnection via control system

If no value is passed by the control system with the parameter "Measuring program=", the supervisor is also switched to offline mode and Preset & Measure is maximized. This happens regardless of whether communication takes place via file exchange or TCP/IP (see chapter: Menu option "Extras", section: Settings, point: Set ➝ Area: Connection / Automated cell - Communication using file exchange and Area: Connection / Automated cell - Communication using TCP/IP).

The green button at the top right of the Preset & Measure user interface and the Supervisor remains green. Regardless of this, measurements can be performed with Preset & Measure, as the lists etc. are available.



As soon as the manual measurements are completed, the Supervisor can be switched back to online mode. This is done by double-clicking on the green button in the upper right corner of the Preset & Measure user interface. This will remain green and the "MOVE CMM" window will open.



After the measuring machine has been moved to a safe position, this message can be confirmed with "OK".

Preset & Measure is then minimized and the Supervisor is in online mode again (green button in Preset & Measure and the Supervisor).

The online mode of the supervisor can only be established via the Preset & Measure user interface.

8.2. Visualisation signal state

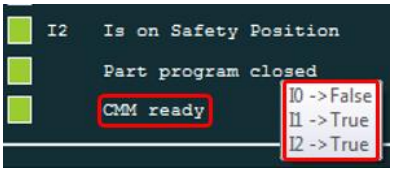
The individual signal states are displayed optically in the central area of the user interface (see chapter: Operation, section: Terms used, point: Example: User interface (online / parking position)).

The upper six fields are assigned to fixed signal types. If there is a PLC, these are assigned to inputs “I0” to “I3” after installation of the Supervisor. "CMM Auto" is not assigned to any input, as it is defined by "CMM Manual". "CMM Auto" is the opposite state of "CMM Manual".

The assignment of the inputs (except "CMM Auto") can be changed according to the connected hardware (see chapter: Menu option “Extras”, section: Settings, point: Set ➝ PLC Configuration ➝ Configure the input signals). If a signal type is assigned to an input, this is indicated by an "I" followed by the number of the input.

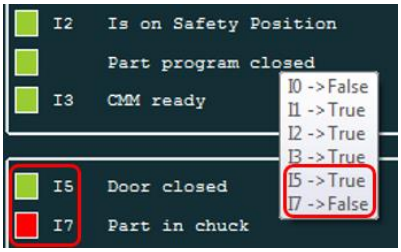
If a signal is present at the corresponding input, it is displayed in the color "green". If there is no signal, the signal state is visualised in the colour “Red”. The colour is assigned irrespective of the setting carried out in the column “Ready extension” (see chapter: Menu option “Extras”, section: Settings, point: Set ➝ PLC Configuration ➝ Interpret input signals).

The status "Part program closed" is always monitored by the software, regardless of whether a PLC is connected or not.



The settings carried out in the column “Ready extension” can be shown by moving the mouse over “CMM ready” (see: Menu option “Extras”, section: Settings, point: PLC Configuration ➝ Configure the input signals and Interpret input signals). A tool tip with the corresponding information opens.

If no hardware is connected and the signals are edited on the software side, the inputs are not shown (except "Is on safety position").



The lower fields can be configured freely and assigned to various signal types and inputs (see chapter: Menu option “Extras”, section: Settings, point: PLC Configuration ➝ Configure the input signals). If one signal type or several of these signal types is furnished with the corresponding interpretation, these also appear in the tool tip (see above).

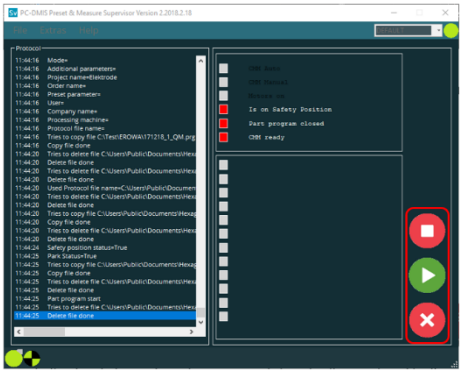
8.3. Parking position

The CMM can be put on parking position with the switch on the bottom right. The parking position must be defined in the CMM controller or in PC-DMIS (clear point). If the parking position is monitored on the hardware side (see Chapter: Menu option "Extras", Section: Settings, point: Set ➝ Define schema ➝ Area: Go to safety position), the parking position in the controller of the measuring machine and the safety point in PC-DMIS must be identical. If the parking position has been reached, a corresponding visualisation appears in the user interface.

The layout of the elements in the user interface can be seen in the chapter: Operation, section: Terms used, point: Example: User interface (online / parking position).

8.4. User interface during execution (measurement routine or macro)

During the execution of a measurement routine or a macro, the button for the parking position is replaced by the buttons for "Stop", "Continue" and "Cancel" known from PC-DMIS.



In the event of an abort or a fault, the “RESET” button appears (see also chapter: Operation, section: Terms used, point: Example: User interface (offline / reset)).

If the reason for the interruption or termination has been remedied, this button has to be confirmed per mouse click and is then replaced by the button “Parking position”. If necessary, the measuring machine must then be moved to the parking position (see above: Parking position).

9. Additional information

9.1. Start file

The start file can contain the following basic information:

Name of the variables	Description	Example
Protocol file name=	Path and name of the measuring protocol	Protocol file name=C:\Protocol\Test.PDF
Offset file name=	Path, name and extension of the output file	Offset file name=C:\offset.txt
Measuring program=	Path and name of the measurement routine (if necessary also TXT file)	Measuring program=C:\ Preset_Rectangle_TeachpointsFro mFile.PRG
Pallet name=	Name of the external alignment	Pallet name=ITS
Post processor id=	Name of the post processor	Post processor id=test
Part type=3	Part type (2=part / 3=electrode)	Part type=3
Aux data file=C:\ 171011_PM.TXT	TXT file for presetting	Aux data file=C:\ 171011_PM.TXT

Depending on whether a measurement routine is to be carried out for defaults or quality measurement, not all information is absolutely necessary (e.g. the measuring protocol only makes sense in respect of quality measurement).

Apart from this basic information the start file can include further additional information. This is not part of the user manual, as corresponding information and documents in respect of this are made available within the scope of the training.

9.2. Software update

If the supervisor is updated, make sure that the version of Preset & Measure used is compatible with the new version. It may be necessary to update Preset & Measure.

If Inspection Planner is used in addition to Supervisor, the compatibility of the software packages must also be checked in the event of an update.

A list of compatible versions can be found in the document "Preset & Measure Suite compatibility.xlsx". This is available for download at: https://ftp.hexmet.de/PC-DMIS/PC-DMIS_Preset_&_Measure%20Suite/.

10. 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.