User manual

PC-DMIS Q-DAS Konverter
Version: 5.2020.137

23 January 2025

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1. General information

1.1. Software objectives

This software has been specially designed to allow generation of Q-DAS ASCII data under the software PC-DMIS™ software package, Version 2013 MR1 or higher.

This converter allows manual conversion (OFFLINE) after the measurement is completed or automatic conversion during runtime (ONLINE). It can be started by an external command from the measurement program during its execution.

1.2. Software requirements

The software has been developed for the Windows 7 and Windows10 operating system. No software tests have been conducted with other operating systems. If you are using Windows XP and you have installed this software, we assume no warranty for the full functionality of the software.

The tests of compatibility of the data generated with qs-STAT® were conducted with version qs-STAT® Version 11. However, in accordance with Q-DAS®, the format may also be used for older versions.

The relevant PC-DMIS™ version must be installed on the same computer in order to be able to use the converter.

1.3. Software warranty and support

Please refer to the current license.txt file for further information in the installation folder of the software. This will be displayed during installation and must be accepted. Any contrary agreements must be defined in writing and can only be entered into with the software manufacturer. Agreements with intermediaries are invalid.

1.4. Other information

Software maintenance will be subject to a software maintenance contract entered into in conjunction with the PC-DMIS license.

Please observe the terms and conditions of the license agreement that appears during the installation.

2. Installation instructions

2.1. Scope of supply

The software is available for download at the following URL:

https://downloads.ms.hexagonmi.com/PC-DMIS_Solution_Modules/PC-DMIS-Q-DAS_Converter/Version_5

2.2. Installation

Please perform the following steps to download the software on your PC-DMIS computer:

- Verify the PC-DMIS version you are currently using on this computer.
- Unpack the WinZip archive on your PC-DMIS computer.
- Start the "Setup.exe" file to install the software. Please follow the instructions of the setup process carefully.
- Start PC-DMIS and open any measurement program you want.
- Now the software is ready for use.
- Should you have any technical questions please contact your local PC-DMIS Hotline.

2.3. Uninstalling the software

Use the appropriate routine in the program folder to uninstall the software.

3. How to use the software

3.1. Language setting

The software is available in the following languages:

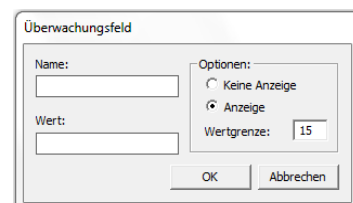|	
• English	• German
• French	• Italian
• Czech	• Spanish
• Portuguese	• Hungarian
• Slovenian	

Please contact your supplier if you need a different language.

The language can be selected using the File – Language menu option. Also the axes names are defined in conjunction with the language setting (applies to axes names that are compatible with version 1).

3.2. Creating the measurement program in PC-DMIS™

- Create your measurement as usual through the PC-DMIS™ Software. Please note the following if you are creating dimensions for evaluation:
  The output option must be set to "STATS" or "BOTH". Only then will converter include dimensions in the statistical evaluation.

- If a dimension is not marked while the data is imported into the converter, it will be characterized by the attribute 255 or 256 in the Q-DAS file. This means that the dimension will not be included for statistical evaluation.

- Depending on the start up argument of the converter (/i or /a) the export will start automatically or must be confirmed again in the main converter window. For further information please refer to chapter 3.7 of this manual. This is most important if you wish to add events (K-fields) to dimensions.

  K-fields can be prompted through trace field commands in PC-DMIS. Trace fields are added in PC-DMIS with the
  Paste → Statistics command → Trace field option. The K-field to be prompted is entered into the Name field. As default, "No Display" is set in the options. There are several ways to fill the created trace field with content now.

Use a comment to recall settings. An input command is used to pass them to the trace field. Another option is to use assignments.

- Trace fields are supported for the following K-fields.

Key	/0	Field name	Length	Type	Catalog based	Customer description	DFD DFX	Remark
Value / Additional data								
K0005	/0	Events	255	A				
K0006		Batch number	14	A				"#" must precede value
K0007		Cavity number	5	I	X			
K0008		Inspector name	10	I	X			
K0009		Text	255	A				
K0010		Machine number	5	I	X			
K0012		Gage number	5	I	X			
K0014		Part ID	40	A				
K0015		Purpose of the inspection	5	I	Defined field contents			
K0016		Production code	30	A				
K0017		Tool number	30	A			DFX	
K0053		Order	20	A				
K0054			30	A				
K0055			30	A				
K0056			30	A				
K0057			30	A				
K0058			30	A				
K0059			30	A				
K0060			30	A				
K0061		Reason for check	10	I	X			
K0062			10	I	X			
K0063			10	I	X			
K0080			64	A				
K0081			5	I				
Part data								
K1001		Part number	30	A				
K1002		Part description	80	A			DFD	
K1003		Part descvription short	20	A				
K1004		Part update status	20	A				

K1005		Product	40	A				
K1007		Part number Abbreviation	20	A				
K1008		Part type	20	A				
K1009		Part code	20	A				
K1014		Part ID	20	A				
K1021		Manufacturer number	20	A				
K1022		Manufacturer name	80	A				
K1031		Material number	20	A				
K1032		Material description	40	A				
K1041		Drawing number	30	A				
K1042		Drawing Amendment	20	A				
K1043		Drawing Index	40	A				
K1052		Contractor name	40	A				
K1053		Order	40	A				
K1061		Client Number Text	20	A				
K1062		Client Description	40	A				
K1071		Supplier Number Text	20	A				
K1072		Supplier Description	40	A				
K1081		Machine Number Text	24	A				
K1082		Machine Description	40	A				
K1083		Machine number	10	I				
K1085		Machine location	40	A				
K1086		Work Cycle Operation	40	A				
K1087		Operation Description	40	A				
K1100		Plant Sector	40	A				
K1101		Department	40	A				
K1102		Workshop	40	A				
K1103		Cost centre	40	A				
K1104		Shift	20	A				
K1110		Order number	20	A				
K1111		Goods received number	20	A				
K1201		Test facility Number Text	24	A				
K1202		Test Facility Description	40	A				
K1203		Reason for test	80	A				
K1206		Test location	40	A				
K1209		Inspection type	20	A				
K1210		Measurement type	5	I				
K1221		Inspector name text	20	A				

K1222		Inspector name	40	A				
K1231		Measurement program number	20	A				
K1232		Measurement program version	20	A				
K1302		Test batch	40	A				
K1303		Plant name	40	A				
K1311		Production order	40	A				
K1341		Test plan number text	20	A				
K1343		Test Plan Development Date	20	D				
K1344		Test Plan Developer	40	A				
K1802		User field content 1	255	A				
K1812		User field content 2	255	A				
K1822		User field content 3	255	A				
K1832		User field content 4	255	A				
K1842		User field content 5	255	A				
K1852		User field content 6	255	A				
K1860		User field description 7	50	A				
K1862		User field content 7	255	A				
K1900		Remark	255	A				
Dimensional data								
K2001		Characteristic Number	20	A				
K2003		Characteristic Abbreviation	20	A				
K2004		Characteristic type	1	I	Defined field contents			
ATTRIBUT		Value for attributive characteristics	1	I	Defined field contents			0 (good) or 1 (error)
K2005	X	Characteristic class	1	I	Modules AS/PC/PV			
					Defined field contents			
K2006	X	Control item	1	I	Defined field contents			
K2007	X	Control Type	1	I	Defined field contents			
K2015	X	Tool wear type (Trend)	1	I	Defined field contents		DFD	
K2091		Characteristic Index	20	A				
K2092		Characteristic Text	50	A				
K2093/0		Processing status	80	A				
K2095/0		Element Code	40	A				

K2096/0		Element Index	20	A				
K2097/0		Element Text	50	A				
K2114		Lower Scrap Limit	22	F				
K2115		Upper Scrap Limit	22	F				
K2116_K2117		Percet value for acceptance limit	3	I				
K2203		Car body mode	1	I	0=off 1=on			Only for all characteristics
K2216		Master Serial Number	20	A				Only for all characteristics
K2311		Production Type Text (Operation)	20	A				Only for all characteristics
K2320		Contract number	20	A				Only for all characteristics
K2401		Gage number	40	A				Only for all characteristics
K2402		Gage description	80	A				Only for all characteristics
K2434	X	Process capability establishment	1	I	Yes=1 / No=0			Only for all characteristics
K8500		Subgroup size	5	I				Only for all characteristics
K8501		Subgroup type	3	I	Defined Field contents			Only for all characteristics
Additional Trace fields								
FileName		String for file name	255	A				
FirstPart		Reworked Part	1	I	0 or 1			

In PC-DMIS™, one dimension sometimes includes more than one feature. In this case you can set more than one value for K2005, K2006, K2007 and K2015 and separate them by commas. The value will be used for the next characteristic in the part program. If you use more than one value (separated by a comma) the values are used in the order in which they are listed. The part program in the following example illustrates this by different colors.

If you are using trace commands for single K-fields you should disable these fields in the "Settings for Q-DAS K-fields" dialog box.

```
     DISPLAYPRECISION/3

      TRACEFIELD/NO_DISPLAY,LIMIT=1 ; K2005/0 : 3
      TRACEFIELD/NO_DISPLAY,LIMIT=1 ; K2006/0 : 1
      COMMENT/REPT,LOC1 / X-Axis for Hole 204
            ,LOC1 / Y-Axis for Hole 204
            ,LOC1 / Z-Axis for Hole 204
            ,LOC1 / Diameter for Hole 204
DIM LOC1= LOCATION OF CIRCLE CIR1  UNITS=MM ,$
GRAPH=OFF  TEXT=OFF  MULT=10.00  OUTPUT=BOTH
AX  NOMINAL  +TOL   -TOL    MEAS     DEV    OUTTOL
X   203.199   0.000   0.000   203.199   0.000     0.000 ----#----
Y    76.200   0.000   0.000    76.200   0.000     0.000 ----#----
Z     0.000   0.000   0.000     0.000   0.000     0.000 ----#----
D    25.400   0.000   0.000    25.400   0.000     0.000 ----#----
END OF DIMENSION LOC1

      TRACEFIELD/NO_DISPLAY,LIMIT=15 ; K2005 : 2,2,2,2
      TRACEFIELD/NO_DISPLAY,LIMIT=15 ; K2006 : 0,0,1,1
      TRACEFIELD/NO_DISPLAY,LIMIT=15 ; K2007: 0,0,1,1
      COMMENT/REPT,LOC2 / X-Axis for Hole 204
            ,LOC2 / Y-Axis for Hole 204
            ,LOC2 / Diameter for Hole 204
            ,LOC2 / True Position for Hole 204
DIM LOC2= TRUE POSITION OF CIRCLE CIR1  UNITS=MM ,$
GRAPH=OFF  TEXT=OFF  MULT=10.00  OUTPUT=BOTH  DEV PERPEN CENTERLINE=OFF  DISPLAY=DIAMETER
AX  NOMINAL  +TOL   -TOL    BONUS   MEAS     DEV    OUTTOL
X   203.199                 203.199   0.000
Y    76.200                  76.200   0.000
DF   25.400   0.000   0.000   0.000   25.400   0.000     0.000 ----#----
TP     MMC    0.000           0.000            0.000     0.000 ----#----
END OF DIMENSION LOC2

     DISPLAYPRECISION/4
DIM LOC3= TRUE POSITION OF CIRCLE CIR1  UNITS=MM ,$
GRAPH=OFF  TEXT=OFF  MULT=10.00  OUTPUT=BOTH  DEV PERPEN CENTERLINE=OFF  DISPLAY=DIAMETER
AX  NOMINAL   +TOL    -TOL    BONUS   MEAS     DEV     OUTTOL
X   203.1990                 203.1991   0.0001
Y    76.2000                  76.2000   0.0000
DF   25.4000   0.0000   0.0000   0.0000   25.4001   0.0001   0.0001 ------→
TP     MMC    0.0000           0.0000            0.0002   0.0002 ------→
END OF DIMENSION LOC3
```

You can insert a comment (report type) at the start of each dimension. This comment is then saved in the Q-DAS® key field K2900. It cannot be changed during the program runtime.

Lower and Upper Scrap Limit (K2114 und K2115) can be set using Tracefield commands. Here you can see an example which represents the write mode of the values:

TRACEFIELD/NO_DISPLAY,LIMIT=255 ; K2114 : LOC1.X:-0.7|LOC1.Y:-0.3|LOC1.D:-0.5
TRACEFIELD/NO_DISPLAY,LIMIT=255 ; K2115 : LOC1.X: 0.7|LOC1.Y: 0.6|LOC1.D: 0.4

The position of the tracefield in the measuring routine is unrelated to the position of the dimension. Reason is the special selected write mode which is using the dimension id and the axis letter to identify the correct dimension for the values. Important is also that the correct seperators '|' and ':' are used because they are defining the split positions inside the string.

Values for K2091 and K2092 can be set using a tracefield command. Here you can see an example which represents the write mode of the values:

TRACEFIELD/DISPLAY=NO,REPORT=NO,DISPLAY MESSAGE=K2091 ; K2091 : X=MyXValue| Y=MyYValue | Z=MyZValue | D=MyDValue

TRACEFIELD/DISPLAY=NO,REPORT=NO,DISPLAY MESSAGE=K2092 ; K2092 : X=MyXValue2| Y=MyYValue2 | Z=MyZValue2 | D=MyDValue2

3.3.   Launching the PC-DMIS – Q-DAS Converter software

You can launch the software by using a program group in the Windows start menu folder.
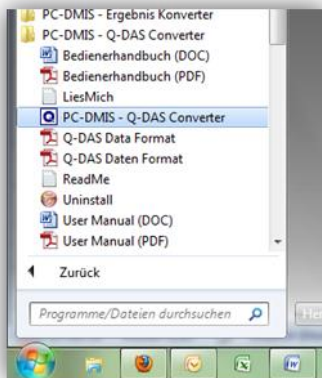
3.4.   User interface of the PC-DMIS – Q-DAS Converter software

The software user interface allows the user to see all part information and results before generating the Q-DAS file.

3.5. Configuration of the converter

In order to configure the converter for the relevant environmental conditions and requirements of the application, all settings in the "Setup" menu must be checked carefully.

3.5.1. Setup

In this dialog you can choose the directory to which your Q-DAS® files are to be saved.

The following options are available:

File path for Q-DAS ASCII files

- Save files in the PC-DMIS™ part program folder
  By check marking this option the software will save the Q-DAS® files in the same folder as the PC-DMIS™ part program.

  ○ Dateien im PC-DMIS Programmverzeichnis speichern

- Select an individual folder
  This option allows the selection of an individual folder during each part program execution. The operator will then be prompted in the main converter window to select a

  ○ Individuellen Speicherort während der Ausführung wählen

  folder.

- Save files in the default folder
  By check marking this option, the directory selected here as default folder will be used for all Q-DAS® files.

  ⊙ Dateien im Standardverzeichnis speichern

- The Option „Predefined Q-DAS Folder" provides an with Q-DAS agreed target folder for standard production and study measuremens. Target is to support the setup for the Q-DAS Ready2Use Bundle.
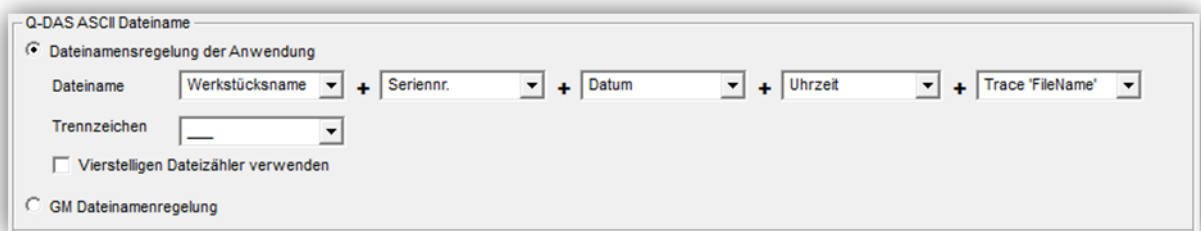
  ○ Predefined Q-DAS Folder

- It is also possible to define a specific folder in the respective PC-DMIS™ part program. Please refer to chapter 3.8 for further details.

- You can create a backup copy of the ASCII file on your local computer by check marking the "Create backup file in directory {Application}\TempData\Save" option. This is done once a file copy has been saved in the destination directory.

  ☐ Sicherungskopie im Verzeichnis {Application}\TempData\Save\ anlegen

Q-DAS ASCII File Name

You can define the file name convention to be used for Q-DAS ASCII files in the "Q-DAS ASCII File Name" section. Part Name, Revision Number and Serial Number are the values which are available in the header of the part program. The string from the trace field Trace'FileName' is read in from the part program. Date and time are based on the system time during the file conversion. The selected separator will be inserted between each of the selected values. If you don't want to use date and time, you will have to use the 4 digits counter. If you fail to do so, the software may overwrite the old files.

The "GM file name rules" option uses the following file name format:

{string from Trace Field "FileName"}_MMDDhhmmss
DD: Day
MM: Month
hh: Hour
mm: Minute
ss: Second

Program Settings

Use the "Program Settings" section to configure the software in the best way for your application.

- Multi-line comments

  Comments can be used to add explanations for each dimension (so-called "characteristics" in Q-DAS). Each comment is associated to a specific dimension. Some rules must be observed in the PC-DMIS™ program to achieve this effect.

  Whether a comment is taken into account or not by converter depends on the type of comment and its position in the part program.

- The comment must be of the report type.
- The comment must directly precede the dimension.
- Multi-line comments may contain up to 20 lines. If more than 20 lines are used, they will be ignored.

Depending on the status of the "Multi-line comments" checkbox, multi-line comments will be interpreted differently.

Please see the following two examples for a more detailed explanation:

Example 1:

```
        COMMENT/REPT,Comment for X-Axis

            ,Comment for Y-Axis

            ,Comment for Z-Axis

            ,Comment for D-Axis

        MOVE/CLEARPLANE

DIM 1= LOCATION OF CIRCLE KREIS1  UNITS=IN ,$

GRAPH=OFF  TEXT=OFF  MULT=10.00  OUTPUT=BOTH

AX  NOMINAL    +TOL    -TOL    MEAS    MAX    MIN    DEV
```

This comment will not be used, because the MOVE/CLEARPLANE command was placed between the comment and the dimension.

Example 2:

```
        COMMENT/REPT,Comment for X-Axis

            ,Comment for Y-Axis

            ,Comment for Z-Axis

            ,Comment for the D-Axis

DIM 1= LOCATION OF CIRCLE KREIS1  UNITS=IN ,$

GRAPH=OFF  TEXT=OFF  MULT=10.00  OUTPUT=BOTH

AX  NOMINAL    +TOL    -TOL    MEAS    MAX    MIN    DEV
```

This comment will be used, because there is no command between the comment and the dimension.

Note: Only "Trace field" and "Display Precision" commands can be placed between the comment and the dimension.

If "Multi-line comments" is enabled, you will get the following result:

Dimension	Comment
1.X	Comment for X-Axis
1.Y	Comment for Y-Axis
1.Z	Comment for Z-Axis
1.D	Comment for D-Axis

If "Multi-line comments" is disabled, the same command will be interpreted as follows:

Dimension	Comment
1.X	Comment for X-Axis / Comment for Y-Axis / Comment for Z-Axis / Comment for D-Axis
1.Y	Comment for X-Axis / Comment for Y-Axis / Comment for Z-Axis / Comment for D-Axis
1.Z	Comment for X-Axis / Comment for Y-Axis / Comment for Z-Axis / Comment for D-Axis
1.D	Comment for X-Axis / Comment for Y-Axis / Comment for Z-Axis / Comment for D-Axis

- Check for existing CFG files
  If this function is enabled, the converter will search for saved settings for the additional Q-DAS data, depending on the program name. Part name and part amendment status are used for the identification of programs.

- Use Q-DAS Position Calculation
  If this function is enabled, the converter will use the Q-DAS® fields K2008, K2030 und K2031 for position dimensions. If this structure is used, ordinates are assigned to their respective positions. The position value is calculated by qs-STAT®. However, this program allows only for a maximum of two ordinates for the positional calculations.

- Depending on the result, use different subfolders
  If this function is enabled, the converter will create the following subfolder in the destination directory:

  - FirstParts
  - PartOK
  - PartOOT

  Results from parts which are being measured for the first time will be saved in the FirstParts subfolder (regardless of the result). The files in this folder will be used for process analyses.

Converter will save a copy of the Q-DAS® file in the PartOK subfolder, if all values are within tolerance. This should be the group of finished parts (for delivery).

A copy of the Q-DAS® files will be saved in the PartOOT subfolder, if one or more values are out of tolerance. The files will be a source of information for rectification work, if required.

If a part is measured a second time, it must be marked as a reworked part. The Additional Q-DAS® Data dialog box is used for these settings. The data will not be saved in the FirstParts subfolder, because reworked parts are not allowed to influence the process evaluation. As an alternative to the dialog, a tracefield with the name "FirstPart" and the value 0 or 1 can also be used.

- PC-DMIS™ - Q-DAS Konverter V. 1 Axis Designations
  This function must be enabled, if the K-fields K2001 and K2002 (characteristic number and characteristic name) have to use compatible values for Converter version 1. In this case you have also to select the appropriate language in the File – Language menu. The difference is that the current software adopts the axis designations from PC-DMIS™ whereas the old converter version assigned names to the respective axes.

- Use default values for Additional Q-DAS® data
  If this function is enabled, all part programs will use the same settings for the additional Q-DAS® data. However, the default values have to be saved once. The entry Q-DAS® Data dialog box is used for this setting.

- Minimize converter window during execution
  By enabling this function, the converter window is minimized during the ONLINE process.

- Attribute
  The attribute in the Q-DAS® format is used to declare measurement values as valid or invalid. The converter will assign attributes depending on the marker status in the PC-DMIS™ part program (marked: Valid (0); not marked: Invalid (255 or 256)). Please refer to your Q-DAS® documentation for further details on the difference between value 255 and 256.

- Q-DAS File structure
  The converter can create Q-DAS ASCII files in the following formats:

  o   DFQ

    o   DFD and DFX

> ***Important:***   *If you want to use Q-DAS Monitoring Software, DFD and DFX formats must be enabled.*

- Lower and upper plausibility limit
  A factor is entered here. This factor, the tolerance values and the nominal value are used to calculate the value for K2130 and K2131:
  K2130 = Nominal value + lower tolerance * lower factor
  K2131 = Nominal value + upper tolerance * upper factor

  Note: *The default value is "0".*

- Fixed number of decimal places
  If this radio button is enabled, the K-field will use always the set value (regardless of the part program settings).

- Automation (silent end)
  There was a situation that the converter in an automated cell was not correct ended if no characteristics was available for output. If this check box will be activated, the converter will end without a warning. There is only a log in the debug file.

- True Position using MMC / LMC Bonus
  This selection now allows 3 variants how to deal with bonus tolerances:

  - o   As before, the characteristic is always output with the basic tolerance.

  - o   In the case of "No additional feature (legacy)", the behavior is as before this version.

  - o   When selecting "attribute characteristic", an additional attributive characteristic is automatically generated in the group. The ID is derived from the previous TP axis. Whether the value is 1 (error) or 0 (good) depends on the OUTTOL value of the previous TP axis.

  - When selecting "Standardized 19haracteristic" the converter automatically create an additional feature in the group. The tolerance is normalized (upper tolerance + bonus corresponds to the value 1) and the measured value is determined according to the following formula:

    Measured value = deviation / (upper tolerance + bonus)

Ok

Stores the values in the registry of the computer (HKEY_LOCAL_MACHINE \ SOFTWARE \ DEAGERMANY \ PCDQDAS \ Settings) and closes the dialog.

Cancel

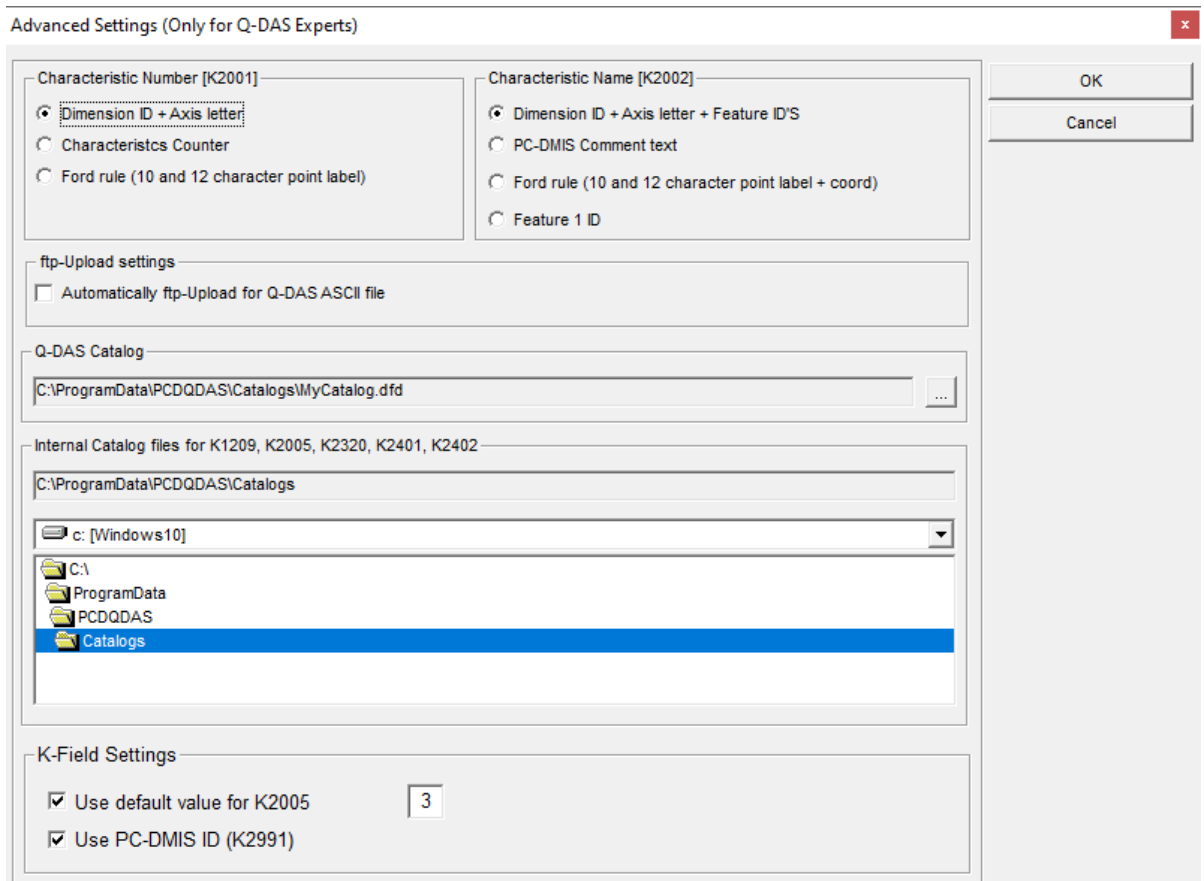Closes the dialog without saving the values.

Export Settings

Saves the settings in an external file (OutputFile_Settings.cfg) in the data folder (C:\ProgramData\PCDQDAS\Settings) of the software. This file can be used for the configuration of a second computer or if you need to work with different settings.

Import Settings

Imports the settings saved in the external file (OutputFile_Settings.cfg).

Advanced Settings

Opens a dialog with the aid of which you can configure the software for your qs-STAT package.
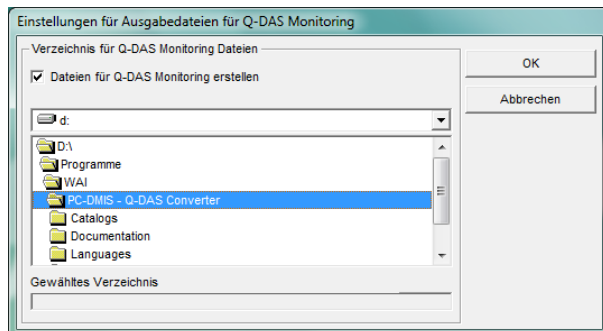

Please always contact your statistical expert before changing these settings.

3.5.2. Q-DAS Monitoring

Use this dialog to select a folder in which converter will store the files for Q-DAS® Monitoring. Converter will use this folder to create an individual subfolder for each part program. It will save a DFD file (00000001.dfd) for each part program and a DFX file (00000001.dfx … 00009999.dfx) for each execution. The converter always uses the first available number for the DFX file, so that gaps are also filled.

3.5.3. Q-DAS Settings
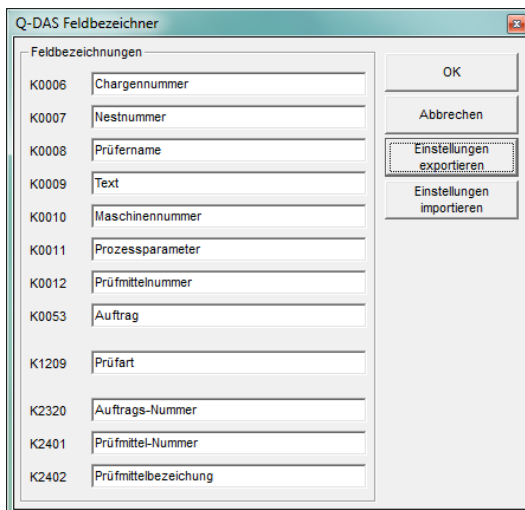
Depending on the customer specific application, Q-DAS® uses K-fields descriptions which differ from the standard data format. You can use this dialog to adopt some K-fields standard values to your user interface. This will not change or affect the data format.

The Export Settings button will save the current values in the QDAS_Settings.cfg file in the data folder of the software (C:\ProgramData\PCDQDAS\Settings).

The Import Settings button will load the values in the QDAS_Settings.cfg file in the data folder of the software (C:\ProgramData\PCDQDAS\Settings).

The OK button will save the settings in the registry of your computer and exit the dialog.

3.5.4. Setup for Q-DAS K-fields
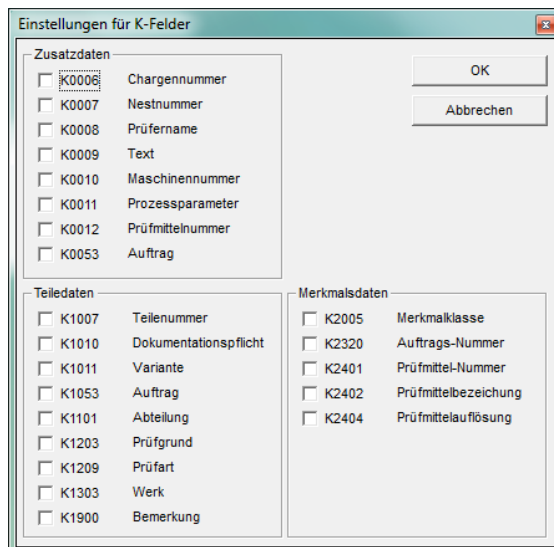
You can use this dialog to define which K-fields shall be enabled in the user interface.

All K-fields for which you want to use Trace commands in your part program must be disabled.

The OK button will save the settings in the registry of your computer and exit the "Offline conversion" dialog.

3.5.5. Protection

This function can be used to select between the operator mode and the administrator mode.

All functions are available in administrator mode.
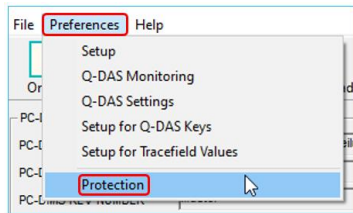
To activate the operator mode, the menu option "Protection" is clicked. In the following "Protection" window, the password is entered and repeated.
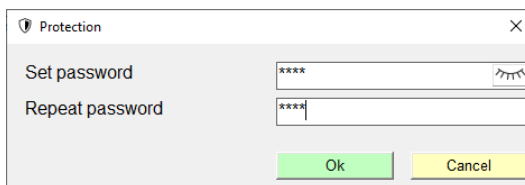
With the " " button the password is displayed in plain text.

After confirming with "OK", the functions "Setup", "Q-DAS Monitoring", "Q-DAS Settings", "Setup for Q-DAS Keys" and "Setup for Trace field Values" are no longer available in the "Preferences" menu option.

In the operator interface, an orange stripe signals the operator mode.
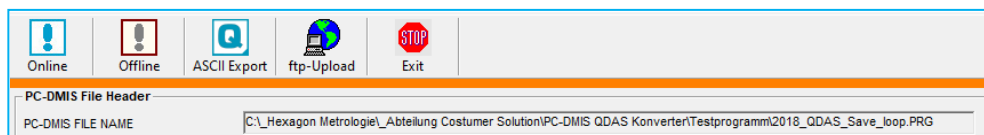
To activate the administrator mode, the menu option "Protection" must be clicked again, and the previously defined password must be entered in the following window.

If the Q-DAS converter is closed and restarted, the operator mode is active, regardless of whether it was canceled before closing.

To deactivate the operator mode permanently, enter the correct password in the "Protection" window and activate the "Reset password" checkbox.
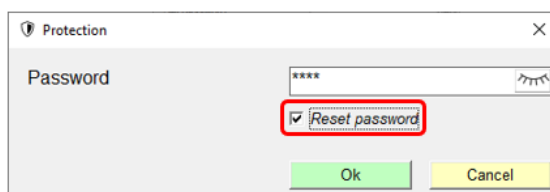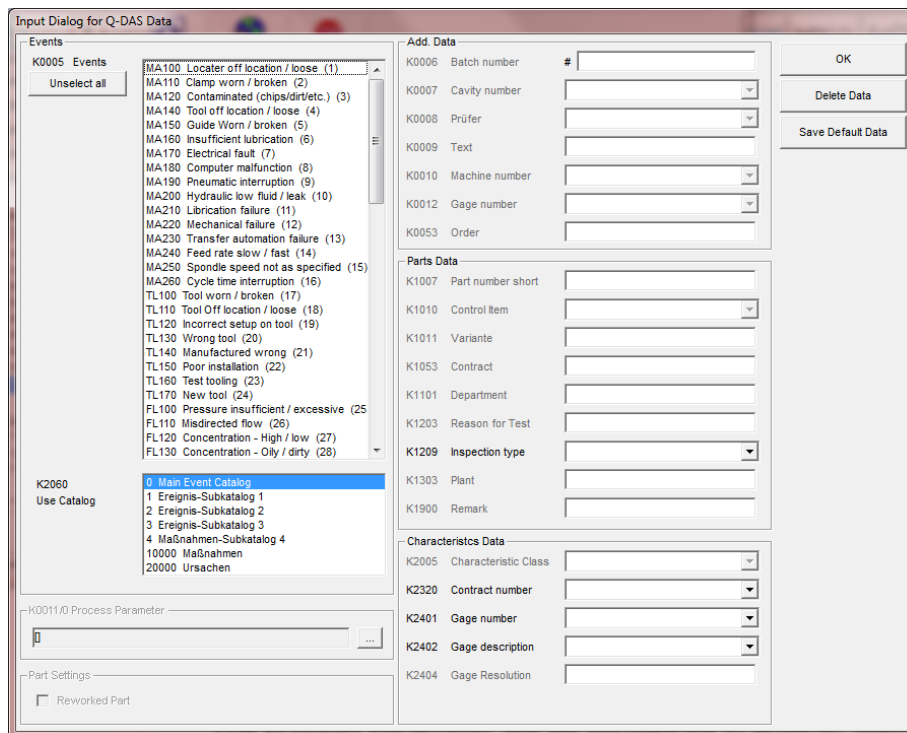
3.5.6. Offline conversion

Launch the converter as described in point 3.3 after executing the part program.

In order to start the offline conversion, click on the <Offline> button. After having received all values from the part program, converter will open the following dialog:

You can use this dialog to define the additional Q-DAS® data. All values which are defined here will be applied to all characteristics.

You can also mark a part as a reworked part in this dialog (Reworked part). This is only necessary if the "Depending on result, use different subfolders" function has been enabled in the Setup window. Otherwise this option is disabled.
By means of a tracefield with the name "FirstPart", the workpiece can also be identified as coming from the rework. Here, the values are 0 for reworked parts and 1 for parts which come directly from the production.

Note:
The process parameter will be configured in another dialog box. It will be opened by clicking on the [...] *button to the right of the parameter.*
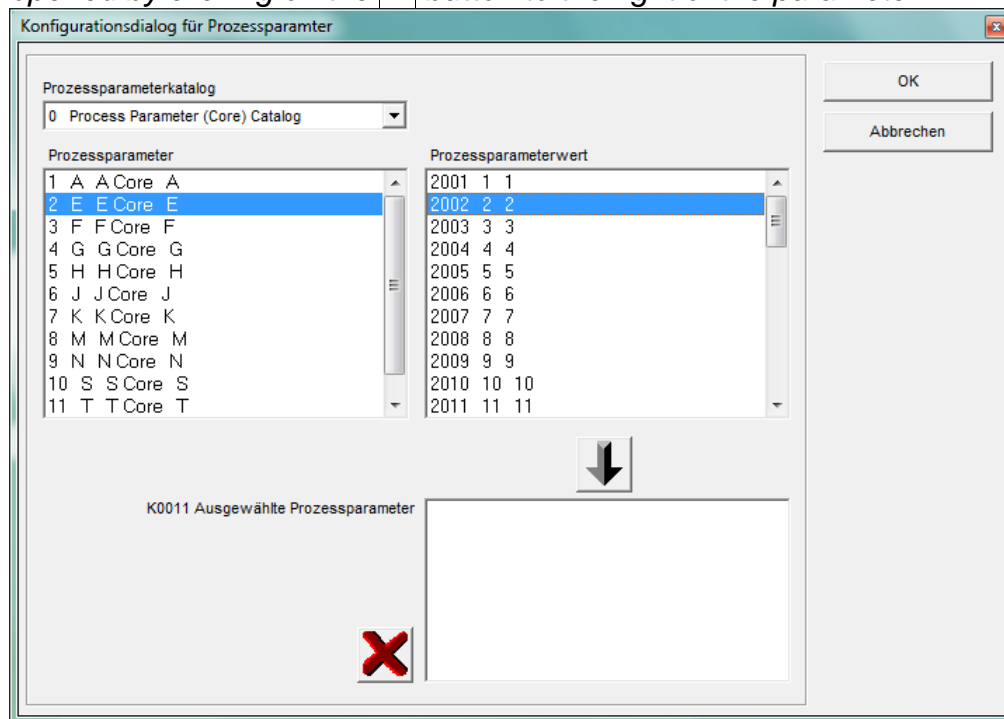
The first step in this dialog is to select the catalog that is used. Second, you select the process parameter. By doing so, all available process parameter values will be displayed. Select the desired value and add your selection with the [↓] *arrow button to the list of selected process parameters. Now select the next value. Use the* [✖] *button to delete the complete list or only a selected value in the list.*

Use the Save Data for program button to save the current settings of this dialog for the current part program. The converter can then provide these settings for the next measurement cycle with this part program.

IMPORTANT: The customized Q-DAS Catalog file must be copied into the Catalogs subfolder in the installation folder of the software. The name of the Catalogs file must be MyCatalog.dfd.

Version 2.1.1 or higher includes a registry setting (CatalogPathName) that can indicate the path and file name of the catalog file. From version 2.3.1 onwards the destination directory for the local catalog files can be defined by using the "ValueFilePath" registry entry. The Catalogs subfolder can also be used to store valid values for the K-fields K1209, K2320, K2401 und K2402. The respective files are named K1209.dat, K2320.dat, K2401.dat and K2402.dat. These files can be edited with a standard editor.
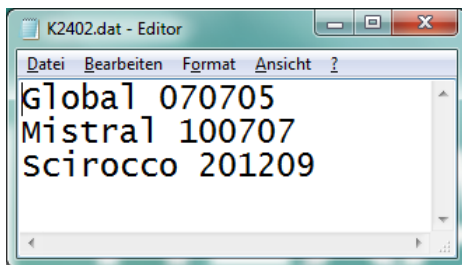
Check characteristics before export
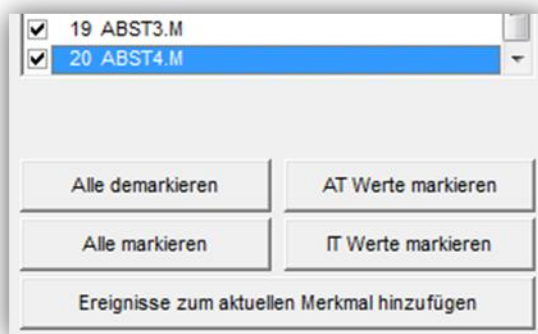
All characteristics are now displayed in the Characteristic data section. The characteristic currently displayed can be selected from the list. After importing, all characteristics are automatically check marked in the list. The same must be the case after the export into the Q-DAS® format.

Before you export the data, you can check which values are within tolerance. The
Uncheck all values, Check OOT values, Check all values and
Check OK values are available for this test.

You can use the Add Data for actual characteristic to open a dialog in which you can add events for the actual characteristic.
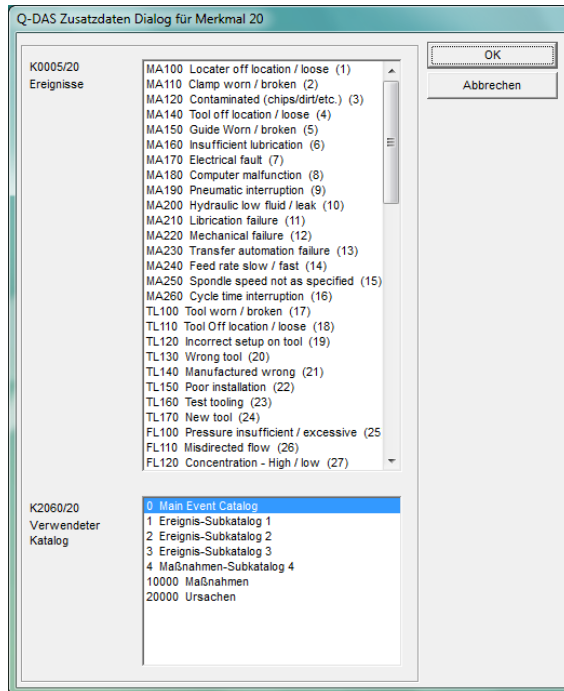
This "Used catalog" list is only a filter for the "Events" list. If you add an event to an individual characteristic, the catalog reference will always be set to the main catalog.

Now you can create Q-DAS ASCII data with the ASCII Export button.

3.6. ONLINE Conversion

If you want to use the Online Conversion function, you need to start the converter before launching the part program, but after having opened it.

The Input dialog for additional Q-DAS data can be closed while your part is being executed.

When converting the data online, the software receives the data simultaneously with the execution of the PC-DMIS™ part program. This saves a lot of time in comparison with offline conversion.

3.6.1. Starting the online converter from the PC-DMIS™ part program

In order to start the online conversion from the respective part program, add an external execution command at the top of your part program.
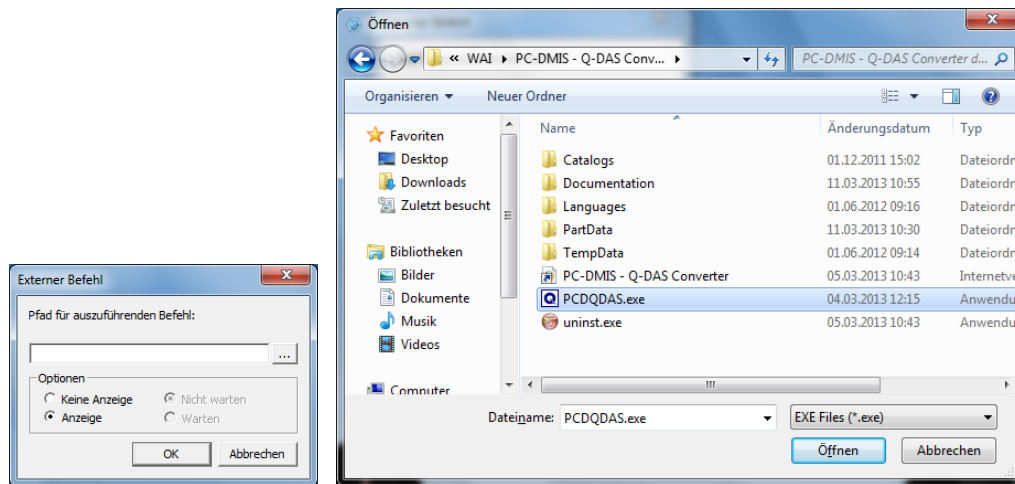
PC-DMIS™ dialog boxes for external commands.
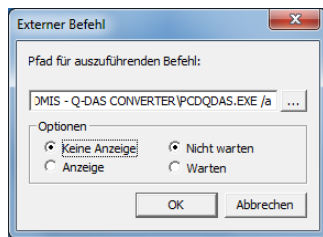
The complete command in the part program is as follows:

> EXTERNERBEFEHL/KEINE_ANZEIGE, NO_WAIT ; C:\PROGRAMME\PC-DMIS – Q-DAS CONVERTER\PCDQDAS.EXE /a

Please note, that a blank space must be left between .exe and /.

Parameter "/A" is used to trigger the conversion automatically. The export of data requires a manual confirmation and enables the operator to add events to individual characteristics even after the data has been transferred to the converter.

Parameter "/I" can be used for systems that are to be operated without operator input. The data export is performed automatically. The Additional Data dialog will not be closed until the data has been saved once for the appropriate program. Converter will call up the saved settings for later use.

Use the "No Display" and "No Wait" options to optimize the system performance.

3.6.2. Offline conversion started out of the PC-DMIS™ part program

If the conversion should be started automatically after the part program execution is completed, the external command needs to be placed at the end of the part program (at least after the last dimension command).

Parameter "/O" starts the conversion automatically after the part program execution is completed.

3.6.3. Additional conversion possibilities out of the part program

If the Q-DAS ASCII data should show always the deviation (each nominal value will be 0) this can be realized with the „AUDI PBMS Converter". Here for the following parameters can be used:

Parameter "/IA" is the same function as /I, but the AUDI PBMS Converter will be started after the Q-DAS ASCII file was created.

Parameter "/AA is the same function as /A, but the AUDI PBMS Converter will be started after the Q-DAS ASCII file was created.

Parameter "/OA is the same function as /O, but the AUDI PBMS Converter will be started after the Q-DAS ASCII file was created.

The CeCreator is also installed with the Q-DAS converter.

If this tool is to be used for stamping K2001 or K2002, the converter is started with the parameter "/ IC", "ICS", "AC" or "ACS".

In the
C:\Program Files (x86)\PC-DMIS – Q-DAS Converter\CeCreator\KfeldSetting.dat
file, specify which K field (K2001 or K2002) is to be stamped. For this purpose the text line in an editor is modified accordingly.

For further details on the CeCreator please refer to the corresponding software documentation.

3.6.4. Definition of a second parameter

A second parameter can be set. It will override the defined destination directory for the Q-DAS® ASCII files.

<u>Example:</u>

You want to write the Q-DAS ASCII files of the current part program into the C:\QDAS_DATA folder. This folder doesn't correspond to the default converter settings.

The command in the part program for this is as follows:

```
EXTERNALCOMMAND/NO_DISPLAY, NO_WAIT ; C:\PROGRAMME\PC-DMIS – Q-DAS
CONVERTER\PCDQDAS.EXE /a /C:\QDAS_DATA
```

Always use "/" as separator for command line arguments. Try not to use blanks in the folder name.

3.7. List of supported Q-DAS® K-fields and their data origin

Key	Field name	PC-DMIS Header data	PC-DMIS Trace Field command	PCD comment command	Other PC-DMIS commands	PC-DMIS dimension command	Converter Input dialog	Converter created automatically
K0001	Measured value					X		
K0002	Attribute					Marker on/off		
K0004	Time							X
K0005	Event						X	
K0006	Batch number		X				X	
K0007	Cavity number		X				X	
K0008	Inspector name		X				X	
K0009	Text		X				X	
K0010	Machine number		X				X	
K0011	Process parameter						X	
K0012	Gage number		X				X	
K0014	Part ID		X					
K0015	Reason for test		X					
K0016	Production code		X					
K0017	Tool number		X					
K0020	Subgroup size							X
K0021	No. of errors		X (ATTRIBUT)					
K0053	Order		X				X	
K0054	K0054		X					
K0055	K0055		X					
K0056	K0056		X					
K0057	K0057		X					
K0058	K0058		X					
K0059	K0059		X					
K0060	K0060		X					
K0061	K0061		X					
K0062	K0062		X					
K0063	K0063		X					
K0080	Subgroup ID		X					
K0081	Value position in subgroup		X					
K0100	Total No. of characteristics in file							X
K1001	Part number	Serial No.	X					
K1002	Part Description	PART NAME	X					
K1003	Part Short Description		X					
K1004	Part Amendment status	VERSION NO.	X					
K1007	Part number Abbreviation		X				X	
K1005	Product		X					
K1008	Part type		X					
K1009	Part code		X					
K1010	Control item						X	
K1011	Variant						X	
K1014	Part ID		X					
K1021	Manufacturer number		X					
K1022	Manufacturer name		X					
K1031	Material number		X					
K1032	Material description		X					
K1041	Drawing number		X					
K1042	Drawing Amendment		X					
K1043	Drawing Index		X					
K1052	Contractor name		X					

K1053	Order		X			X	
K1061	Client Number Text		X				
K1062	Client Description		X				
K1071	Supplier Number Text		X				
K1072	Supplier Description		X				
K1081	Machine Number Text		X				
K1082	Machine Description		X				
K1083	Machine number		X				
K1085	Machine location		X				
K1086	Work Cycle Operation		X				
K1087	Operation Description		X				
K1100	Plant Sector		X				
K1101	Department		X			X	
K1102	Workshop						
K1103	Cost centre		X				
K1104	Shift		X				
K1110	Order number		X				
K1111	Goods received number		X				
K1201	Test Facility Number		X				
K1202	Test Facility Description		X				
K1203	Reason for test		X			X	
K1206	Test location		X				
K1209	Inspection type		X			X	
K1210	Measurement type		X				
K1221	Inspector name text		X				
K1222	Inspector name		X				
K1231	Measurement program number		X				
K1232	Measurement program version		X				
K1302	Test batch						
K1303	Plant		X			X	
K1311	Production order		X				
K1341	Test plan number text		X				
K1343	Test Plan Development Date		X				
K1344	Test Plan Developer		X				
K1802	User field content 1		X				
K1812	User field content 2		X				
K1822	User field content 3		X				
K1832	User field content 4		X				
K1842	User field content 5		X				
K1852	User field content 6		X				
K1860	User field description 7		X				
K1862	User field content 7		X				
K1900	Remark		X			X	
K1997	Part GUID	GUID measuring routine (Smart Quality)					
K2001	Characteristic Number		X		X		Ser. No.*
K2002	Characteristic description			Type: Protocol**	X		
K2003	Characteristic Abbreviation				X		
K2004	Characteristic type		X				X
K2005	Characteristic class		X			X	
K2006	Control item		X				
K2007	Control Type		X				
K2008	Group type						X
K2009	Measured quantity				(X)		X
K2015	Tool wear type (Trend)		X				
K2022	Decimal places			Display precision or			

				from PC-DMIS registry			
K2030	Group number						X
K2031	Group Element Number						X
K2060	Events catalog					always 0	
K2061	Process parameter catalog					always 0	
K2091	Characteristic Index	X					
K2092	Characteristic Text	X					
K2093	Processing Status	X					
K2095	Element Code	X					
K2096	Element Index	X					
K2097	Element Text	X					
K2101	Nominal value				X		
K2110	Lower Specification Limit						X
K2111	Upper Specification Limit						X
K2112	Lower Allowance				X		
K2113	Upper Allowance				X		
K2114	Lower scrap limit	X					
K2115	Upper scrap limit	X					
K2116	Lower acceptance limit	X					X
K2117	Upper acceptance limit	X					X
K2120	Boundary type (lower)						X
K2121	Boundary type (upper)						X
K2130	Lower Plausibility Limit				X		
K2131	Upper Plausibility Limit				X		X
K2142	Unit				X		X
K2203	Car body mode	X		POSITIVREPORTING			
K2216	Master Serial Number	X					
K2311	Production Type Text (Operation)	X					
K2320	Contract Number	X				X	
K2401	Gage number	X				X	
K2402	Gage description	X				X	
K2404	Gage resolution					X	
K2434	Process capability establishment	X					
K2900	Remark		Type: Report				
K8500	Subgroup size	X					
K8501	Subgroup type	X					X
K8503	stable subgroup size						X

* Function available only with registry entry: DimensionNumber = -1 (default value is 0)
** Function only available with registry entry: DimensionName = -1 (default value is 0)

Total of supported K-fields: 144

3.8. List of supported characteristics in PC-DMIS™

DIMENSION_A_LOCATION

DIMENSION_D_LOCATION

DIMENSION_FLATNESS_LOCATION

DIMENSION_H_LOCATION

DIMENSION_L_LOCATION

DIMENSION_PA_LOCATION

DIMENSION_PD_LOCATION

DIMENSION_PR_LOCATION

DIMENSION_R_LOCATION

DIMENSION_ROUNDNESS_LOCATION

DIMENSION_RS_LOCATION

DIMENSION_RT_LOCATION

DIMENSION_S_LOCATION

DIMENSION_STRAIGHTNESS_LOCATION

DIMENSION_T_LOCATION

DIMENSION_X_LOCATION

DIMENSION_Y_LOCATION

DIMENSION_Z_LOCATION

DIMENSION_TRUE_DIAM_LOCATION

DIMENSION_TRUE_D1_LOCATION

DIMENSION_TRUE_D2_LOCATION

DIMENSION_TRUE_D3_LOCATION

DIMENSION_TRUE_DD_LOCATION

DIMENSION_TRUE_DF_LOCATION

DIMENSION_TRUE_FLATNESS_LOCATION

DIMENSION_TRUE_LD_LOCATION

DIMENSION_TRUE_LF_LOCATION

DIMENSION_TRUE_PA_LOCATION

DIMENSION_TRUE_PR_LOCATION

DIMENSION_TRUE_ROUNDNESS_LOCATION

DIMENSION_TRUE_STRAIGHTNESS_LOCATION

DIMENSION_TRUE_WD_LOCATION

DIMENSION_TRUE_WF_LOCATION

DIMENSION_TRUE_X_LOCATION

DIMENSION_TRUE_Y_LOCATION

DIMENSION_TRUE_Z_LOCATION

DIMENSION_2D_ANGLE

DIMENSION_2D_DISTANCE

DIMENSION_3D_ANGLE

DIMENSION_3D_DISTANCE

DIMENSION_ANGULARITY

DIMENSION_COAXIALITY

DIMENSION_CONCENTRICITY

DIMENSION_FLATNESS

DIMENSION_KEYIN

DIMENSION_PARALLELISM

DIMENSION_PERPENDICULARITY

DIMENSION_PROFILE

DIMENSION_ROUNDNESS

DIMENSION_RUNOUT

DIMENSION_STRAIGHTNESS

New types from version 3.5 onwards:

DIMENSION_SYMMETRY

New types from PC-DMIS™ 3.7 onwards:

DIMENSION_PROFILE_LINE

DIMENSION_PROFILE_SURFACE

New types from PC-DMIS™ 4.0 onwards:

Feature Control Frames

Known Limitations:

- For Feature Control Frames (XactMeasure FL & T), only the first line is evaluated.
- No internal command lists are supported in toolkit elements.
- "Size" features are not supported.
- No multiple instances are supported for offline conversion

3.9. Examples

How to use converter in a loop program:

```
WERKSTÜCKSNAME: QDAS
VERSIONSNR.: test1
SERIENNR.: test2
STAT ZÄHLER: 1

START       =AUSRICHTUNG/ANFANG,AUFRUFEN:, LIST= JA
            AUSRICHTUNG/ENDE
            MODUS/MANUELL
            VORHALTEBEREICH/ 5
            RÜCKFAHRWEG/ 5
            BEWEG GESCHW/ 100
            FLY/EIN,3
            LADE_TASTER/TP200
            TASTSPITZE/T1A0B0, SCHAFTIJK=0, 0, 1, WINKEL=0
            FORMAT/TEXT,OPTIONEN, ,ÜBERSCHRIFTEN,SYMBOLE, ;NENNW,TOL,MESS,ABW,A T
            OL, ,
            MODUS/CNC
            KOMMENTAR/DOK,NEIN,
                            ,++++++++++++++++++++++++++++++++++
                            ,
                            ,Schleife einfügen
                            ,
                            ,Der Haken "Schleifen ID´s anzeigen"
                            ,herausnehmen!!!
                            ,
                            ,++++++++++++++++++++++++++++++++++
                            ,
V1          =SCHLEIFE/ANFANG, ID = NEIN, NUMMER = 2, ANFANG = 1, AUSLASSEN = ,
                VERSATZ: X-ACHSE = 0, Y-ACHSE = 0, Z-ACHSE = 0, WINKEL = 0
            KOMMENTAR/DOK,NEIN,
                            ,++++++++++++++++++++++++++++++++++
                            ,
                            ,Q-DAS Konverter starten
                            ,
                            ,++++++++++++++++++++++++++++++++++
                            ,
            EXTERNER_BEFEHL/KEINE_ANZEIGE, NICHT_WARTEN ; D:\PCDMIS_SOFTWARE\PC-D
            MIS - Q-DAS CONVERTER\PCDQDAS.EXE /i
            KOMMENTAR/DOK,NEIN,
                            ,++++++++++++++++++++++++++++++++++
                            ,
                            ,Pause im Programm einfügen
                            ,
                            ,mit einer Pausenzeit von ca. 3 sec.
                            ,
                            ,++++++++++++++++++++++++++++++++++
                            ,
            EXTERNER_BEFEHL/KEINE_ANZEIGE, NICHT_WARTEN ; D:\HEXAGON\SOFTWARE HEX
            \PAUSEIMPROGRAMM\PAUSEIMPROGRAMM.EXE /3
            KOMMENTAR/DOK,NEIN,
                            ,++++++++++++++++++++++++++++++++++
                            ,
                            ,Überwachungsfeld eingeben
                            ,
                            ,mit dem Namen "QDAS"
                            ,mit dem Wert "1" um Konverter einzuschalten
                            ,
                            ,++++++++++++++++++++++++++++++++++
                            ,
```

Start Q-DAS Converter within the loop

Sample code for an attribute characteristic in the part program

```
            ASSIGN/YES_STRING=GETSETTING("LangStr(YES)")
            TRACEFIELD/NO_DISPLAY,LIMIT=15 ; K2001 : AMM1
    C1    =COMMENT/YESNO,NO,FULLDISPLAY=NO,AUTO. CONTINUE=NO,
        Please check characteristic manually.
        Is the characteristic OK?
        Characteristic is OK:        Please confirm with <Yes>
        Characteristic not OK:   Please confirm with <No>
        IF/C1.INPUT==YES_STRING
        ASSIGN/OOTCHECK=1
        END_IF/
        ELSE/
        ASSIGN/OOTCHECK=0
        END_ELSE/
        TRACEFIELD/NO_DISPLAY,LIMIT=1 ; K2004 : OOTCHECK
```

Sample code for acceptance limits in the part program

```
TRACEFIELD/DISPLAY=NO,DISPLAY MESSAGE=K2116_K2117 ; K2116_K2117 : 70


DIM LAGE1= LOCATION OF CIRCLE KREIS5  UNITS=MM ,$
GRAPH=OFF  TEXT=OFF  MULT=10.00  OUTPUT=BOTH  HALF ANGLE=NO
AX  NOMINAL    +TOL    -TOL    MEAS    DEV    OUTTOL
X   124.0000   0.5000  -0.5000  124.0000  0.0000  0.0000 -----#-----
Y   50.0000    0.5000  -0.5000  52.0000   2.0000  1.5000 ---------->
D   60.5000    0.5000  -0.5000  60.5000   0.0000  0.0000 -----#-----
END OF DIMENSION LAGE1
DIM LAGE3= LOCATION OF SLOT SLTR1  UNITS=MM ,$
GRAPH=OFF  TEXT=OFF  MULT=10.00  OUTPUT=BOTH  HALF ANGLE=NO
AX  NOMINAL    +TOL    -TOL    MEAS    DEV    OUTTOL
X   191.0000   0.5000  -0.5000  191.0000  0.0000  0.0000 -----#-----
Y   73.0000    0.5000  -0.5000  73.0000   0.0000  0.0000 -----#-----
Z   0.0000     0.5000  -0.5000  0.0000    0.0000  0.0000 -----#-----
D   7.0000     0.5000  -0.5000  7.0000    0.0000  0.0000 -----#-----
L   40.0000    0.5000  -0.5000  40.0000   0.0000  0.0000 -----#-----
END OF DIMENSION LAGE3


TRACEFIELD/DISPLAY=NO,DISPLAY MESSAGE=K2116_K2117 ; K2116_K2117 : 90


DIM LAGE4= LOCATION OF SPHERE KUG1  UNITS=MM ,$
GRAPH=OFF  TEXT=OFF  MULT=10.00  OUTPUT=BOTH  HALF ANGLE=NO
AX  NOMINAL    +TOL    -TOL    MEAS    DEV    OUTTOL
X   168.5000   0.5000  -0.5000  168.5000  0.0000  0.0000 -----#-----
Y   45.6600    0.5000  -0.5000  45.6600   0.0000  0.0000 -----#-----
Z   0.0000     0.5000  -0.5000  0.0000    0.0000  0.0000 -----#-----
D   12.7000    0.5000  -0.5000  12.7000   0.0000  0.0000 -----#-----
END OF DIMENSION LAGE4
```