

The DALOG logo features the word "DALOG" in a bold, blue, sans-serif font. A red dot is positioned above the letter 'A', and a red horizontal bar is located to the right of the letter 'G'. A registered trademark symbol (®) is placed to the upper right of the 'G'.

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BusyBee MKM Viewer

Manual

Version 1.0, 03.02.2016

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1. Abstract

This document will give you an overview of the DALOG® BusyBee MKM Viewer software. The application provides several diagrams to analyze the mechanical parameters of a kiln in a fast and easy way.

2. System requirements

Minimum	
CPU	Intel Core i5
RAM	4 GByte
Graphics	NVIDIA GeForce GT
Operating system	Windows 7 / 8 / 8.1 / 10 (64-Bit-Version)
Hard drive	100 GB of free disk space
Display	XGA
.net Framework 4.0	

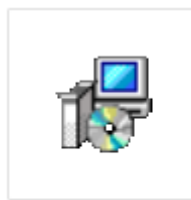
Recommended	
CPU	Intel Core i7 or Intel Xeon
RAM	8 GByte
Graphics	NVIDIA GeForce GT
Operating system	Windows 7 / 8 / 8.1 / 10 (64-Bit-Version)
Hard drive	100 GB of free disk space
Display	FHD
.net Framework 4.0	



3. Installation

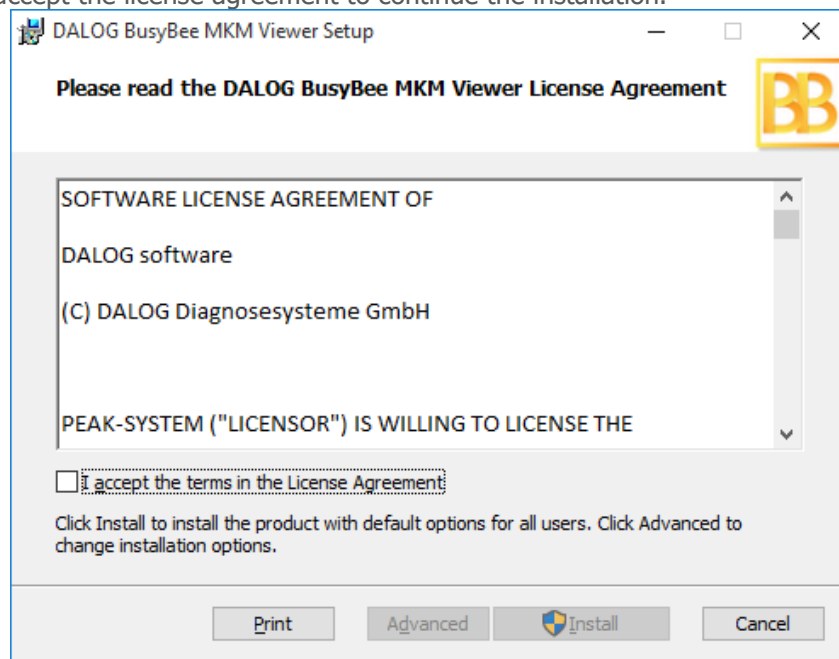
You need administrative rights to install the software. Afterwards a normal user account is sufficient for running the application.

1. Double click on the setup file to start the installation.



DALOGBusyBee
MKMViewer.msi

2. You must accept the license agreement to continue the installation.

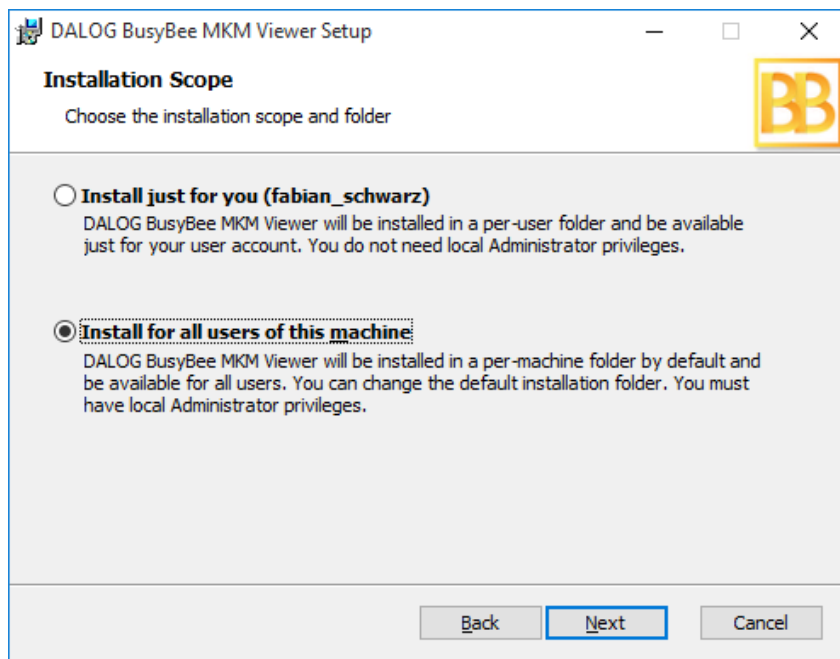


3. If you want to install into the default location (C:\Program Files (x86)\DALOG\DALOG BusyBee MKM Viewer\) please click on the "Install" button. This will directly install the software.
4. If you want to install into a custom location, please click on the "Advanced" button. This will show you a dialog where you can select the installation folder.

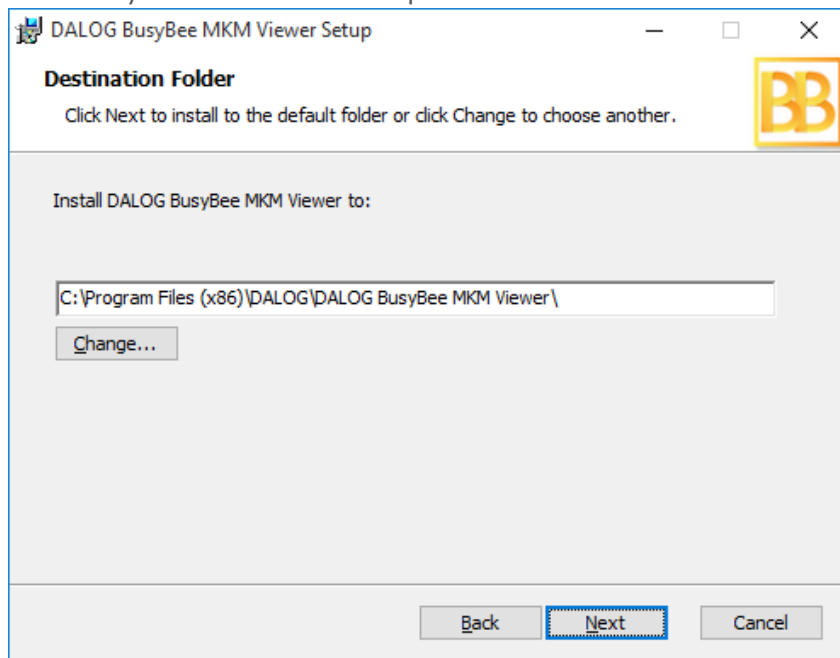


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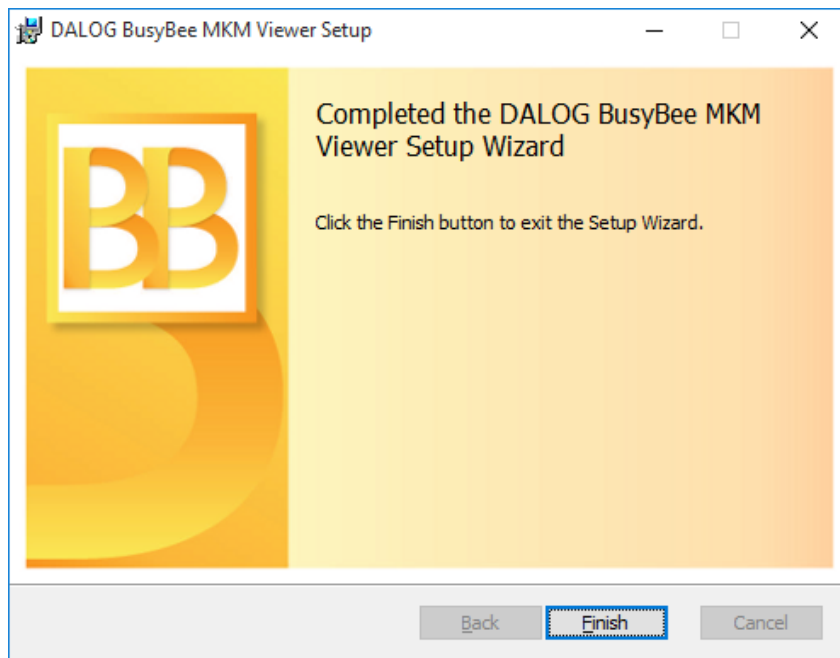
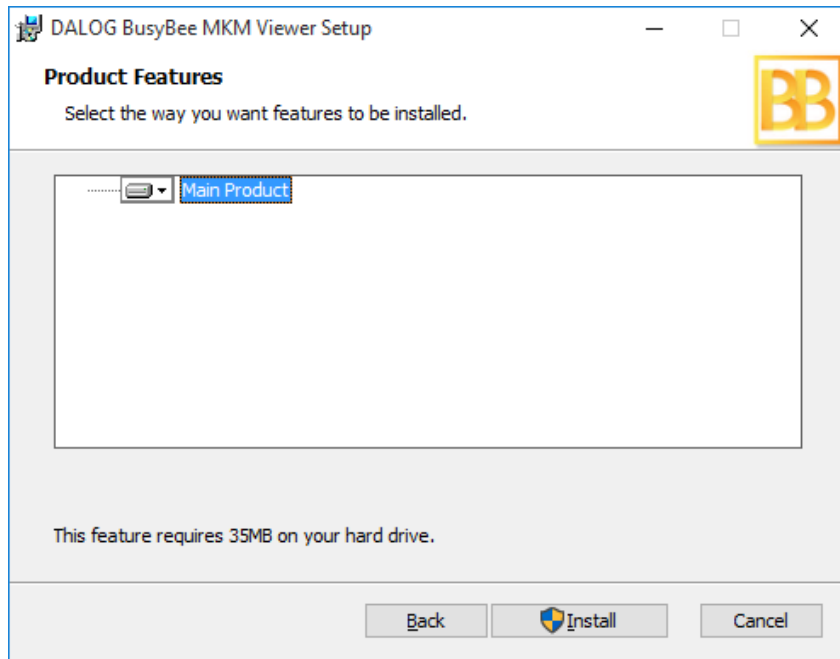
BusyBee MKM Viewer



Ensure that "Install for all users of this machine" is selected and click "Next". In the following dialog you can select your custom folder and proceed with a click on the "Next" button.



Now the product features dialog is displayed. Click on the "Install" button to finish the installation.





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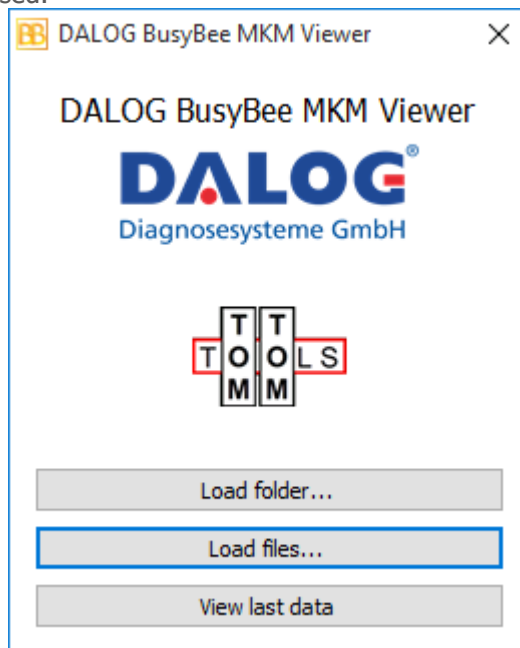
4. Start

Double click on the new icon on your desktop to start the application.



The launch dialog will be displayed. In this dialog you can select the DALOG MKM Images that should be loaded for analyses or just click on the "View last data" button to use the data from the last start of the application.

1. "Load folder..." lets you select a folder. All valid Image files within this folder will be used.
2. "Load files..." lets you select one or more files to use.
3. "View last data" is only available if you have started the application at least once. It will load the last data you have used.

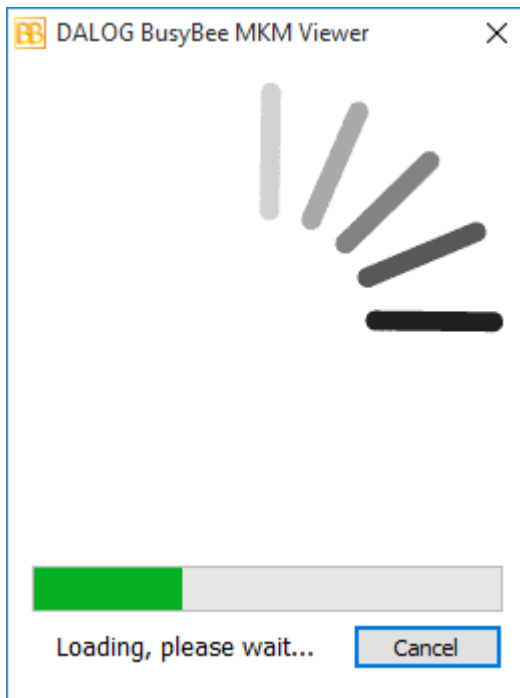


If one or more image files are damaged, a dialog will be shown with the exact names of the damaged files.

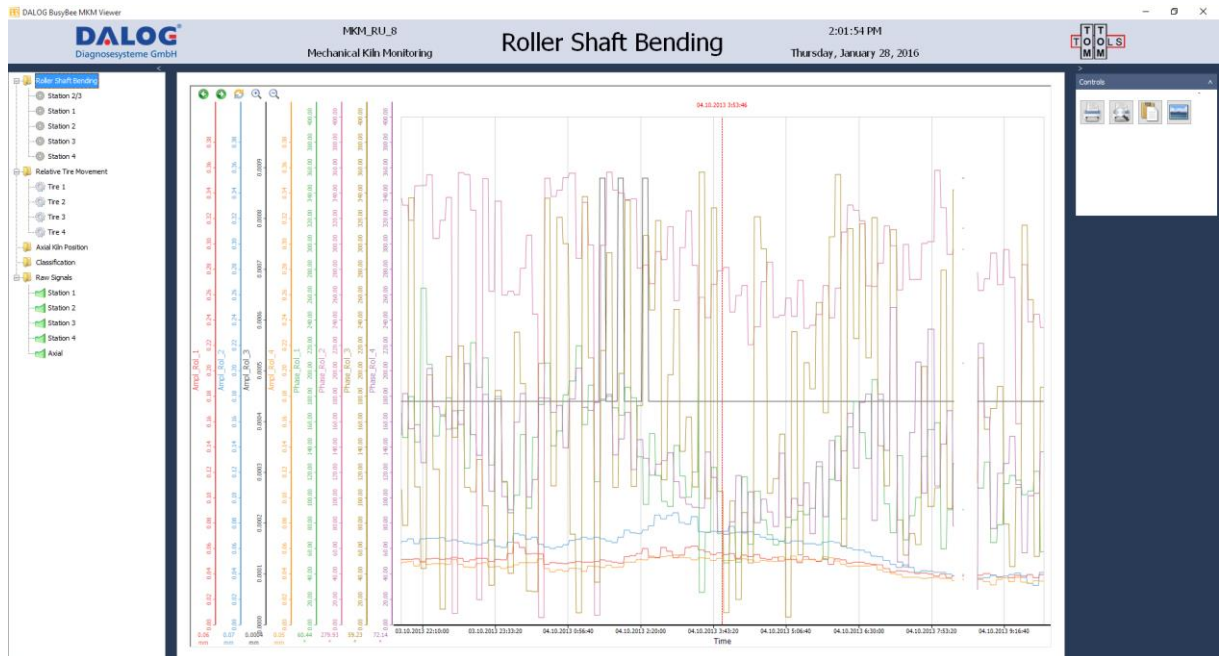
DALOG2 images are currently not supported!



After you have chosen your data, the images will be decrypted and the data will be prepared for visualization. This process can take some time depending on the speed of your computer hardware.

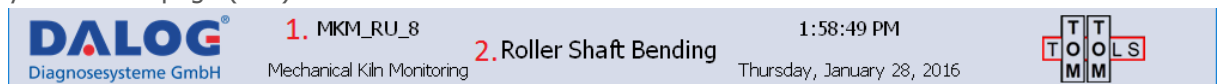


5. Main window



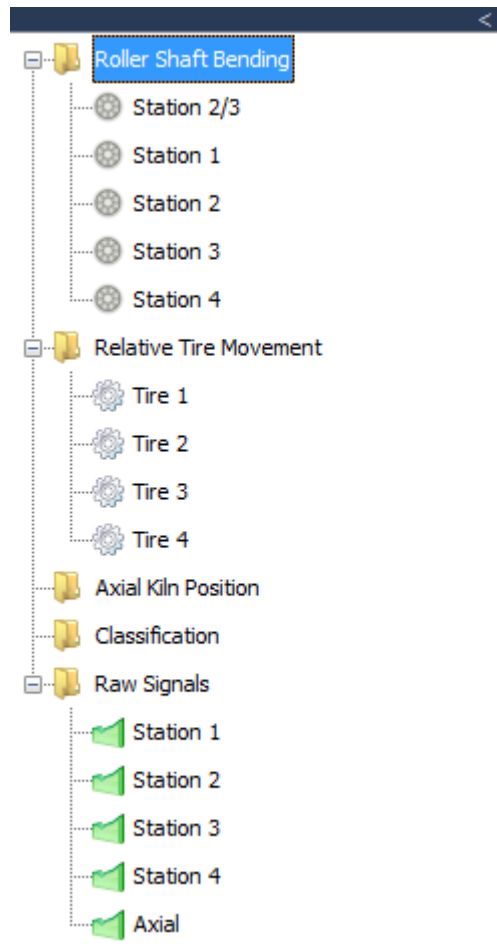
5.1. Header

The header gives you information about the current configuration you are viewing ("1.") and your current page ("2.").



5.2. Navigation menu

Use the left menu to navigate around your pages. Click on the "<" on top of the menu to hide or show it.



The menu is always shown for a 4 station kiln. If the kiln has less than 4 stations, all signals for station 3 are not valid.

If not all necessary sensors are connected correctly and are working fine validity is limited.

1. Roller Shaft Bending

The overall view shows all the calculated values in one scope. The signals of each station can be displayed separately using the items of the submenu.

There are two values shown in each scope, the amplitude value and the phase value.



The amplitude value shows the trend value of the calculated amplitude of the roller shaft bending, which is directly related to the rotation of the kiln. Other components like surface roughness of the roller shaft are filtered out before the calculation of the bending value.

The phase value shows the trend value of the angle between the kiln position at which the minimum bending of the roller shaft occurs and the speed sensor. The angle is in rotation direction. In case of maintenance work phase information can be used to identify kiln crank direction. Please note that the angle can vary. If these variations are near 0° or 360° there can be jumps in the signal, which are related to a change of the angle of a few degrees over that point of discontinuity.

There is an item in the submenu called 'Station 2/3'. That scope shows a calculated signal trend from either station 2 or 3, depending on which station has the higher shaft bending. Discontinuities can occur due to change of station.

2. Relative Tire Movement

The relative tire movement shows the migration of the single tires relative to the kiln shell.

Note: The value is dependent on the kiln diameter. Due to that the values have to be multiplied by the inner diameter of the tire in [m] to get the migration value per revolution in [mm/rev].

In the main menu the migration of all tires is shown at once. Or use the submenu to choose only one tire for a clearer view.

High or low migration can point to problems.

3. Axial Kiln Position

In that scope the trend value of the average deviation of the kiln and its middle position is shown.

Zero value:	Kiln is in middle position
Negative value:	Kiln is in downhill position
Positive value:	Kiln is in uphill position

4. Classification

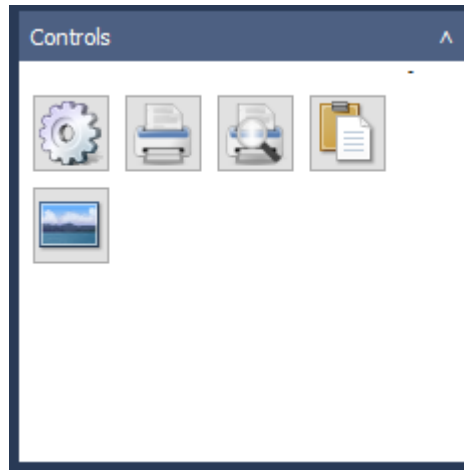
The classification scopes give classified information about the ranges of roller shaft bending amplitude. The class range amplitude is shown on the x-axis. The y-axis shows the number of how often a class limit was exceeded and amplitude remains in class range.






5. Raw Signals

In those scopes the unprocessed signals from the displacement sensors are shown. The signal contains all deflections of the roller shaft measured (surface, roundness off the roller and so on). This information can be used to detect problems with displacement sensors.

5.3. Control menu

The right menu contains controls. You can hide or show it by clicking the ">" above the menu.



Symbol	Action	Function
	Configure	Shows a dialog where you can configure the appearance of chart, e.g. colors.
	Print	Shows a dialog where you can select a printer to print your current view.
	Print preview	Shows a print preview dialog of your current view.
	Print to clip board	Prints your current view to the clip board so that you can use it in another application.
	Print to file	Shows a file save dialog where you can select the location of a new PNG file that contains your current view.



6. Charts

6.1. Trend chart

1. Mouse

- Panning

o Horizontal

Horizontal panning can be performed in two ways:

First, place the mouse on the on the graph, then left click, hold mouse down and move the cursor from left to right.

Or place the mouse on the horizontal axis, then left click over the axis, hold the mouse down and move the cursor from left to right.

o Vertical

As you normally handle several data sets on the same chart, we have separated the vertical movement for each one and attached it to the axis related to the data set.

To perform a vertical movement on a specific data set, place the mouse pointer over the axis of the same color as the set of data (each data set is associated with an axis), then left click over the axis, hold the mouse down and then move towards the desired direction (up and down).

- Zooming

o Horizontal

In this case you have to take into account that all the data sets are sharing the same X axis, so a change in the scale of the X axis will affect the way your data sets are being displayed. In order to zoom in horizontal direction, place the mouse pointer over the desired drawing area and move the mouse wheel to get the next zoom level over the X axis.






o Vertical

For a vertical zoom, which is equivalent to change the dimensions in a proportional way either to get a larger or smaller range on the axis, place the mouse pointer over the desired data set axis, then move the mouse wheel to get the next zoom level over the chosen data.

2. Keyboard

Key	Function
F5	Auto scale the chart. This will display the whole data.
Home	Go to the first value in your data sets.
End	Go to the last value in your data sets.
Page Up	Move forward through the data blocks of your data sets.
Hard drive	Move backward through the data blocks of your data sets.

3. Buttons

Symbol	Action	Function
	Previous block	This button allows you to move backwards in the blocks of the whole data sets that are currently displayed in the chart.
	Next block	This button allows you to move forward in the blocks of the whole data sets that are currently displayed in the chart.
	Auto scale	This button allows you to show the whole data set in the drawing area.
	Zoom out	Zoom out the displayed data.
	Zoom in	Zoom in the displayed data.

6.2. Classification chart

1. Mouse

The chart has included a special feature: when the mouse goes over the classification data it will display a tooltip with the next information:

- Classification number
- Range
- Counting




Note: No zooming or panning is available for this chart.

2. Keyboard

Key	Function
Home	Go to the first value in your data sets.
End	Go to the last value in your data sets.
Page Up	Move forwards through the data blocks of your data sets.
Hard drive	Move backwards through the data blocks of your data sets.



3. Buttons

Symbol	Action	Function
	Previous block	This button allows you to move backward in the blocks of the whole data sets currently displayed in the chart.
	Next block	This button allows you to move forward in the blocks of the whole data sets currently displayed in the chart.
	Scale	This button will allow you to change the scale of the data displayed on the plot area. There are two options available: <ol style="list-style-type: none">1. Absolute: Sets the scale to absolute.2. Percent: Sets the scale to percentage
Cumulative	Cumulative analysis	Cumulates all data of all blocks.



7. Update

To update your current installation to a new version, simply run the installer for the new version. It will automatically update your current installation while preserving your settings.

8. Uninstallation

Go to "Programs and Features" in the "Control Panel". Select "DALOG BusyBee MKM Viewer" in the list and click on the "Uninstall" button.