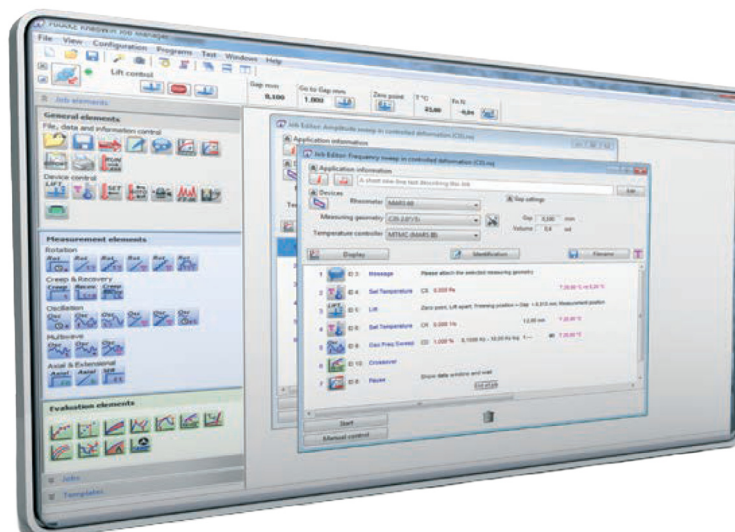




Thermo Scientific

HAAKE RheoWin

User Guide

Camera installation

006-4846 Version 2.8

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For research, academic, industrial, and quality control use.

Not for use in diagnostic procedures.

Version history:

March 2012: Updated to version 1.1

July 2014: Updated to version 2.0, adapted to RheoWin 4.50.00xx

August 2014 - Version 2.1: Added information on Firewire card

February 2015 - Version 2.2: Small changes on the installation of the Windows XP Imaging.dll patch

August 2016 - Version 2.3: Updated for RheoWin 4.63.0002 and FGControl 2.6.0.2.

May 2017 - Version 2.4: New title page only

September 2017 - Version 2.5: Updated for RheoWin 4.75.0000 and 3iCube USB 3.0 cameras

Software-Requirements: HAAKE RheoWin 4.75.0000 or newer

HAAKE RheoWin - Camera driver installation

This document describes how to install the compatible USB 3.0 and IEEE 1394 Firewire cameras for the HAAKE RheoWin software.

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RheoWin Versions

The content of this document is valid for RheoWin version 4.75.0000 and newer only.

For RheoWin versions 4.63.0000 until 4.70.0006 see the previous versions 2.3 or 2.4 of this document.

For RheoWin versions 4.41.0020 until 4.62.0010 see the previous version 2.2 of this document.

Compatible Cameras

RheoWin version 4.75.0000 and newer is compatible with the 3iCube IC4203BU-U3V and 3iCube IC4203CU-U3V USB 3.0 cameras using the NET ICube_Cam Device USB30 driver and the Foculus 323TB and 323TC Firewire cameras using the FGcontrol driver software.

RheoWin version 4.75.0000 and newer is **not** compatible with the 323TB and 323TC Firewire cameras when using the (older) FOcontrol driver software and not also compatible with the (older) Sony XCD-X710 camera due to the lack of modern drivers.

USB 3.0 3iCube Cameras

Starting from version 4.75.000 RheoWin is compatible with the 3iCube IC4203BU-U3V (monochrome) and 3iCube IC4203CU-U3V (colour) cameras when using the NET ICube_Cam Device USB30 driver version 2.0.4.8 or newer.

Hardware requirements

In order for the 3iCube camera to work, the PC on which HAAKE RheoWin is installed, must be equipped with an USB 3.0 port. That means that the 3iCube camera will **not** work when connected to an USB 2.0 port.

Driver installation

The NET ICube_Cam Device USB30 driver software for the 3iCube IC4203BU/CU-U3V cameras for Windows 7, 8(.1) and 10 is available on the RheoWin installation DVD in the 3iCube directory. The driver software can also be downloaded (as a zip file) from the www.rheowin.com/rhw49/rheowin49.htm web-page. It is recommended not to use the driver supplied on the small CD which is delivered with the camera.

Note Windows administrator privileges are needed to install the driver software.

Note

- Under a 32-bit version of Windows 7, 8(.1) and 10, the 32-bit version of the NET ICube_Cam Device USB30 driver software must be installed.
- Under a 64-bit version of Windows 7, 8(.1) and 10, the 64-bit version of the NET ICube_Cam Device USB30 driver software must be installed (This although RheoWin is a 32-bit program).

❖ To install the NET ICube_Cam Device USB30 driver software

1. Make sure that the camera is **not** yet connected to an USB 3.0 port on the computer.
2. Launch the **setup.exe** program from the \3iCube\Driver\x32 directory, in case of a 32-bit Windows operating system (see Figure 1), or the \3iCube\Driver\x64 directory, in case of a 64-bit Windows operating system (see Figure 2), on the RheoWin installation DVD (or from the contents of the downloaded zip file).

Figure 1. Path to the 32-bit installation program

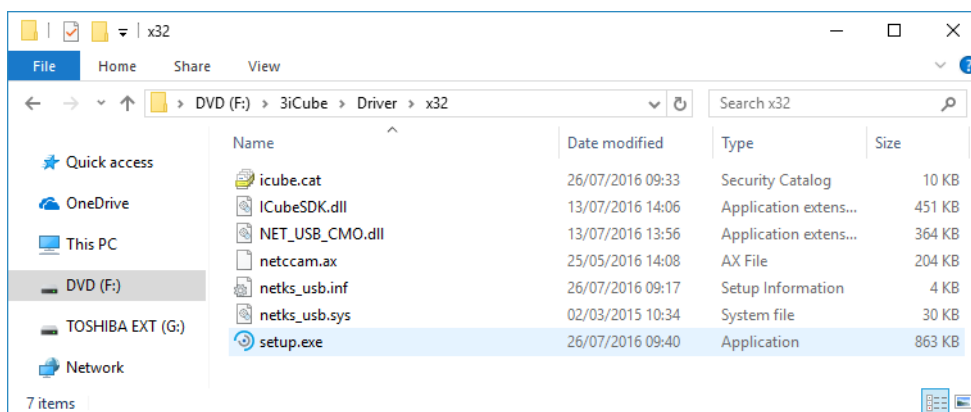
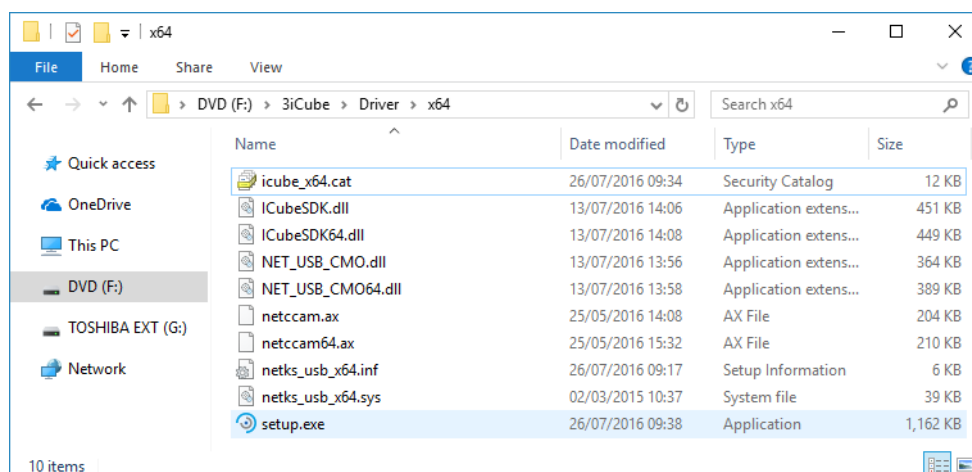
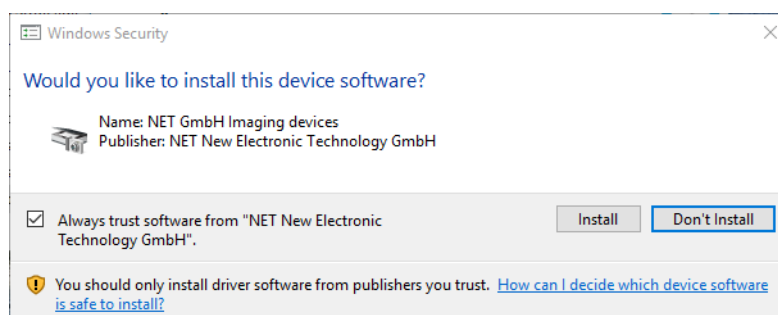


Figure 2. Path to the 64-bit installation program



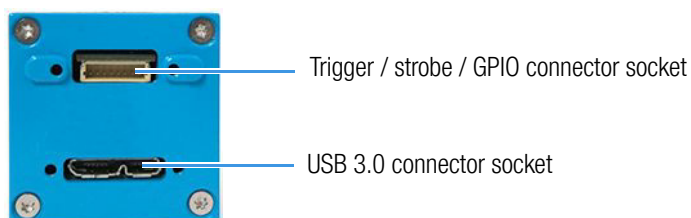
3. 12456 On the Welcome page of the wizard click **Next**.
4. On the Select Destination Location page click **Next**.
5. On the Select Start Menu Folder click **Next**.
6. On the Ready to Install page of the wizard click **Install**.
7. In the Windows Security dialog see [Figure 3](#) click **Install** this will also close the dialog.

Figure 3. Windows Security message



8. When the wizard has completed the installation click **Finish** to close the wizard.
9. Connect the camera to an USB 3.0 port on the computer.

Figure 4. 3iCube camera connectors on the back

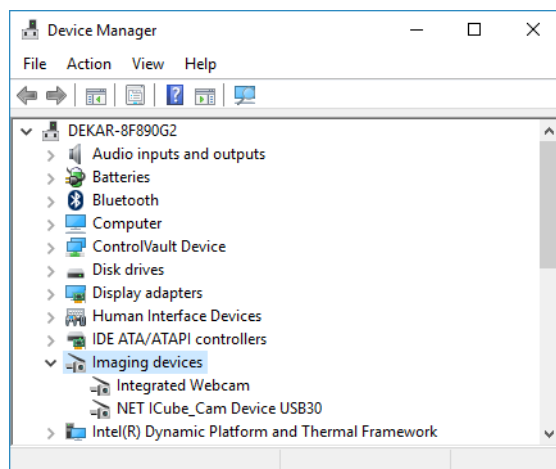


After having connected the camera to the computer the Trigger connector socket on the back of the camera should show a dim glowing red light (from within the camera housing).

10. Open the Windows Device Manager from the Windows Control Panel or by entering the command `mmc devmgmt.msc` in the Start Search box. Under Windows 10 right click the Windows Start button and then select **Device Manager**.
11. In the Window Device Manager click on **Imaging devices**.

The camera should now be listed as NET ICube_Cam Device USB30, see [Figure 5](#).

Figure 5. Windows Device Manager dialog with correctly installed camera



12. Close the Windows Device Manager.

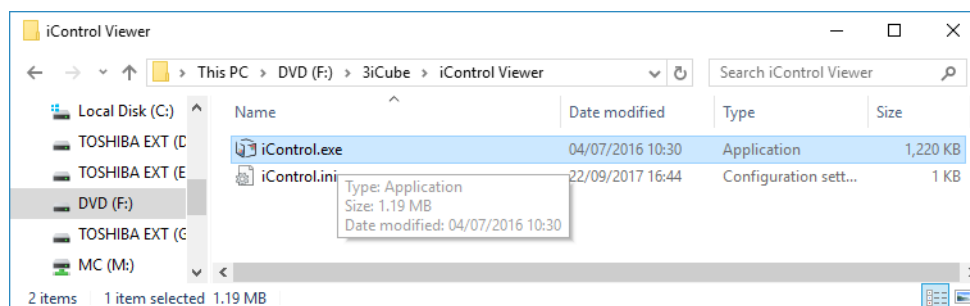
Testing the camera

After installing the driver software the functionality of the camera driver software should be checked using the iControl software before setting up the camera in HAAKE RheoWin.

❖ To check whether the camera is working properly

1. Launch the **iControl.exe** program from the \3iCube\iControl viewer directory (see [Figure 6](#)) on the RheoWin installation DVD (or from the contents of the downloaded zip file).

Figure 6. Path to iControl program



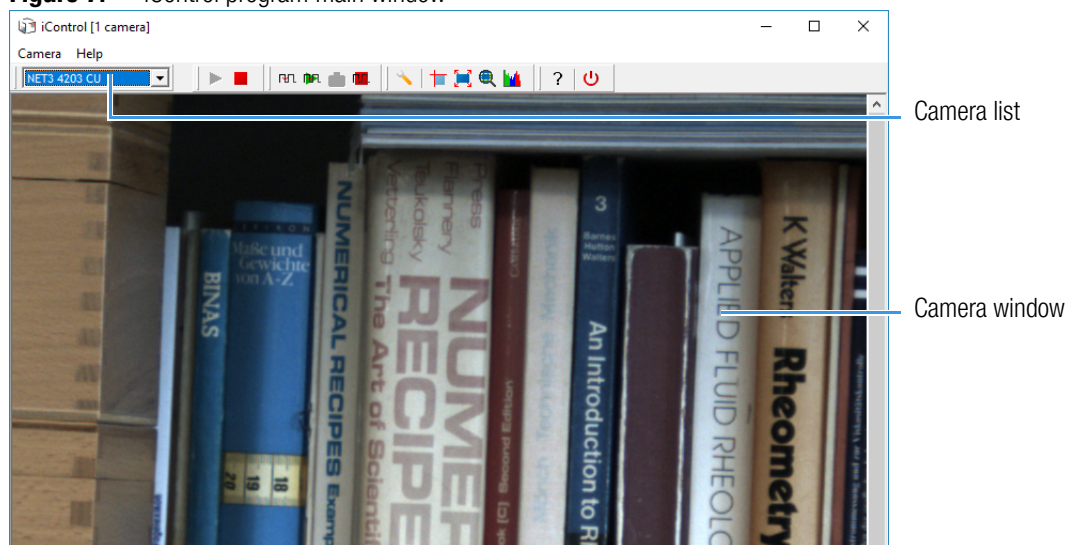
In the iControl program main window the camera should now be listed as NET3 4203 BU or NET3 4203 CU in the camera list below the main menu, see [Figure 7](#).

Note It is recommended to copy the iControl.exe and iControl.ini files (see [Figure 6](#)) into the c:\program files\ICube_cam folder (which was created as part of the driver installation) and create a shortcut to the iControl.exe program on the desktop for future use.

2. Select the **Camera > Start** command or the green arrow start button to start the image acquisition.

An image should now be visible in the camera window, see [Figure 7](#).

Figure 7. iControl program main window



IEEE 1394 Firewire Foculus Cameras

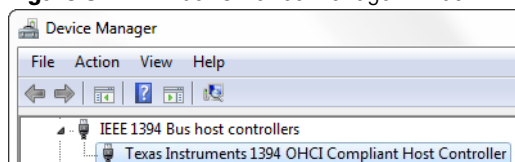
RheoWin version 4.75.0000 and newer is compatible with the (older) Foculus 323TB (monochrome) and Foculus 323TC (colour) cameras when using the FGControl 2.6.02 or newer drivers.

Hardware requirements

Since the Foculus 323TB and 323TC cameras are equipped with an IEEE 1394 Firewire interface, the PC, on which HAAKE RheoWin is installed, must be equipped with such a Firewire interface also. Although the Firewire interface is a clearly specified standard interface, it is our experience that not all Firewire PC interfaces work reliable.

In our experience IEEE 1394 Firewire cards based on a Texas Instrument chip work reliable (with the FGcontrol driver software). Firewire cards are easily identified in the Windows Device Manager window, see [Figure 8](#). In our experience cards based on a VIA chip do **not** work reliable (with the FGcontrol driver software). We have no experience with cards based on other chips from other manufacturers like LSI or Ricoh, etc.

Figure 8. Windows Device Manager window



We strongly recommend the use of the Firewire interface card which is available, as an accessory (order no. 222-2189), from Thermo Scientific.

Note A Firewire camera will not work from a 4-pin (mini) Firewire port as found on notebooks since these ports do not include the electrical power supply the camera needs for operation.

Driver installation

The FGcontrol 2.6.0.2 driver software for the NET GmbH FOculus 323TB and 323TC cameras for Windows 7, 8(.1) and 10 is available on the RheoWin installation CD in the FGControl directory. The driver software can also be downloaded (as a zip file) from the www.rheowin.com/rheowin46.htm web-page. For the 64-bit versions of Windows 7, 8(.1) and 10 both the file FGControl1_Install_v2602_x86.zip and the file FGControl1_Driver_win7_64.zip are needed, for the 32-bit versions of Windows 7, 8(.1) and 10 only the first file is needed.

Note Only use the FGcontrol 2.6.0.2 driver software, i.e. do **not** use the older FOControl software since that software is **not** compatible with RheoWin 4.63.0000 or newer under Windows 7, 8(.1) and 10.

Note Windows administrator privileges are needed to install the driver software.

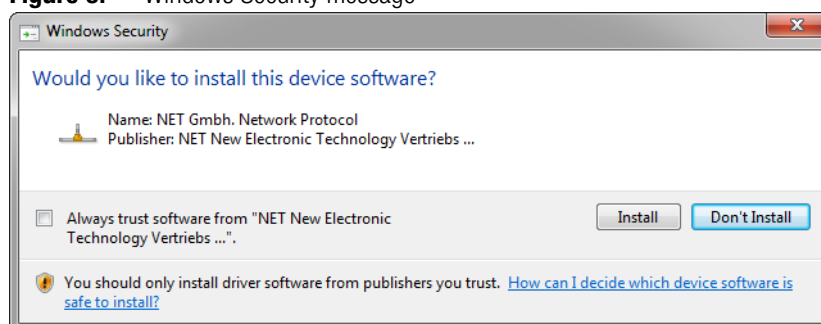
Windows 32-bit and 64-bit versions

Since RheoWin is a 32-bit program, the 32-bit version of the FGcontrol driver software must be installed under both the 32-bit and 64-bit version of Windows 7, 8(.1) and 10.

❖ To install the FGcontrol 2.6.0.2 driver software

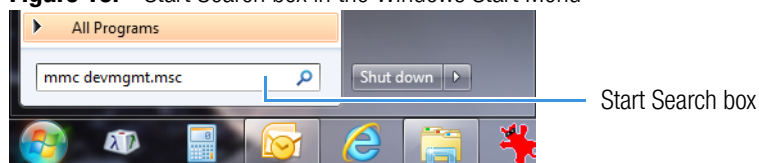
1. Start the FGControl1_Install_v2602_x86.exe installation program and follow the instructions of the FGcontrol - Installshield Wizard.
2. On the Welcome page of the wizard click **Next**.
3. On the Customer Information page of the wizard enter a **User Name** and a **Company Name**, then click **Next**.
4. On the Setup Type page of the wizard select the **Complete** option, then click **Next**.
5. On the Ready to Install the Program page of the wizard click **Install**.
6. In the Windows Security dialog (see [Figure 9](#)) click **Install**, this will also close the dialog.

Figure 9. Windows Security message



7. When the wizard has installed FGcontrol click **Finish** to close the wizard.
8. Open the Windows Device Manager from the Windows Control Panel or by entering the command `mmc devmgmt.msc` in the Start Search box in the Windows Start Menu, see [Figure 10](#).

Figure 10. Start Search box in the Windows Start Menu



9. Connect the FOculus 323TB or 323TC camera to an IEEE1394 Firewire port on the PC.

There are two small LEDs (one green, one orange/red) on the back of the camera. Directly after connecting the camera with the PC both LEDs will light up, after a few seconds the green LED will extinct, the orange/red LED will stay on.

On some PCs the drivers will now be installed by Windows automatically. When this is the case the messages as shown in [Figure 11](#), [Figure 12](#) and [Figure 13](#) will appear automatically in that order.

Figure 11. Software installation taskbar message

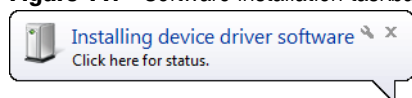


Figure 12. Software installation taskbar message

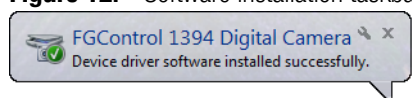
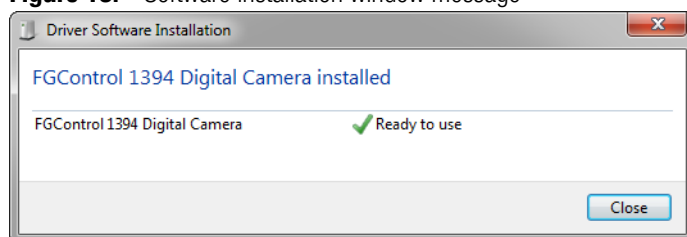


Figure 13. Software installation window message



10. In case the message in [Figure 13](#) appears on the screen click **Close**.
The installation is now finished.

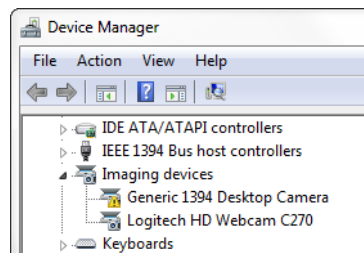
In case the message in [Figure 13](#) does not appear the drivers must be installed manually, see [step 11](#) below.

11. Starting from here the installation procedures for the 32-bit and the 64-bit versions of windows differ. For 32-bit windows continue with [“To complete the installation for Windows 32-bit versions,”](#) for 64-bit windows continue with [“To complete the installation for Windows 64-bit versions,”](#) in the following sections.

Windows 32-bit versions only

After installing the driver software (see [“Driver installation”](#) on [page 8](#)) and connecting the camera to the PC, the camera driver will be installed automatically. In the list of devices in the Device Manager, the item Generic 1394 Desktop Camera (see [Figure 14](#)) will appear with a yellow exclamation mark on the little icon in front of the item text. This means that the driver is not correctly installed yet. To correct this follow the procedure below.

Figure 14. Device Manager dialog with incorrectly installed camera



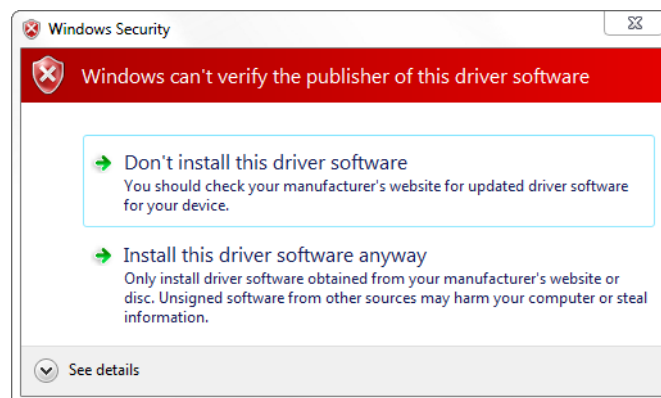
❖ **To complete the installation for Windows 32-bit versions**

1. Using the Windows Explorer navigate to the directory
C:\Program Files\NET GmbH\FGControl\Driver and run the program
FGControl1394Drv_Install.exe.

During the installation, commands will be executed in a command prompt window (with a black background), this windows is closed automatically.

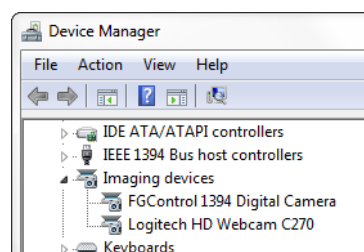
2. In the Windows Security dialog (see [Figure 15](#)) select the **Install driver software anyway** option, this will also close the dialog.

Figure 15. Windows Security dialog



When the installation of the driver is finished the camera should be listed as FGControl 1394 Digital Camera in the list of devices in the Device Manager (see [Figure 16](#)).

Figure 16. Device Manager dialog with correctly installed camera

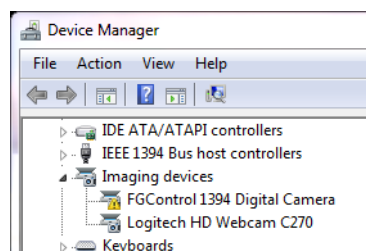


3. Check whether the camera is working properly by following the procedure [“To check whether the camera is working properly,”](#) in [“Testing the camera \(Windows 32-bit and 64-bit\).”](#)

Window 64-bit versions only

After installing the driver software (see “[Driver installation](#)” on [page 8](#)) and connecting the camera to the PC the camera driver will be installed automatically. In the list of devices in the Device Manager, the item FGControl 1394 Digital Camera (see [Figure 17](#)) or the item Generic 1394 Desktop Camera (see [Figure 14](#)) will appear with a yellow exclamation mark on the little icon in front of the item text. This means that the driver is not correctly installed yet. To correct this follow the procedure below.

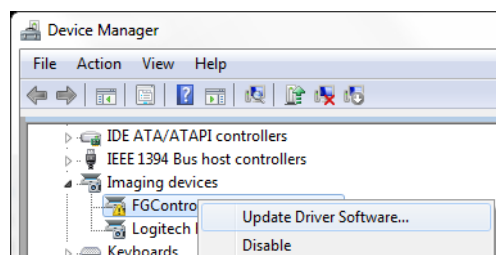
Figure 17. Device Manager dialog with incorrectly installed camera



❖ To complete the installation for Windows 64-bit versions

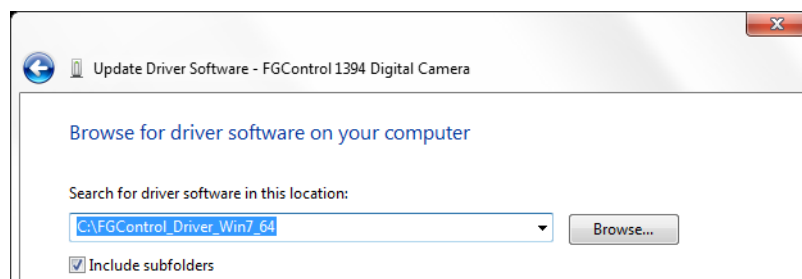
1. Unzip the content of the file FGControl_Driver_win7_64.zip in a new and empty directory, for example in c:\FGControl_Driver_win7_64.
2. Right click on the item **FGControl 1394 Digital Camera** or the item **Generic 1394 Desktop Camera** to open a context menu, see [Figure 18](#).

Figure 18. Device Manager dialog with incorrectly installed camera plus context menu



3. In the context menu choose **Update Driver** to open the Update Driver Software wizard.
4. In the Update Driver Software dialog select the **Browse my computer for driver software** option.
5. On the next page of the wizard click **Browse** (see [Figure 19](#)) to select the directory in which the contents of the file FGControl_Driver_win7_64.zip was unzipped, see [step 1](#) of this procedure.

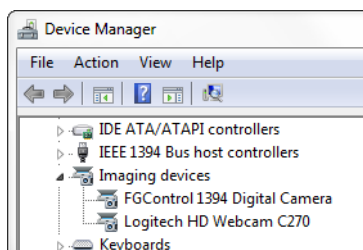
Figure 19. Update Driver Software wizard, select location



6. In the Windows Security dialog (see [Figure 15](#)) select the **Install driver software anyway** option, this will also close the dialog.
7. On the next page of the wizard click **Finish** to close the wizard.

When the installation of the driver is finished the camera should be listed as FGControl 1394 Digital Camera in the list of devices in the Device Manager (see [Figure 20](#)).

Figure 20. Device Manager dialog with correctly installed camera



8. Check whether the camera is working properly by following the procedure “[To check whether the camera is working properly](#),” in “[Testing the camera \(Windows 32-bit and 64-bit\)](#).”

Testing the camera (Windows 32-bit and 64-bit)

After installing the driver software the functionality of the camera driver software should be checked using the FGcontrol software before setting up the camera in HAAKE RheoWin.

❖ To check whether the camera is working properly

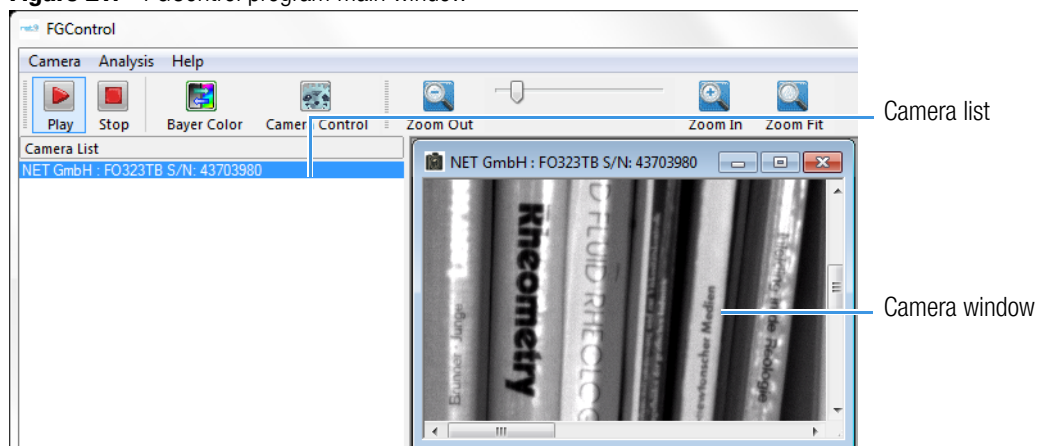
1. Start the FGcontrol program, by clicking on the shortcut to the program on the PC desktop.

In the FGcontrol program main window the camera should now be listed in the camera list below the main menu, see [Figure 21](#).

2. Double click on the camera name in the camera list to open (an empty) camera window.
3. Click **Play** to start the image acquisition.

An image should now be visible in the camera window, see [Figure 21](#).

Figure 21. FGControl program main window



Testing the camera in RheoWin

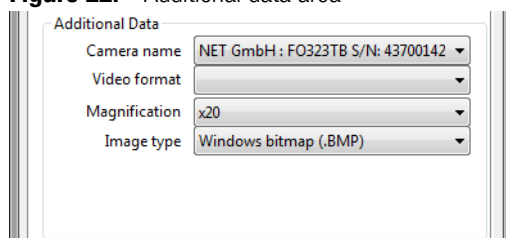
Before using the camera in a RheoWin Job for a serious measurement check whether the camera is working properly in the RheoWin Camera control dialog using the Simulator device instead of a real rheometer.

❖ **To check whether the camera is working properly in RheoWin**

1. In RheoWin JobManager choose **Configuration > Device Manager** to open the RheoWin Device Manager dialog.
2. In the list of Rheometers / Viscometers select **Simulator** and click **Edit**.

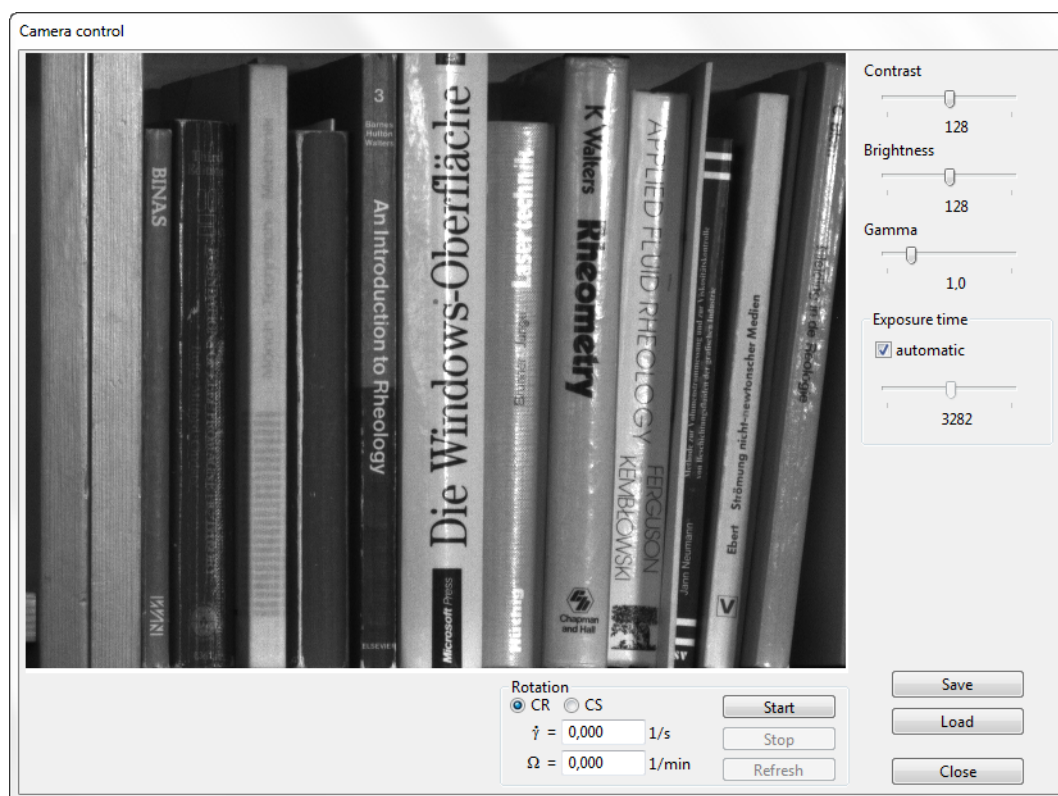
On the General page of the Properties of Simulator' dialog select the **NET GmbH: FO323TB** or **NET GmbH: FO323TC** or **NET3 4203 BU** or **NET3 4203 CU** camera from the Camera name list in the Additional data area, see [Figure 22](#).

Figure 22. Additional data area



3. Select a **Video format**, see [Figure 22](#) (the Video format selection box must **not** be empty).
4. Click **Ok** to close the dialog.
5. In RheoWin JobManager choose **File > New Job** to open the Job templates dialog.
6. In the Job templates dialog select **#NEW empty job** from the list and click **Ok** to open the Job Editor dialog.
7. In the Job Editor dialog select **Simulator** from the list of Rheometer.
8. Click **Manual control** to open the Monitor dialog.
9. In the Monitor dialog click the **Camera**  icon in the lower left corner of the window to open the Camera control dialog.

Figure 23. Camera control dialog



10. In the Camera control dialog (see [Figure 23](#)), in the Exposure time area, activate the **Automatic** option to optimize the camera image.