

DS-CAM-88c / DS-CAM-120c ▲ DEWESoft® / DS-CAM-175c / DS-CAM-320c

TECHNICAL REFERENCE MANUAL

DS-CAM-88c / DS-CAM-120c/ DS-CAM 175c/ DS-CAM 320c V22-1



1. Table of contents

1. Table of contents	2
2. About this document	4
2.1. Legend	4
3. Key features	5
3.1. System Requirements	5
4. Technical data	6
4.1. Specifications	6
4.2. Scope of supply	9
4.2.1. DS-CAM camera versions	9
4.2.2. Accessories	9
4.2.3. Optional	10
4.3. Connections	12
4.3.1. Power/Trigger connector pinout	13
4.3.2. SIRIUS® connection example	14
4.2.4. Connecting multiple cameras	15
4.2.5. Connections Overview	17
4.3. Benchmarks	19
5. Installation	20
5.1. DewesoftX® full installer	20
5.2. Manual installation	22
5.2.1. Required files	22
5.2.1. Step-by-step instruction	23
6. Troubleshooting guide	30
7. Warranty information	34
7.1. Calibration	34
7.2. Support	34
7.3. Service/repair	34
7.4. Restricted Rights	34
7.5. Printing History	35
7.6. Copyright	35
7.7. Trademarks	35
8. Safety instructions	36
8.1. Safety symbols in the manual	36
8.2. General Safety Instructions	36
8.2.1. Environmental Considerations	36
8.2.2. Product End-of-Life Handling	36
8.2.3. System and Components Recycling	36
8.2.4. General safety and hazard warnings for all Dewesoft systems	37

9. Documentation Version

40

2. About this document

2.1. Legend

The following symbols and formats will be used throughout the document.



Important

It gives you important information about the subject.
Please read carefully!



Hint

It gives you a hint or provides additional information about a subject.



Example

Gives you an example of a specific subject.

3. Key features

The DS-CAM-88c/DS-CAM-120c/DS-CAM-175c/DS-CAM-320c are a high-speed Gigabit-Ethernet cameras with following key data:

- DS-CAM-88c: 88 fps @ VGA (640x480)
- DS-CAM-120c: 120 fps @ VGA (640x480)
- DS-CAM-175c: 178 fps @ VGA (640x480)
- DS-CAM-320c: 328 fps @ VGA (640x480)
- Color
- Auto-gain
- Auto-shutter (also fixed shutter possible)
- Auto-white balance
- Triggered and free-run mode
- Standard C-Mount
- Small compact form factor
- Low power consumption
- Ruggedized (high-shock and vibration resistant, aluminium housing)
- Real-time data streaming with full resolution

The camera supports the high-performance industrial standard “GigE Vision”. The standard introduced in 2006 provides a framework for transmitting high-speed video and related control over Ethernet networks.

The benefits are: high speed data transfer rates up to 1Gbit/s (based on 1000Base-T) connectible to every standard GigE Ethernet port and cable lengths up to 100m.

DewesoftX® uses OptoStream SDK for communication with cameras that support GigE Vision standard.



Important

For best performance we recommended using a SSD for storing data. A disk write rate of 100 MByte/s should be established, especially if using more than 1 camera.

3.1. System Requirements

- 1 Gigabit-Ethernet port
- High-performance PC (Core i5 CPU or better recommended, 4 GB RAM and high performance SSD storage disc)
- DewesoftX®
- The latest OptoStream SDK
- Dewesoft GigE driver (cdv)

4. Technical data

4.1. Specifications

	DS-CAM-88	DS-CAM-120	DS-CAM-175	DS-CAM-320
Color option				
Color	✓	✓	✓	✓
Monochrome	-	-	-	-
Optical specifications				
Image sensor	Sony ICX414	Sony ICX618	Sony IMX273	Sony IMX287
Sensor type	CCD	CCD	CMOS	CMOS
Resolution	VGA 640x480	VGA 640x480	1456x1088	728x544
FPS	88 FPS @ 640x480 167 FPS @ 320x240 289 FPS @ 160x120	120 FPS @ 640x480	68 FPS @ 1456x1088 116 FPS @ 1280x720 145 FPS @ 800x600 178 FPS @ 640x480	266 FPS @ 728x544 328 FPS @ 640x480
Sensor size	1/2" (12.7 mm diagonal)	1/4" (6.35 mm diagonal)	1/2.9" (6.3 mm diagonal)	1/2.9" (6.3 mm diagonal)
Pixel size (in µm)	9.9 x 9.9	5.6 x 5.6	3.45 x 3.45	6.9 x 6.9
Dynamic range	35 dB auto-gain function	32 dB auto-gain function	71.6 dB auto-gain function	74.4 dB auto-gain function
Shutter	Full frame	Full frame	Electronic Global Shutter	Electronic Global Shutter
Shutter time	autoshutter function	autoshutter function	26 ns - 60 s (autoshutter function)	58 ns - 60 s (autoshutter function)
Auto-white balance	✓	✓	✓	✓
Mechanical specifications				
Operating temperature	+5... +45°C	+5... +45°C	+5... +45°C	+5... +45°C
Operating humidity	25% - 80% (non-condensing)	25% - 80% (non-condensing)	20% - 80% (non-condensing)	20% - 80% (non-condensing)
Dimensions	44 (H) x 29 (W) x 86.4 (D) mm 1.73 (H) x 1.14 (W) x 3.40 (D) in	44 (H) x 29 (W) x 86.4 (D) mm 1.73 (H) x 1.14 (W) x 3.40 (D) in	44 (H) x 29 (W) x 86.4 (D) mm 1.73 (H) x 1.14 (W) x 3.40 (D) in	44 (H) x 29 (W) x 86.4 (D) mm 1.73 (H) x 1.14 (W) x 3.40 (D) in
Lens mount	C-mount	C-mount	C-mount	C-mount

Connectors	Screw mount GigE RJ45 EIAJ (Hirose) 12 pin	Screw mount GigE RJ45 EIAJ (Hirose) 12 pin	Screw mount GigE RJ45, Hirose HR10-10R-12PA(73)	Screw mount GigE RJ45, Hirose HR10-10R-12PA(73)
Conformity	CE FCC RoHS GigE Vision GenICam (PoE IEEE 802.3at)	CE FCC RoHS GigE Vision GenICam (PoE IEEE 802.3at)	CE FCC RoHS GigE Vision GenICam (PoE IEEE 802.3at)	CE FCC RoHS GigE Vision GenICam (PoE IEEE 802.3at)
Power specifications				
Supply voltage	+8 to +30 VDC	+8 to +30 VDC	+8 to +30 VDC	+8 to +30 VDC
Power-over-Ethernet	option	option	option	option
Power consumption	3.6 W	3.6 W	3.2 W	3.2 W

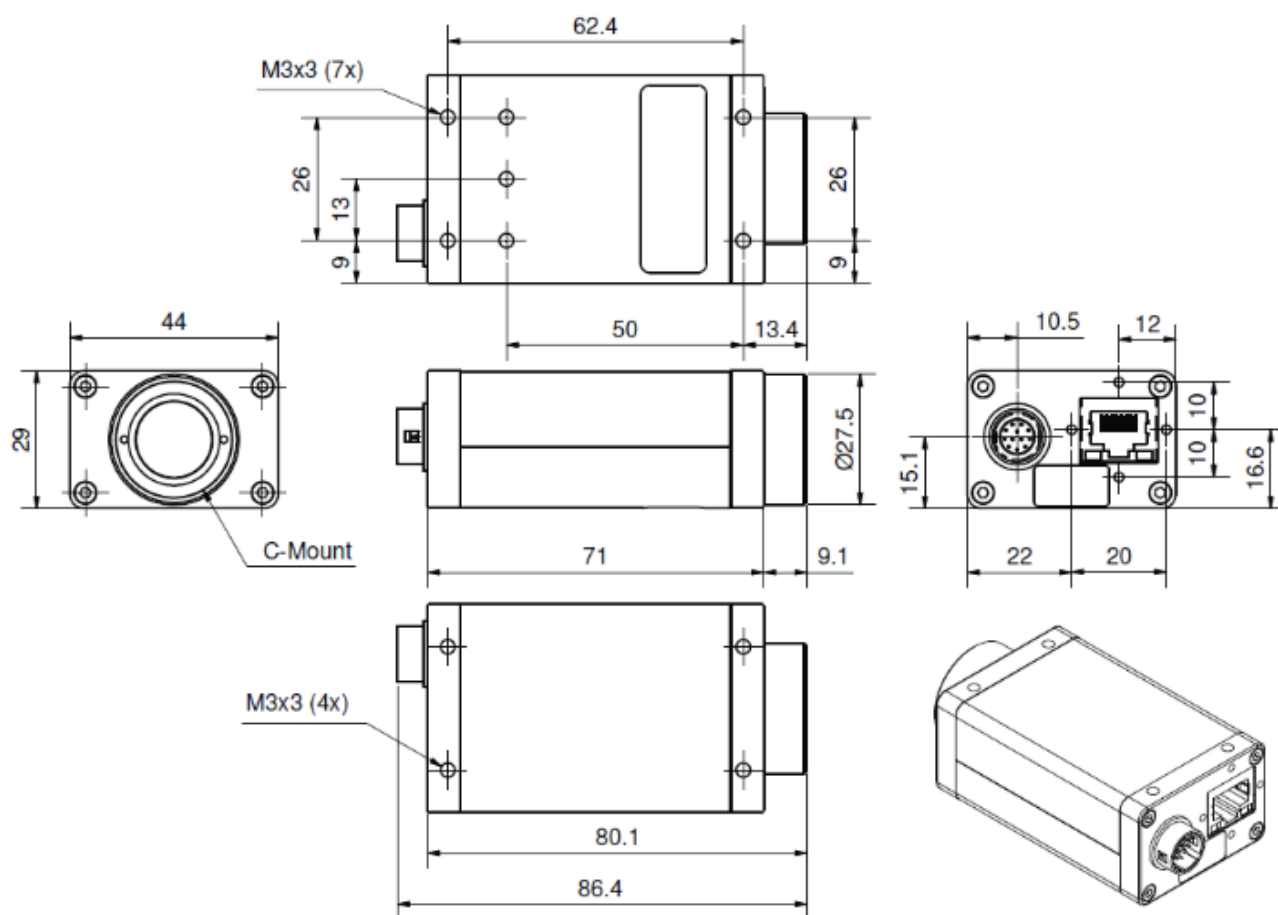


Illustration 1: Technical drawing with basic dimensions

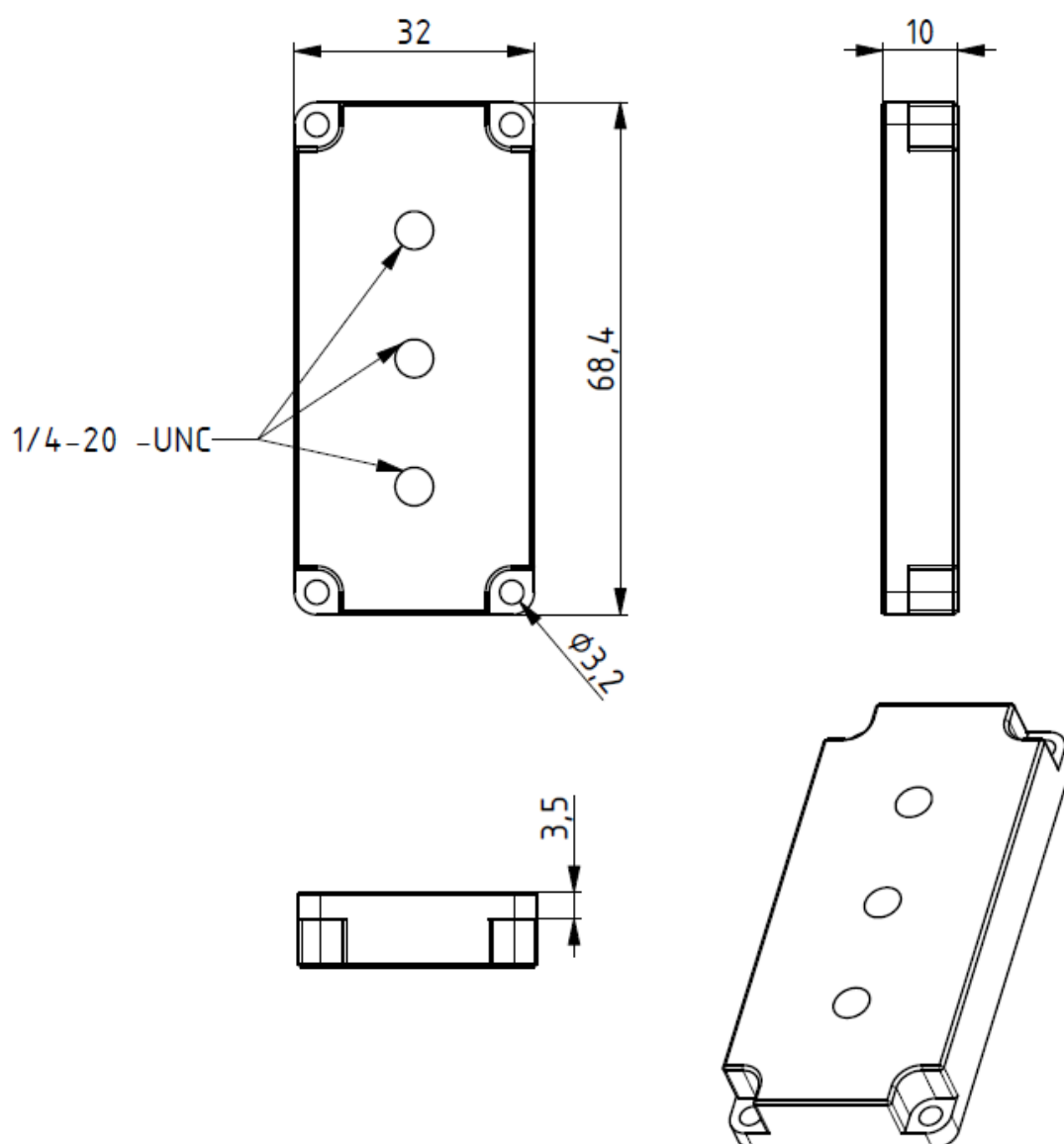


Illustration 2: Technical drawing of aluminum adapter plate



Illustration 3: Aluminum adapter mounter on the camera.

4.2. Scope of supply

4.2.1. DS-CAM camera versions

Type	Usage
DS-CAM-88c	Color camera
DS-CAM-120c	Color camera
DS-CAM-175c	Color camera
DS-CAM-320c	Color camera

4.2.2. Accessories

Type	Usage
LENS-AZURE-1614mm	Azure 1614mm C-MOUNT lens
CABLE-UTP-CAT.6-3m	RJ45 CAT 6 cable for data
ALU_PLATE_ADAPTER	Aluminum plate adapter with 3x 1/4-20 UNC thread
CABLE-H12f-L1B7m-3m	Power and sync cable, 12-pin Hirose connector to 7-pin Lemo connector. For CAM-BOX usage only.
CASE_XTRABAG-300	Carrying bag



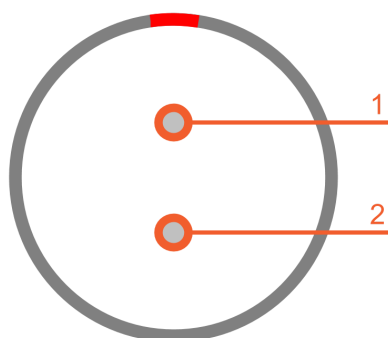
Illustration 2: Scope of supply for DS-CAM

4.2.3. Optional

Type	Usage
H12f-L1B2m-L00B4m-3m	Power and sync cable, 12-pin Hirose connector splitted to 2-pin Lemo connector and 4-pin Lemo connector. For SIRIUS usage.
H12f-L1B7m-L00B4m-3m	Power and sync cable, 12-pin Hirose connector splitted to 7-pin Lemo connector and 4-pin Lemo connector. For DEWE-43 usage only (max 1 per unit).
DS-CAM-IP67	IP67 upgrade kit



Illustration 3: H12f-L1B2m-L00B4m-3m and H12f-L1B7m-L00B4m-3m are the equal except the pinout is different from one another.
Refer to the tables below



Pin	Name	Description
1	+12V	Power (+9...+36 V DC)
1	GND	Ground

Illustration 16: Pinout of marked connector for
H12f-L1B2m-L00B4m-3m cable.

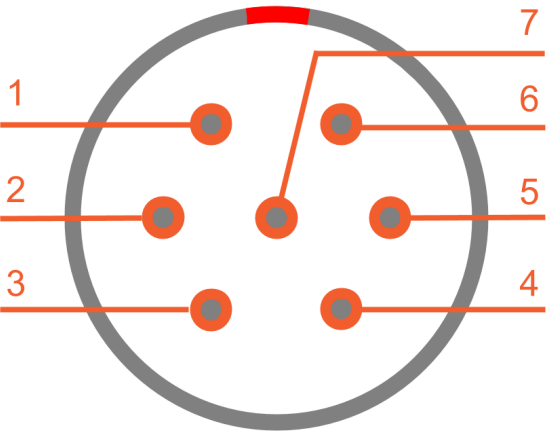


Illustration 15: Pinout of marked connector for H12f-L1B7m-L00B4m-3m

Pin	Name	Description
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	+12V	Power (+9...+36 V DC)
7	GND	Ground

4.3. Connections

On the rear side of the camera there are two connectors. The 12pin HIROSE connector (matching part: Hirose HR10A10P-12S(73)) contains the power, trigger and other digital pins. Ethernet connector pinout according to the standard.

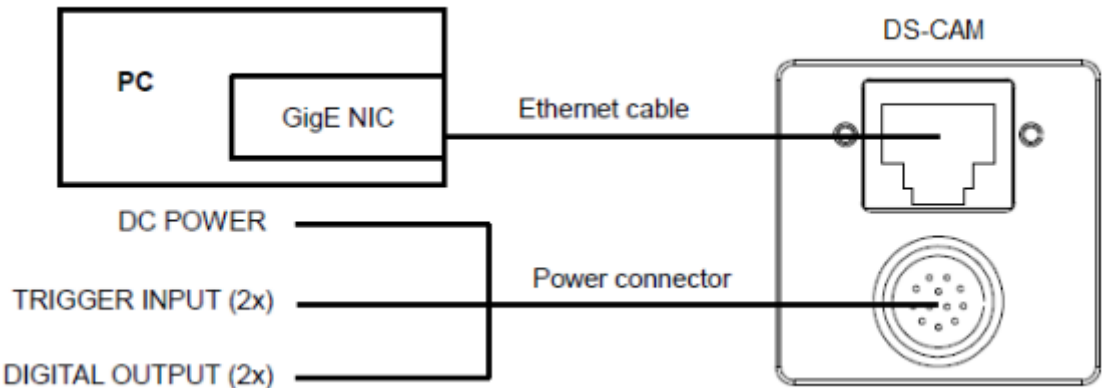


Illustration 2: Connecting scheme

4.3.1. Power/Trigger connector pinout



Illustration 3: 12pin Hirose connector (matching part: Hirose HR10A-10P-12S(73)) on camera rear side

Pin	Signal
1	GND (for Power and RS232)
2	Power (+8...+30 V DC)
3	-
4	Camera In 1 (TRIGGER)
5	-
6	Camera Out 1 (open emitter, max. 20 mA)
7	Camera In GND
8	RxD (RS232)
9	TxD (RS232)
10	Camera Out Power (for digital outputs)
11	Camera In 2
12	Camera Out 2

4.3.2. SIRIUS® connection example

In this picture you see a typical SIRIUS measurement instrument, consisting of one SBOX unit (integrated PC) on bottom and one SIRIUS slice on top (from rear side).

The camera is directly connected to the Gigabit-LAN port. The second cable to the camera contains the power (from SBOX Power out) and the trigger, connected to the SYNC port of the SIRIUS slice. The camera frames are now in perfect sync with the analog data acquired by DewesoftX®.



Hint

Even if the camera is connected, syncing to other SIRIUS devices is still possible, because there are different pins used on the SYNC port for triggering/syncing.



Illustration 4: SIRIUS SBOX with 1 SIRIUS slice connected to the DS-CAM-120c (per cable H12f-L1B2m-L00B4m-3M)

4.2.4. Connecting multiple cameras



Illustration 7: CAM-BOX2

If you need to connect more than one camera, there is a special “CAM-BOX2” available, which consists of

- wide-range voltage input (9-36V)
- an industrial Gigabit-Ethernet-Switch (without Power-over-Ethernet! No supply for DS-CAM-600!)
- Power and Sync distribution for up to 4 cameras.
- Small dimensions: 115 x 62 mm (front) and 135 mm deep

Camerasbox connector

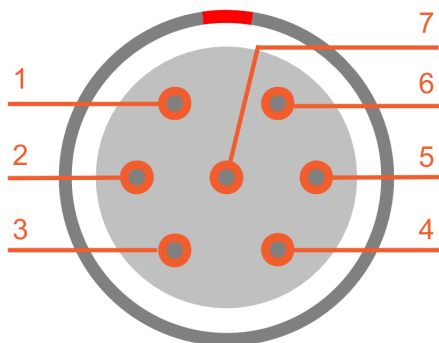


Illustration 8: CAM-BOX2 pinout

Pin	Pin assignment
1	-
2	-
3	-
4	CLK
5	-
6	+12V
7	GND

Mating cable connector: FGG.1B.307CLAD52

Power supply connector

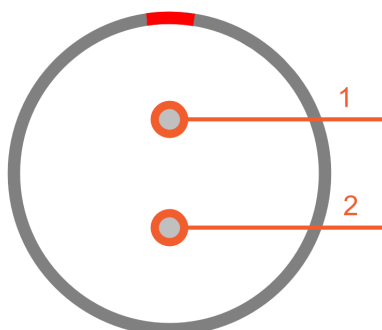
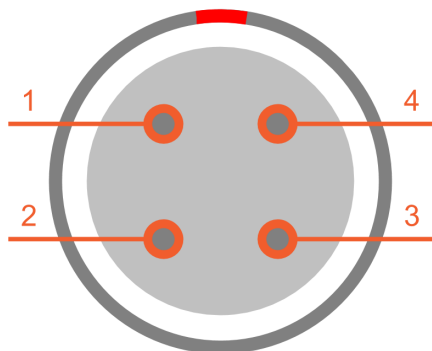


Illustration 8: Power supply

Pin	Pin assignment
1	+9V...36V
2	GND

Mating cable connector: FGGJ.1B.302CLLD42Z

Sync connector



Pin	Pin assignment
1	-
2	-
3	CLK
4	GND

Illustration 8: Sync connector

Mating cable connector: FGG.00.304CLAD27Z

4.2.5. Connections Overview

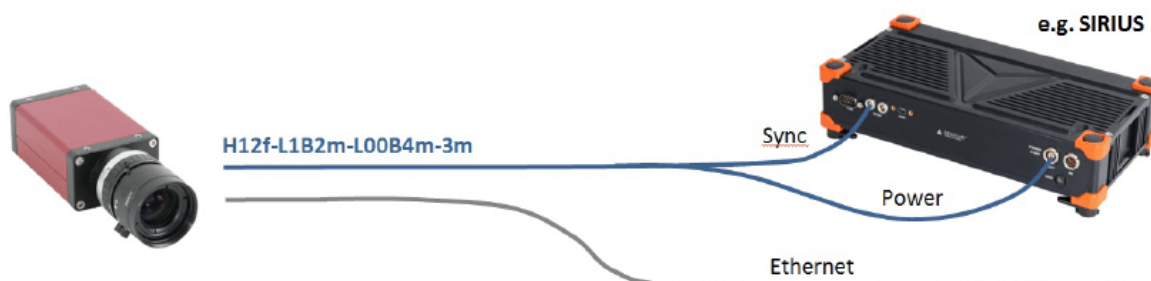


Illustration 9: DS-CAM to SIRIUS connection example.

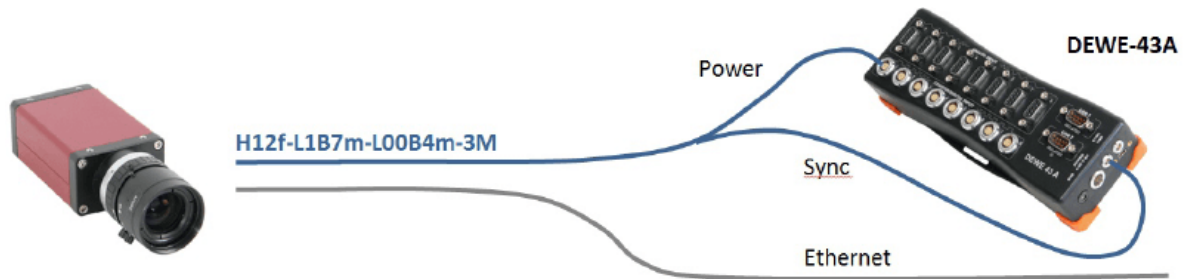


Illustration 10: DS-CAM to DEWE43 connection example.



Important

Maximum of one camera is permissible to connect due to power limitation of DEWE-43A.

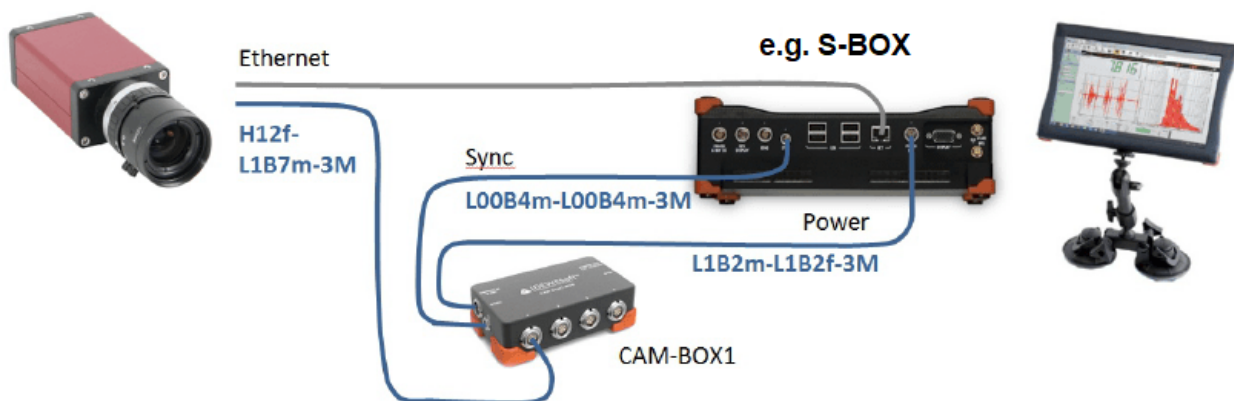


Illustration 11: DS-CAM, CAM-BOX1 for power supply and synchronization. Expanding up to four cameras. Ethernet data cable is wired directly to the network card of the PC.



Important

If you use more than one camera use an external power supply (PS-200-L2B3f) for CAM-BOX1.

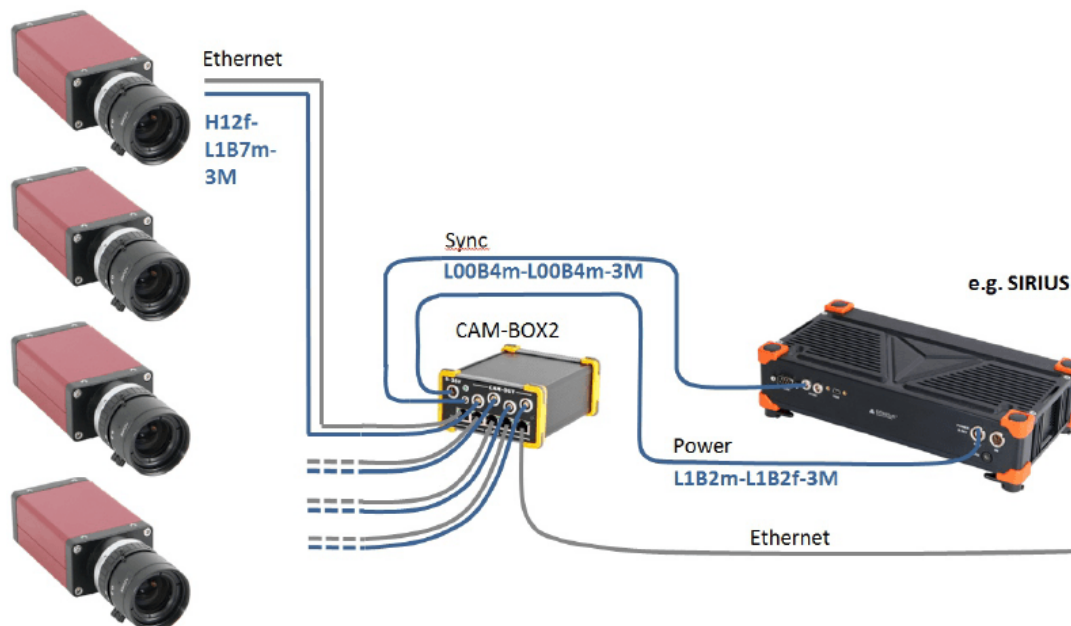


Illustration 12: 4x DS-CAM, CAM-BOX2 for power supply and synchronization.



Important

If you use more than one camera use an external power supply (PS-200-L2B3f) for CAM-BOX2.

4.3. Benchmarks

The following tests were done with SIRIUS SBOX and 1 to 4 cameras connected to the CAM-BOX2. Setup:

- 1 to 4 cameras connected over CAM-BOX2
- SBOX: 128GB SSD -> max 190 MByte/s write rate
- CPU: Intel Core i7 QM57; 2.0GHz; 4GB RAM
- camera(s) clocked by SIRIUS
- Dewesoft X1 SP7 b358 GigEVisionSDK Version 2.7.0.1
- GigE Camera driver v3.5 (Plugin)
- storing data to file, video buffer stable around 0..1%
- with checked "optimize for switched network"

Achieved framerates (fps)

1 camera

x res	y res	DS-CAM-88c	DS-CAM-120c
640	480	88	120
320	240	165	195
320	120	280	300

2 cameras

x res	y res	DS-CAM-88c	DS-CAM-120c
640	480	88	120
320	240	165	195
320	120	280	210

3 cameras

x res	y res	DS-CAM-88c	DS-CAM-120c
640	480	88	90
320	240	165	195
320	120	280	210

4 cameras

x res	y res	DS-CAM-88c	DS-CAM-120c
640	480	88	60
320	240	165	195
320	120	280	210

**Hint**

Results (FPS) should be considered only as approximate MAX values. Writing speed of the disk may be a limiting factor (we used SSD!). We recommend to test cameras with your setup at about $0.8 \times \text{max_FPS}$ and higher to find where corrupted image, frame lost or buffer overrun will occur.

5. Installation

5.1. DewesoftX® full installer

For DewesoftX® all the drivers come with the full installer, if you select the option “GigE camera driver” during installation. To check if the drivers are installed, go to Options → Installed extensions and see if the checkbox “GigE” is visible. If not, execute the full installer again, choose the Modify option and enable the checkbox of GigE camera.

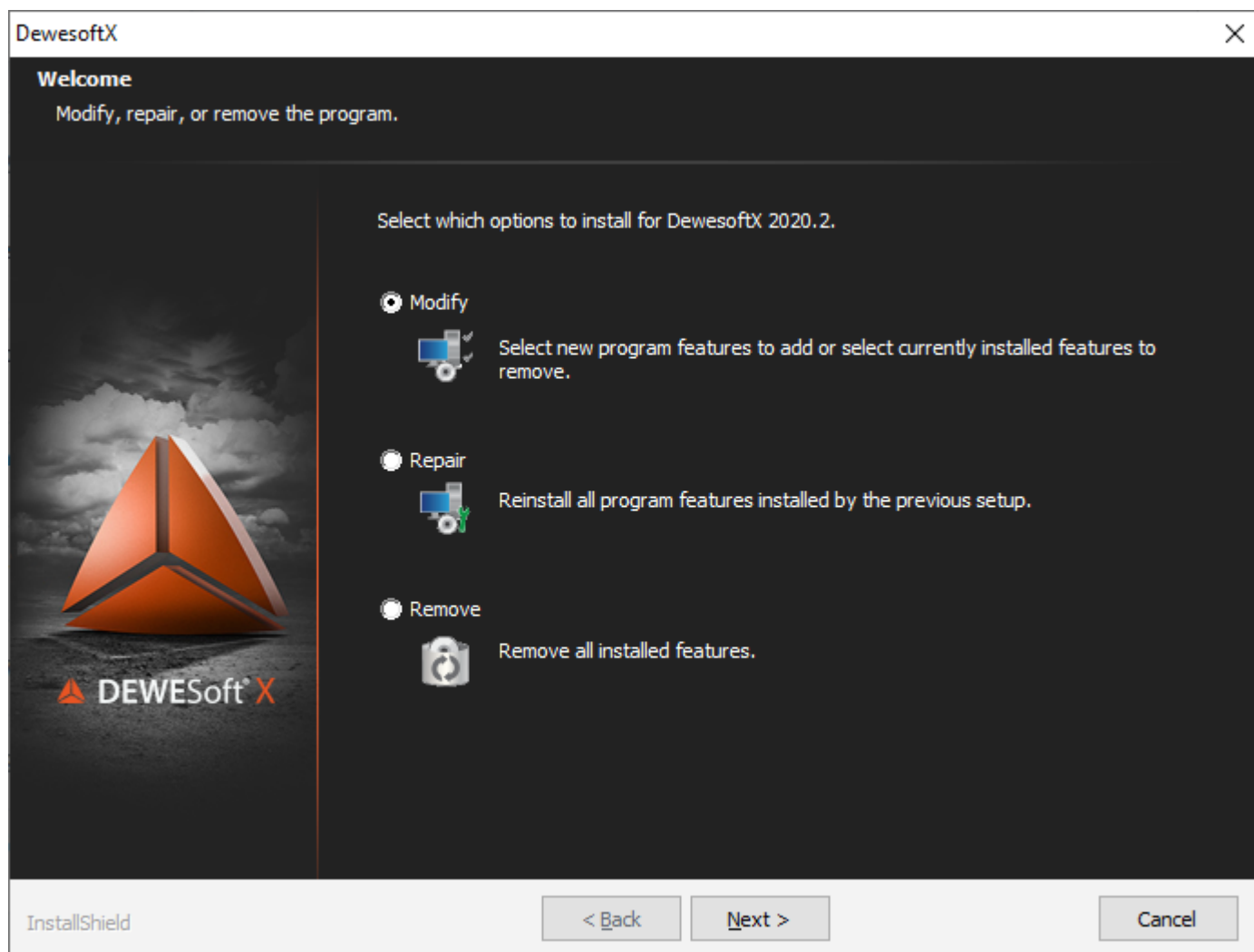


Illustration 6: Installation

The last DewesoftX® full installer can be downloaded here:

<https://download.dewesoft.com/list/dewesoftx>

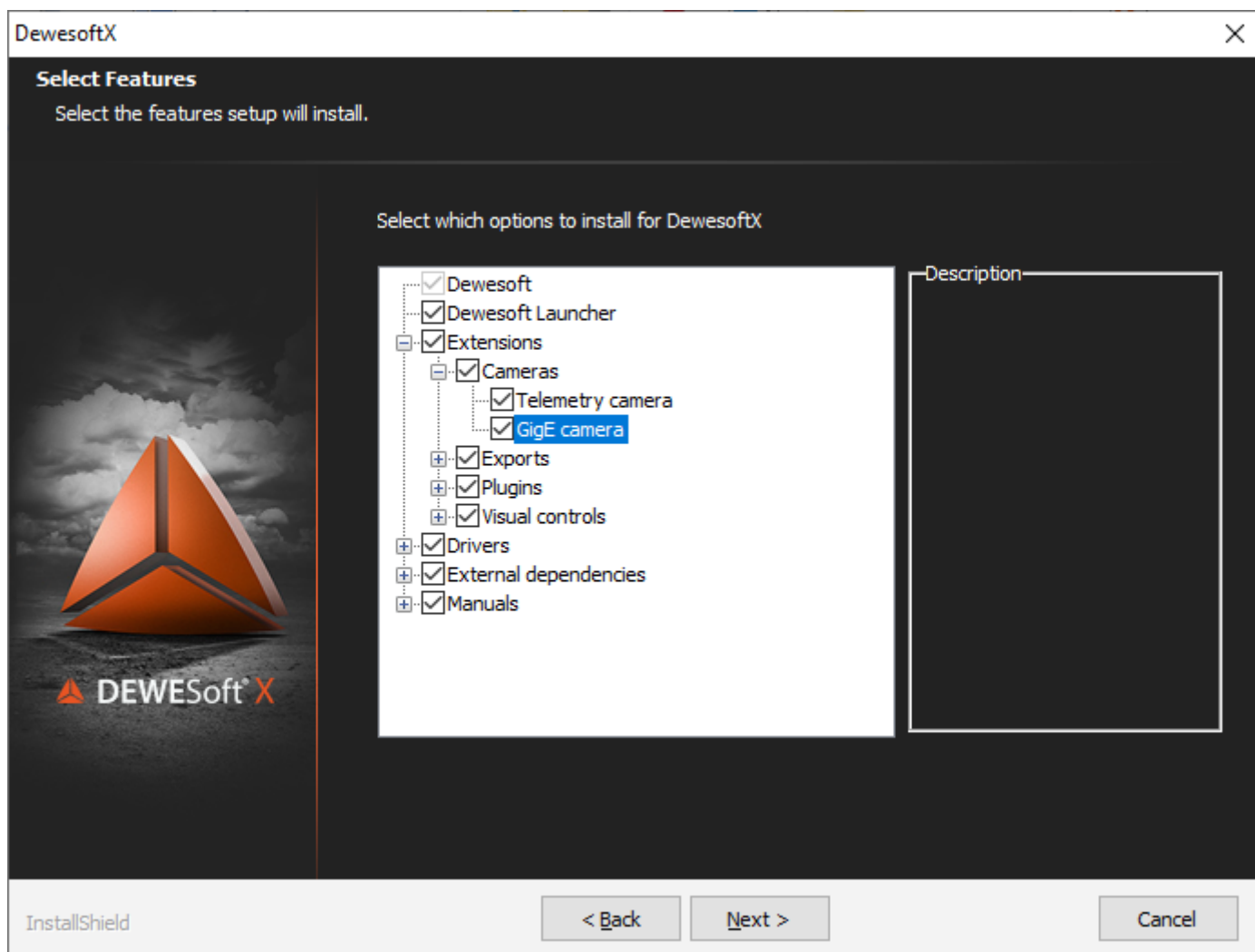


Illustration 7: Installing GigE camera driver

5.2. Manual installation

5.2.1. Required files

OptoStream SDK for GigE Vision

- Go to <https://download.dewesoft.com/list/plugins/> and download GigE package
- It includes the latest OptoStream SDK and Dewesoft driver for GigE Vision.

DewesoftX®

- Available from <https://download.dewesoft.com/list/dewesoftx>



Hint

You need to be logged into the Dewesoft website to download the latest development versions of DewesoftX®.

5.2.1. Step-by-step instruction

1st step: Install OptoMotive_OptoStreamSDK

Note that you must be an administrator, not just a user with admin rights! Restart the PC after installation is complete. After reboot be sure that “OptoStream GEM Filter Driver” is installed (picture 1) under Local area Connection Properties.



Hint

Note that “Filter Driver” filters out all packets that are not GigE on hardware level, so the camera will work much faster than without the filter.

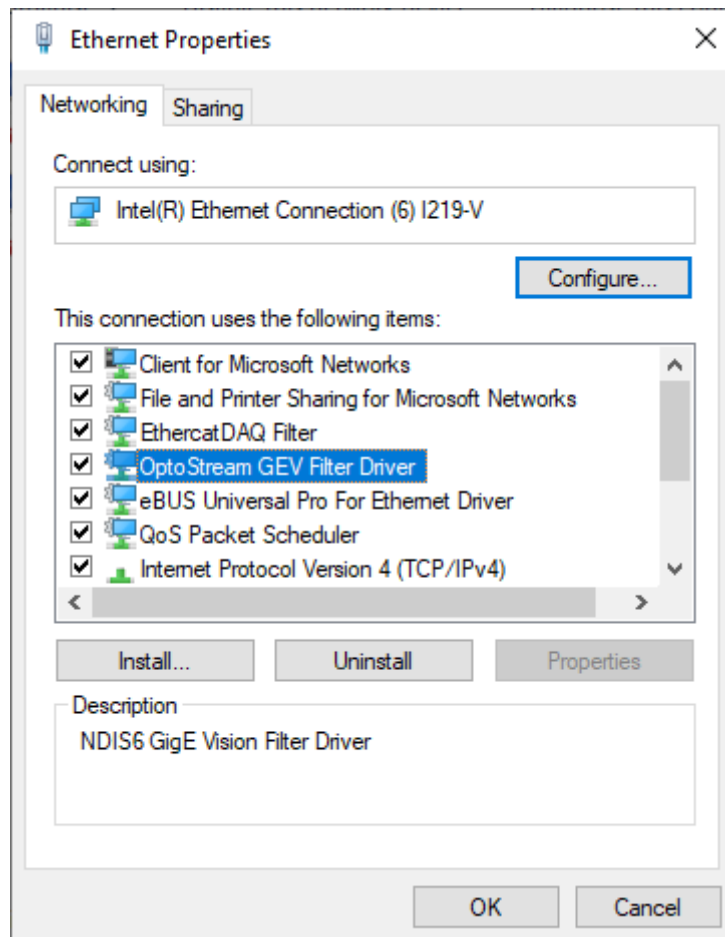


Illustration 8: Installed OptoStream GEV Filter Driver.

2nd step: Connect camera to PC via Ethernet cable and power/trigger cable. See chapter 4.2.5. Connections Overview

3rd step: Assigning IP address to camera

The DS-CAMs supports DHCP, so just set your computer's IP address to automatic and wait until the IP is assigned. To test if the camera is working you can run OptoStreamViewer. By right-clicking on the camera model you can also set IP to fix, if you prefer.



Illustration 9: OK, cameras can be used, close the OptoStreamViewer and start DewesoftX®.



Important

You should avoid using OptoStreamViewer and DewesoftX® in parallel.

4th step

To enable the camera in DewesoftX® copy the file "GigECamera.cdv" into the Dewesoft Addons folder, usually located in "C:\DewesoftX\Bin64\Addons64\GigeCam".

5th step

Run the "Dewesoft DCOM Registration" to register the plugin.

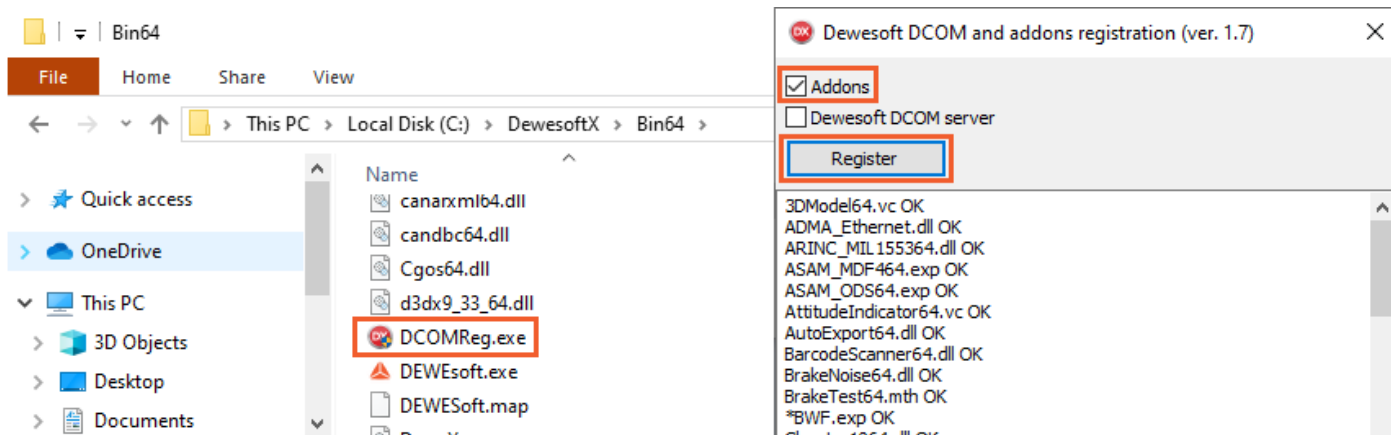


Illustration 10: OK, cameras can be used, close the OptoStreamViewer and start DewesoftX®

6th step

Start DewesoftX® and go to Options → Settings → Analog. For triggered mode (DewesoftX® is clocking the camera), check if your device (such as DEWE-43 for example) is set to Automatic or Clock/Trigger:

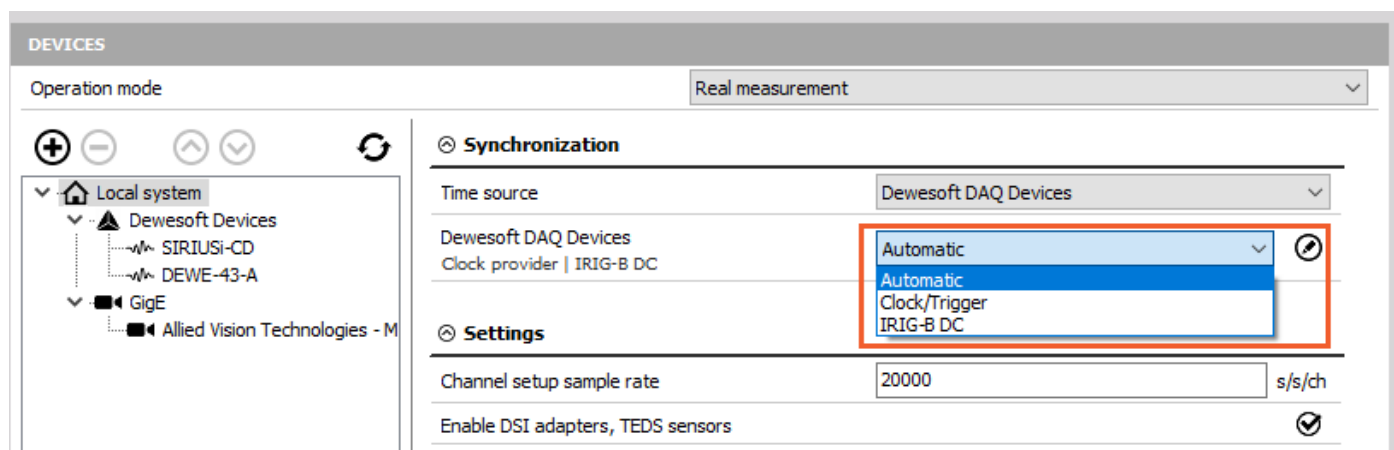


Illustration 11: Options → Settings: Set device to Automatic (Standalone) or Clock/Trigger

7th step

Go to the GigE tab and set “Use trigger”.

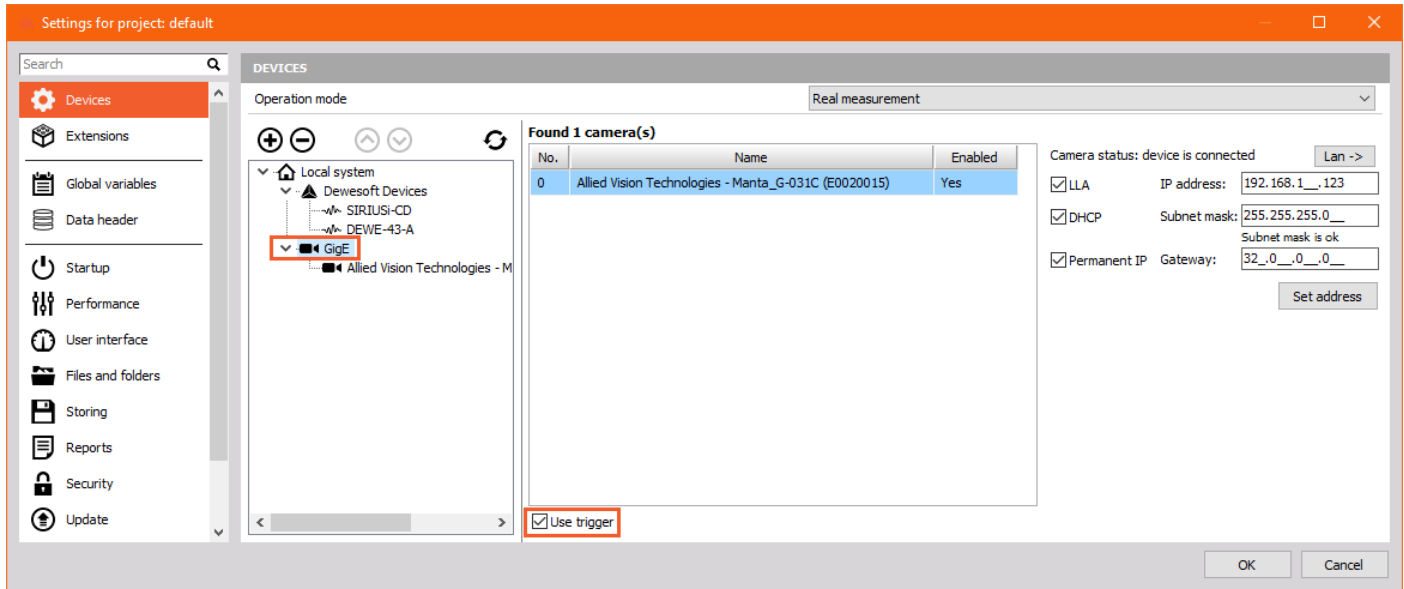


Illustration 12: DewesoftX® hardware setup, add GigE.

“File format” should be set to

- “DVI”, which is uncompressed DewesoftX® video format (takes a lot of disk space, ~35 Mbyte / s / camera @ 640x480 and 120fps, but no video size limit) – or
- “AVI”, the live compression will take CPU power, performance depends on the used computer; but we have experienced good results with the Xvid codec (uses multiple cores); consider that AVI will stop recording after video file size reaches 2 GB.
- “compress after measurement”: if you have a triggered measurement, you can use the pause times to automatically compress a recorded video file after storing

For manual compression after the measurement set the appropriate compressor in “AVI file type for compression”. We recommend the XVID codec. In Analysis mode you can then manually select your datafile and click “AVI compress”.

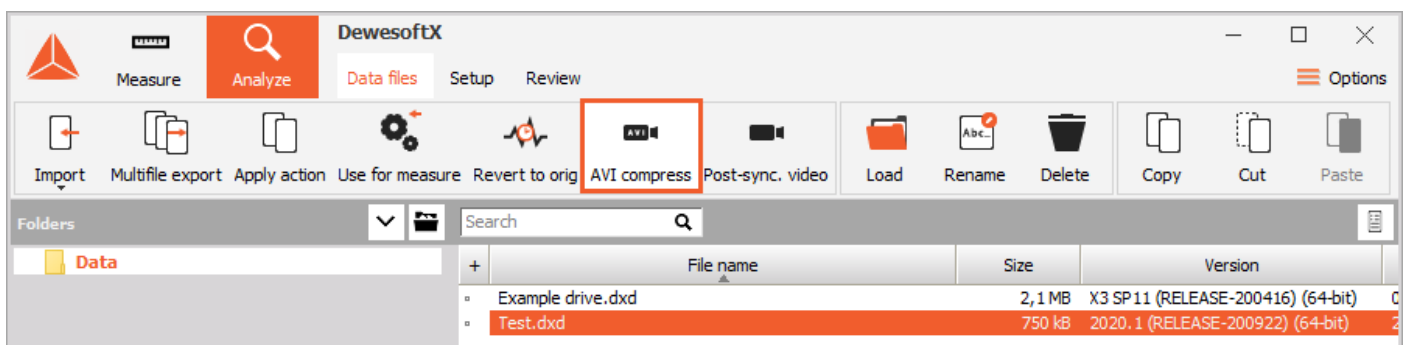


Illustration 13: AVI compress after measurement

8th step

Go to Ch. Setup, click the Video tab, click the Unused button to enable the video channel.

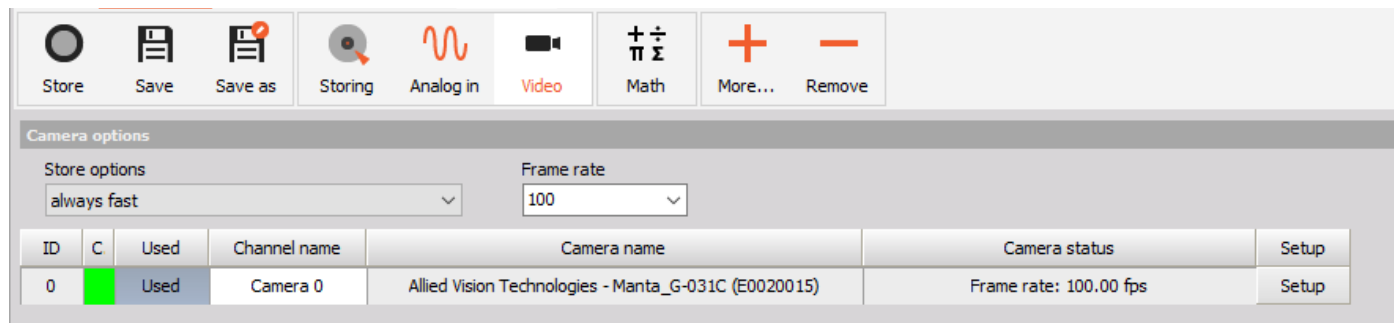


Illustration 14: DewesoftX® Channel setup → add Video



Hint

Ensure the firmware version of Dewesoft hardware is up to date, otherwise follow the instructions of how to do it in the [Updating firmware](#) article.

9th step

Enter the channel setup. By now, already a picture should be shown.

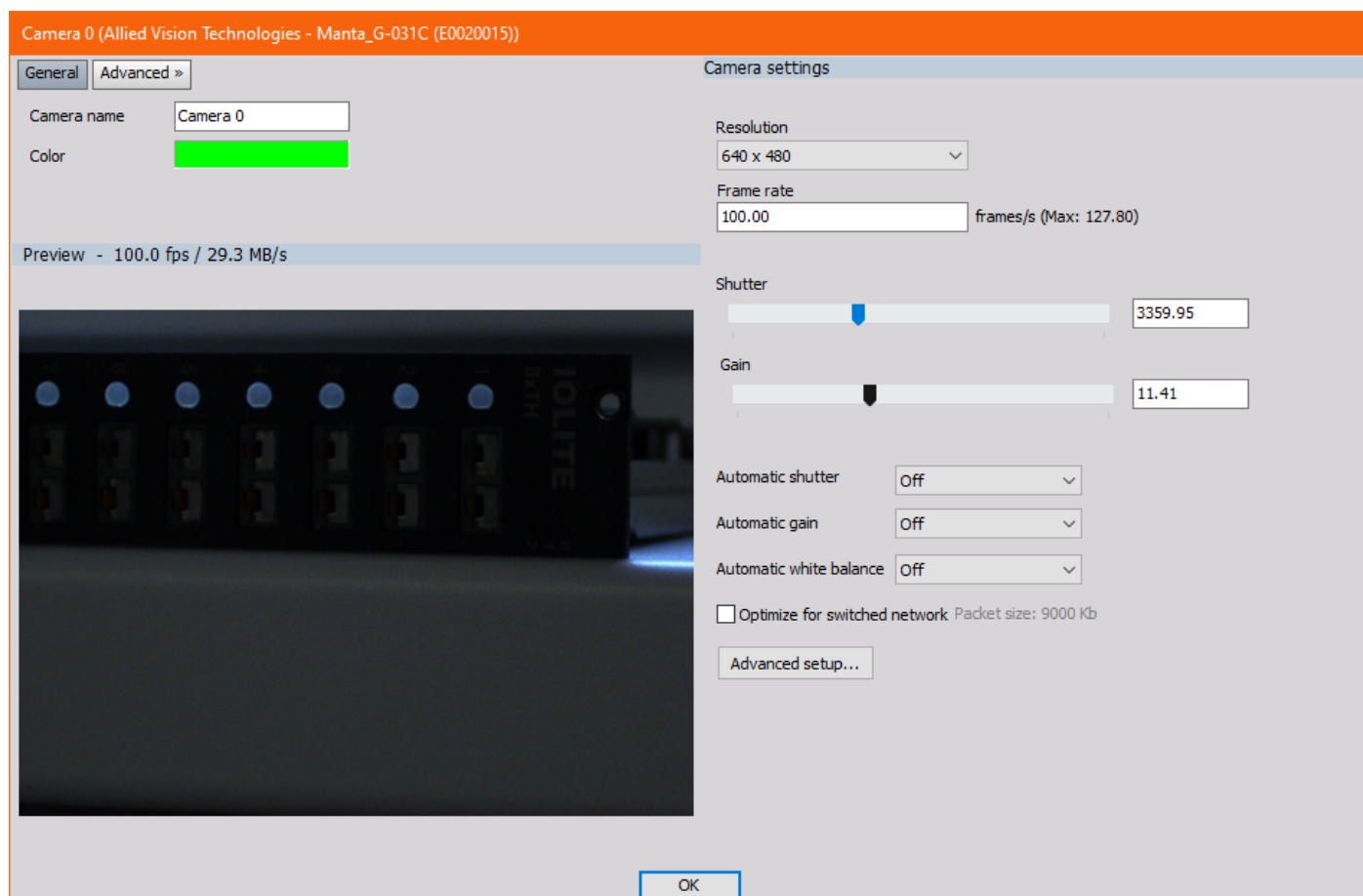


Illustration 15: DewesoftX® video channel setup



Hint

If you change the frame rate, after typing the value, the input field gets a yellow color; confirm the value by pressing the Enter key

Use the “Advanced Settings”, if you want to change specific parameters of the camera, such as the custom resolution (AOI, area of interest) for instance.

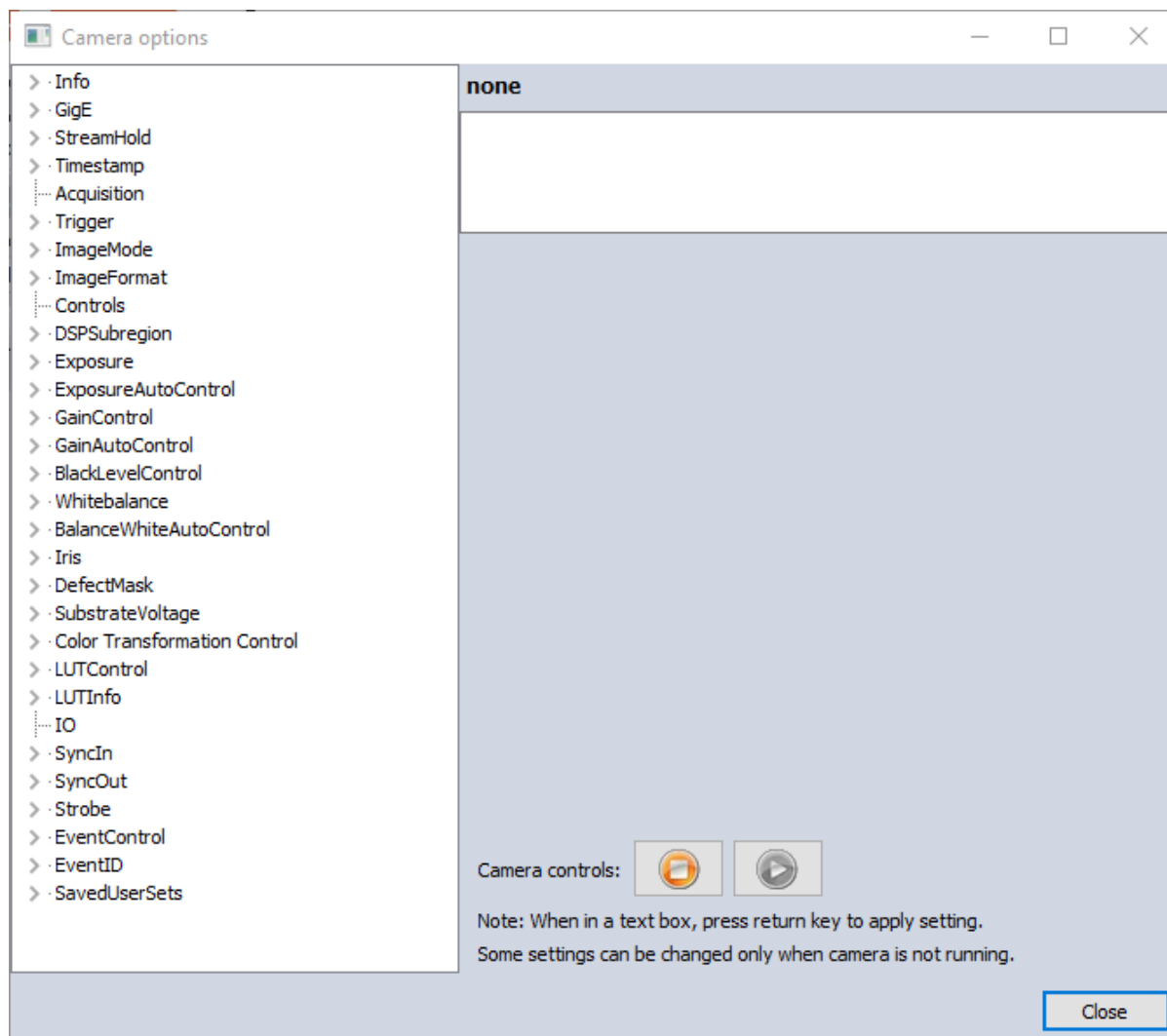


Illustration 18: Advanced settings

6. Troubleshooting guide

GigE checkbox in hardware setup missing / Support for 64 bit Windows:

Go to My Computer and click System properties > Advanced system settings > Advanced tab > Environment Variables > System variables > select Path > Edit.

Make the following changes:

- %OPTOSTREAM_SDK_PATH%\bin
- %GENICAM_ROOT_V2_4_ARCH%\bin\Windows
- %GENICAM_ROOT_V2_4_ARCH%\bin\Windows\GenApi\Generic

Save and reset Windows. Path correctness can be checked by `GetEnvironmentVariable('PATH');`

No picture shown, “No frames received” error

If you receive the error “NO FRAMES RECEIVED”, check: •

- Is the Trigger/Sync cable connected?
- Try decreasing the Shutter value
- Check in Settings if the DewesoftUSB device is set to Clock/Trigger or Automatic (Standalone)
- Disable Trigger in hardware setup and check if it's working in free-run mode (This could potentially be a cable problem. Swap in new cables and try again)

Camera not found (not in OptoStreamViewer, not in DewesoftX®)

- Check if the status LED on the camera is green, booting takes ABOUT 1 MINUTE!
- If using a GigE-Switch with PoE ports, ensure output power is sufficient, check status LED during operation
- Check Windows Firewall settings

Cameras not found in DewesoftX® (yellow mark in OptoStreamViewer):

Not able to use the cameras. Please wait a little bit (until IP is assigned). If that does not help, ensure the computer's network IP is set to automatic, as the camera supports DHCP.

Further troubleshooting, most probably the computer and the camera are not in the same subnet.

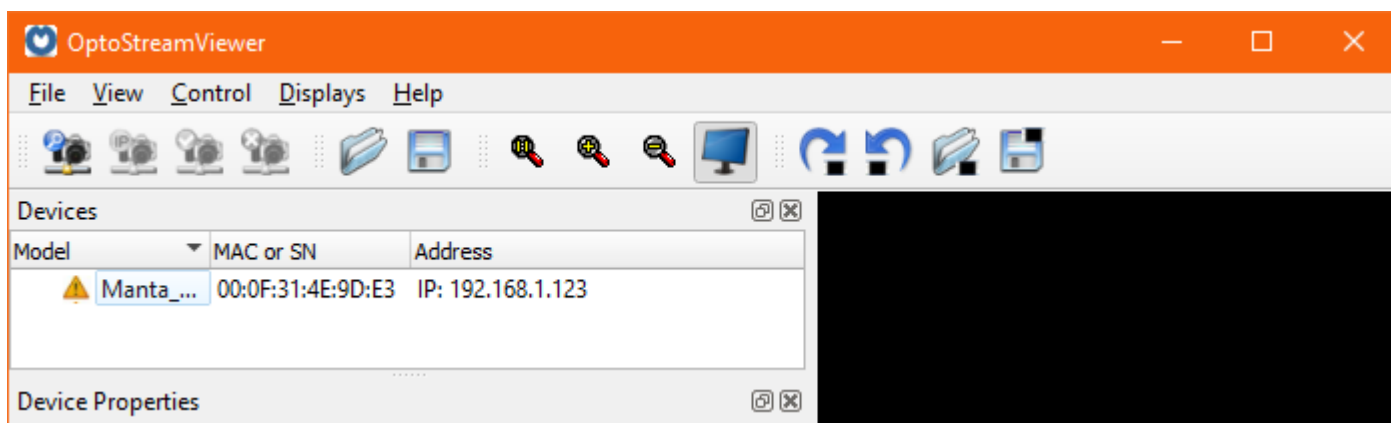


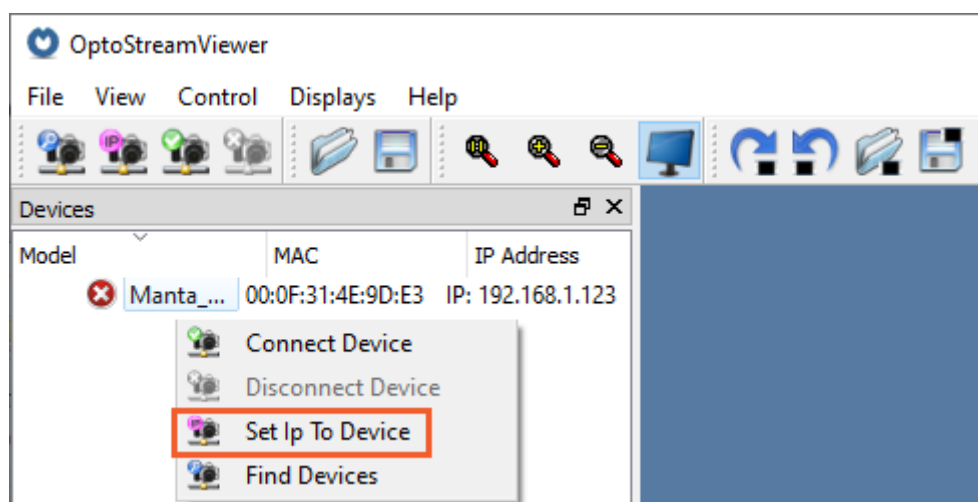
Illustration 19: IP address problem



Important

You should avoid using OptoStreamViewer and DewesoftX® in parallel. If the cameras are found, close DewesoftX® restart OptoStreamViewer.

Change IP address of the camera



If you manually change the IP address, please close DewesoftX®, start the OptoStreamViewer, right-click on the camera and select “Set IP to device”; use the same subnet as the computer, example:

PC: 192.168.1.120, Subnet 255.255.255.0

Camera: 192.168.1.123, Subnet 255.255.255.0

The IP is ok, if the cameras are found with a red mark (see Illustration above), close OptoStreamViewer and start DewesoftX®.

GigEVision client does not start, error message when starting

Troubleshoot this using the following steps: Check if the operating system of your computer is 32bit or 64bit.

Copy the 64-bit dlls (otherwise take the ones from the 32bit directories) from

C:\Program Files\OptoMotive\OptoStreamSDK\bin\Win64 and

C:\Program Files\OptoMotive\OptoStreamSDK\GenICam_v2_4\bin\Win64_x64 to

\Windows\system32 (respectively \Windows\SysWOW64)

Then start the OptoStreamViewer from C:\Program Files\OptoMotive\OptoStreamSDK\bin\Win64

Cameras not working in DewesoftX®

If you followed the step-by-step installation procedure, but still the camera is not working in DewesoftX®, you can try to copy the used dlls manually:

Copy the 32-bit dlls from

C:\Program Files\OptoMotive\OptoStreamSDK\bin\Win32

and

C:\Program Files\OptoMotive\OptoStreamSDK\GenICam_v2_4\bin\Win32_i86

to Dewesoft's Addons folder. Then restart DewesoftX®.

Maximum frame rate @ VGA resolution only 36 fps

When you adjust the framerate higher than 36 fps, and it is always reset to 36 fps, the Ethernet card in your computer is most probably only 100 Mbit/s. Please check the control panel → network card properties. Gigabit-Ethernet (1000 Mbit/s) is required.

Performance improvements (e.g. in case of frames lost, CPU overload or buffer overrun)

A loss of a few frames during a measurement is normal, due to collisions on the Ethernet network.

Here are some useful hints to improve the performance:

- Do not operate the camera in a fully loaded network (e.g. office computers). Just use direct connection or one switch (with no additional participants).
- Disable all anti-virus, firewall, indexing and synchronization programs running in background.
- Also check if you really have a Gigabit-Ethernet network card, not only 100Mbit/s.
- Check if the LAN cable is at least of CAT5 quality, if you have longer cable lengths it should be even better.

- For this camera, the main improvement can be done by using a SSD (disk writing speed about 100...150 Mbyte/s. One camera at 640x480 @ 120fps takes about 35MByte/s, multiply the value with the number of cameras used)
- Disable any "live compression" in Hardware setup → Video. Codec may take CPU load.
- Try to decrease the framerate / resolution
- Use the Windows resource monitor (can be found in Task manager) to check for bottlenecks.
- For optimal performance we recommend enabling "Jumbo" frames on your PC network card. "Jumbo" frames are Ethernet packets larger than 1500 bytes. This way less CPU time is spent for data reception therefore increasing performance and minimizing data loss. (Control panel → network and internet → view network status and tasks (network and sharing center) → change adapter settings → right-mouse-click on LAN connection → Properties → Configure → Advanced → Jumbo Frame → set to highest value (e.g. 9kB MTU))
- Also an overloaded DewesoftX® setup (many displays, e.g. high resolution FFT instruments) will take system power. Try at first only with camera video instruments.
- Press <Ctrl>+<Shift>+<P> in DewesoftX® Measure mode. On the right side the performance monitor will appear. Watch the Cam video buffer. It should stay stable at low values.

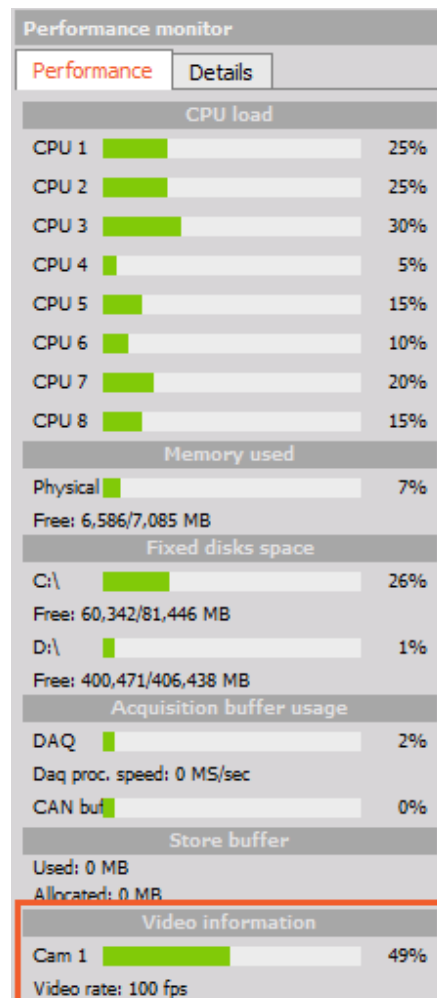


Illustration 20: IP address problem

7. Warranty information

Notice

The information contained in this document is subject to change without notice.

Note:

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The copy of the specific warranty terms applicable to your Dewesoft product and replacement parts can be obtained from your local sales and service office. To find a local dealer for your country, please visit <https://dewesoft.com/support/distributors>.

7.1. Calibration

Every instrument needs to be calibrated at regular intervals. The standard norm across nearly every industry is annual calibration. Before your Dewesoft data acquisition system is delivered, it is calibrated. Detailed calibration reports for your Dewesoft system can be requested. We retain them for at least one year, after system delivery.

7.2. Support

Dewesoft has a team of people ready to assist you if you have any questions or any technical difficulties regarding the system. For any support please contact your local distributor first or Dewesoft directly.

Dewesoft d.o.o.
Gabrsko 11a
1420 Trbovlje Slovenia

Europe Tel.: +386 356 25 300

Web: <http://www.dewesoft.com>

The telephone hotline is available Monday to Friday from 07:00 to 16:00 CET (GMT +1:00)

7.3. Service/repair

The team of Dewesoft also performs any kinds of repairs to your system to assure a safe and proper operation in the future. For information regarding service and repairs please contact your local distributor first or Dewesoft directly on <https://dewesoft.com/support/rma-service>.

7.4. Restricted Rights

Use Slovenian law for duplication or disclosure. Dewesoft d.o.o. Gabrsko 11a, 1420 Trbovlje, Slovenia / Europe.

7.5. Printing History

Version 2.0.0, Revision 217 Released 2015 Last changed: 23. July 2018 at 16:54.

7.6. Copyright

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7.7. Trademarks

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8. Safety instructions

Your safety is our primary concern! Please be safe!

8.1. Safety symbols in the manual



Warning

Calls attention to a procedure, practice, or condition that could cause the body injury or death



Caution

Calls attention to a procedure, practice, or condition that could possibly cause damage to equipment or permanent loss of data.

8.2. General Safety Instructions



Warning

The following general safety precautions must be observed during all phases of operation, service, and repair of this product. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the product. Dewesoft d.o.o. assumes no liability for the customer's failure to comply with these requirements.

All accessories shown in this document are available as an option and will not be shipped as standard parts.

8.2.1. Environmental Considerations

Information about the environmental impact of the product.

8.2.2. Product End-of-Life Handling

Observe the following guidelines when recycling a Dewesoft system:

8.2.3. System and Components Recycling

Production of these components required the extraction and use of natural resources. The substances contained in the system could be harmful to your health and to the environment if the system is improperly handled at its end of life! Please recycle this product in an appropriate way to avoid unnecessary pollution of the environment and to keep natural resources.



This symbol indicates that this system complies with the European Union's requirements according to Directive 2002/96/EC on waste electrical and electronic equipment (WEEE). Please find further information about recycling on the Dewesoft web site www.dewesoft.com

Restriction of Hazardous Substances

This product has been classified as Monitoring and Control equipment and is outside the scope of the 2002/95/EC RoHS Directive. However, we take care of our environment and the product is lead-free.

8.2.4. General safety and hazard warnings for all Dewesoft systems

Safety of the operator and the unit depend on following these rules.

- Use this system under the terms of the specifications only to avoid any possible danger.
- Read your manual before operating the system.
- Observe local laws when using the instrument.
- DO NOT touch internal wiring!
- DO NOT use higher supply voltage than specified!
- Use only original plugs and cables for harnessing.
- You may not connect higher voltages than rated to any connectors.
- The power cable and connector serve as Power-Breaker. The cable must not exceed 3 meters, the disconnect function must be possible without tools.
- Maintenance must be executed by qualified staff only.
- During the use of the system, it might be possible to access other parts of a more comprehensive system. Please read and follow the safety instructions provided in the manuals of all other components regarding warning and security advice for using the system.
- With this product, only use the power cable delivered or defined for the host country.
- DO NOT connect or disconnect sensors, probes or test leads, as these parts are connected to a voltage supply unit.
- Ground the equipment: For Safety Class I equipment (equipment having a protective earth terminal), a non-interruptible safety earth ground must be provided from the mains power source to the product input wiring terminals.
- Please note the characteristics and indicators on the system to avoid fire or electric shocks. Before connecting the system, please read the corresponding specifications in the product manual carefully.
- The inputs must not, unless otherwise noted (CATx identification), be connected to the main circuit of category II, III and IV.
- The power cord separates the system from the power supply. Do not block the power cord, since it has to be accessible for the users.
- DO NOT use the system if equipment covers or shields are removed.
- If you assume the system is damaged, get it examined by authorized personnel only.
- Adverse environmental conditions are Moisture or high humidity Dust, flammable gases, fumes or dissolver Thunderstorm or thunderstorm conditions (except assembly PNA) Electrostatic fields, etc.
- The measurement category can be adjusted depending on module configuration.
- Any other use than described above may damage your system and is attended with dangers like short-circuiting, fire or electric shocks.
- The whole system must not be changed, rebuilt or opened.
- DO NOT operate damaged equipment: Whenever it is possible that the safety protection features built into this product have been impaired, either through physical damage, excessive moisture, or any other reason, REMOVE POWER and do not use the product until the safe operation can be verified by service-trained personnel. If necessary, return the product to Dewesoft sales and service office for service and repair to ensure that safety features are maintained.
- If you assume a more riskless use is not provided anymore, the system has to be rendered inoperative and should be protected against inadvertent operation. It is assumed that a more riskless operation is not possible anymore if the system is damaged obviously or causes strange

noises. the system does not work anymore. The system has been exposed to long storage in adverse environments. the system has been exposed to heavy shipment strain.

- Warranty void if damages caused by disregarding this manual. For consequential damages, NO liability will be assumed!
- Warranty void if damage to property or persons caused by improper use or disregarding the safety instructions.
- Unauthorized changing or rebuilding the system is prohibited due to safety and permission reasons (CE).
- Be careful with voltages >25 VAC or >35 VDC! These voltages are already high enough in order to get a perilous electric shock by touching the wiring.
- The product heats during operation. Make sure there is adequate ventilation. Ventilation slots must not be covered!
- Only fuses of the specified type and nominal current may be used. The use of patched fuses is prohibited.
- Prevent using metal bare wires! Risk of short circuit and fire hazard!
- DO NOT use the system before, during or shortly after a thunderstorm (risk of lightning and high energy over-voltage). An advanced range of application under certain conditions is allowed with therefore designed products only. For details please refer to the specifications.
- Make sure that your hands, shoes, clothes, the floor, the system or measuring leads, integrated circuits and so on, are dry.
- DO NOT use the system in rooms with flammable gases, fumes or dust or in adverse environmental conditions.
- Avoid operation in the immediate vicinity of high magnetic or electromagnetic fields, transmitting antennas or high-frequency generators, for exact values please refer to enclosed specifications.
- Use measurement leads or measurement accessories aligned with the specification of the system only. Fire hazard in case of overload!
- Do not switch on the system after transporting it from a cold into a warm room and vice versa. The thereby created condensation may damage your system. Acclimatise the system unpowered to room temperature.
- Do not disassemble the system! There is a high risk of getting a perilous electric shock. Capacitors still might be charged, even if the system has been removed from the power supply.
- The electrical installations and equipment in industrial facilities must be observed by the security regulations and insurance institutions.
- The use of the measuring system in schools and other training facilities must be observed by skilled personnel.
- The measuring systems are not designed for use in humans and animals.
- Please contact a professional if you have doubts about the method of operation, safety or the connection of the system.
- Please be careful with the product. Shocks, hits and dropping it from already- lower level may damage your system.
- Please also consider the detailed technical reference manual as well as the security advice of the connected systems.
- This product has left the factory in safety-related flawlessness and in proper condition. In order to maintain this condition and guarantee safety use, the user has to consider the security advice and warnings in this manual.

EN 61326-3-1:2008

IEC 61326-1 applies to this part of IEC 61326 but is limited to systems and equipment for industrial applications intended to perform safety functions as defined in IEC 61508 with SIL 1-3.

The electromagnetic environments encompassed by this product family standard are industrial, both indoor and outdoor, as described for industrial locations in IEC 61000-6-2 or defined in 3.7 of IEC 61326-1.

Equipment and systems intended for use in other electromagnetic environments, for example, in the process industry or in environments with potentially explosive atmospheres, are excluded from the scope of this product family standard, IEC 61326-3-1.

Devices and systems according to IEC 61508 or IEC 61511 which are considered as “operationally well-tried”, are excluded from the scope of IEC 61326-3-1.

Fire-alarm and safety-alarm systems, intended for the protection of buildings, are excluded from the scope of IEC 61326-3-1

9. Documentation Version

Revision number: 101

Last modified: Tue 23 Dec 2014, 16:45

Doc-Version	Date [dd.mm.yy]	Notes
1.0.0	13.08.12	initial revision
1.0.1	24.09.12	Changed benchmarks because of improvements in GigE Cam driver 1.7
1.0.2	24.09.12	More detailed path in "Support for 64 bit Windows"
1.0.3	04.10.12	Added section 2.2.4 "Connections Overview"
1.0.4	02.11.12	Cable changed from camera to DEWE-43 in section 2.2.4
1.0.5	27.11.12	Changed first FAQ to "GigE checkbox in hardware setup missing / ..."
1.0.6	26.02.13	General update, CAM box pinout, more FAQs, small corrections
1.0.7	02.07.13	Changed name to "DS-CAM-120c"; minor hints and corrections, dimensions added
1.0.8	16.10.13	Added FAQ "GigE plugin is not found in DEWESoft"
1.0.9	26.11.13	Added FAQ "Maximum frame rate @ VGA resolution only 36 fps"
1.1.0	22.12.14	Merge of DS-CAM-88c and DS-CAM-120c into one manual added new benchmarks for DS-CAM-88c
V20-1	05.10.20	New template
V20-2	12.10.20	Added DS-CAM-175c and DS-CAM-320c
V22-1	04.03.22	4.3.2. SIRIUS® connection example - Change power/sync cable to H12f-L1B2m-3m