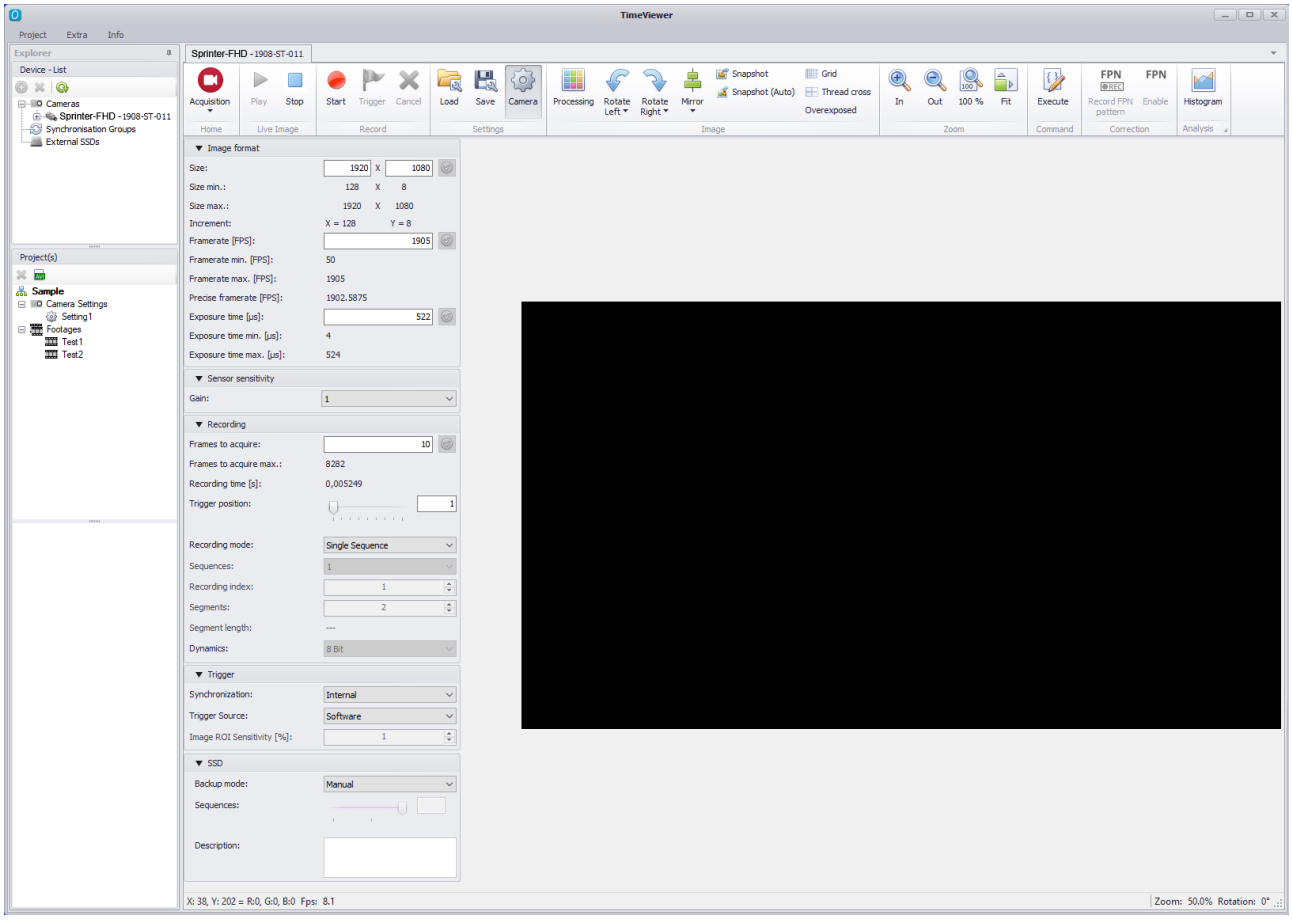
TimeViewer Software

Ver. 1.4.5 and later



User Manual

Ref. 1920-SU-10-F

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Concerning TimeViewer

Use TimeViewer to control high-speed video cameras of CamRecord-CR series, CamRecord-Sprinter series and CamRecord-Runner series from Optronis. TimeViewer allows to capture, analyze and edit video sequences from these cameras. The video content can be saved and/or exported. Operating single or multiple high-speed cameras is possible.

We recommend that you familiarize yourself with the software in advance of your first real use. Create a project, setup live video, capture some content, save and load the project.

System Requirements

TimeViewer is designed to handle a large amount of image data. Low performance systems with minimum memory might be used but are not recommended.

	Minimum	**Recommended**
Processor	Intel® i5	Intel® i7
Operating system	Windows 7/10 (32 Bit)	Windows 7/10 (64 Bit)
RAM	4 GB	8 GB or more
Hard disk	300 MB free disc space for the application and additional space for the sequences	
Graphic adapter	Graphic adapter without shared memory	

Install

The TimeViewer software is delivered on CD or USB stick. The latest version is also available on the download area of our website www.optronis.com.

Install from CD

- Insert the Optronis TimeViewer CD into the CD/DVD Drive. The setup is automatically launched and start the installation of the TimeViewer application. In case the automatically installation process isn't started, open the file location with the Windows Explorer and run the "setup.exe" manually.
- Follow the instruction given by the installation procedure.

Install from USB stick

- Connect the Optronis USB stick to your PC and open the file location with the Windows Explorer. Run the “setup.exe.
- Follow the instruction given by the installation procedure.

Install from the website

- Download the latest TimeViewer version from the download area on our website www.optronis.com.
- Unzip the downloaded file switch to the unzipped folder and run the “setup.exe”.
- Follow the instruction given by the installation procedure.

Uninstall

Use the Windows Uninstall feature. You will find it when you select “Programs” in the Windows start menu. Choose “TimeViewer” from the list and select “Uninstall” in the pop-up menu.

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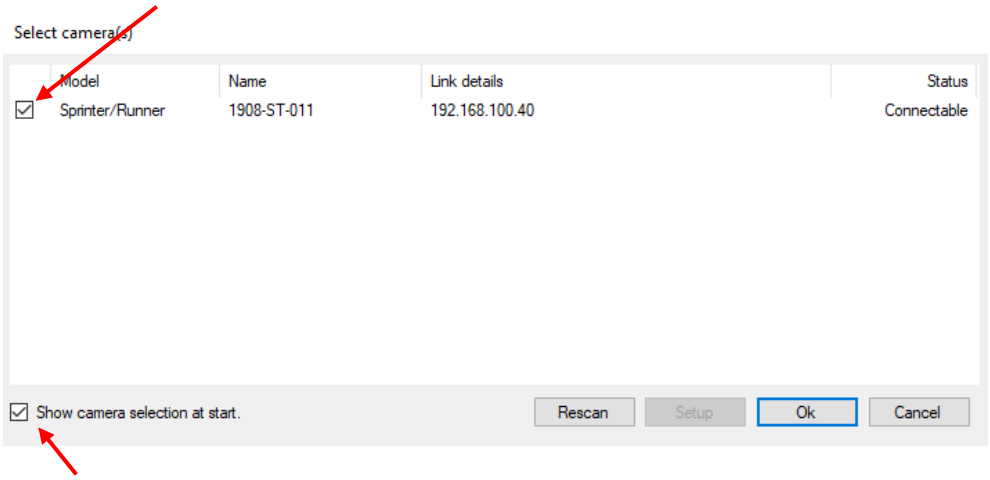
Connect

Physically connect the high-speed video camera according to the manual provided with the camera. Switch on the camera and wait some seconds until the camera booted.

Then start the TimeViewer software.

After starting, the software will search for all cameras on the network. The camera selection window will appear to select one or more cameras found. Please select the camera or cameras you want to work with in your project and press Ok.



Remark:

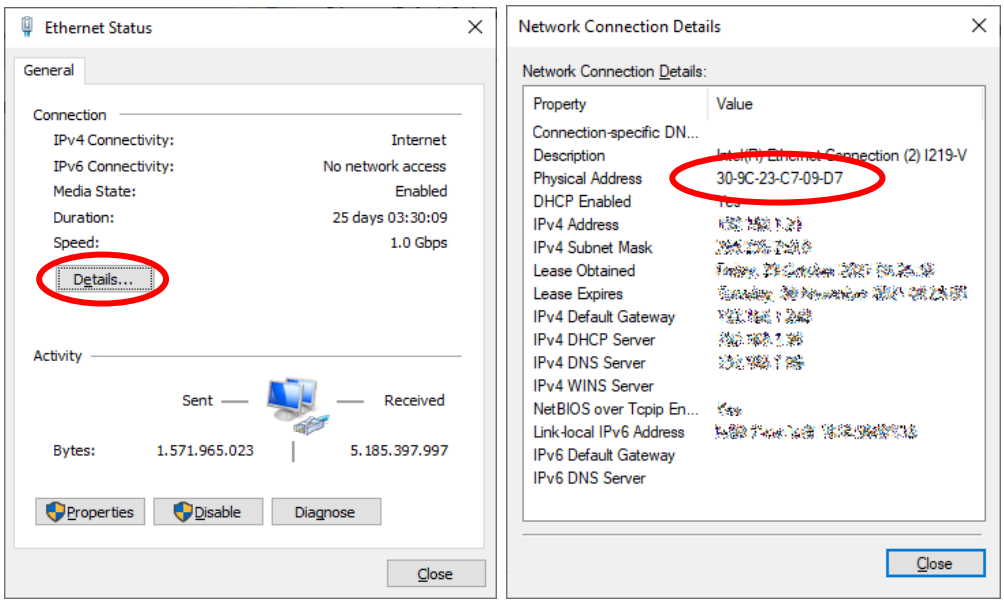
The camera selection window can be deactivated. Nevertheless, the software will use the camera(s) selected previously. In case the camera(s) are not found, the selection window will appear anyway. Alternatively, the window can be activated on the “Extra/Options” menu of the project window.

Connecting to CamRecord-Runner

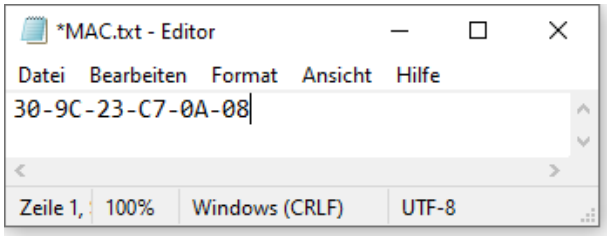
TimeViewer is connecting to CamRecord-Runner systems also by using Ethernet connection. The same requirements as for CamRecord-Sprinter cameras related to the network apply. As long as standard controller for example Controller-RC1 is used, TimeViewer will identify the CamRecord-Runner camera and no particular modifications are needed.

In case a non-standard controller is used, the MAC address (media access control address also called physical address) of the Ethernet interface used on **this** controller needs to be known by TimeViewer.

To find controller MAC address, use Windows setup and go to the adapter settings of the adapter used. Click on “Details” and copy of MAC (physical) address.



Create a text file named “MAC.txt” on the same directory as TimeViewer software. Enter MAC address on the file. Only first 3 bytes are relevant. In this case 30-9C-23. Last 3 bytes can be set to 00-00-00. All CamRecord-Runner cameras with Ethernet adapters having the MAC address starting with these 3 bytes will be found.



This is also needed in case TimeViewer is run on the CamRecord-Runner controller itself. On the standard controllers (example: Controller-RC1) no MAC.txt file is needed.

Troubleshooting connecting the camera

Due to fire wall restrictions sometimes, the camera might not be found. First disable temporarily the fire wall. Then start TimeViewer again. Enable the fire wall.

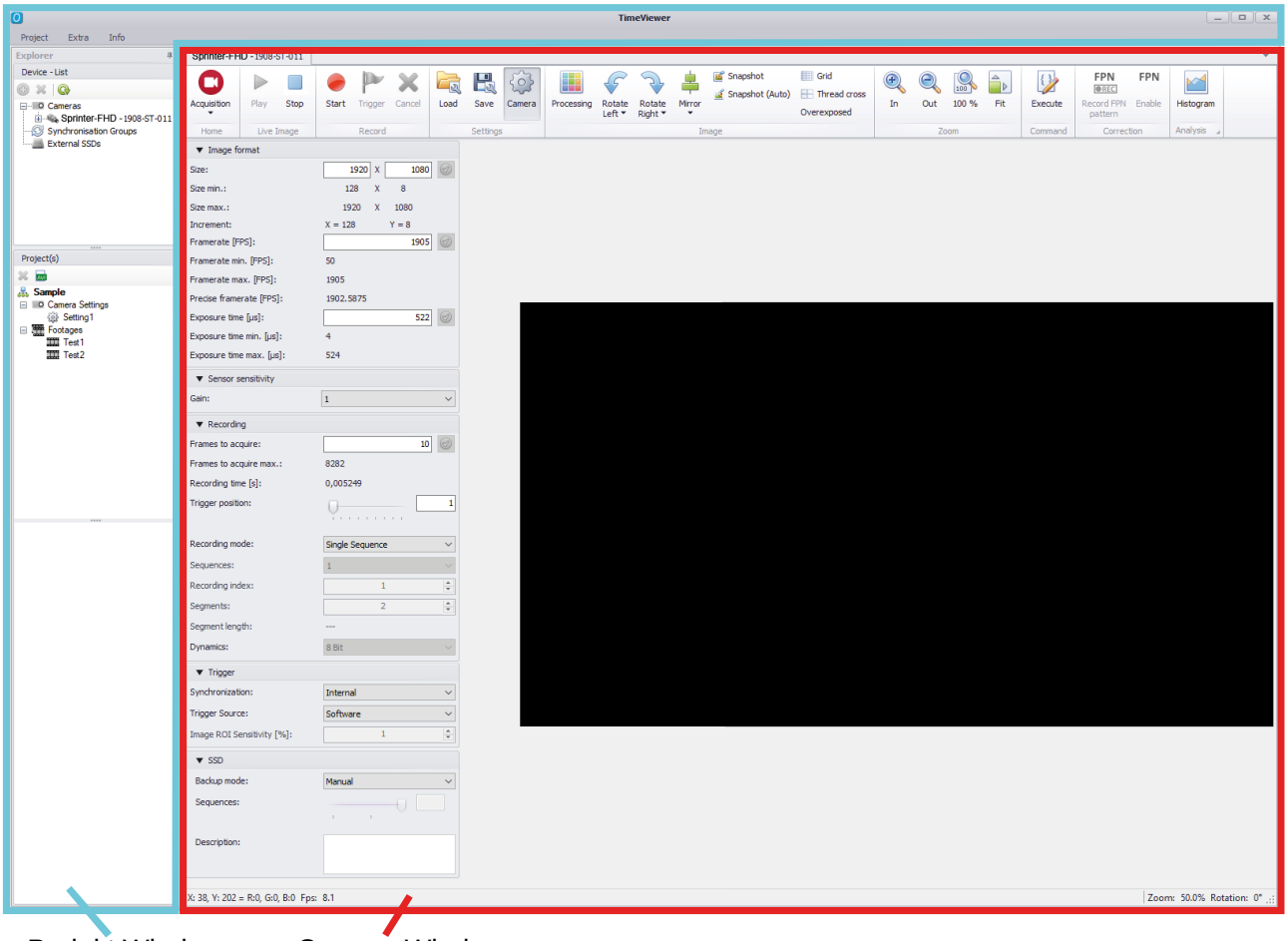
If it is still not possible to find the camera, verify IP address of the computer interface adapter and the IP address of the camera as described in the camera manual. Only for CamRecord-CR series cameras, enter a virtual address in the properties of the TCP/IP-Connection. Restart TimeViewer.

CamRecord-Runner camera found multiple times

In case TimeViewer is started on a particular CamRecord-Runner controller, the same camera might be found multiple times. This might happen if the CamRecord-Runner controller has more than one active Ethernet adapter. Just select the camera found under IP 127.0.0.1.

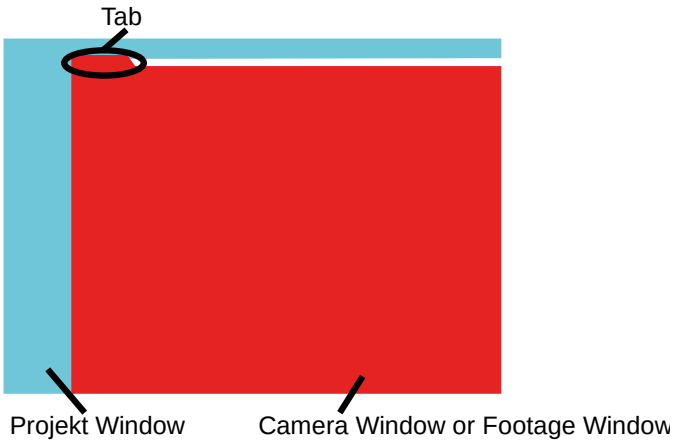
TimeViewer Window

When a camera is connected and identified by TimeViewer software, a project window and a camera window are opened. If the camera isn´t identified, only the project window will be opened.

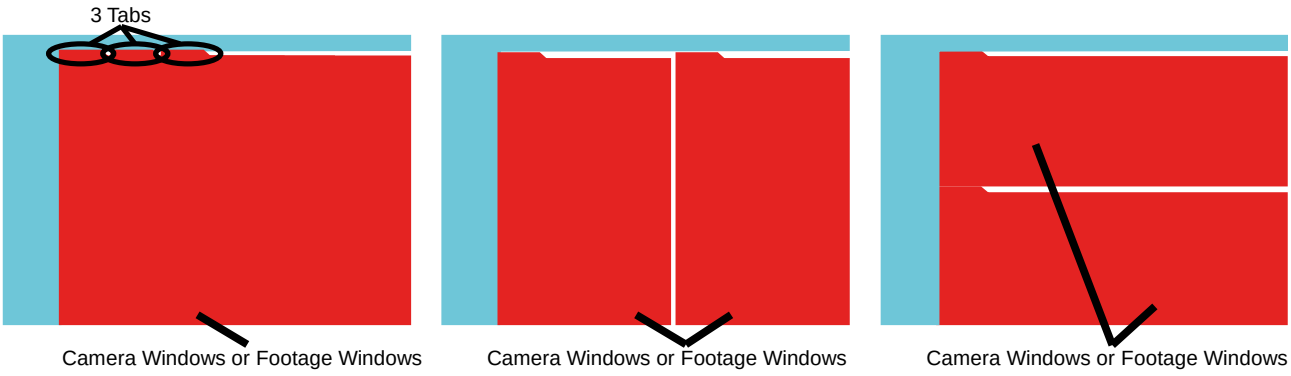


Concept

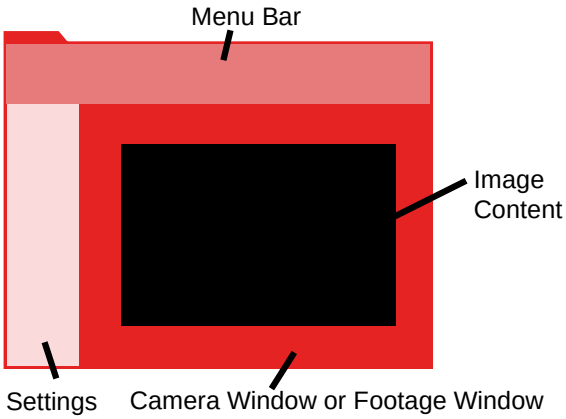
- A **project window** showing list of devices (cameras, SSDs) and sequences (footages) recorded and saved on disk.
- One or more **camera windows** showing setup of cameras as well as content of camera memory.
- One or more **footage window** showing content of video sequence.



Camera and footage windows can be arranged in different ways. Just click on the tab and drag the window.

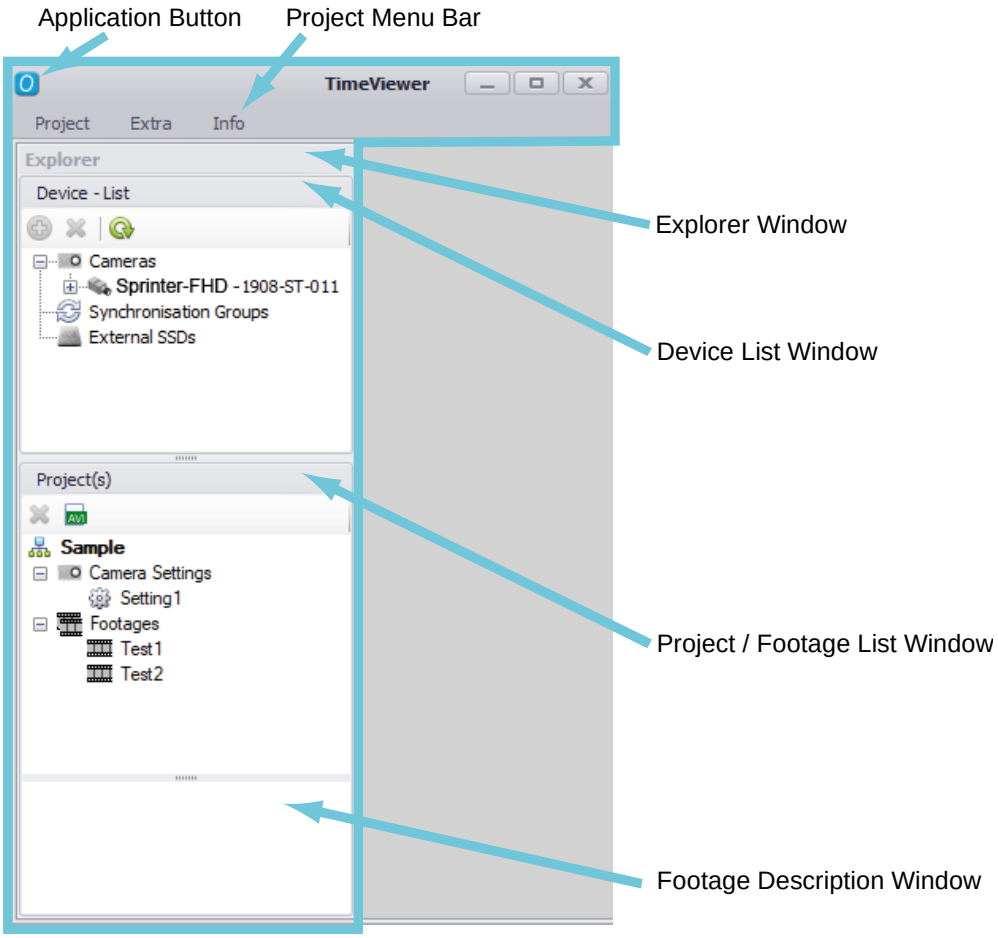


A camera or footage window might have its individual menu bar and settings window. Settings and menu bar are only related to the camera or footage.



Project Window

Projects are characterized by a setting of one or more cameras with their synchronization configuration. Each project can contain one or more sequences (also called footages) captured under this project.

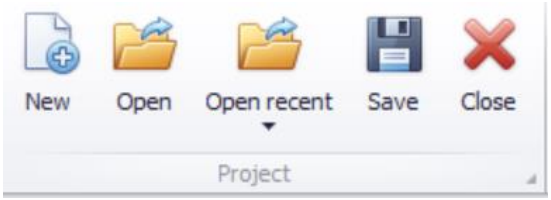


Application Button

Allows to minimize, maximize, change size and close the application.

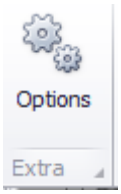
Project Menu Bar

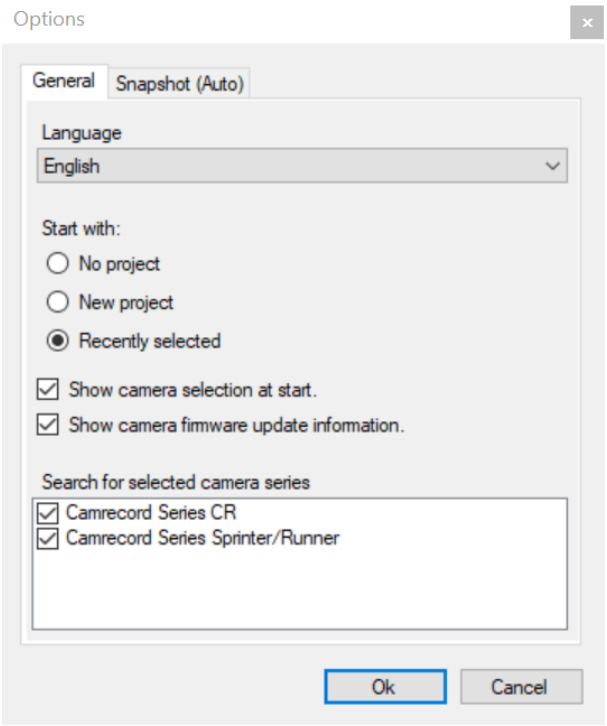
Project Menu

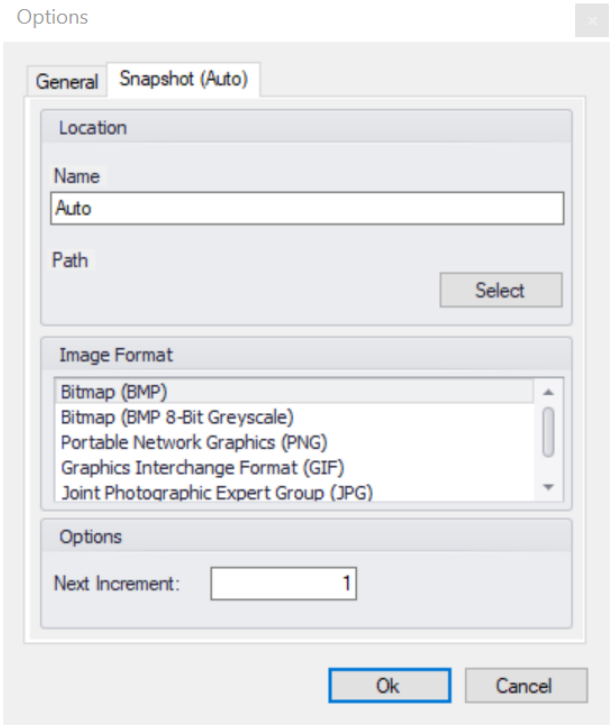


Allows to open a new or existing project, save a project or to close one.

Extra Menu / Options







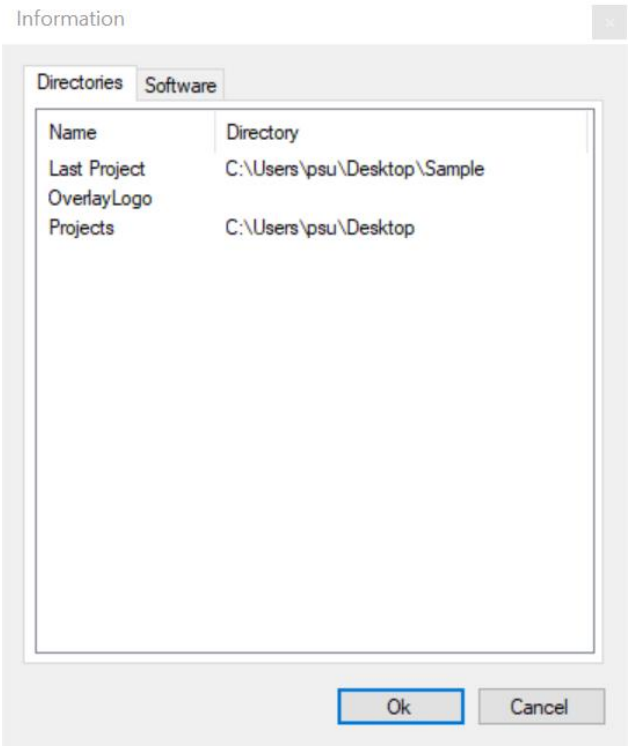
General

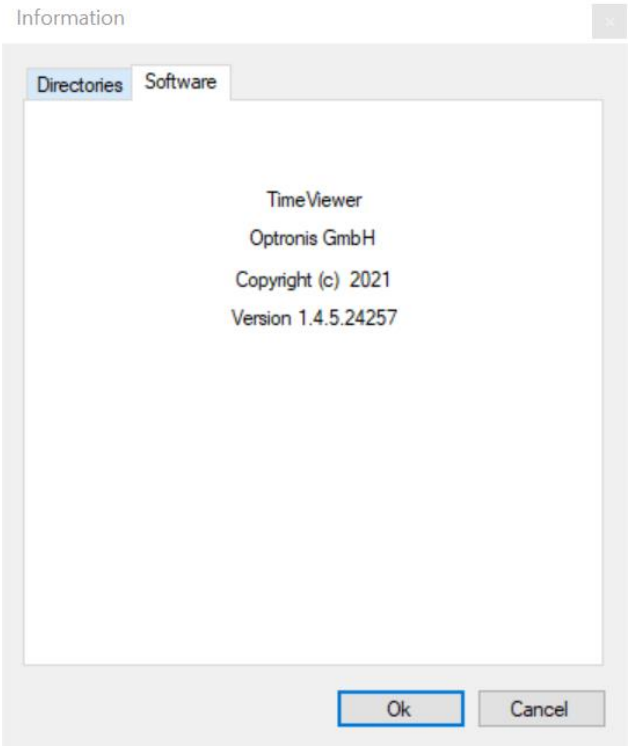
- Select Language (up to now only English is available)
- Start with: Defines how the software will start.
- Show camera selection at start. Allows to activate camera selection window at program start.
- Show camera firmware update information. Allows to hide firmware update information.
- Search for selected camera series. If boxes are not checked, CamRecord-CR series or CamRecord-Sprinter / CamRecord-Runner series cameras will not be considered. We recommend to keep both boxes checked.

Snapshot (Auto)

Defines file name with path, file format and file number increment to save snapshot images in auto mode.

Info Menu / Info





Directories

Directories tab show information where the last project had been saved. Additionally, the last selected directors of a logo that had been put on a footage is shown. When a project is created or opened, the selected directory is shown in this tab.

Software

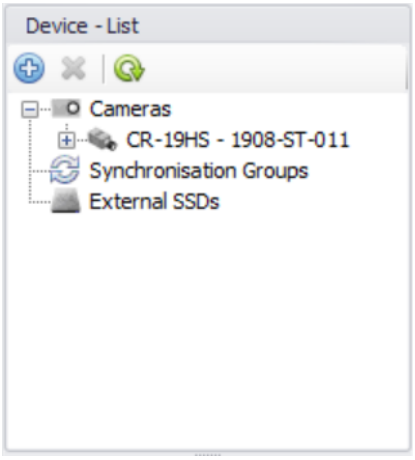
Shows the Software Version of TimeViewer.

Explorer Window

Device List Window

Contains the name and the information about connected devices (cameras), internal storage devices if available (CamRecord-Sprinter series cameras) or external storage devices Solid State Drive (SSD SATA-USB interface).

Double click on the camera will open the corresponding camera window to acquire footages or see camera memory content.



Synchronization Groups

Synchronization groups allow to synchronize the image acquisition as well as image replay of several cameras. Synchronization means that all cameras will capture images at the same rate. Not to be confuse with triggering. Triggering means that the start/stop of a sequence is defined.

The synchronization group is defined by adding cameras to the group. The group consist of one master camera and one or more slave cameras. Synchronization mode of all slave cameras is set to 'External'. Their frame rate cannot be set to any other mode and slave cameras MUST receive an external synchronization signal. Synchronization of the master camera is not restricted to 'External' mode.

Create a synchronization group

Click on the button "Add a new synchronization group" at the toolbar in the "Device List" window or click with the right mouse button on the "Synchronization Groups" element at the tree view and select "Add".

Add cameras to the synchronization group

Select the camera in the "Device List" window by pressing the left mouse button, drag the camera to the group and release the left mouse button.

The first camera which is added to the group is automatically the master camera. The next cameras are slaves. The master and slave status can be changed later.

Change master and slave cameras

To change the master and slave status you must click with the right mouse button on the slave camera to open the context menu and select "Set Master".

Triggering when working with synchronization groups

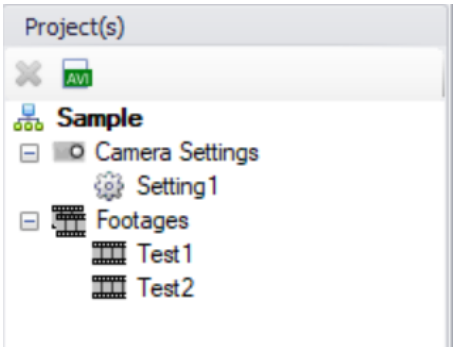
Adding a camera to a synchronization group does not have an impact on triggering. This means that all cameras must be triggered, typically by using a hardware signal. Software triggering (keyboard space bar) or image content triggering might cause a shift of one or more frames between the cameras.

Limitations

The software experience might be impacted by using more than 5 cameras. The acquisition system (PC + network adapter) might also limit your experience by lacking of processing power or network bandwidth.

Project / Footages List Window

Contains the list of projects, camera settings and related footages.



Double click on the footage will open the corresponding footage window to see the content or to process video data.

A footage can be erased by selecting the footage and click on the right mouse button, or clicking on the red cross in top of the list

Exporting to AVI

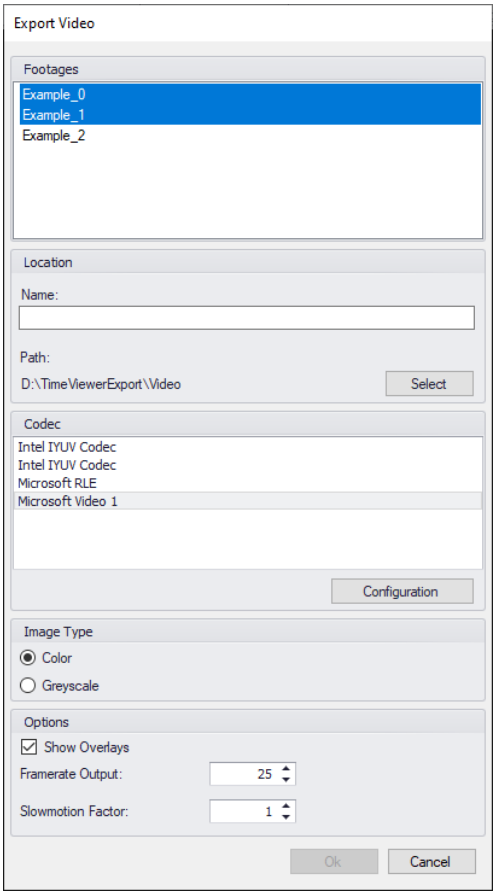
One or more footages can be exported to a standard video format by using the AVI button.

The export window will open and allows to select which footage or which footages will be exported. Each footage will be exported to an individual AVI file. Video codex is the same for all footages.

Frame Rate Output: Defines the frame rate (fps) at which frames on the coded video will be displayed. This is not related to the frame rate during acquisition. Selecting 25 or 24 are typical values.

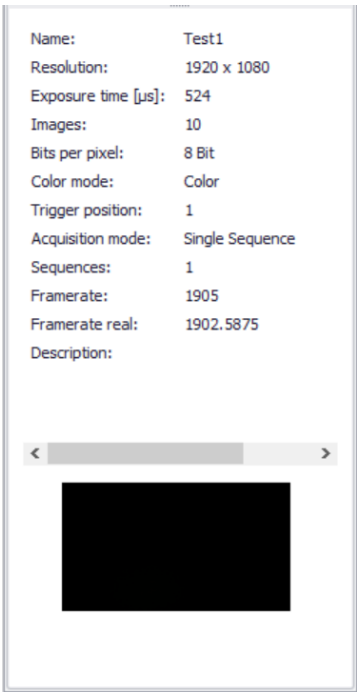
Slow Motion Factor: Defines how much longer the coded video will be compared to the acqusition time.

Exampel: Acquisiton at 500 fps with 1000 frames and slow motion factor set to 1 will generate a 2 sec. video. Only every 10th frame will be displayed. Select factor 20 to see each frame. That video would be 40 sec. long.

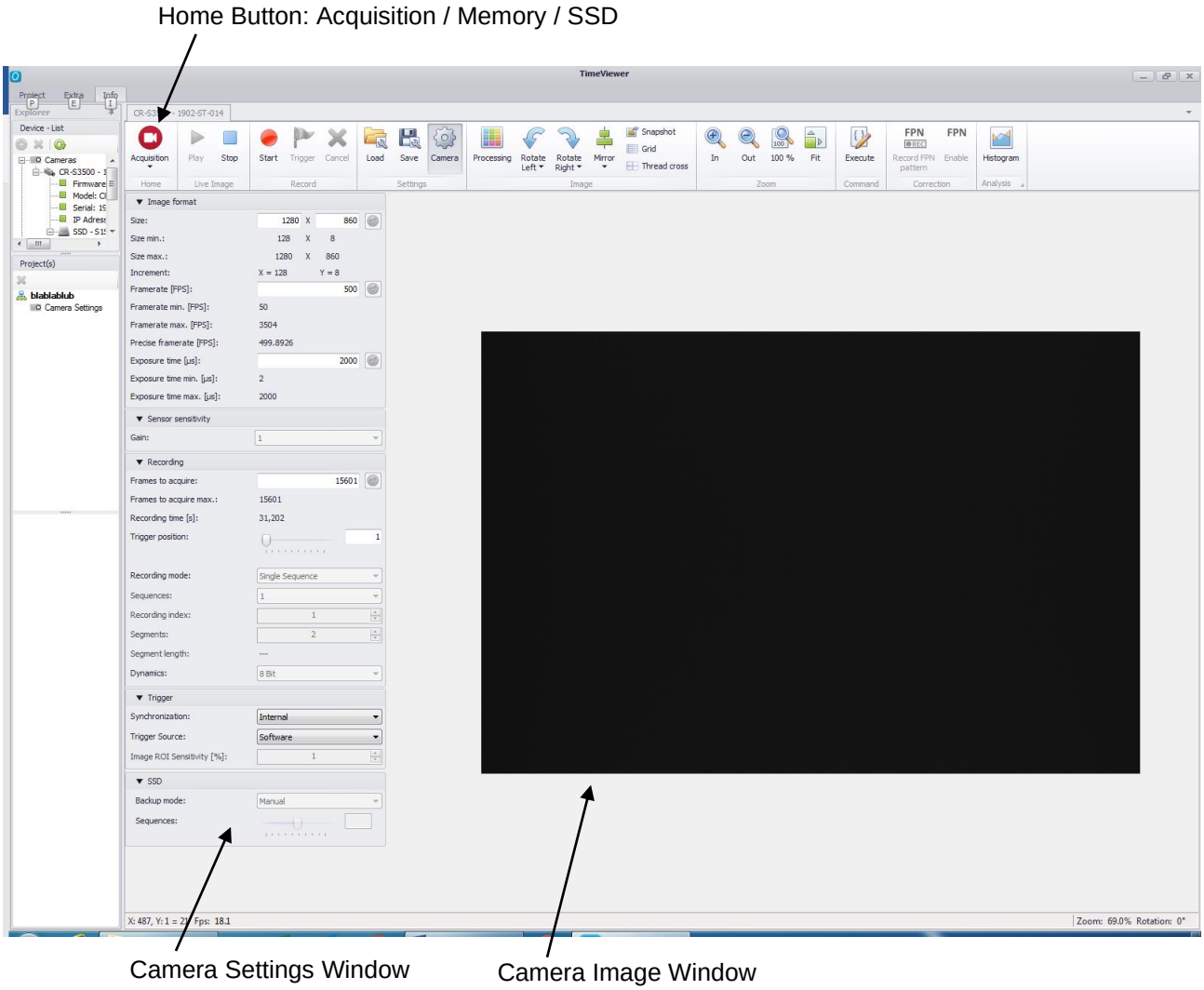


Footage Description Window

Contains the description of the selected footage.



Camera Window



Camera Acquisition Menu

Only available when a device (camera) is connected.

Home Button

Moves between acquisition and playback from camera memory or SSD if available. Depending on the selection, the camera menu bar shows different tools.

- Acquisition

Shows the acquisition menu and allows to create footages.

- Memory

When a footage is stored inside the camera memory, the camera memory menu is shown and allows to play the footage and save the footage to disk.

- SSD

When the camera is equipped by a SSD Drive (CamRecord-Sprinter series) the camera SSD menu is shown and allows to play footages from SSD.

Live Image Play / Stop

Starts / Stops the live image from the camera.

When several cameras are connected and to minimize processor load, the live view of the cameras may be stopped. Live images consume PC processor power. When processing power is needed for other tasks, please stop Live Image.

Initialize Recording

By clicking this button, the system starts streaming video data into camera memory and deleting recent memory content. Before triggering is possible, initialization process needs to be completed and memory needs to be filled if post-trigger is set. Once “Waiting for Trigger” is shown, trigger is accepted and recording can be started.

Performing a new recording may overwrite older recordings that remain in the video memory of the camera. “o.k.” will overwrite the older recording.

Trigger Recording

By clicking this button, the video data is recorded in the memory of the camera. Alternatively, you can hit the Spacebar on the keyboard. The recording runs until the allocated memory space is used up. The allocated memory space depends on the entries made in the tab “Camera Settings”.

Cancel Recording

Stops the recording at once and clears the camera memory.

Load / Save Settings

Allows to Save and Load camera settings. To Save camera settings, a project has to be generated first.

Camera Settings

Opens / closes the camera settings menu. See *Camera Settings Window* for details.

Processing Image

This opens a menu where the different settings of the displayed camera image are shown and edited. The displayed picture is actualized accordingly. Some settings may or may not be available depending of the camera.

The Processing menu is subdivided in the submenus “Standard” and “Color”.

To expand or deflate the submenus click on the submenu header.

Brightness

The general brightness of the image is set here. The setting span starts at -100 and ends at +100. The setting is changed via the slide bar. The default setting is 0. The set value acts as factor.

Gamma

The luminance of the displayed image is set here. The setting span starts at 0.10 and ends at 5.00. The setting is changed via the slide bar. The default setting is 1.00.

Gamma is the short form of a manipulation algorithm to adapt the image to the visual properties of the human eye. A physical linear rise of brightness is not perceived as such by the human eye. This is compensated by the Gamma function. A gamma greater 1 spreads bright values and compresses dark ones, a gamma less than 1 compresses bright values and spreads dark ones.

Contrast

The contrast of the displayed image is set here. The setting span starts at 0 and ends at +/-100. The setting is changed via the slide bar. The default setting is 0.

False Color (only for monochrome cameras)

Only for monochrome cameras: Please select a false color palette to show the image in false color and to enhance the contrast of the image.

Red / Green / Blue (only for color cameras)

The brightness for the red / green / blue part of the image is set here. The setting span starts at 0.10 and ends at 3.00. The setting is changed via the slide bar. The default setting is 1.00. The set value acts as factor.

Hue (only for color cameras)

Changes hue of the color image. Span is from -255 to 255. Default setting is 0.

Saturation (only for color cameras)

Changes saturation of the color image. Span is from -255 to 255. Default setting is 0.

White balance (only for color cameras)

Executing this function will generate a new set of weighting factors for RGB color pixel. They are set in order to obtain a white image. Therefore a white object has to be imaged on the complete screen at the moment the function is initiated. See manual of the particular camera for more details.

Rotate / Mirror Image

Processing algorithms to rotate the image.

Mirror Image

Processing algorithms to obtain a mirrored image.

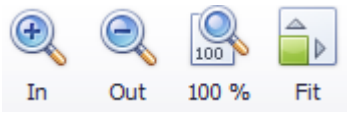
Snapshot Image

Takes a single shot of the sequence

Grid / Thread Cross

Adds a special Grid to the image

Zoom In / Out / 100%



Sets the size of the image window.

Execute Command

Opens a window to directly type commands send to the camera. This is intended to be used by system developers.

FPN Correction

Compensates for Fixed Pattern Noise (FPN).

FPN Rec.

To record FPN pattern as reference, a dark imge is needed. Close the lens in front of the camera with a lens cap, stop the live image and then select “Record FPN pattern”.

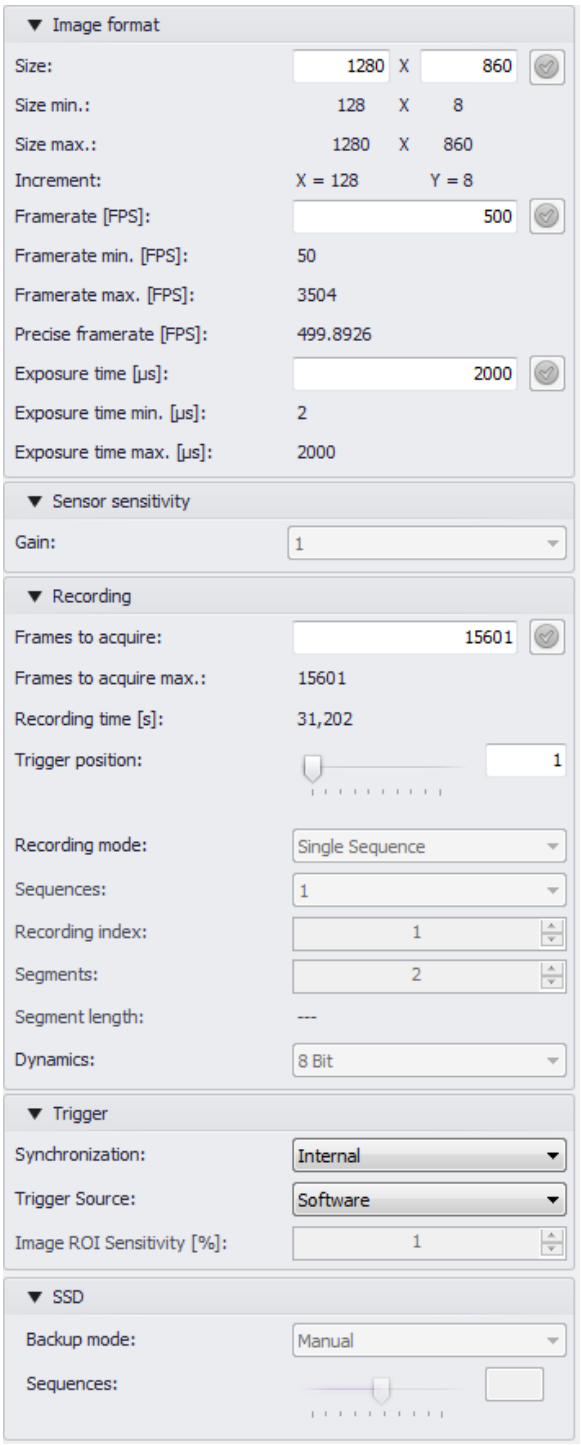
FPN Enable

After recording of the FPN, the FPN correction may be enabled or disabled.

Histogram

Shows a histogram of the image.

Camera Settings Window



Size

Choose size (frame format) of the camera image. The size has to be set inside “Size min.” and “Size max”.

Frame Rate

Choose frame rate of the camera. The frame rate has to be set inside “Framerate min.” and “Framerate max”.

Exposure time

Choose exposure time of the images. The exposure time has to be set inside “Exposure time min.” and “Exposure time max”. Exposure time and frame rate cannot be set independently.

The exposure time has to be set in Microseconds. 1 Microsecond is 1/1 000 000 seconds.

Gain

Gain is the ratio between input and output signal of the camera sensor. A higher gain will increase the sensitivity of the camera but will cause more noise in the image.

Remark: For cameras providing different gain slopes for improved dynamic range, a sub-menu will be shown.

Frames to acquire

Defines the allocated camera memory. The allocated camera memory is adjustable in steps of single frames.

Recording Time

The resulting record duration based on the allocated camera memory and the frame rate is shown here.

Trigger Position (Number of frames)

Defines the number of frames saved before or simultaneously with the detection of the trigger moment.

Trigger position set to 1 → First image of the footage corresponds to the moment of triggering.

Trigger position set to N → Image N corresponds to the moment of triggering.

Once the recording button is pressed, the camera continuously records images into the video ring memory. Old images are overwritten with newer ones. By setting the trigger position, you can define how many

frames before the triggering are kept in the memory. When Number of “Frames to acquire” is set to e.g. 1000 and “Trigger position” to e.g. 100, then 99 frames are stored before detecting the trigger signal and 901 frames with and after the trigger signal.

Recording Mode

You can allocate the available camera memory in different ways:

Single sequence:

All available camera memory is allocated to one recording.

Multi sequence (only CamRecord-CR series):

The camera memory is divided in up to 16 parts. Before the recording of the next sequence select it via Selected Sequence. The recording then starts with triggering resp. retriggering.

In Multi Sequence acquisition mode each recording is absolutely independent and must be saved independently.

Sequences

Only active with the acquisition mode “Multi sequence” provided by CamRecord-CR series cameras. Enter the number of sequences. You can enter from 2 to 16 sequences.

Recording Index

Select the active segment either for recording or display in the memory section.

Dynamics

This setting allows to set dynamics of the image depending on the camera model. Image quality of CamRecord-Sprinter camera is limited to 8 bits.

Synchronization

Choose an internal or an external synchronization.

Internal Synchronization uses the camera internal time base to generate

the required frame rate. If the frame rate has to be synchronized to an external source, use external synchronization. For external synchronization an external TTL signal has to be applied to the “External Sync.” Pin of the camera. Please refer to the camera user manual for more information about external synchronization.

Trigger Source

The default trigger is via the software by clicking on the space bar of the keyboard. When a separate trigger device is used change the trigger source setting accordingly. Trigger can be active by software, by hardware switch and by TTL signal.

Software

Please use the “space-bar” of the keyboard or the “trigger” button  in the device window. This is still active even in case another trigger source is selected.

External TTL Rising Edge

Please connect a TTL signal source (low impedance <100 Ω) to the external trigger input of the camera. Trigger will be performed on rising edge of the TTL signal.

External Falling Edge (Trigger on Switch):

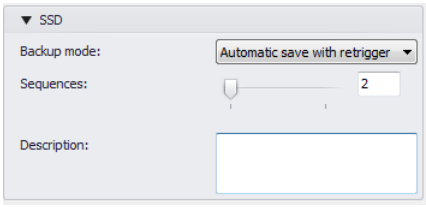
Please connect a passive switch to ground level to the external trigger input of the camera or connect an active TTL signal source (low impedance <100 Ω). Trigger will be performed on closing contact of the switch or on falling edge of the TTL signal.

Image ROI

Selecting this trigger source will cause the live image to become green. Press “Ctrl” key and draw a rectangular area on the part of the image where any change of image intensity should generate a trigger event. Image ROI Sensitivity [%] additionally allows to select how sensitive the intensity change should be.

Backup mode (CamRecord-Sprinter only)

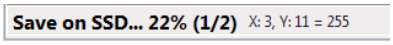
Backup consists in saving a video sequence from camera volatile RAM memory to camera SSD non-volatile memory.



There are three backup modes:

- Manual: Sequence can be saved manually by clicking on “Save SSD” button in “Camera Memory” window.
- Automatic save: After recording the sequence is automatically saved on the SSD.
- Automatic save with retrigger: **N** sequences can be recorded with the same settings. After recording, the sequence it’s automatically saved on the SSD and the camera goes back in the state “Waiting for trigger”. The number of sequences can be adjusted with the slider control “Sequences”.

When using one of the automatic modes, SSD backup progression is shown in status bar:



Sequences:

It is the number **N** of sequences to record when using backup mode “Automatic save with retrigger“. The maximum number of sequences depends on the frame size, number of frames and the free space on the SSD. Only available with cameras supporting “Multi sequence” acquisition.

Description:

Optional user text description of the sequence with maximum 128 characters saved in SSD sequence header.

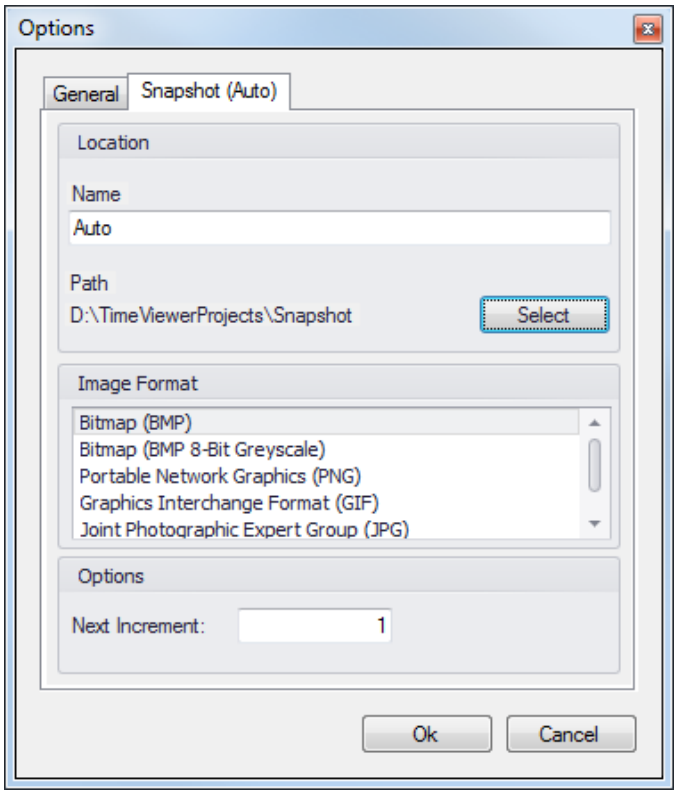
This text description is shown in the “Camera SSD – View”.

Snapshot (Auto)

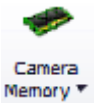
With this snapshot function is it possible to make a single snapshot with predefined settings. The snapshot is saved with an automatically incremented index.

If the current camera is part of a synchronization group all group members create a snapshot.

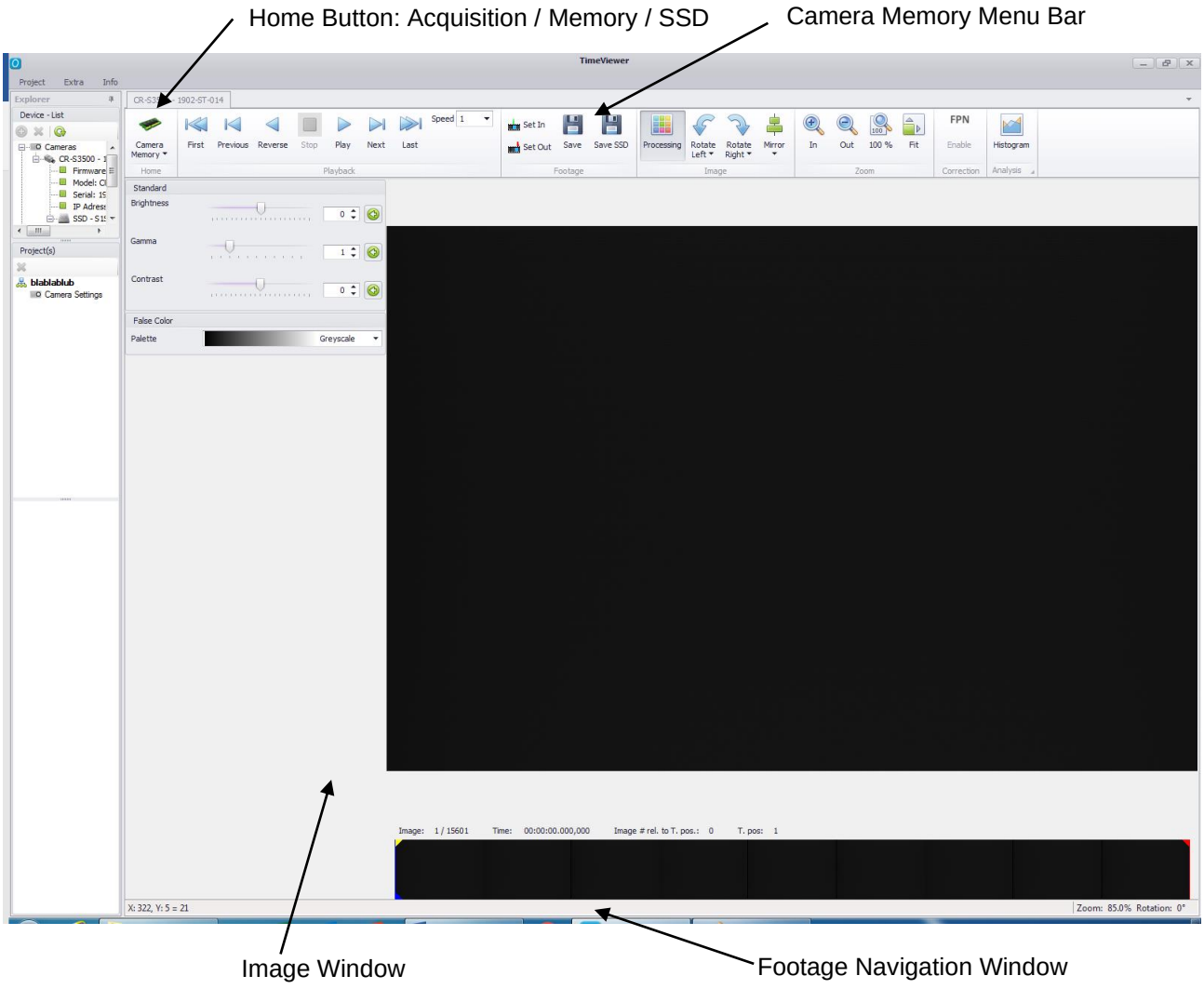
In the "Options" dialog you can set the name, folder, image format and the next increment of the next snapshot.


Options
General
Snapshot (Auto)
Location
Name
Auto
Path
D:\TimeViewerProjects\Snapshot
Select
Image Format
Bitmap (BMP)
Bitmap (BMP 8-Bit Greyscale)
Portable Network Graphics (PNG)
Graphics Interchange Format (GIF)
Joint Photographic Expert Group (JPG)
Options
Next Increment:
1
Ok
Cancel

Camera Memory Window



Please select the camera memory menu by the “Home Button” in the Camera Menu Bar. Please note, that the camera memory window is only available when a footage is stored inside the camera memory.



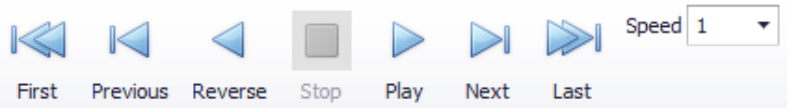
Footage Navigation Window

Allows to navigate inside the footage. Please select the blue marker with the mouse button to move inside the footage. Please select the green (in) at the left side of the footage navigation window and red marker (out) at the right side of the footage navigation window to cut the image sequence.

Camera Memory Menu Bar

Functions available on this menu are described in case they are not previously described on the *Camera Acquisition Menu*.

Playback buttons



The playback buttons allow to navigate forward and backward inside the footage. Please use also the Footage Navigation window to navigate inside the footage.

“Speed” allows to reduce / increase the playback speed.

Set In / Set Out

To save only a part of the footage, the footage can be cut by “Set In” and “Set Out”.

To set the “Set in” marker please move the blue marker inside the footage window to the “Set in” (Footage starting point) position and click on “Set in”. A green marker appears.

To set the “Set out” marker please move the blue marker inside the footage window to the “Set out” (Footage end point) position and click on “Set out”. A red marker appears.

Save Footage

To save the footage from camera memory to PC, a project has to be created first.

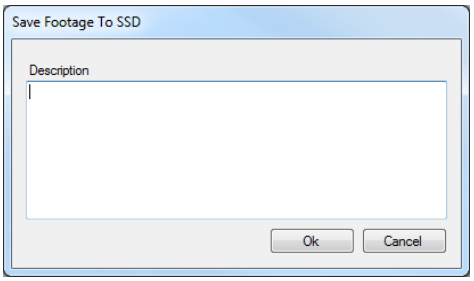
“Save footage” stores the whole camera memory to PC or if defined by “Set In” and “Set out” only part of the footage.

Save SSD

To save the footage from camera memory to SSD

“Save SSD footage” stores the whole camera memory to SSD or if defined by “Set In” and “Set out” only part of the footage.

After clicking on “Save SSD” button, a dialog windows will be opened:



In this dialog the description for the sequence can be set (Maximum 128 characters). The description is shown in the “Camera SSD – View”.

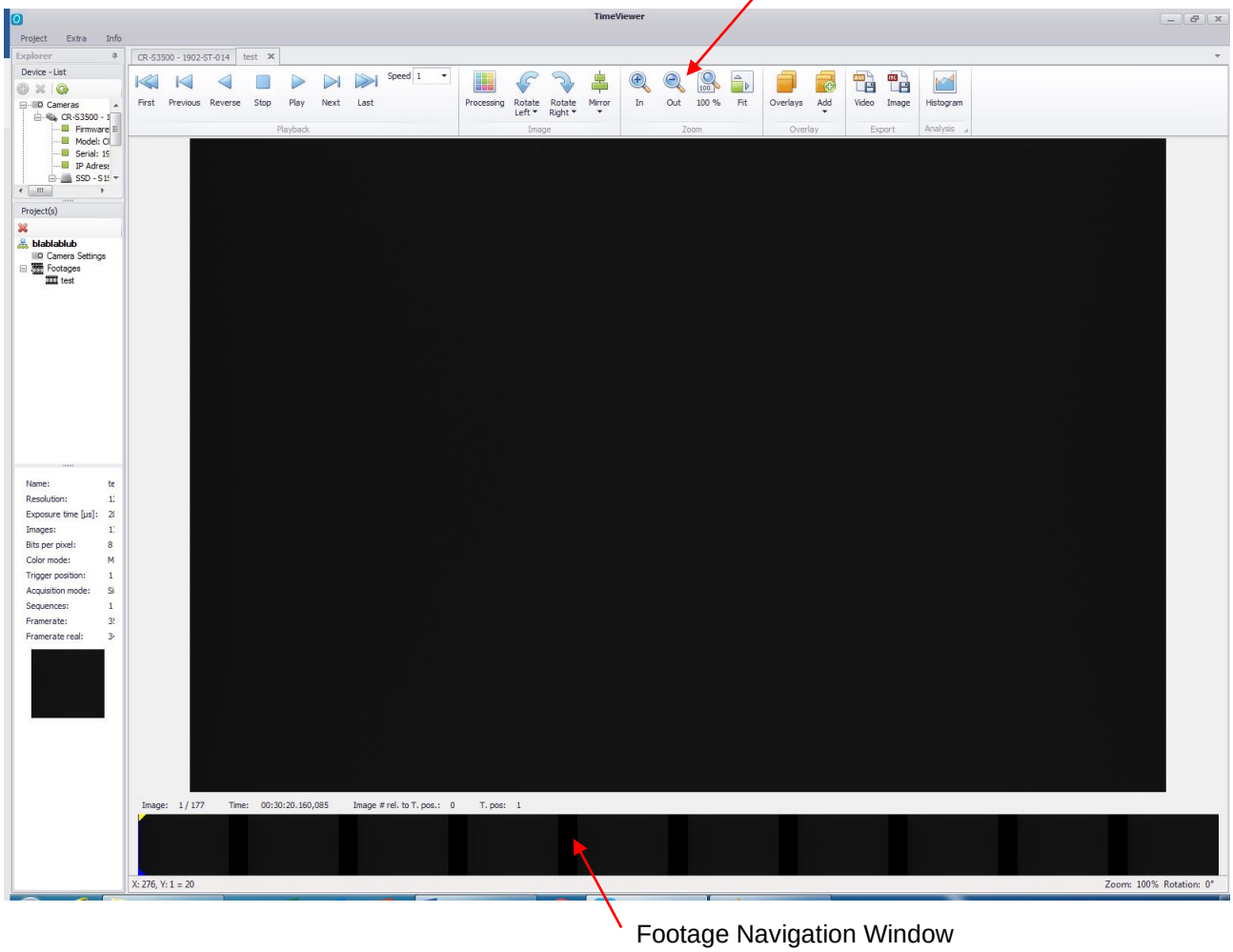
You can let this window empty.

Press “Ok” to start SSD sequence backup.

Press “Cancel” to abort backup process.

Footage Window

Footage window shows footages previously saved on disk and loaded again.



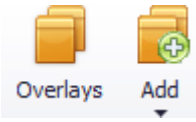
Footage Navigation Window

Allows to navigate inside the footage. Please select with the left mouse button the blue marker inside the Navigation window.

Footage Menu Bar

Functions available on this menu are described in case they are not previously described on the *Camera Acquisition Menu* or *Camera Memory Menu*.

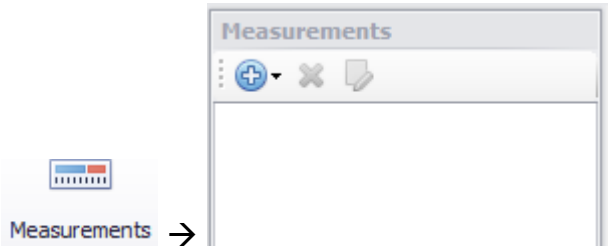
Overlay

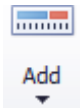
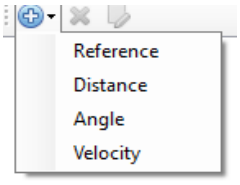


Allows to add and organize overlays. Overlay allows to add text, a logo or image information to the footage. Overlays may be moved inside the image by selecting the appropriate overlay by “Select” or by selecting the overlay inside the image.

Measurement

Allows to add and organize measurements like distance, angle and velocity. Activate “Measurements” on the menu bar to access to these menus.



Press  or  

and select reference, distance angle or velocity measurement followed by clicking on the image.

Measurement objects are separated from tracking objects. Both can be used in parallel but require separate definitions including separate reference definitions.

Reference

Reference object is used to relate physical distance to pixel numbers. Two points need to be positioned on the image in order to define their distance in meter (or similar dimension). So the image should contain an object with known dimension. When the reference object is activated on the menu, details, particularly its physical distance and dimension of this object can be modified with  .

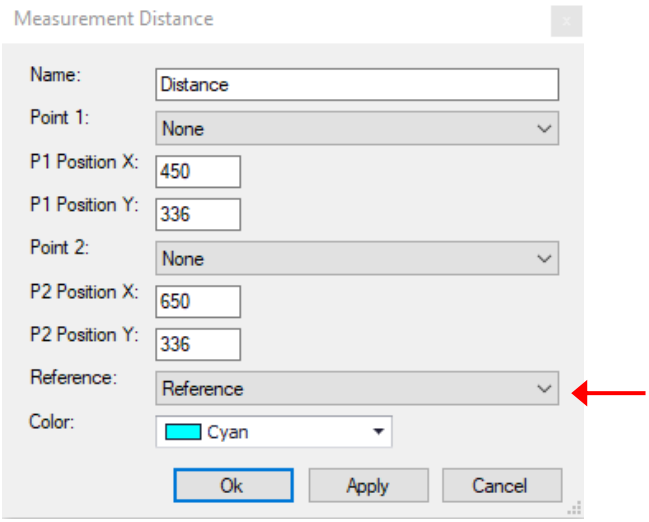
Pixels are considered to be quadratic with the same dimension in horizontal and vertical direction.

Please add first a reference line to define “real world” dimensions before adding distance or velocity.

Distance

Select “Distance” and click on the image.

1. Drag start and end points on the objects you want to measure their distance.
2. Click on 
   Select the reference object in order to obtain distance not in pixles.
   Reference object needs to be defined prior to allow access.

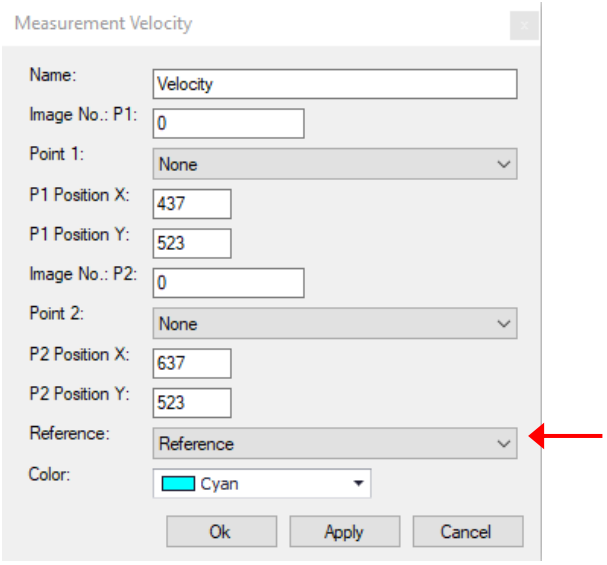


Velocity

Select “Velocity” and click on the image.

1. Select the frame where you want to measure start of the movement and drag the first point of the velocity line on the reference position of the moving object.
2. Select the frame where you want to end velocity measurement and drag the end point of the velocity line on the same reference position of the moving object.

3. Click on
   Select the reference object to in order to obtain velocity information in physical dimensions maybe m/s.



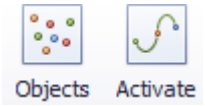
Velocity calculates the speed from distance between two different points divided by the time derived from number of frames and frame rate.

Angle

Select “Angle” and click on the image.

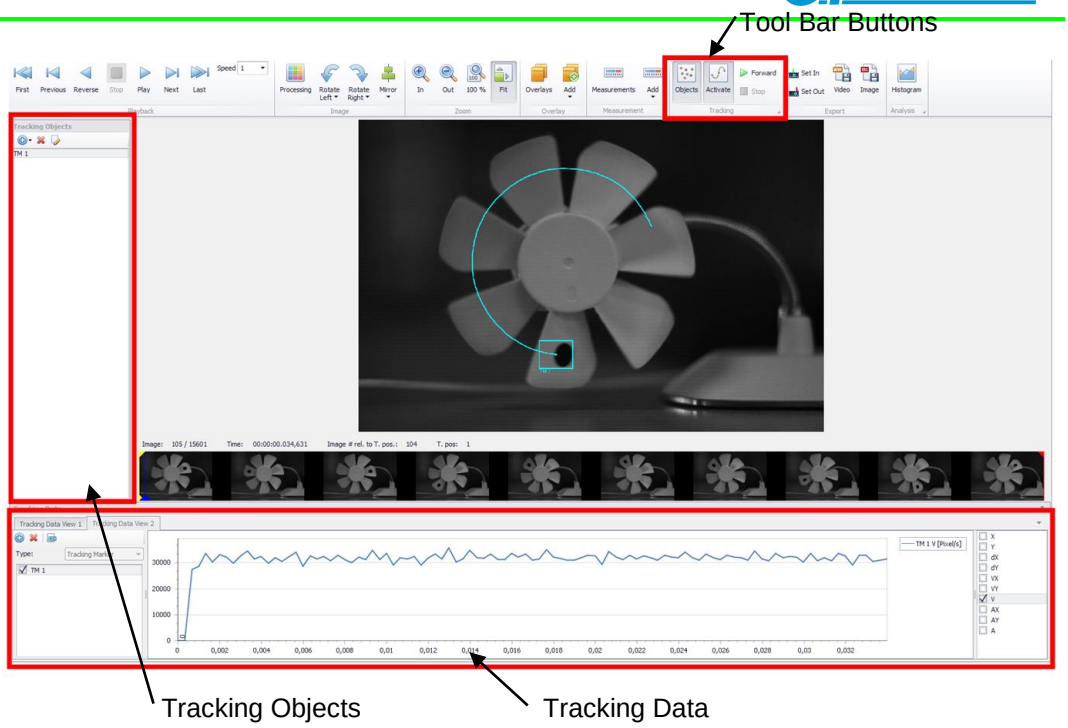
1. Drag the points on the object positions needed to measure angle. These positions might be on different frames.

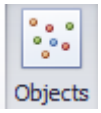
Tracking



TimeViewer supports the tracking of several objects in a single footage. Tracking from camera memory or directly during acquisition as well as tracking for a group of footages, recorded with a synchronization group is not possible.

To control or setup the tracking there are “Tool Bar Buttons”, “Tracking Objects” and “Tracking Data” windows.



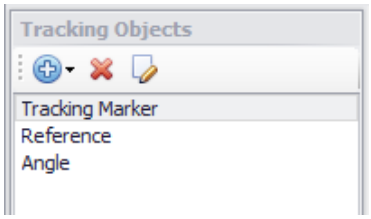


The tool bar button “Objects” shows the tracking objects window. It allows to add, delete and edit the tracking objects.

Window “Tracking Objects”

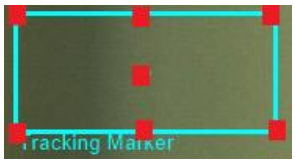
The window shows tracking objects. These objects can be added , deleted and edited .

First, a reference line has to be defined to get “real world” dimensions for marker position, velocity or acceleration. Click on , select “Reference” and then click on the image to place the reference line.



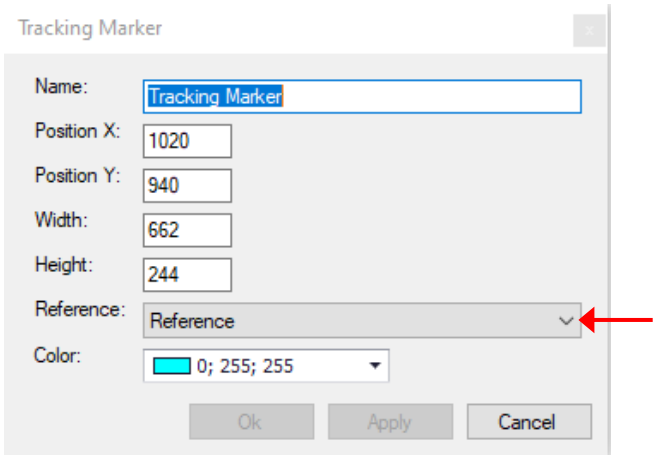
Tracking Marker

The tracking marker is a window containing the object that should be tracked. To add a tracking marker, click on , select “Tracking Marker” and then click on the image to place the tracking marker. A rectangular area will appear.



Position the tracking marker on the object you want to drag. The area inside the window is analyzed and the position will follow the movement of the object.

Use edit to change tracking marker name or color. Activate reference to get data with physical dimensions.

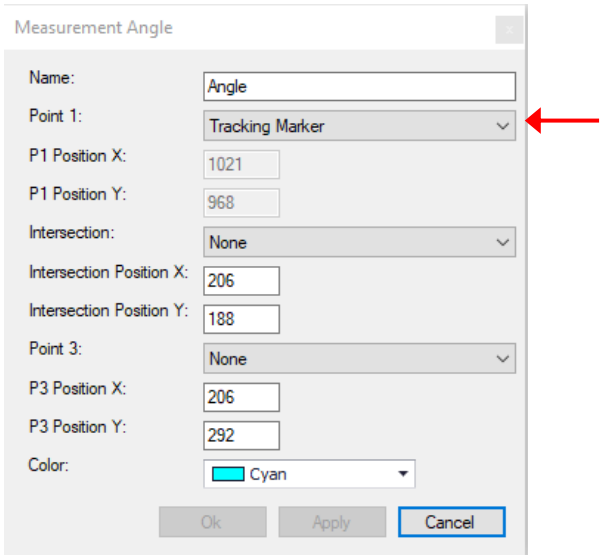


Angle

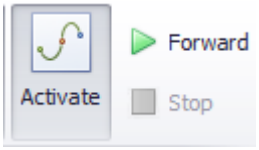
The angle object is defined by three points and shows the angle between these points.

To add an angle measurement, click on , select “Angle” and then click on the image to place the object.

Use edit to change angle name or color. Any point defining the angle might be set to a tracking marker.



Window “Tracking Activate”



The tool bar button “Activate” opens the tracking data window to visualize the tracking data at the bottom of the footage window. It also activates the buttons “Forward” and “Stop” in the toolbar.

Click to “Forward” to start tracking with the current image. Previous data will be deleted after each start.

To stop the tracking manually click on the tool bar button “Stop” in the section “Tracking”. The tracking is automatically stopped at the end of the footage or if the Set Out marker is reached.

In case the object on the tracking marker window is no longer detected, the window remains close to the last position. If the object or a similar object is again detected on the tracking window, tracking continues.

Tracking marker or angels might be added later, but require to restart tracking.

Window “Tracking Data”

This window shows the tracking data in “Tracking Data Views”. It’s possible to add additional data views and export the data to a CSV file.

The “Tracking Data View” is divided in three parts.

1.: In the first part on the left you can select the tracking object type “Tracking Marker” or “Angle” and the tracking objects.

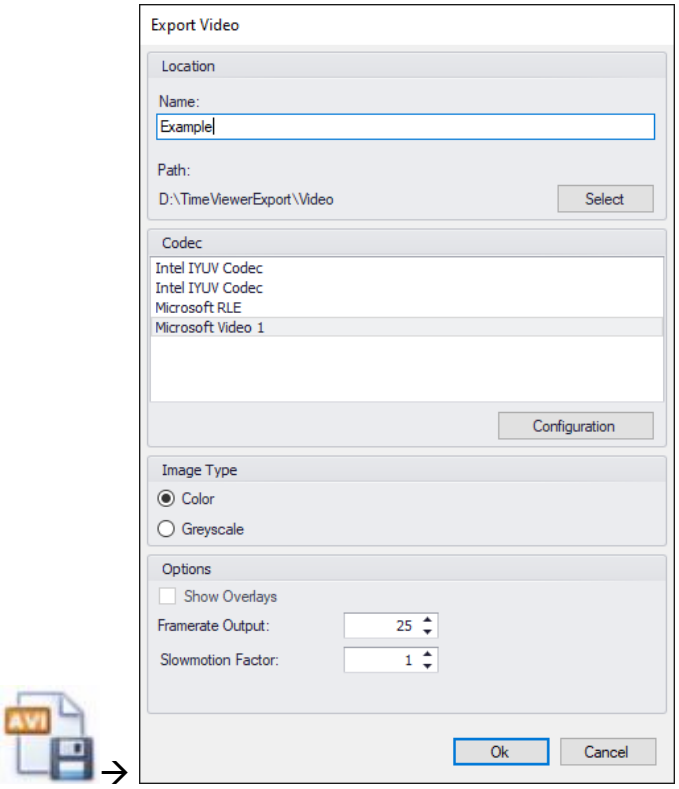
2.: The second part shows the data in a graph.

3.: In the third part on the right you can select the positions, velocity or acceleration of tracking markers. For angles “Angle” must be selected to show any data.

Export Video

Allows to export a single footages as AVI Video. To generate multipe AVI from multiple footages, use AVI button on the project / footages window.

Please use “Set In” and “Set out” buttons to export only the section between these marks.



Define file name and path. Codecs need to be installed on the PC.

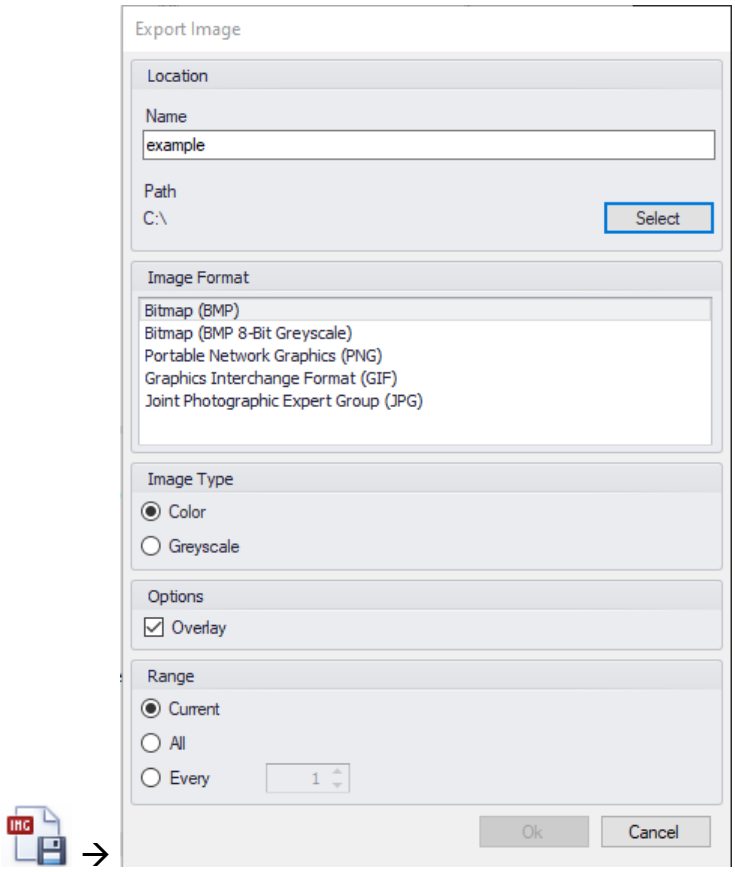
Frame Rate Output: Defines the frame rate (fps) at which frames on the coded video will be displayed. This is not related to the frame rate during acquisition. Selecting 25 or 24 are typical values.

Slow Motion Factor: Defines how much longer the coded video will be compared to the acqusition time.

Exampel: Acquisiton at 500 fps with 1000 frames will capture a sequence during for 2 sec. Slow motion factor set to 1 will generate a 2 sec. video. Only every 10th frame will be displayed. Select factor 20 to see each frame. That video would be 40 sec. long.

Export Image

Allows to export footages as image sequence of single images.



Define file name, path and image format. To generate an image of the current frame, select Range/Current. Selecting Range/All will generate individual images of each frame of this footage. With Range/Every it is possible to generate images of every N^{th} frame of the footage

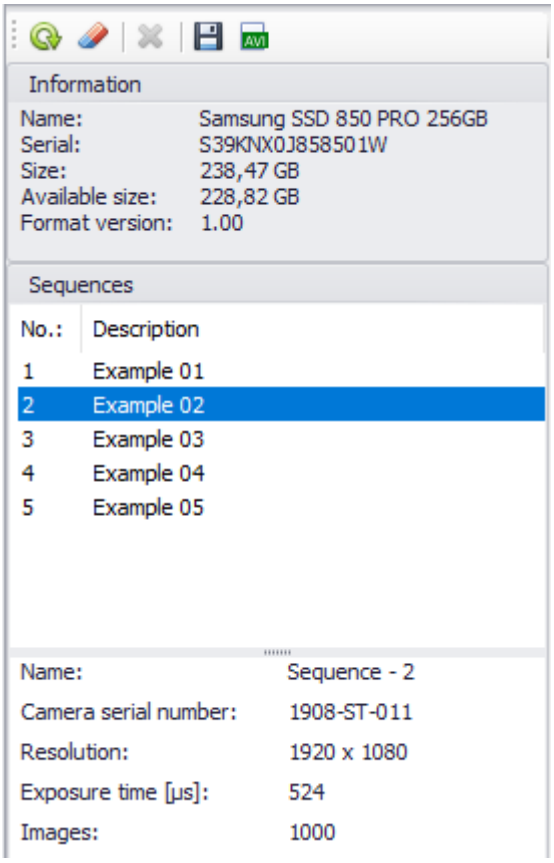
Camera SSD Window

Camera SSD window is available if a SSD is installed in the camera. This window is identical to the Camera Memory window.

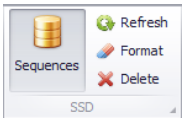
Sequence selection

If sequences have been saved on the SSD, they are displayed below Sequence menu.

Double click on a sequence to display its parameters and a preview.



Delete sequences

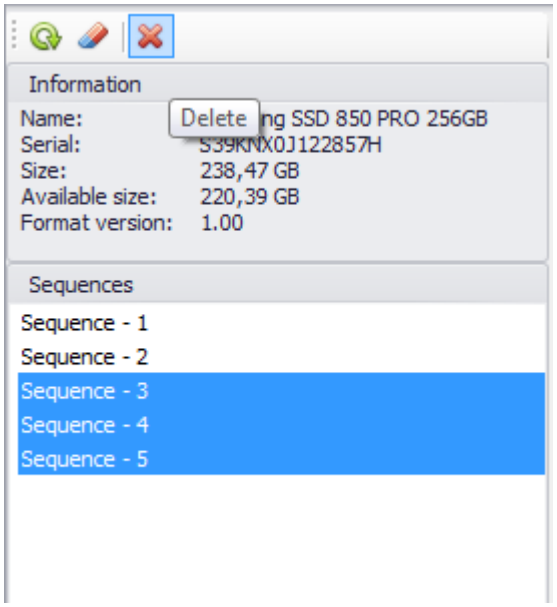


Sequences are stored sequentially and can only be deleted sequently, starting with the last one.

- Select one or more sequences starting from the last one
- Click on the red cross button above

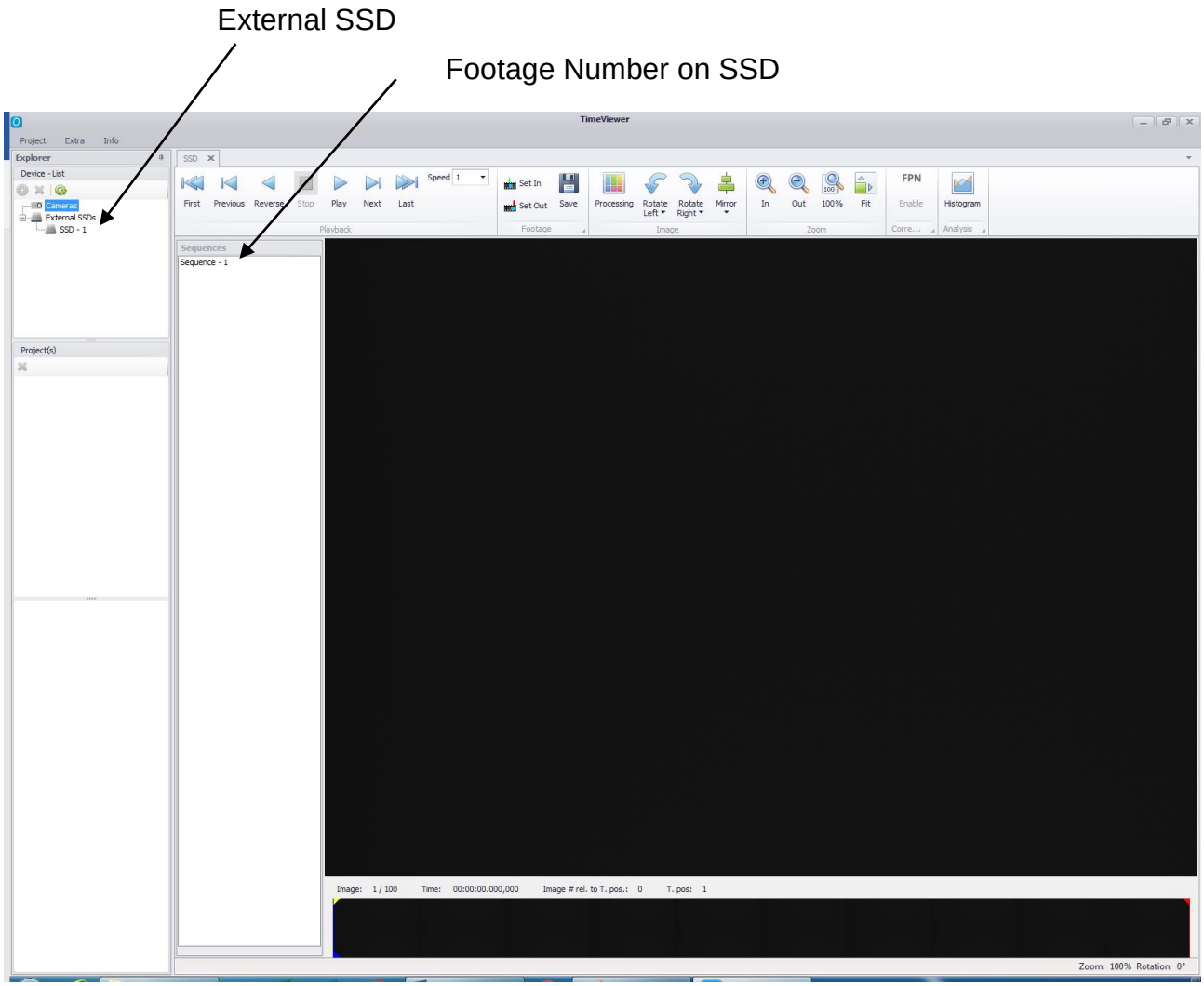
Example: Assuming 5 sequences stored on camera SSD.

- sequence N°5 can be deleted. Sequences N° 1 to 4 will not be erased.
- sequence N°3 to 5 can be deleted once. Sequences N°1 and 2 remain.
- sequence N°3 cannot be deleted without deleting sequence N°5 and 4 before.



Deleting all sequences on SSD is possible by clicking on format button. Alternatively, all sequences can be selected and clicking on the red cross button. All sequences will be erased this way.

SSD on Docking Station



Please add the docking station to an USB3 port (USB2 has lower performance) and verify, that the docking station is detected by Windows operating system.

Please start TimeViewer software with Administrator rights.

Without Administrator rights, the TimeViewer software is not allowed to perform access to the docking station and readout the footages that are stored on the SSD storage device.

To clean the SSD storage device please format the SSD with TimeViewer software.

Feature List

TimeViewer 1.4.x features	Description	Comments
Recording Mode	Live Video Single Sequence Multi Sequence	 only CamRecord-CR
SSD features	Automatic Sequence Backup Sequence Replay Delete Sequences	only CamRecord-Sprinter
Frame Format	Free	
Exposure Time	Free	
Frame Rate	Free	
Save Recording	Raw	
Play Recording	Play Memory Play File (Raw)	
Export Recording	AVI JPEG PNG TIF BMP	
Import Recording	-	
Image Processing	Brightness Contrast Gamma Brightness RGB False Color Mirror Horizontal Mirror Vertical Rotate Hue Saturation White Balance FPN Correction (Flat Field)	

Trigger	Software External TTL Rising Edge External Falling Edge (Switch) Image ROI	
Synchronization	Internal External	
Camera Memory	Ring Memory	
Measurement (Overlay)	Distance Velocity Angle	
Text in Image (Overlay)	Logo Image Info Text	
Marker Tracking	Acceleration Velocity Distance Position	
Languages	English	

Appendix

Customer Service

For any questions or problems, please do not hesitate to ask distributor or our customer service:

Optronis GmbH

Ludwigstr. 2

77694 Kehl

Tel: +49 (0) 7851 9126 0

Fax: +49 (0) 7851 9126 10

e-mail: support@optronis.com

In case of problems, we are happy to help but need to understand the application and system setup. Therefore, please prepare the following information:

- Name of the device:

  (e.g. CR600x2, Sprinter-HD, Runner…)
- Serial-Number of the camera:
- Operating System:

  Windows version with information whether it is 32 bit or 64 bit
- Software Version of TimeViewer
- Description of the problem