

See3CAM_24CUG

e-CAMView Streaming Application Installation Manual



Version 1.1

e-con Systems

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e-con Systems

Your Product Development Partner

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Contents

INTRODUCTION TO SEE3CAM_24CUG	3
PREREQUISITES	3
DESCRIPTION	3
INSTALLATION OF E-CAMVIEW	5
STEP 1 - WELCOME SCREEN	5
STEP 2 - INSTALLATION PATH SELECTION	5
STEP 3 - INSTALLATION CONFIRMATION	6
STEP 4 - INSTALLATION PROCESS	7
STEP 5 - INSTALLATION COMPLETE	7
LAUNCHING E-CAMVIEW APPLICATION	9
TROUBLESHOOTING	10
FAQ	11
WHAT'S NEXT?	13
GLOSSARY	14
SUPPORT	15

Introduction to See3CAM_24CUG

See3CAM_24CUG is a 2.3 MP, color, global shutter, UVC compliant, USB 3.1 Gen1 SuperSpeed camera from e-con Systems, a leading Embedded Product Design Services Company which specializes in the advanced camera solutions. It is the latest member of the See3CAM family of USB 3.1 Gen1 SuperSpeed camera products launched by e-con Systems.

See3CAM_24CUG is a 2.3 MP color camera with the S-mount (also known as M12 board lens) lens holder. The S-mount is one of the most commonly used small form-factor lens mounts for board cameras. See3CAM_24CUG is a single board solution containing the 1/2.6" AR0234 CMOS image sensor from Aptina™ with USB 3.1 Gen1 interface. It is also backward compatible with the USB 2.0 high speed interface, albeit at lower frame rates.

See3CAM_24CUG is an UVC compliant camera and it does not require any drivers to be installed on the PC. The native UVC drivers of Windows and Linux Operating Systems (OS) will be compatible with this camera. e-con Systems also provides the sample application that demonstrates some of the features of this camera. However, this camera can utilize any DirectShow application such as Skype and so on.

e-con Systems provides a sample DirectShow application, called e-CAMView, along with the See3CAM_24CUG camera. The e-CAMView is a typical DirectShow camera application but customized to demonstrate some of the features of See3CAM_24CUG.

This document describes how to install the e-CAMView step by step on the host PC and how to launch e-CAMView application.

Prerequisites

The prerequisites are as follows:

- Access for See3CAM_24CUG in [Developer Resources](#) website.
- Download the **e-CAMView Streaming Application Installer.zip** file.

Description

See3CAM_24CUG is a USB 3.1 Gen1 color camera which can stream the resolution and frame rates as listed in below table.

Table 1: Resolution and Frame Rates of See3CAM_24CUG

Format	Resolution	Frame Rate (fps)		% Crop in FOV	
		USB 3.1 Gen1	USB 2.0	Horizontal	Vertical
UYVY	2.3MP (1920 x 1200)	58	6	0%	0%
	FHD (1920 x 1080)	60	8	0%	10%
	HD (1280 x 720)	120 & 60	15	0%	10%
MJPEG	2.3MP (1920 x 1200)	114 & 60	114 & 60	0%	0%
	FHD (1920 x 1080)	120, 60 & 30	120, 60 & 30	0%	10%
	HD (1280 x 720)	120 & 60	120 & 60	0%	10%

For streaming MJPEG, use MainConcept-MJPEG codec package. Find the installer in the install path **C:/Program Files (x86)/e-consystems/e-CAMView** and install a demo version of the codec by selecting **ignore for demo version** while prompted.

Note:

- The above table is true only in manual exposure.
- When the exposure value is changed above -7 (7.8 ms), there will be a drop in the frame rate because the exposure time is more than the frame time. In auto exposure, maximum frame rate could be achieved with maximum lighting.

The camera controls of See3CAM_24CUG are as follows:

- Brightness
- Contrast
- Saturation
- Sharpness
- Gamma
- White Balance (both Manual and Automatic)
- Gain
- Exposure (both Manual and Automatic)
- Powerline Frequency

The e-CAMView sample application for See3CAM_24CUG can demonstrate the controls supported, switching between preview resolutions, capturing still images and operating modes.

The next section starts with the preliminary steps involved in installation of the e-CAMView software and launching the application.

Installation of e-CAMView

The e-CAMView application can be installed using the installer file provided in [Developer Resources](#) website. The e-CAMView application installer can be also obtained by mailing to e-con Systems. This is a sample DirectShow application used to demonstrate some of the features of See3CAM_24CUG camera.

The e-CAMView installation steps are explained in detail with the screenshots.

- Step 1. [Welcome Screen](#)
- Step 2. [Installation Path Selection](#)
- Step 3. [Installation Confirmation](#)
- Step 4. [Installation Process](#)
- Step 5. [Installation Complete](#)

Step 1 - Welcome Screen

As a first step, extract the **e-CAMView Streaming Application Installer.zip** file. When you run the **e-CAMView Installer setup.exe** file, the Welcome screen appears as shown below.

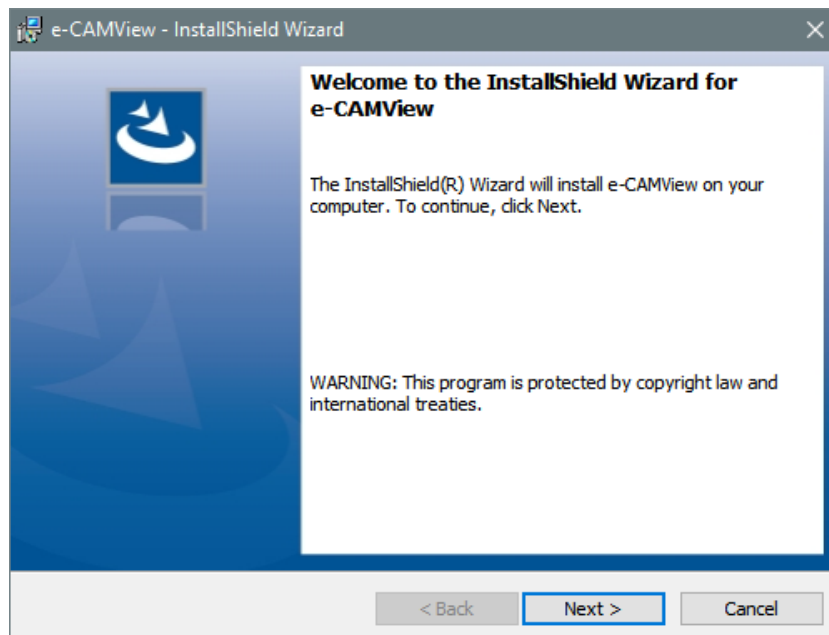


Figure 1: Welcome Screen

Click the **Next** button.

Step 2 - Installation Path Selection

On clicking the **Next** button, you can view the screen similar to the installation path selection window as shown below.

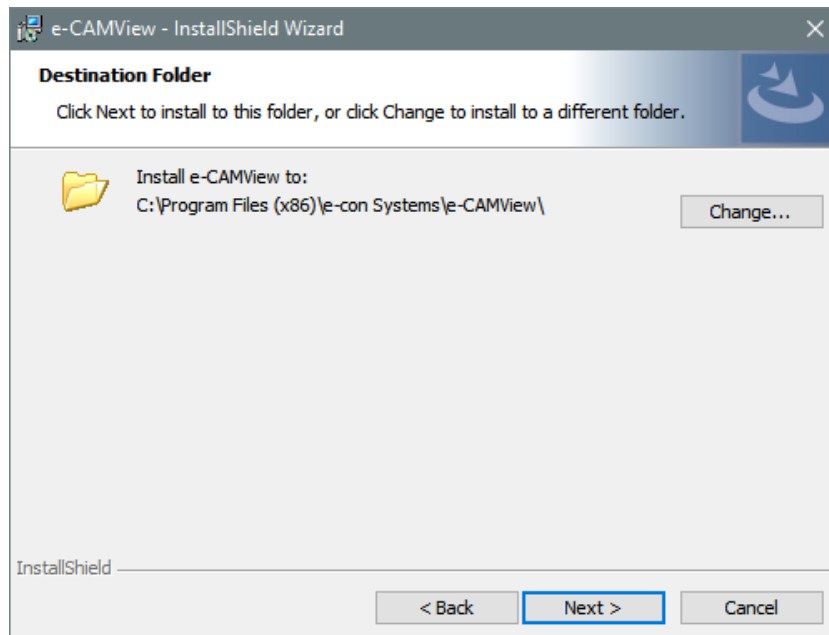


Figure 2: Installation Path Selection Window

You can either use the default installation path **C:\Program Files (x86)\e-con Systems\e-CAMView** or click the **Change** button to change the installation folder. You can also change privileged users to whom this application needs to be installed.

Click the **Next** button.

Step 3 - Installation Confirmation

After the selection of installation folder, you can view the installation confirmation window as shown below.

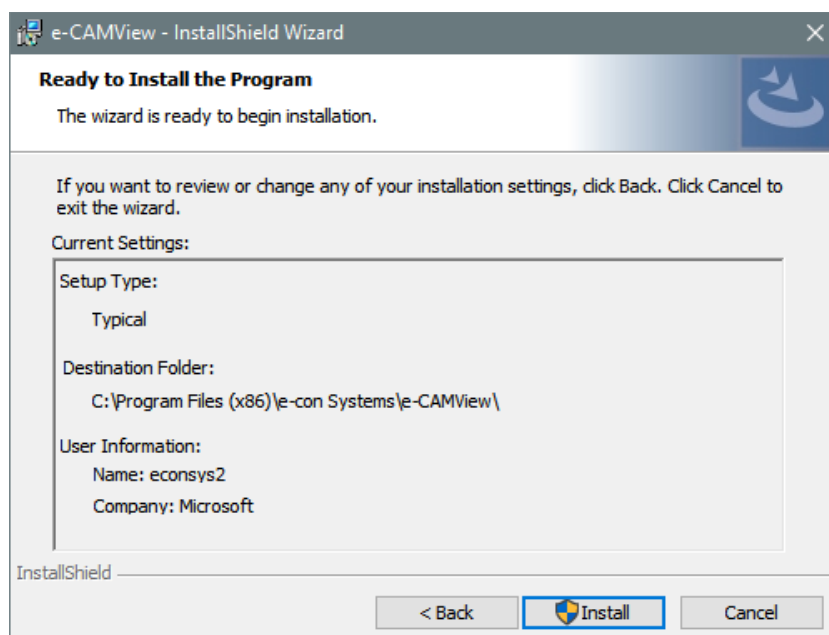


Figure 3: Installation Confirmation Window

Click the **Install** button.

Step 4 - Installation Process

This is the final stage of installation. During this stage, all required files are copied to specific location and the progress of installation appears as shown below.

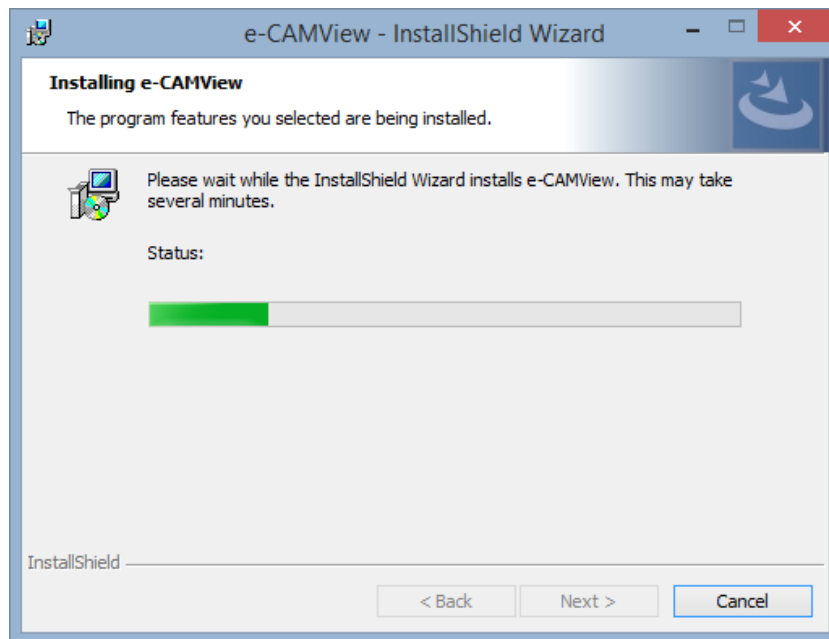


Figure 4: Installation Process Window

Note: When the installation process window appears as in step 4, a **User Account Control** dialog box appears which will prompt you to choose **Yes** or **No** for proceeding. Choose **Yes** to continue installation process.

Step 5 - Installation Complete

After the e-CAMView installation, you can view the installation complete window as shown below.

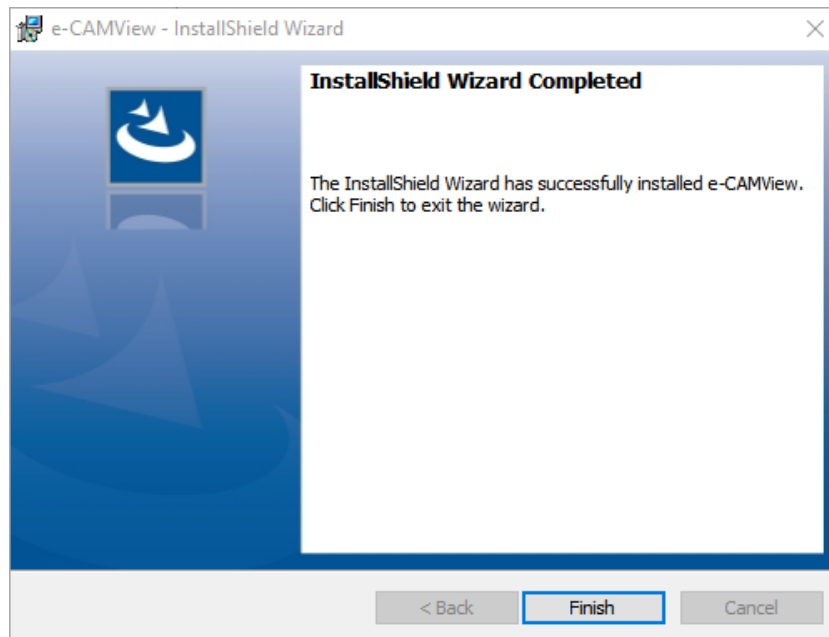


Figure 5: Installation Complete Window

Click the **Finish** button to exit the setup wizard after the completion of the installation.

Note: Restart the PC after installing e-CAMView application for better results.

Launching e-CAMView Application

This section describes how to launch the e-CAMView application.

To launch the e-CAMView video streaming and capture application, click **Start > All Programs > e-con Systems > e-CAMView**.

The e-CAMView application is provided with a set of features that can be used to attain the full functionality of See3CAM_24CUG. The Menu bar at the top contains few menu items and the Status bar at the bottom shows some related information. When the application is running, the current preview resolution and the frame rate are displayed in the Status bar as shown below.

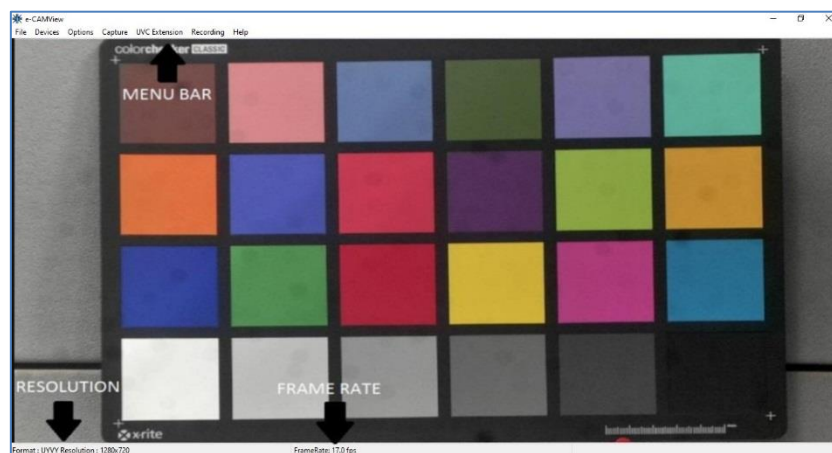


Figure 6: Application Launch Appearance

For more details, please refer to *e-CAMView_Streaming_Application_User_Manual_See3CAM_24CUG.pdf*.

Troubleshooting

In this section, you can view the list of commonly occurring issues and their troubleshooting steps.

A device connected, power indication LED is OFF or switching between Red and OFF state.

It seems like there is no proper power input to the device. You need to check the cable or USB connector integrity. In case if USB Hub is used, use external power.

A device connected, power indication LED is Red.

The device is powered up and ready to stream image data. You can use e-CAMView or QtCAM or any standard streaming application to start streaming.

In e-CAMView sample application, the device is selected but the preview window is White.

You need to install the latest version of e-CAMView application from the [Developer Resources](#) website.

In e-CAMView sample application, the device is selected but the preview window is Black and power indication LED blinks between Red and Yellow continuously.

It seems like no image is received from the camera. Contact e-con Systems online support support@e-consystems.com.

Device connected, power indication LED is Red, and the device is not listed in the application or device manager.

It seems like device firmware is corrupted. Try re-flashing firmware image using firmware updater application from [Developer Resources](#) website. If this does not help, contact e-con Systems online support support@e-consystems.com.

Device connected, streaming with Yellow LED showing frequent or intermittent blinks. Sometimes frame corruption seen in streaming window.

It seems like there is bandwidth limitation in USB host. This may occur when multiple cameras are connected to single USB host or in USB hosts of less powerful embedded boards. Visit the blog <https://www.e-consystems.com/blog/camera/?p=1720> for more information on USB practical bandwidths.

1. What is See3CAM_24CUG?

See3CAM_24CUG is a 2.3 MP, color, UVC compliant, USB 3.1 Gen1 camera with the S-mount (also known as M12 board lens) lens holder. It is a two-board solution containing the camera sensor module board with 1/2.6" AR0234 CMOS image sensor from ON Semiconductor and the USB 3.1 Gen1 interface board.

2. Can I get access to ISP registers?

No. This option is not available by default but will be provided on case to case basis with firmware customization.

3. Can I get access to image sensor registers?

No. The sensor registers are directly controlled by the ISP.

4. The frame rate is not consistent in UYVY format. Can I fix it?

Yes, the camera is designed to allow exposure till 66.66 ms in auto exposure mode and hence the frame rates can drop till 15 fps. You can either set the maximum exposure limit using exposure compensation (in UVC Extension menu) or choose manual exposure to get desired frame rates.

5. The frame rate is not consistent in MJPEG format. Can I fix it?

Yes, but the frame rate may still get reduced due to the scene details or the frame size which in turn affects the rendering capability from PC to PC. Performance improvement can be seen based on graphic card or display adapter capability. To increase the frame rates, you can decrease Q-Factor or increase De-Noise value in UVC Extension menu since both decreases the frame size and improves frame rates.

6. I can view frame corruption while streaming. Can this be avoided?

Yes, this is due to bandwidth limitation in USB host. This may occur when multiple cameras are connected to single USB host or in USB hosts of less powerful embedded boards. Visit the blog <https://www.e-consystems.com/blog/camera/?p=1720> for more information on USB practical bandwidths.

7. I need reliable operation when I connect multiple cameras to same host or when I connect to an embedded board. Do I have options?

Yes. All resolutions available in UYVY do support multiple frame rates. You can switch it to a lower frame rate to improve stability. For MJPEG, reducing the Q-

factor value will improve stability in case of any issues. If it is still required to reduce the frame rates, contact sales@e-consystems.com.

8. How to use external trigger option in See3CAM_24CUG?

The external trigger option can be used to capture still images in Master mode and it can be utilized for external synchronization in Trigger mode. Please refer the *See3CAM_24CUG_Hardware_Trigger_Application_Note.pdf*.

9. What sort of support does e-con Systems provide along with the camera?

e-con Systems will provide the basic support on the evaluation for all the customers who have purchased the camera. The hardware/software/firmware customization of the kit will be provided by e-con Systems based on your requirements. e-con Systems will also manufacture your custom cameras and will be supplied.

10. Is there any software available with the camera?

Yes, e-con Systems provide the e-CAMView for Windows and QtCAM for Linux sample application demonstrating the capabilities of this camera.

11. What are the supported OSes?

The supported OSes are Windows 8.1 and 10 and Linux Ubuntu 14.04 (64-bit), 16.04 (32-bit and 64-bit) and 18.04 (64-bit).

12. The camera is not suitable for my requirements. Can I return the camera?

No. The kit is non-returnable and non-refundable. However, the kit is under warranty and e-con Systems will replace for any failed kit under warranty terms.

13. The camera is getting very hot. Is it suitable for usage?

Yes, but the camera module needs an external heat sink to dissipate the heat for prolonged usage.

What's Next?

After launching the e-CAMView application, you can refer to the *e-CAMView Streaming Application User Manual See3CAM_24CUG* to know more about See3CAM_24CUG features.

Glossary

CMOS: Complementary Metal Oxide Semiconductor.

MJPEG: Motion Joint Photographic Experts Group (A type of frame compression).

USB: Universal Serial Bus.

USB 2.0: Universal Serial Bus High Speed.

USB 3.1 Gen1: Universal Serial Bus Super Speed.

UVC: USB Video Class.

UYVY: YUV422 16-bit image format with UYVY ordering.

Contact Us

If you need any support on See3CAM_24CUG product, please contact us using the Live Chat option available on our website - <https://www.e-consystems.com/>

Creating a Ticket

If you need to create a ticket for any type of issue, please visit the ticketing page on our website - <https://www.e-consystems.com/create-ticket.asp>

RMA

To know about our Return Material Authorization (RMA) policy, please visit the RMA Policy page on our website - <https://www.e-consystems.com/RMA-Policy.asp>

General Product Warranty Terms

To know about our General Product Warranty Terms, please visit the General Warranty Terms page on our website - <https://www.e-consystems.com/warranty.asp>

Revision History

Rev	Date	Description	Author
1.0	01-Feb-2021	Initial Draft	Camera Team
1.1	27-Feb-2021	Added Changes	Camera Team