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### **See3CAM\_CU135**



## **Getting Started Manual**

### **Revision 1.2**

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## Contents

1	Revision History .....	3
2	Introduction .....	4
3	Scope .....	4
4	Disclaimer .....	4
5	Description .....	4
6	Setting up the See3CAM_CU135 .....	5
6.1	See3CAM_CU135 to PC Host Interconnecting Cable .....	5
6.2	Connecting the board with Host .....	6
6.2.1	Identification of USB3.0 Connector .....	6
6.2.2	Insertion of USB Cable in Connector .....	6
6.2.3	Connecting the board to Host .....	7
6.2.4	Ensuring the device connected to Host properly .....	9
7	Conclusion .....	9



## See3CAM\_CU135

### 1 Revision History

Rev	Date	Description	Author
1.0	16-May-2017	Initial Draft	Camera Team
1.1	19-May-2017	Reviewed and added Changes	Camera Team
1.2	14-September-2017	Updated Resolutions and frame rates	Camera Team



## 2 Introduction

The See3CAM\_CU135 is a 13.0 Mega pixel, colour, UVC Compliant, USB3.0 SuperSpeed camera with Type C connector from e-con Systems, a leading embedded Product Design Company which specializes in the advanced camera solutions. The See3CAM\_CU135 is a USB3.0 SuperSpeed camera product with reversible plug and play Type C connector interface.

The See3CAM\_CU135 is a 13.0 MP Colour 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. The See3CAM\_CU135 is a two-board solution containing the camera sensor module board containing 1/3.2" AR1335 CMOS image sensor from ON Semiconductor and the USB3.0 interface board. With USB3.0 interface to the host PC, this See3CAM\_CU135 can stream uncompressed VGA@ 120 & 60 fps, HD@ 60 & 30 fps (720p60, 720p30), 960P@ 60 & 30fps, FHD @ 60 & 30 fps (1080p60, 1080p30), 1440P@ 45 & 22.5 fps, 2880P (2880 x 2160) @ 20 & 10 fps, 4K@ 15 & 7.5 fps (UHD & QFHD) UYVY formats. This can also stream the uncompressed 13MP at 9 & 4.5 fps when connected to the USB 3.1 GEN1 host PC.

It also streams compressed MJPEG VGA@ 120 fps, HD@ 60 fps (720p60), 960P@ 60 fps, FHD @ 60 fps (1080p60), 1440P@ 60 fps, 2880P (2880 x 2160) @ 30 fps, 4K (UHD & QFHD) at 30 fps. This can also stream the compressed MJPEG 13MP at 20 fps. This See3CAM\_CU135 is a UVC-compliant USB3.0 SuperSpeed Camera that is also backward compatible with USB2.0 host ports and does not require any special camera drivers to be installed in the host PC. When connected to USB2.0 host ports, the See3CAM\_CU135 supports all the resolutions and at lower frame rates.

The See3CAM\_CU135 is 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 shall be compatible with this camera. e-con also provides the sample application that demonstrates some of the features of this camera. However, this camera can be utilized any DirectShow application such as Skype etc.

This document describes about how to connect the See3CAM\_CU135 board with USB 3.0 host PC.

## 3 Scope

The scope of this document is limited to providing necessary overview of the See3CAM\_CU135 camera board and how to use the same on a typical PC based environment.

## 4 Disclaimer

The specifications of See3CAM\_CU135 camera board and instructions on how to connect this board with PC are provided as reference only and e-con Systems reserves the right to edit/modify this document without any prior intimation of whatsoever.

## 5 Description

The See3CAM\_CU135 is a two-board solution of size 30mm x 30mm. This camera board is based on AR1335 Image sensor from ON Semiconductor and the Image Signal Processor (ISP) The other board, has the USB interface controller and the USB3.1/Type C connector. This See3CAM\_CU135 is a Ready-to-Manufacture camera board with all the necessary firmware built in and compatible with the USB Video Class (UVC) version 1.0 standard. Customers can integrate this camera in to their products right away and this helps our customers to cut short the Time-to-Market. This camera board is USB Video Class compatible and this will work with the standard drivers available with Windows and Linux. There is no need for any additional driver installation





Figure 1: See3CAM\_CU135

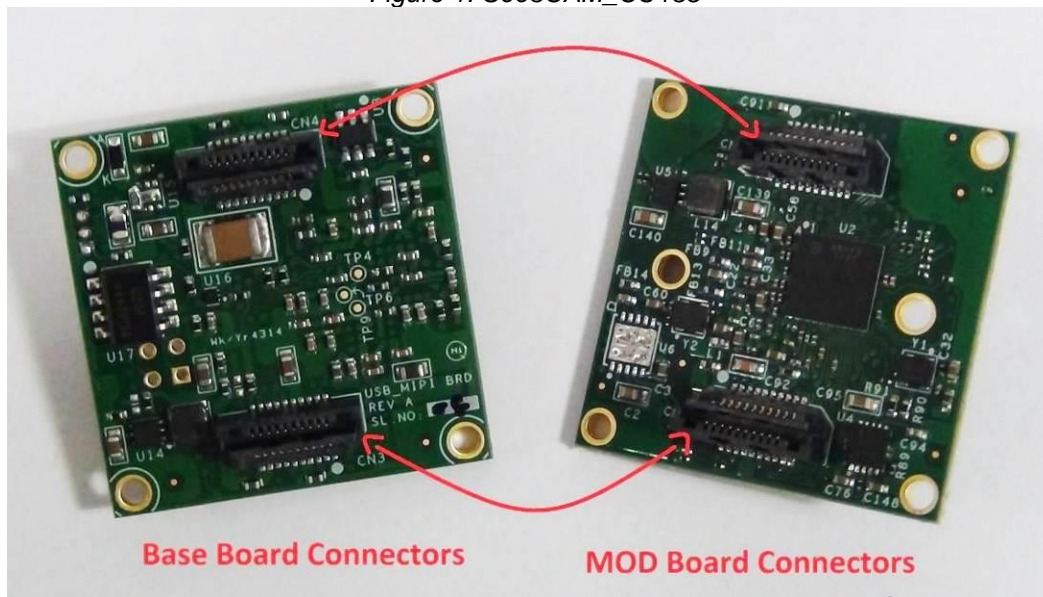


Figure 2: See3CAM\_CU135 back - back.

## 6 Setting up the See3CAM\_CU135

This section describes how to connect the See3CAM\_CU135 to the PC. The See3CAM\_CU135 camera is a USB 3.0 SuperSpeed client device. The See3CAM\_CU135 camera is supplied along with a USB 3.0 Type A to Type C cable to connect with the USB Type -A host port.

The following sections describe the parts supplied in the kit.

1. See3CAM\_CU135 board (Base board and Module board)
2. USB3.0 Type A to Type C Cable

### 6.1 See3CAM\_CU135 to PC Host Interconnecting Cable

The USB3.0 A to Type C cable is used to connect See3CAM\_CU135 camera board to the PC will be supplied by e-con Systems.





Figure 3: USB3.0 Cable

## 6.2 Connecting the board with Host

Please follow the below steps to connect See3CAM\_CU135 board with PC or Laptop.

### 6.2.1 Identification of USB3.0 Connector

The location of USB3.1 /Type C (CN1) connector on See3CAM\_CU135 is shown in below figure

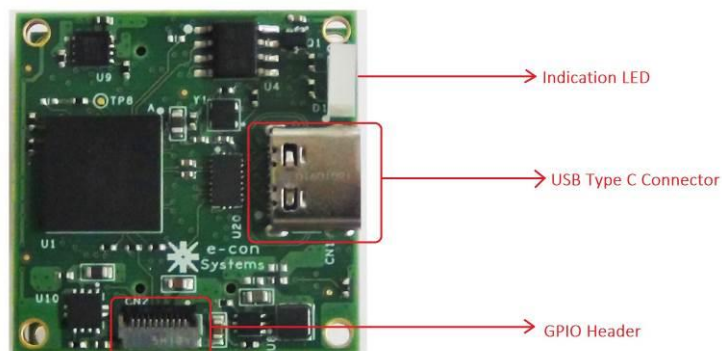


Figure 4: Location of USB3.0 Connector

### 6.2.2 Insertion of USB Cable in Connector

The USB3.0 Cable provided by e-con Systems should be inserted with USB3.1/Type C connector as shown in below figure.



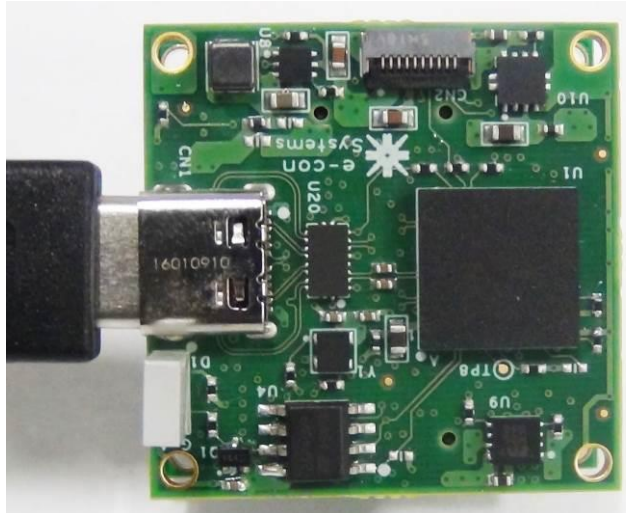


Figure 5: USB cable inserted in USB3.1/Type C connector

### 6.2.3 Connecting the board to Host

Identify a USB3.0 port. The port which has the below logo is USB3.0 Port.



Figure 6: SuperSpeed USB 3.0 Logo

The USB3.0 cable needs to be inserted to SuperSpeed USB3.0 port of PC or Laptop.



Figure 7: USB3.0 Cable – Host Side







*Figure 8: Connecting USB3.0 Cable to SuperSpeed Port*

After the insertion of USB3.0 Cable with USB3.1/Type C connector on the board and USB Host, the LED (D1) will glow in Red color. This indicates that the board is powered ON.



*Figure 9: Status LED indicating Board Powered ON*

After selecting the See3CAM\_CU135 device in e-CAMView application the D1 LED glows in Green and Red colour. This indicates that the camera is in streaming condition.







Figure 10: Status LED indicating Camera streaming

### 6.2.4 Ensuring the device connected to Host properly

After the insertion of board to Host, you can confirm that See3CAM\_CU135 is properly connected to Host from Imaging Devices.

Go to **Control Panel** → **Device Manager** → **See3CAM\_CU135**

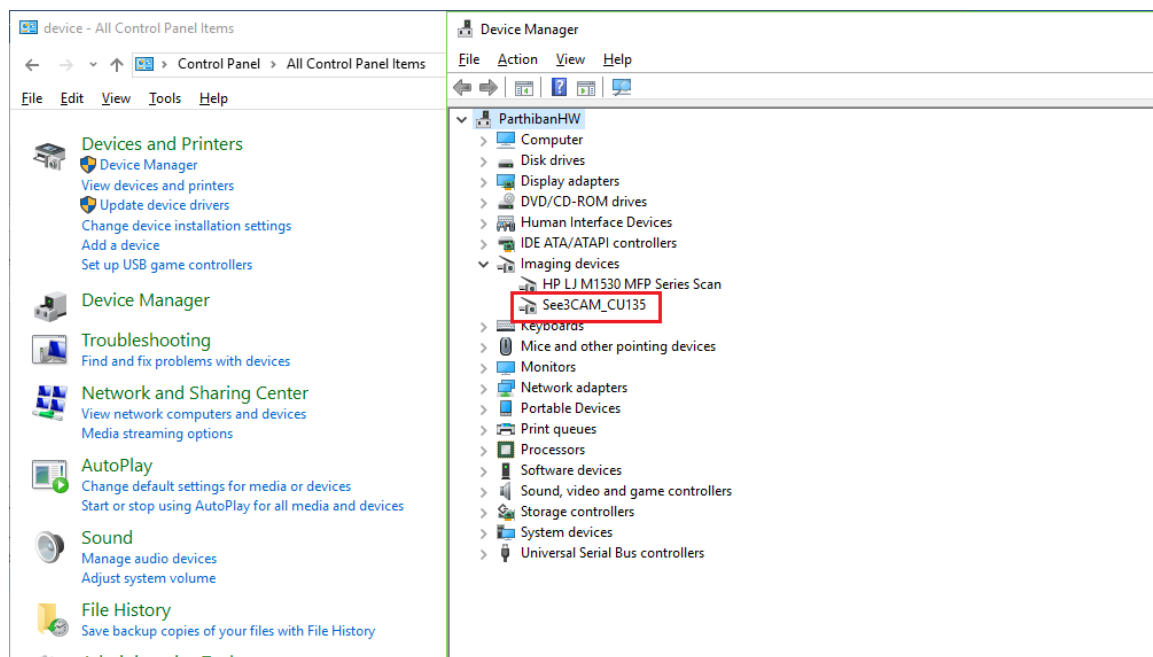


Figure 11: Imaging Devices showing See3CAM\_CU135 connected to Host

## 7 Conclusion

This document describes How to connect See3CAM\_CU135 board to USB3.0 Host and how to get it working.

