

## IMx-3213UP USB3.0 Camera Data Sheet



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**USB3.0 Camera**



## 1. General Specifications

Features(IMB-3213UP)	
Image Sensor Type	Mono 1/4" CMOS (PYTHON 300)
Effective pixels	307,200 pixels
Picture Size	640(H) x 480(V)
Cell Size(um)	4.8 um x4.8 um
Real Frame Rate	598 fps (640 x 480 , Mono8) 400 fps (640 x 480 , Mono12)
Lens Mount	C Mount
Shutter	Global Shutter
ROI	Partial Scan (Unit: 4x4)
Trigger Mode	Mode 0, 15 (Photo-coupler)
Strobe	Support Normal Mode (Photo-coupler)
Memory Save/Load	9 Channels(factory, 1~4:feature, 5~8:mode/feature)
Control Functions	Brightness, Sharpness, Gamma, Auto-Exposure, Shutter, Gain, User Defined LUT,
Digital Interface / Transfer Rate	USB3.0 / 5Gbps
Gain	0 ~ 30 dB (Manual or Auto control)
Shutter Speed	32 usec ~ 1000 msec (Manual or Auto control)
Data Depth	10 bit
Supply Voltage& Power	Supplied via the camera's USB 3.0 port ~ 3.5 W max. @ 5 VDC
External Dimension / Weight	44(W) x 44 (H) x34.5(D) mm / Approx 55g
Operation Temp/ Storage Temp	-5°C to 45°C / -30°C to 60°C
Camera Specification	AIA USB3.0 Vision version 1.0

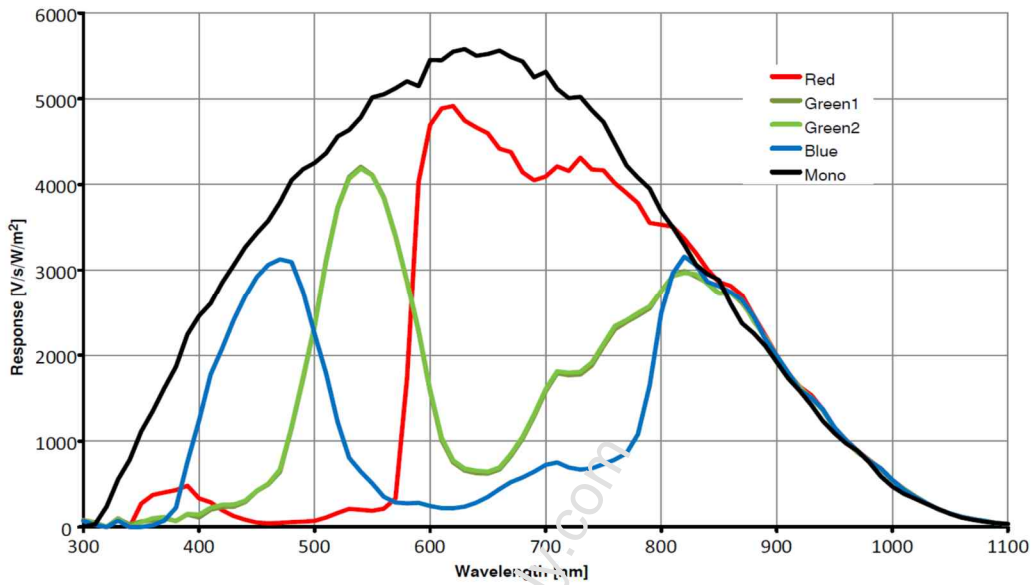
Remark : Camera Specifications subject to change without notice.

Features(IMC-3213UP)	
Image Sensor Type	Mono 1/4" CMOS (PYTHON 300)
Effective pixels	307,200 pixels
Picture Size	640(H) x 480(V)
Cell Size(um)	4.8 um x4.8 um
Real Frame Rate	598 fps (640 x 480 , BayerRG8) 334 fps (640 x 480 , BayerRG12)
Lens Mount	C-Mount
Shutter	Global Shutter
ROI	Partial Scan (Unit: 4x4)
Trigger Mode	Mode 0, 15 (Photo-coupler)
Strobe	Support Normal Mode (Photo-coupler)
Memory Save/Load	9 Channels(0:factory, 1~4:feature, 5~8:mode/feature)
Control Functions	Brightness, Sharpness, Gamma, Auto-Exposure, Shutter, Gain,AWB User Defined LUT,
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## 2. Spectral Response

 It excludes lens and light source characteristics.



IMB-3217UP, IMC-3217UP Spectral Response

## 3. Camera I/O Operation Specifications

### Operation as an Input Line

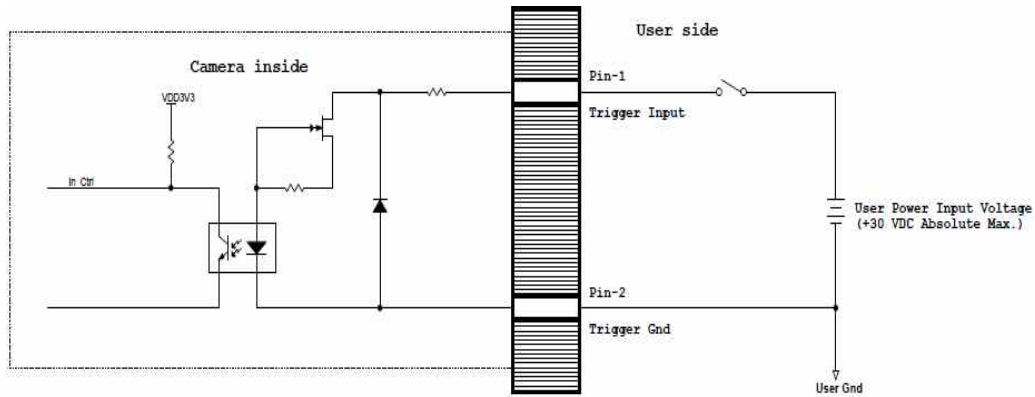
#### Voltage Levels When the Standard Power and I/O Cable is Used

The following voltage requirements apply to the camera's I/O input line

(pin 1 of the 2-pin connector)

Voltage	Description
+0 to +24 VDC	Recommended operating voltage.
+0 to +8 VDC	The voltage indicates a logical 0.
>+8 to +10 VDC	Region where the transition threshold occurs; the logical state is not defined in this region.
> +10 VDC	The voltage indicates a logical 1.
+30 VDC	Absolute maximum; the camera may be damaged when the absolute maximum is exceeded.

## Input Line Schematic



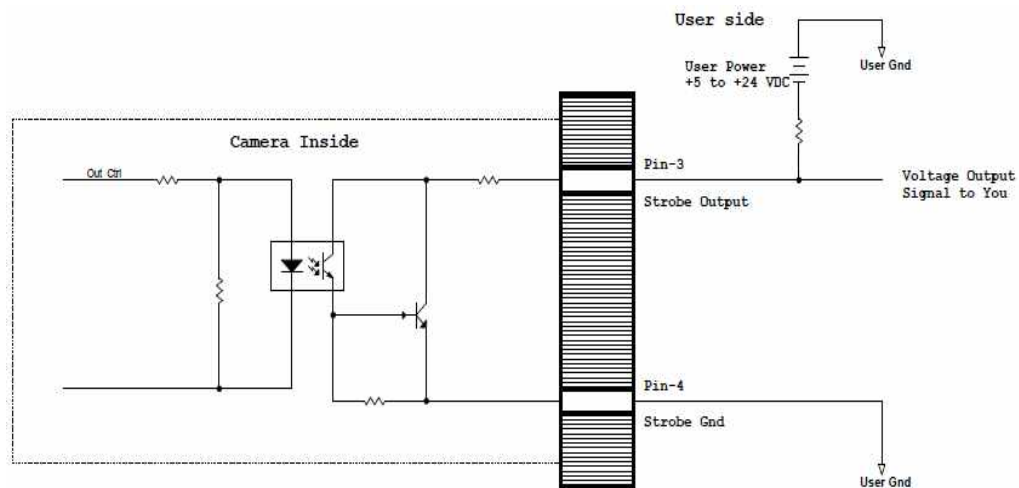
## Operation as an Output Line

### Voltage Levels When the Standard Power and I/O Cable is Used

The following voltage requirements apply to the camera's I/O input line (pin 3 of the 4-pin connector)

Voltage	Description
<+3.3 VDC	The I/O output may operate erratically.
+3.3 to +24 VDC	Recommended operating voltage.
+30 VDC	Absolute maximum; the camera may be damaged if the absolute maximum is exceeded.

## Output Line Schematic

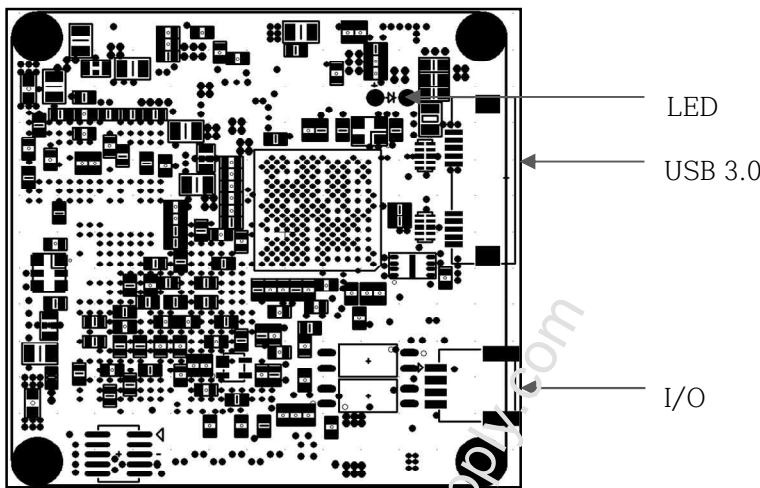


## 4. General Description of the Camera Connections

The camera is interfaced to external circuitry via connectors located on the back of the camera:

- A 4-pin socket connector used to provide access to the camera's I/O lines
- A USB 3.0 Micro-B port used to provide a nominal 5 Gbit/s SuperSpeed data transfer connection.

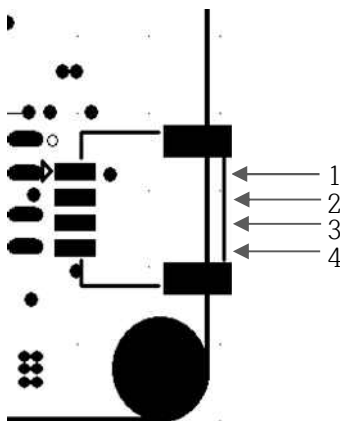
There is also a LED indicator located on the back of the camera.



Camera Connector and LED Indicator

### I/O Connector

The I/O connector on the camera is a 4-pin socket connector. It is used to access the physical input and output lines on the camera.



Pinout for the I/O Connector and Related Designations

Color	Pin	Function	Description
Yellow	1	OPTO_IN/ Line1	Opto-isolated iutput, Trigger In +
Black	2	OPTO_GND/Line1	Ground for opto-isolated IO pin, Trigger In -
Orange	3	OPTO_OUT/Line2	Opto-isolated iutput, Strobe Out +
Brown	4	OPTO_GND/Line2	Ground for opto-isolated IO pin, Strobe Out -

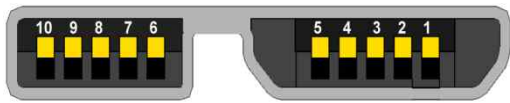
Pinout for the I/O Connector

## USB 3.0 Connector

The USB 3.0 connector for the camera’s USB connection is a standard Micro-B USB 3.0 connector.

It provides a USB 3.0 connection to supply power to the camera and to transmit video data and control signals.

Connection assignments and numbering adhere to the Universal Serial Bus 3.0 standard. The recommended mating connector is any standard Micro-B USB 3.0 plug.



USB 3.0 Micro B Connector

### USB 3.0 Micro-B Connector Pin Assignments

Pin	Signal Name	Description
1	VBUS	Power
2	D-	USB 2.0 differential pair
3	D+	
4	ID	OTG identification
5	GND	Ground for power return
6	MicA_SSTX-	SuperSpeed transmitter differential pair
7	MicA_SSTX+	
8	GND_DRAIN	Ground for Super-Speed signal return
9	MicA_SSRX-	Super-Speed receiver differential pair
10	MicA_SSRX+	

## LED Indicator

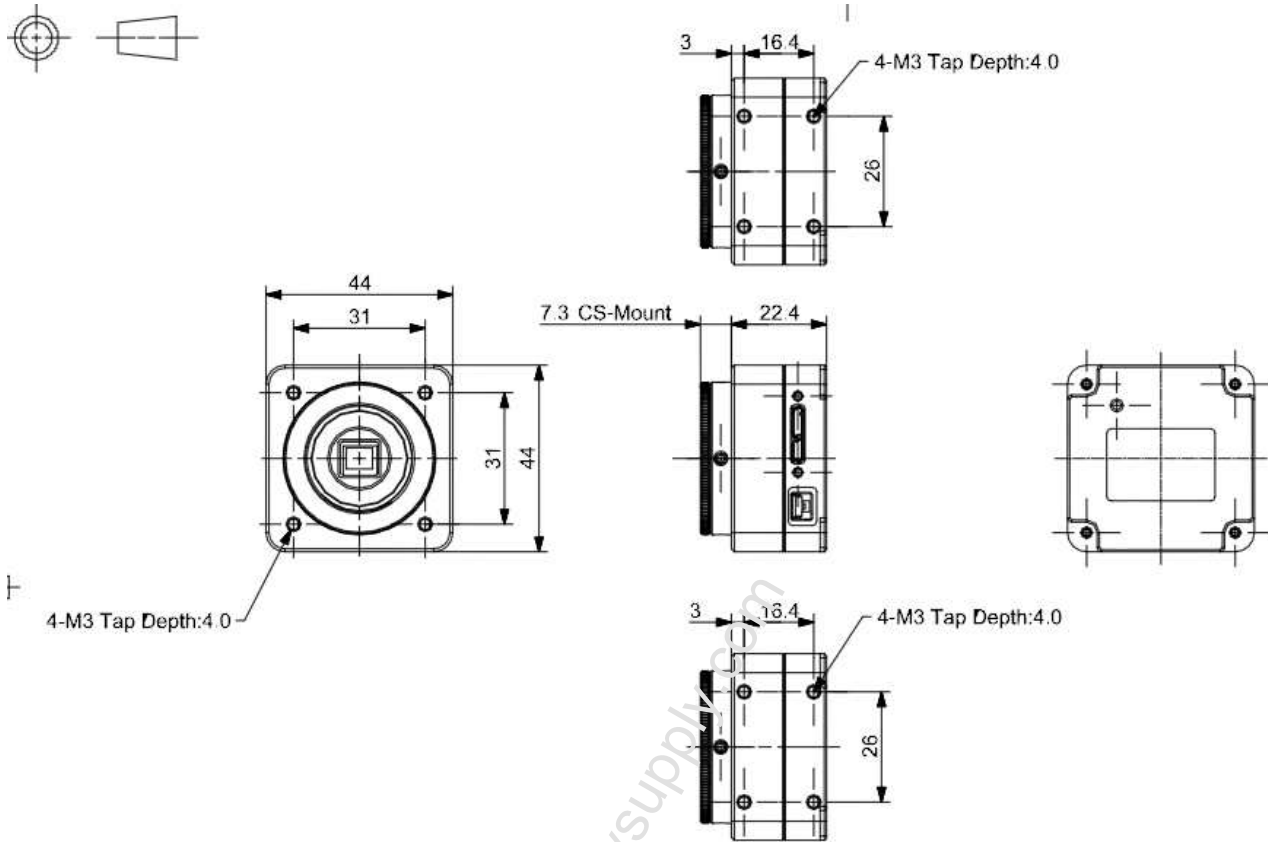
There is an LED indicator on the back of the camera board

### LED Statuses

Green LED	Description
Dimming up/down	The camera is being configured.
Lit permanently	Camera is configured and operative.

## 5. Camera Dimensions

### CS-Mount Adapter Dimensions



\* Mechanical Dimensions (in mm)

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