TechNexion

INNOVATORS OF TECHNOLOGY

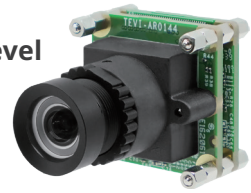
USB3 Type C Camera

Embedded Vision

USB3 Camera Family

TechNexion USB3 cameras are fully UVC Compliant and therefore plug-n-play on any Windows or Linux platform. We offer a family of USB cameras ranging from 1MP to 13MP in rolling or global shutter configurations that can be used in a large variety of applications ranging from robotics, medical, sporting to smart city, infrastructure and embedded industrial applications.

Board Level



S-Mount

C-Mount

USB Type C Locking Connector

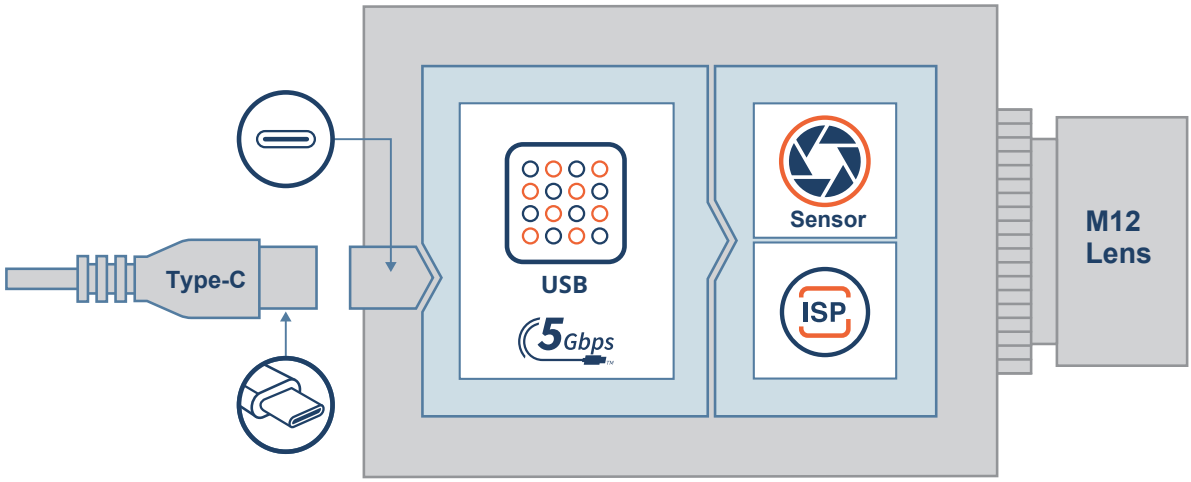
By following Intel USB Type C connector locking specifications. TechNexion USB cameras ensure your USB embedded vision cameras are suitable in vibration prone and harsh industrial applications.

Sensor Comparison

< 2 MP	5 MP	8 MP	10 ~ 20 MP
1 MP **AR0144** Global Color	5 MP **AR0521** Rolling Color	8.3 MP **AR0821** eHDR Rolling Color	13 MP **AR1335** Rolling Color
1 MP **AR0145** Global Color/ Mono	5 MP **AR0522** Rolling Color/ Mono	8.3 MP **AR0822** eHDR Rolling Color/ Mono	20 MP **AR2020** Rolling Color
2.3 MP **AR0234** Global Color	5 MP **AR0544** Rolling Color	8.3 MP **AR0830** Rolling Color/ Mono	
2.3 MP **AR0235** Global Color/ Mono			
2 MP **AR0246** eHDR Rolling Color			

Unified single software driver.

Block Diagram



Software Enablement

Product drivers, integration guides for TechNexion USB3 Camera are available online, thus helping a quick and easy integration and evaluation path.

All TechNexion Embedded Vision products are supported with VizionViewer and VizionSDK, giving your engineering team full control over the camera settings by using C++ or Python.

Windows

Linux

VizionViewer™

VizionSDK

Android

Ubuntu

debian

Debian

Software SDK Available

Specifications

	AR0144	AR0145	AR0234	AR0235 (New)	AR0246 (New)	AR0521	AR0522
Camera Information							
CMOS Sensor	onsemi AR0144	onsemi AR0145	onsemi AR0234	onsemi AR0235	onsemi AR0246	onsemi AR0521	onsemi AR0522
Active Pixels	1280 (H) x 800 (V) = 1MP	1280 (H) x 800 (V) = 1MP	1920 (H) x 1200 (V) = 2.3MP	1920 (H) x 1200 (V) = 2.3MP	1920 (H) x 1080 (V) = 2MP	2592 (H) x 1944 (V) = 5MP	2592 (H) x 1944 (V) = 5MP
Pixel Size	3.0 µm x 3.0 µm	2.8 µm x 2.8 µm	3.0 µm x 3.0 µm	2.8 µm x 2.8 µm	2.0 µm x 2.0 µm	2.2 µm x 2.2 µm	2.2 µm x 2.2 µm
Illuminated Type	Front Side Illuminated (FSI)	Front Side Illuminated (FSI)	Front Side Illuminated (FSI)	Front Side Illuminated (FSI)	Front Side Illuminated (FSI)	Back Side Illuminated (BSI)	Back Side Illuminated (BSI)
Maximum S/N Ratio	38 dB	37 dB	38 dB	37 dB	39 dB	40 dB	40 dB
Optical Format	1/4" (Diagonal 4.5 mm)	1/4.3" (Diagonal 4.23 mm)	1/2.6" (Diagonal 6.8 mm)	1/2.8" (Diagonal 6.34 mm)	1/4" (Diagonal 4.41 mm)	1/2.5" (Diagonal 7.13 mm)	1/2.5" (Diagonal 7.13 mm)
Shutter Type	Global Shutter	Global Shutter	Global Shutter	Global Shutter	Rolling Shutter	Rolling Shutter	Rolling Shutter
Chromaticity	Color	Color / Mono	Color	Color / Mono	Color / Mono	Color	Color / Mono
HDR Support	-	-	-	-	Yes	-	-
Maximum Frame Rate (YUV422-UYVY)	1280 x 800 @ 60 fps 1280 x 720 @ 60 fps 640 x 480 @ 60 fps	1280 x 800 @ 115 fps 1280 x 720 @ 115 fps 640 x 480 @ 115 fps	1920 x 1200 @ 60 fps 1920 x 1080 @ 60 fps 1280 x 720 @ 120 fps 640 x 480 @ 120 fps	1920 x 1200 @ 60 fps 1920 x 1080 @ 60 fps 1280 x 720 @ 120 fps 640 x 480 @ 120 fps	1920 x 1080 @ 30 fps 1280 x 720 @ 30 fps 640 x 480 @ 30 fps	2592 x 1944 @ 24 fps 2560 x 1440 @ 32 fps 1920 x 1080 @ 60 fps 1280 x 960 @ 60 fps 1280 x 720 @ 60 fps 640 x 480 @ 120 fps	2592 x 1944 @ 24 fps 2560 x 1440 @ 32 fps 1920 x 1080 @ 60 fps 1280 x 960 @ 60 fps 1280 x 720 @ 60 fps 640 x 480 @ 120 fps
Maximum Frame Rate (MJPEG)	1280 x 800 @ 60 fps 1280 x 720 @ 60 fps 640 x 480 @ 60 fps	1280 x 800 @ 115 fps 1280 x 720 @ 115 fps 640 x 480 @ 115 fps	1920 x 1200 @ 100 fps 1920 x 1080 @ 100 fps 1280 x 720 @ 120 fps 640 x 480 @ 120 fps	1920 x 1200 @ 100 fps 1920 x 1080 @ 100 fps 1280 x 720 @ 120 fps 640 x 480 @ 120 fps	1920 x 1080 @ 30 fps 1280 x 720 @ 30 fps 640 x 480 @ 30 fps	2592 x 1944 @ 60 fps 2560 x 1440 @ 60 fps 1920 x 1080 @ 60 fps 1280 x 960 @ 80 fps 1280 x 720 @ 80 fps 640 x 480 @ 120 fps	2592 x 1944 @ 60 fps 2560 x 1440 @ 60 fps 1920 x 1080 @ 60 fps 1280 x 960 @ 80 fps 1280 x 720 @ 80 fps 640 x 480 @ 120 fps
Output Format	YUV422-UYVY MJPEG (JPG)	YUV422-UYVY MJPEG (JPG)	YUV422-UYVY MJPEG (JPG)	YUV422-UYVY MJPEG (JPG)	YUV422-UYVY MJPEG (JPG)	YUV422-UYVY MJPEG (JPG)	YUV422-UYVY MJPEG (JPG)
Camera Interface							
Connector	USB Type-C 5 Gbps	USB Type-C 5 Gbps	USB Type-C 5 Gbps	USB Type-C 5 Gbps	USB Type-C 5 Gbps	USB Type-C 5 Gbps	USB Type-C 5 Gbps
Power							
Supply Voltage	5V ± 5%	5V ± 5%	5V ± 5%	5V ± 5%	5V ± 5%	5V ± 5%	5V ± 5%
Power Consumption	UYVY 1280 x 800 @60FPS ≤ 0.9W	UYVY 1280 x 800 @115FPS ≤ 1W	UYVY 1920 x 1200 @60FPS ≤ 1.25W	UYVY 1920 x 1200 @60FPS ≤ 1.2W	UYVY 1920 x 1080 @30FPS ≤ 1.2W	UYVY 2592 x 1944 @24FPS ≤ 1.2W	UYVY 2592 x 1944 @24FPS ≤ 1.2W
Standby Power	≤ 0.1W Standby	≤ 0.1W Standby	≤ 0.1W Standby	≤ 0.1W Standby	≤ 0.1W Standby	≤ 0.1W Standby	≤ 0.1W Standby
Software Support							
Operation System	UVC Plug-and-play Windows 10/11 Linux Yocto	UVC Plug-and-play Windows 10/11 Linux Yocto	UVC Plug-and-play Windows 10/11 Linux Yocto	UVC Plug-and-play Windows 10/11 Linux Yocto	UVC Plug-and-play Windows 10/11 Linux Yocto	UVC Plug-and-play Windows 10/11 Linux Yocto	UVC Plug-and-play Windows 10/11 Linux Yocto
Software	VizionViewer™	VizionViewer™	VizionViewer™	VizionViewer™	VizionViewer™	VizionViewer™	VizionViewer™
Development SDK	VizionSDK	VizionSDK	VizionSDK	VizionSDK	VizionSDK	VizionSDK	VizionSDK

Optional Accessories

An easy to attach A-Mount bracket for TechNexion board modules and 30mm enclosed cameras.

245-MOUNT-BRACKET-A

245-MOUNT-BRACKET on tripod (tripod not included)

300-MOUNT-BRACKET

300-MOUNT-BRACKET on tripod (tripod not included)

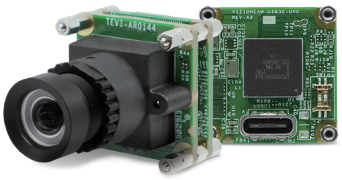
Specifications

	26Q4	New			New		26Q2
	AR0524	**AR0544**	**AR0821**	**AR0822**	**AR0830**	**AR1335**	**AR2020**
Camera Information							
CMOS Sensor	onsemi AR0524	onsemi AR0544	onsemi AR0821	onsemi AR0822	onsemi AR0830	onsemi AR1335	onsemi AR2020
Active Pixels	2592 (H) x 1944 (V) = 5MP	2592 (H) x 1944 (V) = 5MP	3848 (H) x 2168 (V) = 8MP	3840 (H) x 2160 (V) = 8MP	3840 (H) x 2160 (V) = 8MP	4208 (H) x 3120 (V) = 13MP	5120 (H) x 3840 (V) = 20MP
Pixel Size	2.2 µm x 2.2 µm	1.4 µm x 1.4 µm	2.1 µm x 2.1 µm	2.0 µm x 2.0 µm	1.4 µm x 1.4 µm	1.1 µm x 1.1 µm	1.4 µm x 1.4 µm
Illuminated Type	Back Side Illuminated (BSI)	Back Side Illuminated (BSI)	Back Side Illuminated (BSI)	Back Side Illuminated (BSI)	Front Side Illuminated (FSI)	Back Side Illuminated (BSI)	Back Side Illuminated (BSI)
Maximum S/N Ratio	TBD	39.9 dB	41.8 dB	40.5 dB	39.9 dB	37 dB	39.9 dB
Optical Format	1/2.5" (Diagonal TBD)	1/4.2" (Diagonal 6.05 mm)	1/1.7" (Diagonal 9.25 mm)	1/2" (Diagonal 8.81 mm)	1/2.9" (Diagonal 6.17 mm)	1/3.2" (Diagonal 5.8 mm)	1/1.8" (Diagonal 8.96 mm)
Shutter Type	Global Shutter	Rolling Shutter	Rolling Shutter	Rolling Shutter	Rolling Shutter	Rolling Shutter	Rolling Shutter
Chromaticity	Color / Mono	Color / Mono	Color	Color / Mono	Color / Mono	Color	Color / Mono
HDR Support	Yes	Yes	Yes	Yes	Yes	-	Yes
Maximum Frame Rate (YUV422-UYVY)	2592 x 1944 @ 24 fps 2560 x 1440 @ 32 fps 1920 x 1080 @ 60 fps 1280 x 960 @ 60 fps 1280 x 720 @ 60 fps 640 x 480 @ 120 fps	2592 x 1944 @ 24 fps 2560 x 1440 @ 32 fps 1920 x 1080 @ 60 fps 1280 x 960 @ 60 fps 1280 x 720 @ 60 fps 640 x 480 @ 120 fps	3840 x 2160 @ 15 fps 2560 x 1440 @ 30 fps 1920 x 1080 @ 60 fps 1280 x 720 @ 60 fps 640 x 480 @ 60 fps	3840 x 2160 @ 15 fps 2560 x 1440 @ 30 fps 1920 x 1080 @ 60 fps 1280 x 720 @ 60 fps 640 x 480 @ 60 fps	3840 x 2160 @ 15 fps 2560 x 1440 @ 30 fps 1920 x 1080 @ 60 fps 1280 x 720 @ 60 fps 640 x 480 @ 60 fps	4208 x 3120 @ 10 fps 3840 x 2160 @ 15 fps 2560 x 1440 @ 30 fps 1920 x 1080 @ 60 fps 1280 x 720 @ 120 fps 640 x 480 @ 60 fps	TBD
Maximum Frame Rate (MJPEG)	2592 x 1944 @ 60 fps 2560 x 1440 @ 60 fps 1920 x 1080 @ 60 fps 1280 x 960 @ 80 fps 1280 x 720 @ 80 fps 640 x 480 @ 120 fps	2592 x 1944 @ 60 fps 2560 x 1440 @ 60 fps 1920 x 1080 @ 60 fps 1280 x 960 @ 80 fps 1280 x 720 @ 80 fps 640 x 480 @ 120 fps	3840 x 2160 @ 30 fps 2560 x 1440 @ 60 fps 1920 x 1080 @ 60 fps 1280 x 720 @ 60 fps 640 x 480 @ 60 fps	3840 x 2160 @ 30 fps 2560 x 1440 @ 60 fps 1920 x 1080 @ 60 fps 1280 x 720 @ 60 fps 640 x 480 @ 60 fps	3840 x 2160 @ 30 fps 2560 x 1440 @ 60 fps 1920 x 1080 @ 60 fps 1280 x 720 @ 60 fps 640 x 480 @ 60 fps	4208 x 3120 @ 30 fps 3840 x 2160 @ 30 fps 2560 x 1440 @ 60 fps 1920 x 1080 @ 60 fps 1280 x 720 @ 120 fps 640 x 480 @ 60 fps	TBD
Output Format	YUV422-UYVY MJPEG (JPG)	YUV422-UYVY MJPEG (JPG)	YUV422-UYVY MJPEG (JPG)	YUV422-UYVY MJPEG (JPG)	YUV422-UYVY MJPEG (JPG)	YUV422-UYVY MJPEG (JPG)	YUV422-UYVY MJPEG (JPG)
Camera Interface							
Connector	USB Type-C 5 Gbps	USB Type-C 5 Gbps	USB Type-C 5 Gbps	USB Type-C 5 Gbps	USB Type-C 5 Gbps	USB Type-C 5 Gbps	USB Type-C 5 Gbps
Power							
Supply Voltage	5V ± 5%	5V ± 5%	5V ± 5%	5V ± 5%	5V ± 5%	5V ± 5%	5V ± 5%
Power Consumption	2592 x 1944 @ 24 fps	2592 x 1944 @ 24 fps	UYVY 3840 x 2160 @15FPS ≤ 1.6W	UYVY 3840 x 2160 @15FPS ≤ 1.3W	UYVY 3840 x 2160 @15FPS ≤ 1.3W	UYVY 4200 x 3120 @12FPS ≤ 1.4W	TBD
Standby Power	TBD	≤ 0.1W Standby	≤ 0.1W Standby	≤ 0.1W Standby	≤ 0.1W Standby	≤ 0.3W Standby	TBD
Software Support							
Operation System	UVC Plug-and-play Windows 10/11 Linux Yocto	UVC Plug-and-play Windows 10/11 Linux Yocto	UVC Plug-and-play Windows 10/11 Linux Yocto	UVC Plug-and-play Windows 10/11 Linux Yocto	UVC Plug-and-play Windows 10/11 Linux Yocto	UVC Plug-and-play Windows 10/11 Linux Yocto	UVC Plug-and-play Windows 10/11 Linux Yocto
Software	VizionViewer™	VizionViewer™	VizionViewer™	VizionViewer™	VizionViewer™	VizionViewer™	VizionViewer™
Development SDK	VizionSDK	VizionSDK	VizionSDK	VizionSDK	VizionSDK	VizionSDK	VizionSDK

C-Mount Lens

S-Mount Lens

Environmental and Mechanical



	UVCI-ARxxxx-SL	VCI-ARxxxx-SL	VCI-ARxxxx-CB
Dimensions	24.5(W) x 24.5(H) x 25.6(D) mm	29.5(W) x 29.5(H) x 28.5(D) mm	29.5(W) x 29.5(H) x 33.7(D) mm
Weight	≤18 grams	≤44 grams	≤39 grams
MTBF	50,000 Hours	50,000 Hours	50,000 Hours
Shock	15G half-sine 11 ms duration	15G half-sine 11 ms duration	15G half-sine 11 ms duration
Vibration	1 Grms random 5-500Hz hr/axis	1 Grms random 5-500Hz hr/axis	1 Grms random 5-500Hz hr/axis
Relative Humidity	10 to 90 %	10 to 90 %	10 to 90 %
Operating Temperature	- 30°C to + 70°C	-30°C to + 70°C	- 30°C to + 70°C
Certification	Compliant with CE / FCC / RoHS / REACH directives		

C-Mount Lens Information

	C2305080FF	C2305125FF	C2305160FF	C2305250FF	C2305350FF	C2305550FF
Focal Length	8 mm	12.5 mm	16 mm	25 mm	35 mm	50 mm
Aperture	F1.4	F1.4	F1.4	F1.4	F1.4	F1.4
Lens D-FOV	67.1°	46.6°	37.3°	24.6°	17.3°	13.04°
Lens H-FOV	56.3°	39°	30.3°	20°	13.9°	10.46°
Lens V-FOV	43.7°	30.3°	23°	15°	10.4°	7.86°
TTL	57.53 mm	54.03 mm	49.03 mm	48.03 mm	61.23 mm	74.43 mm
MBFL	9.73 mm	11.73 mm	12.43 mm	11.93 mm	7.53 mm	11.93 mm
MOD	0.1 m	0.15 m	0.1 m	0.1 m	0.2 m	0.3 m
TV Distortion	1.0%	-0.8%	0.10%	0.20%	-0.8%	-0.8%
Image Size	2/3”	2/3”	2/3”	2/3”	2/3”	2/3”
Resolution	5MP	5MP	5MP	5MP	5MP	5MP
Filter Thread	M37×P0.5 mm	M30.5×P0.5 mm	M30.5×P0.5 mm	M30.5×P0.5 mm	M37×P0.5 mm	M37×P0.5 mm
Operating Temperature	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
Weight	108 grams	60 grams	61 grams	65 grams	125 grams	128 grams
Size	Ø39.3×47.8 mm	Ø32.9×42.3 mm	Ø33.5×36.6 mm	Ø33.5×36.1 mm	Ø39.8×53.7 mm	Ø39.6×62.5 mm
Material	Metal	Metal	Metal	Metal	Metal	Metal

S-Mount Lens Information

		Focal Length	Aperture	D-FOV	H-FOV	V-FOV	TTL	MOD	Distortion	Lens Structure
AR0144	S33	8 mm	F1.6	33.1° ± 5%	28.0° ± 5%	17.4° ± 5%	26.2 mm	0.3 m	<-5.03%	6G + IR
	S83	2.85 mm	F2.8	82.6° ± 5%	73.5° ± 5%	50.3° ± 5%	20 mm	0.3 m	<-0.35%	2G + 3P + IR
AR0145	S31	8 mm	F1.6	31.2° ± 5%	26.3° ± 5%	16.3° ± 5%	26.2 mm	0.3 m	<-5.03%	6G + IR
	S78	2.85 mm	F2.8	78.2° ± 5%	69.5° ± 5%	47.1° ± 5%	20 mm	0.3 m	<-0.35%	2G + 3P + IR
AR0234	S32	12 mm	F2.0	31.8° ± 5%	26.9° ± 5%	16.8° ± 5%	23.2 mm	0.3 m	<-2.50%	5G + IR
	S83	3.9 mm	F2.8	82.8° ± 5%	73.4° ± 5%	50.1° ± 5%	22 mm	0.3 m	<1.26%	2G + 2P + IR
	S128	2.87 mm	F2.8	127.7° ± 5%	110.5° ± 5%	68.6° ± 5%	21 mm	0.3 m	<-20%	4G + 1P + IR
	S191*1	2.18 mm	F2.4	191.28° ± 5%	154° ± 5%	93.73° ± 5%	14.5 mm	0.2 m	<-75.6%	2G + 3P + IR
AR0235	S30	12 mm	F2.0	29.6° ± 5%	25.3° ± 5%	15.9° ± 5%	23.2 mm	0.3 m	<-2.50%	5G + IR
	S79	3.9 mm	F2.8	78.9° ± 5%	69.6° ± 5%	46.6° ± 5%	22 mm	0.3 m	<1.26%	2G + 2P + IR
	S120	2.87 mm	F2.8	120.3° ± 5%	104.6° ± 5%	62.1° ± 5%	21 mm	0.3 m	<-20%	4G + 1P + IR
AR0246	S33	8 mm	F1.6	33.0° ± 5%	28.6° ± 5%	15.9° ± 5%	26.2 mm	0.3 m	<-5.03%	6G + IR
	S83	2.85 mm	F2.8	82.3° ± 5%	74.5° ± 5%	46.2° ± 5%	20 mm	0.3 m	<-0.35%	2G + 3P + IR
AR0521	S34	12 mm	F2.0	33.6° ± 5%	26.8° ± 5%	20.1° ± 5%	23.2 mm	0.3 m	<-2.50%	5G + IR
	S85	3.9 mm	F2.8	85.2° ± 5%	73.0° ± 5%	58.1° ± 5%	22 mm	0.3 m	<1.26%	2G + 2P + IR
	S140	2.87 mm	F2.8	140.0° ± 5%	110.5° ± 5%	81.4° ± 5%	21 mm	0.3 m	<-20%	4G + 1P + IR
AR0522	S34	12 mm	F2.0	33.6° ± 5%	26.8° ± 5%	20.1° ± 5%	23.2 mm	0.3 m	<-2.50%	5G + IR
	S85	3.9 mm	F2.8	85.2° ± 5%	73.0° ± 5%	58.1° ± 5%	22 mm	0.3 m	<1.26%	2G + 2P + IR
	S140	2.87 mm	F2.8	140.0° ± 5%	110.5° ± 5%	81.4° ± 5%	21 mm	0.3 m	<-20%	4G + 1P + IR
AR0544	S22	12 mm	F2.0	21.3° ± 5%	17.1° ± 5%	12.8° ± 5%	23.2 mm	0.3 m	<-2.50%	5G + IR
	S62	3.9 mm	F2.8	61.4° ± 5%	51.0° ± 5%	39.5° ± 5%	22 mm	0.3 m	<1.26%	2G + 2P + IR
AR0821	S44	12 mm	F2.0	44.0° ± 5%	38.3° ± 5%	21.6° ± 5%	23.09 mm	0.15 m	<2%	5G + IR
	S74	6 mm	F2.8	74.4° ± 5%	67.1° ± 5%	40.8° ± 5%	28.6 mm	0.1 m	<0.5%	7G + IR
	S119	3 mm	F2.0	118.8° ± 5%	110.7° ± 5%	75.4° ± 5%	29.56 mm	0.3 m	<-5%	2G + 3P + IR
	S156	3.2 mm	F2.0	156.0° ± 5%	137.2° ± 5%	79.4° ± 5%	44.98 mm	0.3 m	<-32%	8G + IR
AR0822	S42	12 mm	F2.0	41.7° ± 5%	36.3° ± 5%	20.5° ± 5%	23.09 mm	0.15 m	<2%	5G + IR
	S72	6 mm	F2.8	72.0° ± 5%	64.7° ± 5%	39.0° ± 5%	28.6 mm	0.1 m	<0.5%	7G + IR
	S108	3 mm	F2.0	108.6° ± 5%	104.0° ± 5%	72.2° ± 5%	29.56 mm	0.3 m	<-5%	2G + 3P + IR
	S150	3.2 mm	F2.0	150.0° ± 5%	132.6° ± 5%	77.6° ± 5%	44.98 mm	0.3 m	<-32%	8G + IR
AR1335	S85	3.2 mm	F2.4	84.6° ± 5%	70.3° ± 5%	55.2° ± 5%	22 mm	0.3 m	<1.6%	4G + 2P+ IR

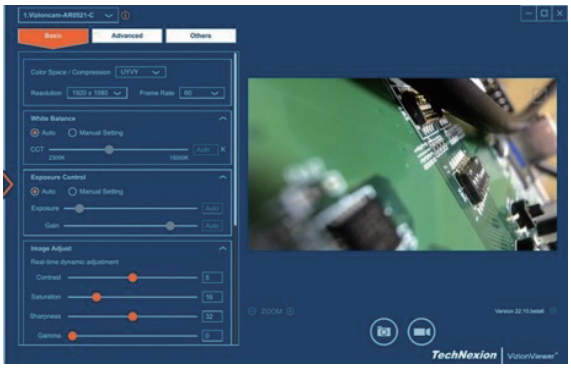
* Note 1 : Only compatible with board-level camera modules.

Customization

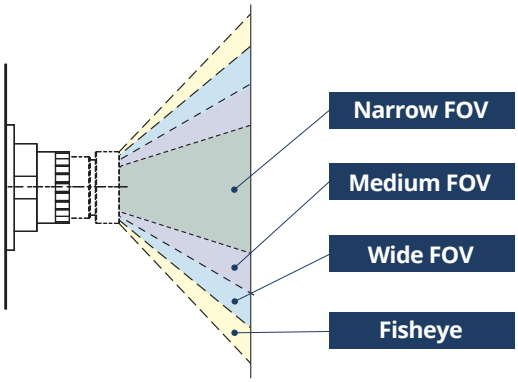
Embedded system design often requires customization to fit the specific target application. Contact your TechNexion sales representative for a consultation if you have questions on one of the following subjects:

Firmware Support

TechNexion USB3 Cameras come with OSP (on sensor profile) support enabling fast boot up and availability of multi camera setups in robotic and industrial embedded applications by providing granular configuration support right inside the camera and completely user definable and configurable with VizionSDK and VizionViewer software.



Custom Lenses



By using a standard S-Mount lens assembly. Our team of optical engineers can assist with precise customization in response to specific requirements to fit your embedded vision project involving FOV, TTL, MOD or mechanical or environmental constraints ensuring optimal performance across a range of use cases.

Optical Light Filters

Searching for a lens with or without an IR-cut filter is as easy as select a standard TechNexion camera sensor. However for custom filters in other light spectrums our optical engineers are standby for a consultation to learn more about your embedded vision project.

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