



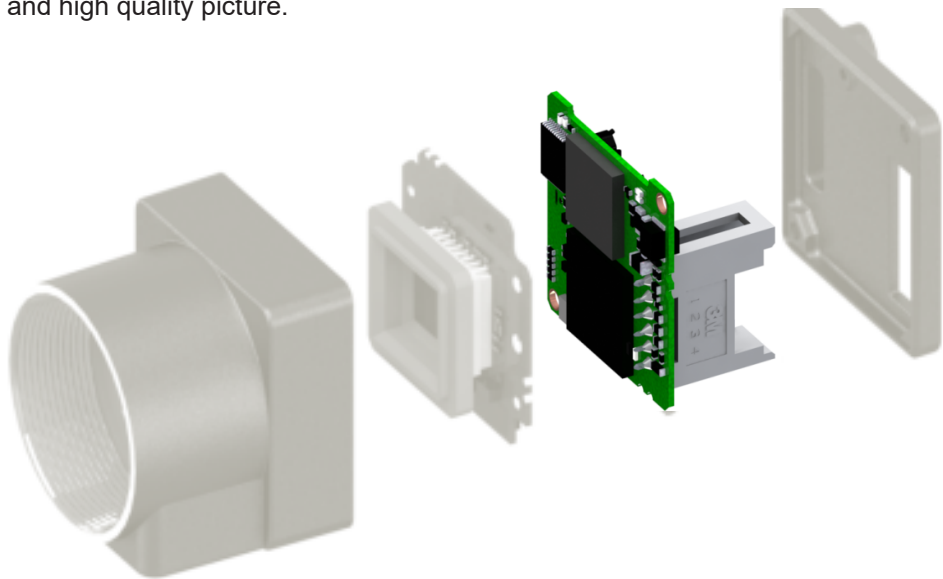
Machine Vision Cameras

Seiwa Optical presents various standard lenses for Machine Vision, Factory Automation, and Inspection. Intelligent image processing. Powerful control and versatile interface for a variety of controls and easy to understand GUI.

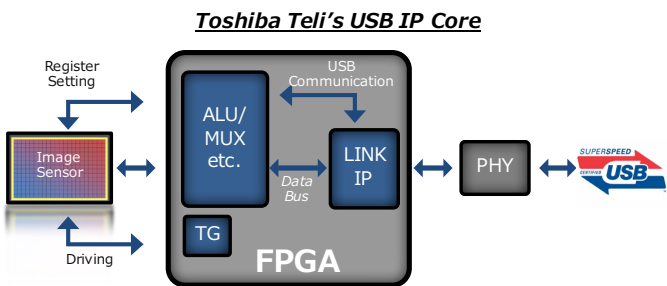


Toshiba Teli USB3 Vision Camera

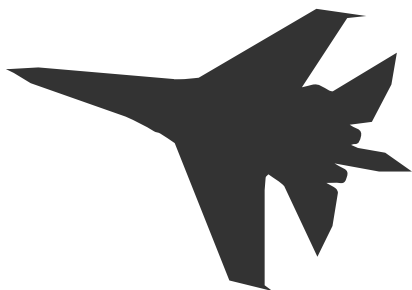
The BU/DU Sony Pregius Sensor series feature the global shutter pixel technology for active pixel type CMOS image sensors that use low-noise CCD structure and high quality picture.



High speed H/W processing using unique IP core



- Global Shutter Fuction
- High Sensitivity
- High S/N
- Low Fixed Pattern Noise
- High Saturation Signal
- Sequential Shutter Mode
- Bulk Trigger Mode
- BUS Synchronization



command	Our Unique USB IP	Generic USB IP	All in one USB chip
			100 times faster
Read register	2.2 - 5us	40.8 - 44.6us	223 - 546us
Software trigger (write register)	2.2 - 5.4us	46.9 - 71.0us	314 - 324us

Toshiba BU/DU Series USB3.0 Cameras

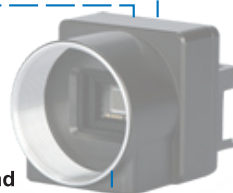
Compact Body

CCD model: 29mm x 13mm
CMOS model: 29mm x 16mm

Light Weight

CCD model: 27g
CMOS model: 32g

Applying CCD and
CMOS Sensor



GPIO Output 1 Input

LED Status Indicator

USB3.0 Micro B

Screw Lock

eCON Connector



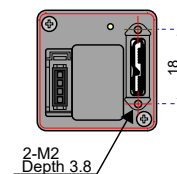
Color and B/W with USB 3.0 Interface Specifications

Model	BU030	BU030C BU030CF	BU040MG	BU040MCG BU040MCF	BU130	BU130C BU130CF	BU160MG	BU160MCG BU160MCF	BU238M	BU238MC BU238MCF
B/W or Color	B/W	Color	B/W	Color	B/W	Color	B/W	Color	B/W	Color
Sensor Size	1/3" CCD		1/2.9" GS-CMOS		1/3" CCD		1/2.9" GS-CMO		1/1.2" GS-CMOS	
Sensor Model	ICX424A		IMX287		ICX445A		IMX273		IMX174	
Frame Rate (fps)	125		436		30		226		165	
Scan Area (mm)	4.88 x 3.66		---		4.86 x 3.62		5.00 x 3.75		11.25 x 7.03	
Pixel Size (μm)	7.4 x 7.4		6.90 x 6.90		3.75 x 3.75		3.45 x 3.45		5.86 x 5.86	
Pixel Resolution (H) x (V)	640 x 480 0.3M		720 x 540 0.4M		1280 x 96 1.3M		1440 x 1080 1.6M		1920 x 1200 2.3M	

Model	BU406M	BU406MC BU406MCF	BU505MG	BU505MCG BU505MCF	BU302MG	BU302MCG BU302MCF	BU602MG	BU602MCG BU602MCF	BU1207MG	BU1207MCG BU1207MCF
B/W or Color	B/W	Color	B/W	Color	B/W	Color	B/W	Color	B/W	Color
Sensor Size	1.0" GS-CMOS		2/3" GS-CMOS		1/1.8 GS-CMOS		1/1.8" RS-CMOS		1.1" GS-CMOS	
Sensor Model	CMV4000		IMX250		IMX252		IMX178		---	
Frame Rate (fps)	90		75		120		60		31	
Scan Area (mm)	11.26 x 11.26		8.50 x 7.09		7.12 x 5.33		7.37 x 4.91		14.19 x 10.34	
Pixel Size (μm)	5.5 x 5.5		3.45 x 3.45		3.45 x 3.45		2.40 x 2.40		3.45 x 3.45	
Pixel Resolution (H) x (V)	2048 x 2048 4M		2448 x 2048 5M		2048 x 1536 3.1M		3072 x 2048 6.2M		4096 x 3000 5M	

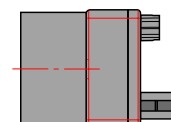
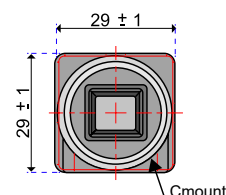
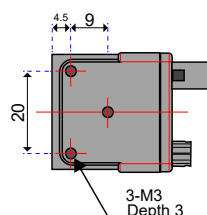
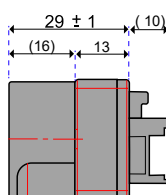
B/W with USB 3.0 Interface

Model	BU031	BU080	BU132M	BU205M
Sensor Size	1/2" CCD	1/3" CCD	1/1.8 GS-CMO	2/3 GS-CMOS
Sensor Model	ICX414A	ICX204A	e2v EV76C560	CMV2000
Frame Rate (fps)	125	40	60	170
Scan Area (mm)	6.52 x 4.89	4.81 x 3.62	6.78 x 5.43	11.26 x 5.98
Pixel Size (μm)	9.9 x 9.9	4.65 x 4.65	5.3 x 5.3	5.5 x 5.5
Pixel Resolution (H) x (V)	640 x 480 0.3M	1024 x 760 0.8M	1280 x 1024 1.3M	2048 x 1088 2M



Color with USB 3.0 Interface

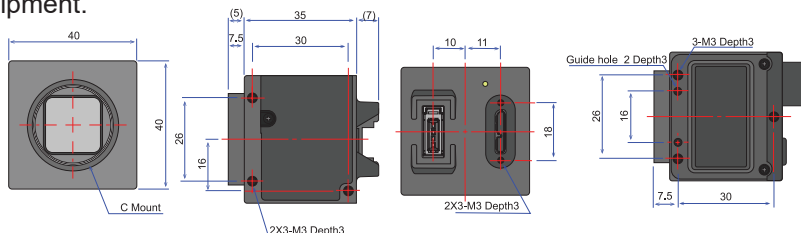
Model	BU1203MC BU1203MCF
Sensor Size	1/1.7" RS-CMOS
Sensor Model	IMX226
Frame Rate (fps)	30
Scan Area (mm)	7.53 x 5.64
Pixel Size (μm)	1.85 x 1.85
Pixel Resolution (H) x (V)	4000 x 3000 12M



New USB3 Vision Camera DU Series

This camera is a High-resolution CMOS camera employing the CMOS sensor which has 6.55Mega pixels readout system. Suffix [C] is attached to the color models.

For video output and camera control, the USB 3.0 interface standard is adopted for high transfer rate, and it is easy to integrate into industrial equipment.



B/W with USB 3.0 Interface

Model	DU657M	DU1207MG	DU657MC	DU1207MGC/MFC
Sensor Size	1.1 type GS-CMOS	1.1 type GS-CMOS	1.1 type GS-CMOS	1.1 type GS-CMOS
Sensor Model	TELI Original	IMX253	TELI Original	IMX253
Frame Rate (fps)	55	32	55	31
Scan Area (mm)	12.8 x 12.8	14.19 x 10.34	12.8 x 12.8	14.19 x 10.34
Pixel Size (μm)	5.0 x 5.0	3.45 x 3.45	5.0 x 5.0	3.45 x 3.45
Pixel Resolution	2560(H) x 2560(V) 6.5M	4096(H) x 3000(V) 12.3M	2560(H) x 2560(V) 6.5M	4096(H) x 3000(V) 12.3M

Color with USB 3.0 Interface

GIGE BG Series

This BG series is an integrated (one-body)-type camera that adopts all pixel data readout interline CCD or CMOS.

The Gigabit Ethernet interface standard "IEEE 802.3ab" is adopted for high transfer rate, and it is easy integrate into industrial equipment.



•Selectable video output area:

This mode achieves higher frame rate by reducing vertical output area

•Reduces occupied data rate of Gigabit Ethernet by reducing horizontal output area and color processing is built in

•Employs global electronic shutter similar to a CCD image sensor, clear images of even fast-moving objects are obtained with less blur

•The Random Trigger Shutter function provides images in any timing by input of an external trigger signal

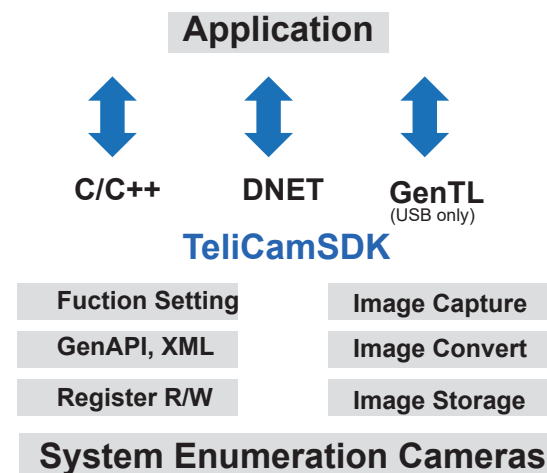
B/W with Gigabit Ethernet IEEE802.3ab Interface Specifications

Model	BG030	BG031	BG080	BG130	BG202	BG205M-CS
Sensor Size	1/3 CCD	1/2 CCD	1/3 CCD	1/3 CCD	1/1.8 CCD	2/3 GS-CMOS
Sensor Model	ICX424AL	ICX414AL	ICX204AL	ICX445AL	ICX274	CMV2000
Frame Rate (fps)	125	125	40	30	20	30
Scan Area (mm)	4.88 x 3.66	6.52 x 4.89	4.81 x 3.62	4.86 x 3.62	7.16 x 5.44	11.26 x 5.98
Pixel Size (μm)	7.4 x 7.4	9.9 x 9.9	4.65 x 4.65	3.75 x 3.75	4.40 x 4.40	5.5 x 5.5
Pixel Resolution	640(H) x 480(V) 0.3M	640(H) x 480(V) 0.3M	1024(H) x 768(V) 0.8M	1280(H) x 960(V) 1.3M	1600(H) x 1200(V) 2M	2048(H) x 1088(V) 2M

Color with Gigabit Ethernet IEEE802.3ab Interface Specifications

Model	BG030C/CF	BG130C/CF	BG202C/CF
Sensor Size	1/3 CCD	1/3 CCD	1/1.8 CCD
Sensor Model	ICX424AQ	ICX445AQA	ICX274
Frame Rate (fps)	125	30	20
Scan Area (mm)	4.88 x 3.66	4.86 x 3.62	7.16 x 5.44
Pixel Size (μm)	7.4 x 7.4	3.75 x 3.75	4.40 x 4.40
Pixel Resolution	640(H) x 480(V) 0.3M	1280(H) x 960(V) 1.3M	1600(H) x 1200(V) 2M

NEW GIGE BG Series



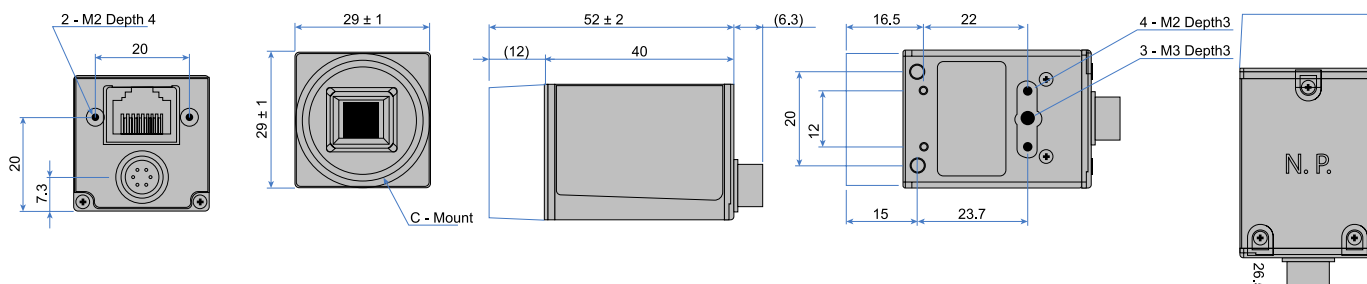
B/W with Gigabit Ethernet IEEE802.3ab Interface Specifications

Model	BG302LMG	BG505LMG	BG040M	BG160M
Sensor Size	1/1.8 type GS-CMOS	2/3 type GS-CMOS		
Sensor Model	IMX265	IMX264		
Frame Rate (fps)	35	22		
Scan Area (mm)	7.07 x 5.30	8.45 x 7.06		
Pixel Size (μm)	3.45 x 3.45	3.45 x 3.45		
Pixel Resolution	2048(H) x 1536(V) 3.1M	2448(H) x 2048(V) 5M		

Color with Gigabit Ethernet IEEE802.3ab Interface Specifications

COMING SOON

Model	BG302LMCG/LMCF	BG505LMCG/LMCF	BG040MC/MCF	BG160MC/MCF
Sensor Size	1/1.8" GS-CMOS	2/3" GS-CMOS		
Sensor Model	Sony IMX265	Sony IMX264		
Frame Rate (fps)	36	22		
Scan Area (mm)	7.07 x 5.30	8.45 x 7.06		
Pixel Size (μm)	3.45 x 3.45	3.45 x 3.45		
Pixel Resolution	2048(H) x 1536(V) 3.1M	2448 x 2048		



High Reliability CameraLink Cameras

Suitable for setting incompact size of 20mm cubic and light weight for 0.3M to 1.4M make this camera suitable for intergrating with equipment.

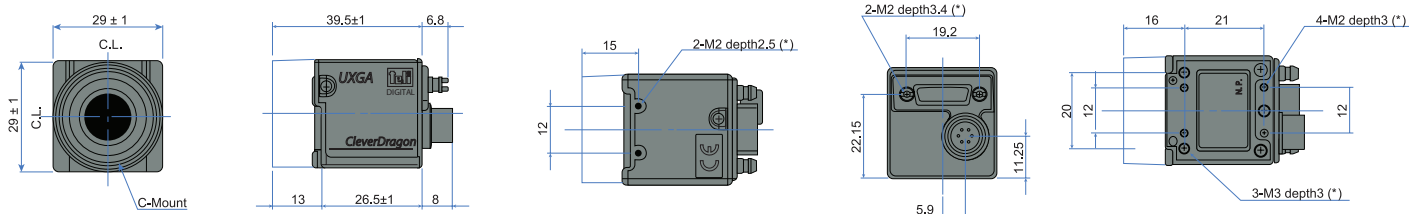


- Capturing image with no deterioration in horizontal resolution by scanning function.
- High accuracy of optical axis

- Higher speed image capturing is achieved by partial scanning function.
- Sequential shutter mode allows setting different condition of imaging and output.

B/W Specifications

Model	CSCV125BC3	CSCS60BM18	CSC6M100BMP11
Sensor Size	1/3 CCD	1/1.8 CCD	1.1 GS-CMOS
Sensor Model	ICX424AL	EV76C560	TELI Original
Frame Rate (fps)	126.2	61	99.2
Scan Area (mm)	4.88 x 3.66	6.78 x 5.43	12.8 x 12.8
Pixel Size (μm)	7.4 x 7.4	5.3 x 5.3	5 x 5
Pixel Resolution	648(H) x 494(V) 0.3M	1280(H) x 1024(V) 1.3M	2560(H) x 2560(V) 6.5M



Camera Link Camera BC Series

This BC series is an integrated-(one-body)-type camera that adopts all pixel data readout with CMOS image sensor. For video output, camera control and power, the Camera Link interface standard is adopted for high transfer rate, and it is easy to integrate into industrial equipment.



B/W Specifications

Pregius



29 X 29 X 26.5 mm 44 g

Model	BC302LMG	BC505LMG
Sensor Size	1/1.8 type GS-CMOS	2/3 type GS-CMOS
Sensor Model	Camera Link Version 2.0	Camers Link Version 2.0
Frame Rate (fps)	52	36
Scan Area (mm)	7.07 x 5.30	8.45 x 7.06
Pixel Size (μm)	3.45 x 3.45	3.45 x 3.45
Pixel Resolution	2048(H) x 1536(V) 3.1M	2448(H) x 2048(V) 5M

CIS - CameraLink CMOS

VGA



CMOS	VGA Compact size 1TAP,2TAP,3TAP High speed	VGA Compact Size High speed	VGA Compact Size High speed
Interface	PoCL•non-PoCL(Auto selection)	PoCL•non-PoCL(Auto selection)	PoCL•non-PoCL
Model name (B/W)	VCC-VCL3M	VCC-VCL5M	VCC-GC20V41CL/PCL
Model Name (Color)	VCC-VCL3R	VCC-VCL5R	VCC-FC20V49CL/PCL
Sensor	PYTHON 300	PregiusIMX287	CMV2000
Sensor size	1/4 type CMOS	1/2.9 type CMOS	1/4 type CMOS
Unit cell size (μm)	4.8 x 4.8	6.9 x 6.9	5.5 x 5.5
Effective Pixel s (HxV)	640 x 480	720 x 540	640 x 480
Resolution	VGA	VGA	VGA
Frame rate	Base 538fps (3tap) 268fps(2tap) 134fps(1tap)	519fps (8bit)	Base 502fps (2tap)
Pixel clock	72MHz 36MHz (Selectable at 2tap output)	74.25MHz	79.99MHz
Shutter	OFF ~ 1/10,752s	OFF ~ 1/50,000s	OFF ~ 1/50,000s
Lens mount	Cmount	C mount	C mount
Dimensions (WxHxD)mm	29x29x29	29x29x29	29x29x29
Features	Corresponds to 3TAP, External trigger, ROI, Sub-sampling, Defective pixel correction, Power auto selection	Corresponds to 3TAP, Defective pixel correction, One push white balance Power auto selection	High speed 500fps, External trigger ROI, Low power consumption 1.6W, 8bit/10bit output

VGA

SXGA



CMOS	VGA Ultra small 22mm cubic in size	SXGA Compact Size 1TAP,2TAP,3TAP	SXGA Compact Size High speed
Interface	PoCL-Lite	PoCL•non-PoCL(Auto selection)	PoCL•non-PoCL(Auto selection)
Model name (B/W)	VCC-GC10V31L	VCC-SXCL3M	VCC-SXCL5M
Model Name (Color)	---	VCC-SXCL3R	VCC-SXCL5R
Sensor	MT9V024	PYTHOM 1300	Pregius IMX273
Sensor size	1/3 type CMOS	1/2 type CMOS	1/2.9 type CMOS
Unit cell size (μm)	6.0 x 6.0	4.8 x 4.8	3.45 x 3.45
Effective Pixel s (HxV)	752 x 480	1280 x 1024	1440 x 1080
Resolution	VGA	SXGA	SXGA
Frame rate	Base 60fps	Base 152fps (3tap) 84fps(2tap) 42fps(1tap)	136fps(8 bit)
Pixel clock	24.545MHz	72MHz•36MHz (Selectable at 2Tap Output)	74.25MHz
Shutter	OFF ~ 1/30,000s	OFF ~ 1/10,000s	OFF ~ 1/50,000s
Lens mount	NF mount	C mount	C mount
Dimensions (WxHxD)mm	22x22x22	29x29x29	29x29x29
Features	Ultra compact size (22mm cubic, 19g), External trigger, ROI, Low power consumption 0.65W, NIR sensitivity	Corresponds to 3TAP, External trigger, ROI, Sub-sampling, Defective pixel correction, Power auto selection, NIR model also available	Corresponds to 3TAP, Defective pixel correction, Binning (B/W model only), One push white balance, Power auto selection

CIS - CameraLink CMOS

2M

3M

4M



CMOS	2M Compact size High speed	3M Compact size high speed	4M High speed/Thin type
Interface	PoCL•non-PoCL	PoCL•non-PoCL(Auto selection)	PoCL•non-PoCL(Selection)
Model name (B/W)	VCC-GC20U11CL/PCL	VCC-3CL5M	VCC-GC60FR11CL
Model Name (Color)	VCC-FC20U19CL/PCL	VCC-3CL5R	VCC-FC60FR19CL
Sensor	CMV2000	Pregius IMX265	CMV 4000
Sensor size	2/3 type CMOS	1/1.8 type CMOS	1 type CMOS
Unit cell size (μm)	5.5 x 5.5	3.45 x 3.45	5.5 x 5.5
Effective Pixel s (HxV)	2048 x 1088	2064 x 1544	2048 x 2048
Resolution	2M	3M	4M
Frame rate	Base: 71fps(2tap)	Base 55fps (3tap) 45fps(2tap) 22fps(1tap)	Base: 17fps (1tap),34fps(2tap) Med: 68fps(4tap) Full: 135fps(8tap)
Pixel clock	79.99MHz	74.25MHz	72MHz
Shutter	OFF ~ 1/50,000s	OFF ~ 1/17,500s	OFF ~ 1/50,000s
Lens mount	C mount	C mount	M42 mount
Dimensions (WxHxD)mm	29x29x29	29x29x29	55x55x25
Features	External trigger, Vertical ROI, 8bit/10bit output	External trigger, ROI, Manual gain control, Power auto selection, GAIN:0~42dB	External trigger, Vertical 8 positions ROI, 8 bit/10bit output (1TAP,2TAP,4TAP)

5M

5.2M



CMOS	5.2M High speed/Various features/Thin type	5M High speed/Various feature/Thin type	5M Compact size
Interface	PoCL•non-PoCL (Selectable)	PoCL•non-PoCL(selection)	PoCL•non-PoCL(Auto Selection)
Model name (B/W)	VCC-5CL1M	VCC-5CL4M/VCC-5CL4MHS	VCC-5CL5M
Model Name (Color)	VCC-5CL1R	VCC-5CL4R/VCC-5CL4RHS	VCC-5CL5R
Sensor	Lince 5M	Pregius IMX250	Pregius IMX264
Sensor size	1 type CMOS	2/3 type CMOS	2/3 type CMOS
Unit cell size (μm)	5.0 x 5.0	3.45 x 3.45	3.45 x 3.45
Effective Pixel s (HxV)	2560 x 2048	2448 x 2048	2448 x 2048
Resolution	5.2M	5M	5M
Frame rate	Base: 30fps(2tap) Med: 59fps(4tap) Full: 117fps(8tap) Deca: 140fps(10Tap 8bit), 117fps(8Tap 10bit)	Base: 28fps(2tap) 8bit/10bit Base: 42fps(3tap) 8bit Med: 57fps(4tap) 8bit/10bit Full: 114fps(8tap) 8bit Deca: 114fps(8tap)10bit Deca: 163fps(10tap 8bit) HS model	Base: 15fps (1tap) 29fps(2tap) 36fps(3tap)
Pixel clock	80MHz	74.25MHz/84.9MHz(HS model)	74.25MHz/63.643MHz
Shutter	OFF ~ 1/99,000s (10Tap Configuration)	OFF ~ 1/55,000s OFF~1/60,000s (HS model)	OFF ~ 1/20,000s
Lens mount	M42 mount	M42 mount	C mount
Dimensions (WxHxD)mm	65x65x31	55x55x25	29x29x29
Features	External trigger, ROI, Sequence function, Binarization, Shading correction, AE, AGC, Binning	External trigger, ROI, Defective pixel correction, Gain:0~36dB	External trigger, ROI, Manual gain control, Gain:0~42dB

CIS - CameraLink CMOS

12M

25M



CMOS	12M High speed/Various features	12M High speed/Various features/Thin type	25M High speed/Various features
Interface	PoCL•non-PoCL (Selectable)	PoCL•non-PoCL (Selection)	PoCL•non-PoCL (Selection)
Model name (B/W)	VCC-12CL1M	VCC-12CL4M	VCC-25CL1M
Model Name (Color)	VCC-12CL1R	VCC-12CL4R	VCC-25CL1R
Sensor	KAC-12040	Pregius IMX253	PYTHON25K
Sensor size	4/3 type CMOS	1.1 type CMOS	APS-H CMOS
Unit cell size (μm)	4.7 x 4.7	3.45 x 3.45	4.5 x 4.5
Effective Pixel s (HxV)	4000 x 3000	4096 x 3000	5120 x 5120
Resolution	12M	12M	25M
Frame rate	Med: 22fps (4tap) Full: 43fps (8tap) Deca: 54fps (10tap•8bit), 43fps (8tap•10bit)	Base: 13fps (2tap) Med: 27fps (4tap) Full: 53fps (8tap) Deca: 63fps (10tap 8bit), 53fps (8tap 10bit)	Base: 5fps (2tap) 8bit/10bit Med: 11fps (4tap) 8bit/10bit Full: 22/25fps (8tap) 8bit Deca: 32fps (10tap) 8bit
Pixel clock	72MHz	84.86MHz	72MHz (8 4 8tap)/85MHz (8 10tap) (Auto Selection)
Shutter	OFF ~ 1/34,000s (10Tap Configuration)	OFF ~ 1/51,000s	1/32 ~ 1/30,000s
Lens mount	M42 mount	M42 mount	M48 mount
Dimensions (WxHxD)mm	65 x 65 x 50	55 x 55 x 25	65 x 65 x 40.5
Features	External trigger, Sequence function, Binarization, Shading correction, AE, AGC, 4 positions ROI, Connector position is selectable at order	Camera Link, Base, Medium, Full, 8tap10bit, 10tap8bit complied, Fixed trigger shutter mode, Pulse width trigger shutter mode Gain: 0~36dB	External trigger, ROI, Defective pixel correction, Shading correction, Sequence function, Binning

CIS Camera Link / CCD

VGA

XGA



CMOS	VGA Compact size	VGA Compact size	XGA Compact size
Interface	PoCL•non-PoCL•PoCL-Lite	PoCL	PoCL•non-PoCL•PoCL-Lite
Model name (B/W)	VCC-G22V31ACL/APCL	VCC-G21V21ACL/APCL	VCC-G21X31ACL/APCL
Model Name (Color)	VCC-F22V39ACL/APCL	---	---
Sensor	ICX424L ICX424AQ	ICX414AL	ICX204AL
Sensor size	1/3 type CCD	1/2 type CCD	1/3 type CCD
Unit cell size (μm)	7.4 x 7.4	9.9 x 9.9	4.65 x 4.65
Effective Pixel s (HxV)	659 x 494	659 x 494	1034 x 779
Resolution	VGA	VGA	XGA
Frame rate	120fps	60fps	36fps
Pixel clock	49MHz	24.54MHz	36MHz
Shutter	OFF (1/120S) ~ 1/100,000S	OFF (1/60s) ~ 1/50,000s	OFF (1/36s) ~ 1/48,000s
Lens mount	C mount	C mount	C mount
Dimensions (WxHxD)mm	29 x 29 x 29	29 x 29 x 29	29 x 29 x 29
Features	External trigger, Partial scan, 8bit/10bit output	External trigger, Partial scan, 8bit/10bit output	External trigger, ROI, Partial scan, Binning, 8bit/10bit output

CIS - CameraLink / CCD

SXGA

UXGA



CMOS	VGA Compact size	VGA Compact size
Interface	PoCL•non-PoCL•PoCL-Lite	PoCL
Model name (B/W)	VCC-G22V31ACL/APCL	VCC-G21V21ACL/APCL
Model Name (Color)	VCC-F22V39ACL/APCL	---
Sensor	ICX424L ICX424AQ	ICX414AL
Sensor size	1/3 type CCD	1/2 type CCD
Unit cell size (μm)	7.4 x 7.4	9.9 x 9.9
Effective Pixel s (HxV)	659 x 494	659 x 494
Resolution	VGA	VGA
Frame rate	120fps	60fps
Pixel clock	49MHz	24.54MHz
Shutter	OFF(1/120S)~1/100,000S	OFF (1/60s)~1/50,000s
Lens mount	C mount	C mount
Dimensions (WxHxD)mm	29 x 29 x 29	29 x 29 x 29
Features	External trigger, Partial scan, 8bit/10bit output	External trigger, Partial scan, 8bit/10bit output

CoaXpress Camera

VGA

SXGA

2M



CMOS	VGA Compact size High speed	SXGA Compact size High speed	2M Compact size High speed
Interface	CXP3 X 1lane	CXP1 - CXP3 X 1lane	CXP1 - CXP3 X 1lane
Model name (B/W)	VCC-VCXP5M	VCC-SXCXP3M	VCC-2CXP2M
Model Name (Color)	VCC-VCXP5R	VCC-SXCXP3R	---
Sensor	Pregius IMX287	PYTHON 1300	PYTHON 2000
Sensor size	1/2.9 type CMOS	1/2 type CMOS	2/3 type CMOS
Unit cell size (μm)	6.9 x 6.9	4.8 x 4.8	4.8 x 4.8
Effective Pixel s (HxV)	728 x 544	1280 x 1024	1984 x 1264
Resolution	VGA	SXGA	2M
Frame rate	523fps (8bit)	84fps(CXP1), 168fps(CXP2), 168fps(CXP3)	42fps(CXP1), 85fps(CXP2), 85fps(CXP3)
Pixel clock	74.25MHz	72MHz	72MHz
Shutter	OFF~1/20,000s	OFF ~1/10,000s	OFF~1/5,000s
Lens mount	C mount	C mount	C mount
Dimensions (WxHxD)mm	29 x 29 x 29	29 x 29 x 29	29 x 29 x 29
Features	Connector:BNC ROI, H&V flip, Defective pixel correction, Shading correction, Gain:0~48dB	Connector:BNC External trigger, Long distance transmission, Sub-sampling, ROI, Defective pixel correction, NIR model also available, PoCXP, Sequence control	Connector:BNC External trigger, ROI, Defective pixel correction, Shading Correction PoCXP

2M

5.3M



CMOS	2M High speed	5.3M Compact size High speed	5.3M High speed
Interface	CXP1 - CXP6 X 1lane	CXP1 - CXP3 X 1lane	CXP1 - CXP6 X 1lane
Model name (B/W)	VCC-2CXP3M	VCC-5CXP2M	VCC-5CXP3M
Model Name (Color)	VCC-2CXP3R	---	VCC-5CXP3R
Sensor	PYTHON 2000	PYTHON 5000	PYTHON 5000
Sensor size	2/3 type CMOS	1 type CMOS	1 type CMOS
Unit cell size (μm)	4.8 x 4.8	4.8 x 4.8	4.8 x 4.8
Effective Pixel s (HxV)	1920 x 1200	2592 x 2048	2592 x 2048
Resolution	2M	5.3M	5.3M
Frame rate	45fps(CXP1), 90fps(CXP2), 90fps(CP3) 180fps(CXP5•CXP6)	21fps(CXP1), 43fps(CXP2), 43fps(CXP3)	21fps(CXP1), 43fps(CXP2), 43fps(CXP3) 85fps(CXP5 • CXP6)
Pixel clock	72MHz	72MHz	72MHz
Shutter	OFF~1/10,000s	OFF~1/10,000s	OFF~1/10,000s
Lens mount	C mount	C mount	C mount
Dimensions (WxHxD)mm	29 x 29 x 55	29 x 29 x 29	29 x 29 x 55
Features	Connector:BNC External trigger, Sub-sampling, ROI, Defective pixel correction, NIR model also available, PoCXP, Sequence control	Connector:BNC External trigger,ROI, Defective pixel correction, Shading correction, PoCXP	Connector:BNC External trigger,Sub-sampling, ROI, Defective pixel correction, NIR model also available, PoCXP, Sequence control

12M

25M



CMOS	12M High speed	12M High speed	25M High speed
Interface	CXP6 X 4lanes	CXP6 X 2lanes	CXP6 X 6lane
Model name (B/W)	VCC-12CXP1M	VCC-12CXP4M	VCC-25CXP1M
Model Name (Color)	VCC-12CXP1R	VCC-12CXP4R	VCC-25CXP1R
Sensor	PYTHON 12K	Pregius IMX253	PYTHON 25K
Sensor size	4/3 type CMOS	1.1 type CMOS	APS-H CMOS
Unit cell size (μm)	4.5 x 4.5	3.45 x 3.45	4.5 x 4.5
Effective Pixel s (HxV)	4096 x 3072	4096 x 3000	5120 x 5120
Resolution	12M	12M	25M
Frame rate	163fps (CXP6 X 4lane)	64fps (10bit)	82fps (CXP6 X 4lane)
Pixel clock	72MHz	74.25MHz	72MHz
Shutter	1/30~1/30,000s	OFF~1/51,000s	1/30~1/30,000s
Lens mount	M48 mount	M42 mount	M48 mount
Dimensions (WxHxD)mm	65 x 65 x 65	55 x 55 x 30 (T.B.D)	65 x 65 x 65
Features	Connector:DIN Long distance transmission, ROI, Sub-sampling, Defective pixel correction, Sequence control PoCXP	ROI, Shading correction, Defective pixel correction, Gain:0~48dB	Connector:DIN Long distance transmission, ROI, Sub-sampling, Defective pixel correction, Sequence control, PoCXP (2x2 binning option)

CoaXpress

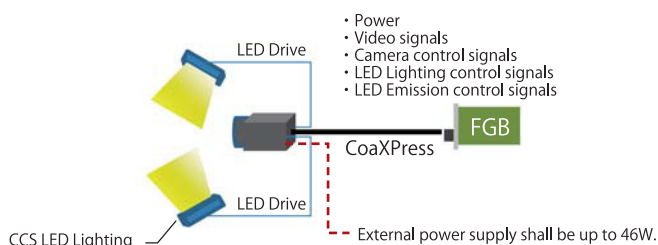
120M

VGA & SXGA with LED controller



CMOS	120M High Resolution	VGA	SXGA
Interface	CXP3/6 X 4lanes, 6 X 2lane	CXP1 - CXP3 X 1lane	CXP1 - CXP3 X 1lane
Model name (B/W)	VCC-120CXP1M	VCC-VCXP3ML	VCC-SXCXP3ML
Model Name (Color)	VCC-120CXP1R	VCC-VCXP3RL	VCC-SXCXP3RL
Sensor	120MXSM	PYTHON 300	PYTHON 1300
Sensor size	APS-H CMOS	1/4 type CMOS	1/2 type CMOS
Unit cell size (μm)	2.2 x 2.2	4.8 x 4.8	4.8 x 4.8
Effective Pixel s (HxV)	13264 x 9180	640 x 480	1280 x 1024
Resolution	120M	VGA	SXGA
Frame rate	9.4fps	269fps(CXP1), 537fps(CXP2), 537fps(CXP3)	84fps(CXP1), 169fps(CXP2), 169fps(CXP3)
Pixel clock	1152MHz	72MHz	72MHz
Shutter	OFF~1/20,000s	OFF ~1/10,000s	OFF~1/10,000s
Lens mount	M48 mount	C mount	C mount
Dimensions (WxHxD)mm	65 x 65 x 68	29 x 29 x 55	29 x 29 x 55
Features	Ultra-high resolution, High-speed processing, Strobe out, Long time exposure, PoCXP	Connector:BNC Sequence control (lighting can be controlled as well), PoCXP, External power supply shall be up to 46W	Connector:BNC Sequence control (lighting can be controlled as well) PoCXP, External power supply shall be up to 46W

Models with LED controller



The following products feature embedded LED controller, and up to 2 channels of LED and the camera can be powered and controlled via single BNC cable. The camera allows precise synchronization of the external LED light and image capture. Designed for use with IMAC LED lightings.

CMOS	2M	5.3M
Interface	CXP1 - CXP6 X 1lane	CXP1 - CXP6 X 1lane
Model name (B/W)	VCC-2CXP3ML	VCC-5CXP3ML
Model Name (Color)	VCC-2CXP3RL	---
Sensor	PYTHON 2000	PYTHON 5000
Sensor size	2/3 type CCD	1 type CMOS
Unit cell size (μm)	4.8 x 4.8	4.8 x 4.8
Effective Pixel s (HxV)	1920 x 1200	2592 x 2048
Resolution	2M	5.3M
Frame rate	45fps (CXP1), 90fps (CXP2), 90fps (CXP3), 180fps (CXP5•CXP6)	21fps (CXP1), 42fps (CXP2), 42fps (CXP3), 85fps (CXP5 •CXP6)
Pixel clock	72MHz	72MHz
Shutter	OFF~1/10,000s	OFF~1/10,000s
Lens mount	C mount	C mount
Dimensions (WxHxD)mm	29 x 29 x 55	29 x 29 x 55
Features	Connector:BNC Sequence control (lighting can be controlled as well), PoCXP, External power supply shall be up to 46W	Connector:BNC Sequence control (lighting can be controlled as well), PoCXP, External power supply shall be up to 46W

HDMI-4K-DPX

Microscope Camera for ultra high quality inspection.

The 4K UHD camera is remarkably fast with no less than 30 fps in 4K mode and 60 fps in 1080P mode. The HDMI outlet and cable makes it possible to connect to all screens, however the best result will be seen on a 4K UHD screen.

Specifications

Model	HDMI-4K-DPX
Pixel Resolution	3840x2160
Frame Rate (fps)	30fps in 4K 60fps in FHD
Color Sensor	8.3 Megapixels
Sensor Format	1/1.9" Exmor Sensor
Pixel Size (µm)	1.85 µm



SW HDMI Cameras

The SW HDMI camera is a high resolution color camera is packed with many innovative features to simplify your work.

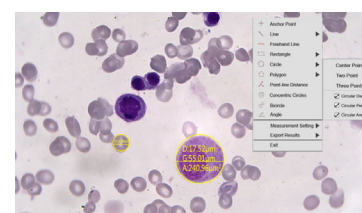
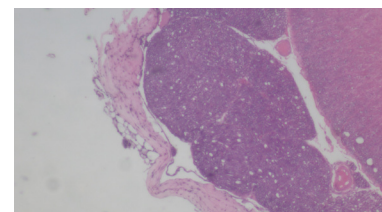
It is the perfect solution for professionals in need of accurate measurement tool in fields of industry, research, medicine and science.

- Excellent for microscopy with fast live images and high-resolution still images
- Streaming-live video on monitor via HDMI, no need for a computer
- USB 2.0 and HDMI compatible
- Intuitive user interface with powerful and easy-to-use image capture and processing functions
- Built-in video recording
- Built-in advanced measurement



Specifications

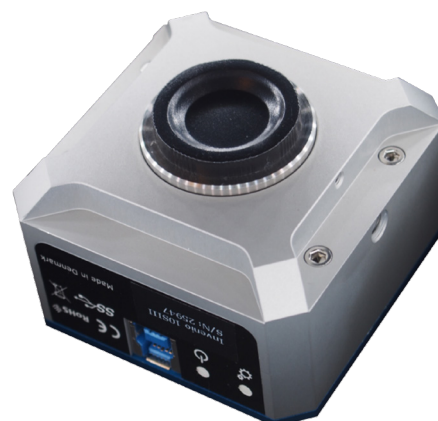
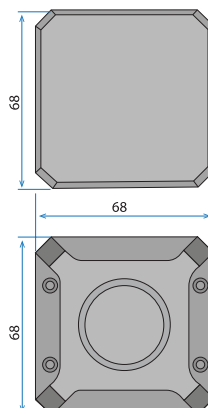
Model	SW HDMI
Image Resolution	3264 x 1840
Frame Rate (fps)	30fps (1920 x 1080 pixels) via USB 2.0 60fps (1920 x 1080 pixels) via HDMI
Color Sensor	6.0 Megapixels CMOS
Sensor Format	1/ 2.8" Diagonal 6.4mm
Pixel Size (µm)	2.8 x 2.8



Invenio Microscope Camera Series

This series of CCD and CMOS cameras are designed for use with digital microscopes in industrial, biomedical, scientific and forensic applications.

Available with resolutions up to 32MP.
Included software provides easy-to-use image capture and processing functions.



Invenio EIII Cameras

Model	Invenio 2EIII	Invenio 6EIII	Invenio 10EIII	Invenio 12EIII	Invenio 20EIII
Pixel Resolution	1920x1200 3.2 MegaPixel	3072x2040 6.3 MegaPixel	3840x2560 10.2 MegaPixel	4000x3000 12 MegaPixel	3840x2560 10.2 MegaPixel
Frame Rate	up to 45fps	15fps in 3072x2040 25fps in 1536x1024	15fps in 3840x2560 35fps in 1920x1280	20fps in 4000x3000 40fps in 2048x1080	15fps in 5440x3648 35fps in 2736x1824
Pixel Size (µm)	3.75 x 3.75	2.4 x 2.4	2.4 x 2.4	1.85 x 1.85	2.4 x 2.4
Sensor Size	1/1.9" Sony Exmor	1/1.8" Sony Exmor	2/3" Sony Exmor	1/1.7" Sony Exmor	1" Sony Exmor
Sensitivity	1120mv with 1/30s	425mv with 1/30s	462mv with 1/30s	280mv with 1/30s	462mv with 1/30s
Shutter	Electronic Rolling Shutter				
Data interface	USB 3.0				



Invenio SIII Cameras

Model	Invenio 5SIII	Invenio 10SIII
Pixel Resolution	2592 x 1944 5 MegaPixel	3584 x 2746 10 MegaPixel
Frame Rate	14fps in 2592x1944 30fps in 1280x960	7fps in 3584x2746 15fps in 1792x1372
Pixel Size (µm)	2.2 x 2.2	1.67 x 1.67
Sensor Size	1/2.5" CMOS	1/2.3" CMOS
Sensitivity	1.76v/lux-sec	0.31v/lux-sec
Shutter	Electronic Rolling Shutter	
Data interface	USB 3.0	

Infinity X-32

Model	Infinity X-32
Pixel Resolution	1616x1216 2 Million
Frame Rate	12fps in 1616x1216 14fps in 1280x1024
Pixel Size (µm)	4.4 x 4.4
Sensor Size	1/1.8" CCD
Sensitivity	ISO 200 to 3500
Shutter	Electronic Global Shutter
Data interface	USB 2.0

ABS InGaAs Camera

Specifications

Model	IK1112
Sensor	3/4" InGaAs, progressive scan
Image Resolution (pixels)	320 (H) x 256 (V)
Pixel Size	30 µm x 30 µm
Sensor fps (internal)	110 fps at 320 x 256 pixels
Shutter	Global Shutter
Exposure Time Range	35 µs to 1 s
A/D Resolution	14 bit
Gain	Two modes (low gain and high gain)
Internal Image Memory	32 MB
Data Interface	USB2.0 (high speed)
Power Supply	USB bus powered
Power Loss	typ. 2.1 W
Temperature Range (operational)	0 °C to + 55 °C
Temperature Range (storage)	-40 °C to + 85 °C
Dimensions (without lens)	31.4mm x 45mm x 95mm
Weight	130g (without lens)
Lens Adapter	C - Mount adjustable
Options	Digital Inputs: •1x opto - decoupled (programmable) Digital Outputs: •1x opto - decoupled (strobe) •Temperature sensor near the sensor •RS232 interface (optional) •USB cable strain relief [order: ZK - ZE - 02] •Tripod socket adapter [order: ZK - FA - 02]

*Sensor specifications are valid within a centered image field of 318 x 254 pixels.



InGaAs USB 2.0 Camera

The optional available M42 to C - mount adapter or F- mount (Nikon) to C-mount extends the number of lenses which can be used with this camera.

DataSheet SWIR Camera Series

This series of cameras are highly sensitive to infrared (SWIR, NIR). The sensitivity interval reaches from 900 nm to 1700 nm.



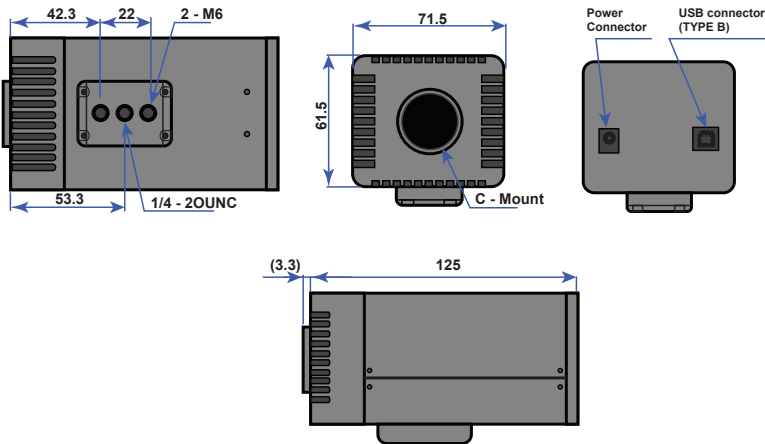
Specifications

Model	IK1513	IK1523
Sensor Size	3/4" InGaAs matrix sensor, progressive scan	4/3" InGaAs matrix sensor, progressive scan
Resolution	320 (H) x 256 (V) pixels	640 (H) x 512 (V) pixels
Pixel Size	30 µm x 30 µm	25 µm x 25 µm
Spectral Range	0.9 µm to 1.7 µm	0.9 µm to 1.7 µm
Active Sensor Size	9.6mm (H) x 7.68mm (V)	16mm (H) x 12.8mm (V)
A/D Resolution	14 bit	14 bit
Frame Rate	110 fps	30 fps
Exposure Time	35 µs to 1 s	67 µs to 1 s
Gain	Two modes (low gain and high gain)	Two modes (low gain and high gain)
Digital Interface	USB2.0 (High Speed)	USB2.0 (High Speed)
Trigger	opto - decoupled	opto - decoupled
Power Supply	12 - 24 v (DC)	12 - 24 v (DC)
Power Loss	2 W (without cooling) 10 W (with cooling)	2 W (without cooling) 10 W (with cooling)
Sensor Cooling	TEC	TEC Peltier
Temperature Range (operational)	0 °C to + 55 °C	0 °C to + 55 °C
Temperature Range (storage)	-40 °C to + 85 °C	-40 °C to + 85 °C
Dimensions (without lens)	91mm x 91mm x 86mm	91mm x 91mm x 86mm
Weight	approx. 850g	approx. 850g
Lens Mount	M42 or C-Mount, adjustable (Optional F-mount Adapter)	M42 or C-Mount, adjustable (Optional F-mount Adapter)
Filter Thread	M35.5 in front of the sensor	M35.5 in front of the sensor

ARTRAY InGaAs Cameras

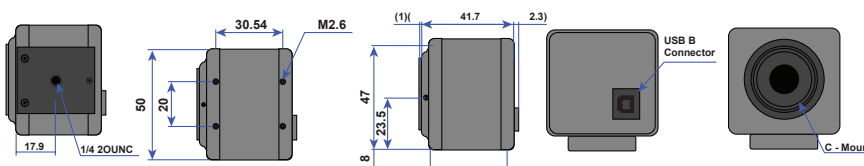
ARTCAM-TNIR

This series of cameras use InGaAs (Indium Gallium Arsenide), sensors with high spectral response ranging from 900nm - 1700nm.



InGaAs USB2.0 Specifications

Model	ARTCAM-031TNIR	ARTCAM-008TNIR	ARTCAM-0016TNIR
Sensor Model	InGaAs	InGaAs	InGaAs
Sensor	16.0 x 12.8	9.6 x 7.68	2.56 x 2.56
Frame Rate (fps)	27.4	90	258
Pixel Size (μm)	25 x 25	30 x 30	20 x 20
Spectral Sensitivity	900 ~ 1700	900 ~ 1700	950 ~ 1700
Pixel Resolution	640(H) x 512(V) 0.33M	320(H) x 256(V) 0.08M	128(H) x 128(V) 0.016M



CMOS NIR Cameras

Model	130-HP-WOM	1000MI-NIR-WOM	130-MI-NIR-WOM	036MI2-NIR-WOM	ARTCAM-130XQE-WOM
Sensor Size	2/3 CMOS	1/2.3 CMOS	1/2 CMOS	1/3 CMOS	1 RS-CMOS
Sensor Model	CMOS	CMOS	CMOS Imager	CMOS Imager	CMOS Imager
Frame Rate (fps)	8	4.4	30	30	27.7
Scan Area	4.88 x 3.66	---	---	---	---
Pixel Size (μm)	7.4 x 7.4	1.67X1.67	5.2 x 5.2	6.0 x 6.0	10 x 10
Pixel Resolution	1280(H) x 1024(V) 1.3M	2448(H) x 2058(V) 10M	1280(H) x 1024(V) 1.3M	640(H) x 480(V) 0.36M	1280(H) x 1024(V) ---

Converter

GigE — HDMI Converter

HDI-Pro

HDI-Pro is an equipment to display the GigE format image on HDMI input monitor. Ideal for using in the environment without computer. Maximum 8 cameras in the network can be controlled automatically.



Model	HDI-Pro
Input	RJ45
	10 / 100 / 1000 Mb/s
Output	HDMI (DVI)
Transmission Rate	1 Gb/s
Standard	GigE Vision / GenICam
Power Consumption	4.3 W
Dimension	98(W) x 59(H) x 40(D) mm
Accessories	Power supply / mount bracket / SDK

Analog — GigE Converter

Analog-Pro

Convert analog format image to GigE format. Easy to capture the data to computer. Able to extend cable length by noise resistance feature.



Model	Analog-Pro
Input	2x BNC female
	NTSC/PAL/CCIR/RS170
Output	1x RJ45
	10 / 100 / 1000 Mb / Ethernet
Pixel format	8bit Mono / YUV4:2:2
Standard	GigE Vision GenICamTM
Power Consumption	4W (Max.)
Accessories	Power supply/SDK/LAN board/LAN cable(2M)
Dimension	113(W)x51(H)x82(D)mm
Weight	120g

CameraLink — USB3.0 Converter

CI-U3M

Convert CameraLink (Medium) signal to USB3.0 for easy data capturing to computer.



Model	CL-U3M
Input	CameraLink (PoCL compatible)
	Medium 1 / 2 / 4 tap
Output	USB3.0 version1.0 (microB plug)
	Transmission rate: 3Gb/s
Standard	USB3 Vision / GenICamTM
Power Consumption	2.5W
Accessories	Power supply/SDK/USB cable(2m)
Dimension	82(W) x 51(H) x 38(D)mm
Weight	132g

CameraLink — GigE Converter

CL-GigE

Convert CameraLink (Base) to GigE. You can use your laptop computer. Easy to extend the cable length.



Model	CL-GigE
Input	x4 Mini CL(SDR 26pin) PoCL compatible
	Base Configuration 1ch
Output	RJ45
	10/100 Mbps
Transmission Rate	1 Gbit/s
Standard	GigE Vision, GenICam
Power Supply	PoE compatible
Dimension	83(W)x51(H)x38(D)mm
Accessories	PoE injector / LAN board LAN cable (2m) x2 / SDK

Converter

Camera — 10 GigE Converter

CL-Ten

Convert CameraLink (Full) to 10 GigE. High-speed communication and easy cable handling.



Model	CL-GigE
Input	x4 Mini CL(SDR 26pin) PoCL compatible
	Base Configuration 1ch
Output	RJ45 (10GigE)
	10000 Mbps
Transmission Rate	8.16Gbit/s
Standard	GigE Vision2.0
Power Supply	11.5W
Dimension	125.5(W)x71.7(H)x100(D)mm
Accessories	Power supply / 10GigE LAN board SFP+module/Optical cable (2m)x2/SDK

USB3.0 Hybrid Active Optical Cable EPU3HC-AOB3

The ordinary USB 3.0 active fiber cable cannot supply power to the device. To help solve this issue, EverPro introduces a new generation of USB 3.0 hybrid cable (EPU3HC). Using optical fiber as the transmission medium, EPU3HC integrates copper to supply power to the device. The hybrid cable length can be up to 20m without adding any relay device. This is useful when there is no on-site power supply. Everpro's EPU3HC-AOB3 product is easy to use for machine vision applications because of its MicroB connector with screw lock.



Physical Specification

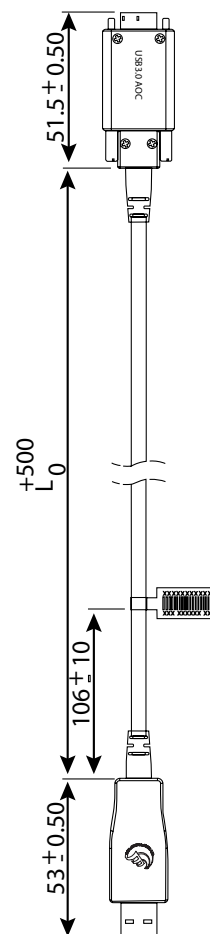
Host Side	USB3.0 Standard-A Plug
Device Side	USB3.0 Micro-B Plug (with locking screws)
End Demension	Host Side: 43.64mm/19.14mm/8mm Device Side: 49.46mm/23.5mm/10mm
Net Weight (Type)	395g (10m)
Cable Diameter	4.8mm
Option Cable length	05m/10m/15m/20m
Bend Radius (Dynamic/Static)	50mm/20mm
Tensile Strength (Long Term/Short Term)	150N/300N
Crush resistance (Long Term/Short Tem)	500N/100N
Operating/Storage Temperature	0~50°C/-20~70°C

Electrical Specification

Supply Voltage	4.75~5.25V
Supply Current	<200mA
Power Dissipation	0.94W
Device Side Supply Current	Max.5V 900mA(05m/10m/15m)/600mA(20m)

General Information

ROHS Compliance	Yes
CE Conformiity	Yes
ULComformity	UL 758
Warranty	1 year



U3HC, USB3.0 Hybrid Cable

The ordinary USB 3.0 active fiber cable cannot supply power to the device. To help solve this issue, EverPro introduces a new generation of USB 3.0 hybrid cable (EPU3HC). Using optical fiber as the transmission medium, EPU3HC integrates copper to supply power to the device. The length of USB3.0 Hybrid Cable can be extended up to 50m. This feature offers flexibility in extending integration applications with machine vision cameras, security cameras, and storage drives.



SPECIFICATIONS

Up to 50m	
Cable length options	10m/20m/30m/50m
Interface	
Hostside	USB3.0 Standard - A Plug (with locking screws)
Device Side	USB2.0 Micro-B Receptacle, Auxiliary power supply for device with >2W power dissipation
Data rate	USB3.0 Super Speed, Up to 5Gbps, Not Backward compatible with USB2.0/1.1

Power Dissipation	0.94W
Power	
Host side	USB Bus Power Supply
Device side Supply Current	Max. 5V [900mA(10m/20m/30m)] / [600mA(50)] (Need to connect Auxiliary power supply to host side)
Physical/Environmental	
Dimension of the End	Host side: 44mm/27mm/13mm Device Side: 36.5mm/22mm/8.5mm
Weight of the End	TBD
Cable Diameter	3mm
Bend Radius	20mm
Operating Temperature	0 - 55° C
Storage Temperature	-20 - 80° C

Part number	Description
EPU3HC-A1B3K010M	10 meters USB3.0 Hybrid Cable with TypeA-MicroB Plug with Screw
EPU3HC-A1B3K020M	20 meters USB3.0 Hybrid Cable with TypeA-MicroB Plug with Screw
EPU3HC-A1B3K030M	30 meters USB3.0 Hybrid Cable with TypeA-MicroB Plug with Screw
EPU3HC-A1B3K050M	50 meters USB3.0 Hybrid Cable with TypeA-MicroB Plug with Screw

Machine Vision Software

Image processing software for any industrial automation application. This platform allows flexibility in creating many distinct functions through a simple user interface. The user can select the type of cameras, frame grabber or I/Os. Up to 6 cameras can be connected to the software to run simultaneously & independently. Camera support this software: **Toshiba Teli, Allied Vision Technology, Basler, Basumer, Daheng, Dahua, The Imaging Source, IndCam HiK, and Joview.**



Main Key Feature for the WIZER:
Color Detection
Pattern Matching
Surface Defect
Measurement
Alignment
Code Identificaion
Optical Character Recognition
Robot Guidance

S/N	Description	Specification
1	Operating System	Window 7/8/10 (64 & 32 bits)
2	CPU	1.9GHz or faster
3	Memory Ram	Minimum 2 GB
4	Storage	64 GB free space
5	Graphic Display	Minimum resolution of 1280 x 800 pixels
6	Licensing	USB security dongle

Machine Vision Software

Color Detection

Processing color images can simplify machine vision tasks and provide solutions to problems not possible in gray value images. Color extraction can differentiate similar colors and confirm proper shades. Able to do product differentiation or detection based on appearance.

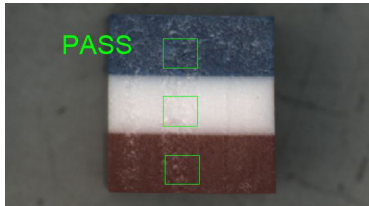


Image example of Color Detection



Pattern Matching

Search and evaluate a configured contour pattern. Finds a comparison with the reference contour, which is useful for alignment purposes, rotation and scale changes, detecting occlusions, or for vision guided robotic applications.

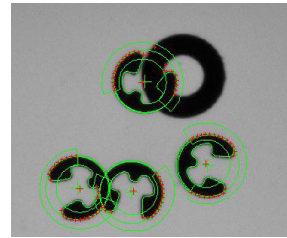
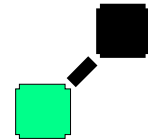


Image example of Pattern Matching



Surface Defect

Automatic evaluation enhances quality control. Using combinations of the available modules and process direction can help detect absence or presence of surface features. The program can detect and classify defects, and automate "Pass" and "No Good" decisions.

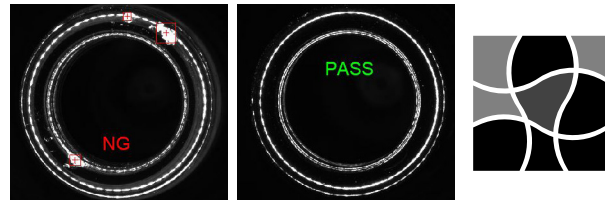


Image example of Alignment

Measurement

Measure edges detected with powerful algorithms performing subpixel measurements to achieve high accuracy.

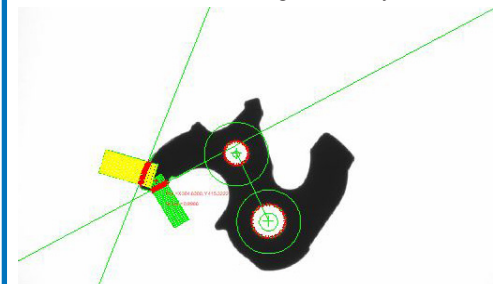
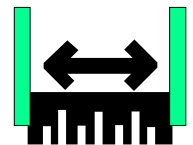


Image example of Measurement



Alignment

Accurate subpixel Matching tools to find objects robustly & accurately even if they are rotated & scaled. And subpixel edge extraction along line/arc to meet high alignment accuracy.

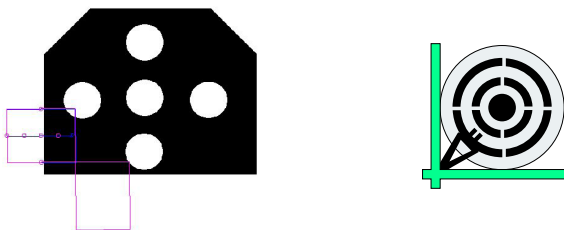


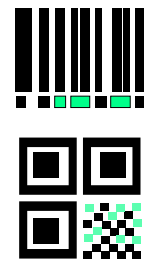
Image example of Alignment

Measurement

All common barcode can be read in any orientation and able to read ECC200, QR, Micro QR code of any sizes.



Image example of Code Identification



Optical Character Recognition

Able to achieve reliable, robust and accurate OCR result. With pretrained fonts including dot printed, industrial fonts semi fonts, ect.

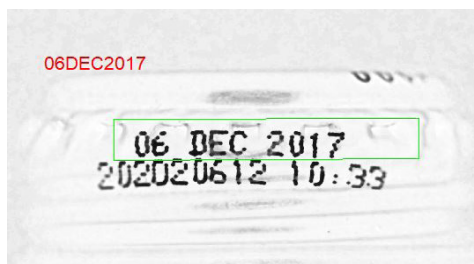
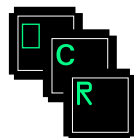


Image example of Optical Characters Recognition



Robot Guidance

Industrial robots that can assist in achieving flexible manufacturing and save development time. They can be programmed to accomplish tasks using the guidance of the software.

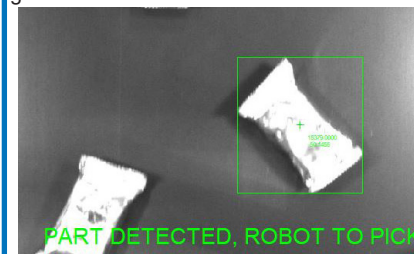
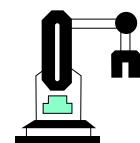


Image example of Robot Guidance



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