

VP-29MC-M/C 5

Thermoelectric Peltier Cooled
High Speed Programmable Digital Camera



VP Series cameras are thermo – electric Peltier (TEC) cooled high performance digital cameras. These cameras use cooling technology developed for and used by many demanding medical market customers. The TEC maintains the operating temperature of the CCD at up to 20 degrees below ambient temperature. These cameras provide a stable operating condition and the ability to expose for a long period of time to increase camera sensitivity. These cameras are ideal for industrial applications such as FPD inspection and microscopy.

VIEWORKS

www.vieworks.com

VP-29MC-M/C 5

Thermoelectric Peltier Cooled – High Speed Programmable Digital Camera

Main Features

- Thermoelectric Peltier Cooled
- 20 degrees below ambient temperature
- Progressive Scan Interline Transfer CCD Imager
- Flat Field Correction
- Pixel Defect Correction
- Field Upgradable Firmware

Applications

- Flat Panel Display Inspection
- Research and Scientific Imaging
- Machine Vision Inspection
- Microscopy and Metrology

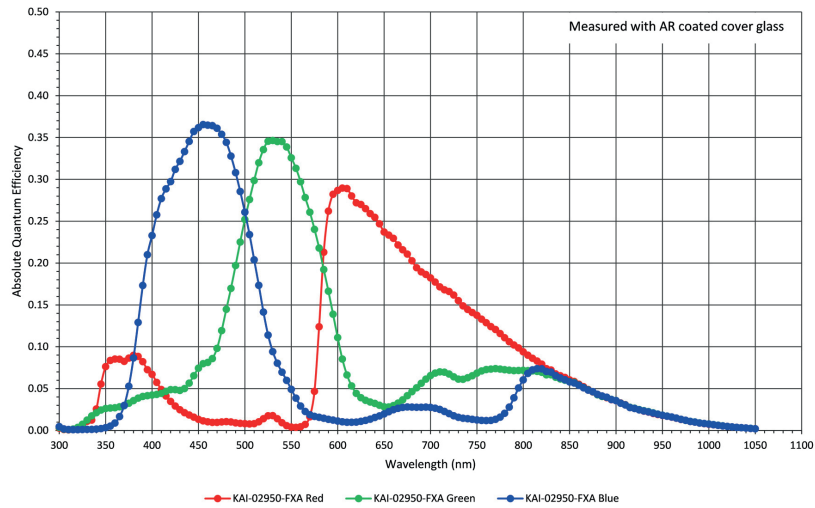
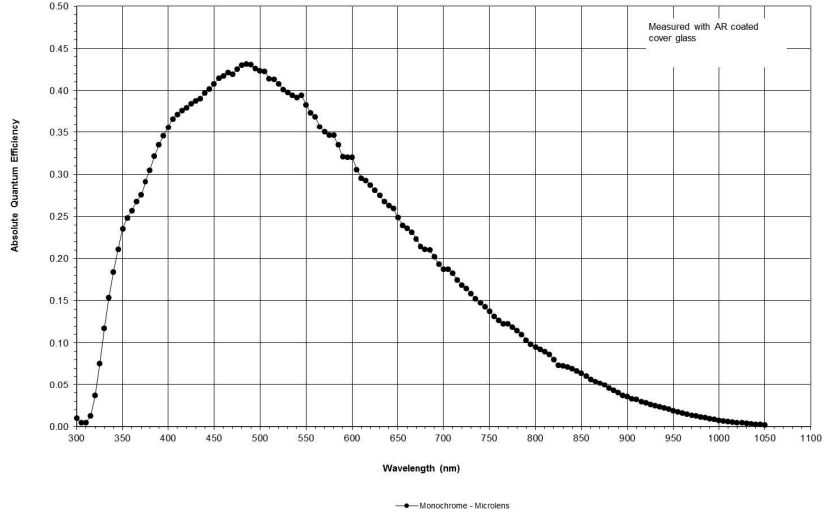
Specifications

Model	VP-29MC-M/C 5
Resolution (H × V)	6576 × 4384
Sensor (ON Semiconductor)	KAI-29050
Sensor Size (Optical Format)	35 mm
Sensor Type	Progressive Scan Interline Transfer CCD
Pixel Size	5.5 μm × 5.5 μm
Interface	Camera Link
Max. Frame Rate (40 MHz)	4.8 fps
Exposure Time (10 μs step)	1/100000 s – 7 s
Partial Scan (Max. Speed)	15.2 fps at 1000 Lines
Pixel Data Format	8 / 10 / 12 bit
Electronic Shutter	Global Shutter
Data Output Pixel Clock	40/80 MHz
Trigger Mode	Free-Run, Overlap, Fast, Double – Programmable Exposure Time and Trigger Polarity
Dynamic Range	62 dB
Cooling Method	Thermoelectric Peltier Cooling
Cooling Performance	20°C below ambient temperature Standard cooling with a fan
Dimension / Weight	90 mm × 90 mm × 142 mm, 1550 g (with F-mount)
Temperature	Operating: -5°C ~ 40°C Storage: -40°C ~ 70°C
Lens Mount	No mount or F-mount, Custom mount available upon request
Power	10~14 V DC, Typ. 26 / Max. 30 W
Compliance	CE, FCC, KC
Configuration Software	Configurator

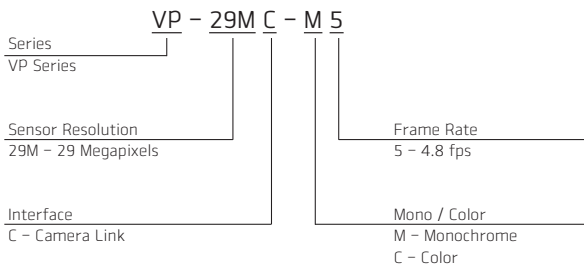
VP-29MC-M/C 5

Thermoelectric Peltier Cooled – High Speed Programmable Digital Camera

Quantum Efficiency Curves



Ordering Scheme



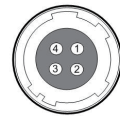
Connector Specification

Power



1, 2, 3: +12V DC 4, 5, 6: GND
(HR10A-7R-6PB)

Control



1: Trigger IN+ 2: Trigger IN-
3: Strobe OUT-(GND) 4: Strobe OUT+
(HR10A-7R-4S)

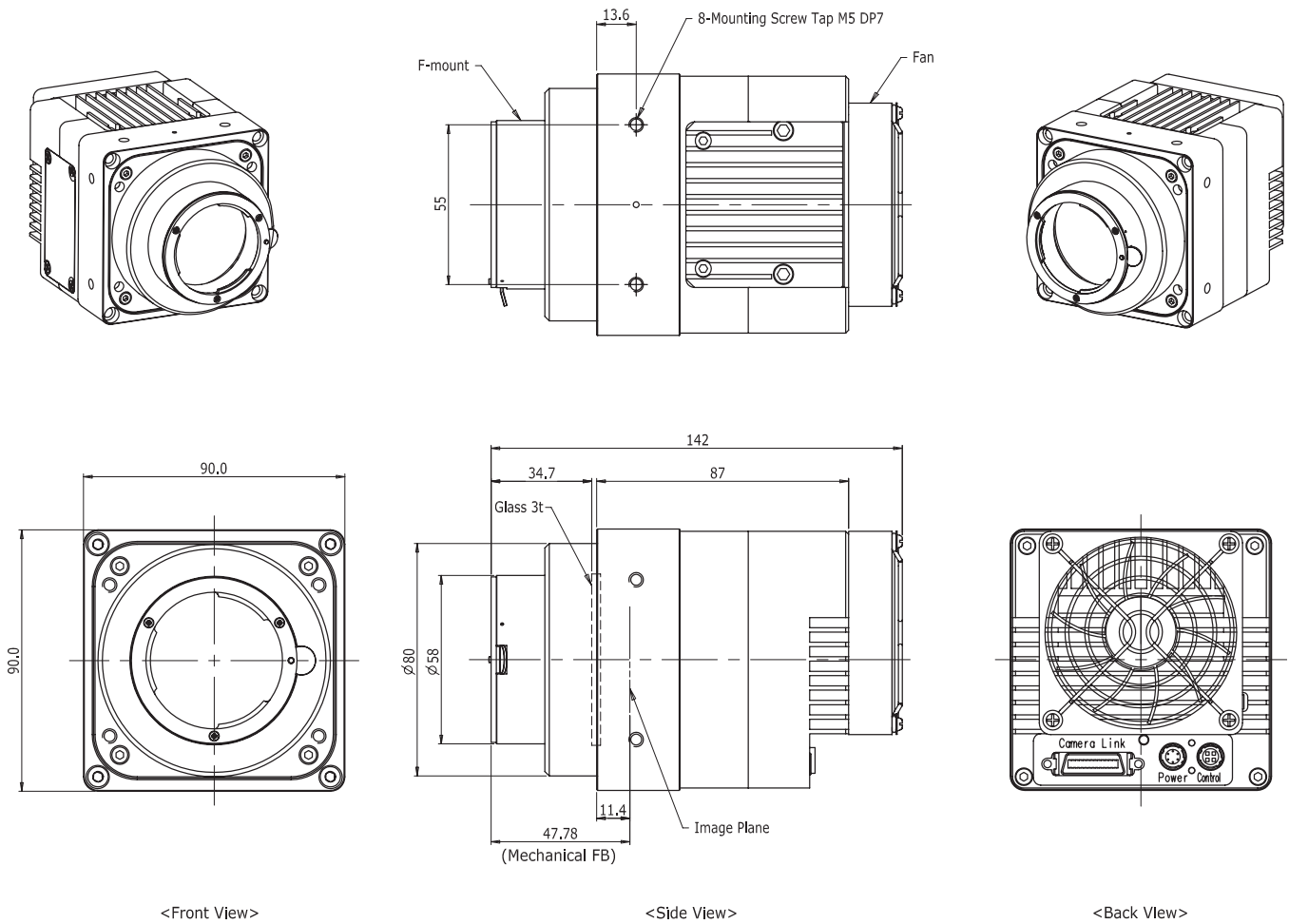
Connectors on camera body

VP-29MC-M/C 5

Thermoelectric Peltier Cooled – High Speed Programmable Digital Camera

Mechanical Dimensions

Unit: mm



For more information please contact:



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VA-29MC2-M/C 6

29 Megapixel Resolution
High Speed Programmable Digital Camera



The new 29 megapixel progressive scan high performance CCD camera, VA-29MC2-6, is a new member of industrial proven VA Camera Link series. Equipped with the Vieworks' innovative technologies proved by world's top FPD manufacturers, VA-29MC2-6 offers not only high uniformed images but also high speed image processing capabilities. This camera supports 29 megapixel resolution with frame rate up to 6.1 fps. Featured with high quality image uniformity and high resolution, the camera is ideal for demanding applications such as FPD, PCB and semiconductor inspections.

VIEWORKS

www.vieworks.com

VA-29MC2-M/C 6

29 Megapixel Resolution – High Speed Programmable Digital Camera

Main Features

- 29 Megapixel Resolution
- Progressive Scan Interline Transfer CCD Imager
- 8 / 10 / 12 bit Data Output
- Up to 6.1 fps with Camera Link Medium Configuration
- Global Shutter
- Flat Field Correction
- Pixel Defect Correction
- Field Upgradable Firmware

Applications

- FPD, Electronics and Semiconductor Inspection
- Research and Scientific Imaging
- Microscopy and Metrology

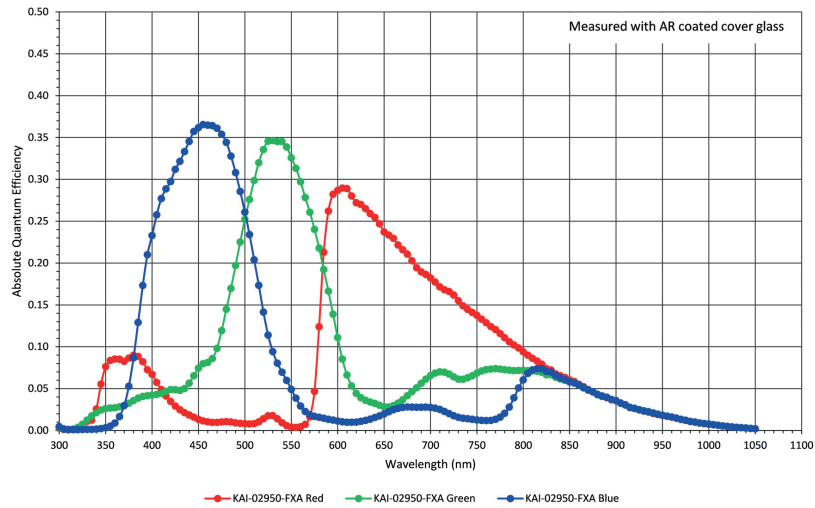
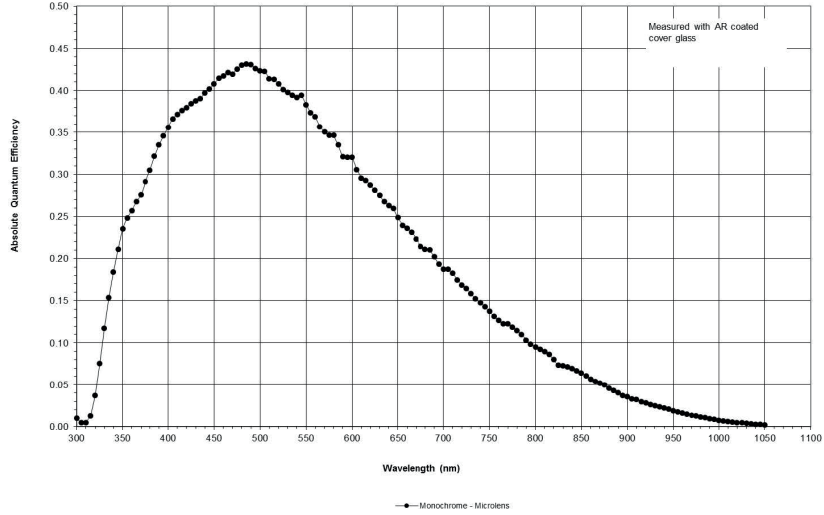
Specifications

Model	VA-29MC2-M/C 6	
Resolution (H × V)	6576 × 4384	
Sensor	ON Semiconductor KAI-29050	
Sensor Size (Optical Format)	36.17 mm × 24.11 mm (35 mm)	
Sensor Type	Progressive Scan Interline Transfer CCD	
Pixel Size	5.5 μm × 5.5 μm	
Sensor Output	1, 2 or 4 Tap	
Interface	Camera Link	
Max. Frame Rate	Normal Speed: 4.8 fps (Camera Link Base Configuration) High Speed: 6.1 fps (Camera Link Medium Configuration)	
Exposure Time	1 μs ~ 60 s (10 μs step)	
Partial Scan (Max. Speed)	18 fps at 1000 Lines	
Pixel Data Format	8 / 10 / 12 bit	
Electronic Shutter	Global Shutter	
Data Output	1, 2 Tap	Normal: 40 MHz / High: 52 MHz
Pixel Clock Speed	4 Tap	Normal: 80 MHz / High: 52 MHz
Trigger Mode	Free-Run, Standard, Fast, Double, Overlap Programmable Exposure Time and Trigger Polarity	
Dynamic Range	64 dB	
Binning	×1, ×2, ×4 (Horizontal and Vertical Independent)	
Gamma Correction	User Defined Lookup Table (LUT)	
Analog Offset	Adjustable (0 ~ 127 LSB at 12 bit, 256 steps)	
Analog Gain	0 ~ 32 dB, 900 steps	
Dimension / Weight	68 mm × 68 mm × 102 mm, 500 g (with F-mount)	
Temperature	Operating: -5°C ~ 40°C, Storage: -40°C ~ 70°C	
Lens Mount	F-mount, Custom mount available upon request	
Power	10 ~ 14 V DC, Typ. 9.5 W	
Compliance	CE, FCC, KC	
Configuration Software	Configurator	

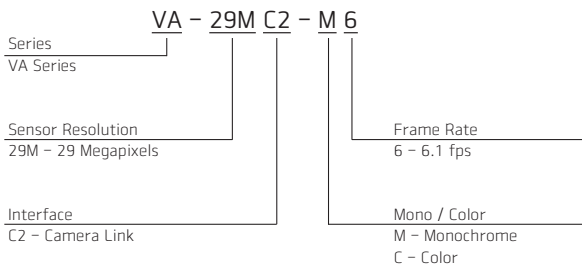
VA-29MC2-M/C 6

29 Megapixel Resolution – High Speed Programmable Digital Camera

Quantum Efficiency Curves



Ordering Scheme



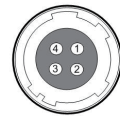
Connector Specification

Power



1, 2, 3: +12V DC
(HR10A-7R-6PB) 4, 5, 6: GND

Control



1: Trigger IN+ 2: Trigger IN-
3: DC Ground 4: Strobe OUT+
(HR10A-7R-4S)

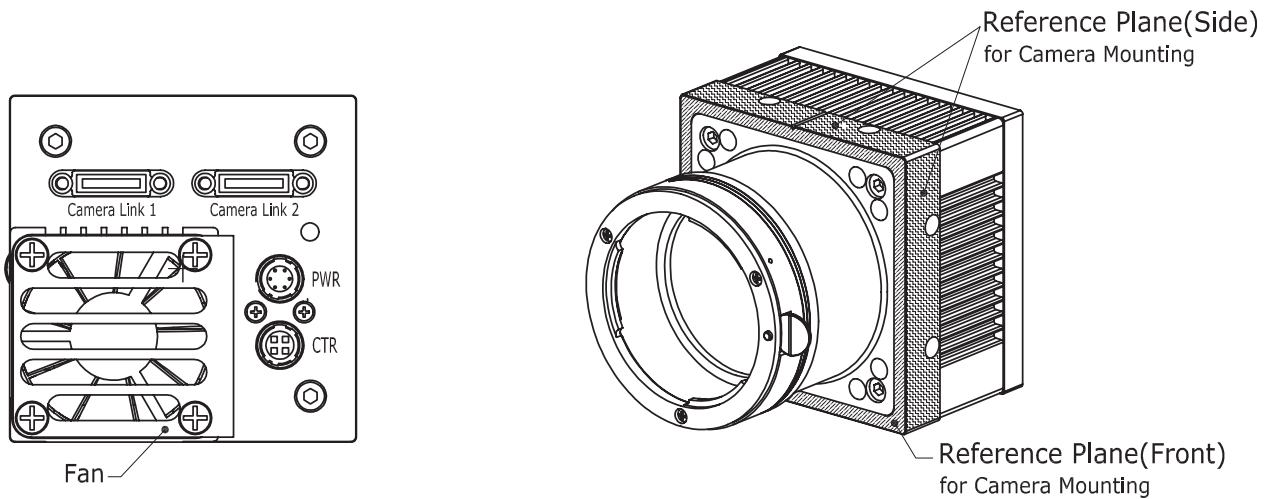
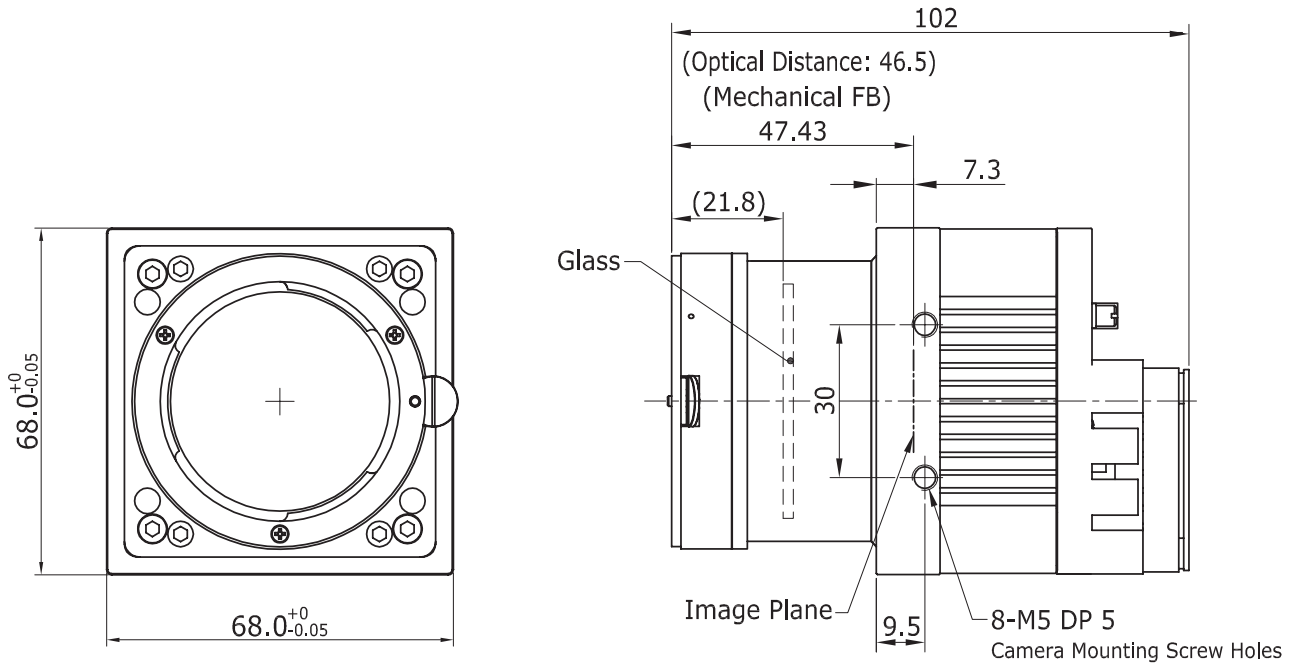
Connectors on camera body

VA-29MC2-M/C 6

29 Megapixel Resolution – High Speed Programmable Digital Camera

Mechanical Dimensions

Unit: mm



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VP-101MC-M/C 8 H VP-151MC-M/C 5 H

High Resolution Thermoelectric Peltier Cooled Camera



The VP-101MC and VP-151MC, the latest models of the industrial proven VP series, are 101 and 151 megapixel resolution CMOS cameras available with the Camera Link interface. These cameras are based on the latest CMOS image sensor technology (IMX461 and IMX411) from Sony Semiconductor Solutions Corporation. The VP-101MC-8 offers up to 8.1 frames per second at 11648×8742 resolution. For even higher resolution applications, the VP-151MC-5 offers up to 5.5 frames per second at 14192×10640 resolution. These cameras use thermo-electric Peltier (TEC) cooling technology developed for and used by many demanding medical market customers. The TEC maintains the operating temperature of the CMOS image sensor at up to 15 degrees below ambient temperature. These cameras provide a stable operating condition and the ability to expose for a long period of time to increase camera sensitivity. Featured with the stable operating capability and high resolution, these cameras are ideal for demanding applications such as FPD, PCB and semiconductor inspections.

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VP-101MC-8 H / VP-151MC-5 H

High Resolution Thermoelectric Peltier Cooled Camera

Main Features

- Thermoelectric Peltier Cooled – 15°C below
- 101 or 151 Megapixel Resolution
- Camera Link Full Interface
- Electronic Rolling Shutter
- DSNU and PRNU Correction
- Flat Field Correction with Sequencer Control
- Hot Pixel Correction
- Dynamic Defective Pixel Correction
- 4 Gb Frame Buffer for Burst Readout Mode

Applications

- Flat Panel Display Inspection
- Electronics Inspection
- Semiconductor Inspection
- Document / Film Scanning

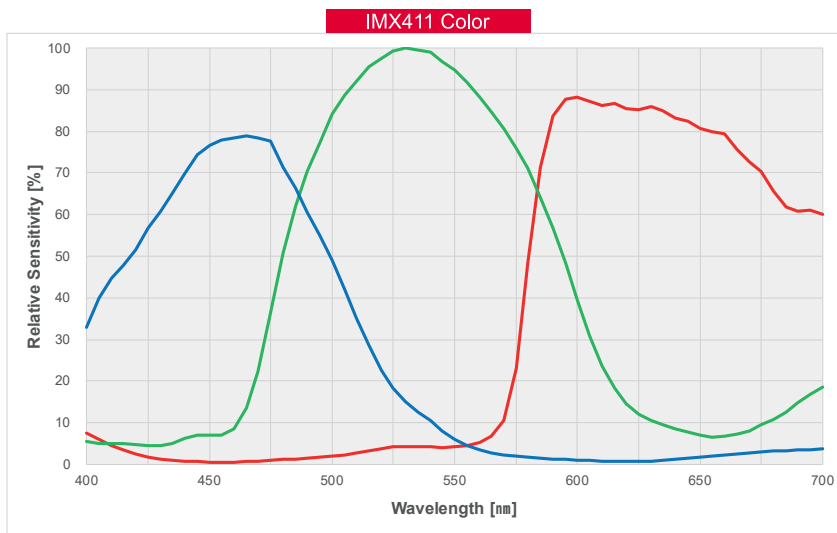
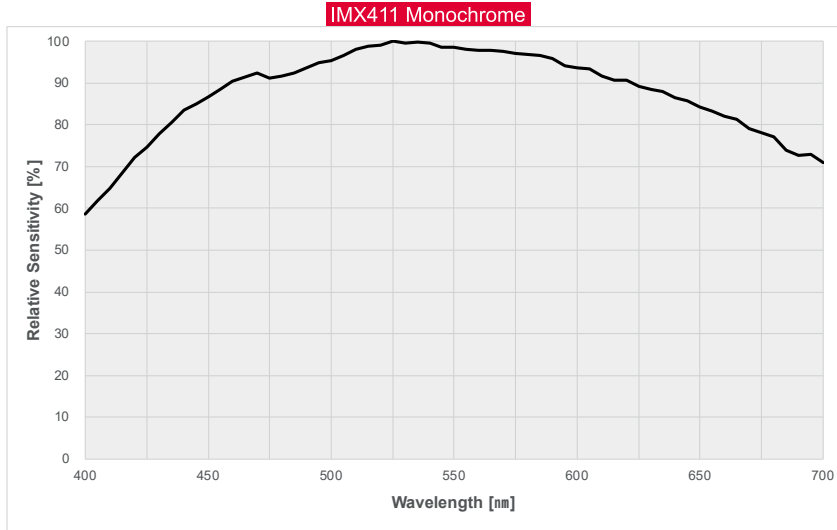
Specifications

Model	VP-101MC-M/C 8 H	VP-151MC-M/C 5 H
Resolution (H × V)	11648 × 8742	14192 × 10640
Sensor	SONY IMX461	SONY IMX411
Sensor Size (Diagonal)	43.80 mm × 32.87 mm (55 mm)	53.36 mm × 40.01 mm (66.7 mm)
Pixel Size	3.76 μm × 3.76 μm	
Interface	Camera Link Base / Medium / Full / 10 Tap, 26-pin SDR Connector	
Max. Frame Rate	8.1 fps (with Overlapped Acquisition)	5.5 fps (with Overlapped Acquisition)
Camera Image Memory	4 Gb	
Exposure Time (1 μs step)	1 μs – 60 s	
Binning	Sensor	×1, ×3 (Horizontal and Vertical Dependent)
	Logic	×1, ×2, ×4 (Horizontal and Vertical Independent)
Pixel Data Format	8 / 10 / 12 bit	
Data Output Pixel Clock Speed	65 MHz / 85 MHz	
Electronic Shutter	Rolling Shutter	
Trigger Synchronization	Overlapped Acquisition	Free-Run
	Non-overlapped Acquisition	Hardware Trigger or CC1
Dynamic Range	78 dB	
Gain Control	1× ~ 32×	
Black Level Control	0 ~ 255 LSB at 12 bit	
Cooling Method	Thermoelectric Peltier Cooling	
Cooling Performance	15°C below ambient temperature – Standard cooling with a fan	
Dimension / Weight	100 mm × 100 mm × 88 mm, 1.1 kg (with M-72 mount)	110 mm × 110 mm × 88 mm, 1.4 kg (with M-72 mount)
Temperature	Operating: 0°C ~ 40°C, Storage: -40°C ~ 70°C	
Lens Mount	M72-mount, Custom mount available upon request	
Power	External	11 ~ 24 V DC
	Dissipation	Typ. 26.0 W
Compliance	CE, FCC, KC	
API SDK	Vieworks Imaging Solution 7.X	

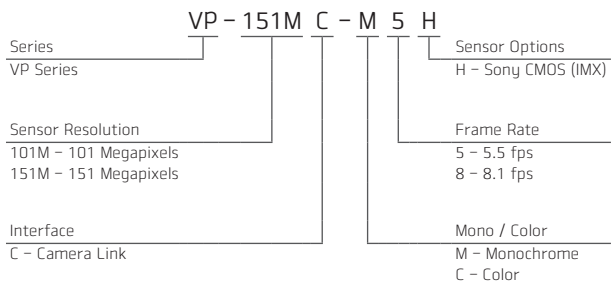
VP-101MC-8 H / VP-151MC-5 H

High Resolution Thermoelectric Peltier Cooled Camera

Relative Sensitivity Curves



Ordering Scheme



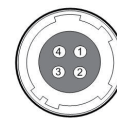
Connector Specification

Power



1, 2, 3: +12V DC
4, 5, 6: GND
(HR10A-7R-6PB)

Control



1: Trigger IN+
2: Trigger IN-
3: Strobe Out-(GND)
4: Strobe OUT+
(HR10A-7R-4S)

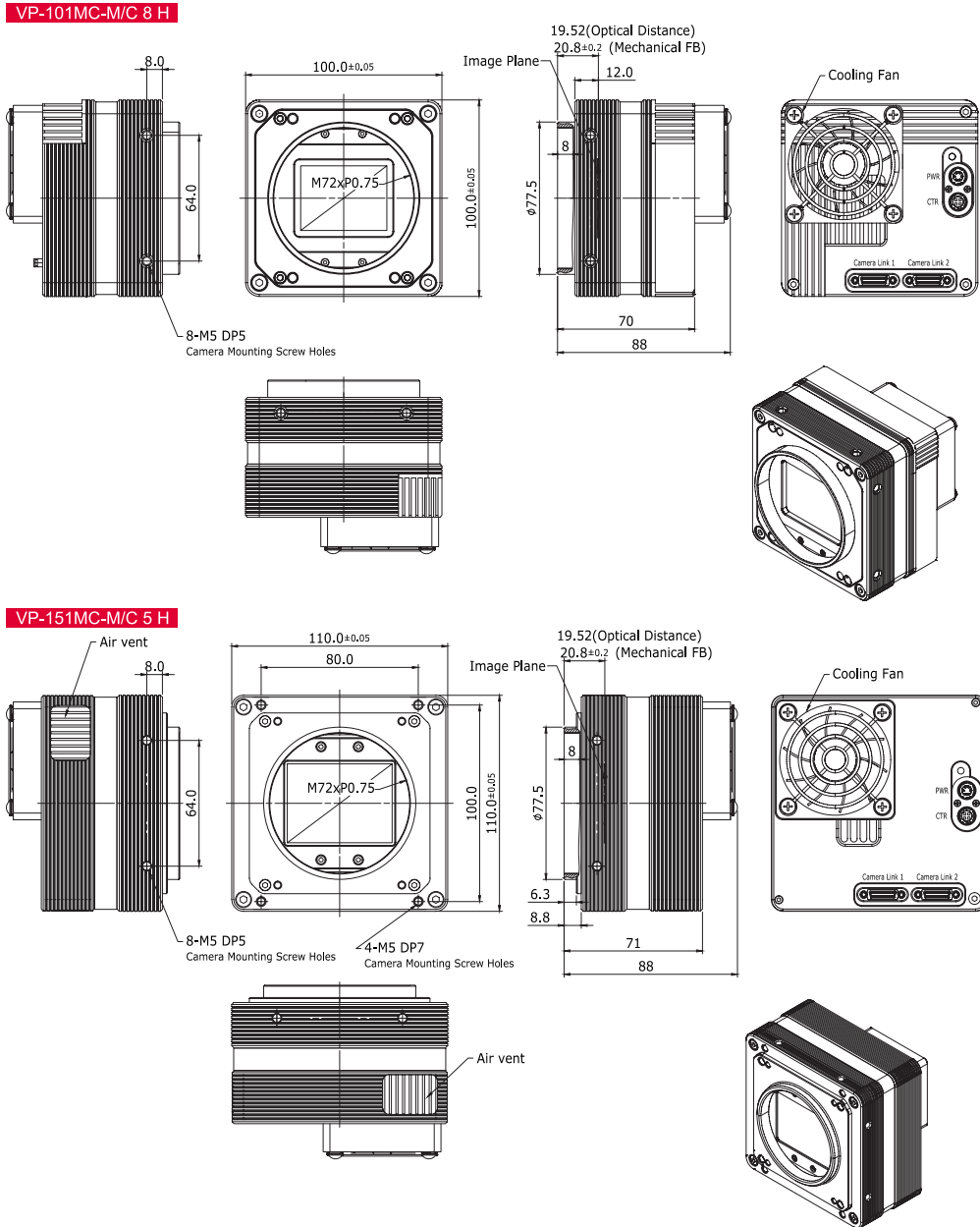
Connectors on camera body

VP-101MC-8 H / VP-151MC-5 H

High Resolution Thermoelectric Peltier Cooled Camera

Mechanical Dimensions

Unit: mm



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VP-71MC-M/C 4

71 MEGAPIXEL RESOLUTION CMOS CAMERA
WITH TEC INTEGRATED



The VP-71MC, the latest member of the industrial proven VP series, is a new 71 megapixel resolution CMOS camera with Camera Link interface. The VP-71MC uses the latest 71 megapixel CMOS imaging sensor (CHR 70M) technology from CMOSIS, and offers a frame rate of 4 fps at full resolution.

This camera uses thermo-electric Peltier (TEC) cooling technology developed for, and used by, many demanding medical market customers. The TEC maintains the operating temperature of the CMOS imaging sensor at up to 20 degrees below ambient temperature. This camera provide a stable operating condition or the ability to expose for a long period of time to increase camera sensitivity. Featured with the stable operating capability and high resolution, this camera is ideal for demanding applications such as FPD, PCB, and semiconductor inspections.

VP-71MC-4

71 megapixel resolution CMOS camera with TEC integrated

Main Features

- * Thermoelectric Peltier Cooled – 20°C below ambient temperature
- * 71 Megapixel Resolution CMOS Imaging Sensor
- * Camera Link Medium Interface up to 4.2 fps
- * Minimizing the Number of Hot Pixels with TEC (up to 99%)
- * Flat Field Correction
- * Pixel Defect Correction
- * Non-uniformity Correction (DSNU and PRNU)
- * Field Upgradable Firmware

Applications

- * FPD, Electronics and Semiconductor Inspection
- * Research and Scientific Imaging
- * Document / Film Scanning

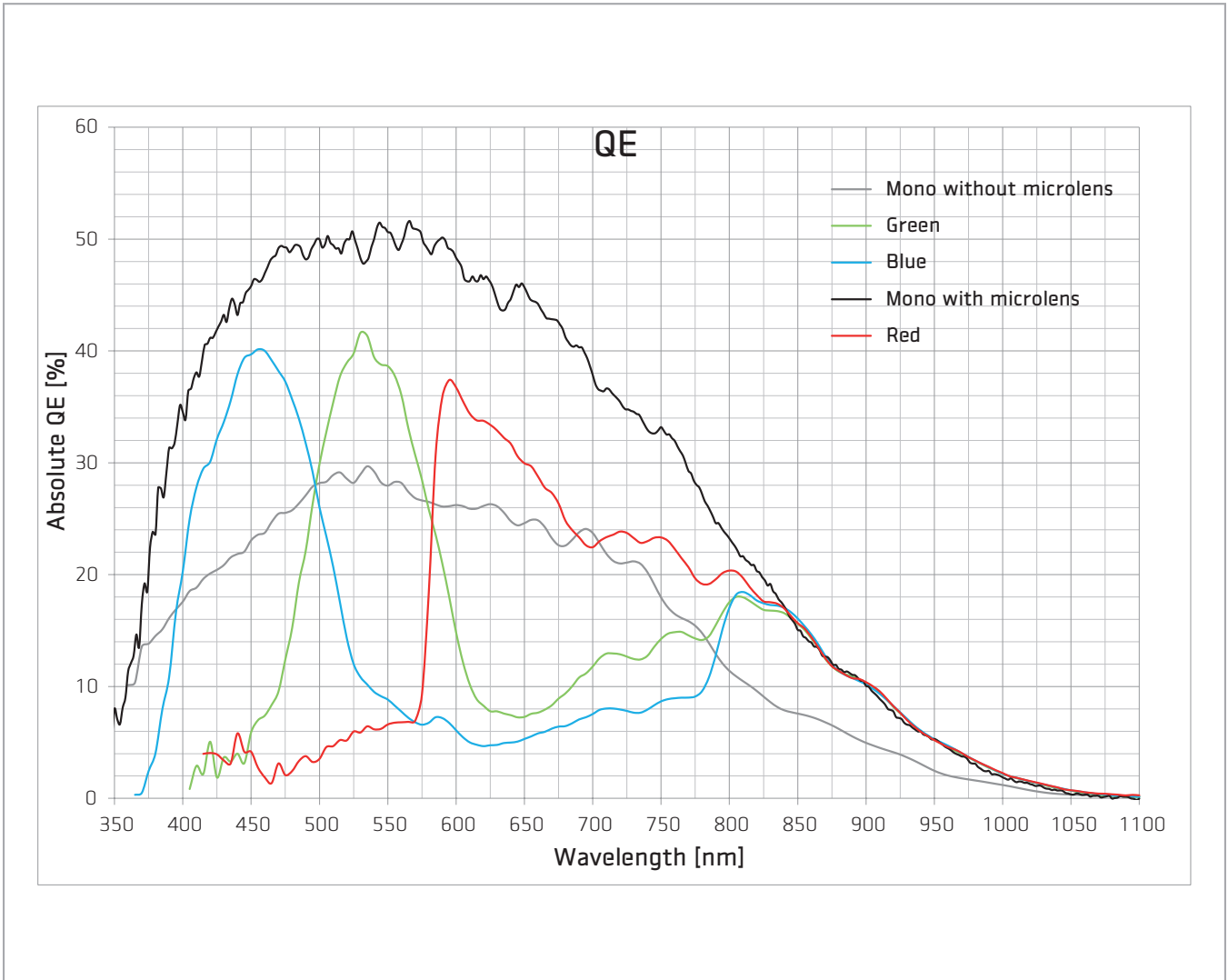
Specifications

Model	VP-71MC-M/C 4	
Resolution (H × V)	10000 × 7096	
Sensor	CMOSIS CHR70M	
Sensor Size (Optical Format)	31.00 mm × 24.11 mm (38 mm)	
Sensor Type	High Resolution CMOS Imaging Sensor	
Pixel Size	3.1 μm × 3.1 μm	
Interface	2 Tap	Camera Link Base
	4 Tap – Normal	Camera Link Medium
	4 Tap – High	
Max. Frame Rate	2.1 fps (CL Base)	
	2.9 fps (CL Medium)	
	4.2 fps (CL Medium / Overclocked)	
Transfer Time	476 ms (CL Base)	
	335 ms (CL Medium)	
	238 ms (CL Medium / Overclocked)	
Exposure Time	66 μs ~ 7 s (1 line step)	
Pixel Data Format	8 / 10 / 12 bit	
Electronic Shutter	Rolling Shutter	
Data Output	2 Tap	85 MHz
Pixel Clock Speed	4 Tap	Normal: 60 MHz / High: 85 MHz
Trigger Mode	Free-Run, External Trigger Programmable Exposure Time and Trigger Polarity	
Dynamic Range	63 dB	
Cooling Method	Thermoelectric Peltier Cooling	
Cooling Performance	About 20 below ambient temperature – Standard Cooling with a Fan	
Dimension / Weight	90 mm × 90 mm × 137 mm, 1500 g (F-mount)	
Temperature	Operating: 0°C ~ 40°C, Storage: -40°C ~ 70°C	
Lens Mount	F-mount, Custom mount available upon request	
Power	10 ~ 24 V DC, Typ. 20.0 W	
Compliance	CE, FCC, KC	
Configuration Software	Configurator	

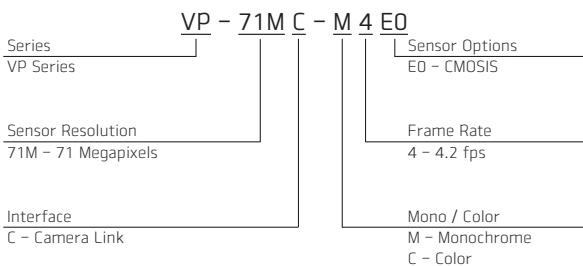
VP-71MC-4

71 megapixel resolution CMOS camera with TEC integrated

Quantum Efficiency Curves



Ordering Scheme



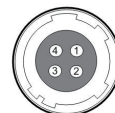
Connector Specification

Power



1 2 3: +12V DC, 4 5 6: GND
(HR10A-7R-6PB)

Control



1: Trigger IN+, 2: Trigger IN-
3: DC Ground, 4: Strobe OUT+
(HR10A-7R-4S)

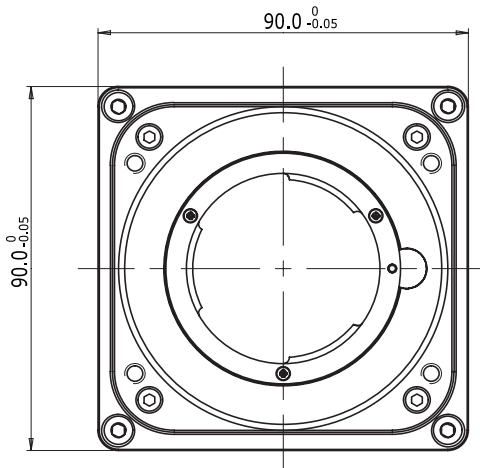
Connectors on camera body

VP-71MC-4

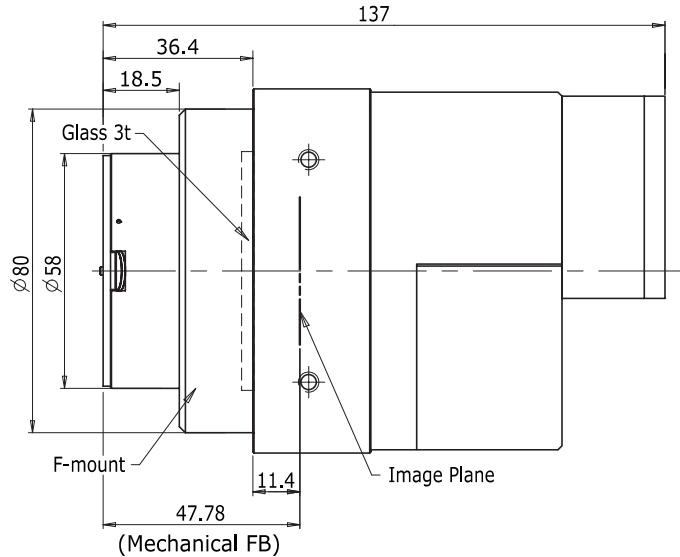
71 megapixel resolution CMOS camera with TEC integrated

Mechanical Dimensions

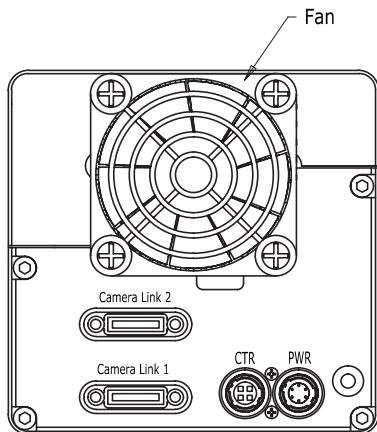
Unit: mm



<Front View>

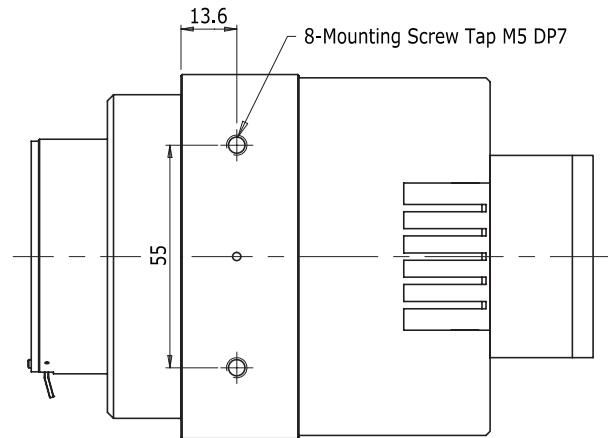


<Side View>



<Back View>

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VW40-162-004

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VP-65MX-M/C 31 I

65 Megapixel Thermoelectric Peltier Cooled Camera



CoaXPress®

The VP-65MX-31 I, the latest model of the industrial proven VP series, is a new 65 megapixel CoaXPress camera featuring the latest CMOS image sensor technology (GMAX3265) from Gpixel. The VP-65MX-31 I offers up to 31.6 frames per second at 9344 × 7000 resolution. This camera uses thermo-electric Peltier (TEC) cooling technology developed for and used by many demanding medical market customers. The TEC maintains the operating temperature of the CMOS image sensor at up to 15 degrees below ambient temperature. This camera provides a stable operating condition and the ability to expose for a long period of time to increase camera sensitivity. Featured with the stable operating capability and high resolution, this camera is ideal for demanding applications such as FPD, PCB and semiconductor inspections.

VIEWWORKS

www.viewworks.com

VP-65MX-M/C 31 I

65 Megapixel Thermoelectric Peltier Cooled Camera

Main Features

- Thermoelectric Peltier Cooled – 15°C below
- 65 Megapixel Resolution
- CoaXPress Interface up to 31.6 fps at 25 Gbps using 4 CH
- Global Shutter CMOS Technology
- DSNU and PRNU Correction
- Flat Field Correction
- Defective Pixel Correction
- GenICam Compatible – XML based Control

Applications

- Flat Panel Display Inspection
- Electronics Inspection
- Semiconductor Inspection
- Document / Film Scanning

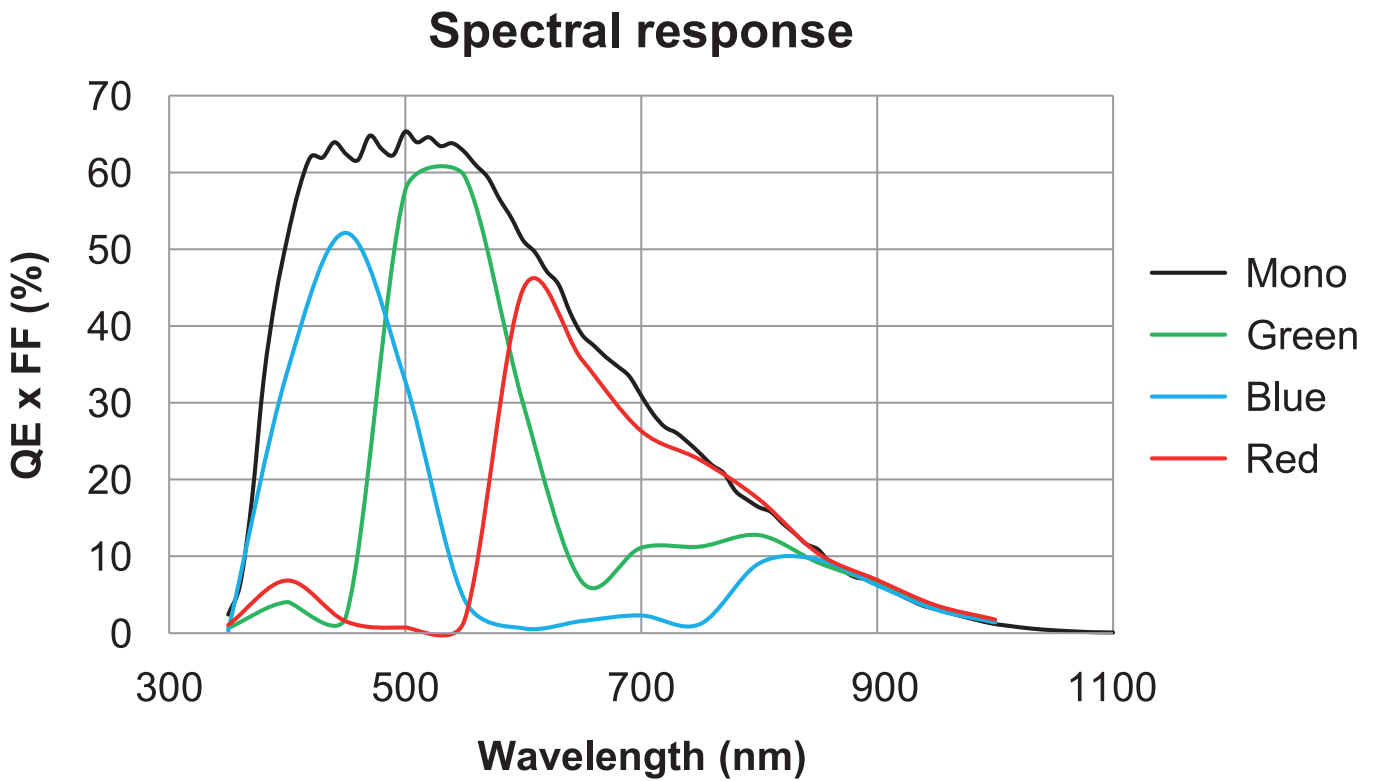
Specifications

Model	VP-65MX-M/C 31 I	
Resolution (H × V)	9344 × 7000	
Sensor	Gpixel GMAX3265 – Normal Speed	
Sensor Size (Diagonal)	29.9 mm × 22.4 mm (37.4 mm)	
Pixel Size	3.2 μm × 3.2 μm	
Interface	CoaXPress	
Max. Frame Rate	4 CH: 31.6 fps @ 8 bit	
	4 CH: 27.3 fps @ 10 bit	
	4 CH: 24.1 fps @ 12 bit	
	4 CH: 31.6 fps @ 8 bit 2 × 2 Binning	
Exposure Time (1 μs step)	14 μs – 60 s	
Partial Scan (Max. Speed)	6349.2 fps at 4 Lines	
Binning	2 × 2 Binning	
Pixel Data Format	Mono	Mono 8 / Mono 10 / Mono 12
	Color	GB Bayer 8 / GB Bayer 10 / GB Bayer 12
Electronic Shutter	Global Shutter	
Trigger Synchronization	Free-Run, Hardware Trigger, Software Trigger or CXP	
External Trigger	3.3 V ~ 24.0 V, 10 mA, Logical Level Input, Optically Isolated	
Software Trigger	Asynchronous, Programmable via Camera API	
Dynamic Range	66 dB @ 12 bit	
Gain Control	1 × ~ 32 ×	
Black Level Control	0 ~ 255 LSB at 12 bit	
Cooling Method	Thermoelectric Peltier Cooling	
Cooling Performance	15°C below ambient temperature – Standard cooling with a fan	
Dimension / Weight	90 mm × 90 mm × 145 mm, 1,500 g (with F-mount)	
Temperature	Operating: 0°C ~ 40°C, Storage: -40°C ~ 70°C	
Lens Mount	F-mount, Custom mount available upon request	
Power	External	11 ~ 24 V DC
	Dissipation	Typ. 26.0 W
Compliance	CE, FCC, KC	
API SDK	Vieworks Imaging Solution 7.X	

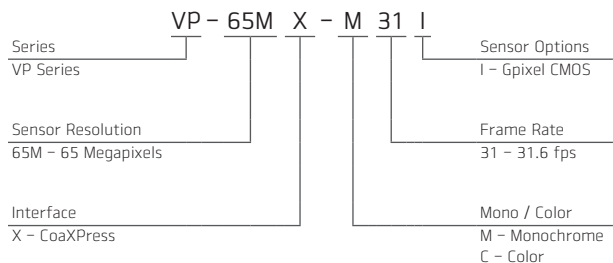
VP-65MX-M/C 31 I

65 Megapixel Thermoelectric Peltier Cooled Camera

Spectral Response



Ordering Scheme



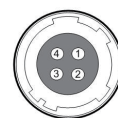
Connector Specification

Power



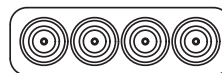
1, 2, 3: +12V DC
4, 5, 6: GND
(HR10A-7R-6PB)

Control



1: Trigger IN+
2: Trigger IN-
3: Strobe Out-(GND)
4: Strobe Out+
(HR10A-7R-4S)

Data Transfer / Communications



CH1 CH2 CH3 CH4

CH1: Master Connection
75 Ω , DIN 1.0/2.3

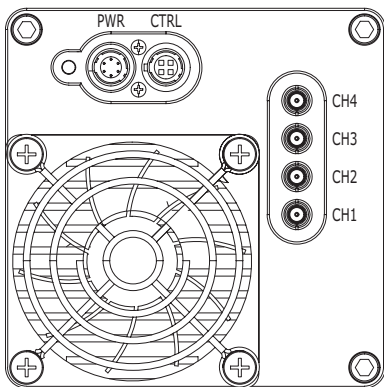
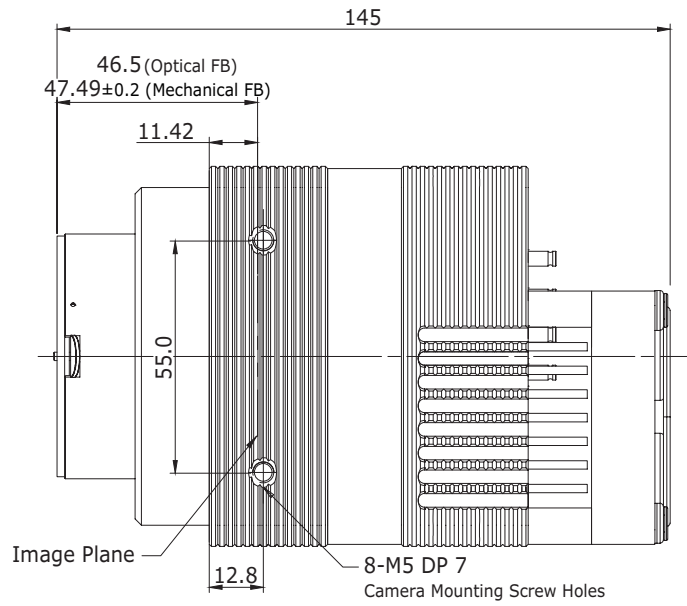
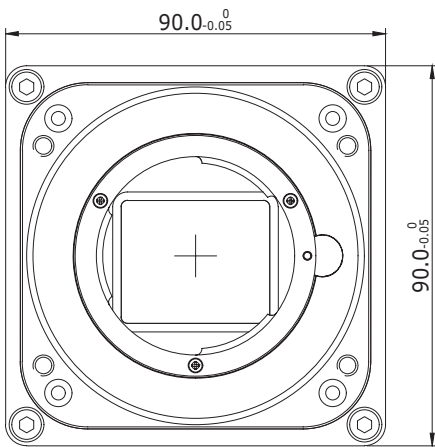
Connectors on camera body

VP-65MX-M/C 31 I

65 Megapixel Thermoelectric Peltier Cooled Camera

Mechanical Dimensions

Unit: mm



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VP-50MX

50 MEGAPIXEL THERMOELECTRIC PELTIER COOLED CAMERA



The VP-50MX, the latest member of the industrial proven VP series, is a 50 megapixel resolution CMOS camera with the CoaXPress interface. The VP-50MX uses the latest 50 megapixel CMOS image sensor (CMV50000) technology from AMS CMOSIS, and offers up to 30.9 frames per second at 7920 × 6004 resolution. This camera uses thermo-electric Peltier (TEC) cooling technology developed for, and used by, many demanding medical market customers. The TEC maintains the operating temperature of the CMOS image sensor at up to about 12 degrees below ambient temperature. This camera provides a stable operating condition or the ability to expose for a long period of time to increase camera sensitivity. Featured with the stable operating capability and high resolution, this camera is ideal for demanding applications such as FPD, PCB and semiconductor inspections.

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Main Features

- * 50 Megapixel Resolution (AMS CMOSIS)
- * Thermoelectric Peltier Cooling
 - about 12 degrees below ambient temperature
- * Minimizing the number of hot pixels with TEC
- * CoaXPress Interface up to 30 fps at 25 Gbps using 4 CH
- * Pixel Defect Correction
- * Flat Field Correction
- * DSNU and PRNU Correction

Applications

- * Flat Panel Display Inspection
- * PCB Inspection
- * Machine Vision Inspection
- * Microscopy and Metrology

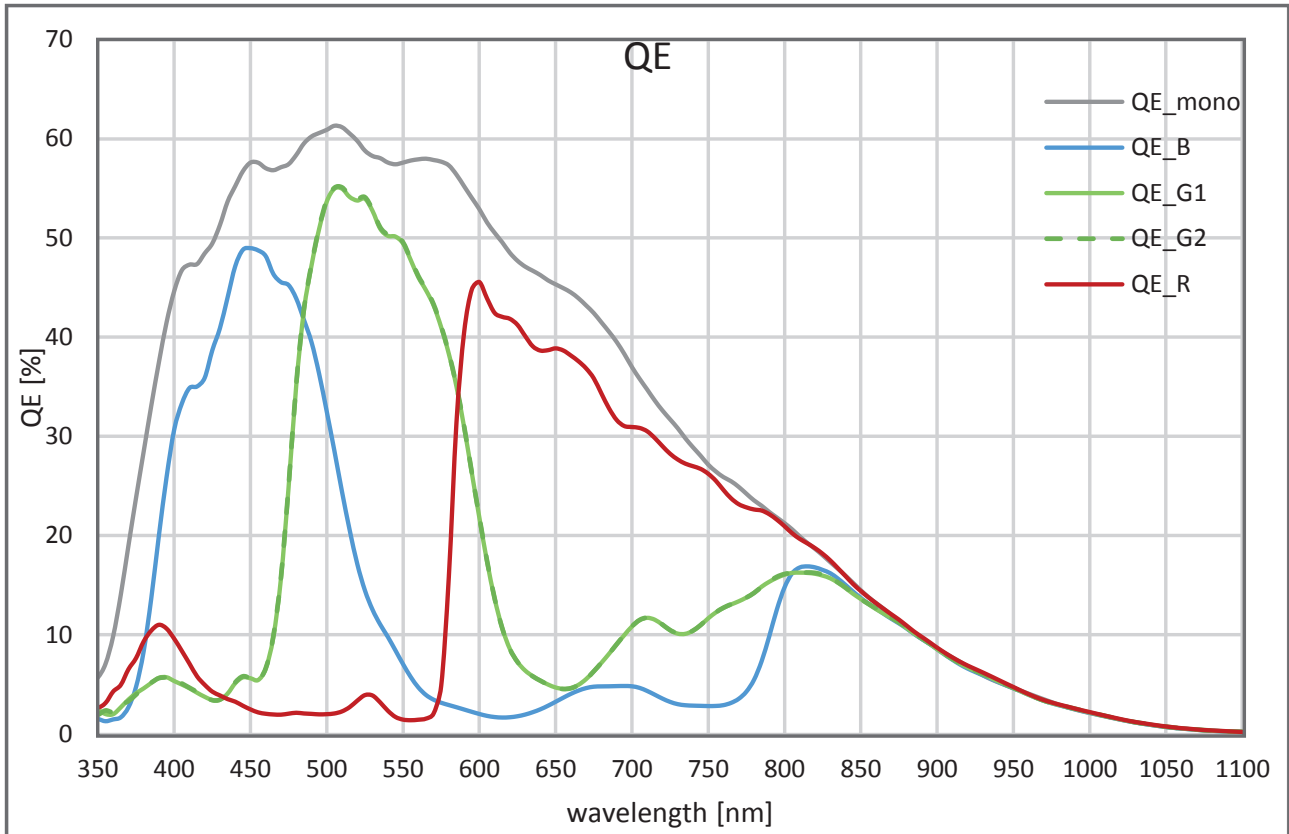
Specifications

Model	VP-50MX-M/C 30		
Resolution (H × V)	7920 × 6004		
Sensor	AMS CMOSIS CMV 50000		
Sensor Size (Optical Diagonal)	35 mm (45.72 mm)		
Sensor Type	High Speed CMOS Image Sensor		
Pixel Size	4.6 μm × 4.6 μm		
Interface	CoaXPress		
Max. Frame Rate	1CH: 7.7 fps @ 6.25 Gbps	2CH: 15.5 fps @ 6.25 Gbps	4CH: 30.9 fps @ 6.25 Gbps
Exposure Time (1 μs step)	1 μs – 60 s		
Partial Scan (Max. Speed)	3968 fps at 4 Lines		
Pixel Data Format	Mono	Mono 8 / Mono 10 / Mono 12	
	Color	BG Bayer 8 / BG Bayer 10 / BG Bayer 12	
Electronic Shutter	Global Shutter		
Exposure Mode	Free-Run, Timed and Trigger Width		
Dynamic Range	64 dB		
Gain Control	1 × ~ 30 × (1/1024 step)		
Black Level Control	0 ~ 256 LSB at 12 bit (1 LSB step)		
Cooling Method	Thermoelectric Peltier Cooling		
Cooling Performance	12°C below ambient temperature – Standard cooling with a fan		
Dimension / Weight	90 mm × 90 mm × 146 mm, 1,400 g		
Temperature	Operating: -5°C ~ 40°C, Storage: -40°C ~ 70°C		
Vibration / Shock	3G (20 ~ 200 Hz) XYZ / 10G 6 ms		
Lens Mount	F-mount, Custom mount available upon request		
Power	External	10 ~ 24 V DC, Typ. 24.0 W	
	PoCXP	Not supported	
Compliance	CE, FCC, KC		
API SDK	Vieworks Imaging Solution 7.X		

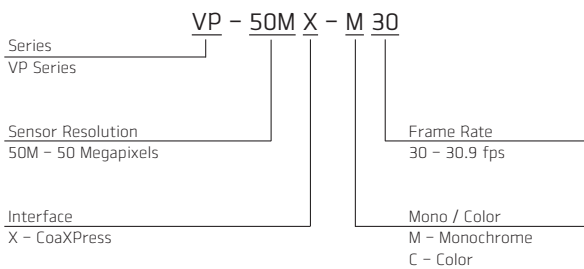
VP-50MX

50 MEGAPIXEL THERMOELECTRIC PELTIER COOLED CAMERA

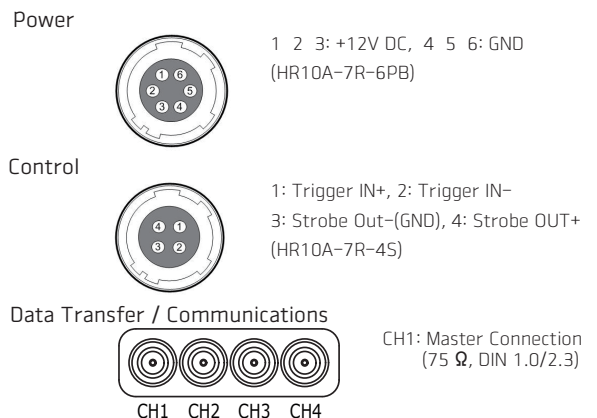
Quantum Efficiency Curves



Ordering Scheme



Connector Specification



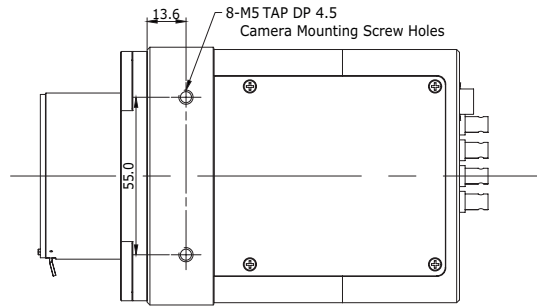
Connectors on camera body

VP-50MX

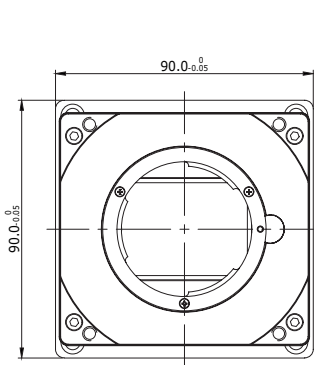
50 MEGA PIXEL THERMOELECTRIC PELTIER COOLED CAMERA

Mechanical Dimensions

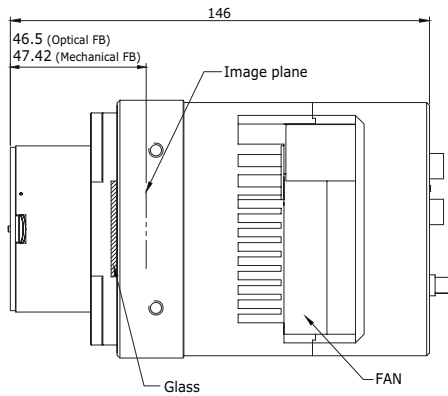
Unit: mm



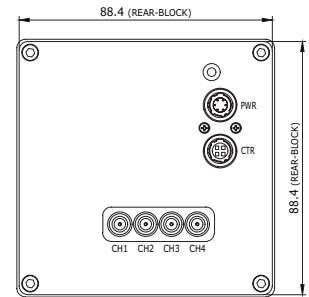
<Top View>



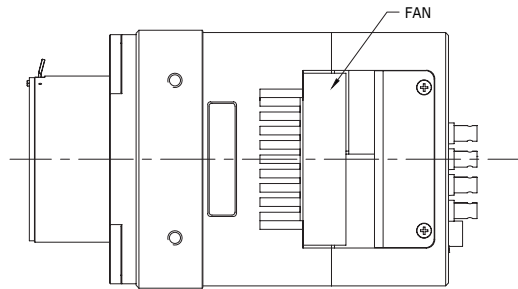
<Front View>



<Side View>



<Back View>



<Bottom View>

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