VNP-190MX

190 MEGAPIXEL PIXEL SHIFTING CAMERA EQUIPPED WITH THERMOELECTRIC PELTIER

The VNP-190MX, a pixel shifting camera equipped with thermo-electric Peltier (TEC) cooled, is designed not only for applications where extremely high resolution is required but also where high quality image is essential. The TEC maintains the operating temperature of the image sensor at up to 14 degrees below ambient temperature to reduce noise significantly. Pixel shifting technology based on a precise piezoelectric stage allows image captures as high as 420 million pixels using the VNP-190MX camera. Its CoaXPress interface supports transmitting image data at up to 12.5 Gbps using two coaxial cables. This camera is ideal for applications such as FPD inspection, document / film scanning, research and scientific imaging.

VNP-190MX

190 MEGAPIXEL PIXEL SHIFTING CAMERA EQUIPPED WITH THERMOELECTRIC PELTIER

Main Features

* Nano Stage Pixel Shifting Mechanism
* Thermoelectric Peltier Cooled
* Extended Resolutions up to 420 Megapixels
* True Color Full Image Resolution
* Improved Fill Factor
* Progressive Scan Interline Transfer CCD Imager
* Flat Field Correction
* Pixel Defect Correction

Applications

* Flat Panel Display Inspection
* Electronics and Semiconductor Inspection
* Digitizing and Scanning
* Scientific Imaging

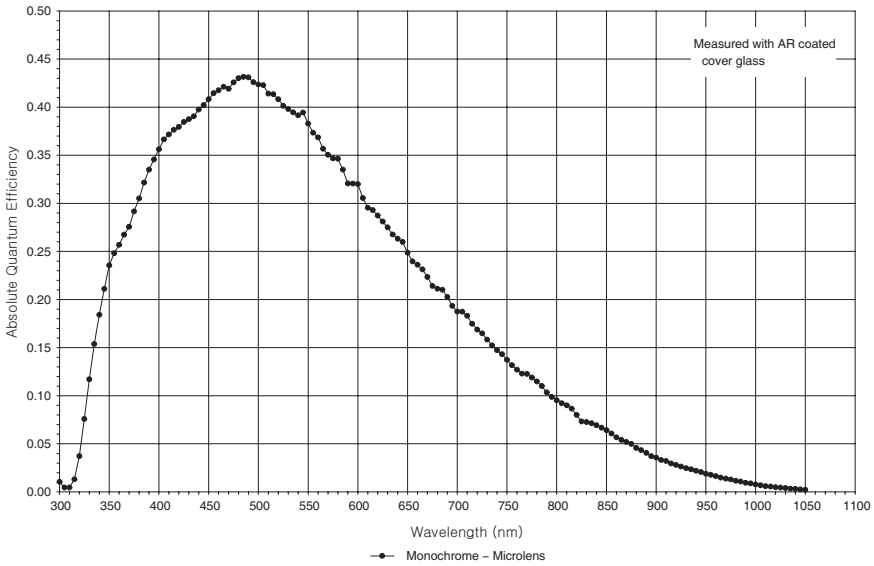
Specifications

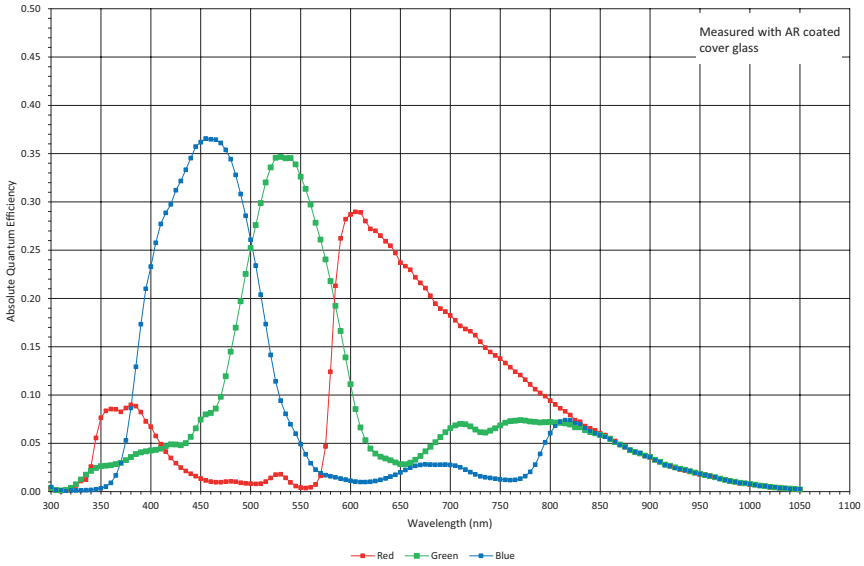
Model		VNP-190MX-M/C 10
Resolution (H × V)	1× Mode	8856 × 5280, 46.8M
	4× Mode	17712 × 10560, 187.0M
Sensor		ON Semiconductor KAI-47051
Sensor Size(Optical Diagonal)		56.7 ㎜
Sensor Type		Progressive Scan Interline Transfer CCD
Pixel Size		5.5 ㎛ × 5.5 ㎛
Interface		CoaXPress
Max. Frame Rate	1× Mode	10.0 fps @ 46.8M (8856 × 5280)
	4× Mode	2.5 fps @ 187.0M (17712 × 10560)
Exposure Time (10 ㎲ step)		28 ㎲ - 60 s
Partial Scan (Max. Speed)		24 fps at 1056 Lines
Pixel Data Format		8 / 10 / 12 bit
Electronic Shutter		Global Shutter
Binning		2×, 4×
Exposure Mode		Free-Run, Timed and Trigger Width
Dynamic Range		66 dB
Shift Range		0 ~ 15 ㎛, 1 ㎚ step
Shift Resolution		0.001 ㎛
Shift Control		Manual Mode or Sequence Mode (4/9 Shot Mono, 4/16/36 Shot Color)
Shift Latency		< 5 ㎳
Cooling Method		Thermoelectric Peltier Cooling
Cooling Performance		14℃ below ambient temperature - Standard cooling with a fan
Dimension / Weight		120 ㎜ × 94 ㎜ × 171 ㎜, 2,300 g
Temperature		Operating: 10℃ ~ 40℃, Storage: -40℃ ~ 70℃
Lens Mount		M72-mount, Custom mount available upon request
Power		11~15 V DC, Typ. 36.0 W
Compliance		CE, FCC, KC
API SDK		Vieworks Imaging Solution 7.X

VNP-190MX

190 MEGAPIXEL PIXEL SHIFTING CAMERA EQUIPPED WITH THERMOELECTRIC PELTIER

Quantum Efficiency Curves





Ordering Scheme

VNP – 190M X – M 10

Series
VNP Series

Sensor Resolution
190M – 190 Megapixels

Interface
X – CoaXPress

Frame Rate
10 – 10 fps

Mono / Color
M – Monochrome
C – Color

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: Master Connection
(75 Ω, DIN 1.0/2.3)

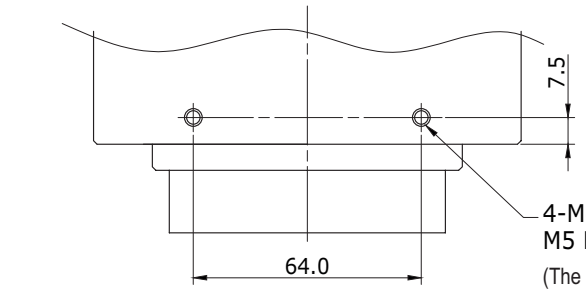
Connectors on camera body

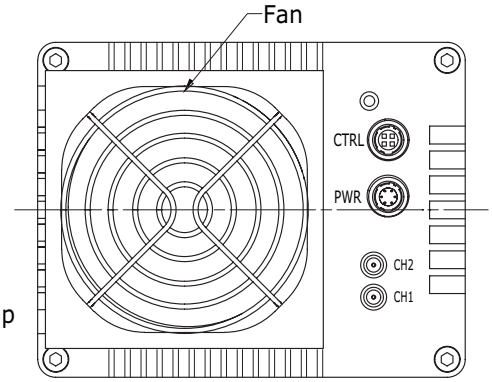
VNP-190MX

190 MEGAPIXEL PIXEL SHIFTING CAMERA EQUIPPED WITH THERMOELECTRIC PELTIER

Mechanical Dimensions

Unit: mm





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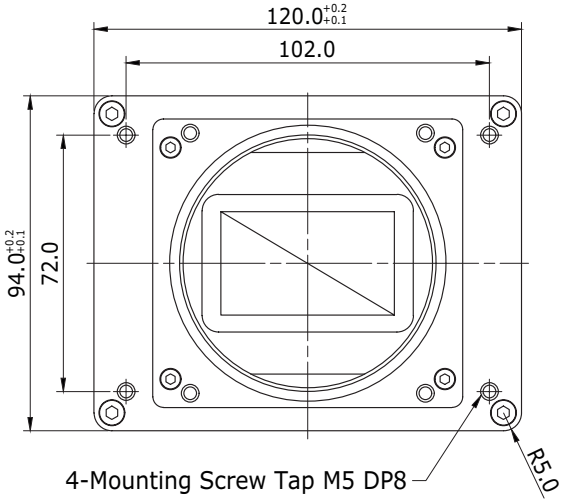

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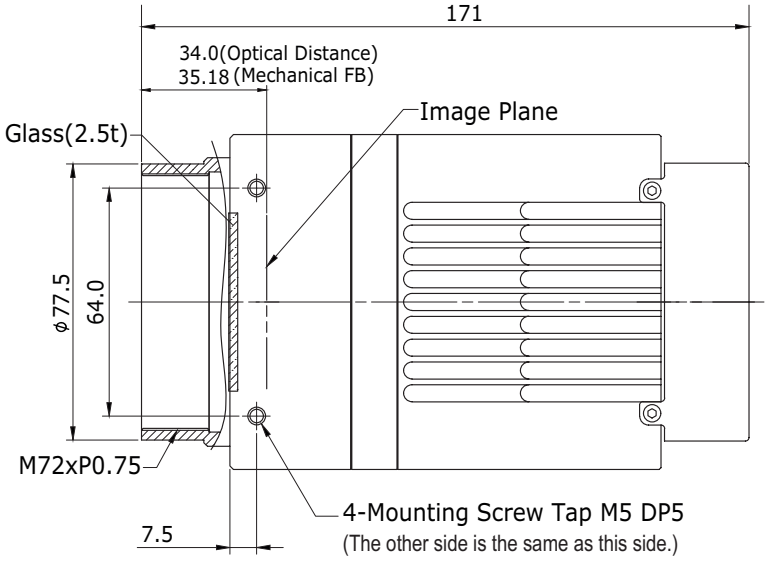

<Side View>

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VNP-200MX

200 MEGAPIXEL PIXEL SHIFTING CAMERA EQUIPPED WITH THERMOELECTRIC PELTIER

The VNP-200MX, a pixel shifting camera equipped with thermo-electric Peltier (TEC) cooled, is designed not only for applications where extremely high resolution is required but also where high quality image is essential. The TEC maintains the operating temperature of the image sensor at up to 10 degrees below ambient temperature to reduce noise significantly. Pixel shifting technology based on a precise piezoelectric stage allows image captures as high as 427 million pixels using the VNP-200MX camera. Its CoaXPress interface supports transmitting image data at up to 25 Gbps using four coaxial cables. This camera is ideal for applications such as FPD inspection, document / film scanning, research and scientific imaging.

VNP-200MX

200 MEGAPIXEL PIXEL SHIFTING CAMERA EQUIPPED WITH THERMOELECTRIC PELTIER

Main Features

* 50 Megapixel Resolution (AMS CMOSIS)
* Nano Stage Pixel Shifting Mechanism
* Extended Resolution up to 427 MP at 3 fps (9 Shot Mode)
* Thermoelectric Peltier Cooling
* CoaXPress Interface up to 30 fps at 25 Gbps using 4 CH
* Pixel Defect Correction
* Flat Field Correction
* DSNU and PRNU Correction

Applications

* FPD and PCB Inspection
* Semiconductor Inspection
* High Speed 3D Imaging
* Digitizing and Scanning
* Research and Scientific Imaging

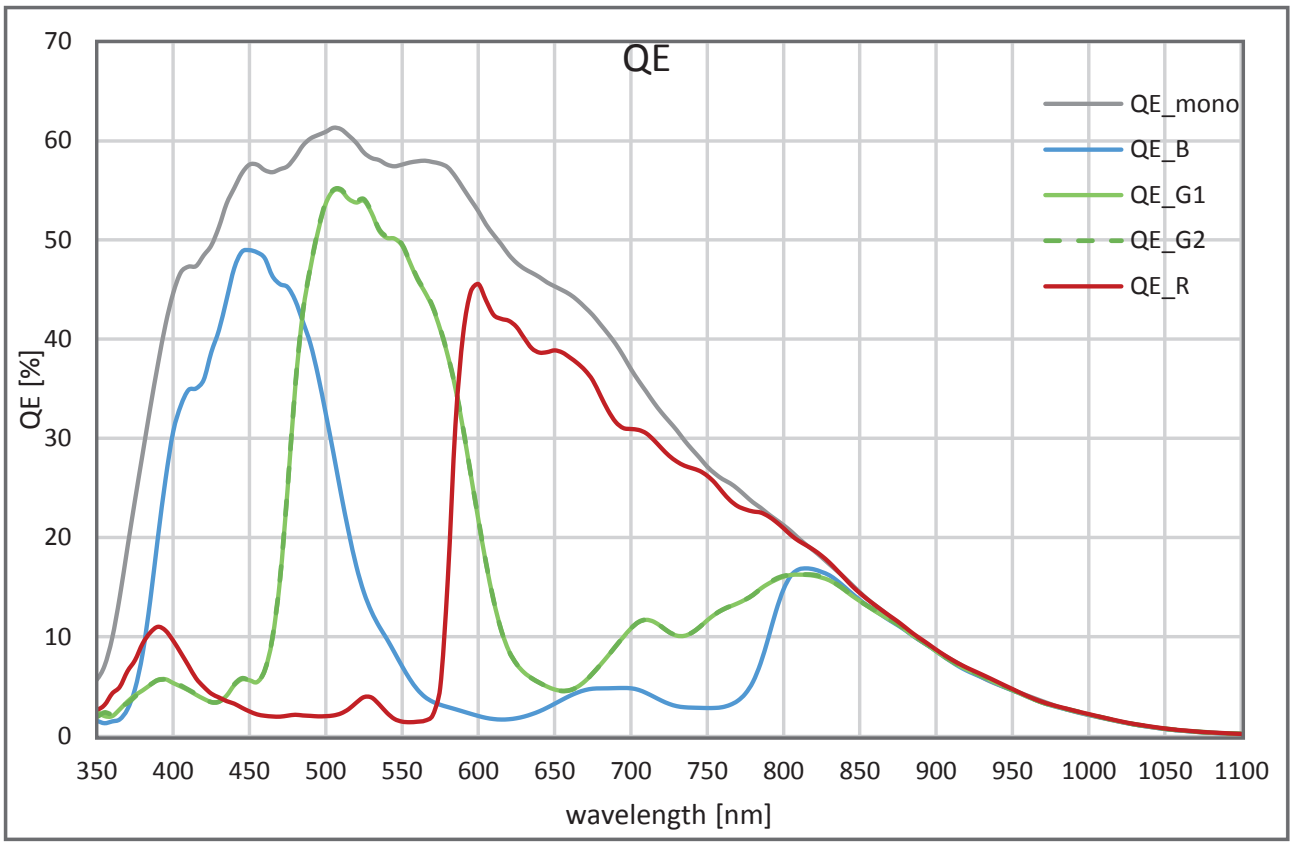
Specifications

Model		VNP-200MX-M/C 30		
Resolution (H × V)		7920 × 6004		
Sensor		AMS CMOSIS CMV 50000		
Sensor Size		36.43 ㎜ × 27.62 ㎜ (Diagonal: 45.72 ㎜, Optical Format: 35 ㎜)		
Sensor Type		High Speed CMOS Image Sensor		
Pixel Size		4.6 ㎛ × 4.6 ㎛		
Interface		CoaXPress		
Max. Frame Rate	47.5 MP	1CH: 7.7 fps @ 6.25 Gbps	2CH: 15.5 fps @ 6.25 Gbps	4CH: 30.9 fps @ 6.25 Gbps
	190 MP	1CH: 2 fps @ 6.25 Gbps	2CH: 3.9 fps @ 6.25 Gbps	4CH: 7.7 fps @ 6.25 Gbps
	427 MP	1CH: 1 fps @ 6.25 Gbps	2CH: 1.7 fps @ 6.25 Gbps	4CH: 3.4 fps @ 6.25 Gbps
Exposure Time (1 ㎲ step)		1 ㎲ – 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)		
Shift Range		0 ~ 7.5 ㎛, 1 ㎚ step		
Shift Resolution		0.001 ㎛		
Shift Control		Sequence Mode (mono4, mono9, mono2H, mono2V, bayer4, bayer16)		
Cooling Method		Thermoelectric Peltier Cooling		
Cooling Performance		10℃ below ambient temperature / Standard cooling with a fan		
Dimension / Weight		90 ㎜ × 90 ㎜ × 191 ㎜, 1,920 g		
Temperature		Operating: -5℃ ~ 40℃, Storage: -40℃ ~ 70℃		
Lens Mount		F-mount, Custom mount available upon request		
Power	External	10 ~ 24 V DC, Typ. 26.0 W		
	PoCXP	Not supported		
Compliance		CE, FCC, KC		
API SDK		Vieworks Imaging Solution 7.X		

VNP-200MX

200 MEGAPIXEL PIXEL SHIFTING CAMERA EQUIPPED WITH THERMOELECTRIC PELTIER

Quantum Efficiency Curves



Ordering Scheme

VNP – 200M X – M 30

Series
VNP Series

Sensor Resolution
200M – 200 Megapixels

Interface
X – CoaXPress

Frame Rate
30 – 30.9 fps

Mono / Color
M – Monochrome
C – Color

Connector Specification

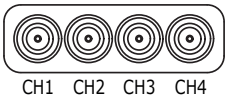
Power

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: Master Connection
(75 Ω, DIN 1.0/2.3)

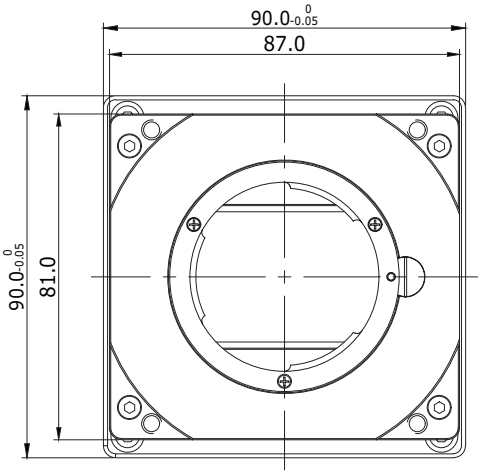
Connectors on camera body

VNP-200MX

200 MEGAPIXEL PIXEL SHIFTING CAMERA EQUIPPED WITH THERMOELECTRIC PELTIER

Mechanical Dimensions

Unit: mm



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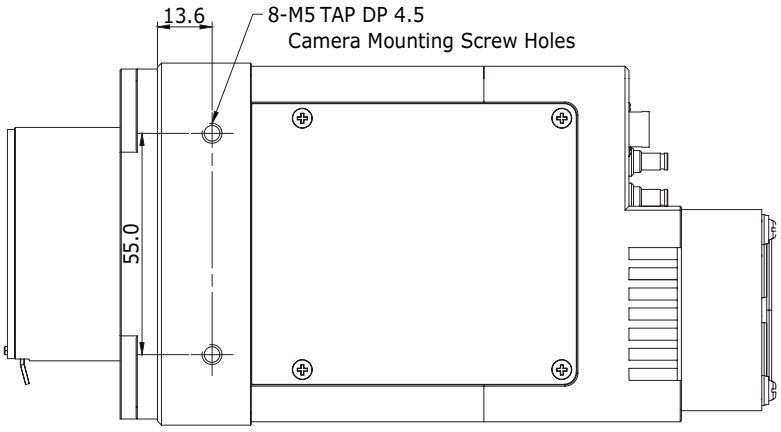

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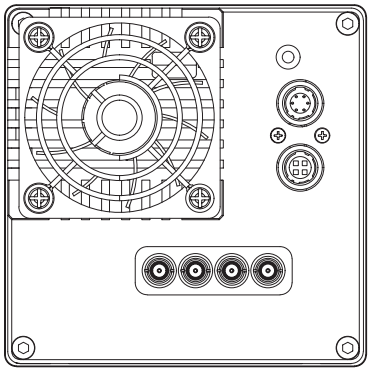

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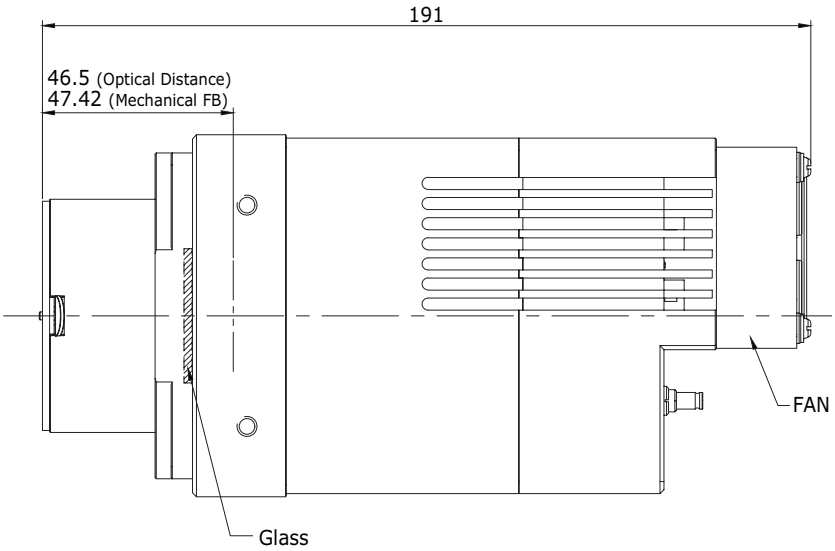

<Side View>

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VNP-604MX-M/C 6 H

604 Megapixel Pixel Shifting Camera
Equipped with Thermoelectric Peltier

The VNP-604MX-6 H, a pixel shifting camera equipped with thermo-electric Peltier (TEC) cooled, is designed not only for applications where extremely high resolution is required but also where high quality image is essential. The TEC maintains the operating temperature of the image sensor at up to 15±2℃ below ambient temperature to reduce noise significantly. Pixel shifting technology based on a precise piezoelectric stage allows image captures as high as 604 million pixels at 1.5 fps. The CoaXPress interface adopted by this camera supports transmitting image data at up to 25 Gbps using four coaxial cables. This new camera delivers unique and unparalleled performance in the most demanding applications such as FPD, PCB and semiconductor inspections.

VNP-604MX-M/C 6 H

604 Megapixel Pixel Shifting Camera Equipped with Thermoelectric Peltier

Main Features

- Nano Stage Pixel Shifting Mechanism
- Thermoelectric Peltier Cooled – 15±2℃ below
- Extended Resolutions up to 1,359 MP
- CoaXPress Interface
- Electronic Rolling Shutter
- DSNU and PRNU Correction
- Flat Field Correction with Sequencer Control
- Hot Pixel Correction
- Dynamic Defective Pixel Correction

Applications

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

Specifications

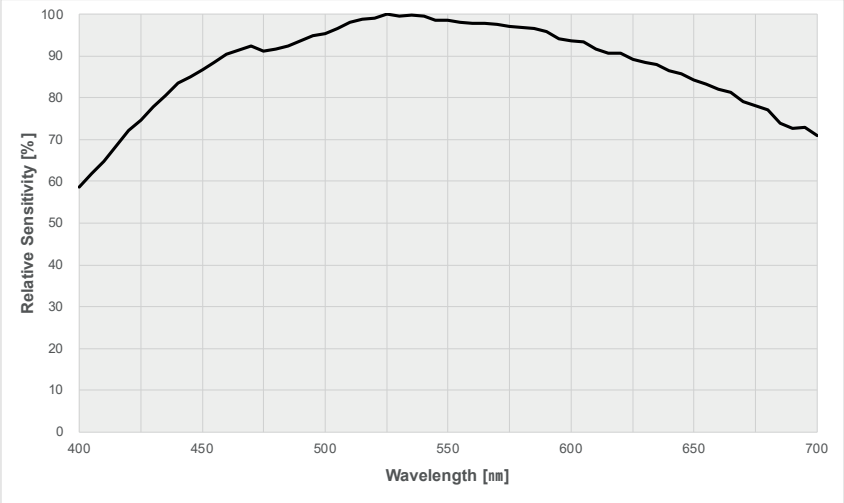
Model		VNP-604MX-M/C 6 H
Resolution (H×V)	1× (1 Shot)	14192 × 10640
	4× (4 Shot)	28384 × 21280
Sensor		SONY IMX411
Sensor Size (Diagonal)		53.36 ㎜ × 40.01 ㎜ (66.7 ㎜)
Pixel Size		3.76 ㎛ × 3.76 ㎛
Interface		CoaXPress
Max. Frame Rate	1× Mode	6.2 fps (with Overlapped Acquisition)
	4× Mode	1.5 fps (with Overlapped Acquisition)
Exposure Time (1 ㎲ step)		1 ㎲ – 60 s
Partial Scan (Max. Speed)		546.4 fps at 2 Lines (12 bit)
Pixel Data Format	Mono	Mono 8 / Mono 10 / Mono 12
	Color	RG Bayer 8 / RG Bayer 10 / RG Bayer 12
Electronic Shutter		Rolling Shutter
Trigger Synchronization	Overlapped Acquisition	Free-Run
	Non-overlapped Acquisition	Hardware Trigger, Software Trigger or CXP
Dynamic Range		78 dB
Gain Control		1× ~ 32×
Black Level Control		0 ~ 255 LSB at 12 bit
Shift Range		0 ~ 15 ㎛, 1 ㎚ step
Shift Resolution		0.001 ㎛
Shift Control		Manual Mode or Sequence Mode (4/9 Shot Mono, 4/16/36 Shot Color)
Shift Latency		< 5 ㎳
Cooling Method		Thermoelectric Peltier Cooling
Cooling Performance		15±2℃ below ambient temperature – Standard cooling with a fan
Dimension / Weight		110 ㎜ × 110 ㎜ × 134 ㎜, 2.5 ㎏ (with M-72 mount)
Temperature		Operating: 0℃ ~ 40℃, Storage: -40℃ ~ 70℃
Lens Mount		M72-mount, Custom mount available upon request
Power	External	11 ~ 24 V DC
	Dissipation	Typ. 31.0 W
Compliance		CE, FCC, KC
API SDK		Vieworks Imaging Solution 7.X

VNP-604MX-M/C 6 H

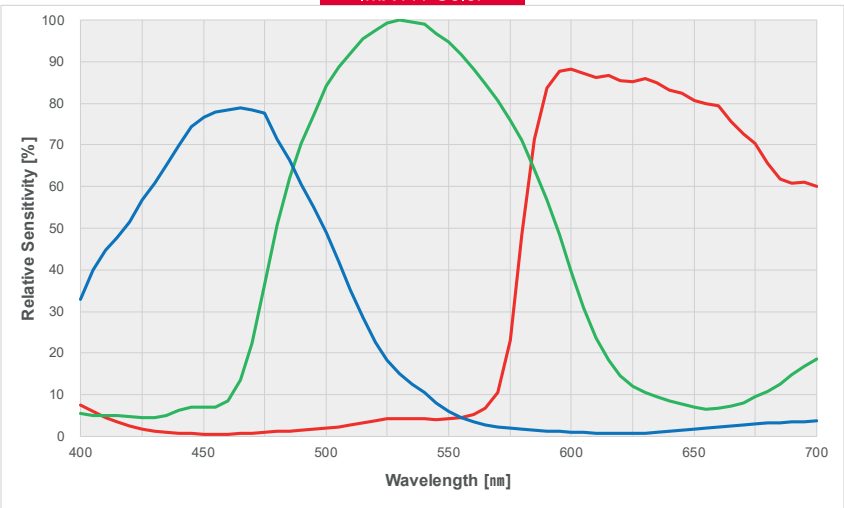
604 Megapixel Pixel Shifting Camera Equipped with Thermoelectric Peltier

Spectral Response

IMX411 Monochrome



IMX411 Color



Ordering Scheme

VNP-604M X-M 6 H

Series VNP Series	Sensor Options H – Sony CMOS (IMX)
Sensor Resolution 604M – 604 Megapixels	Frame Rate 6 – 6.2 fps
Interface X – CoaXPress	Mono / Color M – Monochrome C – Color

Connector Specification

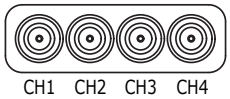
Power

1, 2, 3: +12 V 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: Master Connection
75 Ω , DIN 1.0/2.3

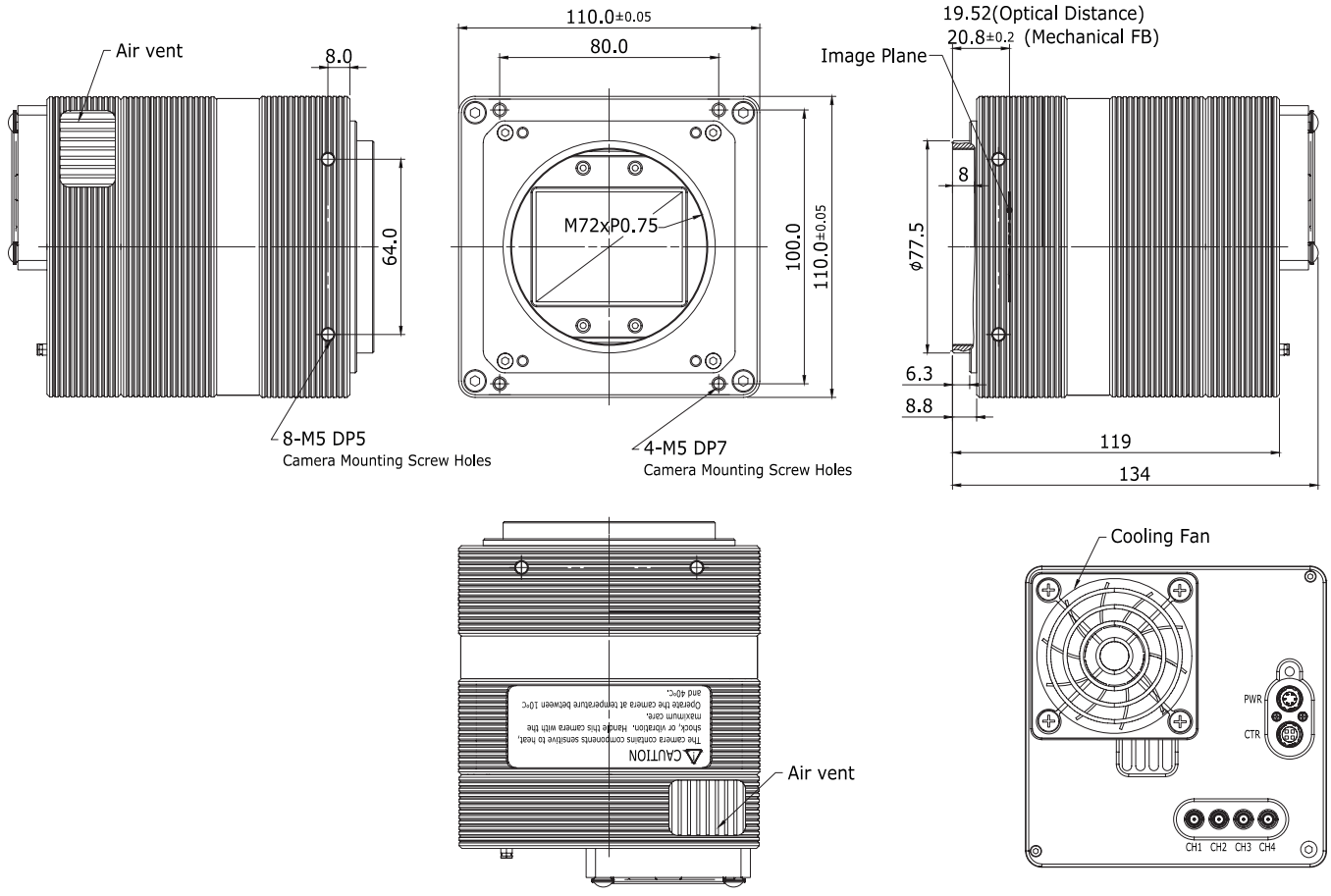
Connectors on camera body

VNP-604MX-M/C 6 H

604 Megapixel Pixel Shifting Camera Equipped with Thermoelectric Peltier

Mechanical Dimensions

Unit: mm



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VNP-29MC-M/C 5

Integrating Thermoelectric Peltier Cooled into Nano Stage Pixel Shifting Camera

VNP Series, pixel shifting camera equipped with thermo-electric Peltier (TEC) cooled, is designed not only for applications where extremely high resolution is required but also where high quality image is essential. The TEC maintains the operating temperature of the CCD at up to 15 degrees below ambient temperature to reduce noise significantly. Pixel shifting technology based on a precise piezoelectric stage allows image captures as high as 260 million pixels using the VNP-29MC cameras.

These cameras are ideal for applications such as FPD inspection, document/film scanning, research and scientific imaging.

VNP-29MC-M/C 5

Integrating Thermoelectric Peltier Cooled into Nano Stage Pixel Shifting Camera

Main Features

- Nano Stage Pixel Shifting Mechanism
- Thermoelectric Peltier Cooled
- Extended Resolutions up to 260 Megapixels
- True Color Full Image Resolution
- Improved Fill Factor
- Progressive Scan Interline Transfer CCD Imager
- Flat Field Correction / Pixel Defect Correction

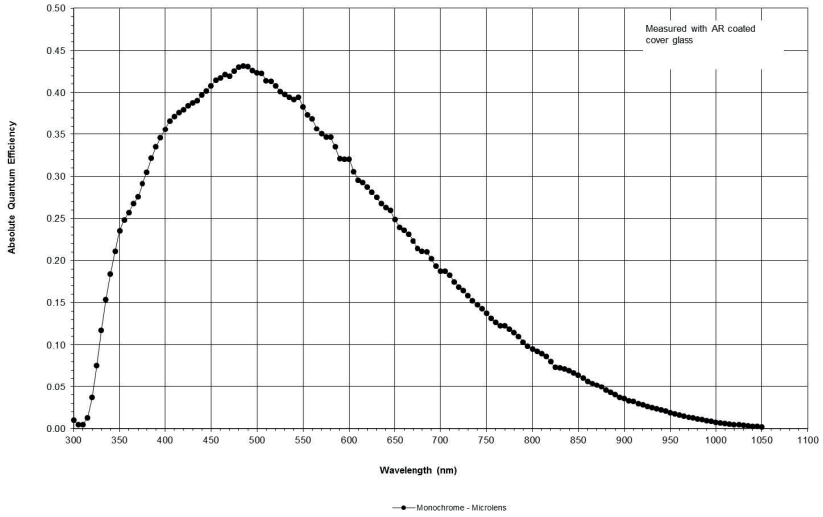
Applications

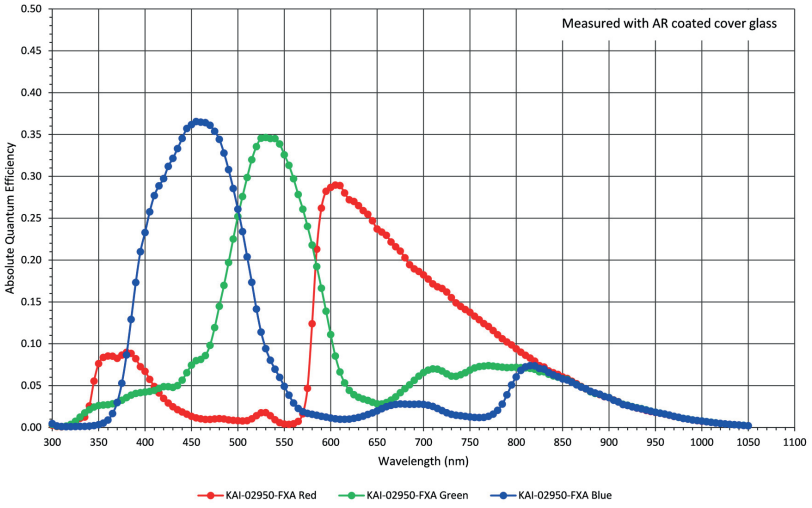
- Flat Panel Display Inspection
- Electronics and Semiconductor Inspection
- Digitizing and Scanning
- Scientific Imaging

Specifications

Model		VNP-29MC-M/C 5
Resolution (H × V)	×1 Mode	6576 × 4384, 28.8M
	×4 Mode	13152 × 8768, 115.3M
	×9 Mode	19728 × 13152, 259.5M
Sensor		ON Semiconductor KAI-29050
Sensor Size(Optical Format)		36.17 ㎜ × 24.11 ㎜ (35 ㎜)
Sensor Type		Progressive Scan Interline Transfer CCD
Pixel Size		5.5 ㎛ × 5.5 ㎛
Interface		Camera Link
Max. Frame Rate (40 ㎒)	×1 Mode	4.8 fps
	×4 Mode	1.2 fps
	×9 Mode	0.5 fps
Exposure Time (10 ㎲ 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 ㎒
Trigger Mode		Free-Run, Overlap, Fast, Double - Programmable Exposure Time and Trigger Polarity
Dynamic Range		62 ㏈
Shift Range		0 ~ 15 ㎛, 1 ㎚ step
Shift Resolution		0.001 ㎛
Shift Control		Manual Mode or Sequence Mode (4/9 Shot Mono, 4/16/36 Shot Color)
Shift Latency		< 8 ㎳
Cooling Method		Thermoelectric Peltier Cooling
Cooling Performance		15℃ below ambient temperature - Standard cooling with a fan
Dimension / Weight		94 ㎜ × 120 ㎜ × 183.9 ㎜, 2.3 ㎏
Temperature		Operating: 10℃ ~ 40℃, Storage: -40℃ ~ 70℃
Lens Mount		F-mount, Custom mount available upon request
Power		10~14 V DC, Typ. 26.5 W
Compliance		CE, FCC, KC
Configuration Software		Configurator

Quantum Efficiency Curves





Ordering Scheme

VNP – 29M C – M 5

Series
VNP Series

Sensor Resolution
29M – 29 Megapixels

Interface
C – Camera Link

Frame Rate
5 – 4.8 fps

Mono / Color
M – Monochrome
C – Color

Connector Specification

Power

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

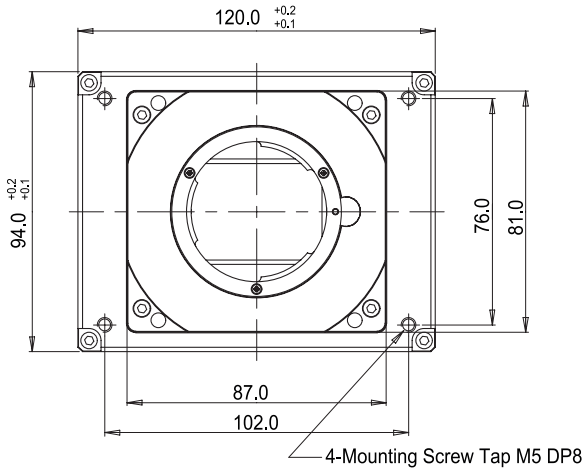
Control

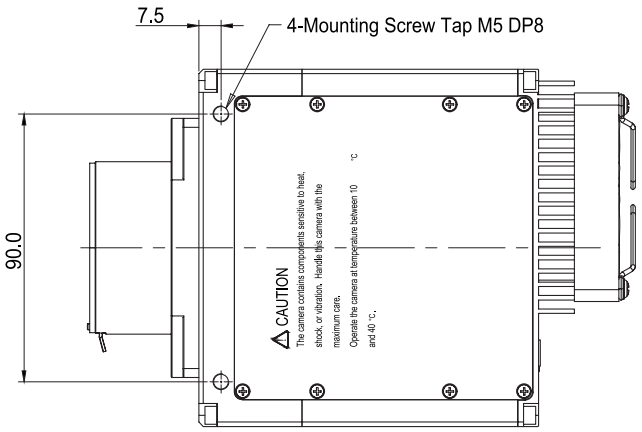
1: Trigger IN+ 2: Trigger IN–
3: Strobe OUT–(GND) 4: Strobe OUT+
(HR10A-7R-4S)

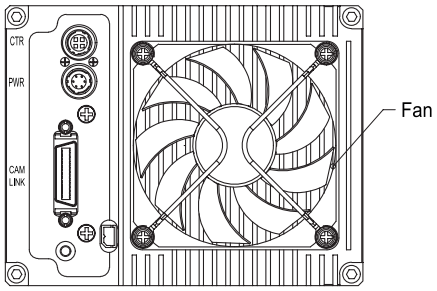
Connectors on camera body

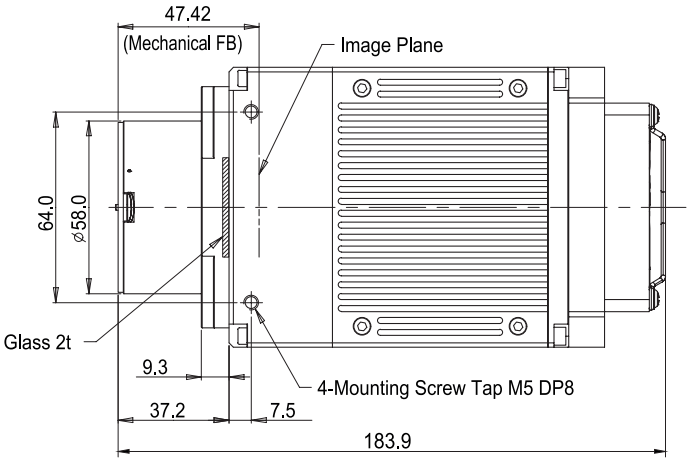
Mechanical Dimensions

Unit: mm









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