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VC-4MC

**4 MEGA PIXEL RESOLUTION
HIGH SPEED CMOS DIGITAL CAMERA**



VC-4MC camera is a high speed area scan camera with 4 megapixel resolution and fast 160 fps readout. With this high resolution and fast frame rate this camera allows manufactures of Automated Optical Inspection machines to dramatically increase their systems throughput or parts inspected/hr. The VC-4MC is ideal for Industrial, Scientific, and Military market applications.

Main Features

- *Camera Link Interface
- *Progressive Scan CMOS Imager
- *8 bit Data Output
- *up to 160 fps
- *Fixed Pattern Noise Correction
- *Field Upgradable Firmware

Applications

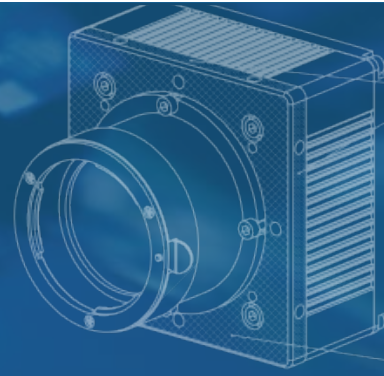
- *Machine Vision Inspections
- *Research and Scientific Imaging
- *Engineering and Military
- *Remote Sensing
- *Semiconductor, PCB Inspections

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VC-4MC

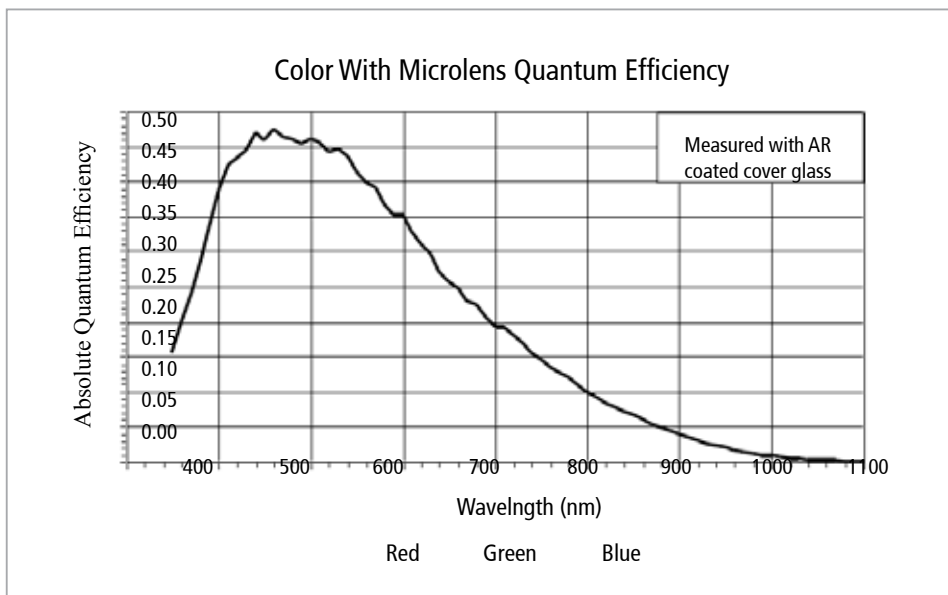
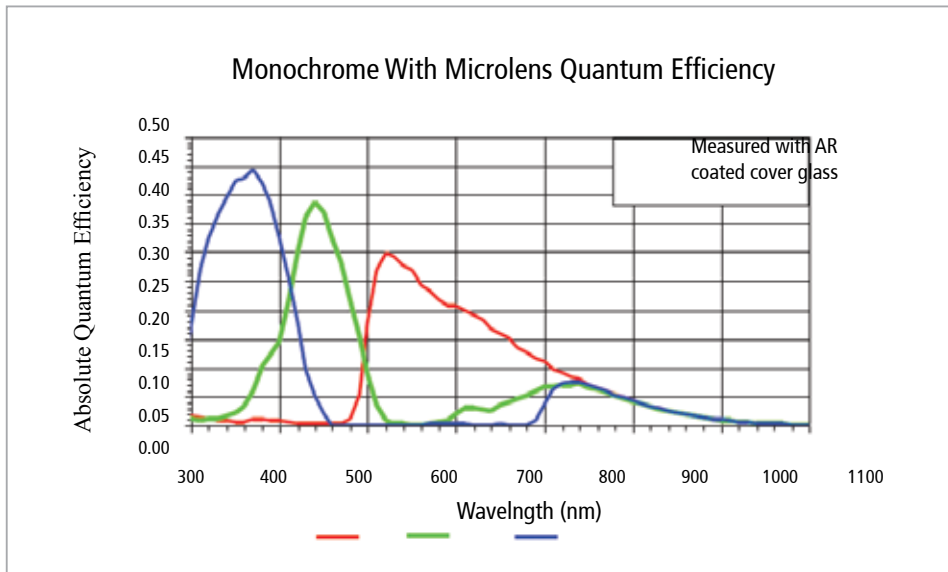
4 MEGA PIXEL RESOLUTION
HIGH SPEED CMOS DIGITAL CAMERA



Specifications

Model	VC-4MC-M110 / C110	VC-4MC-M160 / C160
Active Image	2352(H) x 1728(V)	
Pixel size	7 × 7 microns	
Video Output	10 bits	
Camera Interface	Full - 8 tabs, 8 bits Medium - 4 tabs, 8 bits Base - 2 tabs, 8 bits	Full - 8 tabs, 8 bits
Max. Frame Rate	27 fps (Base), 57 fps (Medium), 114 fps (Full)	162 fps (Full)
Dynamic Range	> 54 dB	> 56 dB
Shutter	Rolling Shutter	
AOI (Partial Scan)	15500 fps at 16 Lines (max. speed)	
Gamma Correction	User defined LUT (Look Up Table)	
Black Offset	Adjustable (0~10 LSB at 8 bits, 0~63 step)	
Video Gain	Adjustable (0 ~ 12 dB, 0~63 step)	
External Trigger	External, 3.3V - 5.0V, 10mA, optically isolated	
Software Trigger	CC1, programmable expose	
Special Feature	Fixed pattern noise correction	
Lens Mount	M42-mount or F-mount	
Power	10~14V DC , MAX. 5W	
Environmental	0°C ~ 40°C, storage :-30°C~65°C	
Mechanical	85.2mmX85.2mmx85.1mm, 550g	



Quantum Efficiency Curves



Ordering Scheme

VC - 4MC - M110CO	
Series	Sensor Option
VC series	CO - Micron
Sensor Resolution	Frame Rate
4M - 4 megapixels	110 - 110 fps 160 - 160 fps
Interface	Mono / Color
C - Camera Link	M - Monochrome C - Color

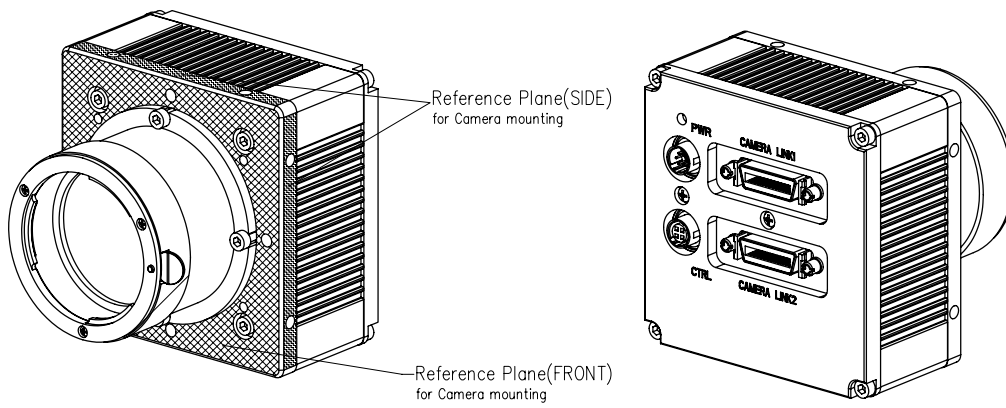
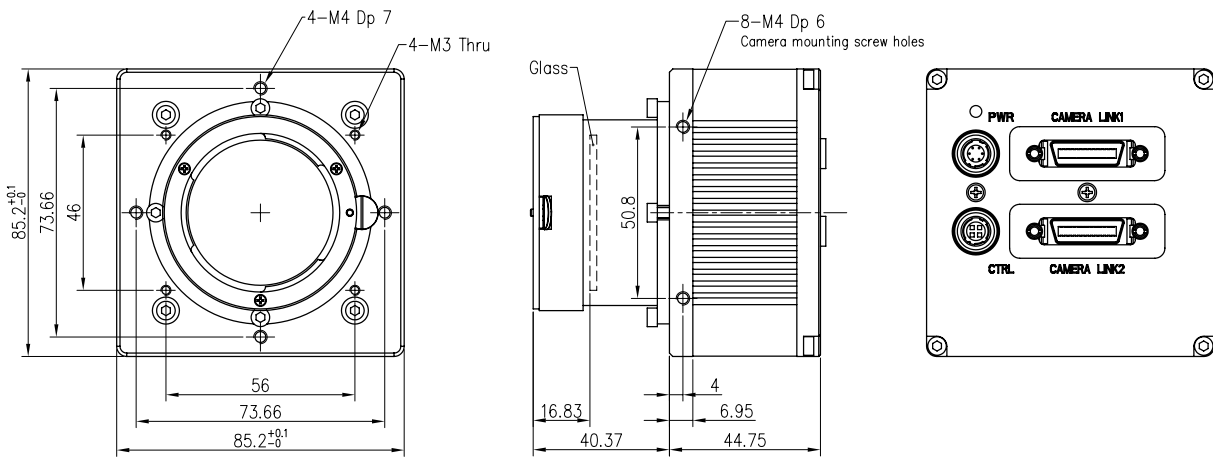
Connector Specifications

- 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-4SB)

Connectors on camera body

Mechanical Dimensions

Unit : mm

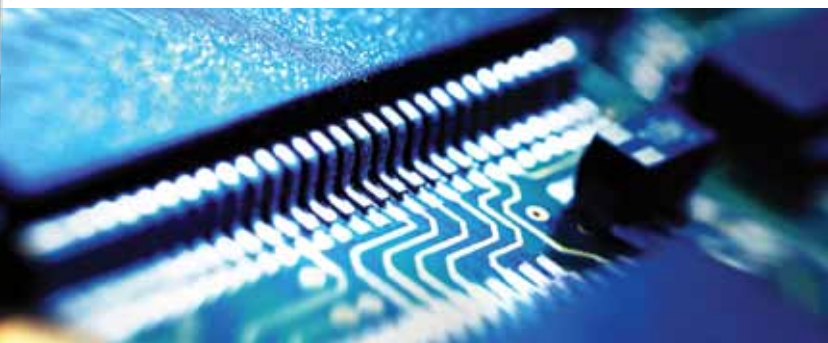




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VC-3MC

**3 MEGA PIXEL RESOLUTION
HIGH-SPEED CMOS DIGITAL CAMERA**



The VC-3MC is a high-speed CMOS digital camera with up to 280 frame per second speed at 3 megapixel resolution. Equipped with high speed image processing it provides flexible selection in resolution and speed meeting the requirements of various industrial and scientific applications. Its global electronic shutter mechanism with exposure time down to $1\mu\text{s}$ enables users to capture objects in fast movement at high definition in free run and trigger mode.

Main Features

- * 3 Megapixel Resolution (1696 × 1710 pixels) @ max 280 fps
- * CYPRESS High-Speed Progressive Scan CMOS Image Sensor
- * Full Camera Link Interface with 8 bit Data Output
- * Fixed Pattern Noise Correction
- * Field Upgradable Firmware
- * Defective Pixel Compensation
- * Great Light Sensitivity : 1,200 ASA monochrome, 1,000 ASA RGB
- * Available in Color or Monochrome
- * C-mount or F-mount adapter
- * Compact Design

Applications

- * Machine Vision Inspections
- * Research and Scientific Imaging
- * Intelligent Transport System
- * Microscopy and Metrology

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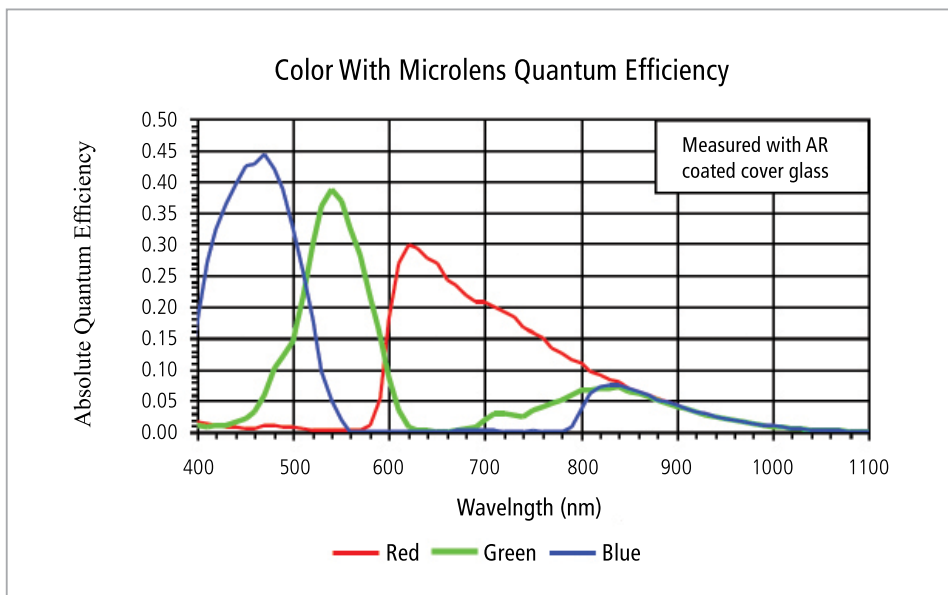
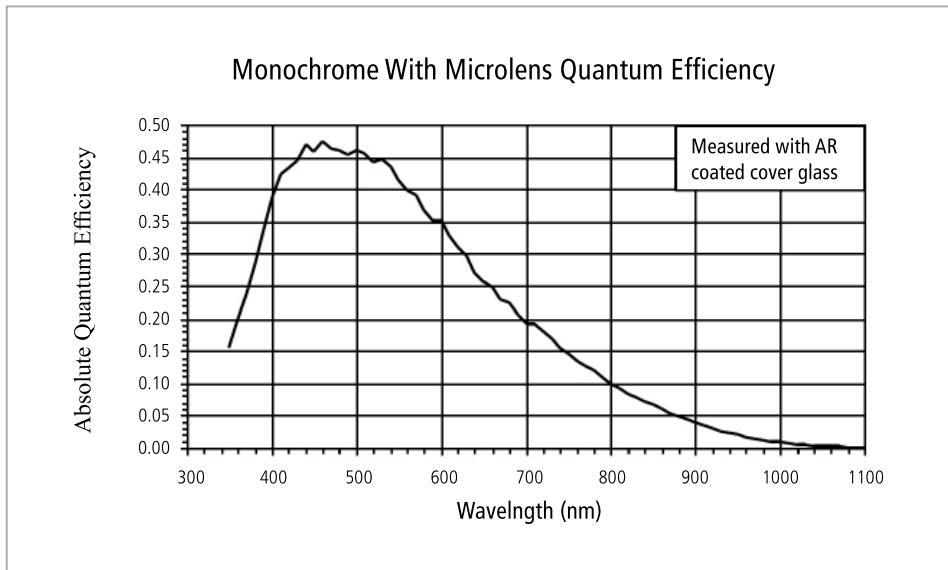
VC-3MC

3 MEGA PIXEL RESOLUTION
HIGH-SPEED CMOS DIGITAL CAMERA

Specifications

Model	VC-3MC
Imaging Device	CYPRESS LUPA-3000 CMOS Imager (color or monochrome, 8 bit A/D)
Active Image Pixels	1696 (h) × 1710 (v), 3 megapixels
Pixel size	8 μ m × 8 μ m
Active Image Area	13.57 mm (h) × 13.68 mm (v)
Sensor Clock Rate	85 MHz
Light Sensitivity	1,200 ASA monochrome, 1,000 ASA RGB
Video Output	Digital, 8 tap × 8 bit / 10 tap × 8 bit
Camera Interface	Full Camera Link
Max. Frame Rate	285 fps
Shutter Type	Global Electronic Shutter
Exposure Time	1 μ s to 7 sec (1 μ s step)
Partial Scan	Max 628 fps at 1280 × 1024 pixel resolution
Black Level Offset	Adjustable (0 to 63 LSB at 8 bit)
Video Gain	Analog: 0 to 12 dB, 64 steps
Trigger Mode	Mode(free run , trigger), Programmable exposure, Programmable trigger polarity
External Trigger	3.3V - 5.0V, 10mA, optically isolated
Software Trigger	CC1, programmable exposure
Dynamic Range	> 52 dB
Lens Mount	C-mount or F-mount
Special Feature	CMOS Fixed Pattern Noise Correction
Power Requirements	10~14VDC , max. 7W
Environmental	Operating : 0°C to 40°C, Storage :-30°C to 65°C
Mechanical	68mm × 68mm × 54mm, 420g (w/ C-mount adaptor)

Quantum Efficiency Curves



Ordering Scheme

VC - 3MC - M280DO

Series VC series	Sensor Option D0 - Cypress
Sensor Resolution 3M - 3 megapixels	Frame Rate 280 - 280 fps
Interface C - Camera Link	Mono / Color M - Monochrome C - Color

Connector Specifications

Power



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

Control

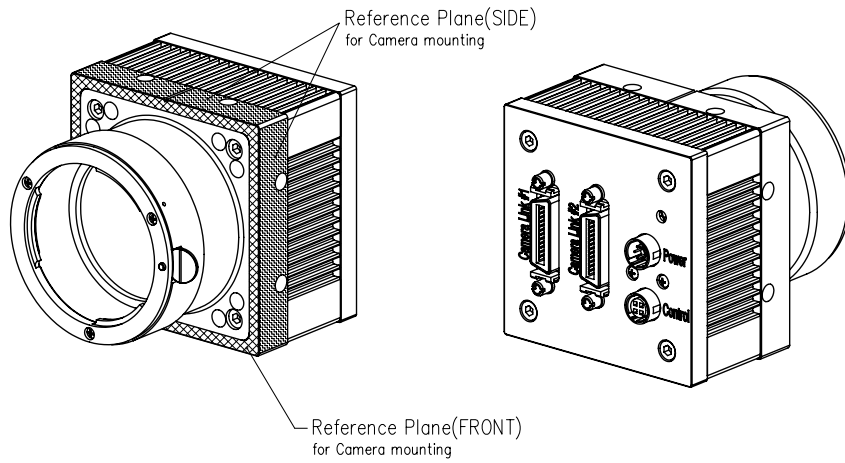
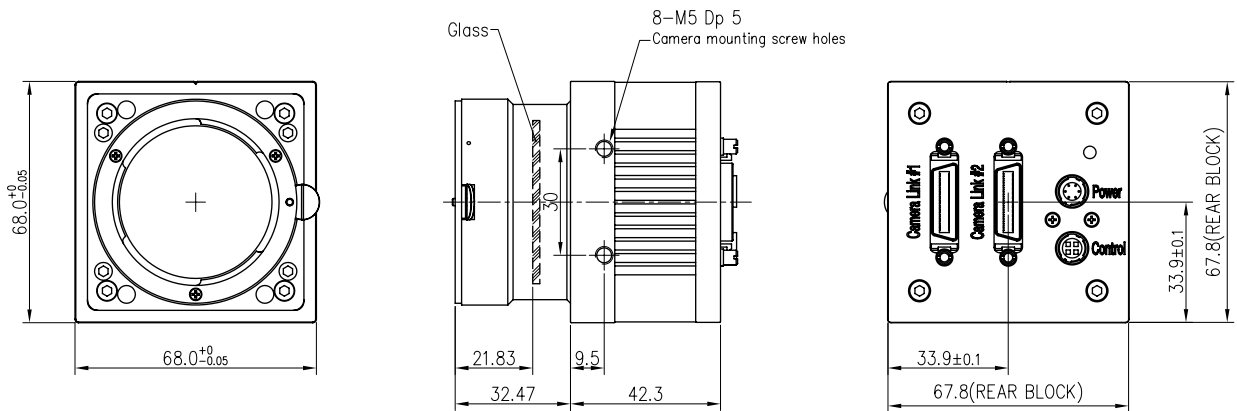


1 : Trigger IN+, 2 : Trigger IN-
3 : Strobe OUT- (GND), 4 : Strobe OUT+
(HR10A-7R-4SB)

Connectors on camera body

Mechanical Dimensions

Unit : mm

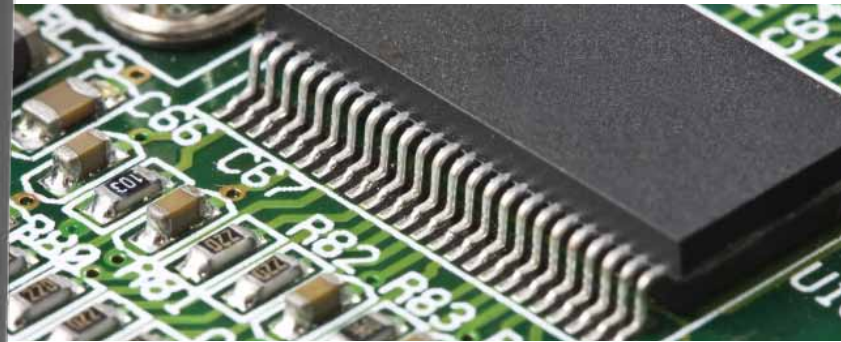




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VC-2MC-M/C 340 VC-4MC-M/C 180

2 & 4 MEGA PIXEL RESOLUTION, GLOBAL ELECTRONIC SHUTTER,
HIGH-SPEED CMOS DIGITAL CAMERAS



VC-2MC-M/C340 & VC-4MC-M/C180 are high-speed CMOS digital cameras with up to 340 and 180 frames per second at maximum resolutions. Equipped with high speed image processing it provides flexible selection in resolution and speed meeting the requirements of various industrial and scientific applications. Its global electronic shutter mechanism with exposure time down to $1\mu\text{s}$ enables users to capture objects in fast movement at high definition in free run and trigger mode.

Main Features

- * 2M/ 4M Mega Pixel Resolution
- * CMOSIS High-Speed Progressive Scan CMOS Image Sensor
- * Full Camera Link Interface with 8 bit Data Output
- * Fixed Pattern Noise Correction
- * Field Upgradable Firmware
- * Defective Pixel Compensation

Applications

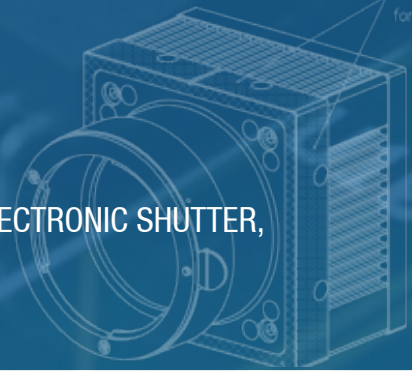
- * Machine Vision Inspection
- * Research and Scientific Imaging
- * Intelligent Transport System
- * Microscopy and Metrology

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VC-2MC-M/C 340 VC-4MC-M/C 180

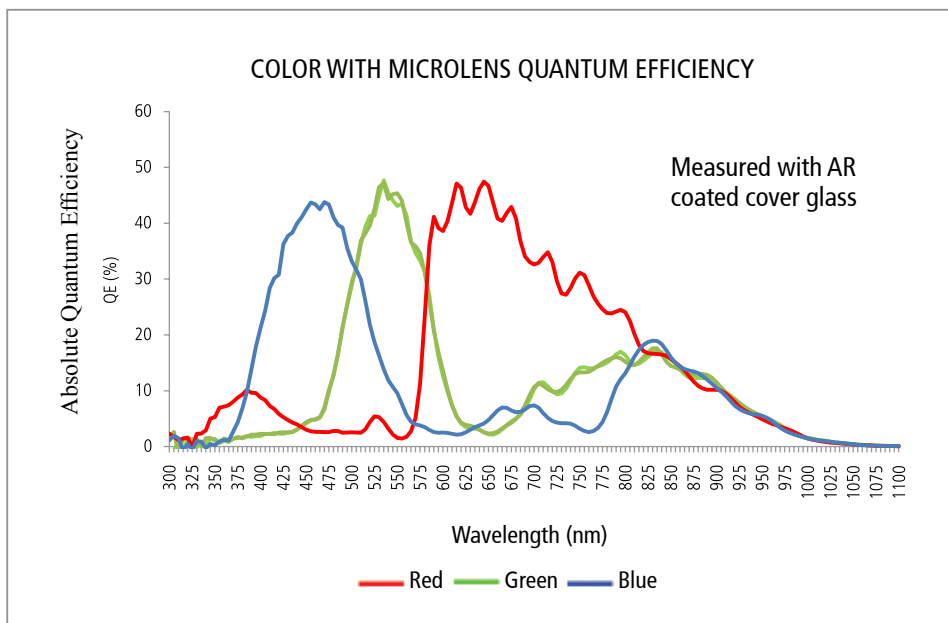
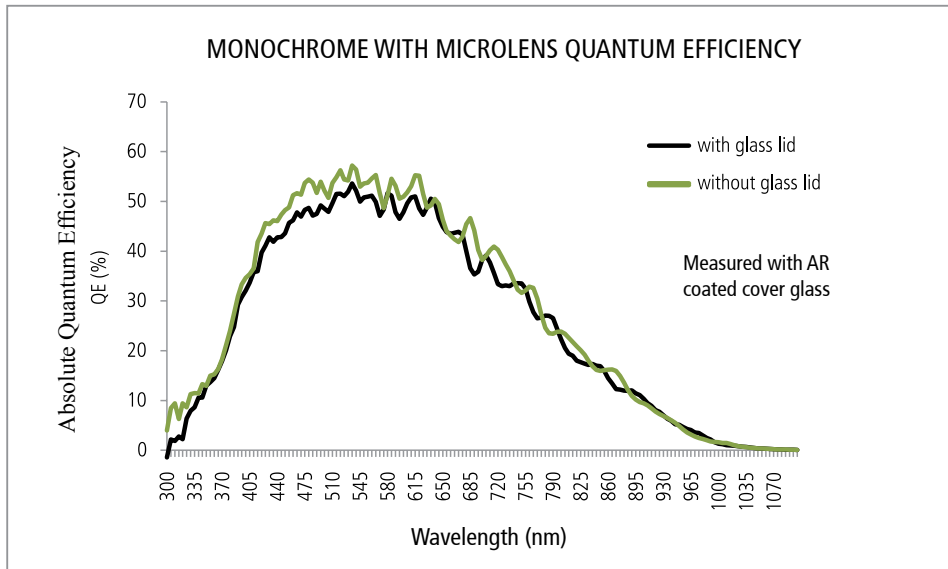
2 & 4 MEGA PIXEL RESOLUTION, GLOBAL ELECTRONIC SHUTTER,
HIGH-SPEED CMOS DIGITAL CAMERAS



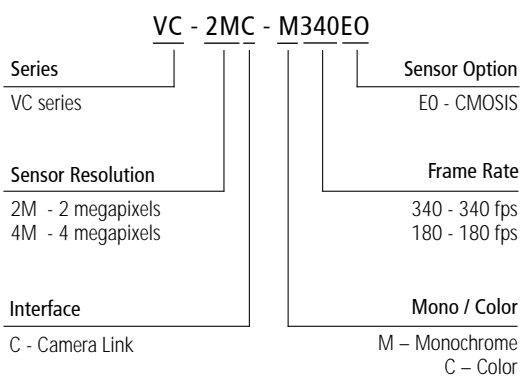
Specifications

Model	VC-2MC-M/C 340	VC-4MC-M/C 180
Imaging Device	CMOSIS CMV 2000 CMOS sensor	CMOSIS CMV 4000 CMOS sensor
Active Image Pixels	2048(H) X 1088(V)	2048(H) X 2048(V)
Pixel Size	5.5 μ m \times 5.5 μ m	
Active Image Area	11.26 \times 5.63 mm (Diagonal : 12.6 mm)	11.26 \times 11.26 mm (Diagonal : 15.92 mm)
Sensor Clock Rate	85 MHz	
Data Output	8 bit	
Camera Interface	Full Camera-Link : CC1	
Max. Frame Rate (at full Image)	2 Taps (Base) : 75 FPS 4 Taps (Medium) : 150 FPS 8 Taps (Full) : 300 FPS 10 Taps (Full) : 340 FPS	2 Taps (Base) : 39.5 FPS 4 Taps (Medium) : 78.9 FPS 8 Taps (Full) : 157.0 FPS 10 Taps (Full) : 179.2 FPS
Transfer Time (at full Image)	2 Taps (Base) : 13.3 ms 4 Taps (Medium) : 6.7 ms 8 Taps (Full) : 3.3 ms 10 Taps (Full) : 2.94 ms	2 Taps (Base) : 25.3 ms 4 Taps (Medium) : 12.67 ms 8 Taps (Full) : 6.37 ms 10 Taps (Full) : 5.58 ms
Exposure Time	1 μ s ~ 7s	
Exposure Control	Global Electronic shutter	
Gain Control	Range: 0~ 12 dB, 64-step Gain Control	
Offset Control	Range: 0-63dB, 64-step Offset Control	
Trigger Mode	Mode (free run, trigger), Programmable exposure, Programmable trigger polarity	
External Trigger	External Port : 3.3 – 5.0V Logic level input, optically isolated.	
Dynamic Range	60 dB	
Lens Mount	C-Mount or F-Mount	
Power Requirements	12 VDC \pm 20% MAX 6.0 W @ 12 V DC	
Connectors	Data Transfer/ Communication : Two, 26 pin, Female MDR connector Power : 6 pin, Hirose HR connector, Control : 4 pin, Hirose HR connector	
Environmental	0 $^{\circ}$ C ~ 40 $^{\circ}$ C, storage : -30 $^{\circ}$ C ~ 65 $^{\circ}$ C	
Mechanical Spec.	68 mm x 68 mm x 54 mm, 420 g (With C-mount)	

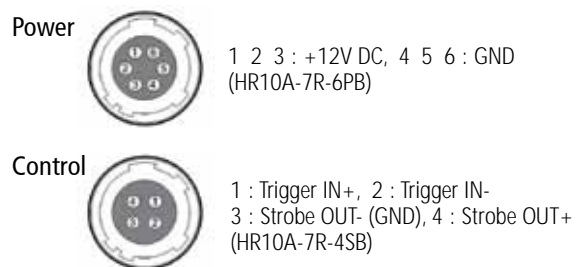
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Ordering Scheme



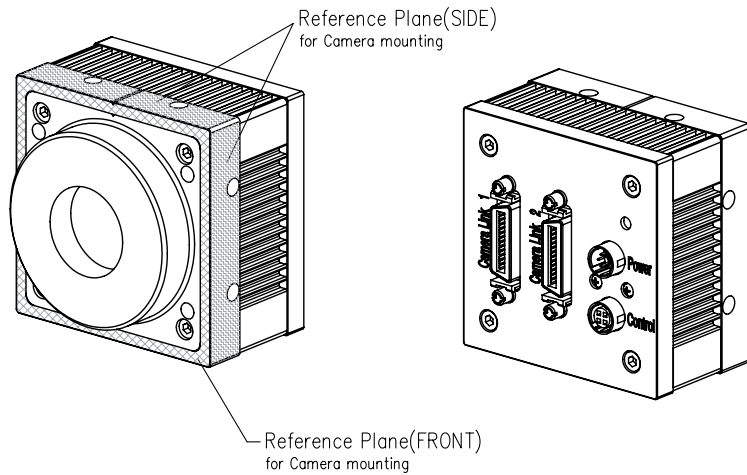
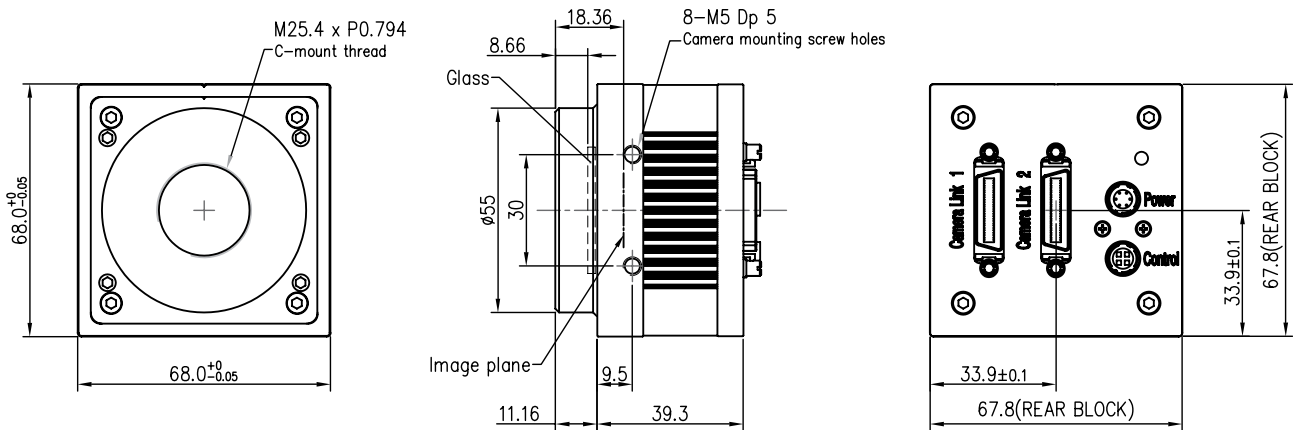
Connector Specifications



Connectors on camera body

Mechanical Dimensions

Unit : mm



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VMCB-VC03-R001EN

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