

---

VH-310G2 / VH-2MG2

VH-4MG2 / VH-11MG2

VH-16MG2

VGA / 2 / 4 / 11 / 16 MEGAPIXEL RESOLUTION

GIGABIT ETHERNET INTERFACE – PROGRAMMABLE DIGITAL CAMERA



VH Gigabit Ethernet series is a progressive scan high performance industrial digital camera. All features of the camera can be easily updated in the field through Gigabit Ethernet interface. The camera uses the latest CCD technology from ON Semiconductor (formerly Truesense Imaging, Inc.) and Sony which provides superior low noise performance resulting in high dynamic range. The camera is developed based on GenICam standard. The VH Gigabit Ethernet series is an excellent choice for applications such as LCD inspection, Machine Vision inspection, Research and Scientific imaging and aerial imaging.

**VIEWORKS**

# VH-310G2 / VH-2MG2 / VH-4MG2 / VH-11MG2 / VH-16MG2

VGA / 2 / 4 / 11 / 16 MEGAPIXEL RESOLUTION – GIGABIT ETHERNET INTERFACE PROGRAMMABLE DIGITAL CAMERA

## Main Features

- \* Normal and High Speed Operation Modes
- \*  $\times 1$ ,  $\times 2$ ,  $\times 3$ ,  $\times 4$ ,  $\times 8$  Horizontal and Vertical Binning Modes
- \* Flat Field Correction
- \* Real Exposure
- \* Stream Hold and Inter-packet Delay
- \* Camera Image Memory: 128 MB
- \* Field Upgradable Firmware
- \* Pixel Defect Correction (Binning Mode:  $2 \times 2$ ,  $4 \times 4$ )
- \* Excellent Dynamic Range and Noise Performance

## Applications

- \* Flat Panel Display Inspection
- \* Research and Scientific Imaging
- \* Machine Vision Inspection
- \* Microscopy and Metrology
- \* Remote Sensing and Scanning

## Specifications

Model	VH-310G2-M/C 264	VH-2MG2-M/C 42	VH-4MG2-M/C 20
Resolution (H $\times$ V)	640 $\times$ 480	1600 $\times$ 1200	2048 $\times$ 2048
Sensor (ON Semiconductor)	KAI-0340	KAI-2020	KAI-4021
Sensor Size (Optical Format)	1/3"	1"	4/3"
Sensor Type	Progressive Scan Interline Transfer CCD		
Pixel Size	7.4 $\mu\text{m}$ $\times$ 7.4 $\mu\text{m}$		
Sensor Output	1 or 2 Tap		
Interface	Gigabit Ethernet		
Max. Frame Rate	140 fps / 264 fps	23 fps / 42 fps	11 fps / 20 fps
Exposure Time	16 $\mu\text{s}$ ~ 7 s	37 $\mu\text{s}$ ~ 7 s	55 $\mu\text{s}$ ~ 7 s
Partial Scan (Max. Speed)	1396 fps at 60 Lines	159 fps at 150 Lines	86 fps at 256 Lines
Pixel Data Format	8 / 10 / 12 bit		
Output Format	Mono	Mono8, Mono10, Mono10 packed, Mono12, Mono12 packed	
	Color	Bayer8, Bayer10, Bayer10 packed, Bayer12, Bayer12 packed	
Electronic Shutter	Global Shutter		
Sensor Pixel Clock	40 MHz / 50 MHz		
Exposure Mode	Timed Exposure, Trigger Width Exposure, Double Exposure		
Dynamic Range	60 dB	62 dB	
Binning	$\times 1$ , $\times 2$ , $\times 3$ , $\times 4$ , $\times 8$ (Horizontal and Vertical Independent)		
Lookup Table	G = 1.0, User Defined Lookup Table (LUT)		
Black Level	Adjustable (0 ~ 127 LSB at 12 bit, 256 steps)		
Gain Control	$\times 1$ ~ $\times 40$ (0 ~ 32 dB)		
Auto Control	Auto Gain, Auto Exposure, Auto White Balance		
Camera Image Memory	128 MB		
Dimension / Weight	49 mm $\times$ 49 mm $\times$ 62 mm	68 mm $\times$ 68 mm $\times$ 54 mm, 395 g (with C-mount)	
	220 g (with C-mount)	68 mm $\times$ 68 mm $\times$ 83 mm, 430 g (with F-mount)	
Temperature	Operating: $-5^{\circ}\text{C}$ ~ $40^{\circ}\text{C}$ , Storage: $-40^{\circ}\text{C}$ ~ $70^{\circ}\text{C}$		
Lens Mount	C-mount	C or F-mount	
Power	10 ~ 15 V DC, Typ. 4.5 W	10 ~ 15 V DC, Typ. 5.5 W	10 ~ 15 V DC, Typ. 5.5 W
Compliance	CE, FCC, KC		
API SDK	Vieworks Imaging Solution 6.X or above		

# VH-310G2 / VH-2MG2 / VH-4MG2 / VH-11MG2 / VH-16MG2

VGA / 2 / 4 / 11 / 16 MEGAPIXEL RESOLUTION – GIGABIT ETHERNET INTERFACE PROGRAMMABLE DIGITAL CAMERA

## Specifications

Model	VH-11MG2-M/C 6		VH-16MG2-M/C 4	
Resolution (H × V)	4008 × 2672		4872 × 3248	
Sensor	ON Semiconductor KAI-11002		ON Semiconductor KAI-16000	
Sensor Size (Optical Format)	35 mm		35 mm	
Sensor Type	Progressive Scan Interline Transfer CCD			
Pixel Size	9.0 μm × 9.0 μm		7.4 μm × 7.4 μm	
Sensor Output	1 or 2 Tap			
Interface	Gigabit Ethernet			
Max. Frame Rate	3.4 fps / 6.4 fps		2.2 fps / 4.2 fps	
Exposure Time	131 μs ~ 7 s		209 μs ~ 7 s	
Partial Scan (Max. Speed)	27 fps at 334 Lines		15 fps at 406 Lines	
Pixel Data Format	8 / 10 / 12 bit			
Output Format	Mono	Mono8, Mono10, Mono10 packed, Mono12, Mono12 packed		
	Color	Bayer8, Bayer10, Bayer10 packed, Bayer12, Bayer12 packed		
Electronic Shutter	Global Shutter			
Sensor Pixel Clock	30 MHz / 40 MHz			
Exposure Mode	Timed Exposure, Trigger Width Exposure, Double Exposure			
Dynamic Range	64 dB			
Binning	×1, ×2, ×3, ×4, ×8 (Horizontal and Vertical Independent)			
Lookup Table	G = 1.0, User Defined Lookup Table (LUT)			
Black Level	Adjustable (0 ~ 127 LSB at 12 bit, 256 steps)			
Gain Control	×1 ~ ×40 (0 ~ 32 dB)			
Auto Control	Auto Exposure, Auto Gain, Auto White Balance			
Camera Image Memory	128 MB			
Dimension / Weight	68 mm × 68 mm × 54 mm, 395 g (with C-mount) 68 mm × 68 mm × 83 mm, 430 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 ~ 15 V DC, Typ. 6.5 W		10 ~ 15 V DC, Typ. 6.0 W	
Compliance	CE, FCC, KC			
API SDK	Vieworks Imaging Solution 6.X or above			

## Ordering Scheme

Series	VH - 16M G2 - M 4 A0	
VH Series		
Sensor Resolution	Sensor Options A0 - ON Semiconductor B0 - Sony	
310 - VGA	Frame Rate	
2M - 2 Megapixels	4 - 4.2 fps	
4M - 4 Megapixels	6 - 6.4 fps	
11M - 11 Megapixels	20 - 20 fps	
16M - 16 Megapixels	42 - 42 fps	
Interface	264 - 264 fps	
G2 - Gigabit Ethernet	Mono / Color	
	M - Monochrome	
	C - Color	

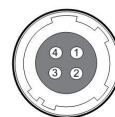
## Connector Specification

Power



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

Control



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

Connectors on camera body

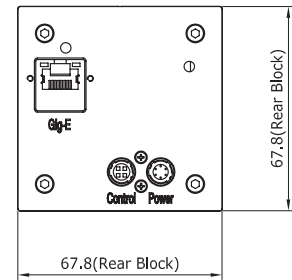
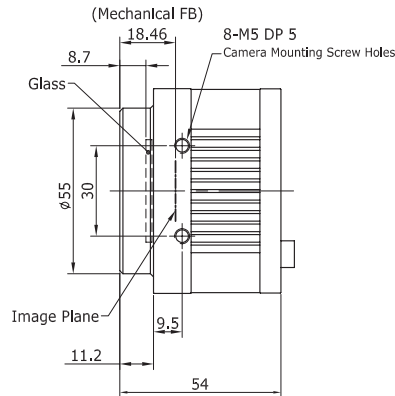
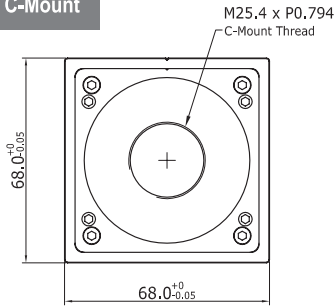
# VH-310G2 / VH-2MG2 / VH-4MG2 / VH-11MG2 / VH-16MG2

VGA / 2 / 4 / 11 / 16 MEGA PIXEL RESOLUTION - GIGABIT ETHERNET INTERFACE PROGRAMMABLE DIGITAL CAMERA

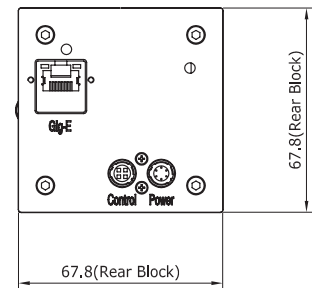
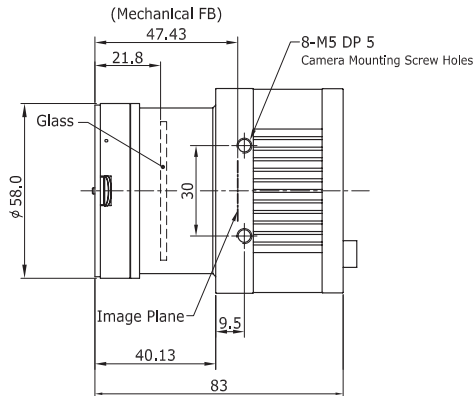
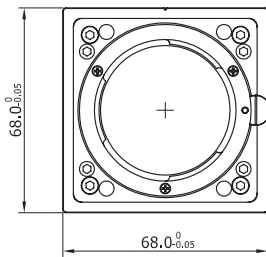
## Mechanical Dimensions

Unit: mm

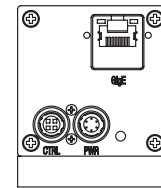
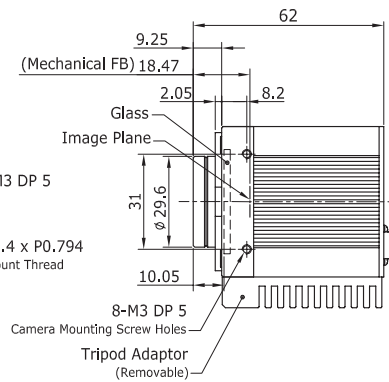
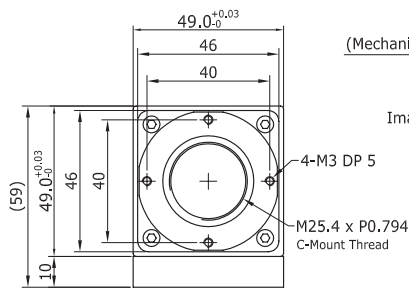
### C-Mount



### F-Mount



### VGA C-Mount



For more information please contact local distributor or visit our website at <http://www.vieworks.com>.

Reproduction in whole or in part without written permission is prohibited. Vieworks Co., Ltd. is not responsible for any technical or typographical errors and reserves the right to make changes to products, specifications and documentation without prior notice.

RA14-131-021

# VIEWORKS

41-3, Burim-ro 170 beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, 14055 Republic of Korea  
tel +82-70-7011-6161 fax +82-31-386-8631 e-mail sales@vieworks.com