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VQ-310G-120 / VQ-310G-M400

VQ-1300G-30 / VQ-2MG-20

VQ-5MG-16

ULTRA COMPACT – COST EFFECTIVE CCD AND CMOS CAMERA



VQ Series is the smallest digital cameras ideal for a wide range of industrial applications. With its compact housing size and light weight, VQ cameras can simply replace most of industrial analogue cameras. Its competitive price and advanced features such as built-in frame buffer, user defined LUT and auto exposure control allow users to enjoy flexible choices for various machine vision and traffic applications.

**VIEWORKS**

# VQ-310G / VQ-310G-M400 / VQ-1300G / VQ-2MG / VQ-5MG

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## Main Features

- \* Resolution from VGA up to 5 MP
- \* Power over Ethernet with 1 Gbps Interface
- \* Maximum 100 Meter Cable Lengths
- \* Compact Size with C-mount and CS-mount Adapter
- \* Built-in Frame Buffer and Auto Exposure Control
- \* Stream Hold and Inter-packet Delay
- \* Camera Image Memory: 64 MB
- \* Field Upgradable Firmware
- \* Pixel Defect Correction (Binning Mode: 2 × 2, 4 × 4)

## Applications

- \* Machine Vision Inspection
- \* Medical and Scientific Imaging
- \* Microscopy and Metrology
- \* Remote Sensing
- \* Intelligent Transportation System (ITS)

## Specifications

Model	VQ-310G-M/C 120	VQ-1300G-M/C 30	VQ-310G-M 400
Resolution (H × V)	656 × 488	1296 × 960	640 × 480
Sensor	Sony ICX 424 AL/AQ	Sony ICX 445 AL/AQ	CMOSIS CMV 300
Sensor Size (Optical Format)	1/3"	1/3"	1/3"
Sensor Type	Progressive Scan Interline Transfer CCD		High Speed CMOS Imager
Pixel Size	7.4 μm × 7.4 μm	3.75 μm × 3.75 μm	7.4 μm × 7.4 μm
Sensor Output	1 Tap		
Interface	Gigabit Ethernet		
Max. Frame Rate	120 fps	30 fps	400 fps
Exposure Time (10 μs step)	22 μs ~ 7 s	9 μs ~ 7 s	65 μs ~ 7 s
Partial Scan (Max. Speed)	451 fps at 60 Lines	118 fps at 120 Lines	7900 fps at 2 Lines
Pixel Data Format	8 / 10 / 12 bit		
Output Format	Mono	Mono8, Mono10, Mono10 packed, Mono12, Mono12 packed	
	Color	Bayer8, Bayer12, Bayer12 packed, YUV422 packed, YUV422 (YUYV) packed	N/A
Electronic Shutter	Global Shutter		
Data Output Pixel Clock Speed	50 MHz		N/A
Exposure Mode	Timed, Trigger Width, Double Exposure		Timed, Trigger Width Exposure
Dynamic Range	52 dB		56 dB
Binning	×1, ×2, ×3, ×4 (Horizontal and Vertical Independent)		N/A
Lookup Table	G = 1.0, User Defined Lookup Table (LUT)		
Black Level	Adjustable (0 ~ 128 LSB at 12 bit, 256 steps)		Adjustable (0 ~ 256 LSB at 12 bit, 256 steps)
Gain Control	×1 ~ ×40 (0 ~ 32 dB)		×1, ×1.25, ×1.5, ×1.75, ×2, ×2.5, ×3, ×3.5
Auto Control	Auto Gain, Auto Exposure, Auto White Balance		Auto Gain, Auto Exposure
Camera Image Memory	64 MB		
Dimension / Weight	29 mm × 29 mm × 56.4 mm / 91 g (with C-mount) 29 mm × 29 mm × 51.4 mm / 86 g (with CS-mount)		44 mm × 29 mm × 62 mm / 100 g (with CS-mount)
Temperature	Operating: 0°C ~ 40°C, Storage: -40°C ~ 70°C		Operating: -10°C ~ 55°C, Storage: -40°C ~ 70°C
Lens Mount	C or CS-mount		CS-mount
POE	Power over Ethernet (802.3af)		N/A
Power	8 ~ 38 V DC, Typ. 2.5 W	8 ~ 38 V DC, Typ. 2.5 W	10 ~ 14 V DC, MAX. 3 W
API SDK	Viewworks Imaging Solution 6.X or above		

# VQ-310G / VQ-310G-M400 / VQ-1300G / VQ-2MG / VQ-5MG

ULTRA COMPACT – COST EFFECTIVE CCD AND CMOS CAMERA

## Specifications

Model	VQ-2MG-M/C 20		VQ-5MG-M/C 16
Resolution (H × V)	1624 × 1232		2448 × 2056
Sensor	Sony ICX 274 AL/AQ		Sony ICX 625 AL/AQ
Sensor Size (Optical Format)	1/1.8"		2/3"
Sensor Type	Progressive Scan Interline Transfer CCD		
Pixel Size	4.4 μm × 4.4 μm		3.45 μm × 3.45 μm
Sensor Output	1 Tap		2 Tap
Interface	Gigabit Ethernet		
Max. Frame Rate	20 fps		16 fps
Exposure Time	30 μs ~ 7 s		39 μs ~ 7 s
Partial Scan (Max. Speed)	90 fps at 154 Lines		41 fps at 256 Lines
Pixel Data Format	8 / 10 / 12 bit		
Output Format	Mono	Mono8, Mono10, Mono10 packed, Mono12, Mono12 packed	
	Color	Bayer8, Bayer12, Bayer12 packed, YUV422 packed, YUV422 (YUYV) packed	Bayer8, Bayer12, Bayer12 packed
Electronic Shutter	Global Shutter		
Data Output Pixel Clock Speed	50 MHz		60 MHz
Exposure Mode	Timed Exposure, Trigger Width Exposure, Double Exposure		
Dynamic Range	48 dB		52 dB
Binning	×1, ×2, ×3, ×4 (Horizontal and Vertical Independent)		
Lookup Table	G = 1.0, User Defined Lookup Table (LUT)		N/A
Black Level	Adjustable (0 ~ 128 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	64 MB		
Dimension / Weight	C-mount	29 mm × 29 mm × 56.4 mm / 91 g	35 mm × 35 mm × 59.7 mm / 83 g
	CS-mount	29 mm × 29 mm × 51.4 mm / 86 g	35 mm × 35 mm × 54.7 mm / 81 g
Temperature	Operating: 0°C ~ 40°C, Storage: -40°C ~ 70°C		
Lens Mount	C or CS-mount		
POE	Power over Ethernet (802.3af)		
Power	8 ~ 38 V DC, Typ. 3.5 W		8 ~ 38 V DC, Typ. 4 W
API SDK	Vieworks Imaging Solution 6.X or above		

## Ordering Scheme

<b>VQ - 5M G - M 16 A0</b>	
Series VQ Series	Sensor Options B0 - Sony E0 - CMOSIS
Sensor Resolution 310 - VGA 1300 - 1.3 Megapixels 2M - 2 Megapixels 5M - 5 Megapixels	Frame Rate 14 - 16 fps 20 - 20 fps 30 - 30 fps 120 - 120 fps 400 - 400 fps
Interface G - Gigabit Ethernet	Mono / Color M - Monochrome C - Color

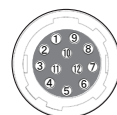
## Connector Specification

Control for VQ Series



1: +12 V DC    2: Trigger IN+  
3: Trigger IN-    4: I/O Output+  
5: I/O Output-    6: DC Ground  
(HR10A-7R-6PB)

Control for VQ-310G-M400



1: DC Ground    2: +12 V DC  
3: I/O Output-    4: I/O Output+  
5: Trigger IN-    6: Trigger IN+  
7~12: Not Connected  
(HR10A-10R-12PB)

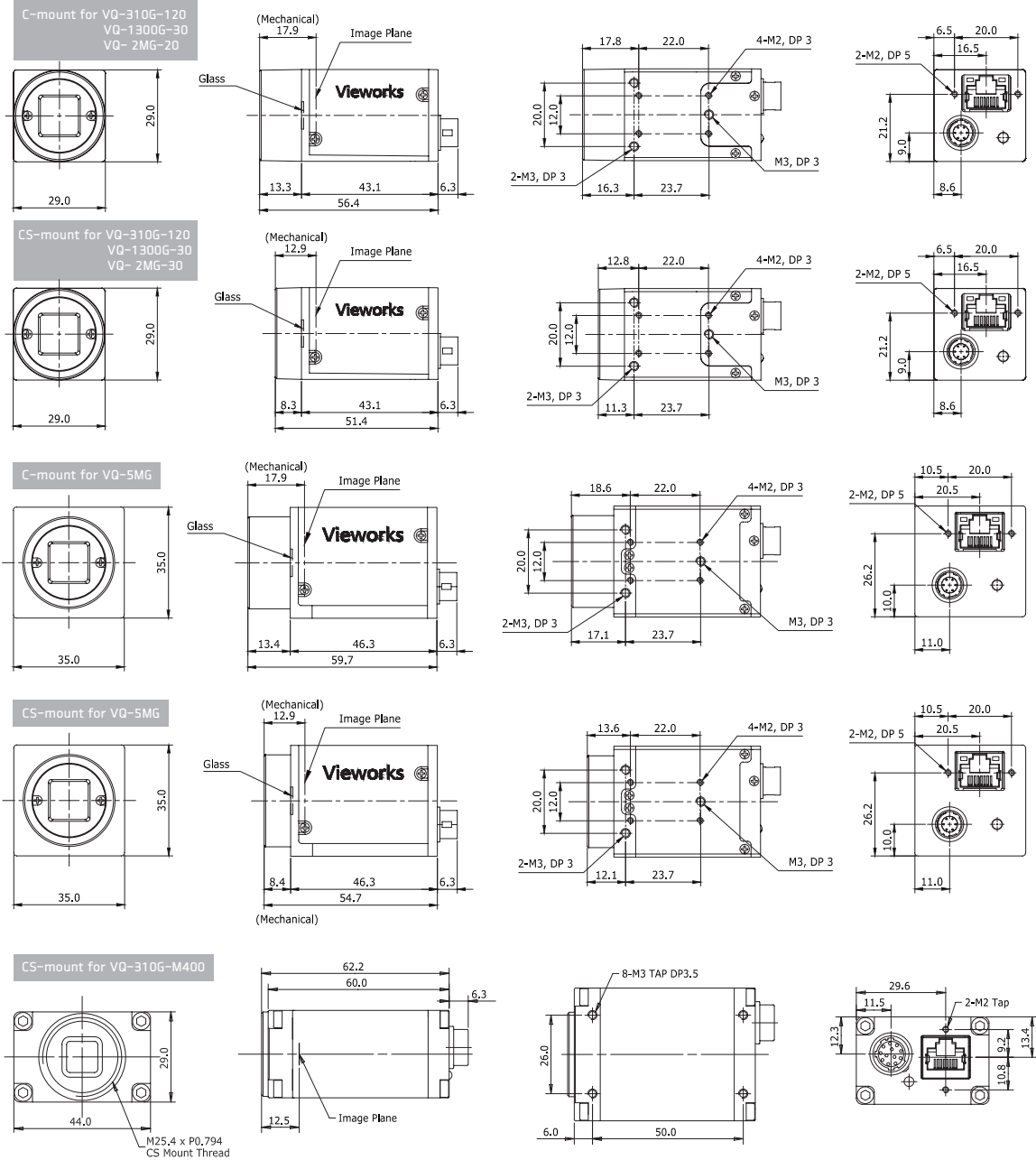
Connectors on camera body

# VQ-310G / VQ-310G-M400 / VQ-1300G / VQ-2MG / VQ-5MG

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## Mechanical Dimensions

Unit: mm



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