



CV-M4

Digital Double Speed Megapixel Progressive Scan Camera



- **2/3" monochrome Hyper HAD IT CCD sensor**
- **1300 (h) x 1030 (v) 6.7 mm square pixels**
- **8 bit video output (digitization via 10 bit A/D) as LVDS (EIA 644)**
- **EIA 644 and Camera Link versions available**
- **Full 1030 lines frame readout in 1/24 second**
- **515 lines frame readout in 1/48 second with vertical binning**
- **Partial scan 1/2, 1/4, 1/8 for higher frame rate**
- **S/N ratio >57 dB**
- **Shutter 1/24 to 1/10,000 second in 10 steps**
- **Edge pre-select and pulse width external trigger modes**
- **Frame-delay readout**
- **Unique smear reduction circuit**
- **Trigger and timing signals as LVDS**
- **Pixel synchronized image transfer**
- **Setup by RS 232C or switches**
- **Windows 95/98/NT setup software**

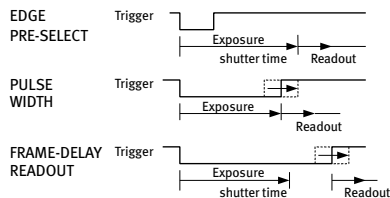
The leading manufacturer of high performance camera solutions

Specifications for CV-M4

Specifications	CV-M4
Scanning system	Progressive scan
Pixel clock	40.49 MHz
Line frequency	25.056 kHz. (1616 pixel clock/line)
Frame rate normal	24 frames/sec. (1044 lines/frame)
Frame rate with vertical binning	48 frames/sec. (522 lines/frame)
CCD sensor	Monochrome 2/3" Hyper HAD IT CCD
Sensing area	8.7 mm (h) x 6.9 mm (v)
Effective pixels	1300 (h) x 1030 (v)
Picture elements in video output	
Full:	1280 (h) x 1024 (v). 24 fps
V-binning:	1280 (h) x 512 (v). 48 fps
1/2 Partial:	1280 (h) x 514 (v). 45 fps
1/4 Partial:	1280 (h) x 250 (v). 79 fps
1/8 Partial:	1280 (h) x 130 (v). 120 fps
Cell size	6.7 (h) x 6.7 (v) μ m
Spectral sensitivity	380 - 900 nm
Sensitivity on sensor	0.1 Lux (Max. gain, 50% video)
S/N ratio	>57 dB
Video A/D conversion	10 bit
Video output	Digital 8 bit LVDS (EIA 644)
Gain	Manual
Gain range	0 to + 12 dB
Gamma	1.0
Synchronization	Int. X-tal.
Trigger input	LVDS or TTL 2 - 5 V *
Frame enable output	LVDS *
Line enable output	LVDS *
Pixel clock output	LVDS
Shutter	1/24, 1/50, 1/100, 1/200, 1/400, 1/800, 1/1500, 1/3000, 1/5000, 1/10,000 sec.
Partial scan	Normal, 1/2, 1/4, 1/8
Trigger modes	Off, Edge pre-select, Pulse width
Readout modes	Normal, V-binning, Smearless and Frame delay
Camera setup switches on rear	Shutter, Trigger, Scanning, Readout system
RS 232C control	Shutter, Trigger, +/- slope, Scanning, Readout, Gain, Black level
Operating temperature	-5°C to +45°C
Humidity	20 - 80% non-condensing
Power	12V DC \pm 10%. 5.5W
Lens mount	C-mount
Dimensions	40 x 50 x 90 mm (HxWxD)
Weight	250 g

* Polarity positive/negative by internal setting

Trigger/Readout Modes

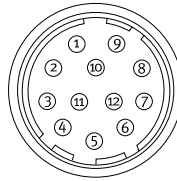


Ordering Information

CV-M4, Digital Double Speed Megapixel Progressive Scan Camera
 CV-M4CL, Digital Double Speed Megapixel Progressive Scan Camera

Connection Description

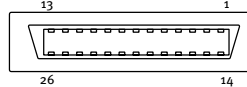
DC-IN/TRIG.



- Pin 1 Ground
- 2 +12VDC
- 3 Ground
- 4 Test
- 5 Ground
- 6 RXD input
- 7 TXD output
- 8 Ground
- 9 FEN output
- 10 TRIG in (TTL)
- 11 +12V DC
- 12 Ground

EIA 644 in/outputs

26 pin MDR connector
 3M 10226-1A10JL



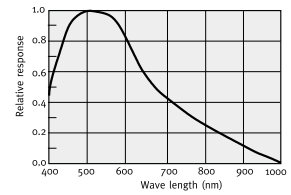
Digital I/O

- Pin Signal
- 1, 14 +/- Do Video out (LSB)
- 2, 15 +/- D1 Video out
- 3, 16 +/- D2 Video out
- 4, 17 +/- D3 Video out
- 5, 18 +/- D4 Video out
- 6, 19 +/- D5 Video out
- 7, 20 +/- D6 Video out
- 8, 21 +/- D7 Video out (MSB)
- 9, 22 +/- TRIG Trigger in
- 10, 23 N.C.
- 11, 24 +/- LEN Line enable
- 12, 25 +/- FEN Frame enable
- 13, 26 +/- PCLK Pixel clock

EIA 644 in and output circuits
 NS. DS90C031/DS90C032

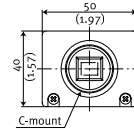
For Camera Link pin configuration, see user manual.

Spectral Sensitivity

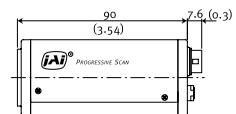


Dimensions

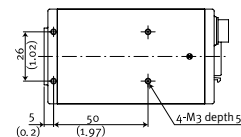
Front view



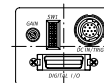
Side view



Bottom view



Rear view



Switch Setting

	OFF	ON		Seconds
SHUTTER	1	1/24	<	1/24
	2	1/50	<	1/50
	3	1/100	<	1/100
	4	1/200	<	1/200
EXT. TRIGGER	5	1/400	<	1/400
	6	1/800	<	1/800
	7	1/1500	<	1/1500
	8	1/3000	<	1/3000
SCAN	9	1/5000	<	1/5000
	10	1/10,000	<	1/10,000
		Normal	<	Smearless
		Local	>	RS 232C

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