



# **CV-A1**

## **Compact Mega Pixel Progressive Scan Camera**



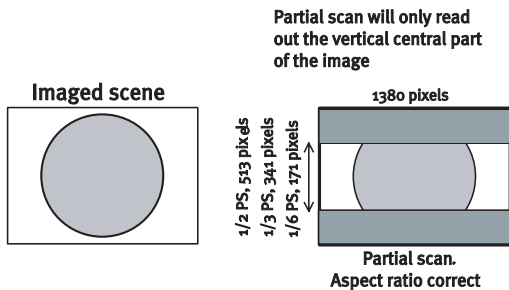
- ***New compact size 1/2" progressive scan monochrome CCD camera***
- ***1392 (h) x 1040 (v) 4.65  $\mu$ m square pixels***
- ***16 frames per second with full resolution***
- ***Up to 75 fps with partial scan***
- ***4 times normal sensitivity with H and V binning***
- ***Internal, external HD/VD or random trigger synchronization***
- ***Edge pre-select, pulse width control and start/stop trigger modes***
- ***Shutter speeds from 1/16 to 1/200,000 second in 16 steps***
- ***Programmable exposure***
- ***Frame-delay readout in combination with pulse width controlled shutter***
- ***Unique smear reduction circuit***
- ***Exposure enable EEN, write enable WEN and pixel clock output***
- ***Short ASCII commands for fast mode setup via serial port***
- ***Setup by Windows 98/NT/2000 software via RS 232C***

***The leading manufacturer of high performance camera solutions***

# Specifications for CV-A1

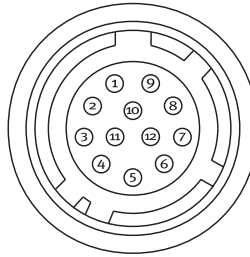
Specifications	CV-A1
Scanning system	Progressive scan
Pixel clock	28.64 MHz
Line frequency	17.127 kHz (1672 pixel clock/line)
Frame rate for full frame	16.037 frames/sec. (1068 lines/frame)
CCD sensor	Monochrome 1/2" IT CCD
Sensing area	6.35 (h) x 4.81 (v) mm
Effective pixels	1392 (h) x 1040 (v)
Pixels in video output	
Full:	1380 (h) x 1035 (v) 16 frames/sec.
Horizontal binning:	690 (h) x 1035 (v) 16 frames/sec.
Vertical binning:	1380 (h) x 501 (v) 32 frames/sec.
H + V binning:	690 (h) x 501 (v) 32 frames/sec.
1/2 partial:	1380 (h) x 513 (v) 30 frames/sec.
1/3 partial:	1380 (h) x 341 (v) 43 frames/sec.
1/6 partial:	1380 (v) x 171 (v) 75 frames/sec.
Cell size	4.65 (h) x 4.65 (v) $\mu$ m
Sensitivity on sensor	0.3 Lux (Max gain, 50% video)
S/N ratio	>50 dB
Video output	Composite VS signal, 1 Vpp, 75 $\Omega$ Video signal 0.7 Vpp (selectable)
Gamma	0.45 or 1.0
Gain	Manual - Automatic
Gain range	Man.: -3 to +12 dB - Auto.: 0 to +12 dB
Synchronization	Int. X-tal. Ext HD/VD or random trigger
HD sync. input/output	4 V, 75 $\Omega$
Trigger input	4 V, TTL
WEN output (write enable)	4 V, 75 $\Omega$
EEN out. (exposure enable)	4 V, 75 $\Omega$
Pixel clock output	4 V, 75 $\Omega$
Trigger modes	Continuous, Edge pre-select, Pulse width control, Start/stop
Readout modes	Frame-delay readout, Smearless, Binning
Shutter	1/16 through 1/200,000 sec.
Triggered shutter speed	1/16 through 1/12,000 sec.
Programmable exposure	1023 steps in 58 $\mu$ s increments
Long time exposure	2 frames to $\infty$
Smearless readout	Reduced smear at high shutter speeds
Functions controlled by RS 232C	Scanning format, Trigger modes, Readout modes, Shutter speed, Pixel clock output, Sync. on/off, Programmable exposure, Manual gain, AGC, Gamma
Functions controlled by internal DIP switches	VD input/output, HD input/output HD, VD 75 $\Omega$ termination on/off
Operating temperature	-5°C to +45°C
Humidity	20 - 80% non-condensing
Storage temp./humidity	-25°C to +60°C / 20% - 80 %
Power	12V DC $\pm$ 10% 1.8 W
Lens mount	C-mount
Dimensions	29 x 44 x 66 mm (HxWxD)
Weight	150 g

## Readout Formats



## Connection Description

### DC-IN/SYNC.

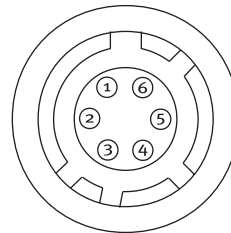


HIROSE HR10A-10R-12PB-01

- Pin 1 Ground
- 2 +12V DC
- 3 Ground
- 4 Video output
- 5 Ground
- 6 HD input/HD output
- 7 VD input/VD output
- 8 Ground
- 9 Pixel clock output
- 10 WEN output
- 11 Trigger input
- 12 Ground

(Pin configuration compatible with EIAJ standard)

### RS 232C/TRIGGER

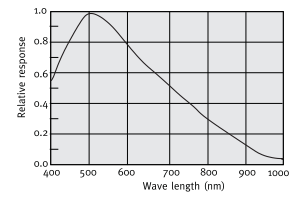


HIROSE HR10A-7R-6PB

- Pin 1 TXD
- 2 RXD
- 3 Ground
- 4 Ground
- 5 Trigger input
- 6 EEN output

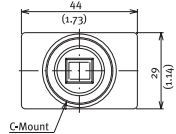
Plugs for cable:  
12 pin: HIROSE HR10A-10P-12S  
6 pin: HIROSE HR10A-7P-6S

## Spectral Sensitivity

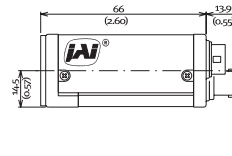


## Dimensions

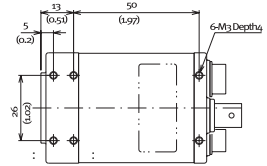
### Front view



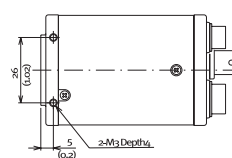
### Side view



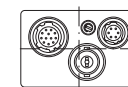
### Bottom view



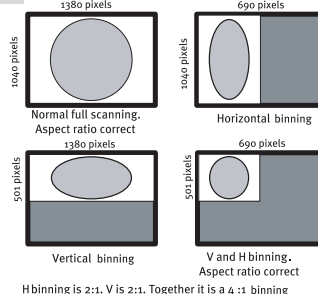
### Top view



### Rear view



### Displayed image with binning



## Ordering Information

CV-A1 1/2" Compact Mega Pixel Progressive Scan Camera  
MP40 Tripod Adapter (must be ordered separately)

JAI A-S, Denmark  
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