



CV-M10 BX/RS

Progressive Scan Monochrome Camera



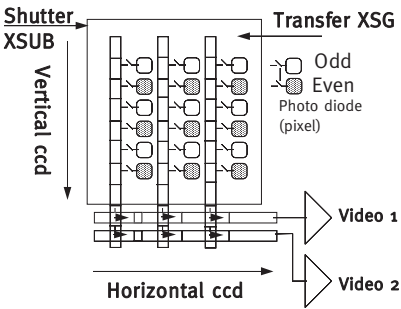
- *CCIR and EIA versions. EIA versions meet VGA format*
- *1/2" Hyper HAD CCD with square pixels*
- *High resolution – horizontal 600 TV lines, vertical 575 TV lines*
- *Full frame read-out from a single frame shutter pulse*
- *Single channel progressive full frame in 1/25 sec. or 1/30 sec.*
- *2-channel interlaced or 2-channel non-interlaced in 1/50 sec. or 1/60 sec.*
- *Fast asynchronous reset – frame or field shutter*
- *Shutter 1/60 to 1/10,000 or 1/20,000 to 1/800,000 sec.*
- *Long-time integration 2 to 16 fields*
- *Internal, external, HD, VD or random synchronization*
- *Set-up by RS 232C (RS version) or switches (BX version)*
- *RS 232C interface*
- *Windows 95/NT set-up software*
- *Software includes DLL and LIB files for easy integration*

The leading manufacturer in high performance camera solutions

CV-M10 BX/RS CAMERA SERIES

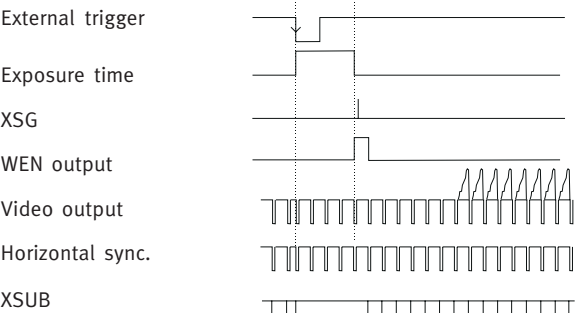
Progressive scan CCD sensor

In the progressive scan CCD sensor the number of vertical transfer cells are equal to the total number of sensing photo diodes. The integrated charge in the diodes for both odd and even fields is at time XSG transferred as a full frame to the vertical register. From here the frame is read out with the double vertical speed to two horizontal registers. A full frame as a result of the same shutter pulse can be read out as two fields, each through its own output. By combining the two fields from output 1 and 2 in a frame grabber 50 or 60 frames are achieved. In non-interlaced scan mode, output 1 will be a progressive full frame (Line 1 - 2 - 3 - 4 etc.). It will take 1/25 or 1/30 second.



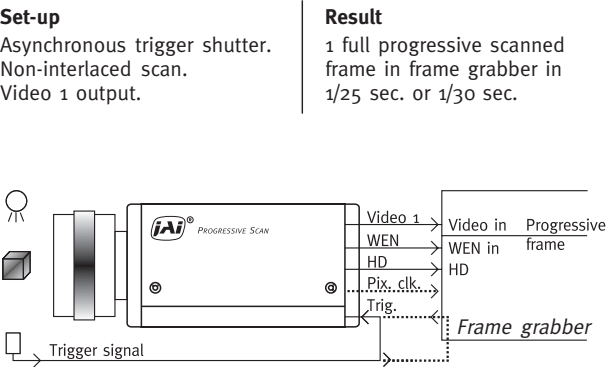
Asynchronous triggered shutter

The shutter function in the CCD sensor is done by draining all photo diodes in parallel with the XSUB pulse synchronized to HD. A last XSUB is generated from the negative external trigger pulse. This pulse will reset and synchronize HD in the camera. The selected exposure time will then start, and an image will be charged in the photo diodes. The selected shutter time will stop with a XSG and video enable pulse out 1 HD long (WEN). The WEN pulse indicates the beginning of the video read-out. The composite video signal is without V-sync. The WEN pulse indicates the start and top of the image. The video frame or field has to be read out prior to supplying a new trigger pulse.



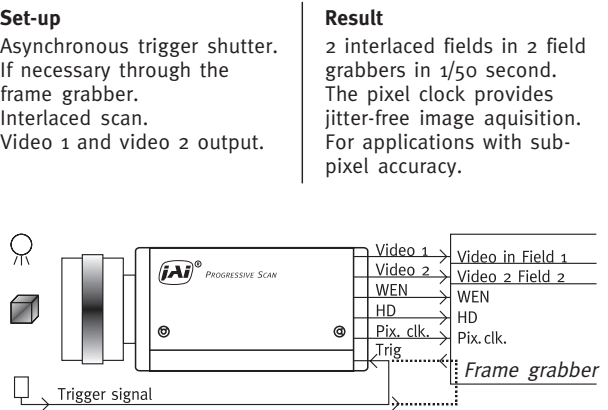
Frame grabber interface – single channel mode

This application shows a typical set-up for capturing a fast moving object and transfer it to a frame grabber as a full progressive scanned frame. It will take 1/25 or 1/30 second. The frame grabber needs an input for the WEN pulse for vertical sync. The horizontal sync. is taken from the HD out or separated from the composite video signal from the camera. A trigger sensor will detect the arrival of an object in the field of view and start the selected shutter time. By using the pixel clock (user option) to synchronize the frame grabber total jitter-free operation is achieved.



Frame grabber interface – dual channel mode

This set-up shows an application where a progressive scanned frame consisting of 2 interlaced fields as a result of one shutter pulse is transferred to 2 field stores. The 2 fields need to be combined in the computer. This set-up makes use of the optional pixel clock output from the camera for a jitter-free image digitizing. With this set-up a full progressive scanned frame is transferred to the computer in 1/50 second.



- ⋮ ⋮ ⋮ ⋮ Shutter off
- ⋮ ⋮ ^ ⋮ Normal speed
- ^ ⋮ ^ ⋮ High speed
- ⋮ ⋮ ⋮ ^ Long time exposure

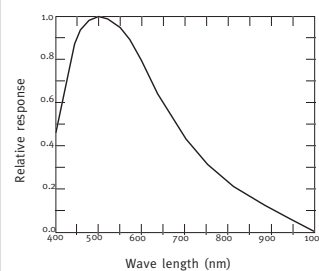
Specifications for CV-M10

Specifications	Remarks			CV-M10C	CV-M10E
Scanning system				625 lines 25 frames/sec.	525 lines 30 frames/sec.
CCD sensor				Monochrome 1/2" Hyper HAD IT progressive scan CCD	
Sensing area				6.4 mm (h) x 4.8 mm (v)	
Picture elements				782 (h) x 582 (v)	659 (h) x 494 (v)
Video output elements				767 (h) x 575 (v)	648 (h) x 486 (v)
Cell size				8.3 x 8.3 μm	9.9 x 9.9 μm
Resolution (horizontal)				600 TV lines	500 TV lines
Resolution (vertical)				575 TV lines	486 TV lines
Sensitivity				0.8 Lux, F1.4	
S/N ratio				>56 dB (AGC off, Gamma 1)	
Video output				Composite VBS signal 1.0 Vpp, 75 Ohm	
Video 1 interlaced O-E-O				1 frame 1/25 sec.	1 frame 1/30 sec.
Video 2 interlaced E-O-E				1 frame 1/25 sec.	1 frame 1/30 sec.
Video 1+2 interlaced				1 progr. fr. 1/50 sec.	1 progr. fr. 1/60 sec.
Video 1 non-interlaced				1 progr. fr. 1/25 sec.	1 progr. fr. 1/30 sec.
Synchronization				Int. X-tal. Ext HD/VD or random trig.	
HD/VD sync. input				4V, 75 Ohm	
Trigger input				>2 μsec. <1 msec. 4V, 75 Ohm	
HD/VD or HD/WEN output	option			4V	
Pixel clock output	option			4V	
Controls and functions	BX	RS			
	sw	sw	RS232		
Shutter mode - Full version only	•			Off – Normal – High – Long time exp.	
Gamma	•	•		0.45 – 1	
Gain	•	•	•	Fixed – Manual – Auto.	
Scanning	•	•	•	Non-interlaced – Interlaced	
Reset mode	•	•	•	Normal – Random trig.	
Shutter normal	•	•	•	1/50 to 1/10,000 sec. in 8 steps	
Shutter high	•		•	1/20,000 to 1/800,000 sec. in 8 steps	
Long time integration	•		•	2 – 4 – 6 – 8 – 10 – 12 – 14 – 16 fields	
Manual gain	•	•	•	Potmeter on rear plate	
Gain 1			•	Relative 0 – 255	
Gain 2			•	Relative 0 – 255	
Set-up 1			•	Relative 0 – 255	
Set-up 2			•	Relative 0 – 255	
White clip 1			•	Relative 0 – 255	
White clip 2			•	Relative 0 – 255	
V sub (Full version only)			•	Relative 0 – 255	
File			•	Load to and from file	
Memory			•	Restore and store user set-up	
Memory			•	Restore factory set-up	
Operating temperature				-5°C to +45°C	
Power				12V DC ±10%. 0.5 Amp.	
Lens mount				C-mount	
Dimensions				40 x 50 x 80 mm (HxWxD)	
Weight				245 g	

Ordering Information

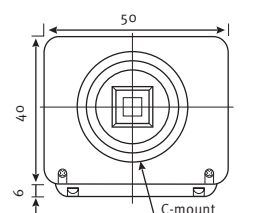
CV-M10BX 1/2" Monochrome Progressive Scan Camera. CCIR.
 CV-M10BX 1/2" Monochrome Progressive Scan Camera. EIA.
 CV-M10RS 1/2" Monochrome Progressive Scan Camera. CCIR. RS 232C.
 CV-M10RS 1/2" Monochrome Progressive Scan Camera. EIA. RS 232C.
 Cable for RS 232C Interface.

Spectral Sensitivity

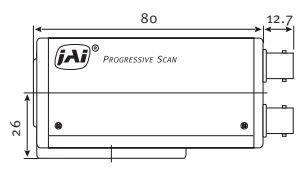


Dimensions

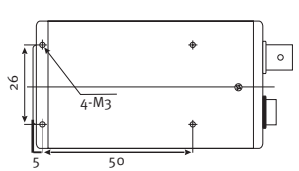
Front view



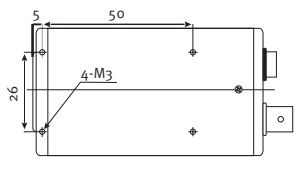
Side view



Bottom view



Top view



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