ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *JAI / Pulnix CV-M10BX* at our website: *Click HERE*

Progressive Scan Camera

CV-M10

Operation Manual

(Rev.F)

Downloaded from www.Manualslib.com manuals search engine

CE

DECLARATION OF CONFORMITY

AS DEFINED BY THE COUNCIL DIRECTIVE

89/336/EEC
EMC (ELECTROMAGNETIC COMPATIBILITY)

WE HEREWITH DECLARE THAT THIS PRODUCT

COMPLIES WITH THE FOLLOWING PROVISIONS APPLYING TO IT.

EN-50081-1

EN-50082-1

Downloaded from www.Manualslib.com manuals search engine

Table of Contents

1. General 1
2. Standard Composition 1
3. Main Features 1
4. Locations and Functions 2
5. Pin Assignment 3
5.1. 12-pin Multi-connector (DC-IN/SYNC.) 3
5.2. 6-pin Multi-connector (RS 232C/TRIGGER) 3
6. Functions and Operation 4
6.1. Input/Output of HD/VD Signal 4
6.1.1. Input of External HD/VD signals 4
6.1.2. Output of Internal HD/VD signals 4
6.2. Continuous operation 4
6.3. External Trigger Mode 5
6.3.1. Edge Pre-select Trigger Mode 5
6.3.2. Pulse Width Control Trigger Mode 5
6.4. Timing diagram for Edge Pre-select 6
6.5. Timing diagram for Pulse Width Control 7
7. Mode Settings 8
7.1. Mode Setting by Switch 8
7.1.1. M10BX Internal Switch SW1 Settings (On PK8206) 8
7.1.2. M10BX Switch SW1 Settings (On rear panel) 8
7.1.3. M10RS Switch SW1 Settings (On rear panel) 8
7.2. Shutter Time select 9
7.2.1. CV-M10BX SW1 on PK8206 9
7.2.2. SW1-1 to SW1-3 on rear 9
7.3. Trigger select 9
7.3.1. Normal Shutter mode 9
7.3.2. Ext. Trigger mode 9
7.4. Scanning Mode 9
7.4.1 Interlaced mode 9
7.4.2. Non interlaced mode 10
7.5. Gamma Correction 10
7.6. Gain Control/RS 232C control 10
7.6.1. Gain control on CV-M10 10
7.7. CV-M10RS Serial Interface for Controls 10
7.7.1. RS232C Cable Connect 10
8. Jumper settings 11
8.1. HD/VD signals 11
8.2. Trigger input termination 11
8.3. Trigger mode selection 11
8.4. Pixel clock or video 2 on pin 9 (12 pin con.) 11
8.5. Alternative input/outputs on pin #6 and #7 (12 pin con.) 11
8.6. Locations of Jumper 12
8.6.1. Location of Jumper on PK8189A 12
8.6.2. Location of Jumper on PK8187A 12
8.6.3. Location of Jumper for CV-M10BX on PK8206A 13
8.6.4. Location of Jumper for CV-M10RS on PK8190A 13
9. Internal adjustments on BX 14
9.1. Potentiometer locations on PK8206A 14
10. CV-M10RS Camera Control Tool 15
10.1. Control Bar for CV-M10RS Camera Control 15
10.2. About and Help Window 15
10.3. Shutter Window 15
10.4. Gain Window 15
10.5. Levels Window 16
10.6. Files and Camera 16
10.7. Communication Window 16
11. External Appearance and Dimensions 17
12. Specifications 18
12.1. Spectral sensitivity 18
13. Appendix 19
13.1. Precautions 19
13.2. Typical CCD Characteristics 19
13.3. References 19
14. Users Record 20
15. Index 20

Downloaded from www.Manualslib.com manuals search engine

1. General

The CV-M10 is a compact monochrome progressive scan camera designed for automated imaging applications. The 1/2" CCD with square pixels offers a superb image quality. The high-speed shutter function and asynchronous random trigger mode allows the camera to capture high quality images of fast moving objects. The dual tapped video output allows the camera to operate with a high frame rate. The camera can operate in continuous mode and with triggered edge pre-select and pulse width controlled shutter.

2. Standard Composition

The standard camera composition consists of the camera main body, tripod mounting plate and operation manual.

CV-M10 is available in the following versions:

For EIA (VGA corresponded).
CV-M10BXE is the basic progressive scan camera with all functions.
CV-M10RSE is the extended version with digital set-up function via RS232C serial control.

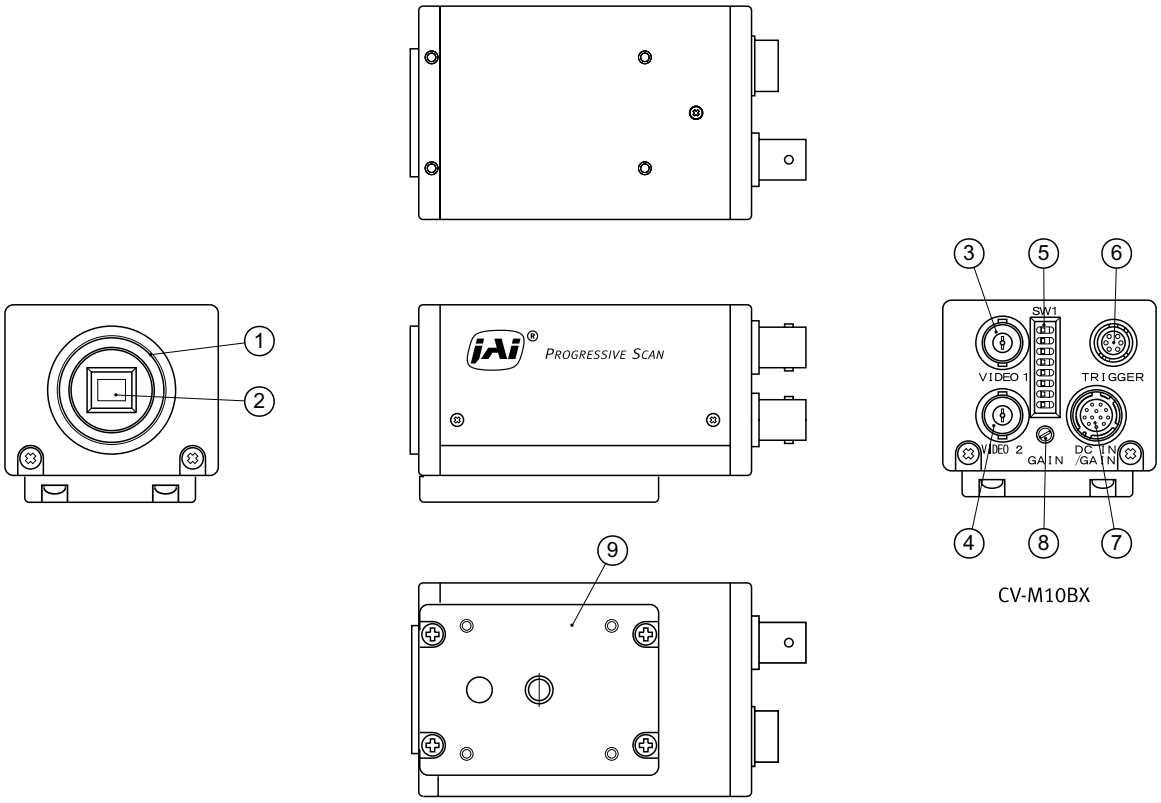
For CCIR.
CV-M10BXC is the basic progressive scan camera with all functions.
CV-M10RSC is the extended version with digital set-up function via RS-232C serial control.

3. Main Features

* 1/2" monochrome full frame progressive scan interline transfer CCD
* 782 (h) x 582 (v) 8.37µm square pixels (767 x 580 pixels read out) for CCIR
* 659 (h) x 494 (v) 9.9 µm square pixels (748 x 492 pixels read out) for EIA
* EIA version corresponds to the VGA format
* High speed shutter up to 1/800,000 sec. for EIA and 1/917,000 sec. for CCIR
* Single channel progressive full frame read out in 1/25 sec. or 1/30 sec.
* Dual channel progressive full frame read out in 1/50 sec. or 1/60 sec.
* Interlaced or non-interlaced read out
* Long time integration up to 16 fields
* Edge pre-select and pulse width controlled external trigger modes
* Pixel clock output optional
* Camera setup via RS-232C or switches
* Windows 95/98/NT setup software

Downloaded from www.Manualslib.com manuals search engine

4. Locations and Functions



CV-M10BX

1. Lens mount of C-mount type. *1)
2. Interline-transfer CCD sensor with on-chip micro lenses.
3. Video output 1. VS 1.0 Vp-p. *2)
4. Video output 2. VS 1.0 Vp-p. (Only in 2 :1 interlaced mode.) *2)
5. SW1 switch on the rear panel to set the shutter speed and other function modes.
6. 6 pin connector for RS 232C signals, input of external trigger pulse and WEN output.
7. 12 pin connector for DC +12V power external sync signals and output of video 2
8. GAIN potmeter for adjusting level of video 1. (Min. gain is fully clockwise.)
9. Tripod mount plate to place the camera on tripod.

1) Note: *Rear protrusion on C-mount lens must be less than 10.0mm (0.4 inch approx.)*
When IR cut filter is used, it must be less than 7.0 mm (0.28 inch approx.)
The IR cut filter is placed in the C-mount thread.
The C-mount 25 mm IR cut filter must be ordered separately.

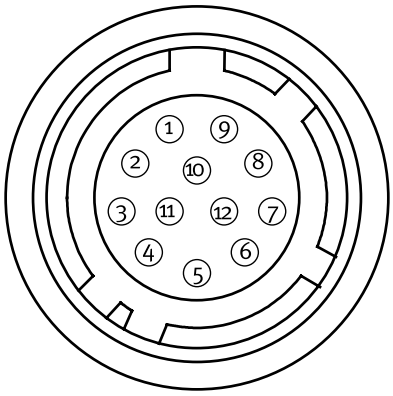
2) Note: *In 2:1 interlace mode the 2 fields are read out simultaneously on video 1 and video 2. Each output is a normal interlaced video signal, which can be monitored on a normal video monitor. A full progressive scanned frame can be obtained by combining the 2 outputs in a frame grabber.*

Downloaded from www.Manualslib.com manuals search engine

5. Pin Assignment

5-1. 12-pin Multi-connector (DC-IN/SYNC.)

Type: HR10A-10R-12PB-01 (Hirose) male seen from rear.



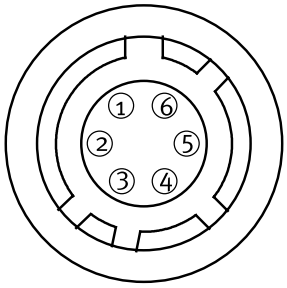
Pin no.	Signal	Remarks
1	GND	
2	+12 VDC input	
3	GND	
4	Video 1 output	Parallel with the BNC video 1 output. Avoid double termination.
5	GND	
6	HD input/output	Ext. HD in as factory setting. *1)
7	VD input/output	Ext. VD in as factory setting. *1) *2)
8	GND	
9	Video 2 output	Video 2 only in 2:1 interlace. Pixel clock output. Opt. *1)
10	GND	
11	+12 V DC input	
12	GND	

Notes: **1) Signals on pin no. 6, 7 and 9 can be changed by jumper setting. See "8. Jumper Settings" for more information.*

**2) In Edge Pre-select and Pulse Width Control mode do not input ext. VD signal.*

5.2. 6-pin Multi-connector (RS 232C/TRIGGER)

Type: HR10A-7R-6PB (Hirose) male seen from rear.



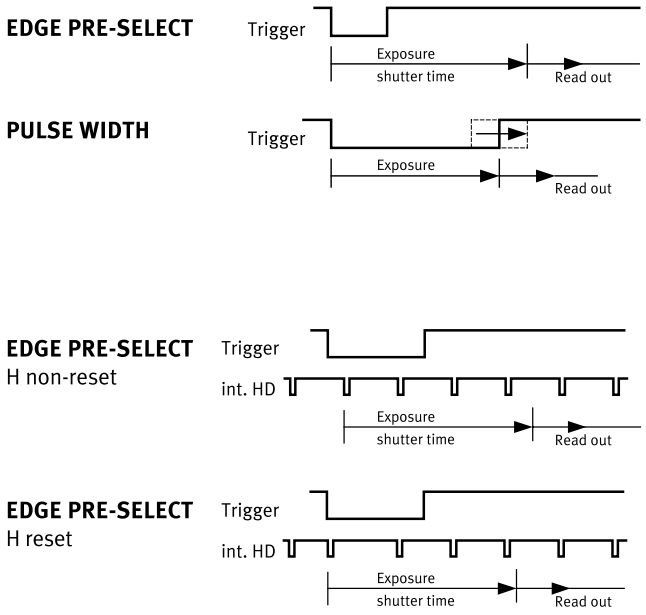
Pin no.	Signal	Remarks
1	TXD out	NC on BX version
2	RXD in	NC on BX version
3	GND	
4	NC	
5	Ext. Trig input	
6	WEN output	* Note

Note: *WEN is generated in Normal Trig, Random Trig (normal and high speed shutter) and Low Speed Shutter. It is 1 H long and indicates the beginning of video read out.*

Downloaded from www.Manualslib.com manuals search engine

6. Functions and Operation

Apart from the standard continuous operation, the CV-M10 features two external asynchronous trigger modes, Edge Pre-select and Pulse Width Control mode. These 2 external trigger modes can operate with either H reset or H non-reset. In Edge Pre-select and H reset, the internal HD is reset on the falling edge of the trigger and the exposure starts. For Pulse Width Control and H reset, the rising edge of the trigger will stop the exposure and reset the internal HD. In H non-reset, the exposure will be synchronized to the internal HD. It will start on the first HD after the trigger negative going edge.



6-1. Input/Output of HD/VD Signal

6.1.1. Input of External HD/VD signals

This setting is factory pre-set. The video output is synchronized with external HD/VD signals if applied. If no ext. HD is connected, the camera will switch to the internal X-tal controlled HD sync. If no ext. VD is connected, the camera will continue with its internal VD.

The external HD/VD signal should be 4.0 Vp-p ±2.0V from a 75 ohm source. In case of TTL level input 2.0 to 5.0V the 75 ohm termination can be removed by open JP3/JP6 on PK8189A board.

6.1.2. Output of Internal HD/VD signals

In order to output internal HD/VD signal 4.0Vp-p from a 75 ohm source, a jumper setting is required. JP1/JP4 on PK8189A board is to be open, and JP5/JP7 are to be short.

6.2. Continuous operation

For application that do not require asynchronous external trigger, but run in continuous operation, this mode is used. SW1-4 Trigger select on camera rear is set to ON for normal internal trigger mode. The shutter time or exposure time are selected by SW1-1 to SW1-3 on camera rear (and SW1-1 to SW1-4 on PK8206 for BX versions). The setting can be done via RS 232C for the RS versions.

The shutter time can be selected within the following range:

Normal shutter	8 step. 1/50 to 1/10,000 sec. for CCIR. 1/60 to 1/10,000 sec. for EIA	
High speed shutter	8 step. 1/25,000 to 1/917,000 sec for CCIR. 1/20,000 sec. to 1/800,000 sec. for EIA	
Low speed shutter	8 step. 2 fields to 16 fields	for CCIR and EIA

Downloaded from www.Manualslib.com manuals search engine

6.3. External Trigger Mode

External trigger mode of CV-M10 allows 2 different driving modes:

1 Edge Pre-select mode. (Asynchronous reset and exposure start by an ext. trigger)

2 Pulse Width Control mode. (Exposure control by the low period of the ext. trigger)

For both there are two trigger modes. H reset and H non-reset. H non-reset mode allows input of synchronized external trigger and external HD.

The trigger input is AC coupled, so there is a maximum pulse width for the trigger pulse about 1 msec. The signal level must be 4.0V p-p +/- 2.0V on the input, which is non-terminated. The trigger input can be changed to 75 ohm by shorting JP10. See instructions in "8. Jumper Settings".

6.3.1. Edge Pre-select Trigger Mode

This trigger mode can operate in H reset mode or H non-reset mode.

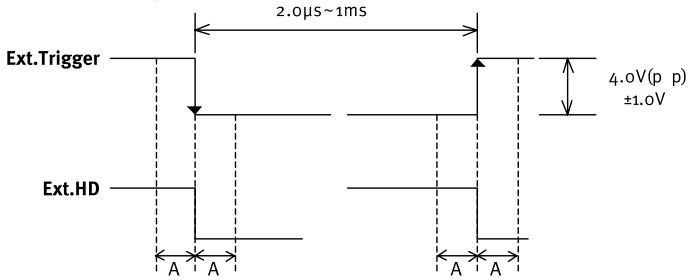
In H reset mode the falling edge of the trigger will immediately reset the internal HD and start the exposure. The trigger input should be >2 µsec. to <1 msec. If the camera is synchronized to an external HD, there are some requirements to the phase between the ext. HD and the Ext. trigger. The falling edge of the trigger should be within 4.4 msec. from the falling edge of the ext. HD. Otherwise the jitter will be too high. (See fig. 6.3)

In H non-reset mode the exposure will start at the first internal HD after the trigger. The trigger input should be >64 µsec. to <1msec. An external trigger pulse initiates the capture, and the exposure time (accumulation time) is governed by the fixed shutter speed set up by the rear panel DIP-switches, (internal switch for BX version.) or via RS-232C. The resulting video signal will start to be read out after the selected shutter time. The WEN pulse indicates the start of valid video signal. Refer to timing charts for details. A new trigger pulse must not be applied before the video read out has been finished.

To use this mode

Set: SW1-4 on BX rear to OFF for random trigger. For RS select trigger mode.
JP12 on PK8206 (BX ver.) or PK8190 (RS ver.) OPEN for Edge Pre-select
JP13 on PK8206 (BX ver.) or PK8190 (RS ver.) OPEN for H Reset
JP13 on PK8206 (BX ver.) or PK8190 (RS ver.) Short for H Non Reset
SW1-1 through SW1-3 on rear and SW1 on (BX) PK8206 for exposure time

Note: *For CV-M10RS the selection of Edge Pre-select, Pulse Width Control H Reset and H non-reset cannot be done by RS232C.*
(See chapter 7 and 8 for details)



A=4.4µS

6.3.2. Pulse Width Control Trigger Mode

This trigger mode can operate in H reset mode or H non-reset mode.

In H reset mode the exposure will start immediately at the falling edge of the trigger. (The internal H will not be reset). The exposure will end and the internal H will be reset at the rising edge of the trigger.

In H-non-reset mode the trigger and HD is synchronized. The exposure will start at the first HD pulse after the falling edge of the trigger. The exposure stops at the trigger rising edge. The trigger pulse can be anything between >1H and <625H. To avoid jitter, the camera should be synchronized to an external HD. There are some requirements to the phase between the ext. HD and the Ext. trigger. The falling and rising edge of the trigger should be within 4.4 µsec. from the falling edge of the ext. HD. (See fig. 6.3)

Downloaded from www.Manualslib.com manuals search engine

The resulting video signal will start to be read out after the trigger rising edge. The WEN pulse indicates the start of valid video signal. Refer to timing charts for details.
A new trigger pulse must not be applied before the video read out has been finished.

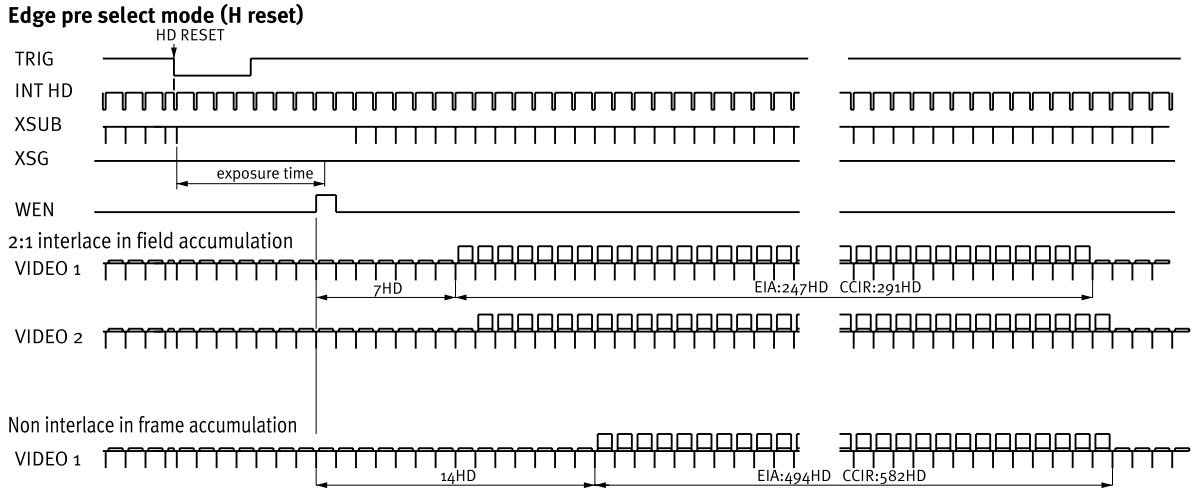
To use this mode:

Set: SW1-4 on BX rear to OFF for random trigger. For RS select trigger mode
JP12 on PK8206 (BX ver.) or PK8190 (RS ver.) **Short for Pulse Width Control**
JP13 on PK8206 (BX ver.) or PK8190 (RS ver.) **OPEN for H Reset**
JP13 on PK8206 (BX ver.) or PK8190 (RS ver.) **Short for H Non Reset**
SW1-1 through SW1-3 on BX rear to ON (1/10,000) For RS select 1/10,000
and SW1 on (BX) PK8206 for Normal shutter.

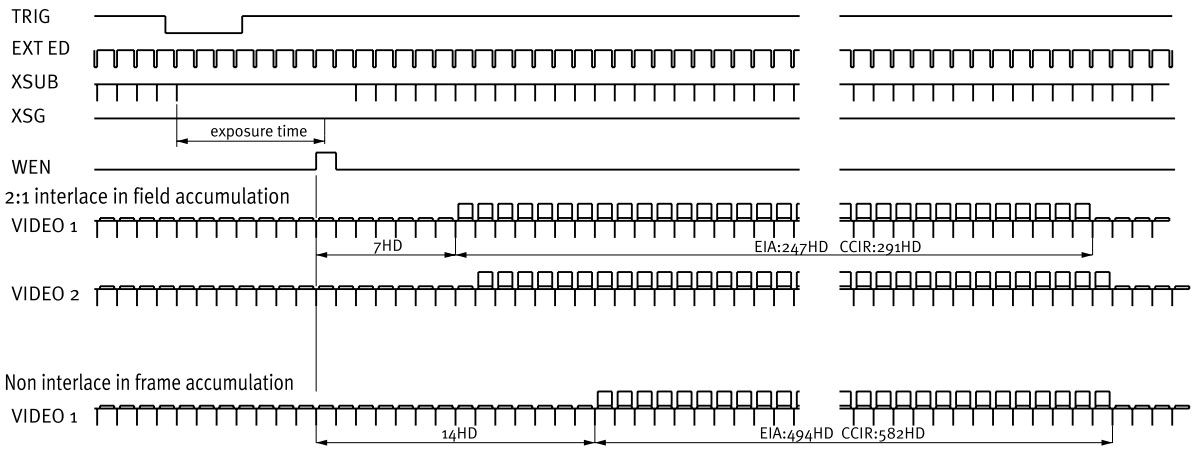
Note: *For CV-M10RS the selection of Edge Pre-select, Pulse Width Control H Reset and H non-reset cannot be done by RS232C. In Pulse Width Control Mode the shutter speed must be set at 1/10000 sec.*
(See chapter 7 and 8 for details)

6.4. Timing diagram for Edge Pre-select

Edge pre select mode (H reset)



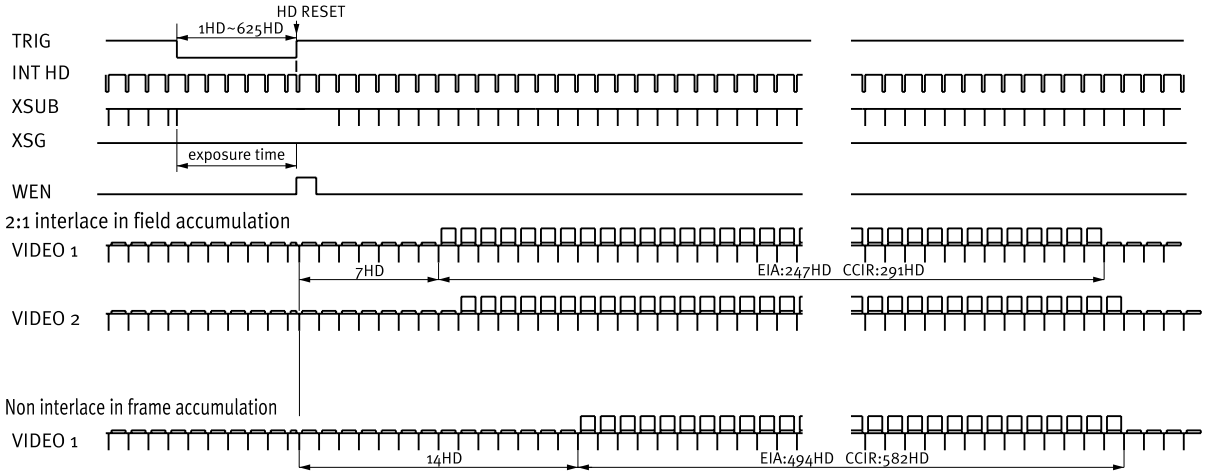
Edge pre select mode (H Non Reset)



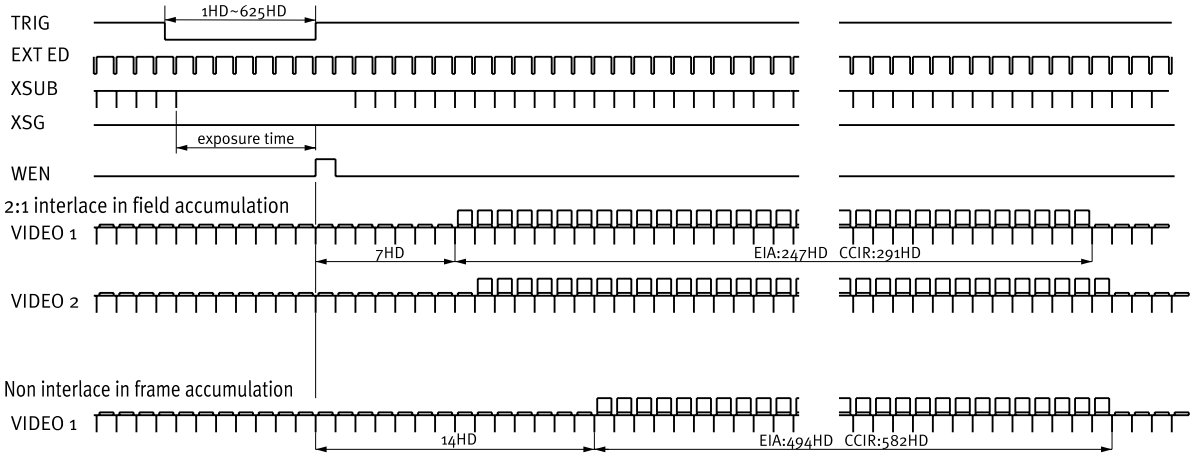
Downloaded from www.Manualslib.com manuals search engine

6.5. Timing diagram for Pulse Width Control

Pulse width control mode (H Reset)



Pulse width control mode (H Non Reset)



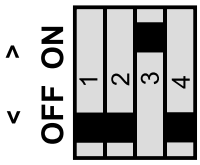
Downloaded from www.Manualslib.com manuals search engine

7. Mode Settings

7.1. Mode Setting by Switch

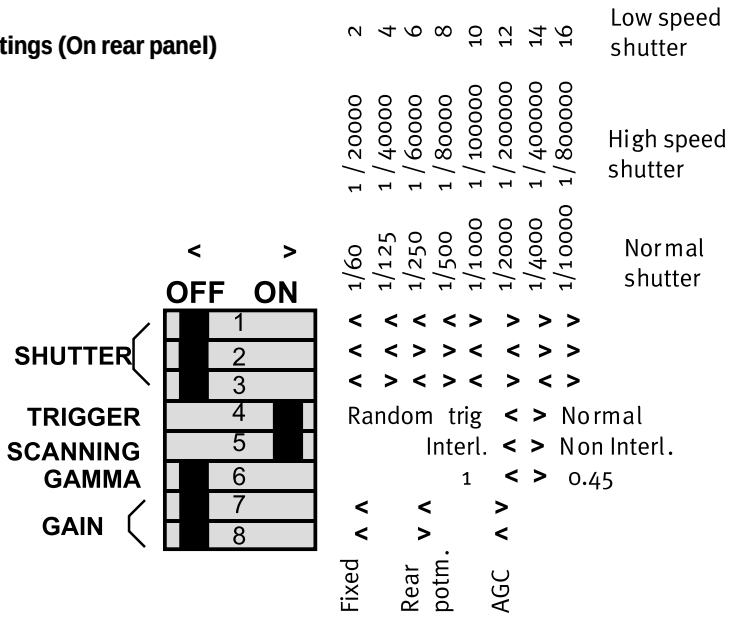
The mode setting switch SW1 on rear for CV-M10BX and CV-M10RS is different for switch SW1-1 to SW1-3 and SW1-7 to SW1-8. For BX the shutter values can be selected in 3 ranges depending of the internal SW1 on the PK 8206 board. The switch select between Normal, High speed or Low speed. In the following the switch settings are shown.

7.1.1. M10BX Internal Switch SW1 Settings (On PK8206)

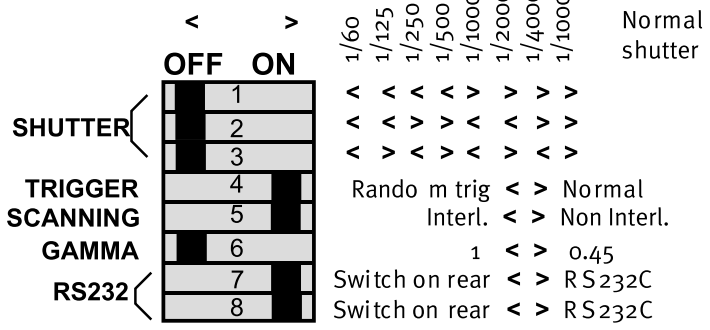


v v v v	Shutter off
v v ^ ^	Flickerless
v v ^ v	Normal shutter
^ v ^ v	High speed shutter
v v v ^	Low speed shutter

7.1.2. M10BX Switch SW1 Settings (On rear panel)



7.1.3. M10RS Switch SW1 Settings (On rear panel)



Note: *The shown switch settings are the factory setting. Values are shown for EIA.*

Downloaded from www.Manualslib.com manuals search engine

7.2. Shutter Time select.

Before making any mode or jumper settings switch the power off.
The shutter select is for CV-M10BX done with the internal SW1 on PK8206 and SW1 on rear.
For CV-M10 RS only the normal shutter range can be selected by the SW1 on rear. The high speed and low speed range can only be selected by RS 232C.

7.2.1. CV-M10BX SW1 on PK8206

For CV-M10BX the internal SW1 on PK8206 can select the following shutter modes.

SW1 on PK8206				Shutter Mode	Description
1	2	3	4		
OFF	OFF	OFF	OFF	Shutter off	This setting disables the SW1-1 to SW1-3 on rear. The accumulation time is 1/60 for EIA and 1/50 for CCIR in 2:1 interlaced mode. In non-interlaced the accumulation time is 1/30 for EIA and 1/25 for CCIR.
OFF	OFF	ON	ON	Flickerless	This setting disables the SW1-1 to SW1-3 on rear. The accumulation time is 1/100 sec for CCIR and 1/120 for EIA
OFF	OFF	ON	OFF	Normal shutter	The shutter range is from 1/60 (EIA) 1/50 (CCIR) to 1/10,000 sec.
ON	OFF	ON	OFF	High speed shutter	The shutter rangs is from 1/20,000 to 1/800,000 sec. for EIA and 1/25,000 to 1/917,000 sec for CCIR
OFF	OFF	OFF	ON	Low speed shutter	It is long time integration in the range from 2 fields to 16 fields.

Note: *By switch to the low speed range it can take up 20 sec. for correct operation.*

7.2.2. SW1-1 to SW1-3 on rear.

The shutter settings are done with the first 3 switches on SW1 on rear

SW1-1 MSB	SW1-2	SW1-3 LSB	CV-M10BX					CV-M10RS	
			EIA		CCIR		EIA CCIR	EIA	CCIR
			Normal	High	Normal	High	Low	Normal	Normal
OFF	OFF	OFF	1/60	1/20,000	1/50	1/25,000	2FLD	1/60	1/50
OFF	OFF	ON	1/125	1/40,000	1/125	1/50,000	4FLD	1/125	1/125
OFF	ON	OFF	1/250	1/60,000	1/250	1/70,000	6FLD	1/250	1/250
OFF	ON	ON	1/500	1/80,000	1/500	1/90,000	8FLD	1/500	1/500
ON	OFF	OFF	1/1000	1/100,000	1/1000	1/125,000	10FLD	1/1000	1/1000
ON	OFF	ON	1/2000	1/200,000	1/2000	1/250,000	12FLD	1/2000	1/2000
ON	ON	OFF	1/4000	1/400,000	1/4000	1/495,000	14FLD	1/4000	1/4000
ON	ON	ON	1/10000	1/800,000	1/10000	1/917,000	16FLD	1/10000	1/10000

7.3. Trigger select

7.3.1. Normal Shutter mode

When the trigger select SW1-4 is ON, the camera is in normal mode. The camera is running continuously with an exposure as selected with SW1-1 to 3. For BX the shutter mode is selected with the internal SW1 on PK8206. For the RS version 232C does the selection.

7.3.2. Ext. Trigger mode

When the trigger select SW1-4 is OFF, the camera is in random trigger mode. Here an external trigger pulse will start the exposure. Depending of JP12 and JP13 setting on PK8206, the camera will operate in edge pre-select or pulse width control mode with H reset or H non-reset.

7.4. Scanning Mode

7.4.1 Interlaced mode

When SW1-5 is OFF, the scanning is interlaced, and the image is read out as 2 fields on the 2 video outputs. Each output is a normal composite interlaced video signal, EIA or CCIR. Field 1 and field 2 from the CCD sensor are alternately placed on video1 and video 2 output. In this way each output is a normal interlaced video signal. By combining the 2 video outputs, a full progressive scanned frame is the result. In this way a full frame can be read out up to 50 times/second for CCIR or 60 times/sec for EIA.

Note: *There are some limitations to the video 2 output concerning gain settings. (See 7.6.1)*

Downloaded from www.Manualslib.com manuals search engine

7.4.2. Non interlaced mode

With SW1-5 ON the camera is in non-interlaced mode. The video is read out on video 1 as a full progressive scanned frame. The frame rate can be up to 25 for CCIR and 30 for EIA.

7.5. Gamma Correction

SW 1-6 will select the gamma correction. OFF is gamma 1.0, which is linear and normally used for vision. ON is gamma 0.45, which is non-linear.

7.6. Gain Control / RS 232C control

SW1-7 and SW1-8 has different functions on CV-M10BX and CV-M10RS.

7.6.1. Gain control on CV-M10BX

SW1-7 OFF and SW1-8 OFF is fixed gain. Here the gain is fixed for the 2 video outputs. Can be adjusted by internal potentiometers. (See "9. Internal Adjustments.")
SW1-7 OFF and SW1-8 ON is rear potentiometer for gain setting. This will only work on video 1 output.
SW1-7 ON and SW1-8 OFF is the AGC mode. It will only work on video 1 output. The AGC level can be adjusted by an internal potentiometer. (See "9. Internal Adjustments.")

7.6.2. RS232C control on CV-M10RS

SW1-7 and SW1-8 OFF will enable the settings from the SW1 on rear.
SW1-7 and SW1-8 ON will enable the RS232C serial input for camera control.

Notes: *The setting should be done with power off. If the RS camera should be used with rear switch setting, the user setting from RS232C should be in the normal shutter range.*
By shift to the low speed range it can take up to 20 sec. before the camera operates correctly.

7.7. CV-M10RS Serial Interface for Controls

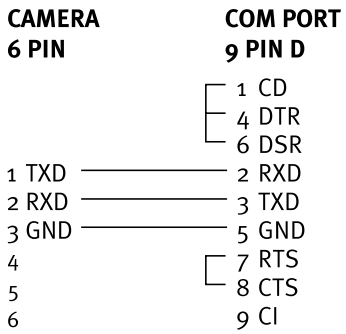
The RS-232C serial interface specification for CV-M10 is: 9600 Baud, 8 data bit, 1 start bit, 1 stop bit, and no parity.
Functions, which can be controlled by the RS-232C interface, are:

Shutter speed	All shutter times as shown in 7.2.2
Trigger select	Continuous, Triggered
Scanning mode	Interlaced, non-interlaced
Levels	Manual gain, AGC level, black level and white clip level

Notes: *The following cannot be controlled via RS232C:*

Gamma	*1.0 - 0.45*
Trigger mode:	*Edge Pre-select, Pulse Width Control, H reset and H non-reset*

7.7.1. RS232C Cable Connections



Downloaded from www.Manualslib.com manuals search engine

8. Jumper settings

Switch off the power before making any mode or jumper settings.

The following modes are available with jumper setting:
Input/Output Mode of HD/VD signal. (HD/VD input is factory setting)
Termination of HD/VD input. (75 ohm is factory setting.)
Trigger input termination. (Factory setting is TTL)
Trigger mode select. (Edge Pre-select is factory setting)
H-reset or H non-reset. (Fatory setting is H reset.)
Alternative pins for inputs/outputs.
Jumper settings in "***italic bold***" are factory setting.

8.1. HD/VD signals

Jumpers on PK8189A.

Jumper	Function	HV and VD signals			Remarks
		Input 75 ohm	Input TTL	Output	
JP 1	***Ext. HD input***	***Short***	Short	Open	
JP 3	***Ext. HD input 75 ohm term.***	***Short***	Open	Open	
JP 7	Int. HD output	***Open***	Open	Short	
JP 4	***Ext. VD input***	***Short***	Short	Open	
JP 6	***Ext. VD input 75 ohm term.***	***Short***	Open	Open	
JP 5	Int. VD output	***Open***	Open	Short	

8.2. Trigger input termination

Jumper on PK8206A for BX or PK8190A for RS.

Jumper	Function	Trigger input		Remarks
		TTL input	75 ohm terminated	
JP10	Trigger input termination	***Open***	Short	

8.3. Trigger mode selection

Jumpers on PK8206A for BX or PK8190A for RS.

Jumper	Function	Random Trigger Shutter Mode				Remarks
		Edge Pre-select		Pulse Width Control *)		
		H-reset	H non-reset	H reset	H non-rest	
JP 12	Trigger mode select	***Open***	Open	Short	Short	
JP 13	H reset/non-reset	***Open***	Short	Open	Short	

****) Note:*** *For Pulse Width Control, shutter speed must be set to 1/10,000 sec. (For BX by SW1. For RS by RS232C)*

8.4. Pixel clock or video 2 on pin 9 (12 pin con.)

Jumpers on PK8187A.

Jumper	Function	Signal on Pin 9 (12 pin con.)		Remarks
		Video 2	Pixel clock	
R 19	Pixel clock out on pin #9	***Open***	Short	
R 20	***Video 2 out on pin #9***	***Short***	Open	

8.5. Alternative input/outputs on pin #6 and #7 (12 pin con.)

Jumpers on PK8187A.

Jumper	Function	Signal on pin #6		Signal on pin #7			Remarks
		HD in/out	Trigger in	***VD in/out***	Trigger in	WEN out	
R 21	WEN	**-**	-	***Open***	Open	Short	
R 26	Trigger	***Open***	Short	**-**	-	-	
R 27	Trigger	**-**	-	***Open***	Short	Open	

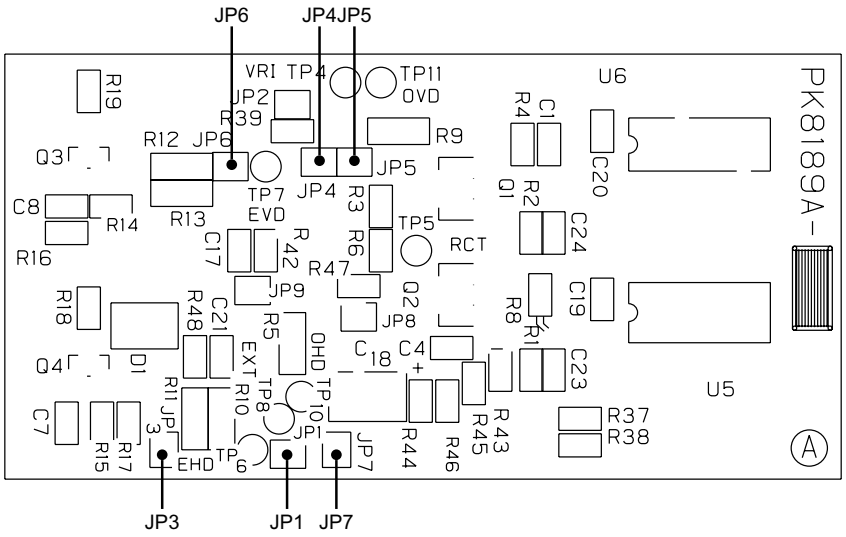
Downloaded from www.Manualslib.com manuals search engine

8.6. Locations of Jumper

Jumpers positions are shorted with a 0 ohm resistor or by a soldering between the 2 points. To remove the solder tin from a jumper position, use a special tin remover such as desolder wick.

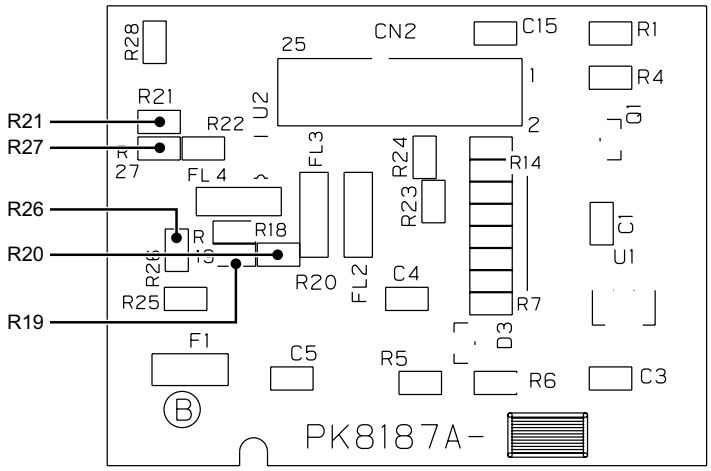
8.6.1. Location of Jumper on PK8189A

On this board the jumpers for HD/VD input, output and 75ohm termination are found.



8.6.2. Location of Jumper on PK8187A

On this board the jumpers for alternative outputs on the 12 pin connector are found.

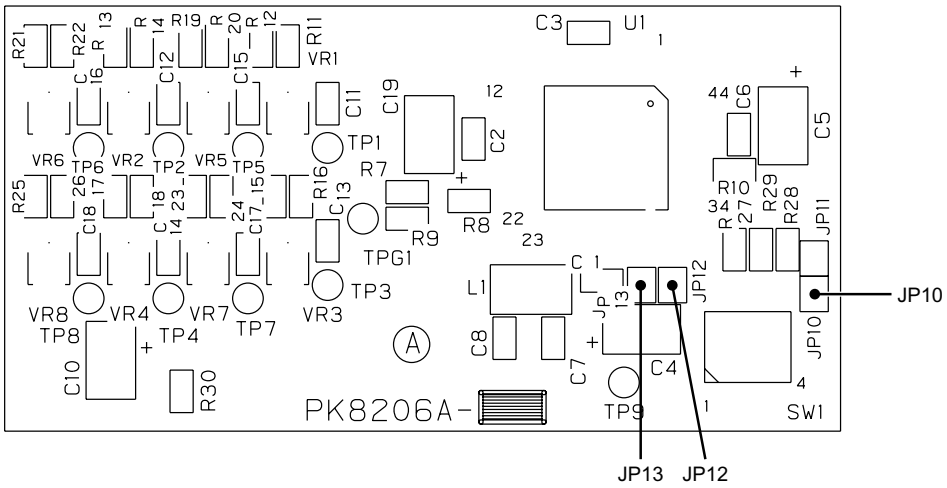


Downloaded from www.Manualslib.com manuals search engine

8.6.3. Location of Jumper for CV-M10BX on PK8206A

Jumpers for selecting random trigger modes for CV-M10BX. It is edge pre-select, pulse width control, H reset and H non-reset.

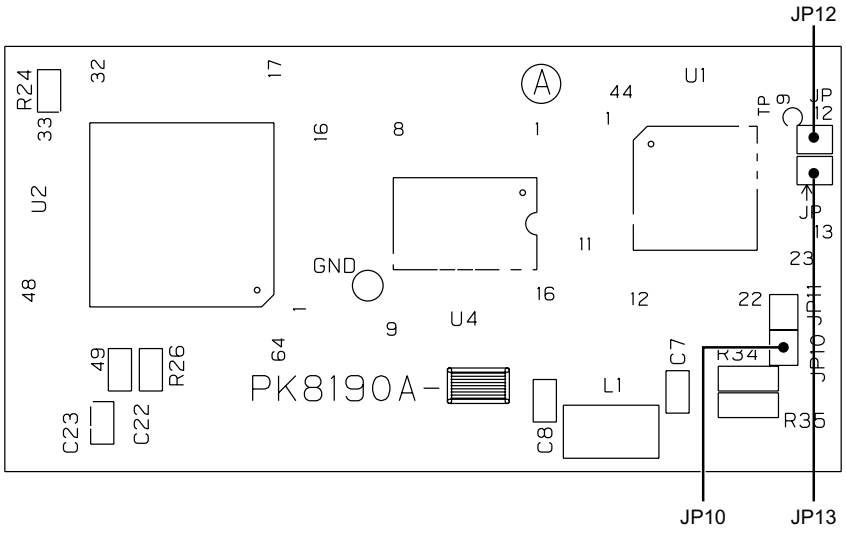
Jumper for trigger input 75 ohm termination is also found here.



8.6.4. Location of Jumper for CV-M10RS on PK8190A

Jumpers for selecting random trigger modes for CV-M10RS. It is edge pre-select, pulse width control, H reset and H non-reset. These modes can not be selected by RS232C.

Jumper for trigger input 75 ohm termination is also found here.



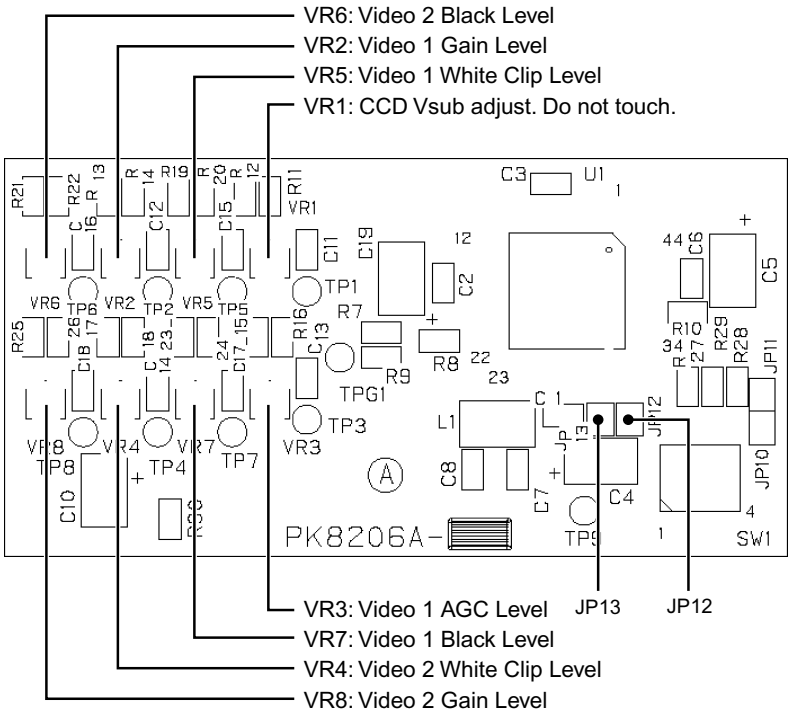
Downloaded from www.Manualslib.com manuals search engine

9. Internal adjustments on BX

For CV-M10BX there are internal potentiometers for adjusting the two video outputs. Do not touch these adjustments unless you are familiar with video camera adjusting.
The potentiometers are found on the PK8206A board in CV-M10BX.
For CV-M10RS the same adjustments can be done via RS232C with the camera control tool.
See "10. CV-M10RS Camera Control Tool."
The adjustments are for the following functions:

Black level. Factory setting is 20 mVpp ±5 mV
Video 1 AGC level. Factory setting is 700 mVpp ±30 mV.
White clip level. Factory setting is 800mVpp ±20 mV
Video 1 and Video 2 gain. Factory setting to same video level on both outputs.
VSUB on the CCD sensor. Do not touch this adjustment.

9.1. Potentiometer locations on PK8206A



Downloaded from www.Manualslib.com manuals search engine

10. CV-M10RS Camera Control Tool

A camera control tool for CV-M10RS is available. It runs under Windows 98 and NT.
After installation a bar is shown on the screen. From here windows for each function group can be opened for camera control. In the following the bar and windows are shown.

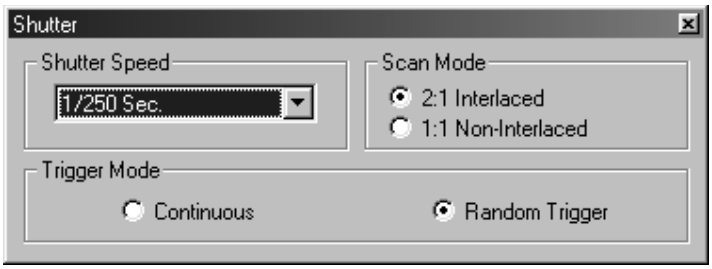
10.1. Control Bar for CV-M10RS Camera Control



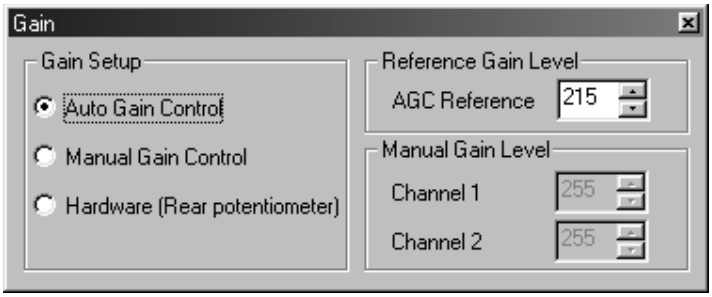
10.2. About and Help Window



10.3. Shutter Window

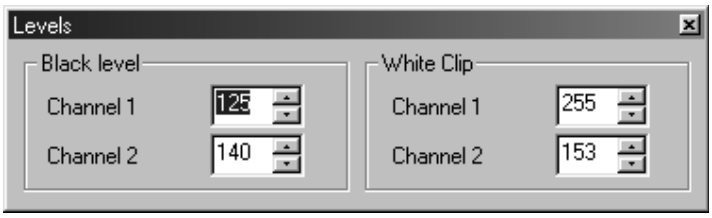


10.4. Gain Window

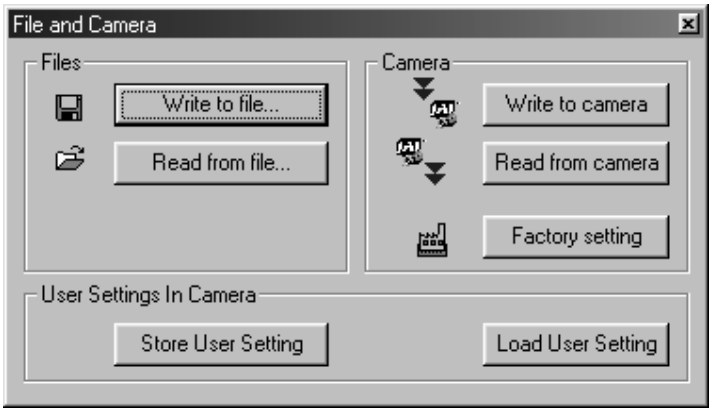


Downloaded from www.Manualslib.com manuals search engine

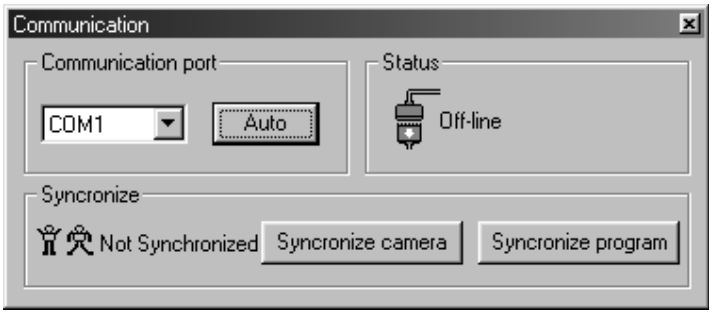
10.5. Levels Window



10.6. Files and Camera



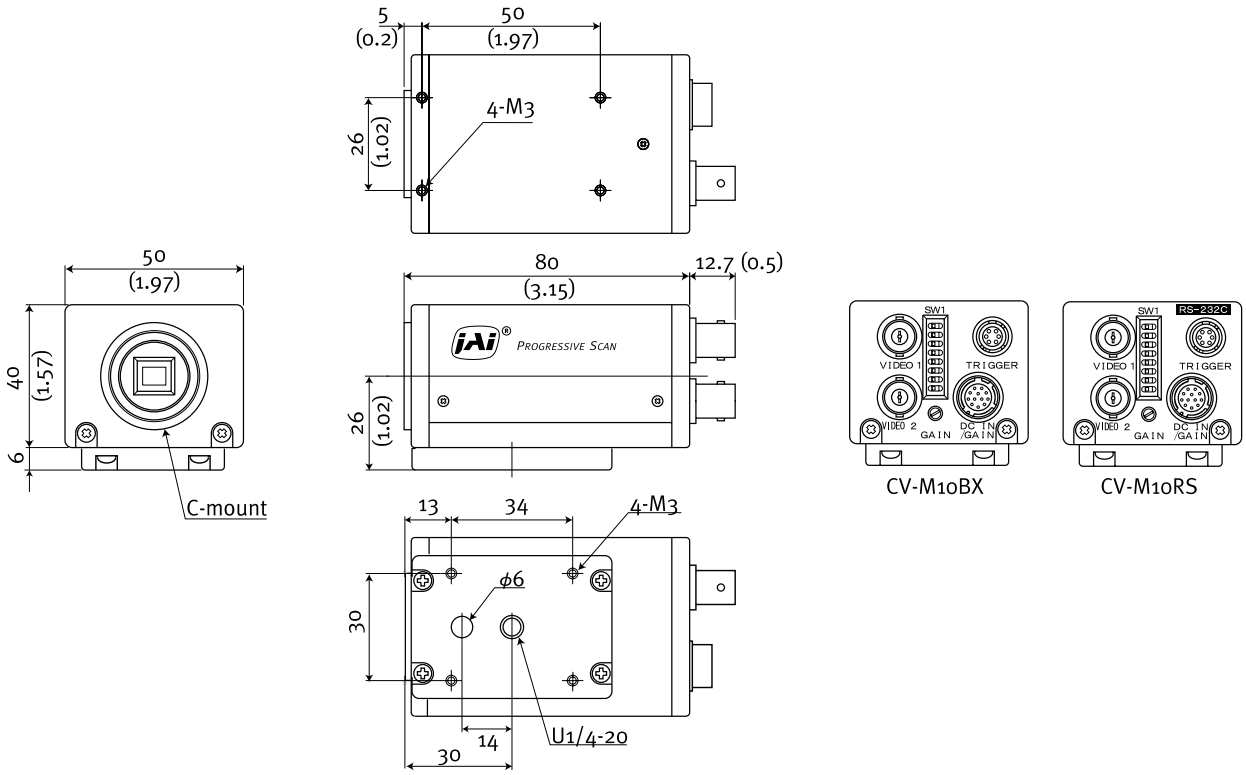
10.7. Communication Window



Downloaded from www.Manualslib.com manuals search engine

11. External Appearance and Dimensions

Unit : mm (inch)



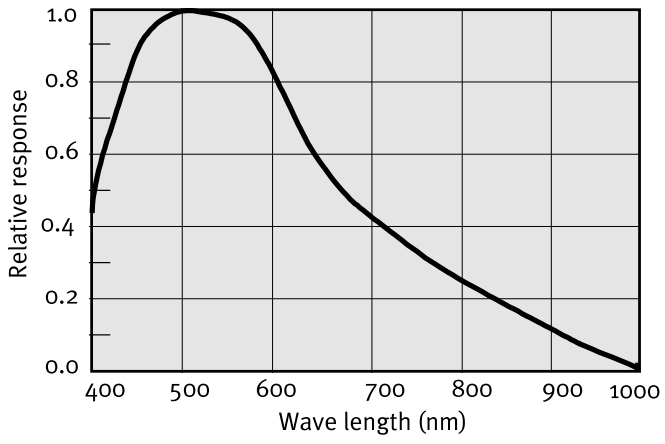
Downloaded from www.Manualslib.com manuals search engine

12. Specifications

Model	CV-M10
CCD Sensor	1/2" Interline-Transfer Type
Image Area	6.4mm (H) x 4.8mm (V)
Number of Elements	659(H) x494(V) EIA/VGA corresponded782(H) x 582(V) CCIR
Cell Size	9.9µm(H) x 9.9µm(V)
Scanning System	1) Non-interlace read-out to scan full 525 lines in 1/30 sec (EIA) 625 lines in 1/25 sec (CCIR) 2) Interlace readout, dual channels, 1/60 sec frequency (EIA) 1/50 sec frequency (CCIR) "OUTPUT 1" for Field image in ODD-EVEN-ODD sequence "OUTPUT 2" for Field image in EVEN-ODD-EVEN sequence
Vertical Frequency	EIA 59.94Hz CCIR 50Hz
Horizontal Frequency	EIA 15.735KHz CCIR 15.625KHz
Synchronization	1) Ext. HD/VD Input (4.0Vp-p ±1.0V, 75Ωterminated) 2) Ext. trigger input (4.0Vp-p ±1.0V) 3) Int.HD/VD output (4.0Vp-p ±1.0V, 75Ωterminated)
Resolution	EIA: H 530 lines, V 400 lines CCIR: H 550 lines, V 400 lines
S/N Ratio	EIA: 56 dB or more (AGC OFF, Gamma = 1.0) CCIR: 55 dB or more (AGC OFF, Gamma = 1.0)
Sensitivity	1.0 lx (AGC ON, F1.4)
Ext. trigger mode	Edge Pre-select or Pulse Width Control
Electronic Shutter	Normal Speed: EIA 1/60 - 1/10,000 CCIR 1/50 - 1/10,000 High Speed: EIA 1/20,000 - 1/800,000 CCIR 1/25,000 - 1/917,000 Long Time Exposure: 2 FLD - 16 FLD max.
Random Trigger Shutter	Normal Speed: EIA 1/60 - 1/10,000 CCIR 1/50 - 1/10,000 High Speed: EIA 1/20,000 - 1/800,000 CCIR 1/25,000 -1/917,000
Gamma	1.0/0.45
Gain	Manual/Auto
Video Output	VS Output 1.0Vp-p 75Ω
Lens Mount	C-mount
Interface	RS-232C compatible (CV-M10RS only)
Environment	-5°C to +45°C 20% to 80% (Non-condensed)
Power	DC+12V ±10%
Consumption	5W
Dimensions	50x40x80 (WxHxD) mm
Weight	245g

Note: *Above specifications are subject to change without notice.*

12.1. Spectral sensitivity



Downloaded from www.Manualslib.com manuals search engine

13. Appendix

13.1. Precautions

Personnel not trained in dealing with similar electronic devices should not service this camera.

The camera contains components sensitive to electrostatic discharge. The handling of these devices should follow the requirements of electrostatic sensitive components.

Do not attempt to disassemble this camera.

Do not expose this camera to rain or moisture.

Do not face this camera towards the sun, extreme bright light or light reflecting objects.
When this camera is not in use, put the supplied lens cap on the lens mount.

Handle this camera with the maximum care.
Operate this camera only from the type of power source indicated on the camera.

Power off the camera during any modification such as changes of jumper and switch setting.

13.2. Typical CCD Characteristics

The following effects may be observed on the video monitor screen. They do not indicate any fault of the CCD camera, but do associate with typical CCD characteristics.

V. Smear

Due to an excessive bright object such as electric lighting, sun or strong reflection, vertical smear may be visible on the video monitor screen. This phenomenon is related to the characteristics of the Interline Transfer System employed in the CCD.

V. Aliasing

When the CCD camera captures stripes, straight lines or similar sharp patterns, jagged image on the monitor may appear.

Blemishes

Some pixel defects can occur, but this does not have en effect on the practical operation.

Patterned Noise

When the CCD camera captures a dark object at high temperature or is used for long time integration, fixed pattern noise (shown as white dots) may appear on the video monitor screen.

13.3. References

1. This manual can and datasheet for CV-M10 can be downloaded from www.jai.com
2. Camera control software can be downloaded from www.jai.com
3. Specifications for the EIA CCD sensor ICX 074AL can be found on www.jai.com
4. Specifications for the CCIR CCD sensor ICX 075AL can be found on www.jai.com

Downloaded from www.Manualslib.com manuals search engine

11. User's Record

Camera type: **CV-M10BX/CV-M10RS CCIR/EIA**

Revision: **(Revision F)**

Serial No. **.....**

Users Mode Settings

Users Modifications

15. Index

No index.

Downloaded from www.Manualslib.com manuals search engine

2700- 11052 E F3 0901

JAI A·S, Denmark
Produktionsvej 1, 2600 Glostrup
Copenhagen, Denmark
Phone +45 4457 8888
Fax +45 4491 8880
www.jai.com

JAI Corporation, Japan
German Industry Center
1-18-2 Hakusan, Midori-ku
Yokohama,
Kanagawa 226-0006, Japan
Phone +81 45 933 5400
Fax +81 45 931 6142
www.jai-corp.co.jp

JAI America, Inc., USA
Suite 450
23046 Avenida de la Carlota
Laguna Hills, CA 92653
USA
Phone +1 949 472 5900
Fax +1 949 472 5908
www.jai.com

THE MECHADEMIC COMPANY

Downloaded from www.Manualslib.com manuals search engine

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP