

Matrox Meteor-II/Multi-Channel Camera Interface Application Note

CIS VCC-850A

August 12, 2002

Basics about the
camera

Camera Descriptions

- Effective resolution: $1024 \times 768 \times 8\text{-bit}$ @ 30 fps.
- Single channel analog video output.
- Progressive scan.
- Internal or external sync.
- Internal or external exposure control.
- 30 MHz pixel clock rate.

Interface Modes

- Continuous
- Asynchronous Reset (Restart/Reset mode)

Camera Interface Briefs

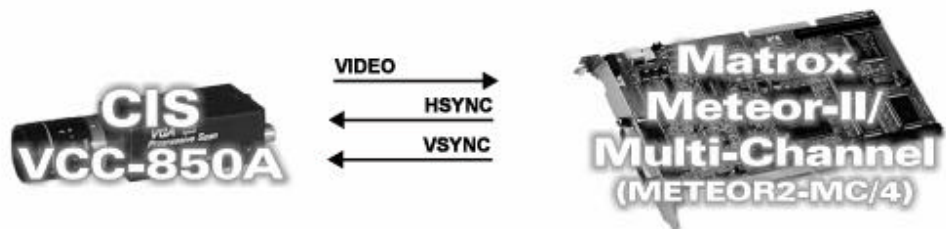
Mode 1: Continuous (Meteor-II/Multi-Channel Slave)

- $1024 \times 768 \times 8\text{-bit}$ @ 30 fps.
- Single channel analog video.
- Progressive scan.
- Matrox Meteor-II/Multi-Channel receiving video (with composite sync) from camera.
- DCF used: [VCC850A1.DCF](#)



Mode 2: Continuous (Meteor-II/Multi-Channel Master)

- $1024 \times 768 \times 8\text{-bit}$ @ 30 fps.
- Single channel analog video.
- Progressive scan.
- Matrox Meteor-II/Multi-Channel sending HSYNC (HD INPUT), VSYNC (VD INPUT) to camera.
- Matrox Meteor-II/Multi-Channel receiving video from camera.
- DCF used: [VCC850A2.DCF](#)



Mode of operations as
per Matrox Imaging (in
parentheses as per
camera manufacturer)

Basics about the
interface modes

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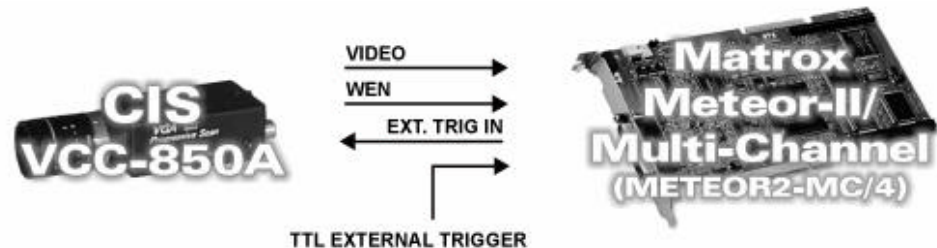
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Basics about the
interface modes

Camera Interface Briefs (Continued)

Mode 3: Asynchronous Reset (Restart/Reset mode)

- 1024 × 768 × 8-bit.
- Single channel analog video.
- Progressive scan.
- Matrox Meteor-II/Multi-Channel receiving TTL external trigger signal.
- Matrox Meteor-II/Multi-Channel sending EXPOSURE1 (EXT.TRIG IN) signal to camera to initiate and control exposure time.
- Matrox Meteor-II/Multi-Channel receiving VSYNC (WEN OUT) and video from camera.
- DCF used: [VCC850A3.DCF](#)



Specifics about the
interface modes

Camera Interface Details

Mode 1 and 2: Continuous

- **Frame Rate:** Matrox Meteor-II/Multi-Channel receives the continuous video from the camera at 30 frames per second respectively.
- **Exposure time:** Exposure time determined by the shutter setting. Refer to the camera manual for more information.
- **Camera switch settings:** Refer to the camera manual for additional information. Switches for this mode should be set on the camera rear as follows:

External Switch Settings								
Switch	SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	SW1-6	SW1-7	SW1-8
Setting	OFF	OFF	OFF	OFF	*	ON	ON	ON
* SW1-5 set to ON (Mode 1), OFF (Mode 2)								

Mode 3: Asynchronous Reset (Restart/Reset mode)

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal, up to a maximum of 28 fps.
- **Exposure time:** The width (rising to falling edge) of the EXPOSURE1 (EXT.TRIG IN) signal plus a fixed internal camera delay of 1H to 2 H equals the exposure time. The default exposure time is equal to **1.1 ms**. The exposure time can be modified in the DCF using Matrox Intellicam or with the MIL MdigControl() function. Consult the manual for more information.

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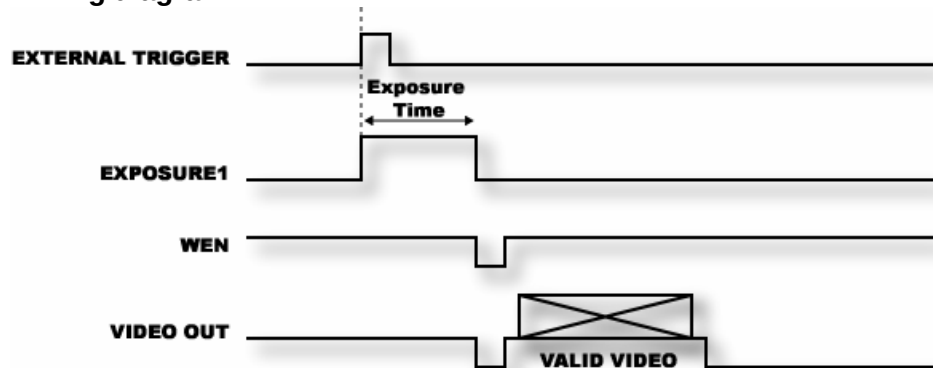
August 12, 2002

Specifics about the
interface modes

Camera Interface Details (Continued)

Mode 3: Asynchronous Reset (Restart/Reset mode)

▪ Timing diagram:



- **Camera switch settings:** Refer to the camera manual for additional information. Switches for this mode should be set on the camera rear as follows:

External Switch Settings								
Switch	SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	SW1-6	SW1-7	SW1-8
Setting	OFF	OFF	OFF	OFF	ON	ON	OFF	ON

Cabling details for the
interface modes

Cabling Requirements

Mode 1: Continuous (Meteor-II/Multi-Channel Slave)

- **Cable:** DBHD44-TO-8BNC/O (open ended) cable required for video signal.
- **Connection:** Connections between the 12-pin connector of the camera and the 44-pin connector of the Matrox Meteor-II/Multi-Channel are as follows:

METEOR2-MC/4 (44-pin connector)		CIS VCC-850A (12-pin connector)	
Pin name	Pin no.	Pin name	Pin no.
VID1_IN	15	← VIDEO OUTPUT	04
GROUND	17	-- GROUND	03
Power supply: Connections for all modes are as follows:			
POWER SUPPLY		CIS VCC-850A (12-pin connector)	
Pin name	Pin no.	Pin name	Pin no.
DC OUT (+12 V)	--	-- + 12 V	02
GROUND	--	-- GROUND	01

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Cabling details for the
interface modes

Cabling Requirements (Continued)

Mode 2: Continuous (Meteor-II/Multi-Channel Master)

- **Cable:** DBHD44-TO-8BNC/O (open ended) cable required for video, synchronization and control signals.
- **Connection:** Connections between the 12-pin connector of the camera and the 44-pin connector of the Matrox Meteor-II/Multi-Channel are as follows:

METEOR2-MC/4 (44-pin connector)			CIS VCC-850A (12-pin connector)	
Pin name	Pin no.		Pin name	Pin no.
VID1_IN	15	←	VIDEO OUTPUT	04
GROUND	17	--	GROUND	03
HSYNC_TTL	02	→	HD INPUT	06
VSYNC_TTL	32	→	VD INPUT	07

Mode 3: Asynchronous Reset (Restart/Reset mode)

- **Cable:** DBHD44-TO-8BNC/O (open ended) cable required for video, synchronization and control signals.
- **External trigger:** TTL external trigger source should be connected to the Opto-coupled Trigger Input (pin 34, 35) of the DBHD44-TO-8BNC/O cable.
- **Connection:** Connections between the 12-pin connector of the camera and the 44-pin connector of the Matrox Meteor-II/Multi-Channel are as follows:

METEOR2-MC/4 (44-pin connector)			CIS VCC-850A (12-pin connector)	
Pin name	Pin no.		Pin name	Pin no.
VID1_IN	15	←	VIDEO OUTPUT	04
GROUND	17	--	GROUND	03
EXPOSURE1	38	→	EXT. TRIG IN	11
VSYNC_TTL	32	←	WEN OUTPUT	10
			EXTERNAL TRIGGER SOURCE	
OPTOTRIG+	35	←	TRIGGER SIGNAL	--
OPTOTRIG-	34	←	TRIGGER GROUND	--

The DCF(s) mentioned in this application note can be found on the MIL CD or our FTP site ([ftp.matrox.com](ftp:ftp.matrox.com)). The information furnished by Matrox Electronics System, Ltd. is believed to be accurate and reliable. Please verify all interface connections with camera documentation or manual. Contact your local sales representative or Matrox Sales office or Matrox Imaging Applications at 514-822-6061 for assistance.

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