

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

CIS VCC-810

August 12, 2002

Basics about the  
camera

## Camera Descriptions

- Effective resolution:  $648 \times 493 \times 8\text{-bit}$  @ 60 fps.
- Single channel analog video output.
- Progressive scan.
- Internal or external sync.
- Internal or external exposure control.
- 24.54 MHz pixel clock rate.

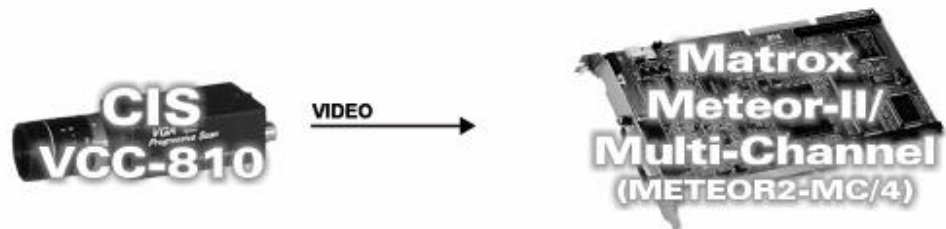
## Interface Modes

- Continuous
- Asynchronous Reset (Restart/Reset mode)

## Camera Interface Briefs

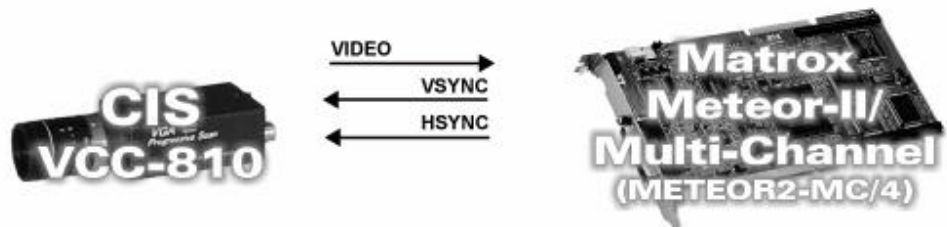
### Mode 1: Continuous (Meteor-II/Multi-Channel Slave)

- $648 \times 493 \times 8\text{-bit}$  @ 60 fps.
- Single channel analog video.
- Progressive scan.
- Matrox Meteor-II/Multi-Channel receiving video (with composite sync) from camera.
- DCF used: [VCC810C1.DCF](#)



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

- $648 \times 493 \times 8\text{-bit}$ .
- 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: [VCC810C2.DCF](#)



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

Basics about the  
interface modes

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

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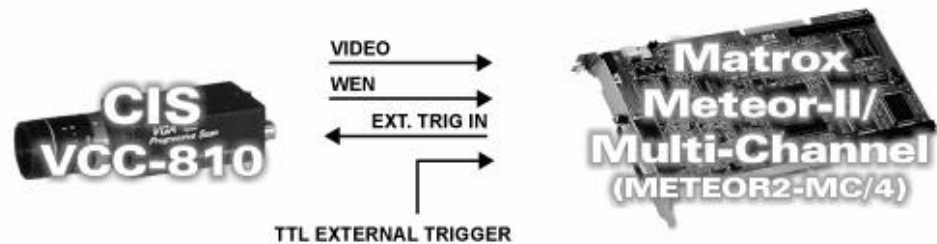
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Basics about the  
interface modes

## Camera Interface Briefs (Continued)

### Mode 3: Asynchronous Reset (Restart/Reset mode)

- $648 \times 493 \times 8$ -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 video signal from camera.
- DCF used: [VCC810.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 60 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 50 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 **0.79 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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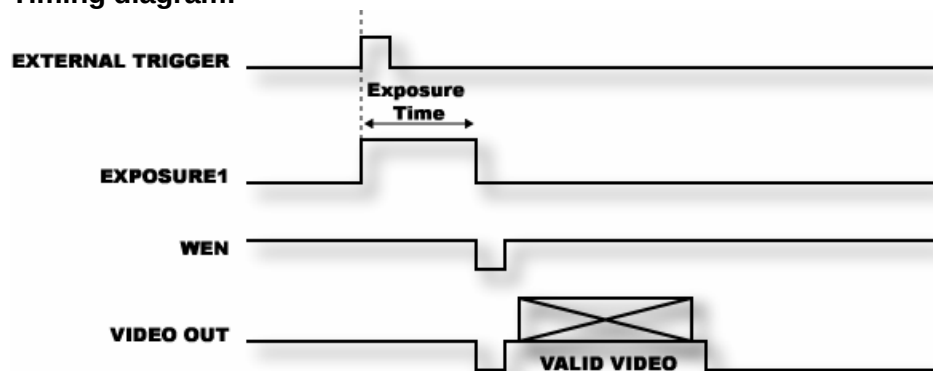
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Specifics about the  
interface modes

## 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<br>(44-pin connector) |         | CIS VCC-810<br>(12-pin connector) |         |
|------------------------------------|---------|-----------------------------------|---------|
| Pin name                           | Pin no. | Pin name                          | Pin no. |
| VID1_IN                            | 15      | ← VIDEO OUTPUT                    | 04      |
| GROUND                             | 17      | -- GROUND                         | 03      |
|                                    |         |                                   |         |
| POWER SUPPLY                       |         | CIS VCC-810<br>(12-pin connector) |         |
| Pin name                           | Pin no. | Pin name                          | Pin no. |
| DC OUT (+12 V)                     | --      | -- + 12 V                         | 02      |
| GROUND                             | --      | -- GROUND                         | 01      |

- **Power supply:** Connections for all modes are as follows:

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

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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<br>(44-pin connector) |         |    | CIS VCC-810<br>(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<br>(44-pin connector) |         |    | CIS VCC-810<br>(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      |
| <b>EXTERNAL TRIGGER SOURCE</b>     |         |    |                                   |         |
| 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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