

Matrox Corona-II

Camera Interface Application Note

SONY XC-HR300

March 13, 2003

Basics about the
camera

Camera Descriptions

- 767×575 @ up to 100 fps.
- Single or dual channel analog video output.
- Interlaced or progressive scan.
- Internal (composite) or external sync.
- Internal or external exposure control.
- 29.50 MHz pixel clock rate.

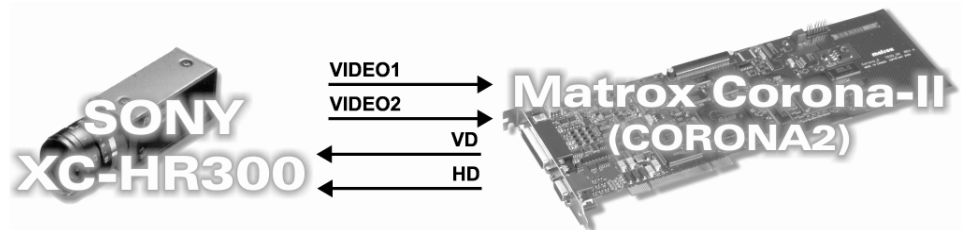
Interface Modes

- Continuous (Normal mode)
- Asynchronous reset (Reset mode)

Camera Interface Briefs

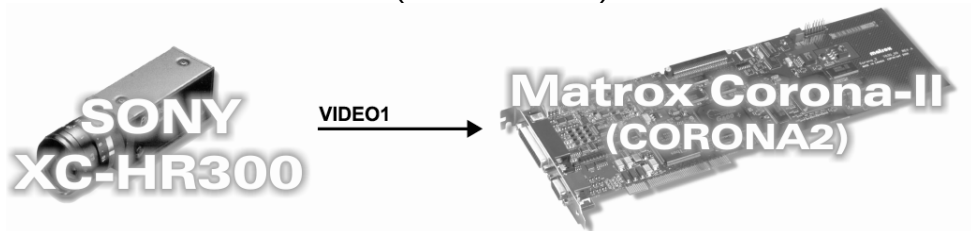
Mode 1: Continuous – master/dual-channel

- $768 \times 570 \times 8\text{-bit}$ @ 100 fps.
- Dual channel analog video.
- Interlaced scan.
- Matrox Corona-II sending HSYNC (HD) and VSYNC (VD) signals to camera.
- Matrox Corona-II receiving video signals from camera.
- DCF used: [M300CM.DCF](#)



Mode 2: Continuous – slave/single channel

- $766 \times 580 \times 8\text{-bit}$ @ 50 fps (progressive scan).
- $763 \times 575 \times 8\text{-bit}$ @ 50 fps (interlaced scan).
- Single channel analog video.
- Progressive / interlaced scan.
- Matrox Corona-II receiving video signals from camera.
- DCF used: [HR300NC.DCF](#) (progressive scan)
- DCF used: [M300C1.DCF](#) (interlaced scan)



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

Basics about the
interface modes

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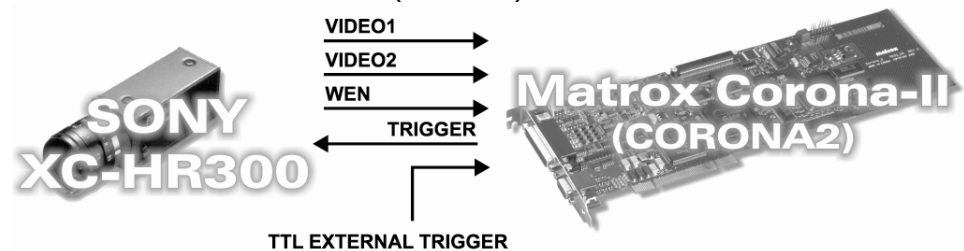
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Basics about the
interface modes

Camera Interface Briefs (Continued)

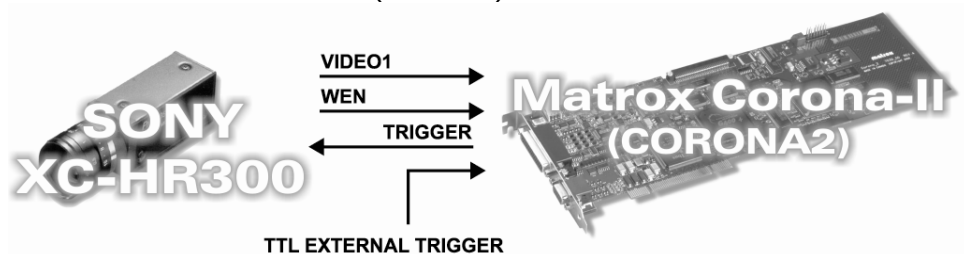
Mode 3: Asynchronous Reset - Dual channel

- 766 × up to 574 × 8-bit.
- Dual channel analog video.
- Interlaced Scan.
- Matrox Corona-II receiving external trigger signal.
- Matrox Corona-II sending EXPOSURE2 (TRIGGER) signal to camera to initiate and control exposure time.
- Matrox Corona-II receiving VSYNC (WEN PULSE) and video signals from camera.
- DCF used: [HR3NBAE1.DCF](#) (766 × 574)
- DCF used: [HR3NBAE2.DCF](#) (766 × 222)
- DCF used: [HR3NBAE3.DCF](#) (766 × 102)
- DCF used: [HR3NBAE4.DCF](#) (766 × 42)



Mode 4: Asynchronous Reset - Single Channel

- 766 × up to 580 × 8-bit
- Single channel analog video.
- Progressive Scan.
- Matrox Corona-II receiving external trigger signal.
- Matrox Corona-II sending EXPOSURE2 (TRIGGER) signal to camera to initiate and control exposure time.
- Matrox Corona-II receiving VSYNC (WEN PULSE) and video signals from camera.
- DCF used: [HR3NAE1.DCF](#) (766 × 580)
- DCF used: [HR3NAE2.DCF](#) (766 × 241)
- DCF used: [HR3NAE3.DCF](#) (766 × 121)
- DCF used: [HR3NAE4.DCF](#) (766 × 55)



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Specifics about the
interface modes

Camera Interface Details

Modes 1 and 2: Continuous

- **Frame Rate:** Matrox Corona-II receives the continuous video from the camera at 100 frames per second (dual channel) or 50 frames per second (single channel).
- **Exposure time:** Exposure time is inversely proportionate to the frame rate (no shutter) or 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 as follows:

Switch	M300CM.DCF	HR300NC.DCF	M300C1.DCF
Signal	2I	1N	2I
Mode	N	N	N
Gain	F or M	F or M	F or M
Sync	EXT	INT	INT
Shutter Speed (1-4)	As desired	As desired	As desired
High Rate Dials	Left=0 Right=0	Left=0 Right=0	Left=0 Right=0

Modes 3 and 4: Asynchronous Reset

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal. The maximum possible frame rate is dependent on the exposure time as well as the frame readout period.
- **Exposure time:** The width (rising edge to falling edge) of the EXPOSURE2 (TRIGGER) signal is the exposure time. The default exposure time is equal to **1.6 ms**. The exposure time can be modified in the DCF using Matrox Intellicam or with the MIL MdigControl() function. Consult the respective manual for more information.
- **Minimum exposure width:** minimum EXPOSURE2 (TRIGGER) pulse width is equal to **2 ms**.
- **Camera switch settings:** Refer to the camera manual for additional information. Switches for this mode should be set as follows:

Switch	HR3NBAEx.DCF	HR3NAEx.DCF
Signal	2I	1N
Mode	M2	M2
Gain	F or M	F or M
Sync	INT	INT
Shutter Speed	ALL OFF	ALL OFF

Switch	HR3NBAE1.DCF	HR3NBAE2.DCF	HR3NBAE3.DCF	HR3NBAE4.DCF
High Rate Dials	Left=0 Right=0	Left=2 Right=9	Left=3 Right=9	Left=4 Right=4

Switch	HR3NAE1.DCF	HR3NAE2.DCF	HR3NAE3.DCF	HR3NAE4.DCF
High Rate Dials	Left=0 Right=0	Left=5 Right=7	Left=7 Right=7	Left=8 Right=8

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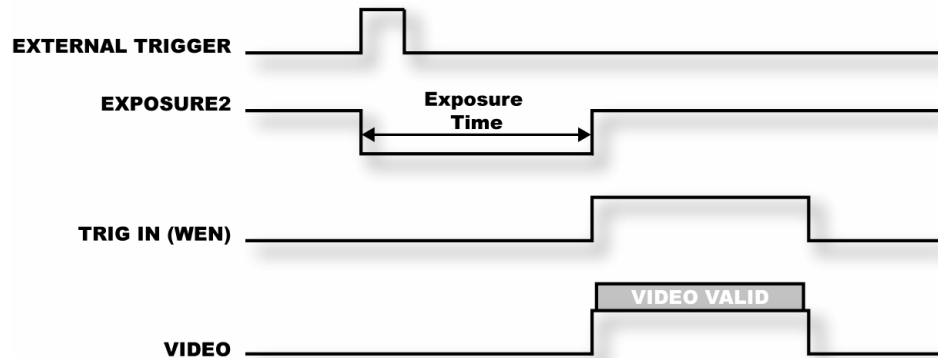
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Specifics about the
interface modes

Camera Interface Details (continued)

- Timing Diagram for Modes 3 and 4 Asynchronous Reset:

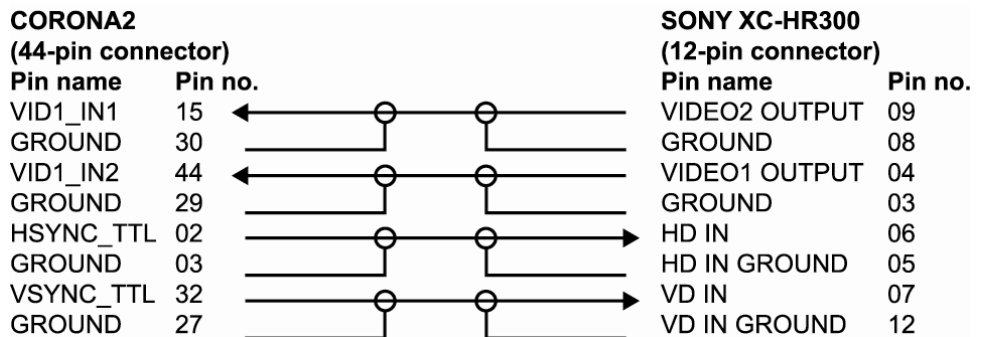


Cabling details for the
interface modes

Cabling Requirements

Mode 1: Continuous – master/dual-channel

- Cable:** DH44-TO-8BNC/O (open ended) cable required for video, synchronization and control signals. BNC-TO-6/12-pin junction box (e.g. JU-F1) required for synchronization and exposure signals.
- Connection:** Connections between the 12-pin connector (via BNC-TO-6/12-pin junction box) of the camera and the 44-pin connector of the Matrox Corona-II are as follows:



- Power:** Connections between the power supply and the 12-pin connector of the camera are as follows:

Power Supply		SONY XC-HR300 (12-pin connector)	
Pin name	Pin no.	Pin name	Pin no.
+12 VDC	--	+12 V DC	02
GROUND	--	GROUND	01

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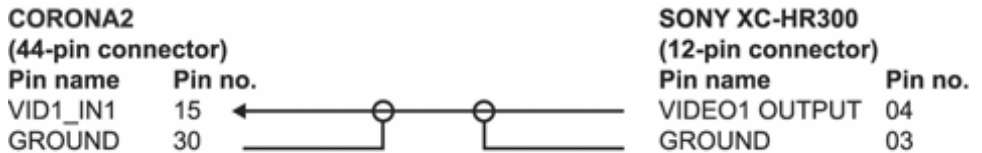
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Cabling details for the
interface modes

Cabling Requirements (Continued)

Mode 2: Continuous – slave/single channel

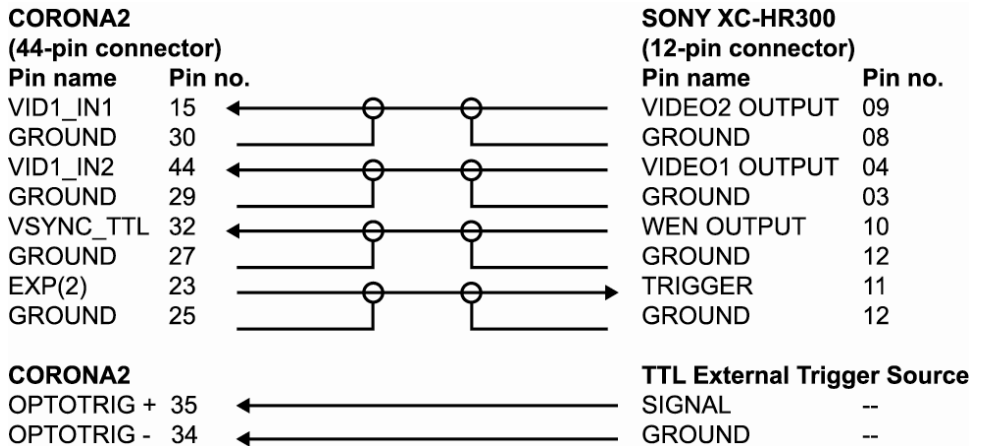
- **Cable:** DH44-TO-8BNC/O (open ended) cable required for video, synchronization and control signals.
- **Connection:** Connections between the 12-pin connector (via BNC-TO-6/12-pin junction box) of the camera and the 44-pin connector of the Matrox Corona-II are as follows:



- **Power:** Connections between the power supply and the 12-pin connector of the camera are as in *Mode 1: Continuous - Interlaced*.

Mode 3: Asynchronous Reset - Dual channel

- **Cable:** DH44-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 Corona-II are as follows:



- **Power:** Connections between the power supply and the 12-pin connector of the camera are as in *Mode 1: Continuous - Interlaced*.

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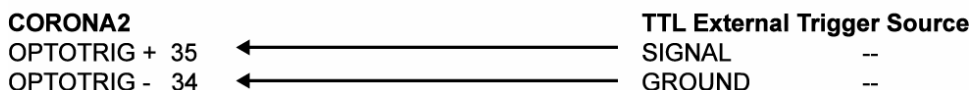
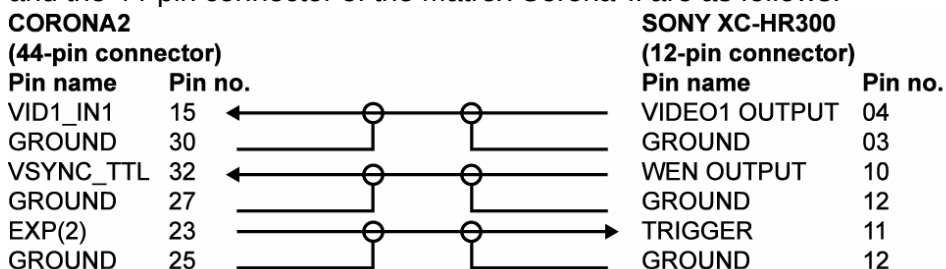
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Cabling details for the
interface modes

Cabling Requirements (Continued)

Mode 4: Asynchronous Reset - Single channel

- **Cable:** DH44-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 Corona-II are as follows:



- **Power:** Connections between the power supply and the 12-pin connector of the camera are as in *Mode 1: Continuous - Interlaced*.

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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