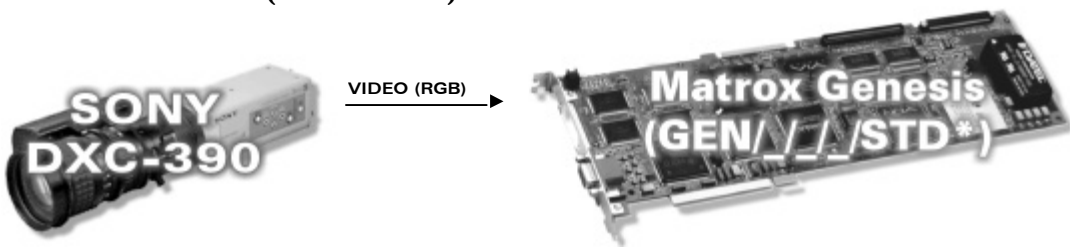
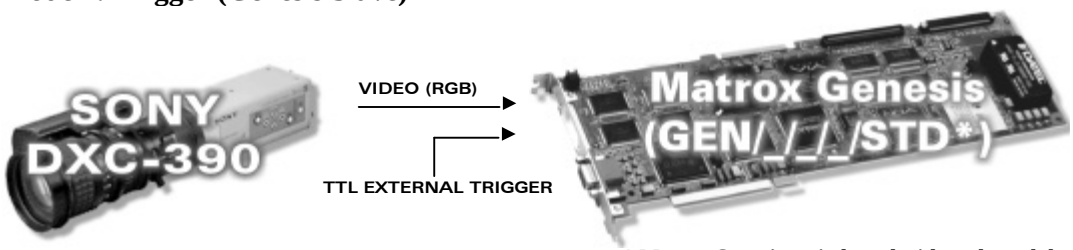
Application Note:
Interfacing non-standard cameras to Matrox Genesis

MATROX GENESIS

SONY DXC-390

June 14, 2000

Camera Descriptions	• 768 × 494 (NTSC) or 752 × 582 (PAL) × 10-bit @ 30 fps. • Three channel (3 CCD) color analog video output. • Interlaced scan. • Composite or separate sync. • Internal or external exposure control. • Pixel clock: 12.2727 MHz
Interface modes	• Continuous, Trigger, Long Exposure/Strobe
Camera Interface Briefs	**Mode 1: Continuous (Genesis Slave)**  *** Matrox Genesis main board with grab module** • 640 × 480 × 8-bit @ 30 fps • Three channel color analog video. • Interlaced scan. • Matrox Genesis receiving video signals from camera. • DCF used: GDXC390C.DCF **Mode 2: Trigger (Genesis Slave)**  *** Matrox Genesis main board with grab module** • 640 × 480 × 8-bit • Three channel color analog video. • Interlaced scan. • Matrox Genesis receiving video signals from camera. • Matrox Genesis receiving TTL external trigger signal to initiate exposure. • DCF used: GDXC390T.DCF

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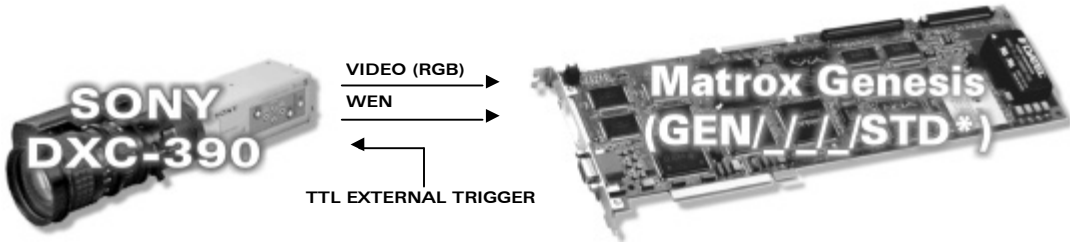
Camera Interface Briefs (continued)	**Mode 3: Long Exposure / Strobe (Genesis Slave)**  *** Matrox Genesis main board with grab module** • 640 × 480 × 8-bit • Three channel analog video. • Interlaced scan. • Matrox Genesis receiving video signals from camera. • Camera receiving TTL external trigger signal. • Matrox Genesis receiving WEN signal to initiate exposure. • DCF used: GDXC390L.DCF
Camera Interface Details	**Mode 1: Continuous (Genesis Slave)** • **Frame rate:** Matrox Genesis receives the continuous video from the camera at 30 fps. • **Exposure time:** Exposure time is inversely proportionate to the frame rate and programmable through RM-C950 Remote Control Unit. • **Camera settings:** Programmable through RM-C950 Remote Control Unit. Refer to the camera manual for additional information. **Mode 2: Trigger (Genesis Slave)** • Matrox Genesis receives the continuous video from the camera. Once it has received the external trigger signal, Matrox Genesis initiates exposure on next valid VSYNC. • **Frame rate:** The frame rate is variable and controlled by the frequency of the external trigger signal. • **Exposure time:** Exposure time is programmable through RM-C950 Remote Control Unit. Refer to the camera manual for additional information. • **Camera settings:** Programmable through RM-C950 Remote Control Unit. Refer to the camera manual for additional information. **Mode 3: Long Exposure / Strobe (Genesis Slave)** • Matrox Genesis receives the continuous video from the camera. Once camera has received the external trigger signal, camera sends exposure signal (WEN) to Matrox Genesis to initiate exposure on next valid VSYNC (Long Exposure) or frame (Strobe). • **Frame rate:** The frame rate is variable and controlled by the frequency of the external trigger signal. • **Exposure time:** Exposure time is programmable through RM-C950 Remote Control Unit. Refer to the camera manual for additional information.

Camera Interface Details (continued)

- **Camera settings:** Programmable through RM-C950 Remote Control Unit. Refer to the camera manual for additional information. Settings for Strobe or Long Exposure mode should be as follows:

Long Exposure	
Parameter	***Value***
Scene file	Standard
System/D-sub sync	WEN
System/D-sub/polarity	Negative pulse
Exposure/shutter	Step
Exposure/speed	Adjustable (0.1 to 8 sec)

Strobe	
Parameter	***Value***
Scene file	Strobe
System/D-sub sync	WEN
System/D-sub/polarity	Positive pulse
Exposure/shutter	Step
Exposure/speed	Adjustable (up to shutter off)

Cabling Requirements

Mode 1: Continuous (Genesis Slave)

- IMG-7W2-TO-5BNC cable required for synchronization and video output of camera.
- Connections between Matrox Genesis and the 9-pin connector of the camera are as follows:

Matrox Genesis (7W2 connector)			**SONY DXC-390 (9-pin connector)**	
Pin name	***Pin no.***		***Pin name***	***Pin no.***
ANALOG VIDEO INPUT 1 (RED BNC)	A1	←	RED	03
ANALOG VIDEO INPUT 2 (GRN BNC)	A2	←	GREEN	04
ANALOG VIDEO INPUT 3 (BLUE BNC)	5	←	BLUE	05

Mode 2: Trigger (Genesis Slave)

- IMG-7W2-TO-5BNC cable required for synchronization and video output of camera.
- TTL external trigger source should be connected to the TTL trigger input of the IMG-7W2-TO-5BNC cable.
- Connections between Matrox Genesis and the 9-pin connector of the camera are as in *Mode 1: Continuous.*
- Connection between Matrox Genesis and the external trigger source are as follows:

Matrox Genesis (7W2 connector)			**EXTERNAL TRIGGER**
Pin name	***Pin no.***		
TTL TRIGGER INPUT (GRAY BNC)	1, 3	←	TTL EXTERNAL TRIGGER

Cabling Requirements (continued)

Mode 3: Long Exposure / Strobe (Genesis Slave)

- IMG-7W2-TO-5BNC cable required for synchronization and video output of camera.
- TTL external trigger source connected to the TRIG IN BNC connector of the camera.
- Connections between Matrox Genesis and the 9-pin connector of the camera are as in *Mode 1: Continuous* except for following additional connection:

Matrox Genesis (7W2 connector)			**SONY DXC-390 (9-pin connector)**	
Pin name	***Pin no.***		***Pin name***	***Pin no.***
TTL TRIGGER INPUT (GRAY BNC)	1, 3	←	SYNC/WEN/HD	07

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