

Matrox Solios eA/XA

Camera Interface Application Note

PULNiX TM-9701

August 1, 2006

Basics about the
camera

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

Basics about the
interface modes

Camera Descriptions

- Effective resolution: $768 \times 484 \times 8\text{-bit}$ @ 30 fps.
- Single channel analog or RS-422 digital video output.
- Interlaced or progressive scan.
- External or internal sync.
- External or internal exposure control.
- 14.31818 MHz pixel clock rate.

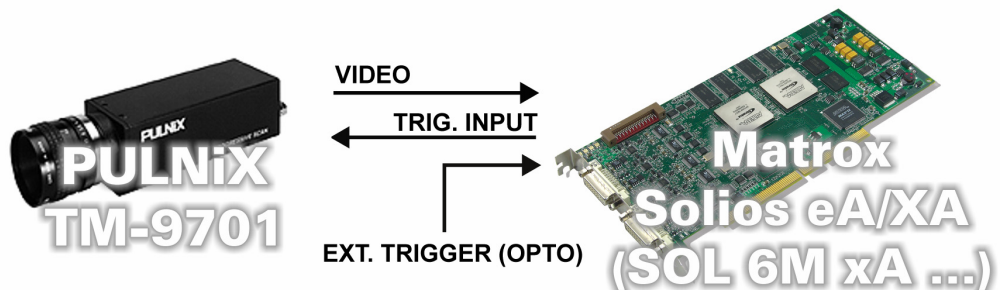
Interface Modes

- Continuous
- Asynchronous reset (External VINIT with double pulse)

Camera Interface Briefs

Mode 1: Continuous

- $756 \times 484 \times 8\text{-bit}$ @ 30 fps.
- Single channel analog video.
- Interlaced or progressive scan.
- Matrox Solios eA/XA receiving video from camera.
- DCF used: [TM9701_756x484ProgConOdyA.DCF](#) (Progressive scan)
- DCF used: [TM9701_756x484IntConOdyA.DCF](#) (Interlaced)



Mode 2: Asynchronous Reset

- $757 \times 485 \times 8\text{-bit}$.
- Single channel analog video.
- Progressive scan.
- Matrox Solios eA/XA receiving external trigger signal.
- Matrox Solios eA/XA sending EXPOSURE1 (VINIT) signal to camera to initiate and control the exposure.
- Matrox Solios eA/XA receiving video from camera.
- DCF used: [TM9701_757x485ProgAsyncOdyA.DCF](#)

Continued...

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Basics about the
interface modes

Specifics about the
interface modes

Camera Interface Briefs (continued)

Mode 2: Asynchronous Reset

Camera Interface Details

Mode 1: Continuous

- **Frame Rate:** Matrox Solios eA/XA receives the continuous video from the camera at 30 frames per second.
- **Exposure time:** Exposure time is inversely proportionate to the frame rate.
- **Camera switch settings:** Refer to the camera manual for more information. External settings are as follows:

Switch	Settings	
	... IntConOdyA.DCF	... ProgConOdyA.DCF
Shutter Speed	0	0
NRM/ASY	NRM	NRM
INT/NON	INT	NON

Mode 2: Asynchronous Reset

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal.
- **Exposure time:** The time between two pulses of the EXPOSURE1 (VINIT) signal is the exposure time, which can be changed in the DCF by modifying Timer2 in Matrox Intellicam or with the MIL MdigControl() function. Consult the respective manual for more information.
- **Camera switch settings:** Refer to the camera manual for more information. External settings are as follows:

Switch	Settings
	PulnixTM9701_757x485Async.DCF
Shutter Speed	9
NRM/ASY	ASY
INT/NON	NON

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Cabling details for the
interface modes

Cabling Requirements

Mode 1: Continuous

- **Cable and Connection:** DVI-TO-8BNC/O (open end) cable required for video signal. The connection between the 12-pin connector of the camera and the Matrox Solios eA/XA are as follow:

Matrox Solios eA/XA (DVI connector-0)

PULNiX TM-9701 (12-pin connector)

Pin name	Pin no.		Pin name	Pin no.
CH0_INPUTA	C1	←	VIDEO	04

Mode 2: Asynchronous reset

- **Cable and Connection:** DVI-TO-8BNC/O (open end) cable required for video signal. The connection between the 12-pin connector of the camera and the Matrox Solios eA/XA are as follow:

Matrox Solios eA/XA (DVI connector-0)

PULNiX TM-9701 (12-pin connector)

Pin name	Pin no.		Pin name	Pin no.
CH0_INPUTA	C1	←	VIDEO	04
CH0_EXPOSURE	23	→	VINIT	06

- **External trigger:** External trigger should be connected to the OPTO TRIG input of the 9-pin connector (pins 7 and 2) on the external trigger input connector 1 (cable adapter board).

External trigger input (9-pin connector)

External Trigger Source

OPTOTRIG +	07	←	SIGNAL	--
OPTOTRIG -	02	←	GROUND	--

The DCF(s) mentioned in this application note can be found on our FTP site ([ftp.matrox.com/pub/imaging/](ftp://ftp.matrox.com/pub/imaging/)). 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. © Matrox Electronic Systems Ltd., 2006-2011.

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