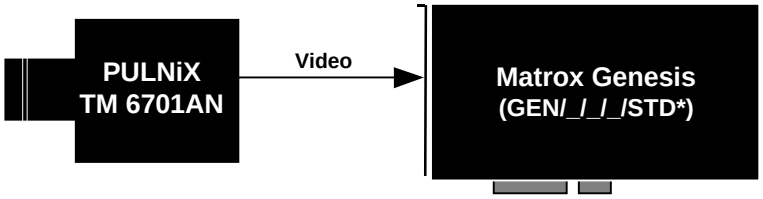
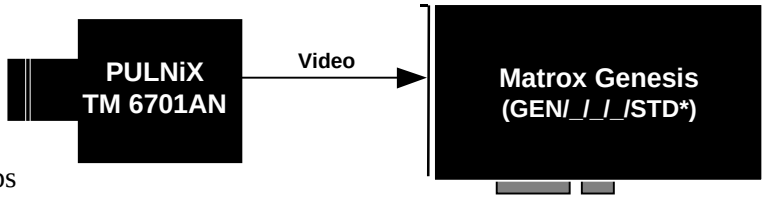
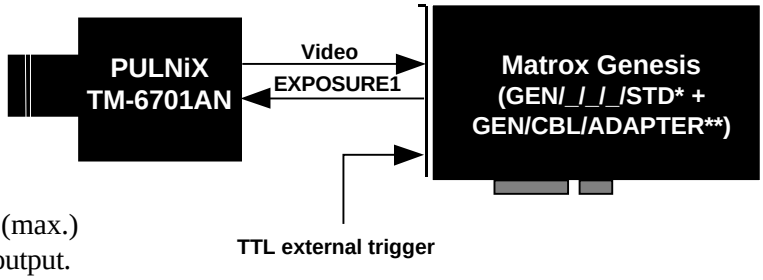
Application Note:
Interfacing non-standard cameras to Matrox Genesis

MATROX GENESIS

PULNiX TM-6701AN **February 4, 1998**

Camera Descriptions	• 640 x 480 x 8-bit @ 60fps or 640 x 240 x 8-bit @ 120fps • Analog video output. • Non-interlaced. • Internal sync (camera master). • 25.49 MHz pixel clock rate. • External exposure control.
Interface mode	• Continuous (60, 120 Hz), Asynchronous reset (60, 120 Hz) modes
Camera Interface Briefs	**Mode 1 : Continuous Mode (60 Hz)**  • 640 x 480 x 8-bit @ 60fps • Analog (composite) video output. • Continuous video. • Double-speed progressive scan. • DCF used : T6701N1.DCF *Matrox Genesis Main Board with Grab Module **Mode 2 : Continuous Mode (120 Hz)**  • 640 x 240 x 8-bit @ 120fps • Analog (composite) video output. • Continuous video. • Two-row progressive scan. • DCF used : T6701N2.DCF *Matrox Genesis Main Board with Grab Module **Mode 3 : Asynchronous Reset Mode (60 Hz)**  • 640 x 480 x 8-bit @ 60fps (max.) • Analog (composite) video output. • Double-speed progressive scan. • Matrox Genesis receiving TTL external trigger. • Matrox Genesis sending EXPOSURE1 (VINIT) signal to camera to initiate exposure and control exposure time. • DCF used : T6701N1E.DCF *Matrox Genesis Main Board with Grab Module ** Matrox Digital Cable Adapter Board

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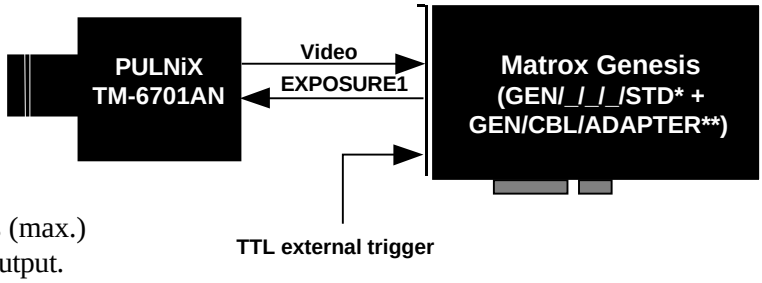
Camera Interface Briefs (continued)

Mode 4 : Asynchronous Reset Mode (120 Hz)

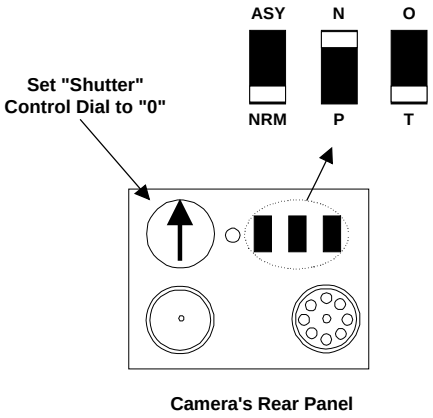


- 640 x 240 x 8-bit @ 120fps (max.)
- Analog (composite) video output.
- Two-row progressive scan.
- Matrox Genesis receiving TTL external trigger.
- Matrox Genesis sending EXPOSURE1 (VINIT) signal to camera to initiate exposure and control exposure time.
- DCF used : T6701N2E.DCF

***Matrox Genesis Main Board with Grab Module**
**** Matrox Digital Cable Adapter Board**

Camera Interface Details

Mode 1 and 2 : Continuous Mode (60 and 120 Hz)



- The three switches on the rear of the camera must be set to NRM, N, and O for 60 Hz operation, and NRM, N, and T for 120 Hz operation.
- The shutter control switch on the rear of the camera must be set to position ‘0’.

Mode 3 and 4 : Asynchronous Reset Mode (60 and 120 Hz)

- The three switches on the rear of the camera must be set respectively to ASY (asynchronous shutter mode), N and O for 60 Hz operation, and ASY, N, and T for 120 Hz operation; the shutter control switch on the rear of the camera must be set to position 9.
- The camera is reset upon the falling edge of the EXPOSURE1 (VINIT IN) pulse. The exposure period is for the inactive (low) period of EXPOSURE1 (VINIT IN). The default exposure time in this DCF is 6.4 ms.

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Cabling Requirements

Mode 1 and 2 : Continuous Mode (60 and 120 Hz)

- IMG-7W2-TO-1BNC cable required for video input of camera (single input).
- Video input of IMG-7W2-TO-1BNC cable should be connected to video out BNC connector of camera.

Mode 3 and 4 : Asynchronous Reset Mode (60 and 120 Hz)

- IMG-7W2-TO-5NC and GEN/CBL/ADAPTER cable required for video input of camera and TTL external trigger source.
- TTL external trigger source should be connected to the TTL external trigger input of the IMG-7W2-TO-5BNC cable.
- Video input of IMG-7W2-TO-5BNC cable should be connected to video out BNC connector of camera.
- The connections between the 68-pin connector of the GEN/CBL/ADAPTER, the 12-pin connector of the camera and the power supply are as follows:

GEN/CBL/ADAPTER (68-pin connector)			**PULNiX TM-6701AN (12-pin connector)**		**POWER SUPPLY**
Pin name	**Pin no.**		**Pin name**	**Pin no.**	
EXPOSURE1	24	→	VINIT in	6	
GROUND	68		GND	1, 3, 5, or 8	GND
			12V DC in	2	+12V

If required, contact your local sales representative or Matrox Sales Office, or contact Matrox Imaging Applications at 514-822-6061 for assistance.

The DCF(s) mentioned in this application note can be found on the MIL and Native Library CD, or our FTP site (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 Matrox for more information, if necessary.*

Corporate Headquarters: Canada and U.S.A.
Matrox Electronic Systems Ltd.
1055 St.Regis Blvd.
Dorval, Quebec, Canada
H9P 2T4
Tel: (514) 685-7230
Fax: (514) 822-6273

matrox IMAGING PRODUCTS GROUP