

Application Note:

Interfacing non-standard cameras to Matrox Meteor-II



PULNiX TM-6703

September 27, 1999

Camera Descriptions	• 648 x 484 x 8-bit @ up to 220fps. • Single channel analog video output. • Progressive scan. • External or internal exposure control. • Internal or external sync. • 25.49 / 12.745 MHz pixel clock rate.
Interface modes	• Continuous, Asynchronous reset (External pulse width control)
Camera Interface Briefs	Mode 1 : Continuous VIDEO → *Matrox Meteor-II/Multi-Channel Board • 640 x 480 x 8-bit @ up to 220fps. • Single channel analog video. • Progressive scan. • Matrox Meteor-II receiving continuous video signals from camera. • DCF used: 6703C60.DCF (640 x 484 @ 60fps) • DCF used: 6703C120.DCF (640 x 242 @ 120fps) • DCF used: 6703C125.DCF (640 x 200 @ 130fps) • DCF used: 6703C220.DCF (640 x 100 @ 220fps) Mode 2 : Asynchronous Reset (External pulse width control) VIDEO → ← VINIT TTL EXTERNAL TRIGGER *Matrox Meteor-II/Multi-Channel Board • 640 x 480 x 8-bit. • Single channel analog video. • Progressive scan. • Matrox Meteor-II receiving TTL external trigger. • Matrox Meteor-II sending EXPOSURE1 (VINIT) signal to camera to initiate exposure and control exposure time. • Matrox Meteor-II receiving video signals from camera. • DCF used: 6703A60.DCF (640 x 484) • DCF used: 6703A120.DCF (640 x 242) • DCF used: 6703A125.DCF (640 x 200) • DCF used: 6703A220.DCF (640 x 100)

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Camera Interface Details

Mode 1 : Continuous

- **Frame rate:** Matrox Meteor-II receives the continuous video from the camera at a frame rate equal to 60 frames per second.
- **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:** Switches for this mode should be set as follows:

Mode 1: Continuous

Modes	Normal	Double scan	200 line scan	100 line scan
Hz / Frame rate	60 / 60fps	120 / 120fps	125 / 130fps	220 / 220fps

Switches	Settings	Settings	Settings	Settings
Shutter (Speed)	As desired	As desired	As desired	As desired
ASY / MAN	MAN	MAN	MAN	MAN
N / P	N	N	P	P
O / T	O	T	T	O

Mode 2 : Asynchronous Reset (External pulse width control)

- Once it has received the external trigger signal, Matrox Meteor-II sends the EXPOSURE1 (VINIT) signal to the camera with a width equal to the desired exposure time (following a **delay of 286.2 ms (9H)** from the leading edge of the EXPOSURE2 (VINIT) signal).
- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal.
- **Exposure time:** The active and inactive periods of the EXPOSURE1 (VINIT) signal is the exposure time. The default exposure time is listed below for each dcf. In order to change the width and deployment time of EXPOSURE1 (VINIT) use the Exposure Settings menu tab in Matrox Intellicam. Consult the Matrox Intellicam User Guide for more information.
- **Minimum / maximum exposure width:** minimum EXPOSURE1 (VINIT) pulse width is equal to **63.6ms (2H)**, while the maximum is equal to **15.9ms (500H)**.
- **Camera switch settings:** Switches for this mode should be set as follows:

Mode 2: Asynchronous reset (External pulse width control)

Modes	Normal	Double scan	200 line scan	100 line scan
Hz	60	120	125	220
Default exposure time	15.77 ms	3.28 ms	6.53 ms	2.67 ms

Switches	Settings	Settings	Settings	Settings
Shutter (Speed)	9	9	9	9
ASY / MAN	ASY	ASY	ASY	ASY
N / P	N	N	P	P
O / T	O	T	T	O

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Cabling Requirements	Modes 1 : Continuous			
	- DBHD44-TO-8BNC/O (open ended) cable required for video output of camera. - The following connection should be made between the 12-pin connector of the camera and Matrox Meteor-II are as follows:			
	METEOR2-MC/_ (44-pin connector)		PULNiX TM-6703 (12-pin connector)	
	Pin name	Pin no.	Pin name	Pin no.
	VID_IN1	15	← VIDEO OUT	04
Modes 2 : Asynchronous Reset (External pulse width control)				
- DBHD44-TO-8BNC/O (open ended) cable required for TTL external trigger and video output of camera. - TTL external trigger source should be connected to DBHD44-TO-8BNC/O cable. - The following connections should be made between the 12-pin connector of the camera and Matrox Meteor-II are as follows:				
	METEOR2-MC/_ (44-pin connector)		PULNiX TM-6703 (12-pin connector)	
	Pin name	Pin no.	Pin name	Pin no.
	VID_IN1	15	← VIDEO OUT	04
	EXP(1)	38	→ VINIT	06
	METEOR2-MC/_ (44-pin connector)		External Trigger Source	
	Pin name	Pin no.		
	OPTO_TRIG	34, 35	←	

The DCF(s) mentioned in this application note can be found on the MIL and MIL-Lite CD, or our FTP site ([ftp.matrox.com](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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