

MATROX METEOR-II/MULTI-CHANNEL CAMERA INTERFACE APPLICATION NOTE PULNiX TMC-1000

OCTOBER 23, 2001

Basics about the
camera

Camera Descriptions

- $1006 \times 1016 \times 24$ -bit @ up to 15 fps.
- RGB analog or LVDS digital video output.
- Progressive scan.
- Internal or external sync. (camera master).
- Internal or external exposure control.
- 20.034 MHz pixel clock rate.

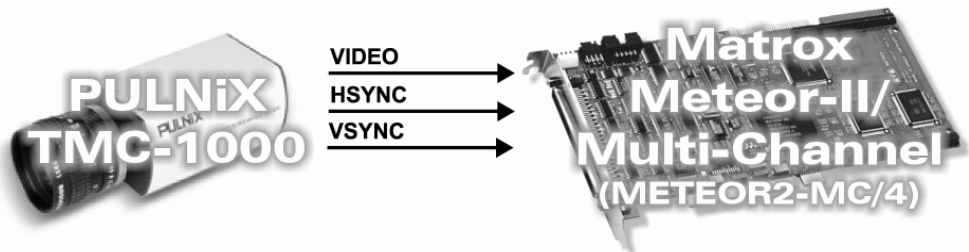
Interface Modes

- Continuous
- Asynchronous reset (Pulse Width Control mode)

Camera Interface Briefs

Mode 1: Continuous

- $1006 \times 1016 \times 24$ -bit @ up to 15 fps.
- RGB analog video.
- Progressive scan.
- Matrox Meteor-II/Multi-Channel receiving HSYNC (HD SYNC), VSYNC (VD SYNC) and video signals from camera.
- DCF used: [MTMC100CX.DCF](#)*
(*requires 4 MB version of Matrox Meteor-II/Multi-Channel)



Mode 2: Asynchronous Reset (Pulse Width Control mode)

- $1006 \times 1016 \times 24$ -bit.
- RGB analog video.
- Progressive Scan.
- Matrox Meteor-II/Multi-Channel receiving external trigger signal.
- Matrox Meteor-II/Multi-Channel sending EXPOSURE2 (VINIT) signal to camera to initiate and control exposure time.
- Matrox Meteor-II/Multi-Channel receiving HSYNC (HD SYNC), VSYNC (VD SYNC) and video signals from camera.

Continued...

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

Basics about the
interface modes

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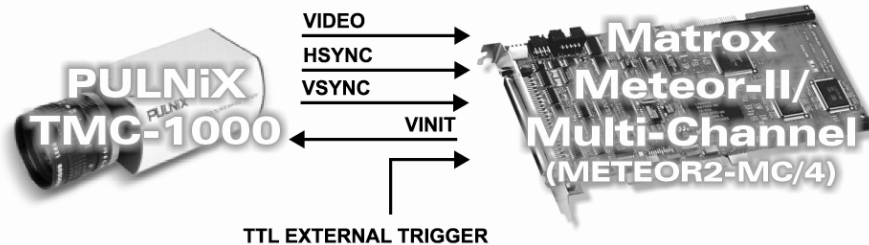
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Basics about the
interface modes

Camera Interface Briefs

- DCF used: [MTMC100A.DCF](#)*
(*requires 4 MB version of Matrox Meteor-II/Multi-Channel)



Specifics about the
interface modes

Camera Interface Details

Modes 1: Continuous

- **Frame Rate:** Matrox Meteor-II/Multi-Channel receives the continuous video (and separate digital HSYNC and VSYNC) from the camera at 15 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:** Refer to the camera manual for additional information. Switches for this mode should be set as follows:

Switch	Setting
Shutter Dial	0
Shutter switch	MAN

Modes 2: Asynchronous Reset

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal, with a maximum possible rate of up to 15 fps.
- **Exposure time:** The low level pulse period of the EXPOSURE2 (VINIT) signal is the exposure time. The default exposure time is equal to **13 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 **508 ms**.
- **Camera switch settings:** Refer to the camera manual for additional information. Switches for this mode should be set as follows:

Switch	Setting
Shutter Dial	9
Shutter switch	ASY

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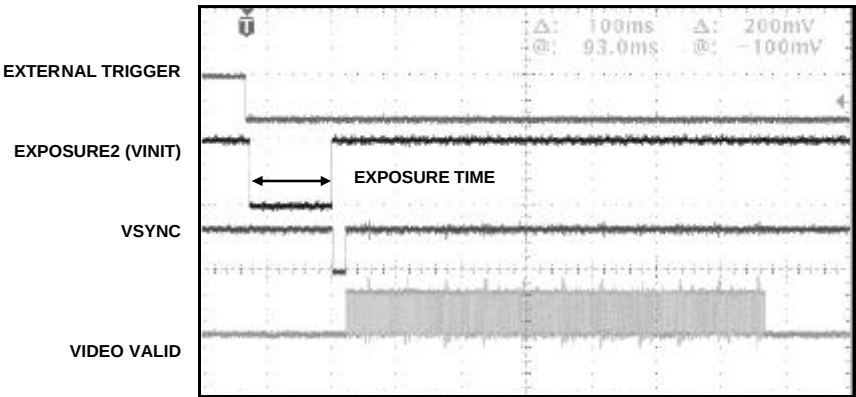
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Specifics about the interface modes

Camera Interface Details (continued)

▪ Timing Diagram:



Cabling details for the interface modes

Cabling Requirements

Mode 1: Continuous

- **Cable:** DH44-TO-8BNC/O (open ended) cable required for video, synchronization and control signals.
- **Connection:** Connections between the 15-pin connector (**SVGA OUTPUT**) of the camera and the 44-pin connector of the Matrox Meteor-II/Multi-Channel are as follows:

METEOR2-MC/4 (44-pin connector)			PULNiX TMC-1000 (15-pin connector)	
Pin name	Pin no.		Pin name	Pin no.
VID1_IN1	15	←	RED	01
GROUND	30		RED GND	06
VID1_IN2	44	←	GREEN	02
GROUND	29		GREEN GND	07
VID1_IN3	13	←	BLUE	03
GROUND	14		BLUE GND	08
HSYNC_TTL	02	→	HSYNC	13
GROUND	03		VD IN GROUND	10
VSYNC_TTL	32	→	VSYNC	14
GROUND	31		VSYNC GND	11

Mode 2: Asynchronous Reset

- **Cable:** DH44-TO-8BNC/O (open ended) cable required for video, synchronization and control signals.
- **External trigger:** TTL external trigger source should be connected to the TTL trigger input (gray BNC) of the DH44-TO-8BNC/O (open ended) cable.

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Cabling details for the
interface modes

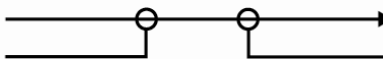
Cabling Requirements (Continued)

Mode 2: Asynchronous Reset

- **Connection:** Connections between the 12-pin connector of the camera and the 44-pin connector of the Matrox Meteor-II/Multi-Channel are as in Mode 1: Continuous along with the following:

METEOR2-MC/4
(44-pin connector)

Pin name	Pin no.
EXPS(2)	23
GROUND	25



PULNiX TMC-1000
(12-pin connector)

Pin name	Pin no.
VINIT	06
GND	05

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.

Corporate headquarters:

Canada and U.S.A.

Matrox Electronic Systems Ltd.
1055 St. Regis Blvd.
Dorval, Quebec H9P 2T4
Canada
Tel: (514) 685-2630
Fax: (514) 822-6273

