

Matrox Meteor-II/Camera Link

Camera Interface Application Note

DUNCAN TECH MS3100-RGB

October 11, 2002

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: $1392^1 \times 1040 \times 8\text{-bit}$ @ 7.5 fps.
- Color (RGB) camera Link BASE interface.
- Progressive scan.
- Internal sync.
- Internal or external exposure control.
- 28.636 MHz pixel clock rate².

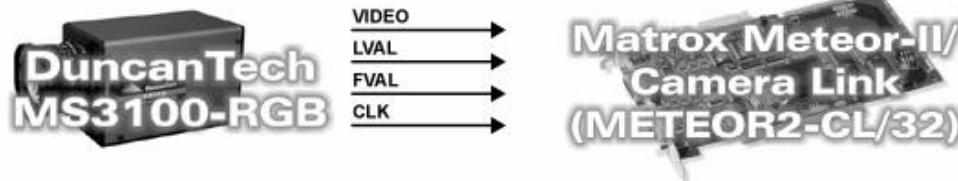
Interface Mode

- Continuous (Free-run)
- Asynchronous reset (External triggered, level or edge controlled)

Camera Interface Briefs

Mode 1: Continuous (Free-run)

- $1392^1 \times 1040 \times 8\text{-bit}$ @ 7.5 fps.
- Color (RGB) camera Link BASE interface.
- Progressive scan.
- Matrox Meteor-II/Camera Link receiving LVAL, FVAL, CLK and video signal from camera.
- DCF used: [MS3100CC.DCF](#)



Mode 2: Asynchronous reset (External triggered, level or edge controlled)

- $1392^1 \times 1040 \times 8\text{-bit}$.
- Color (RGB) camera Link BASE interface.
- Progressive scan.
- Matrox Meteor-II/Camera Link receiving external trigger signal.
- Matrox Meteor-II/Camera Link I sending EXPOSURE2 (CC1) signal to camera to initiate and control exposure time.
- Matrox Meteor-II/Camera Link receiving LVAL, FVAL, CLK and video signal from camera.

Continued...

¹ Due to the double clock rate, resolution must be divided by 2 using subsampling with MdigControl(). DCF resolution = 2785, actual resolution = 1392.

² Camera manufacturer doubled the Pixel Clock Rate from 14.318 to 28.636 to meet Camera Link™ Specifications.

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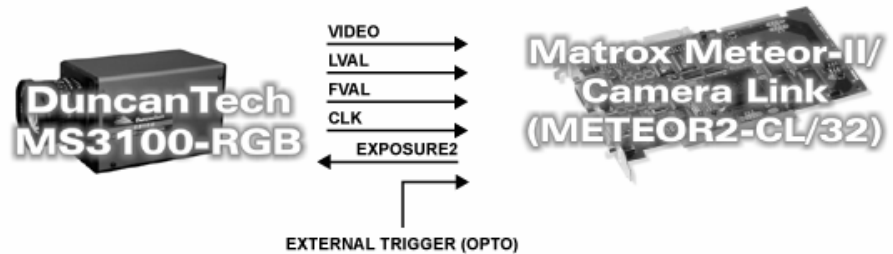
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Basics about the
interface modes

Camera Interface Briefs (cont.)

Mode 2: Asynchronous reset (External triggered, level or edge controlled)

- DCF used: [MS3100LC.DCF](#) (Level controlled)
- DCF used: [MS3100EC.DCF](#) (Edge controlled)



Specifics about the
interface modes

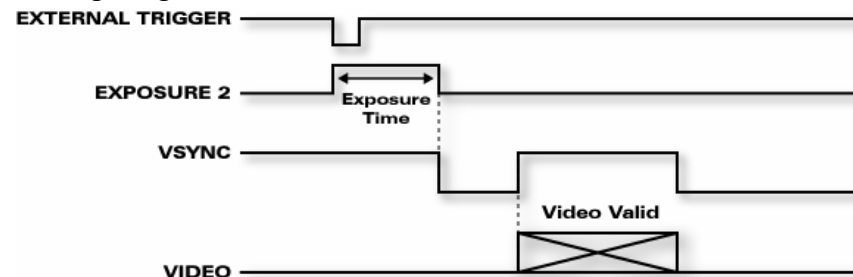
Camera Interface Details

Mode 1: Continuous (Free-run)

- **Frame Rate:** Matrox Meteor-II/Camera Link receives the continuous video from the camera at 7.5 frames per second. This frame rate is dependent of the exposure setting. Refer to the camera manual for additional information.
- **Exposure time:** The exposure time can be modified in the camera software. Refer to the camera manual for more information.
- **MdigInquire:** When using the MIL/MIL-Lite function **MdigInquire()** to inquire on the digitizer input width (M_SIZE_X), users will need to divide the returned value by two to maintain the proper aspect ratio.

Mode 2: Asynchronous reset (External triggered, level controlled)

- **Frame Rate:** The frame rate is determined by the frequency of the external trigger signal and the exposure time period.
- **Exposure time:** The width (rising edge to falling edge) of the EXPOSURE2 (CC1) signal is the exposure time. 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.
- **Timing diagram:**



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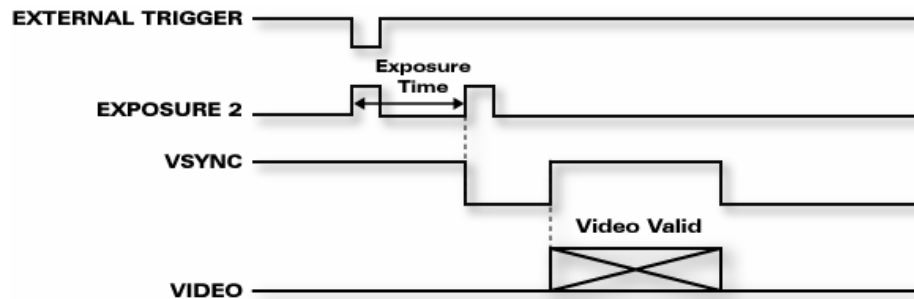
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Specifics about the
interface modes

Camera Interface Details (cont.)

Mode 2: Asynchronous reset (External triggered, edge controlled)

- **Frame Rate:** The frame rate is determined by the frequency of the external trigger signal and the exposure time period.
- **Exposure time:** The width (rising edge to rising edge) of the EXPOSURE2 (CC1) signal is the exposure time. 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.
- **Timing diagram:**



Cabling details
for the interface modes

Cabling Requirements

Mode 1: Continuous (Free-run)

- **Cable and Connection:** Standard Camera Link cable.

Mode 2: Asynchronous reset (External triggered, level or edge controlled)

- **Cable and Connection:** Standard Camera Link.
- **External trigger:** External trigger should be connected to the OPTO TRIG input of the 9-pin connector (pins 7 and 2) on the Expanded I/O adapter bracket.

EXPANDED I/O BRACKET (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://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.

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MET2-CID-122

