

Matrox Meteor-II/Camera Link

Camera Interface Application Note

BASLER A201bc

May 14, 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: $1008 \times 1018 \times 8/10$ -bit @ 30 fps¹.
- Channel Link interface (Single or dual tap).
- Bayer Color Filter.
- Progressive scan.
- Internal sync.
- Internal or external exposure control.
- 42/21 MHz pixel clock rate (single/dual output mode).

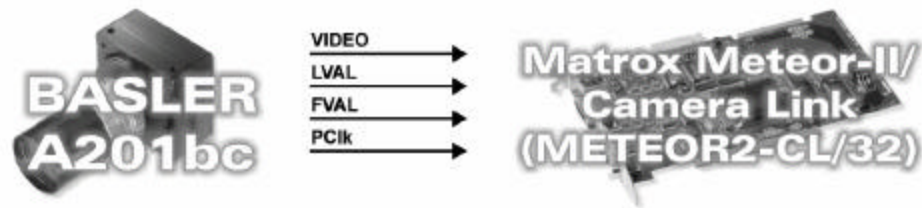
Interface Mode

- Continuous (Free-run)
- Asynchronous reset (Pulse width control)

Camera Interface Briefs

Mode 1: Continuous (Free-run)

- $1008 \times 1017 \times 8$ -bit @ 30 fps.
- Channel Link interface (Dual tap).
- Progressive scan.
- Matrox Meteor-II/Camera Link receiving LVAL, FVAL, PClk and video data from camera.
- DCF used: [A201BCC.DCF](#)



Mode 2: Asynchronous reset (ExSync, Level control)

- $1008 \times 1017 \times 8$ -bit.
- Channel Link interface (Dual tap).
- Progressive scan.
- Matrox Meteor-II/Camera Link receiving external trigger signal.
- Matrox Meteor-II/Camera Link I sending EXPOSURE1 (SyncIn) signal to camera to initiate and control exposure time.
- Matrox Meteor-II/Camera Link receiving LVAL, FVAL, PClk and video data from camera.

Continued...

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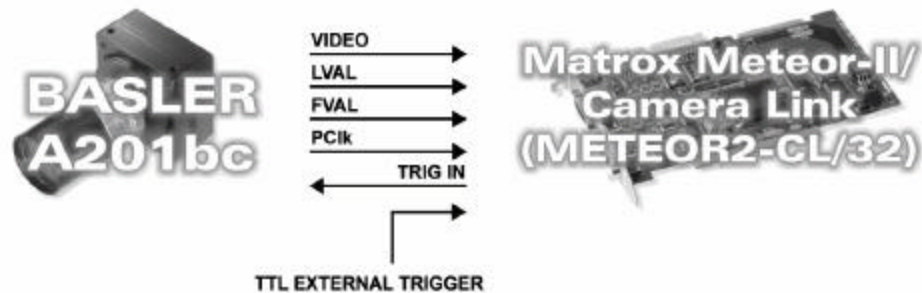
May 14, 2002

*Basics about the
interface modes*

Camera Interface Briefs (cont.)

Mode 2: Asynchronous reset (Pulse width control)

- DCF used: [A201BAR.DCF](#)



*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 30 frames per second. Refer to the camera manual for additional information.
- **Exposure time:** Exposure time is inversely proportionate to the frame rate. Refer to the camera manual for more information.
- **Bayer Color Filter:** User will need to apply the Bayer color filter following image capture to the host. Color information is generated (by this camera) using a Bayer color mosaic filter mounted on the sensor. RGB information can only be obtained through software-based conversion. Following each frame capture it will be necessary to make a call to your MIL/MIL-Lite program in order to reconstruct the proper color image. This will require processing time by the host computer, which may reduce the effective acquisition rate. For more information, contact your local Sales representative or Matrox Imaging Technical Support.
- **Camera commands:** Set the Exposure Time Control mode to **Free Run, Programmable** via the RS232 serial connection. Refer to the camera manual for additional information.

Mode 2: Asynchronous reset (ExSync, Level control)

- **Frame Rate:** The frame rate is determined by the frequency of the external trigger signal and the exposure time period.
- **Exposure time:** The width (falling edge to rising edge) of the EXPOSURE1 (SyncIn) signal and a fixed internal (camera) delay 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.

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*Specifics about the
interface modes*

Camera Interface Details

Mode 2: Asynchronous reset (ExSync, Level control)

- **Bayer Color Filter:** Same as in Mode 1: *Continuous*.
- **Camera commands:** Set the Exposure Time Control mode to **ExSync, Level-controlled** via the RS232 serial connection. Refer to the camera manual for additional information.

Cabling Requirements

Mode 1: Continuous (Free-run)

- **Cable and Connection:** BASLER Channel Link - Camera Link cable.

Mode 2: Asynchronous reset (ExSync, Level control)

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

EXPANDED I/O BRACKET

(9-pin connector)

External Trigger Source

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

*Cabling details for the
interface modes*

¹ Maximum frame rate equals 30 Hz not including Bayer Color Filter processing time.

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.

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