

Matrox Meteor-II/Camera Link

Camera Interface Application Note

BASLER L301bc

September 4, 2001

Basics about the camera

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

Basics about the interface modes

Camera Descriptions

- 2098 × 8/10-bit.
- Color (RGB) Camera Link BASE interface.
- Internal or external sync.
- Internal or external exposure control.
- 20 MHz pixel clock rate.

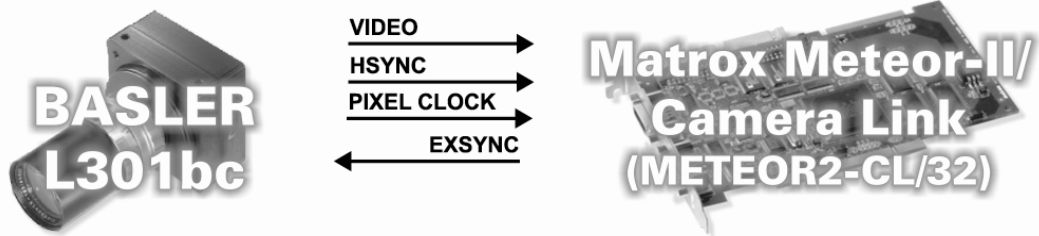
Interface Mode

- Fixed line scan rate (Free-run)
- Variable line scan rate (ExSync, Level controlled)

Camera Interface Briefs

Mode 1: Fixed line scan rate

- 2098 × 8-bit.
- Color (RGB) Camera Link BASE interface.
- DCF configured for 500 lines per virtual frame.
- Line scan rate is fixed and determined by the frequency of the EXPOSURE1 (EXSYNC) signal.
- Matrox Meteor-II/Camera Link sending periodic EXPOSURE1 (EXSYNC) signal to camera.
- Matrox Meteor-II/Camera Link receiving HSYNC, PIXEL CLOCK (@ 20MHz) and video signals from camera.
- DCF used: [L301BCF.DCF](#)



Mode 2: Variable line scan rate

- 2098 × 8-bit.
- Color (RGB) Camera Link BASE interface.
- DCF configured for 500 lines per virtual frame.
- Line scan rate is variable and controlled by external trigger signal.
- Matrox Meteor-II/Camera Link receiving TTL external trigger.
- Matrox Meteor-II/Camera Link sending periodic EXPOSURE1 (EXSYNC) signal to camera.
- Matrox Meteor-II/Camera Link receiving HSYNC, PIXEL CLOCK (@ 20MHz) and video signals from camera.

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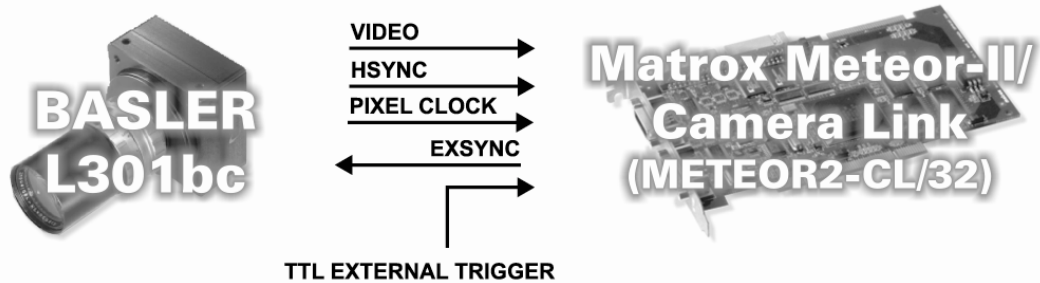
September 4, 2001

Basics about the
interface modes

Camera Interface Briefs (continued)

Mode 2: Variable line scan rate

- DCF used: [L301BCV.DCF](#)



Cabling details for the
interface modes

Cabling Requirements

Mode 1: Fixed line scan rate

- **Line Rate:** The EXPOSURE1 (EXSYNC) period in the DCF specifies the line rate of the camera. The EXPOSURE1 (EXSYNC) period is currently set to **8590** pixels. With a **28.636 MHz** base clock, this translates to a **2 kHz** line rate. Virtual frame rate for this mode (500 lines) equals **4 Hz**.
- **Exposure time:** Exposure time is determined by the time between the falling edge of the Exposure1 (EXSYNC) signal and the next rising edge. The default exposure time for this DCF is **300µs**. The exposure time of the camera can be modified in the DCF using the MIL digitizer control function `MdigControl()`. Refer to the appropriate manual or user guide for additional information. Refer to the camera manual for more information.
- **Camera operation mode:** Should be set to EXSYNC, Level-Controlled using the camera configuration tool or binary commands. Refer to the camera manual for additional information.
- **IMPORTANT Color resorting (spacial correction):** Users will need manually to modify the DCF register INFO LINEDELAY in order to set the number of offset lines between the RGB channels. To calculate the line delay values required for your set up, calibrate the DCF with values equal to zero (default), save the image without color resorting, measure the line delay between the RGB components, and then fill the register field INFO LINEDELAY with the offset value. Contact Matrox Imaging Technical Support for more information.
- **Cable and Connection:** Basler Channel Link to Camera Link cable.

Mode 2: Variable line scan rate

- **Line Rate:** Line (and virtual frame) rate are variable and determined by the frequency of the external trigger signal.
- **Exposure time:** Same as in Mode 1: *Fixed line scan rate*.
- **Camera operation mode:** Same as in Mode 1: *Fixed line scan rate*.

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*Cabling details for the
interface modes*

Cabling Requirements (continued)

Mode 2: Variable line scan rate

- **IMPORTANT Color resorting (spacial correction):** Users will need manually to modify the DCF register INFO_LINEDELAY in order to set the number of offset lines between the RGB channels. To calculate the line delay values required for your set up, calibrate the DCF with values equal to zero (default), save the image without color resorting, measure the line delay between the RGB components, and then fill the register field INFO_LINEDELAY with the offset value. Contact Matrox Imaging Technical Support for more information.
- **Cable and Connection:** Basler Channel Link to Camera Link cable.

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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