

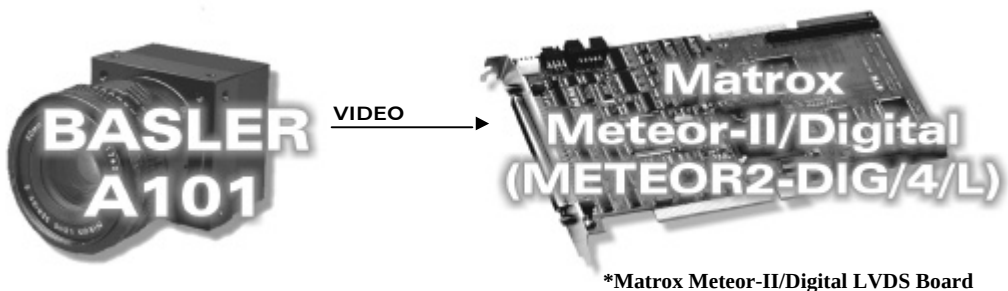
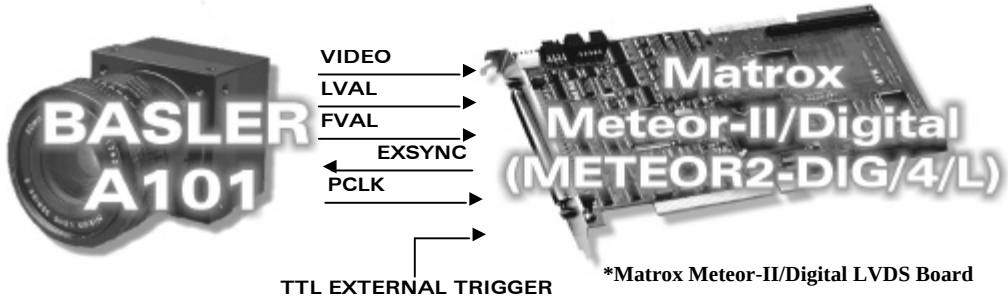
Application Note:

Interfacing non-standard cameras to Matrox Meteor-II



BASLER-MVC A101

September 1, 1999

Camera Descriptions	• 1300 x 1030 x 8-bit @ 12 fps. • Single channel LVDS digital video output. • Progressive scan. • External sync. • Internal exposure control. • Pixel clock: 18 MHz
Interface modes	• Pseudo-continuous, asynchronous reset (binning, non-binning)
Camera Interface Briefs	Mode 1: Pseudo-continuous  *Matrox Meteor-II/Digital LVDS Board • 1300 x 1030 x 8-bit @ 10 fps. • Single channel LVDS digital video. • Progressive scan. • Matrox Meteor-II receiving video signals from camera. • DCF used: A113PC.DCF (non-binning) • DCF used: A113PBC.DCF (binning) Mode 2: Asynchronous Reset  *Matrox Meteor-II/Digital LVDS Board • 1300 x 1030 x 8-bit. • Single channel LVDS digital video. • Progressive scan. • Matrox Meteor-II receiving external trigger. • Matrox Meteor-II sending EXPOSURE1 (EXSYNC) signal to camera. • Matrox Meteor-II receiving HSYNC (LVAL), VSYNC (FVAL), PIXEL CLOCK (PCLK), and video signals from camera. • DCF used: A113PAR.DCF (non-binning) • DCF used: A113PBAR.DCF (binning)

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Camera Interface Details	Mode 1: Pseudo-continuous • Frame rate: Matrox Meteor-II receives the pseudo-continuous video from the camera at a frame rate equal to 10 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. Mode 2: Asynchronous Reset (Pulse Width Control Mode) • Once it has received the external trigger signal, Matrox Meteor-II sends the EXPOSURE1 (EXSYNC) signal to the camera with a width equal to the desired exposure. • 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 (EXSYNC) signal is the exposure time. The default exposure time for this DCF is equal to 3.82 ms. In order to change the width and deployment time of the EXPOSURE1 (EXSYNC) use the Exposure Settings menu tab in Matrox Intellicam. Consult the Matrox Intellicam User Guide for more information. Modes 1 and 2 • Camera configuration: Camera configuration tool and drivers for this camera are available from the BASLER web site (http://www.baslerweb.com/).																																																												
Cabling Requirements	Mode 1: Pseudo-continuous • DBHD100-TO-OPEN cable required for digital data, synchronization, and control signals. • Connections between the 44-pin connector of the camera of the camera and the 100-pin connector of the Matrox Meteor-II/Digital are as follows: <table><tr><th colspan="2">METEOR2-DIG/4/L (100-pin connector)</th><th></th><th colspan="2">BASLER A101 (44-pin connector)</th></tr><tr><th><i>Pin name</i></th><th><i>Pin no.</i></th><th></th><th><i>Pin name</i></th><th><i>Pin no.</i></th></tr><tr><td>DATA, INPUT, 0+</td><td>01</td><td>←</td><td>DOUT0+</td><td>01</td></tr><tr><td>DATA, INPUT, 0-</td><td>02</td><td>←</td><td>DOUT0-</td><td>16</td></tr><tr><td>DATA, INPUT, 1+</td><td>03</td><td>←</td><td>DOUT1+</td><td>02</td></tr><tr><td>DATA, INPUT, 1-</td><td>04</td><td>←</td><td>DOUT1-</td><td>17</td></tr><tr><td>DATA, INPUT, 2+</td><td>05</td><td>←</td><td>DOUT2+</td><td>03</td></tr><tr><td>DATA, INPUT, 2-</td><td>06</td><td>←</td><td>DOUT2-</td><td>18</td></tr><tr><td>DATA, INPUT, 3+</td><td>07</td><td>←</td><td>DOUT3+</td><td>04</td></tr><tr><td>DATA, INPUT, 3-</td><td>08</td><td>←</td><td>DOUT3-</td><td>19</td></tr><tr><td>DATA, INPUT, 4+</td><td>09</td><td>←</td><td>DOUT4+</td><td>05</td></tr><tr><td>DATA, INPUT, 4-</td><td>10</td><td>←</td><td>DOUT4-</td><td>20</td></tr></table> continued	METEOR2-DIG/4/L (100-pin connector)			BASLER A101 (44-pin connector)		<i>Pin name</i>	<i>Pin no.</i>		<i>Pin name</i>	<i>Pin no.</i>	DATA, INPUT, 0+	01	←	DOUT0+	01	DATA, INPUT, 0-	02	←	DOUT0-	16	DATA, INPUT, 1+	03	←	DOUT1+	02	DATA, INPUT, 1-	04	←	DOUT1-	17	DATA, INPUT, 2+	05	←	DOUT2+	03	DATA, INPUT, 2-	06	←	DOUT2-	18	DATA, INPUT, 3+	07	←	DOUT3+	04	DATA, INPUT, 3-	08	←	DOUT3-	19	DATA, INPUT, 4+	09	←	DOUT4+	05	DATA, INPUT, 4-	10	←	DOUT4-	20
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Cabling Requirements (continued)	METEOR2-DIG/4/L (100-pin connector)		BASLER A101 (44-pin connector)	
	<i>Pin name</i>	<i>Pin no.</i>	<i>Pin name</i>	<i>Pin no.</i>
	DATA, INPUT, 5+	11	←	DOUT5+ 06
	DATA, INPUT, 5-	12	←	DOUT5- 21
	DATA, INPUT, 6+	13	←	DOUT6+ 07
	DATA, INPUT, 6-	14	←	DOUT6- 22
	DATA, INPUT, 7+	15	←	DOUT7+ 08
	DATA, INPUT, 7-	16	←	DOUT7- 23
	DATA, INPUT, 8+	17	←	DOUT8+ 09
	DATA, INPUT, 8-	18	←	DOUT8- 24
	DATA, INPUT, 9+	19	←	DOUT9+ 10
	DATA, INPUT, 9-	20	←	DOUT9- 25
	DATA, INPUT, 10+	21	←	DOUT10+ 11
	DATA, INPUT, 10-	22	←	DOUT10- 26
	DATA, INPUT, 11+	23	←	DOUT11+ 12
	DATA, INPUT, 11-	24	←	DOUT11- 27
	DATA, INPUT, 12+	25	←	DOUT12+ 13
	DATA, INPUT, 12-	26	←	DOUT12- 28
	DATA, INPUT, 13+	27	←	DOUT13+ 14
	DATA, INPUT, 13-	28	←	DOUT13- 29
	DATA, INPUT, 14+	29	←	DOUT14+ 15
	DATA, INPUT, 14-	30	←	DOUT14- 30
	DATA, INPUT, 15+	31	←	DOUT15+ 31
	DATA, INPUT, 15-	32	←	DOUT15- 32
	HSYNC, INPUT, +	33	←	LVAL+ 33
	HSYNC, INPUT, -	34	←	LVAL- 34
	VSYNC, INPUT, +	35	←	FVAL+ 39
	VSYNC, INPUT, -	36	←	FVAL- 40
	GROUND	37		GND 43
	GROUND	38		GND 44
	CLOCK, INPUT, +	39	←	PCLK+ 35
	CLOCK, INPUT, -	40	←	PCLK- 36
	EXPOSURE1, OUTPUT, +	95*	→	EXSYNC+ 37*
	EXPOSURE1, OUTPUT, -	96*	→	EXSYNC- 38*

* These connections are not required for this mode, however allows this cable to be used with all modes.

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Cabling Requirements (continued)

Mode 2: Asynchronous Reset

- DBHD100-TO-OPEN required for digital data, synchronization, and control signals.
- TTL external trigger source should be connected to Pin 2 and 7 (OPTO TRIG) on the Trigger Input connector (9-pin female connector on the RS-232/Trigger Input bracket).
- All other connections are as in Mode 1: *Pseudo-continuous*

Modes 1-2

- Connections between the 2-pin subminiature round connector on the rear panel of the camera and the power supply are as follows:

Power Supply

BASLER A101 (2-pin connector)

<i>Pin name</i>	<i>Pin no.</i>	<i>Pin name</i>	<i>Pin no.</i>
+24V	03	GND	01
+24V	04	GND	02

- Connections between the DB-9 connector on the rear panel of the camera and the system (RS-232 interface) are as follows:

Pin	Signal
2	RxD
3	TxD
5	GND
1, 4, 6, 7, 8, 9	NOT CONNECTED

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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