

Application Note:

Interfacing non-standard cameras to Matrox Meteor-II



ADIMEC MX12P

April 30, 1999

Camera Descriptions	• 1024 × 1024 × 12-bit @ up to 30fps. • Single channel LVDS digital video. • Progressive scan. • Exposure control. • Pixel clock rate: 40 MHz.
Interface modes	• Continuous, Control mode
Camera Interface Briefs	Mode 1: Continuous • 1024 × 1024 × 12-bit @ 30fps. • Single channel LVDS digital video. • Progressive scan. • Continuous video. • Matrox Meteor-II receiving HSYNC (LEN), VSYNC (FEN), PIXEL CLOCK (CLK), and video signals from camera. • DCF used: MX12PCM.DCF Mode 2: Control mode • 1024 × 1024 × 12-bit. • Single channel LVDS digital video. • Progressive scan. • Matrox Meteor-II receiving TTL external trigger. • Matrox Meteor-II sending EXPOSURE 1 (EXPOSURE) signals to camera. • Matrox Meteor-II receiving HSYNC (LEN), VSYNC (FEN), PIXEL CLOCK (CLK), and video signals from camera. • DCF used: MX12PCNM.DCF

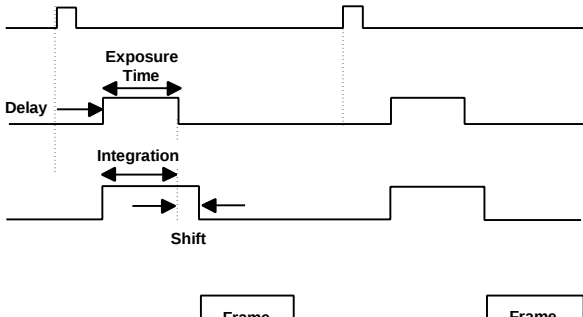
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Camera Interface Details	Mode 1: Continuous • Frame rate: The frame rate is determined by the camera configuration software. The maximum possible frame rate is 30 frames per second. • Exposure time: Exposure time is inversely proportionate to the frame rate. Mode 2: Control mode • Once it has received the external trigger signal, following a delay, Matrox Meteor-II sends the EXPOSURE1 (EXPOSURE) signal to the camera, followed by the camera sending the VSYNC (FEN) and HSYNC (LEN) signals to the Matrox Meteor-II to initiate frame and line readout. • Frame rate: The frame rate is determined by the frequency of the external trigger signal. • Exposure time: The active period of EXPOSURE1 (EXPOSURE) signals is the exposure time. In order to change the width and deployment time of EXPOSURE1 (EXPOSURE) use the Exposure Settings menu tab in Matrox Intellicam. Consult the Matrox Intellicam User Guide for more information. • Minimum Delay width: the minimum delay width (between the rising edge of the external trigger and the rising edge of the EXPOSURE1 (EXPOSURE) signals) is equal to 10 lines. EXTERNAL TRIGGER EXPOSURE1 (EXPOSURE) CAMERA INTERNAL VIDEO 																												
Cabling Requirements	Mode 1: Continuous • DBHD100-TO-OPEN cable required for digital data, synchronization and control signals. • Connections between the 68-pin connector of the camera and the 100-pin connector of the Matrox Meteor-II/Digital are as follows: <table><tr><th colspan="2">ADIMEC MX12P (68-pin connector)</th><th colspan="2">METEOR2-DIG/4/L (100-pin digital interface connector)</th></tr><tr><th>Pin name</th><th>Pin no.</th><th>Pin name</th><th>Pin no.</th></tr><tr><td>D11+</td><td>02</td><td>→ DATA, INPUT, 11+</td><td>23</td></tr><tr><td>D10+</td><td>03</td><td>→ DATA, INPUT, 10+</td><td>21</td></tr><tr><td>D09+</td><td>04</td><td>→ DATA, INPUT, 9+</td><td>19</td></tr><tr><td>D08+</td><td>05</td><td>→ DATA, INPUT, 8+</td><td>17</td></tr><tr><td colspan="2">continued</td><td colspan="2"></td></tr></table>	ADIMEC MX12P (68-pin connector)		METEOR2-DIG/4/L (100-pin digital interface connector)		Pin name	Pin no.	Pin name	Pin no.	D11+	02	→ DATA, INPUT, 11+	23	D10+	03	→ DATA, INPUT, 10+	21	D09+	04	→ DATA, INPUT, 9+	19	D08+	05	→ DATA, INPUT, 8+	17	continued			
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Cabling Requirements	ADIMEC MX12P (68-pin connector)		METEOR2-DIG/4/L (100-pin digital interface connector)	
	Pin name	Pin no.	Pin name	Pin no.
	D07+	06	→ DATA, INPUT, 7+	15
	D06+	07	→ DATA, INPUT, 6+	13
	D05+	08	→ DATA, INPUT, 5+	11
	D04+	09	→ DATA, INPUT, 4+	09
	D03+	10	→ DATA, INPUT, 3+	07
	D02+	11	→ DATA, INPUT, 2+	05
	D01+	13	→ DATA, INPUT, 1+	03
	D00+	14	→ DATA, INPUT, 0+	01
	FEN+	25	→ VSYNC, INPUT, +	35
	LEN+	26	→ HSYNC, INPUT, +	33
	CLK+	29	→ CLOCK, INPUT, +	39
	TRG+	30	← EXPOSURE1, OUTPUT, +	95
	GND	34	→ GROUND	37
	D11-	36	→ DATA, INPUT, 11-	24
	D10-	37	→ DATA, INPUT, 10-	22
	D09-	38	→ DATA, INPUT, 9-	20
	D08-	39	→ DATA, INPUT, 8-	18
	D07-	40	→ DATA, INPUT, 7-	16
	D06-	41	→ DATA, INPUT, 6-	14
	D05-	42	→ DATA, INPUT, 5-	12
	D04-	43	→ DATA, INPUT, 4-	10
	D03-	44	→ DATA, INPUT, 3-	08
	D02-	45	→ DATA, INPUT, 2-	06
	D01-	47	→ DATA, INPUT, 1-	04
	D00-	48	→ DATA, INPUT, 0-	02
	FEN-	59	→ VSYNC, INPUT, -	36
	LEN-	60	→ HSYNC, INPUT, -	34
	CLK-	63	→ CLOCK, INPUT, -	40
	TRG-	64	← EXPOSURE1, OUTPUT, -	96
	GND	68	→ GROUND	38

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Cabling Requirements (continued)	Mode 2: Control mode • DBHD100-TO-OPEN cable required for digital data, synchronization and control signals. • TTL external trigger source should be connected to Pin 1 (OPTO_TRIG) on the Trigger Input connector (9-pin female connector located on the RS-232/Trigger Input bracket). • All other connections are as in Mode 1: <i>Continuous</i> NOTE contact ADIMEC for information regarding RS-232 to RS-422 converter.
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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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