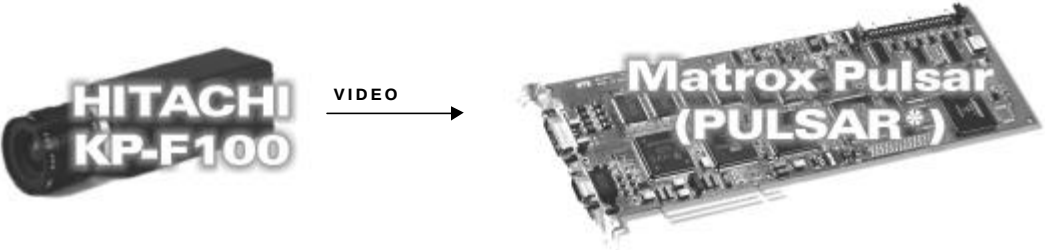
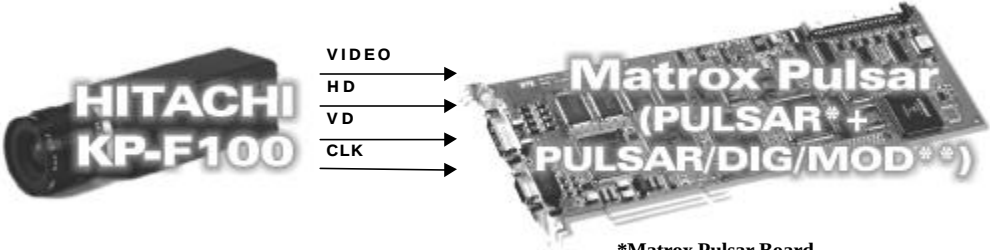


Application Note:

Interfacing non-standard cameras to Matrox Pulsar

Hitachi Denshi KP-F100

September 29, 1999

Camera Descriptions	• 1300 x 1024 x 8-, 10-bit. • Single channel analog or RS-422 digital video output. • Progressive scan. • Internal synchronization. • Pixel clock: 20.2 MHz
Interface modes	• Continuous mode (analog, RS-422 digital), Asynchronous reset (RS-422 digital)
Camera Interface Briefs	Mode 1: Continuous (analog)  *Matrox Pulsar Board • 1300 x 1024 x 8-bit. • Single channel analog video. • Progressive scan. • Continuous video. • Matrox Pulsar receiving video signals from camera. • DCF used: KPF100AP.DCF Mode 2: Continuous (RS-422 digital)  *Matrox Pulsar Board ** Matrox Pulsar RS-422 Digital Board • 1300 x 1024 x 10-bit • Single channel RS-422 digital video. • Progressive scan. • Matrox Pulsar receiving HSYNC (HD), VSYNC (VD), PIXEL CLOCK (CLK), and video signals from camera. • DCF used: KPF100DP.DCF

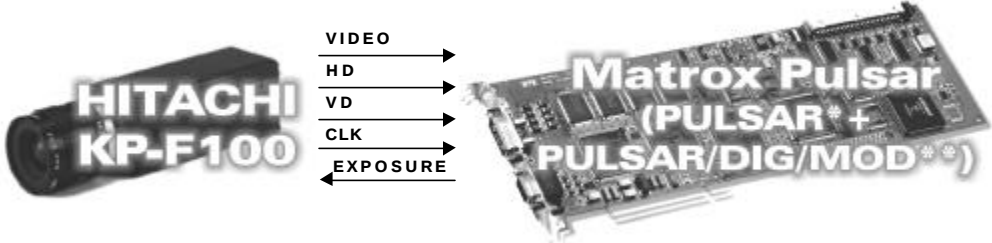
Application Note:

Interfacing non-standard cameras to Matrox Pulsar



Hitachi Denshi KP-F100

September 29, 1999

Camera Interface Briefs (continued)	Mode 3: Asynchronous reset (RS-422 digital)  *Matrox Pulsar Board ** Matrox Pulsar RS-422 Digital Board • 1300 x 1024 x 10-bit. • Single channel RS-422 digital video output. • Progressive scan. • Matrox Pulsar sending periodic EXPOSURE (EXPOSURE OUTPUT) signal to camera to initiate and control exposure. • Matrox Pulsar receiving HSYNC (HD), VSYNC (VD), PIXEL CLOCK (CLK), and video signals from camera. • DCF used: KPF100DAP.DCF												
Camera Interface Details	Mode 1-2: Continuous (analog, RS-422 digital) • Switch settings: The external switch settings located on the camera's rear are as follows: <table border="1" data-bbox="477 1161 873 1249"> <tr> <td>Frame on Demand</td><td>OFF</td></tr> <tr> <td>Mode</td><td>As Desired</td></tr> <tr> <td>Shutter</td><td>As desired</td></tr> </table> Mode 3: Asynchronous reset (RS-422 digital) • Switch settings: The external switch settings located on the camera's rear are as follows: <table border="1" data-bbox="477 1404 860 1493"> <tr> <td>Frame on Demand</td><td>ON</td></tr> <tr> <td>Mode</td><td>1</td></tr> <tr> <td>Shutter</td><td>As desired</td></tr> </table>	Frame on Demand	OFF	Mode	As Desired	Shutter	As desired	Frame on Demand	ON	Mode	1	Shutter	As desired
Frame on Demand	OFF												
Mode	As Desired												
Shutter	As desired												
Frame on Demand	ON												
Mode	1												
Shutter	As desired												
Cabling Requirements	Mode 1: Continuous (analog) • IMG-7W2-TO-5BNC cable required for video output of camera.												

Application Note:

Interfacing non-standard cameras to Matrox Pulsar



Hitachi Denshi KP-F100

September 29, 1999

Cabling Requirements (continued)	Mode 2: Continuous (RS-422 digital)			
	• IMG-7W2-TO-5BNC cable and PULSAR/DIG/MOD board required for digital data, synchronization and control signals in RS-422 format. • Connections between the 26-pin connector of the camera and the 68-pin connector of PULSAR/DIG/MOD are as follows:			
	Hitachi KP-F100 (26-pin connector)		PULSAR/DIG/MOD (68-pin connector)	
	Pin name	Pin no.	Pin name	Pin no.
	D0	01	→ DATA, INPUT, 0+	20
	D0B	02	→ DATA, INPUT, 0-	54
	D1	03	→ DATA, INPUT, 1+	19
	D1B	04	→ DATA, INPUT, 1-	53
	D2	05	→ DATA, INPUT, 2+	16
	D2B	06	→ DATA, INPUT, 2-	50
	D3	07	→ DATA, INPUT, 3+	15
	D3B	08	→ DATA, INPUT, 3-	49
	D4	09	→ DATA, INPUT, 4+	14
	D4B	10	→ DATA, INPUT, 4-	48
	D5	11	→ DATA, INPUT, 5+	13
	D5B	12	→ DATA, INPUT, 5-	47
	D6	13	→ DATA, INPUT, 6+	11
	D6B	14	→ DATA, INPUT, 6-	45
	D7	15	→ DATA, INPUT, 7+	10
	D7B	16	→ DATA, INPUT, 7-	44
	D8	17	→ DATA, INPUT, 8+	09
	D8B	18	→ DATA, INPUT, 8-	43
	D9	19	→ DATA, INPUT, 9+	08
	D9B	20	→ DATA, INPUT, 9-	42
	HDH	23	→ HSYNC, INPUT, +	26
	HDL	24	→ HSYNC, INPUT, -	60
	VDH	21	→ VSYNC, INPUT, +	25
	VDL	22	→ VSYNC, INPUT, -	59
	CLKH	25	→ CLOCK, INPUT, +	29
	CLKL	26	→ CLOCK, INPUT, -	63

Application Note:

Interfacing non-standard cameras to Matrox Pulsar



Hitachi Denshi KP-F100

September 29, 1999

Cabling Requirements	Mode 3: Asynchronous reset (RS-422 digital)			
	• IMG-7W2-TO-5BNC cable and PULSAR/DIG/MOD board required for digital data, synchronization and control signals in RS-422 format. • TTL external trigger source should be connected to the TTL trigger input of the IMG-7W2-TO-5BNC cable. • Connections between the 26-pin connector of the camera and the 68-pin connector of PULSAR/DIG/MOD are as in <i>Mode 2: Continuous</i> plus the following additional connections between the 12-pin HIROSE connector of the camera and the 68-pin connector of PULSAR/DIG/MOD:			
	Hitachi KP-F100 (12-pin HIROSE connector)		PULSAR/DIG/MOD (68-pin connector)	
	Pin name	Pin no.	Pin name	Pin no.
	TRIG A	07	← TTL_EXPOSURE1	66
	TRIG B	09	← TTL_EXPOSURE2	67
	• Connections between the 12-pin HIROSE connector on the rear panel of the camera and the power supply are as follows:			
	Hitachi KP-F100 (12-pin HIROSE connector)		POWER SUPPLY	
	Pin no.	Pin name		
	02	+12V	--	+12V
	11	+12V	--	+12V
	01	GND	--	GROUND
	10	GND	--	GROUND

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: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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