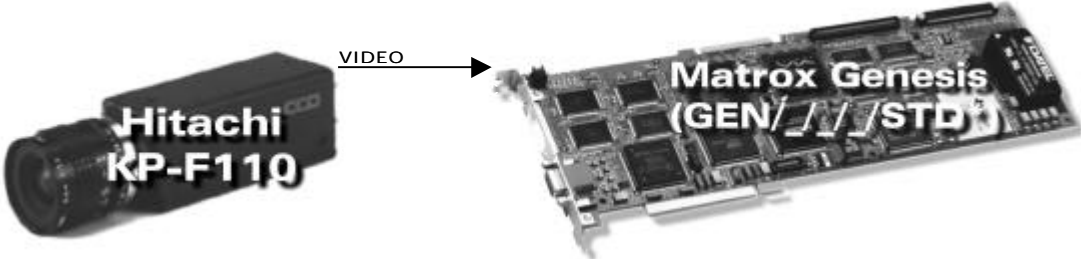
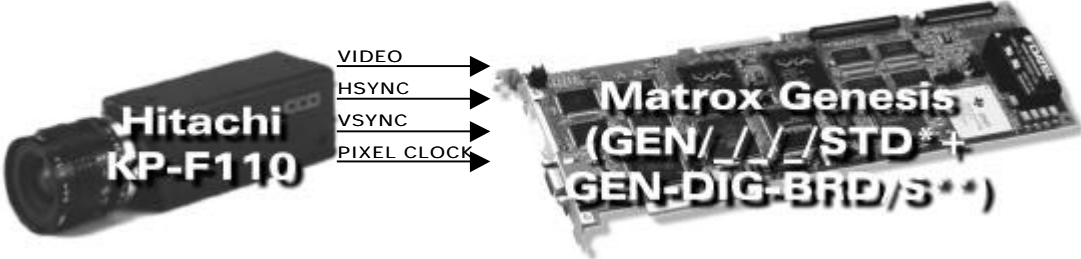


Application Note:

Interfacing non-standard cameras to Matrox Genesis

Hitachi Denshi KP-F110

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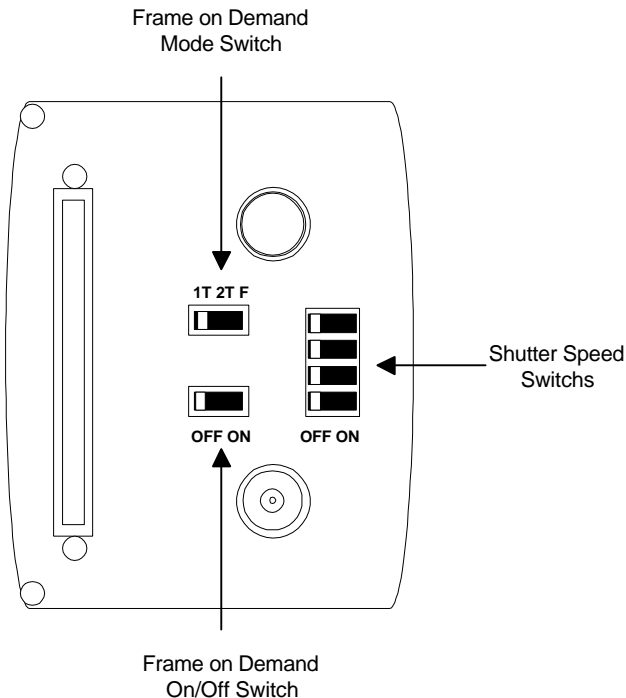
Camera Descriptions	<ul style="list-style-type: none"> • 1024 x 1024 @ 30 fps • Single channel analog or dual channel 10-bit RS-422 digital video output. • Progressive scan. • Internal sync. • Internal exposure control. • Pixel clock: 24.3 MHz
Interface modes	<ul style="list-style-type: none"> • Continuous mode (analog or RS-422 digital)
Camera Interface Briefs	<p>Mode 1: Continuous (analog)</p>  <p>* Matrox Genesis Main Board with Grab Module</p> <ul style="list-style-type: none"> • 1024 x 1024 x 8-bit @ 30 fps • Analog video output. • Progressive scan. • Internal sync. • Continuous video. • DCF used: HTKP110A.DCF <p>Mode 2: Continuous (RS-422 digital)</p>  <p>* Matrox Genesis Main Board with Grab Module ** Matrox Digital Data Input Board</p> <ul style="list-style-type: none"> • 1024 x 1024 x 10-bit @ 30 fps • Dual channel RS-422 digital video output. • Progressive scan. • Internal sync. • Matrox Genesis receiving hsync, vsync, pixel clock and video signals from camera. • DCF used: HTKP110D.DCF

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Camera Interface Details	<p>Mode 1-2: Continuous (analog and RS-422 digital)</p> <ul style="list-style-type: none"> The external switch settings located on the camera's rear are as follows: <ul style="list-style-type: none"> Frame on Demand Mode set to 1T, Frame on Demand set to OFF, Shutter speed switches are selected to user desired settings. Refer to camera manual for more information. <p style="text-align: center;">Camera's Rear</p> 
Cabling Requirements	<p>Mode 1: Continuous (analog)</p> <ul style="list-style-type: none"> IMG-7W2-TO-1BNC cable required for video output of camera.

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Cabling Requirements (continued)

Mode 2: Continuous (RS-422 digital)

- GEN-DIG-BRD/S required for digital data, syncs and control signals in RS-422 format.
- The connections between the Matrox Genesis Data Input board and the 50-pin connector of the camera are as follows:

Digital Data Input Board (GEN/CBL/OPEN 100-pin connector)			Hitachi KP-F110 (50-pin connector)	
<i>Pin name</i>	<i>Pin no</i>		<i>Pin name</i>	<i>Pin no.</i>
DATA, INPUT, 0+	01	→	DA D0+	26
DATA, INPUT, 0-	02	→	DA D0-	27
DATA, INPUT, 1+	03	→	DA D1+	28
DATA, INPUT, 1-	04	→	DA D1-	29
DATA, INPUT, 2+	05	→	DA D2+	30
DATA, INPUT, 2-	06	→	DA D2-	31
DATA, INPUT, 3+	07	→	DA D3+	32
DATA, INPUT, 3-	08	→	DA D3-	33
DATA, INPUT, 4+	09	→	DA D4+	34
DATA, INPUT, 4-	10	→	DA D4-	35
DATA, INPUT, 5+	11	→	DA D5+	36
DATA, INPUT, 5-	12	→	DA D5-	37
DATA, INPUT, 6+	13	→	DA D6+	38
DATA, INPUT, 6-	14	→	DA D6-	39
DATA, INPUT, 7+	15	→	DA D7+	40
DATA, INPUT, 7-	16	→	DA D7-	41
DATA, INPUT, 8+	17	→	DA D8+	42
DATA, INPUT, 8-	18	→	DA D8-	43
DATA, INPUT, 9+	19	→	DA D9+	44
DATA, INPUT, 9-	20	→	DA D9-	45
HSYNC, INPUT, +	33	→	HDH	25
HSYNC, INPUT, -	34	→	HDL	50
VSYNC, INPUT, +	35	→	VDH	48
VSYNC, INPUT, -	36	→	VDL	49
GROUND	37	→	GND	23
GROUND	38	→	GND	24
CLOCK, INPUT, +	39	→	CLKH	46
CLOCK, INPUT, -	40	→	CLKL	47

(pinout continued)

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Cabling Requirements (continued)	Digital Data Input Board (GEN/CBL/OPEN 100-pin connector)			Hitachi KP-F110 (50-pin connector)	
	<i>Pin name</i>	<i>Pin no</i>		<i>Pin name</i>	<i>Pin no.</i>
	DATA, INPUT, 16+	51	→	DB D0+	01
	DATA, INPUT, 16-	52	→	DB D0-	02
	DATA, INPUT, 17+	53	→	DB D1+	03
	DATA, INPUT, 17-	54	→	DB D1-	04
	DATA, INPUT, 18+	55	→	DB D2+	05
	DATA, INPUT, 18-	56	→	DB D2-	06
	DATA, INPUT, 19+	57	→	DB D3+	07
	DATA, INPUT, 19-	58	→	DB D3-	08
	DATA, INPUT, 20+	59	→	DB D4+	09
	DATA, INPUT, 20-	60	→	DB D4-	10
	DATA, INPUT, 21+	61	→	DB D5+	11
	DATA, INPUT, 21-	62	→	DB D5-	12
	DATA, INPUT, 22+	63	→	DB D6+	13
	DATA, INPUT, 22-	64	→	DB D6-	14
	DATA, INPUT, 23+	65	→	DB D7+	15
	DATA, INPUT, 23-	66	→	DB D7-	16
	DATA, INPUT, 24+	67	→	DB D8+	17
	DATA, INPUT, 24-	68	→	DB D8-	18
	DATA, INPUT, 25+	69	→	DB D9+	19
	DATA, INPUT, 25-	70	→	DB D9-	20

The DCF(s) mentioned in this application note can be found on the MIL and Native Library 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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