

Matrox Genesis

Camera Interface Application Note

HITACHI KP-F100A

July 29, 2002

Basics about the
camera

Camera Descriptions

- $1300 \times 1024 \times 8$ or 10-bit @ up to 12 fps.
- Single channel analog/LVDS digital video output.
- Progressive scan.
- Internal (composite) sync.
- External exposure control.
- 20.2 MHz pixel clock rate.

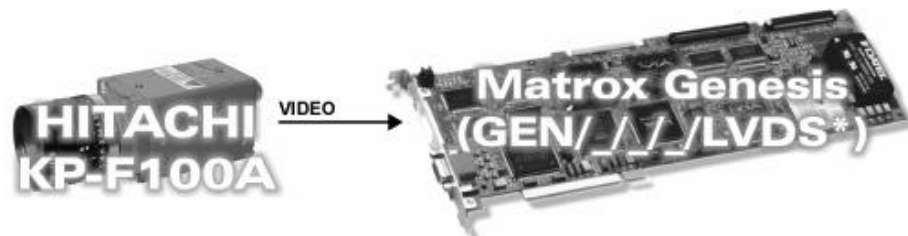
Interface Modes

- Continuous

Camera Interface Briefs

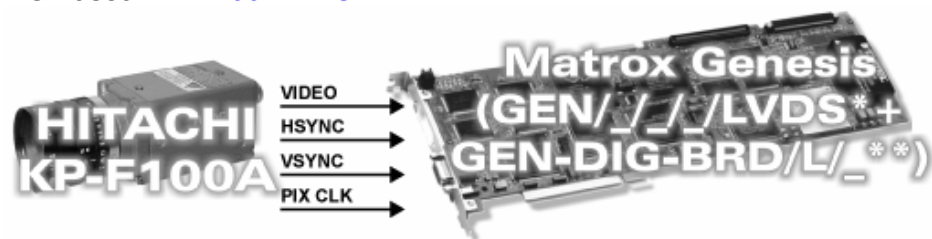
Mode 1: Continuous (analog)

- $1300 \times 1024 \times 8$ -bit @ 12 fps.
- Single channel analog video.
- Progressive scan.
- Matrox Genesis receiving video signals from camera.
- DCF used: [HKP100AA.DCF](#)



Mode 2: Continuous (digital)

- $1300 \times 1024 \times 10$ -bit @ 12 fps.
- Single channel LVDS digital video.
- Progressive scan.
- Matrox Genesis receiving HSYNC, VSYNC, PIXEL CLOCK (@20.2 MHz) and video signals from camera.
- DCF used: [HKP100AD.DCF](#)



*Matrox Genesis main board with LVDS grab module
**Matrox LVDS digital data input board

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

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Specifics about the
interface modes

Camera Interface Details

Modes 1, 2: Continuous

- **Frame Rate:** Matrox Genesis receives the continuous video from the camera at 12 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.
- **Camera switch settings:** Refer to the camera manual for additional information. Switches for this mode should be set as follows:

Switch	Setting
Frame on Demand	OFF
Mode	As Desired
Shutter Speed	As Desired

Cabling details for this
interface mode

Cabling Requirements

Mode 1: Continuous (analog)

- **Cable:** IMG-7W2-TO-5BNC cable required for video signals.
- **Connection:** Video input of IMG-7W2-TO-5BNC (RED) cable should be connected to Video Out of camera.

Mode 2: Continuous (digital)

- **Cable:** IMG-7W2-TO-5BNC and DBHD100-TO-OPEN (open ended) cables required for video, synchronization, and control signals.
- **External Trigger:** TTL external trigger source should be connected to the TTL trigger input of the IMG-7W2-TO-5BNC cable.
- **Connection:** Connections between the 26-pin connector of the camera and the 100-pin connectors of the Matrox Genesis are as follows:

HITACHI KP-F100A
(26-pin connector)

Matrox Genesis
(100-pin connector)

Pin name

Pin no.

Pin name

Pin no.

D0	1	→	DATA, INPUT, 0+	1
D0B	2	→	DATA, INPUT, 0-	2
D1	3	→	DATA, INPUT, 1+	3
D1B	4	→	DATA, INPUT, 1-	4
D2	5	→	DATA, INPUT, 2+	5
D2B	6	→	DATA, INPUT, 2-	6
D3	7	→	DATA, INPUT, 3+	7
D3B	8	→	DATA, INPUT, 3-	8
D4	9	→	DATA, INPUT, 4+	9
D4B	10	→	DATA, INPUT, 4-	10
D5	11	→	DATA, INPUT, 5+	11
D5B	12	→	DATA, INPUT, 5-	12

Continued...

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Cabling Requirements (continued)

- **Connection:** Connections between the 26-pin (**DIGITAL OUT**) connector of the camera and the 100-pin connectors of the Matrox Genesis are as follows:

HITACHI KP-F100A (26-pin connector)			Matrox Genesis (100-pin connector)	
<i>Pin name</i>	<i>Pin no.</i>		<i>Pin name</i>	<i>Pin no.</i>
D6	13	→	DATA, INPUT, 6+	13
D6B	14	→	DATA, INPUT, 6-	14
D7	15	→	DATA, INPUT, 7+	15
D7B	16	→	DATA, INPUT, 7-	16
D8	17	→	DATA, INPUT, 8+	17
D8B	18	→	DATA, INPUT, 8-	18
D9	19	→	DATA, INPUT, 9+	19
D9B	20	→	DATA, INPUT, 9-	20
HDH	23	→	HSYNC, INPUT, +	33
HDL	24	→	HSYNC, INPUT, -	34
VDH	21	→	VSYNC, INPUT, +	35
VDL	22	→	VSYNC, INPUT, -	36
CLKH	25	→	CLOCK, INPUT, +	39
CLKL	26	→	CLOCK, INPUT, -	40

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