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AdeptVision Enhanced Vision Interface (EVI) Board

7

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Introduction

The AdeptVision Enhanced Vision Interface (EVI) board is a single-slot VME board that is a vision frame grabber for use with the AdeptVision product.

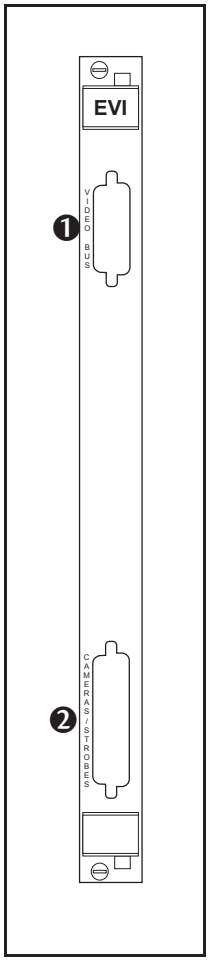
The EVI board features two 1K x 1K frame buffers. These buffers support large-format cameras (such as the Pulnix TM-1001) and provide additional frame buffers for normal operation.

The EVI board features a dedicated processor for running convolutions. For example, the EVI board can process a 3 x 3 convolution on a 512 x 480 image in six milliseconds.

Refer to the ***AdeptVision User's Guide*** and the ***AdeptVision Reference Guide*** for complete information on installation, configuration, operations, and programming of your vision system.

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Connections and Indicators



❶ **Video Bus** connector — a 26-pin mini D-sub connector for installing one end of the Video Bus coupler in AdeptVision systems. The other end of the coupler connects to the VGB board.

> **NOTE:** This connector is not used with an AdeptWindowsPC system that does not have a VGB.

❷ **Camera/Strobe** connector — a 44-pin D-sub connector for the four-camera breakout cables.

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VME Bus Address and Configuration

The EVI board will be configured as board 1 unless the system is running the dual AdeptVision option, in which case the second EVI board will be board 2. If you have only one EVI board installed, it will be set correctly when the controller is shipped to you.

EVI Motherboard DIP Switch Setting

If you install a new EVI board (as a replacement part or upgrade) or have the dual vision option, see the tables below for the address switch settings. The shaded cells indicate the settings that are different for each board. See **Figure 7-1** for the location of SW1 on the EVI board. See **Figure 7-2** for the position of the A and B settings.

> **NOTE:** When setting the switches, you should rotate the board 90 degrees clockwise from the orientation shown in **Figure 7-1** (the VME bus connectors will be pointing toward you).

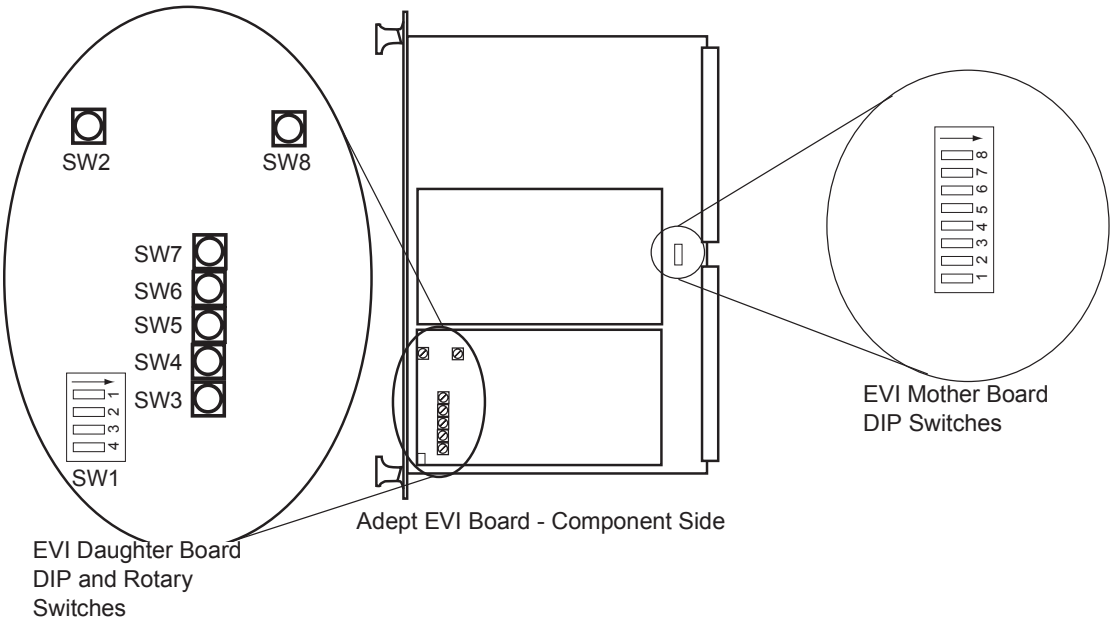


Figure 7-1. Switch Locations on EVI Board

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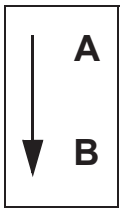


Figure 7-2. Rocker (Dip) Switch Positions for SW1 on Motherboard and Daughterboard

Refer to the settings shown in **Table 7-1** when installing the first EVI board into your Adept MV controller.

Table 7-1. Switch Settings for EVI Board 1

	1	2	3	4	5	6	7	8
SW1	B	B	A	A	A	A	A	A

If you add a second EVI board in your controller, refer to the settings shown in **Table 7-2** when installing the second board.

Table 7-2. Switch Settings for EVI Board 2

	1	2	3	4	5	6	7	8
SW1	B	B	A	A	A	A	B	A

SW1-3 (3rd switch on SW1) selects either:

- B: POS_LATCH 1 and VIS_TRIGGER 1 (recommended for EVI board 1)

  or...

- A: POS_LATCH 2 and VIS_TRIGGER 2 (recommended for EVI board 2)

All other switches on SW1 should be set as shown above.

Acquisition Switch Setting Mode

The acquisition mode switches are located on the EVI daughterboard. There is one DIP switch bank (SW1) and seven three-position rotary switches (SW2 - SW8) that must be set. See **Figure 7-1** for the location of the acquisition mode switches on the EVI board.

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Settings for Normal RS-170 Cameras

The tables below show the settings for the acquisition switches when using a normal RS-170 camera.

Table 7-3. Acquisition Switch Settings for SW1

	1	2	3	4
SW1	B	B	B	B

Table 7-4. Acquisition Switch Settings for SW2 - SW8

	SW2	SW3	SW4	SW5	SW6	SW7	SW8
Rotary Switch Slot Position	 **A** B C	 A B **C**	 A B **C**	 A **B** C	 A B **C**	 A **B** C	 **A** B C

Note:

Set SW5 to  for pixel clock output.

Settings for Pulnix TM-1001 Cameras

The tables below show the settings for the acquisition switches when using a Pulnix TM-1001 camera.

Table 7-5. Acquisition Switch Settings for SW1

	1	2	3	4
SW1	A	B	A	A

Table 7-6. Acquisition Switch Settings for SW2 - SW8

	SW2	SW3	SW4	SW5	SW6	SW7	SW8
Rotary Switch Slot Position	 **A** B C	 A B **C**	 A **B** C	 A **B** C	 A **B** C	 A B **C**	 **A** B C

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Camera Compatibility

Standard RS-170 Cameras

Compatible cameras can be purchased from Adept. See the ***AdeptVision User's Guide*** for a list of other cameras that can be used with the AdeptVision product. If you have a camera that is not on that list, the following information presents some guidelines for camera compatibility with AdeptVision (minimum requirements):

- RS-170 camera video output (US-style monochrome, 30Hz frame rate [60Hz field rate], 525 lines, interlaced)
- External Hd and Vd sync signals (inputs to camera)[1]
- Connector: Hirose HR10-10S-12P
- Pinout: typical Sony/Panasonic, etc. (See **Table 7-7** for pinout)—not Pulnix standard pinout (Pulnix cameras maybe special ordered with Sony pinouts).

Use these guidelines to determine camera compatibility. If the camera meets the above requirements, there is a good chance that it will work as a plug and play device.

The pixel resolution of the Adept frame store is 1Kx1K and will work with cameras with a resolution of 500 x 480 or greater. If the camera, lens, etc., are good quality, the actual number of pixels does not affect compatibility, because the interface uses the RS-170-standard analog video-link.

High-Resolution Cameras

The only qualified 1024 x1024 pixel camera is the Pulnix TM-1001. This camera must be ordered from Pulnix with "option 24-2" to correctly configure the pinouts. A maximum of two TM-1001 cameras may be connected to the EVI board. For more details see the ***AdeptVision User's Guide***

[1] For interfacing cameras without external sync, contact Adept Application Support; see **"How Can I Get Help?" on page 34**.

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Installing Video Bus Coupler

The video bus coupling (VTV) (see **Figure 7-7**) transfers data between the EVI board and the VGB board. These two boards must be installed next to each other in the controller chassis. When using AdeptWindowsPC as the operator interface, there may not be a VGB installed. In this case the VTV is not used.

1. Make sure the controller On/Off switch is turned off.
2. Verify that the EVI and VGB boards are installed next to each other in the controller.
3. Plug the coupler into the video bus connectors on the EVI and VGB boards.

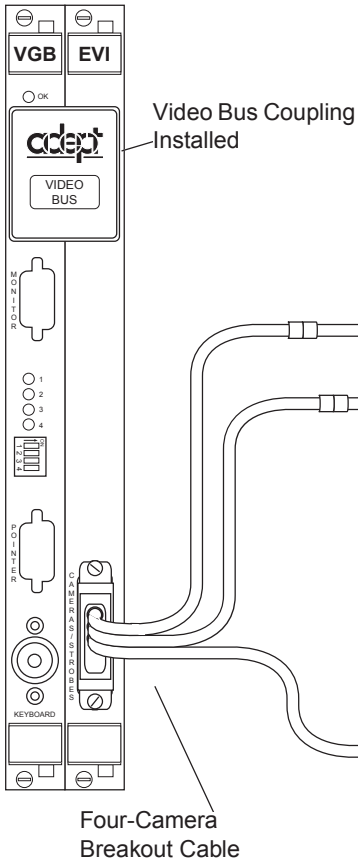


Figure 7-3. Video Coupling for a Two-Camera Connection

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Camera Cables

Adept sells a standard four-camera cable. A custom four-camera version is available for use with the Pulnix TM-1001. They all connect to the camera connector on the front of the board. There is support for two strobe connections. The breakout cable routes the signals away from the chassis—it does not connect directly to the camera. To connect to the cameras, you must use an extension cable. Adept offers a 10-meter cable for this purpose. These cables can also be purchased from Intercon 1. Contact Adept Applications Support for current Intercon 1 part numbers.

You can contact Intercon 1 at:

Intercon 1 Vision Products
Box 1C
Merrifield, MN 56465
(800) 237-9576 Voice
(218) 765-3900 FAX

See Tables **7-7** to **7-14** for pin and signal information.

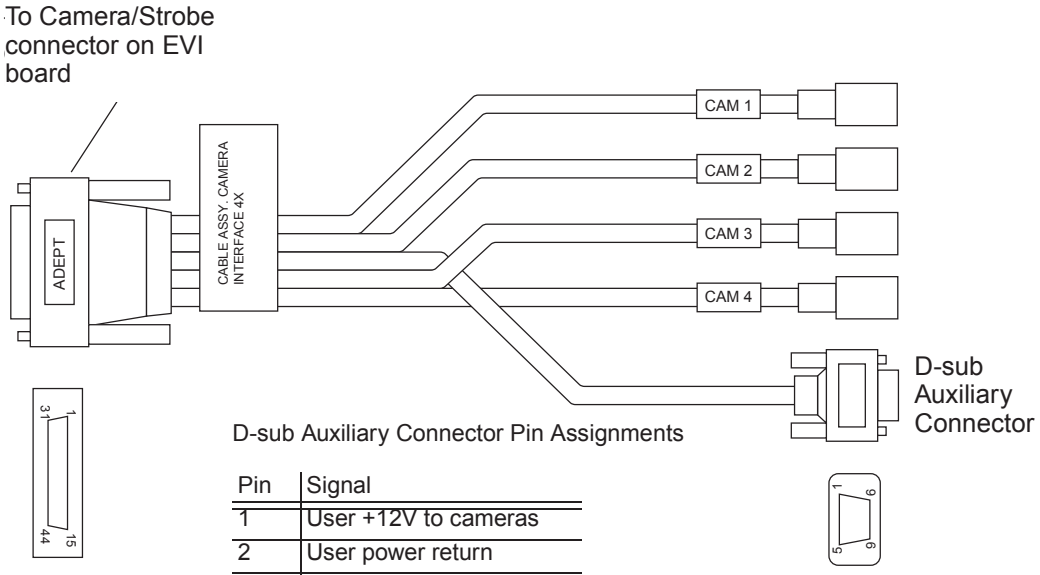
Four-Camera Breakout Cable for RS-170 Cameras

This cable has a 44-pin D-sub connector on one end, and it breaks out to four 12-pin Hirose-style camera connectors and one 9-pin D-sub connector on the other end. The length of the cable is 1.8 meters (70 inches).

Due to the current limitation of the VME bus specification, the EVI board cannot supply enough current to operate all four cameras from the four-camera cable. You must supply the external power to operate the cameras when using this cable. This power must be routed through the 9-pin D-sub connector, see **Figure 7-4** and **Table 7-9** for pin information.

Connect the power and ground on the breakout cable to a 12V power supply producing 2.0A at 12VDC.

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D-sub Auxiliary Connector Pin Assignments

Pin	Signal
1	User +12V to cameras
2	User power return
3	Strobe 1
4	Strobe return
5	Strobe 2
6	Reserved
7	Reserved
8	Reserved
9	Shield (chassis ground)

Figure 7-4. Four-Camera Breakout Cable For RS-170 Cameras

10-Meter Camera Extension Cables

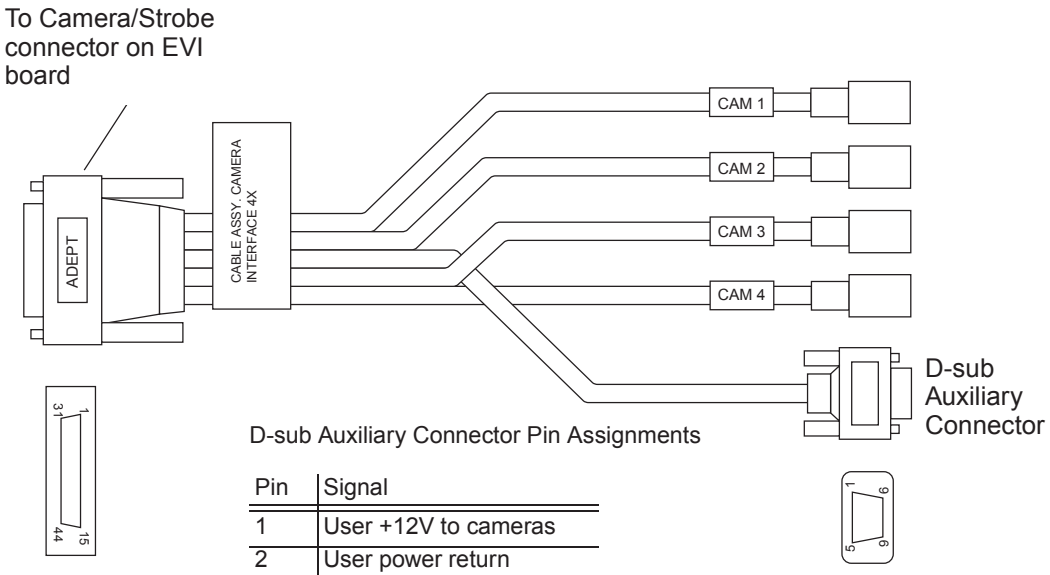
The 10-meter camera extension cables have a male Hirose connector on one end and a female Hirose connector on the other end. These cables go between the breakout cables and the connectors on the cameras. Each camera requires one of these cables (or an equivalent).

This cable can be used with both RS-170 cameras and the Pulnix TM-1001 camera.

Custom Pulnix TM-1001 Four-Camera Breakout Cable

This cable available from Intercon 1 has a 44-pin D-sub connector on one end, and it breaks out to four 12-pin Hirose style connectors and one 9-pin D-sub connector on the other end. The length of the cable is 1.8 meters (70 inches). This cable is used with the custom Pulnix TM-1001 D-sub to BNC adapter breakout cable, described in the next section.

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D-sub Auxiliary Connector Pin Assignments

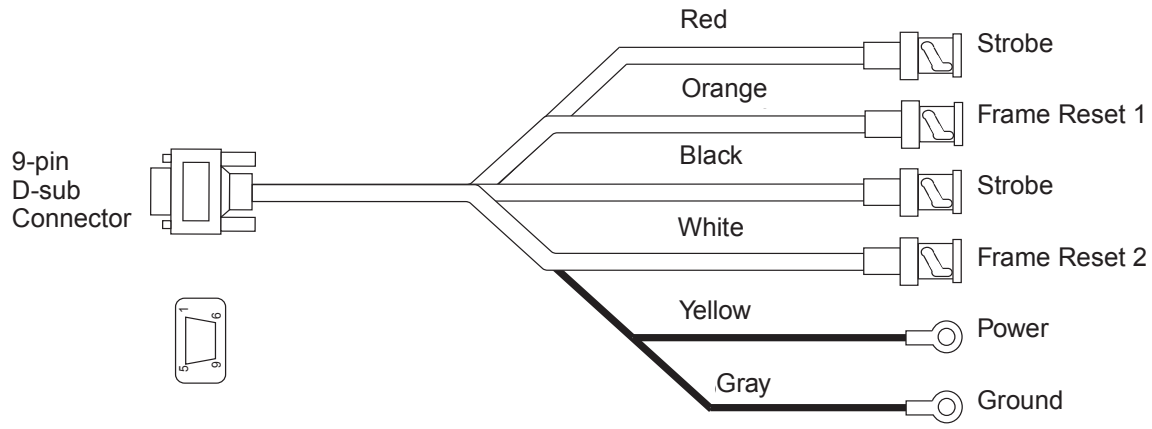
Pin	Signal
1	User +12V to cameras
2	User power return
3	Strobe 1
4	Strobe return
5	Strobe 2
6	Frame Reset 1
7	Frame Reset return
8	Frame Reset 2
9	Shield (chassis ground)

Figure 7-5. Custom Breakout Cable for Pulnix TM-1001

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Custom Pulnix TM-1001 D-sub to BNC Adapter Cable

This cable has a 9-pin D-sub connector on one end and four Video and Sync BNC connectors and power connectors at the other end. The cable length is 1.54 meters (60 inches).



D-sub Auxiliary Connector Pin Assignments

Pin	Signal
1	User +12V to cameras
2	User power return (Gnd)
3	Strobe 1
4	Strobe return (Gnd)
5	Strobe 2
6	Frame reset 1
7	Frame reset return (Gnd)
8	Frame reset 2
9	Shield (chassis ground)

Figure 7-6. D-sub Adapter Cable for Pulnix TM-1001

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Installing Camera Cables

See the *AdeptVision User's Guide* for information on mounting cameras and strobes in your system. **Figure 7-7** shows the installation of a typical four-camera RS-170 breakout cable and the associated hardware.



CAUTION: Turn off the controller before installing or removing a camera or cable. Failure to do this may damage the EVI board.

Connecting the Cables to the RS-170 Standard Camera

This section describes the steps for connecting the cables between the EVI board and the RS-170 Cameras.

1. Turn off the Adept MV controller.
2. Connect the camera to a 10m camera cable.
3. Connect the 10m camera cable to the appropriate connection on the camera breakout cable.
4. Connect the power supply and strobe lamps through the 9 pin D-sub connector (see **Table 7-7** for pin assignments).
5. Connect the camera breakout cable to the camera/strobe connection on the EVI board.

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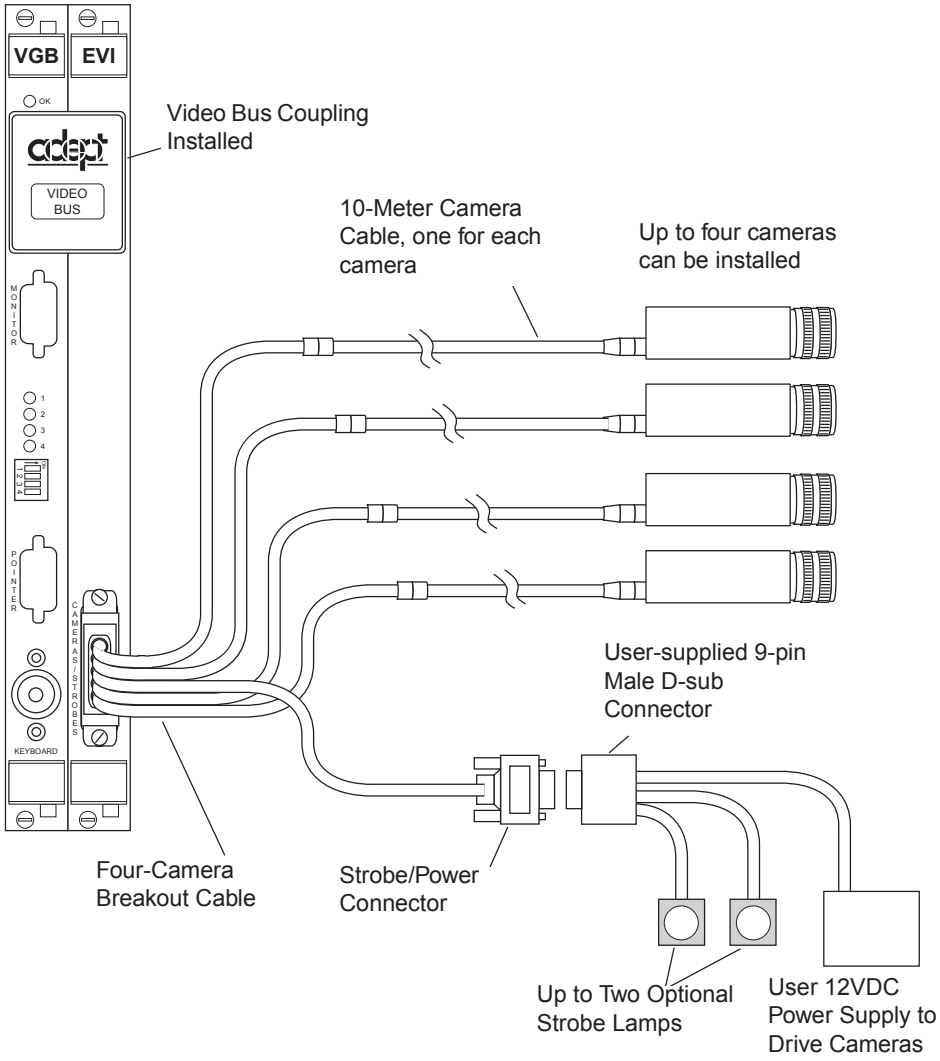


Figure 7-7. Camera Cable Installation Drawing (RS-170)

Connecting the Cables to the Pulnix TM-1001 Camera

This section describes the steps for connecting the cables between the EVI board and the Pulnix TM-1001 cameras (see **Table 7-8**). For Pulnix TM-1001 camera switch settings, refer to Appendix I of the ***AdeptVision User's Guide.***

1. Turn off the Adept MV controller.

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2. Connect the 10-meter camera extension cable to breakout connector cam1 and the other end of the extension cable to the Hirose connector on the back of the Pulnix camera.
3. Connect the BNC adapter cable to the auxiliary connector on the 4-camera cable.
4. Connect the power and ground on the BNC adapter cable to a 12V power supply that provides at least 600mA at 12V.
5. Each Pulnix TM-1001 camera requires 600mA at 12V. Therefore, if you are using two Pulnix TM-1001 cameras, your power supply must be capable of providing 600mA at 12V for each camera.
6. Connect Frame Reset 1 on the BNC adapter cable to the BNC connector on the back of the first Pulnix camera.
7. Connect Strobe 1 on the BNC adapter cable to the first strobe light (optional).

To connect a second Pulnix TM-1001 camera:

1. Connect the 10-meter camera extension cable to breakout connector cam2 and the other end of the extension cable to the Hirose connector on the back of the Pulnix camera.
2. Connect Frame Reset 2 on the BNC adapter cable to the BNC connector on the back of the second Pulnix camera.
3. Connect Strobe 2 on the BNC adapter cable to the second strobe light (optional).



CAUTION: A maximum of two Pulnix TM-1001 cameras may be installed on the EVI board.

NOTE: Do not mix Pulnix TM-1001 and RS-170 cameras on the same EVI Vision board. They require different board switch settings. See **page 144**.

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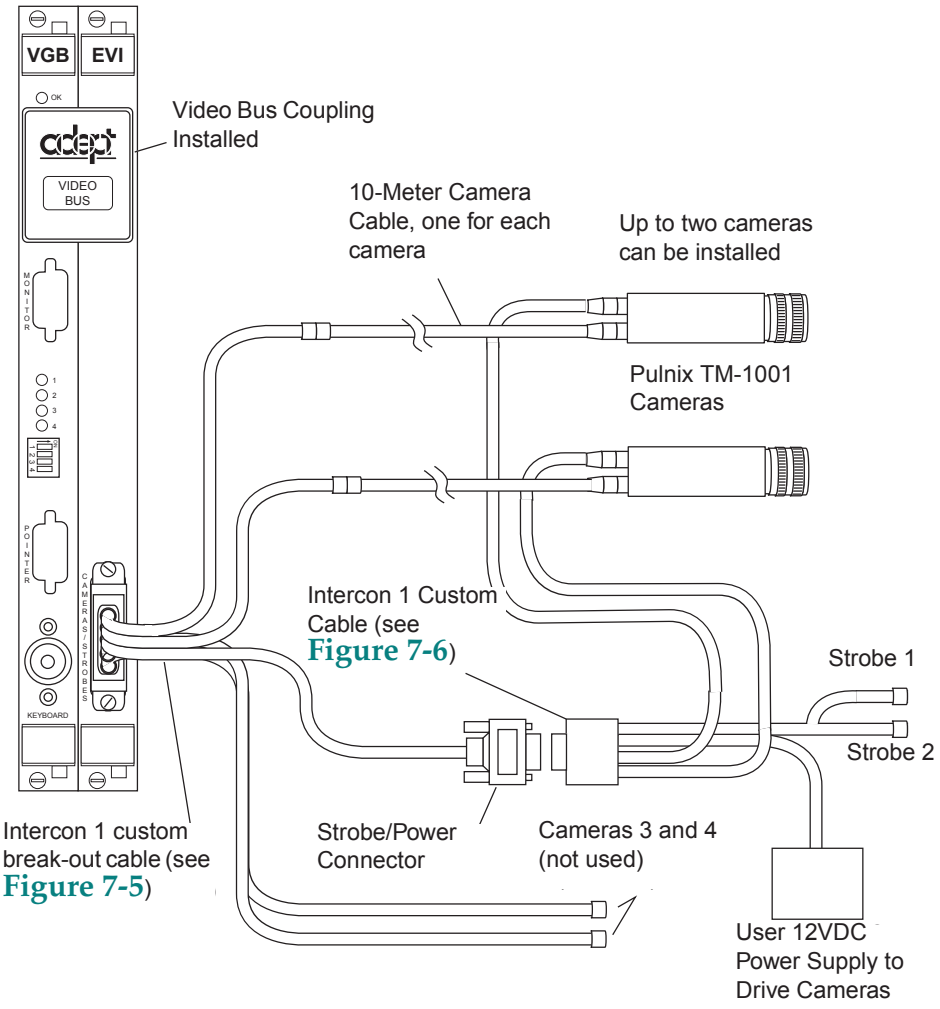


Figure 7-8. Camera Installation for Dual Pulnix TM-1001 Cameras

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Camera Cable Pin and Signal Information

This section provides the pin and signal information for the connectors and cables associated with the AdeptVision product.

- **Table 7-7** describes the Hirose connector that is used for all cameras except the Pulnix TM-1001 on the camera breakout cables.
- **Table 7-8** describes the Hirose connector that is used for the Pulnix TM-1001 on the custom four-camera breakout cable.
- **Table 7-9** describes the Strobe and Power connector on the Pulnix TM-1001 camera cables.
- **Table 7-10** describes the 10-meter camera extension cable.
- **Table 7-11** describes signal information between the 44-pin connector and the camera and strobe/power connectors for the four-camera breakout cable. The table is organized by camera number.
- **Table 7-12** describes signal information between the 44-pin connector and the camera and strobe/power connectors for the Pulnix TM-1001 custom four-camera breakout cable. The table is organized by camera number.
- **Table 7-13** contains information similar to **Table 7-11**, but it is organized numerically by the 44-pin connector.
- **Table 7-14** contains information similar to **Table 7-12**, but it is organized numerically by the 44-pin connector.

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Table 7-7. Breakout Cable Camera Connector Pin Assignments (RS-170)

Pin	Function	Notes
1	Power return	
2	+12V power	to camera
3	Shield (video)	
4	Video	from camera
5	Shield (Hd)	
6	Hd (horizontal drive)	to camera
7	Vd (vertical drive)	to camera
8	Shield (Clock)	to camera (camera 1 & 2 only)
9	Clock	to camera (camera 1 & 2 only)
10	not connected	
11	not connected	
12	Shield (Vd)	
12-Pin Hirose Female Jack, HR10A-10J-12S		
This connector will normally be connected to the camera using the optional 10-meter camera extension cable. For special applications, this connector will mate with a Hirose Male Plug HR10A-10P-12P (user-supplied) or similar plug. See **Figure 7-9** for pin locations.		

Table 7-8. Breakout Cable Camera Connector Pin Assignments (for Pulnix TM-1001)

Pin	Function	Notes
1	Power return	
2	+12V power	to camera
3	Shield (video)	
4	Video	from camera
5	Shield (Hd)	
6	Hd (horizontal drive)	from camera to LEN (line enable)
7	Vd (vertical drive)	from camera to FEN (frame enable)
8	Shield (Clock)	
9	Clock	from camera to VSCLOCK (pixel clock)
10	not connected	
11	not connected	
12	Shield (Vd)	
12-Pin Hirose Female Jack, HR10A-10J-12S		

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Table 7-9. Breakout Cable Strobe and Power Connector Pin Assignments (for Pulnix TM-1001)

Pin	Function	Notes
1	User +12 VDC to cameras	
2	User power return (Gnd)	
3	Strobe 1	
4	Strobe return (Gnd)	
5	Strobe 2	
6	Frame Reset 1	
7	Frame Reset return (Gnd)	
8	Frame Reset 2	
9	Shield (chassis ground)	
9-Pin D-Sub Female Receptacle		
Note: this connector will mate with the 9-pin D-Sub male plug on the BNC adapter cable.		

Table 7-10. Adept 10-Meter Camera Cable Pin Assignments

Pin # at controller end (male)	Function	Notes	Wire Color (typical)	Pin # at camera end, (female)
1	Power return		gray	1
2	+12V power	to camera	yellow	2
3	Shield (video)		red-shield	3
4	Video	from camera	red-signal	4
5	Shield (Hd)		orange-shield	5
6	Hd (horizontal drive)	to camera	orange-signal	6
7	Vd (vertical drive)	to camera	black-signal	7
8	Shield (Clock)	to camera (cam. 1 & 2 only)	white-shield	8

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Table 7-10. Adept 10-Meter Camera Cable Pin Assignments (Continued)

Pin # at controller end (male)	Function	Notes	Wire Color (typical)	Pin # at camera end, (female)
9	Pixel clock	to camera (cam. 1 & 2 only)	white-signal	9
10	not used	reserved	brown	10
11	not used	reserved	blue	11
12	Shield (Vd)		black-shield	12

- Connector at controller end: 12-Pin Hirose Male, HR10A-10P-12P, with ground terminal lug (shield). See **Figure 7-9** for pin locations.
- Connector at camera end: 12-Pin Hirose Female, HR10A-10P-12S.
- Cable specifications: 12 conductors, including 4 coax pairs, 4 discrete conductors, and overall shield. At each end the shield is clamped to connector body.

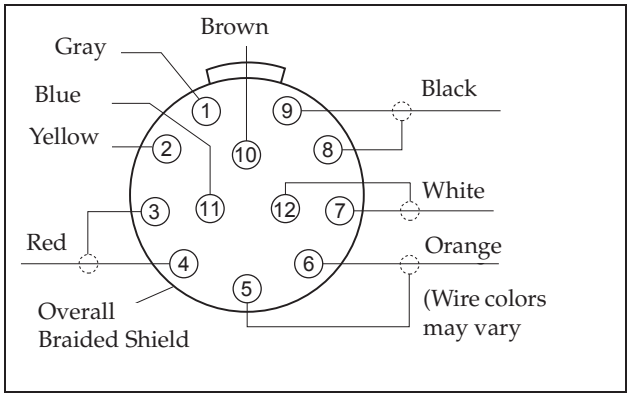


Figure 7-9. Pin Locations for Camera Cable Connector (12-Pin Hirose Male)

Table 7-11. Four-Camera Breakout Cable Pin Assignments

From:	Pin	To:	Pin	Function
Str/Pwr	2	CAM1	1	Power return
Str/Pwr	1	CAM1	2	+12V power
EVI	12	CAM1	3	Shield (video)
EVI	42	CAM1	4	Video
EVI	38	CAM1	5	Shield (Hd)

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Table 7-11. Four-Camera Breakout Cable Pin Assignments (Continued)

From:	Pin	To:	Pin	Function
EVI	36	CAM1	6	Hd (horizontal drive)
EVI	37	CAM1	7	Vd (vertical drive)
EVI	38	CAM1	8	Shield (Clock)
EVI	22	CAM1	9	Clock
--	--	CAM1	10	not connected
--	--	CAM1	11	not connected
EVI	38	CAM1	12	Shield (Vd)
Str/Pwr	2	CAM2	1	Power return
Str/Pwr	1	CAM2	2	+12V power
EVI	43	CAM2	3	Shield (video)
EVI	29	CAM2	4	Video
EVI	35	CAM2	5	Shield (Hd)
EVI	34	CAM2	6	Hd (horizontal drive)
EVI	19	CAM2	7	Vd (vertical drive)
EVI	35	CAM2	8	Shield (Clock)
EVI	20	CAM2	9	Clock
--	--	CAM2	10	not connected
--	--	CAM2	11	not connected
EVI	35	CAM2	12	Shield (Vd)
Str/Pwr	2	CAM3	1	Power return
Str/Pwr	1	CAM3	2	+12V power
EVI	14	CAM3	3	Shield (video)
EVI	44	CAM3	4	Video
EVI	33	CAM3	5	Shield (Hd)
EVI	32	CAM3	6	Hd (horizontal drive)
EVI	18	CAM3	7	Vd (vertical drive)
--	--	CAM3	8	not connected
--	--	CAM3	9	not connected
--	--	CAM3	10	not connected
--	--	CAM3	11	not connected
EVI	33	CAM3	12	Shield (Vd)
Str/Pwr	2	CAM4	1	Power return
Str/Pwr	1	CAM4	2	+12V power
EVI	12	CAM4	3	Shield (video)
EVI	42	CAM4	4	Video

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Table 7-11. Four-Camera Breakout Cable Pin Assignments (Continued)

From:	Pin	To:	Pin	Function
EVI	38	CAM4	5	Shield (Hd)
EVI	36	CAM4	6	Hd (horizontal drive)
EVI	37	CAM4	7	Vd (vertical drive)
--	38	CAM4	8	not connected
--	22	CAM4	9	not connected
--	--	CAM4	10	not connected
--	--	CAM4	11	not connected
EVI	17	CAM4	12	Shield (Vd)
--	--	Str/Pwr	1	User +12 V to cameras
--	--	Str/Pwr	2	User power return
EVI	26	Str/Pwr	3	Strobe 1
EVI	11	Str/Pwr	4	Strobe return
EVI	39	Str/Pwr	5	Strobe 2
EVI	11	Str/Pwr	6	Reserved
EVI	40	Str/Pwr	7	Reserved
EVI	11	Str/Pwr	8	Reserved
EVI	--	Str/Pwr	9	Shield (chassis ground)
Note that this cable provides user-supplied 12VDC to the cameras obtained from the Strobe and Power connector.				

Table 7-12. Pulnix TM-1001 Breakout Cable Pin Assignments

From:	Pin	To:	Pin	Function
CAM2	1	CAM 1	1	PWR GND
CAM3	1	CAM1	1	PWR GND
CAM4	1	CAM1	1	PWR GND
STROBE	2	CAM1	1	PWR GND
CAM2	2	CAM1	2	+12V power
CAM3	2	CAM1	2	+12V power
CAM4	2	CAM1	2	+12V power
STROBE	1	CAM1	2	+12V power
EVI	12	CAM1	3	Analog GND
EVI	42	CAM1	4	Video
EVI	38	CAM1	5	Digital GND
EVI	36	CAM1	6	Hd

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Table 7-12. Pulnix TM-1001 Breakout Cable Pin Assignments (Continued)

From:	Pin	To:	Pin	Function
EVI	37	CAM1	7	Vd
EVI	38	CAM1	8	Digital GND
EVI	22	CAM1	9	Clock 1
EVI	38	CAM1	12	Digital GND
EVI	SHIELD	CAM1	SHIELD	
EVI	43	CAM2	3	Analog GND
EVI	29	CAM2	4	Video
EVI	35	CAM2	5	Digital GND
EVI	34	CAM2	6	Hd
EVI	19	CAM2	7	Vd
EVI	35	CAM2	8	Digital GND
EVI	20	CAM2	9	Clock 2
EVI	35	CAM2	12	Digital GND
EVI	SHIELD	CAM2	SHIELD	
EVI	14	CAM3	3	Analog GND
EVI	44	CAM3	4	Video
EVI	33	CAM3	5	Digital GND
EVI	32	CAM3	6	Hd
EVI	18	CAM3	7	Vd
EVI	33	CAM3	12	Digital GND
EVI	SHIELD	CAM3	SHIELD	
EVI	30	CAM4	3	Analog GND
EVI	15	CAM4	4	Video
EVI	17	CAM4	5	Digital GND
EVI	16	CAM4	6	Hd
EVI	31	CAM4	7	Vd
EVI	17	CAM4	12	Digital GND
EVI	SHIELD	CAM4	SHIELD	
EVI	26	STROBE	3	Strobe 1
EVI	11	STROBE	4	Digital GND
EVI	39	STROBE	5	Strobe 2
EVI	23	STROBE	6	Frame Reset 1
EVI	11	STROBE	7	GND (FR Return)
EVI	21	STROBE	8	Frame Reset 2
EVI	SHIELD	STROBE	9	

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Table 7-13. Four-Camera Breakout Cable Pin Assignments

From:	Pin	To:	Pin	Function
Str/Pwr	1	CAM1	2	+12V power
Str/Pwr	1	CAM2	2	+12V power
Str/Pwr	1	CAM3	2	+12V power
Str/Pwr	1	CAM4	2	+12V power
Str/Pwr	2	CAM1	1	Power return
Str/Pwr	2	CAM2	1	Power return
Str/Pwr	2	CAM3	1	Power return
Str/Pwr	2	CAM4	1	Power return
EVI	--	Str/Pwr	9	Shield (chassis ground)
EVI	11	Str/Pwr	4	Strobe return
EVI	11	Str/Pwr	6	Reserved
EVI	11	Str/Pwr	8	Reserved
EVI	12	CAM1	3	Shield (video)
EVI	14	CAM3	3	Shield (video)
EVI	15	CAM4	4	Video
EVI	16	CAM4	6	Hd (horizontal drive)
EVI	17	CAM4	5	Shield (Hd)
EVI	17	CAM4	12	Shield (Vd)
EVI	18	CAM3	7	Vd (vertical drive)
EVI	19	CAM2	7	Vd (vertical drive)
EVI	20	CAM2	9	Clock
EVI	22	CAM1	9	Clock
EVI	26	Str/Pwr	3	Strobe 1
EVI	29	CAM2	4	Video
EVI	30	CAM4	3	Shield (video)
EVI	31	CAM4	7	Vd (vertical drive)
EVI	32	CAM3	6	Hd (horizontal drive)
EVI	33	CAM3	5	Shield (Hd)
EVI	33	CAM3	12	Shield (Vd)
EVI	34	CAM2	6	Hd (horizontal drive)
EVI	35	CAM2	5	Shield (Hd)
EVI	35	CAM2	8	Shield (Clock)
EVI	35	CAM2	12	Shield (Vd)

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Table 7-13. Four-Camera Breakout Cable Pin Assignments (Continued)

From:	Pin	To:	Pin	Function
EVI	36	CAM1	6	Hd (horizontal drive)
EVI	37	CAM1	7	Vd (vertical drive)
EVI	38	CAM1	5	Shield (Hd)
EVI	38	CAM1	8	Shield (Clock)
EVI	38	CAM1	12	Shield (Vd)
EVI	39	Str/Pwr	5	Strobe 2
EVI	40	Str/Pwr	7	Reserved
EVI	42	CAM1	4	Video
EVI	43	CAM2	3	Shield (video)
EVI	44	CAM3	4	Video
Note that this cable provides user-supplied 12V dc to the cameras obtained from the Strobe and Power connector, not from the Adept controller.				

Table 7-14. Pulnix TM-1001 Breakout Cable Pin Assignments

From:	Pin	To:	Pin	Function
CAM2	1	CAM 1	1	PWR GND
CAM3	1	CAM1	1	PWR GND
CAM4	1	CAM1	1	PWR GND
STROBE	1	CAM1	2	+12V power
CAM2	2	CAM1	2	+12V power
CAM3	2	CAM1	2	+12V power
CAM4	2	CAM1	2	+12V power
STROBE	2	CAM1	1	PWR GND
EVI	SHIELD	CAM1	SHIELD	
EVI	SHIELD	CAM2	SHIELD	
EVI	SHIELD	CAM3	SHIELD	
EVI	SHIELD	CAM4	SHIELD	
EVI	SHIELD	STROBE	9	
EVI	11	STROBE	4	Digital GND
EVI	11	STROBE	7	GND (FR Return)
EVI	12	CAM1	3	Analog GND
EVI	14	CAM3	3	Analog GND
EVI	15	CAM4	4	Video
EVI	16	CAM4	6	Hd

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Table 7-14. Pulnix TM-1001 Breakout Cable Pin Assignments (Continued)

From:	Pin	To:	Pin	Function
EVI	17	CAM4	5	Digital GND
EVI	17	CAM4	12	Digital GND
EVI	18	CAM3	7	Vd
EVI	19	CAM2	7	Vd
EVI	20	CAM2	9	Clock 2
EVI	21	STROBE	8	Frame Reset 2
EVI	22	CAM1	9	Clock 1
EVI	23	STROBE	6	Frame Reset 1
EVI	26	STROBE	3	Strobe 1
EVI	29	CAM2	4	Video
EVI	30	CAM4	3	Analog GND
EVI	31	CAM4	7	Vd
EVI	32	CAM3	6	Hd
EVI	33	CAM3	5	Digital GND
EVI	33	CAM3	12	Digital GND
EVI	34	CAM2	6	Hd
EVI	35	CAM2	8	Digital GND
EVI	35	CAM2	12	Digital GND
EVI	35	CAM2	5	Digital GND
EVI	36	CAM1	6	Hd
EVI	37	CAM1	7	Vd
EVI	38	CAM1	5	Digital GND
EVI	38	CAM1	8	Digital GND
EVI	38	CAM1	12	Digital GND
EVI	39	STROBE	5	Strobe 2
EVI	42	CAM1	4	Video
EVI	43	CAM2	3	Analog GND
EVI	44	CAM3	4	Video

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EVI Board Specifications

Table 7-15. Technical Specifications[a]

Electrical Power Consumption	5 VDC at 5.0 A +12 V at 1.25 A (including 1 amp for cameras) –12 V at 0.1 A
Width	Occupies 1 backplane slot

[a] Specifications subject to change.

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