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Cognex MVS-8000 Series

MVS-8100L Hardware Manual

October 2006

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Preface

This manual describes the Cognex MVS-8100L frame grabber and has the following sections:

- *MVS-8100L Hardware Installation* on page 9 describes how to configure and install the MVS-8100L in a host PC.
- *MVS-8100L Hardware Description* on page 21 describes the MVS-8100L in detail, including environmental, mechanical, and electrical specifications and the electrical interface.

Throughout this manual and Cognex software manuals, the name of the MVS-8100L may be abbreviated to 8100L.

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Style Conventions Used in This Manual

This manual uses the following style conventions:

boldface	Used for C/C++ keywords, function names, class names, structures, enumerations, types, and macros. Also used for user interface elements such as button names, dialog box names, and menu choices.
italic	Used for names of variables, data members, arguments, enumerations, constants, program names, file names. Used for names of books, chapters, and sections. Occasionally used for emphasis.
`courier`	Used for C/C++ code examples and for examples of program output.
`bold courier`	Used in illustrations of command sessions to show the commands that you would type.
<italic>	When enclosed in angle brackets, used to indicate keyboard keys such as *<Tab>* or *<Enter>*.

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Corporate Headquarters	Cognex Corporation Corporate Headquarters One Vision Drive Natick, MA 01760-2059 (508) 650-3000
Web Site	www.cognex.com

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MVS-8100L Hardware Installation

1

This chapter describes how to install the Cognex MVS-8100L frame grabber in a host PC.

Host PC Requirements

The host PC must meet the following minimum requirements to support MVS-8100L frame grabbers:

- The motherboard's chip set must be fully compliant with the PCI 2.1 specifications or later. Motherboards with Intel chip sets that support Intel Pentium MMX, Celeron, Pentium II, Pentium III, Pentium 4, and Xeon CPUs are known to be compliant. Motherboards with VIA chip sets that support the AMD K6-2 and Athlon CPUs are known to be compliant.
- One available two-thirds length PCI slot for the MVS-8100L.
- A CD-ROM drive, or access to one over a network, to install the Cognex software.

Additional requirements may be imposed by your Cognex software package. Check the Cognex software's release notes for the software's requirements, if any, on:

- Minimum recommended CPU speed
- Host operating system, including the supported service pack release level
- Supported video cards
- Desktop color depth (the number of colors displayable)
- Desktop size (the number of pixels displayable in width and height on your screen)
- The presence of a mouse or other pointing device

Note Cognex strongly recommends using an AGP video card with the MVS-8100L. Using a PCI video card will result in reduced frame rates and higher CPU usage when displaying live video.

Installing the MVS-8100L

The MVS-8100L frame grabber board installs in a PCI slot of the host computer. Expansion panels for additional cameras and trigger and strobe control can be installed in unused slot positions.

Before you begin, determine your camera configuration, camera power requirements, and the trigger and strobe control method. See your software release notes for the list of cameras that are supported for your hardware.

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Caution *Electrostatic discharge (ESD) can damage the electronic components of your Cognex hardware. We recommend the use of a grounded anti-static wrist strap when handling any electronic components.*

To install the MVS-8100L frame grabber:

1. Power off the host PC.
2. Remove the cover of the host PC and select a PCI slot for the MVS-8100L. The MVS-8100L requires a PCI slot that supports 5 V signalling and is slotted to allow placement only in a 5 V slot (which are the most commonly found PCI slot types).

   Motherboard PCI slots are keyed to allow acceptance of boards that use either 5 V or 3.3 V signalling. The bus connectors on all PCI boards are slotted to disallow placement of the board in the wrong type of slot. PCI slot keys are described in the following table and diagram.

PCI Slot Type	Key in PCI Slot
Supports 3.3 volt boards	Key is towards the back of the PC
Supports 5 volt boards	Key is towards the front of the PC

Table 1. PCI slot types

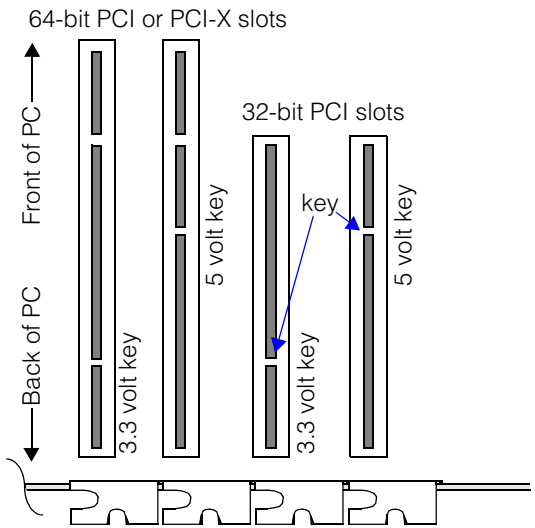


Figure 1. PCI slot types

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3. Select the source of +12 V camera power by positioning jumper JP1. Figure 2 shows the JP1 jumper position for internal camera power. The total available power with the jumper in this position is approximately 750 ma for *all* installed cameras.

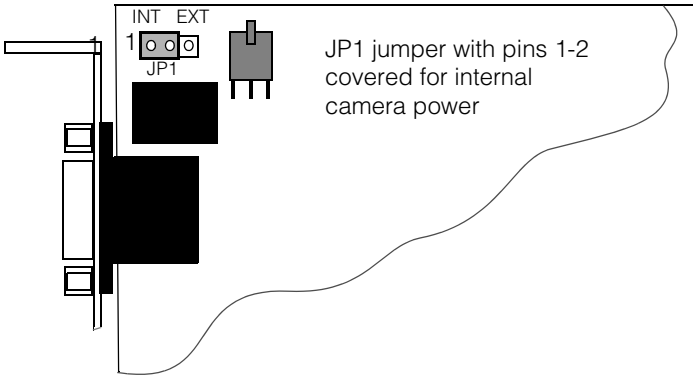


Figure 2. JP1 jumper position for internal camera power

Figure 3 shows the JP1 jumper position for external camera power. The total available power with the jumper in this position is 750 ma for *each* installed camera and no more that 3.5 A total for all cameras.

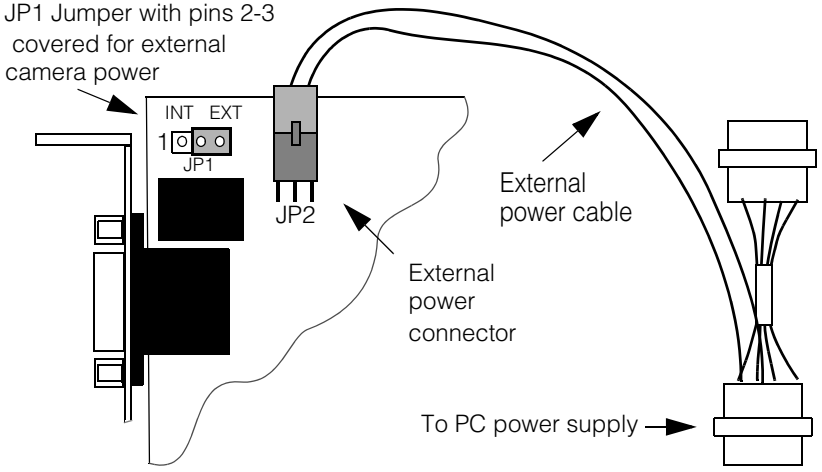


Figure 3. JP1 jumper position and power cable for external camera power.

Caution *Failure to properly configure the camera power source settings may result in damage to your frame grabber, motherboard, or both.*

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Note Changing or adding cameras after installation with the board configured for internal camera power may result in exceeding power limitations.

4. Insert the MVS-8100L into its PCI slot until it is seated firmly and replace the slot cover screw.

5. If you selected internal camera power in Step 3, proceed to step 6.

   If you selected external camera power in Step 3, connect the appropriate external power cable between connector JP2 on the MVS-8100L and the +12V power supply of the host PC as shown in Figure 3 on page 11. Both connectors are keyed and can only be inserted the correct way.

   See *Selecting an External Power Cable* on page 14 to determine the part number of the external power cable to use.

6. If you are not installing the camera port expansion panel, proceed to the next step.

   If you are installing the camera port expansion panel, Cognex P/N 300-0177, secure it in an unused bus slot position. Connect the 30-pin connector to the camera expansion header (JP3) on the MVS-8100L so that the red edge of the ribbon cable connector aligns with pin 1 as shown in Figure 4 and Figure 5.

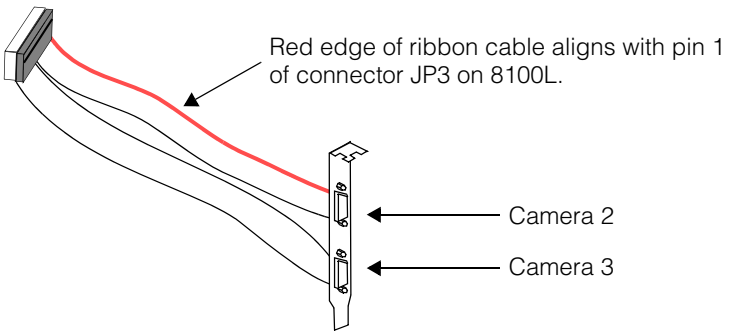


Figure 4. Location of pin 1 on camera port expansion panel

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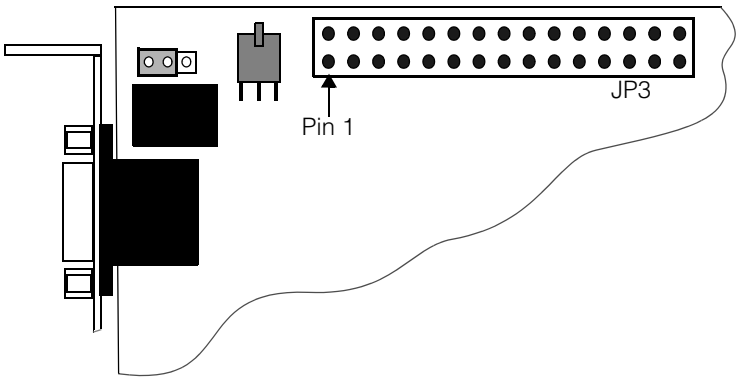


Figure 5. Location of pin 1 of connector JP3 on MVS-8100L

Caution *Failure to match up the red edge of the ribbon cable on the expansion panel connector with pin 1 on connector JP3 of the MVS-8100L may result in damage to a camera, the frame grabber, or both.*

7. If you are not using the trigger and strobe expansion panel, proceed to the next step. If you are using the trigger and strobe expansion panel, Cognex P/N 800-0062, install it in an unused slot position. Connect the ribbon cable to connector JP4 on the MVS-8100L so that pin1 on both connectors are aligned as shown in Figure 6 and Figure 7.

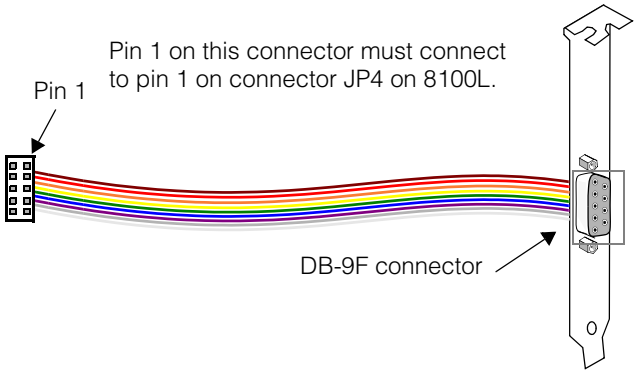


Figure 6. Trigger and strobe expansion panel (P/N 800-0062)

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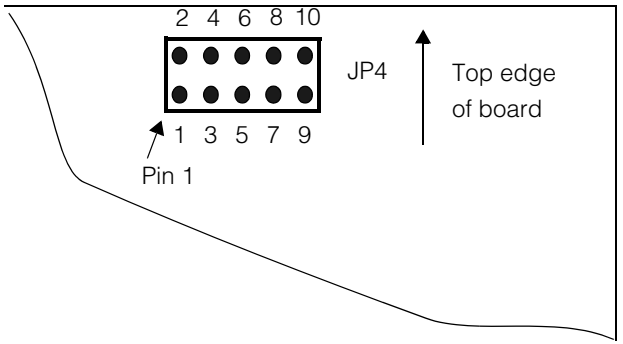


Figure 7. Location of pin 1 on connector JP4 of MVS-8100L

Caution *Failure to align pin 1 on the trigger and strobe expansion panel to pin 1 of the JP4 connector of the MVS-8100L may result in damage to a camera, the frame grabber, or both.*

8. Replace the cover of the host PC.
9. Connect external I/O equipment as required. See *Configuring Cameras* on page 16.
10. Connect cameras as required. See your software release notes for information about available cameras and required camera cables.

Note Connect cameras and external I/O equipment before applying power to the host PC.

11. Restore power to the PC and test as required.

Selecting an External Power Cable

Step 3 of the installation instructions describe the use of an external power cable under certain circumstances. The external power cable is plugged into jack JP2 to supply +12 V power for attached cameras.

MVS-8100L boards with board label 801-8136-04 or later have a locking jack at position JP2. This jack is designed to be used with power cable 300-0391. This cable has a matching plug that locks firmly into place in the new jack.

MVS-8100L boards with board labels earlier than 801-8136-04 use the original external power cable, 300-0175.

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The old and new JP2 connectors are are not meant to be interchangeable with the two power cables. You can mix old and new connectors and cables only as shown in Table 2.

	Older JP2 jack	**Newer JP2 jack**
Cable 300-0175	Fits and locks together; pull gently to remove the plug.	Fits loosely and does not lock. Use only for temporary or test configurations. Do *not* deploy systems using this combination.
Cable 300-0391	Does not mate; cannot be used together.	Fits and snap-locks together. Must press a clip on the plug to remove it.

Table 2. Interchangeability of external power cables

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Configuring Cameras

Some of the cameras supported for use with the MVS-8100L require switch settings to work best with Cognex software, as described in the following sections.

Configuring Sony XC-ES50 Cameras

The MVS-8100L supports the use of the Sony XC-ES50 family of cameras, including the XC-ES50 and XC-ES50CE. If you purchase your XC-ES50 cameras from Cognex, they arrive ready to use. If you purchase your XC-ES50 from a third party, you must configure the camera as shown in this section.

Figure 8 shows the back panel of the Sony XC-ES50 camera with the switches in their factory default position.

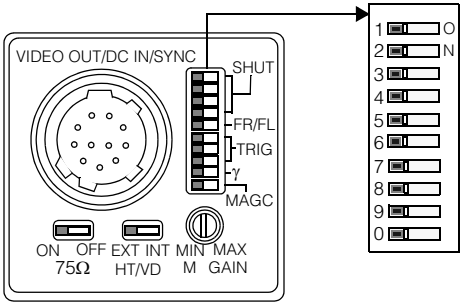


Figure 8. Sony XC-ES50 camera back panel

To configure the switches for the Sony XC-ES50 camera:

1. Configure the 10-position DIP switch as shown in Figure 8.

Note You can set switch 5 to ON in factory default mode to use field integration rather than frame integration (single field and half-resolution video formats only).

2. Set the manual gain switch in the fully vertical position.
3. Set the HD/VD switch to external (EXT).
4. Set the 75Ω switch to ON.

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Configuring Sony XC-ST50 Cameras

The MVS-8100L supports the use of the Sony XC-ST50 cameras. If you purchase your XC-ST50 cameras from Cognex, they arrive ready to use with the MVS-8100L. If you purchase your XC-ST50 from a third party, you must configure the camera as shown in this section.

Figure 9 shows the back panel of the Sony XC-ST50 camera with the switches in their factory default positions.

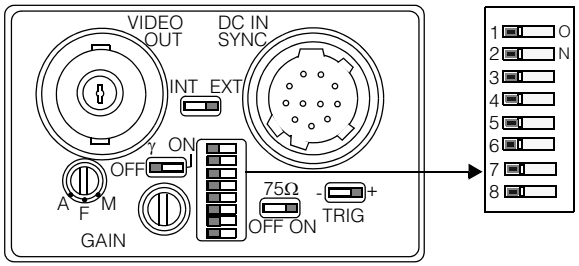


Figure 9. Sony XC-ST50 camera back panel

To configure the switch for the Sony XC-ST50 camera:

1. Configure the 8-position DIP switch as shown in Figure 9.

Note Set switch 5 to ON in free-running mode to use field integration rather than frame integration (single field and half-resolution video formats only).

2. Set gain to the “F” position.
3. Set the INT EXT switch to external (EXT).
4. Set TRIG to +.
5. Set gamma (γ) to off.
6. Set the 75Ω switch to ON.

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Connecting External I/O Equipment

You can connect the following external I/O equipment to the MVS-8100L:

- One high-speed optically isolated trigger input that triggers image acquisitions on one to four monochrome cameras
- One high-speed strobe output that allows MVS-8100L-controlled illumination of the scene under one to four monochrome cameras
- One software-controlled optically isolated output that can be used by your vision processing application as an accept/reject or status control line

Trigger and strobe lines can be connected to either the trigger and strobe expansion panel or to certain pins on the camera port 1 connector. Status output lines can only be connected to the trigger and strobe expansion panel.

Note *Either* camera port 1 *or* the trigger and strobe expansion panel can be used to provide trigger and strobe signals. Both sources can not be used to provide signals at the same time

Connecting I/O Lines to the Trigger and Strobe Expansion Panel

To connect I/O lines to the trigger and strobe expansion panel:

1. Ensure that the trigger and strobe expansion panel is installed correctly. See *Installing the MVS-8100L* on page 9.
2. Make up external lines and connect them to the DB- 9F connector. See *Trigger and Strobe Expansion Panel* on page 31 for schematic, signal, and pinout information for the DB-9F connector.

Connecting I/O Lines to Camera Port 1

With the use of a special Cognex camera cable, camera port 1 can supply both camera and trigger and strobe signals. The accept/reject I/O status line is not available through camera port 1.

To install I/O lines to camera port 1:

1. Connect the camera splitter cable, Cognex P/N 300-0178, to camera port 1. This cable separates the trigger and strobe lines from the camera control lines.
2. Make up external I/O lines and connect them to the RJ-12 jack of the camera splitter cable. See *Camera Splitter Cable* on page 27 for pinout of the RJ-12 jack.

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3. Connect a camera to the splitter cable as required.

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MVS-8100L Hardware Description

2

This chapter describes the hardware specifications for the Cognex MVS-8100L frame grabber. The MVS-8100L is a 32-bit PCI bus frame grabber that fits into a single slot in an industry-standard PC. The MVS-8100L can:

- Acquire 8-bit images from monochrome cameras
- Support up to four camera inputs
- Transfer acquired images over the PCI bus to memory on the host PC
- Display the images being acquired on the host PC

Table 3 summarizes the capabilities of the MVS-8100L. More detail about each feature is provided later in this chapter.

Frame Grabber Feature	MVS-8100L
Image acquisition timing supported	CCIR or EIA RS-170
Acquired image size	640x480, 640x240 (EIA RS-170) 760x574, 760x287 (CCIR)
Acquired image resolution	8 bits per pixel
Camera input ports	4 (2 on baseboard, 2 with expansion panel)
Camera power supplied by board	Yes
Source of synchronization signals	Camera or MVS-8100L
Overlapped image acquisition and processing	Yes
External trigger support	One high-speed optically isolated trigger input
Strobe support	One high-speed open-collector strobe output
Output signal line	One optically isolated accept/reject/status control
Board power requirements	The PCI connector is slotted only for 5 V signaling and must be placed in 5 V PCI slot.

Table 3. MVS-8100L features

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Mechanical Specifications

The Cognex MVS-8100L is 107 mm (4.2 inches) high by 175 mm (6.8 inches) long and occupies a single PCI bus slot. Figure 10 shows the major components of the MVS-8100L.

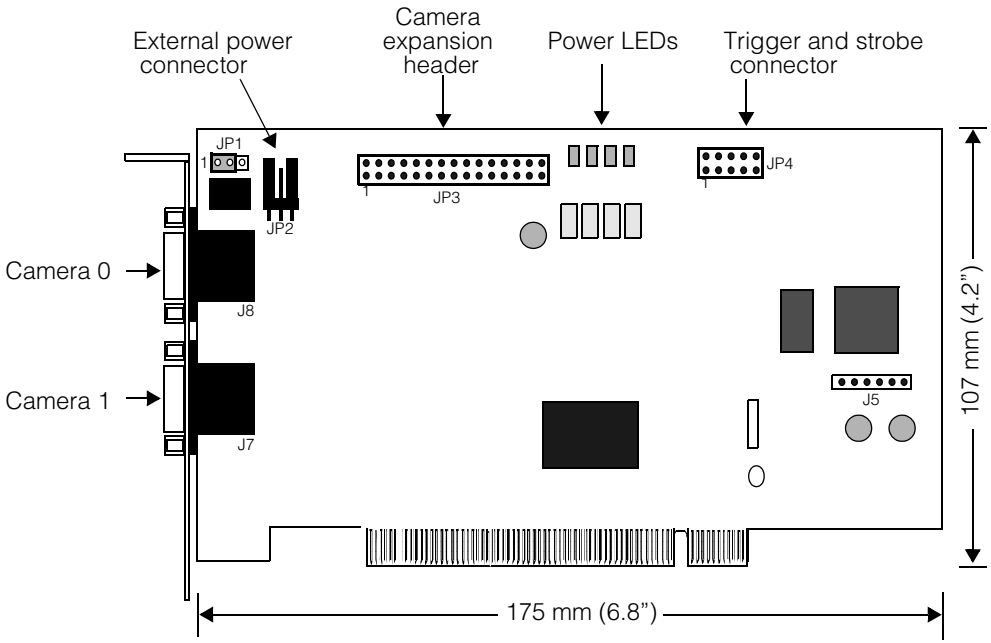


Figure 10. MVS-8100L component location

Two camera ports are located on the back panel. Camera port 0 is the upper port. Camera port 1 is the lower port.

Optional expansion panels for the MVS-8100L are available. One expansion panel provides access for camera ports 2 and 3. Another expansion panel provides access to external I/O signals. Each expansion panel occupies a back panel slot of the host PC but does not connect to the bus.

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Environmental Requirements

Table 4 lists the environmental requirements for the MVS-8100L frame grabber. These specifications are for the environment inside the PC in which the MVS-8100L is installed.

	Operating Conditions	Storage Conditions
Temperature	10° to 50° C	–40° to 65° C
Humidity (non-condensing)	10% to 90%	10% to 90%

Table 4. Environmental requirements

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Electrical Specifications

This section describes the electrical specifications for the MVS-8100L including power requirements and signal descriptions. See Figure 13 on page 27 for the location of the components described in this section.

Power Requirements

Power for +5 VDC and –12 VDC is provided through the PCI bus. Power for +12 VDC is provided through the PCI bus or through a direct connection to the power supply of the host PC, depending on the setting of jumper JP1. Table 5 lists the power requirements for the MVS-8100L frame grabber board.

Voltage	Tolerance	Requirements	Max Ripple
+5 VDC	± 5%	1.5 A	100 mV
+12 VDC (from PCI bus)	± 10%	200 mA, board only. Limit total power draw for the board and all cameras to 950 mA.	100 mV
+12 VDC (from PC's power supply)		200 mA, board only. Limit total power draw for the board and all cameras to 3.5 A.	
–12 VDC	± 10%	200 mA	100 mV

Table 5. MVS-8100L power requirements

Power Selector Jumper JP1

Power for +12 VDC can be drawn through the PCI bus or from the power supply of the host PC, using an external power cable. The position of jumper JP1 determines the source of camera power as described in *Installing the MVS-8100L* on page 9.

Select the appropriate external power cable for your MVS-8100L as described in *Selecting an External Power Cable* on page 14.

Camera Fuses

Attached cameras draw from the available +12 V power of the MVS-8100L. Each camera can draw up to 750 mA of current; each camera channel has a PolySwitch resettable fuse at 1 A.

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Output Power Indicator LEDs

Four LEDs on the top edge of the MVS-8100L show the status of the resettable fuses for the four camera ports. The LEDs are normally illuminated when power is on. When an LED is off, it indicates an overcurrent fault on the associated camera port. The ports are protected by PolySwitch resettable fuses, so that removing the overcurrent condition should re-illuminate the LED.

Note Overcurrent conditions should be corrected immediately.

When all four indicators are out, it usually indicates a bad power source. In this case, check the position of jumper JP1: if this jumper is in the EXT position (pins 2-3 covered), then you must have the external power cable connected to the jack at JP2, and connected to the PC's power supply. See *Installing the MVS-8100L*, step 3 on page 11.

Figure 11 shows the locations of the indicator LEDs for the camera ports. Note that the LEDs do not correspond to camera ports in numerical order.

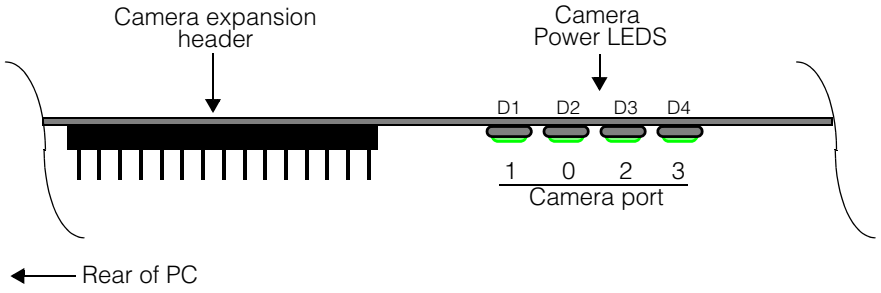


Figure 11. Top view of MVS-8100L showing camera power indicator LEDs

Camera Ports

The MVS-8100L receives analog video signals through four video input ports referred to as camera 0, 1, 2, and 3. Each video port can also supply power and synchronization signals to its camera.

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Camera Port Connectors

Camera 0 and 1 port connectors are high-density, 15-pin, HD-15F connectors located on the back panel of the MVS-8100L. Cameras 2 and 3 port connectors are high-density HD-15F connectors located on the camera port expansion panel. Figure 12 shows the pin numbering for all four camera port connectors.

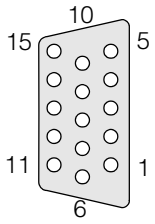


Figure 12. Pin numbering for camera port connectors

The HD-15F connector used for all four camera ports is equivalent to Amp part number 748390-5. The jack screw size for connecting cables is #4-40.

Note The camera connectors are similar to the connector for a standard VGA monitor. Attaching a VGA monitor cable to a camera connector can cause the board to malfunction. However, the PolySwitch resettable fuse on the camera port should protect the board from permanent damage. Normal operation is restored after the incorrect connection is removed.

Pinout of Camera Port 1

The pinout for camera port 0 differs from that of the other camera ports in that it includes alternative access to the trigger and strobe I/O lines. Table 6 shows the pinout for camera port 1.

Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
1	TRIG–	6	TRIG+	11	Shield
2	Video	7	Ground (Video)	12	Ground (HD)
3	STROBE–	8	STROBE+	13	Horizontal drive
4	+12 VDC (Camera)	9	+12 VDC (Camera)	14	Vertical drive
5	Ground (Camera)	10	Ground (Camera)	15	Ground (VD)

Table 6. Pinout for camera port 1

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Pinout of Camera Ports 0, 2, and 3

The pinout of camera ports 0, 2, and 3 is similar to camera port 1, except that there is no trigger and strobe access. Table 7 shows the pinout for camera ports 0, 2, and 3.

Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
1	No connect	6	No connect	11	Shield
2	Video	7	Ground (Video)	12	Ground (HD)
3	No connect	8	No connect	13	Horizontal drive
4	+12 VDC (Camera)	9	+12 VDC (Camera)	14	Vertical drive
5	Ground (Camera)	10	Ground (Camera)	15	Ground (VD)

Table 7. Pinout for camera ports 0, 2, and 3

Camera Splitter Cable

When using camera port 1 for trigger and strobe signals, you must use camera splitter cable, Cognex P/N 300-0178, to separate the trigger and strobe lines from the camera control lines. This cable splits out the four lines on pins 1, 3, 6, and 8 of camera port 1 to an RJ-12 jack. Figure 13 shows the cable.

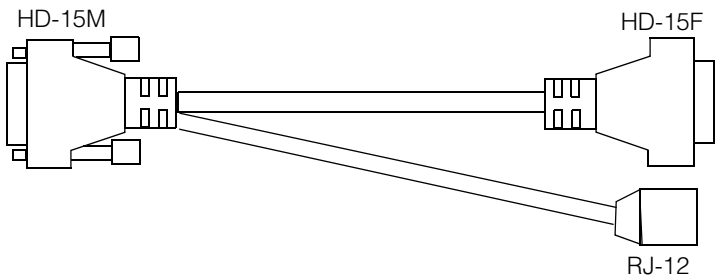


Figure 13. Camera splitter cable P/N 300-0178

You can also connect trigger and strobe signals with the trigger/strobe expansion panel described on page 31.

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Camera Splitter Cable RJ-12 Jack

The RJ-12 jack carries the I/O signals. Figure 14 shows the pin numbering for the RJ-12 jack.

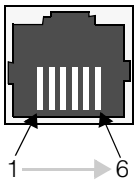


Figure 14. Pin numbering of RJ-12 jack for cable P/N 300-0178

Table 8 shows the pinout for the RJ-12 jack.

Pin on RJ-12 jack	Signal
1	No connect
2	STROBE+
3	STROBE–
4	TRIG+
5	TRIG–
6	No connect

Table 8. Pinout for camera splitter cable RJ-12 jack

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Camera Port Expansion Panel

The camera port expansion panel carries signals for cameras 2 and 3 from the internal camera expansion header, JP3, on the MVS-8100L frame grabber to the back panel of the host PC. Figure 15 shows the expansion panel.

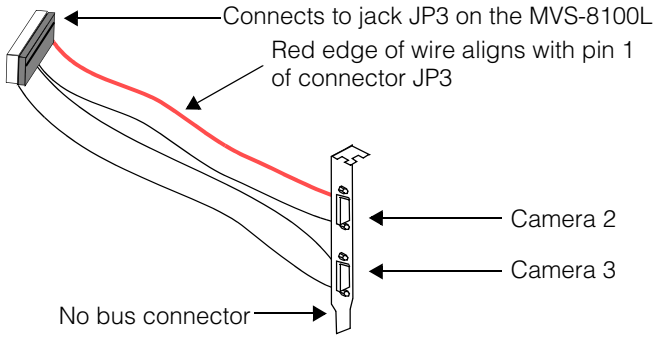


Figure 15. Camera port expansion panel

When installing the expansion panel, the red edge of the ribbon cable must align with pin 1 of the camera expansion header, JP3, on the MVS-8100L.

Camera Expansion Header

The camera expansion header, jack JP3, provides access to camera 2 and 3 signals. Figure 16 shows the pin numbering of the camera expansion header.

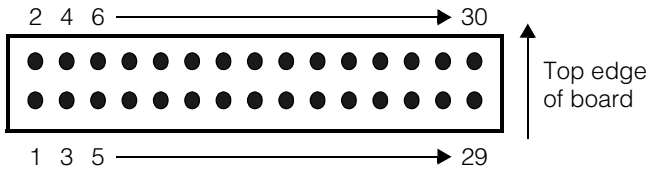


Figure 16. Pin numbering of camera expansion header, JP3

Table 9 shows the pinout for the camera expansion header.

Pin	Signal Name	Pin	Signal Name
1	No connect	2	Camera 2 video
3	No connect	4	+12 VDC (Camera 2 power)

Table 9. Pinout of internal camera expansion header, JP3

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Pin	Signal Name	Pin	Signal Name
5	Ground (Camera)	6	No connect
7	Analog ground	8	No connect
9	+12 VDC (Camera 2 power)	10	Ground (Camera)
11	No connect	12	Camera 2 HD Ground
13	Camera 2 horizontal drive	14	Camera 2 vertical drive
15	Camera 2 VD Ground	16	No connect
17	No connect	18	Camera 3 video
19	No connect	20	+12 VDC (Camera 3 power)
21	Ground (Camera)	22	No connect
23	Analog ground	24	No connect
25	+12 VDC (Camera 3 power)	26	Ground (Camera)
27	No connect	28	Camera 3 HD Ground
29	Camera 3 horizontal drive	30	Camera 3 vertical drive

Table 9. Pinout of internal camera expansion header, JP3

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Trigger and Strobe Expansion Panel

The trigger and strobe expansion panel, Cognex P/N 800-0062, carries trigger, strobe, and status lines from the trigger and strobe jack, JP4, on the MVS-8100L to a DB-9F connector on the back panel of the host PC. Figure 17 shows the trigger and strobe expansion panel.

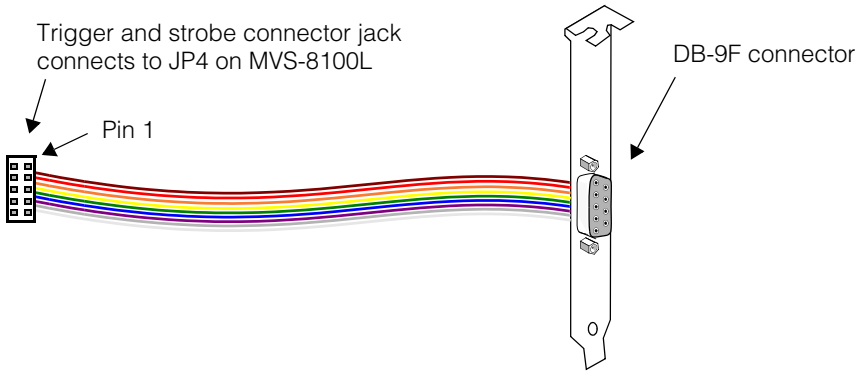


Figure 17. Trigger and strobe expansion panel P/N 800-0062

Figure 18 shows the pin numbering of the DB-9F connector.

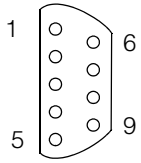


Figure 18. Pin numbering of the trigger and strobe DB-9F connector

Table 10 shows the pinouts of the trigger and strobe connector and DB-9F connector.

Pin Number on JP4	Pin Number on DB-9F	Signal Name
1	1	TRIG+
3	2	STROBE+
5	3	PWR (see note)
7	4	STSO

Table 10. Pinout of trigger and strobe expansion panel

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Pin Number on JP4	Pin Number on DB-9F	Signal Name
9	5	GND (see note)
2	6	TRIG–
4	7	STROBE–
6	8	STSOP
8	9	STSOR

Table 10. Pinout of trigger and strobe expansion panel

Note The PWR (pin 3) and GND (pin 5) connections on the DB-9F connector supply +5 V through current limiting resistors. This reduces the available voltage with significant current draw.

See your Cognex software documentation for a description of the software interface for the MVS-8100L external I/O connections.

Trigger and Strobe Header

Figure 19 shows the pin numbering for the trigger and strobe header jack, JP4, on the MVS-8100L.

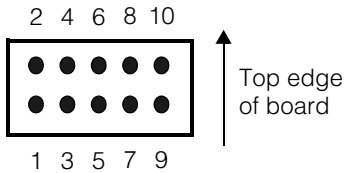


Figure 19. Pin numbering of trigger and strobe header, JP4

Table 11 shows the pinout for the trigger and strobe header.

Pin	Signal Name
1	TRIG+
2	TRIG–
3	STROBE+

Table 11. Pinout of trigger and strobe header, JP4

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Pin	Signal Name
4	STROBE–
5	PWR (see note on page 32)
6	STSOP
7	STSO
8	STSOR
9	GND (see note on page 32)
10	No connect

Table 11. Pinout of trigger and strobe header, JP4

Jumper and Jack Settings for the MVS-8100L

Table 12 lists the jumpers and jacks on the MVS-8100L and describes how they are used. To locate the jacks on the MVS-8100L, refer to Figure 10 on page 22. On the MVS-8100L, pin 1 is to the left of all horizontal jumper blocks.

Jumper or Jack	Number of Pins	Default Setting	Purpose
JP1	3	1-2	Selects source of +12 V power. With pins 1-2 covered, the MVS-8100L pulls +12 V from the PCI bus. With pins 2-3 covered, the MVS-8100L pulls power from an external power source connected to jack JP2.
JP2	3	N/A	Connection point for a source of external +12 V power using the appropriate external power cable as described in *Selecting an External Power Cable* on page 14.
JP3	30	N/A	Camera expansion header. Connection point for the camera port expansion panel.
JP4	10	N/A	Connection point for the trigger and strobe expansion panel.
J5	6	N/A	Do not use, Cognex use only.

Table 12. Jumper and Jack Settings

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Schematics for I/O Circuits

This section shows schematic circuit diagrams for the I/O circuits used in the MVS-8100L.

Trigger Input

Trigger input is used to initiate the acquisition of an image from the currently selected camera port. A pair of connections (TRIG+ and TRIG–) provide an optically isolated trigger input. To activate the interrupt, between 4 and 13 volts must be applied to the terminals. The trigger's polarity state is programmable via software. The schematic of the external trigger input circuit is shown in Figure 20.

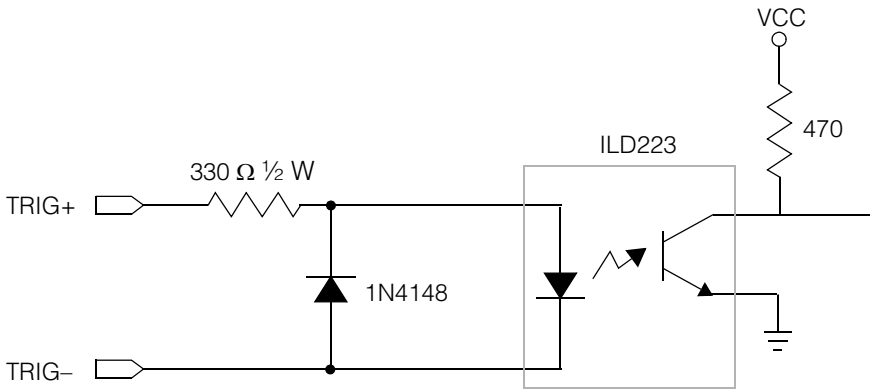


Figure 20. Trigger input schematic

Status Output

Status output is available for use by your application, as a software controllable parallel output line. The signal connections are optically isolated. You can use the status output in one of two ways:

- Attach the STSOP and STSOR pins to an optically isolated device.
- Attach STSOP to PWR and STSOR to GND, and use STSO as a TTL output (the current-limiting resistors on PWR and GND protect the MVS-8100L and the host computer).

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The schematic of the status output circuit is shown in Figure 21.

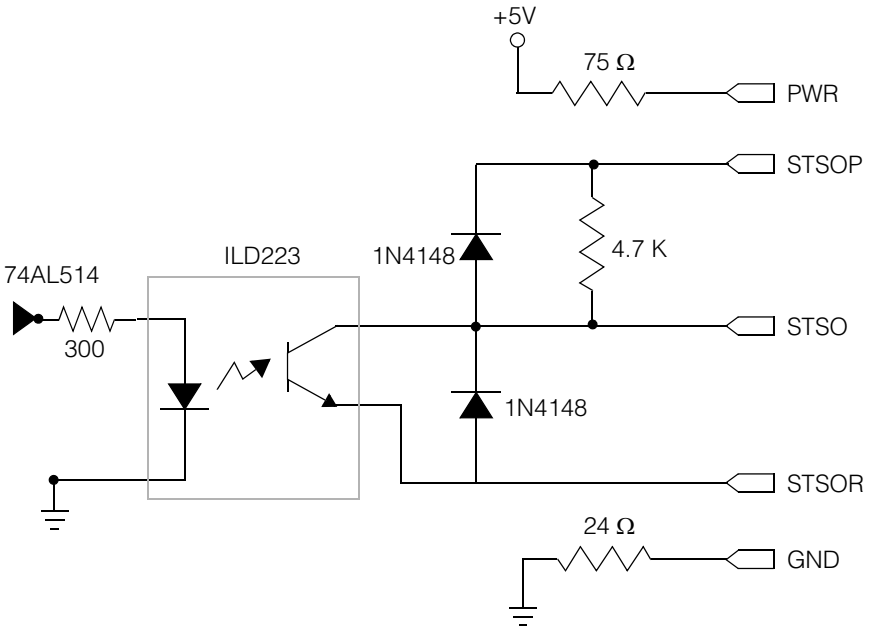


Figure 21. Status output schematic

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Strobe Output

Strobe output is used to activate a photo strobe at the instant of image acquisition. The strobe device to be triggered should have optically isolated inputs. The strobe output signal is a pulse of 20 to 30 mA, with a duration of about two horizontal line scans. The polarity of this output is high. The schematic of the strobe output circuit is shown in Figure 22.

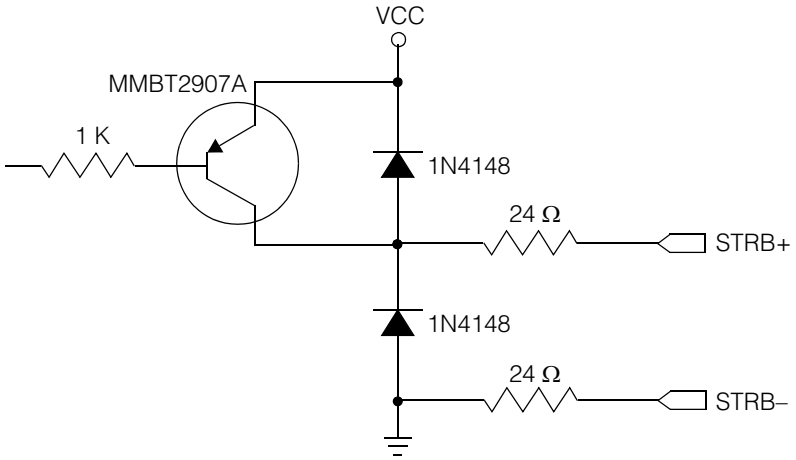


Figure 22. Strobe output schematic

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MVS-8100L Cameras and Camera Cables

You may purchase cameras for use with the MVS-8100L through Cognex, or you may use your own compatible cameras. Consult with your Cognex representative for cabling and other requirements if you plan to use nonstandard cameras. Failing to do so may affect the warranty coverage on your frame grabber.

Table 13 shows the supported cameras for the MVS-8100L.

Camera	EIA/ CCIR	Notes	Cognex Camera Cable Part Number
Sony XC-75	EIA		300-0181
Sony XC-75CE	CCIR		300-0181
Sony XC-ST50 Sony XC-ES50	EIA	With switches in factory default mode	300-0181
Sony XC-ST50CE Sony XC-ES50CE	CCIR	With switches in factory default mode	300-0181
Pulnix TM-6CN	CCIR	Supplies sync to the MVS-8100L	300-0264
Pulnix TM-7EX	EIA		300-0155

Table 13. MVS-8100L supported cameras and cables

Optional Camera Lenses

Cognex offers a lens kit (P/N 800-1000), which includes five lenses (8.5 mm, 12.5 mm, 16 mm, 25 mm, and 50 mm F2.8 macro), a C-mount adapter, and an extension tube set.

Cognex also offers a variety of camera lenses that you can order individually, including all the lenses in the lens kit, plus 50 mm, 75 mm, and 135 mm lenses. You can also order a C-mount adapter, a 2X extender lens, or an extension tube set.

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