



Operations Manual

# **D1 Pipeline**

## **Audio/Video Delay-Synchronizer with Digital I/O**

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# Limited Warranty

## Exceptions\*

Primary condition: This warranty is valid only after completion within ten (10) days of the enclosed warranty card and return of the original to Prime Image, inc., 662 Giguere Court #C, San Jose, CA 95133. A copy of this warranty should be kept for purchaser's records.

Prime Image, inc. warrants that each new unit is free of defects due to faulty material and/or improper workmanship. Prime Image, inc. further warrants, subject to the conditions set forth herein, that it will repair or replace any part of the enclosed unit which proves defective for a period of 3 years from the date of original purchase at retail, without charge for parts or labor.

## Conditions of Warranty:

**Unit Purchase:** Original purchase must be from an authorized Prime Image, inc. distributor or representative.

**Original Purchaser:** This warranty is limited to the original purchaser of the unit at retail. Warranty is non-transferable.

**Notification of Defect:** The Prime Image, inc. distributor or representative who supplied the unit must be notified of any defect in material or workmanship.

**Return of Unit to Prime Image, inc. (At Prime Image, inc. Option):** Approval shall have been obtained from Prime Image, inc. before return of unit or any parts and accessories of unit. Prime image, inc. is not obligated to accept any unit or other goods without prior Prime Image, inc. authorization to do so.

**Proper Shipment:** The unit shall be shipped or delivered to a facility authorized by Prime Image, inc. to render the services provided hereunder in either its original package or a similar package affording an equal degree of protection.

**Unauthorized Repair, Abuse, etc.:** The unit shall not have been previously altered, repaired or serviced by anyone other than a service facility authorized by Prime Image, inc. to render such service; the serial number on the unit shall not have been altered or removed; the unit shall not have been subject to accident, misuse, abuse or operated contrary to the instructions contained in the accompanying manual. Replacement parts covered under this warranty carry only the unexpired term or portion of the original product warranty.

Prime Image, inc. reserves the right to make improvements on its products or parts without assuming any obligation to install them in previously manufactured units.

This warranty is in lieu of all other warranties expressed or implied, including, without limitation, any implied warranty. Prime Image, inc. shall have the final right of determination as to the existence and cause of any defect and the appropriate action required in accordance with this warranty. In no event shall Prime Image, inc. be liable for any collateral or consequential damages or losses associated with its product.

\*Exceptions to this limited warranty which apply to the Pipeline Audio/Video Delay and all Audio/Video Delay options are: all solid state memory has a limited warranty of one year.

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# Section 1

## General Information

### Scope of this Manual

This manual gives you the information necessary to install and operate the D1 Pipeline digital interface audio/video delay, manufactured by Prime Image, inc.

### Manual Improvements

Changes to this manual are documented by numbered engineering change orders. Individual users of this manual are encouraged to report any errors, omissions, or suggestions for improvement to the following address:

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Prime Image, inc.  
662 Giguere Court #C  
San Jose, CA 95133  
Phone: (408) 867-6519

### Proprietary Information

The information in this manual is furnished solely for the purpose of providing instructions for installation and operation of the equipment described herein. Any other use of this information without the written consent of Prime Image, inc. is strictly prohibited.

### Section 1.1 Product Description

The D1 Pipeline is a wide-bandwidth direct Audio/Video Delay unit with a serial digital interface. It is a self-contained solid state unit that delays both video and audio for up to 10 seconds without data compression. An additional 20 seconds of delay is available.

The D1 Pipeline features 10-bit video processing, with a primary video input complemented by an auxiliary/alternate video input. Audio processing is 24-bit with four channels in and out along with four auxiliary/alternate audio channels. Audio in all channels can be selected for AES/EBU, digital or analog, and can be switched with, or independent of, auxiliary video.

## Section 1.2 Specifications

The following specifications apply at 20°C:

### Video Interface

Input	D1 (270 Mb/s Component Serial)	75Ω, BNC
Output (2 each)	D1 (270 Mb/s Component Serial)	75Ω, BNC
AUX Input (alternate source)	D1 (270 Mb/s Component Serial)	75Ω, BNC

### Audio Interface

Inputs (4 channels)	Digital (AES/EBU) up to 24 bits	110Ω, balanced, 2 XLR
Outputs (4 channels)	Digital (AES/EBU) up to 24 bits	110Ω, balanced, 2 XLR
AUX Inputs (4 channels, alternate source)	Digital (AES/EBU) up to 24 bits	110Ω, balanced, 2 XLR
Inputs (4 channels)	Analog (18 bit)	600Ω, balanced, 4 XLR
Outputs (4 channels)	Analog (18 bit)	600Ω, balanced, 4 XLR
AUX Inputs (4 channels, alternate source)	Analog (18 bit)	600Ω, balanced, 4 XLR

Note: Passes all ancillary data (including embedded audio).

### Other

External Reference (genlock)	300mVpp, Black Burst	Hi-Z, looping, BNC
GPI Control	Switch closure	9-pin D connector
Remote Control	232/422 selectable	9-pin D connector

### Environmental

Operating Temperature	+32° to +113°F (0° to +45°C)	
Operating Humidity	10% to 95% RH, non-condensing	
Power Supply	96-132 or 185-254 VAC, 50 or 60 Hz	
Power Dissipation	50 Watts	
Height	2U, 3.5 inches	(8.89 cm)
Width	19 inches	(48.3 cm)
Depth	15 inches	(38.1 cm)
Weight	35 lbs.	(16.0 kg)

### Options

Remote Control	R-2	9-pin D connector
Rack Mount		

All specifications subject to change without notice.

## **Section 2 Shipping**

This section contains the information necessary for you to unpack, inspect, repack, and ship the D1 Pipeline unit.

### **Section 2.1 Unpacking**

The D1 Pipeline is shipped in a re-usable cardboard shipping carton which may be opened with a sharp, short-blade knife. Within the carton the D1 Pipeline is supported in foam packing material and wrapped in a poly bag. Accessories are contained in a separate bag beside the frame. An external pouch contains a packing list showing the contents of the carton. The shipping weight of the D1 Pipeline with carton is less than 50 lbs. It may be carried with care by one person.

### **Section 2.2 Inspection**

The individual parts of your unit were inspected prior to shipment, and the unit should be in good operating order. Carefully inspect the components and accessories for any physical damage sustained in transit. If the unit is received in a damaged condition, notify your dealer or the factory immediately, and file a claim with the carrier.

Please verify that you have received all the items that should accompany the unit. Refer to Table 2-1 for a list of accessories. If you have any difficulties with the unit, if it is not operating properly, or if accessories are missing, contact your dealer or the factory Customer Service Department.

Retain the carton and original packing materials in case the unit must be shipped.

### **Section 2.3 Packing**

When repacking the unit for shipping, be sure that the unit and accessories are secured in the configuration described in Section 2.1. Check that all seams are securely sealed with tape, and the carton is clearly marked.

## Section 2.4 Accessories

The following table lists the accessories you should have received with your D1 Pipeline unit:

*Table 2-1. List of Accessories*

<b>Description</b>	<b>Quantity</b>
D1 Pipeline Audio/Video Delay frame	1
Line cord, AC power	1
D1 Pipeline Audio/Video Delay Operations Manual	1
Packing carton (with spacers and bags)	1

## Section 3 Installation

This section gives you the information necessary to properly install the D1 Pipeline unit including power, environmental, and interconnection requirements.

### Section 3.1 Power and Environmental Requirements

The D1 Pipeline unit is designed to operate from a power source providing 96-132 VAC or 185-264 VAC, single phase 50 or 60 Hz.

To protect operating personnel and equipment, the unit should only be connected to a three-pronged grounded receptacle using the power cable provided. See Figure 3-1 for the location of the power cable connector and the main power switch.

The D1 Pipeline is cooled by an internal fan that draws cool external air in through the slots at the top of the front panel and exhausts warmed air out the rear panel, if unobstructed. When installing the D1 Pipeline, leave a minimum of 6 inches clearance behind the unit to provide maximum air flow for cooling.

#### **Warning**

Proper operation of the unit within the specifications cannot be guaranteed if the top cover of the unit is removed thus depriving the electronics of optimum cooling. Furthermore, operating the unit with the top removed will expose the operator to the fan blades which are not shrouded. This practice is NOT recommended.

## Section 3.2 System Interconnection

All connections to the D1 Pipeline unit are made at the rear panel, as follows:

*Table 3-1. Interconnection Requirements*

<b>Name</b>	<b>Characteristics</b>	<b>Function</b>
AC Power	96-132 VAC or 185-264 VAC 50 or 60 HZ	On/Off rocker switch (O/I) on rear panel.
Digital Vid In	75Ω, BNC	Serial digital video input.
Digital Vid Out 1	75Ω, BNC	Delayed serial digital video output.
Digital Vid Out 2	75Ω, BNC	Delayed serial digital video output.
Digital Vid AUX	75Ω, BNC	Serial digital video input from an alternate source.
Digital Audio AUX CH1/2 and CH3/4	110Ω, balanced, XLR connectors	Digital audio input from an alternate source (4 channels).
Digital Audio CH1/2 In and CH3/4 In	110Ω, balanced, XLR connectors	Digital audio input (4 channels).
Digital Audio CH1/2 Out and CH3/4 Out	110Ω, balanced, XLR connectors	Delayed digital audio output (4 channels).
Analog Audio AUX1-4 In	600Ω, balanced, XLR connectors	Analog audio input from an alternate source (4 channels).
Analog Audio AUD1-4 In	600Ω, balanced, XLR connectors	Analog audio input (4 channels).
Analog Audio AUD1-4 Out	600Ω, balanced, XLR connectors	Delayed analog audio output (4 channels).
GPI	9-pin D connector	GPI control.
Genlk Loop	HiZ loop-thru, 2 BNCs	Reference sync input from external generator. Video output will be locked to this input.
Remote	9-pin connector	Remote interface for R-2 remote option. 232/422 selectable.

Figure 3-1 shows the locations of the rear panel connectors.

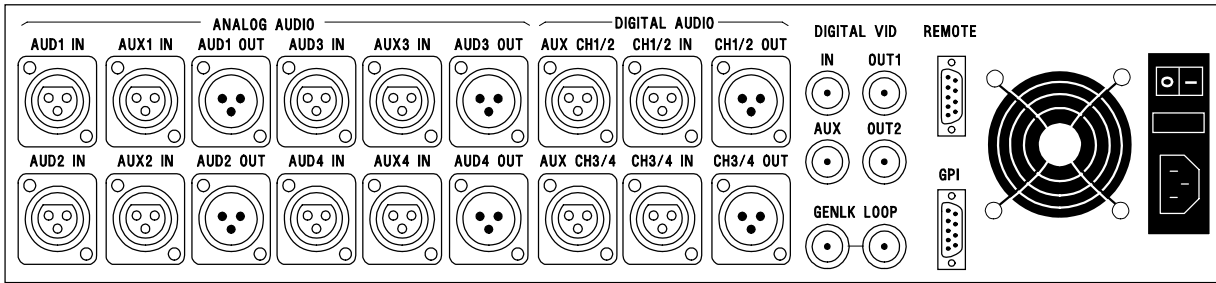


Figure 3-1. Rear Panel Connectors

The unit may be connected to your system according to the desired application using RG-59/U (or equivalent) coaxial cable terminated with BNC connectors. For first time operation, see Section 4.2.

# Section 4 Operation

This section provides the information necessary to operate the D1 Pipeline. It includes descriptions of the operating controls and menus.

## Section 4.1 Controls and Menus

Front panel controls (Figure 4-1) allow adjustments of various video and audio signal parameters. The LCD on the front panel displays the setting for each parameter. To access the menus listed in Table 4-1, press the corresponding button, scroll through the menu using the **MODE+** and **MODE-** buttons, and adjust the setting using the **SET+** and **SET-** buttons (for coarse adjustment) and the dial (for fine adjustment). Pressing **SET+** and **SET-** simultaneously at the display of a parameter resets the level of that parameter to unity. The four function keys (F1 through F4) can be programmed for quick action (see the System menu *Program Key F?* in Table 4-1). The D1 Pipeline unit is shipped with all parameters set at unity.

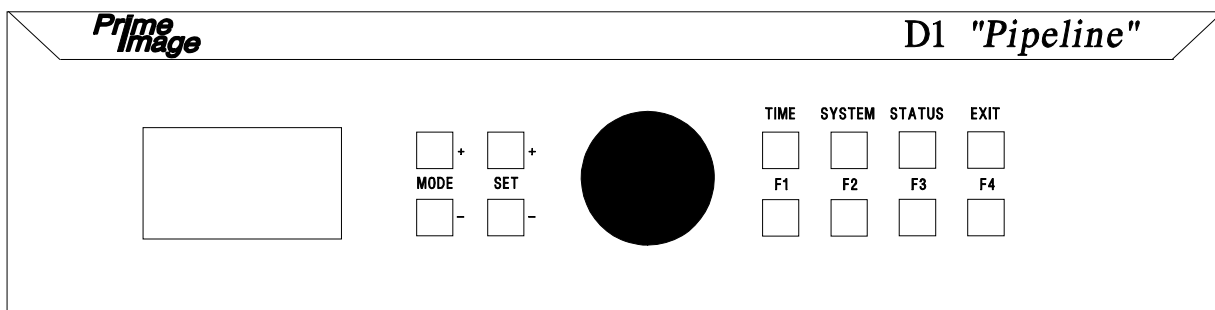


Figure 4-1. Front Panel Controls and Display

### Delay Controls

The D1 Pipeline has two modes of delay adjustment:

- Mode 1 The audio delay is equal to the video delay (track) +/- an offset.
- Mode 2 The audio delay is independently adjustable from the video.

#### Mode 1

To select Mode 1, go to the Time menu called *Audio delay...* (see Table 4-1) and select *tracks video*. Go to the Time menu called *Aud/Vid Delay* to adjust both the audio and video delays. Go to the *Audio Offset* menu to set an audio time delay offset with respect to the video path delay. In Mode 1, the delay time (for both the audio and video paths) is displayed in the upper left corner of the front panel LCD. If an audio offset has been set, the word **OFFSET** appears below the time. If the offset selected is not possible, **<-ERROR!** is displayed. For example, if *Aud/Vid Delay* is 00:00 (no delay) but an offset of -80 ms is set, the

error message appears (a negative time is not possible).

**Mode 2**

To select Mode 2, go to the Time menu called *Audio delay...* (see Table 4-1) and select *independent*. To adjust only the video signal delay, go to the Time menu *Video Delay*. To adjust only the audio signal delay, go to the Time menu *Audio Delay*. In Mode 2, the time for the video path is displayed in the upper left corner of the front panel LCD, and the time for the audio path is displayed below it.

*Table 4-1. Functions of Front Panel Controls and Menus*

Name		Characteristics	Function
Time		Press to enter Time menus.	Displays the first Time menu.
System		Press to enter setup menus.	Displays the first System menu.
Status		Press to enter Status menus.	Displays the first Status menu.
Exit		Press to exit current menu.	Closes open menu and returns to main display.
Time Menus	Aud/Vid Delay (Mode 1)	Use the SET+ and SET– buttons to make course adjustments. Use the dial to make fine adjustments.	Adjusts the delay of both the audio and the video paths.
	Video Delay (Mode 2)	Use the SET+ and SET– buttons to make course adjustments. Use the dial to make fine adjustments.	Adjusts the delay of the video path.
	Audio delay...	Use the SET+ and SET– buttons to select “tracks video” (Mode 1) or “independent” (Mode 2).	Selects whether the audio delay is adjustable independently from the video.
	Audio Offset (Mode 1)	Use the SET+ and SET– buttons to make course adjustments. Use the dial to make fine adjustments.	Adjusts the offset of the audio path with respect to the video delay.
	Audio Delay (Mode 2)	Use the SET+ and SET– buttons to make course adjustments. Use the dial to make fine adjustments.	Adjusts the delay of the audio path.
	Display Audio time in	Use the SET+ and SET– buttons to select “seconds” or “frames.”	Selects whether audio times will be displayed in seconds or in frames.
	Store Settings as #?	Use the dial to select the Preset #. The preset name is displayed to the right of the number. Modify the name by using the SET+ and SET– buttons to move the cursor to select the character; then, turn the dial to find the character to substitute. When you have selected the Preset number and the name, press SET+ and SET– simultaneously to store the settings.	Allows the current time delay settings to be saved as a preset, which can be recalled later by a GPI, Function Key, or menu.
	Recall Settings #?	Use the dial to select the Preset #; then press SET+ and SET– simultaneously to recall the time delay settings.	Allows the time delay settings to be recalled from a previously stored preset.

System Menus (Setup)	SDI Format	Select either 525//29.97 or 625/25.00.	Selects the video format for the unit.
	Chan 1-4 Source	Select Analog or Digital AES/EBU. <b>Note:</b> Selection is displayed above the Audio Meter as either ANLG or AES.	Selects the source for the main audio channels 1-4.
	AUX 1-4 Source	Select Analog or Digital AES/EBU.	Selects the source for the AUX Audio channels 1-4.
	SDI Horz Phase	Use SET± buttons or the dial to adjust the horizontal timing of the output SDI signal with respect to the Genlock reference.	Adjusts horizontal timing of the output SDI signal with respect to the Genlock reference.
	FREEZE AUX Video	Select ON to freeze the AUX signal. Select OFF to release the freeze and allow normal AUX video.	Allows a FREEZE FRAME on the AUX video signal.
	Display AUX Frz	Select f1 for field 1, f2 for field 2, or FRM for full frame.	Selects how the FREEZE AUX Video (above) is displayed.
	Display SW-Frz	Select f1 for field 1, f2 for field 2, or FRM for full frame.	Selects how a FREEZE generated by an SW- action switch is displayed. See "Action Switches," on page 15.
	SW-1=[ ] SW-2=[ ] SW-3=[ ] SW-4=[ ]	Use MODE+ and MODE– buttons to select the action switch to configure. Use SET+ and SET– buttons to select which signal(s) will be switched. Use the dial to set the time at which the switch will occur.	Sets up the action switches SW-1, SW-2, SW-3, and SW-4. See Table 4-2 for a list of action switch configurations.
	Config GPI 1 as Config GPI 2 as Config GPI 3 as Config GPI 4 as Config GPI 5 as Config GPI 6 as	Use MODE+ and MODE– buttons to select the GPI port to configure. Use SET+ and SET– buttons to select the action that will result from a closure to ground of the GPI port selected.	Configures the GPI Ports #1-6. See Table 4-3 for a list of the possible GPI configurations.
	Allow Access to	Use SET+ and SET– buttons to select each group of functions. Use the dial to select Y (Yes) or N (No).	Controls what functions the remote has access to. See Table 4-4 for a list of the function groups.
	Remote Mode	Select LOCAL or REMOTE.	Selects remote mode. Status appears at center bottom of LCD display.
Program Key F?	Press the F key to be programmed. Use dial to select the function to be assigned to this key. Press SET+ and SET– simultaneously to enter the selection.	Allows the Function Keys (F1, F2, F3, and F4) to be programmed. See Table 4-5 for a list of functions that can be assigned to an F key.	
Status Menus	Version . . .	Displays the current version of the D1 Pipeline.	Can be used for troubleshooting.
	SDI Status	Displays error flags for the SDI input.	Can be used for troubleshooting.
	AUX Status	Displays error flags for the AUX SDI input.	Can be used for troubleshooting.
<p><b>Notes:</b> All functions can be controlled through the RS232/422 connection (see Appendix B). Adjustment options listed in this table are displayed only if they are available with your configuration.</p>			

## Action Switches

The D1 Pipeline has four *action switches*, each of which can be configured to switch a portion of the main output to one of several other signals. For example, the video portion may be switched to the AUX video input, or it can be made to freeze. The audio portion may be switched to the AUX audio inputs, or it can be muted.

Table 4-2 lists the possible configurations for the action switches, SW-1, SW-2, SW-3, and SW-4. To select an action switch, use the **MODE+** and **MODE-** buttons. To select a configuration for the switch, use the **SET+** and **SET-** buttons. To set the time at which the switch occurs (see Table 4-3), use the dial.

Table 4-2. Action Switch Configurations

Configuration	Function (When switch engages . . . )
DISABLED	Switch is disabled and will have no effect.
AUDIOx	Audio switches to AUX audio.
VIDEOx	Video switches to AUX video.
MUTE	Audio is muted.
FREEZE	Video image freezes.
AUDx+VIDx	Audio switches to AUX audio, and video switches to AUX video.
MUTE+VIDx	Audio is muted, and video switches to AUX video.
AUDx+FRZ	Audio switches to AUX audio, and the video image freezes.
MUTE+FRZ	Audio is muted, and the video image freezes.

Each switch can be configured to switch the audio path, the video path, or both. All four switches can be activated simultaneously. If two switches are engaged simultaneously, the lowest switch number has priority (SW-1 = highest priority, SW-2, SW-3, SW-4 = lowest priority).

The switches can be programmed to occur instantly (select *Instant Action*) or at the delay time minus a reaction time. Use the dial to set the reaction time in 0.2 second increments, from *at delay -0.2sec* to *at delay -3.0sec*. Control of the action switches can be assigned to the front panel, a remote device, or a GPI port.

In an *at delay* configuration, the switch action actually occurs after the switch is engaged. It occurs at the time set in the Video Delay menu minus the reaction time. If the reaction time is zero, the switch action that occurs at the output of the D1 Pipeline corresponds to the same signal information that occurred at the input of the D1 Pipeline when the switch was engaged. When a reaction time is programmed, the start of the switch action is actually “stretched” early by the amount of the reaction time.

For example, assume the Video Delay time is set at 5 seconds in a censorship application. If the censor hears an offensive word while monitoring the input signal to the D1 Pipeline, the censor engages the switch SW-1 configured as MUTE and keeps it engaged until the offensive word is finished. Ideally, a censor would want to engage the switch at the beginning of the word. In reality, the censor won’t be able to engage the switch until the word is spoken and recognized and he or she reacts to press a button. The time by which this response is late is referred to as the *reaction time*. Assume the reaction time is 1 second. If the SW-1 switch is configured to occur at the Video Delay time minus 2 seconds (*at delay -2.0sec*), at the output of the D1 Pipeline, the audio signal will mute 1 second before the offensive word is spoken. The Mute will continue until the word has passed.

## Configuring GPI Ports

The D1 Pipeline has six bidirectional GPI ports. Each of these ports can be configured for one of many functions (see the Systems menus in Table 4-1 for programming instructions). Table 4-3 lists the available configurations. A summary of the configurations follows:

Action Switches	Each GPI port can be assigned to a different (or the same) action switch. See “Action Switches” on page 15 for details.
Presets	Each GPI port can be assigned to load a Preset #.
Presets + Status	Each GPI port can be assigned to load a Preset # and provide a signal indicating the preset status. In this configuration, the GPI port goes low to indicate that the corresponding Preset # is loaded. Once each frame time, the GPI port momentarily returns to a high impedance input in order to sample the input for a closure to ground, and then it returns low.
Preset Status Outputs	A +5-volt signal is available on the GPI port connector to assist in providing status outputs. If an LED is connected and Status mode is selected from the configuration menu, the LED will light if the corresponding Preset has been loaded (by any method).

Table 4-3. GPI Configurations

Configuration	Function (Result of closure to ground for the GPI port . . . )
DISABLED	GPI is disabled and will have no effect.
Switch SW-1	Action switch SW-1 engages.
Switch SW-2	Action switch SW-2 engages.
Switch SW-3	Action switch SW-3 engages.
Switch SW-4	Action switch SW-4 engages.
Load Preset-1	Preset #1 is loaded.
Load Pst1+stat	Preset #1 is loaded, and Preset #1 status is output on GPI port.
Load Preset-2	Preset #2 is loaded.
Load Pst2+stat	Preset #2 is loaded, and Preset #2 status is output on GPI port.
Load Preset-3	Preset #3 is loaded.
Load Pst3+stat	Preset #3 is loaded, and Preset #3 status is output on GPI port.
Load Preset-4	Preset #4 is loaded.
Load Pst4+stat	Preset #4 is loaded, and Preset #4 status is output on GPI port.
Freeze AUX	The AUX video is held in freeze for the time that the GPI port is connected to ground. The freeze is released when the GPI is taken high or left open.

## Remote Access Menu Selections

Table 4-4 lists the groups of functions to which the remote device has access. To select a group, use the SET+ and SET– buttons. Use the dial to select Y (Yes) or N (No).

Table 4-4. Groups of Functions Accessible to the Remote Device

Selection	Description
Time Settings...	All functions that change the delay time: <i>Aud/Vid Delay, Video Delay, Audio delay ... , Audio Offset, Audio Delay, Recall Settings #?</i>
System Format...	SDI format select.
System Audio...	All functions that change audio selections: <i>Chan 1-4 Source, AUX 1-4 Source.</i>
System Timing...	SDI horizontal timing adjustment.
AUX Frz Ctl...	AUX freeze and display functions.
SW/GPI Ctl...	All functions that change or configure the action switches (SW-) or GPI ports.
Edit Presets...	Allows the remote to change the stored Presets.

## Programming the Function Keys

Table 4-5 lists the functions that can be assigned to each of the Function Keys, F1, F2, F3, and F4. To program a function key, go to the System menu *Program Key F?*. Press the function key to be programmed. Use the dial to select the function, and press SET+ and SET– simultaneously to enter the selection.

Table 4-5. Functions That Can Be Assigned to F1, F2, F3, and F4

Selection	Function (Pressing F key . . . )
Disabled	Has no effect.
Delay Time Adj	Advances to <i>Aud/Vid Delay</i> menu.
Audio Dly Mode	Advances to <i>Audio delay...</i> menu.
Aud Offset/Dly	Advances to <i>Audio Offset</i> menu.
Audio Frm/sec	Advances to <i>Display Audio</i> menu.
System Format	Advances to <i>SDI Format</i> menu.

Ch 1-4 Source	Advances to <i>Chan 1-4 Source</i> menu.
AUX 1-4 Source	Advances to <i>AUX 1-4 Source</i> menu.
SDI Horz Phase	Advances to <i>SDI Horz Phase</i> menu.
AUX Frz menu	Advances to <i>FREEZE AUX Vid</i> menu.
FREEZE! Aux Vid	Freezes the AUX video signal.
UnFREEZE! AuxVd	Releases freeze of the AUX video signal.
AUX Frz display	Advances to <i>Display AUX Frz</i> menu.
SW- Frz display	Advances to <i>Display SW- Frz</i> menu.
SW-1 Cntrl menu	Advances to <i>SW-1 = [ ]</i> menu.
SW-2 Cntrl menu	Advances to <i>SW-2 = [ ]</i> menu.
SW-3 Cntrl menu	Advances to <i>SW-3 = [ ]</i> menu.
SW-4 Cntrl menu	Advances to <i>SW-4 = [ ]</i> menu.
F Key = SW-1!	Engages action switch SW-1.
F Key = SW-2!	Engages action switch SW-2.
F Key = SW-3!	Engages action switch SW-3.
F Key = SW-4!	Engages action switch SW-4.
Load Preset-1!	Loads Preset #1.
Load Preset-2!	Loads Preset #2.
Load Preset-3!	Loads Preset #3.
Load Preset-4!	Loads Preset #4.
Config GPI 1	Advances to <i>Config GPI1 as:</i> menu.
Config GPI 2	Advances to <i>Config GPI2 as:</i> menu.
Config GPI 3	Advances to <i>Config GPI3 as:</i> menu.
Config GPI 4	Advances to <i>Config GPI4 as:</i> menu.
Config GPI 5	Advances to <i>Config GPI5 as:</i> menu.
Config GPI 6	Advances to <i>Config GPI6 as:</i> menu.

## Section 4.2 First Time Operation

The following procedures should be followed after installing the D1 Pipeline to ensure proper operation in your system environment.

For first time operation, test the video signal by performing the following steps.

1. Connect the DIGITAL VID OUT 1 or OUT 2 to a video monitor. Use the monitor to observe the results of your adjustments.
2. Activate inputs from a test signal generator at DIGITAL VID IN (and a reference generator at GENLK LOOP).
3. Set AC power switch (on the rear panel) to ON ( I ), and verify the following:
  - a. The fan operates.
  - b. A normal picture is displayed on the monitor.
  - c. Each of the video controls operates when activated.

## Section 5 Servicing

This section gives you information about maintaining your D1 Pipeline unit, obtaining service, and troubleshooting.

### **Routine Maintenance**

The D1 Pipeline system is inherently a low maintenance unit that requires only a periodic dusting internally, when used in an unfiltered environment. The fan is a sealed bearing, brushless DC unit that should be replaced every 5 years of continuous duty operation.

### **Unit Malfunction**

All D1 Pipeline systems are designed and tested to perform as outlined previously in this manual. The manufacturer does not assume any responsibility for damage or malfunction resulting from operation of this unit outside the published environmental or interface specifications, or improper operation resulting from custom interfacing or any unauthorized internal modification.

If you encounter a malfunction during the warranty period, call your dealer or our Customer Service Department at the factory to arrange for service. DO NOT attempt to service this unit during the warranty period; to do so will void the warranty.

You may have out-of-warranty products repaired by your dealer or authorized repair facility.

### **Service Calls**

For service, call Prime Image, inc. at (408) 867-6519. When you call for service, give the following information about your unit. It will help your dealer in diagnosis and repair:

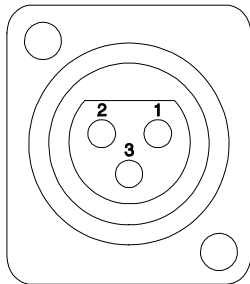
1. The model and serial number of your unit.
2. The system configuration (including VCR types).
3. The problem you are having and the specific effect on the picture.

# Appendix A Pinouts

This appendix includes pinouts for the audio connectors, and remote interfaces.

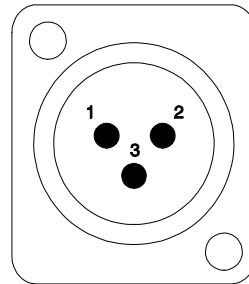
## Audio Connectors

Figure A-1 shows the pinout for the digital and analog audio input XLR connectors (female) and digital and analog audio output XLR connectors (male).



Audio Input

1 = GND  
2 = +  
3 = -



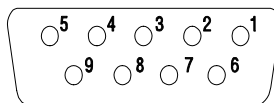
Audio Output

*Figure A-1. Audio  
Input and Output  
Connectors*

## Remote Interface

Figure A-2 shows the pinout for the remote interface, a 9-pin D Connector (female) labeled REMOTE. The pinout is different depending on whether you selected RS422 or RS232 using jumpers on the control board (unit ships with RS422 selected).

To access the control board, loosen the two screws and tilt down the front panel. Loosen the two screws on the control pad and tilt down the pad. The control board is located below the control pad. Slide out the board enough to carefully detach the ribbon cable, and then remove the board. A row of eight jumpers is located at the rear of the board, near the gold edge connector. Labels show the RS232 and RS422 positions for the jumpers. All jumpers must be positioned the same.



Pin	RS422	RS232
1	GND	DTR
2	RA	RX
3	TB	TX
4	GND	DSR
5	AUX	GND
6	GND	CD
7	RB	RTS
8	TA	CTS
9	GND	RI

*Figure A-2. Remote Interface Pinout*

### Notes for RS232:

DTR, DSR, and CD are tied together, and RTS and CTS are tied together for handshaking. Use straight extension cable,. RX must connect to control device's Receive input, and TX to control device's Transmit output.

## **Appendix B Remote Control Codes**

The attached pages include remote control codes for the D1 Pipeline.