175-000247-00
Preliminary Edition A

X75HD High-Definition Digital Processing Synchronizer Quick Start Guide

Overview

This quick start guide briefly describes how to unpack your X75HD system, and walks you through the various configurations and settings that are required before you can begin operating the X75HD. Topics covered in this document include the following:

- "Using the Enclosed Documentation CD" on page 2
- "Checking the Packing List" on page 3
- "Preparing for Installation" on page 4
- "Installing Rack Support Brackets and Cable Relief Bar" on page 5
- "Making Cable and System Connections" on page 8
- "Initial Power-Up and Control Steps" on page 9
- "Configuring Network Settings" on page 10
- "Remotely Controlling X75HD Systems" on page 13
- "Configuring for HTTP Control (via Web Browser)" on page 15
- "Configuring Video" on page 16
- "Configuring Audio" on page 17

This document briefly outlines the most common procedures for getting your system up and running. Unless otherwise specified, directions are given for making these changes via the control panel only. For information on using the built-in Web server, or for more advanced configuration information, see your *X75HD High-Definition Digital Processing Synchronizer Installation and Operation Manual.*

For more details on using local and remote control panels, navigating the menus, and changing parameter options, see the *Control Panels for X75 Systems Installation and Operation Manual*.

Using the Enclosed Documentation CD

Provided Documentation

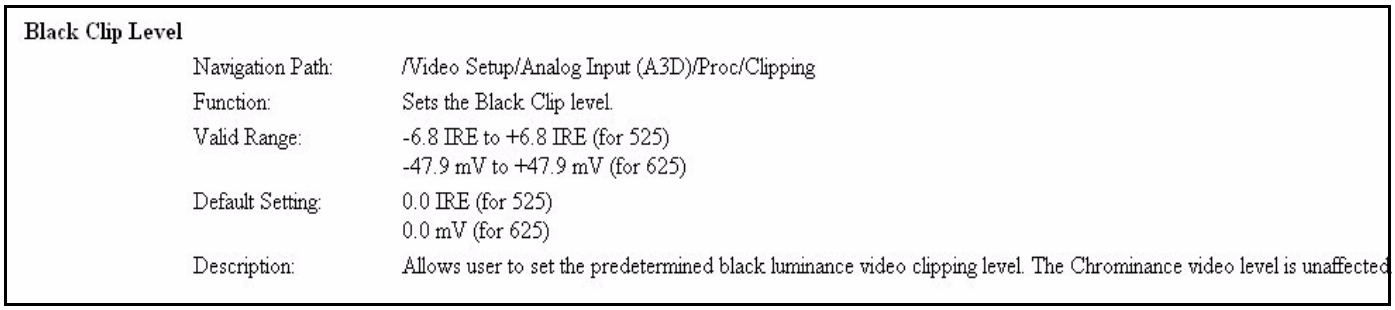
The documentation included in your shipment includes the items:

- This *Quick Start Guide*
- One *X75HD High-Definition Digital Processing Synchronizer Installation and Operation Manual*
- One *Control Panels for X75 Systems Installation and Operation Manual*
- One Documentation CD (includes PDFs of the documents listed above, plus an HTML list of all menus and control parameters available for the X75HD)

All of these items, along with any product release notes or document addenda, can also be downloaded off of the Leitch Web site (www.leitch.com, under **Support** > **Documentation**).

X75HD Menu and Parameter List

The X75HD system has many menus, submenus, and parameters. An HTML compilation and listing of all control options, along with corresponding definitions and navigational menu path structures, are provided on the enclosed Documentation CD. Simply open this file from the CD (or download it to your local PC), and then search for any menu or parameter option using your Web browsers **Find** feature. Figure 1 shows an example of a control option entry from this list:



Black Clip Level

Navigation Path:	/Video Setup/Analog Input (A3D)/Proc/Clipping
Function:	Sets the Black Clip level.
Valid Range:	-6.8 IRE to +6.8 IRE (for 525) -47.9 mV to +47.9 mV (for 625)
Default Setting:	0.0 IRE (for 525) 0.0 mV (for 625)
Description:	Allows user to set the predetermined black luminance video clipping level. The Chrominance video level is unaffected

Figure 1. Sample X75HD HTML Control Option Entry

Checking the Packing List

Before unpacking your product, read the "Unpacking/Shipping Information" on page v of your *X75HD High-Definition Digital Processing Synchronizer Installation and Operation Manual*.

Standard Items

The following items are included with every X75HD system:

- One X75HD High-Definition Digital Processing Synchronizer
- One AC power cable (773-254 or 773-505)
- Two rear support brackets (741-983A) and corresponding hardware
- Two cable relief support brackets (164-000306-00) and one corresponding cable relief bar (164-000305-00)

These items are only included with X75HD-AV/X75HD-LCAV systems:

- Two 2x7 analog audio terminal blocks (134-000228-00); this item may be pre-installed on your unit
- HDTV audio module (AS-X75HD), with CAB-X75HD-COAX and CAB-X75-COAX breakout cables

Optional Items

You may have additional items included in your shipment if you have ordered any of the available options or upgrades. Some options may include the following:

- CAB-X75MULTI breakout cable
- CAB-X75DVI DVI-D digital video cable
- CAB-X75-COMBO audio breakout cable
- CAB-X75HD-COMBO audio breakout cable
- CAB-X75-XLR audio breakout cable
- CAB-X75HD-XLR audio breakout cable
- A3D-X75 high performance 3D-adaptive decoder, with component Betacam and S-video input
- RCP-X75 remote control panel
- X75PS power supply kit for optional, redundant power supply (typically factory installed, although can be field-upgraded)

Preparing for Installation

Prior to installing your system, you need to ensure certain environmental and electrical conditions are met, and that frame support brackets are installed on the chassis.

Meeting Electrical Requirements

The X75HD power supply has a universal input of 100-240 VAC at 47 to 63 Hz (nominal). There is no voltage selector switch. Ensure that a proper power supply source is available prior to operating your system.

Meeting Environmental Requirements

Caution

To ensure proper ventilation and to prevent the frame from overheating, keep the front panel of a X75HD frame closed.

X75HD frames are cooled by forced air drawn in from the front of the frame and exhausted through vents at the rear. There must be free passage for air flow at the front and back of the unit to allow for adequate ventilation. Take care to select a dry, well-ventilated location with a minimum of dust.

Frames are designed for mounting in a standard 19-in. (48-cm) rack using standard front-mounting ears and rear support brackets, and occupying a 1RU vertical space of 1.75 in. (4.4 cm). When installing a frame in a rack, ensure that there is adequate space behind the mounting ears and clearance for the connecting cables at the rear of the frame.

Tip: Maintain about 10 in. (25 cm) of slack in the rear connecting cables to allow for frame access and maintenance while installed in the rack.

After unpacking the unit and before installing it into a console or rack, allow at least 30 minutes for temperatures to equalize and to eliminate any condensation that may have developed. X75HD frames require an ambient temperature of between 41° and 113°F (5° to 45°C), with a relative humidity of 10-90% (non condensing). The frame can only maintain proper operating temperatures when the front panel is properly installed.

Installing Rack Support Brackets and Cable Relief Bar

Although the front-mounting ears provide the main support for the frame within a rack, you must install additional brackets and a cable relief bar at the rear of the unit to support the weight of cabling and frame stacking. The following procedure describes how to install an X75HD frame in a standard 19-inch rack using the provided front-mounting ears, rack support brackets, and cable relief bar.

1. Locate two sets of rack support brackets in the packing box, along with the cable relief bar and the provided screws.

   Each support bracket comes in two pieces and requires assembly. The cable relief bar is a single piece. (See Figure 2.)

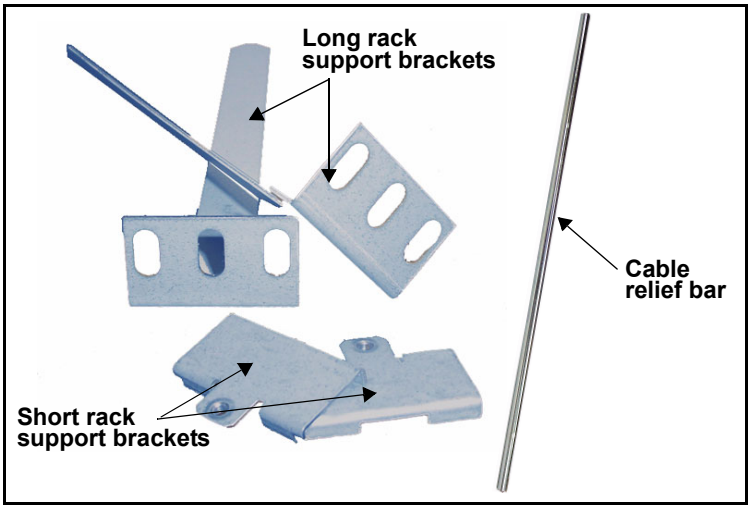


Figure 2. Rack Support Brackets

Caution

Do not use screws longer than those provided for the rear support brackets. Five 4-40 x 1/4-inch flat-head screws are provided for this purpose. Longer screws could cause internal damage.

2. Attach the short rack support brackets to the sides of the X75HD frame using the screws that are provided in the frame holes. (See Figure 3 on page 6.)

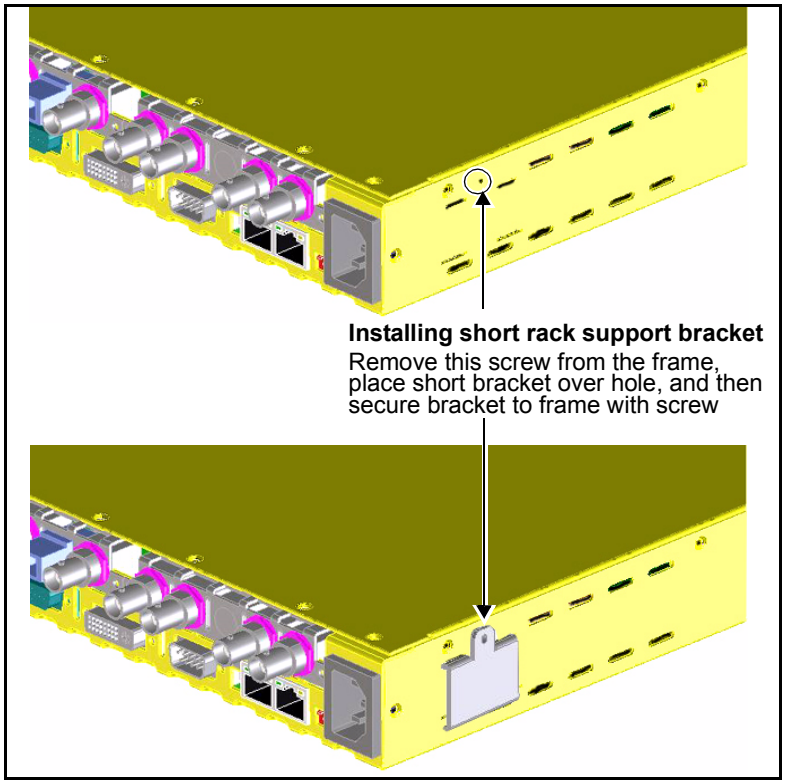


Figure 3. Location of Short Bracket Support Screw

3. Attach the cable relief bar between the long rack support brackets using the provided screws.

   You can secure the cable relief bar through any of the screw holes on the rack support bracket. (See Figure 4.)

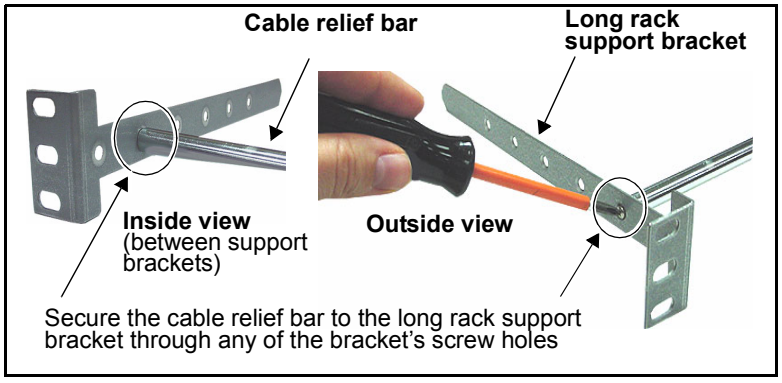


Figure 4. Installed Cable Relief Bar

4. Using the screws that are provided, attach the ends of the rack support brackets to the rear of the rack.

   Ensure that the holes on the rack support brackets face outward, away from the frame. (See Figure 5.)

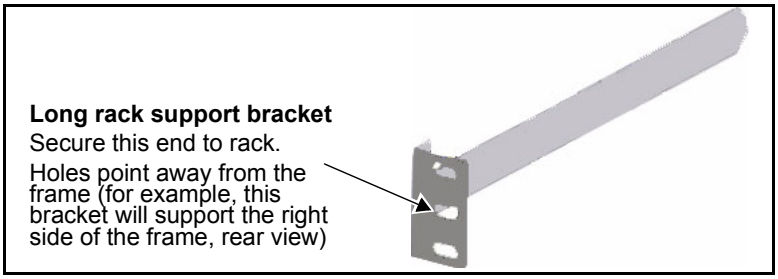


Figure 5. Long Rack Support Bracket

5. Push the X75HD into the front of the rack, ensuring that the rack support brackets slide into the slotted rack supports. (See Figure 6.)

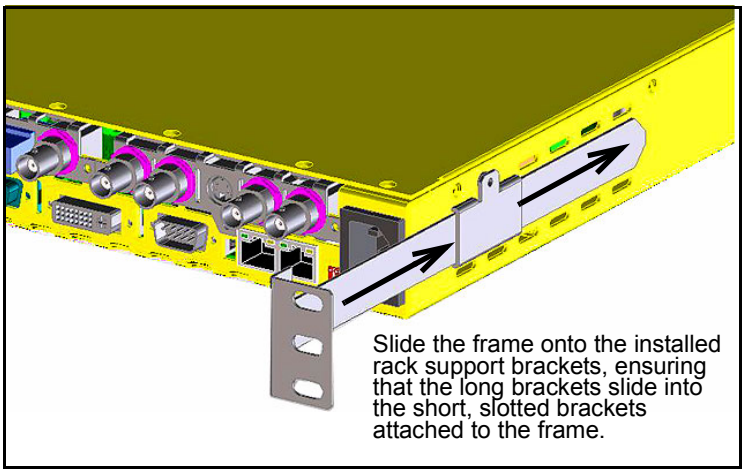


Figure 6. Installed Long and Short Rack Support Brackets

6. Attach the frame's front-mounting ears to the rack using the appropriate rack screws.

Making Cable and System Connections

Some connections to the X75HD are provided via supplied breakout cable(s), others are made directly to the frame via single-link cabling. Figure 7 identifies the various connectors on the X75HD back panel:

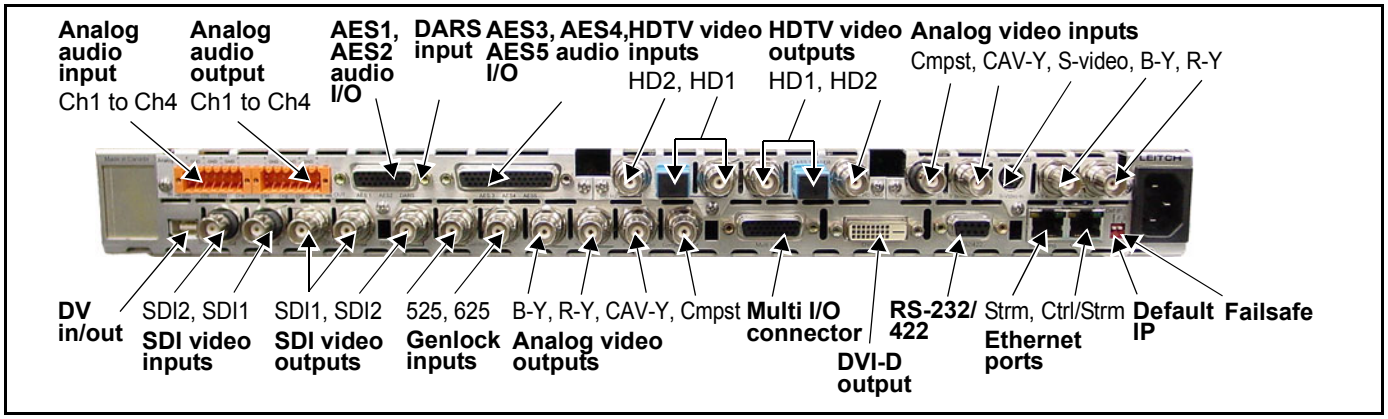


Figure 7. X75HD Back Panel

When making cable connections, maintain approximately 10 in. (25 cm) of slack in the rear connecting cables (wrap or tie extra cable around the cable relief bar). This allows you to pull the frame out from the rack for servicing without needing to remove any cable connections.

Descriptions of the various cable connections required can be found in Chapter 4: "System Installation and Connections" of your *X75HD High-Definition Digital Processing Synchronizer Installation and Operation Manual.*

Initial Power-Up and Control Steps

1. If you have an AS-X75HD audio option module, ensure all jumper settings have been made (see Chapter 3: "Module and Back Panel Descriptions" in your *X75HD High-Definition Digital Processing Synchronizer Installation and Operation Manual* for details).

   The AS-X75HD audio module is shipped with the following jumper settings: 100 kΩ for input impedance, and 66Ω for output impedance. If 600Ω impedance is required, all input and output jumpers should be placed on pins 1 and 2.

2. Install the X75HD in a rack and make the required system connections (see Chapter 4: "System Installation and Connections" in your *X75HD High-Definition Digital Processing Synchronizer Installation and Operation Manual* for details).

3. Plug the unit into a grounded electrical source to turn it on.

   The unit is factory configured with default settings, including the following network settings:

   - IP address of X75HD system: 192.168.100.250
   - Subnet mask: 255.255.255.0
   - Gateway: 192.168.100.250
   - Machine name: Leitch X75

   (Upon request, Leitch can preconfigure X75HD systems with specific IP addresses and network settings. A request for factory configuration of network settings must be placed at the time of order. Please contact your Leitch customer service representative for more details.)

Note

The current system IP address and network settings can be viewed on a local or remote panel VFD screen.

4. Using a frame-mounted local control panel (LCP), configure the network settings for each system: assign a unique IP address to each unit, configure the subnet mask to be the same for all units on a shared network, and change the gateway if required.

   Network settings are done in within the **Setup** menu (see "Configuring Network Settings" on page 10 for details).

5. If you are controlling the unit remotely via RCP, make the required Ethernet connections (see "Remotely Controlling X75HD Systems" on page 13 for details).

6. If you are controlling the unit via a third-party Web browser, launch the Web browser (see "Configuring for HTTP Control (via Web Browser)" on page 15 for details).

7. Configure your video (and audio) input settings prior to operation (see "Configuring Video" on page 16 and "Configuring Audio" on page 17 for details).

Configuring Network Settings

When shipped, the X75HD is configured with a default IP address along with other network settings, and is ready for immediate Ethernet connection. However, if you intend to control the unit remotely or connect it to a network hub/switch along with other X75HD units, you will need to reconfigure the IP with unique network settings. Local control (with a direct connection to a PC) does not require any IP configuration.

Supported Network Protocols

The X75HD supports various network protocols for remote/network control:

- EP (for example, using an RCP-X75 remote control panel).

  See "Remotely Controlling X75HD Systems" on page 13 for details.
- HTTP (for example, using a MS Internet Explorer 6.0).

  See "Configuring for HTTP Control (via Web Browser)" on page 15 for details.

Making Required Hardware Connections

Note

The Streaming RJ-45 connector on the back of the X75HD is used for video streaming purposes. It is currently reserved for future use.

If you are connecting an X75HD directly to a PC (no network connection), connect one end of a cross-over Ethernet cable to the Ctrl/Strm RJ-45 port on the back of the X75HD, and the other end to the PC Ethernet port. See Figure 8.

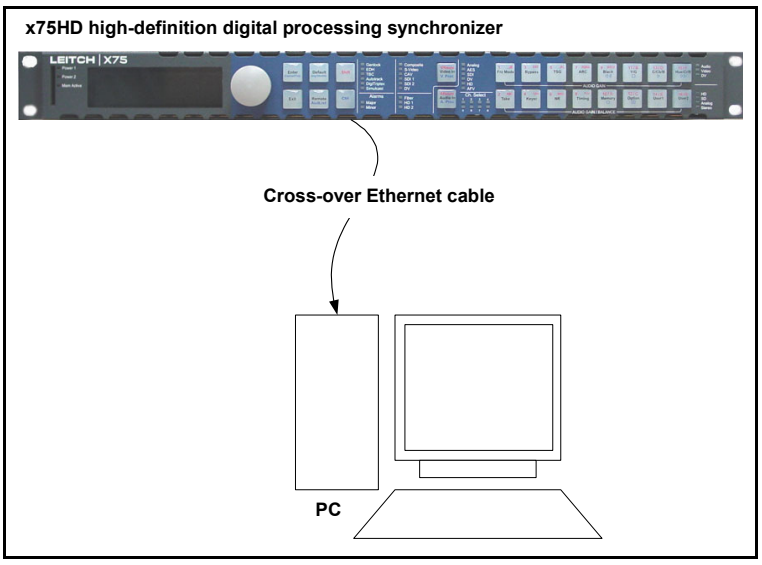


Figure 8. Direct-to-PC Connection

If you are establishing a network connection, connect a 10/100Base-T Ethernet cable between the X75HD CTRL/STRM port and the network hub/switch. See Figure 9 on page 11.

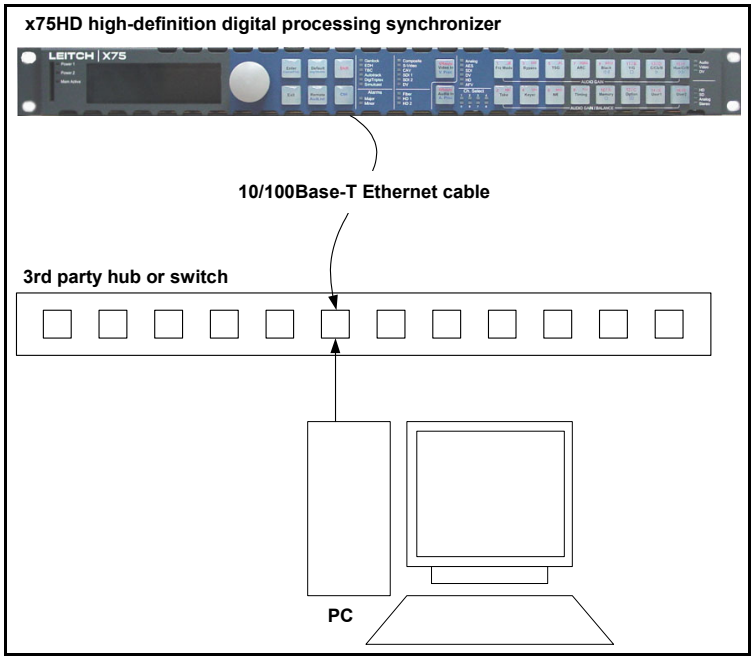


Figure 9. Network Connection

Setting IP and Subnet Mask Addresses

To allow devices to communicate on a network, you need to set all devices to the same subnet (network location). When shipped, all X75HD units are configured with the same default IP (device identifier) and subnet addresses. These addresses need to be changed so that each unit is uniquely identified and the network location of all units is accurately reflected.

An IP address is made up of a four-item set of numbers (octet). The default (factory-configured) IP address for every X75HD unit is 192.168.100.250. You need to change the first three items in the octet to identify the location (address) of the unit on your network; you need to change the last item in the octet needs to uniquely identify the device from other X75HD units.

The default subnet mask address for every X75HD is 255.255.255.0. The subnet mask address always ends in a 0 (zero). The default value for the Gateway IP address is 192.168.100.251.

Procedure

Follow these steps to configure X75HD IP and subnet mask addresses:

1. Apply power (plug in) an X75HD unit with a frame-mounted local control panel (LCP).

   When ready for configuration, the X75HD **Main Menu** shows on the display screen.

2. Press the **Option** button on the LCP.
3. Use the control knob to scroll to **Setup**, and then press **Enter**.

Note

For more information on changing network settings, consult your IT personnel.

4. Locate and scroll to the **Panel IP Address** parameter, and then press **Enter**.

   If this is a new unit being configured, the default IP displays. Otherwise, the current IP address of the unit displays.

5. Change the IP address, following these steps:

   a. Press **Enter** to navigate to one of the four numerical items in the octet.

   b. Modify the address value by using the scroll knob to set a new number.

   c. Press **Enter** to move to the next item in the octet, and then repeat step b above.

   d. Press **Exit** when you are finished configuring the address.

6. Locate and scroll to the **Subnet Mask** parameter, and then press **Enter**.

   If this is a new unit being configured, the default subnet mask displays. Otherwise, the current subnet displays.

7. Follow the same procedure as described in step 5.

8. Locate and scroll to the **Gateway** parameter, and then press **Enter**.

   If this is a new unit being configured, the default gateway displays. Otherwise, the current gateway address displays.

9. Follow the same procedure as described in step 5.

10. Restart the X75HD unit.

    To do this, navigate back to the **Setup** menu, select **Reboot**, and then press **Enter**. To restart an X75HD unit with a blank front panel, unplug it and then reapply power.

Remotely Controlling X75HD Systems

This section provides the following general configuration procedures:

- "Preparing for Remote Control via RCP" on page 13
- "Selecting a Remote Unit to Control" on page 13

See your *Control Panels for X75 Systems Installation and Operation Manual* for more information on using an RCP-X75 remote control panel.

Preparing for Remote Control via RCP

Note

A frame-mounted local control panel (LCP) can also remotely control other networked X75HD units. Procedures described in this section also apply to LCP control. See "Using a Frame-Mounted Local Control Panel for Remote Operation" on page 14 for more information.

You can remotely control X75HD units over a network from a remote control panel. RCP-X75 panels remotely control X75HD units via broadcast. Switchers and routers in the network need to be configured accordingly. Preparation for remote control includes the following:

1. Using an LCP, reconfigure each X75HD and RCP-X75 unit with unique IP addresses and other appropriate network settings, including shared subnet mask addresses. See "Setting IP and Subnet Mask Addresses" on page 11 for details.
2. Restart each X75HD and RCP-X75 unit.

   After restarting an X75HD unit or RCP-X75 panel, you will need to wait approximately 20 seconds before they are detected on the network.
3. Connect all X75HD systems and remote panels to a TCP/IP-based network hub or switch using 10/100Base-T Ethernet cable.

   For RCP-X75 units, the 10/100Base-T Ethernet connector on the rear of the unit, labelled CONTROL, is used to connect the panel to a TCP/IP-based network for remote control and status monitoring. For remote control using an LCP, connect to the CTRL/STRM port at the back of the X75HD unit.

   See "Making Required Hardware Connections" on page 10 for more information.
4. Discover all units found on the network, and then select the one you wish to control. See "Selecting a Remote Unit to Control" below for details.

Selecting a Remote Unit to Control

All X75HD systems that share the same subnet can be remotely controlled by an RCP-X75 panel or a frame-mounted local control panel (LCP). Both examples of remote control are described in the sections that follow.

Using an RCP-X75 for Remote Operation

Follow these steps to select and control a detected X75HD over the network:

Note

If the network settings are not configured properly (either on the RCP or individual X75HD units), X75HD units may not be detected. Confirm all network settings if required.

1. Ensure all connections and network settings have been made.
2. On the RCP-X75, press the **Remote** button to bring up a list of available units for control. See Figure 10.

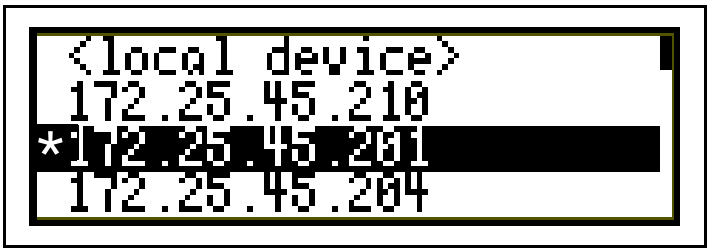


Figure 10. List of Systems Available for Remote Control

The **<local device>** option represents the unit you are using (the local unit that is in front of you), and is always available on this list. An asterisk (*) beside an IP address indicates that this is the remote system currently being controlled by the panel.

3. Use the Control knob to scroll through the list of available X75HD devices, highlight the unit you wish to control, and then press **Enter**.

   The RCP-X75 screen reads “Connecting...”.

4. Wait a few moments.

   The **Main Menu** of the selected X75HD unit appears.

Note

The light on the **Remote** button flashes while the unit is remotely controlling a device.

5. Operate the selected unit as required.

   Once a unit is selected for remote control, all front panel features operate as if you were actually at the front panel of the selected remote unit. This means that the VFD panel, status indicators, and buttons (with the exception of the **Remote** and **Option** button) all control and/or reflect the status of the remote unit, NOT the one you are physically operating.

6. To switch to another unit, or to control the local device you are physically operating, press the **Remote** button, and then select a new device to control. Select **<local device>** to resume normal single-unit operation.

Using a Frame-Mounted Local Control Panel for Remote Operation

After ensuring that all connections and network settings have been made, you can also remotely control networked X75HD units using a frame-mounted local control panel (LCP). To do this, click **Remote** on the LCP to enter Remote mode, and to view the list of X75HD units available for control on the same subnet. The procedure remains the same for selecting and operating devices remotely via LCP as for the RCP-X75. See “Using an RCP-X75 for Remote Operation” on page 14 for details.

Configuring for HTTP Control (via Web Browser)

Once the networking parameters of the X75HD have been configured appropriately, and it is connected to the Ethernet network, the built-in Web server will allow a standard Web browser to control the X75HD unit. Before controlling your unit in this way, note the following system and browser requirements:

- The X75HD supports Web browsers that are compatible with HTML 4.0 (and later).
- Although most standard Web browsers can be used with the X75HD for HTTP control, the following browsers have been tested and approved by Leitch: Microsoft® Internet Explorer 6.0, Netscape® Navigator™ 7.2, and Mozilla® Firefox™ 1.0.

Procedure

To select a unit for control, follow these steps:

1. Ensure all required connections and network settings have been made locally on your X75HD unit(s).
2. Open a supported Web browser, and then type the IP address of the unit you wish to control into the **Address**, **Location**, or **URL** field of your Web browser (the name of the field depends on the Web browser you are using). For example, type the following to control an X75HD unit with this IP address:

   `http://192.168.100.250`

   The Web browser then displays the Home page of the X75HD Control interface (Web server).

See Chapter 9: "Controlling the X75HD via Web Server Software" in your *X75HD High-Definition Digital Processing Synchronizer Installation and Operation Manual* for more information.

Note

Web browser control is only available for X75HD units, and not for RCP-X75 panels.

Configuring Video

Selecting a Video Source

Note

If you press the **Video In** button and then manually select a video source, the X75HD unit reverts to **User-Select** mode. Video modes are found under **Routing Setup** > **Input Video Mode**.

X75HD units are shipped with **Auto-Detect** video mode as the factory default setting. This mode sets the X75HD to automatically detect between composite, S-video, CAV, SD1, SD2, DV, HD-F, HD1, and HD2 inputs. When video is connected to any of these inputs, the X75HD automatically selects the applied input video and then sends out the converted video to all outputs. The Video Input LEDs on the front panel show the selected video source. For information on certain exceptions and limitations applied to video source selection, see "Mutually Exclusive Inputs" on page 79 of your *X75HD High-Definition Digital Processing Synchronizer Installation and Operation Manual*.

For analog video sources, only a single video source can be automatically detected. Therefore, you must pre-select the desired analog input video source first in order for auto-detection to work across the HD/SD/analog inputs.

To change the input signal type, follow these steps:

1. Press **Video In** on the control panel, (or navigate to the **Routing Setup** menu and select **AllOutSelect**).

   All available inputs will display on the control panel screen.

2. Use the control panel knob scroll through the list of input types, and then press to **Enter** to select one.

When multiple video sources are connected, the **Video In Precedence** setting determines the selection of the input video. For example, if the X75HD unit detects two input signals, it will accept the signal tagged as **Higher** over another signal that has been given a lower-precedence. Found in the top-level **Routing Setup** menu, precedence levels include **Highest**, **High**, **Normal**, **Low**, or **Lowest**. You can set them to have different precedent levels, or to be all the same. If all input types are assigned the same precedence level, then the X75HD unit defaults to the SD-SDI 1 as the master source and/or a default ordering applies (reflected top-down in the menu order).

Figure 11 graphically illustrates a single-source signal process, where one selected video input is fed to all outputs:

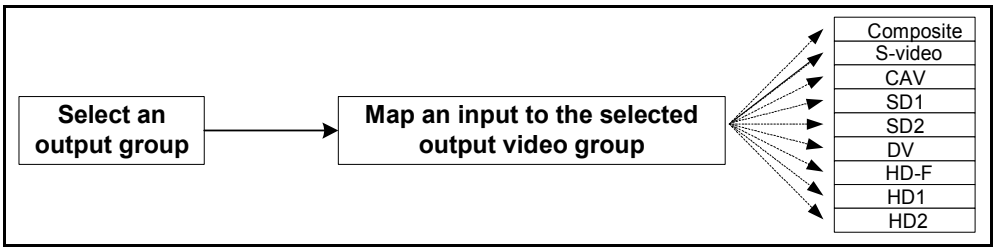


Figure 11. Single-Source Processing

Adjusting Video Levels

Various control panel buttons provide shortcuts to the video processing parameters of a selected video source. Press one of these buttons and use the control knob to change the selection.

Configuring Audio

This section describes how to select a single audio source and how to quickly adjust audio levels. For more detailed and/or advanced information about audio configuration, see your *X75HD High-Definition Digital Processing Synchronizer Installation and Operation Manual*.

Selecting an Audio Source

Directly press the **Audio In** button to select any *one* set of audio inputs to be sent out to *all* audio multiple output sets. The LEDs to the top, right side of this button indicate which input is currently selected.

Adjusting Audio Levels

When a single audio source is selected and sent to all outputs, press the **Ctrl** and **A. Proc** buttons to quickly access the audio level controls of the selected audio input.

The selected audio input channels' Gain controls are mapped to the numbered buttons on the control panel accordingly. The mapped buttons will illuminate during audio proc control. The audio Proc LEDs on the lower, right corner of the front panel indicate which processing block is currently selected.