ProView™
7100
RELEASE 4.0.3

User Guide

Rev A

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TIP: The Tip symbol calls your attention to parenthetical information that is not necessary for performing a given procedure, but which, if followed, might make the procedure or its subsequent steps easier, smoother, or more efficient.

In addition to these symbols, this guide may use the following text conventions:

Convention	Explanation
`Typed Command`	Indicates the text that you type in at the keyboard prompt.
<Ctrl>, <Ctrl>+<Shift>	A key or key sequence to press.
Links	The *italics in blue* text to indicate Cross-references, and hyperlinked cross-references in online documents.
Bold	Indicates a button to click, or a menu item to select.
`ScreenOutput`	The text that is displayed on a computer screen.
Emphasis	The *italics* text used for emphasis and document references.

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Table of Contents

Chapter 1
Introduction

Thank you for choosing the ProView multifunctional receiver.

The ProView™ 7100 multifunctional receiver platform provides an ideal solution for digital turn around processing (DTA), descrambling, decoding and transcoding applications.

Topics:

General Information

The Harmonic ProView 7100 is a single rack unit (1RU) scalable receiver, DVB descrambler, multi-format video decoder/transcoder, and MPEG stream processor. The modular ProView 7100 addresses the full spectrum of content reception applications from decoding to descrambling and re-multiplexing of multiple transport streams.

Main ProView 7100 Applications

Harnessing a flexible and modular design, the ProView 7100 addresses the vast spectrum of content reception applications, from single-channel decoding 4:2:0/4:2:2, DVB descrambling, transcoding, and re-multiplexing of multiple transport streams.

TS Descrambling Applications

The ProView 7100 is designed to economically meet the needs of digital turn around operators. Using its on-board quad DVB common interfaces and its embedded descrambling engines, the ProView 7100 descrambles and re-multiplexes selected services from up to four[1] transport streams, applying the operator's CA to the new digital chain. The ProView 7100 enables operators to create new SPTSs or MPTSs comprised of re-multiplexed services from the original streams. It is possible to output programs over IP or ASI.

The ProView 7100 also supports all IP headend architectures, using Harmonic's IP Input encoders for operators wishing to re-encode content.

1. A license is required for more than one transport stream.

Decoding Applications

The Harmonic ProView 7100 professional receiver decoder is designed to provide a flexible solution for all applications, from SD/HD MPEG-2/MPEG4 AVC 4:2:0 decoding for the primary and secondary distribution markets, to 4:2:2 8/10 bits decoding for the contribution market. It is equipped with industry standard digital and analog outputs, including analog video and audio, AES/EBU, SD-SDI, HD-SDI and 3G-SDI. The unit also performs HD down-conversion and aspect ratio adaptation of HD programs to generate professional quality baseband analog video and audio outputs for easy integration with the existing cable network infrastructure.

Transcoding Applications

The Harmonic ProView 7100 professional receiver can be configured to perform any-to-any transcoding of up to eight channels of H.264 to MPEG-2 and MPEG-2 to H.264, allowing programmers to efficiently distribute superior quality video content while using minimal satellite transponder capacity. Content can be received and transcoded to any resolution required by the local operator or affiliate.

NOTE: Platform features and new license

ProView 7100 Main Features and Configurations

	Feature Description	Additional Information[1]	Comments
Inputs	RF Ports	O	Single or quad ports. DVBs/S2
	ASI Inputs	O	4 inputs
	Single TS Processing	B	
	Multiple TS Processing	L	Up to 4 TS processing inputs and 8 TS outputs
	IP Input (2x GbE)	L	Up to 8 sockets
	IP FEC (Input)	L	
TS Outputs	ASI Output Ports	B	4 outputs
	IP Output (2x GbE)	B	
Descrambling	CI Slots	B	4x DVB-CI slots
	BISS Descrambling	L***	Up to 4 TS descrambling
	Multi-descrambling	L	Up to 4 TS descrambling
	Verimatrix Embedded Descrambling	L	1 TS

	Feature Description	Additional Information[1]	Comments
Video Decoder	Video Decoder HW	O	3 HW selections: single channel 4:2:0, dual channel 4:2:0, single channel 4:2:2 and HEVC
	CV Output	O	
	Analog Decoding 1x RGB-HD, D-type	B1	
	SDI Output (HD/SD)	B1	
	HDMI (Single) Output	O	
	3G-SDI Output	O	
	SCTE-104	B1	
	Genlock (Sync Lock)	B1	
	MPEG-2/4 SD Decoding 4:2:0	B1	
	MPEG-2/4 HD Decoding 4:2:0	L1	
	MPEG-2/4 SD/HD Decoding 4:2:2	L1	Requires a 4:2:2 decoding card
	HEVC Main 10 SD/ HD/1080p Decoding	L1	Requires a 4:2:2 decoding card
Audio Decoding	Audio Decoding (D-Type)	B1 (2 Audios) L1 (4 Audios)	
	MPEG-1 Layer 2 Decoding and/or AC-3 2.0 Encoding	B1	
	AAC (HE/LC) 2.0 Decoding/5.1 Decoding and downmix	L1	
	Dolby Digital 5.1 Passthrough	L1	
	Dolby-E Passthrough	L1	
	AAC (HE/LC) 5.1 Decoding to Linear PCM or Dolby Digital 5.1 Decoding to Linear PCM	L1	
	Dolby Digital Plus Decoding	L1	

	Feature Description	Additional Information[1]	Comments
Transcode	TxCoding HW	O**	Transcoding HW selections: single channel, 4 channels, or 8 channels
	MPEG-4 SD TxCode	L2	License per channel
	MPEG-2/4 HD TxCode	L2	license per channel
	Audio Passthrough with PCR Restamping	B2	
Control	Ethernet: RJ-45 10/100Base-T Control	B	
	HTTP Web GUI	B	From SW version 4.0, the Web GUI is HTTP instead of Java
	Terminal RS-232	B	
	GPI for Alarms	B	
	SCTE-35 to GPI	B1	
	T2-MI De-Framing	L	
	MPE (High Speed Data) De-Encapsulation	L	

1.The legend for the Additional Information has been added below

B	Basic hardware
O	Optional hardware
L	Firmware license option
x	Not available
*	Field upgradeable
**	In case of an 8 channel transcoder card, the decoder card cannot be selected
***	Basic when choosing a decoding card
1	Requires a decoding card
2	requires a transcoding card
3	Two of the ASI ports are bi-directional

Chapter 2
Quick Start

This chapter provides instructions for quick initial setup of the ProView 7100.

Topics:

Installation and Cable Connection

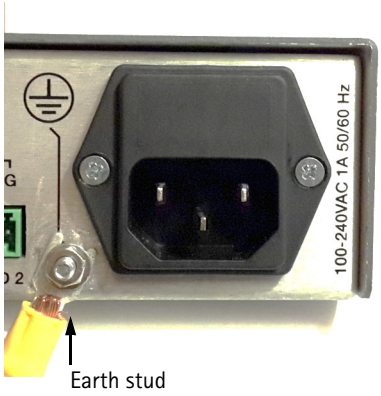
Refer to the ProView 7100 Hardware Installation Guide for detailed information on installation and cable connection.

Installation

The ProView 7100 can be installed in a 19" rack using mounting slides.

Electrical Connection

The ProView 7100 is powered by an AC power supply.



Earthing

The earthing stud shall be permanently connected to protective earth in building installations. Permanent earthing connection shall be made first prior to all other connections and be disconnected last. Cable 18AWG should be used. When the unit is rack-mounted, the device's earth lug must be connected to the rack housing, which must be correctly earthed.

Temperature

This equipment is intended for a maximum operating ambient temperature of 50 degrees Celsius.

Power

The maximum permitted load for the RF In F-type connector is 0.35A.

Below are special instructions for Nordic countries:

- When installed in Finland, Norway, and Sweden, this unit shall be installed in a restricted access location, where equipotential bonding is provided.
- This unit is permitted for connection to Norwegian IT power systems.
- In Norway and Sweden: Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system must be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11).

  Translation in Norwegian: "Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet."

  Translation in Swedish: "Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet."
- For installation in Norway see EN 60728-11:2010 standard.

Cable Connections

Connect the remaining cables:

- DVB-S/S2
- ASI
- LAN
- Video output
- Video monitor
- Power

Switching On

- Connect the unit to the main power supply.

Once the boot process is completed (after 2-3 minutes) the Harmonic Idle message displays on the front panel LCD.

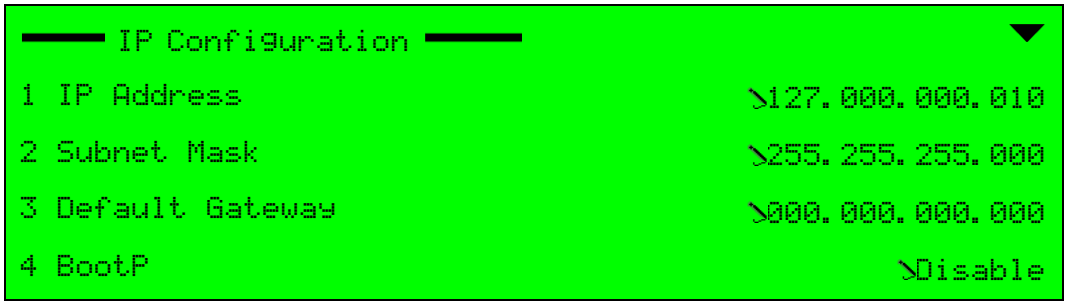
Configuring the IP Parameters

To configure the IP parameters of a ProView 7100:

1. Press **<ENTER>** on the keypad.

The root menu displays.

2. Navigate **Unit** > **Management Port** > **IP Configuration**.



3. Set the IP Address, Subnet Mask and Default Gateway for the port.

Configuring and Monitoring

You can configure the ProView 7100 using the front panel or remotely using the embedded SAG over the LAN.

The ProView 7100 SAG provides a GUI for easy remote management of ProView 7100s.

To configure the ProView 7100 using the front panel, see *Front Panel Overview* and *Device Configuring Using the Front Panel*.

To monitor the ProView 7100 using the front panel, see *Monitoring Using the Front Panel*.

To configure the ProView 7100 using SAG, see *Remote Management Using SAG* and *Device Configuring Using SAG*.

To monitor the ProView 7100 using SAG, see *Monitoring Using SAG*.

Related topics:

- *A Typical ProView 7100 Configuration Using the Front Panel*
- *Remote Access*
- *A Typical ProView 7100 Configuration Using SAG*

A Typical ProView 7100 Configuration Using the Front Panel

The ProView 7100 has four logical Input TSs. A license is required for using more than one Input TS. Some hardware configurations support 1 or up to four satellite RF inputs.

The basic order of configuring the ProView 7100 is:

1. Configure a DVB-S/S2 input port.
2. Descramble selection – Associate a CAM slot to a Input TS and enable descrambling mode.
3. DVB-S/S2 Input Port association – The first **DVB-S/S2 In Port** is associated by default to Input TS-1, therefore **DVB-S/S2 In Port 1** is associated to **DVB Input TS-1**. You can associate different ports or additional ports to **Input TS**s.

NOTE: If the input is MPEG then change the table extraction of either an Input TS or an Output TS to **PSI Only** before you associate the respective TSs.

4. Associate input streams to device outputs.
5. Select programs for descrambling.
6. Decoder configuration.

To configure the ProView 7100 using the Front Panel:

1. Navigate **Root** > **Input** > **TS-1** > **Primary Port Selection**.
2. Select **DVB-S/S2 Port-1**.
3. Select **DVB-S/S2 Port-1 Configuration**.
4. Configure the Port properties.
5. Navigate **Root** > **CA & BISS** > **CAM-1** > **CAM Association**.
6. Select **TS-1 (DVB-S/S2 Port-1)**.
7. Navigate **Root** > **Decoding** > **Configuration** > **Program Selection** > **Input TS**.
8. Select **TS-1 (DVB-S/S2 Port-1)**.
9. Navigate **Root** > **Decoding** > **Configuration** > **Program Selection** > **Descrambling**.
10. Select **CAM** > **CAM-1**.

Remote Access

Before you can manage a ProView 7100 remotely, you must configure the IP parameters, see *Configuring the IP Parameters*. The ProView 7100 uses a SAG (Stand-alone GUI) for easy device management and remote access.

A Typical ProView 7100 Configuration Using SAG

This configuration uses a selection of inputs, IP output, decoding, Transparent TS mode and descrambling.

NOTE: The ProView 7100 has two modes:
Multiplex - In Multiplex mode the device generates a new stream and we can select which programs to pass and modify the bitrate.
Transparent - In transparent mode, the whole output stream is passed to the output unchanged.
See *TS Properties in Logical Outputs Program* for details.

The basic order of configuring the ProView 7100 is:

1. Launching the SAG.
2. Select input port, **DVB-S/S2**, **IP** or **ASI**.
3. Configure a DVB-S/S2 or IP input port (GbE port and IP Sockets).
4. Configure decoding.
5. Select a program for descrambling.
6. Add a program to the transport stream with a new program number. (This changes the TS mode to Multiplex.)
7. Select input port, **DVB-S/S2**, **IP** or **ASI**.
8. Configure a DVB-S/S2 or IP input port (GbE port and IP Sockets).
9. Configure decoding.
10. Select a program for descrambling.
11. Add a program to the transport stream with a new program number. (This changes the TS mode to Multiplex.)

Prerequisites

The following are prerequisites for launching the SAG:

- The IP address of the device that was entered during the configuration via the front panel
- The user name and password to access the SAG
  - (user name) configure - (password) configure – for configuration tasks
  - (user name) monitor - (password) monitor – for monitoring the device

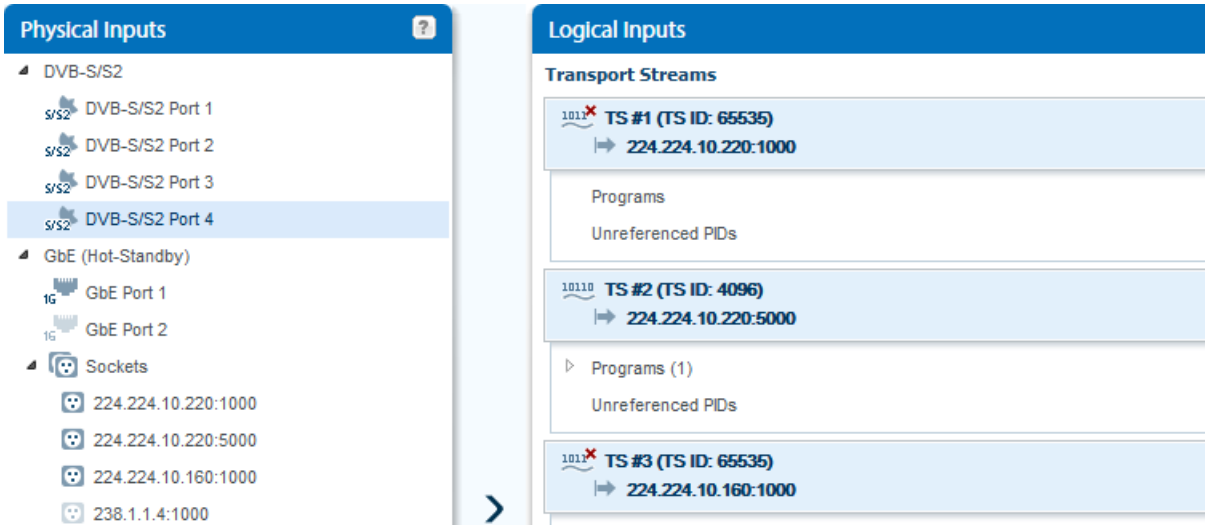
Typical Configuration

To launch the ProView 7100 SAG:

1. Enter the ProView 7100 IP address into the browser URL box.
2. On the log on screen, enter the user name and password.
3. Click **OK**.

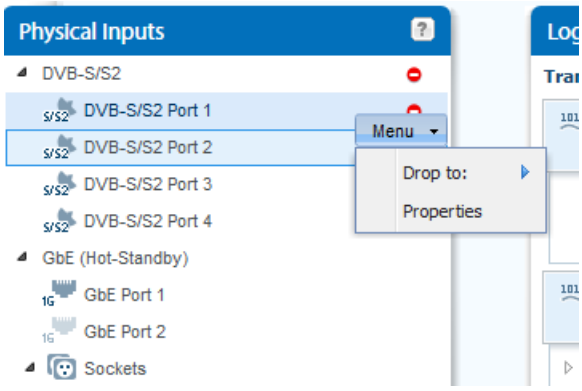
To configure the ProView 7100 using SAG:

1. Drag the input port to be used from the **Physical Inputs** pane to the multiplexer in the **Logical Inputs** pane.

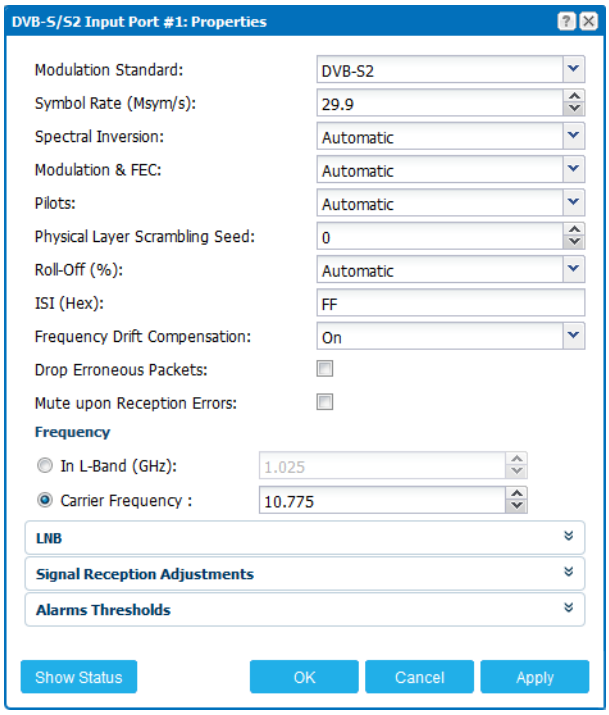


The new logical input selection displays in the **Logical Inputs** pane.

2. If the input stream is received from satellite, perform the following to display and configure a DVB-S/S2 input port:
   a. Expand the device tree in the **Physical Input** pane to reveal the DVB in ports.
   b. Right-click the DVB-S/S2 port to be used and select **Properties**.



The DVB-S/S2 port properties display.



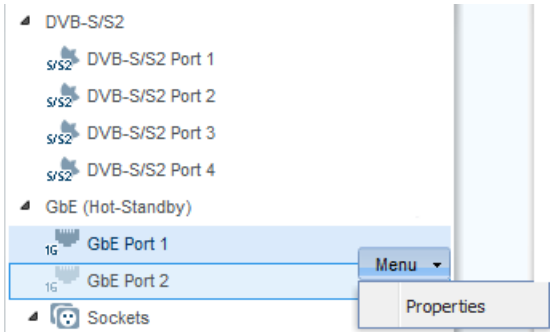
c. Click the **Show Status** button to view the port status.

d. Configure the properties in the left section and click **Apply**.
Note that you can enable LNB for two RF inputs (for four RF inputs with license).

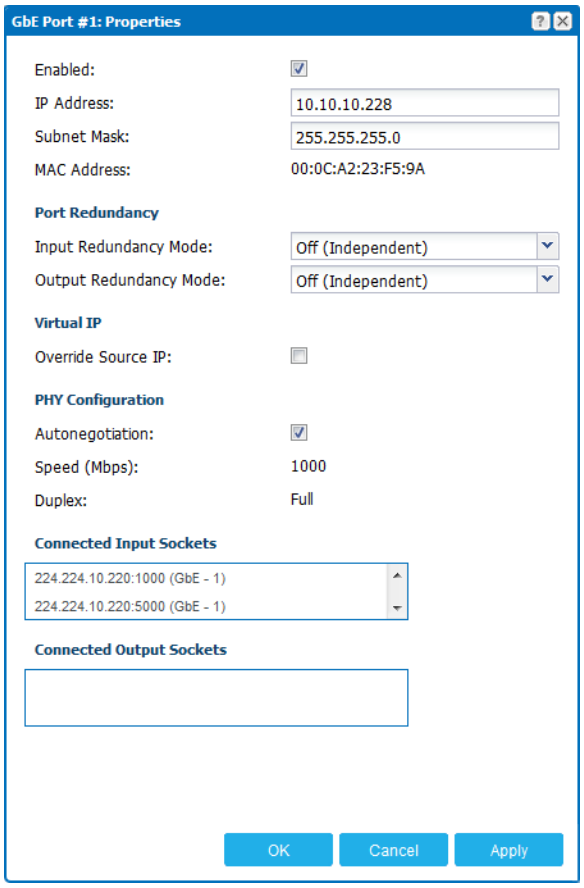
3. To configure the GbE data port (common for input and output):

a. Expand the device tree in the **Physical Input** or **Physical Output** pane to reveal the GbE ports.

b. Right-click the GbE port to be used and select **Properties**.



The GbE port properties display.



c. Configure the GbE data port (common for input and output).

d. Mark the **Enabled** check box.

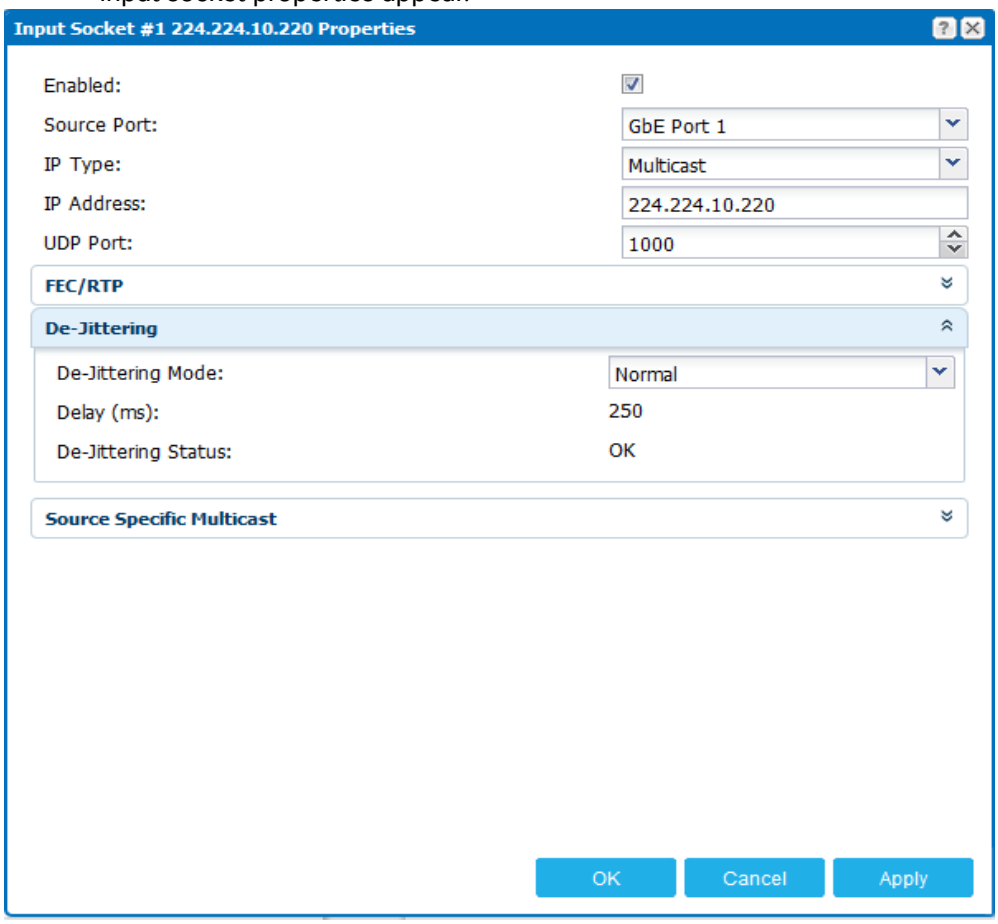
e. Configure **IP Address** and **Subnet Mask**.

NOTE: Make sure that after its configuration, the GbE Port Properties icon in the Physical Inputs pane is not grayed out.

4. To configure an IP input socket:

   a. Expand the Sockets tree in the **Physical Inputs** pane to reveal the sockets.

b. Right-click the socket in the **Physical Inputs** pane to be used and select **Properties**. The input socket properties appear.

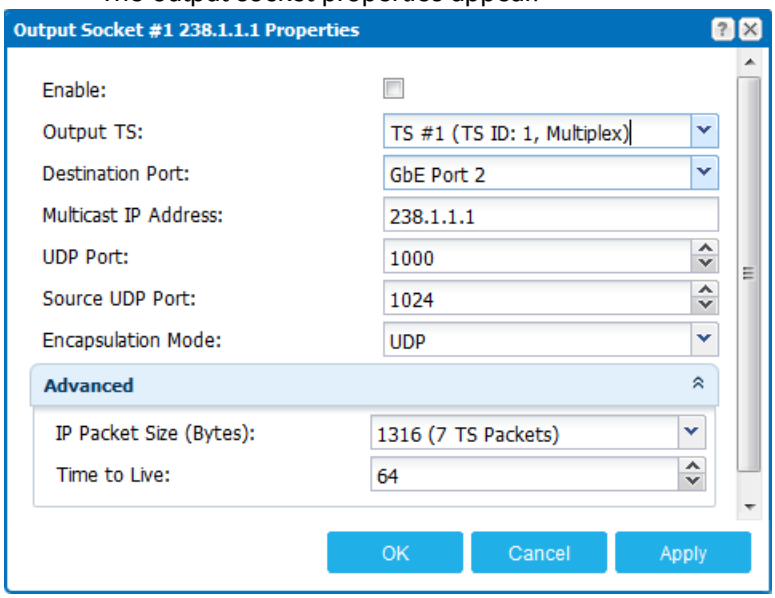


c. Mark the **Enabled** check box.
d. Select the **Source Port** (If GbE is Independent).
e. Configure **IP Address** for **Multicast** or select **Unicast**.
f. Configure **UDP Port**.
g. Optional parameters:
   - FEC/RTP
   - De-Jittering
   - Source Specific Multicast (SSM)

NOTE: Make sure that after its configuration, the Input Socket Properties icon in the Physical Inputs pane is not grayed out.

5. To configure an IP output socket:
   a. Expand the Sockets tree in the **Physical Outputs** pane to reveal the sockets.

b. Right-click the socket in the **Physical Outputs** pane to be used and select **Properties**. The output socket properties appear.



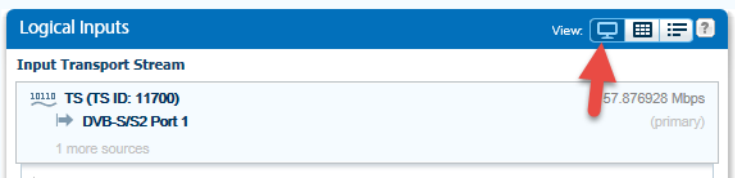
c. Mark the **Enabled** check box.

d. Configure the **Multicast IP Address.**

e. Configure **Source UDP Port**.

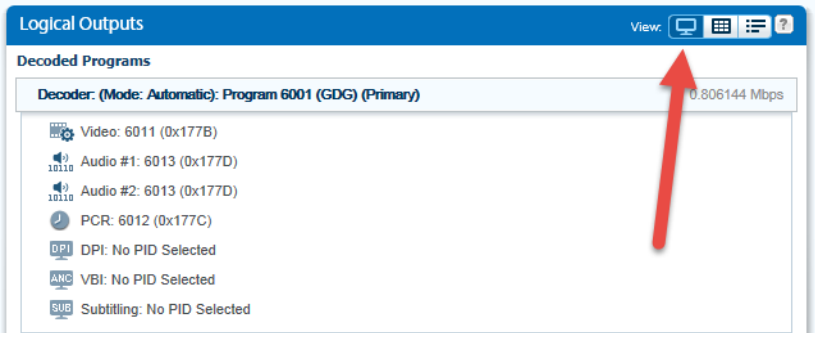
6. Perform the following to configure a program for decoding:

a. Select **Program View** in the **Logical Inputs** pane.

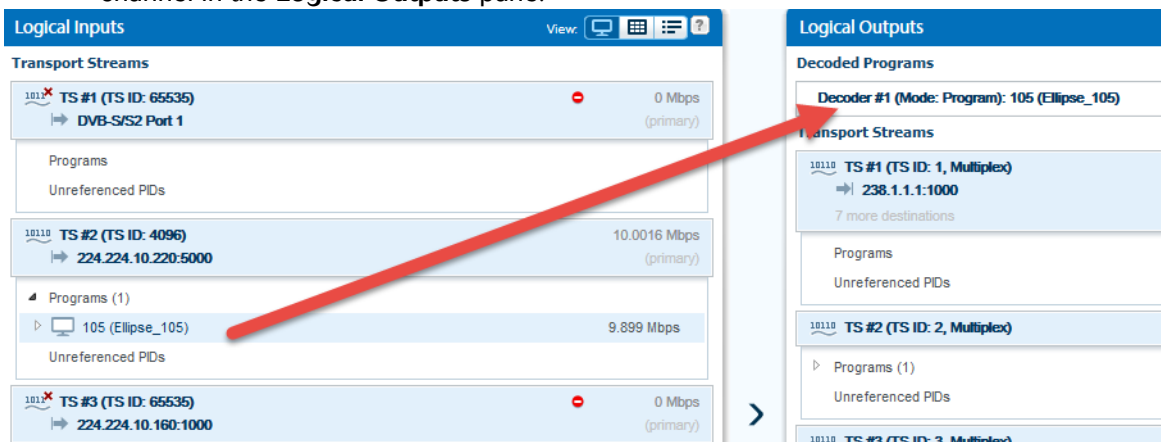


b. Expand the **Programs** tree.

c. Select **Program View** in the **Logical Outputs** pane.



d. Drag the program name from the **Logical Inputs** pane and drop it on the decoding channel in the **Logical Outputs** pane.

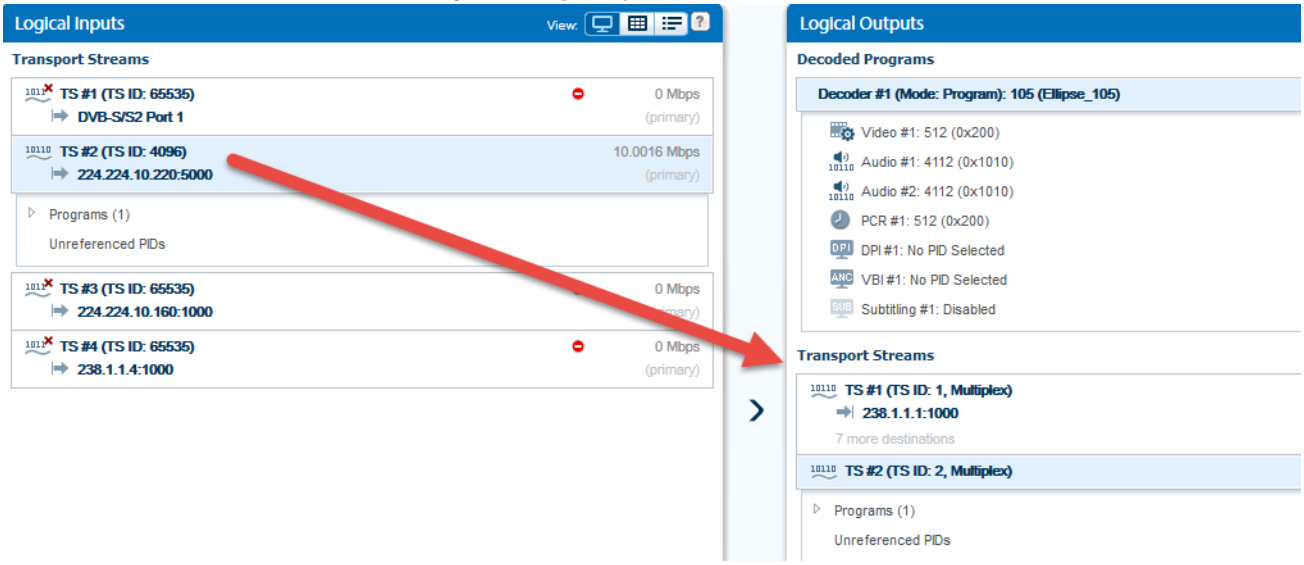


NOTE: You can also configure a program for decoding by right-clicking on **Decoder** and selecting **Properties** in the **Logical Outputs** pane.

7. Perform the following to configure the entire transport stream for decoding:

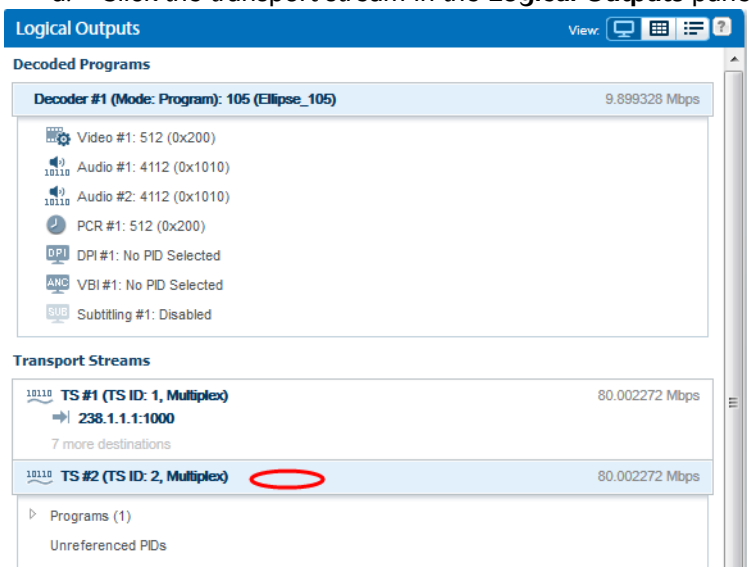
a. Select **Program View** in the **Logical Outputs** pane.

b. Drag the transport stream from the **Logical Inputs** pane and drop it on the decoding channel in the **Logical Outputs** pane.

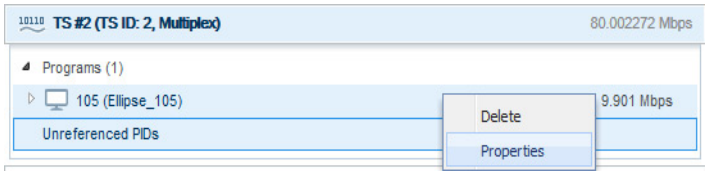


8. Perform the following to select a program for descrambling:

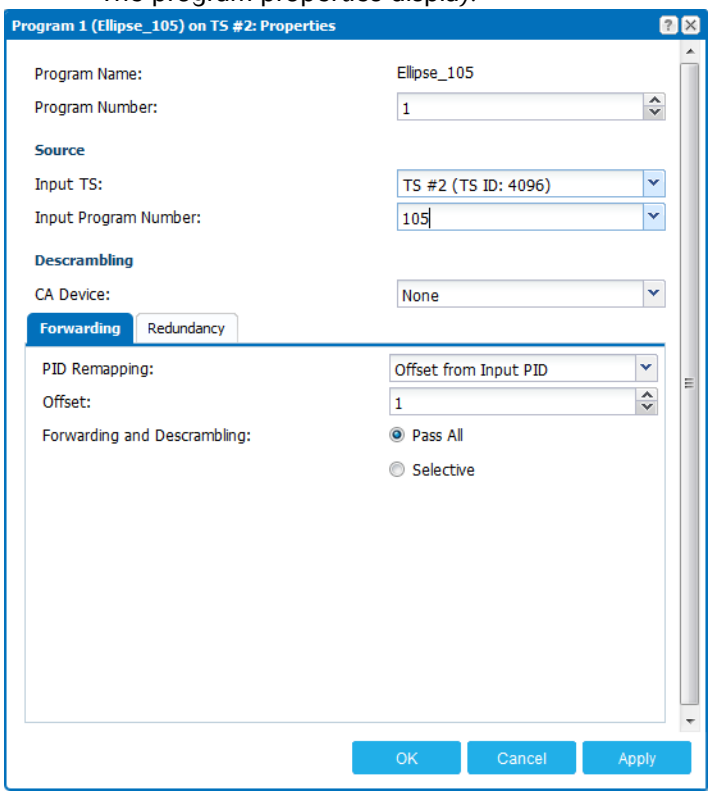
a. Click the transport stream in the **Logical Outputs** pane to expand the tree.



b. Right-click the program to descramble and select **Properties**.



The program properties display.



c. Select a descrambling device from the **CA Device** drop-down list.

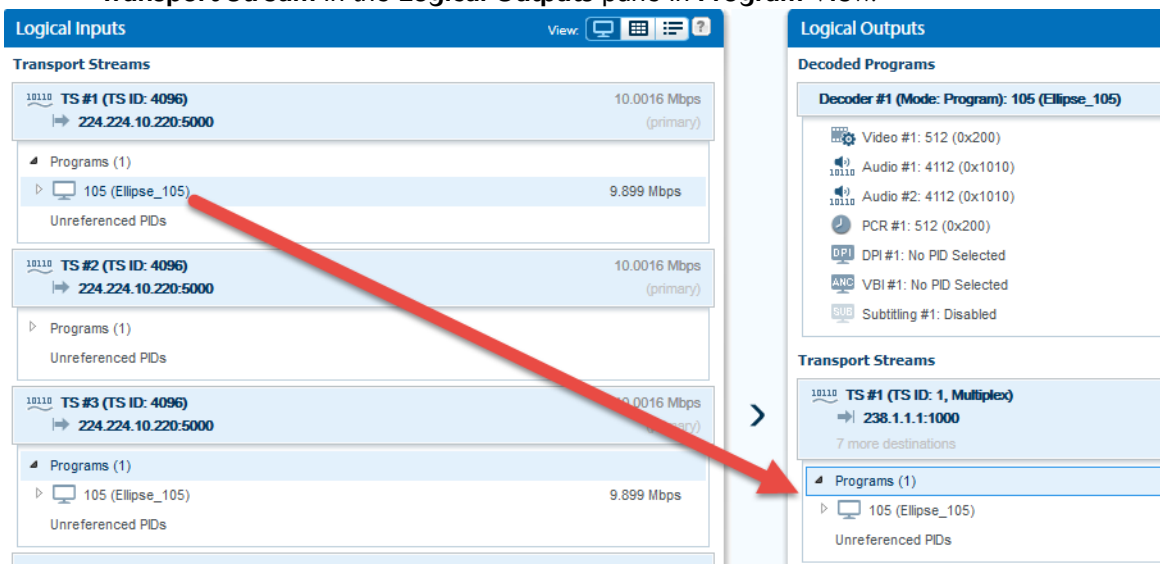
d. Select a CAM, or BISS key depending on what type of descrambling device you selected.

e. If you selected BISS, select a BISS key from the **BISS Key** drop-down list. (BISS keys must be created under the CA & BISS menu before performing this task.)

f. Click **Apply**.

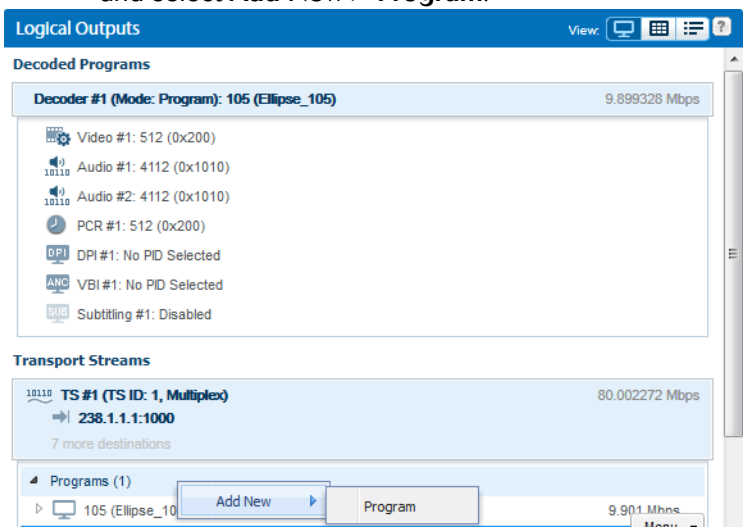
9. Perform the following to add a program to the transport stream with a new program number:

- Drag a program from the **Logical Inputs** pane in **Program View** to the **TS** under **Transport Stream** in the **Logical Outputs** pane in **Program View**.



—or—

- Right-click **TS** under **Transport Stream** in the **Logical Outputs** pane in **Program View** and select **Add New > Program**.



Chapter 3
Front Panel Overview

The front panel of the ProView 7100 multifunctional receiver platform provides a managing interface for local monitoring and configuring the operation of the ProView 7100 unit. This chapter describes the operation of the front panel interface.

Topics:

Main Elements and Structure

The ProView 7100 front panel displays information regarding the input streams and output streams and to perform basic operations. *Figure 3–1* illustrates the front panel.

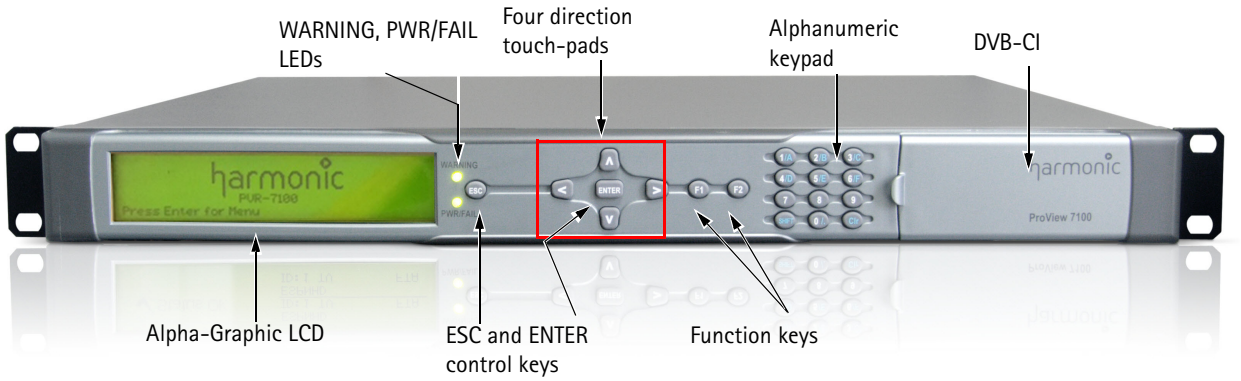


Figure 3–1: ProView 7100 front panel

The ProView 7100 front panel comprises the following:

- **Large LCD display** – The large LCD display provides enhanced menus with graphical interface such as charts, radio buttons, tables and icons.
- **Warning and Pwr/Fail indicators** – LED status indicators.
- **Arrow keys** – Use the four direction arrow keys to navigate the menu items. Use the up and down arrow keys to select characters for parameters.
- **<ENTER>** – Use the **<ENTER>** key to approve selections and set-ups.
- **<Esc>** – Use the **<Esc>** key to revert selections and set-ups.
- **Function Keys** – The **<F1>** key lists the decoder services and the **<F2>** key displays the port status report.
- **Alphanumeric keypad** – Use this keypad to enter digits and hexadecimal letters. Hold the **<Shift>** key to enter blue characters. Use the **<Clr>** key without **<Shift>**.
- **Up to four DVB-CI slots** – Enables you to use up to four Conditional Access Modules (CAMs) for stream descrambling.

Front Panel Display

The ProView 7100 front panel display has four types of pages:

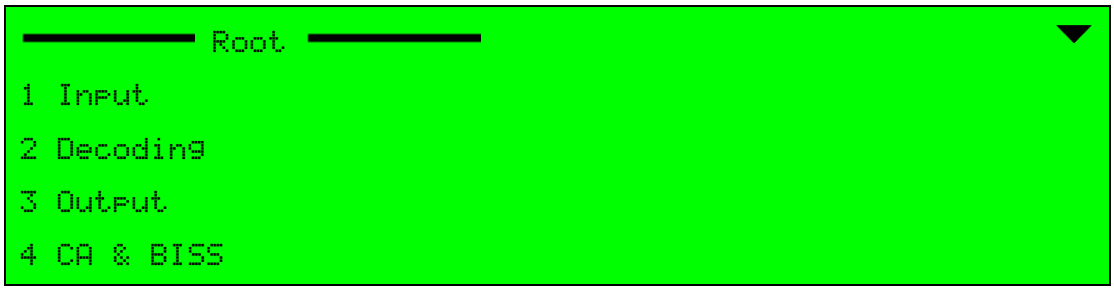
- Menu
- Parameter
- Edit value
- Radio select

The front panel screen can display up to four items at a time. Additional items can be accessed using the <up> and <down> arrow keys. To differentiate between the visible and hidden menu items, two types of screen figures are used in the manual; the dark grey (or green) displays the first four visible items, an up-and-down icon ( ) and a light grey screen holding all the additional hidden items.

The following paragraphs describe the various front panel screen page types and how to use them in menu navigation and managing the device features.

Menu Pages

Menu pages display sub-menus and menu items.



Use the <up> and <down> arrow keys to move between the branches of the tree and press **<ENTER>** to select and display the next lower level in the menu tree.

The front panel root menu of the ProView 7100 is a simple menu screen.

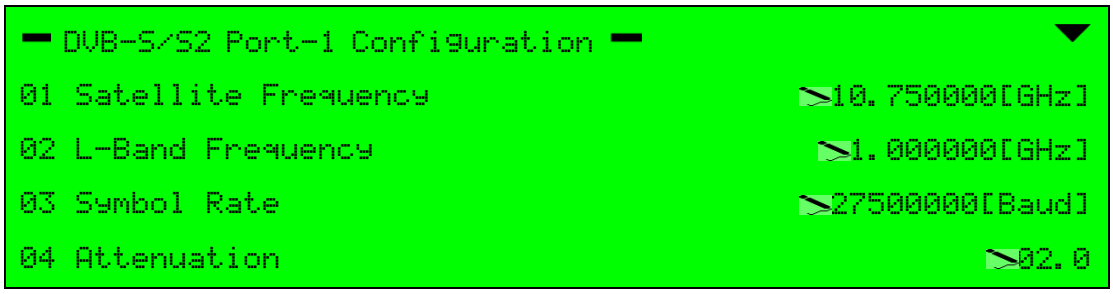
To display the ProView 7100 root menu:

❖ Press **<ENTER>** on the front panel default page.

See *Appendix E, Front Panel Menu Tree* for a diagram of the front panel menu tree.

Parameter Pages

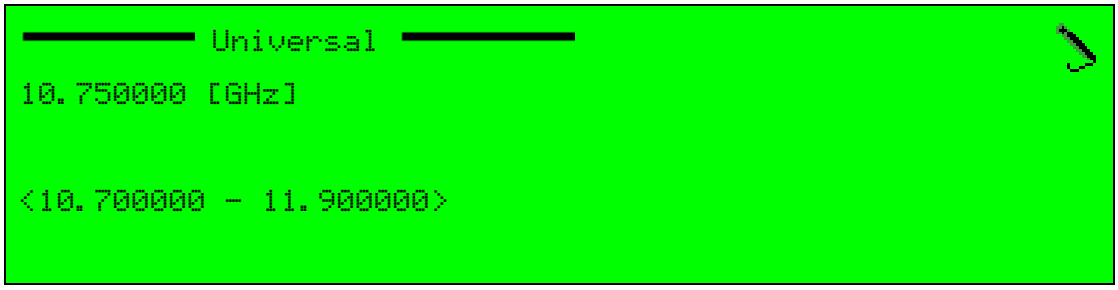
The parameter pages displays the parameters of the element in the menu tree. They comprise on the left side, a list of the parameter names and on the right side, parameter values. Editable parameters have a pencil icon next to them. Parameters without the pencil icon are read-only.



Use the **<up>** and **<down>** arrow keys to move between the parameters and press **<ENTER>** to select an editable parameter to set-up. After pressing **<ENTER>**, an Edit Value or a Select Value Screen is displayed to configure new values for the parameter.

Edit Value Pages

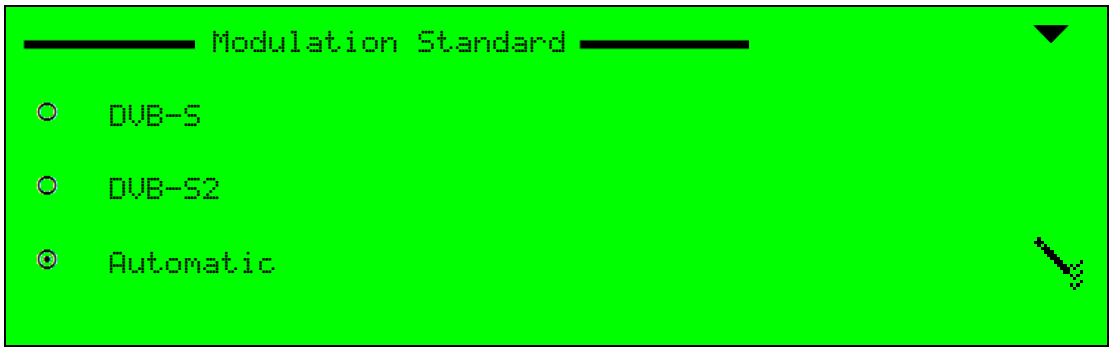
Use Edit Value pages to edit parameter values. The parameter value can be a number or a string.



Use the **<left>** and **<right>** arrow keys to select a digit and the **<up>** and **<down>** arrow keys to change the value of the parameter. On the ProView 7100 you can enter values using the alphanumeric keypad. Press **<ENTER>** to confirm the change or **<ESC>** to revert to the original value.

Radio Select Pages

Radio select pages display a list of items for selection (⊙ = currently active, ○ = currently inactive):



Use the **<up>** and **<down>** arrow keys to move between the items and press **<ENTER>** to select the required option. After pressing **<ENTER>**, the selected option is activated.

Chapter 4
Device Configuring Using the Front Panel

The Root Menu of the ProView 7100 contains the following sub-menus that can be used to configure the device:

- *Input*
- *Decoding*
- *Output*
- *CA & BISS*
- *Port Settings*
- *Active Alarms*
- *Presets*
- *Unit*
- *DMS*

NOTE: If you make a change that can be controlled by DMS while being controlled by DMS, you can lose that change.

Input

NOTE: The following describes the DVB-S/S2 Port configuration. When using a port mapping to an IP socket, IP settings will be shown.

To configure the ProView 7100 input parameters:

1. Navigate **Root** > **Input** > **TS-1/2/3/4** > **DVB-S/S2 Port-1 Configuration**.

Each menu item displays a value setup page.

The **Configuration** menu comprises the following:

- **Universal/Wide Universal/K_u/C Band Frequency** (DVB-S and DVB-S2) – Sets the receiving frequency according to the satellite LNB transmitting frequency. The receiver controls the LNB Band by sending a 22 kHz signal. When the signal is sent, the LNB uses its High Band Local Oscillator (L.O.). When the signal is not sent, the LNB uses its Low Band L.O.

  Two local oscillators exist, **Universal** and Universal Wide one for each band to leverage full spectrum.

  - **Universal Band** valid range:
    - 22 kHz Low tone range – 10,700,000 to 11,900,000 [kHz]
    - 22 kHz High tone range – 11,550,000 to 12,750,000 [kHz]
  - **Wide Universal Band** valid range:
    - 22 kHz Low tone range – 10,700,000 to 11,900,000 [kHz]
    - 22 kHz High tone range – 11,700,000 to 12,750,000 [kHz]
  - **K_u Band** valid range (22 kHz Low and High tone) – 9,500,000 to 14,000,000 [kHz]
  - **C Band** valid range (22 kHz Low and High tone) – 5,000,000 to 6,000,000 [kHz]

- **L Band Frequency** (DVB-S and DVB-S2) – Sets the L-Band frequency. Valid range – 950,000 to 21,150,000 [kHz].
- **Symbol Rate** – DVB-S and DVB-S2. Sets the L-Band symbol rate. Valid range – 1,000,000 to 45,000,000 [baud].
- **Modulator Standard** – DVB-S and DVB-S2. Selects the L-Band modulation standard. Options are:
  - **DVB-S**
  - **DVB-S2**[1]
  - **Automatic**[1]
- **MODCOD** – DVB-S and DVB-S2. Selects the modulation type and coding rate, according to the modulation standard selected.
  - **DVB-S**. Options are:
    - QPSK 1/2
    - QPSK 2/3
    - QPSK 3/4
    - QPSK 5/6
    - QPSK 7/8
    - Auto – Automatic selection of MODCOD
  - **DVB-S2**. Options are:
    - QPSK 1/2
    - QPSK 3/5
    - QPSK 2/3
    - QPSK 3/4
    - QPSK 4/5
    - QPSK 5/6
    - QPSK 8/9
    - QPSK 9/10
    - 8PSK 3/5
    - 8PSK 2/3
    - 8PSK 3/4
    - 8PSK 5/6
    - 8PSK 8/9
    - 8PSK 9/10
- **Roll Off** – Selects the roll factor. DVB-S2 only. Options are:
  - **Automatic**
  - **20%**
  - **25%**
  - **35%**
- **Pilot** – DVB-S2 only. The Pilot feature should only be on when the signal has Pilot symbols, otherwise the demodulator will not lock onto the signal. Options are:
  - **Automatic**[2]

1. Only available with certain hardware configurations, see *Front End Card Features*.

- **On**
- **Off**

- **Spectral Inversion** – DVB-S and DVB-S2. Selects the mode of operation for the spectral inversion function. Options are:
  - **Automatic**[2] – Only in DVB-S and is the DVB-S default.
  - **Normal**[2] – Default for DVB-S2.
  - **Inverted**
- **Scrambling Seed** – DVB-S2 only. sets the value for the physical layer scrambling seed. Valid Range – 0 – 262141. Default is 0.
- **LNB** – Options are:
  - **Polarization** – DVB-S and DVB-S2. Selects the polarization of the antenna in the satellite LNB. Default is Off. Options are:
    - Vertical (13V)
    - Horizontal (18V)
    - Off
  - **LNB Frequency Band** – DVB-S and DVB-S2. Selects the receiver frequency band according to the satellite Low Noise Block (LNB) transmitting frequency band. Options are:
    - **Universal** (Low: **9.75**, High: **10.6**)
    - **Universal Wide** (Low: **9.75**, High: **10.75**)
    - **K_u Band**
    - **C Band**
  - **LO Frequency** – DVB-S2 only. Manages the Local Oscillator (LO) frequency, depending on the LNB Frequency Band selected:
    - Displays the Local Oscillator (LO) frequency for Universal and Universal Wide Bands.
    - Enables setting the LO frequency for K_u Band. Range 8.5 MHz – 13 MHz
    - Enables setting the LO frequency for C Band. Range 5 MHz – 6 MHz
  - **22 kHz Tone** – DVB-S2 only. Selects the Low of High Frequency Band to be used when receiving from an LNB configured to Universal and Universal Wide Band. Options are:
    - **Low** (no tone, selects the 9.75 GHz band)
    - **High** (selects the 10.6 GHz or 10.75 GHz band)

NOTE: When using K_u or C Band, the 22 kHz function has no influence.

- **Frequency Drift Compensation** – Compensate for LNB frequency drift. With the single and quad demodulator boards it functions from 8 MBd and up. With the DVB-S/S2 demodulator board it functions from 5 MBd and up, see *Front End Card Features* for board details. Options are:
  - **On**
  - **Off**
- **Attenuation**[1] – Internal attenuation for saturated signals (0 to 30 dB). Default is 2dB.

2. Only available with certain hardware configurations.

- **Gain**[1] – Internal gain to improve signal strength.
- **ISI (Multiple Input Stream)** – Input Stream Identifier in hexadecimal. Use this parameter to select a specific transport stream from a multi-transport carrier.
- **BER Thresholds** – Bit Error Rate. The range is 0.1 to 0.00000001. (Default is 0.0001.)
- **PER Thresholds** – Packet Error Rate. The range is 0.1 to 0.00001. (Default is 0.01.)
- **Eb/No Threshold Mode** – Threshold Level Mode. Options are:
  - **Automatic**
  - **Manual**
    - If Manual is selected, the level (in dB) can be edited.
- **Drop Erroneous Packets** – Use this parameter to instruct the demodulator not to pass any transport stream packets with errors. The default is to pass all TS packets.
- **Mute upon Errors** – Use this parameter to mute the port when an Eb/No error is asserted.
  - **On**
  - **Off**

Input Redundancy

Use the **Input** menu to configure input redundancy on an Input TS, select physical input and output ports, redundancy triggers and input type.

Redundancy

Only one port is active while the other one is in standby mode, by default the **Primary Input** port is active and the **Backup Input** port is on standby. The port on stand by does not pass data. The Redundancy Triggers section is used to configure triggers that will switch to the Backup Port. The Seamless Redundancy mode doesn't require any triggers for switching between sources. While working in Seamless mode, the "Trigger Alarm" checkbox will be used to enable/disable the Alarms reporting. The default Redundancy Mode is **Off**.

To use **Input Redundancy** you must configure the **Primary Input** port and the **Backup Input** port.

There are 6 modes:

- **No Redundancy**
- **Manual** – You can manually switch between the primary and the Backup Ports.
- **Manual Revert** – The device switches from the Primary Port to the Backup Port when the Primary Port fails on one of the redundancy triggers and the Backup Port has no active alarms. You can revert from the Backup Port to the Primary Port manually using the **Active Input menu**.
- **Automatic** – The device switches to the standby port whenever the active port fails on one of the redundancy triggers and the standby port has no active alarms.
- **Automatic Revert** – The device switches from the Primary Port to the Backup Port when the Primary Port fails on one of the redundancy triggers and the Backup Port has no active alarms. The device reverts to the primary as soon as the Primary Port has no active alarms.
- **Seamless** – If you have two equal streams, the device switches to the standby port whenever the active port fails, without loss of video packets. A maximum offset between the sources needs to be filled in. The device will support up to 2 Seamless Redundancy engines, allocated only on Input TS-1 and TS-2 (This option is licensed). The Seamless option is not applicable for TS-3 and TS-4.

You must enable at least one redundancy trigger under the **Redundancy Triggers** menu.

De-Framing

The ProView 7100 supports up to four (4) T2-MI de-framing engines. Each engine can extract one PLP out of a given T2-MI PID. The output is a CBR transport stream.

De-Jittering

The device supports up to four (4) general purpose de-jittering engines. Each engine supports a bitrate of up to 54 Mbps. Only CBR TS is supported.

Table 4–1: De-Jittering Status

Status	Descriptions
OK	DJ is being performed
Off	Either the Input TS is in Admin Down or the Input TS is operating in no DJ mode
No PCR	No PCR has been detected.
Unsupported rate	The bitrate is not supported.
Illegal PCR Skew	Bigger than 31 PPM.
No stream detected	No stream is detected.
No MIP detected	Only applicable in SFN mode.

Decoding

The decoder type and modes of operation depend on the hardware configuration and are license dependent. The **Decoding** menu is enabled only when the required hardware is installed in the ProView 7100 device.

To configure the ProView 7100 decoding parameters:

❖ Navigate **Root** > **Decoding** > **Decoder (no.)** > **Configuration**.
If you only have a single decoder then their is no **Decoder (no.)** menu.

The **Decoding Configuration** menu comprises:

- **Program Selection**
  - **Service Mode** – (For details see *Service Mode*)
  - **Input TS** – Select the transport stream (1–4).
  - **Input Program** – Displays a list of the programs available
  - **Descrambling** – This menu only displays when a CAM is mapped to an **Input TS** and **Service Selection Mode** is not configured to **No Decoding**. Select the descrambling device for the modulated program. Options are:
    - Verimatrix
    - BISS
    - CAM 1
    - CAM 2
    - CAM 3

- CAM 4
- None

- **PCR PID**
  - Mode. Options are:
    - Automatic
    - Fixed
- **Video PID**
  - Mode. Options are:
    - None
    - Automatic
    - Fixed
- **Audio PID**. Options are:
  - Audio #1
    - Mode. Options are:
      - Automatic
      - Fixed PID
      - Preferred Language
      - By Priority
  - Audio #2
    - Mode. Options are:
      - Automatic
      - Fixed PID
      - Preferred Language
      - By Priority
- **DPI PID**
  - Mode. Options are:
    - None
    - Automatic
    - Fixed PID
- **VBI/VANC PID**
  - Mode. Options are:
    - None
    - Automatic
    - Fixed

- **Redundancy** – Sets up the decoder program redundancy (for details, see *Redundancy Configuration*). (This option will not be displayed when the unit is DMS controlled)
- **Backup Source** – Only when Redundancy Control is Input Redundancy or Alarms.
  - **Input Selection** – Either one of the available Input TSs or None. When the None is selected and the switch to the backup program is triggered, the output will be muted.
  - **Input Program Number** – The Input Program Number of the backup program.
  - **Descrambling** – Use this feature to select the relevant CAM slot or BISS descrambling.

- CAM Slot 1
- CAM Slot 2
- CAM Slot 3
- CAM Slot 4
- BISS
- Verimatrix

- **Video** – Sets up the video modulation parameters, depending on the video codecs and format (for details, see *Video Configuration*).
- **PCR** – Selects the clock source for the decoded program and sets up the a/v sync parameters (for details, see *PCR*).
- **Audio1/2/3/4** – Sets up the audio decoding parameters for each one of the two audio channels in the program (for details, see *Audio 1–2 Configuration*).
- **VBI/VANC** – Sets up the VBI/VANC parameters for the various program related functions (for details, see *VBI/VANC Configuration*).
- **DPI** – Use this menu to configure alarms to switch GPI relays (for details see *DPI*.
- **OSD** – Use this menu to configure the insertion of subtitles from VBI PIDs, (for details, see *OSD*)

Service Mode

Use the **Service Mode** menu to select a service mode.

The **Service Mode** menu comprises:

- **Automatic** – Use this mode for the device to automatically decode the first program in the TS (first PAT).
- **Program** – Use this mode to set the decoder to manual program selection.
- **Fixed PID** – Use this mode to set the decoder to manual PID selection.
- **No Decoding** – Use this mode to disable decoding.

Redundancy Configuration

NOTE: This option will not be displayed when the unit is DMS controlled.

Use the Redundancy Configuration to set up the Decoder Program Redundancy.

To access the **Redundancy** sub-menu:

❖ Navigate **Root** > **Decoding** > **Decoder (no.)** > **Configuration** > **Redundancy**.

- **Redundancy Control.** Options are:
  - **Off** (Default)
  - **DMS** – Not displayed when the Service Redundancy is controlled by the DMS. In that case the DMS configuration decides what the active program is and no other fields are shown.
  - **Alarms** – The selection of the active program is according to the configured Program Redundancy Scheme and the selected triggers.
  - **Input Redundancy** – The active program is based on the active source port of the Input TS of the primary program. When the Primary Source Port is active, the Primary program

will be active. When the Backup Source Port is active, the decoder will decode the backup program

- **Redundancy Scheme** – Only when Redundancy Control is Alarms. Options are:
  - **Manual** – You can manually switch between the primary and the backup program.
  - **Manual Revert** – (Default when the Input Selection in the Backup Source is None) The device switches from the primary program to the backup program when the primary program fails on one of the redundancy triggers. You can revert from the backup program to the primary program manually.
  - **Automatic** – (Default when the Input Selection in the Backup Source is not None) The device switches to the backup program whenever the active program fails on one of the redundancy triggers. A switch back to the primary program occurs when the backup program contains errors.
- **Active Program** – Primary (Default) or Backup.
- **Pre-Descramble** – (Default is No) When **Yes**, the device will descramble the backup program while it is not active.
- **Program Selection** – Primary or Backup depending on the actual status of the device.
- **Redundancy Triggers** – Only when Redundancy Control is Alarms
  - **No PCR Detected Alarm** – Yes (Default) or No.
  - **Video Decoding Failure Alarm** – Yes (Default) or No.

Video Configuration

Use the **Video** configuration menu to set up the decoded video stream output parameters for the modulated program.

To access the **Video** sub-menu:

❖ Navigate **Root** > **Decoding** > **Decoder (no.)** > **Configuration** > **Video**.

- **Codec** – Selects the video decoding mode. Options are:
  - **Automatic**
  - **MPEG-2**
  - **AVC**
- **Display Format** – Selects the video display format. Options are:
  - **SD**
  - **HD**
  - **Automatic**

NOTE: Changing the display format may take a few seconds. During this time the FP display freezes. The Aspect Ratio Conversion feature is performed if the aspect ratio of the video in the incoming transport stream is not the same as the configured aspect ratio for the output stream.

- **Output Format** – This parameter only displays when the display format is HD.
  - **720p @ 50**
  - **720p @ 59.94**
  - **720p @ 60**
  - **1080i @ 25**
  - **1080i @ 29.97**

- **1080i @ 30**

- **Analog Outputs**
  - **625 Line Systems**
    - PAL B/G
    - PAL D
    - PAL I
    - PAL N
    - French SECAM
  - **525 Line Systems**
    - NTSC
    - PAL M

- **Aspect Ratio** – Selects the aspect ratio conversion for the output stream. To be performed if the incoming stream aspect ratio is not the same as the configured output aspect ratio. Options (related to selected aspect ratio):
  - **16:9 Aspect ratio**
  - **4:3 Aspect ratio**
  - **Automatic**

- **Scaling to 4x3** (conversion)
  - **Center-Cut**
  - **Letterbox**
  - **Anamorphic**
  - **AFD**

- **Scaling to 16x9** (conversion)
  - **Center-Cut**
  - **Pillarbox (Side Bars)**
  - **Anamorphic**
  - **AFD**

- **Advanced**
  - **Blanking Mode**. Options are:
    - Black
    - Last Frame
    - Last Field
    - Bar
    - Mute
  - **HDMI Format**. Options are:
    - HDMI
    - DVI
  - **Buffer Management**. Options are:
    - Normal
    - Low Delay
  - **Buffer Resizing Mode**. Options are:
    - Dynamic

- Static
- **Video Error Recovery Mode**. Options are:
  - 1
  - 2
  - 3
  - 4
- **Additional Image Processing**. Options are:
  - Disabled
  - Enabled

PCR

Use the **PCR** menu to set up the clock synchronization parameters for the modulated program.

The **PCR** menu provides the following options:

- **Clock Source** – Selects the clock source for the synchronization of the modulation of the audio and video streams in the program. You cannot change the clock source when A/V Sync is set to 5 ms. Options are:
  - **Original PCR**
  - **Decoder Clock**
  - **Genlock**[3]
- **A/V Sync** – Selects the audio to video synchronization parameter. Options are:
  - **Frame** – Select this parameter to limit the audio/video sync jitter to 1 frame.
  - **5 ms** – Select this parameter to limit the audio/video sync jitter to 5ms when the clock source is set to Original PCR.
  - **Off**
- **A/V Offset Compensation** – This menu only displays when A/V Sync is set to 5 ms. The range is -20 to 20 ms. The default is 0.
- **Genlock** – This menu only displays when Clock Source is set to Genlock. Use this menu to sync with the incoming signal.
  - **Input Type**. Options are:
    - Analog – Analog genlocking supports PAL B/G, NTSC, 720P (50, 59, 60 Hz), 1080i (50, 59, 60 Hz), and 1080p (50, 59, 60 Hz). The main output must be configured to match the format of the Genlock source. The configuration options are under the **Genlock** menu.
    - Digital – Digital genlocking supports PAL B/G, NTSC, 720P (50, 59, 60 Hz) and 1080i (50, 59, 60 Hz). The main output must be configured to match the format of the Genlock source. The default is Digital.
    - Horizontal Delay – (Only displayed when Genlock Input Type is Analog) The range is 0 to 1728 in 37 ns or 27 MHz ticks. The default is 0.
    - Vertical Delay – (Only displayed when Genlock Input Type is Analog) The range is -7 to 6. The default is 0.
    - SCH Phase Delay – (Only displayed when Genlock Input Type is Analog) The range is 0° to 360°. The default is 0°.

3. Only available with certain hardware configurations, see *Overview of Rear Panel Ports and Connectors*.

- **Decoding Buffer Delay** - The range is 1 to 300 ms. (Default is 100.)

Audio 1–2 Configuration

Use the **Audio 1-2** configuration menus to set up the audio decoding parameters for the audio channels in the modulated program.

NOTE: When the decoder has four audio channels, the entries for Audio #3 and # 4 will be displayed.

The **Audio Configuration** menu provides the following options:

- **Codec** – Selects the audio decoding mode. Options are:
  - **Automatic**
  - **MPEG-1 Layer I**
  - **MPEG-1 Layer II**
  - **AC-3**
  - **E-AC-3**
  - **AAC ADTS**
  - **AAC LATM**
  - **Dolby-E (Passthrough only)**
  - **Linear PCM (Passthrough only)**

NOTE: Changing between audio Codecs takes up to one minute. During this time the FP display freezes.

- **Processing Type** – Selects audio processing type. Options are:
  - **Downmix/2.0 Decode**
  - **Passthrough**
  - **5.1 Decode (Only for Audio #1 and Audio #2 when the device has four audio channels))**
- **AC-3 Downmixing** – Selects the mixing mode for the output. Options are:
  - **Downmixing Mode**. Options are:
    - LoRo
    - LtRt
  - **Dynamic Range Control** – Selects the mode of operation for the Dolby processing. Options are:
    - Line Out
    - RF Remod
- **Advanced**
  - **Delay** – Range: • 128 to 128 dB
  - **Channel Mode** – Selects the mixing L/R inputs to outputs. Options are:
    - Stereo
    - Mono (Analog output only)
    - Both Right
    - Both Left
  - **Digital Format** – Selects the audio format mode. When using Dolby Digital Passthrough, this parameter has no effect.

- Professional
- Consumer
- Follow the Input – Only when the device has four audio channels and Codec is set to Linear PCM or Dolby-E.

- **Volume** – Sets the audio volume. Range: • 63 to 0 dB
- **Output Sample Rate (kHz)**
  - Follow the Input – Only when the device has four audio channels.
  - 48 kHz – (Default)

Embedded Audio

Use the Embedded Audio tab to configure embedded audio channels into SDI. Each decoded audio must be embedded into SDI. You can select into which pair/group each audio channel will be embedded.

The menu comprises:

- **Apply SDI Groups changes**
- **Group 1** – There are four SDI groups to choose from. The default is Group 1.
  - **Pair1** – Select N/A or Audio 1–4.
  - **Pair2** – Select N/A or Audio 1–4.
- **Group 2**
- **Channel**
  - **L/R**
  - **C/LFE** – Only when Processing Type is 5.1 Decode.
  - **Ls/Rs** – Only when Processing Type is 5.1 Decode.

VBI/VANC Configuration

The **VBI/VANC** menu enables you to insert VBI/VANC data into the decoded video. You can insert several VANC datum items into the same line but you cannot insert several VBI items into the same line and you cannot insert VBI and VANC into the same location.

Each type has a sub-menu to configure the video source and insertion location. The sub-menus are:

- **VI/AFD (Video Index)**
  - **Source**. Options are:
    - VBI ES
    - Video ES
  - **VBI**. Options are:
    - Insert
      - Yes
      - No
    - Line (11)
  - **VANC**. Options are:
    - Insert
      - Yes
      - No

- Line (range 11 to 14)

- **AMOL** (Automatic Measurement Of Line-Ups)
  - **Source**: VBI ES
  - **VBI**. Options are:
    - Insert
      - Yes
      - No
    - Line #1 (20)
    - Line #2 (22)
  - **VANC**. Options are:
    - Insert
      - Yes
      - No
- **CC (Closed Captions)** (Default: Enabled)
  - **Source**: Video ES
  - **VBI**. Options are:
    - Insert
      - Yes
      - No
    - Line (21)
  - **VANC**. Options are:
    - Insert
      - Yes
      - No
    - Line (range 09 to 14)
- **Raw Data**
  - **Source**: VBI ES
  - **VBI**. Options are:
    - Insert
      - Yes
      - No
- **SCTE 104**
  - **Source**: DPI PID
  - **VANC**. Options are:
    - Insert
      - Yes
      - No
    - Line (range 15 to 23)
- **TVG** (TV Guide)
  - **Source**: VBI ES
  - **VBI**. Options are:
    - Insert

- Yes
- No

- **VANC**. Options are:
  - Insert
    - Yes
    - No

- **TTX** (Teletext EBU)
  - **Source**: VBI ES
  - **VBI**. Options are:
    - Insert
      - Yes
      - No
  - **VANC**. Options are:
    - Insert
      - Yes
      - No
    - Protocol
      - SMPTE-2031
      - OP-47
- **VPS** (Video Program System)
  - **Source**: VBI ES
  - **VBI**. Options are:
    - Insert
      - Yes
      - No
    - Line (16)
- **VITC** (Vertical Interval Time Code)
  - **Source**. Options are:
    - Decoder
    - VBI ES
    - Video ES
  - **VBI**. Options are:
    - Insert
      - Yes
      - No
    - Line #1 (range 07 to 23)
    - Line #2 (range 07 to 23)
  - **VANC**. Options are:
    - Insert
      - Yes
      - No
    - Line (range 09 to 14)

        - Insert to
            - VANC
            - HANC
- **VITS** (Vertical Interval Test Signals)
    - **Source**: Decoder
    - **VBI**. Options are:
        - Insert
            - Yes
            - No
        - Line #1 (range 07 to 23)
        - Line #2 (range 07 to 23)
- **WSS** (Wide Screen Signaling)
    - **Source**. Options are:
        - Decoder
        - VBI ES
        - Video ES
        - WSS-AFD (when using AFD)
    - **VBI**. Options are:
        - Insert
            - Yes
            - No
        - Line #1 (23)

DPI

Use this menu to configure SCTE 35 (GPI) commands to toggle GPI relays and SCTE 104 (VANC) commands for Digital Program Insertion. It comprises the following sub-menus:

- **GPI Triggering**. Options are:
    - **Pre-Roll** – Use to configure the pre-roll.
    - **OON Trigger GPI Port** – Use to configure the **Out Of Network** alarm switch.
    - **RTN Trigger GPI Port** – Use to configure the **Return to Network** alarm switch.
- **VANC (SCTE 104)**. Options are:
    - **AS Index** – Integer range. Min. 0, Max. 255, Steps 1, Default is 0.
    - **DPI PID Index** – Integer range. Min. 0, Max. 65535, Steps 1, Default is 0.
    - **VANC**. Options are:
        - Insert
        - Line

OSD

Use this menu to configure the insertion of subtitles from VBI PIDs. It operates in Auto Mode and Program Mode in HD and SD.

- **Source**
    - **None**

- **DVB Subtitling** – One PID is used per language.
- **Teletext** Subtitling

- **Broadcast Outputs** – (Displayed when DVB Subtitling is selected as source) Options are:
  - **Zoom**. Options are:
    - 1/3
    - 1/2
    - 1
    - 2
    - 3
  - **X Offset** (range -100 to 100 pixels)
  - **Y Offset** (range -100 to 100 pixels)
- **CV Monitor** – (Displayed when DVB Subtitling is selected as source) Options (only when CV Monitor is enabled) are:
  - **Enable**
    - Yes
    - No
  - **Zoom**. Options are:
    - 1/3
    - 1/2
    - 1
    - 2
    - 3
  - **X Offset** (range -100 to 100 pixels)
  - **Y Offset** (range -100 to 100 pixels)
- **Page Selection** – (Displayed when Teletext Subtitling is selected as source) Option is:
  - **Selection Mode**
    - Automatic
    - Manual (Page range 100 to 899)
    - Preferred Language (choice of language)
- **Broadcast Outputs** – (Displayed when Teletext Subtitling is selected as source) Options are:
  - **X Offset** (range -100 to 100 pixels)
  - **Y Offset** (range -100 to 100 pixels)
- **CV Monitor** – (Displayed when Teletext Subtitling is selected as source) Options (only when CV Monitor is enabled) are:
  - **Enable**
    - Yes
    - No
  - **X Offset** (range -100 to 100 pixels)
  - **Y Offset** (range -100 to 100 pixels)

Output

To configure the ProView 7100 output parameters:

1. Navigate **Root** > **Output** > **TS-1/2/3/4/5/6/7/8/MPE**.

Each menu item displays a value setup page. The following list is for TS-1/2/3/4/5/6/7/8

- **TS Settings**. Options are:
  - **TS Mode**
    - Multiplex
    - Transparent
  - **Admin Status**
    - Enable
    - Disable
  - **Bitrate** – Range is 100,000 to 200,000,000 Mbps
- **TS Status**
- **Program Forwarding**. Options are:
  - **Pass Program**
  - **Add Program**
  - **Edit Program**
  - **Remove Program**
- **Output Ports**. Options are:
  - **IP Socket-1/2/3/4/5/6/7/8** (Enabled/Disabled)
  - **ASI-1/2/3/4** (Enabled/Disabled)
- **PIDs**. Options are:
  - **Pass PID**
  - **Edit PID**
  - **Remove PID**
- **Output Tables**. Options are:
  - **Standard**
    - None
    - PSI (MPEG)
    - PSI/SI (DVB)
  - **PAT**
  - **CAT**
    - Mode
      - None
      - Pass
      - Generate
    - Repetition Rate – (0050 to 2000 ms)
    - TS ID
  - **PMT**
    - Repetition Rate – (0050 to 2000 ms)
    - Programs PMTs
  - **CAT**
    - Mode
      - None

        - Pass
        - Generate
      - Repetition Rate – (0050 to 2000 ms)
      - Pass EMM
      - Edit EMM
      - Remove EMM
    - **SDT**
      - Mode
        - None
        - Pass
        - Generate
      - Repetition Rate – (0050 to 2000 ms)
      - Network ID
    - **NIT**
      - Mode
        - None
        - Pass
      - Input TS
      - Input PID

The following list is for MPE:

- **Mode**. Options are:
  - **Disabled**
  - **Program Mode**
  - **PID Mode**

CA & BISS

Use the **CA & BISS** menu to configure Verimatrix, BISS and associate Input TSs to CAMs and select individual programs.

To access the **CA Definitions** menu:

❖ Navigate **Root** > **CA & BISS**.

The **CA & BISS** menu comprises configuration sub menus.

Verimatrix

The Verimatrix sub-menu displays Verimatrix information.

Sub menus:

- **VSC ID** – Displays the virtual smart card identity.
- **Lib SW Version** – Displays the Verimatrix software version.

BISS Keys

Use the **BISS Keys** sub-menu to define BISS keys or to clear BISS keys.

Sub menus:

- **Create New**
  - **Description**
    - Mode
      - BISS-1
      - BISS-E Buried ID
      - BISS-E Injected ID
    - SW (BISS-1 only)
    - ESW (Injected E or Buried E)
    - ID (Injected E only).
    - Clear

CAM 1-4 Sub Menus

The CAM slot sub-menus each comprise:

- **CAM Association** – Use to associate the CAM slot with an Input TS.
- **Max CAM Bitrate** – 72 or 96 Mbps depending on hardware configuration. The default is **72**.
- **CAM De-Jittering** – Enable or disable.
- **Auto Recovery** – Use to configure the ProView 7100 to reset the CAM when one of the following alarms is raised:
  - **CAM Descrambling Failure**
  - **CAM Processing Failure**
  - **Packet Loss after Descrambling**
- **CAM Information**. Options are:
  - **Name**
  - **Manufacturer**
  - **Manufacturer Code**
  - **CAS IDs**

CAM Association

To associate a CAM with an Input TS:

1. Navigate **Root > CA & BISS > CAM (1–4)**.
2. Select **CAM Association**.
3. Select an Input TS; **TS-1**, **TS-2**, **TS-3**, **TS-4,** or **None**.

Port Settings

The Port Settings Menu contains two sub-menus:

- DVB-S/S2
- GbE

The two sub-menus have been described separately in the following sections:

- *Configuring the DVB-S/S2 Input Port Properties*
- *Configuring the GbE Ports and Sockets*

Configuring the DVB-S/S2 Input Port Properties

To configure the ProView 7100 DVB-S/S2 input port parameters:

❖ Navigate **Root** > **Port Settings** > **DVB-S/S2** > **RF-1/2/3/4** > **Configuration**.

Each menu item displays a value setup page.

The **Configuration** menu comprises the following:

- **Satellite Frequency** – Sets the Satellite frequency. Valid range – 10,700,000 to 11,900,000 [GHz].
- **L Band Frequency** (DVB-S and DVB-S2) – Sets the L-Band frequency. Valid range – 950,000 to 21,150,000 [kHz].
- **Symbol Rate** – DVB-S and DVB-S2. Sets the L-Band symbol rate. Valid range – 1,000,000 to 45,000,000 [baud].
- **Attenuation**[1] – Internal attenuation for saturated signals (0 to 30 dB). Default is 2 dB.
- **Gain**[1] – Internal gain to improve signal strength.
- **LNB**. Options are:
  - **Polarization** – DVB-S and DVB-S2. Selects the polarization of the antenna in the satellite LNB. Default is Off. Options are:
    - Vertical (13V)
    - Horizontal (18V)
    - Off
  - **LNB Frequency Band** – DVB-S and DVB-S2. Selects the receiver frequency band according to the satellite Low Noise Block (LNB) transmitting frequency band. Options are:
    - **Universal** (Low: **9.75**, High: **10.6**)
    - **Universal Wide** (Low: **9.75**, High: **10.75**)
    - **K_u Band**
    - **C Band**
  - **LO Frequency** – DVB-S2 only. Manages the Local Oscillator (LO) frequency, depending on the LNB Frequency Band selected:
    - Displays the Local Oscillator (LO) frequency for Universal and Universal Wide Bands.
    - Enables setting the LO frequency for K_u Band. Range 8.5 MHz to 13 MHz
    - Enables setting the LO frequency for C Band. Range 5 MHz to 6 MHz
  - **22 kHz Tone** – DVB-S2 only. Selects the Low of High Frequency Band to be used when receiving from an LNB configured to Universal and Universal Wide Band. Options are:
    - **Low Band** (no tone, selects the 9.75 GHz band)
    - **High Band** (selects the 10.6 GHz or 10.75 GHz band)

NOTE: When using K_u or C Band, the 22 kHz function has no influence.

- **Modulator Standard** – DVB-S and DVB-S2. Selects the L-Band modulation standard. Options are:
  - **DVB-S**
  - **DVB-S2**[1]

- **Automatic**[1]

- **MODCOD** – DVB-S and DVB-S2. Selects the modulation type and coding rate, according to the modulation standard selected.
  - **DVB-S**. Options are:
    - QPSK 1/2
    - QPSK 2/3
    - QPSK 3/4
    - QPSK 5/6
    - QPSK 7/8
    - Auto – Automatic selection of MODCOD
  - **DVB-S2**. Options are:
    - Automatic
    - QPSK 1/2
    - QPSK 3/5
    - QPSK 2/3
    - QPSK 3/4
    - QPSK 4/5
    - QPSK 5/6
    - QPSK 8/9
    - QPSK 9/10
    - 8PSK 3/5
    - 8PSK 2/3
    - 8PSK 3/4
    - 8PSK 5/6
    - 8PSK 8/9
    - 8PSK 9/10
- **Roll Off** – Selects the roll factor. DVB-S2 only. Options are:
  - **Automatic**[1]
  - **20%**
  - **25%**
  - **35%**
- **Pilot** – DVB-S2 only. The Pilot feature should only be on when the signal has Pilot symbols, otherwise the demodulator will not lock onto the signal. Options are:
  - **Automatic**[2]
  - **On**
  - **Off**
- **Spectral Inversion** – DVB-S and DVB-S2. Selects the mode of operation for the spectral inversion function. Options are:
  - **Automatic**[2] – Only in DVB-S and is the DVB-S default.
  - **Normal**[2] – Default for DVB-S2.
  - **Inverted**

- **Scrambling Seed** – DVB-S2 only. sets the value for the physical layer scrambling seed. Valid Range – 0 to 262141. Default is 0.
- **ISI (Multiple Input Stream)** – Input Stream Identifier in hexadecimal. Use this parameter to select a specific transport stream from a multi-transport carrier.
- **PER Thresholds** – Packet Error Rate. The range is 0.1 to 0.00001. (Default is 0.01.)
- **Eb/No Threshold Mode** – Threshold Level Mode. Options are:
  - **Automatic**
  - **Manual**
    - If Manual is selected, the level (in dB) can be edited.
- **Drop Erroneous Packets** – Use this parameter to instruct the demodulator not to pass any transport stream packets with errors. The default is to pass all TS packets.
- **Mute upon Errors** – Use this parameter to mute the port when an Eb/No error is asserted.
  - **On**
  - **Off**
- **Drift Compensation** – Compensate for LNB frequency drift. With the single and quad demodulator boards it functions from 8 MBd and up. With the DVB-S/S2 demodulator board it functions from 5 MBd and up, see *Front End Card Features* for board details. Options are:
  - **On**
  - **Off**

Configuring the GbE Ports and Sockets

To configure the ProView 7100 GbE input port parameters:

❖ Navigate **Root** > **Port Settings** > **GbE**.

Each menu item displays a value setup page.

- **GbE Port Redundancy**. Options are:
  - **Input Redundancy**
    - Off (Independent) (License)
    - Hot-Standby
  - **Output Redundancy**
    - Off (Independent) (License)
    - Mirror
  - **Redundancy Scheme**
    - Manual
    - Automatic
    - Manual Revert
    - Automatic Revert
  - **Active Port**
    - Primary
    - Backup
- **GbE Port-1/2**
  - **Admin Status** – Use this menu to view or set the Admin Status to one of the following:
    - Enable

- Disable

  If **Admin Status** is set to Up and no link is detected, a no link alarm is raised. The default is Down.
- **IP Configuration** – Use this menu to configure the following:
  - IP Address – The default is 127.127.0.X (X is the port number). Each port must have a unique IP address.
  - Subnet Mask – The default is 255.255.255.0.
- **MAC Address** – Use this menu to view the MAC address for this port.
- **Auto Negotiation** – Use this menu to view the Auto Negotiation status or set it to one of the following:
  - On (Default)
  - Off
- **PHY Speed** – Use this menu to view the PHY speed. When Auto Negotiation is off you can change PHY Speed to one of the following:
  - 100
  - 1000 (Default)
- **Duplex Mode** – Only Full Duplex Mode is supported.
- **Virtual IP**
  - Enable
    - Yes
    - No

- **Input Sockets** – The device can have up to four Input Sockets (Socket-1/2/3/4). Options are:
  - **Admin Status**. Options are:
    - Disable
    - Enable
  - **Source GbE Port**
  - **IP Type**. Options are:
    - Multicast
    - Unicast
  - **Multicast IP** – The default address is 255.1.1.X (X is the socket number).
  - **UDP Port** – The range is 0 to 65535. The default is 1000.
  - **FEC & RTP**. Options are:
    - Configuration
      - FEC Mode

        None

        1D (Columns Only)

        2D (Rows and Columns)
      - Null Insertion

        Enable

        Disable
    - Status
  - **De-Jittering** – The default is Normal. Options are:

- Mode
  - Off
  - Low Delay – A delay of 100ms is introduced. The supported jitter is up to 65ms.
  - Normal – A delay of 250ms is introduced.
  - High Jitter – A delay of 500ms is introduced.
  - DVB-T SFN – A delay of 250ms is introduced. Network jitter is supported up to 50ms.
  - T2-MI – A delay of 250ms is introduced. Network jitter is supported up to 50ms.
- Average Input Bitrate – Input field that will be active when De-Jittering is enabled and the De--Jittering Mode is T2-MI or None. Value 1,000,000 to 160,000,000 bps. Default value for T2-MI is 40,000,000 and the Default for None is 160,000,000.
- Delay
- Status
- SSM. Options are:
  - Enable – You can configure one source IP address. Only packets with this source address are processed.
  - Disable – The device accepts all packets with destination IPs and ports that match the socket regardless of their source IP.

- **Output Sockets** – The device can have up to eight Output Sockets (Socket-1/2/3/4/5/6/7/8). All sockets are associated to both IP ports. Use the **Socket In** menu for **GbE In** and the **Socket Out** menu for **GbE Out**. The sockets support IGMP v1, v2 and v3 and automatically detect the version. Options are:
  - **Admin Status**. Options are:
    - Disable
    - Enable
  - **Destination GbE Port**. Options are:
    - GbE-1
    - GbE-2
  - **Multicast IP** – The default address is 255.1.1.X (X is the socket number).
  - **UDP Port** – The range is 0 to 65535. The default is 1000.
  - **Source UDP Port** – You don't need to configure the UDP port for FEC. The range is 0 to 65535. The default is 1000.
  - **Encapsulation Mode**. Options are:
    - UDP
    - RTP
  - **Packets per IP**. Options are:
    - 188 (1TS Packets)
    - 376 (2 TS Packets)
    - 564 (3 TS Packets)
    - 752 (4 TS Packets)
    - 940 (5 TS Packets)
    - 1128 (6 TS Packets)
    - 1316 (7 TS Packets)

Active Alarms

The Active Alarms menu provides a list of current alarms in the device.

Presets

Use the **Presets** menu to create several configurations. If you use several satellites, you can save each satellite configuration as a preset. The first time you use it, there is only one menu item, namely **Create**, as there are no presets yet.

To display the **Presets** menu:

❖ Navigate **Root** > **Presets**.

After you create a configuration more menu items display, the full menu list comprises:

- **Activate** – Select a preset to activate. Activation reboots the device.
- **Create** – Once you have created one preset, there are 2 menu options:
  - **Overwrite a Preset** – You can overwrite a preset.
  - **New Preset** – You can save the current configuration as a preset. Use the four direction buttons to enter a preset name. The name length limit is 32 characters. You can save up to 20 different presets.
- **Delete** – Select the preset to delete.
- **Rename** – Select a preset to rename.
- **Delete All** – You can delete all the presets.

Unit

Use the following **Unit** menu items to configure and monitor ProView 7100s:

- *Management Port*
- *Firmware*
- *GPI*
- *Date & Time*
- *Reboot*
- *Licenses*
- *Device Name*
- *Routing Table*
- *Restore to Defaults*
- *LCD Contrast*
- *HW Inventory*

Management Port

Use the **Management Port** menu to configure the management port.

To access the **Management Port** menu:

❖ Navigate **Root** > **Unit** > **Management Port**.

Each option in the menu leads to value setup screen (i.e., selecting the option displays either an edit value screen - to set a new value or a select value screen with radio button options).

The **Management Port** configuration menu provides the following options:

- **IP Configuration** – Manages the IP configuration of the GbE port. The sub-menu manages the following parameters:
  - **IP Address** – Sets the IP address of the port.
  - **Subnet mask** – Sets the network subnet mask address for the port.
  - **Gateway** – Sets the network gateway address. This is the address of a local IP router on the same network as the ProView 7100, which is used to forward traffic beyond the local network.
  - **BootP** – Disabled by default.
- **MAC Address** – Displays the media access control (MAC) address for the device.
- **Auto Negotiation** – Activates the port auto negotiation capability. Options are:
  - **On** (Selection is not enabled. Always On).
  - **Off**
- **PHY Speed** – Selects the physical layer speed. Options are:
  - **100 Mbps** (Selection is not enabled. Set to 100 Mbps).
  - **1000 Mbps**
- **Duplex** – Port is set to Full Duplex.

Firmware

The Firmware menu contains the following options:

- **Running Firmware** – Displays the current running firmware in the device.
- **Activate Installed Firmware** – Select a firmware version from the list to activate it.
- **BootP**. Options are:
  - Disable
  - Enable

GPI

Use the **GPI** menu to configure alarms to toggle GPI relays for any automation system on-site or to manually switch relays. It comprises the following sub-menus after selecting the relevant GPI (1/2/3/4/5):

- **Mode** – There are three modes for each GPI relay, namely:
  - **On** – Use this mode to manually switch the relay on.
  - **Off** – Use this mode to manually switch the relay off, this is the default.
  - **Alarm Triggering**– Use this mode to select individual alarms to toggle the relay.
- **Alarm Triggers** – List of alarms to enable for the Alarms mode.

Date & Time

You can view or configure the current date and time using the front panel or the unit can synchronize its clock with an NTP server using SNTP/NTP v2 or v3.

The **Date & Time** menu comprises:

- **Clock Sync**. Options are:
  - **Internal Clock**
  - **NTP**
- **Date** – Enter Year, Month, and Day.
- **Time** – Enter Hour, Minute, and Second.
- **Time Zone** – Select the relevant Time Zone.

Reboot

Use **Reboot** to reboot the device.

Licenses

Use this menu to display and set the ProView 7100 licenses. The Licenses menu contains the following items:

- **SW License** – Enter this option and seen all features for which you have a license.
- **Set License Key** – Enter the purchased license key.

Device Name

Use **Device Name** to enter the name of the device.

Routing Table

Use the **Routing Table** menu to manage up to five routing destinations for GbE input when the IP address is on a different network.

Restore to Defaults

Use this menu to restore the default configuration. IP management addresses are not changed.

LCD Contrast

Use to set the front panel LCD contrast. You can use the up and down arrow buttons or enter a value (ProView 7100). Valid range is 01 to 31, where 1 is lowest and 31 is highest contrast.

HW Inventory

Use the **HW Inventory** menu to display the part and version numbers of hardware modules installed in the unit.

To access the **HW Inventory** menu:

❖ Navigate **Root** > **Unit** > **HW Inventory**.

The **Hardware Inventory** sub-menu contains the following items:

- **Platform** – The **Platform** properties sub-menu displays the following information:
  - **Part Number**
  - **Serial number**
- **Main Board** – The **Main Board** properties sub-menu displays the following information:
  - **Part Number**
  - **Serial Number**

- **Front End Card** – The **Front End Card** properties sub-menu displays the following information on the front end unit installed in the device:
  - **Card Type**
  - **Part Number**
  - **Serial Number**
- **Bottom Option Card** – The **Bottom Option Card** properties sub-menu displays the following information:
  - **Card Type**
  - **Part Number**
  - **Serial Number**

DMS

Use the **DMS** menu to display the DMS status properties (Information is only available when DMS is connected). The **DMS** menu comprises:

- **DMS Info**
  - **DMS ID**
  - **DMS Name**
  - **EMMs Statistics** – Displays EMM control statistics. Options are:
    - Command EMM
      - Packet Counter
      - Tablet Version
    - Authorized EMM
      - Packet Counter
      - Tablet Version
    - Configuration EMM
      - Packet Counter
      - Tablet Version
- **Disaster Recovery**
  - **Abort Scanning**
- **Authorized Programs** – Displays the list of programs authorized by DMS.
- **Blacked Out Programs** – Displays the list of programs blacked-out by DMS.

To display the **DMS** menu:

❖ Navigate **Root** > **DMS**.

Chapter 5
Monitoring Using the Front Panel

Topics:

Idle Screen

In the idle state the front panel (FP) alternates between various displays that provide monitoring information. By default the FP alternates every 5 seconds. The keypad keys have the following functions on the idle screen:

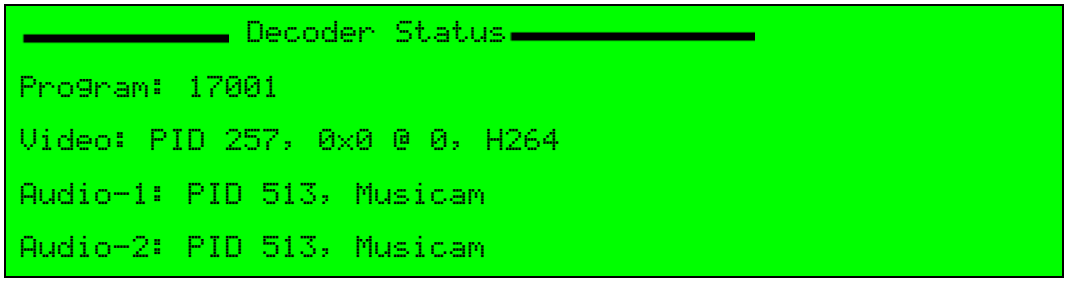
- Enter ENTER – to navigate to the main menu
- Right arrow > – to advance to the next alternating screen
- Left arrow < – to return to the previous alternating screen
- Up/down arrow ∧ ∨ – to halt the alternating, press any other key to resume the alternating
- Esc ESC – to restart the alternating from the Welcome Screen

Welcome Screen (Alternating)

The ProView 7100 displays the model number on the home screen.

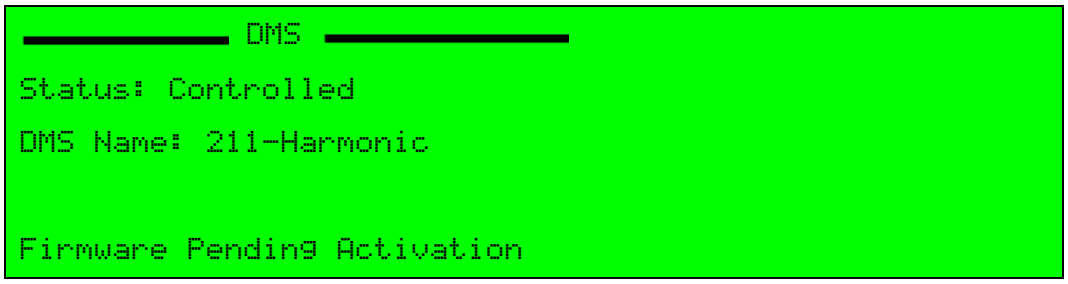
Decoder Status (Alternating)

If the decoder is enabled, the decoder status displays on an alternating screen.



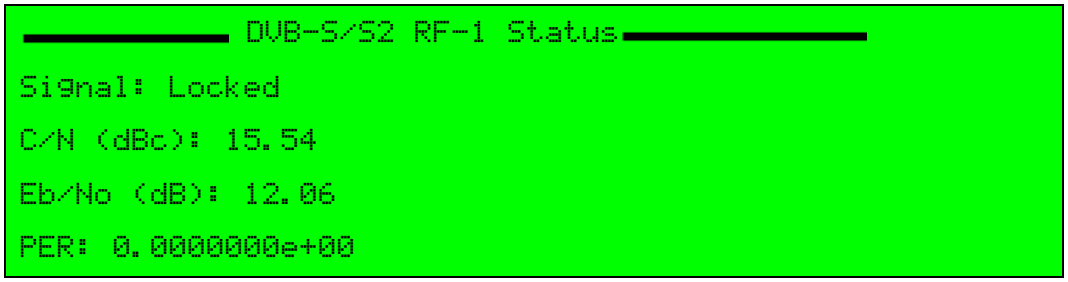
DMS Status (Alternating)

If the device is connected or controlled by the DMS, the DMS status displays on an alternating screen.



DVB-S/S2 Status (Alternating)

The DVB-S/S2 status displays on an alternating screen.



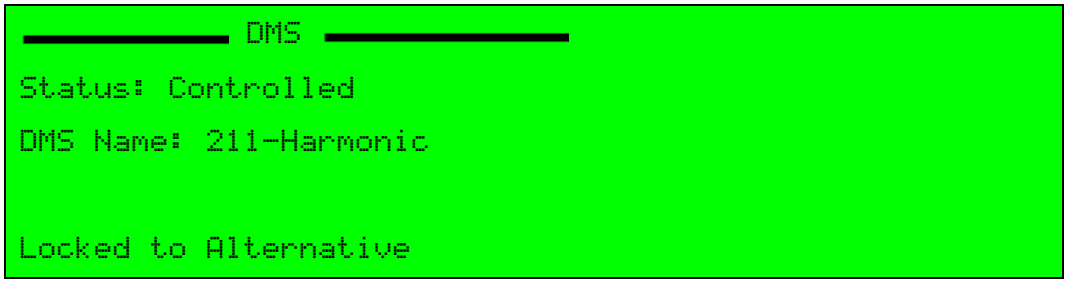
Alarm Status (Alternating)

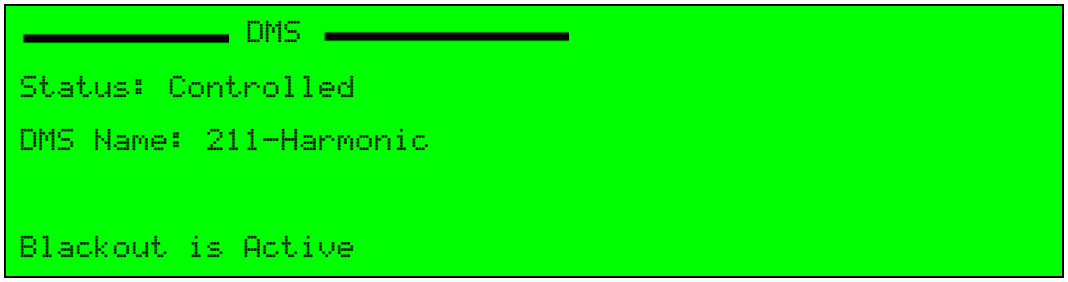
The active alarms display on an alternating screen. The alarm severity level, a brief description and the time the alarm was triggered display.

Severity	Alarm	Time
Major	Decoding Failure	16:30
Major	Decoding Failure	16:30
Major	Decoding Failure	16:30
Major	CAM Missing	09:11

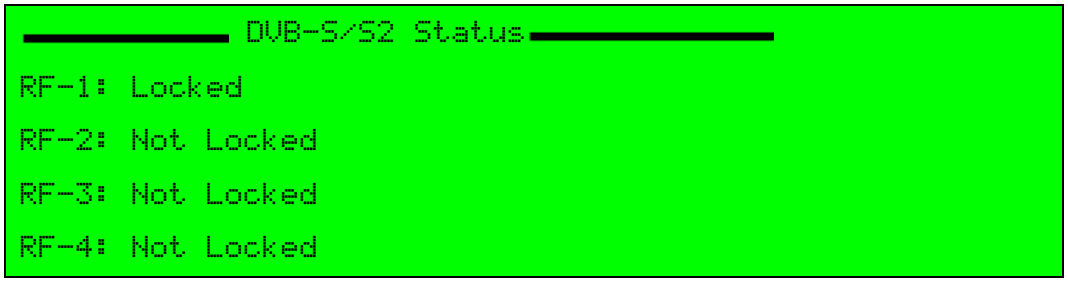
Additional Statuses (Alternating)

Additional statuses are:





.



Alarms

Alarms alert the user to conditions that may require attention. The LCD and Warning LED is used to indicate alarms. The Warning LED on the front panel changes color according to the highest alarm severity, red, orange or yellow. Red is the highest severity.

Active Alarms Menu

The **Active Alarms** menu displays all the active alarm messages triggered on the ProView 7100. The alarm severity level, a brief description and the time the alarm was triggered display.

To read the alarm messages:

1. Navigate **Root** > **Active Alarms**.

Severity	Alarm	Time
Major	Decoding Failure	16:30
Major	Decoding Failure	16:30
Major	Decoding Failure	16:30
Major	CAM Missing	09:11

You can view a detailed screen for each alarm by selecting the alarm on the FP.

```
Decoding Failure: Decoder Video
Major, 2015-10-03, 16:30:37
Decoding Failure on Decoder Video
Press for Alarm Corrective Action
```

The active alarm detailed screen provides the following information:

- The alarm brief description
- The alarm severity level and the full date and time the alarm was triggered
- A detailed description of the alarm
- Suggested corrective action option – select this option to display suggested corrective action

See *Appendix F, ProView 7100 Alarm List* for the alarm list with corrective actions.

Monitoring the DVB-S/S2 Input Port Properties

To monitor the ProView 7100 reception parameters:

1. Navigate **Root** > **Reception**.
2. If your device has more than one demodulator, select a satellite input menu, SAT 1–4.
3. Select **Status**.

The reception status displays whether the physical port is connected or not to the DVB Input TS.

NOTE: Some of the parameters apply to DVB-S or DVB-S2 modes only. They are displayed according to the mode used.

The **Status** menu comprises the following:

- **C/N** – Displays the measured carrier to noise ratio [dBc]
- **Eb/No** – Displays the measured energy per bit to noise power spectral density ratio [dB]
- **Link Margin** – Displays the measured link margin level [dB]
- **BER** – DVB-S only. Display the bit error rate detected.

- **PER Value** – DVB-S2 only. Display the packet error rate detected. The BER/PER error rate is a decimal number x 10-X (therefore, a.b E-X).
- **Carrier Locked** – Displays the carrier locking status: Locked (Yes) / Unlocked (No)
- **Demodulator Locked** – Displays the demodulator locking status: Locked (Yes) / Unlocked (No)
- **Tuned Frequency** – Displays the reception tuned frequency [MHz]
- **Frequency Offset** – Displays the reception frequency offset from configured frequency [MHz]
- **Spectral Inversion** – Displays the spectral inversion function operational status. Options are:
  - **Normal**
  - **Inverted**
- **Modulation** – Displays the reception modulation type
- **FEC Rate** – Displays the coding rate of the input modulation
- **Pilot** – DVB-S2 only. Displays the pilot signals injection status (On/Off)
- **Frame Size** – DVB-S2 only. Displays the size of the received frame. Options are:
- **Normal** (64,800 bits frame)
- **Short** (16,200 bits frame)

Monitoring the Decoding

The decoder type and modes of operation depend on the hardware configuration and are license dependent. The Decoding Main Menu is enabled only when the required hardware is installed in the ProView 7100 device.

The Decoding Status page comprises the following:

- **CC Errors** – Displays the number of errors counted by the continuity counter (CC).
- **Video Information** – Displays the status of the following video source parameters:
  - **Video Codec**
  - **Aspect Ratio** – 4x3, 16x9
  - **Scan Type**
  - **Frame Rate** (baud)
- **Audio 1 / 2 Information** – Displays the status of the Audio Codec and Audio Sample rate for audio 1 (or audio 2) in kHz.
- **Service Information** – Displays the PID of the following decoded elementary streams:
  - **Video**
  - **PCR**
  - **Audio 1** and **2**
  - **VBI**

Chapter 6
Remote Management Using SAG

The ProView 7100 provides a web-based Stand-alone GUI (SAG) for easy remote management of the ProView 7100 using a common browser.

Topics:

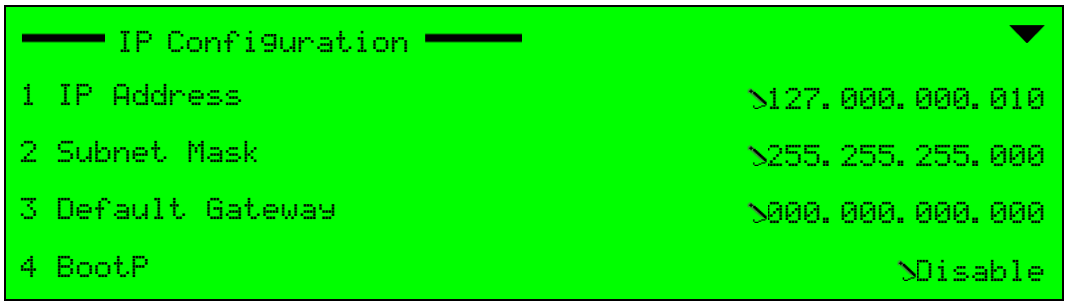
Configuring the IP Parameters

Before you can manage a ProView 7100 remotely, you must configure the IP parameters using the front panel.

To configure the IP parameters:

1. Press **Enter** on the front panel keypad.

   The root menu displays.
2. Navigate **Unit** > **Management Port** > **IP Configuration**.



3. Set the **IP Address**, **Subnet Mask** and **Default Gateway** for the port.

Launching and Introducing the SAG

To begin managing a ProView 7100 remotely, enter the ProView 7100 IP address into the browser URL box and enter the relevant user name and password (Defaults are: configure/configure and monitor/monitor).

SAG displays the main device components (input and output ports, transport stream, programs, elementary streams, PIDs, Tables, CAMs and decoder) in a graphical hierarchy in four management panes for mapping, configuring and monitoring.

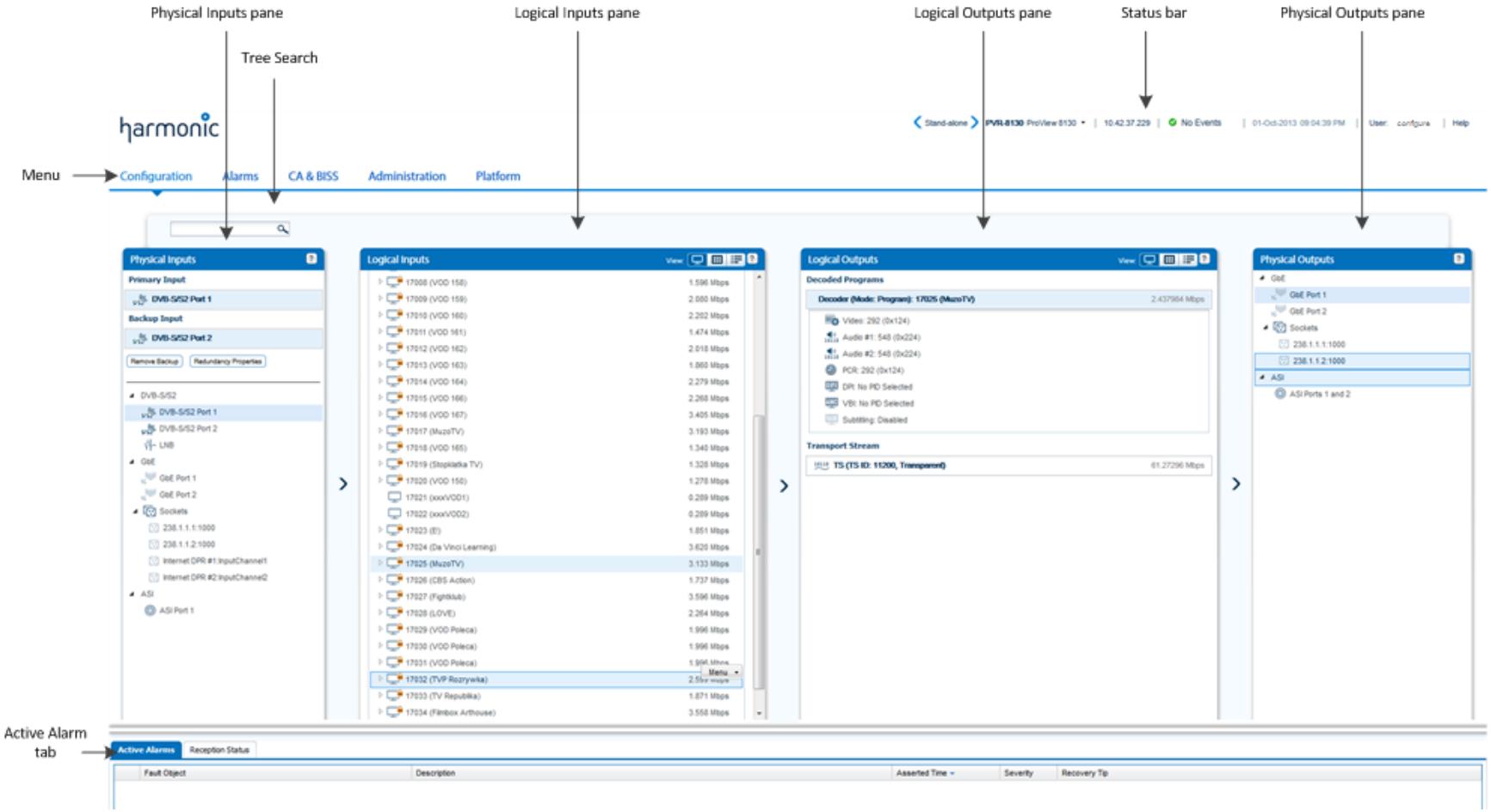


Figure 6–1: ProView 7100 SAG

Status Bar

The Status bar comprises (refer *Figure 6–2*):

- < Device Control > – Status can be:
  - **Stand-alone** – Displays when the device is not controlled by DMS.
  - **Connected to <DMS name> DMS** – Displays when the device is connected to the DMS.
  - **Controlled by <DMS name> DMS** – Displays when the device is controlled by the DMS.
- Device name drop-down list
  - Properties – Short cut to **Platform > HW Inventory** submenu.
  - Identify Unit – Set to **On** to blink the backlight of the LCD panel to locate the unit in a rack
  - Reboot – Click to reboot the device, no confirmation is given.
- IP Address – The management IP Address.
- Alarm and Warning Count drop-down list – Click to display a list of the active alarms and warnings
- System Date and Time
- User – Displays the current logged in user
- Help

Figure 6–2: Status bar

Management Panes

The four management panes are namely:

- The **Physical Inputs** pane – enables control and monitoring of the device physical input interfaces (see *Physical Inputs*).
- The **Logical Inputs** pane – enables control and monitoring of the input stream (see *Logical Inputs*).
- The **Logical Outputs** pane – enables control and monitoring of the output stream (see *Logical Outputs*).
- The **Physical Outputs** pane – details with the features of the device physical output interfaces (see *Physical Outputs*).

Right-click or double-click any object to see its drop-down menu or options (if available).

The ProView 7100 SAG uses a wide range of icons to identify elements, see *Appendix D, SAG Icons*.

Chapter 7
Device Configuring Using SAG

Topics:

Configuration Menu

The panes on the **Configuration** menu enable you to manage the transport stream and the ProView 7100 ports.

Related Topics:

Physical Inputs

The **Physical Inputs** pane presents a hierarchical tree-structure of the ProView 7100 physical inputs, it is located under the **Configuration** menu.

This pane comprises the physical input ports for the transport stream input.

DVB-S/S2

There are four DVB-S/S2 RF input ports. You can drop a DVB-S/S2 RF input port onto the transport stream in the Logical Input pane.

GbE

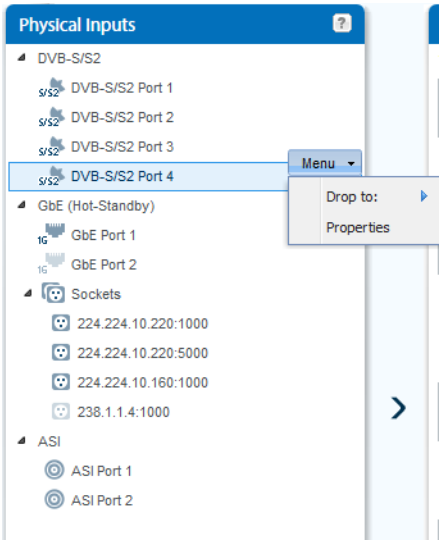
There are two MPEGoIP ports that you can use for transport stream input and output. Four input sockets are associated to either of the ports. You can drop anyone onto the transport stream in the Logical Input pane.

ASI

There are two ASI input ports. and two bi-directional ports (by default set as outputs) You can drop a port onto the transport stream in the Logical Input pane. The selected primary input displays at the top of the pane. To view its properties, right-click and select **Properties**.

The DVB-S/S2, GbE and Sockets have properties dialogs which you can display by right-clicking or double-clicking the icon.

.

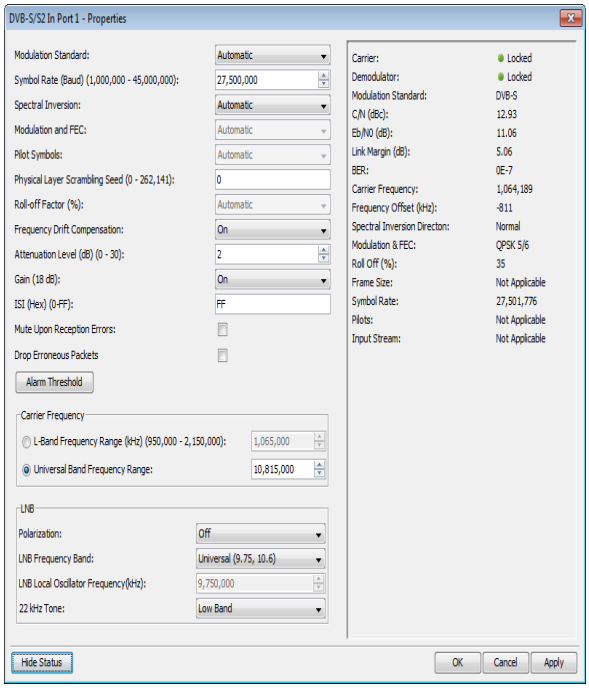


DVB-S/S2 In Port Properties

The **DVB-S/S2 In Port** dialog displays the basic features of the selected DVB-S/S2 Input Port element.

To display the **DVB-S/S2 In Port** properties:

1. Select the **DVB-S/S2 In Port** icon in the **Physical Inputs** pane. Right-click and select **Properties**.



The editable properties comprise the following:

Modulation Standard – Selects the L-Band modulation standard.	■ Automatic (default) ■ DVB-S ■ DVB-S2

Symbol Rate – DVB-S and DVB-S2. Sets the L-Band symbol rate.	The range is 1 to 45 Msym/s (Default 27.5 Msym/s)
Spectral Inversion – DVB-S and DVB-S2. Selects the mode of operation for the spectral inversion function.	■ Automatic – Default ■ Normal ■ Inverted
Modulation & FEC – Selects the modulation type and coding rate, according to the modulation standard selected.	■ QPSK 1/2 (DVB-S, DVB-S2) ■ QPSK 2/3 (DVB-S, DVB-S2) ■ QPSK 3/4 (DVB-S, DVB-S2) ■ QPSK 5/6 (DVB-S, DVB-S2) ■ QPSK 7/8 (DVB-S) ■ QPSK 3/5 (DVB-S2) ■ QPSK 4/5 (DVB-S2) ■ QPSK 8/9 (DVB-S2) ■ QPSK 9/10 (DVB-S2) ■ 8PSK 3/5 (DVB-S2) ■ 8PSK 2/3 (DVB-S2) ■ 8PSK 3/4 (DVB-S2) ■ 8PSK 5/6 (DVB-S2) ■ 8PSK 8/9 (DVB-S2) ■ 8PSK 9/10 (DVB-S2) ■ Automatic – Default.
Pilots – DVB-S2 only. The Pilot feature should only be on when the signal has Pilot symbols, otherwise the demodulator will not lock onto the signal.	■ Automatic – Default ■ On ■ Off
Physical Layer Scrambling Seed – DVB-S2 only. Sets the value for the physical layer scrambling seed.	Range: 0 to 262141, default is 0 (no scrambling).
Roll Off – DVB-S2 only. Selects the roll factor.	■ Automatic – Default ■ 20% ■ 25% ■ 35%
ISI – Input Stream Identifier in hexadecimal. Use this parameter to select a specific transport stream from a multi-transport carrier.	
Frequency Drift Compensation	■ On – Default ■ Off
Drop Erroneous Packets – Use this parameter to instruct the demodulator not to pass any transport stream packets with errors. The default is to pass all TS packets	■ Marked ■ Cleared – Default
Mute upon Reception Errors – Use this parameter to mute the port when an Eb/No error is asserted.	■ Marked ■ Cleared – Default

Frequency	■ In L-Band – Sets the L-Band frequency The range is 0.950 to 2.150 GHz, the default is 1.0 GHz. ■ Carrier Frequency – Sets the receiving LNB frequency according to the satellite transmitting frequency. The range is 10.7 to 11.9.

LNB

Polarization – Selects the polarization of the antenna in the satellite LNB.	■ Off – Default ■ Vertical (13V) ■ Horizontal (18V)
LNB Type – Selects the receiver frequency band according to the satellite Low Noise Block (LNB) transmitting frequency band.	■ Universal (Low: 9.75, High: 10.6) – Default ■ Universal Wide (Low: 9.75, High: 10.75) ■ Ku Band – Range 8.500 to 13.00, Default 9.75. ■ C Band – Range 5.000 to 6.000, Default 5.150.
Local Oscillator Frequency (GHz)	When the LNB Type is Ku: ■ Configurable value 8.500 to 13.000. The resolution is GHz. The step is 1 kHz (Default is 9.750) When the LNB Type is C: ■ Configurable value 5.000 to 6.000. The resolution is GHz. The step is 1 kHz (Default is 5.150) When the LNB Type is Universal: ■ and 22 kHz Tone is Low Band (Off), the value is 9.750 (Display only) ■ and 22 kHz Tone is High Band (On), the value is 10.600 (Display only) When the LNB Type is Universal Wide: ■ and 22 kHz Tone is Low Band (Off), the value is 9.750 (Display only) ■ and 22 kHz Tone is High Band (On), the value is 10.750 (Display only)
22 kHz Tone – The receiver controls the LNB band by sending a 22 kHz signal. When the signal is sent, the LNB uses its High Band Local Oscillator (L.O.). When the signal is not sent, the LNB uses its Low Band L.O. The range is 10.700 to 11.900 GHz.	■ High Band – (On) ■ Low Band – (Off) Default

Signal Reception Adjustments

Attenuation Level (dB) – Internal attenuation for saturated signals.	The range is 00.0 to 30.0 dB, the step is 0.5 dB, the default is 2 dB.
18 dBm Gain – Internal gain to improve signal strength.	■ On – Default ■ Off

Alarm Thresholds

BER - Bit Error Rate	The range is 0.1 to 0.00000001. (Default is 0.0001.)

PER - Packet Error Rate	The range is 0.1 to 0.00001. (Default is 0.01.)

Eb/No

Threshold Level Mode	■ Automatic (Default) ■ Manual

GbE Ports for Input

The GbE branch comprises four sockets and two GbE ports. All sockets are associated to both GbE ports by default.

Related topics:

- *GbE Aggregator Properties*
- *GbE Port Properties*
- *GbE Socket Properties*

GbE Aggregator Properties

Use the GbE Aggregator Properties dialog to fast view and configure the GbE properties.

To display the GbE Aggregator properties:

1. On the **Physical Inputs** pane, double-click GbE. The **GbE Properties** dialog appears.

Input Redundancy Mode	Options are: ■ Off (Independent[1]) – All input sockets are associated with GbE-1. A selection can be made which port is the source of the socket. ■ Hot-Standby (Default) – All input sockets are associated with the active port. When switching to Hot-Standby mode, by default, GbE-1 (the primary port) should be the active port and GbE-2 (the backup port) should be in standby.
Output Redundancy Mode	Options are: ■ Off (Independent) – By default, all output sockets are associated with GbE-2. They can be associated to each of the GbE ports. ■ Mirror (Default) – All output sockets are associated with both ports.

Redundancy Scheme	Options are: ■ Manual – You can manually switch between the primary port and the backup port regardless of their link status ■ Manual Revert – The device switches from the primary port to the backup port when the primary port fails on the redundancy trigger and the backup port has no active alarms. You can revert from the backup port to the primary port manually. ■ Automatic – The device switches to the standby port whenever the active port fails on one of the redundancy triggers and the standby port has no active alarms ■ Automatic Revert – The device switches from the primary port to the backup port when the primary port fails on one of the redundancy triggers and the backup port has no active alarms. The device reverts to the primary as soon as the primary port has no active alarms
Active Port	Options when Redundancy Scheme is Manual only: ■ Primary (GbE-1) ■ Backup (GbE-2)

1.Option only available with license.

GbE Port Properties

Use the GbE Port Properties dialog to view and configure the selected GbE port.

NOTE: Changing GbE port properties reflects in the Physical Inputs and Physical Output panes.

To display the GbE Port properties:

1. On the **Physical Inputs** pane, select the required GbE Port icon.
2. Right-click and select **Properties** or double-click. The **GbE Port** dialog appears.

Enabled	You can enable either or both GbE ports. This parameter only works when the redundancy mode is manual. If both ports are enabled then only one port is active while the other one is in standby mode. By default Port 1 is active and Port 2 is on standby. The port on standby does not pass data. When the port is enabled and no link is detected, the device reports a Link Down alarm. Disable the port to mask this alarm. (Default is Disabled.)
IP Address	Each port must have a different IP Address. (Default is 127.127.3.3 - GbE-1 and 127.127.4.4 - GbE-2)
Subnet Mask	The IP mask. (Default is 255.255.255.0.)
MAC Address	Each port has its own MAC Address. They are factory set and cannot be changed.

Port Redundancy

Input Redundancy Mode	Options are: ■ Off (Independent) – All input sockets are associated with GbE-1 (License) A selection can be made which port is the source of the socket. ■ Hot-Standby (Default) – All input sockets are associated with the active port. When switching to Hot-Standby mode, by default, GbE-1 (the primary port) should be the active port and GbE-2 (the backup port) should be in standby.
Output Redundancy Mode	Options are: ■ Off (Independent) – All output sockets are associated with GbE-2 (License) They can be associated to each of the GbE ports. ■ Mirror (Default) – All output sockets are associated with both ports.
Redundancy Scheme	Options are: ■ Manual – You can manually switch between the primary port and the backup port regardless of their link status ■ Manual Revert – The device switches from the primary port to the backup port when the primary port fails on the redundancy trigger and the backup port has no active alarms. You can revert from the backup port to the primary port manually. ■ Automatic – The device switches to the standby port whenever the active port fails on one of the redundancy triggers and the standby port has no active alarms ■ Automatic Revert – The device switches from the primary port to the backup port when the primary port fails on one of the redundancy triggers and the backup port has no active alarms. The device reverts to the primary as soon as the primary port has no active alarms
Active Port	Options when Redundancy Scheme is Manual only: ■ Primary (GbE-1) ■ Backup (GbE-2)

NOTE: When Output Redundancy Mode or Input Redundancy is Off, a list with Connected Input/Output Sockets (where relevant) is displayed.

Virtual IP

Override Source IP	Mark to enable.
IP Address	(Only shown when Override Source IP is enabled) You can define a virtual IP address on the GbE port for redundancy purposes. The virtual IP address overrides the source IP address on the IP header.

PHY Configuration

Autonegotiation	You can enable and disable Autonegotiation. It enables devices to perform automatic configuration for best modes of operation over links and provide automatic speed matching for multi-speed devices.
Speed (Mbps)	You can configure the PHY speed when Autonegotiation is disabled. (Default is 1000.)
Duplex	Display only.

GbE Socket Properties

Use the GbE Socket property dialog to view and configure the selected GbE socket. By default both sockets are associated with both GbE ports. The data on each socket is sent to both output ports. You cannot associate two sockets with identical destination port and IP addresses to the same GbE port.

To display the GbE Socket properties:

1. Select the required GbE Socket icon in the **Physical Inputs** pane.
2. Right-click and select **Properties** or double-click.

Enabled	Mark to enable.
Source Port	Select the required Source Port (If GbE is Independent)
IP Type	Options are: ■ Unicast ■ Multicast
IP Address	When the IP Type is Multicast, you must enter the multicast IP address (Default is 238.1.1.X (X is the socket number)).
UDP Port	You can configure the same IP Address and UDP Port for several sockets if you configure the Source Specific Multicast and each Source Specific Multicast IP Address is different. The source UDP range is 0 to 65535. (Default is 1000.)

FEC/RTP

You can enable FEC (Forward Error Correction) for each socket individually. The device automatically detects the size of the matrix, you don't need to configure it.

FEC	Options are: ■ None (default) ■ 1D (Columns only) ■ 2D (Rows & Columns)
Re-Ordering	Enable Re-Ordering when packets are RTP encapsulated to correct packet ordering.
Number of Re-Ordered Packets	Display only. (Only shown when Re-Ordering is enabled or FEC is not None).
Number of Out-of-Range Packets	Display only. (Only shown when Re-Ordering is enabled or FEC is not None).

Null Insertion	Clear to disable. (Only shown when FEC is not None)
Matrix Type	Display only. (Only shown when FEC is not None)
Number of Columns	Display only. (Only shown when FEC is not None)
Number of Rows	Display only. (Only shown when FEC is not None)
Number of Recovered Packets	Display only. (Only shown when FEC is not None)
Number of Unrecovered Packets	Display only. (Only shown when FEC is not None)
Column FEC Packets are Present	Yes/No. Display only. (Only shown when FEC is not None)
Row FEC Packets are Present	Yes/No. Display only. (Only shown when FEC is not None)
Clear Statistics	Clear the statistics screen.

De-Jittering

De-Jittering Mode	Options are: ■ No De-Jittering ■ Normal – A delay of 250ms is introduced. (Default) ■ Low Delay – A delay of 100ms is introduced. The supported jitter is up to 65ms. ■ High Jitter – A delay of 500ms is introduced. ■ DVB-T SFN – A delay of 250ms is introduced. Network jitter is supported up to 50ms. ■ T2-MI – A delay of 250ms is introduced. Network jitter is supported up to 50ms.
Average Input Bitrate (Mbps)	(Only when De-Jittering Mode is No De-Jittering or T2-MI). Range: 1 - 160 Mbps. Default 160Mbps when No De-Jittering. Default 40Mbps when T2-MI.
Delay (ms)	De-Jittering introduces a delay according to the configured mode. (Display only)
De-Jittering Status	Display only.

Source Specific Multicast

Enable	Mark to enable – When enabled you can configure one source IP address. Only packets with this source address are processed. When disabled the device accepts all packets with destination IPs and ports that match the socket regardless of their source IP.
IP Address	(Only shown when Enable is marked).

Logical Inputs

GUI location: Configuration > Logical Inputs

This pane shows the input stream that are carried by each port listed in the **Physical Inputs** pane. The stream in the **Logical Inputs** pane can be passed to the **Logical Outputs** pane or selected programs in the **Logical Inputs** pane can be added to the stream in the **Logical Outputs** pane.

There are three view options:

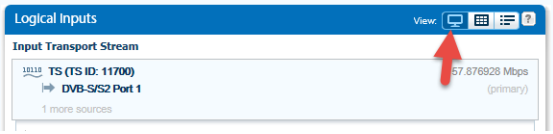
- Program View
- Table View
- PID View

The device has only one Input TS with a supported rate up to 200 Mbps. Only a CBR TS is supported.

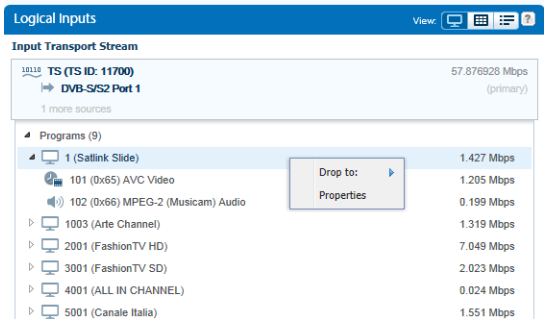
To change the primary input, drag and drop the appropriate **Physical Input** to the TS in the **Logical Input** pane or right-click the TS and select the appropriate **Physical Input** under Source. DVB-S/S2 Port 1 is selected by default for the **Primary Input** unless there is no FE card. The TS will then be connected to ASI-1.

Customize the view to configure programs, tables, or PIDs.

Set the view at the top of the pane.



Right-click on any object to see the drop-down menu options. Select **Properties** to open the properties panel.



Alternatively you can also double-click the object to display its **Properties** dialog box.

Related topics:

- TS Properties in Logical Inputs Program View
- Program Properties in Logical Inputs Program View TS
- PID Properties in Logical Inputs Program/PID View TS
- TS Properties in Logical Inputs Table View

TS Properties in Logical Inputs Program View

GUI location: Configuration > Logical Inputs > Program View > Transport Stream Properties

Under the TS a list of programs display:

Under each program a list of ESs display. The ES icon reflects its ES type.

The program icon indicates if the program is scrambled. A program is considered scrambled if it contains at least one CA descriptor (at any level).

The ES icon indicates if the ES is scrambled. An ES is considered scrambled according to the scrambling bit.

ECMs display according to their location in the PMT. Therefore CA descriptors in the program level display as ECMs under program and CA descriptors in the ES level display as ECMs under the relevant ES.

Transport Stream Properties

The fields in the Transport Stream properties are the following:

Enable	Mark to enable the transport stream.
TS ID	The incoming transport stream ID from the PAT table. (Display only)
TS Description	You can enter a description for the transport stream up to 39 characters long.
Bitrate (Mbps)	The incoming transport stream bitrate in Mbps. (Display only)
Padding (Mbps)	The padding of the incoming transport stream in Mbps. (Display only)
Effective Rate (Mbps)	Displays the bitrate minus any padding. (Display only)
Transport Errors	Transport error count. (Display only)
CC Errors	CC error count. (Display only)
Reset Counters	You can reset the counters. The operation does not affect the traffic.

Source:

Primary Source Port	The port of the primary source.

Alarm Thresholds tab

MPEG Sync Loss Alarm

Primary Port		
	Event Duration (sec)	When the duration of an MPEG Sync Loss on the primary port is longer than the defined threshold in seconds, the MPEG Sync Loss Alarm is displayed.
Backup Port	(Only when redundancy is enabled)	

	Event Duration (sec)	When the duration of an MPEG Sync Loss on the backup port is longer than the defined threshold in seconds, the MPEG Sync Loss Alarm is displayed.

CC Errors Alarm

Primary Port		
	Number of Errors	Whether a CC Errors Alarm for the primary port is displayed depends on a combination of two threshold parameters. The number of errors (this field) and the time within which they occur.
	Within (sec)	Whether a CC Errors Alarm for the primary port is displayed depends on a combination of two threshold parameters. The number of errors and the time within which they occur (this field).
Backup Port	(Only when redundancy is enabled)	
	Number of Errors	Whether a CC Errors Alarm for the backup port is displayed depends on a combination of two threshold parameters. The number of errors (this field) and the time within which they occur.
	Within (sec)	Whether a CC Errors Alarm for the backup port is displayed depends on a combination of two threshold parameters. The number of errors and the time within which they occur (this field).

PID Missing Alarm

Primary Port		
	PID	Whether a PID Missing Alarm for the primary port is displayed depends on a combination of two threshold parameters. The PID (this field) and the amount of time the PID is missing.
	Missing for (sec)	Whether a PID Missing Alarm for the primary port is displayed depends on a combination of two threshold parameters. The PID and the amount of time the PID is missing (this field).
Backup Port	(Only when redundancy is enabled)	

	PID	Whether a PID Missing Alarm for the backup port is displayed depends on a combination of two threshold parameters. The PID (this field) and the amount of time the PID is missing.
	Missing for (sec)	Whether a PID Missing Alarm for the backup port is displayed depends on a combination of two threshold parameters. The PID and the amount of time the PID is missing (this field).

Input Redundancy tab

Enable Redundancy	■ Mark to enable the redundancy. (This option is locked when the device is controlled by the DMS) Note: If the device is controlled by the DMS and the input profile on the DMS is set to local override, redundancy is working.
Redundancy Scheme	Options are: ■ Manual ■ Manual Revert ■ Automatic (Default) ■ Automatic Revert ■ Seamless
Backup Source Port	The port of the backup source.
Active Port	Only when Redundancy Scheme is Manual. Options are: ■ Primary ■ Backup
Offset Between Primary & Backup	(Only when Seamless is selected)
Max Offset (ms)	10 – 500 (steps 1, default 10)
Measured Offset (ms)	Display only

Redundancy Triggers

MPEG Sync Loss Alarm	MPEG Sync Loss Alarm. (Enabled by default)
CC Errors Alarm	Mark to enable the CC Errors Alarm.
PID Missing Alarm	Mark to enable the PID Missing Alarm.

T2-MI tab

Primary Port

T2-MI Processing Mode	Options are: ■ None (Default) ■ Passthrough ■ De-Framing

T2-MI PID	T2-MI PID number. Range 1 - 8191 (Default 4096) (Only displayed when T2-MI Processing Mode is De-Framing)
PLP	0 - 255 (Steps 1) Default 0) (Only displayed when T2-MI Processing Mode is De-Framing)

Backup Port (Only available when **Redundancy** is not **Off**)

T2-MI Processing Mode	Options are: ■ None (Default) ■ Passthrough ■ De-Framing
T2-MI PID	T2-MI PID number. Range 1 - 8191 (Default 4096) (Only displayed when T2-MI Processing Mode is De-Framing)
PLP	0 to 255 (Steps 1) Default 0) (Only displayed when T2-MI Processing Mode is De-Framing)

Advanced (Only displayed when the **T2-MI Processing Mode** is **De-Framing**)

Descrambling	Options are: ■ After De-Framing (Default) ■ Before De-Framing

De-Jittering

Primary Port

Enable De-Jittering	Mark to enable De-Jittering.
De-Jittering Mode	Options are: ■ Normal – Network Jitter less than 50ms. A delay of 250ms is introduced. (Default) ■ Low Delay – A delay of 100ms is introduced. The supported jitter is up to 65ms. ■ DVB-T SFN – A delay of 250ms is introduced. Network jitter is supported up to 50ms. ■ T2-MI – A delay of 250ms is introduced. Network jitter is supported up to 50ms. (Only displayed when De-Jittering is enabled)
Delay (ms)	Display only (Only displayed when De-Jittering is enabled)
Average Input Bitrate (Mbps)	Range: 1-160 Mbps. Default: 40. Step Size: 1 bps. (Only when the De-Jittering Mode is T2-MI.)
De-Jittering Status	Display only (Only displayed when De-Jittering is enabled)

Backup Port (Only available when **Redundancy** is not **Off**)

Enable De-Jittering	Mark to enable De-Jittering.

De-Jittering Mode	Options are: ■ Normal – Network Jitter less than 50ms. A delay of 250ms is introduced. (Default) ■ Low Delay – A delay of 100ms is introduced. The supported jitter is up to 65ms. ■ DVB-T SFN – A delay of 250ms is introduced. Network jitter is supported up to 50ms. ■ T2-MI – A delay of 250ms is introduced. Network jitter is supported up to 50ms. (Only displayed when De-Jittering is enabled)
Delay (ms)	Display only (Only displayed when De-Jittering is enabled)
Average Input Bitrate (Mbps)	Range: 1-160 Mbps. Default: 40. Step Size: 1 bps. (Only displayed when the De-Jittering Mode is T2-MI)
De-Jittering Status	Display only (Only displayed when De-Jittering is enabled)

Descrambling

Bypass Descrambler	Mark to bypass the descrambler.
Assigned CAMs	
CAM #1	Display only
CAM #2	Display only
CAM #3	Display only
CAM #4	Display only

Program Properties in Logical Inputs Program View TS

GUI location: Configuration > Logical Inputs > Program View > Transport Stream > Program Properties

The dialog box displays the following program properties of the selected program:

Program Number	Number of the program.
Program Name	When available, the program name is displayed.
PMT PID	The Program Map Table Program Identification.
PCR PID	The Program Clock Reference Identification.
Bitrate (Mbps)	The bitrate is the sum of PMT, ESs, and ECMs.

PID Properties in Logical Inputs Program/PID View TS

GUI location: Configuration > Logical Inputs > Program/PID View > Transport Stream > PID Properties

The dialog box displays the following PID properties of the selected PID:

PID	The packet identification number.
ES Type	The elementary stream type (if relevant).
Language	The language of the PID (if relevant).
Scrambled	The scrambled status of the PID.
Bitrate (Mbps)	PID bitrate.
CC Errors	The error count.

TS Properties in Logical Inputs Table View

GUI location: Configuration > Logical Inputs > Table View > Transport Stream Properties

The Table view displays only PIDs that are tables (according to the table mode).

The fields in the Transport Stream properties are the following:

Displayed Tables	Options are: ■ None – No tables are parsed ■ MPEG (PSI) – The device only parses the PAT, PMT, and CAT tables ■ DVB (PSI/SI) – (Default) By default the device parses the following tables: • PAT • PMT • CAT • SDT • NIT • TDT/TOT • EIT • MIP

Logical Outputs

GUI location: Configuration > Logical Outputs

In this pane, you build the output transport streams. You perform the majority of your service configuration tasks in this pane. You configure programs in the TS by bringing the elementary streams from the **Logical Inputs** pane and setting the encoding parameters. Then, you define the packet table information and descriptors, and finally you manage the PID values.

The transport stream is represented in an expandable pane. The pane header shows:

- The TS name.
- The source/destination IP address. The primary source is always listed first.
- The total bandwidth in Mbps.
- Alarm indicator when any element in the TS has an alarm state.

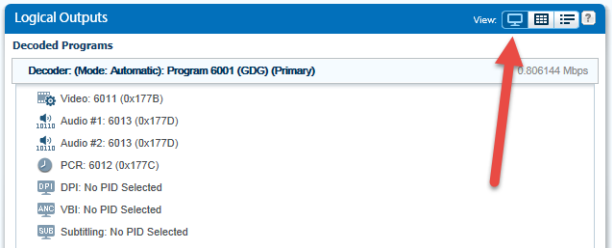
Expand the TS pane to view:

- Each program carried in the TS.

- The elementary streams in each program.
- The ancillary streams and PSI elements in each program.
- The unreferenced PIDs.
- Alarm indicator for the individual ES and the program that carries it.

Customize the view to configure programs, tables, or PIDs.

Set the view at the top of the panel:



Right-click on any object to see the drop-down menu options. Select **Properties** to open the properties dialog box.

Decoder Properties in Logical Outputs Program View

GUI location: **Configuration** > **Logical Outputs** > **Program View** > **Decoder Properties**

Service Mode	Options are: ■ No Decoding – Use this mode to disable decoding. When the **Service Mode** is set to No Decoding, the rest of the decoder menus are hidden ■ Program – Use this mode to set the decoder to manual program selection ■ Fixed PID – Use this mode to set the decoder to manual PID selection ■ Automatic – Use this mode for the device to automatically decode the first program in the TS (first in PAT)
Input Program	You can only configure the input program when **Service Mode** is Program. It displays the input program number when **Service Mode** is Automatic.
Program Name	Name of the program.

Descrambling tab

CA Device	Select a CA device for descrambling. (Default is CAM-1.) Options are: ■ None ■ Verimatrix – Only for a device with Verimatrix. ■ CAM-1 ■ CAM-2 ■ CAM-3 ■ CAM-4 ■ BISS
BISS Key	BISS keys must first be created in the CA & BISS section.

Redundancy tab

NOTE: This option will not be displayed when the unit is DMS controlled.

The content of the tab depends on the parameters of the Service Mode and Redundancy Control. When the Service Mode parameter is Program, the Redundancy Control parameter is off by default. Changing this parameter add content to the Redundancy tab.

Redundancy Control	Options are: ■ Off (Default) ■ Input Redundancy ■ Alarms ■ DMS – Not displayed when the Service Redundancy is controlled by the DMS. In that case the DMS configuration decides what the active program is and no other fields are shown
Redundancy Scheme	When Redundancy Control is Alarms, options are: ■ Manual ■ Manual Revert ■ Automatic (Default)
Active Program	When Redundancy Scheme is Manual, options are: ■ Primary (Default) ■ Backup If the Redundancy Scheme is Manual Revert and Active Program is Backup, you can switch back to Primary.

Backup

Input TS	Selected Input TS.
Input Program Number	Number of the input program.
CA Device	The selected CA device.

Redundancy Triggers

No PCR Detected Alarm	Mark to enable the No PCR Detected Alarm.

Video Decoding Failure Alarm	Mark to enable the Video Decoding Failure Alarm.

Advanced

Pre-Descramble	Mark to enable Pre-Descramble.

Video tab

Select the codec, display formats, and output parameters.

Section	Fieldname	Options	Description
PID Selection			
	Mode		Select the codec, display formats and output parameters.
		None	No PID selected. (When Service mode is Fixed PID, then the PID Selection Mode default is None.)
		Fixed PID	Select a video PID by its number (1-8190) (Default is 8180).
		Automatic	Selects the video PID with the lowest number in the PMT. PID selection occurs whenever there is any change in the PMT (When Service mode is Automatic, then the PID Selection Mode default is Automatic.)
Decoding			
	Codec		Selects the video decoding codec.
		MPEG-2	
		AVC	AVC is the default when the Service Mode is fixed PID.
		Automatic	(Default)
	Display Format		Selects the display format.
		Automatic	The device automatically sets the output according to the inputs format (including resolution and frame rate). (Default)
		HD	
		SD	
	Output Format		This parameter appears when the Display Format is HD.
		720p @ 50	

Section	Fieldname	Options	Description
		720p @ 59.94	
		720p @ 60	
		1080i @ 25	(Default)
		1080i @ 29.97	
		1080i @ 30	
	Aspect Ratio		
		4:3	
		16:9	
		Automatic	(Default)
	Scaling to 4:3		
		Center-Cut	(Default)
		Pillarbox	
		Anamorphic	Stretched full screen
		AFD	
	Scaling to 16:9		
		Center-Cut	
		Pillarbox	(Default)
		Anamorphic	Stretched full screen
		AFD	
Analog Outputs			Set these parameters for the SD analog (CV) monitoring output and SD SDI.
	Format for 625 Line Systems		
		PAL B/G	(Default)
		PAL I	
		PAL D	
		PAL N	
		French SECAM	
		Russian SECAM	

Section	Fieldname	Options	Description
	Format for 525 Line Systems		
		NTSC	(Default)
		PAL M	
Advanced			
	Blanking		Select the option to output when there is no video.
		Black Frame	(Default)
		Mute	Select this option to have nothing on the SDI out port when there is no video input.
		Bar	
		Last Frame	
		Last Field	
	HDMI Port Format		
		DVI	
		HDMI	(Default)
	Buffer Management		
		Normal	
		Low Delay	(Default)
	Buffer Resizing Mode		
		Dynamic	(Default)
		Static	
	Video Errors Recovery Mode		
		The error definitions are:	
		1	Full (Default)
		2	Partial
		3	None
		4	High

Section	Fieldname	Options	Description
	Additional Image Processing		Mark to enable.

Audio tab (with subtabs Audio #1, Audio #2, and Embedded Audio)

NOTE: When the decoder has four audio channels, the tabs for Audio #3 and # 4 will be displayed.

Section	Fieldname	Options	Description
PID Selection			
	Mode		
		None	
		Fixed PID	Only when **Service Mode** is set to Fixed PID or Program.
		Preferred Language	Only when **Service Mode** is set to Program or Automatic.
		Automatic	Default when **Service Mode** is set to Program or Automatic.
		By Priority	Only when **Service Mode** is set to Program or Automatic.
	Preferred Language		Only when **Mode** is set to Preferred Language. You can select the preferred language either by choosing it from a list or by entering the 3 letters abbreviation manually. The list of the languages will be according to ISO 639 language codes. When **Audio #1/2** is configured to Preferred Language, the device automatically selects the first audio PID in the PMT that matches this language. If no such PID exists the selected PID is according to the same algorithm as in Automatic.
	By Priority		Only when Mode is set to By Priority. Range: 1-255 (Default is 1).
	PID		
		PID number	(1-8190) (Default is 8180)
Decoding			
	Codec		
		Automatic	(Default)

Section	Fieldname	Options	Description
		MPEG-2 (MPEG-1 Layer II)	(Default in Fixed PID Service Mode)
		AC-3	
		E-AC-3	
		AAC ADTS	
		AAC LATM	
		MPEG-1 (MPEG-1 Layer I)	
		Dolby-E	(Passthrough only)
		Linear PCM	(Passthrough only)
	Processing Type		
		Passthrough	
		Downmix/ 2.0 Decode	The default is Downmix/2.0 Decode when the Codec is set to Automatic. For Audio #1 the default is Downmix/2.0 Decode when the Codec is set to Automatic or E-AC-3.
		5.1 Decode	Only for Audio #1 and Audio #2 when the device has four audio channels.
AC-3 Down Mixing			
	Downmix Mode		
		LoRo	
		LtRt	(Default)
	Dynamic Range Control		
		Line Out	(Default)
		RF Remode	
Advanced			
	Delay		To overcome audio/video sync problems, you can adjust the audio delay. Range -128 to 128 ms. (Default is 0.)

Section	Fieldname	Options	Description
	Channel Mode		
		Stereo	(Default)
		Mono	Only on analog outputs.
		Both Left	
		Both Right	
	Digital Format		Only on model 8130.
		Professional	(Default)
		Consumer	
		Follow the Input	Only when the device has four audio channels and Codec is set to Linear PCM or Dolby-E.
	Volume		Sets the audio volume. Range: -63 to 0 dB. (Default is 0.)
	Output Sample Rate (kHz)		
		Follow the Input	Only when the device has four audio channels.
		48 kHz	(Default)

Embedded Audio Subtab

Use Embedded audio to embed the audio channels into the SDI out ports. See *Embedded Audio* for an explanation.

Section	Fieldname	Options	Description
	Group		
		1-4	Describes up to 4 supported SDI groups.
	Pair		
		1/2	Describes up to 2 pairs in SDI groups.
	Audio		You can select up to two decoded audio PIDs to embed.
		Mute	

Section	Fieldname	Options	Description
		Audio #1/2/3/4	When Audio #1 is configured to Automatic, the device automatically selects the first audio PID in the PMT. When Audio #2 is configured to Automatic, the device automatically selects the 2nd audio PID in the PMT. If the PMT only contains one audio, that PID is selected. By default: ■ Audio #1 is inserted to Group 1 Pair 1 ■ Audio #2 is inserted to Group 1 Pair 2 ■ Audio #3 is inserted to Group 2 Pair 1 ■ Audio #4 is inserted to Group 2 Pair 2
	Channel		
		L/R	
		C/LFE	Only when Processing Type is 5.1 Decode.
		Ls/Rs	Only when Processing Type is 5.1 Decode.

PCR tab

Section	Fieldname	Options	Description
PID Selection			
	Mode		
		Fixed PID	(1-8190) (Default 8182)
		Automatic	PCR PID in the PMT is selected as the PCR for the decoded program.
	PID		
		Select to enter PID.	Only when Service Mode is Program or Fixed PID.
General			
	Clock Source		
		Original PCR	
		Decoder Clock	(Default)
		Genlock	
	A/V Sync		
		Frame	(Default)
		Off	
Genlock			Only when Clock Source is Genlock.
	Input Type		
		Digital	(Default)
		Analog	
Advanced			
	Decoding Buffer Delay		Range: 1 to 300 ms. (Default is 100.)

DPI tab

Section	Fieldname	Options	Description
PID Selection			PID Selection can only be made when the Service Mode is set to Program or Automatic.
	Mode		
		None	
		Fixed PID	Fixed PID is only available when Service Mode is set to Program.

Section	Fieldname	Options	Description
		Automatic	Automatic is the default when Service Mode is set to Automatic or No Decoding.
	PID		
		Select to enter PID.	Only when Mode is Fixed PID. (1-8190) (Default 8183)
GPI			
	Pre-Roll (Seconds)		Min. -10, Max. 10, Steps 1, Default is 0.
	Relay for Out-of-Network		
		None	(Default)
		GPI-1	
		GPI-2	
		GPI-3	
		GPI-4	
		GPI-5	
	Relay for Return-to-Network		
		None	(Default)
		GPI-1	
		GPI-2	
		GPI-3	
		GPI-4	
		GPI-5	
VANC (SCTE 104)			
	AS Index		Integer range. Min. 0, Max. 255, Steps 1, Default is 0.
	DPI PID Index		Integer range. Min. 0, Max. 65535, Steps 1, Default is 0.
	Insert to VANC		Mark the check box to insert to VANC.

VBI/VANC tab

Section	Fieldname	Options	Description
PID Selection			
	Mode		
		None	The decoder is able to extract information from the incoming stream and re-insert it to the output (VBI or VANC). No decoding occurs.
		Fixed PID	Range: 1 to 8190. (Default is 8184)
		Automatic	
	PID		Only when Mode is Fixed PID.
		Select to enter PID.	
VBI/VANC Selection			You can mark or clear insertion check boxes for common headers that have been added to the selection list to configure their insertion.
	Add		Use to add a common header. Select type, source and whether to insert.
		■ VITS ■ Closed Caption ■ AMOL ■ TV Guide (TVG) ■ WSS ■ SCTE 104 ■ Raw Data ■ VPS ■ AFD/VI ■ Teletext ■ VITC	
	Remove		Mark the check box of a common header in the VBI/VANC Selection pane and then click Remove to remove it. Mark the check box in the list heading to select all the common headers and then click Remove to remove all the common headers.
VBI			Check boxes are synchronized with those in the VBI/VANC Selection pane. Mark or clear check boxes for common headers to change their insertion. Select an option in the table to display a drop down list of options for selection.

Section	Fieldname	Options	Description
VANC			Check boxes are synchronized with those in the VBI/VANC Selection pane. Select an option in the table to display a drop down list of options for selection.

OSD tab

Section	Fieldname	Options	Description
	Subtitling Type		Only when Service Mode is Program or Automatic.
		DVB Subtitling	
		VBI Teletext	
		None	(Default)
PID and Page Selection			Only when Subtitling Type is set to VBI Teletext.
	Mode		
		None	
		Fixed PID	Only when Service Mode is Program.
		Automatic	Only when Service Mode is Automatic.
	PID		
		Select to enter PID.	Only when Mode is Fixed PID. (1-8190) (Default is 8184)
	Page Selection Mode		
		Fixed Page	
		Preferred Language	
		Automatic	(Default)
	Page		Only when Page Selection Mode is Fixed Page.
	Language		Only when Page Selection Mode is Preferred Language.
PID Selection			Only when Subtitling Type is DVB Subtitling.
	Mode		
		Automatic	The device automatically selects the first subtitling PID in the PMT. (Default)
		Preferred Language	The device automatically selects the first subtitling PID in the PMT that matches this language.
		Fixed PID	Range: 1 to 8190.

Section	Fieldname	Options	Description
Broadcast Outputs			Only when Subtitling Type is DVB Subtitling or VBI teletext.
	Zoom Ratio		Zoom is only available when Subtitling Type is DVB Subtitling. (Default is 1.)
		1/3	
		1/2	
		1	(Default)
		2	
		3	
	X Position Offset (pixels)		Range: -100 to 100 (Default is 0.)
	Y Position Offset (pixels)		Range: -100 to 100 (Default is 0.)
CV Monitor			
	Enable		Mark to enable.
	Zoom Ratio		Zoom is only available when Subtitling Type is DVB Subtitling. (Default is 1.)
		1/3	
		1/2	
		1	(Default)
		2	
		3	
	X Position Offset (pixels)		Range: -100 to 100 (Default is 0.)
	Y Position Offset (pixels)		Range: -100 to 100 (Default is 0.)

Show Status (button)

Use to display the current status of the decoder parameters.

TS Properties in Logical Outputs Program

GUI location: Configuration > Logical Outputs > Program > Transport Stream Properties

The fields in the Transport Stream properties are the following:

Enable	Mark to enable this transport stream.

TS Type	Options are: ■ Multiplex – In Multiplex mode the device generates a new stream and we can select which programs to pass and modify the bitrate. ■ Transparent – In transparent mode, the whole output stream is passed to the output unchanged.
TS ID	Displays the transport stream ID. Configurable in Multiplex Mode. Range: 1-65534, Step 1
TS Description	In Multiplex mode you can enter a description for the transport stream up to 39 characters long. In Transparent mode the TS Description is take from the Logical In TS Properties.
Bitrate (Mbps)	When the TS Mode is Multiplex, you can configure the bitrate of the TS. Range: 0.1 to 200, Steps 0.000001
Source TS	Displays the source transport stream. (Is displayed when TS Type is Transparent.)
Actual Bitrate (Mbps)	The bitrate of the TS is displayed. (Is displayed when TS Type is Transparent.)
Padding (Mbps)	The padding of the incoming transport stream in Mbps. (Display only)
Effective Rate (Mbps)	Displays the bitrate minus any padding. (Display only)
Transport Errors	Displays the transport error count. (Display only)
CC Errors	Displays the CC error count. (Display only)
Reset Counters	Only available in Program View.

Program Descrambling

Displays when **TS Type** is Transparent.

Input Program	The input program identification.
Input CAS Status	Options are: ■ FTA ■ CAS
CA Device	Name of the CA device.
BISS Key	BISS key used for program descrambling.

Add New Program (button)

Displays when **TS Type** is Transparent.

Input Program	The input program identification.

CA Device	Name of the CA device. Options: ■ Verimatrix – Only for a device with Verimatrix. ■ CAM-1 (Default) ■ CAM-2 ■ CAM-3 ■ CAM-4 ■ BISS
BISS Key	BISS key used for program descrambling.

Program Properties in Logical Outputs Program View TS

GUI location: Configuration > Logical Outputs > Program View > Transport Stream > Program Properties

The dialog box displays the following program properties of the selected program when the TS is Transparent:

Program Name	Name of the program.
Program Number	Program number.
PMT PID	The Program Map Table Program Identification.
PCR PID	The Program Clock Reference Identification.
Bitrate (Mbps)	The current bitrate of the Program.

The dialog box displays the following program properties of the selected program when the TS is Multiplex:

Program Name	Name of the program.
Program Number	Range: 1 to 65535, default 1.

Source

Input Program Number	Range: 1 to 65535, default 1.

Descrambling

CA Device	Options are: ■ None ■ Verimatrix – Only for a device with Verimatrix. ■ BISS ■ CAM-1 ■ CAM-2 ■ CAM-3 ■ CAM-4

Forwarding tab

PID Remapping	Options are: ■ No Remapping (Default) ■ Offset from Input PID
Offset	Range: -4096 to 4096, default 0. Only when **Offset from Input PID** is selected in **PID Remapping**.
Forwarding and Descrambling	Options are: ■ Pass All (Default) ■ Selective – When selected, you can Add Components (enter Component Type (Video, Audio, DPI, Subtitling, Data, VBI/Teletext, MPE), Rule Type (ES Type, Language, Type & Language, Priority, Type & Priority, Input PID), and Input PID), and Delete Components from the Components Selection.

Redundancy tab

NOTE: This tab will not be displayed when the unit is DMS controlled.

Redundancy Control	Options are: ■ Off (Default) ■ Input Redundancy ■ Alarms
Redundancy Scheme	When Redundancy Control is Alarms, the options are: ■ Manual ■ Manual Revert ■ Automatic (Default) ■ Automatic Revert
Active Program	When Redundancy Scheme is Manual, options are: ■ Primary (Default) ■ Backup If the Redundancy Scheme is Manual Revert and Active Program is Backup, you can switch back to Primary.

Backup

Input TS	Input Transport Stream.
Input Program Number	Range: 0 to 65535, default 1.
CA Device	Options are: ■ None ■ Verimatrix – Only for a device with Verimatrix. ■ BISS ■ CAM-1 ■ CAM-2 ■ CAM-3 ■ CAM-4

Redundancy Triggers

PCR PID Missing Alarm	Mark to Enable (Default).
Video PID Missing Alarm	Mark to Enable (Default).
CC Errors Alarm	Mark to Enable.

CC Errors Alarm Threshold

Number of Errors	Range: 1 to 1000000, default 5.
Within (sec)	Range: 0.5 to 86400, default 1.

Advanced

Pre-Descramble	Mark to Enable.
PID Aliasing	Mark to Enable (Default).
Backup Program Service Name	Options are: ■ As Primary (Default) ■ As Source

PID Properties in Logical Outputs Program View TS

GUI location: Configuration > Logical Outputs > Program View > Transport Stream > PID Properties

The dialog box displays the following PID properties of the selected PID:

Input TS	The current logical Input TS. (Only when TS is Multiplex)
PID	The packet identification number.
ES Type	The elementary stream type.
Language	The language of the PID (if relevant).
Input PID	The current Logical Input PID.
Scrambled	The scrambled status of the PID. (Only when TS is Multiplex)
Bitrate (Mbps)	The current bitrate of the PID.
CC Errors	CC error count.

TS Properties in Logical Outputs Table View

GUI location: Configuration > Logical Outputs > Table View > Transport Stream Properties

The fields in the Transport Stream properties are:

Displayed Tables	Options are: ■ None – No tables are parsed ■ MPEG (PSI) – The device only parses the PAT, PMT, and CAT tables ■ DVB (PSI/SI) – (Default) By default the device displays the following tables: • PAT • PMT • CAT • SDT • NIT • TDT/TOT • EIT • MIP

Transitioning between Table Modes

Transitioning between the tables display modes affects which tables are generated, passed or neither (None).

- **MPEG > DVB**: no changes in the MPEG table generation modes. DVB table generation modes are set to defaults
- **None > DVB**: all MPEG and DVB tables modes are set to defaults
- **MPEG/DVB > None**: All table generation modes are set to None
- **DVB > MPEG**: MPEG table generation mode is preserved. All others are set to None
- **None > MPEG**: MPEG table generation mode is set to defaults. All others are set to None

NOTE: Changing the Table Mode can create a PID conflict in the output.

PAT Properties in Logical Outputs Table View TS

GUI location: Configuration > Logical Outputs > Table View > Transport Stream > PAT Properties

The fields in the PAT properties are the following:

PAT Mode	Options are: ■ None – Device does not generate or pass the PAT ■ Generate – Device generates the PAT (Default) ■ Pass – Device passes the PAT without any changes
Repetition Rate (ms)	Range 50 to 1000ms, Step 10 ms. (Default is 300.)
TS ID	The TS ID that carries the PAT. In Generate mode the TS ID in the PAT is as configured by the user.

Source (when PAT Mode is Pass)

Input TS	The current logical Input TS.
Input PID	In Pass mode the Input PID is required. (Range 0 to 8190, Default is 0.)

PMT Properties in Logical Outputs Table View TS

GUI location: Configuration > Logical Outputs > Table View > Transport Stream > PMT Properties

The field in the PMT properties contains the following:

Repetition Rate (ms)	Range 50 to 1000 ms. Step 10 ms. (Default 300 ms)

Program Properties in Logical Outputs Table View TS PMT

GUI location: Configuration > Logical Outputs > Table View > Transport Stream > PMT > Program Properties

The fields in the PMT Program properties are the following:

Mode	Options are: ■ None – Device does not generate or pass PMT ■ Generate – Device generates PMT (Default) ■ Pass – Device passes the PMT without any changes

Source

Source is a program level property and is only available when the PMT mode is Pass.

Input TS	The current logical Input TS.
Input PID	In Pass mode the Input PID is required. (Range 1 to 8190, Default is 32.)

CAT Properties in Logical Outputs Table View TS

GUI location: Configuration > Logical Outputs > Table View > Transport Stream > CAT Properties

The fields in the CAT properties are the following:

CAT Mode	Options are: ■ None – Device does not generate or pass the CAT ■ Generate – Device generates the CAT. The CAT references EMMs that are configured to be passed (Default) ■ Pass – Device passes the CAT without any changes
Repetition Rate (ms)	Range 50 to 1000 ms, Step 10 ms. (Default is 500.)

Source (when CAT Mode is Pass)

Input TS	The current logical Input TS.
Input PID	In Pass mode the Input PID is required (Range 1 to 8190, Default is 1)

SDT Properties in Logical Outputs Table View TS

GUI location: Configuration > Logical Outputs > Table View > Transport Stream > SDT Properties

ProView creates a Service Description Table (SDT). This table contains data describing the services, including the names of services and the service provider. The SDT only includes services that are referenced in the output PAT.

The fields in the SDT properties are the following:

SDT Mode	Options are: ■ None – Device does not generate or pass the SDT ■ Generate – Device generates the SDT (Default) ■ Pass – Device passes the SDT without any changes
Original Network ID	The ID of the originating delivery system. In Generate mode you can configure the Original Network ID. (Range 0 to 65535, Step 10 ms, Default is 1.)
Repetition Rate (ms)	Range 50 to 2000ms, Step 10 ms. (Default is 500.)

Source (when SDT Mode is Pass)

Input TS	The current logical Input TS.
Input PID	In Pass mode the Input PID is required. (Range 1 to 8190, Default is 17.)

NIT Properties in Logical Outputs Table View TS

GUI location: Configuration > Logical Outputs > Table View > Transport Stream > NIT Properties

The fields in the NIT properties are the following:

NIT Mode	Options are: ■ None – Device does not pass the NIT ■ Pass – Device passes the NIT without any changes (Default)

Source (when NIT Mode is Pass)

Input TS	The current logical Input TS.
Input PID	In Pass mode the Input PID is required. (Range 1 to 8190, Default is 16.)

TDT/TOT Properties in Logical Outputs Table View TS

GUI location: Configuration > Logical Outputs > Table View > Transport Stream > TDT/TOT Properties

The fields in the TDT/TOT properties are as follows:

TDT/TOT Mode	Options are: ■ None – Device does not pass the TDT/TOT ■ Pass – Device passes the TDT/TOT without any changes (Default)

Source (when TDT/TOT Mode is Pass)

Input TS	The current logical Input TS.
Input PID	In Pass mode the Input PID is required. (Range 1 to 8190, Default is 20.)

EIT Properties in Logical Outputs Table View TS

GUI location: Configuration > Logical Outputs > Table View > Transport Stream > EIT Properties

The field in the EIT properties is as follows:

EIT Mode	Options are: ■ None – Device does not pass the EIT ■ Pass – Device passes the EIT without any changes (Default)

Source (when EIT Mode is Pass)

Input TS	The current logical Input TS.
Input PID	In Pass mode the Input PID is required. (Range 1 to 8190, Default is 18.)

MIP Properties in Logical Outputs Table View Transport Stream

GUI location: Configuration > Logical Outputs > Table View > Transport Stream > MIP Properties

The field in the MIP properties is as follows:

MIP Mode	Options are: ■ None – Device does not pass the MIP ■ Pass – Device passes the MIP without any changes (Default)

Source (when MIP Mode is Pass)

Input TS	The current logical Input TS.
Input PID	In Pass mode the Input PID is required. (Range 1 to 8190, Default is 21.)

PID Properties in Logical Outputs PID View Transport Stream

GUI location: Configuration > Logical Outputs > PID View > PID Properties

The dialog box displays the following PID properties of the selected PID:

PID	The packet identification number.
ES Type	The elementary stream type
Input TS	The current logical Input TS. (Only when TS is Multiplex)
Input PID	The current logical Input PID. (Only when TS is Multiplex)
Scrambled	The scrambled status of the PID.
Bitrate (Mbps)	The current bitrate of the PID.
CC Errors	The error count.

Physical Outputs

GUI location: Configuration > Physical Outputs

This pane shows the output ports in the device. You should configure the port properties to prepare them for carrying output services. All enabled Physical outputs transmit the TS. In total, you can have eight Output Sockets in ProView 7100.

GbE

There are two MPEGoIP ports that you can use for transport stream input or output at the same time.

ASI

There are four ASI output ports of which two are bi-directional.

The ASI ports transmit only 188 byte TS packets.

Port Properties in Physical Inputs/Outputs GbE

GUI location: Configuration > Physical Inputs/Outputs > GbE Port Properties

Use the GbE Port property dialog box to view and configure the selected GbE port.

Enabled	You can enable either or both GbE ports. This parameter only works when the redundancy mode is manual. If both ports are enabled then only one port is active while the other one is in standby mode. By default Port 1 is active and Port 2 is on standby. The port on standby does not pass data. When the port is enabled and no link is detected, the device reports a Link Down alarm. Disable the port to mask this alarm. (Default is Disabled.)
IP Address	Each port must have a different IP Address. (Default is 127.127.3.3 - GbE-1 and 127.127.4.4 - GbE-2)
Subnet Mask	The IP mask. (Default is 255.255.255.0.)
MAC Address	Each port has its own MAC Address. They are factory set and cannot be changed.

Port Redundancy

Input Redundancy Mode	Options are: ■ Off (Independent) – All input sockets are associated with GbE-1 (License) A selection can be made which port is the source of the socket. ■ Hot-Standby (Default) – All input sockets are associated with the active port. When switching to Hot-Standby mode, by default, GbE-1 (the primary port) should be the active port and GbE-2 (the backup port) should be in standby.
Output Redundancy Mode	Options are: ■ Off (Independent) – All output sockets are associated with GbE-2, but the user can associate them either to GbE-1 or GbE-2 (never to both). (License) They can be associated to each of the GbE ports. ■ Mirror (Default) – All output sockets are associated with both ports.
Redundancy Scheme	Options are: ■ Manual – You can manually switch between the primary port and the backup port regardless of their link status ■ Manual Revert – The device switches from the primary port to the backup port when the primary port fails on one of the redundancy triggers and the backup port has no active alarms. You can revert from the backup port to the primary port manually ■ Automatic – The device switches to the standby port whenever the active port fails on one of the redundancy triggers and the standby port has no active alarms ■ Automatic Revert – The device switches from the primary port to the backup port when the primary port fails on one of the redundancy triggers and the backup port has no active alarms. The device reverts to the primary as soon as the primary port has no active alarms
Active Port	Options when Redundancy Scheme is Manual only: ■ Primary (GbE-1) ■ Backup (GbE-2)

NOTE: When Output Redundancy Mode or Input Redundancy is Off, a list with Connected Input/Output Sockets (where relevant) is displayed.

Virtual IP

Override Source IP	Mark to enable.
IP Address	(Only shown when Override Source IP is enabled) You can define a virtual IP address on the GbE port for redundancy purposes. The virtual IP address overrides the source IP address on the IP header.

PHY Configuration

Autonegotiation	You can enable and disable Autonegotiation. It enables devices to perform automatic configuration for best modes of operation over links and provide automatic speed matching for multi-speed devices. (Default is enabled)
Speed (Mbps)	You can configure the PHY speed when Autonegotiation is disabled. (Default is 1000.)
Duplex	Display only.

Socket Properties in Physical Outputs GbE

GUI location: Configuration > Physical Outputs > Socket Properties

Use the GbE Socket property sheet to configure outputted multicast parameters. By default both sockets are associated with both GbE ports. The data on each socket is sent to both output ports. You cannot associate two sockets with identical destination port and IP addresses to the same GbE port.

Enable	Mark to enable the socket.
Output TS	Select the related Output TS.
Multicast IP Address	When the IP Type is Multicast, you must enter the multicast IP address. (Default is 255.1.1.X (X is the socket number).)
UDP Port	You can configure the same IP Address and UDP Port for several sockets if you define the Source Specific Multicast and the Source IP Addresses are different. The UDP range is 0 to 65535. (Default is 1000.)
Source UDP Port	The source UDP range is 0 to 65535. (Default is 1024.)
Encapsulation Mode	Options are: ■ UDP ■ RTP

Advanced

IP Packet Size (Bytes)	Size in bytes of the IP Packets. The size depends on the amount of TS packets (1-7) that are encapsulated in the IP packet.
Time to Live	The range is 1 to 255. (Default is 64.)

Port Properties in Physical Outputs ASI

GUI location: Configuration > Physical Outputs > ASI > Port Properties

Source TS	Displays the current source Transport Stream

MPE Properties in Physical Outputs

GUI location: Configuration > Physical Outputs > MPE Properties

Enable	Mark to enable. (Default is Disabled)
Input TS	Displays the current Logical Input Transport Stream.

PID Selection Mode (radio button)

By Input Program Number	When clicking the radio button, select the Input Program Number.
By Input PID	When clicking the radio button, select the Input PID

Status

Selected PID	Display only.
Status	Display only.

Alarms Menu

Active Alarms

GUI location: Alarms > Active Alarms

The **Active Alarms** table shows details about the alarms that are actively asserted on the device. When an alarm is remitted it is removed from this table. The alarm's date and time is taken from the device's internal clock.

Table columns are:

Description	Displays the description of the triggered alarm.
Fault Object	Displays the instance of the device modules on which the alarm is triggered.
Asserted Time	Displays the date and time when the alarm was triggered.

Severity	Options: ■ Warning ■ Major ■ Critical
Recovery Tip	Displays more information on the triggered alarm and further actions that you can take.

NOTE: Click a column heading to sort a table according to the column. Click the column heading a second time to change the sort direction. You can also change the sort direction and additionally hide or display columns by using the column drop down list gadget. For more information on this feature, see *Changing Table Column Options*.

Alarm Log

GUI location: Alarms > Alarm Log

The **Alarm Log** displays all the alarms that have been triggered.

Save Log	Use this button to save the following fields in a log file: ■ Description ■ Fault Object ■ Assert Time ■ State ■ Severity ■ Alarm ID
Clear Log	Use this button to clear the log.
Automatic Refresh	Mark to refresh the current alarm log automatically.

CA & BISS Menu

CAM-1 to CAM-4

GUI location: CA & BISS > CAM-1 (to CAM-4)

CAM Configuration

Input TS Association	Select the associated Input TS from the drop-down menu or select None. By default the number of the associated Input TS is the same as the number of the CAM, for example TS #1 is associated to CAM-1.

Automatic Error Recovery Policy

Mark a corresponding check box to enable automatic recovery. This resets the CAM when a corresponding alarm is triggered.

CAM Processing Failure	Enabled. (Default)
CAM Descrambling Failure	Enabled. (Default)
Packet Loss after CAM	Disabled. (Default)

Advanced

CAM De-Jittering	Enabled. (Default)
Max Bitrate to CAM (Mbps)	■ 72 (Default) ■ 96

Reboot CAM	Use the Reboot CAM button to force the CAM to reboot in the event of a failure.

CAM Information

Displays the following CAM information:

Name	Vendor name of the CAM.
Manufacturer	Name of the vendor.
Manufacturer Code	Vendor code.
CAS ID	CAS IDs are supported by the CAM.
MMI button	Use the MMI button to access the MMI (Man Machine Interface).

CAM Usage

Displays the following CAM usage information and a tree to which the information is related:

Number of Programs	Display only.
Number of ESs	Display only.
Number of ECMs	Display only.
Input Bitrate (Mbps)	Display only.

BISS

GUI location: CA & BISS > BISS

The ProView 7100 features embedded BISS (Basic Interoperable Scrambling System).

Use the BISS Keys pane to create, edit, and delete BISS keys. The maximum number of BISS keys is 10.

NOTE: Changes to BISS keys that are assigned to programs interrupt the service.

BISS Keys table.

Name	Editable key name.
Mode	Options are: ■ BISS-1 ■ BISS-E Buried ■ BISS-E Injected ID
Key	BISS key. The key length must meet the following criteria: ■ 12 hex characters for BISS-1 ■ 16 hex characters for BISS-E Buried ■ 16 hex characters for BISS-E Injected
Injected ID	The injected ID must be 14 hex characters.
In Use	Displays whether the key is in use for descrambling or not.

Verimatrix

GUI location: CA & BISS > Verimatrix

NOTE: Only for a device with Verimatrix.

The Verimatrix pane displays a table with the Virtual Smartcard (VSC) ID.

Administration Menu

Global Settings

GUI location: Administration > Global Settings

General

Use this pane to configure global settings.

Device Name	You can give the device a unique name up to 31 characters long for identification. (Default is the device model name.)
BOOTP	Use to enable BOOTP for firmware upgrades after the following: ■ BOOTP server is up and running ■ TFTP server is up and running ■ New version is placed in the TFTP server directory ■ Power up the device (By default, BOOTP is disabled.)

NOTE: See *Firmware Upgrade* for instructions on upgrading the firmware.

Licensing

GUI location: Administration > Licensing

Use this pane to manage and monitor the licenses.

FW Licenses

This table displays a list of licenses already installed.

P/N	License part number.
Description	License description.
Installed	Number of installed licenses.
In Use	Number of licenses that are in use.
Expiration	Permanent – Does not expire.

Install New Licenses

Use this dialog box to install new licenses.

Enter License Key	Harmonic supplies the licenses and you can Copy and Paste them in the License Key field. Licenses should correspond with the device serial number. Do not use the same key in another device. A reboot is required to complete a license update.

NOTE: Click a column heading to sort a table according to the column. Click the column heading a second time to change the sort direction. You can also change the sort direction and additionally hide or display columns by using the column drop down list gadget. For more information on this feature, see *Changing Table Column Options*.

Date & Time

GUI location: Administration > Date & Time

Use this pane to manage Date & Time and NTP.

Date & Time

Date	The date set on the device. The calendar icon can be used to make date changes. Format: DD-MMM-yyyy, for example: 30-Aug-2013.
Time	The time set on the device. Set Local Time can be used to set the time according to your PC's time. Format: hh:mm:ss AM/PM, for example: 12:34:56 PM
Time Zone	The time zone set on the device.

NTP

Use this dialog box to synchronize the ProView 7100 clock with the Network Time Protocol clock according to SNTP/NTP v2 or v3 versions. Communication is done over the management Ethernet port.

Enable NTP Sync	Use to enable or disable NTP. (Default is disabled.)
Server IP	Enter the IP address of the NTP server. (Only when NTP Sync is enabled.)

Connection Status	Displays the current connection status. Options are: ■ Off – NTP Sync disabled. ■ Connected – The NTP server has responded to the last issued NTP request. ■ Disconnected.

GPI

GUI location: Administration > GPI

GPI Relays

The ProView 7100 has five relays configured in the GPI port numbered 1–5 for sending alarm triggers.

Relays	Selected relay that can be configured.
Usage	There are three modes for each GPI relay, namely: ■ On – Use this mode to manually switch the relay on ■ Off – Use this mode to manually switch the relay off ■ Alarm Triggering. Use this mode to select individual alarms to toggle the relay. In this mode a list of alarms displays. Mark the corresponding check box for each alarm that should toggle the selected relay

SNMP

GUI location: Administration > SNMP

Trap Listeners

ProView 7100 supports up to 5 trap listeners. The following parameters are configurable for each listener:

IP Address	IP address of the Trap Listener.
UDP Port	The port the Trap Listener uses.
Community Name	Description of the community.
Description	Description of the Trap Listener.

User Management

GUI location: Administration > User Management

To enhance the safety of the device, it is recommended to change the default passwords as soon as you log into the device.

User Name	The user name. Options are: ■ configure - Role of administrator ■ monitor - Role of monitor
Privilege Level	The role of the user. Options are: ■ administrator - Full configuration of all device features ■ monitor - Monitoring of configuration and services (Read only)
Change Password	Click to open the Change Password dialog.

Change Password.

Current Password	The current password.
New Password	The new password.
Re-type Password	Re-type the new password.

Platform Menu

Firmware Upgrade

GUI location: Platform > Firmware Upgrade

The SAG enables you to manage (Install, Activate, and Delete) the firmware.

The ProView 7100 can store two different firmware versions. Configuration parameters are preserved when upgrading from an older version.

NOTE: The activation process may affect the service up to one minute.

Activate Installed Firmware

Active Firmware	Version of the current firmware.
Select Firmware	Select the required firmware version from the drop-down list of installed versions.

NOTE: Click Activate to activate the selected firmware version from the drop-down list.

Install New Firmware

Select File	Use Browse to browse for a firmware package.

NOTE: Click Install to install a firmware package and activate it at a later stage or click Install And Activate to install and activate it as soon as the installation is completed.

HW Inventory

GUI location: Platform > HW Inventory

The ProView 7100 hardware inventory pane shows Platform Properties, Mainboard Card Properties and rear panel operational state.

Rear Panel Figure

The Rear panel figure shows the operational state of the rear panel ports.

Platform Properties

Device Model	Model type of the ProView 7100. (Display only)
Firmware Version	The currently installed firmware version. (Display only)
Device Name	You can give the device a unique name, up to 31 characters long, for identification. (Default is the device model name.)
Part Number	The part number of the ProView 7100. (Display only)
Serial Number	The serial number of the ProView 7100. (Display only)
Fan Speed Control	Options are: ■ Automatic (Default) ■ Maximum

Changes are applied after clicking **Apply.**

Mainboard Card Properties

Part Number	The part number of the ProView 7100 Mainboard Card. (Display only)
Serial Number	The serial number of the ProView 7100 Mainboard Card. (Display only)

Bottom Optional Card Information

NOTE: Appears when clicking the optional card in the picture.

Card Type	The type of the installed optional card. (Display only)
Part Number	The part number of the optional card. (Display only)
Serial Number	The serial number of the optional card. (Display only)

Management Port

GUI location: Platform > Management Port

The ProView 7100 uses one Ethernet port for remote management. On this pane, you can configure the IP Address, Subnet Mask, and Default Gateway. Changes are only applied when Apply is pressed. The location of the management port is indicated in green on the rear panel illustration.

Management Port

IP Address	Default is 127.0.0.X.
Subnet Mask	Default is 255.255.255.0.
Default Gateway	Default is 0.0.0.0.
MAC Address	Display only.
Auto Negotiation	This is performed every time the link becomes active. (Display only)
Speed (Mbps)	Not user configurable.
Duplex	Not user configurable, always Full.

Presets

GUI location: Platform > Presets

The ProView 7100 can create configuration presets that can be uploaded to a PC in XML format. This enables you to select and download a specific preset configuration to a ProView 7100. The device can store at least 20 configurations.

Activating, downloading and restoring does not overwrite the following:

- The IP addresses, PHY configuration, admin status and auto-negotiation of all the ports
- The device's licenses
- The FP contrast level
- Device Name
- Routing Table
- Date, Time
- Users and their passwords

Presets

Create	Create presets for later activation or uploading to a PC. The Preset name length limit is 74 characters (including .xml suffix).
Activate	Activate a selected preset in the list above that resides in the device. The device activates only files that are generated by devices that match its exact HW model (XML elements). [1]
Delete Selected	Delete a selected preset in the list above that resides in the device.
Upload to PC	Upload a selected preset to an XML file on your remote PC.[1]

1. When the device is controlled by the DMS, this action cannot be performed.

Download Preset to the Device

Select File	Use Browse to browse for a preset.

NOTE: Click Download to download a preset and activate it at a later stage.

Backup Device Configuration to a File

Click **Backup** to save the running configuration to your remote PC in one step. The configuration is automatically named RunningPreset.xml and will be located at the browser's default download location and this file is added to the presets on the device. [1]

Restore Configuration from a File

Select File	Use Browse to browse for a preset.

NOTE: Click **Restore** to restore and activate a preset in one step.

Restore to Default Configuration

Click **Restore** to restore the default configuration.

Routing Table

GUI location: Platform > Routing Table

Use the Routing Table menu to manage up to five routing destinations for GbE input when the IP address is on a different network.

Add New	Use Add New to add a new routing entity.
Delete Selected	Delete a selected routing entity the list above.

When selecting **Add New**, enter the following information:

- Destination Type – Network (Default) or Host
- Destination Address – Default is 127.127.127.0
- Mask – Default is 255.255.255.0
- Gateway – Default is 127.127.3.3
- Interface – GbE Port 1 (Default) or GbE Port 2

DMS

GUI location: Platform > DMS

NOTE: Information on this pane is Display Only.

Use the DMS pane to display information related to the DMS control of the ProView 7100 device. It contains the following dialog boxes:

- **DMS**
- **DMS EMMs**
- **Authorized Programs**
- **Blacked-Out Programs**

1. When the device is controlled by the DMS, this action cannot be performed.

DMS

DMS Control Status	Status indication whether the DMS is controlling the device. Status can be: ■ Not connected ■ Connected to <DMS name> DMS ■ Controlled by <DMS name> DMS
DMS ID	ID of the connected or controlling DMS.
DMS Name	Name of the connected or controlling DMS.

The **Abort Scanning** button stops scanning for the DMS in case of Disaster Recovery.

DMS EMMs

EMM	EMM components: Command, Authorization, and Configuration.
Version	Command, Authorization, and Configuration version.
Packet Counter	Command, Authorization, and Configuration packet counter.

Authorized Programs

NOTE: Displayed when the device is controlled by the DMS.

Program Name	Name of the program.
Output Program #	Output program number.
Processing Type	Processing type. Options are: ■ Pass ■ Decode

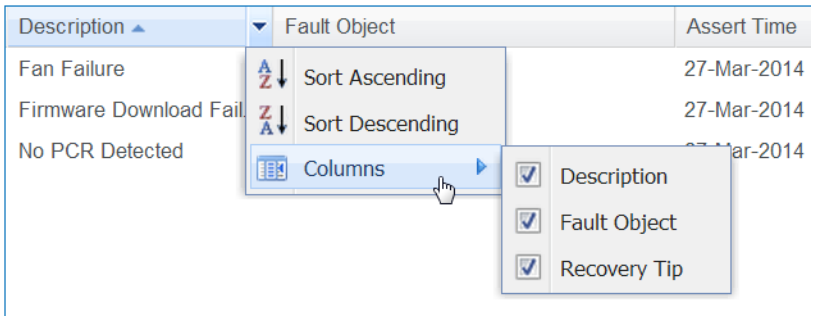
Blacked-Out Programs

NOTE: Displayed when the device is controlled by the DMS

Program Name	Blacked-out program name.
Program #	Blacked-out program number.
Alternative Program Name	Name of the alternative program.
Alternative Program #	Alternative program number.

Changing Table Column Options

Apart from clicking a column heading to sort a table according to the column, you can also change the sort direction and additionally hide or display columns by using the column drop down list gadget.



To hide or display optional columns:

1. Select the column drop-down list gadget.
2. Select the **Columns** list item.
3. Mark or clear the column check boxes.

Tree Search Capability

The Tree Search field enables you to look for information within the Physical Inputs and Outputs panes and Program Views in the Logical Inputs and Outputs panes.

To search for information:

1. Start entering information in the search field.
2. Select the relevant suggestion in the drop-down list.

The associated node will be highlighted.

Chapter 8
Monitoring Using SAG

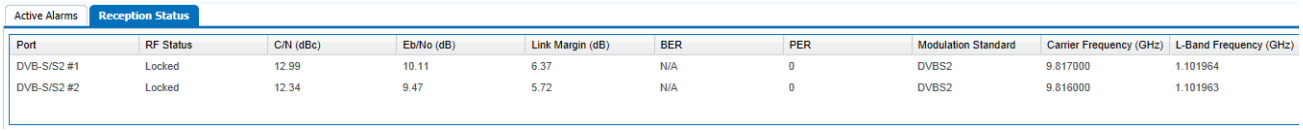
Use the bottom pane with the **Active Alarms** and **Reception Status** tabs to monitor the ProView 7100.

Topics:

Reception Status

Use the **Reception Status** tab to display the current reception status.

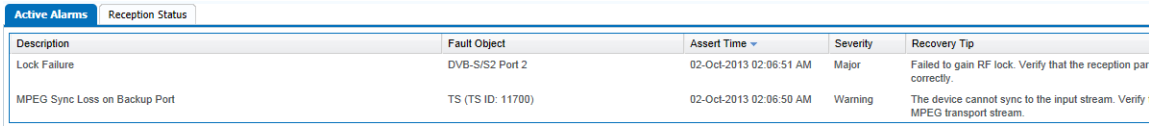
The **Reception Status** tab can be made visible under the **Configuration** menu.



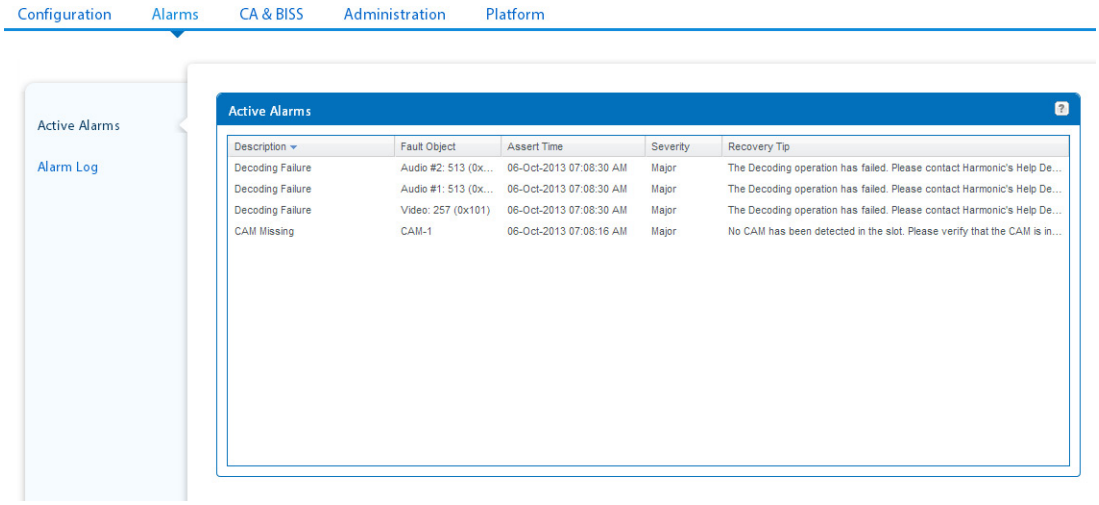
Alarms

Use the **Active Alarms** tab to display the active alarms. Alarms alert the user to conditions that may require attention.

The **Active Alarms** tab is always visible under the **Configuration** and **Alarms** menus.



Active Alarms pane under Alarms menu.



The information provided for each alarm displayed consists of the following:

Description	The alarm identification and description information.
Fault Object	The object to which the alarm is related.
Assert Time	Alarm generation date and time (dd-mmm-yyyy hh:mm:ss format).
Severity	The alarm severity level. The alarm severity levels are: ■ Critical ■ Major ■ Warning
Recovery Tip	Hover over an individual Recovery Tip to display the full text.

See *Appendix F, ProView 7100 Alarm List* for the alarm list with corrective actions.

Alarm Log

Use the **Alarm Log** pane to view a record of alarms triggered. You can export the alarm history in CSV format.

The **Alarm Log** pane is located under the **Alarms** menus.

The information provided for each alarm displayed consists of the following:

Description	The alarm identification and description information.
Fault Object	The object to which the alarm is related.
Assert Time	Alarm generation date and time (dd-mmm-yyyy hh:mm:ss format).
State	■ **On** – Indicates that the alarm is still in a triggered state. ■ **Off** – Indicates that the alarm has been cleared.

Severity	The alarm severity level. The alarm severity levels are: ■ **Critical** ■ **Major** ■ **Warning**

See *Appendix F, ProView 7100 Alarm List* for the alarm list with corrective actions.

DVB-S/S2 Input Port Properties Status

To display the DVB-S/S2 Input Port properties:

1. Select the DVB-S/S2 Input Port icon in the **Physical Inputs** panel.
2. Right-click and select **Properties**.
3. Click **Show Status** in the **DVB-S/S2 In Port Properties** dialog.

The current status of the receiver module displays on the right hand side of the dialog. Thus, changing parameters affects the status report only after the changes are applied to the device (by clicking **Apply** or **OK**).

The reception status is displayed whether the physical port is connected or not connected to the TS in the **Logical Inputs** pane. The information displayed on the status properties section is refreshed every few seconds. Some of the following properties are relevant to only one modulation standard (DVB-S or DVB-S2) and displayed accordingly:

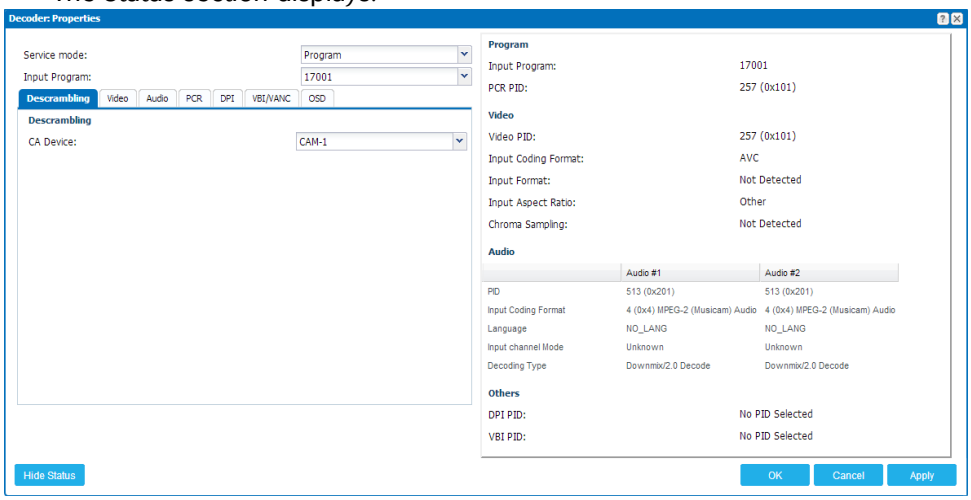
Reception	■ **RF Status** – Lock status. ■ **C/N** measured value (in dBc) ■ **Eb/No** (in dB) ■ **Link Margin** (in dB) ■ **PER** – applicable to DVB-S2, as decimal number a.b E-X)
Carrier	■ **Modulation Standard** ■ **Carrier Frequency** (in Ghz) ■ **Frequency Offset** (in kHz) ■ **Spectral Inversion** ■ **Modulation & FEC** ■ **Symbol Rate** ■ **Pilots**

Decoder Properties Status

To display the decoder properties **Status**:

1. Right-click the decoder in the **Logical Outputs** pane under the **Configuration** menu.
2. Select **Properties**.
3. Click **Show Status**.

The Status section displays.



Appendix A
Contacting the Technical Assistance Center

Harmonic Global Service and Support has many Technical Assistance Centers (TAC) located globally, but virtually co-located where our customers can obtain technical assistance or request on-site visits from the Regional Field Service Management team. The TAC operates a Follow-The-Sun support model to provide Global Technical Support anytime, anywhere, through a single case management and virtual telephone system. Depending on time of day, anywhere in the world, we will receive and address your calls or emails in one of our global support centers. The Follow-the-Sun model greatly benefits our customers by providing continuous problem resolution and escalation of issues around the clock.

Report an issue online at:

http://harmonicinc.com/webform/report-issue-online

Table A–1: Technical Support Phone Numbers and Email Addresses

Region	Telephone Technical Support	E-mail
Americas	888.673.4896 (888.MPEG.TWO) or +1.408.490.6477	*support@harmonicinc.com*
Europe, Middle East, and Africa	+44.1252.555.450	*emeasupport@harmonicinc.com*
India	+91.120.498.3199	*apacsupport@harmonicinc.com*
Russia	+7.495.926.4608	*rusupport@harmonicinc.com*
Mainland China	+86.10.6569.5580	*chinasupport@harmonicinc.com*
Japan	+81.3.5565.6737	*japansupport@harmonicinc.com*
Asia Pacific – Other Territories	+852.3184.0045 or 65.6542.0050	*apacsupport@harmonicinc.com*

The Harmonic Inc. support website is:

http://www.harmonicinc.com/content/technical-support

The Harmonic Inc. software download locations are:

All Harmonic software except Cable Edge software	*https://harmonic.force.com/SWAccess/SWDownloadLogin*
Cable Edge software	*ftp://ftp.harmonicinc.com*

The Harmonic Inc. corporate address is:

Harmonic Inc.
4300 North First St.
San Jose, CA 95134, U.S.A.
Attn: Customer Support

The corporate telephone numbers for Harmonic Inc. are:

Tel. 1.800.788.1330 (inside the U.S.)
Tel. +1.408.542.2500 (outside the U.S.)
Fax.+1.408.542.2511

Appendix B
Safety and Regulatory Compliance Information

Legal Disclaimer: Information in this document is provided in connection with Harmonic products. Unless otherwise agreed in writing Harmonic products are not designed nor intended for any application in which the failure of the product could cause personal injury or death.

NOTE: The information in this appendix may apply to purchased products only.

Important Safety Instructions

This section provides important safety guidelines for operators and service personnel. Specific warnings and cautions are found throughout the guide where they apply, but may not appear here. Please read and follow the important safety information, noting especially those instructions related to risk of fire, electric shock or injury to persons. You must adhere to the guidelines in this document to ensure and maintain compliance with existing product certifications and approvals. In this document, we use “product,” “equipment,” and “unit” interchangeably.

This equipment generates, uses, and can radiate radio frequency energy. It may cause harmful interference to radio communications if it is not installed and used in accordance with the instructions in this manual. Operation of this equipment in a residential area is likely to cause harmful interference If this occurs, the user will be required to correct the interference at his or her own expense.

In event of conflict between the information in this document and information provided with the product or on our website for a particular product, this product documentation takes precedence.

Safety Symbols & Translated Safety, Warning & Caution Instructions (English)

To avoid personal injury or property damage, before you begin installing or replacing the product, read, observe, and adhere to all the following safety instructions and information. Harmonic products and/or product packaging may be marked with the safety symbols used throughout this document, when it is necessary to alert operators, users, and service providers to pertinent safety instructions in the manuals.

Mark	Notes
 Warning	**Installing or Replacing the Product Unit Warning** ■ Only trained and qualified service personnel should be allowed to install, replace, or service this unit (refer AS/NZS 3260 Clause 1.2.14.3 Service Personnel). ■ Read the installation instructions before connecting the system to the power source. ■ When installing or replacing the unit, always make the ground connection first and disconnect it last. ■ Installation of the unit must comply with local and national electrical codes. ■ This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of special tool, lock and key or other means of security. ■ Use only specified replacement parts. ■ Do not use this unit in or near water. Disconnect all AC power before installing any options or servicing the unit unless instructed to do so by this manual.
 Warning	**Rack Mount Warning** ■ To prevent bodily injury when mounting or servicing this unit in a rack, special precautions must be taken to ensure your safety and stability of system: ■ Conform to local occupational health and safety requirements when moving and lifting the equipment. ■ Ensure that mounting of the unit by mechanical loading tools should not induce hazardous conditions. ■ To avoid risk of potential electric shock, a proper safety ground must be implemented for the rack and each piece of equipment installed on it.
 Warning	**Chassis Warning** ■ Before connecting or disconnecting ground or power wires to the chassis, ensure that power is removed from the DC circuit. ■ To prevent personal injury or damage to the chassis, lift the unit only by using handles that are an integral part of the chassis, or by holding the chassis underneath its lower edge. ■ Any instructions in this guide that require opening the chassis or removing a board should be performed by qualified service personnel only. ■ Slots and openings in the chassis are provided for ventilation. Do not block them. Leave the back of the frame clear for air exhaust cooling and to allow room for cabling - a minimum of 6 inches (15.24 cm) of clearance is recommended.

Mark	Notes
 Warning	**Electric Shock Warning** ■ This unit might have more than one power cord. To reduce the risk of electric shock, disconnect the two power supply cords before servicing the unit. ■ Before working on a chassis or working near power supplies, unplug the power cord on AC units. ■ Do not work on the system or connect or disconnect cables during periods of lightning activity. ■ This unit is grounded through the power cord grounding conductor. To avoid electric shock, plug the power cord into a properly wired receptacle before connecting the product input or outputs. ■ Route power cords and other cables so that they are not likely to be damaged. Disconnect power input to unit before cleaning. Do not use liquid or aerosol cleaners; use only a damp cloth to clean chassis. ■ Dangerous voltages exist at several points in this product. To avoid personal injury, do not touch exposed connections and components while power is on. Do not insert anything into either of the system's two power supply cavities with power connected ■ Never install an AC power module and a DC power module in the same chassis. ■ Do not wear hand jewelry or watch when troubleshooting high current circuits, such as the power supplies. ■ To avoid fire hazard, use only the specified correct type voltage and current ratings as referenced in the appropriate parts list for this unit. Always refer fuse replacement to qualified service personnel. ■ This unit relies on the building's installation for short-circuit (overcurrent) protection. Ensure that a fuse or circuit breaker no larger than 120 VAC, 15A U.S. (240 VAC, 10A international) is used on the phase conductors (all current-carrying conductors). ■ To avoid electrocution ensure that the rack has been correctly grounded before switching on the unit. When removing the unit remove the grounding connection only after the unit is switched off and unplugged.
 Caution	**Electrostatic Discharge (ESD) Caution** ■ Follow static precaution at all times when handling this unit. ■ Always wear an ESD-preventive wrist or ankle strap when handling electronic components. Connect one end of the strap to an ESD jack or an unpainted metal component on the system ■ Handle cards by the faceplates and edges only; avoid touching the printed circuit board and connector pins. ■ Place any removed component on an antistatic surface or in a static shielding bag. ■ Avoid contact between the cards and clothing. ■ Periodically check the resistance value of the antistatic strap. Recommended value is between 1 and 10 mega-ohms (Mohms).

Mark	Notes
 Warning	**Laser Radiation Warning** Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments. Never operate a unit with a broken fibre or with a separated fiber connector.
 Warning	Lithium Battery Handling Safety Instructions ■ CALIFORNIA PERCHLORATE ADVISORY: Some lithium batteries may contain perchlorate material. The following advisory is provided: "Perchlorate Material - special handling may apply, see: *www.dtsc.ca.gov/hazardous waste/perchlorate/ for information*".
 Caution	■ Risk of explosion if battery is replaced incorrectly or with an incorrect type ■ Dispose of used batteries according to the manufacturer's instructions ■ There are no user-serviceable batteries inside Harmonic products. Refer to Harmonic qualified personnel only to service the replaceable batteries

Symboles de sécurité et traduits de sécurité, d'avertissement et Attention Instructions (français)

Pour éviter des blessures ou des dommages matériels, avant de commencer l'installation ou le remplacement du produit, lire, observer, et de respecter toutes les instructions et informations de sécurité suivantes. Produits harmoniques et / ou l'emballage du produit peuvent être marqués avec les symboles de sécurité utilisés dans le présent document, lorsque cela est nécessaire pour alerter les opérateurs, les utilisateurs et les fournisseurs de services de consignes de sécurité pertinentes dans les manuels.

Mark	Notes
 Avertissement	**Installation ou remplacement de l'unité de produit Avertissement** ■ Il est vivement recommandé de confier l'installation, le remplacement et la maintenance de ces équipements à des personnels qualifiés et expérimentés. (voir AS / NZS 3260 article 1.2.14.3 du personnel de service). ■ Avant de brancher le système sur la source d'alimentation, consulter les directives d'installation. ■ Lors de l'installation ou le remplacement de l'appareil, la mise à la terre doit toujours être connectée en premier et déconnectée en dernier. ■ L'équipement doit être installé conformément aux normes électriques nationales et locales. ■ Cet appareil est à installer dans des zones d'accès réservé. Ces dernières sont des zones auxquelles seul le personnel de service peut accéder en utilisant un outil spécial, un mécanisme de verrouillage et une clé, ou tout autre moyen de sécurité. ■ Utilisez uniquement des pièces de rechange spécifiées. ■ Ne pas utiliser ce produit dans l'eau ni à proximité de l'eau. Débrancher toutes les prises d'alimentation secteur avant d'installer des options ou d'effectuer l'entretien de l'unité, à moins d'instructions contraires dans le présent manuel.
 Avertissement	**Rack Monture Avertissement** Pour éviter les blessures corporelles lors du montage ou l'entretien de cet appareil dans un rack, des précautions particulières doivent être prises pour assurer votre sécurité et la stabilité du système: ■ Conformez-vous aux exigences de médecine du travail et de sécurité lorsque vous déplacez et soulevez le matériel. ■ Assurez-vous que le montage de l'appareil par des outils de chargement mécaniques ne doit pas induire des conditions dangereuses. ■ Pour éviter tout risque d'électrocution, le rack et chaque élément de l'équipement installé dans le rack doivent être correctement reliés à la terre.
 Avertissement	**Châssis Avertissement** ■ Avant de connecter ou de déconnecter les câbles d'alimentation (pôles et terre) du châssis, vérifiez que le circuit de courant continu est hors tension. ■ Pour éviter toute blessure ou des dommages au châssis, soulevez l'unité uniquement par les poignées du châssis lui-même ou en portant celui-ci par le bord inférieur. ■ Toutes les opérations du présent guide nécessitant l'ouverture du châssis ou le retrait d'une carte doivent être uniquement effectuées par du personnel d'entretien qualifié. ■ Le châssis est muni de fentes et d'ouvertures d'aération. Ne pas les bloquer. Dégager l'arrière du cadre pour permettre le refroidissement de l'évacuation d'air et laisser de la place au câblage; un dégagement d'au moins 15.24 cm (6 po) est recommandé.

Mark	Notes
 Avertissement	**Choc électrique Avertissement** ■ Il est possible que cette unité soit munie de plusieurs cordons d'alimentation. Pour éviter les risques d'électrocution, débrancher les deux cordons d'alimentation avant de réparer l'unité. ■ Avant de travailler sur un châssis ou à proximité d'une alimentation électrique, débrancher le cordon d'alimentation des unités en courant alternatif. ■ Ne pas travailler sur le système ni brancher ou débrancher les câbles pendant un orage. ■ Ce unité est mis à la terre par le conducteur de protection intégré au cordon d'alimentation. Pour éviter les chocs électriques, brancher le cordon d'alimentation dans une prise correctement cable avant de raccorder les entrées ou sorties du unité. ■ Installer les cordons d'alimentation et autres cables de sorte qu'ils ne risquent pas d'être endommagés. Couper l'alimentation avant nettoyage. Ne pas utilizer de nettoyant liquide ou en aérosol; utiliser seulement un linge humide. ■ Des courants électriques dangereux circulent dans cet appareil. Afin d'éviter les lessures, ne pas toucher les connexions et composants exposés lorsque l'appareil est sous tension. Ne rien insérer dans l'une ou l'autre des cavités des prises de courant du système lorsque l'appareil est sous tension. ■ N'installez jamais un module d'alimentation AC et un module d'alimentation DC dans le même châssis. ■ Ne pas porter de bijoux aux mains ni de montre durant le dépannage des circuits à haute tension, comme les transformateurs. ■ Pour prévenir les risques d'incendie, n'utiliser que le type, la tension et le courant nominal spécifiés dans la nomenclature des pièces de ce unité. Toujours confier le remplacement des fusibles à du personnel d'entretien qualifié. ■ Pour ce qui est de la protection contre les courts-circuits (surtension), ce produit dépend de l'installation électrique du local. Vérifier qu'un fusible ou qu'un disjoncteur de 120 V alt., 15 A U.S. maximum (240 V alt., 10 A international) est utilisé sur les conducteurs de phase (conducteurs de charge). ■ Pour éviter l'électrocution, assurez-vous que le rack a bien été mis à la terre avant de mettre l'unité en marche. Lors du retrait de l'unité, retirer le raccordement de terre seulement après avoir mis l'unité à l'arrêt et l'avoir débranchée.

Mark	Notes
 Attention	**Les décharges électrostatiques (ESD) Attention** ■ Respecter systématiquement les precautions relatives aux charges électrostatiques durant la manipulation de cet unité. ■ Portez toujours un poignet ou la cheville bracelet antistatique préventive lors de la manipulation des composants électroniques. Branchez une extrémité de la sangle à une prise ESD ou d'un composant métallique non peinte sur le système. ■ Manipulez les cartes en les faces avant et les bords seulement; éviter de toucher la carte de circuit imprimé et les broches du connecteur. ■ Placer un composant retiré sur une surface antistatique ou dans un sac de protection statique. ■ Éviter tout contact entre les cartes et les vêtements. ■ Vérifier périodiquement la valeur de résistance de la sangle antistatique. Valeur recommandée est comprise entre 1 et 10 méga-ohms (Mohms).
 Avertissement	**Rayonnement laser Attention** ■ Rayonnement laser invisible peut être émis à partir de fibres ou les connecteurs débranchés. Ne pas regarder en faisceaux ou regarder directement avec des instruments optiques. Ne jamais faire fonctionner une unité en cas de bris d'une fibre ou de séparation d'un connecteur de fibre.
 Avertissement	**Batterie au lithium Manipulation instructions de sécurité** ■ Perchlorate pour la Californie Consultatif: Certaines batteries au lithium, peuvent contenir du perchlorate. le texte qui suit consultatif est prévu: "Présence de perchlorate - une manipulation spéciale peut s'appliquer, voir: *www.dtsc.ca.gov/hazardous waste/perchlorate/ for information*".
 Attention	■ Il y a danger d'explosion si la batterie est remplacée de manière incorrecte ou par une batterie de type incorrect. ■ Mettre au rebut les batteries usagees conformement aux instructions du fabricant. ■ Les batteries des produits Harmonic ne peuvent pas être réparées ni entretenues par l'utilisateur. Ne confier l'entretien des batteries remplaçables qu'à du personnel compétent de Harmonic.

Sicherheit Symbole und übersetzt Sicherheit, Achtung & Vorsicht Anleitung (Deutsch)

Um Verletzungen oder Sachschäden zu vermeiden, bevor Sie mit der Installation oder Austausch des Produkts zu beginnen, zu lesen, zu beobachten, und sich an all den folgenden Sicherheitshinweise und Informationen. Harmonic Produkte und / oder Produktverpackungen können mit den Sicherheitssymbole in diesem Dokument verwendet werden, markiert, wenn es notwendig ist für die Betreiber, Anwender und Dienstleister, um relevante Sicherheitsanweisungen in den Handbüchern zu alarmieren.

Mark	Notes
 Warnung	**Installation oder den Austausch des Produkts Einheit Warnung** ■ Das Installieren, Ersetzen oder Bedienen dieser Ausrüstung sollte nur geschultem, qualifiziertem Personal gestattet warden (siehe AS / NZS 3260 Clause 1.2.14.3 Servicepersonal) ■ Lesen Sie die Installationsanweisungen, bevor Sie das System an die Stromquelle anschließen. ■ Der Erdanschluß muß bei der Installation der Einheit immer zuerst hergestellt und zuletzt abgetrennt werden. ■ Die Installation der Geräte muss den Sicherheitsstandards entsprechen. ■ Diese Einheit ist zur Installation in Bereichen mit beschränktem Zutritt vorgesehen. Ein Bereich mit beschränktem Zutritt ist ein Bereich, zu dem nur Wartungspersonal mit einem Spezialwerkzeugs, Schloß und Schlüssel oder anderer Sicherheitsvorkehrungen Zugang. ■ Verwenden Sie nur die angegebenen Ersatzteile ■ Das Gerät in oder in der Nähe von Wasser verwenden. Trennen Sie vor der Installation von Optionen oder Wartung des Gerätes, es sei denn, dies wurde von diesem Handbuch alle Netz.
 Warnung	**Rack-Montage-Warnung** Zur Vermeidung von Körperverletzung beim Anbringen oder Warten dieser Einheit in einem Gestell müssen Sie besondere Vorkehrungen treffen, um sicherzustellen, daß das System stabil bleibt: ■ Entsprechen den lokalen Arbeitsschutzanforderungen beim Bewegen und Heben der Ausrüstung. ■ Stellen Sie sicher, dass die Montage des Gerätes durch mechanische Belastung Werkzeuge sollten nicht gefährlichen Bedingungen zu induzieren. ■ Um das Risiko von möglichen elektrischen Schlag zu vermeiden, muss mit einer angemessenen Erdung für Rack und jedes Gerät installiert ist implementiert werden.
 Warnung	**Chassis Warnung** ■ Gleichstrom-Unterbrechung Bevor Sie Erdungs- oder Stromkabel an das Chassis anschließen oder von ihm abtrennen, ist sicherzustellen, daß der Gleichstrom-Stromkreis unterbrochen ist. ■ Um Verletzungen und Beschädigung des Chassis zu vermeiden, sollten Sie das Chassis nicht an den Henkeln auf den Elementen (wie z.B. Stromanschlüsse, Kühlungen oder Karten) heben oder kippen; oder indem Sie es unterhalb der Unterkante packen. ■ Alle Hinweise in diesem Handbuch, die das Öffnen benötigen Sie das Gehäuse oder das Entfernen eines Board sollte nur von qualifiziertem Fachpersonal durchgeführt werden. ■ Für Schlitze und Öffnungen im Chassis vorgesehen. Blockieren Sie sie nicht. Lassen Sie die Rückseite des Rahmens frei für Abluftkühlung und um Platz für die Verkabelung ermöglichen - ein Minimum von 6 Zoll (15,24 cm) Abstand wird empfohlen

Mark	Notes
 Warnung	**Elektroschock-Warnung** ■ Diese Einheit hat möglicherweise mehr als ein Netzkabel. Zur Verringerung der Stromschlaggefahr trennen Sie beide Netzgerätekabel ab, bevor Sie die Einheit warten. ■ Vor der Arbeit an einem Chassis für Arbeiten in der Nähe Stromversorgung, ziehen Sie das Netzkabel mit Netzeinheiten. ■ Arbeiten Sie nicht am System und schließen Sie keine Kabel an bzw. trennen Sie keine ab, wenn es gewittert. ■ Dieses Gerät ist über das Netzkabel Erdungsleiter geerdet. Um einen Stromschlag zu vermeiden, stecken Sie das Netzkabel in eine Steckdose richtig verdrahtet, bevor Sie das Produkt Eingang oder Ausgänge. ■ Verlegen Sie Netzkabel und andere Kabel, so dass sie wahrscheinlich nicht beschädigt werden. Trennen Eingangsleistung Einheit vor der Reinigung. Verwenden Sie keine flüssigen oder Aerosolreiniger; nur mit einem feuchten Tuch zu reinigen Chassis. ■ Gefährliche Spannungen vorhanden sind an mehreren Stellen in diesem Produkt. Um Verletzungen zu vermeiden, berühren Sie nicht freiliegenden Anschlüsse und Komponenten während schaltet ist. Sie keine Gegenstände in einem der beiden Stromversorgungs Hohlräume des Systems mit Strom verbunden einführen. ■ Ein Wechelstromsmodul und ein Gleichstrommodul dürfen niemals in demselben Chassis installiert werden. ■ Tragen Sie keine Hand Schmuck oder schauen Sie bei der Fehlersuche hohen Stromkreise, wie beispielsweise die Stromversorgung. ■ Um die Brandgefahr zu vermeiden, verwenden Sie nur den genannten richtige Art von Spannung und Strom Ratings als in der entsprechenden Stückliste für diese Einheit verwiesen. Beziehen sich immer auf Austausch der Sicherung von qualifiziertem Fachpersonal. ■ Dieses Produkt ist darauf angewiesen, daß im Gebäude ein Kurzschluß- bzw. Überstromschutz installiert ist. Stellen Sie sicher, daß eine Sicherung oder ein Unterbrecher von nicht mehr als 240 V Wechselstrom, 10 A (bzw. in den USA 120 V Wechselstrom, 15 A) an den Phasenleitern (allen stromführenden Leitern) verwendet wird. ■ Um einen Stromschlag zu vermeiden, sicherzustellen, dass die Zahnstange wurde korrekt vor dem Einschalten des Gerätes geerdet. Beim Entfernen der Einheit entfernen Sie die Masseverbindung nur, nachdem das Gerät ausgeschaltet und der Netzstecker gezogen.

Mark	Notes
 Vorsich	**Elektrostatische Entladung (ESD) Vorsicht** ■ Folgen Sie statische vorsorglich zu jeder Zeit beim Umgang mit diesem Gerät. ■ Tragen Sie immer einen ESD-präventive Handgelenk oder Knöchel-Riemen beim Umgang mit elektronischen Komponenten. Schließen Sie ein Ende des Bandes an einem ESD-Buchse oder ein unlackiertes Metallteil auf dem System. ■ Hand Karten nur durch die Faceplates und Kanten; Berühren Sie die bedruckte Leiterplatte und Steckerstifte. ■ Legen Sie alle entfernten Komponenten auf eine antistatische Oberfläche oder in einem Statik-Beutel. ■ Kontakt zwischen den Karten und Kleidung vermeiden. ■ Den Widerstandswert der gegen statische Gurt in regelmäßigen Abständen überprüfen. Empfohlener Wert ist zwischen 1 und 10 Mega-Ohm (MOhm).
 Warnung	**Laserstrahlungen Warnung.** Unsichtbare Laserstrahlung kann von getrennten Fasern oder Stecker emittiert werden. Nicht in die Strahlen blicken oder direkt mit optischen Instrumenten. Niemals ein Gerät mit einem gebrochenen Faser oder mit einem Glasfaseranschluss getrennt.
 Warnung	**Lithium-Batterie Handhabung Sicherheitshinweise** CALIFORNIA PERCHLORATE ADVISORY: Einige Lithium-Batterien kann Perchlorat enthalten. Die folgende Beratungs gesetzt: "Perchlorat - Sonderbehandlung kann erforderlich sein, finden Sie unter: *www.dtsc.ca.gov/ hazardous waste/perchlorate/ for information*".
 Vorsich	■ Bei Einsetzen einer falschen Batterie besteht Explosionsgefahr ■ Entsorgen Sie die benutzten Batterien nach den Anweisungen des Herstellers. ■ Es gibt keine zu wartenden Akkus im Harmonic Produkte. Siehe Harmonic qualifiziertes Personal, um die austauschbare Batterien Service

Site Preparation Instructions

NOTE: Only trained and qualified service personnel (as defined in IEC 60950 and AS/NZS 3260) should install, replace, or service the equipment. Install the system in accordance with the U.S. National Electric Code if you are in the United States.

1. Preparing & Choosing a Site for Installation
   - ❑ To ensure normal system operation, plan your site configuration and prepare the site before installation.
   - ❑ Install the unit in a restricted access area.

- Choose a site with a dry, clean, well-ventilated and air-conditioned area.
- Choose a site that maintains an ambient temperature of 32 to 104°F (0 to 40°C)

2. Creating a Safe Environment
   - Connect AC-powered systems to grounded power outlets or as per local regulations.
   - Do not move or ship equipment unless it is correctly packed in its original wrapping and shipping containers.
   - Only allow Harmonic trained personnel to undertake equipment service and maintenance. Do not permit unqualified personnel to operate the unit.
   - Wear ear protection when working near an NSG Pro platform for a longer period of time.
3. Rack Mounting the Unit
   - Install the system in an open rack whenever possible. If installation in an enclosed rack is unavoidable, ensure that the rack has adequate ventilation.
   - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips). This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
   - When mounting this unit in the partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
   - If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.
   - The rack must be anchored to an immovable support to prevent it from tipping when the unit is mounted on it. The rack must be installed accoring to the rack maufacturer's instructions.
   - Disconnect all power and external cables before lifting the unit. Depending on the weight of the unit, more than one person might be required to lift it.
4. Power Considerations
   a. AC Power
      - Adding to the system a UPS (Uninterrupted Power Supply) and an AVR (Automated Voltage Regulator) is highly recommended.
      - Installing the main power supply by a qualified electrician, according to power authority regulations. Make sure all powering are wired with an earth leakage, according to local regulations.
      - It is recommended to install the encoder within 1.5m (approximately 5 feet) from an easily accessible grounded AC outlet.
      - When the encoder is rack-mounted, ensure that the rack is correctly grounded.

   b. DC Power
      - Ensure a suitable overcurrent device is in-line between the equipment and the power source.
      - Connect DC-input power supplies only to a DC power source that complies with the safety extra-low voltage (SELV) requirements in the UL60950-1, CAN/CSA-C22.2 No. 60950-1-03, AS/NZS 60950-1, EN/IEC 60825-1, 21 CFR 1040, EN 60950-1, and IEC 60950-1 standards.
      - Ensure that power is removed from the DC circuit before installing or removing power supplies
5. Handling Fiber Channel Cables
   - Always read and comply with the handling instructions on the shipping container.
   - Follow all ESD precautions and approved fiber cleaning procedures.

- The fiber is made of a very pure, expensive glass and should be treated with great care. Handle fibers only in areas that are very clean and do not contain sharp objects.
- Wear finger cots or gloves as dirt and oils can damage the fiber and contaminate connectors.
- Do not allow kinks or knots to develop in the fiber. If tangles occur, carefully work out the tangles avoiding pulling or bending the fibre beyond its bend radius.
- Always use the correct tools for stripping and cleaving the fiber. It will save time and reduce breakage caused by scratches.
- If you must secure a bundle of fiber cables together, avoid plastic and metal tie wraps; secure with velcro instead.

6. Disposing of the Unit
   - Dispose of the unit and its components (including batteries) as specified by all national laws and regulations.

Product End-of-Life Disassembly Instructions

For disassembly instructions, please call the technical support in order to remove components requiring selective treatment, as defined by the EU WEEE Directive (2012/19/EU). See Contacting the *Technical Assistance Center.*

Product Disassembly Process

1. Disassemble equipment at a dedicated area only, gather the needed tools for disassembly.
2. Remove covers, housing, etc.
3. Remove and separate sub-assemblies (i.e. cables, metals, displays, fans, etc.).
4. Separate hazardous materials from the remainder of the material.
   a. Sort hazardous materials into their different types (i.e., batteries, hazardous liquids, hazardous solids, fiberglass, etc.).
   b. Proceed with hazardous waste management processes only.
5. Identify re-usable materials/sub-assemblies and separate these from the rest of the material.
6. Identify and separate recyclable materials as per below examples:
   a. Scrap material to be sent to smelter(s).
   b. E-waste such as displays, CPU's, cables and wires, hard drives, keyboards, etc.
   c. Metals such as steel, brass, and aluminum.
   d. Plastics such as fan casings, housings, covers, etc.
   e. Fiber optics and plastic tubing not containing electrical or data wiring.

Safety Rules (English)

Recycler personnel are to wear personal protective equipment including proper eye protection, proper hand protection, and proper breathing protection if needed.

Recycler personnel shall be experienced with using the proper tools required for disassembling equipment. Untrained personnel shall not disassemble Harmonic products. Unfamiliarity with tools can cause damage and injury.

Règles de sécurité (French)

Le personnel du recycleur doit porter de l'équipement de protection individuelle, y compris des lunettes, des gants et un masque de protection appropriés au besoin.

Le personnel du recycleur doit avoir de l'expérience des outils de démontage de l'appareil. Les produits Harmonic ne doivent pas être démontés par du personnel non qualifié. Une mauvaise connaissance des outils peut causer des dommages et des blessures.

EU Manufacturer's Declaration of Conformity

This equipment is in compliance with the essential requirements and other provisions of Directives 73/23/EEC and 89/336/EEC as amended by Directive 93/68/EEC.

NOTE: For specifics, about which standards have been applied, refer to the Declaration of Conformity of the product on Harmonic website at *Product Regulatory Compliance* or contact Harmonic Compliance Team at *regulatory.compliance@harmonicinc.com*

Electromagnetic Compatibility Notices – Class A

a. FCC Verification Statement (USA)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case users will be required to correct the interference at their own expense.

Connections between the Harmonic equipment and other equipment must be made in a manner that is consistent with maintaining compliance with FCC radio frequency emission limits. Modifications to this equipment not expressly approved by Harmonic may void the authority granted to the user by the FCC to operate this equipment and you may be required to correct any interference to radio or television communications at your own expense.

b. ICES–003 Statement (Canada)

English: This Class A digital apparatus complies with Canadian ICES-003.

French: Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

c. CE Declaration of Conformity (European Union)

This product has been tested in accordance too, and complies with the Low Voltage Directive (2014/30/EU) and EMC Directive (2014/35/EU). The product has been marked with the CE Mark to illustrate its compliance.

d. VCCI Class A Warning (Japan)

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

English translation of the notice above:

This is a Class A product based on the standard of the Voluntary Control Council for Interference (VCCI) from Information Technology Equipment. If this equipment is used in a domestic environment, it may cause radio interference. When such trouble occurs, the user may be required to take corrective actions.

e. BSMI EMC Notice (Taiwan)

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策

English translation of the notice above:

This is a Class A Information Product, when used in residential environment, it may cause radio frequency interference, under such circumstances, the user may be requested to take appropriate counter measures.

f. Class A Warning (Korea)

주의 A급 기기 이 기기는 업무용으로 전자파 적합 등록을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며 만약 잘못 판매 또는 구입하였을 때에는 가정용으로 교환하시기 바랍니다.

English translation of the notice above:

This is a Class A device and is registered for EMC requirements for industrial use. The seller or buyer should be aware of this. If this was sold or purchased by mistake, it should be replaced with a residential-use type.

g. Class A Statement (China)

中华人民共和国“A类”警告声明

声 明

此为A级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。

English translation of the notice above:

When labeled with the CCC marking, the product meets the applicable safety and EMC requirements for China. This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

h. Class A Warning – CISPR 22 (AS/NZS)

Warning (English)

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Attention (French)

Il s'agit d'un produit de classe A. Dans un environnement local, ce produit peut entraîner des perturbations radioélectriques, auquel cas l'utilisateur devra éventuellement prendre des mesures adéquates.

Product Regulatory Compliance

Harmonic products are typically tested to the latest safety and electromagnetic compatibility (EMC) specifications and test methods, and are marked with one or more of the following regulatory/certification markings. Some of the certification markings will vary depending on what certifier was used to obtain a certification.

Please visit Harmonic *Product Regulatory Compliance* page to view information on applied safety & EMC standards and regulatory marks on Harmonic products. You can also email us at *regulatory.compliance@harmonicinc.com* for assistance on regulatory compliance for Harmonic products.

Product Regulatory Compliance Markings

Table B–1:Regulatory Compliance Markings

Country/ Region	Testing Standard/ Specification	Certification Type	Regulatory Mark Name	Product Marketing
USA/ Canada	EN 60950-1:2006+A11:2009+A1:2010+A12:2011; CAN/CSA C22.2 No. 60950-1-07+A1:2011/UL 60950-1:2011	Safety	NRTL (National Recognized Test Laboratory)	c UL us LISTED or TÜVRheinland c us
USA/ Canada	FCC CFR 47 Part 15, Class A ICES-003: Issue 5, 2012; Class A	EMC	FCC Class A Statement	This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Table B–1:Regulatory Compliance Markings

Country/ Region	Testing Standard/ Specification	Certification Type	Regulatory Mark Name	Product Marketing
European Union	RoHS: EN 50581:2012; EN55022:2010/ CISPR 22:2008; EN55024:2010/ CISPR 24:2010; EN61000-3-2:2006+A1:2009+A2:2009; EN61000-3-3:2008; Class A	Safety and EMC	CE / Low Voltage Directive	CE
Germany	EN 60950-1; EN60825-1 (for laser)	Safety	GS	TÜVRheinland CERTIFIED GS geprüfte Sicherheit
Mexico	NOM-019-SCFI-1998	Safety	NOM	NOM
Taiwan	CNS 14336-1:2010 CNS 13438:2006; Class A	Safety and EMC	BSMI Certification (RPC) Number & Class A Warning	R3A001 警告使用者：這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。
Japan	VCCI V-3/2013.04; CISPR 22:2008, Class A	EMC	VCCI	VCCI
Australia and New Zealand	AS/NZS CISPR22:2009+A1:2010; Class A	Safety	C-Tick	NXXXXX
Korea	KN22 Class A and KN 24	EMC	KC	KC

Table B–1:Regulatory Compliance Markings

Country/ Region	Testing Standard/ Specification	Certification Type	Regulatory Mark Name	Product Marketing
China	GB4943.1-2011 GB9254-2008 GB17625.1-2012	Safety and EMC	CCC	
India	IS 13252 (Part 1): 2010	Safety	BIS Compulsory Registration	"Self Declaration - Conforming to IS 13252 (Part 1):2010, R-XXXXXXXX"

Product Environmental Compliance

Harmonic manufactures high quality and innovative IT and telecommunications equipment, video delivery infrastructure solutions and services for its customers worldwide. Harmonic is committed to providing our customers with safe and environmentally friendly products that are compliant with all relevant regulations, customer specifications, and environmental legislation, including the directives described below.

EU RoHS

In July 2006, the European Union's (EU) Directive (2002/95/EC) on the Restriction of the use of certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment (EEE) went into effect, and in July, 2011, the European Union's RoHS Recast Directive (2011/65/EU) also known as RoHS II entered into force.

Harmonic understands the environmental risks associated with the substances covered by the RoHS Directive and has committed to eliminating or reducing the use of these, as well as other environmentally sensitive substances in our products. Harmonic also continues to comply with the requirements under RoHS II.

For more information, please visit EU RoHS directive page at official EU website.

http://ec.europa.eu/environment/waste/rohs_eee/legis_en.htm

Restricted Substance Statement

Harmonic products contain less than the permitted limits for the six restricted substances except where exemptions published in the RoHS2 Directive are applicable. This statement is based on vendor-supplied analysis or material certifications, and/or lab test results of the component raw materials used in the manufacture of Harmonic products.

Table B–2:Restricted Substances

Restricted Substance	Permitted Limit*
Cadmium (Cd)	≤0.01%
Lead (Pb)	≤0.1%
Chromium (VI) (Cr (VI))	≤0.1%
Mercury (Hg)	≤0.1%

Table B–2:Restricted Substances

Restricted Substance	Permitted Limit*
Polybrominated biphenyls (PBBs)	≤0.1%
Polybrominated diphenyl ether (PBDE)	≤0.1%
*Homogeneous material definition as per the EU Directive.	

EU REACH

REACH (Registration, Evaluation, Authorization and restriction of Chemicals) (EC 1907/2006) is a European Union's regulation on chemicals and their safe use which came into force in June, 2007.

Harmonic supports the basic aim of REACH in improving the protection of human health and environment through the better and earlier identification of intrinsic properties of chemical substances. Harmonic products are considered "articles" under REACH; therefore, we are required to provide recipients of our products with information on Substance of Very High Concern (SVHC) present in concentration above 0.1% (w/w).

Substances in our products are not intended to be released under normal or reasonably foreseeable conditions of use; therefore, the registration requirement in REACH Article 7(1) does not apply to our products.

For more information, please visit REACH regulation page at official EU website.

http://ec.europa.eu/environment/chemicals/reach/reach_en.htm

China RoHS

China's regulation on restriction of the use of certain hazardous substances commonly (China RoHS), is applicable to all Electronic and Information Products (EIPs) and parts sold in China after March 01, 2007. China RoHS regulation restricts the use of the same six substances as the European Union's ROHS, but has requirements for product labeling and regulated substance information disclosure.

Harmonic complies with China RoHS Phase I for labeling and information disclosure requirements and continues to monitor new developments in China RoHS Phase II towards substance restriction and certification program.

For more information, please visit China RoHS regulation page at official US export website.

http://www.export.gov/china/doingbizinchina/

China RoHS Disclosure Report

Below table shows the presence of hazardous substances, or elements in Harmonic products, if the part is present.

该表显示哈雷公司产品中可能含有的有毒有害物质元配件的信息，除了来源于元配件供应商的物料成分资料， 亦来自其它相关的机构与资料。哈雷产品不一定使用这些元配件。

This table shows those components where hazardous substances may be found in Harmonic products based on, among other things, material content information provided by third party suppliers. These components may or may not be part of the product.

除非特殊注明，哈雷公司产品的环保使用期限 均为 20 年。该环保使用期限的有效条件为：必须遵循该产品使用手 册的规定，对该产品进行使用或存储。

The Environmental Protective Use Period for Harmonic products is 20 years unless displayed otherwise on the product. The EPUP period is valid only when the products are operated or stored as per the conditions specified in the product manual.

部件名称 (Part name)	有毒有害物质或元素 (Hazardous Substance)					
	铅 (PB)	汞 (Hg)	镉 (Cd)	六价铬 (CrVI)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷线路板 (Printed Circuit Assemblies)	X	O	O	O	O	O
机械组件 (Mechanical Subassemblies)	X	O	O	O	O	O
光学组件 (Optical Subassemblies)	X	O	O	O	O	O
电源 (Power Supplies)	X	O	O	O	O	O
缆线 / 线束 (Cables, harnesses)	X	O	O	O	O	O
屏幕 / 显示器 (Screens, Monitors)	X	O	O	O	O	O
金属零件 (Metal Parts)	X	O	O	O	O	O
塑料 / 发泡材料 (Plastics, foams)	O	O	O	O	O	O
电池 (Batteries)	O	O	O	O	O	O

O: 表示在该部件的所有均质材料中，此类有毒有害物质的含量均小于 SJ/T11363-2006 标准所规定的限量。

O: Indicates the content of the toxic and hazardous substances at the homogeneous material level of the parts is below the limit defined in SJ/T11363 2006 standard.

X: 表示至少在该部件的某一均质材料中，此类有毒有害物质的含量超出 SJ/T11363-2006 标准规定的限量。

X: Indicates that the content of the toxic and hazardous substances in at least one of the homogeneous materials of the parts is above the limit defined in SJ/T11363 2006 standard.

Other RoHS and REACH type Regulations

Harmonic will comply with RoHS and REACH type regulations evolving in other countries, if they become relevant to our products or in markets where we sell our products.

Waste Electrical and Electronic Equipment (WEEE)

European Parliament and the Council of the European Union's WEEE Directive (2002/96/EC) came into force on August, 2005 and, were more recently amended in July, 2012. This directive encourages the reuse, recycling, and recovery of WEEE and to improve the environmental performance of all operators involved in the life cycle of electrical and electronic equipment, especially those dealing with WEEE. Harmonic ensures that all requirements for registration, reporting, design and data tracking are complied with to meet the objectives of the WEEE directive.

For more information, please visit WEEE directive page at official EU website.

http://ec.europa.eu/environment/waste/weee/legis_en.htm

Battery Directive

In September 2006, the European Union's Directive 2006/66/EC (Battery Directive) came into force with an aim to prohibit the sale of batteries and accumulators containing hazardous substances and to set rules and promote collection, treatment, recycling and disposal of waste batteries and accumulators. This directive applies to spent batteries collected together with WEEE and requires their removal and separate collection. Once removed from WEEE, spent batteries are governed by the Battery Directive. Harmonic uses lithium batteries in its products and our responsibility under the Battery Directive is taken care of under our WEEE Take-Back program.

For more information, please visit Batteries and Accumulators directive page at official EU website.

http://ec.europa.eu/environment/waste/batteries/

Harmonic is committed to manufacturing environmentally safe products for the community, and will make reasonable efforts and required adjustments to its practices, if necessary, to comply with various environmental directives and industry initiatives on the elimination of hazardous substances, labeling, marking, certification and registration as required in markets where we sell our products.

Download Harmonic's Environmental Compliance Statement at the following location:

http://www.harmonicinc.com/sites/default/filesEnvironmental%20Compliance%20Statement.pdf

WEEE Take-Back Request Program

In order to assist EU member states to preserve, protect and improve the quality of the environment, protect human health and utilize natural resources prudently and rationally, Harmonic strives to recycle in compliance with the WEEE Directive any of its products that cannot be re-used.

Harmonic's customers should:

- Not discard equipment in household or office garbage
- Arrange proper recycling of unneeded equipment. For the take-back of Harmonic equipment, customers must:
  - Collect the information required to complete Harmonic's WEEE Take-Back Request form

- Complete and submit the online WEEE Take-Back Request form. Please note that forms must be fully completed in order to prevent process delays
- Receive instant online confirmation indicating the reference number
- Receive the End of Life (EOL) asset return authorization number and instruction for EOL asset return

- Not ship EOL product to Harmonic without a Harmonic-provided EOL asset return authorization number

The crossed-out wheeled bin symbol on a Harmonic-branded commercial product indicates that the product should not be disposed of along with municipal waste, but invites our customers to return the product to us under Harmonic's WEEE Take-Back program for product disposal.

Harmonic will pay for the cost of shipping and will provide a Certificate of Recycling or a Certificate of Destruction upon request. For more information on collection, reuse and recycling or to initiate the WEEE take-back process, please complete the form at *http://www.harmonicinc.com/webform/weee-takeback-request* or contact *Harmonic Technical Assistance Center (TAC) or email RMA team at rma.emea@harmonicinc.com.*

Compliance with additional country specific environmental, safety and EMC standards:

In addition to above listed standards and compliance regulations, Harmonic products may also be compliant with other country specific environmental, safety and EMC requirements. Please contact Harmonic Compliance Team at *regulatory.compliance@harmonicinc.com* or your local sales representative for more information about compliance with particular country or standard.

Appendix C
Connectors and Front End Card Options

Topics:

Overview of Rear Panel Ports and Connectors

Figure C–1 and *Figure C–2* illustrate typical ProView 7100 rear panels and *Table C–5* details the ports and connectors provided on the panel. The single decoder card can be ordered with or without the Genlock feature and connector. The ProView 7100 can be ordered with no decoder card.

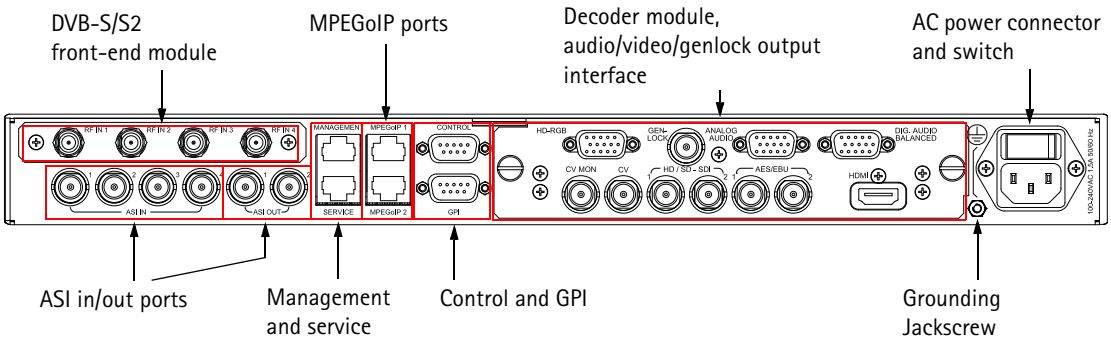


Figure C–1: ProView 7100 Rear Panel with Single Decoder

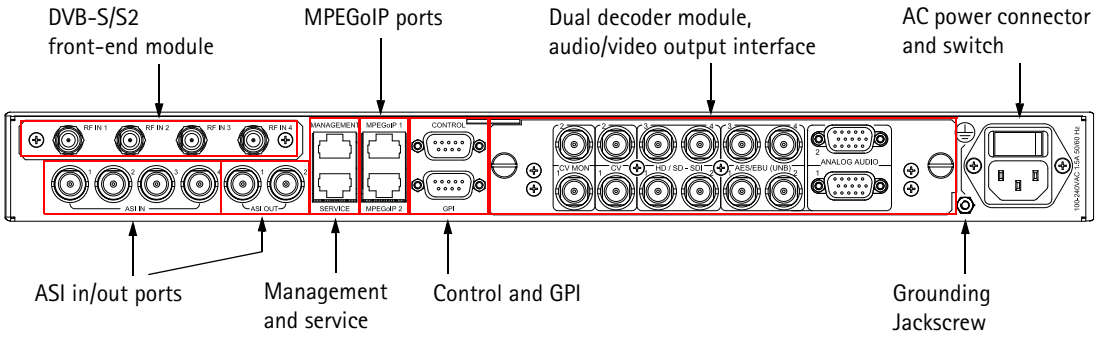


Figure C–2: ProView 7100 Rear Panel with Dual Decoder

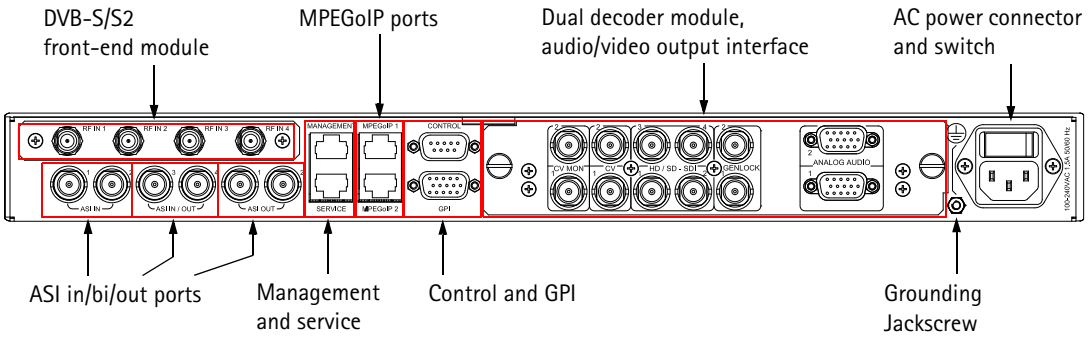


Figure C–3: ProView 7100 Rear Panel with Dual Decoder and Genlock

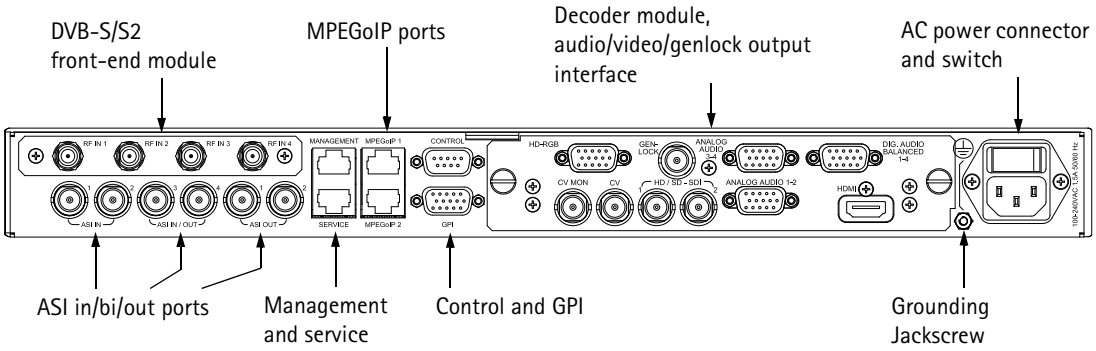


Figure C–4: 4 ProView 7100 Rear Panel with single decoder, Genlock and 4 analog audio outputs

Table C–5: Rear Panel Ports and Connectors

Interface	Description	Connector Type
DVB-S/S2 front-end module		
RF IN[1]	1 x DVB-S/S2 RF modulated input stream with single port demodulator card 4 x DVB-S/S2 RF modulated input stream with quad port demodulator card	F-Type 75 Ohm
MPEGoIP ports		
MPEGoIP 1 & 2	2 x GbE data ports	100/1000 Base-T, RJ-45
ASI in/out ports		
ASI IN 1, 2, 3, 4, 5, 6	6 x ASI input stream	BNC 75 Ohm

Table C–5: Rear Panel Ports and Connectors

Interface	Description	Connector Type
ASI OUT 1, 2, 3, 4, 5, 6	6 x ASI output stream	BNC 75 Ohm
Decoder module, audio/video output interface		
HD-RGB	1 x RGB High Definition video output with single decoder	D-Type 15-pin condensed
Genlock	1 x Genlock synchronization input with single decoder Genlock feature and connector is optional	BNC 75 Ohm
Analog Audio	1 x Analog audio stereo output (balanced) with single decoder 2 x Analog audio stereo output (balanced) with dual decoder 4 x Analog audio stereo output (balanced) with single decoder	D-Type 15-pin condensed 2 x D-Type 15-pin condensed, XLR harness included
Digital Audio Balanced	1 x Digital audio stereo output (balanced) with single decoder 2 x Digital audio stereo output (balanced) with dual decoder	D-Type, 15-pin condensed, XLR harness with 4 XLR connectors included
CV	1 x Analog video output with single decoder 2 x Analog video output with dual decoder	BNC, 75 Ohm
CV MON	1 x Analog video monitoring output with single decoder 2 x Analog video monitoring output with dual decoder	BNC, 75 Ohm
HD/SD-SDI	2 x HD/SD-SDI with embedded audio with single decoder 4 x HD/SD-SDI with embedded audio with dual decoder	BNC, 75 Ohm
AES/EBU	0 x AES/EBU digital audio output with dual decoder and dual Genlock, and with 4 x audio analog output 2 x AES/EBU digital audio output with single decoder 4 x AES/EBU digital audio output with dual decoder	BNC, 75 Ohm
HDMI	1 x HD monitoring interface, Audio 1 (stereo) embedded with single decoder	HDMI

Table C–5: Rear Panel Ports and Connectors

Interface	Description	Connector Type
Management related interfaces		
Management	External access to the device for control and monitoring	RJ-45
Control	RS-232 interface connector	D-Type, 9-pin
GPI	General Purpose Interface connector, provides dry contacts (relays) to drive external alarms 5 x dry contacts – ProView 7100 2 x dry contacts – ProView 7100	D-Type, 9-pin – ProView 7100 D-Type, 15-pin female condensed – ProView 7100
Power related interfaces		
AC Power Socket and Switch	100–240 VAC 50/60Hz external power supply connector (for 18AWG three wire cord) and on/off power switch	
Grounding Jackscrew	Jackscrew for connecting the grounding cable when the unit is rack mounted	

1. For best performance connect 75 Ohm terminators on all unused RF ports.

RGB Port Pin Configuration

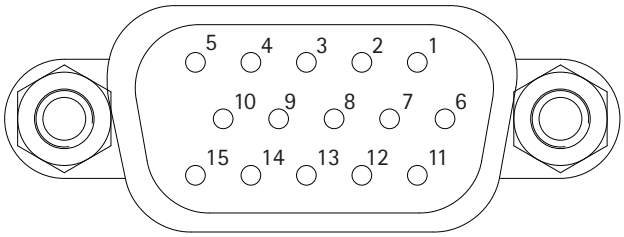


Figure C–6: D-Sub 15 Pinouts

Table C–7: D-Sub 15 Pinout Names

Pin No.	Signal
1	RED
2	GREEN
3	BLUE
4	N.U.

Table C–7: D-Sub 15 Pinout Names

5	GND
6	GND
7	GND
8	GND
9	N.U.
10	GND
11	N.U.
12	N.U.
13	H-SYNC
14	V-SYNC
15	N.U.

ProView 7100 GPI Port Pin Configuration

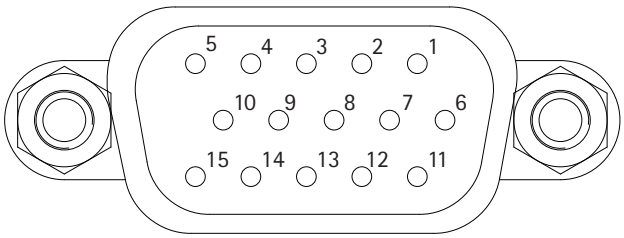


Figure C–8: D-Sub 15 Socket Pinouts

Table C–9: D-Sub 15 Socket Pinout Names

Pin No.	Signal
1	COM 1
2	COM 2
3	COM 3
4	COM 4
5	COM 5
6	NC 1
7	NC 2

Table C–9: D-Sub 15 Socket Pinout Names

8	NC 3
9	NC 4
10	NC 5
11	NO 1
12	NO 2
13	NO 3
14	NO 4
15	NO 5

Balanced Digital Audio Port Pin Configuration

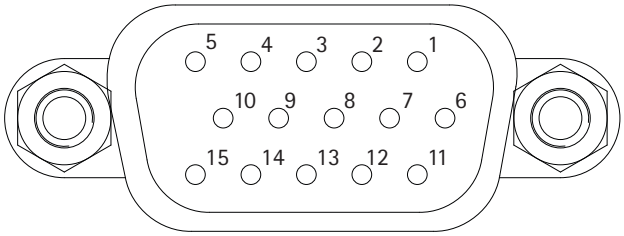


Figure C–10: D-Sub 15 Socket Pinouts

Table C–11: D-Sub 15 Socket Pinout Names

Pin No.	Signal
1	AES4+
2	AES3+
3	GND
4	AES2+
5	AES1+
6	N.U.
7	GND
8	GND
9	N.U.
10	GND

Table C–11: D-Sub 15 Socket Pinout Names

11	AES4-
12	AES3-
13	N.U.
14	AES2-
15	AES1-

AES3 and AES4 are optional for HaDAS with 4 Audio channels.

Balanced Audio Port Pin Configuration

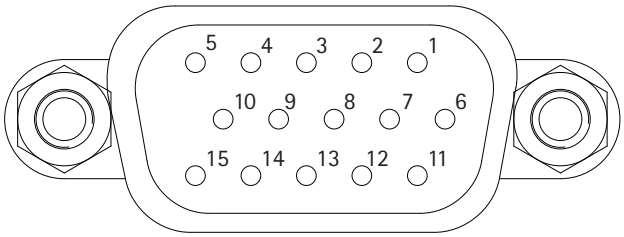


Figure C–12: D-Sub 15 Socket Pinouts

Table C–13: D-Sub 15 Socket Pinout Names

Pin No.	Signal
1	Audio BR+
2	Audio BL+
3	GND
4	Audio AR+
5	Audio AL+
6	N.U.
7	GND
8	GND
9	N.U.
10	GND
11	Audio BR-
12	Audio BL-

Table C–13: D-Sub 15 Socket Pinout Names

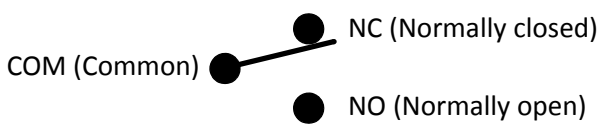
13	N.U.
14	Audio AR-
15	Audio AL-

Table C–14: D-Sub 15 Socket Pinout Names

Pin No.	Signal
1	Audio DR+
2	Audio DL+
3	GND
4	Audio CR+
5	Audio CL+
6	N.U.
7	GND
8	GND
9	N.U.
10	GND
11	Audio DR-
12	Audio DL-
13	N.U.
14	Audio CR-
15	Audio CL-

Audio C and Audio D are optional for HaDAS with 4 Audio channels.

GPI Relay Position Names



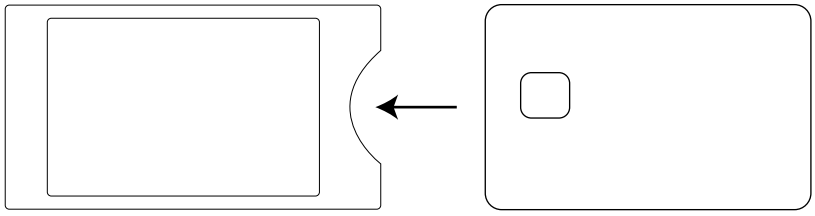
Front End Card Features

CAM Slots

The ProView 7100 has four PCMCIA slots on the front panel. Each can accommodate a DVB-CI module with a smart card to descramble incoming programs, see *Figure 3–1* for the location.

Inserting a CAM

1. Insert the smart card into a DVB-CI module with the contacts facing up and towards the front end.



2. Insert the DVB-CI module into one of the four PCMCIA slots with the up arrow pointing upwards and in the direction of insertion.

CAUTION: Do not remove or insert the DVB-CI module or the smart card while the ProView 7100 is powering up or initializing.

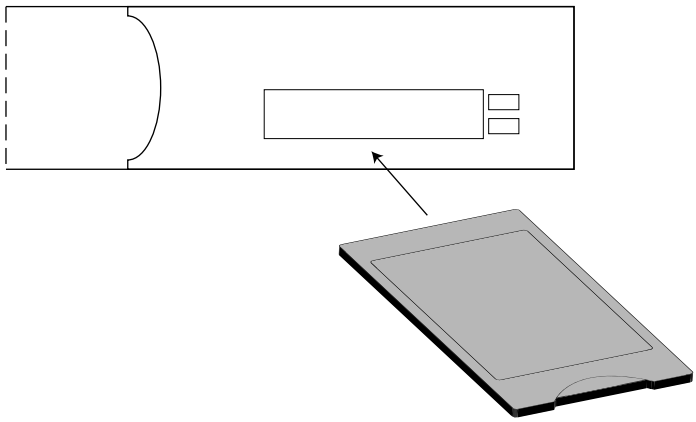


Figure C–15: ProView 7100 with the DVB-CI module and Smart Card

When installed, the card is detected automatically by the ProView 7100 and enabled if the following conditions are met:

- The installed card must be EN50221 compatible
- Services have been selected
- A valid card license

Appendix D
SAG Icons

Table D–1: ES/PIDS

Type	Clear (FTA)	Scrambled	Descrambled	PID Missing
Audio				
AVC				
Data				
DPI				
ECM		N/A	N/A	
EMM		N/A	N/A	
Ghost		N/A	N/A	
M2				
MPE				
PCR				
PCR Emb on Aud				
PCR Emb on Vid				
Program				
Subs				
TXT				
VBI				
Video				

Table D–2: Tables/Programs/Processing

Item	Normal	Disabled	Missing
Audio TX			

Table D–2: Tables/Programs/Processing

Item	Normal	Disabled	Missing
Descriptor		N/A	N/A
Table			
Tables (Container)			
TS			
Video TX			

Table D–3: Ports

Port	Enabled	Disabled
1G RJ-45		
ASI		
DVB-S/S2		
HDMI		
LNB		
RJ-45		
Socket		
Sockets Container		

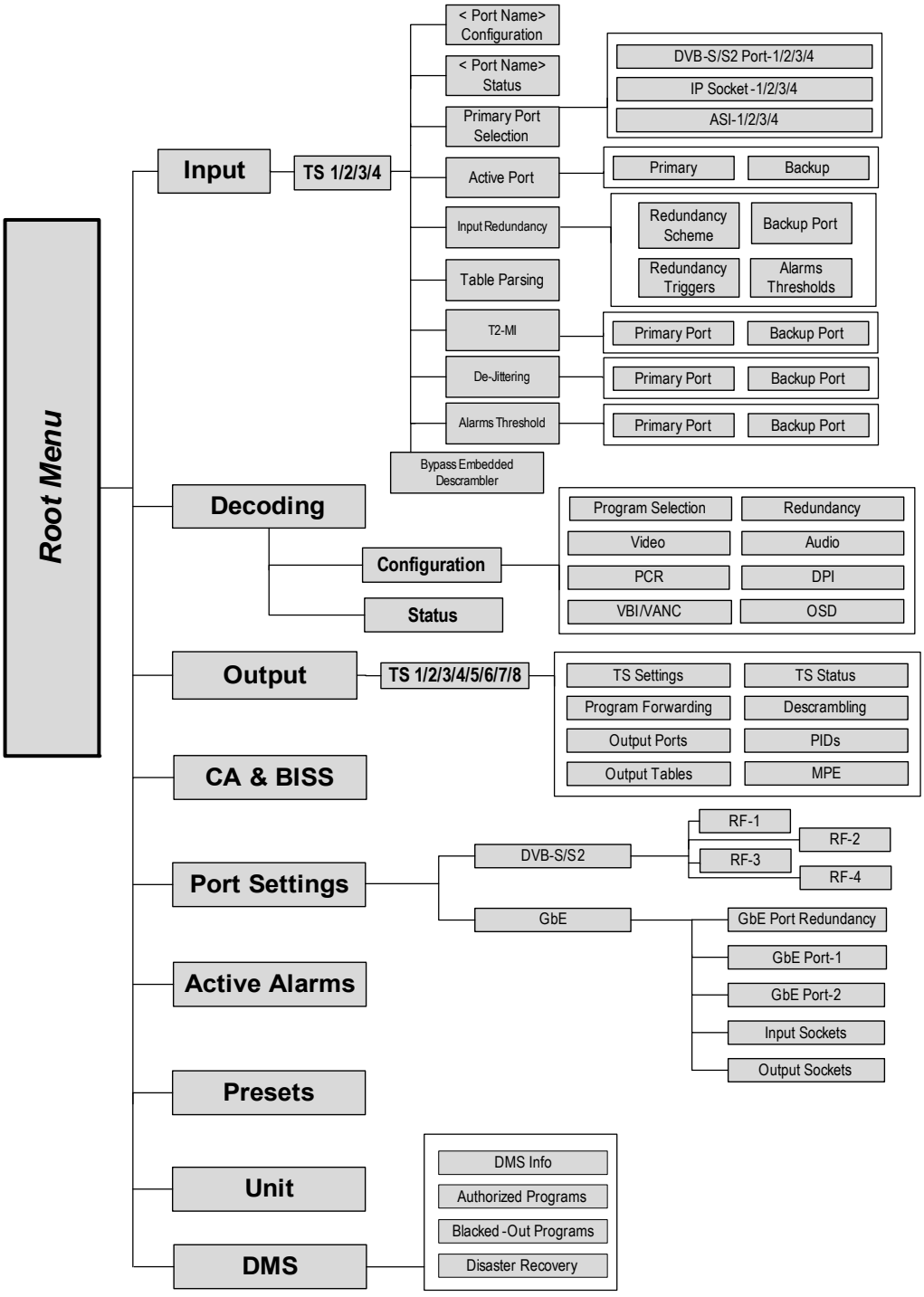
Table D–4: Baseband/Decoder

Engine	Normal	Disabled
Video		
Digital Audio		
Embedded Audio		
VBI		
VANC		

Table D–4: Baseband/Decoder

Engine	Normal	Disabled
Subs		
PCR		

Appendix E
Front Panel Menu Tree



NOTE: Some menus only display on certain models or with certain menu settings.

Appendix F
ProView 7100 Alarm List

The following table lists the ProView 7100 alarms and the information provided on the property sheet.

Short Description	Severity	Description/Action
Backup Program Activated	Warning	The Backup Program has been activated due to a failure of the Primary Program.
Backup Prt T2-MI De-Framing Fail	Warning	The device cannot sync to a valid T2-MI stream. ■ Confirm that the T2-MI PID configuration is correct
BER Too High	Warning	The BER is too high. ■ Verify the reception conditions and the wiring
CAM Descrambling Failure	Major	The CAM has failed to descramble the configured programs. Try the following: ■ Re-insert the CAM ■ Reset the CAM If the problem persists, contact your CAM vendor.
CAM Missing from Its Slot	Major	No CAM has been detected in the slot. ■ Verify that the CAM is inserted properly.
CAM Processing Failure	Major	No bitrate was detected after the CAM. Verify the following: ■ The input bitrate does not exceed the CAM limit ■ The CAM supports the number of descrambled programs. If the problem persists, contact your CAM vendor.
CC Errors on Backup Port	Warning	CC errors have been detected on the Backup Port. ■ Improve the reception conditions
CC Errors on Backup Program	Warning	CC errors have been detected on the Backup Program. ■ Improve the reception conditions
CC Errors on Primary Port	Major	CC errors have been detected on the Primary Port. ■ Improve the reception conditions
CC Errors on Primary Program	Major	CC errors have been detected on the Primary Program. ■ Improve the reception conditions
Critical High Temperature Detected	Critical	A critical high temperature has been detected. ■ Make sure the fans are operating and are not blocked ■ Turn off the device If the problem persists, contact Harmonic's Technical Assistance Center.

Short Description	Severity	Description/Action
Critical HW Failure	Critical	■ Contact Harmonic's Technical Assistance Center
Critical SW Failure	Major	■ Contact Harmonic's Technical Assistance Center
De-Jittering Failure	Major	The device has not been able to de-jitter the input stream correctly. ■ Refer to the de-jittering status indication
De-Jittering Failure on Backup Port	Warning	The device has not been able to correctly de-jitter the input stream. ■ Refer to the de-jittering status indication
De-Jittering Failure on Primary Port	Major	The device has not been able to correctly de-jitter the input stream. ■ Refer to the de-jittering status indication
Decoding Failure	Major	The decoding operation has failed. ■ Contact Harmonic's Technical Assistance Center
Decoding Failure (Res. Mismatch)	Major	The input video resolution does not match the configuration. ■ Re-configure the Resolution Conversion value
Disaster Recovery Activated	Major	Disaster recovery has been activated. ■ Verify reception conditions Contact your broadcaster for further assistance
Eb/No Value Too Low	Warning	The Eb/No value is too low. ■ Verify the reception conditions and wiring
Embedded Descrambler Overflow	Major	The input bitrate is too high. ■ Either reduce the bitrate or consider bypassing the embedded descrambler
ES Decoding Failure – Unsupported Content	Major	The program cannot be decoded because the encoded content is currently not supported. ■ Contact Harmonic's Technical Assistance Center
Ethernet Auto Negotiation Failure	Major	Ethernet Auto-negotiation has failed. ■ Verify that the cable is properly wired or consider reverting to manual PHY speed configuration
Fan Failure	Major	The fan has stopped operating. ■ Contact Harmonic's Technical Assistance Center
Firmware Download Failure	Warning	Firmware download has failed. Verify the following: ■ The correct file was selected ■ There are no network disconnections If the problem persists, contact Harmonic's Technical Assistance Center.
Firmware Upgrade Failure. Previous Version Loaded.	Warning	Firmware upgrade has failed. ■ Upgrade again or revert to the previous version

Short Description	Severity	Description/Action
Frame Rate Mismatch	Warning	The configured video frame rate does not match the frame rate of the source. ■ Re-configure the decoding frame rate.
GbE Backup Port Activated	Warning	The GbE Backup Port has been activated. ■ It is recommended to revert to GbE-1 as soon as possible
GbE Input Port Failed	Critical	Both GbE inputs have failed. ■ Verify that the cables are properly connected on both ends and the ports on both ends are enabled ■ Consider adjusting the redundancy mode
High Temperature Warning	Warning	A high temperature has been detected. ■ Make sure the fans are operating and are not blocked ■ Turn off the device For further support, contact Harmonic's Technical Assistance Center.
Input Bitrate Overflow	Major	The input bitrate to the CAM is too high. ■ Consider to reduce the input bitrate For further instructions, contact Harmonic's Technical Assistance Center.
Input Failure	Critical	Both source inputs have failed. ■ Verify that the cables are properly connected on both ends ■ Verify the reception conditions ■ Consider adjusting the redundancy mode or triggers
Link Down	Major	A Link down has been detected. Check: ■ That the cable is properly connected on both ends. ■ That the ports on both ends are enabled.
Lock Failure	Major	Failed to gain an RF lock. ■ Verify that the reception parameters are configured correctly
Locked to an Alternative Link	Major	Disaster recovery has been activated. The device has locked onto an alternative link.
MPEG Sync Loss on Backup Port	Warning	The device cannot sync to the input stream. ■ Verify that the input contains a valid MPEG transport stream
MPEG Sync Loss on Primary Port	Major	The device cannot sync to the input stream. ■ Verify that the input contains a valid MPEG transport stream
MPEG TS Input Overflow	Major	The input bitrate is too high. ■ Reduce the bitrate ■ Contact Harmonic's Technical Assistance Center

Short Description	Severity	Description/Action
MPEG TS Output Overflow	Major	The effective output bitrate is too high. ■ Consider either to increase the TS bitrate or to reduce the effective bitrate
Multiplex Backup Port Activated	Warning	The backup multiplex port has been activated. ■ It is recommended to revert to the Primary Port as soon as possible
No Genlock Sync	Major	The program cannot be decoded properly because the decoder is not able to sync it to the input Genlock signal. Verify that: ■ The Genlock input is properly wired ■ The decoder display is configured correctly
No PCR Detected	Warning	No PCR has been detected in the decoded stream. This may cause AV sync issues. ■ Check the PCR PID configuration
Output Program Failure	Major	Both Primary and Backup Programs have failed. For more details, refer to the Primary and Backup Program alarms' corrective action. ■ Consider adjusting the Redundancy Control Mode, Scheme, or Triggers
Packet Loss Detected after CAM	Major	Packets were dropped by the CAM. Verify the following: ■ The input bitrate does not exceed the CAM limit ■ The CAM supports the number of descrambled programs If the problem persists, contact your CAM vendor.
PCR Missing on Backup Program	Warning	The PCR of the Backup Program is not received. ■ Verify that the input stream is received ■ Re-check the configuration in the upstream device
PCR Missing on Primary Program	Major	The PCR of the Primary Program is not received. ■ Verify that the input stream is received ■ Re-check the configuration in the upstream device
PER Too High	Warning	The PER is too high. ■ Verify the reception conditions and wiring
PID Conflict	Major	More than one PID is mapped to the same output PID. ■ Review the output configuration
PID Missing on Backup Port	Warning	No bitrate has been detected on this PID. Problem originating upstream.
PID Missing on Primary Port	Major	No bitrate has been detected on this PID. Problem originating upstream.
Primary Prt T2-MI De-Framing Fail	Major	The device cannot sync to a valid T2-MI stream. ■ Confirm that the T2-MI PID configuration is correct

Short Description	Severity	Description/Action
Program Descrambling Failure	Major	Program descrambling has failed. ■ Verify that the number of programs descrambled is supported by the CAM ■ Contact your CAM vendor
Redundancy Compromised: Source Synchronization Failure	Warning	Non-Identical sources have been detected while working in the Seamless Redundancy mode.
Redundancy Configuration Failure	Warning	The offset between the sources is greater than the configured value. ■ Adjust the configuration
Seamless Redundancy: Unsupported Offset	Warning	The configured Max Offset Between Sources parameter has exceeded the maximum supported value. ■ Contact Harmonic's Technical Assistance Center
Searching for an Alternative Link	Major	Disaster recovery has been activated. The device is searching for an alternative link.
T2-MI Not Detected on Backup Port	Warning	The device cannot sync to a valid T2-MI stream. ■ Confirm that the T2-MI PID configuration is correct
T2-MI Not Detected on Primary Port	Major	The device cannot sync to a valid T2-MI stream. ■ Confirm that the T2-MI PID configuration is correct
T2-MI PID Missing on Backup Port	Warning	The configured T2-MI PID is absent. ■ Confirm that the T2-MI PID configuration is correct
T2-MI PID Missing on Primary Port	Major	The configured T2-MI PID is absent. ■ Confirm that the T2-MI PID configuration is correct
Verimatrix Descrambler Over-Provisioned	Major	The Verimatrix descrambler configuration has exceeded its specifications. ■ Contact Harmonic's Technical Assistance Center
Verimatrix Descrambler Initialization Failure	Major	■ Contact Harmonic's Technical Assistance Center
Video Missing on Backup Program	Warning	The Video PID of the Backup Program is not received. ■ Verify that the input stream is received ■ Re-check the configuration in the upstream device
Video Missing on Primary Program	Major	The Video PID of the Primary Program is not received. ■ Verify that the input stream is received ■ Re-check the configuration in the upstream device
Voltage Error	Critical	■ Contact Harmonic's Technical Assistance Center

Appendix G
Firmware Management

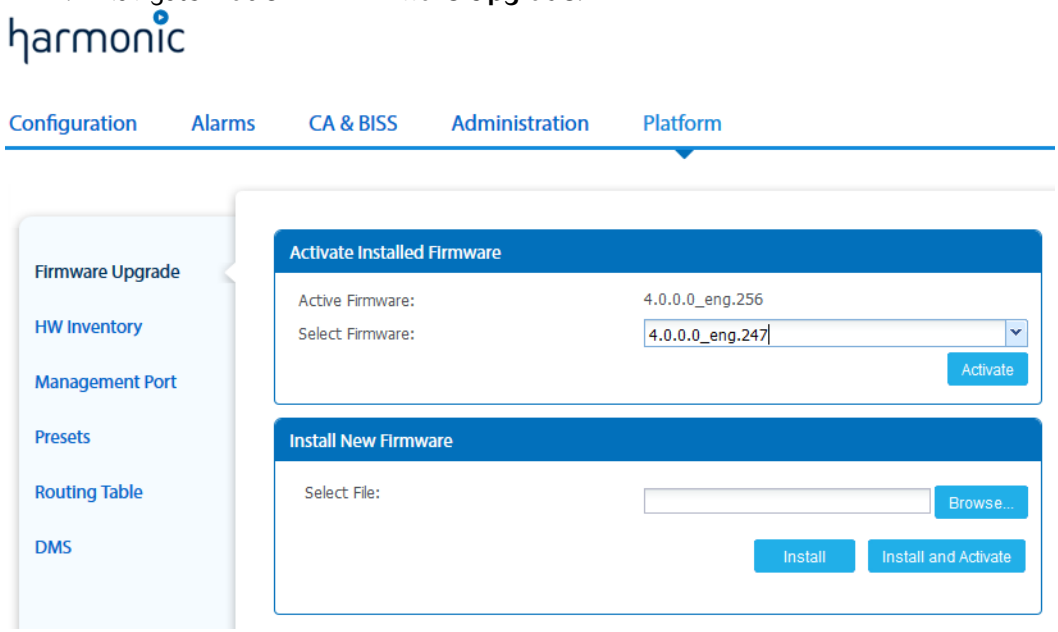
The current and last firmware versions of the ProView 7100 are stored in the unit. The SAG enables you to manage (Install and Activate) the firmware. The process of changing the active firmware version takes several minutes and requires a reboot.

CAUTION: The BOOTP software upgrade option should be turned off when using the SAG to upgrade the ProView 7100 unit. See *Global Settings*.

Opening the Firmware Upgrade Pane

To open the Firmware Upgrade submenu from the SAG Platform menu:

1. Open the SAG in your browser.
2. Navigate **Platform** > **Firmware Upgrade**.



The Firmware Upgrade submenu shows two dialog boxes:

- Activate Installed Firmware
- Install New Firmware

Activating Installed Firmware

The Activate Installed Firmware dialog box shows the active firmware version and a drop-down list from which you can select another firmware version.

To change the active firmware version, in the Activate Installed Firmware dialog box, select the required version from the drop-down list and click **Activate**.

Installing New Firmware

The **Install New Firmware** dialog box enables you to browse for a firmware version and to install or install and Activate it.

NOTE: For information on downloading a firmware package, contact Harmonic Technical Assistance Center.

NOTE: The new firmware file has the extension .targ.gz and should be located on your PC or network.

NOTE: When the device is controlled by the DMS, Activation cannot be performed.

To install new firmware:

1. In the **Install New Firmware** dialog box, click **Browse** and browse for the firmware file.
2. Select the file and click **Open**.
3. Click either **Install** or **Install and Activate**.
   a. When clicking **Install**, you will have to perform the activation process as described in *Activating Installed Firmware*.
   b. When clicking **Install and Activate**, the selected firmware version is installed, the unit reboots, and the new firmware becomes the active firmware version.