



Ellipse™ Series of Contribution Encoders

Installation Guide

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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)	O	O	O	O	O	O
塑料/ 发泡材料 (Plastics, Foams)	O	O	O	O	O	O
电池 (Batteries)	X	O	O	O	O	O

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North America

Standards	Agency Approval
EMI: FCC Part 15, Subpart B, ICES-003, Issue 2, Class A	FCC
Safety: UL 60950, CSA 60950	cTUV-us Mark

Europe

Standards	Agency Approval
EMI/EMC: EN55022, Class A, EN55024	CE

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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.

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This Installation Manual describes the installation and operation of the Harmonic Ellipse Series of Contribution Encoders.

1.1. Manual Organization

This manual contains the following chapters:

Chapter 2, *Introduction*, introduces the encoder and describes its features. Provides a hardware overview' including a description of the back panel ports and connectors and lists the encoder characteristics and capabilities.

Chapter 3, *Installation*, provides rack mounting instructions, electrical installation and basic instructions for initialization and configuration.

Chapter 4, *Control Interfaces*, provides general instruction for using the encoder Front Panel and Web-Management control interfaces.

Chapter 5, *Operation and Management*, provides specific directives in operating the encoder control interfaces.

Chapters 6 thru 12 provides detailed information in using each and every monitoring and control function provided by the Front Panel and the Web-Management control interfaces.

Appendix A provides instructions for upgrading the encoder software.

Appendix B details the preparations and procedures required for cloning a database of a Ellipse unit through the FTP session in order to clone the configuration of a single encoder into all the encoders within the group.

Appendix C describes the synchronization set-up for audio pass-thru schemes.

Appendix D provides technical information on the DS9034PCX PowerCap power source.

Appendix E provides installation and operation instructions for the Ellipse Logo/Slide Creator tool.

The Harmonic Ellipse Series of Contribution Encoders presents an advanced concept in video compression. The Contribution Encoder platform provides broadcasters with multiple simultaneous MPEG-2 or MPEG-4 AVC (H.264) video encoding and DSNG modulation.

This chapter describes:

- The Ellipse Series operating environment
- The Ellipse Series members' applications and general features.
- The Ellipse Series front and rear panel structure.
- The Ellipse Series characteristics and capabilities.

2.1. Operating Environment

The versatile Ellipse series provides a universal solution for current and future contribution encoding needs. The platform enables a smooth migration path from MPEG-2 to MPEG-4 AVC (H.264), allowing either or both encoding formats to be transmitted concurrently over ASI and IP networks with the capability of DSNG modulation.

2.2. Applications and General Features

The available modules in the Ellipse Series are:

- **Ellipse 1000** – SD Contribution Encoder
- **Ellipse 1000H** – SD/HD Contribution Encoder
- **Ellipse 2000** – SD DSNG Encoder
- **Ellipse 2000H** – SD/HD DSNG Encoder

The following paragraphs describe the application of each Ellipse Series member and detail its basic features, hardware upgrades and software-licensed features.

2.2.1. Ellipse 1000 Contribution Encoder

The Ellipse 1000 Contribution Encoder enables smooth and cost effective migration path from MPEG-2 CBR to MPEG-4 AVC (H.264) CBR concurrent encoding schemes for Standard Definition (SD) media encoding. The Ellipse 1000 is a state-of-the-art unit, featuring low-delay mode and cascading capabilities in addition to a broadcast video quality.

The Ellipse 1000 basic and software-licensed features are the following:

Basic Features:	Software-Licensed Features:
• Video format 4:2:2 (MPEG-2 only) • Built-in MPEG-4 AVC (H.264) Encoding engine • Up to 4 audio channels (MPEG-1 Layer 2) • Analog and/or SDI inputs	• 1 video-channel encoding MPEG-2 • MPEG-4 AVC (H.264) SD video compression NOTE: MPEG-4 AVC encoding for SD media can be concurrent with MPEG-2 encoding. • ASI cascading and multi-services

Basic Features:	Software-Licensed Features:
- Up to 3 DVB-ASI outputs - Dual GbE outputs - VBI processing: WSS, VITC, and Teletext - Low speed data - CC (MPEG-2 only) - Front Panel management - GPI dry contact alarm output - External SNMP control - Web management	- IP Out - Scrambling (BISS) - Dolby AC-3 2.0 encoding - Linear PCM pass-through - Dolby E audio pass-through - Dolby Digital 5.1 pass-through - MPE – Multi Protocol Encapsulation - PRO-MPEG FEC (SMPTE 2002) - M-SPTS - MPEG-2 AAC LC 2.0 (up to two stereo channels) - MPEG-4 HE-AAC V1/V2 2.0 (up to four stereo channels)
Hardware Upgrades Options: - G.703 (E1, E2 or E3), No FEC, Unframed - DS3 Leased-line connection (ATM AAL-1 protocol) 48 Volt Power Supply (instead of 110/220 Volt) - Dual Quad Audio Card 8 Digital/Embedded stereo inputs OR 8 analog stereo inputs	

2.2.2. Ellipse 1000H Contribution Encoder

The Ellipse 1000H Contribution Encoder adds new hardware to enable MPEG-4 AVC (H.264) HD media encoding upgrade to the already proven MPEG-2 and H.264 concurrent encoding capabilities for SD media.

The Ellipse 1000H basic and software-licensed features are the following:

Basic Features:	Software-Licensed Features:
- Video format 4:2:2 (MPEG-2 only) - Built-in MPEG-4 AVC (H.264) Encoding engine - Up to 4 audio channels (MPEG-1 Layer 2 and AAC) - HD/SD-SDI Inputs (SMPTE 292M) - Up to 3 DVB-ASI outputs - Dual GbE outputs - Passive DVB-ASI loop-through - Low speed data - CC (MPEG-2 only) - Front Panel management	1 video-channel encoding MPEG-2 - MPEG-4 AVC (H.264) SD video compression NOTE: MPEG-4 AVC encoding for SD media can be concurrent with MPEG-2 encoding. - MPEG-4 AVC (H.264) HD video compression NOTE: HD compression can not be concurrent with SD compression. - ASI cascading and multi-services - IP Out - Scrambling (BISS)

Basic Features:	Software-Licensed Features:
• GPI dry contact alarm output • External SNMP control • Web management	• Dolby AC-3 2.0 encoding • Linear PCM pass-through • Dolby E audio pass-through • Dolby Digital 5.1 pass-through • MPE – Multi Protocol Encapsulation • PRO-MPEG FEC • M-SPTS • MPEG-2 AAC LC 2.0 (up to two stereo channels) • MPEG-4 HE-AAC V1/V2 2.0 (up to four stereo channels)
Hardware Upgrades Options: • G.703 (E1, E2 or E3), No FEC, Unframed • DS3 Leased-line connection (ATM AAL-1 protocol) • 48 Volt Power Supply (instead of 110/220 Volt) • Dual Quad Audio Card 8 Digital/Embedded stereo inputs OR 8 analog stereo inputs	

2.2.3. Ellipse 2000 DSNG SD Contribution Encoder

The Ellipse 2000 DSNG Encoder adds DVB-S/S2/DSNG modulator/up-converter with IF or L-Band outputs to the Ellipse 1000 Contribution Encoder platform.

The Ellipse 2000 basic and software-licensed features are the following:

Basic Features	Software-Licensed Features
• L-Band or IF modulator output • Video format 4:2:2 (MPEG-2 only) • Built-in for DVB-S/S2/DSNG modulator • DVB-S QPSK Modulation • Built-in H.264 Encoding engine • Broadcast L-band output • L-band monitoring • DVB-ASI and Dual GbE outputs • Analog and digital video inputs • DC output and 10 MHz clock for block up-converter • Pre-programmed setup • Up to 4 audio channels (MPEG-1	• 1 video-channel encoding MPEG-2 • MPEG-4 AVC (H.264) SD video compression NOTE: H.264 encoding for SD media can be concurrent with MPEG-2 encoding. • Upgrade to: DVB-S2 QPSK/8PSK/16APSK DVB-DSNG QPSK/8PSK/16QAM • ASI cascading and multi-services • IP Out • Scrambling (BISS) • Dolby AC-3 2.0 audio encoding • Linear PCM pass through • Dolby E audio pass-through • Dolby Digital 5.1 pass-through

Basic Features	Software-Licensed Features
- Layer 2) - VBI processing: VPS, WSS, VITC, and Teletext - Low-latency mode (Only for MPEG-2) - Low speed data - CC (MPEG-2 only) - Front Panel management - Web management - External SNMP control - GPI dry contact alarm output	- MPE – Multi Protocol Encapsulation - PRO-MPEG FEC - M-SPTS - MPEG-2 AAC LC 2.0 (up to two stereo channels) - MPEG-4 HE-AAC V1/V2 2.0 (up to four stereo channels)
Hardware options 48 Volt Power Supply (instead of 110/220 Volt) - Dual Quad Audio Card 8 Digital/Embedded stereo inputs OR 8 analog stereo inputs	

2.2.4. Ellipse 2000H DSNG SD/HD Contribution Encoder

The Ellipse 2000H DSNG Encoder adds High Definition (HD) MPEG-4 AVC (H.264) capability to the Ellipse 2000 DSNG SD Encoder.

The Ellipse 2000H basic and software-licensed features are the following:

Basic Features	Software-Licensed Features
- L-Band or IF modulator output - Video format 4:2:2 (MPEG-2 only) - Built-in for DVB-S/S2/DSNG modulator - DVB-S QPSK Modulation - Built-in H.264 Hardware - Broadcast L-band output - L-band monitoring - ASI and Dual GbE outputs - HD/SD-SDI Inputs (SMPTE 292M) - DC output and 10 MHz clock for block up-converter - Pre-programmed setup - Up to 4 audio channels (MPEG-1 Layer 2 and AAC) - VBI processing: VPS, WSS, VITC, and Teletext	1 video-channel encoding - MPEG-4 AVC (H.264) SD video compression
	NOTE: H.264 encoding for SD media can be concurrent with MPEG-2 encoding.
	MPEG-4 AVC (H.264) HD video compression
	NOTE: HD compression can not be concurrent with SD compression.
	- Upgrade to: - DVB-S2 QPSK/8PSK/16APSK - DVB-DSNG QPSK/8PSK/16QAM - ASI cascading and multi-services - IP Out - Scrambling (BISS) - Dolby AC-3 2.0 audio encoding - Linear PCM pass through - Dolby E audio pass-through

Basic Features	Software-Licensed Features
• Low-latency mode (Only for MPEG-2) • Low speed data • External SNMP control • Front Panel management • Web management • External SNMP control • GPI dry contact alarm output	• Dolby Digital 5.1 pass-through • MPE – Multi Protocol Encapsulation • PRO-MPEG FEC • M-SPTS • MPEG-2 AAC LC 2.0 (up to two stereo channels) • MPEG-4 HE-AAC V1/V2 2.0 (up to four stereo channels)
Hardware options • 48 Volt Power Supply (instead of 110/220 Volt) • Dual Quad Audio Card 8 Digital/Embedded stereo inputs OR 8 analog stereo inputs	

2.3. Management

The following sections detail the different management interfaces and methods available to control the Ellipse.

2.3.1. Local Management

The Ellipse supports two local management methods:

- **Front Panel Control** - Provides an easy to use graphical display with a large LCD screen and intuitive control. On the right side of the front panel is a compact flash-card port, used for storing encoder configurations.
- **PC Terminal Control** - Supports PC terminal control from a standard PC terminal (over RS-232). The terminal provides access to control and monitor functionalities that are not available when using any Ellipse front panel feature.



CAUTION:

Using PC Terminal control option can be done only by advanced users and Harmonic technical support personnel.

2.3.2. Remote Management

The Ellipse supports three remote management methods:

- **Web Manager** - Allows monitoring the Ellipse parameters through an easy-to-use graphical-interface-software.
- **NMS-/ SNMP Control** – provides a menu and dialog-driven interface which allows controlling, modifying, and upgrading the Ellipse through SNMP commands.
- **Telnet** - supports remote control through the Internet. By that, it can be controlled and configured from a standard PC terminal (over Ethernet).



CAUTION:

Telnet access is recommended to be used by advanced users and/or Harmonic technical support personnel.

2.4. Mechanical Structure

Housed in a true 1RU slim-line chassis and featuring low power consumption, the Ellipse Series of Contribution Encoders fully integrates with the Harmonic product platform.



Figure 2-1: Ellipse Contribution Encoder – General View

2.4.1. Front Panel

The front panel allows control using: four-way touch pad, an **[Enter]** key, and an **[Esc]** key. Operational commands and parameters are displayed on a graphical LCD. The four-way touch pad allows parameter modification and menu scrolling.

The **[F1]** and **[F2]** keys are short-cut keys used to perform the following tasks:

- **[F1]** is the **Save** key, leading to the Save menu from any screen or menu in the front panel.
- **[F2]** is currently active in DSNG modules only. The key sets the Carrier and Modulation Mode parameters. For details, refer to paragraph 4.1.1.

The alphanumeric touch pad offers an easy-to-use keyboard for using parameters that require setting a number or a string of characters. The user can directly set values and strings with free-text using the alphanumeric touch pad.

For details on the touch-pad functionality and front panel components, see paragraph 4.1.1.

The front panel also contains **WARNING** and **PWR/FAIL** LEDs that operate as status indicators (see paragraph 4.1.1).



Figure 2-2: Ellipse Front View

2.4.2. Ellipse Rear Panel

The Ellipse rear panel contains all required input and output connectors for the encoder operation. The AC connector and power switch are also located on the rear panel. The different Ellipse Series modules present various rear panels, as requirements of inputs and connectors vary. The following images illustrate examples of rear panels. The related tables describe the connectors on the panel.

2.4.2.1. Ellipse 1000/1000H Rear Panel

Figure 2-3 illustrates the rear panel connectors and inputs of the Ellipse 1000 and Ellipse 1000H versions. Table 2-1 describes the connectors on the panel.

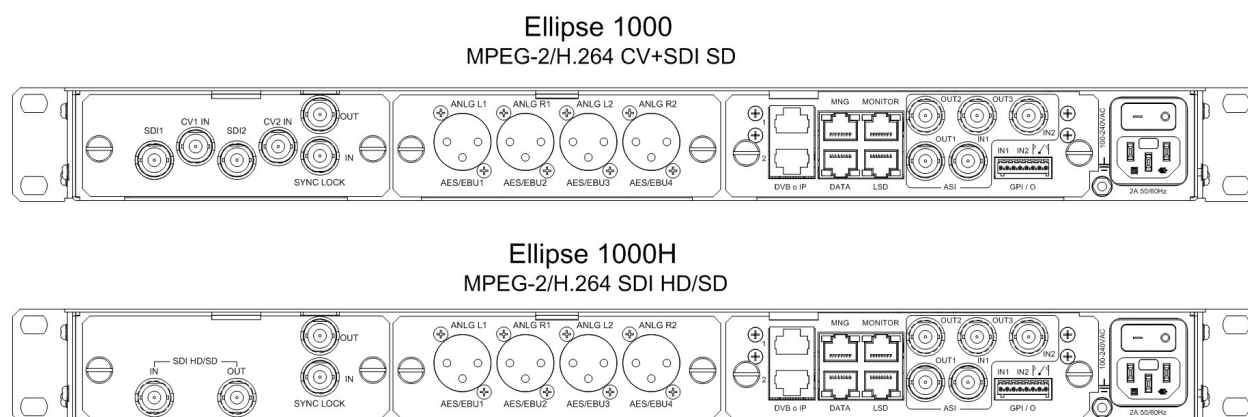


Figure 2-3: Ellipse 1000/1000H Rear Panel Options

Table 2-1: Ellipse 1000/1000H Rear Panel Connectors

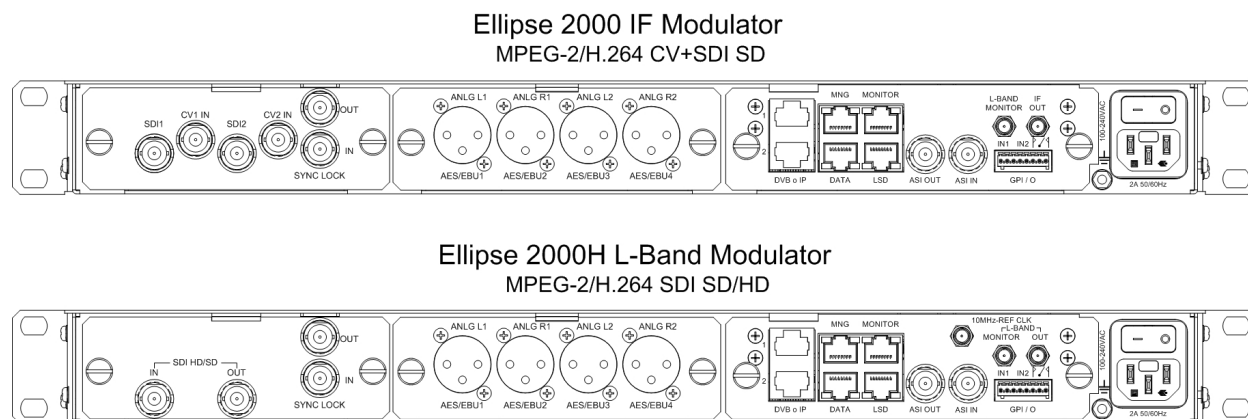
Connector	Description
SDI1-2	Ellipse 1000 Version, 2x SMPTE 259M Serial Digital Interface (SDI) inputs, MPEG-2/H.264 SD streams.
C/V1-2 IN	Ellipse 1000 Version, 2x Composite Video (C/V) inputs, MPEG-2/H.264 SD streams
SDI HD/SD IN	Ellipse 1000H Version, 1x SMPT 259M SDI Input, MPEG-2/H.264 HD/SD streams
SDI-HD/SD OUT	Ellipse 1000H Version, 1x SMPT 259M SDI loop through output, video input feed streams
SYNC LOCK IN, OUT	Front End Synchronization Clock IN: for external clock, OUT: for loop through
AES/EBU1-4	4x IEC 60958 AES/EBU 1-4 Audio inputs
ANLG L,R	2x Analog Left/Right Stereo inputs
ASI IN1	1x DVB-ASI Input stream

Table 2-1: Ellipse 1000/1000H Rear Panel Connectors

Connector	Description
ASI OUT 1-2-3	3x DVB-ASI Output streams
DVB o IP 1,2	2x GbE IP interfaces
MNG	1x RS-232 serial connector for management.
DATA	1x RS-232 serial connector for MPE interface.
MONITOR	1x External monitor connection for input video monitoring. NOTE: For advanced users and/or Harmonic technical support personnel.
LSD	1x Low Speed Data Connector
GPI/O	1x General Purpose Interface configurable Output (GPI/O) dual dry connectors for alarms.

2.4.2.2. Ellipse 2000/2000H Rear Panel

Figure 2-4 illustrates the rear panel connectors and inputs of the Ellipse 2000 and Ellipse 2000H versions. Table 2-2 describes the connectors on the panel.

**Figure 2-4: Ellipse 2000/2000H Rear Panel Options****Table 2-2: Ellipse 2000/2000H Rear Panel Connectors**

Connector	Description
SDI1-2	Ellipse 2000 Version, 2x SMPTE 259M Serial Digital Interface (SDI) inputs, MPEG-2/H.264 SD streams.
C/V1-2 IN	Ellipse 2000 Version, 2x Composite Video (C/V) inputs, MPEG-2/H.264 SD streams
SDI HD/SD IN	Ellipse 2000H Version, 1x SMPT 259M SDI Input, MPEG-2/H.264 HD/SD streams

Table 2-2: Ellipse 2000/2000H Rear Panel Connectors

Connector	Description
SDI HD/SD OUT	Ellipse 2000H Version, 1x SMPTE 259M SDI loop through output, Video input feed streams
SYNC LOCK IN, OUT	Front End Synchronization Clock IN: for external clock, OUT: for loop through
AES/EBU1-4	4x IEC 60958 AES/EBU 1-4 Audio inputs
ANLG L,R	2x Analog Left/Right Stereo inputs
AES/BU1-4	Analog Left/Right Stereo Output
ASI IN1	1x DVB-ASI Input stream
ASI OUT1	1x DVB-ASI Output stream
IF/Out, Mon	IF Modulator Version 1x IF Level Modulated connector for IF-level output. 1x L-Band Monitoring connector for L-Band monitoring signal.
L-Band/Out, Mon	L-Band Modulator Version 1x L-Band Output connector for L-band modulated. 1x L-Band Monitoring connector for L-Band monitoring signal.
10 MHz Ref. CLK	L-Band Modulator Version 1x 10 MHz reference clock for the next uplink stage (SHF converters and amplifiers).
DVB o IP 1,2	2x GbE IP interfaces
MNG	1x RS-232 serial connector for management.
DATA	1x RS-232 serial connector for MPE interface.
MONITOR	1x External console interface (RS-232) for control and monitoring. NOTE: For advanced users and/or Harmonic technical support personnel.
LSD	1x Low Speed Data (LSD) interface
GPI/O	1x General Purpose Interface configurable Output (GPI/O) dual dry connectors for alarms

2.5. Characteristics and Capabilities

2.5.1. Encoder Inputs

Feature	Capabilities
Video Analog-Pedestal	Video formats: NTSC: M, J PAL: B,G, M Input formats: C/V, SDI, SDI SD/HD (Ellipse 1000H/2000H) Interface: - Level: 1.0 Vpp - Impedance: 75Ω unbalanced
Video Resolution	Horizontal SD - MPEG-2: 720, 704, 640, 544, 528 (for NTSC only), 480, 368, 352 - H.264: 720, 640, 544, 528, 480, 352 Vertical SD: - NTSC – 480, 240 - PAL – 576, 288 High Definition (H.264): 1080ix1920, 1080ix1440, 1080ix960, 720px1280, 720px960 Interfaces: - SMPTE 259M for SD (Digital) - SMPTE 252M for HD (Digital)
Aspect Ratio	16:9 and 4:3
Audio	Input formats: Analog, AES/EBU, Embedded
DVB-ASI Input	Built-in multiplexer for encoder cascading Passive loop-through for cascading redundancy Up to 50 Mbps
Sync Clock	Black Burst (C/V) formats: PAL, NTSC Level: 1.0 Vpp Impedance: 75Ω unbalanced Interface: ITU-R 624

2.5.2. Encoder Outputs

Feature	Capabilities
ASI Outputs	Physical line rate: 270 Mbps Effective output data rate: 1-60Mbps (internal clock) Impedance: 75±2Ω unbalanced Input interface: Hot-Link
Dual GbE outputs	Dual MPEGoIP output Output rate of up to 60 Mbps 10/100/1000 Base-T Auto Negotiation UDP/RTP protocols

2.5.3. Modulator Characteristics

Feature	Capabilities
General Specifications	QPSK per DVB-S (EN 300-421) Optional 8PSK and 16 QAM per DVB-DSNG (EN 210 301) Optional DVB-S2 QPSK, 8PSK, and 16 APSK (EN 302 307) Symbol rate range - 50 Ksps to 45 Msps Constant Code Rate Modulation (CCM) mode 16 Kbit and 64 Kbit FEC blocks Pilot mode
L-Band Modulator	L-band output 950 MHz to 1,750 MHz Output power ranges from -50 dBm to -7 dBm in 1 dB steps Embedded 24 VDC at 0.4A controlled (on/off) Output 10 MHz Reference clock, controlled (on/off) L-band monitor -45 dBm at current L-band frequency
IF Modulator	IF output 70 to 140 MHz (50 to 180 MHz) Output power ranges from -35 dBm to 5 dBm – 1 dB step L-band monitor -45 dBm at IF frequency

2.5.4. Processing Capabilities

Feature	Capabilities
Video Processing	Video encoding formats: - MPEG-2 4:2:0 MP@ML - MPEG-2 4:2:2 P@ML - H.264 4:2:0 MP@level3 - H.264 4:2:0 HP@level4 - Low delay mode (available for MPEG-2) Video encoding rates: - 4:2:0 – Up to 15 Mbps - 4:2:2 – 4 Mbps to 50 Mbps (Only for MPEG-2) VBI Processing and support: - SDI & C/V Inputs: TXX, WSS, VITC, CC, VPS and TXT-Subtitling - C/V Inputs: AMOL and TV Guide
Video Test Bar	Each video input supports Broadcast Test Pattern (BAR signal emulation)
Audio Processing	Audio encoding formats: - MPEG-1 layer 2 - Dolby Digital 2.0 (AC-3) - Advanced Audio Coding - Low Complexity (MPEG-2 AAC-LC) - High Efficiency Advanced Audio Coding (MPEG-4 HE-AAC) V1, V2. Audio Encoding rates: - MPEG-1 Layer 2: 32 Kbps to 384 Kbps - Dolby Digital: 56 Kbps to 640 Kbps - MPEG-2 AAC-LC: 32 Kbps to 192 Kbps (stereo) - MPEG-4 HE-AAC: 24 Kbps to 72 Kbps AES/EBU audio: - Input impedance: $110 \pm 2\Omega$ Analog audio input: - Impedance: Balanced 600Ω / >13KΩ Selectable - Input level adjustment: 0 dBFS= -20 to +20 dBu (0.5dB steps) Quantization: 24 bit (without compression) Sample Rate Converter (SRC) Sampling rates: 32 KHz, 44.1 KHz, 48 KHz, Audio mode: L,R Mono, Mono Stereo, Single Channel, Dual Channel, Joint Stereo

Feature	Capabilities
Audio Pass-through	Audio Pass-Through modes: - Dolby-E (Bitrate range: 1.920 Mbps – 2.688 Mbps) - Linear PCM (Bitrate range: 1.920 Mbps – 2.688 Mbps) - Dolby Digital AC3 5.1 (Bitrate range: 56 Kbps – 640 Kbps)
Multiplexing	PSI/SI tables: PAT, PMT, CAT, NIT, SDT, EIT, TDT Advanced Multiplexing: Up to 8 services Encoding and multiplexing is compliant with: - ISO/IEC 13818(MPEG-2) - DVB MPEG-2 implementation guidelines (DVB 001)
Audio/Video Delay	Delay Range: ± 300 mSEC, user configurable

2.5.5. Control and Monitoring

Feature	Capabilities
Local	Front panel contains: Graphic rear-lit LCD, Easy access keys, Alphanumeric Touch Pad
Remote	Web management through IP interface External NMS communication (using SNMP), management through IP interface Telnet through a standard PC terminal (over Ethernet).
Software Upgrade	Easy-to-use FTP (file-transfer protocol) or TFTP
Dry Contact Alarms (GPI/O)	1 configurable output for statuses and faults
Configuration Setups	Up to 60 different setup configurations

2.5.6. BIT (Built In Tests)

Feature	Capabilities
Audio	Audio test tone
Video	Video test patterns: Color Bar, Blue, Black, Flicker

2.5.7. Power and Physical Specifications

Feature	Capabilities
Dimensions	1U height, 19"width / 439x44x489 mm (WxHxD)
Weight	10 lbs; 6 kg
Power	Voltage: • 90 – 260 VAC • -48 VDC (optional) Power consumption: • Ellipse 1000 – Up to 60W • Ellipse 2000 – Up to 75W (with 24V on, additional 14 W)

2.5.8. Environment

Feature	Capabilities
Temperature	Operating – 0° - 50° C Storage – -20° - 70° C
Humidity	85% on-condensing
Pressure	From -200 ft. up to 10,000 ft.

2.5.9. Compliance

Feature	Capabilities
EMC	EN55022 EN55024 FCC part 15, sub-part B class A
Safety	According to EN 60950

This chapter provides detailed instructions for installing the Ellipse Series of Contribution Encoders, for initialization and for basic configuration.

3.1. General Directives

3.1.1. Safety Precautions

To avoid injury and prevent equipment damage, observe the following safety precautions:

- Do not move or ship equipment unless it is correctly packed in its original wrapping and shipping containers.
- Only Harmonic trained personnel can undertake equipment service and maintenance.
- To prevent damage by lightning, ground the unit according to local regulations.
- Do not permit unqualified personnel to operate the unit.

3.1.2. Inventory Check

Before installation, ensure that all the equipment and the attached parts are available and undamaged, according to the following list:

Item	Quantity
Ellipse Series of Contribution Encoders	1 Unit
AC power cable (for AC-powered encoders)	1 of the following: European code cable (Euro) American code cable (U.S.) Power cable (other countries)
DC power cable (for DC-powered encoders)	1 DC cable
Ellipse User manual	1 CD
RJ-45 to DB9 converter	1 unit



CAUTION:

If anything is missing or damaged, do not continue with the installation.

3.2. Installation Instructions

This section explains the mechanical installation of a PVR-2900 unit in a standard equipment rack.

3.2.1. Power Supply to the Unit

To ensure correctly and safely operation of the unit, the following are required:

- Adding to the system a UPS (Uninterrupted Power Supply) and an AVR (Automated Voltage Regulator) is highly recommended.
- Install the main power supply by a qualified electrician, according to power authority regulations. Make sure all powering must be wired with an earth leakage, according to local regulations.
- It is recommended to install the encoder within 1.5m (approx. 5 feet) from an easily accessible grounded AC outlet.
- When the encoder is rack-mounted, ensure that the rack is correctly grounded.



DANGER:

Ensure that the rack is correctly grounded by a qualified electrician. Incorrectly grounded equipment may result in electrical shock.

3.3. Installing the Unit in a Rack

NOTES:

For rack installation, ensure that a designated 19" rack is fully prepared for installation. Ensure sufficient space behind the rack for easy access for installation and maintenance.

The following sections detail the installation of a Ellipse unit in a 19" rack using the dedicated mounting slides.

3.3.1. Installing the Brackets

To prepare the Ellipse for rack installation, perform the following:

Fasten a pair of brackets to both side rails of the rack housing by using two flat-washer screws for each side.

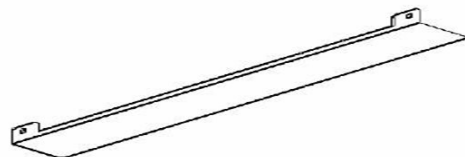
Use the two front holes at the sides of the housing to attach the bracket. (Complementing nuts are already installed on the inner side of the holes, but the four screws required are not included in the supplied kit).

Ensure proper grounding of the rack assembly to prevent potential electrical problems (See paragraph 3.5.1.1 for details on grounding the unit to a rack mount).

3.3.2. Installing the "L" Shape Slides

The Ellipse uses forced air ventilation, evacuating the air toward the left side panel (left wall) of the 19" rack. To ensure smooth airflow, special "L" shape slides are provided for rack mounting. To install the "L" shape slides, perform the following:

1. Ensure that the brackets are fastened with appropriate screws to each side of the chassis' rails.



2. Attach the “L” shape slides to the installed brackets.
3. Fasten the “L” shape slides with four screws (not included in the kit)

3.3.3. Mounting Ellipse units in the 19" Rack



DANGER: To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety.

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- If the rack will hold a number of units, 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.

ATTENTION: Pour éviter toute blessure corporelle pendant les opérations de montage ou de réparation de cette unité en casier, il convient de prendre des précautions spéciales afin de maintenir la stabilité du système. Les directives ci-dessous sont destinées à assurer la protection du personnel.

- Si cette unité constitue la seule unité montée en casier, elle doit être placée dans le bas.
- Si cette unité est montée dans un casier partiellement rempli, charger le casier de bas en haut en plaçant l'élément le plus lourd dans le bas.
- Si le casier est équipé de dispositifs stabilisateurs, installer les stabilisateurs avant de monter ou de réparer l'unité en casier.

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. Die folgenden Richtlinien sollen zur Gewährleistung Ihrer Sicherheit dienen.

- Wenn diese Einheit die einzige im Gestell ist, sollte sie unten im Gestell angebracht werden.
- Bei Anbringung dieser Einheit in einem zum Teil gefüllten Gestell ist das Gestell von unten nach oben zu laden, wobei das schwerste Bauteil unten im Gestell anzubringen ist.
- Wird das Gestell mit Stabilisierungszubehör geliefert, sind zuerst die Stabilisatoren zu installieren, bevor sie die Einheit im Gestell anbringen oder sie warten.

To mount the 19"/42U rack with the Ellipse units perform the following:

1. Verify using of appropriate brackets and L" shape slides according to 3.3.1 and 3.3.2.sections.
2. Mount the Ellipse in groups of five units (maximum) upon each pair of brackets.
3. Leave 'one-unit-space' between each group of five units.



NOTE: The maximum number of encoders per a 19"/42U rack is 35 (seven groups of five units).



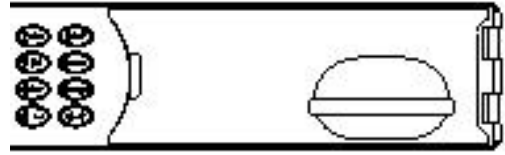
CAUTION: Ensure that a sufficient amount of airflow enters the Ellipse from the left end (from the front panel point of view)



Consider if other devices in the rack use airflow in the opposite direction.

3.4. Compact Flash Installation

The Ellipse Contribution Encoders are supplied with a Compact Flash (CF) memory card. The CF card contains an updated Ellipse software version. The CF drive is located on the right side of the front panel, behind a plastic protector.

**NOTE:**

Ensure installation of the CF card before operating the Ellipse.

**CAUTION:**

Verify that the encoder is shut down before inserting or removing the CF card. Failing to do so may result in corruption of data on the card.

1. Open the plastic protector on the right side of the Ellipse front panel.
2. Firmly insert CF card into the drive to ensure contact.

3.5. Electrical Installation



DANGER: Do not connect power to the unit until you have verified that the line voltage is correct and the correct fuses are installed. Failure to do so may result in electrical shock. If the unit is rack mounted, ensure that the unit is grounded to the rack and the rack is correctly grounded.



CAUTION: This product relies on the building's electrical installation for short-circuit (overcurrent) protection. Ensure that a fuse or circuit breaker no larger than 120 VAC, 20 A U.S. (240 VAC, 20 A international) is used on the phase conductors (all current-carrying conductors).

ATTENTION: 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., 20 A U.S. maximum (240 V alt., 20 A international) est utilisé sur les conducteurs de phase (conducteurs de charge).

WARNUNG: 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, 20 A (bzw. in den USA 120 V Wechselstrom, 20 A) an den Phasenleitern (allen stromführenden Leitern) verwendet wird.

3.5.1. Electrical Power Connections (AC or DC)

The Ellipse Contribution Encoders support either AC or DC power compatibility. Power and ground connections for each option are detailed in the following sections.

3.5.1.1. Rack Grounding Connection

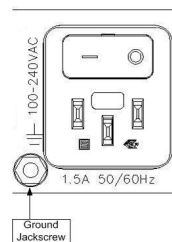
When the Ellipse is rack mounted, the unit grounding jackscrew must be connected to the rack housing, which in turn must be correctly grounded.



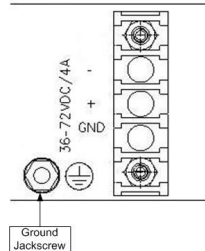
DANGER

The GROUND STUD connection to the stud on the unit rear is the first to connect and the last to disconnect.

AC Power Supply Configuration



DC Power Supply Configuration



3.5.1.2. AC Power and Ground Connections

Connecting an AC power cable to the Ellipse AC connector makes the encoder's ground connection.

3.5.1.3. DC Power and Ground Connections

The -48 DC power and ground connections to the encoder must be supplied by an external 48v DC power supply.

The external power-source connects to the contacts on the power terminal board:

- (+) 48V DC to the (+) contact.
- (-) 48V DC to the (-) contact.
- Grounding wire to the (GND) contact.



CAUTION

The DC unit should be protected with a dual pole branch circuit over-current protection rated max. 5Amp,

Unit is intended for RESTRICTED ACCESS LOCATION (otherwise, DC terminals should be guarded to make them not accessible to operator).

The DC power conductors including protective earthing conductor shall be rated min. 18AWG (0.8mm²)

3.5.2. Cable Connections

All Ellipse connectors are located on the rear panel. Connect the data, control and power cables as required for the specific installation.

3.6. Initialization and Configuration

3.6.1. Powering Up and Initialization

Prior to powering up the Ellipse, ensure that all cabling is correctly connected (see paragraph 3.5). Verify that the unit is connected to the main power supply and grounded according to the instructions and the Compact Flash card is in place and correctly installed.

Upon power-up, the user will hear the internal fan begin operation and see the front panel LCD display activated.

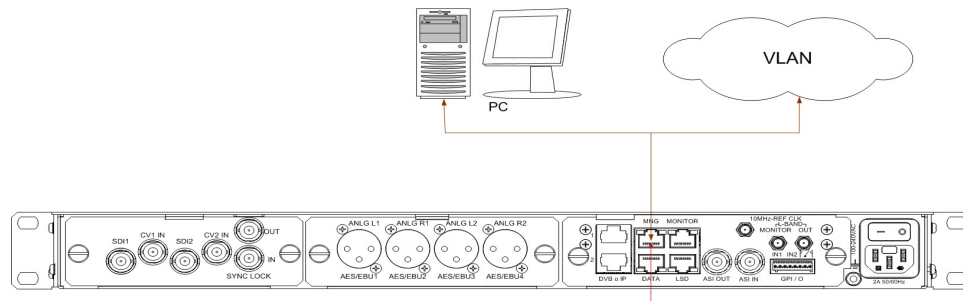
Once the Ellipse is powered up, the unit begins an automatic initialization procedure, which includes loading of the embedded system parameters. This process takes approximately 30 seconds.

To initiate work with the front panel interface, browse the menus. Paragraph 4.1 details the front-panel control interface objects and elements.

3.6.2. Web Configuration

In order to configure start initial encoder configuration of the encoder, perform the following:

1. Connect an Ethernet cable from the MNG connector on the Ellipse Rear Panel to a PC station or a VLAN connection.



2. Check the unit's IP address. To do so, access the Ethernet Port (Management) menu from the front panel **(Root→Configuration→Unit→System→Ethernet Port (Management)→IP Address**.
3. Open your web-browser on the remote PC.
4. Enter the IP Address in the address bar and press **[Enter]**.
5. The Ellipse Web Manager Initial page is displayed. Enter the User Name and Password and press **[Submit]**.

User Name	
Password	
Clear Submit	
SW Version V2.6.0.33 System Contact Help_Desk System Name Ellipse System Location Room1_Rack1	

NOTE

The default User name is 'admin'. Default password is 'ue9000'.

It is warmly recommended to change the default user name and password immediately after installing the equipment.

Once initialization is complete and the web-management is displayed, the user can set-up the encoder. For details on the web-management operation, see the *Operation and Management* sections, from Chapter 5 to and up.

The Ellipse Series of Contribution Encoders offers three control interfaces:

- Front Panel interface (see paragraph 4.1)
- Web Management interface (see paragraph 4.2)
- SNMP (for details, refer to the Ellipse SNMP Reference Guide).

This chapter details the display and controls of these interfaces. It also provides information on the modulation status report (see paragraph 4.3) and details the saving configurations function (see paragraph 4.4).

4.1. Ellipse Front Panel Control Interface

The front panel of the Ellipse provides extensive local control abilities along with convenient monitoring of statuses and operations.

The section is divided as follows:

- **Control and Displays** – Details the front-panel touchpad keys and their functions (see paragraph 4.1.1).
- **Screen Types** – Details the LCD screen's different displays (see paragraph 4.1.2).
- **Initializing the Front Panel** – Details initialization of the Ellipse unit when working with the front-panel control interface (see paragraph 4.1.3).



NOTES:

The Ellipse Front Panel features lockup and sleep modes (see paragraph 11.3.7):

Front Panel Lockup Mode enables locking the encoder from unintentional activation of the front panel.

Backup Light Sleep Mode enables power saving when the encoder is not locally operated.

4.1.1. Controls and Displays

The front panel interface allows setting the encoder parameters through the control elements, indicators, and display, located on the front panel (see **Figure 4-1**).

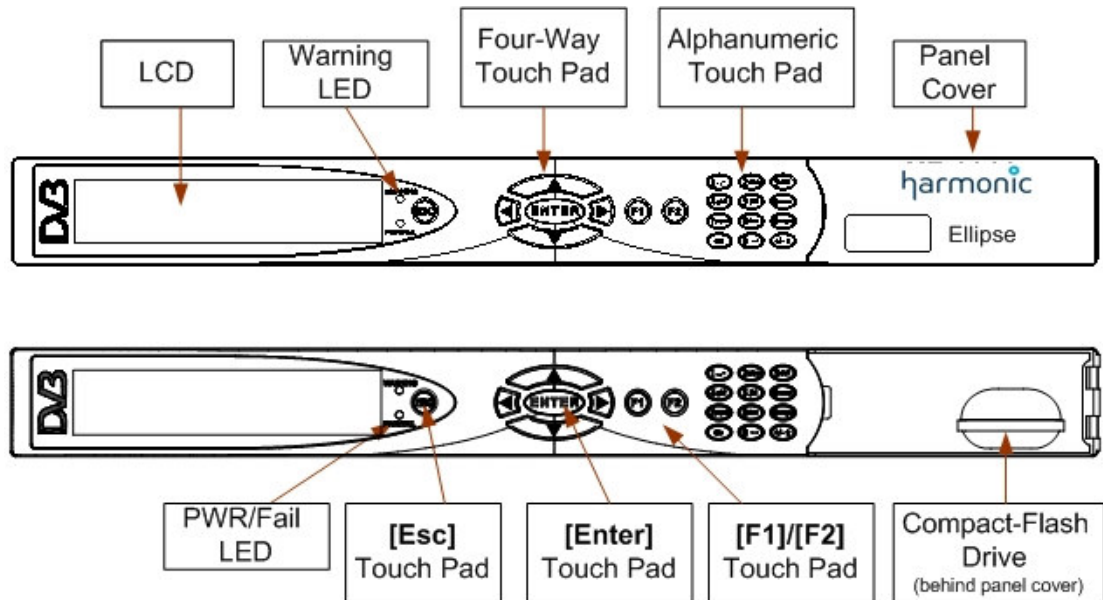


Figure 4-1: Ellipse Front Panel

The front panel contains the following display and control elements:

- **LCD (Liquid Crystal Display)** – Used for displaying enhanced menus containing various graphical elements, such as charts, radio buttons, tables, and icons. These elements create easy-to-use graphical interface.
- **Warning LED** – Lit green when the status is OK and lit orange when a warning alarm is raised. The Warning LED is used as a status LED. After configuring a parameter, this LED blinks as a reminder to save the changes.
- **PWR/FAIL LED** – Lit green when the status is OK and lit red when a critical alarm is raised. The PWR/Fail LED is used as a status LED.
- **Four-Way Touch Pad** – Includes the [Up], [Down], [Left], and [Right] arrow keys for navigating between menus, sub-menus, and within menu items. They are also used for parameter selection and setting parameter values during unit setup and configuration.
- **[Enter] Touch Pad** – Uses for selecting menu items and for confirming and setting parameter values during configuration and setup.
- **[Esc] Touch Pad** – Uses for exiting a menu or screen, returning one level up. This menu also allows: exiting an Edit screen, canceling the edit, and returning to the parameter's menu.
- **[F1] and [F2] Touch Pads** – Serve as short cut keys. The configured functions are the following:
 - **[F1] Short Cut Key ('Save' Key)** – The [F1] key is also referred to as the 'Save' Key. Pressing [F1] during configuration allows saving (confirming and setting) setup changes to the encoder.

- **[F2] Short Cut Key** – Combined with the arrow keys, this key allows configuring DSNG parameters.

NOTE:

The **[F2]** short cut key is currently used only for DSNG units for:

- * Controlling the DSNG Modulation (**Off** / **[F2]** + **[Down]** or **On** / **[F2]** + **[Left]**).
- * Controlling the DSNG Carrier (**Off** / **[F2]** + **[Right]** or **On** / **[F2]** + **[Up]**).

- **Alphanumeric Touch Pad** – Use for entering both numbers and letters, when configuring menus and parameters.

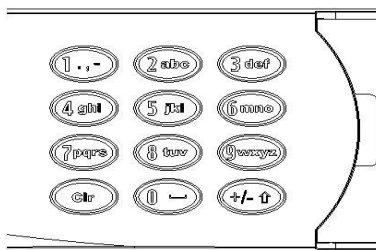


Figure 4-2: Alphanumeric Touch Pad

- **[1] To [9] Keys** – Each alphanumeric key contains four to five different characters, encompassing the entire English alphabet. Selecting a specific character located in a certain key is performed by repeatedly pressing the key until the relevant character is displayed.
- **[0 _] Key** contains two characters, zero and space.
- **[Clr] Key** is used for clearing the contents of the cursor's current position.
- **[+/- #] Key** is currently not supported.

NOTE:

A short period after a character is selected using the alphanumeric touch-pad, the cursor automatically advances to the next position on the right. Repeated presses on a single keypad insert a different character assigned to the keypad.

For example, to enter the following values perform the following:

Enter the number **314**:

1. Press **[3def]** once for **3**.
2. Press **[1,.-]** once for **1**.
3. Press **[4ghi]** once for **4**.

Enter the word **'hello'**:

1. Press **[4ghi]** three times (for **h**).
2. Press **[3def]** three times (for **e**).
3. Press **[5jkl]** four times (for **l**).
4. Wait for cursor to advance to the next position.
5. Press **[5jkl]** four times (for **l** again).
6. Press **[6mno]** four times (for **o**).

4.1.2. Screen Types

The front panel has the following five screen types:

- **Menu Navigation Screen** – A menu comprised of other menu groups categorized according to a common parameter-setting subject (such as: video, audio, unit and so on). This menu can also contain parameters. For details see paragraph 4.1.2.1.
- **Edit Menu Screen** – A parameter that allows managing configuration parameters and displays values of read-only parameters. For details, see paragraph 4.1.2.2.
- **Table Menu Screen** – Displays a table of information. Some tables are configurable, in which each entry selection directly links to further menus. For details, see paragraph 4.1.2.3.
- **Edit Value Screen** – Allows setting a parameter using the alphanumeric touch-pad. For details, see paragraph 4.1.2.4.
- **Select Value Screen** – Allows the user to select a value from a list. For details, see paragraph 4.1.2.5.



NOTE:

The front panel can display only up to four items simultaneously. When a menu or screen has more than four items, the first four are visible in the front panel and additional items can be accessed by scrolling (using the [Up] and [Down] arrows).

To illustrate the difference between the displayed items and the scrolled items, two types of screen-shots are used in this manual: dark grey (or green) for the visible four items and light grey for the scrolled items. The two screen-shot types are separated by a scroll icon ().

The following sections detail the different front panel screen types.

4.1.2.1. Menu Navigation Screen

The **Menu Navigation screen** enables navigating through the tree structure of the encoder. Although this menu may contain parameters, it is characterized by leading to other menus (see Figure 4-3).

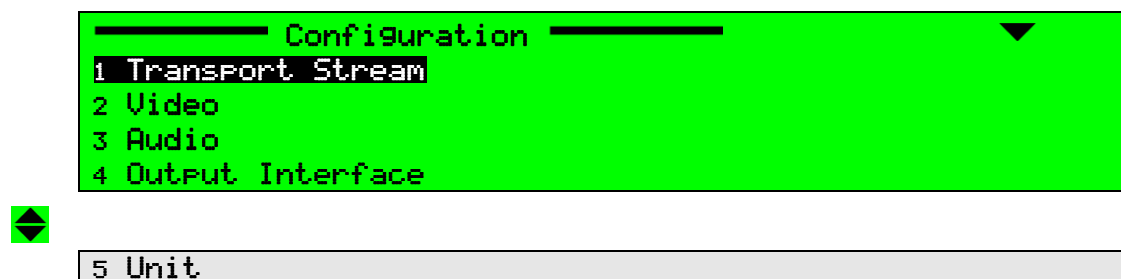


Figure 4-3: Menu Navigation Screen Example

- Top line** – Indicates the menu name (Configuration). [Up], [Up/Down], and [Down] are displayed on the top-right corner and indicate that up or down scrolling is possible.
- Next displayed lines** – A list of numbered items. The screen default display consists of up to four items simultaneously. When more than four items are enabled, the user can scroll up or down the list using the [UP] and [Down] keys.

C. Additional available items

- The currently selected option is highlighted and displayed in reverse with white characters over a black background (see Figure 4-3).
- Press **[ESC]** key to abort the selection or to return to the menu's previous level. Press **[Enter]** key to select the highlighted item.

4.1.2.2. Edit Menu Screen

The **Edit Menu screen** allows selecting, changing or view the value of a parameter, or set of parameters (see Figure 4-4).

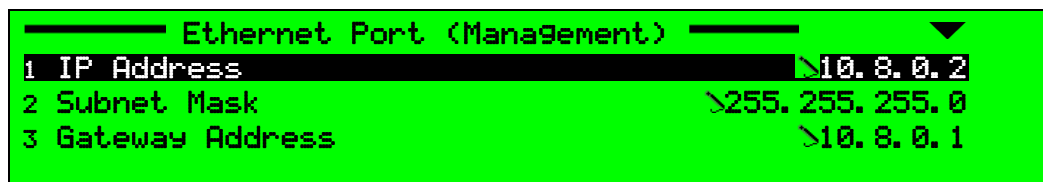


Figure 4-4: Edit Menu Screen Example

- A. Top line** – Indicates the menu name (**Stream**). **[▲Up]**, **[▼Up/Down]**, and **[▼Down]** are displayed on the top-right corner and indicate that up or down scrolling is possible.
- B. Following lines** – A list of numbered entries relevant to the menu and their current value. The information provided in each entry is:
- **Left-aligned column** displays a numbered list of parameters.
 - **Right-aligned column** displays the parameter's value.
 - Editable parameters have a pencil icon  next to them.
 - Parameters without the pencil icon are read only.

The screen default display consists of up to four entries simultaneously. When more than four entries are enabled, the user can scroll up or down the list using the **[UP]** and **[Down]** keys.

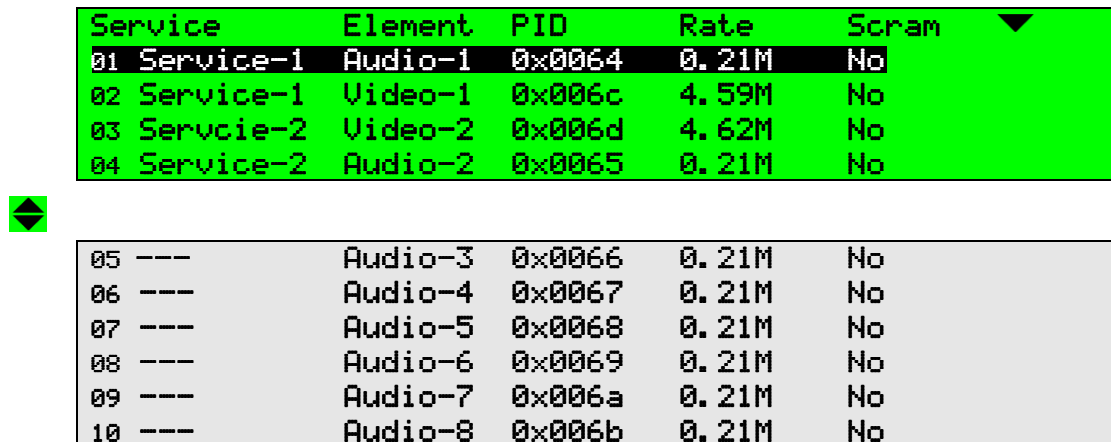
C. Additional available items

- The currently selected option is highlighted and displayed in reverse with white characters over a black background (see Figure 4-4).
- Press **[ESC]** key to abort the selection or to return to the menu's previous level.
- Press **[Enter]** key to select the highlighted editable option (editable options are marked with a pencil icon ); a parameter-editing screen is displayed. For information on the different Edit Screens, see paragraphs 4.1.2.4 - 4.1.2.5.

4.1.2.3. Table Menu Screen

The **Table Menu screen** displays information about the menu's parameters in a table format.

Configurable tables enable to select an item from a chosen table and access an Edit Menu screen for setting the entry values (see Figure 4-5).



Service	Element	PID	Rate	Scram
01 Service-1	Audio-1	0x0064	0.21M	No
02 Service-1	Video-1	0x006c	4.59M	No
03 Service-2	Video-2	0x006d	4.62M	No
04 Service-2	Audio-2	0x0065	0.21M	No
05 ---	Audio-3	0x0066	0.21M	No
06 ---	Audio-4	0x0067	0.21M	No
07 ---	Audio-5	0x0068	0.21M	No
08 ---	Audio-6	0x0069	0.21M	No
09 ---	Audio-7	0x006a	0.21M	No
10 ---	Audio-8	0x006b	0.21M	No

Figure 4-5: Table Menu Screen Example

A. Top line – Indicates the headers for each column in the table. [▲Up], [◀Up/Down], and [▼Down] are displayed on the top-right corner and indicate that up or down scrolling is possible.

B. Following lines – A numbered list of entries relevant to the table menu, is displayed with their current values. Each value is aligned under the table columns.

The screen default display consists of up to four entries simultaneously. When more than four entries are enabled, the user can scroll up or down the list using the [UP] and [Down] keys.

C. Additional available items:

- The currently selected option is highlighted and displayed in reverse with white characters over black background (see Item_#1 in Figure 4-5).
- Press [ESC] to abort the selection and return to the previous screen without changing the parameters.
- Press [Enter] to select a table item. An Edit Menu screen is displayed, in which to set the items parameter values.

4.1.2.4. Edit Value Screen

Edit Value screen - Enables setting parameter value (a number or a string of characters that can be written by using the alphanumeric touch-pad) (see Figure 4-6).

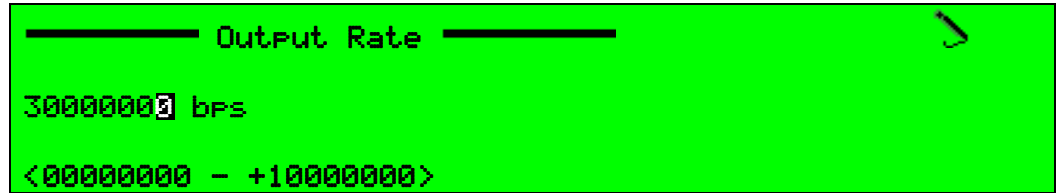


Figure 4-6: Edit Value Screen Example

- A. **Top line** – Displays the parameter name (**Output Rate**). In the top-right corner, The pencil icon  indicates that this is an Edit Value screen.
- B. **Second line** – Displays the current parameter's value. Changing the value is performed using the alphanumeric touch-pad or the arrow keys:
 - **[Left] and [Right] Keys** – Used to select a digit or character for change by highlight. The currently selected character or digit is highlighted and displayed in reverse with white characters over black background (see Figure 4-6).
 - **[Up] and [Down] Keys** – Used to scroll up or down through digits (range 0 through 9) or characters (**a-z**, **A-Z**, and **0-9**). The scroll range can be limited to prevent setting up values out of range.
- C. **Third line** – Displays the allowed parameter's values
 - **Press [ESC]** - to abort the setup and return one level up to the Edit Menu Screen without changing the parameters.
 - **Press [Enter]** - to accept the value. The display returns up one level to the Edit Menu Screen and the new value is displayed as the parameter's values.

NOTES



In the bottom line, The Edit Value screen displays the range of values. The user can set parameters outside of that range, but cannot submit them with [Enter].

Once setting parameter's value, the user must save the changes within 60 seconds or the new configuration is lost. For details on saving the changes, see paragraph 4.3.

4.1.2.5. Select Value Screen

The **Select Value screen** displays a list of values and enables selecting one of the parameter's new values (see Figure 4-7).

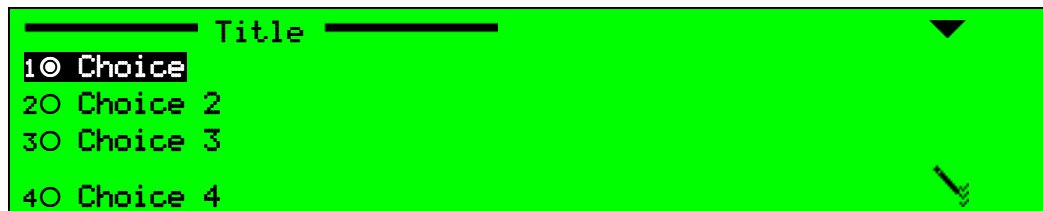


Figure 4-7: Select Value Screen Example

- A. Top line** – Displays the parameter name (**Title**). In the bottom-right corner, The pencil icon  indicates that the items are selectable from a list of displayed options. , , and  are displayed in the top-right corner and indicate that up or down scrolling is possible.
- B. Next up to four displayed lines** – A numbered list of options relevant to the parameter. A radio button indicates which option is currently activated (● = currently active, ○ = currently inactive)
- C. Additional available items** – The list can include more than four items, but only four items are visible simultaneously. When more than four items exist, the user can scroll up or down the list using the **[UP]** and **[Down]** keys.

The currently selected option is highlighted and displayed in reverse with white characters over black background (see Figure 4-7).

Press **[ESC]** to abort setup and return one level up to the parameter's Edit Menu screen without changing the parameters.

Press **[Enter]** to select the pointed option (the selected option becomes active ● and the previously-active option is de-activated ○). The display returns one level up to the Edit Menu screen; the new option is displayed as the current parameter option.



NOTE

Once setting the parameter's value, the user must save the changes within 60 seconds or the new configuration is lost. For details on saving the changes, see paragraph 4.3.

4.1.3. Initializing the Front Panel

When the encoder is powered up an initialization screen is displayed within its progress process. When initialization successfully completes, the status LEDs are lit green and the **idle screen** is displayed. The following screen is from DSNG encoder models:

```

      ✓Status OK
      Click Enter for menu
      U1: Rate 4.620 Res F720
      Modulation: * Carrier*
      Symbol Rate: 10000000 sps
      Frequency: 10000000 KHz
  
```

NOTE



The **✓Status OK** message is displayed in the idle screen.

Whenever an alarm is raised, the idle screen displays an Alarm Active message.

Press **[Enter]**. The Ellipse Root menu is displayed.

- The following image displays the root menu of the Ellipse 1000/H units:

```

      Root
      1 Preset
      2 Configuration
      3 Status
  
```

- The following image displays the root menu of a unit with DSNG and modulation support (for Ellipse 2000/H units):

```

      Root
      1 Preset
      2 Modulation and Up-Converter
      3 Configuration
      4 Status
  
```

The Root menu contains the four main menus of the encoder, through which the user can configure and monitor every action of the device. For details on the front panel operation, see the detailed description of each function in Chapter 5 and on.

4.2. Ellipse Web Management Control Interface

The Ellipse Web Management interface allows controlling, configuring, and monitoring of the Encoder through a remote computer, using a standard web browser. (See Figure 4-8).

The screenshot displays the DiviCom Ellipse 2000H Web Manager interface. The top header features the 'harmonic' logo on the left and 'DiviCom Ellipse 2000H' on the right. A left-hand navigation menu includes links for Status, DSNG, Transport, Video, Audio, Physical Output, Inputs, Unit, Preset, and LogOut. The 'Video' menu is currently selected. The main content area shows configuration options for 'SD1-HD1'. Under the 'Transport' section, there are dropdown menus for 'Video Standard' (set to SD-487i60Hz), 'Video Test Pattern' (set to None), and 'Aspect Ratio' (set to 4:3). Under the 'Video' section, there is a 'VBI' subsection with a 'PID' field (set to 768) and an 'Activation' dropdown (set to Disabled). Below these fields are links for 'VBI Lines' and 'Teletext Subtitling'. At the bottom of the interface, there are three buttons: 'Refresh', 'Save changes', and 'Drop changes'.

Figure 4-8: Web Manager Window – General View

NOTE



The Web Manager is best viewed by Internet Explorer 6.0 or higher. Using other browsers such as FireFox, may cause improper display of data.

4.2.1. Controls and Displays

Web manager is divided into menus and submenus. On Explorer window, each menu's sub-menu displays a list of parameters related to the menu. For additional parameters, such as advanced configuration parameters, another parameter-section is displayed in the Explorer window (see example in Figure 4-8).

4.2.1.1. Display Elements

The Web Manager is divided into display sections for easy orientation and to enable user-friendly control interface. The following paragraphs detail the various sections.

Figure 4-9: Web Manager – Display Elements

1. MENU AND SUB-MENU TABS

The tabs surround the Explorer window section (see the following paragraph). The menu tabs are displayed at all times. The sub-menu tabs are dynamic and change according to the selected menu (for more information, see paragraph 4.2.1.2.).

2. EXPLORER WINDOW

Each sub-menu has a specific Explorer window, displaying information related to the sub-menu. The Explorer window is the main display element of the web-management. The Explorer window can hold other menus (accessed through a list of hyperlinks) or a parameter sections (some Explorer windows hold both).

The following figures show the different Explorer-window displays:

- **Sub-Menus Hyperlinks:**

The sub-menu hyperlinks are ordered in a list within the Explorer-window section. The list is framed by a light-blue line.

Figure 4-10: Web Manager – Sub-Menu Hiperlinks

- **Parameter Sections Display:**

The parameters are listed in the Explorer-window section. The list of parameters is framed with a light blue line. If there is more than one parameter group, the groups are listed in different frames. Each frame is titled according to its parameters group.

Analog Interface	
Luminance Gain [0,255]	128
Luminance Offset [0,255]	128
Chroma Gain [0,255]	128
Chroma Phase [0,255]	128
Video Decoder Mode	TV
NTSC Setup	On
Color Coring	Disable
Y/C Delay	No Delay

Figure 4-11: Web Manager – Sub-Menu Parameters Display

- **Dynamic Sub-Menu and Parameter Section Displays:**

The available sub-menus are listed on the left side of the Explorer window (these lists are usually dynamic and may allow adding and dropping entries from the list).

When selecting a hyperlink from the list, the hyperlink is highlighted and its related parameter sections are displayed on the right side of the Explorer window.

All three: hyperlink-lists, parameters-lists and groups are framed with a light blue line.

Status
GENERAL SERVICES ASI M-MPTS SI TABLES DPI
DSNG
Transport
Video
Audio
Physical Output
Inputs
Unit
Preset
LogOut

first_service Drop
second_service Drop
Add new

Refresh Save changes Drop changes

Figure 4-12: Web manager – Dynamic Displays



NOTE

For more information about the Explorer window control elements, see paragraph 4.2.1.2.

3. STATUS MENU

The Status menu, located under the **'Status'** tab, displays a read-only yellow table. The table details information regarding the various services encoded by the unit, active alarms, DSNG static information, and so on (see Figure 4-13. For detailed information about the Status menu, see paragraph 5.4).

Status	Services and PIDs					
DSNG	Service	Input	PID	Rate	Res/Scheme	Scrambling
	first_service	SDI1-Eng-1M2	512	0	F720	NO
	first_service	AUD1	4112	0.21	MPEG-1 Layer 2	NO
Transport	second_service	SDI1-Eng-2H4	513	0	F720	NO
	second_service	AUD2	4113	0.21	MPEG-1 Layer 2	NO
Video	DSNG					
Audio	Carrier				off	
	Modulation				off	
	Symbol rate				4000000	
Physical Output	IF Freq				70000	
Inputs						
Unit						
Preset						
LogOut						
			Refresh	Save changes	Drop changes	

Figure 4-13: Web manager – Status Menu

4. 'SAVE' BAR

At the bottom of the screen and below the Explorer window, there is a dark blue bar with three buttons. These buttons allowing save or dropping changes. The bar is displayed at all times (see Figure 4-14. For specific information about the buttons, see paragraph 4.2.1.2).

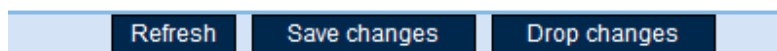


Figure 4-14: Web Manager – 'Save' Bar

4.2.1.2. Control Elements

The different display sections use different control elements to navigate, view, and manage the Ellipse configuration (see example in Figure 4-15).

The screenshot displays the Ellipse Web Management Control Interface. On the left is a vertical sidebar with menu tabs: Status, DSNG, Transport, Video, Audio, Physical Output, Inputs, Unit, Preset, and LogOut. The 'Video' tab is selected and highlighted in dark blue. The main content area shows the 'Video' configuration page. At the top, there are sub-menu tabs: SDI1, SDI2, CV1, and CV2. The 'CV1' tab is selected. The configuration options are organized into two columns. The left column includes 'Video Standard' (set to PAL), 'Video Test Pattern' (set to None), 'Aspect Ratio' (set to 4:3), 'VBI' (with a sub-link 'VBI Lines'), 'PID' (set to 770), and 'Activation' (set to Disabled). The right column, titled 'Analog Interface', includes 'Luminance Gain' (128), 'Luminance Offset' (128), 'Chroma Gain' (128), 'Chroma Phase' (128), 'Video Decoder Mode' (set to TV), 'NTSC Setup' (set to On), 'Color Coring' (set to Disable), and 'Y/C Delay' (set to No Delay). At the bottom of the main content area are three buttons: Refresh, Save changes, and Drop changes.

Figure 4-15: Web Management – Control Elements

1. MAIN MENU TABS

The main-menu tabs are blue tabs allowing the user to select one of the main menus in the encoder (such as video, audio, unit, and so on).

The main-menu tabs are listed on the left-side of the Explorer-window section. A selected main-menu tab changes from blue to dark blue.

2. SUB MENU TABS

The sub-menu tabs are blue tabs allowing the user to select specific sub-menus available in the selected menu.

The sub-menu tabs are aligned above the Explorer-window section. A selected sub-menu tab changes its color from blue to darker-blue.

3. SUB MENU HYPERLINKS

Some sub-menus contain other sub-menus. These are usually available in case of identical sub-menus with different options.

For example, the '**Video**' menu holds the '**Video Input**' and the '**Video Engine**' configuration brunch menus. Therefore, the web displays hyperlink lists that lead to the relevant parameters and configurations.

Hyperlinks are also used to manage dynamic lists, such as encoded services. The hyperlinks allow adding new encoded service to the service list.

In such cases, the hyperlink does not lead to a new parameter-Explorer window but displays the parameter sections in the same Explorer window (see Figure 4-16).

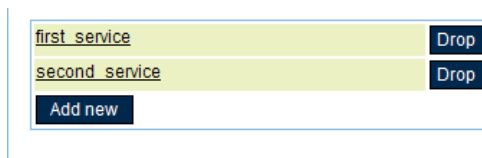


Figure 4-16: Dynamic Hyperlink

4. EDIT VALUE PARAMETER

The parameter sections in the Explorer window display lists of editable parameters, available for user configuration. The edit-value parameters provides a free text field for typing the required value (from within a given range).

The edit-value parameter is divided into two sections:

- **Left Side** - Displays the parameter name. Measured units are specified within brackets ([]) and the available range is specified in light blue.
- **Right Side** - A free-text field. To edit the text, the user must click the field once for the cursor to appear, then the user can type the requested value.



Figure 4-17: Edit-Value Parameter



NOTE

For the new value to take affect, the user must type **[Enter]** after inserting the new value.

5. SELECT VALUE PARAMETER

The parameter sections in the Explorer window display lists of editable parameters, available for user-configuration. The select-value parameters display a drop-down list of available values.

The select-value parameter is divided into two sections:

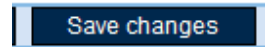
- **Left Side** - Displays the parameter name
- **Right Side** – A select-value field displaying the currently-selected value. Clicking the downward-arrow at the right-end of the field displays all available values.



Figure 4-18: Select-Value Parameter

6. SAVE CHANGES BUTTON

The 'Save' bar contains the 'Save Changes' button. Clicking this button saves all performed changes to the unit settings. This button is available at all times.



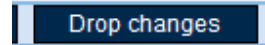
NOTE



To save the changes to the configuration file, the user must save the configuration setup through the Preset menu (see paragraph 5.2).

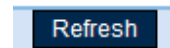
7. DROP CHANGES BUTTON

The 'Save' bar holds the 'Drop Changes' button. Clicking this button cancels all unsaved changes to the unit settings. This button is available at all times.



8. REFRESH BUTTON

The 'Save' bar holds the 'Refresh' button. Clicking this button refreshes the web page. This is useful for updating changes that were configured in the front panel. This button is available at all times.



4.2.2. Initializing Web Management

To access the web management control interface the user must enter the unit IP address in the web-browser's address-field.

Viewing and setting the unit IP address is performed through the **Ethernet Port (Management)** menu in the Ellipse Front Panel (**Root→Configuration→Unit→System→Ethernet Port (Management)**). see paragraph 4.2.2.1).

Once the IP address is set, the user can access web-management control interface (see paragraph 4.2.2.2).

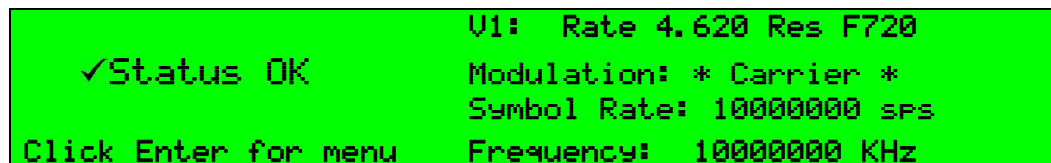
NOTE



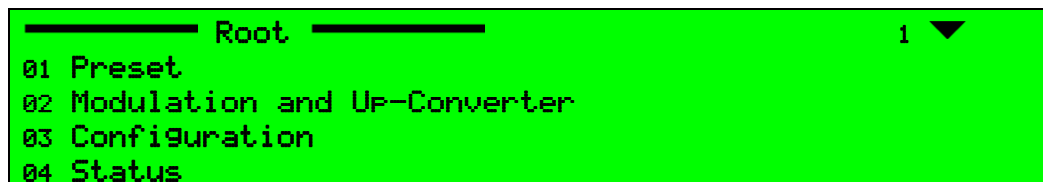
When powering up the device, the Ethernet Management port addresses display default values. Harmonic strongly recommends the user to change these default parameters as soon as possible, to prevent information or security problems.

4.2.2.1. Configuring the Ethernet Parameters

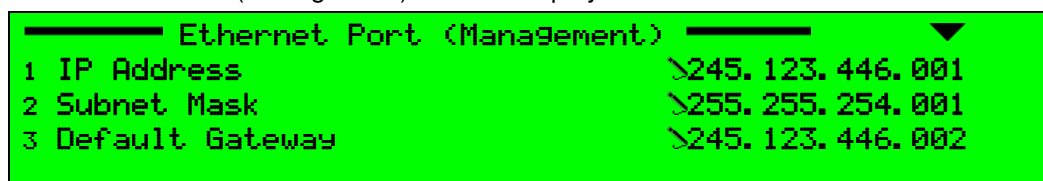
1. Power up the Ellipse, and Wait for the LCD screen to display the initialization screen.



2. Press **[Enter]** on the front panel's touch-pad. The Front Panel Root menu is displayed.



3. Using the  [Up],  [Down], and [Enter] keys, go to **Root→Configuration→Unit→System→Ethernet Port (Management)**. The Ethernet Port (Management) menu is displayed.



4. Set the IP Address, Subnet Mask, and Default Gateway parameter values. For information about setting values on the front panel, see paragraph 4.1.2.4.

For details about the Ethernet Management Port menu, see paragraph 11.3.4.

4.2.2.2. Accessing the Web-Management

Once the IP definitions are set according to the network, the user can access the Ellipse Web Management interface by performing the following:

1. Launch the web browser.
2. In the **Address** field, enter the Ellipse IP Address, in the following format: <http://xxx.xxx.xxx.xxx> (where xxx.xxx.xxx.xxx is the IP address of the Management port). Once the web-management is displayed, the address changes to <http://xxx.xxx.xxx.xxx/home.asp>.
3. Enter your user name and password in the access box. Press Submit to confirm or Clear to start over.

SW Version	V2.6.0.33
System Contact	Help_Desk
System Name	Ellipse
System Location	Room1_Rack1

NOTE

The default User name is 'admin'. Default password is 'ue9000'.

It is warmly recommended to change the default user name and password immediately after installing the equipment.

Once initialization is complete and the web-management is displayed, the user can set-up the system. For details on the web-management operation, see the *Operation and Management* sections, from Chapter 5 to and up.

NOTE

When accessed from remote using the web, there is a print: "remote http connection". If there are several simultaneously http connections, there is a print: "multiple http connection".

4.3. Modulator Status

The Modulator Status display reports the current rate and operation mode of important modulator parameters. It displays the configured Modulation and Carrier operation mode (on or off) as well as the Symbol Rate and TX Frequency rates. It is possible to view the Modulator Status menu in the front panel, of the idle screen (see the following example for L-Band Modulator information, last three lines that are bolded).

```

      U1: Rate 4.620 Res F720
      U2: Rate 4.620 Res F720
      Modulation: * Carrier*
      Symbol Rate: 10000000 sps
      Tx Frequency: 10000000 KHz
  
```

✓Status OK

Click Enter for menu

NOTES



Although a DSNG unit can be equipped with either an IF modulator or an L-Band modulator, the information in the idle screen is generic and the parameters do not change; the only difference is in the values and ranges.

For an IF Modulator, the screen specifies the IF Frequency value instead of TX Frequency value, given for L-Band Modulator.

To view the Modulator Status in the Web Manager, see the Status section for **DSNG** (see Figure 4-19 for L-Band modulator status and Figure 4-20 for IF modulator status).

DSNG	
Carrier	on
Modulation	off
Symbol rate	10000000
Tx. Freq	-950000

Figure 4-19: L-Band Modulator Status Display

DSNG	
Carrier	on
Modulation	off
Symbol rate	10139361
IF Freq	140000000

Figure 4-20: IF Modulator Status Display

4.4. Saving Configuration

Whether it's entering new parameters through the front panel or submitting them through the web, many Ellipse configuration procedures require saving.

Encoder configuration changes can be saved within 60 seconds after the most recent change. During these 60 seconds, the Ellipse control interfaces remind the user to save with a blinking LED (the Warning LED) on the front panel and a shifting background for the Save and Drop buttons in the web-management.

NOTES



When configuring the encoder from the front panel, the warning LED blinks green for 60 seconds and if the changes are not saved within this time, they are automatically dropped, the LED stops blinking and the encoder resets the changed parameters to their last-saved value. If the user sets another parameter within this time, the count is reset and starts again.

However, in the web-management, the changes will sustain until the user either saves or drops them.

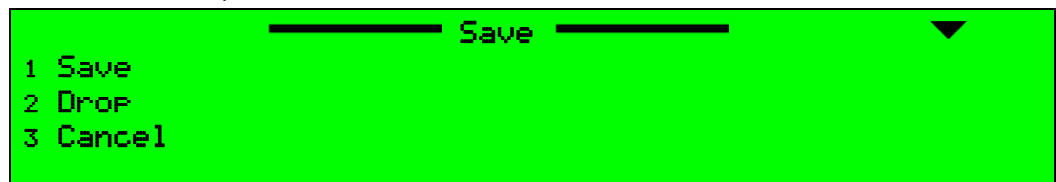
The Refresh button (to the right of the Save Changes button) allows refreshing all parameter values. This is useful for when new configuration setting has been set and saved through the front panel.

For more details about saving procedures in the different control interfaces, see:

- Paragraph 4.4.1 – Front Panel Save Menu
- Paragraph 4.4.2 – Web Manager Saving Procedure

4.4.1. Front Panel Save Menu

The **Save menu** allows saving recent configuration. To access the front panel Save menu, press **[F1]** on the touch-pad. The **[F1]** key serves as a direct shortcut to the Save menu from any screen on the front panel interface.



The available options are:

- **Save** – Sets the recently made configuration change (or changes). This option sets the Ellipse to act according to the new configured values. Once Save is completed, the Ellipse returns to the initial idle screen.
- **Drop** – Discards recent configuration changes that were not saved. Once Drop is complete, the Ellipse returns to the initial Idle screen.
- **Cancel** – Returns to the previous menu or screen without saving recent changes or discarding them. The Warning LED will still blink for another 60 seconds. This option is similar to pressing **[Esc]** from the menu.

4.4.2. Web Manager Save Procedure

Saving configurations in the Web Manager differs from the equivalent procedure in the front panel. Saving is performed with the **[Save Changes]** and **[Drop Changes]** buttons on the bottom part of the Explorer window (see Figure 4-21).

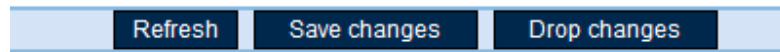


Figure 4-21: "Save Changes" and "Drop Changes" Buttons

Submitting a configuration takes immediate affect in the web-management menus but will only occur in the encoder's operation after saving the new settings.

For example, changing the Audio Encoding Scheme from MPEG-1 Layer 2 to Dolby will display the Dolby sub-menus and specific parameters in the Explorer window. But the encoding will affect the audio encoding only after clicking the **[Save Changes]** button.

The **[Drop Changes]** button cancels recent configuration changes, returning the changed parameters to their last-saved value. A pop-up message confirms that the changes have been dropped.

This chapter details the operation and management of the Ellipse Series of Contribution Encoders, using its front panel and web-management control interfaces.

The Ellipse front panel control interface provides access to all encoder control parameters, while the web-management interface allows easy access to the same parameters from a remote computer. Therefore, these two interfaces are intertwined in the description provided by this manual.

5.1. Ellipse Root Menu

All encoder parameters are organized within navigation menus, sub-menus, and edit menus, categorized according to parameters type and affected interfaces. The Root menu is a general name for the initial screen enabling access to all other menus.

- The **Front Panel** "Root menu" is the first menu after the initial idle screen, and allows access to the front panel main menus (see details in paragraph 5.1.1).
- The **Web-Management** "Root menu" is the main screen, a working space displaying all menu tabs and their parameters and settings in the Explorer window (see details in paragraph 5.1.2).

5.1.1. Front Panel Root Menu

The front panel menu tree begins with the Root menu, which is a menu-navigation screen that leads to the three main basic menus; **Preset**, **Configuration** and **Status**.

NOTE



Ellipse 2000/2000H DSNG Encoders feature an additional Root Level menu for DSNG management. The menu options changes according to the modulator type:

- * **Modulator and Up Conversion** sub-menu; for configuring the L-Band modulator and up-converter.
- * **IF Modulator** sub-menu option; for configuring the IF modulator.

The following figure us a Root menu example, as displayed on the encoder front panel (for a DSNG Encoder with an IF modulator):



The available menus are:

- **Preset Menu** – Allows the user to load, save, delete, and rename setup parameters as a preset file (see paragraph 5.2).
- **IF Modulator** – Allows the user to set the IF modulator configuration (see Chapter 12).
- **Configuration Menu** – Allows the user to set the unit parameters (see paragraph 5.3).
- **Status Menu** – Allows the user to monitor the encoder operation, (see paragraph 5.4).

Figure 5-1 illustrates the front panel tree structure from the Root menu.

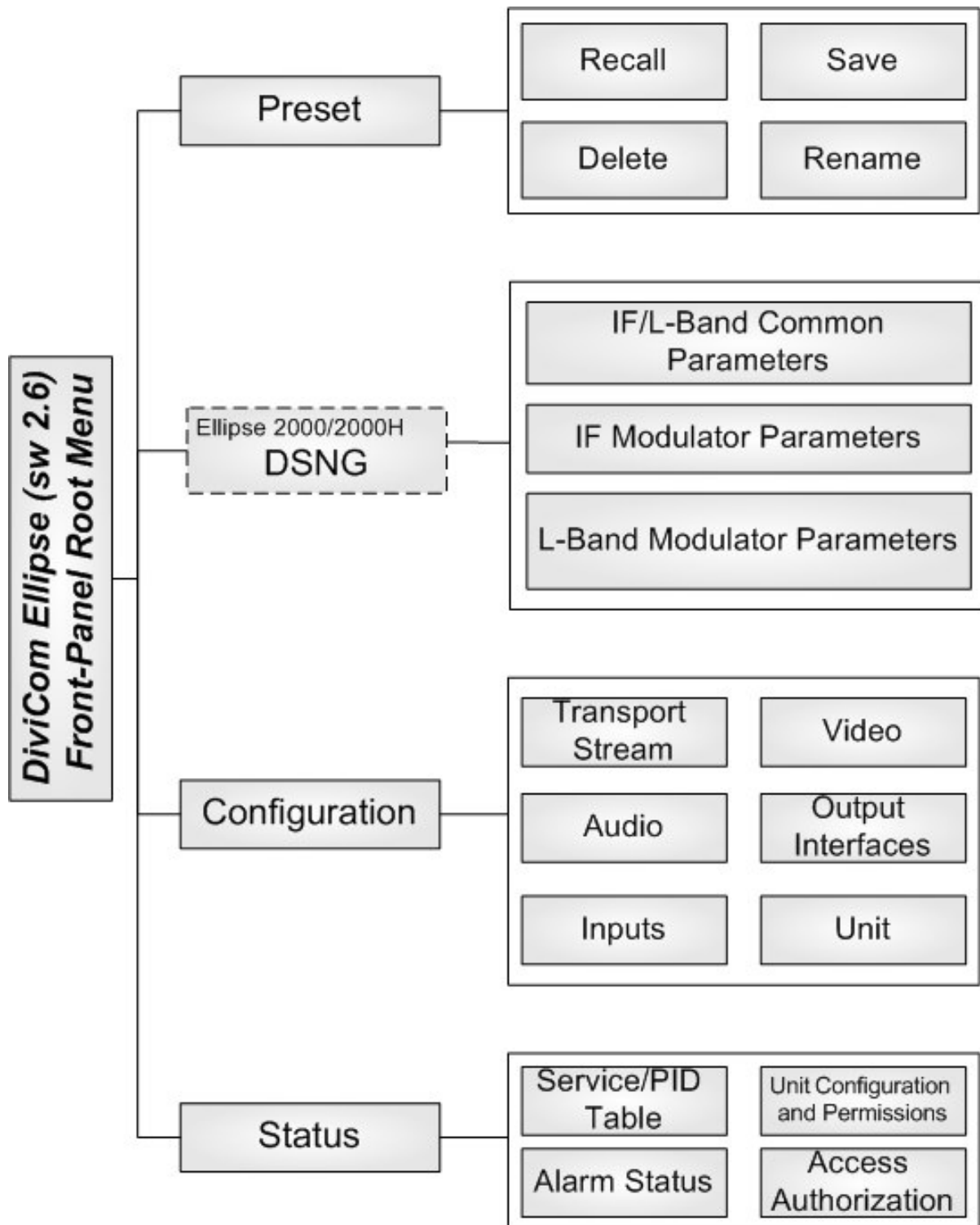


Figure 5-1: Ellipse Front Panel Root Menu Tree

5.1.2. Web Manager Main Screen

The Web Manager Main screen is the work space of the web-management user. It displays the Explorer window section, around which is the menu tabs and sub-menu tabs of the encoder (see Figure 5-2).

The screenshot displays the Web Manager Main Screen. On the left is a vertical menu with tabs: Status, DSNG, Transport, Video, Audio (selected), Physical Output, Inputs, Unit, Preset, and LogOut. At the top of the main area are sub-menu tabs: AUD1 (selected), AUD2, AUD3, and AUD4. The main content area is divided into two sections. The left section, titled 'General', contains parameters for Coding Scheme (MPEG-1 Layer 2), Source (Digital), Test (Off), Volume (0), Max Input Level [dBu] (0), and Impedance (600 Ohm). The right section, titled 'MPEG-1 Layer 2 Params', contains parameters for Encoding Mode (Stereo), Sample Rate (48 KHz), Output Rate (192 Kbps), AV Delay [mSec] (0), Error Protection (Off), Original mark (Off), Copyright mark (Off), Digital de-emphasis (Auto), and User Bit (Ignore). At the bottom of the main area are three buttons: Refresh, Save changes, and Drop changes.

Figure 5-2: Web Manager – Main Menu Example

The tabs aligned to the left of the Explorer window (status, transport, video, and so on) are the menu tabs, displaying all main menus of the encoder (see paragraph 5.4).

The tabs arrayed at the top of the Explorer window (aud1, aud2, and so on) are the sub-menu tabs. These tabs are displayed specifically according to the selected menu tab (for example, Audio menu tabs has the Aud1, Aud2, Aud3, and Aud4 sub-tabs). Selecting a sub-tab displays its general parameters and other available parameter sections in the Explorer window (see details in paragraph 5.2 and 5.3).

Figure 5-3 illustrates the Root Menu of the Web Manager. The figure is divided into different sections, displaying the main and sub-menus of the Configuration section as well as the informative tables in the Status section.



NOTES

The DSNG menu is available only when the encoder is equipped with a modulator card (Ellipse 2000/2000H encoders).

The amount of video and audio channels is set according to the encoder licenses and capabilities.

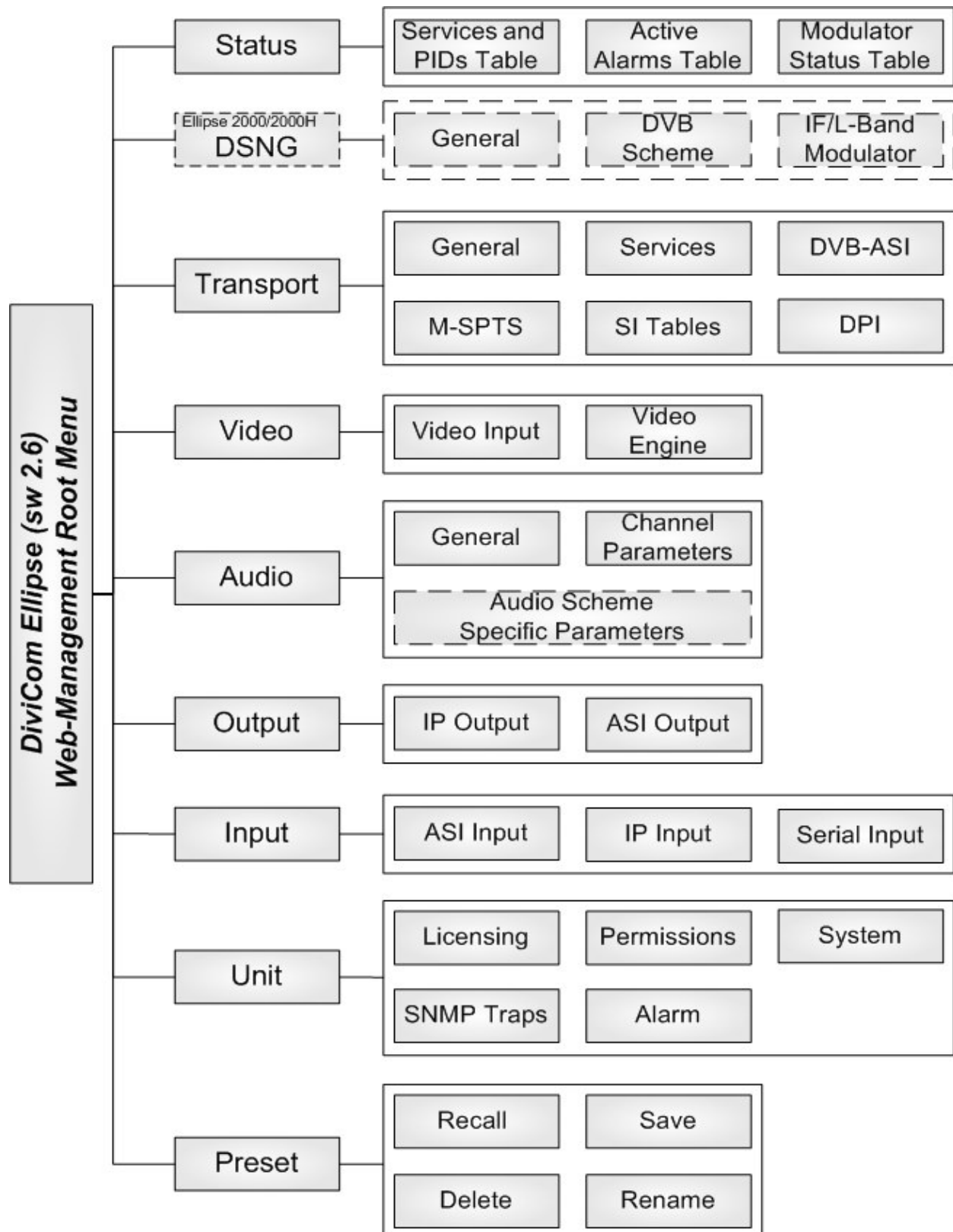
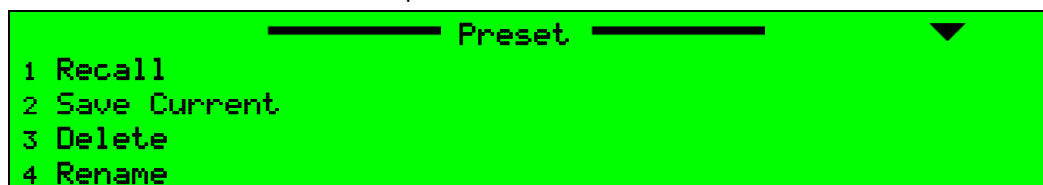


Figure 5-3: Web Manager Main Menu Tree Structure

5.2. Preset Menu

The **Preset menu** allows the user to save, load, delete, and rename the Ellipse preset files containing the setup parameters.

To access the Preset menu in the front panel, select **Root→Preset**.



The Preset menu contains the following menus (see tree structure in Figure 5-4):

- **Recall Menu** – Allows loading a preset file (see paragraph 5.2.1).
- **Save Current Menu** – Allows saving the current preset as a new preset file or override an existing file (see paragraph 5.2.2).
- **Delete Menu** – Allows deleting a preset file from the file list (see paragraph 5.2.3).
- **Rename Menu** – Allows changing the name of an existing file (see paragraph 5.2.4).

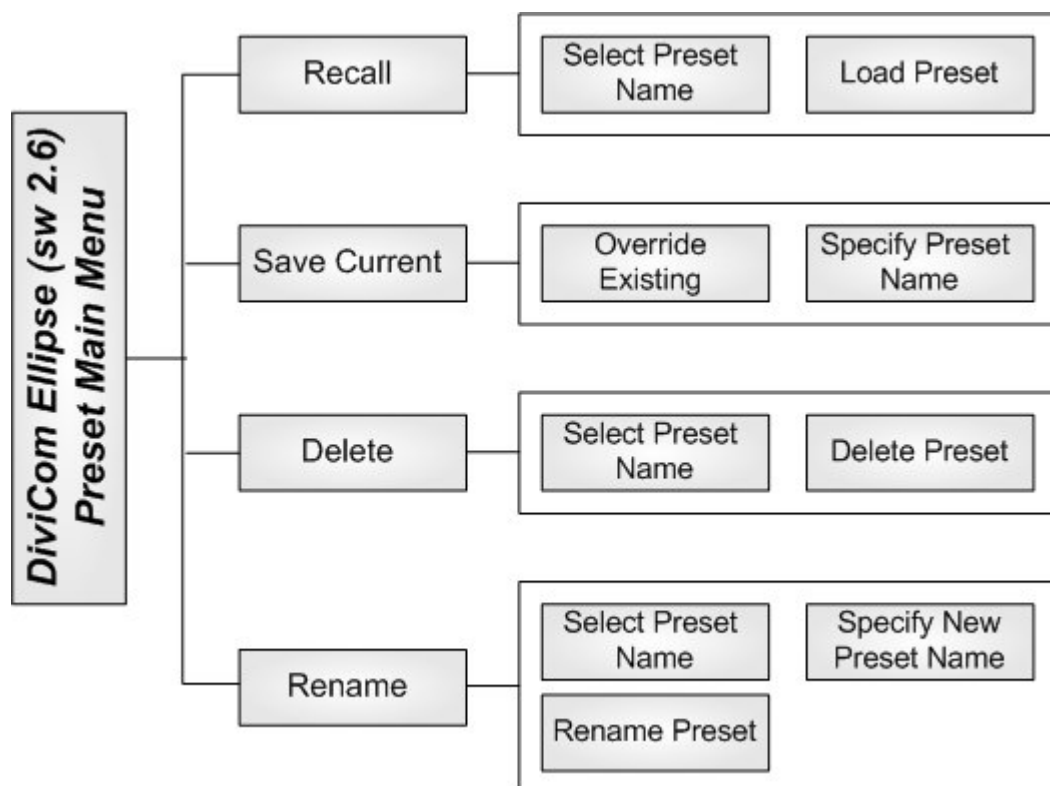


Figure 5-4: Preset Menu Tree

To access the Preset menu in the Web Manager, select the **Preset** tab.

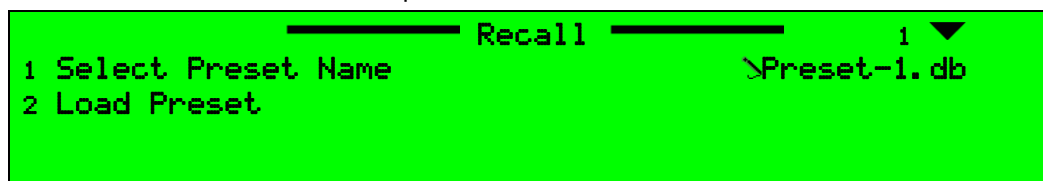
5.2.1. Recall Menu

The **Recall menu** allows saving preset file with its pre-saved setup parameters.

The Recall Preset menu contains the following menus:

- **Select Preset Name** – Allows selecting a preset file to load (see paragraph 5.2.1.1).
- **Load Preset** – Allows loading the selected preset file (see paragraph 5.2.1.2).

To access the Recall menu in the front panel select **Root→Preset→Recall**.



To access the Recall menu in the Web Manager, select tabs **Preset→Recall** (see Figure 5-5).

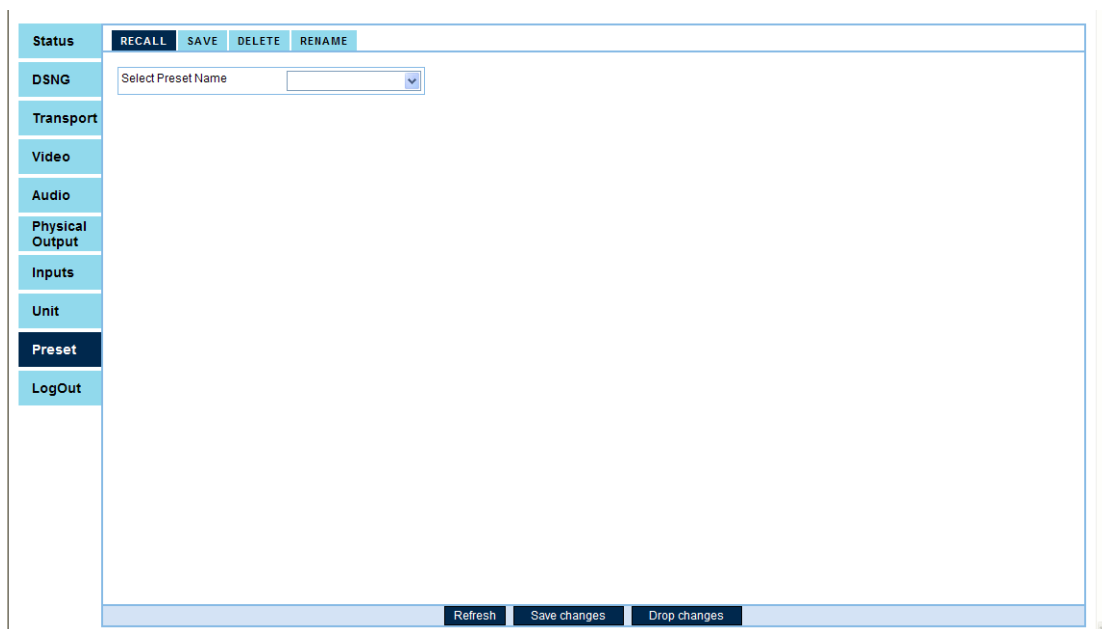
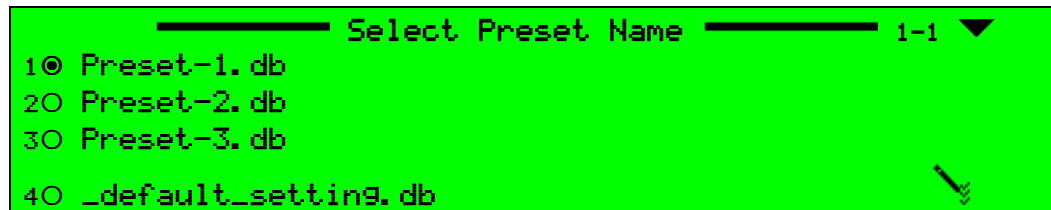


Figure 5-5: Recall Preset Menu Display

5.2.1.1. Select Preset Name (recall)

The **Select Preset Name** parameter allows selecting a preset file to load. This option displays a list of saved preset files, including the factory-default preset.

To set the Select Preset Name option, in the front panel select **Root→Preset→Recall→Select Preset Name**.



The available options are the saved preset files listed with the factory-default preset file.

To set the Select Preset Name parameter in the Web Manager, select tabs **Preset→Recall**.

5.2.1.2. Load Preset (recall)

The **Load Preset** option allows loading the selected preset file. This option executes the Load command, not leading to a new screen.

After executing the load command, the device automatically resets itself to activate the new loaded configuration file. The screen displays a “unit initializing” notice with a status bar, showing the initialization progress status.

To set the Load Preset option, in the front panel select **Root→Preset→ Recall→Load Preset**.

To activate the Recall option in the Web Manager, click **[Enter]** to approve the selection.

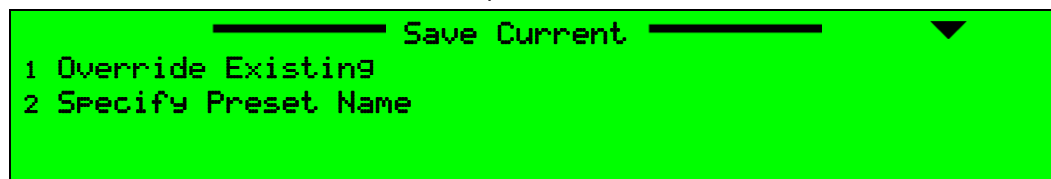
5.2.2. Save Current Preset Menu

The **Save Current menu** allows saving the current parameter setup as an overriding existing file or new file.

This Save Current Preset menu contains the following menus:

- **Override Existing** – Allows overriding an existing preset with the current parameter setup (see paragraph 5.2.2.1).
- **Specify Preset Name** – Allows saving the current parameter setup as a new preset file (see paragraph 5.2.2.2).

To access the Save Current menu in the front panel, select **Root→Preset→Save Current**.



To access the Save menu in the Web Manager, select tabs **Preset→Save** (see Figure 5-6).

Figure 5-6: Save Preset Menu Display

5.2.2.1. Override Existing Menu

The **Override existing menu** allows the user to save the current parameter setup configurations into an existing preset file, erasing the former parameters setup.

To access the Override Existing menu in the front panel, select **Root→Preset→Save Current → Override Existing** (see the following example).

To access the Override Existing menu in the Web Manager, select tabs and hyperlinks **Preset→Save→Override Existing** (see Figure 5-7).

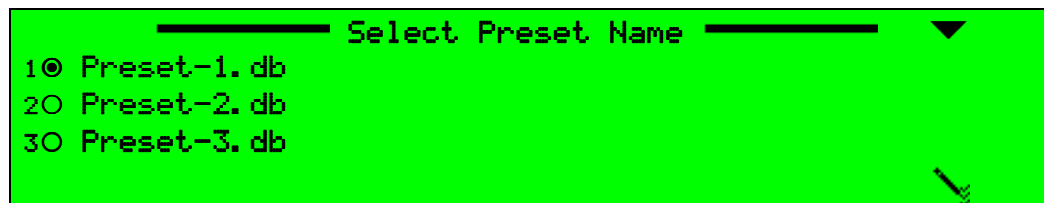
Figure 5-7: Override Existing Preset Display

The following sections detail the Override Existing Preset menu options and parameters.

1. SELECT PRESET NAME (OVERRIDE EXIDTING FILE)

The **Select Preset Name** parameter allows the user to select a preset file to override. This option lists all preset files.

To set the Select Preset Name option, in the front panel select **Root→Preset→Save Current→Override Existing Preset→Select Preset Name** (see the following example).



The available options are the saved preset files.



NOTE

The **default factory** preset file cannot be overwritten.

To set the Select Preset Name parameter in the Web Manager, select the following tabs and hyperlinks: **Preset→Save→Override existing**.

2. SAVE PRESET (OVERRIDE EXISTING FILE)

The **Save Preset** option allows the user to save the current setup and overriding the preset file. This option executes the Save command, not leading to a new screen.

After executing the save option, the display returns to the Save Current menu screen.

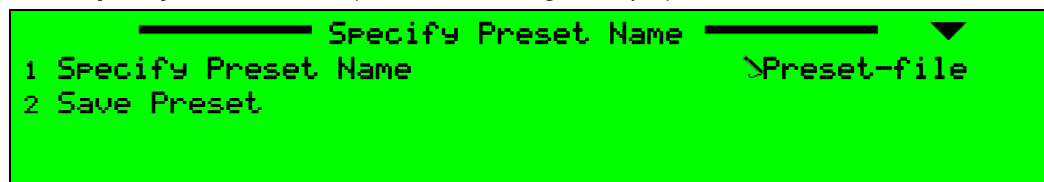
To set the Save Preset option, in the front panel select **Root→Preset→Save Current→Override Existing Preset→Save Preset**.

To activate the Save option in the Web Manager, click **[Enter]** to approve the selection.

5.2.2.2. Specify Preset Name Menu

The **Specify Preset Name** menu allows saving the current setup parameters as a new preset file.

To access the Specify Preset Name menu in the front panel, select **Root→Preset→Save Current → Specify Preset Name** (see the following example).



To access the Specify Preset Name menu in the Web Manager, select the following tabs and hyperlinks: **Preset→Save→Specify Preset Name** (see Figure 5-8).

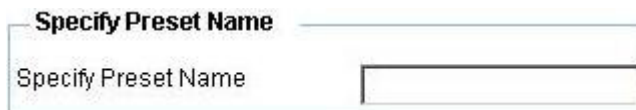


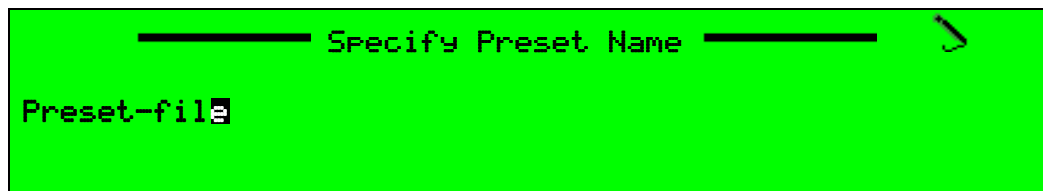
Figure 5-8: Specify Preset Name Display

The following sections detail the Specify Preset menu options and parameters.

1. SPECIFY PRESET NAME (SPECIFY PRESET NAME)

The **Specify Preset Name** parameter allows the user to set the new preset file name. This option displays an edit-value screen that allows entering the new file-name using the alphanumeric touch-pad with free text. In the web-management, enter the new file-name into the free-text field.

To set the Specify Preset Name option, in the front panel select **Root→Preset→Save Current→Specify Preset Name→Specify Preset Name** (see the following example).



The available option is a string of characters specifying the new file-name.

To set the Specify Preset Name parameter in the Web Manager, select the following tabs and hyperlinks: **Preset→Save→Specify Preset Name**.

2. SAVE PRESET (SPECIFY PRESET NAME)

The **Save Preset** option allows the user to save the current setup as a new file, titled with the name specified in **Preset Name**. This option executes the Save command, not leading to a new screen.

After executing the save option, the display returns to the Save Current menu screen.

To set the Save Preset option, in the front panel select **Root→Preset→Save Current→Specify Preset Name→Save Preset**.

To activate the Save option in the Web Manager, click **[Enter]** to approve the selection.

5.2.3. Delete Menu

The **Delete menu** allows the user to delete an existing preset file from the preset files list.

To access the Delete menu in the front panel, select **Root→Preset→Delete** (see the following example).



To access the Delete menu in the Web Manager, select tabs **Preset→Delete** (see Figure 5-9).

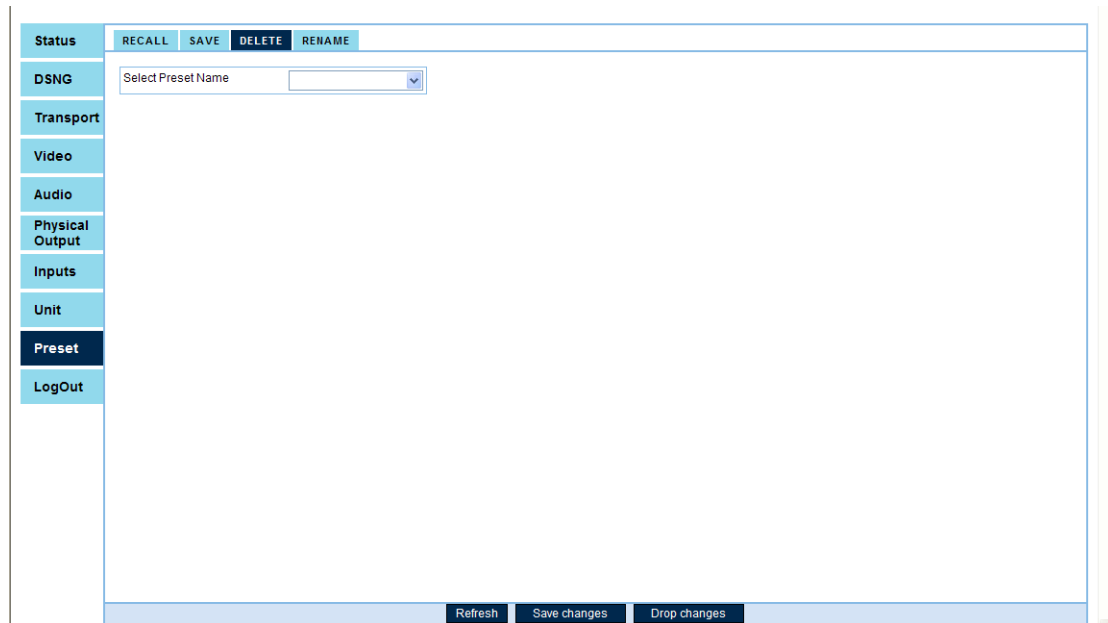


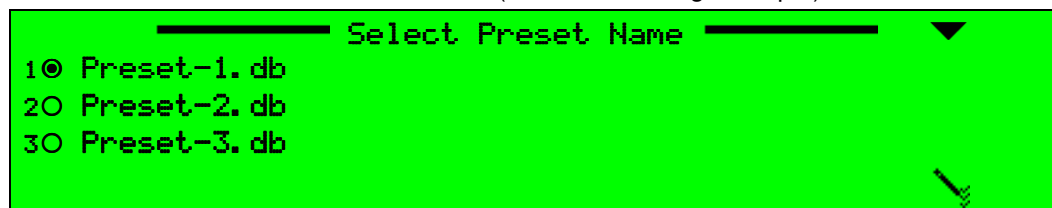
Figure 5-9: Delete Preset Menu Display

The following sections detail the Delete menu options and parameters.

1. SELECT PRESET NAME (DELETE)

The **Select Preset Name** parameter allows selecting a preset file to delete. This option displays a list of the preset files.

To set the Select Preset Name option, in the front panel select **Root→Preset→Delete→Select Preset Name** (see the following example).



The available options are the current preset files in the file list.



NOTE

The **default factory** preset file cannot be deleted.

To set the Select Preset Name parameter in the Web Manager, select tabs **Preset→Delete**.

2. DELETE PRESET (DELETE)

The **Delete Preset** option allows the user to delete the selected preset file. This option executes the Delete command, not leading to a new screen.

After executing the delete option, the display returns to the Preset menu screen.

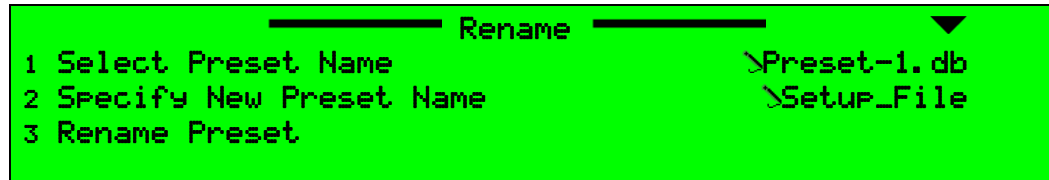
To set the Delete Preset option, in the front panel select **Root→Preset→ Delete→Delete Preset**.

To activate the Delete option in the Web Manager, click **[Enter]** to approve the selection.

5.2.4. Rename Menu

The **Rename menu** allows the user to rename an existing preset file from the preset files list.

To access the Rename menu in the front panel, select **Root→Preset→Rename** (see the following example).



To access the Rename menu in the Web Manager, select tabs **Preset→Rename** (see Figure 5-10).

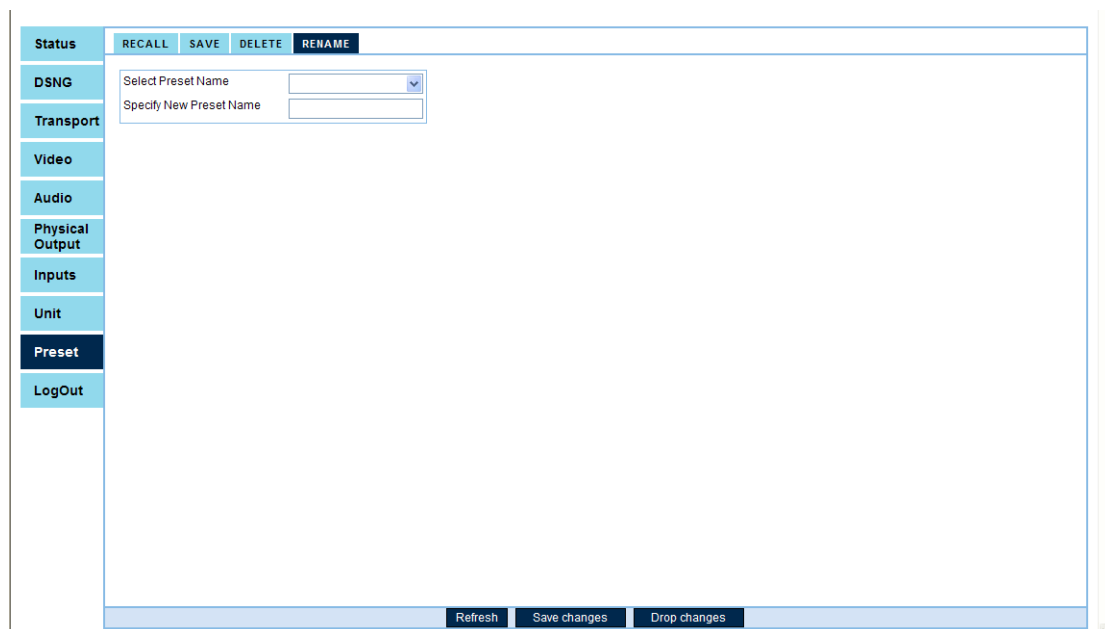


Figure 5-10: Rename Preset Menu Display

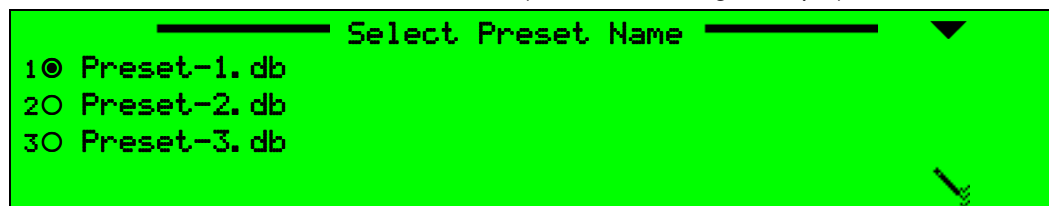
The following sections detail the Rename menu options and parameters.

1. SELECT PRESET NAME (RENAME)

The **Select Preset Name** parameter allows the user to select a preset file to rename. This option displays a list of all preset files.

After executing the rename option, the display returns to the Rename menu screen.

To set the Select Preset Name option, in the front panel select **Root→Preset→Rename→Select Preset Name** (see the following example).



The available options are the current preset files in the file list.

**NOTE**

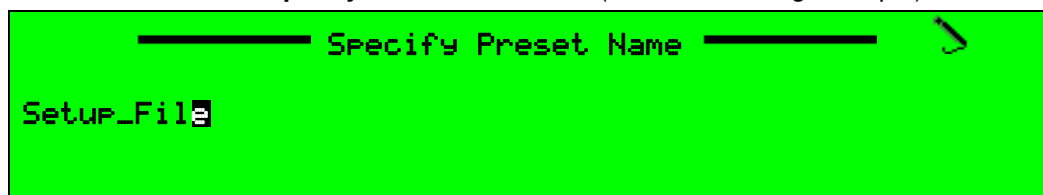
The **default factory** preset file cannot be renamed.

To set the Select Preset Name parameter in the Web Manager, select tabs **Preset→Rename**.

2. SPECIFY NEW PRESET NAME (RENAME)

The **Specify New Preset Name** parameter allows the user to set the new preset file name. This option displays an edit-value screen that allows entering the new file-name using the alphanumeric touch-pad with free text. In the web-management, enter the new file-name into the free-text field.

To set the Specify New Preset Name option, in the front panel select **Root→Preset→Rename→Specify New Preset Name** (see the following example).



The available option is a string of characters specifying the new file-name.

To set the Specify Preset Name parameter in the Web Manager, select tabs **Preset→Rename**.

3. RENAME PRESET (RENAME)

The **Rename Preset** option allows the user to rename the selected preset file. This option sets the new specified name to the selected file. This option executes the Rename command, not leading to a new screen.

To set the Rename Preset option, in the front panel select **Root→Preset→Rename→Rename Preset**.

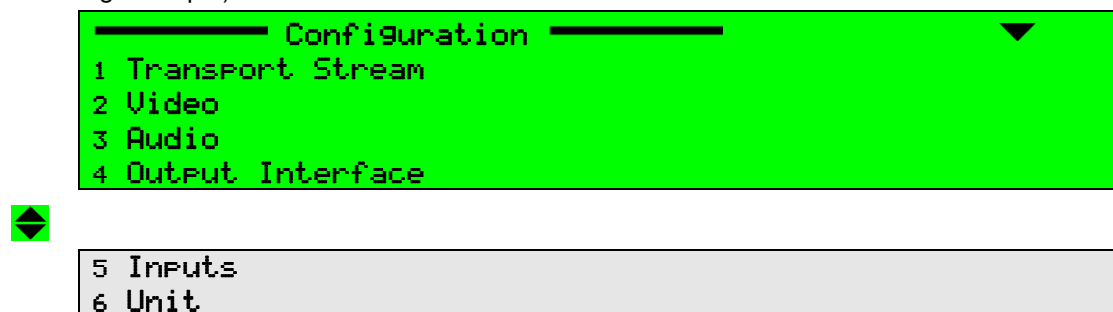
To activate the Rename option in the Web Manager, click **[Enter]** to approve the selection.

5.3. Configuration Menu

The **Configuration menu** provides a much branched menu tree, which allows setting and controlling of all Ellipse parameters, including: transport stream, video-channels, audio channels, output interfaces, and unit information (see Figure 5-11):

- **Transport Stream Menu** – For transport stream identity, stream tables, and other TS parameters. See Chapter 6.
- **Video Menu** – For analog and digital video-channel definitions. See Chapter 7.
- **Audio Menu** – For audio channel definitions, from general parameters through specific parameters, relevant to a selected audio coding scheme. See Chapter 8.
- **Output Interface Menu** – For the encoder output interface parameters and definitions. See Chapter 9.
- **Inputs Menu** – For the encoder input interfaces parameters and definitions. See Chapter 10.
- **Unit Menu** – For definitions such as: permission, identity, format, management ports, version information, date definitions, and alarm settings. See Chapter 11.

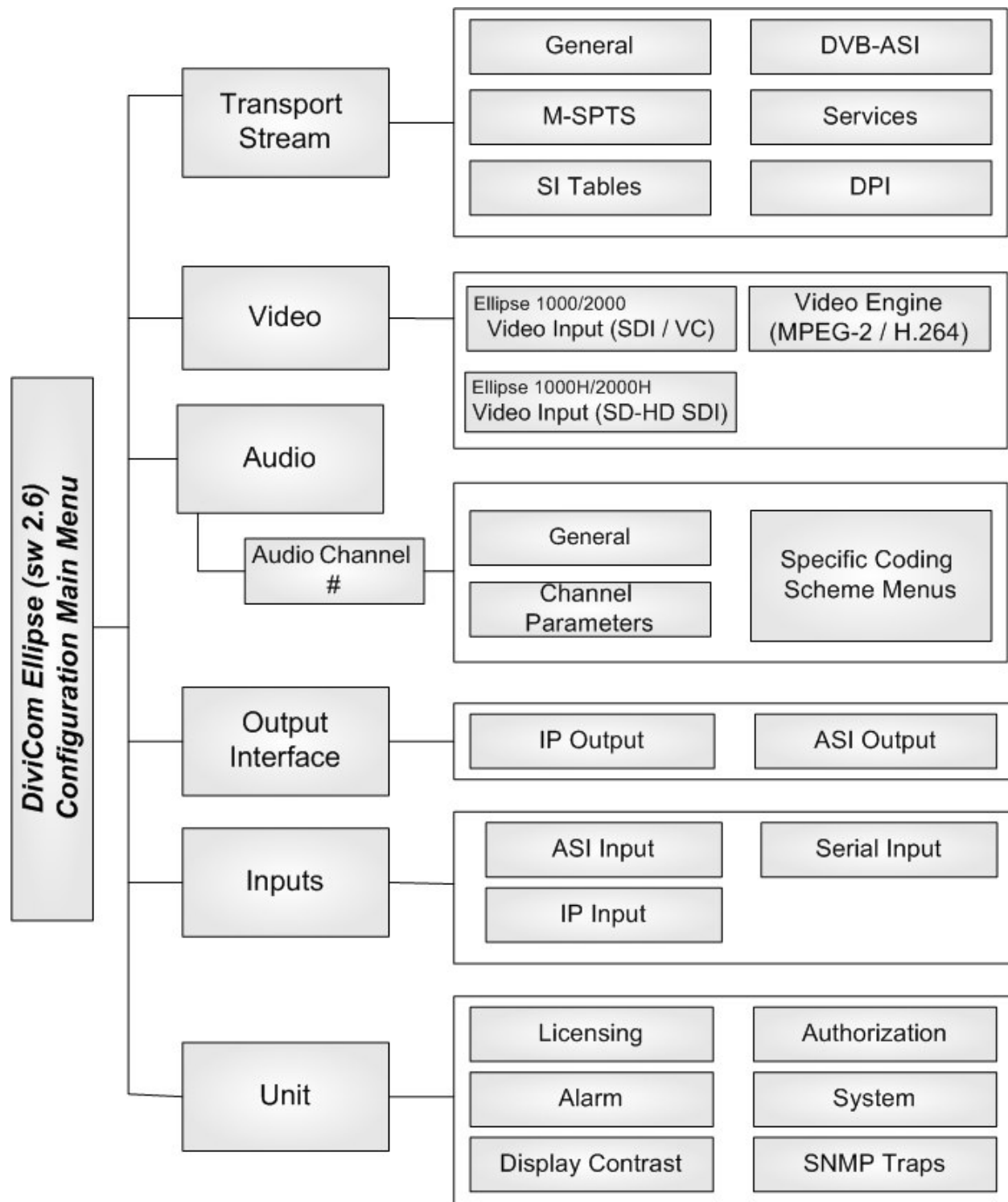
To access the Configuration menu in the front panel, select **Root→Configuration** (see the following example).



NOTE



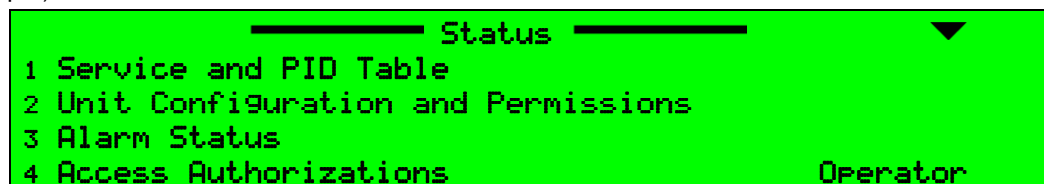
The web does not display a special Configuration Menu. Instead, configuring the encoder parameters are done from the Ellipse Web Management root screen, in which the previously mentioned menus are displayed as tabs. For the Web Management main screen, see section 5.1.2.

**Figure 5-11: Configuration Menu Tree**

5.4. Status Menu

The **Status menu** allows monitoring the Ellipse status information, such as: service information, unit configuration and permissions, alarms, temperature, and access authorization.

To access the Status menu in the front panel, select **Root→Status** (see the following example).



The Status menu contains the following menus and items (see the tree structure in Figure 5-12):

- **Service and PID Table** – Displays the status service and PID Table. The table displays all the selected services in the encoder and details their basic parameters (see paragraph 5.4.1).
- **Unit Configuration and Permissions Menu** – Displays the list of license-permitted features (see paragraph 5.4.2).
- **Alarm Status Menu** – Displays a list of raised encoder alarms (see paragraph 5.4.3).
- **Access Authorization** – Displays the access authorization level of the user (see paragraph 5.4.4).

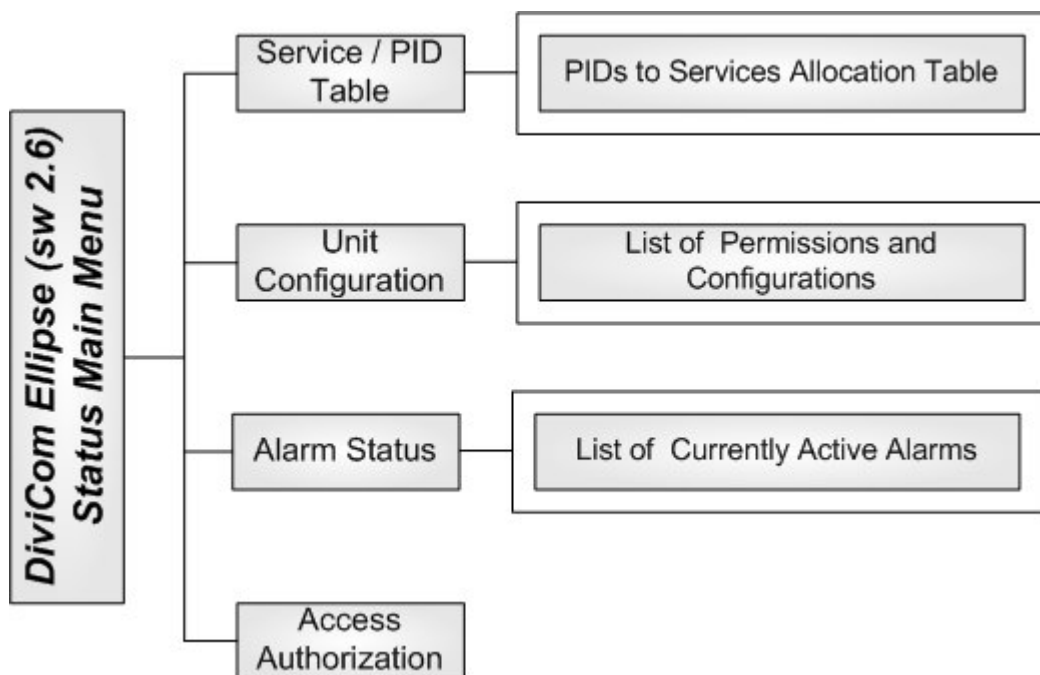


Figure 5-12: Status Menu Tree

To view the Status menu in the Web Manager, activate the **Status** section on the top of the web-management screen (see Figure 5-13).

Status	Alarms					
DSNG	Description	Time			Severity	
	Modulator failure	12:18:42			Warning	
Transport	Services and PIDs					
	Service	Input	PID	Rate	Res/Scheme	Scrambling
Video	first_service	SDI1-Eng-1M2	512	0	F720	NO
	first_service	AUD1	4112	0.21	MPEG-1 Layer 2	NO
Audio	second_service	SDI1-Eng-2H4	513	0	F720	NO
	second_service	AUD2	4113	0.21	MPEG-1 Layer 2	NO
Physical Output	DSNG					
	Carrier				off	
Inputs	Modulation				off	
	Symbol rate				4000000	
Unit	IF Freq				70000	
Preset						
LogOut						
</						

Figure 5-13: Web Manager - Status Section

NOTE

The Status section is dynamic. It changes according to the unit's module and state; Modulator modules also display the modulator status section (see section 4.3). When the unit raises an error, the Alarms Status display appears (see paragraph 5.4.3).

The following sections detail the Status options and menus.

5.4.1. Service and PID Table

The **Service and PID table** lists all audio and video elementary streams in the encoder. The table details each elementary stream's information, such as: related service, PID number, rate, and scrambling mode.

NOTE

This is a read-only table. Thus, in the front panel, selecting an elementary stream from the list returns the screen one level up to the Status menu and does not display a new management screen.

To view the Service and PID table, in the front panel select **Root→Status→ Service and PID Table** (see the following example).

Service	Element	PID	Rate	Scram	▼
01 First-S	Sd1-Hd1	0x0200	10.26M	No	
02 First-S	Aud-1	0x0021	0.21M	No	
03 - - -	Sd1-Hdi	0x2011	0.00M	No	
04 - - -	Aud-2	0x1011	0.00M	No	

The available columns are:

- **Service** – Displays the service period.
- **Element** – Displays the name of the elementary stream related to the service.

NOTE



In the Web Manager, the **Element** column is called '**Input**' and displays the encoding engine type for video elements (MPEG-2 or H.264, see example in Figure 5-14).

- **PID** – Displays the PID number of the elementary stream.
- **Rate** – Displays the elementary-stream bit-rate value in Mbps.
- **Scram (Scrambling)** – Displays whether or not the service is scrambled.

NOTE



The elementary stream has three functions at statuses:

Active – Elementary stream is functional and enabled.

Ghost – Elementary stream is not active, but related to an active service. The rate is displayed as 0. Active only when designated to Service.

Not Active – Elementary stream is not active nor related to any currently active services.

To view the Services and PID table in the Web Manager, see the Status section for **Services and PIDs** (see Figure 5-14).

Services and PIDs					
Service	Input	PID	Rate	Res/Scheme	Scrambling
first_service	SDI1-Eng-1M2	512	0	F720	NO
first_service	AUD1	4112	0.21	MPEG-1 Layer 2	NO
second_service	SDI1-Eng-2H4	513	0	F720	NO
second_service	AUD2	4113	0.21	MPEG-1 Layer 2	NO

Figure 5-14: Services and PIDs Table Display

NOTE



The web-management Services and PIDs table also displays the **Res/Scheme** column, displaying extra information regarding the Service elementary stream.

Regarding the video elementary-stream, the column specifies the video resolution value. Regarding the audio elementary-stream, the column specifies the audio coding scheme.

5.4.2. Unit Configurations and Permissions

The **Unit Configurations and Permissions** screen displays the unit-permitted features. The menu displays a list of all permission features in the Contribution Encoder series and states, on the right column, the amount of permitted features the module has (see the screen example).

To view the Unit Configuration and Permission menu in the front panel, select **Root→Status→Unit Configurations and Permissions** (see the following example).

Unit Configuration and Permissions	
01 MPEG2 Encoding Engines	4 Channels
02 H264 Encoding Engines	4 Channels
03 Audio Dolby	8 Channels
04 Audio AAC	8 Channels



05 Audio HE-AACv1m	Enabled
06 Audio HE-AACv2	Enabled
.	
.	
.	
19 IP In	Up to 20 Mbps
20 Modulator Standard	DVBS+DVBD2
21 Modulator Scheme	QPSK+8-PSK+1...
22 Modulator rate	15Mbaud
23 Dual Processing Mode	Enabled

To view the Permissions list in the Web Manager, select tabs **Unit→Permissions** (see Figure 5-15).

Status	LICENSING	PERMISSIONS	SYSTEM	SNMP TRAPS	ALARM
DSNG	MPEG 2 Encoding Engines	4 channels			
	H264 Encoding Engines	2 channels			
Transport	Audio Dolby	0 channels			
	Audio AAC	0 channels			
Video	Audio HE_AACv1	Disabled			
	Audio HE_AACv2	Disabled			
Audio	Audio Linear PCM	Disabled			
Physical	Audio Dolby AC3 Pass-through	Enabled			
Output	Audio Dolby E Pass-through	Disabled			
	Cascading	Disabled			
Inputs	Scrambling	Disabled			
	Max services	8			
Unit	Video 4:2:2	2 channels			
	Video low delay	Enabled			
Preset	Video pre-processing	2 channels			
	HD Video Standard	Disabled			
LogOut	IP out	Enabled			
	IP FEC	Disabled			
	IP in	Disabled			
	Modulator standard	DVBS + DVBS2			
	Modulator scheme	QPSK + 8-PSK			
	Modulator rate	15Mbaud			
	Picture in picture	Disabled			
	VBR channels	0 channels			
	Mmpts	1			
	Refresh	Save changes	Drop changes		

Figure 5-15: Services and PIDs Table Display

5.4.3. Alarm Status

The **Alarm Status** screen displays a list of raised (activated) encoder alarms. The list details status information regarding each alarm. The alarms are dropped from the list as soon as the cause for the alarm is solved.

To view the Alarm Status menu in the front panel, select **Root→Status→Alarm** (see the following example).



The available information is a list of currently active alarms. Each row details the severity of the alarm (in this example: **critical**), the alarm type (in this example: **Video comp 2 fault**), and its time of occurrence as HH:MM:SS (**11:41:28**).

To view the Alarms list in the Web Manager, see the **Status** section for **Alarms** (see Figure 5-16).

Alarms		
Description	Time	Severity
Audio 3 absent	08:21:22	Warning

Figure 5-16: Alarms List Display

5.4.4. Access Authorization

The **Access Authorization** parameter displays the access authorization level of the user. This is a read-only parameter and does not lead to new screens.

To view the Access Authorization parameter in the front panel, select **Root→Status→Access Authorization**.

NOTE



The Access Authorization parameter is currently unavailable through the Web-Management control interface.

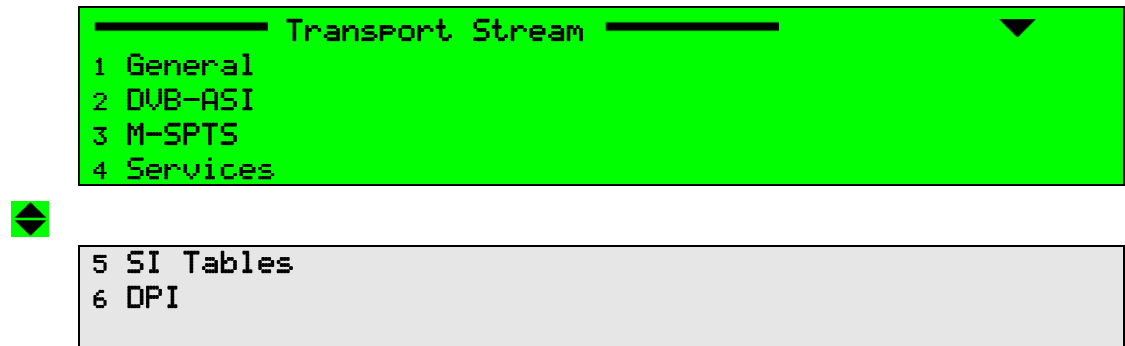
Chapter 6

Transport Stream Configuration

The **Transport Stream menu** controls the setting of the transport stream for the Ellipse encoder. This menu sets the transport stream: identity, format, parameters, services, and stream-information tables.

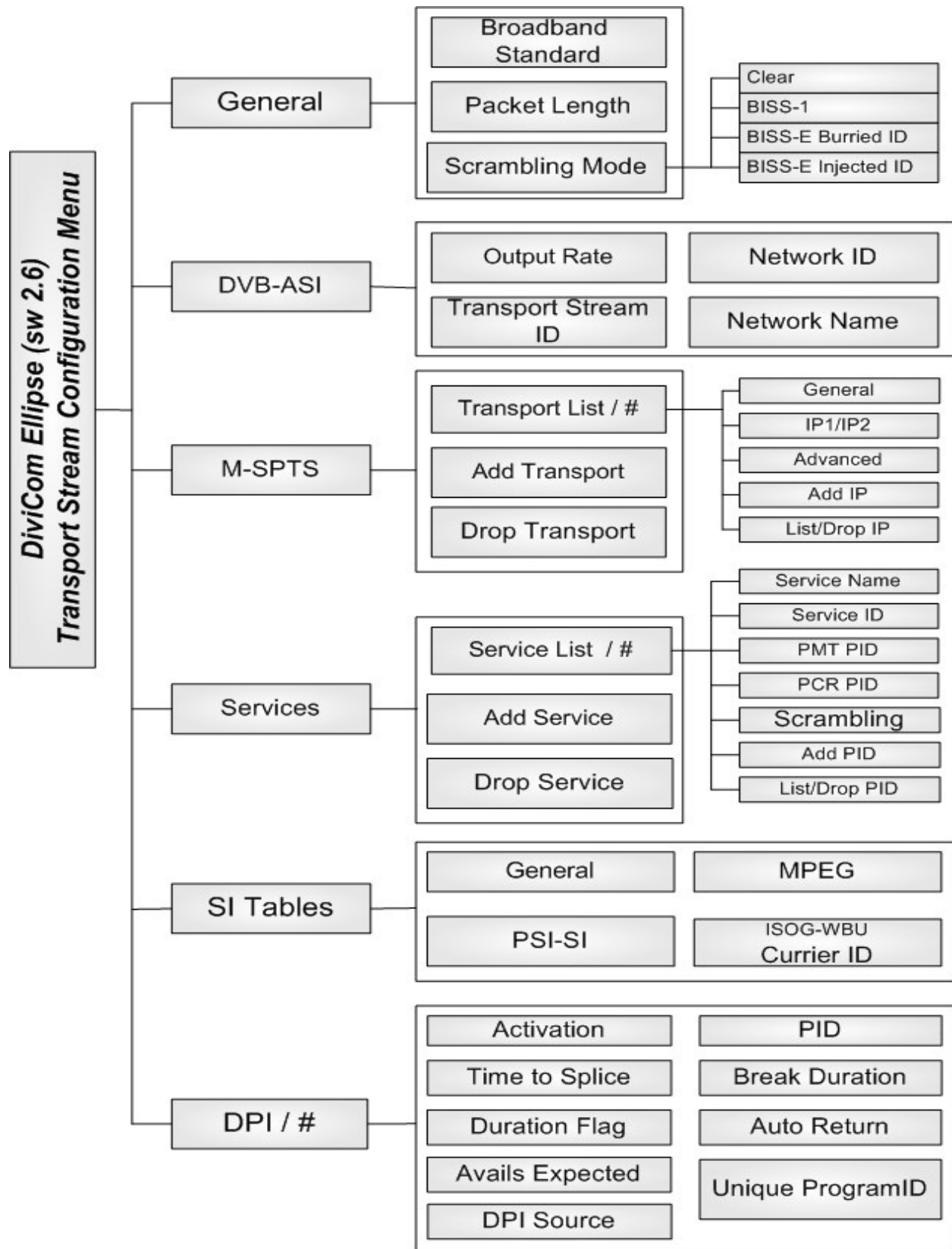
6.1. Transport Stream Main Menu

To access the Transport Stream menu in the front panel, select **Root→Configuration→Transport Stream** (see the following example).



The available options and menus are (see tree structure in Figure 6-1):

- **General** - Sets the general parameters of the transport stream (see paragraph 6.2).
- **DVB-ASI** – Sets the DVB-ASI interface parameters for the transport streams (see paragraph 6.3).
- **M-SPTS** – Manages the IP interface for multiple program transport streams (see paragraph 6.4).
- **Services** - Manages the services configuration on the transport streams (see 6.5).
- **SI Tables** – Sets the mode of inclusion of SI tables and the parameters of the various SI tables in the stream (see paragraph 6.6).
- **DPI** - Sets the insertion of the Q Tone trigger for commercial needs (see paragraph 6.7).

**Figure 6-1: Transport Stream Menu Tree Structure**

To access the Transport menu in the Web Manager, select the **Transport** tab (see Figure 6-2).

Status	GENERAL	SERVICES	DVB-ASI	M-SPTS	SI TABLES	DPI
DSNG	Broadcast Standard: DVB					
Transport	Packet Length: 188					
Video	Scrambling mode: Cleared					
Audio						
Physical Output						
Inputs						
Unit						
Preset						
LogOut						

Refresh Save changes Drop changes

Figure 6-2: Web Manager - Transport Menu (General Sub-Menu)

6.2. TS General Menu

The **TS General** menu allows setting the general parameters of the transport stream.

To access the Transport Stream General Menu in the front panel, select: **Root→Configuration→Transport Stream→General** (see example).

```

General
1 Broadcast Standard    DVB
2 Packet Length        188
3 Scrambling Mode      Cleared
  
```

The available options and menus are (see tree structure in Figure 6-1):

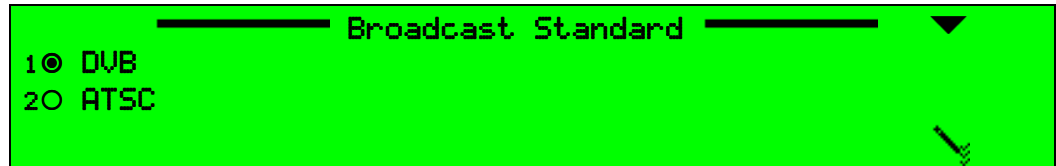
- **Broadcast Standard** - Sets the transport stream broadcasting standard (see paragraph 6.2.1).
- **Packet Length** - Sets the length of the transport stream packet (see paragraph 6.2.2).
- **Scrambling Mode** - Sets the scrambling mode for the transport stream (see paragraph 6.2.3).

To access the TS General menu in the Web Manager, select the **Transport→General** (see Figure 6-2).

6.2.1. TS Broadcast Standard

The **TS Broadcast Standard** parameter sets the stream broadcast standard to ATSC or DVB.

To set the TS Broadcast Standard parameter in the front panel, select **Root→Configuration→Transport Stream→General→Broadcast Standard** (see the following example).



The Broadcast Standard default value is DVB. The available options are **DVB** and **ATSC**.

To set the TS Broadcast Standard parameter in the Web Manager, select tabs **Transport→General** (see Figure 6-2).

6.2.2. TS Packet Length

The **TS Packet Length** parameter sets the packet length of the transport-stream packets. The packet-length definition is used for Reed Solomon (RS) packet correction.

The packet correction (RS) requires an extra 16 bytes to the packet. The encoder sends larger packets (of 204 bytes instead of 188 bytes) and the external device (such as a modulator) implements the packet corrector in the extra 16 bytes.

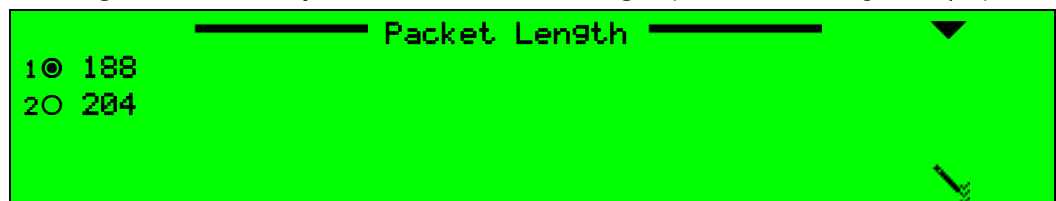
NOTES



Packet length setup is available only for units with ASI output interfaces and is used only for external modulators.

Ellipse 2000/H encoders support a DSNG card with an internal modulator which do not require packet-length setting. Attempting to set the packet length to 204 will have no effect and will generate an error message.

To set the Packet Length parameter in the front panel, select **Root→Configuration→Transport Stream→Packet Length** (see the following example).



The Packet Length default value is 188 bytes. The available options are:

- **188** – The encoder sends regular 188-byte packets.
- **204** – The encoder sends larger packets of 204 bytes, with extra 16 bytes for RS packet correction.

To set the Packet Length parameter in the Web Manager, select tabs **Transport→General** (see Figure 6-2).

6.2.3. Encoder Scrambling Mode Menu

The Basic Interoperable Scrambling System (BISS) is based on the DVB common scrambling algorithm. It provides secured (scrambled) transmissions between DSNG equipment from any supplier using a scrambling key known to the encoding and to the decoding equipment.

The advanced BISS-E Specification enables the use of scrambling keys which are encrypted, or "session words". This adds another layer of security to the transmissions while fully retaining the benefits of inter-operability. The keys for unscrambling the transmission require the corresponding DES process and a secret identifier buried in the equipment.

There are four scrambling level, defined by the BISS and supported by the Ellipse:

- Clear, where no scrambling is applied on the stream.
- BISS-1, using a scrambling key which is clear, i.e., not encrypted.
- BISS-E Buried ID, where the scrambling key is encrypted and buried in the equipment hardware.
- BISS-E Injected ID, where the scrambling key is encrypted and requires an injected identification code.

The **Encoder Scrambling Mode menu** sets the Ellipse encoder scrambling mode and method.

NOTE

Defining a scrambling method for the encoder determines the scrambling level for all relevant features of the encoder:

The Encoder Cascading feature (for details see paragraph 9.3 for ASI Output scrambling and paragraph 10.2 for ASI Input scrambling).

The Transport Stream Service scrambling feature (for details, see paragraph 6.5.3).

To access the Scrambling Mode menu in the front panel, select **Root→Configuration→Transport Stream→Scrambling mode** (see the following example).



The default mode is '**Clear**'. The available options are:

- **Clear** – Transport stream is clear of scrambling.
- **BISS-1** – Transport stream is scrambled using BISS-1 mode.
- **BISS-E Buried ID** – Transport stream is scrambled using BISS-E buried ID mode.
- **BISS-E Injected ID** – Transport stream is scrambled using BISS-E injected ID mode.

NOTES



Setting the Encoder Scrambling Mode parameter to other modes than 'Clear' is performed upon permission only, with a correct license key. When trying to change the Clear scrambling mode without permission, a "no permission" message is displayed.

To set the Encoder Scrambling Mode parameter in the Web Manager, select tabs **Transport→General** (see Figure 6-3).

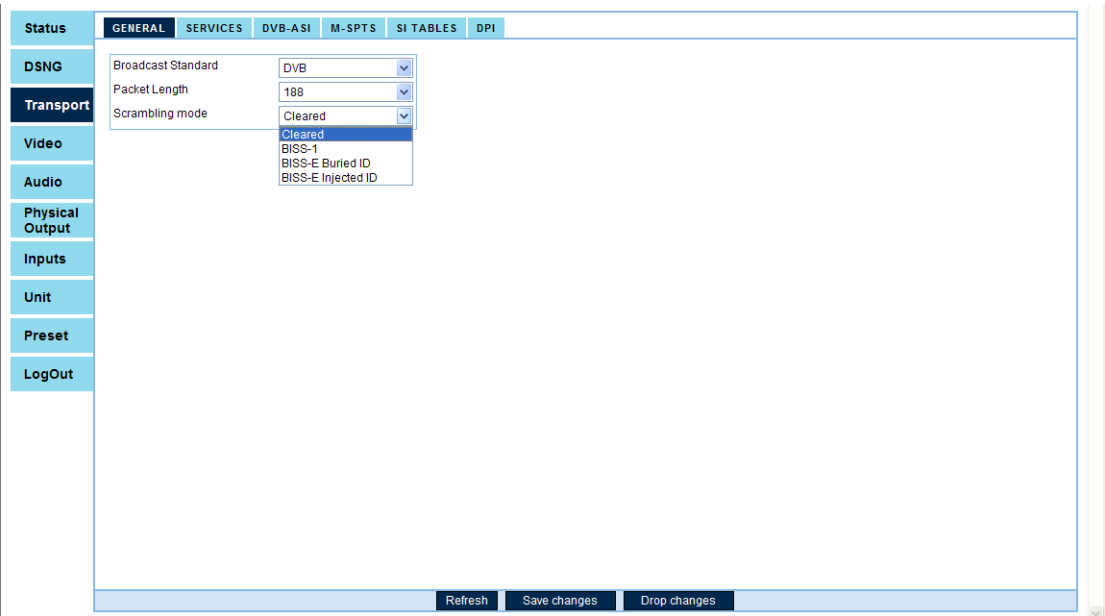


Figure 6-3: Encoder Scrambling Mode Screen

6.3. DVB-ASI Interface Menu

The **DVB-ASI Interface** menu sets the DVB-ASI interface parameters and configuration.

To access the DVB-ASI menu in the front panel, select **Root→Configuration→Transport Stream→DVB-ASI** (see the following example).



The available options are:

- **Output Rate** - Sets the TS maximum output rate (see paragraph 6.3.1).
- **Transport Stream ID** - Sets the TS ID (see paragraph 6.3.2).
- **Network ID** - Sets the current network ID (see paragraph 6.3.3).
- **Network Name** - Sets the current network provider name (see paragraph 6.3.4).

To access the TS DVB-ASI menu in the Web Manager, select the **Transport→DVB-ASI** tab (see Figure 6-4).

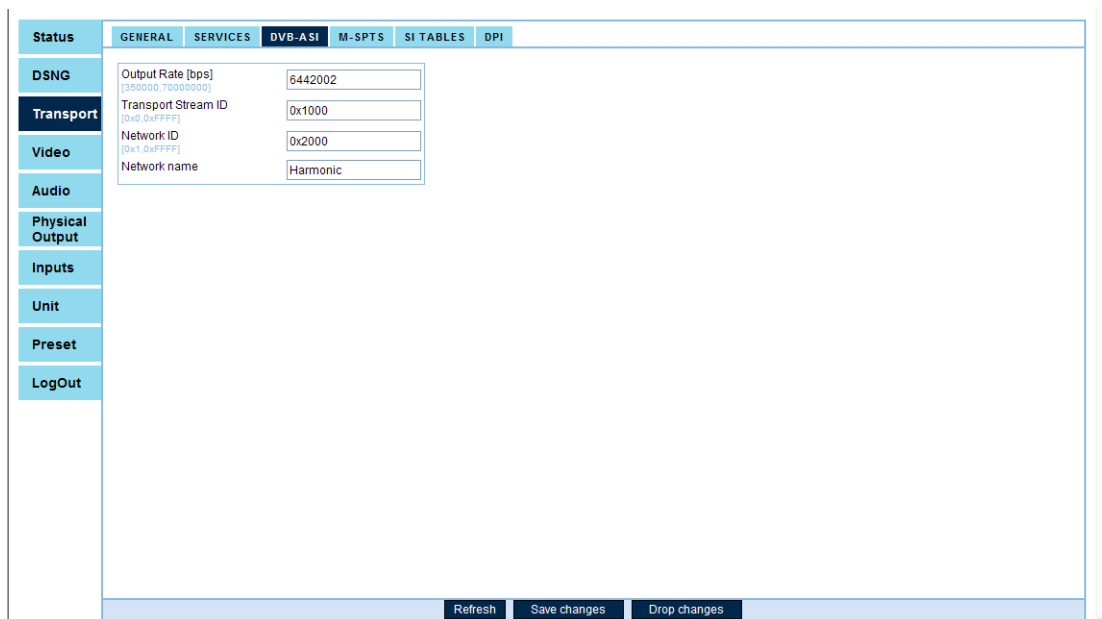


Figure 6-4: Web Manager - TS DVB-ASI Menu

6.3.1. Output Rate

The **Output Rate** parameter defines the maximum possible output rate value of the transport-stream.

NOTE

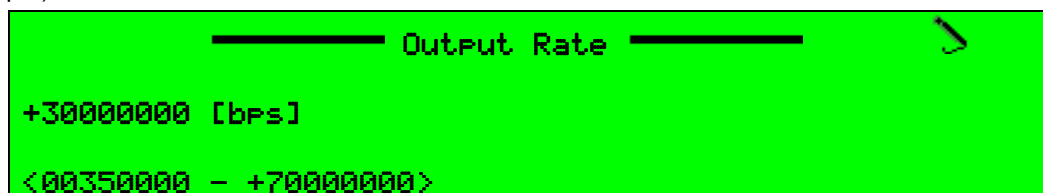
In DSNG modules (Ellipse 2000/2000H), the actual output rate of the encoder can be set according to either the **Symbol Rate** (from the Modulation menu) or the **Output Rate** (from the Transport Stream menu). The actual rate will be the rate last configured.

This means that in DSNG modules (with an IP or L-Band modulators), the actual output can be one of two settings:

Actual output rate is set according to the Symbol Rate (Modulation menu).

Actual output rate is set according to the Output Rate (Transport Stream menu).

To set the Output Rate parameter in the front panel, select **Root→Configuration→Transport Stream→DVB-ASI→Output Rate** (see the following example).



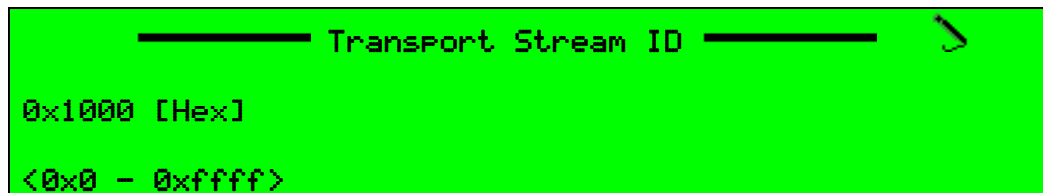
The Output Rate default value is 30,000,000 bps. The available value ranges from 350,000 to 70,000,000 bps.

To set the Output Rate parameter in the Web Manager, select tabs **Transport→DVB-ASI** (see Figure 6-4).

6.3.2. Transport Stream ID

The **Transport Stream ID** parameter sets the transport stream ID number using hexadecimal numbers.

To set the Transport Stream ID parameter in the front panel, select **Root→Configuration→Transport Stream→DVB-ASI→Transport Stream ID** (see the following example).



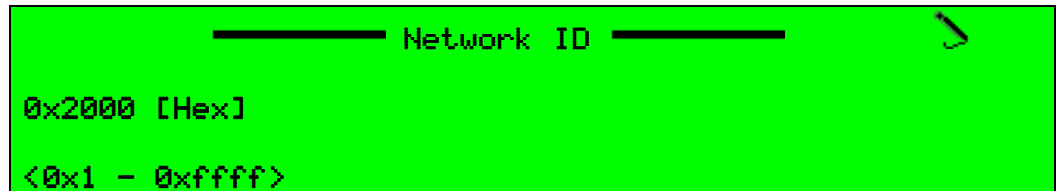
The Transport Stream ID default value is 0x1000. The available value ranges from 0x0 to 0xFFFF (Hexadecimal).

To set the Transport Stream ID parameter in the Web Manager, select tabs **Transport→DVB-ASI** (see Figure 6-4).

6.3.3. Network ID

The **Network ID** parameter sets the Network ID number using hexadecimal numbers.

To set the Network ID parameter in the front panel, select **Root→Configuration→Transport Stream→DVB-ASI→Network ID** (see the following example).



The Network ID default value is 0x2000. The available value ranges from 0x1 to 0xFFFF (Hexadecimal).

To set the Network ID parameter in the Web Manager, select tabs **Transport→DVB-ASI** (see Figure 6-4).

6.3.4. Network Name

The **Network Name** parameter sets the provider name of the current network.

To set the Network name, in the front panel select **Root→Configuration→Transport Stream→DVB-ASI→Network Name** (see the following example).

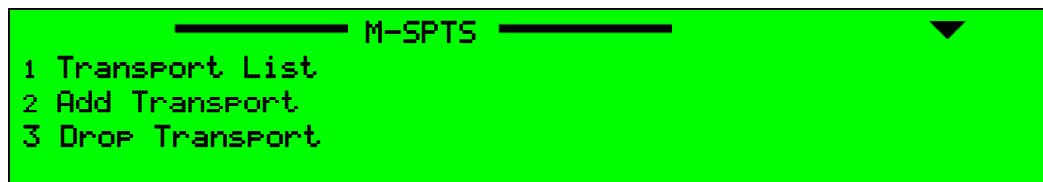


To set the Network Name parameter in the Web Manager, select tabs **Transport→DVB-ASI** (see Figure 6-4).

6.4. M-SPTS Menu

The **M-SPTS menu** sets the Ellipse transport streams managed by the encoder over the IP interface. This interface can manage multiple and independent program transport streams received on the same IP input.

To access the M-SPTS menu in the front panel, select **Root→Configuration→Transport Stream→M-SPTS** (see the following example).



The available options and menus are:

- **Transport List** – Lists the currently active transport streams (see paragraph 6.4.1).



NOTE

To manage the stream parameters, see paragraph 6.4.4.

- **Add Transport** – Enables the user to create and add a transport stream (see paragraph 6.4.2).
- **Drop Transport** – Enables the user to remove (drop) a transport stream (see paragraph 6.4.3).

To access the TS M-SPTS menu in the Web Manager, select the **Transport→M-SPTS** tab (see Figure 6-5).

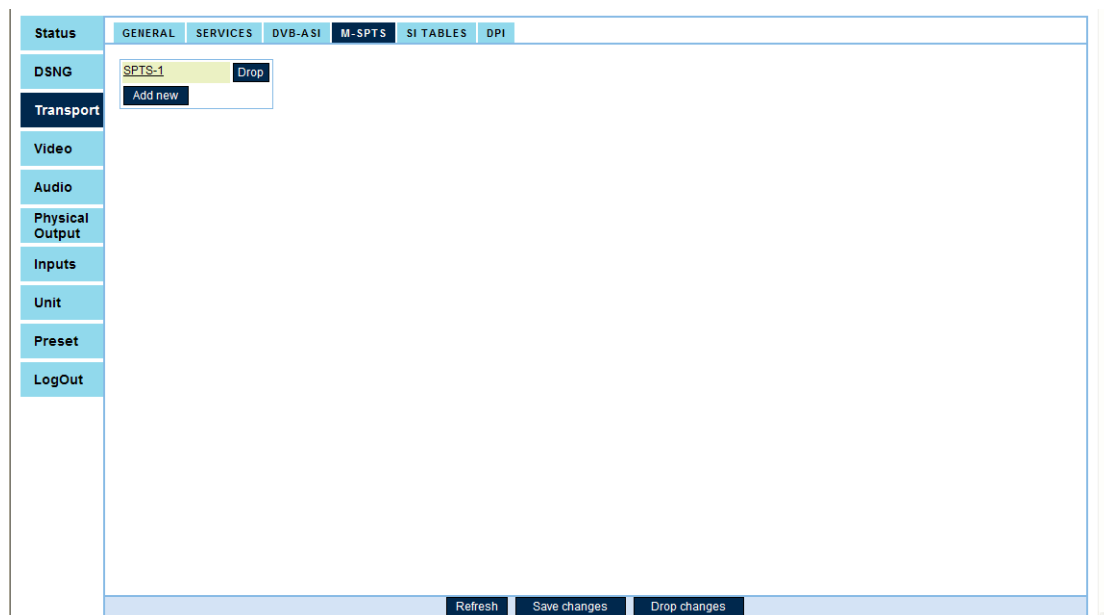
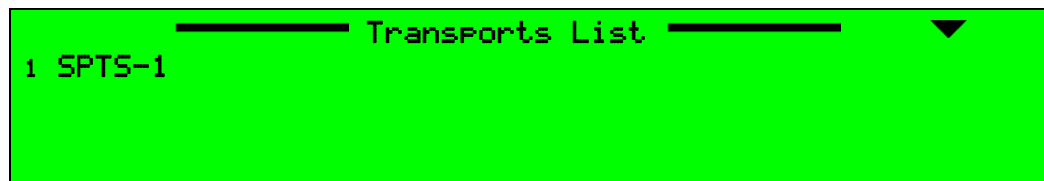


Figure 6-5: Web Manager - TS M-SPTS Menu

6.4.1. M-SPTS Transports List

The **Transport List** option lists the currently active M-SPTS transport streams.

To display the list in the front panel, select **Root→Configuration→Transport Stream→M-SPTS→Transports List** (see the following example).



Selecting a stream from the list displays a stream monitoring and configuration menu. Paragraph 6.4.4 details the stream managing options.

To view the currently active M-SPTS transport streams in the Web Manager, select tabs **Transport→M-SPTS** (see Figure 6-5).

6.4.2. Adding an M-SPTS Transport

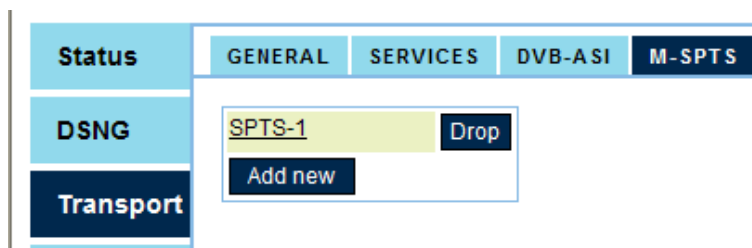
The **Add Transport** option creates and adds a new M-SPTS transport stream.

To add an M-SPTS transport from the front panel, select: **Root→Configuration→Transport Stream→M-SPTS→Add Transport** (see the following example).



Select **→Transport Name** to create a new MPTS stream name and then select **→Add** to add it to the MPTS list.

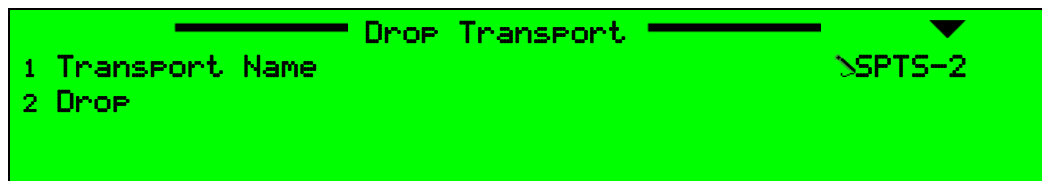
To add an M-SPTS transport from the Web Manager, select the **[Add New]** tab at bottom of the M-SPTS list displayed by **Transport→M-SPTS** window (see Figure 6-5).



6.4.3. Dropping an M-SPTS Transport

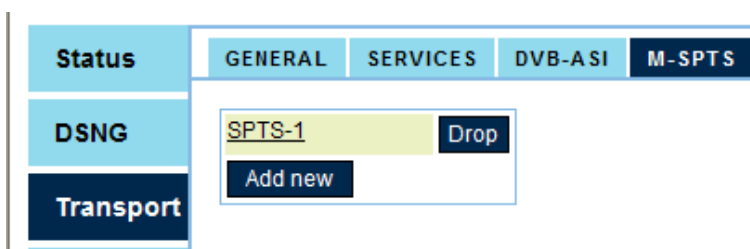
The **Drop Transport** option removes (drops) an M-SPTS transport stream.

To drop an M-SPTS transport from the front panel, select: **Root→Configuration→Transport Stream→M-SPTS→Drop Transport** (see the following example).



Select **→Transport Name** to select the MPTS stream and then select **→Drop** to remove it from the MPTS list.

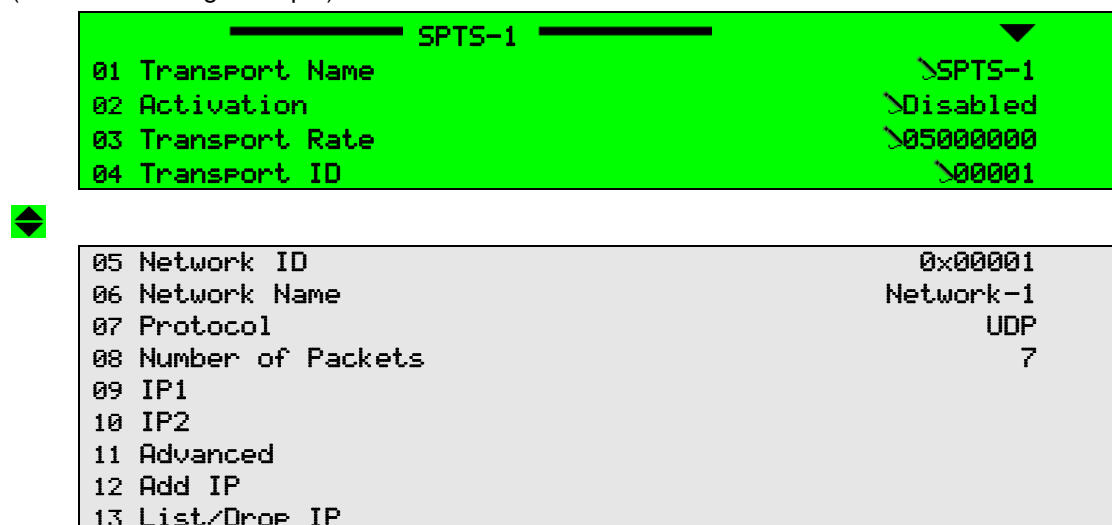
To drop an M-SPTS transport from the Web Manager, select the **[Drop]** tab next to the stream name in the M-SPTS list displayed by **Transport→M-SPTS** (see Figure 6-5).



6.4.4. Managing an M-SPTS Stream

The **M-SPTS Stream Managing** option enables the operator to monitor and set the parameters and configuration of a selected M-SPTS transport stream. To display the parameters of a specific stream in the front panel, select:

Root→Configuration→Transport Stream→M-SPTS→Transports List→[Stream Name] (see the following example).



The menu provides access to the following parameters:

- **Transport Name:** The name of the M-SPTS transport.
- **Activation:** Status of the the stream (Enabled/Disabled)
- **Transport Rate:** The rate of the stream (in bps). Range: 350000 to 70000000, default 500000 bps).
- **Transport ID:** The identification number of the stream (Range: 1 to 65535).
- **Network ID:** The identification number of the network (Hex, Range: 0x1 to 0x65535).
- **Network Name:** The name of the network.
- **Protocol:** The IP-output interface protocol used by the stream (UDP or RTP).
- **Number of Packets:** The number of transport-stream packets per IP frame. Range 1 to 7. Default: 7.
- **IP1/IP2:** Provides access to the stream IP1 / IP2 detailed parameters (for details, refer to paragraph 6.4.4.1).
- **Advanced:** Provides access to advanced functions of the stream (for details, refer to paragraph 6.4.4.2).
- **Add PID and List/Drop PID:** Provides access to setting the PID parameters for the M-SPTS stream (for details, refer to paragraph 6.4.4.3).

To view and set-up the configuration of a specific M-SPTS transport stream in the Web Manager, select tabs **Transport→M-SPTS→[Stream Name]** (see Figure 6-6).

MPE_TEST			
SD1-HD1-Eng-2M2	513	☐	
SD1-HD1-Eng-3H4	514	☐	
SD1-HD1-Eng-4H4	515	☐	
AUD2	4113	☐	
AUD3	4114	☐	
AUD4	4115	☐	
SD1-HD1-VBI1	768	☐	
MPE	1382	☐	
LSD	1398	☐	
DPI1	1904	☐	
DPI2	1905	☐	
DPI3	1906	☐	
DPI4	1907	☐	

Figure 6-6: Web Manager - M-SPTS Features Managing Menu

6.4.4.1. IP1/IP2 Configuration

The **IP1/IP2 Configuration Menu** provides access to the IP parameters.

To set the Ecoder IP parameters in the front panel, select:

Root→Configuration→Transport Stream→M-SPTS→Transports List→[MPTS Name]→IP1/IP2 (see the following example).

IP1	
1 Dst IP	\224.251.251.001
2 Dst Port	\2000
3 Type of Service	\0x0
4 TTL	\128

To access the IP1/IP2 setup menu in the Web Manager, select tabs **Transport→M-SPTS→[Stream Name]** and go to the IP1/IP2 area.

IP1	
Dst IP	224.251.251.001
Dst Port [1,65535]	2000
Type of Service [0x0,0x7F]	0x0
TTL [0,255]	128

The IP1/IP2 features enabled for managing are:

- **Dst IP:** sets the IP address.
- **Dst Port:** sets the IP port number. The available value ranges from 0 to 65535.
- **Type of Service:** sets the type of service selected for the stream. The available value ranges from 0 to 0x7f [hexadecimal].
- **TTL:** sets the the TTL for the stream. The available value ranges from 0 to 128.

6.4.4.2. Advanced Stream Functions

The **Advanced** Menu allows the user to set the various Encoder IP Output parameters.

To set the M-SPTS stream advanced parameters in the front panel, select **Root→Configuration→Transport Stream→M-SPTS→Transports List→[Stream Name]→Advanced** (see the following example).

Advanced	
1 FEC Activation	\Disabled
2 FEC Column Number	\06
3 FEC Row Number	\06
4 Cascading Included	\Disabled

To access the stream advanced features menu in the Web Manager, select tabs **Transport→M-SPTS→[Stream Name]** and go to the Advanced area.

Advanced	
FEC Activation	Disabled ▼
FEC Column Number [1,20]	6
FEC Row Number [4,20]	4
Cascading included	Disabled ▼

The M-SPTS Advanced features enabled for managing are:

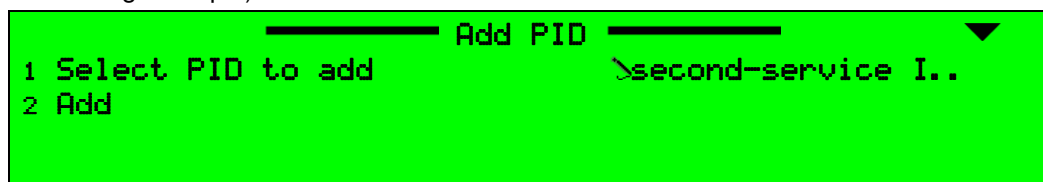
- **FEC Activation:** activates/deactivates the FEC error correction function for the stream.
- **FEC Column Number:** sets the the FEC error correction column location for the stream. The available value ranges from 01 to 20.
- **FEC Row Number:** sets the the FEC error correction row location for the stream. The available value ranges from 04 to 20.
- **Cascading Included:** enables/disables the cascading ability of the stream.

6.4.4.3. M-SPTS PID Management (Add / Drop PID)

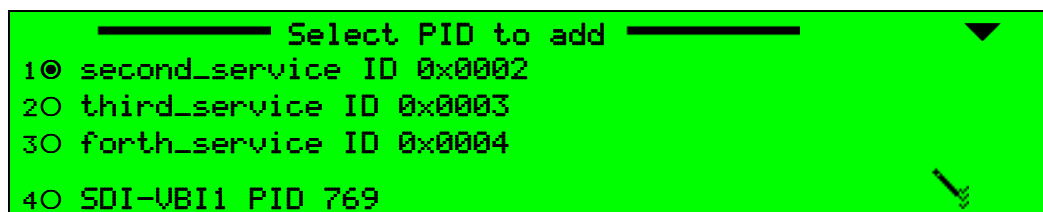
Adding or dropping of PID from the M-SPTS is done differently from the encoder front panel and the encoder web manager..

Adding an M-SPTS PID (Front Panel):

To add an M-SPTS stream using the front panel, select **Root→Configuration →Transport Stream→M-SPTS→Transports List →[Stream Name]→ Add PID** (see the following example).



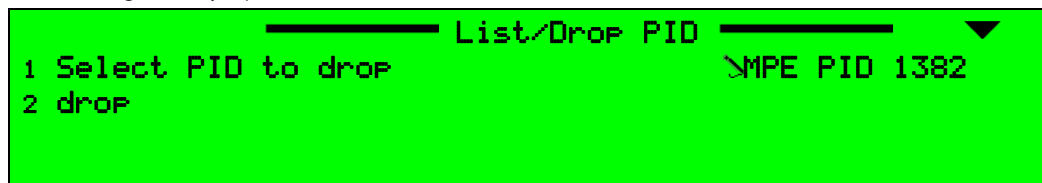
Select the **Select PID to add** option in the menu to display a list of PIDs not yet attached to the stream in order to select the PID to add.



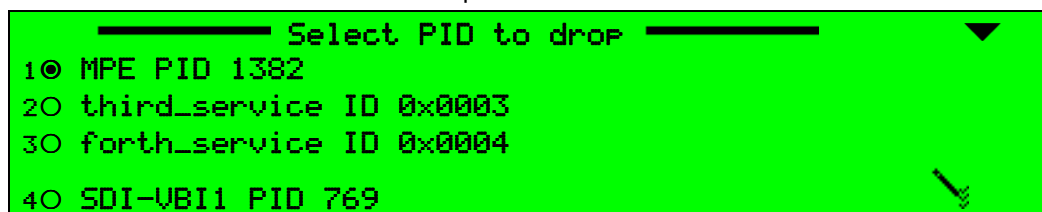
Press **ENTER**. The menu returns to the **Add PID** screen displaying the selected PID. Select the **Add** option in the menu to add the selected PID to the stream.

Dropping an M-SPTS PID (Front Panel):

To drop an M-SPTS stream using the front panel, select **Root→Configuration→Transport Stream→M-SPTS→Transports List →[Stream Name]→Drop PID** (see the following example).



Select the **Select PID to drop** option in the menu to display a list of PIDs attached to the stream in order to select which PID to drop.



Press **ENTER**. The menu returns to the **List/Drop PID** screen displaying the selected PID. Select the **Drop** option in the menu to drop the selected PID from the stream parameters.

Listing, Adding and Dropping an M-SPTS PID (Web Manager)

The stream PID parameters are displayed in the Web-Management at the **Transport→M-SPTS→[Stream Name]** in the PID information area. To select/drop a PID from the list provided, mark/unmark the ☒ box next to the PID.

first_service	1	☒
second_service	2	☐
third_service	3	☐
fourth_service	4	☐
SDI1-VBI1	768	☒
SDI2-VBI2	769	☐
CV1-VBI3	770	☐
CV2-VBI4	771	☐
MPE	1382	☒
LSD	1398	☐
DPI1	1904	☐
DPI2	1905	☐
DPI3	1906	☐
DPI4	1907	☐

**NOTE**

PID duplication between services is not supported in the current version.

6.5. TS Services Menu

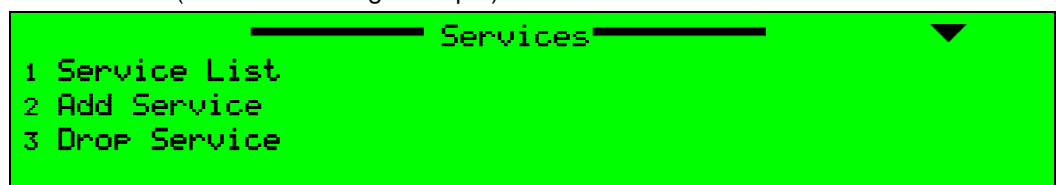
The **Transport Stream Services Menu** contains control tools for the services encoded in the transport stream and for managing the service configuration parameters. The information provided in this section is divided into the following subjects:

- Service Management, which manages the services in the transport stream. Refer to section 6.5.1 for details.
- Service Configuration Management, which manages the configuration of the service. Refer to section 6.5.2 for details.
- Scrambling Management, which manages the scrambling of the service. Refer to section 6.5.3 for details.
- Stream PID management, which manages the elementary streams in the service. Refer to section 6.5.4 for details.

6.5.1. TS Service Management

The service management tools provided in the Transport Stream Service Menu enables displaying the services available, adding services and dropping services from the stream.

To access the Services menu in the front panel, select **Root→Configuration→ Transport Stream→Services** (see the following example).



The available options are:

- **Service List Menu** – Displays a list of available services in the encoder. This menu leads to the service configuration parameters (see paragraph 6.5.1.1).
- **Add Service Menu** – Allows adding services to the encoder from the transport stream (see paragraph 6.5.1.2).
- **Drop Service Menu** – Allows dropping services from the encoder (see paragraph 6.5.1.3).

To access the Services menu in the Web Manager, select tabs **Transport→Services** (see screen example in Figure 6-7).

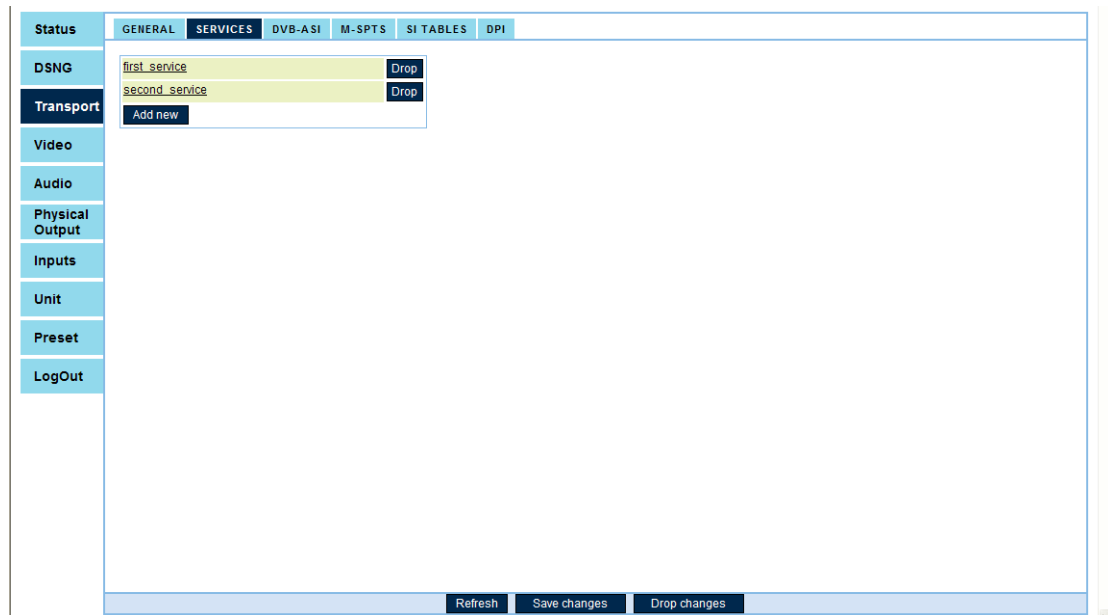
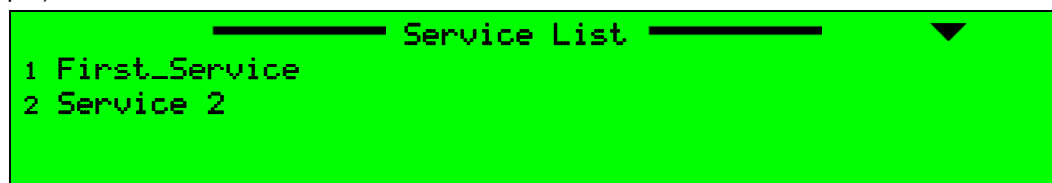


Figure 6-7: Services Menu Display

6.5.1.1. List Available Service

The **Service List menu** displays a list of services defined for the transport streams.

To access the Services List menu in the front panel, select **Root→Configuration→Transport Stream→Services→Service List** (see the following example).



To view the services list in the Web Manager, select tabs **Transport→Services** (see Figure 6-7).

NOTES



If the Service List is empty (in other words, there are no service defined for the stream), click the **[Add New]** button to add an entry.

The number of available services is set according to license permission. The license permission can start from one service per video channel and up to 32 services per unit. The default value is set to 8 services.

Selecting a service from the services list displays the service configuration menu. This menu displays the various parameters and setup options of the service (for a detailed description of the displayed information and configuring the service parameters, refer to section 6.5.2).

6.5.1.2. Adding a Service

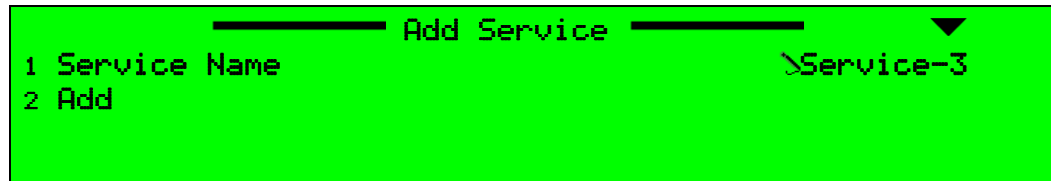
The **Add Service menu** allows adding a service from the transport stream to the service encoding channels.



NOTE

The Add Service Menu is displayed only when one or more unused channels are available.

To access the Add Service menu, through the front panel, select: **Root→Configuration→Transport Stream→Services→Add Service** (see the following example).



The **Service Name** parameter sets the name of the service to add. Selecting this option displays an edit value screen for entering a new service name (using the alphanumeric touch-pad).

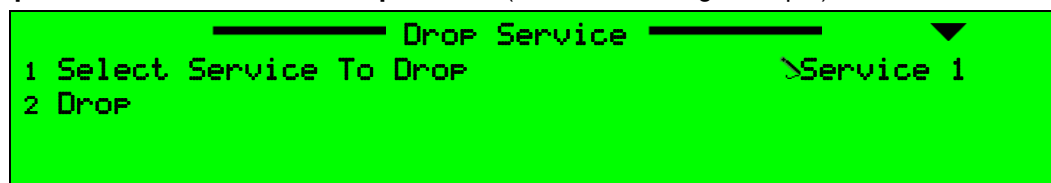
Selecting the **Add** option in the **Add Service** menu adds the new service to the transport stream.

To add a new service in the Web Manager, select tabs **Transport→Services** (see Figure 6-7) and press the **[Add New]** button. It will create a '**New Service**' in the service list (for configuring the new service, refer to section 6.5.2).

6.5.1.3. Drop a Service

The **Drop Service menu** displays the encoded services in the Service List. Selecting a service drops it from the Service List.

To access the Drop Service menu in the front panel, select **Root→Configuration→Transport Stream→ Services→Drop Service** (see the following example).



Selecting the **Select Service to Drop** parameter displays all the services related to the transport stream for selecting the service to be dropped.

Selecting the **Drop** option in the **Drop Service** menu drops the selected service from the transport stream. Once selected, this option executes the Drop command, not leading to a new screen. After executing the drop command, the screen displays the Services menu screen.

To drop a service using the Web Manager, select tabs **Transport→Services** (see Figure 6-7) and press the **[Drop]** button next to the service.

6.5.2. TS Service Configuration

Configuring a transport stream service requires setting up the service basic information, configuring the scrambling mode of the service and defining the elementary stream PID.

To access the Services Configuration menu in the front panel, select **Root→Configuration→Transport Stream→Services→Service List→[Service Name]** (see the following example).



To access the Service Configuration menu in the Web Manager, select the following tabs and hyperlinks: **Transport→Services→[Service Name]** (see Figure 6-8).

NOTES



The web management of the Service basic parameters is grouped next to the selected service (see example in Figure 6-8).

Additional parameters are listed for configuring of the selected service. Clicking the tag box enables the parameter for the service and displays a roll down menu for setting its scrambling state (clear or scrambled, see example in Figure 6-8).

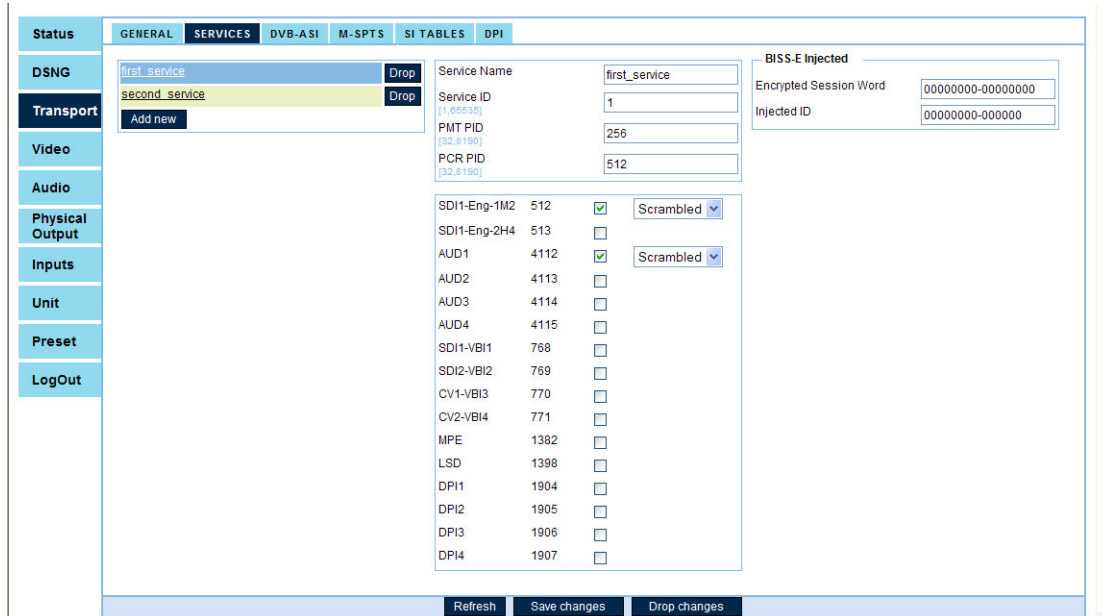


Figure 6-8: Service Configuration Menu

The following sub-paragraphs provide instructions for setting up the service basic parameters:

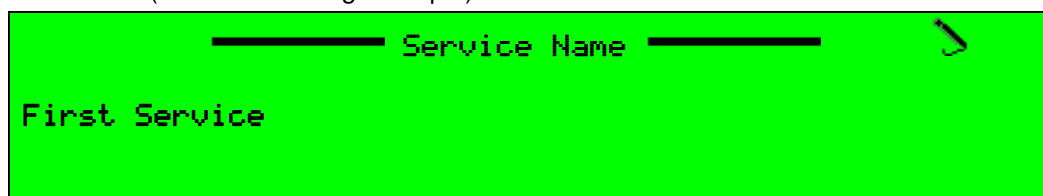
- Defining the service name, see paragraph 6.5.2.1.
- Setting the service ID, see paragraph 6.5.2.2.
- Selecting the program management table (PMT PID) for the service, see paragraph 6.5.2.3.
- Selecting the service program clock reference (PCR PID), see paragraph 6.5.2.4.

Managing the stream scrambling is detailed in paragraph 6.5.3. Listing, adding or dropping a stream PID is detailed in paragraph 6.5.4.

6.5.2.1. Service Name

The **Service Name** parameter sets the service name.

To view the Service Name parameter in the front panel, select **Root→Configuration→Transport Stream→Services→Service List→[Service Name]→Service Name** (see the following example).

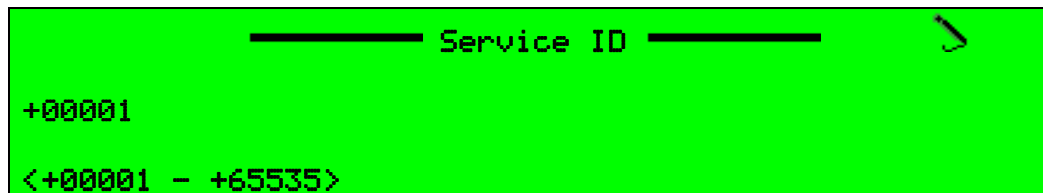


To edit the current name of the service, using the Web Manager, select tabs and hyperlinks **Transport→Services→[Service Name]** (see Figure 6-8) and click the Service Name field to enter a textual string.

6.5.2.2. Service ID

The **Service ID** parameter sets the ID number of the service.

To set the Service ID parameter in the front panel, select **Root→Configuration→Transport Stream→Services→Service List→[Service Name]→Service ID** (see the following example).



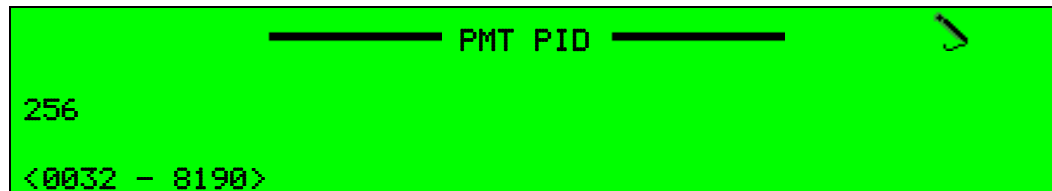
The available value ranges from +00001 to +65535.

To set the Service ID parameter in the Web Manager, select tabs and hyperlinks **Transport→Services→[Service Name]** (see Figure 6-8) and click the Service ID field to enter a valid number (0 to 65535).

6.5.2.3. PMT PID

The **PMT** (Program Management table) **PID** parameter sets the PID value of the **PMT**. The PMT PID is essential for defining the input identity.

To set the PMT PID parameter in the front panel, select **Root→Configuration→Transport Stream→Services→Service List→[Service Name]→PMT PID** (see the following example).



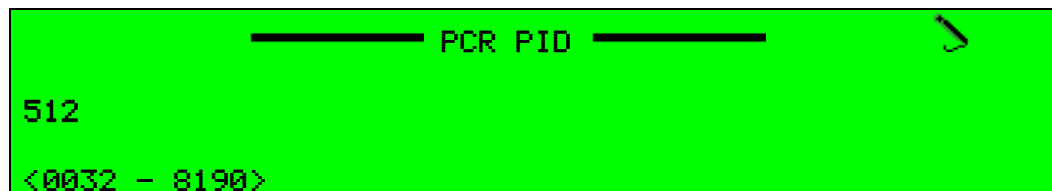
The PMT PID default value is 256. The available value ranges from 32 to 8190.

To set the PMT PID parameter in the Web Manager, select tabs and hyperlinks **Transport→Services→[Service Name]** (see Figure 6-8) and click the PMT PID field to enter a valid number (0x20 to 0xffe).

6.5.2.4. PCR PID

The **PCR** (Program Clock Reference) **PID** parameter sets the PID value of the **PCR**. The PCR PID is required for activating the PCR interval and connecting the service to the internal clock.

To set the PCR PID parameter in the front panel, select **Root→Configuration→Transport Stream→Services→Service List→[Service Name]→PCR PID** (see the following example).



The PCR PID default value is 512. The available value ranges from 32 to 8190.

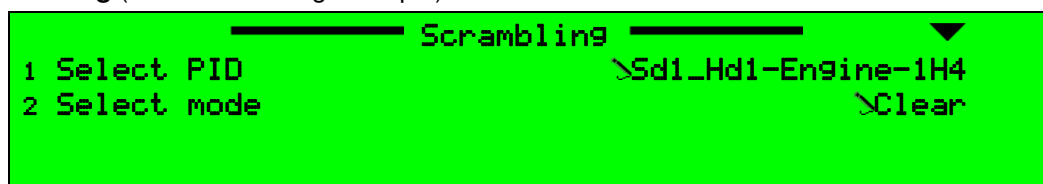
To set the PCR PID parameter in the Web Manager, select tabs and hyperlinks **Transport→Services→[Service Name]** (see Figure 6-8) and click the PCR PID field to enter a valid number (0x20 to 0xffe).

6.5.3. TS Scrambling Management

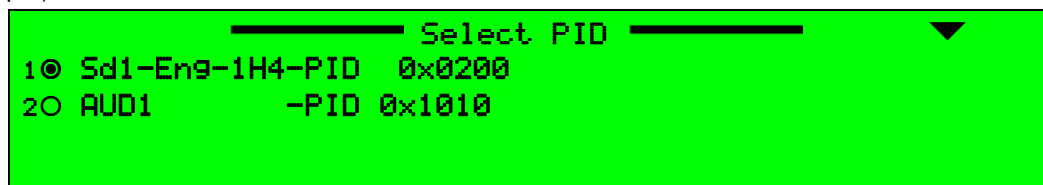
The scrambling mode (or level) of a transport stream is determined by the scrambling mode of the encoder, as set by the **Encoder Scrambling mode** function in the **TS General menu**. The **Encoder Scrambling menu** allows setting the scrambling mode of the elementary streams (**Clear**, **BISS-1**, **BISS-E Buried ID** and **BISS-E Injected ID** scrambling modes, refer to paragraph 6.2.3).

Managing the scrambling parameters of a transport stream requires selecting the scrambled PIDs in the stream and setting up the relevant scrambling parameters for the stream.

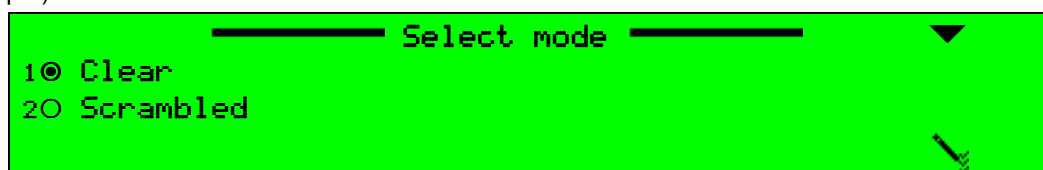
To access the Scrambling menu in the front panel, select **Root→Configuration→Transport Stream→Services→Service List→[Service Name]→Scrambling** (see the following example).



The **Select PID** parameter allows selecting the elementary stream requested for setting its scrambling mode. The parameter displays a list of available elementary streams in the selected service. The available options appear as a list of currently-used elementary streams for selected service. The list details the elementary stream's PID number (see the following example).



Once the stream is selected, the **Select Mode** parameter in the **Scrambling Menu** sets the scrambling mode for the selected elementary stream (**Clear** or **Scrambled**, see the following example).



NOTES



When setting a scrambled elementary stream to Clear, a warning message is displayed, requesting the user confirmation.

Selecting a scrambled mode adds a scrambling managing line to the Transport Stream menu, according to the scrambling mode activated. The following sub-paragraphs details the scrambling parameters configuration using these menus (from the front panel and from the web manager).

The scrambling word/key values for each scrambling mode are not displayed. The displayed value is always 0.

Changing / Updating these values is done as soon as the the new value is saved.

6.5.3.1. Clear Scrambling Mode

The **Clear** scrambling mode clears the transport stream of scrambling. Selecting this option sets the stream scrambling mode to **Clear** and returns the front panel menu to the Scrambling Mode higher level menu.

To set the Clear Scrambling parameters in the Web Manager, select the following tabs and hyperlinks: **Transport→Services→Service Name** (see example in Figure 6-9).

The image shows a web interface for configuring a service. At the top, there are input fields for 'Service Name' (containing 'first_service'), 'Service ID' (containing '1'), 'PMT PID' (containing '256'), and 'PCR PID' (containing '512'). Below these fields is a table of scrambling options. The first two options, 'SDI1-Eng-1M2' and 'SDI2-Eng-2M2', are checked and have a 'Clear' button next to them. The other options are unchecked.

Scrambling Mode	Value	Selected	Action
SDI1-Eng-1M2	512	☒	Clear
SDI2-Eng-2M2	513	☐	
SDI1-Eng-3H4	514	☐	
SDI2-Eng-4H4	515	☐	
AUD1	4112	☒	Clear
AUD2	4113	☐	
AUD3(L)	4114	☐	
AUD4(L)	4115	☐	
SDI1-VBI1	768	☐	
SDI2-VBI2	769	☐	
CV1-VBI3	770	☐	
CV2-VBI4	771	☐	
MPPE	1382	☐	
LSD	1398	☐	
DPI1	1904	☐	
DPI2	1905	☐	

Figure 6-9: Clear Scrambling Set-Up Display

6.5.3.2. BISS-1 Scrambling Mode

The **BISS-1** scrambling mode sets the scrambling mode with a Clear Session Word key – in other words, the key is not encrypted. Selecting this option sets the encoder scrambling mode to **BISS-1** and requests the user to enter the BISS-1 scrambling key.

To set the Clear Session Word parameter for the BISS-1 mode, select in the front panel: **Root→Configuration→Transport Stream→Services→Service List→[Service Name] BISS-1 Configuration→Clear Session Word** (see the following example).

The image shows a green screen with the text 'Clear Session Word' in the center. Below it, the value '000000-000000' is displayed. A cursor is visible on the right side of the screen.

The required value is a 12-digit scrambling key. The Clear Session Word displayed value is always 000000-000000.



NOTE

The scrambling word/key values for the BISS-1 scrambling mode are not displayed. Changing / Updating these values is done as soon as the new value is saved.

To set the Video, Audio and Clear Session Word scrambling parameters for the BISS-1 Scrambling mode in the Web Manager, select the following tabs and hyperlinks: **Transport→Services→Service Name** to display the stream information (see example in Figure 6-10).

Service Name	first_service
Service ID [1,65535]	1
PMT PID [32,8190]	256
PCR PID [32,8190]	512

BISS-1			
Clear Session Word	000000-000000		

SDI1-Eng-1M2	512	☒	Scrambled
SDI2-Eng-2M2	513	☐	
SDI1-Eng-3H4	514	☐	
SDI2-Eng-4H4	515	☐	
AUD1	4112	☒	Scrambled
AUD2	4113	☐	
AUD3(L)	4114	☐	
AUD4(L)	4115	☐	
SDI1-VBI1	768	☐	

Figure 6-10: BISS-1 Scrambling Set-Up Display

6.5.3.3. BISS-E Buried ID Scrambling Mode

The **BISS-E Buried ID** scrambling mode sets the encoder to receive a scrambling key, decode it, and read the decoded key. This mode does not display the decoded key, only the original key number before decoding.

To access the BISS-E Buried ID scrambling parameters in the front panel, select: **Root→Configuration→Transport Stream→Services→Service List→[Service Name] BISS-E Buried Configuration** (see the following example).

```

      BISS-E Buried configuration
1 Encrypted Session Word 00000000-00000000
  
```

The **Encrypted Session Word** parameter defines the key number before decoding. This value has no useful meaning when trying to get the new decoded scrambling-key.

To set the Encrypted Session Word parameter in the front panel, select: **Root→Configuration→Transport Stream→BISS-E Buried Configuration→Encrypted Session Word** (see the following example).

```

      Encrypted Session Word
00000000-00000000
  
```

The required value is a 16-digit scrambling key number. The Encrypted Session Word displayed value is always 00000000-00000000.



NOTE

The scrambling word/key values for the BISS-E Buried ID scrambling mode are not displayed. Changing / Updating these values is done as soon as the new value is saved.

To set the Video, Audio and Encrypted Session Word scrambling parameters for the BISS-E Buried ID Scrambling mode in the Web Manager, select tabs **Transport**→**Services**→**Service Name** (see example in Figure 6-11).

Service Name	first_service
Service ID [1,65535]	1
PMT PID [32,8190]	256
PCR PID [32,8190]	512

Element	Value	Scrambled
SDI1-Eng-1M2	512	☒
SDI2-Eng-2M2	513	☐
SDI1-Eng-3H4	514	☐
SDI2-Eng-4H4	515	☐
AUD1	4112	☒
AUD2	4113	☐
AUD3(L)	4114	☐
AUD4(L)	4115	☐
SDI1-VBI1	768	☐
SDI2-VBI2	769	☐
CV1-VBI3	770	☐
CV2-VBI4	771	☐
MPE	1382	☐
LSD	1398	☐

Figure 6-11: BISS-E Buried ID Scrambling Set-Up Display

6.5.3.4. BISS-E Injected ID Scrambling Mode

The **BISS-E Injected ID** scrambling mode displays the buried scrambling key along with the unit's injected ID.

To access the BISS-E Injected scrambling parameters in the front panel, select: **Root**→**Configuration**→**Transport Stream**→**Services**→**Service List**→[Service Name]→**BISS-E Injected configuration** (see the following example).

```

BISS-E Injected configuration
1 Encrypted Session Word 00000000-00000000
2 Injected ID             00000000-00000000
  
```

The **BISS-E Injected Configuration** menu provides set-up access to two parameters; the **Encrypted Session Word** parameter and the **Injected ID** parameter.



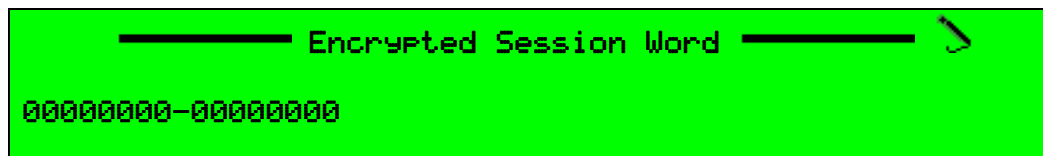
NOTE

The scrambling word/key values for the BISS-E Injected ID scrambling mode are not displayed. Changing / Updating these values is done as soon as the the new value is saved.

1. ENCRYPTED SESSION WORD

The **Encrypted Session Word** parameter defines the key number before decoding. This value has no useful meaning when trying to obtain the new decoded scrambling-key.

To set the Encrypted Session Word parameter in the front panel, select **Root**→**Configuration**→**Transport Stream**→**Services**→**Service List**→[Service Name]→**BISS-E Injected configuration**→**Encrypted Session Word** (see the following example).

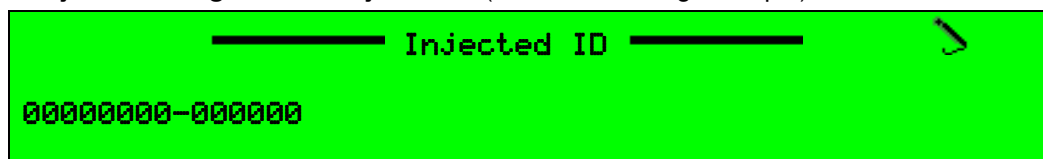


The available value is a 16-digit scrambling key number. The Encrypted Session Word displayed value is always 00000000-00000000.

2. INJECTED ID

The **Injected ID** parameter defines the unit ID number.

To set the Injected ID parameter in the front panel, select **Root→Configuration→Transport Stream→Services→Service List→[Service Name] BISS-E Injected configuration→Injected ID** (see the following example).



The available value is a 14-digit key defining the unit ID number. The Injected ID displayed value is always 00000000-000000.

To set the Video, Audio and Encrypted Session Word scrambling parameters for the BISS-E Burried ID Scrambling mode in the Web Manager, select tabs **Transport→Services→Service Name** (see example in Figure 6-12).

Service Name	first_service	BISS-E Injected	
Service ID [1,85635]	1	Encrypted Session Word	00000000-00000000
PMT PID [32,8190]	256	Injected ID	00000000-000000
PCR PID [32,8190]	512		

SDI1-Eng-1M2	512	☒	Scrambled
SDI2-Eng-2M2	513	☐	
SDI1-Eng-3H4	514	☐	
SDI2-Eng-4H4	515	☐	
AUD1	4112	☒	Scrambled
AUD2	4113	☐	
AUD3(L)	4114	☐	
AUD4(L)	4115	☐	
SDI1-VBI1	768	☐	
SDI2-VBI2	769	☐	
CV1-VBI3	770	☐	
CV2-VBI4	771	☐	
MPE	1382	☐	
LSD	1398	☐	

Figure 6-12: BISS-E Injected ID Scrambling Set-Up Display

6.5.4. Add and Drop PID

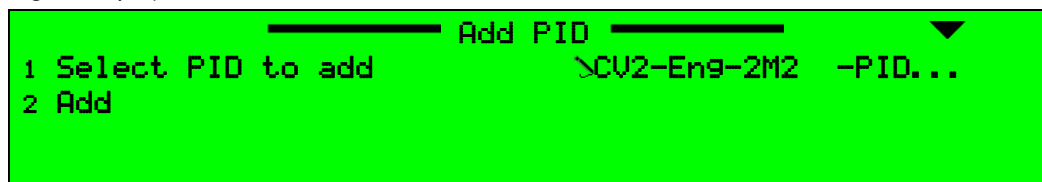
Adding and removing elementary streams (PIDs) from a service is performed differently in the front panel and web-management.

- **Front-Panel** – To add or drop a PID through the front-panel, see paragraphs 6.5.4.1 and 6.5.4.2.
- **Web management** – To add or drop a PID through the web-management, see paragraph 6.5.4.3.

6.5.4.1. Add PID Menu (Front Panel)

The **Add PID menu** allows adding an elementary stream to the selected service.

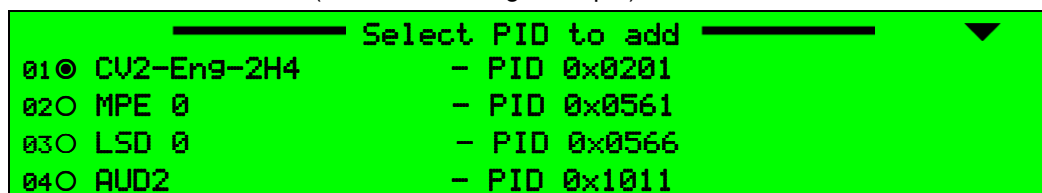
To access the Add PID menu in the front panel, select **Root→Configuration→Services→Service List→[Service Name]→Add PID** (see the following example).



The following sections detail the menu options and parameters.

1. SELECT PID TO ADD

The **Select PID to Add** parameter displays a list of available elementary streams for adding to the service. This list includes all video and audio elementary streams except for the elementary streams currently active in the selected service. The list details each elementary stream name and PID number. (see the following example).



2. ADD

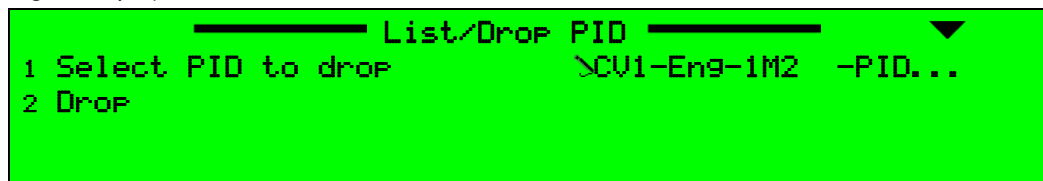
The **Add** parameter activates the selected elementary stream in the service. This option executes the Add command, not leading to a new.

After executing the add command, the screen displays the Service menu screen.

6.5.4.2. List or Drop PID Menu (Front Panel)

The **List or Drop PID menu** allows removing an elementary stream from the selected service.

To access the List or Drop PID parameter in the front panel, select **Root→Configuration→Services→Service List→[Service Name]→List/Drop PID** (see the following example).

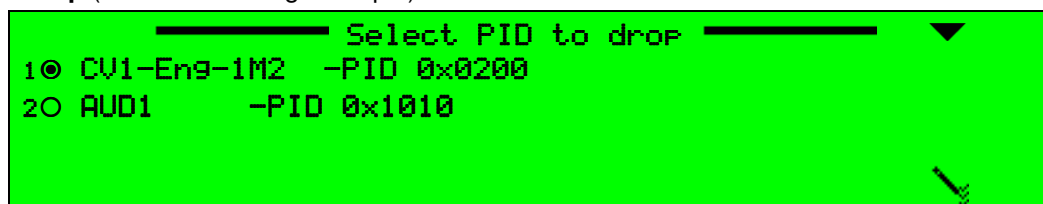


The following sections detail the menu options and parameter.

1. SELECT PID TO DROP

The **Select PID to Drop** parameter displays a list of the available elementary streams to remove from the service. This list includes all video and audio elementary streams currently active in the selected service.

To set the Select PID to Drop parameter in the front panel, select **Root→Configuration→Services→Service List→[Service Name]→List/Drop PID→ Select PID to drop** (see the following example).



2. DROP

The **Drop** parameter deletes the selected elementary stream from the service. This option executes the Drop command, not leading to a new screen.

After executing the drop command, the screen displays the Service menu screen.

6.5.4.3. PID List (Web-Management)

The **PID List** displays all available audio, video, and VBI elementary streams in the Ellipse. The table also details the elementary stream PID number.

The checkboxes in the right-most column are for each elementary stream. Marking or clearing an elementary-stream checkbox allows adding or dropping elementary streams from the selected service.

To set the PID List table in the Web Manager, select the following tabs and hyperlinks: **Transport**→**Services**→**[Service Name]** (see Figure 6-13).

CV1-Eng-1M2	0x200	☒	Clear
CV2-Eng-2M2	0x201	☐	
AUD1	0x1010	☒	Clear
AUD2	0x1011	☐	
AUD3	0x1012	☐	
AUD4	0x1013	☐	
AUD5	0x1014	☐	
AUD6	0x1015	☐	
AUD7	0x1016	☐	
AUD8	0x1017	☐	
CV1-VBI1	0x300	☐	
CV2-VBI2	0x301	☐	

Figure 6-13: PID List Table Display

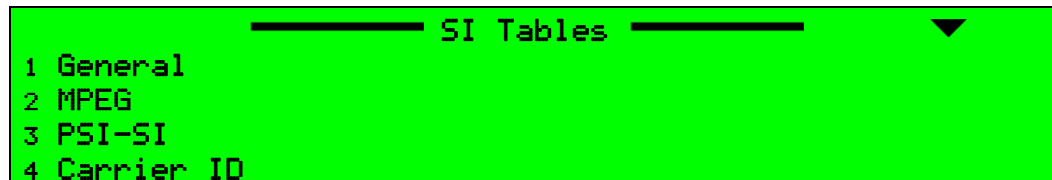
The available columns and information in the PID List are:

- **Name** – Elementary stream name
- **PID** – Elementary stream PID number
- **Availability Checkbox** – Checking the box allocated the elementary-stream to the selected service
- **Scrambling Activation Field** – A drop-down menu that sets the scrambling mode of the elementary stream. The available options are **Clear** and **Scrambled**.

6.6. SI Tables Menu

The **SI Tables menu** configures the mode of inclusion of DVB MPEG and PSI-SI Service Information tables in the stream for bandwidth-saving purposes and for determining the SI-table interval value. It also activates and configures the Carrier ID parameters for the ISOG-WBU requirements.

To access the SI Tables menu in front panel select **Root→Configuration→ Transport Stream→SI Tables** (see the following example):



To access the SI Tables sub-menu in the Web Manager, select tabs **Transport→SI Tables** (see Figure 6-14).

 A screenshot of the Web Manager interface for the SI Tables menu. The interface has a sidebar on the left with tabs: Status, DSNG, Transport (selected), Video, Audio, Physical Output, Inputs, Unit, Preset, and LogOut. The main area has tabs: GENERAL, SERVICES, DVB-ASI, M-SPTS, SI TABLES (selected), and DPI. The SI TABLES tab is divided into three sections: General, MPEG Tables, and PSI-SI Tables. The General section has "Tables Configuration" set to "Full" and "ISOG-WBU Carrier ID" set to "Enable". The Carrier ID section has fields for "Carrier Identifier" (HLIT), "Telephone Number" (+972(54)9007000), "Longitude" (+000.0000), and "Latitude" (+000.0000). The MPEG Tables section has fields for "PAT Interval [mSec]" (450), "PMT Interval [mSec]" (450), "CAT Interval [mSec]" (90), and "PCR Intervals [mSec]" (35). The PSI-SI Tables section has fields for "NIT Interval [mSec]" (9000), "SDT Interval [mSec]" (1800), "EIT Interval [mSec]" (1800), and "TDT Interval [mSec]" (27000). At the bottom, there are buttons for "Refresh", "Save changes", and "Drop changes".

Figure 6-14: Web Manager - SI Tables Menu

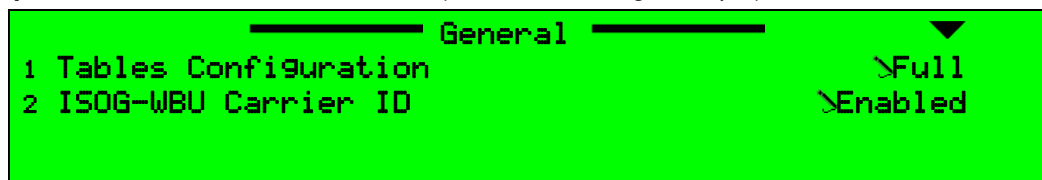
The SI Tables information is grouped into four sub-menus:

- SI Tables General information, sets SI tables type or ISOG-WBU Carrier activation, see paragraph 6.6.1
- Configures the SI parameters in the required tables for the MPEG Service Information, see paragraph 0
- Configures the SI parameters in the additional tables required by the extended PSI-SI Service Information, see paragraph 6.6.3
- Configures the ISOG-WBU Carrier ID parameters, see paragraph 0

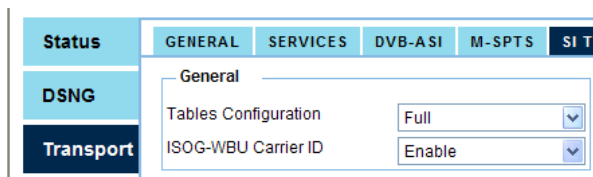
6.6.1. SI Tables General Parameters

The SI Tables General menu set the SI table configuration and the ISOG-WBU Carrier activation mode.

To access the **SI Tables General** menu in the front panel select **Root→Configuration→Transport Stream→SI Tables→General** (see the following example).



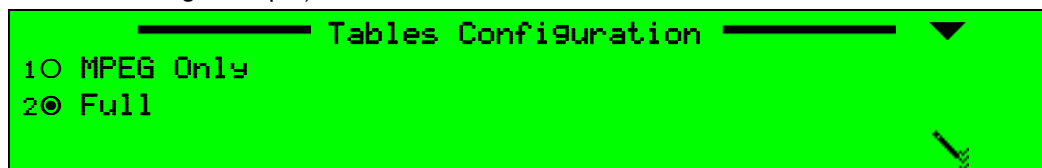
To access the SI Tables sub-menu in the Web Manager, select tabs **Transport→SI Tables**.



The options provided by the SI Tables General menu are:

- **Tables Configuration** option, which sets the mode of inclusion for the PSI-SI and DVB tables in the stream. This is used for bandwidth-saving purposes.

To set the Tables Configuration parameter in the front panel, select **Root→Configuration→Transport Stream→SI Tables→General→Tables Configuration** (see the following example).

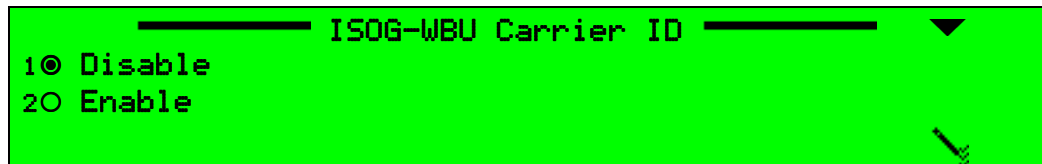


The Tables Configuration default value is '**Full**'. The available options are:

- **MPEG Only** – Sends PAT, PMT, CAT and PCR tables.
- **Full** – Adds NIT, SDT, EIT and TDT tables for full PSI-SI service information.

- **ISOG-WBU Carrier ID** option, which enables/disables the configuration of the carrier ID.

To set the Tables Configuration parameter in the front panel, select **Root→Configuration→Transport Stream→SI Tables→General→ISOG-WBU Carrier ID** (see the following example).



The ISOG-WBU Carrier ID default value is '**Disable**'. The available options are **Disable** / **Enable**:

6.6.2. MPEG SI Tables Refresh Interval Parameters

The MPEG SI Tables menu enables configuration of the refresh interval for the specific information tables required by the MPEG SI.

To access the MPEG SI Tables menu in the front panel, select **Root→Configuration→Transport Stream→SI Tables→MPEG** (see the following example).

MPEG	
1 PAT Interval	450
2 PMT Interval	450
3 CAT Interval	90
4 PCR Interval	35

To access the MPEG Tables in the Web Manager, select tabs **Transport→SI Tables**.

Status	GENERAL	SERVICES	DVB-ASI	M-SPTS	SI TABLES
DSNG	General				
Transport	Tables Configuration: MPEG Only ISOG-WBU Carrier ID: Disable				
Video	MPEG Tables				
Audio	PAT Interval [mSec]: 450 [50,500]				
Physical Output	PMT Interval [mSec]: 450 [50,500]				
Inputs	CAT Interval [mSec]: 90 [50,100]				
	PCR Intervals [mSec]: 35 [10,5000]				

The MPEG Tables menu sets the refresh interval for the following tables:

- Program-Associated Table (**PAT Interval** option): Default value is 450 mSec. The available value ranges from 50 to 500 mSec.
- Program-Mapping Table (**PMT Interval** option): Default value is 450 mSec. The available value ranges from 50 to 500 mSec.
- Conditional-Access Table (**CAT Interval** option). Default value is 90 mSec. The available value ranges from 50 to 100 mSec.
- Program Clock Reference (**PCR Interval** option). Default value is 35 mSec. The available value ranges from 10 to 5000 mSec.

6.6.3. PSI-SI Tables Parameters

The PSI-SI Tables menu enables configuration of the refresh interval for the additional specific information tables required by the DVB SI.

To access the additional PSI-SI Tables menu in the front panel, select **Root→Configuration→Transport Stream→SI Tables→PSI-SI** (see the following example).

PSI-SI	
1 NIT Interval	9000
2 SDT Interval	1800
3 EIT Interval	1800
4 TDT Interval	27000

To access the PSI-SI Tables in the Web Manager, select tabs **Transport→SI Tables**.

Status	GENERAL	SERVICES	DVB-ASI	M-SPTS	SI TABLES
DSNG	General				
Transport	Tables Configuration Full				
Video	ISOG-WBU Carrier ID Disable				
Audio	MPEG Tables				
Physical Output	PAT Interval [mSec] 450				
Inputs	PMT Interval [mSec] 450				
Unit	CAT Interval [mSec] 90				
Preset	PCR Intervals [mSec] 35				
LogOut	PSI-SI Tables				
	NIT Interval [mSec] 9000				
	SDT Interval [mSec] 1800				
	EIT Interval [mSec] 1800				
	TDT Interval [mSec] 27000				

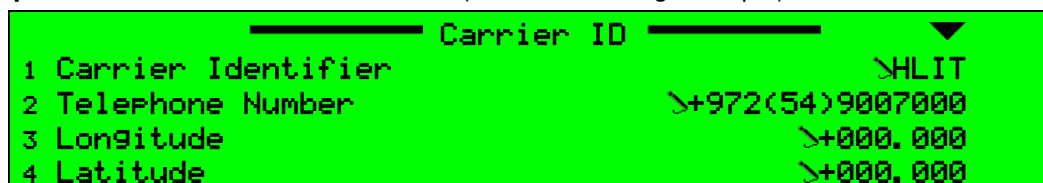
The PSI-SI Tables menu sets the refresh interval for the following tables:

- Network Information Table (**NIT Interval** option): Default value is 9,000 mSec. The available value ranges from 50 to 10,000 mSec.
- Service Description Table (**SDT Interval** option): Default value is 1,800 mSec. The available value ranges from 50 to 2,000 mSec.
- Event Information Table (**EIT Interval** option). Default value is 1,800 mSec. The available value ranges from 50 to 20,000 mSec.
- Time and Date Table (**TDT Interval** option). Default value is 27,000 mSec. The available value ranges from 0 to 30,000 mSec.

6.6.4. ISOG-WBU Carrier ID Parameters

The ISOG-WBU Carrier ID menu enables the operator to set the carrier identification parameters.

To access the ISOG-WBU Carrier ID menu in the front panel, select **Root→Configuration→Transport Stream→SI Tables→Carrier ID** (see the following example).



To access the SI Tables sub-menu in the Web Manager, select tabs **Transport→SI Tables**.

Status	GENERAL	SERVICES	DVB-ASI	M-SPTS	SI TABLES	DPI
DSNG	General		Carrier ID			
Transport	Tables Configuration	MPEG Only	Carrier Identifier			
	ISOG-WBU Carrier ID	Enable	Telephone Number			
Video	MPEG Tables		Longitude			
Audio	PAT Interval [mSec]	450	Latitude			

The options provided by the Carrier ID menu are:

- **Carrier Identifier** option, which sets an identifier for the carrier (free text string).
- **Telephone number** option, which sets the carrier telephone number.
- **Longitude** option, which enters the carrier longitude geographical location.
- **Latitude** option, which enters the carrier latitude geographical location.

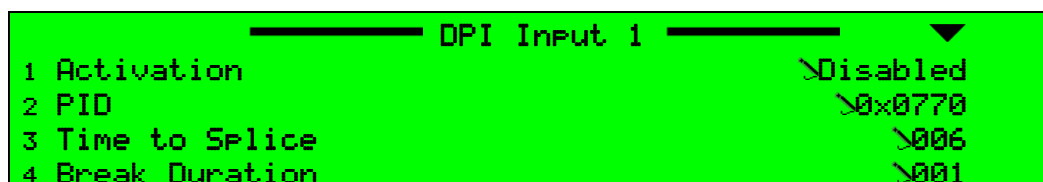
6.7. DPI Menu

The **DPI menu** sets the parameters for a digital program insertion (Q Tone trigger for commercial needs). The signal is enabled in Audio analog mode.

To access the DPI menu in the front panel, select **Root→Configuration→ Transport Stream→DPI** to display the available program insertion options (see the following example).



Once the required DPI Input is selected for configuration, the DPI parameters list is displayed for viewing (see the following example). Selecting an option enables the user to configure the parameter.



The set-up options for each DPI parameters are:

- **DPI Activation** – Sets the DPI operational status. Options: Disabled or Enabled (radio button selection), default option: Disabled.
- **PID** – Sets the PID of the elementary stream which carries the DPI information. Range: 32 to 8190, default option: 1409.
- **Time to Splice** – Sets the time to next expected splice. Range: +5 to +500 [Seconds], default option: 6.
- **Break Duration** – Sets the duration of the break for local insertion of material. Range: +1 to +500 [Seconds], default option: 1.
- **Duration Flag** – Indicates the presence of a break duration (when set to 1). Options: 0 or 1 (radio button selection), default option: 0.
- **Auto Return** – Denotes that the duration of the break shall be used to mark the return to network feed. Options: Disabled or Enabled (radio button selection), default option: Disabled.
- **Avails Expected** – Sets a count of the number of insertions expected within the current viewing event. Range: 0 to +255, default option: 1.
- **Unique Program ID** – Selects the Program ID which represents the content ID. Range: 0x1 to 0xff [Hex], default option: 0x1.

- **DPI Source** – Chooses the audio channel where the DPI information is included.
Options: all audio channels licenced to the unit (radio button selected). Default option: Audio CH#1 Left.

To access the DPI sub-menu in the Web Manager, select tabs **Transport**→**DPI** (see Figure 6-15).

Tab	GENERAL	SERVICES	DVB-ASI	M-SPTS	SI TABLES	DPI
Status						
DSNG						
Transport						
Video						
Audio						
Physical Output						
Inputs						
Unit						
Preset						
LogOut						

DPI Input 1		DPI Input 3	
Activation	Disabled	Activation	Disabled
PID	1904	PID	1906
Time To Splice [Seconds]	6	Time To Splice [Seconds]	6
Break Duration [Seconds]	1	Break Duration [Seconds]	1
Duration Flag	1	Duration Flag	1
Auto Return	Disabled	Auto Return	Disabled
Avails Expected	1	Avails Expected	1
Unique ProgramID	0x1	Unique ProgramID	0x1
DPI Source	Audio CH#1 Left	DPI Source	Audio CH#1 Left

DPI Input 2		DPI Input 4	
Activation	Disabled	Activation	Disabled
PID	1905	PID	1907
Time To Splice [Seconds]	6	Time To Splice [Seconds]	6
Break Duration [Seconds]	1	Break Duration [Seconds]	1
Duration Flag	1	Duration Flag	1
Auto Return	Disabled	Auto Return	Disabled
Avails Expected	1	Avails Expected	1
Unique ProgramID	0x1	Unique ProgramID	0x1
DPI Source	Audio CH#1 Left	DPI Source	Audio CH#1 Left

Buttons: Refresh Save changes Drop changes

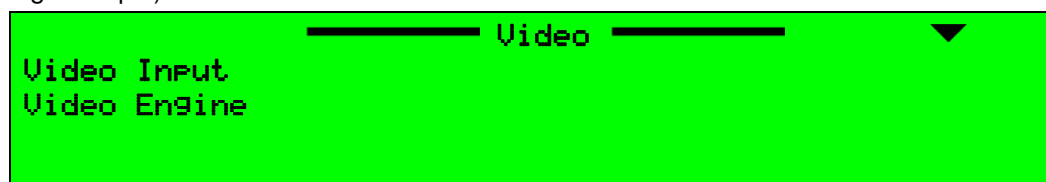
Figure 6-15: Web Based Management - DPI Menu

The **Video menu** sets up the Ellipse encoder for the video data received (input) and generated (output). The Video menu allows setting the two main elements of video encoding; the Video Input interfaces and the Video Encoding Engines.

- The Ellipse 1000/2000 Encoders support SDI and CV video inputs and SD/HD engines.
- The Ellipse 1000H/2000H Encoders features the advanced new SD-HD SDI Interface and supports SD-HD SDI video inputs and SD/HD engines.

7.1. General

To access the Video menu in the front panel, select **Root→Configuration→Video** (see the following example).



The available menus are (see tree structure in Figure 7-2):

- **Video Input** – Allows setting the video channel's configuration parameters. The sub-menu displays the available video channels categorized according to type and number (SD-HD SDI, SDI or C/V). Selecting a channel displays its configuration options. For more information, see paragraph 7.2.
- **Video Engine** – Allows setting the encoding engine's configuration parameters. The Ellipse supports MPEG-2 and MPEG-4 AVS (H.264) encoding engines. For more information, see paragraph 7.3.

To access the Video menu in the Web Manager, select the **Video** tab (see Figure 7-1).

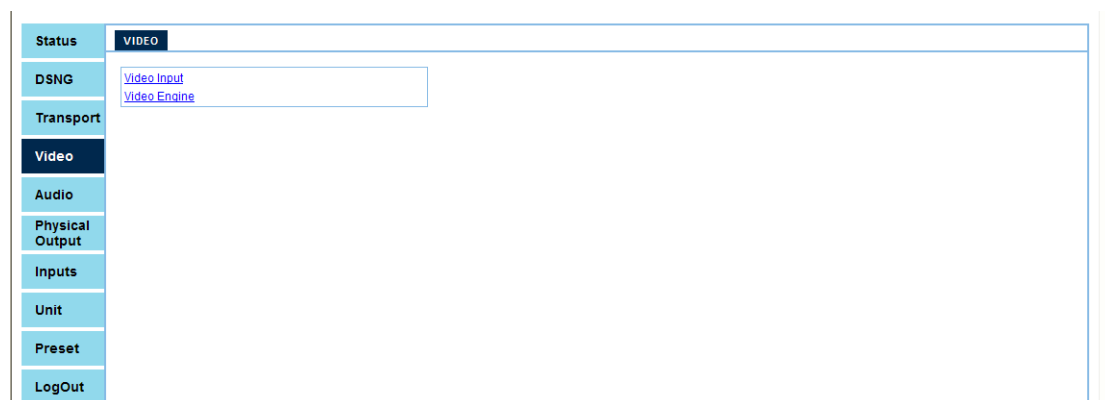
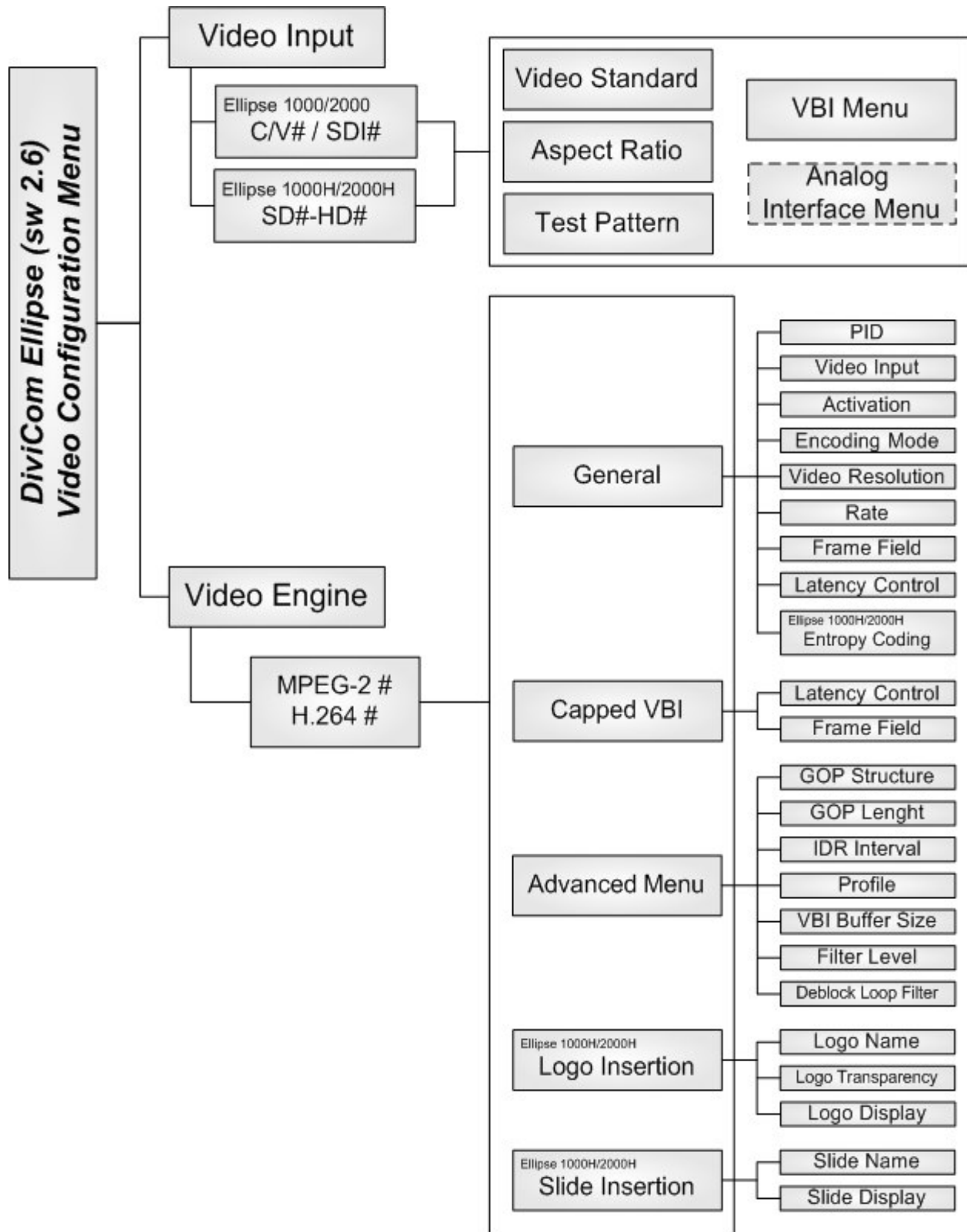


Figure 7-1: Video Parameters Menu Display

**Figure 7-2: Video Menu Tree Structure**

NOTES

Video input types (C/V, SDI or SD-HD SDI) and amounts (1-4) are available according to module capabilities and options. Analog Interface Menu is only available for C/V inputs.

The video engine type for the Ellipse Contribution Encoders is either MPEG-2 or MPEG-4 AVC (H.264). Amounts (1-2) are available according to module capabilities and options.

Single Pass VBR (Capped VBR) menus are currently active only for dual MPEG-2 units and are not supported in the current units.

7.2. Video Input

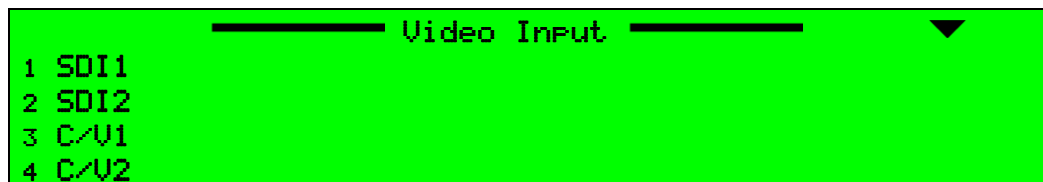
The **Video Input** menu displays the available video-channels in the Ellipse. The number of the available video-channels changes according to the encoder module as follows:

- **Ellipse 1000/2000** –MPEG-2 (H.264 upgradeable) SD Encoder.
- **Ellipse 1000H/2000H** –MPEG-2 (H.264 upgradeable) SD/HD Encoder.

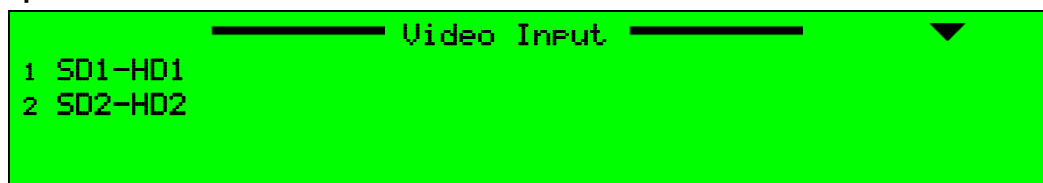
The list specifies each channel hierarchy number and its video interface type. The Ellipse 1000/2000 encoder supports two types of video interfaces: **C/V** (Composite Video) and **SDI** (Serial Digital Interface). The Ellipse 1000H/2000H encoders support the new SD-HD SDI interface. Each input interface allows different access levels and presents different parameters, according to its interface card capabilities. For example, the **Analog Interface** menu is only available for C/V inputs, and is not intended for SDI inputs.

To access the Video Input menu in the front panel, select: **Root→Configuration→Video→Video Input** (see the following examples):

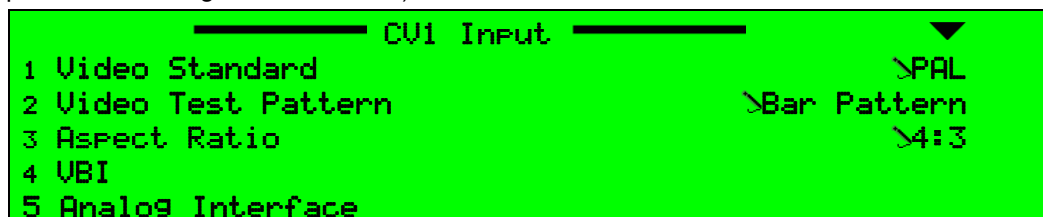
for Ellipse 1000/2000.



for Ellipse 1000H/2000H.



To access a specific Video Input Configuration menu in the front panel, select **Root→Configuration→Video→Video Input→CV#/SDI#** or **→SD#/HD#** (see the following example for CV Analog Video Interface).



NOTE

The amount of permitted and available interfaces is set according to the Ellipse module and its supporting hardware.

The Analog Interface sub-menu is displayed only for analog (CV) inputs.

The menu displays a list of video channels, categorized by a number and interface type (the web-management displays a row of sub-tabs with the video-channel names, and the first channel is selected automatically). Selecting a video channel from the list displays the channel's configuration parameters (related to its input interface).

To access the Video Input menu in the web-management, select the following tabs and hyperlinks: **Video→Video Input** (see Figure 7-3).

Ellipse 1000/2000

Status	SDI1	SDI2	CV1	CV2
DSNG	Video Standard: PAL Video Test Pattern: None Aspect Ratio: 4:3			
Transport				
Video	VBI PID: 770 Activation: Disabled			
Audio				
Physical Output				
Inputs	VBI Lines Teletext Subtitling			
Unit				
Preset				
LogOut				

Refresh Save changes Drop changes

Ellipse 1000H/2000H

Status	SDI1-HD1
DSNG	Video Standard: SD-576i/50Hz Video Test Pattern: None Aspect Ratio: 4:3
Transport	
Video	VBI PID: 768 Activation: Disabled
Audio	
Physical Output	
Inputs	VBI Lines Teletext Subtitling
Unit	
Preset	
LogOut	

Refresh Save changes Drop changes

Figure 7-3: Video Input Configuration Menu

7.2.1. Video Standard

7.2.1.1. Ellipse 1000/2000 Video Standard (SDI and CV Video Inputs)

The **Video Standard** parameter displays and manages the current video format for the video interface and video encoding for the video input received by the Ellipse 1000/2000 over the SDI (digital) and CV (analog) interface. This sets the format of the video-channel inputs to the PLA cards.

To set the Video Standard parameter in the front panel, select **Root→Configuration→Video→Video Input→CV#/SDI#→Video Standard** (see the following example).



The Video Format default value is '**PAL**'. The available options are:

- **Auto Format** – Automatically detects the stream's format (PAL or NTSC) and changes accordingly
- **PAL, NTSC, PAL-M** and **PAL-CN** – Sets the required format.

NOTE



When set to auto-format, the unit will automatically **try** to change the format according to the stream.

If any video definition does not match the new format, the encoder will not change the format (for example, VBI lines or a resolution that is available only for NTSC).

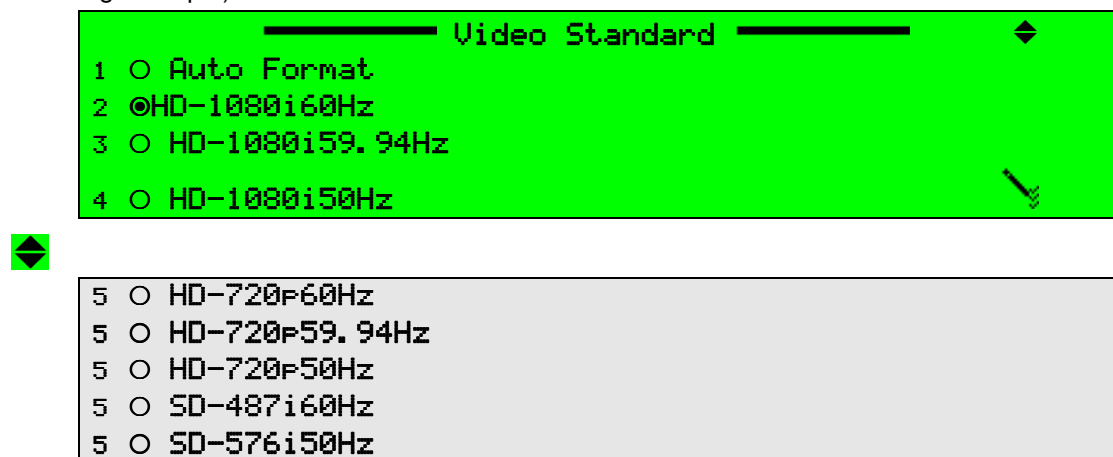
The encoder will display a Dependency Check error message and maintain the previous video format; the user must set all values to fit the new format and then automatic setting can be performed.

To set the Video Format parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→ SD#/CV#** (see Figure 7-3).

7.2.1.2. Ellipse 1000H/2000H Video Standard (SD-HD SDI Video Inputs)

The **Video Standard** parameter displays and manages the current video format for the video interface and video encoding for the video input received by the Ellipse 1000H/2000H over the SD-HD SDI interface. This sets the format of the video-channel inputs to the PLA cards.

To set the Video **Standard** parameter in the front panel, select **Root→Configuration→Video→Video Input→SD#-HD#→Video Standard** (see the following example).



The Video Format default value is 'SD-576i50Hz'. The available options are:

- **Auto Format** – Automatically detects the stream's format (various HS / SD) and changes accordingly
- **HD-1080i60Hz, HD-1080i59.94Hz, HD-1080i50Hz, HD-720p60Hz, HD-720p59.94Hz, HD-720p50Hz, SD-487i60Hz and SD-576i50Hz** – Sets the required format.

NOTE



When set to auto-format, the unit will automatically **try** to change the format according to the stream.

If any video definition does not match the new format, the encoder will not change the format (for example, VBI lines or a resolution that is available only for NTSC).

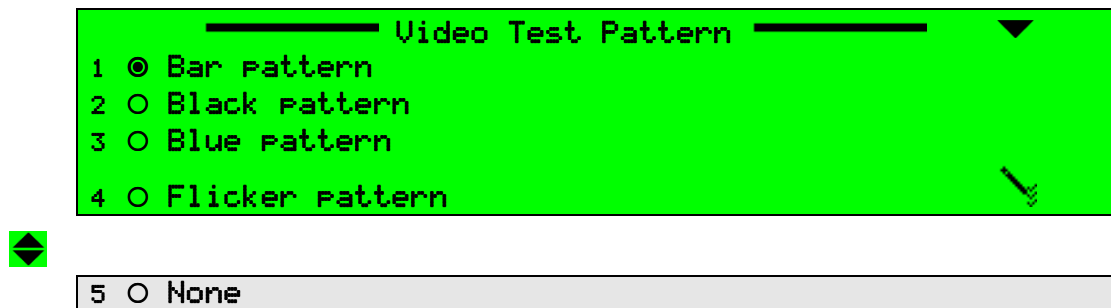
The encoder will display a Dependency Check error message and maintain the previous video format; the user must set all values to fit the new format and then automatic setting can be performed.

To set the Video Format parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→ SD#-HD#** (see Figure 7-3).

7.2.2. Video Test Pattern

The **Video Test Pattern** parameter sets the type of test pattern display.

To set the Video Test Pattern parameter in the front panel, select **Root→Configuration→Video→Video Input→CV#/SDI#orSD#-HD#→Video Test Pattern** (see the following example).



The Video Test Pattern default value is Bar Pattern. The available options are:

- **Bar Pattern** – Presents high-quality bar pattern for test pattern
- **Black Pattern** – Presents black pattern for test pattern
- **Blue Pattern** – Presents blue pattern for test pattern
- **Flicker Pattern** – Flickers between bar and black patterns
- **None** – Test pattern is disabled. Video source is routed from the video interface (C/V or SDI).

To set the Video Test Pattern parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→CV#/SDI#** (see Figure 7-3).

7.2.3. Aspect Ratio

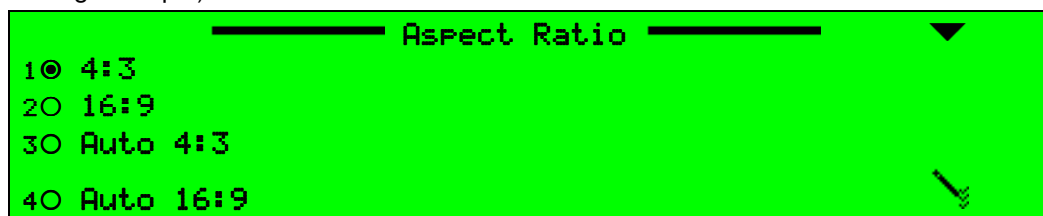
The **Aspect Ratio** parameter sets the aspect ratio value in order to determine the aspect ratio mode of display.

NOTE



When set to Automatic, aspect ratio definitions are extracted from the Wide Screen Signaling (WSS) sent with the video input signal. When WSS is not detected in the signal, the aspect-ratio default setting is defined according to Automatic mode – Auto 4:3 default is 4:3 and Auto 16:9 default is 16:9.

To set the Aspect Ratio parameter in the front panel, select **Root→Configuration→Video→Video Input→CV#/SDI# orSD#-HD#→Aspect Ratio** (see the following example).



The Aspect Ratio default value is 4:3. The available options are:

- **4:3** – Aspect ratio is manually set to 4:3.
- **16:9** – Aspect ratio is manually set to 16:9.
- **Auto 4:3** – Aspect ratio is drawn from the WSS signal. When no WSS is detected, the aspect ratio is set to 4:3.
- **Auto 16:9** – Aspect ratio is drawn from the WSS signal. When no WSS is detected, the aspect ratio is set to 16:9.

To set the Aspect Ratio parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→CV#/SDI#** (see Figure 7-3).

7.2.4. VBI Menu

The **VBI menu** sets VBI elementary stream definitions, such as PID, activation mode, and VBI lines.

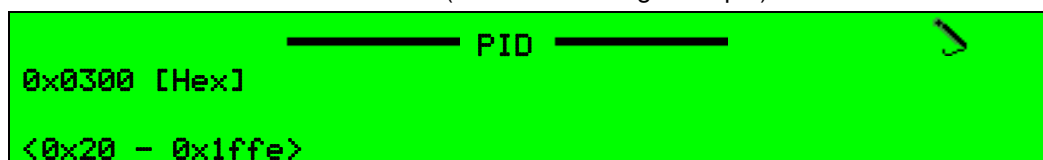
To access the VBI menu in the front panel, select **Root→Configuration→Video→Video Input→CV#/SDI#** or **SD#-HD#→VBI** (see the following example).



7.2.4.1. PID

The **PID** parameter sets the VBI elementary stream PID number.

To set the PID parameter in the front panel, select **Root→Configuration→Video→Video Input→CV#/SDI#** or **SD#-HD#→VBI→PID** (see the following example).



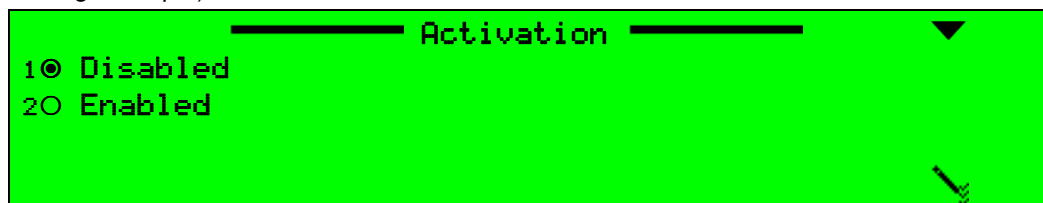
The available value ranges from 0x20 to 0x1FFE. The value is hexadecimal.

To set the PID parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→CV#/SDI#** or **SD#-HD#** (see Figure 7-3).

7.2.4.2. Activation

The **Activation** parameter sets the VBI elementary-stream activation mode.

To set the Activation parameter in the front panel, select **Root→Configuration→Video→Video Input→CV#/SDI#orSD#-HD#→VBI→Activation** (see the following example).



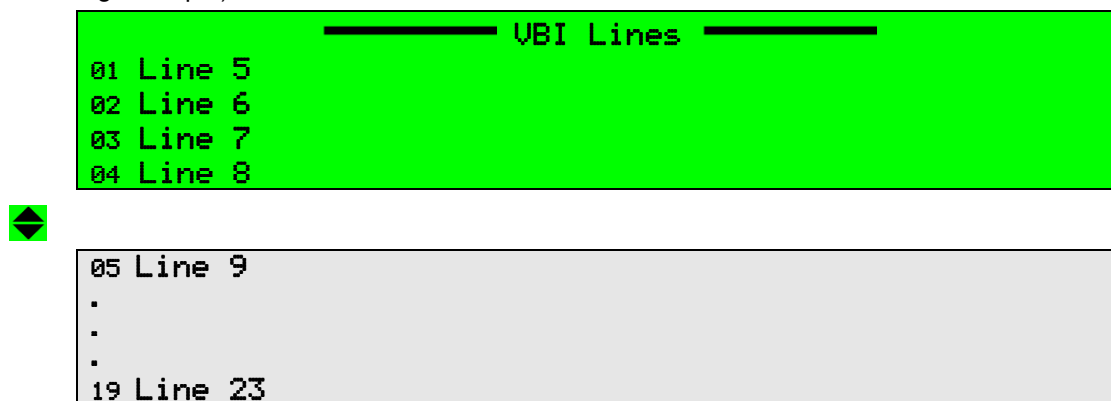
The Activation default value is **Disabled**. The available options are **Enabled** or **Disabled**.

To set the Activation parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→CV#/SDI# or SD#-HD#** (see Figure 7-3).

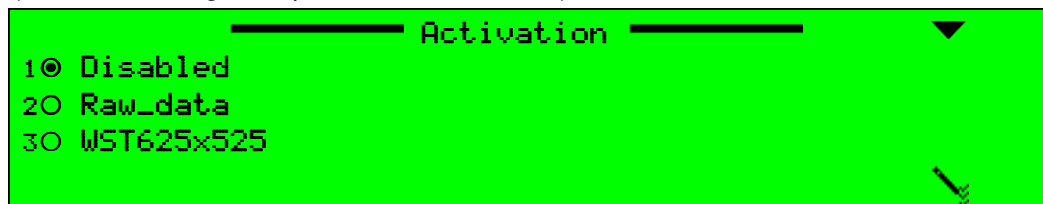
7.2.4.3. VBI Lines

The **VBI Lines** menu displays a list of available VBI lines in the stream. Each VBI line is assigned with available VBI types. For example, inserting the VBI elementary stream to line 16 allows inserting a VBI of VPS type (Video Program System).

To access the VBI Lines menu in the front panel, select **Root→Configuration→Video→Video Input→CV#/SDI#→VBI→VBI Lines** (see the following example).



Each line has odd and even values. To set the odd and even values of a line, in the front panel select the line and then select the odd or even side for value set-up by: **Root→Configuration→Video→Video Input→CV#/SDI#→VBI→VBI Lines→Line_#→Odd/Even** (see the following example for VBI line 11/Odd).



The following table details each line's odd and even available values.

VBI Line	Even	Odd
5 to 6	Disabled	Disabled
7 to 15	Disabled Raw Data WST625_525	Disabled Raw Data WST625_525
16	Disabled Raw Data WST625_525	Disabled Raw Data WST625_525 VPS
17 to 20	Disabled Raw Data WST625_525	Disabled Raw Data WST625_525
21	Disabled CC User Data CC ATSC	Disabled CC User Data CC ATSC
22	Disabled Raw Data WST625_525	Disabled Raw Data WST625_525
23	Disabled Raw Data	Disabled Raw Data WSS625_525

NOTES



Lines 5-8 and 22-23 are not available for NTSC video format.

When the Video Format is set to NTSC, line 21 can insert Close Caption VBI. Enabling the line sends the Close Caption through the Video Header.

Raw Data option is a field designated for monochrome 4:2:2 samples (ETSI EN 301 775). The monochrome sample data coding is included in order to manage VBI-information transfer and signaling standards that are not supported by the unit. The encoder can use the monochrome 4:2:2 mechanisms to encode any single VBI line, as long as no chrominance information is involved.

Raw Data is only available for a C/V interface.

When working with a **Ellipse unit with both C/V and SDI** video interfaces, the VBI headers are currently only supported for the SDI interface. The supported VBIs are: WSS, Teletext, VPS, and CC.

To access the VBI Lines menu in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→CV#/SDI#→VBI Lines** (see Figure 7-4).

Line	Even	Odd
line 5	Disabled	Disabled
line 6	Disabled	Disabled
line 7	WST625X525	WST625X525
line 8	WST625X525	WST625X525
line 9	WST625X525	WST625X525
line 10	WST625X525	WST625X525
line 11	WST625X525	WST625X525
line 12	WST625X525	WST625X525
line 13	WST625X525	WST625X525
line 14	WST625X525	WST625X525
line 15	WST625X525	WST625X525
line 16	WST625X525	WST625X525
line 17	WST625X525	WST625X525
line 18	WST625X525	WST625X525
line 19	WST625X525	WST625X525
line 20	WST625X525	WST625X525
line 21	WST625X525	WST625X525
line 22	WST625X525	WST625X525
line 23	Disabled	Disabled

Figure 7-4: VBI Lines Menu Display

7.2.4.4. Teletext Subtitling

The **VBI Lines** menu displays a list of available VBI lines in the stream.

Each VBI line is assigned with available VBI types. For example, inserting the VBI elementary stream to line 16 allows inserting a VBI of VPS type (Video Program System).

To access the Teletext Subtitling menu in the front panel, select **Root→Configuration→Video→Video Input→CV#/SDI#→Teletext Subtitling** (see the following example).

```

      Teletext Subtitling
01 Activation                               \Disabled
02 Teletext Initial Page                    \100
03 Teletext Initial Page                    \en9
04 Teletext Page 0                          \777

```



```

05 Teletext Page 0 Language                 \spa
.
.
.
12 Additional information Page              \780
13 Additional information Page Language     \en9
14 Program schedule page                   \780
15 Program schedule page Language          \en9

```

Selecting any of the options in the Teletext Subtitling menu displays an edit screen, relevant to the option:

- **Activation** option: Enables/Disables the teletext subtitling function

- **Subtitling Page 0/1/2/3/Additional Information/Program Schedule** options: Sets the page number (Range 100 to 899).
- **Subtitling Page 0/1/2/3/Additional Information/Program Schedule Language** options: Sets the 3 characters page language code according to the ISO 639-2 standard.

To access the Telexet Subtitling menu in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→Teletext subtitling** (see Figure 7-5).

Status	SDI1	SDI2	CV1	CV2
Teletext Subtitling				
DSNG	Activation: Disabled			
Transport	Teletext Initial page: 100			
Video	Teletext Initial page language: eng			
	Subtitling page 0: 776			
	Subtitling page 0 language: eng			
	Subtitling page 1: 777			
	Subtitling page 1 language: spa			
	Subtitling page 2: 778			
	Subtitling page 2 language: fra			
	Subtitling page 3: 779			
	Subtitling page 3 language: dut			
	Additional Information page: 780			
Additional Information page language: eng				
Program schedule page: 781				
Program schedule page language: eng				
Refresh Save changes Drop changes				

Figure 7-5: Teletext Subtitling Screen

7.2.4.5. VBI Bit-Rate Calculation

The VBI elementary-stream's bit-rate consumption is dynamic; it changes according to the number of lines and fields in use. The bit-rate consumption is also affected by the Video Format mode.

The VBI bit-rate calculation is currently most important now, as the encoder cannot add elementary-streams if the total bit-rate of the ESs will exceed the transport-stream's output rate. If it is required to add another line to the VBI, it must be known how to calculate the VBI's current bit-rate and future bit-rate (after adding the new line).

NOTE



Each VBI odd or even line is considered as a single line. This means that in order to enable a line's odd and even rows calculation need to be done for two lines.

Each VBI line's bit-rate consumption is calculated according to the following formula:

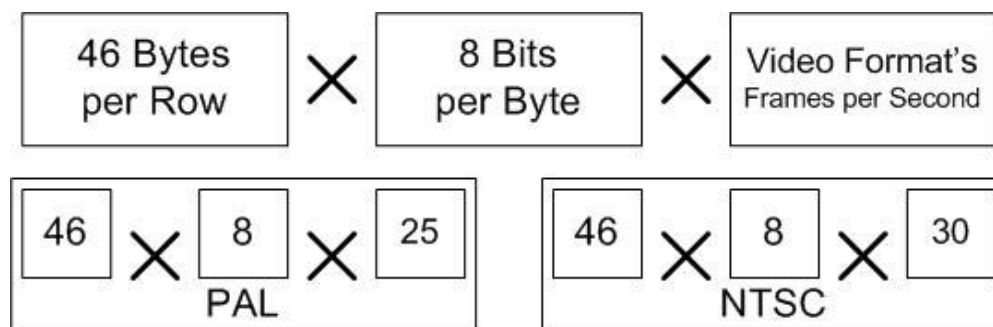


Figure 7-6: VBI Bit-Rate Calculation Formula

Each row takes 46 bytes from the packet, each byte is made of 8 bits; The number of total bits is timed by the number of frames per second. The number of frames per second is different in the two video formats, for PAL it is 25 frames, and for NTSC it is 30 frames.

Raw Data lines (lines that are enabled as Raw Data are calculated as 18 single lines. In other words, a Raw Data line's bit-rate is calculated as a regular line's bit-rate then timed by 18.

To calculate the total bit-rate consumption of the VBI elementary-stream, perform the following:

1. Sum all active non-Raw-Data lines (**NRD Lines**) in the VBI.
2. Sum all Raw-Data lines (**RD Lines**) in the VBI.
3. Sum the total Lines using the following formula: $(NRD \text{ Lines}) + 18 \times (RD \text{ Line})$
4. To the sum received in Step 3, add 5 more virtual rows. These virtual rows are used for stream operation and technical requirements.
5. Round down the received number (calculated in Level 4) to the closest number that can be evenly divided by 4. For example, if the value calculated in level 4 is 15, round it to 12.
6. Time the number received in step 5 with the calculation formula (Figure 7-6). For example, if using PAL, calculate $12 \times 46 \times 8 \times 25$.

NOTE



Due to rounding down the total row number (see Step 4), the user must recalculate the bit-rate consumption every time when trying to add a new row, as it may change the final numbers. The user cannot just add (+1) to the final number (timed by the formula).

7.2.5. Analog Interface Menu

The **Video Analog Interface** menu sets the analog video-signal interface card (Composite Video, C/V).

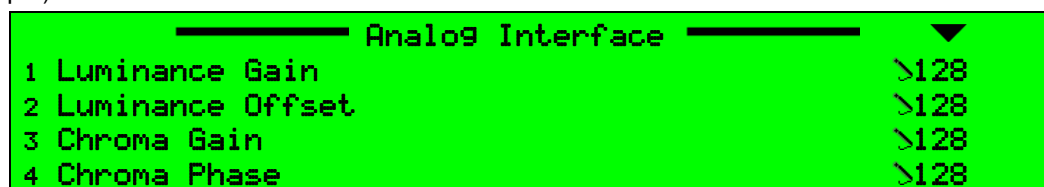
NOTE



This menu is available only for a C/V input.

Configuration of this menu's parameters is saved automatically and does not require access to the **Save** menu.

To access the Analog Interface menu in the front panel, select **Root→Configuration→Video→Video Input→CV#→Analog Interface** (see the following example).



To access the Analog Interface menu in the Web Manager, select tabs **Video→Video Input→CV#** (see Figure 7-7).

Figure 7-7: Analog Interface Menu Display

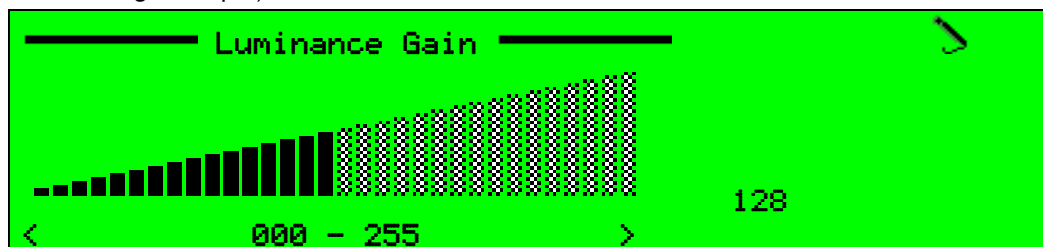
The following sections detail the Analog Interface menu options and parameters.

7.2.5.1. Luminance Gain

The **Luminance Gain** parameter controls the amount of digital gain applied to the luminance signal. This parameter influences the contrast of the picture – the larger the gain, the higher the contrast.

To set the Luminance Gain parameter in the front panel, select:

Root→Configuration→Video→Video Input→CV#→Analog Interface→Luminance Gain (see the following example).



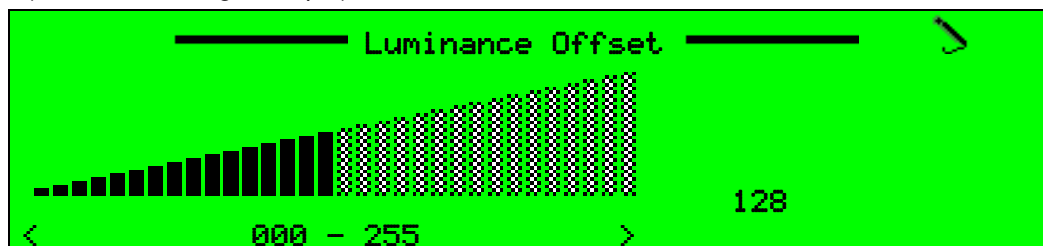
The available value ranges from 0 to 255. Default value is 128.

To set the Luminance Gain parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→CV#/SDI#**.

7.2.5.2. Luminance Offset

The **Luminance Offset** parameter controls the amount of digital offset applied to the luminance signal. This parameter influences the brightness of the picture – the larger the offset, the darker the image.

To set the Luminance Offset parameter in the front panel, select: **Root→Configuration→Video→Video Input→CV#→Analog Interface→Luminance Offset** (see the following example).



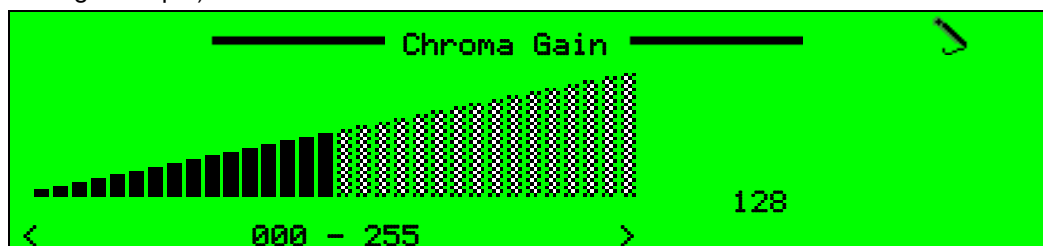
The available value ranges from 0 to 255. Default value is 128.

To set the Luminance Offset parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→CV#**.

7.2.5.3. Chroma Gain

The **Chroma Gain** parameter controls the amount of digital gain applied to the chrominance signal. This parameter adjusts the saturation of the picture, for example, from pink to red.

To set the Chroma Gain parameter in the front panel, select: **Root→Configuration→Video→Video Input→CV#→Analog Interface→Chroma Gain** (see the following example).



The available value ranges from 0 to 255. Default value is 128.

To set the Chroma Gain parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→CV#/SDI#**.

7.2.5.4. Chroma Phase

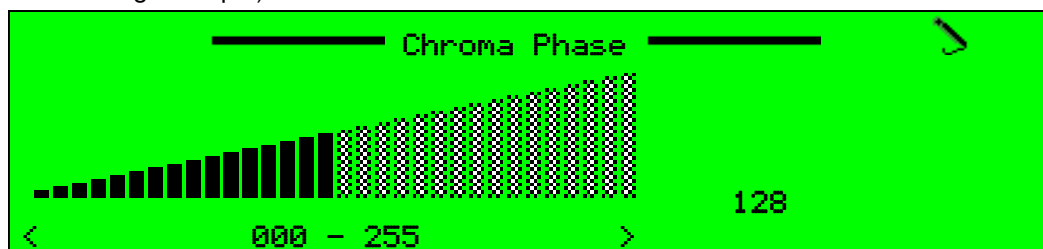
The **Chroma Phase** parameter controls the amount of chrominance phase (Tint). This parameter influences the hue of the picture.



NOTE

Chroma Phase is relevant only for NTSC format.

To set the Chroma Phase parameter in the front panel, select: **Root→Configuration→Video→Video Input→CV#→Analog Interface→Chroma Phase** (see the following example).



The available value ranges from 0 to 255. . Default value is 64.

To set the Chroma Phase parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→CV#/SDI#**.

7.2.5.5. Video Decoder Mode

The **Video Decoder Mode** parameter defines the mode of the analog interface. The analog interface can be TV, DVD or VCR.

To set the Video Decoder Mode parameter in the front panel, select: **Root→Configuration→Video→Video Input→CV#→Analog Interface→Video Decoder Mode** (see the following example):



The Video Decoder Mode default value is 'TV'. The available options are:

- **TV** – Expects to have a stable and jitter-free video input signal. Thus, the required TBC (time-base corrector) algorithm is less aggressive.
- **DVD** – Expects to have a stable and jitter-free video input signal but the video input may have some signals added by DVD to prevent recording on VTRs. This mode cleans the video input signal from the DVD signals.
- **VCR** – Expects to have low quality video signal (synchronization time is jittery). Thus, the TBC algorithm invoked is the most aggressive.

To set the Video Decoder Mode parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→CV#**.

7.2.5.6. NTSC Setup

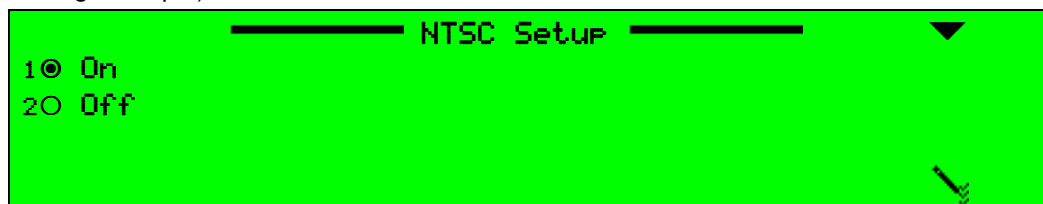
The **NTSC Setup** parameter enables the NTSC setup level option. It refers to the black level of the analog video signal.



NOTE

Setup level is relevant only for NTSC format.

To set the NTSC Setup parameter in the front panel, select **Root→Configuration→Video→Video Input→CV#→Analog Interface→NTSC Setup** (see the following example).



The NTSC Setup default value is 'On'. The available options are:

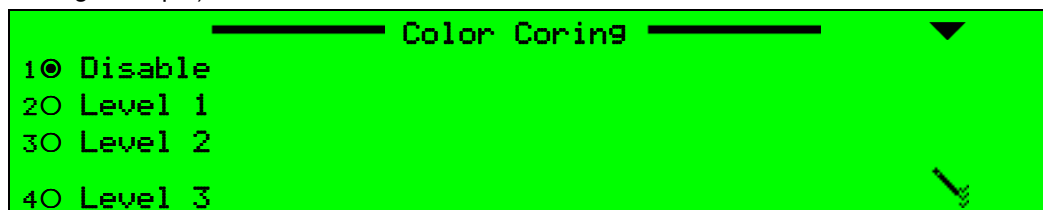
- **On** – Black level is higher than Blank level.
- **Off** – Black level is equal to Blank level.

To set the NTSC Setup parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→CV#**.

7.2.5.7. Color Coring

The **Color Coring** parameter decreases the color error near the black level.

To set the Color Coring parameter in the front panel, select **Root→Configuration→Video→Video Input→CV#→Analog Interface→Color Coring** (see the following example).



The Color Coring default value is '**Disable**'. The available options are: **Disable**, **Level 1**, **Level 2**, **Level 3**.

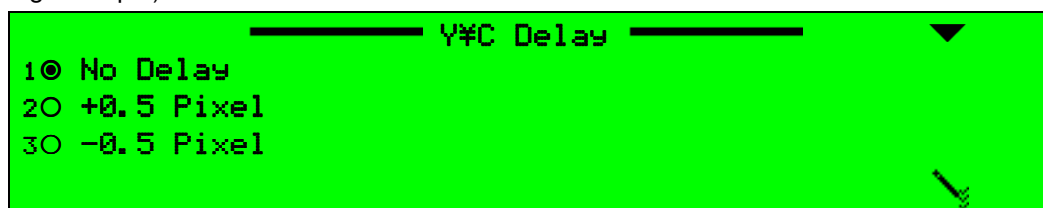
To set the Color Coring parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→CV#**

7.2.5.8. Y/C Delay

The **Y/C Delay** parameter controls the chrominance and luminance delay, measured in pixels. The parameter displays the current delay value and enables the selection of the Y to C delay for the component video (active only when the component input interface is provided).

Luminance-to-chrominance delay inequality is the difference between the time it takes the **chrominance** portions of the signal to pass through the system and the time it takes the **luminance** portion of the signal to pass through the system. Picture effects caused by luminance-to-chrominance delay errors include color smearing or bleeding, particularly at image edges.

To set the Y/C Delay parameter in the front panel, select: **Root→Configuration→Video→Video Input→CV#→Analog Interface→Y/C Delay** (see the following example).



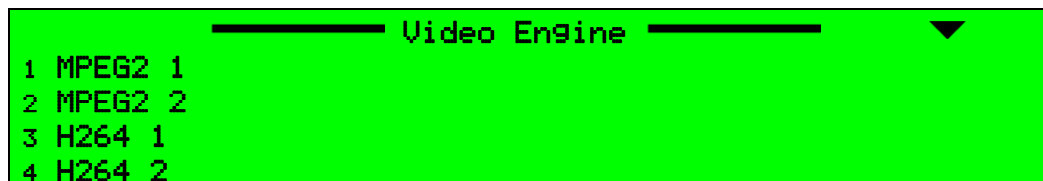
The Y/C Delay default value is '**No Delay**'. The available options are: **No Delay**, **+0.5 pixel**, or **-0.5 pixel**

To set the Y/C Delay parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→CV#**

7.3. Video Engine

The **Video Engine** menu displays a list of the available encoding engines in the Ellipse MPEG-2/H.264 Encoders.

To access the Video Engine menu in the front panel, select **Root→Configuration→Video→Video Engine** (see the following example).

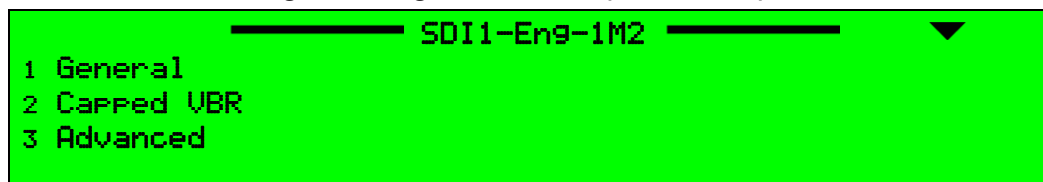


The menu displays a list of video encoding engines; categorized by number and engine type (the web-management displays a row of sub-tabs with the encoding-engines names, automatically selecting the first engine).

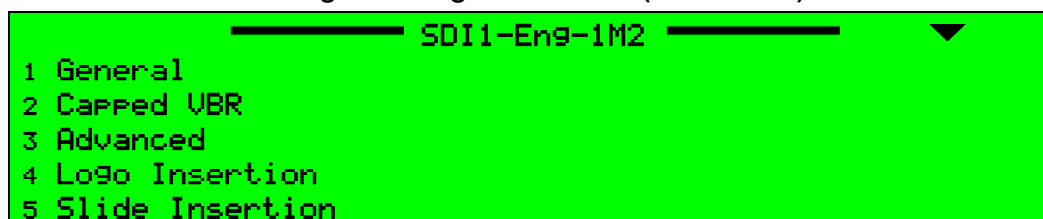
Selecting an encoding engine from the list displays the engine's configuration parameters.

The Video Engine menu enables access to the MPEG-2 / H.264 different parameters. To access the specific engine menu from the front panel, select: **Root→Configuration→Video→Video Engine→Engine#** (see the following examples for Ellipse 1000/2000 and Ellipse 1000H/2000H).

Ellipse 1000/2000 Video Engine Configuration Menu (Front Panel)



Ellipse 1000H/2000H Video Engine Configuration Menu (Front Panel)



The available options are:

- **General** – Displays the MPEG-2/H.264 video engine configuration menu (see paragraph 7.3.1).
- **Capped VBR** – The Single-Pass VBR menu manages a single Variable Bit Rate (VBR) video channel (See paragraph 7.3.2).
- **Advanced** – Sets MPEG-2/H.264 advanced parameters in the encoder definitions for MPEG-2 / H.264 video data definitions and configurations (see paragraph 7.3.3 for MPEG-2 Advanced parameters and paragraph 0 for H.264 Advanced parameters).
- **Logo Insertion** - Manages the insertion of a Logo on the video signal (see paragraph 7.3.5). This option is available only for Ellipse 1000H/2000H encoders.
- **Slide Insertion** - Manages the insertion of a Slide in the video signal (see paragraph 7.3.6). This option is available only for Ellipse 1000H/2000H encoders.

To access the Video Engine menu in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine** (see Figure 7-8 for MPEG-2 menu and Figure 7-9 for H.264 menu).

Ellipse 1000/2000 MPEG-2 Engine Configuration Menu (Web Manager)

Status	ENGINE 1 (MPEG2)	ENGINE 2 (H264)
DSNG	General	
Transport	PID [32,8190]	512
Video	Video Input	SD11
Audio	Activation	Disabled
Physical Output	Encoding Mode	CBR
Inputs	Video Resolution	F720
Unit	Rate [bps] [100000,50000000]	4000000
Preset	Video Profile	4:2:0
LogOut	Latency Control	Normal
	Capped VBR	
	Max VBR Rate [bps] [0,15000000]	4000000
	Quality [1,100]	100
	Advanced	
	GOP Structure	IBBP
	GOP Length [frames] [0,120]	25
	Extended Video Lines	Full Resolution
	3:2 Pull Down	Off
	Intra Refresh Rate	Moderate Refresh
	Concealment Vector	Off
	New GOP on Scene Change	On
	VBV Buffer Size bits [0,10000000]	0
	Refresh	Save changes Drop changes

Ellipse 1000H/2000H MPEG-2 Engine Configuration Menu (Web Manager)

Status	ENGINE 1 (MPEG2)	ENGINE 2 (MPEG2)	ENGINE 3 (H264)	ENGINE 4 (H264)
DSNG	General			
Transport	PID [32,8190]	512		
Video	Video Input	SD1-HD1		
Audio	Activation	Disabled		
Physical Output	Encoding Mode	CBR		
Inputs	Video Resolution	F720		
Unit	Rate [bps] [100000,50000000]	4000000		
Preset	Video Profile	4:2:0		
LogOut	Latency Control	Normal		
	Capped VBR			
	Max VBR Rate [bps] [0,15000000]	4000000		
	Quality [1,100]	100		
	Advanced			
	GOP Structure	IBBP		
	GOP Length [frames] [0,120]	25		
	Extended Video Lines	Full Resolution		
	3:2 Pull Down	Off		
	Intra Refresh Rate	Moderate Refresh		
	Concealment Vector	Off		
	New GOP on Scene Change	On		
	VBV Buffer Size bits [0,10000000]	0		
	Logo Insertion			
	Logo Name			
	Logo Transparency	50%		
	Logo Display	Disabled		
	Slide Insertion			
	Slide Name			
	Slide Display	Disabled		
	Refresh	Save changes Drop changes		

Figure 7-8: MPEG-2 Video Engine Menu Display

Ellipse 1000/2000 MPEG-4 Engine Configuration Menu (Web Manager)

Status	ENGINE 1 (MPEG2)	ENGINE 2 (H264)
DSNG	General PID 513	
Transport	Video Input SD1	
Video	Activation Disabled Encoding Mode CBR Video Resolution F720 Rate [bps] 1200000 Frame Field Field Latency Control Normal Entropy Coding CABAC	
Audio	Advanced GOP Structure HIERARCHICAL GOP Length [frames] 32 IDR Interval [Gop] 0 Profile Auto VBV Buffer Size bits 0 Filter Level 0 Deblock Loop Filter Medium	
Physical Output	Capped VBR Max VBR Rate [bps] 4000000 Quality 100	
Inputs		
Unit		
Preset		
LogOut		
Refresh Save changes Drop changes		

Ellipse 1000H/2000H MPEG-4 Engine Configuration Menu (Web Manager)

Status	ENGINE 1 (MPEG2)	ENGINE 2 (MPEG2)	ENGINE 3 (H264)	ENGINE 4 (H264)
DSNG	General PID 514			
Transport	Video Input SD1-HD1			
Video	Activation Enabled Encoding Mode CBR Video Resolution F720 Rate [bps] 2000000 Frame Field Field Latency Control Normal			
Audio	Advanced GOP Structure HIERARCHICAL GOP Length [frames] 32 IDR Interval [Gop] 0 Profile Auto VBV Buffer Size bits 0 Filter Level 0 Deblock Loop Filter Medium			
Physical Output	Capped VBR Max VBR Rate [bps] 4000000 Quality 100			
Inputs	Logo Insertion Logo Name Logo Transparency 50% Logo Display Disabled			
Unit	Slide Insertion Slide Name Slide Display Disabled			
Preset				
LogOut				
Refresh Save changes Drop changes				

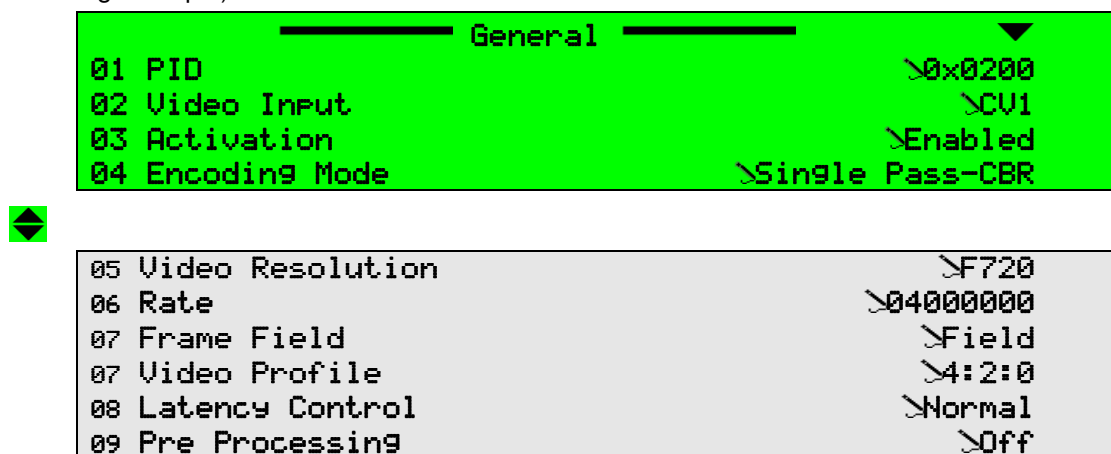
Figure 7-9: H.264 Video Engine Menu Display

7.3.1. General Menu

The General menu displays the Video Engine Configuration.

To access the General menu in the front panel, select:
Root→Configuration→Video→Video Engine→Engine#→General

Some of the options are applicable for MPEG-2 only, some are H.264 specific options. The following sub-paragraphs describe each option in the Video Engine General menu (see the following example).

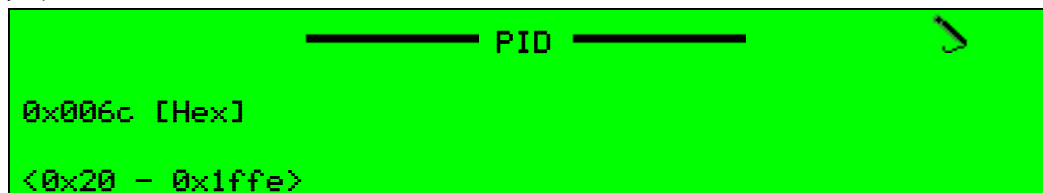


To access the Video Engine Configuration menu in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→Engine#**

7.3.1.1. PID (MPEG-2/H.264)

The **PID** parameter sets the video-channel elementary stream PID number.

To set the PID parameter in the front panel, select:
Root→Configuration→Video→Video Engine→ Engine#→General→PID (see the following example).



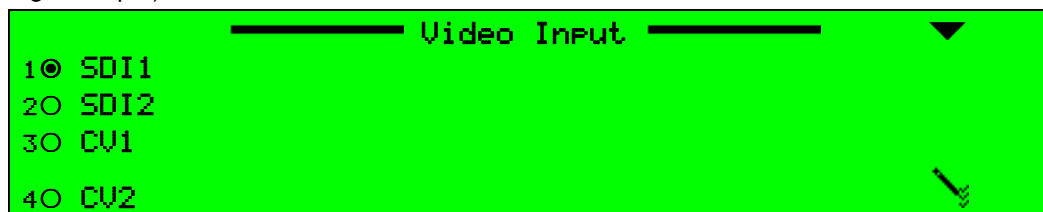
The available value ranges from 0x20 to 0x1FFE. The value is hexadecimal.

To set the PID parameter in the Web Manager, select the following tabs and hyperlinks:
Video→Video Engine→Engine#.

7.3.1.2. Video Input (MPEG-2/H.264)

The **Video Input** parameter selects the video-channel related to the encoding engine.

To set the Video Input parameter in the front panel, select: **Root→Configuration→Video→Video Engine→Engine#/General→Video Input** (see the following example).



The Video Input default value allocates an engine with its equivalent channel number. For example, MPEG2 1 will be allocated to CV1 or SDI 1.

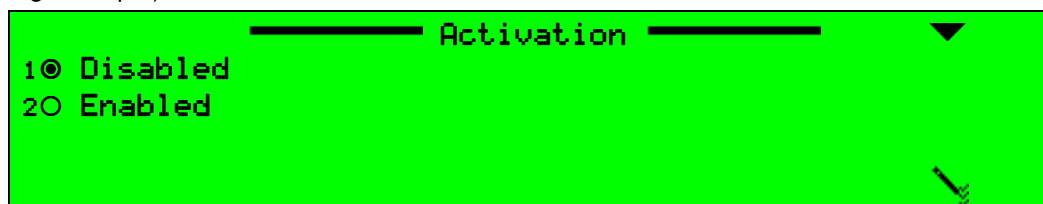
The available options are a list of the available video inputs. Selecting a video input allocated the video engine to that input.

To set the Video Input parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→Engine#**.

7.3.1.3. Activation (MPEG-2/H.264)

The **Activation** parameter sets the video-channel activation mode.

To set the Activation parameter in the front panel, select: **Root→Configuration→Video→Video Engine→Engine#→General→Activation** (see the following example).



The Activation default value is disabled. The available options are:

- **Enabled** – Video channel is enabled and active.
- **Disabled** – Video channel is disabled.

To set the Activation parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→Engine#**

7.3.1.4. Encoding Mode (MPEG-2/H.264)

The **Encoding Mode** parameter sets the video encoding mode. This can be dual or single encoding, using CBR (constant bit-rate) or VBR (variable bit-rate).

Setting this parameter to Close-Loop VBR (by selecting **Dual Pass – VBR**) requires a StatMux manager activation.

NOTE

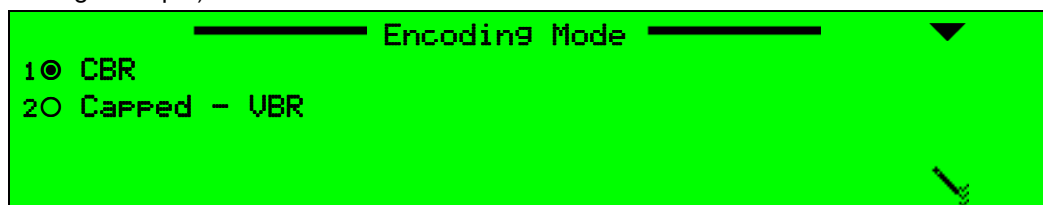


Enabling any VBR encoding mode (single pass or dual pass) is performed upon permission only, with a correct license key. When trying to change the Single Pass – CBR encoding mode without permission, a “no permission” message is displayed.

In addition to permission, enabling the appropriate VBR requires the Encoding Mode default value to be set to Single Pass – CBR.

Single Pass VBR and Dual Pass VBR menus are currently active only for dual MPEG-2 units and are not supported in the current units.

To set the Encoding Mode parameter in the front panel, select: **Root→Configuration→Video→Video Engine→Engine#→General→Encoding Mode** (see the following example).



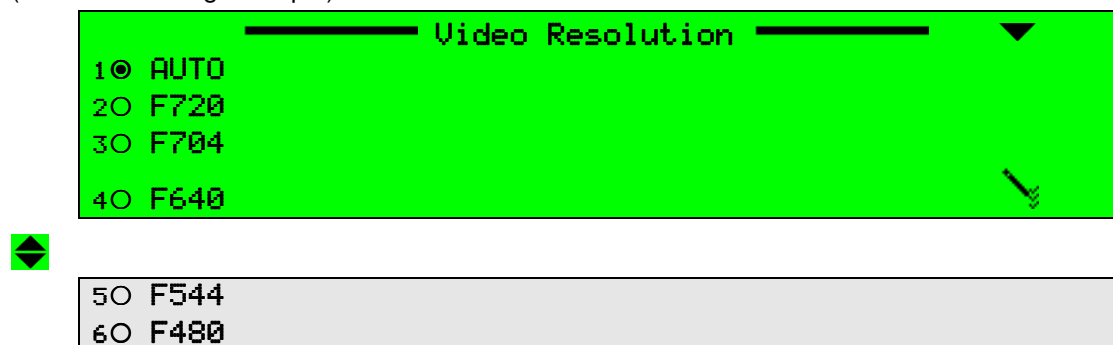
The available options are:

- **CBR** – Sets the encoding mode to a single pass constant bit-rate mode.
- **Capped - VBR** – Sets the encoding mode to a single pass variable bit-rate mode. This mode enables the Single Pass – VBR menu, in which the user must set the maximum bit-rate of the video stream and its minimal quality level (see Paragraph 7.3.2).

To set the Video StatMux parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→Engine#**

7.3.1.5. Video Resolution (MPEG-2/H.264)

The **Video Resolution** parameter defines the current video-resolution mode. To set the Video Resolution parameter in the front panel, select: **Root→Configuration→Video→Video Engine→Engine#→General→Video Resolution** (see the following example).



The Video Resolution default value is F720. The available options are:

- **AUTO** - Automatic selection of resolution in single pass mode.
- **F720** – NTSC: 480Vx 720H, PAL: 576V x 720H (Full D1)
- **F704** – NTSC: 480Vx 704H, PAL: 576V x 704H (*MPEG-2 Only*)
- **F640** – NTSC: 480Vx 640H, PAL: 576V x 640H
- **F544** – NTSC: 480Vx 544H, PAL: 576V x 544H (3/4 D1)
- **F480** – NTSC: 480Vx 480H, PAL: 576V x 480H (2/3 D1)
- **F368** – NTSC: 480Vx 386H, PAL: 576V x 386H
- **F352** – NTSC: 480Vx 352H, PAL: 576V x 352H (1/2 D1)
- **F528** – NTSC: 480Vx 528
- **H352** – NTSC: 240Vx 352H, PAL: 288Vx 352H
- **HD options** – HD1920, 1280, 96x96, 192x192, QCIF, 128x96 and QVGA.



NOTES

F704 resolution is applicable for MPEG-2 only.

F528 resolution is available only for NTSC video format (not displayed for PAL).

The **AUTO** mode is activated only for Single Pass Mode (Dual Encoder).

In order to provide optimum picture quality over the full range of supported bit rates, the encoded picture resolution is controlled automatically according to the video bit rate. The following table details the automatic resolution values given according to the bit rate.

Result ion Value	Bit Rate
F720	2.5 Mbps and higher
F544	2.2-2.5 Mbps
F480	2.0-2.2 Mbps
F352 (HD1)	1.7-2.0 Mbps

NOTE

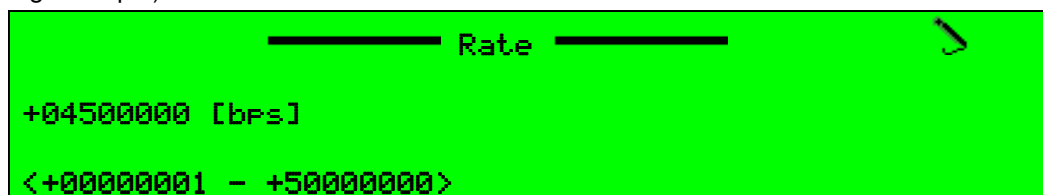
Auto resolution mode is recommended only for Video Profile 4:2:0, as it is not common to use such low output rates in Video Profile 4:2:2.

To set the Video Resolution parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→Engine#**.

7.3.1.6. Rate (MPEG-2/H.264)

The **Rate** parameter sets the maximum rate of the video-channel.

To set the Rate parameter in the front panel, select: **Root→Configuration→Video→Video Engine→Engine#→General→Rate** (see the following example).



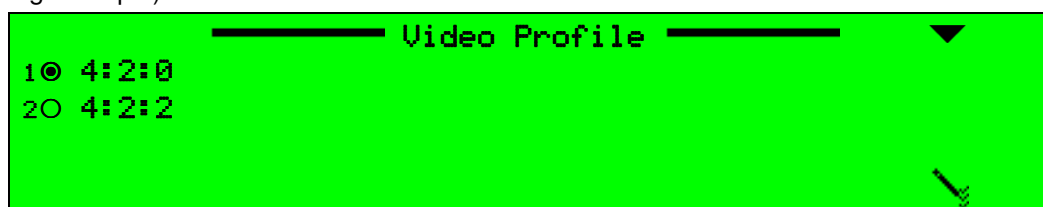
The available value ranges from 0 to 50,000,000 bps for MPEG-2 engines and from +30,000 to +25,000,000 bps for H.264 engines. The Rate default value is 4,500,000 bps.

To set the Rate parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→Engine#**.

7.3.1.7. Video Profile (MPEG-2 Only)

The **Video Profile** parameter defines the MPEG-2 profile used for the video compression.

To set the Video Profile parameter in the front panel, select: **Root→Configuration→Video→Video Engine→Engine#→General→Video Profile** (see the following example).



The Video Profile default value is 4:2:0. The available options are:

- **4:2:0** – Main video profile setting that supports 4:2:0-sample video
- **4:2:2** – High video profile setting that adds support for 4:2:2-sampled video

NOTES

Video Profile 4:2:0 allows only for the up to 15 Mbps output rate.

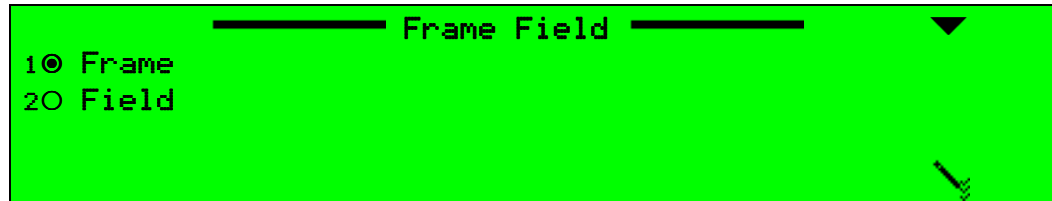
Video profile 4:2:2 can be set upon license permission only. When trying to set the Video Profile to 4:2:2 without license permission, a “no permission” message is displayed.

To set the Video Profile parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→Engine#**

7.3.1.8. Frame Field (H.264 Only)

The **Frame Field** parameter defines the H.264 HD picture type: frame or field.

To set the Video Profile parameter in the front panel, select: **Root→Configuration→Video→Video Engine→Engine#→General→Frame Field** (see the following example).



The available options are: **Frame** or **Field**

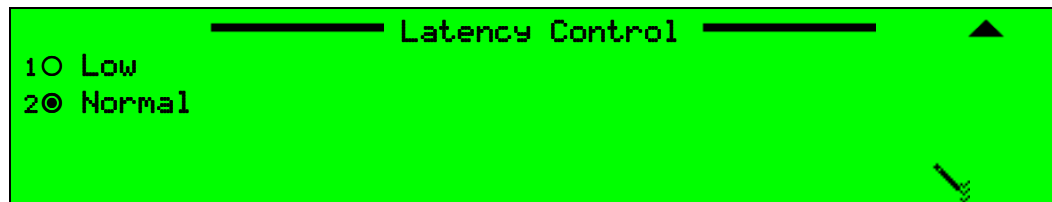
To set the Frame/Field parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→Engine#**.

7.3.1.9. Latency Control (MPEG-2/H.264)

The **Latency Control** parameter sets the low-delay activation mode for the video profile. In other words, if latency control is set to Low, the video profile is 4:2:0 with low delay (or 4:2:2 low delay, depending on Video Profile definitions).

Low delay is generally used for distance interviews, where latency must be minimized and has precedence over video quality. The low delay uses P-Only GOP mode, where all frames are coded as P-frame. Thus, the coding order is identical to the display order yielding a shorter latency.

To set the Latency Control parameter in the front panel, select **Root→Configuration→Video→Video Engine→Engine#→General→Latency Control** (see the following example).



The Latency Control default value is '**Normal**'. The available options are:

- **Low** – Latency control is enabled. Delay is set to low.
- **Normal** – Latency control is disabled. Delay is set to normal.



NOTES

The Latency Control parameter can be set to Low Delay only upon license permission. When trying to set the Latency Control parameter to Low without license permission, a “no permission” message is displayed.

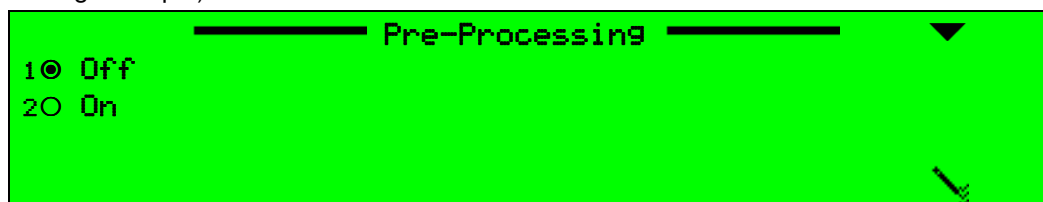
When setting the Latency control to low delay, the audio bit-rate must be set to a high rate (minimum of 384,000 bps). If the audio bit-rate is not high enough, the encoder displays a "Dependency Check" message.

To set the Latency Control parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→Engine#**.

7.3.1.10. Pre-Processing (MPEG-2 Only)

The **Pre-Processing** parameter provides advanced **DNR** (Digital-Noise-Reduction) and picture/signal smoothing capabilities to enhance the encoding process with a minimum loss of information and picture quality.

To set the Pre-Processing parameter in the front panel, select: **Root→Configuration→Video→Video Engine→Engine#→General→Pre-Processing** (see the following example).



The Pre-Processing default value is **Off**. The available options are **Off** and **On**.

To set the Pre-Processing parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→Engine#**.



NOTE

Pre-Processing parameter is set only upon license permission. When trying to set the Pre-Processing parameter without license permission, a “no permission” message is displayed.

7.3.2. Capped-VBR Menu

The **Single-Pass – VBR menu** manages a single VBR video channel. In such case, the stream is a VBR (variable bit-rate).



NOTES

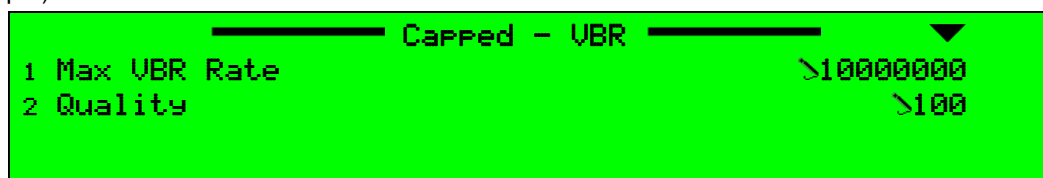
This option is not supported in the current version of the Ellipse Contribution Encoders.

Configuring the Encoding Mode parameter to Single Pass and enabling VBR is performed only upon permission, with a correct license key. When trying to change the default encoding mode without a licensed permission, a “no permission” message is displayed.

In addition to permission, Enabling VBR requires an appropriate hardware.

The Single Pass – VBR channel parameters set a maximum bitrate and a minimum quality level for the video stream; the encoder cannot exceed the set maximum bitrate, nor can it allow a lower quality than the set minimum quality.

To access the Single Pass – VBR menu in the front panel, select: **Root→Configuration→Video→Video Engine→Engine#→Capped VBR** (see the following example).



To access the Single Pass VBR menu in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→Engine#** (see Figure 7-10).



Capped VBR

Max VBR Rate [bps] [0,15000000]	4000000
Quality [1,100]	100

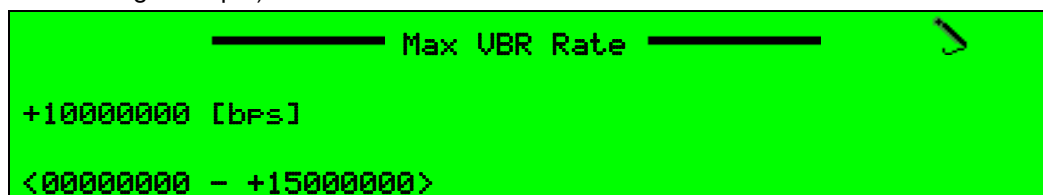
Figure 7-10: Single Pass – VBR Menu Display

7.3.2.1. Max VBR Rate

The Max VBR Rate parameter sets a maximum video bit-rate that will be used for the current video.

To prevent an overflow the user must set a Maximum VBR rate to the video. This rate is the top line of the bit-rate designated for the stream.

To set the Max VBR Rate parameter in the front panel, select: **Root→Configuration→Video→Video Engine→Engine#→Capped VBR→Max VBR Rate** (see the following example).



Max VBR Rate

+10000000 [bps]

<00000000 - +15000000>

The available value ranges from 0 to 15,000,000 bps. The Max VBR Rate default value is 10,000,000 bps.

To set the Max VBR Rate parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→Engine#**.

7.3.2.2. Quality

The **Quality** parameter sets the minimum quality level of the video stream.

To set the Quality parameter in the front panel, select: **Root→Configuration→Video→Video Engine→Engine#→Capped VBR→Quality** (see the following example).



Quality

+100

<001 - +100>

The available value ranges from 1 to 100 percent. Default value is 100 percent.

To set the Quality parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→Engine#**

7.3.3. MPEG-2 Advanced Menu

The **MPEG-2 Advanced menu** sets advanced parameters for MPEG-2 video data definitions and configurations.

To access the MPEG2 Advanced menu in the front panel, select: **Root→Configuration→Video→Video Engine→Engine# (MPEG2)→Advanced** (see the following example).



To access the MPEG2 Advanced Parameters menu in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→ Engine# (MPEG2)** (see Figure 7-11).

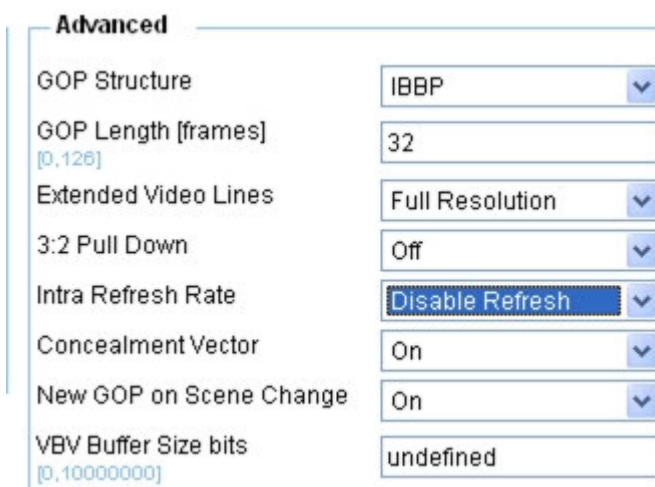


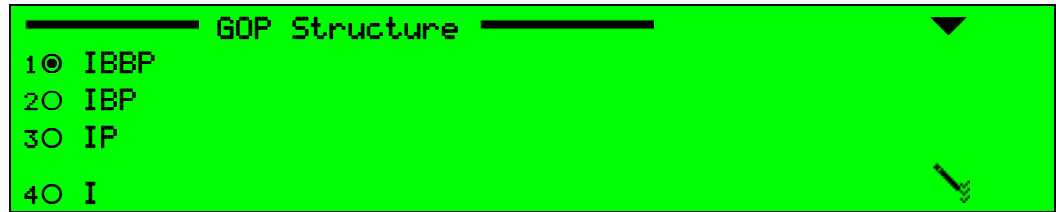
Figure 7-11: MPEG-2 Advanced Menu Display

The following paragraphs detail the menu options and parameters.

7.3.3.1. GOP Structure

The **Group Of Pictures (GOP) Structure** parameter sets the GOP MPEG-2 structure. This parameter determines how frequently a standard reference frame is transmitted. The reference frame provides a standard reference from which bi-directional predicted frames can be generated. This process ensures that the predictions are more accurate.

To set the GOP Structure parameter in the front panel, select: **Root→Configuration→Video→Video Engine→Engine# (MPEG2)→Advanced→GOP Structure** (see the following example).



The GOP Structure default value is IBBP. The available options are:

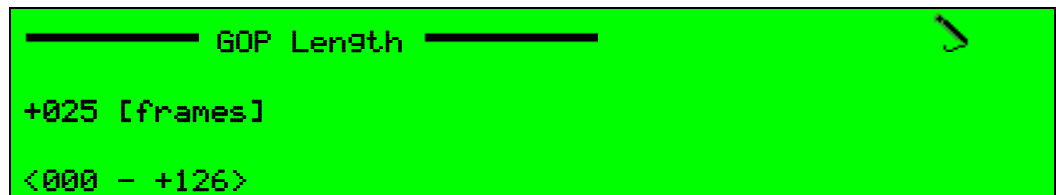
- **IBBP** – Generates IBBP...IBBP...GOPs. Results in a high delay and a high efficiency (bit rate wise) encoder.
- **IBP** – Generates IBPBP...IBPBP...GOPs. Results in a medium delay and a medium efficiency encoder.
- **IP** – Generates IPPP...IPPP...GOPs. Results in a low delay and a low efficiency encoder.
- **I** – Generates I only GOPs

To set the GOP Structure parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→Engine# (MPEG2)**

7.3.3.2. GOP Length

The **GOP Length** parameter determines the time of GOP series, measured by the amount of frames. The selected Video Format influences the value range of this parameter, as detailed below. The 0 value is set for I-only frames.

To set the GOP Length parameter in the front panel, select: **Root→Configuration→Video→Video Engine→Engine# (MPEG2)→Advanced→GOP Length** (see the following example).



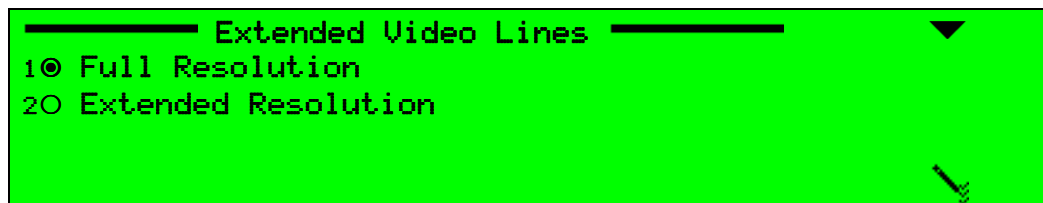
The available value ranges from 0 to 126 Frames. Default value is 25 frames.

To set the GOP Length parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→ Engine# (MPEG2)**

7.3.3.3. Extended Video Lines

The **Extended Video Lines** parameter controls the coding of the extended video line. The value of this parameter is influenced by the selected Video Format, as detailed in the following paragraph. This parameter is configured only when a 4:2:2 video profile is selected.

To set the Extended Video Lines parameter in the front panel, select: **Root→Configuration→Video→Video Engine→ Engine# (MPEG2)→Advanced→Extended Video Lines** (see the following example).



The value of the available options depends on the Video Format definition as follows:

Available Option	PAL Values	NTSC Values
<i>Full Resolution</i>	576	480
<i>Extended Resolution</i>	608	512

The Extended Video Lines default value is '**Full Resolution**'.

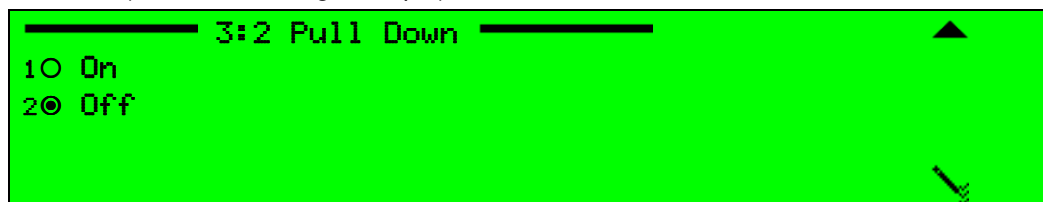
To set the Extended Video Lines parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→ Engine# (MPEG2)**

7.3.3.4. 3:2 Pull Down

The **3:2 Pull Down** parameter enables or disables the 3:2 pull-down.

This option should be enabled when a video input signal originated on film and has been converted from 24 frames per seconds to 29.97 frames per seconds (NTSC rate). When enabled, the repeated fields are detected and the encoding is skipped. A flag in the transport stream represents that this field is a repeated field.

To set the 3:2 Pull Down parameter in the front panel, select: **Root→Configuration→Video→Video Engine→Engine# (MPEG2)→Advanced→ 3:2 Pull Down** (see the following example).



The 3:2 Pull Down default value is off. The available options are:

- **On** – 3:2 pull-down option is enabled.
- **Off** – 3:2 pull-down option is disabled.

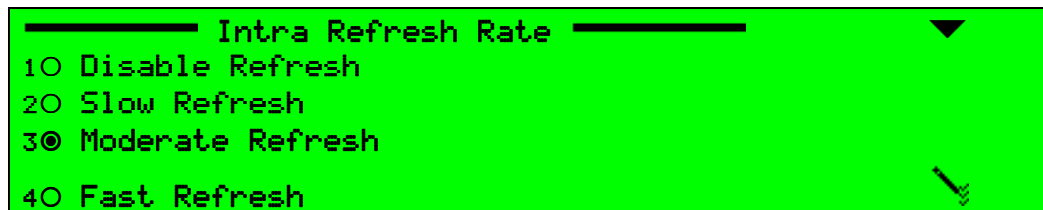
To set the 3:2 Pull Down parameters in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→ Engine# (MPEG2)**

7.3.3.5. Intra Refresh Rate

The **Intra Refresh Rate** parameter defines the intra interval level for intra refresh mode. This mode can be active only when Latency Control is enabled and video signal is in Low Delay mode.

The Intra Refresh updates a small portion of the image upon every field. Over a period of time (depending on the interval setting), all sections of the image are refreshed.

To set the Intra Refresh Rate parameter in the front panel, select:
Root→Configuration→Video→Video Engine→Engine# (MPEG2)→Advanced→Intra Refresh Rate (see the following example).



The Intra Refresh Rate default value is '**Moderate Refresh**'. The available options are:

- **Disable Refresh** – Intra refresh is disabled.
- **Slow Refresh** – Intra interval level is approximately 10 seconds.
- **Moderate Refresh** – Intra interval level is approximately 5 seconds.
- **Fast Refresh** – Intra interval level is approximately 2 seconds.
- **Total Refresh** – Total all-intra refresh.

To set the Intra Refresh Rate parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→ Engine# (MPEG2)**

7.3.3.6. Concealment Vector

The **Concealment Vector** parameter sets the operation mode of the concealment motion vectors' generator. These motion vectors are carried by intra macro-block I-frames in order to conceal errors if they preclude decoding the DCT coefficient data.

To set the Concealment Vector parameter in the front panel, select:
Root→Configuration→Video→Video Engine→ Engine# (MPEG2)→Advanced→Concealment Vector (see the following example).



The Concealment Vector default value is '**Off**'. The available options are:

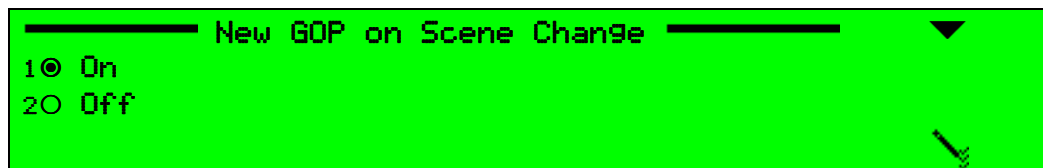
- **On** – Concealment vectors are enabled and generated.
- **Off** – Concealment vectors are disabled.

To set the Concealment Vector parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→ Engine# (MPEG2)**

7.3.3.7. New GOP on Scene Change

The **New GOP on Scene Change** parameter is used to mark a change of scene in the video, thus starting a new GOP series.

To set the New GOP on Scene Change parameter in the front panel, select: **Root→Configuration→Video→Video Engine→Engine# (MPEG2)→Advanced→New GOP on Scene Change** (see the following example).



The New GOP on Scene Change default value is 'On'. The available options are:

- **On** – New GOP on scene change is enabled.
- **Off** – New GOP on scene change is disabled.

To set the New GOP on Scene Change parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→Engine# (MPEG2)**

7.3.3.8. VBV Buffer Size

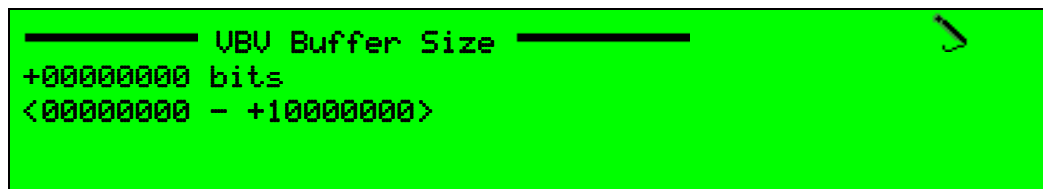
The **Video Buffer Verifier (VBV) Buffer Size** parameter sets the VBV according to DVB standards.



CAUTION

Changing this value and overwriting the predefined values may have severe implications on the encoder performance.

To set the VBV Buffer Size parameter in the front panel, select: **Root→Configuration→Video→Video Engine→Engine# (MPEG2)→Advanced→VBV Buffer Size** (see the following example).



The available value ranges from 0 to 10,000,000 bits. Default value is 0 bits.

The VBV Buffer value range changes according to the set-up of the Latency Control, Resolution, and Video Profile parameters, as follows:

Latency Control LOW	550,500 to 1,835,008 bits
Resolution SIF	95,999 to 319,999 bits
Profile 4:2:0	550,500 to 1,835,008 bits
Profile 4:2:2	2,831,155 to 9,437,184 bits

When the VBV Buffer size is set to **0**, the value of the VBV Buffer is set to predefined default values, defined by the set-up of the Latency Control, Resolution, and Video Profile parameters, as follows:

Latency Control LOW	600,000 bits
Resolution SIF	319,999 bits
Profile 4:2:0	1,835,008 bits
Profile 4:2:2	4,096,000 bits

To set the VBV Buffer Size parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→Engine# (MPEG2)**

7.3.4. MPEG-4 AVG (H.262) Advanced Menu

The **H.264 Advanced** menu sets advanced parameters in the encoder definitions for MPEG-4 AVG (H.264) video data definitions and configurations.

To access the H.264 Advanced menu in the front panel, select: **Root→Configuration→Video→Video Engine→Engine# (H264)→Advanced** (see the following example).

Advanced	
1 GOP Structure	IBBP
2 GOP Length	025
3 IDR Interval	0010
4 Profile	High
5 VBV Buffer Size	03000000
6 Filter Level	0
7 Deblock Loop Filter	Low

To access the H.264 Advanced Parameters menu in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→ Engine# (H264)** (see Figure 7-11).

Advanced	
GOP Structure	IBBP
GOP Length [frames] [0,120]	15
IDR Interval [Gop] [0,1200]	0
Profile	Main
VBV Buffer Size bits [0,25000000]	0
Filter Level [0,5]	0
Deblock Loop Filter	Off

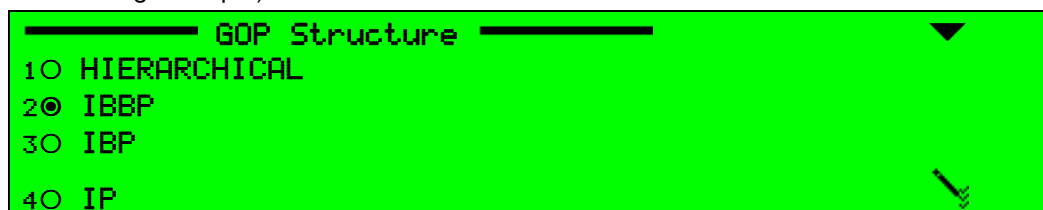
Figure 7-12: H.264 Advanced Menu Display

The following paragraphs detail the menu options and parameters.

7.3.4.1. GOP Structure

The **Group Of Pictures (GOP) Structure** parameter sets the GOP H.264 structure. This parameter determines how frequently a standard reference frame is transmitted. The reference frame provides a standard reference from which bi-directional predicted frames can be generated. This process ensures that the predictions are more accurate.

To set the GOP Structure parameter in the front panel, select: **Root→Configuration→Video→Video Engine→Engine# (H264)→Advanced→GOP Structure** (see the following example).



The GOP Structure default value is **IBBP**. The available options are:

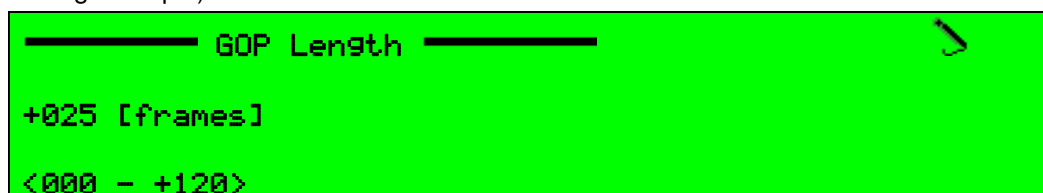
- **HIERARCHICAL** - Generates IBBBP GOPs. The Bframe can be used as reference frame. Results in high delay and higher efficiency encoder.
- **IBBP** – Generates IBBP...IBBP...GOPs. Results in a high delay and a high efficiency (bit rate wise) encoder.
- **IBP** – Generates IBPBP...IBPBP...GOPs. Results in a medium delay and a medium efficiency encoder.
- **IP** – Generates IPPP...IPPP...GOPs. Results in a low delay and a low efficiency encoder.

To set the GOP Structure parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→ Engine# (H264)**

7.3.4.2. GOP Length

The **GOP Length** parameter determines the time of GOP series, measured by the amount of frames. The selected Video Format influences the value range of this parameter.

To set the GOP Length parameter in the front panel, select: **Root→Configuration→Video→Video Engine→Engine# (H264)→Advanced→GOP Length** (see the following example).



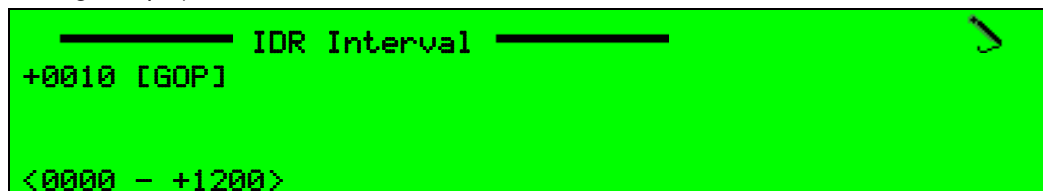
The available value ranges from 0 to 120 Frames. Default value is 32.

To set the GOP Length parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→ Engine# (H264)**

7.3.4.3. IDR Interval

The H.264 SD/HD Instantaneous Decoding Refresh (IDR) Interval parameter define the number of GOPs interval where the IDR will appear.

To set the IDR Interval parameter in the front panel, select: **Root→Configuration→Video→Video Engine→Engine# (H264)→Advanced→IDR Interval** (See the following sample):



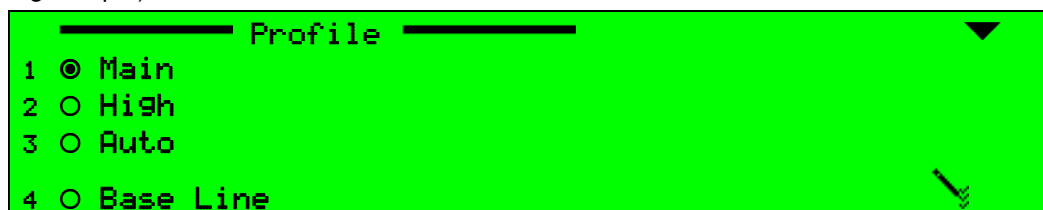
The available value ranges from 0 to 1200 GOP. Default value is 10.

To set the H.264 SD/HD IDR Interval parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→ Engine# (H264)**

7.3.4.4. Profile

The H.264 default profile parameter sets the H.264 profile.

To set the H.264 SD/HD Profile parameter in the front panel, select: **Root→Configuration→Video→Video_Engine→Engine# (H264)→Advanced→Profile** (See the following sample):



The H.264 default profile is 'Auto'. The available options are:

- **Main** – Mainstream consumer profile for broadcast and storage applications.
- **High** - The primary profile for broadcast and disc storage applications, particularly for high-definition television applications.
- **Auto** – Automatic setup of the SD/HD profile.
- **Base Line** – Base Line profile.

To set the H.264 SD/HD Profile parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→ Engine# (H264)**

7.3.4.5. VBV Buffer Size

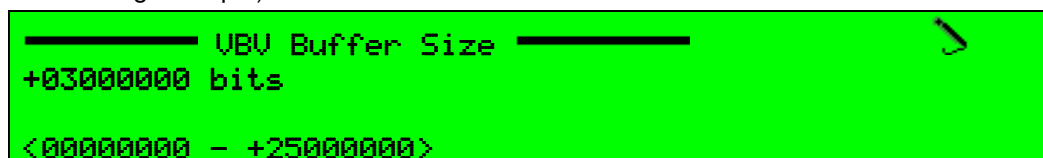
The **Video Buffer Verifier (VBV) Buffer Size** parameter sets the VBV size according to DVB standards.



CAUTION

Changing this value and overwriting the predefined values may cause severe implications on the encoder performance. Consult Harmonic support before changing the parameter.

To set the VBV Buffer Size parameter in the front panel, select: **Root→Configuration→Video→Video Engine→Engine# (H264)→Advanced→VBV Buffer Size** (see the following example).



The available value ranges from 0 to 25,000,000 bits. Default value is 0 bits.

The VBV Buffer value range changes according to the set-up of the Latency Control, Resolution, and Video Profile parameters, as follows:

Latency Control LOW	550,500 to 1,835,008 bits
Resolution SIF	95,999 to 319,999 bits
Profile 4:2:0	550,500 to 1,835,008 bits
Profile 4:2:2	2,831,155 to 9,437,184 bits

When VBV Buffer size is set to **0** (in bits), the value of the VBV Buffer is set to predefined default values, defined by the set-up of the Latency Control, Resolution, and Video Profile parameters, as follows:

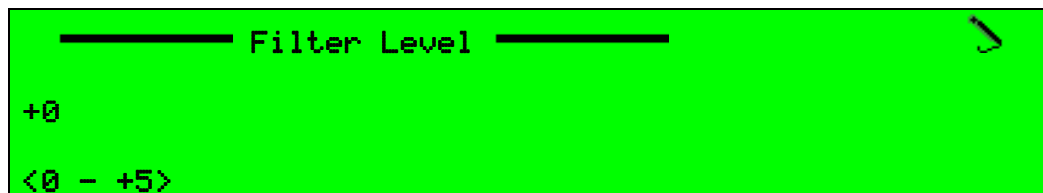
Latency Control LOW	600,000 bits
Resolution SIF	319,999 bits
Profile 4:2:0	1,835,008 bits
Profile 4:2:2	4,096,000 bits

To set the VBV Buffer Size parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→Engine# (H264)**

7.3.4.6. Filter Level (MCTF)

The Motion Compensated Temporal Filter (MCTF) is used for reduction of random noise. It uses motion prediction in order to avoid motion blur by applying temporal filters along motion trajectories. The H.264 Encoder has MCTF implemented only for picture of size up to D1 (SD).

To set the MCTF Filter level in the front panel, select: **Root→Configuration→Video→Video Engine→Engine# (H264)→Advanced→Filter Level**. (See the following sample)



MCTF strength parameter has six optional values in the range 0 to 5.

- **0** – MCTF disabled (Bypass).
- **1 to 5** – "1" is the weakest filter and "5" is the strongest filter.

To set the H.264 SD/HD MCTF Filter level in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→Engine# (H264)**

7.3.4.7. Deblock Loop Filter

The Deblock Loop Filter improves the compressed picture quality by removing encoding blockiness artifacts.

To set the Filter Deblock level in the front panel, select: **Root→Configuration→Video→Video Engine→Engine# (H264)→Advanced→Deblock Loop Level.** (See the following sample)



The Deblock Loop filter default option is 'Off'. The available options are:

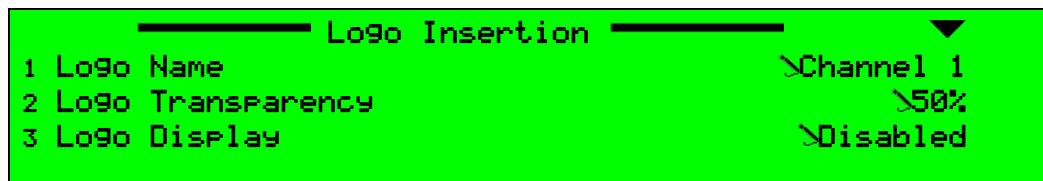
- **Off** – Filter is not active.
- **Low** – Low filtering activity.
- **Medium** – Normal (medium) filtering activity.
- **High** – High filtering activity.

To set the H.264 SD/HD Deblock Loop Filter level in the Web Manager, select the following tabs and hyperlinks: **Video→Video Input→Engine# (H264)**

7.3.5. Logo Insertion (Ellipse 1000H/2000H Only)

The **Logo Insertion menu** manages insertion of logos on the displayed video.

To access the Logo Insertion menu in the front panel, select: **Root→Configuration→Video→Video Engine→Engine#→Logo Insertion** (see the following example).



To access the Logo Insertion menu in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→ Engine#** (see Figure 7-13).

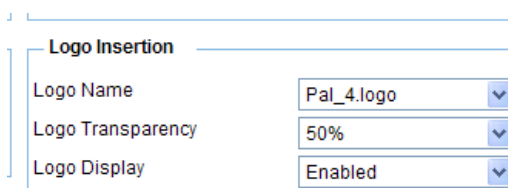


Figure 7-13: Logo Insertion Menu Display

The following paragraphs detail the Logo Insertion menu options.

7.3.5.1. Logo Name

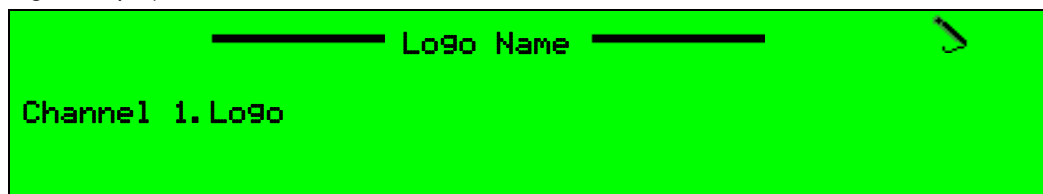
The Logo Name parameter selects the Logo file from the logo graphical files available in the Ellipse.



NOTE

The Logo graphical file is generated using the Ellipse Logo/Slide Creator tool (refer to Appendix E for details). The file is marked by *.logo extension.

To select the Logo file name in the front panel, select **Root→Configuration→Video→Video Engine→Engine#→Logo Insertion→Logo Name** (see the following example).

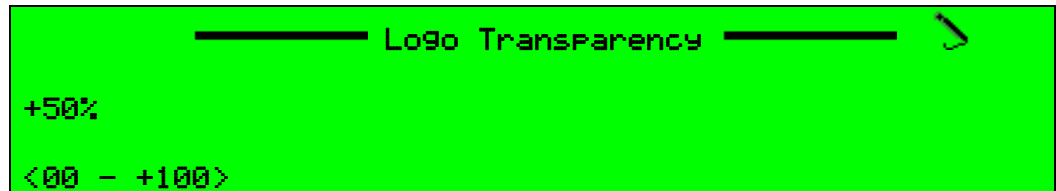


To select the Logo file in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→Engine#**.

7.3.5.2. Logo Transparency

The Logo Transparency parameter set the transparency level of the displayed logo.

To set the Logo Transparency parameter in the front panel, select: **Root→Configuration→Video→Video Engine→Engine#→Logo Insertion→Logo Transparency** (see the following example).



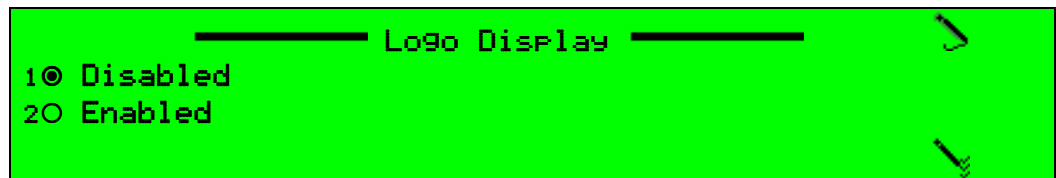
The available value ranges from 0% and 50%. Default value is 50%.

To set the Logo Transparency parameter in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→Engine#**.

7.3.5.3. Logo Display

The Logo Display parameter enables the display of the logo.

To set the Logo Display parameter in the front panel, select: **Root→Configuration→Video→Video Engine→Engine#→Logo Insertion→Logo Display** (see the following example).



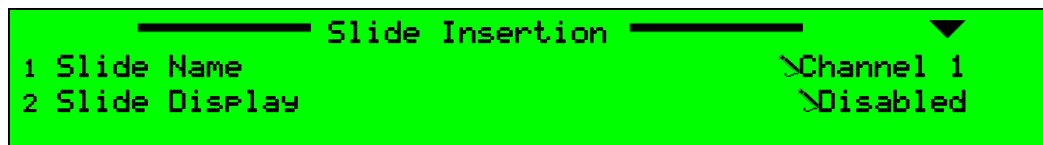
The Logo Display options are: **Disabled** and **Enabled**. Default is '**Disabled**' option.

To set the Logo Display status in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→Engine#**.

7.3.6. Slide Insertion (Ellipse 1000H/2000H Only)

The **Slide Insertion** menu manages insertion of slides in the displayed video.

To access the Logo Insertion menu in the front panel, select: **Root→Configuration→Video→Video Engine→Engine#→Slide Insertion** (see the following example).



To access the Logo Insertion menu in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→Engine#** (see Figure 7-13).

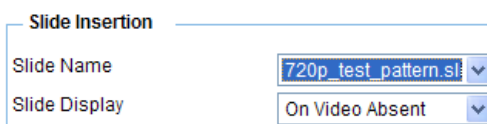


Figure 7-14: Slide Insertion Menu Display

The following paragraphs detail the Slide Insertion menu options.

7.3.6.1. Slide Name

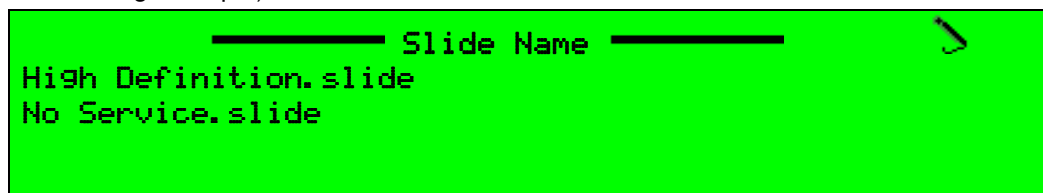
The Slide Name parameter selects the Slide file from the slide graphical files available in the Ellipse.



NOTE

The Slide graphical file is generated using the Ellipse Logo/Slide Creator tool (refer to Appendix E for details). The file is marked by *.slide extension.

To select the Slide file name in the front panel, select **Root→Configuration→Video→Video Engine→Engine#→Slide Insertion→Slide Name** (see the following example).



To select the Slide file in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→Engine#**.

7.3.6.2. Slide Display

The Slide Display parameter enables the display of the slide.

To set the Slide Display parameter in the front panel, select: **Root→Configuration→Video→Video Engine→Engine#→Slide Insertion→Slide Display** (see the following example).



The Slide Display options are: **Disabled**, **Enabled** and **On Video Absent**. Default is '**Disabled**' option.

To set the Slide Display status in the Web Manager, select the following tabs and hyperlinks: **Video→Video Engine→Engine#**.

This chapter details the audio channels management and setup options provided from the front panel and web management interfaces of the Ellipse Series of Contribution Encoders.

8.1. General

The **Audio Configuration menu** displays the available audio channels with their coding schemes.



NOTE

The number of available and permitted AAC and Dolby scheme channels in the unit is set according to the license key.

The Ellipse audio channels are dual. In other words, they are set in pairs of Channels 1 and 2, Channels 3 and 4, Channels 5 and 6, and Channels 7 and 8.

When setting the coding scheme of one channel, the user must set its pair to the same coding scheme to match with the first. This means that when setting Audio Channel 1 to MPEG-1 Layer 2, the user must set Audio Channel 2 to MPEG-1 Layer 2 as well, and vice versa.

The Ellipse encoder can currently support only one AAC-LC embedded channel. This means that only the first channel of each pair (1, 3, 5, and 7) can be configured as AAC-LC and the second channel (2, 4, 6, and 8) will not be active. Nevertheless, the second channel of the pair must be configured accordingly to the AAC-LC coding scheme.

To access the Audio menu in the front panel, select **Root→Configuration→ Audio** (see the following example).

Audio				
1	Aud1	MPEG-1 LAYER 2	Analog	Enabled
2	Aud2	MPEG-1 LAYER 2	Analog	Enabled
3	Aud3	MPEG-1 LAYER 2	Digital	Disabled
4	Aud4	MPEG-1 LAYER 2	Digital	Disabled

The available information is divided into four columns, which display the following:

- **Channel Name** – Audio channel number (**Aud1** - audio channel 1, **Aud2** - audio channel 2, and so on).
- **Coding Scheme** – Audio channel coding scheme mode (MPEG-1 Layer 2, Dolby, or AAC).
- **Source** – Audio channel source type (analog, digital, or embedded).
- **Activation** – Audio channel activation mode (enabled or disabled).

Selecting an entry from this table displays the selected channel's configuration menu. The audio configuration menu is a dynamic menu, changing according to the coding scheme and audio source of the channel.

To access the Audio Channel Configuration menu in the front panel, select **Root→Configuration→Audio→[Audio Channel]** (see the following example).



This menu holds several sub-menus, according to the channel's coding scheme. The available menus are (see menu tree in Figure 8-2):

- **General Menu** – Holds general configuration parameters, required for managing the audio stream, such as coding scheme, source, volume, and so on (see Paragraph 8.2).
- **Channel Parameters Menu** – Holds channel definition parameters, required to set the audio channel's configuration, such as PID, language, and activation mode (see Paragraph 8.3).



NOTE

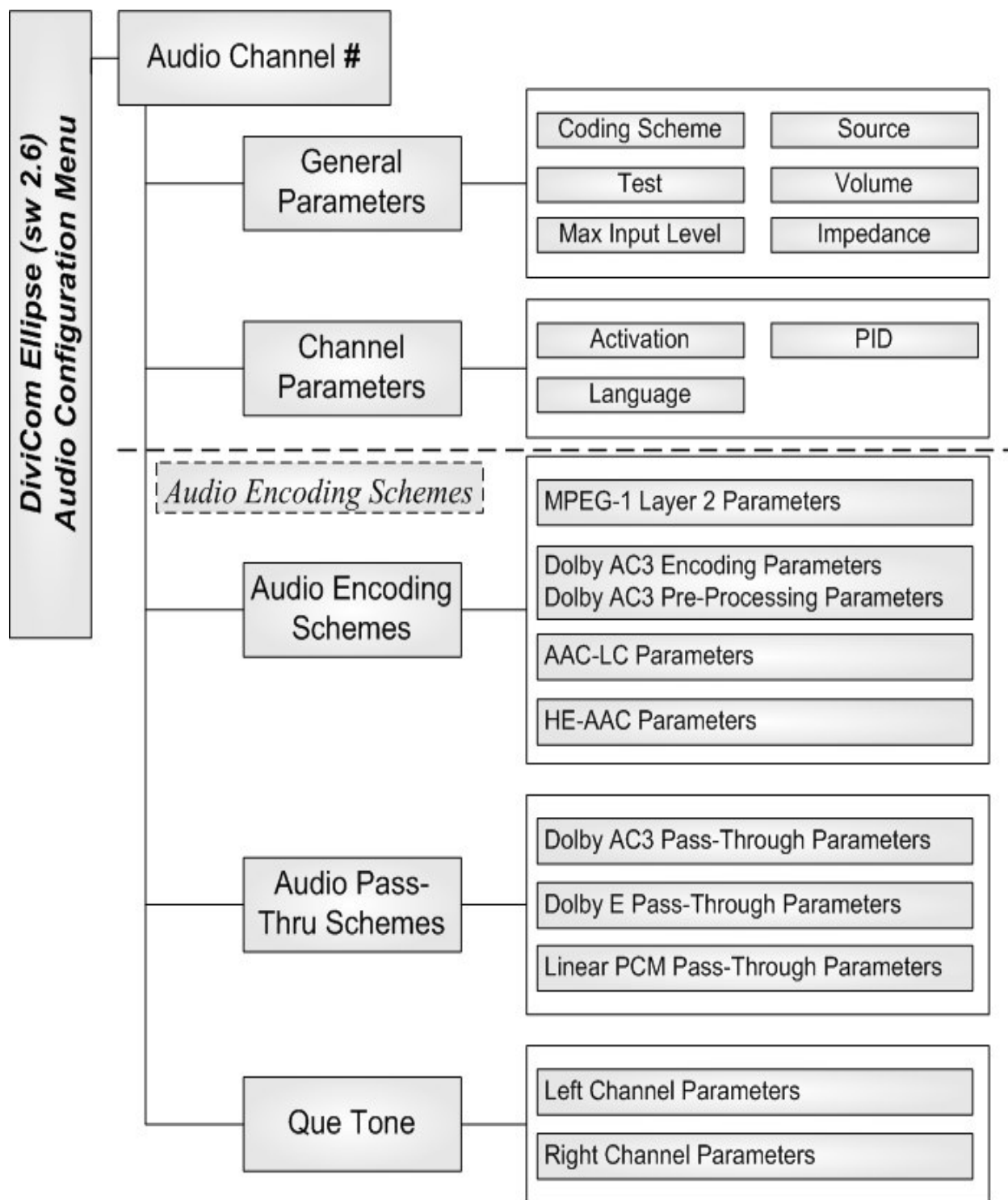
Additional menus are specific menus displayed according to the audio coding scheme and audio source used by the encoder various audio channels.

- **SDI Embedded Parameters Menu** – Holds the embedded audio-source configuration parameters for SDI equipped units, when embedded audio source is selected (see paragraph 8.4).
- **Coding Scheme Configuration Menus** – Allows setting the parameters for the coding schemes available for the various audio codings (see paragraph 8.5).
- **Cue Tone Configuration Menu** – Sets up the configuration for the cue tone function (see paragraph 8.6)

To access the Audio menu in the Web Manager, select the **Audio** tab (see Figure 8-1).

 A screenshot of the Web Manager's Audio Configuration interface. On the left is a sidebar with tabs: Status, DSNG, Transport, Video, Audio (selected), Physical Output, Inputs, Unit, Preset, and LogOut. The main area is divided into sections for "General", "Channel Parameters", and "MPEG-1 Layer 2 Parameters". The "General" section includes fields for Coding Scheme (MPEG-1 Layer 2), Source (Embedded), Test Tone (Off), Volume (0), Max Input Level (0), and Impedance (600 Ohm). The "Channel Parameters" section includes Activation (Enabled), PID (4112), and Language (eng). The "MPEG-1 Layer 2 Parameters" section includes Encoding Mode (Stereo), Sample Rate (48 KHz), Output Rate (192 Kbps), AV Delay (0), Error Protection (Off), Original mark (Off), Copyright mark (Off), Digital de-emphasis (Auto), and User Bit (Ignore). At the bottom, there are buttons for "Refresh", "Save changes", and "Drop changes".

Figure 8-1: Audio Configuration Menu Display (Aud1 Selected)

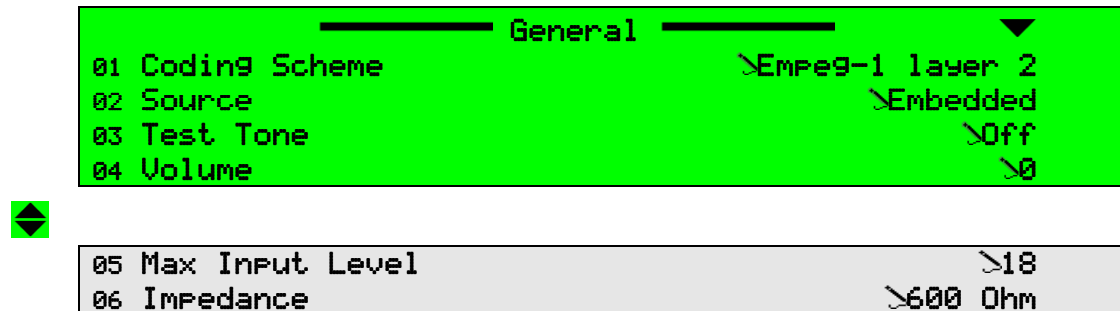
**Figure 8-2: Audio Configuration Menu Tree Structure**

8.2. Audio General Menu

The **Audio General** menu holds general configuration parameters, required for managing the audio stream.

The **General menu** allows setting general audio-encoding parameters. These parameters (such as: coding scheme, audio source, test, and so on) are generic and common to all supported coding schemes.

To access the General menu in the front panel, select **Root→Configuration→Audio→[Audio Channel]→General** (see the following example).



To access the General menu in the Web Manager, select the **Audio** tab (see Figure 8-3).

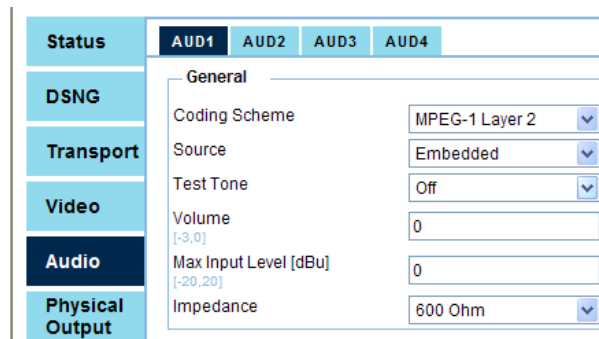


Figure 8-3: General Menu Display

The following sections detail the General menu options and parameters.

8.2.1. Coding Scheme

The **Coding Scheme** parameter allows setting the coding scheme of the audio channel. Selecting a coding scheme – MPEG-1 Layer 2, Dolby, AAC-LC, or a pass-through coding scheme – enables the configuration menu suitable for that coding scheme.

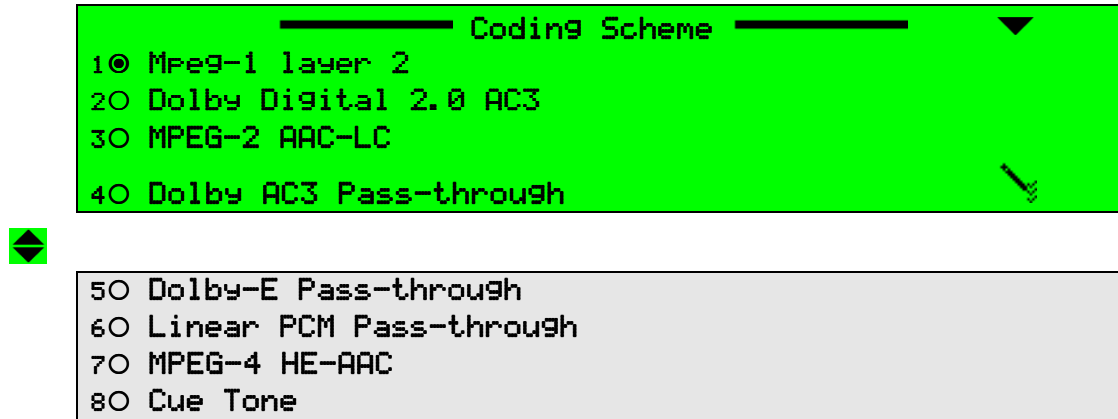


NOTES

Before setting the coding scheme, the user must set the **Activation** mode of the audio channel to **Disabled**.

In the front panel, any changes last only 60 seconds while the Warning LED blinks. Therefore, when setting a new coding scheme, for the change to be permanent or last longer the user must save the change (press F1, for details, see paragraph 4.4.1).

To set the Coding Scheme parameter in the front panel, select **Root→Configuration→Audio→[Audio Channel]→General→Coding Scheme** (see the following example).

**NOTE**

Due to the complexity and wide diversity of the Coding Schemes provided by the Ellipse Contribution Encoders, a full detailed description is provided in section 8.5.

The available options are:

- **MPEG-1 layer 2** (Default option) – Sets the coding scheme of the audio channel to MPEG-1 Layer 2 analog, enabling the Musicam Configuration menu (see paragraph 8.5.1).
- **Dolby Digital 2.0 AC3** – Sets the coding scheme of the audio channel to Dolby digital, enabling the Dolby Digital 2.0 AC3 Configuration menu (see paragraph 8.5.2 and 8.5.3).
- **MPEG-2 AAC-LC** – Sets the coding scheme of the audio to embedded MPEG-2 AAC-LC (Advance Audio Coding – Low Complexity), enabling the MPEG-2 AAC-LC Configuration menu (see paragraph 8.5.4).
- **Dolby AC-3 Pass-Through** – Sets the coding scheme of the audio to Dolby AC-3 pass-through, enabling the Dolby AC-3 Pass-Through Configuration menu (see paragraph 8.5.6).
- **Dolby-E Pass-Through** – Sets the coding scheme of the audio to Dolby-E pass-through, enabling the Dolby-E Pass-Through Configuration menu (see paragraph 8.5.7).
- **Linear PCM Pass-Through** – Sets the coding scheme of the audio to Linear PCM pass-through (Pulse Code Modulation), enabling the Linear PCM Configuration menu (see paragraph 8.5.8).
- **MPEG-4 HE-AAC** – Sets the MPEG-4 HE-AAC (Advance Audio Coding - High Efficiency) is a lossy data compression scheme for digital audio. It is an extension of MPEG-2 AAC-LC optimized for MPEG-4 low-bitrate applications such as streaming audio (see paragraph 8.5.5).
- **Cue Tone** – Sets the Dolby Cue Tone parameters (see paragraph 8.6).

To set the Coding Scheme parameter in the Web Manager, select tabs **Audio→Aud#**.

8.2.2. Source

The **Source** parameter sets the type of audio encoding source. The source can be: N/A, Analog, Digital or Embedded (when a SDI video card is available).

According to the hardware scheme of audio channels, dependencies exist between the sources of each audio channel pair (Channels 1 and 2, Channels 3 and 4, and so on).

"Channel 1" refers to all odd numbered audio channels within the pair: Channels 3, 5, and 7. When the Channel 1 source is user-configured, the available source options for Channel 2 are as detailed in the following table.

Channel 1 Configuration	Channel 2 Available Options
Analog	Embedded
Embedded	Digital Embedded
Digital	Digital Embedded

"Channel 2" refers to all even numbered audio channels within the pair: Channels 4, 6, and 8. When the Channel 2 source is user-configured, the available source options for Channel 1 are as detailed in the following table.

Channel 2 Configuration	Channel 1 Available Options
Digital	Digital Embedded
Embedded	Analog Digital Embedded



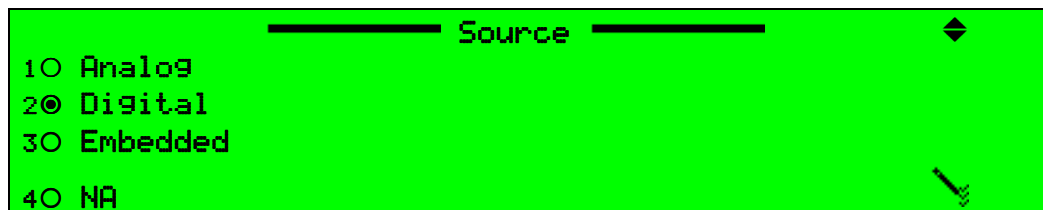
NOTES

The Embedded source is currently only supported for SDI video card and is displayed as Not Available for a C/V card. However, even when setting the source to Not Available, the DSP refers to it as an embedded source.

Channel 1/2 Digital – Channel 2/1 Analog is the only not allowed audio channel pair combo.

Even channels (Channels 2, 4, 6, and 8) can never receive an analog source.

To set the Source parameter in the front panel, select **Root→Configuration→Audio→[Audio Channel]→General→Source** (see the following example).



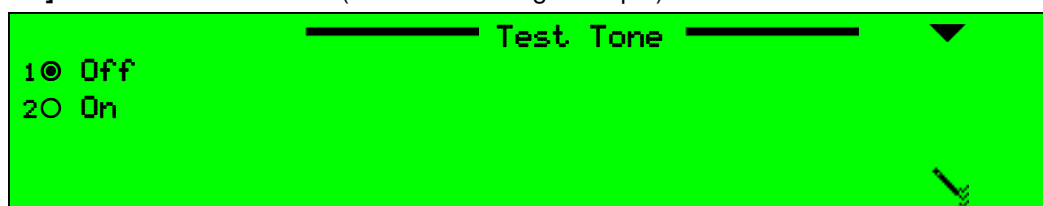
The available options are: **Analog**, **Digital** (Default Option), **Embedded** (for SDI card), and **NA** – Not available

To set the Source parameter in the Web Manager, select tabs **Audio→Aud#**.

8.2.3. Test Tone

The **Test Tone** parameter sets the audio-pattern-source-self-test mode of operation. The Audio test simulates 1 KHz test tone input.

To set the Test parameter in the front panel, select **Root→Configuration→Audio→[Audio Channel]→General→Test Tone** (see the following example).



The Test default value is **Off**. The available options are:

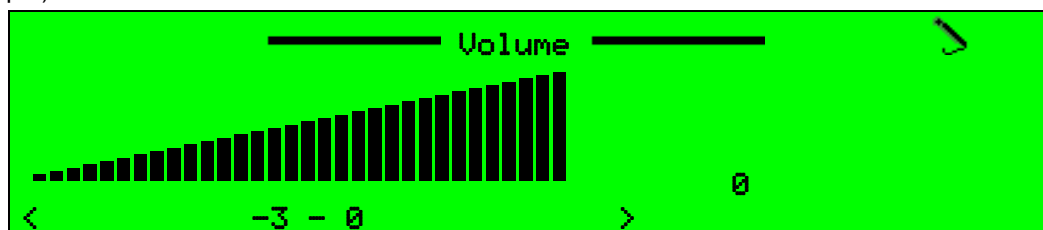
- **Off** – Deactivates the audio test
- **On** – Activates the audio test

To set the Test Tone parameter in the Web Manager, select tabs **Audio→Aud#**

8.2.4. Volume

The **Volume** parameter sets the volume level for the audio channel.

To set the Volume parameter in the front panel, select **Root→Configuration→Audio→[Audio Channel]→General→Volume** (see the following example).



The available value ranges from -3 to 0 dB. Default value is 0.

To set the Volume parameter in the Web Manager, select tabs **Audio→Aud#**.

8.2.5. Max Input Level

The **Max Input Level** parameter defines the maximum audio level value and enables setting the audio level for the input audio signal.



CAUTION

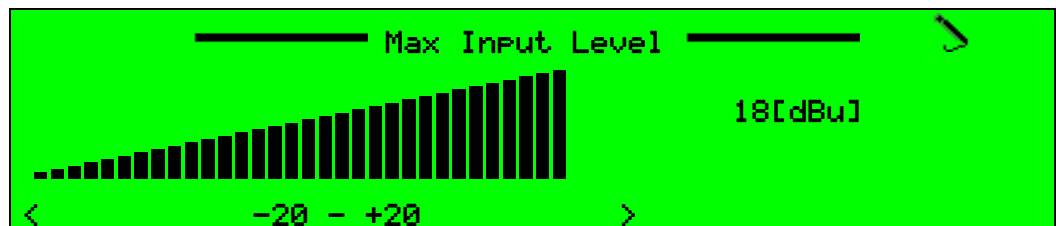
Receiving a higher input level than the maximum input level may cause distortion.



NOTE

This parameter is valid only when the audio source is analog. When the audio source is set to Dolby or Embedded (Not Available), this parameter is available but does not affect the audio encoding.

To set the Max Input Level parameter in the front panel, select **Root→Configuration→Audio→[Audio Channel]→General→Max Input Level** (see the following example).



The available range is a value from -20 to 20 dBu. Default value is 18 dBu.

To set the Max Input Level parameter in the Web Manager, select tabs **Audio→Aud#**.

8.2.6. Impedance

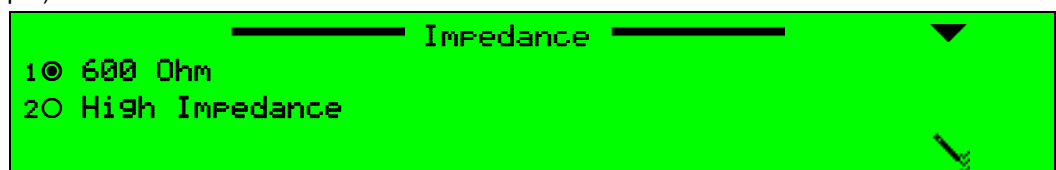
The **Impedance** parameter specifies the impedance for the incoming audio signal when the audio source parameter is set to analog.



NOTE

This parameter is valid only when the audio source is analog. When the audio source is set to Dolby or Embedded (Not Available), this parameter is available but does not affect the audio encoding.

To set the Impedance parameter in the front panel, select **Root→Configuration→Audio→[Audio Channel]→General→Impedance** (see the following example).



The Impedance default value is 600 Ohm. The available options are:

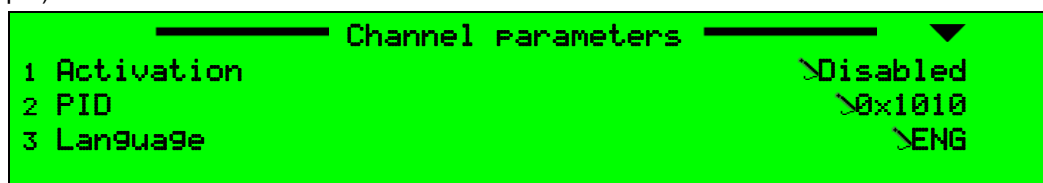
- **600 ohm** – Impedance is set to 600 Ohm.
- **High Impedance** – Impedance is set to high impedance.

To set the Impedance parameter in the Web Manager, select tabs **Audio→Aud#**

8.3. Channel Parameters Menu

The **Channel Parameters** menu allows setting audio-channel parameters. These parameters (such as: PID number, activation mode, and language) are generic and common to all supported coding schemes.

To access the Channel Parameters menu in the front panel, select **Root→Configuration→Audio →[Audio Channel]→Channel Parameters** (see the following example).



To access the Channel Parameters menu in the Web Manager, select the **Audio** tab (see Figure 8-3).

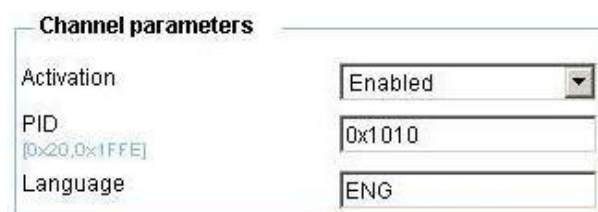


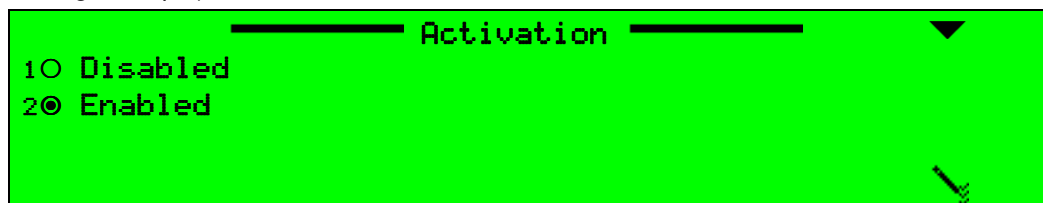
Figure 8-4: Channel Parameters Menu Display

The following sections detail the Channel Parameter's menu options and parameters.

8.3.1. Activation

The **Activation** parameter sets the activation mode of the audio channel.

To set the Activation parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→Channel parameters→Activation** (see the following example).



The Activation default value is '**Enabled**'. The available options are:

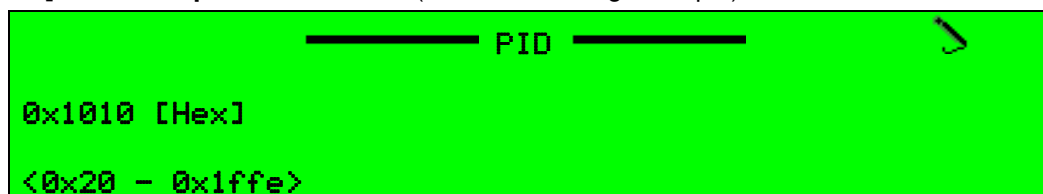
- **Disabled** – Audio channel is disabled.
- **Enabled** – Audio channel is enabled and active.

To set the Activation parameter in the Web Manager, select tabs **Audio→Aud#**

8.3.2. PID

The **PID** parameter sets the audio channel PID number.

To set the PID parameter in the front panel, select **Root→Configuration→Audio→[Audio Channel]→Channel parameters→PID** (see the following example).



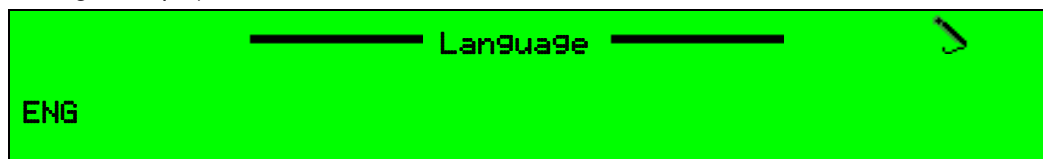
The available value ranges from 0x20 to 0x1FFE. The value is hexadecimal.

To set the PID parameter in the Web Manager, select tabs **Audio→Aud#**

8.3.3. Language

The **Language** parameter specifies the language code for the audio channel. The value can be 0 if no specification is available or it can be defined as the language code number (3 characters) according to ISO 639-2 standard.

To set the Language parameter in the front panel, select **Root→Configuration→Audio→[Audio Channel]→Channel parameters→Language** (see the following example).



The Language default value is ENG. The available values are:

- **0** – No specific language has been set.
- **XXX** – 3 characters represent the language code according to the ISO 639-2 standard.

To set the Language parameter in the Web Manager, select tabs **Audio→Aud#**

8.4. SDI Embedded Parameters Menu

The **Embedded Parameters** menu allows setting embedded audio source parameters and definitions for units equipped with an SDI video interface for digital video input.

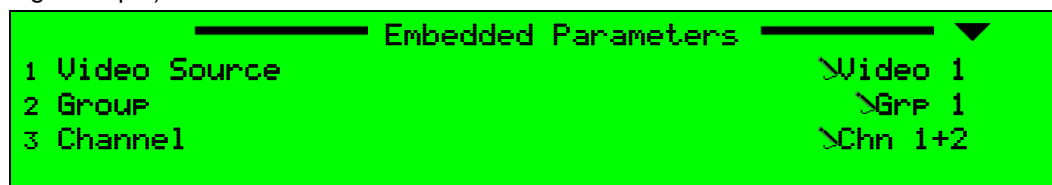
This menu is available in the audio menus for all audio coding schemes – as long as the **Audio Source** is set to **Embedded**.



NOTE

Embedded audio source is available for units receiving embedded digital video (i.e., the menu will not be displayed for encoders equipped with a C/V interface only).

To access the Embedded Parameters menu in the front panel, select **Root→Configuration→Audio→[Audio Channel]→Embedded Parameters** (see the following example).



To access the Embedded Parameters menu in the Web Manager, select the following tabs and hyperlinks: **Audio→Aud#** (see Figure 8-5).



Figure 8-5: Embedded Parameters Section Display

When the encoder is equipped with a digital video card (SDI) the audio stream can be received along with the video, through the digital-video cables. This type of audio source is called **Embedded**.

When an audio channel is set to an embedded audio source, the audio menu displays the **Embedded Parameters** menu, allowing the user to set embedded-audio-source definitions. These definitions conclude of three parameters; **Video**, **Group** and **Channels**.

Each embedded audio channel can receive its source-audio stream from a specific video channel (up to four video channels per unit, module dependant). The specific video channel is selected in the **Video** parameter.

Each video channel has two channels groups, each group holding the audio channels. Once the user allocates the audio source to the input video channel, the user must select the channel **Group** of the audio stream.

Each group holds four audio channels (pairs 1+2 and 3+4, referred to as two stereophonic-channels). Once the video and group are selected, the user must select the stereophonic channel of the audio source.

Figure 8-6 illustrates the process of setting the embedded audio definitions.

**NOTES**

In Embedded mode the audio connectors are neutralized as the audio stream is received through the SDI card.

Embedded mode does not work with audio-channel pairs. This means that when the unit is equipped with 4 channels, which are 2 audio pair channels, embedded mode allows 4 individual audio channels.

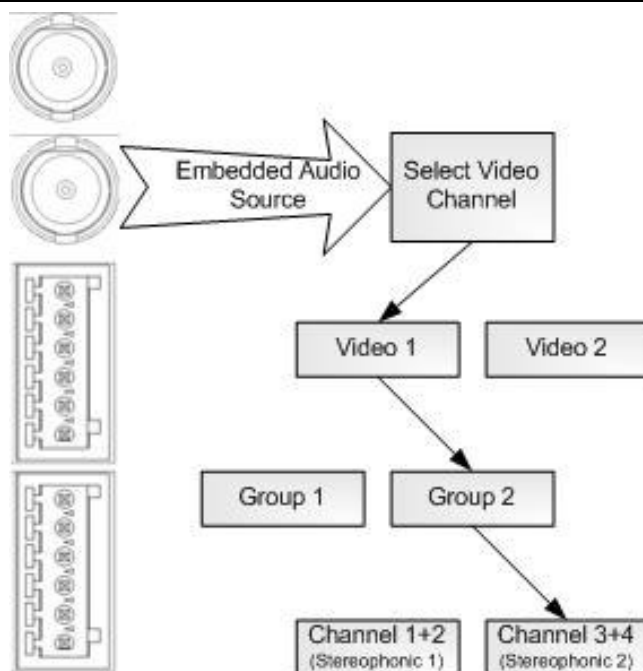
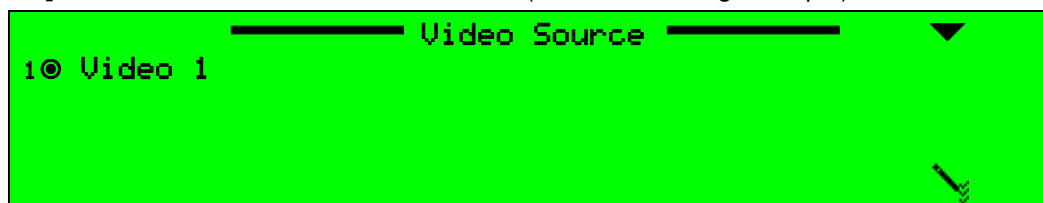


Figure 8-6: Embedded Audio Source

8.4.1. Digital Video Source

The **Video Source** parameter selects the video channel from which the audio stream is received.

To set the Video Source, in the front panel select **Root→Configuration→Audio →[Audio Channel]→Embedded Params→Video Source** (see the following example).



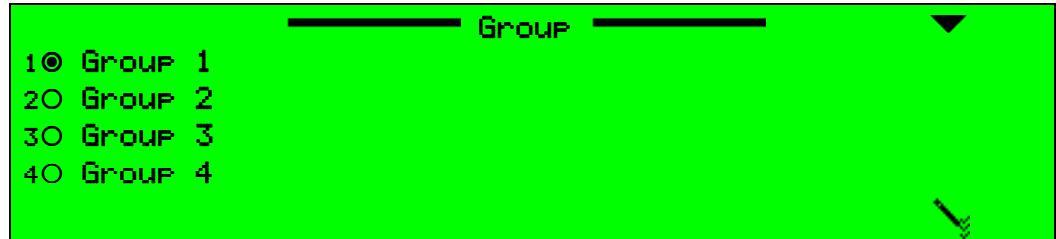
The available options are a list of the available video channels in the unit. The amount of available video channels change according to the module options.

To set the Video Source parameter in the Web Manager, select the following tabs and hyperlinks: **Audio→Aud#**.

8.4.2. Group

The **Group** parameter selects the audio-channels group within the video channel.

To set the Group, in the front panel select **Root→Configuration→ Audio→[Audio Channel]→Embedded Params→Group** (see the following example).



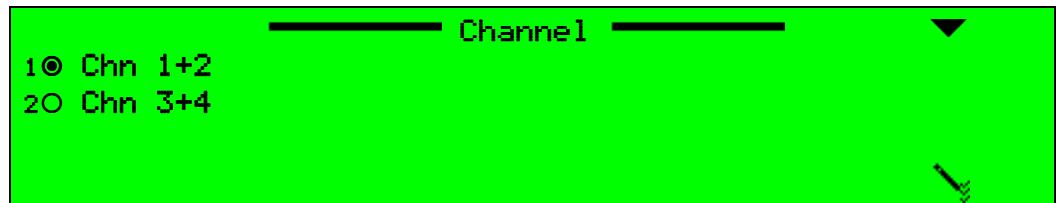
The available options are a list of the available groups in the video channel. Each video channel is allocated to two groups.

To set the Group parameter in the Web Manager, select the following tabs and hyperlinks: **Audio→Aud#**.

8.4.3. Channel

The **Channel** parameter selects the stereophonic audio channel from the group. The stereophonic channel is represented by two R&L channels (pairs 1+2 and 3+4).

To set the Channel, in the front panel select **Root→Configuration→ Audio→[Audio Channel]→Embedded Params→Channel** (see the following example).



The available options are a list of the available channel pairs (or single stereophonic channels) in the group. Each group holds four channels (2 single stereophonic channels).

To set the Group parameter in the Web Manager, select the following tabs and hyperlinks: **Audio→Aud#**.

8.5. Coding Scheme Configuration Menus

The Ellipse supports a wide range of audio coding schemes, allowing the user a variety of audio-encoding options. Each audio channel, in addition to the common General and Channel Parameter's menus, also holds one or two specific-configuration menus. These menus are dynamic and displayed according to the selected coding-scheme of the audio channel.

The available coding scheme configuration menus are:

- **MPEG-1 layer 2 Configuration Menu** – MPEG-1 Layer 2 parameters menu (see paragraph 8.5.1).
- **Dolby Digital 2.0 AC3 Configuration Menus** – Dolby Basic parameters menu (see paragraph 8.5.2) and Dolby Pre-Processing menu (see paragraph 8.5.3).
- **AAC Configuration Menus** – MPEG-2 Advanced Audio Coding (AAC) Low Complexity parameters menus (MPEG-2 AAC-LC, see paragraph 8.5.4) and MPEG-4 High Efficiency AAC parameters menu (MPEG-4 HE-AAC, see paragraph 8.5.5).
- **Pass-Through Schemes Configuration Menus** – The encoder supports three pass-through schemes: Dolby-AC3 (see paragraph 8.5.6); Dolby-E (see paragraph 8.5.7); and Linear PCM (see paragraph 8.5.8).



NOTE

Pass-through audio streams must be synchronized according to an external clock. Refer to Appendix C, for a detailed description how to use the external clock.

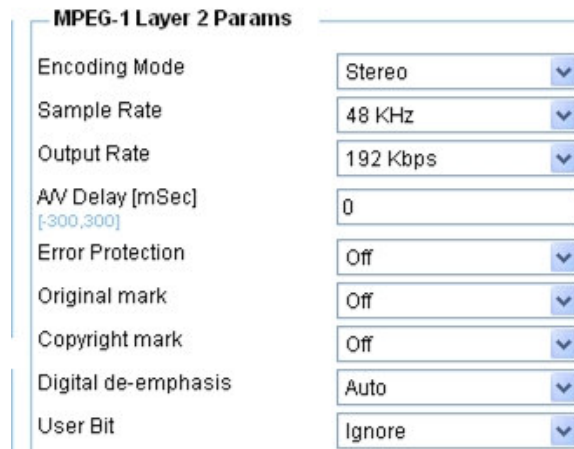
8.5.1. MPEG-1 Layer 2 Parameters Menu

The **MPEG-1 layer 2 Parameters menu** is the specific-configuration menu of the analog audio channel receiving MPEG-1 Layer 2 audio encoded information. This menu allows setting analog audio parameters, specific for MPEG-1 Layer 2 audio encoding scheme.

To access the MPEG-1 layer 2 Parameters menu in the front panel, select **Root→Configuration→Audio→[Audio Channel]→Mpeg-1 layer 2 Parameters** (see the following example).

Mpeg-1 layer 2	
1 Encoding Mode	>Stereo
2 Sample Rate	>48 KHz
3 Output Rate	>192 Kbps
4 A/V Delay	>000
◆	
5 Error Protection	>Off
6 Original Mark	>Off
7 Copyright Mark	>Off
8 Digital de-emphasis	>Auto
9 User Bit	>Ignore

To access the MPEG-1 layer 2 Parameters menu in the Web Manager, select tabs **Audio→Aud#** (see Figure 8-7).



MPEG-1 Layer 2 Params	
Encoding Mode	Stereo
Sample Rate	48 KHz
Output Rate	192 Kbps
AV Delay [mSec] [-300,300]	0
Error Protection	Off
Original mark	Off
Copyright mark	Off
Digital de-emphasis	Auto
User Bit	Ignore

Figure 8-7: MPEG-1 layer 2 Parameters Menu Display



NOTE

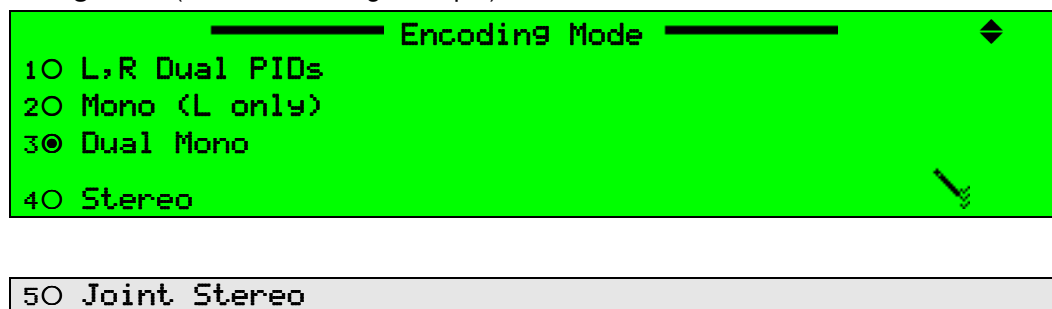
The coding scheme of the selected audio channel must be set to MPEG-1 Layer 2.

The following sections detail the MPEG-1 Layer 2 Audio menu's options.

8.5.1.1. Encoding Mode (MPEG-1 Layer 2)

The **Encoding Mode** parameter sets the operation mode of the MPEG-1 Layer 2 audio channel.

To set the Encoding Mode parameter in the front panel, select **Root→Configuration→Audio→[Audio Channel]→MPEG 1 Layer 2 Params→Encoding Mode** (see the following example).



Encoding Mode	
10	L,R Dual PIDs
20	Mono (L only)
30	Dual Mono
40	Stereo
50	Joint Stereo

The MPEG-1 Layer 2 Encoding mode default value is Stereo. The available options are:

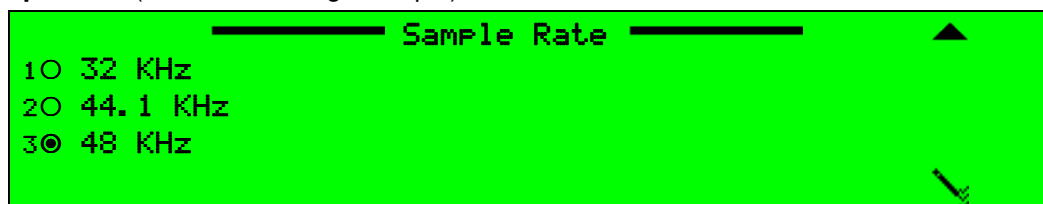
- **L,R Dual PIDs** – Encoding mode allows two different audio PIDs (elementary-streams) to be transferred through the left and the right.
- **Mono (L only)** – Encoding mode is set to single, mono channel. Mono channel is always left.
- **Dual Mono** – Encoding mode allows two independent channels, carrying the same audio PIDs.
- **Stereo** – Encoding mode is set to stereo for encoding a stereophonic audio signal.
- **Joint Stereo** – Encoding mode is set to joint stereo. Joint stereo is used for more efficient combined encoding of the left and right channels of a stereophonic audio signal.

To set the MPEG-1 Layer 2 Encoding Mode parameter in the Web Manager, select tabs **Audio→Aud#** and access the MPEG-1 layer 2 Parameters menu (see Figure 8-7).

8.5.1.2. Sample Rate (MPEG-1 Layer 2)

The **Sample Rate** parameter sets the current sampling rate for the MPEG-1 Layer 2 incoming audio signal. This parameter is used to define the incoming audio quality of the audio input element device (A/D, digital receiver).

To set the Sample Rate parameter in the front panel, select **Root→Configuration→Audio→[Audio Channel]→MPEG 1 Layer 2 Params→Sample Rate** (see the following example).



The MPEG-1 Layer 2 Sample Rate default value is 48 KHz. The available options are **32 KHz, 44.1 KHz, and 48 KHz**.

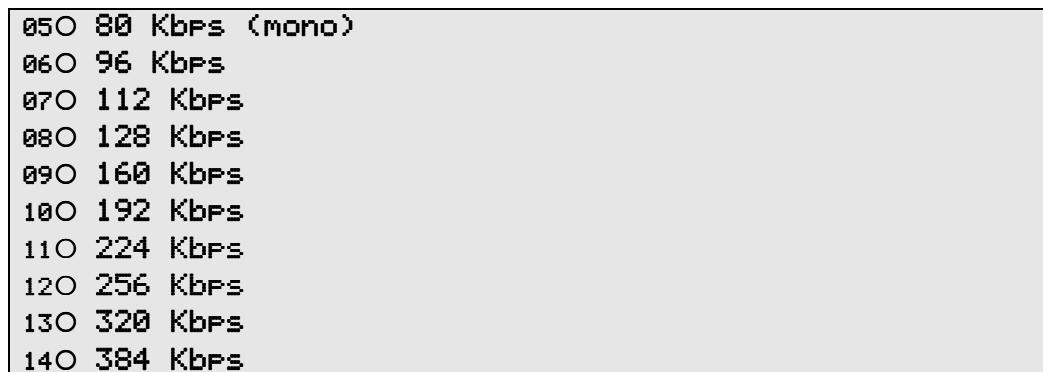
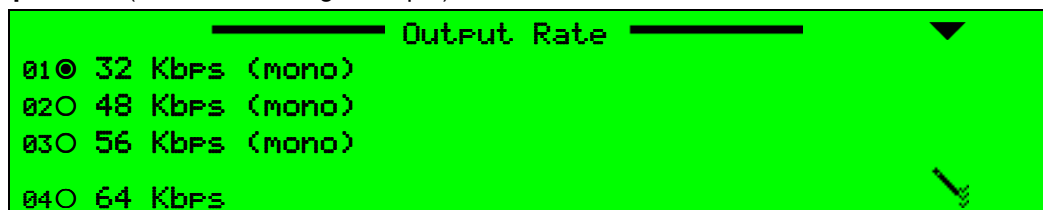
To set the MPEG-1 Layer 2 Sample Rate parameter in the Web Manager, select tabs **Audio→Aud#** and access the MPEG-1 layer 2 Parameters menu (see Figure 8-7).

8.5.1.3. Output Rate (MPEG-1 Layer 2)

The **Output Rate** parameter sets the current output audio bit rate for the audio channel.

The output rate value is affected by the MPEG-1 Layer 2 Coding Scheme and Encoding Mode parameters. This results in different available options for each combination of Coding Scheme and Encoding Modes.

To set the Output Rate parameter in the front panel, select **Root→Configuration→Audio→[Audio Channel]→MPEG 1 Layer 2 Params→Output Rate** (see the following example).



The available MPEG-1 Layer 2 (Musicam) Output Rate Options are given in the following table. The Output Rate default value is 192 Kbps.

Encoding Mode	Available Output Rates (measured in Kbps)
<i>Mono</i>	32, 48, 56, 64, 80, 96, 112, 128, 160, 192, 224, 256, 324, 384
<i>Dual Mono</i>	64, 80, 96, 112, 128, 160, 192, 224, 256, 324, 384
<i>Stereo</i>	64, 80, 96, 112, 128, 160, 192, 224, 256, 324, 384
<i>Joint Stereo</i>	64, 80, 96, 112, 128, 160, 192, 224, 256, 324, 384



NOTE

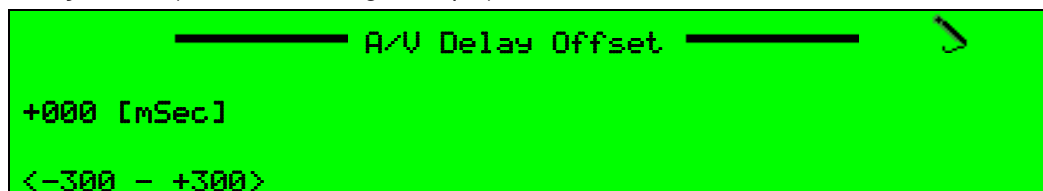
When setting the latency control parameter to low delay, the audio output rate must be set to a high rate (minimum of 384,000 bps). If the rate is not high enough, the encoder will display a "Dependency Check" message. For more information about Latency Control, see paragraph 7.3.1.8.

To set the MPEG-1 Layer 2 Output Rate parameter in the Web Manager, select tabs **Audio→Aud#** and access the MPEG-1 layer 2 Parameters menu (see Figure 8-7).

8.5.1.4. A/V Delay Offset (MPEG-1 Layer 2)

The **A/V Delay Offset** parameter sets the delay between the MPEG-1 Layer 2 encoded audio and the video received. The delay can be either negative or positive, where negative values cause video delay, and positive values cause audio delay.

To set the A/V Delay Offset parameter in the front panel, select **Root→Configuration→Audio→[Audio Channel]→MPEG 1 Layer 2 Params→Av Delay Offset** (see the following example).



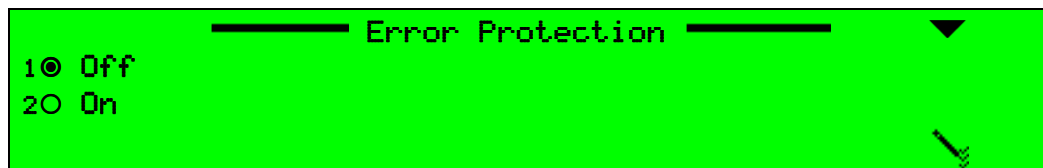
The MPEG-1 Layer 2 A/V Delay Offset available value ranges from -300 to 300. Default value is 0.

To set the A/V Delay Offset parameter in the Web Manager, select tabs **Audio→Aud#** and access the MPEG-1 layer 2 Parameters menu (see Figure 8-7).

8.5.1.5. Error Protection (MPEG-1 Layer 2)

The **Error Protection** parameter indicates whether MPEG-1 Layer 2 Error Protection CRC should be added to the audio stream.

To set the Error Protection parameter in the front panel, select **Root→Configuration→Audio→[Audio Channel]→MPEG 1 Layer 2 Params→Error Protection** (see the following example).



The MPEG-1 Layer 2 Error Protection default value is '**Off**'. The available options are:

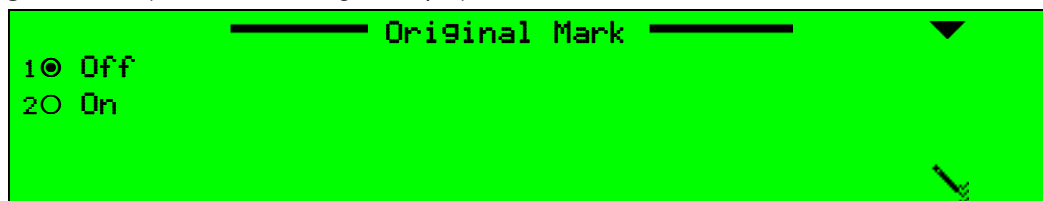
- **Off** – Error protection detector is disabled.
- **On** – Error protection detector is enabled and active.

To set the MPEG-1 Layer 2 Error Protection parameter in the Web Manager, select tabs and hyperlinks **Audio→Aud#** and access the MPEG-1 layer 2 Parameters menu (see Figure 8-7).

8.5.1.6. Original Mark (MPEG-1 Layer 2)

The **Original Mark** parameter is used for the MPEG-1 Layer 2 copy protection mechanism. The original mark indicates whether or not the bit stream is a copy of an original bit stream.

To set the Original Mark parameter in the front panel, select **Root→Configuration→Audio→[Audio Channel]→MPEG 1 Layer 2 Params→Original Mark** (see the following example).



The MPEG-1 Layer 2 Original Mark default value is '**Off**'. The available options are:

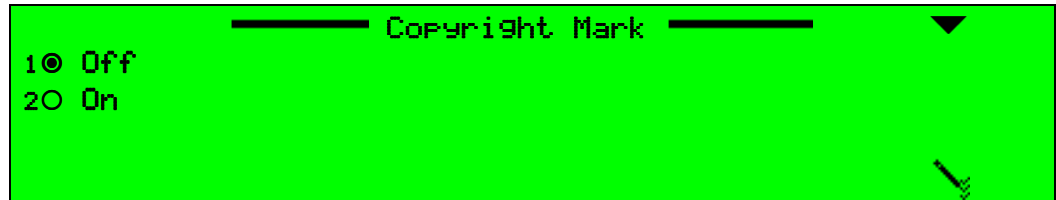
- **Off** – The bit stream is a copy of an original bit stream.
- **On** – The bit stream is an original bit stream.

To set the MPEG-1 Layer 2 Original Mark parameter in the Web Manager, select tabs and hyperlinks **Audio→Aud#**.

8.5.1.7. Copyright Mark (MPEG-1 Layer 2)

The **Copyright Mark** parameter indicates whether the MPEG-1 Layer 2 information in the bit stream is displayed according to copyright protection laws.

To set the Copyright Mark parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→MPEG 1 Layer 2 Params** →**Copyright Mark** (see the following example).



The MPEG-1 Layer 2 Copyright Mark default value is 'Off'. The available options are:

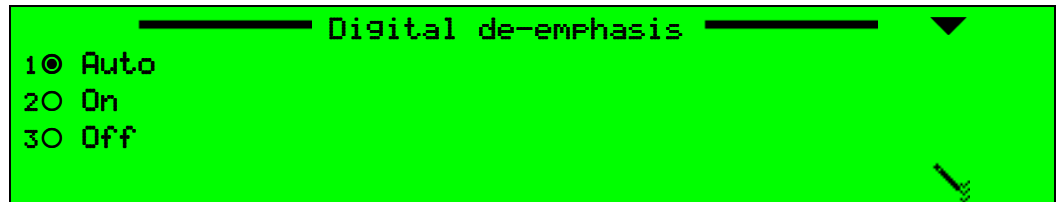
- **Off** – The information is not protected by copyright.
- **On** – The information is protected by copyright.

To set the MPEG-1 Layer 2 Copyright Mark parameter in the Web Manager, select tabs and hyperlinks **Audio→Aud#** and access the MPEG-1 layer 2 Parameters menu (see Figure 8-7).

8.5.1.8. Digital De-Emphasis (MPEG-1 Layer 2)

The **Digital De-Emphasis** parameter activates digital de-emphasis applied to the MPEG-1 Layer 2 PCM (pulse code modulation) input signal, wherever detected that the input has been pre-emphasized.

To set the Digital de-emphasis parameter in the front panel, select **Root→Configuration→Audio→[Audio Channel]→MPEG 1 Layer 2 Params** →**Digital de-emphasis** (see the following example).



The MPEG-1 Layer 2 Digital De-Emphasis default value is 'Auto'. The available options are:

- **Auto** – Detection mode is automatic. Detection is performed by monitoring the pre-emphasis flags within the channel status data of the incoming digital audio signal.
- **On** – Detection mode of operation is enabled. The audio signal is constantly de-emphasized.
- **Off** – Detection mode of operation is disabled.

To set the MPEG-1 Layer 2 Digital De-Emphasis parameter in the Web Manager, select tabs and hyperlinks **Audio→Aud#** and access the MPEG-1 layer 2 Parameters menu (see Figure 8-7).

8.5.1.9. User Bit (MPEG-1 Layer 2)

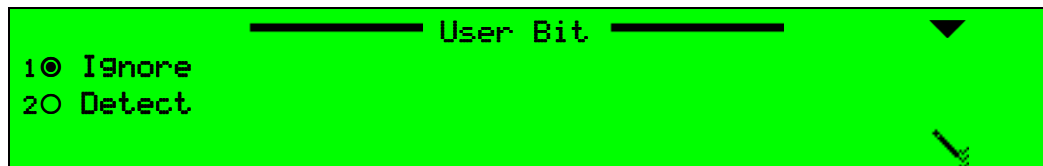
The **User Bit** parameter allows revealing specific bits in the MPEG-1 Layer 2 audio AES-EBU for detecting of digital audio input.



NOTE

This parameter must always be set to 'Ignore'.

To set the User Bit parameter in the front panel, select **Root→Configuration→Audio→[Audio Channel]→MPEG 1 Layer 2 Params→User Bit** (see the following example).



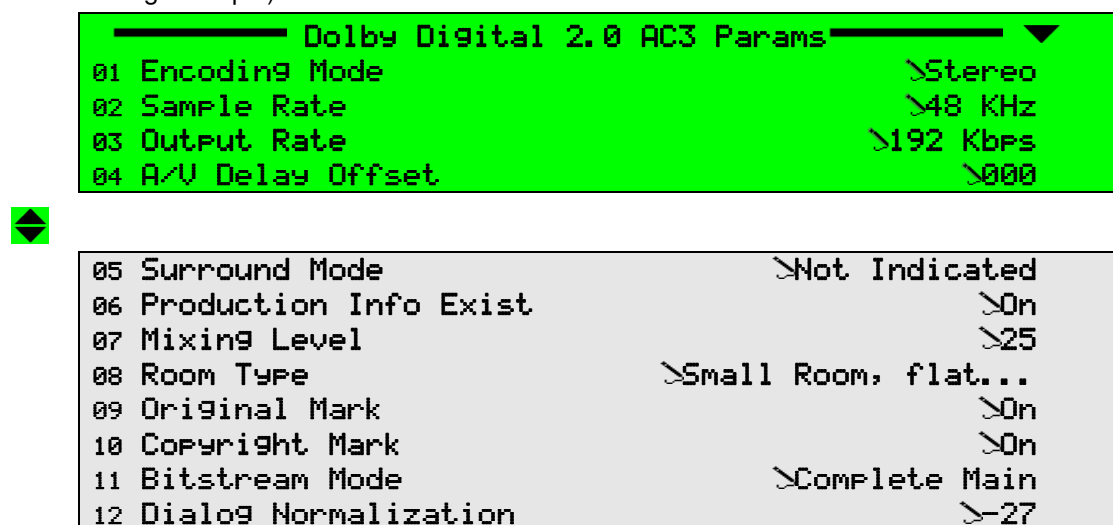
The MPEG-1 Layer 2 User Bit default value is 'Ignore'. The available options are: **Ignore** or **Detect**.

To set the MPEG-1 Layer 2 User Bit parameter in the Web Manager, select tabs and hyperlinks **Audio→Aud#** and access the MPEG-1 layer 2 Parameters menu (see Figure 8-7).

8.5.2. Dolby Digital 2.0 AC3 Parameters Menu

The **Dolby Digital 2.0 AC3 Parameters** menu is the specific-configuration menu of the digital audio channel receiving Dolby Digital 2.0 AC3 audio encoded information. This menu allows setting digital-audio parameters, specific for the Dolby Digital 2.0 AC3 audio encoding scheme.

To access the Dolby Digital 2.0 AC3 Configuration menu in the front panel, select **Root→Configuration→Audio→[Audio Channel]→Dolby Digital 2.0 AC3 Parameters** (see the following example).



To access the Dolby Digital 2.0 AC3 Parameters menu in the Web Manager, select tabs **Audio→Aud#** (see Figure 8-8).

Dolby Digital 2.0 AC3 Parameters	
Encoding Mode	Stereo
Sample Rate	48 KHz
Output Rate	192 Kbps
A/V Delay [mSec] [-300,300]	0
Surround Mode	Not Indicated
Production info exist	On
Mixing Level [dB] [0,31]	25
Room type	Small room, flat mon
Original mark	On
Copyright mark	On
Bitstream Mode	Complete main
Dialog Normalization [dB] [-31,-1]	-27

Figure 8-8: Dolby Digital 2.0 AC3 Parameters Menu Display



NOTES

The coding scheme of the selected audio channel must be set to Dolby Digital 2.0 AC3.

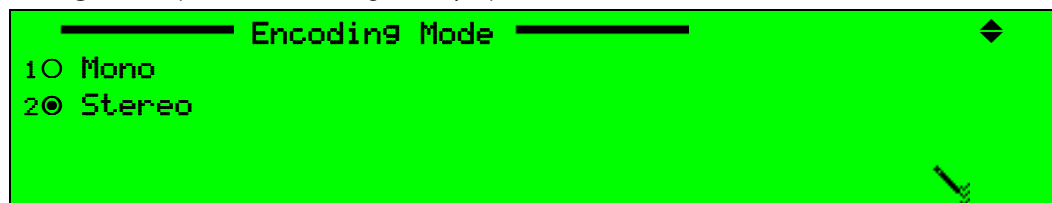
The Dolby Digital 2.0 AC3 coding scheme is available only upon license permission. Trying to set the coding scheme to Dolby Digital 2.0 AC3 without permission displays a “no permission” message.

The following sections detail the Dolby Digital 2.0 AC3 Configuration menu's options.

8.5.2.1. Encoding Mode (Dolby Digital 2.0 AC3)

The **Encoding Mode** parameter sets the operation mode of the Dolby Digital 2.0 AC3 audio channel.

To set the Dolby Digital 2.0 AC3 Encoding Mode parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→Dolby Digital 2.0 AC3 Parameters→Encoding Mode** (see the following example).



The Dolby Digital 2.0 AC3 Encoding mode default value is Stereo. The available options are:

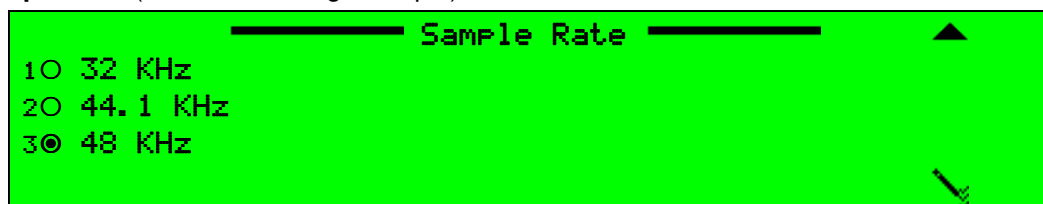
- **Mono** – Encoding mode is set to single, mono channel. Mono channel is always left.
- **Stereo** – Encoding mode is set to stereo for encoding a stereophonic audio signal.

To set the Dolby Digital 2.0 AC3 Encoding Mode parameter in the Web Manager, select tabs **Audio→Aud#** and access the Dolby Digital 2.0 AC3 Parameters menu (see Figure 8-8).

8.5.2.2. Sample Rate (Dolby Digital 2.0 AC3)

The **Sample Rate** parameter sets the current sampling rate for the incoming Dolby Digital 2.0 AC3 coded audio signal. This parameter is used to define the incoming audio quality of the audio input element device (A/D, digital receiver).

To set the Dolby Digital 2.0 AC3 Sample Rate parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→Dolby Digital 2.0 AC3 Parameters→Sample Rate** (see the following example).



The Dolby Digital 2.0 AC3 Sample Rate default value is 48 KHz. The available options are:

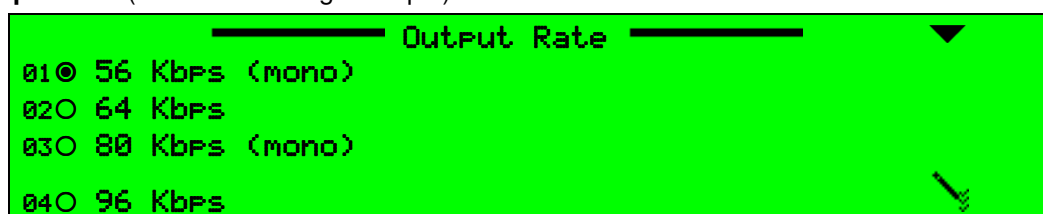
- **32 KHz** – The sample rate is set to 32 KHz.
- **44.1 KHz** – The sample rate is set to 44.1 KHz.
- **48 KHz** – The sample rate is set to 48 KHz.

To set the Dolby Digital 2.0 AC3 Sample Rate parameter in the Web Manager, select tabs **Audio→Aud#** and access the Dolby Digital 2.0 AC3 Parameters menu (see Figure 8-8).

8.5.2.3. Output Rate Mode (Dolby Digital 2.0 AC3)

The **Output Rate** parameter sets the current output audio bit rate for the audio channel. The output rate value is affected by the Dolby Digital 2.0 AC3 Coding Scheme and Encoding Mode parameters. This results in different available options for each combination of Coding Scheme and Encoding Modes. The following table details the available values of the Dolby Digital 2.0 AC3 Output Rate for each available Encoding mode.

To set the Dolby Digital 2.0 AC3 Output Rate parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→Dolby Digital 2.0 AC3 Parameters→Output Rate** (see the following example).



Encoding Mode	Available Output Rates (measured in Kbps)
Mono	56, 64, 80, 96, 112, 128, 160, 192, 224, 256, 320, 384, 448, 512, 576, 640
Stereo	64, 96, 112, 128, 160, 192, 224, 256, 320, 384, 448, 512, 576, 640

The Output Rate default value is 192 Kbps.



NOTE

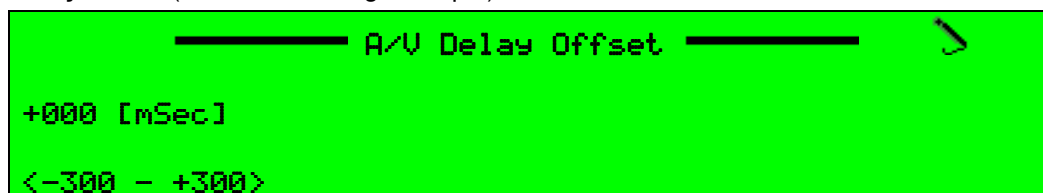
When setting the latency control parameter to low delay, the audio output rate must be set to a high rate (minimum of 384 Kbps). If the rate is not high enough, the encoder will display a "Dependency Check" message. For more information about Latency Control, see paragraph 7.3.1.8.

To set the Dolby Digital 2.0 AC3 Output Rate parameter in the Web Manager, select tabs **Audio→Aud#** and access the Dolby Digital 2.0 AC3 Parameters menu (see Figure 8-8).

8.5.2.4. A/V Delay Offset Mode (Dolby Digital 2.0 AC3)

The **A/V Delay Offset** parameter sets the delay between the Dolby Digital 2.0 AC3 encoded audio and the video received. The delay can be either negative or positive, where negative values cause video delay and positive values cause audio delay.

To set the Dolby Digital 2.0 AC3 A/V Delay Offset parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→Dolby Digital 2.0 AC3 Parameters →Av Delay Offset** (see the following example).



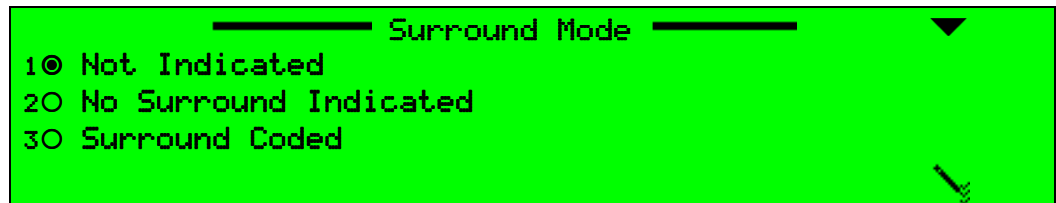
The Dolby Digital 2.0 AC3 A/V Delay Offset available value ranges from -300 to 300. Default value is 0.

To set the A/V Delay Offset parameter in the Web Manager, select tabs **Audio→Aud#** and access the Dolby Digital 2.0 AC3 Parameters menu (see Figure 8-8).

8.5.2.5. Surround Mode

The **Surround Mode** parameter indicates if the Dolby Digital 2.0 AC3 encoded bit-stream is currently conveying a Dolby-surround encoded program. In other words, this parameter indicates whether the audio input signal is surround-coded.

To set the Dolby Digital 2.0 AC3 Surround Mode parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→Dolby Digital 2.0 AC3 Parameters→Surround Mode** (see the following example).



The Dolby Digital 2.0 AC3 Surround Mode default value is '**Not Indicated**'. The available options are:

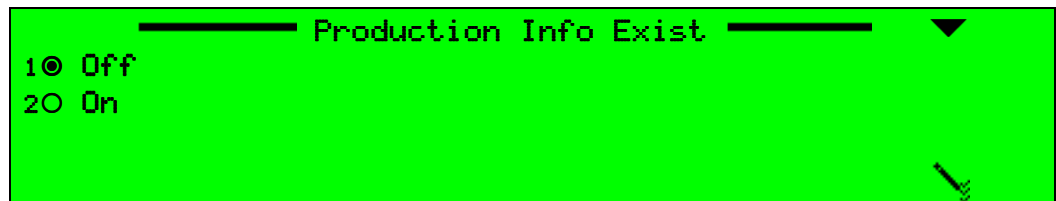
- **Not Indicated** – Surround indicator is disabled.
- **No Surround Indicated** – Audio input signal is not surround-coded.
- **Surround Coded** – Audio input signal is surround coded.

To set the Dolby Digital 2.0 AC3 Surround Mode parameter in the Web Manager, select tabs **Audio→Aud#** and access the Dolby Digital 2.0 AC3 Parameters menu (see Figure 8-8).

8.5.2.6. Production Info Exist Mode (Dolby Digital 2.0 AC3)

The **Production Info Exist** parameter indicates whether the Mixing Level and Room Type parameters exist within the Dolby Digital 2.0 AC3 encoded bit stream.

To set the Production Info Exist parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→Dolby Digital 2.0 AC3 Parameters→Production Info Exist** (see the following example).



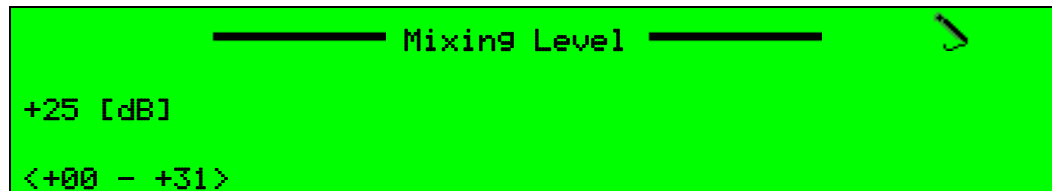
The Dolby Digital 2.0 AC3 Production Info Exist default value is '**Off**' (disabled). The available options are **On / Off**.

To set the Dolby Digital 2.0 AC3 Production Info Exist parameter in the Web Manager, select tabs **Audio→Aud#** and access the Dolby Digital 2.0 AC3 Parameters menu (see Figure 8-8).

8.5.2.7. Mixing Level Mode (Dolby Digital 2.0 AC3)

The **Mixing Level** parameter indicates the acoustic sound pressure level of the dialog level during the final audio mixing session in the Dolby Digital 2.0 AC3 encoding scheme. Thus, the program can be replayed at the same loudness or at a known difference from the original.

To set the Dolby Digital 2.0 AC3 Mixing Level parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→Dolby Digital 2.0 AC3 Parameters→Mixing Level** (see the following example).



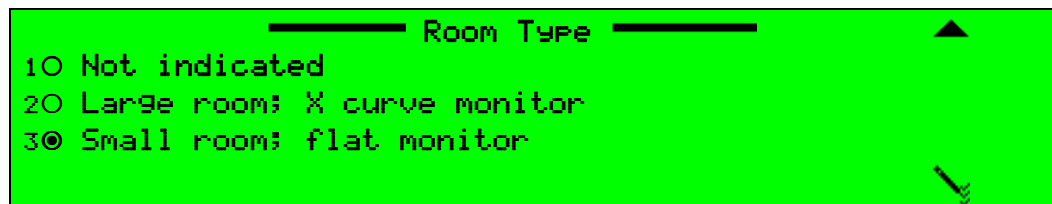
The Dolby Digital 2.0 AC3 Mixing Level available value is between 1 to 31 dB. Default value is 25 dB.

To set the Dolby Digital 2.0 AC3 Mixing Level parameter in the Web Manager, select tabs **Audio→Aud#** and access the Dolby Digital 2.0 AC3 Parameters menu (see Figure 8-8).

8.5.2.8. Room Type Mode (Dolby Digital 2.0 AC3)

The **Room Type** parameter indicates the type and calibration of the mixing room used for the final Dolby Digital 2.0 AC3 audio mixing session.

To set the Dolby Digital 2.0 AC3 Room Type parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→Dolby Digital 2.0 AC3 Parameters→Room Type** (see the following example).



The Dolby Digital 2.0 AC3 Room Type default value is '**Small Room**'. The available options are:

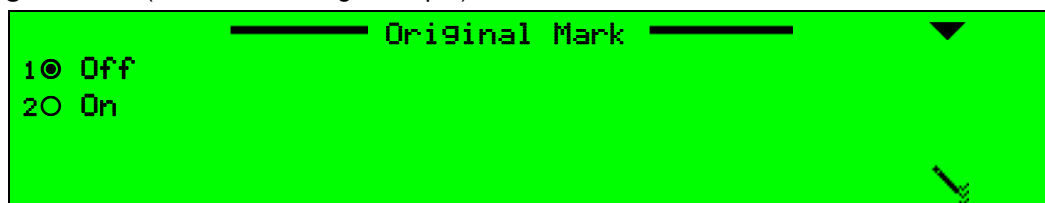
- **Not Indicated** – Room type is not indicated.
- **Large Room, X Curve Monitor** – Room type is large.
- **Small Room, Flat Monitor** – Room type is small.

To set the Dolby Digital 2.0 AC3 Room Type parameter in the Web Manager, select tabs **Audio→Aud#** and access the Dolby Digital 2.0 AC3 Parameters menu (see Figure 8-8).

8.5.2.9. Original Mark Mode (Dolby Digital 2.0 AC3)

The **Original Mark** parameter is used for the copy protection mechanism of the Dolby Digital 2.0 AC3 encoding scheme. The original mark indicates whether or not the bit stream is a copy of an original bit stream.

To set the Dolby Digital 2.0 AC3 Original Mark parameter in the front panel: **Root→Configuration→Audio→[Audio Channel]→Dolby Digital 2.0 AC3 Parameters→Original Mark** (see the following example).



The Dolby Digital 2.0 AC3 Original Mark default value is 'Off'. The available options are:

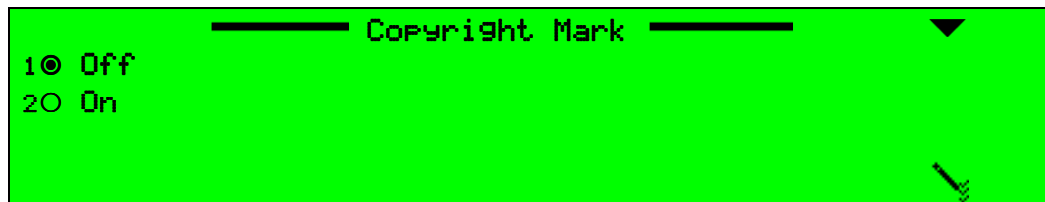
- **Off** – The bit stream is a copy of an original bit stream.
- **On** – The bit stream is an original bit stream.

To set the Dolby Digital 2.0 AC3 Original Mark parameter in the Web Manager, select tabs **Audio→Aud#** and access the Dolby Digital 2.0 AC3 Parameters menu (see Figure 8-8).

8.5.2.10. Copyright Mark Mode (Dolby Digital 2.0 AC3)

The **Copyright Mark** parameter indicates whether the information in the Dolby Digital 2.0 AC3 encoded bit stream is displayed as protected by copyright.

To set the Dolby Digital 2.0 AC3 Copyright Mark parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→Dolby Digital 2.0 AC3 Parameters→Copyright Mark** (see the following example).



The Dolby Digital 2.0 AC3 Copyright Mark default value is 'Off'. The available options are:

- **Off** – The information is not protected by copyright.
- **On** – The information is protected by copyright.

To set the Dolby Digital 2.0 AC3 Copyright Mark parameter in the Web Manager, select tabs **Audio→Aud#** and access the Dolby Digital 2.0 AC3 Parameters menu (see Figure 8-8).

8.5.2.11. Bit-Stream Mode Mode (Dolby Digital 2.0 AC3)

The **Bit-Stream Mode** parameter indicates the type of audio service that the Dolby Digital 2.0 AC3 encoded bit-stream transports.

To set the Dolby Digital 2.0 AC3 Bit-Stream Mode parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→Dolby Digital 2.0 AC3 Parameters→Bitstream Mode** (see the following example).



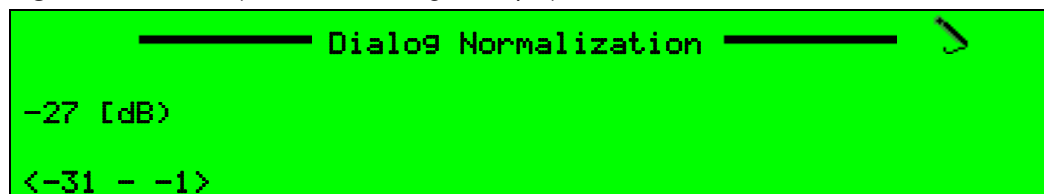
The Dolby Digital 2.0 AC3 Bit-Stream Mode default value is Complete Main. The available options are: Complete Main, Music and Effects, Visually Impaired, Hearing Impaired, Dialog, Commentary, Emergency, and Voiceover-Mono or Karaoke-stereo.

To set the Dolby Digital 2.0 AC3 Bit-Stream Mode parameter in the Web Manager, select tabs **Audio→Aud#** and access the Dolby Digital 2.0 AC3 Parameters menu (see Figure 8-8).

8.5.2.12. Dialog Normalization Mode (Dolby Digital 2.0 AC3)

The **Dialog Normalization** parameter indicates how far the average dialogue level of the Dolby Digital 2.0 AC3 encoded program is below digital 100%. Valid values are 1 to 31, which are interpreted as -1 to -31 dB with respect to digital 100%. This parameter affects the sound reproduction level.

To set the Dolby Digital 2.0 AC3 Dialog Normalization parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→Dolby Digital 2.0 AC3 Parameters→Dialog Normalization** (see the following example).



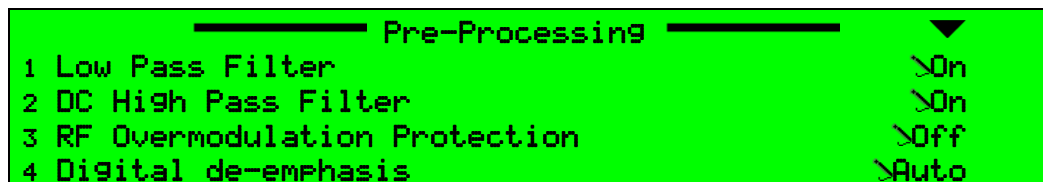
The Dolby Digital 2.0 AC3 Dialog Normalization available value ranges from -31 to -1 dB. Default value is -27 dB.

To set the Dolby Digital 2.0 AC3 Dialog Normalization parameter in the Web Manager, select tabs **Audio→Aud#** and access the Dolby Digital 2.0 AC3 Parameters menu (see Figure 8-8).

8.5.3. Dolby Pre-Processing Menu

The **Pre-Processing** menu displays and manages the Dolby pre-processing parameters: filters, protections, and so on.

To access the Dolby Pre-Processing menu in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→Pre Processing** (see the following example).



To access the Dolby Pre-Processing menu in the Web Manager, select tabs **Audio→Aud#** (see Figure 8-9).

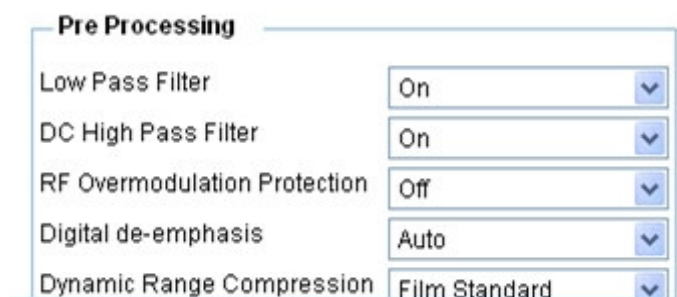


Figure 8-9: Pre-Processing Menu Display



NOTE

The coding scheme of the selected audio channel must be set to Dolby Digital 2.0 AC3.

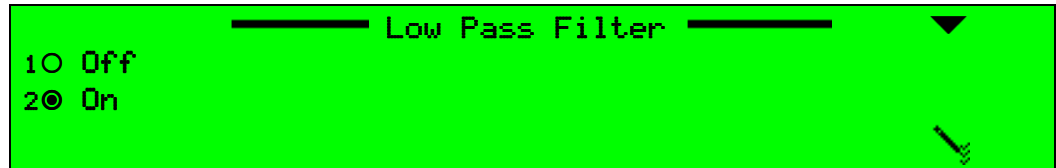
The Dolby Digital 2.0 AC3 coding scheme is available only upon license permission. Trying to set the coding scheme to Dolby Digital 2.0 AC3 without permission displays a “no permission” message.

The following sections detail the Dolby Pre-Processing menu options.

8.5.3.1. Low Pass Filter (Dolby Pre-Processing)

The **Low-Pass Filter** parameter sets the Dolby Pre-Processing low pass filter mode of operation.

To set the Dolby Pre-Processing Low-Pass Filter parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→Pre Processing→Low-Pass Filter** (see the following example).



The Dolby Pre-Processing Low-Pass Filter default value is 'On'. The available options are:

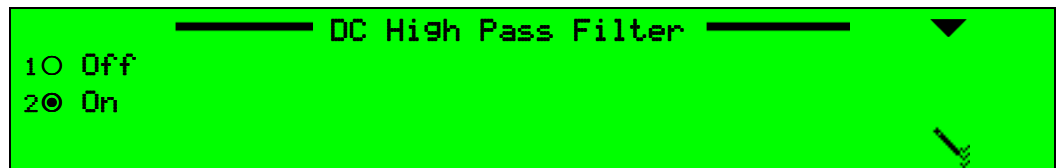
- **Off** – Low-pass filter is disabled.
- **On** – Low-pass filter is enabled.

To set the Dolby Pre-Processing Low-Pass Filter parameter in the Web Manager, select tabs **Audio→Aud#** and access the Pre-Processing Parameters menu (see Figure 8-9).

8.5.3.2. DC High-Pass Filter (Dolby Pre-Processing)

The **DC High-Pass Filter** parameter sets the DC high-pass filter mode of operation for the Dolby Pre-Processing audio encoding scheme.

To set the Dolby Pre-Processing DC High-Pass Filter parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→Pre Processing→DC High-Pass Filter** (see the following example).



The Dolby Pre-Processing DC High-Pass Filter default value is 'On'. The available options are:

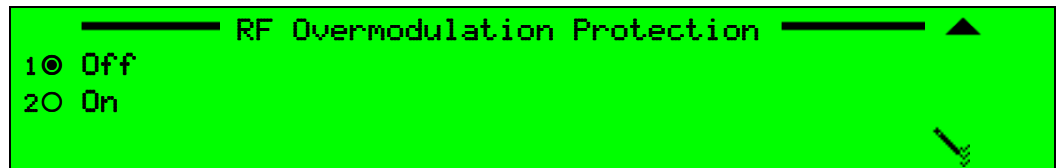
- **Off** – DC high-pass filter is disabled.
- **On** – DC high-pass filter is enabled.

To set the Dolby Pre-Processing DC High-Pass Filter parameter in the Web Manager, select tabs **Audio→Aud#** and access the Pre-Processing Parameters menu (see Figure 8-9).

8.5.3.3. RF Over Modulation Protection (Dolby Pre-Processing)

The **RF Over Modulation Protection** parameter enables the RF over-modulation protection to prevent the Dolby decoded audio signal from being over-modulated when it is RF modulated.

To set the Pre-Processing RF-Overmodulation Protection parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→Pre Processing→RF Overmodulation Protection** (see the following example).



The Dolby Pre-Processing RF Overmodulation Protection default value is 'Off'. The available options are:

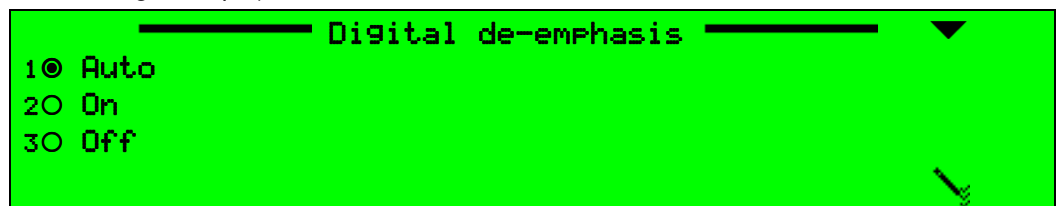
- **Off** – RF over-modulation protector is disabled.
- **On** – RF over-modulation protector is enabled.

To set the Dolby Pre-Processing RF Overmodulation Protection parameter in the Web Manager, select tabs **Audio→Aud#** and access the Pre-Processing Parameters menu (see Figure 8-9).

8.5.3.4. Digital De-Emphasis (Dolby Pre-Processing)

The **Digital De-Emphasis** parameter activates digital de-emphasis applied to the PCM (pulse code modulation) input signal, wherever detected that the input has been pre-emphasized.

To set the Dolby Pre-Processing Digital de-emphasis parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→Pre Processing→Digital de-emphasis** (see the following example).



The Dolby Pre-Processing Digital De-Emphasis default value is 'Auto'. The available options are:

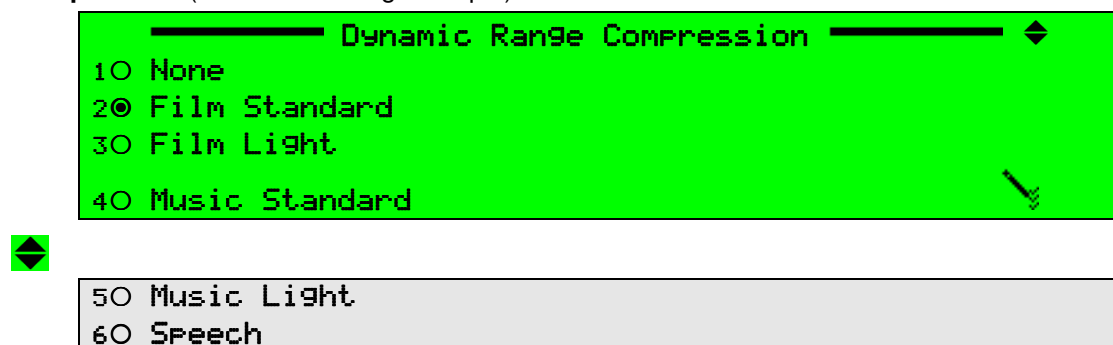
- **Auto** – Detection mode is automatic. Detection is performed by monitoring the pre-emphasis flags within the channel status data of the incoming digital audio signal.
- **On** – Detection mode of operation is enabled.
- **Off** – Detection mode of operation is disabled.

To set the Dolby Pre-Processing Digital De-Emphasis parameter in the Web Manager, select tabs **Audio→Aud#** and access the Pre-Processing Parameters menu (see Figure 8-9).

8.5.3.5. Dynamic Range Compression (Dolby Pre-Processing)

The **Dynamic Range Compression** parameter sets the audio dynamic-range compression profile for the Dolby encoded audio channel. There are six modes of compression profile. This parameter determines the characteristic curve of the dynamic range compression algorithm. Each profile has its own boost, null-band, and cut parameters.

To set the Pre-Processing Dynamic Range Compression menu in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→Pre Processing→Dynamic ange Compression** (see the following example).



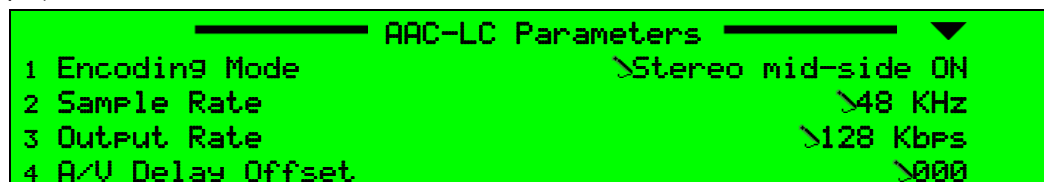
The Dolby Pre-Processing Dynamic Range Compression default value is 'Film Standard'. The available options are: **None**, **Film Standard**, **Film Light**, **Music Standard**, **Music Light**, and **Speech**.

To set the Dolby Pre-Processing Dynamic Range Compression parameter in the Web Manager, select tabs **Audio→Aud#** and access the Pre-Processing Parameters menu (see Figure 8-9).

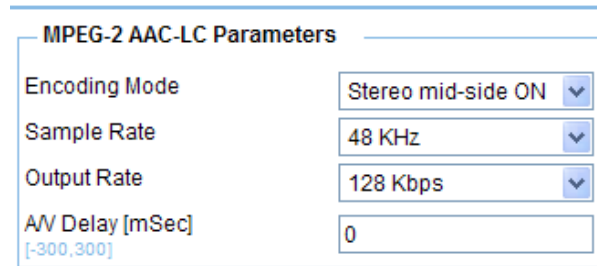
8.5.4. MPEG-2 AAC-LC Parameters Menu

The MPEG-2 Advanced Audio Code Low Complexity (**MPEG-2 AAC-LC**) **Parameters** menu is the specific-configuration menu of the embedded audio channel receiving MPEG-2 AAC-LC audio encoded information.

To access the MPEG-2 AAC-LC Parameters menu in the front panel, select **Root→Configuration→Audio→[Audio Channel]→AAC LC Parameters** (see the following example).



To access the MPEG-2 AAC-LC Parameters menu in the Web Manager, select tabs **Audio→Aud#** (see Figure 8-10).



MPEG-2 AAC-LC Parameters	
Encoding Mode	Stereo mid-side ON
Sample Rate	48 KHz
Output Rate	128 Kbps
AV Delay [mSec] [-300,300]	0

Figure 8-10: MPEG-2 AAC-LC Parameters Menu Display



NOTE

The coding scheme of the selected audio channel must be set to MPEG-2 AAC-LC.

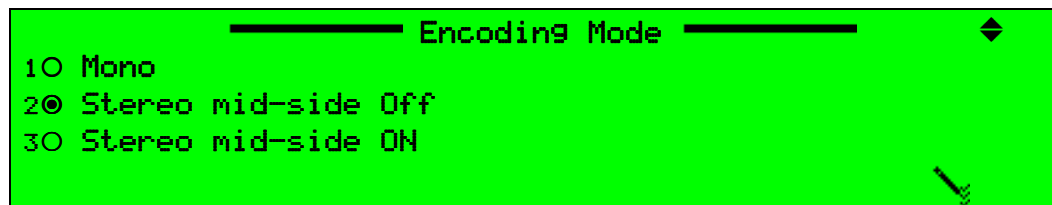
The MPEG-2 AAC-LC coding scheme is available only upon license permission. Trying to set the coding scheme to MPEG-2 AAC-LC without permission displays a “no permission” message.

The following sections detail the MPEG-2 AAC-LC Audio menu options and parameters.

8.5.4.1. Encoding Mode (MPEG-2 AAC-LC)

The **Encoding Mode** parameter sets the operation mode of the MPEG-2 AAC-LC encoded audio channel.

To set the MPEG-2 AAC-LC Encoding Mode parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→MPEG-2 AAC LC Params→Encoding Mode** (see the following example).



```

      _____ Encoding Mode _____
1 ○ Mono
2 ● Stereo mid-side Off
3 ○ Stereo mid-side ON
  
```

The MPEG-2 AAC-LC Encoding mode default value is Stereo. The available options are:

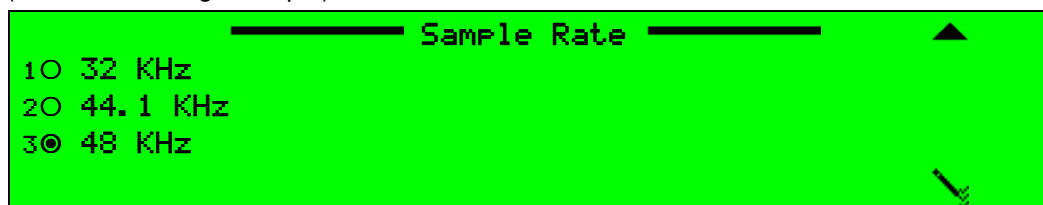
- **Mono** – Encoding mode is set to single, mono channel (always left channel).
- Stereo Mid-Side OFF
- Stereo Mid-Side ON.

To set the MPEG-2 AAC-LC Encoding Mode parameter in the Web Manager, select tabs **Audio→Aud#** and access the MPEG-2 AAC-LC Parameters menu (see Figure 8-10).

8.5.4.2. Sample Rate (MPEG-2 AAC-LC)

The **Sample Rate** parameter sets the current sampling rate for the incoming MPEG-2 AAC-LC encoded audio signal. This parameter is used to define the incoming audio quality of the audio input element device (A/D, digital receiver).

To set the MPEG-2 AAC-LC Sample Rate parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→MPEG-2 AAC LC Params→Sample Rate** (see the following example).



The MPEG-2 AAC-LC Sample Rate default value is 48 KHz. The available options are: **32**, **44.1** and **48 KHz**.

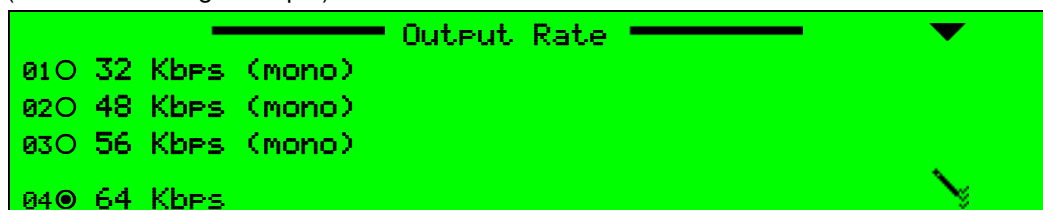
To set the MPEG-2 AAC-LC Sample Rate parameter in the Web Manager, select tabs **Audio→Aud#** and access the MPEG-2 AAC-LC Parameters menu (see Figure 8-10).

8.5.4.3. Output Rate (MPEG-2 AAC-LC)

The **Output Rate** parameter sets the current output audio bit rate for the MPEG-2 AAC-LC encoded audio channel.

The output rate value is affected by the Coding Scheme and Encoding Mode parameters. This results in different available options for each combination of Coding Scheme and Encoding Modes. The following table details the available values of the MPEG-2 AAC-LC Output Rate for each available encoding mode.

To set the MPEG-2 AAC-LC Output Rate parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→MPEG-2 AAC LC Params→Output Rate** (see the following example).



050	80 Kbps
060	96 Kbps
070	112 Kbps
080	128 Kbps
090	160 Kbps
100	192 Kbps

The MPEG-2 AAC-LC Output Rate default value is 192 Kbps.

Encoding Mode	Available Output Rates (measured by Kbps)
<i>Mono</i>	32, 48, 56, 64, 80, 96, 112, 128, 160, 192
<i>Stereo</i>	64, 80, 96, 112, 128, 160, 192



NOTE

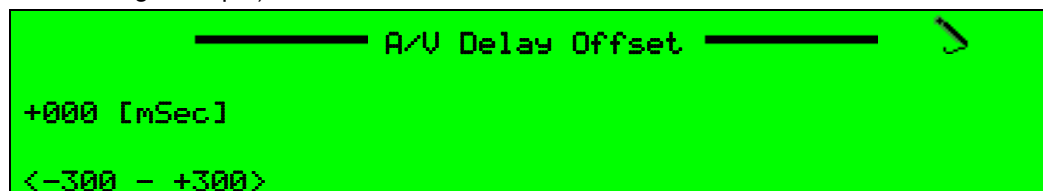
When setting the latency control parameter to low delay, the audio output rate must be set to a high rate (minimum of 384,000 bps). If the rate is not high enough, the encoder will display a "Dependency Chcek" message. For more information about Latency Control, see paragraph 7.3.1.8.

To set the MPEG-2 AAC-LC Output Rate parameter in the Web Manager, select tabs **Audio→Aud#** and access the MPEG-2 AAC-LC Parameters menu (see Figure 8-10).

8.5.4.4. A/V Delay Offset (MPEG-2 AAC-LC)

The **A/V Delay Offset** parameter sets the delay between the MPEG-2 AAC-LC encoded audio and the video received. The delay can be either negative or positive, where negative values cause video delay and positive values cause audio delay.

To set the MPEG-2 AAC-LC A/V Delay Offset parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→AAC LC Params→Av Delay Offset** (see the following example).



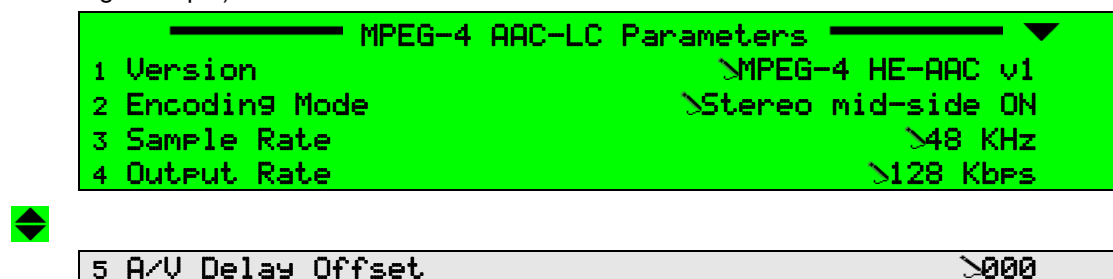
The MPEG-2 AAC-LC A/V Delay Offset available value ranges from -300 to 300 in mSec. Default value is 0 mSec.

To set the MPEG-2 AAC-LC A/V Delay Offset parameter in the Web Manager, select tabs **Audio→Aud#** and access the MPEG-2 AAC-LC Parameters menu (see Figure 8-10).

8.5.5. MPEG-4 HE-AAC Parameters Menu

The MPEG-4 High Efficiency Advanced Audio Code (**MPEG-4 HE-AAC**) **Parameters** menu allows setting specific audio parameters for the MPEG-4 HE-AAC audio encoding scheme.

To access the MPEG-4 HE-AAC Parameters menu in the front panel, select select: **Root→Configuration→Audio→[Audio Channel]→MPEG-4 HE AAC Parameters** (see the following example).



To access the MPEG-4 HE-AAC Parameters menu in the Web Manager, select tabs **Audio→Aud#** (see Figure 8-11).

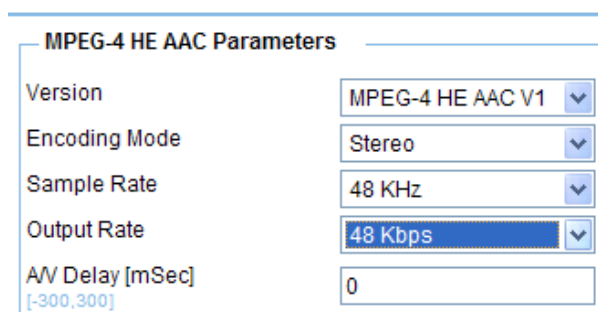


Figure 8-11: MPEG-4 HE-AAC Parameters Menu Display

8.5.5.1. Version (MPEG-4 HE-AAC)

The **Version** parameter sets the Version for the MPEG-4 HE-AAC encoded audio channel.

To set the MPEG-4 HE-AAC Encoding Mode parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→MPEG-4 HE AAC Params→Version** (see the following example).



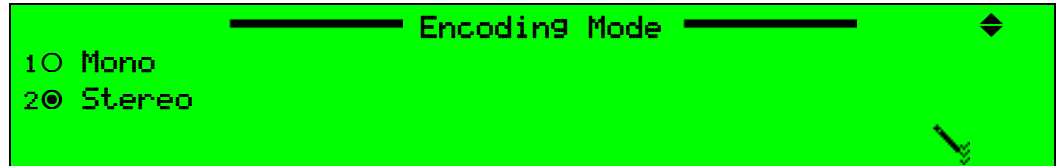
The MPEG-4 HE-AAC Encoding mode available options are **MPEG-4 HE-AAC v1** and **MPEG-4 HE-AAC v2**. The default value is **v1**.

To set the MPEG-4 HE-AAC Encoding Mode parameter in the Web Manager, select tabs **Audio→Aud#** and access the MPEG-4 HE-AAC Parameters menu (see Figure 8-11).

8.5.5.2. Encoding Mode (MPEG-4 HE-AAC)

The **Encoding Mode** parameter sets the operation mode of the MPEG-4 HE-AAC encoded audio channel.

To set the MPEG-4 HE-AAC Encoding Mode parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→MPEG-4 HE AAC Params→Encoding Mode** (see the following example).



The MPEG-4 HE-AAC Encoding mode default value is Stereo. The available options are:

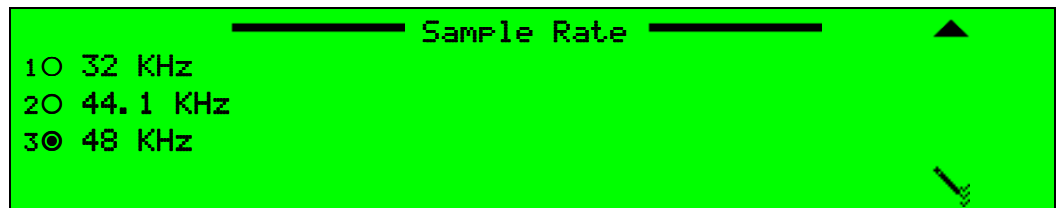
- **Mono** – Encoding mode is set to single, mono channel. Mono channel is always left.
- **Stereo** – Encoding mode is stereo.

To set the MPEG-4 HE-AAC Encoding Mode parameter in the Web Manager, select tabs **Audio→Aud#** and access the MPEG-4 HE-AAC Parameters menu (see Figure 8-11).

8.5.5.3. Sample Rate (MPEG-4 HE-AAC)

The **Sample Rate** parameter sets the current sampling rate for the incoming MPEG-4 HE-AAC encoded audio signal. This parameter is used to define the incoming audio quality of the audio input element device (A/D, digital receiver).

To set the MPEG-4 HE-AAC Sample Rate parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→MPEG-4 HE AAC Params→Sample Rate** (see the following example).



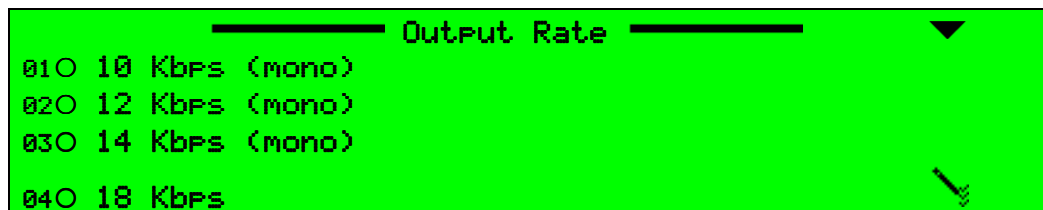
The MPEG-4 HE-AAC Sample Rate default value is 48 KHz. The available options are: **32 KHz, 44.1 KHz or 48 KHz.**

To set the MPEG-4 HE-AAC Sample Rate parameter in the Web Manager, select tabs **Audio→Aud#** and access the MPEG-4 HE-AAC Parameters menu (see Figure 8-11).

8.5.5.4. Output Rate (MPEG-4 HE-AAC)

The **Output Rate** parameter sets the current output audio bit rate for the MPEG-4 HE-AAC encoded audio channel. The output rate value is affected by the Coding Scheme and Encoding Mode parameters. This results in different available options for each combination of Coding Scheme and Encoding Modes.

To set the MPEG-4 HE-AAC Output Rate parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→MPEG-4 HE AAC Params→Output Rate** (see the following example).



The MPEG-4 HE-AAC Output Rate default value is 48 Kbps. The following table details the available values of the MPEG-4 HE-AAC Output Rate for each available Encoding mode.

Encoding Mode	Available Output Rates (measured in Kbps)
<i>Mono</i>	10*, 12*, 14*, 18*, 20*, 24, 32, 40*
<i>Stereo</i>	18*, 24, 32, 36, 40*, 48, 64, 72



NOTES

(*) Currently, the following output rates are NOT supported (in Kbps): 10, 12, 14, 18, 20, 40.

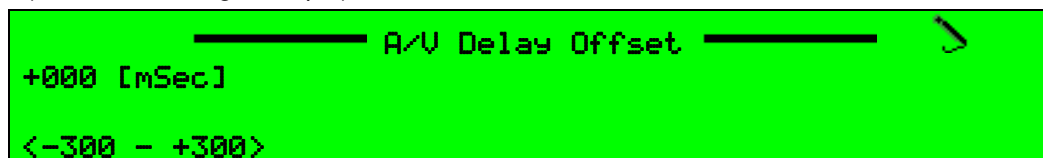
When setting the latency control parameter to low delay, the audio output rate must be set to a high rate (minimum of 384,000 bps). If the rate is not high enough, the encoder will display a "Dependency Check" message. For more information about Latency Control, see paragraph 7.3.1.8.

To set the MPEG-4 HE-AAC Output Rate parameter in the Web Manager, select tabs **Audio→Aud#** and access the MPEG-4 HE-AAC Parameters menu (see Figure 8-11).

8.5.5.5. A/V Delay Offset (MPEG-4 HE-AAC)

The **A/V Delay Offset** parameter sets the delay between the MPEG-4 HE-AAC encoded audio and the video received. The delay can be either negative or positive, where negative values cause video delay and positive values cause audio delay.

To set the MPEG-4 HE-AAC A/V Delay Offset parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→MPEG-4 HE AAC Params→Av Delay Offset** (see the following example).



The MPEG-4 HE-AAC A/V Delay Offset available value ranges from -300 to 300. The default value is 0.

To set the MPEG-4 HE-AAC A/V Delay Offset parameter in the Web Manager, select tabs **Audio→Aud#** and access the MPEG-4 HE-AAC Parameters menu (see Figure 8-11).

8.5.6. Dolby AC-3 Pass-Through Parameters Menu

The **Dolby AC-3 Pass-Through Parameters** menu is the specific-configuration menu of the Dolby AC-3 pass-through coding scheme. This menu allows setting the pass-through coding scheme specific audio parameters.

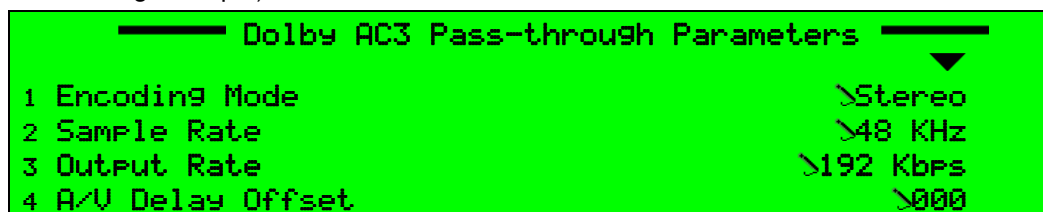
When set to Dolby AC-3 pass-through, the Ellipse does not encode the audio stream and instead passes it as is. The output rates of this coding scheme match output rates of the Dolby AC-3 coding scheme, to match the definitions already assigned to the stream by the original encoder.



NOTE

When Ellipse transmits pass-through coding schemes, the Ellipse must synchronize with the external equipment sending the audio stream (see Appendix C).

To access the Dolby AC-3 Pass-Through Parameters menu in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→Dolby AC3 Pass-through Parameters** (see the following example).



To access the Dolby AC-3 Pass-Through Parameters menu in the Web Manager, select tabs **Audio→Aud#** (see Figure 8-12).

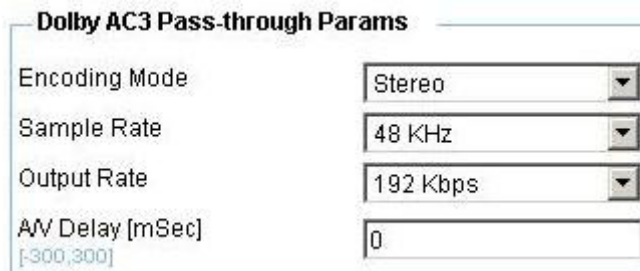


Figure 8-12: Dolby AC-3 Pass-Through Parameters Menu Display

NOTES



The coding scheme of the selected audio channel must be set to Dolby AC3 Pass-through.

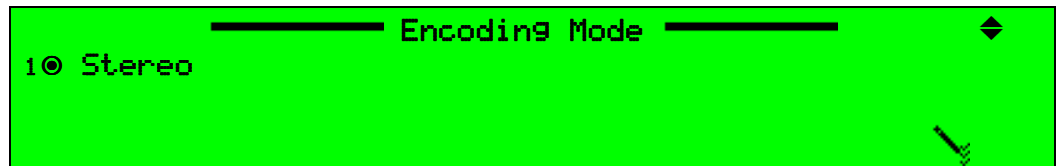
Max Input Level and **Impedance** parameters are valid only when the Audio Source parameter value is Analog. When the Audio Source is set to Digital or Embedded (Not Available), these parameters are available but do not affect the audio encoding.

The following sections detail the Dolby AC-3 Pass-Through menu options and parameters.

8.5.6.1. Encoding Mode (Dolby AC-3 Pass-Through)

The **Encoding Mode** parameter sets the operation mode of the incoming audio channel, already encoded in the Dolby AC-3 coding scheme.

To set the Dolby AC-3 Pass-Through Encoding Mode parameter in the front panel, select **Root→Configuration→Audio→[Audio Channel]→Dolby AC3 Pass-through Params→Encoding Mode** (see the following example).



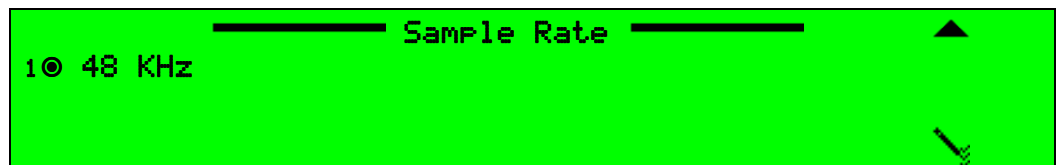
The Dolby AC-3 Pass-Through Encoding mode default value is Stereo.

To set the Dolby AC-3 Pass-Through Encoding Mode parameter in the Web Manager, select tabs **Audio→Aud#** and access the Dolby AC-3 Pass-Through Parameters menu (see Figure 8-12).

8.5.6.2. Sample Rate (Dolby AC-3 Pass-Through)

The **Sample Rate** parameter sets the current sampling rate for the incoming audio signal, already encoded in the Dolby AC-3 coding scheme. This parameter is used to define the incoming audio quality of the audio input element device (A/D, digital receiver).

To set the Dolby AC-3 Pass-Through Sample Rate parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→Dolby AC3 Pass-through Params→Sample Rate** (see the following example).



The Dolby AC-3 Pass-Through Sample Rate default value is 48 KHz.

To set the Dolby AC-3 Pass-Through Sample Rate parameter in the Web Manager, select tabs **Audio→Aud#** and access the Dolby AC-3 Pass-Through Parameters menu (see Figure 8-12).

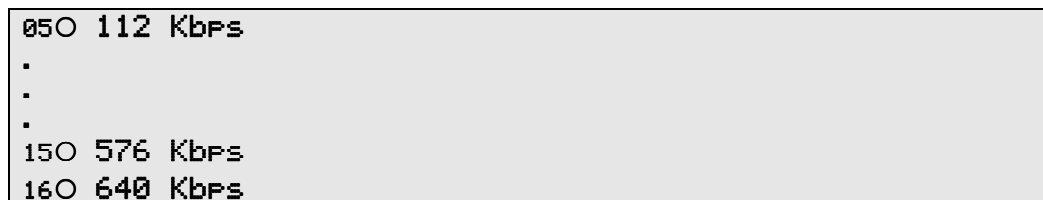
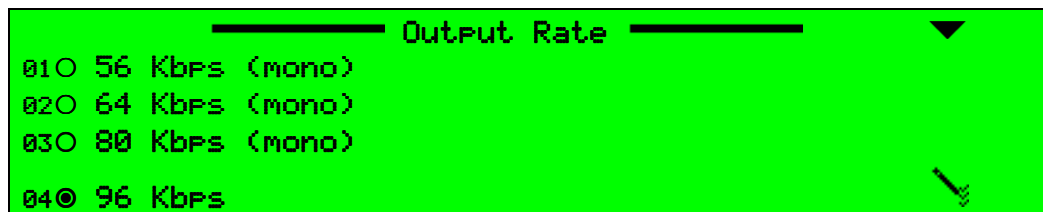
8.5.6.3. Output Rate (Dolby AC-3 Pass-Through)

The **Output Rate** parameter sets the current output audio bit rate for the Dolby AC-3 Pass Through audio channel.

The Dolby AC-3 pass-through scheme is used when the Ellipse receives on audio stream, already encoded in the Dolby AC-3 coding scheme.

The output rate of the Dolby AC-3 pass-through must be set according to the output rate assigned to the stream by the former encoder. The output rate value is affected by the Coding Scheme and Encoding Mode parameters. This results in different available options for each combination of Coding Scheme and Encoding Modes.

To set the Dolby AC-3 Pass Through Output Rate parameter in the front panel, select **Root→Configuration→Audio→[Audio Channel]→Dolby AC3 Pass-through Params→Output Rate** (see the following example).



The Dolby AC-3 Pass Through Output Rate default value is 192 Kbps. The following table details the available values of the Dolby AC-3 Pass-Through Output Rate for each available Encoding mode.

Encoding Mode	Available Output Rates
<i>Stereo</i>	96, 112, 128, 160, 192, 224, 256, 320, 384, 448, 512, 576, 640 Kbps



NOTE

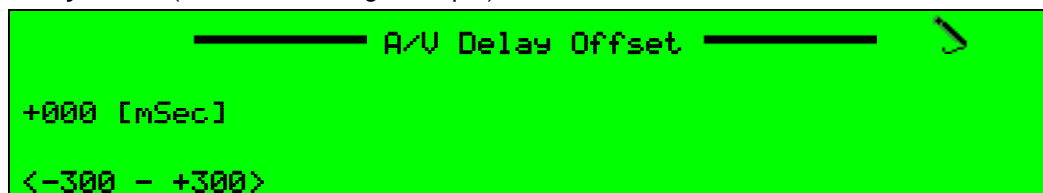
When setting the latency control parameter to low delay, the audio output rate must be set to a high rate (minimum of 384,000 bps). If the rate is not high enough, the encoder will display a "Dependency Chcek" message. For more information about Latency Control, see paragraph 7.3.1.8.

To set the Dolby AC-3 Pass Through Output Rate parameter in the Web Manager, select tabs **Audio**→**Aud#** and access the Dolby AC-3 Pass-Through Parameters menu (see Figure 8-12).

8.5.6.4. A/V Delay Offset (Dolby AC-3 Pass Through)

The **A/V Delay Offset** parameter sets the delay between the audio and video transmissions. The delay can be either negative or positive, where negative values cause video delay and positive values cause audio delay.

To set the Dolby AC-3 Pass Through A/V Delay Offset parameter in the front panel, select **Root**→**Configuration**→**Audio**→**[Audio Channel]**→**Dolby AC3 Pass-through Params**→**Av Delay Offset** (see the following example).



The Dolby AC-3 Pass Through A/V Delay Offset default value is 0 mSec. The available value ranges from -300 to 300 mSec.

To set the Dolby AC-3 Pass Through A/V Delay Offset parameter in the Web Manager, select tabs **Audio**→**Aud#** and access the Dolby AC-3 Pass-Through Parameters menu (see Figure 8-12).

8.5.7. Dolby-E Pass-Through Parameters Menu

The **Dolby-E Pass-Through Parameters menu** is the specific-configuration menu of the Dolby-E Pass-Through coding scheme. This menu allows setting the pass-through coding scheme specific audio parameters.

Dolby-E pass-through coding scheme is used for the audio stream to remain un-encoded. This situation maintains the best stream-quality and audible quality. This is often used for audio-based transmissions, such as radio stations and so on.

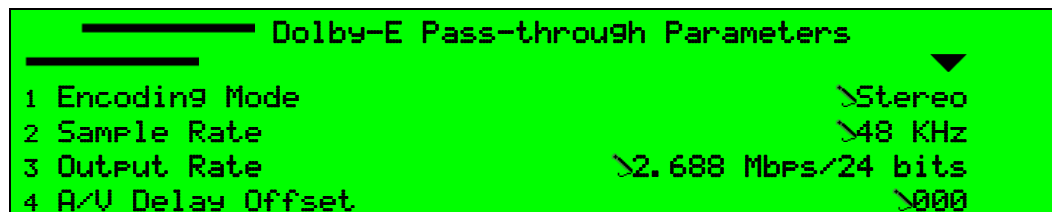
The Dolby-E pass-through passes the audio stream as is and the output rates are calculated in Mbps (instead of Kbps).

NOTE



When Ellipse transmits pass-through coding schemes, the Ellipse must be synchronized with the external equipment sending the audio stream (see Appendix C).

To access the Dolby-E Pass-Through Parameters menu in the front panel, select **Root→Configuration→Audio→[Audio Channel]→Dolby-E Pass-through Parameters** (see the following example).



To access the Dolby-E Pass-Through Parameters menu in the Web Manager, select tabs **Audio→Aud#** (see Figure 8-13).

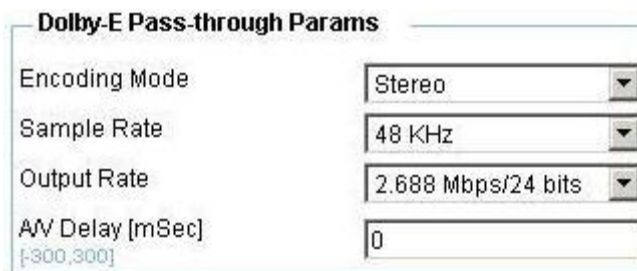


Figure 8-13: Dolby-E Pass-Through Parameters Menu Display

NOTE



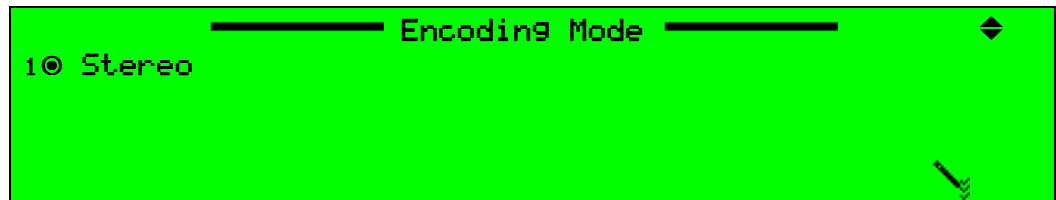
The coding scheme of the selected audio channel must be set to Dolby-E Pass-through.

The following sections detail the Dolby-E Pass-Through menu options and parameters.

8.5.7.1. Encoding Mode (Dolby-E Pass-Through)

The **Encoding Mode** parameter sets the operation mode of the incoming audio channel, already encoded in the Dolby-E encoding scheme.

To set the Dolby-E Pass-Through Encoding Mode parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→Dolby-E Pass-through Parameters→Encoding Mode** (see the following example).



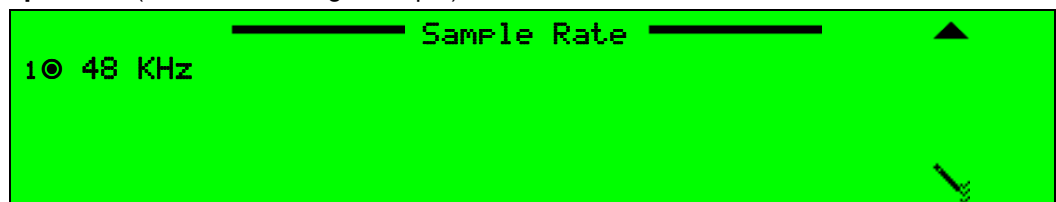
The Dolby-E Pass-Through Encoding mode default value is Stereo.

To set the Dolby-E Pass-Through Encoding Mode parameter in the Web Manager, select tabs **Audio→Aud#** and access the Dolby-E Pass-Through Parameters menu (see Figure 8-13).

8.5.7.2. Sample Rate (Dolby-E Pass-Through)

The **Sample Rate** parameter sets the current sampling rate for the incoming audio signal. This parameter is used to define the incoming quality of the Dolby-E encoded audio input element device (A/D, digital receiver).

To set the Dolby-E Pass-Through Sample Rate parameter in the front panel, select: **Root→Configuration→Audio→[Audio Channel]→Dolby-E Pass-through Parameters→Sample Rate** (see the following example).



The Dolby-E Pass-Through Sample Rate default value is 48 KHz.

To set the Dolby-E Pass-Through Sample Rate parameter in the Web Manager, select tabs **Audio→Aud#** and access the Dolby-E Pass-Through Parameters menu (see Figure 8-13).

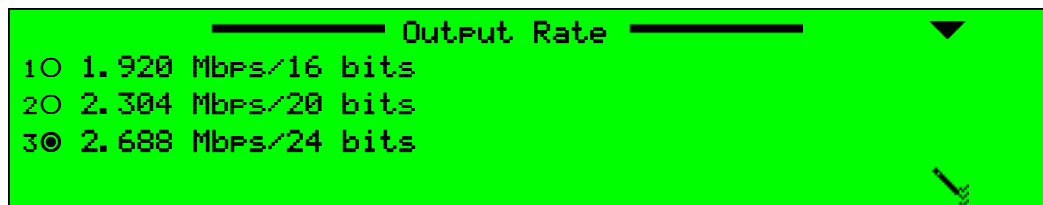
8.5.7.3. Output Rate (Dolby-E Pass-Through)

The **Output Rate** parameter sets the current output audio bit rate for the Dolby-E Pass-Through audio channel. The output rate of the Dolby-E pass-through coding scheme is calculated according to both:

- A constant sampling rate of 48K sps (samples per second)
- The word length, in bits, of each sample (16, 20, or 24)

The output rate of this coding scheme is not affected by the encoding mode.

To set the Dolby-E Pass-Through Output Rate parameter in the front panel, select **Root→Configuration→Audio→[Audio Channel]→Dolby-E Pass-through Parameters→Output Rate** (see the following example).



The Dolby-E Pass-Through Output Rate default value is 2.688 Mbps/24 bits. The available options are:

- **1.920 Mbps/16 bits** – Output rate is calculated according to 16 information bits.
- **2.304 Mbps/20 bits** – Output rate is calculated according to 20 information bits.
- **2.688 Mbps/24 bits** – Output rate is calculated according to 24 information bits.



NOTE

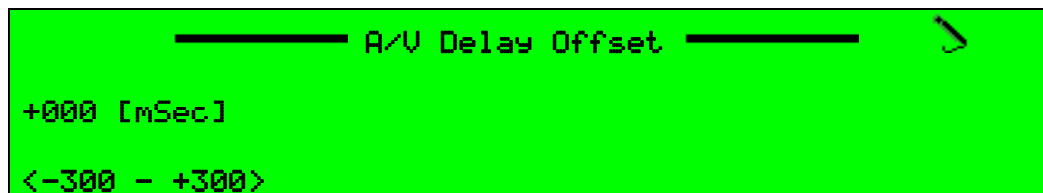
When setting the latency control parameter to low delay, the audio output rate must be set to a high rate (minimum of 384,000 bps). If the rate is not high enough, the encoder will display a "Dependency Check" message. For more information about Latency Control, see paragraph 7.3.1.8.

To set the Dolby-E Pass-Through Output Rate parameter in the Web Manager, select tabs **Audio→Aud#** and access the Dolby-E Pass-Through Parameters menu (see Figure 8-13).

8.5.7.4. A/V Delay Offset (Dolby-E Pass-Through)

The **A/V Delay Offset** parameter sets the delay between the audio and video transmissions. The delay can be either negative or positive, where negative values cause video delay and positive values cause audio delay.

To set the Dolby-E Pass-Through A/V Delay Offset parameter in the front panel, select **Root→Configuration→Audio→[Audio Channel]→Dolby-E Pass-through Parameters→Av Delay Offset** (see the following example).



The Dolby-E Pass-Through A/V Delay Offset default value is 0 mSec. The available value ranges from -300 to 300 mSec.

To set the Dolby-E Pass-Through A/V Delay Offset parameter in the Web Manager, select tabs **Audio→Aud#** and access the Dolby-E Pass-Through Parameters menu (see Figure 8-13).

8.5.8. Linear PCM Pass-Through Parameters Menu

The **Linear PCM Pass-Through Parameters menu** is the configuration menu of the Linear PCM audio channel. This menu allows setting audio parameters.

The Linear PCM coding scheme is used when the audio stream is to remain un-encoded; this maintains the best stream-quality and audible quality. This is often used for audio-based transmissions, such as radio stations and so on.

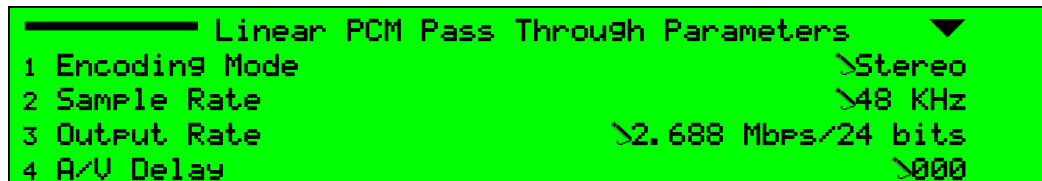
The Linear PCM Pass-Through scheme allows the audio stream as is and the output rates are calculated in Mbps (instead of Kbps).

NOTE



When Ellipse transmits pass-through coding schemes, the Ellipse must be synchronized with the external equipment sending the audio stream (see in Appendix C).

To access the Linear PCM Pass-Through Parameters menu in the front panel, select **Root→Configuration→Audio→[Audio Channel]→Linear PCM Parameters** (see the following example).



To access the Linear PCM Pass-Through Parameters menu in the Web Manager, select tabs **Audio→Aud#** (see Figure 8-14).

Figure 8-14: Linear PCM Pass-Through Parameters Menu Display

NOTE

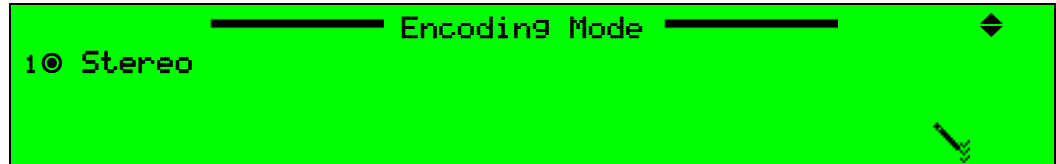


The coding scheme of the selected audio channel must be set to Linear PCM Pass-Through.

8.5.8.1. Encoding Mode (Linear PCM Pass-Through)

The Linear PCM Pass-Through **Encoding Mode** parameter sets the operation mode of the audio channel.

To set the Linear PCM Pass-Through Encoding Mode parameter in the front panel, select **Root→Configuration→Audio→[Audio Channel]→Linear PCM Params→Encoding Mode** (see the following example).



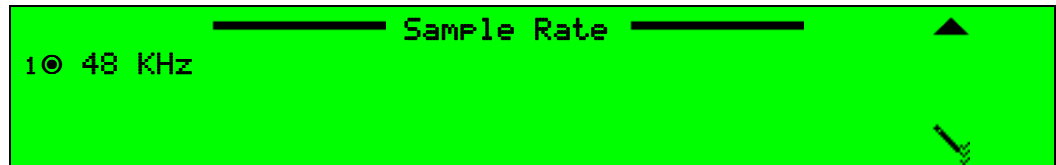
The Linear PCM Pass-Through Encoding mode default value is Stereo.

To set the Linear PCM Pass-Through Encoding Mode parameter in the Web Manager, select tabs **Audio→Aud#** and access the Linear PCM Pass-Through Parameters menu (see Figure 8-14).

8.5.8.2. Sample Rate (Linear PCM Pass-Through)

The Linear PCM Pass-Through **Sample Rate** parameter sets the current sampling rate for the incoming audio signal. This parameter is used to define the incoming audio quality of the audio input element device (A/D, digital receiver).

To set the Linear PCM Pass-Through Sample Rate parameter in the front panel, select **Root→Configuration→Audio→[AudioChannel]→Linear PCM Params→Sample Rate** (see the following example).



The Linear PCM Pass-Through Sample Rate default value is 48 KHz.

To set the Linear PCM Pass-Through Sample Rate parameter in the Web Manager, select tabs **Audio→Aud#** and access the Linear PCM Pass-Through Parameters menu (see Figure 8-14).

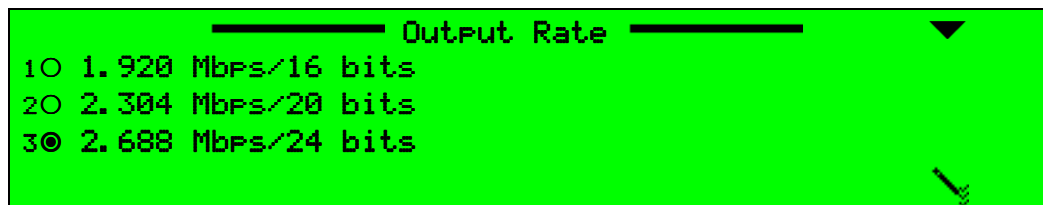
8.5.8.3. Output Rate (Linear PCM Pass-Through)

The Linear PCM Pass-Through **Output Rate** parameter sets the current output audio bit rate for the Linear PCM audio channel. The output rate of the Linear PCM coding scheme is calculated according to both:

- A constant sampling rate of 48K sps (samples per second)
- The word length, in bits, of each sample (16, 20, or 24 bits)

The output rate of this coding scheme is not affected by its encoding mode.

To set the Linear PCM Pass-Through Output Rate parameter in the front panel select: **Root→Configuration→Audio→[Audio Channel]→Linear PCM Params→Output Rate** (see the following example).



The Linear PCM Pass-Through Output Rate default value is 2.688 Mbps/24 bits. The available options are:

- **1.920 Mbps/16 bits** – Output rate is calculated according to 16 information bits.
- **2.304 Mbps/20 bits** – Output rate is calculated according to 20 information bits.
- **2.688 Mbps/24 bits** – Output rate is calculated according to 24 information bits.



NOTE

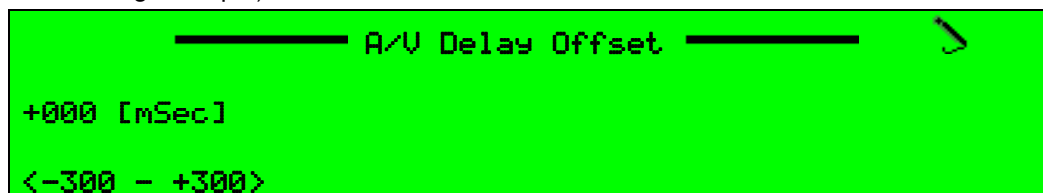
When setting the latency control parameter to low delay, the audio output rate must be set to a high rate (minimum of 384,000 bps). If the rate is not high enough, the encoder will display a "Dependency Check" message. For more information about Latency Control, see paragraph 7.3.1.8.

To set the Linear PCM Pass-Through Output Rate parameter in the Web Manager, select tabs **Audio→Aud#** and access the Linear PCM Pass-Through Parameters menu (see Figure 8-14).

8.5.8.4. A/V Delay Offset (Linear PCM Pass-Through)

The Linear PCM Pass-Through **A/V Delay Offset** parameter sets the delay between the audio and video transmissions. The delay can be either negative or positive, where negative values cause video delay and positive values cause audio delay.

To set the Linear PCM Pass-Through A/V Delay Offset parameter in the front panel, select: **Root→Configuration→Audio →[Audio Channel]→Linear PCM Params→Av Delay Offset** (see the following example).



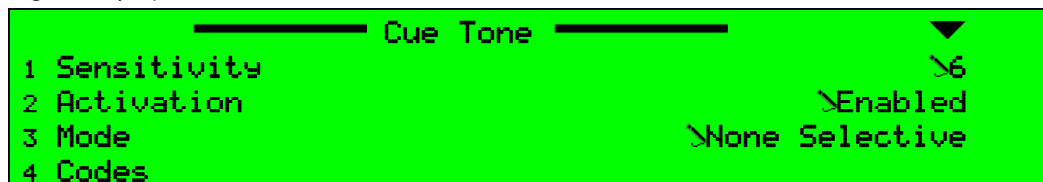
The Linear PCM Pass-Through A/V Delay Offset default value is 0 mSec. The available value ranges from -300 to 300 mSec.

To set the Linear PCM Pass-Through A/V Delay Offset parameter in the Web Manager, select tabs **Audio→Aud#** and access the Linear PCM Pass-Through Parameters menu (see Figure 8-14).

8.6. Cue Tone Parameters Menu

The **Cue Tone Parameters menu** is the specific-configuration menu for the Cue Tone function.

To access the Cue Tone Parameters menu in the front panel, select **Root→Configuration→Audio→[Audio Channel]→Cue Tone Parameters** (see the following example).



To access the Cue Tone Parameters menu in the Web Manager, select tabs **Audio→Aud#** and access the Left or Right Channel Parameters menu (see Figure 8-15).

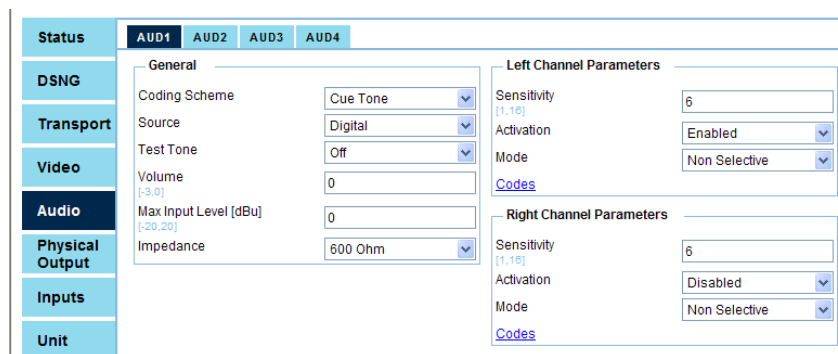


Figure 8-15: Cue Tone Parameters Menu Display

The Cue Tone Parameters menu provides the following setup options for the left and right channels:

- **Sensitivity:** Sets the sensitivity level. Range: 0 to +16. Default value: +06.
- **Activation:** Enables/Disables the Cue Tone function. Default: Disabled.
- **Mode:** Sets the mode of operation of the channel. Options: Selective/Non-Selective. Default: Non-Selective.
- **Codes:** Enables listing, adding and dropping codes.

Chapter 9

Output Interface Configuration

The **Output Interface menu** allows access to the output interface configuration settings for the Ellipse Series of Contribution Encoders.

9.1. General

The Output Interface menu contains the following menus (see Figure 9-1):

- **IP output Menu** – Allows setting the IP-output interface parameter and configuration (forward error correction) settings (see paragraph 9.2).
- **ASI Output Menu** – Allows setting the ASI output scrambling mode (see paragraph 9.3).

To access the Output Interface menu in the front panel, select **Root→Configuration→Output Interface** (see the following example).



To access the Output Interface menu in the Web Manager, select the **Physical Output** tab.

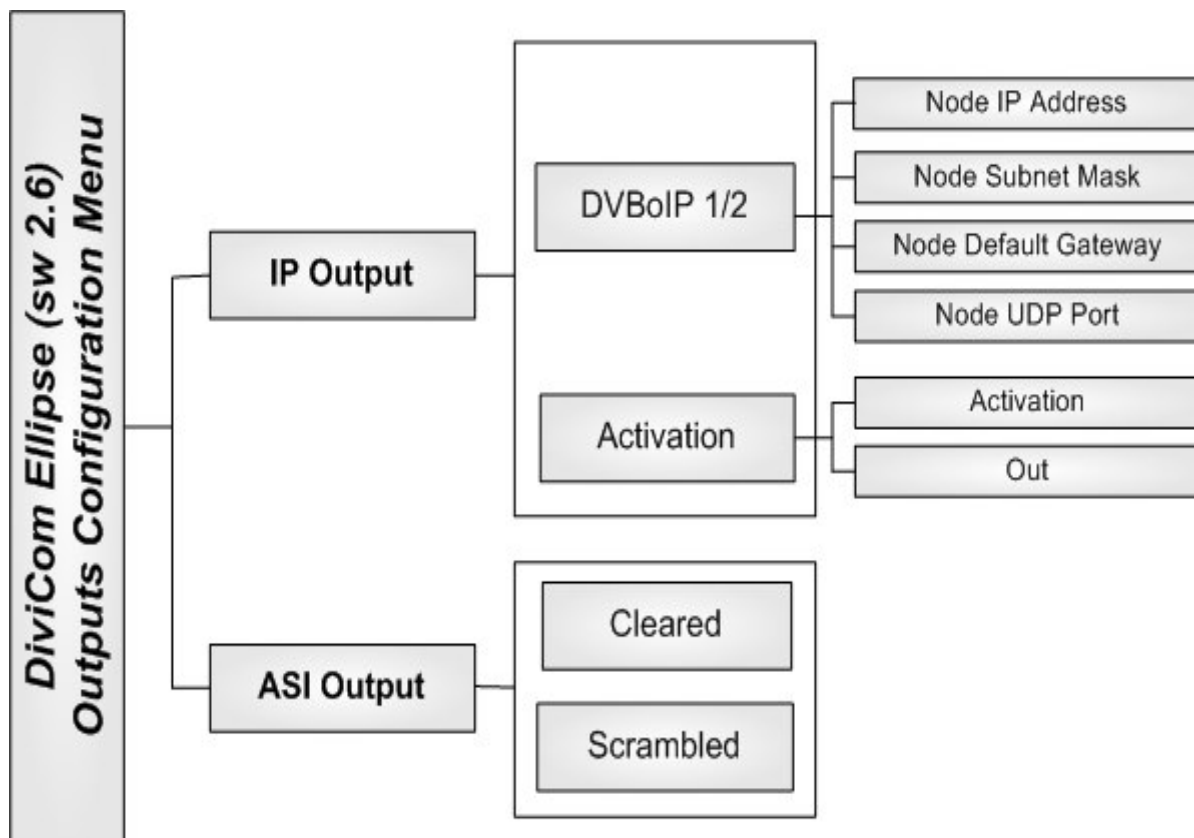


Figure 9-1: Output Interface Menu Tree Structure

9.2. IP Output Menu

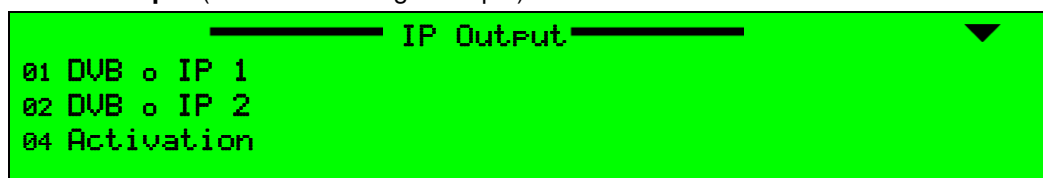
The **IP output menu** allows the user to set the IP-output interface parameters and define output interfaces for IP transmission.



NOTE

The user must set the transmission of each program to a different IP address.

To access the IP output menu in the front panel, select **Root→ Configuration→Output Interface→IP output** (see the following example).



To access the IP-Output Interface menu in the Web Manager, select tabs **Physical Output→IP OUT** (see Figure 9-2).

Figure 9-2: Web Management Physical IP Output Menu Display



CAUTION

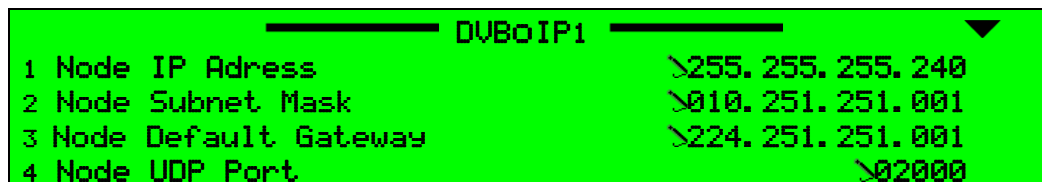
The IP output parameters manage the IP definitions of the Ellipse unit and the destination IP definitions. These parameters have default values set in the factory. However, default values may not be compatible for the user's network and will not allow the user to work with them.

The user must configure the values before starting to use the IP output interface.

9.2.1. DVBoIP1 (DVBoIP2) Menu

The DVB over IP (**DVBoIP1** or **DVBoIP2**) Menu allows the user to set the various IP related parameters.

To set the DVB over IP parameters in the front panel, select **Root→Configuration→Output Interface→IP output→General→DVBoIP1** Menu (see the following example).

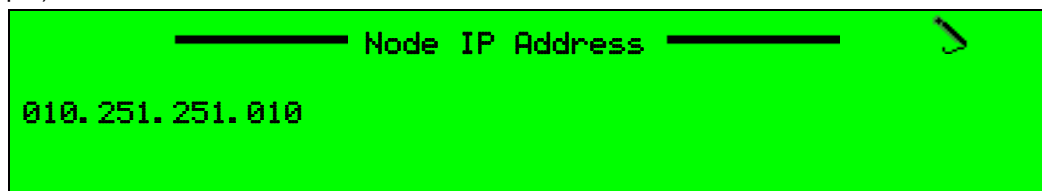


To access the DVB over IP menu in the Web Manager, select tabs **Physical Output→IP OUT**.

9.2.1.1. Node IP Address

The **Node IP Address** parameter sets the encoder IP address.

To set the Node IP Address parameter in the front panel, select **Root→Configuration→Output Interface→IP output→Node IP Address** (see the following example).



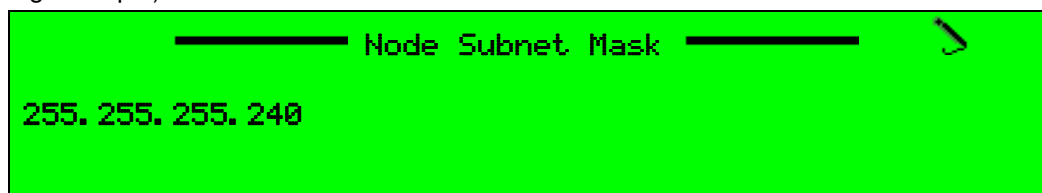
The available value is an IP address xxx.xxx.xxx.xxx.

To set the Node IP Address parameter in the Web Manager, select tabs **Physical Output→IP OUT**.

9.2.1.2. Node Subnet Mask

The **Node Subnet Mask** parameter sets the encoder Subnet Mask address.

To set the Node Subnet Mask parameter in the front panel, select **Root→Configuration→Output Interface→IP output→Node Subnet Mask** (see the following example).



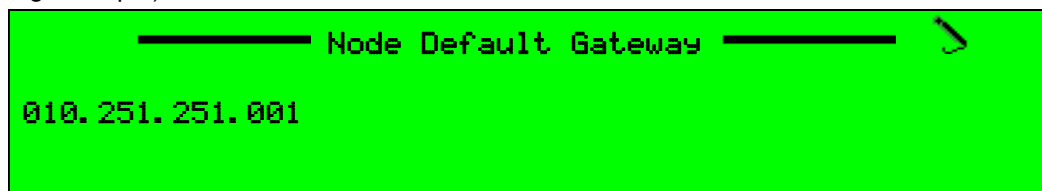
The available value is an IP address xxx.xxx.xxx.xxx.

To set the Node Subnet Mask parameter in the Web Manager, select tabs **Physical Output→IP OUT**.

9.2.1.3. Node Default Gateway

The **Node Default Gateway** parameter sets the encoder default gateway address.

To set the Node Default Gateway parameter in the front panel, select **Root→Configuration→Output Interface→IP output→Node Default Gateway** (see the following example).



The available value is an IP address xxx.xxx.xxx.xxx.

To set the Node Default Gateway parameter in the Web Manager, select tabs **Physical Output→IP OUT**.

9.2.1.4. Node UDP Port

The **Node UDP Port** parameter sets the encoder UDP port number.

To set the Node UDP Port parameter in the front panel, select **Root→Configuration→Output Interface→IP output→Node UDP Port** (see the following example).



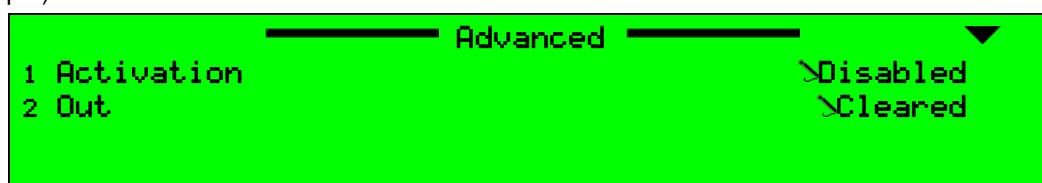
The available value ranges from 0 to 65535.

To set the Node UDP Port parameter in the Web Manager, select tabs **Physical Output→IP OUT**.

9.2.2. IP Output Activation Menu

The **Activation** Menu allows the user to set the operational status of the Encoder IP Output.

To set the Encoder Advanced IP Output parameters in the front panel, select **Root→Configuration→Output Interface→IP output→Activation** Menu (see the following example).

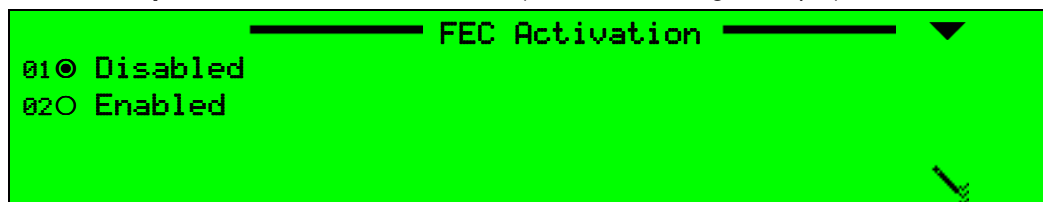


To access the IP Output menu in the Web Manager, select tabs **Physical Output→IP OUT**.

9.2.2.1. Activation

The **FEC Activation** parameter activates/deactivates the FEC error correction function for the encoder IP Output.

To enable/disable the FEC function in the front panel, select **Root→Configuration→Output Interface→IP output→Activation→Activation** (see the following example).



The Activation default value is '**Disabled**'. The available options are:

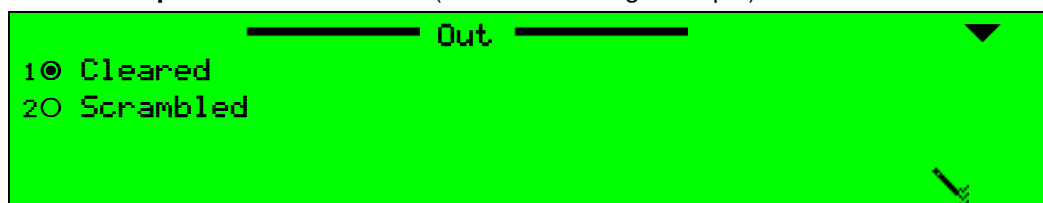
- **Disabled** – IP output interface is disabled.
- **Enabled** – IP output interface is enabled and active.

To set the IP Output Activation parameter in the Web Manager, select tabs **Physical Output→IP OUT**.

9.2.2.2. Out

The **Out** parameter selects the IP-output format (cleared or scrambled).

To set the Activation parameter in the front panel, select **Root→Configuration→Output Interface→IP Output→Activation→Out** (see the following example).



The Activation default value is '**Cleared**'. The available options are:

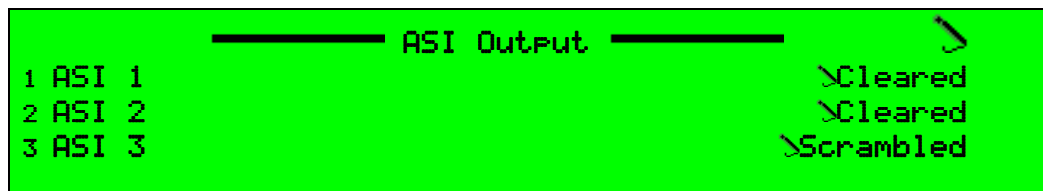
- **Cleared** – IP output is clear.
- **Scrambled** – IP output is scrambled.

To set the output mode in the Web Manager, select tabs **Physical Output→IP OUT**.

9.3. ASI Output Menu

The ASI Output menu allows the user to set the ASI Output scrambling mode (clear or scrambled) to support encoder cascading.

To access the ASI output menu in the front panel, select **Root→Configuration→Output Interface→ASI output** (see the following example).



When choosing an ASI option, the following is enabled:



The Activation default value is '**Cleared**'. The available options are:

- **Cleared** – ASI output stream is clear.
- **Scrambled** – ASI output stream is scrambled. The output scrambling level is following the encoder scrambling mode / level, set by the **Encoder Scrambling Mode** menu (for details, refer to paragraph 6.2.3).

To access the ASI-Output Interface menu in the Web Manager, select tabs **Physical Output→ASI OUT** (see Figure 9-3).

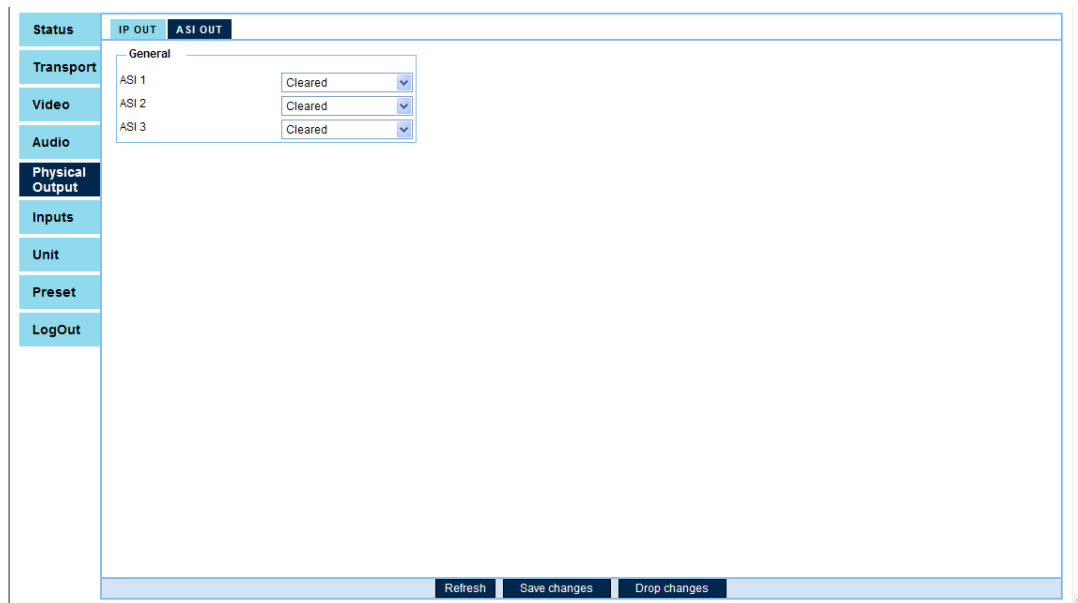


Figure 9-3: Web Management ASI Output Menu Display

Chapter 10

Input Interface Configuration

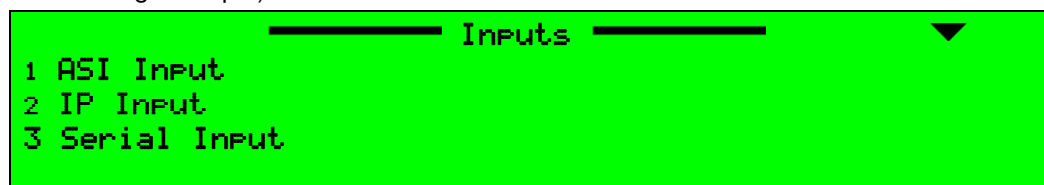
The **Inputs Configuration Menu** allows setting the input interface parameters and defines input interfaces for a given input signal (**ASI**, **IP** or **Serial**) at the Ellipse Series of Contribution Encoders.

10.1. General

The Input Interface menu contains the following sub-menus (see menu tree in Figure 10-2):

- **ASI Input Menu** – Allows setting the ASI input interface parameters (see paragraph 10.2).
- **IP Input Menu** – Allows setting the IP input interface parameter settings (see paragraph 10.3).
- **Serial Input Menu** – Allows setting the serial input (low speed data, LSD) interface parameters (see paragraph 10.4).

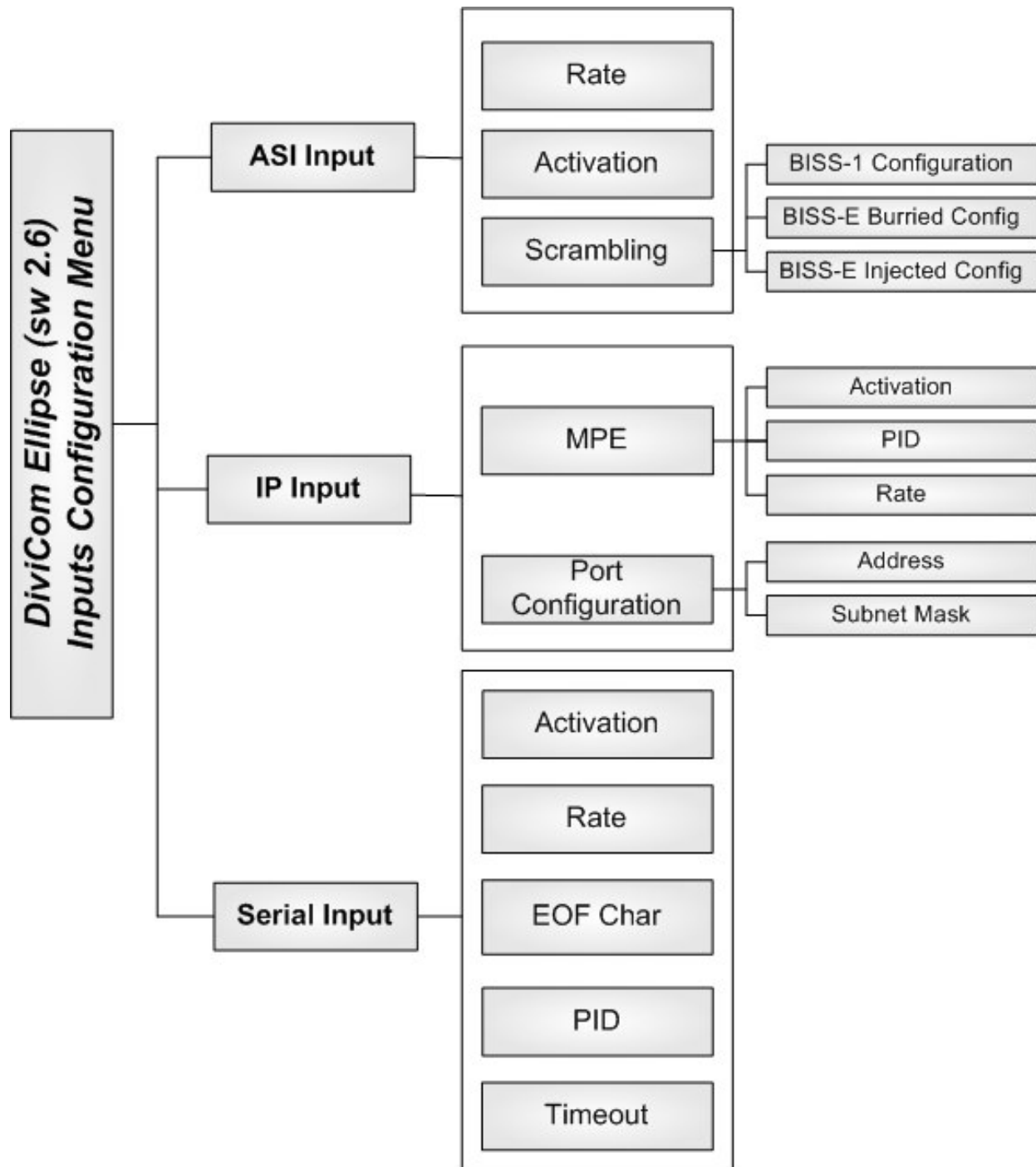
To set the Inputs parameters in the front panel select **Root→Configuration→→Inputs** (see the following example):



To access the Output Interface menu in the Web Manager, select the **Inputs** tab (see example in Figure 10-1):

The image shows a web browser interface for the "Inputs" configuration. On the left is a sidebar with buttons: Status, DSNG, Transport, Video, Audio, Physical Output, Inputs (highlighted), Unit, Preset, and LogOut. The main area has three tabs: ASI INPUT, IP INPUT, and SERIAL INPUT. The ASI INPUT tab is active, showing fields for Rate [bps] (32000000), Activation (Disabled), Scrambling (Scrambled), and a section for BISS-1 with a Clear Session Word field (000000-000000). At the bottom are buttons for Refresh, Save changes, and Drop changes.

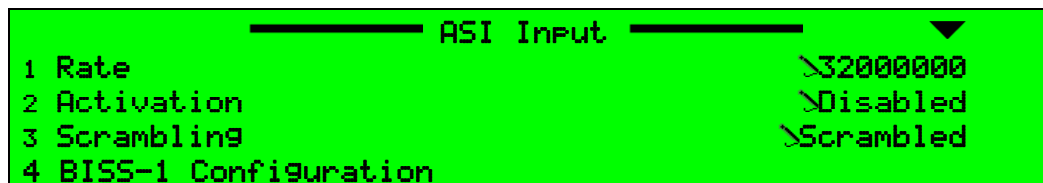
Figure 10-1: Inputs Web-Managed Menu Display

**Figure 10-2: Ellipse Inputs Menu Tree Structure**

10.2. ASI Input

The ASI Input menu allows managing the cascading parameters of the Elipse encoder ASI input.

To access the **ASI Input** menu in the front panel, select **Root→Configuration→Inputs→ASI Input** (see the following example).



To set the Cascading parameters in the Web Manager, select tabs **Inputs → ASI Input** (See Figure 10-3).

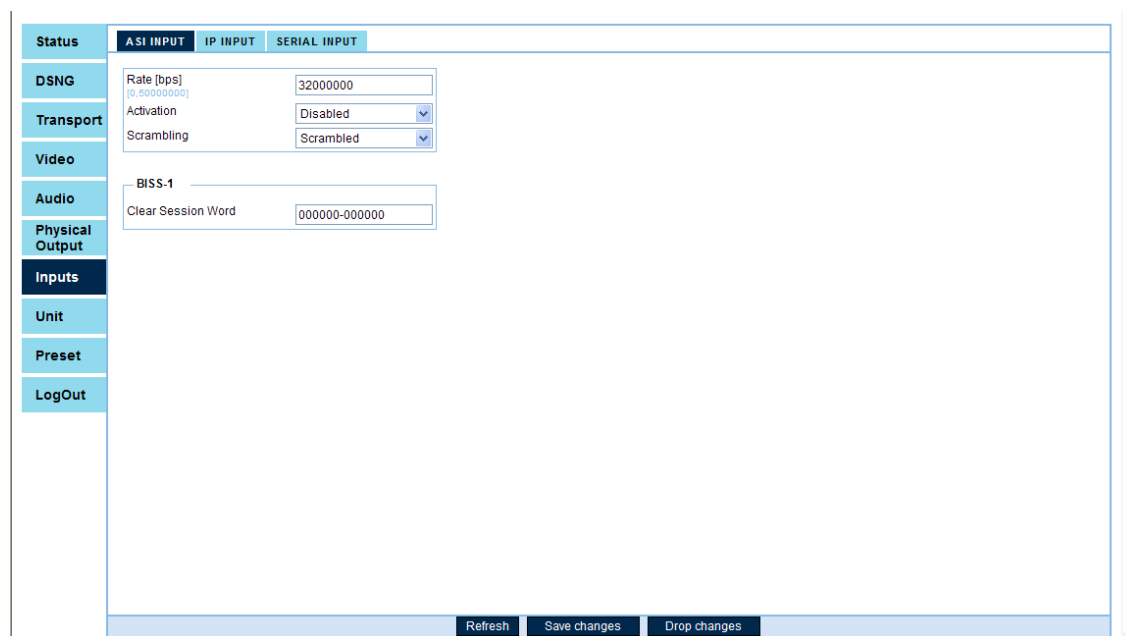
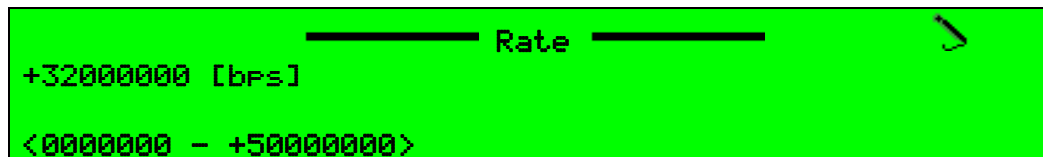


Figure 10-3: ASI Input Cascading Web-Managed Menu Display

10.2.1. Rate (ASI Input / Cascading)

The Rate parameter sets the ASI Input rate value (in bps).

To set the Rate parameter in the front panel, select: **Root→Configuration→Inputs→ASI Inputs→Rate** (see the following example).

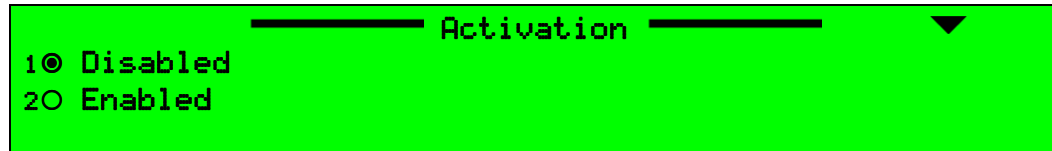


The Rate default value is 32,000,000 bps. The available value ranges from 0 to 50,000,000 bps.

10.2.2. Activation (ASI Input / Cascading)

The **Activation** parameter sets the cascading activation mode for the ASI Input.

To set the Activation parameter in the front panel, select: **Root→Configuration→Inputs→ASI Inputs→Activation** (see the following example).

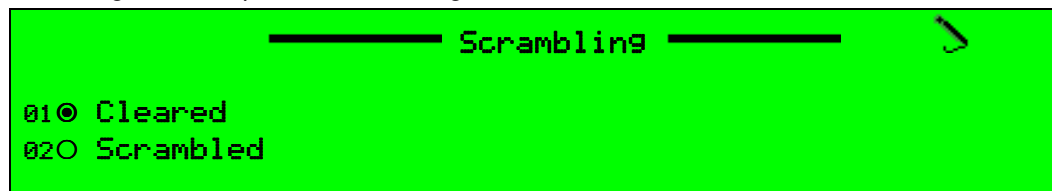


The ASI Cascading Activation default value is '**Disabled**'. The available options are:

- **Disabled** – Cascading is disabled.
- **Enabled** – Cascading is enabled and active.

10.2.3. Scrambling (ASI Input / Cascading)

When choosing the ASI option, the following is enabled:



The Activation default value is '**Cleared**'. The available options are:

- **Cleared** – ASI input receives clear streams.
- **Scrambled** – ASI input receives scrambled streams.



NOTES

The input scrambling level is following the encoder scrambling mode / level, set by the **Encoder Scrambling Mode** menu (for details, refer to paragraph 6.2.3).

When setting the scrambled ASI input to **Clear**, a warning message is displayed, requesting the user confirmation before removing the scrambling feature.

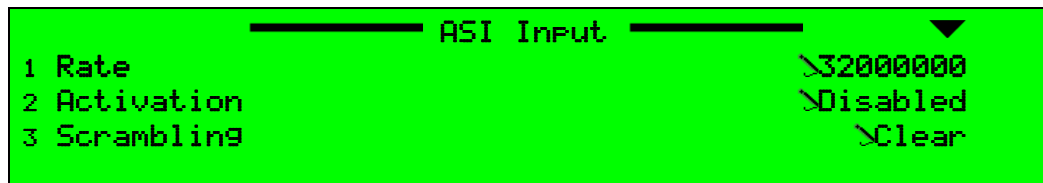
Setting the clear ASI input to **Scrambled** mode adds a scrambling configuration line to the ASI Input menu, according to the scrambling mode activated: **BISS-1 Configuration** option (see paragraph 10.2.3.2), **BISS-E Buried ID Configuration** option (see paragraph 10.2.3.3) and **BISS-E Injected ID Configuration** option (see paragraph 10.2.3.4).

The scrambling word/key values for each scrambling mode are not displayed. The displayed value is always **0**.

Changing / Updating the scrambling word / key values is done as soon as the new value is saved.

10.2.3.1. ASI Input Clear Scrambling Mode

The **Clear** scrambling mode relates to the received information on the ASI Input as cleared. Selecting this option sets the input scrambling mode to **Clear** and returns the front panel menu to the ASI Input menu (see the following example).



To set the Clear Scrambling parameters in the Web Manager, select the following tabs and hyperlinks: **Inputs→ASI Input→Scrambling** (see example in Figure 10-4).

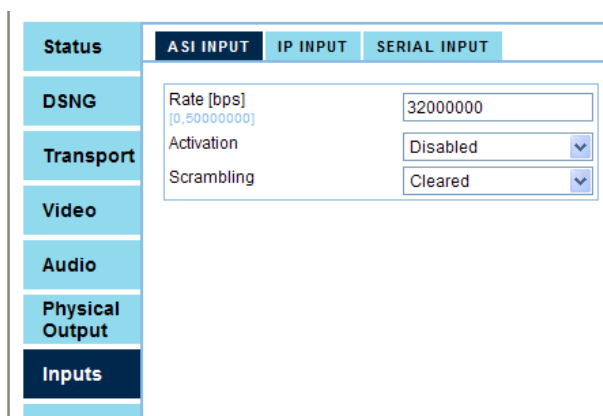
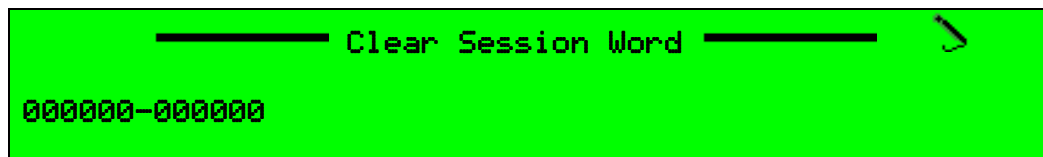


Figure 10-4: Clear Scrambling Set-Up Display

10.2.3.2. ASI Input BISS-1 Scrambling Mode

The **BISS-1** scrambling mode relates to the received information on the ASI Input as scrambled at BISS-1 level with a Clear Session Word key – in other words, the key is not encrypted. Selecting this option sets the ASI Input scrambling mode to **BISS-1** and requests the user to enter the BISS-1 scrambling key value.

To set the Clear Session Word parameter for the BISS-1 mode, select in the front panel: **Root→Configuration→Inputs→BISS-1 Configuration** (see the following example).



The required value is a 12-digit scrambling key. The Clear Session Word displayed value is always 000000-000000.



NOTE

The scrambling word/key values for the BISS-1 scrambling mode are not displayed. Changing / Updating these values is done as soon as the the new value is saved.

To set the Clear Session Word scrambling parameters for the BISS-1 Scrambling mode in the Web Manager, select the following tabs and hyperlinks: **Inputs**→**ASI Input**→**BISS-1** to display the encryption information (see example in Figure 10-5).

Figure 10-5: BISS-1 Scrambling Set-Up Display

10.2.3.3. ASI Input BISS-E Buried ID Scrambling Mode

The **BISS-E Buried ID** scrambling mode relates to the received information on the ASI Input as scrambled at BISS-E Buried ID level with an Encrypted Session Word key – in other words, the key is encrypted using an ID buried in the encoder hardware. Selecting this option sets the ASI Input scrambling mode to **BISS-E Buried ID** and requests the user to enter the scrambling information ((encrypted session word).

To set the Clear Session Word parameter for the BISS-1 mode, select in the front panel: **Root**→**Configuration**→**Inputs**→**BISS-E Buried ID Configuration** (see the following example).

The **Encrypted Session Word** parameter defines the key number before decoding. This value has no useful meaning when trying to get the new decoded scrambling-key.

To set the Encrypted Session Word parameter in the front panel, select: **Root**→**Configuration**→**Inputs**→**BISS-E Buried ID Configuration**→**Encrypted Session Word** (see the following example).

The required value is a 16-digit scrambling key number. The Encrypted Session Word displayed value is always 00000000-00000000.



NOTE

The scrambling word/key values for the BISS-E Buried ID scrambling mode are not displayed. Changing / Updating these values is done as soon as the new value is saved.

To set the Encrypted Session Word scrambling parameters for the BISS-E Buried ID Scrambling mode in the Web Manager, select tabs **Inputs**→**ASI Input**→**BISS-E Buried** (see example in Figure 10-6).

Figure 10-6: BISS-E Buried ID Scrambling Set-Up Display

10.2.3.4. ASI Input BISS-E Injected ID Scrambling Mode

The **BISS-E Injected ID** scrambling mode relates to the received information on the ASI Input as scrambled at BISS-E Injected ID level with an Encrypted Session Word key – in other words, the key is encrypted using a received/injected ID. Selecting this option sets the ASI Input scrambling mode to **BISS-E Injected ID** and requests the user to enter the scrambling information (encrypted session word and injected ID).

To set the Clear Session Word parameter for the BISS-1 mode, select in the front panel: **Root**→**Configuration**→**Inputs**→**BISS-E Injected ID Configuration** (see the following example).

The **BISS-E Injected Configuration** menu provides set-up access to two parameters; the **Encrypted Session Word** parameter and the **Injected ID** parameter.



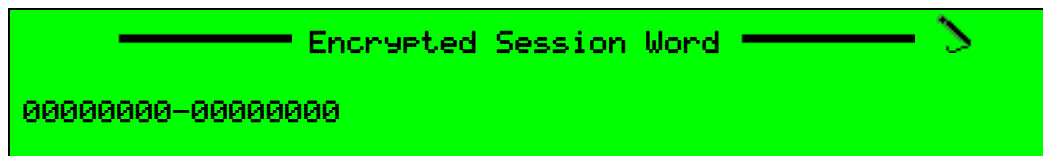
NOTE

The scrambling word/key values for the BISS-E Injected ID scrambling mode are not displayed. Changing / Updating these values is done as soon as the new value is saved.

1. ENCRYPTED SESSION WORD

The **Encrypted Session Word** parameter defines the key number before decoding. This value has no useful meaning when trying to obtain the new decoded scrambling-key.

To set the Encrypted Session Word parameter in the front panel, select: **Root**→**Configuration**→**Inputs**→**BISS-E Injected ID Configuration**→**Encrypted Session Word** (see the following example).

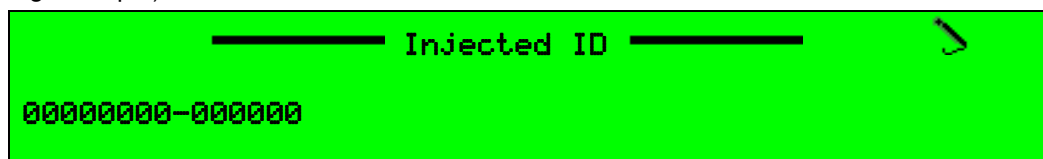


The available value is a 16-digit scrambling key number. The Encrypted Session Word displayed value is always 00000000-00000000.

2. INJECTED ID

The **Injected ID** parameter defines the unit ID number.

To set the Encrypted Session Word parameter in the front panel, select: **Root→Configuration→Inputs→BISS-E Injected ID Configuration→Injected ID** (see the following example).



The available value is a 14-digit key defining the unit ID number. The Injected ID displayed value is always 00000000-000000.

To set the Encrypted Session Word and Injected ID scrambling parameters for the BISS-E Injected ID Scrambling mode in the Web Manager, select tabs **Inputs→ASI Input→BISS-E Burried** (see example in Figure 10-7).

Status	ASI INPUT	IP INPUT	SERIAL INPUT
DSNG	Rate [bps] [0,50000000] 32000000		
Transport	Activation Disabled		
Video	Scrambling Scrambled		
Audio	BISS-E Injected		
Physical Output	Encrypted Session Word 00000000-00000000		
Inputs	Injected ID 00000000-000000		

Figure 10-7: BISS-E Injected ID Scrambling Set-Up Display

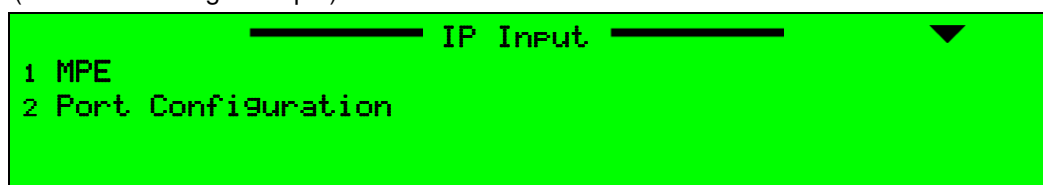
10.3. IP Input Menu (MPE input)

The Ellipse utilizes Multi Protocol Encapsulation (MPE) technique for conveying high speed data using the encoder as transmitter. The IP Input menu allows selecting between MPE definitions and port configuration.

The Input Interface menu contains the following sub-menus:

- **IP Input MPE Configuration Menu** – Allows setting the MPE parameters for the IP input (see paragraph 10.3.1).
- **IP Input Port Configuration Menu** – Allows setting the port parameters for the IP input (see paragraph 10.3.2).

To access the IP Input menu in the front panel, select **Root→Configuration→ Inputs→IP Input** (see the following example).



To access the IP Input menu in the Web Manager, select tabs Inputs→IP INPUT. (See Figure 10-8).

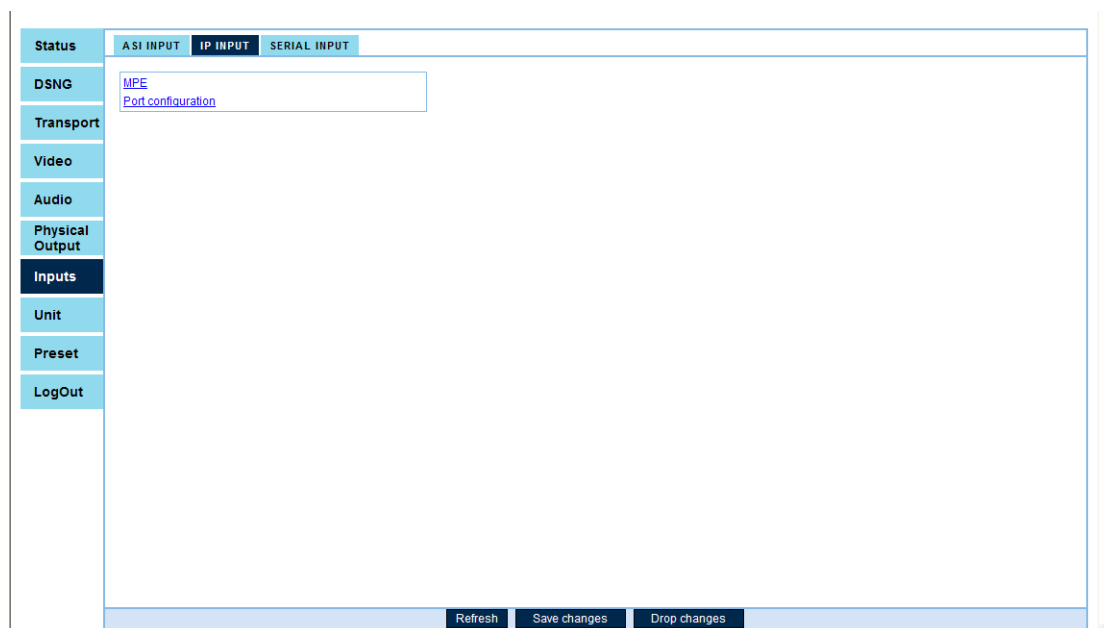
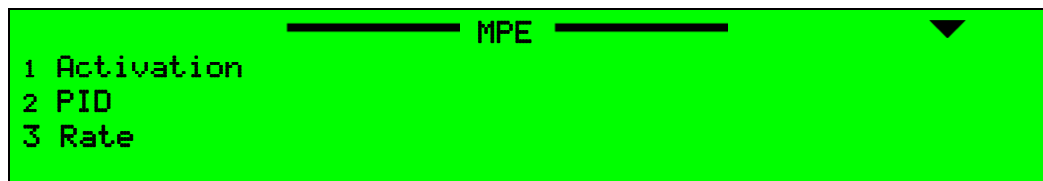


Figure 10-8: IP Input Web Managed Menu Display

10.3.1. MPE Menu

The **MPE** menu allows setting up the MPE parameters.

To access the MPE menu in the front panel, select **Root→Configuration→ Inputs→IP Input →MPE** (see the following example).



To access the MPE parameters in the Web Manager, select the following tabs and links **Inputs→IP INPUT→MPE**. (See Figure 10-9)

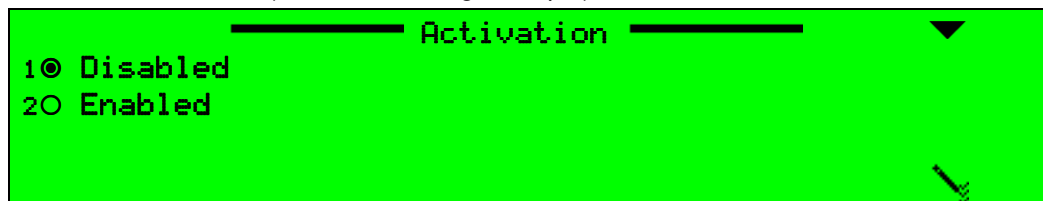


Figure 10-9: IP Input MPE Web Managed Menu Display

10.3.1.1. Activation (IP Input / MPE)

The **MPE Activation** parameter sets the MPE activation mode.

To access the Activation menu in the front panel, select **Root→Configuration→ Inputs→IP Input →MPE →Activation** (see the following example).



The **MPE Activation** default state is **Disabled**. The available options are:

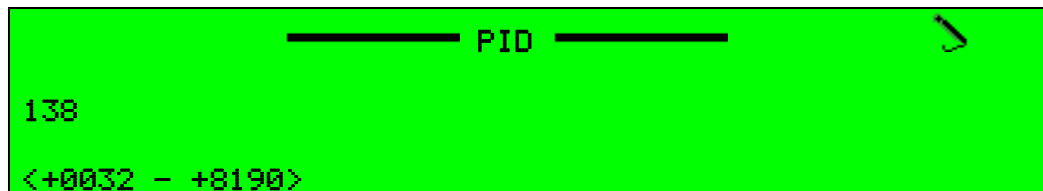
- **Disabled** – Activation is disabled.
- **Enabled** – Activation is enabled and active.

To set the MPE state in the Web Manager, select the following tabs and links **Inputs→IP INPUT→MPE**. (See Figure 10-9)

10.3.1.2. MPE PID (IP Input / MPE)

The **PID** parameter sets the MPE PID value.

To access the **PID** menu in the front panel, select **Root→Configuration→Inputs→IP Input→MPE→PID** (see the following example).



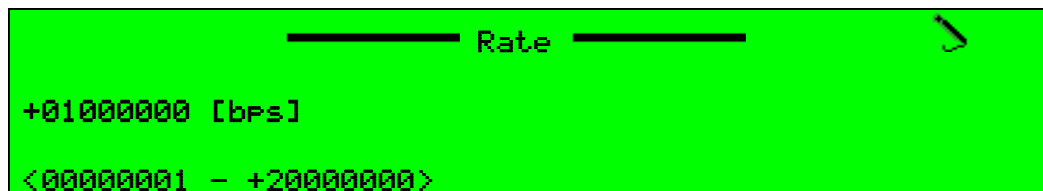
The available value ranges from 32 to 8190.

To set the MPE PID in the Web Manager, select the following tabs and links **Inputs→IP INPUT→MPE**. (See Figure 10-9)

10.3.1.3. MPE Rate (IP Input / MPE)

The **Rate** parameter sets the MPE rate value (in bps).

To access the **Rate** menu in the front panel, select **Root→Configuration→Inputs→IP Input→MPE→Rate** (see the following example).



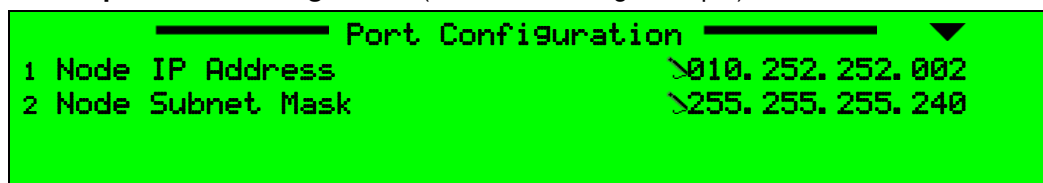
The available value ranges from 00000001 to 20000000 bps.

To set the MPE rate in the Web Manager, select the following tabs and links **Inputs→IP INPUT→MPE**. (See Figure 10-9)

10.3.2. Port Configuration Menu

The **Port Configuration** menu allows selecting the IP Node mode of operation and parameters.

To access the Port Configuration menu in the front panel, select **Root→Configuration→Inputs→IP Input→Port Configuration** (see the following example).



To access the MPE parameters in the Web Manager, select tabs **Inputs→IP INPUT→Port Configuration**. (See Figure 10-10)

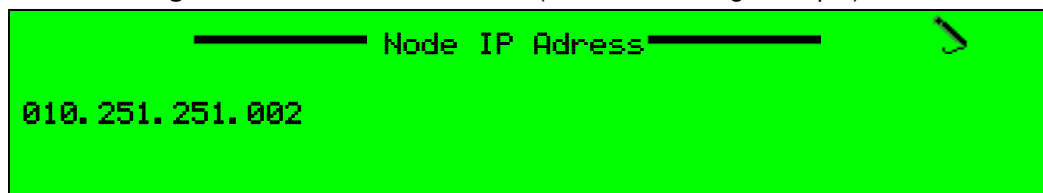
Node IP Address	010.251.252.002
Node Subnet Mask	255.255.255.240

Figure 10-10: IP Input Port Configuration Web Managed Menu Display

10.3.2.1. Node IP Address (IP Input / Port Configuration)

The **Node IP Address** parameter sets the IP Port address.

To access the Node IP Address in the front panel, select **Root→Configuration→Inputs→IP Input→Port Configuration→Node IP Address** (see the following example).



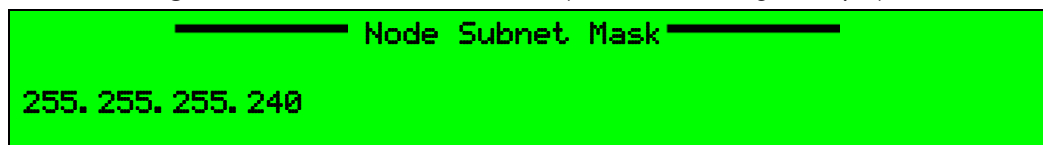
The available value is an IP address xxx.xxx.xxx.xxx.

To access the MPE parameters in the Web Manager, select tabs **Inputs→IP INPUT→Port Configuration**. (See Figure 10-10)

10.3.2.2. Node Subnet Mask (IP Input / Port Configuration)

The **Node Subnet Mask** parameter sets the IP Port subnet mask address.

To access Node Subnet Mask in the front panel, select **Root→Configuration→Inputs→IP Input→Port Configuration→Node Subnet Mask** (see the following example).



The available value is an IP subnet mask address xxx.xxx.xxx.xxx.

10.4. Serial (Low Speed Data) Input Menu

The Encoder behaves as a transparent pipe and supports Low Speed data (LSD) input in three operating modes:

- **Row mode** – this mode provides an endless stream of data. To push a character out of the pipe, a maximum of 80+180 are needed. This mode is active if the **Time Out** parameter is set to 0 and the **EOC** is set to 256.
- **Timeout mode** – in this mode, any break of more then a selected time between two characters will cause the last character to be flushed out to the pipe before the break. This mode is active if the **Time Out** parameter is set to any value but 0 (i.e., non zero) and the **EOC** is set to 256.
- **End of File mode** – in this mode, a character signals the end of the stream and the received buffer (including this character) is flushed out to the pipe. This mode is active if the **Time Out** parameter is set to any value (including zero) and the **EOC** is greater than 0 but less than 256.

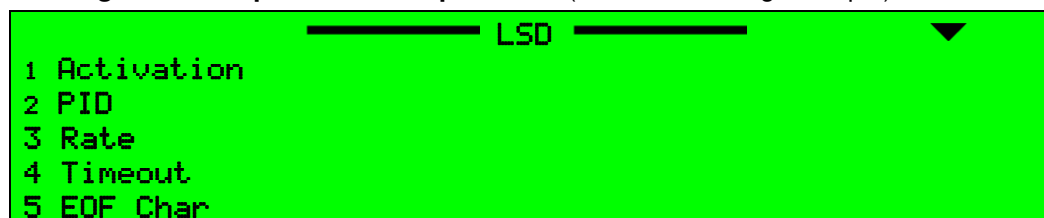


NOTE

Working with low speed data requires using the RJ-45-to-DB-9 conveter.

The Serial Inputs menu parameter allows setting the Serial LSD definitions.

To access the Serial Input sub-menu in the front panel, select **Root→Configuration→Inputs→Serial Input→LSD** (see the following example).



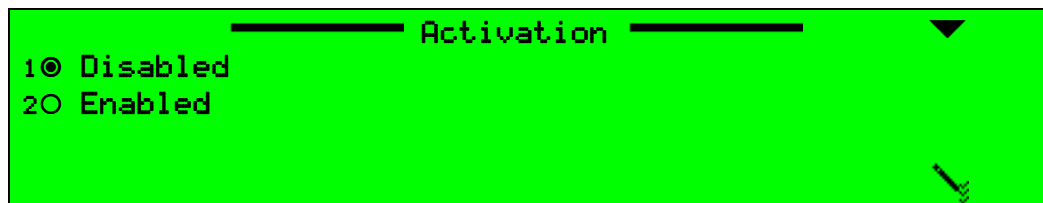
To access the Serial Inputs LSD set-up menu through in the Web Manager, select tabs **Inputs→SERIAL INPUT→LSD** (See Figure 10-11).

A screenshot of a web-based configuration interface. On the left is a vertical sidebar with buttons: Status, DSNG, Transport, Video, Audio, Physical Output, Inputs (highlighted), Unit, Preset, and LogOut. The main area has three tabs: ASI INPUT, IP INPUT, and SERIAL INPUT (selected). Under the SERIAL INPUT tab, there is a 'General' section with the following settings: Activation (Disabled), PID (1398), Rate (9600 bps), Timeout [mSec] (0), and EOF Char (256). At the bottom of the main area are three buttons: Refresh, Save changes, and Drop changes.

Figure 10-11: Serial Inputs LSD Web Managed Menu Display

10.4.1. LSD Activation Menu

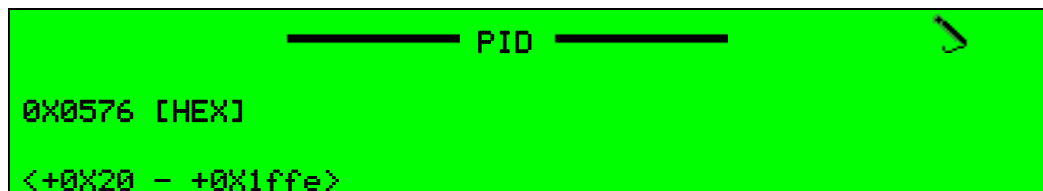
To access the Activation menu in the front panel, select **Root→Configuration→Inputs→Serial Input→LSD→Activation** (see the following example).



The available options are: **Disabled** or **Enabled**.

10.4.2. LSD PID Setup Menu

To access the PID menu in the front panel, select **Root→Configuration→Inputs→Serial Input→LSD→PID** (see the following example).



The available value ranges from 0X20 to 0X1ffe (HEX).

10.4.3. LSD Rate Setup Menu

The **Rate** parameter sets the LSD value.

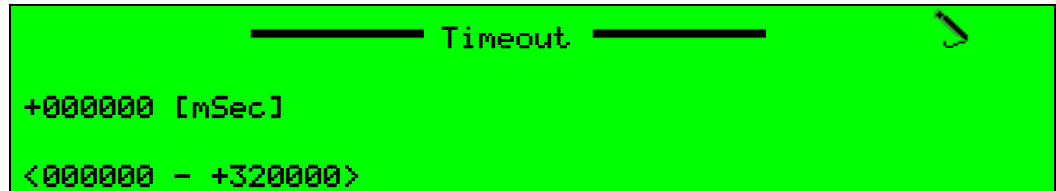
To set the Rate parameter in the front panel, select **Root→Configuration→Inputs→Serial Input→LSD→Rate** (see the following example).



The **Rate** default value is 9600 bps. The available rate options are 9600, 14400, 19200, 38400, 57600 and 115200 (in bps).

10.4.4. LSD Timeout Setup Menu

To access the Timeout parameter in the front panel, select **Root→Configuration→Inputs→IP Input →MPE →Timeout** (see the following example).



The available value ranges from 0 to 320000 mSec.

10.4.5. LSD End Of File (EOF) Character Setup Menu

To access the EOF Char in the front panel, select **Root→Configuration→Inputs→IP Input →MPE →EOF Char** (see the following example).



The available value ranges from 0 to 256.

This chapter details the Ellipse Series of Contribution Encoders unit configuration menus and parameters.

11.1. General

The **Unit Configuration menu** allows access to various menus and parameters that allow setting unit definitions, such as: permissions, system definitions, clock setting, version information, and so on.

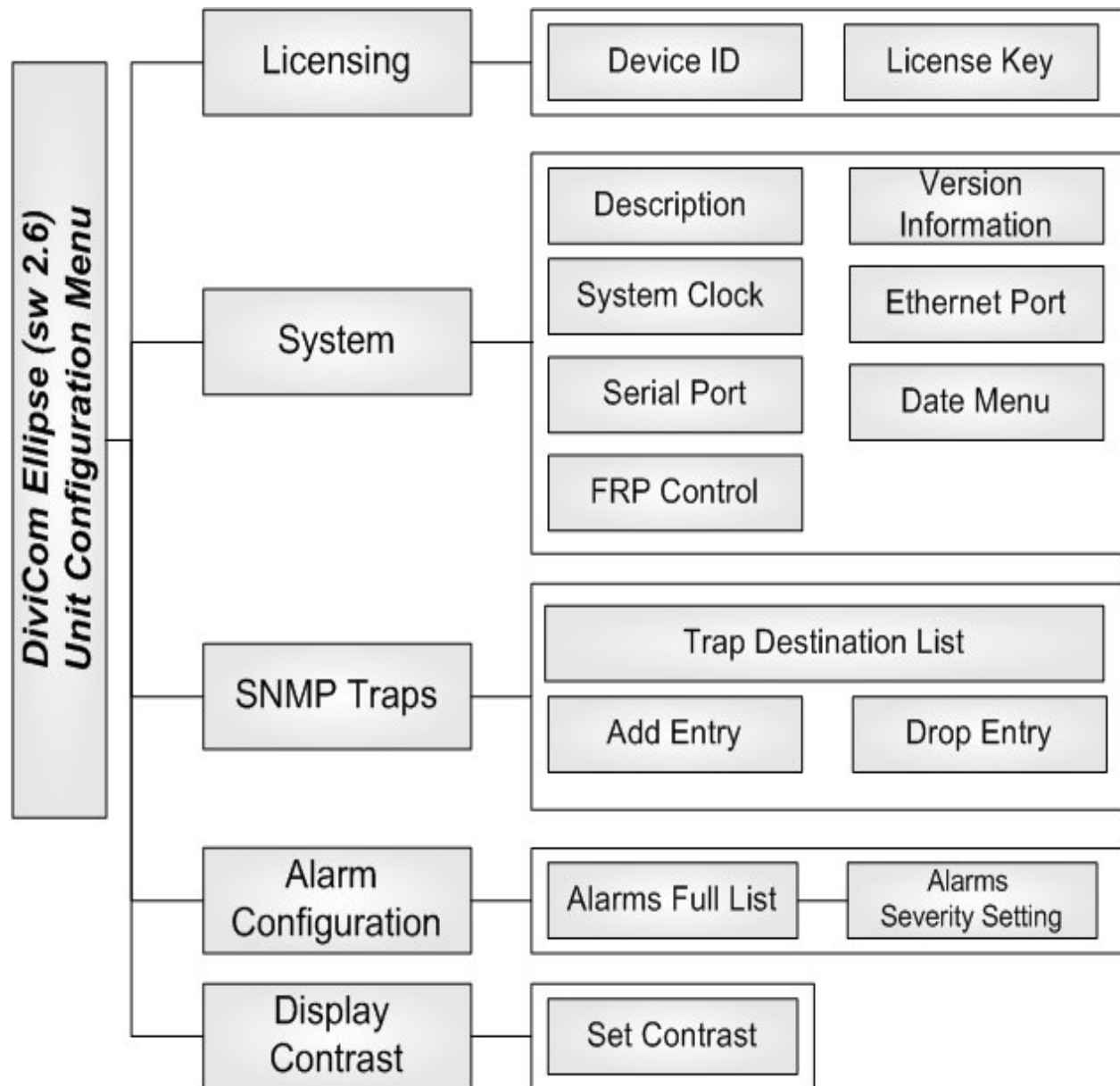
To access the Unit Configuration menu in the front panel, select: **Root→Configuration→Unit** (see the following example).



The available menus and options are (see Figure 11-1):

- **Licensing Menu** – Displays the unit ID and allows entering a permission key (see paragraph 11.2).
- **System Menu** – Allows setting system information and functions (see paragraph 11.3).
- **SNMP Traps Menu** – Allows defining trap destination hosts for trap messages. Trap message currently support raised and cancelled alarm notifications (see paragraph 11.4).
- **Alarm Configuration Menu** – Displays a list of alarms supported by the Ellipse (see paragraph 11.5).
- **Display Contrast Menu** – Allows setting the display contrast of the Front Panel LCD (see paragraph 11.6).

To access the Unit menu in the Web Manager, select the **Unit** tab.

**Figure 11-1: Unit Configuration Menu Tree Structure**

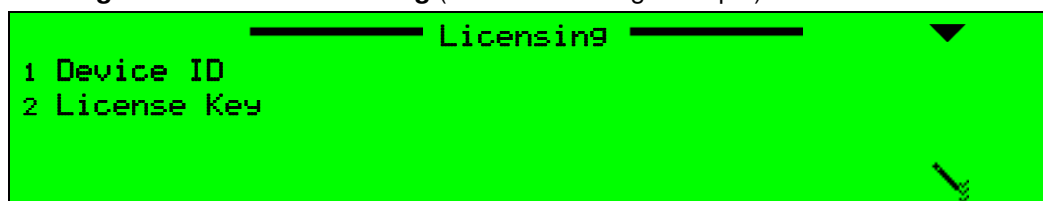
11.2. Licensing

Licensing allows entering a permission key. A product license key has different acquired features allowing access to various advanced encoder capabilities, such as: 4:2:2 video format, Dolby encoding, 16 QAM permission, DVB-S2, and so on (the available features according to the current license key are displayed in the **Unit Configuration and Permissions** screen, see paragraph 5.4.2).

The License menu enables access to two sub-menus:

- **Device ID** – Manages the unit ID number (see paragraph 11.2.1).
- **License Key** – Manages the license key. Allows viewing and entering a new license key number (see paragraph 11.2.2).

To access the Licensing menu in the front panel, select **Root→Configuration→Unit→Licensing** (see the following example).



To access the Licensing menu in the Web Manager, select tabs **Unit→Licensing** (see Figure 11-2).

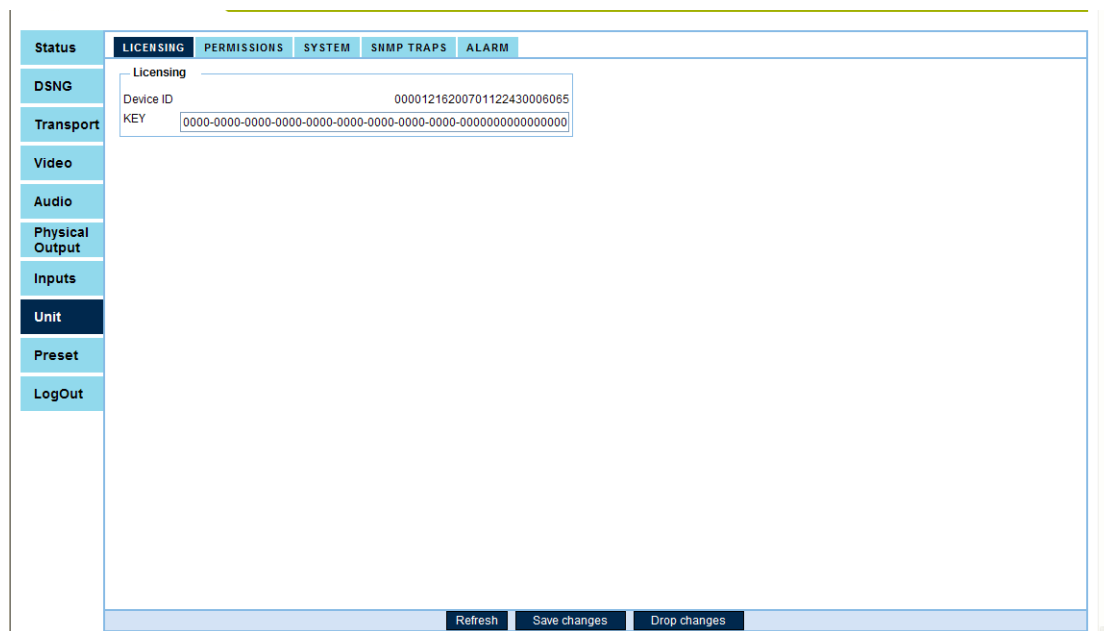
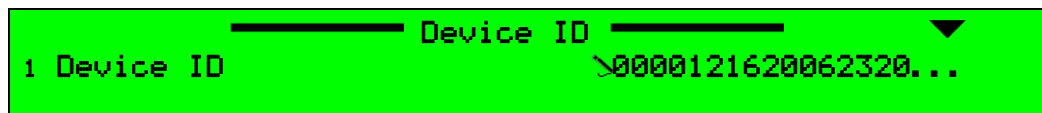


Figure 11-2: Web Managed Licensing Menu Display

11.2.1. Device ID

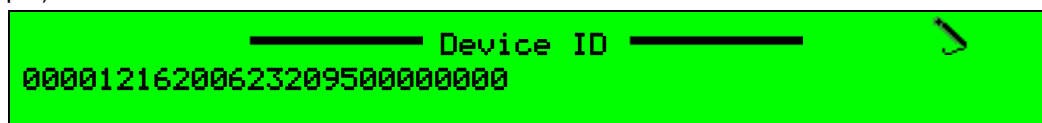
The **Device ID** menu allows setting the ID number as a unique combination between the main-board characteristics and the modulator card (if available).

To access the Device ID menu in the front panel, select **Root** → **configuration** → **Unit** → **Licensing** → **Device ID** (see the following example).



The Device ID menu displays the Device ID parameter, which allows setting the device ID number.

To set the Device ID parameter in the front panel, select **Root→Configuration→Unit→Licensing→Device ID→Device ID** (see the following example).



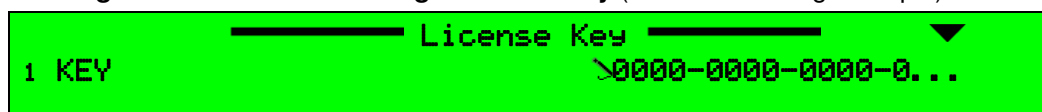
The available value is a string of 26 digits.

To access and set the Device ID in the Web Manager, select tabs and hyperlinks **Unit→Licensing→Device ID**.

11.2.2. License Key

The **License Key** menu allows setting the unit's license key, which determines the available permission features and capabilities of the unit. Each license key received legally from the company enables different features, such as: Dolby audio encoding, H.264 video encoding, 4:2:2 video format, and so on.

To access the Device ID menu in the front panel, select:
Root→Configuration→Unit→Licensing→Licence Key (see the following example).



The License Key menu displays the KEY parameter. The **KEY** parameter allows access to an edit value screen in which to insert the license key. Once authorized, the new permissions are valid in the unit and the advanced options are available through the various configuration and status parameters.

To set the KEY parameter in the front panel, select **Root→Configuration→Unit→Licensing→License Key→KEY** (see the following example).



The available value is a license-key string of digits, with eleven 4-digits boxes and one 16-digit box.

To access and set the License Key in the Web Manager, select tabs and hyperlinks **Unit→Licensing→License Key**.

11.3. System Menu

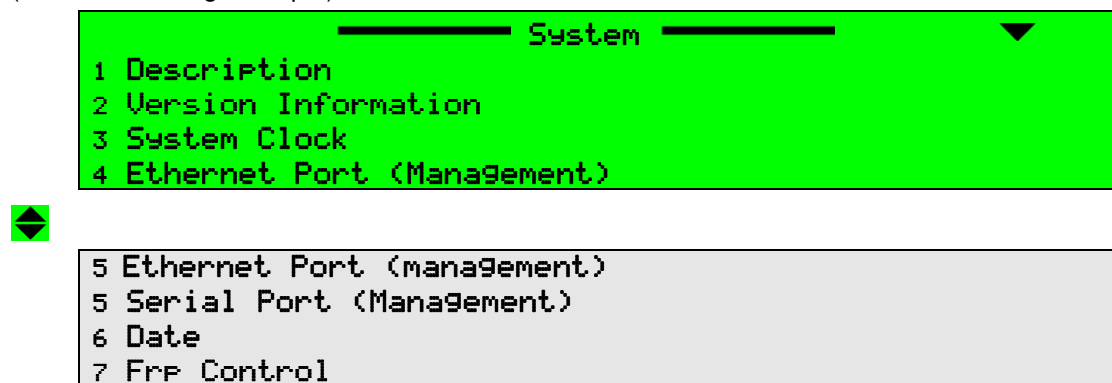
The **System menu** allows setting and monitoring various system elements from: system-description to versions, system clock source, management ports, and date and time.

The License menu enables access to the following sub-menus:

The available menus are:

- **Description** – Sets the system description parameters, such as: name, up-time, contact, and so on (see paragraph 11.3.1).
- **Version Information** – Displays version information of the unit for hardware, software, and serial number (see paragraph 11.3.2).
- **System Clock** – Sets the system clock source, internal or external (see paragraph 11.3.3).
- **Ethernet Port (Management)** – Manages the Ethernet management ports (see paragraph 11.3.4).
- **Serial Port (Management)** – Manages the serial management port (see paragraph 11.3.5).
- **Date** – Sets the unit date and time, when the system clock source is internal (see paragraph 11.3.6).
- **Frp Control** – Controls the Front Panel response when not used locally (see paragraph 11.3.7).

To access the System menu in the front panel, select: **Root→Configuration→Unit→System** (see the following example).



To access the System menu in the Web Manager, select tabs **Unit→System** (see Figure 11-3).

Figure 11-3: Web-Management - System Menu Display

11.3.1. Description Menu

The **Description** menu allows setting the identity and description names and system parameters.

To access the System Description menu in the front panel, select **Root→Configuration→Unit→System→Description** (see the following example).

To access the System menu in the Web Manager, select tabs **Unit→System** (see Figure 11-4).

Description	
System Description	DiviCom Ellipse 1000H
System Up Time [Sec] [0,10000000]	4195
System Contact	Help_Desk
System Name	Ellipse
System Location	Room1_Rack1
Temperature (C) [deg] [0,100]	35
Temperature (F) [deg] [-4,158]	95

Figure 11-4: System Description Menu Display

The following sections detail the System menu options and parameters.

11.3.1.1. System Description

The **System Description** parameter displays the unit number. This is a read-only parameter and cannot be set by the user.

To view the System Description parameter in the front panel, select **Root→Configuration→Unit→System→Description→System Description**.

To view the System Description parameter in the Web Manager, select tabs **Unit→System** (see Figure 11-4).

11.3.1.2. System Up-Time

The **System Up-Time** parameter displays the time since the network management portion of the system was last re-initialized (in hundredths of seconds). This is a read-only parameter and cannot be set by the user.

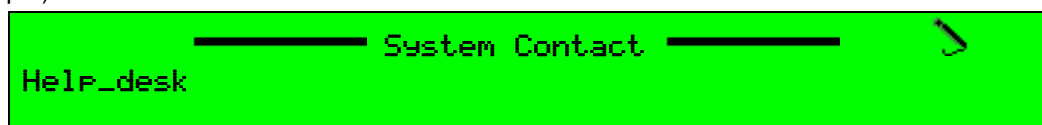
To view the System Time-Up parameter in the front panel, select **Root→Configuration→Unit→System→Description→System Up Time**.

To view the System Up-Time parameter in the Web Manager, select tabs **Unit→System** (see Figure 11-4).

11.3.1.3. System Contact

The **System Contact** parameter defines a textual string identification of the contact person for the managed node.

To set the System Contact parameter in the front panel, select **Root→Configuration→Unit→System→Description→System Contact** (see the following example).



The image shows a green monochrome display. At the top, the text "System Contact" is centered between two horizontal lines. Below this, the value "Help_desk" is displayed on the left side. A small cursor icon is visible on the right side of the display.

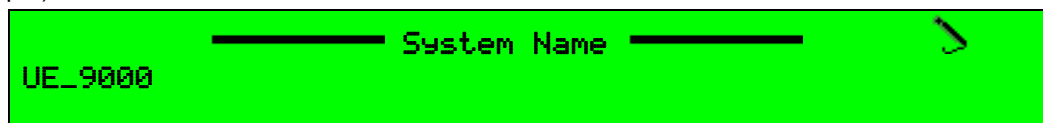
The available value is a string of characters.

To set the System Contact parameter in the Web Manager, select tabs **Unit→System** (see Figure 11-4).

11.3.1.4. System Name

The **System Name** parameter allows setting the name of the unit or system.

To set the System Name parameter in the front panel, select **Root→Configuration→Unit→System→Description→System Name** (see the following example).



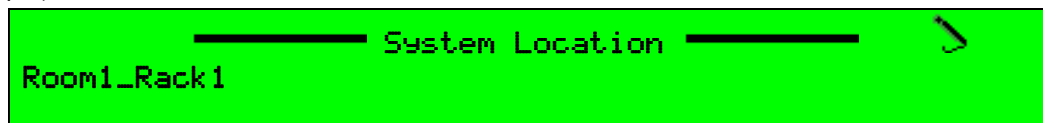
The available value is a string of characters.

To set the System Name parameter in the Web Manager, select tabs **Unit→System** (see Figure 11-4).

11.3.1.5. System Location

The **System Location** parameter allows writing a location description for the system.

To set the System Location parameter in the front panel, select: **Root→Configuration→Unit→System→Description→System Location** (see the following example).



The available value is a string of characters.

To set the System Location parameter in the Web Manager, select tabs **Unit→System** (see Figure 11-4).

11.3.1.6. Temperature (°C/°F)

The two **Temperature** parameters display the encoder temperature by Celsius (°C) and by Fahrenheit (°F) degrees. This is a read-only parameter and does not lead to a new screen.

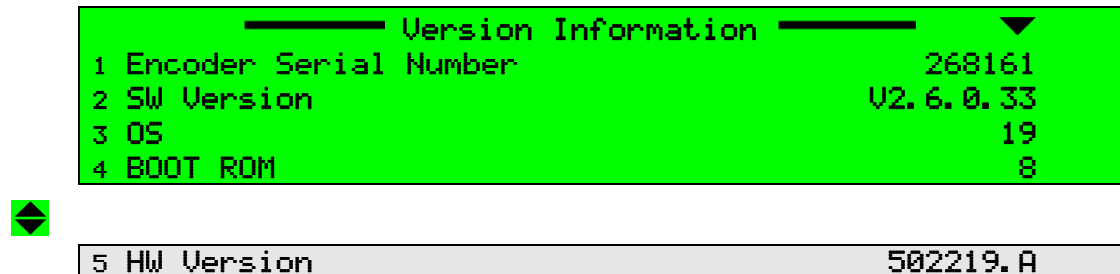
To view the Temperature parameter in the front panel, select: **Root→Configuration→Unit→System→Description→Temperature (C)/ (F)**.

To view the Temperature parameter in the Web Manager, select tabs **Unit→System** (see Figure 11-4).

11.3.2. Version Information Menu

The **Version Information menu** displays the encoder version information for hardware, software, and serial number.

To access the Version Information menu in the front panel, select **Root→Configuration→Unit→System→Version Information** (see the following example).



The available parameters are all read-only:

- **Encoder Serial Number** – Displays the unit's serial number.
- **SW Version** – Displays the software version.
- **OS** – Displays the operating system's version.
- **Boot-ROM** – Displays the Boot-ROM flash device's version.
- **HW Version** – Displays the hardware version.

To access the Version menu in the Web Manager, select tabs **Unit→System** (see Figure 11-5).

Version	
Encoder serial number	266048
SW Version	V2.6.0.33
OS	19
BOOT ROM	9
HW Version	502219.A

Figure 11-5: Version Menu Display

11.3.3. System Clock

The **System Clock menu** allows setting the system-clock source, whether internal or external. This allows setting the encoder's system clock synchronization to either the internal Ellipse clock (user-configured) or to an external synchronization source.

The External synchronization source is needed when synchronizing the Ellipse with external equipment, for example when transmitting an audio pass-through bit-stream.

When doing so, the Ellipse must synchronize according to a different synchronization source, to avoid changing the pass-through stream. An external clock provides a synchronization source between the Dolby encoder sending the audio stream and the Ellipse receiving it, and transmitting it onward (see Figure 11-6).

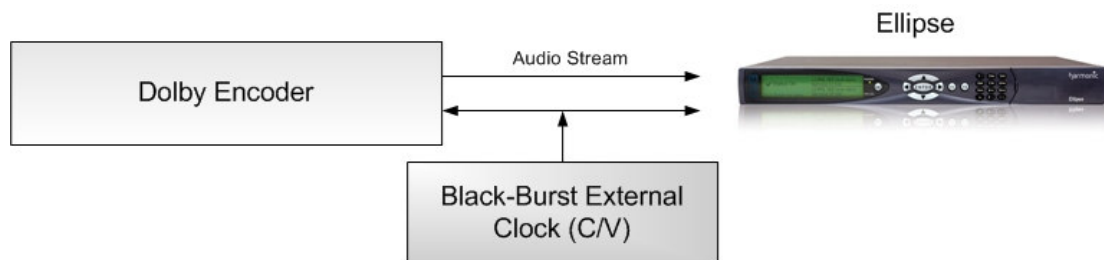
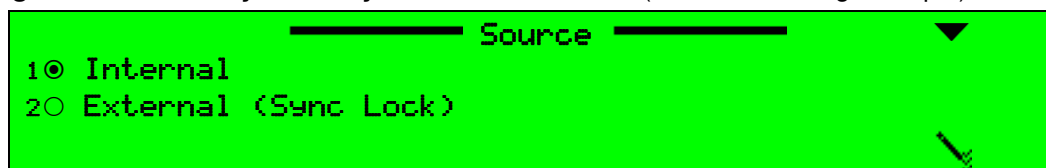


Figure 11-6: External-Clock Mechanism

To access the System Clock Source menu in the front panel, select **Root→Configuration→Unit→System→System Clock→Source** (see the following example).



The available options are:

- **Internal** – Clock source is internal (the internal clock is set through the Date/Time menu, see paragraph 11.3.6).
- **External (Sync Lock)** – Clock source is external.



NOTES

When working with pass-through audio schemes the user must set the System-Clock Source to External mode.

If for any reason the Ellipse cannot detect an external source, the Ellipse will display a Sync-Clock Error message and return to its internal clock source.

In audio pass-through encoding, this error will cause malfunction in the audio bit-stream.

To access the Clock menu in the Web Manager, select tabs **Unit→System** (see Figure 11-7).

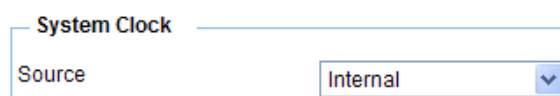


Figure 11-7: Clock Menu Display

11.3.4. Ethernet Port (Management) Menu

The **Ethernet Port (Management)** menu allows setting IP definitions of the Ethernet Management port.

To access the Ethernet Port (Management) menu in the front panel, select **Root→Configuration→Unit→System→Ethernet Port (Management)** (see the following example).



To access the Ethernet Port (Management) menu in the Web Manager, select tabs **Unit→System** (see Figure 11-8).

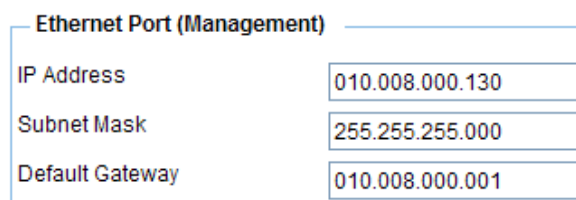


Figure 11-8: Management (Ethernet Port) Menu Display

NOTE



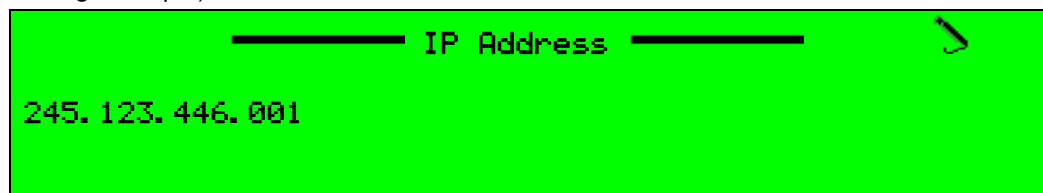
The default, factory set values of these parameters are not compatible with the user's network and must be configured to the environment where the encoder is installed.

The following sections detail the Ethernet Port (Management) menu options and parameters.

11.3.4.1. IP Address

The **IP Address** parameter sets the Ethernet Management port IP address. Only one IP address can be associated with the Ethernet Management port simultaneously.

To set the IP Address parameter in the front panel, select **Root→Configuration→Unit→System→Ethernet Port (Management) →IP Address** (see the following example).



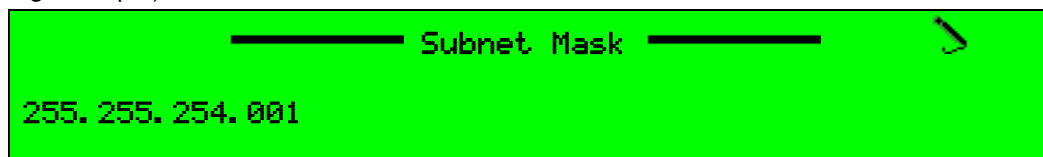
The available value is of IP address type: xxx.xxx.xxx.xxx.

To set the IP Address parameter in the Web Manager, select tabs **Unit→System**.

11.3.4.2. Subnet Mask

The **Subnet Mask** parameter sets the Ethernet Management port Subnet Mask address associated with the Ethernet Management port IP address.

To set the Subnet Mask parameter in the front panel, select **Root→Configuration→Unit→System→Ethernet Port (Management)→Subnet Mask** (see the following example).



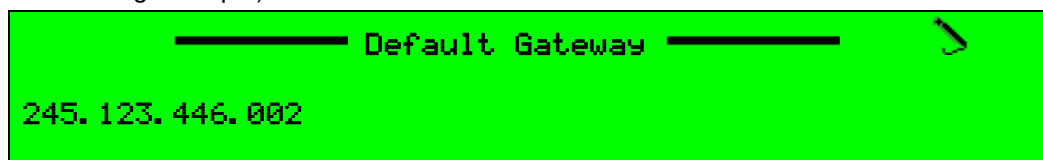
The available value is of IP address type: xxx.xxx.xxx.xxx.

To set the Subnet Mask parameter in the Web Manager, select tabs **Unit→System**.

11.3.4.3. Default Gateway

The **Default Gateway** parameter sets the Default Gateway address used by the device. The Gateway address must be from the same subnet as the Ethernet Management port IP address.

To set the Default Gateway parameter in the front panel, select **Root→Configuration→Unit→System→Ethernet Port (Management)→Default Gateway** (see the following example).



The available value is of IP address type: xxx.xxx.xxx.xxx.

To set the Default Gateway parameter in the Web Manager, select tabs **Unit→System**.

11.3.5. Serial Port (Management) Menu

The **Serial Port (Management)** menu allows setting Baud Rate of the serial management port.

To access the Serial Port (Management) menu in the front panel, select **Root→Configuration→Unit→System→Serial Port (Management)** (see the following example).



To access the Serial Port menu in the Web Manager, select tabs **Unit→System** (see Figure 11-9).

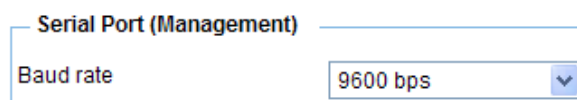


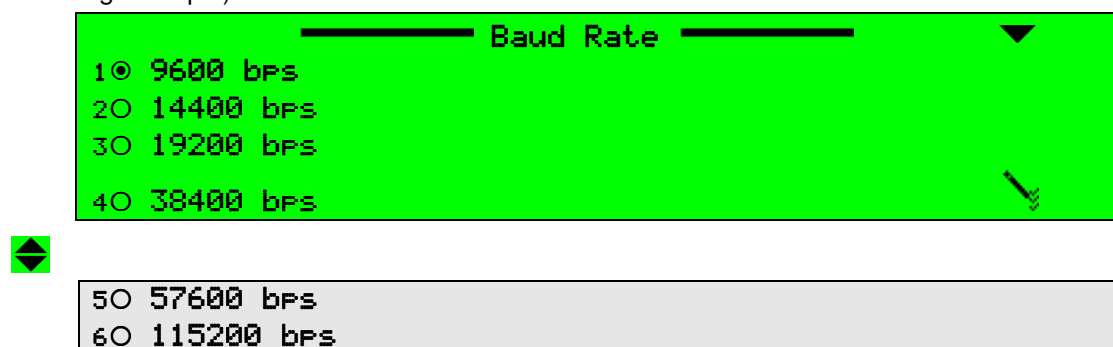
Figure 11-9: Serial Port Menu Display

The following sections detail the Serial Port (Management) menu options and parameters.

11.3.5.1. Baud Rate

The **Baud Rate** parameter allows setting the baud rate value. Unlike bit rate, this determines the transmit rate through the internet, which determines the transmit rate through stream and ASI.

To set the Baud Rate parameter in the front panel, select **Root→Configuration→Unit→System→Serial Port (Management) →Baud Rate** (see the following example).



The Baud rate default value is 9,600 bps. The available options are: 9,600 bps, 38,400 bps, 14,400 bps, 57,600 bps, 19,200 bps, 115,200 bps

To set the Baud Rate parameter in the Web Manager, select tabs **Unit→System**

11.3.6. Date Menu

The **Date** menu sets the encoder's internal clock. To access the Date menu in the front panel, select **Root→Configuration→Unit→System→Date** (see the following example).



Selecting an option in the Date Menu enables the user to set the option (Year, Month, Day, Hour, Minute and Second).

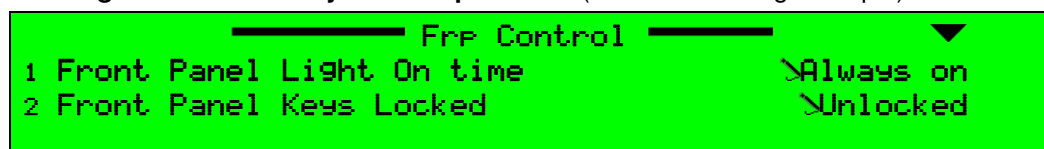
To access the Date menu in the Web Manager, select tabs **Unit→System** (see Figure 11-10).

Date	
Year [0,9999]	2057
Month	May
Day [1,31]	14
Hour [0,23]	14
Minute [0,59]	22
Second [0,59]	59

Figure 11-10: Date Menu Display

11.3.7. Front Panel Control

The Front Panel Control function enables the operator to set the response of the encoder front panel when not in use. It enables to lock the keys and to turn off the front panel back light. To access the System Clock menu in the front panel, select **Root→Configuration→Unit→System→Frp Control** (see the following example).



To access the Version menu in the Web Manager, select tabs **Unit→System→Front Panel Control** (see Figure 11-11):

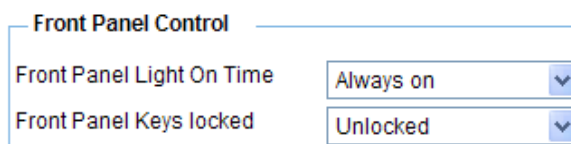


Figure 11-11: Front Panel Control Menu Display

11.3.7.1. Front Panel Light On Time

The Front Panel Lights On menu sets the time interval before the front panel turns off the backlight. To access the Front Panel Lights On menu in the front panel, select **Root→Configuration→Unit→System→Frp Control→Front Panel Light On Time** (see the following example).



The available options are:

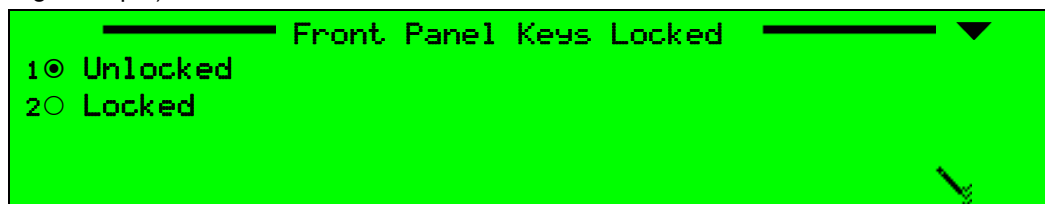
- **Always on** – The front panel back light is always on (default option).
- **On for x minute** – the front panel back light will turn off after x (1, 5, 10, 15, 20 or 25) minutes of no usage.

11.3.7.2. Front Panel Keys Locked

The Front Panel Keys Locked menu sets the enables locking the front panel keys when not in use.

To access the Front Panel Keys Locked menu in the front panel, select

Root→Configuration→Unit→System→Frp Control→Front Panel Keys Locked (see the following example).



The available options are:

- **Unlocked** – The front panel keys are always available (default option).
- **Locked** – The front panel keys are locked for local operation.



NOTE

Unlocking the keys is enabled only from the Web management

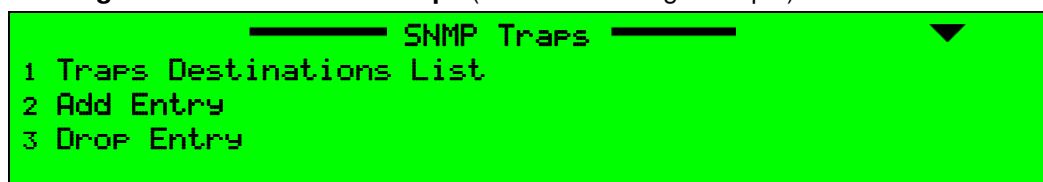
11.4. SNMP Traps Menu

The **SNMP Traps** menu allows defining a trap-host for the encoder's trap messages. The menu allows viewing the Traps Destinations list, which defines the trap hosts of the unit. The menu commands also allow adding or deleting entries from the Traps Destinations list.

Trap messages are sent by the device without manager intervention whenever a notification event occurs. Currently the Ellipse supports alarms and cancellations (known as *alarmOn* and *alarmOff*).

For more information about SNMP traps and Ellipse SNMP abilities, refer to the *Ellipse MIB User Guideline* documentation.

To access the SNMP Traps menu in the front panel, select: **Root→Configuration→Unit→SNMP Traps** (see the following example).



NOTE

The Drop Entry option will not be available for an empty trap-destination list.

At least one IP destination must be feeded.

To access the SNMP Traps menu in the Web Manager, select tabs **Unit→SNMP Traps**.

The following sections detail the menu options and parameters.

11.4.1. Traps Destination List

The **Traps Destination List** menu displays a list of the existing trap-host entries. Each entry in the list leads to the Trap configuration menu.



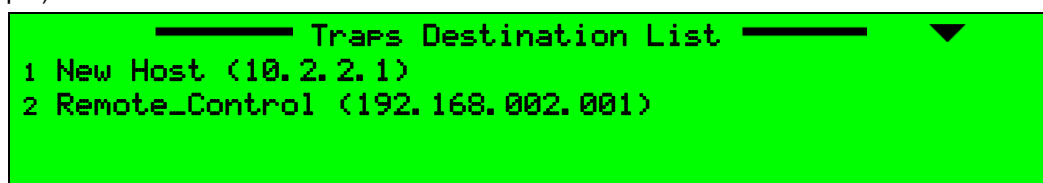
NOTE

To add an entry to the table see:

Paragraph 11.4.2 for the Ellipse Front-Panel interface operation

Paragraph 11.4.4 for the Web Manager Interface operation

To access the Traps Destination List menu in the front panel, select **Root→Configuration→Unit→SNMP Traps→Traps Destinations List** (see the following example).



To access the Traps Destination List menu in the Web Manager, select tabs **Unit→SNMP Traps** (see Figure 11-12).

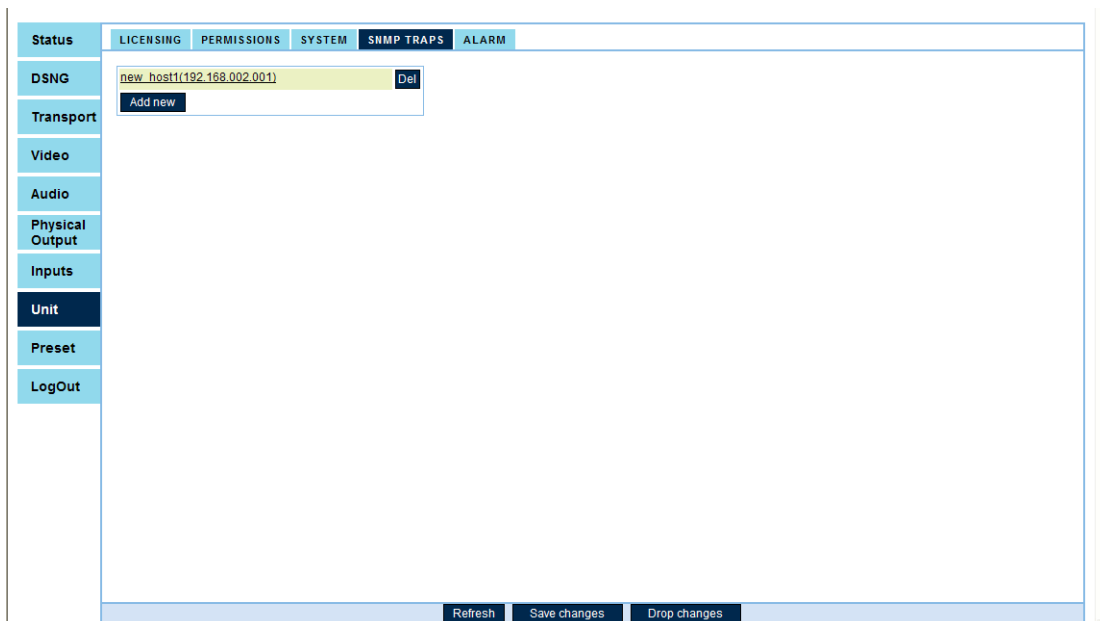
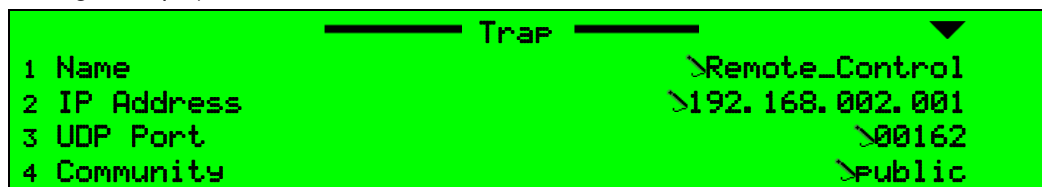


Figure 11-12: SNMP Traps List Display

Selecting an entry from the Traps Destination list displays the Trap configuration menu. This menu allows setting the trap definitions, such as name, IP address, UDP port, and community.

To select an entry through the front-panel interface, simply use the **[Up]** and **[Down]** touchpad-keys to highlight the requested entry and press **[Enter]**.

To access the Trap configuration menu in the front panel, select: **Root→Configuration→Unit→SNMP Traps→Traps Destinations List→[Trap Name]** (see the following example).



To select an entry through the web-management interface, simply click the requested entry. The entry is highlighted in blue and the entry's configuration section is displayed on the right-side of the list.

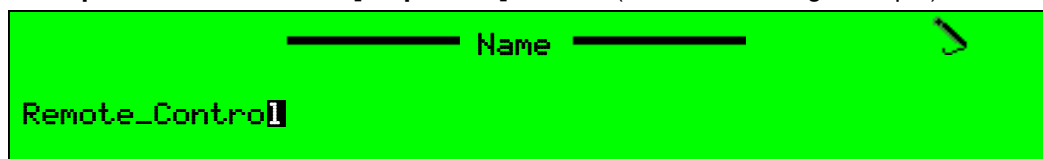
To access the Traps configuration menu in the Web Manager, select tabs and hyperlinks **Unit→SNMP Traps→[trap entry name]**.

The following sections detail the menu options and parameters.

11.4.1.1. Name

The **Name** parameter defines the trap-host station name. The trap-host's name represents the trap access through the Traps Destinations list. Therefore, it is recommended to select a name that represents the station as accurately as it can (for example, '**Room 6D**' or '**Paul's Computer**').

To set the Name parameter in the front panel, select: **Root→Configuration→Unit→SNMP Traps→Traps Destination List →[Trap Name]→Name** (see the following example).



The available value is a string of up to 255 characters and digits.

To set the Name parameter in the Web Manager, select tabs and hyperlinks **Unit→SNMP Traps →[trap entry]**.

11.4.1.2. IP Address

The **IP Address** parameter sets the trap-host IP address.

To set the IP Address parameter in the front panel, select: **Root→Configuration→Unit→SNMP Traps→Traps Destinations List→[Trap Name] →IP Address** (see the following example).



The available value is of IP address type: xxx.xxx.xxx.xxx.

To set the IP Address parameter in the Web Manager, select tabs and hyperlinks **Unit→SNMP Traps→[trap entry]**.

11.4.1.3. UDP Port

The **UDP Port** parameter sets the trap-host UDP port.

To set the UDP Port parameter in the front panel, select: **Root→Configuration→Unit→SNMP Traps→Traps Destinations List→[Trap Name] →UDP Port** (see the following example).



The available value ranges from 0 to 65535.

To set the UDP Port parameter in the Web Manager, select tabs and hyperlinks **Unit→SNMP Traps →[trap entry]**.

11.4.1.4. Community

The **Community** parameter sets the trap-host community definition. Community is an optional parameter and is used as a security precaution, allowing access to a user of the same community string.

To set the UDP Port parameter in the front panel, select **Root→Configuration→Unit→SNMP Traps→Traps Destinations List →[Trap Name] →UDP Port** (see the following example).



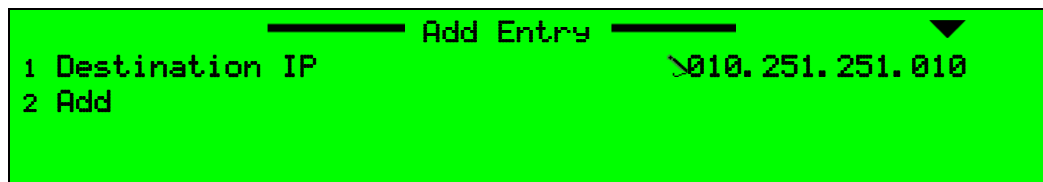
The available value is a string of up to 255 characters and digits.

To set the Community parameter in the Web Manager, select tabs and hyperlinks **Unit→SNMP Traps →[trap entry]**.

11.4.2. Add Entry Menu (front-panel)

The **Add Entry menu** allows adding new entries, meaning trap-hosts, to the Traps Destinations list. The menu allows defining a new host by an IP address and adding it to the list.

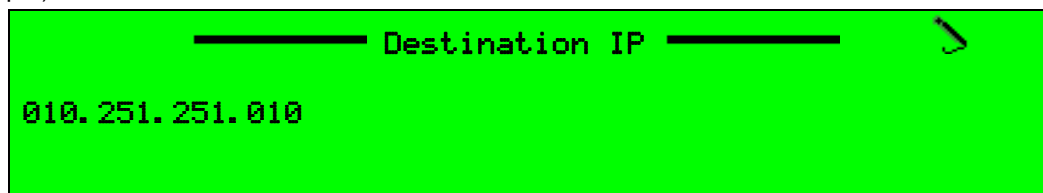
To access the Traps Destination List menu in the front panel, select: **Root→Configuration→Unit→SNMP Traps→Add Entry** (see the following example).



11.4.2.1. Set Destination IP

The **Destination IP** parameter defines the new trap-host entry by a new IP address.

To set the Destination IP parameter in the front panel, select: **Root→Configuration→Unit→SNMP Traps→Add Entry→Destination IP** (see the following example).



The available value is of IP address type: xxx.xxx.xxx.xxx.

11.4.2.2. Add Entry

The **Add Entry** option allows creating a new entry in the Traps Destinations list. The new entry, meaning host, is defined with the selected **Destination IP** address (see the previous section). This option executes the Add Entry command, not leading to a new screen.

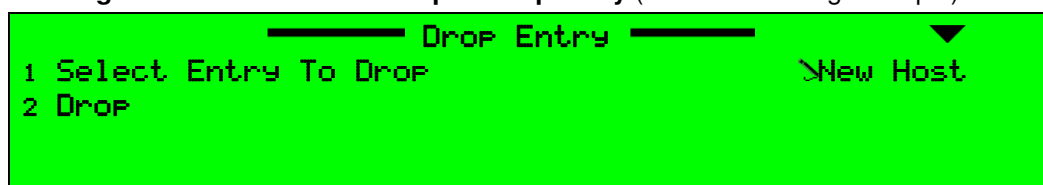
Once the new entry is displayed in the list, the user can access the Trap configuration menu and set its other parameters (name, UDP port, and community).

To execute the Add Entry option, in the front panel select **Root→Configuration→Unit→SNMP Traps→Add Entry→Add Entry**.

11.4.3. Drop Entry Menu (front-panel)

The **Drop Entry menu** allows deleting existing entries, meaning trap-hosts, from the Traps Destinations list.

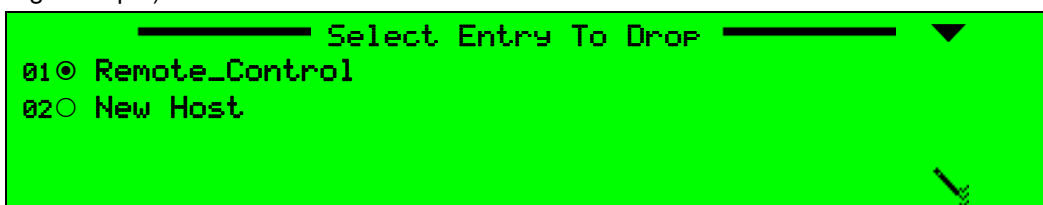
To access the Traps Destination List menu in the front panel, select: **Root→Configuration→Unit→SNMP Traps→Drop Entry** (see the following example).



11.4.3.1. Select Entry to Drop

The **Select Entry To Drop** parameter displays a select value screen with the complete Traps Destinations list, allowing the user to select the entry-to-drop.

To set the Select Entry To Drop parameter in the front panel, select: **Root→Configuration→Unit→SNMP Traps→Drop Entry→Select Entry To Drop** (see the following example).



11.4.3.2. Drop Entry

The **Drop Entry** option allows deleting the selected entry from the Traps Destinations list. The entry-to-drop is selected by the **Select Entry To drop** parameter (see the previous section). This option executes the Drop Entry command, not leading to a new screen.

To execute the Add Entry option, in the front panel select: **Root→Configuration→Unit→SNMP Traps→Add Entry→Add Entry**.

11.4.4. Adding and Dropping Entries (web-management)

The Web Manager allows managing the trap-destination hosts' list with an ease of point-and-click. To create, edit and drop SNMP Traps using the Web Manager, select tabs and hyperlinks **Unit→SNMP Traps →[trap entry]** (see Figure 11-13).

Figure 11-13: SNMP Traps Managing

The following sections detail the adding and dropping entries from the list.

11.4.4.1. Adding and Editing a New Trap-Destination Entry

The SNMP Traps Explorer-window presents a new "**Add New**" button. This button gives the user a new trap-destination entry with each click.

Upon first accessing the SNMP Traps window, the Explorer window displays only the "**Add New**" button. Clicking the button adds a new destination entry.

The new trap-destination entries are organized in a column-list. Each entry is identified in the list according to its trap-destination host's **name** and Ethernet information (**IP address** and **UDP port**). Clicking any entry displays the entry's configuration section (see paragraph 11.4.1).

The new entry is set with default values for the configuration parameters. The user must access the entry and set its mandatory parameters, IP Address and UDP Port, to register the new trap destination host.



Attention

The default values are not configured according to the user's network; therefore the values are not compatible as trap-destination host values.

Thus, adding a new entry will not create the destination host; the user must set the accurate values according to the user's network.

11.4.4.2. Drop a Trap-Destination Entry

Each entry in the list also displays a **Delete** button, to the right of the entry.

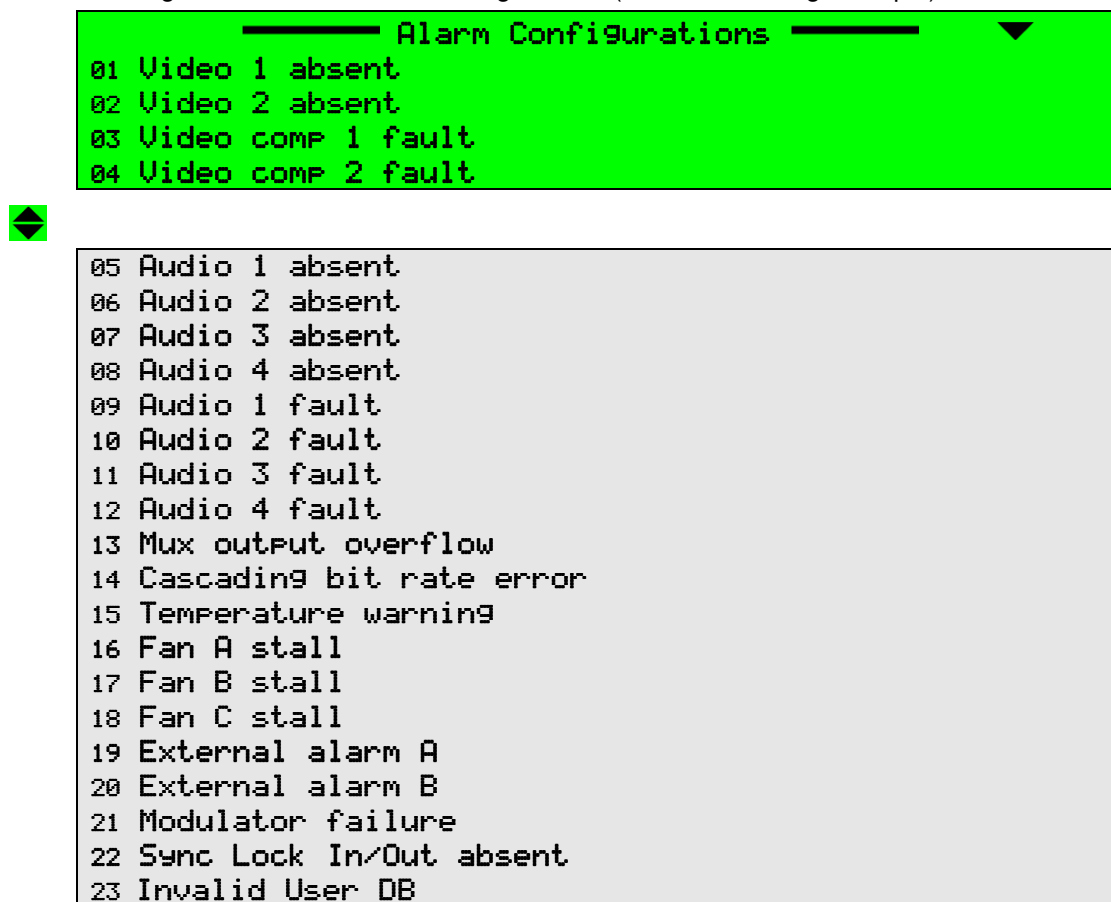
This button immediately drops the entry from the trap-destination hosts' list.

11.5. Alarm Configuration Menu

The **Alarm Configurations** menu displays a list of the Ellipse alarm types. The user can also set the severity level of the alarm through the alarm configuration screen.

To access the Alarm Configurations menu in the front panel, select:

Root→ Configuration→Unit→Alarm Configurations (see the following example).



To access the Alarm menu in the Web Manager, select tabs **Unit→Alarm** (see Figure 11-14).

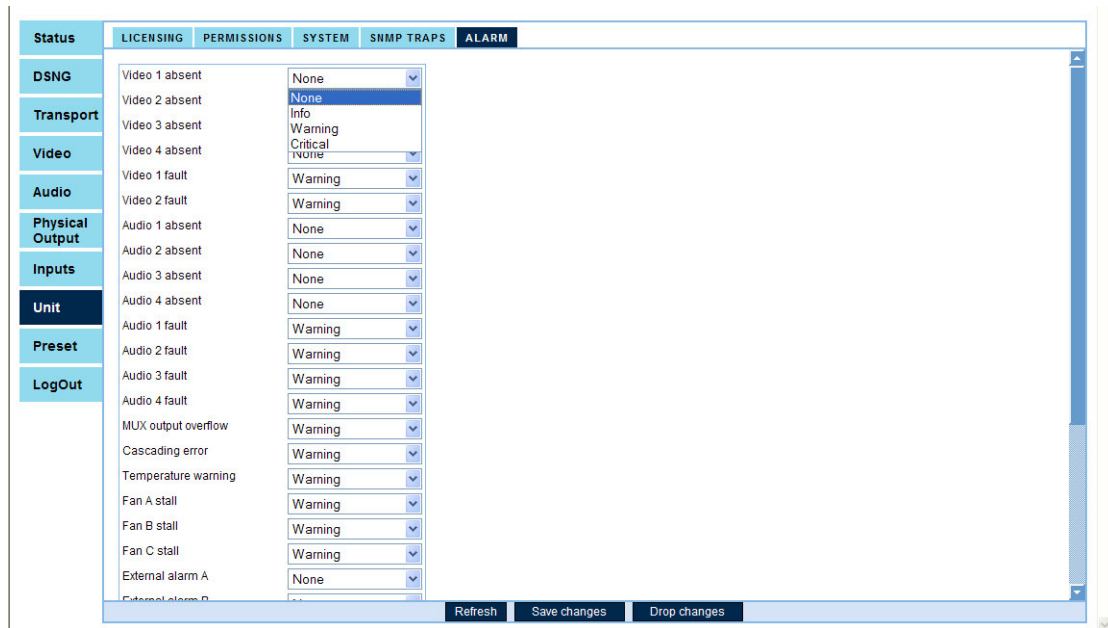


Figure 11-14: Alarm Menu Display

The alarm menu lists all the available alarms. Next to each alarm is a drop-down menu of status severity levels (option level are; None, Info, Warning and Critical).

The following sections detail the Alarm Configurations menu options and parameters.

11.5.1. Alarm Setting Menu

The **Alarm-Setting menu** allows setting the alarm severity level.

To access the Alarm Setting menu in the front panel, select **Root→Configuration→Unit→Alarm Configurations →[Alarm Type]** (see the following example).



The following section details the menu's parameter.

11.5.1.1. Set Severity

The **Set Severity** parameter sets the alarm severity level: informative alarm, warning alarm, or critical alarm. This setting also controls the LEDs that lit in case the alarm is raised.

To set the Set Severity parameter in the front panel, select **Root→Configuration→Unit→Alarm Configurations →[Alarm Type] →Set Severity** (see the following example).



The Set Severity default value for all alarms is Information. The available alarm severities are:

- **None** – No alarm is raised upon occurrence of the selected error.
- **Information** – All LEDs remain lit green.
- **Warning** – When raised, the warning LED is lit orange.
- **Critical** – When raised, the PWR/Fail LED is lit red and the GPIO dry contact is activated, allowing redundancy.

To set the Alarm Severity parameter in the Web Manager, select tabs **Unit→Alarm** (see Figure 11-15).

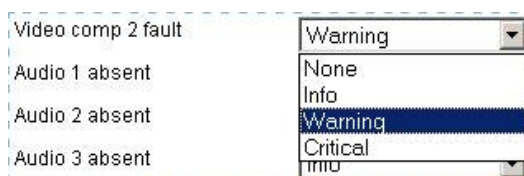
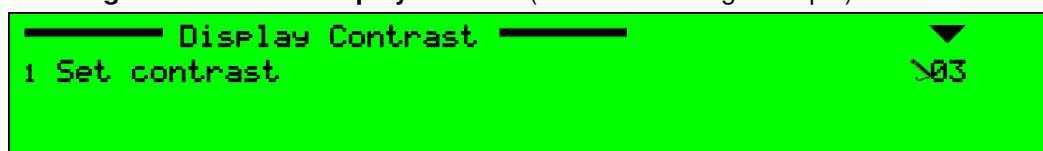


Figure 11-15: Alarm Severity Parameter Display

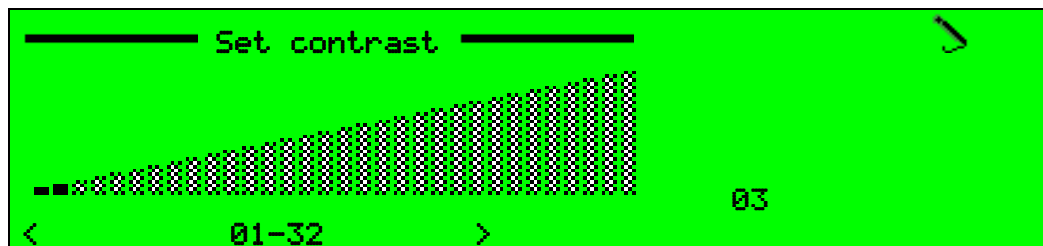
11.6. Display Contrast Menu

The **Display contrast menu** allows setting the Ellipse display contrast.

To access the Display Contrast menu in the front panel, select: **Root→Configuration→Unit→Display contrast** (see the following example).



The **Set contrast** parameter sets the Ellipse LCD display contrast.



The Set contrast default value is 3. The available value ranges from 1 to 10.



NOTE

The Display Contrast parameter is currently NOT available through the web-management control interface.

Chapter 12

DSNG Modulation and Up-Conversion

This chapter details the DSNG Modulation and Up-Conversion configuration menus and parameters for the Ellipse 2000/2000H DSNG Contribution Encoders.



NOTE

This menu is available for Ellipse 2000 / Ellipse 2000H DSNG Contribution Encoders, equipped with a modulator card.

12.1. General

The DSNG Modulation and Up-Converter menu allows the user to set modulation and up-converting parameters for the encoders equipped with an MPEG-S/S2 DSNG modulator module. These DSNG dedicated Ellipse platforms provide IF or L-Band modulation and up-converting outputs for the encoder output streams.

Based on the modulation mode selected for the encoder, some of the parameters are unique for L-Band modulator and up-converter, some are unique for the IF modulator and some are common to both modulation schemes. Therefore, this chapter is divided into three sections (see menu tree in Figure 12-2):

- **L-Band Modulator Parameters** – Details the parameters unique to the L-Band modulator (see paragraph 12.2).
- **IF Modulator Parameters** – Details the parameters unique to the IF modulator (see paragraph 12.3).
- **Common Modulation Parameters** – Detailing the modulation parameters common for both IF and L-Band modulators (see paragraph 12.4).

The image shows a web management interface for a DSNG Modulator and Up-Converter. The interface has a sidebar on the left with a menu tree containing: Status, DSNG, Transport, Video, Audio, Physical Output, Inputs, Unit, Preset, and LogOut. The main content area is titled 'MODULATOR AND UPCONVERTER' and displays various configuration parameters for an IF modulator. The parameters are organized into two columns. The left column lists the parameters, and the right column shows their current values and input controls (text boxes or dropdown menus). The parameters include: IF Power [dbm] (-30 to 5), Modulation on/off, Carrier, Symbol Rate [sps] (500000 to 9999999), Spectrum Inversion, Modulation Scheme, FEC and Modulation, IF Frequency [kHz] (50000 to 180000), L-Band Monitor Frequency [kHz] (900000 to 1150000), Output Impedance, Frame Length, Operating Mode, Roll-Off Factor, and Pilot Mode. At the bottom of the interface, there are three buttons: Refresh, Save changes, and Drop changes.

Parameter	Value / Control
IF Power [dbm]	-12
Modulation on/off	Off
Carrier	Off
Symbol Rate [sps]	4000000
Spectrum Inversion	Direct
Modulation Scheme	DVB-S
FEC and Modulation	QPSK 2/3
IF Frequency [kHz]	70000
L-Band Monitor Frequency [kHz]	1080000
Output Impedance	75 ohm
Frame Length	32,000 bits
Operating Mode	C+M Man Restore
Roll-Off Factor	0.35
Pilot Mode	Off

Figure 12-1: Web Management - Modulation and Up-Converter Menu Display (IF Modulator Example)

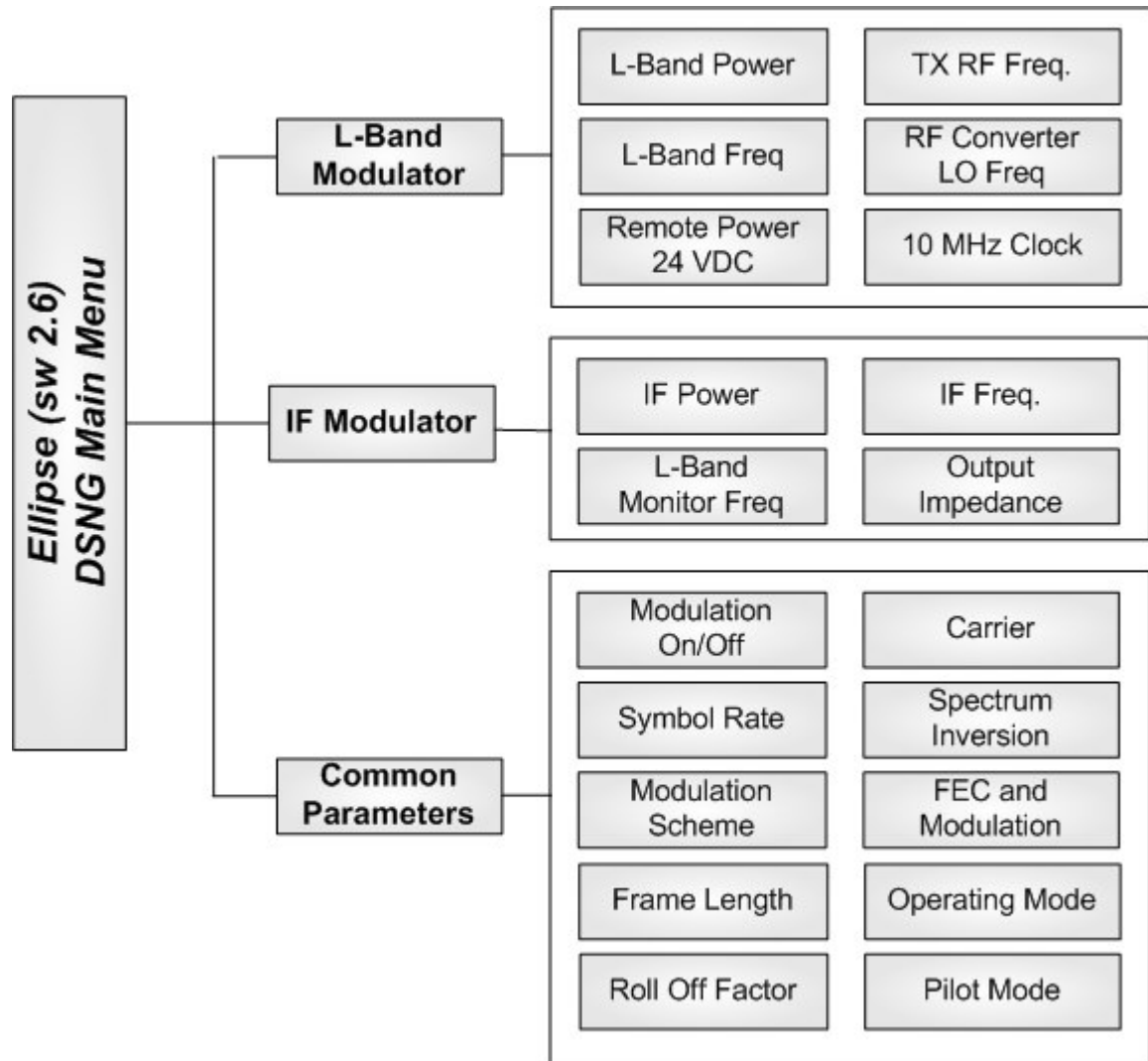


Figure 12-2: DSNG Modulation and Up Conversion Menu Tree Structure

12.2. L-Band Modulator Parameters

This group of parameters sets the L-Band modulator configuration.

To access the L-Band Modulation and Up-Converter menu in the front panel, select **Root→L-Band Modulation and Up-Converter**.

L-Band Modulation & Up-converter	
01 L-Band Power	▷-20
02 Modulation on/off	▷Off
03 Carrier	▷On
04 Symbol Rate	▷10000000



05 TX RF Freq	▷014950000
06 Spectrum Inversion	▷Direct
07 Modulation Scheme	▷DVB-S2
08 FEC and Modulation	▷QPSK 2/3
09 L-Band Frequency	▷0950000
10 RF Conv. LO Freq	▷014000000
11 Frame Length	▷64800 bits
12 Operating Mode	▷C and M Restore...
13 Roll-Off Factor	▷0.35
14 Pilot Mode	▷Off
15 Remote Power 24VDC	▷Off
16 10MHz Clock	▷Off

Some of these parameters are unique L-Band modulator parameters and are detailed in the following sub-paragraphs:

- L-Band Power parameter, see paragraph 12.2.1.
- TX RF Freq parameter, see paragraph 12.2.2.
- L-Band Frequency parameter, see paragraph 12.2.3.
- RF Conv. LO Freq parameter, see paragraph 12.2.4.
- Remote Power 24 VDC parameter, see paragraph 12.2.5.
- 10 MHz Clock parameter, see paragraph 12.2.6.



NOTE

This set of parameters is not available for IF modulator units. All other parameters are common to both modulation schemes and are detailed in section 12.4.

To access the L-Band Modulation and Up-converter menu in the Web Manager, select tabs **DSNG→Modulator and Up-Converter** (see Figure 12-3).

L-Band Power [dbm] [-50,-7]	-12
Modulation on/off	Off
Carrier	Off
Symbol Rate [sps] [50000,68000000]	4000000
TX RF Freq [kHz] [0,100000000]	14950000
Spectrum Inversion	Direct
Modulation Scheme	DVB-S
FEC and Modulation	QPSK 2/3
L-Band Frequency [kHz] [950000,1750000]	950000
RF Conv. LO Freq [kHz] [0,100000000]	14000000
Frame Length	32,000 bits
Operating Mode	C+M Man Restore
Roll-Off Factor	0.35
Pilot Mode	Off
Remote Power 24VDC	Off
10Mhz Clock	Off

Figure 12-3: L-Band Modulation and Up-Converter Menu Display

12.2.1. L-Band Power

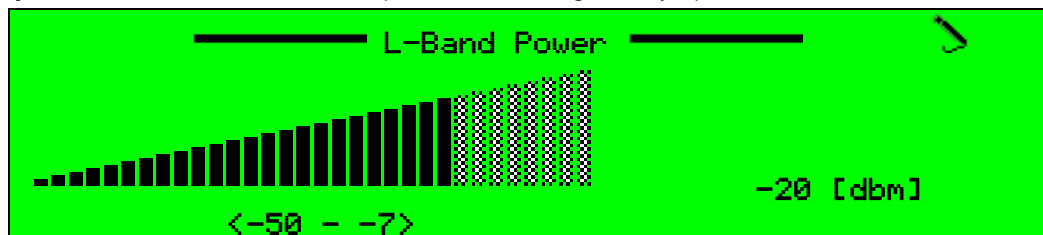
The **L-Band Power** parameter sets the L-band output power in dBm units. The L-Band power is required for Carrier definitions.



NOTE

Configuration of this parameter is saved automatically and does not require access to the **Save** menu.

To set the L-Band Power parameter in the front panel, select **Root→L-Band Modulation and Up-Converter→L-Band Power** (see the following example).



The L-Band Power default value is -20 dBm. The available value ranges from -50 to -7 dBm.

To set the L-Band Power parameter in the Web Manager, select tabs **DSNG→Modulator and Up-Converter** (see Figure 12-3).

12.2.2. TX RF Frequency

The **TX RF Freq (frequency)** parameter creates the connection between the LO frequency and the L-Band. This determines the actual rate sent from the up-converter module. The actual value is calculated according to the **RF Conv. LO Frequency** value and the **L-Band Frequency** value.

Any changes to the TX RF Frequency parameter's value affect the L-Band Frequency parameter's value, matching it to the calculated value. For example, when changing the TX RF Frequency from 14,950,000 to 15,000,000 the following value changes occur:

Parameter	Former Value	New Value	Change happens:
TX RF Freq	14,950,000	15,000,000	Manual
RF Conv. LO Freq	14,000,000	14,000,000	Keeps value
L-Band Freq	950,000	1,000,000	Automatic



NOTE

Changes to the TX RF Frequency value only affect the L-Band Frequency value. However, the RF Conv. LO Frequency can be configured manually by the user.

To set the TX RF Frequency parameter in the front panel, select **Root→L-Band Modulation and Up-Converter→TX RF Freq** (see the following example).



The TX RF Frequency default value is 15,000,000 KHz. The available value ranges from 0 to 100,000,000 KHz.

To set the TX RF Frequency parameter in the Web Manager, select tabs **DSNG→Modulator and Up-Converter** (see Figure 12-3).

12.2.3. L-Band Frequency

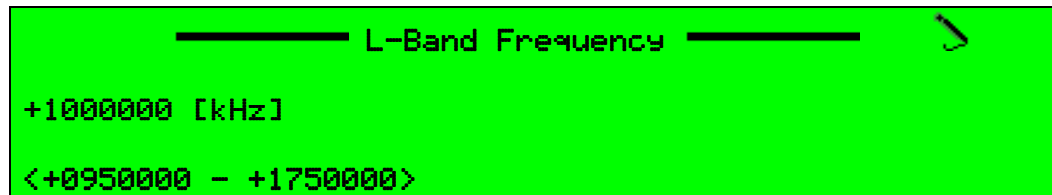
The **L-Band Frequency** parameter sets the L-Band frequency rate.



NOTE

This parameter changes automatically according to any change in the **TX RF Freq (frequency)** rate.

To set the L-Band Frequency parameter in the front panel, select **Root→L-Band Modulation and Up-Converter→L-Band Frequency** (see the following example).



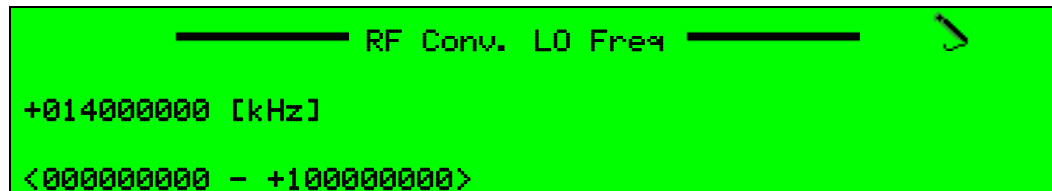
The L-Band Frequency default value is 1,000,000 KHz. The available value ranges from 950,000 to 1,750,000 KHz.

To set the L-Band Frequency parameter in the Web Manager, select tabs **DSNG→Modulator and Up-Converter** (see Figure 12-3).

12.2.4. RF Conv. LO Frequency

The **RF Conv. LO Frequency** parameter sets the local frequency of the up-converter. According to the selected value, the Ellipse can identify the use of Ku-Band, C-Band, or L-Band.

To set the RF Conv. LO Frequency parameter in the front panel, select **Root→ L-Band Modulator and Up-Converter→RF Conv. LO Freq** (see the following example).



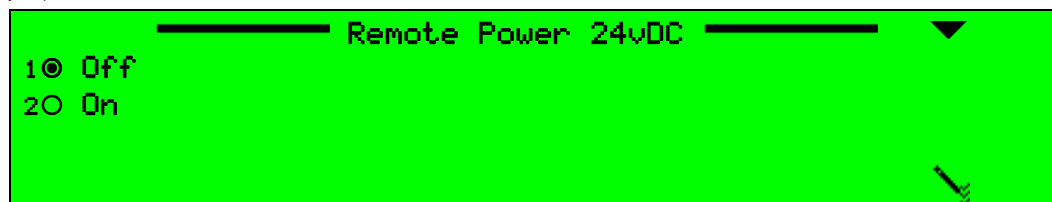
The RF Conv. LO Frequency default value is 14,000,000 KHz. The available value ranges from 0 and 100,000,000 KHz.

To set the RF Conv. LO Frequency parameter in the Web Manager, select tabs **DSNG→Modulator and Up-Converter** (see Figure 12-3).

12.2.5. Remote Power 24 VDC

The **Remote Power 24 VDC** parameter allows a remote power feeding from a 24 VDC source.

To set the Remote Power 24v DC parameter in the front panel, select: **Root→L-Band Modulation and Up-Converter→Remote Power 24VDC** (see the following example).



The Remote Power 24 VDC default value is 'On'. The available options are:

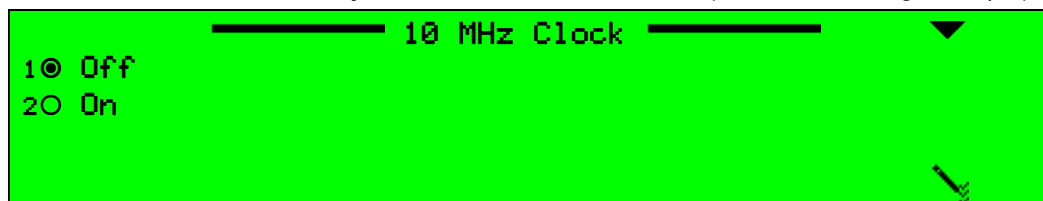
- **Off** – Remote power feeding is disabled.
- **On** – Remote power feeding is enabled.

To set the Remote Power 24VDC parameter in the Web Manager, select tabs **DSNG→Modulator and Up-Converter** (see Figure 12-3).

12.2.6. 10 MHz Clock

The **10MHz Clock** parameter enables an accurate 10 MHz reference clock for band synchronization.

To set the 10 MHz Clock parameter in the front panel, select: **Root→L-Band Modulation and Up-Converter→10 MHz Clock** (see the following example).



The 10 MHz Clock default value is 'Off'. The available options are:

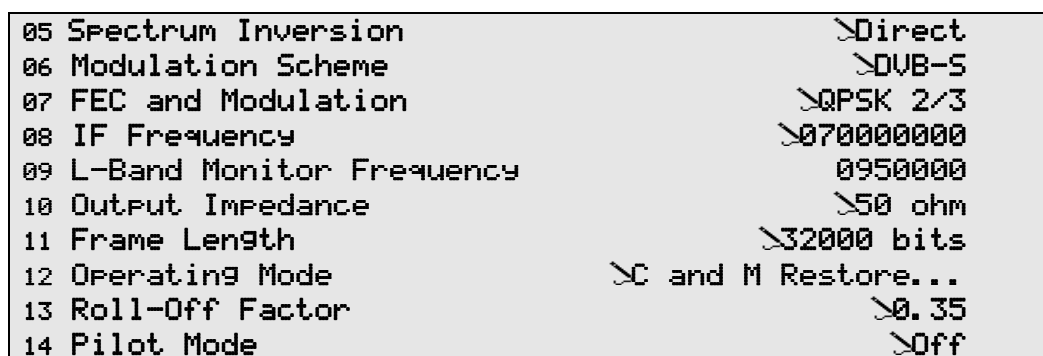
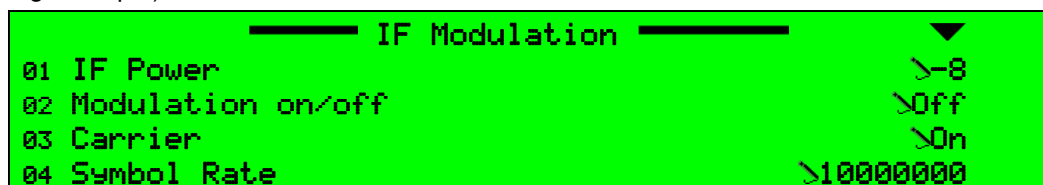
- **Off** – 10 MHz reference clock is disabled
- **On** – 10 MHz reference clock is enabled

To set the 10 MHz Clock parameter in the Web Manager, select tabs **DSNG→Modulator and Up-Converter** (see Figure 12-3).

12.3. IF Modulator Parameters

This group of parameters sets the IF modulator configuration.

To access the IF Modulation menu in the front panel, select **Root→IF Modulation** (see the following example).



Some of these parameters are uniquely IF modulator parameters and are detailed in the following sub-paragraphs:

- IF Power parameter, see paragraph 12.3.1.
- IF Frequency parameter, see paragraph 12.3.2.
- L-Band Monitor Frequency parameter, see paragraph 12.3.3.
- Output Impedance parameter, see paragraph 12.3.4.

**NOTE**

This set of parameters is not available for L-Band modulator units. All other parameters are common to both modulation schemes and are detailed in section 12.4.

To access the IF Modulator menu in the Web Manager, select tabs **DSNG→IF Modulator** (see Figure 12-4).

IF Power [dbm] [-30,5]	-12
Modulation on/off	Off
Carrier	Off
Symbol Rate [sps] [50000,68000000]	4000000
Spectrum Inversion	Direct
Modulation Scheme	DVB-S
FEC and Modulation	QPSK 2/3
IF Frequency [kHz] [50000,180000]	70000
L-Band Monitor Frequency [kHz] [950000,1750000]	1080000
Output Impedance	75 ohm
Frame Length	32,000 bits
Operating Mode	C+M Man Restore
Roll-Off Factor	0.35
Pilot Mode	Off

Figure 12-4: IF Modulator Menu Display

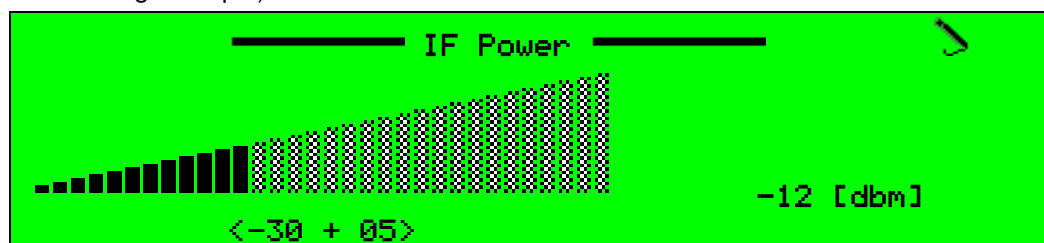
12.3.1. IF Power

The **IF Power** parameter sets the IF output power in dBm units. The IF power is required for Carrier definitions.

**NOTE**

Configuration of this parameter is saved automatically and does not require access to the **Save** menu.

To set the IF Power parameter in the front panel, select **Root→IF Modulation→IF Power** (see the following example).



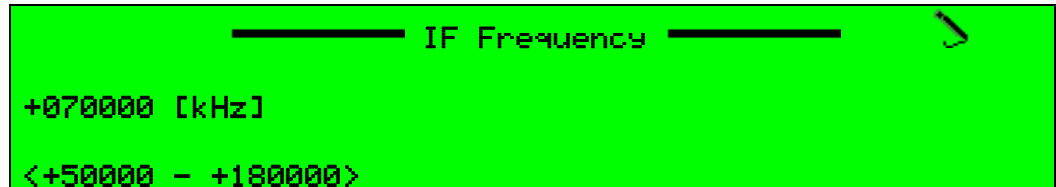
The IF Power default value is -12 dBm. The available value ranges from -30 to +05 dBm.

To set the IF Power parameter in the Web Manager, select tabs **DSNG→Modulator and Up-Converter** (see Figure 12-4).

12.3.2. IF Frequency

The **IF Frequency** parameter sets the IF modulator's frequency rate.

To set the IF Frequency parameter in the front panel, select **Root→IF Modulation→IF Frequency** (see the following example).



The IF Frequency default value is 70 MHz. The available value ranges from 50 to 180 MHz.

To set the IF Frequency parameter in the Web Manager, select tabs **DSNG→Modulator and Up-Converter** (see Figure 12-4).

12.3.3. L-Band Monitor Frequency

The L-Band monitor monitors the modulation outputs.

The **L-Band Monitor Frequency** parameter displays a read-only value of the L-Band monitor frequency value. The interface's parameter values are 950 MHz at -45 dBm.

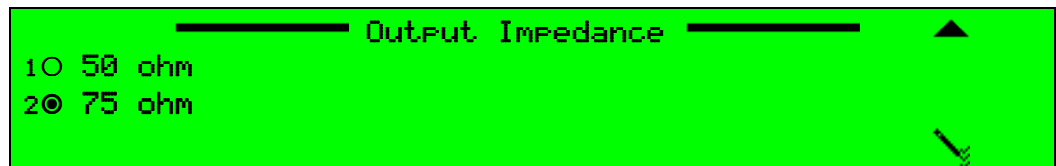
To view the L-Band Monitor Frequency parameter in the front panel, select **Root→IF Modulator→L-Band Monitor Frequency**.

To view the L-Band Monitor Frequency parameter in the Web Manager, select tabs **DSNG→Modulator and Up-Converter** (see Figure 12-4).

12.3.4. Output Impedance

The **Output Impedance** parameter allows controlling the IF-modulator output impedance of the encoder to coordinate with the impedance of the next-stage UCM (up-converter modulator).

To set the Output Impedance parameter in the front panel, select **Root→IF Modulator→Output Impedance** (see the following example).



The Output Impedance default value is 50 Ohm. The available options are: **50** and **75 Ohm**.

To set the Output Impedance parameter in the Web Manager, select tabs **DSNG→Modulator and Up-Converter** (see Figure 12-4).

12.4. Common Modulation Parameters

This group of parameters are common for both IF and L-Band modulator units.

To access the IF Modulation menu in the front panel, select **Root→IF Modulation** (see the following example for IF Modulator).

IF Modulation	
01 IF Power	>-8
02 Modulation on/off	>Off
03 Carrier	>On
04 Symbol Rate	>10000000
05 Spectrum Inversion	>Direct
06 Modulation Scheme	>DVB-S
07 FEC and Modulation	>QPSK 2/3
08 IF Frequency	>070000000
09 L-Band Monitor Frequency	0950000
10 Output Impedance	>50 ohm
11 Frame Length	>32000 bits
12 Operating Mode	>C and M Restore...
13 Roll-Off Factor	>0.35
14 Pilot Mode	>Off

The common modulation parameters are detailed in the following sub-paragraphs:

- Modulation On/Off parameter, see paragraph 12.4.1.
- Carrier parameter, see paragraph 12.4.2.
- Symbol Rate parameter, see paragraph 12.4.3.
- Spectrum Inversion parameter, see paragraph 12.4.4.
- Modulation Scheme parameter, see paragraph 12.4.5.
- FEC and Modulation parameter, see paragraph 12.4.6.
- Frame Length parameter, see paragraph 12.4.7.
- Operating Mode parameter, see paragraph 12.4.8.
- Roll-Off Factor parameter, see paragraph 12.4.9.
- Pilot Mode parameter, see paragraph 12.4.10.

12.4.1. Modulation On/Off

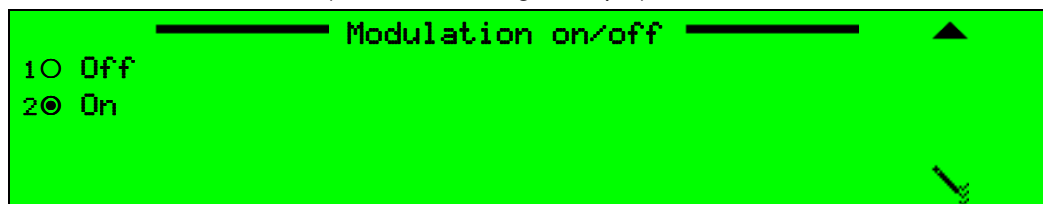
The **Modulation on/off** parameter sets the modulation mode of operation.



NOTE

The Modulation on/off setting through the front panel is parallel supported using shortcut keys on the touch-pad as detailed in the following passages.

To set the Modulation on/off parameter in the front panel, select **Root→Modulation and Up-Converter→Modulation on/off** (see the following example).



The Modulation on/off default value is 'On'. The available options are:

- **Off** – Modulation is disabled. Shortcut combination is [F2] + [Down].
- **On** – Modulation is enabled. Shortcut combination is [F2] + [Left].

To set the Modulation on/off parameter in the Web Manager, select tabs **DSNG→Modulator and Upconverter** (see either Figure 12-3 or Figure 12-4).

12.4.2. Carrier

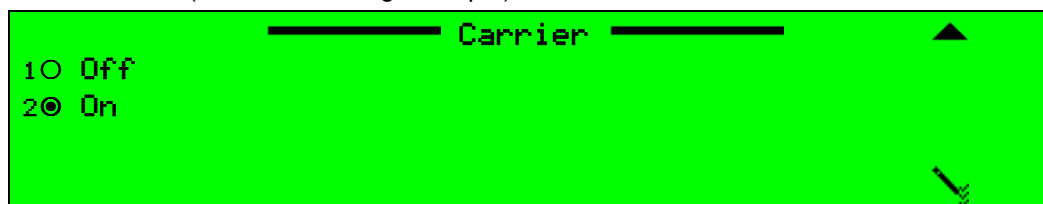
The **Carrier** parameter sets the L-band carrier mode of operation.



NOTE

The Carrier setting through the front panel is parallel supported using shortcut keys on the touch-pad as detailed in the following passages.

To set the Carrier parameter in the front panel, select **Root→Modulation and Up-Converter→Carrier** (see the following example).



The Carrier default value is 'On'. The available options are:

- **Off** – Carrier is disabled. Shortcut combination is [F2] + [Right].
- **On** – Carrier is enabled. Shortcut combination is [F2] + [Up].

To set the Carrier parameter in the Web Manager, select tabs **DSNG→Modulator and Up-Converter** (see either Figure 12-3 or Figure 12-4).

12.4.3. Symbol Rate

The **Symbol Rate** parameter sets the modulation symbol rate value in Spc.



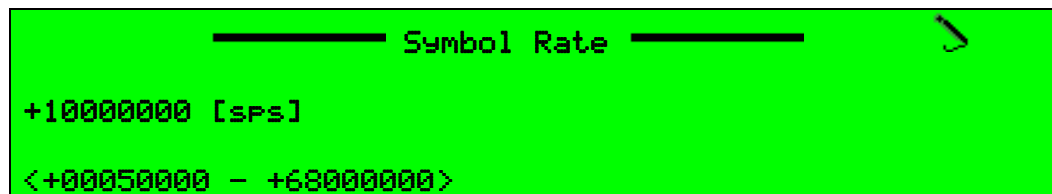
NOTE

In DSNG modules, the actual output rate of the encoder can be set according to either the **Symbol Rate** (from the Modulation menu) or the **Output Rate** (from the Transport Stream menu). The actual rate will be the rate last configured.

For example, if the symbol rate value was set after the output rate value, the symbol rate value is the actual output rate of the encoder.

This means that in DSNG modules (with an IP or L-Band modulators) the actual output can be one of two settings, either it is set according to Symbol Rate (using the Modulation menu) or according to Output Rate (using the Transport Stream menu).

To set the Symbol Rate parameter in the front panel, select **Root→Modulation and Up-Converter→Symbol Rate** (see the following example).



The Symbol Rate default value is 10,000,000 sps. The available value ranges from 50,000 to 68,000,000 sps.



NOTE

The user cannot exceed the symbol rate (or the equivalent output rate) for more than allowed according to the encoder license.

To set the Symbol Rate parameter in the Web Manager, select tabs **DSNG→Modulator and Up-Converter** (see either Figure 12-3 or Figure 12-4).

12.4.4. Spectrum Inversion

The **Spectrum Inversion** parameter sets the calculation method of the TX RF frequency parameter.



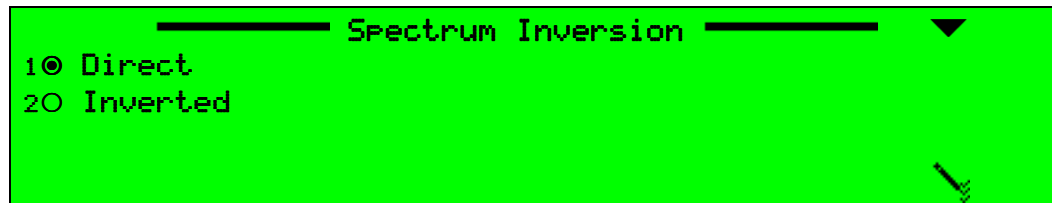
NOTE

Although a modulation parameter, thus available for both IF and L-Band, the spectrum Inversion calculation does not affect the IF frequency rate.

The **TX RF Frequency** parameter value is calculated according to the **L-band Frequency** and **RF Conv. LO Frequency** parameter value. The Spectrum Inversion parameter determines whether the **TX RF Frequency** parameter value will be calculated by addition or subtraction.

For example, if Spectrum Inversion is set to direct, L-Band frequency is 14,000,000 KHz and LO frequency is 950,000 KHz then the TX RF frequency is $14,950,000 = 14,000,000 + 950,000$.

To set the Spectrum Inversion parameter in the front panel, select **Root→Modulation and Up-Converter→Spectrum Inversion** (see the following example).



The Spectrum Inversion default value is **Direct**. The available options are:

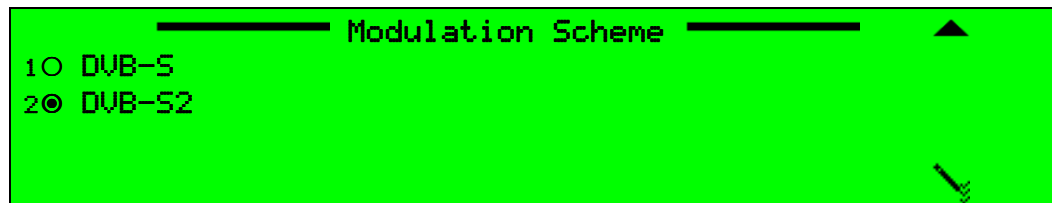
- **Direct** – The TX RF frequency is calculated as the sum of the L-Band Frequency and RF Conv. LO Frequency parameters.
- **Inverted** – The TX RF frequency is calculated after subtracting the L-Band Frequency from the RF Conv. LO Frequency parameter values.

To set the Spectrum Inversion parameter in the Web Manager, select tabs **DSNG→Modulator and Up-Converter** (see either Figure 12-3 or Figure 12-4).

12.4.5. Modulation Scheme

The **Modulation Scheme** parameter sets the modulation scheme.

To set the Modulation Scheme parameter in the front panel, select **Root→Modulation and Up-Converter→Modulation Scheme** (see the following example).



The Modulation Scheme default value is **DVB-S2**. The available options are:

- **DVB-S** – Modulation Scheme is set to DVB-S
- **DVB-S2** – Modulation Scheme is set to DVB-S2



NOTE

The DVB-S2 modulation scheme is available upon permission and is not supported without a working, authorized, correct code.

To set the Modulation Scheme parameter in the Web Manager, select tabs **DSNG→Modulator and Up-Converter** (see either Figure 12-3 or Figure 12-4).

12.4.6. FEC and Modulation

The **FEC** (Forward Error Correction) and **Modulation** parameter sets the FEC value and the modulation mode of the up-converter. For example, with default value at QPSK 2/3, the Modulation mode to QPSK and the FEC rate to 2/3.

To set the FEC and Modulation parameter in the front panel, select **Root→Modulation and Up-Converter→FEC and Modulation** (see the following example of the screen for **DVB-S2** modulation scheme).

FEC and Modulation ◆

01O QPSK 1/4 (DVBS 2 only)
02O QPSK 1/3 (DVBS 2 only)
03O QPSK 2/5 (DVBS 2 only)
04O QPSK 1/2

05O QPSK 3/5 (DVBS 2 Only)
06● QPSK 2/3
07O QPSK 3/4
08O QPSK 4/5 (DVBS 2 Only)
09O QPSK 5/6
10O QPSK 6/7 (DVBS Only)
11O QPSK 7/8 (DVBS Only)
12O QPSK 8/9 (DVBS 2 Only)
13O QPSK 9/10 (DVBS 2 Only)
14O 8PSK 3/5 (DVBS 2 Only)
15O 8PSK 2/3
16O 8PSK 3/4 (DVBS 2 Only)
17O 8PSK 5/6
18O 8PSK 8/9 (DVBS 2 Only)
19O 8PSK 9/10 (DVBS 2 Only)
20O 16QAM 2/3
21O 16QAM 3/4
22O 16QAM 4/5
23O 16QAM 5/6
24O 16QAM 8/9
25O 16QAM 9/10

The available options change according to the selected modulation scheme. The following table details each modulation scheme and its available Modulation modes and FEC values.

Module	Modulation Mode	FEC Rate
DVB-S2	QPSK	1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
	8PSK	3/5, 2/3, 3/4, 5/6, 8/9, 9/10
	16QAM	2/3, 3/4, 4/5, 5/6, 8/9, 9/10
DVB-S	QPSK	1/2, 2/3, 3/4, 5/6, 6/7, 7/8
	8PSK	2/3, 5/6
	16QAM	3/4, 7/8

To set the FEC and Modulation parameter in the Web Manager, select tabs **DSNG→Modulator and Up-Converter** (see either Figure 12-3 or Figure 12-4).

12.4.7. Frame Length

The **Frame Length** parameter sets the DVB-S2 modulation frame length.

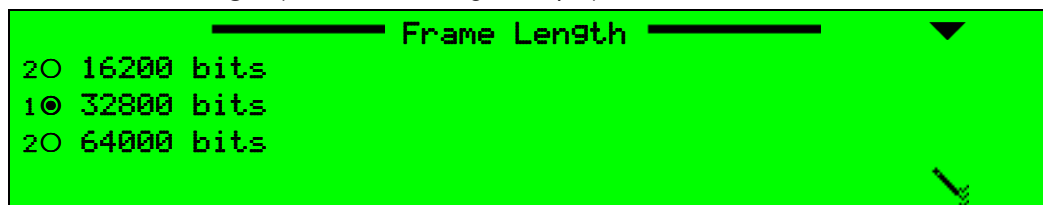


NOTES

This parameter is only relevant for units operating under DVB-S2 modulation scheme.

This parameter is not available in the UE-9216 module (default value is 32 Kbits).

To set the Frame Length parameter in the front panel, select **Root→Modulation and Up-Converter→Frame Length** (see the following example).



This is a dynamic value screen and displays various available values according to the selected modulation scheme. The available options are:

Modulation Scheme	Available Values
DVB-S	32,000 bits
DVB-S2	16,200 bits 64,800 bits

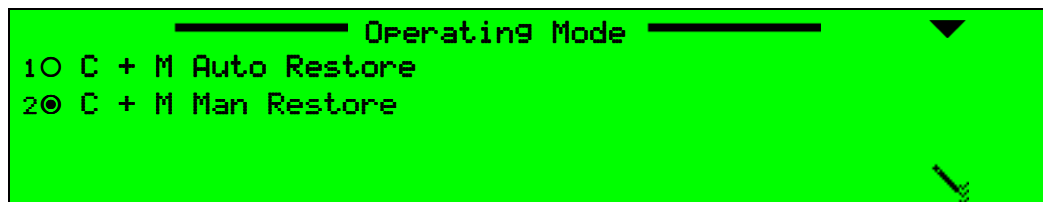
The selected value sets the frame length to the selected number in bits (for example, selecting **64,800** sets the frame length to 64,800 bits).

To set the Frame Length parameter in the Web Manager, select tabs **DSNG→Modulation and Up-Converter** (see either Figure 12-3 or Figure 12-4).

12.4.8. Operating Mode

The **Operating Mode** parameter sets the configuration and operation state for the Carrier and Modulation Mode. Configuring the different Modulation and Up-Converter parameters causes the Carrier and Modulation Mode parameters to return to their default Off Value. Operating Mode sets the reset mode of the Carrier and Modulation Mode.

To set the Operating Mode parameter in the front panel, select **Root→Modulation and Up-Converter→Operating Mode** (see the following example).



The Operating Mode default value is **C and M Man Restore**. The available options are:

- **C + M Auto Restore** – After changing other Modulation parameters, Carrier (C) and Modulation (M) Mode are automatically restored to recently configured and saved values.

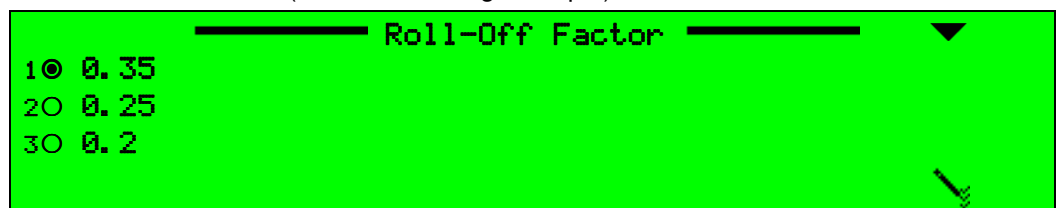
- **C + M Man Restore** – Carrier (C) and Modulation Mode (M) values are manually set. After configuring other modulation parameters, Carrier and Modulation Mode are automatically set to the default Off Value. The user must re-configure the values.

To set the Operating Mode parameter in the Web Manager, select tabs **DSNG→Modulator and Up-Converter** (see either Figure 12-3 or Figure 12-4).

12.4.9. Roll-Off Factor

The **Roll-Off Factor** parameter sets the modulation roll-off value. The roll-off factor is responsible for the quality of separation between partly overlapping satellite transmissions frequency envelopes. Setting a large Roll-off value allows a larger portion of the relevant transmission to be received, but also receives more irrelevant signals from the adjacent transmission. Setting a smaller Roll-off value reduces the amount of irrelevant data from the adjacent transmission, but also loses some information found in the edges of the relevant transmission envelope.

To set the Roll-Off Factor parameter in the front panel, select **Root→Modulation and Up-Converter→Roll-Off Factor** (see the following example).



The Roll-Off Factor default value is 0.35. The available options are: **0.20**, **0.25** or **0.35**.

To set the Roll-Off Factor parameter in the Web Manager, select tabs **DSNG→Modulation and Up-Converter** (see either Figure 12-3 or Figure 12-4).

12.4.10. Pilot Mode

The **Pilot Mode** parameter sets the pilot mode of operation. In order to expedite carrier recovery, the standard allows two operating modes for each modulation type: Pilot-less (i.e. no Pilot symbols are inserted) and Piloted, where Pilot symbols are inserted to aid carrier synchronization.

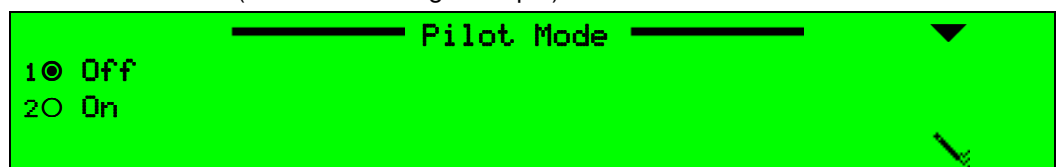


NOTES

This parameter is only relevant for units operating under DVB-S2 modulation scheme.

This parameter is not available in the UE-9216 module.

To set the Pilot Mode parameter in the front panel, select **Root→Modulation and Up-Converter→Pilot Mode** (see the following example).



The Pilot Mode default value is 'Off'. The available options are: **On** and **Off**.

To set the Pilot Mode parameter in the Web Manager, select tabs **DSNG→Modulator and Up-Converter** (see either Figure 12-3 or Figure 12-4).

This appendix details the preparations and procedures required for software installation.

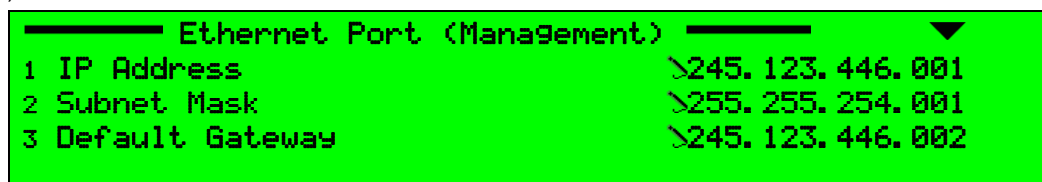
A.1 Ellipse Setup IP



NOTE

Configure the Ellipse IP Management Port according to local network specifications.

The encoder IP Management is configured from the front panel by selecting **Root→Configuration→Unit→System→Ethernet Management Port** (see the following figure):



The user must set the following IP Management parameters: IP Address, Subnet Mask, and Default Gateway.

A.2 PC FTP Application

There are many PC software applications that support FTP. Software download in this document is performed using the built-in MS Windows FTP utility.



NOTE

Viewing the Ellipse software version is available through the front panel:

Root→Configuration→Unit→System→Version Information (see paragraph 11.3.2) or the Web Manager (select the **Unit→System** tabs).

A.3 Download Preparations

Before beginning to download the new software version, it must be located in the PC. The software version is sent by the company as a compressed RAR file. Once receiving the RAR file, perform the following:

1. Create a temporary folder under **C:\tmp**.
2. Copy and extract the RAR file to the new folder.

A.4 Loading the Software through FTP

To open an FTP session, perform the following:

1. Click **Start**. The **Start Menu** is displayed.
2. From the **Start Menu** click **Run**. The **Run** dialog box is displayed.



Figure A-1: Start Menu→Run

3. Type '**cmd**' in the combo-box and click **OK**. The Terminal window is displayed.

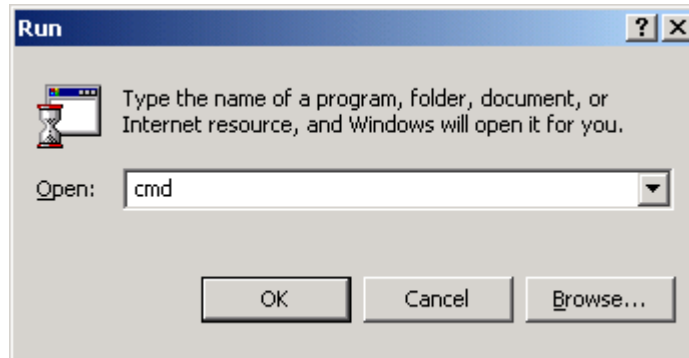


Figure A-2: 'Run' Dialog Box

4. Type '**ftp <Ellipse Management IP address>**' and press **[Enter]**. The FTP session is displayed.

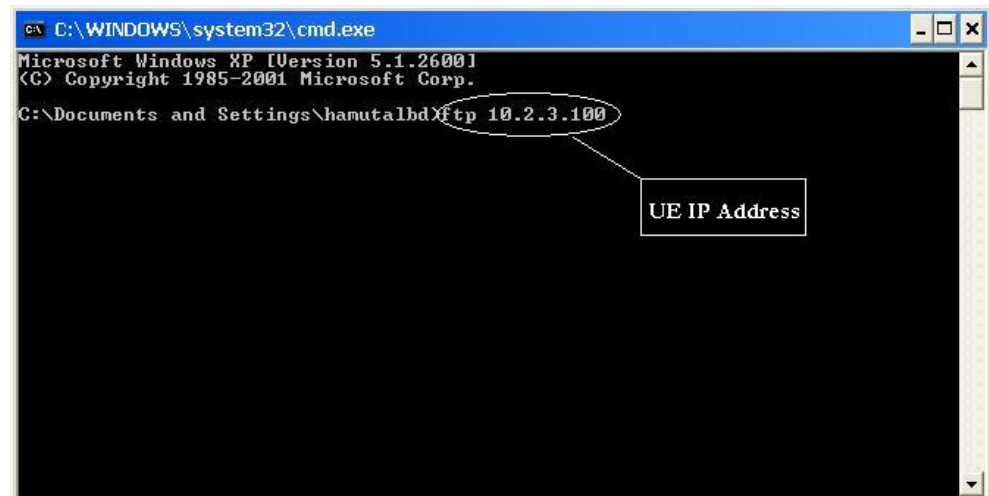
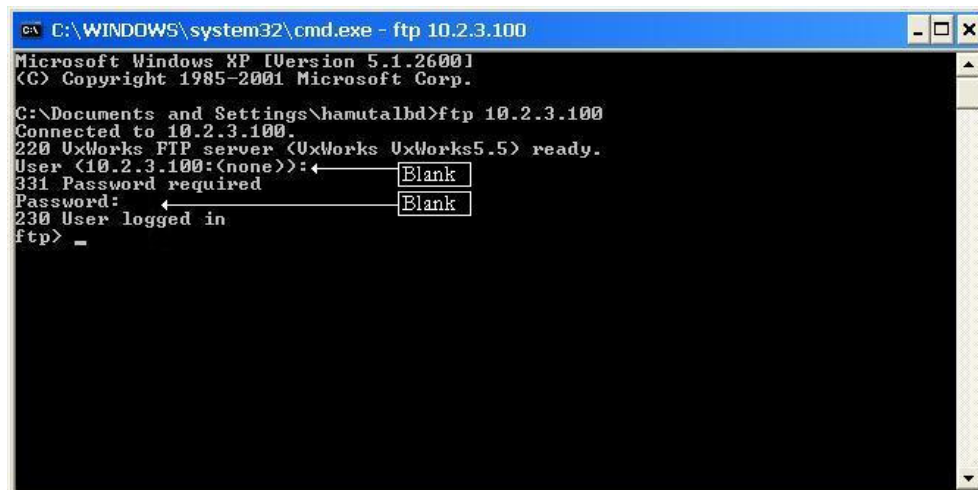


Figure A-3: FTP Session Display

A.4.1 Logon

1. Log on to the Ellipse with the user name and password, both are initially empty for the encoder.
2. Reply with **[Enter]** for both user and password requests.



```
C:\WINDOWS\system32\cmd.exe - ftp 10.2.3.100
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\hanutalhd>ftp 10.2.3.100
Connected to 10.2.3.100.
220 UxWorks FTP server (UxWorks UxWorks5.5) ready.
User (10.2.3.100:(none)): Blank
331 Password required
Password: Blank
230 User logged in
ftp> _
```

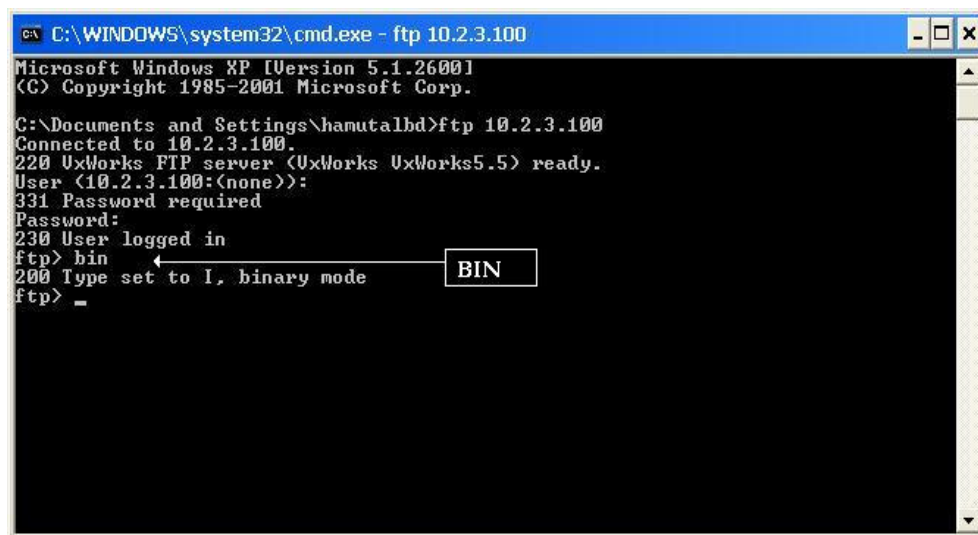
Figure A-4: FTP Session Display – Username and Password



NOTE

If the user configures the FTP server with the username and password, they must reply with username and password information and not with **[Enter]**.

3. After connecting to the Ellipse through FTP, type 'bin' and click **[Enter]**.



```
C:\WINDOWS\system32\cmd.exe - ftp 10.2.3.100
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\hanutalhd>ftp 10.2.3.100
Connected to 10.2.3.100.
220 UxWorks FTP server (UxWorks UxWorks5.5) ready.
User (10.2.3.100:(none)):
331 Password required
Password:
230 User logged in
ftp> bin
200 Type set to I, binary mode
ftp> _
```

Figure A-5 : FTP Session Display – Bin

A.4.2 Delete Encoder's Database

Before loading the new database, the user must delete the existing database and factory default presets. To do so, perform the following:



NOTES

Starting from SW v2.0, the user is not required to delete the database. In other words, if the user updates SW v2.0 (or higher) to any higher SW version, the user does not have to delete the current database (e9k.db).

When loading the new software, the existing database is updated according to the features and capabilities. This allows maintaining previously saved configuration settings, updated to the features and capabilities of the new SW version.

1. After accessing the unit through FTP, view the files in the '**cd config**' directory (using the command LS) by simply typing the directories names (see Figure A-6).

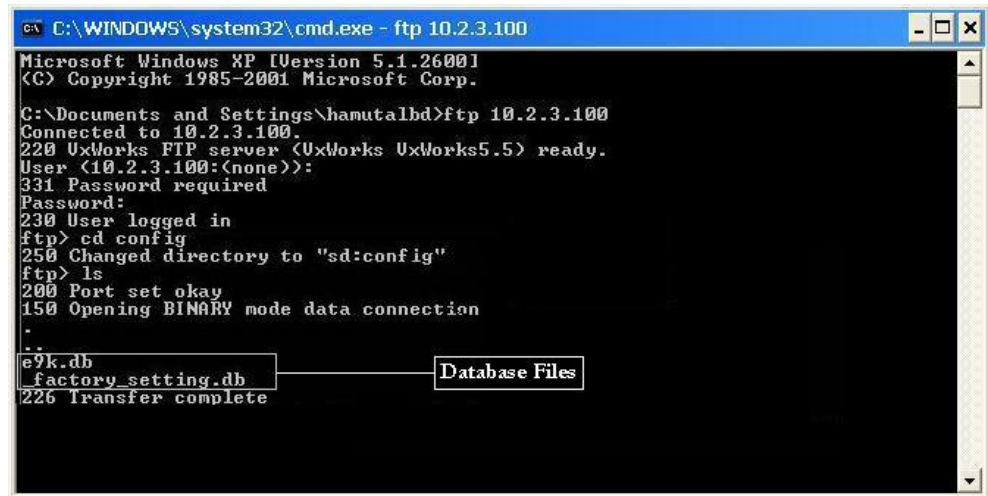
```

C:\WINDOWS\system32\cmd.exe - ftp 10.2.3.100
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\hamutalhd>ftp 10.2.3.100
Connected to 10.2.3.100.
220 UxWorks FTP server (UxWorks UxWorks5.5) ready.
User (10.2.3.100:(none)):
331 Password required
Password:
230 User logged in
ftp> cd config
250 Changed directory to "sd:config"
ftp> ls
200 Port set okay
150 Opening BINARY mode data connection
-
e9k.db
_factory_setting.db
226 Transfer complete
  
```

Figure A-6: FTP Session Display – CD Config and LS Folders

2. Locate the *e9k.db* and *_factory_setting.db* database files. In the previous example, these files are located under **config** directory (see Figure A-7).



```

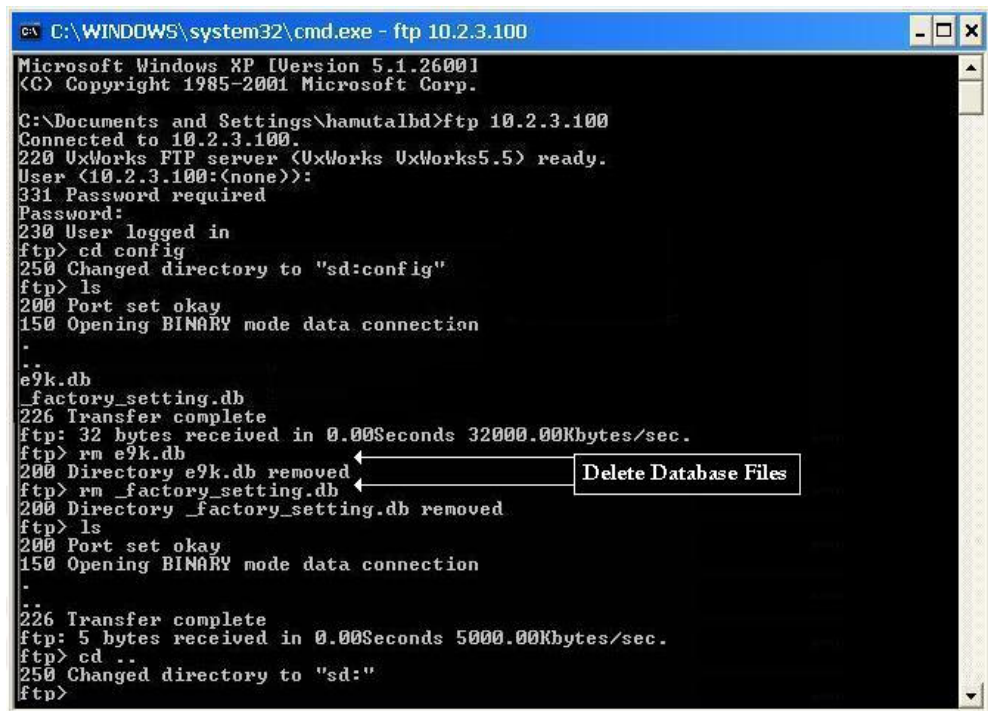
C:\WINDOWS\system32\cmd.exe - ftp 10.2.3.100
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\hamutalbd>ftp 10.2.3.100
Connected to 10.2.3.100.
220 UxWorks FTP server (UxWorks UxWorks5.5) ready.
User (10.2.3.100:(none)):
331 Password required
Password:
230 User logged in
ftp> cd config
250 Changed directory to "sd:config"
ftp> ls
200 Port set okay
150 Opening BINARY mode data connection
-
e9k.db
_factory_setting.db
226 Transfer complete

```

Figure A-7: FTP Session Display – Database Files

3. Delete the e9k.db and _factory_setting.db files. To do so, type the command 'rm' with the file name (for example, 'rm e9k.db'). Figure A-8 shows file removal.



```

C:\WINDOWS\system32\cmd.exe - ftp 10.2.3.100
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\hamutalbd>ftp 10.2.3.100
Connected to 10.2.3.100.
220 UxWorks FTP server (UxWorks UxWorks5.5) ready.
User (10.2.3.100:(none)):
331 Password required
Password:
230 User logged in
ftp> cd config
250 Changed directory to "sd:config"
ftp> ls
200 Port set okay
150 Opening BINARY mode data connection
-
e9k.db
_factory_setting.db
226 Transfer complete
ftp: 32 bytes received in 0.00Seconds 32000.00Kbytes/sec.
ftp> rm e9k.db
200 Directory e9k.db removed
ftp> rm _factory_setting.db
200 Directory _factory_setting.db removed
ftp> ls
200 Port set okay
150 Opening BINARY mode data connection
-
226 Transfer complete
ftp: 5 bytes received in 0.00Seconds 5000.00Kbytes/sec.
ftp> cd ..
250 Changed directory to "sd:"
ftp>

```

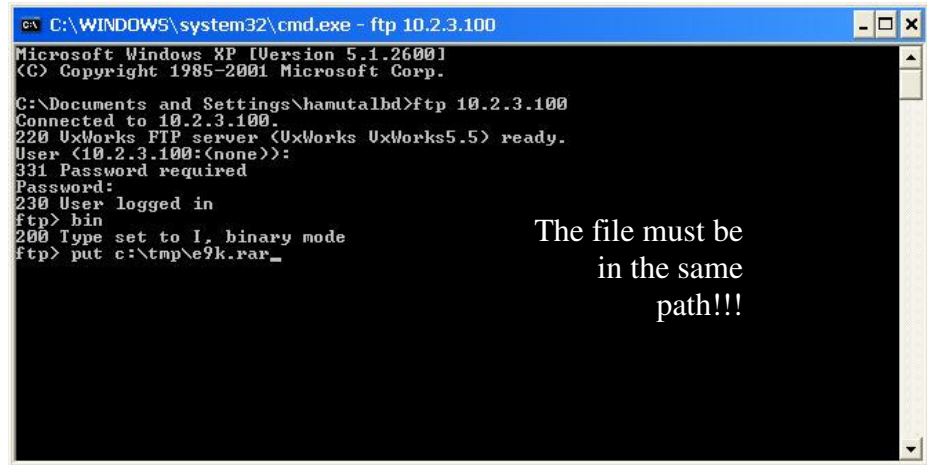
Figure A-8: FTP Session Display – Removing Database Files

4. Verify the removal of the files by returning to the files' previous location once again (in this example, the *config* folder) and verify that the files are removed.
5. Type 'cd ..' to return to the root directory of the encoder. Proceed with loading the file (see paragraph A.4.3).

A.4.3 Loading the File

To load a source file to the Ellipse from a local PC, perform the following:

1. Type **put** with the location of the new RAR file (in the **C:\tmp** folder, for example 'put C: \tmp\e9k.rar'). Click [Enter].



```

C:\WINDOWS\system32\cmd.exe - ftp 10.2.3.100
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\hamutalbd>ftp 10.2.3.100
Connected to 10.2.3.100.
220 UxWorks FTP server (UxWorks UxWorks5.5) ready.
User (10.2.3.100:(none)):
331 Password required
Password:
230 User logged in
ftp> bin
200 Type set to I, binary mode
ftp> put c:\tmp\e9k.rar_

```

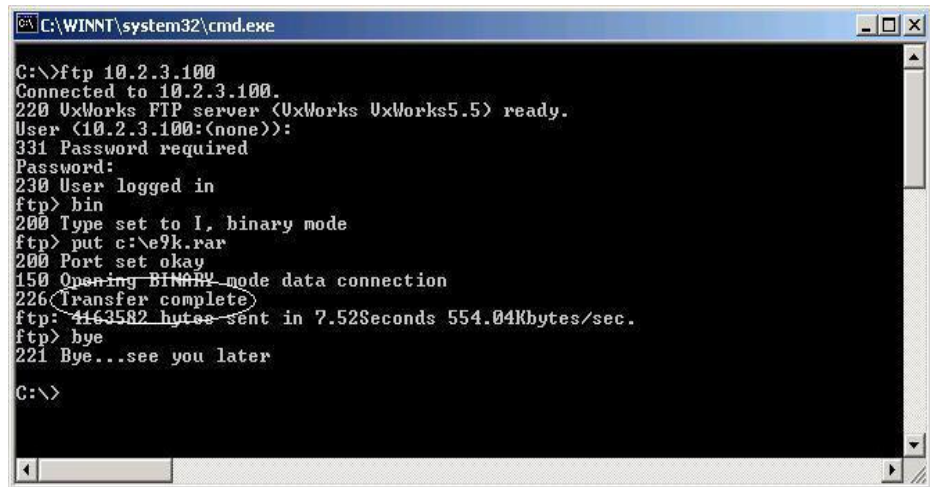
The file must be in the same path!!!

Figure A-9: -* Session Display – File Location

2. Software download is divided into two parts:

- a. Download software using the FTP.

The download phase can last up to several minutes. This phase is complete once the user receives a relevant message. Type **'Bye'** to exit the FTP session.



```

C:\WINNT\system32\cmd.exe
C:\>ftp 10.2.3.100
Connected to 10.2.3.100.
220 UxWorks FTP server (UxWorks UxWorks5.5) ready.
User (10.2.3.100:(none)):
331 Password required
Password:
230 User logged in
ftp> bin
200 Type set to I, binary mode
ftp> put c:\e9k.rar
200 Port set okay
150 Opening BINARY mode data connection
226 Transfer complete
ftp> 4463582 bytes sent in 7.52Seconds 554.04Kbytes/sec.
ftp> bye
221 Bye...see you later

C:\>

```

The file must be in the same path!!!

Figure A-10: FTP Session Display – Software Download Complete

- b. Extract the downloaded software into the device

After download is complete, the user must reboot the device to enable the extraction of the new software into the device. This phase can last up to 10 minutes. Once the extraction is complete, the device reboots itself. After a second boot, download is complete.

This appendix details the preparations and procedures required for cloning a database of a Ellipse device through the FTP session. This procedure is relevant for cloning the configuration of a single encoder into all the encoders within the group.

B.1 Ellipse Setup IP

Database cloning is performed when the encoders are already operative. Therefore, the IP definitions are already configured. To extract the IP information of the requested encoder, access the IP management menu of the encoder (see paragraph 11.3.4.1).

B.2 Download Preparations

Before beginning to clone the new database into the encoder, the database file must be located in the PC. The database file (*.db) is extracted from the encoder unit itself. Once extracting the database file, perform the following:

1. Create a temporary folder under **C:\tmp**.
2. Copy the *.db file to the new folder.

B.3 PC FTP Application

There are many PC software applications that support FTP.

Database updating is performed by using the built-in MS Windows FTP utility.

B.4 Updating Database through FTP

To open an FTP session, perform the following:

1. Click **Start**. The **Start Menu** is displayed.
2. From the **Start Menu** click **Run**. The **Run** dialog box is displayed.

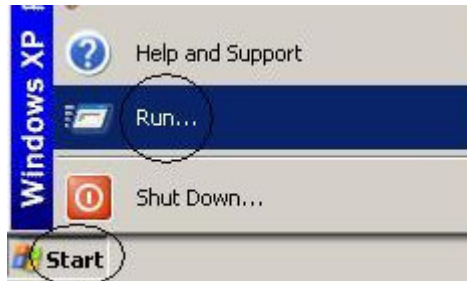


Figure B-1: Start Menu→Run

3. Type '**cmd**' in the combo-box and click **OK**. The Terminal window is displayed.

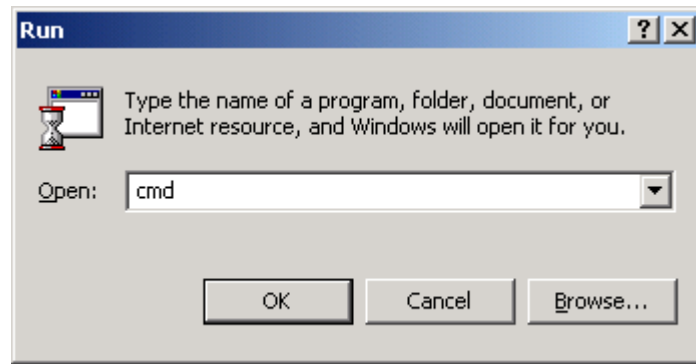


Figure B-2: Run Dialog Box

4. Type '**ftp <Ellipse Management IP address>**' and press **[Enter]**. The FTP session is displayed.



NOTE

The IP address is the Ellipse address to be updated.

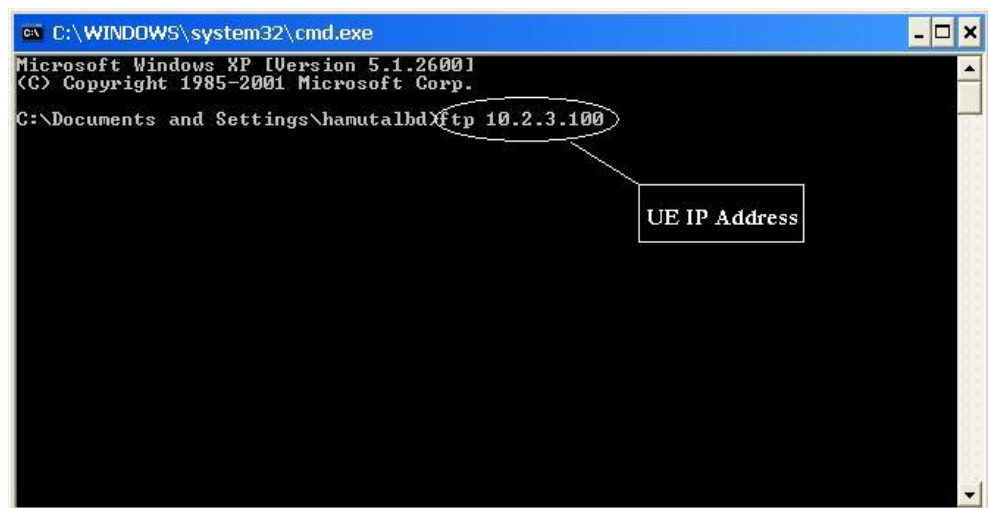
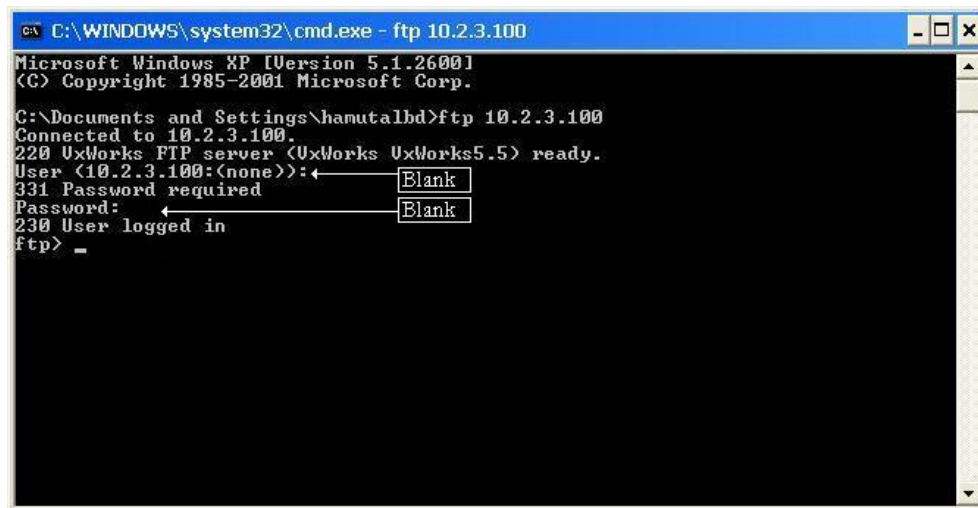


Figure B-3: FTP Session Display

B.4.1**Logon**

1. Log on to the Ellipse with the user name and password, both are initially empty for the encoder.
2. Reply with **[Enter]** for both user and password requests.



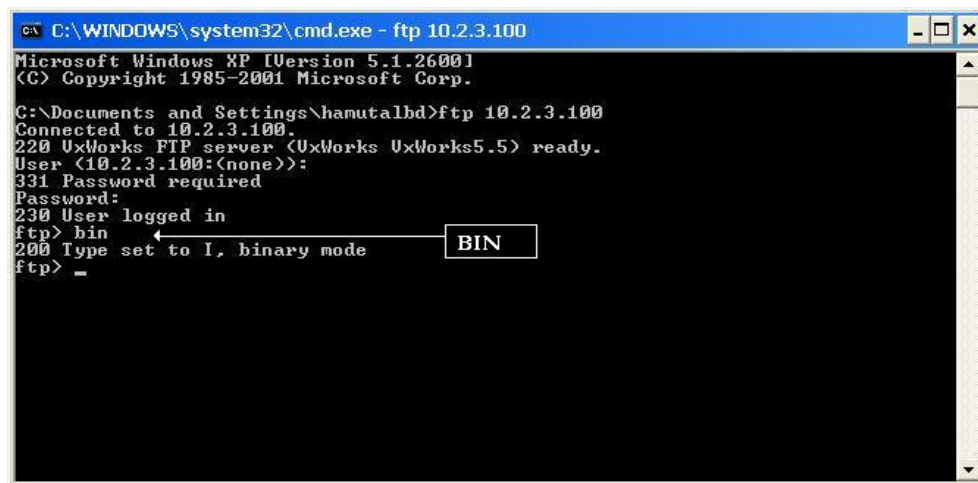
```
C:\WINDOWS\system32\cmd.exe - ftp 10.2.3.100
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\hamutalbd>ftp 10.2.3.100
Connected to 10.2.3.100.
220 UxWorks FTP server (UxWorks UxWorks5.5) ready.
User (10.2.3.100:(none)):
331 Password required
Password:
230 User logged in
ftp> _
```

Figure B-4: FTP Session Display – Username and Password**NOTE**

If the user configures the FTP server with the username and password, they must reply with username and password information and not with **[Enter]**.

3. After connecting to the Ellipse through FTP, type 'bin' and click **[Enter]**.



```
C:\WINDOWS\system32\cmd.exe - ftp 10.2.3.100
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\hamutalbd>ftp 10.2.3.100
Connected to 10.2.3.100.
220 UxWorks FTP server (UxWorks UxWorks5.5) ready.
User (10.2.3.100:(none)):
331 Password required
Password:
230 User logged in
ftp> bin
200 Type set to I, binary mode
ftp> _
```

Figure B-5: FTP Session Display – Bin

B.4.2 Cloning the File

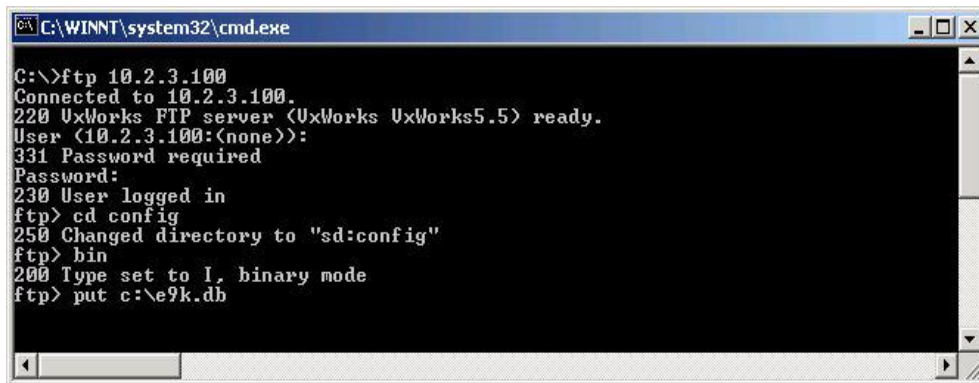


NOTE

When cloning a database, one unit's database overrides another unit's database. Thus, the database file (e9k.db) must not to be deleted.

To clone a source database file to the Ellipse from a local PC, perform the following:

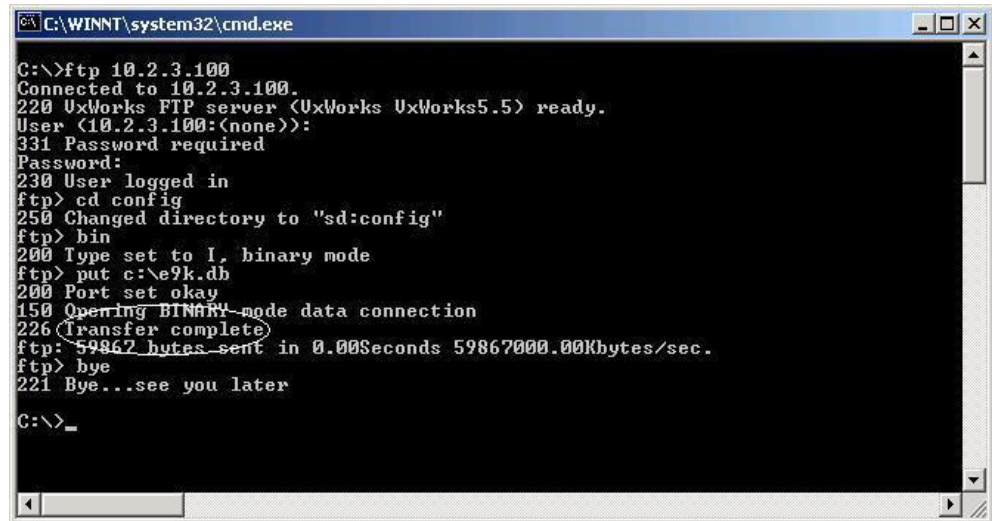
1. Type **'cd config'** to change the directory to config.
2. Type **put** with the location of the new database file (in the C:\tmp folder, for example **'put C: \tmp\ e9k.db'**). Click **[Enter]**.



```
C:\>ftp 10.2.3.100
Connected to 10.2.3.100.
220 UxWorks FTP server (UxWorks UxWorks5.5) ready.
User (10.2.3.100:(none)):
331 Password required
Password:
230 User logged in
ftp> cd config
250 Changed directory to "sd:config"
ftp> bin
200 Type set to I, binary mode
ftp> put c:\tmp\ e9k.db
```

Figure B-6: FTP Session Display – File Location

3. The Database cloning is divided into two parts:
 - a. Download Database using the FTP
The Download can last up to several minutes. This phase is complete once the user receives a relevant message.
 - b. Extract the downloaded database into the device
After download is complete, the user must reboot the device to enable the extraction of the new database into the device.
After the reboot, download is complete.
4. Type **'Bye'** to exit the FTP session.



```
C:\WINNT\system32\cmd.exe
C:\>ftp 10.2.3.100
Connected to 10.2.3.100.
220 UxWorks FTP server (UxWorks UxWorks5.5) ready.
User (10.2.3.100:(none)):
331 Password required
Password:
230 User logged in
ftp> cd config
250 Changed directory to "sd:config"
ftp> bin
200 Type set to I, binary mode
ftp> put c:\e9k.db
200 Port set okay
150 Opening BINARY mode data connection
226 Transfer complete
ftp: 59867 bytes sent in 0.00Seconds 59867000.00Kbytes/sec.
ftp> bye
221 Bye...see you later

C:\>_
```

Figure B-7: FTP Session Display – Software Download Complete

NOTE



The procedure updates only a single encoder simultaneously.

Appendix C

Audio Pass-Through Schemes Set-Up

The audio pass-through coding schemes allow the user to transmit an audio stream without encoding it. This coding scheme is useful for previously-encoded audio streams or for maintaining audio quality when the user can afford the required bandwidth (usually measured is Mb instead of Kb).

Transmitting pass-through audio streams through the Ellipse requires an external synchronization source between the Ellipse and any other equipment (such as the Dolby encoder that sends the audio stream to the Ellipse).

To synchronize the equipments, the user may perform one of the following:

- **External Clock Source** - Set the Ellipse system clock to External. Synchronization is performed between the Ellipse and the external equipment according to an external clock source (see details in paragraph 11.3.3).
- **Ellipse External Synchronization Interface** – The Ellipse is equipped with an external clock interface. The clock is available at all times.

Upon creating a direct connection between the external equipment and the Ellipse clock interface, the external equipment will be synchronized according to the Ellipse's clock interface (see Figure C-1).



NOTE

The external synchronization interface is an AES3/EBBU transmitter at 48 KHz. The interface complies with IEC-60958 and EIAI-CP1202 standards.

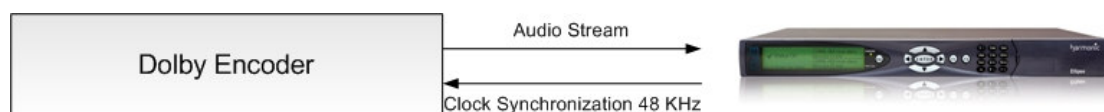


Figure C-1: Ellipse Clock Interface Synchronization

The Audio Pass-Through Schemes specific-parameters menus are: **Dolby AC-3** (see section 8.5.5), **Dolby-E** (see section 8.5.7), and **Linear PCM** (see section 8.5.8).



NOTE

The audio pass-through schemes are available upon permission only, with a correct license key.



DS9034PCX PowerCap with Crystal

www.maxim-ic.com

GENERAL DESCRIPTION

The DS9034PCX PowerCap is designed to be a lithium power source for nonvolatile timekeeping RAMs in Dallas Semiconductor's directly surface-mountable PowerCap Module (PCM) package. After a PowerCap module board has been soldered in place and cleaned, the DS9034PCX PowerCap is placed on top of the PCM board to form a complete PowerCap module package. The PowerCap is keyed to prevent incorrect attachment.

The DS9034PCX can be easily removed by inserting a regular screwdriver into a detachment feature and prying gently outward and upward to release the PowerCap from the PowerCap module board.

ABSOLUTE MAXIMUM RATINGS

Storage Temperature Range: -40°C to +85°C

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to the absolute maximum rating conditions for extended periods may affect device.

BATTERY CHARACTERISTICS

Nominal Voltage: 3V

Nominal Capacity: 130mAh

Chemistry: Li(CF)_x

CRYSTAL CHARACTERISTICS

Nominal Frequency: 32.768kHz

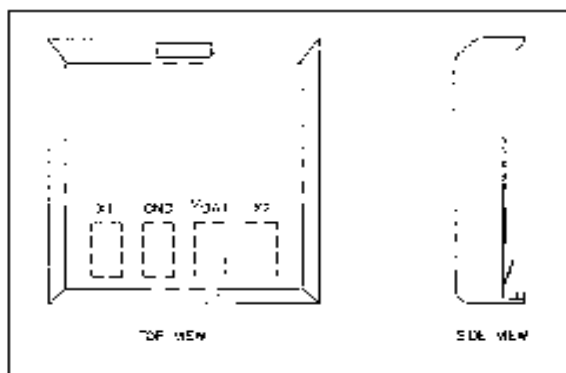
Load Capacitance: 6pF

FEATURES

- Provides 10 Years of Battery Backup Power for Nonvolatile Timekeeping RAMs in the PowerCap Module Package (PCM)
- Snaps Directly Onto Surface-Mounted PowerCap Module Boards
- Detachment Feature Allows Easy Removal
- Compatible with these 34-Pin PowerCap Module Boards:

DS1386P	DS1543P/YP/WP
DS1486P	DS1553P/YP/WP
DS1643P	DS1554P/YP/WP
DS1644P	DS1556P/YP/WP
DS1646P	DS1557P/YP/WP
DS1647P	DS1744P/YP/WP
DS1743P/WP	DS1746P/YP/WP
DS1251YP/WP	DS1747P/YP/WP
DS1248YP/WP	
DS1244YP/WP	

PACKAGE INFORMATION



PIN DESCRIPTION

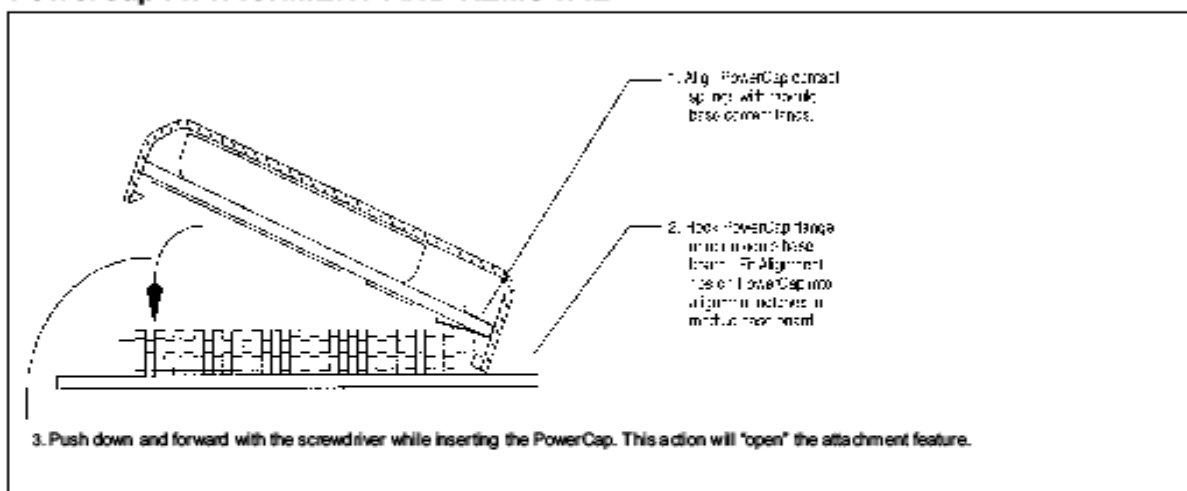
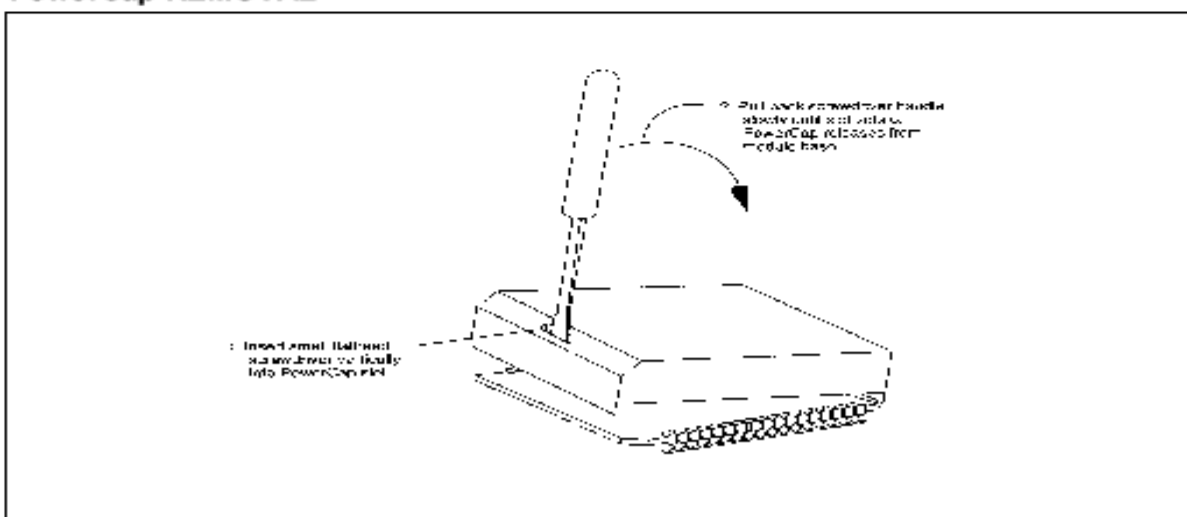
NAME	FUNCTION
X1, X2	32.768kHz Crystal Connections
V _{BAT}	+3V Battery Output
GND	Ground

ORDERING INFORMATION

PART	TEMP RANGE	VOLTAGE (V)	PIN-PACKAGE	TOP MARK*
DS9034PCX	0°C to +70°C	3.0	PCM	DS9034PCX
DS9034PCX+	0°C to +70°C	3.0	PCM	DS9034PCX
DS9034I-PCX	-40°C to +85°C	3.0	PCM	DS9034PCXI
DS9034I-PCX+	-40°C to +85°C	3.0	PCM	DS9034PCXI

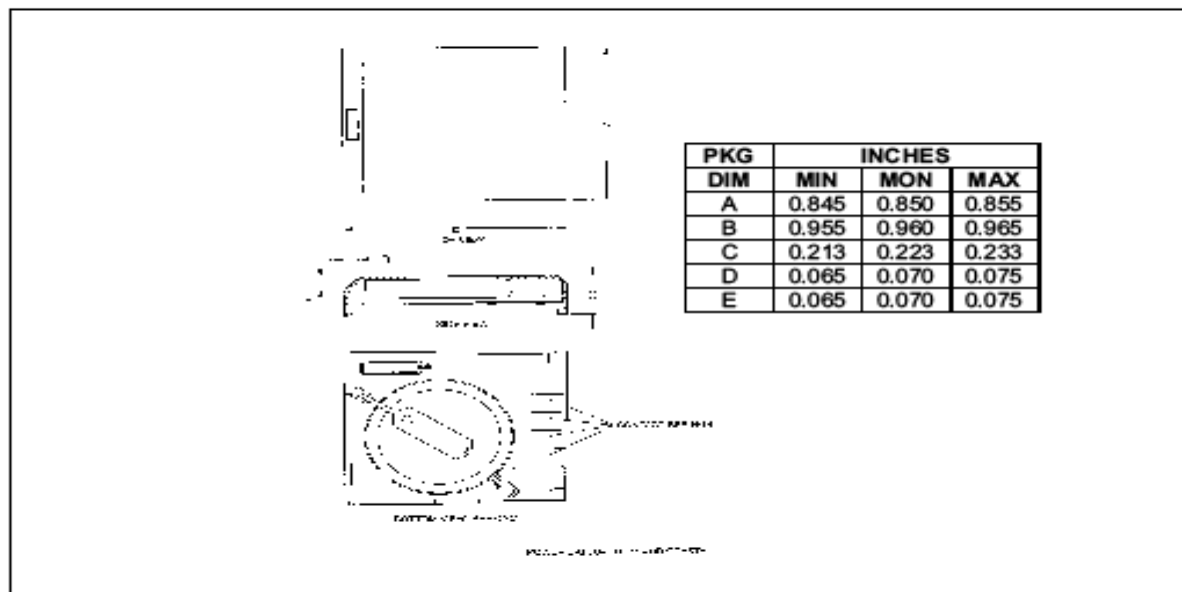
+ Denotes a lead-free/RoHS-compliant device.

* A "+" on the top of the package indicates a lead-free device.

PowerCap ATTACHMENT AND REMOVAL**PowerCap REMOVAL**

PACKAGE INFORMATION

(The package drawing(s) in this data sheet may not reflect the most current specifications. For the latest package outline information, go to www.maxim-ic.com/DallasPackInfo.)

**ATTENTION: BATTERY COMPONENT**

The DS9034PCX contains a lithium battery. Do not short, ground, or apply external voltages to the electrical portions of this device. Do not expose to temperatures over 85°C. Do not subject this device to any type of cleaning process. Store only in nonconductive containers. Failure to observe these precautions may result in battery discharge or decreased battery life.

3 of 3

Maxim/Dallas Semiconductor cannot assume responsibility for use of any circuitry other than circuitry entirely embodied in a Maxim/Dallas Semiconductor product. No circuit patent licenses are implied. Maxim/Dallas Semiconductor reserves the right to change the circuitry and specifications without notice at any time.

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This appendix details the installation and operation of the Ellipse Logo/Slide Creator.

E.1 General

The Ellipse Logo/Slide Creator is a dedicated tool for generating logos and slides files in the format required for insertion in the streams generated by the Ellipse Contribution Encoders.



NOTE

The Logo/Slide insertion feature is provided by the new High Definition (HD) MPEG-4 AVC video engine in the Ellipse 1000H/2000H Encoders.

Refer to section 7.3.5 (Video Engine / Logo Insertion) and to section 7.3.6 (Video Engine / Slide Insertion) for detailed information.

E.2 Logo/Slide Bitmap File Parameters

The Ellipse Logo/Slide source bitmap graphical file should comply with the following:

1. The logo/slide source picture should be a bitmap image file format (*.bmp).
2. The source picture size should follow with the video format and resolution:
(**PAL** – 720x576ppi, **NTSC** – 720x480ppi, **HD 720p** – 1280x720ppi or **HD 1020i** – 1280x1020ppi).

E.3 Ellipse Logo/Slide Creator Installation

Install the Ellipse Logo/Slide Creator according to the following steps:

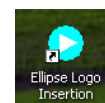


NOTES

The Installation Wizard file (setup.exe) is located in the "Ellipse Logo/Slide Insertion Setup" folder, provided in CD delivered with the unit.

The Ellipse Logo/Slide Creator is an MS Windows 3.x .NET Framework 2.0 tool. Upgrading tools for older versions of MS Windows and .NET Framework are also included in the "Ellipse Logo/Slide Insertion Setup" folder.

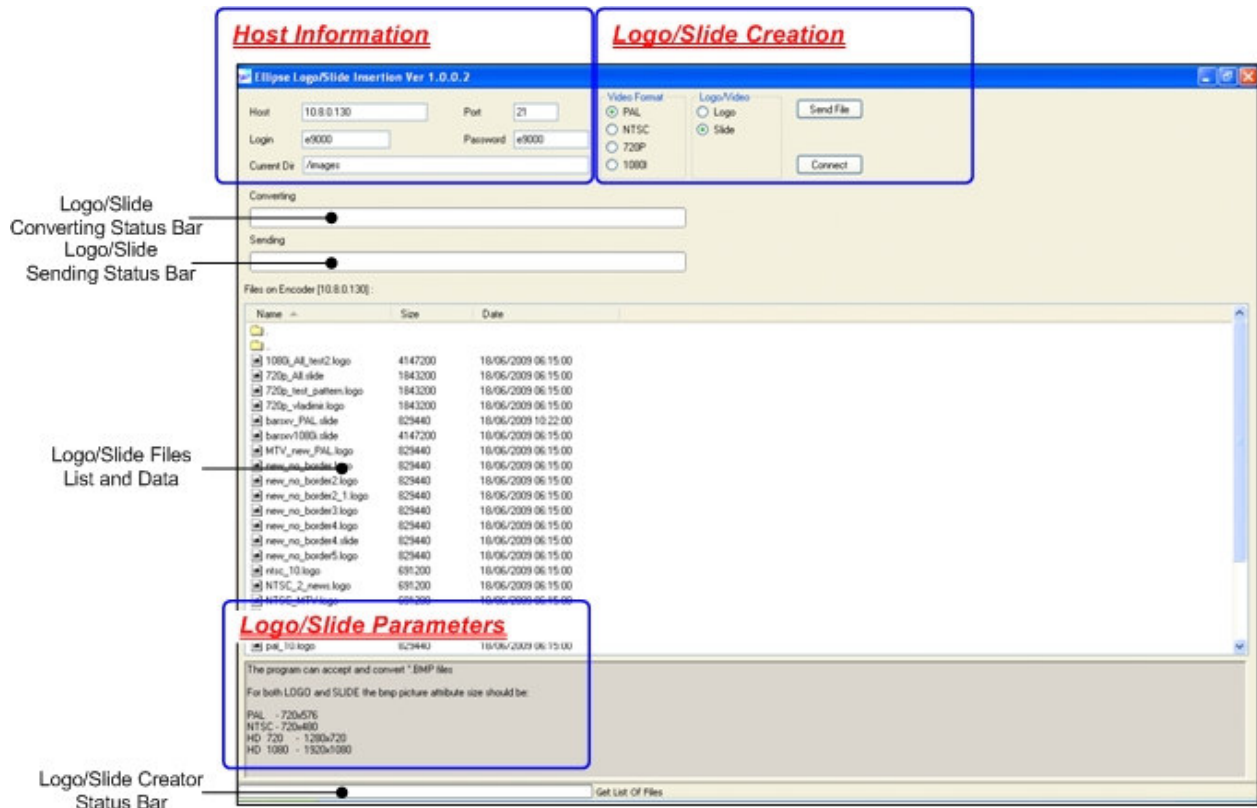
1. Activate the Setup application (setup.exe) in the "Ellipse Logo Insertion Setup" folder.
2. The Ellipse Logo/Slide Creator Installation wizard is displayed. Follow the instructions provided by the wizard to install the Ellipse Logo/Slide Creator on your computer.
3. Once the Ellipse Logo/Slide Creator is completed, an Ellipse Logo/Slide Creator Icon is displayed on the computer desktop.



E.4 Ellipse Logo/Slide Creator Operation

Create Logo/Slide files according to the following steps:

1. Click the Ellipse Logo/Slide Creator Icon to activate the tool. The Ellipse Logo/Slide Creator window is displayed:



2. Enter the Ellipse information in the **Host Information** area:

- Ellipse Ethernet IP address and port.
- Ellipse Login and Password
- Current directory location for the Logo/Slide files

CAUTION



The Ellipse Logo/Slide files is stored in the **/images** library in the Ellipse.

Trying to store them in any other place may result in unpredicted responses of the system.

3. Press **[Connect]** button in the **Logo/Slide Creation** area to display the list of logo/slide files available in the Ellipse. The list of files are displayed in the the **Logo/Slide List and Data** area.



NOTES

The Ellipse Logo/Slide Creator tool receives a bitmap source files (*{name}.bmp*) and creates bitmap converted files using the original name and adding the type (*{name}.logo/slide*).

The source bitmap resolution should match the picture attribute parameters (size, resolution, etc...), as detailed in paragraph E.2 above.

4. Select the Video Format (**PAL/NTSC/720P/1080I**) and type of file (**Logo/Slide**) in the **Logo/Slide Creation** area.
5. Press [**Send File**] button to select the source for the Logo/Slide, convert it to the logo/slide format and save it in the Ellipse Logo/Slide directory.



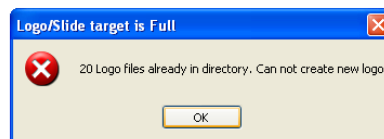
NOTES

The **Logo/Slide Converting Status** bar and the **Logo/Slide Sending Status** bar displays information on the relevant process performed.

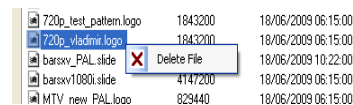
The **Logo/Slide Creator Status** bar displays the Creator status.

The Ellipse **/images** directory can store up to 20 graphical files of each type (Logo or Slide type).

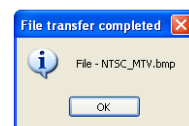
Trying to create and to add a new file to a full directory is not accepted by the system and generates a failure message.

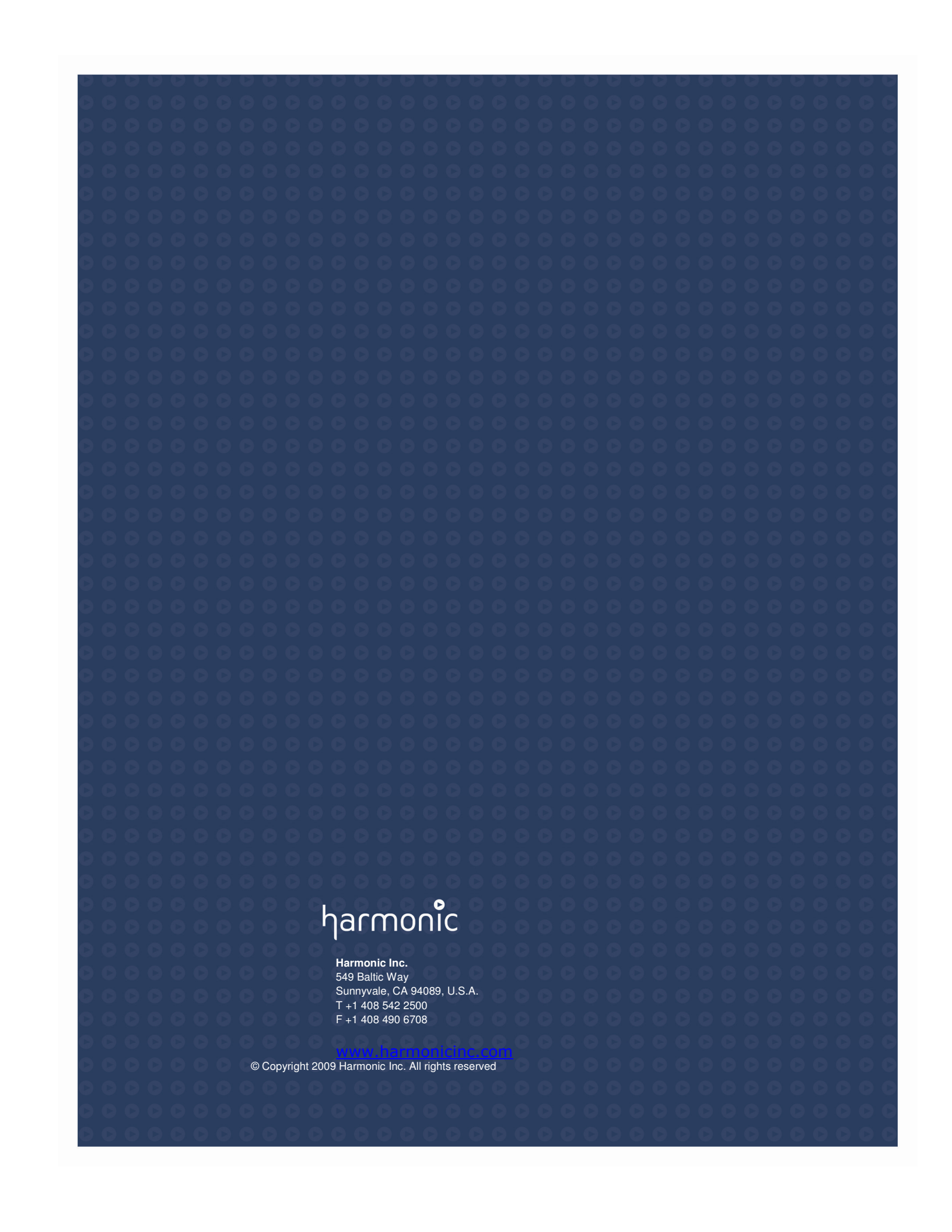


To delete a file from the directory, right click the file name and select delete option in the menu displayed. A delete confirmation message is displayed to confirm the deletion.



6. At the end of the Logo/Slide conversion and transfer process, a message is displayed to confirm the successful completion of the logo/slide file creation.





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