SE-6301, SE-6301R, SE-6401, SE-6401R, SE-6501, SE6501A, SE-6501R, SE-6601, SE-6601A, SE-6601R MPEG-4 AVC Product Manual

Version 1.0





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SE-6301, SE-6301R, SE-6401, SE-6401R, SE-6501, SE6501A, SE-6501R, SE-6601A, SE-6601R MPEG-4 AVC

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Introduction



This product manual provides instructions and reference information for the proper installation and operation of the Motorola SE-6x01X.

Note: As shown in Table 1: Encoder Features where x = 3, 45, or 6 and X = R or A.

Encoders Features

The following features are associated with the specific encoders listed.

Table 1: Encoder Features

Description	_	R	_	R	_	₹	R	_	۲	R
	30,	30	40	40	50	501	501	601	601	601
	9- 11- 11-	Н Н Н Н	9- 11-	9- 11- 11-	9 Щ	9- 11	9- 11- 11-	9- 11- 11- 11- 11- 11- 11- 11- 11- 11- 1	9- 11- 11- 11- 11- 11- 11- 11- 11- 11- 1	9- Ш
	0	О	Ю	О	О	о О	О	0	0	0
Inputs										
SDI/HD-SDI/3G-SDI/Dual	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
IP	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
ASI	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
ATSC RF		Std.		Std.			Std.			Std.
Outputs										
IP	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
ASI						Std.			Std.	
Features										
PIP	Opt.	Opt.	Opt.	Opt.	Std.	Std.	Std.	Std.	Std.	Std.
CFCBR	Opt.	Opt.	Opt.	Opt.	Std.	Std.	Std.	Std.	Std.	Std.
STATMUX					Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
HD to SD	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
AVCDEC	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
Audio		_								

Table	e 1: Enc	oder Fe	atures							
Description	SE-6301	SE-6301R	SE-6401	SE-6401R	SE-6501	SE-6501A	SE-6501R	SE-6601	SE-6601A	SE-6601R
MP2 enc	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
AC-3 pass through	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
HE-AAC/LC-AAC	Opt.	Opt.	Opt.	Opt.	Std.	Std.	Std.	Std.	Std.	Std.
DD2	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
DD+	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
AC3 to AAC	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
AC3 to DD+	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.

Feature Definitions

The features available for the encoders are defined as follows.

1	able 2: Encoder Features
	Description
Inputs	SDI/HD-SDI/3G-SDI/Dual: Serial Digital Baseband inputs. 3G-SDI and Dual for 1080P support
	IP – for MPEG-2 compressed transport stream inputs
	ASI – Asynchronous serial input for compressed MPEG-2 transport streams
	ATSC RF – for direct reception of ATSC off air feeds
Outputs	IP- MPEG-2 over UDP transport stream outputs
	ASI -MPEG-2 over ASI transport stream outputs
Features	
PIP	Low res proxy (PIP)
CFCBR	Constrained Fidelity CBR (capped VBR feature)
STATMUX	StatmuxIP mode
HD to SD	1080i/29.97 or 720P59.94 to 480i down conversion
AVCDEC	Decode AVC inputs
MP2 enc	MPEG-2 encode
AC-3 pass through	Dolby Digital pass through – Pass through compressed Dolby Digital streams
HE-AAC/LC-AAC	HE-AAC/LC-AAC stereo encoding
	Note: AAC is now being rebranded by Dolby as Dolby Digital Pulse
DD2	Dolby Digital 2.0 encode from baseband inputs
DD+	Dolby Digital Plus Pro stereo encode from baseband inputs
AC3 to AAC	Dolby Digital transcode to AAC (Dolby Digital Pulse). 5.1 surround and stereo 2.0
AC3 to DD+	Dolby Digital transcode to Dolby Digital Plus Pro. 5.1 surround and stereo 2.0

This chapter has the following topics.

- Using This Manual page 4
- Assistance page 4
- Encoder Overview page 6
- Front Chassis Description page 10
- Back Chassis Description page 11

Using This Manual

The following lists the contents of each chapter and appendix.

Chapter / Appendix	Description
Chapter 1 on page 1	The Introduction describes the SE-6x Series encoder encoders and their
	functions.
Chapter 2 on page 13	The encoder Installation outlines procedures for the proper installation.
Chapter 3 on page 21	The encoder Configuration provides step-by-step instructions on how to
	start and configure the SE-6x Series encoder multi-format AVC encoder.
Chapter 4 on page 27	The Menu Orientation and Operation describes the user interfaces and
	operational controls of the SE-6x Series encoder.
Chapter 5 on page 103	The Maintenance and Troubleshooting provides information on
	maintaining the SE-6x Series encoder functionality and troubleshooting.
Appendix A on page 107	This appendix provides encoder specifications.
Appendix B on page 111	This appendix provides encoder defaults.
Appendix C on page 115	This appendix provides a list of common terms used in this guide.

Assistance

If You Need Help

_ . . _

To get assistance with your Motorola product or solution, or to access learning materials, use one of the following channels:

Technical Assistance Center (TAC) provides access to technicians 24 hours a day, 7 days a week for all products. Contact the TAC at 888-944-HELP (888-944-4357) or dial direct 847-725-4011.

Motorola Online (MOL) provides technical documentation and low-priority issue creation and tracking at <u>http://</u> <u>businessonline.motorola.com</u> (PON and BSR users see Extranet Support below).

Digital Configuration Management provides access to software downloads and release notes. Or you can order from our digital configuration management servers by going to <u>http://digitalcm.motorola.com</u> (PON users see Extranet Support below).

Learning Portal provides self-paced product training and course descriptions of instructor-led training classes at <u>www.motorolatraining.com</u>. In many cases training can be given at your location.

Extranet Support provides access to technical publications for **PON (FTTx)** users at <u>http://</u> <u>compass.motorola.com/go/ftth site</u>; and software downloads and technical publications for **BSR** users at <u>http://</u> <u>bsr.motorola.com</u>.

Table 4. Assistance relephone numbers				
Country	International Toll-free	Country	International Toll-free	
	number		number	
Belgium	800-72-163	Luxembourg	0-800-2-5310	
Denmark	80-88-6748	Netherlands-Holland	0-800-022-0176	
Finland	0-800-114-263	Norway	800-15-670	
France	0-800-90-7038	Poland	00-800-111-3671	
Germany	0-8001873019	Portugal	800-81-3461	
Hungary	06-800-18164	Spain	900-99-1771	
Ireland	1-800-55-9871	Sweden	020-79-0241	
Israel-Barak	1-80-931-5435	Switzerland	0-800-561-872	

 Table 4: Assistance Telephone Numbers

Country	International Toll-free number	Country	International Toll-free number
Israel-Bezeq	1-80-942-9181	United Kingdom	0-800-404-8439
Israel-Golden	1-80-925-2071	United States	888-944-4357
Italy	800-788-304		

Table 4: Assistance Telephone Numbers

If there are any issues contacting the TSCC please contact us at toll number +1 847-725-4011.

Calling for Repairs

If repair is necessary, call Motorola's Repair Facility at **1-800-642-0442** for a Return for Service Authorization (RSA) number before sending the unit. The RSA number must be prominently displayed on all equipment cartons. The Repair Facility is open from 8:00 AM to 5:00 PM Central Time, Monday through Friday.

For after hours, or international customers, a request for an RSA can be submitted via e-mail to nogrepaircenter@motorola.com. Please include the following information in the e-mail:

- Shipping address (for returning the unit(s) to you)
- Contact name and phone number
- Serial number(s) of unit(s)
- Detailed description of problem(s) for each unit

When shipping equipment for repair, follow these steps:

- 1. Pack the unit securely.
- 2. Enclose a note describing the exact problem.
- 3. Enclose a copy of the invoice that verifies the warranty status.
- 4. Ship the unit **PREPAID** to the address indicated on the RSA form provided by Motorola.

For customers in **Europe**, the **Middle East**, and **Africa (EMEA)** contact the Technical Assistance Centre (TAC), which offers the following high levels of services:

- Toll-free phone numbers where available see list above
- 24 hours a day, 7 days a week, multilingual technical assistance (Spanish, German, and French)
- Central tracking of all issues utilizing the Clarify Call Management System
- Automated escalation management, both technical and issue related, if necessary through to the high-level development teams or senior account management.

The e-mail address for the Call Management System is: BCS.Helpdesk@motorola.com.

If the toll-free number fails, please use +1 847 725 4011.

The new repair process enables you to track your issue by quoting your unique system ID or Customer Service Report number.

Encoder Overview

This section describes the specification of the main functional blocks within the encoder.

The Motorola SE-6x Series encoder encoder platform is designed for the delivery of full-resolution MPEG-4 Advanced Video Coding (AVC) high-definition and standard definition compressed video via an MPEG-2 transport stream. The encoder supports a comprehensive suite of advanced compression tools, as defined by the MPEG-4 AVC High Profile @ Level 3/4 standard.

MPEG-4 AVC has emerged as the next compression standard for high-definition DVD, digital TV, broadcast, and streaming video applications. The SE-6x Series encoder is designed for broadcastquality video applications in which AVC streams are multiplexed into MPEG-2 transport streams, making it easy to co-exist with and deploy into an existing video infrastructure.

The following topics are discussed in this section:

- Video Compression
- Audio Compression
- Ancillary Signals
- Stream Descriptor Data

RF Reception

This RF module provides the latest generation of RF-reception technology to allow receipt of Advanced Television Systems Committee (ATSC) signals, which are then passed along to the Video Compression engine.

Note: RF module is fitted on platform variants with R, S, or T suffix, for example, SE-6601R.

Video Compression

The encoder utilizes the processing power of custom-built video acceleration hardware and the rich suite of AVC-standard software tools and options to deliver video at the lowest possible bit rates.

Video Compression	Description
AVC MP at L4 Compression	When a high-definition input is selected, the encoder supports
	AVC compression High Profile.
AVC MP at L3 Compression	When a standard definition input is selected, the encoder
	supports AVC compression High Profile
Motion Prediction Modes	The encoder has a powerful processing acceleration card based
	on FPGA technology. This enables the encoder to support a
	feature-rich motion prediction toolkit that provides:
	• P,B, and reference B frame support
	 ¹/₄ pixel interpolated prediction
	Weighted prediction
	Hierarchical search
	 16x16 and 8x8 block processing
Intra Prediction Modes	The encoder supports all the intra-estimation modes.
Rate Control	The encoder supports Constant Bit Rate (CBR) applications.
	Constrained Fidelity - CBR (capped VBR), and VBR
	(Statmux).

Table 5: Video Compression

Description
The GOP structure and repetition rates are controlled though
the encoder's intuitive user interface.
The encoder is designed to support Context Adaptive Binary
Arithmetic Coding (CABAC), the most powerful (and
complex) AVC entropy coding tool.
The simpler CAVLC (context adaptive variable length coding)
may be supported for some modes of operation.
Depending on the source format, the encoder auto selects field
or frame encoding mode.
The encoder supports Motion Compensated Temporal Filtering
(MCTF) technology, which is used for Video Pre-Processing
(VPP). See Video Pre-processing on page 7 for more
information.
The encoder incorporates an AVC de-blocking filter, which is
useful for dealing with difficult scenes that can overload an
encoder. When used, this feature provides graceful degradation
when faced with aggressive encoding scenarios.
The encoder can be configured to insert Instantaneous Decoder
Refresh (IDR) pictures at preset intervals.
The encoder-to-decoder processing delay is approximately two
seconds and is similar to high-end MPEG-2 systems.

Table 5: Video Compression

Video Pre-processing

The advanced models include a pre-processing module to augment the MCTF functionality that is standard on all units. The perceptual video processor (PVP) improves on the legacy technology by being able to accurately quantify and manage perceptual quality. The PVP utilizes original vision biology research that emanated from University of California, Berkeley campus. This patented technology allocates a huge processing resource towards supporting the Integrated Perceptual Guide (IPeGTM). This is a model that quantifies and maps perceptual significance, the central function that discriminates where processing should be targeted and at what strength. In short, the IPeG masking algorithm provides a metric of perceptual distortion and steers the processing towards preserving the texture and detail that the eye cares most, the net result is delivery of better pictures at lower bit rates

The PVP processing core that supports two complementary pre-processing elements. The two elements are, an Adaptive Detail Preservation (ADP) and 3Dimensional Noise Reducer (3DNR). The 3DNR is a combination spatial and temporal noise reducer that is very effective at reducing noise in areas that the eye can easily track. The other element is the Adaptive Detail Preservation (ADP) element that aims to preserve visually important detail and to attenuate the higher motion detail to which the eye is less sensitive.

In summary the ADP identifies and focuses the processing towards the unpredictable high energy detail that the eye doesn't closely track. The system is able to effectively and consistently preserve the detail that matters most to the human eye. The result is reduced complexity in the content presented to the compression core so that the encoder can then allocate its bit budget towards more valuable elements in the content. One very notable attribute is that the ADP suppresses quantization noise that is present in incoming feeds.

In summary, *3DNR process performs noise level estimation*, then factors in the perceptual sensitivity and modifies the noise layer to effectively subtract the sub-visual noise from the original. The result is very effective random noise reduction such that the encoder can then allocate its bit budget towards the more valuable visual elements.

Audio Compression

The encoder delivers audio using industry standard compression methodologies. Rather than using special purpose DSPs, audio compression is performed on the general purpose CPUs inside the encoder.

Table (6:	Audio	Compre	ession
10.010	•••			

Audio Compression	Description
MPEG-1 Layer II	The encoder has an embedded MPEG-1 layer II audio
	compression core that can process stereo audio.
HE-AAC	The encoder has an embedded Dolby Digital Pulse audio
	compression core that can process HE-AAC stereo audio.
	Note: Since Dolby acquired the original codec supplier "acquire technologies" and is in the process of rebranding the
	AAC functionality as Dolby Divital nules
LC-AAC	The encoder has an embedded audio compression Dolby
201110	Digital Pulse core that can process LC-AAC stereo audio.
	Note: Dolby acquired the original codec supplier's coding
	technologies and is in the process of rebranding the AAC
	functionality as Dolby Digital pules.
AC-3 Pass I hru	The encoder can pass through pre compressed AC-3 streams
	that are received over the serial digital, UDP, AISC, and ASI
Transcode AC-3 to Dolby Digital +	The encoder has an embedded AAC audio compression core (a
Pro	licensable option) that can transcode ΔC_{-3} to Dolby Digital
	Plus.
Transcode AC-3 to HE-AAC	The encoder has an embedded AAC audio compression core (a
	licensable option) that can transcode AC-3 to Dolby Digital
	Pulse (HE-AAC).
Dolby Digital	The encoder has an embedded Dolby Digital compression core
	(a licensable option) that can encode audio.
Dolby Digital + Pro	The encoder has an embedded Dolby Digital + Pro
	compression core (a licensable option) that can encode stereo
Transcode Dolby E to DD	from baseband inputs.
	antion) that can transcode Dolby E to Dolby (stereo and 5.1 are
	supported)
Transcode Dolby E to DD+	The encoder has an embedded compression core (a licensable
5	option) that can transcode Dolby E to Dolby Digital+ pro
	(stereo and 5.1 are supported).
Transcode Dolby E to HE-AAC	The encoder has an embedded compression core (a licensable
	option) that can transcode Dolby E to Dolby Pulse.

Note: The user interface contains references to AC-3 and Dolby Digital. They are the same. AC-3 is the name in the SMPTE standard. Dolby Digital is the proprietary Dolby name.

Ancillary Signals

In high-definition mode, the encoder is equipped to process and packetize EIA-708 ancillary data and into the transport stream. In standard definition mode, the encoder is equipped to process and packetize EIA-608 or EIA-708 closed caption and XDS ancillary data into the transport stream.

Stream Descriptor Data

The encoder produces a single program transport stream (SPTS) with audio, video, and ancillary data for delivery over MPEG-2 transport streams (MPEG-2 TS). The stream includes Program Specific Information (PSI) descriptors to allow a receiver to recognize and decode the contents of a stream.

The encoder sets the following basic PSI table information.

Table 7: PSI Information

PSI	Description	
Program ID (PID)	Uniquely identifies the program elementary streams.	
Program Map Table (PMT)	Identifies the programs available within the transport	
	stream.	
Program Association Table (PAT)	Identifies the PIDs within a program stream.	

Front Chassis Description

Figure 1 shows the encoder's chassis front elevation with the air intake which is used to avoid overheating. Do not block the air intake vent.



Figure 1: Front Chassis View

The following list describes each front chassis component.

LCD and Keypad	The front panel display shows the product model number, description, and networking settings for one of the Ethernet ports. Keypad functionality will be provided in a future release.
LED Status Indicators	The LED shows the status of several parts of the encoder as indicated in the following section.
Air Intake	To avoid overheating, do not block the air intake vent.

Status Section

Figure 2 shows the function of the status LEDs.



Reserved for future use

Figure 2: LED Status

Front Panel

Figure 3 shows the LCD display and operator keypad.



Figure 3: LCD Panel and Keypad

Back Chassis Description



Figure 4 shows the back chassis elevation.

The following list describes each Back Chassis component.

- Input Module Provides the video input function and discrete AES digital audio input function. SDI, HD-SDI or ASI Input – One BNC with active loop through is provided for the encoder's SDI video input and dual BNC for discrete AES audio inputs, as shown in Figure 5.
- 2. Valid Input LED A green LED is located just to the left of the each BNC connector. This LED indicates that the encoding module is powered up, as shown in Figure 5.



Figure 5: Input Module

Table 8: Input Module

PSI	Description
Video	Input video connector that serves as both SDI/HD-SDI and
	also ASI input.
LED	Green indicates that the encoding module is powered up.
AES (right)	AES audio input 2.
AES (left)	AES audio input 2.

- 3. Optional Card Location The optional ATSC tuner board or ASI output board is located here when the encoder is so configured.
- 4. USB Ports These connectors are not required for normal use (they may be used by service personnel for diagnostic and advanced control). Contact Motorola Technical Support for additional details.

- Console Connector This connector is not required for normal use (it may be used by service personnel for diagnostic and advanced control). Contact Motorola Technical Support for additional details.
- 6. Air Exhaust Back vents are provided for chassis air exhaust. Do not obstruct the vents, as this may cause chassis overheating.
- 7. AC (auto sensing 100 to 240V) Power Supply Unit or 7a. DC (auto sensing -40 to -60 VDC) Power Supply Unit.
- 9-pin D-type RS232 Serial Connector Port This connector is not required for normal use (it may be used by service personnel for diagnostic and advanced control). Contact Motorola Technical Support for additional details.
- 9. Ethernet Ports Four Ethernet ports are provided on the main chassis and are configurable via the GUI.
 - o Eth 0 is a Gigabit Ethernet port and can be used for streaming H.264 UDP/IP data.
 - o Eth 1 is a Gigabit Ethernet port and can be used for a redundant streaming H.264 UDP/IP data.
 - o Eth 2 is a Gigabit Ethernet port and can be used for streaming H.264 UDP/IP data.
 - o Eth 3 is a Gigabit Ethernet port and is typically used for control of the encoder.
- 10. Encoder label with serial number.

2

Encoder Installation

Overview

This chapter describes the basic procedures for the correct and safe installation of the SE-6x Series encoder. The following topics are discussed in this section.

- Equipment Arrival and Unpacking page 13
- Encoder Install page 14
- Rack Mounting page 14
- Cable Connections page 15
- Encoder Cooling page 17
- Power Provision page 17
- Safety Guidelines page 17
- Power On page 18

Equipment Arrival and Unpacking

When the encoder arrives, perform the following.

- Carefully unpack the boxes.
- Retain all packing materials and the boxes themselves.
- Check the contents of each shipping container against the packing slip.
- Notify Motorola immediately if something is missing or damaged.

Content

Unpack the encoder packing box and use the following checklist to verify that all items are included.

- SE-6x Series encoder Encoder chassis with front bezel (all software and hardware are preinstalled).
- Encoder power cord.
- RF Module.

- ASI output module (SE-6XXX/SE-6XXX encoders only).
- CD-ROM with software tools and a PDF file of the Release Notes and Product Manual (this manual).
- Rack mount hardware and instruction sheet.

Encoder Install

To install the encoder

- 1. Use a screw driver and mounting screws (not included) to secure the SE-6x Series encoder in the rack.
- 2. Connect the included power cord to the SE-6x Series encoder and power receptacle.
- 3. Verify that the unit powers up and LED is activated.
- 4. Connect the appropriate or desired input source for your application to the encoder.
- 5. If the encoder is installed within an IP video network, make the appropriate Ethernet connection as described on page 22.
- 6. If the RF module is installed, make the appropriate connection to the RF connector.

Note: RF Input is standard for the SE-6301R, SE-6301T, SE-6401R, SE-6401T, SE-6501R, SE-6501T, SE-6601R, and SE-6601T encoders.

ASI Output is standard.

- 7. If the ASI Output module is installed, make the appropriate connection to the ASI connector.
- 8. Review the remaining topics in this chapter to verify the install.

Note: If a different IP address is required for this encoder, refer to Network Parameters Page on page 88.

Rack Mounting

The SE-6x Series encoder requires one RU in a standard 19-inch rack. The unit can be rack mounted or attached securely to a standard rack shelf. Please note.

- Rack rails are provided.
- Shelf installation is recommended when the unit is installed in a mobile van or truck.

Cable Connections

For the ASI input connection, connect a standard DVB-ASI signal to the encoder's video input. If the desired video source is not a compliant ASI format, an external converter is necessary.

Note: There is a second BNC connector located next to the SDI/HD-SDI/ASI input connector, labeled LOOP. This connector acts as a loop-out of the input signal and can be used for periodic monitoring or other signal verification tasks, but should not be used for signal replication (i.e., to avoid needing a Distribution Amplifier to feed another encoder.) The loop-out signal will be interrupted if the SE is turned off or experiences certain system alarms or faults.

Discrete AES inputs are fed in through the D type connector. A separate connector adapter option is available that provide a D type to 4 BNC connectors.

Most customers have transitioned to the use of embedded audio. If you need or want to use discrete audio delivered separately over discrete AES connections, you can use the optional break out cable or wire up to the following pin out.

Description
BNC #1 Signal
BNC #2 Signal
GND
DB9 pin 2
DB9 pin 3
GND (for BNC's)
GND (for BNC's)
GND (for BNC's)
GND
GND (DB9 pin 5)
BNC #3 Signal
BNC #4 Signal
GND
DB9 pin 1
DB9 pin 4
DB9 shield

Table 9: Pin outs

For the RF Input connection, the connector type is an F-type connector that requires a standard ATSC antenna signal.

For an Ethernet control network connection, this connection defines the RJ-45 Ethernet cable connections to the encoder's network interface ports. The ports can be configured in one of three ways.

- A single port carries both control and data.
- Separate ports carry control or data.
- Dual redundant configurations of the above.

The suggested conventions are.

- Single port applications Eth0 carries both control and data.
- Separate control and data applications Eth0 carries data and Eth3 is for control.

• Dual redundant configurations of the above – Eth0 carries data, Eth1 is for control, Eth2 carries data, and Eth3 is for control.

The ports are auto-sensing and do not require crossover cables when connecting directly to a computer.

Ethernet bonding is available (it is off by default). This Ethernet bonding allows two IP interfaces to act as if they are one. They have the same IP address, but only one of them is active at any one time. One port is referred to as the Primary Master and the other port is referred to as the Primary Slave. This configuration is implemented by creating a virtual device called bond0 or bond1. This virtual device controls the two physical Ethernet ports by routing the data through the appropriate port.

Under normal circumstances, the bond device sends all data through the Primary Master device. Should the connection to the Primary Master port be lost, the bond0 or bond1 device automatically switches any data over to the Primary Slave port. To any other device on the network, the data would appear to be coming from the same IP address.

This creates a redundant connection that is automatically managed by the encoder itself. This bonding approach can be used for either management connections or data connections.

Encoder Cooling

The encoder is designed for an operating temperature range of 0 °C to 40 °C. Airflow intake is from the front and exhausted through the back.

The chassis includes six fans for cooling the unit. The encoder fans are mounted in a fan chamber located in the middle of the chassis to pull cooling air through the chassis. The power supply contains dual fans.

Power Provision

The encoder is supplied with either one or two 100 - 240 volt AC power supplies or one or two -48volt DC power supplies. Either type of power supply may provide up to 450 watts of power to the encoder.

Safety Guidelines

When servicing the encoder, follow these guidelines to avoid personal harm and to prevent damage to the encoder.

IMPORTANT: Do not attempt to service the encoder except as explained in the documentation. Only trained service technicians should remove the encoder cover to access any of the internal components.

General Precautions

To reduce the risk of bodily injury, electrical shock, fires, and damage to the equipment, observe the following precautions.

Note: This equipment must be installed by trained service personnel in a restricted-access location, as defined by the NEC and IEC 60950-1 Second Edition Information technology equipment - Safety - Part 1: General requirements.

Do not service any encoder except as explained in the documentation. Only trained personnel should remove enclosure covers or access the internal components due to possible hazardous energy levels. If an object falls into the encoder, or the encoder is exposed to water, or has been dropped, or is visibly damaged; safely remove power from the encoder and contact Motorola Technical Support for assistance.

Keep the encoder away from heat sources and be sure cooling vents are not blocked. Never operate the encoder in a wet environment. Keep food and all liquids away from the encoder. Allow the encoder to cool prior to removing the cover or handling internal components.

To help avoid possible damage to the encoder board, wait at least five seconds after turning off the encoder before removing a component from the encoder board or disconnecting a peripheral device from the encoder. Handle components with care. Do not touch the components or contacts on a card. Hold a card by its edges or metal mounting bracket.

Cabling Precautions

The power supplies may produce high voltages and energy hazards, which can cause bodily harm. To reduce the risk of electrical shock, disconnect all power supply cables before servicing the encoder. To help prevent electric shock, plug the encoder and peripheral power cables into properly grounded electrical outlets. These cables are equipped with three-prong plugs to help ensure proper grounding.

Do not use adapter plugs or remove the grounding prong from the power cable. If an extension power cord is used, Motorola recommends using three-wire cable with properly grounded plugs. Do not modify cables or plugs. Consult a licensed electrician or the power company if site modifications are necessary and be sure to follow local wiring and certification rules. Abide by extension cable and power strip ratings. Ensure the total ampere rating of all products plugged into the extension cable or power strip does not exceed 80 percent of the extension cable or power strip ampere ratings limit.

To help protect the encoder from sudden, transient fluctuations in electrical power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS). Route encoder cables and power cables to avoid human interference and ensure nothing rests on the encoder component's cables.

Rack Installation Precautions

Follow these precautions for any rack-mountable encoder.

- Carefully read all rack mount installation sheet and follow the instructions for proper rack cabinet assembly.
- Do not remove more than one encoder from the rack at a time. The weight of more than one extended component could cause the rack to tip over, resulting in bodily injury or damage to the encoder.
- Always load a rack from the bottom up, and load the heaviest item in the rack first.
- Ensure that the rack is level and stable before extending a component from the rack.
- Ensure that the rails are locked before installing encoder into the rack.
- Ensure that the proper airflow is provided to components in the rack.

Caution: Slide/rail mounted equipment is not to be used as a shelf or a work space.

Power On

Apply power in order to launch the SE-6x Series encoder. The encoder will start up after several minutes (typically in less than three minutes) in the last working configuration (or in the factory default if being powered on for the first time). The front panel LCD indicates that the unit is booting. After the bootup is complete, enter the SE-6x Series encoder's IP address into the web browser.

Note: Do not operate this encoder without all fans, component heatsinks, and air baffles installed. Severe damage to encoder components will occur if operated without adequate cooling mechanisms.

Caution: Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on

overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Caution: The power supply plug is intended to serve as a power disconnect device. The socket outlet shall be installed near the equipment and shall be easily accessible.

Caution: This unit has up to two (2) 100-240 volt or two (2) -48volt input power feeders. Disconnecting less that the maximum will not de-energise the system. To reduce the risk of injury, disconnect the two (2) power feeders when removing power to the system.

Caution: This device when powered by DC must be protected by a listed branch circuit protector rated maximum 25 A.

3

Encoder Configuration

This chapter provides important encoder configuration information and has the following topics.

- IP Address Setup page 22
- Web Browser Logon page 22
- Set Audio Parameters page 23
- Set Video Parameters page 23
- Set Output Stream Parameters page 23
- Save New Configuration page 24
- Download Configuration to Another Machine page 24
- Quality Control page 25

Note: The following topics provide easy instructions with convenient references to the Menu Orientation and Operation chapter. Follow these procedures in the given order.

IP Address Setup

Ethernet Overview

Four built-in Ethernet ports are available for transmitting data and control signals in and out of the encoder. All four ports are GigE and can be used for generating MPEG-2 transport packets, and multicast over UDP.

Note: If desired, the single GigE port can be used for both data and control.

Factory Defaults

The encoder is preconfigured with the following default IP addresses.

Eth0 IP address:	192.168.0.202
Eth1 IP address:	192.168.1.202
Eth2 IP address:	192.168.2.202
Eth3 IP address:	192.168.3.202
Netmask:	255.255.255.0

The Eth0, Eth1, and Eth2 Ethernet ports are preferred for sending out IP video data. Eth3 is the preferred port for controlling the encoder. When looking at the back of the unit, the data ports are the three right most Ethernet ports, and the control port is the one on the left. See Figure 4 on page 11 for the specific layout of the back of the chassis.

Note: When configuring any encoder make sure that you change the IP address before connecting it to a network to avoid IP address conflicts.

Web Browser Logon

To log on to the web browser

- 1. Read the information pertaining to the Encoder Welcome Page on page 29.
- 2. Ensure that a valid input source is properly connected to the appropriate input connector.
- 3. Ensure that the encoder's Control Network port is properly connected to the facility LAN or a controlling computer.
- 4. Go to the computer and launch the web browser.
- 5. Type the encoder's IP address in the browser's Address Field and click ENTER.

Note: The encoder's IP address in displayed on the unit's front panel.

6. When the Welcome Page appears, review the page to verify that the encoder is running.

Set Audio Parameters

To set encoder audio parameters

- 1. Read the information pertaining to the Input Selection on page 37.
- 2. In the Navigation pane, click Audio to display the Audio Parameters Page.
- 3. Select the stream to be configured.
- 4. Select the desired operating parameters for the audio stream being configured. Refer to Audio Parameters Page on page 46 for detailed description of what parameters are available, since this differs based on the input signal type.
- 5. Click Save Changes.

Set Video Parameters

To set encoder video parameters

- 1. Select the input type (ATSC, UPD/IP, ASI, or SDI), as described in the Input Selection section on page 37.
- 2. Read the information pertaining to the Video Parameters Page on page 61.
- 3. In the Navigation pane, click Video to display the Video Parameters Page.
- 4. Select the desired Video Output Resolution.
- 5. Set the desired Aspect Ratio.

Note: This is only necessary in SD. For HD, the aspect ratio is always 16:9.

- 6. Set the desired GOP Structure.
- 7. Set the desired I-Frame Period.
- 8. In the Bit Rate field, enter the desired bit rate.
- 9. In the Rate Control section, select either Constant Bit Rate or Constrained Fidelity CBR encoding.
- 10. If Constrained Fidelity CBR encoding is enabled, use the pull-down menu to selected the desired Bandwidth Reclamation, and enable or disable Null Packets as required.
- 11. Click Save Changes.

Set Output Stream Parameters

To set network parameters

- 1. Review Output Streams Page on page 69.
- 2. In the Navigation pane, click **Output Streams** to display the Output Streams Parameters Page.
- 3. In the Primary IP Output section, choose the port (Output Interface) to stream.
- 4. Select either On, Off, or Keep Alive.
- 5. Select the desired Target Address Type.
- 6. Enter the desired Target Address.

- 7. Enter the desired Target Port.
- 8. Enter the desired Time-To-Live.
- 9. Click Save Changes.

Set Network Parameters

To set network parameters

- 1. Review the Network Parameters Page on page 88.
- 2. In the Navigation pane, click **Network** to display the Network Parameters.
- 3. In the IP Interfaces section, verify the EP addresses assign to $eth0 \rightarrow eth3$.
- 4. If changes to the IP Interfaces are desired, click the **edit this list** hyperlink at the bottom of the page.
- 5. Enter the new IP address and net mask for the desired interface.
- 6. Click Save Changes and Restart.

Save New Configuration

To save encoder settings in a new configuration file

- 1. Review Save/Select Configuration Page on page 80.
- 2. In the Navigation pane, click Save/Select to display the Save/Select Configuration Page.
- 3. To save a file of the new configuration parameters locally on the encoder, follow the steps outlined in Save/Select Configuration Page on page 80.

Download Configuration to Another Machine

To download the encoder's configuration file to another machine (as a safety backup)

- 1. Review Download/Upload Configuration Page on page 85.
- 2. In the Navigation pane, click **Download/Upload** to display the Download/Upload Configuration Page.
- 3. To save the configuration file on a machine other than the encoder, follow the steps outlined in Download/Upload Configuration Page on page 85.

Quality Control

If all procedures are complete, except the following, the encoder is completely set up and ready to run.

To perform quality control on the encode-to-decode path

- 1. Connect the desired test signal to the appropriate video, UDP/IP, ASI, or RP input.
- 2. Set up a professional decoder (such as a Motorola IP set-top) and connect the SE-6x Series encoder to the decoder using a point-to-point Ethernet connection. Because the Ethernet ports are auto-sensing, a crossover cable is not required.
- 3. Verify the quality of the decoded stream, and if required, make adjustments to the encoder's parameters. Save changes as required, and update the configuration file (or create a new one).
- 4. With the encode-to-decode path functioning properly, connect the encoder to the network infrastructure for stream distribution as required.
4

Menu Orientation and Operation

This chapter describes the user interface and operational control of the SE-6x Series encoder encoder using the Navigation Pane, as shown in Figure 6, with the following options.

- User Interface Overview page 28
- Encoder Welcome Page page 29
- System Status Page page 30
- Alarms Page page 31
- Transport Streams Status Page page 33
- CPUs Status Page page 34
- Input Selection page 37
- Audio Parameters Page page 46
- Video Parameters Page page 61
- Output Streams Page page 69
- Ancillary Data Parameters Page page 75
- Save/Select Configuration Page page 80
- Download/Upload Configuration Page page 85
- Network Parameters Page page 88
- System Control Page page 93
- Password Management Page page 94
- License Configuration Page page 95
- Versions and Upgrades Page page 97



Figure 6: Navigation Pane

User Interface Overview

The SE-6x Series encoder is designed to be controlled by a number of different user interface options and for fail-safe operation. In the event that the configuration system or network fails, the encoder continues to run in the last known good state. The encoder configurations are also stored in flash memory to allow recovery from power failures.

System control can be achieved through two primary interface options.

Web Browser	Use this interface to set individual parameters that can be programmed from several pages. The web browser offers full access to the encoder element parameters, and also offers status information.
Command Line Interface	The unit has a command line interface that is intended for use by Motorola service, support, and operation personnel for manufacturing and troubleshooting.

To access the SE-6x Series encoder with a web browser

- 1. Ensure that the appropriate input source is connected to the encoder.
- 2. Ensure that the encoder's Control Network port is properly connected to the facility LAN or to a controlling computer.
- 3. Launch the web browser.
- 4. Enter the encoder's Control IP address in the browser's Address Field and click **ENTER**. The Welcome Page appears.

The Welcome Page offers basic status information and contains the navigational menu for the equipment. Additional information about the browser is discussed in the sections that follow.

Global Browser Page Overview

The following are important points regarding the browser's page layout. These rules apply to all pages.

- The color scheme of the SE-6x Series encoder web browser uses white text on a blue background for menu headings.
- Two panes are provided within the browser window.
 - o The left Navigation pane is a list of links to all SE-6x Series encoder browser pages. Orange highlighted text always refers to the current location in the menu tree. To jump to a specific page, there are links provided within the SE-6x Series encoder web browser interface.
 - o The right Information pane provides specific information for the selected browser page, including status, data fields, and adjustable controls for setting encoder parameters, modes, and options.
- Below the Information pane, additional navigation links are provided (similar to those in the Navigation pane), along with copyright and the encoder's time-stamp information. Note that this section is not included in subsequent screen shots.
- The SE-6x Series encoder web browser pages update approximately every 30 seconds.

Encoder Welcome Page

Views Status	Status Pages System • Transport Streams • CPUs • Alarms	Show Manitoring
Monitor Channel Config Input Selection Audio	Welcome to the SE-601R AVC Encoder Manager. You are controlling:	
Video Output Streams Ancillaru Data	SE-6601R AVC Encoder (edit description)	50 IN THE ING AND
Save/Select	Alarms Version ID Lidroco	4.0-0.090708for_
 Download/Upload System Config 	iP Aduless Configuration Name Unsaved Configuration Changes	Not S Y
Network System Control Reseword Mant	NTP Server SE-6601R (edit descripton)	Not Runni
License Mgmt.	Status	Runni
Versions and Upgrades	Alarms Input	No SD
	Video Audio 1	HD:1920 x 1080 / 59.9 PassThru AC-3 Dolby 3

Figure 7 shows the Welcome Page. To return to this page, click Status in the Navigation pane.

Figure 7: Welcome Page

The Welcome Page offers basic status information on various aspects of the encoder, including the ability to display the video monitor. These pages can be accessed by selecting the links in the Status Pages section of the Welcome page.

These four status pages are.

- System [Welcome Page] Shows general information about the encoder's operational state. This is the page displayed when clicking on the Status link in the navigation pane.
- Transport Streams Shows information about the status of the selected input, the Output Bitrate, Video, and Output Parameters.
- CPUs [System Diagnostics Page] Shows information about the state of the CPUs in the encoder.
- Alarms Shows information about the current alarms on the encoder.

Detailed information about each of these pages can be found in subsequent sections.

System Status Page

In the Navigation pane, click **Status** and the Welcome page is shown (see Figure 8). This page provides overall status for the encoder. It is split into two panes. The upper pane displays the general status. The lower pane shows detailed information about the encoder status.

Views Status Monitor Channel Config Input Selection Audio Video	Status Pages • System • Transport Streams • CPUs • Alarms Welcome to the SE-6601R AVC Encoder Manager. You are controlling:	F Show Monitoling
Output Streams Andilary Data Backup/Restore Save/Select Download/Upload System Config Network System Control Password Mgmt. License Mgmt.	SE-6601R AVC Encoder (editdescription) Alarms Version IP Address Configuration Name Unsaved Configuration Changes <u>NTP Server</u> SE-6601R (editdescription) Status	Non 4.0-0.090706for_q 10.77.188 Not Se Yee Not Runnin Runnin
	Alarms Input Video Audio 1 Top I Status I Audio I Video I Network I Save I System I 1 Copylight © 2009 Motbrida, Inc. Al Fights Reserved. Offer C	Non SDI HD:1920 x 1080 / 59 94 PassThru AC-3 Dolby 3// PassThru AC-3 Dolby 3// Support I Logout opylights May Apply.

Figure 8: System Status Page

Note: The heading for the status section of this page is by default the description of the encoder model number - in this case SE-6x Series Encoder Encoder. However, by selecting the edit description links, it is possible to change the default descriptions.

There are two Edit Description links on this page. The upper portion of the status section applies to the whole encoder, and editing the description affects the text at the top of the Navigation bar on each page.

The lower section is status on each channel and the description text appears as the text on the tab at the top of the pane. This changes the heading shown at the top of the Navigation pane shown on each page. See the Description Pages section on page 101 for details on this feature.

Label	Description
Show Monitor	If selected, displays the video in process, rating, and closed captioning information.
Upper pane	
Alarms	Indicates whether there are any alarms active and the type of the alarm. When the Alarm link is selected the Alarm page appears and lists all current alarms being generated by the encoder. There are five different alarm types; Critical, Major, Minor, Warning and Info. See the Alarms Page section on page 31.
Version	Lists the encoder's current software version.
IP Address	Indicates the IP address of the Eth0 control port or the control port as defined by the
	user.

Table 10: System Status Page

Configuration Name	Lists the name of the user-defined configuration within those parameters the encoder is currently operating. A configuration is a file that stores all of the Encoder's configuration options. Configurations can be named, saved, uploaded, or downloaded as desired.
	For example, a sports configuration has a short GOP and a high bit rate.A typical movie configuration has a long GOP and a low bit rate.
Unsaved	Displays "Yes" if parameter changes were made to the current (or another)
Configuration	configuration file, but not vet saved. "No" displays if the on-line operating
Changes	parameters match those in the current configuration file. If the encoder is rebooted, unsaved changes are lost.
NTP Server	Displays whether the encoder is configured for local clock or for getting the time from a network server.
Lower pane	
Status	Indicates whether or not the encoder is running. If running, a stream is being generated and valid video is present at the selected input.
Alarms	Indicates whether there are any alarms active and the type of the alarm. When the Alarm link is selected the Alarm page appears and lists all current alarms being generated by the encoder. There are five different alarm types; Critical, Major, Minor, Warning and Info. See the Alarms Page section on page 31.
Input	Indicates the selected input source type.
Video	Indicates the currently selected video parameters.

Table 10: System Status Page

Alarms Page

In the Navigation pane, click **Status**, and then at the Welcome page, click **Alarms** to display the Alarms Page, as shown in Figure 9.

iews Status Monitor thannel Config	Status Pages • System • Transport Streams • CPUs • Alarms
hannel Config	
Input Selection Audio Video Output Streams Andillary Data 3ackup/Restore Save/Select	Current Alarms: All
Vestion Config Vestwork • System Control • Password Mgmt. • License Mgmt. • Versions and Upgrades	Top I Status I Audio I Video I Network I Save I System I Support I Logout Copyright © 2009 Motorola, Inc. All Rights Reserved. Other Copyrights May Apply. 11.32:19 pm, January 5th, 2002 UTC - 10.77.168.5

Figure 9: Alarms Page

Access to the Alarm Page is gained through either the Welcome or Encoder Status pages. Both displays provide a blue highlighted link to the Alarm Page. When selected from either page, a list of all current alarms are displayed along with the severity for each alarm. Multiple alarms of the same severity are displayed with the oldest first.

Label	Description
All	If selected, displays all alarms currently active.
System	If selected, displays system-level alarms that are not directly related to the video encoding processes (like an NTP synchronization failure, etc.).
Model-specific	If selected, displays alarms that are specifically related to the video or audio encoding processes (like video input signal loss, etc.).

Table 11: Current Alarms

Transport Streams Status Page

In the Navigation pane, click **Status**, and then at the Welcome page, click **Transport Streams** to display the Status Page.

The Status Page displays the encoder's current status, including information about the video and audio parameters that the encoder is currently using.

Note: This is a status page only. Use the System Status or the Video and Audio set up menus to make changes. Unlike other pages, this page updates approximately every five seconds.

Views	Status Pages			
Status Monitor	System Transport Streams OPUs	• Alarms		
Channel Config	Output Bit Rate (Kbps)	Current	Average	Maximum
 Input Selection 	Video (Elementary Stream)	4298	4298	4296
Audio	Audio (Elementary Stream)	470	470	470
Video Output Streams Ancillary Data	Mux (Total Transport Stream)	5000	5000 si	5000 nce 11:28:17 pr
Backup/Restore	Video Output Parameters			
Save/Select	Source Resolution		1920x1080 / 59.94i	
Download/Upload	Scaled Resolution		1920x1080 / 59.94i	
System Config	Output Address	Multi	cast 239.0.22.1:8433	
Network	Backup Output Address	Multicast 239	.1.1.1:8433 (inactive)	
 System Control 	Proxy Address	Multicast 239.1.1	0.175:8444 (inactive)	
Password Mgmt.	Backup Proxy Address	Multicast 239.1.1	0.175:8444 (inactive)	
 License Mgmt. Versions and Upgrades 	Closed Captions Present		Yes	

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Figure 10: Transport Streams Page

CPUs Status Page

In the Navigation pane, click **Status**, and then at the Welcome page, click **CPUs** to display the System Diagnostics/CPUs Status Page.

The System Diagnostics page, as shown in Figure 11, shows the number of CPU's in the encoder, the type and processor speed, and the percentage of CPU usage that is free.

Encoder	System Diagnostics	
/iews	Status Pages	
Status Monitor	System • Transport Streams • CPUs • Alarms	
Channel Config	CPU Brand/Model/Speed	% Free
 Input Selection 	1 Intel(R) Core(TM)2 Duo CPU T9400 @ 2.53GHz	97
Audio Video Output Streams	2 Intel(R) Core(TM)2 Duo CPU T9400 @ 2.53GHz	97
Andiary Data	Top I Status I Audio I Video I Network I Save I System I Support I Logout	and all
Save/Select	11:33:45 pm, January 5th, 2002 UTC - 10.77.168.5	opiy.
Download/Upload		
System Config		
Network		
 System Control 		
 System Control Password Mgmt. 		
System Control Password Mgmt. License Mgmt.		



Figure 11: CPUs Status Page

Monitor Page

In the Navigation pane, click Monitor to display the Trap Receivers Page, as shown in Figure 12

SE-6601R AVC	Trap Receivers
Encoder Views • Status • Status • Input Selection • Audio • Video • Output Streams • Ancillary Data Backup/Restore • Save/Select • Download/Upload	Monitor Pages • Trap Receivers • Heartbeat Config Trap Receivers Up to four receivers may be sent SNMPv2 alarm traps: Receiver Address 1: Receiver Address 2: Receiver Address 3: Receiver Address 4: Receiver Address 4:
system Config Network System Control Password Mgmt. License Mgmt. Versions and Upgrades	Top I Status I Audio I Video I Network I Save I System I Support I Logout Copyright © 2009 Motorola, Inc. All Pights Reserved. Other Copyrights May Apply. 11:34:44 pm, January 5th, 2002 UTC - 10.77.168.5



Figure 12: Trap Receivers Page

Trap receivers are "computers" running software that can capture SNMP trap messages. A trap receiver can collect trap messages from multiple encoders at one time.

In addition, each trap message is time-stamped so that events can be put in chronological order and trap message logs can span multiple encoder log files. For more information about the encoder log, see "Support Page" on page 104.

Trap Receiver Settings

In the Navigation pane, click **Monitor** and then click **Trap Receivers** to display Trap Receivers Page, as shown in Figure 12. Use this page to view and set up to four SNMP target trap receivers.

Parameter / Buttons	Description
Receiver Address	Input the destination IP address to where the trap messages are sent (up to four maximum).
Save Changes	To save changes made on this page, click Save Changes.
	<i>Note:</i> If you make a change on this page, and switch pages without saving, all changes are lost and will not take affect.

Table 12: Trap Receiver Settings

Heartbeat Config Page

To display the Heartbeat Configuration Page, click **Monitor** from the Navigation pane and then click **Heartbeat Config** on the Monitor page, as shown in Figure 13.

SE-6601R AVC Encoder	Heartbeat Config	
Views • Status • Monitor	Monitor Pages Trap Receivers Heartbeat Config	
Channel Config Input Selection Audio Video Output Streams Andilary Data Backup Restore Save/Select Download/Upload System Config Network System Control Password Mgmt. License Mgmt.	Heartbeat Config Enable Heartbeat Heartbeat Time Period: 500 (range: 500ms - 300000ms) Up to four receivers may be configured to send SNMPv2 Heartbeat traps: Heartbeat Receiver Address 1: Heartbeat Receiver Address 3: Heartbeat Receiver Address 4: Save Changes	
	Top I Status I Audio I Video I Network I Save I System I Support I Logout Copylight © 2009 Motorola, Inc. Al Rights Reserved. Other Copylights May Apply. 11.3544 pm, January 5th, 2002 UTC - 10.77.168.5	

Figure 13: Heartbeat Config Page

The heartbeat provides a mechanism to validate that the encoder is running by requesting it to send out a regular trap message and allows the operator to enable and set the period and destination of the heartbeat trap used in establishing the operational health of the encoder.

Parameter	Description
Heartbeat Enabled	Check this box to enable a heartbeat output from the encoder.
Heartbeat Time Period	Sets the frequency of the Heartbeat Trap to the receiver. The time may be varied from 500 ms to 5 minutes. The value in this field is in milliseconds.
Heartbeat Receiver Addresses	Sets the receiver address for the Heartbeat Trap which may differ from the SNMP Trap receiver. Up to four different receivers may be identified.
Save Changes	To save changes made on this page, click Save Changes.
	<i>Note:</i> If you make a change on this page, and switch pages without saving, all changes are lost and will not take affect.

Table 13: Heartbeat Configuration

Input Selection

In the Navigation pane, click **Input Selection** to display the Input Selection Parameters Page, as shown in Figure 14. The Input Selection page allows the user to select the type of video input for the encoder. Choices are: SDI, ATSC tuner, UDP through a selected Ethernet port, or ASI input through a selected Ethernet port.

If ATSC, UDP, or ASI input is selected, a scanning process takes place to parse and understand the nature of the programs and streams contained in the ATSC, UDP, or ASI inputs. Refer to the Program Selection Page section on page 39 for explanations about how to use and interpret this information.

If the input type selected is ATSC Tuner, UDP, or ASI, two additional links appear on the Input Selection page – Program Selection and Status. Refer to the following sections for descriptions of these pages.

Encoder			
Views	Input Selection		
Status	SDI - Frame Sync		
Monitor	SDI1		
Channel Config			
Input Selection	C ATSC Tuner		
Audio	Channel:	1	
• Video		1	
 Output Streams 	Program Number:		
 Ancillary Data 	Low SNR: 15	dB	
Backup/Restore	Decement CND:		
Save/Select	Hecovered SNR. 22	dB	
Download/Upload	(Recovered SNR must be grea	ter then Low SNR)	
System Config	CUDP		
Network	Interface:	eth0 🔽	
System Control	Eddress and Part:		
Password Mgmt	Address and Port.	239.77.167.79 8468	
 License Mgmt. 	Program Number:	3	
 Versions and Upgrades 	C ASI		
	ASI 1		
	Program Number:		
	0		
•		Save Changes	
MOTOROLA			
•			
	To	p I Status I Audio I Video I Network I Save I System I Support I Logout	

Figure 14: Input Selection Parameters Page

Note: RF Input is standard for the SE-6301R, SE-6301T, SE-6401R, SE-6401T, SE-6501R, SE-6501T, SE-6601T, SE-6601T encoders.

Input Selection

Label	Description
SDI	When selected, the SDI input allows the encoder to accept either standard definition SDI video or HD-SDI video depending on the licensed options on the encoder.
	SDI 1: Primary baseband Serial Digital Interface. Used for SDI, HD-SDI, 3G-SDI SDI 1 & 2: Dual Link may be used for input of 1080P content.
	Refer to the configuration matrix in the Encoders Features section on page 1 to determine the functionality available on the encoder.
	<i>Note:</i> When selecting the SDI input, the input signal must be connected to the BNC connector on the rear of the encoder.
ATSC Tuner	If selecting a signal from the ATSC tuner, a channel between 2 and 69 must be selected from the drop-down list shown. In addition, a program number must be supplied defining the program within the ATSC stream that is to be passed along to the encoder.
	Low SNR: This sets the threshold at which the a low signal input alarm trap is raised. Recovered SNR: This parameter sets the threshold at which the a low signal input alarm trap is remiitted.
	<i>Note:</i> When the ATSC Tuner is selected and the selection is saved, the Program Selection screen is displayed, as shown in Figure 17.
	<i>Note:</i> If the program number is not known, leave it as 0, and then use the Program Selection page to determine the correct program.
UDP	The UDP input is used to parse a desired program from an incoming MPEG-2 SPTS or MPTS stream, decode that program, and pass it to the AVC encoder module. The UDP input may also be used for Digital turnaround (DTA) of the same selected program, so that it can be converted to an MPEG-2 SPTS for distribution.
	When using a UDP input, define the following.
	• Interface – allows you to select which port is used to capture the incoming MPEG-2 SPTS or MPTS stream.
	• Address and Port – defines the address and port values of the multicast stream that contains the MPEG-2 program to be converted.
	• Program Number – defines the program number of the MPEG-2 stream to be converted to an SPTS.
	<i>Note:</i> If the program number is not known, leave it as 0, and then use the Program Selection page to determine the correct program.

Table 14: Input Selection Parameters

Label	Description
ASI	The ASI input is used to parse a desired program from an incoming MPEG-2 SPTS
	or MPTS stream, decode that program, and pass it to the AVC encoder module. The
	ASI input may also be used for Digital turnaround (DTA) of the same selected
	program, so that it can be converted to an MPEG-2 SPTS for distribution.
	When using an ASI input, the Program Number defines the program number of the MPEG 2 stream to be converted to an SPTS
	NI EO-2 stream to be converted to an SI 15.
	<i>Note:</i> If the program number is not known, leave it as 0, and then use the Program Selection page to determine the correct program.
Save Changes	To save changes made on this page, click Save Changes.
	<i>Note:</i> If you make a change on this page, and switch pages without saving, all changes are lost and will not take affect.

Table 14: Input Selection Parameters

Program Selection Page

Selection of an ATSC, UDP or ASI input initiates a scanning process while the encoder parses the information on the incoming stream. This process can take 20 - 30 seconds. Scanning progress information screen is displayed, e.g., "Scanning in process, please wait."

After the scan has completed, the results of the scan are presented.

If the scan has detected one or more programs, they are listed, as shown in Figure 15.

O Program 3 : PMT PID 48 - 0x30 I PCR PID 49 - 0x31		
Video PID 49 - 0x31 LMPEG2	Output	32
	PID	l'on
Audio PID 52 - 0x34 I Language: eng	Output	33
	THD I	
Program 6 : PMT PID 96, 0x60 PCB PID 97, 0x61		
	Output	
Video PID 97 - 0x61 I MPEG2	PID	32
E Judio BID 100, Over Llanguage: eng	Output	22
Addio Pib 100 - 0x04 F Language, eng	PID	p.
Audio PID Mapping Follow PMT Order		
Save Changes	Scan	
	 Program 3 : PMT PID 48 - 0x30 I PCR PID 49 - 0x31 Video PID 49 - 0x31 I MPEG2 Audio PID 52 - 0x34 I Language: eng Program 6 : PMT PID 96 - 0x60 I PCR PID 97 - 0x61 Video PID 97 - 0x61 I MPEG2 Audio PID 100 - 0x64 I Language: eng Audio PID Mapping Follow PMT Order T Save Changes 	C Program 3 : PMT PID 48 - 0x301 PCR PID 49 - 0x31 II Video PID 49 - 0x31 I MPEG2 Dutput PID II Audio PID 52 - 0x34 I Language: eng Output PID C Program 6 : PMT PID 96 - 0x60 I PCR PID 97 - 0x61 Output III Video PID 97 - 0x61 I MPEG2 Output PID III Audio PID 100 - 0x64 I Language: eng Output PID Audio PID Mapping Follow PMT Order ▼ Save Changes Scan

Figure 15: ATSC, UDP, or ASI Program Selection Page

This page allows you to select and configure the desired ATSC, UDP, or ASI program. You can:

- Select the video program that is passed to the encoder.
- Select which audio stream or streams that should be included with the video.
- Select the PID values that should be used for the video and audio stream outputs.
- Selecting the Audio PID Mapping mode.

Table 15: ATSC, UDP, or ASI Program Selection Parameters Page

Label	Description
Program (number)	Select one of the Program radio buttons to configure the encoder to process this incoming program stream. Only one program may be selected at a time.
	Information about each of the streams is presented, showing the type of video encoding (MPEG-2 is typical) and the language type for each of the audio streams.
	The Video PID for each program is always selected, but by default none of the audio streams are selected. One or more audio PID's may be selected to pass those audio streams through the encoder.
Output PID	Default values are automatically assigned to video and audio output streams. If different output PID values are desired, they can be changed.
Audio PID Mapping	Choose Follow PMT order to map the first audio stream in the PMT to the first audio PID configured on this page, the second audio stream in the PMT will map to the second audio PID, etc. Thus, if the input audio streams change PIDs, the output stream still preserves the audio outputs without needing a configuration change.
	selected exactly before it forwards the audio stream to the output. If the content provider changes the audio stream to a different input PID, that audio will no longer be passed through to the output stream until the encoder is reconfigured. Follow PMT order is the default setting.
Save Changes	To save changes made on this page, click Save Changes .
	<i>Note:</i> If you make a change on this page, and switch pages without saving, all changes are lost and will not take affect.
Scan	Click the Scan button to initiate another scan of the incoming stream. After the parsing of the stream is complete, the results appear on the Program Selection page, as shown in Figure 15.

Input Selection Status Page

This page shows the status of the incoming signal for ATSC Tuner, UDP, and ASI input signals. The data shown on this page varies depending on the type of input selected

ATSC Tuner Input

If the input type selected is ATSC, the status page appears, as shown in Figure 16.

e Status	Input Selection Program Selection Status	Program Schedule
Monitor	ATSC Input Status	
hannel Config	Feed	ATSC - Channel 44 - Program 3
Input Selection	Video Signal	Present
Audio	Source Resolution	1280x720 / 59.94p
Video	SNR	30 dE
Output Streams	FEC Errors	0
Ancillary Data		since 10:21:54 pr
ackup/Restore		
Save/Select		
• Save/Select • Download/Upload		
Save/Select Download/Upload System Config	Top I Status I Audio I Video I Network I Converbit @ 2019 Motorpia, br. All Piblists Re	Save I System I Support I Logout
Save/Select Download/Upload system Config Network	Top I Status I Audio I Video I Network I Copyright © 2009 Motorola, inc. All Flights Re 1026 04 pm, January 24th, 21	Save I System I Support I Logout served. Other Copylights May Apply. 302 UTC - 10.77.168.3
Save/Select Download/Upload System Config Network • System Control	Top I Status I Audio I Video I Network I Copyright © 2009 Motorola, nc. Al Fights Re 10/2604 pm, January 24th, 21	Save I System I Support I Logout served. Other Copylights May Apply. JO2 UTC - 10.77.168.3
Save/Select Download/Upload System Config Network System Control Password Mgmt.	Top I Status I Audio I Video I Network I : Copyright © 2009 Motorola, Inc. All Pights Re 10/26:04 pm, January 24th, 21	Save I System I Support I Logout serived. Other Copylights May Apply. 302 UTC - 10.77.169.3
Save/Select Download/Upload ystem Config Network System Control Password Mgmt. License Mgmt.	Top I Status I Audio I Video I Network I Copyright © 2009 Motorola, Inc. All Pights Re 10:26:04 pm, January 24th, 2t	Save I System I Support I Logout served. Other Copylights May Apply. 302 UTC - 10.77.168.3



Figure 16: ATSC Tuner Selection – Status Information Page

	Table 16:	ATSC	Status	Information
--	-----------	------	--------	-------------

Label	Description
Feed	Indicates the input type (ATSC), channel selected and program selected.
Video Signal	Shows the state of the input signal, which can either be Present or Blank.
Source Resolution	Displays the horizontal and vertical resolution of the incoming signal and the
	frame rate of this signal.
SNR	Displays the most recent SNR value of the incoming signal. The value is updated
	to the SNR value measured for the most recent one-second period each time the
	UI is refreshed.
FEC Errors	Displays the number of error packets detected on the incoming signal. This value
	continues to count up from zero until the encoder is restarted, at which time the
	value is reset to 0.

A subset of this status information is also shown on the main Status page (Welcome page) in the lower section of the main pane, as shown in Figure 17.

SE-6601R AVC Encoder	□ SE-6601R	
Views Status Monitor Channel Config Input Selection Audio	Status Pages System Transport Streams CPUs Alarms Welcome to the SE-6601R AVC Encoder Manager. You are controlling:	Show Monitoring
Video	SE-6601R AVC Encoder (edit description) Alarms Version IP Address Configuration Name Unsaved Configuration Changes <u>NTP Server</u> SE-6601R (edit description) Status Alarms	<u>Non</u> 4.0-0.090706for_q 10.77.168. Updat Ye Not Runnin Runnin Non
MOTOROLA	Input Video Audio 1 Top I Status I Audio I Video I Network I Save I System Copyright © 2009 Motorola, Inc. All Rights Reserved. Other C	ATSC - Channel 44 - Program 1280x720 / 59.94g PassThru AC-3 3/ Support Logout copyrights May Apply.

Figure 17: Welcome Status Page with ATSC Status

UDP Input

If the input type selected is UDP, the status page appears, as shown in Figure 18.

Views	Input Selection Program Selection	ection • Status
Status	UDP Input Status	
Channel Config	Feed	Multicast 2390 2 222 8435 - Program 3
	Video Signal	Present
Audio	Source Besolution	1280x720 / 59 94p
Video	EEG Encoded	No
Output Stroome	1 20 Entrodo d	since 6/02/23 no
• Ouipui Sireanis		
Ancillary Data		Since 0.00.20 pr
Ancillary Data Backup/Restore		ance 0.00.20 pr
Ancillary Data Backup/Restore Save/Select		ance oboled pr
Andillary Data Sackup/Restore Save/Select Download/Upload	Top I Status	Audio I Video I Network I Save I System I Support I Logout
Anciliary Data Anciliary Data Sackup/Restore Save/Select Download/Upload System Config	Top I Status Copyright ⊜ 2005	Audio I Video I Network I Save I System I Support I Logout Motorola, Inc. All Rights Beserved. Ditter Copylights May Apply. 1314 cm. January 11th. 2002. UTO - 10.77 168.3
Ancillary Data Ancillary Data Sackup/Restore Save/Select Download/Upload System Config Network	Top I Status Copyright © 2005 67	I Audio I Video I Network I Save I System I Support I Logout Motorola, hc. All Rights Reserved. Other Copylights May Apply. 13:14 pm, January 11th, 2002 UTC - 10.77.168.3
Output Streams Andilary Data Andilary Data Sakup/Restore Save/Select Download/Upload tystem Config Network System Control	Top I Status Copyright € 2005 6:	I Audio I Video I Network I Save I System I Support I Logout Motorola, Inc. Al Flights Reserved. Other Copyrights May Apply. 13:14 pm, January 11th, 2002 UTC - 10.77.168.3
Anciliary Data Anciliary Data Sackup/Restore Save/Select Download/Upload System Config Network System Control Password Mgmt.	Top I Status Copylight € 2005 6:	I Audio I Video I Network I Save I System I Support I Logout Motorola, Inc. All Flights Reserved. Other Copylights May Apply. 13:14 pm, January 11th, 2002 UTC - 10.77.168.3
Andilary Data Andilary Data Sackup/Restore Save/Select Download/Upload System Config Network System Control Password Mgmt. License Mgmt.	Top I Status Copyright € 2005 6;	I Audio I Video I Network I Save I System I Support I Logout Motorola, Inc. All Rights Reserved. Other Copylights May Apply. 13:14 pm, January 11th, 2002 UTC - 10.77.168.9



Figure 18: UDP Selection – Status Information Page

Label	Description
Feed	Indicates the multicast address and port the signal is on, and indicates the
	program in the stream that is selected.
Video Signal	Shows the state of the input signal, which can either be Present or Blank.
Source Resolution	Displays the horizontal and vertical resolution of the incoming signal and the
	frame rate of this signal.
FEC encoded	Indicates whether or not the incoming signal was encapsulated with forward
	error correction.

A subset of this status information is also shown on the main Status page (Welcome page) in the lower section of the main pane, as shown in Figure 19.





Top I Status I Audio I Video I Network I Save I System I Support I Logout Copylight © 2009 Motorola, Inc. All Rights Reserved. Other Copylights May Apply. 6:18:18 pm, January 11th, 2002 UTC - 10.77.168.3

Figure 19: Welcome Page with UDP Status

ASI Input

If the input type selected is ASI, the status page appears, as shown in Figure 20.

SE-6601R AVC Encoder	SE-6601R				
ews	Input Selection	Program Selection	 Status 	Program Schedule	
' Status ' Monitor	ASI Input Status				
nannel Config	Feed				ASI 1 - Program 3
Input Selection	Video Signal				Present
Audio	Source Resolution				1920x1080 / 59.94i
Video	ASI Packet Size				188 Bytes
Output Streams					since 12:56:51 an
Andilary Data					
ckup/Restore			_		
Coup/Colort					
Save/Select Download/Upload		Top I Status I Audio I	Video I Network	k I Save I System I Support I Logout	
Save/Select Download/Upload /stem Config		Top I Status I Audio I Copyright © 2009 Motorol	Video I Network a, Inc. All Rights	k I Save I System I Support I Logout Reserved. Other Copyrights May App	oly.
Save/Select Download/Upload stem Config Network		Top I Status I Audio I Copyright © 2009 Motorol 12:57:06 a	Video I Networi a, Inc. All Rights m, January 26th	k I Save I System I Support I Logout Reserved. Other Copyrights May App 2002 UTC - 10.77.168.3	oly.
Save/Select Download/Upload /stem Config Network System Control		Top I Status I Audio I Copyright © 2009 Motorol 12:57:06 a	Video I Networi a, Inc. All Rights m, January 26th	k I Save I System I Support I Logout Reserved. Other Copyrights May App , 2002 UTC - 10.77.168.3	oly.
Save/Select Download/Upload ystem Config Network System Control Password Mgmt.		Top I Status I Audio I Copyright © 2009 Motorol 12:57:06 a	Video I Networi ia, Inc. All Rights m, January 26th	k I Save I System I Support I Logout Reserved. Other Copylights May App 2002. UTC - 10.77.168.3	oly.
Save/Select Download/Upload ystem Config Network System Control Password Mgmt. License Mgmt.		Top I Status I Audio I Copyright © 2009 Motorol 12:57:06 a	Video I Networ a, Inc. All Rights m, January 26th	k I Save I System I Support I Logout Reserved. Other Copylights May App 2002. UTC - 10.77.168.3	aly.

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Figure 20: ASI Selection – Status Information Page

Table 18: ASI Status Information	Table 1	8: /	ASI :	Status	Information
----------------------------------	---------	------	-------	--------	-------------

Label	Description
Feed	Indicates the multicast address and port the signal is on, and indicates the
	program in the stream that is selected.
Video Signal	Shows the state of the input signal, which can either be Present or Blank.
Source Resolution	Displays the horizontal and vertical resolution of the incoming signal and the
	frame rate of this signal.
ASI Packet Size	There are two packet sizes, 188 and 204. When 204 byte packets are used, they consist of the same 188-byte packet that would normally be sent plus a 16 byte trailer that contains FEC codes that can be used to recover from bit errors that may have crept into the first 188 bytes of the packet. 204 byte packets are generally used over satellite links but the FEC trailer is typically dropped by the satellite receiver.

A subset of this status information is also shown on the main Status page (Welcome page) in the lower section of the main pane, as shown in Figure 21.

Views Status Monitor Channel Config Input Selection Audio	Status Pages • System • Transport Streams • CPUs • Alarms Welcome to the SE-6601R AVC Encoder Manager. You are controlling:	₩ Show Monitoring
• Video		AND EXERCISE
Output Streams	SE-6601R AVC Encoder (edit description)	
Ancillary Data	Alarms	Non
Backup/Restore	Version	4.0-0.090708for_q
Save/Select	IP Address	10.77.168
 Download/Upload 	Configuration Name	Updat
System Config	Unsaved Configuration Changes	Ye
Network	NTP Server	Not Runnin
System Control	SE-6601R (edit description)	
Password MgmL License Mamt	Status	Ruppin
Versions and Upgrades	Alarms	Nor
· · · · · · · · · · · · · · · · · · ·	Innut	ASI 1 - Program
	Video	1920v1080 / 59 9
	Audio 1	PassThru AC-3 3
MOTOROLA	Top I Status I Audio I Video I Network I Save I System Copyright © 2009 Motorola, inc. All Rights Reserved. Other I	I Support I Logout Capylights May Apply.

Figure 21: Welcome Page with ASI Status

Audio Parameters Page

In the Navigation pane, click Audio to display the Audio Parameters Page.

This section describes the available audio configuration of the encoders for both the main video and proxy video streams. The encoders support independent audio streams for the main video stream. The tables following each screen image describe the options.

Note: For more information about common terms, refer to Common Terms on page 115.

Audio Stream Configuration Table

The Audio Stream Configuration Table shows the parameters for each of the possible audio output streams for the main video stream, depending on the input selected on the Input Selection screen.

SDI Input Selection

For SDI, you can enable one or more audio streams, click the desired **Change** link in the Edit column. Figure 22 shows the resulting page.

/iews	Channels F	itput Compi PID	ession Type	Bitrate (Kbps)	Mode	Dial Norm	Delay (ms)	PRM	Enable	mor
 Status Monitor 	Audio1 33	PassThru A0	-3 💌	448 Kbps 💌		-27 dB 💌	0	Γ	2	more
hannel Config	Audio2 34	Mpeg1 Laye	· 🔹	192 Kbps 💌	Stereo 💌		0	Г		mor
Input Selection	Audio3 35	PassThru A(448 Khns 💌		-27 dB		Г	Е	mor
Audio	Addios (55		~ _			-27 00 <u>-</u>				inc.
Video	Audio4 36	HE-AAC	-	48 Kbps 💌	Stereo 💌		0			mo
Output Streams	Proxy Channe	el Output PID	Compres	sion Type	Bitrate (Kb	ps) Dela	ay (ms)		Enable	
Andriary Data	Audio 1 🔻	50	Mpeq1 Laver II		128 Kbps	- 0			Γ	
Save/Select		. ,	110 /							
Download/Upload				Save Change	s					
stem Config			_							
Network										
System Control								_	_	
		To	n I Status I Audio I Vi	deo I Network I S	wa I Sustam I S	unnort I Lociou				
Password Mgmt.			p i otatus i Audio i vi	aconnetwork ro	aruad Other Or	iapport i Ebgoa	a Simplu			
Password Mgmt. License Mgmt.		Copyrig	ht©2009 Motorola,	inc. All Hights Hes	enteu, other ou	ipyrights iviay #	sppiy.			



Figure 22: Audio Parameters Page – SDI

Label	Description
Channels	Indicates the channels availble for audio encoding.
Compression Type	This pulldown selects the processing option that are licensed and available to be used for each of the audio streams. Possible options include:
	 PassThru AC-3 to HE-AAC AC-3 to DD + Pro Downsample to AC-3 stereo Downsample to AAC stereo
	<i>Note: Refer to Table 1 on page 1 for more information about licensable audio options.</i>
Bit rate (Kbps)	The pulldown menu lets you select the appropriate bit rate.
Mode	This field lets you select different encoding modes that may be available with the selected compression type. For example MPEG1 Layer II offers Stereo, Stereo Ind, or Stereo Dual options.
Dial Norm	The Dial Norm parameter controls the amplification level in the set top box. The scale used ranges in 1 dB steps from -1 to -31 dB.
	Incoming: Incoming in the pulldown menu indicates that the incoming dial norm value has been mapped across to the output.
	Note: Contrary to what you might assume at first, a setting of -31 represents no level shift in the consumer's decoder, and -1 represents the maximum level shift.
Delay (ms)	This parameter shows the delay time in milliseconds that is applied to the audio stream. This allows the audio to be advanced or delayed relative to the video.
PRM	Peak Reading Monitor tracks and holds the peak level that has been encountered since the PRM was last reset.
Enable	Enable allows you to select whether this audio stream configuration is enabled for inclusion in the outgoing transport stream.

Table 19:	Audio	Stream	Configuration	with SDI
	Addio	oucum	Soundaration	

Table 19: Audio St	ream Configuration with SDI				
Label	Description				
more	When selected, this opens additional audio parameters and information.				
	When in AC-3 pass through mode the more tab provides access to modify the language descriptors in the stream.				
	<i>Note:</i> This feature is not normally required, may be used to correct descriptor errors in incoming streams. Refer to Figure 23 on page 49 for more information.				
	When in MPEG1 Layer II baseband encoding mode the more tab provides access to amplify and attenuate the audio level. Refer to Figure 24 on page 49 for more information.				
	When in AC-3 baseband encoding mode more tab provides access to amplify and attenuate the audio level. In addition the tab provides access to a number of additional Dolby service configuration parameters, bit stream descriptor and preprocessing options. Refer to Figure 25 on page 50 for more information.				
	When in AC-3 pass through mode the more tab provides access to monitor the metadata that is present in an incoming stream. Refer to Figure 27 on page 51 for more information				
Proxy Channel	This allows you to select the audio proxy channel.				
Output PID	This allows the audio PID value to be defined.				
Compression Type	The compression menu lets you select from a menu of available Codecs that can be associated with the proxy.				
Bitrate (Kbps)	The bit rate menu lets you select bit rates for the audio proxy service.				
Delay (ms)	This parameter shows the delay time in milliseconds that is applied to the audio stream. This allows the audio to be advanced or delayed relative to the video.				
Enable	This allows you to select whether this proxy audio stream configuration is enabled or disabled.				
	<i>Note:</i> You cannot enable proxy audio on a disabled audio channel.				
Save Changes	To save changes made on this page, click Save Changes.				
	<i>Note:</i> If you make a change on this page, and switch pages without saving, all changes are lost and will not take affect.				

Views	Advanced Metadata
Status	
Monitor	Audio Stream 1 (PassThru AC-3) Advanced Configuration
Channel Config	Source
Input Selection	SDI Ground Ch 1/2
Audio	
• Video	Language: English Hide
Output Streams	
Ancillary Data	English A
Backup/Restore	Esperanto
Save/Select	Estonian
Download/Upload	Ewondo
System Config	Fang -
Network	hanti Farriese
System Control	Fijian
Password Mgmt.	Filipino
License Mgmt.	Finnish Finno-Uarian
 Versions and Upgrades 	Fon
	French Frieden
	Fulah
	Gaelic
	Galician 🚽
-	
	Save Changes

Figure 23: Audio – SDI continued... (Source and Language)

SE-6601R AVC Encoder	SE-6601R	
Views	Audio Stream 2 (Mpeg1 Layer II) Advance	d Configuration
Status		
Monitor	Source	Volume
Channel Config	SDI Group1 Ch 3/4 💌	1
Input Selection	Language: English Hide	
Audio		
• Video	English	
Output Streams	Erzya	
Ancillary Data	Estonian	
Backup/Restore	Ewe	
Save/Select	Fang	
 Download/Upload 	Fanti	
System Config	Faroese	
Network	Filipino	
System Control	Finnish	
 Password Mgmt. 	Finno-Ugrian Fon	0
License Mgmt.	French	
 Versions and Upgrades 	Friulian	
	Gaelic	
	Ga	
	Galician	
		Save Changes
MOTOROLA		
•		
	Top Status	Audio I Video I Network I Save I System I Support I Logout
	Copyright © 2009 M	Votorola, Inc. All Rights Reserved. Other Copyrights May Apply.
	7.20	6:00 pm, January 11th, 2002 UTC - 10.77.168.3

Figure 24: Audio – SDI continued... (Volume)

ews	Advanced	etadata		
Status	Audio Stream 1 (AC-	3 Encoding) Advanced Confi	duration	
Monitor	Audio otream r (Ao-	Encounty Autorice contr	guiation	
hannel Config	Service Configuration	on	Source	Volume
Input Selection	Frequency:	48 kHz	SDI Group1 Ch 1/2 💌	1
Video	LFE:	Off	Language: English Hide	
Output Streams	Coding Mode:	2/0		
Ancillary Data	Bitrate:	0 Kbps	English	
ckup/Restore	Bitstream Mode:	Complete main (CM)	Esperanto	
Save/Select	Dialogue Normalizati	OD: -27 (range -1 to -31 dB)	Estonian	
Download/Upload	Dialoguo Hormaileai		Ewe	
stem Config	Bitstream Informatio	'n	Fang -	
Network	E Audio Production	Info Eviste	Fanti Farnese	
System Control			Fijian	
Password Mgmt	Mixing Level: 25	(range 0 to 31 dB SPL)	Filipino	
License Mgmt.	David Turk Res		Finno-Ugrian	
Versions and Upgrades	Room Type Jam	an 🗾	Fon	0
	Copyright Bit		Friulian	
			Fulah Gaelic	
			Ga	
	Surround Mode: Not	Indicated 🗾	Galician	
_	Preprocessing Opti	ans		
	Dupomio Bongo Con	trol:		
	Dynamic Range Con	II OI. Film Standard 💌		
	Channel B/W Low	pass Filter		
	C DC Notch Filter			
		L	Save Changes	

Figure 25: Audio – SDI continued... (Service Configuration, Bitstream Information, Preprocessing Options)

lews	Advanced Metadata	
Status Monitor	Audio Stream 1 (Trans AC-3 to DD + Pro) Adv	/anced Configuration
hannel Config I Input Selection Video Output Streams Ancillary Data ackup/Restore Save/Select Download/Upload ystem Config Network System Control Password Mgmt. Uoense Mgmt. Versions and Upgrades	Service Configuration Bitrate: 224 Kbps Dialogue Normalization: -27 Dynamic Range Control Line mode: Film Standard ▼ RF mode: Film Standard ▼	Source SDI Group1 Ch 1/2 Language English Hide Ergys Ergys Ergys Ergys Ergys Ergys Ergys Ergys Ergys Ergys Fang Fang Fang Fang Fang Fang Fang Fang Fang Fang Fang Fang Fang Fang Fang Fang Fang Filipino Finish Finis
MOTOROLA		Galician 💌

Figure 26: Audio – SDI cont.. (Service Configuration & Dynamic Range Control)

	 Advanced Metadata 	
Status		
Monitor	Audio Stream 1 (PassThru AC-3) Metadata	
hannel Config	Dialogue Level	0 (-31.0 dB
Input Selection	Dialogue Level Second Channel	(-31.0 dB
Audio	Channel Mode	1+1 Dual Mond
Video	LFE Channel	0
Output Streams	Bitstream Mode	Complete Mair
Ancillary Data	Center Downmix Level	
ackup/Restore	Surround Downmix Level	
Save/Select	Dolby Surround Mode	Not Indicate
Download/Upload	Audio Production Information	N
/stem Config	Mix Level	
Network	Room Type	Not Indicate
System Control	Audio Production Information Second Channel	N
License Mant	Mix Level Second Channel	144
Versions and Upgrades	Boom Tune Second Channel	
	Copyright Bit	N
	Original Ritetroom	N
	Original Distream	N.
	Preterred Stereo Downmix	
	LIPRI Center Downmix Level	
-	Lt/At Surround Downmix Level	
	Lo/Ro Center Downmix Level	
	Lo/Ro Surround Downmix Level	
	Dolby Surround EX Mode	Not Indicated
	A/D Converter Type	Standard

Figure 27: Audio – SDI continued... (Metadata)

ATSC Tuner Input Selection

For the ATSC Tuner, you can enable one or more audio streams, click the desired **Change** link in the Edit column. Figure 22 shows the resulting page.

Label	Description
Channels	This identifies the number of audio channels found in the ATSC MPEG 2 Stream.
Compression Type	This pulldown selects the processing option that are licensed and available to be used for each of the audio streams. Possible options include:
	• PassThru
	• AC-3 to HE-AAC
	• AC-3 to DD + Pro
	Downsample to AC-3 stereo
	<i>Note: Refer to Table 1 on page 1 for more information on licensable audio options.</i>
Bit rate (Kbps)	This field sets the bit that is allocated to the compression mode selected. If
	pass through mode is selected, the bit rate needs to equal or greater than the incoming audio rate that could be encountered.
Mode	This field lets you select different encoding modes that may be available with
	the selected compression type. For example AC-3 and HE-AAC offers Stereo,
	Stereo Ind, or Stereo Dual options.

Table 20: Audio Stream Configuration with ATSC Tuner

Label	Description
Dial Norm	The Dial Norm parameter controls the amplification level in the set top box. The scale used ranges in 1 dB steps from -1 to -31 dB.
	Incoming: Incoming in the pulldown menu indicates that the incoming dial norm value has been mapped across to the output.
	Note: Contrary to what you might assume at first, a setting of -31 represents no level shift in the consumer's decoder, and -1 represents the maximum level shift.
Delay (ms)	This parameter shows the delay time in milliseconds that is applied to the audio stream. This allows the audio to be advanced or delayed relative to the video.
PRM	Peak Reading Monitor tracks and holds the peak level that has been encountered since the PRM was last reset.
Enable	This allows you to select whether this proxy audio stream configuration is enabled or disabled.
	<i>Note:</i> You cannot enable proxy audio on a disabled audio channel.
Channels	This identifies the number of audio channels found in the ATSC MPEG 2 Stream.
Compression Type	This pulldown selects the processing option that are licensed and available to be used for each of the audio streams. Possible options include:
	• PassThru
	• AC-3 to HE-AAC
	• AC-3 to DD + Pro
	• Downsample to AC-3 stereo
	<i>Note: Refer to Table 1 on page 1 for more information on licensable audio options.</i>
more	When selected, this opens additional audio parameters and information.
	A dvanced
	 Source and Language selection (including hide/show selection), see Figure 23
	 Volume (with Mpeg1 Layer II, HE-AAC, LC-AAC, AC-3 encoding), see Figure 24
	• Service Configuration, Bitstream Information, Preprocessing Options (with AC-3 encoding, Encode DD + Pro, Downsample to AC-3), see
	 Figure 25) Service Configuration and Dynamic Range Control (with Trans AC-3 to DD +Pro) see Figure 26
	Metadata – see Figure 27
Proxy Channel	This allows you to select the audio proxy channel.
Output PID	This allows the audio PID value to be defined.
Compression Type	The compression type for each of the proxy audio streams can be:
	• PassThru
Bitrate (Kbps)	The bit rate menu lets you select bit rates for the audio proxy service
	menta teto jou betett ett tates for the addit prony berviet.

HATEC T - -... _

Label	Description
Mode	The bit rate of the proxy audio stream is shown.
	PassThru:
	AC-3 to HE-AAC: 48, 64, or 128 Kbps.
Dial Norm	The Dial Norm parameter controls the amplification level in the set top box.
	The scale used ranges in 1 dB steps from -1 to -31 dB.
	Incoming: Incoming in the pulldown menu indicates that the incoming dial norm value has been mapped across to the output.
	Note: Contrary to what you might assume at first, a setting of -31 represents no level shift in the consumer's decoder, and -1 represents the maximum level shift.
Delay (ms)	This parameter shows the delay time in milliseconds that is applied to the audio stream. This allows the audio to be advanced or delayed relative to the video.
Enable	This allows you to select whether this proxy audio stream configuration is enabled or disabled.
Save Changes	This allows you to select whether this proxy audio stream configuration is enabled or disabled.
	Note: You cannot enable proxy audio on a disabled audio channel.

Table 20: Audio Stream Configuration with ATSC Tuner

SE-6601R AVC Encoder	SE-660	D1R											
WS	Channels	Input PID	Output	Compression Type		Bitrate (Kbps)	Mode		Dial Norm	Delay	PRM	Fnable	mo
Aonitor			PID							(ms)			
nnel Config	Audio1	0	33	PassThru	-	0			Incoming 💌	0		4	mo
nput Selection	Audio2	0	34	AC-3 to HE-AAC	•	96 Kbps 💌	Stereo	-	-27 dB 💌	0		Γ	ma
udio	Audio3	0	35	AC-3 to DD + Pro	-	224 Kbps 💌			-27 dB 💌	0	Г	Г	m
ideo	Audio4	0	36	Downsample to AC-3	-	192 Khns 🔻			-27 dB	lo		Г	m
ncillary Data			07				Disease	_			1 -	-	
up/Restore	COIDDA	J0	37	Downsample to AAC		196 Kbps •	Stereo	<u> </u>	-27 00	10 10	L	L.	m
ave/Select	Audio6	0	38	PassThru	-	0			Incoming 💌	0		Γ	m
ownload/Upload	Audio7	0	39	PassThru	•	0			Incoming 💌	0	1	Γ	m
em Config	Audio8	0	40	PassThru	-	0			Incoming •	0	1	Г	m
stwork	Audio9	0	41	PassThru	-					0		Г	m
assword Mamt.		1-			_				,	1-	1	-	-
pense Mgmt.	Audio1U		42	Passinru	_							1	m
ersions and Upgrades	Audio11	0	43	PassThru	-	0			Incoming 💌	0		Γ	m
	Audio12	0	44	PassThru	•	lo l			Incoming 💌	0]	Γ	m
	Audio13	0	45	PassThru	-	0			Incoming -	0	1	Г	m
	Audio14	0	46	PassThru	-	0			Incoming -	0	-	Г	m
	Audio15	0	47	PassThru	•	0			Incoming 💌	0	1	Г	m
	Audio16	0	48	PassThru	-	0			Incoming •	0	1	Г	m
MOTOROLA	Audio17	0	49	PassThru	•	0			Incoming 💌	0	1	Г	m
	Audio 18	0	50	PassThru	-	0			Incoming 💌	0	1	Г	m
	Audio19	0	51	PassThru	•	0			Incoming 💌	0	1	Г	m
	Audio20	0	52	PassThru	-	0			Incoming 💌	0	1	Г	m
	Audio21	0	53	PassThru	•	0			Incoming 💌	0]	Г	m
	Audio22	0	54	PassThru	•	0			Incoming 💌	0]		m
	Audio23	0	55	PassThru	•	0			Incoming 💌	0	1	Г	m
	Audio24	0	56	PassThru	•	0			Incoming 💌	0	1	Г	m
	Proxy	d Outpu	nt PID C	ompression Type Bit	trate	(Kbps)	Mode		Dial Norm	Delay	(ms)	Enabl	le
	Audio 2	▼ 50	A	C3 to HE-AAC 💌 🛛		96 Kbps	▼ Stereo		 -27 dB ▼ 	0		Γ	
	Notes: * Incoming * When the	auclio chann bitrate is se	el assignm et to 0 Klop	ients based on discovery or is for a specific channel, the e	der (enco	when Input PIDs a der derives it duir Save Change:	we set to 0. ng channel scan . s						

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Figure 28: Audio Parameters Page – ATSC Tuner

UDP Input Selection

For UDP, you can enable one or more audio streams, click the desired **Change** link in the Edit column. Figure 22 shows the resulting page.

Label	Description
Channels	This identifies the PIP audio channel 1 through 24.
Compression Type	This pulldown selects the processing option that are licensed and available to be used for each of the audio streams. Possible options include:
	• PassThru
	• AC-3 to HE-AAC
	• AC-3 to DD + Pro
	• Downsample to AC-3 stereo
	<i>Note: Refer to Table 1 on page 1 for more information on licensable audio options.</i>
Bit rate (Kbps)	This field sets the bit that is allocated to the compression mode selected. If pass through mode is selected, the bit rate needs to equal or greater than the incoming and is rate that could be accountered.
Mada	incoming audio rate that could be encountered.
Mode	I his field lets you select different encoding modes that may be available with
	stered and an Stered Dual antions
Dial Norm	The Dial Norm parameter controls the amplification level in the set top how
	The scale used ranges in 1 dB steps from -1 to -31 dB.
	Incoming: Incoming in the pulldown menu indicates that the incoming dial norm value has been mapped across to the output.
	Note: Contrary to what you might assume at first, a setting of -31 represents no level shift in the consumer's decoder, and -1 represents the maximum level shift.
Delay (ms)	This parameter shows the delay time in milliseconds that is applied to the audio stream. This allows the audio to be advanced or delayed relative to the video
PRM	Peak Reading Monitor tracks and holds the peak level that has been encountered since the PRM was last reset.
Enable	Enable allows you to select whether this audio stream configuration is enabled for inclusion in the outgoing transport stream.

Table 21: Audio Stream Configuration with UDP

Table 21: Audio S	tream Configuration with UDP
Label	Description
more	When selected, this opens additional audio parameters and information.
	When in AC-3 pass through mode the more tab provides access to modify the language descriptors in the stream.
	<i>Note:</i> This feature is not normally required, may be used to correct descriptor errors in incoming streams. Refer to Figure 23 on page 49 for more information.
	When in MPEG1 Layer II baseband encoding mode the more tab provides access to amplify and attenuate the audio level. Refer to Figure 24 on page 49 for more information.
	When in AC-3 baseband encoding mode more tab provides access to amplify and attenuate the audio level. In addition the tab provides access to a number of additional Dolby service configuration parameters, bit stream descriptor and preprocessing options. Refer to Figure 25 on page 50 for more information.
	When in AC-3 pass through mode the more tab provides access to monitor the metadata that is present in an incoming stream. Refer to
	Figure 27 on page 51 for more information
Proxy Channel	This allows you to select the audio proxy channel
Output PID	This allows the audio PID value to be defined.
Compression Type	The compression menu lets you select from a menu of available Codecs that can be associated with the proxy.
Bitrate (Kbps)	The bit rate menu lets you select bit rates for the audio proxy service.
Delay (ms)	This allows you to select whether this proxy audio stream configuration is enabled or disabled.
Enable	This allows you to select whether this proxy audio stream configuration is enabled or disabled.
	<i>Note:</i> You cannot enable proxy audio on a disabled audio channel.
Save Changes	To save changes made on this page, click Save Changes .
	<i>Note:</i> If you make a change on this page, and switch pages without saving, all changes are lost and will not take affect.

SE-6601R AVC Encoder	SE-660	01R											
Views • Status	Channels	Input PID	Output PID	Compression Type		Bitrate (Kbps)	Mode		Dial Norm	Delay (ms)	PRM I	nable	more
Monitor	Audio1	0	33	PassThru	•	0			Incoming 💌	0		•	more
Input Selection	Audio2	0	34	AC-3 to HE-AAC	•	96 Kbps 💌	Stereo	-	-27 dB 💌	0	Г	₽	more
Audio	Audio3	0	35	AC-3 to DD + Pro	•	224 Kbps -			-27 dB 💌	0	Г		more
• Video	Audio4	0	36	Downsample to AC-3	-	192 Khns			-27 dB	n	-		more
Ancillary Data	Audio C		07	Deumoample to 110 C			Channe	_		10 0	-	-	
Backup/Restore	COIDDA	lo lo	15/	Downsample to AAC	_	190 Kops •	1 Stelen	-	-27 00			I.	more
Save/Select	Audio6	0	38	PassThru	-	0			Incoming 💌	0		₹	more
Download/Upload	Audio7	0	39	PassThru	•	0			Incoming 💌	0		2	more
System Config	Audio8	0	40	PassThru	•	0			Incoming 💌	0		₽	more
System Control	Audio9	0	41	PassThru	•	0			Incoming 💌	0		₽	more
Password Mgmt.	Audio10	0	42	PassThru	-	0			Incomina 💌	0		•	more
License Mgmt. Versions and Upgrades	Audio 11	0	43	PassThru	-	In				n		V	more
	Audio12	6	44	PassThru	-	n				0		V	more
	Audio 12		45	PaceThru	-					0			10000
	Audio14	0	46	PaceThru						0			
	Audio 14		40	DeseTher								-	more
•	Audio15		47	Passinru	-				I incoming •	ln In		V	more
MOTOROLA	Audio16	0	48	PassThru	-	0			Incoming 💌	0		₹	more
•	Audio17	0	49	PassThru	•	0			Incoming 💌	0		•	more
	Audio18	0	50	PassThru	•	0			Incoming 💌	0		₽	more
	Audio19	0	51	PassThru	•	0			Incoming 💌	0		₽	more
	Audio20	0	52	PassThru	•	0			Incoming 💌	0		•	more
	Audio21	0	53	PassThru	•	0			Incoming 💌	0		₽	more
	Audio22	0	54	PassThru	-	0			Incoming 💌	0		⊽	more
	Audio23	0	55	PassThru	•	0			Incoming 💌	0		•	more
	Audio24	0	56	PassThru	•	0			Incoming 💌	0		~	more
	Proxy	. Outpu	ntPID Co	ompression Type Bit	rate	(Kbps)	Мо	de	Dial Norm	Delav	(ms)	Enabl	le
	Channe			Thru D		DC L/hee	- Charge						
	Notoc:		[Pa	assinnu 🔟 ju		196 Kbps	T Stereo	i.	-27 00	1 10		-	
	* Incoming :	audio channi	el assignme	ents based on discovery or	derv	when input PIDs a	are set to 0.						
	* When the	prinate is se	t to 0 Kbp	s for a specific channel, the e	enco	der derives it duri	ng channel sca	1.					
						Save Change	s						
		_	_							_	_		

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Figure 29: Audio Parameters Page – UDP Input

ASI Input Selection

For ASI, you can enable one or more audio streams, click the desired **Change** link in the Edit column. Figure 22 shows the resulting page.

Label	Description
Channels	This identifies the PIP audio channel 1 through 24.
Compression Type	This pulldown selects the processing option that are licensed and available to be used for each of the audio streams. Possible options include:
	• PassThru
	• AC-3 to HE-AAC
	• AC-3 to $DD + Pro$
	• Downsample to AC-3 stereo
	<i>Note: Refer to Table 1 on page 1 for more information on licensable audio options.</i>
Bit rate (Kbps)	This field sets the bit that is allocated to the compression mode selected. If pass through mode is selected, the bit rate needs to equal or greater than the
	incoming audio rate that could be encountered.
Mode	This field lets you select different encoding modes that may be available with the selected compression type. For example MPEG1 Layer II offers Stereo,
	Stereo Ind, or Stereo Dual options.
Dial Norm	The Dial Norm parameter controls the amplification level in the set top box.
	The scale used ranges in 1 dB steps from -1 to -31 dB.
	Incoming: Incoming in the pulldown menu indicates that the incoming dial norm value has been mapped across to the output.
	Note: Contrary to what you might assume at first, a setting of -31 represents no level shift in the consumer's decoder, and -1 represents the maximum level shift.
Delay (ms)	This parameter shows the delay time in milliseconds that is applied to the audio stream. This allows the audio to be advanced or delayed relative to the video.
PRM	Peak Reading Monitor tracks and holds the peak level that has been encountered since the PRM was last reset.
Enable	Enable allows you to select whether this audio stream configuration is enabled for inclusion in the outgoing transport stream.

Table 22: Audio Stream Configuration with ASI

Table 22: Audio S	
Label	Description
more	When selected, this opens additional audio parameters and information.
	When in AC-3 pass through mode the more tab provides access to modify the language descriptors in the stream.
	<i>Note:</i> This feature is not normally required, may be used to correct descriptor errors in incoming streams. Refer to Figure 23 on page 49 for more information.
	When in MPEG1 Layer II baseband encoding mode the more tab provides access to amplify and attenuate the audio level. Refer to Figure 24 on page 49 for more information.
	When in AC-3 baseband encoding mode more tab provides access to amplify and attenuate the audio level. In addition the tab provides access to a number of additional Dolby service configuration parameters, bit stream descriptor and preprocessing options. Refer to Figure 25 on page 50 for more information.
	When in AC-3 pass through mode the more tab provides access to monitor the metadata that is present in an incoming stream. Refer to
	Figure 27 on page 51 for more information.
Proxy Channel	This allows you to select the audio proxy channel.
Output PID	This allows the audio PID value to be defined.
Compression Type	The compression menu lets you select from a menu of available Codecs that can be associated with the proxy.
Bitrate (Kbps)	The bit rate menu lets you select bit rates for the audio proxy service.
Delay (ms)	This allows you to select whether this proxy audio stream configuration is enabled or disabled.
Enable	This allows you to select whether this proxy audio stream configuration is enabled or disabled.
	<i>Note:</i> You cannot enable proxy audio on a disabled audio channel.
Save Changes	To save changes made on this page, click Save Changes.
	<i>Note:</i> If you make a change on this page, and switch pages without saving, all changes are lost and will not take affect.

Table 22: Audio Stream Configuration with ASI

Status	Channels	Input PID	Output PID	Compression Type		Bitrate (Kbps)	Mode	Dial Norm	Delay (ms)	PRM I	Enable	moi
Monitor	Audio 1	0	33	PassThru	-	0		Incoming 💌	0	Γ	v	moi
nput Selection	Audio2	0	34	AC-3 to HE-AAC	•	96 Kbps 💌	Stereo	-27 dB 💌	0		Г	moi
Audio	Audio3	0	35	AC-3 to DD + Pro	-	224 Kbps 🔻		-27 dB 💌	0		Г	mo
lideo	Audio4	0	36	Downsample to AC-3	-	192 Kbps 🔻		-27 dB	0	Г	Г	mo
ncillary Data	Audio5	0	37	Downsample to AAC	-	96 Khns 🔻	Steren	-27 dB	0	-	Г	me
kup/Restore	Audio6	0	38	PaceThru	-		,		0		-	1000
ave/Select	Audio 7	0	00	DeseTher					р Б		-	Inc
em Config	Audio/		139	Passiniu	-	ю П			lo In		-	TIR
etwork	Audio8		140	PassIhru	-			Incoming 💌	μ 		L	mo
ystem Control	Audio9	0	41	PassThru	-			Incoming 💌	10			mo
assword Mgmt. cense Mgmt.	Audio10	0	42	PassThru	-	0		Incoming 💌	0		Γ	m
ersions and Upgrades	Audio11	0	43	PassThru	•	0		Incoming 💌	0			m
)	Audio12	0	44	PassThru	•	0		Incoming 💌	0		Γ	m
	Audio13	0	45	PassThru	•	0		Incoming 💌	0			mo
	Audio14	0	46	PassThru	-	0		Incoming 💌	0		Г	m
	Audio15	0	47	PassThru	-	0		Incoming 💌	0		Г	mo
MOTOPOLA	Audio16	0	48	PassThru	-	0		Incoming 💌	0			m
MOTOROLA	Audio 17	0	49	PassThru	-	0		Incoming •	0		Г	mo
	Audio 18	0	50	PassThru	-	0			0		Г	me
	Audio 19	0	51	PageThru	-	n			0		-	1000
	Audio 10	0	61	BoosThru	-				0		-	1000
	Audio20	0	02	Passiliu					р Б		-	IIIC
	Audio21		100	Passiniu	-	ю П			lo In		-	mit
	Audio22		54	PassIhru	-			Incoming 💌	μ 		L	mo
	Audio23		55	PassThru	-	0		Incoming 💌				mo
	Audio24	JO	56	PassThru	-	lo III		Incoming 💌	lo		Г	m
	Proxy Channe	Outpu	at PID Co	ompression Type Bit	rate	(Kbps)	Mode	Dial Norm	Delay ((ms)	Enabl	e
	Audio 2	• 50	A	C3 to HE-AAC 💌 🛛		96 Kbps	 Stereo 	 ✓ -27 dB] [0		Г	
	Notes: * Incoming a * When the	audio chann bitrate is se	el assignmi et to 0 Kbp	ents based on discovery on s for a specific channel, the e	der (enco	when Input PIDs a der derives it durir Save Changes	re set to 0. Ig channel scan .					

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Figure 30: Audio Parameters Page – ASI Input

Video Parameters Page

In the Navigation pane, click **Video** to access Video parameters. This page allows the user to set up of Basic parameters, Advanced parameters, and Proxy parameters for the incoming video stream.

Basic Video Parameters Page

The Basic Video Parameter page changes depending upon the input source selection, as shown in Figure 31 through Figure 33.

To access the Basic Video Parameters, click Video from the Navigation pane and then click Basic to display the Basic Video Parameters Page, as shown.

SE-6601R AVC Encoder	SE-6601R	
SE-6601R AVC Encoder Views Status Monitor Channel Config Input Selection Audio Video Output Streams Ancillary Data Backup/Restore Save/Select Download/Upload System Config Network System Control Password Mgmt Ucense Mgmt	SE-6601R Video Output Pages Basic Advanced Prox Resolution Output: 720x480 / NTSC Aspect Ratio Orily Standard Definition resolutions are affected. Asjace 16:9 GOP Structure I IBBP I I III I I I I I I I I I I I I I I I	NY I-Frame Period 32 (enge 1 - 100) Bit Rate: Transport Stream ▼ 5000 Kbps (enge 500 - 2000)) Rate Control Constant Bit Rate Constrained Fidelity CBR Bandwidth Rectamation: weekeet ▼ Stuffing Option: Null Packets ▼ Stuffing Option must be On for Constant Bit Rate Control
	© On © Off Top I Status I Auc Copyright @ 2009 Mol	Save Changes do I Video I Network I Save I System I Support I Logout burda, Inc. All Rights Reserved. Other Copylights May Apply. 9 m. January 11th, 2002 UTC - 1077.1683

Figure 31: Basic Video Parameters Page

SE-6601R AVC Encoder Views Status Monitor Channel Config Input Selection Audio Video Output Streams Andilary Data Backup/Restore Save/Select Save/Select System Config Network System Control Password Mgmt. Unerse Mont	SE-6601R Video Output Pages ● Basic • Advanced • Proxy SD Scaling Only Applies to Standard Definition Inputs (NTSC or PAL). Scaled Width: 720 / NTSC or PAL ▼ GOP Structure □ □ IP □ IBP □ IBBP □ IBBBP □ IBBBP □ IBBBP ○ IBBP ○ IBBBP ○ IBBP ○ IBBBP ○ IBBBP ○ IBBBP ○ IBBBP ○ IBBBP	I-Frame Period 32 (range 1 - 100) Bit Rate: [Transport Stream ♥ 5000 Kbps (range 500 - 20000) Rate Control Constant Bit Rate Constrained Fidelity CBR Bandwidth Reclamation: [weakest ♥]
Versions and Upgrades	Top I Status I Audio I Copyright € 2009 Motorela 103512 pr	Video I Network I Save I System I Support I Logout , Inc. All Filghts Reserved. Other Copylights May Apply. n, January 24th, 2002 UTC - 10.77.168.3

Figure 32: Basic Video Parameters Page – ATSC with SD input

SE-6601R AVC Encoder	SE-6601R	
Views Status Monitor Channel Config Input Selection Audio Video Video Output Streams Anciliary Data Backup/Restore Save/Select Download/Upload System Config Network System Control Password Mgmt. License Mgmt. Versions and Upgrades	Video Output Pages ● Basic ● Advanced ● Prove SD Scaling Only Applies of Standard Definition Inputs (NTSC or PAL) ● Caled Width: 720 / NTSC or PAL) ● Caled Width: 720 / NTSC or PAL) ● Cale Standard Definition Inputs (NTSC or PAL) ● Cale Width: 720 / NTSC or PAL) ● Cale Standard Definition Inputs (NTSC or PAL) ● ● Cale Standard Definition Inputs (NTSC or PAL) ● ● Cale Standard Definition Inputs (NTSC or PAL) ● ● Cale Standard Definition Inputs (NTSC or PAL) ● ● Cale Standard Definition Inputs (NTSC or PAL) ● ● Cale Standard Definition Inputs (NTSC or PAL) ● ● Cale Standard Definition Inputs (NTSC or PAL) ● ● Cale Standard Definition Inputs (NTSC or PAL) ● ● Cale Standard Definition Inputs (NTSC or PAL) ● ● Cale Standard Definition Inputs (NTSC or PAL) ● ● Cale Standard Definition Inputs (NTSC or PAL) ● ● Cale Standard Definition Inputs (NTSC or PAL) ● ●	I-Frame Period 32 (range 1 - 100) Bit Rate: Transport Stream ▼ 5000 Kbps (range 500 - 2000) Rate Control Constant Bit Rate Constrained Fidelity CBR Bandwidth Reclamation: weakest ▼ Butting Option: Null Packets ▼ Stuffing Option must be On for Constent Bit Rate Control Save Changes
M MOTOROLA	Top I Status I Audio I Copyright © 2009 Motorola 1.01:46 arr	Video I Network I Save I System I Support I Logout a, Inc. All Rights Reserved. Other Copyrights May Apply. , January 26th, 2002 UTC - 10.77.168.3

Figure 33: Basic Video Parameters Page – ASI with SD input
Parameter / Button	Description
Resolution	If the SDI is selected on the Input Selection screen, you can select the
Output	following resolution output options from the Output pulldown menu:
	480x480 / NTSC
	528x480 / NTSC
	544x480 / NTSC
	704x480 / NTSC
	720x480 / NTSC (default)
	480x576 / PAL
	528x576 / PAL
	544x576 / PAL
	704x576 / PAL
	720x576 / PAL
	960x720 / 50p
	1280x720 / 50p
	960x1080 / 50i
	1280x1080 / 50i
	1440x1080 / 50i
	1920x1080 / 50i
	960x1080 / 50p
	1280x1080 / 50p
	1440x1080 / 50p
	1280x1080 / 50p
	960x720 / 59.94p
	1280x720 / 59.94p
	960x1080 / 59.94i
	1280x1080 / 59.94i
	1440x1080 / 59.94i
	1920x1080 / 59.94i
	960x1080 / 59.94p
	1280x1080 / 59.94p
	1440x1080 / 59.94p
	1960x1080 / 59.94p
	If LIDP is selected on the Input Selection screen, you can select the
	following resolution output ontions from the Output nulldown menu:
	Tonowing resolution output options from the output pundown menu.
	480 / NTSC or PAL
	528 / NTSC or PAL
	544 / NTSC or PAL
	704 / NTSC or PAL
	720 / NTSC or PAL (default)
Aspect Ratio	Select the desired aspect ratio (4.3 or 16:9).
	<i>Note: This is only meaningful in SD. In HD the aspect ratio is always 16:9.</i>

Table 23: Basic Video Parameters

Parameter / Button	Description
GOP Structure	Select the GOP (Group of Pictures) structure for the encoded stream. Choose either I frame only, IP, IBP, IBBP, IBBBP, or IBBBP (with reference B Frame).
	<i>Note: Maximum efficiency and image quality is achieved using</i> IBBBP (with reference B Frame) .
Fixed GOP	Select the Fixed GOP – On or Off
I-Frame Period	Select the desired I-Frame Period (1 to 100).
Bit Rate	Select Transport Stream or Video Stream. Enter the bit rate of the stream to be encoded.
Rate Control	Check the Constant Bit Rate (CBR) box to stream data at the designated bit rate. This is the most common form of rate control.
	Enable the Constrained Fidelity CBR check box to introduce VBR (Variable Bit Rate) benefits into CBR domain applications. This hybrid feature does not allow the bit rate to exceed the designated rate (depending on the Bandwidth Reclamation selection). However, if the scene does not require the full data rate to achieve the desired picture fidelity, the encoder automatically reduces the bit rate.
	Use the Bandwidth Reclamation pull-down menu to set the desired bandwidth reclamation. Five choices are provided, ranging from weakest to the more aggressive (strongest) setting. The correlation between the setting and artifacts are synonymous; the more aggressive the setting, the more artifacts are created.
	If Constrained Fidelity CBR is selected, you can enable Stuffing Options:
	 Select Null Packets from the pulldown menu to produce a constant bit rate stream with transport stream stuffing, the process of filling up the complete spectrum with null packets to provide a constant data rate. For example, if the transport rate is 10 Mb/s and the elementary stream with audio and overhead is 7 Mb/s, the encoder inserts 3 Mb/s in null packets to achieve the selected 10 Mb/s rate. Select Video Packets from the pulldown menu to select a capped VDD stream without null packets.
	Note: The Stuffing Option must be On for Constant Bit Rate Control
Save Changes	To save changes made on this page, click Save Changes .
	Note: If you make a change on this page, and switch pages without saving, all changes are lost and will not take affect.

Advanced Video Parameters Page

To access the Advanced Video Parameters, click Video from the Navigation pane and then click Advanced to display the Advanced Video Parameters Page, as shown in Figure 34.

Video Output Pag	ges	
Basic	Advanced Proxy	
fig Date:	in the second second	
on Deblocking Filter	r	IDR Frequency
€ ∩n		One at Beginning of Stream
COff		C After Every I Picture(s)
ams Alpha Offset:	0 (range -6 - 6)	
ta Beta Offset:		Motion Compensated Temporal Filter
bre bild bildot.	0 (range -6 - 6)	Filter Strength: medium
		20 Maine Deduction Filter
Jpload		3D Noise Reduction Filter
g		Filter Strength: disabled
		Adaptive Detail Preservation Filter
itrol		Filter Strength:
Agmt.		Hildi Sucrigur. disabled
nt.		
d Upgrades		Save Changes
Data on this screen manually <u>restarted</u> upgrade, or contact	n may be out-of-date because the Check the <u>error log</u> or <u>installatic</u> It customer support.	e system is not running or is restarting. If not running, it may need to be <u>an log</u> for the cause. You may need to change some settings, perform a
Data on this screen manually <u>restarted</u> <u>upgrade</u> , or contact	n may be out-of-date because the Check the <u>error log</u> or <u>installatic</u> it customer support. Top I Status I Audio I	system is not running or is restartin an log for the cause. You may need i Video I Network I Save I System I Support

Figure 34: Advanced Video Parameters Page

Table 24:	Advanced	Video	Pa	arameters	
		_			

Parameter	Description
Deblocking Filter	Use the radio buttons to enable (On) or disable (Off) the AVC de-blocking filter. This filter is used to improve block edge artifacts from becoming noticeable when the encoder is aggressively encoding. The de-blocking filter processes the block edges so that they merge with adjacent blocks.
	If the filter is enabled, then two additional values need to be entered to control the strength of the filtering.
	Alpha Offset – Appropriate values lie between -6 and 6. Beta Offset – Appropriate valued lie between -6 and 6.
	<i>Note:</i> There is a strong correlation between data rate, content, and the amount of de-blocking that should be used. The higher the data rate being used, the lower the amount of de-blocking that should be used. For example, with file originated material at 1.5 Mbps, the deblocking setting should be set to Alpha=3 and Beta=3.
IDR Frequency	Use this window to initialize a set top box or to enable trick modes in set top boxes. Each set top box may have different requirements as to the frequency with which IDRs are sent. The IDR Frequency allows the operator to set the frequency and location of IDRs.
	Select either One at the Beginning of Stream or After Every _ I Pictures.

Parameter	Description
Motion Compensated Temporal Filter	Temporal filtering is an averaging process applied across video frames. The averaging (or filtering) process cancels any random noise in the video stream using MPEG motion "prediction" technology. This technique is known as Motion Compensated Temporal Filtering (MCTF), which allows the temporal filtering to account for motion and thus avoid motion blur. The options are:
	 disabled strongest strong medium weak weakest
3D Noise Reduction	3D Noise Reduction (3DNR) is designed to remove the random noise in a compression environment. The basis for the 3DNR system is a combination of spatial and motion compensated temporal filtering elements that are applied in conjunction with the a perceptual significance map to identify the areas where effective noise reduction can be applied transparently.
	 disabled strongest strong medium weak weakest
Adaptive Detail	Adaptive Detail Preservation Filter (ADP) is designed to preserve visually important detail and to attenuate the quantization noise, impulse noise, and hard to compress detail to which the eye is not sensitive. The options are: • disabled • strongest • medium
Save Changes	 weak weakest To save changes made on this page, click Save Changes. Note: If you make a change on this page, and switch pages without saving, all changes are lost and will not take affect.

Note: Encoder defaults are described in System Defaults on page 111.

Proxy Video Parameters Page

Note: To access the Proxy Video Parameters, select SDI on the Input Selection screen.

To access the Proxy Video Parameters, click **Video** from the Navigation pane and then click **Proxy** to display the Proxy Video Parameters Page, as shown in Figure 35.

Video Output Pages	
these surpart ages	
Doolo	
Basic Advanced Proxy	
Proxy Stream	
• On	
C Off	
Bit Rate	
2000 Kbps (range 200Kbps - 20Mbps)	
Proxy Video Output	
Output Interface:	eth0 💌
Target Address Type:	Multicast IP 💌
Target Address and Port:	239.1.10.175 8444
TOR:	
103.	10 (range U - 255)
Backup Provy Video Output	
Output Interface:	
Target Address Type:	Multicast IP
Target Address and Port:	239.1.10.175 8444
TOS:	(Same as Proxy Video Output)
	Save Changes
Top I Other L Audio	a LVideo I Natwork I Roya I Rustam I Russant I Larcut
Copyright @ 2009 Motor	rola, Inc. All Rights Reserved. Other Copyrights May Apply.
	Bit Rate 2000 Kbps (renge 200Kbps - 20Mbps) Proxy Video Output Output Interface: Target Address and Port: TOS: Packup Proxy Video Output Output Interface: Target Address Type: Target Address and Port: TOS: TOS:

Figure 35: Proxy Video Parameters Page

Parameter / Button	Description		
Proxy Stream	When On is selected, allows configuration of proxy parameters for the incoming video stream. If Off is selected, then the horizontal resolution is modified by the settings on this page. The resolution is factory set at 128x96 for HD inputs, 96x96 for SD inputs, and 128x96 / HD - SD.		
Bit Rate	Select the bit rate that indicates the sum of the video plus audio bit rates for the incoming video stream, choices are: 200 kbps, 300 kbps, 400 kbps, or 500 kbps.		
Proxy Video Output	Output Interface	Select the Ethernet port associated with the output video stream.	
	Type Address	Select either multicast or unicast for the output video stream.	
	Target Address	Enter the desired IP address to which the encoder transmits the output video stream for either multicast or unicast. For multicast, the default address is set to 239.1.1.2. If the video is unicast, the IP address of the destination PC must be specified. The valid range of IP addresses for multicast is 224.0.0.0 to 239.255.255.255.	
	Target Port	Enter the desired UDP port number (> 25) to which the encoder transmits the output video stream. Default port is 8434.	

Table 25: Proxy Video Parameters

Table 25. Floxy video Farameters			
Parameter / Button	Description		
Backup Proxy Video Output	Output Interface	Select the Ethernet port associated with the backup output video stream.	
	Target Address Type	Select either multicast or unicast for the backup output video stream.	
	Target Address	Enter the desired IP address to which the encoder transmits the backup output video stream for either multicast or unicast. For multicast, the default address is set to 239.1.1.2. If the video is unicast, the IP address of the destination PC must be specified. The valid range of IP addresses for multicast is 224.0.0.0 to 239.255.255.255.	
	Target Port	Enter the desired UDP port number (> 25) to which the encoder transmits the back up output video stream. Default port is 8434.	
Save Changes	To save changes	made on this page, click Save Changes.	
	Note: If you mak saving, all chang	e a change on this page, and switch pages without es are lost and will not take affect.	

Table 25: Proxy Video Parameters

Output Streams Page

In the Navigation pane, click **Output Streams** to access Output parameters. This page allows the user to set up IP Output, PID Parameters, DTA Output parameters, and Overlay for the output transport stream.

IP Output Parameters Page

To access the IP Output Parameters, click **Output Streams** from the Navigation pane to display the IP Output Parameters Page, as shown in Figure 36.

SE-6601R AVC Encoder	SE-6601R
Views Status Monitor 	Output Streams Pages PID Parameters • DTA Output • Overlay • FEC
Channel Config • Input Selection • Audio • Video • Output Streams • Andilary Data Backup/Restore • Save/Select • Downloaddl Inload	Primary IP Output C On C Off C Keep Alive Output Interface: Target Address Type: Multicast IP Target Address and Port: 239.0.22.1 B433 Time-To-Live: 10 (ranne 0265)
System Control • Network • System Control • Password Mgmt. License Mgmt. • Versions and Upgrades	TOS: 0 (range 0 - 255) Secondary IP Output C On C Off C Keep Alive Output Interface: eth0 💌 Target Address Type: Multicest IP 💌 Target Address region and Bati
MOTOROLA	Time-To-Live: (Same as Primary IP Output) TOS: (Same as Primary IP Output) Note: this system is not equipped with an ASI output card.

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Figure 36: Output Streams Parameters Page

Table	26:	IP	Output	Parameters
TUDIC	L V.		output	i urumeters

Parameter	Description
Primary/Secondary IP Output	When checked, indicates which IP output (Primary, Secondary, or
	both) is used for transmitting the output transport stream.
Keep Alive	When the keepalive function is on, a single UDP packet containing 7
	null MTS packets is transmitted to the target IP address/port once per
	second. This allows operators to conduct network connectivity or
	other maintenance tests without consuming bandwidth using full
	video streams.
Output Interface	Select the Ethernet port associated with either the primary or
	secondary output video stream.
Target Address Type	Use the pull-down menu to choose between Multicast IP and Unicast
	(for the selected streaming port).
Target Address	Enter the desired IP address to transmit. This address can be multicast
	or unicast. By default, the multicast address is set to 239.1.1.2. If the
	video is unicast, the IP address of the destination computer must be
	specified. The valid range of class D multicast addresses is 224.0.0.0
	to 239.255.255.255.

Target Port	Enter the desired UDP port number to transmit. The default Port used
	is 8434. Any port above 25 can be used.
Time-to-Live	Enter the number of hops that a packet can traverse. The value is
	decremented by one at each router that it encounters. The valid range is
	0 to 255.
TOS	The TOS menu allows TOS header bits to be set. (Not normally used.)
Save Changes	To save changes made on this page, click Save Changes.
	<i>Note:</i> If you make a change on this page, and switch pages without saving, all changes are lost and will not take affect.

Table 26:	IP Output	Parameters
-----------	-----------	------------

PID Parameters Page

To access the PID Parameters, click **Output Streams** from the Navigation pane and then click **IP Output** to display the PID Parameters Page, as shown in Figure 37.

Status	ourput ou camer rayes
Monitor	IP Output PID Parameters Otr Output Overlay FEC
hannel Config	PID Transport and Corviso
Input Selection	Main DTA Proxy Main DTA Proxy
• Audio	Video: 32 82 49 Transport ID: 1 1 1
Video Output Streams	
Andilary Data	PMT: 87 97 87 Service Number 1 1
Backup/Restore	
Save/Select	Audio Stream PIDS
Download/Upload	1: 33 PassThru (disabled) Insertion Rate
System Config	2 34 ACG TO AAC Hisblen
Network	PAT: 250 To DD+ Pro resulted
System Control	4. 26 ProcTati de bien
Password Mgmt.	4. OU rass mill (disable)
License Mgmt.	0. 3/ Fass Initia (disabled)
 Versions and Opgrades 	0: (36) (Pass Init) (disabled)
	7: (39) (Pass Thru (disabled)
	8: 40 PassThru (disabled)
	9: 41 PassThitu (disabled)
	10: 42 PassThru (disabled)
	11: 43 PassThru (disabled)
	12: 44 PassThru (disabled)
•	13: 45 PassThru (disabled)
	14: 46 PassThru (disabled)
	15: 47 PassThru (disabled)
	16: 48 PassThiu (disabled)
	17: 49 PassThru (Risabled)
	18: 50 PassThru (disabled)
	19: 51 PassThru (disabled)
	20: 52 PassThiu (disabled)
	21: 53 PassThiu (disabled)
	22: 54 PassThru (disabled)
	23: 55 PassThru (disabled)
	24: 56 PassThru (disabled)
	Note: edit <u>Audio</u> to change these pids
	Paulo Chanana
	Save unanges

Figure 37: PID Parameters Page

Some IP video installations may require that the Audio, Video, and Program Map Table (PMT) PIDs, transport ID and Service Number have certain values. There may also be a requirement that the PAT and

PMT packets get inserted into the stream at a certain rate. Set these parameters to the values required for the specific installation.

Parameter	Description
PID	Enter the Packet Identification (PID) values for the Video, PMT, and VBI teletext packets of the transport stream. These values can be configured for both the Main and the Proxy streams. The default values (for both Main and Proxy streams) are: Video (32), PMT (87), and VBI Teletext (257), but these values can be modified to suit the specific site requirements.
	<i>Note: VBI Teletext is only available when using SDI and PAL video input.</i>
Audio Stream PIDs	Read-only information showing the audio stream PIDs and compression types that were defined in the Audio Parameters page. If a PID value or a compression type for an audio stream is changed, the new value is shown on this page.
Transport ID	Enter the Transport ID for both the Main and the Proxy stream. The default value is 1, but it can be changed to suit the specific site requirements.
Service Number	Enter the Service Number for both the Main and the Proxy stream. The default value is 1, but it can be changed to suit the specific site requirements.
Insertion Rates	Enter the insertion rates for the Program Association Table (PAT) and the Program Map Table (PMT), which are typically set to the same value. The values available for these two parameters are 100ms, 111ms, 125ms, 142ms, 166ms, 200ms, 250ms and 333ms. This equates to values of 1/10 sec, 1/9 sec and continuing down to 1/3 sec. The default value is 250ms for the Main and 333ms for the Proxy.
Save Changes	To save changes made on this page, click Save Changes .
	<i>Note:</i> If you make a change on this page, and switch pages without saving, all changes are lost and will not take affect.

Table 27: PID Parameters

DTA Output Page

To access the DTA Output Parameters, click Output Streams from the Navigation pane and then click DTA Output, as shown in Figure 38.

SE-6601R AVC Encoder	SE-6601R
Views • Status • Monitor	Output Streams Pages • IP Output • PID Parameters • DTA Output • Overlay • FEC
Input Selection Audio Video Output Streams Andilary Data Backup/Restore Save/Select	Primary DTA Output Output Interface: Target Address Type: Multicast IP I Target Address and Port: 239.1.1.2 B434 Time-To-Live: 10 (range 0 - 255) TOS: 0 (range 0 - 255)
Download/Upload System Config Network System Control Password Mgmt. License Mgmt Versions and Upgrades	Backup DTA Output Output Interface: eth0 x Target Address Type: Multicast IP x Target Address and Port: 239.1.1.2 Time-To-Live: (Same as Primary DTA Output) TOS: (Same as Primary DTA Output)
MOTOROLA	Transport Stream Bit Rate Insert NULLs 22500 Kbps Save Changes
	Top I Stabis I Audio I Video I Network I Save I System I Support I Logout Copyright @ 2009 Motorola, Inc. All Pights Reserved. Other: Copyright May Apply.

Figure 38: DTA Output Parameters Page

Parameter	Description
Primary/Secondary IP Output	When checked, indicates which IP output (Primary, Secondary, or both) is used for transmitting the output transport stream.
Output Interface	Select the Ethernet port associated with either the primary or secondary output video stream.
Target Address Type	Use the pull-down menu to choose between Multicast IP and Unicast (for the selected streaming port).
Target Address	Enter the desired IP address to transmit. This address can be multicast or unicast. By default, the multicast address is set to 239.1.1.2. If the video is unicast, the IP address of the destination computer must be specified. The valid range of class D multicast addresses is 224.0.0.0 to 239.255.255.255.
Target Port	Enter the desired UDP port number to transmit. The default Port used is 8434. Any port above 25 can be used.
Time-to-Live	Enter the number of hops that a packet can traverse. The value is decremented by one at each router that it encounters. The valid range is 0 to 255.
Transport Stream Bit Rate	The bitrate of the MPEG-2 transport stream that will be transmitted using the configured settings on that page.
Insert NULLs	When checked, the MPEG-2 transport stream will insert null packets as necessary so the output bitstream will be CBR.
	When unchecked, the MPEG-2 transport stream will be VBR, but always equal to or less than the specified Transport Stream Bit Rate.

Table 28: IP Output Parameters

Table 28: IP Output Parameters

 Save Changes
 To save changes made on this page, click Save Changes.

 Note: If the same data and the same data and

Note: If you make a change on this page, and switch pages without saving, all changes are lost and will not take affect.

Overlay Parameters Page

To access the Overlay Output Parameters, click Output Streams from the Navigation pane and then click Overlay to display the Overlay Parameters Page, as shown in Figure 37.

Views Output S • Status Output S • Monitor • IP Outp Channel Config	treams Pages out • PID Parameters • DTA Output • Overlay • FEC
Channel Config	
Audio Ove Video Output Streams	le Overlay arlay Text: Motorola AVC Encoder 1
Andilary Data Backup/Restore Save/Select Download/Upload	Save Changes
System Config • Network • System Control • Password Mgmt.	Copyright © 2008 Motoria, in CAR Bright Reserved. The copyright Nav Apply. 10:13:59 pm, January 11h, 2002 UTC - 10:77:168:3
License Mgmt. Versions and Upgrades	



Figure 39: Overlay Parameters Page

The Overlay Text is superimposed on the video image prior to final compression, and is visible on the output video after the AVC stream is decompressed. This feature is intended for use during system installation or in diagnostic windows to aid the operator in testing channel lineups or other network functions.

Table 29: Overlay Parameters

Parameter	Description
Enable Overlay	You can change the Overlay Text when you enable Overlay Text.
Save Changes	To save changes made on this page, click Save Changes.
	<i>Note:</i> If you make a change on this page, and switch pages without saving, all changes are lost and will not take affect.

FEC Page

To access the FEC Page, click Output Streams from the Navigation pane and then click FEC to display the FEC Page, as shown in Figure 37.

SE-6601R AVC Encoder	SE-6601R
Views • Status • Monitor	Output Streams Pages • IP Output • PID Parameters • DTA Output • Overlay • FEC
Channel Config Input Selection Audio Video Output Streams Andilary Data Backup Restore	Columns: 10 Rows: 10 Save Changes
Save/Select Download/Upload System Config Network System Control Password Mgmt. License Mgmt.	Top I Status I Audio I Video I Network I Save I System I Support I Logout Copyright © 2009 Motorola, Inc. Al Rights Reserved. Other Copyrights May Apply. 10:14:37 pm, January 11th, 2002 UTC - 10.77.168.3



Figure 40: FEC Page

The encoder offers support for Pro-MPEG CoP3 Forward Error Correction (FEC). This feature is not normally enabled.

Table	e 30:	FEC
100		

Parameter	Description
Enable Overlay	You can change the Overlay Text when you enable Overlay Text.
Save Changes	To save changes made on this page, click Save Changes.
	<i>Note:</i> If you make a change on this page, and switch pages without saving, all changes are lost and will not take affect.

Ancillary Data Parameters Page

In the Navigation pane, click **Ancillary Data** to display the Ancillary Data Parameters Page, as shown in Figure 41 through Figure 44, depending on which input is selected on the Input Selection screen. These pages define how the encoder behaves in the presence of Copy Guard Management System (CGMS) signals, and how the encoder behaves when there are no such CGMS signals.

Basic Parameters Page

Note: CGMS signals are intended to prevent the encoded signal from being copied (in the case of digital signal) or being recorded (in the case of analog signals). CGMS settings only have an effect when the encoder is running with a Standard Definition signal.





Figure 41: Ancillary Basic Parameters Page with SDI

SE-6601R AVC Encoder	
Views	
 Status 	
Monitor	
Channel Config	
 Input Selection 	
Audio	
• Video	
 Output Streams 	
 Ancillary Data 	
Backup/Restore	
 Save/Select 	
 Download/Upload 	
System Config	
Network	
 System Control 	
 Password Mgmt. 	
 License Mgmt. 	
 Versions and Upgrades 	

Figure 42: Ancillary Basic Parameters Page – UDP

Parameter	Description
Dynamic CGMS	When Dynamic CGMS is On, the encoder determines the CGMS parameters allowed to pass through based on existing CGMS settings within the incoming video signal, without alteration in the encoded signal. When Dynamic CGMS is Off, the encoder uses the settings for the Copy Control Information, Analog Protection System, and Copyright Assertion and sends the appropriate settings within the incoming video stream.
	<i>Note:</i> The settings take effect only when a Standard Definition resolution has been selected on the Basic Video Parameters Page.
Copy Control Information	For NTSC as the video input, the choices are: Copy Free, No More Copies, Copy One Generation, or Never Copy. For PAL video input, the choices are: Copy Free or Never Copy.
Enable Ad Insertion	When checked, it indicates the encoder needs to pay attention to incoming ad insertion signals and generate the corresponding information in its outgoing video transport stream. The options are SCTE-104 PT and TCP.
	SCTE-104 PT is selected when the SCTE-104 ad insertion messages are embedded in SDI or HD-SDI signal.
	TCP monitors the TCP/IP network for SCTE-104 messages. TCP is selected when the SCTE-104 ad insertion message is being sent via Ethernet.
608/708 Closed Captions	The system supports encapsulation of EIA-608 and EIA-708 closed captioning data.

Table 31: Ancillary Basic Parameters

Parameter	Description
Analog Protection System	This functionality only applies to standard definition signals.
	Copy protection in the SD domain will always be passed through;
	however, the user may also control this by selecting "dynamic"
	control. When selected, the system monitors the incoming signal
	for CGMS signals and when they disappear for a period of time
	reverts to the user-defined internals settings.
AMOL Passthrough	The system can pass through AMOL information that may be
	present in the incoming stream.
ATSC Closed Caption Pass Through	This allows you to select whether or not you wish to pass through
	the closed captioning information found in ATSC broadcast
	signals.
DVB Subtitling Pass Through	When selected, this will allows subtitling information to be
	passed through to the output signal. This applies to PAL signals.
Save Changes	To save changes made on this page, click Save Changes .
	<i>Note:</i> If you make a change on this page, and switch pages without saving, all changes are lost and will not take affect.

Table 31: Ancillary Basic Parameters

Format Parameters Page



Figure 43: Ancillary Format Parameters Page – SDI and UDP

SE-6601R AVC Encoder	□ SE-6601R
Views • Status • Monitor Channel Config • Input Selection • Audio • Video • Output Streams • Anollary Data Backup/Restore • Save/Select • Download/Upload System Config • Network • System Confiol • Password Mgmt. • License Mgmt. • Versions and Upgrades	Basic Format VB Teletext / WSS Pass Through On Of AFD Pass Through On Of Full Frame (Recommended) Extent Box 16:9 Center Letter Box 16:9 Ce
MOTOROLA	Top I Status I Audio I Video I Network I Save I System I Support I Logout Copyright @ 2009 Motorola, Inc. All Rights Reserved. Other Copyrights May Apply. 10372 pm. January 24th. 2002 UTC - 10272 168 3

Figure 44: Ancillary Format Parameters Page – ATSC Tuner and ASI

Parameter	Description
DVB Teletext / WSS Pass Through	Select this radio button to allow the encoder to pass WSS and Teletext information to the output. This applies to PAL signals.
AFD Pass Through	The Active Format Description is passed through to the output when this is selected.
Dynamic Active Format Descriptor	The Dynamic Active Format Descriptor function is relevant for HD to SD down conversion function. In auto mode the system will format the SD output mode based on the incoming AFD descriptor. If set to manual mode, the AFD descriptor is ignored and the radio buttons allow you to select a fixed output mode.
	The system supports dynamic AFD – When manual mode is selected the video is formatted according to the code that has been selected.
	The system supports dynamic AFD – When auto mode is selected the video is formatted according to the code that has been received in the incoming signal.
	The following selections are available:
	• Auto (default)
	• Manual - Full Frame (recommended)
	- Letter Box 16.9 Center
	- Letter Box > 16:9 Center
	- Letter Box 16:9 Top
	- Letter Box 14:9 Top
	- Letter box 14:9 Center
	- 4:3 with alt. 14:9 Center
	- 16:9 with alt. 14:9 Center
	- 16:9 with alt. 4:3 Center
Save Unanges	to save changes made on this page, click Save Changes.
	<i>Note:</i> If you make a change on this page, and switch pages without saving, all changes are lost and will not take affect.

Table 32: Ancillary Format Parameters

Save/Select Configuration Page

In the Navigation pane, click **Save/Select** to display the Save/Select Configuration Page, as shown in Figure 45.

SE-6601R AVC Encoder	Save/Select Configuration
Views • Status • Monitor Chanel Config • Input Selection • Audio • Video • Output Streams • Andilary Data Backup Restore • Save/Select	Current Configuration No current configuration has been selected. Unsaved changes have been made (last one on Fri Jan 11 23:57:05 2002). List of Selectable Configurations You may use this page to save the current settings to a named configuration, or select one of the listed configurations and use it to change the current settings all-at-once. Please select one of the following configurations to begin and you will be asked what you wish to do with it on the next page: • new configuration -
Download/Upload System Config Network	Begin
System Control Password Mgmt. License Mgmt. Versions and Upgrades	Top I Status I Audio I Video I Network I Save I System I Support I Logout Copyright © 2009 Motorola, Inc. Al Flights Reserved. Other Copyrights May Apply. 12:09:09 am, January 12th, 2002 UTC - 10:77.168:3

Figure 45: Save/Select Configuration Page

Use this page to perform an action on a selected configuration template or create a new configuration file. At the top (in the Current Configuration section), the page also reports if there are any unsaved changes. A configuration is selected from the list. Click **Begin** and use the sub menus to name, save, overwrite, or delete the configuration. These sub menus are explained on pages 80 to 87.

Create New Configuration

To create a new configuration

- 1. On the Save/Select Configuration Page, highlight the -- new configuration -- label in the list and click **Begin**.
- 2. When the Save Configuration Menu appears, as shown in Figure 46, enter the new configuration name in the Configuration Name field. Do not use spaces in the file name. However, underscores are permitted.

3. Click Save Configuration. The file is saved locally on the encoder.

SE-6601R AVC Encoder	Save/Select Configuration
/iews Status Monitor Channel Config	Save Configuration All current settings will be saved under the name you specify: Configuration Name: Update
Input Selection • Audio • Video • Output Streams • Andilary Data	Save Configuration Cancel
Backup/Restore Save/Select Download/Upload	Top I Status I Audio I Video I Network I Save I System I Support I Logout Copylight © 2009 Mobiola, Inc. Al Filghts Reserved. Other Copylights May Apply. 12:11:05 am, January 12th, 2002 UTC - 10.77.168.3
System Config	
Network System Control Password Mgmt. License Mgmt.	

WOTOROLA Figure 46: Save Confirmation Menu

Existing Configurations

To perform an action on an existing configuration

On the Save/Select Configuration Page, highlight an existing configuration in the list and click **Begin**. The Choose Action Menu appears.

SE-6601R AVC Encoder	Save/Select Configuration
Views Status Monitor Channel Config Input Selection Audio	Choose Action You have selected the Update configuration. What would you like to do? © Select it (change the current settings) © Overwrite it with the current settings © Delete it
 Video Output Streams Ancillary Data 	Continue
Backup/Restore	
Save/Select	Top I Status I Audio I Video I Network I Save I System I Support I Logout Convictit © 2009 Motoria, Inc. All Biotis Beserved. Other Convictitis May Apoly
Download/Upload	12:12:53 am, January 12th, 2002 UTC - 10.77.168.3
System Config	
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System Control Bassword Mant	
License Mamt.	
• Useriana and the second as	



Figure 47: Choose Action Menu

The three options are described as follows.

- Select Configuration page 82
- Overwrite Configuration page 83
- Delete Configuration page 84

Select Configuration

To download and activate a selected configuration's parameters

- 1. From the Choose Action Menu, click Select It if it is not already selected.
- 2. Click Continue to display the Select Confirmation Menu, as shown in Figure 48.

SE-6601R AVC Encoder	Save/Select Configuration
Views Status Monitor Channel Config Input Selection Audio	Confirmation You have elected to overwrite the configuration Update. This will overwrite the saved configuration with current settings. There will be no interruption of service. Overwrite Configuration Cancel
Video Output Streams Andilary Data Backup/Restore Save/Select Download/Upload	Top I Status I Audio I Video I Network I Save I System I Support I Logout Copylight © 2009 Mobiola, Inc. Al Fights Reserved. Other Copylights May Apply. 12:13:40 am, January 12th, 2002 UTC - 10.77.168.3
System Config Network System Control Password Mgmt License Mgmt Versions and Upgrades	



Figure 48: Select Confirmation Menu

3. Click **Select Configuration** to activate the configuration's parameters. The configuration name appears on the Welcome Page.

Overwrite Configuration

To overwrite a selected configuration file with new (current) parameters

- 1. From the Choose Action Menu, click **Overwrite Configuration**.
- 2. Click **Continue** to display the Overwrite Confirmation Menu.

SE-6601R AVC Encoder	Save/Select Configuration
Views Status Monitor Channel Config Input Selection Audio Video Video	Confirmation You have elected to overwrite the configuration Update. This will overwrite the saved configuration with current settings. There will be no interruption of service. Overwrite Configuration Cancel
Output Streams Ancillary Data Backup/Restore Save/Select Download/Upload	Top I Status I Audio I Video I Network I Save I System I Support I Logout Copyright © 2009 Motorola, Inc. All Rights Reserved. Officer Copyrights May Apply. 12:13:40 am, January 12th, 2002 UTC - 10.77.168.3
System Config Network System Control Password Mgmt License Mgmt Versions and Upgrades	



Figure 49: Overwrite Confirmation Menu

3. Click Overwrite Configuration to update (overwrite) the selected configuration with new data.

Delete Configuration

To delete a selected configuration file

- 1. From the Choose Action Menu, click Delete Configuration.
- 2. Click Continue to display the Confirmation Menu, as shown in Figure 50.

lews	
Status Monitor Inannel Config	Confirmation You have elected to delete configuration Update . If you haven't downloaded a copy you cannot recover from this action. There will be no interruption of service.
Input Selection Audio Video	Delete Configuration Cancel
Output Streams Ancillary Data Cackup/Restore	Top I Status I Audio I Video I Network I Save I System I Support I Logout Copyright @ 2009 Motoria, Inc. 4J Rights Reserved. Oher Copyrights May Apply. 1914/27 and January 1914/2010 LTC. 107 2169.2
Save/Select Download/Upload	12.1402 all, cashay 121, 202 010-1077.1000
ystem Config Network System Control	
Password Mgmt. License Mgmt.	
• Versions and Upgrades	



Figure 50: Delete Confirmation Menu

3. Click **Delete Configuration** to delete the selected configuration file from disk.

Download/Upload Configuration Page

In the Navigation pane, click **Download/Upload** to display the Download/Upload Configuration Page, as shown in Figure 51.

SE-6601R AVC Encoder	Download/Upload Configuration
Views • Status • Monitor Channel Config • Input Selection • Audio • Video • Output Streams • Anciliary Data Backup:Restore • Save/Seled • DownloadMuload	List of Downloadable Configurations You may use this page to download one of these configurations (as a file) to your local computer, or to upload from your local computer a previously downloaded configuration. Select a configuration to download (or select*upload configuration* instead). Update
System Config • Network • System Control • Reserved Mant	Begin
License Mgmt Versions and Upgrades	Top I Status I Audio I Video I Network I Save I System I Support I Logout Copyright & 2009 Motorola, Inc. All Flights Reserved. Other Copyrights May Apply. 12:15:12 am, January 12th, 2002 UTC - 10:77:168.3

MOTOROLA

Figure 51: Download/Upload Configuration Page

Use this page to download (export) and upload (import) configuration templates between the encoder and the local machine (i.e., the computer running the web browser). The download and upload options are described as follows.

Download Configuration

Use the following procedure to save configurations on a machine other than the encoder.

To download a configuration to another machine

- 1. On the Download/Upload Configuration Page, select the existing configuration to be downloaded from the list.
- 2. Click Begin to display the Download Configuration Menu, as shown in Figure 52.

SE-6601R AVC Encoder	Download/Upload Configuration
Views • Status • Monitor Channel Config • Input Selection • Audio • Video • Video • Output Streams • Ancillary Data Backup/Restore • Save/Select • Download/Upload System Config	You may view configuration Update with this link or right-click it and select Save Target As to save to a file. List of Downloadable Configurations You may use this page to download one of these configurations (as a file) to your local computer, or to upload from your local computer a previously downloaded configuration. Select a configuration to download (or select "upload configuration" instead): Update
System Control Password Mgmt License Mgmt.	Begin
Versions and Upgrades	Top I Status I Audio I Video I Network I Save I System I Support I Logout Copylight © 2009 Motorola, Inc. All Fights Reserved. Other Copylights May Apply. 12:17:19 am, January 12th, 2002 UTC - 10.77:168.3

Figure 52: Download Configuration Menu

3. To view a text file of these parameters, click the hyperlinked file name at the top.

Note: This file only contains a list of parameters that were changed from their default values.

4. To download the configuration, right-click the hyperlink and click Save Target As. See Figure 53.

SE-6601R AVC Encoder	Download/Upload Configuration
/lews Status Monitor channel Config input Selection Audio Video Output Streams Anciliary Data Backup/Restore Save/Select Download/upload Bystem Config Network	You may view configuration Update with this link or right-olick it and select Save Target As to save to a file.
System Control Password Mgmt. License Mgmt Versions and Upgrades	Begin
	Top I Status I Audio I Video I Network I Save I System I Support I Logout Copyright © 2009 Mobiola, Inc. All Flights Reserved. Other Copyrights May Apply. 12:17:19 am, January 12th, 2002 UTC - 10.77.168,3



Figure 53: Save Menu

5. Select the desired target location and click Save.

Upload Configuration

Use this procedure to upload a configuration file from another machine to the encoder. In addition, if multiple encoders are deployed, use this procedure to upload one saved configuration to multiple encoders, eliminating the need to recreate the configuration on each individual machine.

To upload a configuration from another machine to the encoder

- 1. Go to the Download/Upload Configuration Page and click -- upload configuration --.
- 2. Click Begin to display the Upload Configuration Menu, as shown in Figure 54.

SE-6601R AVC Encoder	Download/Upload Configuration
Views • Status • Monitor Channel Config • Input Selection • Audio • Video • Video • Output Streams • Andilary Data Backup/Restore	Upload Configuration The configuration file you specify must come from your local machine (wherever you are running your web browser). You may leave the configuration name blank if you'd like it to be the same as the filename. Local File Name: Browse Configuration Name: Upload Configuration Upload Configuration Cancel
Save/Select Download/Upload System Config Network System Control Password Mgmt. License Mgmt. Versions and Upgrades	Top I Status I Audio I Video I Network I Save I System I Support I Logout Copylight © 2009 Motorola, Inc. All Pights Reserved. Other Copylights May Apply. 12:20:35 am, January 12th, 2002 UTC - 10.77.168:3



Figure 54: Upload Configuration Menu

- 3. Click Browse to display the Open Dialog.
- 4. Navigate to the location on the computer where the saved configuration file resides.
- 5. Highlight the desired file and click Open.

Note: To rename the file, enter a different name in the Configuration Name field.

6. Click **Upload Configuration** to complete the procedure. The file name appears in the list of configuration names.

Network Parameters Page

In the Navigation pane, click Network to display the Network Parameters Page, as shown in Figure 55.

Note: The encoder must be stopped before you disable an Ethernet port. Click edit this list to access the list, as shown in Figure 56.

0.005						
ews Ototuo	Network	Pages				
Monitor	IP Inter	faces • NTP S	ervers			
annol Config	- 11 11101	14000	014010			
Insuit Coloring						
Input Selection	IP Interfa	aces				
Video	Interface	DHCP Options		Static IP Options	Bonding Options	
Output Streams			Address:	192 168 0 206		
Ancillary Data	eth0		Manuala	DEE DEE DEE 0		
ackup/Restore	dato		nemasi:	200.200.200.0		
Save/Select			Gateway:			
Download/Upload				40.77.400.0		
stem Config		Hostname:	Address:	10.77.166.3		
Network	eth1	rockb129	Netmask:	255.255.255.192	-	
System Control			Gate way:	10.77.168.62		
Password Mgmt.						
License Mgmt.	eutz					
Versions and Upgrades	eth3				-	
	bond0				Primary Slave: eth0	
	bond1				Primary Slave: eth1	
			1		- K	
				<u>our n</u>		

Figure 55: Network Parameters Page (edit list)

The Network Pages IP Interfaces screen is displayed, as shown in Figure 56.

SE-6601R AVC Encoder			IP Interfaces	
Views Status Monitor Channel Config Input Selection Audio Video Output Streams	Network Pages IP Interfaces Warning: seving changes I appropriate for your networ have chosen.	TP Servers to the settings for IP i k, you should be able	terfaces will cause a disruption in serv to access these controls afterwards us	ice. If you make careful selections, that are ing the new hostname(s) or IP address(es) you
Ancillary Data	Interface	DHCP Options	Static IP Options	Bonding Options
Backup/Restore Save/Select Download/Upload System Config Network System Control	eth0	C use DHCP Hostname: rockb129	C use State IP Addess: 192 168 0.206 Netmatk: 255 255 255 0 Gateway:	C use Bonded IP Bond: None
System Control Password Mgmt. License Mgmt. Versions and Upgrades	eth 1	G use DHCP Hostname: rockb129	C use Stato IP Addess: 10.77.168.3 Nemask: 255.255.255.192 Gateway: 10.77.168.62	C use Bonded IP Bond: None
MOTOROLA	eth2	C use DHCP Hostname:	C use Stato IP Addess: 192.168.2.206 Netmark: 255.255.255.0 Gateway:	C use Bonded IP Bond: None
	eth3	C use DHCP Hostname:	C use Stato IP Addess: 192.168.3.206 Netmask: 255.255.0 Gatemay:	C use Bonded IP Bond: None
	bond0 enabled Pitmary Save: eth0 💌	Not Available	• use Stato IP Address: 10.27.0.99 Netmasti: 255.255.255.0 Gatrway:	
	bond1 enabled Plimary Stave: eth1	Not Available	C use Stato IP Address: 10.27,1.99 Netmath: 255,255,255,0 Gateway:	
			Save Changes	:

Figure 56: Network Parameters Page

Use this page to view and set network parameters. Networks Parameters are explained as follows.

IP Interfaces Page

To access the IP Interfaces Parameters page, click **Network** from the Navigation pane and then click **IP Interfaces** to display the IP Interfaces Parameters Page, as shown in Figure 56. While this information is read only, the user can edit and save the IP Interface parameters. To edit the parameters shown, click the **edit this list** hyperlink at the bottom of the page.

Note: Ethernet bonding, when enabled, allows two IP interfaces to act as if they are one. They have the same IP address, but only one of them is active at any one time. One port is referred to as the Primary Master and the other port is referred to as the Primary Slave. This configuration is implemented by creating a virtual device called bond0 or bond1. This virtual device controls the two physical Ethernet ports by routing the data through the appropriate port.

Under normal circumstances, the bond device sends all data through the Primary Master device. Should the connection to the Primary Master port be lost, the bond0 or bond1 device automatically switches any data over to the Primary Slave port. To any other device on the network, the data would appear to be coming from the same IP address.

This creates a redundant connection that is automatically managed by the encoder itself. This bonding approach can be used for either management connections or data connections.

Note: Leading zeros should not be used when entering the IP address value.

Note: Ethernet bonding is disabled by default.

Parameter	Description
Interfaces	The four Ethernet ports on the back of the encoder.
DHCP Options	Allows the user to enable Dynamic Host Configuration Protocol (DHCP) on a particular port using a method by which networked devices encoders are to obtain IP addresses and other parameters such as the default gateway, subnet mask, and IP addresses of DNS servers from a DHCP server. If DHCP is enabled for a particular port, it also requires a host name.
Static IP Option	If desired, enter the IP Address for each port on the encoder, the network IP address for each port, and the default gateway address for the encoder, as needed.
Save Changes	To save changes made on this page, click Save Changes . <i>Note: If you make a change on this page, and switch pages without saving,</i> <i>all changes are lost and will not take affect.</i>

Table 33: IP Interfaces

NTP Servers Page

To access the NTP Servers Parameters page, click **Network** from the Navigation pane and then click **NTP Servers** to display the NTP Servers Parameters Page, as shown in Figure 57.

The Network Time Protocol (NTP) is used to synchronize the internal clock of computers so that accuracy of Ad insertions can be assured. The NTP configuration defines with which device the encoder synchronizes. The encoder can be configured to look at two NTP devices – a primary and a backup. If the primary NTP device cannot be reached, the encoder then refers to the backup device for its time synchronization.

When the encoder starts up, it compares the local encoder time to the NTP reference device and adjusts the local time to be as close as possible to the NTP reference time. The time difference is sampled often when the encoder comes up, but as the drift approaches zero, the sampling of the NTP time is reduced. The goal of the NTP process is to have the time difference be less than one frame's worth of time.

Note: For a 30 frame/sec video, one frame is 33 milliseconds, or 33,000 microseconds, and for a 25 frame/sec video, one frame is 40 milliseconds, or 40,000 microseconds.

The Drift Information value is read-only and is shown in microseconds.

SE-6601R AVC Encoder	NTP Servers
flews Status Monitor channel Config puput Selection Audio Video Output Streams	Network Pages I P Inierfaces NTP Configuration NTP Primary IP Address: Backup NTP IP Address:
Andilary Data Sackup Restore Save/Select Download/Upload System Config	Primary NTP Offset (current): (not available) Backup NTP Offset (current): (not available) NTP Offset Threshold: 0.700
Network System Control Password Mgmt. License Mgmt. Versions and Upgrades	Save Changes Top I Status I Audio I Video I Network I Save I System I Support I Logout Copwidht © 2009 Motorola, Inc. All Richts Reserved. Other Copwidhts May Apply.

Figure 57: NTP Servers Parameters Page

Parameter	Description
NTP Primary IP Address	Enter the IP address of the primary NTP device.
Backup NTP IP Address	Enter the IP address of the backup NTP device.
Primary NTP Offset (current)	These are read-only parameters.
Backup NTP Offset (current)	The Primary and Backup NTP Offset values display the time difference between the primary (or backup) NTP server time and the current time on the local SE. The offset may be large when the unit first starts but should shrink as the SE skews its local clock to match the NTP server time.
NTP Offset Threshold	When the time difference between the active server and the local time exceeds this offset threshold, the SE generates a system alarm notifying the user accordingly.
Save Changes	To save changes made on this page, click Save Changes .
	<i>Note:</i> If you make a change on this page, and switch pages without saving, all changes are lost and will not take affect.

Table 34:	NTP	Servers	Parameters
-----------	-----	---------	------------

The columns in the NTP status table on the GUI have the following descriptions.

Note: Unless otherwise stated, all time values referenced in these descriptions are in milliseconds.

Parameter	Description
Remote	The IP address of the remote NTP server. If the IP address has an asterisk (*) next to it, that is the server currently being used for time synchronization. A plus (+) indicates a high quality server that <i>could</i> be used if the currently active server become unavailable or unreliable.
Refid	Refid is a historical value that has meant different things over the evolution of NTP. It is displayed for diagnostic purposes but has little practical value. For more details, refer to the NTP specifications available on the Internet.
Strata	A number indicating which clock stratum that server is providing. Lower numbers are better, with a stratum 1 being the best available on an IP network.
Туре	Values may be "u" for unicast, "b" for broadcast, "m" for multicast, and "l" for local transport type mechanisms.
	This value will almost always be "u" for unicast transmissions between the SE and the NTP server.
When	Length of time in seconds since the last synchronization request was completed.
Poll Interval	Length of time in seconds to wait between successive synchronization requests.
Reach	Indicates how many consecutive synchronization requests have completed successfully. This field is a bit shift register. For each successful synchronization request, a binary 1 is appended to the current value, up to 8 bits (synchronization requests) in a row. The value is displayed using octal notation. Therefore, if the Reach value is not equal to 377 (the octal representation of 8 ones a row, or binary 1111111) that NTP server has not been reliably responding and another NTP server may need to be selected for best performance.
Delay	The total round trip time the last synchronization request took.
Offset	The time difference between the server and the local time as of the last synchronization request.
Jitter	The variation in time differences noted between the server time and the local time over the last several synchronization requests. Higher values indicate a less reliable server (or network connection to that server).

Table	35:	NTP	Status
-------	-----	-----	--------

System Control Page

In the Navigation pane, click **System Control** to display the System Control Page, as shown in Figure 58.

SE-6601R AVC Encoder	System Control
/lews Status Monitor Channel Config Input Selection Video Video Output Streams Anciliary Data Backup/Restore Save/Select	Actions In order of increasing severity: C Standby Encoder C Stop Encoder Restart Encoder C Reboot System and Restart C Shuldown System Begin
Download/Upload ystem Config Network System Control Password Mgmt. License Mgmt. Versions and Upgrades	Top I Stabs I Audio I Video I Network I Save I System I Support I Logout Copyright © 2009 Motorola, Inc. All Rights Reserved. Other Copyrights May Apply. 12:26:40 am, January 12th, 2002 UTC - 10:77.168:3

Figure 58: System Control Page

Use this page to.

- Place the encoder in standby mode
- Stop the encoder
- Restart the encoder
- Reboot the encoder
- Shut down the encoder

Restart Encoder is used to stop and restart the encoder application with the least amount of encoder disruption. This is a relatively brief interruption (the same one that is performed automatically when a encoder parameter is changed and you click **Save Changes**). This menu pick allows the user to perform a manual restart on the encoder.

To perform an action, select the desired option and **Begin**. The encoder will provide a confirmation page that allows the user to continue with the desired action or cancel the action and return to normal operation.

Password Management Page

In the Navigation pane, click **Password Mgmt.** to display the Password Management page, as shown in Figure 59.

SE-6601R AVC Encoder	Password Management
Views • Status • Monitor Channel Config • Input Selection • Audio • Video • Video • Output Streams • Anciliary Data Backup Restore • Save/Select • Download/Upload System Config • Network • System Control • Password Mgmt. • License Mgmt. • Versions and Upgrades	Manage Password Protection Image Password Protection Leave a password Protection Leave a password blank to leave it unchanged. Note that if you are enabling passwords and no administrative password currently exits, you will need to set one now. The guest password may be blank. Leave a password Protection Currently not set) New Password: Image Administrator Password Currently not set) New Password: Petype New Password: Seve Changes
	Top I Stable I Audio I Video I Network I Save I System I Support I Logout Copyright © 2009 Mobriola, Inc. All Rights Reserved. Other Copyrights May Apply. 12:27:14 am, January 12th, 2002 UTC - 10.77.168.3

MOTOROLA

Figure 59: Password Management Page

Parameter / Button	Description
Manage Password Protection	For password protection, select the Enable Password Protection check box.
Change Guest Password	For password protection, select the Enable Password Protection check box.
Change Administrator Password	Enter New Password and Retype New Password to change the password.
Save Changes	To save changes made on this page, click Save Changes.
	<i>Note:</i> If you make a change on this page, and switch pages without saving, all changes are lost and will not take affect.

Table 36: Password Management

License Configuration Page

In the Navigation pane, click **License Mgmt.** to display the License Configuration Page, as shown in Figure 60.

Note: Be sure the check that the serial number of the encoder matches the license serial number before attempting to upgrade the software or licence.

Status		Current License Information	ı	
Monitor	Platform	Feature	License Number	Version Expiry
hannel Config	SE-6601R	SD HD AAC CFCBR PIP	2173689064000486	3.0 06- Never
 Input Selection 				15-2009
Audio	Upload New License File:	В	rowse	
Output Streams	Save Current License File			
Andilary Data				
Backup/Restore		Save Changes		
Save/Select				
 Download/Upload 				
System Config				
Network	Copvi	op i Status i Audio i video i Network i Save i Syste oht © 2009 Motorola, Inc. All Rights Reserved. Oth	m i Support i Logout er Copyrights May Apply.	
System Control		12:29:30 am, January 12th, 2002 UTC - 11	3.77.168.3	
 Password Mgmt. 				
License Mgmt.				



Figure 60: License Configuration Page

The encoder supports a software licensing system that enables features which are authorized for that particular encoder. To do this, a valid license file needs to be uploaded via the License Mgmt page. After a valid license file is uploaded it is automatically authenticated and authorized and the encoder supports the features associated with the new license file.

Parameter / Button	Description
Current License Information	Displays information pertaining to the uploaded/authorized licenses for this encoder (e.g., platform, feature description, license number,
	version, and expiration date (if applicable).
Upload new License	Enter the filename of the new license to add functionality to the encoder.
Save Current License File	Click the Current License File link to save the file to your desktop.
Save Changes	To save changes made on this page, click Save Changes.
	<i>Note:</i> If you make a change on this page, and switch pages without saving, all changes are lost and will not take affect.

Table 37: License Configuration

To view the license keys, or generate additional license keys that have been purchased but not generated, please visit:

http://slk.motorola.com/slk30

To request access to the Software License key (SLK 3.0) application go to the register link on the SLK website. If you experience problems with this site, please contact the Motorola Technical Services and Support department for assistance.

Versions and Upgrades Page

Use the Versions and Upgrades Page to view encoder version information, view the release notes, and manage installation packages. The Component, Available Installation Packages, and View Installation Log sections of the Versions and Upgrades Page are described as follows. To display this page, click Versions and Upgrades.

Nent Version 2 x Inte(R) Core(TM)2 Duo CPU T9400 @ 2.53GHz (6144 KB Cache) 2.626-R1402 4 GE 2.626-R1402 ewo 3.567 rital No. 123455678930400 b Dev / 6.5587bl Dev Dev4 (1
2 x Intel(R) Core(TM)2 Duo CPU T9400 @ 2.53GHz (6144 KB Cache 2 626-R1RC6 4 GE 9v 35ford frial No. 1234567939abode; 1234567939abode; 1234567939abode;
2 x Intel(H) Core(IM)2 bub CPO 19400 @ 253GH2 (6144 KB Cabrie 2.626 R1R02 4 GE 9V 335ro vrial No. 123456799abode(i h Dev / Assembly Dev Dev4 (
2.626-H1HC 2.626-H1HC 4 G ev 33576 virial No. 123456769abcdef b Rev / Assembly Dev Dev/ (
Idemory 4 Gi sv 35ro rrial No. 123456793abcdef Ib Day / Assambly Day Day4 /
94 3560 srial No. 123456789abcdet in Dav / Assembly Dev Dav /
rial No. 123456789abcdef
ih Rev / Assembly Rev Rev /
10147
w 0513163
v / Date 0x60000004 / Jul-08-2009 / 10:49:2
r Bey 4.0-0.090706for a
le Installation Packages
kstar-4.0-0.090708for_qa.tar.gz Sets the software to version rockstar-4.0-0.090708for_qa
Browse.
,
Examine Package Delete Package (delete multivle postcares)
(delete multiple packages)
package may be examined at a time, for all users. When anyone is in the middle of an examination (which may lead to an installation), everyou wait for it to be completed or abandoned before any other installation packages may be examined. To see which packages have been instal
r II-k

Figure 61: Versions and Upgrades Page

Component

This section lists the versions of the encoder's CPU, OS, DOM Rev, REM Serial No., REM Fab Rev/ Assembly Rev, REM Firmware Rev / Status, and Software. To view any associated release notes, click the Release Notes hyperlink to display the menu.

Available Installation Packages

The top portion of the Available Installation Packages section lists all available encoder software installation packages. File names have the .tar.gz extension. These packages can be viewed, installed, or deleted.

Note: Some packages do not have associated release notes.

Examine Package

To examine one of the listed software packages

- Select the software package to examine. 1.
- 2. Click Examine Package.
- 3. When the Confirmation Menu appears, click Next -> Examine Package.
- 4 To install, go to Upload and Install New Package section on page 98.
- 5. To abandon the installation, click Abandon Installation.

Delete Package

To delete one of the listed software packages

- 1. Select the software package to delete.
- 2. Click Delete Package.
- 3. When the Confirmation Menu appears, click Delete Package.

Upload and Install New Package

To upload and install a new software package

- 1. Ensure that the new software installation file is downloaded from Motorola (e.g., via e-mail), and stored in a known location on the computer.
- 2. Click Browse to display the Open Dialog.
- 3. Navigate to the file's location on the computer where the saved software installation file resides.
- 4. Highlight the file and click **Open**. The filename appears in the Upload field.
- 5. Click Examine Package to view the Package Confirmation Menu, as shown in Figure 61.
- 6. The Description Page is displayed, as shown in Figure 62.

Note: The menu on the left side has changed to the Installation menu.



- - -

Note: This dialog box confirms the selected software package and offers the choice to abandon the installation procedure or continuing.
Click Next -> Install to begin the installation page. The installation progresses, as shown in Figure 63.



Figure 63: Installation In Process Page

8. At the conclusion of the procedure, click **Finish** on the final menu, as shown in Figure 64.

Install Package	Install
Description	Install Complete
Install	install complete
Abandon	You have successfully performed the installation of the rockstar4.0-0.090708for_qa package on your Rockstar Encoder. Press Finish to clear out this installation package so that others may be examined in th future.
	Installation Log
	01/12/02 00:36 installing rockstar-4.0-0.090708for_ga
	01/12/02 00:36 stop zenc service
	01/12/02 00:36 sanity check before installing new package
	01/12/02 00:36 Video chips verified: installation continues
MOTOROLA	01/12/02 00:36 running background script master.php
	01/12/02 00:36 running script precheck.sh
	01/12/02 00:36 stopping zenc service
	01/12/02 00:36 error code 2 from cmd:
	01/12/02 00:36 /usr/bin/shazam service zenc stop
	01/12/02 00:36 stopping mvalarmd service
	U1/12/U2 UU:36 stopping mvsnmpd service
	01/12/02 00:36 Stopping nrtsta Service
	01/12/02 00:36 metata might already be stopped
	01/12/02 00:36 respected old reactor rep
	01/12/02 00:36 removed old controle-rockster rum
	01/12/02 00:36 removed old quirrocketar rum
	01/12/02 DO:36 removed old audio-rockstar trum
	01/12/02 D0:36 removed old lod-rockster rum
	01/12/02 00:36 rum(a) to be added:
	01/12/02 00:36 controls-rockstar-4.0-0.090708secondary at 2mbps.i386.rpm
	01/12/02 00:36 gui-rockstar-4.0-0.090708secondary at 2mbps.i386.rpm
	01/12/02 00:36 audio-rockstar-1.0-0.090604first32Bld_i386.rpm
	01/12/02 00:36 lcd-rockstar-1.0-0.090604first32Bld.i386.rpm
	01/12/02 00:36 rpm(s) successfully added
	01/12/02 00:36 rpm(s) to be added:
	01/12/02 00:36 rockstar-4.0-0.090708for_qa.i386.rpm
	01/12/02 00:37 rpm(s) successfully added
	01/12/02 00:37 running script postcheck.sh
	01/12/02 00:37 running script restart-httpd.sh
	01/12/02 00:37 installation of rockstar-4.0-0.090708for_qa complete
	Installation is complete.
	Finish
	Tan I Description I Parameters Lincted Likhandon
	Copulat 6 2009 Materia to all Pietri Scinster A Aserdon
	Copyright w 2000 motiona, inc. All highs heselited. Other Copyrights May Appry.

Figure 64: Installation Completed

View Installation Log

To view the installation log

1. At the bottom of the Available Installation Packages section, click the **View the Installation Log** hyperlink to review the installation process in log format.

SE-6601R AVC Encoder	Versions and Upgrades
Views Status Monitor Channel Config input Selection Audio Video Video Output Streams Anciliary Data Backup Restore Save/Select Save/Select System Config Network	Installation Log 03/06/09 17:07 upploaded rockstar-3.2- 0.99030J0WBITRATE.tar.gz 03/06/09 17:07 uppacked rockstar-3.2- 0.99030J0WBITRATE.tar.gz 03/06/09 17:07 installing rockstar-3.2- 0.99030J0WBITRATE 03/06/09 17:08 Video chips verified: installation continues 03/06/09 17:08 running background script master.php 03/06/09 17:08 running script precheck.sh 03/06/09 17:08 error code 2 from cmd:
System Control Password Mgmt. License Mgmt Versions and Upgrades	Top I Status I Audio I Video I Network I Save I System I Support I Logout Copyright © 2009 Motorola, Inc. All Rights Reserved. Other Copyrights May Apply. 12:39:07 am, January 12th, 2002 UTC - 10:77.168.3

Figure 65: Installation Process in Log Format

2. Click Return to Package List to return to the Versions and Upgrades page.

Description Pages

Figure 66 illustrates the encoder Description Page, which allows the user to change the description of the encoder to help differentiate encoders in a large network. Two descriptions can be edited:

- Status Pages
- Channel Description

Click the edit description for either hyperlink on the Welcome page.

	Description
Views	
Ctatue	Status Pages
Monitor	System Transport Streams CPUs Alarms
Channel Config	
Input Selection	Description
Audio	SE-6601R AVC Encoder
• Video	
Output Streams	Display Description on Every Page
Ancillary Data	The first 20 cheracters are displayed, on every page above the navigation menu.
Backup/Restore	Save Changes
Save/Select	
Download/Upload	
System Config	Tan L Phylo L Burlio L Midea L Material L Paura L Outstan L Outstan L Country
Network	Copyright © 2009 Matorial, Inc. All Flights Reserved. Other Copyrights May Apply.
System Control	12:40:13 am, January 12h, 2002 UTC - 10.77.168.3
 Password Mgmt. 	
License Mgmt.	
 versions and Upgrades 	
MOTOROLA	
SE-6601R AVC Encoder	Channel Description
SE-5601R AVC Encoder Views	Channel Description
motorola SE-6601R AVC Encoder Views Status	Channel Description Status Pages
motorola SE-6601R AVC Encoder Views Status Montor	Channel Description Status Pages • System • Transport Streams • CPUs • Alarms
ESE-5601R AVC Encoder Views Status Monitor Channel Config	Status Pages • System • Transport Streams • CPUs • Alarms
motorola SE-6601R AVC Encoder Views Status Konitor Channel Config input Selection	Channel Description Status Pages • System • Transport Streams • CPUs • Alarms Channel Description
motorola SE-5601R AVC Encoder Views Status Monitor Channel Config Input Selection Audio	Channel Description Status Pages System Transport Streams Channel Description
EC-S601R AVC Encoder Status Nonitor Channel Config Nuture Selection Audio Video	Channel Description Status Pages • System • Transport Streams • CPUs • Alarms Channel Description • CPUs • Alarms
EC-6601R AVC Encoder Status Status Status Konitor Channel Config Input Selection Audio Video Output Streams	Status Pages • System • Transport Streams • CPUs • Alarms Channel Description
E SE-5601R AVC Encoder Views • Stables • Monitor Channel Config • Input Selection • Audio • Video • Output Streams • Anciliary Data	Channel Description Status Pages • System • Transport Streams • CPUs • Alarms Channel Description
ESE-6601R AVC Encoder ESE-6601R AVC Encoder Views • Status • Status • Status • Status • Input Selection • Audio • Video • Output Streams • Anciliary Data Backup/Restore	Channel Description Status Pages • System • Transport Streams • CPUs • Alarms Channel Description Save Changes
Exercise Contractions of the second s	Channel Description Status Pages • System • Transport Streams • CPUs • Alarms Channel Description Save Changes
Exercise Automation (Control Control C	Status Pages • System • Transport Streams • CPUs • Alarms Channel Description Save Changes
Exercise Configuration Configu	Status Pages • System • Transport Streams • CPUs • Alarms Channel Description Save Changes
Exerce control	Channel Description • System • Transport Streams • CPUs • Alarms Channel Description
Exe-seo1r AVC Encoder Exe-seo1r AVC Encoder Exercise Status Status Status Channel Config Video Video Video Video Output Streams Ancillary Data Backup/Restore Save/Seledt Download/Upload System Config Network System Control Password Memt	Status Pages • System • Transport Streams • CPUs • Alarms Channel Description Save Changes Save Changes Top I Status I Audio I Video I Network I Save I System I Support Logout Copyright © 2009 Motorola, In: All Fights Passaved. Other Copyrights May Apply. 12:40:58 am, January 12th, 2002 UTC - 10:77.168.3
Exercise Control Contr	Channel Description Status Pages • System • Transport Streams • CPUs • Alarms Channel Description Save Changes
Exercise Control Contr	Channel Description • System • Transport Streams • CPUs • Alarms Channel Description Save Changes Top I Status I Audio I Video I Network I Save Dystem I Support Logout Copyright # 2009 Motorcla, Inc. All Fights Preserved. Other Copyrights May Apply. 12:4059 am, January 12th, 2002 UTC - 10:77.1683
EXECTOR CALC Encoder EXECTOR AVC Encoder Views Anonico Channel Config Anonico Channel Config Audio Video Oulput Streams Anolitary Data Backup/Restore Save/Select Download/Upload Bownload/Upload System Config Network System Config Anonico Password Mgmt License Mgmt Versions and Upgrades	Channel Description • System • Transport Streams • CPUs • Alarms Channel Description Save Changes Top I Status I Audio I Video I Network I Save I System I Support I Logout Copyright # 2009 Motorda, Inc. Al Fights Reserved. Other Copyrights May Apply. 12:40:58 am, January 12th, 2002 UTC - 10:77:168:3
Exercation of the series of th	Channel Description • System • Transport Streams • CPUs • Alarms Channel Description Save Changes Top I Status I Audio I Video I Network I Save I System I Support Logout Copyright & 2009 Motoreta, Inc. Al Pights Preserved. Other Copyrights May Apply. 12/40:58 am, January 12th, 2002 UTC - 10.77.168.3



Figure 66: Description Pages

In a multiple-encoder network it can be difficult to determine which encoder is being controlled since all the browser pages look the same. By changing the description using this page, the description shown at the top of the Navigation pane on each browser page is altered. For example, if the description is changed to:

Channel 10 Comedy

This text appears on the top of the Navigation pane for each page making it much easier to identify the encoder being accessed. There is a limit of 20 characters that can be used to describe the encoder.

After the new description is entered and saved, this description is also shown on the fourth line of the LCD display on the front of the encoder. This makes it much easier to find a specific encoder in a group of encoders.

Note: If the Display Description on Every Page checkbox is not checked, this description only appears on the Welcome page and all other pages will retain the default encoder description for that encoder in the Navigation pane.

Save Changes

IMPORTANT: The current stream will be interrupted while the encoder restarts.

Click **Save Changes** to save any changes made on this page, and immediately restart the encoder with the new parameters.

Note: If changes are made on this page and not saved, the changes will be lost and not take effect.

5

Maintenance and Troubleshooting

This chapter describes maintenance and troubleshooting procedures and contains the following topics.

- Software Revision page 103
- Version Upgrade page 103
- Support Page page 104

Software Revision

The platform's software revisions status is found on the Versions and Upgrades page. Please have this information on hand when making a call to Motorola Customer Support. See the System Diagnostics page section for details.

Version Upgrade

Use the Versions and Upgrades page to view system version information, view release notes, and manage installation packages. Refer to the following three sections for complete instructions.

- To delete a software installation package, see Delete Package on page 98.
- To install (or re-install) a current software package, see Examine Package on page 97.
- To install (or upgrade) a new software package, see Upload and Install New Package on page 98.

Support Page

Support Link

If a system problem occurs, access the SE-6x Series encoder Support page, as shown in Figure 67, by clicking on the support link under the information pane.

IMPORTANT: The SE-6x Series encoder Debug Menus are designed for troubleshooting and diagnostics only. The menus are only to be used by qualified facility personnel in conjunction with Motorola Technical Support. If a system problem occurs, contact Motorola Technical Support immediately.

Views Status Monitor	Status Pages System Transport Streams CPUs Alarms	Show Monitoring
Channel Config • Input Selection • Audio	Welcome to the SE-6601R AVC Encoder Manager. You are controlling:	
Video Output Otroomo		BIT IN THE ING AND
Ancillary Data	SE-6601R AVC Encoder (edit description)	
ackup/Restore	Alarms	None
Save/Select	Version	4.0-0.090708tor_qa
Download/Upload	IP Address Configuration Name	10.77.168.5 Not Pol
System Config	Conliguration Name	Not Set
Network	NTR Server	Not Pupping
System Control	SE_COIP (add decorption)	Not Kulling
Password Mgmt.	Statuc	Pupping
Versions and Lingrades	Alarms	None
vereiene and opgradee	Input	SDI1
	Video	HD:1920 x 1080 / 59.941
	Audio 1	PassThru AC-3 Dolby 3/2

Figure 67: Support Link



Encoder Log

Most traps generated by the encoder can also be found in the encoder log, but the opposite is not true – not all messages in the log will appear as trap messages.

You can view the encoder log from the support link under the information pane.

Note: The log is cleared and restarted each time the encoder restarts.

Select the appropriate log from the Support Navigation pane, as shown in Figure 69.

Support	Support - Log
Views me	Contents of the /var/log/zenc Current Log
ights ort Call Settings to Factory Defaults	0 Jan 12 00:37:27.000016 (+0.000016) **** HEHLOG START *** 1 Jan 12 00:37:27.000066 (+0.000050) ===== IPP detected CPU type: 33 ==== 2 Jan 12 00:37:27.000079 (+0.000013) license: unknown Platform SE- 6601R 3 Jan 12 00:37:27.000080 (+0.000001) license: feature "SD HD AAC CFCER FIP" processed 4 Jan 12 00:37:27.000085 (+0.000005) ===== MAIN- BOCKSTEP ENCODER ====
nt Log g Output n to Standard View	Jan 12 00:37:27.000086 (+0.00000) ************************************
	8 Jan 12 00:37:27.000086 (+0.000000) RestartOnFatalErrors = 1 9 Jan 12 00:37:27.000087 (+0.000000) RestartOnFatalErrors = 1 10 Jan 12 00:37:27.000087 (+0.000000) StatEMilticastEnable = 0 11 Jan 12 00:37:27.000087 (+0.000000) StatEMilticastEnable = 0 12 Jan 12 00:37:27.000087 (+0.000000) StatEMilticastEnable = 0 13 Jan 12 00:37:27.000087 (+0.000000) StatEMilticastEndeface = eth0
	The above window contains the current log from the file Avar.log/zenc, as it is now being recorded. The file was last changed on Sat Jan This window does not update automatically, you must press the refresh button to see an update.
	Top I Status I Audio I Video I Network I Save I System I Support I Logout Copyright © 2009 Motorola, Inc. All Rights Reserved. Other Copyrights May Apply.

Figure 69: Current log



Encoder Specifications

This appendix lists all SE-6x Series encoder specifications.

Base Features	Specification
Encodes AVC	1080i Resolutions:1920, 1440, 1280, 960
(Main Profile at Level 4)	
	1080p Resolutions:1920
	720P Resolutions:1280, 960
Encodes AVC	625i Resolutions:720, 704, 544, 528, 480
(Main Profile at Level 3)	
	525i Resolutions:720, 704, 544, 528, 480
Low Resolution Proxy	Resolution: 128 x 96 HD
(Main Profile at Level 3 with no B frames)	
	Selectable: 96 x 96 SD, 192x192 HD (HD-SDI
	input only)
	1 0/
	Data Rate Selectable: 200 kbps, 300 kbps, 400
	kbps, 500 kbps
Table 2: Inputs	
Inputs	Specification
SMPTE	SMPTE 259M
	SMPTE 292M SD/HD-SDI Serial Interface
Embedded Audio	SMPTE 299M at 48 kHz HD
	SMPTE 272M at 48 kHz
Language Support	ISO639
RF	ATSC
IP	UDP over IP, unicast or multicast
ASI	ASI per ETSI EN 50083-9

Table 1: Base Features

3G Dual

Table 3: Output		
Output	Specification	
Compressed Streams	Video bitstream:	
	H.264 in MPEG-2 TS	
	PAT/PMT	
	Network:	
	ASI (optional)	
	IP unicast or multicast	

Table 4: Power and Physical Dimensions

Power and Physical Dimensions	Specification
AC Power	100 to 240 volt AC, Auto Sensing, 50 to 60 Hz
DC Power	-40 to -60 volt DC, Auto Sensing
Power Consumption	Less than 200 W
Dimensions	1 RU (1.75" x 18.9" x 15.5")

Table 5: Country Compliance

Country Compliance	Specification
North America	FCC Part 15 Class A, ICES003, Class A
	UL 60950-1, CSA C22.2 No. 60950-1,
	TUV NRTL/C-Mark
European	EN55103-1, EN55103-2 (EMI/EMC)
	EN60950-1+A11: CE-Mark, ROHS WEEE

Encoder Features Specification Encoder Features All Intra 4/16 Estimation Modes CABAC Coding **De-blocking Filter** Motion Estimation: P, B Frames, and Reference B Frames Hierarchical Search 16x16, 8x8, Block Sizes Field and Frame Rate Control: CBR and Constrained Fidelity CBR Adaptive Quantization Selectable I, P, B GOP Structures Ancillary Signals EIA 708 Closed Captioning EIA 608 Closed Captioning and XDS Audio Specifications 4 Stereo Pairs MPEG-1 Layer 2 HE-AAC LC-AAC PassThru DD + Pro Encode DD + Pro AC-3 Encode (2.0) Browser Interface for Single Unit Control System Management SNMP v2 Network Management Interface

Table 6: Encoder Features

Audio Transcode Specifications	AC-3 to HE-AAC		
	Trans Dolby-E to AC-3		
	Trans Dolby-E to DD + 1	Pro	
	Trans Dolby-E to AAC		
	Downsample to Stereo A	AC-3	
	Downsample to Stereo A	AAC	
	Note: AC-3 to DD Plus	<i>Note: AC-3</i> to DD Plus and <i>AC-3</i> to <i>HE-AAC</i> are licensed	
	options for all encoders.		
	AC-3 to Dolby Digital P	lus Pro	
Down Conversion	Convert HD input signals	s to SD output signals using AFD cues	
	detected on the input signal, or use manual overrides.		
	Note: Optional with all	encoders.	
Proxy Audio	Pre-compressed inputs:	PassThru	
		AC-3 to HE-AAC	
		AC-3 to Dolby Digital Plus Pro	
	<i>Note: AC-3</i> to DD Plus and <i>AC-3</i> to <i>HE-AAC</i> are licensed options for all encoders.		
		MPEG 1 Laver II	
	SDI/HD-SDI inputs:		
	SDI/HD-SDI inputs:	HE-AAC	
	SDI/HD-SDI inputs:	HE-AAC LC-AAC	
	SDI/HD-SDI inputs:	HE-AAC LC-AAC AC-3 PassThru	

Table 6: Encoder Features

System Defaults

This appendix provides all SE-6x Series encoder default settings.

Audio Defaults

Table B1:Audio Parameters

Audio Parameters	Default Setting
	Stream 1
PID	33
Compression Type	MPEG
Bitrate	192 Kbps
Input Source	GR1 CH 1/2
Language	English
Mode	Stereo
Delay	0ms
Enabled/Disabled	Enabled
	Stream 2
PID	34
Compression Type	MPEG
Bitrate	192
Input Source	GR1 CH 3/4
Language	English
Mode	Stereo
Delay	0ms
Enabled/Disabled	Disabled
	Stream 3
PID	35
Compression Type	AC3PT
Bitrate	448
Input Source	GR2 CH 1/2
Language	English
Mode	Dolby
Delay	0ms

Table B1:Audio Parameters

Audio Parameters	Default Setting
Enabled/Disabled	Disabled
	Stream 4
PID	36
Compression Type	HE-AAC
Bitrate	48 Kbps
Input Source	GR2 CH 3/4
Language	English
Mode	Stereo
Delay	0ms
Enabled/Disabled	Disabled

Video Defaults

Table 2: Video Parameters

Video Parameters	Default Setting
Format	480i
Horizontal Resolution	720
Field/Frame Encoding	Field
Close Caption Carriage	Enabled
GOP Structure	IBBBP (with Reference B Frames)
I-Frame Period	32
Bit Rate	2 Mbps
Rate Control	Constant Bit Rate

Table 3: Video Output Parameters

Video Output Parameters	Default Setting
Output Interface	eth0 (port1)
Target Address Type	Multicast
Target Address	239.1.1.1
Target Port	8433
Time-To-Live	10

Table 4: Video Advanced Parameters

Video Advanced Parameters	Default Setting
IDR Frequency	1 at the beginning of stream
De-blocking Filter	On
Alpha Offset	0
Beta Offset	0
Motion Compensated Temporal Filter	Medium
3D Noise Reduction Filter	Weak
Adaptive Detail Preservation Filter	Weak

Ancillary Data Defaults

Table 5: Ancillary Data Parameters

Video Parameters	Default Setting
DVB Teletext / WSS Pass Through	On
WSS Pass Through	On
WSS Package Mode	Mode 0
Teletext Lines Checkbox	Unchecked
Active Format Description	On
Active Format Description manual control	Auto

Network Defaults

Table 6: Network Parameters

Network Parameters	Default Setting	
Eth0 (Port 1)	IP Address	192.168.0.202
	Network Mask	255.255.255.0
Eth1 (Port 2)	IP Address	192.168.1.202
	Network Mask	255.255.255.0
Eth2 (Port 3)	IP Address	192.168.2.202
	Network Mask	255.255.255.0
Eth3 (Port 4)	IP Address	192.168.3.202
	Network Mask	255.255.255.0

C

Common Terms

This appendix provides a list of common terms that are used in this document.

Term	Definition
Original Bitstream	This parameter indicates whether the encoded Dolby Digital bitstream is the master version or a copy. It has no affect on Dolby Digital decoders and is purely for information.
Copyright Bit	This parameter indicates whether the encoded Dolby Digital bitstream is copyright protected. It has no affect on Dolby Digital decoders and is purely for information.
DC Filter	This parameter determines whether a DC blocking 3 Hz highpass filter is applied to the main input channels of a Dolby Digital encoder prior to encoding. This parameter is not carried to the consumer decoder. It is used to remove DC offsets in the program audio and would only be switched off in exceptional circumstances.
Lowpass Filter	This parameter determines whether a lowpass filter is applied to the main input channels of a Dolby Digital encoder prior to encoding. This filter removes high frequency signals that are not encoded. At the suitable data rates this filter operates above 20 kHz. In all cases it prevents aliasing on decoding and is normally switched on. This parameter is not passed to the consumer decoder.
Mixing Level	The Mixing Level parameter describes the peak sound pressure level (SPL) as experienced during the final mixing session at the studio or on the dubbing stage. The parameter allows an amplifier to set its volume control such that the SPL in the replay environment matches that of the mixing room. This control operates in addition to the dialogue level control, and is best thought of as the final volume setting on the consumer's equipment. This value can be determined by measuring the SPL of pink noise at studio reference level and then adding the amount of digital headroom above that level. For example, 85 dB equates to a reference level of -20dBFS; the mixing level is 85+20, or 105 dB.
Room Type	The Room Type parameter describes the equalization used during the final mixing session at the studio or on the dubbing stage. A Large room is a dubbing stage with the industry standard X-curve equalization; a Small room has flat equalization. This parameter allows an amplifier to set the same equalization as heard in the final mixing environment.

Table C1:Common Dolby Definitions

Term	Definition
Term Bitstream Mode	 Definition This parameter describes the audio service contained within the Dolby Digital bitstream. A complete audio program may consist of a main audio service (a complete mix of all the program audio), an associated audio service comprising a complete mix, or one main service combined with an associated service. To form a complete audio program, it may be (but rarely is) necessary to decode both a main service and an associated service using a maximum total bit rate of 512 kbps. Although a detailed description of each option follows, in practice most programming uses the default setting, Complete Main. An example of an exception to this rule is a special karaoke DVD, or an emergency service within digital television. Complete Main (CM) CM flags the bitstream as the Main Audio Service for the program and all elements are present to form a complete audio program. Currently, this is the most common setting. Main M&E (ME) The bitstream is the Main Audio Service for the program, minus a dialogue channel. The dialogue channel, if any, is intended to be carried by an Associated Dialogue ervice. Different Dialogue Services can be associated with a single ME Service to support multiple languages. Assc. Visual Imp. (VI) This is typically a single-channel program intended to provide a
	 narrative description of the picture content to be decoded along with the Main Audio Service. The VI Service may also be a complete mix of all program channels, comprising up to six channels. Assc. Hear Imp (HI) This is typically a single-channel program intended to convey audio that has been processed for increased intelligibility and decoded along with the Main Audio Service. The HI Service may also be a complete mix of all program channels, comprising up to six channels. Assoc. Dialogue (D) This is typically a single-channel program intended to provide a dialogue channel for an ME Service. If the ME Service contains more than two channels, the D Service is limited to only one channel. If the ME Service are mixed together (requires special decoders)
	 Assc. Commentary (AC) This is typically a single-channel program intended to convey additional commentary that can be optionally decoded along with the Main Audio Service. This service differs from a Dialogue Service because it contains an optional, rather than a required, dialogue channel. The C Service may also be a complete mix of all program channels, comprising up to six channels. Assc. Emergency (E) This is a single channel service that is given priority in reproduction. When the E Service appears in the bitstream, it is given priority in the decoder and the Main Service is muted. Assc. Voice Over (VO) This is a single channel service intended to be decoded and mixed to the center channel (requires special decoders).

Table C1:Common Dolby Definitions

• Main Sv Karaoke (K) The bitstream is a special service for karaoke playback.

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