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# TANDBERG television

Part of the Ericsson Group

# **USER GUIDE**

EQ8096 High Density Edge QAM

Software Version 6.2.0 (and later)



EQ8096 High Density Edge QAM

ENGLISH (UK)

www.tandbergtv.com

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	Who Sho	ould Use This User Guide?
1.1	Read This First	
() CD	This User assist in in information which is is	Guide is written for users of the EQ8096 High Density Edge QAM to stallation and operation. It is not intended to be a detailed source of n. This can be found in the <i>Reference Guide</i> companion document, sued on CD.
		<b>WARNING</b> Do not remove the covers of this equipment. Hazardous voltages are present within this equipment and may be exposed if the covers are removed. Only TANDBERG Television trained and approved service engineers are permitted to service this equipment.
		<b>CAUTION</b> Unauthorised maintenance or the use of non-approved replacements may affect the equipment specification and invalidate any warranties.

# 1.2 What Equipment is covered by This User Guide?

This User Guide covers the EQ8096 High Density Edge QAM, which is a digital cable product for use as a regional broadcast modulator.

The EQ8096 supports four redundant data input interfaces, eight (4+4) 1000BaseT Gigabit Ethernet port (fitted as standard) or eight (4+4) SFP Mini-GBIC option slots. Full Gigabit line rate is supported.

Table 1.1: Equipment Model Descriptions

Marketing Code	Description	Comments
EQ8096/BAS	Base Unit	Input card, single PSU, chassis, RJ-45 data input
EQ8096/HWO/12QAM	12-channel QAM Modulator	One assembly provides up to 12 channels
EQ6800/SWO/DVBCA	DVB Conditional Access and Scrambling	License key enabled option. Must be included at time of unit order if required.
EQ8096/HWO/DPS	Dual PSUs	
EQ8096/HWO/DTI	DOCSIS Timing Interface	Client daughter card
EQ8096/BAS/SFP	Base unit, SFP	Base unit with SFP data connection interface

Marketing Code	Description	Comments
EQ8096/BAS/48V	Base Unit DC	I/P Card, Simple PSU RJ-45, 48 V dc PSU
EQ8096/BAS/SFP/48V	Base Unit DC, SFP	I/P Card, Single PSU SFP, 48 V dc
EQ8096/HWO/DPS/48V	Dual PSU 48 V dc	(See Description)

1.3

# Card Assignment

0	Input Card		5	0
			6	
	1	3	7	
0	2	4	8	0

Figure 1.1: Slot Numbering (Rear View)

See *Table 1.2* for card position assignments. Detailed information is in the *Reference Guide*.

Table 1.2: Card Assignment

Slot	Card	Comments
Input Card	Data Input and Control	This acts as the data input card and host controller, providing data and support for the Modulator assemblies.
1-8	Multi-QAM assembly	EQ8096/HW0/12QAM – Modulator card assembly

() CD

O)CD

The product can be upgraded by filling vacant slots with additional multi-QAM assemblies. Detailed instructions for fitting these can be found in *Chapter 9* of the *Reference Guide*.

2	Installing the Equipment	
2.1	Introduction	
() CD	For best performance and reliability follow the instructions for site requirements and installation in the <i>Reference Guide</i> and only use installation accessories recommended by the manufacturers.	
2.2	Operating Voltage	
	CAUTION           This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your business, consult a qualified electrical engineer or your local power company.	
	NOTE           Refer to the <i>Reference Guide</i> for details of the colour codes used on the mains leads.	
() CD	See <i>Table 2.2</i> for fuse information and also the <i>Reference Guide</i> for a full power supply specification.	
	See <i>Reference Guide, Annex B, Technical Specification</i> for a full power supply specification. There are no links or switches to be altered for operation from different ac supplies.	
2.3	Power Cable and Earthing	
	Check that the power cable is suitable for the country in which the unit is to be used.	
	WARNINGS	
	<ul> <li>The Technical Earth is not a Protective earth for electric shock protection.</li> </ul>	
	2. This unit must be correctly earthed through the moulded plug	

- Supplied. If the local mains supply does not have an earth conductor do not connect the unit. Contact Customer Services for advice.
   Before connecting the unit to the supply, check the supply
- 3. Before connecting the unit to the supply, check the supply requirements in *Annex B* of the *Reference Guide*.



#### Figure 2.1: EQ8096 Rear Panel Component Parts

#### Table 2.1: Rear Panel Items

Type of Connector	Description
1000BaseT Data Inputs	The Gigabit Ethernet connections are RJ-45 connectors (EQ8096/BAS) and are auto-speed sensing between 10, 100 and 1000 Mbps. They can also be forced to 100 or 1000 Full Duplex.
	On units ordered as EQ8096/BAS/SFP, the Gigabit Ethernet connections are Small Form Factor Pluggable (SFP) modules. These can only operate at 1000BaseT Full Duplex.
RF Output Ports	The EQ8096 supports up to 96 RF output ports using F-type connectors. Each output port supports up to 4 adjacent RF channels. The RF output provides a user configurable parameter to control the output.
RS-232	This is an RS-232 control port for Engineering Use and is configured as a DTE device. It can be used for the initial setting up of the unit's IP address.
CA Control Port Options	The EQ8096 supports two redundant Ethernet 10/100BaseT control ports via an RJ-45 connector mounted on the rear panel
Status Indicator	An LED that provides an indication of the alarm status.
AC Input	Connection for the mains input.
Technical Earth	Connect the Modulator's Technical earth to a suitable point.



#### 2.5 Connecting the EQ8096 to the Power Supply

#### 2.5.1 General Information

	WARNINGS
2	<ol> <li>Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.</li> </ol>
	<ol><li>As no mains switch is fitted to this unit, ensure the local power supply is switched OFF before connecting the supply cord.</li></ol>
	<ol> <li>The unit is not fitted with an on/off switch. Ensure that the socket-outlet is installed near the equipment so that it is easily accessible. Failure to isolate the equipment properly may cause a safety bazard.</li> </ol>

The EQ8096 can be fitted with dual power supplies each with a separate mains connector. The equipment load is automatically split between the two power supplies (if option fitted). If one power supply fails, the full load will be transferred to the remaining serviceable unit allowing the faulty unit to be replaced without switching off the equipment.

#### 2.5.2 To Connect the Unit to the Local AC Power Supply:

- 1. Ensure the local ac supply is switched OFF.
- 2. Ensure the correct fuse type and rating has been fitted to both the equipment and the ac power cables.
- 3. Connect the ac power leads to the EQ8096 mains input connector and then to the local mains supply.

Table 2.2: AC Fuse Type and Rating

Power Supply	Fuse Type and Rating
100-240 V ac	IEC/EN 60127-2 Sheet 5 Bussmann S505/Littelfuse 215 5 A, 250 V T HBC



# 2.5.3 DC Power Supply



# Only models EQ8096/BAS/48V, EQ8096/BAS/SFP/48V and EQ8096/HWO/DPS/48V use a dc power supply.



#### CAUTION

This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your business, consult a qualified electrical engineer.

```
(o) CD
```

This product uses a –48 V dc power supply source (see *Reference Guide - Annex B, Technical Specification*) for a full power supply specification.

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3	Configuring the EQ8096				
3.1	Introduction				
	The EQ8096 is configured via a web browser with the IP Address set using the front panel controls/display. Once configured and connected, the unit operates without user intervention.				
	All user control parameters are stored in non-volatile memory to allow automatic restoration from power-up.				
0 CD	For information on parameters not mentioned refer to the Reference Guide.				
3.2	Establishing a Connection				
0.04					
3.2.1	Assigning an IP Address				
() CD	All EQ8096 units are shipped with an invalid Control Port IP address of 0.0.0.0. This must be configured to a local valid IP address before the product can be fully configured using the Front Panel keypad (see <i>Reference Guide</i> E10243.2, Chapter 2, Table 2.6) or via the RS-232 serial interface as follows:				
	Connect a cable between the Host Status port on the EQ8096 (9-way male D-Type) and a local PC using a straight through RS-232 cable.				
	Using a suitable terminal emulator on the PC set up the communication parameters.				
	NOTE				
	The EQ8096 serial port communications defaults to 115200 bit/s, 8 bit data, no parity, 1 stop bit.				
	Power cycle the EQ8096. The terminal emulator will display a boot sequence that will show the software version and control port IP settings. If the IP address is still at the factory default of 0.0.0.0 for all 4 ports, then the user will be required to assign a valid address to any of these.				
	Using the terminal, the user should enter the local IP address allocated to the unit using the command IPn xxx.xxx.xxx. (e.g. IP3 172.17.124.3) and then press return. 'n' is the control port index (1-4) as outlined below:				
	<ol> <li>CA Main</li> <li>CA Redundant</li> <li>Control Main</li> <li>Control Redundant</li> </ol>				

The IP Settings are effective immediately.



#### 3.2.2 Changing the IP Address

If the user accidentally sets the local address incorrectly, the EQ8096 may not be accessible via the browser. The IP address can be changed using the Front Panel keypad (see Table 2.6 in Reference Guide E10243.2) or using the following procedure:

Open a terminal emulation application on the PC.



The EQ8096 serial port communications defaults to 115200 bit/s, 8 bit data, no parity, 1 stop bit.

- Power cycle the EQ8096. The terminal emulator will display a boot sequence that gives the current control port settings.
- Using the terminal, the user should enter the local IP address allocated to the unit using the command IPn xxx.xxx.xxx (e.g. IP 172.17.124.3) and then press return.
- If required, the user may enter the local IP subnet mask allocated to the unit using the command IPMASKn xxx.xxx.xxx (e.g. IPMASK 255.255.0.0) and then press return.
- If required, the user may enter the local IP gateway mask allocated to the unit using the command IPGATEWAY xxx.xxx.xxx (e.g. IPGATEWAY 192.168.63.254) and then press return.
- The new IP settings will become active immediately. 'n' is the control port index (1-4) as outlined below:
  - 1. CA Main
  - 2. CA Redundant
  - 3. Control Main
  - 4. Control Redundant
- The IP Settings are effective immediately.

# 3.2.3 **Opening the Web Browser** Once the EQ8096 IP address has been activated, the user can open a web browser application and enter the following URL address: http://assigned IP address (where assigned IP address is the address set by the user). This gives access to the web pages described in Section 4. NOTE 1 If connecting through a LAN ensure that the option to use proxy server is switched off. 3.3

#### **Configuration via the Web Pages**

Once connected via the web browser interface the next steps in the installation procedure depend on the system in which the unit is being deployed. The following installation procedure assumes a simple laboratory system whereby the A/V source is connected directly to the EQ8096 and the EQ8096 is being controlled via its web interface.

If necessary configure the control port using the Control Port Settings option on the Device Info tabbed page (see Section 4.3.3).



If the IP address is changed contact will be lost immediately.

Configure the data port using the Data Port Setting tab (see Section 4.4).



The EQ8096 utilizes user defined UDP Ports along with optional multicast addresses (the destination or receiving address that streams are forwarded to) to construct each output Transport Stream. Services in the specified UDP flow are included in the output Transport Stream.

Further options for defining the structure of the output Transport Stream include user defined PID ranges for the PMT, ES and ECM for each output stream. The user can also set a Transport Stream ID for each output Transport Stream.

An optional MPTS mode can be selected, whereby a single MPTS input flow with a maximum bit-rate of 51.25 Mbps is passed through to the selected output either without any filtering or with only unreferenced PIDs filtered.

The following steps indicate the procedure to construct the output Transport Streams **(TS Construction).** See *Section 4* for detailed descriptions of web page parameter configuration.

- Set the output TSID as required.
- The user can define PID ranges for the PMT, ES and ECM (where applicable). If not changed the default values displayed will be used.
- For each output TS set the multicast address and UDP port number for each flow that is required to appear in that output stream.
- A single MPTS per output can be passed through the unit with no filtering or re-mapping by selecting MPTS unfiltered mode. When this option is selected additional SPTS A/V flows cannot be added to the stream.
- Configure the source to begin serving flows to the data port IP address or multicast addresses and UDP port numbers defined above.
- Configure the global modulator settings using the Modulation Settings tab (see Section 4.5).
- Configure each of the individual RF outputs by selecting the RF port on the picture on the **Device Info** tab or using the directory structure under the **Modulation Settings** tab.

The unit should now be locked to the input and generating valid QAM modulated Transport Streams.

i	NOTE
	The user should ensure that the total bit-rate of the flows for each output Transport Stream does not exceed the available QAM bandwidth (determined by the global modulation settings and displayed on each of the modulation settings pages).

If **Conditional Access** is required and the option is available on the web pages this should now be configured.

CA control on dedicated ports cannot share with the unit control and monitoring port. If CA control is required on a separate network, enable the separate CA port and configure the IP settings as required. In this case the CA control will be via the 1000BaseT Data connector. The input stream should then be connected to the primary data port SFP GBIC 1.



NOTE

The EQ8096 supports service level scrambling only.





Figure 4.1: Web Tabbed Page

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4.2	Status						
	This is the start-up web page and shows the current status of the unit.						
	The serial number, user defined unit name (if entered) and system up time are displayed, as well as any unmasked alarm conditions.						
	Status Device Info Data Port Settings Modulation Settings TS Construction Engineering Help						
	III Status						
	SDV EQ8096: : Serial No: 00015						
	Current Error Status						
	Time Severity Name Source Slot Port AlarmId None						
	System up 1 days 00h:54m:09s						
	Figure 4.2: Status Web Page						
() CD	For information regarding severity levels and alarm IDs, see the Reference Guid						
4.3	Device Info						

# 4.3.1 Main Tabbed Page

*Figure 4.4* shows the main tabbed web page for the Device Information. This gives access to further tabbed pages.

Status Device Info Data Port Settings Modulation Settings TS Construction Engineering Help



Figure 4.3: Device Info Tabbed Page





### 4.3.2 Set Unit Date / Time

O)CD

For information regarding setting the date and time, see the Reference Guide.



# 4.3.3 Control Port Settings

To review the Control Port settings, on the **Device Info** tabbed page, click Control Port Settings to display the web page shown in *Figure 4.4*. The Top Level menu offers control for the Default Gateway (for control/management) and for specifying ARP request interval.

Status Device Info Data Port Settings Mod	ulation Setti	ngs TS Construction Conditional Access Engineering Help
Device Information		
<u>6</u>		
Item	Value	Description
Control Port Main	[Folder]	Configure the parameters for Control Port Main
Control Port Redundant	[Folder]	Configure the parameters for Control Port Redundant
CA Port Main (Alternate Control)	[Folder]	Configure the parameters for CA Port Main (Alternate Cont
CA Port Redundant (Alternate Control)	[Folder]	Configure the parameters for CA Port Redundant (Alternate
Control Port - Global Settings		
Apply Changes S Refresh		
Default Gateway 172.17.254.254		
ARP Interval 20 0 s - 3600 s		

Figure 4.4: Global Control Port Settings

Each of the 4 ports can have their IP address and Mask changed. The link status of the port is also shown in *Figure 4.5* 

Status Device Info Data Port Settings Modulation Settings TS Construction Conditional Access Engineering Help
Control Port Main

Apply Changes 2 Refresh 
Previous port Next port

Control Port Address 172.17.125.153 Control Port Subnet Mask 255.255.0.0 Control Port MAC Address 00 20 AA 3D 01 00 Control Port Duplex Mode Full Duplex Control Port Speed 100 MBIts/5

NOTE: Changes to the Main Control Port IP settings will not be actioned until the unit is power cycled.

Figure 4.5: Individual Control Port Settings



If the Main Control Port IP address is changed, the new address will not take effect until the unit is power cycled. The Control Port will remain on the original IP address until this action is performed.

### 4.3.4 Alarms

The EQ8096 software provides functionality for handling, logging and displaying application alarms. All active alarms are displayed on the start-up Status page (see *Section 4.2*). The Event Log is a separate option on the **Device Info** tabbed page (see *Section 4.3.7*).

(0)	CD	For information on the Alarms web pages, see Section 5 and Reference Guide.
~		

4.3.5	Trap Destination Table
<u>о</u> ср	For information on the Trap Destination Table, see the <i>Reference Guide</i> .
4.3.6	Version Information
<u>о</u> св	Provides version details and build configuration of the unit. For further information, see the <i>Reference Guide</i> .
4.3.7	Event Log

System events are sent to an event log and are prioritised to permit filtering. Logged entries are time and date stamped, and stored in a volatile file system.

4.3.8	Set Unit Name						
	A 32-bit alphanumeric name for the unit can be set. This is displayed on the status page.						
4.3.9	Set Authentication pa	arameter	S				
	When enabled (License H Password to enable HTT	Key require P access a	ed), the operator and control of the	can specify the EQ8096.	e Username and		
4.3.10	License Key						
	Can be used to input a License Key generated by TANDBERG Television, based on the unit's Unique Serial Number.						
4.4	Data Port Settings						
	The Data Port settings can be reviewed. Click <b>Data Port Settings</b> tabbed page to display the web page illustrated in <i>Figure 4.6</i> . Set the required Data Port parameters: Port IP Address and Subnet mask. MAC checksum checking can be disabled if required.						
	Status Device Info Data Por	rt Settings	Modulation Settings	TS Construction	Engineering Help		
	🛄 Data Port Settings						
	Item	Value	Description				
	Dataport 1	[Folder]	Configure the para	meters for Datap	ort 1		
	Dataport 2	[Folder]	Configure the para	meters for Datap	ort 2		
	Dataport 3	[Folder]	Configure the para	meters for Datap	ort 3		
	Dataport 4	[Folder]	Configure the para	meters for Datap	ort 4		
	Figure 4.6: Data Port Sattings						

Figure 4.6: Data Port Settings



#### NOTES

 The user configurable parameter that selects the required input is stored so that the correct configuration is restored on power up.
 SFP modules are not included as standard.

Refer to the Reference Guide for further information.

# 4.5 Modulation Settings

# 4.5.1 Main Tabbed Page

This tabbed page gives access to the settings affecting the modulator.

```
        Status
        Device Info
        Data Port Settings
        Modulation Settings
        TS Construction
        Engineering
        Help
```

C Modulation Settings							
Iter	n	Value	Description				
	Modulator Card 1	[Folder]	Configure the Outputs of Modulator Card 1				
	Modulator Card 2	[Folder]	Not Fitted				
	Modulator Card 3	[Folder]	Not Fitted				
	Modulator Card 4	[Folder]	Not Fitted				
	Modulator Card 5	[Folder]	Not Fitted				
	Modulator Card 6	[Folder]	Not Fitted				
	Modulator Card 7	[Folder]	Not Fitted				
	Modulator Card 8	[Folder]	Not Fitted				

Figure 4.7: Modulator Tabbed Page

# 4.5.2 Modulator Card 1-8

The status of each RF output can be reviewed on these web pages. Click on the appropriate Modulator Card to display the web page illustrated in *Figure 4.8.* 

Status	Device Info	Data Port Sett	ings	Modulation Settings	TS Construction	Engineering	Help		
III Mod	Modulator Card 1								
Item		¥alu	e	Description					
🛄 o.	utput 1	[Tab	le]	Configure Modula	ator 1 RF Output 1				
	utput 2	[Tab	ole]	Configure Modula	ator 1 RF Output 2				
	utput 3	[Tab	le]	Configure Modula	ator 1 RF Output 3	1			
Modula	ator Card 1	- Global Setti	ings						
-	Apply Change	es 💈 Refre	sh	◀ Previous Output Ca	ard Next Output	Card 🕨			
Output Modula	Output Mode ANNEX B V Modulator Card 1 - Current Status								
	RF Out	<b>put1</b> Okay							
	RF Out	<b>put2</b> Okay							
	RF Out	put3 Okay							
Card 1	FPGA Temper	ature 47							
Card	l 1 UC Temper	ature 45							

Figure 4.8: Modulator Card Web Page

#### 4.5.3 RF Outputs

The RF Output settings can be reviewed for each physical connector. Click **Output 1, 2** or **3** to display the web page illustrated in *Figure 4.9.* 

Status Device Info Data Po	ort Settings	Modulation Settings	TS Construction	Conditional Access	Engineering	Help
Dutput 1						
Modulator 1 Output 1						
Apply Changes \$	Refresh 4	Previous Output Nex	t Output 🕨			
a reprised a	THE THE REAL PROPERTY AND A DECIMAL PROPERTY	in a start of the	a output -			
Output 1 Not Fitted						
Output 1 Enat	Enabled	~				
Spectru	m Normal	Y				
Channel 1 Center Frequen	CY 507.00	57.00 MHz - 849.0	0 MHz			
Lev	/el 44.0	44.0 dBmV - 52.0 d	BmV			
Number of Channe	els 4	1 - 4				
Channel 1 IL Dep	th (64,2)	~				
Channel 2 IL Dep	th (64,2)	~				
Channel 3 IL Dep	th (64,2)	~				
Channel 4 IL Dep	th (64,2)	<b>v</b>				
Channel 1 Mo	de On					
Channel 2 Mo	de On					
Channel 4 Mo	de On	v				
OAM Group	ID 0	0 - 65535				
4						
Channel 1 Frequency: Low	ver Edge (	Center Upper Edge				
Chappel 2 Frequency, Los	ver Edge (	Center Unper Edge	MH2			
channel 211 equency. Lo	510.00	513.00 516.00	MHz			
Channel 3 Frequency: Lov	ver Edge (	Center Upper Edge				
Channel 4 Francisco I a	516.00	519.00 522.00	MHz			
Channel 4 Frequency: Lov	ser Edge (	Senter Upper Edge	MHz			
TS 1 Configuration TS 2 Configuration						
TS 3 Configuration						
TS 4 Configuration						

#### Figure 4.9: RF Output Web Page

The Output Mode, Centre Frequency and Output Level for each RF Output can be set individually.

The Output Mode allows ON, OFF, TEST, DUAL TONE to be selected.

The contents of the enabled Transport Streams can be displayed by clicking on the appropriate link at the foot of the page.

When the output (i.e. Output Mode) is disabled, there is no output from that connector.

When the output is enabled, Transport Streams are mapped to a specific channel on a particular RF output. These are defined in *Table 6.1: Mapping for 'Standard' Mode.* 



4.6

#### **TS Construction Page Options**

*Figure 4.12* shows the **TS Construction** tabbed page. Options on this page allow the output Transport Streams to be configured.

Status	Device Info	Data Port Settings	Modulation Settings	TS Construction	Engineering	Help
--------	-------------	--------------------	---------------------	-----------------	-------------	------

<u>.</u>	TS Construction							
Iter	n	Value	Description					
	PID Range Selection	[Table]	Select PID ranges for all Transport Streams					
	Output Transport Stream ID	[Table]	Output Transport Stream ID configuration					
	Output Card 1 TS	[Folder]	Output Card 1 Transport Streams					
	Output Card 2 TS	[Folder]	Not Fitted					
	Output Card 3 TS	[Folder]	Not Fitted					
	Output Card 4 TS	[Folder]	Not Fitted					
	Output Card 5 TS	[Folder]	Not Fitted					
	Output Card 6 TS	[Folder]	Not Fitted					
	Output Card 7 TS	[Folder]	Not Fitted					
	Output Card 8 TS	[Folder]	Not Fitted					

Figure 4.10: TS Construction Tabbed Web Page

#### 4.6.1 PID Range Selection

This provides the user with the option to specify the PID remapping mode to be used for the PMT, ES and ECM (where applicable) for each output Transport Stream. Two modes are available:

- Range remapping
- Cyclic remapping

#### If no value is entered the default value that appears on the GUI will be used.

 Status
 Device Info
 Data Port Settings
 Modulation Settings
 TS Construction
 Conditional Access
 Engineering
 Help

 Im PID Range Selection
 Image: The set of the

ES Base is the first PID value used by elementary streams within a transport stream. NOTE: The ES Base value must be an even multiple of 16 (10h). ECM Base is the first of a block of up to 256 (100h) contiguous PID values, used by ECMs within a transport stream.

NOTE: Entry of overlapping base ranges within a stream may result in an invalid output stream, depending on stream components.

Figure 4.11: PID Range Selection

#### 4.6.2 Output Transport Stream ID

Each generated output Transport Stream can be given an identifier. This value is set using the Transport Stream ID as required. Values can be set in the range 0-65535. This value appears in the generated output PAT.

If no user value is entered the default value that appears on the GUI will be used.

Status	Device Info	Data Port S	ettings	Modulation Set	tings	TS Construction	Engineerin	g Help					Upda	ted: 2007-01	-23, 13:45
Out	put Transpo	ort Stream	ID												
	🖌 Apply Cł	anges 💈	Refre	sh											
Card 1		Card 2	n/a	Card 3 n	/a	Card 4 n	/a	Card 5	n/a	Card 6 r	/a	Card 7 r	/a	Card 0 n	/a
TS 1 10	666	TS 13 ID	10	TS 25 ID	25	TS 37 ID	37	TS 49 ID	49	TS 61 ID	61	TS 73 ID	73	TS #5 ID	05
TS 2 10	> 999	TS 14 ID	14	TS 26 1D	26	TS 30 ID	30	TS 58 ID	50	TS 62 ID	62	TS 74 ID	74	TS 86 ID	06
TS 3 10	> 3	TS 15 ID	15	TS 27 ID	27	TS 39 ID	39	TS 51 ID	51	TS 63 ID	63	TS 75 ID	75	TS 87 ID	87
TS 4 10	4	TS 16 ID	16	TS 28 ID	28	TS 40 ID	40	TS 52 ID	52	TS 64 ID	64	TS 76 ID	76	TS BB ID	88
TS 5 10	5	TS 17 ID	17	TS 29 ID	29	TS 41 ID	41	TS 53 ID	53	TS 65 ID	65	TS 77 ID	77	TS 89 ID	09
TS 6 10	> 6	TS 18 ID	18	TS 30 ID	30	TS 42 ID	42	TS 54 ID	54	TS 66 ID	66	TS 78 ID	78	TS 90 ID	90
TS 7 10	> 7	TS 19 ID	19	TS 31 ID	31	TS 43 ID	43	TS 55 ID	55	TS 67 ID	67	TS 79 ID	79	TS 91 ID	91
TS 0 10	> <b>•</b>	TS 20 ID	20	T5 32 ID	32	TS 44 ID	44	TS 56 ID	56	TS 68 ID	60	TS 88 1D	80	TS 92 ID	92
TS 9 II	> >	TS 21 1D	21	T5 33 1D	33	TS 45 ID	45	TS 57 ID	57	TS 69 ID	69	TS 01 ID	01	TS 93 ID	90
TS 10 11	> 10	TS 22 ID	22	TS 34 ID	34	TS 46 ID	46	TS 58 ID	58	TS 78 ID	70	TS #2 ID	82	TS 94 ID	94
TS 11 10	11111	TS 23 ID	23	TS 35 ID	35	TS 47 ID	47	TS 59 ID	59	TS 71 ID	71	TS 03 1D	03	TS 95 ID	95
TS 12 10	12	TS 24 1D	24	TS 36 ID	36	TS 40 1D	40	TS 60 ID	60	TS 72 ID	72	TS 84 ID	04	TS 96 ID	96
NOTE: 1	ransport Stre	am ID input	range (	1 - 65535.											

near regregated forms have active output channes.

Figure 4.12: Output Transport Stream ID

#### 4.6.3 Transport Streams (TSn)

Configure the content of each Transport Stream by entering a multicast (or unicast) address and UDP port number for each of the input flows to be included in the output TS.

The status of each of the UDP input ports is shown for each flow.

A summary of the output rate available (defined by the modulation settings), actual component rate and the amount of free space available (null packets) is also displayed for information.

Stat	uz Device Info Data Po	rt Setting	Modulation !	Settings TS Cone	struction E	ngineering He	lp .					
III 1	51											
ŝ)												
10	Refresh 4 Previous	TR Next	TS 1									
rs i	Output Rate: 20.010	700 MB	ite (e									
13 J	Dupper Rate: 36.610	d o he	its/s	n kaite (e								
aro	ipeate : U KBits/s Use	10 : U K2	sits/s Free : I	U KBICS/S								
	Shell Session ID	Bound	Lock Status	noPIDRemap	Program	Bandwidth	destAddress	destPort	Primary	Secondary	Tertiary	SourceReset
01	000000000000000000000000000000000000000	false	Not Locked	false	0	0	0.0.0.0	0	0.0.0.0	0.0.0.0	0.0.0.0	ResetSource1
02	000000000000000000000000000000000000000	falze	Not Locked	false	0	0	0.0.0.0	0	0.0.0.0	0.0.0.0	0.0.0.0	ResetSource2
03	000000000000000000000000000000000000000	false	Not Locked	false	0	0	0.0.0.0	0	0.0.0.0	0.0.0.0	0.0.0.0	ResetSource3
04	000000000000000000000000000000000000000	false	Not Locked	False	0	0	0.0.0.0	0	0.0.0.0	0.0.0.0	0.0.0.0	ResetSource4
05	000000000000000000000000000000000000000	falze	Not Locked	falze	0	0	0.0.0.0	0	0.0.0.0	0.0.0.0	0.0.0.0	ResetSource5
66	000000000000000000000000000000000000000	falze	Not Locked	falze	0	0	0.0.0.0	0	0.0.0.0	0.0.0.0	0.0.0.0	ResetSource6

Figure 4.13: Transport Stream Component Set-up (RPC mode)

Status Device Info Data Port Settings Modulation Settings TS Construction Conditional Access Engineering Help

```
💷 TS 1
```

✓ Apply Changes 💈 Refresh ◀ Previous TS Next TS ► Modify Program Count ►

Not Fitted : OPCard 1 : Output 1 : Center Freq 507.00 MHz : Rate : 51.253960 MBits/s Data : 2.913700 MBits/s NULL : 94.315 %

Unfiltered Single MPTS Input	Disabled M			
Program Number Mode	Fixed 💌			
Program	Multicast Address	UDP Port	Status	Stream Mode
1	225.0.0.1	2048	Locked	Auto 🚩
2	225.0.0.1	0	Not Locked	Auto 💌
3	225.0.0.1	0	Not Locked	Auto 💌
4	225.0.0.1	0	Not Locked	Auto 🎽
5	225.0.0.1	0	Not Locked	Auto 🎽
6	225.0.0.1	0	Not Locked	Auto 💌
7	225.0.0.1	0	Not Locked	Auto 💌
8	225.0.0.1	0	Not Locked	Auto 🚩
9	225.0.0.1	0	Not Locked	Auto 🖌
10	225.0.0.1	0	Not Locked	Auto 🖌
11	225.0.0.1	0	Not Locked	Auto 💌
12	225.0.0.1	0	Not Locked	Auto 🍟
13	225.0.0.1	0	Not Locked	Auto 💌
14	225.0.0.1	0	Not Locked	Auto 💌
15	225.0.0.1	0	Not Locked	Auto 💌
				100

Figure 4.14: Transport Stream (Non-RPC) Component Set-up

# Stream Mode

Each SPTS input can be individually set for processing in any of 3 possible modes:

Auto – the EQ8096 will employ the automatic PID remap mode chosen in Section 4.6.1.

**Unfiltered** – the EQ8096 will pass through ALL PIDs on the flow (including PSI), unmodified. This mode should be used when multiplexing OOB data or SI traffic.

**No Remap** – the EQ8096 will process the stream as normal but no remapping will be performed.

#### **Program Number Mode**

The program number allocation can be programmed into any of 3 possible modes:

**Fixed** – the EQ8096 will change the output Program number to be the same as the Program Index as shown on the GUI (1-32 or 1-n when in extended mode).

**Pass Thru** – the EQ8096 will simply pass the input Program number through to the Output Transport Stream.

**User Defined** – the operator can specify the Program number for each service in the Output Transport Stream.

#### **Modify Program Count**

By default, each of the 96 Output Transport Streams supports the inclusion of up to 32 services. For denser Transport Streams, it is possible to allocate up to 64 services by entering the Modify Program Count page.

IS 1								
			6		TOP			
✓ A	pply Cr	nanges 💽 Ri	efresh • Prev	nous IS Next	:15 •			
1 hee '	22 Dao	mana Enter	nou unhio he	dow - Eutros	Common the fino		C + 1-256 2-	256 2-256 4-2
I nas .	32 PTO	grams, Enter	new value be	slow : Extras	currently fre	e on each MA	C: 1=230 Z=	230 3=230 4=2
				F	Program Cou	nt 32 3	32 - 64	
				Infiltered Sind	ale MPTS Inn	ut Disabled		
					here is not			
TS01 0	1 of 32	TS13 MPTS	TS25 01 of 32	TS37 05 of 32	TS49 04 of 32	TS61 05 of 32	TS73 03 of 32	T585 04 of 32
<u>TS01_0</u> TS02	1 of 32 HPTS	TS13 MPTS TS14 03 of 32	TS25 01 of 32 TS26 04 of 32	TS37 05 of 32 TS38 03 of 32	TS49 04 of 32 TS50 05 of 32	TS61 05 of 32 TS62 01 of 32	TS73 03 of 32 TS74 04 of 32	TS85 04 of 32 TS86 01 of 32
<u>TS01_0</u> <u>TS02</u> TS03	1 of 32 HPTS HPTS	TS13 HDTS TS14 03 of 32 TS15 05 of 32	TS25 01 ef 32 TS26 04 ef 32 TS27 04 ef 32	TS37 05 of 32 TS38 03 of 32 TS39 05 of 32	TS49 04 of 32 TS50 05 of 32 TS51 05 of 32	TS61 05 of 32 TS62 01 of 32 TS63 05 of 32	TS73 03 of 32 TS74 04 of 32 TS75 04 of 32	T585 04 of 32 T586 01 of 32 T587 05 of 32
TS01 0 TS02 TS03 TS04	1 of 32 HPTS HPTS HPTS	TS13         MPTS           TS14         03         of         32           TS15         05         of         32           TS16         05         of         32	TS25 01 of 32 TS26 04 of 32 TS27 04 of 32 TS28 05 of 32	TS37 05 of 32 TS38 03 of 32 TS39 05 of 32 TS40 05 of 32	TS49 04 of 32 TS50 05 of 32 TS51 05 of 32 TS52 04 of 32	TS61 05 of 32 TS62 01 of 32 TS63 05 of 32 TS64 05 of 32	TS73 03 of 32 TS74 04 of 32 TS75 04 of 32 TS76 04 of 32 TS76 04 of 32	T585 04 of 32 T586 01 of 32 T587 05 of 32 T588 05 of 32
TS01 0 TS02 TS03 TS04 TS05	1 of 32 HPTS HPTS HPTS HPTS	TS13         MPTS           TS14         03         of         32           TS15         05         of         32           TS16         05         of         32           TS17         05         of         32	TS25 01 ef 32 TS26 04 ef 32 TS27 04 ef 32 TS28 05 ef 32 TS28 05 ef 32	TS37 05 of 32 TS38 03 of 32 TS39 05 of 32 TS40 05 of 32 TS40 05 of 32	TS49 04 of 32 TS50 05 of 32 TS51 05 of 32 TS52 04 of 32 TS53 05 of 32	TS61 05 of 32 TS62 01 of 32 TS63 05 of 32 TS64 05 of 32 TS64 05 of 32	TS73 03 ef 32 TS74 04 ef 32 TS75 04 ef 32 TS76 04 ef 32 TS76 04 ef 32	T585 04 of 32 T586 01 of 32 T587 05 of 32 T588 05 of 32 T588 05 of 32
TS01 0 TS02 TS03 TS04 TS05 TS06	1 of 32 HPTS HPTS MPTS HPTS HPTS	TS13         MDTS           TS14         03         of         32           TS15         05         of         32           TS16         05         of         32           TS17         05         of         32           TS18         0.5         of         32           TS16         0.5         of         32           TS16         0.5         of         32           TS18         0.5         of         32	TS25 01 of 32 TS26 04 of 32 TS27 04 of 32 TS28 05 of 32 TS29 05 of 32 TS30 05 of 32	T537 05 of 32 T530 03 of 32 T539 05 of 32 T540 05 of 32 T541 05 of 32 T541 05 of 32 T542 05 of 32	TS49 04 of 32 TS50 05 of 32 TS51 05 of 32 TS52 04 of 32 TS53 05 of 32 TS53 05 of 32	TS61 05 of 32 TS62 01 of 32 TS63 05 of 32 TS64 05 of 32 TS65 05 of 32 TS66 05 of 32	TS73 03 of 32 TS74 04 of 32 TS75 04 of 32 TS75 04 of 32 TS77 05 of 32 TS77 05 of 32	<u>TS85 04 of 32</u> <u>TS86 01 of 32</u> <u>TS87 05 of 32</u> <u>TS88 05 of 32</u> <u>TS89 05 of 32</u> <u>TS89 05 of 32</u>
TS01 0 TS02 TS03 TS04 TS05 TS06 TS07	1 of 32 HPTS HPTS HPTS HPTS HPTS	TS13         MDTS           TS14         03         of         32           TS15         05         of         32           TS16         05         of         32           TS17         05         of         32           TS18         05         of         32           TS19         05         of         32           TS19         05         of         32	T525 01 of 32 T526 04 of 32 T527 04 of 32 T528 05 of 32 T529 05 of 32 T530 05 of 32 T530 05 of 32	T537 05 of 32 T530 03 of 32 T539 05 of 32 T540 05 of 32 T541 05 of 32 T542 05 of 32 T542 05 of 32 T543 05 of 32	TS49 04 of 32 TS50 05 of 32 TS51 05 of 32 TS52 04 of 32 TS52 04 of 32 TS53 05 of 32 TS54 05 of 32 TS55 01 of 32	TS61 05 of 32 TS62 01 of 32 TS63 05 of 32 TS64 05 of 32 TS65 05 of 32 TS66 05 of 32 TS66 05 of 32 TS66 05 of 32	T573 03 of 32 T574 04 of 32 T575 04 of 32 T575 04 of 32 T576 04 of 32 T577 05 of 32 T570 05 of 32 T579 01 of 32	<u>TS85 04 of 32</u> <u>TS86 01 of 32</u> <u>TS87 05 of 32</u> <u>TS88 05 of 32</u> <u>TS89 05 of 32</u> <u>TS89 05 of 32</u> <u>TS90 05 of 32</u> <u>TS91 05 of 32</u>
TS01 0 TS02 TS03 TS04 TS05 TS06 TS06 TS07 TS08	1 of 32 HPTS HPTS HPTS HPTS HPTS HPTS HPTS	TS13         MPTS           TS14         0.3         of         32           TS15         05         of         32           TS16         0.5         of         32           TS17         0.5         of         32           TS18         0.5         of         32           TS19         0.5         of         32           TS19         0.5         of         32           TS10         0.5         of         32           TS10         0.5         of         32           TS10         0.5         of         32           TS10         0.5         of         32           TS20         0.5         of         32	TS25         01         of         32           TS26         04         of         32           TS27         04         of         32           TS28         0.5         of         32           TS29         0.5         of         32           TS30         0.5         of         32           TS31         0.1         of         32           TS32         0.1         of         32	TS37         05         of         32           TS38         03         of         32           TS39         05         of         32           TS39         05         of         32           TS40         05         of         32           TS41         05         of         32           TS42         05         of         32           TS42         05         of         32           TS43         05         of         32           TS44         05         of         32           TS44         05         of         32           TS44         05         of         32	TS49 04 of 32 TS50 05 of 32 TS51 05 of 32 TS52 04 of 32 TS53 05 of 32 TS54 05 of 32 TS54 05 of 32 TS56 05 of 32	TS61         05         of         32           TS62         01         of         32           TS63         05         of         32           TS64         05         of         32           TS65         05         of         32           TS66         05         of         32	TS73         0.3         of         32           TS74         0.4         of         32           TS75         0.4         of         32           TS76         0.4         of         32           TS76         0.4         of         32           TS76         0.4         of         32           TS77         0.5         of         32           TS78         0.5         of         32           TS79         0.1         of         32           TS80         0.5         of         32           TS80         0.5         of         32	TS85         04         of         32           TS86         01         of         32           TS87         05         of         32           TS88         05         of         32           TS89         05         of         32           TS90         05         of         32           TS91         05         of         32           TS91         05         of         32           TS91         05         of         32           TS92         05         of         32
TS01 0 TS02 TS03 TS04 TS05 TS06 TS07 TS08 TS09	1 of 32 HPTS HPTS HPTS HPTS HPTS HPTS HPTS HPTS	TS13         MPTS           TS14         03         of         32           TS16         05         of         32           TS16         05         of         32           TS16         05         of         32           TS16         05         of         32           TS17         05         of         32           TS18         05         of         32           TS19         05         of         32           TS20         05         of         32           TS21         05         of         32	TS25         01         of         32           TS26         04         of         32           TS27         04         of         32           TS28         05         of         32           TS20         05         of         32           TS20         05         of         32           TS30         05         of         32           TS31         01         of         32           TS32         01         of         32           TS31         01         of         32	TS37         05         of         32           TS38         03         of         32           TS39         05         of         32           TS40         05         of         32           TS40         05         of         32           TS41         05         of         32           TS42         05         of         32           TS42         05         of         32           TS43         05         of         32           TS44         05         of         32           TS43         05         of         32           TS44         05         of         32           TS45         05         of         32           TS45         05         of         32	TS49 04 of 32 TS50 05 of 32 TS51 05 of 32 TS52 04 of 32 TS53 05 of 32 TS53 05 of 32 TS54 05 of 32 TS55 01 of 32 TS55 01 of 32 TS57 05 of 32	TS61         0.5         of         32           TS62         0.1         of         32           TS63         0.5         of         32           TS64         0.5         of         32           TS65         0.5         of         32           TS64         0.5         of         32           TS66         0.5         of         32           TS69         0.5         of         32           TS69         0.5         of         32	T573 03 of 32 T574 04 of 32 T575 04 of 32 T576 04 of 32 T576 04 of 32 T577 05 of 32 T570 05 of 32 T570 05 of 32 T579 01 of 32 T580 05 of 32 T581 05 of 32	TS85         04         of         32           TS86         01         of         32           TS87         05         of         32           TS88         05         of         32           TS89         05         of         32           TS90         05         of         32           TS90         05         of         32           TS91         05         of         32           TS92         05         of         32
TS01 0 TS02 TS03 TS04 TS05 TS06 TS07 TS08 TS09 TS10	1 of 32 HPTS HPTS HPTS HPTS HPTS HPTS HPTS HPTS	TS13         HPTS           TS14         03         of         32           TS15         05         of         32           TS16         05         of         32           TS17         05         of         32           TS18         05         of         32           TS19         05         of         32           TS19         05         of         32           TS20         05         of         32           TS21         05         of         32           TS20         05         of         32           TS21         05         of         32           TS21         05         of         32	TS25         01         of         32           TS26         04         of         32           TS27         04         of         32           TS26         05         of         32           TS20         05         of         32           TS20         05         of         32           TS30         05         of         32           TS32         01         of         32           TS32         01         of         32           TS33         01         of         32           TS33         01         of         32           TS34         05         of         32	TS37         0.5         of         32           TS30         0.3         of         32           TS40         0.5         of         32           TS40         0.5         of         32           TS40         0.5         of         32           TS41         0.5         of         32           TS42         0.5         of         32           TS43         0.5         of         32           TS43         0.5         of         32           TS43         0.5         of         32           TS44         0.5         of         32           TS45         0.5         of         32           TS45         0.5         of         32           TS45         0.5         of         32	TS49         04         of         32           TS50         05         of         32           TS31         05         of         32           TS33         05         of         32           TS33         05         of         32           TS33         05         of         32           TS34         05         of         32           TS34         05         of         32           TS36         05         of         32           TS36         05         of         32           TS36         05         of         32           TS37         05         of         32           TS36         05         of         32           TS36         05         of         32           TS36         06         of         32	TS61         0.5         of         32           TS62         0.1         of         32           TS63         0.5         of         32           TS64         0.5         of         32           TS65         0.5         of         32           TS65         0.5         of         32           TS66         0.5         of         32           TS68         0.5         of         32           TS69         0.5         of         32           TS69         0.5         of         32           TS69         0.5         of         32           TS70         0.5         of         32	TS73         0.3         off         32           TS74         0.4         off         32           TS75         0.4         off         32           TS76         0.4         off         32           TS77         0.5         off         32           TS77         0.5         off         32           TS78         0.5         off         32           TS78         0.1         off         32           TS80         0.5         off         32           TS82         0.1         off         32           TS82         0.1         off         32	TS85         04         off         32           TS86         01         off         32           TS86         05         off         32           TS89         05         off         32           TS89         05         off         32           TS89         05         off         32           TS90         05         off         32           TS91         05         off         32           TS92         05         off         32           TS92         05         off         32           TS93         05         off         32           TS92         05         off         32           TS94         05         off         32           TS94         05         off         32
TS01 0 TS02 TS03 TS04 TS05 TS06 TS07 TS08 TS09 TS10 TS11	1 of 32 HPTS HPTS HPTS HPTS HPTS HPTS HPTS HPTS	TS13         MDTS           TS14         03         of         32           TS15         05         of         32           TS16         05         of         32           TS16         05         of         32           TS17         05         of         32           TS18         05         of         32           TS19         05         of         32           TS10         05         of         32           TS10         05         of         32           TS20         05         of         32           TS22         05         of         32           TS22         05         of         32           TS22         05         of         32	TS25 01 ef 32 TS26 04 ef 32 TS27 04 ef 32 TS28 05 ef 32 TS30 05 ef 32 TS30 05 ef 32 TS31 01 ef 32 TS31 01 ef 32 TS33 01 ef 32 TS33 01 ef 32 TS35 05 ef 32	T537 05 of 32 T538 03 of 32 T539 05 of 32 T540 05 of 32 T542 05 of 32 T543 05 of 32 T543 05 of 32 T543 05 of 32 T544 05 of 32 T546 05 of 32 T545 05 of 32	T549 04 of 32 T550 05 of 32 T551 05 of 32 T532 04 of 32 T533 05 of 32 T533 05 of 32 T534 05 of 32 T535 01 of 32 T536 05 of 32 T536 01 of 32 T539 04 of 32	TS61         0.5         off         32           TS62         0.1         off         32           TS63         0.5         off         32           TS64         0.5         off         32           TS65         0.5         off         32           TS65         0.5         off         32           TS66         0.5         off         32           TS66         0.5         off         32           TS66         0.5         off         32           TS66         0.5         off         32           TS60         0.5         off         32           TS60         0.5         off         32           TS70         0.5         off         32           TS71         0.5         off         32	T573 03 ef 32 T574 04 ef 32 T576 04 ef 32 T576 04 ef 32 T577 05 ef 32 T577 05 ef 32 T579 01 ef 32 T580 05 ef 32 T580 05 ef 32 T582 01 ef 32 T583 04 ef 32	T585 04 of 32 T586 01 of 32 T586 05 of 32 T588 05 of 32 T589 05 of 32 T590 05 of 32 T591 05 of 32 T591 05 of 32 T592 05 of 32 T593 05 of 32 T593 05 of 32 T594 05 of 32

Figure 4.15: Modify Program Count Set-up

# Selecting Between VOD/SDV and Broadcast Mode

For each transport stream output it is possible to select a single MPTS input flow to appear at the output. The maximum bit-rate of the input MPTS is 51.25 Mbps.

When the QAM Channel is to be used for processing a single MPTS then 'Unfiltered Single MPTS Input' should be Enabled. The appropriate mode should then be chosen (Unfiltered, NoRemap, SI Drop).

Status	Device Info	Data Po	rt Settings	Modulation Settings	TS Construction	Conditional Act	ess Engineering	Help
-								
III TS 1	l							
3								
✓ A	oply Changes	Ref	fresh 🖪 Pre	vious TS Next TS >	Extend MPTS Proc	ram Count 🕨		
Not Fitt	ted : OPCard 94.295 %	1 : Out	put 1 : Cen	ter Freq 507.00 MHz	: Rate : 51.2539	50 MBits/s Dat	a : 2.924007 MB	its/s
HOLL I	Unfiltered	Sinale	MPTS Inpu	It Enabled				
	MP	TS		Multicast Address	UDP Po	rt Status	Stream Mode	e
	1			225.0.0.1	2048	Locked	Unfiltered	~
			1					
🖌 Aj	pply Changes	🛃 Ref	fresh I Pro	rvious TS Next TS >				
SPTS	Multicast Add	iress	UDP Port	Status				
1	225.0.0.1		0	Not Locked				
2	225.0.0.1		0	Not Locked				
3	225.0.0.1		0	Not Locked				
4	225.0.0.1		0	Not Locked				

Figure 4.16: Transport Stream (Broadcast) Component Set-up

#### Selecting Between SDV and Standard Mode

() CD

The EQ8096 can be used in 2 environments; standard (manual/SNMP) control or using an SDV Server/ERM with the RPC protocol. This can be selected under the Engineering Tabbed Page, See *Reference Guide* (Chapter 3, Section 3.3.8). The unit must be rebooted after this selection is made. The TS Construction Tabbed Page will appear more informative and does not permit user entry of parameters.



4.7 Engineering Tabbed Pages
------------------------------

(0)CD

See the Reference Guide for information on the Engineering tabbed page.

#### 5.1 **View Active Alarm Table** The EQ8096 software provides functionality for handling, logging and displaying application alarms. Status Device Info Data Port Settings Modulation Settings TS Construction Conditional Access Engineering Help Alarms G Value Description [Table] Modify configuration of currently active alarms Item Configure Active Alarms Data Connection Alarms Modulator Alarms [Table] [Table] Transport Stream Overrate Alarms [Table] Transport Stream Program Number Conflict Alarms Transport Stream MPTS Fail Alarms [Table] [Table] Chassis / Temperature Alarms [Table] CA Alarms [Table] Figure 5.1: Alarms Web Page 5.2 **Configure Active Alarms** The EQ8096 software provides the facility to mask any internal alarm and allocate the alarm severity. Status Device Info Data Port Settings Modulation Settings TS Construction Conditional Access Engineering Help Configure Active Alarms 🕥 🖌 Apply Changes 💈 Refresh Viask Severity Unmasked v Warning v Unmasked v Major v Masked v Critical v Alarm Card 3 FPGA Temperature 63 Threshold 60 0 - 150 30 0 - 150 Card 3 UC Temperature Open CAS Connection Figure 5.2: Active Alarm List 5.3 Alarm

See the Reference Guide for descriptions of the alarms components.



(o) CD

6	RF Output Channel Mappings / Allocations
6.1	Overview
	The EQ8096 supports 96 total QAM channels, spread across a maximum of 8 Output Cards. Each Output Card supports a maximum of 12 channels.
	The EQ8096 can operate in 3 distinct mapping modes, depending on the installation requirements:
	Standard (Direct) Mapping
	Distributed (Striped) Mapping
	▶ '6 Card' Mapping
	The Mapping Mode can be configured from the 'Debug Event Flags' menu under the 'Engineering' tab on the Web GUI. The default is Distributed and Six card mode DISABLED (Standard Mapping).
6.2	Standard Mapping
	When configured in standard mapping mode (default), there is a direct relationship between input data ports and Output Cards and this can be seen in <i>Table 6.1</i> .
	Table 6.1: Mapping for 'Standard' Mode.

Data port	Output Card Slot	Transport Streams
P1/S1	1, 2	1-24
P2/S2	3, 4	25-48
P3/S3	5, 6	49-72
P4/S4	7, 8	73-96

The Transport Streams are mapped logically as defined in *Table 6.2*. Channel designations defined in the tables are as seen from the rear of the unit.

Table 6.2: Channel Allocations for 'Standard' Mode (Example Slot 1).

		Output											
	1				2				3				
	Left	Left most connector							Righ	ght most connector			
Channel	1	2	3	4	1	2	3	4	1	2	3	4	
Transport Stream	TS 1	TS 2	TS 3	TS 4	TS 5	TS 6	TS 7	TS 8	TS 9	TS 10	TS 11	TS 12	

#### 6.3 Distributed Mapping

Distributed mapping mode can be configured when installed within an RF redundant network. This is often referred to as 'QAM Striping'.

The Data port (1-4) is directly mapped to the channel (1-4) on each spigot. Each data port covers all 8 Output cards therefore and the Transport Stream increments across RF connectors/spigots (1 -24).

able 6.3: Mapping for	Distributed Inp	uť Mode (Exam	ole Slot 1).

Data port	Spigot Channel	Transport Streams
P1/S1	1	1-24
P2/S2	2	25-48
P3/S3	3	49-72
P4/S4	4	73-96

Table 6.4: Channel Allocations for 'Distributed Input' Mode (Example Slot 1).

		Output												
	1				2				3					
	Left	Left most connector								t most	nost connector			
Channel	1	2	3	4	1	2	3	4	1	2	3	4		
Transport Stream	TS 1	TS 25	TS 49	TS 73	TS 2	TS 26	TS 50	TS 74	TS 3	TS 27	TS 51	TS 75		

#### 6.4 '6 Card' Mapping

Operating in '6 Card mode' configures the EQ8096 into a data efficient Input/Output mapping for use when 4 Annex A (8 MHz) channels are being used per spigot. When in this configuration, maximum bandwidth can be achieved using only 6 Output cards installed (72 QAMs).

Table 6.5: Channel Allocations for '6 card' Mode (Example Slot 1).

Data Port	Output Card Slot	Transport Streams
P1/S1	1, 2	1-18
P2/S2	2, 3	19-36
P3/S3	4, 5	37-54
P4/S4	5, 6	55-72

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# 7.1 Overview TANDBERG Television products are designed and manufactured in keeping with good environmental practise. Our component and materials selection policy prohibits the use of a range of potentially hazardous materials. In addition, we comply with relevant environmental legislation. 7.2 For the European Union For product sold into the EU after 1<sup>st</sup> July 2006, we comply with the EU RoHS Directive. We also comply with the WEEE Directive. 7.3 For China For product sold into China after 1st March 2007, we comply with the "Administrative Measure on the Control of Pollution by Electronic Information Products". In the first stage of this legislation, content of six hazardous materials has to be declared together with a statement of the "Environmentally Friendly Use

has to be declared together with a statement of the "Environmentally Friendly Use Period (EFUP)": the time the product can be used in normal service life without leaking the hazardous materials. TANDBERG Television expects the normal use environment to be in an equipment room at controlled temperatures (around 22°C) with moderate humidity (around 60%) and clean air, near sea level, not subject to vibration or shock.

Where TANDBERG Television product contains potentially hazardous materials, this is indicated on the product by the appropriate symbol containing the EFUP. For TANDBERG Television products, the hazardous material content is limited to lead (Pb) in some solders. This is extremely stable in normal use and the EFUP is taken as 50 years, by comparison with the EFUP given for Digital Exchange/Switching Platform in equipment in Appendix A of "General Rule of Environment-Friendly Use Period of Electronic Information Products". This is indicated by the product marking:



It is assumed that while the product is in normal use, any batteries associated with real-time clocks or battery-backed RAM will be replaced at the regular intervals.

The EFUP relates only to the environmental impact of the product in normal use, it does not imply that the product will continue to be supported for 50 years.

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8	Disposal of this Equipment		
8.1	General		
	Dispose of this equipment safely at the end of its life. Local codes and/or environmental restrictions may affect its disposal. Regulations, policies and/or environmental restrictions differ throughout the world. Contact your local jurisdiction or local authority for specific advice on disposal.		
8.2	For the European Union		
	"This product is subject to the EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE) and should not be disposed of as unsorted municipal waste."		

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# P Recycling

TANDBERG Television provides assistance to customers and recyclers through our web site <u>http://www.tandbergtv.com/ProductRecycling.ink</u> Please contact TANDBERG Television's customer services for assistance with recycling if this site does not show the information you require.

Where it is not possible to return the product to TANDBERG Television or its agents for recycling, the following general information may be of assistance:

- Before attempting disassembly, ensure the product is completely disconnected from power and signal connections.
- All major parts are marked or labelled to show their material content.
- Depending on the date of manufacture, this product may contain lead in solder.
- Some circuit boards may contain battery-backed memory devices.

# 10 Lithium Batteries

This equipment uses a single Lithium battery to allow an internal real-time clock to continue operating during periods when the unit is powered down. This cell is not a USA Environmental Protection Agency listed hazardous waste. It is fully encapsulated and should not be tampered with.

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