

3025EMC

Master Control Switching

& Channel Branding

System Manual

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EVERTZ MICROSYSTEMS LTD.

5292 John Lucas Drive,
Burlington, Ontario,
Canada,
L7L 5Z9

Phone: +1 905-335-3700
Sales Fax: +1 905-335-3573
Tech Support Phone: +1 905-335-7570
Tech Support Fax: +1 905-335-7571

Internet:

Sales: sales@evertz.com
Tech Support: service@evertz.com
Web Page: <http://www.evertz.com>



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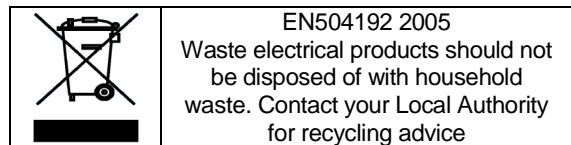
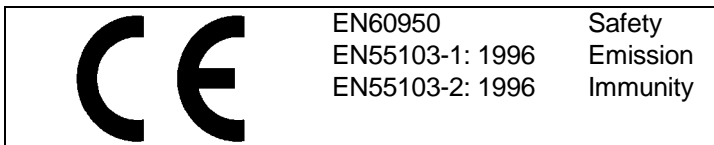
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INFORMATION TO USERS IN THE U.S.A.

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REVISION HISTORY

<u>REVISION</u>	<u>DESCRIPTION</u>	<u>DATE</u>
1.0	First Release	Nov 2010
2.0	Added 3025EMC R1.4 functionality changes	Aug 2011
2.1	Minor change to Emergency/Keyer Options	Aug 2011
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3.0.1	Added EAN Alert notes to "Testing the Dasdec Decoder" section	Dec 2011
3.0.2	Added 3025EMC R1.6 functionality changes	June 2012
3.0.3	Updated 9000BHP-AUX to 9700BHP-AUX	Jan 2013

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1. OVERVIEW

The 3025EMC Master Control Switcher has been designed to meet the growing needs in today's master control environment. The 3025EMC platform provides a cost-effective solution for facilities converting to SD, HD and 3 GB/s. The hardware platform runs solid, field-proven software to form a foundation that meets the latest playout and branding needs. Other major features the platform includes are: bypass & emergency inputs, hot-swappable hardware, and redundant power supplies. Combined, these features create a reliable system for 24/7 year-round programming.

The 3025EMC offers a unique approach to SD/HD/3G master control with a number of options and a broad selection of configurable control panels. It can be assembled to meet any need and size. A 3025EMC system is comprised of an upstream router feeding a number of processing channels. This architecture allows systems to scale from a single channel up to a complex multichannel installation with minimal effort. The feature rich 3025EMC can be easily controlled under automation or manual control. The intelligent LCD pushbutton control panels give operators high flexibility in panel layout and user-friendly functionality. The 3025EMC integrates seamlessly with the Evertz MVP® multi-viewer and router product lines, allowing customers to have a complete "turn-key" master control solution.

1.1. FEATURES & BENEFITS

Video/Audio Transitions: The standard 3025EMC configuration includes a number of video & audio transitions such as V-Fades, mixes, and split audio/video transitions. These transitions can be controlled via the control panel or the automation system and can be customized at any time.

Audio, Dolby, and Voice-overs: The 3025EMC has powerful and flexible audio capabilities. With standard support of 16 channels of embedded audio, it is easy to integrate into any station. Audio level adjustments may be made from the panel at any time and stored on a source-by-source basis. Internal audio shufflers allow routing from any input to any output. Also Evertz® award-winning IntelliGain™ can be added to the 3025EMC (requires a 3025AP module) to provide Program Loudness control.

The 3025AP with built-in sample rate converters allow any mix of 44.1 kHz and 48 kHz sources to be used and silently switched on-air. Optional Dolby-E™ Decoders and Dolby-E™ Encoders, allow the 3025EMC to handle Dolby 5.1 programming.

The 3025EMC can perform five independent 16 channel voice-overs, each can be mapped to any or all output channels. The voice-overs can be a mixture of discrete audio inputs and de-embedded audio inputs. Full "pre-hear" allows level and voice-over ratio to be set prior to going on-air. Voice-overs can be taken to air combined with another transition or independently.

Keyers: The 3025EMC models come with standard four external key layers. They have a full range of user adjustments stored and recalled on a source-by-source basis. Keyers may be taken on and off air with other key levels or independently, and order/priority can be set.

Channel Branding: The 3025EMC Internal Branding Engine has four internal layers for static or animated "bugs" over the 3 GB/s, HD or SD video signal. The internal media generator also offers the options for the use of audio chimes/snipes, dynamic text for lower thirds, and dynamic text crawls. The size of each logo is variable and ranges from 1/25th to full screen. Various media formats (such as Tiffs, TGA, Bitmaps, and WAV files) can be imported into the Evertz® Overture™ media software and transferred to the 3025EMC via Ethernet. Media is stored into flash memory that can be quickly recalled by the various control panels or automation. The internal key layers can optionally be expanded to sixteen layers.

With the removable compact flash option you can have access for up to 8GB of on-line media storage space. The Network Attached Storage option utilizes the Gigabit Ethernet of the 3025EMC to connect a media server device. This option allows the 3025EMC to access virtually unlimited archived media storage. This approach in addition to the Overture™ suite simplifies the workflow.

DVE: The 3025EMC offers an optional DVE feature. The 2-channel 2-D DVE or the 4-channel 2-D DVE option provides live and dynamic visual effects, such as picture sizing, picture-in-picture with full preview capabilities and positioning, and is fully integrated within the 3025EMC. The DVE is fully assignable within the video-processing path of the 3025EMC. The DVE may be controlled manually or from the automation system and is independent of the key and branding layers.

1.2. EMC SYSTEM OVERVIEW

This section describes a simple overview of a 3025EMC of a typical system is shown below:

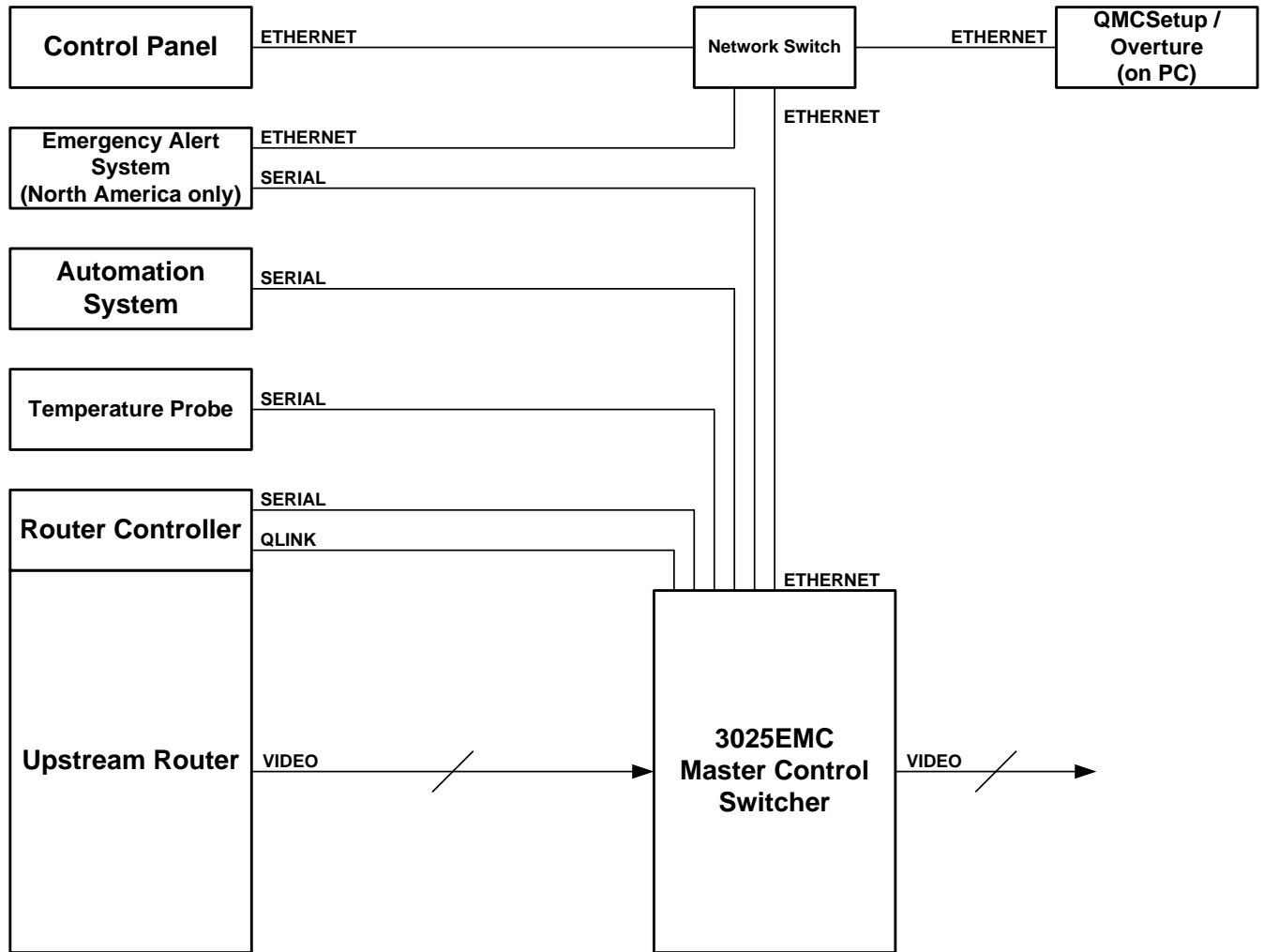


Figure 1-1: 3025EMC System Diagram

1.3. THE EMC PLATFORM

The 3025EMC is designed to support 3 Gb/s, HD and SD video formats, including: 525i/59.94, 625i/50, 720p/59.94, 720p/50, 1080i/59.94, 1080i/50, 1080p/50, and 1080p/59.94 (SMPTE-425M-A & SMPTE-425M-B). Each 3025EMC processes a complete Program and Preset path using a Program and Preset input. A third Emergency input allows users to quickly go to a safe feed in case of emergency.

The 3025EMC provides a Program output and a full "look-a-head" Preview of the next transition. It provides two clean outputs, where video and audio are taken from either Program or Preview processing path. The 3025EMC has built-in bypass relays, which provide maximum protection for the Program and Clean feed in cases of failure. For audio, the 3025EMC provides support for 16 channels of embedded audio on the Program, Preset, and Emergency inputs. Embedded audio is also taken from the key, fill, dve and aux inputs to provide more audio mixing options.

The 3025EMC (requires 3025AP module) offers IntelliGain™ as an option for Program Loudness control. The 3025EMC board offers four MAD1 inputs and outputs to allow interfacing to other hardware.

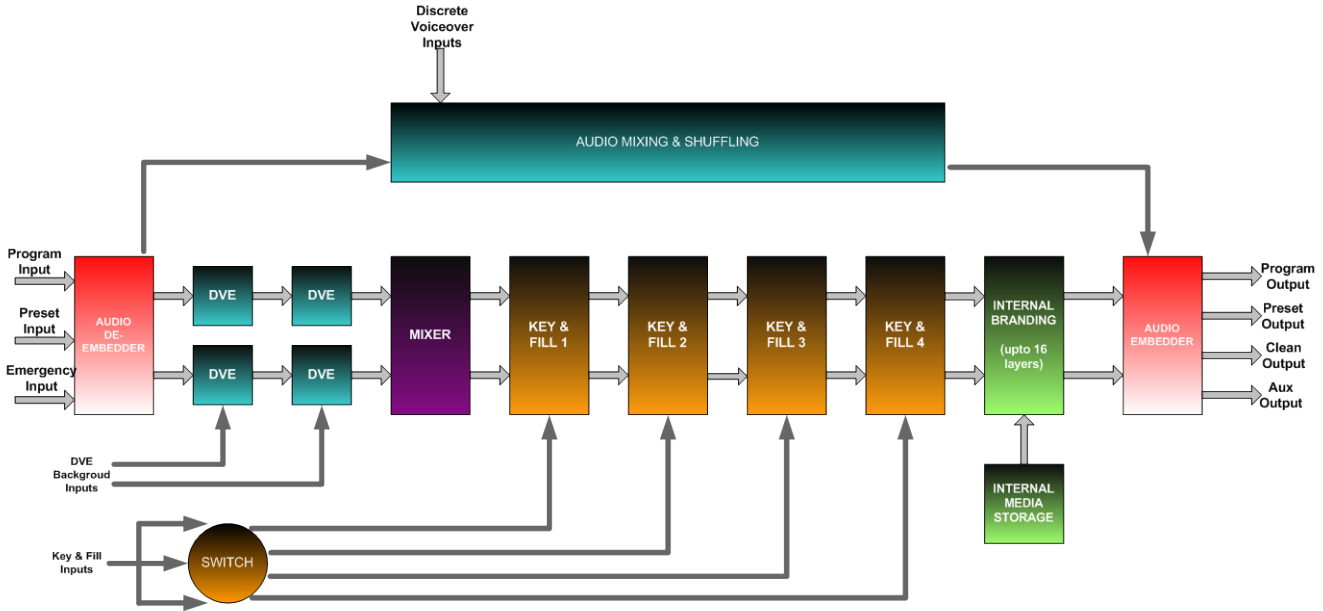


Figure 1-2: 3025EMC General Block Diagram

2. INSTALLATION

2.1. UNPACKING

Carefully remove the equipment from the boxes and check against the Packing List supplied with each unit. This shows what items have been shipped against your order and includes all options. Any error should be reported to your supplier immediately. After you have unpacked the equipment please save all the packing material as this could be useful in the future if the unit needs to be returned for maintenance.

Check each item supplied for transit damage. Any damage should be reported in detail to your supplier. You must state the serial number of the unit (to be found on the rear or side of each unit).

Standard remote panels are mains powered and must be checked to ensure that they have been set to the correct mains (line) voltage. Instructions are to be found later in this section on how to change the voltage.

2.2. INSTALLING AND REMOVING THE MODULES

2.2.1. Installing the Module Rear Plate

In most cases, the 3000FR or EMX6-FR or EMX3-FR (to be referred as EMC) frame will already have the modules and rear plates installed within the frame. However, when modules and rear plates need re-positioning, or when additional modules are purchased, proper module/rear plate installation is required.

Each EMC module is shipped with a matching rear panel plate that houses the appropriate connectors for that module.

To Install the Rear Plate:

1. Locate the specific slot in the frame and remove any filler plates.
2. Install the rear plate over the open slot by first fitting the plate then tightening the two lock-screws.
3. Tighten the screws after the main module is installed.



CAUTION: If any of the screws for the rear plate are missing, please contact Evertz immediately for the specification and/or replacement. Using the incorrect screw can cause thread stripping.

2.2.2. Opening and Closing the Front Panel

In order to insert or remove modules you will have to open the front panel using the following procedure:

1. Turn the two captive screws located on the front panel counter clockwise several turns until they release completely from the front extrusions.
2. Carefully lower the front panel door so that the front edge of the door is lower than the rear of the door.

2.2.3. Installing a Module

1. Orient the module vertically such that the smaller green/white card ejector is on the bottom, while the larger black card ejector is on the top.
2. Align the card with the card guide corresponding to the slot number where you installed the rear panel plate.
3. Carefully slide the module into the frame and press it completely into the rear panel connectors.
4. Use the upper card-ejector to latch the module into the slot.
5. Make sure that the connectors are fully seated in the rear panel.
6. When this is done, close the front panel and then tighten the screws that hold the rear panel in place.

2.2.4. Removing a Module

1. Press the card ejector down to release the module.
2. Grasp the card using the upper card ejector and pull the module out from the frame.
3. Carefully place the module in a safe place, free from static discharge.

2.3. MOUNTING

The EMC frame is equipped with rack mounting rails and fits into a standard rack space. The 3000FR requires a 19" x 10.5" x 14.5" (483 mm x 260 mm x 368 mm) space, the EMX6-FR requires a 19" x 10.5" x 15.75" (483 mm x 260 mm x 400 mm) space, and the EMX3-FR requires a 19" x 5.25" x 15.75" (483 mm x 133 mm x 400 mm) space. To securely fasten the frame to the equipment rack, make sure that all four mounting screws on each mounting rail are tightened securely.



Note: The EMX6-FR and EMX3-FR have front mounted cooling fans and require that the area below is flush and that there is sufficient room to open the frame completely to be able to remove the modules.

After the unit has been installed in a rack, all cards in the frame should be checked to ensure they are fully seated within the frame. This is best accomplished by simply pushing (simultaneously, with moderate force) on each card's top and bottom insertion/extraction levers. See section 2.2.3 for further information. This step should be repeated any time the frame is shipped, or relocated within a facility.

2.4. COOLING

The EMC frame is designed to ensure adequate cooling for up to 600 watts (3000FR and EMX6-FR) or 360 watts (EMX3-FR) of processing power per frame. Fans at the front and rear of each power supply module accomplish forced air-cooling. Adjacent equipment may be mounted immediately to the top and bottom of the frame. Additional module cooling is provided by interior cooling channels to ensure that even fully loaded frames mounted adjacent to each other will operate within the normal temperature range.

The EMX6-FR and EMX3-FR frames have additional fans mounted to the front door of the frame to provide additional cooling.



CAUTION: For proper cooling, the frame must contain either two 3000PS/3000PS-QT/7800PS-QT power supplies, or one 3000PS/3000PS-QT/7800PS-QT power supply and one 3000PS-FM power supply blank panel with cooling fan.

2.4.1. Fan Exhaust

The cooling fans for the power supplies, located at the front of the frame, draw air in the front and exhaust out the sides of the frame. The cooling fans for the modules, located at the rear of the frame, draw air in the front and the exhaust out the rear of the frame.



CAUTION: To ensure adequate cooling, care should be taken to ensure that the fan inlets and exhaust openings are free of obstructions.

2.5. SERVICING INSTRUCTIONS



CAUTION: These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing instructions in this section of the manual unless you are qualified to do so.

2.5.1. Changing the Fuses



CAUTION: For continued protection against the risk of fire, replace only with the same type and rating of fuse.

ATTENTION: Pour éviter les risques d'incendie, remplacer le fusible avec un fusible de même calibre.

The fuse holder is located inside the power entry module. To change the fuses, disconnect the line cord from the power entry module and pull the fuse holder out from the power entry module using a small screwdriver. The fuse holder contains two fuses, one for the line and one for the neutral side of the mains connection. Pull out the blown fuse and place a fuse of the correct value in its place.

For 100-120 VAC operation, use ceramic time delay 5 x 20 mm fuses rated for 250 Volts with a 10 amps current rating. For 220-240 VAC operation use ceramic time delay 5 x 20 mm fuses rated for 250 Volts with a 6.3 amps current rating.

For your convenience there are spare fuses located in the vinyl pouch in the front of this manual. Carefully reinsert the fuse holder into the power entry module.

2.5.2. Replacing the Power Supply

Each power supply is a complete assembly, and includes the power supply cooling fan and one frame-cooling fan. In the event that the power supply or one of the fans malfunctions, you will need to replace the power supply assembly with a spare one while the failed assembly is being repaired.



CAUTION: Do not run the frame for extended periods of time with one of the power supplies removed. Proper cooling of the frame requires both power supplies to be inserted into the frame, or one power supply and a power supply blank panel.

The 3000PS, 3000PS-QT and 7800PS-QT power supplies are hot swappable and can be easily replaced from the front without interrupting the signal integrity of the frame. Each power supply is capable of supplying full power to the frame by itself, however we recommend running with both supplies powered for power redundancy. On frames with only one power supply, a 3000PS-FM blank power supply module with cooling fan **must** be inserted into the second power supply space. The 3000PS-FM contains a module-cooling fan and baffles to maintain proper airflow within the frame.

The power supply is secured into the frame by two machine screws through the rear panel (as shown in Figure 2-1). These screws must be removed before the power supply can be extracted from the front.

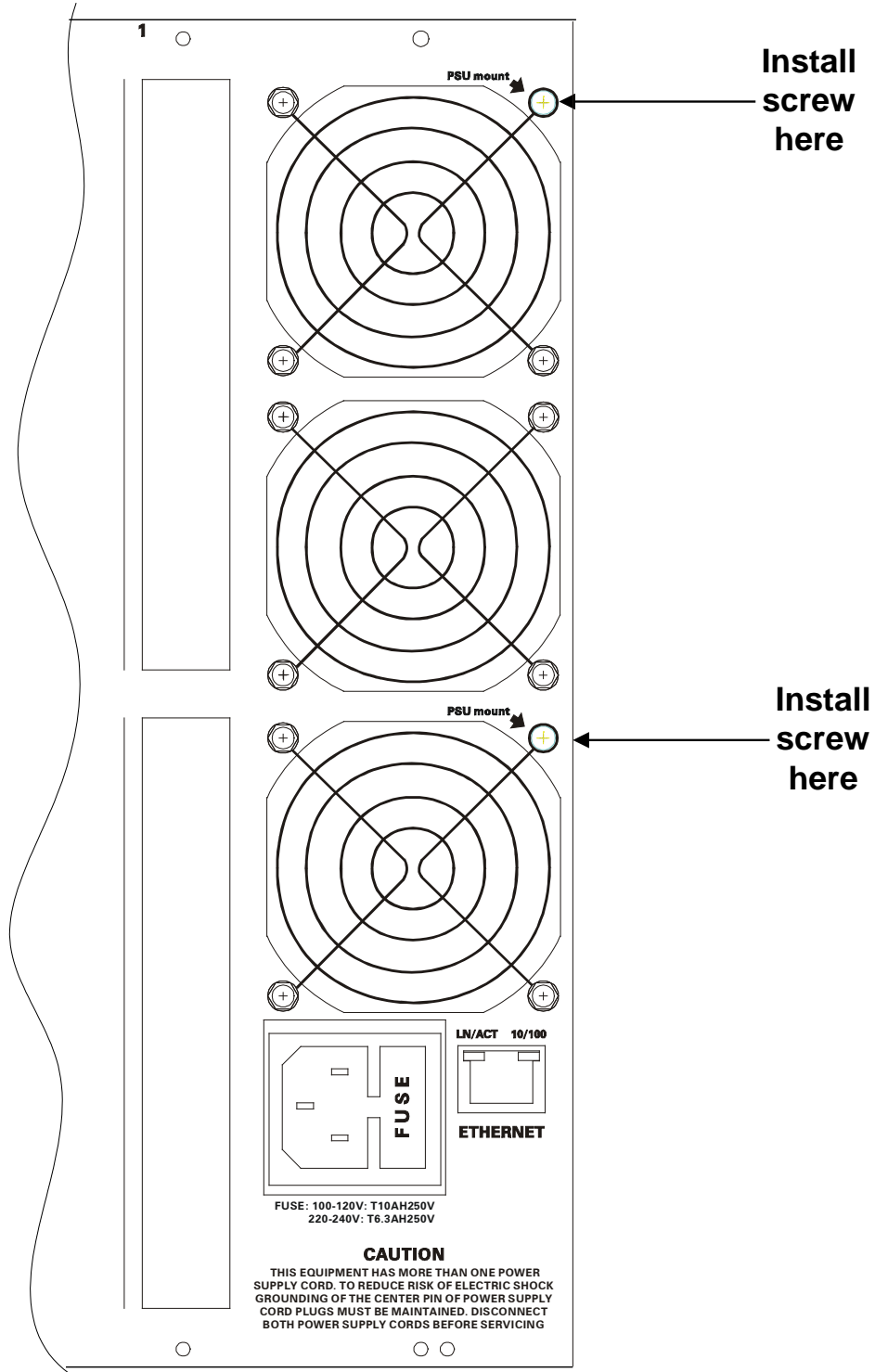


Figure 2-1: Locating the Power Supply Mounting Screw



CAUTION: To reduce the risk of electric shock, you must replace the mounting screw *after* replacing the power supply.

2.6. POWER

The power entry modules contain a standard IEC power inlet connector, two 5 x 20 mm fuse holders, and an EMI line filter.



CAUTION: The EMC frame is shipped with 10 Amp fuses rated for 100-120 VAC operation. If you are operating the EMC System in a country with nominal 220-240 VAC operation, replace the fuses with 6.3 Amp fuses rated for 220-240 VAC operation. See section 2.5.1 for information on changing fuses.

2.6.1. Connecting the Power

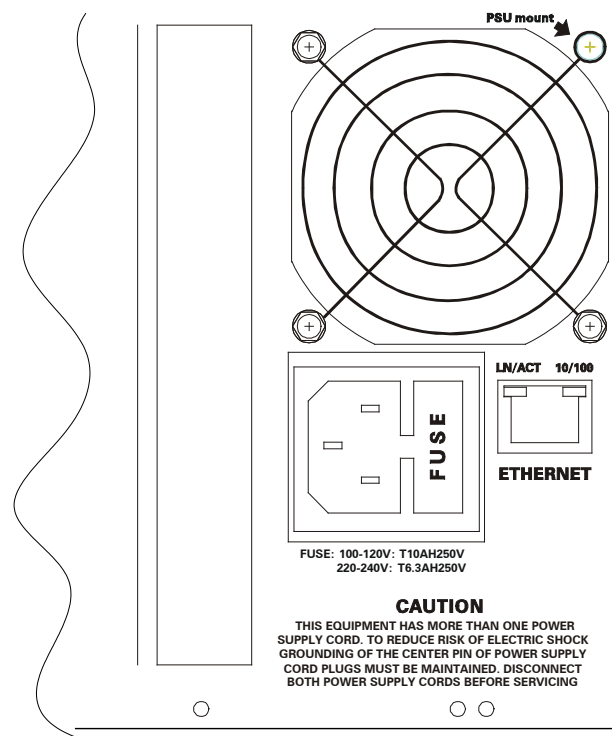


Figure 2-2: Connecting the Power to the Frame

The EMC frame comes standard with one auto-ranging power supply that automatically senses the input voltage over the range of 100 to 240 VAC. An additional power supply can be ordered to provide fully redundant powering of the frame. When only one power supply is fitted, the frame will be fitted with a fan module to ensure the thermal integrity of the frame cooling. In a frame that contains a redundant power supply module, each power supply may be powered from a different AC mains source, allowing complete AC supply redundancy.

Power should be applied by connecting a three-wire, grounding-type power supply cord to the power entry module on the rear panel of each power supply. For use in North America, the power cord should be a minimum 18 AWG wire size; type SVT marked VW-1, maximum 2.5 m in length. For use outside North America, use a power cord approved for the country of use with a minimum 1.00 mm² wire size.



CAUTION: To reduce the risk of electric shock, grounding of the ground pin of the main plug must be maintained.

2.6.2. Turning the Power On and Off

Each power supply is fitted with its own power switch. When the switch is turned off, the remaining power supply will power the frame. To completely remove power from the frame, both power supplies must be turned off.

2.6.3. Power Supply Status Indicators

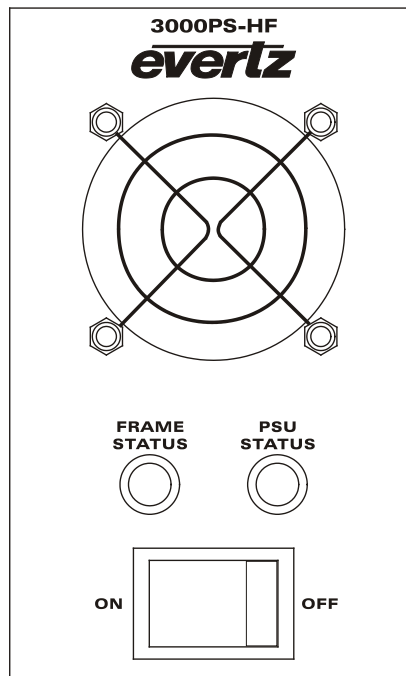


Figure 2-3: Power Supply Status Indicators

Each power supply has two status indicator LEDs. The green PSU STATUS LED indicates the health of the local power supply. The red FRAME STATUS LED indicates the health of the entire frame and is operated by the frame status buss of the frame. The FRAME STATUS LED will be OFF under normal conditions and ON when there are Frame Status Fault conditions. See section 2.7 for more information about the frame status buss fault conditions.

If one of the power supplies malfunctions, (power cord disconnected, power switch is off, fuse is blown, rear fan is stopped, etc.) then its PSU STATUS LED will go Off, and the red FRAME STATUS LED on both power supplies will turn ON. (If the power supplies are fitted with green FRAME STATUS LEDs they will turn OFF) The PSU STATUS LED on the power supply that is functioning will remain ON. If the frame is connected to VistaLINK[®] then the power supply fault will send a trap message from the frame.



If there is a fuse failure, contact Evertz customer service regarding the power supply immediately. The power supplies are short circuit protected and should not blow the fuse under a short circuit condition.

2.7. FRAME STATUS FAULT CONDITIONS

The Frame is fitted with a global Frame Status monitoring buss that is connected to each of the power supplies and to each of the modules. When a fault condition occurs on one of the power supplies, or one of the modules, a Frame Status Fault condition is active on the frame status buss. When this occurs, the red FRAME STATUS LED on the power supply will come on and the relay on the Frame Status Tally terminal block will activate.

Power supplies, will assert a frame status fault when their PSU STATUS LED is off.

Each module has a large red LOCAL FAULT LED and a large green MODULE OK LED at the top of the card edge. This green LED indicates good module health while the red LED indicates that there is a fault condition on the module. Each module has its own criteria that determine when the red fault LED comes on. When the red LOCAL FAULT LED is On the module can also assert a fault condition on the Frame Status buss. On each module there is a jumper that disables sending local card fault information to the Frame Status Buss. For more information about fault conditions on individual modules, and for the location of the Frame Status Jumper on the module consult the individual chapter for the module. For example, if a module requires video or audio for its functionality and the video or audio is not present, the red LOCAL FAULT LED on the module will be On and the fault will be reported on the frame status buss if the FRAME STATUS jumper on the module is set to the On position (default).

2.8. EMC MODULE REAR PANEL OVERVIEW

Figure 2-4 shows the rear panels of the 3025EMC units. Sections 2.9 to 2.11 describe the specific video, audio, and control signal.



Note: The EMC module **REQUIRES** 3 slots in any of the available frames. A slot blocker is installed on the module to prevent installation of other modular products.

2.8.1. 3025EMC-IO-DIN

The 3025EMC-IO-DIN uses DIN 1.0/2.3 connectors for the video and audio connections.

2.8.2. 3025EMC-IO-XLINK

The 3025EMC-IO-XLINK uses an Evertz XLINK connector for the main video inputs. The 3025EMC-IO-XLINK uses DIN 1.0/2.3 connectors for the remaining video and audio connections.



Note: The XLINK cable to use for the 3025EMC-IO-XLINK is **XLINK-BHP-5-EQX1FR**. Contact factory for assistance if you are using XLINK.

2.8.3. 3025EMC-IO-BNC

The 3025EMC-IO-BNC uses BNC per IEC 61169-8 Annex A connectors for the video and audio connections.

2.9. INTERFACE DEFINITIONS

The section describes the IO connections on the various EMC rear plates. Specific differences will be highlighted.

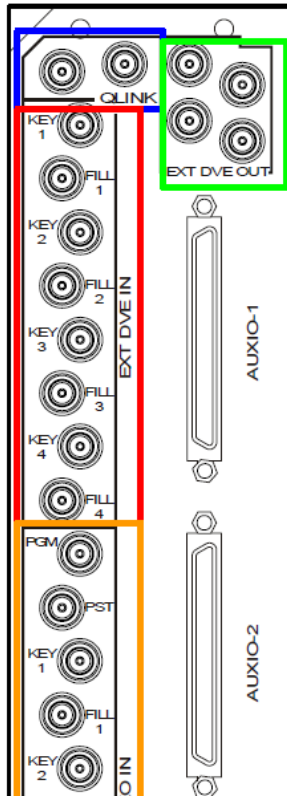


Figure 2-5: QLINK and EXT DVE Connections

2.9.1. QLINK

In Figure 2-5, Q-Link is a dedicated control system specific to Evertz brand of Quartz products. The Q-Link system works as a single transmission line with devices connected along the length of the cable. It must be terminated at either end by 75Ω. The 3025EMC frame has pairs of looping connectors to allow the frame to sit at one end of the link (with termination) or sit in the middle of the link with cables running off in different directions.

In the case of the EMC, QLINK is used to interconnect Evertz routers (EQT, Xenon, and EQX) with the EMC. This is the interface used by the EMC to control the Evertz upstream router. This a looped input/out to allow for daisy chaining of multiple EMCs (up to 4) on a single QLINK connection to the router.

2.9.2. EXT DVE IN & EXT DVE OUT

These inputs and outputs are for future use. **They currently have no functionality and should not be wired.**

2.9.2.1. VIDEO INPUTS

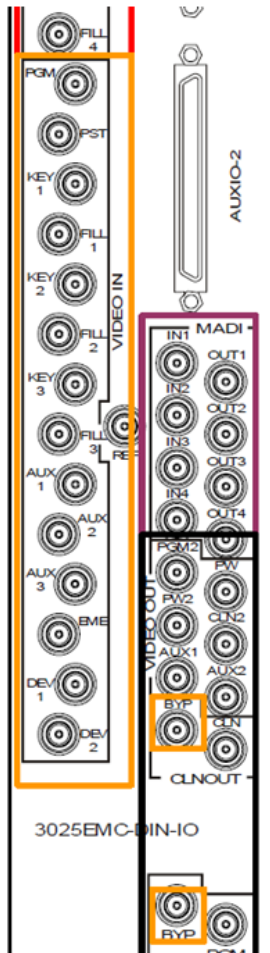


Figure 2-6: VIDEO INPUT Connections



Note: For the 3025EMC-IO-XLINK, the XLINK connector carries all the video inputs below except for the REF which is a DIN connector.

- PGM:** Program Bus input that is connected to upstream router output.
- PST:** Preset Bus input that is connected to upstream router output.
- KEY 1:**
FILL 1: First set of Key and Fill inputs that are connected to upstream router outputs or external graphics device that outputs a key and fill signal.
- KEY 2:**
FILL 2: Second set of Key and Fill inputs that are connected to upstream router outputs or external graphics device that outputs a key and fill signal.
- KEY 3:**
FILL 3: Third set of Key and Fill inputs that are connected to upstream router outputs or external graphics device that outputs a key and fill signal.
- AUX 1:** This is the input for Key4 Key (also for DVE Background and/or voice-overs).
AUX 2: This is the input for Key4 Fill (also for DVE Background and/or voice-overs).
AUX 3: This is for DVE Background and/or voice-overs.
- EME:** Emergency input that can be connected to upstream router or external source.
- DVE 1:** DVE Background Input 1
- DVE 2:** DVE Background Input 2
- REF:** Reference input. A clean Bi-Level or Tri-Level **analogue signal** is connected and used for internal timing.
- PGM BYP:** Program Output Bypass source.
- CLN BYP:** Clean Output Bypass source.

2.9.2.2. VIDEO OUTPUTS

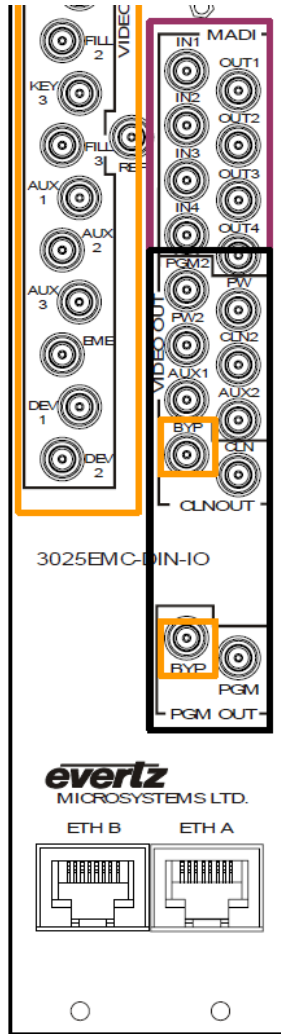


Figure 2-7: VIDEO OUTPUT Connections

- PGM:** Program Output with bypass protection.
- PGM 2:** Program Output 2. This is a copy of Program Output.
- PRV:** Preview Output.
- PRV 2:** Preview Output 2. This is a copy of Preview Output.
- CLN:** Clean Feed Output with bypass protection.
- CLN 2:** Clean Feed Output 2. This is a copy of Clean Feed output.
- AUX 1:** Auxiliary Output 1. This can be used as a second independent clean path.
- AUX 2:** Auxiliary Output 2. This is a copy of Auxiliary Output 1.

2.9.3. AES / MADI INPUTS and OUTPUTS

- IN 1:** VO 1 AES 1 or MADI Input 1. This is for Voiceover 1 AES channels 1 and 2 when configured as AES by default. If the 3025AP is used, then this input behaves as MADI, this is used to interconnect other MADI based modules.
- IN 2:** VO 1 AES 2 or MADI Input 2. This is for Voiceover 1 AES channels 3 and 4 when configured as AES by default. If the 3025AP is used, then this input behaves as MADI, used to interconnect other MADI based modules.
- IN 3:** VO 2 AES 1 or MADI Input 3. This is for Voiceover 2 AES channels 1 and 2 when configured as AES by default. If the 3025EMC-48x36-AESU is used then this input becomes a MADI receiver.
- IN 4:** VO 2 AES 2 or MADI Input 4. This is for Voiceover 2 AES channels 3 and 4 when configured as AES by default. If the 3025EMC-48x36-AESU is used then this input becomes a MADI receiver.
- OUT 1:** MADI Output 1. This is used as a MADI transmitter and is connected to the 3025AP module.
- OUT 2:** MADI Output 2. This is used as a MADI transmitter and is connected to the 3025AP module.
- OUT 3:** MADI Output 3. This is used as a MADI transmitter and is connected to the 3025EMC-48x36-AESU module.
- OUT 4:** MADI Output 4. This is used as a MADI transmitter and is connected to the 3025EMC-48x36-AESU module.

If a 3025EMC channel is being used with a 3025AP and 3025EMC-48x36-AESU modular external audio cards, then the MADI I/O connections as per Figure 4-28 should be made. The external audio modules are exclusive, i.e. you can either use no external modules, one or both at any time

2.9.4. AUDIO**2.9.4.1. Audio Connections - Embedded (Serial Video)**

The 3025EMC supports 16 channels of embedded audio from the PGM, PST, and Emergency video inputs. The 3025EMC also supports 16 channels of embedded audio from up to five of the other video inputs (Key 1, Fill 1, Key 2, Fill 2, Key 3, Fill 3, Aux 1, Aux 2, Aux 3, DVE 1 & DVE 2).

2.9.4.2. Audio Connections – Discrete

Contact the factory for more information regarding discrete audio I/O support for the 3025EMC.

2.9.5. AUX IO-1 and AUX IO-2

There is one breakout panel provided with each EMC module. In order to access additional serial I/O connections, connect the breakout panel (using the provided cable) to the **AUXIO-1** connector. This will allow the user to access **LTC IN, GPIO, DB1, DB2, DB3, and DB4**. See section 2.9.5.1 for a description of the different ports. A secondary breakout panel can be added (optional) to **AUXIO-2** connector; this provides the user access to **GPIO, DB5 and DB6**.



Figure 2-8: Breakout Panel

2.9.5.1. Serial I/O on the Breakout Panel

The **AUXIO-1** panel has four serial ports that can be used. The functions can be configured using EMC-Setup. The ports are divided into two ports that are RS-232 and two that are RS-422. Before the serial ports can be used they must be configured from the EMC-Setup program to have the controlling protocol and baud rates set correctly. **AUXIO-2** has two additional serial ports that can be used.

AUX I/O 1	Description	AUX I/O 2	Description
DB1	Serial Port 1 (RS-422)	DB1	Not used
DB2	Serial Port 2 (RS-422)	DB2	Serial Port 5 (RS-422)
DB3	Serial Port 3 (RS-232)	DB3	Serial Port 6 (RS-232)
DB4	Serial Port 4 (RS-232)	DB4	Not used

Table 2-1: Serial Ports

	Pin #	Name	Description
	1	GND	Chassis ground
	2	TxD	RS-232 Transmit Output
	3	RxD	RS-232 Receive Input
	4		
	5	Sig Gnd	RS-232 Signal Ground
	6		
	7	RTS	RS-232 RTS Input
	8	CTS	RS-232 CTS Output
	9		

Table 2-2: RS-232 Pin Outs

	Pin #	Name	Description
	1	GND	Chassis ground
	2	Tx-	RS-422 Tx-(A) Output
	3	Rx+	RS-422 Rx+(B) Input
	4	GND	
	5		
	6	GND	
	7	Tx+	RS-422 Tx+(B) Output
	8	Rx-	RS-422 Rx-(A) Input
	9	GND	

Table 2-3: RS-422 Pin Outs

2.9.5.2. GPI/O Connections

GPI/O: The Breakout panel contains the 34 pin terminal block that allows 8 general-purpose control inputs and 8 general-purpose outputs. The **AUXIO-1** panel provides GPIs 1-8 and GPOs 1-8 and **AUXIO-2** panel provides GPIs 9-16 and GPOs 9-16. In each case the GPI and GPO number matches the EMC-Setup configuration.

2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
GND	GPI 2	GPI 4	GPI 6	GPI 8	GND	n/a	n/a	n/a	n/a	Vext	GND	GPO 2	GPO 4	GND	GPO 6	GPO 8
GND	GPI 1	GPI 3	GPI 5	GPI 7	GND	n/a	n/a	n/a	n/a	Vext	GND	GPO 1	GPO 3	GND	GPO 5	GPO 7
1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33

Table 2-4: AUX IO 1 GPI/O Logical Connector

2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
GND	GPI 10	GPI 12	GPI 14	GPI 16	GND	n/a	n/a	n/a	n/a	Vext	GND	GPO 10	GPO 12	GND	GPO 14	GPO 16
GND	GPI 9	GPI 11	GPI 13	GPI 15	GND	n/a	n/a	n/a	n/a	Vext	GND	GPO 9	GPO 11	GND	GPO 13	GPO 15
1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33

Table 2-5: AUX IO 2 GPI/O Logical Connector (optional)

2.9.5.3. CONNECTING THE GENERAL PURPOSE INPUTS AND OUTPUTS

GPI interfacing with the EMC is possible through general-purpose inputs and outputs available on the 9700BHP-AUX breakout panels. The GPIs are active low with internal pull-up resistors (4.7k Ohms) to +5 V. To make an input active, lower the signal to near ground potential (i.e. connect to shell or chassis ground). This can be done with a switch, relay, TTL drive, GPO output, or using another similar method. Figure 2-9 shows the input circuit for the general-purpose inputs.

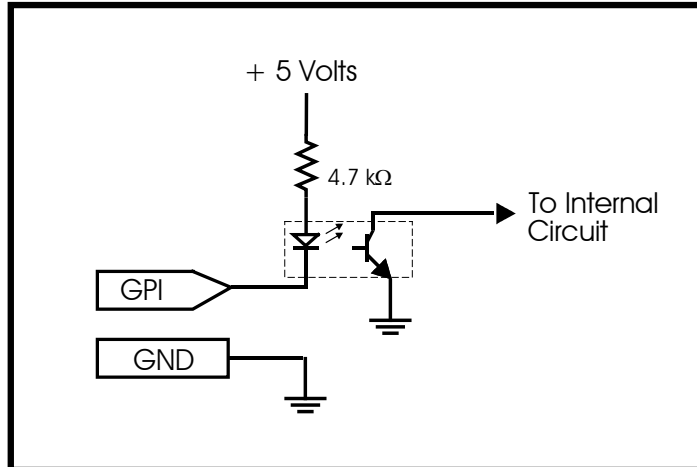


Figure 2-9: GPI Input Circuitry

The GPOs are active low with internal pull-up ($10\text{k}\Omega$) resistors to +5 V. When the output goes low, it is able to sink up to 10 mA; when the output goes high, the signal will go high (+5 V). **Do not draw more than $100\mu\text{A}$ from the output.** Figure 2-10 shows the circuit for the general-purpose output.

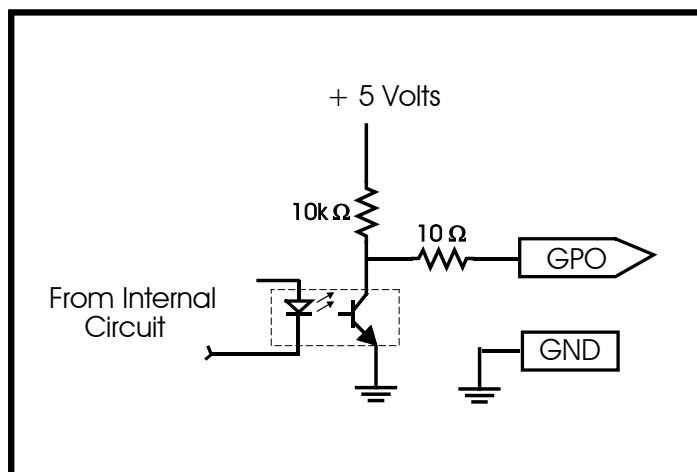


Figure 2-10: GPO Output Circuitry

The GPI and GPO functions are configured using EMC-Setup.

2.9.5.4. Linear Timecode

LTC IN: This female XLR connector on the breakout panel is an input for SMPTE/EBU linear time code for driving the internal clock for the insertion of “Breakfast” clock style logos. When using an unbalanced input source, the signal should be applied to pin 3 of the LTC IN connector. Normally, the unused input (pin 2) should be connected to ground (pin 1).

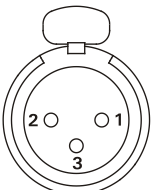
	Pin #	Name	Description
	1	GND	Signal Ground.
	2	LTC IN+	LTC In + input
	3	LTC IN-	LTC in – input

Table 2-6: LTC IN Pin Definitions

2.10. CONNECTING THE LINEAR TIME CODE

The EMC has a linear time code (LTC) input used to provide time information for the analogue or digital clock logos. Connect the LTC output from your house master time code source to the LTC IN XLR connector on the breakout panel. When using an unbalanced input to the reader, the signal should be applied to pin 3 of the LTC input connector. Normally, the unused input (pin 2) should be connected to ground (pin 1).

2.11. ETHERNET CONNECTIONS

ETH A: This RJ-45 connector is an Ethernet port used for EMC configuration downloads, control panels, high-speed firmware upgrades, logging, SNMP and FTP Media/DVE Move transfers.

ETH B: This RJ-45 connector is an Ethernet port used for EMC configuration downloads, control panels, high-speed firmware upgrades, logging, SNMP and FTP Media/DVE Move transfers.

2.11.1.1. Connecting to an Ethernet Network

The EMC is designed to be used with 10Base-T (10 Mbps), 100Base-TX (100 Mbps) or Gigabit (1Gbps) twisted pair Ethernet cabling systems. When connecting for 10Base-T systems, category 3, 4, or 5 UTP cable as well as EIA/TIA – 568 100Ω STP cable may be used. When connecting for 100Base-TX systems, category 5 UTP cable is required. The cable must be “straight-through” with a RJ-45 connector at each end. Establish the network connection by plugging one end of the cable into the RJ-45 receptacle of the EMC Series Keyer and the other end into a port of the supporting hub.

The straight-through RJ-45 cable can be purchased or can be constructed using the pinout information in Table 2-7. A colour coded wiring table is provided in Table 2-7 for the current RJ 45 standards (AT&T 258A or EIA/TIA 258B colour coding shown). Also refer to the notes following the table for additional wiring guide information.

Pin #	Signal	EIA/TIA 568A	AT&T 258A or EIA/TIA 568B	10BaseT or 100BaseT
1	Transmit +	White/Green	White/Orange	X
2	Transmit –	Green/White or White	Orange/White or Orange	X
3	Receive +	White/Orange	White/Green	X
4	N/A	Blue/White or Blue	Blue/White or Blue	Not used (required)
5	N/A	White/Blue	White/Blue	Not used (required)
6	Receive –	Orange/White or Orange	Green/White or Green	X
7	N/A	White/Brown	White/Brown	Not used (required)
8	N/A	Brown/White or Brown	Brown/White or Brown	Not used (required)

Table 2-7: Standard RJ45 Wiring Colour Codes

Note the following cabling information for this wiring guide:

- Only two pairs of wires are used in the 8-pin RJ 45 connector to carry Ethernet signals.
- Even though pins 4, 5, 7 and 8 are not used, it is mandatory that they be present in the cable.
- 10BaseT and 100BaseT use the same pins; a crossover cable made for one will also work with the other.
- Pairs may be solid colours and not have a stripe.
- Category 5 cable must use Category 5 rated connectors.

The maximum cable run between the 3025EMC and the supporting hub is 300 ft (90 m). The maximum combined cable run between any two end points (i.e. 3025EMC and PC/laptop via network hub) is 675 feet (205 m).

Devices on the Ethernet network continually monitor the receive data path for activity as a means of checking that the link is working correctly. When the network is idle, the devices also send a link test signal to one another to verify link integrity. The rear panel is fitted with two LEDs to monitor the Ethernet connection.

10/100: This LED is ON when a 100Base-TX link is last detected. The LED is OFF when a 10Base-T link is last detected. Upon power-up the LED is OFF as the last detected rate is not known and therefore defaults to the 10Base-T state until rate detection is completed.

LN/ACT: This dual purpose Green LED indicates that the EMC has established a valid link to its hub, and it determines whether the EMC is sending or receiving data. This LED will be ON when the EMC has established a good link to its supporting hub. This gives you a good indication that the segment is wired correctly. The LED will BLINK when the EMC is sending or receiving data. The LED will be OFF if there is no valid connection.

2.12. CONTROL PANEL INSTALLATION: QMC-CP-1000E, QMC-CP-E & QMC-CP2048E

The QMC-CP-1000E, QMC-CP-E and QMC-CP2048E are fully programmable panels and therefore the operation of the panel is entirely dependent upon its configuration. The QMC-CP-1000E has 16 physical buttons. The QMC-CP-1000E panel is ideal in applications emergency Program bus panel is required.

The QMC-CP-E is a 2RU control panel that has 33 physical buttons. The QMC-CP-E panel can be used for applications where a compact control panel is required.

The QMC-CP-2048E is a 2RU control panel that has 48 physical buttons. The QMC-CP-2048E panel can be used for applications where multicast control or buddy panel operation is required.

See section 6.3.1 for more information on the operation of the CP-1000E Control Panel.



Figure 2-11: QMC-CP-1000E Control Panel



Figure 2-12: QMC-CP-E Control Panel

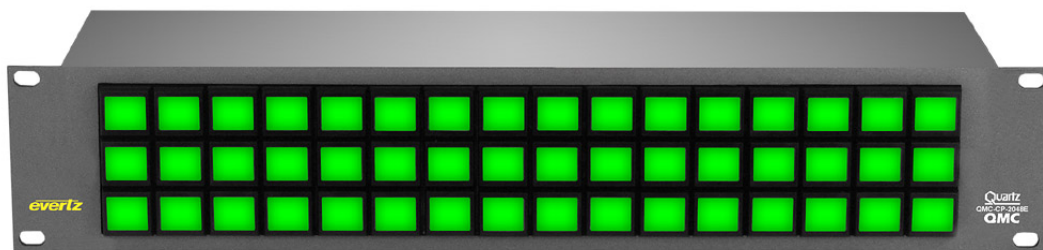


Figure 2-13: QMC-CP-2048E Control Panel

2.13. ELECTRO STATIC DISCHARGE (ESD) PRECAUTIONS



All semiconductor devices are sensitive to ESD. To prevent any damage or degradation on components of the product caused by ESD, observe these precautions when installing or removing modules from the frame.

1. Use a Safe Work Area. Avoid handling modules in areas that have a floor or work surface covering capable of generating a static charge. Also nothing capable of generating or holding a static charge should be allowed in the work area.
2. Handle ESD sensitive modules carefully. Do not slide modules over any surface. Do not touch exposed connector pins. Pick-up modules by the edges of the modules, never by touching exposed leads.
3. Transport and store sensitive components or assemblies in a static-protected bag or container.

2.14. MOUNTING

The control panels are equipped with rack mounting rails and fit into a standard 19" 1RU or 2RU rack space. To securely fasten the frame to the equipment rack, make sure that all four mounting screws on each mounting rail are tightened securely.

2.15. COOLING

The control panel is designed to cool using normal convection air currents. There are no fans in the control panels. Adjacent equipment may be mounted immediately to the top and bottom of the unit.



CAUTION: To ensure adequate cooling, care should be taken to ensure that the air inlets and exhaust openings on the sides of the unit are free of obstructions.

2.16. USE OF SHIELDED CABLES



In order to maintain the electromagnetic (EMI) shielding integrity of the control panel it is recommended that shielded cables be used to connect the signals to the various modules wherever possible. For all ports using shielded cables (Serial RS232/422, etc.) both ends of the shield must be grounded.

2.17. REAR PANEL CONNECTIONS

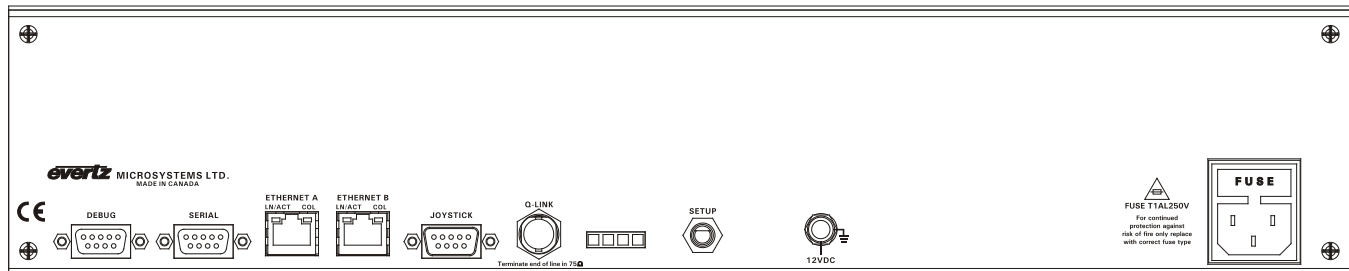


Figure 2-14: Rear of 1RU and 2RU Control Panel

The rear panel connections to the 1RU and 2RU panels are identical. The following sections provide an overview of the connections.

2.17.1. Power

The power entry module contains a standard IEC 320 power inlet connector, two 5 x 20 mm fuse holders, and an EMI line filter. The control panel comes with an auto-ranging power supply that automatically senses the input voltage over the range of 100 to 240 VAC.

Power should be applied by connecting a three-wire, grounding-type power supply cord to the power entry module on the rear panel of each power supply. For use in North America, the power cord should be a minimum 18 AWG wire size; type SVT marked VW-1, maximum 2.5 m in length. For use outside North America, use a power cord approved for the country of use with a minimum 1.00 mm² wire size.



CAUTION: To reduce the risk of electric shock, grounding of the ground pin of the main plug must be maintained.



For NEBS compliant installations, the AC power cord of the frame shall be connected to an external surge protection device.

2.17.2. Connecting the Control Panels using Ethernet

The control panels for EMC are designed for connection using 10Base-T (10 Mbps), 100Base-TX (100 Mbps) Ethernet cabling systems. There are two Ethernet ports labelled ETHERNET A and ETHERNET B, to provide for redundancy in the control system. As a result, either port may be used for connection to the EMC modules without compromise. “Straight-Through” Ethernet cables may be used when connecting the control panels to an Ethernet hub.

Straight-through RJ-45 cable can be purchased or can be constructed using the pinout information in Table 2-8. A colour coded wiring table is provided in Table 2-8 for the current RJ-45 standards (AT&T 258A or EIA/TIA 258B colour coding shown).

Also refer to the notes following the table for additional wiring guide information.

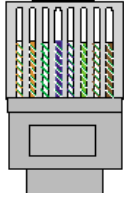
Pin 1 	Pin #	Signal	EIA/TIA 568A	AT&T 258A or EIA/TIA 568B	10BaseT or 100BaseT
	1	Transmit +	White/Green	White/Orange	X
	2	Transmit –	Green/White or White	Orange/White or Orange	X
	3	Receive +	White/Orange	White/Green	X
	4	N/A	Blue/White or Blue	Blue/White or Blue	Not used (required)
	5	N/A	White/Blue	White/Blue	Not used (required)
	6	Receive –	Orange/White or Orange	Green/White or Green	X
	7	N/A	White/Brown	White/Brown	Not used (required)
	8	N/A	Brown/White or Brown	Brown/White or Brown	Not used (required)

Table 2-8: Standard RJ-45 Wiring Colour Codes

Note the following cabling information for this wiring guide:

- Only two pairs of wires are used in the 8-pin RJ-45 connector to carry Ethernet signals.
- Even though pins 4, 5, 7 and 8 are not used, it is mandatory that they be present in the cable.
- 10BaseT and 100BaseT use the same pins; a crossover cable made for one will also work with the other.
- Pairs may be solid colours and not have a stripe.
- Category 5 cable must use Category 5 rated connectors.

Devices on the Ethernet network continually monitor the receive data path for activity as a means of checking that the link is working correctly. When the network is idle, the devices also send a link test signal to one another to verify link integrity.

10/100: This Amber LED is ON when a 100Base-TX link is last detected. The LED is OFF when a 10Base-T link is last detected (the LINK LED is ON). Upon power-up the LED is OFF as the last detected rate is not known and therefore defaults to the 10Base-T state until rate detection is completed.

LN/ACT: This dual purpose Green LED indicates that the control panel has established a valid linkage to its hub, and whether the control panel is sending or receiving data. This LED will be ON when the control panel has established a good link to its supporting hub. This gives you a good indication that the segment is wired correctly. The LED will BLINK when the control panel is sending or receiving data. The LED will be OFF if there is no valid connection.

The control panels require a specific IP Address and Q-Link ID. The IP Address and Q-Link ID can either be set using the front panel “setup” menus or using the DEBUG serial port on the rear of the unit.

The control panels can be upgraded using either serial or ftp. Both options are available through the DEBUG serial port. The serial configuration options can be configured by connecting a straight-through D9 serial cable to the DEBUG serial port and using a third party tool like Hyperterminal or TeraTerm with serial settings 115200, 8, None, 2, None.



Please note that Qlink Mode can't be used with the 3025EMC. Only ETHERNET Mode can be used.



Please note that the front panel setup will only be available while the control panel is “Offline”, i.e. while the 3025EMC is NOT currently communicating with the control panel.

2.18. CONTROL PANELS INSTALLATION: QMC-DCP AND EMC-DCP

For information on installing the QMC-DCP and EMC-DCP, please refer to the QMC-DCP/EMC-DCP manual.

3. EMC CONFIGURATION

This section describes the configuration of the 3025EMC Switcher. In most applications the 3025EMC will be controlled by an automation system and several industry standard third party systems are supported. A range of LCD button control panels can be added to the EMC, as a backup or simply for manual control.

An upstream router is used to select the input sources available to the 3025EMC and this supports Evertz routers as well as most third party routers currently on the market, using a serial RS422 control port. The 3025EMC will function without the external router i.e. it can work as a simple A/B Switcher.

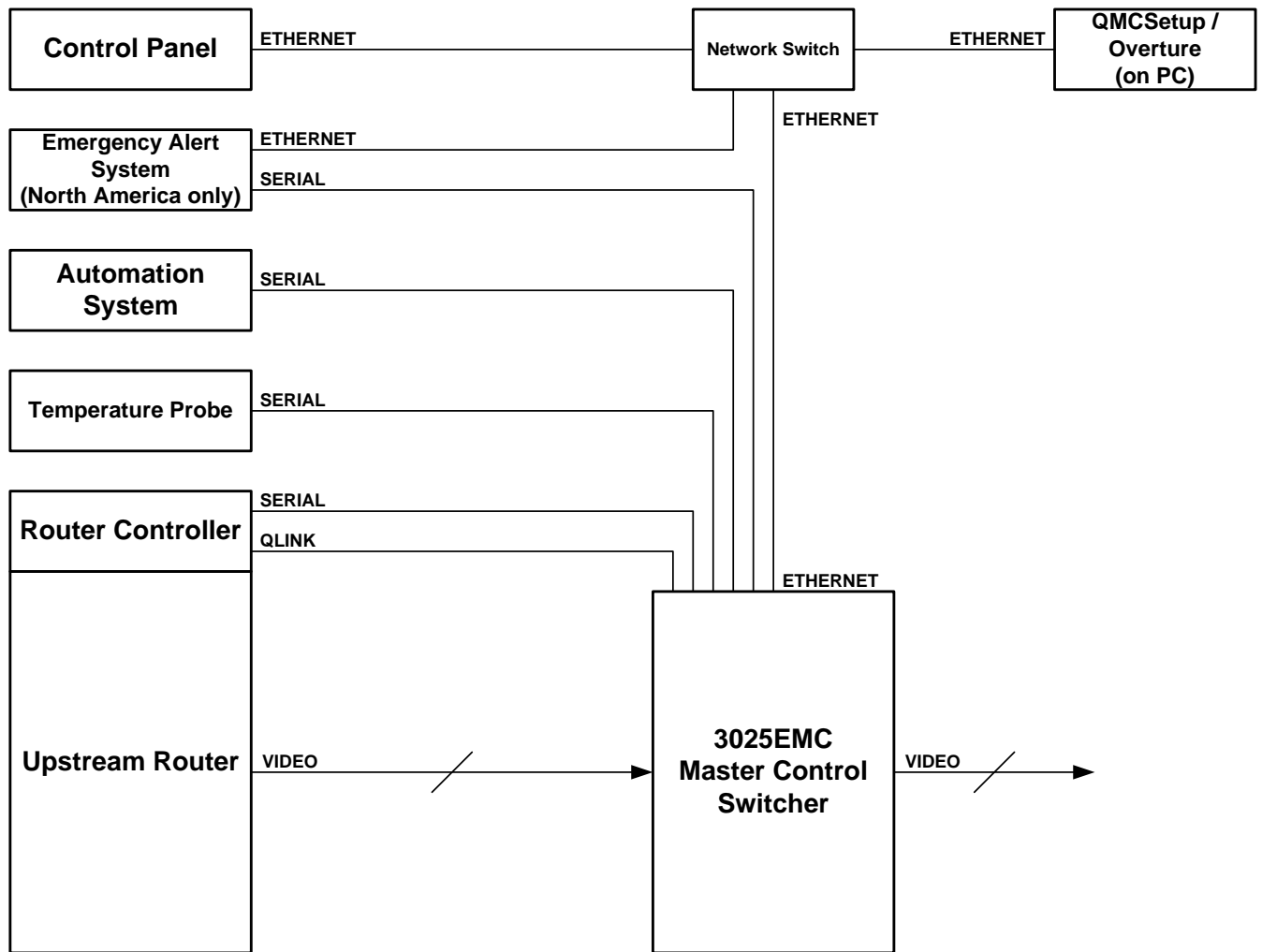


Figure 3-1: 3025EMC System Diagram

A typical multi-channel system:

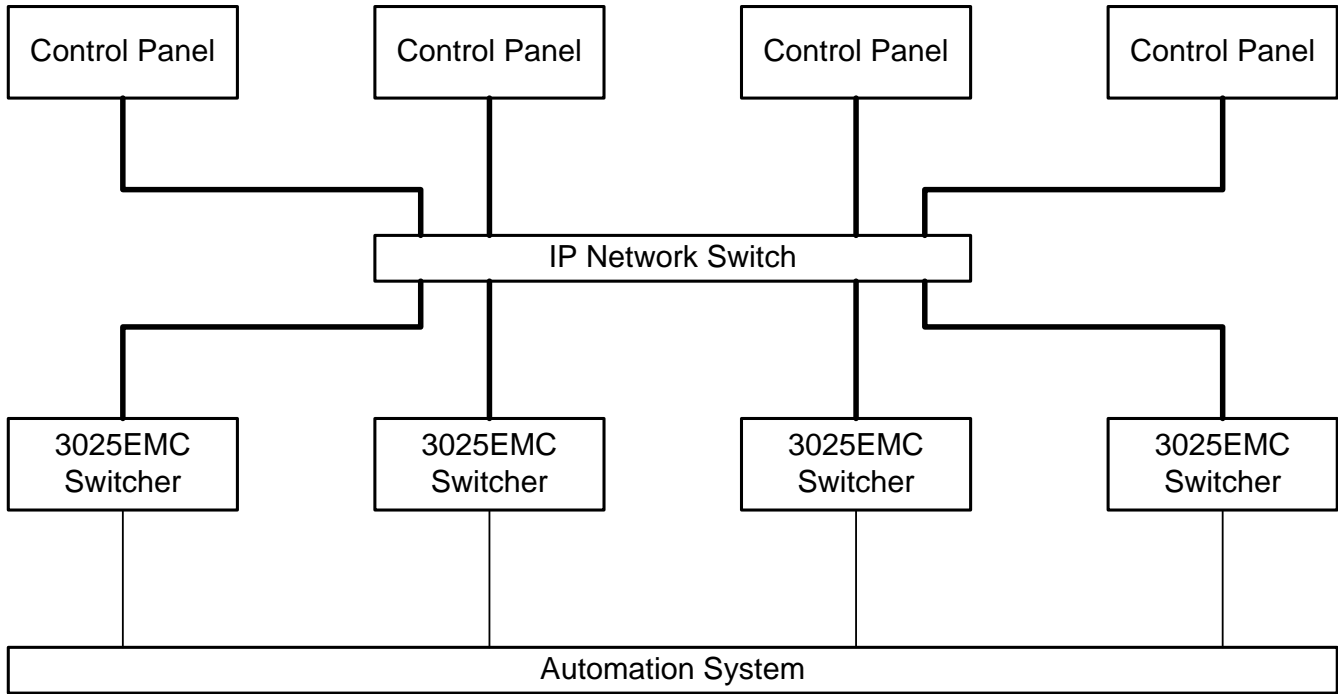


Figure 3-2: 3025EMC Multi-Channel System

In a multi-channel system each EMC channel is independent of other channels. Each Automation computer has its own link to the EMC channel that it is controlling. In this way no single point of failure can stop transmission control of the majority of switcher channels.

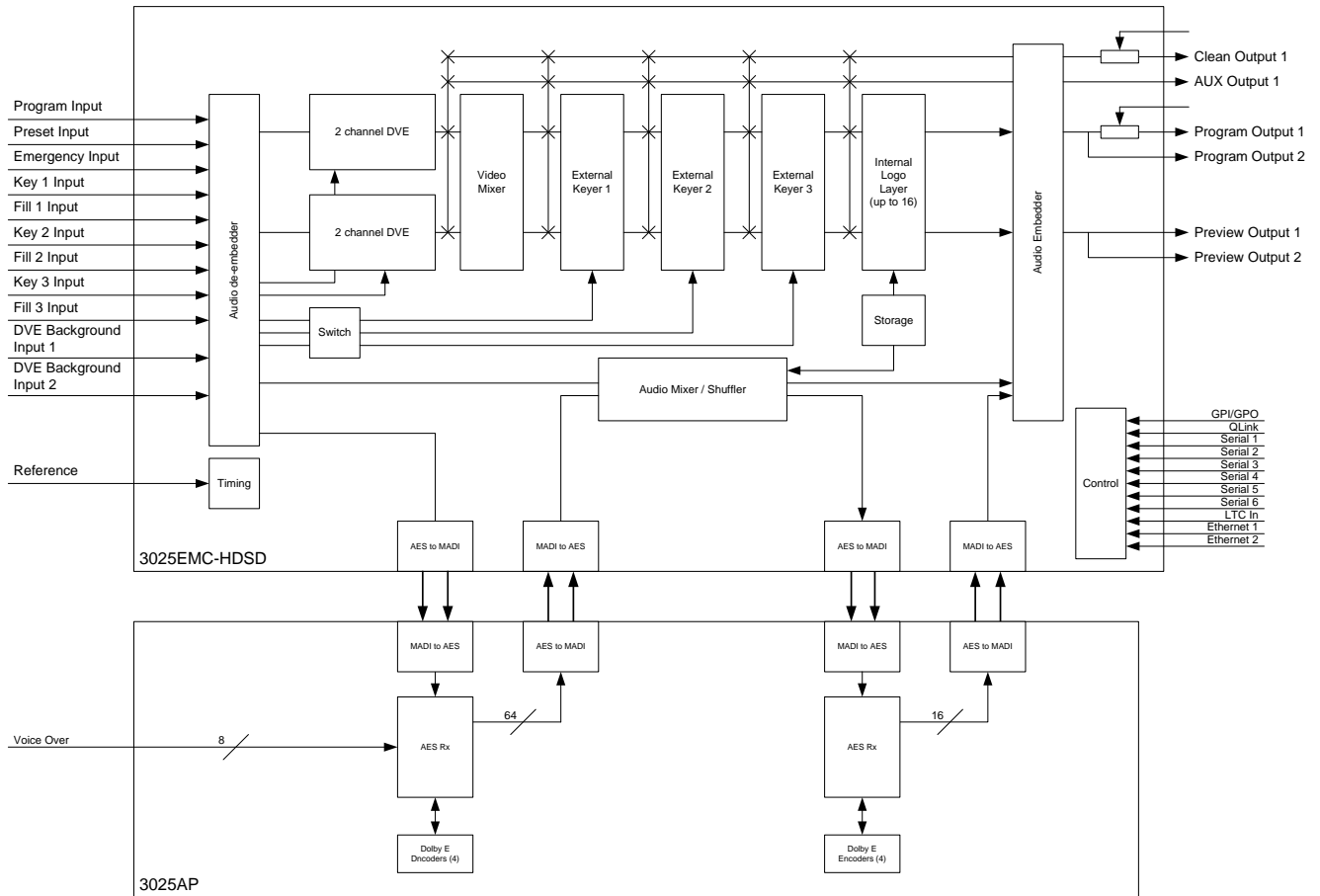


Figure 3-3: Functional Block Diagram

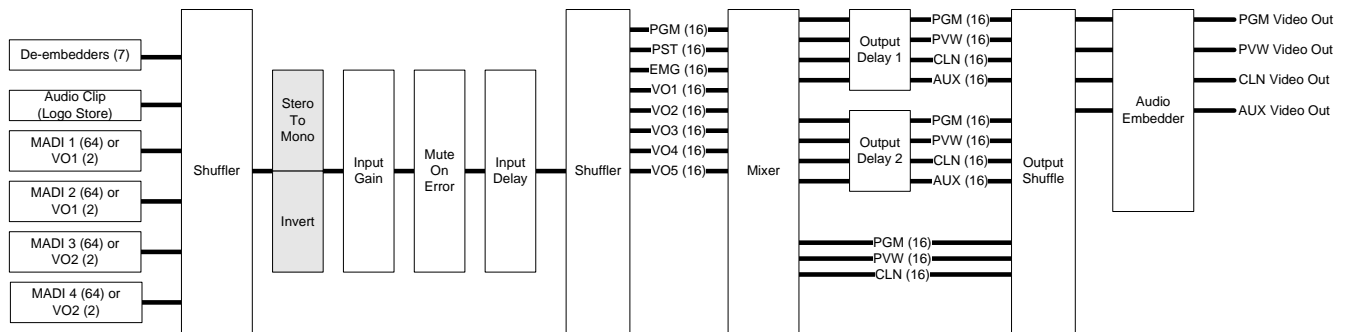


Figure 3-4: Audio Block Diagram

4. EMC CONFIGURATION SOFTWARE

This section describes the software used to configure the 3025EMC switcher. Every 3025EMC is supplied with the EMC-Setup software, which is a Windows PC configuration tool. The following screens were taken from version 5.00.111c of EMC-Setup software.

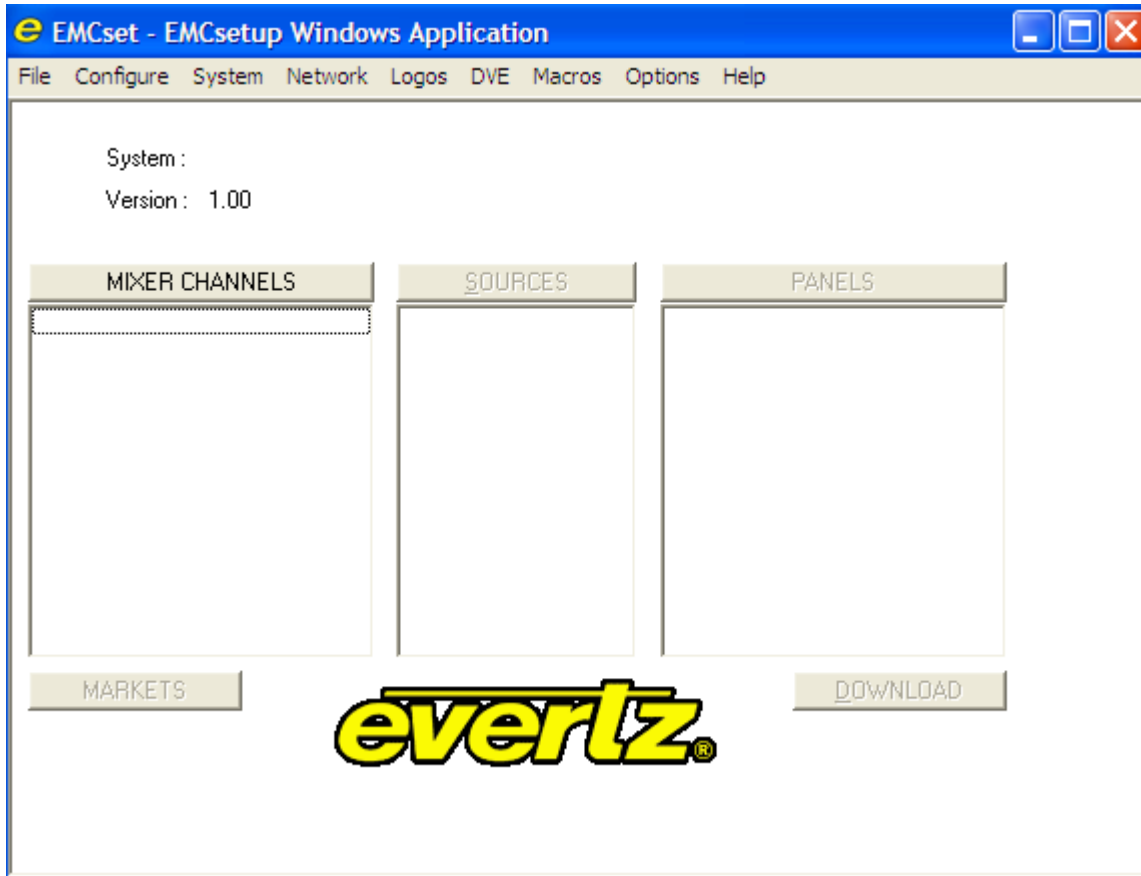


Figure 4-1: Main EMCSetup Screen



The version number of the setup application software can be found by selecting “Help” then “About EMCSetup”.

The opening screen is broken down into the three major pieces that are required for an EMC system. These sections are:

- **Mixer Channels** – The configuration of all the EMC channels in the overall system. Each channel is added individually in this list.
- **Sources** – The source name table of the upstream router used in the system to feed video/audio to the EMC channels. This is a global nametable that ALL EMC channels in the system will use.
- **Panels** – The configuration of the various switcher control panels used in the system to control the channels defined in the Mixer Channels section.

EMC-Setup will create a configuration file that describes the whole EMC system. This section will describe how to configure a basic configuration similar to Figure 3-1.

4.1. SETTING UP IP AND QLINK

The 3025EMC has an Ethernet port compatible with a 10/100/1000 Base T networking running the TCP/IP protocol. The 3025EMC will scroll the current IP Address and Q-Link ID on the front display of the module. The factory would likely have set the IP address to a default address of 192.168.0.200 and a default QLINK address of 0x0 (in HEX). Otherwise, it would have been set according to pre-commissioning information that was provided to the factory prior to shipment.

To change the IP address, use the serial port. On the main EMC-Setup window, choose **Options->Communications**. Set the communication to serial port. Choose the PC COM port you will connect a serial cable to. Set the following comm port settings:

Baud Rate	115200
Parity	None
Data Bits	8
Stop Bits	2

Table 4-1: Serial Comm Port Settings

Connect a straight through D9 serial cable with a rainbow cable (WA-S76 provided with packaging) and connect to the header on the front of the unit (marked J11 Upgrade).

From the main EMC-Setup window, select **System -> Comms Window** and check that you can get an Acknowledgment back (.A) from the EMC when you hit the Acknowledge button. Type the following in the window:

.#98,N

This will return the current IP Address settings similar to below:

.A,Mac Address = 0:2:C5:11:0:30
.A,IP Address = 192.168.9.143
.A,TCP/IP Netmask = 255.255.255.0
.A,TCP/IP Gateway = 0.0.0.0
.A,Mac Address 2 = 00:02:C5:11:00:31
.A,IP Address 2 = 0.0.0.0
.A,TCP/IP Netmask 2 = 255.255.255.0
.A,TCP/IP Gateway 2 = 0.0.0.0

These are the current IP settings for IP 1 (marked ETHA on the rearplate) and IP 2 (marked ETHB on the rearplate). ETHB might not currently be connected on your 3025EMC if a previous version of system firmware was installed that did not support Dual Ethernet operation. IP Address 2 being set to "0.0.0.0" means that ETHB is currently not enabled.

To set the IP addresses of the 3025EMC, from the main screen of the EMC-Setup application software select **MIXER CHANNELS** and when prompted select **NEW** then select **EMC3025** as the Channel's Frame Type.

The software will now add a 3025EMC Mixer Channel to the configuration. At this point select **OK** twice to return to the main configuration window.

Next, choose **Network** then **IP Address Setup**. You will then be presented with the following dialogue.

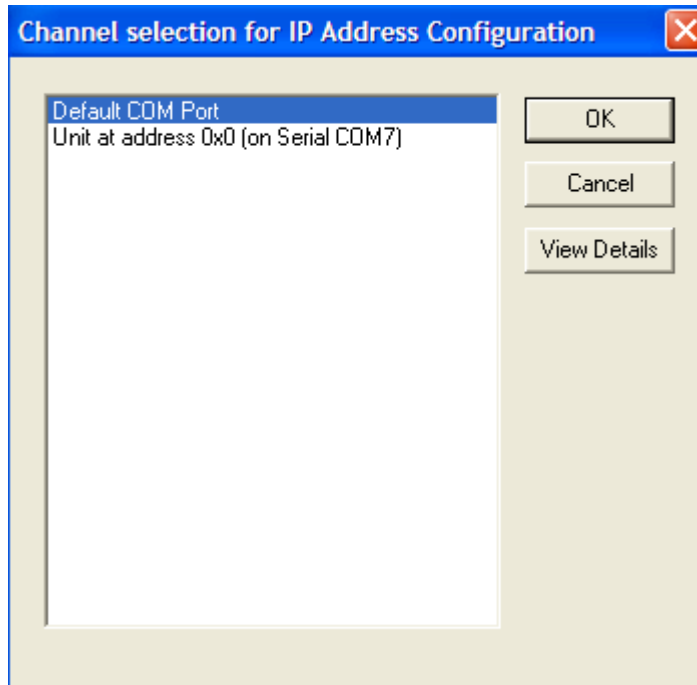


Figure 4-2: Channel Selection for IP Address Configuration

Next, choose **Default COM Port** and the select **OK**.

The following dialogue will now be displayed.

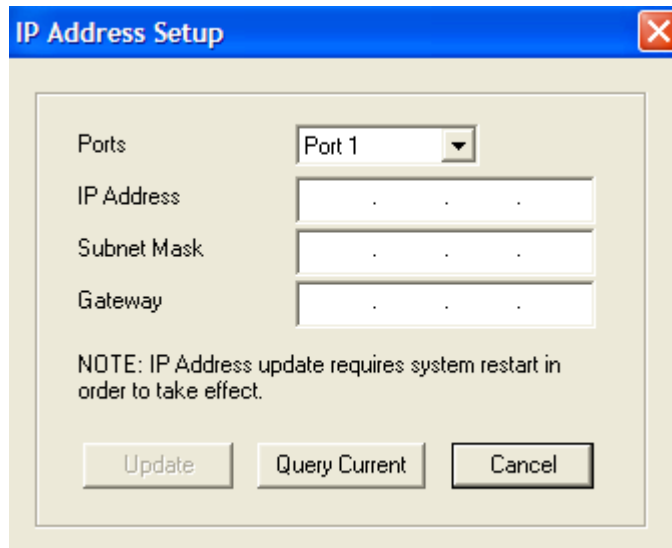


Figure 4-3: IP Address Setup

Click **Query Current** to pull the current Port 1 configuration from the 3025EMC. Then set the IP Address, Subnet Mask and Gateway to what are required (consult with Network Administrator if required). Then click **Update**. You will be prompted to restart the 3025EMC after 30 seconds for the changes to be effective.

Repeat for **Port 2**. There is no need to configure the Gateway for the second port as the gateway address is shared between the two ports.

When finished wait for 30 seconds then reboot the unit as instructed.

The IP address may be changed using a third party tool like HyperTerminal or TeraTerm. Use the following setups:

1. Set-up the serial console so that ASCII Sending is configured to 'Echo typed characters locally' and ASCII Receiving is configured for 'Append line feeds to incoming line ends'.

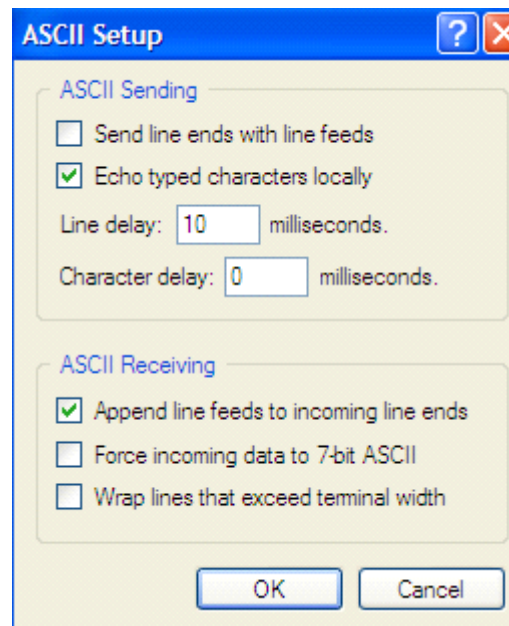


Figure 4-4: ASCII Setup Window

(PRIMARY IP)

2. Type `.$LOCALTCPIP,192.168.9.100` or any appropriate IP Address for your local network configuration. The EMC will respond with `'Routemgr: set default gateway .$.LOCALTCPIP,192.168.9.100'`.
3. Type `.$TCPGATE,192.168.9.1` or any appropriate Gateway Address for your network configuration. The EMC will respond with `'Route-add: set default gateway(192.168.9.1), interface[0].$TCPGATE,192.168.9.1`
4. Type `.$TCPNETMASK,255.255.255.0` or any appropriate Netmask Address for your network configuration. The EMC will respond with similar to above.

5. Type '#N' and the EMC will respond and show you the network settings that you have just configured.

(SECONDARY IP)

6. Type "#S192.168.10.100,255.255.255.0" or any appropriate settings for the second IP address and Netmask. The format of the command is "#S[Address],[Netmask]". The 3025EMC will respond with the same command to confirm that the settings have been received.

Wait for 30 seconds and then reboot the unit for the settings to take effect.



The Primary and Secondary IPs of the 3025EMC MUST be on different Subnets.



The unit MUST be rebooted for the network settings/changes to take effect.

4.1.1 SETTING UP QLINK

As mentioned in section 2.9.1, QLINK is a shared bus. If the 3025EMC is connected to an Evertz router or has multiple control panels, it needs a unique identifier called QLINK ID. This allows the EMC to have a **unique** identifier on the shared configuration where multiple panels can connect to multiple channels. The factory would have set a default QLINK address of 0x0 (in HEX). Otherwise, it would have been set according to pre-commissioning information that was provided to the factory prior to shipment

To change the QLINK address, use the serial port. On the main EMC-Setup window, choose **Options->Communications**. Set the communication to serial port. Choose the PC COM port you will connect a serial cable to. Set the following comm port settings:

Baud Rate	115200
Parity	None
Data Bits	8
Stop Bits	2

Table 4-2: Serial Comm Port Settings

Connect a straight through D9 serial cable with a rainbow cable (provided with packaging) and connect to the header on the front of the unit (marked J11 Upgrade).

From main EMC-Setup window, select **System -> Comms Window** and check that you can get an Acknowledgment back (.A) from the EMC when you hit the Acknowledge button. Type the following in the window:

- .#90,dx where 'x' is the hex address that you want to set.
- .#91,d to confirm the hex address (EMC will respond with '.A,x').

Wait for 30 seconds and then reboot the EMC for the changes to be committed. After reboot has been completed, the new QLINK address should appear on the card edge or can be checked using the Comms Window and typing:

- .#91,d to confirm that the hex address has been configured correctly.

The QLINK address configured must match the hex address for the EMC channel in the EMC-Setup configuration (see section 4.3.2).



IMPORTANT: The user should keep a record of the IP address and QLINK address they assign to each EMC channel. The QLINK addresses should be assigned in a numerical order. (i.e. 0x00, 0x01, 0x02, etc.)

EMC Channel Number/Name	IP Address	QLINK Address

4.2. CONFIGURING AN EMC CHANNEL

To start, double click on the **Mixer Channels** tab, and select NEW. The menu you will see is shown in Figure 4-5. For setting up a 3025EMC channel, select EMC3025 and click on OK button.

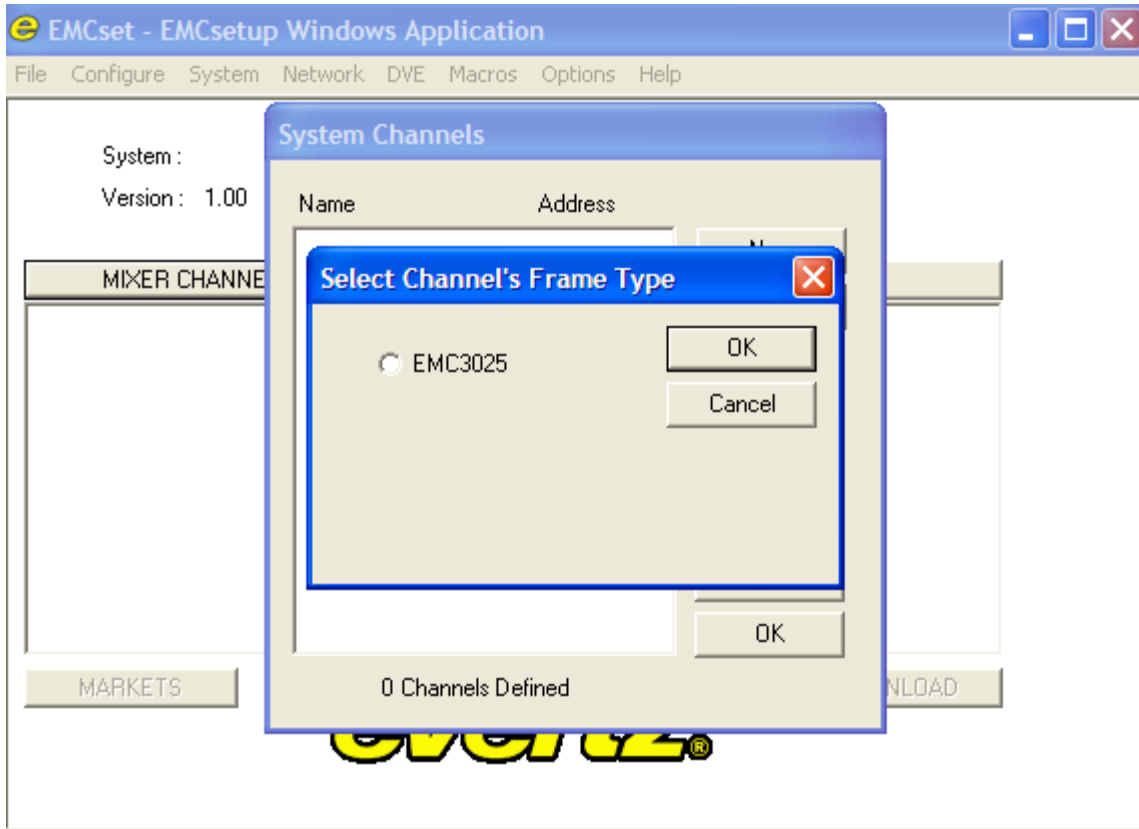


Figure 4-5: Channel Type

A "Mixer Channel" window will open, as illustrated in Figure 4-6, enabling the user to configure the EMC Channel's parameters.

4.3. GENERAL CHANNEL INFORMATION

This section describes the general parameters that are required for the channel behaviour.

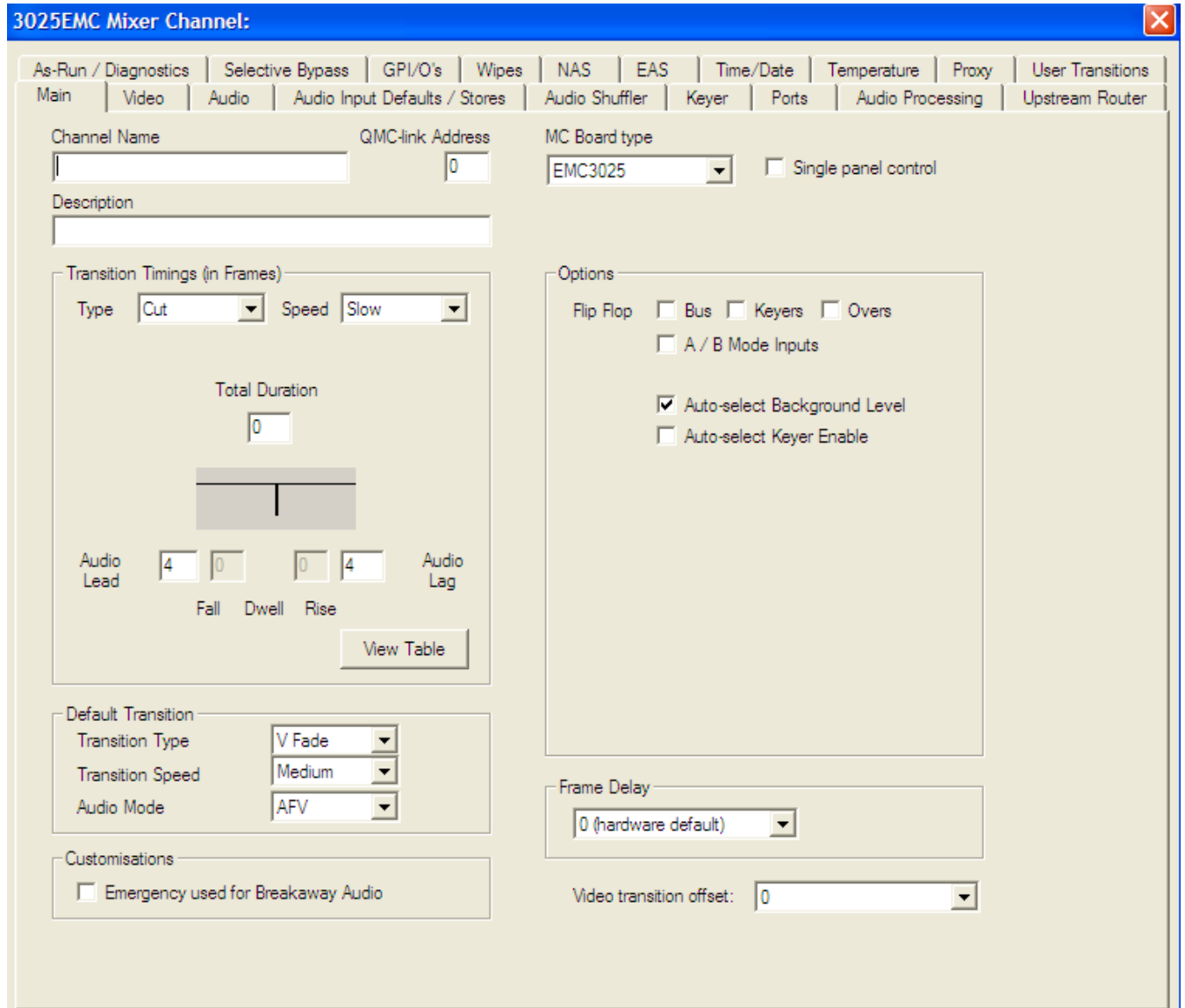


Figure 4-6: Main Tab

4.3.1. Channel Name and Description

The “Channel Name” and “Description” fields enable you to add a name and description to the selected channel.



Please note: Channel Name should NOT EXCEED more than 10 characters in order to appear correctly on the LCD buttons correctly.

4.3.2. QMC-Link Address

The QMC-Link Address is required to be set to a value. QMC-Link (QLINK) is a proprietary protocol that runs on shared serial bus that allows for multiple EMCs to exist on a single bus. This configured value gives the EMC channel a unique ID (set in HEX notation) in a system with multiple channels. EMC-Setup will automatically start at 0x00 and increment by 1 for every channel added in the configuration. **The QLINK address must also match the address configured on the EMC.** See section 4.1.



IMPORTANT: There MUST always be a channel configured in the configuration file with HEX ID 0x00.

4.3.3. Transition Timings

For each of the transition types (Cut, V-Fade, etc) set parameters for each of the four Speeds (Slow, Medium, Fast, and Custom). The timing will be used later from the manual control panels. The timing diagram graphic changes for each transition type to assist you in setting the timings.

Type: Enables you to select to the transition type. Types include: Cut, V Fade, Cut-Fade, Mix and Fade-Cut.

Speed: Enables you to select the speed of the transitions. Speed options include: Slow, Medium, Fast, and Custom.

Duration: Enables you to set the total duration.

Audio Lead / Audio Lag: Enables you to the set the amount of Audio Lead and Audio Lag.

4.3.3.1. View Table

Selecting this button will open the “Transition Adjustment” window as illustrated in Figure 4-7. This window enables you to view your current transition details for each transition.

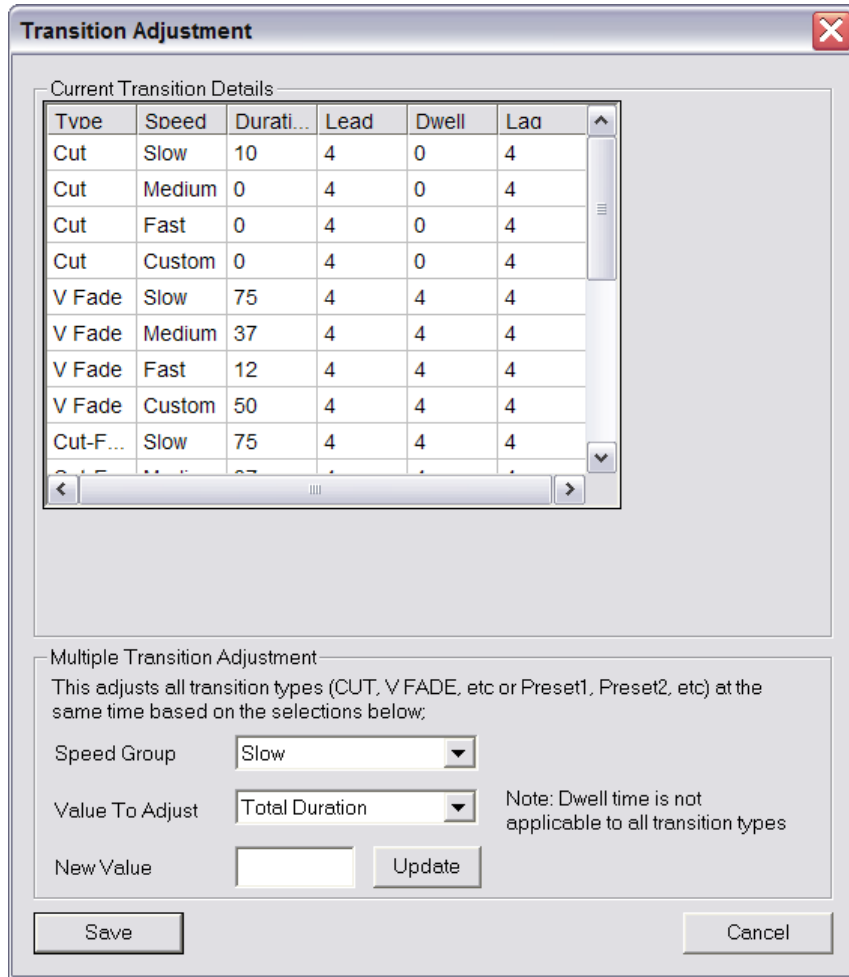


Figure 4-7: Transition Adjustment Window

4.3.3.2. Multiple Transition Adjustments

The “Multiple Transition Adjustment” section enables you to adjust transition options at the same time.

Speed Group: Enables you to select the speed of multiple transitions. Options include: Slow, Medium, Fast and Custom.

Value to Adjust: Enables you to select the desired values to be adjusted. Options include: Total Duration, Audio Lead, Audio Dwell, Audio Lag.



Please note: Dwell time is not applicable to all transition types.

New Value: Enables you to enter a new value to the designated transition type.

Click the “Update” button to update the transition details.

Select the “Save” button to ensure your changes are saved.

4.3.4. Default Transition

This is the transition type that will be first displayed on a control panel at power up.

4.3.5. Customizations

Add a checkmark to this box to enable “Emergency used for Breakaway Audio” option. This feature is not currently supported. This option may not appear in the Main Tab.

4.3.6. MC Board Type

This parameter displays the board type currently in use and should be EMC3025.

Single Panel Control: Add a checkmark to this box to enable “Single Panel Control.”

In a multiple panel control system the “Single Panel Control” option configures the channel that only a single panel can control that channel at any time. This function operates in a most recent request mode, i.e. the panel that most recently selected this channel will have control and all other panels will no longer have control of this channel.

4.3.7. Options

Flip Flop: Enables you to select Bus, Keyers, and Overs to flip flop. If flip-flop is selected for the bus, then the Preset bus will change (after the transition) to the source on the Program bus before the transition. If flip-flop is selected for Keyers and Overs, they will change after the transition has finished such that a keyer/voice-over going to On-Air will be ready to come back to the Preset state at the next transition.



Please note: Bus Flip-Flop will NOT occur if the transition was started by M2100 Automation.



Please note: The Keyer Flip-Flop setting takes priority over the Keyer “Hold Trans. Level” setting (see the Keyer configuration tab).

A/B Mode: When not in A/B Mode (normal mode), the Program Output will be routed from the Program Input and the Preset Output will be routed from the Preset Input (assuming that the Background Level is On and the EMC is not in transition). In A/B Mode the EMC will flip-flop between A/B Mode (PGM In→PGM Out, PST In→PST Out) and B/A Mode (PST In→PGM Out, PGM In→PST Out) after a transition. This mode is normally used when there are issues with the switching of the upstream router or there are conversion modules directly upstream of the EMC PGM/PST inputs.

Auto-select Background Level: With this option enabled the Background Level will be enabled automatically when the Program and Preset sources are different.

Auto-select Keyer Enable: With this option enabled the Keyer Transition Enable state will be enabled automatically when a Keyer is preset (level is enabled).

4.3.8. Frame Delay

Frame Delay: Enables you to select a frame delay for the input to output of the EMC. This allows users to fix the delay that the EMC will introduce in the program path. When set to 0 (hardware default), the EMC will use the minimum delay based on the hardware fitted. Additional frames added in this drop-down menu will be in addition to this minimum delay.



NOTE: The default I/O frame delay (no Dolby-E processing) for the 3025EMC is 2 Frames.

4.3.9. Video Transition Offset

Video Transition Offset: The default value for the Video Transition Offset is 0. When this parameter is 0 the video and audio transitions will start with default timing. Using a V-Fade transition as an example, both the audio and video will begin to fade at exactly the same time with respect to when the transition start command was received from automation.

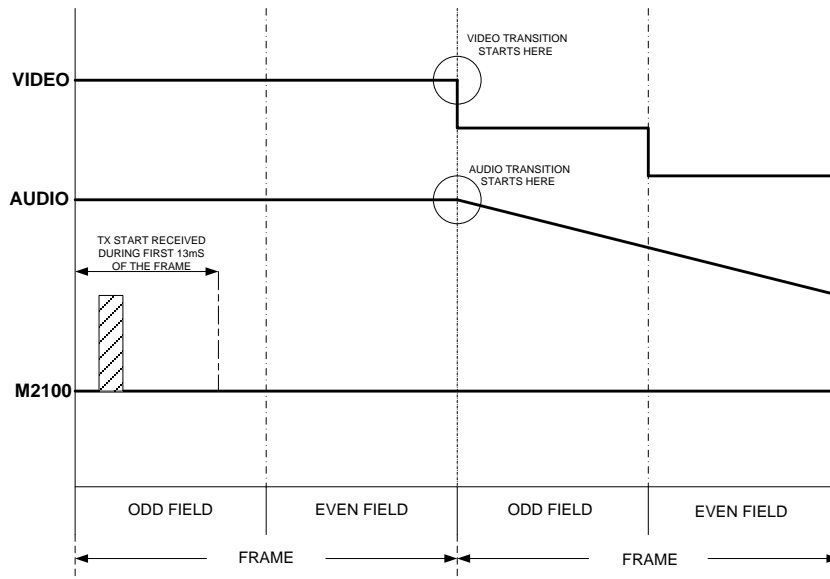


Figure 4-8: Video Transition Offset 0

If the Video Transition Offset is 1 there will be an offset between the video transition start and audio transition start. The audio transition will start at the expected time with respect to the transition start and the video will start one field (interlaced frame/progressive frame) later. The duration of the video and audio transitions will not be affected, i.e. if the duration is 12 frames then the duration of both video and audio transition will be 12 frames.

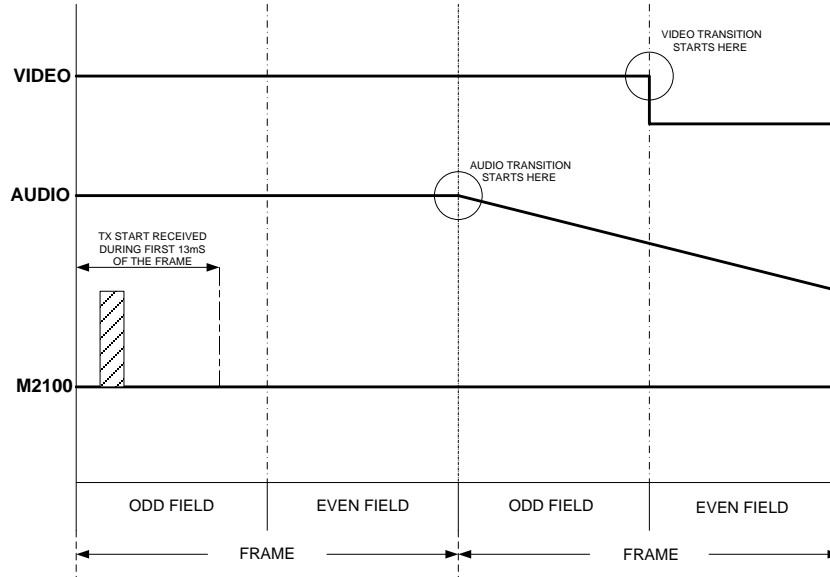


Figure 4-9: Video Transition Offset 1

If the Video Transition Offset is -1, the video transition starts with the expected timing with respect to the start of the transition and the audio transition start one field later.

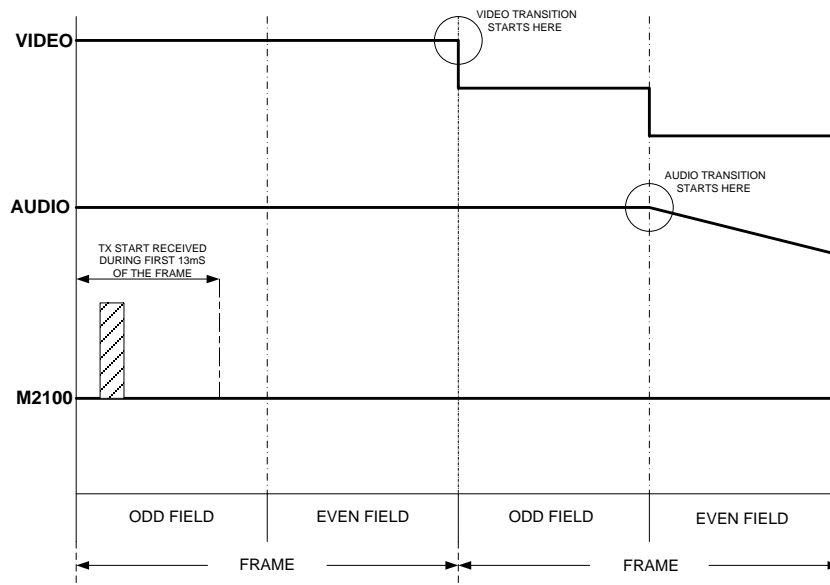


Figure 4-10: Video Transition Offset -1

The Video Transition Offset can be configured in a range from -4 to +4. The setting is in fields for interlaced video standards and frames for progressive video standards.

4.4. VIDEO CONFIGURATION

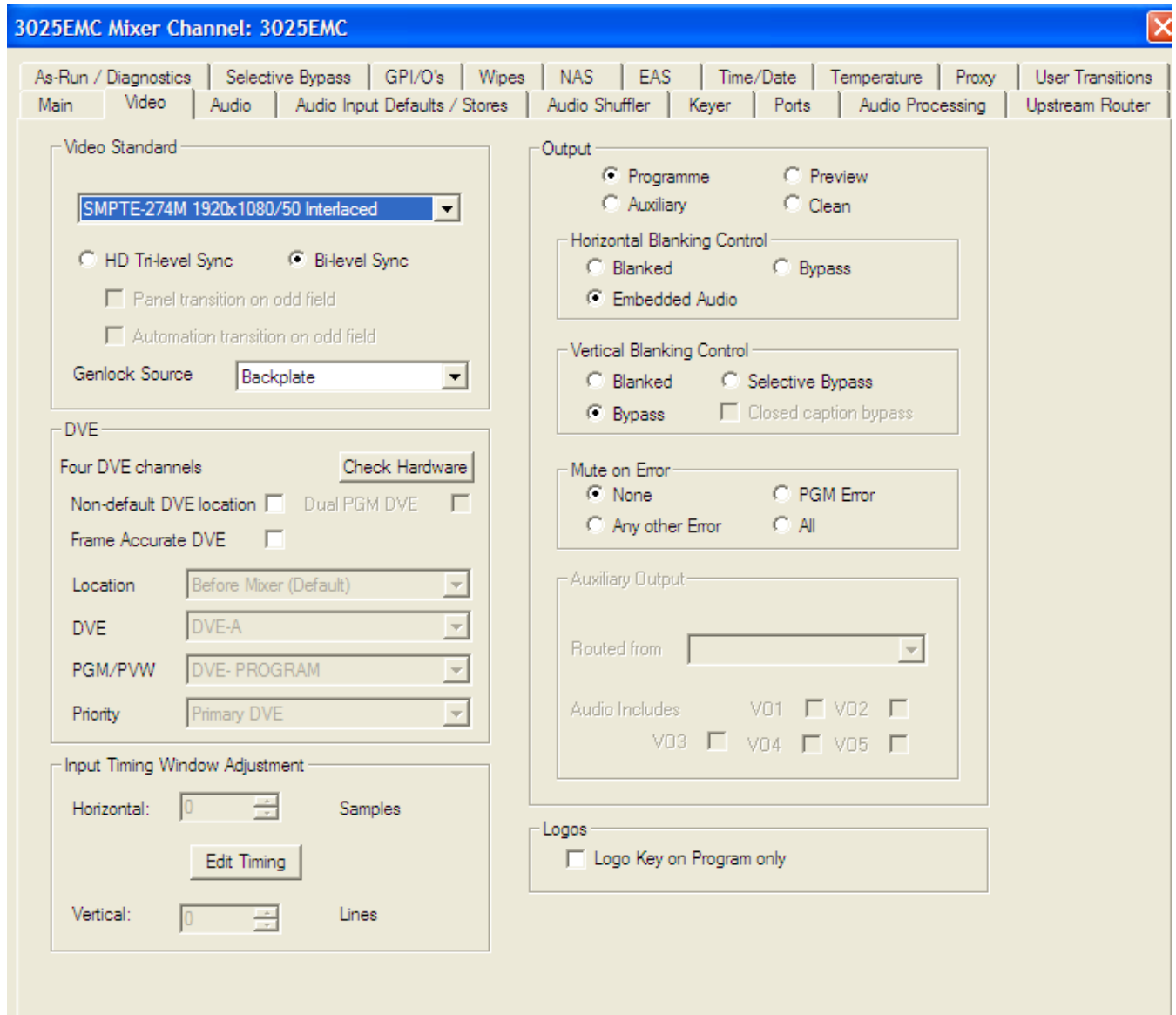


Figure 4-11: Video Tab

4.4.1. Video Standard

This parameter enables you to select a desired video standard. This sets the video standard of the EMC channel. This section allows for the configuration of the reference signal type of “HD Tri-level Sync” or “Bi-level Sync” option.

Panel Transition on odd field: This option is only available for 720p/50 and 720p/59.94 video standards and is for channels that are using Dolby-E. This forces transitions, DVE Moves and Keyer On/Off air requests that are triggered from a control panel to start on an odd 625i/525i field (720p frame).

Automation Transition on odd field: This option is only available for 720p/50 and 720p/59.94 video standards and is for channels that are using Dolby-E. This forces transitions, DVE Moves and Keyer cuts (with video cut) that are triggered from automation to start on an odd 625i/525i field (720p frame).



NOTE: The 3G option MUST BE PURCHASED for 1080p video standards to operate correctly.

4.4.2. Output

This section of the video configuration tab enables users to specific both Horizontal and Vertical Blanking control. For each of the outputs (PGM, PRV and CLEAN), specific behavior can be set.

Under Horizontal Blanking control, the user can select:

Blanked: Entire horizontal area of video is blanked.

Bypass: Entire horizontal area of video is forwarded untouched by the EMC.

Embedded Audio: Only embedded audio is inserted in the horizontal area and the rest is blanked.

Under Vertical Blanking control, the user can select:

Blanked: Entire vertical area of video is blanked.

Selective Bypass: Selective lines of vertical area of video are forwarded untouched by the EMC. The lines are selected under the Selective Bypass tab. The remaining vertical area is blanked.

Bypass: Entire vertical area of video is forwarded untouched by the EMC.



NOTE: When the Video Standard is configured as 525i/59.94 and the PGM Vertical Blanking control is configured for Selective Bypass an option becomes available to allow for closed captions on the first line of active video to be bypassed, i.e. not be corrupted during DVE squeezebacks.

The “Mute on Error” selection will allow users to mute audio if an error is detected. This should be set to NONE. There are other options for this that will be described later in the manual.

4.4.3. Genlock Source

This parameter enables you to select a genlock source for the EMC.

Backplate: This sets the REF input on the EMC rear plate as the genlock source.

Frame 1: This sets the REF A input on the frame (like 3000FR) as the genlock source.

Frame 2: This sets the REF B input on the frame (like 3000FR) as the genlock source.

4.4.4. DVE

The section applies only if +DVE-2D (2 channel DVE) or +DVE-2D-2 (4 channel DVE) options are ordered for the EMC. This configures the EMC to recognize the DVE and place it with the video processing path of the EMC. Select the “Check Hardware” button to verify how many DVE channels available. Based on the ordering option the correct configuration options are made available to the user. This setting is saved with the channel configuration.

Non-default DVE Location: This check box allows the user to move the position of the DVE in the video processing path from its default location before the Video Mixer. When checked, the user can use the Location pull down menu to select the position. This configuration setting will fix the position of the DVE functional block. **This cannot be changed dynamically via automation or manual control.**

Frame Accurate DVE: This check box applies to interlaced video standards only. When this option is enabled this forces the 3025EMC DVE hardware to only update the DVE effect on every interlaced frame and not every interlaced field. The overall length of the DVE effect scaling/cropping/position is not affected by this option.

4.4.5. Auxiliary Output



Please note: These parameters are only available when either the “Auxiliary” or “Clean Output” is selected as described in section 4.4.2.

This parameter enables the user to select where in the video processing path they would like to route either the Auxiliary or Clean paths from.

The user will select the Aux or Clean output, and with the pull down menu designate from where in the processing path the source will be taken (illustrated in Figure 4-9).

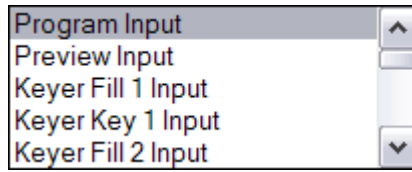


Figure 4-12: “Routed From” Drop Down Window

Users can select whether they want to include the voiceovers onto either the Aux or Clean output. They would need to checkmark the VO1- VO5 boxes to allow the audio to include VO1 – VO5.

Program Keyer 5 O/P will always include Voiceovers as this represents the PGM output of the mixer. The other Program O/Ps allow for configuration of which voiceovers are included/mixed. This functionality is not currently supported for the Preset O/Ps.

4.4.6. Using Aux for Audio Monitoring

When Auxiliary Output is selected for configuration in the Video Tab an additional option will become available. This option is called “Use Aux for Audio Monitoring”.

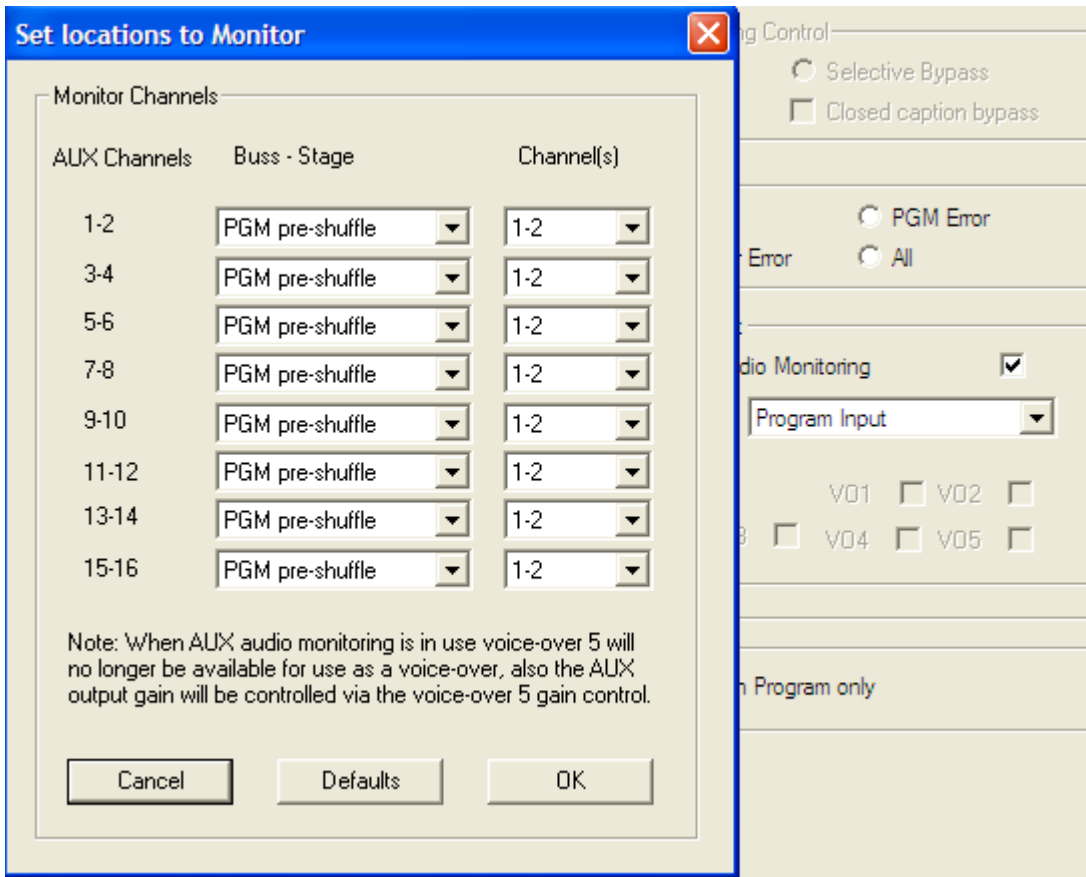


Figure 4-13: Configuring the Audio Monitoring Routing

When the audio monitoring option is enabled, three things will happen:

1. A dialogue box will open that will allow the user to configure what the default audio monitoring routing will be of the 3025EMC when the unit is rebooted or after a configuration upload (default state).
2. V/O 5 now becomes unavailable to be used as a normal voiceover.
3. The audio bars for the 3025EMC channel that are available on the LCD (optional) of the EMC-DCP and QMC-DCP panels and on the software version of the QMC-DCP will change mode and show the audio metering for the Aux Bus and not the Clean Bus.

The dialogue box allows the user to configure how audio channels from within the audio processing pipeline will be routed to the auxiliary audio output channels.

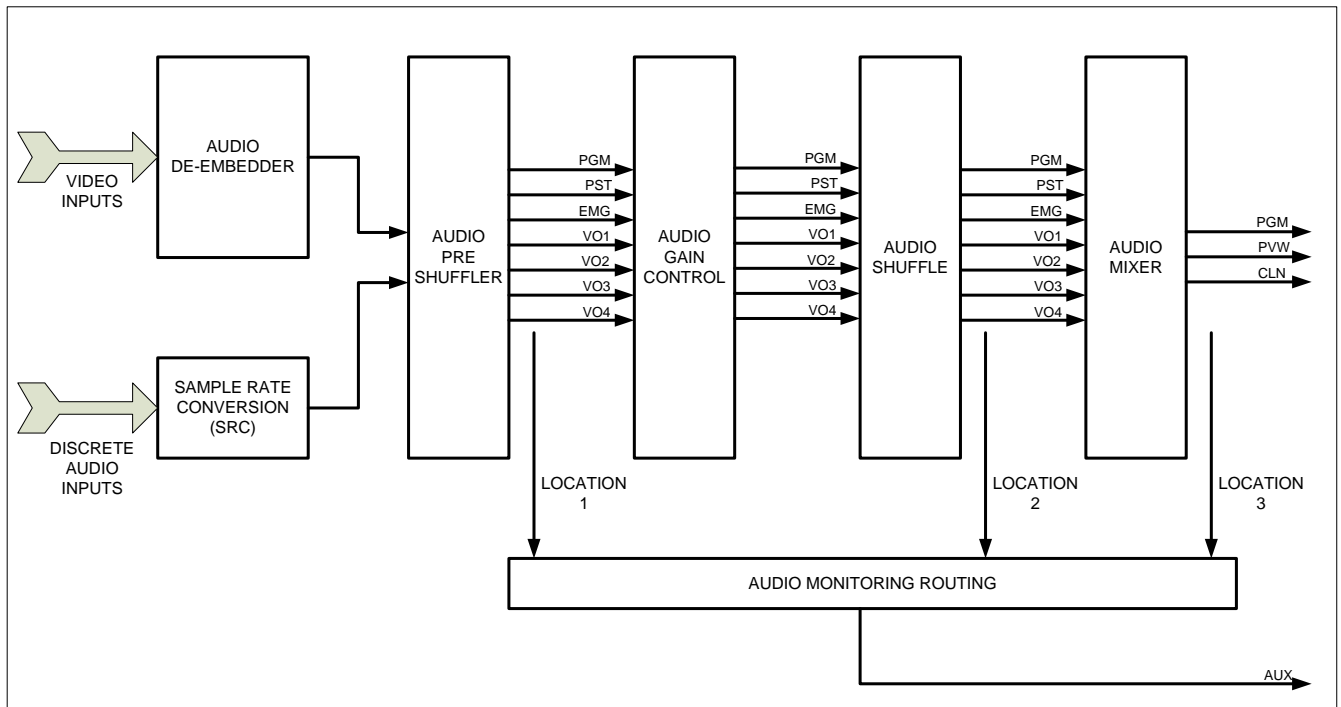


Figure 4-14: Audio Monitoring Location

Location 1 – Output of the Preshuffler

Audio from the output of the pre-shuffler stage in the audio processing pipeline routes audio from directly after the pre-shuffler. This is input audio before any processing (before shuffling, gain adjustment and mixing). Program, Preset, Emergency and Voiceovers 1-4 apply as input buses at this stage.

Location 2 – Mixer Input

Audio from the input to the mixer stage in the audio processing pipeline routes audio from directly before the audio mixer. This is now audio after any applied gain adjustment and shuffling. Program, Preset, Emergency and Voiceovers 1-4 apply as input buses at this stag.

Location 3 – Mixer Output

This is audio from the output of the audio mixer. This is audio after any applied gain adjustment, shuffling and mixing. Although CLN output is an option as a route this is not currently supported.

The video routing of the Auxiliary Bus still applies. The audio monitoring routing is selecting the audio routing for the audio and has no effect on the video.

Further control of the audio monitoring adjustment can be made using any of the supported control panels. See section 9.1 for more details.



Please note: When Audio Monitoring is enabled V/O5 is no longer available to be used as a Voiceover.

4.4.7. Input Timing Window Adjustment

The EMC requires video to be timed with respect to reference input with an accuracy of $\pm \frac{1}{2}$ a video line. This ensures clean video and audio transitions. The Input Timing Window Adjustment enables you to set the horizontal position for the input timing window to account for an offset. Click the “Edit Timing” button and the window illustrated in Figure 4-15 will appear where you can customize the adjustment settings. The input timing window is only 1 video line wide.

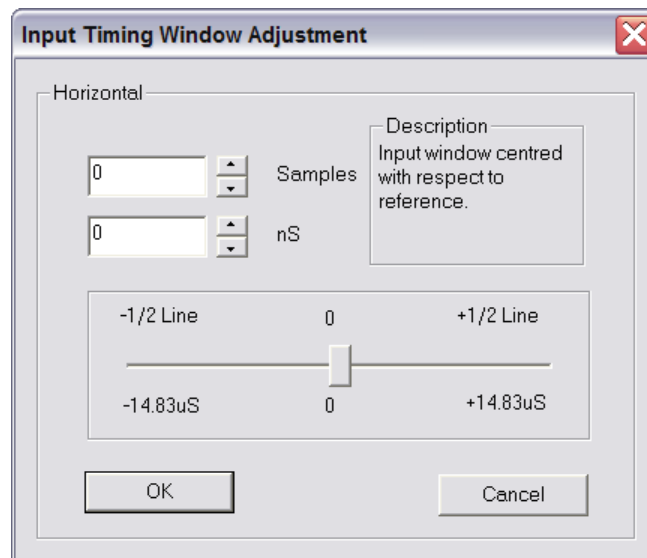


Figure 4-15: Input Timing Window Adjustment



IMPORTANT: The 3025EMC has an input timing window of $\pm \frac{1}{2}$ video line with respect to reference.

4.4.8. Logos

Logo Key on Program Only: Checkmark this option to show On-Air media on the Program Bus ONLY.

4.5. AUDIO CONFIGURATION

The screenshot displays the 'Audio' configuration interface. At the top, there is a navigation bar with tabs: 'As-Run / Diagnostics', 'Selective Bypass', 'GPI/O's', 'Wipes', 'NAS', 'EAS', 'Time/Date', 'Temperature', 'Proxy', 'User Transitions', 'Main', 'Video', 'Audio', 'Audio Input Defaults / Stores', 'Audio Shuffler', 'Keyer', 'Ports', 'Audio Processing', and 'Upstream Router'. The 'Audio' tab is selected.

Below the navigation bar is the 'Input Parameters' section, which includes:

- Input:** A dropdown menu set to 'Programme'.
- Format:** A dropdown menu set to 'Embedded'.
- Hold Transitioning Level:** An unchecked checkbox.
- De-embedder Source:** A dropdown menu.

The main area contains three sub-sections:

- Metadata Router:** A tabbed interface with 'Metadata Presets' and 'Operational Options' sub-tabs.
- Insertion Line (Ch 1/2) and (Ch 3/4):** Two dropdown menus, both set to '0 (Off)'.
- Data Identification (DID):** A sub-section with five dropdown menus:
 - DID:** Set to '45h'.
 - VANC 1 SDID:** Set to '01h'.
 - VANC 2 SDID:** Set to '02h'.
 - VANC 3 SDID:** Set to '03h'.
 - VANC 4 SDID:** Set to '04h'.
- Inputs:** A dropdown menu set to 'PGM Meta 1'.
- Input source:** A dropdown menu set to 'none'.
- Encoders:** A dropdown menu set to 'Encoder 1'.
- Output source:** A dropdown menu set to 'none'.
- Serial Outputs:** A dropdown menu set to 'Serial 1'.
- Output source:** A dropdown menu set to 'none'.

At the bottom of the main area are two buttons: 'Defaults' and 'Disable'.

Figure 4-16: Audio Tab

4.5.1. Input Parameters

These parameters will determine the state that the EMC will default to when the power is cycled or the EMC is reconfigured.

Users will set the audio format for the various inputs of the EMC.



Please note: Discrete AES for Program, Preset, Emergency and Voiceovers 3, 4 & 5 requires additional hardware. Contact factory for more information.

The 3025EMC has 3 16 channel fixed de-embedders, one each for the Program, Preset and Emergency Inputs.

In addition to the Program, Preset and Emergency de-embedders there are also 5 additional 16 channels de-embedders that can be assigned by the user.

For VO1 (Voice-over 1) and VO2 (Voice-over 2), there are four options for the audio source for each of the VO1 and VO2 buses. The options for the other buses vary depending on the VO selected.

Voiceover 1

AES: This configures the EMC to use the discrete AES audio that is connected to MADI inputs 1 and 2. For more details see section 2.9.3.

AES AP: This configures the EMC to use the discrete AES audio that is connected to AES inputs 1 and 2 of the 3025AP module. This is required because the EMC MADI inputs 1 and 2 are being used as MADI receivers for the 3025AP interface.

Embedded: This configures the voiceover 1 bus to use de-embedded audio from a serial video input. When this is configured the “De-embedder Source” drop-down menu becomes available. Any of Key1, Fill1, Key2, Fill2, Key3, Fill3, Aux1, Aux2, Aux3, DVE1 and DVE2 can be assigned to the voiceover 1 de-embedder.

AES MADI: This configures the 3025EMC to use discrete audio that is connected to the corresponding inputs on the 3025EMC-48x36-AES audio module.

Voiceover 2

AES: This configures the EMC to use the discrete AES audio that is connected to MADI inputs 3 and 4. For more details see section 2.9.3.

AES AP: This configures the EMC to use the discrete AES audio that is connected to AES inputs 3 and 4 of the 3025AP module. This is required because the EMC MADI inputs 3 and 4 are being used as MADI receivers for the 3025AP interface.

Embedded: This configures the voiceover 2 bus to use de-embedded audio from a serial video input. When this is configured the “De-embedder Source” drop-down menu becomes available. Any of Key1, Fill1, Key2, Fill2, Key3, Fill3, Aux1, Aux2, Aux3, DVE1 and DVE2 can be assigned to the voiceover 2 de-embedder.

AES MADI: This configures the 3025EMC to use discrete audio that is connected to the corresponding inputs on the 3025EMC-48x36-AES audio module.

Voiceover 3

Embedded: This configures the voiceover 3 bus to use de-embedded audio from a serial video input. When this is configured the “De-embedder Source” drop-down menu becomes available. Any of Key1, Fill1, Key2, Fill2, Key3, Fill3, Aux1, Aux2, Aux3, DVE1 and DVE2 can be assigned to the voiceover 3 de-embedder.

AES MADI: This configures the 3025EMC to use discrete audio that is connected to the corresponding inputs on the 3025EMC-48x36-AES audio module.

Voiceover 5

Embedded: This configures the voiceover 5 bus to use de-embedded audio from a serial video input. When this is configured the “De-embedder Source” drop-down menu becomes available. Any of Key1, Fill1, Key2, Fill2, Key3, Fill3, Aux1, Aux2, Aux3, DVE1 and DVE2 can be assigned to the voiceover 5 de-embedder.

AES MADI: This configures the 3025EMC to use discrete audio that is connected to the corresponding inputs on the 3025EMC-48x36-AES audio module.

Voiceover 4

Embedded: This configures the voiceover 4 bus to use de-embedded audio from a serial video input. When this is configured the “De-embedder Source” drop-down menu becomes available. Any of Key1, Fill1, Key2, Fill2, Key3, Fill3, Aux1, Aux2, Aux3, DVE1 and DVE2 can be assigned to the voiceover 4 de-embedder.

Audio Clip: When in this configuration VO4 is used to playout an audio wav file that is stored either in the internally (Compact Flash) or on the Network Attached Storage (NAS). The 3025EMC will support 8ch 48 kHz 16 bit stereo OR 8ch 48 kHz 8 bit mono audio wav files. Only these two types are supported. VO4 will go on-air (wav is faded in) or preset (wav is cue’s). Only one wav file can be on-air at any time.

AES MADI: This configures the 3025EMC to use discrete audio that is connected to the corresponding inputs on the 3025EMC-48x36-AES audio module.

4.5.2. Metadata Router/Metadata Presets



Please note: Metadata Control/Metadata Presets are currently NOT fully supported. Some settings might be required. See below for more information on the metadata routing configuration.

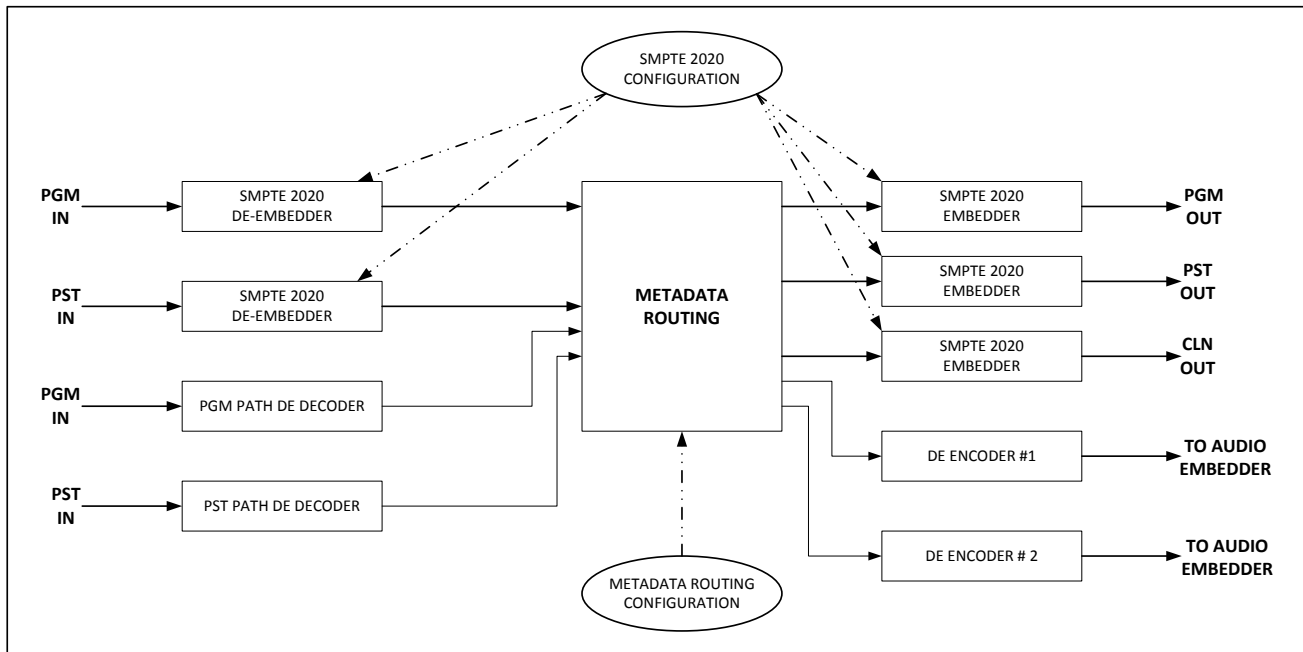


Figure 4-17: Dolby-E Metadata Routing

The 3025EMC currently supports the following metadata routing options:

1. SMPTE 2020 VANC (Vertical Ancillary) metadata embedded into the input video signal routed to SMPTE 2020 VANC metadata embedded into the output video signal.
2. Metadata from internal Dolby-E Decoders (installed on the 3025AP audio processing module) routed to the SMPTE 2020 metadata embedded into the output video signal.
3. Metadata from internal Dolby-E Decoders routed to the internal Dolby-E Encoder(s).

The VANC (vertical ancillary) metadata embedder settings will only take effect if the Output Vertical Blanking control settings do not blank the selected lines on the Program, Preset and Clean buses.

Insertion Line(Ch 1/2):

The 3025EMC allows for SMPTE 2020 metadata insertion onto two different lines of the Program, Preset and Clean outputs. This setting configures which line will be used to embed metadata channels one and two. If this is configured as “0 (off)” then insertion of channels one and two will be disabled.

- Insertion Line(Ch 3/4):** The 3025EMC allows for SMPTE 2020 metadata insertion onto two different lines of the Program, Preset and Clean outputs. This setting configures which line will be used to embed metadata channels three and four. If this is configured as “0 (off)” then insertion of channels three and four will be disabled.
- Data Identification (DID):** The SMPTE 2020 metadata de-embedders and embedders share the same DID (ancillary data ID) and SDID (secondary ancillary data ID). This setting configures the DID that will be used for both reading and writing of metadata to and from the VANC of the Program, Preset and Clean inputs/outputs. The default value for the DID on the 3025EMC is 0x45.
- VANC 1 SDID:** This is the SDID for metadata channel one. This setting configures the SDID that will be used for both reading and writing of metadata to and from the VANC of the Program, Preset and Clean inputs/outputs channel one. The default value for this SDID on the 3025EMC is 0x01.
- VANC 2 SDID:** This is the SDID for metadata channel two. This setting configures the SDID that will be used for both reading and writing of metadata to and from the VANC of the Program, Preset and Clean inputs/outputs channel two. The default value for this SDID on the 3025EMC is 0x02.
- VANC 3 SDID:** This is the SDID for metadata channel three. This setting configures the SDID that will be used for both reading and writing of metadata to and from the VANC of the Program, Preset and Clean inputs/outputs channel three. The default value for this SDID on the 3025EMC is 0x03.
- VANC 4 SDID:** This is the SDID for metadata channel four. This setting configures the SDID that will be used for both reading and writing of metadata to and from the VANC of the Program, Preset and Clean inputs/outputs channel four. The default value for this SDID on the 3025EMC is 0x04.

Regardless of the metadata input and output settings the SMPTE 2020 metadata routing will always take effect. The only settings that can affect VANC metadata routing are the following:

1. **Insertion Line** – If the insertion line is set to “0 (Off)” then metadata will not be embedded to the Program, Preset and Clean outputs. If channels 1 and 2 are being inserted and the DID/SDID of the metadata matches incoming metadata then new metadata will be inserted and the existing metadata will be marked for deletion, i.e. the incoming metadata will be re-inserted with a DID of 0x80 (mark for deletion).
2. **VANC DID & SDID** – These settings are common for de-embedding and insertion of SMPTE 2020 metadata. There are four de-embedders each for the PGM and PST inputs and also four embedders each for the PGM, PST and CLN outputs. If the DID/SDID of the inputs does not match the DID/SDID configured in the EMC-Setup configuration then the SMPTE 2020 data will pass-through the 3025EMC untouched.

3. **VANC Blanking** – If the bus is configured for blanked in the Vertical Blanking Controls dialogue of the Video Tab (see section 4.4.2) then the SMPTE 2020 data will pass-through the 3025EMC untouched.

SMPTE 2020 de-embedding will read the data per the channel configuration for DID/SDID regardless of the input line number.

4.5.2.1. Metadata Inputs

There are eight metadata inputs that can be configured (The Emergency settings are not currently supported). These are PGM Meta 1, Meta 2, Meta 3 and Meta 4 and also PST Meta , Meta 2, Meta 3 and Meta 4.

4.5.2.2. Metadata Input Source

Metadata Input Source	Description
VANC	If the source for the metadata input needs to be SMPTE 2020, then this setting should be used. If Meta 1 input is being configured then the VANC source will be the metadata that corresponds to the DID and VANC 1 SDID in the configuration. For Meta 2 it would be DID and VANC 2 SDID etc.
Decoder 1	Decoder 1 is the metadata output of Decoder 1 which will normally be in the PGM Path.
Decoder 2	Decoder 2 is the metadata output of Decoder 2 which will normally be in the PST Path.
Decoder 3	Not currently supported.
Decoder 4	Not currently supported.
Presets 1 to 8	Not currently supported.
Serial 1 to 4	Not currently supported.

Table 4-3: Metadata I/O Configuration

4.5.2.3. Encoders

There are four encoders that can be configured here, but only encoder one and two are currently supported. The other encoders are for future use.

4.5.2.4. Output Source

The metadata source that the encoder(s) will be using can be configured here. Normally encoder 1 will be using Meta 1 and encoder 2 will be using Meta 2.

4.5.2.5. Serial Outputs

Not currently supported.

4.5.2.6. Output Source

Not currently supported.

For examples on how the metadata routing would be used in different configurations, please refer to the Application Notes section at the end of the manual.



Please note: Metadata Presets are NOT currently supported.



Please note: If Metadata Routing is not being used then the routing should be configured for "Disabled".

4.5.3. Operational Options

4.5.3.1. Change Input Parameters on Source

When the preset or program bus is changed from source to source the EMC can optionally change the audio gain and shuffling of the input bus to the configuration determined by that source. This option enables this function to be active, if the option is not checked then the audio parameters do not change when source selections are made to the preset or program bus. When this mode is not active the gain and shuffle settings are global for that bus regardless of the currently selected source.

4.5.3.2. Assign Default on No Source Parameter

If the above option is enabled then the audio settings can optionally be assigned to the default values if a particular source has no audio parameters associated with it (see source dialog for more details).

4.5.3.3. Save Audio Changes to Source

The EMC user can optionally change the audio gain and shuffle on the program and preset bus, if this option is checked then this value is saved to the selected source, so that the next time this source is selected the same audio parameters are applied (if option 1 is selected).

4.5.3.4. Demote Pgm. Settings to Pst. on Take

The EMC will by default promote the audio parameters (gain) from the preset bus to the program bus when carrying out a transition. For example if the preset bus is at -2dBr and the preset bus transitions to the program bus then the program bus audio is set to -2dBr afterwards. If however this option is checked the program bus will "Demote" its gain value to the preset bus prior to the transition and therefore maintaining a constant gain value on the output.

4.5.3.5. Attenuate Voice Over

This option has been removed from the configuration.

4.5.3.6. Gang VO1 & VO2

This option has been removed from the configuration.

4.5.3.7. Allow Phase 'Invert Left' with Auto Phase Correction

Not supported.

4.5.3.8. Allow Change To and From VO Shuffle 'None'

Not supported.

4.5.3.9. Manual Hot Cut Does Not Affect On-Air Voice Overs

A manual Hot Cut on the PGM bus normally forces any On-Air or Preset Voice Over to the off condition. When ticked this option allows the On-Air Voice Over to remain on during Hot Cuts but Preset VO's are forced to the off state. This control only affects manual Hot Cuts on the PGM bus.

For automation Hot Cuts an On-Air voice over remains On-Air but is preset ready to come Off-Air at the next transition. Automation Hot Cut control of voice overs can be disabled by settings the GVG M2100 Protocol Data Byte to 1.

4.5.3.10. Enable VO On Air Requests During Transitions

During a transition changes and to any item that could be part of the transition are blocked, including applying and removing Voice Overs. When ticked this option will allow a Voice Over to be applied or removed during a transition providing the transition does not already have the same Voice Over active. This can be useful in Voice Over booths where the operator will press a button (connected to EMC GPI input) to activate a Voice Over but may do this during other automation driven transitions.

4.6. AUDIO INPUT DEFAULTS/STORES

These parameters will determine the state that the EMC will default to when the power is cycled or the EMC is reconfigured.

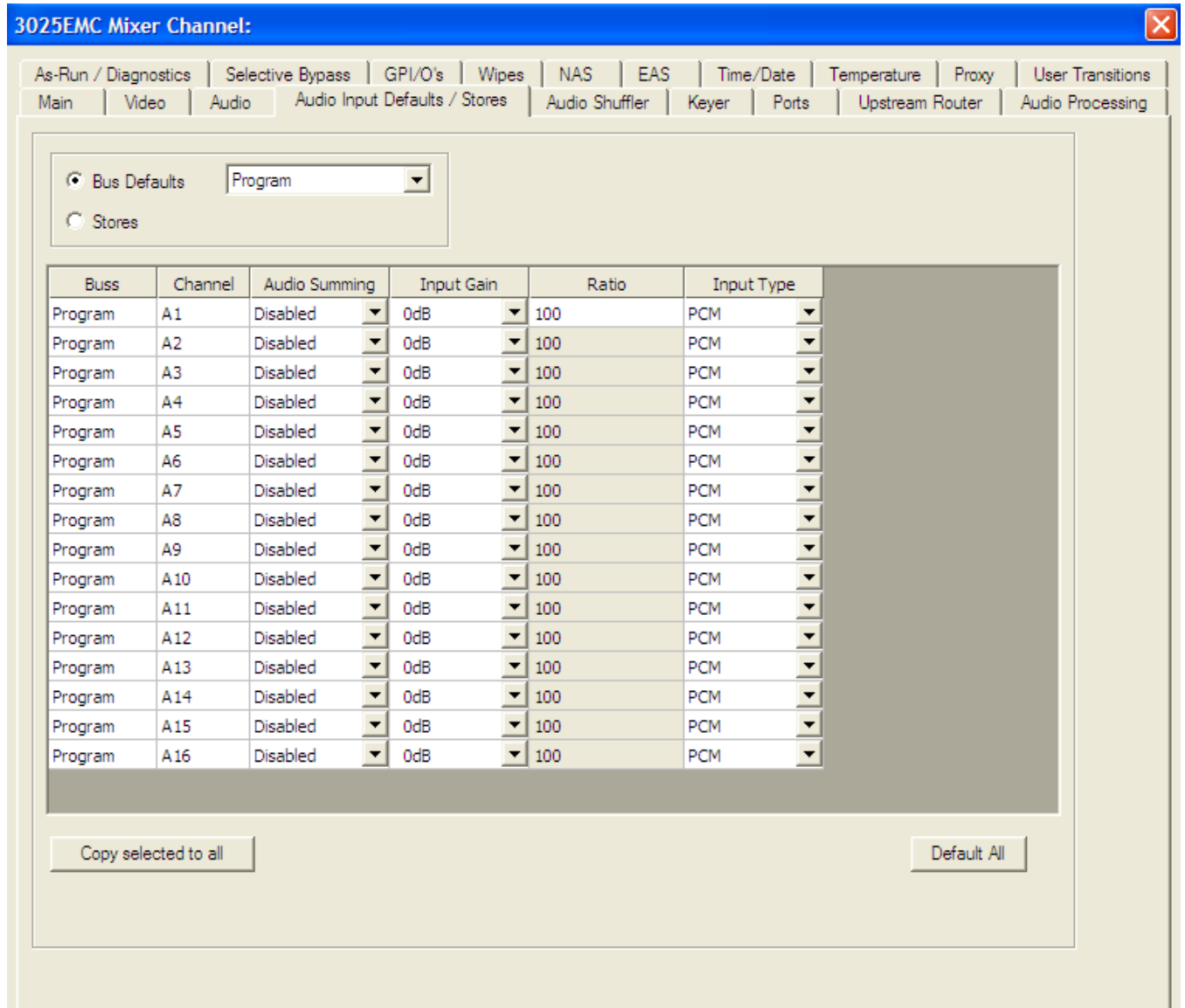


Figure 4-18: Audio Input Defaults / Stores Tab

4.6.1. Bus Defaults

Users set the defaults for each of the audio input types: Program, Preset, Emergency, VO1, VO2, VO3, VO4 and VO5.

4.6.2. Audio Summing

This setting will perform an audio sum of the incoming audio channels. When set to Enabled, the audio selected and its corresponding adjacent channel will be summed and applied to both channels. For example, if enabled on A1, both A1 and A2 are summed and the result applied to both channels: A1 and A2 as A1+A2.

4.6.3. Input Gain

The audio of each channel can have its input gain adjusted. This setting allows a relative dB value to be selected to apply to the audio level incoming to the EMC audio mixer. For example, a value of -3dB means 3dB down from the level coming into the EMC. This gain stage allows the gain to be varied from <120dB to +12dB.

4.6.4. Input Type

This parameter sets the incoming audio to either PCM or Data/Dolby. This is done on a channel per channel basis. This option is only available on the PGM Bus. This option is normally used when Dolby-E is required to “pass-through” the EMC’s audio mixer. Any channel pairs that are configured for Data/Dolby will not transition with the rest of the channels; they will simply cut to avoid corruption of the encoded data stream.

4.6.5. Ratio

Program, Preset, VO1, VO2, VO3, VO4 and VO5 each have an attenuation ratio setting. This is the ratio of the audio that will be applied when a voiceover (or combination of voiceovers) is active.

Program: This is the ratio of program audio that will be mixed when a voiceover (or combination of voiceovers) is applied. 100% means that 100% of the program audio will be mixed and 0% means that the program audio component of the audio mix will be silent. Only the program channels that have been configured to “duck” will have the ratio applied to them. See section 4.7 for more details on ducking.

Preset: This is the ratio of preset audio that will be mixed when a voiceover (or combination of voiceovers) is applied. 100% means that 100% of the preset audio will be mixed and 0% means that the preset audio component of the audio mix will be silent. Only the preset channels that have been configured to “duck” will have the ratio applied to them. The preset ratio will transition to program as part of a transition. See section 4.7 AUDIO SHUFFLER for more details on ducking.

VO1: This is the ratio of VO1 audio that will be mixed when a voiceover (or combination of voiceovers) is applied. 100% means that 100% of VO1 audio will be mixed and 0% means that the VO1 audio component of the audio mix will be silent. Only the VO4 channels that have been configured to “mix” will have the ratio applied to them. See section 4.7 for more details on mixing.

- VO2:** This is the ratio of VO2 audio that will be mixed when a voiceover (or combination of voiceovers) is applied. 100% means that 100% of VO2 audio will be mixed and 0% means that the VO2 audio component of the audio mix will be silent. Only the VO2 channels that have been configured to “mix” will have the ratio applied to them. See section 4.7 for more details on mixing.
- VO3:** This is the ratio of VO3 audio that will be mixed when a voiceover (or combination of voiceovers) is applied. 100% means that 100% of VO3 audio will be mixed and 0% means that the VO3 audio component of the audio mix will be silent. Only the VO3 channels that have been configured to “mix” will have the ratio applied to them. See section 4.7 for more details on mixing.
- VO4:** This is the ratio of VO4 audio that will be mixed when a voiceover (or combination of voiceovers) is applied. 100% means that 100% of VO4 audio will be mixed and 0% means that the VO4 audio component of the audio mix will be silent. Only the VO4 channels that have been configured to “mix” will have the ratio applied to them. See section 4.7 for more details on mixing.
- VO5:** This is the ratio of VO5 audio that will be mixed when a voiceover (or combination of voiceovers) is applied. 100% means that 100% of VO5 audio will be mixed and 0% means that the VO5 audio component of the audio mix will be silent. Only the VO5 channels that have been configured to “mix” will have the ratio applied to them. See section 4.7 for more details on mixing.

The **EMERGENCY** Bus has a Program Attenuation ratio. This is the amount by which the program audio channels will be ducked when the emergency is applied. 100% means that the program audio channels will be mute and 0% means that the program channels will be at 100% of their input level (after input gain adjustment). A value of 50% indicates would duck both the Program and Emergency audio by 50%.

4.6.6. Transition Time

This control is only applicable to the voice-overs. It determines the time that the voice over audio will ramp up when this input is taken on air directly without transitioning it on or off in the normal way. This field is expressed in frames.

4.6.7. Foreground Ratio

This option has been removed from the configuration.

4.6.8. Stores

The EMC offers ten Audio Input Stores which can be applied to any bus. Not all settings apply to all buses.

4.7. AUDIO SHUFFLER

This tab allows users to configure the audio shuffler. This allows the audio input channels (A1, A2, etc) to be mapped to the audio output channels. Each 16 channel audio bus (PGM, PST, EMG, VO1, VO2, VO3, VO4 and VO5) can be configured to have a default shuffle mapping, i.e. mapping that will be active for each bus after a configuration upload OR after a power-cycle/reboot.

The default mapping for each bus is set using the “Audio Input” drop down menu. The number of inputs the PGM, PST and Emergency buses have is always 16. The number of inputs that the voiceover buses have available changes based on the Audio Input parameters that have been configured for that bus. See section 4.5.1 for more details about Audio Input parameters.

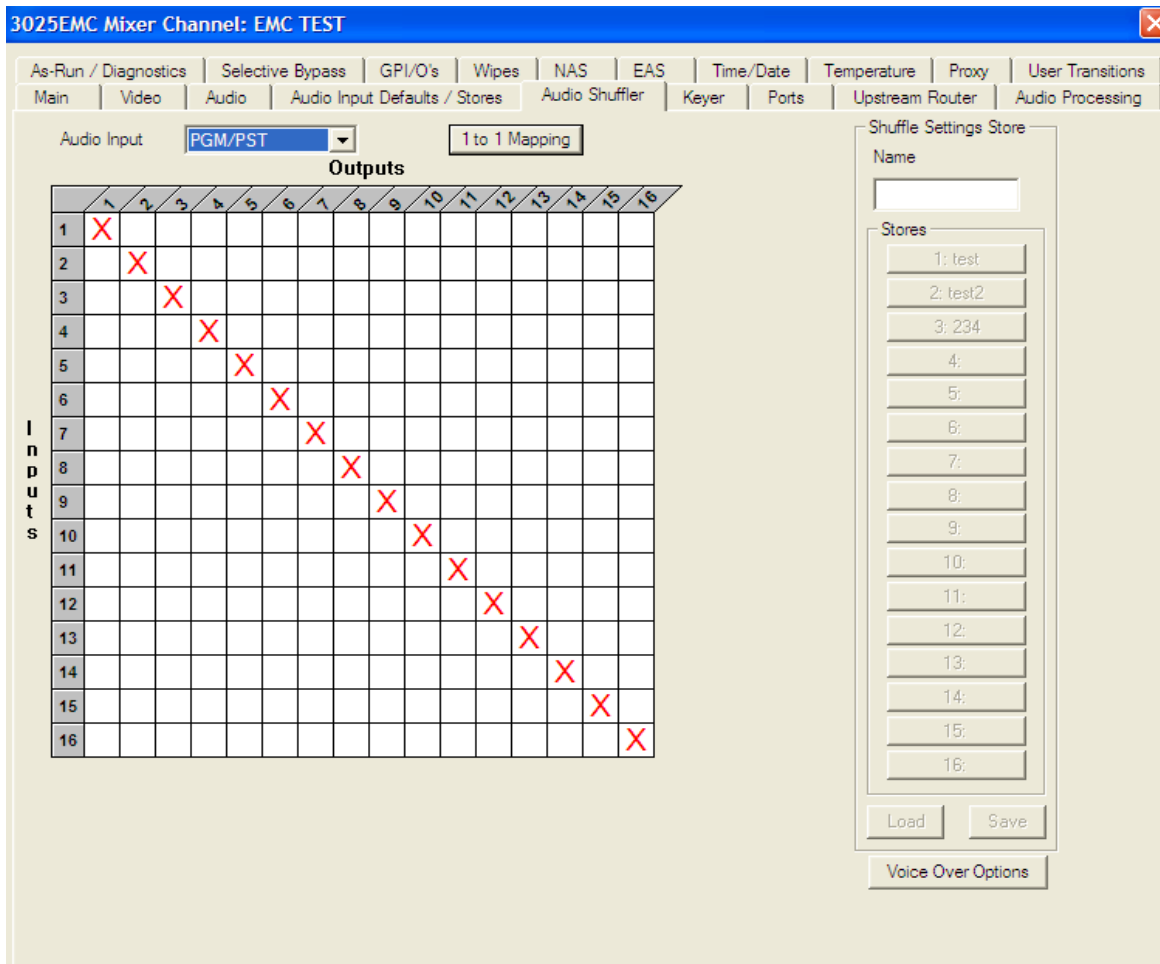


Figure 4-19: Audio Shuffler Tab

- Voiceover 1:** If VO1 is configured to take AES inputs then the shuffler will be 4 inputs by 16 outputs.
 If VO1 is configured to take AES AP inputs then the shuffler will be 4 inputs by 16 outputs.
 If VO1 is configured to take De-embedded inputs then the shuffler will be 16 inputs by 16 outputs.
 If VO1 is configured to take AES MADI inputs then the shuffler will be 8 inputs by 16 outputs.
- Voiceover 2:** Same as VO1.
- Voiceover 3:** If VO3 is configured to take De-embedded inputs the shuffler will be 16 inputs by 16 outputs.
 If VO3 is configured to take AES MADI inputs then the shuffler will be 8 inputs by 16 outputs.
- Voiceover 4:** If VO4 is configured to take De-embedded inputs then the shuffler will be 16 inputs by 16 outputs.
 If VO4 is configured to take Audio Clip inputs then the shuffler will be 8 inputs by 16 outputs.
 If VO4 is configured to take AES MADI inputs then the shuffler will be 8 inputs by 16 outputs.
- Voiceover 5:** If VO5 is configured to take De-embedded inputs the shuffler will be 16 inputs by 16 outputs.
 If VO5 is configured to take AES MADI inputs then the shuffler will be 8 inputs by 16 outputs.

Each of the voiceover buses (when selected from the Audio Input drop-down menu) also has “Voiceover options”.

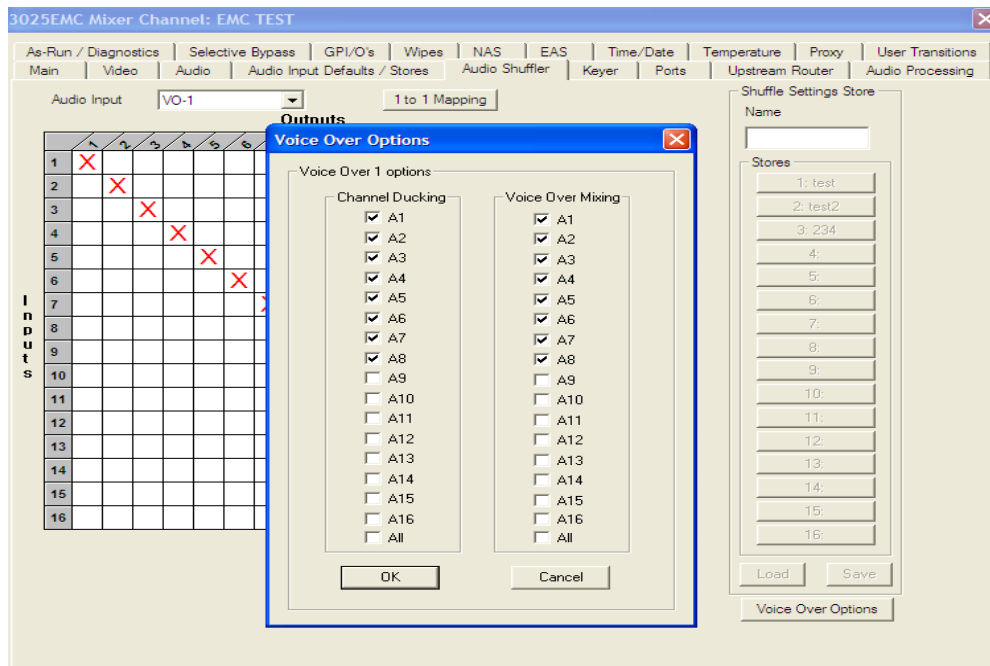


Figure 4-20: Voiceover Duck & Mix

This allows the user to configure the mixing and ducking channels for each voiceover.

For the previous example Figure 4-20, VO1 has been configured so that when VO1 is applied channels A1 to A8 of the PGM/PST audio will be ducked (to the level specified in the PGM/PST ratio setting in the Audio Input Defaults/Stores configuration tab). Only channels A1 to A8 of the VO1 bus will be mixed in with the PGM/PST audio and these will be mixed in with the VO1 ratio specified in the Audio Inputs Defaults/Stores configuration tab.

If voiceover 4 is configured to take its audio input from Audio Clip then this is special case which is different to any other mixing and ducking scenario. If voiceover 4 is configured this way then the shuffler mapping would look like the following.

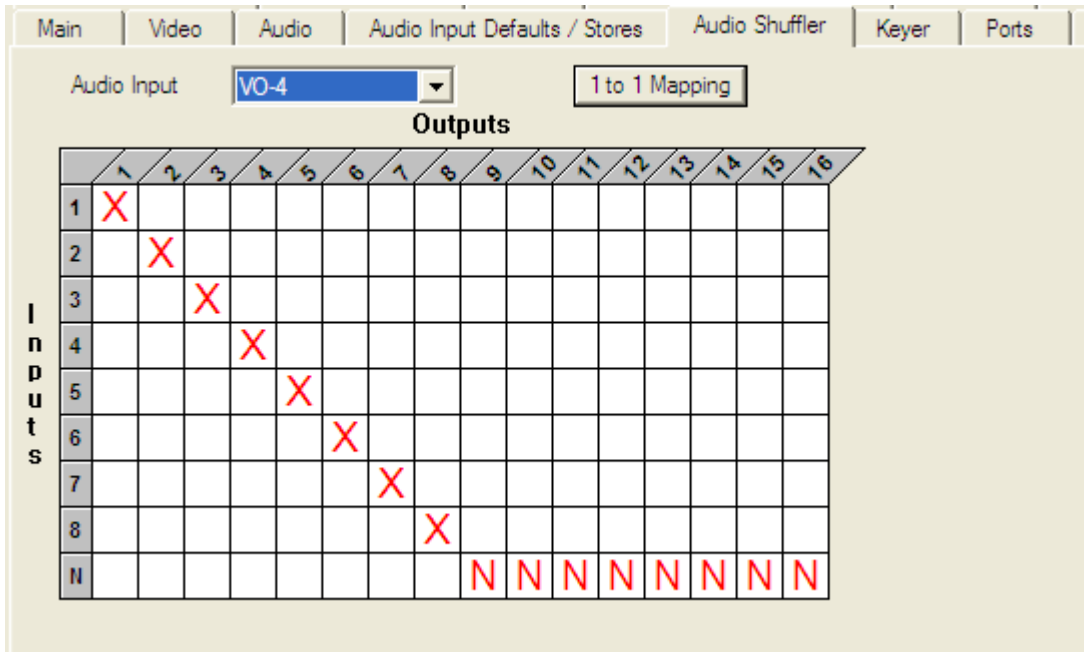


Figure 4-21: VO4 Audio Clip Duck & Mix

When Audio Clips are used the VO4 channels that are mixed and the PGM/PST channels that are ducked is determined automatically by the number of channels that are present in the audio wav file.

In the above example, if the wav file is 8 channels then all 8 channels PGM/PST channels A1 to A8 will be ducked and VO4 channels A1 to A8 will be mixed.

Any VO4 channel that is configured for “N” specifies that that audio channel will not be mixed and the corresponding PGM/PST audio channel will not be ducked.

The mixing and ducking options for VO4 (when configured for Audio Clips) will follow the input channel. For example, if I had shuffled VO4 channels A1/A2 to output channels A9/A10 then the audio from inputs A1/A2 will be shuffled to A9/A10 and so will the ducking and mixing.

4.7.1. Shuffle Stores

There are also 16 user configurable shuffle stores available. The shuffle store configuration can be exposed by selecting Shuffle Store from the Audio Input drop-down menu.

When a shuffle store has been configured it can be applied to any bus.

The difference between the Shuffle Stores and the Audio Input default shuffle mapping is that in the Shuffle Store configuration audio channels from different buses can be shuffled between buses.

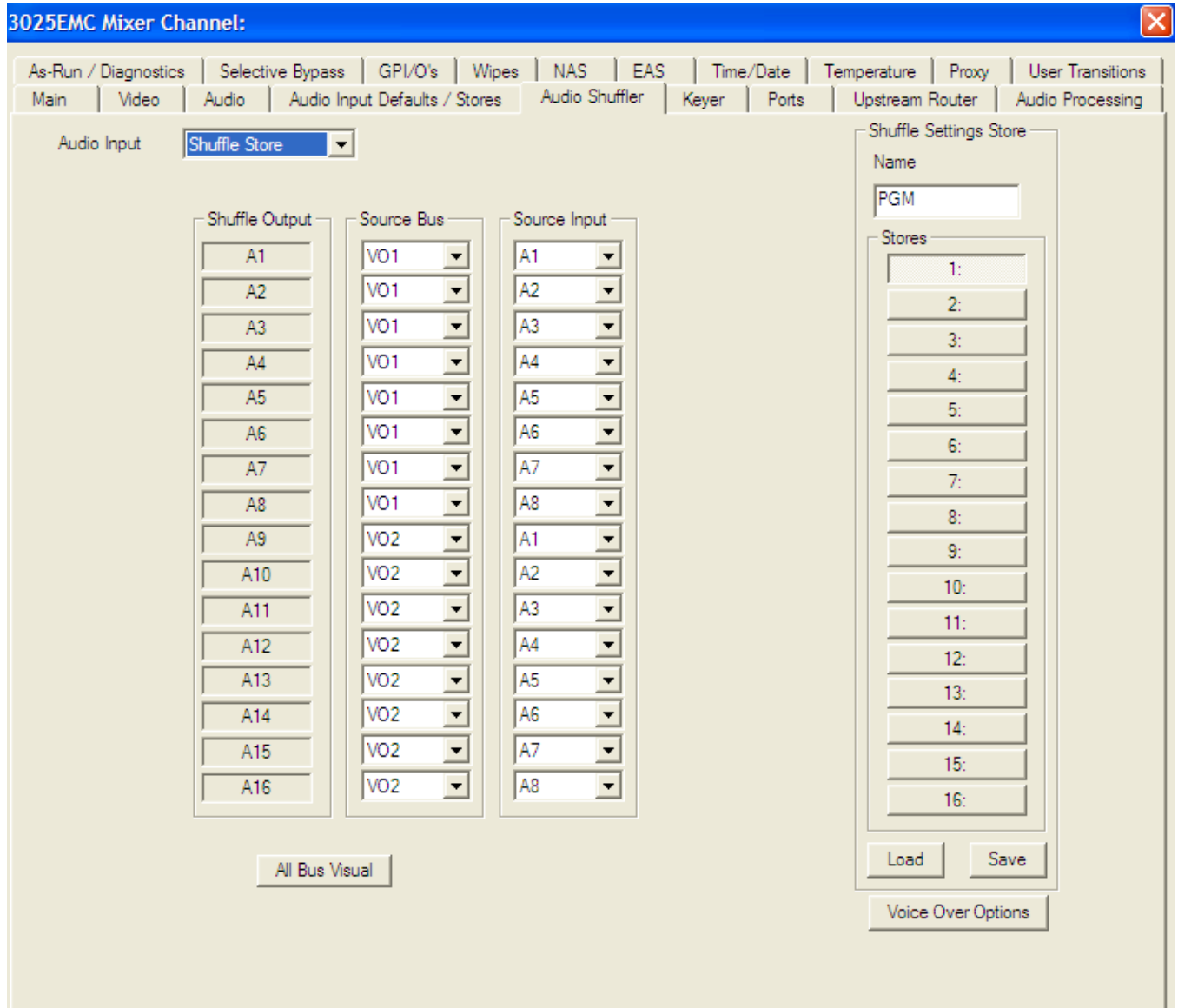


Figure 4-22: Shuffle Stores

In the above example, this store will apply this mapping to the bus that the shuffle store is applied to by the user. In the same way that the voiceovers have a mixing and ducking mapping, the shuffle stores also have voiceover mixing and ducking options. However, these only apply when the shuffle store is applied to either the VO1, VO2, VO3, VO4 or VO5 bus.

There is also the option to assign “**same buss**” as the input source. This forces the input for this channel to come from the same bus to which the shuffle store has been applied.



Please note: Shuffle Stores must be saved when configuration of each store is completed. If not then changes will be lost.

4.8. KEYER

3025EMC Mixer Channel: ✕

As-Run / Diagnostics
Selective Bypass
GPI/O's
Wipes
NAS
EAS
Time/Date
Temperature
Proxy
User Transitions

Main
Video
Audio
Audio Input Defaults / Stores
Audio Shuffler
Keyer
Ports
Upstream Router
Audio Processing

Internal Keyer Routing / Priority

DVE position
(Set in Video tab)

Input Sources

Keys
Options

Individual Keyer Settings

Keyer Name

Key Signal Settings

Offset % Gain % Opac. %

Additive
 Self Key
 Key Inverted

Multiplicative
 Matte Enabled

Options

On-Air by default
 Hold Trans. Level

On-Air on Emergency
 Off-Air on Hot Cut

Fill Signal Settings

Y Cb Cr

Matte Colour

Figure 4-23: Keying Levels Tab

4.8.1. Internal Keyer Routing / Priority

Each physical keyer (keyer 1 - 4) can select which fill and key signal can be applied to its input. The four keying levels have a hardware determined priority where keyer 1 is the lowest priority (first to be applied to the video chain) and keyer 4 has the highest priority (last keyer to be applied to the video chain). However by changing which fill and key signal is routed to each of the physical keyers you can change the priority of the four key and fill signals.

If any of the physical keyers are not being used then make sure they are selected to the "Not Enabled" position, as this will prevent the keyers from being selected on the control panel or via the automation system.

The position of the DVE in the video processing chain will be reflected in this diagram. The DVE position can be changed by using the Non-Default DVE location in the Video Tab (see section 4.4.4).

4.8.1.1. Name

This name field will appear on any keyer function buttons on the EMC control panel. This name is edited in two rows of five characters, this matches the display capability of the LCD buttons used on the EMC control panels. The keyer name should ideally be only 5 characters in length as the second row of the keyer level buttons are used to indicate whether the keyer is on-air or not.

4.8.2. Options

4.8.2.1. On-Air by Default

This option selects whether this keyer will be on-air if the EMC channel has a power cycle or re-configuration.



Please note: The Internal Branding Keyer is always On-Air. Any media that is faded-in or cue'd will be visible without any keyer level or keyer on-air controls.

4.8.2.2. On-Air on Emergency

This option selects whether this keyer will be on-air if the EMC channel has its emergency input put on-air.

4.8.2.3. Hold Transition Level

If the keyer is on preset, after the next keyer transition the keyer will automatically be placed into a transitional state. On the next keyer transition the keyer will be placed into a completely off-air and non-transitional state. This is similar to the "Flip-Flop" but is only designed to bring a keyer on-air for a specified single event.

4.8.2.4. Off-Air on Hot Cut

This option selects whether this keyer will be taken off-air if the program bus is changed by a "Hot-Cut".

4.8.2.5. Allow Key Transitions During

When the EMC is put into the emergency mode the EMC can have the option of allowing key transitions whilst in the mode or not. If key transitions are required then tick this box.

4.8.2.6. Force Keyers When On

When the EMC is put into the emergency mode the keyer settings can be forced to a known state using the "On-Air on Emergency" option for each keyer. If this is required then tick this box.

4.8.2.7. Restore Keyer Settings After

When the EMC is put into the emergency mode the EMC makes a note of which keyers are on-air before the mode and will optionally restore these settings when the EMC comes out of the emergency mode. If this restoration is required then tick this box.

4.8.2.8. Auto Toggle

This setting forces the M2100 control of the EMC to be toggled with the Emergency enable/disable.

4.8.2.9. Hold on Transition

When checked, Emergency will stay on-air regardless of transitions. If disabled, Emergency will go off-air with the next transition.

4.8.2.10. Force VOs off

This option allows for the VOs to be turned OFF when the Emergency Mode is turned ON.

4.8.3. Key Signal Settings

4.8.3.1. Gain

This control is the equivalent to the softness level in an analogue keyer. The edit box sets the amount of gain applied to the key signal of this keyer. It is nominally set to a value of 75 (34%) for a key signal in the range 16-235. This setting should be set according to the key signal range.

75 for range 16-235

65 for range 1-254

It should always be in the range of 16 - 235.

4.8.3.2. Clip (Offset)

This control is the equivalent to the clip level in an analogue keyer. The edit box sets the mid point of the key signal for this keyer. This value is the default value set for the EMC and is used after a power cycle or re-configuration; the user can optionally change this value via the control panel. This control is expressed as an 8 bit digital video value (between 16 and 235). It is nominally set to a value of 125 (50%) for a non-inverted key signal in the range 16-235. This setting should be set according to the key signal range and inverting state.

125 for range 16-235 non-inverted
131 for range 16-235 inverted

127 for range 1-254 non-inverted
129 for range 1-254 inverted

It should always be in the range of 16 - 235.

4.8.3.3. Additive / Multiplicative Mode

This keyer can either operate in an additive mode or in a multiplicative mode. Note for additive keying the foreground signal is not multiplied by the key. Thus care is needed to ensure that the fill signal is black outside the area intended to be keyed. If this condition is met then additive keying will normally give better results, especially from artifacts around the edges.

4.8.3.4. Self Key

This mode is used if there is no key signal associated with the fill signal. When this option is used the fill signal is applied internally to the key input. All other key setting options still apply.

4.8.3.5. Key Inverted

The key signal applied to the EMC should use the lowest value when background is required and the highest value where maximum keying is required. If the key signal is inverted to this, then this check box can be ticked to convert the signal into the form required.

4.8.3.6. Fill Signal Settings

Use Matte as Keyer Foreground.

Each physical keyer has a matte (flat field colour generator) this can be used instead of the fill signal as the keyers foreground. Check this check-box for this operation.

4.8.3.7. Matte Colour

The colour of the Matte is determined by the three edit boxes, these determine the Y, Cr and Cb values of the colour and are shown and edited as zero indexed 8-bit digital video values between 0 and 219. The following gives examples of primary colours and the values needed to generate them.

Black: Y = 0, Cb = 0, Cr = 0
White: Y = 219, Cb = 0, Cr = 0
Yellow: Y = 219, Cb = 136, Cr = 0
Blue: Y = 219, Cb = 120, Cr = 0
Red: Y = 219, Cb = 0, Cr = 120
Cyan: Y = 219, Cb = 0, Cr = 136

4.8.4. Global Option

4.8.4.1. Change Keying Levels on Source

When the preset or program bus is changed from source to source the EMC can optionally change the keying levels applied to that bus to the configuration determined for that source (in the source table). This option enables this function to be active. This is not currently supported.

4.9. PORTS

This tab enables the user to edit the configuration of the Q-link and serial ports. Each EMC channel has a Q-link port and six serial ports. Each of which can be set to handle any one of a number of protocols.

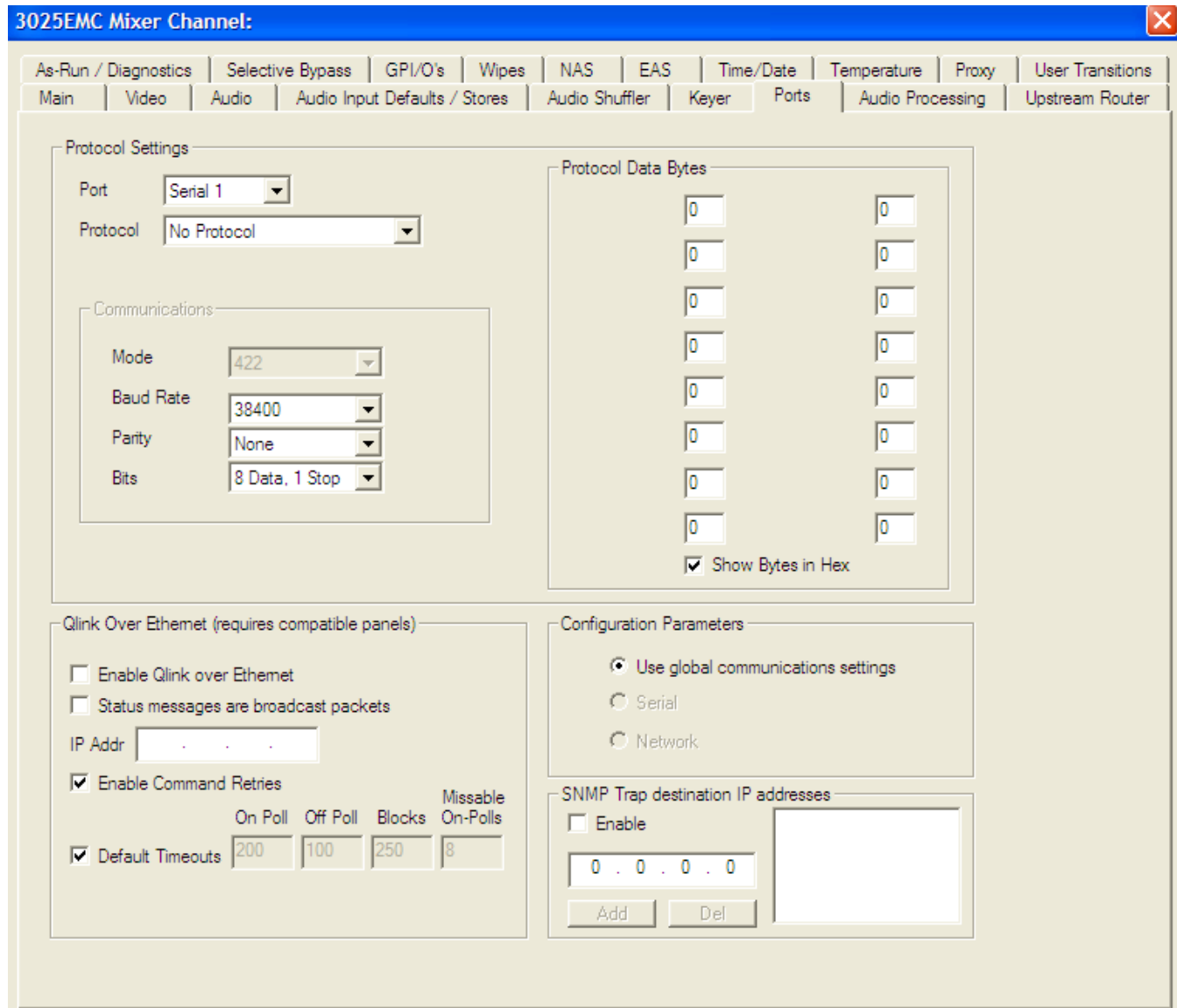


Figure 4-24: Ports Tab

4.9.1. Protocol Settings

4.9.1.1. Port

The combo-box determines the particular port the following parameters relate to.



The six serial ports used by the EMC are found on the breakout panels that are connected to AUX I/O 1 and AUX I/O 2. See section 2.9.5 for details.

Serial 1 (DB1 on breakout panel): This port would typically be used for serial upstream router control.

Q-Link 1 (not used for EMC): This port does not exist on the EMC and must be set to “no protocol”.



IMPORTANT: Q-Link1 is not supported on the EMC and should be set to “No Protocol”.

Serial 2 (DB2 on breakout panel): This port is typically used for automation control. The majority of automation vendors control the EMC by using GVG M2100 Control Protocol with Quartz extensions.

Q-Link 2 (labelled QLINK on EMC rear IO): This port is used to connect Evertz based routers using QLink. These routers include EQT, Xenon, 7700R, EQX and SC-2000.

Serial 3 (DB2 on breakout panel): This port is typically using to connect the EMC to non-Evertz routers and router controllers.

Serial 4 (DB2 on breakout panel): This port can be configured to interface with an EAS device (North America Only).

The above serial port assignments are suggestions only. Q-Link 2 is fixed for upstream router control via Q-Link (serial over coax).

4.9.2. Protocol

This combo-box selects the protocol for the currently selected port. If this port is not in use then assign the protocol to “No Protocol”.

4.9.3. Communications

Mode: The serial ports of the EMC are set to two modes: RS-422 and RS-232. Serial ports 1 and 2 are fixed to RS-422. Serial ports 3 and 4 are fixed to RS-232. Serial port 5 is RS422 and Serial Port 6 is RS232.

Baud Rate: This sets the baud rate for the port.

Parity: This sets the data parity for the port.

Bits: This sets the number of data and stop bits for the port.

4.9.4. Qlink Over Ethernet

This section sets up the communication of the EMC and the control panels.

Enable Qlink: Check this option to enable Q-Link over Ethernet. This setting will allow the EMC to communicate to the control panels over Ethernet.

Status Messages: Check this option to send status messages as broadcast messages over the network. This option should NOT be used.

IP Addr: This should be configured to be the same as the IP address of the EMC channel.

Enable Command Retries: Check this option to enable command retries. This option should always be **ENABLED**.

Default Timeouts: Check this option to enable and set default timeouts.

4.9.5. Protocol Data Bytes

These bytes are used to allow any configuration required for the protocol in use. Protocol bytes are controls that are used to enable / disable functionality of the protocol that is selected. They are displayed and edited in decimal (unless **Show Hex Values** is checked). Values should be between 0 and 255.



Note: For a list of the supported Protocol Data Bytes press “F1”.

4.9.6. Configuration Parameters

This sets the mode to configure this channel. If set to “Use global communications *settings*”, when downloading configurations to the channel, the system will use the communications settings configured in the main menu (Options->Communications) of EMC-Setup. If set to “Serial”, then the serial port will be used to download configuration to the EMC channel. If set to “Network”, the IP address set in the IP Addr dialogue box will be used to upload configuration to the EMC channel.

4.9.7. SNMP Trap Destinations IP Addresses

This section sets the SNMP trap destination for the EMC. The “Enable” check box enables SNMP traps to be forward to the IP address configured in the next box.



Note: When enabling Q-Link 2 the 3025EMC will require a reboot for the settings to take effect.

4.10. UPSTREAM ROUTER

The EMC has been designed to work with an upstream router. Two outputs of the router are used to feed the program and preset inputs to the EMC and a control mechanism (Serial or Q-link) is used by the EMC to control the switching of these outputs. Other inputs into the EMC can be fed from the upstream router as well. The EMC input range is then only limited by the size of the upstream router.

If embedded audio is used then only the video routing level/s are used. If AES is being used then the upstream routing system should 'marry' the video and audio crosspoints for both sources and destinations, and the audio control level/s should be different to the video control level to allow video/audio only transitions.



NOTE: If embedded audio is used, users MUST set to the audio level to be the same as the video level.

Figure 4-25: Upstream Router Tab

Control Upstream Router: This check-box should be ticked if the EMC is required to control the upstream router. If the EMC is set to A/B Mode (see 4.3.7), then this check box should be left unchecked. This would mean either automation or the operator is responsible for switching the proper sources to the destinations that are feeding the EMC.

Port Number: This combo-box selects the port that is controlling the upstream router, the correct protocol and port parameters should be configured for the upstream router in section 4.9.

Switch Delay: Normally a transition will be completed immediately when a switch update has been received by the EMC from the upstream router. The Switch Delay settings tells the EMC how long to wait for the update before the transition is completed, i.e. if the update hasn't been received only wait this long then finish the transition. If the "Force Delay" checkbox is ticked then this forces the Switch Delay to take effect regardless of the switch update being received from the upstream router.



IMPORTANT: If a port other than Q-LINK 2 is configured to control the upstream router then Q-LINK 2 MUST be configured to 'No Protocol' in the Ports Tab.

4.10.1. Upstream Destinations

This section allows the destination number of the program, preset and any additional bus fed from an upstream router to be defined. The EMC allows the 14 main video inputs to be controlled from the upstream router. In addition EMC allows four additional spare router outputs to be controlled from EMC control panels for purposes such as monitoring, quality control or routing the PGM and CLEAN Bypass Inputs.

4.10.1.1. Destination

This number relates to the destination needed to switch the upstream router. Enter the special value of "9999" to disable control, i.e. no upstream destination for this input.

4.10.1.2. Video Level/s

This determines the levels to switch in order to control the video of the upstream router. Select or de-select levels as required e.g. for an SDI only installation just select level 1.

4.10.1.3. Audio Levels

This determines the levels to switch in order to control the audio of the upstream router. For an SDI router with embedded audio select level 1, otherwise select level 2 and/or 3 for AES.

4.10.1.4. RS422 Level

This byte determines the level to switch in order to control the RS422 of the upstream router. This is only used if machine control is required for preset and program buses.



Note that the RS422 level should NEVER be the same as the video and audio levels as this will cause issues during a transition.

4.10.2. Primary Sources

This feature is to support panels in a multi-channel system. In a multi-channel system, some channels may have specific sources that will be used. These are defined as primary sources. If a single panel is configured to control the multi-channel system, when the panel selects the channel, its program and preset busses will be configured to match the Primary sources configured here.

There are 32 primary sources that can be configured on the EMC.

4.10.3. Non-Quartz Upstream Routers

When the EMC controls non-Evertz routers, then these settings must be used. These settings are used based on the protocol used by the EMC to communicate to the third party router or router control system.

Force Delay: This control will be greyed out if the upstream router is an Evertz router controlled over Q-Link. If not checked, the EMC will wait for the router response OR the Switch Delay time and complete the transition as soon as the first of these occurs. If ticked this forces the Switch Delay to always be used before the EMC completes the transition.



Note: If required the Force Delay can be used for Evertz Routers. To enable, set any control port other than Q-Link2 as the Port Number, enable the Force Delay checkbox then set the Port Number back to Q-Link2.

Interrogate Mode: For some upstream protocols it may be necessary to interrogate the preset and program bus to make sure that any switch request has been carried out. This is the case when the protocol does not issue unsolicited route updates, if so then this combo-box should select the "interrogate route required" option.

4.10.4. Options

Disable Same Source Automation Cuts: For normal cuts the audio is faded to silence, then the upstream router is switched, then the audio is faded up again. Also for mixes the audio will mix between the sources. In both cases this can cause an undesirable dip in the audio for same source automation cuts. If this is an issue with a particular automation system then tick this box to disable same source automation cuts. This then causes the EMC to check for a same source cut or mix and abort the transition if this is true.

4.10.5. Controlling an Upstream Router

The EMC can control an upstream router to increase the number of sources available to the PGM and PST inputs. The EMC must be configured to control the upstream router and this involves several separate settings:

1. Decide whether you will use a serial connection or Q-Link (Evertz routers only)

2. Configure the upstream router
3. Tell the EMC which serial port it is to use, the protocol, and which upstream router destinations it is to control.
4. Define the source names for the upstream router.
5. Test the upstream router

4.10.5.1. Decide on the Connection, Serial or Q-Link

Serial RS232 or RS422 can be used with nearly all upstream routers. Serial is the best approach but the EMC must support the same control protocol as the upstream router. The protocol is not supported by the EMC a protocol translator will be required. Contact the factory for the appropriate translator.

The Q-Link system can be used but this is only applicable where the upstream routing system has a small number of devices (4 or less) on the Q-Link due to timing constraints. The EMC must be configured to use Q-Link-2.

4.10.5.2. Configure the Upstream Router

If the upstream router is an Evertz router using an RS232/422 serial port, set the router serial port to either RS232 or RS422 and confirm in the router configuration that the serial port is configured for “-1 Quartz Standard” protocol using the Frame, Properties dialog. Connect with the appropriate serial cable. Please refer to the router user’s manual for more information on configuring the router.

If the upstream router is a non-Evertz router using a RS232/422 serial port, then you will need to refer to the manufacturer’s manual to check whether the port is in RS232 or RS422 mode and which protocol is being used. Connect with the appropriate serial cable.

If the upstream router is an Evertz router using Q-Link, then a special master control (QMC-MCS) interface must be added to the router setup file using WinSetup. Add a QMC-MCS interface and assign it a Q-Link address. This Q-Link is used when configuring the Q-Link-2 port (see section 4.9) and is filled in as a Protocol Data Byte.

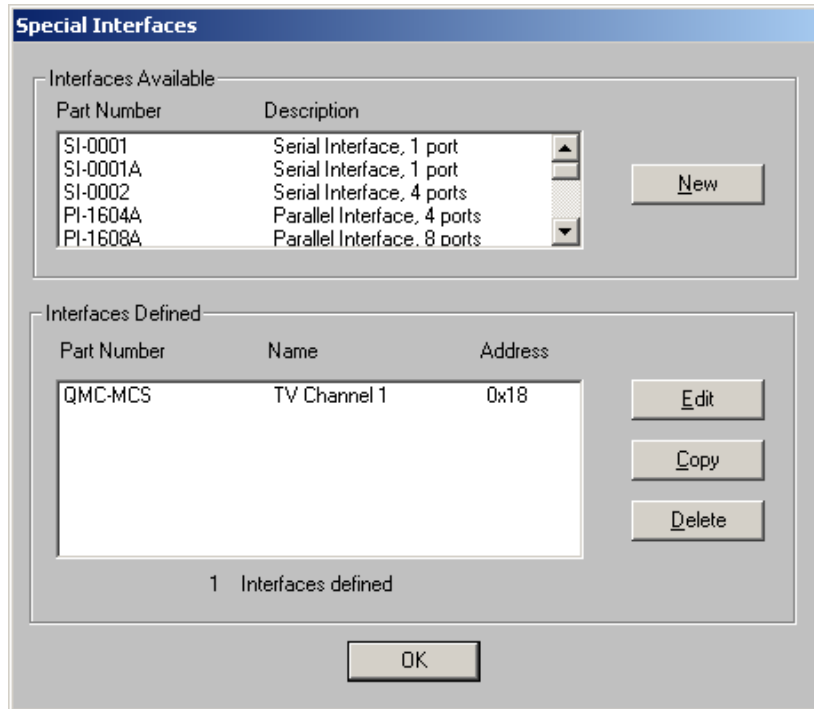


Figure 4-26: WinSetup for Special Interfaces on Evertz router



Write down the QLINK address specified for the QMC-MCS interface. This address is used by the EMC to communicate to the router over the shared QLINK bus.

4.11. AUDIO PROCESSING

This tab enables the user to view and edit the Dolby-E settings. The EMC with the 3025AP module currently supports 2 Dolby Cat552 decoder modules and 2 Dolby Cat559 encoder modules.

To support Dolby-E decoding on the PGM and PST inputs requires a pair of Cat552 decoder modules.

The **Additional Options** can be enabled here.

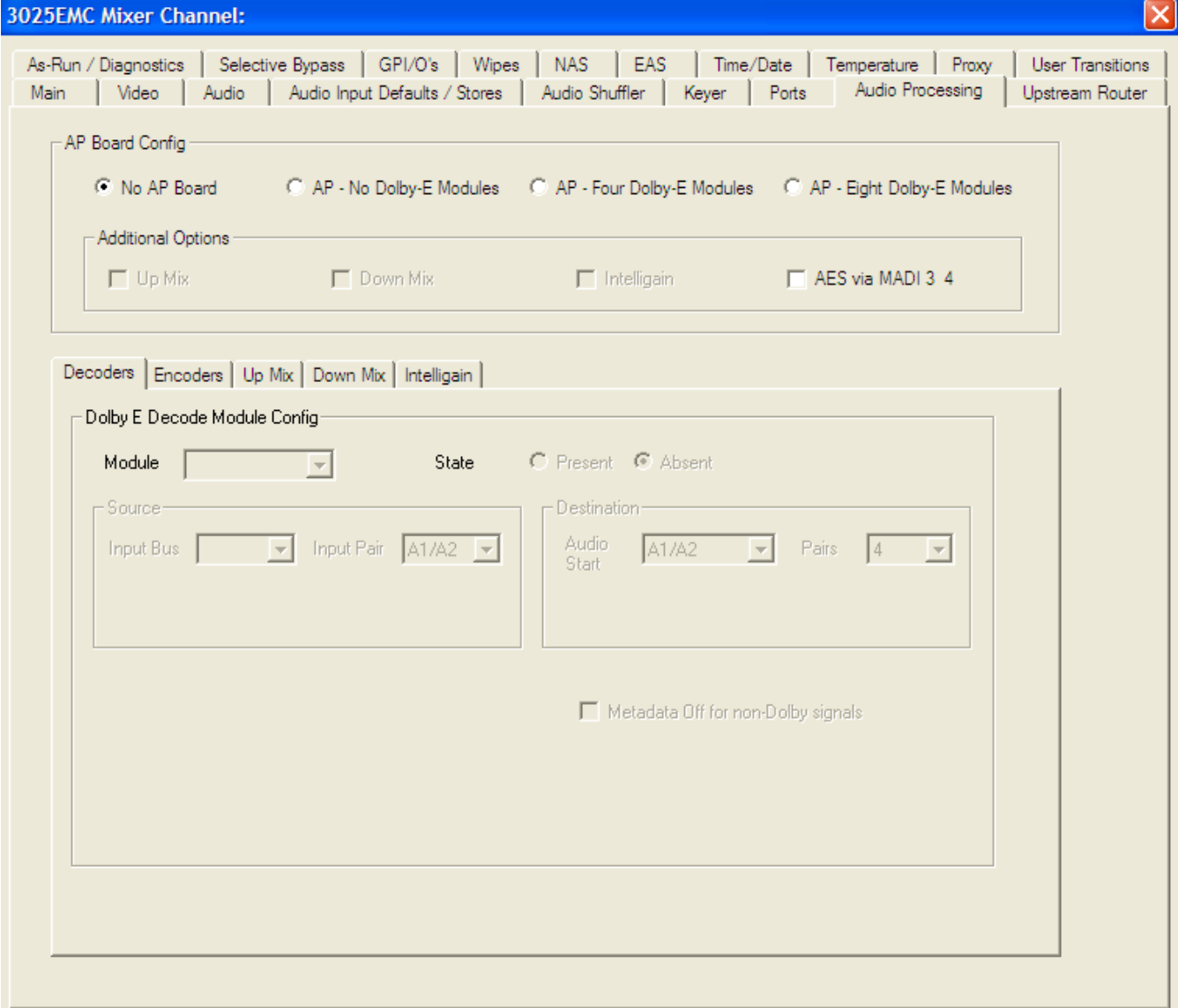


Figure 4-27: Audio Processing Tab

4.11.1. AP Board Configuration

No AP Board (Default): With this configured none of the 3025AP module setting will be exposed to the user.

Zero Module AP: With this configured the Dolby-E decoder and encoder settings are not exposed to the user. The Additional Options (Upmix, Downmix and Intelligain) do become available. As each additional option is checked the configuration options for each become exposed to the user.

Four Module AP: With this configured the Dolby-E decoder and encoder settings are now exposed to the user. The Additional Options (Upmix, Downmix and Intelligain) do become available. As each additional option is checked the configuration options for each become exposed to the user.

Eight Module AP: The eight Dolby-E module option (4 encode and 4 decode) is not currently available.

4.11.1.1. Dolby-E Decode Module Config

Module: Use the drop-down menu to select if Module 1 or Module 2 is being configured.

State: Select if the Module is present (on) or not present (off).



IMPORTANT: For Dolby-E decoded audio to transition correctly modules must be enabled, i.e. there must be a Dolby-E decoder in both the PGM and PST input paths.

Source Input Bus: Select if the Dolby-E source for Decoder Module 1/Module 2 will be from the Program Bus or the Preset Bus.



NOTE: For normal operation, Module 1 should be configured for PGM and Module 2 should be configured for PST.

Source Input Pair: Select on which audio pair of the PGM/PST input embedded audio the Dolby-E will be present on the input to the EMC.

Destination Audio Start: Configure on which pair the decoded audio will start.

Destination Pairs: Configure how many pairs of the decoded audio will be used. For example, 5.1+2 would be 4 pairs.

4.11.1.2. Dolby-E Encode Module Config

- Module:** Use the drop-down menu to apply configuration settings to Module 1 or Module 2.
- State:** Set the state of each Dolby-E encoding module to either Present (on) or Absent (off).
- Input Bus:** Configure the audio bus (PGM, PST, CLN or AUX) from where the audio source for the Dolby-E Encoder module will be routed.
- Input Encoded Channel:** Configure the audio channels that will be Dolby-E encoded. This can also be done using the “Visualize” settings which allows the user to see all of the current DE encoder input routes together.
- Destination Bus:** Configure the audio buses (PGM, PST, CLN and AUX) and channel pairs to which the encoded Dolby-E will be embedded.
- Metadata Source:** Configure if the Dolby-E encoder will be using its own internal metadata or if the encoder will be using metadata routed from the PGM/PST Dolby-E decoder modules. If Internal is selected then more options become available to the user.



NOTE: If the 3025AP has been configured to accept configuration via MADI IN then the Metadata Source and Video Standard will be set on the 3025AP automatically (via MADI) when the configuration file is uploaded to the 3025EMC channel.

- Frame Rate:** This is fixed and is dependent on the video standard that the EMC is configured to use.
- Encoder Config Stream Type:** Available only when using Internal metadata. There are 7 different internal metadata configurations that can be configured here.
- Reversion Mode:** If the 3025AP board has been configured to accept configuration over MADI then the Reversion Mode of the 3025AP can be configured here to be either:
- Last Used:** If valid metadata is lost at the input of the Dolby-E Encoder then the last good frame of metadata will be used by the Encoder.
- Internal:** If valid metadata is lost at the input of the Dolby-E Encoder then the Encoder will revert to a pre-determined internal program configuration mode.

4.11.1.3 Dolby Presence Options

- Detect Dolby Presence at:** Use the drop-down menu to configure the decoder module that you want to configure. Normally Decoder 1 will be in the PGM path and Decoder 2 will be in the PST path.
- Disable encoder if no Dolby present at decoder:** When this option is used the encoded Dolby-E can be removed from the PGM path automatically if Dolby-E is lost at the PGM input.

For Module 1 (PGM Path): If Dolby-E is lost on the PGM Input to the EMC, e.g. content changes to include PCM tracks only or there is a hot-cut on the PGM bus to a source that isn't Dolby-E, the EMC will automatically remove the Dolby-E at the PGM output and use the corresponding PGM audio.

For Module 1 (PST Path): If Dolby-E is lost on the PST Input to the EMC, e.g. content changes to include PCM tracks only or there is a hot-cut on the PGM bus to a source that isn't Dolby-E, the EMC will configure itself to remove the Dolby-E at the PGM output and use the corresponding PGM audio with the next transition.

On loss of Dolby: For Module 1, if Dolby-E is lost on the PGM Input then a Shuffle Store can automatically be triggered on the PGM Bus. Use the drop-down menu to either configure "No Action" or select the required Shuffle Store.

For Module 2, if Dolby-E is lost on the PST Input then a Shuffle Store can automatically be triggered on the PST Bus. Use the drop-down menu to either configure "No Action" or select the required Shuffle Store.

On detection of Dolby: For Module 1, if Dolby-E is detected on the PGM Input then a Shuffle Store can automatically be triggered on the PGM Bus. Use the drop-down menu to either configure "No Action" or select the required Shuffle Store.

For Module 2, if Dolby-E is detected on the PST Input then a Shuffle Store can automatically be triggered on the PST Bus. Use the drop-down menu to either configure "No Action" or select the required Shuffle Store.

To use a 3025EMC channel with a 3025AP module for audio processing the following connections need to be made...

EMC MADI 1 OUT → 3025AP MADI 1 IN
EMC MADI 2 OUT → 3025AP MADI 2 IN

3025AP MADI 1 OUT → EMC MADI 1 IN
3025AP MADI 2 OUT → EMC MADI 2 IN

For details on configuring the 3025AP refer to the 3025AP manual.



NOTE: If Dolby-E Decoding is not required then the Dolby-E Decoders should NOT be enabled and ALL Dolby-E detection logic should be turned OFF.

4.11.2. INTELLIGAIN Routing

To enable the Intelligain routing on the 3025EMC (requires the +IG option on the 3025AP audio processing board) the **IntelliGain** checkbox in the **Additional Options** dialogue of the Audio Processing Tab of the 3025EMC channel configuration **MUST** be checked.

4.11.2.1. Intelligain Options

- Module:** Select in the drop-down menu if routing for intelligain module 1 (8 channels) or module 2 is being configured.
- Enable:** Intelligain module Enabled/Disabled.
- Source Input Bus:** Select which output bus the audio channels for the Intelligain module will be coming from. Possible options are Program, Clean and Aux. Selecting Preset is INVALID.
- Input Group:** Each IntelliGain block applies the Intelligain setting to 8 sequential channels at any time. Use this setting to configure which 8 channels will have Intelligain applied.
- Destination:** Configure to which output bus and channels the audio channels from the Intelligain module will be routed to.

The Intelligain parameters are configured directly on the 3025AP (audio processing) module. Refer to the 3025AP for more details on this configuration.

4.11.3. UP MIX Routing

To enable the Up Mix routing on the 3025EMC (requires the +UMX option on the 3025AP audio processing board) the **Up Mix** checkbox in the **Additional Options** dialogue of the Audio Processing Tab of the 3025EMC channel configuration **MUST** be checked.

4.11.3.1. Up Mix Options

- Module:** Select in the drop-down menu if routing for upmixing module 1 (2 input channels and 6 output channels) or module 2 is being configured.
- Enable:** Up Mix module is Enabled/Disabled.
- Source Input Bus:** Similar to the Dolby-E decoders, the Up Mix modules are located at the input of the 3025EMC audio path. Normal operation would be to configure module 1 to be in the PGM path and module 2 to be in the PST path.
- Input Pair:** Configure (for each module) which audio channel pair will be routed to the input channels of the Up Mix processing block.
- Output Pair:** Configure (for each module) to which audio channels the output of the Up Mix processing block (six channels) will be routed. These should be the same for module 1 and module 2.

4.11.4. DOWN MIX Routing

To enable the Down Mix routing on the 3025EMC (requires the +DMX option on the 3025AP audio processing board) the **Down Mix** checkbox in the **Additional Options** dialogue of the Audio Processing Tab of the 3025EMC channel configuration **MUST** be checked.

Module: Select in the drop-down menu if routing for upmixing module 1 (6 input channels and 2 output channels) or module 2 is being configured.

Enable: Up Mix module is Enabled/Disabled.

Source Input Bus: Similar to the Dolby-E encoders, the Down Mix modules are located at the output of the 3025EMC audio path. Possible source buses are PGM, AUX and CLN. It is NOT possible to use PST as a source for Down Mix.

Input Pair: Configure (for each module) which audio channels (6 sequential channels) will be routed to the input channels of the Down Mix processing block.

Output Pair: Configure (for each module) to which audio channel pair the output of the Down Mix processing block (six channels) will be routed.

For more details on configuring the IntelliGain, Up Mix and Down Mix processing on the 3025 platform please refer to the 3025AP manual.

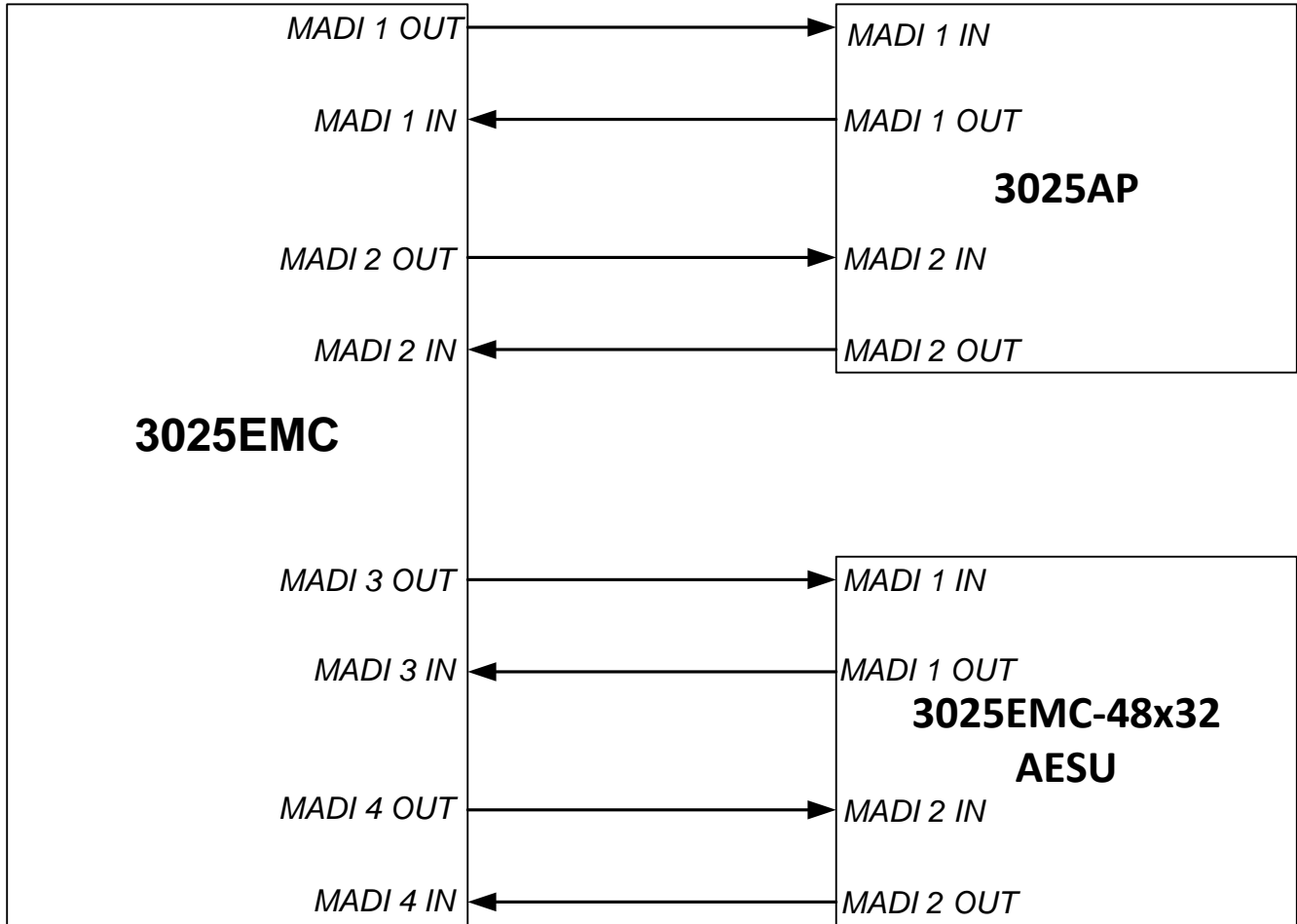


Figure 4-28: MADI I/O Connections for External Audio Processing

4.12. AS-RUN/DIAGNOSTICS

This tab enables the user to configure the diagnostic features within the EMC. These are used to locate problems or to provide a work around for video and audio issues.

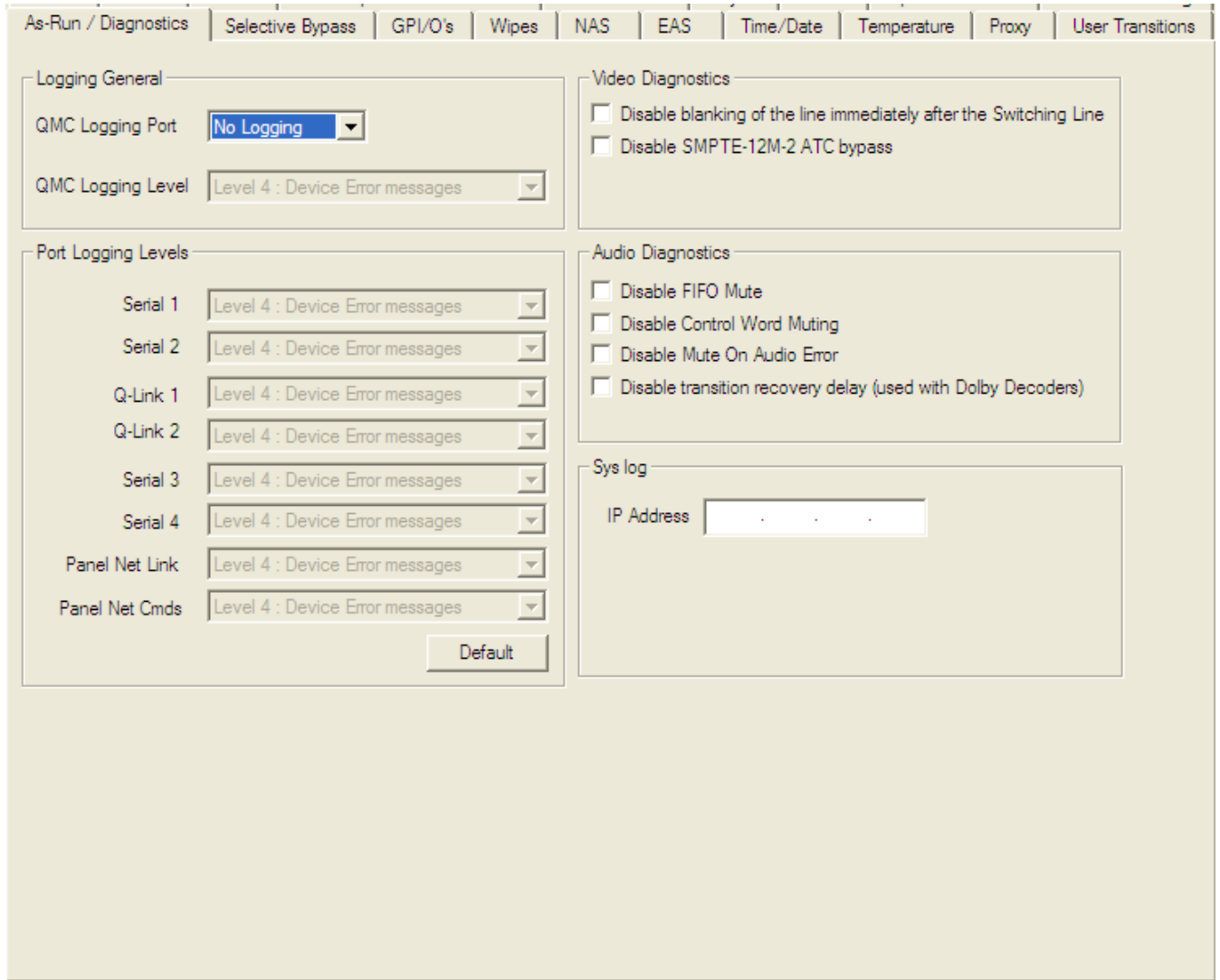


Figure 4-29: As-Run/Diagnostics Tab

4.12.1 Logging General

QMC Logging Port: Not required. This is handled by the Syslog feature.

QMC Logging Level: Not required. This is handled by the Syslog feature.

4.12.2 Port Logging Levels

This is not required and is handled by the Syslog feature.

4.12.3 Video Diagnostic

Disable Blanking: The TV line immediately after the RP-168 switch point should not contain any embedded audio. This is to allow downstream equipment time to recover the data stream after a switch without introducing audio clicks and pops. To further enhance this protection the EMC blanks this line just prior to the audio de-embedder i.e. this box is un-checked. In some situations this blanked line might contain audio so the EMC blanking protection can be turned off by checking this box.

Disable SMPTE-12M-2 ATC Bypass: SMPTE 12M-2 recommends that for HD video standards Ancillary Timecode (ATC) should be present in the Horizontal Ancillary (HANC) space. By default the 3025EMC will move ATC from the Vertical Blanking area (VANC) to the HANC and will not blank the VANC timecode. If the blanking is required this option should be checked.

4.12.4 Audio Diagnostic

Disable FIFO Mute: The HD/SD audio de-embedder uses a FIFO to store samples and then deliver them to the EMC audio processing logic. If the FIFO logic generates an error then the audio output is normally muted i.e. this box is un-ticked. To help locate a problem it is possible to turn off this error muting by ticking this box.

Disable Control Word Muting: The embedded audio stream should contain an audio control word (control data). The EMC can mute the audio if this control word is missing i.e. box un-checked. As this is commonly the case this tick box should normally be ticked.

Disable Mute on Audio Error: The EMC looks for errors on its AES inputs and when an error is detected in either the left or right data then both the left and right (the entire AES stream) is normally muted. i.e. box un-ticked. AES errors that are detected are Parity, Bi-Phase, Framing, Validity, Unlock (PLL error), and CRC. In some situations it is possible to have just the left or right data with an error condition but the other half of the stream is OK. This could be the validity bit not set or one half in Professional Mode and the other half in Consumer Mode. In this case disable audio muting by ticking this box.

4.12.5 System Log

IP Address: This is the IP address of the PC running the syslog application.



Syslog Freeware application can be found at:

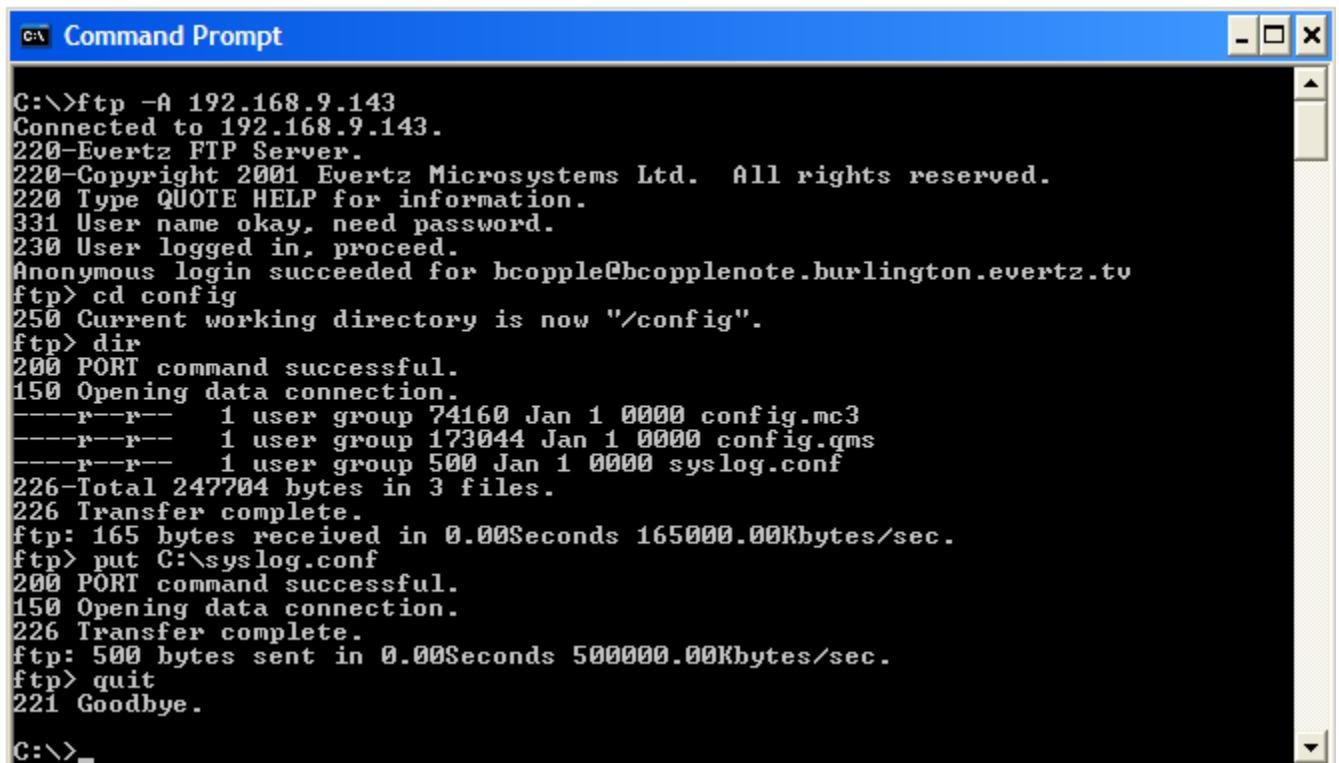
<http://sourceforge.net/projects/syslog-win32/files/syslog-win32/0.3/syslog-win32-0.3.exe/download>

The system logging IP address is only required if the syslog over IP is needed. The Serial logging, IP logging (enable/disable) and the logging level is configured using a `syslog.conf` file that is present in the “config” folder of the EMC’s CF card. A `syslog.conf` will be loaded to the CF prior to the EMC leaving the factory.

The EMC is constantly monitoring the content of the `syslog.conf` file and will reconfigure the logging automatically based on the content of this file, i.e. to change the logging levels you only need to transfer an updated `syslog.conf` file to the EMC channel. An EMC-Setup upload is not required to the EMC to change the logging configuration.

The `syslog.conf` file is transferred to the EMC CF card using ftp (file transfer protocol). Using a Command Prompt this is how the `syslog.conf` would be transferred to the EMC.

- Open an anonymous ftp connection to the EMC channel, `ftp -A [ip address]`.
- Type “`cd /config`”.
- Type “`put [space]`” then drag the `syslog.conf` file into the Command Prompt window.
- When the transfer is complete type “`quit`” to close the ftp connection to the EMC.



```

C:\>ftp -A 192.168.9.143
Connected to 192.168.9.143.
220-Evertz FTP Server.
220-Copyright 2001 Evertz Microsystems Ltd. All rights reserved.
220 Type QUOTE HELP for information.
331 User name okay, need password.
230 User logged in, proceed.
Anonymous login succeeded for bcopple@bcopplenote.burlington.evertz.tv
ftp> cd config
250 Current working directory is now "/config".
ftp> dir
200 PORT command successful.
150 Opening data connection.
----r--r-- 1 user group 74160 Jan 1 0000 config.mc3
----r--r-- 1 user group 173044 Jan 1 0000 config.qms
----r--r-- 1 user group 500 Jan 1 0000 syslog.conf
226-Total 247704 bytes in 3 files.
226 Transfer complete.
ftp: 165 bytes received in 0.00Seconds 165000.00Kbytes/sec.
ftp> put C:\syslog.conf
200 PORT command successful.
150 Opening data connection.
226 Transfer complete.
ftp: 500 bytes sent in 0.00Seconds 500000.00Kbytes/sec.
ftp> quit
221 Goodbye.

C:\>
    
```

Figure 4-30: FTP Upload of `syslog.conf` file

The `syslog.conf` file can be edited using a text editor (e.g. Notepad). A copy of the current `syslog.conf` file can be copied from the EMC’s CF card by using the “`get`” command when connected to the EMC via ftp. A `syslog` file with all of the available logging ports/functions will look like the following:

```

# this is an example syslog configuration file
#ftp.emerg          syslog,console
#netlink.alert     syslog,console
#netcmd.crit       syslog,console
    
```

```
#com1.err          syslog,console
#qlink2.warning    syslog,console
#com1.notice       syslog,console
#com2.info         syslog,console
#com3.debug        syslog,console
#com4.*            syslog,console
#com5.*            syslog,console
#com6.*            syslog,console
#asrun.*           syslog,console
#tsnsorsoft.*     syslog,console
#eas.*             syslog,console
#m2100_server.*   syslog,console
#nas.*             syslog,console
```

Notice that every line in the syslog.conf file has a “#” characters at the beginning of the line. This character tells the EMC to ignore this line.

Each line in the syslog file has a port/operation, a logging level and a destination. For example,

```
“#com4.*          syslog,console”
```

Configure the EMC channel to log all logging levels for serial port 4 to both the serial console (console) and the syslog (IP). The serial logging (console) is logged to the EMC debug serial port (J11) which can be found on the front edge of the board.

The possible port/operation options are as follows...

ftp – file transfer protocol operations.

netlink – Ethernet based control panels connects/disconnects.

netcmd – commands received from Ethernet based control panels, i.e. manual operations.

com1 – logging for serial port 1.

com2 – logging for serial port 2.

com3– logging for serial port 3.

com4 – logging for serial port 4.

com5 – logging for serial port 5.

com6 – logging for serial port 6.

qlink2 – logging for the Evertz Router Upstream Control port.

asrun – this is needed for debugging complex issues and enables logging of custom logging that needs to specifically enabled on the EMC channel.

tsnsorsoft – this is for logging communications between the EMC and the temperature probe (if fitted).

eas – this is for logging communications between the EMC and eas equipment (IP or serial).

M2100_server – this is for logging M2100 serial communications between the EMC and Overture RT.

nas – this is for logging network attached storage connection related events.

The supported logging levels are as follows. The higher the level of logging, the more data that will be logged. “.*” specifies all possible logging data for the port/operation...

emerg – LOWEST LOGGING LEVEL

alert

crit

err

warning

notice

info
debug – HIGHEST LOGGING LEVEL



If logging of the raw tx/rx Serial or Q-Link data is required for logging purposes then “.*” should be used as the logging level. For example, to debug M2100 automation control related issues.

4.13. SELECTIVE BYPASS

The EMC allows the lines in the vertical period to be either blanked or bypassed. The recommended setting for Vertical Blanking Selective Bypass is lines 6 & 7 (SD) or lines 7 & 8 (HD) to be blanked. For more information regarding the Vertical Blanking configuration see section 4.4.2.

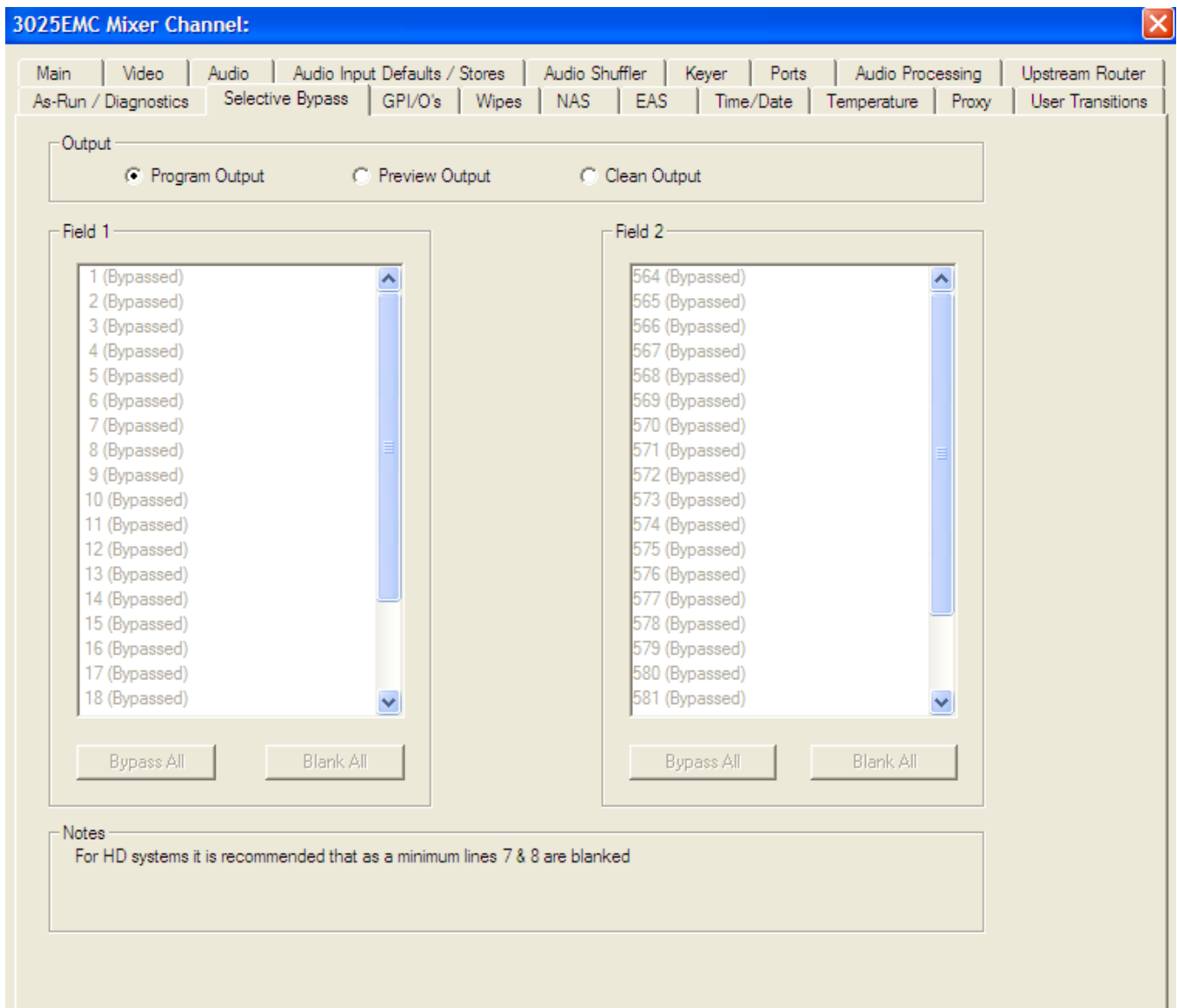


Figure 4-31: Selective Bypass Tab

4.14. WIPES

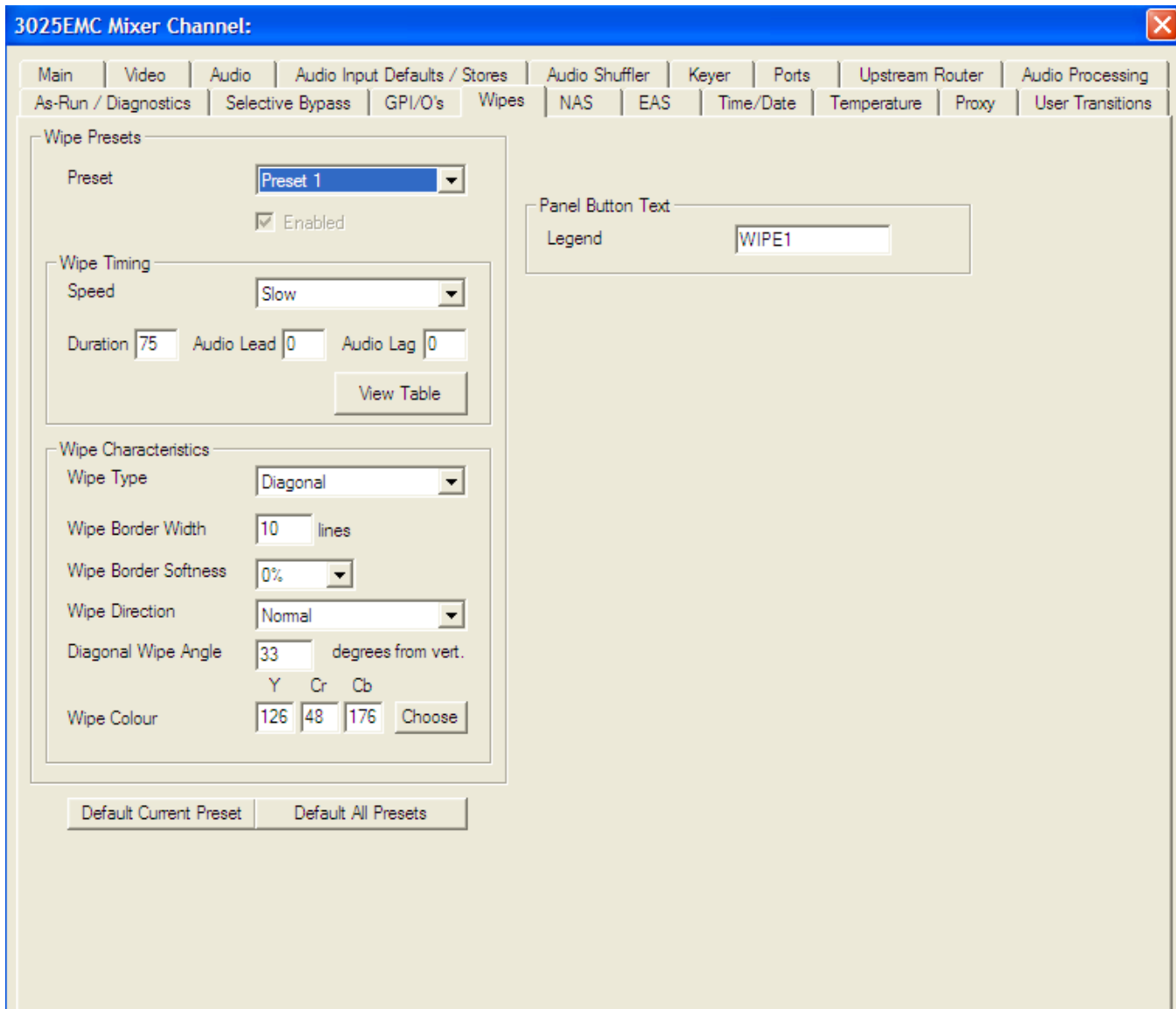


Figure 4-32: Wipes Tab

Preset: The EMC supports up to 5 pre-defined wipes. Each pre-defined preset has a legend name that will be used on the control panel.

4.14.1. Wipe Timing

Speed: The user can specify 4 wipe speeds (Slow/Medium/Fast/Custom). These can then be configured to appear on the control panels.

Duration: Enables you to set the total duration.

Audio Lead / Audio Lag: Enables you to the set the amount of Audio Lead and Audio Lag.

4.14.2. View Table

Selecting this button will open the “Transition Adjustment” window as illustrated in Figure 4-33. This window enables you to view your current transition details for each transition.

Type	Speed	Duration	Lead	Lag
Preset 1	Slow	75	0	0
Preset 1	Medium	37	0	0
Preset 1	Fast	12	0	0
Preset 1	Custom	50	0	0
Preset 2	Slow	75	0	0
Preset 2	Medium	37	0	0
Preset 2	Fast	12	0	0
Preset 2	Custom	50	0	0
Preset 3	Slow	75	0	0
Preset 3	Medium	37	0	0
Preset 3	Fast	12	0	0
Preset 3	Custom	50	0	0
Preset 4	Slow	75	0	0

Multiple Transition Adjustment
 This adjusts all transition types (CUT, V FADE, etc or Preset1, Preset2, etc) at the same time based on the selections below:

Speed Group:

Value To Adjust:

New Value:

Figure 4-33: Transition Adjustment Window

4.14.3. Multiple Transition Adjustments

The “Multiple Transition Adjustment” section enables you to adjust transition options at the same time.

Speed Group: Enables you to select the speed of multiple transitions. Options include: Slow, Medium, Fast and Custom.

Value to Adjust: Enables you to select the desired values to be adjusted. Options include: Total Duration, Audio Lead and Audio Lag.

New Value: Enables you to enter a new value to the designated preset.

Click the “Update” button to update the transition details.

Select the “Save” button to ensure your changes are saved.

4.14.4. Wipe Characteristics

Use this section to specify wipe type (horizontal/vertical/diagonal), border width and softness, and wipe direction.

4.14.5. Panel Button Text

Legend: This is the text that will appear on the LCD button for the particular Wipe.

4.15. TIME/DATE

This tab enables the user to the set the time, date, and time zone.

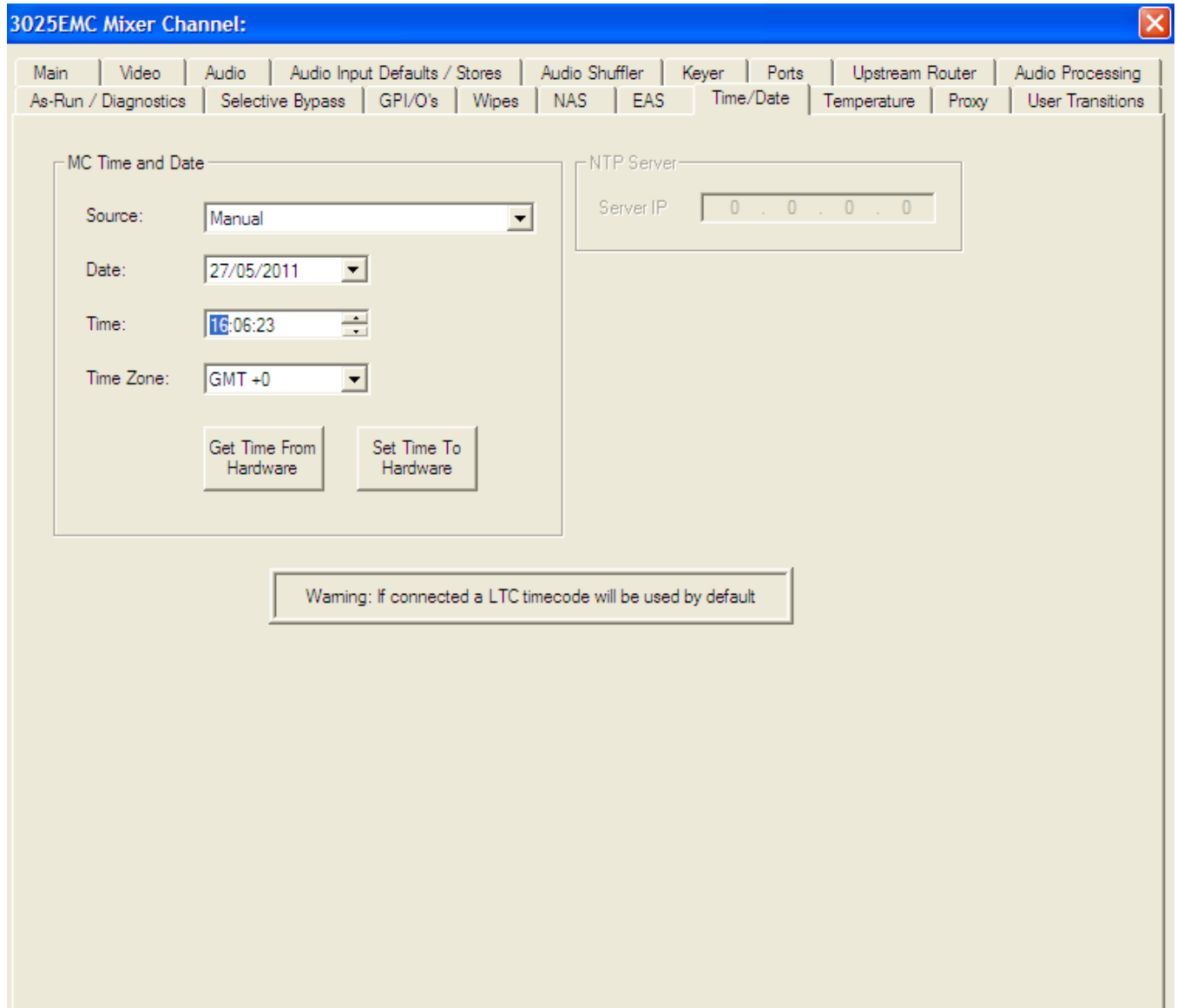


Figure 4-34: Time/Date Tab

Source: Select a source using the drop down menu. Options include: Manual, Use this computer's time & date, and NTP Server.



NOTE: If LTC has been connect to the AUX-IO-1 breakout panel (see section 2.9.5.4) then, the source will ALWAYS be LTC IN.

Date: This field sets the date.

Time: This field sets the time.

Time Zone: Select a time zone using the drop down menu.

Server IP: This field sets the NTP Server IP address. The NTP server will be the source for the time related media and logging.

4.16. GPIO'S

This tab enables the user to configure the *General Purpose Inputs* and *Outputs* parameters.

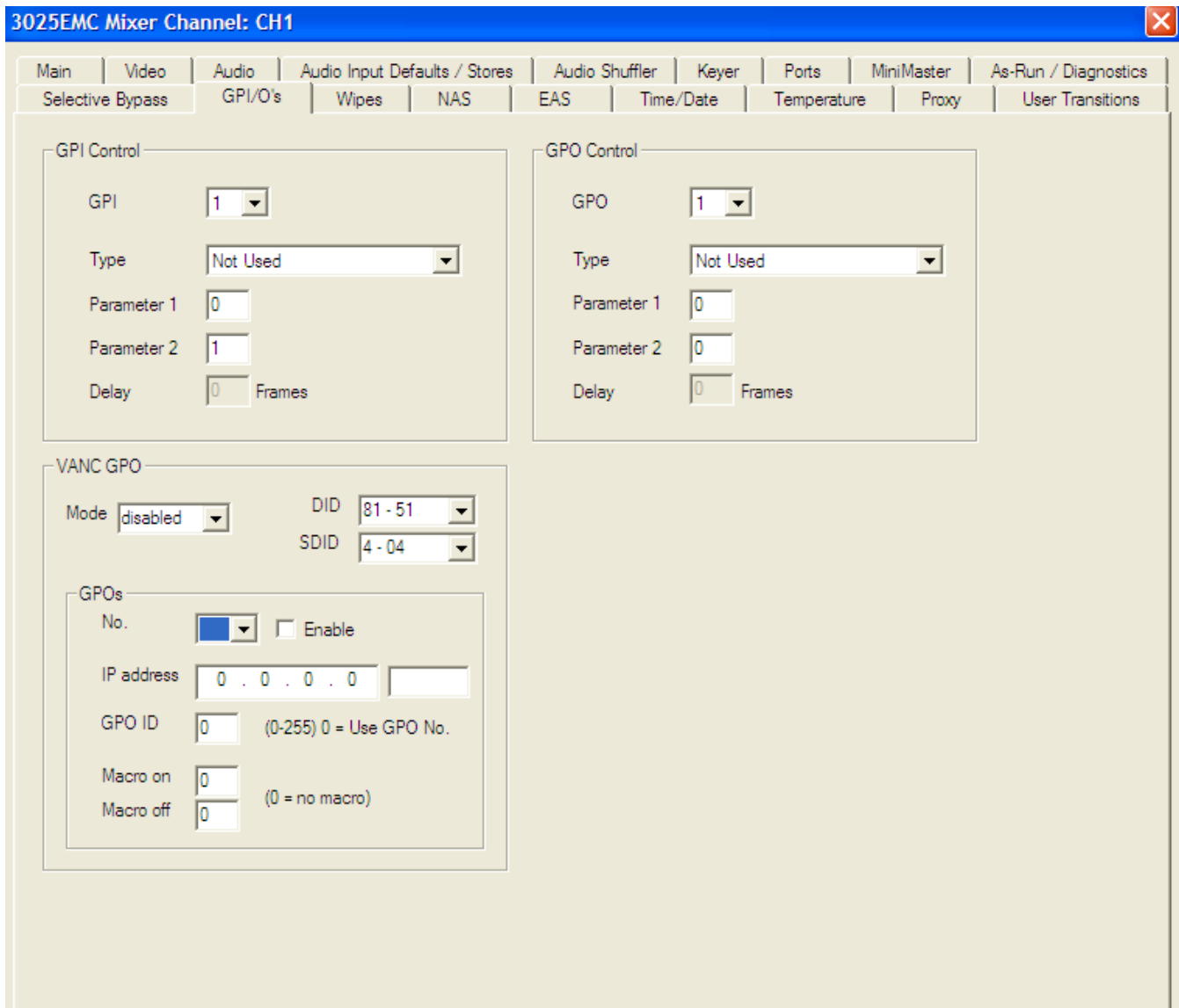


Figure 4-35: GPIO's Tab

4.16.1. GPI Control

GPI: This is the GPI number that function will be assigned to. GPIs 1 to 16 can be configured here.

Type: A GPI can trigger a number of functions. The list of functions is described in Table 4-4.

Parameter 1: The parameter 1 option is used for some functions. See function list for details.

Parameter 2: The parameter 2 option is used for some functions. See function list for details.

Delay: This option is not currently supported.

Function	Description	Parameter 1	Parameter 2
Not Used	No function is defined.	N/A	N/A
Transition Take	Initiates a transition	N/A	N/A
Background Level	Selects the background level	N/A	N/A
Keyer 1 Level	Selects keyer 1 level	N/A	N/A
Keyer 2 Level	Selects keyer 2 level	N/A	N/A
Keyer 3 Level	Selects keyer 3 level	N/A	N/A
Keyer 4 Level	Selects keyer 4 level	N/A	N/A
Keyer 1 Level On-Air	Selects keyer 1 on-air while held active	N/A	N/A
Keyer 2 Level On-Air	Selects keyer 2 on-air while held active	N/A	N/A
Keyer 3 Level On-Air	Selects keyer 3 on-air while held active	N/A	N/A
Keyer 4 Level On-Air	Selects keyer 4 on-air while held active	N/A	N/A
Emergency Enable	Select the Emergency Input on-air while held active.	N/A	N/A
Voice Over 1 Level	Selects voice-over 1 level	N/A	N/A
Voice Over 2 Level	Selects voice-over 2 level	N/A	N/A
Voice Over 3 Level	Selects voice-over 3 level	N/A	N/A
Voice Over 4 Level	Selects voice-over 4 level	N/A	N/A
Voice Over 5 Level	Selects voice-over 5 level	N/A	N/A
Voice Over 1 On-Air	Selects voice-over 1 on-air while held active	N/A	N/A
Voice Over 2 On-Air	Selects voice-over 2 on-air while held active	N/A	N/A
Voice Over 3 On-Air	Selects voice-over 3 on-air while held active	N/A	N/A
Voice Over 4 On-Air	Selects voice-over 4 on-air while held active	N/A	N/A
Voice Over 5 On-Air	Selects voice-over 5 on-air while held active	N/A	N/A
Voice Over 1 Ratio	Selects voice-over 1 ratio to be that defined in parameter 1	Voice Over Ratio 0 → 100	N/A
Voice Over 2 Ratio	Selects voice-over 2 ratio to be that defined in parameter 1	Voice Over Ratio 0 → 100	N/A

Voice Over 3 Ratio	Selects voice-over 3 ratio to be that defined in parameter 1	Voice Over Ratio 0 → 100	N/A
Voice Over 4 Ratio	Selects voice-over 4 ratio to be that defined in parameter 1	Voice Over Ratio 0 → 100	N/A
Voice Over 5 Ratio	Selects voice-over 5 ratio to be that defined in parameter 1	Voice Over Ratio 0 → 100	N/A
Audio Shuffle	Not Supported	N/A	N/A
Predefined Shuffle Store	Recalls one of the predefined shuffle stores.	0→15: All Buses 16→31:PGM Only 32→47: PST Only 48→63: EMG Only 64→79: VO1Only 80→95: VO2 Only 96→111: VO3 Only 112→127: VO4 Only 128→143: VO5 Only	N/A
VO Shuf Store + Extensions	Recalls one of the predefined shuffle stores.	Shuffle store number. 0→15: Shuffle Stores 1 to 16.	VO number. 1 for VO1, 2 for VO2
Audio Defaults	Reset audio gain and shuffle for all buses to default.	N/A	N/A
Voice Over Default Shuffle	Reset all VO buses back to default channel shuffle.	N/A	N/A
Dolby Encode Pair Override	Not Currently Supported.	N/A	N/A
Slow Transition	Selects a slow transition speed.	N/A	N/A
Medium Transition	Selects a medium transition speed.	N/A	N/A
Fast Transition	Selects a fast transition speed.	N/A	N/A
Custom Transition	Selects a custom transition speed.	N/A	N/A
Cut Transition	Selects the transition type.	N/A	N/A
V Fade Transition	Selects a V-Fade transition.	N/A	N/A
Cut Fade Transition	Selects a Cut transition.	N/A	N/A
Mix Transition	Selects a Mix transition.	N/A	N/A

Fade Cut Transition	Selects a Fade-Cut transition.	N/A	N/A
Audio Follow Video Transition	Selects the audio mode.	N/A	N/A
Audio Only Transition	Selects the audio mode.	N/A	N/A
Audio Lag Transition	Selects the audio mode.	N/A	N/A
Audio Lead Transition	Selects the audio mode.	N/A	N/A
Fade to Black	Selects fade to black/silence and held in black/silence while held active	N/A	N/A
Bypass QMC	Selects bypass and held in bypass while held active	N/A	N/A
Mix Lead Active	Not supported		
Mix Lag Active	Not supported		
Preset Source	Selects the source defined by parameter 1 to the preset bus	Source number ZERO based, i.e. for PSTSRC 1 set this to 0.	N/A
Program Source	Selects the source defined by parameter 1 to the program bus	Source number ZERO based, i.e. for PGM SRC 1 set this to 0.	N/A
Logo Selection	Not supported on EMC	N/A	N/A
DVE Level	Selects the DVE ready for the next transition	0: Primary DVE 1: Secondary DVE	N/A
DVE On-Air	Selects the DVE on-air while held active	0: Primary DVE 1: Secondary DVE	N/A
Select DVE Move	Selects the next DVE move as defined by parameter 1	DVE Move. 1 for move 1, 2 for move 2, etc.	0: Primary DVE Move 1: Secondary DVE Move
Start DVE Move	Selects the DVE onto the Program bus using the move defined by parameter 1	DVE Move. 1 for move 1, 2 for move 2, etc.	0: Primary DVE Move 1: Secondary DVE Move
DVE Background Source	Selects the DVE background as defined by parameter 1	DVE Background. 0 for source 1, 1 for source 2, etc.	N/A
Execute Current DVE Move	Runs the currently selected DVE on the specified bus	1: Primary PGM 2: Primary PVW 3: Secondary PGM 4: Secondary PVW	N/A
Trigger Manual GPI	Not supported.		

Panel GPI Tally	The corresponding numbered "GPI Tally" button on a QMC-DCP/EMC-DCP will tally the status of this EMC GPI.	N/A	N/A
Start Macro	Starts the macro as defined by parameter 1	Macro. 1 for macro 1, 2 for macro 2, etc.	N/A
Stop Macro	Stops the macro as defined by parameter 1	Macro. 1 for macro 1, 2 for macro 2, etc.	N/A
MG Script	Use the GPI script that is configured for the GPI. The script is stored on the EMC's compact flash.	N/A	N/A

Table 4-4: GPI Functions

4.16.2. GPI Scripts

A maximum of 32 GPI related scripts can be loaded onto the EMC's CF card (in the logos folder). There are 16 scripts that specify a media action for the gpi closed state (i.e. pin grounded) and 16 scripts that specify an action for the gpi open state (i.e. pin high).

The GPI scripts can be created using a text editor (e.g. Notepad) and should have no file extension. The naming of the GPI closed scripts should be the following format...

gpi-xx-close where "xx" specifies the GPI number zero based, i.e. 00 is GPI 1 and 15 is GPI 16. The leading zero is required for GPIs <10, i.e. gpi-04-close is valid and gpi-4-close is invalid.

The naming of the GPI open scripts should be the following format...

gpi-xx-open where "xx" specifies the GPI number zero based, i.e. 00 is GPI 1 and 15 is GPI 16. The leading zero is required for GPIs <10, i.e. gpi-04-open is valid and gpi-4-open is invalid.

Within the GPI script you can configure the following actions...

cmd media_in("xx") where "xx" specifies the name of the media that you want to fade-in (up to a maximum of 16 characters).

cmd media_cue("xx") where "xx" specifies the name of the media that you want to cue (up to a maximum of 16 characters).

cmd media_all_out this will fade-out all media.

cmd media_out("xx") where "xx" specifies the name of the media that you want to fade-in (up to a maximum of 16 characters).

Multiple actions can be configured in the same gpi, however each action must be a separate line item.

4.16.3. GPO Control

GPO: This is the GPO number that function will be assigned to. GPOs 1 to 16 are supported.

Type: An EMC function can trigger a GPO. The list of functions is described in Table 4-5.

Parameter 1: The parameter 1 option is used for some functions. See function list for details.

Parameter 2: The parameter 2 option is used for some functions. See function list for details.

Delay: Not currently supported.

Function	Description	Parameter 1	Parameter 2
Not Used	No function is defined.	N/A	N/A
In Transition	Active when in transition	N/A	N/A
Background Level	Active when background level is selected	N/A	N/A
Keyer 1 Level	Active when keyer 1 level is selected	N/A	N/A
Keyer 2 Level	Active when keyer 2 level is selected	N/A	N/A
Keyer 3 Level	Active when keyer 3 level is selected	N/A	N/A
Keyer 4 Level	Active when keyer 4 level is selected	N/A	N/A
Keyer 1 Level On-Air	Active when keyer 1 is On-Air	N/A	N/A
Keyer 2 Level On-Air	Active when keyer 2 is On-Air	N/A	N/A
Keyer 3 Level On-Air	Active when keyer 3 is On-Air	N/A	N/A
Keyer 4 Level On-Air	Active when keyer 4 is On-Air	N/A	N/A
Emergency Enable	Active when emergency is On-Air	N/A	N/A
Voice Over 1 Level	Active when Voice Over 1 Level is On.	N/A	N/A
Voice Over 2 Level	Active when Voice Over 2 Level is On.	N/A	N/A
Voice Over 3 Level	Active when Voice Over 3 Level is On.	N/A	N/A
Voice Over 4 Level	Active when Voice Over 4 Level is On.	N/A	N/A
Voice Over 5 Level	Active when Voice Over 5 Level is On.	N/A	N/A
Voice Over 1 On-Air	Active when Voice Over 1 is On-Air.	N/A	N/A
Voice Over 2 On-Air	Active when Voice Over 2 is On-Air.	N/A	N/A
Voice Over 3 On-Air	Active when Voice Over 3 is On-Air.	N/A	N/A
Voice Over 4 On-Air	Active when Voice Over 4 is On-Air.	N/A	N/A
Voice Over 5 On-Air	Active when Voice Over 5 is On-Air.	N/A	N/A

Voice Over 1 Ratio	Active when voice-over 1 ratio is same as defined in parameter 1	Voice Over Ratio 0→100	N/A
Voice Over 2 Ratio	Active when voice-over 2 ratio is same as defined in parameter 1	Voice Over Ratio 0→100	N/A
Voice Over 3 Ratio	Active when voice-over 3 ratio is same as defined in parameter 1	Voice Over Ratio 0→100	N/A
Voice Over 4 Ratio	Active when voice-over 4 ratio is same as defined in parameter 1	Voice Over Ratio 0→100	N/A
Voice Over 5 Ratio	Active when voice-over 5 ratio is same as defined in parameter 1	Voice Over Ratio 0→100	N/A
Dolby Encode Pair Override	GPI ONLY	N/A	N/A
Slow Transition	Active when this transition speed is selected	N/A	N/A
Medium Transition	Active when this transition speed is selected	N/A	N/A
Fast Transition	Active when this transition speed is selected	N/A	N/A
Custom Transition	Active when this transition speed is selected	N/A	N/A
Cut Transition	Active when this transition type is selected	N/A	N/A
V Fade Transition	Active when this transition type is selected	N/A	N/A
Cut Fade Transition	Active when this transition type is selected	N/A	N/A
Mix Transition	Active when this transition type is selected	N/A	N/A
Fade Cut Transition	Active when this transition type is selected	N/A	N/A
Audio Follow Video Transition	Active when this audio mode is selected	N/A	N/A
Audio Only Transition	Active when this audio mode is selected	N/A	N/A

Audio Lag Transition	Active when this audio mode is selected	N/A	N/A
Audio Lead Transition	Active when this audio mode is selected	N/A	N/A
Fade to Black	Active when in fade to black/silence	N/A	N/A
Bypass QMC	Active when in bypass	N/A	N/A
Preroll Source	Active with the source defined by parameter 1 is selected on the preset bus and a transition is active, or on the program bus	Source is ZERO based. Source number. 0 for source 1, 1 for source 2, etc.	Bus number. 0 for PST bus during transition, or 1 for the program bus.
Mix Lead Active	Not supported		
Mix Lag Active	Not supported		
Preset Source	Active when the source defined by parameter 1 is selected on the preset bus	Source number ZERO based.	N/A
Program Source	Active when the source defined by parameter 1 is selected on the program bus	Source number ZERO based.	N/A
Program Source Binary Coded	Active for the program source currently in use. Multiple GPOs can be combined in binary mode. e.g. 4 x GPO for 16 sources. Parameter 1 specifies the bit number	Bit Number. 2 sources = 0 4 sources = 0&1 8 sources = 0&1&2 16 sources = 0&1&2&3	N/A
Logo Selection	Not Supported on EMC		
DVE Level	Active when the DVE Level Key on control panel is selected	0: Primary DVE 1: Secondary DVE	N/A
DVE On-Air	Active when the DVE is on the Program bus	0: Primary DVE 1: Secondary DVE	N/A
Current DVE Move	Active when the currently selected DVE move is the same as parameter 1	DVE Move. 1 for move 1, 2 for move 2, etc.	N/A
DVE Background Source	Not currently supported.		

DVE Move Selected	Active when the currently selected DVE move is the same as parameter 1	DVE Move. 1 for move 1, 2 for move 2, etc.	N/A
Manual GPO	Used with corresponding "GPI/O Toggle" & "GPO Activate" buttons on QMC-DCP/EMC-DCP panels. Also used for GPO trigger for preroll takes.	N/A	N/A
GPO System Event	Used with GPO Trigger Macro and for debugging ATC switching	<u>Macro Trigger</u> 4 = enable <u>ATC Debug</u> 4 = enable for GPO #3 ONLY.	<u>Macro Trigger</u> Number of frames for GPO to stay active low when triggered. <u>ATC Debug</u> N/A
Start Macro	Active when the Macro is the same as parameter 1	Macro. 1 for macro 1, 2 for macro 2, etc.	N/A
Dolby decoder loss of signal	Active when the PGM Dolby E Decoder doesn't detect Dolby E.	Set to 0 for Decoder 1. Set to 1 for Decoder 2.	N/A
Dolby Encoder Active	GPO ON when specified encoder is either on-air or primed to transition off-air. GPO OFF at all other times.	Set 0 for Encoder 1. Set 1 for Encoder 2.	N/A
Genlock signal is present	Not currently supported.		
Video signal is present	Not currently supported.		
Automation On	Active when automation button on panel is On.	N/A	N/A
EAS Active	Active when an EAS message is being displayed by the EMC	N/A	N/A
MG Script	Use the GPO script that is configured for the GPO. The script is stored on the EMC's compact flash.	N/A	N/A

A/B Mode State	GPO active when in A/B mode. GPO not active when in B/A mode.	N/A	N/A
-----------------------	------------------------------------------------------------------	-----	-----

Table 4-5: GPO Functions

4.16.4. GPO SCRIPTS

There is only one GPO related script that can be loaded onto the EMC’s CF card (in the logos folder). Within this script the GPOs are configured to be active based on the state of named media.

The GPO script can be created using a text editor (e.g. Notepad) and should have no file extension. The naming of the GPO script should be the following format...

gpo_config_script

Each GPO can only be configured to trigger (become active) based on any media being on-air or specific named media being on-air.

Here is an example of what the content of a gpo script that specifies that GPO 2 will trigger when any media is on-air and GPO 3 will trigger when a media named “ETV_1” is on-air. GPOs 2 and 3 in the GPI/O tab would need to be configured for MG Script.

```
obj gpo_config("1")
{
    gpo_act="logo_status"
}
obj gpo_config("2")
{
    gpo_act="specific_logo_status"
    media_name="EVTV_1"
}
```

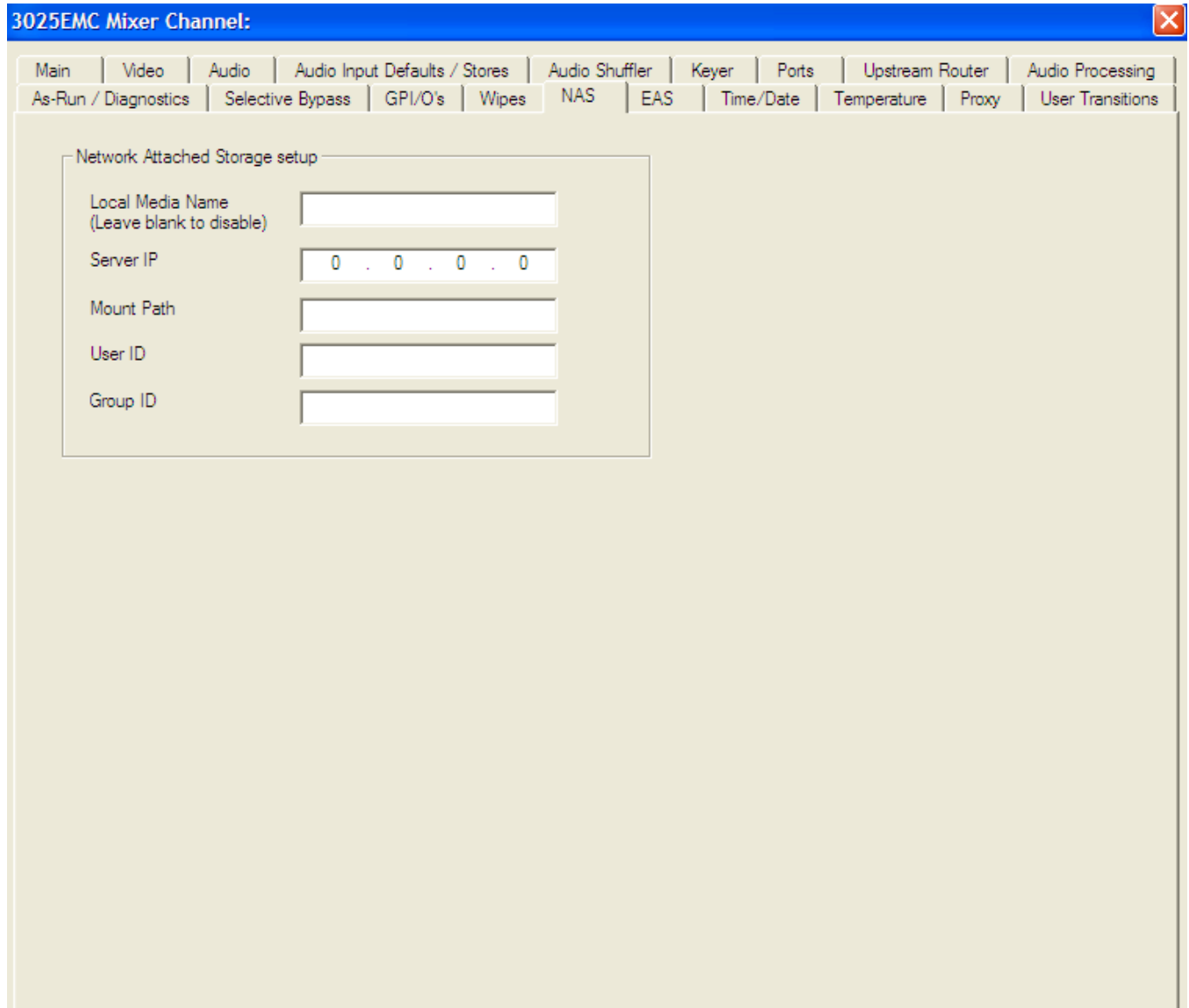
The GPOs are specified in the gpo script zero based. So, a gpo script that will trigger all 16 GPOs when any media is on-air would look like this (all GPOs in the GPI/O tab would need to be configured for MG Script for this to work)...

```
obj gpo_config("0")
{
    gpo_act="logo_status"
}
obj gpo_config("1")
{
    gpo_act="logo_status"
}
obj gpo_config("2")
{
    gpo_act="logo_status"
}
obj gpo_config("3")
```

```
{
  gpo_act="logo_status"
}
obj gpo_config("4")
{
  gpo_act="logo_status"
}
obj gpo_config("5")
{
  gpo_act="logo_status"
}
obj gpo_config("6")
{
  gpo_act="logo_status"
}
obj gpo_config("7")
{
  gpo_act="logo_status"
}
obj gpo_config("8")
{
  gpo_act="logo_status"
}
obj gpo_config("9")
{
  gpo_act="logo_status"
}
obj gpo_config("10")
{
  gpo_act="logo_status"
}
obj gpo_config("11")
{
  gpo_act="logo_status"
}
obj gpo_config("12")
{
  gpo_act="logo_status"
}
obj gpo_config("13")
{
  gpo_act="logo_status"
}
obj gpo_config("14")
{
  gpo_act="logo_status"
}
obj gpo_config("15")
{
  gpo_act="logo_status"
}
}
```


4.17. NAS

This section configures the Network Attached Storage (+NAS) option. These parameters will point the EMC to the network drive to connect to with the appropriate parameters.



The screenshot shows a web-based configuration interface for a 3025EMC Mixer Channel. The window title is "3025EMC Mixer Channel:". The interface has a blue header bar and a navigation menu with tabs for: Main, Video, Audio, Audio Input Defaults / Stores, Audio Shuffler, Keyer, Ports, Upstream Router, Audio Processing, As-Run / Diagnostics, Selective Bypass, GPI/O's, Wipes, NAS (selected), EAS, Time/Date, Temperature, Proxy, and User Transitions. The main content area is titled "Network Attached Storage setup" and contains five input fields: "Local Media Name (Leave blank to disable)", "Server IP" (pre-filled with 0 . 0 . 0 . 0), "Mount Path", "User ID", and "Group ID".

Figure 4-36: Nas Configuration

Local Media Name: Enter a local media name in this field. Adding a name here enables the NAS. The name is only used in the configuration file.

Server IP: This field sets the server IP address. This is the IP address of the network attached server.

Mount Path: Enter a mount path in this field. This is the directory on the network attached storage where the media (i.e. static, animations, etc.) is stored.

User ID: Enter a user ID name in this field. This is the user id required to log into the network attached storage. This is typically provided by the local IT administrator.

Group ID: Enter a group ID name in this field. This is the group id required to login into network attached storage. This is typically provided by the local IT administrator.



NOTE: The (+NAS) option is required to use Network Attached Storage.



IMPORTANT: A name MUST be provided for the NAS device to enable NAS. After configuration upload to the EMC, wait for approximately 2 minutes then reboot the 3025EMC.

4.18. EAS

This section configures the Emergency Alert System (+E) option. The +E option is only available in North America. A typical system would use an EAS device externally to the EMC. The EAS device will send the EAS alert text over a serial or IP interface based on the device. This tab configures the properties of the EAS crawl itself. To set up an EAS system, please refer to section 8.2.1.

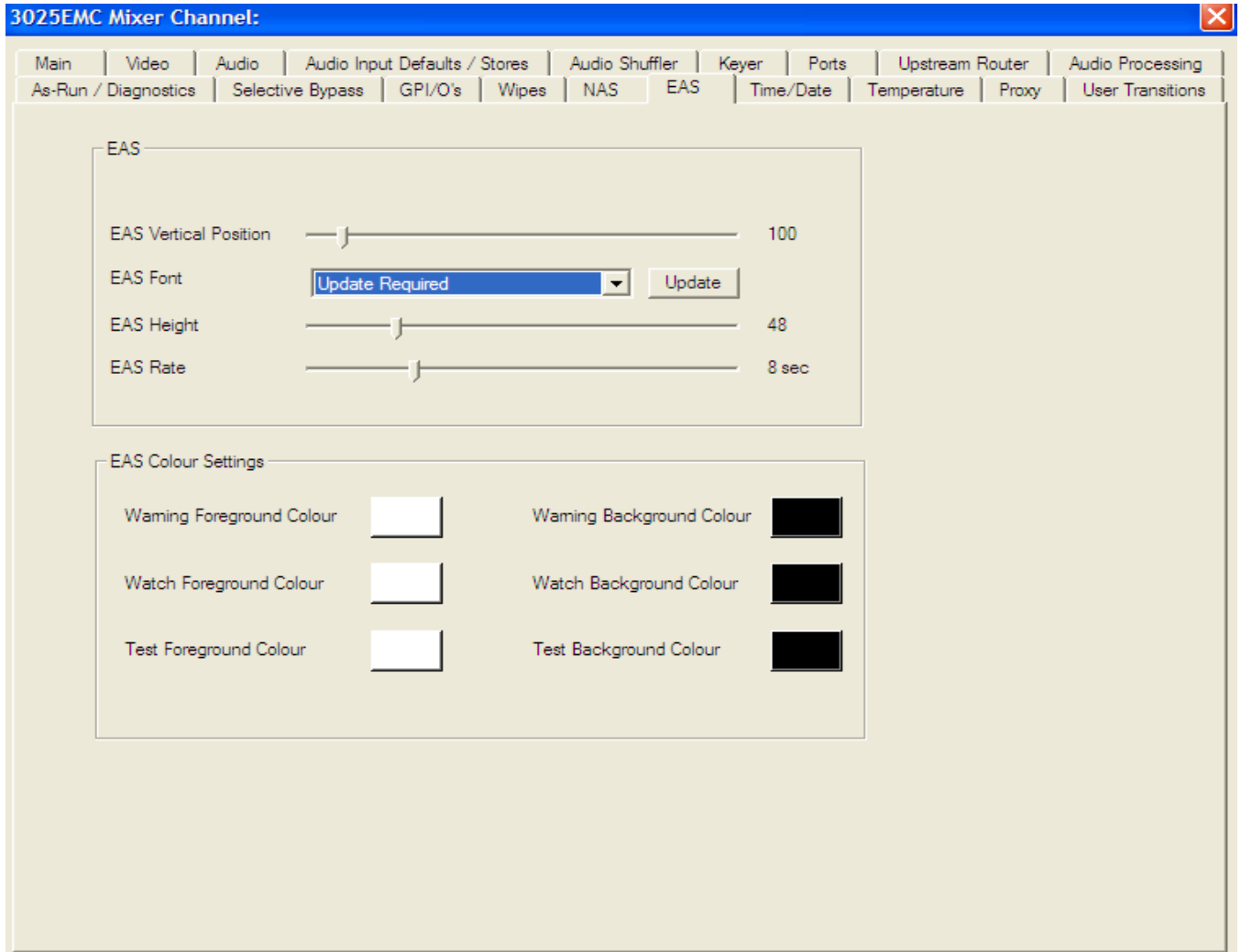


Figure 4-37: EAS Tab

The 3025EMC will use the IP Address if the 3025EMC channel that has been configured in the Ports tab (see section 4.8.3) to query if the EMC has the (+EAS) option. Figure 4-33 shows an example of what the EAS configuration dialogue will be displayed is the (+EAS) option was successfully found on the device.

If the option is not found or if the software is unable to connect to the EMC to verify then the following will be displayed:

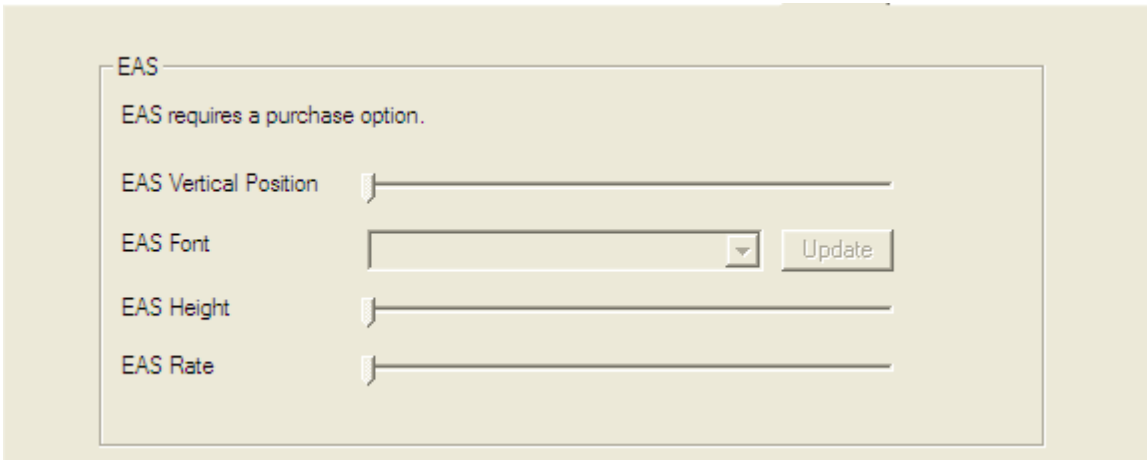


Figure 4-38: No EAS option

The first thing that should be done when the EMC has connected to the channel is click “Update”. This uploads the list of true type font (TTF) files that are currently present in the EMC’s static storage. TTF files are required to render the EAS crawl text. Whenever the EMC configuration is reopened the EAS tab will prompt the user to update the font list by notifying the user of “Update Required”. This is to check that the list of TTFs has not been updated since the last configuration upload to the EMC.

The TTF files are located on the CF card in the “logos” folder or are located on the NAS.



IMPORTANT: The TTF file specified MUST be present on the CF Card/NAS or the EAS crawl will NOT be visible.

4.18.1. EAS Vertical Position

The **EAS Vertical Position** option is used to set the vertical position of the EAS scrolling text message. The **EAS Vertical Position** value is the video line where the top of the scrolling message will be placed. The range for placement is from 21 to 379 as set by the FCC rules.

4.18.2. EAS Font

The **EAS Font** option is used to set the font that will be used for the EAS scrolling text message. When the user selects *Update* the list of available fonts on the EMC will appear.

4.18.3. EAS Height

The **EAS Height** option is used to set the font size that will be used for the EAS scrolling text message.

The EAS height is the vertical size of the font measured in lines of video.

4.18.4. EAS Rate

The **EAS Rate** option is used to set the speed with which the scrolling text moves from right to left across the screen measured in seconds.

The default is 8 seconds. The parameter is adjusted in 1 second increments.

4.18.5. EAS Colour Settings

There are three different levels of EAS messages – warning messages, watch messages and test messages. Each message typically has a different background and foreground colour associated with it so that the viewer will immediately know the severity of the EAS alert.

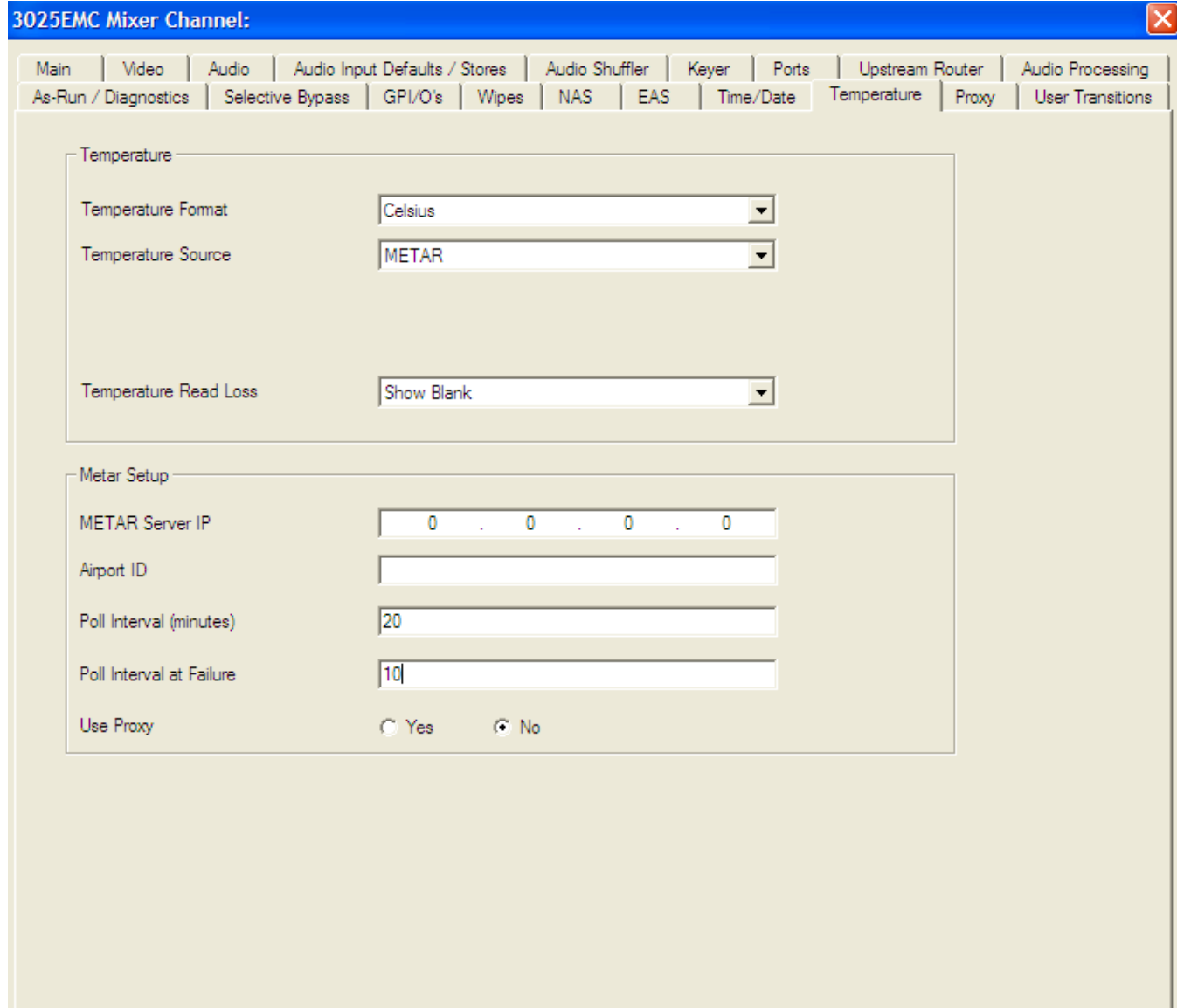
In order to change colour settings for the background and foreground parameters, select the colour palette on the right of the EAS screen and the “Choose a Colour” dialog box will appear. In this dialog box the user can select a colour using Swatches, HSB, and RGB formats.



Note: A common reason for not seeing EAS crawls is that the EAS height, rate, colour and vertical position have not been set correctly.

4.19. TEMPERATURE

This section configures the temperature parameters. This is the source used for temperature graphics that are used on the EMC. An optional air temperature probe is available (+TP) and can be used as a source for the temperature. Please refer to section 8.1 to set up the temperature probe.



3025EMC Mixer Channel:

Main | Video | Audio | Audio Input Defaults / Stores | Audio Shuffler | Keyer | Ports | Upstream Router | Audio Processing
 As-Run / Diagnostics | Selective Bypass | GPI/O's | Wipes | NAS | EAS | Time/Date | **Temperature** | Proxy | User Transitions

Temperature

Temperature Format: Celsius

Temperature Source: METAR

Temperature Read Loss: Show Blank

Metar Setup

METAR Server IP: 0 . 0 . 0 . 0

Airport ID:

Poll Interval (minutes): 20

Poll Interval at Failure: 10

Use Proxy: Yes No

Figure 4-39: Temperature Tab

4.19.1. Temperature Format

This drop-down menu is used to set the format of the temperature.

Fahrenheit: Select *Fahrenheit* if the temperature entered is in degrees Fahrenheit.

Celsius: Select *Celsius* if the temperature entered is in degrees Celsius.



Note: The Temperature Format setting is only used by the EMC when the *Temperature Source* is set to “Manual.”

4.19.2. Setting the Temperature Source

This drop-down menu is used to select the source of the temperature.

METAR: Select *METAR* to take the temperature from METAR data acquired via the Internet.

Probe: Select *Probe* to take the temperature from the optional temperature probe. See section 8.1 for more information on using the temperature probe.

Txt File: Select *Txt File* to have a text file that is loaded into compact flash to be the source that provides the temperature. The text file is a normal ASCII text file that is called “temperature.txt”. The filename is **case-sensitive**. The format of the information in the file is a single line of ASCII text as follows:

T,73,F

T represents this is temperature information, 73 is the actual temperature value, and F represents the units either C (for Celsius) or F (for Fahrenheit). The file content is **case-sensitive**.

NMEA0813: Select *NMEA0183* to have an NMEA 0183 protocol based device provide the temperature (NMEA0813 requires a serial connection to an available serial port).

Manual: Select *Manual* to manually set the temperature via the **Set Temperature** menu item.

4.19.3. Setting the Temperature

This option is used to set the temperature when the **Temperature Source** is set to *Manual*. The slider provides a range of -40 to +140.

4.19.4. Setting the METAR Server Setup

METAR is widely used in the aviation industry to obtain meteorological data from airports. The EMC can extract the temperature from the data and use it for media displaying temperature. The use of this feature requires a connection to the Internet.



Please note that the METAR is a PASSIVE FTP session.

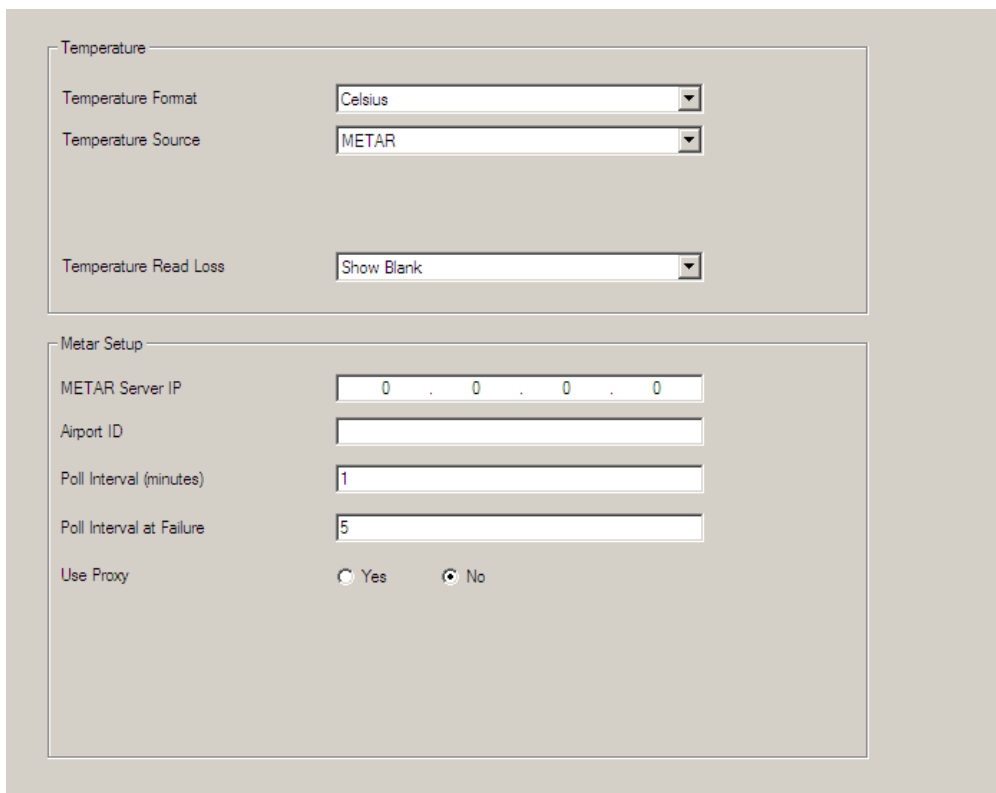


Figure 4-40: METAR Tab

METAR Server IP: Enter the IP address of the METAR server you would like to use. A known IP address for one METAR server is 205.156.51.200.

Airport ID: Enter the airport code for the airport you would like to obtain the temperature from. The *Airport ID* must be entered in all upper case letters. For example for KIAG (Niagara Falls International Airport), the following file gets downloaded to the device:

<ftp://205.156.51.200/data/observations/metar/stations/KIAG.TXT>



IMPORTANT: The airport call letters **MUST** be in **CAPITALS**. The METAR site is case sensitive.

Poll Interval: Enter how often you would like the EMC to obtain the temperature. Temperature logos will be immediately updated each time the temperature is retrieved from the METAR server.

Poll Interval at Failure: Enter how long you would like the EMC to wait before trying to retrieve the temperature from the METAR server after a failed attempt.

Use Proxy: This is selected if EMC requires a proxy to access the METAR site (Internet). See section 4.20 to set up the proxy.

4.20. PROXY

This section configures the proxy server parameters. In the case where the crawl/dynamic text option is enabled (+TXT) or metar is being used the data source for these objects can be fed using RSS feeds and or metar. These feeds are typically on the outside of most corporate firewalls. These parameters allow the EMC to use the company's proxy server to externally access the data.

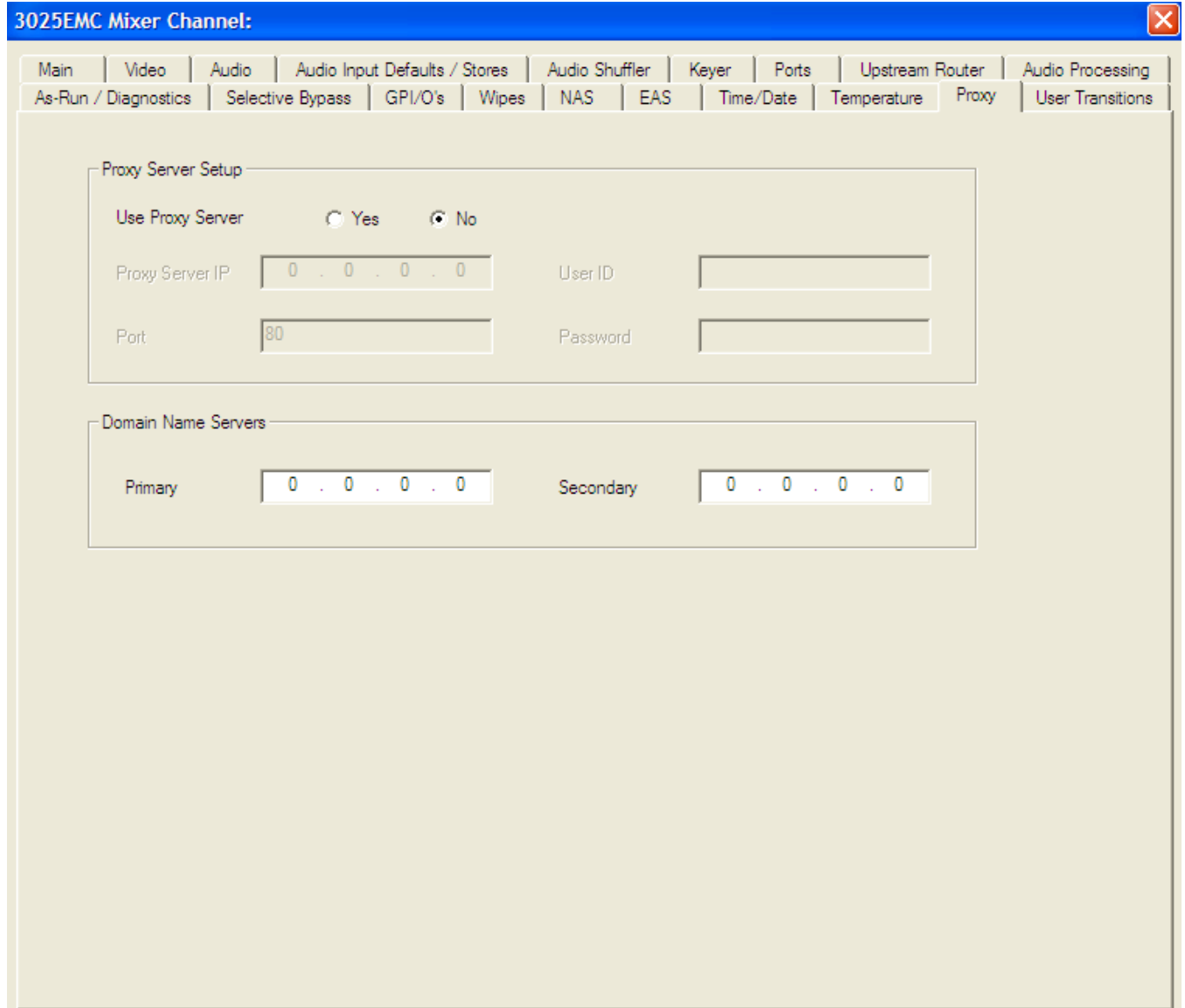


Figure 4-41: Proxy Tab

4.20.1. Proxy Server Setup

Use Proxy Server: Select **Yes** to enable the Proxy Server. Select **No** to disable the Proxy Server.

Proxy Server IP: This field sets the Proxy Server IP address. This is the company's proxy server used to access external websites. This should be provided by the IT administrator.

Port: This field enables the user to select the port. This is the port to use on the company's proxy server used to access external websites. This should be provided by the IT administrator.

User ID: This field enables the user to enter a user name to access the proxy server. This should be provided by the IT administrator.

Password: This field enables the user to enter a password to access the proxy server. This should be provided by the IT administrator.

4.20.2. Domain Name Server

Primary: This field sets the primary domain name server (or DNS) IP address. This should be provided by the IT administrator.

Secondary: This field sets the secondary domain name server IP address. This should be provided by the IT administrator.

4.21. USER TRANSITIONS

This section configures the user to configure the five User Transitions (duration, lag, dwell, lead) for each of the four speeds (slow, medium, fast, and custom). User Transitions are custom transitions that the user can use instead of using the default Audio-Follows-Video. This feature allows users to configure a particular transition type for video and another type for audio.

Figure 4-42: User Transitions

- User Transition:** Select a user transition (1 to 5) from the drop down menu and check the “Enabled” box in order to enable the transition.
- Transition Name:** Provide a name for the transition using the text field.
- Speed:** Select a transition speed using the drop down menu.

4.21.1. Video & Keyer Timings

Type: Enables you to select to the transition type. Types include: Cut, V Fade, Cut-Fade, Mix, and Fade-Cut.

Duration: Enables you to set the total duration.

Fall / Dwell / Rise: Enables you to the set the fall, dwell, and rise options.

4.21.2. View Table

Selecting this button will open the “Transition Adjustment” window as illustrated in Figure 4-43. This window enables you to view your current transition details for each transition.

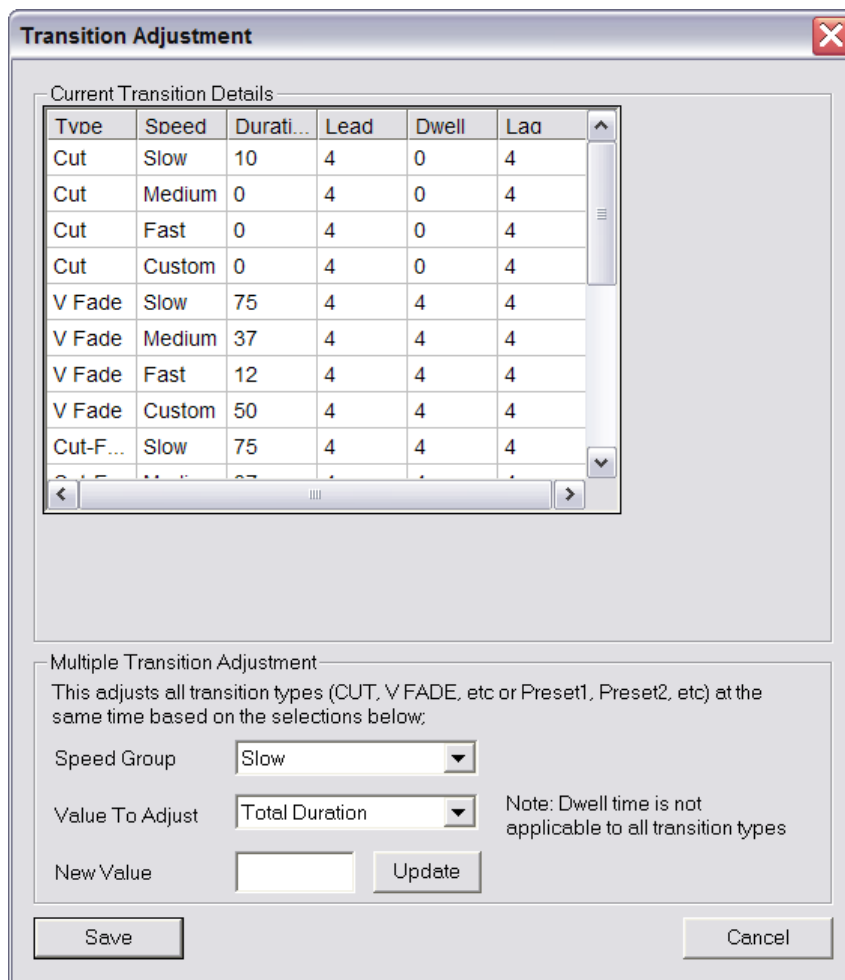


Figure 4-43: Transition Adjustment Window

4.21.3. Multiple Transition Adjustments

The “Multiple Transition Adjustment” section enables you to adjust transition options at the same time.

Speed Group: Enables you to select the speed of multiple transitions. Options include: Slow, Medium, Fast, or Custom.

Value to Adjust: Enables you to select the desired values to be adjusted. Options include: Total Duration, Audio Lead, Audio Dwell and Audio Lag.



Please note: Dwell time is not applicable to all transition types.

New Value: Enables you to enter a new value to the designated transition type.

Click the “**Update**” button to update the transition details.

Select the “**Save**” button to ensure your changes are saved.

4.21.4. Audio & Voice-Over Timings

Type: Enables you to select the transition type. Types include: Cut, V Fade, Cut-Fade, Mix, and Fade-Cut.

Mode: Enables mode the audio transition will behave: Audio-follow-video, Audio Lead, or Audio Lags.

Duration: Enables you to set the total duration.

Audio Lead / Audio Lag: Enables you to the set the amount of Audio Lead and Audio Lag.

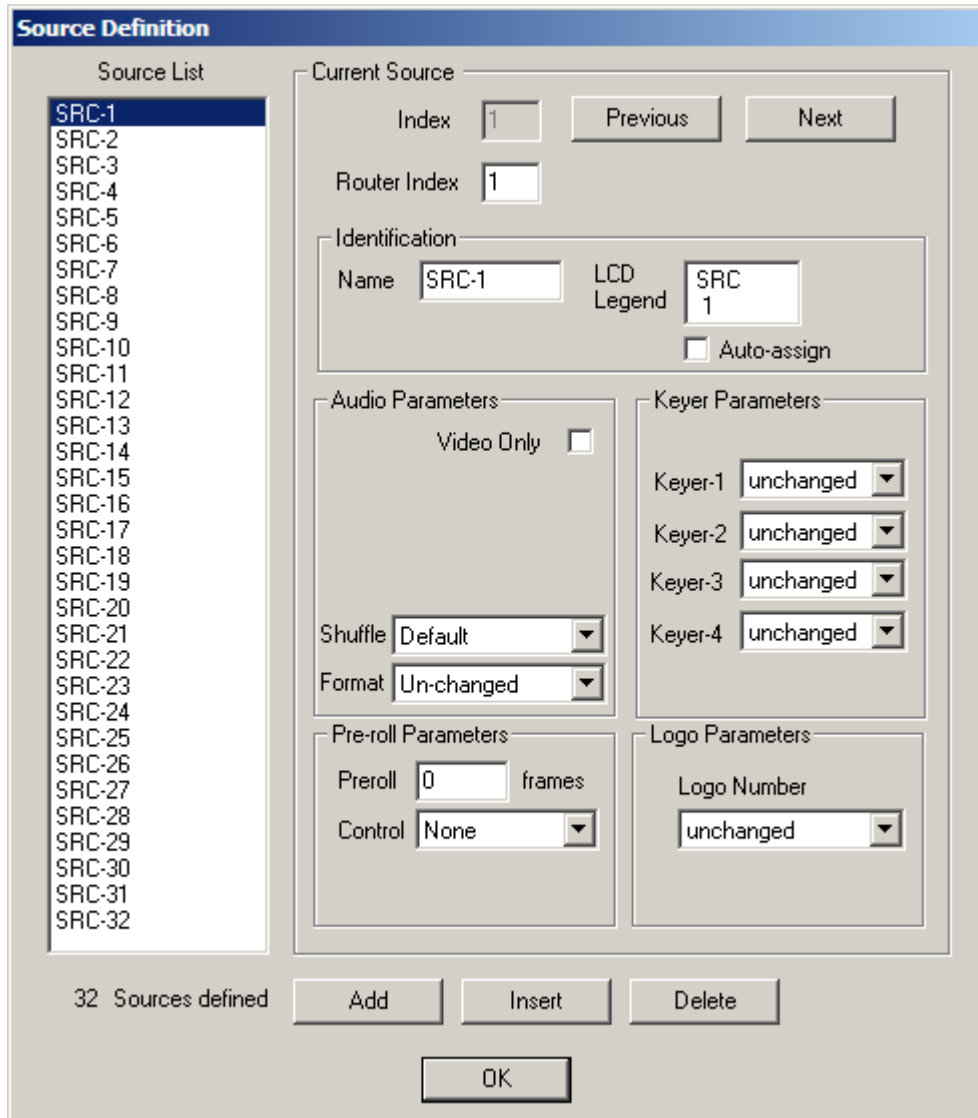
4.21.5. View Table

Please refer to section 4.21.2 for more information.

5. CONFIGURING SOURCE NAMES AND ROUTER SIZE

The EMC will typically interface with an upstream router. This section describes how to configure the sources and router size that is available to the EMC.

In the main EMC-Setup window, select Sources and you will see the following window:



Source Definition

Source List

- SRC-1
- SRC-2
- SRC-3
- SRC-4
- SRC-5
- SRC-6
- SRC-7
- SRC-8
- SRC-9
- SRC-10
- SRC-11
- SRC-12
- SRC-13
- SRC-14
- SRC-15
- SRC-16
- SRC-17
- SRC-18
- SRC-19
- SRC-20
- SRC-21
- SRC-22
- SRC-23
- SRC-24
- SRC-25
- SRC-26
- SRC-27
- SRC-28
- SRC-29
- SRC-30
- SRC-31
- SRC-32

Current Source

Index Previous Next

Router Index

Identification

Name LCD Legend

Auto-assign

Audio Parameters

Video Only

Shuffle

Format

Keyer Parameters

Keyer-1

Keyer-2

Keyer-3

Keyer-4

Pre-roll Parameters

Preroll frames

Control

Logo Parameters

Logo Number

32 Sources defined

Add Insert Delete

OK

Figure 5-1: EMC-Setup Source Table

This dialog box creates the source definitions and other parameter that may be associated with the source. The options are:

Add: Add a set of sources.

Insert: Insert a source to the list.

Delete: Delete a source from the list.

To start, the user must select **Add** button to add the number of sources that will be available to the EMC. In the dialog box, enter the number of sources.



Note: The maximum number of sources that an EMC can currently access on the upstream router is 240.

5.1. CONFIGURING CURRENT SOURCE

The user now must select a source from the list that has been populated with the number of sources available to EMC.

Router Index: This is the actual router index on the upstream router for the selected source. Sources may not necessarily in contiguous blocks on the upstream router. This maps the logical source of the EMC to the physical input port on the upstream router.



Note: A Router Index MUST only be used once in the EMC Source List. If there are repeated indexes used this can result in incorrect source status tally on control panels and to M2100 automation.

Identification: This the name of the source and how it will appear on LCD buttons of the control panels. By selecting the Auto-assign box, the name entered will be copied automatically to the LCD legend.

5.1.1. Audio Parameters

These are audio parameters the user may want to define on a per source basis.

Video Only: Check this option for sources that do not have any discrete audio associated with them; this prevents the EMC requesting audio routes of the upstream router when they are not required. When this option is checked all other audio options are disabled.

Shuffle: This drop-down combo box selects any audio shuffling stores configure in section 4.7 applied to the EMC when this source is selected to the preset or program bus. If no change is required when this source is selected set this to the first selection "Unchanged".

Format: This drop-down combo box selects the audio format type for the EMC when this source is selected to the preset or program bus. If no change is required when this source is selected then set this to the first selection "Unchanged".

5.1.2. Keyer Parameters

For each source, parameters can be given that change the keying levels that are selected on the preset and or program bus when this source is selected. The options are to:

Unchanged: Leave the keyer level as it is.

Take Off: Take the selected Keyer Off-Air if this source is selected.

Put On: Take the selected Keyer On-Air if this source is selected.

5.1.3. Pre-roll Parameters

Preroll: This is the time required (in frames) before the device is at the correct playing speed and can be put on-air. If a preroll time is defined for a source then the 'Preroll & Transition Take' key will wait for this period of time after the take key has been pressed to start the transition.

Control: If the EMC is required to trigger the play command to the device the control method, either serial or GPO control can be defined. If the control method is GPO then the corresponding GPO must be configured for "Manual GPO". If the control method is Machine Control then the corresponding serial port should be configured for Sony VTR Protocol.

5.1.4. Logo Parameters

These parameters are not applicable to an EMC system.

6. CONTROL PANELS

The EMC system supports a range of manual control panels that can be used individually or in pairs. A system can consist of a single panel dedicated to a single EMC channel. Others can consist of a single (or multiple) control panels controlling multiple EMC channels. The EMC can be connected to various types of control panels (QMC-CP-E, QMC-CP-1000E, QMC-CP-2408E, QMC-DCP and EMC-DCP) to allow manual operation. All the control panels are fully software configurable using EMC-Setup.

6.1. SINGLE CHANNEL PANELS

Typically, for single channel panels customers can use any of the available panels.

6.1.1. QMC-CP-E

This 2RU control panel is typically used for facilities that are looking for a simple control panel that allows for Program and Preset bus selection, Keyer, DVE, and VO selection, and TAKE. As with all the control panels for the EMC, the LCD buttons are fully configurable to suit the customer application. The LCD buttons also offer different colours to show status.



Figure 6-1: QMC-CP-E Control Panel

6.1.2. QMC-CP-1000E

The 1RU control panel is typically used for facilities that are looking for Program Bus only control panel. With the facility typically under full automation control, the QMC-CP-1000E offers users a simple panel to perform Program Bus hot cuts in cases of emergency. As will all the control panels for the EMC, the LCD buttons are fully configurable to suit the customer application. The LCD buttons also offer different colours to show status.



Figure 6-2: QMC-CP1000E Control Panel

6.1.3. QMC-CP-2048E

The 2RU control panel is typically used for facilities that have a QMC-CP-1000E and QMC-CP-E panel and are looking for additional buttons for menus, etc. The QMC-CP-2048E is known as a buddy panel. When configured as such, the QMC-CP-2048E is logically associated with the QMC-CP-1000E or QMC-CP-E to allow for users to expand controls. As with all the control panels for the EMC, the LCD buttons are fully configurable to suit the customer application. The LCD buttons also offer different colours to show status.

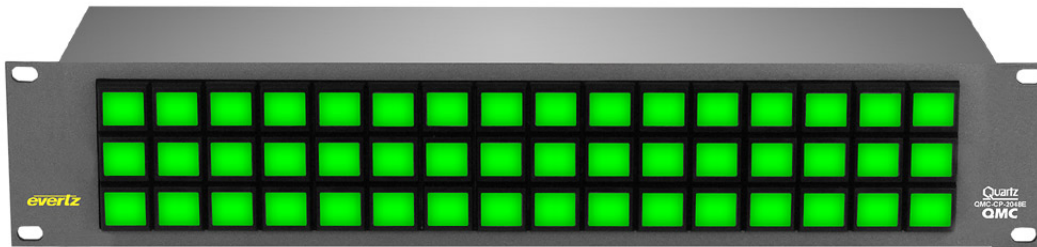


Figure 6-3: QMC-CP2048E Control Panel

6.1.4. QMC-DCP & EMC-DCP

The 19" wide desktop control panels are typically used for facilities that require a high level of manual intervention. These are facilities that tend to live events. Also, the QMC-DCP is used for facilities that require a traditional full size master control panel.

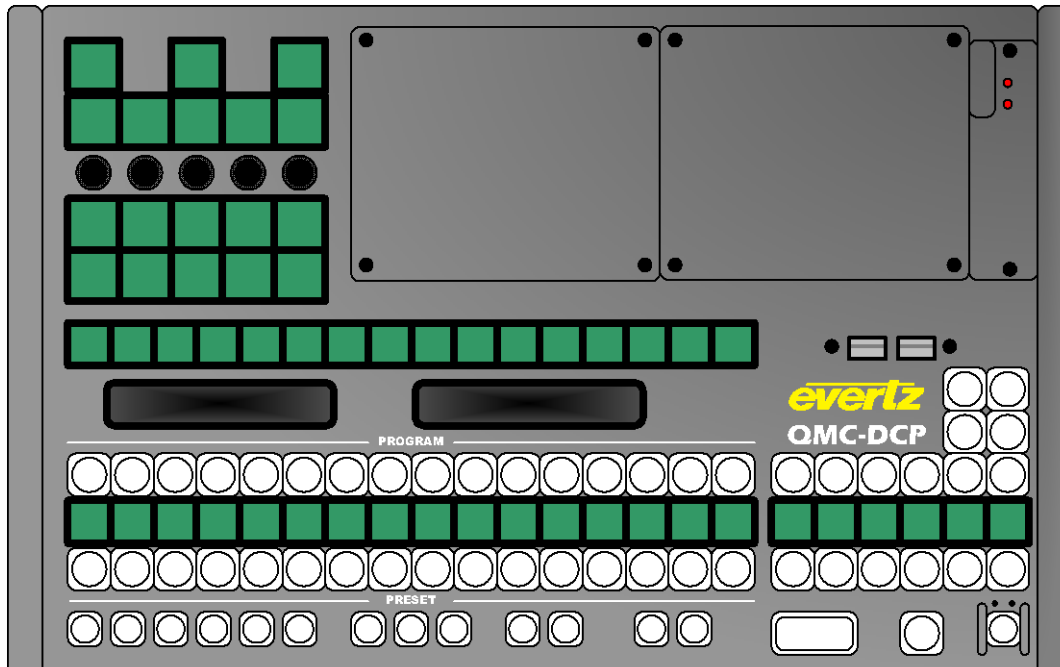


Figure 6-4: EMC-DCP Panel

The QMC-DCP offers a number of options. The +LCD option places a 4.3" LCD screen onto the panel. This LCD panel is used for audio metering, logo preview, and multi-viewer layout preview. The +ABP option adds 5 shaft encoders and 15 additional LCD buttons. As with all the control panels for the EMC, all the buttons on the QMC-DCP are fully configurable to suit the customer application. The LCD buttons also offer different colours to show status

6.2. MULTI CHANNEL PANELS

For systems that require multi-channels panels, typically the QMC-DCP is used. However, if the QMC-CP-1000E or the QMC-CP-E is combined with the QMC-CP-2048E ("buddy panel"), they too can be used for such systems.

6.3. CONFIGURING THE CONTROL PANELS

To configure the control panels, on the main EMC-Setup page select the **Panels** button. A **System Panels** window will appear.

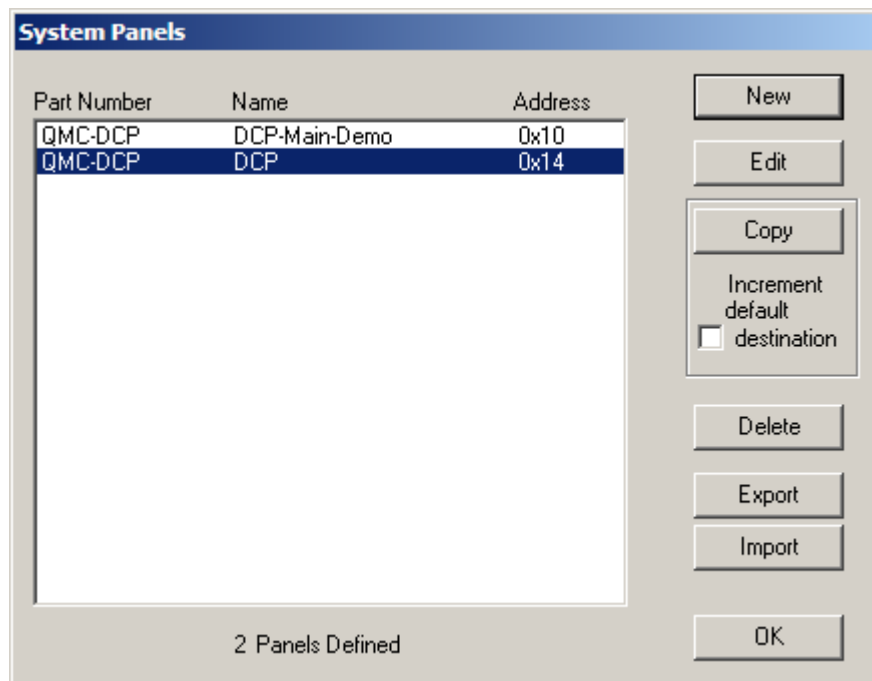
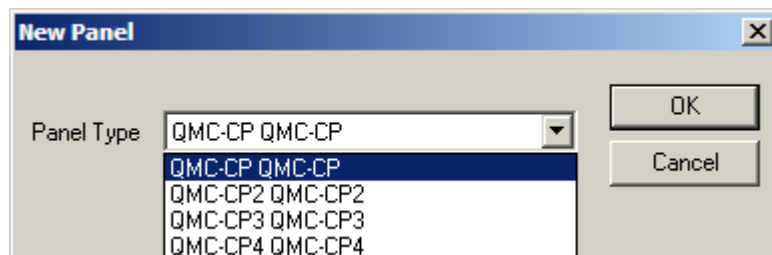


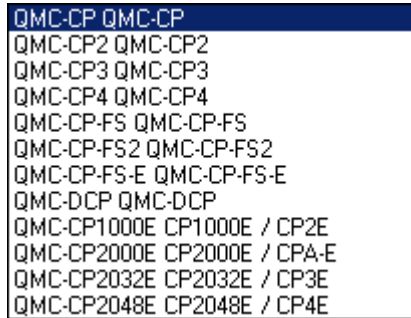
Figure 6-5: System Panels Window

The choices on this window are:

New: Create a new control panel. This will open up a New Panel window:



The available panel types are listed when you pull down the menu.



For the EMC, the only panel types that are supported are: QMC-DCP (EMC-DCP), QMC-CP1000E, QMC-CP2000E, and QMC-CP2048E. The others are invalid panel types that will not work with the EMC.

- Edit:** Edit the selected control panel.
- Copy:** Copy the selected control panel. This action will insert a copy of the selected panel into the list and automatically increment the QLINK address.
- Delete:** Delete the selected control panel.
- Export:** Save the selected control panel configuration to an external file located on PC that will have a .pan extension.
- Import:** Load the selected control panel configuration from an external file located on PC that will have a .pan extension.

6.3.1. QMC CP1000E – Key Definition

When the QMC-CP-1000E panel is selected, the following configuration window will appear:

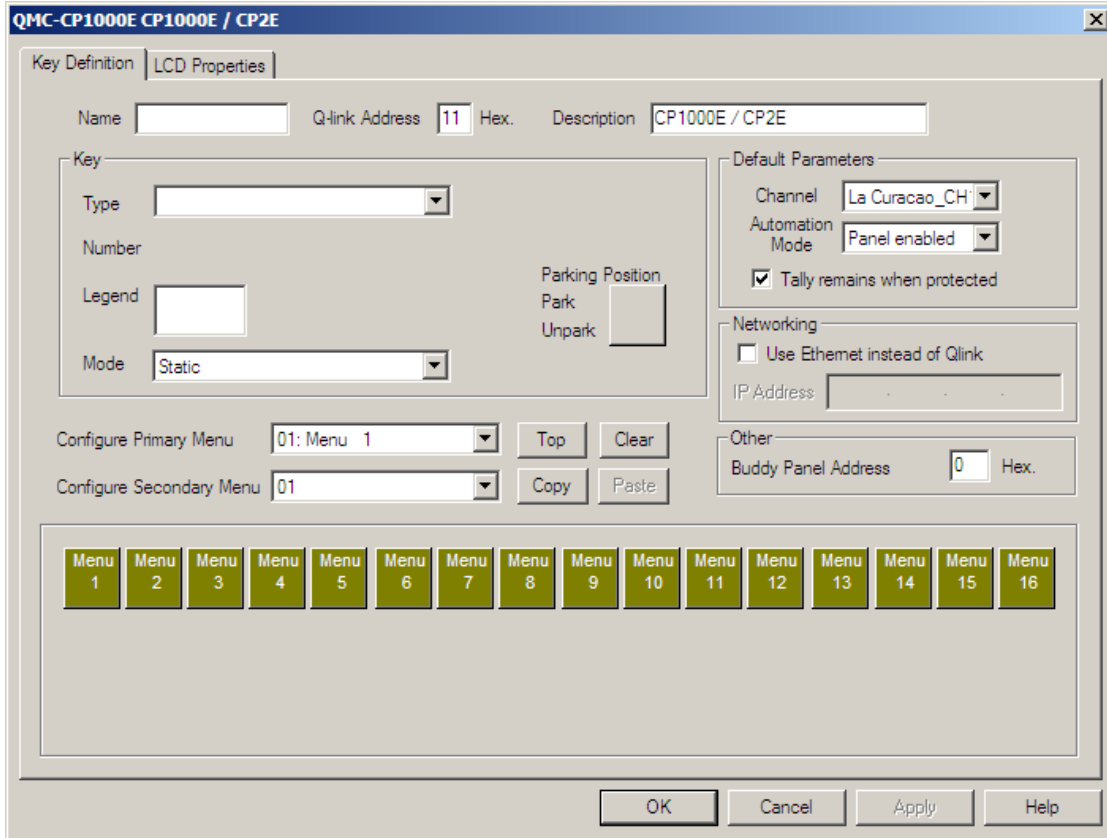


Figure 6-6: QMC-CP-1000E Key Definition Tab

This is the configuration of the panel and the LCD button layout it will use. Under the **Key Definition** tab you have the following:

Name: This allows for a name to be configured for the panel.

QLink Address (in Hex): This is the Q-Link Address of the panel. Similar to QLink addressing for the EMC to communicate with an Evertz router, the panels use the same scheme to interact with the EMC channels. This Q-Link address has to match the Q-Link set on the control panel itself.

Description: This allows for a description to be configured for the panel.

6.3.1.1. Key Parameters

This section is used to configure the behavior of the panel buttons. On the QMC-CP-1000E the 16 buttons are shown on the lower half of the configuration window. When selecting one of the buttons, the Key Parameters will allow the user to set the behavior of the key:

Type: This sets the button to a particular function type. The list of function types is available later in this manual.

Number: This is secondary choice based on the “Type” selection. For example, if the user selected “Channel” to be the button’s function type, the field selects the channel number.

Legend: This edit box displays affects what is displayed in the LCD of the button. If this edit box is left empty and the key is a source or channel key then it will obtain its legend from the relevant name table. I.e. source LCD button legend. This edit box allows a two row 5+5 character legend to be used. If only 1, 2 or 3 characters are used on any one line, spaces can be added before in order to centre justify the legend when it is displayed in the LCD display.

Mode: This sets the mode of the button:

- Static – The button is static and doesn’t change.
- Changed by primary menu – The button will change when a primary menu is selected.
- Changed by secondary menu – The button will change when a secondary menu is selected.

Parking Position: This is a key that can be used as a ‘parking’ space to reflect and copy the functionality of a particular key. In order to copy a key functionality to this position, select the key to copy and then press ‘p’ or ‘P’, this then moves the key type and number to the parked key (not affecting the copied key). To move the parked key to another key, select the key to be changed and press either ‘u’ or ‘U’. After each ‘u’ key press the key number is automatically incremented if the key type is a source key.

6.3.1.2. Default Parameters

These are the default parameters of the control panel that require configuration for establishing communications to the EMC, communications to “buddy panels” if required, and default power up behaviour.

Channel: This is the channel the panel will control when it powers up.

Automation Mode: This is the operational mode that the panel will be in when the EMC is in automation mode. The panel can be either: Panel enabled, Panel disabled, or Limited functions.

Panel enabled: All key types are available to the user regardless of the M2100 automation control being enabled or disabled.

Panel disabled: When M2100 automation control of the EMC is enabled, the only keys that will function on the panel are Panel Lock, Channel and Menu keys.

Limited Functions: When M2100 automation control of the EMC is enabled, only limited keys will function on the panel which are Panel Lock, Channel, Menu, Auto Toggle, Audio Shuffling key types and Latch Gain Adjust key types.

Networking: The “Use Ethernet instead of QLink” box **MUST** be checked in order for the panel to talk to the EMC. The IP address that is filled in **MUST** match the IP address of the panel.

Buddy Panel Address: In some applications, two panels might be required to work with one another. If this is the case then this address field should be set to the address of the panel that this panel is required to work with. The other panel will also need this field set as the communication is bi-directional.

Tally remains when protected: This checkbox allows the user to configure if the panel will show tally (status) when the panel is in a “channel protect mode”.

6.3.2. QMC-CP1000E LCD Properties

The **LCD Properties** tab allows users to configure the colour for various behaviors of the LCD buttons. By default different key types use a 'standard set' of colours, but the user can change these colours on an individual panel basis.

There are a number of standard key types that have colour configuration capability; these are shown in greyed-out edit boxes within this section. Any key type not covered by these types will be configured by the "Other Off" or "Other On" settings.

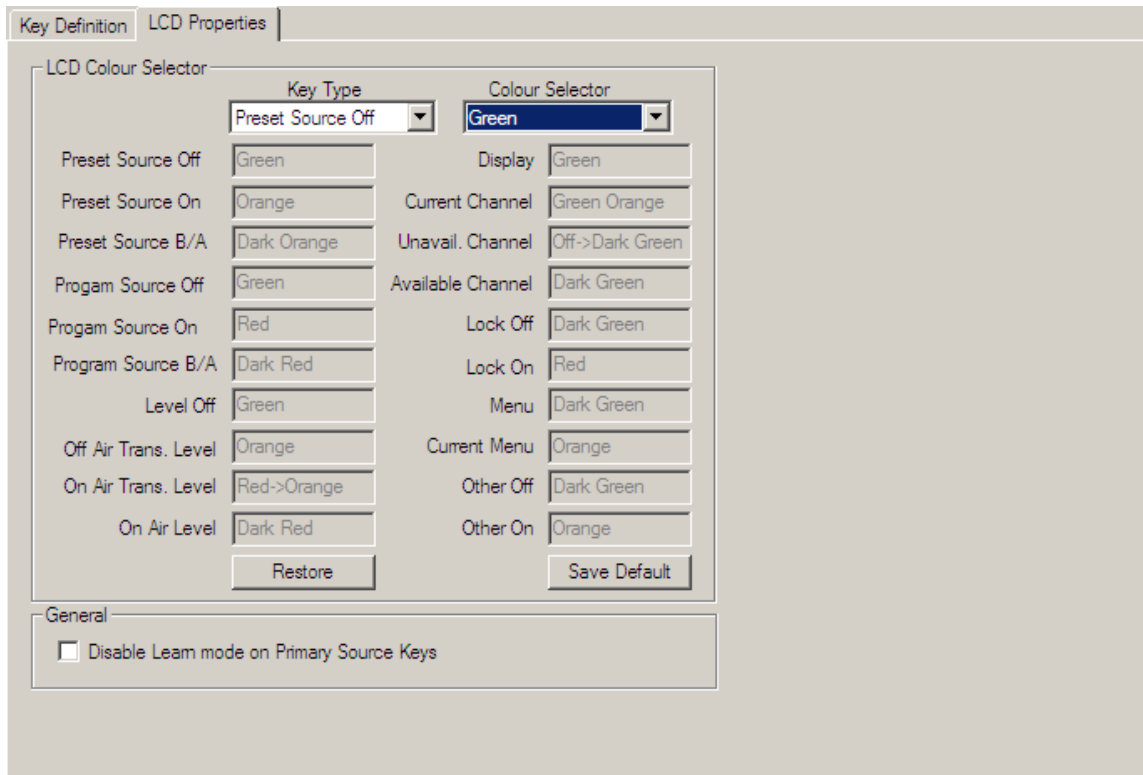


Figure 6-7: QMC-CP1000E LCD Properties Tab

Key Type: This selects the key type that requires a colour change, when changing the selection the current colour setting will change in the Colour selector.

Colour Selector: This will change the colour of the currently selected key type, when changing the selection the colour setting shown in the greyed-out edit box will change to show the result of the change.

Restore: This will restore all the key type colours to the Evertz standard.

Save Default: This will save the current colour settings as the default for any LCD panels that are created subsequently.

Disable Learn mode on Primary Source Keys: This option allows for learn mode programming of Primary Source Keys to be enabled/disabled on this panel.

6.3.3. QMC-CP-E Key Definition

When the QMC-CP-E panel is selected, the following configuration window will appear:

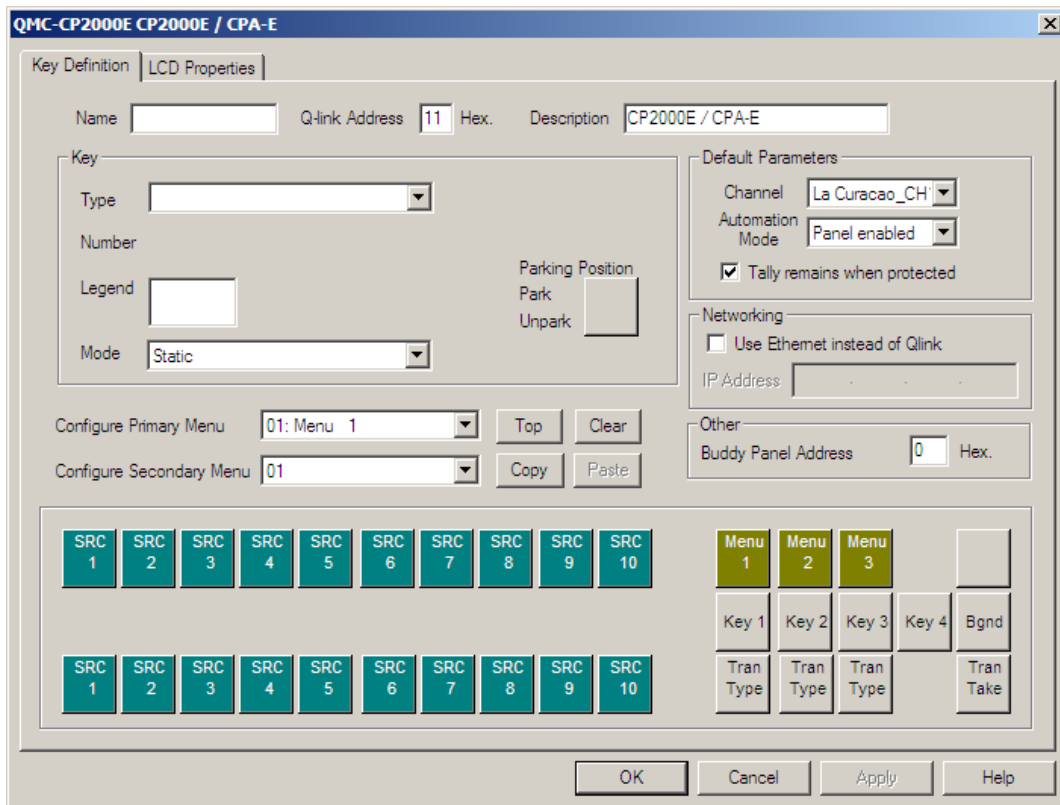


Figure 6-8: QMC-CP-E Key Definition Tab

This is the configuration of the panel and the LCD button layout it will use. Under the **Key Definition** tab you have the following:

Name: This allows for a name to be configured for the panel.

QLink Address (in Hex): This is the QLink Address of the panel. Similar to Q-Link addressing for the EMC to communicate with an Evertz router, the panels use the same scheme to interact with the EMC channels. This Q-Link address has to match the Q-Link set on the control panel itself.

Description: This allows for a description to be configured for the panel.

6.3.3.1. Key Parameters

This section is used to configure the behavior of the panel buttons. On the QMC-CP-2000E the 33 buttons are shown on the lower half of the configuration window. When selecting one of the buttons, the Key Parameters will allow the user to set the behavior of the key:

Type: This sets the button to a particular function type. The list of function types is available later in this manual.

Number: This is secondary choice based on the “Type” selection. For example, if the user selected “Channel” to be the button’s function type, the field selects the channel number.

Legend: This edit box displays affects what is displayed in the LCD of the button. If this edit box is left empty and the key is a source or channel key then it will obtain its legend from the relevant name table. I.e. source LCD button legend. This edit box allows a two row 5+5 character legend to be used. If only 1, 2 or 3 characters are used on any one line, spaces can be added before in order to centre justify the legend when it is displayed in the LCD display.

Mode: This set mode of the button:

- Static – The button is static and doesn’t change.
- Changed by primary menu – The button will change when a primary menu is selected.
- Changed by secondary menu – The button will change when a secondary menu is selected.

6.3.3.2. Default Parameters

These are the default parameters of the control panel that require configuration for establishing communications to the EMC, communications to “buddy panels” if required, and default power up behaviour.

Channel: This is the channel the panel will control when it powers up.

Automation Mode: This is the operational mode that the panel will be in when the EMC is in automation mode. The panel can be either: Panel enabled, Panel disabled or Limited functions. See section 6.3.1.2 for more details regarding these modes.

Networking: The “Use Ethernet instead of QLink” box **MUST** be checked in order for the panel to talk to the EMC. The IP address that is filled in **MUST** match the IP address of the panel.

Buddy Panel Address: In some applications, two panels might be required to work with one another. If this is the case then this address field should be set to the address of the panel that this panel is required to work with. The other panel will also need this field set as the communication is bi-directional.

Tally remains when protected: This checkbox allows the user to configure if the panel will show tally (status) when the panel is in a “channel protect mode”.

Parking Position: This is a key that can be used as a ‘parking’ space to reflect and copy the functionality of a particular key. In order to copy a key functionality to this position, select the key to copy and then press ‘p’ or ‘P’, this then moves the key type and number to the parked key (not affecting the copied key). To move the parked key to another key, select the key to be changed and press either ‘u’ or ‘U’. After each ‘u’ key press the key number is automatically incremented if the key type is a source key.

Configure Primary Menu:

Primary Menus are defined as main menus on the control panel. These typically represent major functional categories of controls.

Configure Secondary Menu:

Secondary Menus are defined as sub-menus to the Primary Menus on the control panel. These typically represent minor functional categories of controls.

6.3.4. QMC-CP-E LCD Properties

The **LCD Properties** tab allows users to configure the colour for various behaviors of the LCD buttons. By default different key types use a 'standard set' of colours, but the user can change these colours on an individual panel basis.

There are a number of standard key types that have colour configuration capability; these are shown in greyed-out edit boxes within this section. Any key type not covered by these types will be configured by the "Other Off" or "Other On" settings.

Key Type: This selects the key type that requires a colour change, when changing the selection the current colour setting will change in the Colour selector.

Colour Selector: This will change the colour of the currently selected key type, when changing the selection the colour setting shown in the greyed-out edit box will change to show the result of the change.

Restore: This will restore all the key type colours to the Evertz standard.

Save Default: This will save the current colour settings as the default for any LCD panels that are created subsequently.

Disable Learn mode on Primary Source Keys: This option allows for learn mode programming of Primary Source Keys to be enabled/disabled on this panel.

6.3.5. QMC-DCP – Dialog

When the QMC-DCP panel is selected, the following configuration window will appear:

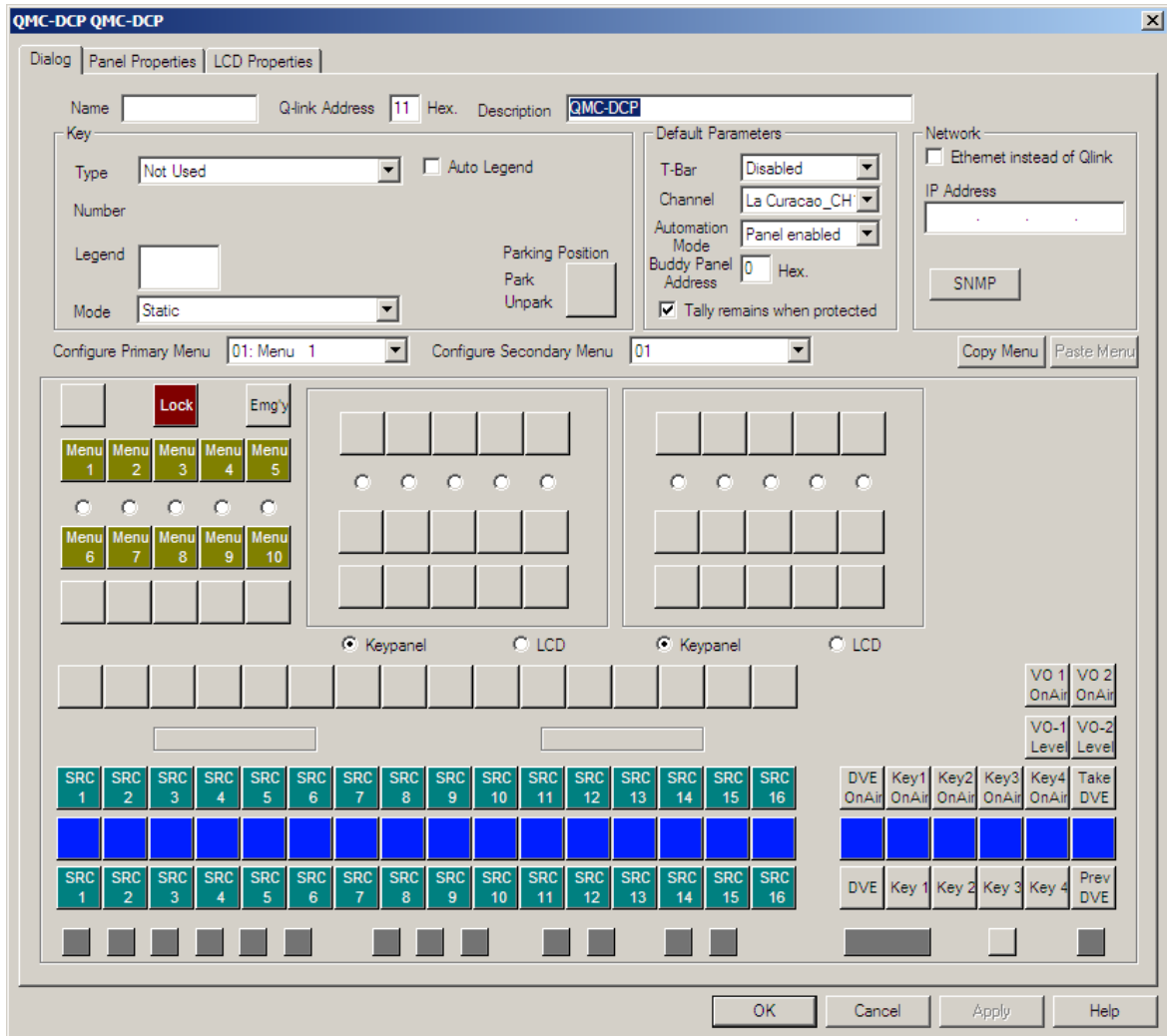


Figure 6-9: QMC-DCP Dialog Tab

This is the configuration of the panel and the LCD button layout it will use. Under the Key Definition tab you have the following:

Name: This allows for a name to be configured for the panel.

QLink Address (in Hex): This is the QLink Address of the panel. Similar to QLink addressing for the EMC to communicate with an Evertz router, the panels use the same scheme to interact with the EMC channels. This QLink address has to match the QLink set on the control panel itself.

Description: This allows for a description to be configured for the panel.

6.3.5.1. Key Parameters

This section is used to configure the behavior of the panel buttons. On the QMC-DCP (EMC-DCP) the 98 buttons (113 with the +ABP option) are shown on the lower half of the configuration window. When selecting one of the buttons, the Key Parameters will allow the user to set the behavior of the key:

Type: This sets the button to a particular function type. The list of function types is available later in this manual.

Number: This is secondary choice based on the “Type” selection. For example, if the user selected “Channel” to be the button’s function type, the field selects the channel number.

Legend: This edit box displays affects what is displayed in the LCD of the button. If this edit box is left empty and the key is a source or channel key then it will obtain its legend from the relevant name table. I.e. source LCD button legend. This edit box allows a two row 5+5 character legend to be used. If only 1, 2 or 3 characters are used on any one line, spaces can be added before in order to centre justify the legend when it is displayed in the LCD display.

Mode: This set mode of the button:

- Static – The button is static and doesn’t change.
- Changed by primary menu – The button will change when a primary menu is selected.
- Changed by secondary menu – The button will change when a secondary menu is selected.

Parking Position: This is a key that can be used as a ‘parking’ space to reflect and copy the functionality of a particular key. In order to copy a key functionality to this position, select the key to copy and then press ‘p’ or ‘P’, this then moves the key type and number to the parked key (not affecting the copied key). To move the parked key to another key, select the key to be changed and press either ‘u’ or ‘U’. After each ‘u’ key press the key number is automatically incremented if the key type is a source key.

Configure Primary Menu: Primary Menus are defined as main menus on the control panel. These typically represent major functional categories of controls.

Configure Secondary Menu: Secondary Menus are defined as sub-menus to the Primary Menus on the control panel. These typically represent minor functional categories of controls.

6.3.5.2. Default Parameters

These are the default parameters of the control panel that require configuration for establishing communications to the EMC, communications to “buddy panels” if required, and default power up behaviour.

Channel: This is the channel the panel will control when it powers up.

Automation Mode: This is the operational mode that the panel will be in when the EMC is in automation mode. See section 6.3.1.2.

Buddy Panel Address: In some applications, two panels might be required to work with one another. If this is the case then this address field should be set to the address of the panel that this panel is required to work with. The other panel will also need this field set as the communication is bi-directional.

Tally remains when protected: This checkbox allows the user to configure if the panel will show tally (status) when the panel is in a “channel protect mode”.

Network: The “Ethernet instead of QLink” box **MUST** be checked in order for the panel to talk to the EMC. The IP address that is filled in **MUST** match the IP address of the panel.

SNMP This allows the user to create SNMP events to recall from the QMC-DCP panel.

6.3.5.3. SNMP Setup

The SNMP Setup window will show the list of currently created SNMP Events. The user can create or edit an event with following parameters:

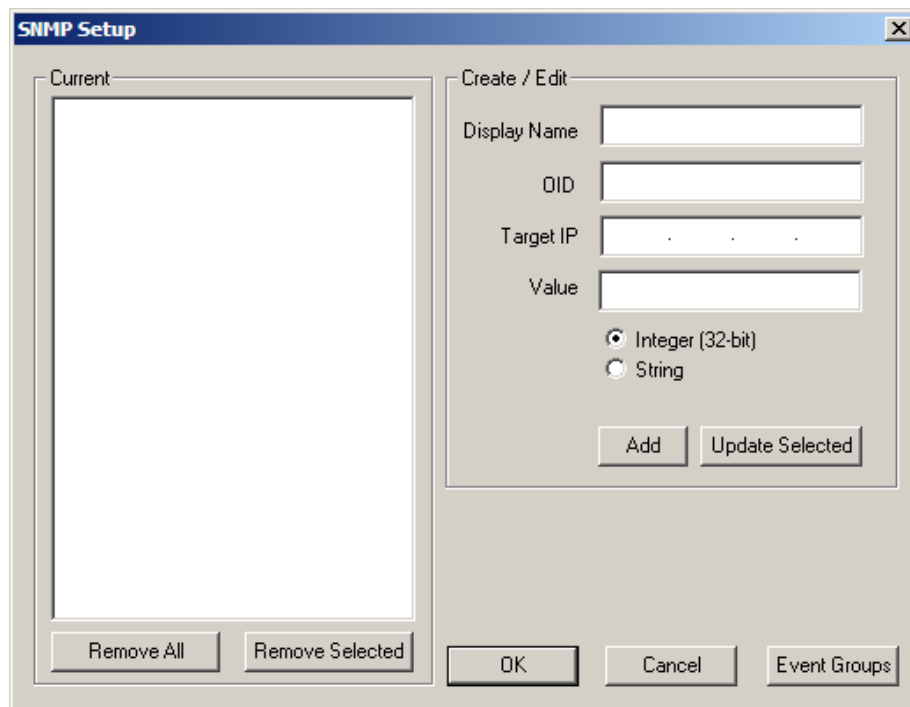


Figure 6-10: SNMP Setup Window

Display Name: This is the name of the SNMP event. This will also show up on the LCD button.

OID: This is the Object Identifier uniquely identifies the managed object you want to set in a product’s MIB. For example, on the 7812UDX, the aspect ratio control has a unique OID.

Target IP: This is the target IP address for accessing the product’s OID. Some products have a direct IP connection to handle SNMP. Others may go through a frame controller (like the 7700FC) to handle the SNMP parameters.

Value: This is the value you are setting to the OID of the product's MIB.

6.3.5.4. SNMP Event Group

The SNMP Event Group window will show the user to group a number of SNMP events into a single group. This Event Group can be triggered directly from the QMC-DCP.

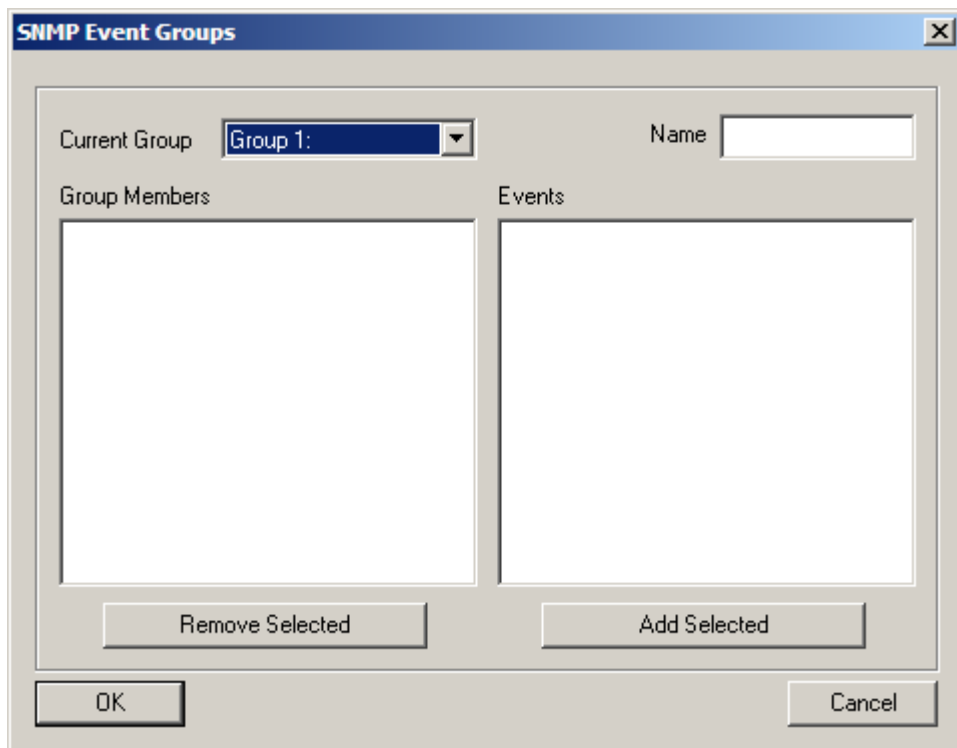


Figure 6-11: SNMP Event Groups



Note: There is a **MAXIMUM** of 25 SNMP Event Groups that can be configured.

6.3.6. QMC-DCP – Panel Properties

Similar to the EMC ports the QMC-DCP has a number of serial ports that can be configured to control other devices.

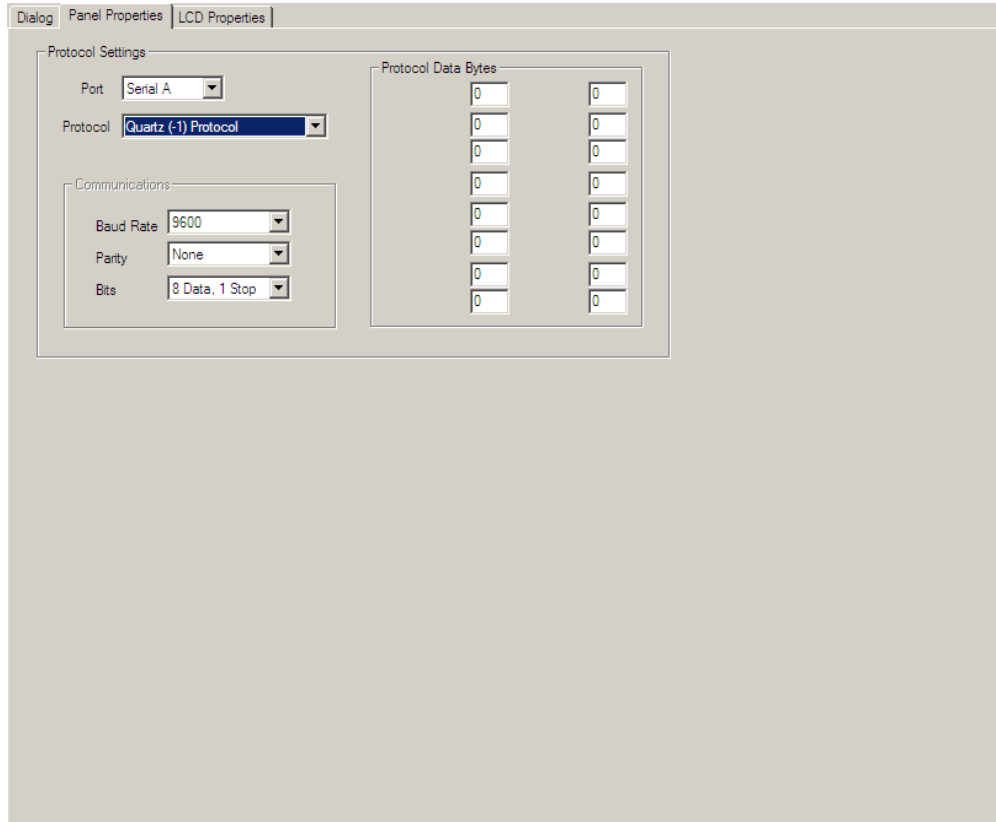


Figure 6-12: Panel Properties Tab

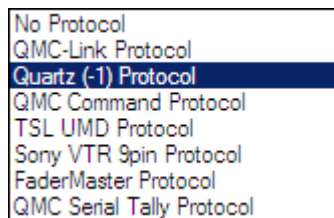


Figure 6-13: Protocol Drop Down Menu

6.3.7. QMC-DCP LCD Properties

The **LCD Properties** tab allows users to configure the colour for various behaviors of the LCD buttons. By default different key types use a 'standard set' of colours, but the user can change these colours on an individual panel basis.

There are a number of standard key types that have colour configuration capability; these are shown in greyed-out edit boxes within this section. Any key type not covered by these types will be configured by the "Other Off" or "Other On" settings.

Key Type: This selects the key type that requires a colour change, when changing the selection the current colour setting will change in the Colour selector.

Colour Selector: This will change the colour of the currently selected key type, when changing the selection the colour setting shown in the greyed-out edit box will change to show the result of the change.

Restore: This will restore all the key type colours to the Evertz standard.

Save Default: This will save the current colour settings as the default for any LCD panels that are created subsequently.

6.3.8. QMC-DCP – Side Car

The QMC-DCP allows for JLCooper Fader Master to be connected (via serial) to offer a manual control for audio. The Side Car configuration tab allows for the user to configure various controls to the sliders and functions to the buttons on the Fader Master panel.

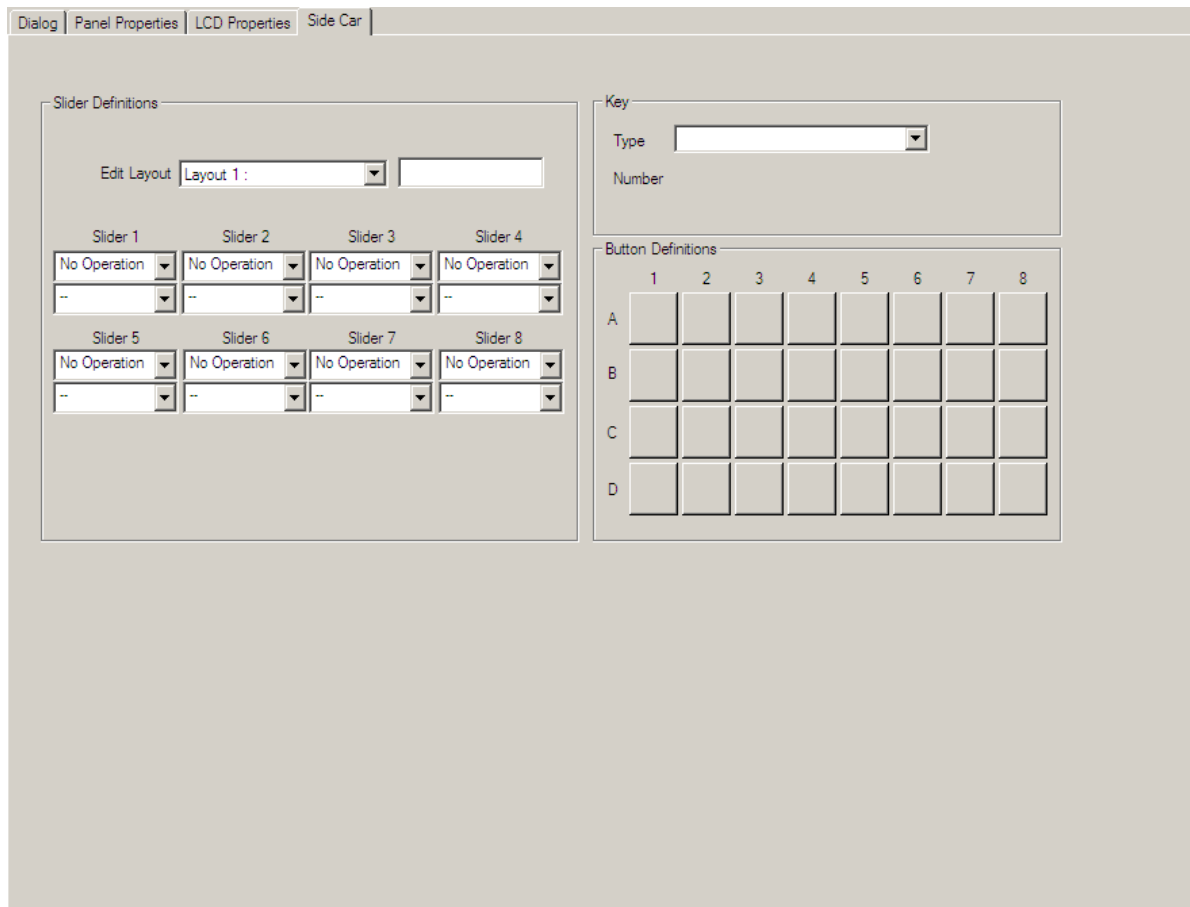


Figure 6-14: Side Car Tab

7. EMC OPTIONS

7.1. INTERNAL MEDIA STORE

The 3025EMC comes equipped with an internal media store. This internal media store comes with four layers for static, animated, time, date, and temperature graphics. The internal media store also stores audio .wav files. The four layers can be multi-layered; such that multiple graphics can be placed on top of each other. For support for crawls and dynamic text graphics the +TXT option must be installed. To increase the number of logo layers from four to 16, the +EMG option must be installed.

The EMC uses two types of memory to take a graphic or audio file to air. The EMC uses playout cache to take the graphic or audio file to air. This memory is considered to be in-line memory and is similar to DRAM on a PC. The playout cache temporally stores the graphic to use on air. If the graphic is not on air, it will remain in the playout cache to be recalled later or until another graphic is called and space is required on the playout cache. The EMC comes with a default of 2GB of playout cache. This can be upgraded to 8GB with the factory installed option +PC8G.

The second memory type is compact flash or off-line memory. This is where the graphic and audio files are stored. Graphic and audio files are loaded onto the compact flash from an external PC running Overture Suite. The files are then transferred from the compact flash to playout cache when required. The EMC has a 2GB compact flash which can be upgraded to 8GB with the +CF8G option. For users requiring larger off-line storage, the +NAS option allows users to mount a network drive onto the EMC. This network storage is another storage source for the EMC to look for graphic or audio files to load into playout cache and take to air.



Note: The customer has to provide the network storage device for the +NAS option. This device has to support NFSv3 and Windows File sharing.

The graphic file formats that are supported by the EMC are: .PNG, .JPG, .GIF, .TGA, .TIF, .MOV, and .AVI. The audio file format that is supported is .WAV files. Users use Overture Media Designer import the files and convert them .EVL (Evertz Vector Logo) file format that is used by the EMC. Users also use Overture Media Manager to load logos onto the EMC. Please refer to the Overture Suite Users Manual on details on the creation and management of graphic and audio files on the EMC.

7.1.1. Storage Capacity of Playout Cache

Table 7-1 and Table 7-2 provide storage capacity information in regards to the maximum quantity and maximum animation values for the available playout cache.



Note: The animation capacity is based on and calculated using 30 frames per second; however, the 625 standard is calculated using 25 fps.

Logo Size	Total Pixels	Overture Size		Maximum Quantity		Maximum Animation (sec)	
		YCbR format	RGB Format	YCbR format	RGB Format	YCbR format	RGB Format
525							
1/9	38880 (240×162)	228	152	9206	13808	307	460
¼	87480 (360×243)	513	342	4091	6137	136	205
Full	349920 (720×486)	2050	1367	1023	1534	34	51
625							
1/9	46080 (240×192)	270	180	7767	11651	311	466
¼	103680 (360×288)	608	405	3452	5178	138	207
Full	414720 (720×576)	2430	1620	863	1295	35	52
720p							
1/9	102480 (427×240)	600	400	3493	5239	116	175
¼	230400 (640×360)	1350	900	1553	2330	52	78
Full	921600 (1280×720)	5400	3600	388	583	13	19
1080i							
1/9	230400 (640×360)	1350	900	1553	2330	52	78
¼	518400 (960×540)	3038	2025	690	1036	23	35
Full	2073600 (1920×1080)	12150	8100	173	259	6	9

Table 7-1: Storage Capacity for 2Gb Playout Cache

Logo Size	Total Pixels	Overture Size		Maximum Quantity		Maximum Animation (sec)	
		YCbR format	RGB Format	YCbR format	RGB Format	YCbR format	RGB Format
525							
1/9	38880 (240×162)	228	152	36822	55234	1227	1841
1/4	87480 (360×243)	513	342	16366	24548	546	818
full	349920 (720×486)	2050	1367	4091	6137	136	205
625							
1/9	46080 (240×192)	270	180	31069	46603	1243	1864
1/4	103680 (360×288)	608	405	13808	20713	552	829
full	414720 (720×576)	2430	1620	3452	5178	138	207
720p							
1/9	102480 (427×240)	600	400	13970	20955	466	699
1/4	230400 (640×360)	1350	900	6214	9321	207	311
full	921600 (1280×720)	5400	3600	1553	2330	52	78
1080i							
1/9	230400 (640×360)	1350	900	6214	9321	207	311
1/4	518400 (960×540)	3038	2025	2762	4143	92	138
full	2073600 (1920×1080)	12150	8100	690	1036	23	35

Table 7-2: Storage Capacity for 8 Gb Playout Cache

7.1.2. Primer on Creating Logos

The 3025EMC hardware executes the keying and display of logos, however, the user is responsible for composing the image design. Unfortunately, the image created by the artist is not always generated the same when it is keyed into and displayed on the video. These following sections will introduce the user to some basic principles associated with keying graphical information on video. It will also provide some guidelines when preparing logos to get the best quality possible.

Evertz Overture™ software imports the user's image, formats it, and sends it to the EMC hardware. If the user is already familiar with the creating images for use on video, please refer to the summary in section 7.1.2.9 for a brief overview.

7.1.2.1. Introduction

The user will require two items in order to insert an image into the video. One is the image or artwork to be displayed, called the "fill". The second is a black and white image, called a "key", that is used to tell the hardware where to display the image and where to display the background or video signal. Where the key is black, the video signal will be visible. Where it is white, the fill will be visible. Grey areas will display a "mixed" value that is partially the background video and partially the logo image depending on the brightness of the key's gray value.

7.1.2.2. Types of Keys

Overture™ software can take an image and extract a key signal out of the image based on a colour that is selected as the background colour. This is called "chroma keying" because the colour selected will be the used to create the *key*. The software takes an image and a selected colour and then creates a key that is either black (in areas where the image matches the selected colour) or white (otherwise).

The resulting key is a black and white image with hard edges between the background/foreground. This is called a "hard key" because of the resulting hard edge between fill and background. The Overture™ software will "soften" the edges so as to not violate any video bandwidth restrictions.

This "self key" technique may work fine for simple, few colour images, but if the background has subtle changes or it bleeds into the foreground image, the edge between the background and fill will be jagged and will not always follow the contour of the fill.

For better results the user can supply a key image that is created at the same time as the source image with the keying effect in mind. Copying the fill image and converting the foreground area to a gray level that is proportional to the desired mix value creates a key. Softening (sloping) the edges of the key will in turn control the "hardness" of the background/fill transition.

The key file must have the following characteristics:

1. It must be the same Horizontal and Vertical size as the fill.
2. The image in the key file must have the same Horizontal and Vertical location as the image in the fill file.
3. The file formats must be the same.
4. The key file must be black and white only. This means that Red, Green and Blue must have the same numbers everywhere in the file.

7.1.2.3. Translucency and Drop Shadows

Many times it is desirable to have the whole logo or an area of the logo translucent. This means that both the fill and background are visible in a mixed proportion (i.e. 60% fill and 40% background). For instance, a drop shadow around an object consists of a background mixed with a colour (usually dark gray). It is not imperative that the overall transparency is correct when the artwork is being designed. The overall transparency of the logo can be adjusted in three places: in the original key image, in the Overture™ software and in the EMC hardware. For best results, ensure the original key has the proper scaling, particularly when there are various regions of differing translucency.

If the user is drawing a separate key and fill, translucent regions can be created by placing gray over the desired areas. Bright gray will include more fill than background and dark gray will include more background.

If the image does not have an associated key file, the Overture™ software enables the user to select a colour to use as a match colour (chroma key). All areas of the logo with this colour will have a translucent/drop shadow effect. Of course it is up to the designer to ensure that the drop shadow colour only exists in the areas where a translucent effect is desired. Otherwise, in some areas, unintended holes in the fill will appear. If the user wants more than one degree of translucency in the same logo, separate key and fill files must be used. For these reasons, it is recommended to always use separate key and fill files.

7.1.2.4. File Formats

Modern graphics and images can come in a wide variety of file formats. The following criteria must be addressed to determine what is best for this application. First of all, images are only as good as their source. A highly compressed JPEG image or a 4 bpp (4 bits or 16 colours per pixel) will not have the same quality as a full colour (24 bpp) image. The most accurate (to the final representation when being displayed in video) format is a RGB image (as compared to CMYK or a lossy compressed format).

Overture™ can support a variety of image formats, including Tiff, TGA, and BMP. All files must be saved with 24bit colour values. These were picked to encourage the user to use file formats that provide the best results.

7.1.2.5. Sharp Edges and Skinny Lines

The final product, when combined with the video, has certain limitations that are not present when the image was created with today's modern graphics software. Although sharp edges (or fast colour changes) and small skinny lines can be created and displayed on a computer monitor, they may not be as visually appealing after being output to video and displayed on a regular TV monitor. The artifacts will be flickering on horizontal lines, banding on vertical edges or a combination on diagonal edges. This is due to limitations that exist in video that are different from the computer world (this is beyond the scope of this help file). For example, if the user draws a simple image using Windows Paint™, the result will have illegal edges as described. If the user uses higher-end drawing packages, they will have an option to turn on a filter that automatically smoothes edges between the different areas of the drawing (this may be called "Anti-Aliasing" or "Feathering"). To ensure that the image has properly shaped edges, zoom in on a sharp edge. Ensure that there are at least 2 pixels (horizontally and vertically) of transition between the two areas.

The above puts limits on the smallest size that an object can take. A small 1 pixel wide line cannot be properly reproduced. Ensure that all lines are at least 2 pixels wide and their edges are shaped.

7.1.2.6. Logo Size

To determine the size that the logo should be created the total size of the picture and the size of the logo that will be inserted will need to be calculated. For example, high definition video picture area is about 1000 lines high and 2000 pixels wide. If the user wishes to insert a logo that is 1/32 the size of the picture, then they should draw an image that is $1000/32=32$ lines high and $2000/32=63$ pixels wide. Before starting, the user must configure the drawing package to create a drawing area of this size.



Warning: Creating images that are larger or smaller and then re-scaling them will produce an image of poorer quality, than if the user was to create the image at the proper 1:1 scaled size. The mathematical process of squeezing/expanding may create unacceptable results, particularly on edges.

The EMC hardware has minimum image memory sizes. If the user maintains within one memory block size, it will maximize the number of logos that can be held in the hardware. The minimum size is 512 pixels wide by 270 pixels high for the 1080i version of the Logo Inserter.

7.1.2.7. Positioning the Logo

Upon importing the image, ensure the logo is as close as possible to the actual insertion point. The user can use the Overture™ software to roughly position the logo on the screen and once the logo is downloaded to the hardware, the user can fine-tune the position using the control panel.

7.1.2.8. Edges between the Fill and Background

There are a couple of artifacts that may occur on the edge between a logo and the background that are not obvious at first but, once the user is aware of the occurrence, the user can create the image with knowledge of how to avoid them.

The following provides an example of edges between the fill and background:

The following is the background image:



The following is the fill image used:



The image has the following key:



The following image displays the fill over the background with a black border outlining the fill:



This occurs because the fill image has a transition from the fill colour to black and it overlaps the key that also has a transition (from the fill to the background). A small portion of the black around the fill shape sneaks through at the transition edge. This may or may not be a desirable effect.

Please be advised that if the fill has a shaped but sharp edge, and the key has a shaped but sharp edge, the resulting image will have a predominantly sharp edge and edge-ringing issues may occur, as described earlier. This is due to the fact that the key shapes the already shaped edge creating an even faster edge.

If the above does not produce the desired result, the following can be performed:

The following background image is used:



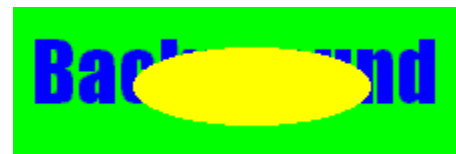
The following is the key image used:



The following fill image is larger than the key, as shown in the adjacent image:



The following image shows the fill image without the black border being produced:



The key in this example provides the proper edge shape for the fill.

If the user is not providing a key file, it is hard to remove an edge effect. A technique for doing this is to surround the fill with a colour that is slightly different, but unique, from the image. Rather than having black, or another contrasting colour peeking around the image, a subtle colour difference will be produced that will not be visible.

7.1.2.9. Summary: Primer for Creating Logos

The following is a summary of some of the guidelines for preparing a logo file to use on EMC:

1. Best results are achieved when the user supplies both the fill and the key as two separate files.
2. Ensure that the Horizontal and Vertical sizes of both the fill and key files are the same.
3. Ensure that the position of both the fill and the key within the file is the same.
4. Ensure that the key file only contains luminance values (i.e. R=G=B).
5. Please draw the logo on a background that is close to, but distinct from, the edge of the logo.
6. Draw logos at proper 1:1 scale (i.e. do not resize after drawing).
7. Try to keep the logo under the size of one block of memory. This will save memory space in the Logo Inserter hardware (512 pixels wide by 270 pixels high). Anti-alias all edges within the logo. Try not to anti-alias the outer edges (where the keying will take place). This will create a logo without a black border.
8. Keep all lines thicker than 2 pixels wide and 2 lines high. The line will flicker and/or have an odd edge, if they are too thin.
9. Format the logo and key into a 24 bit per pixel RGB bitmap image.
10. Field one is dominant and starts on a Y/C co-located sample. This means that the first pixel of the first line will be in the first field and the first pixel will be a Y, Cr, Cb co-located sample.

7.2. DVE FOR SQUEEZEBACKS

The 3025EMC has two options for enabling a DVE for squeezebacks. The +DVE-2D options provides two channels of 2D DVE moves (one channel on the Program path and one channel on the Preview path) through the 3025EMC. The +DVE-2D-2 options provides four channels of 2D DVE moves (two channels on the Program path and two channels on the Preview) path through the 3025EMC.

The DVE option provides digital video effects Size, Position, Squeeze and Crop. The normal DVE background (DVE 1) is derived from a separate input to the 3025EMC, although this can also be configured to be one of the other inputs to the 3025EMC.



Note: The EMC automatically adds 2 frames of I/O delay to account for the DVE functionality.

7.2.1. DVE Move Manager

There are two methods to create DVE moves for the EMC. Users can use Overture Media Designer to create primary and secondary DVE moves that are used by the EMC. Users also use Overture Media Manager to load the DVE moves onto the EMC. Please refer to the Overture Suite Users Manual on details on the creation and management of DVE moves on the EMC.

The other method is to use EMC-Setup's DVE Move Manager. This is selected on the main EMC-Setup screen.

The DVE Move Manager window will open. It will connect to the EMC (over serial or Ethernet based on comms setting) and show the current list of available DVE moves. There is an offline manager if you want to create the DVE moves offline.



Note: A maximum of 64 DVE Moves can be created per EMC channel.

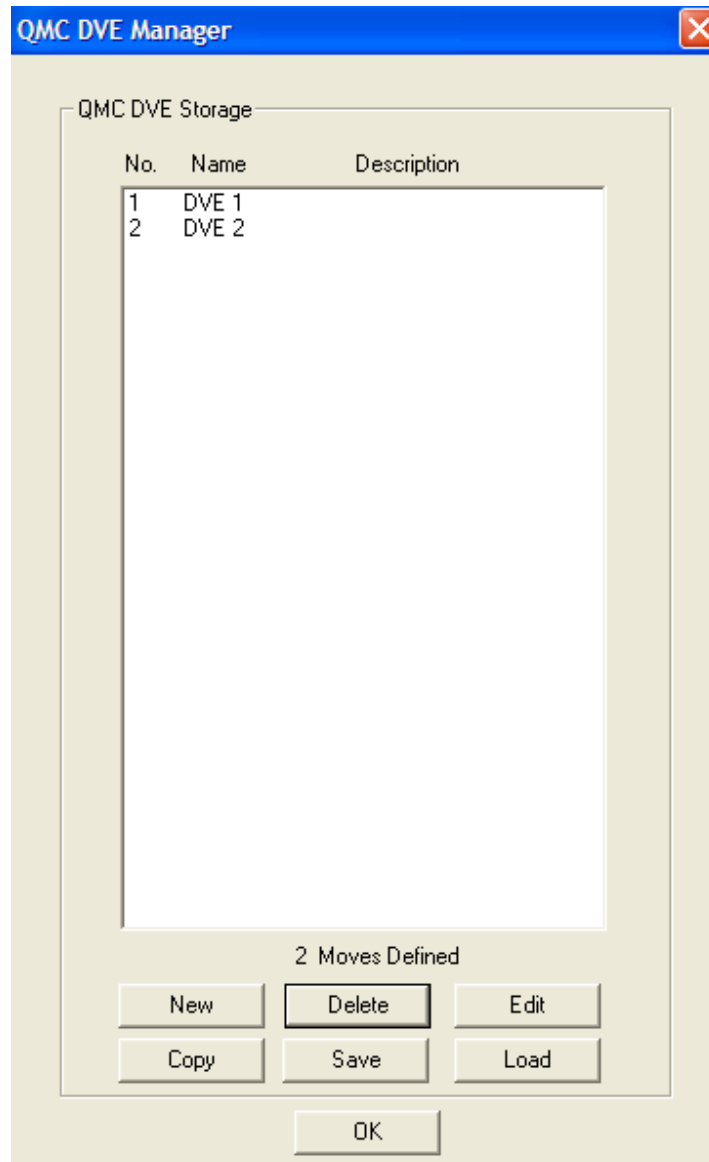


Figure 7-1: QMC DVE Manager

The choices available to select in this window are:

New: Create a new DVE move.

Delete: Delete the selected DVE move.

Edit: Edit the selected DVE move.

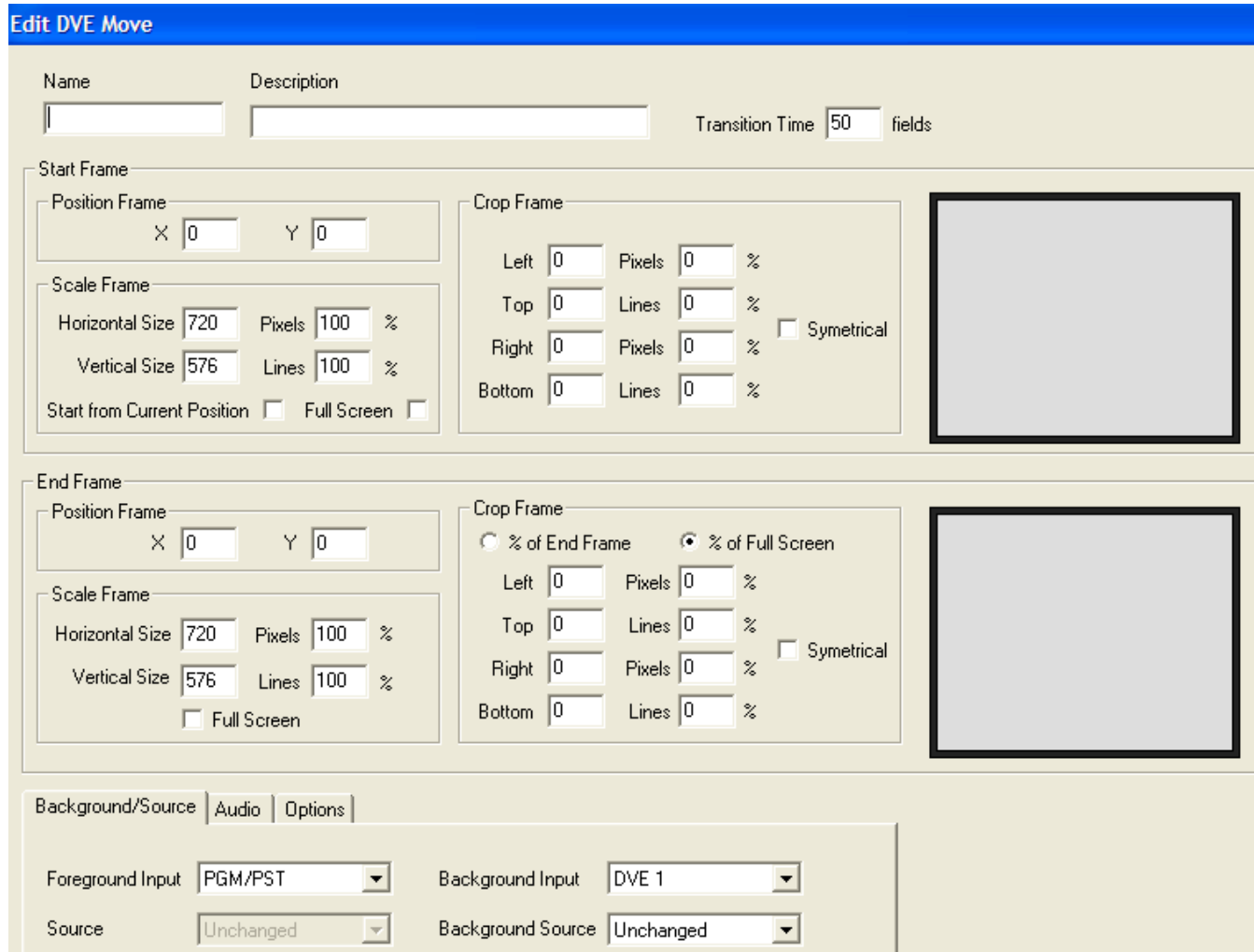
Copy: Copy the selected DVE move.

Save: Save the DVE moves to an external file located on the PC that will have a .dve extension.

Load: Load the DVE moves from an external file located on the PC that have a .dve extension.

7.2.2. Creating a DVE Move

When choosing either **New** or **Edit** from the main DVE manager, the user will see the main DVE move creation window (screen capture from EMC-Setup 5v71). This is where the DVE move is created.



Edit DVE Move

Name: Description: Transition Time: fields

Start Frame

Position Frame: X Y

Scale Frame: Horizontal Size Pixels %
Vertical Size Lines %
Start from Current Position Full Screen

Crop Frame: Left Pixels %
Top Lines %
Right Pixels %
Bottom Lines %
 Symmetrical

End Frame

Position Frame: X Y

Scale Frame: Horizontal Size Pixels %
Vertical Size Lines %
 Full Screen

Crop Frame: % of End Frame % of Full Screen
Left Pixels %
Top Lines %
Right Pixels %
Bottom Lines %
 Symmetrical

Background/Source | Audio | Options

Foreground Input: Background Input:
Source: Background Source:

Figure 7-2: Edit DVE Move Window

The functionality of the parameters used for a DVE move is as follows:

Name: This is the name of the DVE move. This is the name that will show up on the control panels. A maximum of 10 characters can be used. 5 characters for the top row of the key and 5 for the bottom row.

Description: This is a more in depth description of the DVE move.

Transition Time: This is how long the DVE move will take. This value is **fields** for interlaced video standards and **frames** for progressive standards.

7.2.2.1. Start Frame

This configures the start position of the DVE move. These settings are based on the video standard configured on the EMC. The DVE move editor has a box on the right side of the Start Frame section to allow users to see what they are doing with editing the start frame parameters.

Position: This is the X and Y co-ordinates of the starting position of the DVE. The (0, 0) co-ordinate represents the **top left corner** of the DVE move after the video has been cropped.

Horizontal Size: The horizontal size of the start frame can be defined by editing a specific number of pixels or a percentage of the full horizontal pixel length.

Vertical Size: The vertical size of the start frame can be defined by editing a specific number of lines or a percentage of the total number of vertical lines.

Full Screen: This checked if you want the starting frame to be full screen.

Start from Current Position: This checked if you want the starting frame to from the current position of the video. This move could be a continuation of another DVE move

Crop Frame: This allows the user to crop a portion of the start frame.

7.2.2.2. End Frame

This configures the end position of the DVE move. These settings are based on the video standard configured on the EMC. The DVE move editor has box on the right side of the End Frame section to allow users to see what they are doing with editing the end frame parameters.

Position: This is the X and Y co-ordinates of the end position of the DVE. The (0, 0) co-ordinate represents the **top left corner** of the DVE move after the video has been cropped.

Horizontal Size: The horizontal size of the end frame can be defined by editing a specific number of pixels or a percentage of the full horizontal pixel length.

Vertical Size: The vertical size of the end frame can be defined by editing a specific number of lines or a percentage of the total number of vertical lines.

Full Screen: This checked if you want the ending frame to be full screen.

Crop Frame: This will allow the user to crop a portion of the end frame.

7.2.2.3. Border



Note: DVE Border is currently NOT supported.

This allows the user to define border around the DVE move. The border of the DVE can be sharp with no colours, or with a soft edge with a colour. This section configures the parameter for the border.

- Horizontal Size:** The horizontal size of the border can be defined by editing a specific number of pixels or a percentage of the full horizontal pixel length.
- Vertical Size:** The vertical size of the border can be defined by editing a specific number of lines or a percentage of the total number of vertical lines.
- Inside Softness:** The inside of the border can have a softness applied to it. A value of 0% indicates no softness and a sharp inside edge for the DVE move.
- Colour:** A colour can be given to the border by specifying a particular Y, Cb, and Cr value or by selecting the Choose button for a colour palette.
- Outside Softness:** The outside of the border can have a softness applied to it. A value of 0% indicates no softness and a sharp outside edge for the DVE move.

7.2.2.4. Background/Source

For both a Primary DVE and Secondary DVE the user can configure both the foreground and background sources that will be used. In the below example, when the DVE Move is previewed the DVE Background Source will be DVE 1 (DVE 1 I/P) and the DVE Foreground Source will be PST.

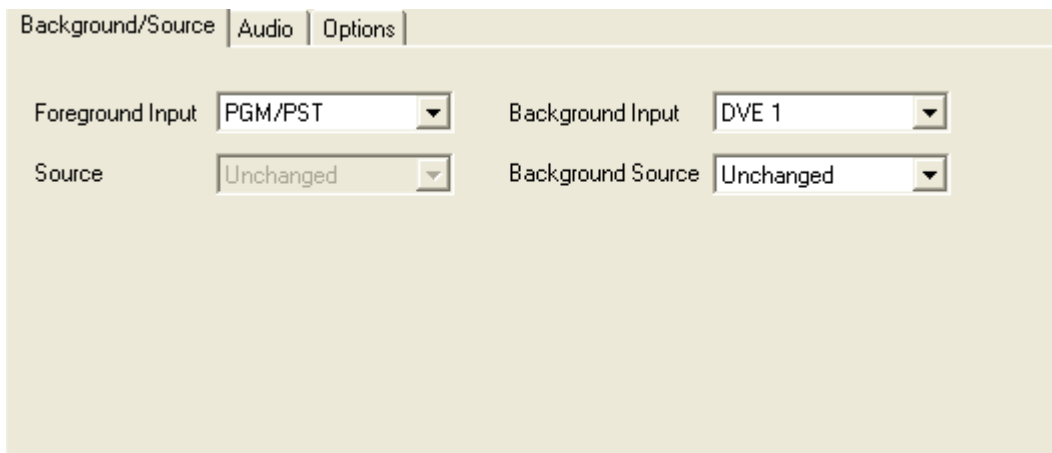


Figure 7-3: Background/Source Tab

Foreground Input: When the DVE is triggered this is the 3025EMC input that will be used for the DVE A or DVE B foreground. If the foreground input is configured for PGM/PST then the foreground will be PST if the move is previewed and PGM if the move is taken on-air. Other possible sources are KEY/FILL 1, 2 & 3, DVE 1 & 2, EMG and AUX 1, 2 & 3.

Source: If a source change is required on the specified input then the required upstream router source is configured here. Whenever the DVE move is either pre-selected or triggered this source will be routed to the specified foreground input selected. This will only happen if:

- (1). A Source is specified in this dialogue.
- (2). The upstream destination for the specified input has been configured in the channel upstream router tab.

- (3). If the 3025EMC is controlling the upstream router.
- (4). If the foreground input is NOT PGM/PST. The DVE engine purposely does not have access to route the PGM/PST source as part of a DVE move.

Background Input: When the DVE is triggered this is the 3025EMC input that will be used for the DVE A or DVE B background. If the background input is configured for PGM/PST then the background will be PST if the move is previewed and PGM if the move is taken on-air. Other possible sources are KEY/FILL 1, 2 & 3, DVE 1 & 2, EMG and AUX 1, 2 & 3.

Source: If a source change is required on the specified input then the required upstream router source is configured here. Whenever the DVE move is either pre-selected or triggered this source will be routed to the specified foreground input selected. This will only happen if:

- (1). A Source is specified in this dialogue.
- (2). The upstream destination for the specified input has been configured in the channel upstream router tab.
- (3). If the 3025EMC is controlling the upstream router.
- (4). If the foreground input is NOT PGM/PST. The DVE engine purposely does not have access to route the PGM/PST source as part of a DVE move.

If both DVE A and DVE B are on-air at the same time (possible when either DVE-2D or DVE-2D-2 options have been purchased) and the background inputs are different then whichever DVE, A or B, currently has priority the background source for this DVE will be used.

7.2.2.5. Audio Source

This control allows the user to specify the audio background source for the DVE move. This control will define if additional audio will be mixed with the Program or Preset sources.

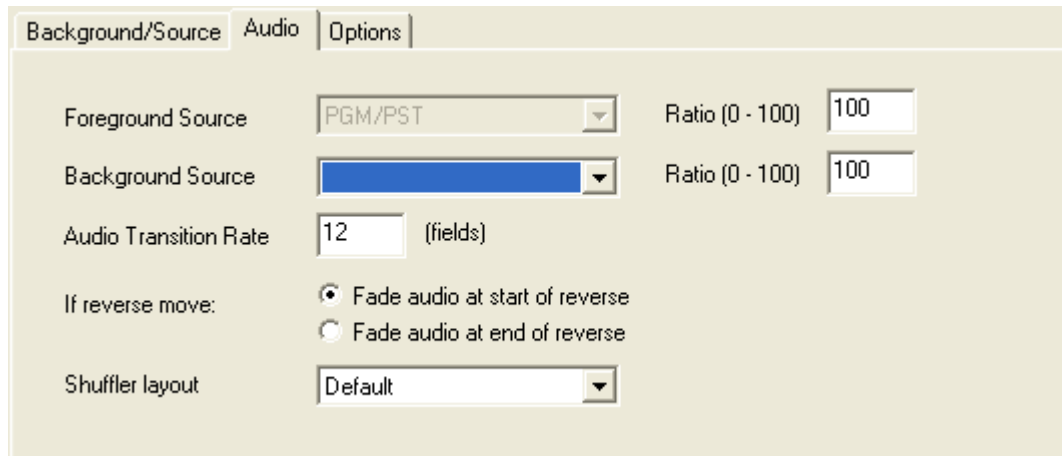


Figure 7-4: Audio Tab

Foreground Source: This is fixed to either Program (Take DVE-A) or Preset Input (Preview DVE-A) for either a DVE-A or DVE-B move. The ratio is set to a percentage of the overall audio. A value of 0% will indicate that the audio from PGM/PST will be muted during the DVE move.

Background Source: This is selectable from None, V/O1, V/O2, V/O3 or 4 for a DVE-A or DVE-B Move. The ratio is set to a percentage of the overall audio. A value of 0% will indicate that the audio from the Background Source will be muted during a DVE move. None specifies that no audio effects will take place during the DVE move, i.e. the PGM/PST audio will be unchanged as a result of the move taking place.

Audio Transition Rate: This is the transition rate that the audio is mixed during the Primary DVE move. This is represented in term of **fields** for interlaced and **frames** for progressive. This would normally be less than the transition rate of the DVE moves itself.

If Reverse Move: Either start fading the audio at the start of the move reverse or end of the move reverse.

Shuffler Layout: This allows for a stored shuffle profile to be applied to the Background audio during the DVE move.

7.2.2.6. Options

One of the options for the DVE move is to link moves together. This control allows for the DVE move to trigger other DVE moves when it's completed.

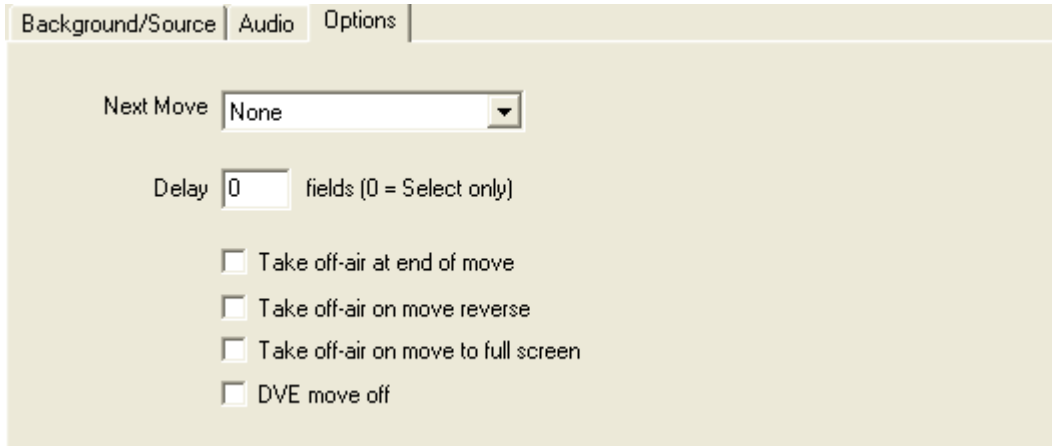


Figure 7-5: Options Tab

Next Move: Select which DVE move to trigger once this DVE move is completed

Delay: This is the delay (fields or frames depending on the video standard) to wait before triggering the next DVE move. 0 will select the next move only.

Take Off-air At End of Move: This will take the DVE Move off air when it is completed.

Take Off-Air on move reverse: This will configure the Move to go off-air at the end of the move reverse or not. Previously a DVE that returned to full screen on reverse would go off-air automatically, however now if a move is to go off-air on move reverse this checkbox is required.

DVE move off: When this is set all of the DVE Start Frame and End Frame settings will become unavailable. This setting configures the DVE move to go off-air when the DVE move is executed.

7.2.2.7. DVE SCALING AND CROPPING

Both the start and end frames of the DVE move can have scaling applied. By default when a DVE move is created using the DVE Move Manager in EMC-Setup both the start frame and end frame will be full screen, i.e. X=100% and Y=100%.

In order to scale the Foreground source for the DVE (as configured in the DVE Move) the user must apply a horizontal scale percentage/number of pixels (X) and a vertical scale percentage/number of pixels(Y).

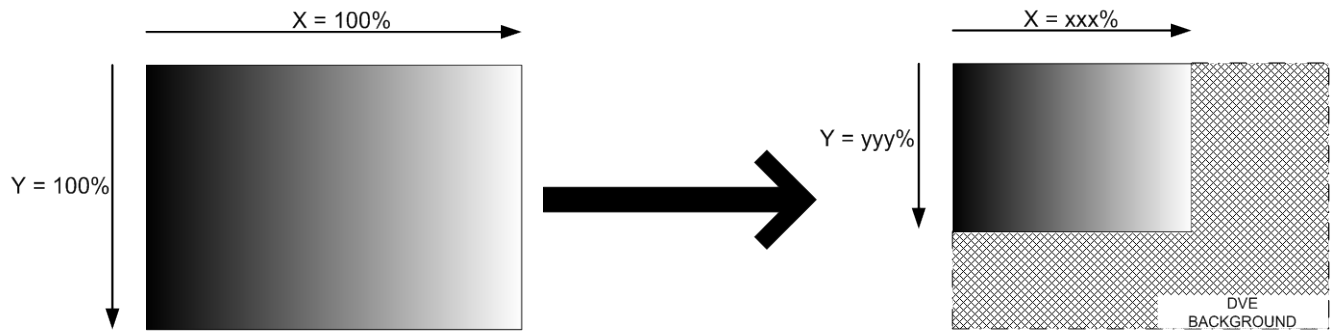


Figure 7-6: DVE Scaling

The number of fields/frames that the DVE move takes to scale from the start position to the end position is configured in the move as the **Transition Time**.

If there is NO CROPPING configured then the X/Y position is the position of the TOP LEFT CORNER after scaling.

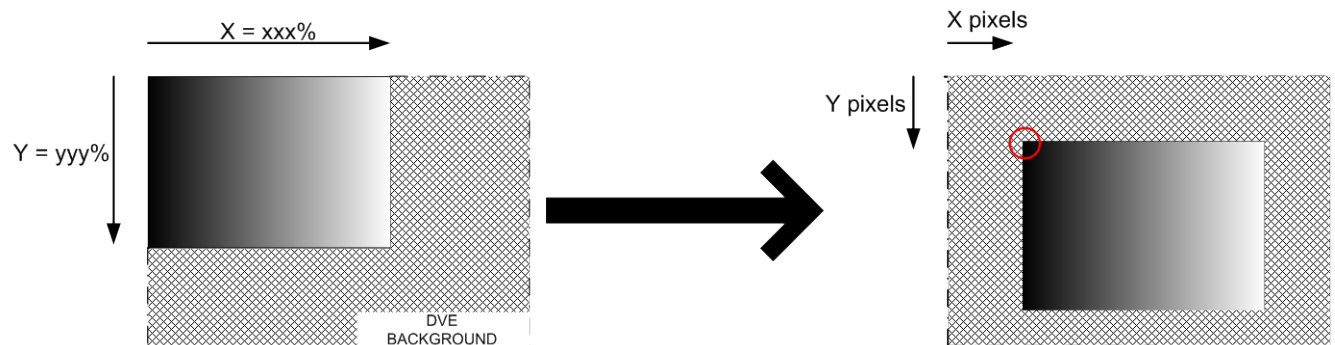


Figure 7-7: After Scale X/Y Position

Cropping can either be performed on a full screen DVE or on a DVE that has already been scaled.

If cropping is performed then the X/Y Position is the X/Y Position of the TOP CORNER OF THE CROPPED DVE and NOT of the scaled DVE. Cropping can either be performed as a percentage/number of pixels of the full screen (both start and end frame) or performed as a percentage/number of pixels of the scaled DVE (end frame only).

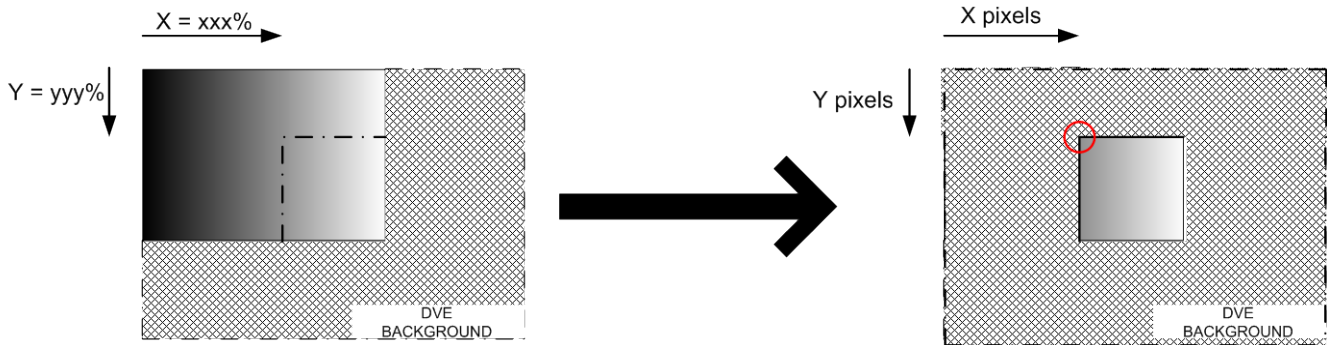


Figure 7-8: After Cropping X/Y Position



Note: If the DVE has been scaled **ONLY** then the X/Y position is based on the top left corner of the scaled DVE.



Note: If the DVE has been scaled and cropped then the X/Y position is based on the top left corner of the cropped DVE.

7.3. MACROS

The 3025EMC offers a feature called **Macros**. Macros allow users to define a timeline of actions and assign it to a macro number. This macro number can be recalled using the control panel, automation or GPI. The macro is an ideal tool to simplify a number of secondary events into a single action that can be used by either automation or operators.

7.3.1. Macro Manager

To create **Macros**, users need to use EMC-Setup Macro Manager. This is selected on the main EMC-Setup screen. There is an online or an offline Macro Manager if you want to create macros. The offline will create a file with an .MRO extension. The online Macro Manager will connect directly to the EMC and manage them directly, i.e. no configuration upload to the EMC channel required.

The **Macro Manager** window will open. It will connect to the EMC (over serial or Ethernet based on comms setting) and show the current list of available macros.



Note: A maximum of 255 Macros can be created per EMC channel. Each Macro can consist of up to 1000 separate actions.

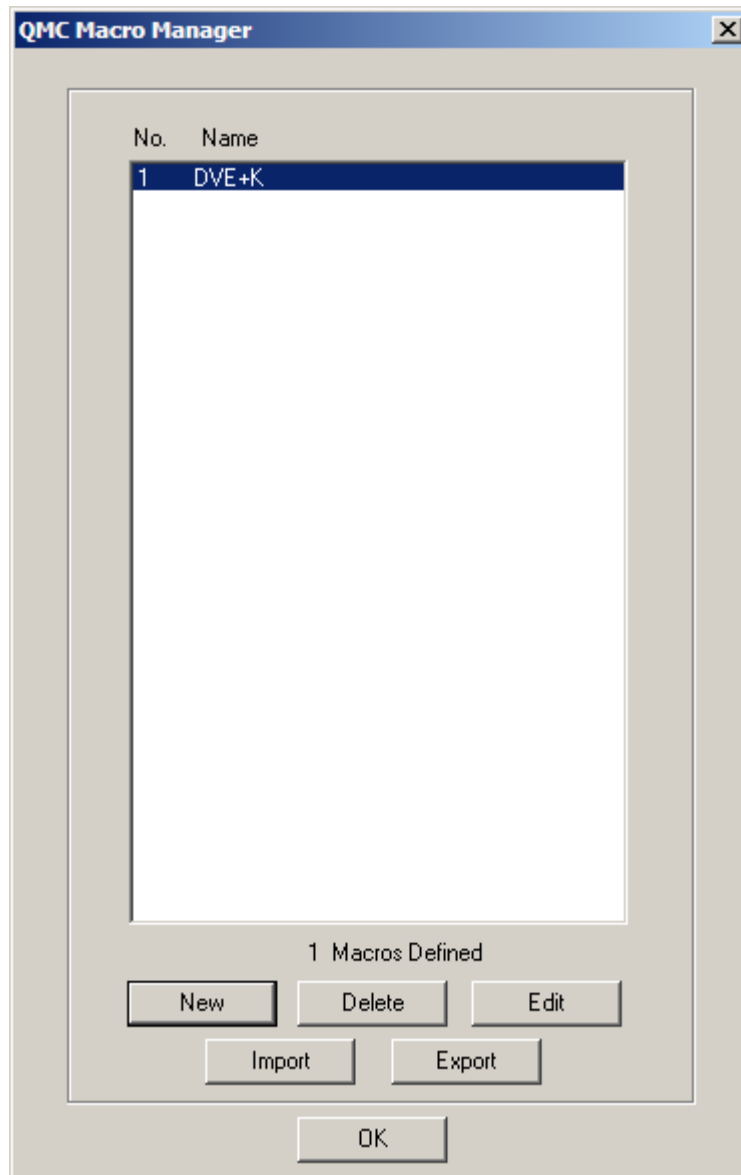


Figure 7-9: QMC Macro Manager Window

The choices available to select in this window are:

New: Create a new macro.

Delete: Delete the selected macro.

Edit: Edit the selected macro.

Import: Import macros from to an external file located on PC that will have an .mro extension.

Export: Export an external file located on PC that has an .mro extension.

7.3.2. Creating or Editing a Macro

When choosing either **New** or **Edit** from the main Macro Manager window, the user will see the main Macro Sequence Editor. This is where the **Macro** is created.

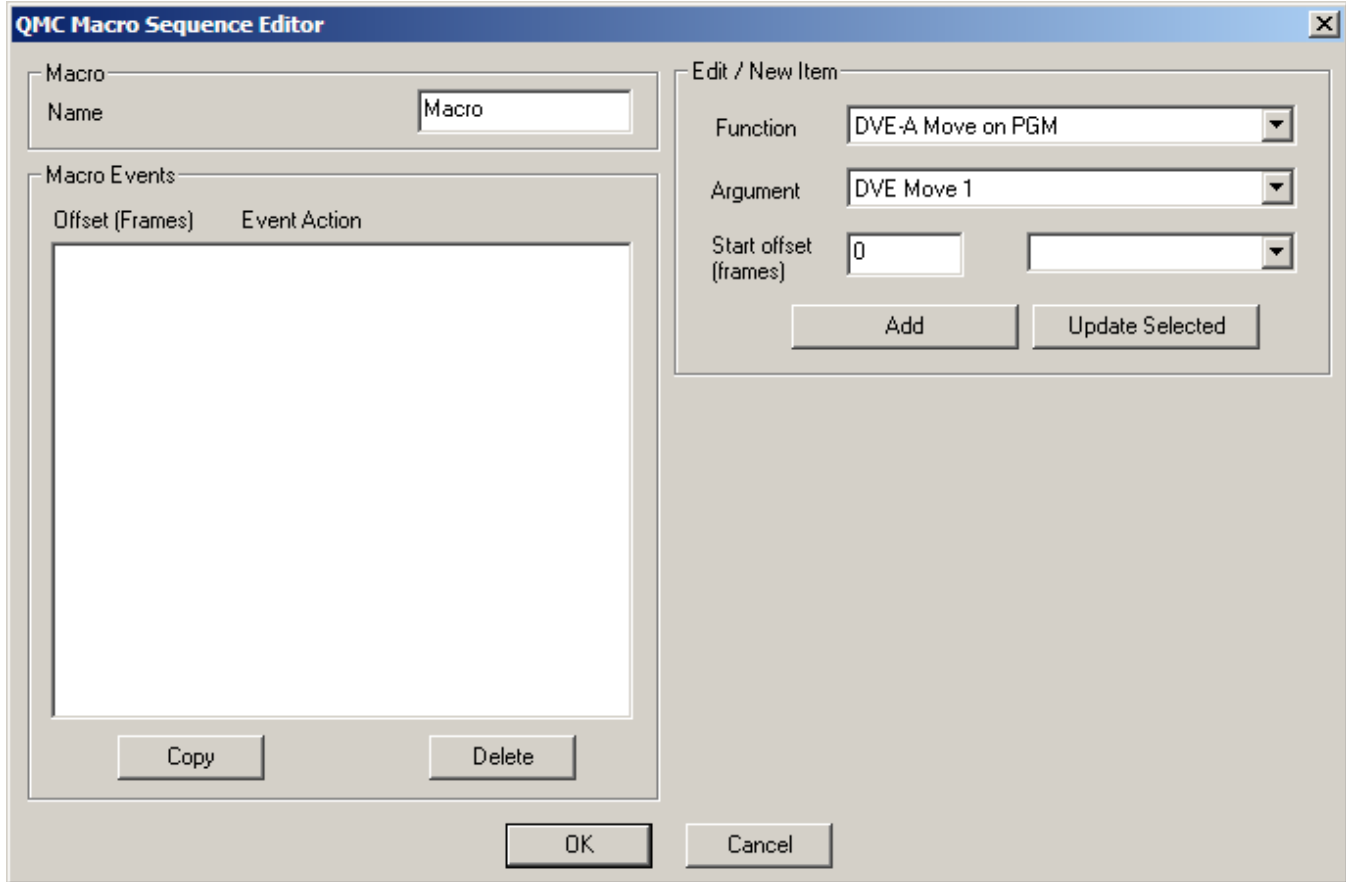


Figure 7-10: EMC Macro Sequence Editor

The **Macro Sequence Editor** builds a macro as a series of macro events in a timed sequence. Each macro event is added to the list of Macro Event with an offset relative to the start of the macro (time = 0). The time offset for each macro event is based on frames. As an example, a macro event can be set to start at time 0 (i.e. start as soon as the macro is called) or an offset from time 0 (i.e. start after some period of frames). Each macro event is based on the start offset.

The **Name** field is the text that will be displayed on the Macro Selection keys on the control panels. A maximum of 10 characters can be specified. 5 for the top 5 characters and 5 for the bottom.

The **Macro Events** is the list of events that the macro will perform in a timed manner. Users have an option to:

Copy: This copies the selected event.

Delete: This deletes the selected event.

7.3.2.1. Edit / New Item

This is list of the available events that can be called. These events are typical actions that exist on the EMC that can be recalled by automation or GPs. Each event will have a function, argument, start offset, and parameter (beside start offset). The start offset is a value based on the start of the macro event. Users can **Add** or **Update Selected** events to the Macro Events table.

Function	Description	Argument	Parameter
DVE-A Move on PGM	Select a Primary DVE move on Program Bus	DVE Move 1 to 64	None
DVE-B Move on PGM	Select a Secondary DVE move on Program Bus	DVE Move 1 to 64	None
DVE-A Move on PVW	Select a Primary DVE move on Preset Bus	DVE Move 1 to 64	None
DVE-B Move on PVW	Select a Secondary DVE move on Preset Bus	DVE Move 1 to 64	None
DVE Priority	Set the priority of the DVE Move if Primary and Secondary are used. The highest priority will be on top.	DVE-A is highest, DVE-B is highest	None
DVE-A Off-air	Take Primary DVE move Off Air.	None	None
DVE-B Off-air	Take Secondary DVE move Off Air.	None	None
DVE-A Transitional	This puts the Primary DVE move in a transitional state.	None	None
DVE-B Transitional	This puts the Secondary DVE move in a transitional state.	None	None
DVE OFF	DVE A PGM	Remove Primary DVE from PGM.	None
	DVE A PVW	Remove Primary DVE from PST.	
	DVE B PGM	Remove Secondary DVE from PGM.	
	DVE B PVW	Remove Secondary DVE from PST.	
	ALL PGM	Remove ALL active DVEs from PGM.	
	ALL PVW	Remove ALL active DVEs from PST.	
	ALL DVE	Remove ALL active DVEs from both PGM & PST.	
Extended Audio On Air	Not Supported.		
Extended Audio Off Air	Not Supported.		
Keyer On Air	Take the Keyer layer On Air	KEY-1, KEY-2, KEY-3, KEY-4	None
Keyer Off Air	Take the Keyer layer Off Air	KEY-1, KEY-2, KEY-3, KEY-4	None
Select Logo	Not Supported		
Voice-overs On Air	Take the Voice Over layer On Air	SO-1, SO-2, SO-3, SO-4, SO-5	None

Voice-overs Off Air	Take the Voice Over layer Off Air	SO-1, SO-2, SO-3, SO-4, SO-5	None
PGM Shuffle Store	Recall an audio shuffle store on to Program bus	Shuffle Store 1 to 16	None
PST Shuffle Store	Recall an audio shuffle store on to Preset bus	Shuffle Store 1 to 16	None
PGM Audio Input Store	Recall an audio input store on to Program bus	Store 1 to 10	None
PST Audio Input Store	Recall an audio input store on to Preset bus	Store 1 to 10	None
PGM Audio Input Settings Default	Reset audio input settings to default on the Program bus	None	None
PST Audio Input Settings Default	Reset audio input settings to default on the Preset bus	None	None
VO1 Shuffle Store	Recall an audio shuffle store on for Voice Over 1	Shuffle Store 1 to 16	None
VO2 Shuffle Store	Recall an audio shuffle store on for Voice Over 2	Shuffle Store 1 to 16	None
Media Select Logo	Select Media	Media Items 1 to 100. This is by the location in the media list that the item appears.	
Media Cue	Cue Selected Media	None	
Media Fade In	Fade in Selected Media	None	
Media Fade Out	Fade Out Selected Media	None	
Media Fade Out All	Not Supported	None	
VO3 Shuffle Store	Recall an audio shuffle store on for Voice Over 3	Shuffle Store 1 to 16	None
VO4 Shuffle Store	Recall an audio shuffle store on for Voice Over 4	Shuffle Store 1 to 16	None
VO5 Shuffle Store	Recall an audio shuffle store on for Voice Over 5	Shuffle Store 1 to 16	None
PGM Audio Ratio	Set the ratio for PGM bus audio channels.	Ratio from 1 to 100%.	None
PST Audio Ratio	Set the ratio for PST bus audio channels.	Ratio from 1 to 100%.	None
VO1 Audio Ratio	Set the ratio for VO1 bus audio channels.	Ratio from 1 to 100%.	None
VO2 Audio Ratio	Set the ratio for VO2 bus audio channels.	Ratio from 1 to 100%.	None
VO3 Audio Ratio	Set the ratio for VO3 bus audio channels.	Ratio from 1 to 100%.	None
VO4 Audio Ratio	Set the ratio for VO4 bus audio channels.	Ratio from 1 to 100%.	None
VO5 Audio Ratio	Set the ratio for VO5 bus audio channels.	Ratio from 1 to 100%.	None

Dolby Encoder On	Take a Dolby Encoder On-Air	Encoder Number	None
Dolby Encoder Off	Take a Dolby Encoder Off-Air	Encoder Number	None
Dolby Encoder Level On	Set a Dolby Encoder to be On-Air after the next transition	Encoder Number	None
Dolby Encoder Level Off	Set a Dolby Encoder to be Off-Air after the next transition	Encoder Number	None
GPO Trigger	Trigger an EMC GPO. EMC GPO must be configured as "GPO SYSTEM EVENT". Parameter 1 is always 4 and Parameter 2 is the active length in frames.	GPO Number	None.
Dolby Encoder Auto On	Enable the Dolby-E Encoder On/Off auto-detect functionality.	Encoder Number and Bus	None
Dolby Encoder Auto Off	Disable the Dolby-E Encoder On/Off auto-detect functionality.	Encoder Number and Bus	None
Soft Reset	Perform a soft reset of the channel from the panel.	Must be in Emergency Mode OR Just do it with no safeguard.	None
Run GPI Script	Run a pre-configured GPI script	Open 1-15 or Closed 1-15	None
UDX Level ON	Set the Level ON for Up Mix, Down Mix 1 or Down Mix 2.	Up Mix, Down Mix 1 or Down Mix 2.	None
UDX Level OFF	Set the Level OFF for Up Mix, Down Mix 1 or Down Mix 2.	Up Mix, Down Mix 1 or Down Mix 2.	None
UDX On-Air	Set On-Air for Up Mix, Down Mix 1 or Down Mix 2.	Up Mix, Down Mix 1 or Down Mix 2.	None
UDX Off-Air	Set Off-Air for Up Mix, Down Mix 1 or Down Mix 2.	Up Mix, Down Mix 1 or Down Mix 2.	None

Table 7-3: Macro Events

7.4. MARKETS

The 3025EMC offers a feature called **Markets**. This feature is typically used in multi-channel systems to group similar channels together. Markets allow the user to control multiple channels at once. This is useful for manually operating a simulcast.



Note: Automation systems can NOT control markets. Markets are only available for manual operation.

7.4.1. System Markets

To create or edit Markets, the user selects the **Markets** button on the main EMC-Setup page. The System Market window will open up.

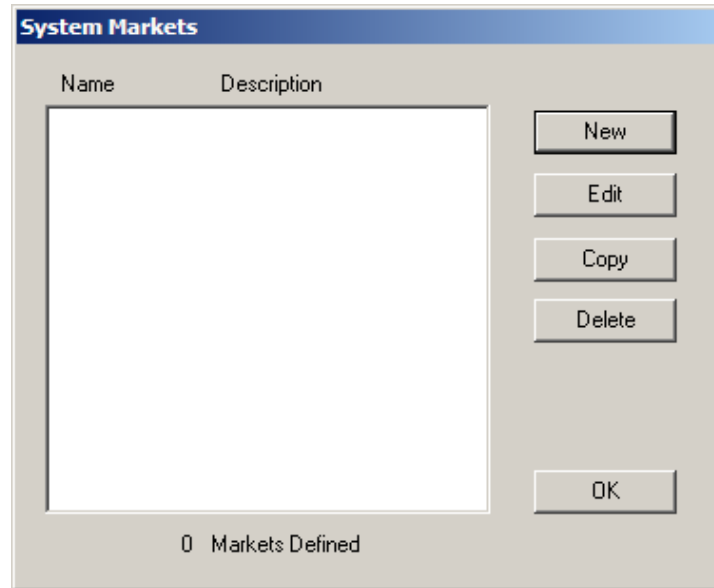


Figure 7-11: System Markets Window

The choices available to select in this window are:

- New:** Create a new market.
- Edit:** Edit the selected market.
- Copy:** Copy selected market.
- Delete:** Delete the selected market.

7.4.2. Creating / Editing Markets

The **Edit Market** window will open up if the user selects **New** or **Edit** from the System Markets window. These parameters allow the user to define the Markets.

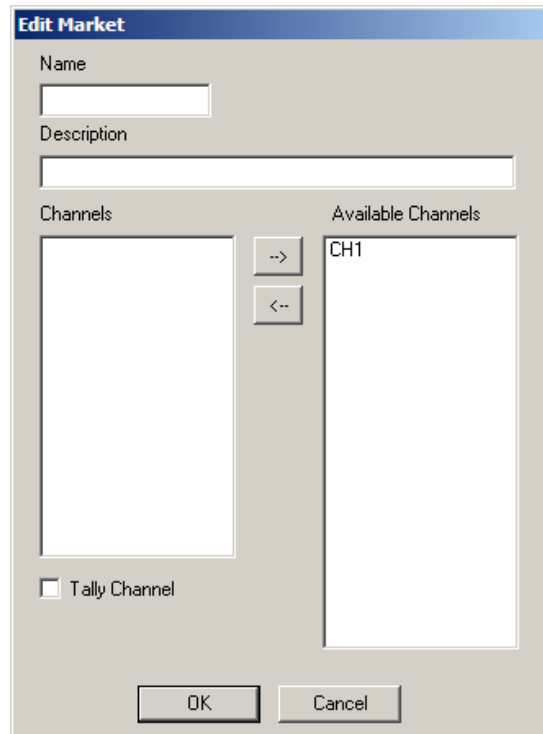


Figure 7-12: Edit Market Window

Name: Enter a name for the Market. This will be used by the control panels. Maximum length for the market name is 10 characters.

Description: Enter a useful description that will help you identify this Market.

Channels: Use the arrow button (--> and <--) to move already defined channels from the **Available Channels** box.

Available Channels: This lists all the channels that have already been defined in the **Mixer Channels** dialog.

Tally Channel: Tick this box for the channel that will be the master tally back for the Market. Only **one** channel can be the tally channel for a market.

The channels that are part of the market can be changed from the control panels and saved on a per panel basis. This also applies to the Tally channel.

7.5. NETWORK PANEL SETTINGS

A very important step for creating an EMC system is to assign channels that will bring online and poll the panels. The EMC control panels require an EMC channel that will both upload the panel configuration and poll the panel to keep it online. The Network Panel Settings under the main EMC-Setup window allows the user to configure this control.

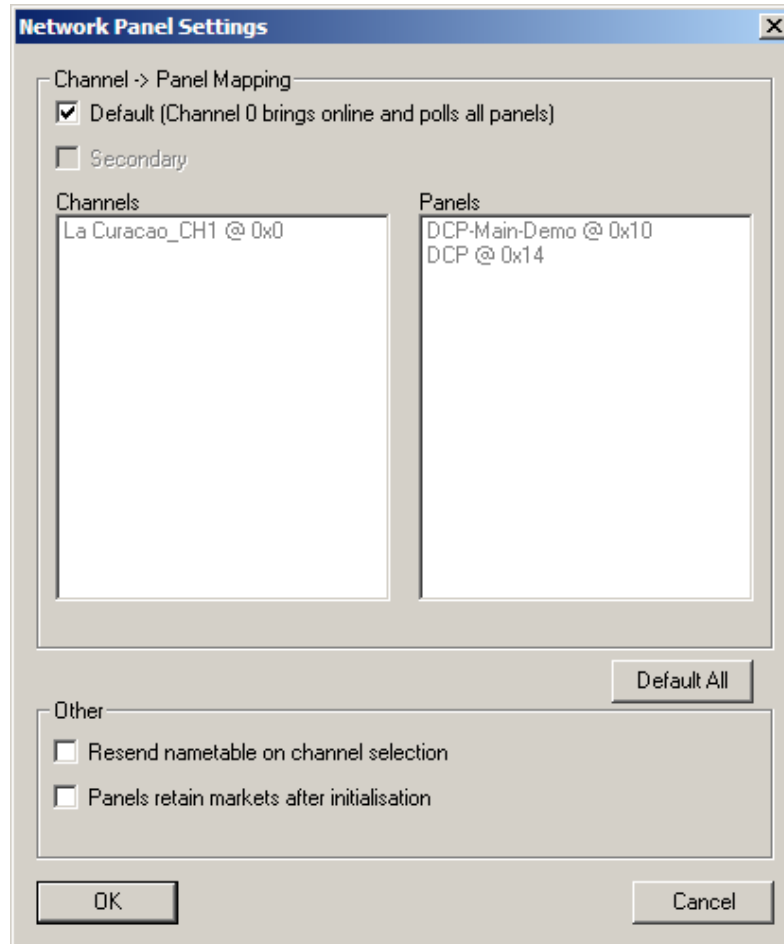


Figure 7-13: Network Panel Settings

Default: This box will be set by default until configured by the user, the default behavior is for Channel 0x00 to upload the configuration to the panel and send it online poll messages. If this box is unchecked, the user can select which channels upload configuration and online poll which panels.



NOTE: If the channel that brings up a panel is taken off-line, the panel(s) assigned to that channel will also go off-line. It is recommended to configure (when possible) a Secondary channel to keep the panel online.

Secondary: This is the secondary channel that will keep a panel online with online polls. If the primary channel goes off-line, then the panel will be maintained in an online state by this secondary channel.

Resend nametable on Channel Selection: When a channel is selected it will resend the nametable to the panel that requested to control this channel. The nametable consists of channel names, source names and market configuration.

Panels retain markets after initialization: This is used in conjunction with the above checkbox. Because the nametable contains the market configuration, when the nametable is resent to the panel any changes that were made to the markets manually on the panel will be erased unless this setting is enabled.

7.6. AUTOMATION CONTROL

The 3025EMC can be connected to automation and scheduling systems to allow fully automatic operation. The Switcher currently supports a protocol based on the GVG/Tektronix M2100 protocol, which is Quartz RCP-37 protocol. This protocol has been tested with the following third party equipment:

Manufacturer	Product
Aveco	Automation system, Astra
Etere	Automation system
Florical	Automation system
Harris-D Series (formerly DAL or Drake Automation and Encoder)	Automation system, A7500
Harris (Louth)	Automation system, Louth NT version
Ibis	Automation system
Pebble Beach	Automation system
Philips	Automation system, MSL4000
Probel	Automation system , Compass, Morpheus
SGT	Automation system
Shanghai TV	Custom automation system
Sundance	Automation system

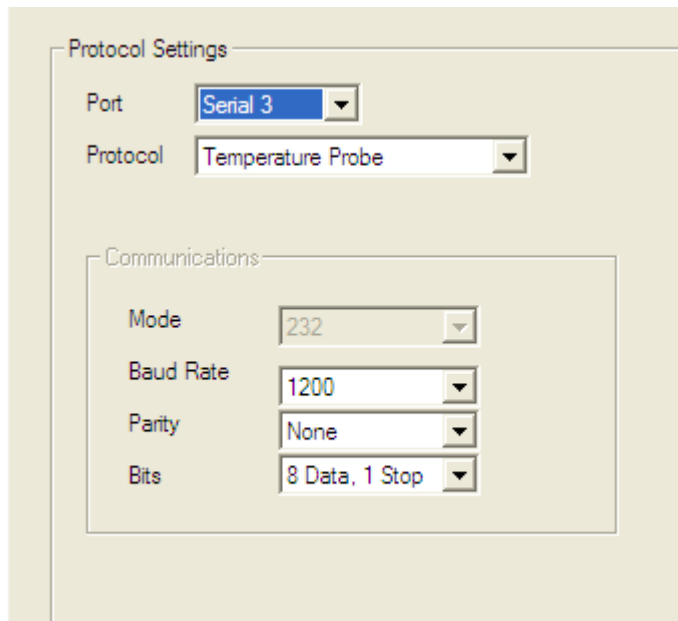
Some automation vendors will control all of the functionality available via the Quartz RCP-37, however, some just support the standard commands from the original GVG protocol. Please contact your automation vendor for more information. The EMC supports logging to help locate Automation/manual control problems.

8. CONFIGURATION

8.1. SETTING UP THE TEMPERATURE PROBE (+TP OPTION)

The EMC is available with an optional temperature probe that is used to input data for display in a temperature logo. Consult the temperature probe manual for information on installing the temperature probe. Connect the temperature probe power adapter to the probe unit. Connect the temperature probe to an available RS-232 port (AUX-IO1 DB3 or DB4, AUX-IO2 DB3) of the breakout panel connected on the EMC.

The temperature probe ships with an adapter cable to convert its RJ45 connector to a standard 9 pin D connector. The RJ45 plugs into the temperature probe. You will need to create a straight-through 9 pin male to female cable of the desired length according to the diagram in Table 8-1 to connect the probe to the 3025EMC. The serial port on the 3025EMC must be set for RS-232 operation, Temperature Probe (Protocol), 1200 Baud Rate, No Stop Bits, 8 Data bits and 1 Stop bit.



The image shows a software configuration window titled "Protocol Settings". It contains two main sections: "Protocol Settings" and "Communications".

- Protocol Settings:**
 - Port: Serial 3 (dropdown menu)
 - Protocol: Temperature Probe (dropdown menu)
- Communications:**
 - Mode: 232 (dropdown menu)
 - Baud Rate: 1200 (dropdown menu)
 - Parity: None (dropdown menu)
 - Bits: 8 Data, 1 Stop (dropdown menu)

Figure 8-1: Temperature Probe Settings

3025EMC End			Temperature Probe End			
	9 pin D Male	Pin	Belden 9729	9 pin D Female	Pin	
<p>MALE</p>		1			1	<p>FEMALE</p>
	TxD	2	-----1a-----	RxD	2	
	RxD	3	-----1b-----	TxD	3	
		4		Rx Gnd	4	
	Gnd	5	---drain 1---	Gnd		
		6			6	
		7			7	
	Power +V	8	-----2a-----	Power +V	8	
		9			9	
Frame Gnd	Shield	---drain 2---	Frame Gnd	Shield		

Table 8-1: Temperature Probe Extender Cable



The temperature probe cable should not exceed 1000 feet.

Because the Temperature Probe operates at a relatively low serial baud rate (1200), it can take a few minutes for the communications between the EMC and temperature probe to initialize fully.

For debugging the EMC and probe connection the “tsnsorsoft” logging can be enabled in the syslog.conf file. This will display serial or IP logging of the comms between the EMC and the temperature probe. For more details on logging configuration see section 4.10.5.

8.2. CONFIGURING THE EAS (+E OPTIONED UNITS ONLY)

8.2.1. Serial

When the EAS option (+E) is added to the EMC, it has the ability to key Emergency Alert messages received from a Sage, TFT, Trilithic or DASDEC EAS Decoder over a serial or IP connection (dependent on EAS device). The Emergency Alert Messages are inserted over program video and program audio. In order to insert the audio you will have to convert the analog audio from the decoder to AES and connect it to the AES Inputs of the EMC. See chapter 8.3 for more information on connecting and configuring the EAS decoder.

8.2.1.1. TCP/IP

Alternately, the EMC can be configured to receive EAS messages and audio over TCP. The EMC firmware implements the DVS/168 protocol, referred to informally as EAS over TCP/IP. FTP is used to send text files to insert as crawls and WAV files to play as audio clips.

EAS over TCP/IP (EAS over Ethernet) is supported with Trilithic's EASy Plus box and DASDEC. For further details, refer to the step-by-step instructions in the Trilithic "EASyPlus" Setup Tech Note.

8.3. EAS DECODER INTERFACE (EAS OPTIONED UNITS ONLY)

The EMC with the EAS option fitted is the perfect solution for on-air insertion of channel branding bugs and Emergency Alert System messages. The EMC is designed to interface with serial port based EAS decoders and to Ethernet based EAS decoders. The emergency alerts from these decoders are inserted over the program video and/or audio.

This section describes how to connect the Sage, TFT or DASDEC serial port based EAS decoders to the EMC, how to configure those decoders and the EMC and to perform tests to verify the system is functioning properly. The Setup of the Trilithic over serial is similar to the Sage serial setup (however, we do not have a Trilithic Decoder Configuration section at this time).

For instructions on configuring the Trilithic EAS decoder for operation over TCP refer to the Technical Note titled, "Trilithic EASyPlus Setup". For using the DASDEC device over TCP, refer to the DASDEC guide (section 8.3.4).

8.3.1. Connecting the EMC to the EAS Decoder

Make sure that the basic video and audio connections are wired. You will also have to route the output program video to an appropriate monitor to view the on-screen scrolling messages generated by the EMC's built in character generator. Please ensure that your EMC is out of the broadcast path when testing functionality. Figure 8-2 gives a simplified connection overview.

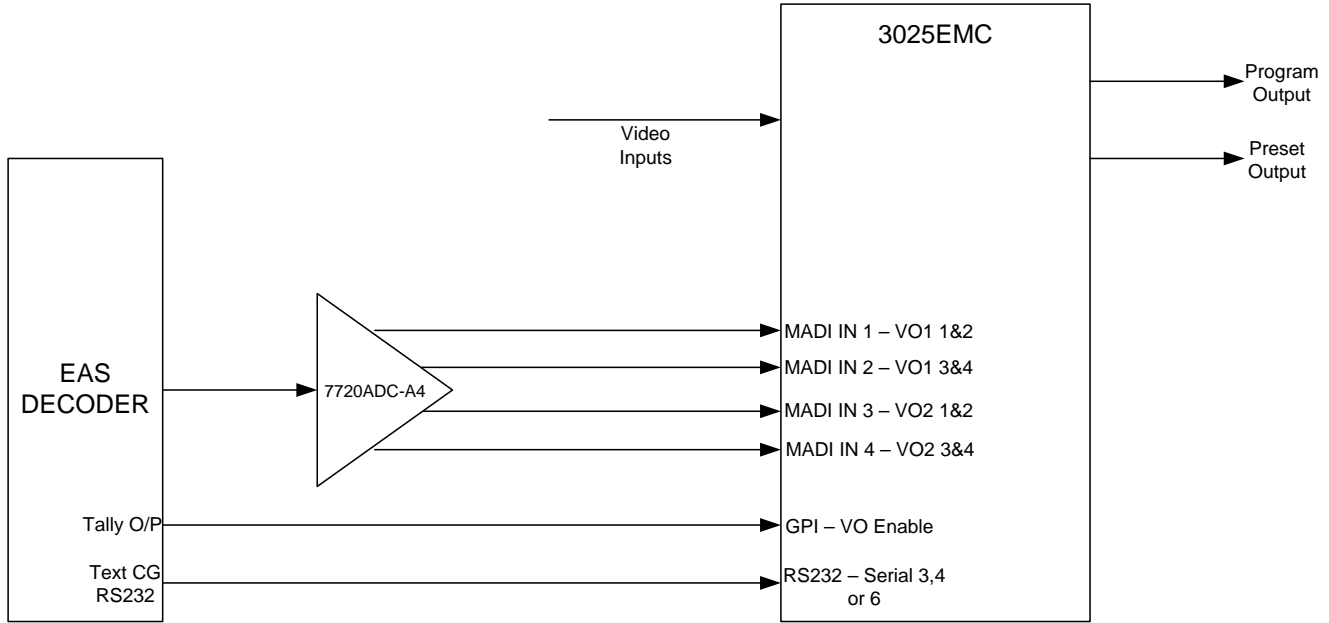


Figure 8-2: AS Decoder Connection

8.3.2. Connecting the Serial Port

Connect a straight-through RS232 cable (shipped with unit) to serial 3, 4 or 6 (if the additional AUX I/O breakout is connected to the EMC). The other end of the cable will connect to the EAS decoder. (See the section specific to your encoder manufacturer). For a permanent installation, you will require a custom length cable that fits between the EAS decoder unit and the EMC. You can purchase any off the shelf 9 pin straight-through serial cable, or you may make this cable yourself according to the cable drawing in Table 8-2. **This cable should not exceed 50 feet.** Note that an RS232 serial port on the EMC must be used.

3025EMC End				EAS Decoder End		
9 pin D Male	Pin	Belden 9729	9 pin D Female	Pin		
<p>MALE</p>	1			1	<p>FEMALE</p>	
	TxD	2	-----1a-----	RxD		2
	RxD	3	-----2b-----	TxD		3
		4		Rx Gnd		4
	Sig Gnd	5	---drain 1---	Sig Gnd		
		6		Tx Gnd		6
	RTS	7	-----1b-----	CTS		7
	CTS	8	-----2a-----	RTS		8
		9				9
Frame Gnd	Shield	---drain 2---	Frame Gnd	Shield		

Table 8-2: EAS Decoder Extender Cable

If you are using a Sage model EAS decoder please see section 8.3.3 for port configuration information. If you are using a TFT model EAS decoder please see section 8.3.4 for port configuration information. If you are using a DASDEC model EAS decoder please see section 8.3.5.

8.3.3. Sage Decoder Configuration

The Sage provides six serial ports that can be used for a variety of purposes. Each serial port is wired like a standard PC 9-pin connector. Refer to the Sage manual for specific port pin outs. (They are contained in section 12 of their manual at the time of this writing.) Plug the female end of the straight-through RS232 cable into the COM 2 port of the Sage decoder. If this port is already in use, you may use the COM 6 port.

The Sage port must be configured to output the type of data that the EMC is expecting. To configure the sage decoder, follow the steps outlined below.

- 1) Press **Menu**
- 2) Scroll down to *Devices*
- 3) Press **Enter**
- 4) Scroll down to *COM2* or *COM6* (depending on the COM port you connected to)
- 5) Press **Enter**
- 6) Scroll down to *Device Type*
- 7) Press **Enter**
- 8) Scroll down to *Generic CGEN*
- 9) Press **Enter**
- 10) Enter *Password*
- 11) Scroll up to *Go Back*
- 12) Press **Enter**

Your Sage is now configured to work with the EMC. Proceed to section 8.3.6 to connect the audio and GPI controls, to configure the EMC and verify that the connections are functioning as expected.

8.3.4. TFT Decoder Configuration

The TFT unit has a number of communications ports on the rear of the unit marked as COM 1 to COM 3 and J103 and J104. The baud rate is fixed at 9600 within the EMC and it is configured to communicate using the *Alternate TFT I/F for Trilithic EAS Systems ALT1 option*. This means you must plug the female end of the straight through RS232 cable into the COM 2 port of the TFT decoder and configure the port accordingly. The serial port is wired like a standard PC 9-pin connector. This will require that your TFT unit be equipped with the Four Port Expander Board option. If your unit is not so equipped, please contact TFT and order this field installable option.

The TFT port must be configured to output the type of data that the EMC is expecting. To do this, follow these steps on the TFT unit.

- 1) Press **Password**
- 2) Enter *Primary Password*
- 3) Press **Password**
- 4) Enter *Setup Password*
- 5) Scroll down to item 18 *Enable Character Generator Interface*
- 6) Press **Enter**
- 7) Scroll down to *Alt1 Alternate TFT I/F for Trilithic EAS Systems*
- 8) Press **Enter**
- 9) Scroll down to item 27 *Enable CG Text for RWT*
- 10) Press **Enter**
- 11) Scroll up or down to *Yes*
- 12) Press **Enter**
- 13) Press **Exit**

Your TFT unit is now configured to work with the EMC. Proceed to section 8.3.5 to connect the audio and GPI controls, to configure the EMC and verify that the connections are functioning as expected.

8.3.5. DASDEC Decoder Configuration (SERIAL)

The DASDEC unit will likely only have one 9-pin serial port on the rear of the unit. Connect a **straight through** serial cable between the serial port on the back of the DASDEC and the required RS232 serial port of the 3025EMC.

To configure the DASDEC follow these steps:

1. Connect to the unit using the web based configuration tool. The Default username and password is normally "Admin" and "dasdec" respectively.
2. When logged in, choose **Setup** then **Video CG**.
3. Under **Serial Port Configuration** select **Sage Generic CG**.
4. Under **Sage Generic CG Attribute Settings** configure the **Serial Baud Rate** to **9600**, and the **Serial Port Flow Control** to **None**.
5. Accept the changes then choose the **Encoder** tab then ensure that **Send EAS** is selected.
6. Configure the appropriate Alert Codes and FIPS locations as required.

7. Under the **Alert Origination Action Table** ensure that **SAGE_GENCG** is available as a **Serial Protocol**.

8.3.6. Connecting the Audio

The emergency audio from the Sage or TFT decoders must be converted to an AES audio stream before it can be used with the EMC. You can use the Evertz 7720ADC-A4 Analogue Audio to AES Converter module, or other suitable device to do this. Connect the AES1 output from the 7720ADC-A4 into the **MADI IN1, 2, 3, or 4** audio inputs on the EMC.

8.3.7. Connecting the GPI Tally Control

The EAS decoders give out a tally control to indicate when an EAS alert message is being broadcast. This tally output must be connected to one of the GPI inputs on the EMC to signal it to 'duck insert' the emergency audio into the program audio. For the sake of simplicity in this description connect the tally output from the decoder to the GPI 1 input on the EMC. The corresponding GPI should be configured for either "Voice over 1 On-Air" or "Voice over 2 On-Air" depending on which MADI input is used. Ensure that the required Voiceover is configured to use AES as the Format.

8.4. TESTING THE SYSTEM



Please ensure all output video from the EMC is out of your on-air broadcast path for this test.

8.4.1. Testing the Sage Decoder

On the Sage decoder:

- 1) Press **Week**
- 2) Enter *Password*
- 3) Press **Enter**

The video monitor should now show a scrolling EAS weekly test message. If you do not see the test message, double check your video connections and ensure that you have the correct video standard selected in the EMC. Double check that you have configured the correct Sage port and the correct Device Type for the correct port and that the serial cable is valid and connected to the correct ports. Check the Evertz Web site at www.evertz.com for any new firmware releases for the EMC. Check that you are running the most up to date firmware in your Sage decoder at www.broadcast.harris.com.

Evertz tested this configuration with the Sage decoder model 1822 with firmware version 5.111

8.4.2. Testing the TFT Decoder

On the TFT decoder:

- 1) Press **Weekly Test** button

The monitor should now show a scrolling EAS weekly test message. If you do not see the test message, double check your video connections and ensure that you have the correct video standard selected in the EMC. Double check that you have configured the correct CG Interface Type and that the serial cable is valid and connected to the correct ports. Check the Evertz Web site at www.evertz.com for any new firmware releases for the EMC. Check that you are running the most up-to-date firmware in your TFT decoder Phone: 1-800-347-3383.

Evertz tested this configuration with the TFT decoder model EAS 911 with firmware version T.838.

8.4.3. Testing the Dasdec Decoder (Serial)

From the DASEC web configuration:

- 1) From the **Encoder**→**Send EAS** tab click **Send EAS Alert**.
- 2) If prompted, click **Yes, Send Alert!**.

The monitor should now show a scrolling EAS weekly test message. If you do not see the test message, double check your video connections and ensure that you have the correct video standard selected in the EMC. Double check that you have configured the correct CG Interface Type and that the serial cable is valid and connected to the correct ports. Check the Evertz Web site at www.evertz.com for any new firmware releases for the EMC. Check that you are running the most up-to-date firmware in your TFT decoder.

8.4.4. Testing the Dasdec Decoder (IP)

This section outlines the procedure to configure the Evertz 3025EMC with the DASDEC “RP189” which supports EAS over Ethernet. Refer to the 3025EMC manual for details regarding EAS configuration menus.

Step-by-Step Instructions

1. Connect a standard CAT-5 network cable from the RJ45 port at the back of the EAS box into a routing hub or other network-switching device. You will likely need assistance from a network administrator to ensure that there will not be an IP conflict as the default IP address of the DASDEC will likely be 192.168.0.200.
2. Once the EAS box is powered up, booted and operational (status green) it can be accessed via a web browser from any remote computer on the LAN.
3. When prompted use “Admin” (no quotes) as the default username and “dasdec” as the default password. Click the Login button to start the web configuration session.
4. To configure the IP address of the EAS box, select Setup then Network and you will be presented with the network configuration dialogue. The current Main NIC IP address will be shown. Make the necessary changes to the IP address and subnet mask and then click Accept Changes/Restart Network.
5. To add the 3025EMC as a device, select Setup then Net Alerts. Under the Configure EAS Net Clients heading, ensure that the “Alert Forwarding to EAS_NET devices” and “Encoder Originated Alerts Sent to EAS_NET devices” options are both checked.

6. Next, click “Add EAS_NET Client Interface”. Select a new EAS_NET client and configure the following parameters (most settings will not need to be modified).
 - a. Client Interface Name – Evertz
 - b. ENABLE Client Interface – Enabled
 - c. Send EAS NET prior to alert playout – Disabled
 - d. Send National Alerts (EAN/EAT) – Disabled (a firmware upgrade might be required for the DASDEC unit to support EAN/EAT alerts)
 - e. Remote EAS NET Host IP Address – Enter the IP address of the 3025EMC
 - f. EAS_NET Event Transfer Protocol – DVS168
 - g. Remote EAS NET Host Port – 4098
 - h. Check to disable alert FTP to DVS/EARS device – Unchecked
 - i. EAS_NET User – easftp
 - j. EAS_NET Password – easftp
 - k. Short file names – Enabled
 - l. Pre-transfer batch FTP command mode – Disabled
 - m. Non-Passive, regular FTP port connection – Disabled
 - n. Omit Audio file send – Disabled
 - o. (Audio File Sample Size – 8 Bits/Sample
 - p. Audio File Sample Rate – 8000 Sample/sec (the 3025EMC only supports 8bit/8kHz at this time)
 - q. DVS168 4-byte Duration Format – Minutes
 - r. Other settings can be set to default
 - s. Click Accept Changes to add the 3025EMC as a EAS_NET client

“Evertz” will now appear as the name of a configured EAS_NET client

7. Next to configure the Encoder select Setup then Encoder. From the General/Main Encoder Configuration tab, in the “Configure Available EAS Types for Encoder Alert Origination Interfaces” dialogue ensure that the RMT Required Monthly Test and RWT Required Weekly Test EAS Codes are available. The EAS Station ID starts with the abbreviation for the state, followed by a series of numbers. This ID is used with all correspondences between the Cable Head End and the FCC.
8. A FIPS location must be added to the Encoder. If the FIPS pool is empty then EAS alerts can not be generated. Choose a FIPS State and County (for test) and then click Add. The FIPS that you specified will now appear in the list of available FIPS for the encoder interface.
9. Navigate to the Required Tests/Setup Encoder Weekly Test Options and ensure that a FIPS location has been added for the One-Button Weekly Test.
10. To configure the 3025EMC for EAS over IP follow the steps below:
 - a. From the EAS Tab of the EMC channel configuration in EMC Setup, click the EAS tab.

If the message “Failed to confirm EAS purchase option with the hardware” then check the IP Address is correct in the Options, Communications dialogue and also confirm that the EAS options is installed on the EMC.

- Type “.#98,V” from the EMC Setup Comms window and look for the EAS option in the MG add-on options.

OR

- Check the 3000EMC Backdoor Page from the EMC web browser and confirm that the EAS option is present.
 - a. Configure the EAS Vertical Position, EAS Font, EAS Height and EAS Rate accordingly. A True Type Font (ttf) file must be present in the logos folder of the EMC CF card (or on the NAS).
 - b. Configure the EAS Colour Settings for the Watch, Warning and Test foreground and background colours.
 - c. From the Audio Input Defaults/Stores tab, select VO4 and configure the channel gain and ratio accordingly.
 - d. In the same location configure the PGM Ratio to be 0%.
 - e. From the Audio Tab of the channel configuration, check that the V/O4 Bus in the Input Parameters dialogue is configured to use Audio Clips as the Format.
 - f. In the Audio shuffler Tab select V/O4 from the Audio Input drop-down menu and configure how the audio channels from the audio clip will be mapped. “N” configures that audio channel not to duck and not to mix in the alert tone audio.
 - g. Upload the configuration file to the 3025EMC Channel.

Triggering an EAS Test Message using the One-Button EAS

NOTE: National Emergency Action Notification (EAN) Alerts, EAN/EAT:

For both DASDEC and Trilithic EAS devices supporting DVS168: In order to enable “Send alert text for National Alerts EAN/EAT” so that the EAN/EAT text messages can be sent to the downstream device (Evertz keyer via IP), you must check this option in the EAS device setup page. Without this checkmark the EAN/EAT crawl will not be activated.

For DASDEC, the “Send alert text for National Alerts EAN/EAT” setting can be found under DASDEC's Web Browser page in SETUP-->NET ALERTS-->EAS NET -->Send National Alerts (EAN/EAT). *Enabled*. For Trilithic devices, please check the vendor's documentation.

NOTE: DVS-168 Digital E.A.S. Protocol IP based EAS implementations, where an audio wav file is sent to the Evertz keyer, will not suffice for National EAN alerts. Analog or digital audio from the EAS device must be used to connect audio to the Evertz keyer.

11. To trigger a test message, select Encoder then Send EAS. From this tab then select One Button EAS to open the Encode/Send One Button Weekly Test dialogue page. The “View alert header and standard translation” diagnostics checkbox should be checked as this will show you the message that the 3025EMC will display as an EAS Crawl. Click “Send Preconfigured Weekly Test!” to trigger the One-Button EAS test.

****Note**** The One Button Weekly Test can be triggered from a single click or front panel button press.

Triggering an EAS Test Message using the General EAS

12. The EAS Test can also be triggered from the General EAS/Send any EAS Alert dialogue box. Select the appropriate EAS Alert Code (RWT or RMT) and make the appropriate FIPS Location Codes available. The "View alert header and standard translation" diagnostics checkbox should be checked to view the message details. Add the Alert Audio Message as required. Click "Send EAS Alert", confirm the message details are correct in the EAS Test Dialogue then click "Yes, Send Alert!" to trigger the EAS Test.

Triggering a Standard EAS Message using the General EAS

13. Other EAS messages can also be triggered (Warning/Watch messages). Navigate to the Setup then Encoder page. Next, select General (Main Encoder) to show the configuration dialogue for the Main Encoder.
14. From the Configure Available EAS Types for Encoder Alert Origination Interfaces heading add a warning or watch EAS code, for example, AVW:AVALANCHE WARNING. Ensure that this is available as a configured EAS Code.
15. Navigate to the Encoder settings page then General EAS (Encode/Send any EAS Alert) tab. From the Select Alert EAS Code drop-down menu select the Warning/Watch code required (for this example the AVW: AVALANCHE WARNING). Next, from the available FIPS code locations, select the FIPS code locations that this watch/warning will apply to. Also, configure any Audio Alert Messages at this time.
16. Next, click "Send EAS Alert", confirm the message details are correct in the EAS Test Dialogue then click "Yes, Send Alert!" to trigger the EAS Test.
17. The V/O4 bus will activate automatically on the 3025EMC if there is associated EAS audio and will also duck the appropriate number of audio channels accordingly. The crawl text will play-out using the appropriate text and background bar font and colour as configured using QMC/EMC Setup.
18. The V/O4 bus will deactivate automatically when the EAS audio has been played out fully.
19. Both the WAV and TXT files that contain the EAS message crawl and audio source content will be removed from the 3025EMC CF card after the EAS message has been played out.

9. APPLICATION NOTES

9.1. CONTROL PANEL KEY TYPES

TYPE	NUMBER	FUNCTION	OTHER OPTIONS
Lock	Panel Lock	Lock ALL buttons on the control panel.	N/A
	Aux Lock	Lock the Bus Route key types	
Last Menu	Last Menu	N/A	N/A
Menu	Menu Number	Select the Primary Menu	Legend: Maximum of 10 characters. 5 top row and 5 bottom row.
Secondary Menu	Menu Number	Select the Primary Menu	Legend: Maximum of 10 characters. 5 top row and 5 bottom row.
Enable	N/A	With this key configured in a menu user will be unable to route the PGM and PST bus unless this key is held.	N/A
Learn Mode	N/A	Allows the user to re-programme PGM/PST sources when this key is used with the "Source Preset" key.	N/A
Automation On/Off	N/A	Toggles M2100 automation control of the EMC between enabled and disabled.	N/A
Bypass Toggle	N/A	Toggles the status of the PGM O/P 1 and CLN O/P 1 bypass relays.	N/A
Channel	Channel Name	Selects the currently controlled channel.	N/A
Market Key	Market	Put the panel in a mode that allows for multiple channels to be controlled at the same time.	N/A
Channel Preset	Not Supported		
Current Channel Display	N/A	Displays the channel that is currently being controlled by the panel.	N/A

Channel Parking	N/A	This is a LOCAL disable button. When pressed the key will change to red and all non-menu keys will be disabled. This can be removed by selecting any channel or market.	N/A
Channel Protect	Protect Channel Current	This is a GLOBAL disable button. When pressed the key on the local panel will change to red and the corresponding button on all other Ethernet control panels will change to orange. ONLY the local channel will have control over the specific channel all other panels will have no control over the channel. This can be removed by either PRESSING the channel protect button on the local channel (red) or HOLDING down the channel protect button on any other panel (orange).	N/A
GPI/O Lock	N/A	Lock the GPI/Os while this setting is active.	N/A
GPI/O Toggle	EMC GPI & EMC GPO DCP GPI & DCP GPO	See Section 9.2 for more details.	Only available on QMC-DCP & EMC-DCP.
GPI/O Assert	EMC GPI & EMC GPO DCP GPI & DCP GPO	See Section 9.2 for more details.	Only available on QMC-DCP & EMC-DCP.
GPO Activate	EMC GPO & DCP GPO	See Section 9.2 for more details.	Only available on QMC-DCP & EMC-DCP.
GPI Tally	EMC GPI & DCP GPI	See Section 9.2 for more details.	Only available on QMC-DCP & EMC-DCP.
On-Air Enabled	N/A	Route PGM sources when using "Preset/Program Source" key type.	Without this button held-down only preset sources can be changed using "Preset/Program Source" key type.

Upstream Dest Key	Input	Displays the current source that is routed to the corresponding EMC input.	N/A
	I/P using Source Preset	Route the corresponding destination that feeds the specified input to the EMC.	
Release Key	Not Supported		
Save	N/A	Used with Market and DVE Move Selection keys to save changes to Markets and DVE moves.	N/A
Tally Key	N/A	Used to change the tally channel within a market. Used with Channel key type.	N/A
Colour Adjustment Hue	Keyers	Not Currently Supported	N/A
	DVE	Not Currently Supported	
	Wipe	Not Currently Supported	
Colour Adjustment Luminance	Keyers	Not Currently Supported	N/A
	DVE	Not Currently Supported	
	Wipe	Not Currently Supported	
Colour Adjustment Saturation	Keyers	Not Currently Supported	N/A
	DVE	Not Currently Supported	
	Wipe	Not Currently Supported	
Buddy Panel Menu Update	N/A	Change the Menu on the buddy panel associated to this panel.	N/A
Buddy Panel Menu Follow	N/A	Change the Menu on the buddy panel associated to this panel and the local panel.	N/A
T-Bar Action	N/A	Toggle the T-Bar (if fitted) on/off.	N/A
Side Car Layout	Layout # (1-4)	Change the layout of the side car (if fitted).	N/A

Trigger SNMP Event	Event # (1-255)	Trigger a pre-defined SNMP event.	Only available on QMC-DCP & EMC-DCP.
Trigger SNMP Event Group	Group # (1-25)	Trigger a pre-defined SNMP event group.	Only available on QMC-DCP & EMC-DCP.
Shift	Decimal Number. Total number of keys to scroll through.	Shift Down.	Example, if you have 250 Internal Branding media files the number to scroll through would be 255.

Shift Up	Decimal Number. Total number of keys to scroll through.	Shift Up.	Example, if you have 250 Internal Branding media files the number to scroll through would be 255.
Channel Shift	Not Supported		
Source Preset	Source Selection	Used with Learn Mode to programme PGM/PST sources. Also used with Upstream Destination key type to change inputs routed to EMC inputs.	N/A
Preset/Program Source	Source Selection	Change the Preset/Program Source selection.	Note: PGM can only be changed if the "On-Air Enable" key is held-down.
Preset Source	Source Selection	Change the Preset Source.	N/A
Program Source	Source Selection	Change the Program Source.	N/A
Emergency Select	N/A	Toggle Emergency Enable.	N/A
Bus Route	Bus Selection	Used with "Path" key to route either the Clean or Aux Bus.	N/A
Path Key	CLN or AUX	Used with "Bus Route" to select the Bus that will be routed.	N/A
Preset Source Overflow	Source Selection	This key will automatically re- purpose itself so that the current PST Source in the upstream router can always be shown on the panel.	If this key is used it is recommended that a minimum of 2 of these keys are configured.
Program Source Overflow	Source Selection	This key will automatically re- purpose itself so that the current PGM Source in the upstream router can always be shown on the panel.	If this key is used it is recommended that a minimum of 2 of these keys are configured.
Primary Preset/Program Source	Source Selection.	Change the Primary Preset/Program Source selection.	Note: PGM can only be changed if the "On-Air Enable" key is held-down.
Preset Input	Input A or Input B	Displays from which input the Preset Bus is taking its source from.	A is Program Input and B is Preset Input.
Program Input	Input A or Input B	Displays from which input the Program Bus is taking its source from.	A is Program Input and B is Preset Input.

Preset/Program Source Overflow	Source Selection	This key will automatically re-purpose itself so that the current PGM/PST Source in the upstream router can always be shown on the panel.	Note: PGM can only be changed if the "On-Air Enable" key is held-down.
Main/Reserve Inputs	Not Supported		
Upstream Dest (SP-1) Source	Source Selection	These keys allow the user to control a destination on the upstream router that is not feeding an EMC input.	Could also be used to route the PGM Bypass Input destination. Configured in the "Upstream Router Tab".
Upstream Dest (SP-2) Source	Source Selection	These keys allow the user to control a destination on the upstream router that is not feeding an EMC input.	Could also be used to route the PGM Bypass Input destination. Configured in the "Upstream Router Tab".
Upstream Dest (SP-3) Source	Not Supported		
Upstream Dest (SP-4) Source	Not Supported		
Emergency Source	Source Selection	Select the source that is routed to the Emergency Input of the EMC.	N/A
Transition Type	Scrolling or Static Selection	Select the transition type for the next transition.	N/A
Transition Speed	Scrolling or Static Selection	Selects the transition speed for the next transition.	N/A
Transition Take	N/A	Start a transition (tx_start).	N/A
Background Level	N/A	Configure if the PST video/audio will transition with the next transition start.	N/A
Keyer Trans Enable	N/A	Configure if the Keyers will transition with the next transition start.	Note: This does NOT apply to the Internal Branding Keyer (EMG).
User Transition Select	User Transition Selection	Select a pre-defined user transition.	N/A
Fade to Black/Silence	N/A	Fade the PGM Bus to black video and audio silence	N/A

Preroll and Transition Take	N/A	If the current source has a pre-roll	Note: This key can be used also start a transition for no
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		associated to it this will trigger a take with pre-roll.	pre-roll sources.
Preview Transition	N/A	Preview a WIPE transition on the PST Bus only.	Note: Only works for WIPE transitions.
Multi Transition Take	Not Supported		
Multi Transition Take Preroll	Not Supported		
A/B Mode Current State	N/A	Displays the current internal upstream switch mode, A/B or B/A.	N/A
Transition Start Hold	N/A	While this key is held ON this will stop any pending transition from starting until the key is released.	N/A
Keyer 1 Level	N/A	Puts the selected keyer on the PST Bus OR makes an on-air keyer transitional (go off-air with next transition).	N/A
Keyer 2 Level	N/A	Puts the selected keyer on the PST Bus OR makes an on-air keyer transitional (go off-air with next transition).	N/A
Keyer 3 Level	N/A	Puts the selected keyer on the PST Bus OR makes an on-air keyer transitional (go off-air with next transition).	N/A
Keyer 4 Level	N/A	Puts the selected keyer on the PST Bus OR makes an on-air keyer transitional (go off-air with next transition).	N/A
Keyer 1 On-Air	N/A	Toggles the on-air state if the selected keyer.	N/A
Keyer 2 On-Air	N/A	Toggles the on-air state if the selected keyer.	N/A
Keyer 3 On-Air	N/A	Toggles the on-air state if the selected keyer.	N/A

Keyer 4 On-Air	N/A	Toggles the on-air state if the selected keyer.	N/A
Keyer Gain Up	Current Keyer or Specified Keyer.	Adjust the Selected Keyer Gain Up OR the Current keyer (see "Keyer" button type) Gain Up.	If this button is configured directly above a rotary dial then this button configures the function of this dial as Keyer Gain Up/Down.
Keyer Gain Down	Current Keyer or Specified Keyer.	Adjust the Selected Keyer Gain Up OR the Current keyer (see "Keyer" button type) Gain Up.	If this button is configured directly above a rotary dial then this button configures the function of this dial as Keyer Gain Up/Down.
Keyer Clip Up	Current Keyer or Specified Keyer.	Adjust the Selected Keyer Clip Up OR the Current keyer (see "Keyer" button type) Clip Up.	If this button is configured directly above a rotary dial then this button configures the function of this dial as Keyer Clip Up/Down.
Keyer Clip Down	Current Keyer or Specified Keyer.	Adjust the Selected Keyer Clip Up OR the Current keyer (see "Keyer" button type) Clip Up.	If this button is configured directly above a rotary dial then this button configures the function of this dial as Keyer Clip Up/Down.
Keyer Key Type	Modes	Select the mode for the currently selected keyer.	N/A
Keyer	Scrolling or specified keyer.	Select the current keyer that will be adjusted.	N/A
Keyer Transparency Up	Current Keyer or Specified Keyer.	Adjust the Selected Keyer Transparency Up OR the Current keyer (see "Keyer" button type) Clip Up.	If this button is configured directly above a rotary dial then this button configures the function of this dial as Keyer Transparency Up/Down.
Keyer Transparency Down	Current Keyer or Specified Keyer.	Adjust the Selected Keyer Transparency Up OR the Current keyer (see "Keyer" button type) Clip Up.	If this button is configured directly above a rotary dial then this button configures the function of this dial as Keyer Transparency Up/Down.

Keyer Default	Scrolling or specified keyer.	Set the Clip, Gain & Transparency settings for the keyer back to the default settings specified in the configuration.	N/A
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Logo Selection	Logo number/position	Make internal media controllable from the panel.	Note: The media is ordered alphabetically.
Logo Position Left	N/A	Adjust the X position of the currently selected media to the left.	If this button is configured directly above a rotary dial then this button configures the function of this dial as Logo Position Left/Right.
Logo Position Right	N/A	Adjust the X position of the currently selected media to the right.	If this button is configured directly above a rotary dial then this button configures the function of this dial as Logo Position Left/Right.
Logo Position Up	N/A	Adjust the Y position of the currently selected media Up.	If this button is configured directly above a rotary dial then this button configures the function of this dial as Logo Position Up/Down.
Logo Position Down	N/A	Adjust the Y position of the currently selected media Down.	If this button is configured directly above a rotary dial then this button configures the function of this dial as Logo Position Up/Down.
Logo Take	N/A	Fade-in ALL media that is currently cue'd.	N/A
Logo Channel	Not Supported.		
MG Logo Layer	Not Supported		
MG Layer Shift	Not Supported		
MG Control Keys 1	Select Logo	Select media (using Logo Selection)	N/A
	Cue Logo	Cue current media	N/A
	Fade In Logo	Fade In current media	N/A
	Fade Out Logo	Fade Out current media	N/A
	Fade All Out	Fade Out ALL media	N/A
	Current Logo	Displays the name of the currently selected media	N/A

MG Control Keys 2	MG Logo Gain Up	Adjust current media gain level up.	If this button is configured directly above a rotary dial then this button configures the function of this dial as media gain up/down or layer up/down.
	MG Logo Gain Down	Adjust current media gain level down.	
	MG Layer Up	Adjust current media layer up.	
	MG Layer Down	Adjust current media layer down.	
MG MSK Control	N/A (scrolling)	NO TRAN	Media will NOT change state with a transition.
		CUE→PGM	Any cue'd media will fade-in with the next transition.
		PGM→CUE	Any on-air media will fade-out back to a cue'd state with the next transition.
		PGM→CAC	Any on-air media will fade-out back to a cached state with the next transition.
Audio Level	Not currently supported		Always AFV (Audio Follow Video).
Voiceover1OnAir	N/A	Toggles the on-air state of VO1.	N/A
Voiceover2OnAir	N/A	Toggles the on-air state of VO2.	N/A
Voiceover3OnAir (EMC)	N/A	Toggles the on-air state of VO3.	N/A
Voiceover4OnAir (EMC)	N/A	Toggles the on-air state of VO4.	Note: If VO4 is assigned to audio clips then this will take VO4 off-air ONLY.
Voiceover5OnAir (EMC)	N/A	Toggles the on-air state of VO5.	N/A
Voiceover1Level	N/A	Toggles the level state of VO1 (transitional on or off air).	N/A
Voiceover2Level	N/A	Toggles the level state of VO2 (transitional on or off air).	N/A
Voiceover3Level (EMC)	N/A	Toggles the level state of VO3 (transitional on or off air).	N/A
Voiceover4Level (EMC)	N/A	Toggles the level state of VO4 (transitional on or off air).	Note: If VO4 is assigned to audio clips then this will only remove cue'd.
Voiceover5Level (EMC)	N/A	Toggles the level state of VO5 (transitional on or off air).	N/A

Dolby Encoder Level	Encoder 1 to 8	Toggle the level state of the specified Dolby E Encoder (transitional on or off air).	N/A
Dolby Encoder On	Encoder 1 to 8	Toggle the on-air state of the specified Dolby E Encoder,	N/A
Dolby Encoder Auto Detect	Encoder 1 to 4 (PGM or PST)	This will toggle if the auto-detect logic for the specified Dolby E Encoder is enabled or disabled.	Note: The logic settings are configured in the "Audio Processing" tab of EMC-Setup.
Extended Audio OnAir	Not Supported		
Extended Audio Level	Not Supported		
Audio Ratio Up	Not Supported		
Audio Ratio Down	Not Supported		
Extended Audio Ratio Up	Not Supported		
Extended Audio Ratio Down	Not Supported		
Audio Gain Up	Selection or Currently Selected (using "Audio Input" key type).	Adjust the audio gain level up.	If this button is configured directly above a rotary dial then this button configures the function of this dial as audio gain up/down.
Audio Gain Down	Selection or Currently Selected (using "Audio Input" key type).	Adjust the audio gain level down.	If this button is configured directly above a rotary dial then this button configures the function of this dial as audio gain up/down.
Audio Input Format	Not Supported		
Audio Input	N/A (scrolling)	Scroll through the audio inputs so that adjustments can be made accordingly.	N/A
Duration Up	N/A	Adjust the length of the transition (frames) up.	Note: This will adjust and be saved to the currently selected transition speed ONLY.
Duration Down	N/A	Adjust the length of the transition (frames) down.	Note: This will adjust and be saved to the currently selected transition speed ONLY.
Dwell Time Up	N/A	Adjust the transition dwell time (frames) up.	Note: Dwell only applies to some transition types.
Dwell Time Down	N/A	Adjust the transition dwell time (frames) down.	Note: Dwell only applies to some transition types.

Audio Lag Time Up	N/A	Adjust the audio lag time (frames) up.	N/A
Audio Lag Time Down	N/A	Adjust the audio lag time (frames) down.	N/A
Audio Lead Time Up	N/A	Adjust the audio lead time (frames) up.	N/A
Audio Lead Time Down	N/A	Adjust the audio lead time (frames) down.	N/A
Audio Input Shuffle	Not Supported		
Audio Default	Not Supported		
Audio Gain +1/4dB	Selected Input Pair	Adjust the audio gain level of the selected pair up.	N/A
Audio Gain -1/4dB	Selected Input Pair	Adjust the audio gain level of the selected pair down.	N/A
Audio Shuffle Scroll	Not Supported		
Audio Lead Lag	Not Currently Supported		
Latch Gain Control	All or Selected Bus	Select the audio channels that will be affected by latch gain adjustments.	Note: Multiple channels can be selected.
Latch Gain Adjust Up	All or Selected Bus	Adjust the selected channels gain up.	Note: Either adjust discretely or to the lowest value of all selected channels.
Latch Gain Adjust Down	All or Selected Bus	Adjust the selected channels gain down.	Note: Either adjust discretely or to the lowest value of all selected channels.
Display Channel Gain	Selected Bus & Channel	Display the current input gain of the audio channel.	N/A
Discrete Audio Default	All or Selected Bus	All Settings	Both Gain and Shuffle settings back to default.
		Gain	Only Gain back to default.
		Shuffle	Only Shuffle back to default.
		Phase	Not Supported.
Program Audio Gain Up	Selected Pair or Selected Group	Adjust the audio input gain up.	N/A
Program Audio Gain Down	Selected Pair or Selected Group	Adjust the audio input gain down.	N/A
Preset Audio Gain Up	Selected Pair or Selected Group	Adjust the audio input gain up.	N/A
Preset Audio Gain Down	Selected Pair or Selected Group	Adjust the audio input gain down.	N/A

EMG Audio Gain Up	Selected Pair or Selected Group	Adjust the audio input gain up.	N/A
EMG Audio Gain Down	Selected Pair or Selected Group	Adjust the audio input gain down.	N/A
Program Ratio Up (EMC)	N/A	Adjust the program audio ratio up.	Note: Only applies when a VO is applied.
Program Ratio Down (EMC)	N/A	Adjust the program audio ratio down.	Note: Only applies when a VO is applied.
Preset Ratio Up (EMC)	N/A	Adjust the preset audio ratio up.	Note: Only applies when a VO is applied.
Preset Ratio Down (EMC)	N/A	Adjust the preset audio ratio down.	Note: Only applies when a VO is applied.
Voiceover1RatioUp (EMC)	N/A	Adjust VO1 ratio up.	N/A
Voiceover1RatioDown (EMC)	N/A	Adjust VO1 ratio down.	N/A
Voiceover2RatioUp (EMC)	N/A	Adjust VO2 ratio up.	N/A
Voiceover2RatioDown (EMC)	N/A	Adjust VO2 ratio down.	N/A
Voiceover3RatioUp (EMC)	N/A	Adjust VO3 ratio up.	N/A
Voiceover3RatioDown (EMC)	N/A	Adjust VO3 ratio down.	N/A
Voiceover4RatioUp (EMC)	N/A	Adjust VO4 ratio up.	N/A
Voiceover4RatioDown (EMC)	N/A	Adjust VO4 ratio down.	N/A
Voiceover5RatioUp (EMC)	N/A	Adjust VO5 ratio up.	N/A
Voiceover5RatioDown (EMC)	N/A	Adjust VO5 ratio down.	N/A
Voiceover1Gain Up	Selected Pair or Group	Adjust VO1 input gain up.	Note: If multiple channels are set then tally will not show on the button.
Voiceover1Gain Down	Selected Pair or Group	Adjust VO1 input gain down.	Note: If multiple channels are set then tally will not show on the button.
Voiceover2Gain Up	Selected Pair or Group	Adjust VO2 input gain up.	Note: If multiple channels are set then tally will not show on the button.
Voiceover2Gain Down	Selected Pair or Group	Adjust VO2 input gain down.	Note: If multiple channels are set then tally will not show on the button.

Voiceover3Gain Up (EMC)	Selected Pair or Group	Adjust VO3 input gain up.	Note: If multiple channels are set then tally will not show on the button.
Voiceover3Gain Down (EMC)	Selected Pair or Group	Adjust VO3 input gain down.	Note: If multiple channels are set then tally will not show on the button.
Voiceover4Gain Up (EMC)	Selected Pair or Group	Adjust VO4 input gain up.	Note: If multiple channels are set then tally will not show on the button.
Voiceover4Gain Down (EMC)	Selected Pair or Group	Adjust VO4 input gain down.	Note: If multiple channels are set then tally will not show on the button.
Voiceover5Gain Up (EMC)	Selected Pair or Group	Adjust VO5 input gain up.	Note: If multiple channels are set then tally will not show on the button.
Voiceover5Gain Down (EMC)	Selected Pair or Group	Adjust VO5 input gain down.	Note: If multiple channels are set then tally will not show on the button.
Stereo Mode	Not Supported		
Program Input Phase	Not Supported		
Preset Input Phase	Not Supported		
EMG Input Phase	Not Supported		
Voiceover1Input Phase	Not Supported		
Voiceover2Input Phase	Not Supported		
Voiceover3Input Phase (EMC)	Not Supported		
Voiceover4Input Phase (EMC)	Not Supported		
Voiceover5Input Phase (EMC)	Not Supported		
Aux Monitor Destinations	Select which Aux Audio Channel Pair will be controlled.	Aux Monitor Ch 1&2... Aux Monitor Ch 15&16	N/A
Aux Pre-Shuffle Mono Sources	Route pre-shuffler Mono Sources to the selected Aux Monitor Destination	Define the bus and mono channel.	N/A
Aux Pre-Mix Mono Sources	Route pre-mixer Mono Sources to the selected Aux Monitor Destination	Define the bus and mono channel.	N/A
Aux Post-Mix Mono Sources	Route post-mixer Mono Sources to the selected Aux Monitor Destination	Define the bus and mono channel.	N/A

Aux Pre-Shuffle Stereo Sources	Route pre-shuffler Stereo Sources to the selected Aux Monitor Destination	Define the bus and stereo channels.	N/A
Aux Pre-Mix Stereo Sources	Route pre-mixer Stereo Sources to the selected Aux Monitor Destination	Define the bus and stereo channels.	N/A
Aux Post-Mix Stereo Sources	Route post-mixer Stereo Sources to the selected Aux Monitor Destination	Define the bus and stereo channels.	N/A
Default Input Audio	Not Supported		
Shuffle Store	All Busses/Selected Bus and Shuffle Store Number	Map the pre-defined audio shuffle store to the selected bus (es).	N/A
Shuffle Detection Key	Assign to either PGM or PST Bus.	Key will tally with the name of the last shuffle store recalled against that bus and will also tally if a manual/M2100 audio shuffle matches a pre-configured shuffle store audio mapping.	If a user legend is defined to the key such as "Shuf None" this will be displayed if not shuffle store is active/matching to be displayed in the Shuffle Detection Key.
Audio Input (Bus + Channel)	All Buses/Selected Bus and Audio Channel	Select the required bus and audio channel.	N/A
Audio Gain Adjust (Currently Selected)	Adjust Up/Adjust Down	Adjust the audio input gain of the selected channel.	Note: Channel selection using "Audio Input (Bus + Channel)" key type.

Mono Mix Toggle	Current Selection	Toggle the Mono Mix state of the selected channel.	Note: Channel selection using "Audio Input (Bus + Channel)" key type.
Audio Input Mute Toggle	Bus and Channel Number	Toggle the selected audio channel mute and un-mute state.	N/A
Audio Bus Mute Key	Bus, Mute Enable/Mute Disable	Toggle the selected audio bus mute and un-mute state.	N/A
Audio Input Store Recall	Bus and Store Number	Apply a pre-configured audio bus store to the selected bus.	Note: These are configured in the "Audio Input Defaults/Stores" tab of EMC-Setup.
Audio Inp. Store Item Default	Bus	Sets the audio bus back to default as configured in EMC-Setup.	N/A
Wipe Preset	Scrolling or Preset Number 1 to 5	Select a wipe preset.	Note: Wipe Presets are configured in the "Wipes" tab of EMC-Setup.
Wipe Type	(scrolling)	Select the wipe type.	N/A

Wipe Width Up	N/A	Adjust the wipe width up.	N/A
Wipe Width Down	N/A	Adjust the wipe width down.	N/A
Wipe Softness Up	N/A	Adjust the wipe softness up.	N/A
Wipe Softness Down	N/A	Adjust the wipe softness down.	N/A
Wipe Direction	(scrolling)	Adjust the wipe direction to either normal, inverted or flip-flop.	N/A
Wipe Angle Up	N/A	Adjust the wipe angle up.	N/A
Wipe Angle Down	N/A	Adjust the wipe angle down.	N/A
Wipe Special	Mid Wipe Point, Wipe Mode, Run Wipe Mode	Configure the wipe special settings.	N/A
DVE Level	Normal/Primary DVE or Secondary DVE	Set the level of the DVE. Transitional on or off air.	N/A
DVE On-Air	Normal/Primary DVE or Secondary DVE	Set the on-air state of the DVE.	N/A
DVE Move Normal Primary	Move Number (1 to 63)	Select a Primary DVE move by number. Where this Primary move is in the DVE Table.	Note: When a move is selected any crosspoint changes configured in the move will take place immediately when the move is selected.

DVE Move Secondary	Move Number (1 to 63)	Select a Secondary DVE move by number.	Note: When a move is selected any crosspoint changes configured in the move will take place immediately when the move is selected.
DVE Left	N/A	Adjust the X position of the DVE end frame position to the left.	Note: This can only be done when a move is previewed (NOT on-air). Note: This only applies to Primary DVE Moves.
DVE Right	N/A	Adjust the X position of the DVE end frame position to the right.	Note: This can only be done when a move is previewed (NOT on-air). Note: This only applies to Primary DVE Moves.
DVE Up	N/A	Adjust the Y position of the DVE end frame position up.	Note: This can only be done when a move is previewed (NOT on-air). Note: This only applies to Primary DVE Moves.
DVE Down	N/A	Adjust the X position of the DVE end frame position down.	Note: This can only be done when a move is previewed (NOT on-air). Note: This only applies to Primary DVE Moves.
DVE Size Up	N/A	Adjust the size of the DVE end frame up by % with respect to the full raster size.	Note: This can only be done when a move is previewed (NOT on-air). Note: This only applies to Primary DVE Moves.
DVE Size Down	N/A	Adjust the size of the DVE end frame down by % with respect to the full raster size.	Note: This can only be done when a move is previewed (NOT on-air). Note: This only applies to Primary DVE Moves.
DVE Crop Up	Not Currently Supported		
DVE Crop Down	Not Currently Supported		
Preview DVE	Normal/Primary DVE or Secondary DVE	Preview (PST Bus) the selected DVE Move.	N/A
Take DVE	Normal/Primary DVE or Secondary DVE	Take (On-Air) the selected DVE Move.	N/A

DVE Crop In	Not Currently Supported		
DVE Crop Out	Not Currently Supported		
DVE Border Width Up	Not Supported		
DVE Border Width Down	Not Supported		
DVE Border Softness Up	Not Supported		
DVE Border Softness Down	Not Supported		
DVE Border Width In	Not Supported		
DVE Border Width Out	Not Supported		
DVE Background Source	Source Number	Change the crosspoint assignment for the current DVE Background source.	Note: The current DVE Background input for the DVE might not always be DVE1 IN.
Dual DVE Priority	DVE A Highest/DVE-B Highest	Change the DVE Priority to DVE A or DVE B.	Note: This setting only takes effect if BOTH DVEs are active.
Machine Control Stop	N/A	Sony VTR Control	N/A
Machine Control Play	N/A	Sony VTR Control	N/A
Machine Control Rew	N/A	Sony VTR Control	N/A
Machine Control FFWD	N/A	Sony VTR Control	N/A
Machine Control Record	N/A	Sony VTR Control	N/A
Machine Control Pause	N/A	Sony VTR Control	N/A
Machine Control Shuttle FWD	N/A	Sony VTR Control	N/A
Machine Control Shuttle BWD	N/A	Sony VTR Control	N/A
Machine Control Cue	N/A	Sony VTR Control	N/A
Machine Control Time In	N/A	Sony VTR Control	N/A
Machine Control Time Out	N/A	Sony VTR Control	N/A
Machine Control Time Display	N/A	Sony VTR Control	N/A
Machine Control Time Preroll	N/A	Sony VTR Control	N/A
Machine Control Port	Serial 1,2,3 or 4	Sony VTR Control	Note: If no Port is selected commands will be sent to the last port configured to Sony 9-Pin Protocol by default.
Macro Selection	Macro # 1 to 255	Select a Macro.	N/A

Macro Execute Selected	N/A	Execute selected Macro.	N/A
Macro Stop	N/A	Stop current Macro.	N/A
Macro Execute #	Macro # 1 to 255	Execute Macro.	N/A
UDX Level	Up Mix, Down Mix 1 or Down Mix 2	Control the Level of the Up Mix and Down Mix.	N/A
UDX On-Air	Up Mix, Down Mix 1 or Down Mix 2	Control the On-Air State of the Up Mix and Down Mix.	N/A

Table 9-1: Control Panel Key Types

9.2. EMC-DCP (QMC-DCP) GPIO BUTTON TYPES

9.2.1. GPIO TOGGLE

Example QMC GPI 1 / QMC GPO 1 Button Assignment

Pressing this button (when configured as above) will put on and hold on EMC GPO 1 until the button is pressed again. For this feature to be functional then EMC GPO 1 MUST be configured to “Manual GPO” in the EMC-Setup GPIO/O configuration tab.

The button will tally when the corresponding EMC GPI is triggered but ONLY if GPI 1 is configured to be “Panel GPI Tally”.

Example PANEL GPI 1 / PANEL GPO 1 Button Assignment

Pressing this button (when configured as above) will put on and hold on GPO 1 on the EMC-DCP. The same button will tally when GPI 1 on the EMC-DCP is activated.

9.2.2. GPIO ASSERT

Example QMC GPI 1 / QMC GPO 1 Button Assignment

Pressing and releasing this button will trigger EMC GPO 1 for 500ms. Pressing and holding this button will trigger EMC GPO 1 for as long as the button is held active. For this feature to be functional EMC GPO 1 MUST be configured to “Manual GPO” in the EMC-Setup GPIO/O configuration tab.

The button will tally when the corresponding EMC GPI is triggered but ONLY if GPI 1 is configured to be “Panel GPI Tally”.

Example PANEL GPI 1 / PANEL GPO 1 Button Assignment

Pressing and releasing this button will trigger GPO 1 on the EMC-DCP for 500ms. Pressing and holding will trigger GPO 1 on the panel for as long as the button is held. The same button will tally when GPI 1 on the EMC-DCP is activated.

9.2.3. GPO ACTIVATE

The corresponding EMC GPO will be active while the button is pressed and held. The EMC GPO MUST be configured for “Manual GPO”.

The corresponding DCP GPO will be active while the button is pressed and held.

9.2.4. GPI TALLY

The corresponding EMC GPI will tally this button when the GPI is active. The EMC GPI Must be configured to be “Panel GPI Tally”.

The corresponding DCP GPI will tally this button then the GPI is active.

9.3. UPGRADING THE 3025EMC FIRMWARE

There are three ways to upgrade the firmware on the 3025EMC, either using Overture Media Manager software, ftp console or serial.

9.3.1. Overture Media Manager

1. Left Click on the 3025EMC device that you want to upgrade and then select View Media.
2. When the media list has been retrieved from the EMC, left click File then select “Upgrade...”
3. Navigate to the firmware required (.bin extension), confirm the filename and then select “Open”.
4. An upgrade dialogue box will be displayed that will confirm the firmware location, version and build and creation date and time.
5. Confirm that the hardware status of the EMC is “*Ready to Upgrade*” and confirm if you want the unit to reboot automatically when the upload of the new firmware file is completed.
6. Click “Upgrade” to proceed with the upgrade or “Cancel” to return to the Overture Media Manger main dialogue window.
7. The progress of the firmware upload can be monitored using the Transfer Queue status in the Status Window dialogue at the bottom of the Media Manager main window.

9.3.2. FTP Console

1. Open an anonymous ftp connection to the EMC (e.g. ftp 192.168.9.100 -A).
2. Type “cd app”.
3. Type “hash”.
4. Type “put “ and then drag the required firmware .bin file into the ftp console and press “Enter”.
5. The transfer of the firmware file to the app directory of the 3025EMC will proceed.

6. Confirm that the transfer was completed successfully.
7. When completed, the unit will need to be re-booted in order for the new firmware loading process to be completed.

The recommended way to reboot the 3025EMC is by using the webpage interface.

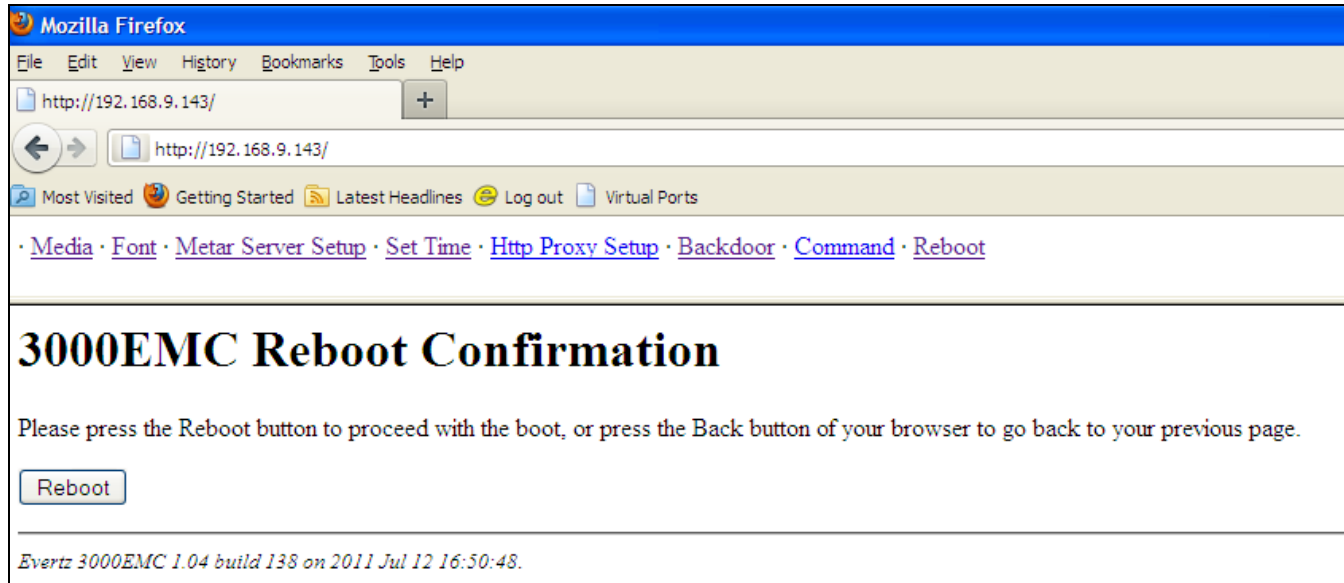


Figure 9-1: 3025EMC Webpage



The 3025EMC requires a reboot to complete the firmware upgrade process. Ensure that it is safe to reboot the unit before proceeding with the system reboot!!

9.3.3. SERIAL

1. Connect a straight through D9 serial cable with a WA-S76 rainbow cable (provided with packaging) and connect to the header on the front of the unit (marked J11 Upgrade). Use the following serial settings:

Baud Rate	115200
Parity	None
Data Bits	8
Stop Bits	2

Table 9-2: J11 Serial Settings

2. Ensure that the Run/Upgrade jumper (J22) is set for Upgrade.
3. Using a third party tool like HyperTerminal or TeraTerm, ensure that if you press “Enter” you get a “.E” back from the EMC to confirm that the serial connection has been configured correctly.
4. Reboot/power-cycle the unit.

9.4. CONFIRMING THE FIRMWARE/SOFTWARE VERSION AND ORDERING OPTIONS

It is common for a service engineer to ask for the current EMC firmware version, EMC-Setup configuration software version and ordered options for the unit. It is important to know how to obtain this information.

9.4.1. EMC-Setup Version Information

To confirm the current version of EMC-Setup that you are using, from the EMC-Setup main window select “Help” then “About EMC-Setup”.

9.4.2. Current Firmware Version

This can be confirmed either by using the webpage.

· [Media](#) · [Font](#) · [Metar Server Setup](#) · [Set Time](#) · [Http Proxy Setup](#) · [Backdoor](#) · [Command](#) · [Reboot](#)

3000EMC Font Directory

Face (PS)	Face (TT)	Face (TT family)	Filename
-----------	-----------	------------------	----------

<i>Evertz 3000EMC 1.04 build 138 on 2011 Jul 12 16:50:48.</i>			
---------------------------------------------------------------	--	--	--

Figure 9-3: 3025EMC Firmware Build Revision

OR by typing “.#98,V” in the Comms Window of EMC-Setup as illustrated in Figure 9-4.

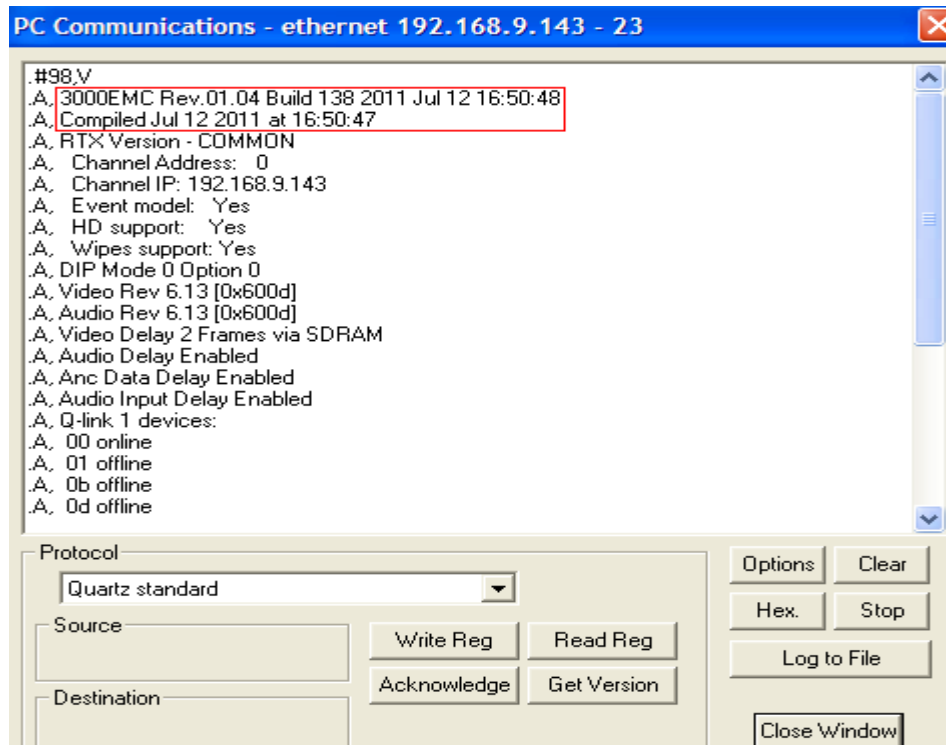


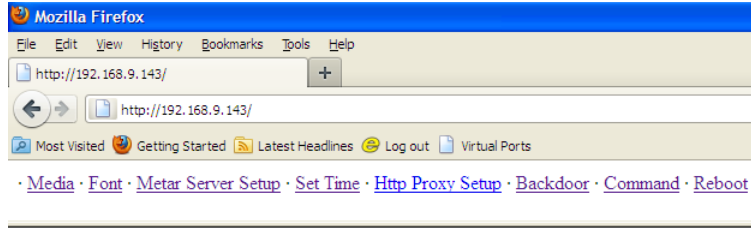
Figure 9-4: EMC-Setup Comms Window Firmware Revision



You can also obtain the current network configuration of the EMC from the Comms Window by typing “.#98,N”.

9.4.3. Determining the Installed Ordering Options

You can obtain details of the currently installed options either from the webpage.



3000EMC Backdoor Page

Hardware Information

Software Configuration

AUDIO	present
CRAWL	present
EAS	not present
NAS	present
SCHED	not present
TXT	present
EMG	present
DVE-2D	present
DVE-2D-2	present

Figure 9-5: 3025EMC Webpage Backdoor Tab

OR by typing “.#98,V” in the Comms Window of EMC-Setup as illustrated in Figure 9-6.

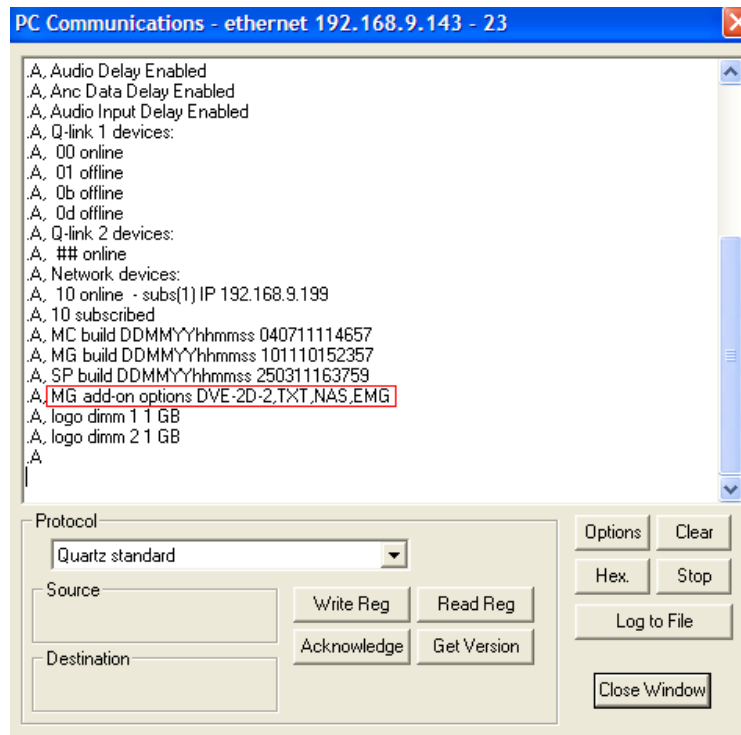


Figure 9-6: 3025EMC Comms Window (Options)

9.5. DETERMINING THE I/O FRAME DELAY OF THE 3025EMC

Depending on the configuration of the 3025EMC, the video/audio processing delay through the system changes. Assuming no additional frames have been added in the channel configuration (see section 4.3.8). The default delay with no Dolby-E Decoding or Encoding enabled is **2 video frames**.

The DVE ordering options (either DVE-2D, DVE-2D-2 or No DVE) and the DVE configuration (see section 4.4.4 for details on DVE Configuration) do not affect the frame delays through the channel.

For details of the frame delays refer to Table 9-3 below:

Configuration	VIDEO STANDARD & DELAY			
	720p	1080i	625i	525i
No Dolby-E Modules Enabled (Default)	2F	2F	2F	2F
No Dolby-E Modules Enabled (+1 Frame Delay)	3F	3F	3F	3F
Dolby-E Decoders Only Enabled (Default)	3F	2F	2F	2F
Dolby-E Decoders Only Enabled (+1 Frame Delay)	4F	3F	3F	3F
Dolby-E Decoders & Encoder(s) Enabled (Default)	5F	3F	3F	3F
Dolby-E Decoders & Encoder(s) Enabled (+1 Frame Delay)	6F	4F	4F	4F
Dolby-E Encoder(s) Only Enabled (Default)	3F	2F	2F	2F
Dolby-E Encoder(s) Only Enabled (Default)	4F	3F	3F	3F

Table 9-3: I/O Frame Delay with Dolby-E™ Options

Up to a maximum of 5 additional frames of I/O (video/audio) delay can be added to the system. These can be added to the system regardless of the Dolby-E configuration. In the above table only +1 frame of user added delay has been shown.

Regardless of the frame delay through the channel, video/audio lip sync is maintained at the output.



IMPORTANT: When using Dolby-E decoding or encoding at 720p video standards an even number of frames I/O delay should always be used.

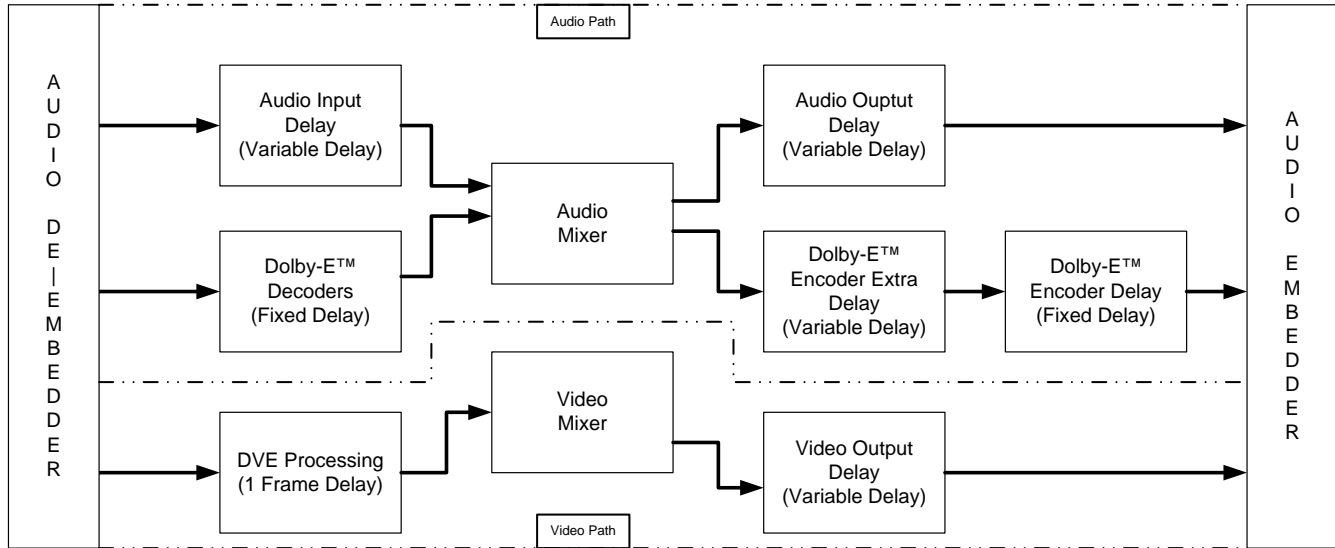


Figure 9-7: 3025EMC Video/Audio Delay Path with Dolby-E™

9.6. UP/DOWN TIMER CONFIGURATION

In 3025EMC Release 1.6 or later Up/Down timers are now supported. Time, Data and Temperature objects can be rendered on-air by the internal graphics engine without the +TXT option being enabled on the hardware.

There are a maximum of two up/down timer objects that can be used simultaneously on the 3025EMC.

Before the timers can be used on the 3025EMC the template(s) need to be designed using the Overture Suite Media Designer software. When the templates have been compiled and transferred over the 3025EMC (and the required ttf file) the timers can be used. For more details on how the digital timer templates are designer please refer to the Overture Suite v3 manual.

The following controls are available on the 3025EMC for Up/Down Timers...

- set the up/down parameters (timer #, direction and time).
- reload the up/down timer
- start the up/down timer
- stop the up/down timer
- toggle the up/down timer

For the purposes of documentation, the name of timer 1 is “timer1” and the name of timer 2 is “timer2”. In practice the timers do not have to use this naming convention and normal naming rules will apply, i.e. the media name can’t exceed sixteen characters and the template and ttf (true type font) need to be in the same storage location (CF or NAS).

9.6.1. Up/Down Timer Parameter Configuration

The Up/Down timer configuration is configured by using the following playlist script command...

```
cmd udt_param("a timer b direction xx min yy sec")  
cmd udt_reload("z")
```

where

- "a" is the timer that is the timer that is being set. This can be either 1 (timer 1) or 2 (timer 2).
 - "b" is the timer direction. This can be either 2 (up) or 1 (down). Down is the default.
 - "xx" is the minute parameter for the time of the timer element. For a down timer this will be the time that the timer will start from. For an up timer this will be the time that the timer finishes.
 - "yy" is the seconds parameter for the time of the timer element. If there are no seconds then this should be set to 00.
 - "z" is the timer that is to be initialized to the specified parameters.
-

In either case (up or down direction) the timer will not go off-air automatically when the timer either reaches 00:00 or the end time specified. A reload is always required to apply the timer parameters. A reload will also reset the timer to the initial time parameter specified.

9.6.1.1. Example 1 Timer 1, Up Timer, 14 minutes 25 seconds

For this, the playlist to initialize the timer with these parameters would be as follows...

```
# VSSL PLAYLIST
```

```
cmd udt_param("1 timer 2 direction 14 min 25 sec")  
cmd udt_reload("1")
```

9.6.1.2. Example 2 Timer 2, Down Timer, 30 minutes 00 seconds

```
# VSSL PLAYLIST
```

```
cmd udt_param("2 timer 1 direction 30 min 00 sec")  
cmd udt_reload("2")
```

9.6.2. Starting the Up/Down Timer

Starting the Up/Down timer is configured by using the following playlist script commands...

```
cmd udt_param("a timer b direction xx min yy sec")
cmd udt_reload("z")
cmd media_in("timer")
cmd udt_start("d")
```

where

- "timer" is the name of the up/down timer template. The template name is limited to sixteen characters.
 - "d" is the up/down timer to be started. This is either 1 (timer 1) or 2 (timer 2).
-



IMPORTANT: The media must be faded-in/cue'd BEFORE the up/down timer object is started.

9.6.3. Stopping the Up/Down Timer

Stopping the Up/Down timer is configured by using the following playlist script command...

```
cmd udt_stop("s")
```

where

- "s" is the up/down timer to be stopped. This is either 1 (timer 1) or 2 (timer 2).
-

9.6.3.1. Example Stop Counting Down After 20 Seconds

This is an extension to the previous example in section 9.6.1.2.

VSSL PLAYLIST

```
cmd udt_param("2 timer 1 direction 30 min 00 sec")
cmd udt_reload("2")
cmd media_in("timer2")
cmd udt_start("2")
cmd wait_for("20 s")
cmd udt_stop("2")
```

In this example, timer 2 is reloaded (reset) to be a down timer starting at 30 minutes 00 seconds. The timer starts at 30 minutes 00 seconds and counts down for 20 seconds at which point it stops and displays 29 minutes 40 seconds (29:40).

9.6.3.2. Stop Counting Down After 20 Seconds Then Go Off-Air

VSSL PLAYLIST

```
cmd udt_param("2 timer 1 direction 30 min 00 sec")  
cmd udt_reload("2")  
cmd media_in("timer2")  
cmd udt_start("2")  
cmd wait_for("20 s")  
cmd udt_stop("2")  
cmd wait_for("1 s")  
cmd media_out("timer2")
```

In this example, timer 2 is reloaded (reset) to be a down timer starting at 30 minutes 00 seconds. The timer starts at 30 minutes 00 seconds and counts down for 20 seconds at which point it stops and displays 29 minutes 40 seconds (29:40). The timer fades out when the timer reaches 29 minutes 40 seconds. It is recommended that a "wait_for" of approximately one 1 second is used as this will ensure that the final time of the timer is displayed on-screen before the timer element is taken off air.

9.6.4. Toggle the Up/Down Timer

Toggling the Up/Down timer is configured by using the following playlist script command...

```
cmd udt_toggle("t")
```

where

- "t" is the up/down timer to be toggled. This is either 1 (timer 1) or 2 (timer 2).

This command will toggle the up/down timer between start and stop states.



IMPORTANT: Hours are NOT currently supported in the time format for Up/Down Timers.

9.7. METADATA ROUTING CONFIGURATION EXAMPLES

9.7.1.1. Example 1 – Dolby E Decoders Metadata to Internal Dolby E Encoders

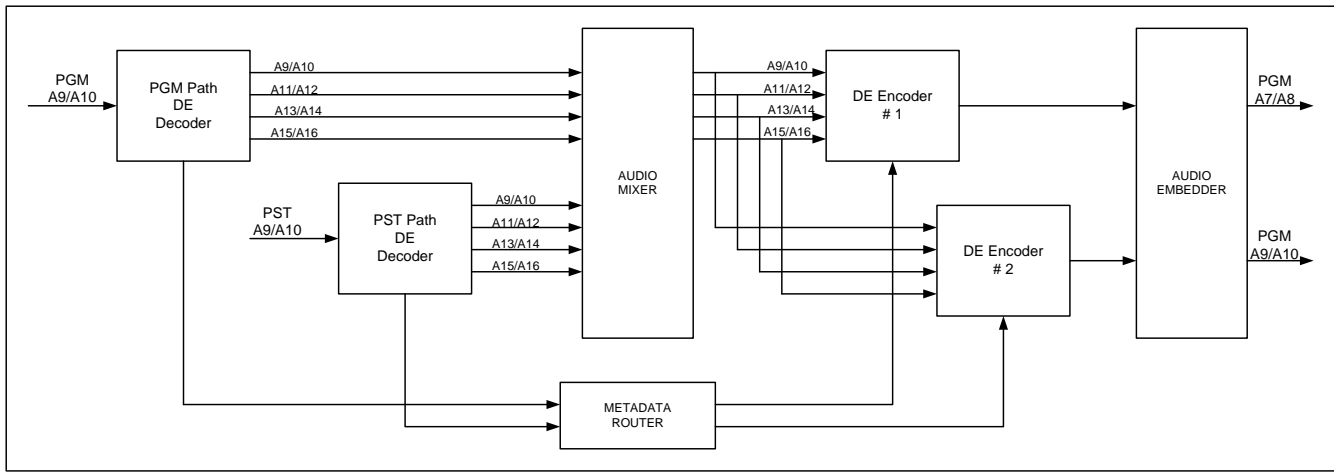


Figure 9-8: Metadata Example 1 Overview

In this example, DE is present on embedded audio channels A9/A10 of the PGM and PST video inputs of the 3025EMC channel. The DE decoders in the PGM and PST paths of the 3025EMC are configured to output four audio channel pairs. The configuration of the DE decoders would be as follows (Audio Processing Tab of EMC-Setup).

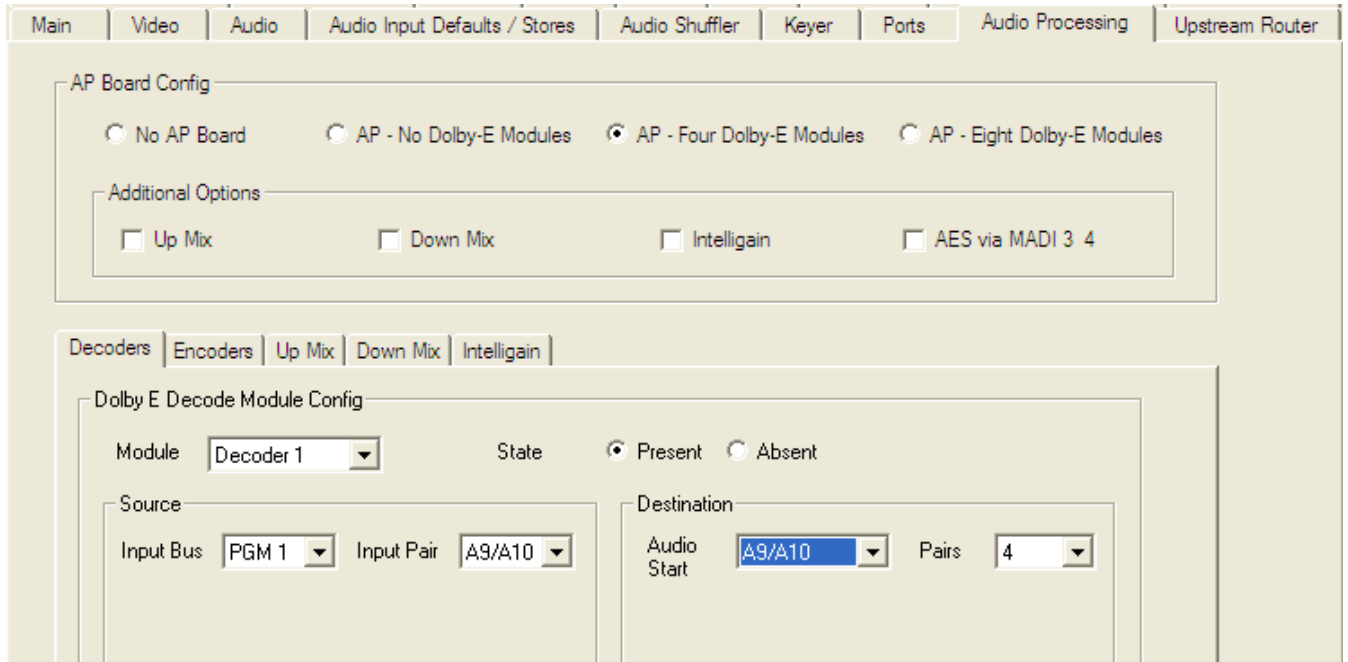


Figure 9-9: Metadata Routing Example 1 – PGM Decoder Configuration

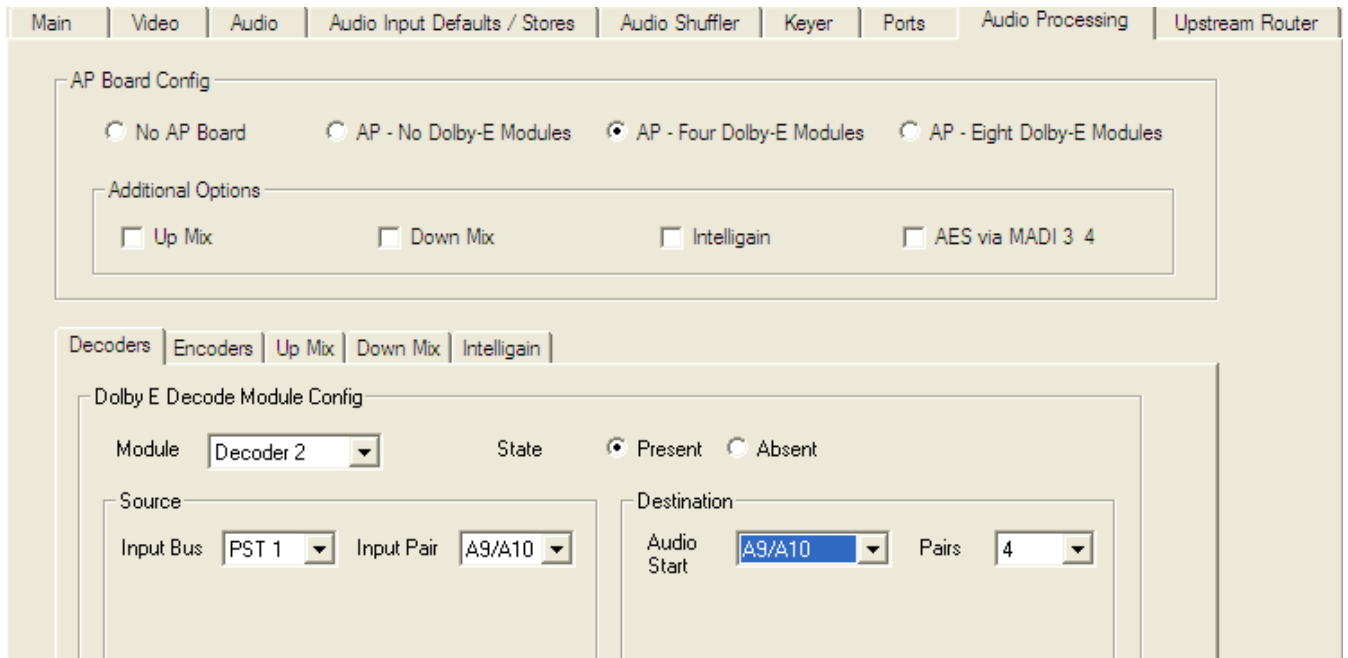


Figure 9-10: Metadata Routing Example 1 – PST Decoder Configuration

The DE encoders are configured so that re-encoded DE will be embedded to PGM audio channels A7/A8 and A9/A10. This requires the use of both encoder #1 and encoder #2. For the purpose of this example DE will also be embedded to CLN audio channels A7/A8 and A9/A10.

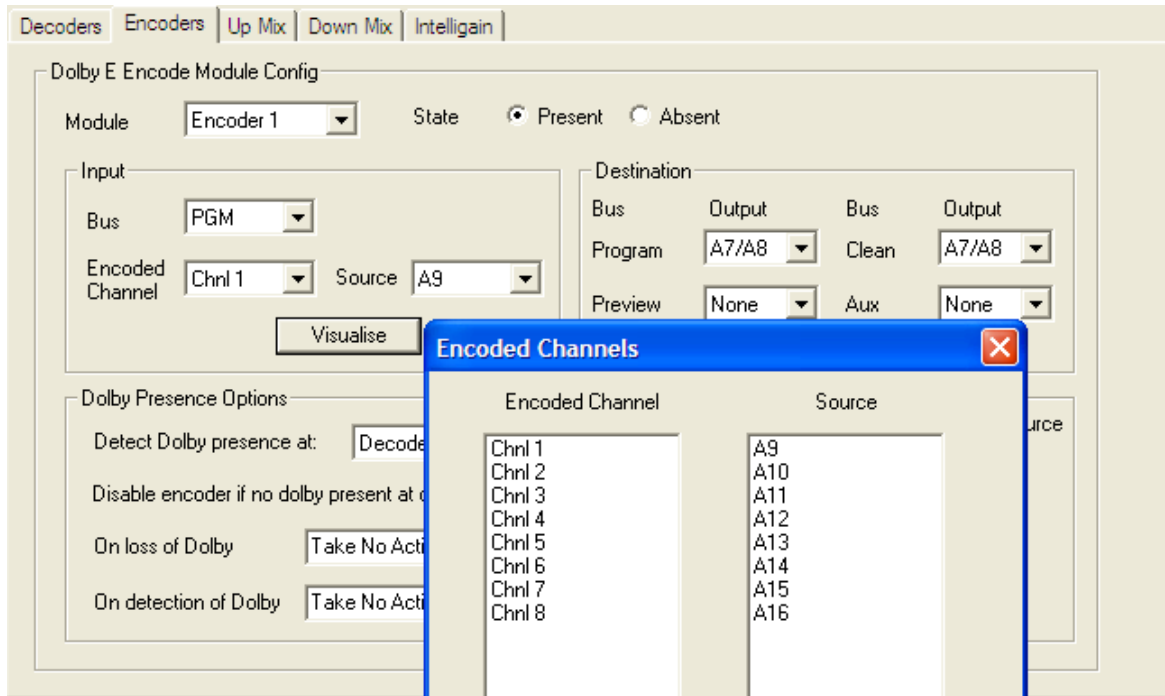


Figure 9-11: Metadata Routing Example 1 – Encoder #1 Configuration

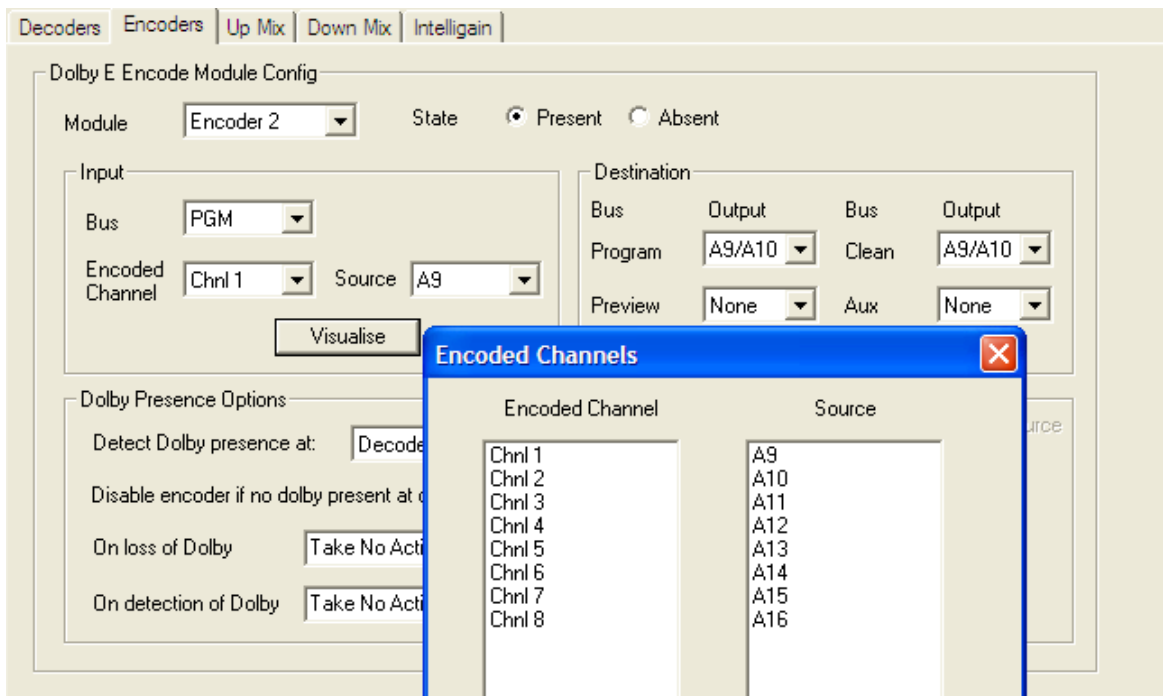


Figure 9-12: Metadata Routing Example 1 – Encoder #2 Configuration

For the metadata routing the metadata routing should first be configured as **disabled**. This will have the effect of turning the SMPTE 2020 embedding of metadata OFF. For this example no SMPTE2020 routing will be enabled, i.e. any metadata will bypass the VANC metadata processing of the 3025EMC. When the routing is disabled the Metadata Routing dialogue will look like below...

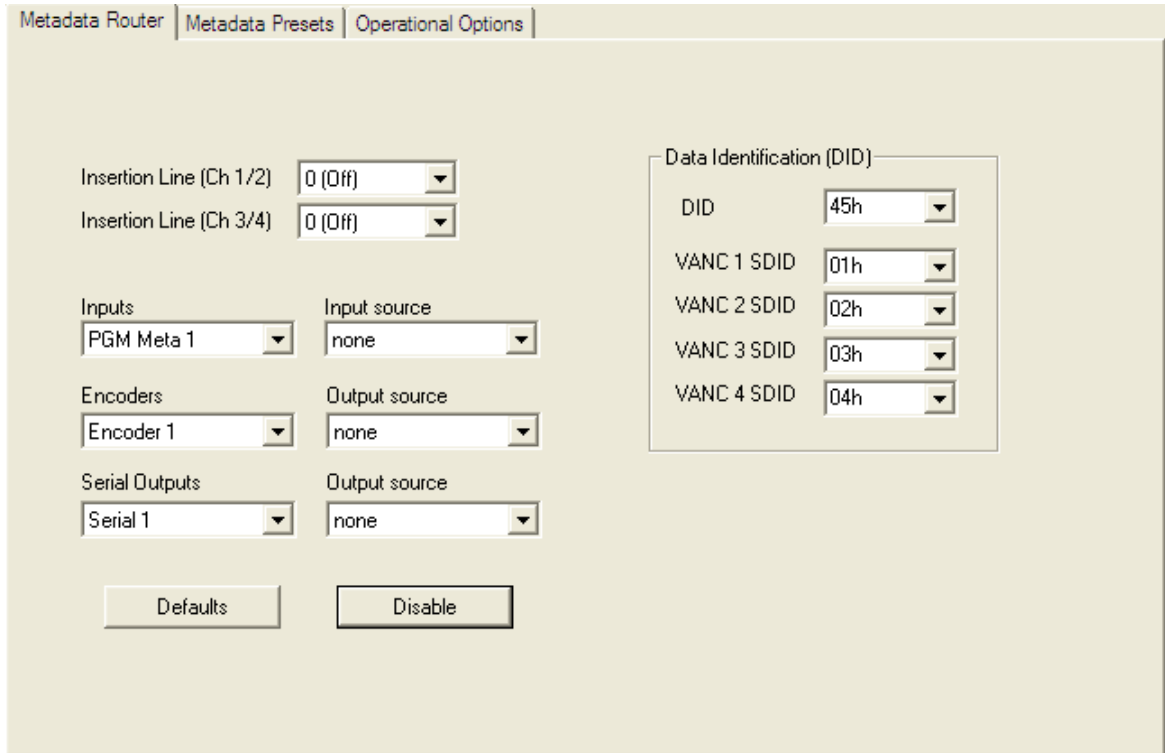


Figure 9-13: Metadata Router Example 1 – Metadata Routing Configuration

As per above the insertion line for metadata channels (1/2) and (3/4) have been configured as (Off) which **disables** the insertion of SMPTE 2020 metadata at the embedder stage of the 3025EMC output(s). In addition to this, all of the metadata router inputs have been configured to use no input source and all of the encoders have been configured to use no metadata router output.

The following changes need to be made to enable routing of metadata from the DE decoders to the DE encoders, i.e. configure the routes of the metadata routing block on the 3025EMC...

METADATA INPUT	METADATA OUTPUT
PGM Meta 1	Decoder 1
PST Meta 1	Decoder 2
Encoder 1	Meta 1
Encoder 2	Meta 1

Table 9-4: Metadata Routing Example 1

This will configure encoder 1 and encoder 2 (PGM & CLN) to use metadata from the DE decoders. Note that during a transition the 3025EMC will use the metadata from the PST path decoder. This is managed automatically by the 3025EMC, however the PST Meta 1 input does need to be configured correctly (as per the above table) to ensure that the correct metadata is used during a transition.

9.7.1.2. Example 2 - Dolby E Decoders Metadata to Internal Dolby E Encoders & SMPTE 2020 Embedders

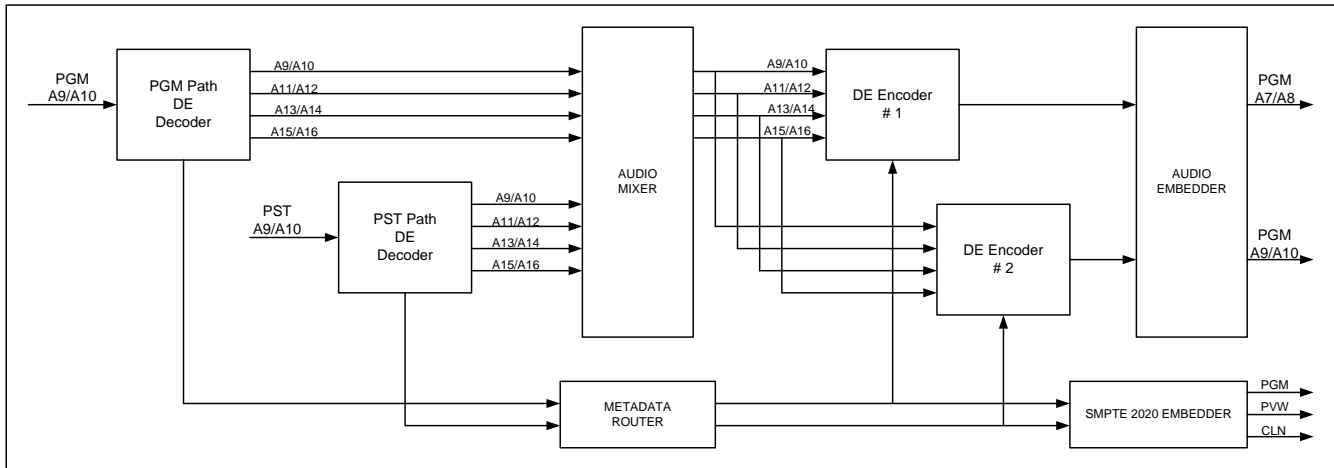


Figure 9-14: Metadata Routing Example 2

For this example, the configuration of the DE decoders and encoders is identical to the previous example. The difference here is that we want to metadata from the decoders to be embedded to the PGM, PVW and CLN outputs of the 3025EMC (remember that SMPTE 2020 metadata is not inserted on the AUX output of the 3025EMC).

We will assume just for this example that we want all four SMPTE 2020 embedders to use metadata channel one. We will also assume that line 12 will be used for metadata channels 1/2 and line 13 will be used for metadata channels 3/4.

As before, configure the metadata routing to **disabled** and then enable SMPTE 2020 insertion on lines 12 and 13 for metadata channels 1/2 and 3/4 respectively.

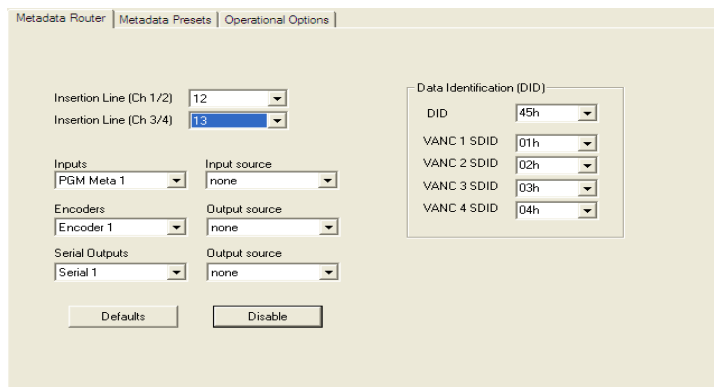


Figure 9-15: Metadata Routing Example 2 – Metadata Routing Configuration

For the purposes of the example, we will also assume that the data identification (DID) and secondary data identification (SDID) of the four metadata channels are 0x45 and 0x01, 0x02, 0x03 and 0x04. Remember that there are twelve SMPTE 2020 embedder channels (four each for the PGM, PST and CLN buses) but the DID and SDID settings for the channels are common across all three buses. For example, if PGM metadata channel one (VANC 1) is 0x45 and 0x01 for the DID and SDID respectively then VANC 1 for PST and CLN will also be also use 0x45 and 0x01.

The following metadata routing settings are required:

METADATA INPUT	METADAT OUTPUT
PGM Meta 1	Decoder 1
PST Meta 1	Decoder 2
Encoder 1	Meta 1
Encoder 2	Meta 1
PGM Meta 2	Decoder 1
PGM Meta 3	Decoder 1
PGM Meta 4	Decoder 1
PST Meta 2	Decoder 2
PST Meta 3	Decoder 2
PST Meta 4	Decoder 2

Table 9-5: Metadata Routing Example 2

This configures all four metadata channels to use metadata from the DE decoders. VANC insertion has already been enabled by setting the insertion lines for channels 1/2 and 3/4. Because the VANC insertion has been enabled the SMPTE 2020 embedder will use the meta 1, 2, 3 and 4 sources as configured in the table above.

9.8. SPECIFICATIONS

9.8.1. Video Connections

Inputs:	Program, Preset, Keyer-1 Fill, Keyer-1 Key, Emergency, Keyer-2 Fill, Keyer-2 Key, Keyer-3 Fill, Keyer-3 Key, DVE Background 1, 2, AUX 1, 2 & 3
Standards:	SMPTE 259M, SMPTE 292M, SMPTE 424M
Signal Level:	800mV p-p nominal
Impedance:	75Ω terminating
Return Loss:	15dB typical (5 MHz – 1485MHz)
Cable Equalization:	Belden 1855A, 300m @ 270MHz, 100m @ 1.5Gb/s, 100m @3G
Connectors:	DIN 1.0/2.3 or BNC per IEC 61169-8 Annex A
Timing Window:	±½ line w.r.t. Reference input
Outputs:	
3 Standard (dual):	Program, Preview, Clean & Aux
Standards:	Same as input
Signal Level:	800mV p-p ±10%
Impedance:	75Ω terminating
Return Loss:	15dB typical (5MHz – 1485MHz)
DC Offset:	0 ±0.5V

Connectors: DIN 1.0/2.3 or BNC per IEC 61169-8 Annex A

9.8.2. Switching Reference

Reference Input: Analog 525/625 or Tri-level
Signal Level: 1V p-p \pm 3dB
Connector: DIN 1.0/2.3 or BNC per IEC 61169-8 Annex A

9.8.3. Control

Q-Link: DIN 1.0/2.3 or BNC per IEC 61169-8 Annex A
Serial: 6 serial (3 RS-232/3 RS-422)
DB9 female (on two breakout panels)
Ethernet: Dual 10/100/1000BT, 8-pin RJ45

9.8.4. General Purpose Inputs/Outputs

Inputs: 16 (standard)
Outputs: 16 (standard)
Type: Opto-isolated, active low
Connector: Terminal block (on breakout panel)

9.8.5. LTC Reader

Standard: SMPTE 12M-1
Frame Rate: 25 and 30 Fps nominal
Connectors: 3-pin female XLR type connector (on breakout panel)
Level: 0.2V to 4V p-p, balanced or unbalanced

9.8.6. Physical (EMX6-FR)

Height: 10.5" (266 mm)
Weight: 19" (483 mm)
Depth: 14.5" (368 mm)
Module: 15 single slot modules
Weight: Approx. 17.4lbs (7.9kg) with 2 power supplies, no slots occupied
Approx. 32lbs (14.5kg) with 2 power supplies, all slots occupied

9.8.7. Physical (EMX3-FR)

Height: 5.25" (133mm)
Width: 19" (483mm)
Depth: 15.75" (400mm)
Module: 5 single slot modules

9.8.8. Electrical (EMX6-FR)

AC Mains Input: Auto ranging, 100 – 200 V AC, 50/60 Hz
Max. Oper Current: 9.5A (@115V AC nominal)
4.0A (@220V AC nominal)
Single Channel: Approx. 90W

Connector: IEC 60320 – 1 per power supply

9.8.9. Electrical (EMX3-FR)

AC Mains Input: Auto ranging, 100-200V AC, 50/60Hz

Max. Oper Current: 4.6A (@100V AC nominal)
1.85A (@240V AC nominal)

Single Channel: Approx. 90W

Connector: IEC 60320 - 1 per power supply

EMC: Complies with FCC Part 15, Class A
Complies with EU EMC directive 89/336/EEC

9.9. ORDERING INFORMATION

3025EMC: Master Control Switcher

Main Processing Modules:

3025EMC-HD: HD/SD Master Control with Channel Branding Module
3025EMC-3G: 3G/HD/SD Master Control with Channel Branding Module
3025EMC-IO-DIN: DIN I/O Rear Module for 3025EMC
3025EMC-IO-XLINK: XLINK I/O Rear Module for 3025EMC
3025EMC-IO-BNC: BNC I/O Rear Module for 3025EMC

Main Processing Module Options:

+EMG Media Graphics expansion
+DVE-2D Two channel 2D DVE
+DVE-2D-2 Four channel 2D DVE
+TXT Texting option for crawls and CGs
+TP Air Temperature probe
+PC8G Upgrade of playout cache to 8GB
+CF8G Upgrade of compact flash to 8GB
+E Support for EAS crawl insertion (North America only)
+NAS Support for network attached storage

Audio Processing Module:

3025AP: 3025EMC Audio Processing Module

Audio Processor Module Options:

+DD2 Dual Dolby-E Decoders
+DE2 Dual Dolby-E Encoders
+IG Intelligain
+DMX Audio Downmixing
+UMX Audio Upmixing

Frames:

EMX6-FR: Frame for 3025EMC modules. Up to five 3025EMC modules
+PS Redundant power supply
EMX3-FR: 3RU frame for 3025EMC modules

+78PQT: Redundant power supply

Control Panels:

EMC-DCP: EMC Control Panel

QMC-CP-1000E: EMC Auxiliary Control Panel - Fully programmable panel with 16 integral 10 character LCD buttons and Ethernet. 1RU rack mount

QMC-CP-E: EMC Control Panel - Standard panel with 33 fully programmable 10-character LCD buttons and Ethernet. 2RU rack mount

QMC-CP-2048E: QMC Buddy Panel - Three rows of 16 integral 10 character LCD buttons which can be used in conjunction with other QMC control panels for extended control. 2RU rack mount with Ethernet

QMC-DCP-SW: Software version of EMC-DCP