

AM-32/8S

In-picture audio meter

From the range of in-picture audio meters by Chromatec

User instructions



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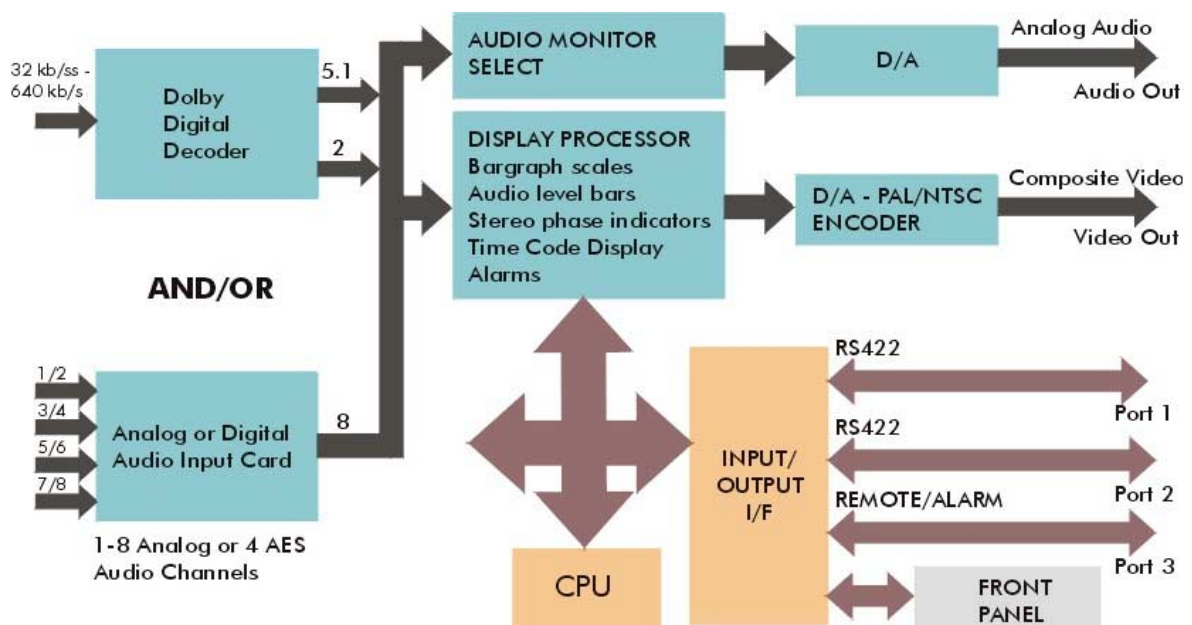
Introduction

The Chromatec AM-32/8S is an eight-channel in-picture audio meter and alarm system optimised for use with surround sound monitoring. It is supplied as a 1U rack mounting frame.

It supports in-picture multi-channel meters for displaying audio levels and phase and in-picture alerts. Monitored parameters include audio-loss, carrier-loss (when using AES/EBU inputs) over-level and sustained anti-phase between assigned channel pairs.

Main features

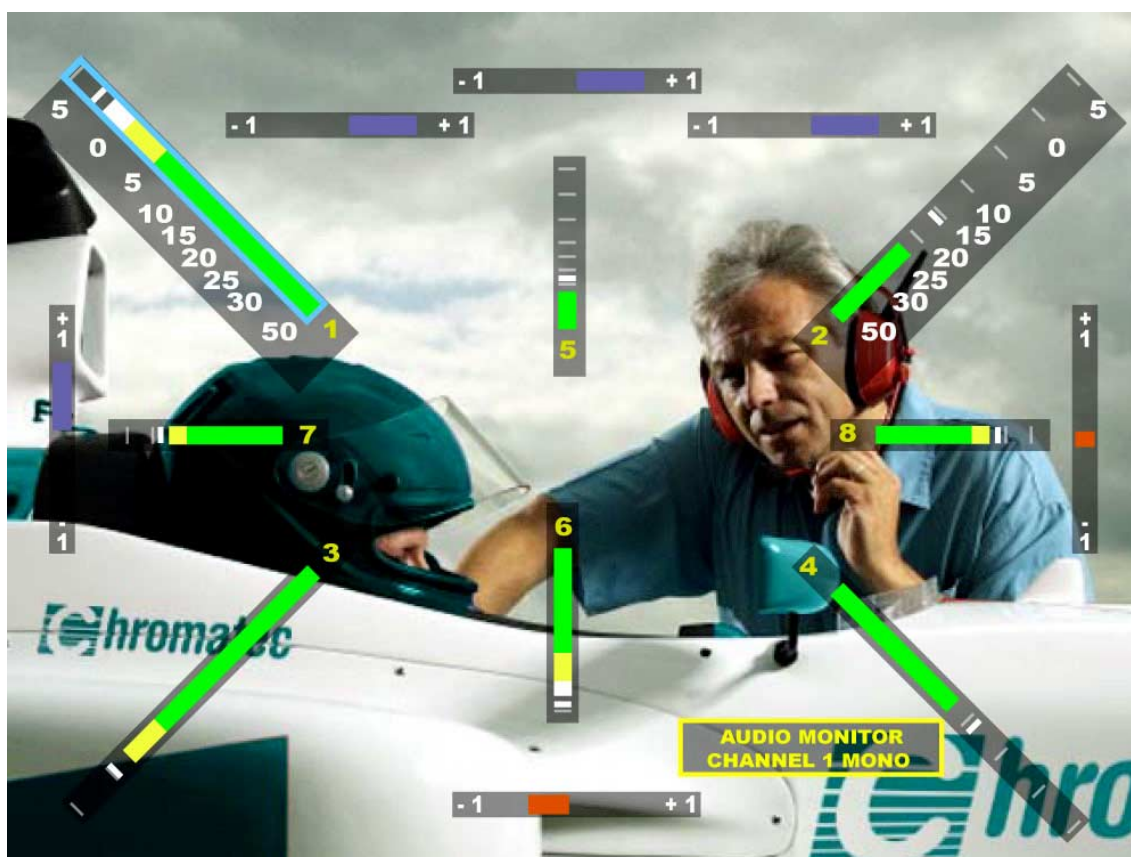
- Supports up to 8 channels of either AES/EBU or analogue audio
- Three types of input card available - eight input analogue, four channel AES/EBU and Dolby® Digital surround sound decoder option
- Colour bargraphs may be full, half or quarter height with peak-hold and out of phase indicators superimposed (mixed) against a video or black background
- In-picture and external alarms for video/audio/carrier-loss, over-level & anti-phase
- Analogue audio monitor output switchable for easy selection of channel monitoring
- On-screen menu for unit configuration



The AM-32/8S In-Picture Audio Meter

Dolby® Digital is a registered trademark of Dolby Laboratories.

The AM-32/8S In-Picture Audio Meter provides a single point of reference for both audio and video. Audio levels and status information are easily combined with live video for total confidence monitoring.



The AM-32/8S In-Picture Surround Sound Audio Meter

Additional features

- Eight suggested surround sound layouts
- Infinite layouts possible with layout editor
- Three bargraph colour sections
- Two user pre-sets plus factory default
- Six standard meter systems & ballistics
- Up to six assignable phase bar meters
- Keyboard socket for custom labels
- Data ports, alarms output and remote control connectors
- Optional LTC & VITC timecode reader
- AES/EBU status information
- Video test functions
- 5V TTL output for triggering external alarms
- Composite video, auto PAL/NTSC with YUV (RGB) option
- Audio source switching between Dolby and discrete audio input card (when fitted)

Input cards

There are three types of input card available for the AM-32/8S, an eight input analogue audio card, a four channel AES/EBU digital audio card or a Dolby® Digital surround sound decoder. Normally only one input card is fitted, however if a Dolby® Digital card is specified then an additional discrete analogue or AES/EBU input card may be fitted.

In a Dolby® Digital /discrete card configuration, each input card will function in exactly the same way in terms of on-screen display, alarms and audio monitoring. However, only one card can be selected at any one time for on-screen monitoring and alarms. A momentary on-screen message will appear confirming the card selection.

The dual input card facility is provided to allow comparative monitoring between discrete and Dolby Digital coded sources. For example, DVD authoring, transmission or post areas where discrete channels are being Dolby Digital coded for domestic distribution.

Please refer to the Installation chapter for more details of fitted input card options.

The Dolby® Digital decoder

The Dolby® Digital decoder option is based on technology designed by Dolby Laboratories which is used as the sound format for digital television (DTV), digital versatile discs (DVDs), high definition television (HDTV), and digital cable/satellite transmissions.

A Dolby® Digital multichannel audio coder obtains high efficiency by coding a multiplicity of channels as a single entity instead of a number of single channel coders.

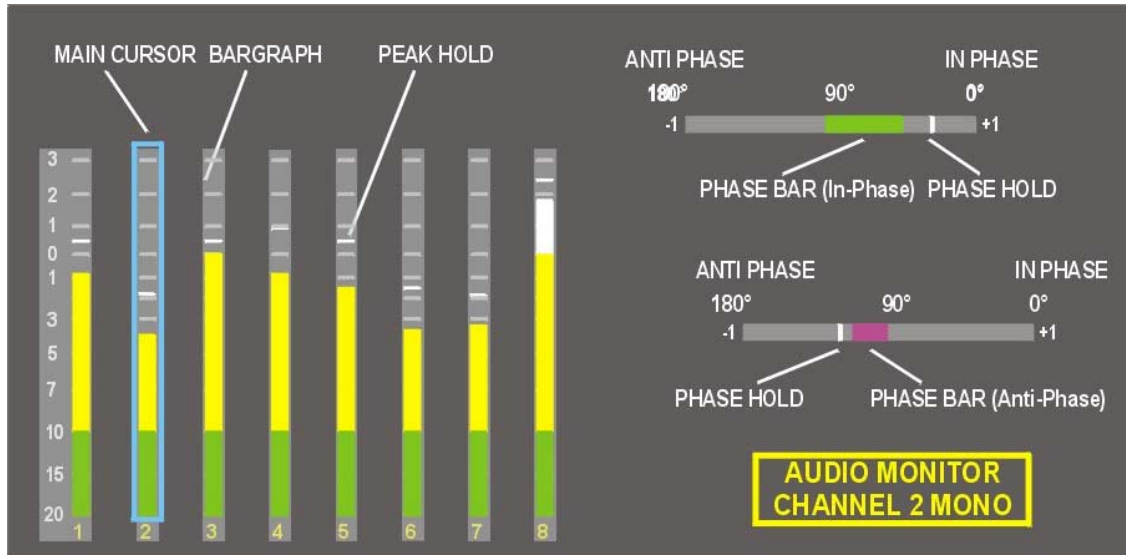
The AC-3 algorithms used by Dolby Digital technology are standardised on the SMPTE-recommended 5.1 channel arrangement of five full bandwidth channels, known as a 3/2 configuration. The five channels are Left, Centre, Right, Left-Surround, and Right-Surround. The '0.1' channel is an additional limited bandwidth low-frequency Subwoofer channel.

When all eight channels are being displayed by the Chromatec Dolby® Digital option, channels 7 and 8 display a stereo 'Dolby® Surround Downmix' of the whole image as a five-channel 3/2 configuration encoded as a stereo compatible two-channel signal. If the input is a two-channel linear PCM signal, it is displayed on channels 1 and 2.

The Dolby® Digital decoder manufactured under license from Dolby Laboratories. 'Dolby' and the double-D symbol are trademarks of Dolby Laboratories. Confidential Unpublished Works. ©1992-1997 Dolby Laboratories, Inc; all rights reserved.

The on-screen display

The AM-32/8S meter/alarm display, available from the composite video output, provides a visual status display of all audio channels connected to the active input card. It may be superimposed on video or set against an internally generated black background.

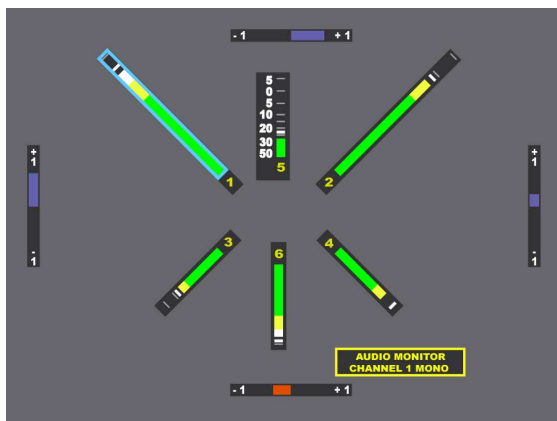


The AM-32/8S Meter/Alarm Display – default colours

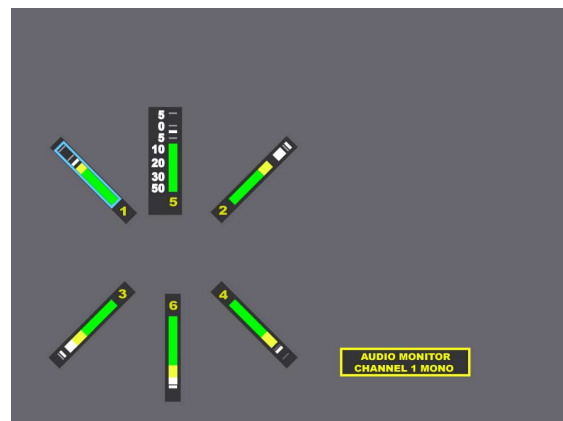
Each bargraph and each phase bar may be positioned in a variety of ways on the screen. This flexibility provides an infinite number of layouts in support of surround sound monitoring.

Layout presets

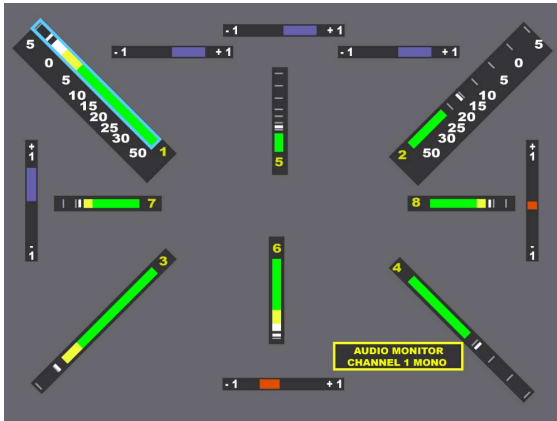
Eight layout presets are provided which may act as starting points for more individual requirements. The selection is as follows:



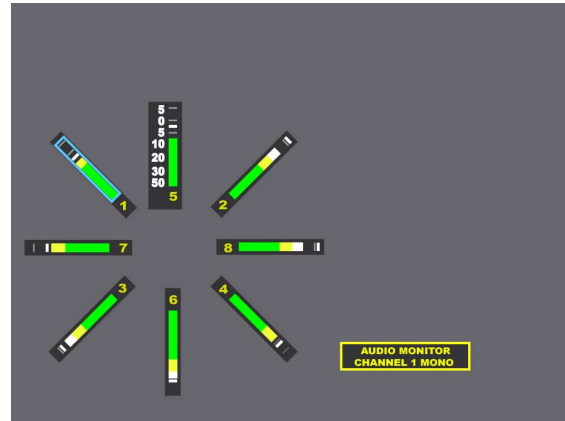
Layout A



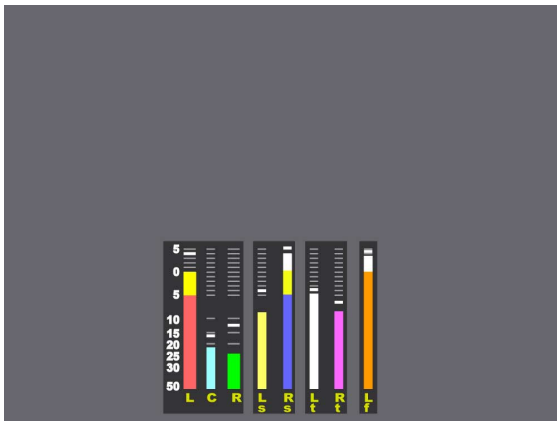
Layout B



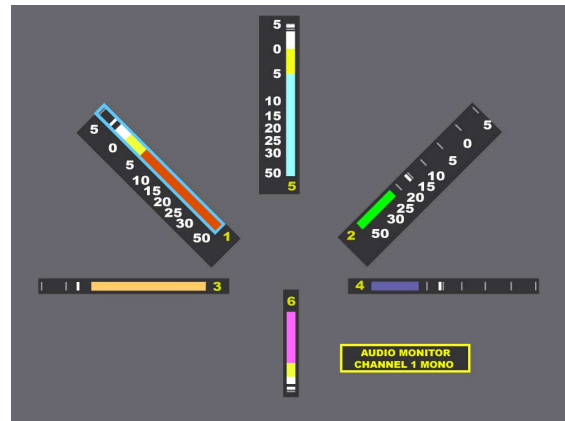
Layout C



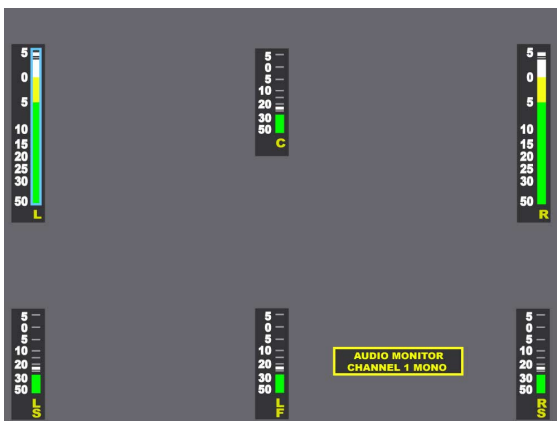
Layout D



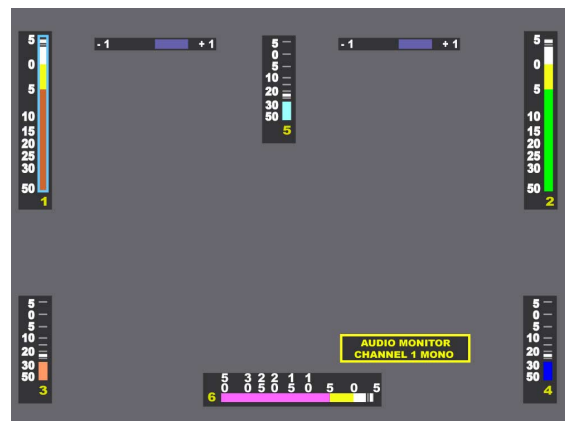
Layout E



Layout F



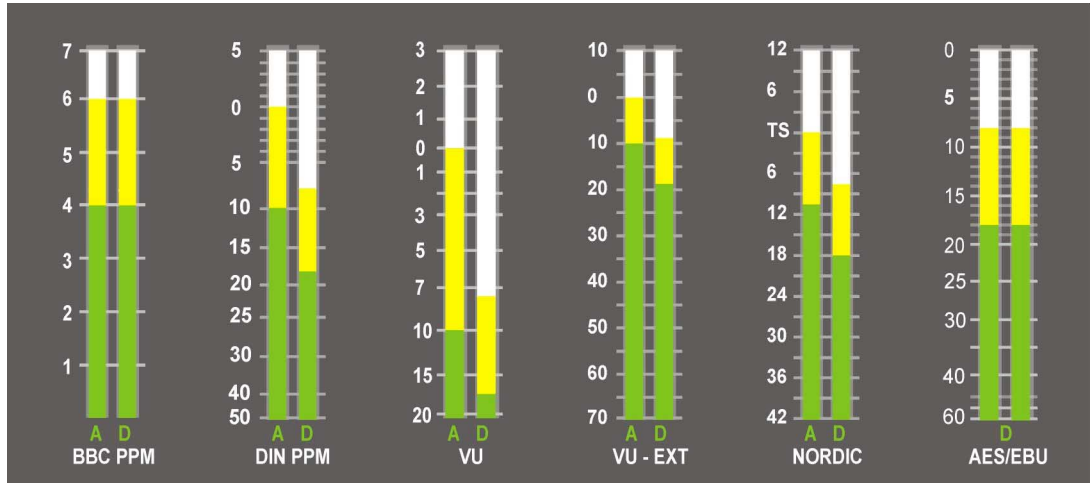
Layout G



Layout H

Bargraph meters

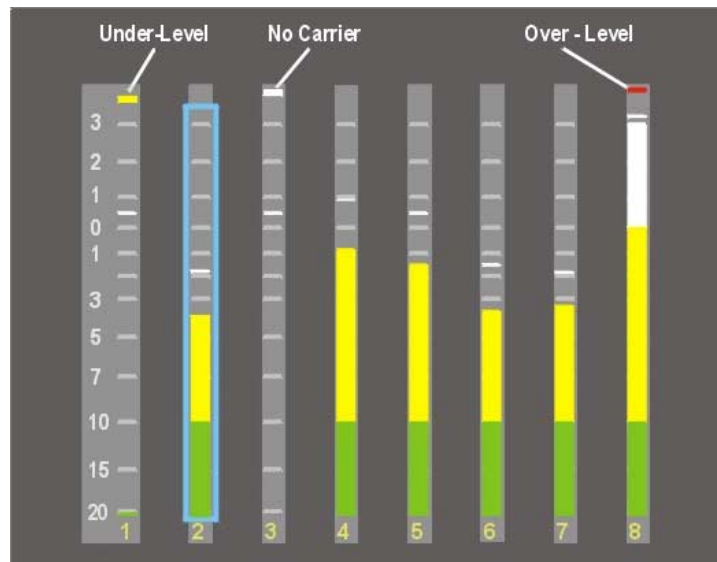
The following audio scales are supported:



Available AM-32/8S meter scales

Bargraph may be split into three different coloured sections, over-range, upper-range and lower-range. Analogue scales can be used for AES/EBU channels, but the default normal and upper range settings are re-scaled. The 'A' columns show analogue range assignments whilst 'D' columns show digital range assignments.

Alarm indicators

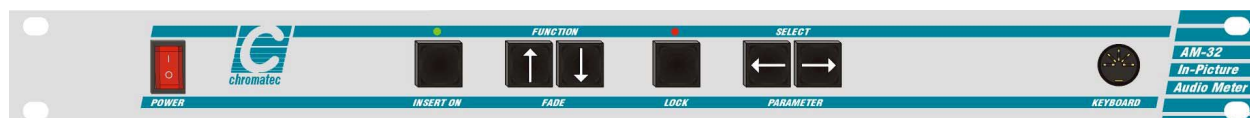


Alarm indicators

Flashing mini-alarms can be assigned to the bargraphs. Refer to configuration menu 5 to enable under-level, over-level, and no-carrier (AES only) alarms.

Operation

The front panel user interface consists of 6 buttons. LEDs above the Insert On and Lock buttons indicate status. The functions assigned to control buttons depend on the mode selected.



The AM-32/8S 1U rack front control buttons, & status LEDs

Operating modes

Normal or 'locked' mode is the normal operating mode. Configuration or 'menu' mode provides access to 8 configuration menus.

Normal mode

In normal use, the configuration menu will be locked to prevent inadvertent operation and configuration menus are not available.

The main 'normal' mode controls are as follows:

- Insert On turns on-screen display ON or OFF
- Select Parameter buttons move channel-select cursor to select analogue monitor output
- Fade buttons alter the brightness of the on-screen bargraphs and alarms
- Lock button resets the peak hold indicators when pressed briefly
- Lock button enters 'menu' mode when held down for about three seconds
- Simultaneous operation of both Select Parameter keys toggle switches between two audio input cards (when fitted)

Menu mode

To enter menu mode from normal mode (with the red Lock LED off) hold the Lock button down for about 3 seconds. The configuration or 'menu' mode will be entered, on-screen menus will appear and the red Lock LED will illuminate. If the Lock button is held down again, any changed settings will be saved and the AM-32/8S will return to normal meter mode.

The menu mode will return to the last menu item visited provided the unit has not been reset or switched off since a configuration menu was last accessed.



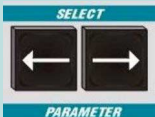
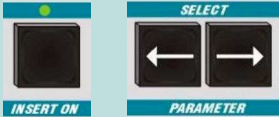




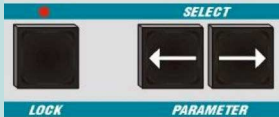
The main 'menu' mode controls are as follows:

- Function scrolls menu cursor up and down to select function
- Select Parameter selects settings to apply to chosen parameter
- Insert On + Select Parameter selects extended settings in right hand column
- Lock button leaves 'menu' mode and saves settings when held down for about three seconds
- Simultaneous operation of both Fade/Function keys toggles a "menu hide" facility. This assists in the editing of certain on-screen display functions. The red Lock and green Insert LEDs, together with a red square in the screen centre, will flash to indicate when menu hide is active.

The factory fitted options of analogue, digital or Dolby® Digital audio input card and timecode cards are automatically detected and the configuration menus are updated accordingly.

Control button summary

The 6 menu buttons are assigned functions as follows:

Button	Normal mode	Menu mode
Insert On 	Turns on-screen display ON or OFF. Green LED is lit when ON.	No Function
Fade /Function 	Fades the brightness of the on-screen display	Scrolls cursor up and down menu to select function. Pressing both keys toggles menu hide function
Select Parameter 	Moves on-screen cursor. Pressing both keys selects audio input card.	Selects settings to apply to parameter chosen with function buttons
Insert On + Select Parameter 	No Function	Selects extended settings to apply to parameter chosen with function buttons
Insert On + Lock 	No Function	Confirms action
Lock – pressed briefly 	Resets bargraph peak-hold and main phase bar hold	No function
Lock – held down 	Hold down for 3 seconds to access configuration menus	Saves settings and returns to normal mode
Insert On + Function 	No function	Scrolls menu page by page
Lock + Select 	Press Lock + both Select Parameter buttons to change TV standard	No function

Button functions

Note: Factory reset may be applied by holding down the Function/Fade buttons whilst performing a power cycle – see the Trouble Shooting for further details.

Menu Commands

The menu or configuration mode is entered by holding the Lock button down for three seconds. This will allow the eight configuration menus to be accessed.

Menu page 1 – User configuration, bargraph layout and scale select

Page 1	1 st Parameter(s)	2 nd Parameter(s)
User Configuration Select	USER 1, USER 2, RESET USER 1, RESET USER 2, COPY 1 TO 2, COPY 2 TO 1	
Pre-set Screen Layout Select	A, B, C, D, E, F, G, H	
Show Chans From/To	ALL CHANS, CHAN 1 – 8	OFF, ON
Bar Size	ALL CHANS, CHAN 1 – 8	Full, Half Quarter
Bar Orientation	ALL CHANS, CHAN 1 – 8	45 Up Left, Vertical Up, 45 Up Right, Right, 45 Lo Right, Vertical Dn, 45 Lo Left, Left
Bar Width	ALL CHANS, CHAN 1 – 8	Width 10 – 32 pixels
Scales Select	BBC PPM, DIN PPM, NORDIC PPM, VU, VU EXTENDED	
Scales Position	ALL CHANS, CHAN 1 – 8	OFF, LEFT, RIGHT
Scales Colour	Named colour	Sample colour
Bar Position-Select Channel	ALL CHANS, CHAN 1 – 8	
Bar Position	(◆) Move bar horizontally	(◆) Move display vertically

User configuration

There are two user memories, USER 1 and USER 2. Settings can be copied from one user to the other and further changes can be made before saving. Any changes made are saved automatically when exiting the menu by briefly pressing the 'Lock' button.

Applying 'Reset User 1' or 'Reset User 2' returns the settings of that user memory to the factory default. Factory defaults may also be applied by applying a Master Reset as explained in the Trouble Shooting chapter.

Reset and Copy functions require the Lock and Insert On buttons to be pressed together as confirmation.

Bar layouts

Eight built-in layouts are provided as suggested surround-sound monitoring displays (refer to pages 4 and 5). These layouts can easily be edited or entirely different layouts created. Individual bargraphs may be shown or hidden from the display at any time.

Bar size

The bargraphs may be displayed in Quarter, Half, Normal (full height) mode.

Bar orientation, width and position

Each bargraph may be individually adjusted for orientation, width and position. Width is displayed in pixels. Orientation provides eight positions in 45-degree rotational steps. The scale numbering always increases from top to bottom.

Bargraph scales

Standard scales and their corresponding ballistics may be selected. These may be positioned to the left, right or both sides of the relevant bargraphs. The bargraph may be split into three different coloured sections, over-range, upper-range and lower-range.

If only one or two colours for each bargraph are preferred, then the upper and lower-range points may be set to an equal level or changed to the same colour.

The AES/EBU scale is designed for use with digital audio. Analogue scales can be used for AES/EBU channels, but the default normal and upper range settings are re-scaled.

The 0dB scale reference may be set from 0dB to -30dB when any scale is used for digital audio.

Menu Page 2 – Bar ranges, colours, labels and scale reference

Page 2	1 st Parameter(s)	2 nd Parameter(s)
Bar Upper-Range Point	ALL CHANS, CHAN 1– 8	ANLG: -30dB to +12dB DIGITAL: -30dB to +12dB
Bar Lower-Range Point	ALL CHANS, CHAN 1– 8	ANLG: -30dB to +12dB DIGITAL: -30dB to +12dB
Bar Colour Over Range	ALL CHANS, CHAN 1– 8	Colour sample
Bar Colour Upper Range	ALL CHANS, CHAN 1– 8	Colour sample
Bar Colour Lower Range	ALL CHANS, CHAN 1– 8	Colour sample
Bar Background Colour	ALL CHANS, CHAN 1– 8	Colour sample
Bar Group Background Colour	ALL CHANS, CHAN 1– 8	Colour sample
Bar Labels	ALL CHANS, CHAN 1– 8	Off, Numerical, Keyboard
Bar Label Colour	Named Colour	Colour sample
Main Cursor Colour	Named Colour	Colour sample
Analog 0dB Ref	ALL CHANS, CHAN 1– 8	0dBu to +11dBu
Digital-Analog Scale Ref	0dB to -30dB = 0dB	

Ranges and colours

Each bargraph may be split into three different coloured sections, over-range, upper-range and lower-range. The colours and break-points chosen may be different for each bargraph if required. The bargraph background colour, which is always mixed with any video background, can also be individually specified for each bargraph.

Bar labels

In default mode channels are labelled numerically. If a keyboard is connected into the front of the unit, keyboard mode will be available. This allows customised labels up to two characters long to be entered. Alternatively, all labels may be switched off.

Main cursor colour

The main cursor may be set to any of the available colours. Cursor colours are re-assigned automatically to show stereo pair selection – see Audio Monitor Assign pages 14/15.

Analogue and digital scale references

Analogue scales can be used for AES/EBU channels, but the default normal and upper range settings are re-scaled.

Menu Page 3 – Phase bar enable and assignment

Page 3	1 st Parameter(s)	2 nd Parameter(s)
Phase Bar A Enable-Assign	As Phase Bar Assign	Off, Horizontal, Vertical
Phase Bar A Position	Horz (◆)	Vert(◆)
Phase Bar B Enable-Assign	As Phase Bar Assign	Off, Horizontal, Vertical
Phase Bar B Position	Horz (◆)	Vert(◆)
Phase Bar C Enable-Assign	As Phase Bar Assign	Off, Horizontal, Vertical
Phase Bar C Position	Horz (◆)	Vert(◆)
Phase Bar D Enable-Assign	As Phase Bar Assign	Off, Horizontal, Vertical
Phase Bar D Position	Horz (◆)	Vert(◆)
Phase Bar E Enable-Assign	As Phase Bar Assign	Off, Horizontal, Vertical
Phase Bar E Position	Horz (◆)	Vert(◆)
Phase Bar F Enable-Assign	As Phase Bar Assign	Off, Horizontal, Vertical
Phase Bar F Position	Horz (◆)	Vert(◆)

Phase bar assignments

There are six phase bars, which may be assigned to any pair of audio channels as shown in the following table:

Phase Bar Assign	1 st Parameter(s)
Assignment Selection	CHANS 1+ (2 – 8), CHANS 2+ (3 – 8), CHANS 3 + (4 – 8), CHANS 4 + (5 – 8), CHANS 5 + (6 – 8), CHANS 6 + (7 – 8), CHANS 7 + 8

Each phase bar may be placed anywhere in the screen using the horizontal and vertical positioning controls provided.

Menu 4 provides an optional 'hold' cursor for all phase bars that will register if the stereo program or channels were at any stage out of phase. *The cursor may be reset at any time by briefly pressing the 'Lock' button when in the normal operating mode.*

Menu Page 4 – Phase bar more, audio monitor, AES status

Page 4	1 st Parameter(s)	2 nd Parameter(s)
Phase Bar Colours	Phase In, Phase Out	Colour sample
Peak Hold Enable	0.5s, 1s, 3s, 10s, 30s, Inf	ON/OFF
Peak Hold Indicator Colour	Named Colour	Colour Sample
Audio Monitor Assign	MAIN CURSOR, Chan 1-8, CHAN 1+2 to 7+8 STEREO, CHAN 1+2 to 7+8 SUMMED	Label On, Label Off
Audio Monitor Assign Position	(◆) Move bar horizontally	()◆ Move display vertically
AES/EBU Oversamples Status – See Alarm, Digital Set Level	RESET	
CH 01-04 0000 0000 0000 0000		
CH 05-08 0000 0000 0000 0000		
AES/EBU Receivers Status		
PAIR 01-02: GOOD GOOD		
PAIR 03-04: GOOD NO CARR		

Peak hold indicators

Peak hold indicators are provided for all channels. The delay time before decay may be set according to requirements and includes an 'infinite' setting which indicates the maximum level attained over any period of time until it is reset. This is carried out by briefly pressing the 'Lock' button when in the normal operating mode.

Audio monitor assign

The audio monitor output may either be selected by the main cursor (default mode), or set via the on-screen menu. All possible audio monitoring selections are detailed in the 1st parameter column of menu page 4.

Cursor selection of the audio monitor source is performed in normal mode by pressing either of the front panel Function/Select keys. Each key operation steps in sequence through the monitor options in the direction indicated by the key. Pressing either the left Function/Select key when Channel 1 is selected, or the right Function/Select key when 7+8 SUMMED is selected causes the cursor to vanish from the screen, and switches off the monitor output. Single or dual cursors will appear on screen as appropriate to the monitor selection.

When selecting stereo channel pairs, the cursors will automatically change in colour to red (left channel) and green (right channel). At all other times the cursor/s will assume the main cursor colour selected in menu page 2.

An on-screen audio monitor status label may be switched on or off via the menu.

Should the AM-32/8S be fitted with the Dolby Digital input card option, channels 7 and 8 contain a stereo down-mix (3/2L.C.R.Ls.Rs) of the surround channels. This may be monitored by selecting 7+8 STEREO.

A pair of balanced analogue audio monitor outputs are provided irrespective of the input card option fitted.

Audio monitor label

An on-screen 'audio monitor label' may be turned on and positioned anywhere in the screen. The label displays which mono channel or stereo/summed adjacent channel(s) are directed to the balanced audio monitor outputs.

AES/EBU oversamples status

The status shown for each channel pair is dependent on the number of oversamples permitted, as set on page 5 of the menu under 'Alarm, Digital Over Enable - Set Level'. The data displayed remains and is updated until reset in the menu or the unit is switched off.

Note: RESET will flash red to indicate that both Lock and Insert On must be pressed together to provide a reset.

AES/EBU receiver status

The status of all incoming AES/EBU feeds is displayed on this page.

Note: NO CARR is shown if no digital audio input is connected.

Menu Page 5 – Alarm configuration

Page 5	1 st Parameter(s)	2 nd Parameter(s)
Alarms Auto Reset/Indicators	OFF, 0s, 1s, 5s, 10s, 30s, 1min, 5mins, 10mins, 30mins, 1 to 12 hours	ON/OFF
Alarms Reset	ALL CHANS, CHAN 1+ 2 to CHANS 7+8	- - -
Alarm, Carrier Loss Enable	ALL CHANS, CHAN 1+2 to CHANS 7+8	ON/OFF
Set Time	5s, 10 to 60s	
Alarm, Analog Over Level	ALL CHANS, CHAN 1+ 2 to CHANS 7+8	ON/OFF
Set Level	0dB to 20dB	
Alarm, Digital Over Level	ALL CHANS, CHAN 1+ 2 to CHANS 7+8	ON/OFF
Set Level	-20dB to 0db OR 1- 12 Samples	
Alarm, Audio Loss Enable	ALL CHANS, CHAN 1+ 2 to CHANS 7+8	ON/OFF
Set Time	5s, 10 to 60s	
Set Threshold	-50db to 0dB	
Alarm, Video Loss Enable		OFF/ON

Alarms

There are alarms for audio-loss, video-loss, over-level, anti-phase and carrier-loss (AES/EBU inputs only).

On the AM-32/8S on-screen display an alarm condition is provided in the form of flashing coloured rectangles situated at the top of the respective bargraphs. Refer to the On-screen alarms and phase indicators *section* for further details.

AM-32/8S alarm indicators may be shown on screen or hidden. In hidden mode they may still be active and provide external indication of an alarm condition via the common 5V TTL alarm output via alarms out connector, Port 3. This signal may be used to trigger an external alarm device.

Individual alarms may be reset from the system menu or collectively via the reset function via alarms out connector, Port 3.

Menu Page 6 – Alarms more, timecode, data ports

Page 6	1 st Parameter(s)	2 nd Parameter(s)
Alarm, Anti-Phase Enable	ALL BARS, PHASE BAR A to PHASE BAR F	ON/OFF
Set Time	0.25s, 0.5s, 1s, 3s, 5s, 10s	
Set Degrees	ANY –VE, 45°+, 90°+	
Timecode Reader	VITC, LTC	
Timecode Horizontal Position	(◆) Move display horizontally	
Timecode Vertical Position	(◆) Move display vertically	
Timecode Background Colour	Named Colour	Colour Sample
Timecode Numbers Colour	Named Colour	Colour Sample
Data Port 1 Assign	TO PC	
Data Port 2 Assign	TO AL-32, Video SW	

Anti-phase alarm

The anti-phase external alarm may be set for all phase bars or for individual phase bars. There is no on-screen alarm other than the movement of individual phase meters.

Timecode reader

The timecode reader will display VITC or LTC. Both screen position and colours may be user set.

Menu Page 7 – System status and configuration

Page 7	1 st Parameter(s)	2 nd Parameter(s)
Video Operating Mode	COMPOSITE, YUV, RGB	
Video Display	Auto, Internal, External	
Video Standard Internal	PAL, NTSC	
NTSC Pedestal	OFF, ON	
Video Source Select	Main Cursor, Video 1 – Video 16 (For use with external video switcher only)	
Video Test Functions	Off, Bars, Pulse, Circle	
Input Card Type 1	ANALOG/DIGITAL/SURROUND	DOLBY DIGITAL/PCM LINEAR/SILENT
Input Card Type 2	ANALOG/DIGITAL/NONE	

Video operating mode

The AM-32/8S may be used in either YUV or RGB component modes. When making this change it is necessary to view the unit in composite video mode so that the picture is not lost when the change is effected.

Video display

When 'Internal' is selected, bargraphs are viewed on the AM-32/8S's internal black generator. If video is not required or only audio channels need to be monitored then the unit would be used in this mode. 'External' only allows the bargraphs to be viewed on incoming video. If video is lost in this mode, the picture loses sync and it will not be possible to view the bargraphs until the video is reinstated. In the 'Auto' mode, the bargraphs are normally viewed on incoming video. If video is lost the AM-32/8S will automatically switch to it's internal black generator, allowing the operator to continue viewing the bargraphs. When video is reinstated, black automatically switches back to the incoming video.

Video source select

External video switching (in conjunction with a separate video switcher) may be carried out from the menu via Data Port 2, subject to suitable protocol being available.

Video test functions

When entering this mode all other display parameters are disabled. Basic test patterns are provided including colour bars, 75% & 100% and a circle. Pressing the lock button for approximately 3 seconds will reinstate the system menu where this function may be switched off.

Input card type

The status of the input cards fitted to the AM-32/8S is automatically displayed.

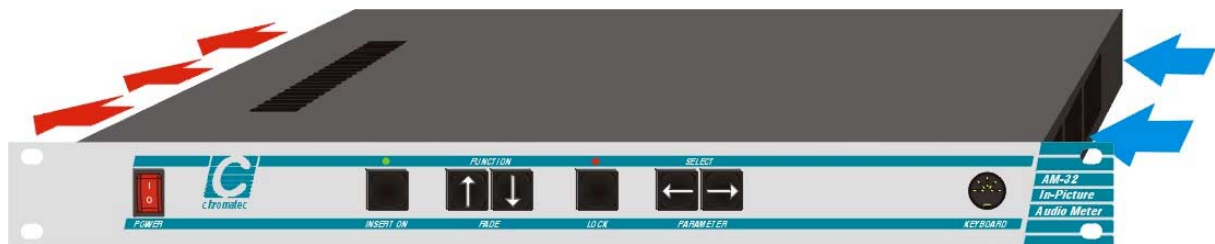
Menu Page 8 – Contact Information

Contact information, as shown at the front of this manual, is displayed on menu page 8.

Installation

The Chromatec AM-32/8S 1U frame may be installed in 19 inch bays with 453mm depth. Ventilation is produced in each frame with three exhaust fans on the left hand side (viewed from front) with intake grilles at the right.

There are also air intake vents located on the top of the frame. Frames should be installed into bays such that airflow through these apertures is not impeded.



The 1U AM-32/8S frame showing main side to side ventilation

Note: The front rack ears are intended to provide a means of retaining the unit in the rack. To ensure adequate support the unit **MUST** also be supported at the rear of the frame. Please ensure that ventilation is not impaired when selecting suitable supports.

Selecting the mains voltage

The correct mains voltage (230/110 volts) for the system into which the AM-32/8S is installed **MUST** be selected at the rear panel **BEFORE** the unit is switched on. Normally, the correct voltage for the country the unit is shipped to will be set before the unit leaves the factory.



Voltage Selector Fuses under flap

Selecting the correct mains supply voltage setting

Note: A spare 1A fuse should be located under the flap.

Health and safety considerations

The Installation and Maintenance of the Chromatec AM-32/8S In-Picture Audio Meter and Alarm System and any associated equipment, must be carried out by PERSONS SUITABLY QUALIFIED to work with equipment which may be connected to the mains supply.

The AM-32/8S MUST BE DISCONNECTED & ISOLATED FROM THE MAINS INPUT and from other product outputs before undertaking maintenance.

ELECTRIC SHOCK HAZARDS exist if conductive instruments, neck chains or fingers etc are placed within the AM-32/8S or in close proximity of the input/output terminals/connectors.

Incorrect installation can cause internal components to rupture and particles to be ejected from the product.

TOXIC FUME HAZARDS exist if the unit is subjected to direct flames or excessive temperature of above 100 Degrees Centigrade ambient.

The mounting and installation of the unit must be arranged by the user to comply with all safety regulations by the indigenous authority.

Disposal

Do not incinerate as explosive and toxic fume hazards exist. Disposal must be by dismantling the product to component level and disposing of each component by an approved method.

Supplied accessories

Standard accessories are as follows:

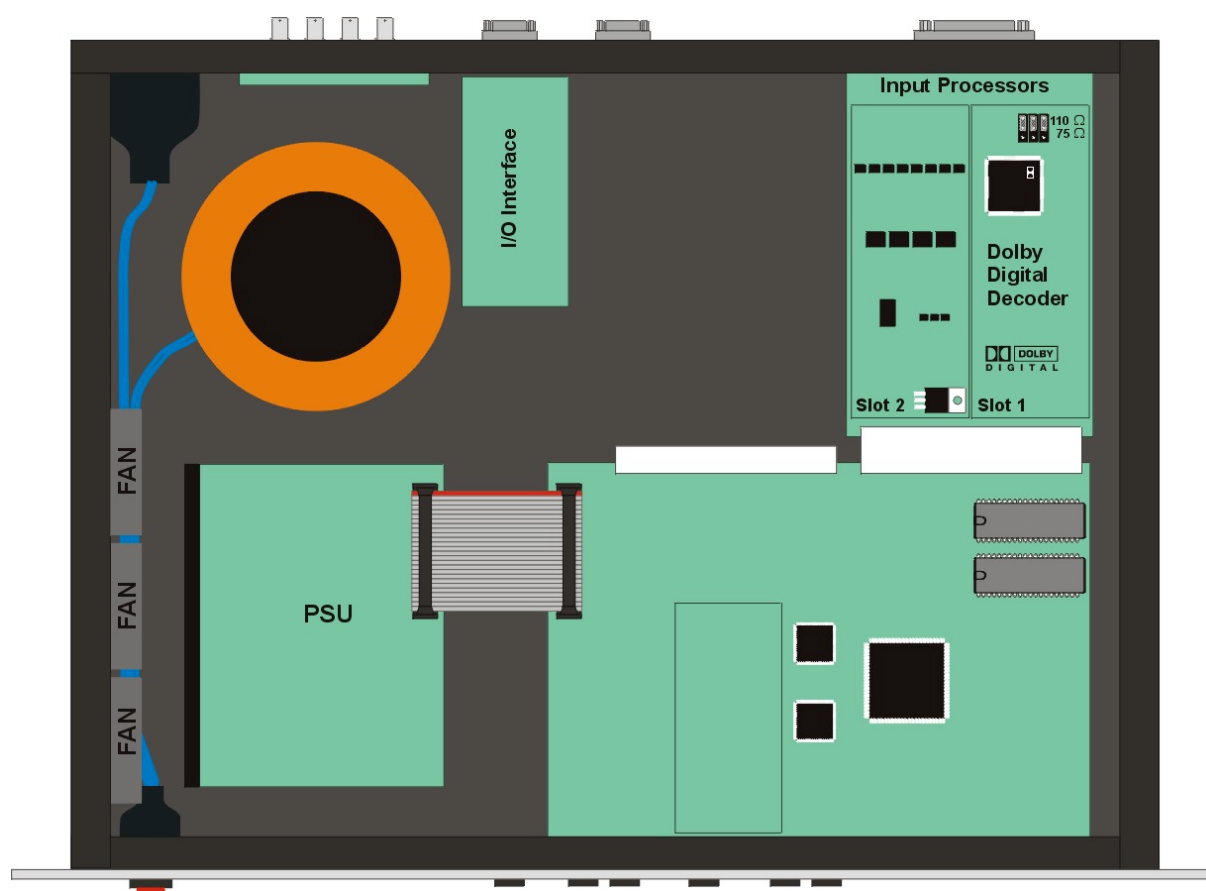
AM-32/8S with analogue or digital input card

Item	Accessory
1	AM-32/8S frame
2	Manual
3	Mains lead
4	50 way 'D' connector

Input card configurations

The AM-32/8S may be fitted with either one or two input card options. The following rules apply:

- If just one of the three types of input card are fitted, it must always reside in slot 1
- If a dual card option is specified this will always consist of a Dolby® Digital card in slot 1 and either an analogue or digital card in slot 2 – no other dual card configurations are possible



AM-32/8S 1U frame showing Dolby® Digital /discrete dual input cards

Note: Input cards are normally fitted at the factory

Connector I/O

All connections are provided on the rear panel of the frame. Audio connections use a 50 way 'D' type connector, remote/alarm connections use a 15 way 'D' connector, video inputs and outputs use BNC connectors and all data connectors use 9 way 'D' type connectors.



AM-32/8S 1U frame connector I/O

Ports 1&2: Female 9 way 'D' connector RS422 assignments

Pin No	Function	Pin No	Function
1	+5V DC	6	+5V DC
2	-RX	7	+RX
3	-TX	8	+TX
4	GND	9	GND
5	GND		

Audio Out: Female 9 way 'D' connector assignments

Pin No	Function	Pin No	Function
1	Right -ve	6	GND
2	Right +ve	7	GND
3	GND	8	GND
4	Left -ve	9	GND
5	Left +ve		

Port 3: Female 15 way 'D' connector assignments

Pin No	Description	Pin No	Description
1	Insert On	9	Fade -
2	Fade +	10	Lock
3	Select -	11	Select +
4	Timecode -ve	12	Timecode +ve
5	Lock LED	13	Insert LED
6	Alarm Reset	14	GND
7	Alarm Out	15	GND
8	+5V DC		

Note: Alarm Out is a combined 5V TTL compatible signal for any asserted alarm.

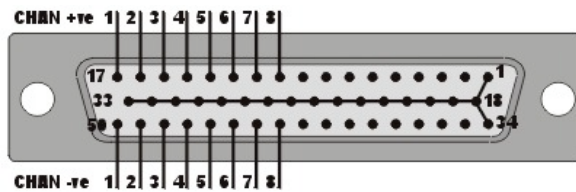
Alarm Reset requires a closure to ground for a minimum period of 0.1 second.

Single input card connector pinout

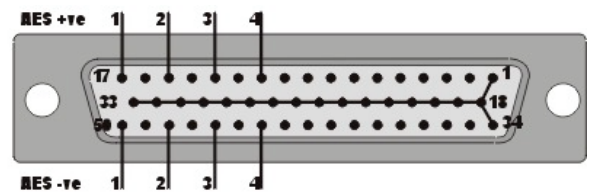
Single analogue or digital discrete card or Dolby Digital configuration.

Analogue IN 1-16/AES / EBU IN 1-8, Connector type: 50 way 'D' female

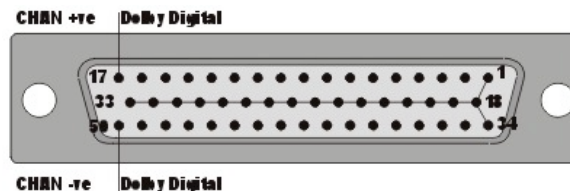
Dolby Digital/AES/EBU I/P	Hot Pin	Cold Pin	Analogue
1 - Chan 1&2 / Dolby Digital*	17	50	Chan 1
N/C	16	49	Chan 2
2 - Chan 3&4	15	48	Chan 3
N/C	14	47	Chan 4
3 - Chan 5&6	13	46	Chan 5
N/C	12	45	Chan 6
4 - Chan 7&8	11	44	Chan 7
	10	43	Chan 8
GND	1, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34		



Discrete analogue inputs 1-8



Discrete digital audio pairs 1-4



Dolby Digital input

AM-32/8S 50 way 'D' male connector rear pins shown – single discrete card OR Dolby Digital configuration

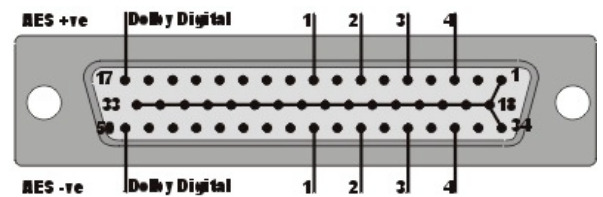
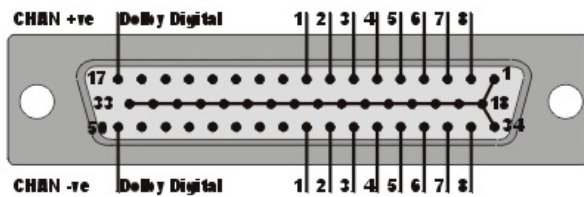
Note: *For Dolby Digital use pin 17 = hot, pin 50 and/or pin 33 = GND for unbalanced wiring; OR pin 17 = hot, pin 50 = cold, and pin 33 = GND for balanced wiring

Dual input card connector pinout

Dolby Digital plus analogue/digital dual card configuration

Analogue IN 1-16/AES / EBU IN 1-8, Connector type: 50 way 'D' female

Dolby Digital/AES/EBU I/P	Hot Pin	Cold Pin	Analogue
Dolby Digital*	17	50	N/C
N/C	16	49	N/C
N/C	15	48	N/C
N/C	14	47	N/C
N/C	13	46	N/C
N/C	12	45	N/C
N/C	11	44	N/C
N/C	10	43	N/C
1 - Chan 1&2	9	42	Chan 1
N/C	8	41	Chan 2
2 - Chan 3&4	7	40	Chan 3
N/C	6	39	Chan 4
3 - Chan 5&6	5	38	Chan 5
N/C	4	37	Chan 6
4 - Chan 7&8	3	36	Chan 7
	2	35	Chan 8
GND	1, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34		



Dolby Digital and discrete analogue inputs 1-8 OR Dolby Digital and discrete digital audio pairs 1-4
AM-32/8S 50 way 'D' male connector rear pins shown – dual card configuration

Note: *Dolby Digital uses pin 17 = hot, pin 50 and/or pin 33 = GND for unbalanced wiring; OR pin 17 = hot, pin 50 = cold, and pin 33 = GND for balanced wiring

Surround sound channel assignments

The following default channel assignments are used in all factory layouts:

Channel	Dolby Digital input card	Standard digital/analogue input card
1	Left Front	Left Front
2	Right Front	Right Front
3	Left Surround	Left Rear
4	Right Surround	Right Rear
5	Centre	Centre
6	LFE	LFE
7	Left stereo down-mix	Left Side (7.1)
8	Right stereo down-mix	Right Side (7.1)

Changing Dolby Digital input termination values

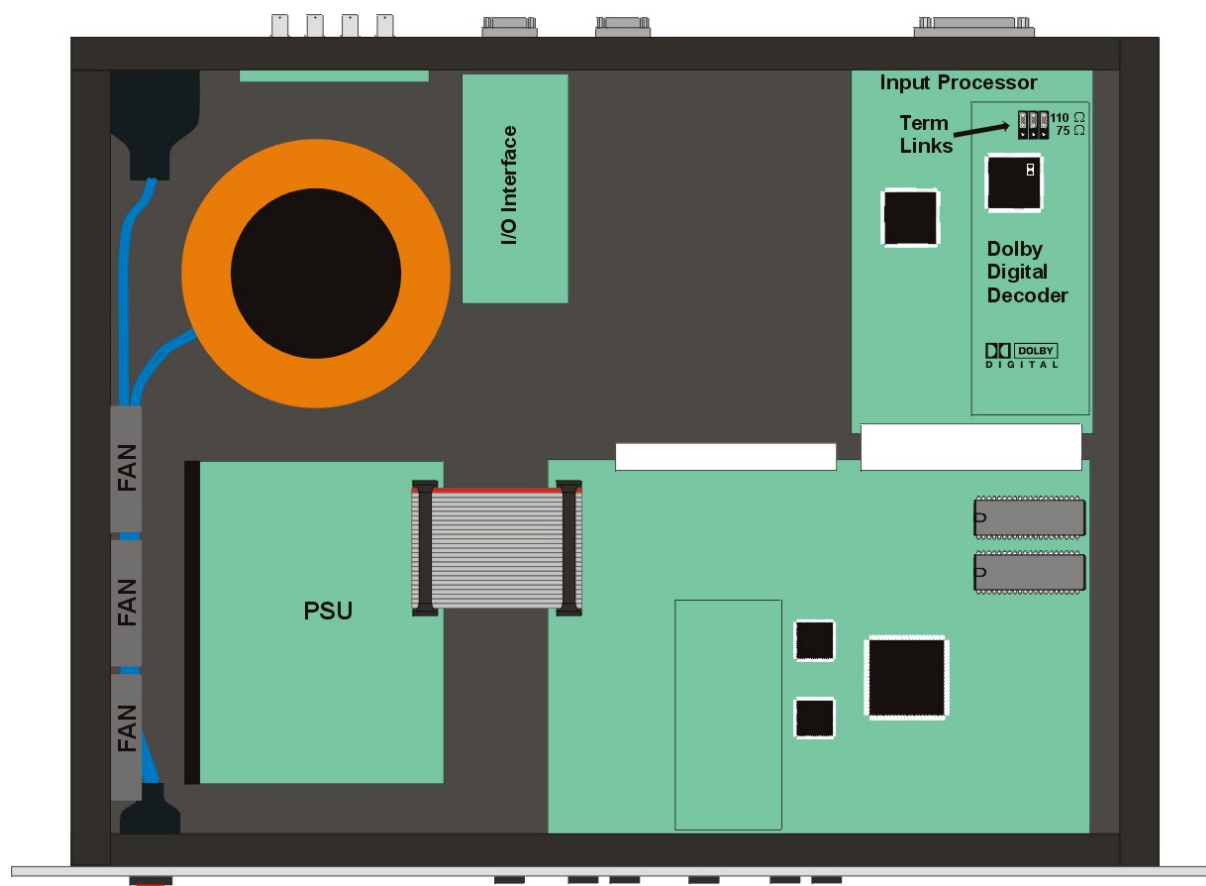
The Dolby® Digital decoder option may be set by jumper links for a 110 Ω balanced or 75 Ω unbalanced input. Changing the input termination values requires access to the inside of the unit.

Warning: To avoid dangerous electric shock, do not perform any service or make adjustments unless qualified to do so.

The mains supply must be disconnected before removing any covers.

To gain access to the Dolby® Digital decoder proceed as follows:

- Disconnect the mains supply from the unit
- Remove the screws retaining the top cover and keep them in a safe place
- Locate the Dolby® Digital decoder at the top right of the unit

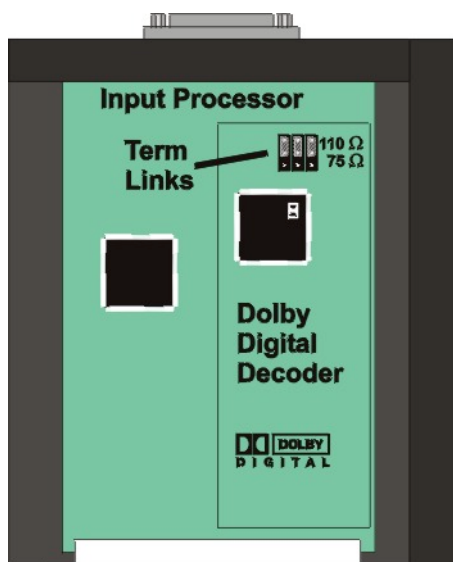


AM-32/8S 1U frame simplified inside view

The three termination links should always be changed as a group.

Dolby® Digital decoder input termination

Termination	110Ω balanced	75Ω unbalanced
Link Position	Towards rear of unit	Away from rear of unit



Dolby® Digital decoder input termination links

Once the desired termination is obtained proceed as follows:

- Replace the cover and screw it firmly in position
- Re-connect the mains supply to the unit

Problem solving

The power switch should illuminate red whenever mains power is supplied. Always ensure that power is connected before using the problem solving guide. A spare fuse is supplied in space provided in the IEC mains connector before the unit leaves the factory. Always replace the fuse with one of the correct value as shown in the Installation section.

Sample problems and their solutions

There is no composite output

Check that there is power to the unit and that it is turned on
An output should be seen within a few seconds of switching on

No colour information can be seen

Check that the correct TV standard has been selected
Check the colour assignments in the configuration

The Monitor Select Cursor cannot be seen

Check that it has not been scrolled off-screen

All alarms and bargraph elements turn on in menu mode

This is done to allow AM-32/8S configuration changes to be viewed immediately

Unit fails to respond correctly to commands

Power cycle the unit and/or perform a Master Reset



In the unlikely event that the unit fails to respond correctly, a **Master Reset** may be applied to restore all settings to the factory default. Turn off the power for a few seconds, then turn it back on while pressing both Fade/Function buttons until the bargraphs appear. This may take up to ten seconds. Follow any required configuration steps after any reset.

Specification

Analogue inputs

Input connector: 50 pole "D" type
Input impedance: 20K Ω , balanced
Input sensitivity: 0dBu = 0dB scale reading
Input sensitivity adjustment - coarse: +8, -3dBu in 1dB steps
Input sensitivity adjustment - fine: \pm 1dBu in 0.1dB steps
Max Input level: +24dBu
Frequency response at -3dB points: 25Hz to 23KHz
A/D converter: Stereo 18 bit
Sampling frequency: 48KHz
Rectifiers: Software full wave rectifier
Detectors: Software Peak detector
Average

Digital inputs

Input connector: 50 pole "D" type
Input type: Differential
Input compatibility: RS422
Input interface: Transformerless professional AES/EBU
Sampling frequency: 48KHz
Rectifiers: Software full wave rectifier
Detectors: Software sample detector

Digital inputs with Dolby® Digital input card

Input connector:
1 x 50 pole 'D' with integral BNC for unbalanced inputs
1 x 50 way 'D' with cable terminating in female XLR for balanced inputs
Note: The Dolby Digital input always uses channel 1 (pin 17) of the 50 way connector
Input type: Differential (balanced inputs only)
Input compatibility: RS422
Input interface: Transformerless professional AES/EBU
Sampling frequency: 32, 44.1, 48KHz detected via input
Input data rate: 32kbs – 640kbs
Rectifiers: Software full wave rectifier
Detectors: Software sample detector

Video inputs

Input connector: 75 Ohm BNC
Composite video auto PAL/NTSC
Component YUV/RGB switchable

Video outputs	Output connector: 75 Ohm BNC Composite video PAL/NTSC Component YUV/RGB switchable
Scales and Ballistics	
NORDIC:	Overall dynamic range: 54dB (+12 to -42dB) Attack time: 10mSec Decay time: 1.7Sec per 20dB decay
DIN PPM:	Overall dynamic range: 55dB (+5 to -50dB) Attack time: 10mSec Decay time: 1.5Sec per 20dB decay
BBC PPM:	Overall dynamic range: 24dB +3dB down "Mark 1" (+12 to -12dB) Attack time: 10mSec Decay time: 2.8Sec per 24dB decay (from "Mark 7" to "Mark 1")
VU:	Overall dynamic range: 23dB (+3 to -20dB) Attack time: 300mSec (from v2.1) Decay time: 300mSec per 20dB decay (from v2.1)
VU EXT:	Overall dynamic range: 80dB (+10 to -70dB) Attack time: 300mSec (from v2.1) Decay time: 300mSec per 20dB decay (from v2.1) Decay time: 1.0Sec per 40dB decay
AES/EBU:	Overall dynamic range: 60dB (0 to -60dB) Attack time: One sample Decay time: 1.5Sec per 20dB decay
Phase Correlation Display	Attack time: 0.4Sec for zero to ± 1 deviation Decay time: 0.4Sec for ± 1 to zero deviation Input dynamic range: 45dB Minimum input level: -45dBu
Housing	19" Rack Mount: 1U high. Outline Dimensions: 484mm(W) x 453mm(D) x 44.5mm(H)
Power	110V / 60 Hz or 230V / 50 Hz, switch selected
Environmental	Temperature 0°C to 30°C Humidity 70% max.
Front panel	Power on/off, 6 configuration buttons
Rear panel	Video I/O BNC connector, 2 x RS422, Remote, Audio Out connector and 50 way audio input connector