Film-Tech

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PANASTEREO

CINEMA SOUND PROCESSOR
MODEL CSP1200

THX®

SR

INSTALLATION AND OPERATION MANUAL

INTRODUCTION 1

SPECIFICATION 2

CSP1200 BLOCK DIAGRAMS 3

FLOW CHARTS 4

OPERATION 5

INSTALLATION 6

A-CHAIN ALIGNMENT 7

B-CHAIN ALIGNMENT 8

AUTOMATION REFERENCE 9

INDEX 10

Thank you for purchasing this PANASTEREO Cinema Sound Processor.

This product has been carefully engineered using state of the art techniques and manufactured using the best available materials to ensure long and trouble free service. No compromises have been made in the design or performance of this processor. The CSP1200 system when fitted with the appropriate modules provides 100% compatibility with Dolby Stereo films and close compatibility with other Dolby-compatible formats such as Ultra Stereo.

The CSP1200 continues in the tradition of it's predecessors, the CSP3200 and CSP4200 in providing the very best performance and ease of use with unprecedented built-in flexibility. The CSP1200 features a new liquid crystal display user interface which is incorporated into a new front panel control system. Separate volume levels for all formats are provided with digital level indication and computer controlled automatic fade up and down facilities. Simultaneous control access from the automation and control panel allows instant manual override of automation program and automatic return to automation program on the next event. The CSP1200 has the world's most advanced and flexible automation facilities and includes both parallel and serial automation interfaces.

The CSP1200 comprises a 4 unit high rack mounting mainframe with plug in euro cards. This fully modular construction allows each cinema to purchase a system precisely tailored to their needs with the additional benefit of easy expansion and/or updating as the need arises.

A wide range of cards are available and can be purchased separately at any time.

And service has never been faster or more simple, with an overnight or sooner card replacement service should a failure occur, this service being available anywhere in Australasia for a period of 3 years from date of purchase, provided the card is found to be faulty and the problem is not due to some external factor.

CSP1200 FEATURES

- High performance, super-balanced virtual earth input, optical pre-amplifiers with individual gain and high frequency equalisation, and where required, remote changeover facility. Changeover outputs to drive lamps and relays for simultaneous shutter changeover in non-automated installations.

- Four band A-type noise reduction decoding that is 100% compatible with Dolby A noise reduction encoded films (Dolby Stereo). Easy alignment using LED bargraph calibration meters on each card

- SR noise reduction decoding for accurate restoration of dynamic range and frequency characteristics of Dolby Stereo SR encoded soundtracks.

- Optical stereo four channel matrix decoding that is possibly the fastest, most advanced system available, providing up to 60dB separation between adjacent channels. Logic steering rear panel switchable for 2, 3 or 4 channel installations.

- High performance stereo surround digital delay line with separate delay adjustment for left and right surrounds. Modified B-type surround noise reduction that is 100% compatible with modified Dolby B surround noise reduction used for Dolby Stereo and Dolby Stereo SR soundtracks.

- Audio control card with full digital control of format selection and volume adjustment. Separate volume levels for all formats. Automatic switching from local to remote fader - no manual switching between volume pots! Inputs for two stereo (or mono) non-sync sources, one microphone, two 6 track digital processors, one 4 or 6 track digital or magnetic processor and one stereo A/V source. Automation control inputs are also included and can be used simultaneously with front panel controls.

- Unique automatic non-sync output routing sends each non-sync input to it's own pre-selected combination of output channels. Academy roll-off filter for optical mono sound-tracks is automatically inserted when optical mono is selected.

- Sub-bass excavator card provides selective low frequency enhancement from a separate sub woofer output. Downward expander circuit reduces thumps and low frequency "noise" from sub-woofer channel. Fifteen selectable cross-over frequencies from 293Hz to 50Hz. Eight band 1/3 octave equaliser with ±12dB adjustment provides optimum correction of sub-woofer frequency response from 125Hz down to 25Hz.

- 30 band, constant-Q third octave equaliser cards with ±7.5dB adjustment for auditorium speaker equalisation. High and low frequency contour controls with ±12dB adjustment.

- 10 band, constant-Q stereo octave equaliser cards with ±7.5dB adjustment for surround speaker equalisation. High and low frequency contour controls with ±12dB adjustment.

- Audio output card provides ten fully floating balanced outputs each capable of driving a 600 ohm load to +20dBm. Emergency switch routes stand-by mono pre-amplifier outputs directly to left, centre and right output channels.

- Separate 6 track magnetic mainframe available with space for magnetic pre-amplifiers, and additional noise reduction and graphic equaliser cards, mounts above optical mainframe and connects directly via multi-pin cable. Space also for stereo surround decoder card.

- High quality construction. Precision engineered fully enclosed aluminium chassis with tinted 'acrylglas' hinged front panel. Professional grade, close tolerance, low drift components used throughout. All printed circuit boards are computer designed double-sided through hole plated (or multi-layer), manufactured to UL approval.

MAINFRAME DIMENSIONS

Both optical and magnetic mainframes:
177mm high (4 Unit)
482mm wide including rack mount flanges
448mm wide case only
267mm deep.

Card size: 220mm x 144.5mm.

INPUTS

Super-balanced stereo solar cell inputs for two projectors. Zero input impedance virtual earth.
Input sensitivity 0.8µA for 0dBu output, at maximum gain.

2 x stereo (or mono) non-sync inputs.
Unbalanced inputs 10k ohms.
Input sensitivity 100mV for 0dBu output
(@ maximum 20dB gain).

1 x microphone input.
Electronically balanced input for 200 ohm microphone.
Input sensitivity 1mV for 0dBu output
(@ maximum 60dB gain).

2 x six-channel line inputs to accept outputs from digital processors.
1 x six-channel line input for digital /magnetic or auxiliary processor.
Unbalanced inputs 10k ohms.
Input sensitivity 300mV volt for 0dBu output.

1 x stereo A/V input
Electronically balanced inputs 10kohms.
Input sensitivity 120mV for 0dBu output.

OUTPUTS

Ten outputs, comprising - left, centre, right, left surround, right surround, sub-bass, aux left, aux right, monitor left and monitor right.
Electronically balanced and floating, 50 ohms.
Nominal output level 775mV (0dBu).
Maximum output level 9 volts (+20dBu).

FREQUENCY RESPONSE

Optical preamplifier: Adjustable sinx/x slit loss compensation equalisation to facilitate flat response to beyond 16kHz with correctly aligned optics and appropriate size slit lens.

Audio processing signal path:
20Hz to 20kHz ±0.5dB.

Academy filter (in optical mono mode):
within ±0.5dB of Academy A-chain curve.

Optical surround channel:
20Hz to 8kHz, -3dB @ 8kHz.

Sub-bass excavator selectable crossover frequencies:
293Hz, 243Hz, 230Hz, 213Hz, 193Hz, 180Hz, 163Hz, 150Hz, 143Hz, 130Hz, 113Hz, 100Hz, 80Hz, 63Hz, 50Hz (@ 12dB/octave, 24dB/octave above 200Hz).

NOISE AND DISTORTION PERFORMANCE

Optical Inputs (except surround channel):

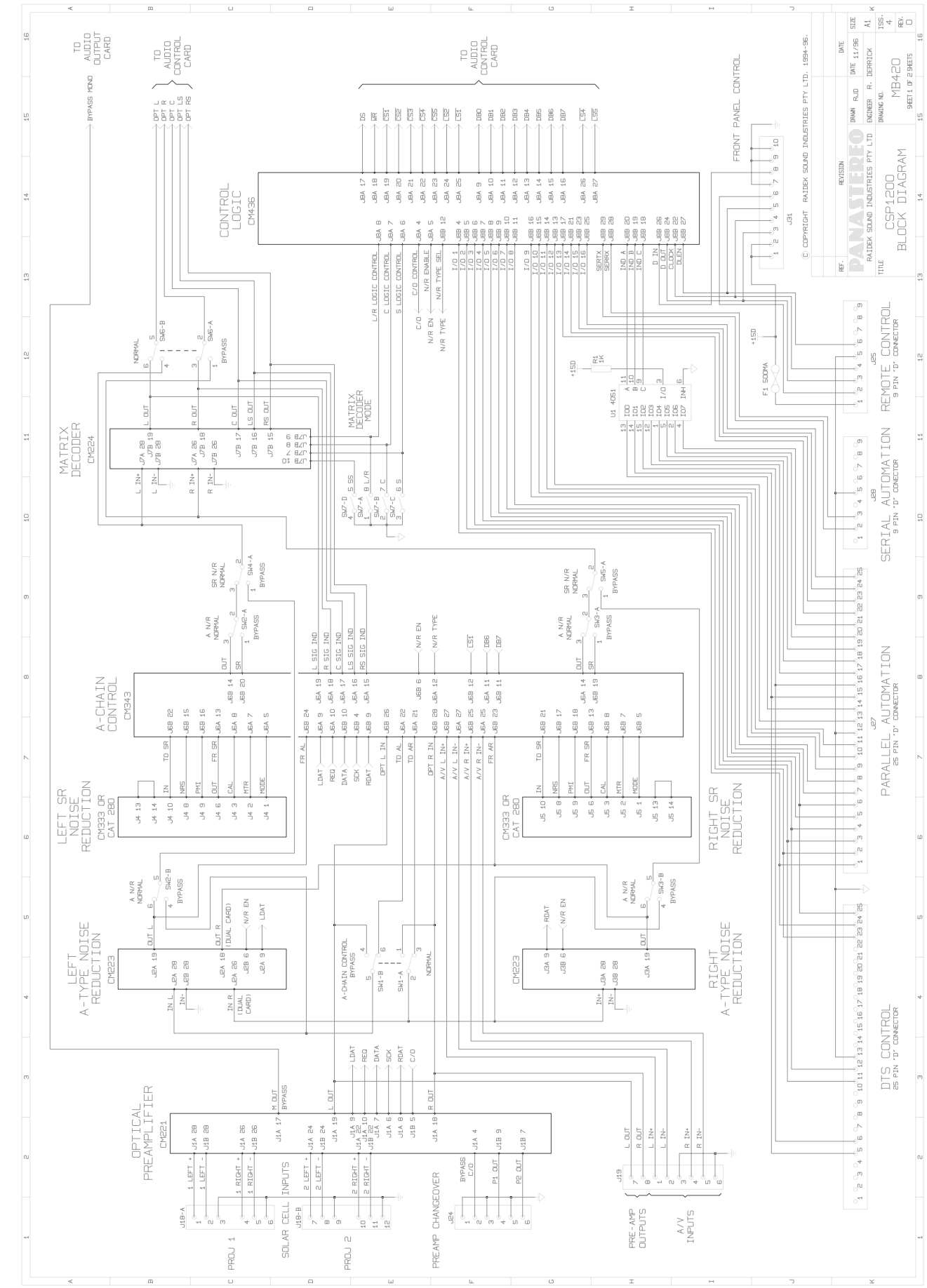
Noise:	-82dB (unweighted)
	-88dB (A weighted)
Headroom:	16dB
THD:	.05% @1kHz, 0dBu
Dynamic Range:	104dB

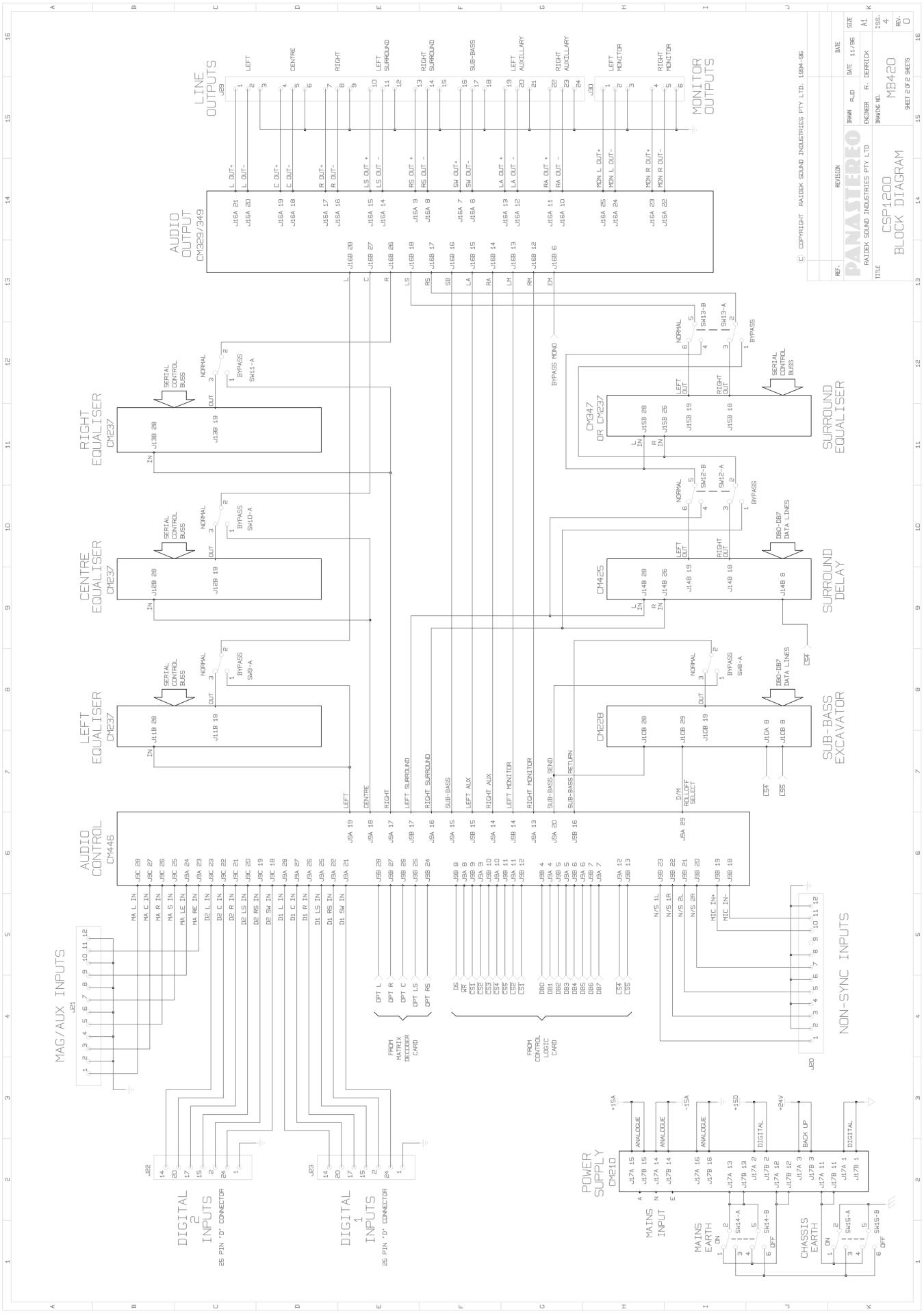
Optical Surround Channel:

Noise:	-80dB (unweighted)
	-86dB (A weighted)
Headroom:	16dB
THD:	0.2% @1kHz, +4dBm
Dynamic Range:	102dB

Digital and Non-Sync inputs:

Noise:	-82dB (unweighted)
	-88dB (A weighted)
Headroom:	20dB
THD:	.005% @1kHz, 0dBu
Dynamic Range:	108dB


CSP1200
BLOCK DIAGRAM
MB420
PANASTEREO
RAIDER SOUND INDUSTRIES PTY LTD
CONTROL LOGIC
CM436
TO AUDIO OUTPUT CARD
TO AUDIO CONTROL CARD
FRONT PANEL CONTROL
MATRIX DECODER
CM224
A-CHAIN CONTROL
CM343
LEFT SR NOISE REDUCTION
CM333 OR CAT 280
LEFT A-TYPE NOISE REDUCTION
CM223
RIGHT SR NOISE REDUCTION
RIGHT A-TYPE NOISE REDUCTION
OPTICAL PREAMPLIFIER
CM221
REMOTE CONTROL
SERIAL AUTOMATION
PARALLEL AUTOMATION
DTS CONTROL
SOLAR CELL INPUTS
PREAMP CHANGEOVER
PRE-AMP OUTPUTS
A/V INPUTS


LINE OUTPUTS
MONITOR OUTPUTS
AUDIO OUTPUT CM329/349
RIGHT EQUALISER CM237
CENTRE EQUALISER CM237
LEFT EQUALISER CM237
CM347 OR CM237
SURROUND EQUALISER
CM425
SURROUND DELAY
CM228
SUB-BASS EXCAVATOR
AUDIO CONTROL CM446
MAG/AUX INPUTS
NON-SYNC INPUTS
DIGITAL 2 INPUTS
DIGITAL 1 INPUTS
POWER SUPPLY CM210
MAINS INPUT
MAINS EARTH
CHASSIS EARTH
SERIAL CONTROL BUSS
DB0-DB7 DATA LINES
FROM MATRIX DECODER CARD
FROM CONTROL LOGIC CARD
© COPYRIGHT RAIDEK SOUND INDUSTRIES PTY LTD. 1994-96
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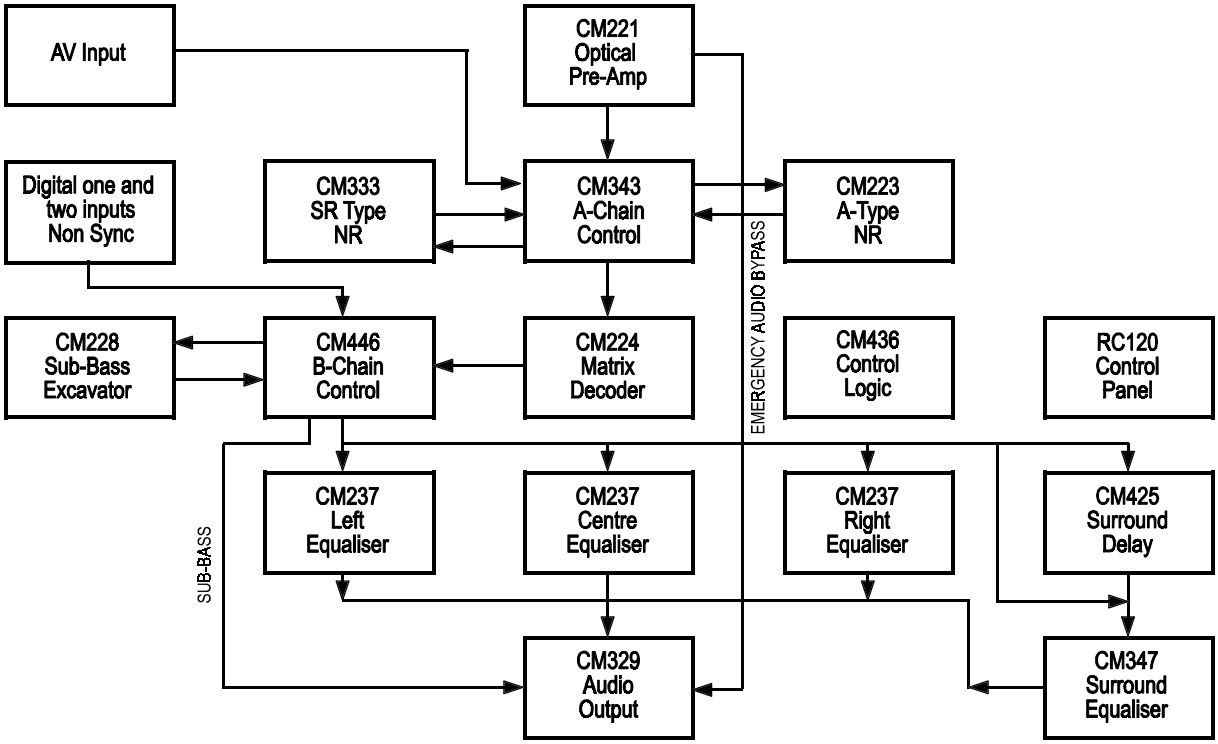
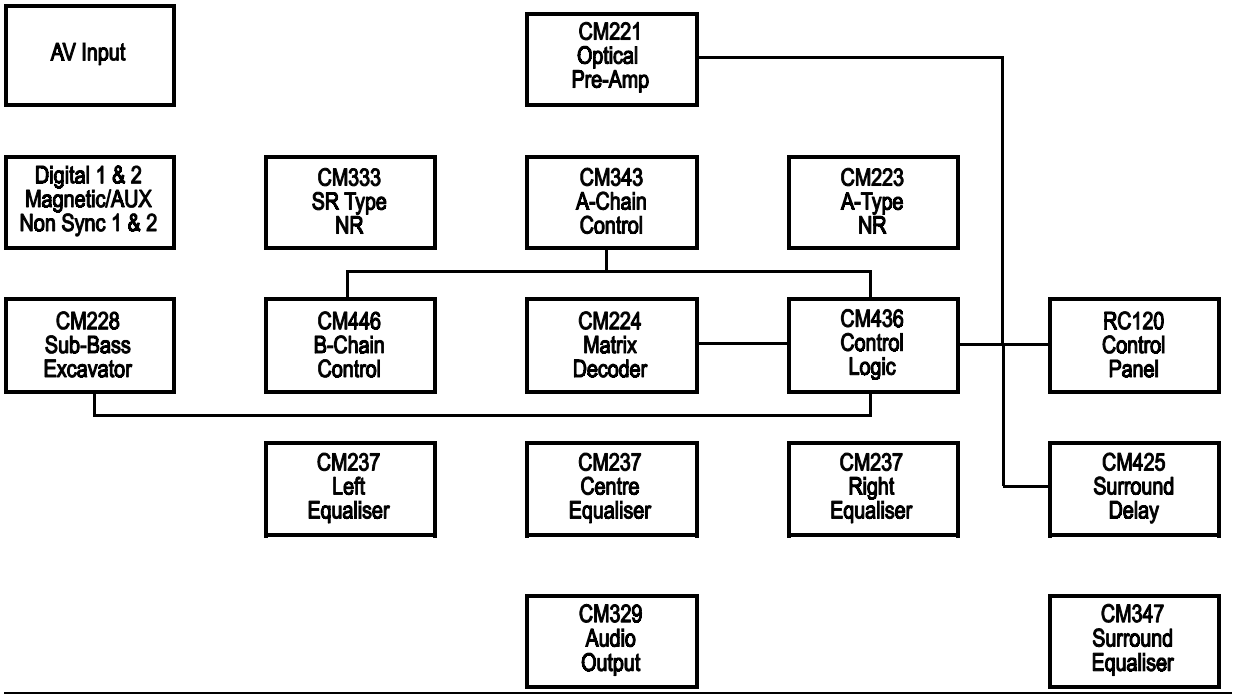
PANASTEREO
CSP1200
BLOCK DIAGRAM
MB420

AUDIO FLOW CHART



DATA FLOW CHART



THE CONTROL PANEL

LCD DISPLAY PANEL

The display panel indicates which format is currently selected, whether projector 1 or 2 is selected, if mute is selected and if the system volume is being controlled by a remote fader.

A typical display is as follows:

FORMAT SELECTION

There are ten format buttons which are used to select the current format. Pressing any film format button whilst in any non-sync format will instigate an automatic cross-fade to the selected film format. Likewise, pressing any non-sync format button whilst in any film format will cause the system to automatically cross-fade to the non-sync input. The currently selected format will be displayed on the top line of the LCD display.

Each of the non-sync inputs will be automatically sent to a pre-determined combination of speakers in the auditorium, depending upon the way that the non-sync "DIP" switches have been programmed on the control logic card in the processor.

When switching from one non-sync format to another, the system will fade down the volume of the current format before switching to the new format. After switching to the new format it will then fade up the volume of the new format. This action is referred to as non-sync cross-fade.

MUTE

Pressing the MUTE button will cause an automatic fade to silence from any format which is currently selected. When MUTE is selected a flashing "***** MUTE *****" appears on the second line of the display:

Pressing the button a second time will cause the previously selected format to be automatically faded back up again. Alternatively, pressing any format button whilst MUTE is activated will defeat the mute function and the selected format will be faded up automatically.

VOLUME CONTROL

To the right of the format buttons is the volume control together with a two digit display for visual indication of the current volume setting. Level "7.0" on the display represents the standard level of 85dB and is equivalent to fader level "7" in Dolby systems.

Each of the ten formats has it's own separate volume level which is displayed (and can be adjusted using the volume control) whenever that format is selected.

The volume control is also used to select certain parameters when the system is in "MENU" mode.

The volume control incorporates a unique "dual speed" feature which allows both coarse and fine adjustment of the volume level. If the volume control is turned slowly the volume changes in small increments, allowing fine adjustment of levels (changing from zero to maximum volume takes approximately four full turns of the control). If the volume control is turned more quickly, it operates like a conventional volume control, changing from zero to maximum in slightly less than one full turn.

There is an intentional limit as to how fast you can turn the volume control - if you attempt to spin it there will be little or no change in volume. This is to prevent a sudden large change in volume if the control is brushed accidentally.

(The pre-set level trim-pots on the audio control card should ideally be adjusted on installation so that a volume level of "7.0" for each of the Non-Sync formats corresponds to the average normal listening level in the auditorium for that format).

PREVIEW VOLUME

The PREVIEW VOLUME button is located in the middle of the right hand column of push-buttons.

It is possible to check or alter the volume of any format before you select it. The “preview volume" mode is accessed by first pressing the preview volume button. When this button is pressed the following display appears:

Preview Volume: **Select FORMAT to preview**

If no format button is then pressed within 5 seconds, the preview function is automatically cancelled and the display returns to normal.

If a format is selected within 5 seconds of pressing the Preview Volume button, that format is displayed on the bottom line of the LCD display, for example:

Preview Volume: **MUSIC (NON-SYNC 1)**

The volume for the selected format is displayed in the VOLUME window. You can now change the volume by turning the volume control. You can then either return to normal mode by pressing the PREVIEW VOLUME button again, or you can leave the system in preview mode and it will automatically return to normal after a few seconds. You can also exit preview mode by pressing any format button to select that format.

REMOTE FADER INDICATOR

When the processor is used with an external volume control such as with an automation system, and the processor volume is being controlled by the external system, the bottom line of the display will indicate that the system is under remote fader control, for example:

OPTICAL STEREO **<REMOTE FADER> PROJ 1**

To return the system to local control, simply turn the volume to the setting that you require. This will automatically disable the remote fader function.

MENU

It is possible to change the settings of some of the internal functions of the processor by entering the MENU SCREEN. Changing the settings of internal functions should not be attempted if you are unsure of what you are doing, as any changes you make are retained in the system memory.

The internal functions that can currently be re-programmed are:

1. Surround Channel: on/off

2. Sub-bass Channel: on/off

3. Noise Reduction: on/off
   Film format fade up time: fast/slow
   Film format fade down time: fast/slow
   Non-Sync format fade up time: fast/slow
   Non-Sync format fade down time: fast/slow

5. Non-Sync cross-fade time: fast/slow.
   Left Surround delay time: 10-160mS
   Right Surround delay time: 10-160mS

8. Digital format surround delay: on/off

9. Digital format surround noise reduction: on/off

CHANGING THE FUNCTION SETTINGS

STEP 1. SELECT MENU MODE

- Press MENU to enter menu mode
- The LCD display changes to:

Check Functions? OK/EXIT

- Press OK to continue. Display changes to:

Select Function <volume> **Surround Channel: On**

- The first function is displayed on the bottom line of the LCD display

  or

- Press CANCEL or EXIT to return to normal operation.

STEP 2. SELECT THE FUNCTION THAT YOU WISH TO CHANGE

- Rotate the volume control clockwise to select the function that you wish to change, for example:

Select Function <volume>
Sub-Bass Channel: On

- When you have selected the correct function:
- Press OK to continue. Display changes to "Set Function" with the selected function still displayed on the bottom line, for example:

Set Function <volume>
Sub-Bass Channel: On

or

- Press CANCEL to return to the previous screen

or

- Press EXIT to return to normal operation.

STEP 3. CHANGE THE CURRENT SETTING

- The current setting for each function, is displayed in the bottom right corner of the LCD display window
- Rotate the volume control to the left or right to change the setting

Set Function <volume>
Sub-Bass Channel: **Off**

- Press OK to keep the new setting. Display changes back to:

Select Function <volume>
Sub-Bass Channel: Off

or

- Press CANCEL to return to the previous screen without saving the new setting

or

- Press EXIT to return to normal operation without saving the new setting.

STEP 4. SELECT THE NEXT FUNCTION THAT YOU WISH TO CHANGE

- Return to STEP 2

or

- Go to STEP 5 to exit MENU mode.

STEP 5. EXIT FROM MENU MODE

- Press EXIT to return to normal operation.

EMERGENCY BYPASS BUTTON

(AUDIO OUTPUT CARD)

The red emergency bypass button is located inside the processor front cover to the left of the power supply on the audio output card.

Should a failure occur within the processor causing total or partial loss of sound or incorrect operation, this button may be depressed to allow the show to continue in 'simple' mono.

The button causes the output of a stand-by mono preamplifier to be sent to the left, centre and right loudspeakers, bypassing all other processing circuits.

After the show, it is possible, by using the small yellow "bypass" switches located at the rear of the processor, to locate which card is faulty by bypassing each card until the fault is rectified.

Provided the problem is not in the Preamplifier card or one of the control cards, it will then be possible to run the processor as normal with the faulty card bypassed until a replacement can be obtained.