OCTAGON

(version1.2)

OWNERS MANUAL

Octagon Manual

Introduction and Product Overview

Dear Octagon owner,

The Octagon was created using the latest in computer aided design and assembling technology and incorporates the most advanced circuit components available which results in the Octagon being another D&R product unsurpassed in the electronics industry.

In D&R's quest to "raise the standard", Octagon is designed and manufactured to the highest degree. We are confident that the Octagon will play the central roll in producing "state of the art" recordings for many years and wish you much success.

We value your suggestions and would appreciate you taking the time to complete and return the questionnaire included at the front of this manual (once you become familiar with your Octagon).
We listen and learn from your comments and you can be assured that our research and development department will take your comments very serious.

With kind regards,

Duco de Rijk
President D&R Electronica Weesp b.v.

Due to a policy of continuous product improvement, D&R reserves the right to change specifications and appearance without prior notice.

RAISING
THE
STANDARD

Octagon Recording Console

The D&R Octagon is a 48 buss, dual path in-line format recording and film style mixing console designed to take the central role in a film sound recording facility.
With up to 64 projects storable, the wasted time between sessions is a thing of the past.
An essential part of the Octagon is its ability to record and mix down in various output formats ranging from mono up to full SDDS formats.
With its digitally controlled software switches you can route any input in the Octagon to a number of places and be able to recall all stored setups by a couple of key strokes. This feature alone saves valuable time between sessions.
A first in mixing console technology is Octagon's surround master section with the ability to mix down a 7.1 surround, fully automated.
Easy monitoring of all surround outputs is standard and automated Joysticks with Virtual Vision makes 360 degrees panning very easy to lay down in the final mix.
Completely modular, Octagon can be configured precisely to suit your particular system requirements. An Octagon standard is the internally wired patch bay that interfaces with all external equipment using 25 pin sub D connectors, and chassis mount XLR connectors.

To become completely familiar with your Octagon and gain the maximum benefit from its use, we recommend that you read this manual thoroughly.
It will provide important information about all aspects of the Octagon including; installation, operation, and servicing.

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Octagon's CHASSIS SYSTEM

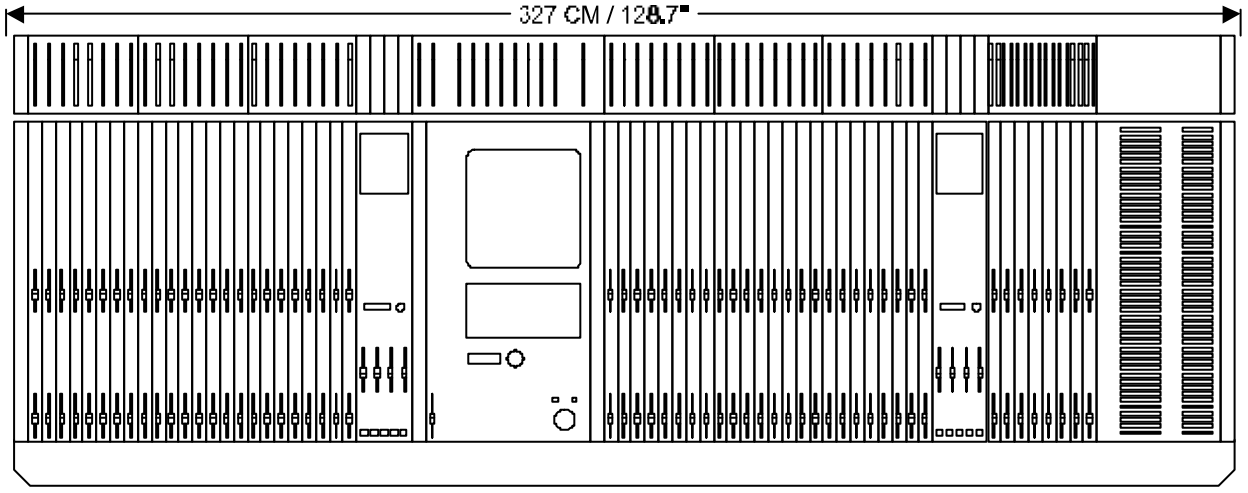
1.1 OCTAGON'S CHASSIS

The Octagon is available in two frame sizes; 60 and 84. The basic frame has one blank module located on the extreme left of the frame. The two blanks positioned left and right from the master section are part of the master sections electronics and can not be replaced by input modules or other equipment filling these positions. The blank on the far left side of the frame cannot be replaced with an input module as they conceal mechanical constructions and internal wiring.

Included with Octagon's frame are; the master section with associated VU or LED peak metering, patch bay, all internal cable harnessing, and rack mount power supplies.

Frame 60

The frame 60 will fit 60 dual path mono modules, a maximum of two control modules and a maximum of 8 dual path stereo modules, the master section, and patch bay.

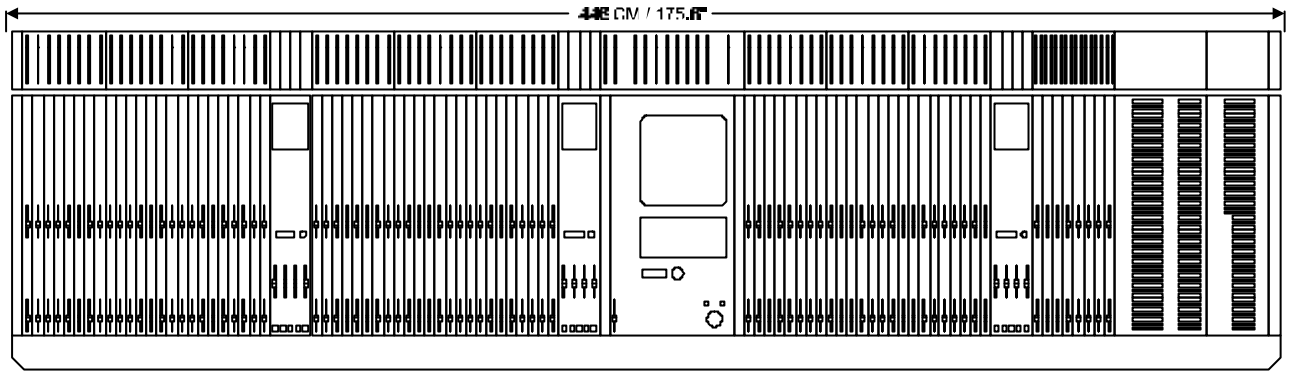


Frame 60 standard configuration:

From left to right; 16 dual path mono modules, control module, 8 dual path mono modules, master section, 16 dual path mono modules, a control module, 8 dual path mono modules, a blank module and a maximum of 8 dual path stereo return modules (16 stereo returns), and patch bay.

Frame 84

The frame 84 will fit 84 dual path mono, a maximum of 4 control modules, 8 dual path stereo modules and a master section and patch bay.



Frame 84 standard configuration:

From left to right; 24 dual path mono modules, control module, 24 dual path mono input modules, control module, master section, 24 dual path mono modules, control module, 8 dual stereo return modules (16 stereo returns), and patch bay.

Note: Octagon's patch bay can be ordered at either end of the frame

Delivery contents

In this shipment of your Octagon you will find the following parts, please check and contact the factory immediately when something is missing.

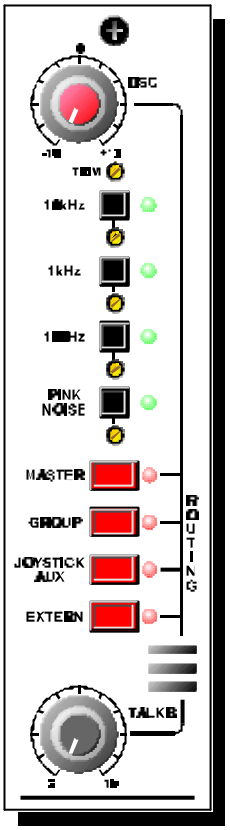
1. Your configuration of the Octagon
2. Power supplies (2/3/4x analog, 1/2x motor- and 1/2x Logic power supplies, depending on the size of your console)
3. Manual with software
4. Cables (Serial cable and 4 mains cables)
5. Powerfade software
6. PC display card

THE MASTER SECTION

2.0 MASTER SECTION - DESCRIPTION

Octagon's master section is equivalent (in width) to 14 input modules.
All CRM outputs are located on the rear of the console below the meter bridge. The following paragraphs give a brief description of each section.

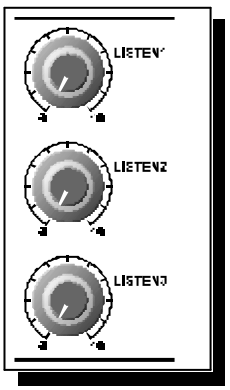
2.1 OSCILLATOR/TALKBACK SECTION



The three frequency, low distortion oscillator is a phase shift design.
The frequencies are: 10kHz, 1kHz and 100Hz, each frequency has its own front panel alignment trimmer.
A master level control is fitted to adjust the output of the oscillator for precise alignment of the console and tape machines. The level ranges from -10 dB to +10 dB with a detented mid-position of +4 dBu which can be trimmed by the CAL trimmer. There is also a pink noise generator built in for checking pan-pot movements and joystick routing.
The oscillator can be assigned to The master output busses, the Group busses, the Aux/Joystick busses, as well as the direct output (in the patch bay). Each of the oscillator assignment switches have a LED indicator. The CRM will dim (adjustable in the software) when the oscillator is active. (there is no -20dB attenuation when pink noise active) It is also possible to cancel the dimming by activating the DIM switch when the oscillator is active.

2.2 TALK BACK SECTION

A multi-way communication system is built into the Octagon.
The built-in talk back mic can feed Studio-1 output, Studio-2 output or can be assigned to the routing by way of large push buttons positioned right from the 8 track main fader. When Routing is selected the same assignment switches as the for the oscillator can be used to further route the talk back mic signal. The momentary **TB** talk back switch activates the internal electret microphone.



2.3 LISTEN SECTION

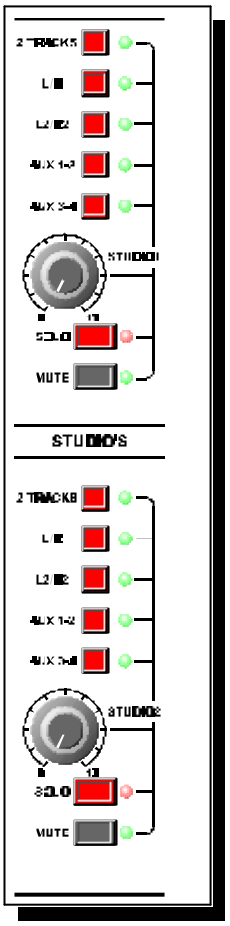
Octagon has the ability to communicate with three independent rooms at the same time or individually. Mic inputs are located on the back of the console and are built around the same high quality mic pre-amps as the console's inputs. The communication buttons are located above the TALK BACK switches in the Communications area. When one of the Listen mics is activated, the internal Talk back mic will also be activated.

2.4 STUDIO 1 - 2 SECTIONS.

STUDIO 1 and **STUDIO 2** sections get their signal from several different places and feed two sets of stereo outputs which are also located in the master section of the patch bay. The 2 studio outputs can source the **Aux. 3-4** and/or **Aux. 1-2** and/or Left2- Right2, and/or Left-Right, and/or the 2 Tracks. The **2 Tracks** switch needs a little more explanation.

With the Octagon, you can listen to stereo machines in the studio while listening to the stereo lower outputs in the control room by pressing one of the eight 2 track source switches and the **2 Tracks** switch. By having all the source switches in their up position no signal is fed to the Studio systems. Aux. 1-2 and Aux.. 3-4 can be mixed (from the input modules) and fed to the **Studio 1**, **2** or both outputs. With the **2 Tracks** switch in the down position, a selection can be made from any or all two track source switches in the 2 Tracks section.

If you would like to build up a mix from one of the Aux. pairs, press **Aux. 1-2 and or Aux. 3-4** switches. Studio 1, 2 or both can be used for stereo headphone feeds or studio playback speakers.

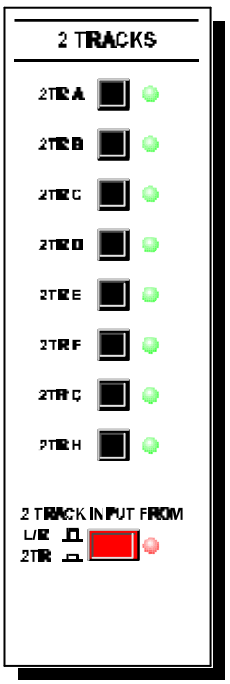


2.5 2 TRACKS

Octagons 2 Track section allows you to select any or all 8 stereo 2 Track inputs at the same time. A neat feature is that it is also possible to feed the 2 Tracks either from the main Left Right busses or from any other 2 Track input for copying purposes. This selection is made with the "2 TRACKS INPUT FROM" switch located below the 2 Tracks switches in the 2 Tracks section.

An eight track return switch is located in the CRM section. This is also the case with the general 2 Track source switching.

Just above the CRM level pot you find three switches labeled; MAIN to CRM, 2 TRACK to CRM, and 8 TRACK to CRM. These are the main selection sources for the CRM input. These switches have to be activated first before any of the selected 2 Track sources will be heard.

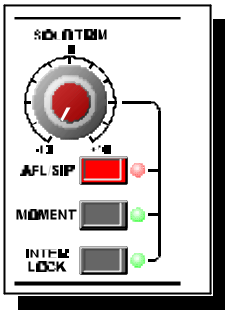


The 2 Tracks can also be assigned to the near fields if desired. Its the seventh switch in the upper row of switches located in the CRM section. All tracks A through H are +4dBu. All of the 2 Tracks sources can be summed if necessary. When sourcing 2 Track machines, all surround CRM monitors will be switched off, unless the Decoder Active switch is activated, then the 2 Track signal will be decoded into full surround and all monitors, except for the Sub-bass output, will be active again.

Note: The 8 Track source selector as well as the 2 Tracks to CRM will interrupt the CRM signal. The 2 Tracks A/B/C/D/E/F/G/H switches will not interrupt the CRM monitoring unless the 2 Tracks to CRM is activated!

2.6 SOLO SECTION

The Solo section has a SOLO TRIM volume control and an **AFL** (after fade listen) / **SIP** (Solo In Place) switch. A switch for momentary action of all the SOLO switches and an Interlock switch for interlocking behavior of all solo switches.

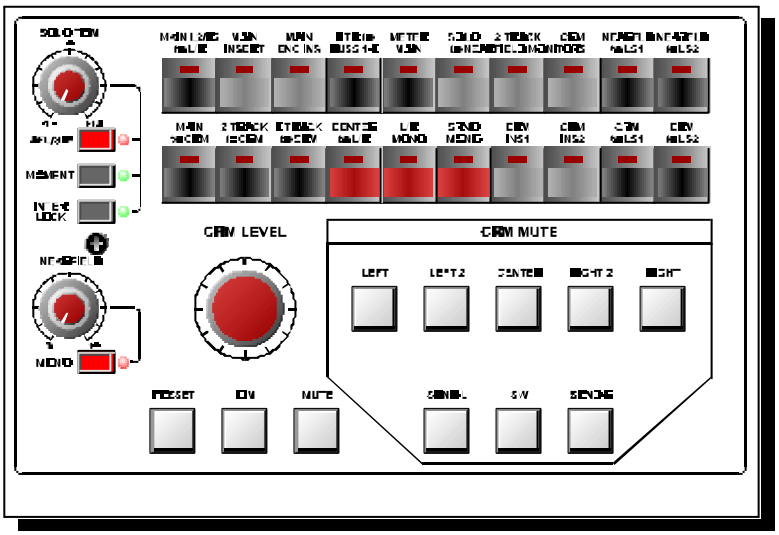


To easily cancel any activated SOLO switch in the entire console you just have to hit the SOLO RESET button and all selected Solo's are canceled.
It is also possible to create SOLO presets of specific groups of solo switches. A maximum of three presets is possible. The SOLO 1/2/3 presets are located in the Communication section of the Octagon.

The SOLO TRIM control has a center detent (for nominal level) built-in to the volume control. With the **AFL** switch in its up position, the Upper and Lower solo switches function in the **PFL** (pre fade listen) mode.
A lighting SOLO RESET switch in the communications section indicates that a SOLO switch is depressed anywhere in the console.
If the **AFL** switch is depressed, any Solo switches function in the non destructive after fade listen mode. If the Momentary switch is activated Solo is only active when depressed. The Interlocking switch creates canceling of previous selected solo switches, when selecting new solo sources. **SIP** is possible with all three interacting modes such as momentary, interlocking and adding.

2.7 CONTROL ROOM MONITOR SECTION

The CRM level controls a total of 8 outgoing levels to the control room monitor power amps. This encoder controls all eight tracks with a superb tracking and level repeatability. Attenuation of the CRM is always shown in the LCD(isplay) in all levels of the menu. It ranges from 0dB down to -75dB in 0.5dB steps and then it mutes the CRM completely.
The Octagon has a two by two CRM system intended for alternative stereo near field monitors which are switchable via the bank of switches located above the CRM level controller.
Each alternate speaker system has its own balanced XLR output for easy interchange of near fields. The main eight CRM outputs are on a 25 pole sub D connector. Also fitted on the back of the master section are the sub D connectors for the encoding and decoding surround processors.

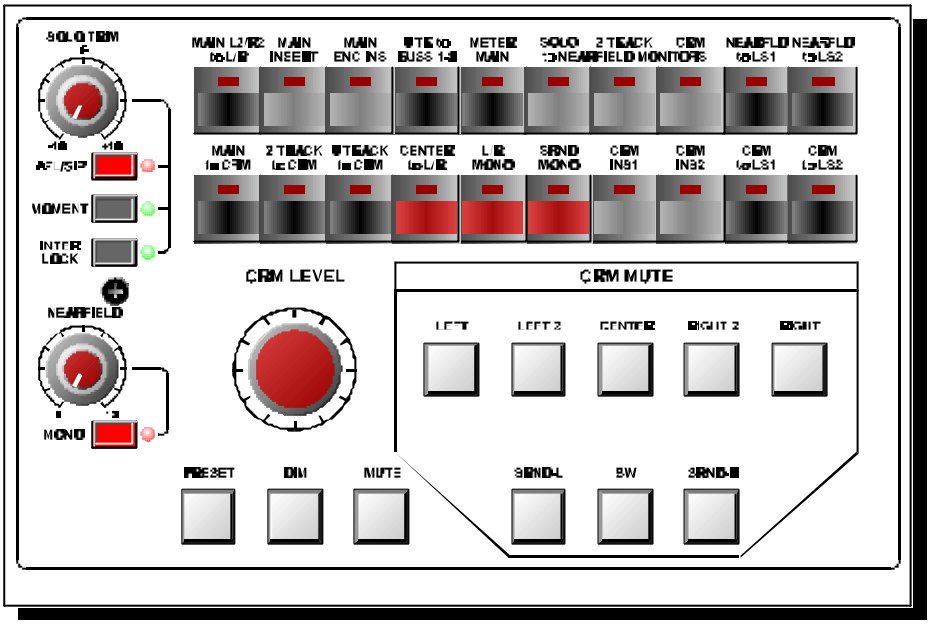


2.8 NEAR FIELDS

The Octagon can handle two stereo near field systems. The two switches on the far right of the CRM switch bank selects near fields to either the LS1 outputs or the LS2 outputs, on which near field loudspeakers can be connected. The near field outputs have their own level control and a mono switch. The mono switch lets you check mono compatability. The Mono switch allows the user to check for any out-of-phase signals or simply monitoring your mix in mono.

2.9 DIM

The dim switch temporarily dims Octagon's CRM level by any user definable amount of attenuation. This dimming circuitry is also active when the oscillator is turned on. The LC Display shows the amount of dimming when activated.



2.10 MASTER/CRM SWITCHES

The Octagon has a wide range of possibilities concerning its monitoring.

We shall describe any of the two rows of switches individually located in the upper right corner of the CRM section.

MASTER OUTPUT / SURROUND to MONO

This switch lets you convert the main stereo surround output into a mono output signal on both surround outputs.

Note: This is not the CRM but the main surround outputs that are mono summed!!!

MASTER OUTPUT INSERT

This switch globally switches all 8 balanced main inserts on and off from a connected processor.

MASTER OUTPUT ENCODER INSERT

This switch lets you switch an eventually connected Encoder on and off in the main 8 buss outputs.

8 TRACK to ROUTING BUSS 1-8

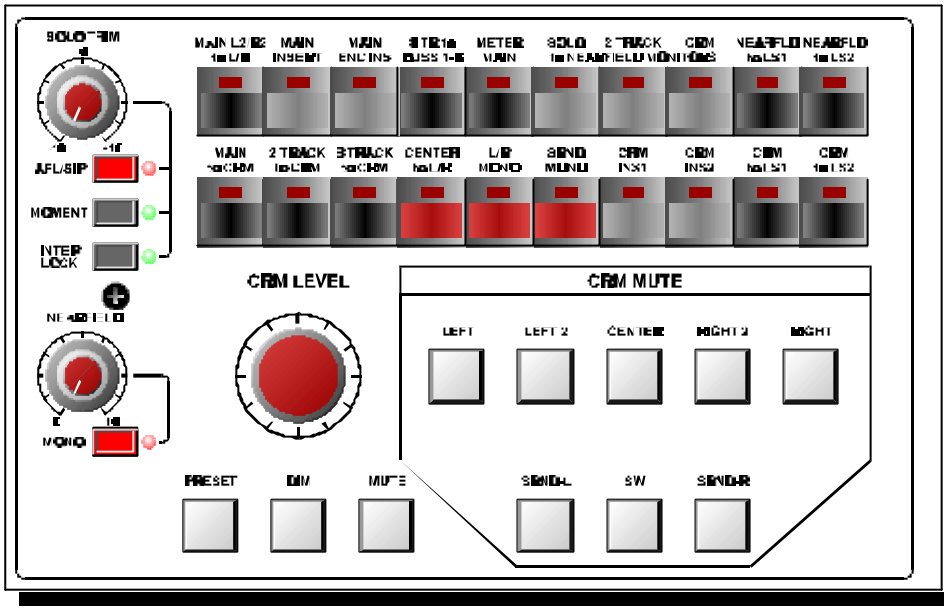
The 8 track returns normally fed to the CRM but with this switch you can assign the 8 track to group busses 1-8 instantly.

METER to MASTER

Normally the 8 output meters will follow all sources selected to the CRM. When activated the 8 output meters will read the main outputs directly. In the up position, all eight meters read the monitor CRM outputs prior to the Encoder insert, when the "Meters to main" is depressed all the meters will always follow the main outputs without being interrupted by the solo system, the 2 Tracks and decoder active switches. When the Main encoder insert switch is depressed the meters will read the encoded signal.

SOLO TO NEAR FIELD MONITOR

Normally the solo system is assigned to the main monitor system but activating this switch let's you listen to soloed sources through the near field monitors. The main monitors will not be interrupted then.



2 TRACK TO NEAR FIELD

All two tracks normally heard though the main monitors can be switched to the near fields if required.

CRM TO NEAR FIELD

This is the "regular" near field monitor switch if it is necessary to comparatively listening to material on the near fields.

NEAR FIELD TO LS1

This switch assigns the near field signal to the Loudspeaker 1 outputs (it alternates between LS1 and 2).

NEAR FIELD TO LS2

This switch assigns the near field signal to the Loudspeaker 2 outputs.

Second row of CRM switches

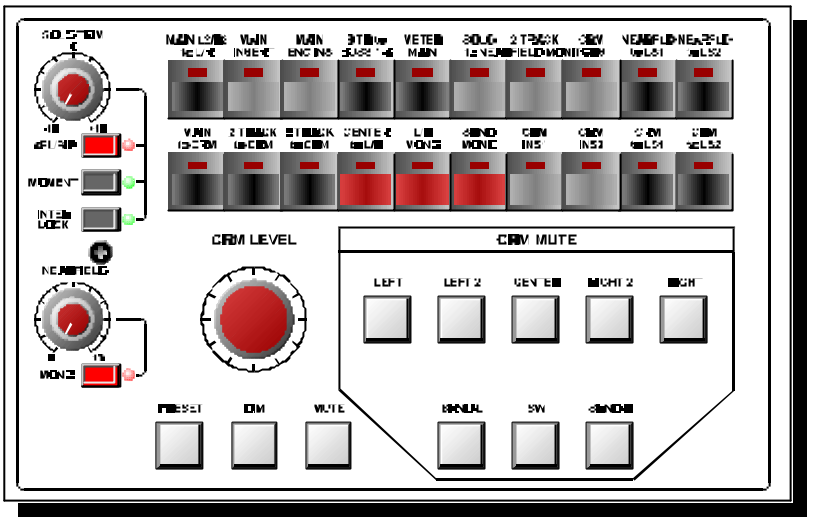
CRM SOURCE / MASTER

Normally the CRM loudspeakers follow all sources selected to them such as Solo and 2 Tracks. When this switch is activated the CRM will listen to the main outputs only.

CRM SOURCE / 2 TRACK

When this switch is activated the 2 Tracks will be heard via the CRM loudspeakers.

Note: a selection of one or more of the 2 Tracks need to be made first.



CRM SOURCE / 8 TRACK

This switch returns the outputs of the 8 track machine to the Control Room Monitors.

CRM FORMAT

When no switches are active you will have the **7.1 format.**

5.1

This format switch let's you assign the CRM inner left and right signals (Left2 / Right2) to the Left Right speakers.
Note: on CRM only!!!

LCRS

This format switch for the CRM only assigns the inner left and right signals (L2/R2) to the left/right CRM outputs. The stereo Surround signals are summed to mono and the SubWoofer outputs is assigned to the center.

STEREO

This switch sums the inner left/right (L2/R2), the SubWoofer, the Surround and the Center signals all to the left right outputs of the CRM.

MONO

When both the LCRS and the Stereo switches are activated the CRM format will convert all signals into a mono signal on the control room monitors only.

CRM INSERT 1

This switch inserts a connected processor in all of the 8 CRM outputs. When a decoder is inserted this switch converts the encoded stereo signal into a full Pro-Logic or circle Sound surround signal monitored over your four (five/eight) CRM monitors. When this switch is in its On position a normal or encoded stereo signal will be heard (If the encoder is active of course). When no Decoding device is connected to the Octagon, there will be no signal when the DECODER ACTIVE switch is on. The Sub-Woofer output will not give a signal when the Decoder Active or 2 Track switches are depressed.

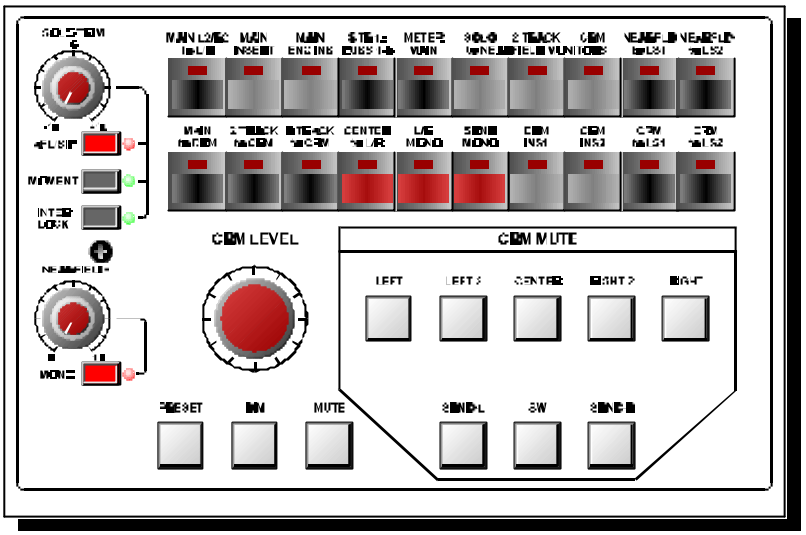
CRM INSERT 2

This switch inserts an eventually connected processor in all of the 8 CRM outputs. The second insert can be used to insert an academic filter.

CRM TO LOUDSPEAKER SYSTEM 1

The Octagon has two complete sets of connectors to feed independent 8 way monitoring systems.

The CRM can be assigned to either one of these systems. Both the switches will alternate between the two settings. (If desired, software can be changed on customer demand to be different from the default software).



2.11 CRM MUTES

There is a total mute positioned below the CRM level which completely mutes all outgoing monitoring signals and there are individual mutes, muting user selected outputs only. These individual selected mute settings are kept in memory when the total mute of the CRM is used temporarily.

2.12 CRM PRESET

The CRM preset switch returns the CRM level to a fixed preprogrammed level necessary for reference of "Dolby" mix downs and adjustments of studio control monitor amps.

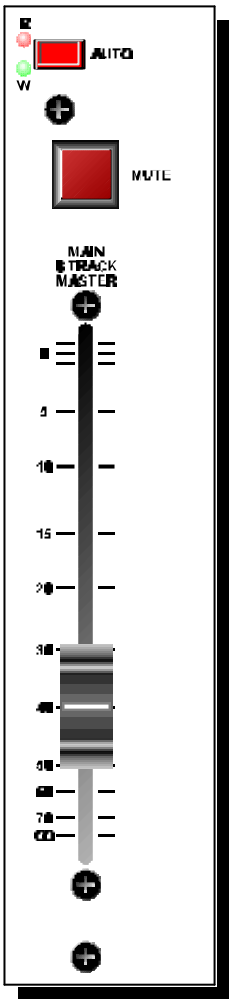
2.13 CRM DIM / MUTES

The CRM dim switch let's you dim the CRM output by any software controlled amount. This dimming is also automatically activated when the oscillator is switched on. When for instance the pink noise generator is used for alignment procedures the DIM switch will not be active of course.

There is a total mute positioned below the CRM level which completely mutes all outgoing monitoring signals and there are individual mutes, muting user selected outputs only. These individual selected mute settings are kept in memory when the total mute of the CRM is used temporarily.

2.14 MAIN FADER.

Located in the bottom of the master section is one 100mm PowerVCA controlled fader controlling eight precision high end VCA's. Its automation switches are located above the main fader.



2.15 MAIN LCD SCREEN

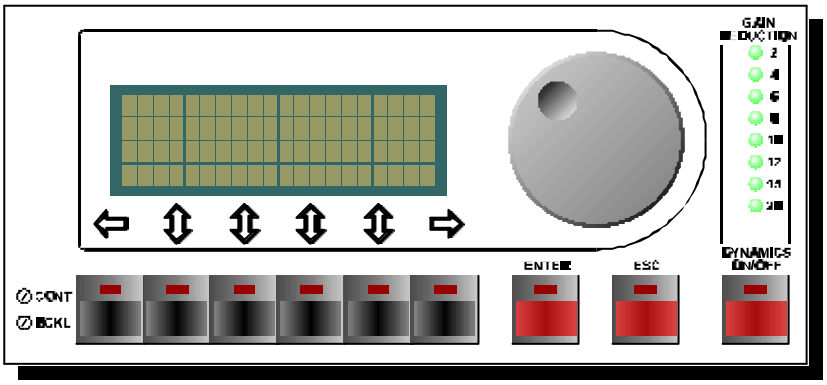
The main LCD screen displays most of Octagon's automated functions.
The principal in working with this screen is that all functions and text shown can be altered by the switch positioned below the character shown.
The Enter and Esc switches speak for themselves.
A detailed explanation will follow in later sections of this manual.

2.16 DYNAMICS SECTION

A gain reduction meter displays the gain reduction of the optional virtual dynamics assigned to a signal path. (How the dynamics work will be discussed later in a specific dynamics section).

2.17 CONSOLE RECALL / RESET

The Octagon has the ability to store all potentiometer positions and most of all the switch settings except for the Oscillator, Talk back and all functions positioned in the same "module" in the master section. These functions are not necessary to be recalled in normal activities.



2.18 JOYSTICKS

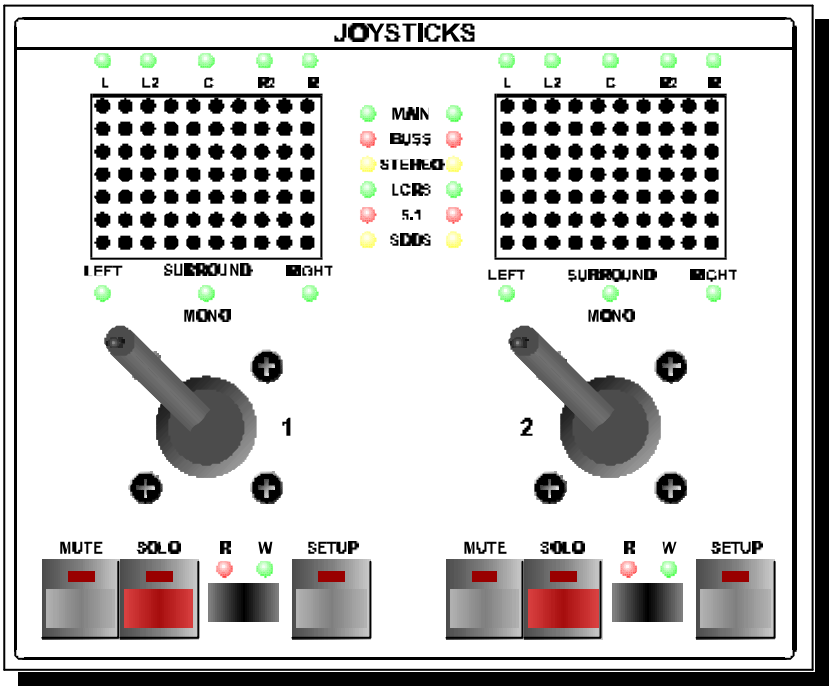
Both joysticks are fitted with a large LED matrix to easily visualize the movements of the audio controlled by joystick movements.
The SETUP switch in the Joystick area determines the mixing format, divergence and assignment to the 48 track buses or 8 main output buses. The following basic formats can be programmed via the Setup switch.

Stereo, LCRS, 5.1, SDDS

In all formats individual combinations of outputs can be programmed such as;

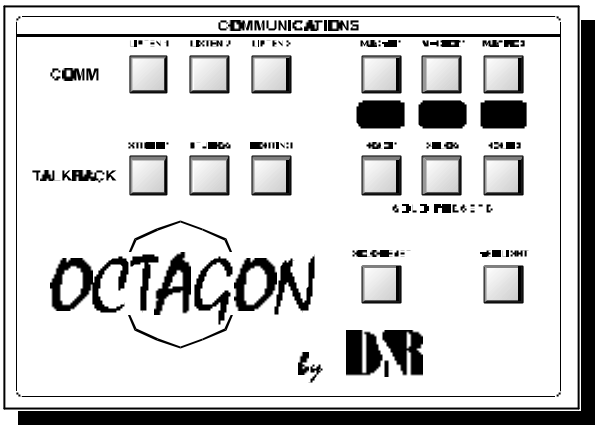
STEREO	L-R, L2-R2, Sl-Sr, off
LCRS	L-C-R-S, L-C-R, L-R, L-R-S, C-S, off
5.1	L-C-R-Sl-Sr,L-C-R,L-R,L-R,Sl-Sr, C-Sl-Sr, L-C-R-S, L-R-S,C-S, off
SDDS	L-L2-C-R2-R-Sl-Sr-

Assignment LED's placed around the LED matrix indicate which outputs have been activated. All the usual solo/mute and automation switches are of course available when using the joysticks. A detailed explanation will be given in the manual's "How to ..." section.



2.19 COMMUNICATIONS

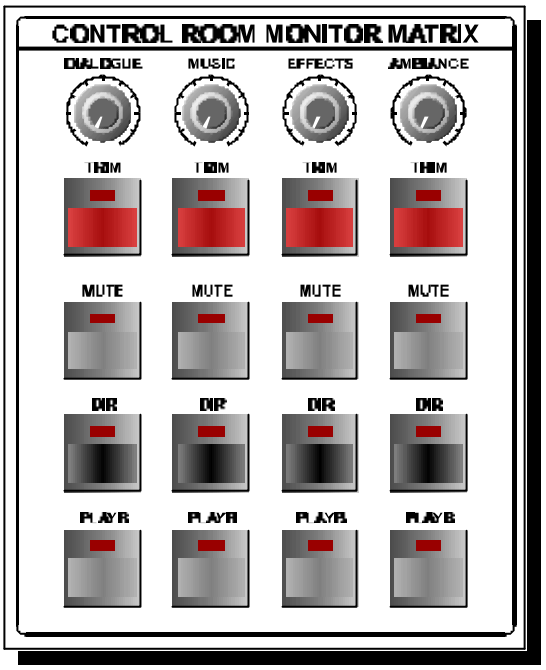
The communications section has three listen switches and three talk back switches. The talk back switches are only active when depressed, while the Communication switches are latching and at the same time activate the Talk back switch, making communication very easy either way.



The macro switches will be discussed later, they are intended for fast access to often used functions and setups. This is also the case for the SOLO 1 to 3 presets. The Solo reset cancels all active soloed modules. The red light switch activates a relay built inside the Octagon to felicitate external red light signaling.

2.20 CONTROL MONITOR MATRIX

The control room monitor matrix is a built in remote unit to control an optional Stems unit for extending the amount of inputs when needed. A suggested grouping of Dialogue, Music, Effects and Ambiance eases recognition of the Stems that you are working with. A Mute, Solo, Direct and Playback switches are controlling a complete group of signals combined in a STEM / premix. A master Direct/Playback switch controls all Stems in one go.

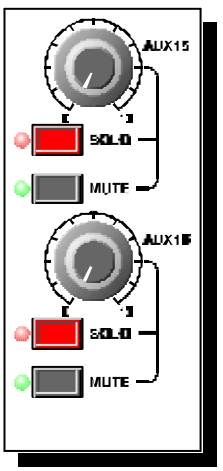


2.21 TOUCH PAD

The internal high quality touch pad needs to be connected to the external PC that handles the Powerfade automation.

2.22 AUX. MASTER SECTION

The Aux. master section is located at the left side of the master module and houses the 16 Aux. masters controlling the output level of the Aux. sends. Each Aux. master has its own solo switch. All Aux. master solo switches are **AFL** (after fade listen) switches independent of the selection made in the SOLO control section. All mutes are soft mutes and under control of the automation section. The Aux. master pots are stored in the Recall system of the Octagon. The Aux. outputs are balanced and normalled in the patch bay to the signal processor inputs.



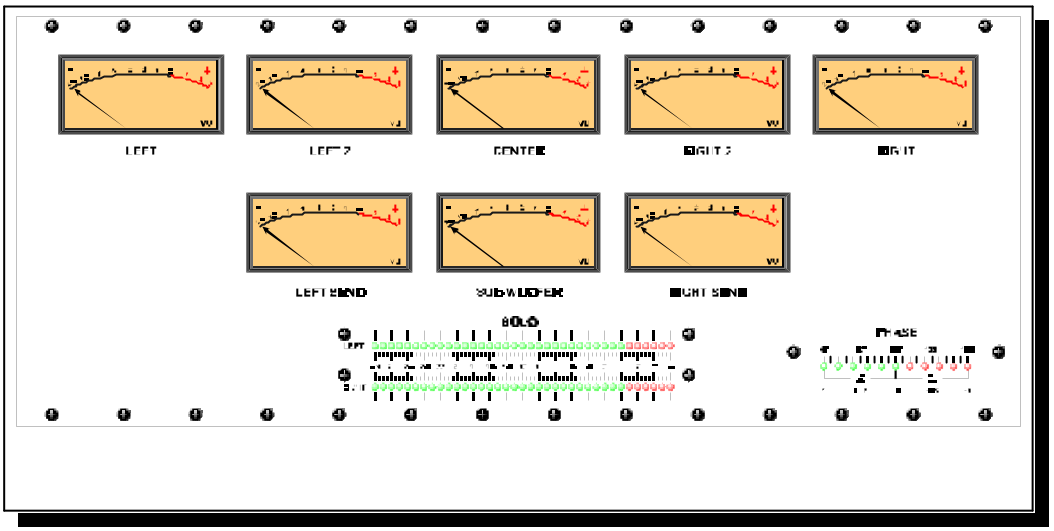
2.23 METERING

Master metering

The Octagon has a total of eight VU meters or peak reading led bar meters above the master section in the meterbridge. Analog VU meters will indicate the average level in the signal paths and peak meters can be switched between VU characteristics and peak behavior in the master section.

A separate **Phase** meter indicates any phase shift between the left and right signals. In most cases, switching the phase switch on selected input modules can correct the phase shift.

Mono and Stereo module meters



Due to the extreme transients in digital recordings, Octagon's "**Peak**" reading upper meters have an extended range from -45dB up to a reading of +6dB. The bottom LED on all D&R LED bar graph meters is an indicator that the associated module is on. When first powering up, always check all "**ON**" LED's under each meter.

If any "**ON**" LED is not lite, turn off the power supplies and call D&R for service advice. Both mono and stereo input module meters have software switch able peak/VU ballistics with 37 segments. Octagon's meters can be switched (individually) to read the UPPER section or LOWER section of each module locally.

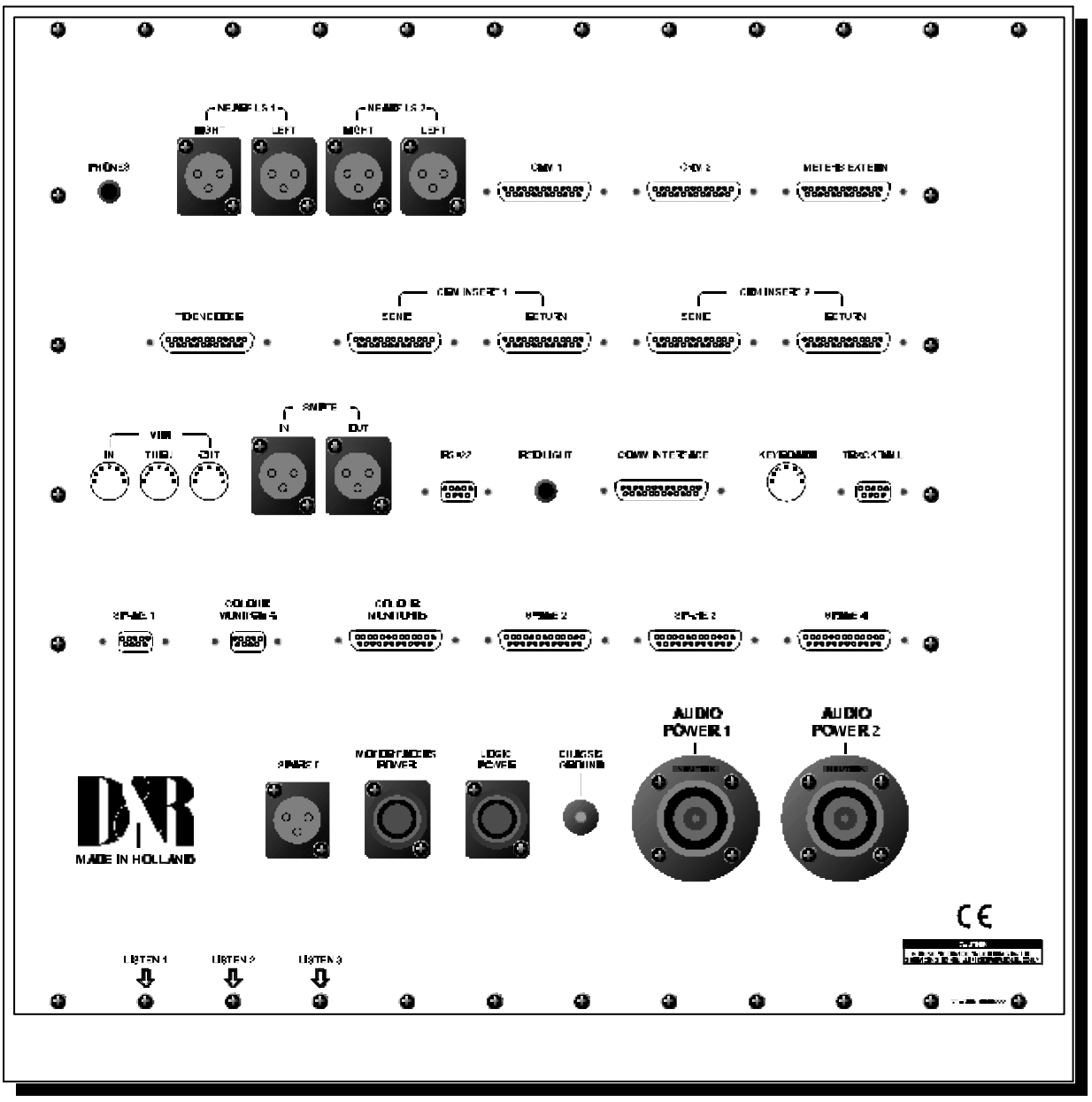
The channel meters are of a peak or VU reading design and read 0dB when an oscillator sine wave with a +4 dB output level is sent to the meter in VU mode. Measuring the +4 dB output level of the upper or master with a AC voltmeter would give a 1.22 AC volt reading.

When monitoring the oscillator on analog VU meters, the VU meters should read "0" when the channel meters are reading 0dB. We have discontinued the habit of making peak reading meters to read -6 dB down from the actual output level for corresponding VU meter readings.

With more and more digital equipment being used for laying down tracks, the actual level is of primary importance to know to avoid digital overloads. But for engineers that are used to the “standard” way of reading peaklevels a -6dB jumper is located on every meter that easily converts the meter to the “classic” way of observing peak levels.

After all alignment procedures have been performed, playing program material will show a difference in reading on the VU meters compared to the peak reading led bars in the channels.

2.24 MASTER INPUTS/OUTPUTS



Octagon interfaces easily with external equipment such as two track master machines, signal processors, headphone amps, and power amps. Interfacing is possible using the connectors on the master back panels, and through 25 pole sub D male connectors. Listed below are all inputs and outputs for the master modules.
The master back panel houses the connectors for interfacing with external equipment.

There are 5 rows of connectors.

The first row houses:
- Phones output (which is powered by the nearfield outputs).
- The balanced near field XLR outputs for easy interfacing with personal monitors.
- The 8 buss CRM LS1 and CRM LS2 outputs for both control room monitor systems.
- The connector for external connection of meters.

The second row houses;
- The mono surround trimpot
- The Pre Encoder out connector and the to Encoder connector.
- The CRM 1 and 2 insert send and returns.

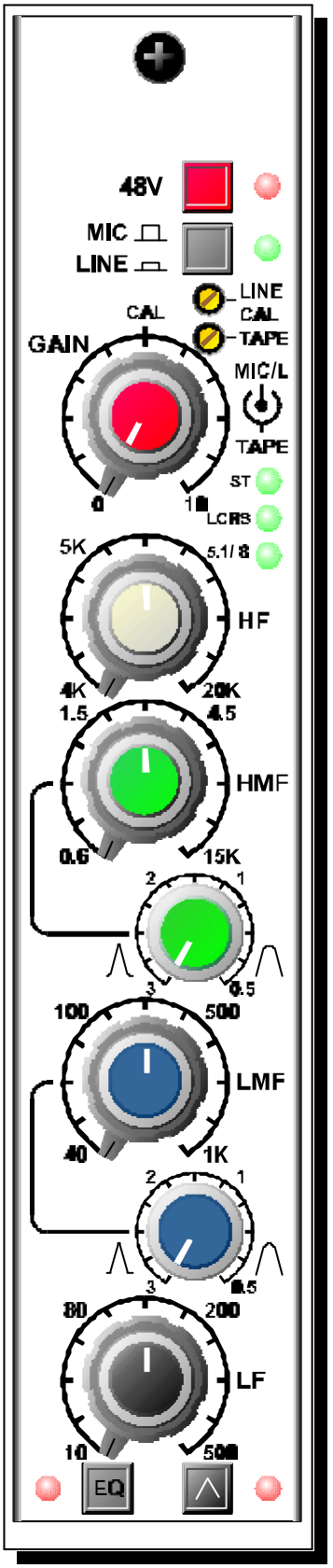
The third row houses;
- Midi in / thru / out connectors.
- SMPTE in and outputs.
- RS422 connector to interface with the automation computer.
- Red light jack.
- Communication interface connector for machine control.
- Keyboard connector to be connected to the PC and the pointing device (trackball/touch pad) connector to interface with the mouse output on the external PC.

The fourth row houses;
- Spare connector for custom options
- Remote in and remote out connectors
  The remote in let's you externally control the CRM mute,the Listen1/2/3 functions and the red light indicator.
  The remote out sends control voltages of afore mentioned functions.
- Monitor connector coming from the internal TFT display.

The fifth row houses;
- The power supply connectors and chassis ground.

Below the master back panel are also the three Listen input XLR's to be connected to microphones positioned anywhere in the building.
A detailed connection diagram will be shown in the installation section of the manual.

DUAL PATH MONO MODULE DESCRIPTION



The Octagon in/output module differs from all other modules because it can be controlled from a Control Module. All switch functions that need to be addressed immediately are available in every module. All switch function that are set once or twice during a session are accessible via the control module.
The SELECT switch in every in/output module "connects" its functions of that module to the control module. At the same time the LED's in the control module indicates its present status and active switches.
In every module there are also LED's that indicate which function is active, so at a glance you can see if a specific function is activated. Pressing the SELECT switch further shows, in the Control Module, which specific function has been activated.

3.0 DUAL PATH MONO MODULE

Octagon's Dual Path mono input module is a basic input / output design whereby all signal flow takes place from the microphone to the multitrack. Each dual path mono module is shipped with **PowerVCA** Automation and a 37 segment LED bar graph meter. The mic/line inputs are in the **UPPER** section of the module while the **TAPE** machine outputs are in the **LOWER** section. The following sections explain the many functions and features of each section of the dual path input module.

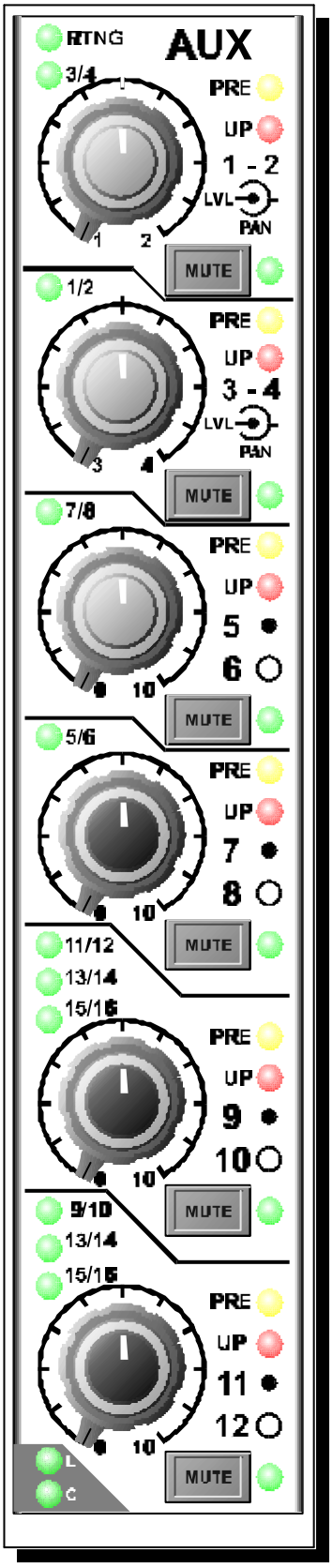
3.1 UPPER SECTION

Input selection of sources is done in the Control Module and can be sourced from the MIC/LINE input, the Tape/Playback input or the Group/Dir output.
The input section controls all incoming signals from microphone, line, and multitrack outputs. A **48V** phantom power switch for condenser microphones or direct boxes can be silently switched in or out of the circuit. The **Line** switch converts the Upper input from a balanced mic input into a balanced line input. Octagon has separate electronics for each input. The top knob of the dual concentric **GAIN** control adjusts the mic/line levels in the **UPPE**R path and the bottom control adjusts the (**tape**) input of the **LOWER** path.
When the **GAIN** control is accurately set, it is possible to achieve the very best signal to noise ratio and maximum headroom Octagon was designed to achieve.

3.2 EQUALIZER SECTION - UPPER PATH

This four-band parametric equalizer is unique in its design. There are four bands, the high and low bands have sweep able frequency and shelving characteristics type with a boost or cut of 16 dB. The two mid bands each are sweep able frequency peak/dip type with a boost or cut of 16 dB and bandwidth control which ranges from a maximum Q of 3 down to 0.5.

The **HF** (high frequency) section is a variable frequency shelving type, sweep able from 4,000 Hz to 20,000 Hz with a max.. boost or cut of 16 dB.
The **HMF** (High / Mid Freq.) section has level and frequency controls with variable frequency ranges from 600 Hz to 15,000 Hz and has a maximum boost or cut of 16 dB.
The bandwidth has a Q factor ranging from 0.5 up to 1.5.
The **LMF** (Low / Mid Freq.) section has level and frequency controls with variable ranges from 40 Hz to 1000 Hz and has a max. boost or cut of 16 dB. The bandwidth has a Q factor ranging from 0.5 up to 1.5.
The **LF** (low frequency) section is a variable frequency shelving type, sweep able from 10 Hz to 500 Hz with a maximum boost or cut of 16 dB.
The shelving curve can be switched into a Bell curve.
All level controls are center detented making neutral positions easy to establish. All frequency ranges have been carefully selected following extensive examination of all types of music (and noise).
Test comparisons of other equalizers helped the D&R design team create an equalizer that sounds very musical , but at the same time, raising the standard in specs and sound quality. Noise and distortion are kept to an absolute minimum.
An equalizer on - off switch is fitted to allow easy comparisons.



3.3 AUX. 1 - 16 SECTION

All Aux. sends can be sourced from either the upper signal path or the lower signal path. A LED on every module helps you to remind you of the setting programmed locally.
All Aux. pairs have MUTE switches that are under software control and part of the Power VCA automation system.
PRE/POST switching for Aux. 1 to 12 is done per pair in the control module. A LED on every module helps you to remind you of the setting programmed locally. Aux. 1/2 can be assigned to the routing as well. AUX. 9/10 and AUX. 11/12 are per pair assignable to the Aux. busses 9/10, 11/12, 13/14, 15/16. All these settings are displayed in real time in every module when a selection is made in the Control Module.

The Auxes 1/2 can be assigned to the 48 busses through the digital routing system. The green status LED indicates when **AUX. 1-2** is assigned to one or more of the routing busses

Note: When Aux. 1/2 are assigned to the routing busses, it is not possible to use the busses for anything else

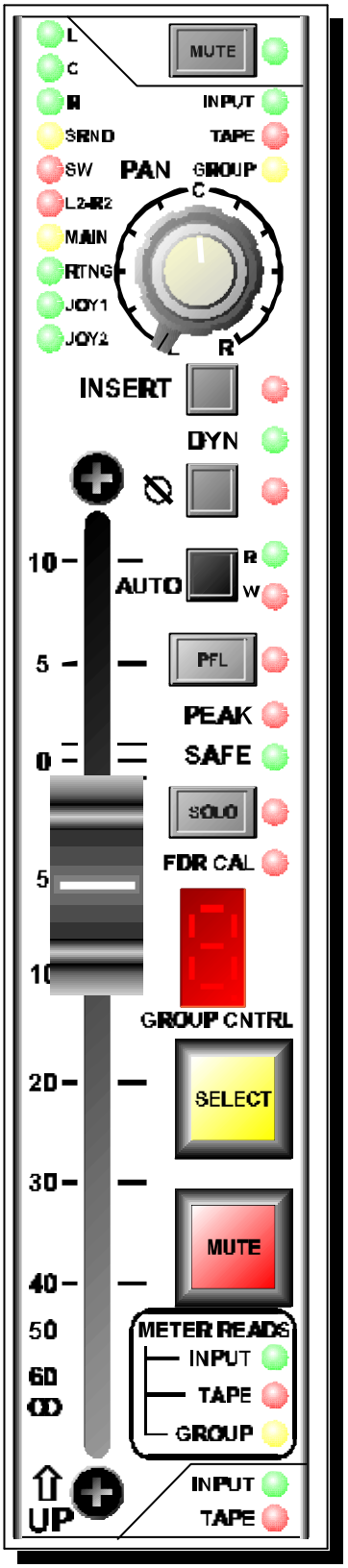
Routing AUX. 1 - 2 to the Multitrack Busses.

Step 1: Press **SELECT** on the module you would like to route auxes from.

Step 2: Press the gray **RTNG** switch in the AUX. section labeled **RTNG.**

Step 3: Press the **Buss** switch or switches you would prefer to buss to.

Step 4: From Octagon's patch bay, patch the group outputs of your choice to one of your signal processing equipment's inputs**.**



3.4 PAN POT

Octagon's pan pot is built to achieve minimum cross talk between two selected busses. A center detent with -3 dB attenuation is standard for stereo assignments.

All routing assignments are displayed at the left side of the module alongside the pan pot showing instantly the present routing situation. Assignment of routing formats and individual panning assignments are made in the Control Module which will be described later when we explain how to deal with the Control Module in day to day practice.

3.5 INSERT

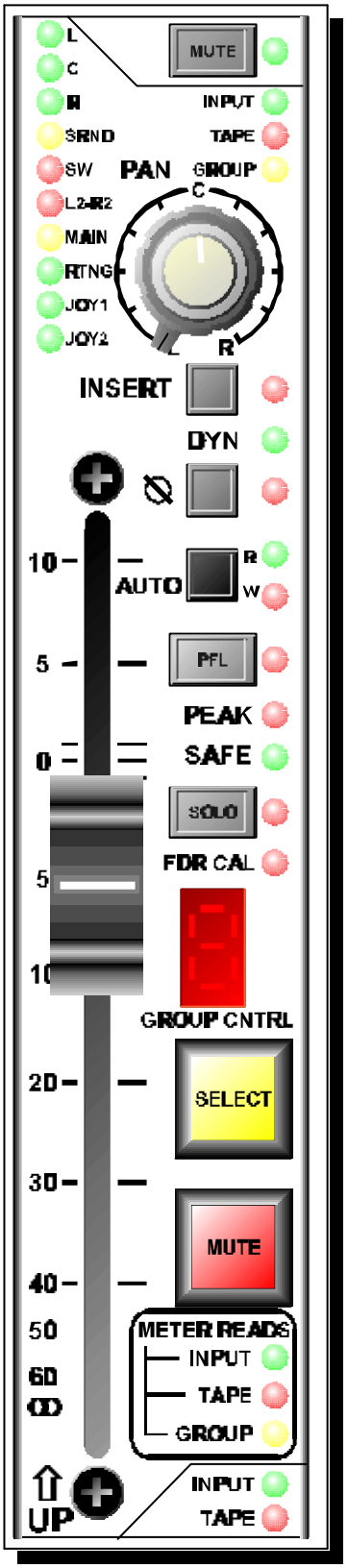
Below the pan-pot the insert knob switches connected signal processors in the signal path.

3.6 Dynamics

A local LED indicates that this part of the module is assigned to the optional Dynamics package controlled in the master section. Comparisons between treated and untreated signal is done in the master with the Dynamics ON/OFF switch. When the **green DYN** LED is on, an optional compressor, limiter, gate, or other effects / signal processors will be inserted into the signal path.

3.7 PHASE

The **PHASE** switch below the INSERT switch is used to reverse the phase of any mic or line input. A successful method of checking for out of phase signals is to press the mono switch on the master section and listen closely to the lower. If an unexpected sound is heard or if something appears to be missing from the lower frequency range, press the phase switch on the upper suspected to be in error. If the sound improves, then that upper was out of phase with the others.



3.8 AUTO

The AUTO switch determines the automation mode of the automated fader. Either off (no LED's on) Read (R), Write (W) or Update/Trim both Read and Write LED's on.

Note: These functions are only active when PowerVCA is loaded and active on your PC!

3.9 PFL

The PFL switch has an adjacent LED as an indicator that it is activated.
This PFL switch is completely independent from the automated SOLO system, but when a solo switch is activated in that channel it will be turned off at the same moment.

3.10 PEAK

The PEAK led indicates any overload in the module 4 dB prior to clipping from the following points. Pre-EQ, Post Insert, Post VCA.

3.11 SOLO SYSTEM

The Octagons solo system is very comprehensive. Various modes are possible, **PFL** (pre fade listen), **AFL** (after fade listen) and **SIP** (Solo In Place). Master status switching (located in the master section) selects the **PFL or AFL** mode for the entire console (except for the Aux. master solo's) and the Solo In Place mode. Solo In Place is a destructive solo system muting all other channels except those that are in the **Safe** mode (activated by the **Safe** switch).
Activating the **PFL** switch will send the pre fader signal of the Upper section to the CRM speakers.
In the **AFL** mode (non destructive), the post modules pan pot signal is heard, and all other modules are not muted within the stereo mix buss

3.12 FADER CALIBRATION

When this LED is on, the upper motorfader is fixed positioned at unity gain**.** This is very convenient when the upper section is used as a fixed STEM return, which is normal practice for film style re mixes.

3.13 GROUP CONTROL DISPLAY

Fader, Solo, Mute and Auto(mation) functions can be grouped in control groups up to a maximum of 8. The display shows to which control group a specific module is assigned. How to do this will be explained in the “How to ...” part of the manual.

3.14 SELECT

The Select switch is used for many purposes, but one of them is to assign the module to the Control Module to be programmed as desired. At the same time all LED's in the control module show the actual status of that assigned input module. Changes are instantly without having to go to extra store switches and the like.

3.15 MUTE

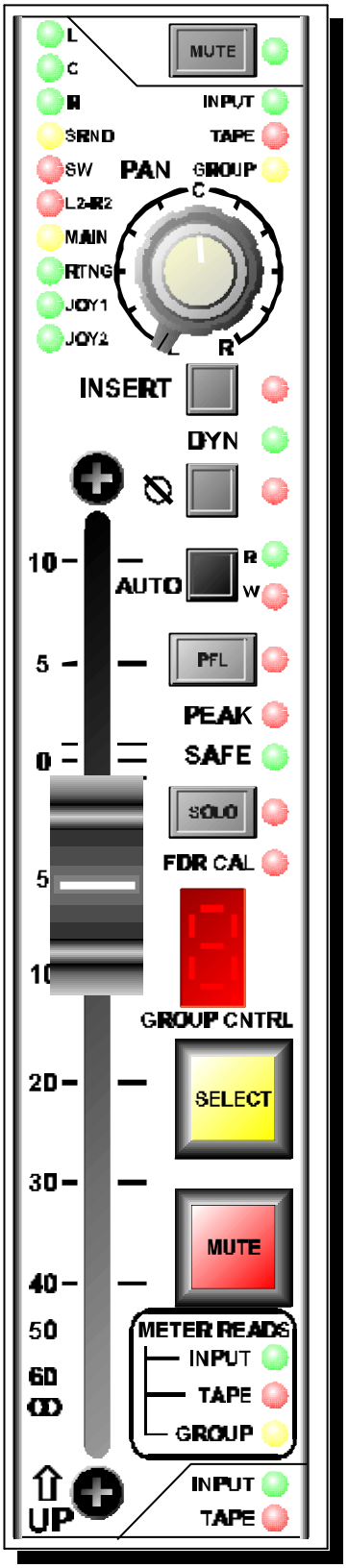
The **MUTE** system is a special soft-muting circuit, click-free and associated with the automation circuitry.

3.16 FADER

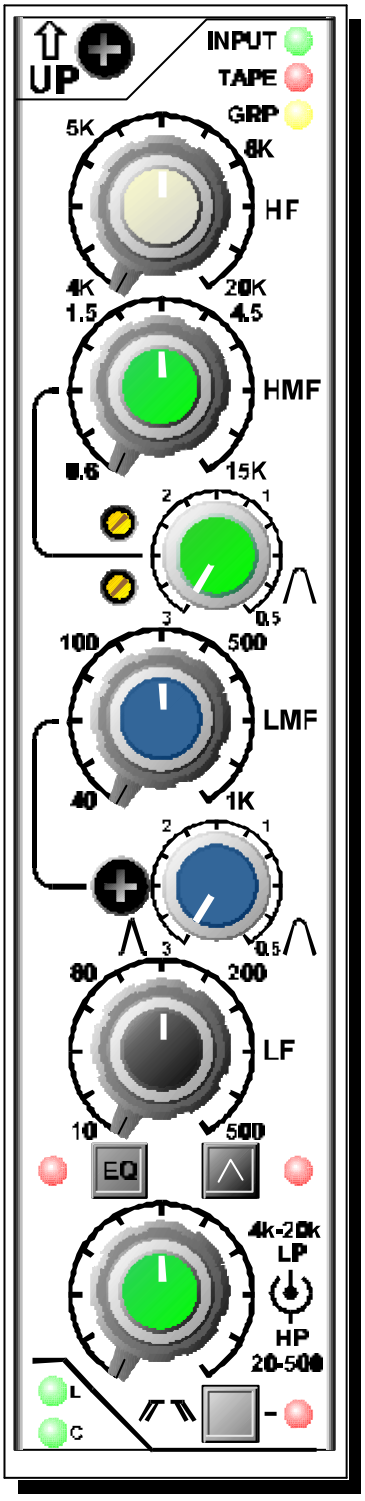
The 100 mm linear motor fader controls the internal VCA. Today's VCA's have very low distortion and very impressive specs, when the VCA is in circuit, noise is kept to an absolute minimum and the ultra low distortion is of the second (even) harmonic type responsible for a natural sound.

3.17 METER READ

The module’s Peak/VU led bar graph meter can be assigned to read the input signal (Mic/Line) the Tape input signal or the Group output signal of the module. Selection is made in the Control Module. It is also possible to switch the ballistics of the meter between VU and Peak.



3.18 UPPER ROUTING STATUS SECTION



There are 10 LED's positioned left of the upper pan pot that indicate the basic routing of the upper section.
Every module shows locally that an assignment has been made yes or no by way of an indicator LED. To know where the assignment has been made to the SELECT switch has to be activated. The Control Module shows in the routing section which buss is assigned to let you know what is routed.
The upper status green LED's section shows the Left, Center, Right assignments.
The yellow LED is on when the surround busses are assigned.
The red LED is on when the Sub Woofer is assigned
The next red LED indicates that the Left-2 and Right-2 output busses have been assigned.
The yellow LED indicates assignment to the main Left Right busses.
The last three green LED's show assignment to the routing (busses) and the Joysticks of the upper modules signal.

3.19 LOWER PATH

The **LOWER** section is the second signal path in the Octagon dual path mono module. It has a full 4 band eq, and can access the 16 aux sends too, insertable LCRS pan pot, and Mute & Solo switches. In record mode, the **LOWER** section is fed by either the tape return or group output. A master DIR/TAPE switch (a macro switch) selects either one of the above.

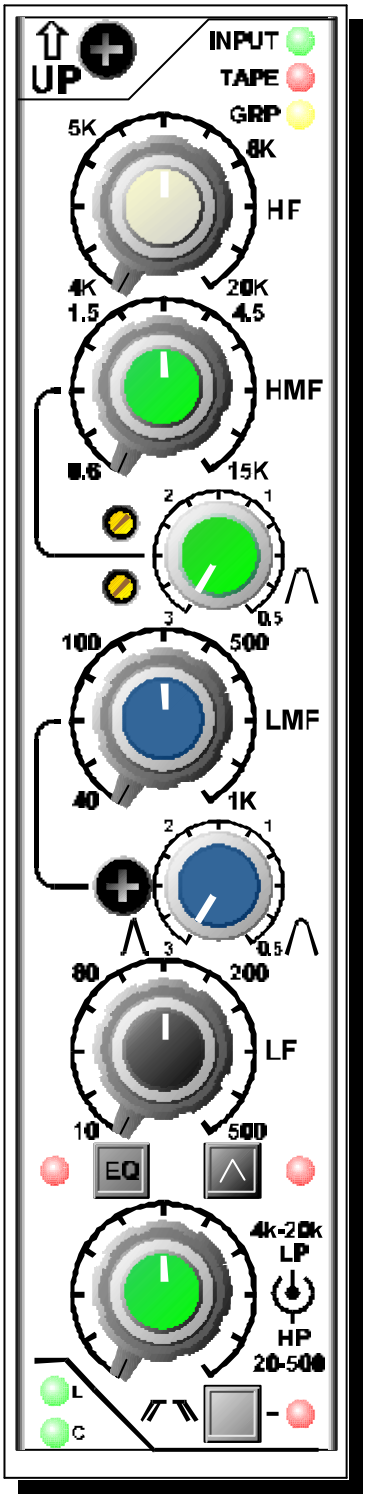
3.20 AUX. SENDS - LOWER PATH

The lower path can use all of the 16 aux busses like the upper path. Sourcing is controlled from the Control Module.
Aux. 1/2 & 3/4 were designed with a level and pan to build up a stereo mix for headphones.
See for more details the description of the Aux. sends for the upper path.

3.21 EQUALIZER SECTION LOWER PATH

This four-band parametric equalizer is unique in its design. There are four bands, the high and low bands have sweep able frequency and shelving type boost or cut of 16 dB. The two mid bands are sweep able frequency peak/dip type with a boost or cut of 16 dB and bandwidth control which ranges from a maximum Q of 3 down to 0.5.
The **HF** (high frequency) section is a variable frequency shelving type, sweep able from 4,000 Hz to 20,000 Hz with a max.. boost or cut of 16 dB.

The **HMF** (High / Mid Freq.) section has level and frequency controls with variable frequency ranges from 600 Hz to 15,000 Hz and has a maximum boost or cut of 16 dB. The bandwidth has a Q factor ranging from 0.5 up to 1.5.
The **LMF** (Low / Mid Freq.) section has level and frequency controls with variable ranges from 40 Hz to 1000 Hz and has a max. boost or cut of 16 dB. The bandwidth has a Q factor ranging from 0.5 up to 1.5.
The **LF** (low frequency) section is a variable frequency shelving type, sweep able from 10 Hz to 500 Hz with a maximum boost or cut of 16 dB.
The shelving curve can be switched into a Bell curve.
All level controls are center detented making neutral positions easy to establish. All frequency ranges have been carefully selected following extensive examination of all types of music (and noise). Test comparisons of other equalizers helped the D&R design team to create an equalizer that sounds very musical, but at the same time, raising the standard in specs and sound quality. Noise and distortion are kept to an absolute minimum. An equalizer in - out switch with LED indicator is fitted to allow easy comparisons.



3.22 HIGH LOWPASS FILTER

The Octagon has in its lower signal path a high and low pass filter with a roll off of 12dB per octave.
The high pass filter has a range of 20 to 500 Hz and the Low pass filter ranges from 4kHz up to 20kHz. An on/off switch is provided for comparison of treated and untreated signal.

3.23 LCRS PAN POT

Octagon's pan pot is built with special circuitry to allow for Left, Center, Right, and Stereo Surround panning. The small upper control knob lets you move the input signal from front (LCR) to rear. In the rear position the signal can be panned between the surround left and right monitor according to the format chosen. A LCRS switch toggles between a normal pan-pot with -3dB center and a true LCRS pan-pot allowing for complex positioning of sound.

NOTE:
THE LCRS / STEREO SWITCH IS CONTROLLED FROM THE CONTROL MODULE. IF USED TO THE GROUP BUSSES THE FORMAT SWITCHES LABELED MONO/STEREO/LCRS/5.1/SDDS HAS TO BE ACTIVATED TO CREATE THE RIGHT PANNING FORMAT PRIOR TO ASSIGNING TO THE BUSSES.

3.24 INSERT LOWER PATH

Below the pan-pot the insert knob switches connected signal processors in the signal path.

3.25 Dynamics LOWER PATH

A local LED indicates whether this part of the module is assigned to the optional Dynamics package controlled in the master section. Comparisons between treated and untreated signal is done in the master with the Dynamics ON/OFF switch. When the **green DYN** LED is on, an optional compressor, limiter, gate, or other effects / signal processors will be inserted into the signal path.

3.26 PHASE REVERSE LOWER PATH

The **PHASE** switch below the INSERT switch is used to reverse the phase of any mic or line input. A successful method of checking for out of phase signals is to press the mono switch on the master section and listen closely to the lower. If an unexpected sound is heard or if something appears to be missing from the lower frequency range, press the phase switch on the upper suspected to be in error. If the sound improves, then that channel was out of phase with the others.

3.27 AUTO LOWER PATH

The AUTO switch determines the automation mode of the automated fader. Either off (no LED's on), Read (R), Write (W) or Update/Trim both Read and Write LED's on. ***Note: These functions are only active when PowerVCA is loaded and active on your PC!***

3.28 PFL LOWER PATH

The PFL switch has an adjacent LED as an indicator that it is activated.
This PFL switch is completely independent from the automated SOLO system. However when a Solo switch is active and PFL is activated the Solo switch will be inactive.

3.29 PEAK LOWER PATH

The PEAK led indicates any overload in the module 4 dB prior to clipping. Measured is at pre-EQ, Post Insert and Post VCA positions.

3.30 SAFE INDICATOR LOWER PATH

SIP (Solo In Place) is a destructive solo system muting all other channels except those that are in the **Safe** mode (activated by the **Safe** switch).

3.31 SOLO SYSTEM LOWER PATH

The Octagons solo system is very comprehensive. Various modes are possible, **PFL** (pre fade listen), **AFL** (after fade listen) and **SIP** (Solo In Place). Master status switching (located in the master section) selects the **PFL or AFL** mode for the entire console (except for the Aux. master solo's) and the Solo In Place mode. Solo In Place is a destructive solo system muting all other channels except those that are in the **Safe** mode (activated by the **Safe** switch).
Activating the **PFL** switch will send the prefader signal of the Upper section to the CRM speakers.
In the **AFL** mode (non destructive), the post upper pan pot signal is heard, and all other modules are not muted within the stereo lower buss.

3.32 GROUP CONTROL DISPLAY LOWER PATH

Fader, Solo, Mute and Auto(mation) functions can be grouped in control groups up to a maximum of 8. The display shows to which control group a specific module is assigned. How to do this will be explained in the “How to ...” part of the manual.

3.33 READY SWITCH

If wired to a tape machine that specific channel of the tape machine can be put in “Ready” mode locally in the Octagon’s module without having to reach for the tape machine’s remote control.It is done by way of midi control messgaes and programmed in the Octagon’s master section.

3.34 SELECT LOWER PATH

The Select switch assigns the module to the Control Module to be programmed as desired. At the same time all LED's in the control module show the actual status of that assigned input module. Changes are instantly without having to go to extra save switches and the like.

3.35 MUTE LOWER PATH

The **MUTE** system is a special soft-muting circuit, click-free and associated with the automation circuitry.

3.36 FADER

The 100 mm linear motorfader controls the internal VCA. Today's VCA's have very low distortion and very impressive specs, when the VCA is in circuit, noise is kept to an absolute minimum and the ultra low distortion is of the second (even) harmonic type responsible for a natural sound.

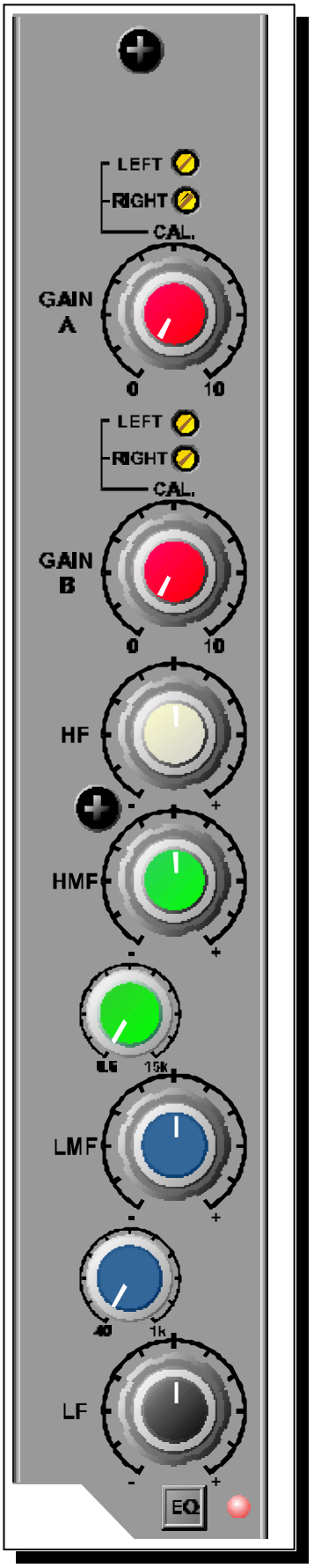
3.37 UPPER & LOWER PATH INPUTS / OUTPUTS

All mic inputs are interfaced via female XLR 3 pin connectors located on the module back panels. All other module inputs and outputs are located in the patch bay and accessible via 25 pin sub "D" connectors on the back of the patch bay.

3.38 IN/OUTPUT MODULE SUMMARY

This description concludes the Octagon’s mono input module.
Specific how to use the module will be described later in the “How to ...” part of the manual.

DUAL STEREO RETURN MODULE



4.0 THE DUAL STEREO RETURN MODULE

Octagon's Dual Stereo Module is one of the most comprehensive products the D&R design team has developed yet. Two completely separate stereo modules (four inputs) are fitted on the same metal strip. Although designed for effects returns, this module can be used for stereo keyboards, drum machines, stereo tape machines, or any other device needing both inputs on one fader. The maximum number of stereo input modules both frames can accept is 8. More is possible but the inputs will be wired to the Tie-line patchpoints
These eight stereo modules are normalled to signal processor outputs in the patch bay.

4.1 INPUT SECTION

The input section consists of two stereo gain controls with an adjustable input range of 40dB. The adjustment range is from -20dB to +20dB.
There are also four trim controls to fine adjust both input levels.

4.2 EQUALIZER SECTION

The D&R design team opted for a four band fixed frequency equalizer on both STEREO A and B input paths. The selected frequencies produced the most musical sounding results.

HF: The **HF** (high frequency) section has shelving characteristics with a boost or cut of 16dB at a fixed frequency of 10kHz.

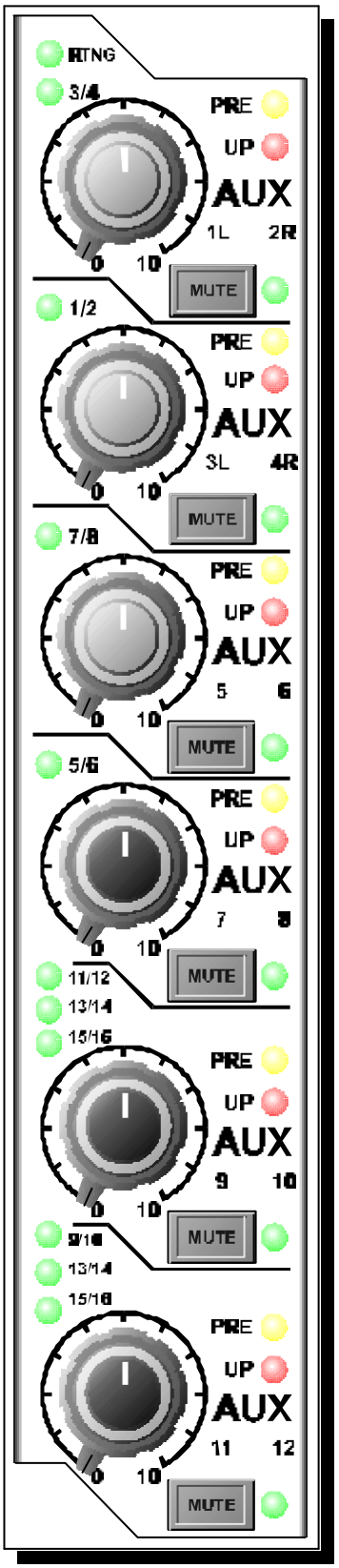
HMF: The **HMF** (high mid frequency) section has bell curve characteristics with a Q of 1.5 with a boost or cut of 16dB in the frequency range of 600Hz up to 15kHz.

LMF: The LMF (low mid frequency) section has bell curve characteristics with a Q of 1.5 with a boost or cut of 16dB in the frequency range of 40Hz up to 1kHz.

LF: The LF (low frequency) section has shelving characteristics with a boost or cut of 16dB at a fixed frequency of 60Hz.

All level controls are center detented making neutral positions easy to establish. All frequency ranges have been carefully selected following extensive examination of all types of music (and noise).

An equalizer on-off switch is fitted to allow easy comparisons.



4.3 Aux. Send Section

There are 6 pairs of stereoAux send controls that can be assigned to a maximum of 16 Aux. busses in stereo pairs. The top control feeds the odd (left) output and the bottom control feeds the even (right) output.
The upper 4 pairs of controls can be assigned to an alternate pair of busses, while the lower 2 stereo controls can be assigned to three alternate pair of Aux. busses. Of course all Aux. sends can be sourced from the upper or the lower section and taken pre or post from the module fader.
The first Aux. send control can also be assigned to the routing busses 1-48.
Clear indication of assigned Aux.. signals are displayed alongside the control knobs on LED's.

Every Aux. send has a soft Mute switch which is under software control and automated by D&R's Powerfade.

4.4 Balance control

Just below the Aux. section is a stereo balance control fur the upper section. On Octagon's stereo module, the balance control balances the left and right signals in the stereo image.

4.5 PHASE

The Phase switch reverses the right input signal only. This could be used for MS signals

4.6 INPUT SELECTION

Two switches labeled Left/Mno/Right select the input signals.
When the left switch is activated both left and right paths will give the left signal. When the right switch is activated both left and right path's will produce the right input signal.
When both switches are activated a summed left and right signal is routed to both input path's creating a mono signal on both inputs.

4.7 Dynamics

When the **DYN** LED (located left from the balance pot) is on, an optional compressor, limiter or gate. The master control of the dynamics is part of the recall/automation section's menu.

4.8 AUTO

The **AUTO** switch determines the automation mode of the automated fader. Either off (no LED's on) Read (**R** LED on), Write (**W** LED on) or Update/Trim both **Read** and **Write** LED's on. This automation is extensively described in the Powerfade part of the manual.

4.9 PFL

The PFL switch has an adjacent LED as an indicator that it is activated.
This PFL switch is completely independent from the automated SOLO system, but when a solo switch is activated in that channel it will be turned off at the same moment.

4.10 SOLO

The Octagons solo system is very comprehensive. Various modes are possible, **PFL** (pre fade listen), **AFL** (after fade listen) and **SIP** (Solo In Place). Master status switching (located in the master section) selects the **PFL or AFL** mode for the entire console (except for the Aux. master solo's) and the Solo In Place mode. Solo In Place is a destructive solo system muting all other channels except those that are in the Safe mode (activated by the **Safe** switch).
Activating the **PFL** switch will send the prefader signal of the Upper section to the CRM speakers.
In the stereo **AFL** mode (non destructive), the post upper pan pot signal is heard, and all other modules are not muted within the stereo lower buss

4.11 SEL

The Select switch is used for many purposes, but one of them is to assign the module to the Control Module to be programmed as desired. At the same time all LED's in the control module show the actual status of that assigned input module. Changes are instantly without having to go to extra store switches and the like.

4.12 MUTE

The **MUTE** system is a special soft-muting circuit, click-free and associated with the automation circuitry.

4.13 FADER

A 100 mm linear motorfader is fitted which follows the VCA control voltage.
Today's VCA's have very low distortion and very impressive specs, when the VCA's are in circuit, noise is kept to an absolute minimum and the ultra low distortion is of the second harmonic type which many engineers and producers like.

4.14 UPPER ROUTING STATUS SECTION

There are 10 LED's positioned left of the upper balance pot that indicate the basic routing of the upper section.
Every module shows locally that an assignment has been made by way of an indicator LED. To know where the assignment has been made to, the SELECT switch has to be activated. The Control Module shows in the routing section which buss is assigned to let you know what is routed.
The upper status green LED's section shows the Left, Center, Right assignments.
The yellow LED is on when the surround busses are assigned.
The red LED is on when the Sub Woofer is assigned
The next LED indicates that the Left-2 and Right-2 output busses have been assigned.
The yellow LED indicates assignment to the main Left Right busses.
The last three green LED's show assignment to the routing (busses) and the Joysticks of the upper modules signal.
Due to the nature of the stereo return module always pairs of signals will be assigned.

4.15 METER READS

The module's Peak/VU ledbar graph meters can be assigned to read the input signals (Line A or B) or the Group output signal of the module. Selection is made in the Control Module as is the switching of the ballistics of the meter between VU and Peak.

4.16 LOWER PATH

The **LOWER** section is the second signal path in the Octagon dual path mono module. Nearly all functions are identical to the upper path section so we will not describe these functions in detail again. Please look at the descriptions for the upper section. It has a full 4 band eq, and can access the 16 aux sends too. There is a balance and front rear control, and Mute & Solo switches. The **LOWER** section is fed by either the Group output or the Line A or Line B input.

4.17 LCR CONTROL

This control is the only special control that differs from the upper part.
The LCR control enables you to move the stereo image from Front to Rear. *(Or from LCR panning at the Front to Surround panning at the Rear)*

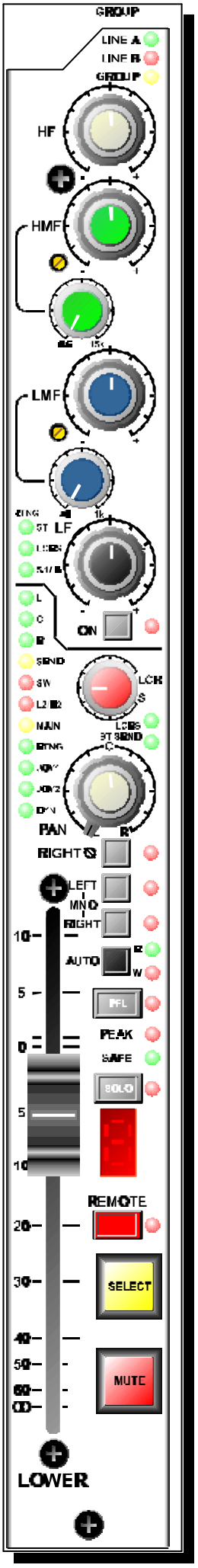
4.18 REMOTE

The remote switch can be used for remote control of stereo machines and or fader start purposes. Control is performed by midi control messages and programmed in the master section.

4.19 STEREO A / B STATUS SECTION - USING THE CONTROL MODULE

The stereo module shall be controlled from the Control Module in the same way as the in/output module is designed.

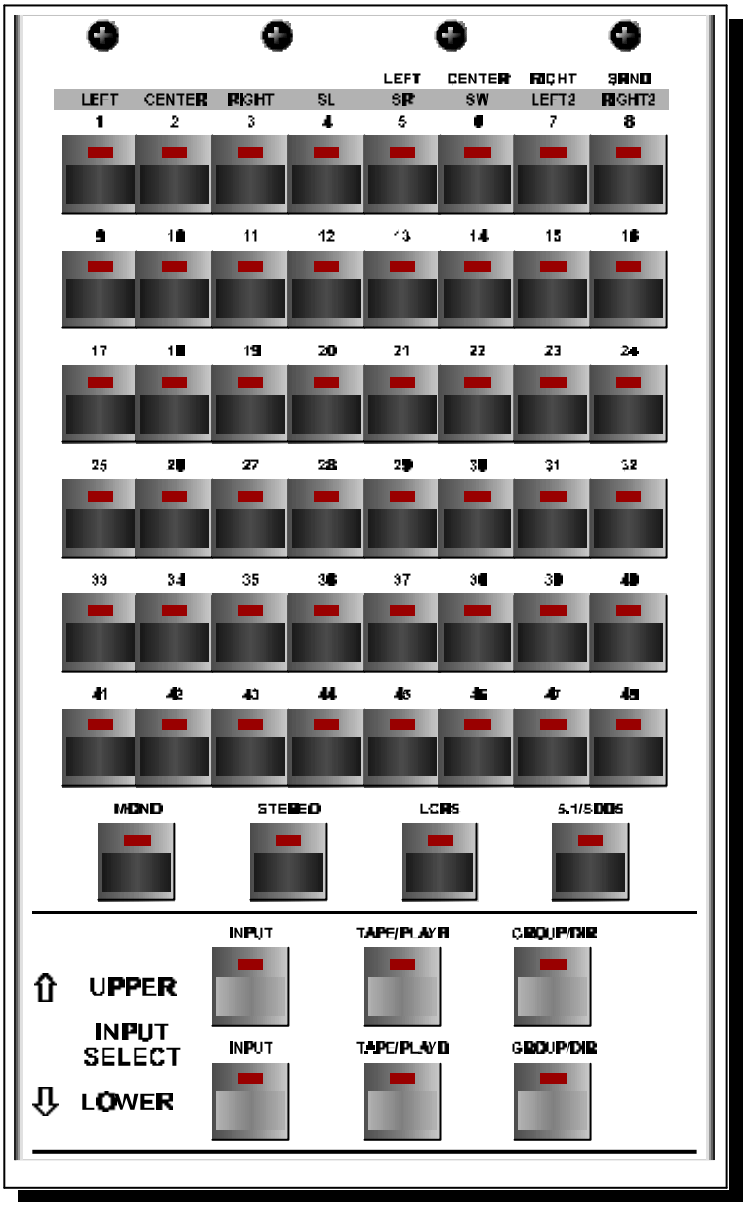
NOTE: When less than 48 modules are installed, the stereo modules can process the unused group outputs in pairs.
When more than 48 modules are installed the direct output shall give the post signal of the low fader**.**



Control Module

5.0 OCTAGON'S CONTROL MODULE

All actions in the control module are only possible when a module is selected by way of the SEL switch in the upper or lower part of the module.



5.1 GROUP BUSSES

The upper section of the Control Module is reserved for assignment to the 48 busses and the Format selection of the surround panning.
Formats can be basically Mono/Stereo/LCRS/SDDS. By first selecting this format the routing assignment will be as needed for that format.

5.2 INPUT SELECTION

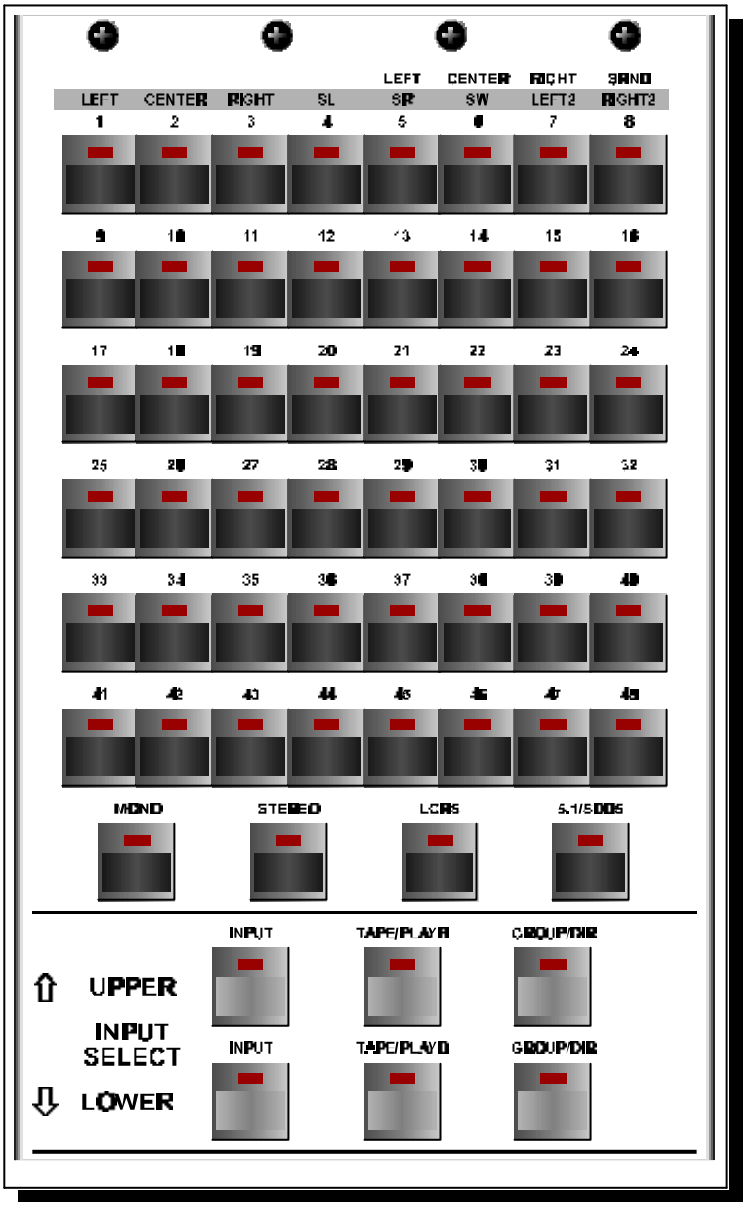
Both upper and lower section can accept all input signals such as Mic/line, Tape output signals, or the group buss signal from the 48 busses, or no signal at all.

5.3 AUX. SECTION

There are six discrete dual concentric pots that can accept signals from either the upper or lower section pre or post the fader.
The first switch selects if the signal is derived pre or post fader.
The second switch selects whether the signal comes from the lower section (LED OFF) or from the upper section (LED ON).
The next 2 switches are responsible for the routing of the Aux. pot outputs. An Aux. pair can be assigned to two sets of aux busses.
Aux. 1/2 can also be assigned to the routing.
Aux. 9/10 can be assigned to Aux. buss 9/10 or 11/12 or 13/14 or buss 15/16.
Aux. 11/12 can be assigned to Aux. buss 9/10 or 11/12 or 13/14 or buss 15/16.

5.4 PAN POT ASSIGNMENT

Two sets of eight switches in a row are responsible for assignment of the pan pots and the pre pan pot signals to the main output busses, Joysticks and Routing.
The labeling speaks for itself.



5.5 FADER CALIBRATION UPPER PATH

When a module is assigned this switch calibrates the upper fader at unity gain. This is useful when the upper section is used as STEM return.
(The lower section also has a slightly different software controlled 0 dB positioning, which shall be described later).

5.6 SAFE (SIP) (upper/lower path)

The safe switch excludes an assigned module section from being muted when the **SIP** (Solo In Place) system is active.

5.7 GROUP SETUP (upper and lower section)

With these switches you can setup groups. The maximum of 16 Group numbers (1 to 8 + A-G) is determined by the "MODULE SELECT" encoder. The selected switch in the module assigns all modules to the selected group by the encoder.

5.8 LCR LOWER PATH

Normally the lower pan pot functions as a left/right panner, but when this switch is activated the pan pot is converted to a LCR (Left/Center/Right) panner.

5.9 ST-SRND (stereo-surround) LOWER PATH

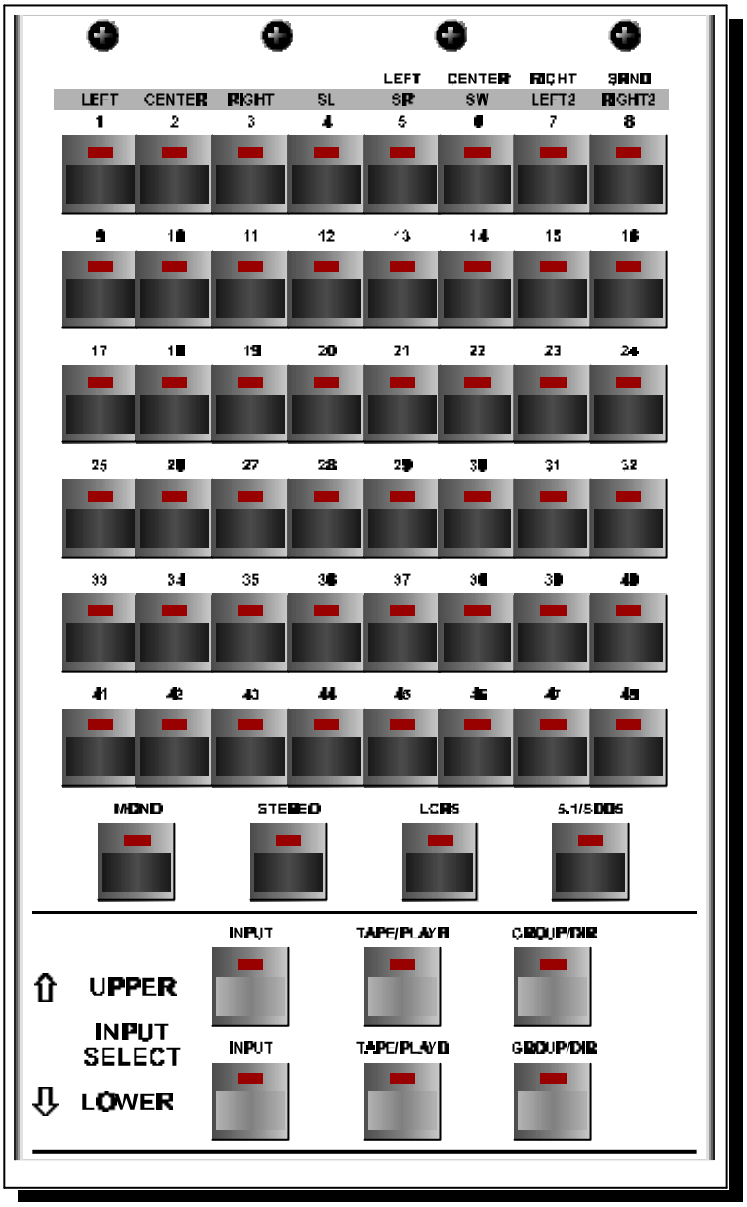
Normally the surround channels are mono but shall be stereo when the ST-SRND switch is activated. Full surround panning is now possible.

5.10 METER READS

Three out the four switches select what you are looking at on the meters. Selection can be made between;
Input (mic/line)
Tape playback
Group/dir (group outputs)

.NOTE:

When the module meter reads a signal coming from the input, the group output or the tape input be aware of the fact that it also needs to be assigned to the module. Otherwise the signal will not be heard at all, but only seen!



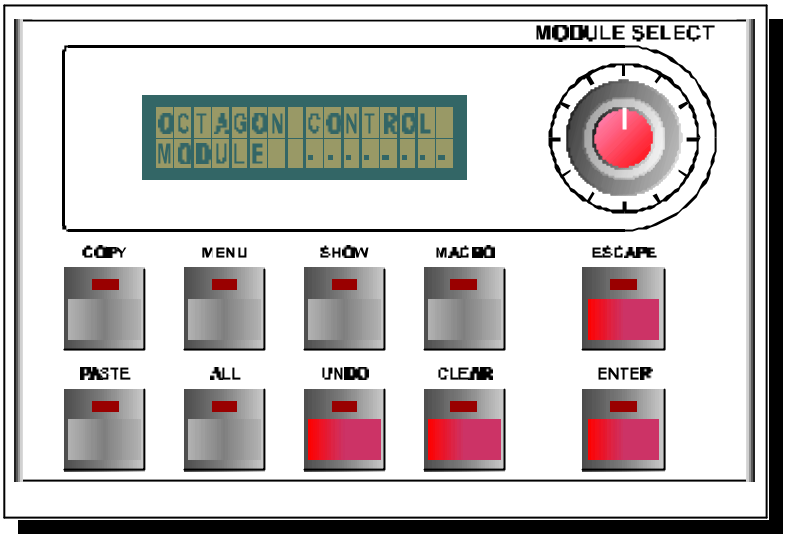
The fourth switch controls the ballistics of the meters

The ballistics of the meter can be changed from Peak to VU.
There is no level correction between Peak and VU as standard as was the case in the past with “older” products. Nowadays most of the recording equipment is digital and it is essential to know the absolute value of the incoming/outgoing signal to avoid digital overloads.
But for engineers that are used to the “old way” of observing peak levels, a -6 jumper is located on every led meter to convert the meters sensitivity to a -6dB reading compared to VU meter sensitivity.

5.11 MODULE SELECT SECTION

The LCD shows all sorts of information to help you to program the modules. The software is written in a way that after each step the display shows you your next option. It will be explained in the “How to ...” part of the manual.

5.12 ENCODER (large knob on the right side of the LCD)



The digital encoder is used to change data displayed in the LCD.

5.13 COPY

The Copy switch lets you load all settings of a module in a copy/paste buffer for further processing, just like a word processor. Copy also saves all faders and mute settings but only when the Control Module is in its “no module” mode.

5.14 MISC.

This switch has more than one function. Normally this switch determines which module should react on the control module if this is not done with the SELECT switch in the modules themselves. In the Macro setup mode there are more functions available in a lower layer.

5.15 SHOW

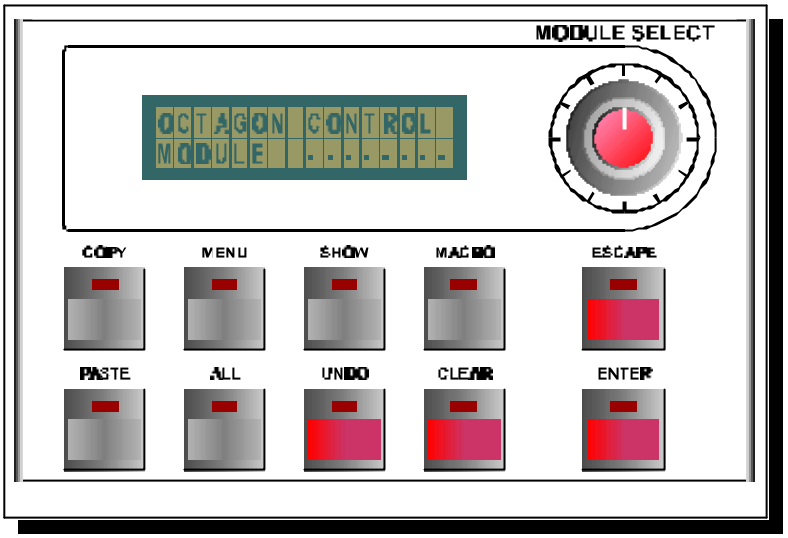
When this function is activated it gives you the possibility to see which modules have identical assignments by pushing the specific assignment in the control module you want information about The Select switch will show which modules have identical assignments or settings.
Another function is that the Select switch can ad or remove modules from that setting in the Control Module.

5.16 MACRO

This switch leads you into the macro setup. A flow chart shows in the “How to ...” section what you can do with it.

5.17 ESCAPE
Hitting this switch leaves the menu without storing anything.

5.18 PASTE
With this switch you can paste a complete module setting from the internal clip board to another module.



5.19 ALL
When activated all settings will be send to all modules at the same time.

5.20 UNDO
The undo function erases the last changes of functions you have programmed. (It is not working in the ALL mode)

5.21 CLEAR
When activated the module will return to the initially programmed settings.

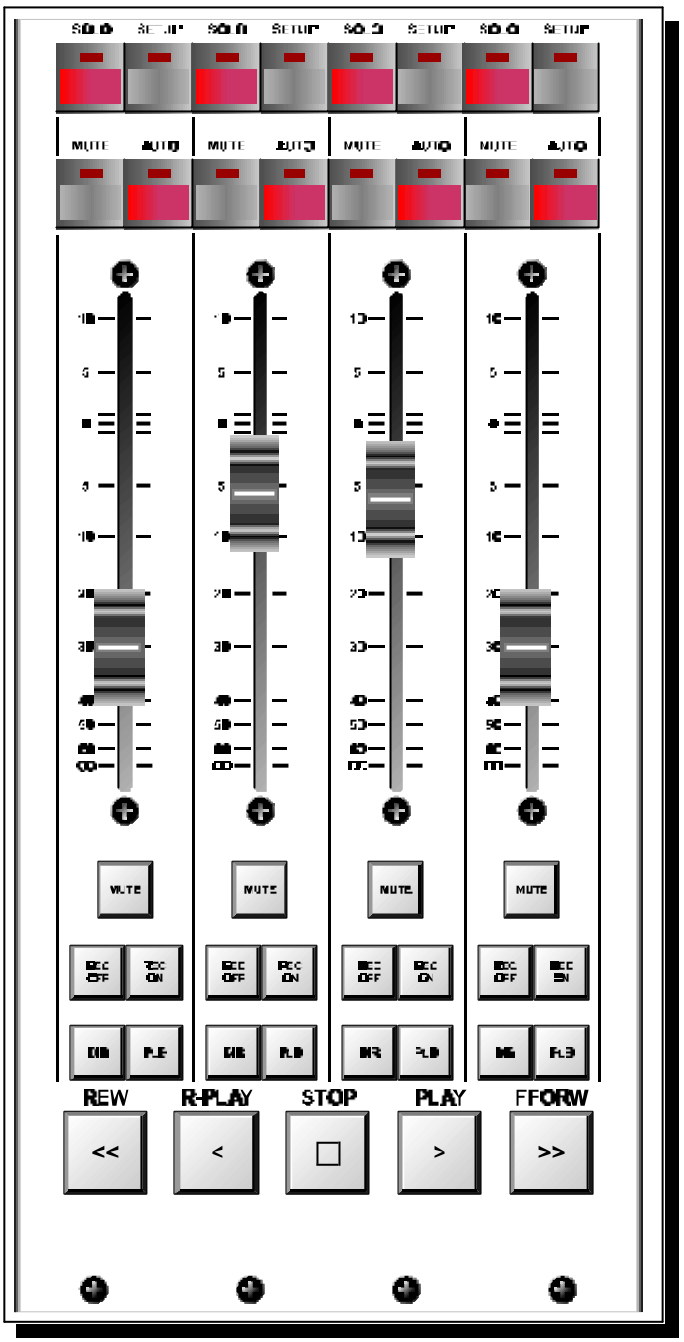
5.22 ENTER
Activating this switch confirms the changes applied to the channel module via the Control Module.

5.23 SOLO
There are 4 solo switches related to the 4 group faders. When activated all modules in that group will be heard via the solo system.

5.24 MUTE
There are 4 mute switches related to the 4 group faders. When activated all modules in that group will be muted.

.5.25 AUTO

There are 4 auto switches related to the 4 group faders. When activated all modules in that group will follow the automation settings.



5.26 SET UP

When this switch is activated the in/output modules can be selected with the SEL switch to follow the associated group fader and its related function switches SOLO/MUTE and AUTO.
In the SET-UP mode group faders can be recalled via the MISC switch.

5.27 GROUP FADER

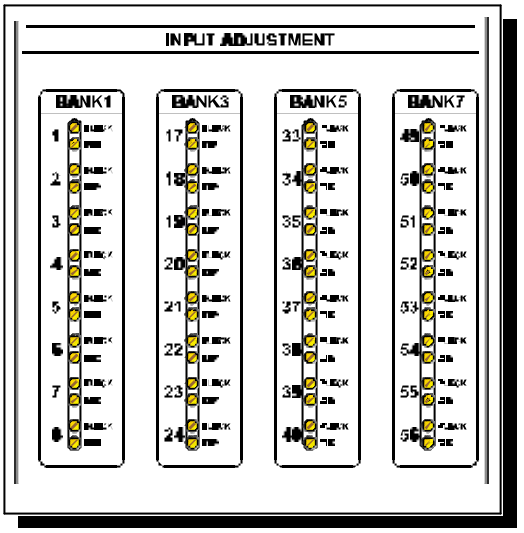
The group fader controls all slaves assigned to that group. The group numbering goes up to 8 and when more than 2 control modules are installed the letters 9 up to G are used to identify the groups.

5.28 MACRO SWITCHES

All switches located below the control faders are macro switches.
These switches can be programmed to perform often used functions in the control module. It also possible to store complete module settings under these Macro switches. The “How to ...” part of the manual explains this all in detail.

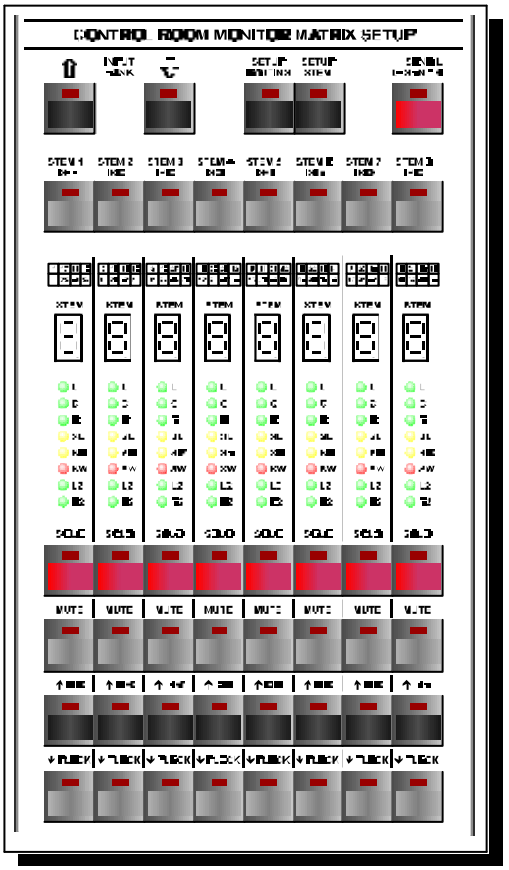
6.0 MONITOR MATRIX MODULE

INTRODUCTION



The monitor matrix has 64 direct and playback inputs, making a total of 128 inputs
Per input there is a choice out of Dir (pre tape) or Playback (post tape).
Every pair of dir/playback inputs has the following functions: Dir/playback, SOLO, MUTE, ROUTING (selection 1 to 8) and a STEM group function.
Through the STEM group function it is possible to switch a group of inputs simultaneously between DIR/PLAYBACK. Both SOLO and MUTE can also be activated for such a group at the same time. A total of 8 groups can be programmed.
The matrix module is able to show 8 input pairs maximum at a time. Through the Bank UP and Bank Down switches all other Matrix groups of 8 can be brought to the surface for adjusting.

SOLO



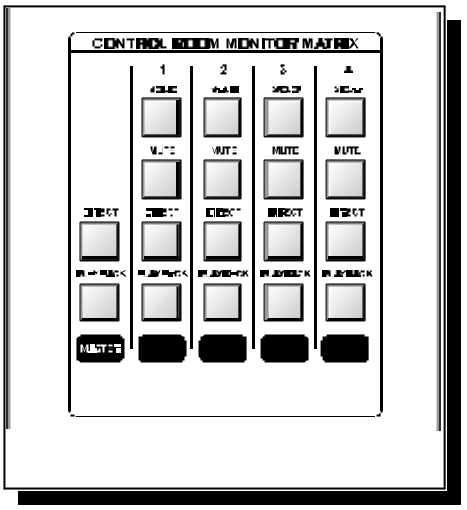
When the SOLO switch is activated on one input pair (dir/playback) it is a normal PFL function. If SOLO is activated via a group function all other input pairs will be muted (SIP).

MASTER CONTROL OF FUNCTIONS

All STEM groups can be controlled via the master Dir and master Playb switches. By isolating one STEMS group via the ISO mode this group will not slave to the master control switches.
The Surround-L to Surround-R function adds the Surround-L signal to the Surround-R bus when using the console in a 4 channel format.
The complete SET-UP of the matrix module will be stored by Octagon's Console recall and Console dump system.

For the master functions of the STEMS groups , the following controls can be used:
- The STEMS module's own controls (for STEM 1-4 only).
- The STEMS controls of the console's mastersection (for STEM 1-4 only).
- The Macro keys in any of the console's Control Modules (for STEM 1-8).

Please note that when the Macro keys are used as master controls for the STEMS groups the Macros to be used should be set up for this purpose. Instructions on how to program theMacros is explained in the section hereafter.



MATRIX SETUP

- Choose an input bank by pushing the bank up or down switches

Bank1= Dir/PLBck 1..8	Bank2= Dir/PLBck 9..16
Bank3= Dir/PLBck 17..24	Bank4= Dir/PLBck 25..32
Bank5= Dir/PLBck 33..40	Bank6= Dir/PLBck 41..48
Bank7= Dir/PLBck 49..50	Bank8= Dir/PLBck 57..64

- Activate Set-up Routing

  Assign each input pair to a CRM output of the Matrix using the Dir! and PLBck! switch.

  It is also possible to leave an input pair un-routed if required. SOLO and MUTE functions though will always remain active!

- Activate SETUP STEM

  It is possible to group several input pairs in a STEM group. Assign each input pair to a STEM group using the Dir! and PLBck switch. SOLO and MUTE will always remain active! Of course input pairs can be left out of STEM groups. The controls will then only be accessable on the STEMS module itself

- Set or Reset the SRND-L to SRND-R switch

- Set or Reset the STEM group ISO switches

How to program the Control Module's Macro keys for STEMS Groups master functions.

- Activate the Macro setup in the Control Module by pressing the MACRO switch
- Select a macro switch for the required function.
- Check if the macro slots of the selected macro switch are free with the Encoder. If necessary clear all existing macro's that are not used for the new macro programming.
- Select the MISC switch and select out of the available options the requested STEM function such as DIR-S1..S8 and Dir Sx for the Master Direct. PlayB-S1..8 and PlayB-Sx for the master playback. or SOLO-S1..S8, or MUTE S1..S8.
- When the required functions have been selected leave the the macro set-up via ENTER (macro will be stored) or via ESC (macro will be reset to previous value's).

HOW TO USE THE MATRIX

An input pair can be locally chosen by selecting the right input bank and by controlling it locally.
When an input pair is in a STEM group it can be controlled via the STEM switches on the Matrix module or the master module or via the Macro switches on the Control Module.
The master STEM-dir and master STEM-Playback switches it is possible to switchover all STEM groups simultaneously between Direct and PlayBack.
Activating the ISO switch will isolate a STEM group from these master STEM control functions

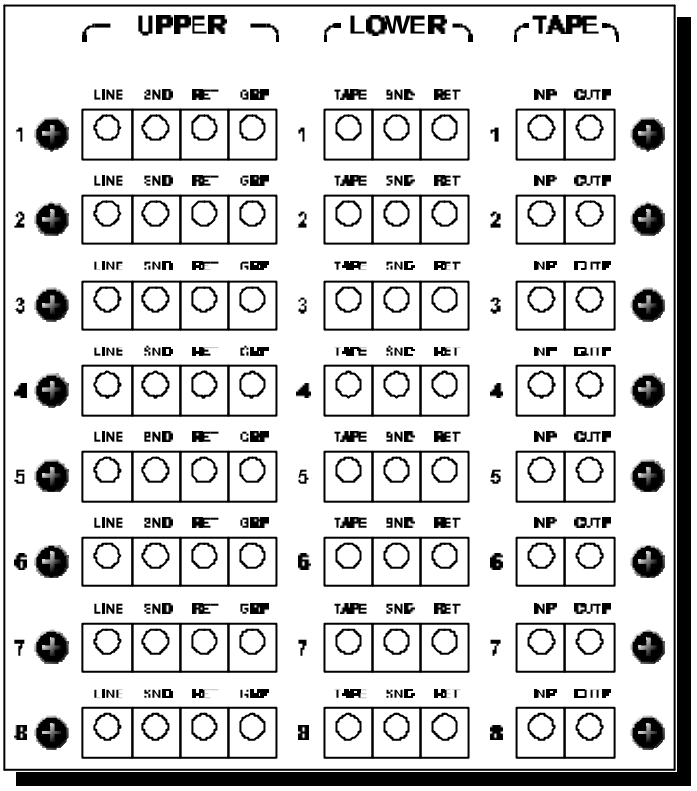
PATCHBAY SECTION

6.1 PATCH BAY description

The patch bay section is built around Bantam type tiny telephone jack sockets. Octagon's patch bay is completely modular and can be expanded as your budget allows. If you order a large frame downloaded with less modules, the patch bay can be expanded as you order more input modules or ordered complete. All master inputs / outputs and 184 Tie-lines (for signal processing) are standard when you order the patch bay. The entire patch bay is wired balanced and internally "star-ground" wired. Each row of UPPER and LOWER patch points are followed by the TAPE inputs and outputs.

6.2 PATCH BAY - points

Upper patch points from left to right are: **Line** input - **UPPE**R insert Send & Return - **Grp** (group) output - **LOWER** (from tape) input - and **Lower** insert Send & Return . The tape input and outputs are normalized to Group outputs and LOWER inputs.



Note: The main section contains ten rows of Bantam type jacks apart from the AUX. output sections.

Row 1: Master insert sends Left/Center/Right/SurroundLeft/Surround Right/Subwoofer/Left2/Right2

Row 2: Master insert returns Left/Center/Right/SurroundLeft/Surround Right/Subwoofer/Left2/Right2

Row 3: Master main outputs Left/Center/Right/SurroundLeft/Surround Right/Subwoofer/Left2/Right2

Row 4: Eight track inputs, normalled from the main outputs.

Row 5/6: Two Track A to H, normalled to the main Left Right outputs.

Row 6: Aux. 1/3/5/7/9 and Studio 1 left/right.

Row 7: 8 Track outputs connected to the CRM 8 track input.

Row 8/9: 2Track outputs A to H connected to CRM 2 track inputs.

Row 10: Two sections of 4 parallel wired bantam jacks.

Row 11/12: Aux. 1 to 8 outputs, normalized to signal processor inputs (on the next row).

Row 13/14: Aux. 9-16 outputs normalized to signal processor inputs (on next row).

Row 15: Four stereo signal processor outputs normalized to the stereo return modules. 1 to 4.

Row 16: Four stereo return inputs 1-4 (normalled from signal processor outputs).

Row 17: Four stereo signal processor outputs 5-8, internally normalled to dual stereo return modules.

Row 18: Stereo return 5 to 8 inputs (normalized from signal processor outputs 5-8.

Row 19: two sets of 4 paralleled jack sockets.

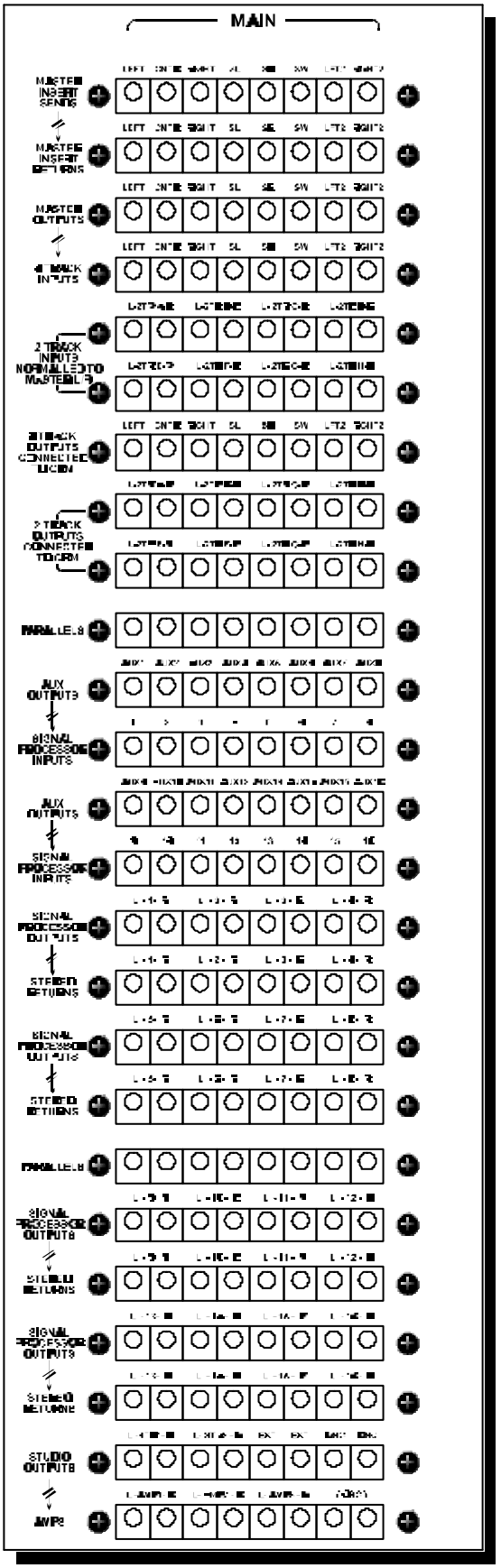
Row 20: Four signal processor outputs nr 9-12 normalled to stereo return modules 9-12 on the next row.

Row 21: Stereo return modules 9-12 normalled to signal processor outputs 9-12.

Row 22: Signal processor outputs 13-16 normalled to stereo return modules 13-16 on the next row.

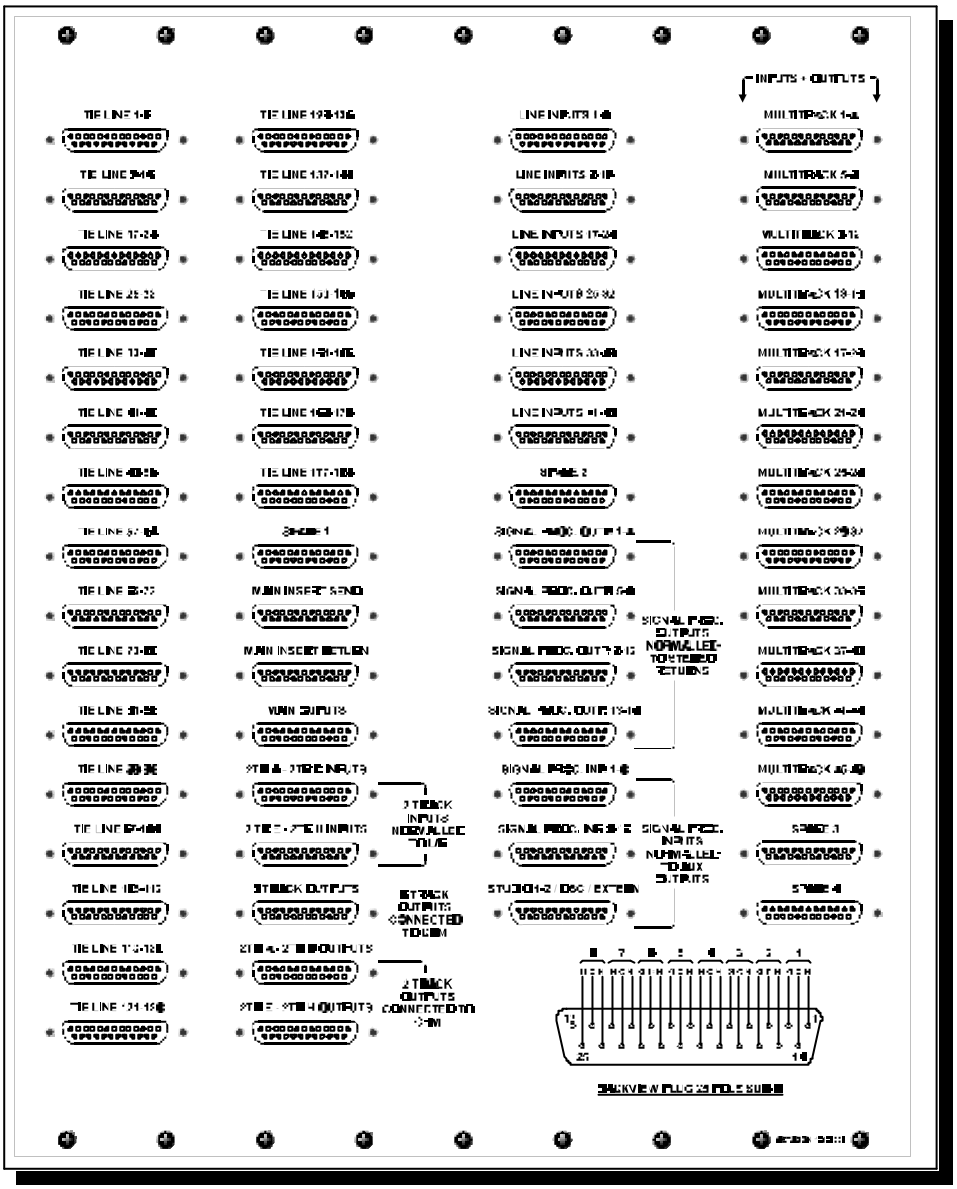
Row 23: Stereo return module inputs 13-16 normalled to signal processor outputs 13-16.

Row 24: Studio amp 1,2 and 3 inputs (normalized to Studio 1/2/3 amp outputs on former row). Plus two oscillator inputs for further routing to the studio.



TIE LINES

The Octagon has 184 Tie-lines mounted in 23 rows of eight. The tie lines are patching the inputs and outputs of any signal processing equipment. For ease of use, all outputs are blue sockets, and all inputs are black sockets. The blue and black jack sockets can be interchanged for use with any equipment other than normal stereo (two inputs and two outputs) devices. All interfacing with external machines, effects processors, or amplifiers can be accomplished via the connector panel (rear of master section) and via the 25 pin sub "D" connectors on the patch bay connector panel. The wiring from the 25 pin sub "D" connector to the jack sockets are identical for inputs and outputs.



Note:

G=Ground

C=Cold (out of phase)

H=Hot (in phase)

INSTRUCTIONS FOR OPERATION

7.0 Instructions for operation

The Octagon is designed to be the perfect answer for Film Style Post Production, Multitrack and MIDI studios. In order to get more familiar with the Octagon, we shall discuss the entire recording process and divide it into five basic sequences. Sequence 1 through 4 are for the more conventional recording studios, and sequence 5 is for the MIDI studio. We will also address the film style way of recording and mixing in the manual.

1 The session - Recording from microphone or line input onto the multitrack machine. This could be from one or more channels at a time.

2 The playback - In this mode you would listen to what has been recorded on the multitrack machine.

3 The overdub - Overdubbing is listening to already recorded tracks and recording on empty tracks until all tracks are filled.

4 The remix - Playing of all recorded tracks together with signal processing equipment and all that is necessary to create the final mix down.

5 The MIDI or Virtual Tracking - Programmed keyboards, drum machines, reverbs, effects, any singing and who knows what else, all at the same time direct to your Dat Machine, two track master machine, or cassette deck.

6 The film style - Recording process in which a reduction of already recorded sounds will be mixed down into pre-recordings (Stems) in a format.

7.1 THE TRACKING SESSION

This is normally the beginning of a project. All input channels are placed in the mic mode by leaving the line switch in the up position if the microphone input is to be used in this upper. Phantom powering is applied if necessary. The EQ switch should be in the up position unless you require EQ on that upper signal.
The signal flows through the Upper fader and is available postfader to be routed by way of the routing system feeding the input to your multitrack recorder.
The LED bargraph reads the outgoing signal if the master Tape switch is in its off state.

Microphone / Line Gain

The amount of gain required may depend on the type of microphone being used, the sound pressure level, and the distance between the sound source and microphone. When the line switch is activated, the same (upper) gain control varies the gain of the separate electronics for the balanced line input.

The "phase" switch affects both mike and line inputs. After plugging in a mike or line signal, depress the upper solo switch alongside the upper fader you are setting, then turn the gain control (of that channel) clockwise until a "0" output level is reached on the master ledbargraph/VU meters.

Now slide up the upper fader to "0". Now switch the solo out. If the signal source gets louder or softer, it may be necessary to re-check this setting.

The volume will also fluctuate if you boost or cut the equalizer section.

Monitoring with the Octagon series

You are able to monitor your multitrack by way of the separate LOWER section. The LOWER section of the dual path module allows you to have two usable inputs, both with EQ, both being able to send to the aux. busses, both with their own volume control, panpots, mutes and solos, and able to be routed at the same time.

Multiple Modules Assigned to One or Two Tracks

When more than one microphone or line signal has to be recorded on a single track or in stereo on two tracks, a submix facility is required. This can be done easily on the OCTAGON by way of the internal subgroup amplifiers located in every upper module and accessible by the routing system.

Simply route to one of the 48 subgroups by activating routing switches in the Control Module section on as many input modules as required. Decide on which track you wish to record these signals and activate the related number. The upper metering will show the subgroup level which can be changed overall by applying a PowerVCA's subgroup fader. In order to monitor these tracks on the modules, the master tape switch should be in the off position for monitoring pre-tape (console out) and in the On position for monitoring post-tape (master tape switch lights).

Insert Upper / Group

For high dynamic range types of inputs, a signal processor such as a compressor / limiter can be inserted in the upper insert or in the LOWER insert or activate the optional Dynamics package.

Headphone (Cue)

During recording it is essential that the talent hears an independent mix of what the engineer and producer are hearing. Headphone mixes are usually derived from pre-fader auxiliaries.

In the OCTAGON the Aux. 1/2 is ideal for this purpose.

The best way to build a mix for the headphones is to have the LOWER section of the dual line module feed Aux. busses 1/2. When there is limited time to set up a headphone mix, give the talent the CRM lower (L/R) in the Control Room section of the master modules and build up an independent headphone lower on aux. 1/2 when time allows.

Effect Sends

All unused Aux.. sends can be used to send signals to signal processors such as the D&R "Qverb" digital reverb, effects processors, and digital delays.

The Aux.. sends are usually post-fader in order that the right balance between untreated and treated signals is maintained however, it is possible to switch to pre-fader.

Effects Returns

In the modern recording or MIDI studios of today, there is a demand for many effect returns and inputs for MIDI related gear. For that reason D&R has designed the Octagon with stereo effects return modules. See section 4.0 of this manual for a complete description of this module.

Any unused upper or lower input can also be used for returning effects.

Every Stereo Module can accept two returns with equalization and Aux.. send capabilities.

7.2 THE PLAYBACK SESSION

Multitrack playback. The Octagon gives you a convenient way of monitoring your multitrack recorder. The tape outputs are feeding the LOWER path and you can adjust the amount of signal you desire and pan it within the stereo image. Auxiliary sends and equalization can be inserted in both signal paths whenever needed.

Control over this processing is carried out by independent solo / mute systems in both signal paths.

7.3 THE OVERDUB SESSION

Multitrack synchronizing. Overdubbing is the process of building up a recording track by track while listening to previously recorded tracks.
The Octagon has an in-line monitor for each track of the recorder making it easy to overdub. Connected to the LOWER section of the dual path module, you select the TAPE switch to follow the tape machine and do all your sync switching from the tape machine or remote.
The headphone lower is on the Aux.. send 1/2 busses.

7.4 THE REMIX SESSION

Remix is the process of combining all recorded tracks with (keyboards and drum machines for MIDI) signal processing and sending the mix a two track master machine, DAT machine, or cassette recorder. On the dual path module your multitrack is connected to the LOWER path. This routes the tape return to the LOWER input and leaves the mike/line inputs to the upper section of the module. At this point you can use either a mike or line input in the upper section which will feed the stereo mix buss. This will give you two inputs per module in the final mix. You can activate the desired EQ on the upper or Lower path. The incoming signals can be routed to the stereo mix buss via the Control Module. VCA Controle sub groups can be made up (as required) in the same way as during recording. Aux.. sends 1 - 16 can get their signal from the LOWER section.

7.5 THE MIDI OR VIRTUAL SESSION

In most MIDI studios there will be an 8 Track rather than a 16 Track or 24 Track tape machine. The majority of music production is programmed on a sequencer using MIDI keyboards, sound modules, drum machines, or other MIDI related equipment. Therefore, you will only require tape tracks for vocals and those instruments not adequately reproduced on today's keyboards. If there is a multitrack recorder in the MIDI studio, one of the tracks would be used to record a time code (SMPTE or MIDI code). This will allow your sequencer to keep keyboards, drum machines, and other MIDI equipment synchronized.

Octagon was designed with the digital or analog multi-track and MIDI studio in mind. In today's medium to large MIDI studio, there is a need for as many as 100 inputs to be used for everything from tape tracks to keyboards and drum machines. For this reason, the Octagon, when fitted with both Dual Path modules and stereo return modules, can net over 224 inputs in the virtual track session or mix down.

7.6 SURROUND MIXING

The Octagon is the perfect mixer for laying down surround tracks.
As already mentioned mixing down on 4 Tracks (Dolby stereo) or even SDDS (7.1) is very easy. For Dolby Stereo uses the Left/Right and Center outputs and the Surround left or right output which both give the same signal when the Encoder is on.
These signals are fed to the encoder unit by way of the 25 pole sub D connector and the stereo outputs are fed back into the mixer for checking purposes.
By depressing the Encoder Main Insert 1 switch the four output signals will be fed to the external Encoder and not to the 4 CRM outputs anymore.
At that very moment the stereo output of the Encoder is fed to the main CRM monitors. The Center and Surround monitors will be muted at the same time.
By activating the external Decoder (CRM Insert 1), the encoded stereo signal will be decoded to full surround and fed to Left/Center/Right and surround monitors for checking.
When the Decoder Active switch is in its up position a full stereo signal (Left total, Right total) will be heard and mono compatibility is checked with the Mono switch.
This easy setup of surround sound coding and decoding makes a mix-down into surround sound very easy to accomplish.

7.7 Dolby 5.1 and DTS (DIGITAL THEATER SOUND)

When mixing down in 5.1 all signals (Left/Center/Right/Surround Left/Surround Right/ and Sub Bass) are mixed down onto an eight track recorder and monitored back through the 8 Track input (eventually with the CP65 Dolby decoder).

7.8 SDDS - FILMSTYLE MIXING

Standard procedure is to record lots of individual signals onto a recording medium. These individual sources are mixed down into specific STEMS (pre recordings) prior to the final mix down. You could have 16 tracks of dialogue, 8 tracks of ambience (folly), 16 tracks of music, 24 tracks of special effects etc. These premixes need to be mixed down to a format that your client wants. This could be SDDS with 5 front speakers, stereo surround and a sub Woofer channel creating 8 dedicated audio signals.

Installation - Electrical

8.0 INSTALLATION - ELECTRICAL

8.1 LOCAL ELECTRICAL VOLTAGE

Before connecting the Octagon, check the AC supply voltage setting by looking at the sticker on the back of the rack mount power supply. This should be 115V for use in areas with an AC supply between 100V and 120V, and 230V for use in areas with an AC supply between 220V and 240V.
NOTE: The mains ground is not connected to the chassis of the Octagon. A special ground pin is located on the backpanel of master section for grounding purposes.

Allow for a 5 minute wait between switching the Octagon power supply(s) on or off to cool down the power surge protectors.

It is suggested to switch the Octagon's power supplies on, all at once by one master power supply switch. This prevents from locking up software when power is applied in a wrong sequence.
In cases when no general power switch is available, be sure to switch on all the power supplies as fast as possible, beginning with the large analog power supplies.

The main fuse is a 6.3 amp fuse with a 250 volt rating (10 amp fuse in America with a 125 volt rating). After replacing a blown fuse with the correct size and rating, turn the power supply on and check the three LED indicators. If you are still missing one or more of the power rails, turn off the power supply and call the D&R Technical Support Department.

NOTE: DO NOT REPLACE THE FUSE WITH ANY OTHER TYPE AS THIS CAN BECOME A SAFETY HAZARD AND WILL VOID YOUR WARRANTY.

8.2 ELECTRICAL WIRING

To take full advantage of the excellent signal to noise ratio of the Octagon, it is necessary to read this part of the manual carefully.
Hum, radio frequency interference, buzzes and instability are often caused by improper wiring and poor grounding. All equipment using three wire ac connectors should have a ground lift adapter on each cable before plugging into the ac outlet. In most cases, the incoming electrical ground is inadequate and a dedicated ground system should be installed for the audio equipment. Your local electric power company will provide you with all local electrical codes and safety regulations.

There are some ground rules to follow. All signals in a recording studio are referenced to ground. This ground must be clean and free of noise. A central place (central to all equipment) should be selected as the "central star ground point" and all grounds should terminate at this point. This point can be a solid metal plate with at least 50 places to hookup all incoming grounds.
This is commonly referred to as a "star ground system".
In some instances electrical contractors will daisy chain ground connections in the AC distribution system. This is not suitable for a studio. Ideally, run a separate ground wire from each piece of equipment to the "central star ground point". The "central star ground point" should be connected to a pair of eight foot ground rods using larger (#10) wire than your equipment ground wires.

Separate and identify "clean" and "dirty" AC outlets. Use clean outlets for audio equipment and the dirty ones for lighting, air conditioning, coke machines etc. Do not intermix these two types of outlets. AC interference can be greatly reduced by using an isolation transformer or some type of balanced ac power device to power outlets. Ground this transformer directly to the "central star point".

After all equipment is connected to the ac power, check with a ohm meter or continuity tester to be sure of no possible chance of ground loops.

All equipment should be physically located as far as possible from the main breaker panel and should be totally isolated from the equipment rack and other equipment so ground loops are avoided. Equipment can be mounted in wood rack rails to avoid ground loops or you can use "HUM FREES"

Now you can run a #12 stranded wire with jacket from each piece of equipment to the "central star ground point". All ground wires should be the same length with a tolerance of plus or minus 10% in order to have the same ground potential everywhere. On the equipment ends of each ground wire you should solder a round hole screw terminal.

Remove a chassis screw from each piece of equipment and file the paint in that area so it will make good contact when you connect the terminal. Next, connect the ground wire terminal to each piece of equipment and connect each wire at the other ends to the "central star ground point".

Installation - audio

9.0 INSTALLATION - AUDIO

9.1 INTERFACE POWER AMPS

The Octagon in its standard configuration can interface with all available equipment. Attention concerning the CRM output must be noted.
This output delivers a nominal +4 dBu level which is sometimes too high for power amps rated at 300mV sensitivity for full output. In some instances an input attenuator at the power amp's input is required to reduce this +4 dBu level by up to 12 dB. Contact the D&R Technical Support Department for details.

Note: This alignment is imperative in order to avoid damage to the speakers, or in some cases, damage to the ears of the listener.

9.2 THE INITIAL HOOKUP

First connect the rack-mounted power supplies to the console. All faders, monitors, and effect returns must be in the "down" or "off" position.
In order to ensure the best signal to noise ratio for your system, the next steps should be performed in the order they are printed.

a. Connect the CRM outputs (located on the master section back plate) to the inputs of your control room speaker power amps. Now turn on the analog console power supplies and then the digital supplies. This all has to be done as fast as possible when no master mains switch is available for powering the entire console at once.
Now turn your main power amp on and check for any hum, buzz, or interference. Slowly turn the CRM control clockwise until it is wide open while listening for excessive noise. You should only hear a faint "hiss". If everything is O.K., continue. If any hum or excess noise is present, stop and try different ground and shielding arrangements until the system is clean. After checking the main power amp and speakers, check CRM 2 and 3.

b. Before making any other connections, move each monitor fader to the 0 dB position with the master tape switch ON. Connect the multitrack cables to the 25 pole sub-D connectors on the rear of the patch bay, then connect each connector on the tape output of your multitrack. Check for hum or noise after each track has been hooked up. "Hiss" will normally increase slightly with each track. Connect the tape input jacks to the inputs of the multitrack.

Carefully listen for excessive noise or hum. If after hooking up an input or output excessive noise or hum is detected, stop and take corrective action before proceeding. Do not hook up all 16, 24, 32, or 48 tracks and then listen. You may need to rewire the entire cable harness to make the system clean.

c. Connect stereo tape recorders (inputs and outputs), stereo headphone amp, and all signal processors.

Note: MAKE SURE THAT YOU CHECK FOR HUM OR NOISE AS EACH INPUT OR OUTPUT IS CONNECTED.

9.3 SHIELDS & GROUNDS OF EQUIPMENT

The shield of any audio cable connection should be connected at one end only. If not, ground loops and high frequency cross-talk could result.
Connect the shield as a general rule to the signal source (output) of anything. In high RF areas it is wise to connect the other end of the shield through a 0.01 micro Farad capacitor. This will ground the RF but will not affect audio frequencies.

When connecting balanced microphones, use two conductor shielded audio cable and connect both conductors and the shield at both ends.
When connecting line level cables, use two conductor shielded cable and follow the instructions in the paragraph above. Remember, the shield is not considered to be "ground" and it should only be connected at the output of any device. There are only a couple of exceptions to this rule, one is patch cords and the other is microphone cables. We realize that the correct interfacing of different equipment is difficult, but once properly installed, the system will be clean and noise free.

It is important to understand the term balanced. Balanced does not mean the input or output is professional, the single factor that normally determines whether something is professional is the level of the input or the output. +4 dBu is considered professional. -10 dBv is considered to be consumer level semiprofessional.

Note: When checking your new Octagon console for noise, you will notice that the console is extremely quiet without any external equipment hooked up. D&R is not responsible for the noise you will experience when interfacing other equipment. D&R recommends using the highest quality external equipment with the Octagon. Because high quality sound must be monitored with speakers and amps with extreme specs, D&R suggests using only the best amps to drive your speakers.

TROUBLE SHOOTING AND SERVICING

10.0 TROUBLE SHOOTING AND SERVICING

10.1 TROUBLESHOOTING

It is essential to study the signal flow chart in paragraph 12.0/13.0 carefully, only then can you hope to isolate problems. By tracing the signal from input to output jacks, it is possible to locate a problem. If for any reason you are unable to isolate a problem, contact the D&R Technical Support Department for advice.
If the problem cannot be corrected over the phone, D&R will dispatch a replacement module the same day. Most problems can be found using logical thinking and simply replacing socketed integrated circuits.

10.2 REMOVING A MODULE

The Octagon is a complex piece of equipment and some understanding of its internal layout is necessary before removing a module. An input module has wiring to the LED bar, master section and back plates. All of these wires must be removed before withdrawing a module from the console.

Each module has computer grade connectors for ease of the disconnect.
Turn off the power supply. It is often easier to loosen the modules positioned left and right of the module under test. Remove the LED bar wiring and remove the metal cover underneath the led bar front which conceals the screws retaining the module. Now remove the bottom plate of the console located beneath the module that needs to be taken out. Unplug all flat cables that are connected to other modules. It is now possible to remove the two module retaining screws and carefully lift the module.
At this point extender cables (if ordered) can be connected. The master sections can be removed from the frame in the same way. Because of the many flat cables on the bottom of the master section, it is wise to remove all retaining screws from all master sections.
This will allow all the master modules to be moved slightly without unplugging all the flat cables. A qualified service technician will be able to service the modules in this way.

10.3 PATCH BAY - SERVICING

The patch bay is fully modular and can be serviced after first removing the back plates, then removing the cables attached to the card that needs servicing. The card can be removed after unscrewing two screws that push the patch panel card downwards.

The card will still be connected to the internal star ground system which will need to be unconnected before the card can be removed from the console.

HOW TO USE THE OCTAGON

11.1 CONTROL MODULE

Before going to work with the Octagon, I am sure you have tried all sorts of knobs, some did respond and some did not. Believe me there is a reason for that which I am going to explain right now.
The Octagon has a high quality analog signal path making interfacing very easy with all sorts of equipment, while the control of the analog signal path is mainly digital. The best of both worlds!
After having connected the Octagon to its environment and after having powered up all the power supplies. This can be done randomly, it will have no influence on the performance or startup procedure.
NOTE: You need to switch on the power supplies one by one of course but to avoid any start-up problems do it as fast as you can. Ideal would be to have one power switch that turns on all the Octagon's power supplies at once.
Now you are looking at a lot of nice glowing LED's indicating what function is active. in the modules, master and control modules.

The design of the Octagon is such that the Control Module provides central control for a number of functions in the individual input modules.
All functions controlled by the Control Module can be stored in the Octagon's auto-reset system. When a previous stored setting is recalled, all these functions will automatically be reset for all input modules.

Also positioned on the Control Module are the 4 Control Group masterfaders with their controls.

On the Control Module, the following functions of the input module can be controlled.

-Routing to the 48 group output busses.
-Format selection of the 48 group output busses.
-Input selection of the upper and lower signal paths.
-Aux. sourcing and routing.
-Routing of input modules to Master outputs.
-Fader calibration for upper signal path.
-Pan pot configuration of lower signal path.
-"SAFE" function for "Solo In Place" mode for upper and lower signal paths.
-"FADER SET" calibration function for upper and lower signal paths.
-Meter sourcing and ballistics.

11.2 SETTING UP THE CONTROL MODULE

When the Octagon is booted up for the first time, each Control Module must be configured. This is necessary to determine which modules should accessable by each Control Module.

For example; if there are 2 Control modules installed in a frame loaded with 48 input modules you may want to control modules 1-24 with the first Control Module and modules 25-48 with the second Control module.

When a module is assigned to a Control Module, it's status will only appear on that specific Control Module when selected with the module's "SELECT" switch (the one with the module number inside).

With the rotary controller positioned right of the display, one can access any module in the console. For example: if a module has been assigned to Control Module 1, one can access that module from Control Module 2 by selecting it with the rotary controller of that Control Module.

HOW TO?

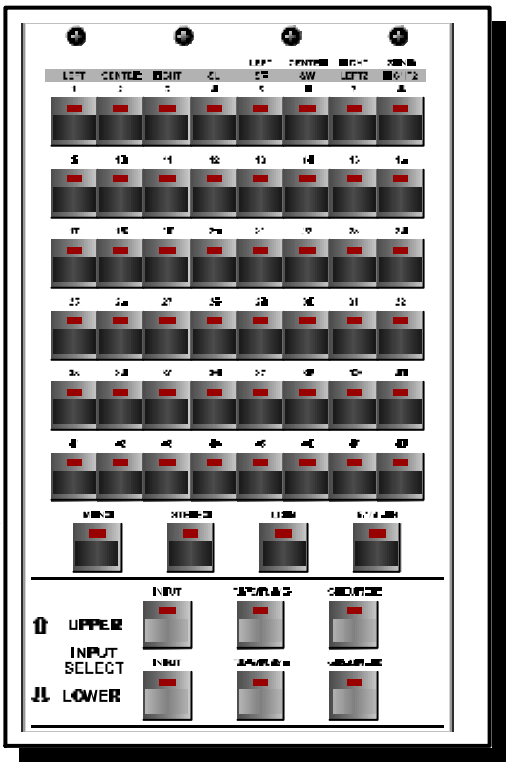
1. First check if the Control Module is in the neutral position.

The LCD display should read: "Module None". If the Control Module is in another field keep hitting "ESC" until it reaches the neutral field.

2. Press the "Misc" (or "MENU" on earlier versions) switch below the display.

3. Assign the modules to the Control Module by pressing one of their "SELECT" switches. All modules that are assigned to this Control Module are lit. If you made a mistake, a module can be taken out again by de-selecting it.

4. When all required modules are assigned press "ENTER" (All Select switches will go off now).



11.3 HOW TO USE THE CONTROL MODULE

It should be understood that settings in a module can only be performed when the SELECT button in either the upper or the lower section is activated telling the Control Module that all actions taken are for that specific module. As soon as you press the (upper or lower) SELECT button of a module, the Control Module will show the current status of that particular module with its LEDS.

Let's assume that nothing is activated and your looking at a "dark" Control Module. Notice that you also can select a module by rotating the Module Select knob positioned right from the display. Try it and see that the SELECT switches in the modules will light accordingly to the selected module.

11.4 GROUP OUTPUT SECTION.

Positioned at the top of the Control Module are the 48 routing switches for assigning the 48 Group output busses.
When pressed, the LED below the switch will lit up indicating that this particular buss has been assigned.
Note: In order to send signals to the routing section from any input, the "RTNG" switch in the output selection area for the U(pper) and L(ower) module part needs to be activated first. (This section in the Control Module is located left or right from the upper module panpot in the controlRouting to Master outputs"(11.7).

Below this field of 6 X 8 switches is a row of 4 switches which are used to determine the "buss structure format" in which a module can be set up.
As the Octagon is a Multi-Format console it may be desirable to be able to configure the Group output busses in groups for use in pre-recordings or STEMS.
Following is an explanation of the functioning of the 4 "FORMAT SELECTION" SWITCHES labelled MONO/STEREO/LCRS/5.1-SDDS.

MONO

When the mono switch is activated, any individual buss can be assigned, because there is no pan pot involved and the panpot is taken out of the circuitry. This mode is also known as "single buss routing".

STEREO

When this switch is active, the pan pot will be switched into the circuitry and pans between odd (left)and even (right) busses, just like in a conventional stereo console.

LCRS

In this mode the pan-pot will pan between buss numbers in the following L/C/R SRND sequence. In this way the Group output busses can be configured ideally for Dolby Stereo (Pro logic) pre-mixes and/or STEMS.
Following is a chart showing the buss/panning structure in **LCRS** mode.

L	**C**	**R**	**SRND**	**L**	**C**	**R**	**SRND**
1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48

In the above setup the assign sequence is: **Left/Center/Right/Surround**.

5.1/SDDS

In this mode the panning for Dolby digital, DTS and Sony SDDS is divided across the busses in the following way;

L	C	R	S.L.	S.R.	SW	L2	R2
1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48

In the above setup the assign sequence is:

Left/Center/Right/SurroundLeft/SurroundRight/SW/Left2/Right2

11.5 INPUT SELECTION.

The switches are labeled INPUT - TAPE/PLAYBACK - and GROUP/DIR(ECT) for both the upper and lower section. It is also possible not to select any input signal.

INPUT: The INPUT switch selects either a Mic or line signal. The input module has a local MIC/LINE switch that takes care of this selection.

TAPE: The TAPE input can be assigned to the upper section as well as to the lower section.

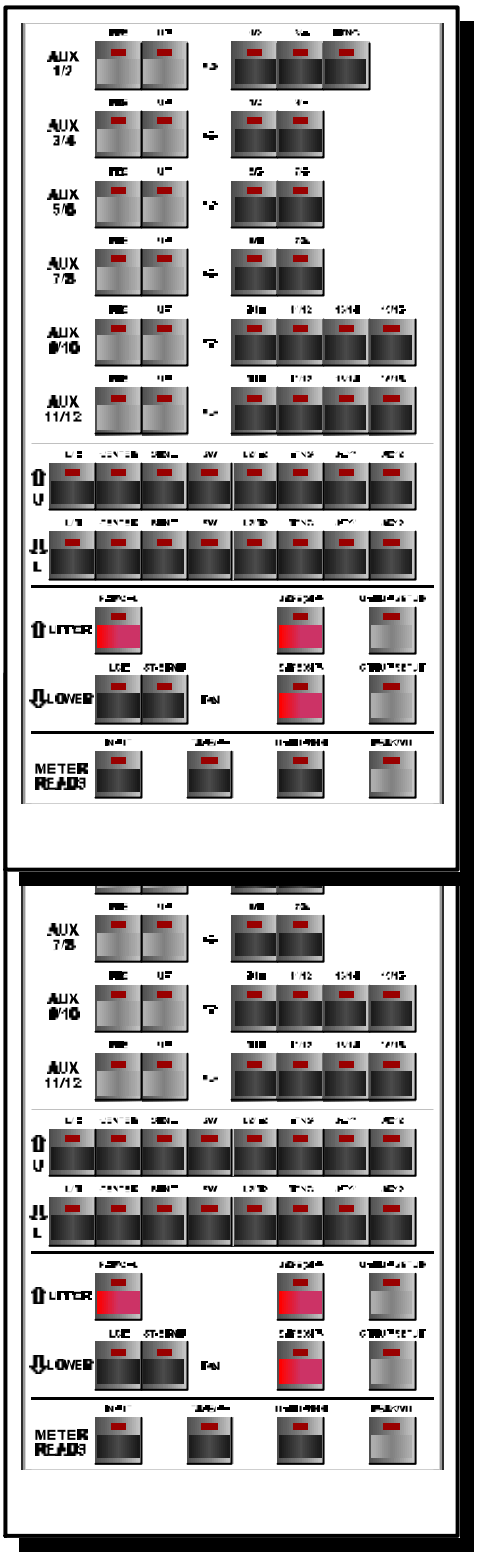
GROUP/DIR: If this switch is pressed either the group output signal from that specific group (corresponding with the module's number) is connected to the input or a direct signal post lower fader (dir) is connected to the inputs. For example: if the selected module is number 24 you will have the signal from Group output buss 24.

NOTE: Due to the enormous flexibility of the Octagon it is possible to create feedback when connecting the DIR output from the upper/lower section to the input of the upper/lower section.

All assignments are instantly and do not need any form of saving/storing/pushbutton returns etc. In both the Control Module and the channel module LED's will show what you have done.

If you move to another input module the input module's LED's will stay on to show your input selection.

Note: to check whether signal is entering the module, maybe it is wise to read 11.10 first. This section deals with the led bars. Doing this first helps you to check if the signal is displayed



11.6 AUX. SOURCING AND ASSIGNMENT

The Octagon allows you to select the source of all six Aux. send pairs individually per pair. The first two columns of gray switches select whether the signal is taken pre or post the modules faders and the second switch selects whether the signal is taken from the upper section or the lower section.
When no LED's are on, the Aux. sends are fed post fader from the lower section. This can be changed to your needs to PRE (LED on) and/or UP (AUX send placed in the upper section).

The output of the AUX. sends can be assigned to the 16 Aux. send busses with the next columns of black switches. The labeling speaks for itself, maybe the label RTNG (routing) needs a little bit of explanation.
When activated, Aux sends 1 and 2 can be routed to any of the 48 Group output busses. Please note that the required Group output has to be selected in the Rounting output section (11.4). It is also dependent upon the format selection of the four switches below the 48 routing switches.
Note that Aux. send ½ and ¾ are level/pan controls whereby the pan pot determines to which Aux. buss the signal goes.

11.7 OUTPUT ASSIGNMENT TO MASTER BUSSES

The two rows of eight black switches positioned below the AUX section are used to assign the module's input signal to the eight main output busses, the Group output routing system and joysticks.
Both rows of switches are identical. One is used for the assignments of all upper signal paths (marked "U"), the other for the assignments to all lower signal paths (marked "L").
Following on the next page is a chart of the 8 switches and their functions:

L/R : Routes the input signal to the main Left and Right busses.
CENTER : Routes the input signal to the main Center buss.
SRND : Routes the input signal to the main Surround busses
SW : Routes the input signal to the main Sub. buss.
L2/R2 : Routes the input signal to the main Left 2 and Right 2 busses.
RTNG : Routes the input signal to the console's Group output section (routing of the 48 Group output busses).
JOY 1 : Routes the input signal to the Joystick 1 buss.
JOY 2 : Routes the input signal to the Joystick 2 buss.

All assignment switches can be activated independently from eachother creating total separation between assignments from the upper and lower sections. Please note that the pan pot is always switched into the circuitry and thus active when the following master outputs are assigned:

-Left / Right.
-Surround Left & Right.
-Left 2 / Right 2.
-Routing Group output busses.

NOTE: The input module has to be selected prior to any control function in the Control Module. The LCD shows Module 24, Local Setup.

HOW TO?
Following is a step by step example of how to route a signal to the Group output busses and/or the master output busses.

Example: routing a microphone input signal coming in on module 24 to group output buss 15 and the main L/R busses in a stereo setup via the lower fader..

1) Select module 24 by pressing the upper or lower "SELECT"switch. The display now should read: "Module 24 , Local Setup".
2) Select the Mic. input on the top of the module if necessary.

3) Go to the corressponding Control Module.
4) At the "INPUT SELECT" section press the "INPUT" switch of the L(ower) section.
5) At the "MASTER OUTPUT ASSIGNMENT" section press the "L/R" and "RTNG" switches of the L(ower) section.
6) At "the ROUTING OUTPUT" section in the upper part of the Control Module press button 15.
7) Push the lower fader of module 24 up.

Now the Mic. input signal coming in on module 24 is routed to both routing buss 15 and the main Left and Right busses.
This can be visualised by checking the incoming signal of module 24 and the output signal of buss 15 with help of the meters.

1) Select module 24 by pressing the upper or lower "SELECT"(module number) switch.
2) Go to the corresponding Control Module.
3) At the "Meter Reads" section press "INPUT" (the incoming signal should now be visible on the module's ledbargraph and the LED in the section "METER READS" lights.
4) Select module 15 by pressing the upper or lower "SELECT" switch.
5) Go to the corressponding Control Module.
6) At the "INPUT SELECT" section press the "GROUP/DIR" switch of the L(ower) section.
7) At the "Meter Reads" section press "GROUP/DIR" (the group output signal should now be visible on the module's ledbargraph)

11.8 FADER CALIBRATION (FDR CAL)

This switch calibrates the upper VCA to be functioning at unity gain when activated. This is especially attractive when the upper section is used as pre-mix (STEMS) return. The local motorfaders will instantly go to the 0dB position. When the faders are under control of a VCA group the VCA master can always override the 0dB setting of the nulling software. The master VCA fader has a calibration position as well.
Note: The actual position of the fader knob could be slightly differ from others due to variations in control tracks of the faders themselves. The VCA control voltage however guarantees an absolute unity gain situation within 0.25dB.

HOW TO?

Press the escape switch first till the LCD shows "Module None"
1. Select a module with the SELECT switch.
2. Activate the FDR CAL switch, now the fader jumps to 0dB.
3. Deactivate the FDR CAL switch and the fader jumps to its previous position.

Ad more faders to the calibration function:

Press the escape switch first so the LCD shows "Module None"
1. Press the SHOW switch first. The display shows "Module All, Select Function"
2. Press the FDR CAL switch
3. Then add faders with the SELECT switch (or remove faders)
4. Finalize this sequence by pressing the ENTER switch.
The display will now read "Module None" again.

11.9 SAFE

The SAFE switch is activated when it is desirable that the selected module shall not be muted by the solo system (SIP, Solo In Place). Again a green LED in the module indicates that it is in the "SAFE" mode.

HOW TO?

1. Make sure the Control Module is in the neutral position (display should read "Module None")
2. Select the requested module.
3. Press the required "SAFE (SIP)" switch.Now thwe LED in the module will turn on to show you that module is isolated from the destructive SIP system.
4. 4 Finish this procedure by pressing "ENTER" or by selecting another module.

An alternative method is:

1. Make sure the Control Module is in the neutral position (display should read "Module None")
2. Press SHOW (LCD shows Module all Select Function
3. Press SAFE (SIP) for the U(pper) or L(ower) section and press the SELECT (module number) switch in every module that you want this SAFE function to be active.
4. Finalize this procedure with the ENTER switch.

11.10 LOWER PAN LCR and STEREO SURROUND

When the LCR switch is activated in the control segment below the output assignment row of switches, this pot will behave as a real Left/Center/Right pot for both the main busses and the 48 group busses. The ST-SRND switch converts the mono surround into stereo activating the LCR/surround pot above the main pan-pot

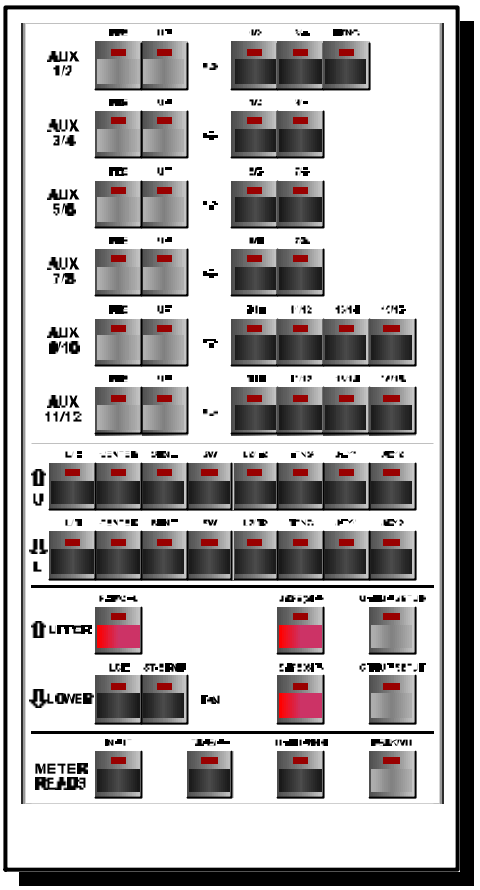
All these assignments have real time LED indicators in the control module as well as in the module itself for ease of recognition your settings.

HOW TO?

1. Make sure the Control Module is in the neutral position (display should read "Module None")
2. Select the requested module.
3. Select the LCR mode and / or ST-SRND in the Control Module.
4 Finish this procedure by pressing "ENTER" or by selecting another module.

11.11 FADER SET (Group Setup in earlier models)

The grey FDR SET switches for the upper and lower section are used to bring the faders to their 0dB position or their off position.



HOW TO?

1. Make sure the Control Module is in the neutral position (display should read "Module None")
2. Select a module.
3. Press the required FDR SET switch for the Upper or Lower section..
4. The corresponding fader will go to its 0dB position.
5. When deactivating the FDR SET switch the fader moves back to it's previous position.

Alternative way:

An alternative (easier) way to add or remove more faders from this fader set procedure is done as follows:

1. Make sure the Control Module is in the neutral position (display should read "Module None")
2. Press the SHOW switch. (the ALL switch lits up now , the display reads Module All / Select Function)
3. Press FDR SET.(earlier models Group SETUP)
4. Now select the required modules (every selected module will bring its fader to its 0dB position.)
5. Removing faders from the 0dB setting is done by the pressing the SELECT (module number switch) switch again.
6. ENTER finalizes this procedure.

11.12 THE CONTROL GROUP MASTER FADER SECTION. (CGM)

Positioned below the Control Module's display and it's controls are the 4 Control Group Master Faders with their controls.
With these, 4 VCA groups per Control Module can be created.
The movements of the Control Group Masterfader (CGM) itself are not recorded in the console's automation system. The CGM "controls" the levels of the assigned individual slaves.
This enables the engineer to use the same CGM for a different group of slaves in the same mix when desired.
Each CGM is equipped with a master SOLO , MUTE and AUTO switch for master control over the assigned slaves for these functions.

The "SETUP" switch is used to put the corresponding CGM in it's setup mode in order to assign or take out slaves.

HOW TO CREATE A CONTROL GROUP.

1. Make sure the Control Module is in the neutral position (display should read "Module None")
2. Position the CGM around 0dB.
3. Press the CGM's SETUP switch that is right above the CGM fader that you want to be a master.
4. Assign individual input module slaves by pressing their "SELECT" (module number) switches. The Group display in the module now shows the master identification number under which control you just have put this module.
5. When ready deactivate the CGM's "SETUP" switch again.

In order to take slaves out of a Control Group follow the same procedure.
At step 4, faders can be taken out of a group by deselecting them.

HOW TO RECALIBRATE A CGM?

1. Make sure the Control Module is in the neutral position (display should read "Module None").
2. Press the "SETUP" switch of the CGM that needs recalibration.
3. Recalibrate the CGM. The CGM's slaves are now temporarily disconnected from the CGM. Their faders will stay in the same position until the CGM is being made active again.
4. When the CGM has been recalibrated , de-activate the "SETUP" switch again. Now the CGM is connected to it's slaves again.

11.13 CGM SOLO.

The SOLO switch positioned above each CGM allows you to "solo" the slaves that are assigned to that specific CGM.
When activated, the signals of all slaves will be summed and sent to the console's solo buss.

11.14 CGM MUTE.

The MUTE switch positioned above each CGM mutes all individual slaves of that specific CGM when activated.

11.15 CGM AUTO.

The AUTO switch positioned above each CGM provides automation mode master control over all slaves of that specific CGM.
This switch allows the engineer to toggle through the AUTOMODE sequence as has been selected in the console's automation system.

For example; if the in PowerVCA selected Automode's sequence is "READ, AUTOTAKEOVER, WRITE"

11.16 METER READS

This row of 4 black switches speaks actually for itself. The first three switches select if you want to see the Mic/line signal, The Tape/Playback signal or the Group/Direct signal. The fourth gray switch changes the ballistics from Peak to VU.

NOTE: We have adjusted the input sensitivity when switching between Peak and VU. You will not notice an increase in display level when switching to peak and a decrease in display level when switching to VU. This 6 dB difference can be nulled out by a jumper setting on the bargraph meter's pcb . (not in earlier versions of the Octagon, sorry

11.17 CONTROL MODULE FUNCTIONS

The display shows most of your actions and invites you to the next possible step to take in programming your input modules.

Below the display you see switches labeled COPY, MISC (MENU in earlier versions), SHOW, MACRO, ESCAPE, PASTE, ALL, UNDO, CLEAR, ENTER

All these functions shall be described in detail to get familiar with them.

COPY / PASTE (SNAPSHOT)

HOW TO?

1. First select a module with data that you want to copy.

2. Press the copy switch. As soon as you hit the COPY switch all data of the selected module shall be saved in a copy/paste buffer. .

Note: Only the switch settings located above the control modules LCD will be copied to the Paste buffer.

The LED in the paste switch will be on now showing that the paste buffer is loaded. If the copy buffer is already loaded the paste buffer LED will turn off a short moment to indicate that new data has been loaded.

3. Now you select a module or hit the ALL switch and finalize the process by pasting this data to another module or to all modules.

This is done by selecting another module with the SELECT switch (indicating the module number) When you now press the Paste switch the data will be transferred to that module. This procedure can be repeated to other modules as well.

SNAPSHOT

Another function of the Copy function is to store snapshots of all faders and mutes settings This can be convenient if in the middle of a mix if a specific balance of faders/mutes needs to be restored from memory.

HOW TO?

1. Push the escape switch first so the LCD shows “Module None”!!
2. Press COPY, now all fader/mute data is copied to the Paste buffer.
3. Press the SHOW switch first.
4. Now press the PASTE switch.
5. Now choose with the SELECT switches which modules need to restore their data when needed.
6. Press ENTER switch again and all SELECT switches will go off.
7. Normally use the console as desired.
8. Push the PASTE switch and all snapshot data will instantly reset all faders and mutes at any moment in your mix.

MISC. (MENU in earlier models)

This switch has many functions depending on where you are in the programming. As described before, it is used to assign modules to a control module. It is also used in the MACRO setup, Show and ALL show different functions that will be explained later.

SHOW

This function let’s you see which modules have the same programming locally. It is used in the following way.

HOW TO?

1. Depress the SHOW switch.
2. Now select a function in the Control Module and the local SELECT switches with the module numbering will show modules that have this function active.

A neat thing is that being in this mode you now can easily add or delete programmed functions at the same time with the SEL switch.
This is a very easy and fast way of programming.
The show function can also be used for snapshot recall via the COPY/PASTE function as described above.

MACRO

If you activate this switch, a sequence of programming instructions can be assigned to one macro switch.
Activating a programmed Macro switch will perform a number of functions that are user defined

The Octagon has per Control Module 25 Macro switches.
Every macro switch can store a maximum of 48 instructions, we have called these " slots". Every slot can save one instruction at the time for one input module, or one RS422/MIDI instruction, or one instruction for functions in the master section.

Before you get a step by step instruction how to program these Macro's we will describe in short what all the activities are prforming below the control surface.
By pressing the MACRO key the display invites you to select a macro key. You can now select one of the 20 small white macro keys positioned below the group master faders or one of the 5 large switches in that area.
Now the display will ask "Select function" Due to the overwhelming amount of programming possibilities we could not come up with a better word. It is not only a module function that can be selected now but one of the following switchfunctions; ***"'Module SELECT switch / Misc (Menu) / Clear / Encoder knob"***
Via the Encoder different "slots" can be viewed. The Encoder is always positioned on the first free slot (slot free) (if there is any free slot after having chosen one of the the Macro switches).
Now it is possible to program this slot or to erase (Clear) this slot.
Now select a function in the Control Module that you want under this Macro switch. Let's say Peak/Vu switching. (You will notice that as soon as you hae filled up this slot the next available slot number will be showed). By positioning the Encoder on an already programmed slot the Macro can be extended with more instructions such as instructions for RS422/MIDI, STEMS control or Master function.

HOW TO?

-create a Macro for an input module do as follows

1. Press the escape switch first so the LCD shows "Module None"!!
2. Select the Macro switch below the LCD (the display shows Select a Macra)
3. Select one of the 25 white macro keys.
4. Select an input module by pressing the module's SELECT (module number) switch.
5. Select a module function on the Control Module.(you will notice the slot position information passing by). By pressing the same function again an OFF programming will be instructed.
6. The ENTER switch will finalize this programming.

-create a Macro for RS422, MIDI, STEMS or master do as follows

1. Press the escape switch first so the LCD shows “Module None”!!
2. Select the Macro switch below the LCD (the display shows Select a Macra)
3. Select one of the 25 white macro keys.
4. Press the Misc (menu) function.
5. Select with the Encoder in the Control Module one of the requested instructions. (you will notice the slot position information passing by).
6. The ENTER switch will finalize this programming.

The empty slot is now filled up and the Encoder will increase the slot number and the programming can be repeated up to 48 slots (programming sequences).
The ESC switch interrupts your programming without saving any of the afore mentioned programming steps.

NOTE:
A number of functions from the MISC (Menu) tabel will respond by lighting the LED in the programmed MACRO switch. When more than one function with LED indication is programmed under one Macro switch the LED will be turned on or off by all the programmed functions.
To be able to receive a RS422 confirmation from the connected device, cabling has to be wired correctly so an acknowledge signal from the connected device is returned to the Octagons software.

Functions that can be programmed under the MISC (menu) function.

CRM MUTE
CRM DIM
CRM PRESET
SOLO RESET
SOLO AFL/SIP
SOLO MOMENTARY
SOLO INTERLOCK
SOLO 1 PRESET
SOLO 2 PRESET
SOLO 3 PRESET
RED LIGHT
LISTEN 1
LISTEN 2
LISTEN 3

RS 422 control data to the 9 pin "Sony" sub-D connector can be programmed to perform the following functions.

FUNCTION	PROTOCOL	BINARY DATA			
FAST REVERSE	RS 422	20H	20H	40H	
PLAY REVERSE	RS 422	21H	22H	40H	83H
STOP	RS 422	20H	00H	20H	
PLAY	RS 422	20H	01H	21H	
FAST FORWARD	RS 422	20H	10H	30H	
RECORD	RS 422	20H	02H	22H	
STANDBY OFF	RS 422	20H	04H	24H	
STANDBY ON	RS 422	20H	05H	25H	
EJECT	RS 422	20H	0FH	2FH	

Through MIDI protocol the following functions can be accomplished

FUNCTION	PROTOCOL	BINARY DATA					
STOP	MMC	FOH	7FH	7FH	06H	01H	F7H
PLAY	MMC	FOH	7FH	7FH	06H	02H	F7H
DEF PLAY	MMC	FOH	7FH	7FH	06H	03H	F7H
F FORWARD	MMC	FOH	7FH	7FH	06H	04H	F7H
F REV	MMC	FOH	7FH	7FH	06H	05H	F7H
REC STROBE	MMC	FOH	7FH	7FH	06H	06H	F7H
REC EXIT	MMC	FOH	7FH	7FH	06H	07H	F7H
REC PAUSE	MMC	FOH	7FH	7FH	06H	08H	F7H
PAUSE	MMC	FOH	7FH	7FH	06H	09H	F7H
EJECT	MMC	FOH	7FH	7FH	06H	0AH	F7H
CHASE	MMC	FOH	7FH	7FH	06H	0BH	F7H
MMC RESET	MMC	FOH	7FH	7FH	06H	0DH	F7H

Automation Macro's can be programmed and there is a choice out of the following functions.
All ISO
All READ
ALL AUTO
ALL WRITE
ALL TRIM/UPDATE

Other macro's can be
Master 1 Macro
Master 2 Macro
Master 3 Macro

The Stems/premix optional external module can be loaded with the following macros.
Dir. Sx
Playback Sx
Direct 1 to 9 group
Direct A to G group
Playback 1 to 9 group
Playback A to G group

Midi channels can be programmed
Midi channel 01 up to 64

The Stems/premix module's solo's, mute's.Dir and playback functions can be set under a macro.
Solo S1 up to S8
Mute S1 up to S8
Dir S11 up to S8
Playback S1 up to S8

ESCAPE
This switch brings you back to an earlier stage of programming if you have made mistakes.

PASTE (see also COPY)
The contents of the copy/paste buffer can be loaded into any other module by first selecting the SHOW switch and then selecting another module and pressing the PASTE switch.
An unlimited number of modules can be loaded with the paste buffer.
(See also the Copy text)

ALL
If you activate this switch all programming relate to all the modules in the console, not only the ones controlled by the Control Module you are now working with. The display will show "Module All". When you depress the MISC. switch all faders will go to their 0dB position and hitting this switch twice returns the faders to their off position.

UNDO
This functions restores old data in the module before you changed it.
Note: This function does not work in the ALL mode

CLEAR
Activating this switch restores the module to a default factory setting and returns the faders to their lowest position.

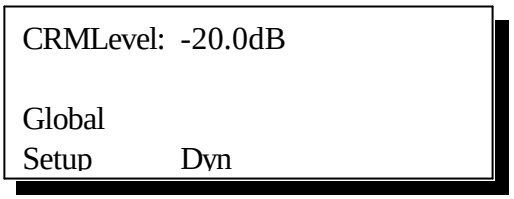
ENTER
This switch confirms what you have done and saves it into the internal memory of the Octagon.

11.18 MACHINE REMOTE SWITCHES
For ease of day to day work we have when you have requested us, labeled the large five macro switches at the bottom of the control module already with tape machione control functions that are very likely to be programmed that way. (sorry if you have other functions in mind).

This will conclude the explanation of the Control Module.
.

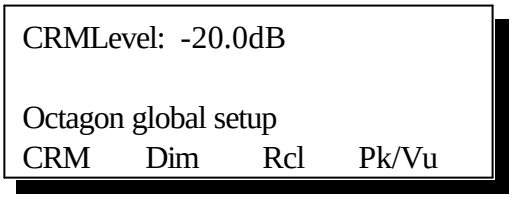
11.20 How to use the MASTER SECTION

The master section can be divided into various segments. The Aux. send masters and alongside the oscillator, communication controls, studio outputs and 2 track returns.
Centralized is the CRM section with lots of possibilities that are individually described in the master section's description. Important is that you understand how to use all the settings and programming in the master section.
When you first switch the Octagon on the master display shows you the following text as in the display at the right
It show the actual CRM level that changes as soon as you turn the CRM level control.



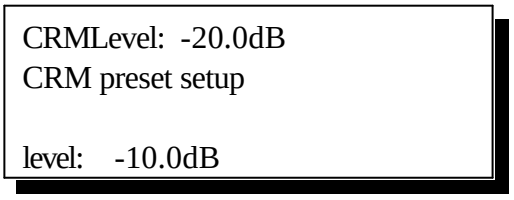
GLOBAL SETUP

This first menu is a global setup menu for the master section of the console.
Below the display there are 6 switches that relate to the characters displayed. Try the Global setup switch and the following text can be seen as is displayed on the right for you.
The last switch with the > sign shows you more features such as MIDI, Ready and Cfg.
Let's start with the CRM global setup.



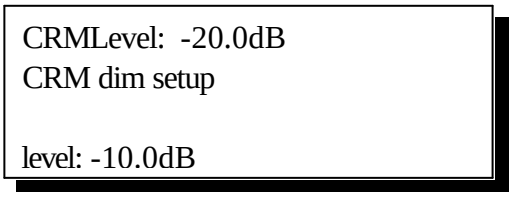
CRM

As soon as you depress the switch located below the CRM text the display will change into CRM preset setup. With the large encoder knob positioned right from the display you can program the CRM PRESET switch to any value between 0 and -63dB, The ENTER switch confirms the chosen value and brings you back one level in menu. The ESC also returns to that level without saving the changed values.



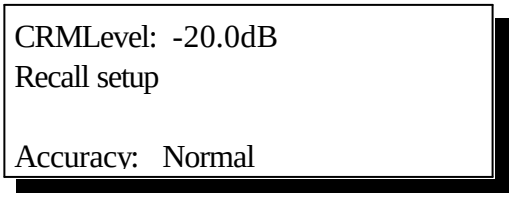
Dim

The next global setup is the Dim setup. After depressing the switch located below the Dim text in the display the following menu will be shown.>>
The large encoder changes the dim level and the ENTER switch confirms this setting.



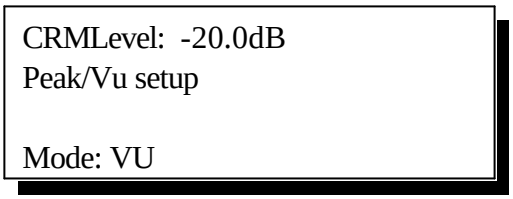
Rcl

The next menu let's you determine the accuracy of the recall system in three steps ranging from "fine" to "normal" up to "coarse". Changes are made by the encoder and the ENTER switch confirms the setting for the Recall.



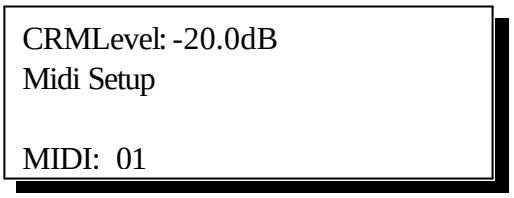
PK/VU

This menu let's you toggle between Peak and VU of the master meters by rotating the encoder alongside the display. The ENTER switch confirms your selection.
Note: If you have NTP/RTW metering this function will not work of course.

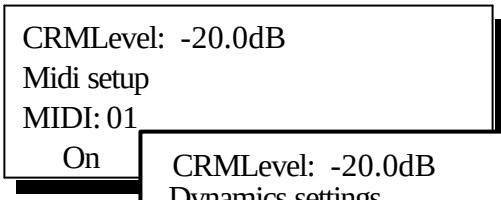


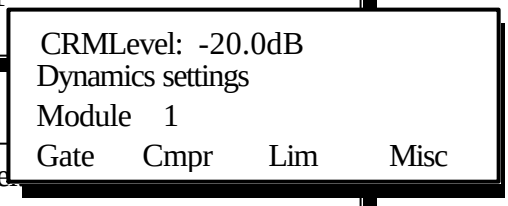
MIDI

By moving the menu display to the right with the sixth switch labeled > you will see three more programming menu's called MIDI, Ready and Cfg.
You have to leave the earlier programming menu with the ESC switch or the Enter switch.
The MIDI setup menu shows like this>>

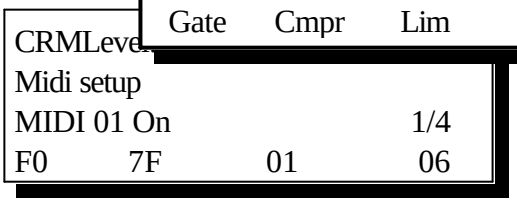


When you have decided which "MIDI" number (changed by the encoder from 1 to 64) you want to program, hit the ENTER switch and the following menu will be shown.



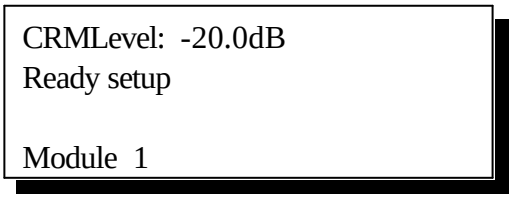


You can select On or Off. The following menu will be shown to program the necessary MIDI data.
The Encoder and the 4 select switches below the display now can change the MIDI data that suits your needs. There are 4 pages with MIDI data that can be changed. On the right side of the third row is an indication on which page you are; 1/4, 2/4, 3/4 or 4/4.
ENTER will confirm your programming.



READY

The ready menu let's you determine which module will be used to send MIDI data from,. As soon as you have entered the module number with the encoder, confirm this and you can link this ready switch to an ON or Off mode.
The menu to fill in the MIDI data will be shown just as with the MIDI setup menu.



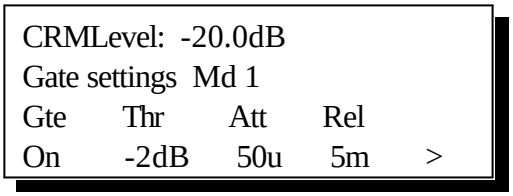
CFG

This is configuration menu that is used for servicing and factory settings.

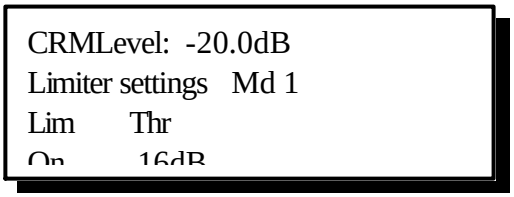
DYNAMICS

When going back to the highest level of the setup menu you can choose between Setup and Dyn. The Setup menu has been discussed so the other one is the Dyn(amics) setup.

When dynamics is installed in your console the following menu will be displayed. There is a choice of a; gate, compressor or limiter.

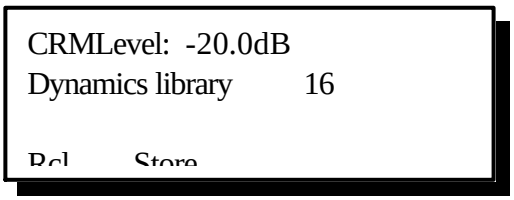


If you press the Gate switch below the text Gate the following menu will be shown. By pushing the switch far at the right below the display 3 more parameters will be shown such as Range, Hold and Hyst(eresis).
All data related to the selected module can be changed by pushing S1 up to S4. Its related LED lights and the encoder can change dynamics data.
Confirm all settings with the ENTER switch.
The Compressor part of the dynamics has the following parameters On/off, Threshold, Attenuation, Release, Ratio (next menu on the far right).
The encoder changes all the data when selected and the ENTER switch confirms this.
The final parameter of the dynamics is the Limiter settings, this is shown as seen to the right. Here you can bypass the limiter and change the threshold level with the encoder. The limiter ratio is fixed. The ENTER switch confirms the settings naturally.

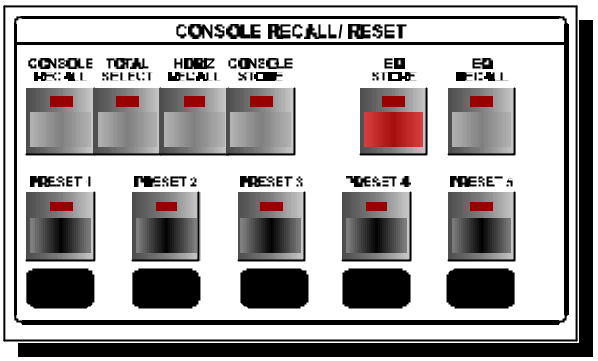


MISC.
The final function called miscellaneous shows the following display as seen on the right. Tot means that you can totally switch the dynamics on or off for that module.
Key means controlling the gate input from one of the other 7 dynamics processors located on that board.
Link let's you combine the compressor/limiter control voltage of one or more of the 8 dynamics processors located on one board.

LIB.
When the lib function is activated the display changes in the following way. A maximum of 16 dynamics settings can be saved and recalled from the internal library.



HOW TO RECALL/RESET THE CONSOLE



CLEAR a PRESET (clear in earlier models)

This function deletes an already programmed preset (1 to 5).

ALL SELECT (total select in earlier models)

This function selects the entire console to be stored or recalled.

RECALL CONSOLE (Horiz recall in earlier models)

The Octagon's recall system consists of automatic storage of all pots, switches, faders and mute settings and instant reset of all switches, all faders and mutes. The pot's need to be adjusted by hand individually.

STORE CONSOLE (console store in earlier models)

If you want to store a console setting press the fourth switch of the upper row labeled STORE CONSOLE

HOW TO STORE A SETTING?

1. Be sure you are in the highest level of the menu.(hit the ESC several times)
2. Press the fourth red switch of the upper row and the display shows what you see on the right side of this page..

```
CRMLevel: -20.0dB
Console store
Select preset 1/5
```

Now you can choose out of one of the 5 presets in the row below the six switches to store this setting to, choose Preset 1 for this example. Now the display asks you to select the modules you want to store or if you want to store the whole console select the ALL SELECT switch in the Console recall/reset section.

```
CRMLevel: -20.0dB
Console store
Select:      Modules/All ?
              Mstr ?
```

The fourth row invites you to store the master section by pressing the related switch below the display text "Mstr".

Note: You can either select a number of individual modules by pressing the module number switches or you can select ALL SELECT (second switch upper row, all select switches will be on now).

Finalize this session with the <ENTER> switch

HOW TO RECALL CONSOLE?

1. Hit the RECALL CONSOLE switch, the display will ask you to select one of the 5 presets now and asks you if you want to recall the master settings. Now choose the modules that you want to recall by selecting the modules numbers or select the "ALL SELECT" switch to recall the preset settings. As soon as you select a module all faders, mutes and all soft switch settings will go instantly to the stored setting.

```
CRMLevel:  -20.0dB
Horizonthal recall
Select: preset 1/5
```

```
CRMLevel:   -20.0 dB
Horizonthal recall:
Select :       Modules/All ?
               Mstr ?
```

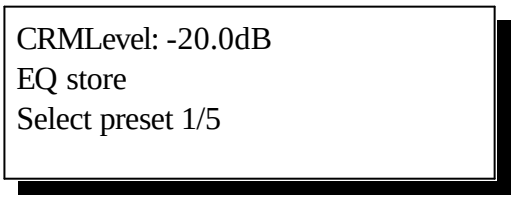
If you push the switch positioned below the display location that asks Mstr?, it will show you one of the aux pots with an indication that the pot is positioned too high >>>>> or too low<<<<< or it says okay if the potentiometer's position is okay.

RECALL MODULE SETTINGS

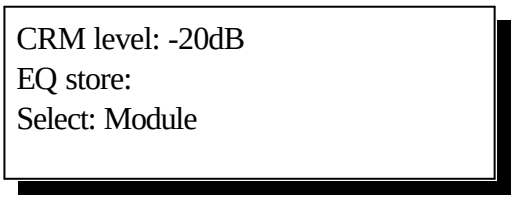
To recall the modules potentiometer settings you have to turn a potentiometer positioned far left on a selected module. From all the selected modules the one positioned far left is the "master" for a horizontal recall of all settings.
Now too you can turn that potentiometer positioned far left of the selected modules (select switch on) and immediately all LED bar graphs in the modules will show the corresponding positions of all identical potentiometer functions. You now can very easily position all pots in the modules that have a LED bar that is on. As soon as you have nulled out all LED's you can go to the next potentiometer on the far left module and repeat this sequence.
*Note: The **ALL SELECT** switch recalls all soft switch settings and fader and mute positions instantly.*

HOW TO STORE EQ

Be sure you are in the highest level of the menu.
The EQ store works exactly the same as the console store procedure. If you want to store an EQ setting depress the fifth switch of the upper row labeled STORE. EQ

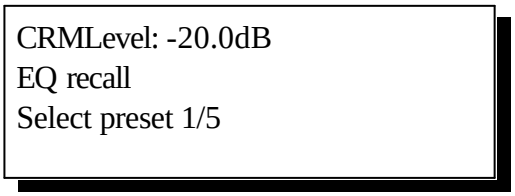


The display in the master section shows the following text.
Now you can choose out of the 5 presets in the row below the six switches to store this setting to, choose Preset 1 for this example.
NOTE: The EQ store presets are 5 other presets in the memory than the console presets.
Now the display asks you to select an EQ you want to store.
Select a module and finalize this session with the <ENTER> switch



RECALL EQ

To recall an Equalizer setting hit the EQ RECALL switch, the display will ask you to select one of the 5 presets now.
As soon as you depress a module, all EQ pots will instantly be compared against the present physical setting.
The ledbar next to the panpots will show any deviation from the EQ memory positions as soon as you turn one of the EQ pots.



MORE BACKGROUND INFO

To be able to position all the pots to their correct positions you need information which pot is okay and which pot is not.

NOTE: In any module that has a pot or hardware switch that is not conform the stored "image" the write led of the automation will be on.

Now you have to turn every pot to find out if its position is right or wrong against the memory setting. As soon as the pot is touched /turned the "led bar" on the left side of the module strip will light above or below the two red LED's indicating that the actual pot setting is too high or too low. By turning the pot slowly you will have null out the LED's. The moment all the LED's are off you have positioned the pot into the right position which is equivalent to the stored setting in memory

This describes the functioning of the Octagon's recall system. Practice first and get yourself a library of useful EQ settings. This is most helpful in a session

HOW TO SAVE/RECALL SETTINGS EXTERNALLY?

In the Octagon it is possible to dump the information located in the 5 presets.

1. Go to the PowerVCA software and click on the File menu (F1)
2. Go to the DUMP section.
3. Now you see long list of possibilities. The left row is for saving data from the Octagon to the PC and the right row is for getting data from the PC to the Octagon.
4. Choose for saving Recall or EQ settings
5. Now all data of all 5 presets are stored in a file in your PC.

To get this data back into the Octagon is done in reverse actions.

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SETUP FOR AUTOMATED JOYSTICKS.

A unique feature in the Octagon are the two automated joysticks with its Virtual Vision concept of showing you the position of the audio signal when controlled from D&R's PowerVCA automation.

The "Set-up" switch serves actually the same purpose as the routing SELECT switches in the modules.

As soon as the Setup switch is activated the following menu will be shown;

Depressing S2 (Format) will display the following selection criteria.

```
CRMLevel: -20.0dB
Joystick-1 setup

Frmt  Asgn  Out >
```

FORMAT

Your selection can be seen alongside the LED display.

The LED's are showing you the active speaker outputs. You can choose out of the following formats.

```
CRMLevel: -20.0dB
Joystick-1 setup

< Hor  Ver  Clr
```

Stereo **(Left, Right)**
L,C,R,S **(L+C+R+ Surround mono)**
5.1 **(Left, Center, Right + Surround stereo)**
SDDS **(Left+L2, Center, Right+R2 + Surround stereo)**

You confirmed this with the <Enter> switch.

```
CRMLevel: -20.0dB
Joystick-1 setup
Select with encoder
Format: Stereo
```

ASSIGN.

The next program step in the joystick setup is the assignment to the busses or the main outputs.

Selection among the busses will be displayed as follows:

Main, 1-8, 9-16, 17-24, 25-32, 33-40, 41-48.

The LEDs alongside the ledmatrix confirm your choice.

```
CRMLevel: -20.0dB
Joystick-1 setup
Select with  encoder
Assign to Buss: 1-8
```

OUT

The Output setup for the joystick is always dependent upon the format selection made. It is never possible, for instance, to activate more than 2 outputs in a stereo format. On the other hand it is possible in the assignment to the main output busses to pan (with the joystick) between L2 and R2 in a stereo format, also panning between the surround speaker is possible in the stereo format.

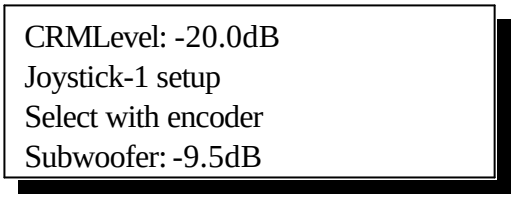
The LEDs alongside the display shows you the selected outputs.

The Enter switch confirms the selection.

```
CRMLevel: -20.0dB
Joystick-1 setup
Select with encoder
Activated Joy-output
```

SUBWOOFER

The level of the Sub Woofer can be adjusted between off and unity gain with a range of 63 dB in 0.5dB steps to accomodate for any requested level.
Confirm your choice with <ENTER>



ASSIGNING A CHANNEL TO A JOYSTICK

To assign a channel to a Joystick follow the next steps.
a. Select Joystick 1 or Joystick 2.

The Virtual Vision matrix will show the panning ranges possible with corresponding assignments.
All movements will be memorized in PowerVCA together with mutes.

A host of possibilities are there to explore, It will take some time to manipulate all the possibilities the Octagon gives you in this area. Features like read and write on the automation screen and Solo and Mute.

Installation section (Connectors)

12.0 CONNECTORS

All connectors but the XLR microphone inputs are located on the back of the console behind the master section and the patch bay section.
We shall describe the master sections back panel connectors first with all individual pinning necessary to know to be able to wire the console in advance or after installation.
There are five rows of connectors of which the lowest row is for powering The Octagon.

12.1 Master back panel connectors first row.

Phones Stereo jack

Tip	= left output signal
Ring	= right output signal
Sleeve	= ground

Near field LS1 Left/Right

XLR 3pin male connector balanced
1=gnd
2=in phase
3=out of phase

Near field LS2 Left/Right

XLR 3pin male connector balanced
1=gnd
2=in phase
3=out of phase

CRM LS 1

CRM LS1 main connector is a 25 pole female Sub D
with 8 balanced wired signals.

1 = Left, in phase
14 = Left, out of phase
2 = Ground

15 = Center, in phase
3 = Center, out of phase
16 = Ground

4 = Right, in phase
17 = Right, out of phase
5 = Ground

18 = Surround Left, in phase
6 = Surround Left, out of phase
19 = Ground

7 = Surround Right, in phase
20 = Surround Right, out of phase
8 = Ground

21 = Sub Woofer, in phase
9 = Sub Woofer, out of phase
22 = Ground

10 = Left 2, in phase
23 = Left 2, out of phase
11 = Ground

24 = Right 2, in phase
12 = Right 2, out of phase
25 = Ground

CRM LS 2 CRM LS 2 main connector is a 25 pole female Sub D with 8 balanced wired signals.

1 = Left, in phase
14 = Left, out of phase
2 = Ground

15 = Center, in phase
3 = Center, out of phase
16 = Ground

4 = Right, in phase
17 = Right, out of phase
5 = Ground

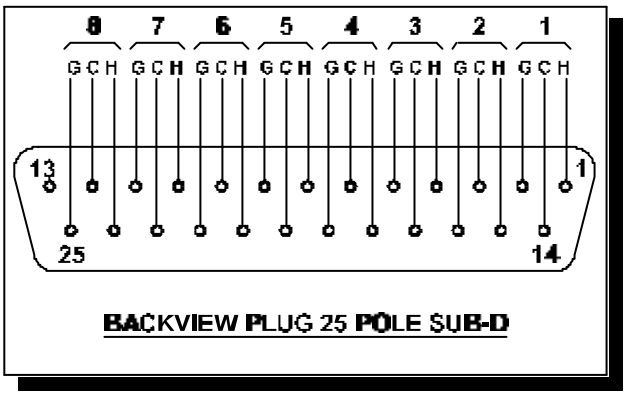
18 = Surround Left, in phase
6 = Surround Left, out of phase
19 = Ground

7 = Surround Right, in phase
20 = Surround Right, out of phase
8 = Ground

21 = Sub Woofer, in phase
9 = Sub Woofer, out of phase
22 = Ground

10 = Left 2, in phase
23 = Left 2, out of phase
11 = Ground

24 = Right 2, in phase
12 = Right 2, out of phase
25 = Ground



METERS EXTERN

the meters extern connector is a 25 pole female Sub D with 8 balanced wired signals.

1 = Left, in phase
14 = Left, out of phase
2 = Ground

15 = Center, in phase
3 = Center, out of phase
16 = Ground

4 = Right, in phase
17 = Right, out of phase
5 = Ground

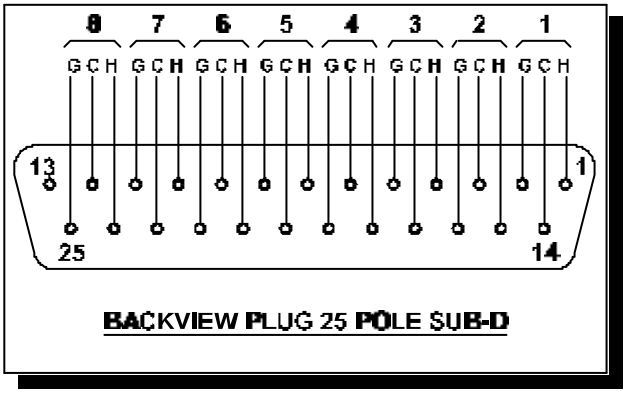
18 = Surround Left, in phase
6 = Surround Left, out of phase
19 = Ground

7 = Surround Right, in phase
20 = Surround Right, out of phase
8 = Ground

21 = Sub Woofer, in phase
9 = Sub Woofer, out of phase
22 = Ground

10 = Left 2, in phase
23 = Left 2, out of phase
11 = Ground

24 = Right 2, in phase
12 = Right 2, out of phase
25 = Ground



Second row of Connectors are for insertion of external encoders and decoders.

Mono surround trim adjusts the level of the surround loudspeakers according to requested Dolby levels.

TO (also from) ENCODER

25 POLE FEMALE SUB D CONNECTOR

1 = To Encoder Left, in phase
14 = To Encoder Left, out of phase
2 = Ground

15 = To Encoder Right, in phase
3 = To Encoder Right, out of phase
16 = Ground

4 = To Encoder Center, in phase
17 = To Encoder Center, out of phase
5 = Ground

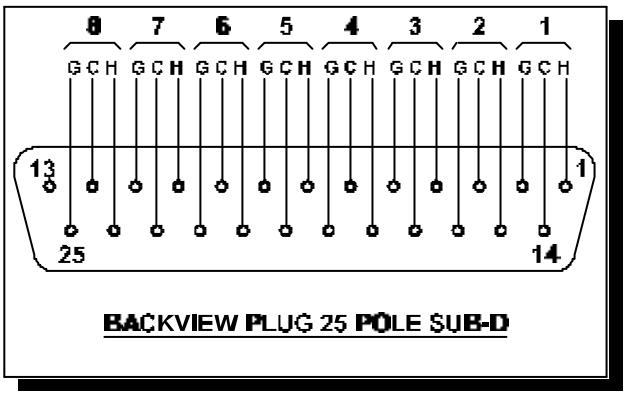
18 = To Encoder Surround (mono), in phase
6 = To Encoder Surround (mono), out of phase
19 = Ground

7 = From Encoder Surround right (mono), in phase
20 = From Encoder Surround right (mono), out of phase
8 = Ground

21 = From Encoder Center, in phase
9 = From Encoder Center, out of phase
22 = Ground

10 = From Encoder Right, in phase
23 = From Encoder Right, out of phase
11 = Ground

24 = From Encoder Left, in phase
12 = From Encoder Left, out of phase
25 = Ground



PRE-ENCODER

25 POLE FEMALE SUB D CONNECTOR

1 = To Encoder Left, in phase
14 = To Encoder Left, out of phase
2 = Ground

15 = To Encoder Right, in phase
3 = To Encoder Right, out of phase
16 = Ground

4 = To Encoder Center, in phase
17 = To Encoder Center, out of phase
5 = Ground

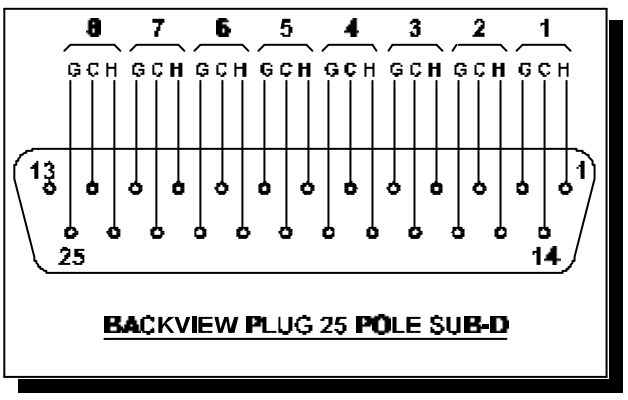
18 = To Encoder Surround (mono), in phase
6 = To Encoder Surround (mono), out of phase
19 = Ground

7 = To Encoder Surround Left, in phase
20 = To Encoder Surround Left, out of phase
8 = Ground

21 = To Encoder Surround Right, in phase
9 = To Encoder Surround Right, out of phase
22 = Ground

10 = To Encoder Sub Woofer, in phase
23 = To Encoder Sub Woofer, out of phase
11 = Ground

24 = NC
12 = NC
25 = Ground



CRM INSERT-1 SEND

25 POLE FEMALE SUB D CONNECTOR

1 = Send Left, in phase
14 = Send Left, out of phase
2 = Ground

15 = Send Center, in phase
3 = Send Center, out of phase
16 = Ground

4 = Send Right, in phase
17 = Send Right, out of phase
5 = Ground

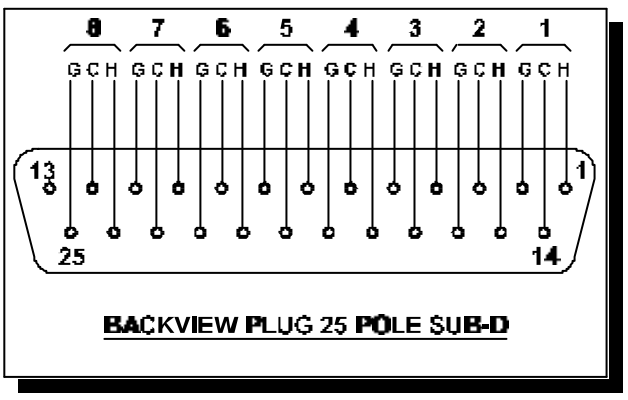
18 = Send Surround Left, in phase
6 = Send surround Left, out of phase
19 = Ground

7 = Send Surround Right, in phase
20 = Send Surround Right, out of phase
8 = Ground

21 = Send Sub Woofer, in phase
9 = Send Sub Woofer, out of phase
22 = Ground

10 = Send Left 2, in phase
23 = Send Left 2, out of phase
11 = Ground

24 = Send Right 2, in phase
12 = Send right 2, out of phase
25 = Ground



CRM INSERT-1 RETURN

25 POLE FEMALE SUB D CONNECTOR

1 = Return Left, in phase
14 = Send Left, out of phase
2 = Ground

15 = Return Center, in phase
3 = Return Center, out of phase
16 = Ground

4 = Return Right, in phase
17 = Return Right, out of phase
5 = Ground

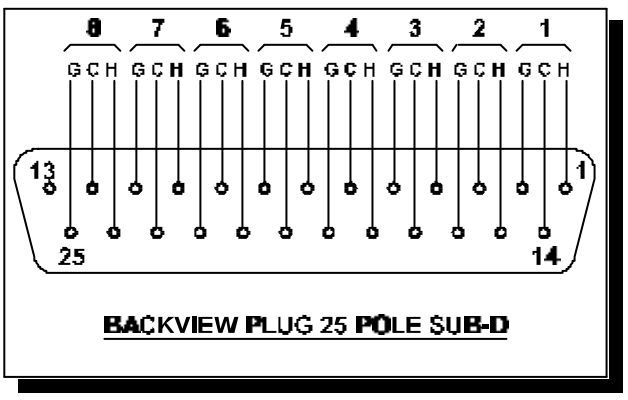
18 = Return Surround Left, in phase
6 = Return surround Left, out of phase
19 = Ground

7 = Return Surround Right, in phase
20 = Return Surround Right, out of phase
8 = Ground

21 = Return Sub Woofer, in phase
9 = Return Sub Woofer, out of phase
22 = Ground

10 = Return Left 2, in phase
23 = Return Left 2, out of phase
11 = Ground

24 = Return Right 2, in phase
12 = Return right 2, out of phase
25 = Ground



CRM INSERT-2 SEND

25 POLE FEMALE SUB D CONNECTOR

1 = Send Left, in phase
14 = Send Left, out of phase
2 = Ground

15 = Send Center, in phase
3 = Send Center, out of phase
16 = Ground

4 = Send Right, in phase
17 = Send Right, out of phase
5 = Ground

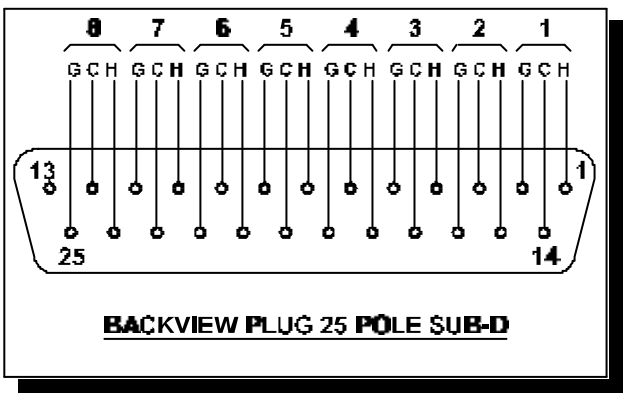
18 = Send Surround Left, in phase
6 = Send surround Left, out of phase
19 = Ground

7 = Send Surround Right, in phase
20 = Send Surround Right, out of phase
8 = Ground

21 = Send Sub Woofer, in phase
9 = Send Sub Woofer, out of phase
22 = Ground

10 = Send Left 2, in phase
23 = Send Left 2, out of phase
11 = Ground

24 = Send Right 2, in phase
12 = Send right 2, out of phase
25 = Ground



CRM INSERT-2 RETURN

25 POLE FEMALE SUB D CONNECTOR

1 = Return Left, in phase
14 = Send Left, out of phase
2 = Ground

15 = Return Center, in phase
3 = Return Center, out of phase
16 = Ground

4 = Return Right, in phase
17 = Return Right, out of phase
5 = Ground

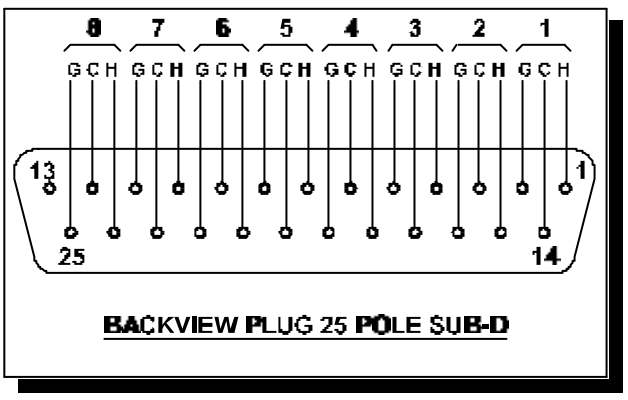
18 = Return Surround Left, in phase
6 = Return surround Left, out of phase
19 = Ground

7 = Return Surround Right, in phase
20 = Return Surround Right, out of phase
8 = Ground

21 = Return Sub Woofer, in phase
9 = Return Sub Woofer, out of phase
22 = Ground

10 = Return Left 2, in phase
23 = Return Left 2, out of phase
11 = Ground

24 = Return Right 2, in phase
12 = Return right 2, out of phase
25 = Ground



Third Row of master back panel connectors is the interface type of connectors.

MIDI CONNECTORS

MIDI IN	Din Conn.	1= none
		2= none
		3= none
		4= to midi in +
		5= to midi in -
MIDI THRU	Din Conn.	1= Ground
		2= Ground
		3= Ground
		4= to midi thru +
		5= to midi thru -
MIDI OUT	Din conn.	1= Ground
		2= Ground
		3= Ground
		4=Midi Out +
		5=Midi Out -

SMPTE Connectors

SMPTE IN XLR 3pin female connector balanced
1=gnd
2=in phase
3=out of phase

SMPTE OUT XLR 3pin male connector balanced
1=gnd
2=in phase
3=out of phase

RS422 9 pole Sub-D female connector

1=Shield
2=Data receive
3=Data send
4=Ground digital
5=NC
6=Ground digital
7=Data receive
8=Data send
9=Shield

RED LIGHT Stereo jack plug 1/4”

Tip = Switch over contact
Ring = Normally open
Sleeve = Normally closed

COMM(UNICATION) INTERFACE (RS232 to PC)

25 POLE FEMALE SUB D CONNECTOR

1 = Shield
14 = NC
2 = Data send (DSR)

15 = NC
3 = Data Receive (Serial in)
16 = NC

4 = Linked to pin 5
17 = NC
5 = Linked to pin 4

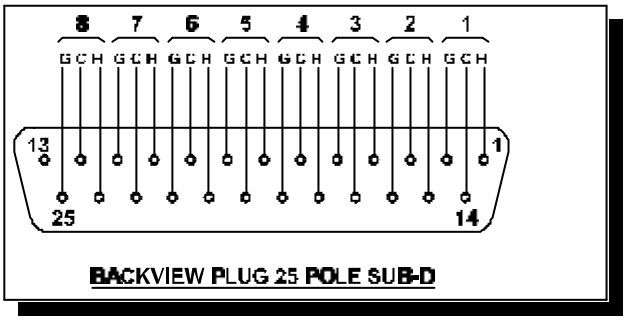
18 = NC
6 = Data send (also linked to pin6)
19 = NC

7 = Ground digital (DTR)
20 = Data receive
8 = Data send (also linked to pin 6)

21 = NC
9 = NC
22 = NC

10 = NC
23 = NC
11 = NC

24 = NC
12 = NC
25 = NC
26 = Shield



ASYNC. INTERFACE 25 pole sub D
Connection is a one to one flat cable to D&R's own PC interface card

KEYBOARD 5 pin Din connector female

Keyboard
1= Clock
2= Data
3= NC
4= Ground
5= VCC

TRACK BALL/TOUCHPAD 9 pole Sub-D female connector

1= CD (in)
2= RX (in)
3= TX (out)
4= DTR (out)
5= Ground
6= DSR (in)
7= RTS (out)
8= CTS (in)
9= RI (in)

The Fourth row

This row has a spare connector. All Sub-D connectors (when used for audio) are wired consequently in eight balanced pairs.(see other wiring diagrams. At the moment nothing is connected at this connector.
A parallel connector is wired on the PCB for options.

REMOTE IN

25 POLE FEMALE SUB D CONNECTOR accepting 5 volt max. to control the following internal functions of the Octagon.

1 = NC
14 = NC
2 = NC

15 = NC
3 = NC
16 = NC

4 = NC
17 = NC
5 = NC

18 = CRM preset
6 = Ground
19 = NC

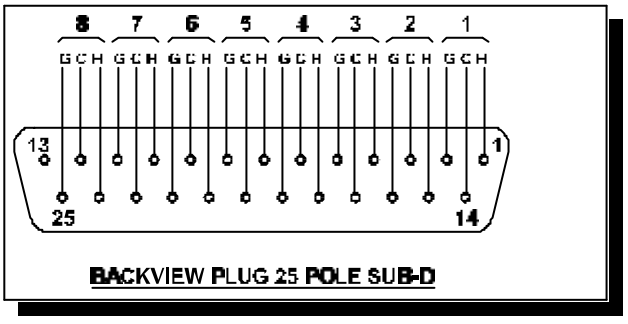
7 = CRM mute
20 = Ground
8 = NC

21 = Listen 3
9 = Ground
22 = NC

10 = Listen 2
23 = Ground
11 = NC

24 = Listen 1
12 = Ground
25 = NC

26 = Shield



REMOTE OUT

25 POLE FEMALE SUB D CONNECTOR supplying 5 volt 1mS max. to indicate the following internal functions of the Octagon.

1 = Red Light
14 = Ground
2 = NC

15 = NC
3 = NC
16 = NC

4 = NC
17 = NC
5 = NC

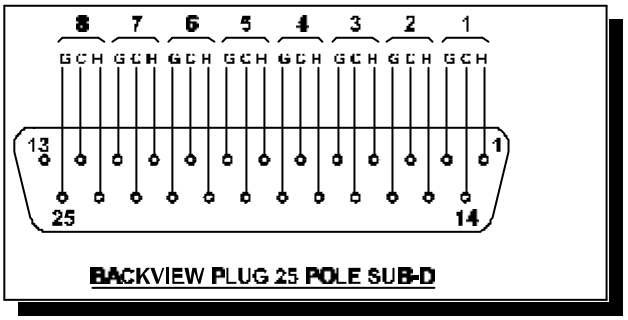
18 = CRM preset
6 = Ground
19 = NC

7 = CRM mute
20 = Ground
8 = NC

21 = Listen 3
9 = Ground
22 = NC

10 = Listen 2
23 = Ground
11 = NC

24 = Listen 1
12 = Ground
25 = NC
26 = Shield



BACKVIEW PLUG 25 POLE SUB-D

MONITOR

This is a high density SubD connector to be connected to the cable supplied by D&R to interface between the TFT LCD and the PC
If longer cables are necessary you can not simply extend this cable, it is a special that needs to be manufactured by the original manufacturer. Please give us a call when you want this arranged for you.

FIFTH ROW

This row is used for connecting power to the Octagon.

POWER MOTOR 2	Line	= +12 volt
3 pole speakon connector	Neutral	= +12 volt
	Gnd	= Ground
POWER LOGIC 2	Line	= +12 volt
3 pole speakon connector	Neutral	= -12 volt
	Gnd	= Ground
POWER MOTOR 1	Line	= +12 volt
3 pole speakon connector	Neutral	= +12 volt
	Gnd	= Ground
POWER LOGIC 1	Line	= +12 volt
3 pole speakon connector	Neutral	= -12 volt
	Gnd	= Ground

CHASSIS GROUND Binding terminal connected to chassis

POWER 1-4	+1	= +18 volt (analog)
8 pole Speakon connector	- 1	= +18 volt (analog)
	+2	= -18 volt (analog)
	- 2	= -18 volt (analog)
	+ 3	= +48 volt (phantom)
	- 3	= +48 volt (phantom)
	+ 4	= Ground (analog)
	- 4	= Ground (analog)

LISTEN 1/2/3 MIC inputs XLR 3 pole female

1=Ground
2=Hot (in phase)
3=Cold (out of phase)

12.2 PATCH PANEL CONNECTORS

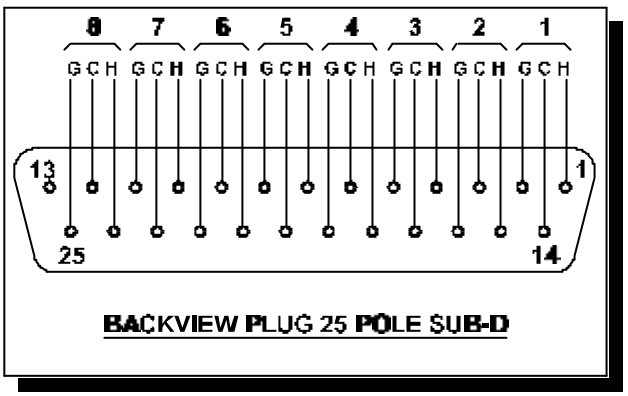
All in/outputs are connected via 25 pole sub D connectors in an identical way, see diagram below and on back panel of the console's patch bay.
The drawing is as you see the plug when looking into it, after having removed the cover.

Note:
Be sure to order high quality sub D connectors with large cable clamps and extended security screws for easy connection and removal to the back panel.

All 25 pole SubD patch bay connectors are wired according to this principle. All you need to do is to wire 8 balanced pairs of cable into a 25 pole SUB-D Male connector or use one 8 pair multi cable per connector.
Make a planning in advance where you want to position your signal processors and multitrack recording machines. Then measure the needed length of cable needed for the job.
There are 60 SUB-D connectors on the back of the patch bay for an Octagon 60 frame. So if you want to have enough cable for the job, multiply one length times 60 if all the cabling is going to one central point for further wiring to an external patch bay or 19" rack.

Every 25 POLE FEMALE SUB D CONNECTOR has the following standard wiring for 8 balanced pairs, numbered from 1 up to 8.

See drawing below.



Every Sub D connector is wired for 8 balanced signals.

Pin 1 = Signal 1, in phase (H)
Pin14 = Signal 1, out of phase (C)
Pin 2 = Signal 1, Ground (G)

Pin 15 = Signal 2, in phase
Pin 3 = Signal 2, out of phase
Pin 16 = Signal 2, Ground

Pin 4 = Signal 3, in phase
Pin 17 = Signal 3, out of phase
Pin 5 = Signal 3, Ground

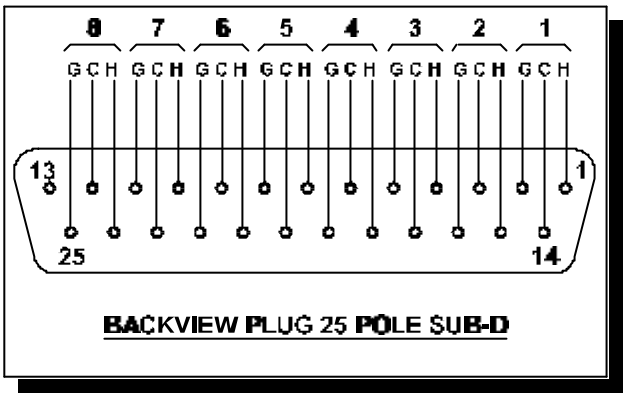
Pin 18 = Signal 4, in phase
Pin 6 = Signal 4, out of phase
Pin 19 = Signal 4, Ground

Pin 7 = Signal 5, in phase
Pin 20 = Signal 5, out of phase
Pin 8 = Signal 5, Ground

Pin 21 = Signal 6, in phase
Pin 9 = Signal 6, out of phase
Pin 22 = Signal 6, Ground

Pin 10 = Signal 7, in phase
Pin 23 = Signal 7, out of phase
Pin 11 = Signal 7, Ground

Pin 24 = Signal 8, in phase
Pin 12 = Signal 8, out of phase
Pin 25 = Signal 8, Ground



TIE LINE CONNECTORS

The left row of Tie lines are direct connections to the patch bay front panel. Signal 1 in the Sub-D connector corresponds with the lowest number of every group of 8 Tie lines. So Tie line 1-8 naturally corresponds with SUB-D 1 to 8.

Tie line group 9-16 should be wired so that Tie line 9 corresponds with Signal 1 in the Sub-D connector and Tie line 16 to signal 8 in the Sub-D connector. You can prepare all your Tie-line cabling in this way up to Tie line 177-184. There are in total ***23x Sub-D Tie line*** connectors to wire.

SPARE 1

There is one spare connector below the Tie lines that can be used for custom options when needed. (There are 3 more in the rest of the patch bay connector section). If no special request is made for these connectors, the holes are covered.

MASTER INSERT SENDS

Pin 1 = Left, in phase (H)
Pin14 = Left, out of phase (C)
Pin 2 = Left, Ground (G)

Pin 15 = Center, in phase
Pin 3 = Center, out of phase
Pin 16 = Center, Ground

Pin 4 = Right, in phase
Pin 17 = Right, out of phase
Pin 5 = Right, Ground

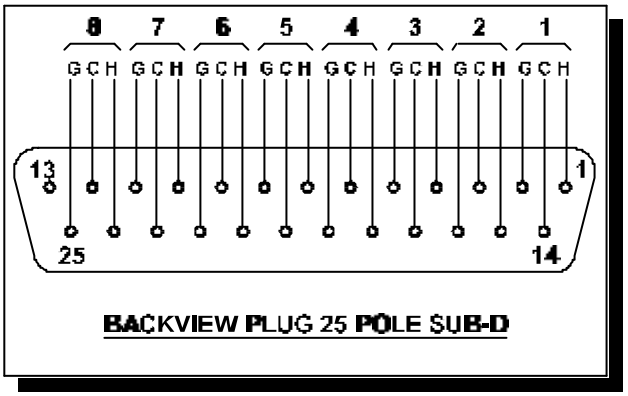
Pin 18 = Surround left, in phase
Pin 6 = Surround left, out of phase
Pin 19 = Surround left, Ground

Pin 7 = Surround right, in phase
Pin 20 = Surround right, out of phase
Pin 8 = Surround right, Ground

Pin 21 = Sub Woofer, in phase
Pin 9 = Sub Woofer, out of phase
Pin 22 = Sub Woofer, Ground

Pin 10 = Left 2, in phase
Pin 23 = Left 2, out of phase
Pin 11 = Left 2, Ground

Pin 24 = Right 2, in phase
Pin 12 = Right 2, out of phase
Pin 25 = Right 2, Ground



MASTER INSERT RETURNS

Pin 1 = Left, in phase (H)
Pin14 = Left, out of phase (C)
Pin 2 = Left, Ground (G)

Pin 15 = Center, in phase
Pin 3 = Center, out of phase
Pin 16 = Center, Ground

Pin 4 = Right, in phase
Pin 17 = Right, out of phase
Pin 5 = Right, Ground

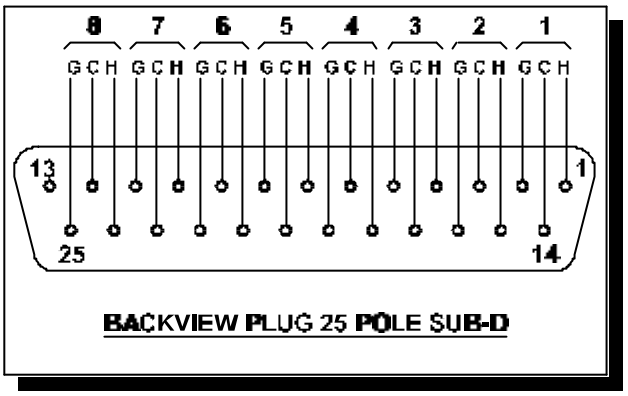
Pin 18 = Surround left, in phase
Pin 6 = Surround left, out of phase
Pin 19 = Surround left, Ground

Pin 7 = Surround right, in phase
Pin 20 = Surround right, out of phase
Pin 8 = Surround right, Ground

Pin 21 = Sub Woofer, in phase
Pin 9 = Sub Woofer, out of phase
Pin 22 = Sub Woofer, Ground

Pin 10 = Left 2, in phase
Pin 23 = Left 2, out of phase
Pin 11 = Left 2, Ground

Pin 24 = Right 2, in phase
Pin 12 = Right 2, out of phase
Pin 25 = Right 2, Ground



MAIN OUTPUTS (master outputs) normalled to 8 track inputs

Pin 1 = Left, in phase (H)
Pin14 = Left, out of phase (C)
Pin 2 = Left, Ground (G)

Pin 15 = Center, in phase
Pin 3 = Center, out of phase
Pin 16 = Center, Ground

Pin 4 = Right, in phase
Pin 17 = Right, out of phase
Pin 5 = Right, Ground

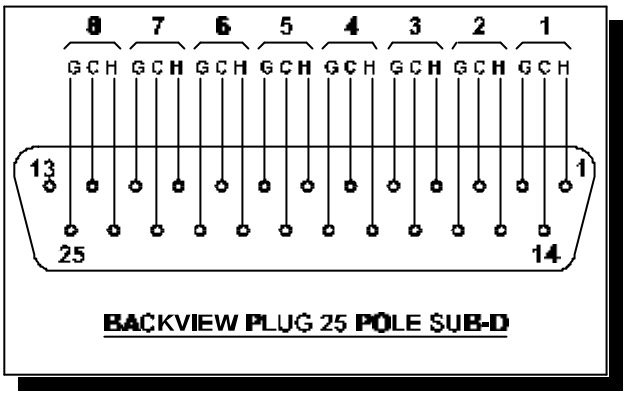
Pin 18 = Surround left, in phase
Pin 6 = Surround left, out of phase
Pin 19 = Surround left, Ground

Pin 7 = Surround right, in phase
Pin 20 = Surround right, out of phase
Pin 8 = Surround right, Ground

Pin 21 = Sub Woofer, in phase
Pin 9 = Sub Woofer, out of phase
Pin 22 = Sub Woofer, Ground

Pin 10 = Left 2, in phase
Pin 23 = Left 2, out of phase
Pin 11 = Left 2, Ground

Pin 24 = Right 2, in phase
Pin 12 = Right 2, out of phase
Pin 25 = Right 2, Ground



2 TRACK A - 2TRACK D INPUTS (normalled to Left/right master outputs)

Pin 1 = 2 track A Left, in phase (H)
Pin14 = 2 track A Left, out of phase (C)
Pin 2 = 2 track A Left, Ground (G)

Pin 15 = 2 track A Right, in phase
Pin 3 = 2 track A Right, out of phase
Pin 16 = 2 track A, Right, Ground

Pin 4 = 2 track B Left, in phase
Pin 17 = 2 track B Left, out of phase
Pin 5 = 2 track B Left, Ground

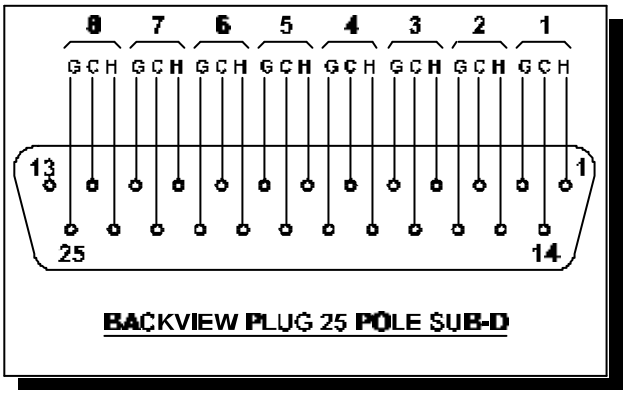
Pin 18 = 2 track B Right, in phase
Pin 6 = 2 track B Right, out of phase
Pin 19 = 2 track B Right, Ground

Pin 7 = 2 track C Left, in phase
Pin 20 = 2 track C Left, out of phase
Pin 8 = 2 track C Left, Ground

Pin 21 = 2 track C Right, in phase
Pin 9 = 2 track C Right, out of phase
Pin 22 = 2 track C Right, Ground

Pin 10 = 2 track D Left, in phase
Pin 23 = 2 track D Left, out of phase
Pin 11 = 2 track D Left, Ground

Pin 24 = 2 track D Right, in phase
Pin 12 = 2 track D Right, out of phase
Pin 25 = 2 track D Right, Ground



2 TRACK E - 2TRACK H INPUTS (normalled to Left/right master outputs)

Pin 1 = 2 track E Left, in phase (H)
Pin14 = 2 track E Left, out of phase (C)
Pin 2 = 2 track E Left, Ground (G)

Pin 15 = 2 track E Right, in phase
Pin 3 = 2 track E Right, out of phase
Pin 16 = 2 track E, Right, Ground

Pin 4 = 2 track F Left, in phase
Pin 17 = 2 track F Left, out of phase
Pin 5 = 2 track F Left, Ground

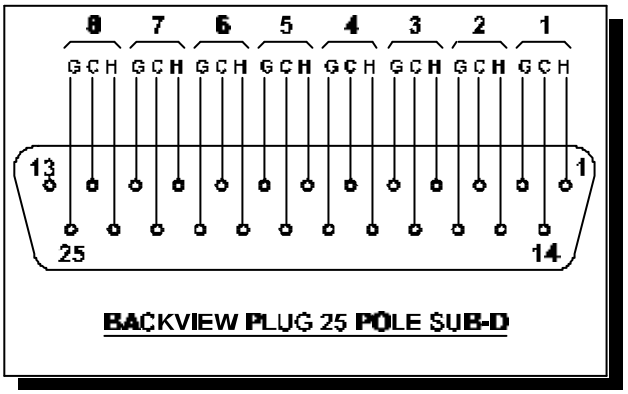
Pin 18 = 2 track F Right, in phase
Pin 6 = 2 track F Right, out of phase
Pin 19 = 2 track F Right, Ground

Pin 7 = 2 track G Left, in phase
Pin 20 = 2 track G Left, out of phase
Pin 8 = 2 track G Left, Ground

Pin 21 = 2 track G Right, in phase
Pin 9 = 2 track G Right, out of phase
Pin 22 = 2 track G Right, Ground

Pin 10 = 2 track H Left, in phase
Pin 23 = 2 track H Left, out of phase
Pin 11 = 2 track H Left, Ground

Pin 24 = 2 track H Right, in phase
Pin 12 = 2 track H Right, out of phase
Pin 25 = 2 track H Right, Ground



8 TRACK OUTPUTS (normalled to CRM inputs)

Pin 1 = Left, in phase (H)
Pin14 = Left, out of phase (C)
Pin 2 = Left, Ground (G)

Pin 15 = Center, in phase
Pin 3 = Center, out of phase
Pin 16 = Center, Ground

Pin 4 = Right, in phase
Pin 17 = Right, out of phase
Pin 5 = Right, Ground

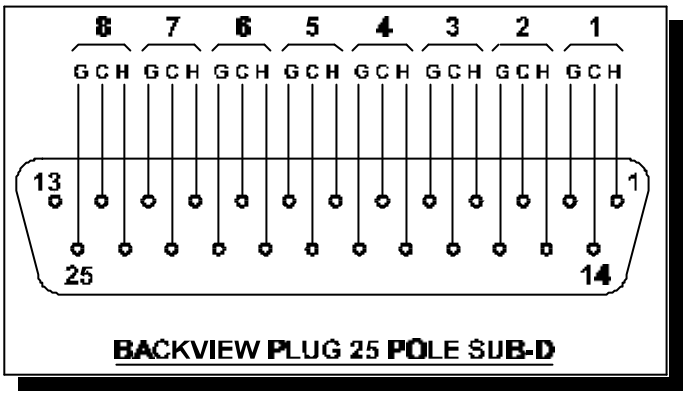
Pin 18 = Surround left, in phase
Pin 6 = Surround left, out of phase
Pin 19 = Surround left, Ground

Pin 7 = Surround right, in phase
Pin 20 = Surround right, out of phase
Pin 8 = Surround right, Ground

Pin 21 = Sub Woofer, in phase
Pin 9 = Sub Woofer, out of phase
Pin 22 = Sub Woofer, Ground

Pin 10 = Left 2, in phase
Pin 23 = Left 2, out of phase
Pin 11 = Left 2, Ground

Pin 24 = Right 2, in phase
Pin 12 = Right 2, out of phase
Pin 25 = Right 2, Ground



2TRACK A - 2TRACK D OUTPUTS (normalled to CRM inputs)

Pin 1 = 2 track A Left, in phase (H)
Pin14 = 2 track A Left, out of phase (C)
Pin 2 = 2 track A Left, Ground (G)

Pin 15 = 2 track A Right, in phase
Pin 3 = 2 track A Right, out of phase
Pin 16 = 2 track A, Right, Ground

Pin 4 = 2 track B Left, in phase
Pin 17 = 2 track B Left, out of phase
Pin 5 = 2 track B Left, Ground

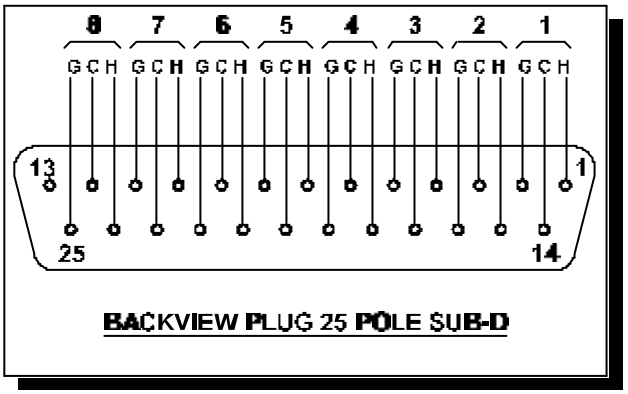
Pin 18 = 2 track B Right, in phase
Pin 6 = 2 track B Right, out of phase
Pin 19 = 2 track B Right, Ground

Pin 7 = 2 track C Left, in phase
Pin 20 = 2 track C Left, out of phase
Pin 8 = 2 track C Left, Ground

Pin 21 = 2 track C Right, in phase
Pin 9 = 2 track C Right, out of phase
Pin 22 = 2 track C Right, Ground

Pin 10 = 2 track D Left, in phase
Pin 23 = 2 track D Left, out of phase
Pin 11 = 2 track D Left, Ground

Pin 24 = 2 track D Right, in phase
Pin 12 = 2 track D Right, out of phase
Pin 25 = 2 track D Right, Ground



2 TRACK E - 2TRACK H OUTPUTS (normalled to CRM inputs)

Pin 1 = 2 track E Left, in phase (H)
Pin14 = 2 track E Left, out of phase (C)
Pin 2 = 2 track E Left, Ground (G)

Pin 15 = 2 track E Right, in phase
Pin 3 = 2 track E Right, out of phase
Pin 16 = 2 track E, Right, Ground

Pin 4 = 2 track F Left, in phase
Pin 17 = 2 track F Left, out of phase
Pin 5 = 2 track F Left, Ground

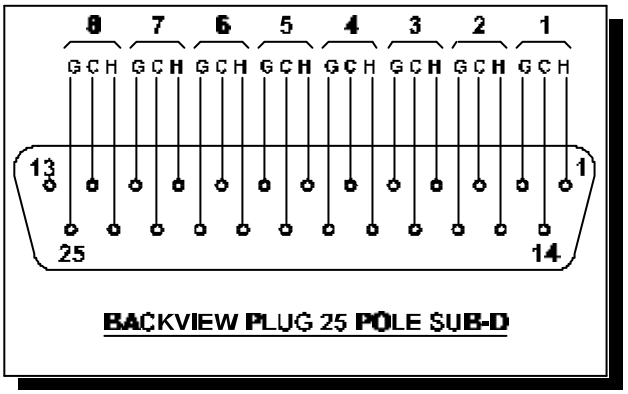
Pin 18 = 2 track F Right, in phase
Pin 6 = 2 track F Right, out of phase
Pin 19 = 2 track F Right, Ground

Pin 7 = 2 track G Left, in phase
Pin 20 = 2 track G Left, out of phase
Pin 8 = 2 track G Left, Ground

Pin 21 = 2 track G Right, in phase
Pin 9 = 2 track G Right, out of phase
Pin 22 = 2 track G Right, Ground

Pin 10 = 2 track H Left, in phase
Pin 23 = 2 track H Left, out of phase
Pin 11 = 2 track H Left, Ground

Pin 24 = 2 track H Right, in phase
Pin 12 = 2 track H Right, out of phase
Pin 25 = 2 track H Right, Ground



LINE INPUTS

The third row of Sub-D connectors begins with the Line inputs.
Every Sub D connector is wired for 8 balanced signals. There are six times 8 line inputs resulting in a total of 48 balanced line inputs.

Pin 1 = Signal 1/9/17/25/33/41, in phase (H)
Pin14 = Signal 1/9/17/25/33/41, out of phase (C)
Pin 2 = Signal 1/9/17/25/33/41, Ground (G)

Pin 15 = Signal 2/10/18/26/34/42, in phase
Pin 3 = Signal 2/10/18/26/34/42, out of phase
Pin 16 = Signal 2/10/18/26/34/42, Ground

Pin 4 = Signal 3/11/19/27/35/43, in phase
Pin 17 = Signal 3/11/19/27/35/43, out of phase
Pin 5 = Signal 3/11/19/27/35/43, Ground

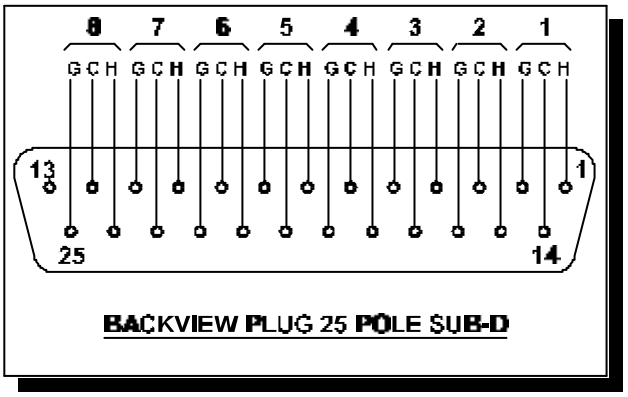
Pin 18 = Signal 4/12/20/28/36/44, in phase
Pin 6 = Signal 4/12/20/28/36/44, out of phase
Pin 19 = Signal 4/12/20/28/36/44, Ground

Pin 7 = Signal 5/13/21/29/37/45, in phase
Pin 20 = Signal 5/13/21/29/37/45, out of phase
Pin 8 = Signal 5/13/21/29/37/45, Ground

Pin 21 = Signal 6/14/22/30/38/46, in phase
Pin 9 = Signal 6/14/22/30/38/46, out of phase
Pin 22 = Signal 6/14/22/30/38/46, Ground

Pin 10 = Signal 7/15/23/31/39/47, in phase
Pin 23 = Signal 7/15/23/31/39/47, out of phase
Pin 11 = Signal 7/15/23/31/39/47, Ground

Pin 24 = Signal 8/16/24/32/40/48, in phase
Pin 12 = Signal 8/16/24/32/40/48, out of phase
Pin 25 = Signal 8/16/24/32/40/48, Ground



SIGNAL PROCESSOR OUTPUTS 1-4 (normalled to stereo return inputs)

Pin 1 = Signal processor 1, Left, in phase (H)
Pin14 = Signal processor 1, Left out of phase (C)
Pin 2 = Signal processor 1, Left Ground (G)

Pin 15 = Signal processor 1, Right in phase
Pin 3 = Signal processor 1, Right out of phase
Pin 16 = Signal processor 1, Right Ground

Pin 4 = Signal processor 2, Left in phase
Pin 17 = Signal processor 2, Left out of phase
Pin 5 = Signal processor 2, Left Ground

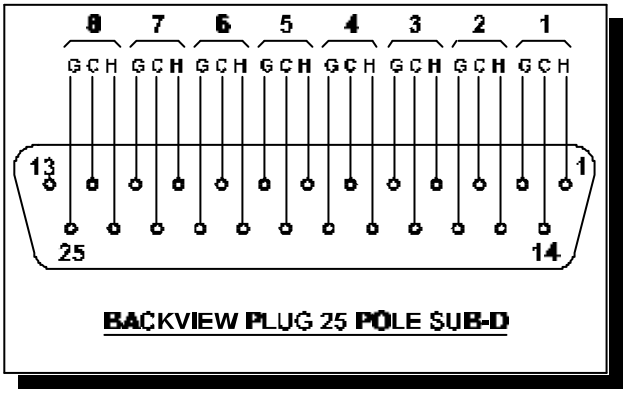
Pin 18 = Signal processor 2, Right in phase
Pin 6 = Signal processor 2, Right out of phase
Pin 19 = Signal processor 2, Right Ground

Pin 7 = Signal processor 3, Left in phase
Pin 20 = Signal processor 3, Left out of phase
Pin 8 = Signal processor 3, Left Ground

Pin 21 = Signal processor 3, Right in phase
Pin 9 = Signal processor 3, Right out of phase
Pin 22 = Signal processor 3, Right Ground

Pin 10 = Signal processor 4, Left in phase
Pin 23 = Signal processor 4, Left out of phase
Pin 11 = Signal processor 4, Left Ground

Pin 24 = Signal processor 4, Right in phase
Pin 12 = Signal processor 4, Right out of phase
Pin 25 = Signal processor 4, Right Ground



SIGNAL PROCESSOR OUTPUTS 5-8 (normalled to stereo return inputs)

Pin 1 = Signal processor 5, Left, in phase (H)
Pin14 = Signal processor 5, Left out of phase (C)
Pin 2 = Signal processor 5, Left Ground (G)

Pin 15 = Signal processor 5, Right in phase
Pin 3 = Signal processor 5, Right out of phase
Pin 16 = Signal processor 5, Right Ground

Pin 4 = Signal processor 6, Left in phase
Pin 17 = Signal processor 6, Left out of phase
Pin 5 = Signal processor 6, Left Ground

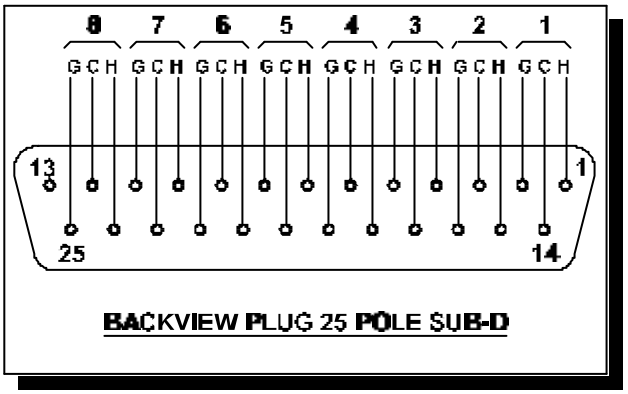
Pin 18 = Signal processor 6, Right in phase
Pin 6 = Signal processor 6, Right out of phase
Pin 19 = Signal processor 6, Right Ground

Pin 7 = Signal processor 7, Left in phase
Pin 20 = Signal processor 7, Left out of phase
Pin 8 = Signal processor 7, Left Ground

Pin 21 = Signal processor 7, Right in phase
Pin 9 = Signal processor 7, Right out of phase
Pin 22 = Signal processor 7, Right Ground

Pin 10 = Signal processor 8, Left in phase
Pin 23 = Signal processor 8, Left out of phase
Pin 11 = Signal processor 8, Left Ground

Pin 24 = Signal processor 8, Right in phase
Pin 12 = Signal processor 8, Right out of phase
Pin 25 = Signal processor 8, Right Ground



SIGNAL PROCESSOR OUTPUTS 9-12 (normalled to stereo return inputs)

Pin 1 = Signal processor 9, Left, in phase (H)
Pin14 = Signal processor 9, Left out of phase (C)
Pin 2 = Signal processor 9, Left Ground (G)

Pin 15 = Signal processor 9, Right in phase
Pin 3 = Signal processor 9, Right out of phase
Pin 16 = Signal processor 9, Right Ground

Pin 4 = Signal processor 10, Left in phase
Pin 17 = Signal processor 10, Left out of phase
Pin 5 = Signal processor 10, Left Ground

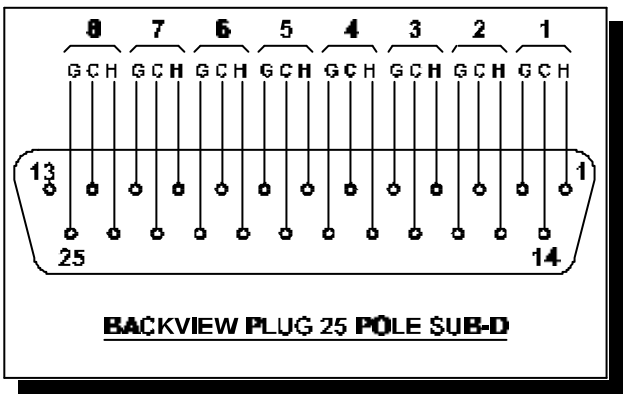
Pin 18 = Signal processor 10, Right in phase
Pin 6 = Signal processor 10, Right out of phase
Pin 19 = Signal processor 10, Right Ground

Pin 7 = Signal processor 11, Left in phase
Pin 20 = Signal processor 11, Left out of phase
Pin 8 = Signal processor 11, Left Ground

Pin 21 = Signal processor 11, Right in phase
Pin 9 = Signal processor 11, Right out of phase
Pin 22 = Signal processor 11, Right Ground

Pin 10 = Signal processor 12, Left in phase
Pin 23 = Signal processor 12, Left out of phase
Pin 11 = Signal processor 12, Left Ground

Pin 24 = Signal processor 12, Right in phase
Pin 12 = Signal processor 12, Right out of phase
Pin 25 = Signal processor 12, Right Ground



SIGNAL PROCESSOR OUTPUTS 13-16 (normalled to stereo return inputs)

Pin 1 = Signal processor 13, Left, in phase (H)
Pin14 = Signal processor 13, Left out of phase (C)
Pin 2 = Signal processor 13, Left Ground (G)

Pin 15 = Signal processor 13, Right in phase
Pin 3 = Signal processor 13, Right out of phase
Pin 16 = Signal processor 13, Right Ground

Pin 4 = Signal processor 14, Left in phase
Pin 17 = Signal processor 14, Left out of phase
Pin 5 = Signal processor 14, Left Ground

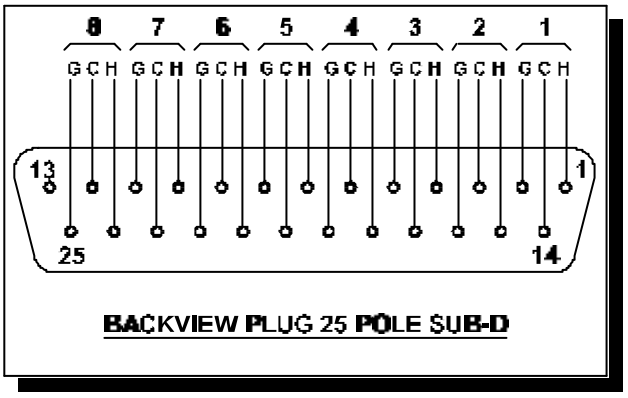
Pin 18 = Signal processor 14, Right in phase
Pin 6 = Signal processor 14, Right out of phase
Pin 19 = Signal processor 14, Right Ground

Pin 7 = Signal processor 15, Left in phase
Pin 20 = Signal processor 15, Left out of phase
Pin 8 = Signal processor 15, Left Ground

Pin 21 = Signal processor 15, Right in phase
Pin 9 = Signal processor 15, Right out of phase
Pin 22 = Signal processor 15, Right Ground

Pin 10 = Signal processor 16, Left in phase
Pin 23 = Signal processor 16, Left out of phase
Pin 11 = Signal processor 16, Left Ground

Pin 24 = Signal processor 16, Right in phase
Pin 12 = Signal processor 16, Right out of phase
Pin 25 = Signal processor 16, Right Ground



SIGNAL PROCESSOR INPUTS 1-8 (normalled to AUX. outputs)

Pin 1 = Signal processor 1, in phase (H)
Pin14 = Signal processor 1, out of phase (C)
Pin 2 = Signal processor 1, Ground (G)

Pin 15 = Signal processor 2, in phase
Pin 3 = Signal processor 2, out of phase
Pin 16 = Signal processor 2, Ground

Pin 4 = Signal processor 3, in phase
Pin 17 = Signal processor 3, out of phase
Pin 5 = Signal processor 3, Ground

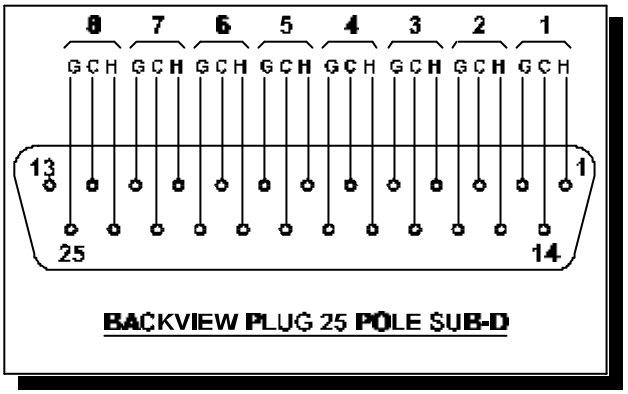
Pin 18 = Signal processor 4, in phase
Pin 6 = Signal processor 4, out of phase
Pin 19 = Signal processor 4, Ground

Pin 7 = Signal processor 5, in phase
Pin 20 = Signal processor 5, out of phase
Pin 8 = Signal processor 5, Ground

Pin 21 = Signal processor 6, in phase
Pin 9 = Signal processor 6, out of phase
Pin 22 = Signal processor 6, Ground

Pin 10 = Signal processor 7, in phase
Pin 23 = Signal processor 7, out of phase
Pin 11 = Signal processor 7, Ground

Pin 24 = Signal processor 8, in phase
Pin 12 = Signal processor 8, out of phase
Pin 25 = Signal processor 8, Ground



SIGNAL PROCESSOR INPUTS 9-16 (normalled to AUX. outputs)

Pin 1 = Signal processor 9, in phase (H)
Pin14 = Signal processor 9, out of phase (C)
Pin 2 = Signal processor 9, Ground (G)

Pin 15 = Signal processor 10, in phase
Pin 3 = Signal processor 10, out of phase
Pin 16 = Signal processor 10, Ground

Pin 4 = Signal processor 11, in phase
Pin 17 = Signal processor 11, out of phase
Pin 5 = Signal processor 11, Ground

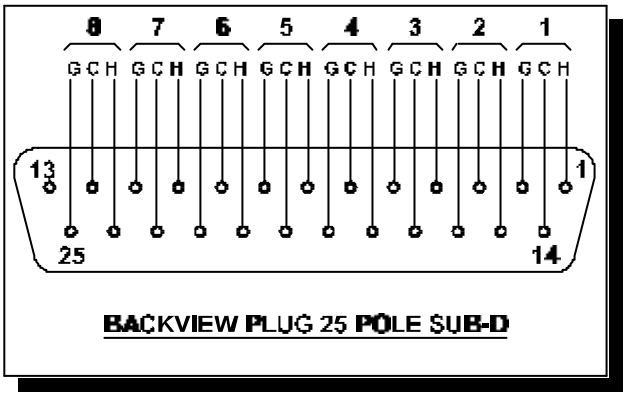
Pin 18 = Signal processor 12, in phase
Pin 6 = Signal processor 12, out of phase
Pin 19 = Signal processor 12, Ground

Pin 7 = Signal processor 13, in phase
Pin 20 = Signal processor 13, out of phase
Pin 8 = Signal processor 13, Ground

Pin 21 = Signal processor 14, in phase
Pin 9 = Signal processor 14, out of phase
Pin 22 = Signal processor 14, Ground

Pin 10 = Signal processor 15, in phase
Pin 23 = Signal processor 15, out of phase
Pin 11 = Signal processor 15, Ground

Pin 24 = Signal processor 16, in phase
Pin 12 = Signal processor 16, out of phase
Pin 25 = Signal processor 16, Ground



STUDIO 1-2 / EXTERN / OSCILLATOR

Pin 1 = Studio 1 left, in phase (H)
Pin14 = Studio 1 left, out of phase (C)
Pin 2 = Studio 1 left, Ground (G)

Pin 15 = Studio 1 right, in phase (H)
Pin 3 = Studio 1 right, out of phase (C)
Pin 16 = Studio 1 right, Ground (G)

Pin 4 = Studio 2 left, in phase (H)
Pin 17 = Studio 2 left, out of phase (C)
Pin 5 = Studio 2 left, Ground (G)

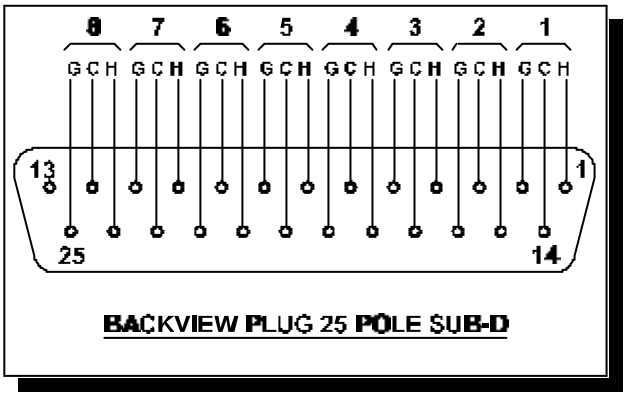
Pin 18 = Studio 2 right, in phase (H)
Pin 6 = Studio 2 right, out of phase (C)
Pin 19 = Studio 2 right, Ground (G)

Pin 7 = Extern(al) output, in phase
Pin 20 = Extern(al) output, out of phase
Pin 8 = Extern(al) output , Ground

Pin 21 = Extern(al) output , in phase
Pin 9 = Extern(al) output, out of phase
Pin 22 = Extern(al) output , Ground

Pin 10 = Oscillator output, in phase
Pin 23 = Oscillator output , out of phase
Pin 11 = Oscillator output , Ground

Pin 24 = Oscillator output , in phase
Pin 12 = Oscillator output , out of phase
Pin 25 = Oscillator output , Ground



MULTITRACK IN AND OUTPUTS

The FOURTH row of Sub-D connectors begins with the Multitrack inputs and outputs.
Every Sub D connector is wired for 8 balanced signals. There are four balanced inputs and 4 balanced outputs in every Sub D connectors wired as printed below.

Pin 1 = Multitrack input 1/5/9/13/17/21/25/29/33/37/41/45, (H)
Pin14 = Multitrack input 1/5/9/13/17/21/25/29/33/37/41/45, (C)
Pin 2 = Multitrack input 1/5/9/13/17/21/25/29/33/37/41/45, (G)

Pin 15 = Multitrack input 2/6/10/14/18/22/26/30/34/38/42/46, (H)
Pin 3 = Multitrack input 2/6/10/14/18/22/26/30/34/38/42/46, (C)
Pin 16 = Multitrack input 2/6/10/14/18/22/26/30/34/38/42/46, (G)

Pin 4 = Multitrack input 3/7/11/15/19/23/27/31/35/39/43/47, (H)
Pin 17 = Multitrack input 3/7/11/15/19/23/27/31/35/39/43/47, (C)
Pin 5 = Multitrack input 3/7/11/15/19/23/27/31/35/39/43/47, (G)

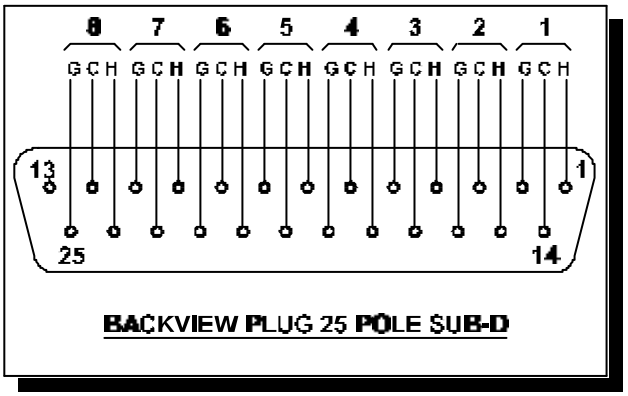
Pin 18 = Multitrack input 4/8/12/16/20/24/28/32/36/40/44/48, (H)
Pin 6 = Multitrack input 4/8/12/16/20/24/28/32/36/40/44/48, (C)
Pin 19 = Multitrack input 4/8/12/16/20/24/28/32/36/40/44/48, (G)

Pin 7 = Multitrack output 1/5/9/13/17/21/25/29/33/37/41/45, (H)
Pin 20 = Multitrack output 1/5/9/13/17/21/25/29/33/37/41/45, (C)
Pin 8 = Multitrack output 1/5/9/13/17/21/25/29/33/37/41/45, (G)

Pin 21 = Multitrack output 2/6/10/14/18/22/26/30/34/38/42/46, (H)
Pin 9 = Multitrack output 2/6/10/14/18/22/26/30/34/38/42/46, (C)
Pin 22 = Multitrack output 2/6/10/14/18/22/26/30/34/38/42/46, (G)

Pin 10 = Multitrack output 3/7/11/15/19/23/27/31/35/39/43/47, (H)
Pin 23 = Multitrack output 3/7/11/15/19/23/27/31/35/39/43/47, (C)
Pin 11 = Multitrack output 3/7/11/15/19/23/27/31/35/39/43/47, (G)

Pin 24 = Multitrack output 4/8/12/16/20/24/28/32/36/40/44/48, (H)
Pin 12 = Multitrack output 4/8/12/16/20/24/28/32/36/40/44/48, (C)
Pin 25 = Multitrack output 4/8/12/16/20/24/28/32/36/40/44/48, (G)



SPARE

These connectors (normally not installed) can be used for any other custom option if desired

Pin 1 = Spare 1, in phase (H)
Pin14 = Spare 1, out of phase (C)
Pin 2 = Spare 1, Ground (G)

Pin 15 = Spare 2, in phase
Pin 3 = Spare 2, out of phase
Pin 16 = Spare 2, Ground

Pin 4 = Spare 3, in phase
Pin 17 = Spare 3, out of phase
Pin 5 = Spare 3, Ground

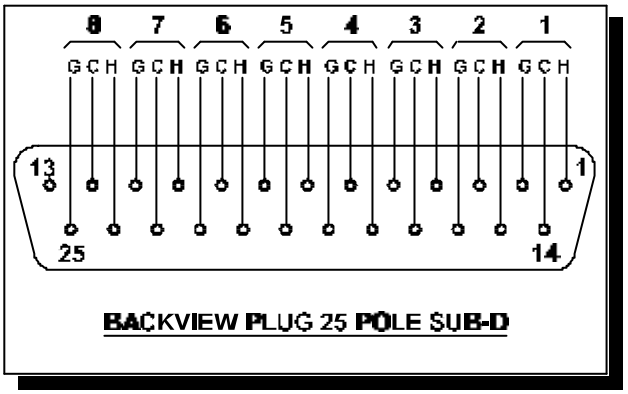
Pin 18 = Spare 4, in phase
Pin 6 = Spare 4, out of phase
Pin 19 = Spare 4, Ground

Pin 7 = Spare 5, in phase
Pin 20 = Spare 5, out of phase
Pin 8 = Spare 5, Ground

Pin 21 = Spare 6, in phase
Pin 9 = Spare 6, out of phase
Pin 22 = Spare 6, Ground

Pin 10 = Spare 7, in phase
Pin 23 = Spare 7, out of phase
Pin 11 = Spare 7, Ground

Pin 24 = Spare 8, in phase
Pin 12 = Spare 8, out of phase
Pin 25 = Spare 8, Ground



BACKVIEW PLUG 25 POLE SUB-D

13.0 SPECIFICATIONS

INPUTS

Mic inputs: 2 kOhm balanced -129 dBr input noise A weighted, gain 84dB, max.. input +12dBu.

Line inputs: 10kOhm balanced +4dBu +/- 20dB gain control, max.. 34dB gain (+10dB fader gain)

Tape inputs: 10kOhm balanced +4dBu,

Insert returns: 10kOhm balanced +4dBu

Tape/line calibr. range: +/- 4dB

Maximum input: +22dBu

Encoder/decoders: 10kOhm, balanced

Academy filter inputs: 10k Ohm, +4dBu balanced

OUTPUTS

All outputs are electronically balanced +4dBu at 47 Ohm output imp.

Maximum output: +26dBu.

All Group outputs have a +/- 4dB calibration trimmer.

.

OVERALL

Headroom: No less than 22 dB

Frequency response: 10-100,000 Hz -2dB (VCA in)

Harmonic distortion: 0.016% (VCA 2nd harmonic THAT 2180 distortion.)
(0.006% without VCA)

Noise: 32 channels assigned -89dBr

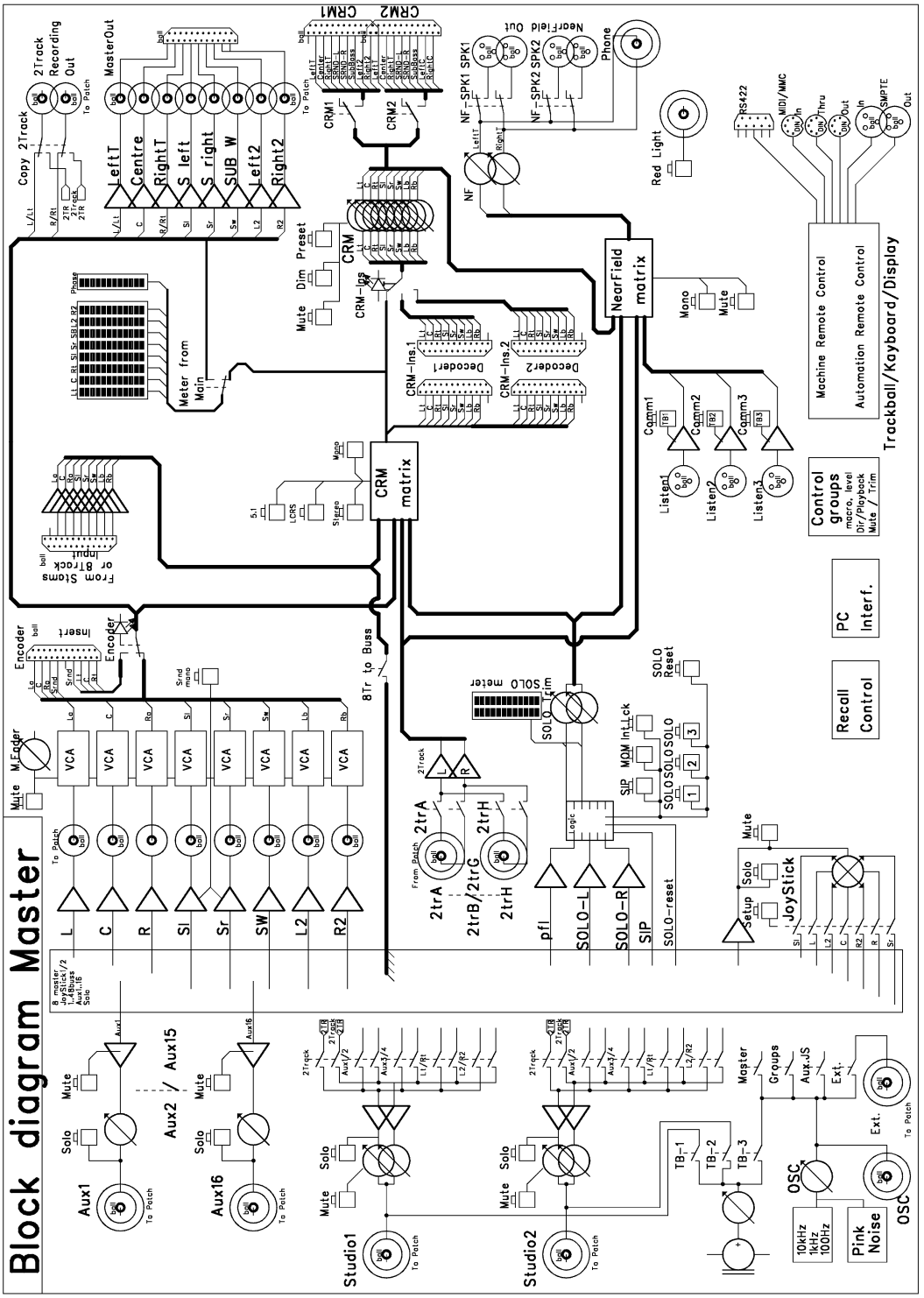
Crosstalk: No less than 90dBr

Phase: From line in to group out 0.2 degrees @1kHz

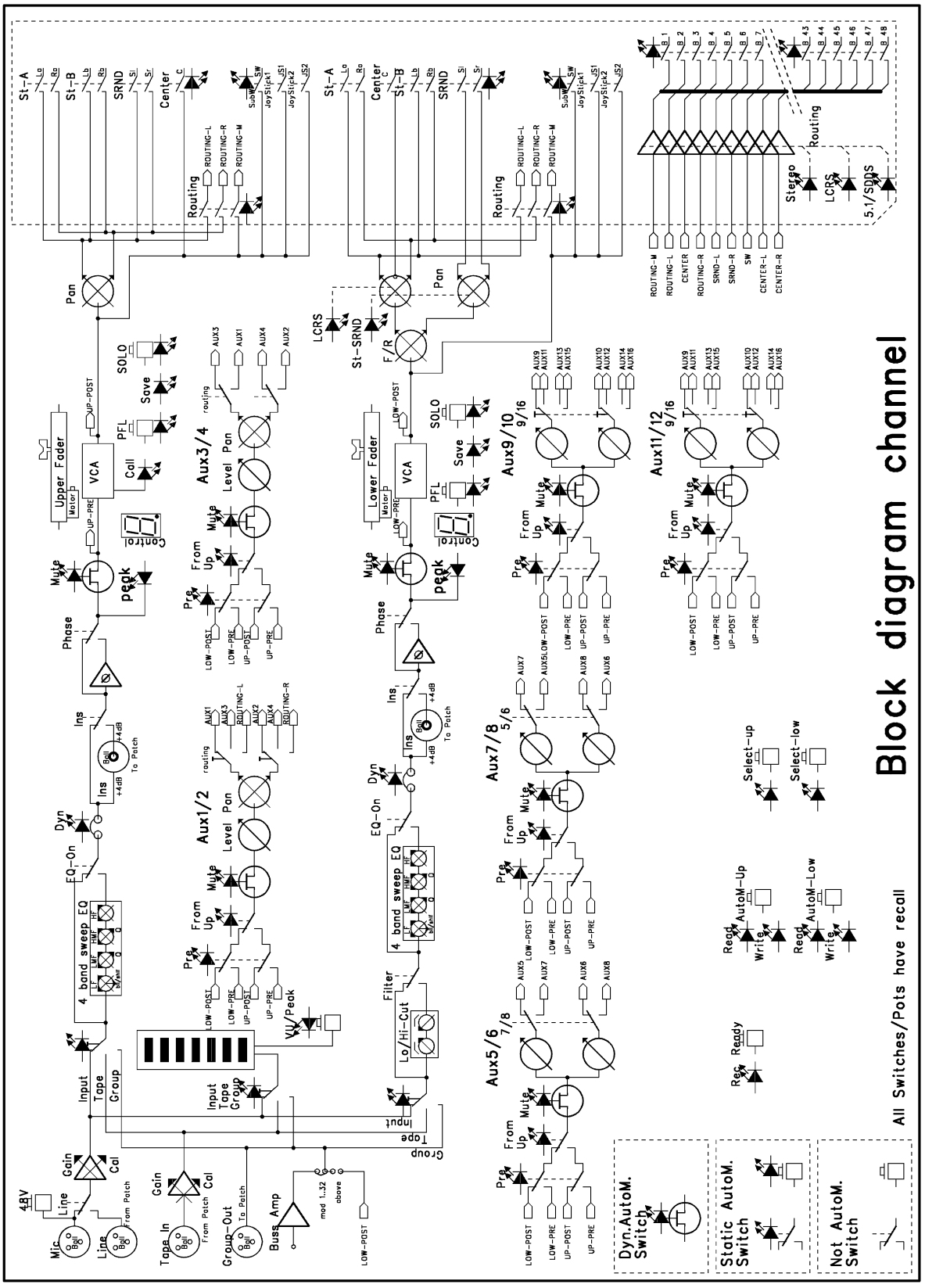
Notes: 0dBu=775 mV.
All measurements were made on an Audio Precision system One.

D&R reserves the right to change these specs at any time, due to new product improvements and new components.

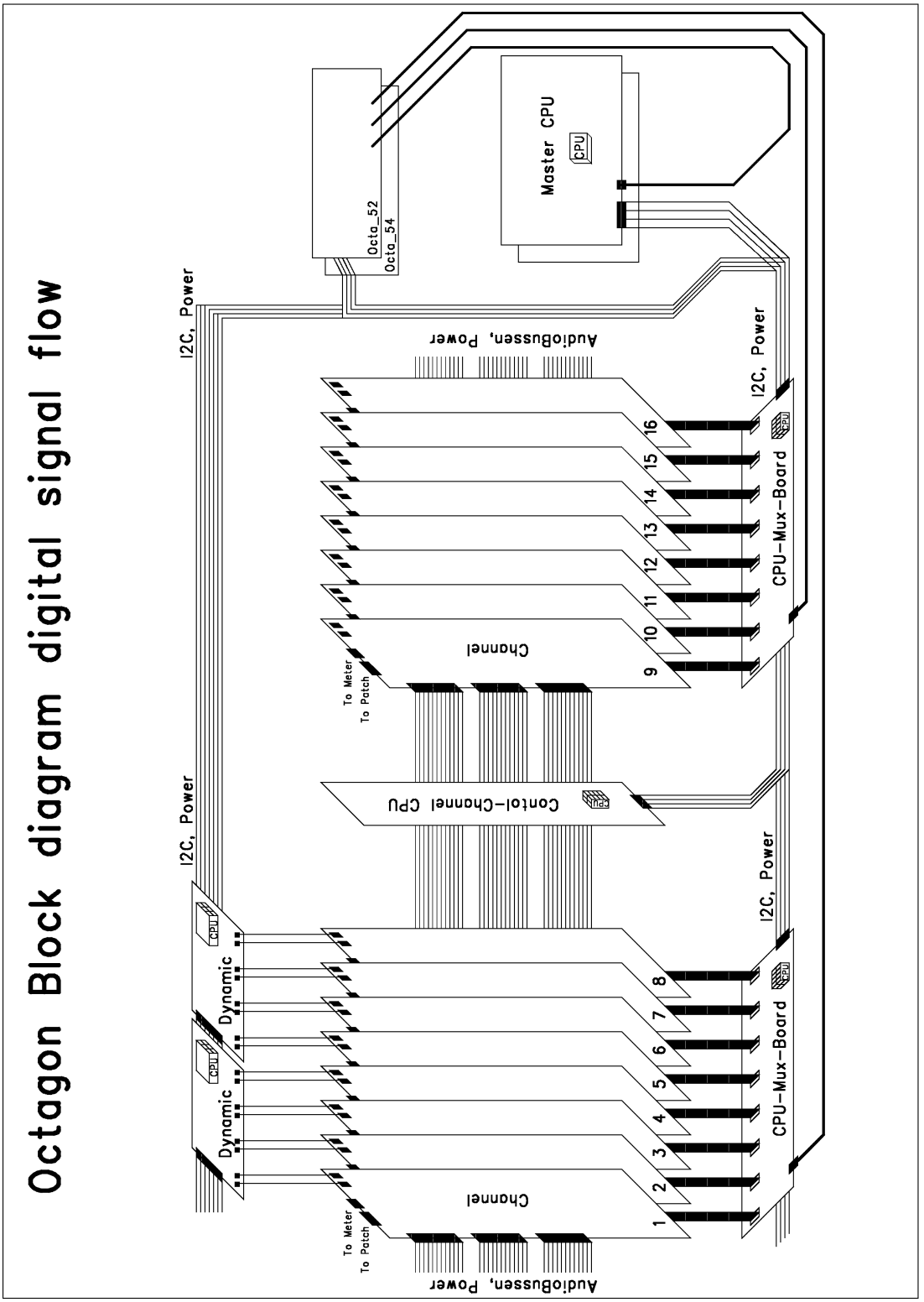
14.0 SIGNAL FLOW MASTER SECTION



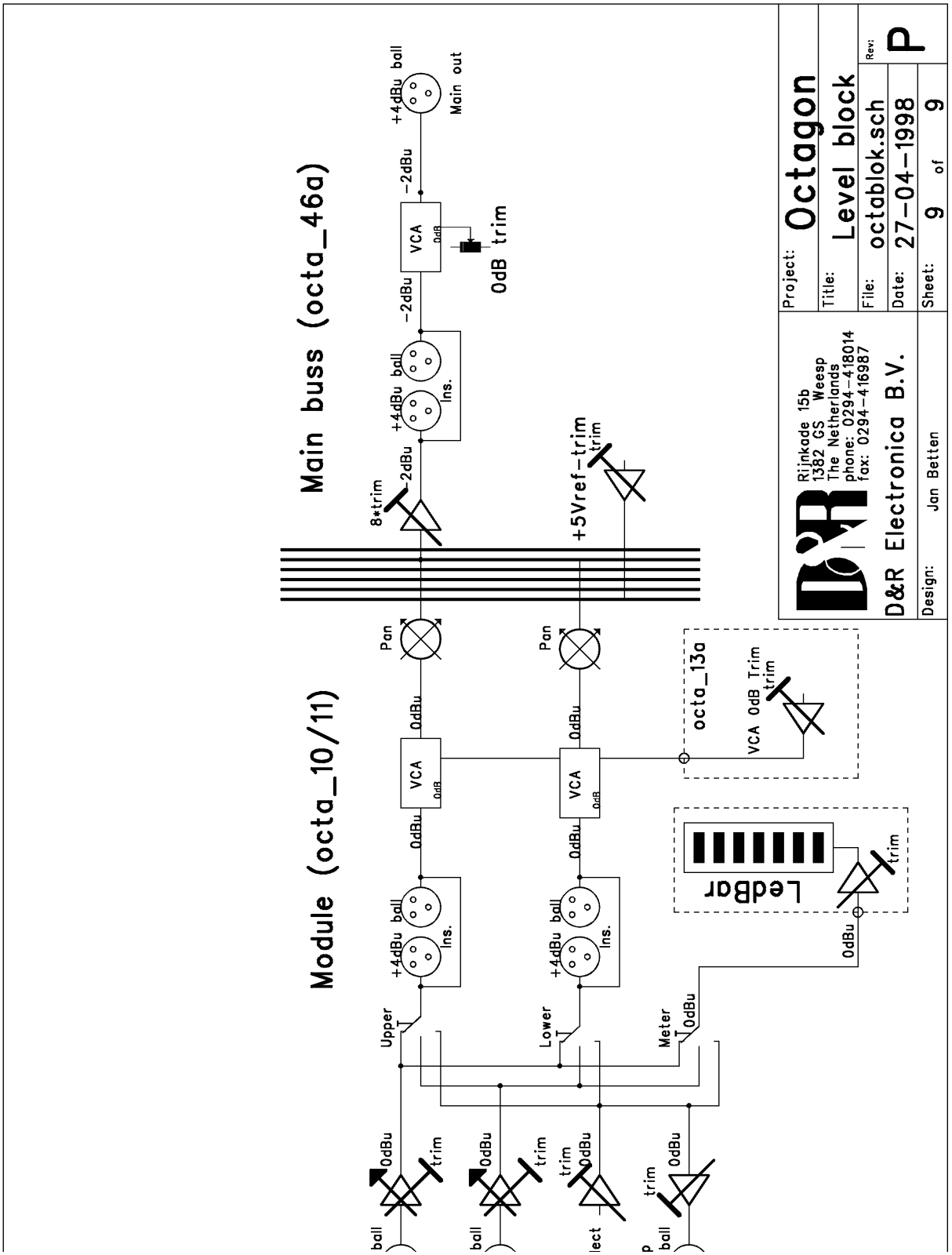
15.0 SIGNAL FLOW INPUT MODULE.



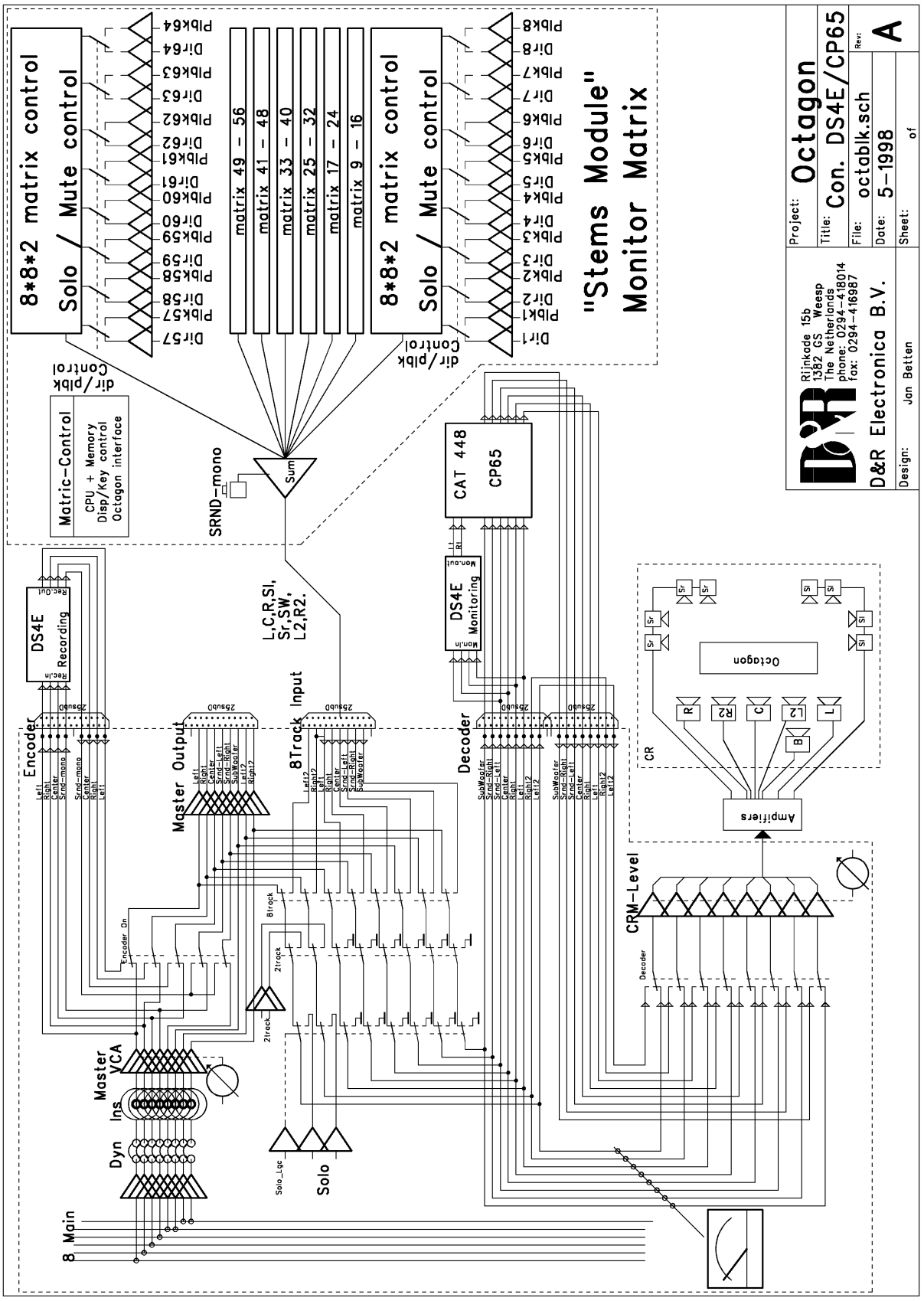
16.0 DIGITAL SYSTEM SIGNAL FLOW



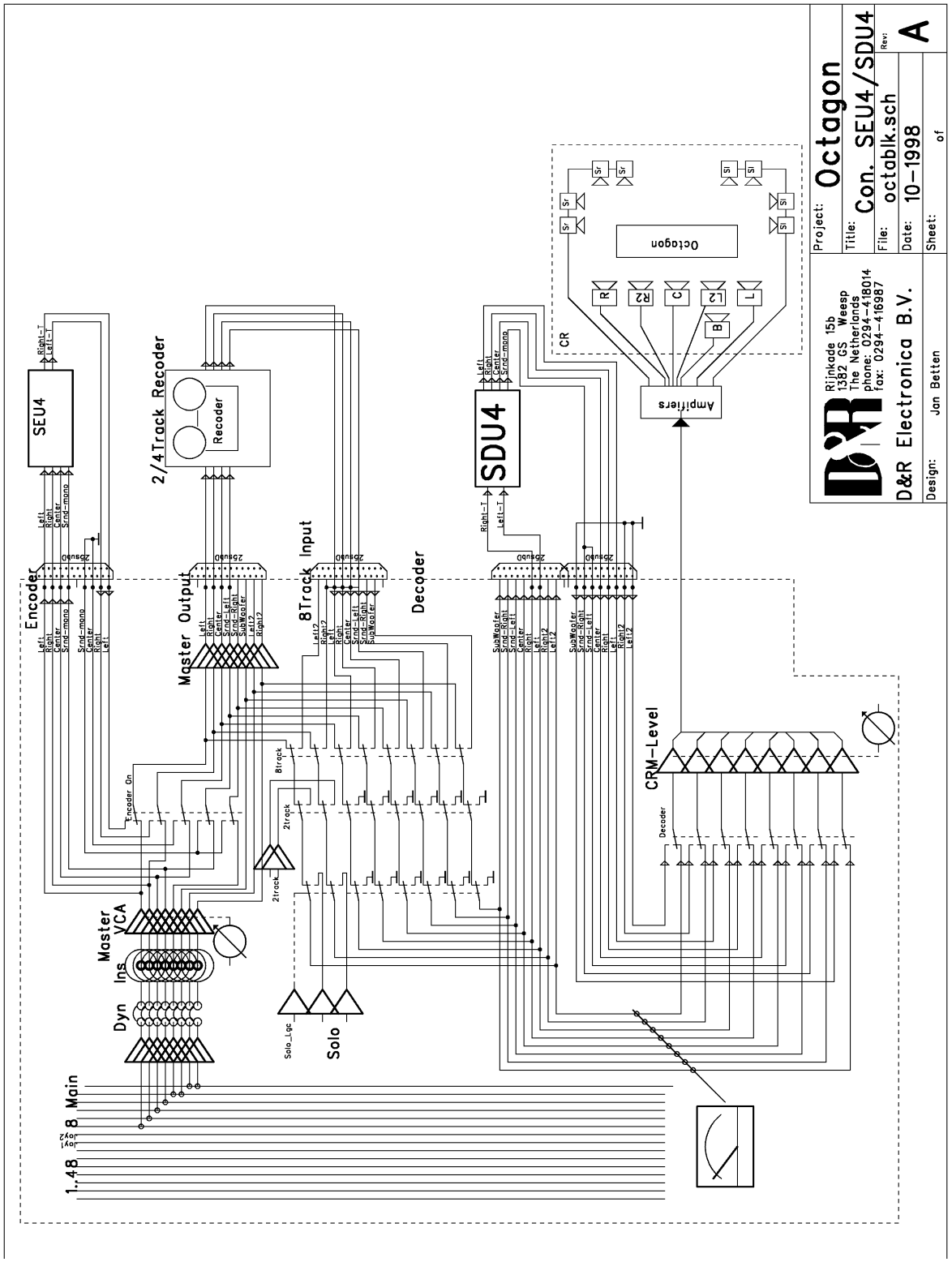
17.0 LEVEL DIAGRAM.



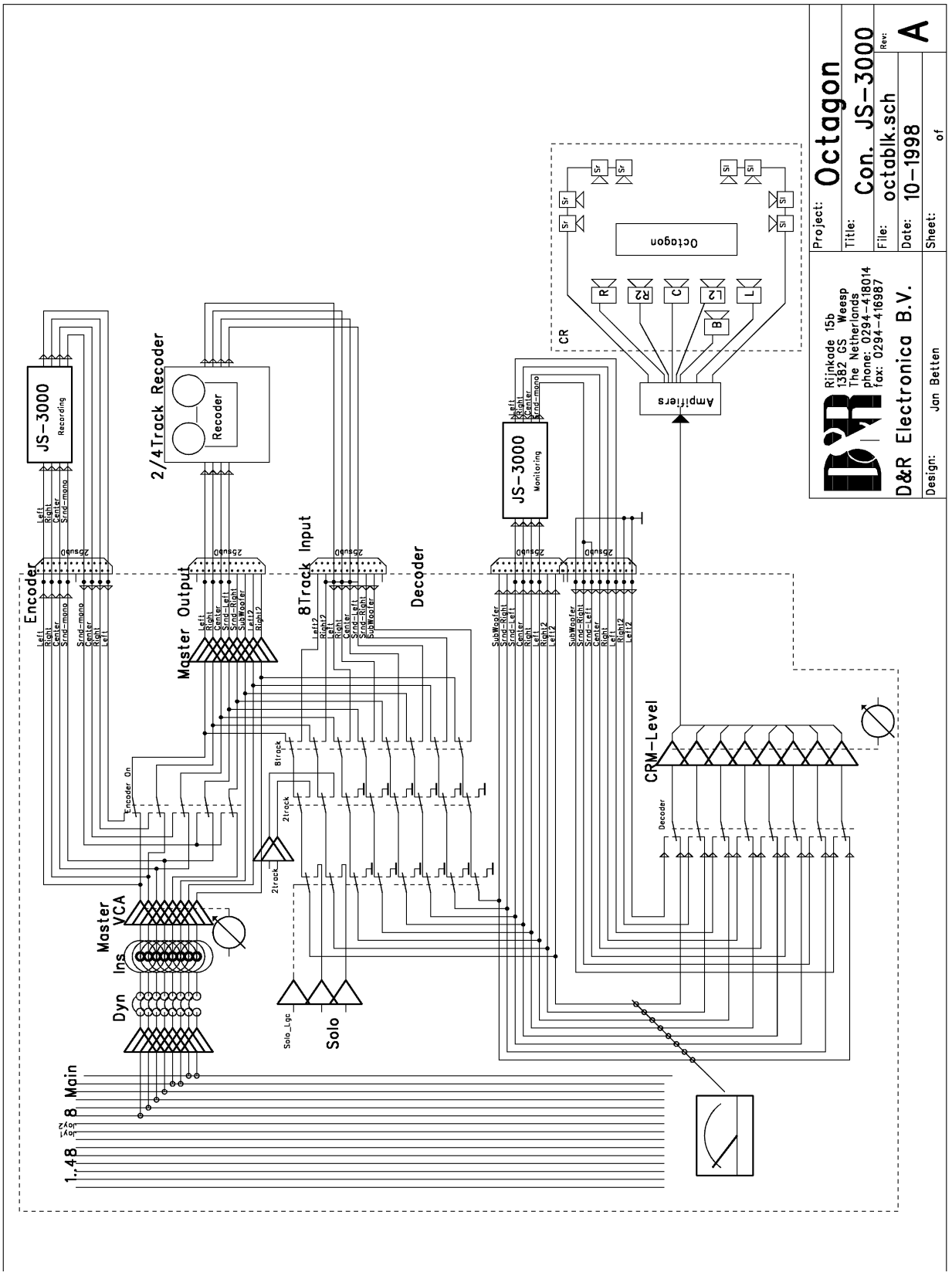
18.0 INTERFACING WITH DS4E / CP65



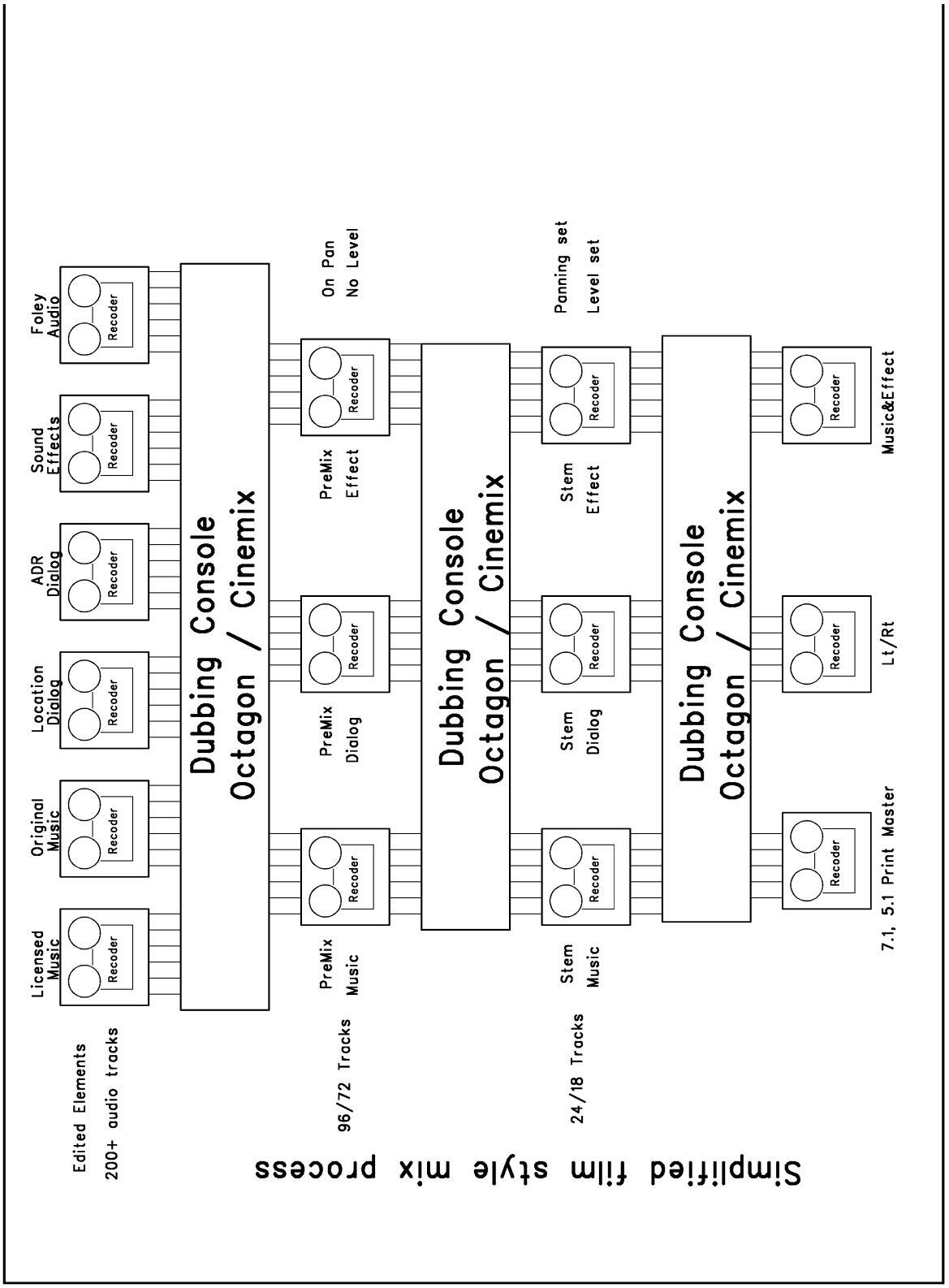
19.0 INTERFACING WITH DOLBY SEU4 / SDU4



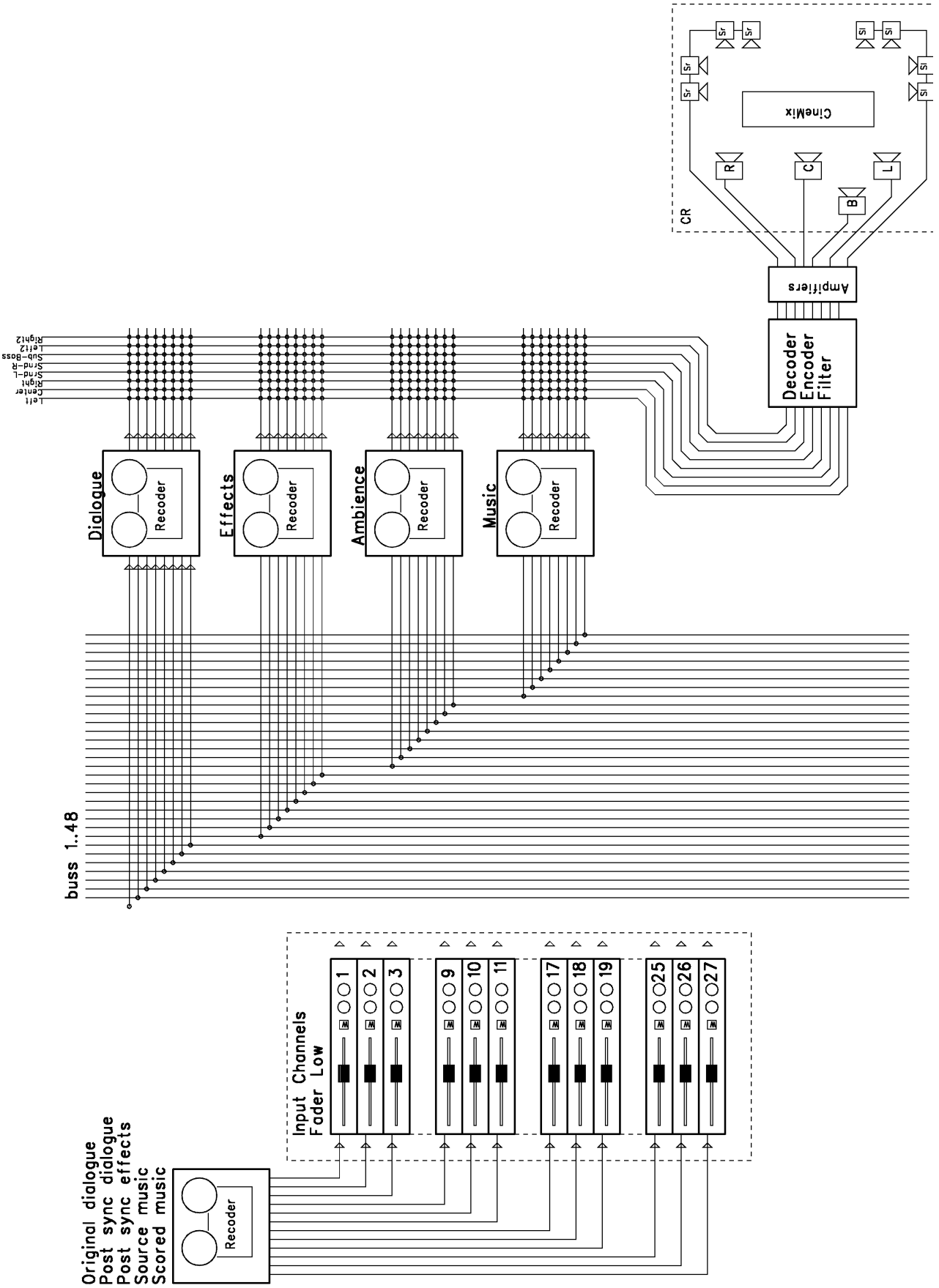
20.0 INTERFACING WITH JS 300



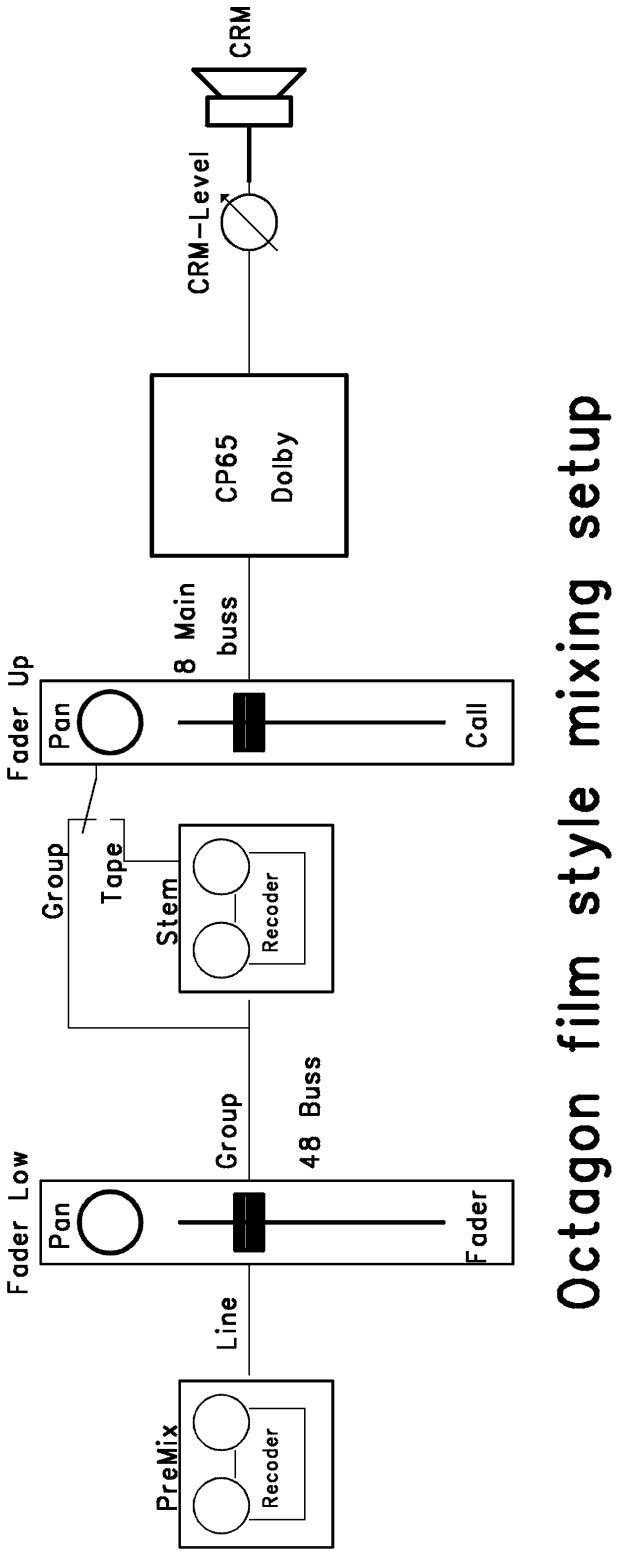
21.0 FILMSTYLE MIXING



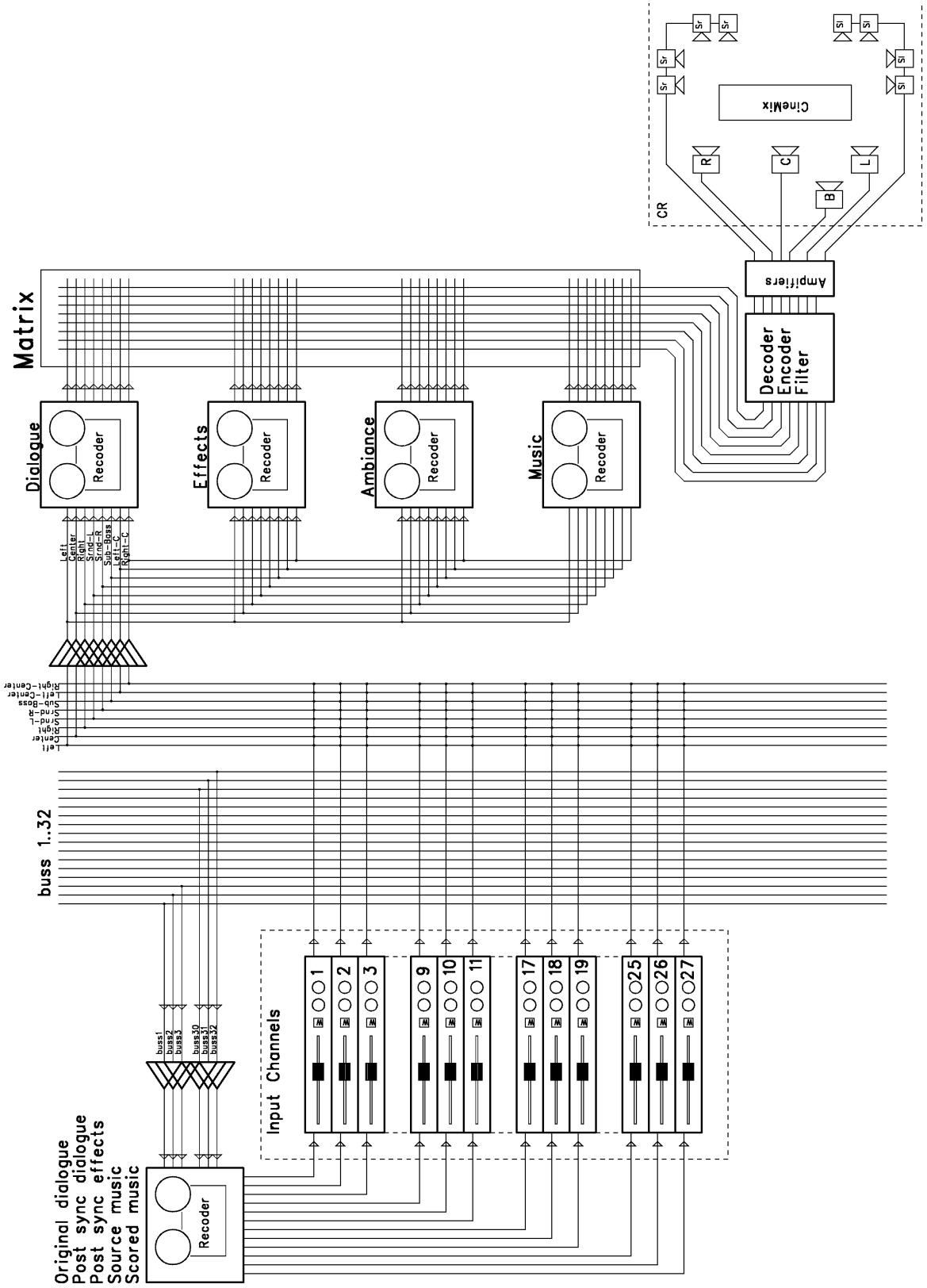
22.0 FILMSTYLE MIXING WITHOUT MATRIX



23.0 FILM STYLE MIXING SETUP



24.0 FILMSTYLE MIXING WITH MATRIX



25.00 Octagon External patchbay connections

MONO MODULE 1..48

Pin number:	From / To Octagon	Function
Pin 1 = I/O_1, in phase (H) Pin14 = I/O_1, out of phase (C) Pin 2 = I/O_1, Ground (G)	To Octagon	LINE IN
Pin 15 = I/O_2, in phase Pin 3 = I/O_2, out of phase Pin 16 = I/O_2, Ground	From Octagon	Insert Up Send
Pin 4 = I/O_3, in phase Pin 17 = I/O_3, out of phase Pin 5 = I/O_3, Ground	To Octagon	Inser Up Return
Pin 18 = I/O_4, in phase Pin 6 = I/O_4, out of phase Pin 19 = I/O_4, Ground	From Octagon	GROUP Out Out
Pin 7 = I/O_5, in phase Pin 20 = I/O_5, out of phase Pin 8 = I/O_5, Ground	To Octagon	TAPE IN
Pin 21 = I/O_6, in phase Pin 9 = I/O_6, out of phase Pin 22 = I/O_6, Ground	From Octagon	Insert Low Send
Pin 10 = I/O_7, in phase Pin 23 = I/O_7, out of phase Pin 11 = I/O_7, Ground	To Octagon	Insert Low Return
Pin 24 = I/O_8, in phase Pin 12 = I/O_8, out of phase Pin 25 = I/O_8, Ground	NC	NC

Octagon External patchbay connections on Sub D connector

STEREO MODULE 1/2 .. 11/12

Pin number:	From / To Octagon	Function
Pin 1 = I/O_1, in phase (H) Pin14 = I/O_1, out of phase (C) Pin 2 = I/O_1, Ground (G)	To Octagon	LINE_A, mod odd Left
Pin 15 = I/O_2, in phase Pin 3 = I/O_2, out of phase Pin 16 = I/O_2, Ground	To Octagon	LINE_A, mod odd Right
Pin 4 = I/O_3, in phase Pin 17 = I/O_3, out of phase Pin 5 = I/O_3, Ground	To Octagon	LINE_B, mod odd Left
Pin 18 = I/O_4, in phase Pin 6 = I/O_4, out of phase Pin 19 = I/O_4, Ground	To Octagon	LINE_B, mod odd Right
Pin 7 = I/O_5, in phase Pin 20 = I/O_5, out of phase Pin 8 = I/O_5, Ground	To Octagon	LINE_A, mod even Left
Pin 21 = I/O_6, in phase Pin 9 = I/O_6, out of phase Pin 22 = I/O_6, Ground	To Octagon	LINE_A, mod even Right
Pin 10 = I/O_7, in phase Pin 23 = I/O_7, out of phase Pin 11 = I/O_7, Ground	To Octagon	LINE_B, mod even Left
Pin 24 = I/O_8, in phase Pin 12 = I/O_8, out of phase Pin 25 = I/O_8, Ground	To Octagon	LINE_B, mod even Right

Octagon External patchbay connections on Sub D connector

MAIN INSERT SEND

Pin number:	From / To Octagon	Function
Pin 1 = I/O_1, in phase (H) Pin14 = I/O_1, out of phase (C) Pin 2 = I/O_1, Ground (G)	From Octagon	Left
Pin 15 = I/O_2, in phase Pin 3 = I/O_2, out of phase Pin 16 = I/O_2, Ground	From Octagon	Center
Pin 4 = I/O_3, in phase Pin 17 = I/O_3, out of phase Pin 5 = I/O_3, Ground	From Octagon	Right
Pin 18 = I/O_4, in phase Pin 6 = I/O_4, out of phase Pin 19 = I/O_4, Ground	From Octagon	SRND Left
Pin 7 = I/O_5, in phase Pin 20 = I/O_5, out of phase Pin 8 = I/O_5, Ground	From Octagon	SRND Right
Pin 21 = I/O_6, in phase Pin 9 = I/O_6, out of phase Pin 22 = I/O_6, Ground	From Octagon	Sub Woofer
Pin 10 = I/O_7, in phase Pin 23 = I/O_7, out of phase Pin 11 = I/O_7, Ground	From Octagon	Inner Left
Pin 24 = I/O_8, in phase Pin 12 = I/O_8, out of phase Pin 25 = I/O_8, Ground	From Octagon	Inner Right

Octagon External patchbay connections on Sub D connector

MAIN INSERT RETURN

Pin number:	From / To Octagon	Function
Pin 1 = I/O_1, in phase (H) Pin14 = I/O_1, out of phase (C) Pin 2 = I/O_1, Ground (G)	To Octagon	Left
Pin 15 = I/O_2, in phase Pin 3 = I/O_2, out of phase Pin 16 = I/O_2, Ground	To Octagon	Center
Pin 4 = I/O_3, in phase Pin 17 = I/O_3, out of phase Pin 5 = I/O_3, Ground	To Octagon	Right
Pin 18 = I/O_4, in phase Pin 6 = I/O_4, out of phase Pin 19 = I/O_4, Ground	To Octagon	SRND Left
Pin 7 = I/O_5, in phase Pin 20 = I/O_5, out of phase Pin 8 = I/O_5, Ground	To Octagon	SRND Right
Pin 21 = I/O_6, in phase Pin 9 = I/O_6, out of phase Pin 22 = I/O_6, Ground	To Octagon	Sub Woofer
Pin 10 = I/O_7, in phase Pin 23 = I/O_7, out of phase Pin 11 = I/O_7, Ground	To Octagon	Inner Left
Pin 24 = I/O_8, in phase Pin 12 = I/O_8, out of phase Pin 25 = I/O_8, Ground	To Octagon	Inner Right

Octagon External patchbay connections on Sub D connector

2TR A – 2TR D INPUT / 2TR E – 2TR H INPUT

Pin number:	From / To Octagon	Function
Pin 1 = I/O_1, in phase (H) Pin14 = I/O_1, out of phase (C) Pin 2 = I/O_1, Ground (G)	From Octagon	MAIN Left A / E
Pin 15 = I/O_2, in phase Pin 3 = I/O_2, out of phase Pin 16 = I/O_2, Ground	From Octagon	MAIN Right A / E
Pin 4 = I/O_3, in phase Pin 17 = I/O_3, out of phase Pin 5 = I/O_3, Ground	From Octagon	MAIN Left B / F
Pin 18 = I/O_4, in phase Pin 6 = I/O_4, out of phase Pin 19 = I/O_4, Ground	From Octagon	MAIN Right B / F
Pin 7 = I/O_5, in phase Pin 20 = I/O_5, out of phase Pin 8 = I/O_5, Ground	From Octagon	MAIN Left C / G
Pin 21 = I/O_6, in phase Pin 9 = I/O_6, out of phase Pin 22 = I/O_6, Ground	From Octagon	MAIN Right C / G
Pin 10 = I/O_7, in phase Pin 23 = I/O_7, out of phase Pin 11 = I/O_7, Ground	From Octagon	MAIN Left D / H
Pin 24 = I/O_8, in phase Pin 12 = I/O_8, out of phase Pin 25 = I/O_8, Ground	From Octagon	MAIN Right D / H

Octagon External patchbay connections on Sub D connector

AUX 1 – 8 / AUX 9 - 16

Pin number:	From / To Octagon	Function
Pin 1 = I/O_1, in phase (H) Pin14 = I/O_1, out of phase (C) Pin 2 = I/O_1, Ground (G)	From Octagon	AUX1 AUX9
Pin 15 = I/O_2, in phase Pin 3 = I/O_2, out of phase Pin 16 = I/O_2, Ground	From Octagon	AUX2 AUX10
Pin 4 = I/O_3, in phase Pin 17 = I/O_3, out of phase Pin 5 = I/O_3, Ground	From Octagon	AUX3 AUX11
Pin 18 = I/O_4, in phase Pin 6 = I/O_4, out of phase Pin 19 = I/O_4, Ground	From Octagon	AUX4 AUX12
Pin 7 = I/O_5, in phase Pin 20 = I/O_5, out of phase Pin 8 = I/O_5, Ground	From Octagon	AUX5 AUX13
Pin 21 = I/O_6, in phase Pin 9 = I/O_6, out of phase Pin 22 = I/O_6, Ground	From Octagon	AUX6 AUX14
Pin 10 = I/O_7, in phase Pin 23 = I/O_7, out of phase Pin 11 = I/O_7, Ground	From Octagon	AUX7 AUX15
Pin 24 = I/O_8, in phase Pin 12 = I/O_8, out of phase Pin 25 = I/O_8, Ground	From Octagon	AUX8 AUX16

Octagon External patchbay connections on Sub D connector

STUDIO 1-2 / OSC / EXTERN

Pin number:	From / To Octagon	Function
Pin 1 = I/O_1, in phase (H) Pin14 = I/O_1, out of phase (C) Pin 2 = I/O_1, Ground (G)	From Octagon	STUDIO 1 - Left
Pin 15 = I/O_2, in phase Pin 3 = I/O_2, out of phase Pin 16 = I/O_2, Ground	From Octagon	STUDIO 1 - Right
Pin 4 = I/O_3, in phase Pin 17 = I/O_3, out of phase Pin 5 = I/O_3, Ground	From Octagon	STUDIO 2 - Left
Pin 18 = I/O_4, in phase Pin 6 = I/O_4, out of phase Pin 19 = I/O_4, Ground	From Octagon	STUDIO 2 - Right
Pin 7 = I/O_5, in phase Pin 20 = I/O_5, out of phase Pin 8 = I/O_5, Ground	From Octagon	Extern Comm
Pin 21 = I/O_6, in phase Pin 9 = I/O_6, out of phase Pin 22 = I/O_6, Ground	From Octagon	Extern Comm
Pin 10 = I/O_7, in phase Pin 23 = I/O_7, out of phase Pin 11 = I/O_7, Ground	From Octagon	Extern Osc
Pin 24 = I/O_8, in phase Pin 12 = I/O_8, out of phase Pin 25 = I/O_8, Ground	From Octagon	Extern Osc

Octagon External patchbay connections on Sub D connector

2TR A – 2TR D OUTPUT / 2TR E – 2TR H OUTPUT

Pin number:	From / To Octagon	Function
Pin 1 = I/O_1, in phase (H) Pin14 = I/O_1, out of phase (C) Pin 2 = I/O_1, Ground (G)	To Octagon	CRM Left A / E
Pin 15 = I/O_2, in phase Pin 3 = I/O_2, out of phase Pin 16 = I/O_2, Ground	To Octagon	CRM Right A / E
Pin 4 = I/O_3, in phase Pin 17 = I/O_3, out of phase Pin 5 = I/O_3, Ground	To Octagon	CRM Left B / F
Pin 18 = I/O_4, in phase Pin 6 = I/O_4, out of phase Pin 19 = I/O_4, Ground	To Octagon	CRM Right B / F
Pin 7 = I/O_5, in phase Pin 20 = I/O_5, out of phase Pin 8 = I/O_5, Ground	To Octagon	CRM Left C / G
Pin 21 = I/O_6, in phase Pin 9 = I/O_6, out of phase Pin 22 = I/O_6, Ground	To Octagon	CRM Right C / G
Pin 10 = I/O_7, in phase Pin 23 = I/O_7, out of phase Pin 11 = I/O_7, Ground	To Octagon	CRM Left D / H
Pin 24 = I/O_8, in phase Pin 12 = I/O_8, out of phase Pin 25 = I/O_8, Ground	To Octagon	CRM Right D / H

Octagon External patchbay connections on Sub D connector

8 TRACK OUTPUT

Pin number:	From / To Octagon	Function
Pin 1 = I/O_1, in phase (H) Pin14 = I/O_1, out of phase (C) Pin 2 = I/O_1, Ground (G)	To Octagon	Left CRM
Pin 15 = I/O_2, in phase Pin 3 = I/O_2, out of phase Pin 16 = I/O_2, Ground	To Octagon	Center CRM
Pin 4 = I/O_3, in phase Pin 17 = I/O_3, out of phase Pin 5 = I/O_3, Ground	To Octagon	Right CRM
Pin 18 = I/O_4, in phase Pin 6 = I/O_4, out of phase Pin 19 = I/O_4, Ground	To Octagon	SRND Left CRM
Pin 7 = I/O_5, in phase Pin 20 = I/O_5, out of phase Pin 8 = I/O_5, Ground	To Octagon	SRND Right CRM
Pin 21 = I/O_6, in phase Pin 9 = I/O_6, out of phase Pin 22 = I/O_6, Ground	To Octagon	Sub Woofer CRM
Pin 10 = I/O_7, in phase Pin 23 = I/O_7, out of phase Pin 11 = I/O_7, Ground	To Octagon	Inner Left CRM
Pin 24 = I/O_8, in phase Pin 12 = I/O_8, out of phase Pin 25 = I/O_8, Ground	To Octagon	Inner Right CRM

26.0

DECLARATION OF CONFORMITY

Manufacturers Name: D&R Electronica Weesp b.v.

Manufacturers Address: Rijnkade 15B,
1382 GS Weesp,
The Netherlands

declares that the product

Octagon 60/84 series

conforms to the following product specifications:

EMC:	**NEN-EN 55103-1**	1995
	NEN-EN 55103-2	1995
	NEN-EN 55013-1	1994

Supplementary Information:

The products herewith complies with the requirements of the EMC Directive 89/336/EEC (1989) as amended by the CE Marking Directive 93/68/EEC (1993).

D&R Electronica Weesp b.v.
Rijnkade 15 B
1382 GS WEESP
The Netherlands
President of Engineering

(*) The product is tested in a normal users environment.

PRODUCT SAFETY

27.0 PRODUCT SAFETY

This product is manufactured with the highest standards and is double checked in our quality control department for reliability in the "HIGH VOLTAGE" section.

CAUTION

Never remove any panels, or open this equipment. No user serviceable parts inside.
Equipment power supply must be grounded at all times.
Only use this product as described, in user manual or brochure.
Do not operate this equipment in high humidity or expose it to water or other liquids.
Check the AC power supply cable to assure secure contact.
Have your equipment checked yearly by a qualified dealer service center.
Hazardous electrical shock can be avoided by carefully following the above rules.

EXTRA CAUTION FOR LIVE MIC RECORDING

Ground all equipment using the ground pin in the AC power supply cable. Never remove this pin. Ground loops should be eliminated only by use of isolation transformers for all inputs and outputs. Replace any blown fuse with the same type and rating only after equipment has been disconnected from AC power. If problem persists, return equipment to **qualified service technician**.

PLEASE READ THE FOLLOWING INFORMATION

Especially in sound equipment the following information is essential to know.
An electrical shock is caused by voltage and current, actually it is the current that causes the shock.
In practice the higher the voltage the higher the current will be and the higher the shock.
But there is another thing to consider and it is resistance. When the resistance in Ohms is high between two poles, the current will be low and vice versa.
All three of these; voltage, current. and resistance are important in determining the effect of an electrical shock.

However, the severity of a shock primarily determined by the amount of current flowing through a person.

A person can feel a shock because the muscles in a body respond to electrical current and because the heart is a muscle it can affect, when the current is high enough. Current can also be fatal when it causes the chest muscles to contract and stop breathing. At what potential is current dangerous.
Well the first feeling of current is a tingle at 0.001 Amp of current. The current between 0.1 Amp and 0.2 Amp is fatal.

Imagine that your home fuses of 20 Amp can handle 200 times more current than is necessary to kill. How does resistance affect the shock a person feels. A typical resistance between one hand to the other in "dry" condition could well over 100,000 Ohm.

If you are playing on stage your body is perspiring extensively and your body resistance is lowered by more than 50%. This is a situation in which current can easily flow.

Current will flow when there is a difference in ground potential between equipment on stage and in the P.A. system. Please do check if there is any potential between the housing of the mikes and the guitar synth amps, which will be linked by your body on stage. Imagine, a guitar in your hand and your lips close to the mike! A ground potential difference of above 10 volts is not unusual, in improperly wired buildings it can possibly be as high as 240 volts.

Although removing the ground wire sometimes cures a system hum, it will create a very hazardous situation for the performing musician.

Always earth all your equipment by the grounding pin in your mains plug.
Hum loops should be only cured by proper wiring and isolation input/output transformers.

Replace fuses always with the same type and rating after the equipment has been turned off and unplugged.
If the fuse blows again you have an equipment failure, do not use it again and return it to your dealer for repair.

And last but not least be careful not to touch a person being shocked as you, yourself could also be shocked. Once removed from the shock, have someone send for medical help immediately

Always keep the above mentioned information in mind when using electrically powered equipment.

Dear Octagon owner,

In this manual we have tried to give you an overview of all that the Octagon has to offer. If you have any questions, do not hesitate to contact us. We wish you many years of enjoyable mixing.

Best regards,

Duco de Rijk
President

Jan Betten
Chief designer

Anton Prins
Software engineer

Peter Wilcke
Lay-out engineer

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FAX: ++31 294-416-987

Website: http:///www.d-r.nl
E-mail: info@d-r.nl

We hope you find this manual useful and easy to understand. As always, we are open to any suggestions about this manual or any D&R products.

Due to a policy of continuous product improvement, D&R reserves the right to change specifications and appearance without prior notice

OCTAGON

SERVICE MANUAL