

*Orion*

**DR**  
mixing consoles

The D&R "Orion" is an 8 buss in-line format recording and mixing console with all the functions and features needed for today's demanding multitrack and MIDI recording sessions.

With the minimum of audio path, the circuitry not only provides tremendous headroom and crystal clear sound, but noise and distortion so low that it almost matches the quality of a straight wire.

In creating the "Orion", D&R undertook comprehensive studies of both its own and competitors products, followed by a radical reappraisal of every element of the design.

The Orion's electronics (like all D&R products) incorporate advanced circuitry and components using the latest in computer aided design and assembly techniques resulting in a product unsurpassed in the electronics industry.

#### THE D&R WELDED STEEL FRAMES AND TOTALLY MODULAR DESIGN.

This "work of engineering art" is available in a choice of three frames. All frames can be completely or partially loaded with modules, as required, and with or without the optional patchbay. If the optional bantam patchbay is ordered, it can be fitted on either end of the frame and has 25 pin sub "D" connectors on the rear panel for interfacing with all modules via high quality low noise cable (customer supplied).

Being totally modular, the "Orion" was designed with a wide range of customers budgets in mind. A choice of different types of modules allow the user to custom order a console designed for a specific operation.

Most inputs and outputs are electronically balanced and utilize the newest integrated circuits available with current technology.

#### "HIGH DEF" EQ.

The "Orion" has a four band semi-parametric equalizer covering the entire audio band from 20Hz - 20kHz. The High and Low controls are variable frequency (20Hz to 500Hz) (4kHz to 20kHz) with shelving characteristics and permanently in the channel path. The two mid range control sections are switchable between channel and monitor and cover from 40Hz to 900Hz and 600Hz to 15kHz range. This wide range design gives control over the whole audio bandwidth in both channel and monitor signal paths, a unique "Orion" feature.

The high pass filter is a fixed 100Hz, 9dB per octave filter in the channel signal path only.

#### THE "FLOATING SUBGROUP SYSTEM" AND 8 AUX SEND BUSES MAKE THE "ORION" EXTREMELY FLEXIBLE.

There are 6 discrete aux sends per module assignable to 8 aux busses. Aux 1-4 are switchable between monitor/channel and pre/post fader while aux 5-6 and 7-8 are post fader being fed from the channel path only.

To increase the number of aux sends it is possible to switch the outputs from the aux 5-6 sends and reroute them to the Aux 7-8 busses.

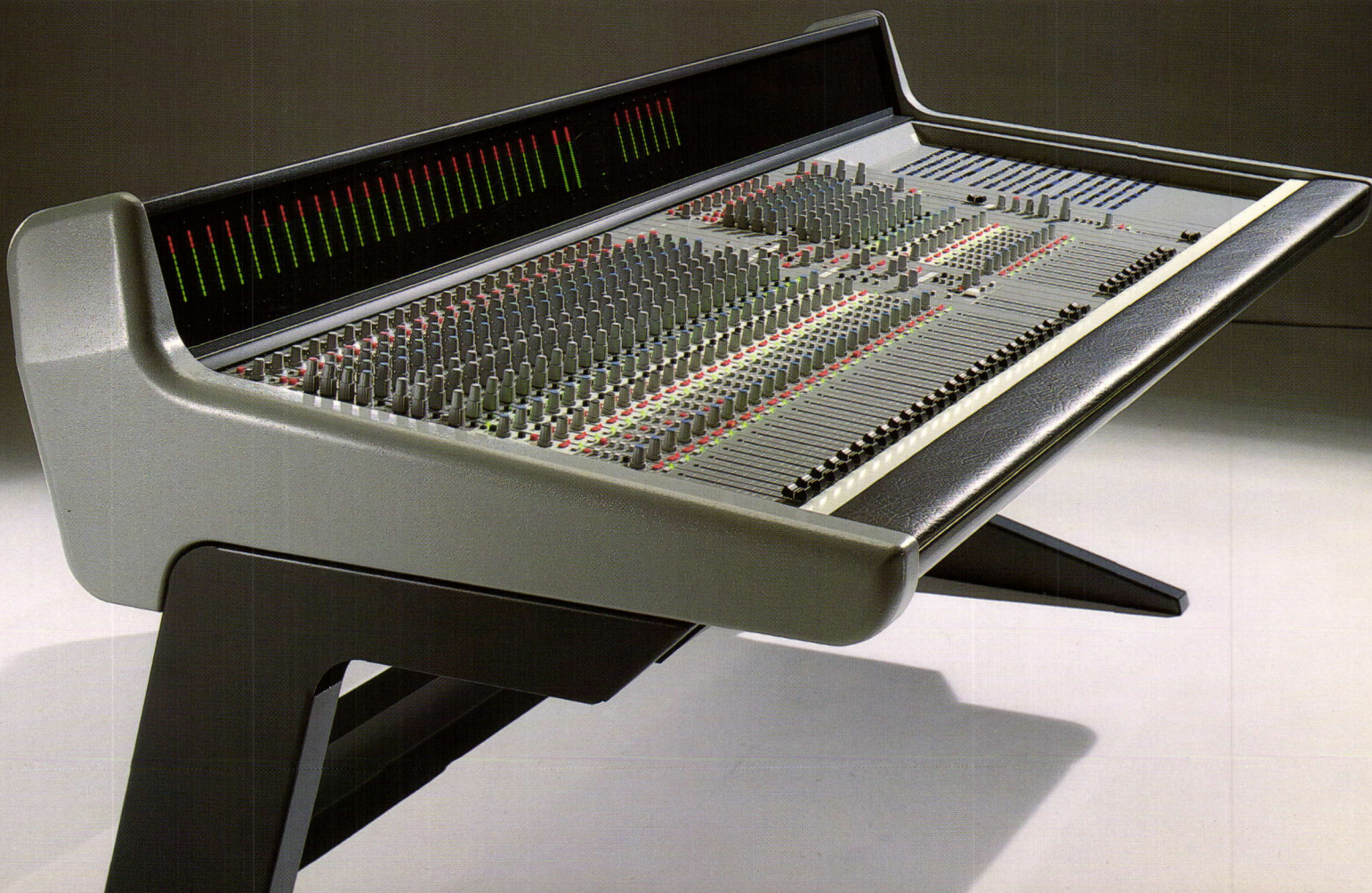
The "Orion" has dedicated 8 buss routing plus the popular "Floating Subgroup System" (F.S.S. developed and pioneered by D&R). The "Floating Subgroups" allow the user to route any input or number of inputs to an unlimited number of outputs as well as the integrated 8 buss routing. Along with the "Floating Subgroups" the "Orion" in-line module also features fader reverse, pfl or stereo-in-place solo system, and master group level controls. The monitor section on each in-line module always feed the stereo mix busses.

The LED adjacent to the solo switch is also active as an input peak indicator which comes on 4dB before clipping.

#### AUTOMATION READY.

All mute switches on the Orion are (soft) FET switches. An optional **Midi control module** can store up to 999 snapshots of mutes which can be controlled from its remote or an external sequencer. All input modules can accept installation of (SMPTE/MIDI) based fader/mute automation systems.

*Orion*



**THE "ORION" IN-LINE MODULE HAS USER FRIENDLY FUNCTIONS AND FEATURES.**

Other features on the "Orion" in-line modules are: phantom powering, tape & mic/line reverse via the MIX switch (input reverse), and phase reverse on the mic inputs.

The mic preamp uses a new circuit design resulting in the lowest possible noise and distortion ever achieved. This low distortion mic preamp is a "padless" design able to handle strong signals while maintaining the extremely low noise specs for today's digital recording sessions.

The monitor section (with its own insert send and return) can be fed by the mic/line input (Mix status switch) and is routed to the stereo mix buss. The group switch (GRP) allows you to use the monitor level control as a group master to the multitrack buss.

A fader reverse switch trades places between the channel fader and monitor level control.

**BEING COMPLETELY MODULAR, THE "ORION" IS "END USER" SERVICE FRIENDLY.**

The "ORION" uses high quality printed circuit boards linked by a flexible (locking) IDC connector system. All integrated circuits are mounted in sockets and components identification are screened on the circuit boards to allow for easy replacement and servicing. Module replacement requires less than one minute.

Each in-line module has an eleven segment peak reading LED bargraph type meter which follows all outgoing or incoming signals and conform to international standards. Although conductive plastic faders are available "smooth feel" 100 mm carbon track faders are standard.

**THE MODULAR MASTER SECTION HAS EXTENSIVE FEATURES.**

Being extremely service friendly, the master section is comprised of four separate modules containing all of the control room functions and features needed for today's state of the art studio.

Included in the SOLO/CRM module are two outputs which connect to two different monitor amps for the near field and large control room monitor speakers. This module has source switching for three balanced +4dBu two track machines or three unbalanced -10dBv machines.

Aux send busses 1-2 can be monitored for easy building up of a stereo headphone mix.

When the console is in the pfl mode and you depress a solo switch, you hear that signal only through the CRM in mono.

**THE "ORION" PFL(PRE FADE LISTEN) AND STEREO IN-PLACE SOLO SYSTEM.**

With the "Orion" in the "solo in-place" mode and a solo switch is pressed, you then hear the soloed signal in-place within the stereo image (which interrupts the main stereo mix buss).

An active control with a range of +/- 10dB will adjust the level in either mode.

**OSCILLATOR AND COMMUNICATION MODULE.**

This module provides talkback to the studio speakers, headphone outputs, and group outputs. Communication to the above can be permanent by the locking talkback remote switch, located above the talkback switch.

The Oscillator section has a three frequency low distortion oscillator which is assignable to all groups.

**AUX / STUDIO / PHONES MODULES**

The Auxiliary master modules control the outgoing aux send signals. Each master aux has a level control and a solo A.F.L. (after fade listen) switch. The studio and phones sections are fed from the CRM module and/or the aux 1-2 outputs for a studio playback or headphone mix.

The initial foldback mix can be fed to the studio and phones from the CRM outputs and can be changed by adding individual signals from aux 1-2 as an easy way to adjust the mix. When a complete new mix is necessary, then the CRM mix would need to be replaced by the aux 1 and or aux 2 mix. It is possible to build a mono mix by utilizing only one of the aux busses (1 or 2).

When only one switch is depressed, both speakers in the studio are fed a mono mix and both left & right sides of the headphones are fed a mono mix. If both the aux 1 and aux 2 are depressed, a stereo mix is then delivered, (aux 1 in the left speaker or ear and aux 2 in the right speaker or ear).

Two channel, (stereo) 25 segment, high resolution peak reading bargraph meters together with a phase meter provides you with precise level and phase information for all master audio signals.

**A DUAL STEREO INPUT MODULE IS AVAILABLE FOR STEREO RETURNS.**

The dual stereo input module has two identical balanced stereo returns, with an active gain control ranging from -20dB to +20dB, a two band equalizer, and six aux sends. Aux 1-2 are stereo configured for feeding the headphones. D&R's unique "Floating Subgroup System" routes the return signal to any multitrack input. The MIX routes the stereo signal to the main outputs.

Both returns have a 60mm stereo fader and the selectable pfl/solo system.

**OPTIONAL PATCHPANEL HAS BANTAM (T.T.) TYPE JACK SOCKETS AND 120 TIE LINES.**

The compact Bantam patchbay is optional and completely modular. Designed to allow the user or installation person to hook-up the cables

**STEREO RETURN MODULE**

Active gain control with a 40dB range.

High frequency is shelving at 12kHz with a boost or cut of 16dB.

Low frequency is shelving at 60Hz with a boost or cut of 16dB.

Aux 1-2 send both left and right signals pre/post switchable in full stereo to the aux1 and 2 busses.

Aux 3 (5) and aux 4 (6) send a post summed mono signal to the master aux busses. The outputs from aux 3-4 can be switched to aux 5-6.

The "TO SUB" switches route the stereo signal to the floating subgroup system. In any in-line channel these signals can be assigned to the multitrack.

The MIX switch routes the stereo signal to the main outputs.

The balance control adjusts actively the left/right levels.

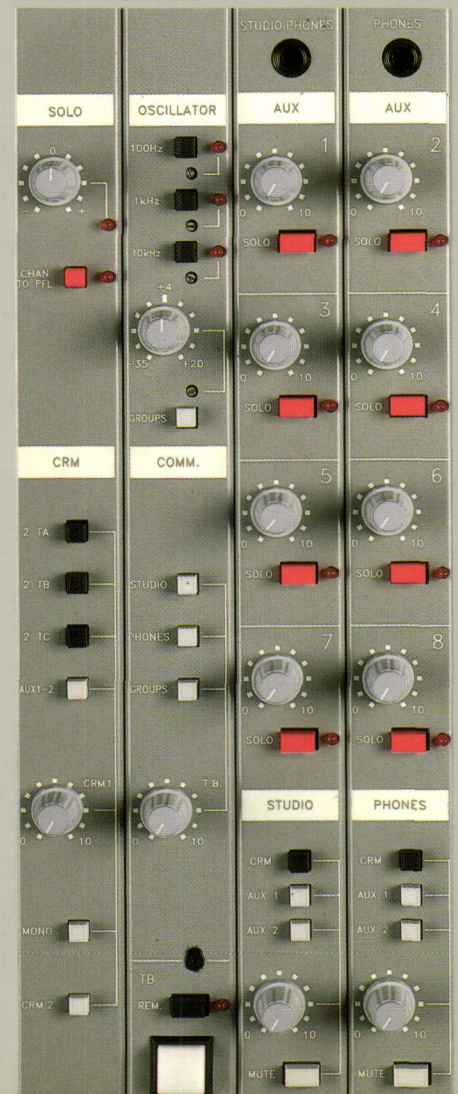
The solo switch brings either the pre fade listen signal or post stereo in-place signal into the monitoring.

A 60mm fader completes return module section "A".

Section "B" is identical.



**MASTER MODULES**



## CHANNEL IN-LINE MODULE.

+48 volt phantom powering.

Phase reverse on mic input.

Dual gain control for mic/line input.

LINE input switch.

The MIX switch is the channel status switch for the record/remix mode. The TAPE switch selects whether tape send or return is being monitored. This is actually an input selector for the monitor path. 100 Hz HIGH PASS filter.

The HF and LF sections are shelving and permanently in the channel path. The HF ranges from 4kHz to 20kHz. The LF ranges from 20Hz to 500Hz. A boost or cut of 16dB is available.

The HMF and LMF sections are fixed Q bell type equalizers and are full bandwidth (40 Hz to 15kHz). The HMF and LMF sections are per pair switchable between monitor and channel.

The whole EQ has an on/off switch.

Aux 1-2 and 3-4 are switchable between channel and monitor and pre/post fader.

Aux 5-6 are post fader from the channel path. To increase the number of aux sends, Aux 5-6 can be assigned to the aux 7-8 busses.

The "Floating Subgroup System" can route any signal assigned to busses 1-4 to the output of any in-line module.

The monitor section has a pan-pot which is directly routed to the main stereo mix. The group (GRP) switch lets you use the monitor level control as a group master for the multitrack summing amps.

REV. reverses the large fader with the monitor level control.

The SOLO switch lets you hear a pre-fade signal or post fade stereo in place signal dependent upon master status settings. The monitor MUTE only mutes the monitor signal path and takes its signal from the stereo mix busses, this improves the signal to noise ratio in the main mix outputs. Bus 1-4 of the 8 track routing is assigned to the "FSS" as well.

The MIX switch routes the channel signal directly to the main stereo buss. The PAN pans between odd and even buses and or the stereo mix buss.

The channel SOLO switch has the same functions as the monitor solo. Its associated led is also a peak indicator lighting at 4 dB below clipping. The channel MUTE fully cuts the channel and aux signals.

between the channel modules and patchbay modules, it can be expanded as your budget allows or ordered complete.

Color coding makes identification of inputs and outputs easy. Patch points per channel are line input, channel insert send and return, monitor input, monitor insert send and return, and the group output.

Each four patch rows are followed by four multitrack channel inputs and outputs. All patch points are wired fully balanced.

The optional patchbay can accept a maximum of 32 input rows and up to 32 multitrack inputs and outputs, which are "normalled" to the group outputs and monitor inputs. All master inputs/outputs and 120 tie lines make this recessed patchbay a pleasure to work with.

All interfacing is via 25 pin sub "D" type connectors, accepting a maximum of eight balanced pairs of signals per connector. If the optional patchbay is not fitted, input and output connectors are always accessible on the back-panels.

## THE WELDED STEEL CHASSIS YIELDS EXCEPTIONAL SHIELDING AND STRENGTH.

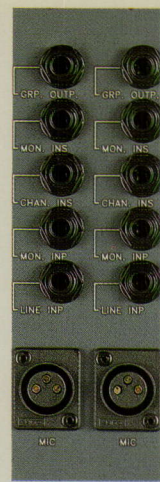
The welded steel chassis yields remarkable shielding against R.F. interference. All modules are "star ground" designed.

Cosmetics are of the highest order with the recessed meterbridge, patchbay, and the high tech styling of the chassis.

Your creativity deserves the "Orion" and putting it to work in your studio will allow you to put

..... "Every sound under control"

## PATCHBAY FOR 32 CHANNELS WITH 120 TIE LINES.



## CHANNEL IN/OUTPUTS.

Semi balanced group (tape) output.

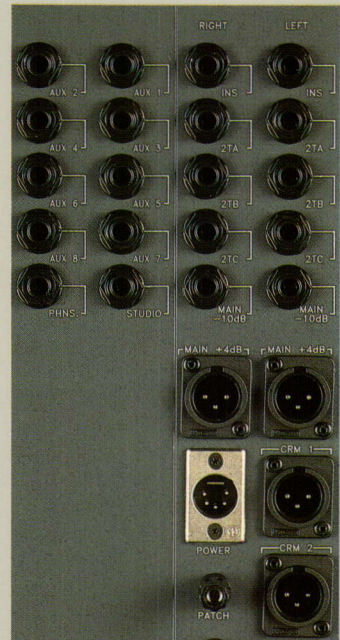
Monitor insert send/return.

Channel insert send/return.

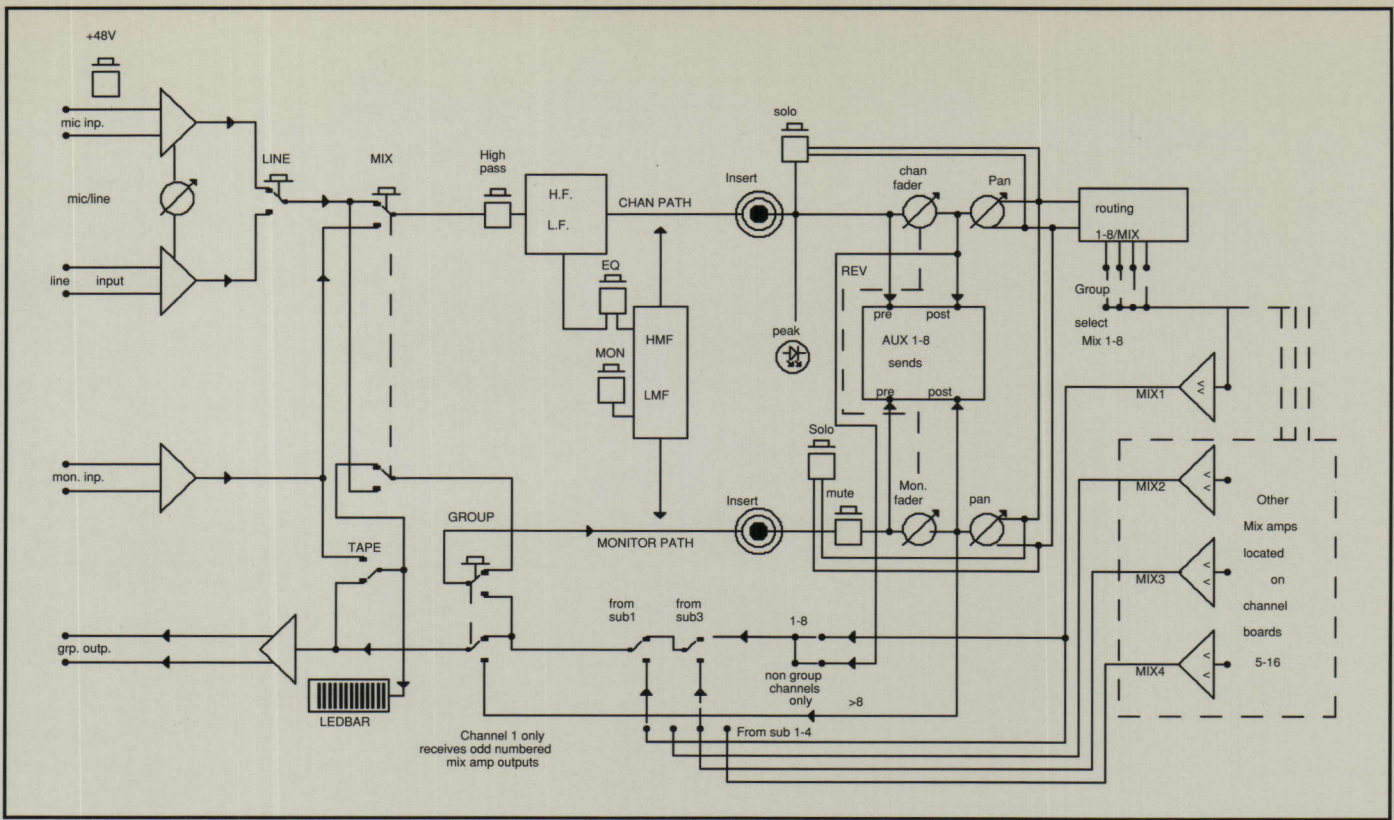
Balanced/unbalanced monitor(tape) input.

Balanced line input.

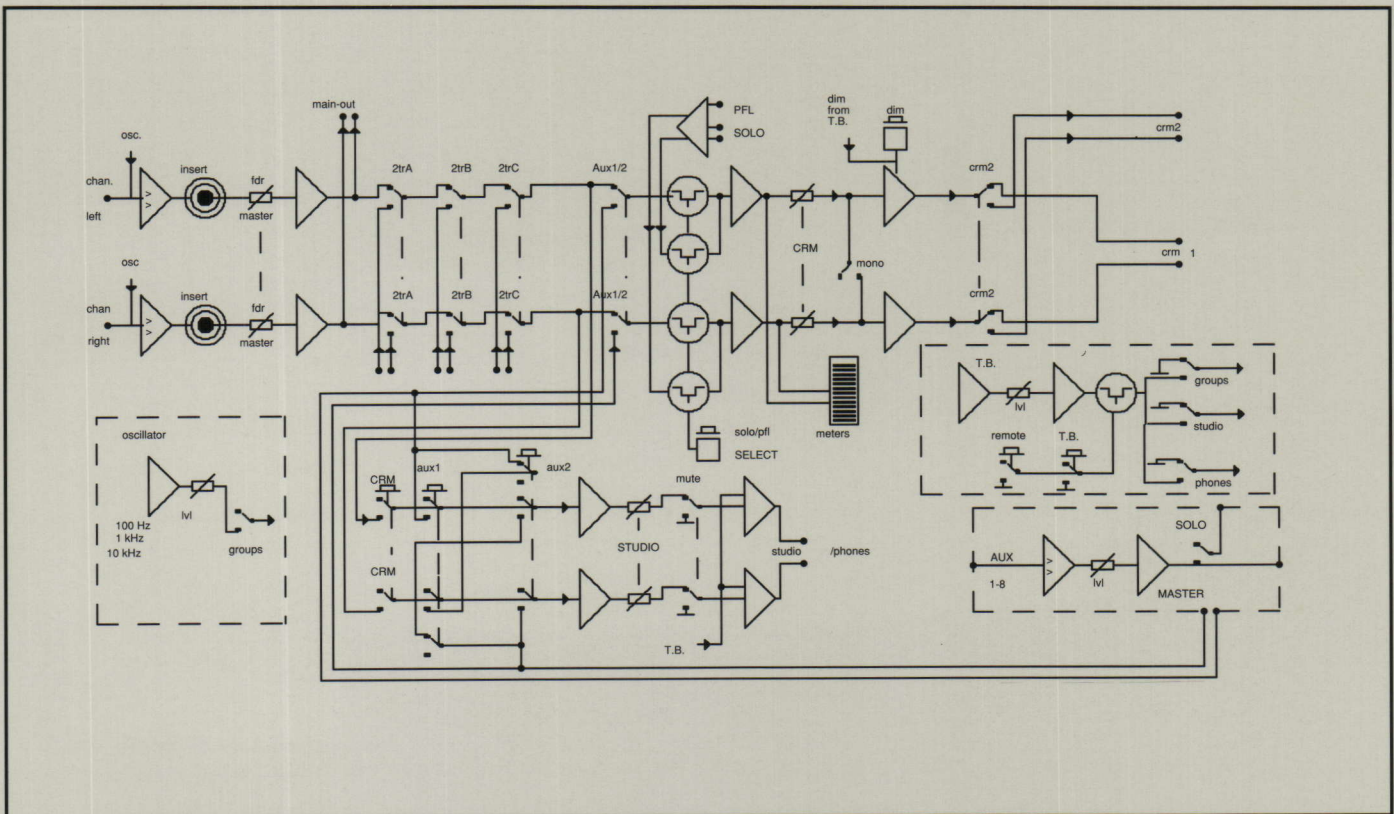
Balanced mic input.



## MASTER IN / OUTPUTS.



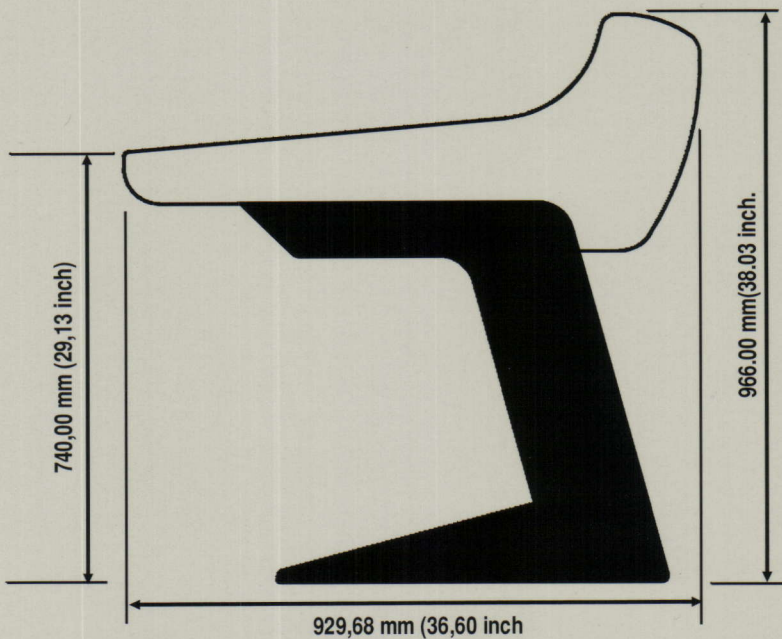
IN-LINE CHANNEL SIGNAL FLOW.



MASTER SIGNAL FLOW.

**SPECIFICATIONS:**

<b>INPUTS:</b>	Mic input, balanced, RF suppressed, 2 kOhm. C.M.R.R. at 50 Hz, -70 dB. Sensitivity: -80 dBu max for +4 dBu output. Noise mic: -129.5 dBu, (A-weighted) 150Ohm.	Line inputs: bal. 10kOhm, -20dB to +20dB. Tape inputs: +4 dBu bal./-10dBv unbal. Mon./chan. inserts: 10kOhm/47Ohm unbal. 0dBu. Stereo machines: +4dBu balanced, -10dBv unb.
<b>OUTPUTS:</b>	Main outputs, +4dBu balanced /-10dBv unbal. Tape outputs: +4dBu/-10dBv semi balanced. All other outputs +4dBu semi-balanced.	Noise master fader down: -100dBr (A-weighted). Noise 32 channels routed: -87 dBr (A-weighted). Noise 64 channels routed: -84dBr (A-weighted).
<b>EQUALISATION:</b>	High pass filter, -3dB at 100Hz. H.F. +/- 16dB from 4kHz to 20kHz. L.F. +/- 16dB from 20Hz to 500Hz. H.M.F. +/- 16dB from 600Hz / 15kHz bell, Q 1.5 L.M.F. +/- 16dB from 40 Hz / 900Hz bell, Q 1.5	High pass in channel path only. H.F. shelving characteristics L.F. shelving characteristics. H.M.F. / L.M.F. switchable between channel and monitor with bell characteristics.
<b>OVERALL:</b>	Nominal internal operating level 0dBu (0.775 V). Frequency response, any input to any output 20Hz - 20kHz, -0.5dB. 10Hz - 100kHz, -3dB. Total harmonic distortion: Mic. in-Grp. out: 1 kHz: 0.015%, 10kHz: 0.025%.	Maximum output: +26dBu into 600 Ohm balanced. Maximum headroom: not less than +22dB anywhere in the console.
<b>CROSSTALK:</b>	Mic to line: < 105 dB at 1 kHz. Channel mute: < 110 dB at 1kHz. Pan-pot isolation: < 75dB at 1kHz.	Channel routing: < 90dB at 1kHz. Channel fader: < 95dB at 1 kHz. Aux send kill: -90dB at 1 kHz.
<b>WEIGHT:</b>	Orion 30 frame: 80kg / 176 Lbs. Orion 38 frame: 110kg / 242 Lbs.	Orion frame 51 incl. patchbay 120kg / 264 lbs.
<b>OPTIONS:</b>	Conductive plastic faders. D&R's "Powermute" (Midimute automation). D&R's "Powerfade" (Motorfader automation).	D&R's "PowerVCA" (VCA/Dynamics automation). Pedestal base. Patchbay.



**ORION FRAME CONFIGURATIONS.**

Frame 30 accepts: 30 modules (24 in-line + 6 dual stereo returns.)  
 Frame 38 accepts: 38 modules (32 in-line + 6 dual stereoreturns.)  
 Frame 51 accepts: 51 modules (32 in-line + 6 returns + patchbay)

Patchbay 32 width is equivalent to 13 input module positions.

**ORION CHASSIS DIMENSIONS.**

Orion 30 chassis = 1282 mm / 50.47".  
 Orion 38 chassis = 1561 mm / 78.54".  
 Orion 51 chassis = 1995 mm / 78.54".

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