



Vision

OWNERS & INSTALLATION MANUAL

VERSION 1.01

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Dear Vision owner,

Thank you for selecting the D&R Vision series.

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

We are confident that you will be using the Vision for many years and wish you much success.

We always value suggestions from our clients and we would be grateful if you could give us feedback on our products by mail once you become familiar with your Vision.

We learn from your comments and appreciate your time.

With kind regards,

Duco de Rijk

MD, D&R Electronica B.V.

Mail: d.derijk@d-r.nl

Vision recording console

The D&R Vision series is a 4/8 buss console designed to take the central role in a live/recording facility.

The Vision is completely modular and can be configured to precisely suit your particular system requirements.

To become completely familiar with your Vision 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 Vision including installation, operation, and servicing.



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THE CHASSIS SYSTEM

INTRODUCTION

The Vision is available in three frame sizes; 19" (14 module positions), 38 and 46 module positions. The basic frame has two blank modules, both located on the extreme left and right of the frame.

An exception is the 19" rack frame, which does not have blanks on either side.

The extreme left and right blanks on the larger frames cannot be used for input modules as they conceal mechanical constructions.

The frame 38 will fit 40 input modules (mono, stereo, group, matrix or master modules).

The frame 46 frame will fit 48 in/output modules.

The master section in the 19" rack version needs to be installed on the far right side of the console.

In other frames the master section and all other modules can be installed wherever most suitable, but the request must be made at the time of ordering.

2. THE MASTER STANDARD/DELUXE MODULES

2.0 Master section description

The Vision has two master modules which are completely modular. All inputs and outputs are located on the back of the console. The paragraphs below give a description of each module section.

2.1 Control Room Monitor Section

The Solo section is a soft switching circuit that automatically brings in the soloed channel when a solo switch is activated. When The SIP switch is in the down position, all solo switches on the input modules are in the stereo-in-place mode when activated. A LED indicator is also fitted next to the SIP switch to show when a solo circuit is activated. The master Aux solo switches do not react on the SIP switch, they shall always be AFL (After Fade Listen). in the Control Room Monitor output and Headphone outputs.

Above the CRM pot, there are the two CRM signal sources. With these switches in the up position, the CRM will monitor the stereo main outputs which is the sum of all the input channels assigned to the master plus the group output modules.

The Vision has two dedicated unbalanced +4 dBv or -10 dBu tape return inputs which can be wired to the outputs of stereo master machines, cassette machines, CD players, or DAT recorders. Utilizing any of these switches enables play-back or post tape monitoring of a master mix.

The CRM level controls the total outgoing level to the control room monitors amps.
The Vision has two CRM systems intended for use with large monitors and near field monitors which are switchable via the **CRM 2** switch.

2.2 Mono output

The Vision has a separate stereo summed balanced mono output with its own level control. The output is wired post master left/right inserts.

2.3 Oscillator section (de-luxe master module)

A single 1 kHz frequency, low distortion, phase shift type oscillator is fitted. (more frequencies are optional)

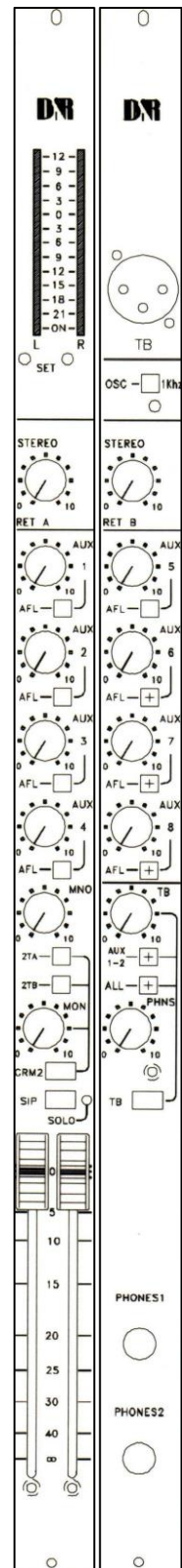
There is a front panel accessible level control with which to adjust the oscillator for precise alignment of the console and tape machines. The level ranges from infinity to +20 dB.

The oscillator is either routed to the stereo mix busses and Aux send busses (ALL) or exclusively to the AUX 1 and 2 busses. This switching is coupled to the Talk back switching.

NOTE: The CRM will dim 20dB when the oscillator and or Talk back is active.

2.4 Master/channel meters.

The Vision master is fitted with peak reading, high resolution, LED bar meters with attack and release times which conform to world standards. The attack is 10msec. for a 20 dB range and the release is 1 .5msec.



NOTE: Peak reading meters give a reading 6 dB below the actual level when using a sine wave. For example, +4 dBu at the output connectors would give a reading of -6 dB on the meter using the oscillator.

0dB on the meters equals +10dBu on the outputs!

If V.U. reading led bars are ordered, they will have attack and release times of 300msec. and a +4 dBu level on the output connectors will give a 0 dB reading on the meter.

Measuring the +4 dB output level of the channel or master with a AC voltmeter would give a 1.22 volt reading. The LED meter would actually be reading -6 dB on the scale. When monitoring program material, you will see higher levels on the peak reading meters.

2.5 Talkback section

The talkback section allows all communication functions from the control room to the **Aux Sends and GROUPS**.

The unbalanced talk back input (wired balanced) can be routed to the 4/8 aux sends, all group outputs and main outputs by activating the **ALL** switch. The Aux 1-2 switch only routes the TB signal to the Aux 1-2 busses. In both cases the CRM output is dimmed by 20 dB.

The talkback switch is a momentary type which allows you to talk to the above mentioned outputs.

2.6 Auxiliary masters

The auxiliary master sections are identical in function. The first module controls the Aux send busses 1, 2, 3, & 4 and the second module controls Aux send busses 5, 6, 7, & 8. Each Aux master pot controls the sum of all channel or group aux send busses. The solo switch sends the (post fader) aux buss signal to the control room monitors. The master SOLO LED indicates the activated solo switch.

2.7 Phones section

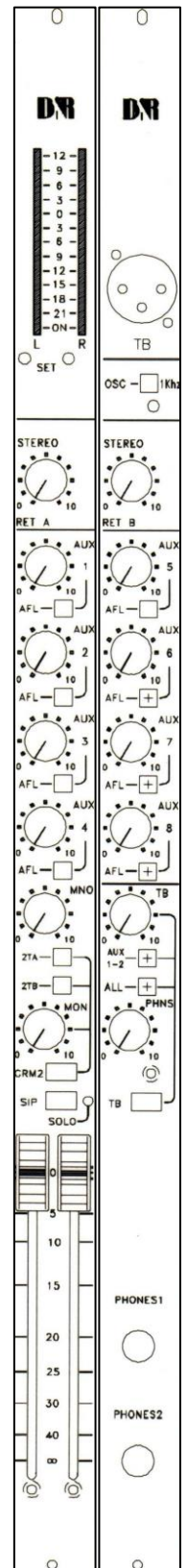
The **PHONES** section performs in a similar way to the CRM section.

The phones output simply follows the control room monitor output but with its own level control.

2.8 Stereo return sections

The Vision console has a stereo return control in both the master output modules.

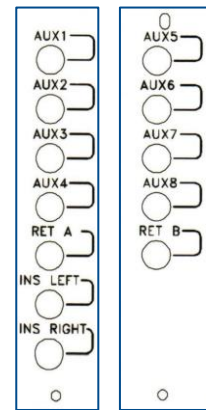
The stereo signal is directly assigned to the master left/right busses.



2.9 Master in/outputs

The Vision can be interfaced 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. Listed below are all inputs and outputs for the two master modules. Partly the connectors are on the back panels of the modules. Some output connectors are mounted in the frame along with the MIDI interface connectors.

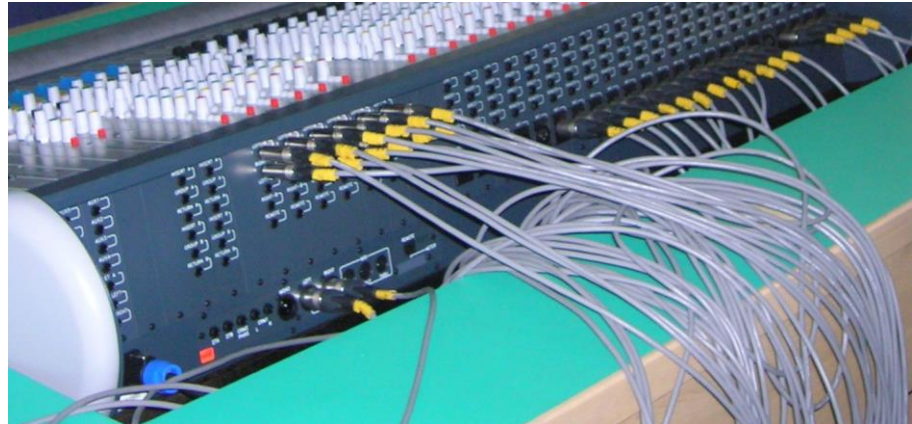
The Standard Master module houses (from top to bottom) the Aux 1 to 4 outputs (which are ground compensated) and the stereo Aux "A" return jack. Below these connectors are the master inserts left and right.



In the Frame of the Vision series you will find the balanced XLR outputs of the Left/right and Mono outputs.

The ground compensated Control Room Monitor left and right outputs.

The unbalanced CRM 2 outputs as well as the unbalanced two track returns.



On the right side of the consoles frame there are the MIDI in/out/thru din connectors which are needed when the MIDI mute system is installed and communication needs to be made between external signal processors and /or midi sequencers. A separate manual is available for the MIDI control module which will be connected to the REMOTE connector.

The 19" rack version has an internal power supply and the desktop versions have an external power supply fed by a Speakon connector that can handle a lot of current.

The DELUXE Master module (Aux masters 5 thru 8 and Talkback) has the following connectors on the back plate. The connectors on this module back plate are the ground compensated Aux 5 thru 8 master outputs and the Aux B return input. Aux sends 1 thru 8 are used for sending signals within the console to eight different signal processors such as digital reverbs. These outputs are ground compensated.



Figure 1

Figure 1: Back panel section with main XLR outputs and CRM jacks.

In case XLR's on all in and outputs are requested we can supply a Breakout panel as pictured below. Various variations are possible, ask your dealer/manufacturer.



3. STANDARD MONO INPUT MODULES

The Vision standard mono input module is a basic input design whereby all signal flow takes place from the microphone to the direct output as well as to the main left right outputs and group outputs.

3.1 Input section

The input section controls all incoming signals from microphone and line inputs.

A **+48V** phantom power switch for condenser microphones or direct boxes can be silently switched in or out of the circuit.

LINE switches the microphone input to line input on the channel.

The line has its own balanced input amp and is controlled by the active (dual) gain control.

When the **GAIN** control is accurately set, it is possible to achieve the very best signal to noise ratio and maximum headroom required for high quality recordings. This control is for adjusting the **line** and **Mic** inputs (with separate electronics), although only one knob adjusts the dual pot.

3.2 Equalizer section

This three-band parametric equalizer is unique in its design. There are three bands, the high and low with a boost or cut of 16 dB and the mid band is sweep able with a boost or cut of 16 dB.

The **HF** (high frequency) section is a fixed frequency shelving type at 12 kHz with a maximum boost or cut of 16 dB.

The **LF** (low frequency) section is a fixed frequency shelving type at 60 Hz with a maximum boost or cut of 16 dB.

The **MF** (High / Mid Freq.) section has level and frequency controls with variable frequency ranges from 200 Hz to 7,000 Hz and has a maximum boost or cut of 16 dB. The bandwidth has a Q factor of 1.5.

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) which makes this equalizer a pleasure to work with. Noise and distortion are kept to an absolute minimum.

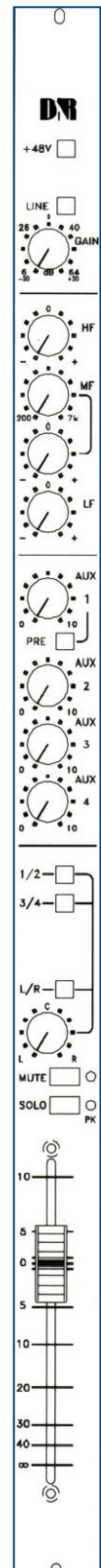
3.3 Auxiliary Send Section

The Vision standard mono module has four auxiliary send busses. While in the tracking session, some aux sends are used for feeding the headphones and some are used for effects sends. During the mix session, all aux sends are used for effects sends.

Auxiliary sends 1 is switchable between pre and post fader. This Aux buss is normally used for stereo headphone send in the tracking session. A PRE switch puts them pre fader for fold back purposes.

Aux 3&4 are on single controls with a post fader factory setting. A pre-fader selection is easy accomplished.

The **DIRECT** output follows the post fader signal coming from the fader creating a dedicated aux send for that channel only. Or it can be used as a multitrack send. The output level is 0 dBu. The output is ground compensated.



3.4 Channel assign / fader section

The **Channel assign** section allows the user to assign to a maximum of 4 busses. The routing gives selection to the 4 group modules using two pushbuttons. With each pair of summing amps, you have the choice of assigning to the odd or even groups using the pan-pot.

The **L/R** switch (in the assign section) assigns the pan-pot to the stereo mix buss while the pan control pans the signal between the main stereo mix L / R busses and / or the odd and even group summing busses if assigned.

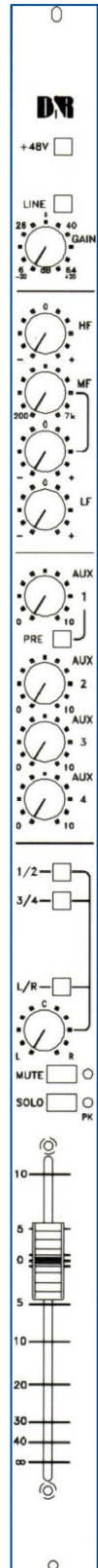
The Vision's summing amp and internal structure means that it is extremely quiet and distortion free, therefore a direct button to bypass the amps is not necessary.

The **MUTE** switch is a momentary switch that controls a silent FET switch to mute the channel. The FET can also be controlled by the optional MIDI mute module.

The **SOLO** switch has two modes, pfl (pre fade listen) or a non-destructive stereo solo-in-place system. Master status switching (located in the master section) selects the solo in-place or PFL mode for the entire console. Activating the solo switch in the pfl mode will send the pre-fader signal to the CRM speakers. In the solo in-place mode, the post monitor pan-pot signal is heard. A solo indicator LED is fitted next to the solo switch.

Fader section

The Vision has a high quality 100mm fader. Alps or P&G faders are optionally available. You can use any VCA Mix Automation System which uses the faders and mute system in the Vision. The channels are prewired for accepting any VCA automation system.



3.5 Input and Output connectors

Every channel has the following connectors at the back of the housing. The balanced **LINE** input is a stereo 1/4" jack socket:

Tip = hot
Ring = cold
Sleeve = shield

The **INSERT** is on a stereo jack socket.

Tip = return
Ring = send
Sleeve = shield

The ground compensated **DIRECT** output is a stereo 1/4" jack socket:

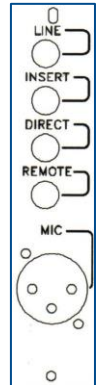
Tip = hot
Ring = cold
Sleeve = shield

The **REMOTE** connector is internally wired to a 4 pin connector that can be wired to a faderstart switch if ordered:

Tip = normally open
Ring = normally closed
Sleeve = centre contact

A balanced XLR connector is for the **MIC input**.

Pin 1 = shield
Pin 2 = hot (in phase)
Pin 3 = cold (out of phase)



3.6 Jumper/connector settings

J1= Mic input connector	pin1= ground pin2=hot (in phase) pin3=cold (out of phase)
J5= Fader when automation is installed	1=ground 2=wiper 3 Top of fader
J6= Automation connector or fader connector when no automation is installed	1 =Ground 2= VCA out 3=VCA in 4=Reference voltage 5=+5 volt (dependent upon VCA type)
J7= Aux2 pre/post select	pin1/2=post pin3/4=pre
J9= Aux4 pre/post select	pin1/2=post pin3/4=pre
J12=Tape return connector	pin1=tip/break on line input pin2=ring/ break on line input
J14= Midi mute connector	1=Read 2=Write
J15=Pre Mute select	1 /2=Mute active on aux pre fader setting 3/4=Mute not active on aux Pre fader setting
J 17=Remote connector	pin1=tip pin2=ring pin3=sleeve

4. DELUXE MONO INPUT MODULE

The Vision deluxe mono input module is a basic input design whereby all signal flow takes place from the microphone to the direct output as well as to the main left right outputs and group outputs.

4.1 Input section

The input section controls all incoming signals from microphone and line inputs.

A **+48V** phantom power switch for condenser microphones or direct boxes can be silently switched in or out of the circuit.

Phase is used to reverse the phase of any mike input coming from a mike or signal that may be out of phase with other mikes or signals. A successful method of checking for out of phase signals is to pan the two input signals to the middle and listen closely to the mix. If an unexpected sound is heard or if something appears to be missing from the mix, depress the phase switches for those channels suspected to be in error. If the sound improves, then that channel was out of phase with the others.

Line switches the microphone input to line input on the channel.

The line has its own balanced input amp and is controlled by the active (dual) gain control.

When the **GAIN** control is accurately set, it is possible to achieve the very best signal to noise ratio and maximum headroom required for high quality recordings. This control is for adjusting the **line** and **mic** inputs (with separate electronics), although only one knob adjusts the dual pot.

4.2 Equalizer Section

The 100 Hz **Highpass** filter is a fixed 9 dB per octave Butterworth model which reduces low frequency noise effectively and musically. It can be switched on or off in the channel path.

This four-band parametric equalizer is unique in its design. There are four bands, the high and low are sweep able frequency with shelving characteristics with a boost or cut of 16 dB and the two mid bands each sweep able with a boost or cut of 16 dB.

The **HF** (high frequency) section is a variable frequency shelving type, **sweep able** from 4,000 Hz to 20,000 Hz with a maximum boost or cut of 16 dB.

The **LF** (low frequency) section is a variable frequency shelving type, sweep able from 20 Hz to 500 Hz with a maximum 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 of 1.5. The **LMF** (Low / Mid Freq.) section has level and frequency controls with variable frequency ranges from 40 Hz to 900 Hz and has a maximum boost or cut of 16 dB. The bandwidth has a Q factor of 1.5.

The **EQUALIZER can be switched in or out of the channel** . All level controls are center detented making neutral positions easy to establish.

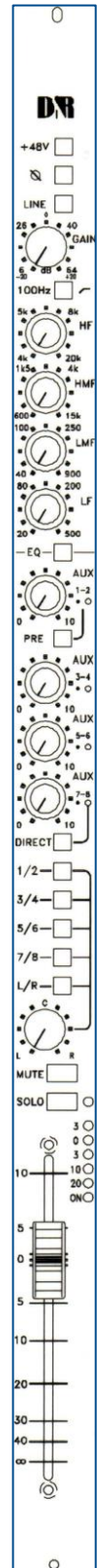
All frequency ranges have been carefully selected following extensive examination of all types of music (and noise) which makes this equalizer a pleasure to work with. Noise and distortion are kept to an absolute minimum.

4.3 Auxiliary send section

The Vision has eight auxiliary send busses. While in the tracking session, some aux sends are used for feeding the headphones and some are used for effects sends. During the mix session, all aux sends are used for effects sends.

Auxiliary sends 1&2 are on dual concentric controls. The top control is the send control for aux 1 and the bottom control is the send for aux 2. These Aux busses are normally used for stereo headphone sends in the tracking session. A PRE switch puts them pre fader for fold back purposes.

Aux 3&4 and **Aux 5&6** are also on dual concentric controls with the top control as Aux 3/5 and the bottom control as Aux 4/6. The internal jumper setting for both



concentric controls are post fader. A pre selection is easy accomplished.

Aux 7&8 are also on dual concentric pots and factory set post fader. A jumper can change this to pre fader if wanted.

The **DIRECT** switch reroutes the post-fader signal coming from the fader to the output of the Aux 8 control, creating a dedicated aux send for that channel only. Or it can be used as a multitrack send independent of the fader setting. An internal jumper sets the +4dBu or -10dBV level. The output is ground compensated.

4.4 Channel assign and fader section

The **Channel assign** section allows the user to assign to any of the 8 busses. The routing gives selection to the 8 group modules using four pushbuttons. With each pair of summing amps, you have the choice of assigning to the odd or even groups using the pan pot. The **L/R** switch (in the assign section) assigns the pan pot to the stereo mix buss while the pan control pans the signal between the main stereo mix L / R busses and / or the odd and even group summing busses if assigned.

The Vision's summing amp and internal structure means that it is extremely quiet and distortion free, therefore a direct button to bypass the amps is not necessary.

The **MUTE** switch is a momentary switch that controls a silent FET switch to mute the channel. The FET can also be controlled by the optional MIDI mute module.

The **SOLO** switch has two modes, pfl (pre fade listen) or a "non-destructive" stereo solo-in-place system. Master status switching (located in the master section) selects the "solo in-place" or "PFL" mode for the entire console. Activating the solo switch in the pfl mode will send the pre-fader signal to the CRM speakers. In the solo in-place mode, the post monitor pan pot signal is heard. A solo indicator LED is fitted next to the solo switch.

The Vision has a high quality ALPS 100mm faders. P&G faders are optionally available. You can use any VCA Mix Automation System which uses the faders and mute system in the Vision. The channels are prewired for accepting any VCA automation system.

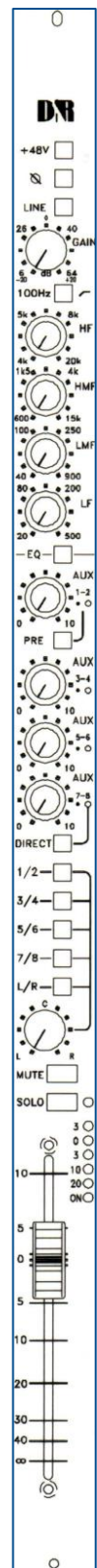
4.5 LEDBAR SECTION

The led bar is a peak reading 6 segment led bar following as a factory preset the post equalizer signal, thus indicating the incoming signal before the insert.

The led bar can be set Post channel indicating the direct output level post fader.

Note: This peak reading device indicates a -6 dB reading below actual level with a steady sinus tone.

So when the internal level is 0 dBu, the meter will indicate -6 dB (The -3 dB led is on, the -10dB led is off)



4.6 Input/output connectors

Every channel has the following connectors at the back of the housing.

The balanced **LINE** input is a stereo 1/4" jack socket:

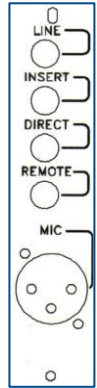
Tip = hot
Ring = cold
Sleeve = shield

The **INSERT** is on a stereo jack socket.

Tip = return
Ring = send
Sleeve = shield

The ground compensated **DIRECT** output is a stereo 1/4" jack socket:

Tip = hot
Ring = cold
Sleeve = shield



Note: The default setting on this output is -1 OdB V , a setting of $+4\text{ dBu}$ can be chosen on the channel (PCB) boards using jumpers.

The **REMOTE** connector is internally wired to a 4 pin connector that can be wired to a faderstart switch if ordered:

Tip = normally open
Ring = normally closed
Sleeve = centre contact

A balanced XLR connector is for the **MIC**rophone input.

Pin 1 = shield
Pin 2 = hot (in phase)
Pin 3 = cold (out of phase)

4.7 Jumper/connector information

J17=Remote connector

pin1=tip
pin2=ring
pin3=sleeve

J10=Tape return connector

pin1 =tip/break on line input
pin2=ring/ break on line input

J1= Mic input connector

pin1= ground
pin2=hot (in phase)
pin3=cold (out of phase)

J7=Aux3/4 pre/post select

pin1/2=post
pin3/4=pre

J8=Aux5/6 pre/post select

pin1/2=post
pin3/4=pre

J9=Aux7/8 pre/post select

pin1/2=post
pin3/4=pre

J9=Aux4 pre/post select

pin1/2=post
pin3/4=pre

J5=fader when automation is installed

1=ground
2=wiper
3 Top of fader

J6=Automation connector or fader connector when no automation is installed

- 1 =Ground
- 2= VCA out
- 3=VCA in
- 4=Reference voltage
- 5=+5 volt (dependent upon VCA type)

J14= Midi mute connector

- 1=Read
- 2=Write

J15=Pre Mute select

- 1 /2=Mute active on aux pre fader setting
- 3/4=Mute not active on aux Pre fader setting

J12=Led bar input select

- 1/2=Post channel fader
- 3/4=Post EQ (pre insert)

J13= Direct output level

- 1/2 +3/4=-10dBv
- none= +4dBu



5. Standard stereo input module

This stereo module is a flexible stereo module. This module can be used for stereo keyboards, drum machines, or any device needing two inputs on one fader. The paragraphs below describe the stereo input module in full.

5.1 Input section

Line B switches the **Line A** input to the line B input of the channel.

The line has its own balanced input amp and is controlled by the active (dual) gain control.

The input section consist of a stereo **GAIN** control.

The gain control is a dual pot used to adjust the gain of two line amps (balanced stereo input).

The adjustment range is from - 20dB to + 20 dB.

NOTE:

In the line B input an optionally available RIAA phono correction amplifier is available.

5.2 Equalizer section

The three band stereo equalizer was designed for the type of equalization needed for stereo returns.

The high frequency band is a shelving type at

12,000 Hz. The low frequency band is a shelving type at 60 Hz. The mid band has a bell curve at 1 kHz.

Each band has a boost or cut of 16dB.

5.3 Aux and send section

All aux sends are summed stereo signal sends.

The Vision standard stereo module has four auxiliary send busses. While in the tracking session, some aux sends are used for feeding the headphones and some are used for effects sends. During the mix session, all aux sends are used for effects sends.

Auxiliary sends 1 is switchable between pre and post fader. This Aux buss is normally used for stereo headphone send in the tracking session. A PRE switch puts them pre fader for fold back purposes.

Aux 2,3&4 are on single controls with a post fader factory setting. A pre-fader selection is easy accomplished.

5.4 Channel assign and fader section

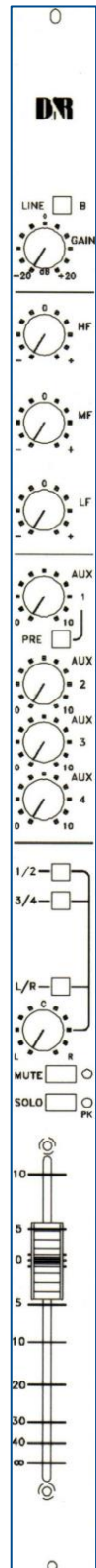
The **Channel assign** section allows the user to assign to a maximum of 4 busses. The routing gives selection to the 4 group modules using two pushbuttons. With each pair of summing amps, you have the choice of assigning to the odd or even groups using the pan pot.

The **L/R** switch (in the assign section) assigns the signal to the stereo mix buss while the balance control compensates for any unbalances in the input signal. The Vision's summing amp and internal structure means that it is extremely quiet and distortion free.

The **MUTE** switch is a momentary switch that controls a silent FET switch to mute the channel. The FET can also be controlled by the optional MIDI mute module.

The **SOLO** switch has two modes, stereo pfl (pre fade listen) or a non-destructive stereo solo-in-place system. Master status switching (located in the master section) selects the "solo in-place" or "PFL" mode for the entire console. Activating the solo switch in the pfl mode will send the pre-fader signal to the CRM speakers. In the solo in-place mode, the post monitor pan pot signal is heard. A solo indicator LED is fitted next to the solo switch.

The Vision has a high quality 100mm fader. Alps or P&G faders are optionally available. You can use any VCA Mix Automation System which uses the faders and mute system in the Vision. The channels are prewired for accepting any VCA automation system.



5.5 Input and output connectors

Every stereo channel has the following connectors at the back of the housing.

The balanced **LINE LEFT-A** input is a stereo 1/4" jack socket:

Tip = hot
Ring = cold
Sleeve = shield

The balanced **LINE RIGHT-A** input is a stereo 1/4" jack socket:

Tip = hot
Ring = cold
Sleeve = shield

The balanced **LINE LEFT-B** input is a stereo 1/4" jack socket:

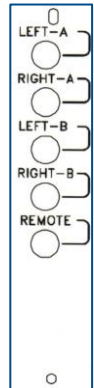
Tip = hot/RIAA
Ring = cold/Ground Sleeve = shield

The balanced **LINE RIGHT-B** input is a stereo 1/4" jack socket:

Tip = hot/RIAA
Ring = cold/Ground Sleeve = shield

The REMOTE connector is internally wired to a 4 pin connector that can be wired to a faderstart switch if ordered:

Tip = normally open
Ring = normally closed
Sleeve = centre contact



5.6 Jumper/connector information

J5=Power connector RIAA pcb

pin1=+Vs
pin2/3=Ground
Pin4=-Vs

J7=Aux2 pre/post select

pin1/2=post
pin3/4=pre

J8=Aux3 pre/post select

pin1/2=post
pin3/4=pre

J9=Aux4 pre/post select

pin1/2=post
pin3/4=pre

J14= Midi mute connector

1=Read
2=Write

J 17=Remote connector

pin1=tip
pin2=ring
pin3=sleeve

J 17=Remote connector

pin1=tip
pin2=ring
pin3=sleeve

J1 8=RIAA in/out connector

Pin1=line B right input
Pin2=line B right output
Pin3=Line B left input
Pin4=Line B left output

J23=fader LEFT when automation is installed 1=ground
2=wiper
3 Top of fader

J25=Automation connector Left or fader connector when no automation is installed
1=Ground
2= VCA out
3=VCA in 4=Reference voltage
5=+5 volt (dependent upon VCA type)

J26=Pre Mute select LEFT 1/2=Mute active on aux pre fader setting
3/4=Mute not active on aux Pre fader setting

J27=fader RIGHT when automation is installed 1=ground
2=wiper
3 Top of fader

J28=Automation connector Left or fader connector when no automation is installed
1=Ground
2= VCA out
3=VCA in
4=Reference voltage
5=+5 volt (dependent upon VCA type)

J29=Pre Mute select RIGHT 1/2=Mute active on aux pre fader setting
3/4=Mute not active on aux Pre fader setting

6.0 Stereo deluxe input module

This stereo module is a flexible stereo module. This module can be used for stereo keyboards, drum machines, or any device needing two inputs on one fader. The paragraphs below describe stereo input module in full.

6.1 Input section

The **MONO** switch lets you combine the two input signals into one output signal. It is also possible to feed one input signal to both outputs of the module.

The **PHASE** switch reverses the balanced line A input wires in case a phase reverse problem needs to be cured.

LINE B switches the Line A input to the line B input of the channel.

The line has its own balanced input amp and is controlled by the active (dual) gain control. The input section consist of a stereo **GAIN** control.

The gain control is a dual pot used to adjust the gain of two line amps (balanced stereo input). The adjustment range is from -20dB to +20 dB.

NOTE:

In the line B input an optionally available RIAA phono correction amplifier is available.

6.2 Equalizer section

The four band stereo equalizer was designed for the type of equalization needed for stereo returns.

The high frequency band is a shelving type at 12,000 Hz. The low frequency band is a shelving type at 60 Hz.

The HMF mid band has a bell curve at 5 kHz.

The LMF mid band has a bell curve with a centre frequency of 250 Hz. Each band has a boost or cut of 16dB. The Equalizer can be switched in and out of the signal paths.

The **HIGH PASS** filter is a rumble filter with a turnover frequency at 50 Hz. It has a gentle roll off of 9 dB per octave.

6.3 Aux send section

The Vision has eight auxiliary send busses. While in the tracking session, some aux sends are used for feeding the headphones and some are used for effects sends. During the mix session, all aux sends are used for effects sends.

Auxiliary sends 1&2 are on dual concentric controls. The top control is the send control for aux 1 and the bottom control is the send for aux 2. These Aux busses are normally used for stereo headphone sends in the tracking session. A PRE switch puts them pre fader for fold back purposes.

Aux 3&4 and **Aux 5&6** are also on dual concentric controls with the top control as Aux 3 /5 and the bottom control as Aux 4/6. The internal jumper setting for both concentric controls are post fader. A pre selection is easy accomplished.

Aux 7&8 are also on dual concentrics and factory set post fader. A jumper can change this to pre fader if wanted. All eight aux sends are summed stereo signal sends.

6.4 Channel assign section

The **Channel assign** section allows the user to assign to a maximum of 8 busses. The routing gives selection to the 8 group modules using two pushbuttons. With each pair of summing amps, you have the choice of assigning to the odd and even groups.

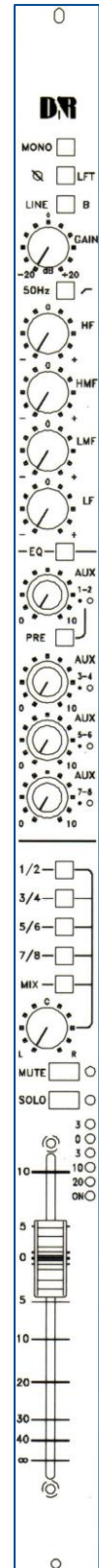
The **L/R** switch (in the assign section) assigns the signal to the stereo mix buss while the balance control compensates for any unbalances in the input signal.

The Vision's summing amp and internal structure means that it is extremely quiet and distortion free.

The MUTE switch is a momentary switch that controls a silent FET switch to mute the channel. The FET can also be controlled by the optional MIDI mute module.

The **SOLO** switch has two modes, stereo pfl (pre fade listen) or a "non-destructive" stereo solo-in-place system.

Master status switching (located in the master section) selects the "solo in-place" or "PFL" mode for the entire console. Activating the solo switch in the pfl mode will send the pre-fader signal to the CRM speakers. In the solo in-place mode, the post monitor pan pot signal is heard. A solo indicator LED is fitted next to the solo switch.



6.5 Led bar section

The led bar is a peak reading 6 segment led bar following as a factory preset the post equalizer signal, thus indicating the incoming signal .The led bar can be set Post channel indicating the direct output level post fader.

Note: This peak reading device indicates a -6 dB reading below actual level with a steady sinus tone. So when the internal level is 0 dBu, the meter will indicate -6 dB (The -3 dB led is on, the -10dB led is off)

6.6 Fader section

The Vision has a high quality 100mm fader. Alps or P&G faders are optionally available. You can use any VCA Mix Automation System which uses the faders and mute system in the Vision. The channels are prewired for accepting any VCA automation system.

6.7 In/output section

Every stereo channel has the following connectors at the back of the housing.

The balanced **LINE LEFT-A** input is a stereo 1/4" jack socket:

- Tip = hot
- Ring = cold
- Sleeve = shield

The balanced **LINE RIGHT-A** input is a stereo 1/4" jack socket:

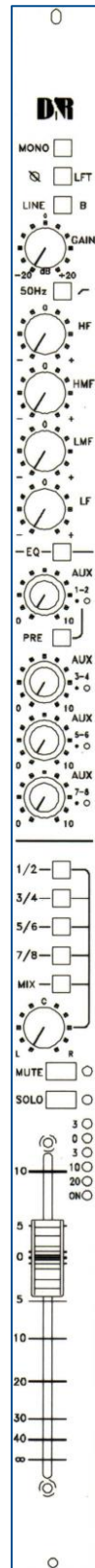
- Tip = hot
- Ring = cold
- Sleeve = shield

The balanced **LINE LEFT-B** input is a stereo 1/4" jack socket:

- Tip = hot/RIAA
- Ring = cold/Ground
- Sleeve = shield

The balanced **LINE RIGHT-B** input is a stereo 1/4" jack socket:

- Tip = hot/RIAA
- Ring = cold/Ground



5.0 Optional Patchbay - description

6.8 Jumper/connector information

J3/12= LEDBAR INP SELECT LEFT	1/2=Left POST CHAN FADER 3/4=POST EQ Left (pre-insert)
J5=Power connector RIAA pcb	pin1=+Vs pin2/3=Ground Pin4=-Vs
J7=Aux3/4 pre/post select	pin1/2=post pin3/4=pre
J8=Aux5/6 pre/post select	pin1/2=post pin3/4=pre
J9=Aux7/8 pre/post select	pin1/2=post pin3/4=pre
J14= Midi mute connector	1=Read 2=Write
J 17=Remote connector	pin1=tip pin2=ring pin3=sleeve
J1 8=RIAA in/out connector	Pin1=line B right input Pin2=line B right output Pin3=Line B left input Pin4=Line B left output
J23/27=fader when automation is installed	1=ground 2=wiper 3 Top of fader
J25/28=Automation connector or fader connector when no automation is installed	1=Ground 2= VCA out 3=VCA in 4=Reference voltage 5=+5 volt (dependent upon VCA type)
J26/29=Pre Mute select	1/2=Mute active on aux pre fader setting 3/4=Mute not active on aux Pre fader setting

7.0 DUAL GROUP MODULE

The Vision dual group output module is a basic output design whereby all signal flow takes place from the group summing amps to the group output as well as to the main left right outputs.

7.1 Return Section

The return switch selects whether the input signal for the LEVEL pot is from the group output or from the RETURN A input on the back of the console.

7.2 Equalizer section

This two-band fixed equalizer is very effective in its design. There are two bands, the high and low are fixed frequency with shelving characteristics with a boost or cut of 16 dB at 1 kHz and 60Hz.

The **EQUALIZER** is placed in the monitor path of the subgroup module.

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) which makes this equalizer a pleasure to work with. Noise and distortion are kept to an absolute minimum.

7.3 Sub switch

The SUB switch has several functions which will be explained below.

In the up position the monitor section will follow the signal at the group output and the pan-pot follows the monitor section.

With the SUB switch in the down position, the monitor section follows the RETURN input and the output of the level control is sent to the group mix buss of that same group. At the same time the pan-pot follows the group output A.

The first set up is mostly used for track laying, The recorded signal is sent to the multitrack from the group output jack. The group monitor pot and pan-pot follow the signal coming from the tape return A.

The second set up with the SUB switch down is most frequently used in live sound situations, whereby the grouped signal needs to be directly send via the pan-pot to the main mix buses. An effect return signal is coming into the group module via the return input and mixed with the "dry" grouped signal prior to the group fader. So balance between dry and wet signal is always guaranteed.

7.4 Auxiliary section

The Vision group module has two auxiliary send busses. While in the tracking session, some aux sends are used for feeding the headphones and some are used for effects sends.

Auxiliary sends 1&2 are on dual concentric controls. The top control is the send control for aux 1 and the bottom control is the send for aux 2. These Aux busses are normally used for stereo headphone sends in the tracking session. Each individual aux send can be set pre or post by internal jumpers.

Factory pre-set is Aux 1=post and Aux 2 =pre.

7.5 Level and pan-pot

The group Level pot is fed by the RETURN switch, either from the group output or the Return A input.

The Pan-pot either follows the level pot or the group output dependent upon the SUB switch setting.

The MUTE switch is a momentary switch that controls a silent FET switch to mute the monitor section. The FET can also be controlled by the optional MIDI mute module.

The **SOLO** switch always receives a pre LEVEL signal coming from the group output or the RETURN input (Tape replay)

This is independent upon the SIP master status settings in the master module.

A solo indicator LED is fitted next to the solo switch.

The Vision has a high quality 100mm fader. Alps or P&G faders are optionally available.

7.6 Led bar section

The led bar is a peak reading 13 segment led bar following as a factory preset the RETURN signal, thus indicating the incoming signal from the return input.

The led bar can be set to the group output permanently.

Note: This peak reading device indicates a -6 dB reading below actual level with a steady sinus tone. So when the outgoing +4dBu, the meter will indicate -6 dB

"The B section is identical to the A section".



7.7 In/output connectors.

Every group module has the following connectors at the back of the housing.

The **INSERT "A"** is on a stereo jack socket.

Tip = return
Ring = send
Sleeve = shield

The ground compensated **GROUP** output is a stereo 1/4" jack socket:

Tip = hot
Ring = cold
Sleeve = shield

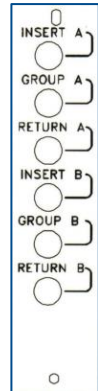
Note: The default setting on this output is -1 dB V , a setting of $+4\text{ dBu}$ can be chosen on the channel (PCB) boards using jumpers.

The balanced **RETURN** input is a stereo 1/4" jack socket:

Tip = hot
Ring = cold
Sleeve = shield

Note: The default setting on this output is -1 dB V , a setting of $+4\text{ dBu}$ can be chosen on the channel (PCB) boards using jumpers.

The "B" section has identical connectors.



7.8 Jumper/connector information

J4/14=Fader connector

pin1=ground
pin2=wiper
pin3=top

J7/17=ledbar select

pin1/2=group output
pin3/4=follows return

J9/19=return input level

pin1/2= $+4\text{ dBu}$
pin3/4= -1 dBv

J10/20=Aux1 pre/post select

pin1/2=pre
pin3/4=post

J11/21=Aux2 pre/post select

pin1 /2=pre
pin3/4=post

J25/26= Midi mute connector

1=Read
2=write

8.0 MATRIX MODULE

The Vision matrix output module is capable of making a sub mix from all or some group output signals and the left/right main output signal as well as an external input.

8.1 Matrix input control section

The 10 input level controls receive their signals from the 8 group outputs and the main left right outputs. By turning up the level controls individually you can make a mix between several output groups and or the main output signals.

The balanced External input is a fixed +4 dBu level input for accepting any pro audio output to be mixed into the matrix section.

The MUTE switch is a momentary switch that controls a silent FET switch to mute the matrix output.

The FET can also be controlled by the optional MIDI mute module.

The **SOLO** switch always receives a post fader signal before the Mute switch. A solo indicator LED is fitted next to the solo switch.

The "The B" section is identical to the "A" section.

8.2 In/output connectors.

Every group module has the following connectors at the back of the housing.

The **EXTERNAL "A/B"** input is on a stereo jack socket.

Tip = hot

Ring = cold

Sleeve = shield

The balanced **MATRIX** outputs are on three pin XLR's:

1 =ground hot

2 = hot (in phase)

3 = cold (out of phase)

Note: The default setting on this output is +4dBu Adjustment from infinity to + 6dBu is possible on the PCB.

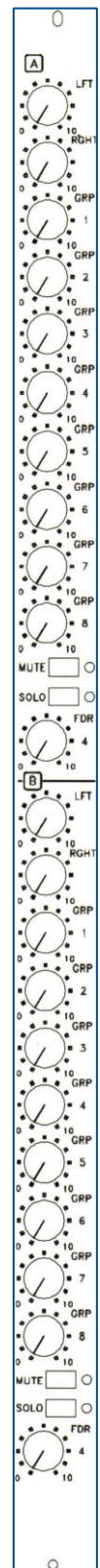
8.3 Jumper settings/connectors

J 3/5=XLR output connector

pin1=ground

pin2=hot

pin3=cold



9.0 Instructions for operation

The Vision is designed to be the perfect answer for multitrack and MIDI studios as well as live sound mixing. In order to get more familiar with the Vision, 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.

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

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

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

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

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

Sequence 1 - The Session

Record - This is the beginning of a session. All input channels are placed in the mike mode by leaving the line switch in the up position if the microphone input is to be used in this channel. Phantom powering is applied if necessary.

The EQ switch should be in the up position unless you require EQ on that channel signal.

The signal flows through the fader and is available post fader to be routed by way of the assignment switches which can feed the input to your multitrack recorder. The GROUP LED bar graph reads the outgoing signal.

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 gain control varies the gain of the separate electronics for the balanced line input. The "phase" switch affects the mike input only.

After plugging in a mike or line signal, depress the channel solo switch above the channel fader you are setting, set the solo status switch to pfl in the master section, then turn the gain control (of that channel) clockwise until a "0" output level is reached on the master meters. Now slide up the channel 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 Vision series, you are able to monitor your multitrack by way of the separate monitor section in the group output modules. The monitor section of group output module allows you to have a monitor signal with EQ.

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 sub mix facility is required. This can be done easily on the Vision by way of the internal subgroup amplifiers located on the group modules. Simply route to one of the 4/8 subgroups by activating a channel routing switch on as many input modules as required.

Decide on which track you wish to record these signals and activate the related number. The channel metering will show the channel level while the subgroup meter shows the subgroup level which can be changed overall by the group fader. In order to monitor these tracks, the RET (tape) switch should be in the up position for monitoring pre-tape (console out) and in the down position for monitoring post-tape (RET, tape switch down). If you wish to route several inputs to a track higher than 8, you would use the direct outputs on the individual channels, or would use Y cords and extra group returns to listen to the tape returns.

Insert Channel / Group

For high dynamic range types of inputs, a signal processor such as a compressor / limiter can be inserted in the channel or in the group insert if an entire group signal is to be processed.

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 Vision aux 1

and/or 2 are ideal for this purpose. The best way to build a mix

for the headphones is to have the monitor section of the group module feed aux busses 1 and or 2. When there is limited time to set up a headphone mix, give the talent the CRM mix (in the Phones section of the master modules) and build up an independent headphone mix on aux 1 & 2 when time allows.

Effect Sends

All unused aux sends can be used to send signals to signal processors such as digital reverbs, 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 Vision with stereo modules. Any unused monitor input can also be used for returning effects. Every group module can accept two returns with equalization and aux send capabilities.

Sequence 2 - The Playback Multitrack playback

The Vision gives you a convenient way of monitoring your multitrack recorder. Put all the RET(urn) =tape switches in their down position. Now the tape outputs are feeding the group monitor path and you can adjust the amount of signal you desire and pan it within the stereo image.

To be able to fully use the equalizer potential of the Vision it is necessary to connect the tape outputs to the line inputs of the input modules as well.

At the time of ordering it is however possible at the factory as an option to make internal connections between the tape returns in the group modules and the tape return connectors on the mono input modules.

The signal will enter the module in the line mode if no jacks are inserted into the line inputs.

Sequence 3 - The Overdub Multitrack synchronizing

Overdubbing is the process of building up a recording track by track while listening to previously recorded tracks.

The Vision has a group monitor for each track of the recorder making it easy to overdub. Connected to the monitor section of the group module, you push all tape switches (RET)down (located above the equalizer) and do all your sync switching from the tape machine or remote. The headphone mix is on the aux send 1 & 2 busses. Aux 1 & 2 should get their signal from the monitor section. It is best to activate aux 1 – 2 pre-fader switches at anytime you're using Aux 1 & 2 for a headphone mix.

Sequence 4 - The Remix Multitrack mixing

Remix is the process of combining all recorded tracks with (keyboards and drum machines for MIDI) signal processing and sending the mix to a two track master machine, DAT machine, or cassette recorder.

On the input module you must push the LINE switch down (if internal wiring is ordered), otherwise you have to connect the tape outputs to the line inputs of the mono channels. This routes the tape return to the channel input.

At this point you can use either a spare line input in the console for effect returns which will feed the stereo mix buss.

By unplugging the tape return from the group output, this input is available for effect return with a two band equalizer.

You must activate the EQ switch if you desire EQ on the channel or monitor. The incoming signals can be routed to the stereo mix buss via the "L/F" switch in the channel assign section. Sub groups can be made up (as required) in the same way as during recording. Aux sends 1 - 4 (8) can get their signal from the channel path with pre / post switching.

Sequence 5 - MIDI or Virtual Tracking Virtual Tracks: The MIDI Set-Up

In most MIDI studios there will be an eight-track rather than a sixteen or twenty four 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.

The Vision was designed with the 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 Vision, when fitted with both in-line modules and stereo return modules, can net over many inputs in the virtual track session or mix down.

10.0 Installation - Electrical Local Electrical Voltage

Before connecting the Vision, 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.

The main fuse is a 6.3 Amp with a 250 volt rating. After replacing a blown fuse with the correct size and rating, turn the power supplies 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. DO NOT REPLACE THE FUSE WITH ANY OTHER TYPE AS THIS CAN BECOME A SAFETY HAZARD AND WILL VOID THE WARRANTY.

Electrical Wiring

To take full advantage of the excellent signal to noise ratio of the Vision, 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. Sometimes the incoming electrical ground is inadequate and a dedicated ground would need to 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 grounding rules to follow. All signals in a recording studio are referenced to ground.

This ground must be clean and free of noise. A central point should be selected as the main grounding point and all grounds should originate from this point. This is commonly referred to as a "star ground system".

In some instances electrical contractors will daisy chain ground connections. This is unsuitable for a studio. Ideally, run a separate ground wire from each outlet and a separate ground wire for each piece of equipment. A separate wire from each equipment rack to the dedicated ground point is useful in cases where AC outlet grounds are not satisfactory. The dedicated ground point should be located at the rear of the console or equipment rack. Separate and identify "clean" and "dirty" AC outlets. Use clean outlets for audio equipment and the dirty ones for lighting, air conditioning, freezers etc. Do not intermix these two types of outlets. AC interference can be greatly reduced by using an

isolation transformer (Juice Goose) to power clean outlets. Ground this transformer directly to the dedicated ground point or as close as possible to the incoming ground.

All equipment should be physically located as far as possible from the main breaker panel. Unbalanced equipment may require isolation from the equipment rack so that ground loops are avoided.

10.1 Installation - audio

10.2 Interface CRM Levels

The Vision 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.*

10.3 The Initial Hook-Up

First connect the rack-mounted power supply 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.

Connect the CRM outputs (located on the master module back plate) to the inputs of your control room speaker power amps. Now turn on the console power supply and then turn the 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.

Before making any other connections move each monitor fader to the 0 dB position with the tape switch depressed on each monitor section. Connect the multitrack outputs to the tape return connectors, 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 send output 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.

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.

10.4 Shields & Group 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 ground the other end of the shield through a 0.01 microFarad capacitor. This will ground the RF but will not affect audio frequencies.

10.5 Typical Interface Situation Table

<u>Output</u>	<u>Input</u>	<u>Connect shield at:</u>
Unbalanced	Unbalanced	Output
Unbalanced	Balanced	Output
Unbalanced	Differential	Output
Balanced	Unbalanced	Input
Balanced	Balanced	Output
Balanced	Differential	Input
Differential	Unbalanced	Output
Differential	Balanced	Output
Differential	Differential	Output

Use the above table to interface your Vision to any external equipment such as multi-track machines, signal processing, and power amps. Balanced (in the above illustration) means transformer balanced while differential means electronically balanced. There are some cases which net better results in practice. Connect one circuit at a time and check for hum or noise. 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 interface table. The only exception to these rules is with patch cords. These grounds are tied together in the console. We realize that the correct interfacing of all 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 semi-professional. Because many semi-professional tape machines are built to professional specifications, D&R builds into the Vision console the ability to interface with both levels.

11.0 Frame section connector panel

Two track A, B,	Tip = left Ring = right Sleeve = shield
CRM 2/PHONES	Tip = left Ring = right Sleeve = shield
CRM 1 L/R	Tip = hot Ring = ground compensation Sleeve = shield
MONO/LEFT/RIGHT balanced output	1 = shield 2 = hot 3 = cold
Power supply	
Speakon connector	Pin -1 = - 17.5 volts Pin +1 = + 17.5 volts Pin -2 = Ground Pin +2 = +48volt



11.1

The 19" version of the Vision has an internal power supply and the mains connector and on/off switch will be on the chassis.

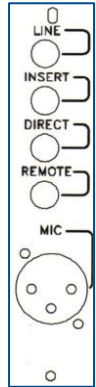
A separate 19" Rack 2HE high heavy duty power supply will be delivered with the desktop versions of the Vision. This power supply will deliver 2x 18 volts and 48volt Phantom powering. A second power supply can be added for redundancy.



12.0 Connecting the modules

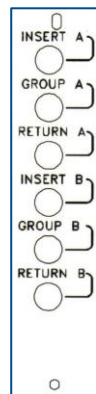
12.1 Mono standard/deluxe module

Description:	Connector:	Connection:
LINE input balanced	1/4" TRS	Tip = hot Ring = cold Sleeve = shield
INSERTS send & return	1/4" TRS	Tip = return Ring = send Sleeve = ground
DIRECT OUTPUTS (tape send)ground compensated	1/4" TRS	Tip = hot Ring = cold Sleeve = shield
REMOTE CONNECTOR (tape return) balanced	1/4" TRS	Tip =normally connected Ring =normally open Sleeve = centre contact
MIC input (balanced)	XLR	Pin 1 = shield Pin 2 = hot + Pin 3 = cold -



12.2 The stereo standard/deluxe module

Description:	Connector:	Connection:
LINE inputs	1/4" TRS balanced	Tip = hot Ring = cold Sleeve = shield
REMOTE CONNECTOR (tape return) balanced	1/4" TRS	Tip =normally connected Ring =normally open Sleeve = centre contact



12.3 Group module

Description:	Connector:	Connection:
INSERTS A/B	1/4" TRS send & return	Tip = return Ring = send Sleeve = ground
GROUP OUTPUTS A/B (tape send)ground compensated	1/4" TRS	Tip = hot Ring = cold Sleeve = shield
RETURN A/B (tape return) balanced	1/4" TRS	Tip =hot Ring =cold Sleeve = shield

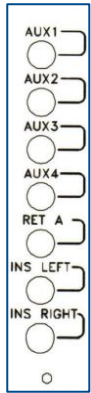


12.4 Matrix module

Description:	Connector:	Connection:
EXT. A/B	1/4" TRS	Tip =hot Ring =cold Sleeve = shield
MATRIX balanced output	XLR	Pin 1 = shield Pin 2 = hot + Pin 3 = cold -

12.5 Master modules

Description:	Connector:	Connection:
Aux outputs (ground compensated)	1/4" TRS	Tip = hot Ring = cold Sleeve = shield
Return A/B (tape return) balanced	1/4" TRS	Tip =left Ring =right Sleeve = shield
INSERTS L/R 1/4" TRS send & return		Tip=return Ring=send Sleeve = ground
12.5 Meter Bridge		



In case you have ordered a meter bridge, A separate meter section will be mounted on the Vision console. This can be only the master VU meters or also the Group meters.



13.0 Troubleshooting/servicing

It is essential to study the signal flow chart 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 (ground freight prepaid) the same day. Most problems can be found using logical thinking and simply replacing socketed integrated circuits.

13.1 Removing a module

The Vision 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 master section and to the XLR connector. 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. Remove the cover strips at the top and bottom of the console which are held in place by magnetic strips. It is often easier to also remove the channels positioned left and right of the module under test.

It is now possible to remove the two module retaining screws and carefully lift the module until the XLR wiring can be unplugged. Now remove all flat cables from the bottom of the module PCB. At this point extender cables (if ordered) can be connected or the module can be laid on top of the other modules. It is wise to put some form of protection on top of the mounted modules to prevent them from being scratched.

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, and remove the blank module on the right side of the master section. 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.

Conformity statement according to ISO/IEC Nr. 22 and EN 45014

Name Manufacturer :D&R Electronica b.v.
Address manufacturer :Rijnkade 15B,
:1382 GS Weesp,
:The Netherlands

declares that this product

Name product : VISION
Model number : n.a.
Product options installed : none

passed the following product specifications:

Safety :IEC 60065 (7th ed. 2001)

EMC :EN 55013 (2001+A1)
:EN 55020 (1998)

Supplementary Information:

The product passed the specifications of the following regulations;

Low voltage 72 / 23 / EEC
EMC-Directive 89 / 336 / EEC. as amended by Directive 93/68/EEC

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

15 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 SOUND

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 VERY CAREFULLY

Especially in sound equipment on stage 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 visa 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 electric 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 be 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.

PRODUCT SAFETY

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.

D&R ELECTRONICA B.V. WEESP

HEAD OFFICE

D&R Electronica b.v. Rijnkade 15B

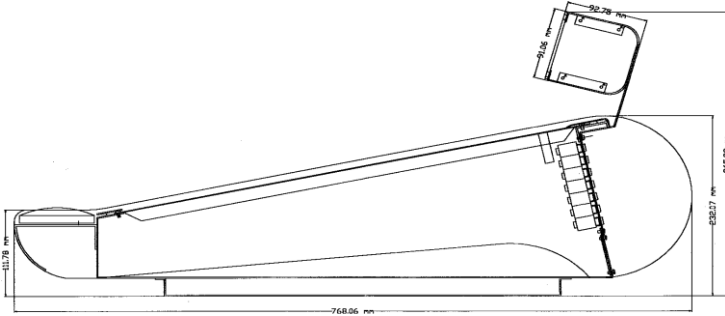
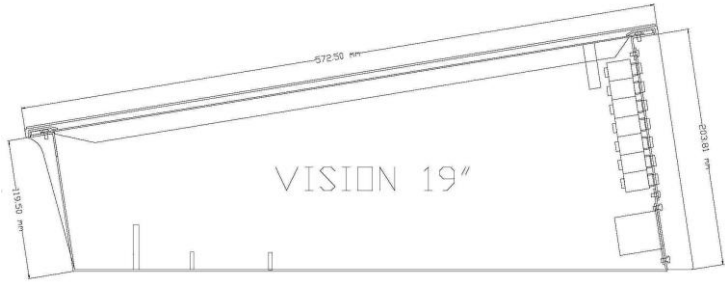

1382 GS WEESP

THE NETHERLANDS

Phone: +31 (294) 418 014* Fax: +31 (294) 416 987

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

16. Specifications

<p>INPUTS:</p>	<p>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: <-129.0 dBu,(A-weighted) 1500hm</p>	<p>Line inputs: bal. 10kOhm, -20dB to +20dB. Return inputs: +4 dBu bal./-10dBu unbalanced. Grp./chan. inserts: 10kOhm/470hm unbalanced. 0dBu. Stereo machines:+4dBu, -10dBv, unbalanced.</p>
<p>OUTPUTS:</p>	<p>Left/Right/Mono outputs, +4dBu bal /-10dBu bal. (A-weighted). Aux outputs, +4dBu balanced (ground compensated). All other outputs: +4dBu / -10dBu bal/gnd comp.</p>	<p>Noise master fader down: -102dB Noise 16 channels routed: -89dB (A-weighted). Noise 24 channels routed: -87dB (A-weighted).</p>
<p>EQUALISATION:</p>	<p>High pass filter, -3dB at 50Hz / 100Hz. H.F. +/- 16dB from 4kHz to 20kHz, shelving. L.F. +/- 16dB from 20Hz to 500Hz, shelving.</p>	<p>Bell curve mids: H.M.F. +/-16dB from 600Hz to 15kHz belt, Q1.5. L.M.F. +/-15dB from 40Hz to 900 Hz bell,Q1.5</p>
<p>OVERALL:</p>	<p>Nominal internal operating level 0dBu (0.775 V). Freq. response, any input to any output 20Hz - 20kHz, -0.5dB.10Hz - 100kHz, -3dB. Total harmonic distortion: Mic. in-dir. out: 1 kHz: 0.015%, 10kHz: 0.025%.</p>	<p>Maximum output: +26dBu into 600 Ohm bal, +22dBu unbalanced/ground compensated. Maximum headroom: not less than +22dB anywhere in the console.</p>
<p>CROSTALK:</p>	<p>Mic to line: > 100 dB at 1 kHz. Channel mute: > 90 dB at 1kHz. Pan-pot isolation: > 75dB at 1kHz.</p>	<p>Channel routing: > 90dB at 1kHz. Channel fader kilt: > 95dB at 1 kHz. Aux send kill: > 90dB at 1 kHz.</p>
<p>DIMENSIONS:</p>	<p>Vision 19": 483x573x212mm / 19"x22.6"x8.3". Weight: 25kg</p>	<p>Vision 38: 1320x768x232 mm, 80kg Vision 46: 1568x768x232 mm, 90kg</p>
<p>OPTIONS:</p>	<p>Conductive plastic faders. R.I.A.A. pre-amp module for stereo inputs. Line inputs via XLR break out panels.</p>	<p>Two/Three frequency oscillator. VU meter bridge. 19" Redundant power supply.</p>
<p>SIDEVIEW OF DESKTOP VERSION:</p>	 <p>Technical drawing showing the side view of the Vision 19" desktop version. Dimensions include: 11.78 mm (height of the top section), 768.56 mm (width of the top section), 92.78 mm (width of the top section), 94.05 mm (width of the top section), 83.87 mm (height of the top section), and 768.56 mm (width of the top section).</p>	<p>VISION FRAME CONFIGURATIONS</p> <p>19" Rack accepts: 14 modules (12- 2, 8-8-2) Weight: 25kg</p> <p>Frame 38 accepts 38 modules, 32-8-2, 34-4-2, 36-2, Weight: 80kg</p> <p>Frame 46 accepts 46 modules, 40-8-2, 42-4-2, 44-2 Weight: 90kg</p> <p>(All desktop frames include 2 blanks, no masters)</p>
<p>SIDE VIEW OF 19" RACK VERSION:</p>	 <p>Technical drawing showing the side view of the Vision 19" rack version. Dimensions include: 11.78 mm (height of the top section), 572.50 mm (width of the top section), 119.41 mm (height of the top section), and 18.532" (height of the top section). The text "VISION 19" is visible in the center of the drawing.</p>	 <p>DNR Smart in Solutions</p>

Dear Vision owner,

In this manual we have tried to give you an overview of all that the Vision has to offer.

If you have any questions, do not hesitate to contact us or the D&R USA customer support department.

With the Vision series there is no limit to your creativity. We wish you many years of enjoyable mixing.

Best regards,

Duco de Rijk
md D&R, HOLLAND

This manual was written by Duco de Rijk (D&R Holland) and Paul Westbrook. We hope you will find it to be useful and easy to understand. As always, we are open to any suggestions about this manual or any D&R product.



INSTALLATION SERVICE MANUAL

17.1 Installation - Electrical

17.2 Local Electrical Voltage

Before connecting the Vision, 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.

Allow for a 30 second wait between switching the Vision power supply(s) on or off.
The main fuse is a 3.15 amp fuse with a 250 volt rating (6 amp fuse for a 115 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.

17.3 Electrical Wiring

To take full advantage of the excellent signal to noise ratio of the Vision, 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, cola 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 "HUMFREES"

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".

18. Installation Manual Vision AUDIO

2.0 Installation - audio

2.1 Interface Power Amps

The VISION 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.*

2.2 The Initial Hook-Up

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 back of the chassis section backplate) to the inputs of your control room speaker power amps.
- b. Now turn on the console power supplies and then turn your main power amp on and check for any hum, buzz, or interference.
- c. 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.
- d. Put all inputs in their line position and before making any other connections, move each fader to the 0 dB position with the master fader on maximum.
- e. 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.
- f. 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.

2.3 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 microFarad 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 semi-professional. Because many semi-professional tape machines are built to professional specifications, D&R builds into the Vision console the ability to interface with both levels.

Note: When checking your new Vision 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. Since you are use to other consoles when first encountering a D&R, the lack of noise from your Vision makes you more aware of noise from other equipment as you hook it up. D&R recommends using the highest quality external equipment with the Vision. 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.

19. TROUBLE SHOOTING AND SERVICING

3.1 Troubleshooting

It is essential to study the signal flow chart in Service manual carefully, only then can you hope to isolate problems. By tracing the signal from input to output, 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.

3.2 Removing a Module

The Vision 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 master section and backplates. 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 XLR wiring and remove the metal cover above and below the module front which conceals the screws retaining the module. It is now possible to remove the two module retaining screws and carefully lift the module until the flatcable wiring can be unplugged.

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.

Maintenance inside the Vision

The following sections describe how to open up the console for maintenance purposes.

Warning: Only let qualified personnel work inside the console.

Removing the modules from the chassis.

First disconnect the console from the mains power supply.

Then remove the top and front metal strips that are held by magnetism to the frame.

Now you see the bolts that hold the individual modules.

Unscrew the module you suspect from malfunctioning and lift it carefully from the chassis.

Now you see a flatcable and a wire going to the input panel.

Remove the flatcable from its header by pushing the side pins away from the connector.

Now the flatcable comes loose from its header.

Also unplug the 3 pole plug that is going to the XLR connector.

Now you can remove the module from its chassis for servicing.

Mono de luxe module



Stereo de luxe module





Master module



Master de luxe module

If you need to work on it with the module connected, use an extender cable that can be ordered at the manufacturer.

Working on a malfunctioning module

As you can see all Integrated Circuits (IC) are in sockets, so replacing is very easy.

Close to the flatcable connector you will see a number of 2E2 and 4E7 resistors that function as fuse resistors. Most of the time when something is wrong inside a module these resistors are burnt and electrically isolate the module from the power supply and other modules.

This is a precaution so not the whole mixing console will fail.

Follow the next procedure with fault finding for a Vision mono de luxe as an example.

Locate the following (burnt) resistors on the board

R78=4E7 and provides the -Vs audio power

R79=4E7 and provides the +Vs audio power

R80=2E2 and provides the -Vs1 logic power

R81=2E2 and provides the +Vs1 logic power

1. Replace these resistors temporarily by 100kOhm resistors and leave the pins long.
2. Remove all ic's from their sockets.
3. Connect a voltage meter on the side of the resistor that does not go to the connector.
4. Now plug the flatcable back on the module.
5. Turn the power on and see if the power comes up on the connected voltage meter between ground and the resistor pin.
6. If that is the case on all four 100kOhm resistors then an Ic was broken.
7. You can now plug back the ic's one by one, monitoring the power supply voltage after the 100k resistor. It should slowly drop by every ic plugged in.
8. If it drops suddenly to zero you have found a faulty IC, take a new one.
9. If the power drops to zero with no ic's plugged in, the decoupling capacitors with a value of 0.1uf/32volt (2 of them around every IC) can cause a short.
10. If no shorts are present in the module you can replace the 100kOhm resistors again by the original values of 2E2 and 4E7

This is just an example of how to work on a module.

If power is present in the module then you need a sinus generator and a oscilloscop to follow the signal and see where it disappears or is distorted. It depends on the amount of technical knowledge you have if you can find the cause of the problem.

If not you can always contact the factory for help.

Working on a power supply

For maintenance purposes like the replacement of a fuse, never replace a fuse by a higher value than the one you took out.

If the fuse keeps on blowing even with the power supply disconnected from the mixing console, then you have a serious problem inside the power supply.

What helps is if you have an AC regulator that controls the AC voltage from zero to 230 volts.

Now you can slowly increase the AC voltage to the power supply and see if the power on the secondary side of the toroidal transformer comes up. If this is not the case disconnect the transformer from its rectifiers and see if the transformer is still OK.

Then reconnect the rectifier(s) again and disconnect the big electrolytics that are connected to the positive side of the rectifiers. Now measure again after the rectifiers. If the voltage is back then that section is OK.

Now move further to the big electrolytics and the circuitry behind these 2 big capacitors.

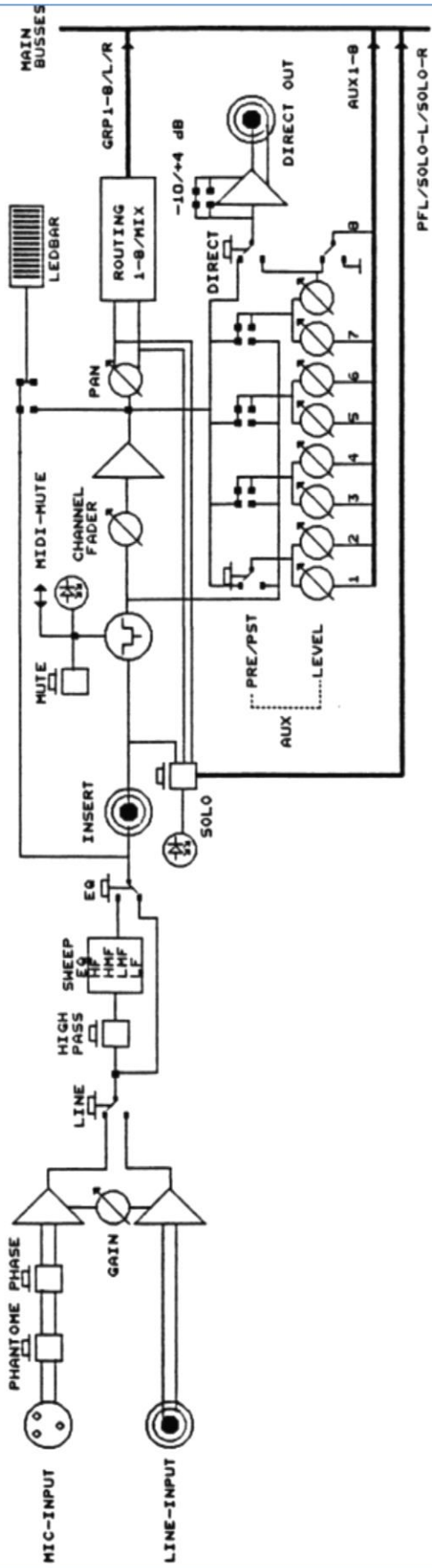
Check the Ic's and/or series transistors if they do not have shorts.



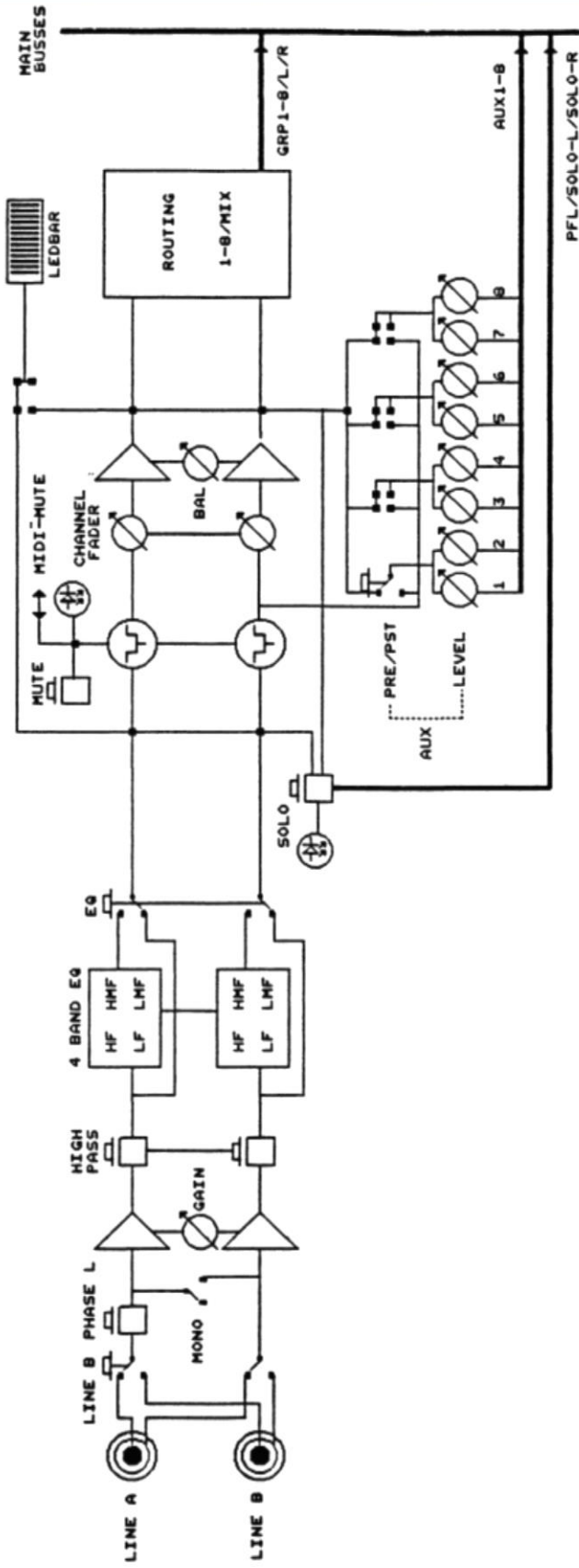
D&R Electronica weesp BV, Rijnkade 15B, 1382GS Weesp, The Netherlands,

Phone: 0031 294 418014, Fax: 0031 294 416987, mail: info@d-r.nl, Web: www.d-r.nl

VISION MONO-DELUXE MODULE

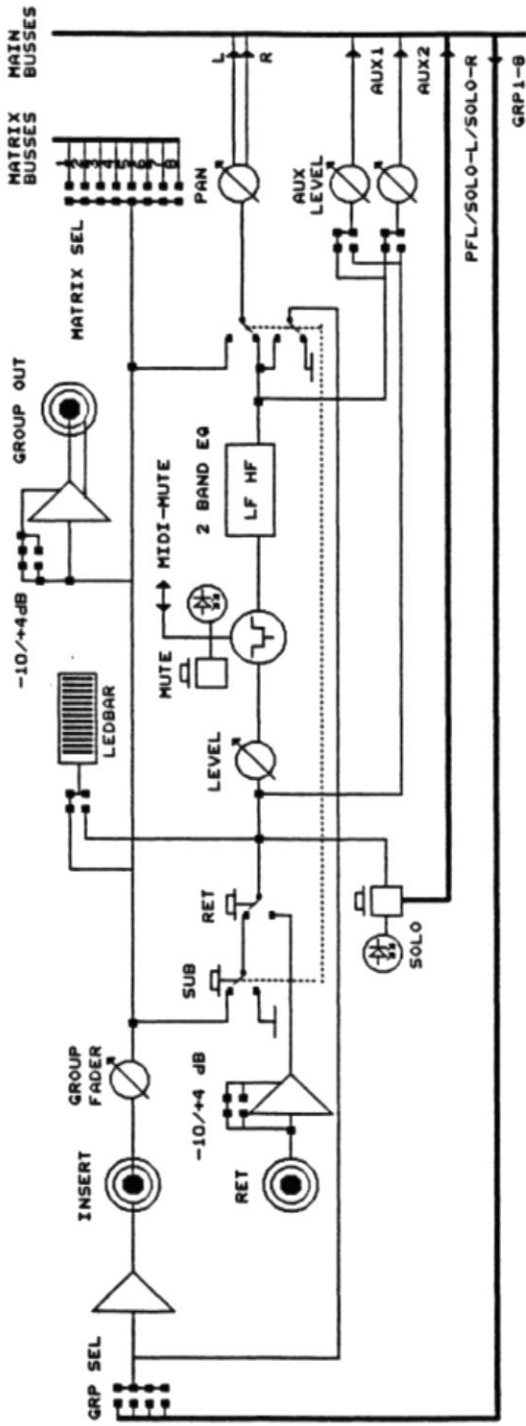


VISION STEREO-DELUXE MODULE



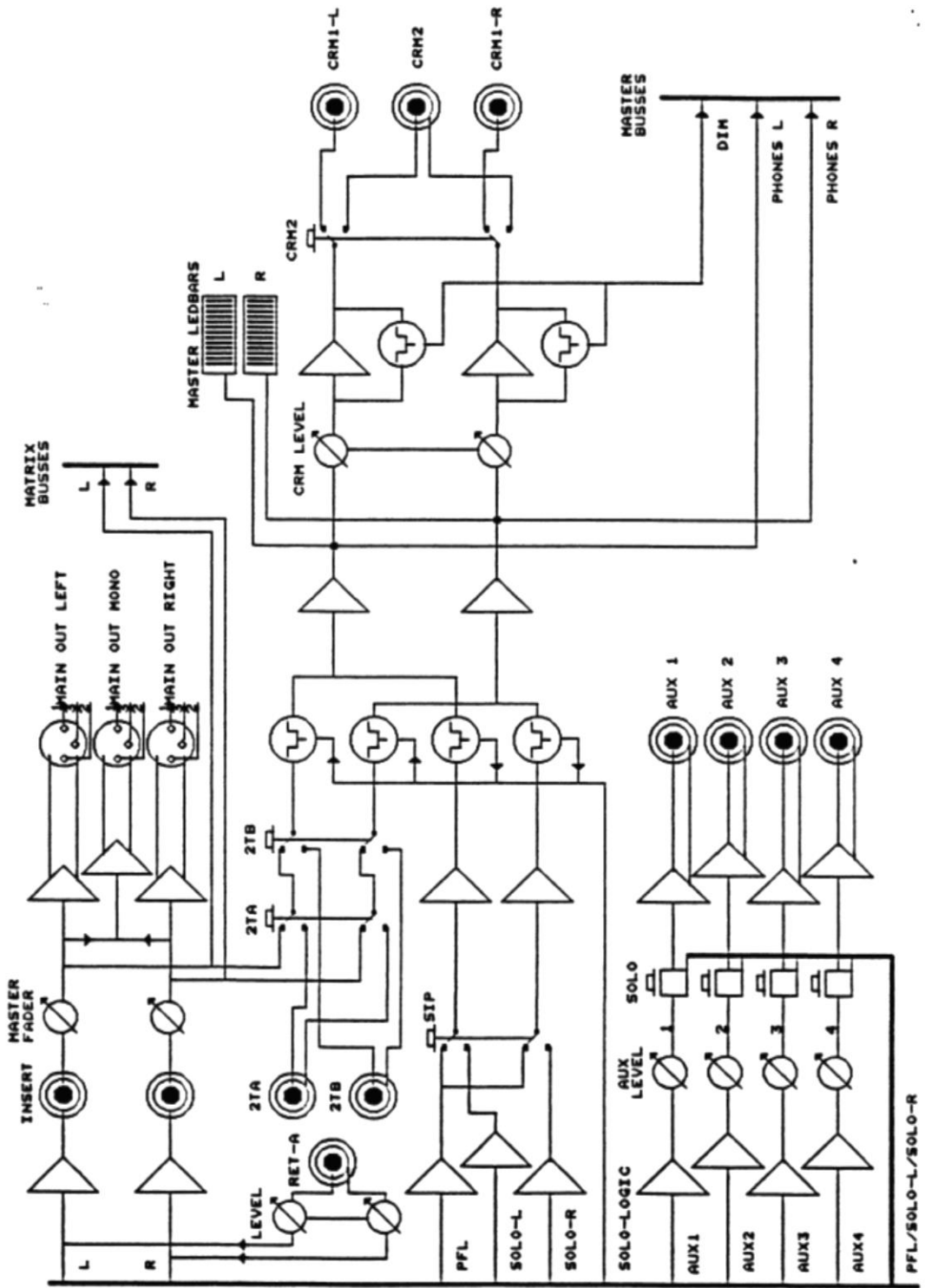
VISION DUAL GROUP MODULE

< DRAWING SHOWS 1 PART >



VISION 7 SIGNAL FLOW	REV
Size Document Number	A

VISION MASTER MODULE





SERVICE MANUAL

(on request)