QMR

Operators Manual

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QMR Operators Manual
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In line with the company's policy of continual improvement, specifications and function maybe subject to change without notice. This Operator Manual was correct at the time of writing. E&OE.

Contents

Declaration of Conformity

The Manufacturer of the Products covered by this Declaration is

Klark Teknik Building, Walter Nash Road, Kidderminster, Worcestershire, DY11 7HJ.

The Directives Covered by this Declaration.

89/336/EEC Electromagnetic Compatibility Directive, amended by 92/31/EEC & 93/68/EEC

73/23/EEC Low Voltage Equipment Directive, amended by 93/68/EEC.

The Products Covered by this Declaration.

Equipment type	Product Name	Variants
Audio Mixing Console	Q2	Q2 VCA
Audio Mixing Console	Q2 Monitor	Meterbridge
Audio Mixing Console	QMR	Meterbridge
Audio Mixing Console	FMR	
Audio Mixing Console	Forum	PA,Matrix,Mute
Audio Mixing Console	Forum Monitor	Meterbridge
Audio Mixing Console	XL200	
Audio Mixing Console	XL250	

The Basis on which Conformity is being Declared

The products identified above comply with the protection requirements of the EMC Directive and with the principal elements of the safety objectives of the Low Voltage Directive, and the manufacturer has applied the following standards:

EN 55013 : 1990

Limits and methods of measurement of radio disturbance characteristics of Broadcast Receivers and Associated Equipment.

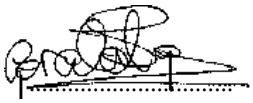
EN 50082-1 : 1992

Electromagnetic Compatibility - Generic Immunity Standard Part 1. Residential, commercial and light industry.

EN 60065 : 1994

Safety requirements for mains operated electronic related apparatus for household and similar general use.

The technical documentation required to demonstrate that the products meet the requirements of the Low Voltage Directive has been compiled by the signatory below and is available for inspection by the relevant enforcement authorities. The CE mark was first applied in 1996.

Signed:  G.M.Squires

Authority: Product Support Manager.

Date: 1st, January 1997.

Attention

The attention of the specifier, purchaser, installer, or user is drawn to special measures and limitations to use which must be observed when these products are taken into service to maintain compliance with the above directive. Details of these special measures and limitations to use are available on request, and are also contained in product manuals.

GENERAL INFORMATION

Your QMR console has been designed to meet exacting performance specifications, offering very flexible facilities but retaining easy operation.

In addition, the QMR can grow as you do,through a number of expansion possibilities:

To the standard frame, you can retrofit:

1. A meterbridge

2. A patchbay

3. An Expansion Chassis containing a further 8 inputs

4. Midi Mute Automation, or VCA Fader Automation

The patchbay addition requires no electronic modification, nor does it entail any studio re-wiring, as it simply bolts onto the chassis, and connects to the modules via ribbon cables. By pressing a switch on each module, all input and output connections are routed via the patchbay, with tie-lines being provided on EDAC multiway connectors.

The QMR is a 12 Bus console, with 6 Auxiliary buses, and 24 Track monitoring. A very flexible Auxiliary system allows a single controlled effects send from a channel, and an effects return to be routed to the stereo mix bus on the same module, with or without 2 band EQ in circuit.

Both Mic and Line inputs may be utilised simultaneously, using the FX RETURN function to route one signal to the mix, as mentioned above.

Both the equaliser and auxiliary sections may be split to provide this second input with EQ and Aux feeds. Further details on these possibilities may be found in the section on operating practices.

WARRANTY

1. If within the period of twelve months from the date of delivery of the equipment to the End User it shall prove defective by reason only of faulty materials and/or workmanship (but no faulty design) to such an extent that the effectiveness and/or the usability thereof is materially affected, the Equipment or the faulty component shall be returned to the Distributor or DDA and subject to the following conditions the Distributor or DDA will repair or at its option replace the defective components. Any components replaced will become the property of DDA.

2. Any Equipment or component returned will be at the risk of the End User whilst in transit (both to and from the Distributor or DDA) and postage and/or freight charges must be prepaid.

3. This Warranty shall only be available if:-

i) The Equipment has been properly installed in accordance with the instructions contained in this manual; and

ii) The End User has notified the Distributor or DDA in writing within 14 days of the defect appearing; and

iii) No persons other than authorised representatives of DDA or the Distributor have effected any replacement of parts, maintenance adjustments or repairs to the Equipment; and

iv) The End User has used the Equipment for such purposes as DDA recommends with only such operating supplies as meet DDA's specifications or approval and otherwise in all respects in accordance with DDA's recommendations.

4. Defects arising as a result of the following are not covered by this Warranty: faulty or negligent handling, chemical or electro-chemical or electrical influences, accidental damage, Acts of God, neglect, deficiency in electrical power, air conditioning or humidity control.

5. Benefit of this Warranty may not be assigned by the End User.

6. End Users who are consumers should note that their rights under this Warranty are in addition to and do not affect any other rights to which they may be entitled against the seller of the Equipment.

7. DDA shall not be liable for any damage caused to persons or property due to :-

i) Incorrect usage of the Equipment

ii) Other equipment attached to the Equipment, which is not approved by DDA

iii) Modifications made by non-authorised persons, or by using non-recommended parts, or incorrectly made.

SPECIFICATIONS

The following specifications are common to all QMR consoles, and are minimum specifications normally exceeded by all units.

DDA reserves the right to alter the design of the unit or change the specification without notice in the interest of product development.

Frequency Response	Mic to Mix (gain=55dB)	20Hz -0.5dB 20kHz-0.1dB
	Line to Mix (gain=0dB)	20Hz -0.5dB 20kHz-0.1dB
Noise (DIN Audio)	Microphone (gain=76dB, EIN ref 150 ohm)	<-127dBu
	Line (gain=0dB, 24 inputs)	<-82dBu
Distortion	Microphone (-50dBu input, +4dBu output)	<0.005%
	Line (+4dBu input, +4dBu output)	<0.005%
Crosstalk	Adjacent channel	1kHz <-102dB
	Group to Mix	10kHz <-100dB
Input Impedance	Microphone	>2kOhm
	Line	>10kOhm
Output Impedance	All outputs	<75 Ohm
Maximum Output Capability	All outputs (to balanced input)	+26dBu
	Insert Send (unbalanced)	+21dBu
Gain	Microphone (Channel Input to Mix Output)	6 to 76dB
	Line (Channel input to Mix output)	-10 to +20dB

Options

Floor Stand
Patchbay
LED Bargraph Meterbridge
DDA microFILE VCA automation system
Midi Muting System

INSTALLATION

This section deals with the input and output connections, and the power supply details. Careful attention must be paid to the earthing arrangements in your studio, otherwise ground loops may be formed which will seriously affect the performance of all your equipment.

POWER SUPPLY CONNECTIONS AND SETTINGS

The QMR Power Supply is a fan-cooled Rack-mountable unit, which occupies 3U (5.25") of rack space. Adequate ventilation should be provided and the airflow around the unit must not be restricted in any way. Ideally, at least 1U (1.75") of space both above and below the Power Supply should be kept clear.

The PSU will operate with AC Mains input voltages of 100, 120, 220 and 240 volts. The DC outputs to the console are +18 Volts, -18 Volts, and +48 Volts. LEDs mounted on the front panel indicate when these outputs are present. Each DC line is fuse protected, and the fuse is located next to its indicator LED on the front panel.

The operating voltage is selected by the rear-panel mounted fuse-holder. To set the voltage for different local conditions from that already set, first remove the IEC Mains cable and then remove the fuse-holder carefully with a flat-bladed screwdriver. Align the required voltage with the arrow mark on the body of the connector, and replace the fuse-holder. Ensure that the correct rating of fuse for the local supply voltage is fitted. This value is labelled on the PSU by the fuse holder.

The PSU connects to the mains by a standard IEC lead, supplied with your console. DO NOT disconnect the mains earth. The PSU connects to the console via a single multiway cable, which is non-reversible.

To take full advantage of the excellent audio performance of DDA mixing consoles, it is essential that the installation is carried out with care and attention. All audio signals are referenced to the system earth, which must be clean and noise-free, and essentially equipotential. In addition, the earth system integrity is absolutely necessary for safety. Do not disconnect the mains earth wire from each piece of equipment as this could create a hazardous situation. If in doubt consult a competent engineer and your local electricity supply company to ensure that safety regulations are not infringed or negated.

AUDIO WIRING

1. Decide on a central point for the main earth system and star feed to all mains outlets and equipment racks from this point. Common electrical wiring practice is to daisy-chain earth wires from outlet to outlet, but this is not recommended for audio installations. The location of the earth system star point should be in a convenient, easily accessible position, such as the main equipment rack. The star point must then be connected to the incoming mains earth or in extreme cases to a totally separate technical earth (if local regulations permit).

2. Install separate clean and dirty mains outlets, wired individually to the mains distribution box. Use the clean supply for all audio equipment, and the dirty supply for all lighting, vending machines etc. Do not mix the two systems.

3. It may be necessary to install an isolating transformer for the clean supply to ensure adequate isolation from mains-borne interference. The isolating transformer must be of adequate current capability and should incorporate a Faraday Shield, connected to the incoming mains earth.

4. All audio connecting cables should be good quality twin screened cable. Do not use single screened cable.

5. It is very important that the screen is not used as the signal return. Therefore connect the screen at one end only. Connecting the screen at both ends will cause an earth loop into which external hum fields will be induced.

6. In areas where high levels of radio frequency interference are present the open end of the screen can be connected to earth through a 0.01 microfarad capacitor. This will appear as a short circuit at high frequencies, and lower the effective shield impedance to earth. However at audio frequencies the reactance of the capacitor will be sufficiently high to not cause an earth loop.

7. In general, the screen should be connected at the signal source, and not at the signal destination. The exception to this rule of thumb is when connecting to an unbalanced input or to an electronically balanced input. In these cases the wires being screened are referenced to the destination earth.

8. Electronically balanced outputs which are to be operated in the unbalanced mode should be unbalanced at the output connector, not at the signal destination so that the signal current returns to earth via the shortest, least reactive route.

9. Rack mounted equipment which has unbalanced inputs and outputs may need to be electrically isolated from the equipment rack and/or other equipment to avoid earth loops.

DO NOT DISCONNECT THE MAINS EARTH.

Connect all equipment in a logical sequence, starting with the monitor systems, followed by the multitrack and then the stereo machines and the peripheral devices and isolate any earth loop problems as they occur. It is very difficult to rectify a problematical installation after everything has been connected due to interaction between the various earth loops.

ATTENTION

CABLES

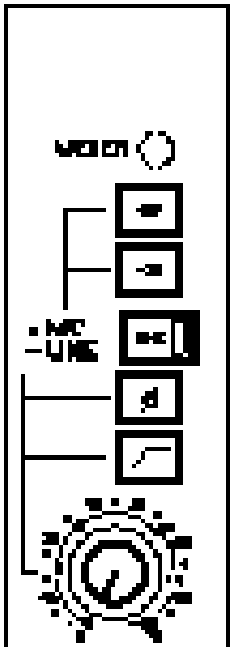
This product should only be used with high quality, screened twisted pair audio cables, terminated with metal bodied 3-pin XLR connectors. The cable shield should be connected to Pin 1. Any other cable type or configuration for the audio signals may result in degraded performance due to electromagnetic interference.

ELECTRIC FIELDS

Should this product be used in an electromagnetic field that is amplitude modulated by an audio frequency signal (20Hz - 20Khz), the signal to noise ratio may be degraded. Degradation of up to 60dB at a frequency corresponding to the modulation signal may be experienced under extreme conditions (3V/m, 90% modulation).

No permanent damage or degradation of performance will be caused by these conditions.

THE INPUT MODULE



The Alternate Input Switch stage makes maximum use of the available signals so that while one is **ac**tive on the main signal path, the other can be routed to the effects return path to the stereo mix, doubling the console's capacity in mixdown. The second path is referred to below as the alternate input signal. This input switching is totally automatic, and easy to monitor. The return path is enabled when Aux 1/2 are selected as FX return. Further options for the use of the FX Return include adding EQ, and an aux send.

DDA's Aux Direct facility is of course provided on the QMR, giving each channel the capability of having a dedicated controlled effects send of its own.

+48V
This switches 48 Volts phantom power to the microphone input. DO NOT use this function while Dynamic Mics are connected to the input.

-20dB
Switches in a 20dB attenuator, for use with high-level microphones, or to enable the mic input for use with a line level source.

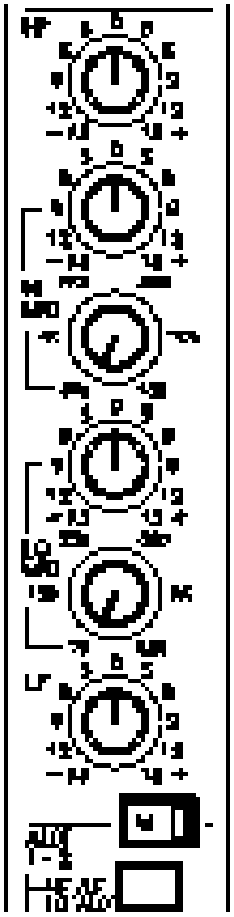
LINE
When pressed, routes the LINE input signal to the main signal path in the module. The non-selected input is available for the FX RETURN function.

∅
Phase reverse operates on the selected input, to correct for microphone placement problems or incorrect wiring.

High Pass Filter
Inserts a high pass filter, of slope 12dB per octave at a turning point of 100Hz, into circuit.

GAIN
Adjusts the gain of the selected input signal, Mic or Line. The gain range of the Mic input is 2dB to 76dB, while the Line input is adjustable between 10dB attenuation and 20dB gain.

EQUALISER



HF
Shelving equaliser section, with a break-frequency of 12kHz. The gain is adjustable from +/-15dB.

HI MID
Sweepable peaking equaliser section, with gain adjustable from +/-15dB, and centre frequencies adjustable from 470Hz to 15kHz.

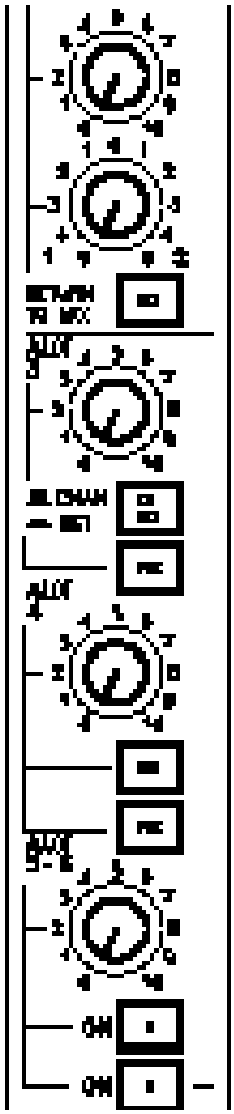
LO MID
Sweepable peaking equaliser section, with gain adjustable from +/-15dB, and centre
frequencies adjustable from 70Hz to 2.2kHz.

LF
Shelving equaliser section, with a break-frequency of 50Hz. The gain is adjustable from +/-15dB.

EQ IN
Switches the equaliser into circuit, with led indication.

HF/LF TO AUX (SPLIT EQ)
The mid-band section is always located in the main channel signal path. The HF/LF section may be placed in the path containing the auxiliary 1/2 controls using this switch, whether they are being used as aux sends or for an effects return, so that a headphone send may be EQ'd, for example, or an effects return.

AUXILIARIES



AUX 1/2
This pair of controls (level and pan) are used to feed the signal to the Aux 1 and 2 buses. If these buses are used as a headphone feed, you may add 2 bands of EQ using the SPLIT EQ function above.

RET
This enables the Aux 1/2 controls for use as the second, or Alternate input. When pressed, the non-selected input is routed via these controls to the stereo mix bus, allowing an effects return, or additional tape input. As above, 2 bands of EQ may be added using the SPLIT EQ function.

AUX 3
This adjusts the level of channel signal sent to Aux bus 3. When FX RET is pressed, the signal is fed from the signal present on the alternate input.

FX RET
When pressed, this feeds the Aux 3 bus from the alternate input, allowing this input to have an aux send.

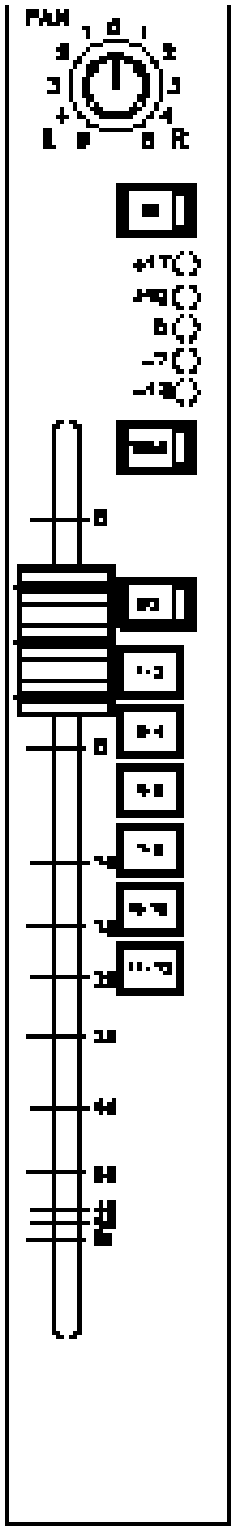
PRE
This selects the Aux 3 send to be pre-fader, rather than post-fader.

AUX 4
Apart from feeding the Aux 4 bus, this control can be optionally used to control the channel's direct output (via DIR), to use the single channel as an effects send, so keeping the Aux 4 bus free for multiple signal sends.

PRE
This selects the Aux 4 send to be prefader, rather than post-fader.

AUX 5/6
This single control adjusts the level of the signal feed to both the Aux 5 and Aux 6 buses.

The switches alongside act as mutes for each of the 2 sends. When both are on, the pot may be used as a stereo level send to an effects device.



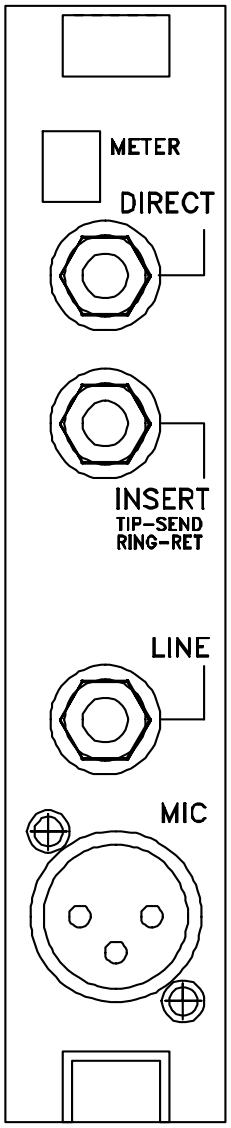
PAN
Pans the signal between the Left and Right stereo mix buses, and between odd and even group buses, when selected.

ON
Enables the channel output, with LED indication.

LED Meter
Indicates presence of signal above the threshold of -13dBu, up to the peak indication of +17dBu. Signals illuminating this top led are approximately 4dB below clipping.

SOLO
This button is PFL (Pre-Fade Listen), and solo's the signal to the monitoring outputs only, the main stereo mix output is unaffected. Internal links allow this SOLO to be AFL if desired.

ROUTING
Routing to the 12 buses is in pairs. Selection of any routing destination automatically inserts the PAN control into circuit.



CONNECTORS AND PIN OUTS

The main Inputs are electronically balanced, while the insert send/ return are unbalanced, and the direct output is ground-sensing unbalanced.

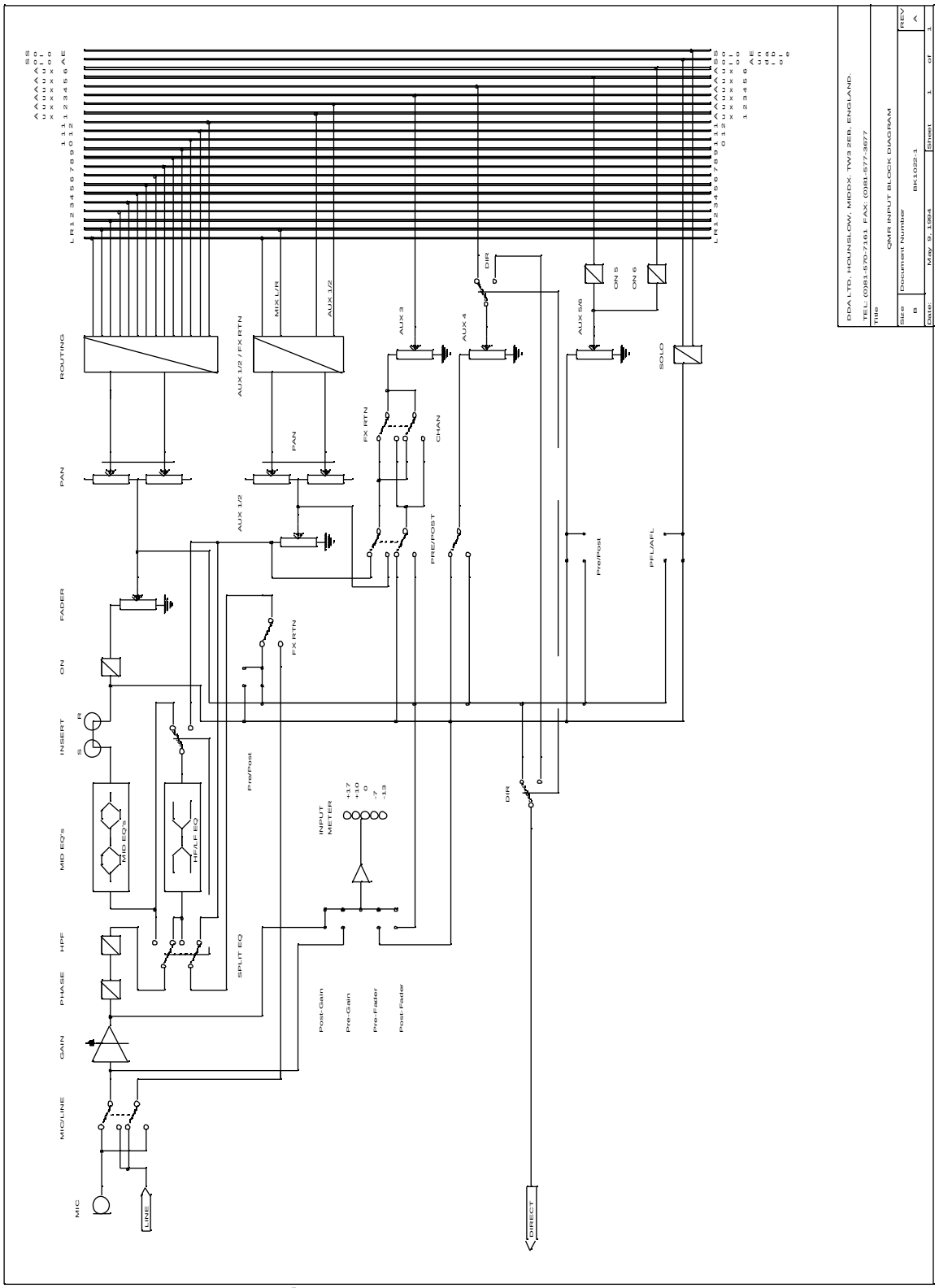
Mic Input: 3-pin XLR type, balanced
Nominal Input Level : -72dBu to -2dBu
Pin 2 : Signal +ve (hot)
Pin 3 : Signal -ve (cold)
Pin 1 : Ground
Input Impedance : > 2kOhm

Line Input : 1/4" TRS Jack, 'A' Gauge, balanced
Nominal Input Level : -16dBu to +14dBu
Tip : Signal +ve (hot)
Ring : Signal -ve (cold)
Sleeve : Ground
Input Impedance : > 10kOhm

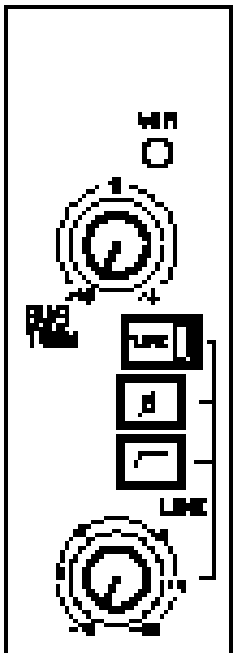
Insert Send/Return : 1/4" TRS Jack, 'A' Gauge, unbalanced
Nominla Input / Output Levels : -2dBu
Tip : Insert Send
Ring : Insert Return
Sleeve : Ground
Send Output Impedance : <75Ohm
Return Input Impedance : >10kOhm

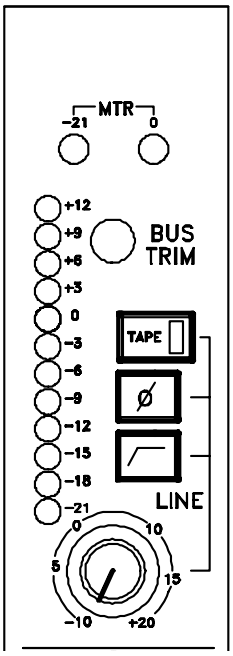
Direct Output : 1/4" TRS Jack, 'A' Gauge, Ground Compensated
Nominal Output Level : -2dBu
Tip : Signal
Ring : Compensated Ground
Sleeve : Ground (0V Audio)
Output Impedance : <75Ohm

INPUT MODULE BLOCK DIAGRAM



OUTPUT MODULE





Differing from the input module only in that there is no Mic input, but a tape input, the group module contains the summing amplifier for the group, and its output level trim control. All other functions, including the FX return and splittable EQ, are identical to the input module. As tape/bus metering is provided on these modules, only peak and signal present leds are required.

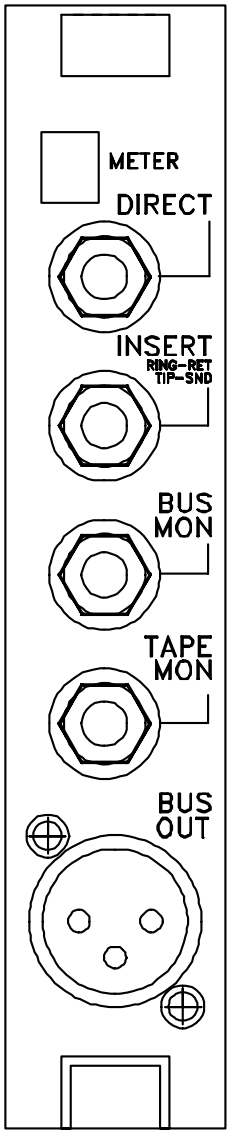
Only the different functions are described in this section. Refer to the Input module for descriptions of the common functions.

METER ADJUST
This is used only for calibration of the 12 segment LED meters. You should not need to adjust this under normal conditions. Modules with integral meters have two presets, one to set the 0dB point and one to set the -20dB point.

BUS TRIM
This is used to adjust the overall group output level. On the modules with integral LED metering, this is a sub-panel preset. On meterbridge versions, this is a full pot with a control knob.

PEAK
Rather than duplicate the full meter provided on the input module a peak led indicates when the signal is close to clipping.

SIGNAL
This is used to indicated the presence of signal above about -20dBu.



CONNECTORS AND PIN OUTS

Although the outputs and tape inputs are factory set for nominal +4dBu operating levels, you may, by changing links on the module, have these operate at -10dBV to match tape machines which operate at this level.

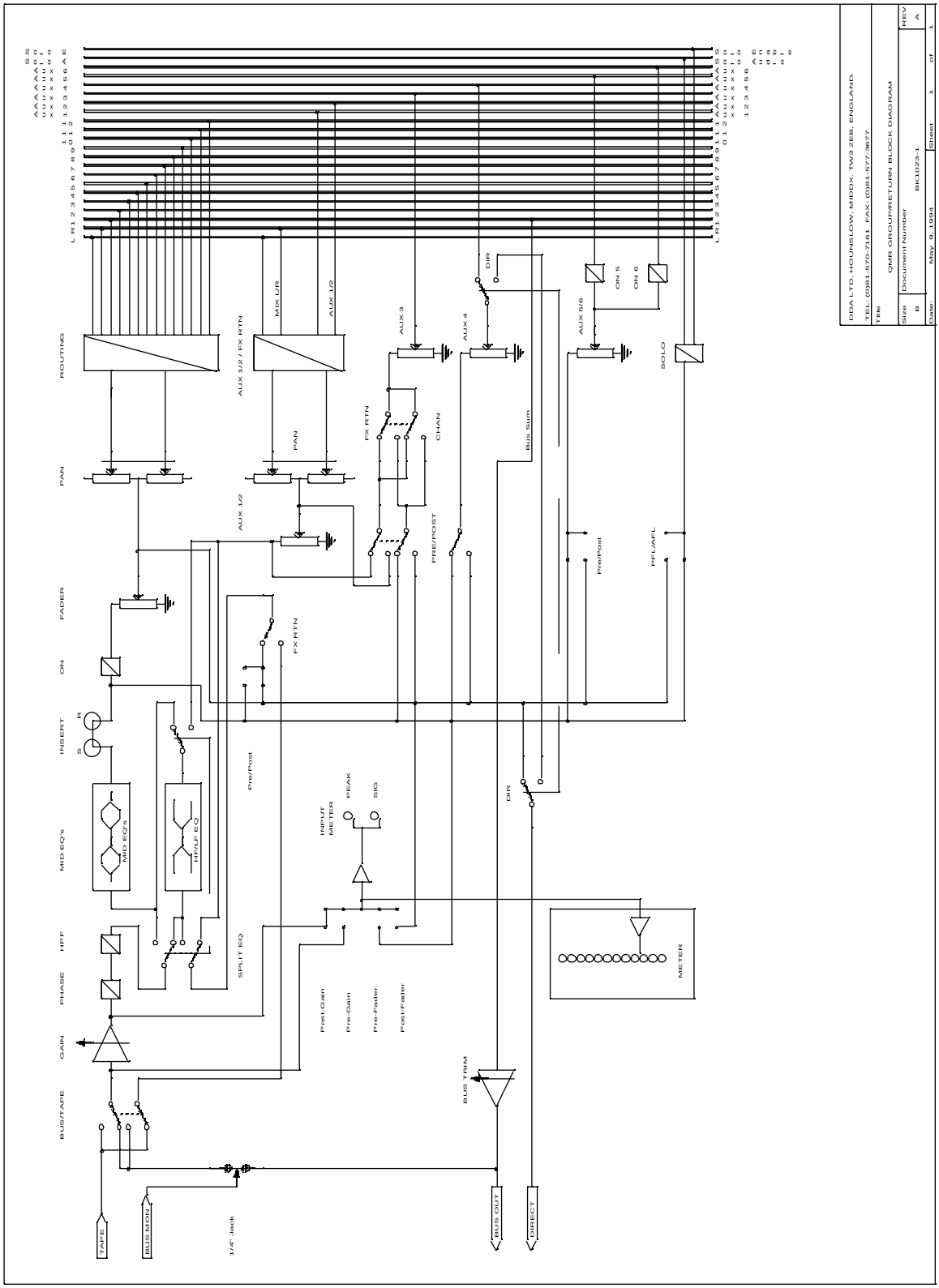
Group Output : 3-pin XLR type, balanced
Nominal Output Level : +4dBu (-10dBV)
Pin 2 : Signal +ve (hot)
Pin 3 : Signal -ve (cold)
Pin 1 : Ground
Output Impedance : <75Ohm

Tape Return Input : 1/4" TRS Jack, 'A' Gauge, balanced
Nominal Input Level : +4dBu (-10dBV)
Tip : Signal +ve (hot)
Ring : Signal -ve (cold)
Sleeve : Ground
Input Impedance : >10kOhm

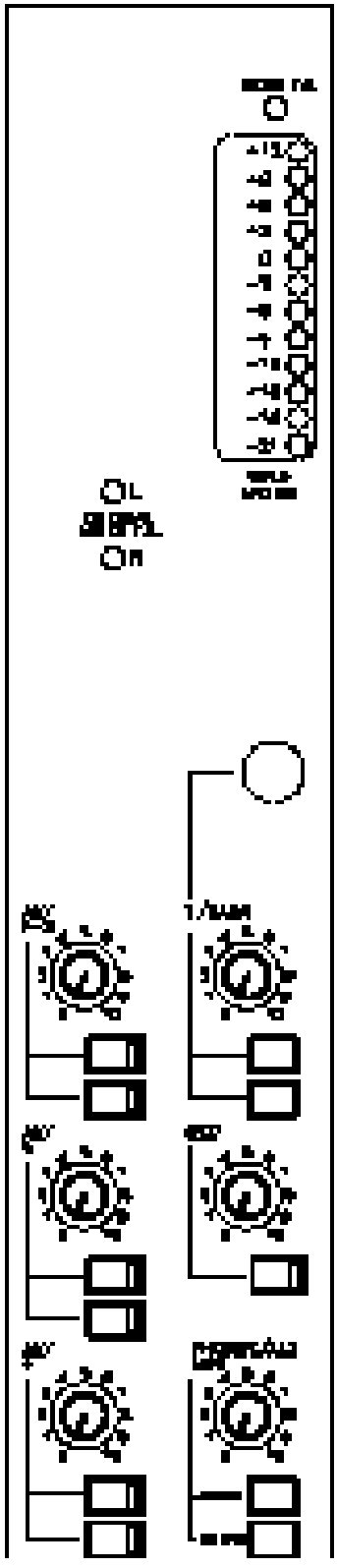
Bus Monitor Input : 1/4" TRS Jack, 'A' Gauge, balanced
Nominal Input Level : +4dBu (-10dBV)
Tip : Signal +ve (hot)
Ring : Signal -ve (cold)
Sleeve : Ground
Input Impedance : >10kOhm

Insert Send/Return : 1/4" TRS Jack, 'A' Gauge, unbalanced
Nominal Input/Output Level : -2dBu
Tip : Insert Send
Ring : Insert Return
Sleeve : Ground
Send Output Impedance : <75 Ohm
Return Input Impedance : > 10kOhm

OUTPUT MODULE BLOCK DIAGRAM



MASTER MODULE



The master level controls for the six Aux masters each have solo and on buttons, and the solo level may be adjusted. In addition, the main control room speakers are supplemented by an alternate pair of speaker outputs which have their own level control. This control also adjusts the headphone level (socket on the module). A 1kHz test oscillator and talkback mic input complete the facilities on this module.

On consoles with integral metering, left and right master meters are provided on the master module. On meterbridge versions, a SOLO level meter is provided on the master module.

TALKBACK MICROPHONE
An integral condenser microphone is provided for talkback facilities.

T/BACK LEVEL
Adjusts the gain of the talkback mic.

1/2
Routes the talkback signal to Aux Buses 1 and 2, useful for when these buses are used as a headphone/foldback send.

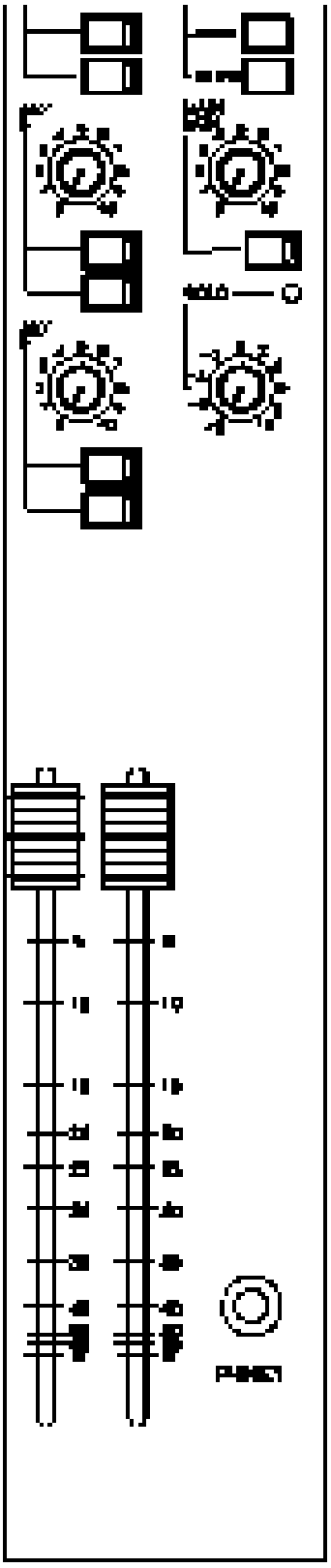
ALL
Routes the talkback signal to all aux buses,
and all the group buses.

AUX 1-2
Adjusts the level of the Aux 1/2 output.

AUX 1/2 SOLO
PFL solo of the Aux 1/2 output.

AUX 1/2 ON
Enables the Aux 1/2 output.

Auxes 3-6 have the same level, solo and on functions.



OSC
Adjusts the level of the internal 1kHz oscillator.

ON
Switches on the internal oscillator. When switched on, theoscillator is routed to all Aux and group buses.

PHONES/ALT LEVEL
Adjusts the level of either the headphone output or Alternate Speaker output, whichever is selected.

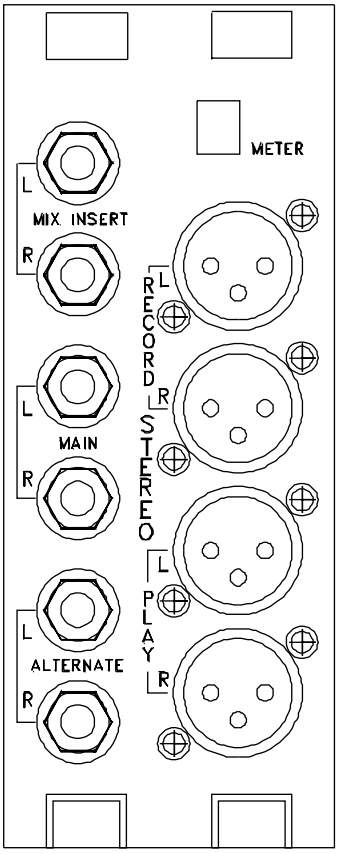
PHONES
Selects the headphone output (front panel jack socket).

ALT
Selects the alternate monitor speaker output, switching off the main speaker outputs.

MAIN LEVEL
Adjusts the level of the main monitor speaker outputs.

2 TRK
Normally, the monitor output is fed from the stereo mix bus or any SOLO'ed source. When 2 TRK is pressed, the monitor outputs are fed from an external stereo input, for example a stereo tape machine return.

SOLO LEVEL
This adjusts the level of the SOLO'ed signal fed to the monitors, useful when PFL signals are at high levels. The LED indicates that a channel or Aux has been SOLO'ed.



CONNECTORS AND PIN OUTS

The Master Module provides connectors for the main stereo output, and two pairs of monitor outputs. Input connectors are provided for a stereo tape machine return, for monitoring.

The Stereo Mix Output and Stereo Tape Return input are electronically balanced, while the Main and Alternate Monitor outputs are ground-sensing unbalanced. The Mix Insert Send and Returns are unbalanced.

The table below gives the pin-outs of each connector, together with their nominal operating levels.

Mix Output : 3-pin XLR type, balanced
Nominal Output Level : +4dBu (-10dBV)
Pin 2 : Signal +ve (hot)
Pin 3 : Signal -ve (cold)
Pin 1 : Ground
Output Impedance : <75 Ohm

Stereo Tape Input : 3-pin XLR type, balanced
Nominal Input Level : +4dBu (-10dBV)
Pin 2 : Signal +ve (hot)
Pin 3 : Signal -ve (cold)
Pin 1 : Ground
Input Impedance : >10 kOhm

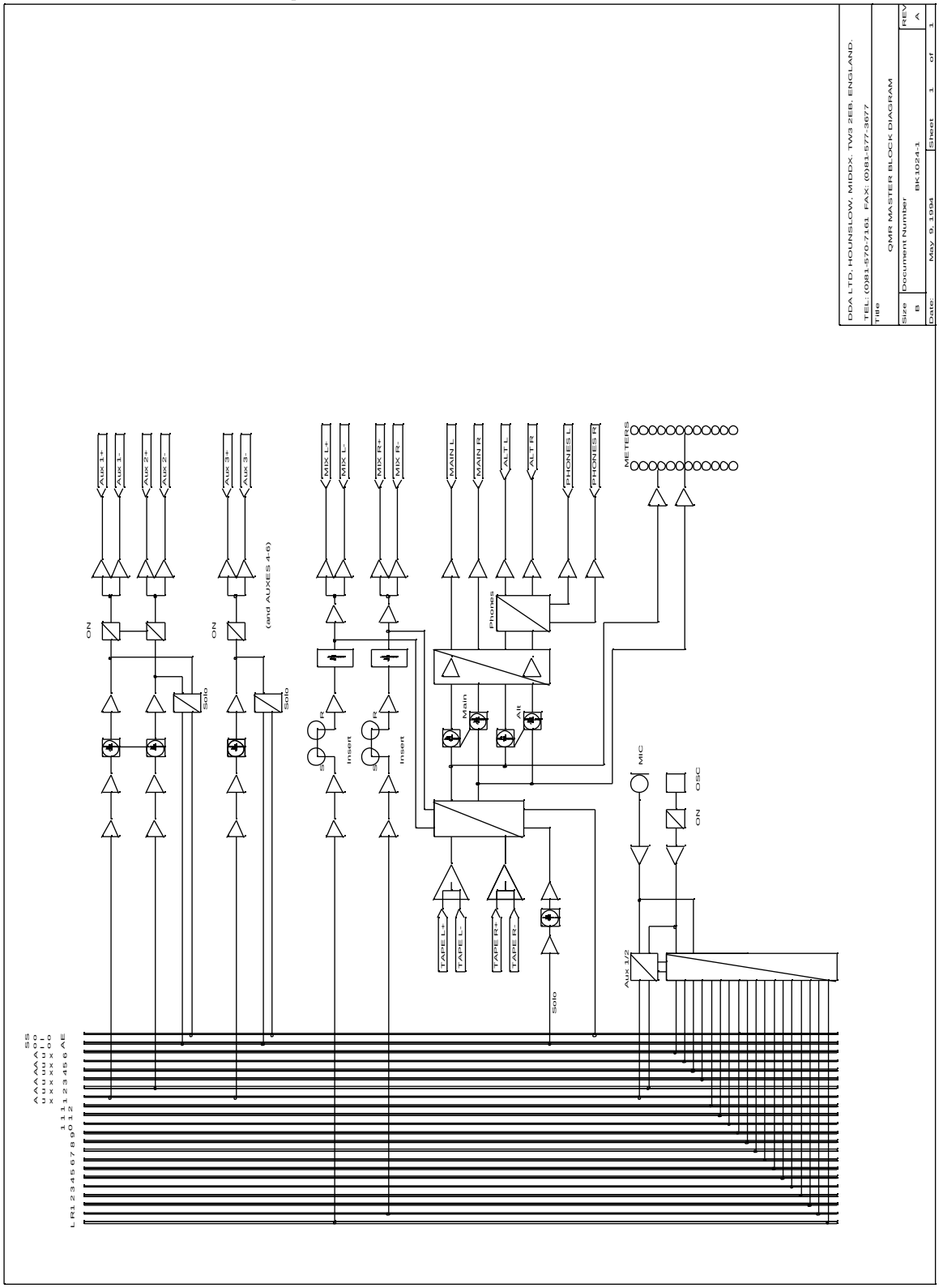
Main and Alternate Monitor Outputs : 1/4" TRS Jack, 'A' Gauge, ground-compensated unbalanced
Nominal Output Level : +4dBu (-10dBV)
Tip : Signal
Ring : Compensated Ground (sense)
Sleeve : Ground
Output Impedance : <75 Ohm

A separate panel on the chassis provides the output connectors for all the Auxiliary outputs, which are all electronically balanced, on 1/4" jacks.

The table below gives the pin-outs of each connector, together with their nominal operating levels.

Auxiliary Output : 1/4" TRS Jack, 'A' Gauge, balanced
Nominal Output Level : +4dBu (-10dBV)
Tip : Signal +ve (hot)
Ring : Signal -ve (cold)
Sleeve : Ground
Output Impedance : <75 Ohm

MASTER MODULE BLOCK DIAGRAM



METHODS OF OPERATION

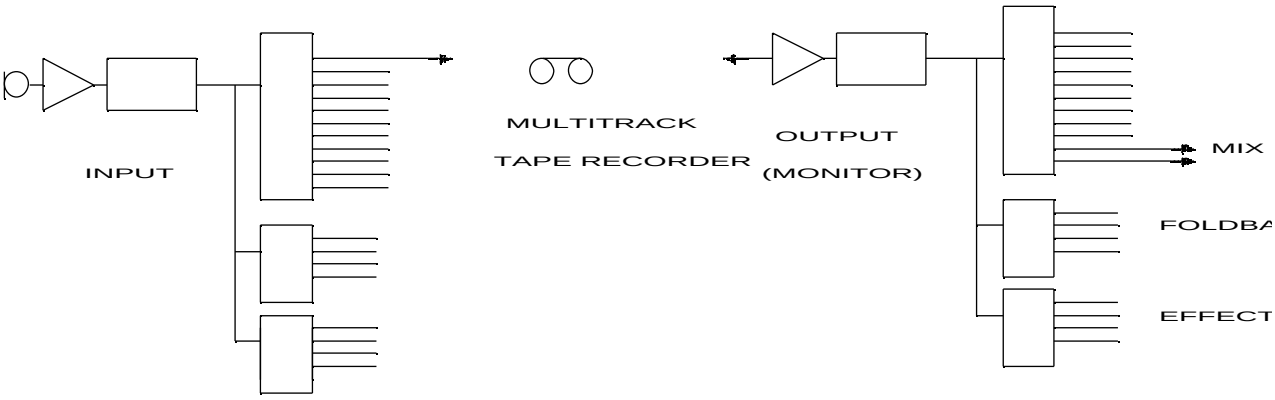
NORMAL MULTITRACK RECORDING AND MONITORING

This section has been written to explain how some of the functions are used in practice, and with the aid of simple block diagrams shows the signal routing when certain switches are pressed.

In the normal course of recording using the QMR, a signal applied to a mic or line input will be fed via the routing to the tape machine. The tape return for the track will be monitored using the output module for that track, using a long-throw fader, of course.

No special switches have to be pressed to use these basic functions. The advantage of monitoring on the output modules becomes evident when it comes to mixdown, as there is now no need to move from one side of the console to the other - all the EQ and aux settings are already in place.

The block diagram below shows the general signal flow.

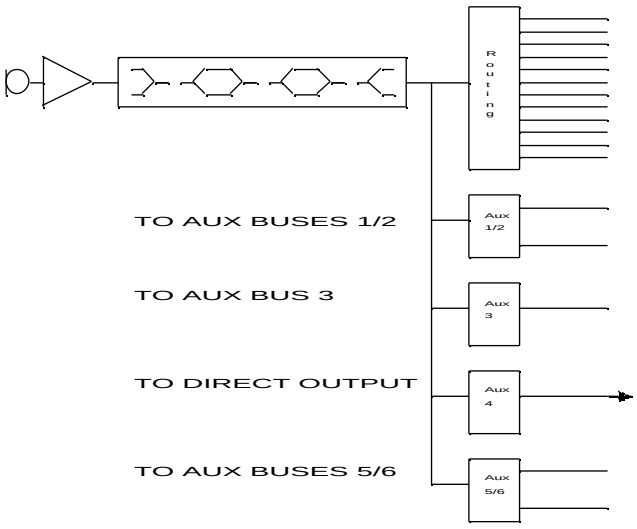


TYPICAL RECORDING CONFIGURATION

EFFECTS SENDS FROM THE MODULE

The standard method of sending a signal to an effects device is of course to use an aux bus. There are times, however, where there is a need to send just a single microphone to a reverb unit, for example. In this situation using an entire aux bus works, but means you now have one less bus for all your other effects sends, or foldback feeds.

Using the DIRECT output, you can send that channel signal through the channel's direct output, with control through the Aux 4 pot, and keep the Aux 4 bus free for a group of signals which require that facility.



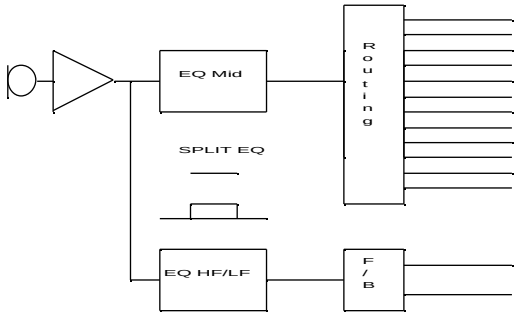
USING AUX 4 AS A DIRECT OUTPUT

This function could also be used to save your multitrack groups, as again if you needed all 12 buses for grouped signals, you could use the direct output for a single signal and route it to tape that way.

ADDING EQ TO AN EFFECTS SEND OR HEADPHONE SEND

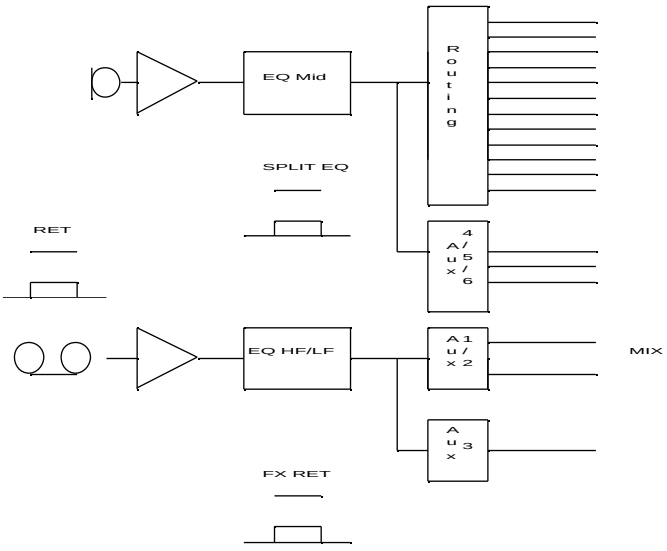
Aux buses 1/2 are configured so that they can be used as a stereo send to an effects device or foldback feed to artists, with level and pan controls. You may add some EQ if desired by pressing the SPLIT EQ button, which puts the HF and LF controls in the feed to the Aux 1/2 buses, leaving the two mid band sections in your main channel path.

On the output module, you could use this facility to set up two different stereo mixes if required, perhaps for multi-lingual productions where different vocal tracks could be mixed simultaneously.



SPLITTING THE EQ

FOR FOLDBACK SEND



SPLITTING AUXES

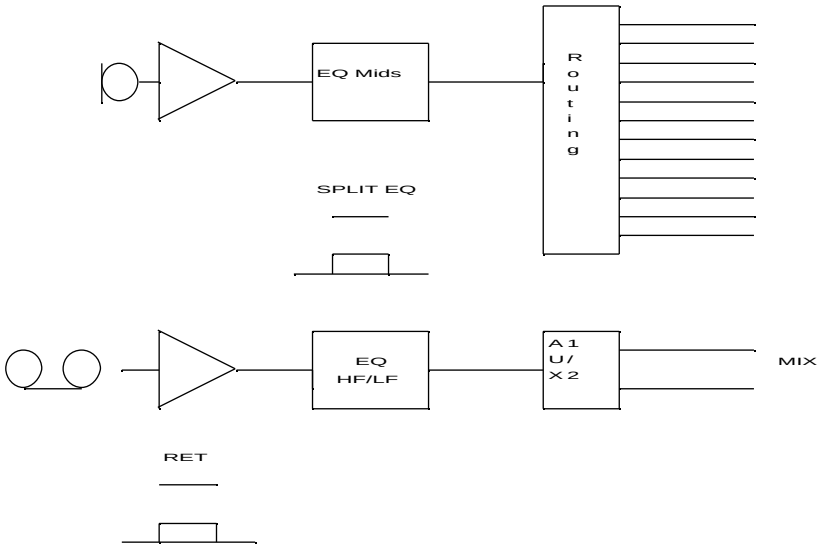
BRINGING EFFECTS BACK ONTO A MODULE

Having used the DIRECT output to send a signal off to a device, it is easy now to bring the effect return back onto the same module using the RET function. Pressing RET converts the function of the Aux 1/2 controls, and instead of feeding the channel signal to the Aux buses, they now feed the alternate input directly to the stereo mix bus. As an example:

The Mic input is being fed into the normal channel path, and through the EQ and auxes to the routing section and off to tape.

Press RET, and the Line input is fed to the Aux 1/2 controls, and from there is routed directly to the stereo mix bus.

You can even add EQ as mentioned above for foldback sends, so that the return may be EQ'd, and even feed the Aux 3 bus with this signal by pressing FX RET (located by the Aux 3 control).



USING THE AUX 1/2

AS AN EFFECTS RETURN

TRACK BOUNCING

If you start to run out of available tracks on the tape machine, it is easy to free some up by mixing a few tracks together and re-recording them on another track, with very few button presses. For example, to mix tracks 1, 2, 3, and 4 together, and record the sum on track 7:

On the output/monitor modules of tracks 1, 2, 3, and 4, press the routing button for track 7-8. Select TAPE, and pan the signal hard left.

Use the faders on these modules to create a mix of these tracks, and monitor the resulting mix on output module 7 by using the fader in BUS input mode, or in TAPE mode by using the effects return method above. The Bus Trim on output module 7 is the overall level of your mixed sub-group going to tape.

SUB-GROUPING

Following the previous method, route the mixed group to MIX, and the overall level of the sub-group going to the mix is controlled by the long fader when used in BUS monitor mode.

If you want to keep the fader free for a tape return, use the TAPE input mode, and use the RET function to bring the sub-group back on the Aux 1/2 controls.

OVERDUBBING

When overdubbing, it is often handy to monitor both the recorded (tape) signal and the new signal simultaneously for drop-in timing. With the QMR, its easy.

Use the RET facility to bring the tape signal back on the Aux 1/2 controls, leaving the TAPE/BUS switch up. Monitor your BUS signal on the fader. You can adjust both levels easily and independently, and know exactly when to drop-in to record.

USER-PROGRAMMABLE FUNCTIONS

There are a few options which it is possible for you to configure yourself. If you are in any doubt as to whether you can perform these changes, please refer to your Dealer.

The main option is that the main outputs and tape returns may be set to work with nominal levels of -10dBV instead of the factory-set nominal +4dBu . This means level matching is possible with machines such as Tascam or Fostex, which normally operate at -10 levels.

There are links on the PCB's of the output modules and master modules, which when removed or added allow the console to operate at these levels.

OUTPUT MODULE

Bus Input - To operate at -10dBV, add link LK29

Tape Monitor Input - To operate at -10dBV, add link LK3

Bus Output - To operate at -10dBV, add link LK15

MASTER MODULE MAIN PCB

Mix/Tape Output - To operate at -10dBV, remove LK3 and LK4

Stereo Tape Input - To operate at -10dBV, add links LK1 and LK2

MASTER MODULE SUB-PCB (AUXES)

Aux Outputs - To operate at -10dBV, remove all the following:

LK1, LK21, LK41, LK61, LK81, LK101

METER FEED SELECT

The LED meters may be fed from any one of four signals, taken at various points in the signal chain.

INPUT AND OUTPUT MODULES

The feed is selected by links on the PCB. Only ONE link may be used at any time.

For a pre-gain control feed, add link LK30
For a post-gain control feed, add link LK31
For a pre-fader feed, add link LK32
For a post-fader feed, add link LK33

SOLO BUS SIGNAL FEED INPUTS AND OUTPUTS

Links on the PCB allow the SOLO signal to be pre-fader (PFL) or post-fader (AFL).

Again, only one link is needed, as follows:

For PFL, add link LK9
For AFL, add link LK8

AUXILIARY SIGNAL FEEDS

Auxes 3 and 4 have front panel switches to allow Pre or Post fader signal feeds.

Auxes 1/2 and 5/6 may be fed either pre or post fader by links on the PCB. Only one link is necessary for each auxiliary feed.

For Aux 1/2 Pre-Fader, add link LK5
For Aux 1/2 Post-Fader, add link LK4

For Aux 5/6 Pre-Fader, add link LK7
For Aux 5/6 Post-Fader, add link LK8

CUT BUTTON ILLUMINATION

The CUT (or MUTE button), may have its led indicate either when the channel is muted, or when the channel is ON. The factory default is CUT.

Links on the PCB allow the LED to be illuminated either for CUT or ON as above. The functionality of the switch remains unaltered.

To light the LED when the channel is cut, add link LK14

To light the LED when the channel is ON, add link LK13

CUT SWITCH OUTPUT (TO MIDI MUTE OR AUTOMATION SYSTEMS)

The CUT switch can be configured to give any one of three output states for use by the DDA MIDI-MUTE system, or another proprietary Automation system.

Links on the PCB select which output will be given when the switch is pressed.

Link LK10 - Gives a high output (TTL +5V) as long as the CUT button is pressed.

Link LK11 - A $\overline{\text{latched}}$ output, taken from the Q output of a 4013 flip-flop, giving a low (TTL +0V) signal when a channel is muted, reverting to a high (TTL +5v) when the channel is unmuted.

Link LK12 - A latched output, taken from the Q output of the 4013 flip-flop, giving a high (TTL +5V) signal when a channel is muted, reverting to a low (TTL 0V) when the channel is unmuted.

For further information, please contact DDA.

PATCHBAY CONNECTIONS

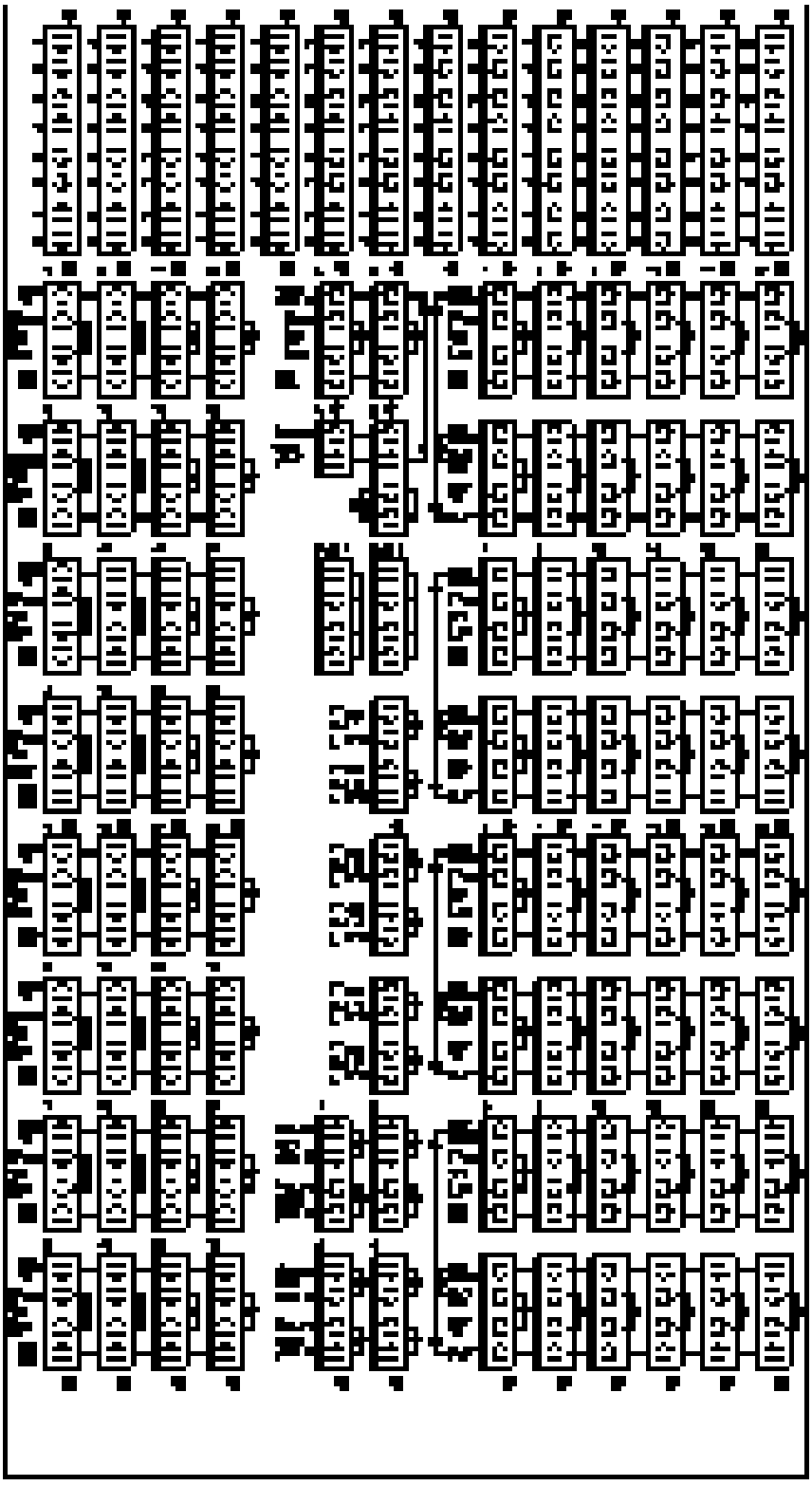
The only extra connections for the QMR patchbay are the tie-lines. All inputs and outputs remain connected to the channel XLR's and Jack's.

If retrofitting a patchbay, make sure to press the switch on each module to enable the link to the patchbay.

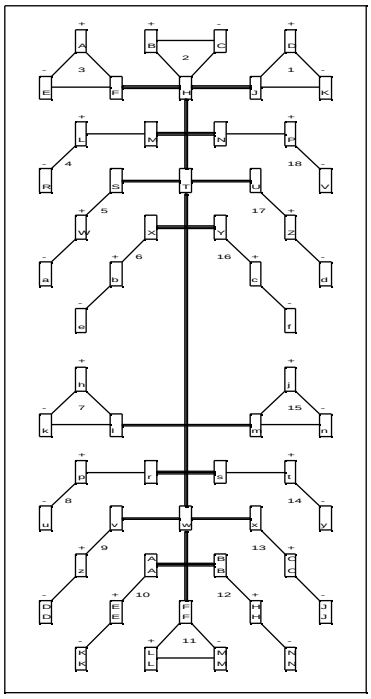
When a patchbay is fitted, outputs 13-24 are automatically paralleled with outputs 1-12.

EDAC TABLE FOR : TIELINE INTERFACE 1-112								
PAIR	+ , -	DESCRIPTION						
1	D,K	1	17	33	49	65	81	97
2	B,C	2	18	34	50	66	82	98
3	A,E	3	19	35	51	67	83	99
4	L,R	4	20	36	52	68	84	100
5	W,a	5	21	37	53	69	85	101
6	b.e	6	22	38	54	70	86	102
7	h,k	7	21	39	55	71	87	103
8	p,u	8	24	40	56	72	88	104
9	z,DD	9	25	41	57	73	89	105
10	EE,KK	10	26	42	58	74	90	106
11	LL,MM	11	27	43	59	75	91	107
12	HH,NN	12	28	44	60	76	92	108
13	CC,JJ	13	29	45	61	77	93	109
14	t,y	14	30	46	62	78	94	110
15	j,n	15	31	47	63	79	95	111
16	c,f	16	32	48	64	80	96	112

QMR PATCHBAY LAYOUT



PATCHBAY EDAC CONNECTOR



VIEWED FROM THE MATING SURFACE OF FEMALE CONNECTOR.

N.B.

Pins labelled + correspond to XLR pin 2.

Pins labelled - correspond to XLR pin 3.

The Bus Link connects all grounds together at the console.

Prepared by DDA Ltd., Hounslow, Middx.		
Title: EDAC 56 PIN FEMALE - STANDARD CONFIGURATION		
Size: E	Document Number: 56STDFF	REV: 02
Date: February 13, 1992	Sheet 1 of 1	

SERVICING INFORMATION

MODULE REMOVAL

The modules are secured by three screws, two on the front face and a third on the rear panel. To remove a module first of all remove the upper and lower identification strips then remove the 3 screws. The module can now be lifted from the console and the bus cable removed before lifting it totally clear. Beware of any external connections to the module which may prevent it from being removed. Meter wiring is connected via the rear panel and should be disconnected from a module prior to its removal.

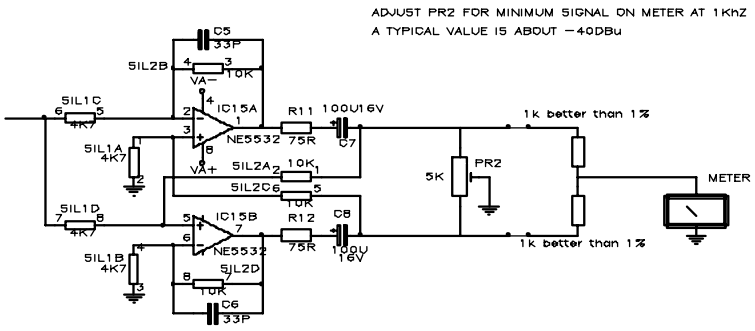
GENERAL ALIGNMENTS

There are very few adjustments on the QMR console and where possible meter alignments are accessible from the front panel.

Meter alignments are very simple. Measure the required output on an external meter and set it to 0VU (+4dBu) and adjust the 0VU pot to just illuminate the LED at the scale marking for 0VU.
Then adjust the audio output level to be -17dBu and adjust so that the bottom LED is just on. Re-check the zero point and then the -17 point again adjusting if required. Normally the only adjustment required will be the 0dB pot.

OUTPUT BALANCE

The output balance can be set by using a pair of accurately matched 1k resistors across the output and measuring the centre point. Adjustment is made by finding the smallest possible signal at the null point. See drawing CD1008.



TYPICAL OUTPUT STAGE

CALIBRATION

There are no adjustments to calibrate the gain at any point, however checks can be made by using the insert sends. The nominal level here for an external signal of +4dbu is -2dBu, that is 6dB lower than you might expect. The insert return can also be used to insert a signal of -2dBu to check the signal path to the routing or to the direct output for example.

CIRCUIT DIAGRAMS

CD1151	STANDARD INPUT
CD1152	STANDARD OUTPUT
CD1156	MASTER MODULE
CD1154	12 SEGMENT METER
CD1166	12 CHANNEL BARGRAPH
CD1167	16 CHANNEL BARGRAPH
CD1164	TIE PATCH
CD1219	AUDIO PSU
CD1173	MIDI MUTE PCB
CD1183	MASTER PATCH
CD1182	OUTPUT PATCH
CD1181	INPUT PATCH
CD1174	POWER DISTRIBUTION
CD1155	AUX MASTER