Alice AIR 2000 User Manual

THE CONCEPT

The ALICE AIR 2000 Broadcast mixer is designed specifically for rigorous use by professional broadcasters. Over three years of research and development, together with extensive consultation with engineers and presenters at a large number of radio stations world wide, have resulted in numerous features not normally available without expensive customisation, or external ‘black boxes’.

The AIR 2000 has been designed to require minimum maintenance and to provide excellent reliability for many years of hard service. All component parts have been carefully selected to ensure that their life expectancy is no less than that appropriate for the job. Only high quality conductive plastic faders are used. High quality VCA's remove audio signals from channel faders maximising their life, eliminating 'scratching' and ensuring tight stereo tracking.

Headphone and speaker controls, normally notorious for early failure, employ the same VCA technology, together with DC control derived from paralleled potentiometers for maximum reliability.

All ICs are fitted in gold plated, turned pin holders for ease of servicing and reliable contact. Two part, gold plated locking, module connectors eliminate unreliable edge connectors. All illumination is achieved by high brightness LED clusters, eliminating bulb failures. Large heavy duty, high quality switches are provided for main functions and the result is a mixing console on which we are confident to offer an ten-year limited warranty.

A blank sheet approach to circuit design has resulted in many innovative circuitry developments, which extensively overcome previous shortcomings in commonly used circuit configurations.

A totally new electronic floating balanced output stage gives a ‘ruler flat’ frequency response and a full 28dB wide band headroom performance unbeaten by even the best transformer based outputs. This proprietary design achieves an output impedance of less than 1 ohm, uniquely guaranteeing constant output level into balanced or unbalanced loads, irrespective of their impedance. In comparison, a typical 75 ohm output would suffer a gain error of over 1 dB and commonly also results in changes to the frequency response when the load is changed from high impedance bridging to 600 ohms.

Many active balanced outputs do not allow unbalanced connection without causing considerable gain error and/or gross distortion and in some cases may even damage the shorted output driver. Others which attempt to overcome these problems are prone to instability when driving long lines, still give unbalanced gain errors of around 0.2dB and rely on sensitive adjustment pots to achieve acceptable output balance. Naturally, these tend to drift with time and result in additional maintenance work for the already overstretched engineer. With no fewer than 8 balanced output stages on the main output module and others on insert points and telephone sends, the total elimination of output balance adjustment pots is a major advantage.

A unique pan pot design ensures perfect centre balance and provides 25-3OdB better final attenuation than conventional designs. New level control and EQ circuitry utilising centre-tapped pots and zero impedance buffers forces predictable performance, irrespective of pot tolerances, ensuring outstanding stereo tracking.

Mix busses are differentially balanced for improved crosstalk performance, rejection of unwanted interference and ground loops. Totally silent solid state audio switching completely removes inactive input channels from the mix busses, preventing unnecessary build up of mix noise and providing virtually unmeasurable inter-channel crosstalk.

DUAL MICROPHONE INPUT - Two separate, state of the art mic pre-amps give individual gain preset and phantom power for different microphone configurations. Remote control of channel ON, OFF, COUGH, & REVERSE TALKBACK is steered through the A/B switch to allow connection of illuminated remote buttons at the selected microphone position. Loudspeaker muting and on- air lights are separately programmable between control room and studio.

DUAL STEREO LINE INPUT - Two electronically floating balanced stereo inputs, with individual gain preset accept signals from varying sources, including domestic equipment, without additional level matching interfaces. Remote switching is steered through the A/B input select switch and steady state or pulsed control outputs may be programmed separately for each input. Left and right buttons allow either the left or right channel to be directed to the stereo output, (selecting both switches the channel to mono).

MACHINE & MICROPHONE TIMERS - are fitted as standard, and a further optional timer unit can be fitted to all but the smallest frames for use with the off air record mix.

METERING - Three PPM meters are fitted as standard (VU meters are available to special order). The metering is configured so that the stereo meters show PGM output and the mono meter follows the source selected on the Control Room monitor module and overridden by CUE. Additional meter modules may be fitted to mixer frames (space permitting) to monitor REC, AUX and MONITOR outputs - these can be ordered with the mixer or easily user-fitted later.

PFL/CUE may be jumper selected to automatically cancel when channels are put to air, allowing easy junctioning into network feeds and preventing accidental cueing of open channels.

LOGIC Opto isolated start/stop outputs allow connection to almost any logic levels, virtually eliminating the need for engineers' 'black boxes' to interface differing makes of studio equipment. The A and B inputs are separately programmable with either steady state or pulse signals to allow for dissimilar machine start/stop requirements, even on the same channel. Provision is made for control of start/stop logic functions by external remote control buttons. Microphone channels can also be remote controlled with external remote button provision for ON, OFF, COUGH and REVERSE TALKBACK to operator. This extensive remote control can allow a newsreader at a remote position to play in his carts

FRONT PANEL CONTROLS

DUAL INPUT STEREO LINE MODULE (2002/2102)

GENERAL

The dual input stereo line module is designed to accept stereo or mono line level inputs. Non standard levels are allowed for by means of internal pre-sets, with a gain range of -10dB to +20dB, with reference to the normal unity gain setting. The A & B inputs may be lined up separately allowing normal professional line levels on one input, whilst low level domestic equipment may be used on the other input.

Logic control is extremely flexible, and may be programmed independently for each input. Start and stop commands are fully opto-isolated, allowing almost any external machine logic to be interfaced without the need for custom black boxes.

Controls have been kept simple and uncluttered so as to allow self-operation by relatively non-technical staff. Large illuminated push buttons are provided for major functions.

TRIM

Allows +/- 10dB gain adjustment. The pot has a centre detent to allow easy location of 'unity gain' position.

INPUT SELECT

Selects between the “A” and “B” stereo line inputs and also steers the programmable control logic to the appropriate machine. Separate high brightness LED’s are situated adjacent to the A/B switch to give clear indication of which input is selected.

LEFT/RIGHT/MONO

The LEFT button routes the left leg of the input signal to both sides of the channel output. The RIGHT button routes the right leg of the input signal to both sides of the channel output. Selecting both LEFT and RIGHT buttons together will mono the input.

OPTIONAL EQ SECTION

Provides 15dB boost or cut at 60Hz (IF) and 12kHz (HF) with a shelving characteristic, and 15dB boost or cut at 1 kHz (MF) with a Bell characteristic and a "Q" (bandwidth factor) of 1.5. Centre detents allow for easy location of the flat position. An EQ in/out switch with LED indication is provided.

OUTPUT SELECT

The REC button diverts the main channel output to the off-line record mix. It also routes the channel's clean feed outputs to the off-line clean feed busses producing an appropriate feed for any telco channels that are similarly routed to the REC mix rather than the main PGM mix. This therefore allows completely independent off-line stereo production and recording to-take place whilst the mixer is on-air.

AUX
The AUX button selects the channel output to the aux. mix, providing a convenient method of generating an additional stereo clean feed for effects, studio foldback and reverse cue for remote broadcasts.

BALANCE
± 3dB of adjustment is provided to allow for stereo imbalance on programme material or for effect. A centre detent allows easy location of the calibrated position.

CUE
Cue mode is activated on and off by successive presses of the button. Indication of cue is provided by high brightness LED illumination of the switch. Various auto-reset functions can be programmed to suit user requirements. Cue is derived after the balance pot, but before the channel's stereo VCA section. This allows the balance pot to be set up whilst in cue ('stereo in place cueing'). Please refer to logic pre-programming section.

FADER
A high quality conductive plastic 104mm unit is fitted. The fader controls a DC voltage, which in turn controls the channel VCA's and provides bottom of track switching functions for logic control and final audio muting.

FADER START
Enables fader start facility for machine control. Opening the fader then becomes equivalent to simultaneously pressing the ON button and closing the fader becomes equivalent to simultaneously pressing the OFF button.

ON / OFF
Please refer to logic pre-programming section.

DUAL INPUT MICROPHONE MODULE (2001/2101)

GENERAL

The dual input microphone module features two, separate, state of the art, transformerless pre-amplifiers with a noise figure, at full gain, within 0.5dB of theoretical limits and a common mode rejection typically better than 1 OODB. Individually adjustable internal pre-sets allow for differing microphone types and working distances at the A and B mic positions. Gain is adjustable in the range of -4OdB to -7OdB, with a further +/- 10dB gain available from the front panel trim pot, giving a total range of -3OdB to -8OdB. High level audio switching after the pre-amps prevents switch clicks.

The comprehensive logic control may be programmed independently for each input. Remote control of ON, OFF, COUGH and REVERSE TALKBACK commands are available together with LED drivers for remote button illumination. These are automatically steered to and from the appropriate mic position via the A/B switch.

Controls have been kept simple and uncluttered so as to allow self-operation by relatively non-technical staff. Large illuminated push buttons are provided for major functions.

TRIM
Allows +/- 10dB gain adjustment. The pot gives continuous gain adjustment, whilst maintaining maximum headroom at all gain positions.

INPUT SELECT
Selects between the A or B mic inputs and also steers the programmable control logic to and from the appropriate mic position, Separate high brightness LED’s are situated adjacent to the A/B switch to give clear indication of which input is selected.

OPTIONAL EQ SECTION
Provides 15dB boost or cut at 60Hz (LF) and 12kHz (HF) with a shelving characteristic, and 15dB boost or cut tuneable from 700Hz to 1OkHz with a bell characteristic and a "Q' (bandwidth factor) of 1.5. Centre detents allow for easy location of the flat position. An EQ in/out switch with LED indication is provided.

OUTPUT SELECT
The REC button diverts the main channel output to the off-line record mix. It also routes the channel's clean feed outputs to the off-line clean feed busses producing an appropriate feed for any telco channels that are similarly routed to the REC mix rather than the main PGM mix. This therefore allows completely independent off-line stereo production and recording to take place whilst the mixer is on-air.

AUX
The AUX button selects the channel output to the aux-mix, providing a convenient method of generating an additional stereo clean feed for effects, studio foldback and reverse cue for remote broadcasts.

PAN
Allows the channel output to be placed at any point within the stereo image. The detented centre position presents a loss of 3dB giving a substantially constant sound level no matter where the signal is positioned within the stereo image.

CUE
Cue mode is activated on and off by successive presses of the button. Indication of cue is provided by high brightness LED illumination of the switch. Various auto-reset functions can be programmed to suit user requirements. Cue is derived after the pan pot but before the channel's stereo VCA section. This allows the pan pot to be set up whilst in cue ('stereo in place cueing'). Please refer to logic pre- programming section.

FADER
A high quality conductive plastic 104mm unit is fitted. The fader controls a DC voltage, which in turn controls the channel VCA’s and provides bottom of track switching functions for logic control and final audio muting.

ON / OFF
Please refer to logic pre-programming section.

TELCO INPUT MODULE (2003)

GENERAL

The Telco input module is designed to allow the connection of phone-in lines via an external telephone hybrid. Many hybrids incorporate a changeover relay between a normal telephone instrument and the hybrid line connection. This can be remote operated from the channel.

Controls have been kept simple and uncluttered so as to allow self-operation by relatively non-technical staff. Large illuminated push buttons are provided for major functions.

TRIM
Allows +/- 10dB gain adjustment. The pot has a centre detent to allow easy location of ‘unity gain’ position.

HOLD
Produces the necessary signal for telephone hybrids that incorporate a changeover function between the normal telephone handset and the channel input.

OUTPUT SELECT
The REC button diverts the main channel output to the off-line record mix. This therefore allows completely independent off-line stereo production and recording to take place whilst the mixer is on-air.

AUX
The AUX button selects the channel output to the aux-mix, providing a convenient method of generating an additional stereo clean feed for effects, studio foldback and reverse cue for remote broadcasts.

PAN
Allows the channel output to be placed at any point within the stereo image. The detented centre position presents a loss of 3dB which gives a substantially constant sound level no matter where the signal is positioned within the stereo image.

CUE
Cue mode is activated on and off by successive presses of the button. Indication of cue is provided by high brightness LED illumination of the switch. Various auto-reset functions can be programmed to suit user requirements. Cue is derived after the pan pot but before the channel's stereo VCA section. This allows the pan pot to be set up whilst in cue ('stereo in place cueing'). Please refer to logic pre- programming section.

FADER
A high quality conductive plastic 104mm unit is fitted. The fader controls a DC voltage, which in turn controls the channel VCA’s and provides bottom of track switching functions for logic control and final audio muting.

CONTROL ROOM MONITOR MODULE (2007)

GENERAL

The control room is normally defined as the room in which the desk is situated. The module controls allow the operator to select which source the control room speakers, headphones and metering follow.

SWITCHES 1 to 5 are provided for user definable sources such as other studios, external lines, or tape machine return feeds.

AIR allows for the connection of a receiver for off-air monitoring.

PGM allows for the direct monitoring of the main stereo programme mix.

REC allows for the direct monitoring of the off line record mix.

AUX allows for the direct monitoring of the aux mix.

(N.B. The REC selection carries PGM monitoring as its default setting; therefore if there are no channels selected to REC its output mimics the PGM bus).

METER SELECT SWITCHES
Allows the operator to select which source the desk's metering follows. Metering can follow the control monitor selection directly, or can be selected to follow the PGM, REC, or AUX mixes.

GUEST PHONES
Separate level control for guest headphones, which are not interrupted by cue or talkback.

CONTROL PHONES
Separate level control for operator's headphones.

CUE TO SPEAKERS
Allows Cue to be sent to the control room monitor speakers. Without this facility selected the speakers will continue to follow the control room monitor selection.

STEREO CUE
This control allows full stereo cue to be heard on the operator's headphones (and, if CUE TO SPEAKERS is engaged, on the control room monitor speakers), whenever an input module is put into cue mode. Without STEREO CUE selected, split cue is heard, mono cue being fed to the left side and a dimmed, mono programme (as selected by the source selection switches) to the right.

CONTROL SPEAKERS
VCA controlled level pot for monitor speakers.

DIM
Dims monitor speakers by a fixed 2OdB thus avoiding the need to change the control room monitor pot from the preferred setting.

MONO
This control switches the monitor speakers and operator's headphones into mono for phase compatibility checks.

STUDIO MONITOR MODULE (2005)

GENERAL

The studio is normally defined as a remote talks studio or news booth. The bank of switches allows the operator to select which source the studio monitor speakers and headphones follow.

SWITCHES 1 to 5 are provided for user definable sources such as other studios, external lines, or tape machine return feeds.

AIR allows monitoring of the station's off-air signal from a receiver.

PGM allows for the direct monitoring of the main stereo programme mix.

REC allows for the direct monitoring of the off line record mix.

AUX allows for the direct monitoring of the aux mix.

(N.B. The REC selection carries PGM monitoring as its default setting; therefore if there are no channels selected to REC its output mimics the PGM bus).

GUEST PHONES
Separate level control for guest headphones, which are not interrupted by cue, but can be interrupted by talkback from the operator.

HOST PHONES
Separate level control for the host's headphones, which are not interrupted by cue, but can be interrupted by talkback from the operator.

AUX F/B
This switch allows the aux mix to be fed directly to the studio speakers and overrides the normal microphone mute functions. This allows a selection of sources to be derived and fed to speakers and is intended for production use.

STUDIO SPEAKERS
VCA controlled level pot for monitor speakers.

STUDIO TALKBACK
Talkback to studio speakers, and by pre-selecting the appropriate buttons, to either or both the HOST and GUEST headphones, is provided by depressing the TALK button. During live mic situations, when the speakers are muted, talkback can still be sent to either or both the HOST and GUEST headphones.

OUTPUT & ON AIR CONTROL MODULE (2006/2007)

Three large non latching push buttons are fitted at the top of the module for connection to the ALICE AIRSWITCH studio switching matrix, controlling the switching of up to three studios to air on an 'offer/accept' basis, and to control the station's profanity delay equipment. The buttons feature high brightness LED illumination and are marked:

ON AIR

OFFER

DELAY

A further 5 unmarked non latching switches, also with LED illumination are fitted to allow for user definable status and transmitter alarms. Momentary switches are fitted to allow for accept or reset functions.

DUMP instructs delay unit, if fitted, to dump delay and return to real time, thereby removing any unwanted programme material contained within the delay period. Jumper selects are available on the telco modules to automatically reset the channel to OFF when dump button is pressed, ensuring that an offending caller having already been edited is not left live to air.

DUAL INPUT SELECTOR MODULE

This module provides dual selection of eight stereo signals into one stereo output. Typical applications include use as a line pre-selector ahead of input modules, allowing selection of several remote outside audio sources. Two banks of switches are provided each fed with identical sources. This allows cross fading between sources when connected to two stereo input modules.

TAPE REMOTE MODULE (2009)

Up to three machines may be remotely operated via this module. All switches may be illuminated for status indication.

TALKBACK MODULE (2010)

This module allows the AIR 2000 to be linked to an ALICE TLK-10 talkback system, designed for instant communication between studios, newsrooms and other areas. 10 push to talk buttons allow selection of individual destinations as well as a 'talk to all' facility. The buttons illuminate to indicate the source of incoming talkback.

LOGIC PROGRAMMING & AUDIO LEVEL

DUAL INPUT STEREO LINE MODULE (2002/2102)

AUDIO LEVEL PRE-SET CONTROLS

"A" INPUT

RV1 (marked 'LA') pre-sets the LEFT channel input gain
RV6 (marked 'RA') pre-sets the RIGHT channel input gain

"B" INPUT

RV2 (marked 'LB') pre-sets the LEFT channel input gain

RV7 (marked 'RB') pre-sets the RIGHT channel input gain

The controls above allow the user to compensate for domestic level equipment being connected directly to the channel and eliminates the need for interface equipment.

LOGIC OPTIONS

CUE RESET

It is possible to pre-programme three alternative methods of resetting from cue to normal monitoring. LINK 1 (marked “cue reset”) controls the options.

1. Link set to 'A': Cue will reset when the channel is ON and the fader then opened. Cue mode can therefore only be selected if fader is closed, or channel is OFF with the fader open.

2. Link set to 'B': Cue will reset when the channel is either ON or OFF and the fader is then opened. Cue mode can therefore only be selected with fader closed.

3. Link Removed: Cue mode can be selected or deselected via front panel switch regardless of channel status.

N.B. With either option 1 or 2 the operator is prevented from selecting “cue" if the fader is open thus preventing accidental cueing of open channels.

TIMER

SW11 (marked "TIM A"). INPUT A SELECTED. With this switch in the ON position the machine timer will reset and automatically begin counting up when the front panel ON switch is pressed with the fader opened; or when the fader is opened with "fader start” selected. (With this switch in the OFF position the timer will ignore all operations.)
SW11 (marked "TIM B") INPUT B SELECTED. As above for B input.

STOP/START

SW11 (marked “STDY A"). With this switch selected to OFF, a pulse will be sent to the ‘A’ input opto each time the front panel channel ON button is pressed, regardless of whether the channel fader is open or closed. (To allow remote starting of machines whilst channel is in cue mode.) With SW11 selected to ON the ‘A’ input opto will directly mimic the front panel ON button, producing a steady-state signal when the channel is ON. Similarly, when the FADER START button is selected, either a pulse or steady signal (as selected above) will be sent to the appropriate machine when the fader is opened.

SW11 (marked “STDY B") works exactly as above for the ‘B’ input.

LINK 2 (marked “OFF RDY") controls the operation of the OFF button on the front panel. In position ‘A’ the front panel button will operate and indicate normally allowing the operator to turn the channel OFF.

In the B position the channel OFF function can also be made to work in conjunction with an outside OFF signal source. The OFF switch used to stop the machine and the OFF lamp can then be used to indicate a machine's readiness to start. (Certain machines produce a flashing 'ready" indication which the OFF button will mimic)

LINK 3 (marked 'OFF RDY') works exactly as above for the ‘B’ input.

The following additional pre-set controls will be found on the board. They are all factory pre-set controls and should therefore not be adjusted.

RV8 (marked “DIST R") is the VCA distortion trim for the right channel audio

path.

RV5 (marked “DIST L”) is the VCA distortion trim for the left channel audio path.
RV9 (marked "VCA GAIN”) fine tunes the VCA gain pre the fader.

DUAL INPUT MICROPHONE MODULE (2002/2102)

AUDIO LEVEL PRE-SET CONTROLS

“A” INPUT

RV1 pre-sets the channel input gain

“B” INPUT

RV2 pre-sets the LEFT channel input gain

The controls above provide a coarse gain pre-set to compensate for differing makes of microphone and user techniques. The front panel trim provides an additional 10dB of fine control.

LOGIC OPTIONS

Cue Reset
It is possible to pre-programme three alternative methods of resetting from cue to normal monitoring. LINK 3 controls the options.

1. Link set to “A”: Cue will reset when the channel is ON and the fader then opened. Cue mode can therefore only be selected if fader is closed, or channel is OFF with the fader open.

2. Link set to “B”: Cue will reset when the channel is either ON or OFF and the fader is then opened. Cue mode can therefore only be selected with fader closed.

3. Link Removed: Cue mode can be selected or deselected via front panel switch regardless of channel status.

N.B. With either option 1 or 2 the operator is prevented from selecting “cue” if the fader is open thus preventing accidental cueing of open channels.

LOUDSPEAKER MUTE / RED LIGHT

SW8 Controls the following options:

SW8 (1): When selected to ON, the CONTROL ROOM speaker output will be muted and the CONTROL ROOM RED LIGHT output activated when the A input microphone is live.

SW8 (2): When selected to ON, the CONTROL ROOM speaker output will be muted and the CONTROL ROOM RED LIGHT output activated when the B input microphone is live.

SW8 (3). When selected to ON, the STUDIO speaker output will be muted and the STUDIO RED LIGHT output activated when the ‘A’ input microphone is live.

SW8 (4). When selected to ON, the STUDIO speaker output will be muted and the STUDIO RED LIGHT output activated when the ‘B’ input microphone is live.

N.B. The CONTROL ROOM is defined as the room in which the mixer is installed and the STUDIO is defined as an adjacent room.

48V PHANTOM POWER

LINK 1 activates the 48V phantom power supply to the A microphone input when set to the B position.
LINK 2 activates the 48V phantom power supply to the B microphone input when set to the B position.

The following additional pre-set controls will be found on the board. They are all factory pre-set controls and should therefore not be adjusted.

RV11 is the VCA distortion trim for the right channel audio path.

RV12 is the VCA distortion trim for the left channel audio -path.

RV4 fine tunes the VCA gain pre the fader.

TELCO INPUT MODULE (2003)

AUDIO LEVEL PRE-SET CONTROLS

RVI pre-sets the channel input gain.

LINK 1 (marked “Filter”): Set to the A position, the internal bandpass filter will be activated, filtering out unwanted signals below 300Hz and above 3kHz. Set to the B position the module will operate with the normal "flat" frequency response.

LOGIC OPTIONS

Cue Reset
It is possible to pre-programme three alternative methods of resetting from cue to normal monitoring. LINK 2 (marked "cue") controls the options.

1. Link set to ”A”: Cue will reset when the channel is ON and the fader then opened. Cue mode can therefore only be selected if fader is closed, or channel is OFF with the fader open.

2. Link set to “B”: Cue will reset when the channel is either ON or OFF and the fader is then opened. Cue mode can therefore only be selected with fader closed.

3. Link Removed: Cue mode can be selected or deselected via front panel switch regardless of channel status.

N.B. With either option 1 or 2 the operator is prevented from selecting “cue” if the fader is open thus preventing accidental cueing of open channels.
SW8 (1) Controls the options for use with a profanity delay unit. Set to the OFF position, the channel will switch to OFF when the DUMP button is pressed, thereby removing the channel from air but keeping the call on hold. Set to the ON position, the channel will both switch OFF and drop the line hold when the DUMP button is pressed.

SW8 (2) When set to ON the front panel HOLD button is defeated. This allows interfacing to certain makes of telephone systems.

SW8 (3) When set to ON this switch allows a caller to hear the presenter, via the talkback microphone, when the caller is on hold and the channel is in cue.

SW8 (4) Allows the telco channel to be assigned to the MIC TIMER when set to the ON position, the MIC TIMER will reset and count when the channel is ON and the fader opened, or the channel is switched on with the fader already open.

The following additional pre-set controls will be found on the board. They are all factory pre-set controls and should therefore not be adjusted.

RV4 is the VCA distortion trim for the right channel audio path.

RV5 is the VCA distortion trim for the left channel audio path.

RV7 fine tunes the VCA gain pre the fader.

OUTPUT 'On-AIR' MODULE (2006)

This module has a single link, which controls the way in which the OFF-LINE RECORD bus works. With the link in position "A" the output of the record bus will follow that of the main programme bus when none of the input channels are diverted to it. Once an input module is diverted to the bus (via the front panel switch) the bus only carries the output of those channels diverted to it.

With the link selected to position "B" the off-line record bus only carries the output of those channels selected to it. Therefore if no channels are diverted to the bus there will be no output.

TALKBACK MODULE (2010)

This module has a single link which in position "A" activates the control-room red light when talkback is operated form the control room. This position also prevents talkback from being heard in the presenter's headphones when any microphones are "live".
In position "B" operation of talkback does not operate the control-room red light and incoming talkback will interrupt the presenter's headphones when microphones are "live".

CONTROL ROOM MONITOR (2007)

This module has a single link which in the "A" position will give a mono cue on the mono meter (the stereo meters will continue to show programme output during cue).
In position "B" cue will be presented on the left and right meters in stereo. (The mono meter will continue to show a mono of programme output during cue)

DUAL INPUT STEREO LINE MODULE (2002R)

AUDIO 2 x 3 pin XLR female sockets per input - 2 inputs per channel

BALANCED

Pin 1 – Screen
Pin 2 – Audio + (HOT)
Pin 3 – Audio - (COLD)

(For unbalanced use connect 'HOT' to pin 2, screen to pin 1 and link pins 1 & 3 together)

LOGIC **-** 25 Way 'D' type female socket on rear panel

Pin	**Function**	
01	0v LOGIC	
.... 14	ON remote switch (active low)	I/P
02	ON LAMP TALLY (1 2Vdc 3OmA)	0/P
.... 15	0v LOGIC	
03	OFF remote switch (active low)	I/P
.... 16	OFF LAMP TALLY (1 2Vdc 3OmA)	0/P
04	0v LOGIC	
.... 17	PLAY A (active low)	I/P
05	PLAY A (active high)	I/P
.... 18	PLAY B (active low)	I/P
06	PLAY B (active high)	I/P
.... 19	0v LOGIC	I/P
07	READY A (active low)	I/P
.... 20	READY A (active high)	I/P
08	READY B (active low)	I/P
.... 21	READY B (active high)	I/P
09	0v LOGIC	
.... 22	ON input A (OPTO+)	O/P
10	ON input A (OPTO-)	O/P
.... 23	OFF input A (OPTO+)	O/P
11	OFF input A (OPTO-)	O/P
.... 24	ON input B (OPTO+)	O/P
12	ON input B (OPTO-)	O/P
.... 25	OFF input B (OPTO+)	O/P
13	OFF input B (OPTO-)	O/P

DUAL INPUT MICROPHONE MODULE (2001 R)

AUDIO 1 x 3 pin XLR female socket per input, 2 inputs per channel.

BALANCED

Pin 1 – Screen
Pin 2 – Audio + ('HOT')
Pin 3 – Audio - ('COLD')
Insert Point Send 3 pole 'A' jack socket (Tip = Audio +; Ring = Audio -; Sleeve = screen)
Insert Point Return 3 pole 'A' jack socket (Tip = Audio +; Ring = Audio -; Sleeve = screen)

LOGIC - 15 Way 'D' type female socket on rear panel

Pin	**Function**		
01	0v LOGIC		
.... 09	Remote ON A	(active low)	I/P
02	ON LAMP TALLY A	(12Vdc 3OmA)	0/P
.... 10	Remote ON B	(active low)	I/P
03	ON LAMP TALLY B	(12Vdc 3OmA)	0/P
.... 11	0v LOGIC		
04	Remote OFF A	(active low)	I/P
.... 12	OFF LAMP TALLY A	(12Vdc 3OmA)	0/P
05	Remote OFF B	(active low)	I/P
.... 13	OFF LAMP TALLY B	(12Vdc 3OmA)	0/P
06	0v LOGIC		
.... 14	TALKBACK A	(active low)	I/P
07	TALKBACK B	(active low)	I/P
.... 15	COUGH A	(active low)	I/P
08	COUGH B	(active low)	I/P

TELCO MODULE (2003R)

AUDIO

SEND (to hybrid) 3 PIN XLR Male
RETURN (from hybrid) 3 PIN XLR Female

BALANCED

Pin 1 – Screen
Pin 2 – Audio +(HOT)
Pin 3 – Audio - (COLD)
(For unbalanced use connect 'HOT' to pin 2, Screen to pin 1 and link pins 1 & 3 together)

LOGIC - 15 Way 'D' type female socket on rear panel

Pin	**Function**		
01	0v LOGIC		
.... 09	ON remote	(active low)	I/P
02	ON LAMP TALLY	(12Vdc 3OmA)	0/P
.... 10	0v LOGIC		
03	OFF remote	(active low)	I/P
.... 11	OFF LAMP TALLY	(12Vdc 3OmA)	0/P
04	0v LOGIC		
.... 12	HOLD	(active low)	I/P
05	0v LOGIC		
.... 13	EXT LINE HOLD	(active low)	I/P
(constant)			
06	EXT LINE HOLD	(active high)	I/P
(constant)			
.... 14	N/C		
07	LINE HOLD	(OPTO+)	0/P
.... 15	LINE HOLD	(OPTO-)	0/P
08	N/C		

CONTROL ROOM MONITOR MODULE (2007R)

CON1 25 Way 'D' type male connector on rear panel

Pin	**Function**	
01	Screen	
…14	+ audio	'Definable input 1' LEFT
02	- audio	
…15	Screen	
03	+ audio	'Definable input 2' LEFT
…16	- audio	
04	Screen	
…17	+ audio	'Definable input 3' LEFT
05	- audio	
…18	Screen	
06	+ audio	'Definable input 4' LEFT
…19	- audio	
07	Screen	
…20	+ audio	'Definable input 5' LEFT
08	- audio	
…21	Screen	
09	+ audio	'AIR' LEFT
…22	- audio	
10	Screen	
…23	Left	Control Room Monitor Speakers Output (unbalanced)
11	Right	
…24	Screen	
12	Cue/incoming talkback Output (muted by CR Red Light) (unbalanced)	
…25	Screen	
13	N/C	

CON2 **-** 25 Way 'D' type male connector on rear panel

Pin	**Function**	
01	Screen	
…14	+audio	'Definable input' RIGHT
02	- audio	
…15	Screen	
03	+ audio	'Definable input 2' RIGHT
…16	- audio	
04	Screen	
…17	+ audio	'Definable input 3' RIGHT
05	- audio	
…18	Screen	
06	+ audio	'Definable input 4' RIGHT
…19	- audio	
07	Screen	
…20	+ audio	'Definable input 5' RIGHT
08	- audio	
…21	Screen	
09	+ audio	'AIR' RIGHT
…22	- audio	
10	Screen for	CONTROL ROOM HEADPHONE OUTPUT ONLY
…23	Left	CONTROL HEADPHONE OUTPUT

11	Right	
…24	Screen for	GUEST HEADPHONE OUTPUT ONLY
12	Left	GUEST HEADPHONE OUTPUT
…25	Right	
13	Screen	

CON3 - 15 Way 'D' type female socket on rear panel

Pin	**Function**		
01	Audio ground		
…09	Talkback + audio inject		
02	Talkback - audio inject		
…10	0v LOGIC		
03	Talkback enable	(active high)	I/P
…11	Talkback enable	(active low)	I/P
04	0v LOGIC		
…12	Mute enable	(active high)	I/P
05	Mute enable	(active low)	I/P
…13	Mute out	(opto +)	0/P
06	Mute out	(opto -)	0/P
…14	0v LOGIC		
07	Red light - control room	(12Vdc 3OmA)	
…15	0v LOGIC		
08	Red light – studio	(12Vdc 3OmA)	0/P

STUDIO MONITOR (2005R)

CON4 **-** 25 Way 'D' type male connector on rear panel

Pin	**Function**	
01	Screen	
…14	+ audio	'Definable input' LEFT
02	- audio	
…15	Screen	
03	+ audio	'Definable input 2' LEFT
…16	- audio	
04	Screen	
…17	+ audio	'Definable input 3' LEFT
05	- audio	
…18	Screen	
06	+ audio	'Definable input 4' LEFT
…19	- audio	
07	Screen	
…20	+ audio	'Definable input 5' LEFT
08	- audio	
…21	Screen	
09	+ audio	'AIR' LEFT
…22	- audio	
10	Screen	
...23	Left STUDIO MON SPEAKERS (unbalanced)	
11	Right	
...24	N/C	
12	N/C	
...25	N/C	
13	N/C	

CON5 **-** 25 Way 'D' type male socket on rear panel

Pin	**Function**	
01	Screen	
...14	+ audio	'Definable input 1' RIGHT
02	- audio	
...15	Screen	
03	+ audio	'Definable input 2' RIGHT
...16	audio	
04	Screen	
...17	+ audio	'Definable input 3' RIGHT
05	- audio	
...18	Screen	
06	+ audio	'Definable input 4' RIGHT
...19	- audio	
07	Screen	
...20	+ audio	'Definable input 5' RIGHT
08	- audio	
...21	Screen	
09	+ audio	'AIR' RIGHT
...22	- audio	
10	Screen for HOST HEADPHONES ONLY	
...23	Left HOST HEADPHONES OUTPUT	
11	Right	

...24	Screen for GUEST HEADPHONES ONLY			
12	Left GUEST HEADPHONES ONLY			
...25	Right			
13	N/C			

CON **-** 9 Way 'D' type female socket on rear panel

Pin	**Function**			
01	Ground			
...06	Mute	(active high)	I/P	
02	Mute	(active low)	I/P	
...07	Mute	(OPTO +)	0/P	
03	Mute	(OPTO -)		0/P
...08	N/C			
04	N/C			
...09	Ground			
05	Studio Red light	(12Vdc 40A)		0/P

OUTPUT/ON AIR MODULE (2006R)

MATRIX LOGIC **-** 9 way 'D' type female socket on rear panel (Switched momentary to 0v logic)

Pin	**Function**	
01	0v LOGIC	
...06	AIR LED	(active low)
02	AIR Switch	
...07	OFFER LED	(active low)
03	OFFER Switch	
...08	DELAY LED	(active low)
04	Delay Switch	
...09	DUMP LED	(active low)
05	DUMP Switch	

USER DEFINABLE SWITCHES

- 25 Way 'D' type female socket on rear panel

Pin	**Function**		
01	GROUND		
...14	LED 1	(active high)	I/P
02	LED 1	(active low)	I/P
…15	SWITCH 1 pole		
03	SWITCH 1 pole		
...16	GROUND		
04	LED 2	(active high)	I/P
...17	LED 2	(active low)	I/P
05	SWITCH 2 pole		
...18	SWITCH 2 pole		
06	GROUND		
...19	LED 3	(active high)	I/P
07	LED 3	(active low)	I/P
...20	SWITCH 3 pole		
08	SWITCH 3 pole		
...21	GROUND		
09	LED 4	(active high)	I/P
...22	LED 4	(active low)	I/P
10	SWITCH 4 pole		
...23	SWITCH 4 pole		
11	GROUND		
...24	LED 5	(active high)	
12	LED 5	(active low)	
...25	SWITCH 5 pole		
13	SWITCH 5 pole		

OUTPUT/ON AIR MODULE (2006R)

MAIN OUTPUTS **-** 25 Way 'D' male connector on rear panel

Pin	**Function**	
…01	Screen	
14	+	PGM 1 OUTPUT LEFT
…02	-	
15	Screen	
...03	+	PGM 1 OUTPUT RIGHT
16	-	
...04	Screen	
17	+	PGM 2 OUTPUT LEFT
…05	-	
18	Screen	
...06	+	PGM 2 OUTPUT RIGHT
19	-	
...07	Screen	
20	+	RECORD OUTPUT LEFT
...08	-	
21	Screen	
...09	+	RECORD OUTPUT RIGHT
22	-	
...10	Screen	
23	+	AUX OUTPUT LEFT
...11	-	
24	Screen	
...12	+	AUX OUTPUT RIGHT
25	-	
…13	N/C	

8 WAY INPUT EXTENDER (2008R)

AUDIO INPUTS - LEFT - 25 Way 'D' type female socket on rear panel

Pin	Function	
...01	Screen	
14	+ audio	INPUT 1 LEFT
...02	- audio	
15	Screen	
...03	+ audio	INPUT 2 LEFT
16	- audio	
...04	Screen	
17	+ audio	INPUT 3 LEFT
...05	- audio	
18	Screen	
...06	+ audio	INPUT 4 LEFT
19	- audio	
...07	Screen	
20	+ audio	INPUT 5 LEFT
...08	- audio	
21	Screen	
...09	+ audio	INPUT 6 LEFT
22	- audio	
...10	Screen	
23	+ audio	INPUT 7 LEFT
...11	- audio	
24	Screen	
...12	+ audio	INPUT 8 LEFT
25	- audio	
...13	N/C	

AUDIO INPUTS - RIGHT - 25 Way 'D' type female socket on rear panel

Pin	Function	
01	Screen	
...14	+ audio	INPUT 1 RIGHT
02	- audio	
...15	Screen	
03	+ audio	INPUT 2 RIGHT
...16	- audio	
04	Screen	
...17	+ audio	INPUT 3 RIGHT
05	- audio	
...18	Screen	
06	+ audio	INPUT 4 RIGHT
...19	- audio	
07	Screen	
...20	+ audio	INPUT 5 RIGHT
08	- audio	
...21	Screen	
09	+ audio	INPUT 6 RIGHT
...22	- audio	
10	Screen	
...23	+ audio	INPUT 7 RIGHT

11	- audio	
...24	Screen	
12	+ audio	INPUT 8 RIGHT
...25	- audio	
13	N/C	

AUDIO OUTPUTS

- 1 5 Way 'D' type male connector on rear panel

Pin	**Function**	
01	Screen	
...09	+ audio	0/P A LEFT
02	- audio	
...10	Screen	
03	+ audio	0/P B LEFT
...11	- audio	
04	Screen	
...1 2	+ audio	0/P A RIGHT
05	- audio	
...13	Screen	
06	+ audio	0/P B RIGHT
...14	- audio	
07	N/C	
...15	N/C	
08	Chassis	

TAPE REMOTE (Where fitted) (2009R)

TAPE 1/2/3 LOGIC - 25 Way 'D' type female socket on rear panel

Pin	**Function**		**Tape 1/Tape 2/Tape 3**		
01	Ground				
...14	REC	(active low)	J5	J10	J15
02	REC	(active high)			
…15	STOP	(active low)	J6	J11	J16
03	STOP	(active high)			
...16	PLAY	(active low)	J7	J12	J17
04	PLAY	(active high)			
...17	REW	(active low)	J8	J13	J18
05	REW	(active high)			
...18	F/F	(active low)	J9	J14	J19
06	F/F	(active high)			
...19	REC	closing pair			
07	REC	closing pair			
...20	STOP	closing pair			
08	STOP	closing pair			
...21	PLAY	closing pair			
09	PLAY	closing pair			
...22	REW	closing pair			
10	REW	closing pair			
...23	F/F	closing pair			
11	F/F	closing pair			
...24	N/C				
12	N/C				
...25	N/C				
13	Ground				