# AIR 2000 Broadcast Console

# User Manual

**THE CONCEPT**

The ALICE AIR 2000 Broadcast console 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 many 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.

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 gives individual gain pre-set 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 pre-set 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 follow 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 junctions 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 MICROPHONE MODULE (2001/2101)

GENERAL - The dual input microphone module features two, separate, state of the art, transformer less pre-amplifiers with a noise figure, at full gain, within 0.5dB of theoretical limits and a common mode rejection typically better than 2OdB. 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 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 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 - 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 indented 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.

**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 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 indent to allow easy location of 'unity gain' position.

INPUT SELECT - Selects between the “A” and “B” stereo line inputs and 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.

**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 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 indented 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.

**OUTSIDE SOURCE MODULE (2004)**

GENERAL - The 2004 Outside Source Channel adds support for remote sources using modern wide-bandwidth links. One channel can accommodate four such sources and provide each with a stereo, full-bandwidth cue feed. Cue feeds can be individually assigned to receive programme (desk output) or a cleanfeed (desk output with the outside source material removed). The internal electronic mix-minus stage offers high rejection across the full audio band.

Two talkback circuits allow communication with all sources whether selected or not.
An auxiliary stereo input can optionally be mixed into the cue feed.

GAIN TRIM - varies the gain applied to the source signal between 10dB of loss and 10dB of gain. A centre detent marks 0dB.

CLEANFEED indicator - when lit, indicates that the selected source is receiving a cleanfeed rather than a straightforward programme feed.

SOURCE SELECT Switches - one source from the four available is selected to provide the input signal for the channel, and can be fed to the PGM, REC, and AUX busses in the usual way. The selected source receives a cue feed switchable between programme and cleanfeed (the four sources can have different settings) by internal links or an external logic signal, while the three unselected sources naturally receive a straight programme feed. The cue feeds can optionally be forced into mono internally.
L/R/MONO Switches - the same flexible routing found on other Air 2000 channels can accommodate a wide range of input formats in both stereo and mono.

SPLIT CUE - when stereo cue feeds are in use, the split cue option prevents talkback from completely overriding the normal cue audio. If selected, talkback appears on the right feed with dimmed mono audio on the left channel for monitoring.

TALK to STANDBY - a push-to-talk button allowing simple unidirectional communication with the three unselected sources. The Air 2000's sensitive internal talkback microphone is used as the source of talkback audio, which is sent to the sources down their cue feeds (see also Split Cue above).

REC button - use of the REC button assigns the channel to the Air 2000's off-line record bus. When in this mode, it is removed from the main mix regardless of the position of the fader, etc. With judicious use of this feature, a programme can be recorded while a second, separate programme is presented live. When in REC mode, the cue feeds (whether normal or cleanfeed) will be derived from the record bus rather than the programme bus.

AUX button - the AUX bus is an uncommitted general-purpose stereo bus provided for the convenience of users. A channel can be fed to the AUX bus regardless of whether it is assigned to the programme or record bus and use of the AUX bus does not remove the channel from any of the other busses.

TALK pushbutton - a 'push-to-talk' button allowing communication with the selected source. Again, the Air 2000 internal talkback microphone is used. By placing the 2004 channel in CUE mode, full bidirectional communication is possible with the selected source - outgoing talkback travels via the cue feeds, while the selected source can respond on its normal programme line (see also Split Cue above).

CUE pushbutton - also known as pre-fade or audition, placing the channel in CUE mode allows auditioning of the selected source material prior to its use on-air.

FADER start - with fader start selected, the channel will automatically be turned on when the fader is raised from its end-stop and turned off again when the fader returns to the bottom of its travel. 7 © Alice Ltd 2019 v4

ON pushbutton - when the ON button is illuminated, the fader is live and able to feed audio to either the programme or record bus (whichever is selected).

OFF pushbutton - when the OFF button is lit, the channel is prevented from contributing to the mix, regardless of fader position. Some operators prefer to leave the fader at the top of its travel and control the channel simply with the ON and OFF buttons. Others rather use the fader conventionally, either with or without fader start.

**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 Headphones - Separate level control for guest headphones, which are not interrupted by cue or talkback.

CONTROL (Presenter) Headphones - 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.

**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 (2008) - 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) – Discontinued - 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 MICROPHONE MODULE (2001/2101)**

AUDIO LEVEL PRE-SET CONTROLS
“A” INPUT
RV1 pre-sets the channel input gain.
“B” INPUT
RV2 pre-sets the 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.

PHANTOM POWER – 48v

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.

**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.

**TELCO INPUT MODULE (2003)**

AUDIO LEVEL PRE-SET CONTROLS

RV1 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.

**OUTSIDE SOURCE MODULE (2004)**

In all cases the default position is Position A.

LK1 and LK3 (operate as a pair)
Position A = auxiliary inputs omitted from PGM audio.
Position B = auxiliary inputs mixed with PGM audio.

LK2 and LK4 (operate as a pair)
Position A = auxiliary inputs omitted from REC audio.
Position B = auxiliary inputs mixed with REC audio.

LK5, LK7, LK9 and LK11 (operate together)
Position A = stereo cue feeds.
Position B = mono cue feeds (available on L and R).

LK6 and LK10 (operate as a pair)
Position A = selected source receives both cue audio and talkback.
Position B = selected source receives talkback only.

LK8 and LK12 (operate as a pair)
Position A = unselected sources receive both cue audio and talkback.
Position B = unselected sources receive talkback only.

LK13
Position A = CUE reset by fader opening when channel on.
Position B = CUE reset by fader opening only.

LK14 (source 1), LK15 (source 2), LK16 (source 3) and LK17 (source 4)
Position A = cue output receives programme feed when source selected.
Position B = cue output receives cleanfeed when source selected.
Put all links in Position A when remote cleanfeed selection is to be used.

LK18
Position A = ON opto output is momentary.
Position B = ON opto output is continuous.

LK19
Position A = OFF opto output is momentary.
Position B = OFF opto output is continuous.

LK20
Position A = channel able to control event timer.
Position B = channel unable to control event timer.

LK21
Position A = ON opto operates regardless of fader position.
Position B = ON opto operates only when fader open.

**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.

**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).

**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”.

**TIMERS** – JUMPER ASSIGNATION

| Jumper | To left of board | To right of board | Default |
|---|---|---|---|
| LK1 | LK1,2,3 together set the freeze time | | Left |
| LK2 | of the PGM timer as it is reset. | | Left |
| LK3 | All left = min. time, all right = max. time | | Left |
| LK4 | Test mode on | Test mode off | Right |
| LK5 | MIC timer leading zero blanking on | MIC timer leading zero blanking off | Right |
| LK6 | PGM timer trigger | PGM timer trigger | Left |
| LK7 | active low | active high | Left |

# CONNECTIONS

**DUAL INPUT MICROPHONE MODULE (2001R)**

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

**DUAL INPUT STEREO LINE MODULE (2002R)**

BALANCED AUDIO - 2 x 3 pin XLR female sockets per input - 2 inputs per channel
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 (12Vdc, 3OmA) | 0/P |
| .... 15 | 0v LOGIC | |
| 03 | OFF remote switch (active low) | I/P |
| .... 16 | OFF LAMP TALLY (12Vdc, 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 | |
| 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 |

**TELCO MODULE (2003R)**

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

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 HOLD LINE (active low) (constant) | I/P |
| 06 | EXT HOLD LINE (active high) (constant) | I/P |
| .... 14 | N/C | |
| 07 | LINE HOLD (OPTO+) | 0/P |
| ....15 | LINE HOLD (OPTO-) | 0/P |
| 08 | N/C | |

**OUTSIDE SOURCE MODULE (2004R)**

CUE OUTPUTS - 25 way ‘D’ type male plug

| Pin | Function |
|---|---|
| 1 | Cue Output 1L GND |
| ….14 | Cue Output 1L + |
| 2 | Cue Output 1L - |
| ….15 | Cue Output 1R GND |
| 3 | Cue Output 1R + |
| ….16 | Cue Output 1R - |
| 4 | Cue Output 2L GND |
| ….17 | Cue Output 2L + |
| 5 | Cue Output 2L - |
| ….18 | Cue Output 2R GND |
| 6 | Cue Output 2R + |
| ….19 | Cue Output 2R - |
| 7 | Cue Output 3L GND |
| ….20 | Cue Output 3L + |
| 8 | Cue Output 3L - |
| ….21 | Cue Output 3R GND |
| 9 | Cue Output 3R + |
| ….22 | Cue Output 3R - |
| 10 | Cue Output 4L GND |
| ….23 | Cue Output 4L + |
| 11 | Cue Output 4L - |
| ….24 | Cue Output 4R GND |
| 12 | Cue Output 4R + |
| ….25 | Cue Output 4R - |
| 13 | GND |

SOURCE INPUTS - 25 way ‘D’ type female socket

| Pin | Function |
|---|---|
| 1 | Input 1L GND |
| ….14 | Input 1L + |
| 2 | Input 1L - |

….15 Input 1R GND
3 Input 1R +
….16 Input 1R -
4 Input 2L GND
….17 Input 2L +
5 Input 2L -
….18 Input 2R GND
6 Input 2R +
….19 Input 2R -
7 Input 3L GND
….20 Input 3L +
8 Input 3L -
….21 Input 3R GND
9 Input 3R +
….22 Input 3R -
10 Input 4L GND
….23 Input 4L +
11 Input 4L -
….24 Input 4R GND
12 Input 4R +
….25 Input 4R -
13 GND

LOGIC I/O - 25 way ‘D’ type female socket on rear panel

| Pin | Function |
|---|---|
| 1 | Auxiliary input L GND |
| ….14 | Auxiliary input L + |
| 2 | Auxiliary input L - |
| ….15 | Auxiliary input R GND |
| 3 | Auxiliary input R + |
| ….16 | Auxiliary input R - |
| 4 | Remote ON input (closing contact to LGND required) |
| ….17 | GND |
| 5 | Remote OFF input (closing contact to LGND required) |
| ….18 | ON tally output (+12V, 30mA current limit – active high) |
| 6 | GND |
| ….19 | OFF tally output (+12V, 30mA current limit – active high) |
| 7 | ON opto output + (collector of uncommitted opto-transistor) |
| ….20 | ON opto output - (emitter of uncommitted opto-transistor) |
| 8 | OFF opto output + (collector of uncommitted opto-transistor) |
| ….21 | OFF opto output - (emitter of uncommitted opto-transistor) |
| 9 | Remote cleanfeed select input, active high (5-18V required) |
| ….22 | LGND |
| 10 | Remote cleanfeed select input, (active low) closing contact |
| ….23 | N/C |
| 11 | LGND |
| ….24 | N/C |
| 12 | Talkback active output (+12V, 30mA – active high) |
| ….25 | GND |
| 13 | +12V utility supply, 50mA current limited |

**STUDIO MONITOR (2005R)**

CONNECTOR 1 - 25 Way 'D' type male plug on rear panel – RIGHT

| 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 PRESENTER HEADPHONES ONLY |
| ...23 | Left PRESENTER HEADPHONES OUTPUT |
| 11 | Right |
| ...24 | Screen for GUEST HEADPHONES ONLY |
| 12 | Left GUEST HEADPHONES ONLY |
| ...25 | Right |
| 13 | N/C |

CONNECTOR 2 - 25 Way 'D' type male plug on rear panel – LEFT

| 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 - STUDIO MON SPEAKERS |
| ...23 | Left STUDIO MON SPEAKERS (unbalanced) |
| 11 | Right STUDIO MON SPEAKERS (unbalanced) |
| ...24 | N/C |

| | | |
|---|---|---|
| 12 | N/C | |
| ...25 | N/C | |
| 13 | N/C | |

CONNECTOR 3 - 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+) | O/P |
| 03 | Mute (OPTO -) | O/P |
| ...08 | N/C | |
| 04 | N/C | |
| ...09 | Ground | |
| 05 | Studio Red light (12Vdc, 30mA) | O/P |

**OUTPUT/ON AIR MODULE (2006R)**

MATRIX LOGIC Connector 1 - 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 Connector 2 - 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) | I/P |
| 12 | LED 5 (active low) | I/P |
| ...25 | SWITCH 5 pole | |
| 13 | SWITCH 5 pole | |

MAIN OUTPUTS - 25 Way 'D' type male plug on rear panel

| Pin | Function |
|---|---|
| …01 | Screen |
| 14 | + PGM OUTPUT LEFT 1 |
| …02 | - |
| 15 | Screen |
| ...03 | + PGM OUTPUT RIGHT 1 |
| 16 | - |
| ...04 | Screen |
| 17 | + PGM OUTPUT LEFT 2 |
| …05 | - |
| 18 | Screen |
| ...06 | + PGM OUTPUT RIGHT 2 |
| 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 |

**CONTROL ROOM MONITOR MODULE (2007R)**

CONNECTOR 1 - 25 Way 'D' type male plug 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 |

CONNECTOR 2 - 25 Way 'D' type male plug 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 CONTROLHEADPHONEOUTPUT |
| 11 | Right |
| …24 | Screen for GUEST HEADPHONE OUTPUT ONLY |
| 12 | Left GUESTHEADPHONEOUTPUT |
| …25 | Right |
| 13 | Screen |

CONNECTOR 3 - 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+) | O/P |
| 06 | Mute out (opto-) | O/P |
| …14 | 0v LOGIC | |
| 07 | Red light - control room (12Vdc, 3OmA) | O/P |
| …15 | 0v LOGIC | |

08 Red light – studio (12Vdc, 3OmA) O/P

**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 OUTPUT A LEFT |
| 02 | - audio |
| ...10 | Screen |
| 03 | + audio 0UTPUT B LEFT |
| ...11 | - audio |
| 04 | Screen |
| ...1 2 | + audio 0UTPUT A RIGHT |
| 05 | - audio |
| ...13 | Screen |
| 06 | + audio 0UTPUT B RIGHT |
| ...14 | - audio |
| 07 | N/C |
| ...15 | N/C |
| 08 | Chassis |

**TAPE REMOTE (2009R)** – Discontinued

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

| Pin | Function | Tape1/ | Tape2/ | Tape3 |
|---|---|---|---|---|
| 01 | Ground | | | |
| ...14 | RECORD (active low) | J5 | J10 | J15 |
| 02 | RECORD (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 | REWIND (active low) | J8 | J13 | J18 |
| 05 | REWIND (active high) | | | |
| ...18 | FAST FORWARD (active low) | J9 | J14 | J19 |
| 06 | FAST FORWARD (active high) | | | |
| ...19 | RECORD closing pair | | | |
| 07 | RECORD closing pair | | | |
| ...20 | STOP closing pair | | | |
| 08 | STOP closing pair | | | |
| ...21 | PLAY closing pair | | | |
| 09 | PLAY closing pair | | | |
| ...22 | REWIND closing pair | | | |
| 10 | REWIND closing pair | | | |
| ...23 | FAST FORWARD closing pair | | | |
| 11 | FAST FORWARD closing pair | | | |
| ...24 | N/C | | | |
| 12 | N/C | | | |
| ...25 | N/C | | | |
| 13 | Ground | | | |

## COMPONENTS

ICs at a glance

MICROPHONE MODULE – 2001

| | |
|---|---|
| 5 U1, 2, 4, 7, 8 | TL072 |
| 2 U3, U5 | TL074 |
| 2 U6, U9 | NE5532P |
| 1 U20 | CD4001 |
| 7 U10, 11, 12, 13, 14, 15, 21 | CD4053 |
| 2 U16, 17 | CD4071 |
| 4 U22, U23, U24, U 25 | CD4072 |
| 1 U18 | CD4073 |
| 1 U19 | CD4093 |
| 2 VCA1, 2 | THAT2155 |

STEREO LINE MODULE – 2002

| | |
|---|---|
| 7 U1, 2, 3, 4, 5, 13, 14 | TL072 |
| 1 U16 | TL074 |
| 2 U24, 23 | CD4002 |
| 6 U7, 8, 9, 10, 11, 12 | CD4053 |
| 1 U21 | CD4071 |
| 2 U19, 25 | CD4093 |
| 2 U20, U22 | CD4538 |
| 2 U15, 6 | NE5532P |
| 2 ISO1, 2 | TLP521-2 |
| 2 VCA1, 2 | THAT2155 |

TELCO MODULE – 2003

| | |
|---|---|
| 4 U1, 2, 9, 12 | TL074 |
| 1 U4, 11 | NE5532P |
| 1 U14 | CD4023 |
| 6 U3, 5, 6, 7, 8, 10 | CD4053 |
| 2 U13, 15 | CD4093 |
| 1 ISO1 | TLP521-1 |

OUTSIDE SOURCE MODULE – 2004

| | |
|---|---|
| 2 U34, U35 | CD4002 |
| 13 U1, 2, 3, 4, 5, 13, 14, 15, 16 ,17, 18, 21, 27 | CD4053 |
| 2 U32, 33 | CD4093 |
| 1 U36 | CD4538 |
| 7 U19, 23, 24, 25, 29, 30, 31 | NE5532P |
| 2 VCA 1, 2 | THAT2155 |
| 1 U26 | TL071 |
| 3 U12, 22, 28 | TL072 |
| 6 U6, 7, 8, 9, 10, 11 | TL074 |
| 1 U20 | TLP521-2 |

STUDIO MONITOR – 2005

| | |
|---|---|
| 1 U9 | TL071 |
| 1 U4 | TL072 |
| 4 U1, 5, 10, 11 | TL074 |
| 5 U2, 3, 6, 7, 8 | CD4053 |
| 6 VCA1, 2, 3, 4, 5, 6 | THAT2155 |
| 1 ISO1 | TLP521-1 |

OUTPUT MODULE – 2006

| | |
|---|---|
| 14 U3, 4, 5, 6, 7, 10, 12, 13, 15, 16, 19, 20, 21, 22 | NE5532P |
| 6 U4 | NE5534 |
| 2 U1, 5, 10, 11 | CD4053 |

CONTROL ROOM MONITOR – 2007

| | |
|---|---|
| 2 U9 | TL072 |
| 9 U1, 2, 3, 7, 8, 9, 12, 13, 14 | TL074 |
| 4 U5, 6, 10, 11 | CD4053 |
| 1 U16 | CD4093 |
| 6 VCA1, 2, 3, 4, 5, 6 | THAT2155 |
| 1 ISO1 | TLP521-1 |

INPUT EXTENDER – 2008

| | |
|---|---|
| 4 U1, 4, 5, 8 | TL072 |
| 4 U2, 3, 6, 7 | NE5532P |

TALKBACK MODULE – 2010

| | |
|---|---|
| 1 U13 | TL071 |
| 1 U12 | TL072 |
| 1 U11 | NE5532P |
| 10 U1, 2, 3, 4, 5, 6, 7, 8, 9, 10 | CD4053 |