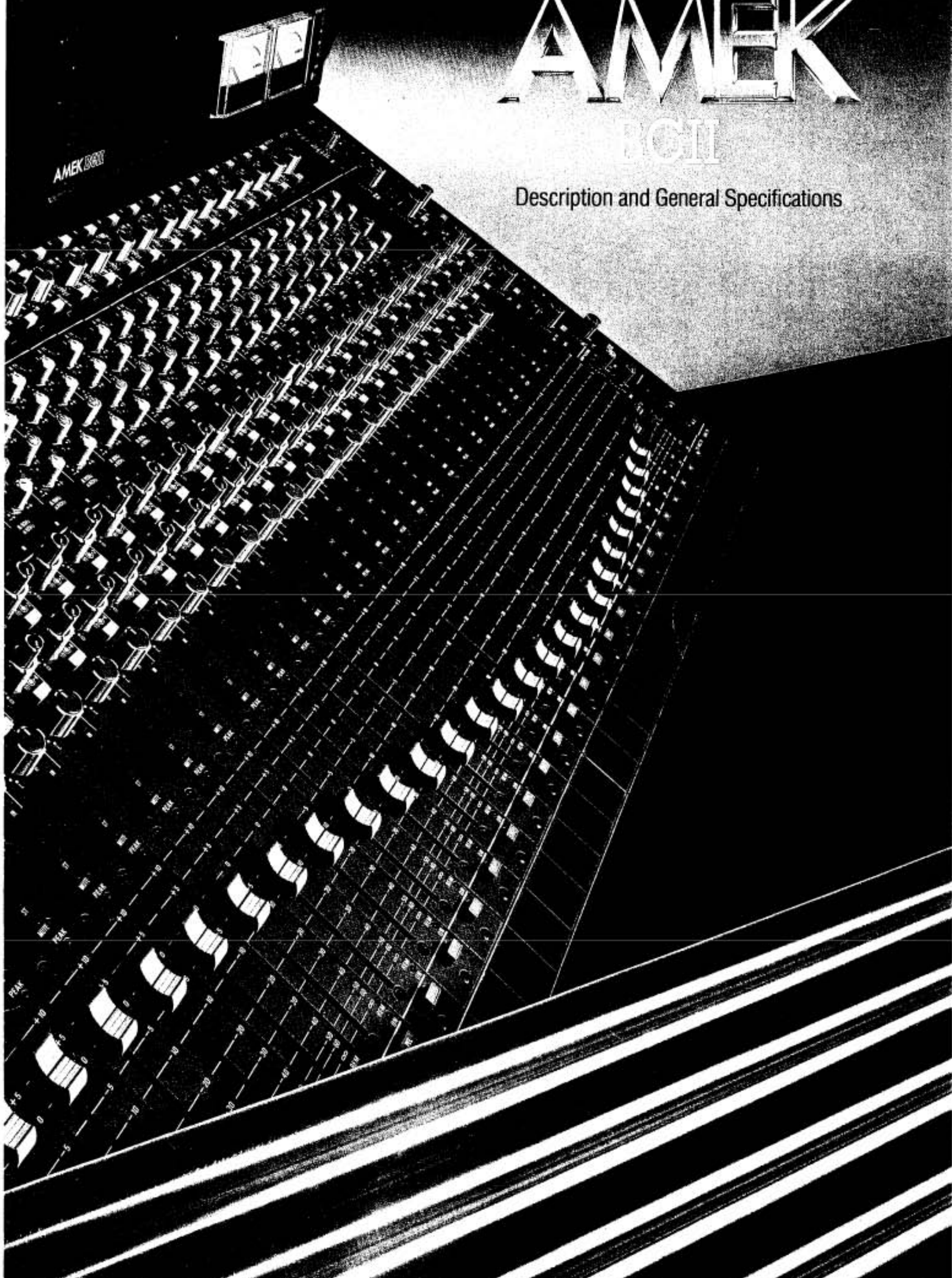


AMEK

BCI

Description and General Specifications





INTRODUCTION

- Introduction Page 1
- Module applications Page 2
- Module facilities Page 4
- Audio for video (AFV) Page 11
- Chassis systems Page 12
- Studio chassis dimensions Page 13
- Transportable & 'DT' chassis dimensions Page 14
- Mounting 'DT' consoles Page 15
- Module linking Page 16
- Connections Page 17
- Technical specification Page 18

The BCII is part of Amek's broadcast range of audio mixing consoles. Amek's use of advanced circuit devices together with well proven electro-mechanical parts has resulted in an entirely new system. Although introduced in the late 1980s, the BCII has quickly confirmed Amek's reputation for broadcast audio mixers.

The concept of the BCII is in keeping with the larger Classic console and shares some elements. This avoids excessive spares holding and the need for operators to be familiar with widely differing console systems.

AMEK's long experience of building audio mixers has produced design principles which are also followed in the BCII. These include the use of a sturdy welded steel chassis and rigid PCB motherboards using gold plated DIN 41612 type connectors for module connections.

Testing is an area in which AMEK takes particular pride. We carry out not only performance measurements, but also apply extensive listening tests to every console. This means that any undesirable phenomena that can be difficult or impossible to measure can be identified and remedied, reducing your studio commissioning time to a minimum and guaranteeing Amek's reputation for un-coloured sound.

Technical performance is of a level that it may be taken for granted though some points deserve particular mention. The balanced bussing system used provides exceptional isolation between signal paths as well as having a high immunity to stray signal pickup. This is enhanced by the steel chassis and closely balanced symmetry of the input and output stages.

To achieve the highest possible performance with parameters such as CMRR, rf rejection, noise and distortion, the entire console is transformerless. Naturally transformer input and output coupling can be used where local conditions dictate this.

Control room and studio speaker mute logic is just part of the console's extensive programmable logic system. Interlocks between "live" microphones and studio speakers are just one example of this in use.

The versatility of the console is typified by the meter systems which can be either VU or peak types using moving coil meters, LED bargraph or high resolution plasma bargraph. By combining the modules described in the following pages in almost any order the adaptability of the BCII console system can be exploited to precisely fulfill your needs.



MODULE APPLICATIONS

RANGE OF MODULES

The Amek BCII has a large family of modules to provide the widest number of options of desk configuration.

BC1115	Mono mic/line input
BC1116	Mono mic/line input with VCA fader
BC1118	Stereo line input channel
BC1119	Stereo line input channel with VCA fader
BC1125	Mono subgroup
BC1126	Mono subgroup with dynamics
BC1135	Mono output
BC1136	Stereo output
BC1137	Mono output with dynamics
BC1146	Auxiliary master with oscillator and talkback
BC1155	Dual output stereo monitor
BC1156	Single output stereo monitor
BC/COMP	Compressor/limiter

BC1115 & 6

These are the standard mono input channels and are used whenever microphone inputs are required. When the console has four subgroups and a stereo output the routing switches will be as shown in the brochure. When the groups are not fitted, blank caps are fitted on the 1-2 and 3-4 switches.

When a line channel with a continuously variable input gain is needed, the stereo channel should be used.

BC1118 & 9

Stereo inputs can be used not only for stereo sources, but also for mono sources when the L and R input switches can be used a two source selector. The other channel functions, including the pan pot, can then be used in a similar way to those on the mono channel.

In video editing systems, two mono channels may be preferable if the source material is sometimes stereo but sometimes two mono tracks since this gives greater independent control of the two signals.

BC1125 & 6

Subgroups are not always fitted, but can allow a number of channels to be processed (eg faded, equalised or compressed) simultaneously. They may be used as main outputs instead of BC1135 modules. This gives the added benefit of an auxiliary return section, though leaves a redundant pan pot and ST switch.

BC1135 & 7

BC1135/7 modules can be fitted for all or any of the console main mix busses. This means a console could have input channels and perhaps four (or six) main outputs.

There is an "invisible" buss within the console labelled 'mono'. BC1135/7 modules can feed this buss with either their pre or post fade signals. This is selected with links in the module. An additional BC1135/7 module is then used to pick up this buss and provide another console output which is a mono sum of the main stereo output.



BC1136

This stereo output module saves using two mono modules for a stereo output. If separate left and right faders are not required, it also saves a module position in the chassis.

The BC1136 can be used as a stereo subgroup, though as such it lacks the ability to disable it from feeding the main stereo out. Three BC1136 modules can be used to give two stereo subgroups and a main stereo output. Note that the total number of main mix busses is still six, even when stereo subgroups are used.

BC1146

All BCII consoles require a BC1146. This module houses not only the auxiliary master controls, but also the oscillator, talkback and the PFL circuitry.

BC1155 & 6

The BC1155 and BC1156 monitor modules can be used either on their own or in multiples to give different speaker signals for control room loudspeakers, control room headphones, studio headphones, studio loudspeakers etc.

When several monitor modules are combined the sources are normally common to all modules. The six sources on BC1155 modules will appear on the A bank of any BC1156 modules on switches 1-6. This leaves two additional A bank sources (nearest the operator) which do not appear on the BC1155 modules, as well as all of the 'B' bank extra.

BC/COMP

The BCII compressor/limiter is often supplied for mounting in the meter panel of studio chassis consoles. The inputs and outputs can then be wired either to the jack bay, or they may be hard wired into any signal path.

Identical facilities are obtained when a BC1126 or BC1137 subgroup or output module is specified.

MODULE FACILITIES

BC1115 & BC1116 MONO INPUTS

The difference between the two modules lies in the AFV (Audio Follows Video) facilities. BC1115 allows only remote muting whilst the BC1116 is fitted with a VCA, to give remote fading.

48V (Phantom power on/off) supplies 48 Volts for condenser microphones.

LINE selects the line input to the channel instead of the microphone input.

GAIN is stepped, allowing the input sensitivity of the console to be matched to the source selected. Mic sensitivity range is from -70 dB to -15 dB. Line sensitivity is from -40 dB to +15 dB.

ROLL OFF selects a 120 Hz, 18 dB/octave high-pass filter to eliminate undesirable low frequency noise. It operates on both microphone and line inputs.

PHASE reverses the phase (polarity) of whichever signal source (mic or line) is selected.

HF (High Frequency) is a shelving control with +/-14 dB boost/cut. The turnover frequency is selected by the 6K/12K switch.

MF (Middle Frequency) is a peak/dip control with +/-14 dB boost/cut. The centre frequency is selected by the frequency select control.

FREQUENCY sets the centre frequency of the MF control. The frequency is continuously variable between 220 Hz and 7 KHz.

LF (Low Frequency) is a shelving control with +/-14 dB boost/cut. The turnover frequency is switchable to 80 Hz or 160 Hz.

EQ IN when pressed brings the equaliser into circuit.

AUX SENDS 1, 2, 3 & 4 control the signal sent to the auxiliary masters for foldback and effects purposes. The inner (upper) sections control auxiliaries 1 & 3 and the outer (lower) section, auxiliaries 2 & 4.

PRE determines the source of the auxiliary send. When the PRE switch is pressed, the signal is derived pre (before) the fader and is not affected by fader movements. When PRE is up the signal is derived post (after) fader and the signal level follows fader movements. One PRE switch controls sends 1 & 2 and the other, sends 3 & 4.

PAN places the signal between odd and even busses. When anticlockwise the signal may be routed to busses 1, 3 and Left. When clockwise it may be routed to 2, 4 and Right. Between these extremes the signal may be distributed between 1-2, 3-4, L-R. The centre position gives a nominal 3 dB attenuation to each side. This allows the source to be panned from left to right with virtually no change in overall level even when re-mixed into mono.

PAN IN brings the pan control into circuit.

1-2, 3-4, ST (routing switches) send the channel signal to the selected buss(es). The designations may vary when subgroups are not fitted.

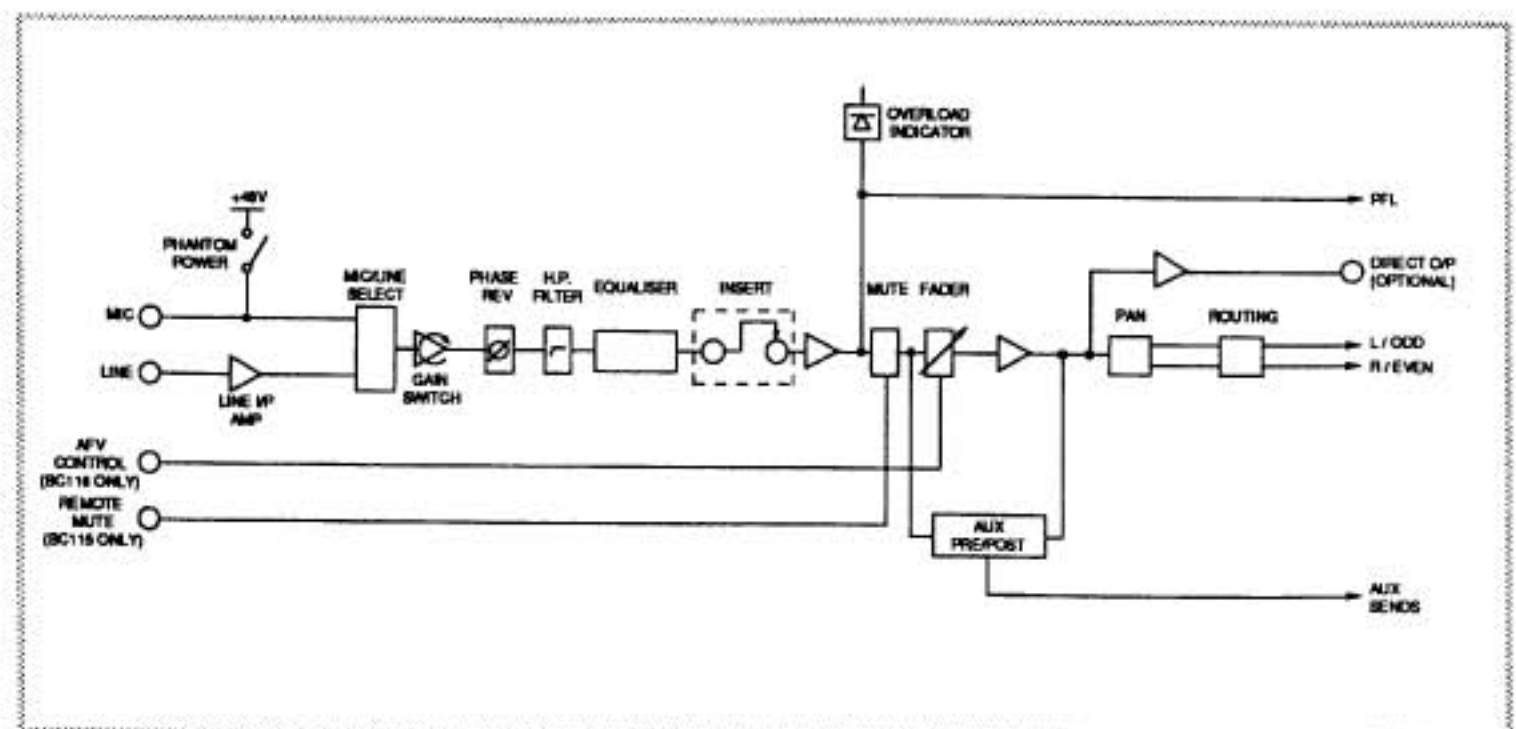
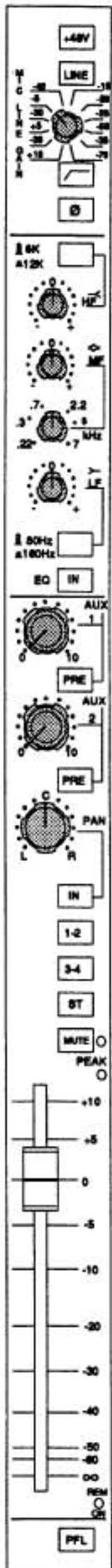
MUTE cuts all main outputs from the channel. A mute LED indicates whether the MUTE is operated, either from local or remote control.

PEAK indicator LED provides a check that the prefade signal in each channel is within the available headroom. The threshold is set at 4 dB below clipping level.

FADER adjusts the level to the GROUP, STEREO and any postfade AUX SENDS. The range is between +10 dB and less than -90 dB with the nominal setting at '0'.

REM ON is a repeat of the fader remote start and red light output.

PFL (Pre-Fade Listen) sends the channel signal derived before the fader to the console monitor system.





BC1118 & BC1119 STEREO INPUTS

The difference between the two modules lies in the AFV (Audio Follows Video) facilities. BC1118 allows only remote muting whilst the BC1119 is fitted with stereo VCAs to give remote fading via a single control circuit. MONO L routes the left input to both left and right sections of the stereo module.

MONO R routes the right input to both left and right sections of the stereo module. If both MONO L and MONO R are pressed a mono sum of the left and right inputs is fed equally to both sides of the stereo module.

GAIN has a range of ± 20 dB.

ROLL OFF selects a 120 Hz, 12 dB/octave high-pass filter which may be used to eliminate low frequency noise.

PHASE reverses the phase (polarity) of the right side of the stereo input signal.

HF (High frequency) - a shelving control with ± 14 dB boost/cut. The frequency is determined by the 6K/12K switch.

MF (Middle Frequency) - a peak-and-dip control with ± 14 dB boost/cut. The centre frequency is determined by the frequency select control.

FREQUENCY sets the centre frequency of the MF control. Frequency is variable between 220 Hz and 7 KHz.

LF (Low Frequency) - a shelving control with ± 14 dB boost/cut. The frequency is switchable to 80 Hz or 160 Hz.

EQ IN when pressed brings the equaliser into circuit.

AUX SENDS 1, 2, 3 & 4 control the amount of signal sent to the auxiliary masters for foldback (cue) and effects send purposes. The signal is a mono sum of the left and right signals.

The inner (upper) sections control the signal sent to auxiliaries 1 & 3 and the

outer (lower) sections control the signal sent to auxiliaries 2 & 4.

PRE determines the source of the auxiliary send. When pressed, the signal is derived pre (before) the fader and is not affected by fader movements. When PRE is up the signal is derived post (after) fader and the signal level follows fader movements. One PRE switch controls sends 1 & 2 and another, sends 3 & 4.

PAN places mono signals between odd and even busses. It also adjust the left/right balance of stereo signals. When fully anticlockwise, signals from the left feed busses 1, 3 and Left. When fully clockwise, signals from the right feed busses 2, 4 and Right. In between these extremes the left and right signals are given variable degrees of attenuation. In the centre position both sides are at -3 dB while at each end of the range, the signal level is normal.

PAN IN brings the pan control into circuit.

1-2, 3-4, ST (routing switches) send the channel signal to the selected busses. The designations may vary when subgroups are not fitted.

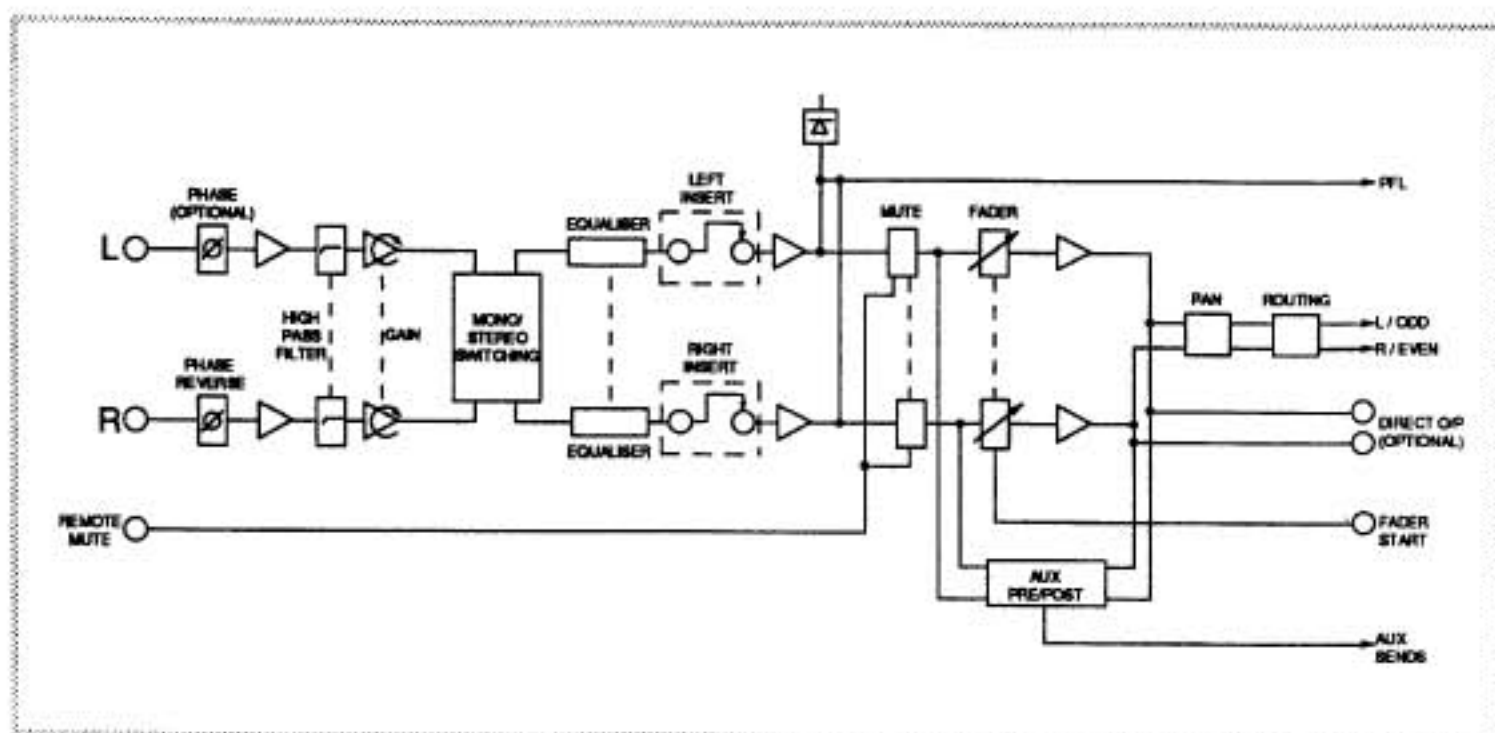
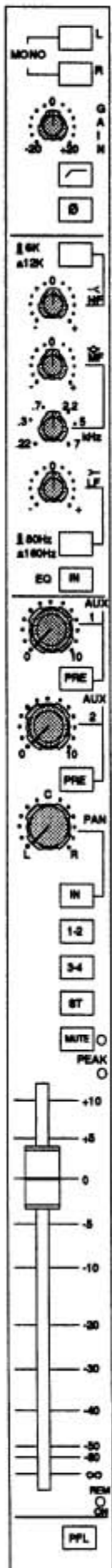
MUTE cuts all main outputs from the channel. A mute led indicates whether the MUTE is operated, either from local or remote control.

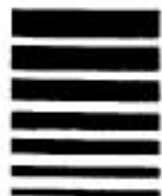
PEAK indicator led provides a check that the prefade signal in each channel is within the available headroom. The threshold is set at 4 dB below clipping level.

FADER adjusts the level to the group, stereo and any postfade auxiliary busses. The gain range is between $+10$ dB and less than -90 dB with the nominal setting at '0'.

REM ON is a repeat of the fader remote start output.

PFL (Pre-Fade Listen) sends a mono sum of the channel signal derived before the fader to the console monitor system.





AMEK BC11

BC1125 & BC1126 SUBGROUPS

Subgroup modules have two sections. The auxiliary return input provides an extra balanced line input to the console for mixing either into that group or the main stereo output. The mixing section has group controls and a balanced subgroup output. The BC1126 is similar to the BC1125 but includes a compressor/limiter.

- MUTE** cuts the auxiliary return signal.
- PFL (Pre-Fade Listen)** sends the aux return signal signal from before the (rotary) fader to the console monitor system.
- LEVEL** controls the level of the aux return.
- ST** routes aux return signal to left and right of the stereo mix buss.
- 1** (or 2, 3, 4 on other groups) routes the auxiliary return signal to the subgroup fader on that module.
- AUX SENDS 1, 2, 3 & 4** are similar to those on mono input channels and control the level of the group sent to the aux masters.
- PRE** selects either a pre or post fade source for the aux send.
- PAN** places the subgroup signal between Left and Right main outputs. When fully anticlockwise the signal may be routed to Left and when clockwise, to Right. In between the signal is balanced between the Left and Right outputs.
- PAN IN** brings the pan control into circuit.
- ST** sends the group signal to the stereo buss.
- MUTE** cuts all the main outputs from the group. A mute led indicates whether the MUTE is operated, either from local or remote control.
- FADER** adjusts the group level. The gain range is between +10 dB and less than -90 dB with the nominal setting at '0'.
- REM ON** is an indicator for the fader remote start and red light output.
- PFL (Pre-Fade Listen)** sends the prefade signal to the console monitor system.

BC/COMP COMPRESSOR/LIMITER

This may be mounted either in one of the subgroups or in the meter panel of studio chassis consoles. Internal links allow changes of attack time constant.

0, 2, 5, 10, 20 LEDs show gain reduction in dB steps.

RATIO varies the compression slope from 1:1 (linear) up to 20:1 (limiting).

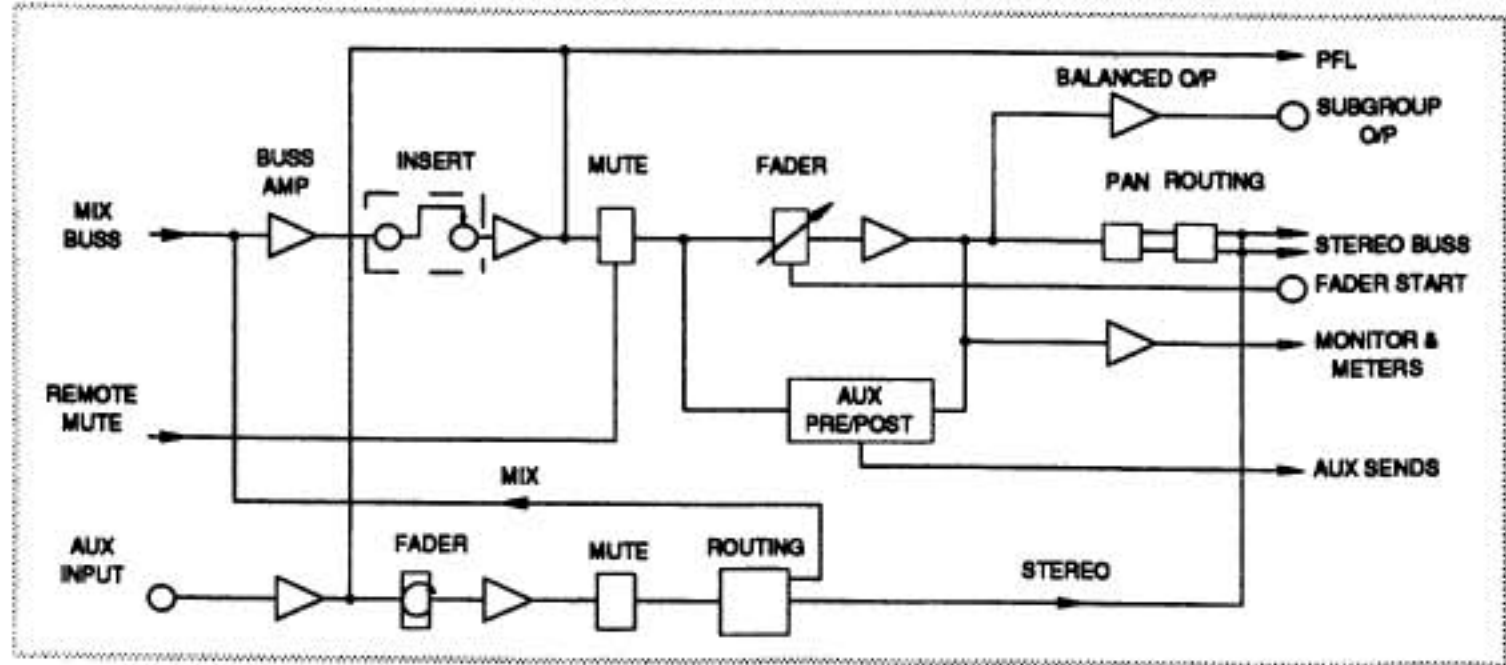
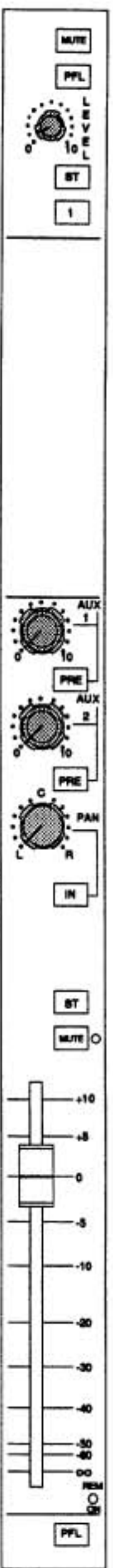
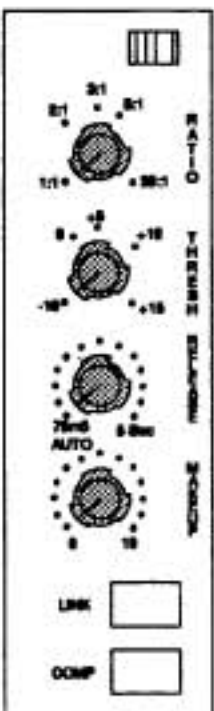
THRESHOLD is the level below which no compression or limiting will occur. The threshold is variable from -10 dBu to +15 dBu.

RELEASE determines the way in which the gain reduction decreases after an overload condition. It may be set either for **AUTO** release (2 release time constants) or set manually to give for release times continuously variable between 75 ms and 5 seconds.

MAKE-UP gain allows the signal to be brought back to normal level in situations where heavy limiting or compression has been applied. Up to 20 dB gain is available.

LINK commons the side chain control signal between different modules. The link will operate to all other modules with their 'LINK' switch depressed. Linking may be used to create 'voice over' ducking.

IN inserts the dynamics section in the signal path. If not selected the audio path will bypass the dynamics unit.



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BC1135, BC1137 MONO OUTPUTS

The BC1135 and BC1136 are outwardly similar though the BC1136 is stereo. A console can have a stereo output by using either one BC1136 or two BC1135s.

The BC1137 is identical to the BC1135 except that a dynamics section (compressor-limiter) is fitted. The dynamics section is described on page 6.

AUX SENDS 1, 2, 3 & 4 control the level of the output signal sent to the auxiliary masters for foldback (cue) and effects send purposes. The inner (upper) sections control auxiliaries 1 & 3 and the outer (lower) section, auxiliaries 2 & 4.

PRE determines the source of the auxiliary send. When the PRE switch is pressed, the signal is derived pre (before) the fader and is not affected by fader movements. When PRE is up the signal is derived post (after) fader and the signal level follows fader movements. One PRE switch controls sends 1 & 2 and the other, sends 3 & 4.

MUTE cuts all the main feeds from this output. A mute led indicates whether the MUTE is operated, either from local or remote control.

FADER adjusts the level sent to the main output and any postfade aux sends. The gain range is between 0 dB and less than -90 dB with the nominal setting at '0'.

REM ON is an indicator for the fader remote start and red light output.

PFL (Pre-Fade Listen) sends the output signal, derived before the fader, to the console monitor system.

BC1136 STEREO OUTPUTS

The BC1136 is outwardly similar to the BC1135 but has a stereo output with a stereo fader and handles signals from two mix busses. The BC1136 may also be used as a stereo subgroup.

The dynamics unit is not available on the BC1136 stereo output modules.

AUX SENDS 1, 2, 3 & 4 control the level of the output signal sent to the auxiliary masters for foldback (cue) and effects send purposes. The aux send signal is a mono sum of the left and right signal paths. The inner (upper) sections control auxiliaries 1 & 3 and the outer (lower) section, auxiliaries 2 & 4.

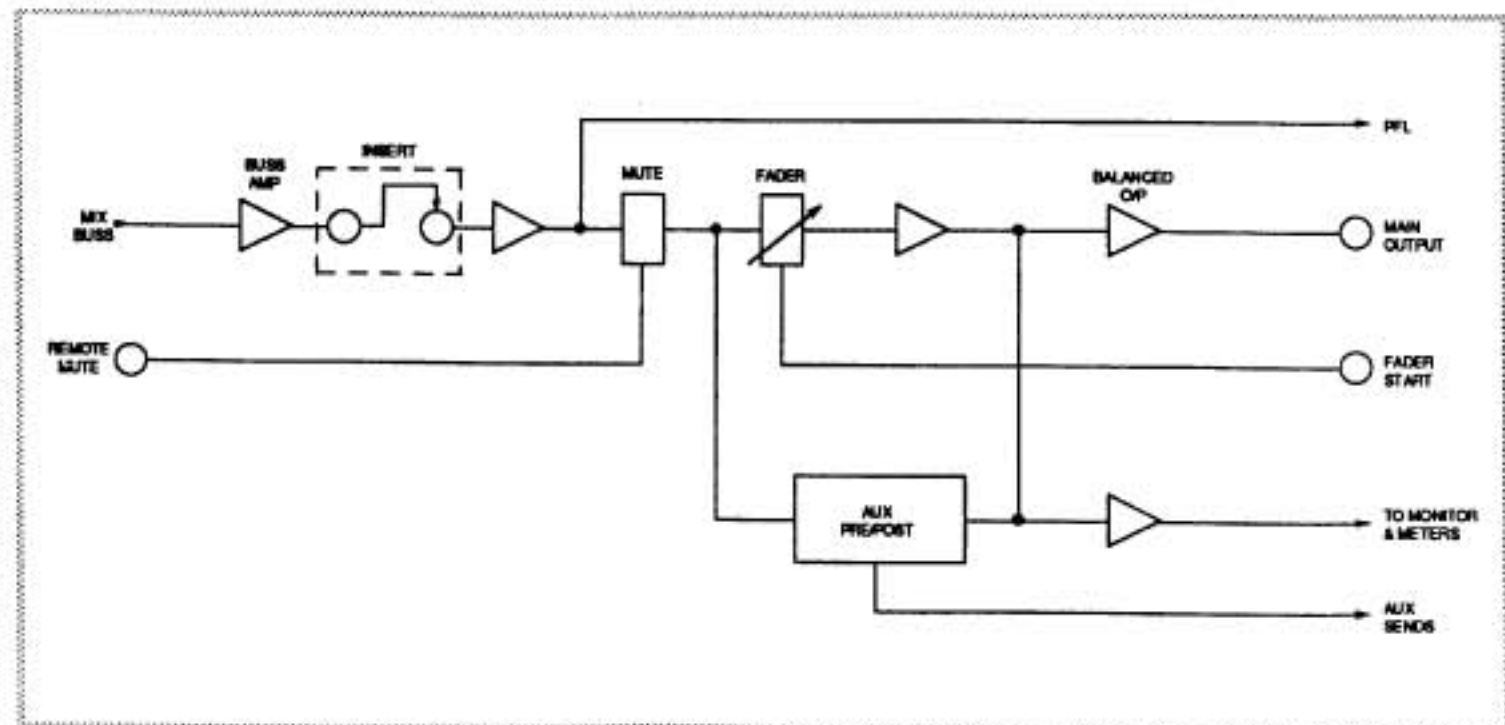
PRE determines the source of the auxiliary send. When the PRE switch is pressed, the signal is derived pre (before) the fader and is not affected by fader movements. When PRE is up the signal is derived post (after) fader and the signal level follows fader movements. One PRE switch controls sends 1 & 2 and the other, sends 3 & 4.

MUTE cuts all the main outputs from the group. A mute led indicates whether the MUTE is operated, either from local or remote control.

FADER adjusts the level sent to the main output and any postfade aux sends. The gain range is between +0 dB and less than -90 dB with the nominal setting at '0'.

REM ON is an indicator for the fader remote start and red light output.

PFL (Pre-Fade Listen) sends a mono sum of the output signal, derived before the fader, to the console monitor system.





BC1155 DUAL STEREO MONITOR

The module provides two independent stereo monitor outputs each with a six stereo source selector. The two sections are identical. One or more BC1155 modules may be fitted in the console. They may also be used together with one or more BC1156 modules.

T/B, PFL are two 3-position toggle switches which allow automatic switching of Talkback (T/B) and PFL signals to the monitor outputs. The signals may be routed to Left, Off, or both Left & - Right. In the centre position the PFL signal will not be heard on the main monitors but only on the console loudspeaker and shown on the PFL meter (if fitted). When no PFL or Talkback switch is pressed the monitor output carries the signal selected on the pushbuttons.

SOURCE switches are interlocked and select the signal to be sent to the monitor output. The top two switches are reserved for external stereo inputs such as tape machines, off-air monitoring etc., while the remainder allow auxiliary sends, subgroups and main outputs to be monitored.

LEVEL adjusts the volume of the monitor output.

MONO switches the monitor output to mono - i.e. Left + Right on both speakers.

DIM reduces the monitor outputs by 20 dB.

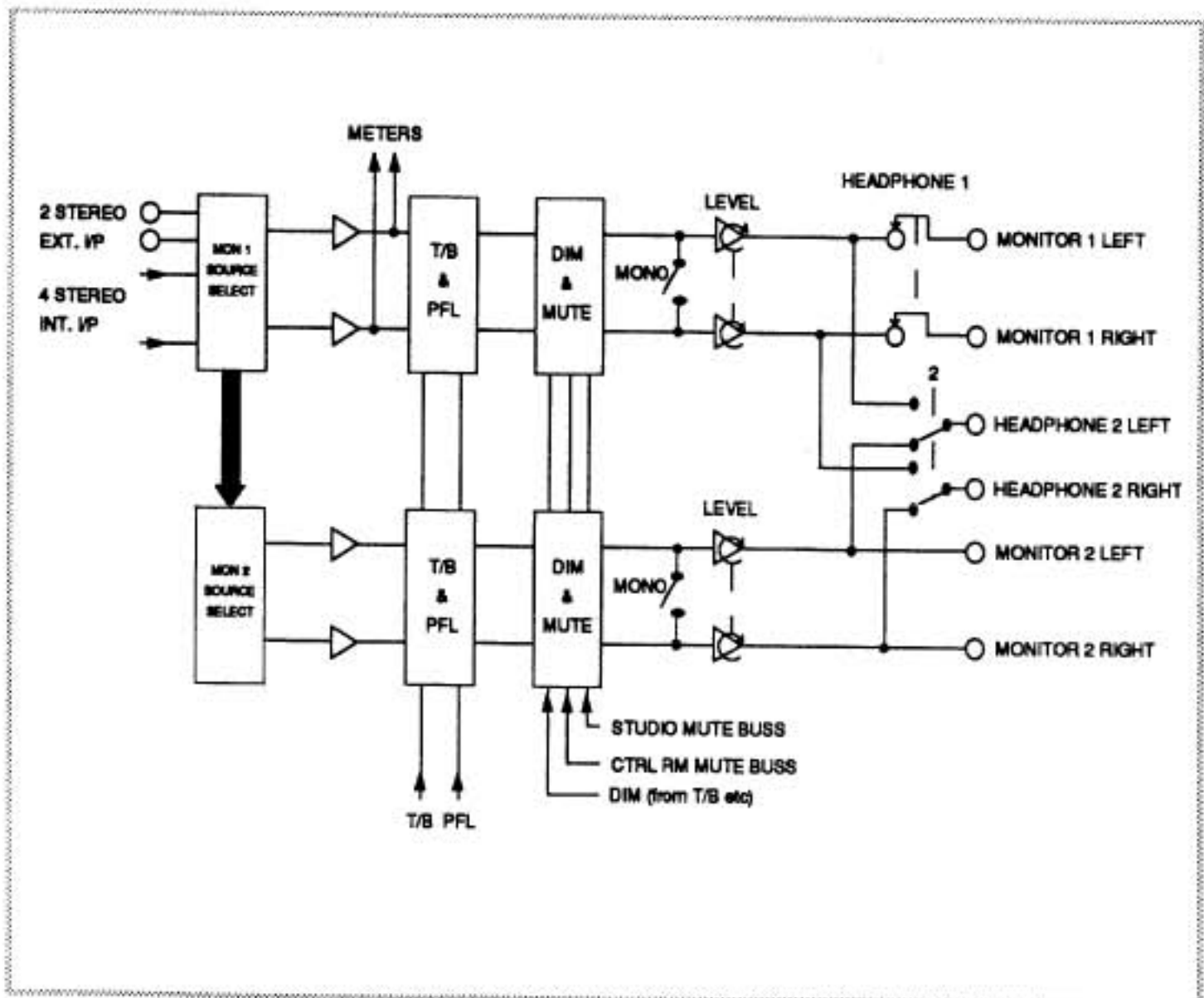
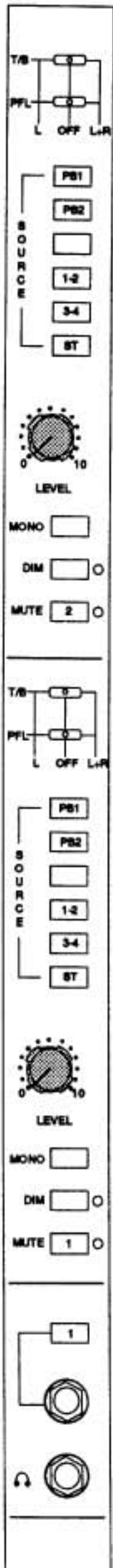
MUTE cuts the monitor output of that section completely.

HEADPHONE jack sockets, suitable for medium to high impedance headphones are provided. One socket is assigned to each or section. The lower socket carries the signal from selector 1 (nearest the operator).

1 if not pressed, allows the upper headphone socket to carry the signal from selector 2. Operation of the 1 switch replaces this signal with that from selector 1.

The headphone socket associated with this button is normally driven from the second monitor section. When this switch is operated the feed is taken from the first monitor section, allowing two sets of headphones to be driven with identical programme information.

Insertion of a plug in the selector 1 socket mutes the speaker feed from that selector. Insertion of a plug in the switchable headphone socket has no effect on speaker outputs.



BC1156 SINGLE STEREO MONITOR

The module is a comprehensive 16 stereo source selector. The monitor output can be switched to either of two stereo speaker outputs. One or more BC1156 modules may be fitted in the console. They may also be used in conjunction with BC1155 modules.

Monitor Status

3-way toggle switches allow the basic operation of the module to be preset. T/B, PFL are two 3-position toggle switches which allow automatic switching of Talkback (T/B) and PFL signals to the monitor outputs. The signals may be routed to Left, Off, or both Left & Right. In the centre position the PFL signal may not be monitored on the main monitors but only on the console loudspeaker and the PFL meter (if fitted). When no PFL or Talkback switch is pressed the monitor output carries the signal selected on the pushbuttons.

MUTE and MONO toggles affect the way the main mute and mono switches operate. The position of the mute toggle determines which monitor outputs are muted by the large push button mute switch. The mono toggle selects which monitor output will carry the monitor signal when the module is switched to mono mode.

L changes the phase of the input to the left monitor output. The three positions give $-\Phi$ (out of phase), Off (muted) or $+\Phi$ (in phase).

HEADPHONE socket is suitable for a pair of medium or high impedance stereo headphones. The signal heard will be the same as that selected to the monitor output. Internal links give the option of muting the speaker when a plug is inserted.

B - PLAYBACK sources (the 'B' group) are all line level balanced stereo inputs. The inputs are wired from a multipin connector on the rear panel. The switches are interlocked so that only one of the 'B' group can be selected at any time.

A - DIRECT sources are also stereo and interlocked so that only one may be selected at a time. The upper two switches of this group are also balanced inputs, wired from the rear panel connector like those of the 'B' group. The remaining six sources are factory preset to carry sources from inside the console. These may be desk outputs such as stereo, group and auxiliary signals. The sources wired will depend on the console facilities fitted. Whether the A or B group is heard depends on the setting of the master A/B switch and the Split switch.

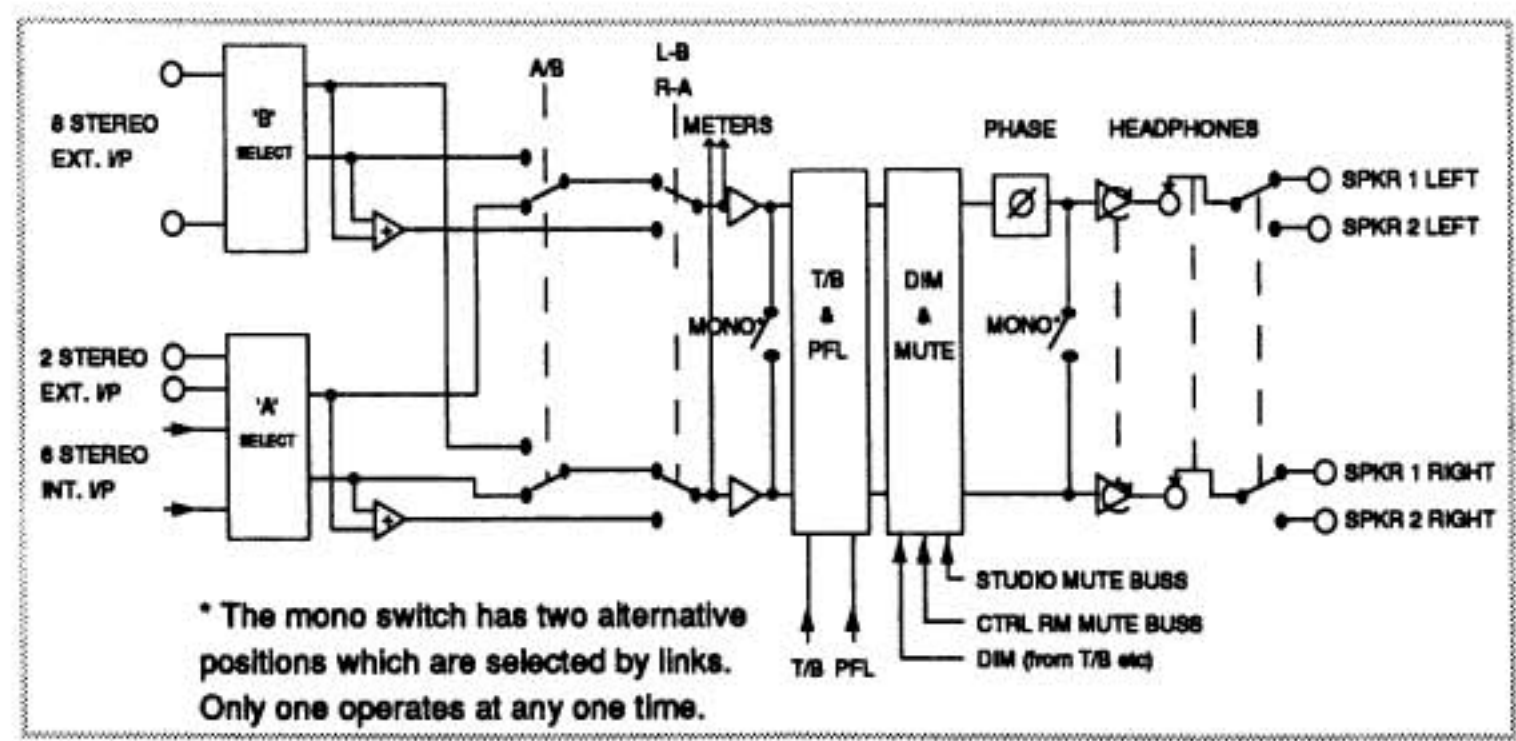
L-B works in conjunction with the master A/B R-A switch. When the L switch is pressed, it overrides the A/B function. The left monitor output is sent a mono sum of the selected 'B' source and the right monitor output receives a mono sum of the selected 'A' source.

SPKR 2 routes the monitor output to an alternative set of speaker outputs.

MONO produces a sum of the left and right monitor signals. This is sent to the left, right or both monitor outputs as selected on the status toggle switch.

DIM attenuates the monitor output level by up to 20 dB. Internal presets allow adjustment of the degree of attenuation.

MUTE switches off the monitor output and works in conjunction with the 3 way status switch at the top of the module.



* The mono switch has two alternative positions which are selected by links. Only one operates at any one time.



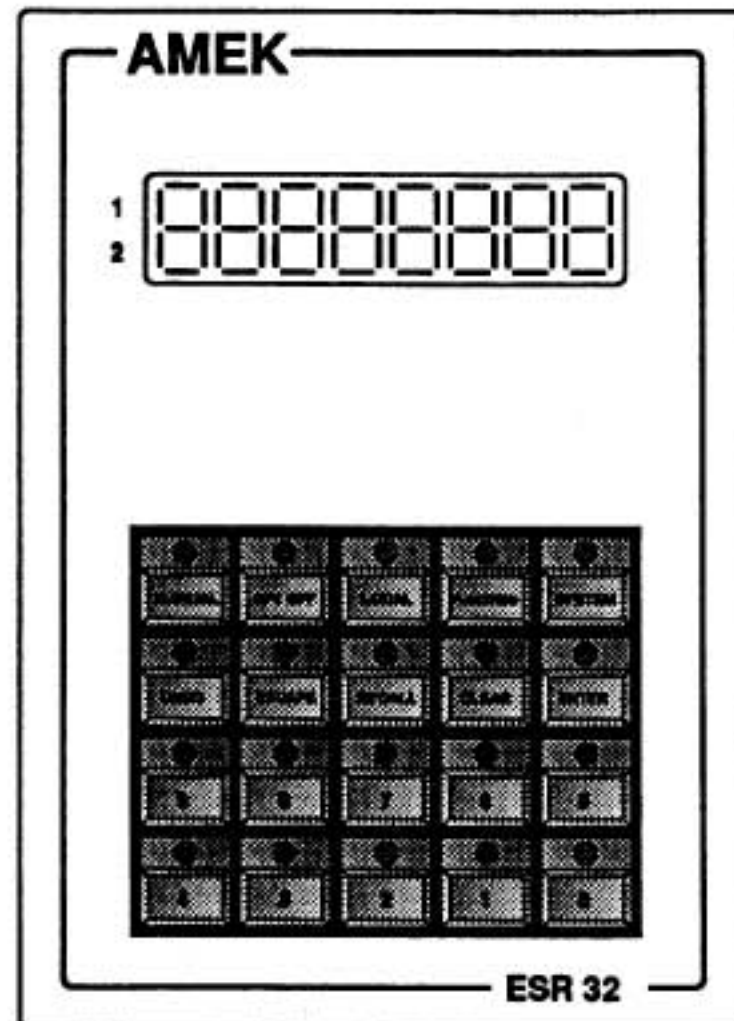
AUDIO FOR VIDEO (AFV)

The compact size and high performance of the BCII make it ideal for use in video edit suites. The console can be used as a manual system, without any control connections to the video editor though it can have a control interface for virtually any of the major video edit controllers. This adds a whole new range of creative possibilities that can be speedily produced.

VCA versions of the input channels should be chosen (eg BC1116 and/or BC1119 modules) and some edit systems can then be interfaced directly via an appropriate cable. These include most of the Sony and Convergence ranges of edit controllers.

The VCA control range is usually 0 - 10 volts but 0 - 5 volts can be supplied to special order. Remote control of some BC1156 monitor functions can also be provided where the edit controller has the appropriate facilities but should be specified with the BCII order.

Ampex, CMX, Grass Valley, Paltex and Quanta controllers require the Amek ESM32 serial interface which should be ordered with the BCII. Any other systems using the ESAM I or II control protocol should also be able control the BCII via the ESM32 but contact Amek for confirmation.



ESM32 & ESR32

The ESM32 is a microprocessor based interface in a 1U (44.5mm = 1.75") rack mounting unit. Its four sizes (ESM32/8, ESM32/16, ESM32/24 and ESM32/32) control from 8 to 32 console channels. There are no operator front panel controls. All major functions are controlled by serial data from the edit controller with user options defined in the 'set up'. Front panel indicators and self diagnostic software allow rapid checks on the unit, its software and communications status.

The ESR32 remote control is supplied with the ESM32 and gives users even more functions than can be defined by most edit systems. The ESR32 has a compact keypad giving extra options (crossfade law, machine/fader assignment AFV disable, freeze etc) which are not part of the ESAM protocol. Some ESAM functions can also be modified from the keypad to allow quicker working without going back to editor set up modes. Channels on the BCII can be freely assigned, individually or in groups, to machine controls on the editor. This is done with the ESM32 switched to a 'local' mode which allows assignments to be made from the ESR32 keyboard.

The ESM32 operates on either the ESAM I or II (ie GPS) protocols and a comprehensive set of commands are supported. Together, the Amek ESM32, ESR32 and BCII audio mixing console form an integrated edit suite audio mixer package.

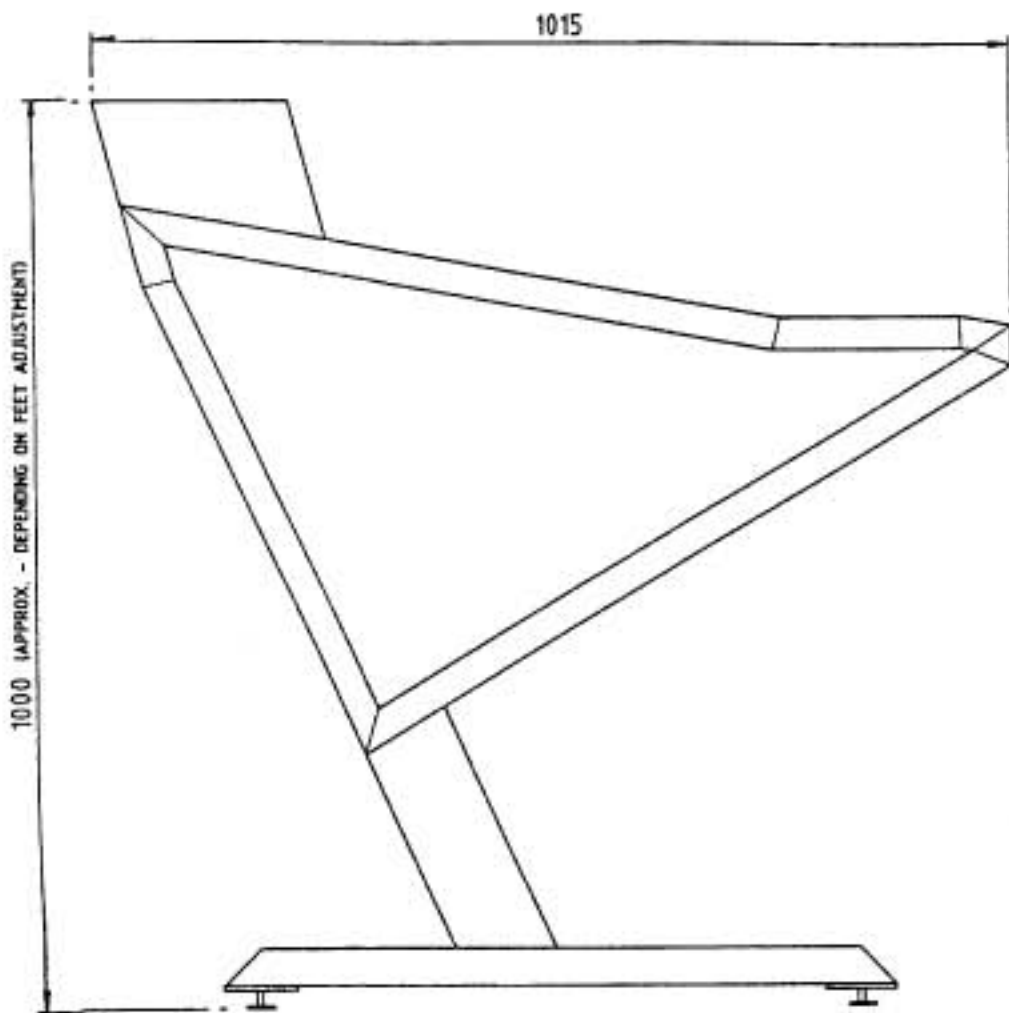
Basic commands:

- | | |
|-----------------------|---|
| • All stop | cancels all changes and restores previous conditions) |
| • From source | sets the sources active at the FROM edit point) |
| • To source | sets the sources active at the TO edit point) |
| • Transition duration | sets the length of the transition) |
| • Transition start | starts a transition) |
| • Restore from edit | resets the desk conditions after a preview edit) |
| • Fader level | sets a specified channel to an absolute gain value) |
| • Fader ramp | adjusts a channel to a new relative position in a specified number of frames) |

(ESAM I uses a similar set of commands though not all may be implemented).



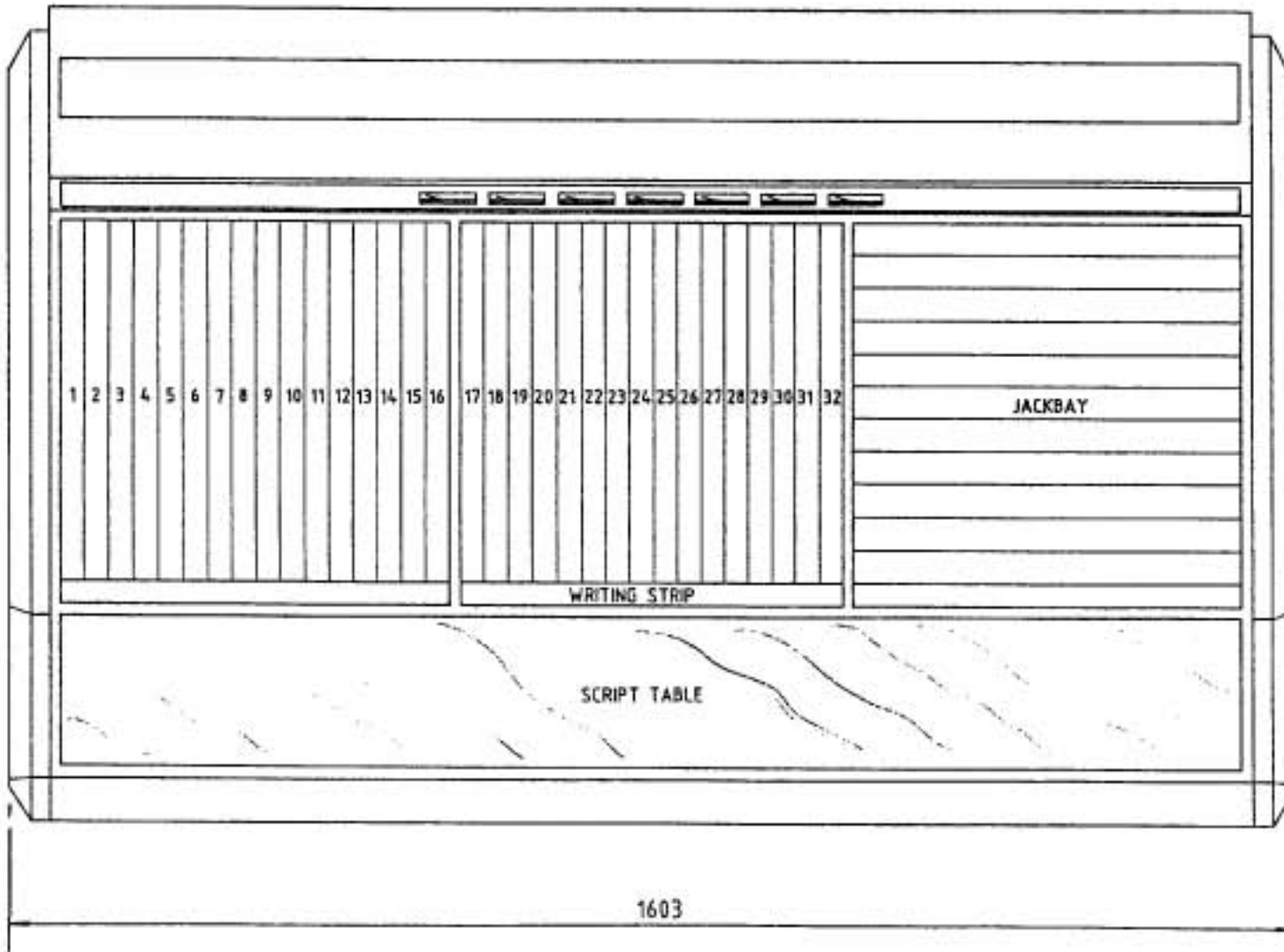
STUDIO CHASSIS DIMENSIONS



Studio chassis consoles are provided with a racking area to the right of the module bays. If a jackfield is required this must be specified together with the type of jacks required (1/4" PO type or bantam).

For installation purposes, the end wood is usually removed. This allows the console to be removed from the floor stand and carried in separately.

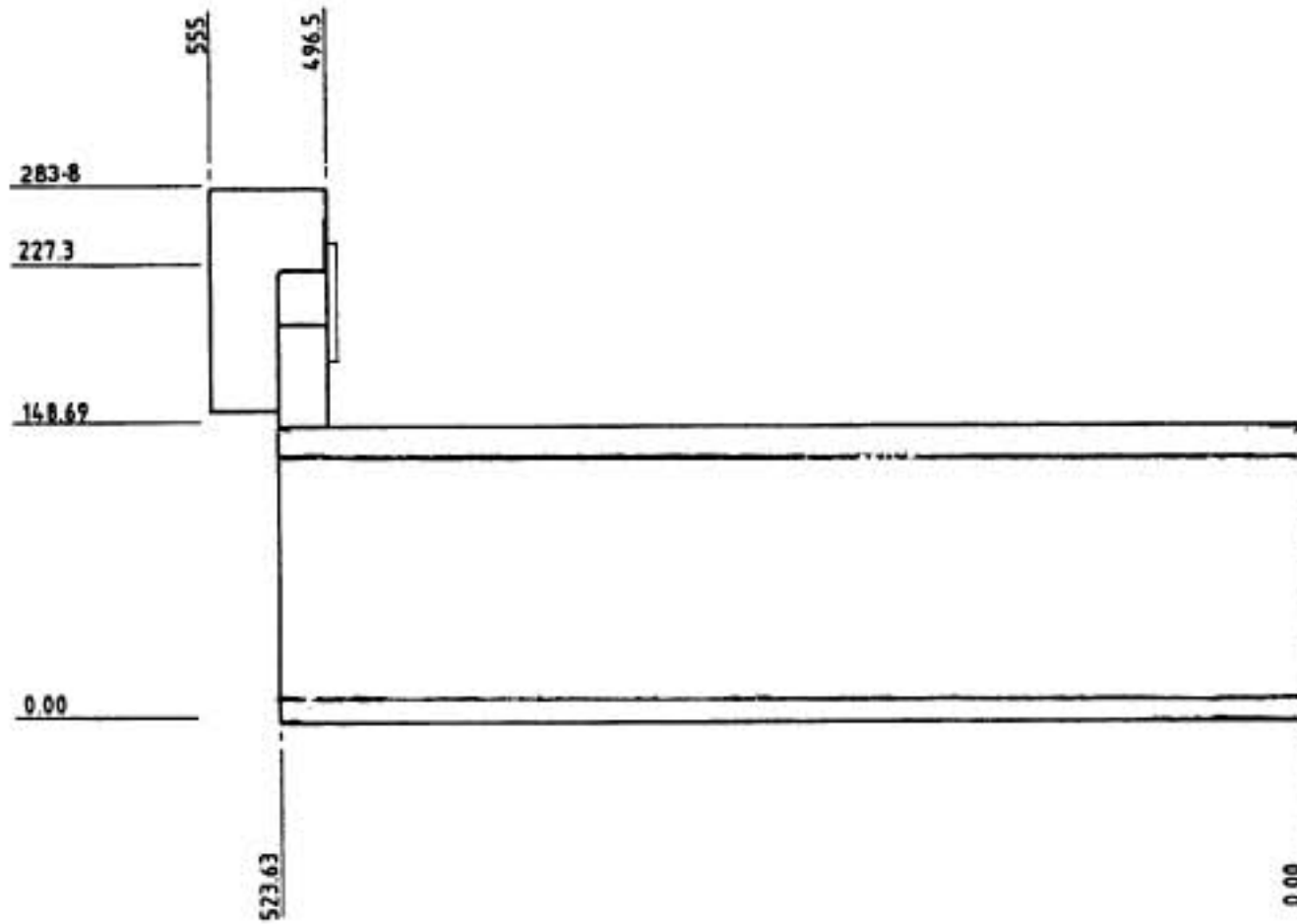
If the end wood is removed from a studio chassis console, the length is reduced by 100 mm.



Typical shipping weight is 215 Kg.



TRANSPORTABLE & DT DIMENSIONS

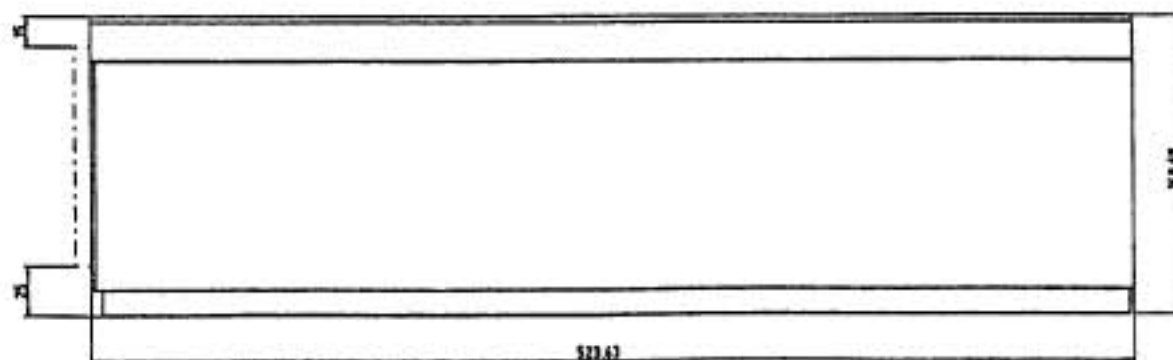


The BCII with attached meter hood is shown above. When the two or four meter hood is supplied in a detached form, it is fitted with rack mounting ears. The unit then occupies three rack units in a standard 19" rack. The detached version of the long meter hood has similar rack mounting ears, but is obviously too long to fit in a 19" rack.



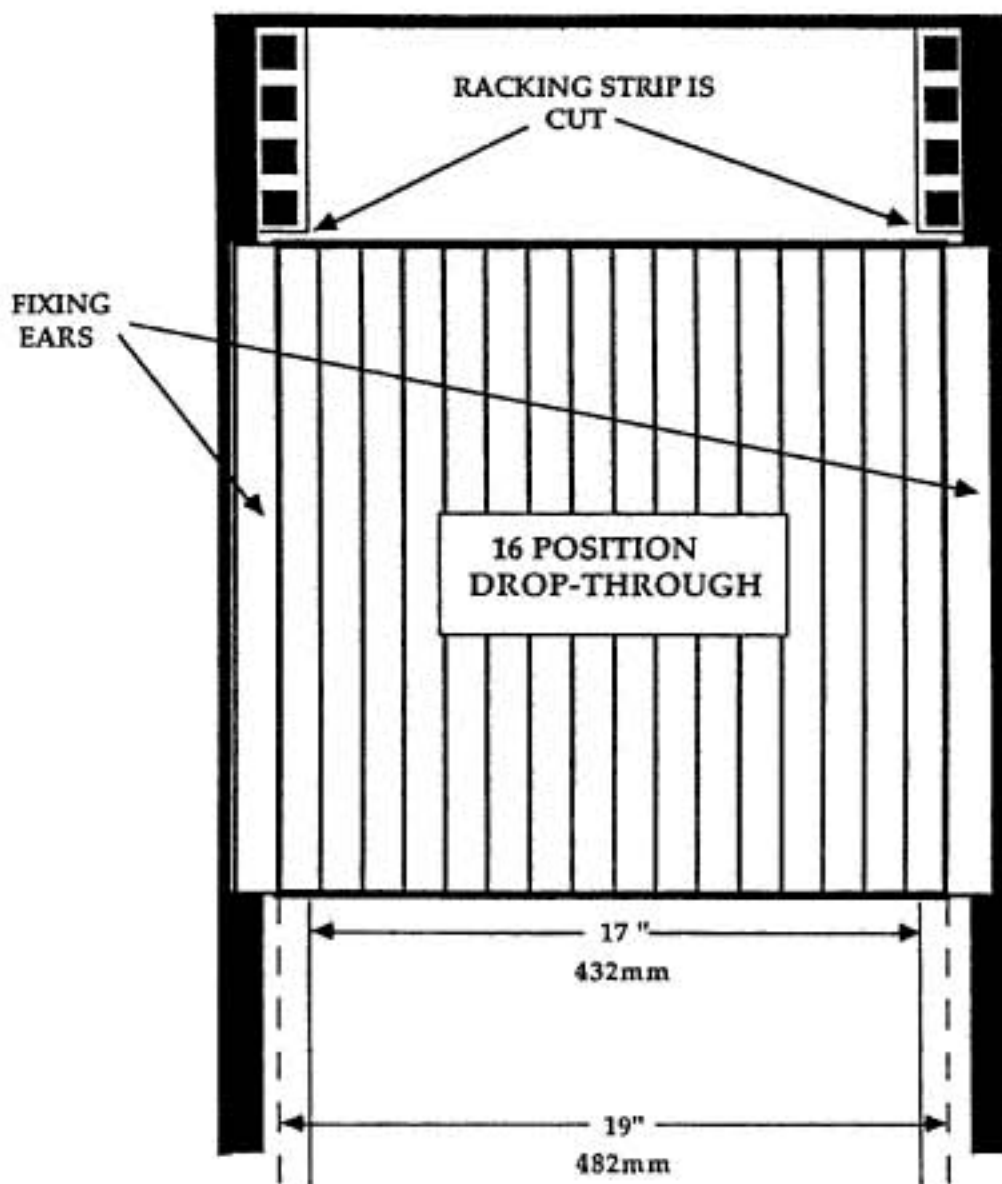
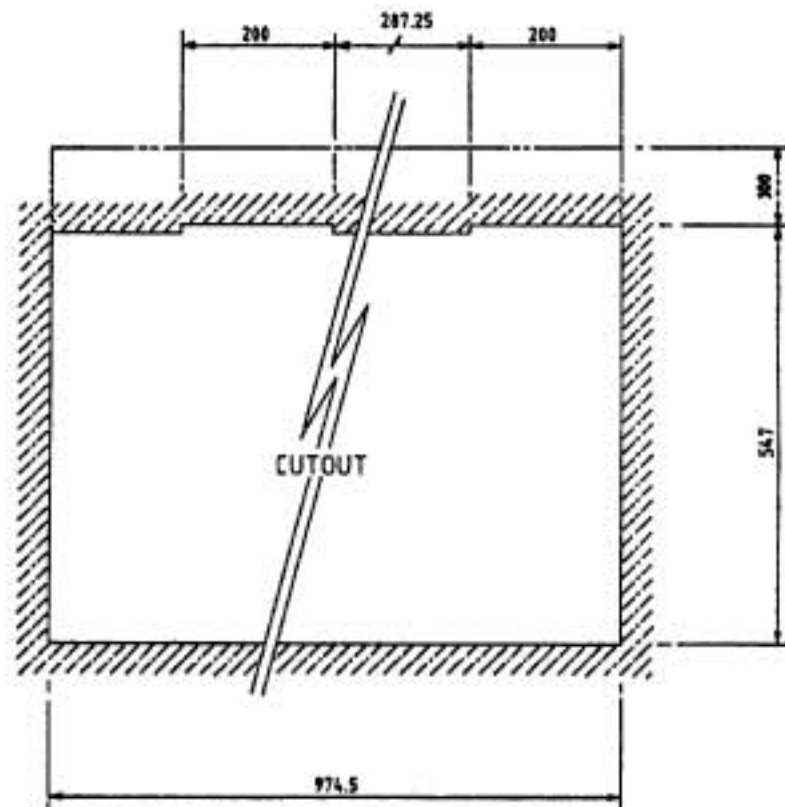
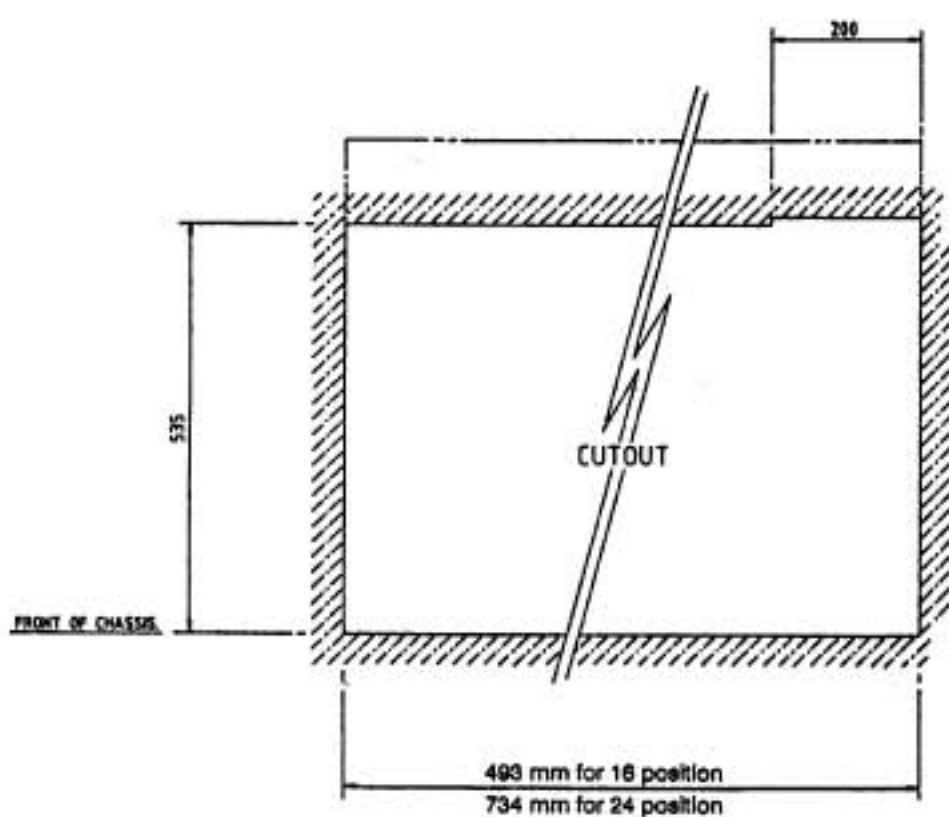
The dimension 'X' for the different chassis sizes is in the table below. Transportable versions have wooden end cheeks which increase the left/right dimension as shown.

CHASSIS	'X' (for DT)	TRANSPORTABLE	SHIPPING WEIGHT
16 position:	482 mm	552 mm	30 Kg
24 position:	723 mm	793 mm	40 Kg
32 position:	964 mm	1034 mm	50 Kg





MOUNTING DT CONSOLES



The area required for rear panel connector access is shown by the dotted line.

BCII 'drop through' versions are intended to be built into a larger piece of furniture. This may be some form of control desk with an approximately rectangular cut-out provided as shown above. The hole may be cut to exactly the size shown within the shaded lines and the console will fit through, supported by the mounting rails ("ears") at the each side.

To give easier access to the console connector panel it is suggested that the cut-out is made deeper (front/back) and a removable section, approximately 100mm deep is allowed behind the console. This removable section makes it easy to place the console in position before plugging in all the connectors. The connectors can then be plugged up once the console is in the correct position and the removable cover finally replaced.

Sixteen position consoles may be mounted in a 19" rack. To accommodate a BCII the rack's fixing rails must be modified as shown in the adjacent diagram. Since the console is usually mounted in a horizontal plane, no holes for fixing bolts are provided in the "ears". If the console is to be mounted in a vertical rack appropriate holes must be drilled.

The meter hood sizes are shown on page 14 and short (ie for two or four meters only) detached versions are true 19" rack mount units.





MODULE LINKING

The BCII has a number of internal links. These allow individual consoles to be configured even more precisely to you exact needs. Factory default settings are shown (*).

BC1115/6 Mono Input

REM selects whether the fader remote output is activated in line mode only or in both mic and line modes*

PRE selects the source of the prefade auxiliary send signal to be either pre mute, pre eq or post mute*.

INS selects whether the insert return is balanced or unbalanced*.

MUTE selects whether the module operates the studio* or control room mute buss.

BC1125/6 Subgroup

BUSS determines which mix buss this group module handles. It will be set for one of the following:

Gp 1, Gp 2, Gp 3, Gp 4, Stereo left, Stereo right, Mono (sub mix), Clean feed.

MON selects on which monitor module switch this group is heard.

REM enables the condition that this group fader must be opened* to allow channel REM function.

EQ selects the internal dynamics section (if fitted) to be pre fader*, post fader, post insert & pre mute.

PRE selects the source of the prefade auxiliary send to be pre mute* or post mute.

MONO allows the group to feed an additional mono mix buss (requiring an extra output module). The signal sent can be either post fade output or pre fade but post mute.

INS selects whether the insert return is balanced or unbalanced*.

BC1135/7 Mono output

This has the same link options as the BC1125.

BC1136 Stereo output

BUSS L determines which mix buss the left section of the module will handle. It will be set for:

Gp 1, Gp 3 or Stereo left.

BUSS R determines which mix buss the right section of the module will handle. It will be set for:

Gp 2, Gp 4 or Stereo right.

MON selects on which monitor module switch this group is heard.

REM enables the condition that this output fader must be opened* to allow channel REM function.

INS selects whether the insert return is balanced or unbalanced*.

BC1146 Auxilliary Master

MON selects on which monitor module switches the aux outputs are heard.

RET allows the return talkback to be a separate signal (*) or mixed with the talkback from the console.

BC1155 Dual Monitor

MUTE 1 allows monitor 1 to be muted by either the control room mute buss or the studio mute buss.

MUTE 2 allows monitor 2 to be muted by either the control room mute buss or the studio mute buss*.

DIM allows that monitor section to be dimmed when the TALK key on the BC1146 is operated.

M1 and M2 (for section 1 and 2) select whether the mono summing amp has 0 dB* or -6 dB gain.

BC1156 Single Monitor

MUTE allows the monitor to be muted by either the control room mute buss or the studio mute buss.

DIM allows that monitor section to be dimmed when the TALK key on the BC1146 is operated*.

PHONES allows the speaker output either to be muted* or unaffected when a plug is inserted in the headphone socket.

MONO allows the mono mix to be done either at the output to allow a difference signals to be heard.

Alternatively it can be derived prior to the phase reverse switch*.

U/B 1-3 provides unbalancing of the monitor return inputs.

Dynamics

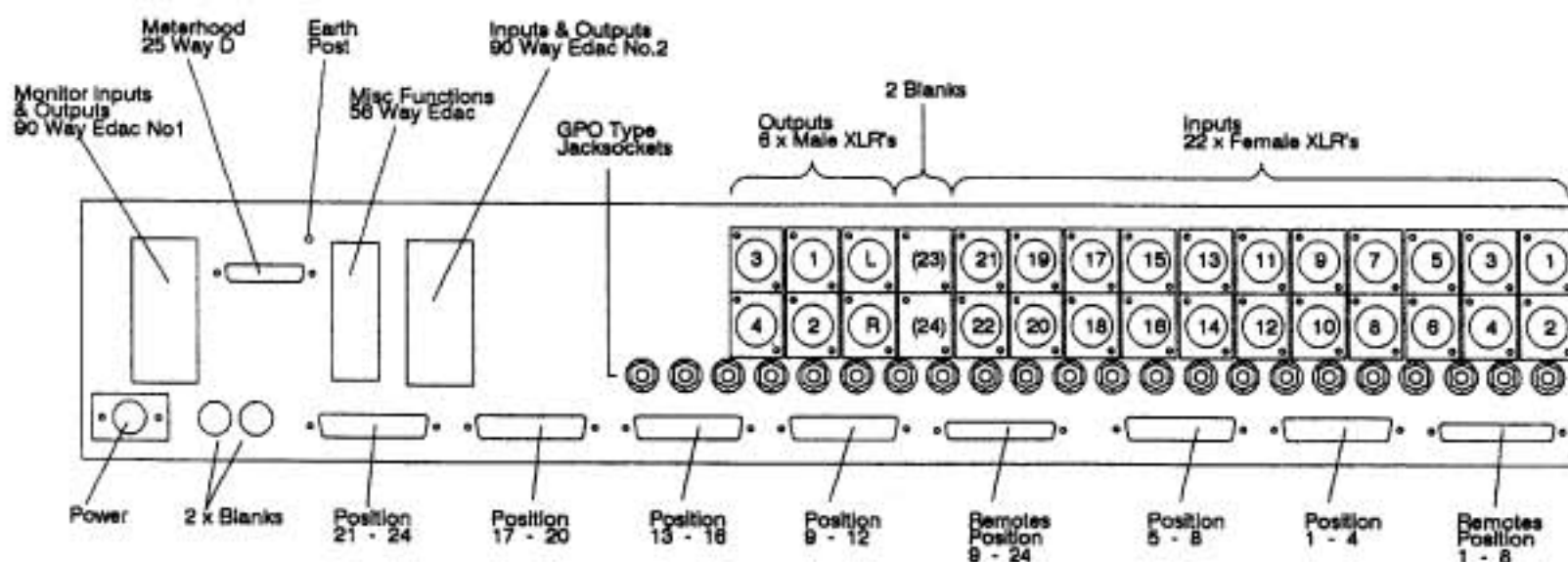
The links allow internal selection of the attack time constant to either 0.25 mS, 0.75 mS or 2.5 mS*.



CONNECTIONS

Function	Balanced	Level	Impedance	Connector (16/32 pos)	Connector (24 pos)
Mic I/P	Yes	-70/-15 dBu	1.2 Kohm	F-XLR3	F-XLR3
Line I/P (mono)	Yes	-40/+15 dBu	20 Kohm	F-XLR3	90 EDAC
St I/P (left)	Yes	-20/+20 dBu	20 Kohm	F-XLR3	F-XLR3
St I/P (right)	Yes	-20/+20 dBu	20 Kohm	F-XLR3	90EDAC
Group O/P	Yes	0 dBu	50 ohm	M-XLR3	90EDAC
Main O/P	Yes	0 dBu	50 ohm	M-XLR3	M-XLR3
Aux O/P	Yes	0 dBu	50 ohm	90EDAC	M-XLR3
Aux return	Yes	0 dBu	20 Kohm	F-XLR3	F-XLR3
Insert send	No	-6 dBu	50 ohm	*50D/jack	*50D/jack
Insert return	Yes	-6 dBu	50 ohm	*50D/jack	*50D/jack
Direct output	Yes	0 dBu	50 ohm	50D	50D
Oscillator	Yes	variable	50 ohm	25D	56EDAC
T/B mic	Yes	-60 dBu	1.2 K ohm	25D	56EDAC
T/B ctrl	n/a	0 V (active)	n/a 25D	25D	56EDAC
Return T/B	Yes	-60 dBu	1.2 K ohm	25D	56EDAC
Ret T/B ctrl	n/a	0 V (active)	n/a	25D	56EDAC
T/B to Ext.	No	0 dBu	50 ohm	25D	56EDAC
Monitor I/P	Yes	0 dBu	20 Kohm	90EDAC	90EDAC
Monitor O/P	No	0 dBu	50 ohm	EDAC/M-XLR	90EDAC
AFV in	n/a	0-10 V	100 Kohm	37D	37D
Mute in	n/a	5 V (active)	n/a	37D	37D
Remote out	n/a	0 V (active)	n/a	37D	37D
DC input	n/a	+/-18 +48 volts	n/a	M-XLR4	M-XLR4
Chassis ground	n/a	n/a	n/a		screw terminal

24 position back panel



Notes:

- *Insert points are normally on jack sockets only on transportable consoles with mono channels.
- Not all signals listed above are necessarily fitted to all consoles and individual consoles may vary from this pattern to accommodate particular features.
- Output levels (eg 0 dBu) are with all controls at unity gain and assume that the input level is also 0 dBu. This means that the console can work with systems operating at operating levels including +4 dBu, +6 dBu, +8 dBu, 0 dBu and many others.
- XLR3 wiring for balanced circuits is pin 1 - screen, pin 2 - high, pin 3 - low. XLR3 wiring for unbalanced monitor outputs is: pin 1 - screen, pin 2 - left, pin 3 - right.
- Connections vary on individual consoles and different connector panels may on occasion be fitted as appropriate to the facilities provided. The back connector system design is subject to change and for information on any individual console configuration, contact Amek.





TECHNICAL SPECIFICATIONS

BCII Audio console

1. NOISE:

Microphone equivalent input noise measured from 200 ohm source with gain of 70 dB:

20 KHz DIN audio band RMS -127 dBu

'A' weighting RMS -129 dBu

Line input noise with a 0dB gain channel routed to a main output:

20 KHz DIN audio band RMS -81 dBu

'A' weighting RMS -84 dBu

2. TOTAL HARMONIC DISTORTION

Line input at +20 dBu routed to main output with 0 dB gain and loaded either 10 K ohms or 600 ohms:
better than 0.02% at frequencies 40 Hz to 15 KHz.

Microphone input at -30 dBu routed to main output with 40 dB gain:

better than 0.02%

3. FREQUENCY RESPONSE

Line input with +20 dBu signal routed to main output loaded with 600 ohms or 10 K ohms. Unity gain, equaliser & filter bypassed.

40 Hz - 15 KHz : better than +0/-0.5 dB

20 Hz - 20 KHz : better than +0/-1.0 dB

Microphone input with -50 dBu signal routed to main output with a load of either 600 ohms or 10 K ohms. Gain set to 60 dB, equaliser & filter bypassed.

40 Hz - 15 KHz : better than +0/-0.5 dB

20 Hz - 20 KHz : better than +0/-1.0 dB

The frequency response is maintained for any output level up to +20 dBu.

4. CROSSTALK

Mono channel via group crosstalk: Channel 1 routed to group 1 and channel 4 routed to group 4. All gains adjusted to be unity. Signal applied at +20 dBu to channel 1 and channel 4 input terminated by 200 ohms. Breakthrough (w.r.t. +20 dBu) measured at group 4 output:

Better than -90dB 40 Hz - 15 KHz

Fader breakthrough: Mono channel routed to main output with unity gain. Signal level of +20 dBu applied to line input and channel fader closed. Breakthrough (w.r.t. +20 dBu) measured at main output:

Better than -95 dB at 15 KHz.

Better than -100 dB at 40 Hz and 1 KHz.

5. EQUALISATION

High frequency band turnover frequency 6 KHz or 12 KHz.

Low frequency band turnover frequency 80 Hz or 160 Hz.

Middle frequency band swept from below 250 Hz to above 7 KHz.

Each band has a nominal 14 dB of lift and cut.

High pass filter provides roll off reaching 18 dB per octave below 120 Hz.

6. MAXIMUM INPUTS/OUTPUTS

Maximum level to microphone input: +13 dBu.

Maximum level to line input: +26 dBu.

Maximum signal from main & group outputs: +26 dBu (into either 600 ohms or 10 K ohms).



7. IMPEDANCE

Microphone input:	Greater than 1.2 K ohm.
Line input:	Greater than 20 K ohms.
Main, group and auxiliary outputs:	Less than 50 ohms.

8. SYMMETRY (CMRR):

In all cases figures measured using a 200 ohm source impedance and apply across from 40 Hz to 15 KHz except where stated.

Microphone input (50 dB gain):	better than 85 dB
Line input:	better than 80 dB reducing to 61 dB at 15 KHz.
Line output:	better than 55 dB.

9. DIMENSIONS & WEIGHTS:

See pages 13 and 14 for console weights and sizes.

ESM32

Mains supply:	110/220/240 volts 50/60 Hz ac, 10 VA.
Communications standards:	RS232, RS422
Baud rates:	600, 1.2k, 2.4k, 4.8k, 9.6k, 19.2k, 38.4k
Sync. input:	Positive sync. or composite video (PAL, NTSC or SECAM)
Frame rate:	24-30 frames per second
Analogue outputs:	Designed for Amek BCII VCA faders
Response time:	1ms after start of next field
Connectors:	37 way 'D' for analogue outputs* 37 way 'D' for ESR32* 9 way 'D' serial input* BNC for reference video input
Weight:	4.2 Kg
Attached mains cable	
Dimensions:	height 44mm (1U), depth 243mm (excluding connectors), width 482mm (front panel) 430mm (behind panel)

* cable supplied

The ESM32 is designed for use only with equipment using the ESAM I or ESAM II control protocol. Amek cannot accept responsibility for problems caused by failure of the controller to operate to the defined protocols.

NOTES

- 0 dBu = 0.775 Volts.
- Measurements apply to electronically balanced, non VCA consoles with up to 32 positions.
- Noise figures read using Neutric test set. Other measurements made with Audio Precision System One.
- The company has an established policy of seeking improvements to designs, specifications and manufacture of its products. Alterations take place continually, often without notice outside the company. The company's literature must not be taken as an infallible guide to the specifications available despite a considerable effort to product up to date information. No literature represents an offer for sale of any particular product. The company's officially appointed distributors and representatives will advise on any changes, when the circumstances of the enquiry permit.

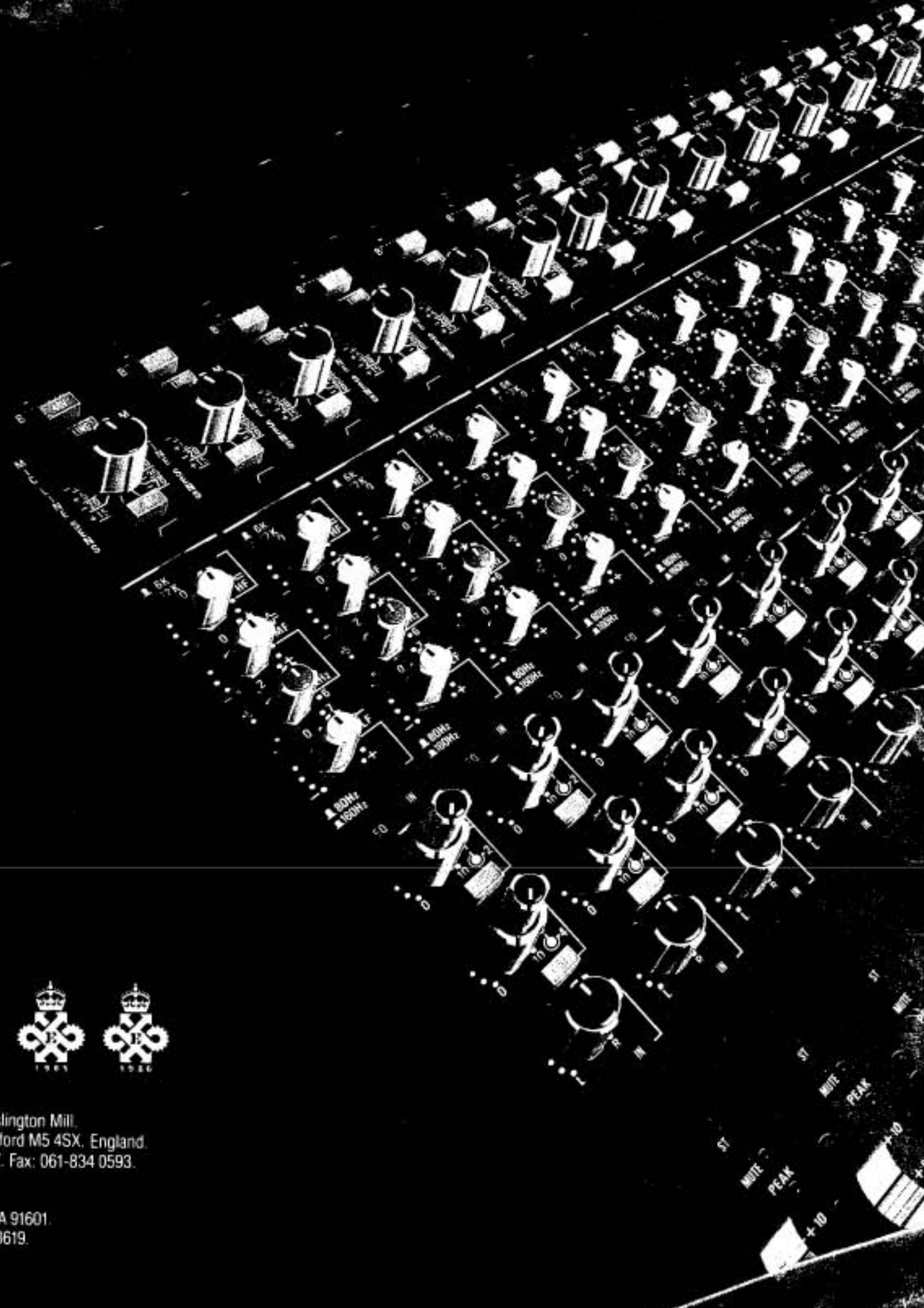
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