
Soundcraft **mbi** **SERIES 10s**

USER GUIDE

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Introduction

Introduction

Precautions and Safety Instructions

Introduction

The Series 10s is a fully modular mixing console for local radio stations and smaller studios of national broadcasters. The system has been designed to accommodate the individual requirements of a station by providing flexibility and a choice of configurations.

The Series 10s is available in 3 frame sizes:

A 16-modules-width frame which can accommodate up to 12 input channels, a 24-modules-width frame which can accommodate up to 20 input channels, and a 32-modules-width frame which can accommodate up to 28 input channels.

A 6-modules-width script blank and an 8-modules-width script tray are available: note that the script tray is a recessed compartment, whereas the script blank is a flat plate on the same plane as the console panel.

Mono Input Module

Each module may be used for two Mic inputs. The module can be supplied with or without a 2-band fixed frequency EQ section.

Telco (Telephone Communication) module

In addition to outputting signals to the programme, each module provides for on and off-air telephone conversations with the Presenter, Guests or Producer.

Stereo Module

Each module accepts one of two switch-selectable stereo sources. There are also connections for the remote operation of Start & Stop relays for both of the sources.

All inputs are fitted with peak signal detection to alert the operator to any impending headroom problems which could cause unwanted distortion.

Remote Controls

Remote controls are provided for cue lights and also 'on-air' lights for Control Room and Studio mics, and there are remote controls for cough muting and talkback routing. Remotes are provided for telephone hybrid control and for on-board talkback to cleanfeed. Off-air communication with the Caller can be set up from the Operator or the Producer. Stereo modules have remote outputs for machine start and stop/re-cue.

Master and Monitor Module

There are two variants of the Master and Monitor module: the Production variant has main Programme Faders, the Broadcast version does not. The Master and Monitor module also contains monitoring controls, for Presenter's headphones and loudspeakers, Studio headphones and loudspeakers; and communications inputs.

Module Options

Mono Input Module with EQ . . .	10sME
Mono Input Module without EQ .	10sM
Stereo Input Module	10sS
Telco Module	10sST
Stereo Source Select	10sSS
Production Master/Monitor . . .	10sOP
(with faders and effects returns)	
Broadcast Master/Monitor . . .	10sOB
(without faders or effects returns)	
Blank Module	10sCB1
Script Blank	10sCB6
Script Tray	10sS8

The Meterhood

The meterhood conceals studio wiring and provides space for additional monitoring, loudspeakers, clock, timer, talkback and meter units.

Desks are supplied to customer requirements to include any of the following:

Single Meterbridge Blank	4m	10sMB4
Double Meterbridge Blank	8m	10sMB8
LED Master Meters	4m	10sLED
Dual Large VU Master Meters	8m	10sVLR
Dual Large True VU Master Meters . .	8m	10sTVU
Dual Large PPM Master Meters	8m	10sPLR
Dual Small VU Meters	4m	10sV2
Dual Small True VU Meters	4m	10sTV2
Dual Small PPM Meters	4m	10sP2
Single Large True VU Meter	4m	10sV1
Single Large PPM Meter	4m	10sP1
PFL Loudspeaker	4m	10sMBS
Dual Timer	4m	10sTIM
Bargraph Panel (excludes meter) . . .	8m	10sBGP
Bargraph Panel (includes RTW1113) . .	8m	10sRTW

(4m = 4-meterbridge modules wide, 8 = 8-meterbridge modules wide.)

Power Supply

The Series 10s requires a CPS150 power supply. This is available with an optional rack-mount front panel.

Pre-Q Stereo RIAA Input Option

An RIAA interface is available, it is used in conjunction with a Stereo Input Module.

Precautions and Safety Instructions

General Precautions

Avoid storing or using the console in conditions of excessive heat or cold, or in positions where it is likely to be subject to vibration, dust or moisture. Do not use any liquids to clean the fascia of the unit: a soft dry brush is ideal. Use only water or ethyl alcohol to clean the trim and scribble strips. Other solvents may cause damage to paint or plastic parts.

Avoid using the console close to strong sources of electromagnetic radiation (e.g. video monitors, high power electric cabling): this may cause degradation of the audio quality due to induced voltages in connecting leads and chassis. For the same reason, always site the console power supply away from the unit .

Caution! In all cases, refer servicing to qualified personnel.

Handling and Transport

The console is a very rugged unit, designed for long service. However, care in handling and transportation will ensure a long and trouble-free life. If the console is to be regularly moved we recommend that it is installed in a foam lined flight case. At all times avoid applying excessive force to any knobs, switches or connectors.

Power supplies & cables

Always make sure that the power supplies have been set to the same source voltage as the mains supply.

Always use the power supplies and power cables supplied with the console: the use of alternative supplies may cause damage and voids the warranty; the extension of power cables may result in malfunction of the console.

Warning! Always switch the power supplies off before connecting or disconnecting the console power cable, removing or installing modules, and servicing. In the event of an electrical storm, or large mains voltage fluctuations, immediately switch off the PSU and unplug from the mains.

Always ensure that that you use the correct power supply for your console. Each Series 10s console requires the CPS150 power supply.

Signal Levels

It is important to supply the correct input levels to the console, otherwise signal-to-noise ratio or distortion performance may be degraded; and in extreme cases damage to the internal circuitry may result. Likewise, on all balanced inputs avoid sources with large common mode DC, AC or RF voltages, as these will reduce the available signal range on the inputs. Note that 0dBu = 0.775V RMS.

The microphone input is designed for use with balanced low impedance (150 or 200Ω) microphones.

Caution! DO NOT use unbalanced microphones or battery powered condenser microphones without isolating the +48V phantom power - degraded performance or damage to the microphone may result.

Block Diagrams

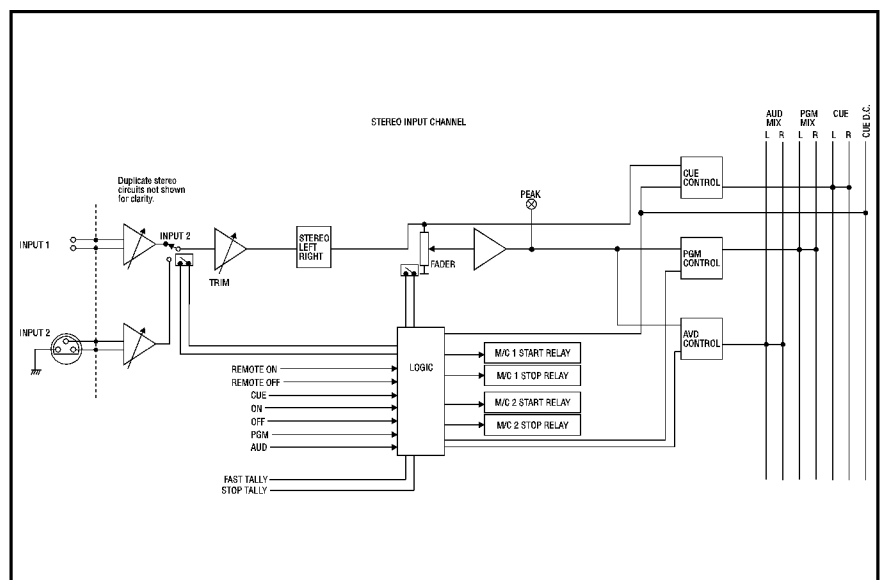
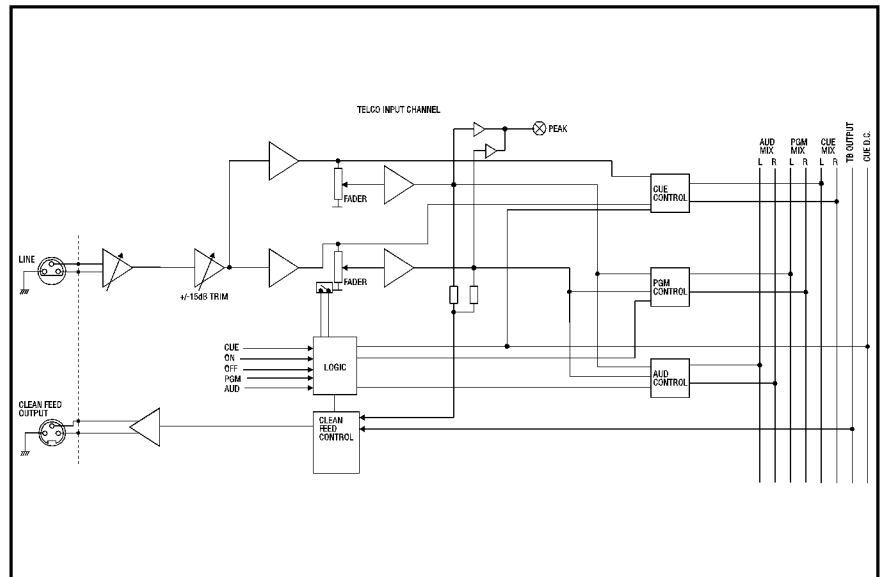
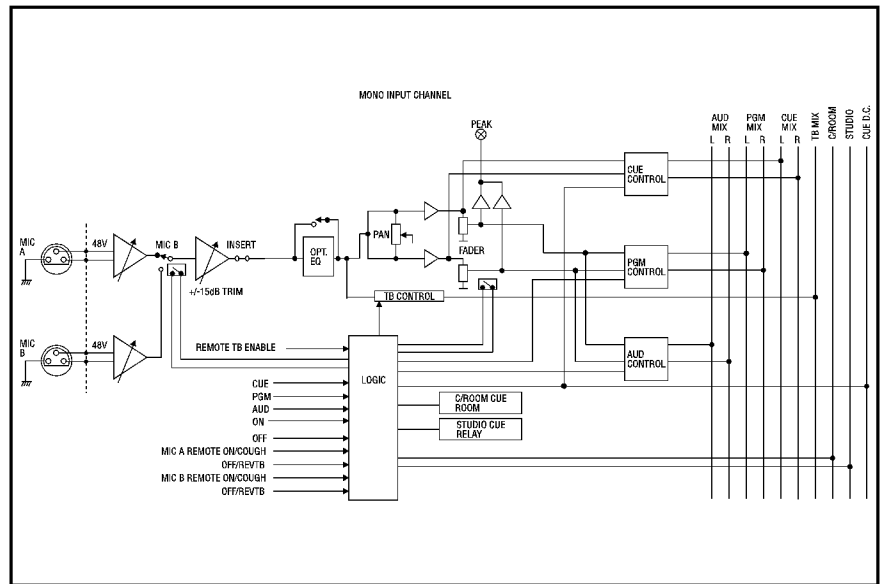
Mono Input Module

Telco Input Module

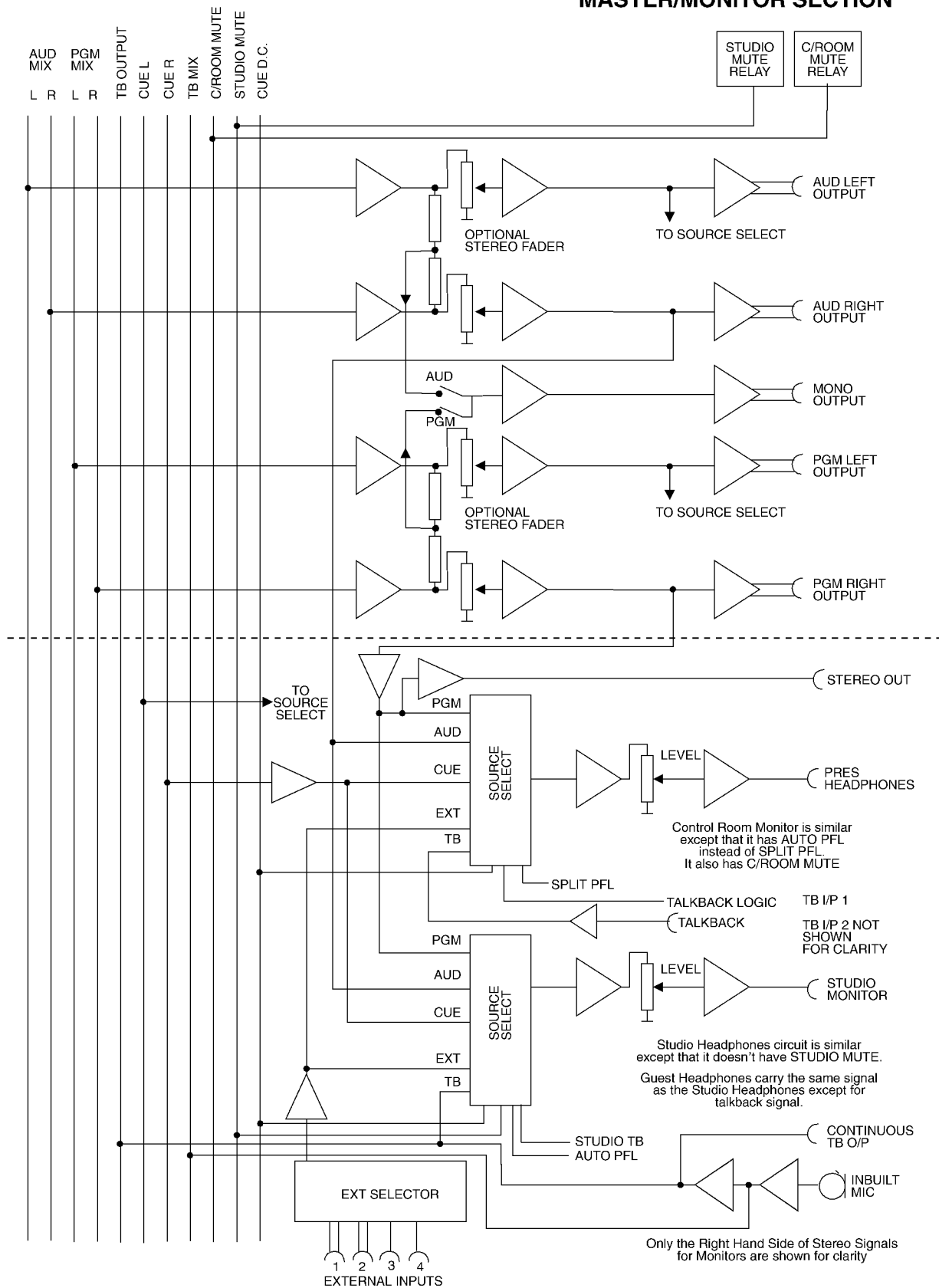
Stereo Input Module

Master/Monitor Module

Block Diagrams



MASTER/MONITOR SECTION



Applications

Connections and Connectors

Mono Input Channel

Telco Input Channel

Stereo Input Channel

Master Section

Monitor Section

Meterbridge

Applications

This section is intended to help you to connect, to the console, the external equipment which you need. It also identifies all of the user-definable options which are available and gives the location of the links involved.

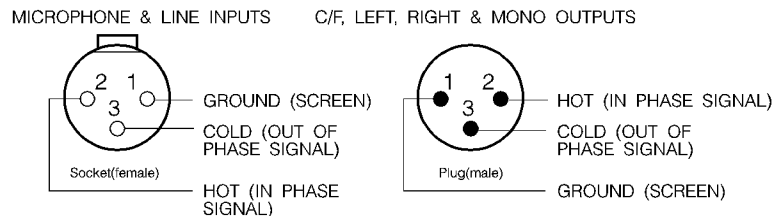
Connections And Connectors

Although this may seem to be a simple subject, faulty connectors and cabling are the source of most problems. Correctly-made cables of the proper type will ensure peak performance from your console.

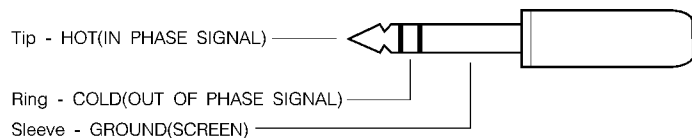
Three different types of connectors are used on your console: 3-pin XLR, 1/4" 3-pole jack sockets and D-type connectors. It is recommended that low-profile D-type connectors are used: there is a risk that high-profile types may foul the backs of meters etc. in the meterbridge.

Note: The Module Descriptions sections of this manual give details of the type and gender of the chassis mounted connectors.

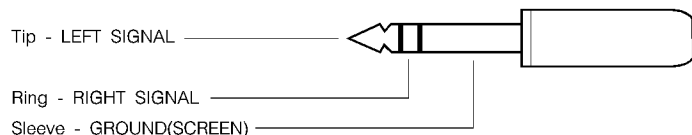
The following diagram shows details of the first two types.



1/4" 'A' Gauge Stereo Jack Plug used as balanced outputs/inputs, Aux and Effects Returns



1/4" 'A' Gauge Stereo Jack Plug used for stereo outputs, Headphones and Monitors



The following pages give details of all of the connectors which are not covered by the above diagram.

Dual Mic Input Channel

REMOTES SOCKET (25-pin D-type female)

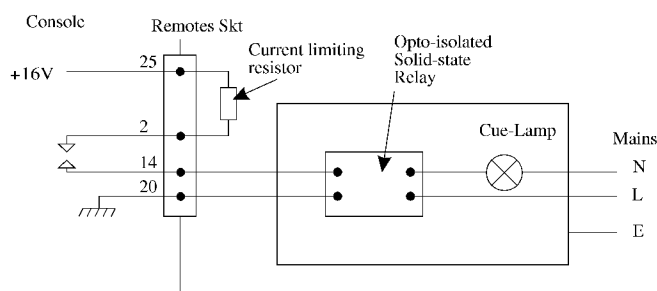
This socket provides for the following facilities:

Control Room Cue Lamp

A relay switch closes between pins 2 & 14 of the Remotes socket when the following conditions are all met:

The Fader is up, the channel is ON, and the selected mic is in the control-room (and links 5 & 6 are set correctly).

The following diagram shows one possible method of using this relay switch to control a cue lamp. It is vital that mains voltages are NOT connected to any of the connectors on the console.

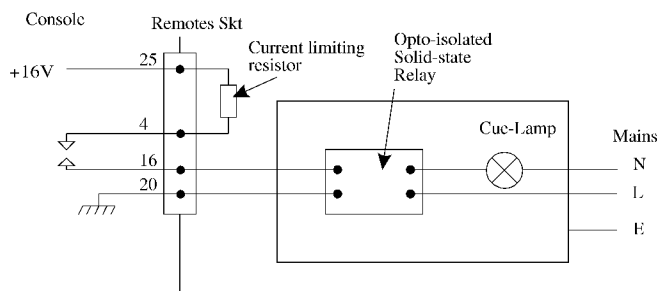


Studio Cue Lamp

A relay switch closes between pins 4 & 16 of the Remotes socket when the following conditions are all met:

The Fader is up, the channel is ON and the selected mic is in the Studio (and links 5 & 6 are set correctly).

The following diagram shows one possible method of using this relay switch to control a cue lamp. It is vital that mains voltages are NOT connected to any of the connectors on the console.



Talkback

Two pins on the Remotes socket are used for this feature, as follows:

Ground	Pin 8
Talkback enable	Pin 7

A switch may be connected between pins 7 & 8. When this switch is closed the pre-fade input signal is fed to the T/B MIX bus.

REMOTE ON/COUGH Switch

Remote ON/COUGH switch functions may be implemented for both mics by connecting switches as follows:

Mic A	Remote/Cough Input	pin 24
to	Logic Ground	pin 13
Mic B	Remote/Cough Input	pin 22
to	Logic Ground	pin 8

In addition, outputs are provided to connect mimic ON LEDs. The connections are:

Mic A	ON output	Pin 12 (connect to LED anode)
	Logic Ground	pin 13 (connect to LED cathode)
Mic B	ON output	Pin 10 (connect to LED anode)
	Logic Ground	pin 8 (connect to LED cathode)

REMOTE OFF/REVERSE TB Switch

Remote OFF/REVERSE TB switch functions may be implemented for both mics by connecting switches as follows:

Mic A	Remote OFF/Rev TB Input	pin 23
to	Logic Ground	pin 13
Mic B	Remote OFF/Rev TB Input	pin 21
to	Logic Ground	pin 20

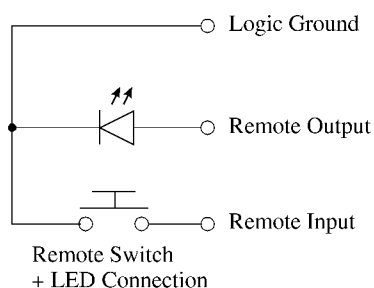
Note: The Remote OFF switches act as Reverse Talkback switches when the channel is in OFF mode.

In addition, outputs are provided to connect mimic OFF LEDs. The connections are:

Mic A	OFF output	Pin 11 (connect to LED anode)
	Logic Ground	pin 13 (connect to LED cathode)
Mic B	OFF output	Pin 9 (connect to LED anode)
	Logic Ground	pin 20 (connect to LED cathode)

Remote Switches Indicators

To implement the remote facilities connect the following circuit (one for each of the remote functions):



Insert Point (Send/Return)

Two pins on the Remotes socket are used for this feature, as follows:

Send	Pin 19	Audio Ground	pin 6
Return	Pin 18		

You will need to place link 3 in position B in order to use the insert Point.

Power Rails

The following power rail is available:

+16Vlogic Pin 25 (supplied via a 10R current-limiting resistor)

Remotes Socket - Pinout

Pin 1	not used
Pin 2	C/Room Cue Lamp Relay contact n/o
Pin 3	not used
Pin 4	Studio Cue Lamp Relay contact n/o
Pin 5	Logic Ground
Pin 6	Audio Ground (for Insert point)
Pin 7	Talkback Enable
Pin 8	Logic Ground
Pin 9	Mic B Remote OFF (Rev T/B) output to LED
Pin 10	Mic B Remote ON (Cough) output to LED
Pin 11	Mic A Remote OFF (Rev T/B) output to LED
Pin 12	Mic A Remote ON (Cough) output to LED
Pin 13	Logic Ground
Pin 14	C/Room Cue Lamp Relay contact n/o
Pin 15	not used
Pin 16	Studio Cue Lamp Relay contact n/o
Pin 17	Logic Ground
Pin 18	Insert point return
Pin 19	Insert point send
Pin 20	Logic Ground
Pin 21	Mic B Remote OFF (Rev T/B) input
Pin 22	Mic B Remote ON (Cough) input
Pin 23	Mic A Remote OFF (Rev T/B) input
Pin 24	Mic A Remote ON (Cough) output to LED
Pin 25	16V output (via 10R resistor)

Options

Locating a microphone in the Control Room or Studio

Links 5, 6 & 7 must be set as follows:

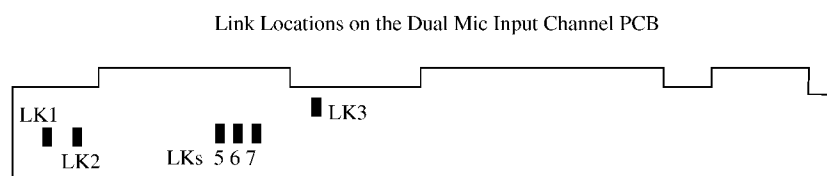
Link 5	Pos A = Mic A in C/Room, Pos B = Mic B in C/Room
Link 6	Pos A = Mic A in Studio, Pos B = Mic B in Studio
Link 7	Pos A = neither Mic in Studio Pos B = either Mic in Studio

Phantom Power for Microphones

If Link 1 is in place then +48V will be present on pins 2 and 3 of the Mic A XLR connector. Similarly, if Link 2 is in place, Mic B XLR will have phantom power. Phantom powered mics should not be plugged in with the +48V switched on. You should also be aware that some mics draw an unusually large current. The current for each mic is limited to 14mA by series resistors.

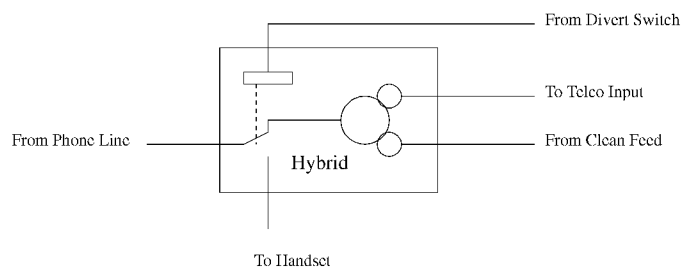
Link Locations

The following outline diagram of the Dual Mic Input Channel PCB shows the location of the user-changeable links.



Telco Input Channel

The following diagram shows how a Telephone Hybrid may be connected to the Telco Input Channel. A separate Hybrid for each Telco channel will be required.



REMOTES SOCKET (25-pin D-type female)

This socket provides for the following facilities:

Telephone Divert

The Divert Switch on Telco channel is a single-pole switch. Connections to it are made available on the Remotes socket. The details are as follows:

Common	Pin 4
Normally Open	Pin 16

It will be necessary to consult the Hybrid manufacturer's handbook in order to use this switch to control the divert function of the Hybrid you are using. You may have to devise a simple 'interface' to utilise the divert function.

Remotes Socket - Pinout

Pin 1	Chassis Ground
Pin 2	not used
Pin 3	not used
Pin 4	Divert Switch (common)
Pin 5	Logic Ground
Pin 6	not used
Pin 7	not used
Pin 8	Logic Ground
Pin 9	not used
Pin 10	not used
Pin 11	not used
Pin 12	not used
Pin 13	Logic Ground
Pin 14	not used
Pin 15	not used
Pin 16	Divert Switch n/o
Pin 17	Logic Ground
Pin 18	not used
Pin 19	not used
Pin 20	Logic Ground
Pin 21	not used
Pin 22	not used
Pin 23	not used
Pin 24	not used
Pin 25	16V output (via 10R resistor)

Stereo Input Channel

REMOTES SOCKET (25-pin D-type female)

This socket provides for the following facilities:

M/C 1 Start Relay

A relay switch closes between pins 2 & 14.

M/C 2 Start Relay

A relay switch closes between pins 4 & 16.

Link for Latching Start

If C59 is shorted the Start Relays will latch instead of closing momentarily. C59 is located as shown in the diagram overleaf.

M/C 1 Stop/Re-cue Relay

A relay switch closes between pins 3 & 15.

M/C 2 Stop/Re-cue Relay

A relay switch closes between pins 5 & 17.

REMOTE SWITCHES AND INDICATORS

You may connect remote ON, OFF and CUE switches and indicators. The connections are:

Remote ON

Logic Ground	pin 13
Remote ON output	pin 10
Remote ON input	pin 22

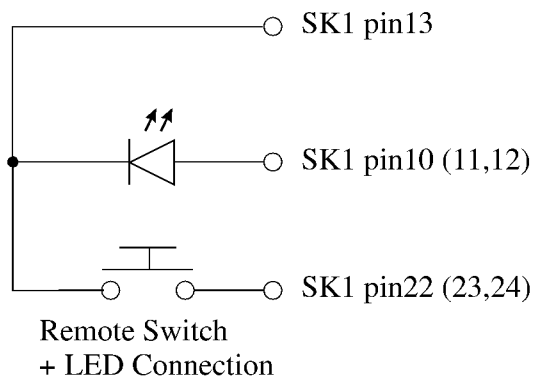
Remote OFF

Logic Ground	pin 13
Remote OFF output	pin 11
Remote OFF input	pin 23

Remote CUE

Logic Ground	pin 13
Remote CUE output	pin 12
Remote CUE input	pin 24

To implement the remote ON, OFF and/or CUE facility connect the following circuit (one for each of the remote functions):



TAPE/CART. MACHINE TALLY INPUTS

Each Stereo Input module has 4 opto-isolated tally inputs: two for each tape/cart. machine.

The connections are as follows:

Machine A

SEC/FAST/REC TALLY anode	pin 6
SEC/FAST/REC TALLY cathode	pin 18
STOP TALLY anode	pin 7
STOP TALLY cathode	pin 19

Machine B

SEC/FAST/REC TALLY anode	pin 8
SEC/FAST/REC TALLY cathode	pin 20
STOP TALLY anode	pin 9
STOP TALLY cathode	pin 21

Note: each opto-isolator anode has a 1k5 resistor in series with it.

OPERATION OF THE TALLY INPUTS

The **SEC/FAST/REC Tally** (SECondary cue/FAST rewind/RECORD) may be connected to a tape or cart. machine. When the opto-isolator diode is switched on, by the appropriate tally output of the tape/cart. machine, the channel is turned off and cannot be switched back on again. At the same time the OFF button LED will flash to indicate that a rewind is in progress.

When the **STOP Tally** opto-isolator diode is switched on, by the appropriate tally output of the tape/cart. machine, the STOP LED will stop flashing. The channel may now be switched on again via the ON button.

Power Rails

The following power rails are available:

+16V Logic	Pin 25 (supplied via a 10R current-limiting resistor)
0V Logic	Pin 13

Remotes Socket - Pinout

Pin 1	Chassis Ground
Pin 2	M/C A START Relay contact 1 n/o
Pin 3	M/C A STOP Relay contact 1 n/o
Pin 4	M/C B START Relay contact 1 n/o
Pin 5	M/C B STOP Relay contact 1 n/o
Pin 6	M/C A SEC/FAST/REC Tally opto-isolator anode *
Pin 7	M/C A STOP Tally opto-isolator anode *
Pin 8	M/C B SEC/FAST/REC Tally opto-isolator anode *
Pin 9	M/C B STOP Tally opto-isolator anode *
Pin 10	Remote ON output (to drive a LED)
Pin 11	Remote OFF output (to drive a LED)
Pin 12	Remote CUE output (to drive a LED)
Pin 13	Logic Ground
Pin 14	M/C A START Relay contact 2 n/o
Pin 15	M/C A STOP Relay contact 2 n/o
Pin 16	M/C B START Relay contact 2 n/o
Pin 17	M/C B STOP Relay contact 2 n/o
Pin 18	M/C A SEC/FAST/REC Tally opto-isolator cathode
Pin 19	M/C A STOP Tally opto-isolator cathode
Pin 20	M/C B SEC/FAST/REC Tally opto-isolator cathode
Pin 21	M/C B STOP Tally opto-isolator cathode
Pin 22	Remote ON input
Pin 23	Remote OFF input
Pin 24	Remote CUE input
Pin 25	16V output (via 10R resistor)

* Each opto-isolator anode has a 1k5 resistor fitted in series with it.

INPUT SOCKET (15-way D-type female)

Input A Left

This input is electronically balanced. The input pins are as follows:

Hot (+ve)	Pin 2
Cold (-ve)	Pin 9

Input A Right

This input is electronically balanced. The input pins are as follows:

Hot (+ve)	Pin 4
Cold (-ve)	Pin 11

Input B Left

This input is electronically balanced. The input pins are as follows:

Hot (+ve)	Pin 6
Cold (-ve)	Pin 13

Input B Right

This input is electronically balanced. The input pins are as follows:

Hot (+ve)	Pin 8
Cold (-ve)	Pin 15

Power Rails

The following Power rails are available:

+16V Audio	Pins 7, 14 (supplied via a 10R current-limiting resistor)
-16V Audio	Pins 5, 12 (supplied via a 10R current-limiting resistor)
Audio Ground	Pins 3, 10
Chassis Ground	Pin 1

Input Socket - Pinout

Pin 1	Chassis Ground
Pin 2	Input A Left +ve
Pin 3	Audio Ground
Pin 4	Input A Right +ve
Pin 5	-16V (via 10R resistor)
Pin 6	Input B Left +ve
Pin 7	+16V (via 10R resistor)
Pin 8	Input B Right +ve
Pin 9	Input A Left -ve
Pin 10	Audio Ground
Pin 11	Input A Right -ve
Pin 12	-16V (via 10R resistor)
Pin 13	Input B Left -ve
Pin 14	+16V (via 10R resistor)
Pin 15	Input B Right -ve

OPTIONS

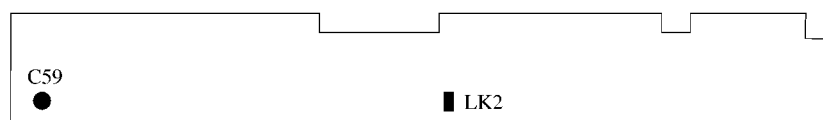
Selecting Timer 1 or Timer 2

Link 2 selects which Timer is activated by the Stereo Input channel. In position A, Timer 1 is selected; in position B, Timer 2 is selected.

Link/Component Locations

The following outline diagram of the Stereo Input Channel PCB shows the location of the user-changeable links.

Link/Component Locations on the Stereo Input Channel PCB



Master Section

Power Socket

The connections are as follows:

Pin 1	+17V
Pin 2	-17V
Pin 3	+48V
Pins 4, 5 and 6	tied together and to all grounds

REMOTES SOCKET (9-pin D-type male)

This socket provides for the following facilities:

Control Room Mute Relay

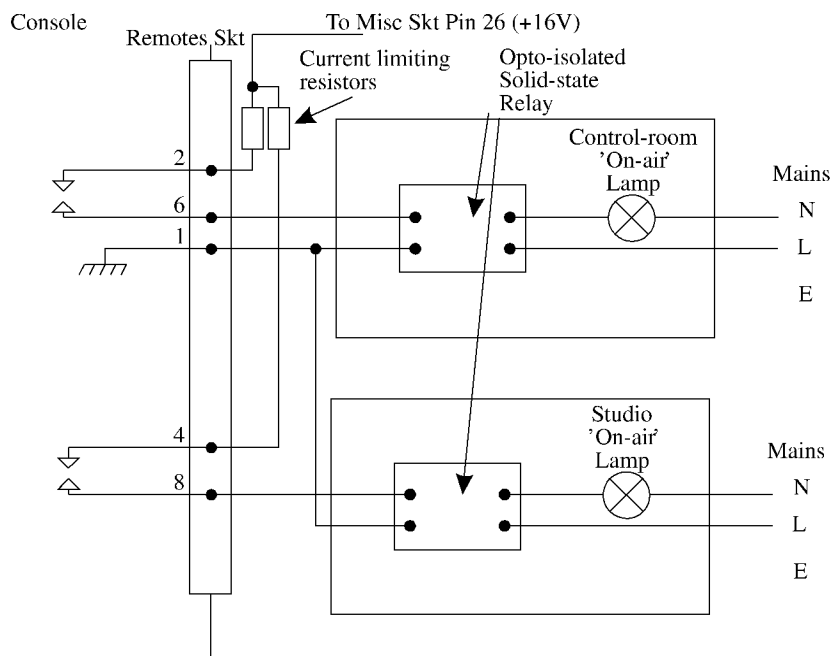
A 2-pole relay switch closes between pins 2 & 6, and pins 3 & 7. This relay could be used to control an 'On-Air' lamp in the Control-Room.

Studio Mute Relay

A 2-pole relay switch closes between pins 4 & 8, and pins 5 & 9. This relay could be used to control an 'On-Air' lamp in the Studio.

Pin 1 is a Chassis Ground connection.

The following diagram shows one possible method of using these relay switches to control an 'On-Air' lamp. It is vital that mains voltages are NOT connected to any of the connectors on the console.



Monitors Section

Talkback 1 and 2

The TB I/P 1 and 2 inputs are via 1/4" 3-pole jack sockets. The connections are:

Sleeve	Gnd
Ring	Logic control (this is shorted to ground via a switch to activate the Talkback circuit)
Tip	An unbalanced audio input

Continuous TB O/P

The connections are:

Tip	Signal
Ring + Sleeve	Ground

External Inputs Socket (15-pin D-type male)

The following **balanced** inputs are provided for:

External Input 1 Left+	Pin 2
External Input 1 Left-	Pin 9
External Input 1 Right+	Pin 3
External Input 1 Right-	Pin 10
External Input 2 Left+	Pin 4
External Input 2 Left-	Pin 11
External Input 2 Right+	Pin 5
External Input 2 Right-	Pin 12

The screen for all of these balanced inputs is pin 1.

The following **unbalanced** inputs are provided for:

External Input 3 Left	Pin 7
External Input 3 Right	Pin 8
External Input 4 Left	Pin 14
External Input 4 Right	Pin 15

The 0V for all of these unbalanced inputs is on pins 6 and 13.

Misc Socket (26-pin D-type female)

This socket is used to drive the meterbridge modules.

Pin 1	Chassis Ground
Pin 2	MFML (Meter Follows Monitor-Left)
Pin 3	MFMR (Meter Follows Monitor-Right)
Pin 4	Cue Line L
Pin 5	Cue Line R
Pin 6	Talkback output
Pin 7	Timer 1
Pin 8	Studio Mute
Pin 9	Logic Ground
Pin 10	C/Room Mute
Pin 11	not used
Pin 12	not used
Pin 13	not used
Pin 14	not used
Pin 15	Cue D.C.
Pin 16	not used
Pin 17	Timer 2
Pin 18	Studio Dim
Pin 19	PGM Line L
Pin 20	PGM Line R
Pin 21	AUD Line L
Pin 22	AUD Line R
Pin 23	Audio Ground
Pin 24	-16V Audio
Pin 25	+16V Audio
Pin 26	+16V Logic

Meterbridge

Wiring

The meterbridge is equipped with a distribution board, SC3357, to which the meterbridge modules are connected. The optional meterbridge equipment (listed below) can be user-connected to this distribution board via the wiring harness which is supplied with the optional equipment.

Options

A 16-modules-width frame has space for 16 meterbridge-option widths, a 24-modules-width frame has space for 24 meterbridge-option widths and a 32-modules-width frame has space for 32 meterbridge-option widths. Note that a meterbridge-option width is not the same size as an input-module width: the meterbridge-option width is slightly smaller to accommodate the edges of the meterbridge frame.

The following Meterbridge Modules are available:

Single Meterbridge Blank	4m	10sMB4
Double Meterbridge Blank	8m	10sMB8
LED Master Meters	4m	10sLED
Dual Large VU Master Meters	8m	10sVLR
Dual Large True VU Master Meters	8m	10sTVU
Dual Large PPM Master Meters	8m	10sPLR
Dual Small VU Meters	4m	10sV2
Dual Small True VU Meters	4m	10sTV2
Dual Small PPM Meters	4m	10sP2
Single Large True VU Meter	4m	10sV1
Single Large PPM Meter	4m	10sP1
PFL Loudspeaker	4m	10sMBS
Dual Timer	4m	10sTIM
Bargraph Panel (excludes meter)	8m	10sBGP
Bargraph Panel (includes RTW1113)	8m	10sRTW

m = meterbridge-modules width

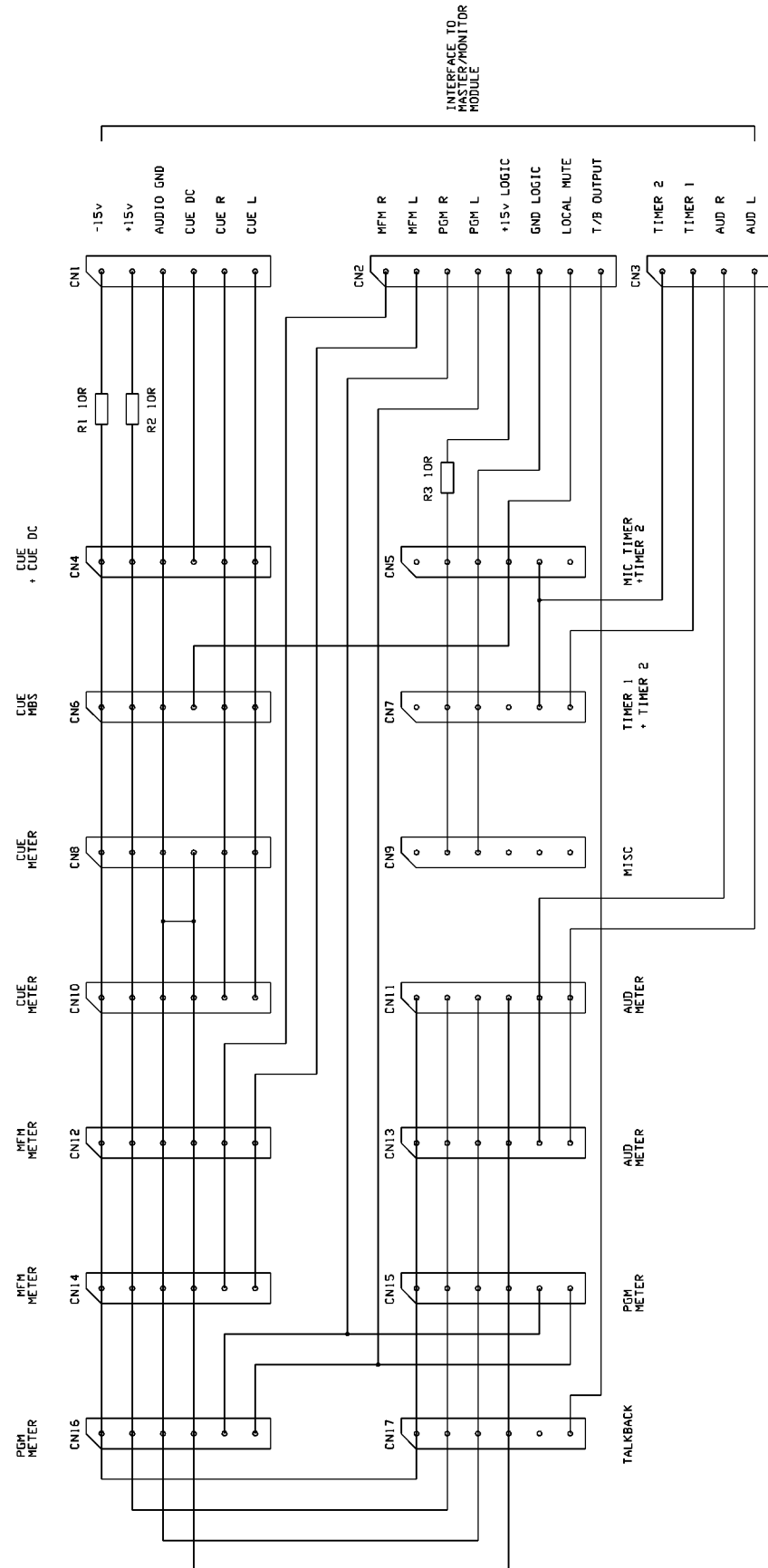
Meterbridge Distribution Board

The diagram for this PCB is shown overleaf. Fitting instructions are provided with the optional Meterbridge Modules.

Installing Meterbridge Modules

- 1) Raise the Meterbridge housing and secure in the raised position with the two wingnuts.
- 2) Unscrew the blanking plate in the required location.
- 3) Mount and secure the module in the meterbridge.
- 4) Connect the module's loom to the relevant connector.
- 5) Loosen the wingnuts and carefully lower the meterbridge.

Meterbridge Distribution Board SC3357

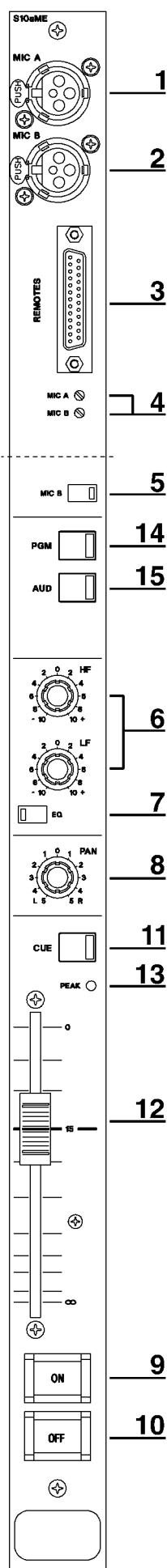


Dual Mic Input Channel S10sM/E

Description & Operation

Specification

Dual Mic Input Channel S10sM/E



Input Stage

1 The **MIC A INPUT** is via a standard female XLR-3 connector. It is available when the **MIC B** switch is released.

2 The **MIC B INPUT** is via a standard female XLR-3 connector. It is available when the **MIC B** switch is depressed.

3 REMOTES Socket

This 25-way D-type connector allows you to implement the following facilities:

REMOTE ON/COUGH SWITCHES & MIMIC LEDs

The user may fit two sets of these switches and LEDs: one for each Mic input. The switch activates a cough switch when the channel is ON.

REMOTE OFF/REVERSE TALKBACK SWITCHES & MIMIC LEDs

The user may also fit two sets of these: one for each Mic. The switch acts as a reverse talkback switch when the channel is OFF: the channel output is routed to the presenter's headphones when this happens.

CUE LAMPS

This user-provided facility will be controlled via relay contacts which close when appropriate conditions are met: (*see the Applications section*).

TALK-BACK SWITCH

This user-provided switch will, when closed, put the signal from the pre-fade section of the circuit onto the T/B OUTPUT bus and also to the Continuous Talkback Output socket of the Monitor section. The major use of this facility is that the T/B OUTPUT bus feeds the Telco Channels and will allow the Presenter, Guest or Producer to talk to a telephone Caller off-air (*see the Applications section*).

SEND/RETURN

This allows for the use of an effects machine to be added to the channel, e.g. voice processor, echo. The send and return lines are unbalanced and care will need to be taken with the length and type of leads which are used. This facility is enabled by the adjustment of link 3 (*see the Applications section*).

4 Two **COARSE ADJUSTMENT PRESET POTS** are available, one for each of the input sockets. They allow for the coarse adjustment of input levels.

5 The **MIC B** switch selects the MIC B Input socket when depressed and the Mic A Input socket when released. A LED in the switch glows red when the MIC B Input is selected.

Optional Equaliser

6 The **HF EQ** control provides high frequency (above 7kHz) boost and cut of +/-10dB. The **LF EQ** control provides low frequency (below 180Hz) boost and cut of +/-10dB.

7 When the **EQ** switch is depressed, the EQ section, described above, is switched into the signal path. A yellow LED glows to indicate this. When the switch is released the signal path bypasses the EQ section.

PAN Control

8 The **PAN** control determines the position of the signal within the stereo image. Rotation fully anticlockwise feeds the signal solely to the left mix bus, whilst rotation clockwise sweeps the image to the right mix bus.

9 The **ON** switch works in conjunction with the Fader microswitch. There is a red LED in the ON switch which will glow at two levels of brightness. The LED will glow at half brightness if the Fader is down when the ON button is pushed; you may regard this as the ON circuit being armed but not active. To make the ON circuit active the Fader must be moved away from the down position. The LED will glow at full brightness to indicate that the ON circuit is now active. When the ON circuit is active it will control the Control Room Cue Lamp and Studio Cue Lamp. If the ON switch is pushed whilst the Fader is already away from the down position then the ON circuit will be active as soon as the ON switch is pushed and the LED will glow at full brightness to indicate this.

10 When the **OFF** switch is pressed the channel's output will be turned off. The LED in the OFF switch will glow to indicate this. The appropriate CUE lamp, if wired up, will switch off.

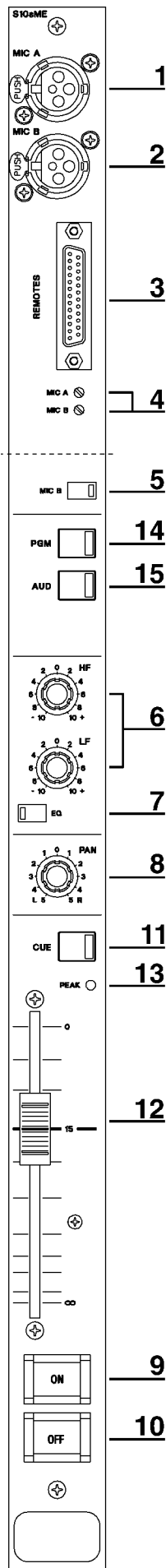
Cueing

11 The **CUE** switch allows you to listen, via the Monitors section, to the input on this channel. When the Fader is moved away from the down position the CUE circuit is automatically deactivated: CUE cannot therefore be activated when the Fader is up. A red LED glows to indicate that the CUE circuit is active. The CUE switch has a toggle action.

Output To The Programme

12 The smooth-action, 100mm **FADER** gives a gain of unity (0dB) when it is in the "15" position. This allows the upper section of the fader to act as a gain trim with +15dB maximum gain. There is a microswitch attached to the Fader which detects when it is in the fully down position. This microswitch helps to control many of the features which are described in this section.

13 The **PEAK** LED glows to give a warning of possible overload.



The post-fader signal is fed to two switches: **PGM** (Programme) and **AUD** (Audition)

14 When the **PGM** switch is depressed, the output of the channel is fed to the Program Left & Right buses. An LED in the switch glows when the switch is depressed.

15 When the **AUD** switch is depressed the output of the channel is fed to the Audition Left and Right buses. An LED in the switch glows when the switch is depressed.

Specifications

Microphone Inputs

Electronically balanced

Input Impedance >1.5k Ω

Maximum I/P level +6dBu

Sensitivity Range -70dBu to -21dBu

CMRR >100dB @70dB gain

EIN -127dB, 150R source

Equalisation

LF +/- 10dB shelving at 180Hz

HF +/-10dB shelving at 7kHz

General

Insert Send Level -10dBu

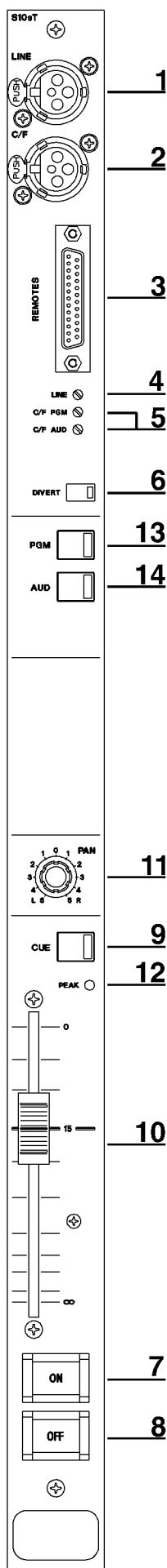
THD + Noise 0.01% @1kHz 0dBu

Telco Channel S10sT

Description & Operation

Specification

Telco Channel S10sT



Input Stage

The Telco module must be connected to the telephone system via a telephone hybrid circuit. The Applications section of this manual gives more details.

1 The **LINE** input is a female XLR into which the output from an external telephone hybrid may be plugged. It is a balanced input.

2 The **C/F** (Clean Feed) output is a male XLR connector which may be plugged into the input of an external telephone hybrid. The Clean Feed signal (also known as Mix Minus) is the programme output signal *minus* the phone signal. It is a balanced output.

3 REMOTES Socket

This 25-way D-type female connector allows you to implement the following facility:

Telephone Divert

See Divert Switch.

4 **LINE** (Coarse Adjust) allows the coarse adjustment of the Line input level.

5 **C/F** (Coarse Adjust) **PGM** & **AUD** allow for the reduction, to a minimum, of the Caller's signal in the Clean Feed output. They are factory set and should not require further adjustment.

6 The **DIVERT** switch on the module is a 1-pole switch; these connections are available on the Remote socket. It is possible to connect this switch to the external telephone hybrid to enable the Caller to be diverted to and from, for example, a standard telephone. You will need to consult the telephone hybrid circuit's handbook for its requirements.

7 The **ON** switch works in conjunction with the Fader microswitch. There is a red LED in the ON switch which will glow at two levels of brightness. The LED will glow at half brightness if the Fader is down when the ON button is pushed; you may regard this as the ON circuit being armed but not active. To make the ON circuit active the Fader must be moved away from the down position. The LED will glow at full brightness to indicate that the ON circuit is now active.

8 When the **OFF** switch is depressed, the channel's output will be turned off. The LED in the OFF switch will glow to indicate this.

Cueing

9 When the **CUE** circuit is active the Caller's input will be put onto the CUE MIX L & R buses. The Presenter will therefore hear the caller as a CUE. The LED in the CUE switch will glow. The CUE circuit will be deactivated when the Fader is moved away from the down position. The CUE switch has a toggle action.

Output To The Programme

10 The smooth-action, 100mm **FADER** gives a gain of unity (0dB) when it is in the "15" position. This allows the upper section of the fader to act as a gain trim with +15dB maximum gain. There is a microswitch attached to the Fader which detects when the Fader is in the fully down position.

Level Control

11 The **PAN** control determines the position of the signal within the stereo image. Rotation fully anticlockwise feeds the signal solely to the MIX L bus, whilst rotation clockwise sweeps the image to the MIX R bus.

12 The **PEAK** LED glows to give a warning of possible overload.

The post-fader signal is fed to two switches: **PGM** (programme) and **AUD** (Audition).

13 When the **PGM** switch is depressed, the output of the channel is fed to the Program Left & Right buses. An LED in the switch glows when the switch is depressed.

14 When the **AUD** switch is depressed the output of the channel is fed to the Audition Left and Right buses. An LED in the switch glows when the switch is depressed.

Specifications

Line Input

Electronically balanced

Input Impedance $>40\text{k}\Omega$

Input Level -12dBu to $+9\text{dBu}$

Clean Feed Output

Electronically balanced

Output Impedance $<75\Omega$

Output Level 0dBu

Stereo Input Channel S10sS

Description & Operation

Specification

Stereo Input Channel S10sS

Input Stage

1 The **REMOTES** 25-way D-type female socket provides the connections for the remote controls for Line A and Line B inputs.

The remote controls, which are duplicated for both Line A and Line B, are described below. Only one of the two Start relays (Line A Start or Line B Start) will be active at any time, depending upon the setting of the LINE B switch. The two Stop/Re-cue relays and the tally inputs are controlled similarly.

Start Relay

The contacts of this relay will close when the ON switch is depressed and the Fader is up. The relay contacts can either close momentarily or they may latch (*see the Applications section*).

Stop/Re-Cue Relay

The contacts of this relay will close momentarily when the OFF switch is depressed or the Fader is down (*see the Applications section*).

Tally Inputs

The **SEC/FAST/REC Tally** (SECOndary cue/FAST rewind/RECOrd) may be connected to a tape or cart. machine. When the opto-isolator diode is switched on, by the appropriate tally output of the tape/cart. machine, the channel is turned off and cannot be switched back on again. At the same time the OFF button LED will flash to indicate that a rewind or record is in progress.

When the **STOP Tally** opto-isolator diode is switched on by the appropriate tally output of the tape/cart. machine, the **STOP LED** will stop flashing. The channel may now be switched on again via the ON button.

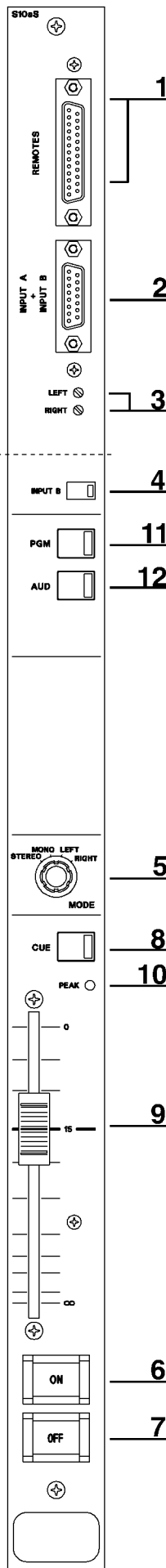
2 The **INPUT A & B** female 15-way D-type connector provides for a choice of two sources. The inputs are electronically balanced.

3 The **LEFT** and **RIGHT COARSE ADJUSTMENT PRESET POTS** allow for the coarse adjustment of the inputs.

4 The **INPUT B** switch selects, as the input source, Input B when depressed and Input A when released. A red LED in the switch glows to indicate when Input B is selected.

5 The **MODE** switch selects one of the following modes:

- STEREO - normal stereo image
- MONO - a mono sum on both L & R signal paths
- LEFT - the Left input signal on both L & R paths
- RIGHT - the Right Input signal on both L & R paths



6 The **ON** switch works in conjunction with the Fader. There is a red LED in the ON switch which will glow at two levels of brightness. The LED will glow at half brightness if the Fader is down when the ON button is pushed; you may regard this as the ON circuit being armed but not active. To make the ON circuit active the Fader must be moved away from the down position. The LED will glow at full brightness to indicate that the ON circuit is now active. When the ON circuit is active it will activate the Start Relay. If the ON switch is pushed whilst the Fader is already away from the down position then the ON circuit will be active as soon as the ON switch is pushed and the LED will glow at full brightness to indicate this.

If the OFF LED is flashing the ON switch will not be operational.

7 When the **OFF** switch is pushed, the channel's output will be turned off. The LED in the OFF switch will glow to indicate this. However, this LED also works in conjunction with the Tally inputs. When the SEC/FAST/REC Tally is active, the channel is turned off and cannot be switched back on again. At the same time the OFF button LED will flash to indicate that a rewind or record is in progress. When the STOP Tally is active, the STOP LED will stop flashing. The channel may now be switched on again via the ON button.

Cueing

8 The **CUE** switch allows you to listen, via the Monitors section, to the input of this channel. When the Fader is moved away from the down position the CUE circuit is automatically deactivated. A red LED in the switch glows to indicate that the CUE circuit is active. The CUE switch has a toggle action.

Output To The Programme

9 The smooth-action, 100mm **FADER** gives a gain of unity (0dB) when it is in the "15" position. This allows the upper section of the fader to act as a gain trim with +15dB gain. There is a microswitch attached to the Fader which detects when the Fader is in the fully down position.

10 The **PEAK** LED glows to give a warning of possible overload.

The post-fader signal fed to two switches: **PGM** (programme) and **AUD** (Audition).

11 When the **PGM** switch is depressed, the output of the channel is fed to the Program Left & Right buses. An LED in the switch glows when the switch is depressed.

12 When the **AUD** switch is depressed the output of the channel is fed to the Audition Left and Right buses. An LED in the switch glows when the switch is depressed.

Specifications

Line Inputs

Electronically balanced

Input Impedance >40k Ω

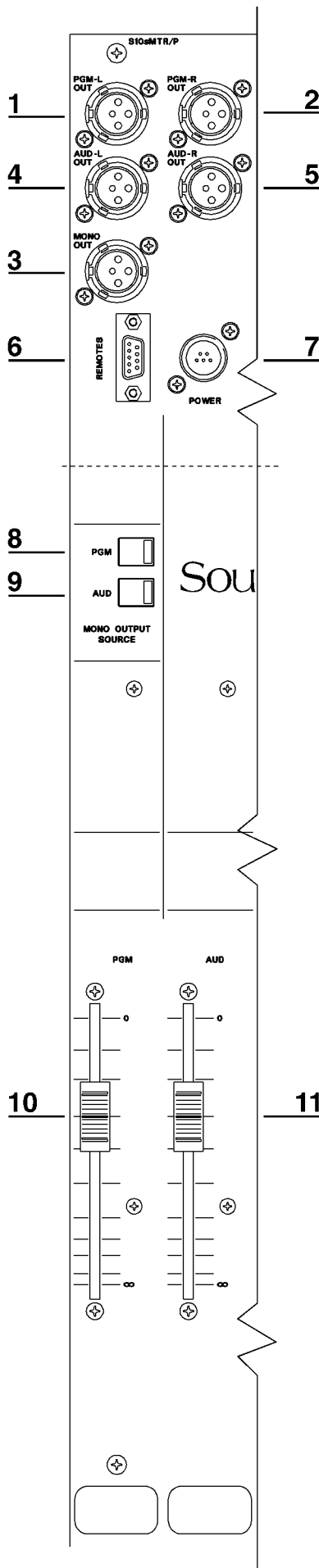
Input Levels: -12dBu to +9dBu,

Master Section S10sOP/OB

Description & Operation

Specification

Master Section S10sOP/OB



Outputs

Programme Outputs

1 The **PGM-L OUT** male XLR connector provides an electronically balanced output from the PGM MIX L bus. The PGM Fader (10), if fitted, controls the level of the output.

2 The **PGM-R OUT** male XLR connector provides an electronically balanced output from the PGM MIX R bus. The PGM Fader (10), if fitted, controls the level of the output.

3 The **MONO OUT** male XLR connector provides an electronically balanced output which is the sum of the PGM MIX R and PGM MIX L buses, and/or the AUD MIX R and AUD MIX L buses.

Audition Outputs

4 The **AUD-L OUT** male XLR connector provides an electronically balanced output from the AUD R bus. The AUD Fader (11), if fitted, controls the level of the output.

5 The **AUD-R OUT** male XLR connector provides an electronically balanced output from the AUD R bus. The AUD Fader (11), if fitted, controls the level of the output.

Muting

6 The 9-way D-type **REMOTES** male connector provides two 2-pole 1-way relay contacts. One is controlled by the CONTROL ROOM MUTE bus and the other is controlled by the STUDIO MUTE bus. The relay contacts close when the appropriate mute is active. These relays may be used to provide 'Mic Live' lamps in the Control Room and the Studio (*see the Applications section*).

Power Input

7 The 5-way locking **POWER** connector is the power input to the console. The console requires +17V, -17V and +48V.

Mono Output Source

8 When the **PGM** switch is depressed a mono mix of the Programme outputs is fed to the Mono Output.

9 When the **AUD** switch is depressed a mono mix of the Audition outputs is fed to the Mono Output.

Optional Master Output Control (Production variant only)

10 The **PGM MASTER FADER** is a smooth-action 100mm fader. It controls the signal level at the PGM Left and PGM Right XLR sockets.

11 The **AUD MASTER FADER** is a smooth-action 100mm fader. It controls the signal level at the AUD Left and AUD Right XLR socket.

Specifications

Mix Left, Right & Mono

Max. output +26dBu
Output impedance <75Ω

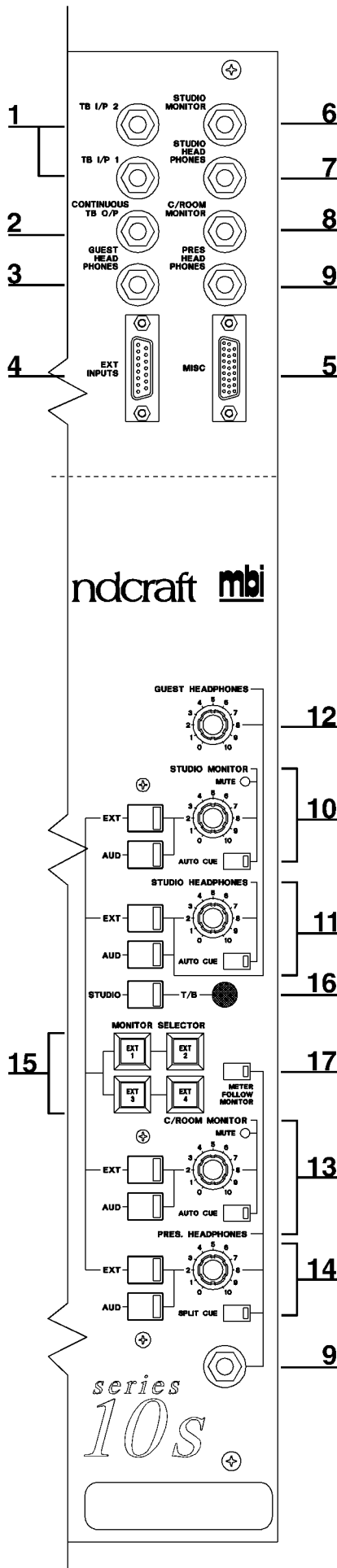
General

THD < 0.03%
Crosstalk < 60dB

Monitor Section S10sOP/OB

Description & Operation

Monitor Section S10sOP/OB



Input/Output Sockets

1 The **TB I/P 1** and **T/B I/P 2** inputs are via 3-pole ¼" 'A' gauge jack sockets. They each provide the means of connecting a microphone, at line level, and an activating switch to provide talkback to the Control-room. The signal from each mic is passed to the Control-room monitor and the Presenter's headphones (*see the Applications section*).

2 The **CONTINUOUS TB O/P** is via a 3-pole ¼" 'A' gauge jack socket. The signal available at this socket is a mix of the following inputs: the inbuilt mic in the console, and talkback signals from Mono-input channels, e.g. when user-provided Talkback Enable switches are closed (*see the Applications section*).

3 The **GUEST HEADPHONES** output is provided via a 3-pole ¼" 'A' gauge jack socket. The signal is sourced from the Studio Headphones, but doesn't have talkback signals.

4 **EXT INPUTS** are provided on a 15-way D-type male connector. Four Stereo channels are provided, channels 1 and 2 have balanced inputs whilst channels 3 and 4 have unbalanced inputs.

5 The **MISC** socket provides the following signals:

- Chassis, Ref and Logic Ground
- Audio and Logic power supply rails
- MFM (Meter Follows Monitor) signals
- CUE signals
- PGM & AUD
- Local Mute control signal
- Talkback output
- CUE logic control signal
- Timer 1
- Timer 2

These are used to feed the meterbridge distribution board. (*See the Applications section*).

6 The Studio Monitor output is via a 3-pole ¼" 'A' gauge jack socket. The output must be amplified in order to drive speakers.

7 The Studio Headphones output is via a 3-pole ¼" 'A' gauge jack socket.

8 The Control Room Monitor output is via a 3-pole ¼" 'A' gauge jack socket. The output must be amplified in order to drive speakers.

9 The Presenter's Headphones output is via a 3-pole ¼" 'A' gauge jack socket.

Studio

10 STUDIO MONITOR

The Studio Monitor has 4 sources of input. They are: PGM, Ext, Aud and CUE. The default source, which is selected at power-on, is PGM, i.e. the program output.

EXT

This switch selects the external inputs as the source of the Studio Monitor. A green LED glows to indicate that it has been selected. To de-select this input you may either press this switch again to return to PGM, or you may press the AUD switch.

AUD

This switch selects the Audition output as the source of the Studio Monitor. A red LED glows to indicate that it has been selected. To de-select this input you may either press this switch again to return to PGM, or you may press the EXT switch.

MUTE

This red LED glows to indicate that the Studio Monitor output has been muted. This occurs when any mics connected to Mono Input Channels which are designated as Distant are being used.

AUTO CUE

When this switch is depressed any CUE selected from any of the channels will be fed to the Studio Monitor. The CUE signal will replace the existing signal. A red LED in the switch glows to indicate that this feature is enabled.

When the switch is released CUE signals will not be fed to the Studio Monitor.

LEVEL Control

This controls the level of output fed to the output socket.

Note: When the studio talkback switch is depressed, the signal from the selected source is replaced by the signal from the inbuilt mic plus the signal from the T/B Mix bus.

11 STUDIO HEADPHONES

The Studio Headphones have 4 sources of input. They are: PGM, Ext, AUD and CUE. The default source, which is selected at power-on, is PGM, i.e. the program output.

EXT

This switch selects the external inputs as the source of the Studio Headphones. A green LED glows to indicate that it has been selected. To de-select this input you may either press this switch again to return to PGM, or you may press the AUD switch.

AUD

This switch selects the Audition output as the source of the Studio Headphones. A red LED glows to indicate that it has been selected. To de-select this input you may either press this switch again to return to PGM, or you may press the EXT switch.

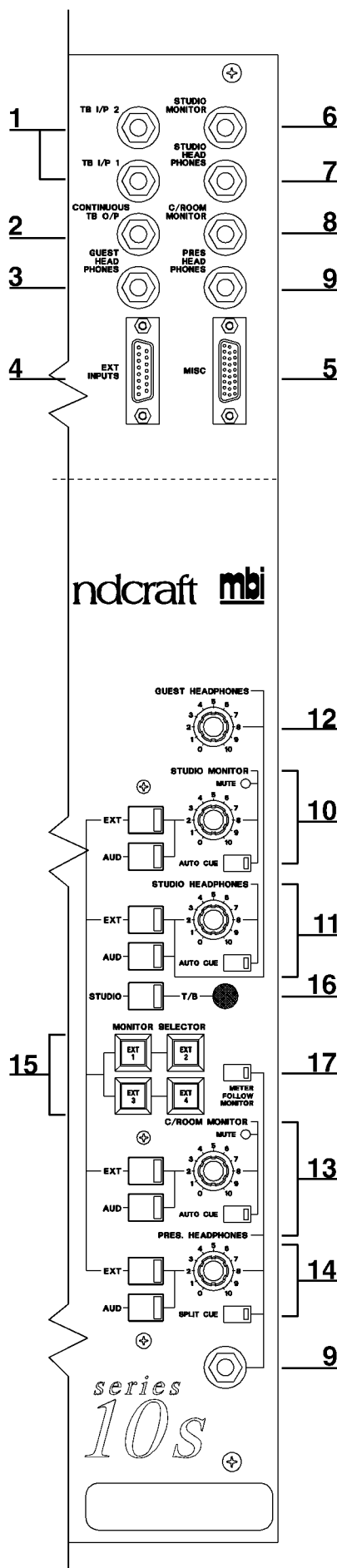
AUTO CUE

When this switch is depressed any CUE selected from any of the channels will be fed to the Studio Headphones. The CUE signal will replace the existing signal. A red LED in the switch glows to indicate that this feature is enabled.

When the switch is released CUE signals will not be fed to the Studio Headphones.

LEVEL Control

This controls the level of output fed to the output socket.



Guest Headphones

12 The Guest Headphones carry the same signal as the Studio Headphones, except for talkback signals. The Guest Headphones has its own level control.

Control Room

13 C/ROOM MONITOR

The Control-room Monitor has 4 sources of input. They are: PGM, Ext, AUD and CUE. The default source, which is selected at power-on, is PGM, i.e. the program output.

EXT

This switch selects the external inputs as the source of the Control-room Monitor. A green LED glows to indicate that it has been selected. To de-select this input you may either press this switch again to return to PGM, or you may press the AUD switch.

AUD

This switch selects the Audition input as the source of the Control-room Monitor. A red LED glows to indicate that it has been selected. To de-select this input you may either press this switch again to return to PGM, or you may press the EXT switch.

MUTE

This red LED glows to indicate that the Control-room Monitor output has been muted. This occurs when any mics connected to Mono Input Channels which are designated as Local are being used.

AUTO CUE

When this switch is depressed any CUE selected from any of the channels will be fed to the Control Room Monitor. The CUE signal will replace the existing signal. A red LED in the switch glows to indicate that this feature is enabled.

When the switch is released CUE signals will not be fed to the Control Room Monitor.

If either of the reverse talkback inputs (TB INPUT 1 or 2) are being used they will over-ride all other signals to the Control Room Monitor.

LEVEL Control

This controls the level of output fed to the output socket.

PRESENTER'S HEADPHONES

14 The Presenter's Headphones have 4 sources of input. They are: PGM, Ext, Aud and CUE. The default source, which is selected at power-on, is PGM, i.e. the program output.

EXT

This switch selects the external inputs as the source of the Presenter's Headphones. A green LED glows to indicate that it has been selected. To de-select this input you may either press this switch again to return to PGM, or you may press the AUD switch.

AUD

This switch selects the Audition Output as the source of the Presenter's Headphones. A red LED glows to indicate that it has been selected. To de-select this input you may either press this switch again to return to PGM, or you may press the EXT switch.

SPLIT CUE

When this switch is depressed any CUE selected from any of the channels will be summed and fed to the right-hand channel of the Presenter's Headphones. The existing source to the headphones is summed and fed to the left-hand channel of the headphones. A red LED in the switch glows to indicate that this feature is enabled.

When the switch is released CUE signals, when present, will be fed to both sides of the Presenter's Headphones.

When there is no CUE signal the Presenter will hear the selected Monitor input through both sides of the headphones in either of the above cases.

If either of the reverse talkback inputs (TB INPUT 1 or 2) are being used they will over-ride all other signals to the Presenter's headphones. The input of the reverse talkback inputs will be heard through both sides of the headphones.

LEVEL Control

This controls the level of output fed to the output socket.

External Inputs

15 MONITOR SELECTOR

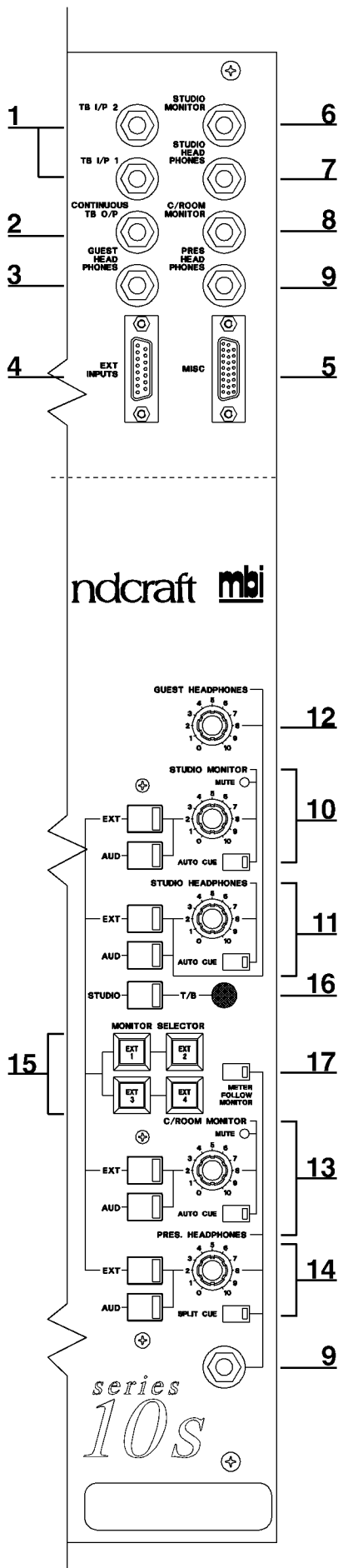
Each of the monitor/headphone circuits described above may select Ext as an input source. The Ext source has four inputs which may be selected by depressing the desired switch: Ext1 to Ext4. A green LED in each switch indicates its selection. Depressing one of these switches automatically deselects the previously selected Ext input, therefore only one of the four Ext inputs may be selected at any time.

Note: Ext 1 is the default input which is selected at power up.

Talkback

16 When the **STUDIO** switch is depressed the Studio Headphones and Monitor circuits will have their existing sources replaced by the signal from the inbuilt **MIC** summed with the T/B MIX bus.

Note: the switch is non-latching; it also does not turn the mic on: its output is always present on the T/B OUTPUT bus. The signal T/B OUTPUT bus is always available at the Continuous Talkback Output socket.



Metering

17 When the **METER FOLLOW MONITOR** switch is released the Meters will follow the PGM output, but will be interrupted by any CUE signal. When the switch is depressed the meters will follow the Presenter's Headphones. A red LED in the switch glows to indicate that the Meters are following the Presenter's Headphones.

Note: The Meters will follow the Presenter's Headphones even if talkback to the Control-room is used, i.e. the meters will not follow the talkback signal.

Appendices

Glossary

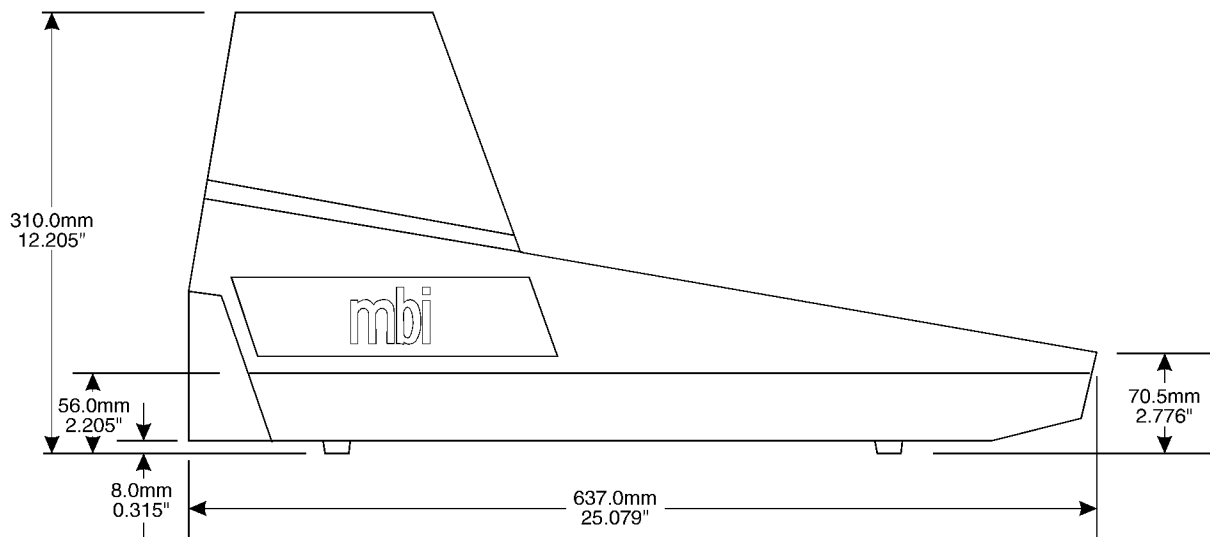
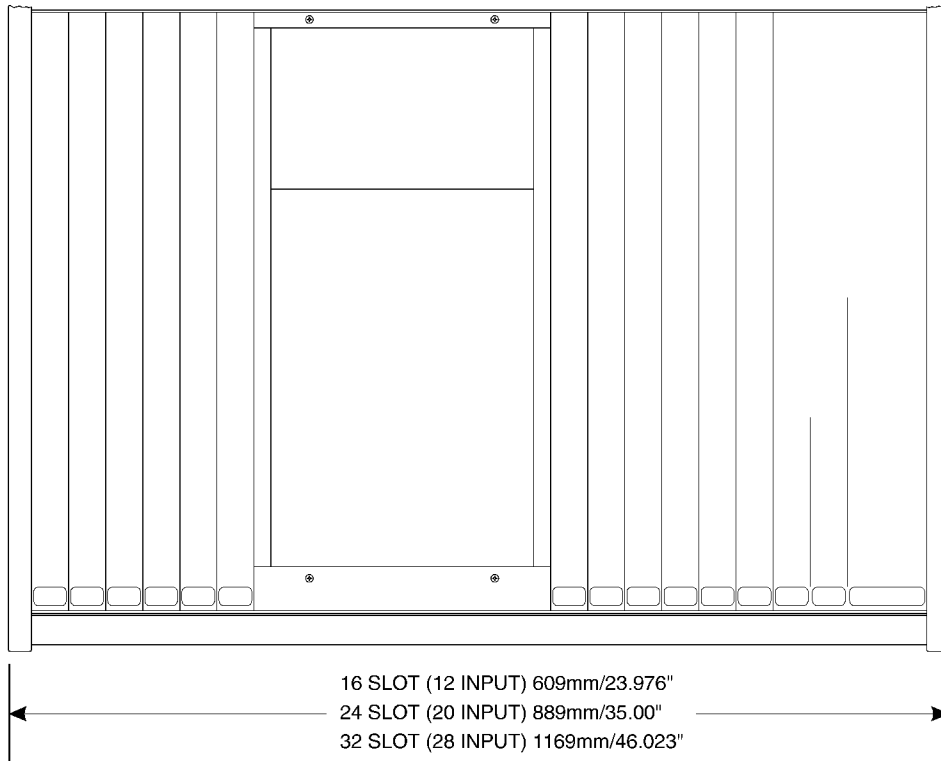
Dimensions

Warranty

Glossary

Attenuation	The reduction of a signal level. The attenuation is usually measured in dB.
Balance	The relative levels of the left and right channels of a stereo signal.
Clipping	The onset of severe distortion in the signal path, usually caused by the peak signal voltage being limited by the circuit's power supply voltage.
CMRR	Common Mode Rejection Ratio. It is the ratio of the extent to which a differential amplifier will cancel noise, which is present on both inputs, compared to its ability to amplify the wanted signal.
dB (decibel)	<p>A ratio of two voltages or signal levels, expressed by the equation</p> $\text{dB}=20\text{LOG}_{10}(V_1/V_2).$ <p>Adding the suffix 'u' denotes that the signal is relative to 0.775V RMS. Adding the suffix 'v' denotes that the signal is relative to 1V RMS.</p>
EIN	Equivalent Input Noise. It is the ratio of output noise to the gain. It describes the level of noise which would need to be fed into an ideal amplifier to produce the measured output noise.
EQ (Equaliser)	A device which allows the cutting or boosting of selected bands of frequencies in the signal path.
Gain	The degree of amplification, or attenuation applied to a signal.
Hybrid	A device which allows a telephone line to be connected to a broadcast desk in such a way that the caller may hear the programme output without the caller's voice being re-introduced onto the phone line which would cause unwanted feedback.
LED	Light Emitting Diode.
PAN	An abbreviation of 'panorama': it controls the levels sent to left and right outputs.
PFL (pre-fade listen)	A function which allows the operator to monitor the pre-fade signal independently of the programme mix.
TELCO	TELEphone COmmunication.
THD	Total Harmonic Distortion.

Dimensions



Warranty

- 1 **Soundcraft** means Soundcraft Electronics Ltd.

End User means the person who first puts the equipment into regular operation.

Dealer means the person other than Soundcraft (if any) from whom the End User purchased the Equipment, provided such a person is authorised for this purpose by Soundcraft or its accredited Distributor.

Equipment means the equipment supplied with this manual.

- 2 If within the period of twelve months from the date of delivery of the Equipment to the End User it shall prove defective by reason only of faulty materials and/or workmanship to such an extent that the effectiveness and/or usability thereof is materially affected the Equipment or the defective component should be returned to the Dealer or to Soundcraft and subject to the following conditions the Dealer or Soundcraft will repair or replace the defective components. Any components replaced will become the property of Soundcraft.
- 3 Any Equipment or component returned will be at the risk of the End User whilst in transit (both to and from the Dealer or Soundcraft) and postage must be prepaid.
- 4 This warranty shall only be available if:
 - a) the Equipment has been properly installed in accordance with instructions contained in Soundcraft's manual; and
 - b) the End User has notified Soundcraft or the Dealer within 14 days of the defect appearing; and
 - c) no persons other than authorised representatives of Soundcraft or the Dealer have effected any replacement of parts maintenance adjustments or repairs to the Equipment; and
 - d) the End User has used the Equipment only for such purposes as Soundcraft recommends, with only such operating supplies as meet Soundcraft's specifications and otherwise in all respects in accordance Soundcraft's recommendations.
- 5 Defects arising as a result of the following are not covered by this Warranty: faulty or negligent handling, chemical or electro-chemical or electrical influences, accidental damage, Acts of God, neglect, deficiency in electrical power, air-conditioning or humidity control.
- 6 The benefit of this Warranty may not be assigned by the End User.
- 7 End Users who are consumers should note their rights under this Warranty are in addition to and do not affect any other rights to which they may be entitled against the seller of the Equipment.