



## QUE-18 Introduction

The QUE-18 is the latest development in our range of foldback products. Designed in conjunction with sound designers actively engaged in large musical theatre productions, it is a very versatile unit that contains many new features.

The QUE-18 can handle 18 audio inputs. These are arranged as 14 mono and 2 stereo channels.

The master section is arranged to provide 2 independent stereo phones outputs each with its own volume control.

A line output with master level control is available in mono or stereo.

Auxiliary buss output with master level control is available in mono or stereo.

An auxiliary input with level control connects directly to the output section.

A talk-back / communication function with internal or external microphone and full level adjustment is incorporated.

Each unit is self powered and may be configured to operate on either 110 / 220V ac

A socket and dimmer control is provided to power a 12V working light (Littlite)

Each channel features: -

Equalisation in the form of Treble (HF) and Bass (LF) controls.

Auxiliary send control. Factory setting post-fade but may be specified as pre-fade (internal jumpers).

Balance / Pan control.

Illuminated channel mute switch.

60mm linear channel fader.

A concealed switch is fitted that allows channels to be removed from the line mixed output. (e.g. click track)

## QUE-18 Rear Panel



### Rear Panel

2 parallel 56 way Edac connectors are fitted to the rear panel which carry all the channel inputs and talk-back connections.

A 4pin XLR and adjacent dimmer control are provided for the connection of a 12V working light. (A suitable Littlite product is available. Shown in the picture.)

Local inputs via switching jacks are fitted to each channel. The operation is to disconnect the multicore input by inserting a jack plug. Balanced (RTS) or unbalanced jacks may be used.

The line and auxiliary outputs along with auxiliary input and external T/B microphone input are also on the rear panel.

### Headphone outputs

The headphone output jack sockets are conveniently mounted on the front right of the unit. Only use headphones with a stereo jack (RTS).

**NEVER CONNECT A MONO JACK PLUG. THIS WILL SHORT-CIRCUIT ONE SIDE OF THE OUTPUT STAGE AND WILL CAUSE DAMAGE.**

### Mounting

A mounting yoke (shown in the front cover picture) is available to provide adjustable standing positions or to attach the unit to a stand.

A standard 3/8" BSW bush is fitted to facilitate mounting on a standard microphone stand. (Not supplied)

2 M6 Knob/screws attach this yoke to the mixer. (supplied).

If the mounting yoke is to be used with a stand it is possibly more convenient to attach the yoke to the stand first and then attach the mixer.

## Audio distribution panel

A 19" 3RU Audio distribution panel is available to provide a convenient interface to XLR connectors.



## Connections

Multicore cables would normally be used to connect audio to the various mixers. The cables can be connected back to the distribution panel or daisy chained from one mixer to another, or any combination thereof. Essentially the audio inputs are simply paralleled to each mixer in the system.

The maximum number of units that may be connected to a console is governed by the output drive capabilities of the console. Most consoles will drive a 600 ohm balanced load and would therefore be able to happily drive in excess of 60 units. With the system strapped for unbalanced operation 30 units would present a load of >700 ohms.

## Ventilation

The output devices in this mixer are capable of delivering significant power levels at extremely low distortion. As a consequence they consume considerable quiescent current which results in the unit running fairly warm. This is quite normal and does not cause any problems but as a precaution do not cover the unit while it is switched on. Ventilation slots are provided in the base of the unit which should not be covered. Do not stand the unit directly on carpeted surfaces, as this will impair the airflow through the unit.

## Headphones.

We have designed the QUE-18 to cope with as many types of headphones as possible. The output devices we have chosen in this design will drive very low impedances down to 4 ohms BUT WE DON'T RECOMMEND CONNECTING A LOAD LOWER THAN 16 OHMS.

Modern headphones are available at around 32 ohms and this would be our recommended load. Always turn the output volume controls down before connecting headphones.

**CAUTION - DEPENDING ON THE TYPE OF HEADPHONES USED THIS UNIT IS CAPABLE OF DELIVERING VERY HIGH LEVELS WHICH COULD CAUSE PERMANENT HEARING DAMAGE**

**ALWAYS TURN THE OUTPUT VOLUME CONTROLS DOWN BEFORE CONNECTING HEADPHONES.**

### **Operation.**

The operation of the unit is fairly obvious. Channel faders and E.Q. are used to achieve the desired mix for the individual musician. The pan controls allow the various channels to be positioned in the stereo picture.

### **Line output**

The line output is essentially the same mix as the phones mix, but with the option to remove any channel from this mix (Click tracks etc). This is achieved by operating a small push switch located behind a small hole positioned below the mute button. A match stick or other suitable object can be used to operate this switch. Press the button to remove it from the mix.

### **Auxiliarys and second phones mix**

An auxiliary send control per channel allows a separate auxiliary mixed output to be created. This may be required to add effects reverb, echo, etc to particular channels. The return (effects output) would normally be connected to the auxiliary input. The aux return pot would control the amount of effect.

If this aux bus is not in use it is possible to configure the output section so that the 2<sup>nd</sup> phones output is connected to this buss. This provides the opportunity to have 2 completely separate phones mixes. To configure this option remove the bottom cover and reposition 2 jump plugs situated on the PCB above the phones jack sockets. A label on the PCB shows the positions. N.B talk-back won't work on the 2<sup>nd</sup> phones output if this option is configured.

### **Talk-Back.**

A talk-back function is included in the QUE-18 which operates as follows.

An internal talk-back microphone is fitted to each unit. Inserting a jack into the Ext T/B Mic socket disconnects the internal Mic and allows the external Mic to operate. This allows a combined microphone headset to be used if required.

Only one mixer at a time is allowed to send talk-back. Talk-back is only fed to the normal headphone outputs. Pressing the T/B button sends the local microphone signal to all other units; it also dims the programme signal and lights all the T/B switches on the system. The person sending talk-back will also hear his own talk-back microphone. The microphone gain and talk-back levels are adjustable on each mixer. Any unit can send talk-back. Once talk-back is in operation no other unit can send. Only when the T/B button is not illuminated can talk-back be sent.

Connections are provided on the distribution panel to access the talk-back system.

A switch may be connected to the talk-back control XLR which allows the talk-back function to be disabled should this be required. It would also be possible for a suitable external talk-back input to be connected to the system. XLR 19 is talk-back audio (balanced) XLR 20 is talk-back control. Pin 1 is 0ve. Pin 2 is talk-back enable (connect to pin1). Pin 3 is talk-back inhibit. (connect to pin1)

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## Technical Specification

### Inputs

Channel Input	Balanced bridging differential amplifier impedance > 44K ohms Impedance strapped unbalanced > 22K ohms.
Channel local input	3 pole .25" break jack (RTS)
Aux input	Balanced 3 pole .25" jack (RTS) Impedance > 44K ohms
Maximum input level	+20dBm
Normal operating level	0dBm. A 2 pole .25" jack may be used for unbalanced operation in any input.

### Channel controls

H.F.	+/- 10dB @ 10KHz rotary control with centre detent.
L.F.	+/- 10dB @ 100Hz rotary with centre detent.
Aux Send	Rotary control.
Pan / Balance	Rotary control with centre detent.
Mute	Illuminated push button.
Line select	Concealed push button.
Fader	60mm linear Fader.

### Phones Outputs

Connector 3 pole .25" jack (RTS)  
Absolute minimum load impedance 16 ohms.  
Recommended load impedance 32 ohms.

### Power Output

4 X 3.5W into 16 ohms.  
4 X 2.3W into 25 ohms  
4 X 1.85W into 32 ohms

### Line and Aux Outputs

2 pole .25" jacks mono or stereo outputs available  
Max level +20dBu into 600 ohms

### Noise + Distortion

<.01% @ max output level any output

### Frequency response

+/- 1dB 20Hz to 20KHz E.Q. set flat

### Protection

Output devices and power supply devices incorporate safe operating area protection circuitry.

### Lamp supply

12V DC @ 500MA Max provided for working light with dimmer control

### Power IEC Connector

200 - 240V AC. Mains Fuse 315mA Anti Surge (slow blow)  
110 - 115V AC. Mains Fuse 800mA Anti Surge (slow blow)

### Dimensions

Length Mixer	465mm (18.25")
Length inc mounting yoke	515mm (20.25")
Width exc connectors	267mm (10.5")
Height inc knobs	140mm (5.5") tapering to 83mm (3.25")

### Distribution unit

19" rack mount (483mm) X 3RU (134mm) Depth 50mm

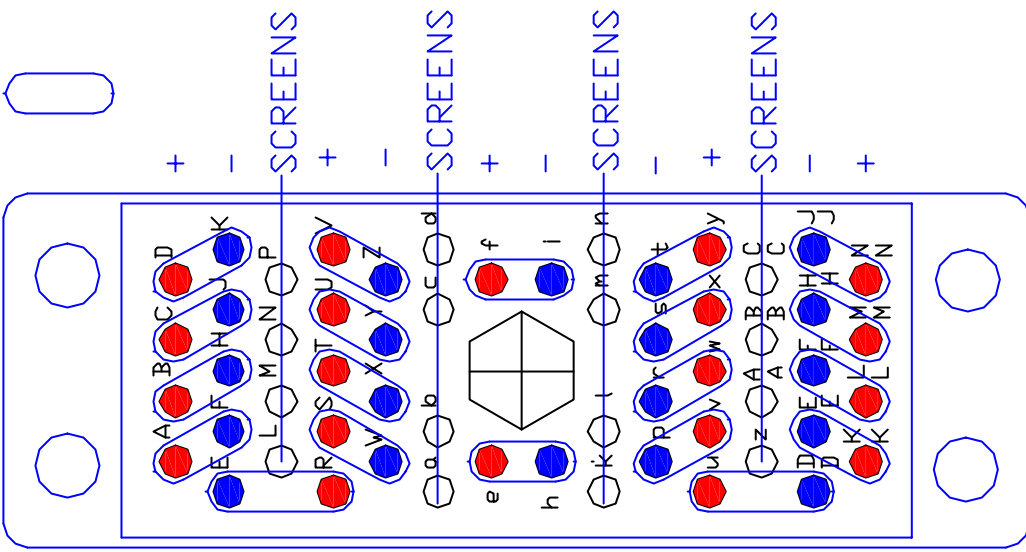
### Finishes

QUE-18 Top and back grey anodised aluminium with epoxy screen-printed notation. Bottom Black plastic coated steel.

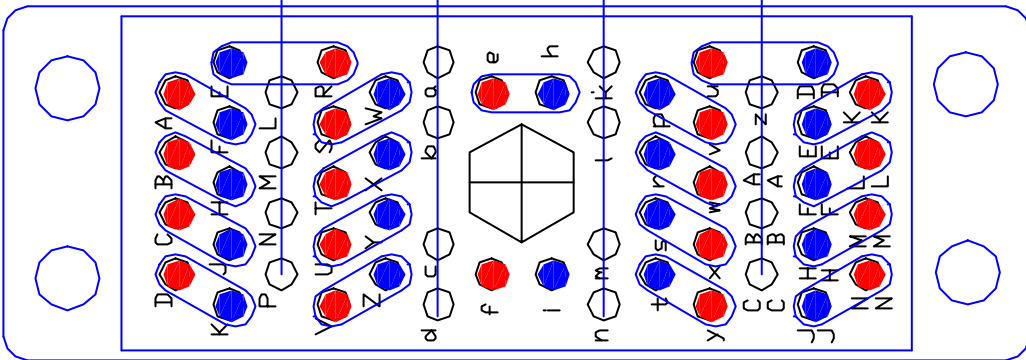
Mounting Yoke black painted steel

Distribution panel black anodised aluminium with engraved notation.  
Black plastic coated steel rear cover.

FRONT VIEW OF  
CHASSIS MOUNT  
VERSION

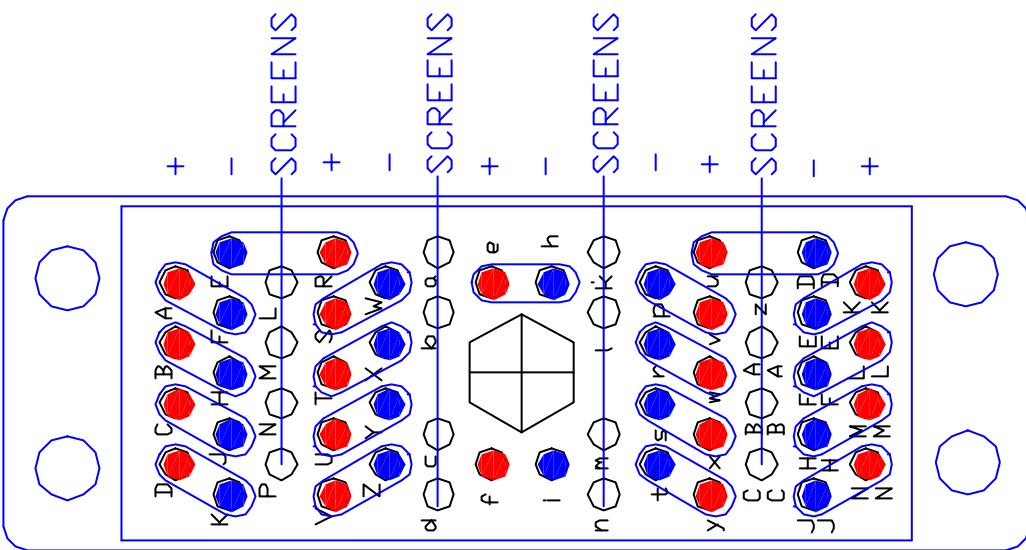


INTERNAL VIEW OF  
CABLE MOUNT  
VERSION



REAR VIEW OF  
CHASSIS MOUNT  
VERSION

FRONT VIEW OF  
CABLE MOUNT  
VERSION




SCREENS  
L M N P q r c d k l m n z AA BB CC

36 VAY EDAC CONNECTOR PIN OUT

PAIR	+	-	PIN	FUNCTION
PAIR 1	+	-	A	1/P CHAN 1
PAIR 1	-	+	F	1/P CHAN 1
PAIR 2	+	-	B	1/P CHAN 2
PAIR 2	-	+	H	1/P CHAN 2
PAIR 3	+	-	C	1/P CHAN 3
PAIR 3	-	+	J	1/P CHAN 3
PAIR 4	+	-	D	1/P CHAN 4
PAIR 4	-	+	K	1/P CHAN 4
PAIR 5	+	-	R	1/P CHAN 5
PAIR 5	-	+	E	1/P CHAN 5
PAIR 6	+	-	S	1/P CHAN 6
PAIR 6	-	+	V	1/P CHAN 6
PAIR 7	+	-	T	1/P CHAN 7
PAIR 7	-	+	X	1/P CHAN 7
PAIR 8	+	-	U	1/P CHAN 8
PAIR 8	-	+	Y	1/P CHAN 8
PAIR 9	+	-	Z	1/P CHAN 9
PAIR 9	-	+	Y	1/P CHAN 9
PAIR 10	+	-	F	1/P CHAN 10
PAIR 10	-	+	H	1/P CHAN 10
PAIR 11	+	-	f	1/P CHAN 11
PAIR 11	-	+	i	1/P CHAN 11
PAIR 12	+	-	V	1/P CHAN 12
PAIR 12	-	+	P	1/P CHAN 12
PAIR 13	+	-	w	1/P CHAN 13
PAIR 13	-	+	r	1/P CHAN 13
PAIR 14	+	-	x	1/P CHAN 14
PAIR 14	-	+	s	1/P CHAN 14
PAIR 15	+	-	Y	1/P CHAN 15 LEFT
PAIR 15	-	+	Y	1/P CHAN 15 LEFT
PAIR 16	+	-	Y	1/P CHAN 15 RIGHT
PAIR 16	-	+	Y	1/P CHAN 15 RIGHT
PAIR 17	+	-	KK	1/P CHAN 16 LEFT
PAIR 17	-	+	EE	1/P CHAN 16 LEFT
PAIR 18	+	-	LL	1/P CHAN 16 RIGHT
PAIR 18	-	+	FF	1/P CHAN 16 RIGHT
PAIR 19	+	-	MM	TALK BACK SIGNAL
PAIR 19	-	+	HH	TALK BACK SIGNAL
PAIR 20	+	-	NN	TALK BACK ENABLE
PAIR 20	-	+	JJ	TALK BACK INHIBIT

CABLE TYPE

20 INDIVIDUALLY SCREENED PAIRS  
(MOGAMI OR SIMILAR RECOMMENDED)

 <p><b>FORMULA</b> <b>SOUND</b></p> <p>ABITON ROAD, BREDBURY, STOCKPORT, CHEBSHIRE, SK9 2SR, UK</p> <p>TEL 0161 494 5650 (+44 161 494 5650) FAX 0161 494 5651 (+44 161 494 5651)</p>	<p><b>TITLE</b> QUE 18 MULTI CORE CABLE</p> <p>CONNECTOR DETAIL</p>	<p><b>DRG No.</b> EDAC 56W</p>
	<p><b>DATE</b> 25-04-2003</p>	<p><b>ISSUE</b> 1</p>