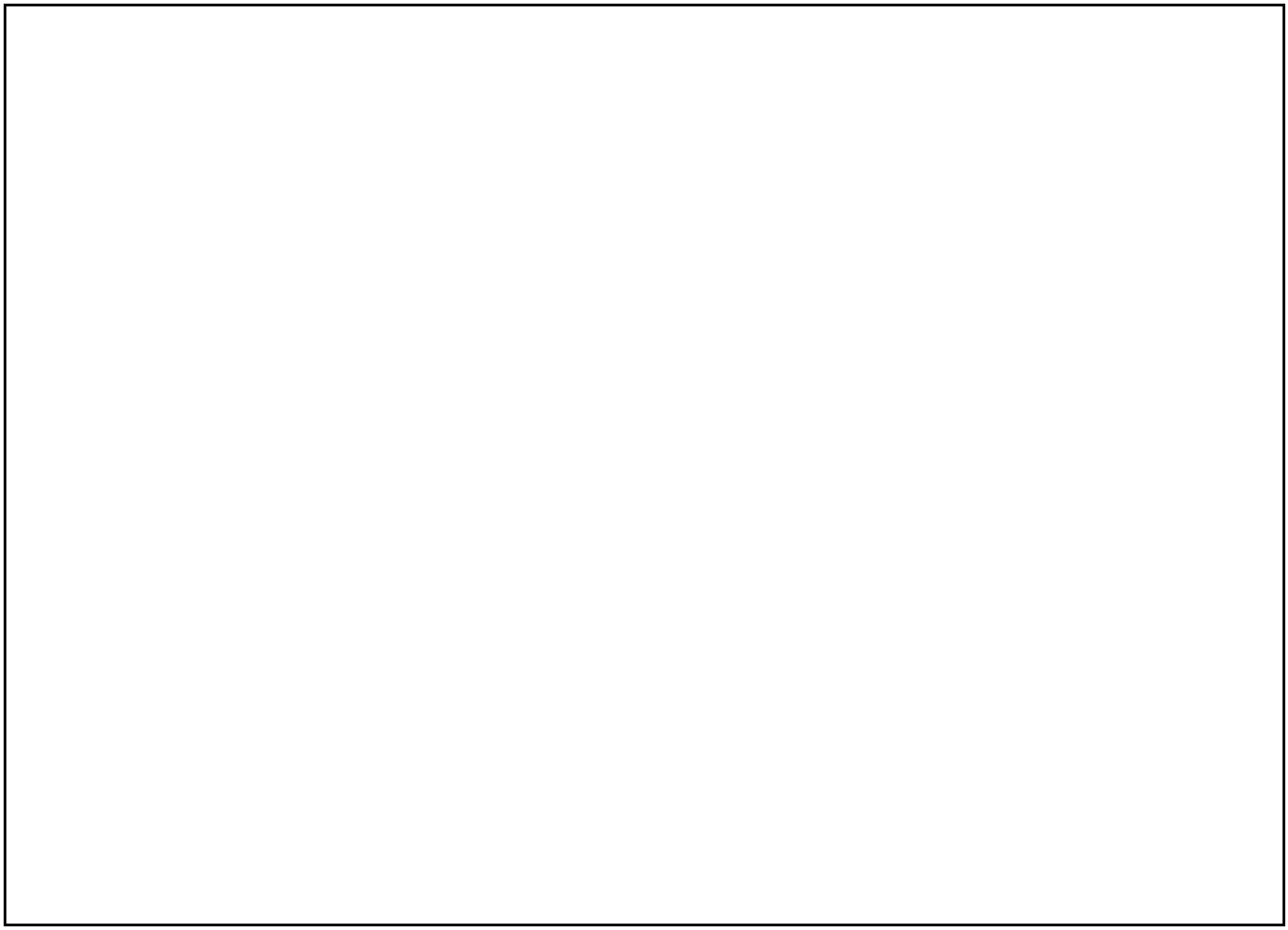
1.00 General Description

1.01The Cloud CXF Mixer is primarily designed for 'live' discotheque use, yet it is equipped with such flexible facilities that it may be used in a wide range of applications such as broadcast and production studios.
The console has advanced specifications and rugged construction. Its compact dimensions make effective use of limited space such as in DJ booths and small studios.

1.02The CXF mixer is only available with a fixed format of 8 x music and 2 x microphone channels. Three of the music channels are equipped with RIAA input equalisers for magnetic phono cartridges.



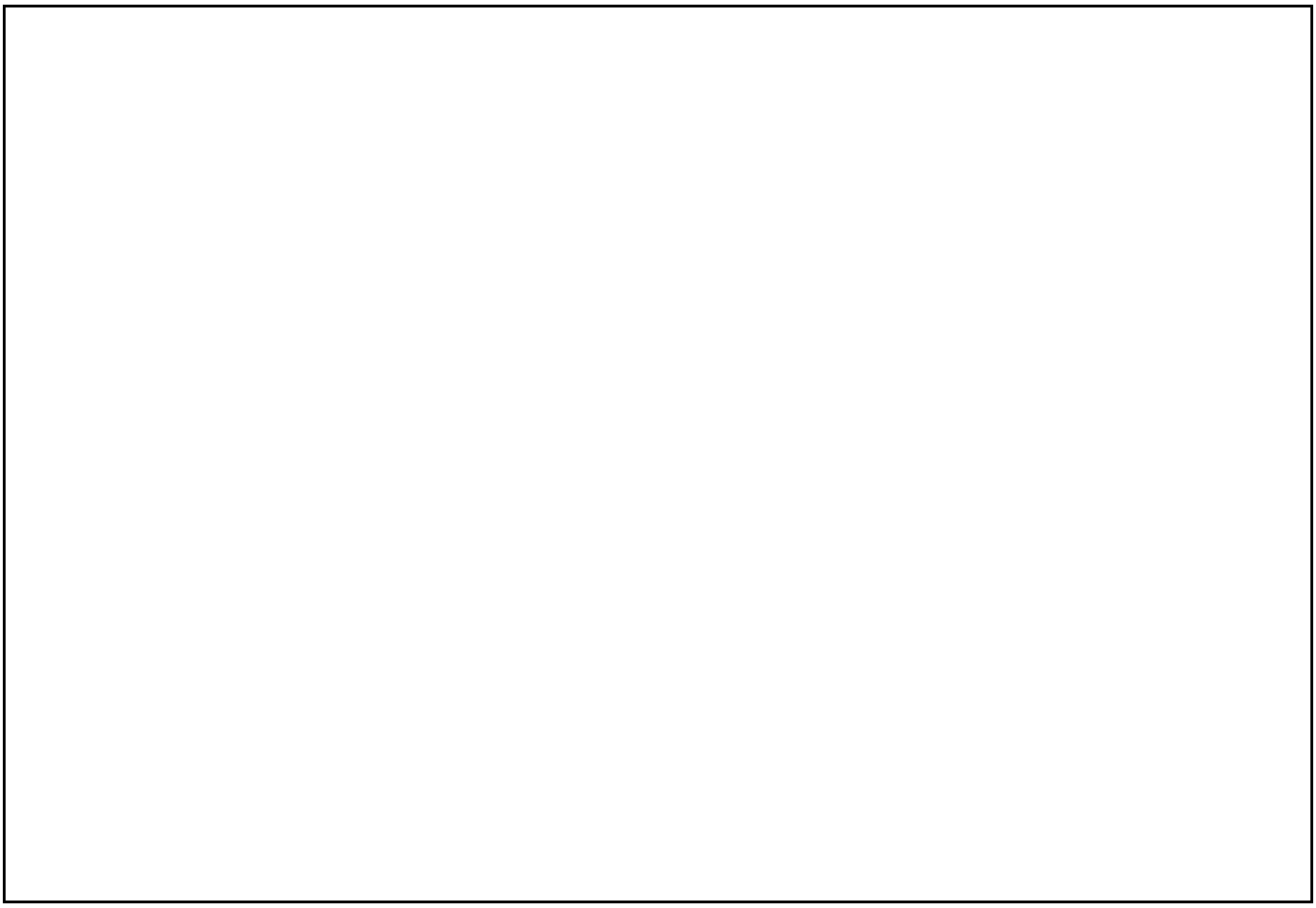
1.03A stylish angle mounting kit is supplied with the mixer. If desired, this mounting kit can be discarded to allow flat panel mounting or alternatively it can be mounted into a 19" rack and would occupy 9u of space.

1.04The PSU 1020 power supply is designed to be surface mounted remotely from the mixer. The 17.5V DC power rails have a slow rise characteristic to reduce switch on thumps. Visual indication of the power rails is provided by two green LED's. A mains input in the range 220 to 240 volts at 40-60Hz is required and a moulded mains lead is supplied with the unit. When a fused plug is fitted, this should have a rating of 1A.
The PSU 1020 can be modified to operate from a supply of 110-120V by removing the internal link marked '220-240v' and fitting two adjacent links marked '110-120v'. The 220-240v fuse rating of T500mA should be changed to T1A for 110-120v operation.

Adequate ventilation must be provided to ensure safe and reliable operation of this power supply. Remember that the PSU 1020 has a captive output lead which is 900mm long, this must be considered when positioning the PSU.
Do not connect the power connector to the mixer with the power supply switched on and always secure the 9

pin 'D' connector with the two screws provided.

The mains earth connection to the PSU should be of the highest specification, not only for audio quality but for the safety of the operator, as many of the connected input sources often rely on the audio mixer for their ground connections, e.g. turntables, microphones etc.



2.00 Microphone inputs - channels 1 and 2

2.01The CXF microphone channels contain low noise balanced microphone amplifiers, a 100Hz high pass filter, 3 band equalisation, line level insert, 2 auxiliary sends, Pan control, PFL select, Peak LED, channel fader and mute switch.

2.02The microphone amplifier is an electronically balanced, transformerless design, configured for optimum low noise performance. The input impedance is greater than 2K ohms and suitable for microphones in the 200-600 ohm range. A gold plated 3 pin XLR type connector with latch is located on the rear panel. To operate the input in the unbalanced mode, it is suggested that the pin 3 terminal be shorted to the ground terminal (pin 1) inside the cable plug.

2.03Input Gain Trim

The microphone input can be varied between 0dB and 60dB of gain. This exceptionally wide range of gain allows the direct connection of line level devices such as radio mic's without the introduction of input attenuators. An input overload margin of 20dB is maintained at all gain settings.

2.04Equalisation

HF (High Frequency)

This control provides 12dB of boost or cut at 8KHz with a 'shelving' response.

MID (Middle Frequencies)

This parametric control is continuously variable between 300Hz and 5KHz with 12dB of boost and cut at the selected frequency.

LF (Low Frequency)

A range of 12dB boost and cut at 60Hz is provided with a similar 'shelving' characteristic to that of the HF control.

2.05100Hz High Pass Filter

A 12dB/octave filter operating at 100Hz. This can be effective in removing low frequency system rumble, handling noise and other extraneous signals, resulting in a cleaner vocal response particularly when bass boost is used. The switch is illuminated by a yellow LED when the 100Hz filter is effective.

When the switch is in the off position, the filter reverts to the speaker protection mode, operating at 20Hz.

2.06Bypass Switch

The equaliser circuitry can be switched in or out of the signal path by simply operating the switch on the rear panel. This operates independently of the 100Hz high pass filter. Tamper proof operation of this switch is possible by removing the switch push button, and replacing it with locking moulded cover.

2.07Auxiliary Sends

2 auxiliary sends are provided. AUX 1 operates in the pre-fade mode, with AUX 2 operating post-fade. This facility can be used to interface a variety of units for signal processing, sampling digital effects or a flexible extra output facility. (See 4.01)

2.08Pan Control

This control operates at -3dB at centre, to infinity at the control extremes, with a centre detent to aid positive central image setting. The pan pot is used to place the mono signal anywhere within the stereo image.

2.09PFL (Pre-fade listen)

This logic controlled momentary action switch, routes the pre-fade signal to the

headphone amplifier and stereo bar graph LED display. The selection of a channel PFL automatically cancels any prior selection and the push button is illuminated with a green LED.

2.10Peak LED

A red LED indicates the peak signal level at the pre-fade point and illuminates at a level of approximately 4dB below clipping.

2.11Channel fader

The channel fader has a slide length of 100mm and an exceptionally smooth feel. Under normal operating conditions, the fader is used fully open, in conjunction with the mute switch.

2.12Mute switch

This momentary action, logic controlled switch, operates silently and consistently and can be used to conveniently turn the mic channel on and off. The mute function operates post-insert point and mutes all auxiliary sends, leaving PFL to operate normally. The mute push button is illuminated by a red LED when the channel is muted.

2.13Insert

A 3 pole 1/4" jack socket is provided on the rear panel. This insert point operates at a signal level of 0dBu and is situated post EQ, pre-fade. A variety of signal processing units can be used for single channel effects such as compression etc. This can also be used as a direct microphone signal output.

3.00 Music Inputs - Channels 3 - 10

3.01Each music channel contains an input amplifier, input switching, equaliser, auxiliary sends, channel fader, crossfade assign, mono switch, PFL select logic and remote start switch. Inputs are by way of gold plated RCA phono sockets.

3.02Inputs

Two inputs are provided on each of the music channels. Dual line inputs are featured on channels 3,4,8,9 and 10 with line/RIAA phono inputs on channels 5,6 and 7.

All line inputs have a nominal sensitivity of 0dBu (775mV) and the RIAA equalisers have an input impedance of 47K ohm, loaded with a capacitance of 220pF. The RIAA equalisation is accurate to within ∀0.5dB, 40Hz to 20KHz.

3.03Input Gain Control

The gain range for all the music inputs is ∀12dB with reference to the centre (unity gain) point of the gain control. This allows sensitivity adjustments from below 200mV to over 3V.

3.04Input Select Switch

This is positioned between the gain control and the HF control and has LED's to indicate status. A provision to mark the front panel with input source details is adjacent.

3.05Equalisation

The equaliser has 3 bands, each having a defined range resulting in a controlled response outside the audio spectrum. In addition, the range of boost and cut can be switched to operate at ∀12dB or limited to ∀6dB by simply operating a rear panel switch. A second switch can be used to defeat the equalisation. Tamper proof operation of this switch is possible by removing the switch push button, and replacing it with locking moulded cover.

The HF control operates at 10KHz, mid control at 1200Hz and LF at 50Hz. All 3 controls have a centre detent for positive neutral setting.

3.06Mono Switch

Positioned between the equalisation and auxiliary sends, the mono switch simply links the two stereo signals. The push button is illuminated by a yellow LED when the signals are linked.

3.07Crossfade Assign

Two crossfade assign switches are provided on each music channel. With both switch A and switch B in the off position, stereo signals are routed to bypass the crossfade circuitry.

Switch A routes signals to channel A and similarly switch B to channel B. Illuminated push buttons are used to indicate the selected channel. The switches are arranged to give priority to channel A, necessitating the release of channel A prior to selecting channel B (see 4.01 for details of crossfade control).

3.08Auxiliary Sends

2 auxiliary sends are provided. AUX 1 operates in the pre-fade mode, with AUX 2 operating post-fade. This facility can be used to interface a variety of units for signal processing, sampling digital effects or a flexible extra output facility (see 4.06)

3.09Balance Control

The balance control operates at -3dB at centre to infinity at extremes, with a centre detent to aid positive positioning.

3.10PFL (pre-fade listen)

This logic controlled, momentary action switch routes the pre-fade signals to the headphone amplifier and LED bargraph display. The selection of a channel PFL automatically cancels any prior selection and illuminates the push button.

3.11 Peak LED

A red LED indicates the peak signal level at the pre-fade point and illuminates at a level of approximately 4dB below clipping.

3.12 Channel Fader

The channel fader has a slide length of 100mm and an exceptionally smooth feel. Under normal operating conditions, the fader should be used fully open or fully closed.

3.13 Remote Start Switch

A low voltage, fully floating, momentary action switch which can be used to start compatible equipment such as turntables or CD players etc. The contact rating is 30V at 0.1A and is terminated with a 2 pole 3.5mm jack socket.

4.00 Master Section

The master section contains the buss summing amplifiers, crossfade circuitry, master music and master mic faders, master auxiliary sends, auxiliary return, auto voice over, PFL headphone amplifier and LED bar graph etc.

4.01Crossfade

The A and B music busbars are routed to the crossfade control circuitry. The smooth acting 45mm fader can then be used to fade from the A buss to the B buss at the extremity of travel; a centre detent is fitted to allow positive positioning. In the central position, both A and B buss signals are operational without signal loss.

4.02Master Mic Fader

This 100mm fader allows independent master control of the two microphone channels and is calibrated in dB from infinity to +6dB

4.03Master Music Fader

A 100mm travel fader giving master gain adjustment for the eight music channels. This control is calibrated in dB from infinity to +6dB.

4.04Output Facilities

The CXF mixer features three separate output circuits. The main output signal has combined music and microphone signals derived from a mix of the music and microphone master faders.

The music only output has no microphone content and is controlled by the master music fader.

The microphone only output has no music content and is controlled by the master microphone fader. All three circuits have separate left and right balanced outputs using 3 pin XLR type connectors and can be used in the unbalanced mode without signal loss (see 5.03 'Unbalanced mode')

This versatile format affords a high degree of flexibility, particularly when the CXF mixer is used in conjunction with the CX Zoner as part of a complex discotheque sound system. The ability to configure mic/music levels in up to 5 zones in stereo or mono has never been easier.

4.05AVO (Auto voice over)

Comprehensive auto voice over is provided and features separate controls for Attenuation, Release and Sensitivity. The on/off switch illuminates when switched on. The auto voice over detects any microphone signal to effect gain reduction of all music signals.

4.06Master Auxiliary Sends

These master controls adjust the overall output signal derived from the channel modules. With the control in the maximum position a rated output of 0dBu (775mV) is available. The stereo output is by way of 1/4" 2 pole jack sockets with a facility for a mono signal by using the left output socket only.

4.07Auxiliary Return

This stereo input facility is primarily intended to be used for Auxiliary

return purposes. The 2 x 1/4" 2 pole jack sockets have a nominal input sensitivity of -6dBu at 47K ohm. The signals are routed to the master music summing amplifier and are subject to attenuation through the AVO circuit. If more comprehensive control of the return signal is required, the use of a channel module is customary. There is also no reason why the AUX return cannot be used as an extra basic input if required.

4.08PFL/Headphone Amplifier

All PFL selections are routed to the stereo headphone amplifier and PFL VU display. The stereo headphone amplifier is extremely powerful, it can deliver over 1 watt per channel into the optimum load of 32 ohms. If high listening levels are a pre-requisite, we recommend the use of headphones with an impedance in the range of 8 - 60 ohms.Performance into 600 ohm headphones is more than adequate. 3 pole 1/4" jack sockets are provided on both the front and rear panels. The use of a 2 pole (mono) jack plug should be avoided.

4.09Split Cue

It is sometimes required, usually when mixing: 'in sync', to monitor a pre-fade signal with that of the output signal. This is accomplished in the 'split' mode by routing the 2 signals to each half of the stereo headphone amp and PFL display. In this mode, a mono mix of the PFL signal is routed to the left channel with a mono mix of the Main output signal routed to the right channel: a rotary balance control is provided to compensate for different signal levels: this control is operational in the split cue mode only.

4.10Remote Music Mute

In certain circumstances, there may be a local authority or Fire Service requirement to mute the Music Signals via a Fire alarm control panel in an alarm condition. The CXF provides a facility to attenuate the music signals only, by using a fully floating pair of contacts in the Fire alarm control panel which would need to be closed during an alarm condition.

In the mute mode, a gain reduction of 26dB is effective on the music signals only. The Microphone channel is not affected by this gain reduction and operates normally in order to organise a controlled evacuation, etc. To indicate that the Music mute is active, the red 'mute' LED on the front panel will flash and any current PFL selection will be cancelled, effectively muting the headphone amplifier. Normal operation will resume after the alarm control panel has been reset.

4.11Switch on mute

When the CXF mixer is switched on, the music mute circuitry will automatically operate for approx 5 seconds. The mute LED will flash for the duration.

4.12Sound to Light Output

This fully floating, transformer coupled output facility can be used to trigger sound to light controllers. The signal is derived from the main output and is rated at +10dBu (2.45V) with a minimum load of 600 ohm. Connection is by way of a 2 pole 1/4" jack

socket.

5.00General Notes

5.01Earthing

The 0V rail on the CXM mixer is connected to the mains earth via the power supply lead and the mixer power supply must always be earthed. A green earth terminal is provided on the master rear panel to earth turntables etc. If any mains powered input apparatus has its own earth connection to a different mains point, then earth loop hums might be caused. This 'hum' can be remedied in several ways. One method when using balanced connections, is to remove the signal earth screen at one end of the audio cable (preferably at the source). Alternatively, re-route the mains supply of the apparatus to the same point that the CXF power supply is connected.

Some phono cartridges have a removable earth strap between a ground pin and the cartridge body: this may cause problems if the headshell is earthed by additional means and should be removed if an earth loop 'hum' is evident.

5.02Record Outputs

A total of 4 pairs of RCA phono sockets are provided for stereo recording purposes. Two pairs carry the same programme as the main output and two pairs with music only content which is not affected by the master music fader.

The nominal output signal level is -6dBu, suitable for interfacing directly with the line inputs of a tape recorder, should the need arise to make a copy of the operators performance etc. They could also be used as additional outputs. Because the output circuitry has separate master faders for music and mics, it is not practical to provide a composite pre-fade signal for recording purposes. If full independent control of the recording output level is required, it is suggested that Auxiliary 2 be used if not used for any other purpose.

5.03Unbalanced Mode

If it is required to have stereo unbalanced outputs as opposed to the normal balanced mode, it is suggested that the unused pin in the XLR connector should be connected to the ground pin. This will preserve the correct output level. We recommend that Pin 3 is shorted to Pin 1, leaving Pin 2 as 'hot'. If any input XLR connector is also unbalanced, the same phase, Pin 2, should be used as 'hot'.