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C6 USER GUIDE
C6-16/C6XS-16
PROFESSIONAL MIXER

INTRODUCTION

Thank you for buying this Studiomaster product. The C6-16/C6XS-16 are a compact, extremely versatile audio mixers designed specifically for the requirements of live sound and basic recording.

READ THE USER GUIDE

Despite the sophisticated design they are easy to use mixers although to get the Best from your new purchase, we recommend you read this User Guide before getting down to any serious work.

UNPACKING

Remove your Studiomaster product from its packaging and ensure that along with this User Guide you have an A.C. power cord / mains lead and a warranty card. Retain the packing carton in the eventuality that the unit needs to be returned for service or repair, and please complete and return your warranty card. Returning the completed warranty card does not diminish your statutory rights in any way.

Safety Instructions

- a. Before connecting the A.C. power cord make sure the product is suitable for you local A.C. Supply.
The C6 can be used on A.C. Voltages between 100-240V.
- b. Only use the A.C. power cord / mains lead supplied with the product. Replace if it becomes damaged in any way.
- c. Never operate without, or remove the safety ground (earth) from the A.C. power cord / mains lead.
- d. Do not attempt to remove any screws or panels. There are no user serviceable parts inside.
- e. Do not operate the unit next to heat sources such as radiators.
- f. The unit should not be operated or stored near rain or moisture.
- g. This equipment must not be exposed to dripping or splashing and no objects filled with liquids should be placed on top of it.
- h. Make a note of the serial number for future use.
- l. If the product gets damaged, has been dropped or appears to have developed a fault refer to a qualified Studiomaster service centre.

WARNING

THIS APPARATUS MUST BE EARTHED (GROUNDED)



1. CHANNEL

1. GAIN control

Adjusts input signal's level, to get optimum balance between S/N ratio and dynamic range; set this control in a way that the CLIP LED blinks only occasionally in order to avoid distortion on the input channel

2. 80 switch(Hi-pass filter)

The switch turns on the HPF.
HPF would cut off frequency that below 80Hz

3. COMP control

Adjust compression level ratio that is applied to the channel. Turn The knob right, compression ratio would increase. You will acquire a more smooth even dynamic effect.

Note: don't set compression ratio too high, because a higher average output can produce feedback.

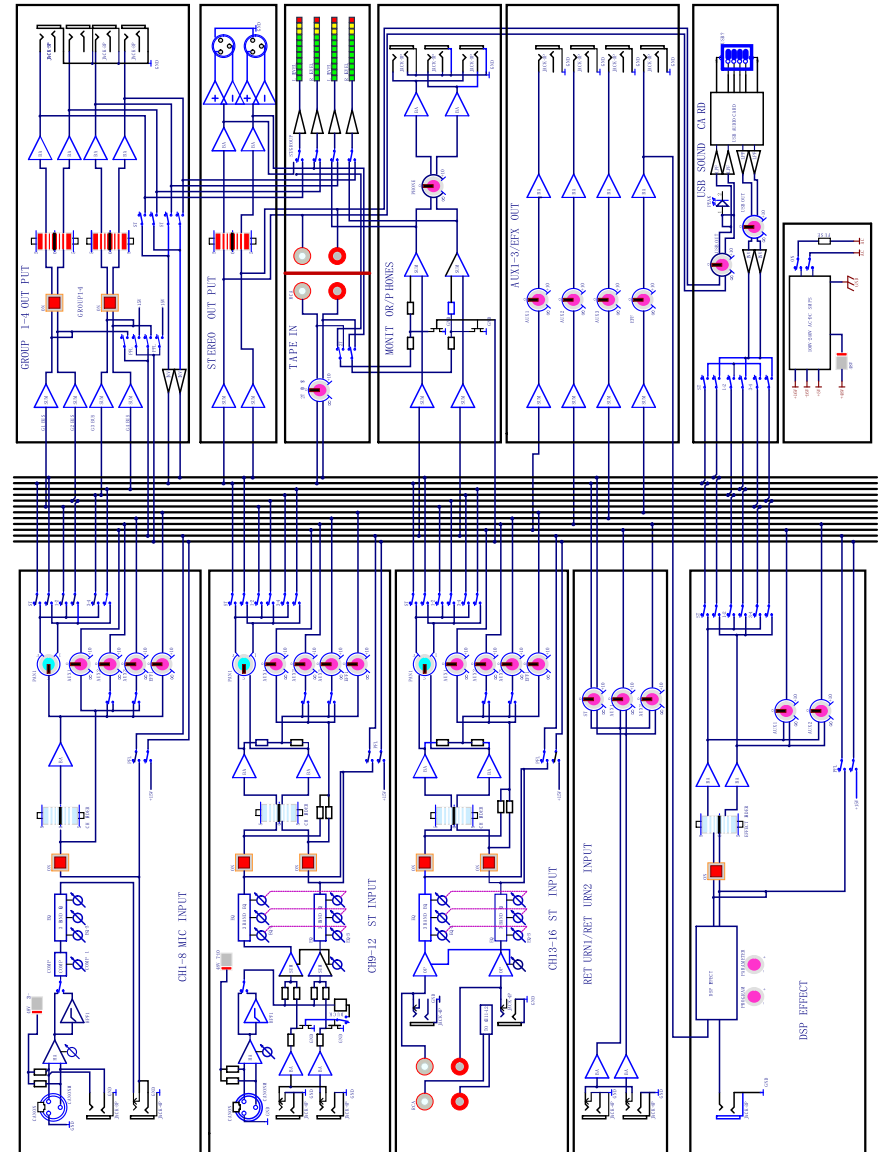
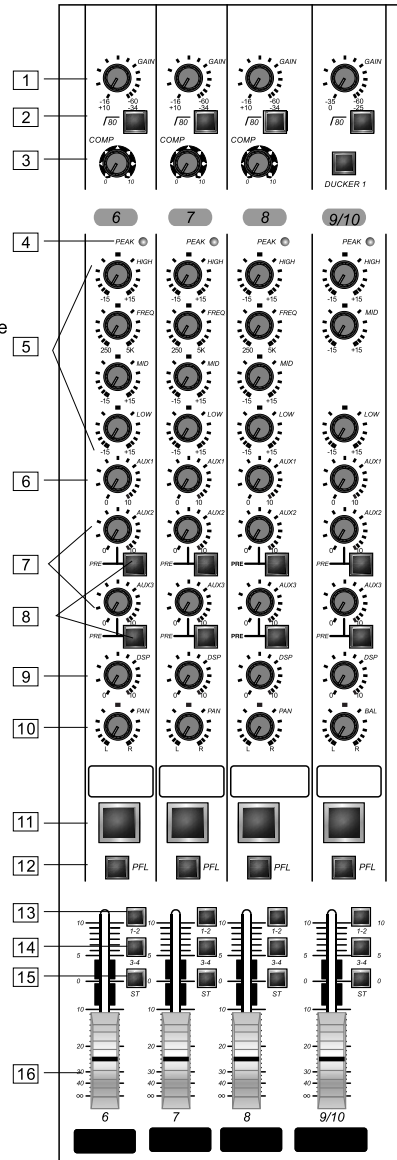
4. PEAK LED

Detects peak level of signal after EQ. when level reaches 3dB below clipping, PEAK LED would become red. As to stereo input channels (5/6 and 7/8) of XLR, would detect the PEAK level of post-microphone amplifier after EQ, and LED turns red when any of the level reaches 3dB below clipping.

5. EQ (HIGH, MID and LOW)

The three band EQ features high, mid and low frequencies. Set the knob at ▼ position at corresponding frequency bands, it produces flat respond. The following is the form of EQ type, frequency and max cut/boost of the three frequency bands.

| Frequency band | Type | Frequency | Max Cut/boost |
|----------------|------------|------------------------|---------------|
| HIGH | Ramp-shape | 10KHz | ± 15dB |
| MID | Peak-shape | 2.5 KHz | |
| LOW | Ramp-shape | 100 Hz | |
| MID FREQ | Sweep | Should Read 250Hz-5KHz | |



Input specifications

| Output Outlet | Gain | Input Impedance | Appropriate Impedance | Sensitivity | Nominated level | Max Value Before Clipping | Specifications Of Outlet |
|---------------------------------|-------|-----------------|-----------------------|-----------------|-----------------|---------------------------|---|
| CH INPUT MIC (CHs 1-4) | -60dB | 3K Ω | 50-600 Ω MIC | -80dBu(0.078mV) | -60dBu(0.775mV) | -40 dBu(7.75mV) | XLR-3-31type (balance {1=earth line, 2=hot line, 3=cold line}) |
| | -16dB | | | -36 dBu(12.3mV) | -16 dBu(123V) | +4 dBu(1.23V) | |
| CH INPUT LINE (CHs 1-4) | -34dB | 10K Ω | 600 Ω LINE | -54 dBu(1.55mV) | -34dBu(15.5mV) | -14 dBu(155mV) | TRS headphone inlet (balance{point=hot line ring=cold line, shield =earth line }) |
| | +10dB | | | -10 dBu(245mV) | +10dBu(2.45V) | +30 dBu(24.5V) | |
| ST CH MIC INPUT (CHs 5/6, 7/8) | -60dB | 3K Ω | 50-600 Ω MIC | -80dBu(0.078mV) | -60dBu(0.775mV) | -40 dBu(7.75mV) | XLR-3-31type (balance {1=earth line, 2=hot line, 3=cold line}) |
| | -16dB | | | -36 dBu(12.3mV) | -16 dBu(123mV) | -6 dBu(389mV) | |
| ST CH LINE INPUT (CHs 5/6, 7/8) | -34dB | 10K Ω | 600 Ω LINE | -54 dBu(1.55mV) | -34dBu(15.5mV) | -14 dBu(155mV) | Headphone Inlet (unbalance) |
| | +10dB | | | -10 dBu(245mV) | +10 dBu(2.45V) | +30 dBu(24.5V) | |
| ST CH INPUT (CHs9/10, 11/12) | — | 10K Ω | 600 Ω LINE | -30 dBu(24.5mV) | -10 dBu(245mV) | +10 dBu(2.45mV) | headphone inlet (unbalance) RCA pin-inset |
| CH INSERT IN (CHs 1-4) | — | 10K Ω | 600 Ω LINE | -20 dBu(77.5mV) | 0 dBu(0.775mV) | +20 dBu(7.75mV) | TRS headphone inlet (unbalance{point = output, ing=input, shield=earth line}) |
| RETURN(L, R) | — | 10K Ω | 600 Ω LINE | -12 dBu(195mV) | +4 dBu(1.23mV) | +24 dBu(12.3mV) | Headphone inlet (unbalance) |
| 2TR IN(L, R) | — | 10K Ω | 600 Ω LINE | -26 dBu(50.1mV) | -10dBV(0.316mV) | +10 dBV(3.16mV) | RCApin-insert |

Output Specifications

| Output Outlet | Output Impedance | Appropriate Impedance | Nominated level | Max Value Before Clipping | Specifications Of Outlet |
|---------------------------|------------------|-----------------------|-----------------|---------------------------|--|
| STEREO OUT (L, R) | 75 Ω | 600 Ω LINE | +4dBu(1.23V) | +24dBu(12.3V) | XLR-3-32 type (balance{1=earth line, 2=hot line, 3=cold line})headphone |
| GROUP OUT (1, 2) | 150 Ω | 10K Ω LINE | +4dBu(1.23V) | +20dBu(7.75V) | Inlet (balance {point=hot Line, ring=cold Line shield =earth Line}) |
| EFFECT/AUX (AUX1, 2*)SEND | 150 Ω | 10K Ω LINE | +4dBu(1.23V) | +20dBu(7.75V) | Headphone inlet(impedance balance{ point=hot line, ring=cold line shield =earth line }) |
| CH INSERT OUT (CHs1-4) | 100 Ω | 10K Ω LINE | 0dBu(0.775V) | +20dBu(7.75V) | Headphone inlet(impedance balance {point=hot line, ring=cold line, shield =earth line }) |
| REC OUT(L, R) | 600 Ω | 10K Ω LINE | -10dBV(0.316V) | +10dBu(3.16V) | RCA pin-insert |
| MONITOR OUT (L, R) | 150 Ω | 600 Ω LINE | +4dBu(1.23V) | +20dBu(7.75V) | Headphone inlet(impedance balance {point=hot line, ring=cold line, shield =earth line }) |
| PHONES OUT | 100 Ω | 4 Ω PHONE | 3mW | 75mV | Stereo headphone inlet |

Front

Channel

6. AUX 1 control

Adjust signal level that is sent to AUX bus from channel. The knob usually set next to ▼ position. Signal of L (odd) and R(even) at stereo channel should be mixed and sent to AUX bus.

7. AUX 2-3 control

Adjust signal level that is sent to AUX bus from channel. The knob usually set next to ▼ position. Signal of L (odd) and R(even) at stereo channel should be mixed and sent to AUX bus.

8. AUX PRE switch

If set the switch at (—), The signal to the AUX bus is before the fader.

If set the switch at (■),The signal to the AUX bus is after the fader.

9. DSP control

Adjust the signal level sent to DSP bus from channel. Note: channel fader also can affect the signal level that sent to bus at stereo channels (5/6, 7/8, 9/10 or 11/12).

10. PAN/BAL controls

The pan and bal(balance) controls determine the signal level between left and right outputs.

11. ON switch

Turn on channel. It is green when power is on.

12. PFL switch

The switch can be used for monitoring pre-fader signal of channel.

The signal of channel is routed to PHONES jack and MONITOR OUT jack for monitoring.

13. 1-2 switch

Routes channel signal to GROUP1 bus.

14. 3-4 switch

Routes channel signal to GROUP3 bus.

15. ST switch

Routes channel signal to STEREO L and R bus.

16. channel fader

Adjust level of channel signal. Use the fader to adjust balance between channels.



Main Control Section

1. ST RETURN TO AUX

Control adjusts the level of L/R signal that is sent to AUX bus from st return.

2. ST RETURN

STEREO control adjusts the level of signal that is sent to STEREO L/R bus from st return input.

3. MASTER AUX SEND

MASTER AUX control adjusts signal level that is sent to AUX SEND jack.

4. MASTER EFFECT

MASTER EFFECT control adjusts signal level that is sent to MASTER EFFECT bus.

5. POWER LEDS (+15,-15)

After console turning on, the LED illuminates.

6. LEVEL METER

Displays the signal level determined by switch 9. However, if switch 11 is pressed the signal from 2TR INPUT IS DISPLAYED. Any PFL switch pressed will take priority over the above selections.

7. 2TR IN jack

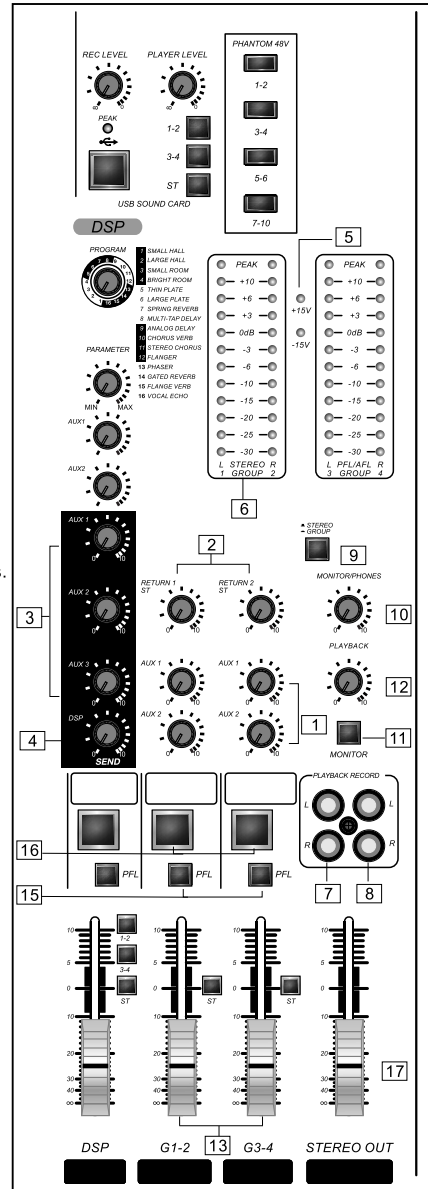
These RCA pin-jacks can be used for inputting stereo sound source. And when CD player connects to console directly, the jacks are available also.

Note: can use 2TR IN control to adjust signal level.

8. REC OUT(L,R) jacks

These RCA pin-jacks can connect directly to a recorder

Note: STEREO OUT main fader of console doesn't affect the output signal of the jacks. Please make appropriate level adjustment on recording devices.



| | | |
|--|-------------------|---|
| INPUT HPF | | CH 1-7/8, 80HZ, 12DB/octave |
| Input balance | CH1-8 | HIGH:10KHz(slope) MID:250Hz-5KHz(sweep) LOW:100Hz(slope) |
| | CH9/10-15/6 | HIGH:10KHz(slope) MID:2.5KHz(peak) LOW:100Hz(slope) |
| Max value ± 15 dB boost/cut off frequency, max variation is below 3dB. | | |
| Peak LED | | After EQ, signal (signal from MIC HA of CHs 9/10 11/12 or EQ)reaches (+17dBu) -3dB below clipping Red LED illuminates. |
| Internal Digital DSP | | 16 types PROGRAM/PARAMETER control knobs footswitch(turn on/off digital DSP) |
| Led Level Meter | Pre-monitor Level | 2x12 point LED level meter(PEAK, +10, +6, +3, 0, -3, -6, -10, -15, -20, -25, -30dB) if signal reaches 3dB below clipping, PEAK LED illuminates. |
| Power consumption | | 35W |
| Dimension (DxWxH) | | 585X590X250mm |
| Net weight C6-16 | | 7kg(15Alb) |
| Net weight C6XS-16 | | 7.1kg(15.6lb) |

| | | | Min Value | Type | Max Value | Unit |
|---|-----------------------|---|-----------|------|-----------|------|
| Frequency Response | STEREO OUT | GAIN: mini value(CHs1-11/12) When 20Hz-20KHz 1KHz nominated output level input: CHs1-15/16, RETURN, 2TR IN | -3.0 | 0.0 | 1.0 | dB |
| | GROUP OUT | | | | | |
| | DSP/AUX (AUX1-4*)SEND | | | | | |
| | MONITOR OUT, REC OUT | | | | | |
| THD(THD+N) | STEREO OUT | When 20Hz-20KHz, it is +14dB, input GAIN control knob adjusts to minimum. | | | 0.1 | % |
| Hum and noise Octave filter used in hum and noise 6dB/octave, is measured at 12.7KHz, is equal to 20KHz filter of infinite dB/octave fader | CH INPUT 1-4MIC | EIN(equal input noise), Rs=150 Ω GAIN: max value | | | | -128 |
| | STEREO OUT | STEREO OUT/GROUP main fader is at nominated level, ST switch holder of all Channels 1-2, 3-4 switch should be turn off. | | | | -86 |
| | GROUP OUT | | | | | |
| | DSP/AUX (AUX1-4*)SEND | MASTER DSP/AUX(AUX1-3) control knobs adjust to nominated level all channels' DSP/AUX(AUX1-3) control knob adjusts to minimum. | | | | -80 |
| | STEREO OUT | STEREO OUT\GROUP main fader and a channel fader is at nominated level. | | | | -60 |
| | GROUP OUT | | | | | |
| STEREO OUT | Residue output noise | | | | -98 | |
| Crosstalk (1KHz) | Adjacent input | CHs1-8 | | | | -70 |
| | Input to output | STEREO L/R, CH1-8, PAN: PAN sets at far left or far right. | | | | -65 |
| When measures Max voltage gain (1KHz), All faders and control knobs are at max position. PAN/BAL: sets at far right or far left. | Rs=150 Ω | MIC to CH INSERT OUT | | | | 60 |
| | INPUT GAIN: max value | MIC to STEREO OUT | | | | 80 |
| | | MIC to GROUP OUT | | | | 74 |
| | | MIC to GROUP to ST | | | | 90 |
| | | MIC to REC OUT | | | | 60 |
| | | MIC to MONITOR OUT, ST to MONITOR | | | | 90 |
| | | MIC to PHONES OUT | | | | 90 |
| | | MIC to AUX(AUX1-3)SEND | | | | 76 |
| | | MIC to AUX(AUX1-3)SEND POST, DSP(AUX4*) SEND | | | | 86 |
| | | CH9/10, 11/12 of LINE to STEREO OUT | | | | 58 |
| | | CH9/10, 11/12 of LINE to GROUP OUT | | | | |
| | | CH9/10, 11/12 of AUX(AUX1-3*)SEND PRE | | | | 47 |
| | | CH9/10, 11/12 of AUX(AUX2-3*)SEND POST, DSP(AUX4*) SEND | | | | 57 |
| | | CH13/14, 15/16 to STEREO OUT | | | | 34 |
| | | CH13/14, 15/16 to GROUP OUT | | | | |
| | Rs=150 Ω | RETURN to STEREO OUT | | | | 16 |
| | | RETURN to DSP(AUX4*)SEND | | | | 9 |
| | Rs=600 Ω | 2TR IN to STEREO OUT | | | | 27.8 |
| Phantom Voltage Mic | | NO LOAD | | | | 48 |
| | | | | | | V |

9. Stereo/Group Switch

If set the switch at GROUP(—), GROUP1、4 bus signal would be sent to level meter. If set at STEREO(—), STEREO L/R bus and AFL/PFL signal would be sent to these jacks and level meter.

10. MONITOR control

Control signal level of PHONES and MONITOR OUT.

11. 2TR IN switch

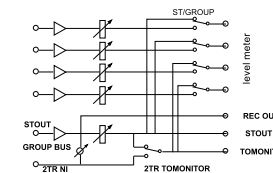
If set the switch at TO MONITOR(—), signal form 2TR IN jack would be sent to MONITOR OUT jack, PHONES jack and level meter.

12. 2TR IN control

Adjust signal level that sent to STEREO L/R bus from 2TR IN jack. The following figure refers to the corresponding relationship between switches and signal selection.

| Switch | | MONITOR/PHONES output signal |
|----------|----------|------------------------------|
| PFL | 2TR IN | |
| ON — | | PFL |
| OFF — | MONITOR | 2TR IN |
| | OFF — | STEREO |

Can adjust individually and monitor the level of playing signal and recording signal in dubbing.



Note: if turn on PFL switch (—) of input channel, PFL output of the channel can only be sent to C-R OUT jack, PHONES jack and level meter.

13. MONITOR/PHONES LEVEL CONTROL

15. GROUP PFL switch

14. ST switch

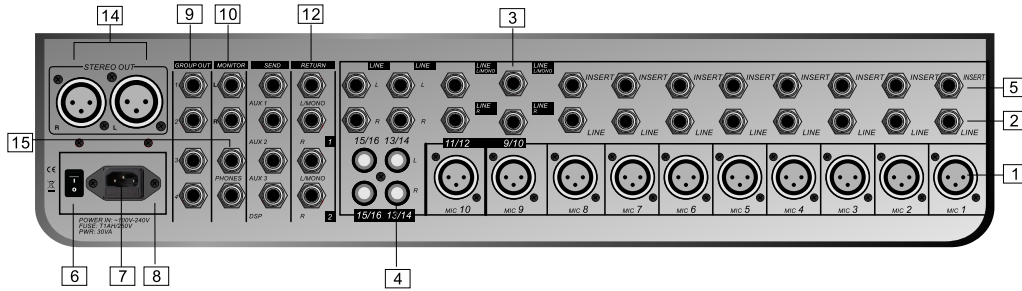
If turn on the switch(—), route the group signal to the STEREO bus.

16. Turns ON/OFF the GROUP output signal

17. STEREO OUT main fader

Adjust signal level that sent to STEREO OUT jack

Rear panel input/output



1. MIC input XLR

(channel 1-8, 9/10, 11/12) are XLR microphone input jacks (1: earth line 2: hot line; 3: cold line)

2. LINE input jack(channel1-8)

These are balanced TRS socket line input jacks (T: hotline; R: cold line; S: earth line). Can use these balanced or unbalanced.

3. LINE input jacks (channel 11/12)

These are unbalanced stereo line input jacks.

4. LINE input jacks (channel 13/14, 15/16)

These are unbalanced stereo RCA pin-jacks.

5. INSERT jacks (channel1-8)

Each jack provides an insert point between EQ and fader at corresponding channels (channel1-8). These INSERT jacks can connect, compressor or noise filter etc devices to corresponding channels individually. These jacks are TRS(Tip, ring and sleeve), which can carry sending signal and returning signal simultaneously (Tip=send/output; ring=return/input; sleeve=earth line).

6. POWER switch

Used to set console power at ON.

7. A.C. Power socket

8. FUSE fuse holder

Connector Wiring

| Input & Output Jacks | Polarity | Structure |
|---|---|-----------|
| MIC INPUT\STEREO OUT | Pin 1: Earth Line Pin 2: Hot Line (+) Pin 3: Cold Line(-) | |
| LINE INPUT(channel 1-8) GROUP OUT\STEREO OUT MONITOR OUT\AUX(AUX1-4) DSP(AUX4) | Tip: Hot Line ()+ Ring: Cold Line (-) Sleeve: Earth Line | |
| INSERT | Tip: Output Ring: Input Sleeve: Earth Line | |
| PHONES | Tip: L Ring: R Sleeve: Earth Line | |
| RETURN LINE INPUT(CH 9/10-15/16) | Tip: Hot Line Sleeve: Earth Line | |

| Prg# | Description | Parameter 1 | |
|------|-----------------|-------------|-----------------|
| 1 | Small Hall | Rev Time | 0.9sec~3.5sec |
| 2 | Large Hall | Rev Time | 1.5sec~8.6sec |
| 3 | Small Room | Rev Time | 0.28sec~0.82sec |
| 4 | Bright Room | Rev Time | 0.36sec~1.38sec |
| 5 | Thin Plate | Rev Time | 0.44sec~1.54sec |
| 6 | Large Plate | Rev Time | 0.72sec~10sec |
| 7 | Spring Reverb | Rev Time | 0.4sec~2.3sec |
| 8 | Multi-tap Delay | Delay Time | 0~680ms |
| 9 | Analog Delay | Delay Time | 0~680ms |
| 10 | Chorus Verb | Rev Time | 0.56sec~3.5sec |
| 11 | STEREO CHORUS | Rate | 0.58Hz~6Hz |
| 12 | Flanger | Rate | 0.58Hz~4.35Hz |
| 13 | Phaser | Rate | 0.58Hz~11Hz |
| 14 | Gated Reverb | Gate Time | 0.25sec~0.78sec |
| 15 | Flange Verb | Rev Time | 0.34sec~2sec |
| 16 | Vocal Echo | Delay Time | 0~400ms |

9. GROUP OUT jacks

These impedance balanced jacks can output signal of GROUP1/2.

10. MONITOR OUT jacks

These stereo output jacks can be connected to studio monitor system.

11. PHONES jack

Connect headphone to the stereo headphone jack. Signal form PHONES jack is the same as the MONITOR OUT jack.

12. RETURN L(MONO), R jacks

These are unbalanced line input jacks, which can send signal to STEREO L/R bus and AUX bus.

These jacks can receive signal that return from external effect devices(reverb and delay etc).

Note: these jacks also can be used as auxiliary stereo input jacks. If only connect to L(MONO) jack, console would deal with signal as MONO channel signal, and send the same signal to L and R jacks.

13. SEND jack

AUX

This an impedance balanced output jack, which can output signal from AUX bus. For example, the jack can connect effect devices, or stage monitor system.

DSP is an impedance balanced output jack, can output signal from DSP bus. For example, the jack can connect to external effect device.

14. STEREO OUT(XLR) jack

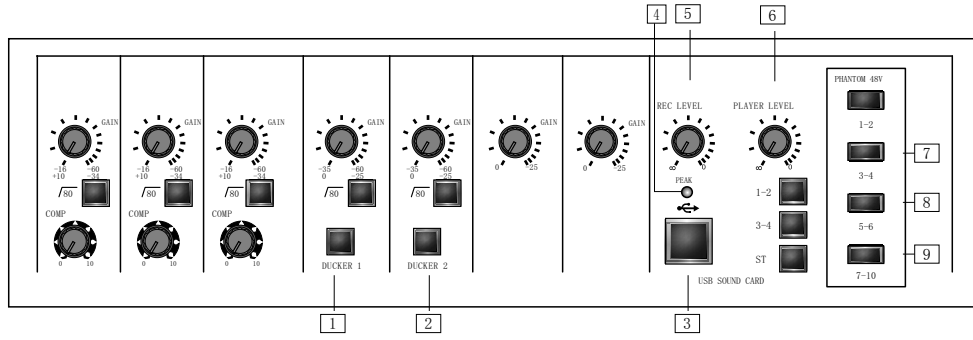
These can transfer stereo output of console. To power Amplifiers and Speaker Systems.

Use STEREOOUT main fader to control level and record stereo output of console at the same time, and can connect these jacks to recording devices.

15. FOOT SWITCH jack

Connect footswitch to turn on/off effect device.

Main Control Sect



1. DUCKER 1 button

Press the button, with an signal at MIC9, signal of CH9-10 would be attenuated to 30dB.

2. DUCKER 2 button

Press the button, with an input signal at MIC9 and MIC10, signal of CH11-12 would be attenuated to 30dB. when press DUCKER 1 and DUCKER 2 at the same time, when input signal at either MIC9 or MIC10, both CH9-10 and CH11-12 signal would be attenuated to 30dB.

3. USB jack

built-in jack of USB sound-card

4. PEAK LED

Detect peak level of signal that sent to sound card, when level reaches to 3dB bellow clipping, PEAK LED illuminates red.

5. REC LEVEL control

Adjust signal level that sent to USB sound card.

6. PLAYER LEVEL control

adjust signal volume that sent to USB sound card.

7. 1-2 button

when press the button, signal from USB sound card would be assigned to GROUP 1-2 channel.

8. 3-4 button

when press the button, signal from USB sound card would be assigned to GROUP 3-4 channel.

9. St button

When press the button, signal from USB sound card would be sent to ST channel.

Digital DSP

1. PHANTOM +48V power switch

When turn on/off phantom power, turn on switch 1-2 , provide +48V phantom power for (MIC1-2); turn on switch 3-4, provide +48V phantom power for (MIC3-4).turn on switch 5-6,provide +48V phantom power for (MIC5-6). turn on switch 7-10,provide+48V phantom forcuic (7-10)

Devices other than condenser mics may be damaged if connected to the phantom power supply. Note,however, that the switch may be left on when connecting to balanced dynamic microphones.

2. PROGRAM data disk

Select one effect from 16 internal effect. Refer to page 10 for more details of internal effect.

3. PARAMETER control

Adjust parameter (depth, speed etc) of selected effects. Final parameter of each effect would be saved. Note: when change different effects, as to new selected effect, console would restore to previous parameter (no matter which position the PARAMETER control is). When turn of power, these parameters would reset.

4. AUX control

Adjust signal level that sent to AUX (1-2) bus from internal digital effect device.

5. ON switch

Turn on/off internal effect. The switch illuminate green when it is on. Footswitch (sell separately) can turn on/off digital effect. note: the default state when power is on: ON switch illuminate green, internal effect is activated.

6. DSP PFL switch

The switch can be used for monitoring pre-fader signal of channel. When power is on, pre-fader signal of channel would be output to PHONES jack and MONITOR OUT jack for monitoring.

7. DSP RTN fader

Adjust signal level that sent to STEREO bus from internal digital effect device.

