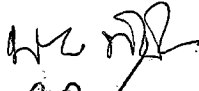




ตารางแสดงวงเงินงบประมาณที่ได้รับจัดสรรและรายละเอียดค่าใช้จ่าย
การจัดซื้อจัดจ้างที่มีใช้งานก่อสร้าง

๑. ชื่อโครงการ จัดซื้อวัสดุอุปกรณ์เครื่องมือสื่อสารและเครื่องใช้เสียงอิเล็กทรอนิกส์ จำนวน ๑ ชุด
๒. หน่วยงานเจ้าของโครงการ กลุ่มงานสื่อสาร สำนักบริหารการเดินรถ
๓. วงเงินงบประมาณที่ได้รับจัดสรร ๑๒๐,๘๘๐ บาท
๔. วันที่กำหนดราคากลาง (ราคาอ้างอิง) ณ วันที่ ๑๙ พฤษภาคม ๒๕๖๕
เป็นจำนวนเงิน ๑๒๐,๘๘๐.- บาท (หนึ่งแสนสองหมื่นแปดร้อยแปดสิบบาทถ้วน) รวมภาษีมูลค่าเพิ่ม
๕. แหล่งที่มาของราคากลาง (ราคาอ้างอิง)
 - ๕.๑ บริษัท เอสพีเค ซาวด์ ซิสเต็มส์ จำกัด ราคา ๑๒๐,๘๘๐.- บาท
 - ๕.๒ บริษัท ไลฟ์ อิน แบงคอก จำกัด ราคา ๑๒๔,๓๓๔.- บาท
 - ๕.๓ บริษัท บ้านจำเริญเจเนียร์ริง จำกัด ราคา ๑๒๗,๘๑๑.๕๐.- บาท
๖. รายชื่อผู้รับผิดชอบกำหนดราคากลาง
 - ๖.๑ นายบรรพต พินิจพรประภา 
 - ๖.๒ นายนครินทร์ ปรีชาคุณ 
 - ๖.๓ นายสมบูรณ์ โภคา 

1. เครื่องผสมสัญญาณเสียงขนาด 12 ช่อง

จำนวน 1 เครื่อง

คุณลักษณะ

- 1.1 รองรับสัญญาณ Mono Input จำนวน 8 Chanel
- 1.2 รองรับช่องสัญญาณ Stereo Input จำนวน 3 Chanel
- 1.3 ช่อง Main Output เป็นแบบ XLR และ TRS
- 1.4 ช่อง Mono Input มี EQ ขนาด 3 bands
- 1.5 ช่อง Stereo Input มี EQ ขนาด 2 bands
- 1.6 มี Compressor ไม่น้อยกว่า 4 Chanel Input
- 1.7 มีสวิตช์ Phantom Power 48V สำหรับทุกช่อง Mic Input
- 1.8 รองรับ Bluetooth สำหรับ Streaming เพลง
- 1.9 มีช่องสำหรับ USB Playback/Record จำนวน 2in/2out

2. ชุดลำโพง Active Column

จำนวน 2 ชุด

คุณลักษณะ

2.1 ชุดลำโพง Active Column Speaker ประกอบด้วย ลำโพง Sub-woofer ขนาด 15 นิ้ว และลำโพง 4" x 8 Full range

2.2 ลำโพง Sub-woofer มีรายละเอียดดังนี้

2.2.1 มีขนาดลำโพง 15 นิ้ว และ Voice coil ขนาด 3 นิ้ว

2.2.2 สามารถตอบสนองความถี่ 40 Hz – 180 Hz ได้

2.2.3 รองรับกำลังขับ 600 วัตต์ และสูงสุด 1200 วัตต์

2.2.4 เครื่องขยายเสียงเป็น Class D

2.2.5 มีความไว 95dB ที่ 1m/1W

2.2.6 มีความดังสูงสุด 134dB

2.2.7 มีความต้านทาน 4 โอห์ม

2.2.8 มี DSP ในตัว แบบ DEFAULT, MUSIC, DANCE, SPEECH, POP

2.2.9 รองรับการเชื่อมต่อ Bluetooth Version 4.0

2.2.10 มีช่องต่อสัญญาณขาเข้าแบบ XLR และ ¼" Jack

2.2.11 มีช่องต่อสัญญาณขาออก แบบ XLR

2.2.12 สามารถใช้กำลังไฟ AC 220-240 V., 50/60Hz ได้

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2.3.1มีลำโพงขนาด 4 นิ้ว จำนวน 8 ดอก

2.3.2สามารถตอบสนองความถี่ 110 Hz – 18 kHz ได้

2.3.3รองรับกำลังขับสูงสุด 600 วัตต์

2.3.4มีความไว 96 dB ที่ 1m/1W

2.3.5มีความต้านทาน 4 โอห์ม

2.3.6มีทิศทางการกระจายเสียงทางแนวนอน 80 องศา และแนวตั้ง 20 องศา

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2.4 มีหนังสือรับรองการมีอะไหล่สำรองไม่น้อยกว่า 2 ปี จากบริษัทผู้ผลิต หรือบริษัทผู้นำเข้าอย่างเป็นทางการมาแสดง เพื่อความมั่นใจในการบริการหลังการขาย

2.5 ต้องมีสายสัญญาณต่อพ่วงจากมิกเซอร์ไปที่ลำโพง จำนวน 2 เส้น ความยาวไม่น้อยกว่า 15 เมตร

2.6 ต้องมี Rack สำหรับใส่ชุดลำโพง Active Column เพื่อใช้สำหรับเคลื่อนย้าย ตามจำนวนของชุดลำโพง

3. ขาตั้งไมโครโฟนตั้งพื้น

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คุณลักษณะ

- 1.1 เป็นขาตั้งไมโครโฟนแบบตั้งพื้น
- 1.2 สามารถปรับระดับความสูงตั้งแต่ 900 – 1,600 มิลลิเมตร
- 1.3 มีความยาวแขนบูมไม่น้อยกว่า 805 มิลลิเมตร
- 1.4 มีเนื้อช็อคบูมอาร์ม
- 1.5 วัสดุผลิตจากเหล็ก
- 1.6 ตัวขาตั้งลำโพงมีสีดำ

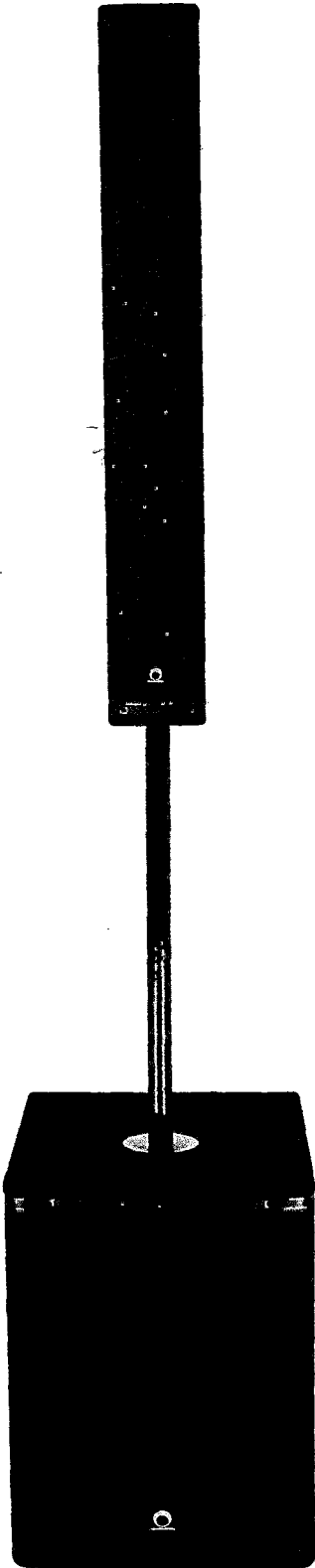
Soundcraft[®]
by **HARMAN**

NANO SERIES - M08BT / M12BT
USER GUIDE
12/2018



ACS-1500 Series

PROFESSIONAL ACTIVE COLUMN SPEAKER SYSTEM



ACS-1500 Series

ACS-1500 Series Professional Active Column Speaker System which can cover the usage area from small to large designed for hi-end professional sound performance specifically for frequency response up to 40Hz ~ 18KHz \pm 3dB, Power maximum 1800 Watts Amplifier Class D with DSP processor 5 Preset for best performance. And can stream wireless music via Bluetooth support ideal life sound concert, event, shopping mall, meeting room - training, fitness, restaurant, hotel banquet room.

This series includes ACS-1500S (Subwoofer), ACS-1500C (Column Speaker)

Feature

- Subwoofer Component: 15", 3" voice coil
- Satellite Components: 4" X 8 Full Range Speaker
- Dispersion Angle (H x V): 80 x 20 Degree.
- Frequency response: 40Hz ~ 18KHz
- Max. SPL / (Peak): 125dB/134dB
- Power RMS: 900W / 1800W (MAX)
- Built-in Class D Amplifier
- Built-In DSP Processor Mode: DEFAULT, MUSIC, DANCE, SPEECH, POP
- Built-in Media player: Wireless stereo audio streaming Bluetooth.
- Operating voltage AC 220 - 240V, 50/60Hz

Specifications

Model	ACS-1500S (Subwoofer)	ACS-1500C (Column)
Transducer	Subwoofer Components : 15", 3" voice coil	Satellite Components : 4" X 8 Full Range Speaker
Frequency Response	40Hz ~ 180Hz \pm 3dB	110Hz ~ 18kHz \pm 3dB
Rated Power	600W / 1200W (MAX)	300W / 600W (MAX)
Amplifier	Class D	
Sensitivity	95dB 1m/1W	96dB 1m/1W
Maximum SPL	125dB/134dB (Peak)	125dB/134dB (PEAK)
Nominal Impedance	4 Ω	4 Ω
Built-in DSP Processor	DEFAULT, MUSIC, DANCE, SPEECH, POP	
Audio Streaming Wireless	Bluetooth Version 4.0	
Dispersion Angle (H x V)		80° X 20°
Connection	Line Input: XLR or 1/4" Jack, Line Output: XLR	SPEAKON
Operating voltage	AC 220~240V, 50/60Hz	
Dimensions (W x H x D)	430 x 520 x 570mm	135 x 135 x 980mm
Net Weight	27	11



KÖNIG & MEYER
Stands For Music

21070

Microphone stand



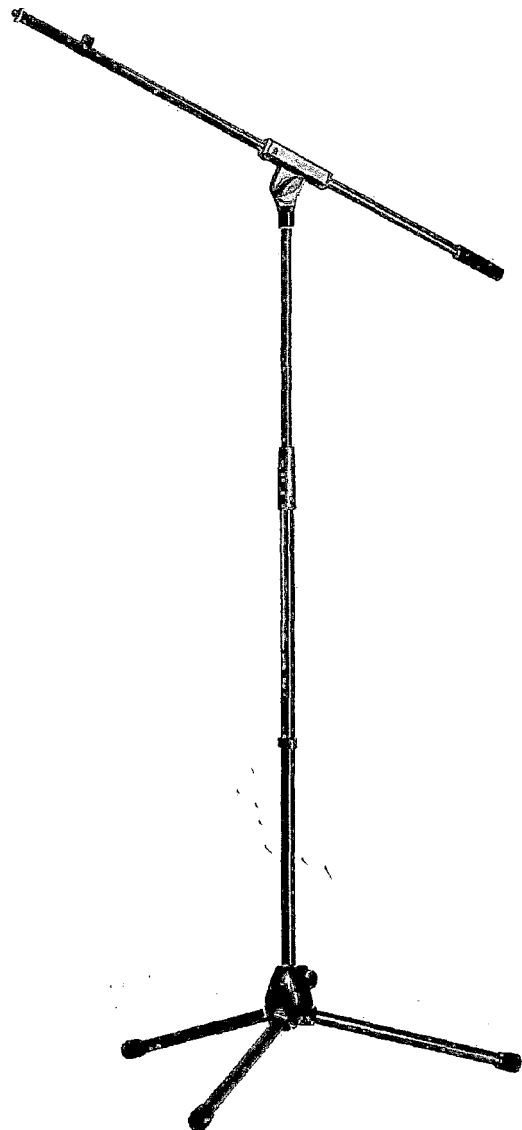
Product variant

21070-300-55 - black

Data

Boom arm	one-piece design
Boom arm clamping wing nut	
Boom arm length	805 mm
Height	from 900 to 1,600 mm
Height adjustment	clutch
Leg construction	socket with foldable legs
Material	steel
Product Category	Baseline
Rod combination	2-piece folding design
Special features	zinc die-cast base
Threaded connector	3/8"
Type	black
Weight	2.5 kg

Low-priced all-metal-stand. Consists of tubing assembly, boom arm and zinc die-cast base with long folding legs. Square swivel joint with large wing nut.



Soundcraft

NANO

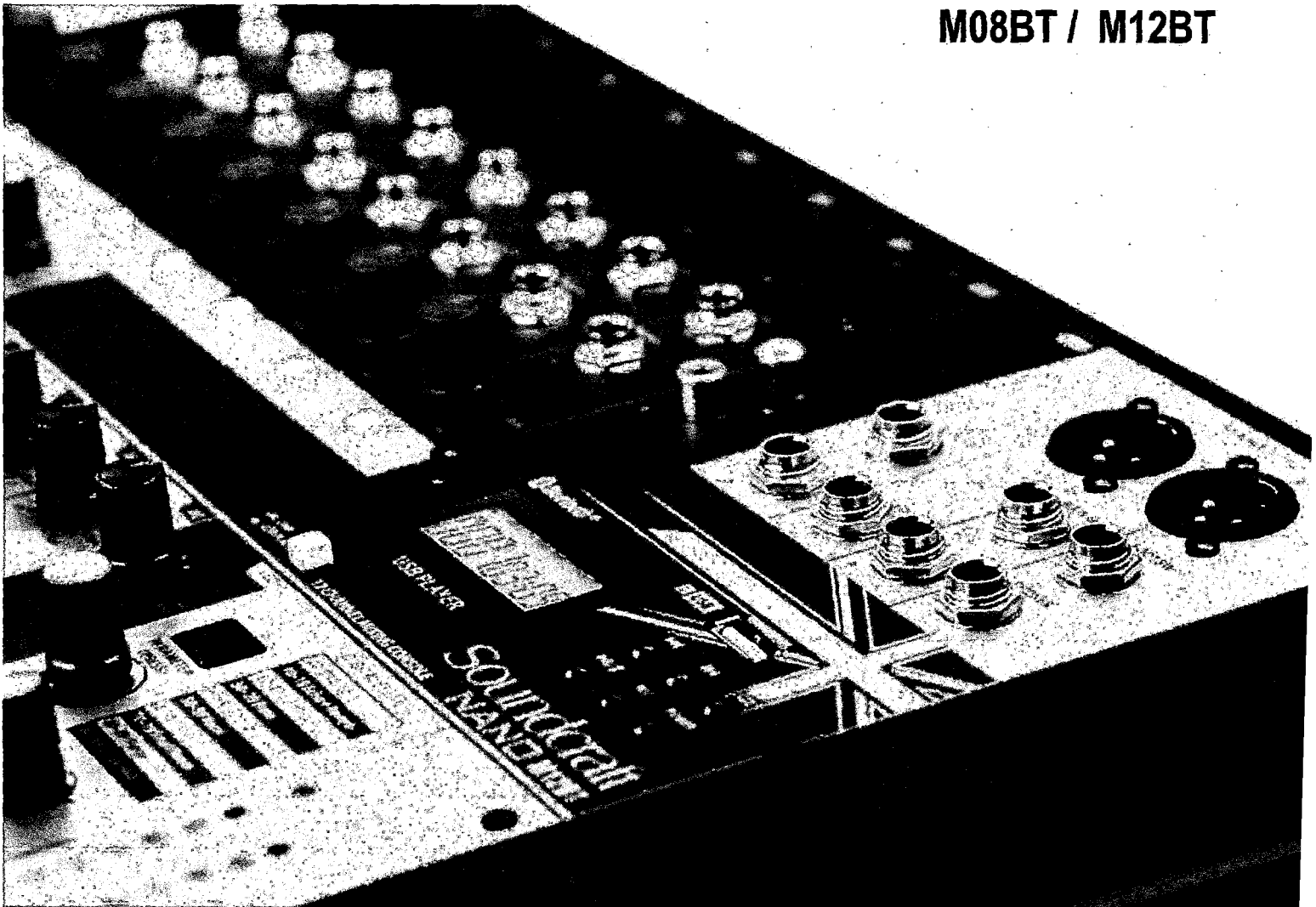
USER GUIDE

NANO SERIES

MULTI-CHANNEL ANALOG MIXING CONSOLE

WITH BLUETOOTH® STREAMING

M08BT / M12BT



Soundcraft®
by HARMAN

Quick Start



WARNING: Read and follow all the SAFETY INSTRUCTIONS when setting up and operating the unit.



WARNING: Disconnect the power supply before setting up the unit.



WARNING: Under no circumstances should the mains earth be disconnected from the mains lead.



CAUTION: Turn all the input and output controls down before connecting the unit.

Please refer to the "Connection Example" to set up your audio system with NANO Series mixer:

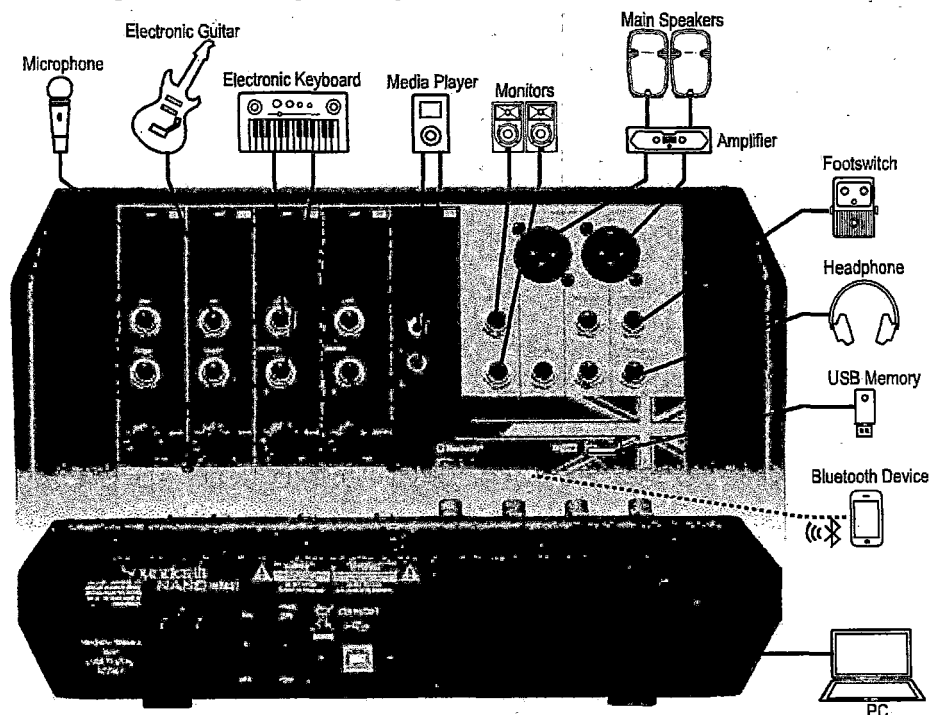
1. Completely disconnect the mixer and external devices from the power supply. Zero out or reset all the controls of the mixer, including faders, gains, EQs, etc.
2. Connect external devices, e.g. micro-phones, amplifiers, monitors, effects, etc., to the mixer.
3. Power on the system.



NOTE: To power on the system, please power on the mixer first, then the amplifiers or powered speakers. To power off the system, power off the amplifiers or powered speakers first, then the mixer.

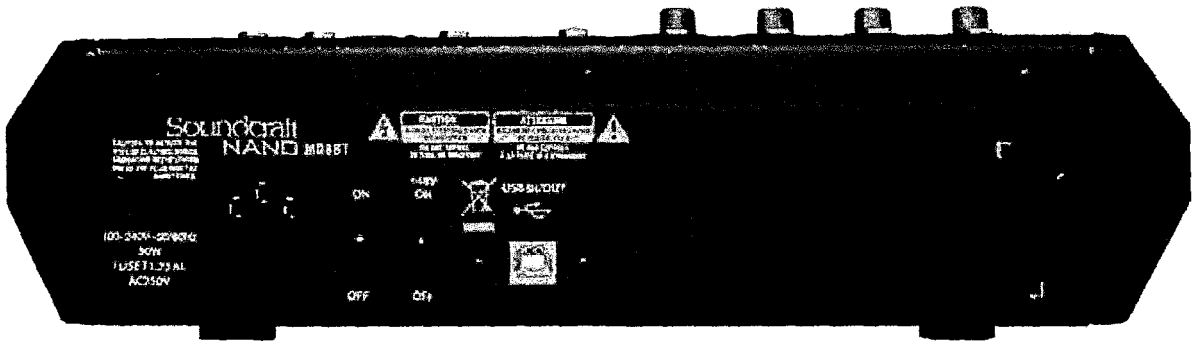
4. If wireless transmission is needed, connect the mixer to a Bluetooth® audio device. (For more information, see "e. PLAY / PAUSE or Bluetooth®" on Page 14.)
5. Set the Main Mix fader to no more than 0 dB.
6. Set the Control Room fader to no more than 0 dB.
7. Set the Channel Level fader to no more than 0 dB.
8. While speaking to the microphone (or playing the instrument), turn up the Gain knob to an ideal level, but ensure the highest transients do not trigger the PEAK LED, otherwise, slightly turn down the Gain knob.
9. Shape the tone of the channel using the EQ knobs.
10. Repeat Step 7-9 to set up each active channel.
11. When the Output Level meter registers the red segment, slightly lower the Main Mix fader.

Connection Example



Product Overview

(M08BT is shown)



Controls and Features

The following features are applicable to both M08BT and M12BT. In case different features need to be described for each model, M08BT will be described first, followed by M12BT.

1. MIC INPUT (CH 1 to CH 5/6 of M08BT, CH 1 to CH 9/10 of M12BT)

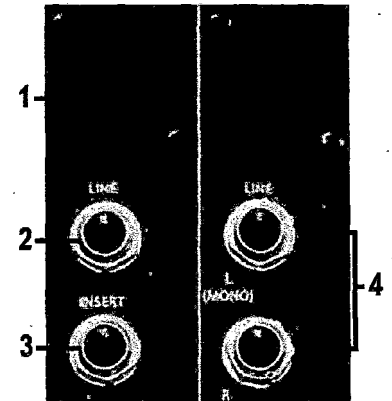
The MIC input is a balanced XLR-type input connector and accepts either BALANCED or UNBALANCED signals. A +48V phantom power switch (at the rear panel) is provided to power professional condenser mics.



NOTE: ONLY connect condenser microphones with the +48V phantom power (34) switched OFF, and ONLY switch on or off the +48V phantom power with all output faders DOWN (∞), to prevent damage to the mixer or external devices.



BEST PRACTICES: For best performance of your audio system, we suggest you connect the top priority input signals, such as vocal microphones, to Mic input of mono channels (CH 1 to CH 2 of M08BT, CH 1 to CH 6 of M12BT).



2. LINE INPUT (CH 1 to CH 2 of M08BT, CH 1 to CH 6 of M12BT)

The LINE input is a balanced TRS connector and accepts either BALANCED or UNBALANCED signals.



NOTE: Unplug anything from the MIC input (1) before using the Line input jack.

3. INSERT (CH 1 to CH 2 of M08BT, CH 1 to CH 6 of M12BT)

The INSERT point uses a TRS connector and is a break in the channel signal path just before the EQ section, allowing limiters, compressors, special equalizers or other signal processing units to be added in the signal path.

4. STEREO INPUT (CH 3/4 to CH 5/6 of M08BT, CH 7/8 to CH 9/10 of M12BT)

The L-R stereo input includes a pair of TRS sockets. To connect a stereo device, plug both the left and right input connectors. To connect a mono input signal, only use the left input, then the signal will appear on both L and R of the Main Mix.

5. RCA STEREO INPUT (CH 7/8 of M08BT, CH 11/12 of M12BT)

The RCA stereo input is used to connect stereo devices like a CD player. To connect one, plug both the left and right of the RCA stereo input.

6. LINE / USB PLAYER

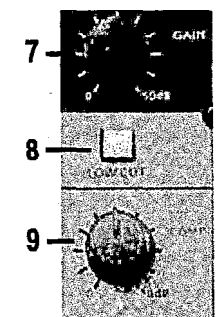
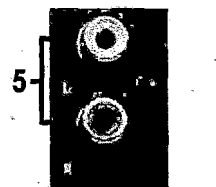
The LINE / USB PLAYER button switches the line and the USB player mode of CH 7/8 (M08BT) or CH 11/12 (M12BT). Press down the button to switch on the USB player mode, then signal from the USB player module (36) will be sent to the channel. Release the button to switch on the line mode, then signal from the line input (5) socket will be sent to the channel.

7. GAIN

The GAIN knob sets the input signal level of the channel. When turning up the knob, ensure the highest transients do not trigger the PEAK LED (13), otherwise, slightly turn down the knob. For each Mic input channel (1), the adjustment range of the GAIN is 0-50 dB.

8. LOW CUT

Press the LOW CUT button to engage a 75 Hz low frequency filter with an 18 dB/oct slope. This LOW CUT reduces the hum noise infected by the mains power supply or the rumble while using the microphone.



Controls and Features

9. COMP (CH 1- CH 2 of M08BT, CH 1 - CH 4 of M12BT)

This compressor is designed as a leveling amplifier with moderate attack and release time, with make-up gain correlated to the COMP knob setting. Rotate the COMP knob to increase the compression amount, with respective make-up gain.



BEST PRACTICES: The compressor has a fixed threshold of +4 dBu. For effective compression, ensure the post-gain level is above the threshold.

10. EQ

A 3-band EQ is provided for each MIC input channel (1) whereas for the RCA stereo input channel (5), a 2-band EQ is available. All bands provide up to 15 dB of boost or cut.

HI

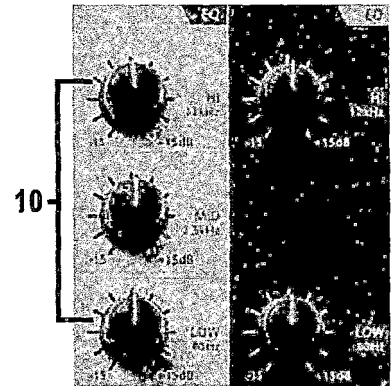
This knob gives an up to 15 dB boost or cut above 12 kHz. Turn the knob up to boost frequencies above 12 kHz, to add transparency to vocals and guitar or make cymbals crispier. Turn the knob down to cut frequencies above 12 kHz, to reduce sibilance of human voice or hiss of a tape player.

MID

This knob gives an up to 15 dB boost or cut at 2.5 kHz. Because this mid band covers the most fundamental frequencies of all musical instruments and human vocals, careful use of this knob may give creative improvement to the sound performance.

LOW

This knob gives an up to 15 dB boost or cut below 80 Hz. Turn this knob up to boost frequencies below 80 Hz, to add more punch to bass drum and bass guitar. Turn it down to cut frequencies below 80 Hz, to reduce low frequency vibrations and resonance.



11. DFX POST

Rotate the DFX POST knob to adjust the post fader signal sent to DFX bus.



NOTE: To prevent DFX distortion, please rotate this knob counterclockwise when the PEAK / MUTE LED (17) lights red.

12. PAN / BAL

Rotate the PAN knob to move a mono signal from left to right. Rotate the BAL knob to move the entire stereo image from left to right.

13. PEAK LED

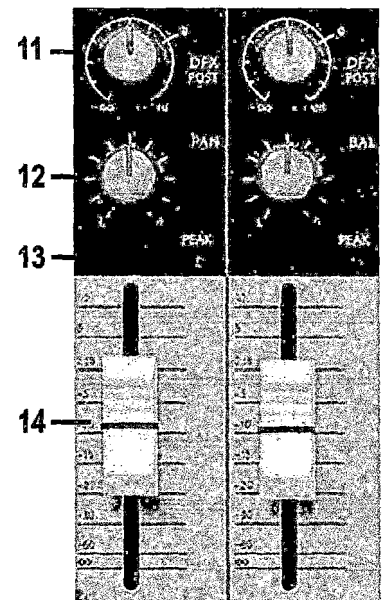
The PEAK LED lights on when the channel signal is about to clip or distort.

14. CHANNEL LEVEL FADER

The 40mm fader allows precise balancing of various channel signals being mixed to the main output. The adjustable range is from $-\infty$ to +10 dB.

15. DIGITAL EFFECTS

The LED screen displays the effect preset selected.



Controls and Features

16. PARAMETER (PRESS)

Rotate the knob to select the desired effect from the 100 preset options, which include Echo, Vocal, Plate and versatile dual-effect combinations. (For detailed information, see “*Effect Presets*”.) Push the knob to confirm the selection, then the LED screen (15) stops flashing and shows the selected preset permanently.

17. PEAK / MUTE LED

The PEAK / MUTE lights red when the signal is too strong and/or when the DFX is muted through the DFX MUTE button (18).



NOTE: To prevent DFX distortion, please rotate the DFX POST knob (11) counterclockwise when this LED lights red.

18. DFX MUTE

Toggle the DFX MUTE button to compare the effect amount applied to the signal. Press the button till the PEAK/MUTE LED (17) above lights up, then the DFX is muted.



To adjust the effect amount, use the DFX FADER (22).

19. USB

Rotate the USB knob to adjust the input signal from the USB interface (35). The adjustable range is from $-\infty$ to +10 dB.

20. MAIN / CTRL

Release the MAIN/CTRL button, then signal from the USB interface (35) goes to the Main Mix output. Engage the button, then signal from the USB interface (35) goes to the Control Room and Phones output.



NOTE: When the MAIN/CTRL button is engaged, the monitoring source of Control Room and Phones switches from the Main Mix output to USB return (from the USB interface (35)), and the Output Level meter (25) also switches to indicate the USB return level from the Main Mix output level.



BEST PRACTICES: Please disengage the button in normal operations. This button should be only engaged for monitoring USB return from the USB interface (35).

21. CTRL FADER

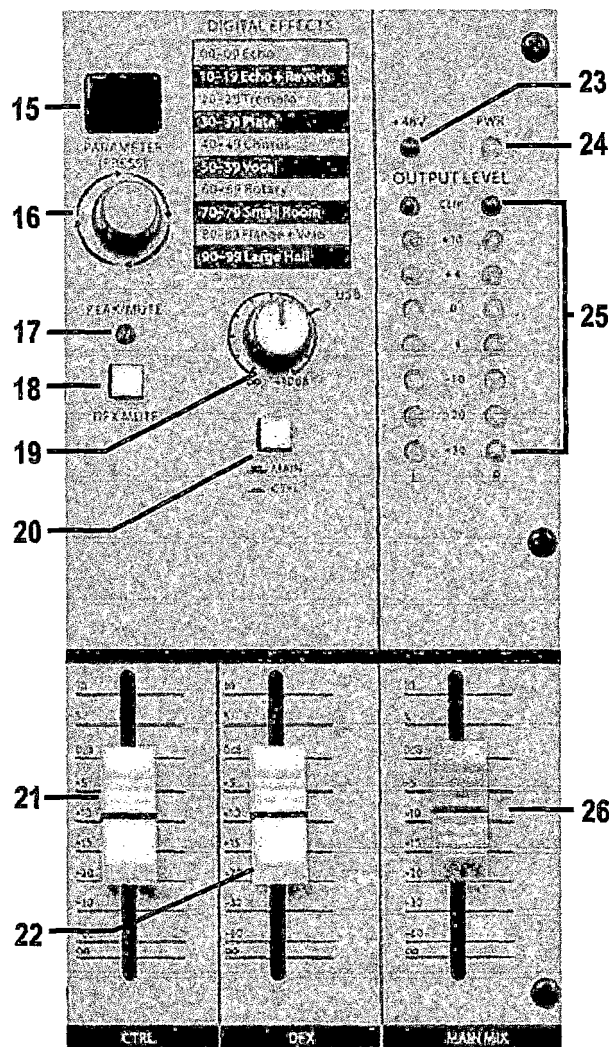
The 40mm fader sets the amount of signal sent to the Control Room and Phones output. The adjustable range is $-\infty$ to +10dB.

22. DFX FADER

The 40mm fader sets the amount of signal returning from DFX. The adjustable range is $-\infty$ to +10dB.



Use the DFX MUTE button (18) to compare the effect applied to the signal.



Controls and Features

23. +48V LED

The +48V LED illuminates when the +48 V phantom power (34) is switched on.

24. PWR LED

The PWR LED illuminates when the mixer is properly powered on.

25. OUTPUT LEVEL METER

The 8-segment three-color LED meter constantly indicates the Main Mix output level.



NOTE: When the MAIN/CTRL button (20) is engaged, this meter switches to indicate the USB return (from the USB interface (35)) level.



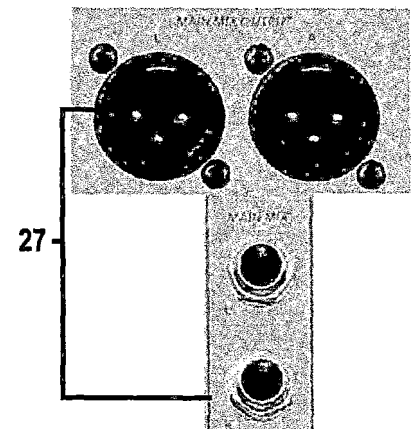
BEST PRACTICES: For best performance and to avoid overload, please keep the signal within the amber segments at peak levels.

26. MAIN MIX FADER

The 40mm fader sets the amount of signal sent to the Main Mix output. The adjustable range is from $-\infty$ to +10dB.

27. MAIN MIX OUTPUT

The MAIN MIX OUTPUT provides two types of connectors: a pair of balanced XLR connectors and a pair of balanced TRS connectors, and are controlled by the MAIN MIX fader (26).



28. CTRL ROOM

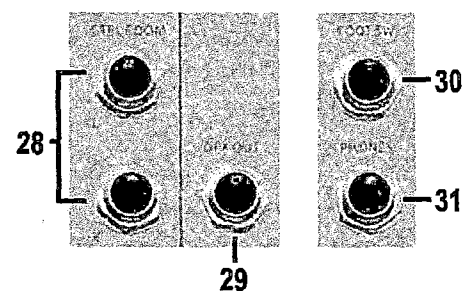
The CTRL ROOM output includes a pair of L-R TRS connectors, and can be used for connection of studio monitor speakers or a second set of PA. The Control Room shares the same monitoring source with the Phones (31): Main Mix output or USB return (from the USB interface (35)).

29. DFX OUT

The DFX OUT installs a 1/4" TRS connector and is used to send signal from DFX bus to external devices.

30. FOOT SW.

The FOOT SW installs a 1/4" TRS connector, and is used to connect an external footswitch which has the same function as the DFX MUTE button (18).



31. PHONES

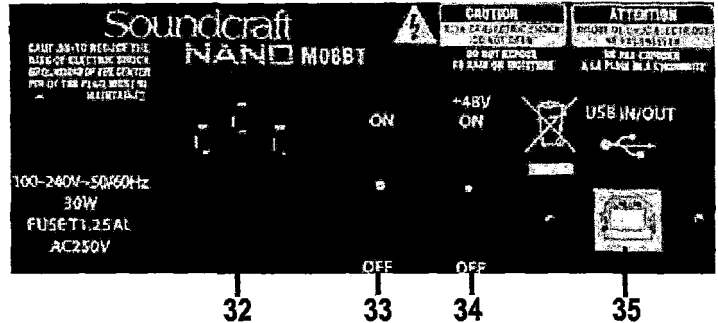
The PHONES output appears on a 1/4" TRS connector, and is used to send mix signal to a pair of headphones for monitoring. The Phones shares the same monitoring source with the Control Room (28): Main Mix output or USB return (from the USB interface (35)).

Controls and Features

32. AC INPUT

Connect the mixer to the mains AC with the supplied AC cord. Please check the voltage available in your country and how the voltage for your mixer is configured before connecting your mixer to the mains AC.

NOTE: Always replace the mains fuse only with the correct value fuse, as marked on the rear panel.



33. POWER SWITCH

Press the switch to turn on or off the mixer.

34. +48V PHANTOM POWER SWITCH

Turn on the switch, then +48V phantom power will be available to the XLR MIC inputs (1), to which professional condenser microphones can be connected.

NOTE: ONLY connect condenser microphones with the +48V phantom power switched OFF, and ONLY switch on or off the +48V phantom power with all output faders DOWN (∞), to prevent damage to the mixer or external devices.

35. USB IN / OUT

This USB interface can be used like a soundcard for recording and playback with Windows and Macintosh computers or Digital Audio Workstation software (DAW). Connect this USB interface to your computer through a Type A-B USB cable. The interface sends the Main Mix left and right signals to the computer, or receives a stereo audio stream from the computer. During playback, use the USB knob (19) to set the gain of incoming signals.

NOTE: Windows and Mac computers automatically install the generic USB audio driver when the USB interface of the mixer is detected.

NOTE: The USB IN and USB OUT share the same device name: **USB AUDIO CODEC**. You will have to select the proper device name before you use this interface for playback or recording.



36. USB PLAYER

The USB PLAYER can be activated by pressing down the LINE / USB PLAYER button (6) on CH 7/8 of M08BT or CH 11/12 of M12BT. The USB PLAYER can be used to playback soundtracks from, or record Main Mix to a USB memory stick, or receive audio signal from a Bluetooth® device wirelessly.

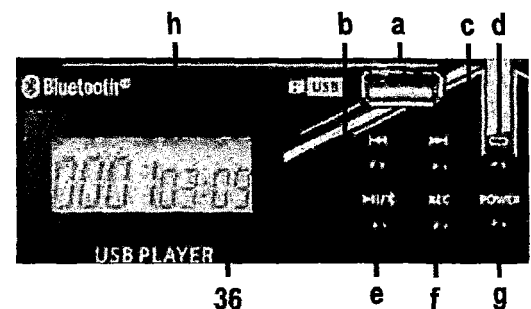
a. USB PORT

Insert a USB memory stick for playback or recording.

NOTE: To use this port for recording, please insert a USB memory stick of FAT32 file system.

b. ⏮ PRE

- When the player is in pause state, a short-press of this button returns to the previous track and the player remains the pause state.
- When the player is in play state, a short-press of this button returns to the previous track and the player remains the play state.



Controls and Features



- When the player is in play state, a press of the button for 2 seconds switches the player to soundtracks in the previous media file stored in the USB memory; a press of the button for longer than 2 seconds toggles among media files stored in the USB memory.

c. NEXT

- When the player is in pause state, a short-press of this button goes to the next track and the player remains the pause state.
- When the player is in play state, a short-press of the button goes to the next track and the player remains the play state.
- When the player is in play state, a press of the button for 2 seconds switches the player to soundtracks in the next media file stored in the USB memory; a press of the button for longer than 2 seconds toggles among media files stored in the USB memory.

d. RPT

Press the button to select from the following repetition modes for the player.

- When  appears on the LCD screen, all the tracks in the USB memory stick will be repeated.
- When  appears on the LCD screen, one track (the current track) will be repeated.
- When **A** appears on the LCD screen, the tracks will be played at random.
- When no symbol appears on the LCD screen, the tracked will be played according to their order.

e. PLAY / PAUSE or Bluetooth®

A short-press of the button switches the play or pause mode of the player. A long-press of the button switches on or off Bluetooth® audio streaming capability of the player. When Bluetooth® is switched on, the display shows "no bt". Switch on the Bluetooth of your smart device and select "Soundcraft NANO M08BT" or "Soundcraft NANO M12BT" from the Bluetooth list, then soundtracks or materials in this smart device can be streamed to the mixer.

f. REC

When the USB player is in use, press the REC button to initiate the recording mode. Press the REC button again to start recording. To end recording, press the POWER button (g).

When the USB player is in recording mode, the rest player functions are not operable until the recording mode is terminated.

In case the "Err" appears on the LCD screen, it means an error happens to recording. In such situation, press the POWER button (g) to stop recording.

g. POWER

Press of the button for 2-3 seconds to turn on or off the USB player.

h. DISPLAY

The LCD screen displays all the USB player information and status.

Effect Presets

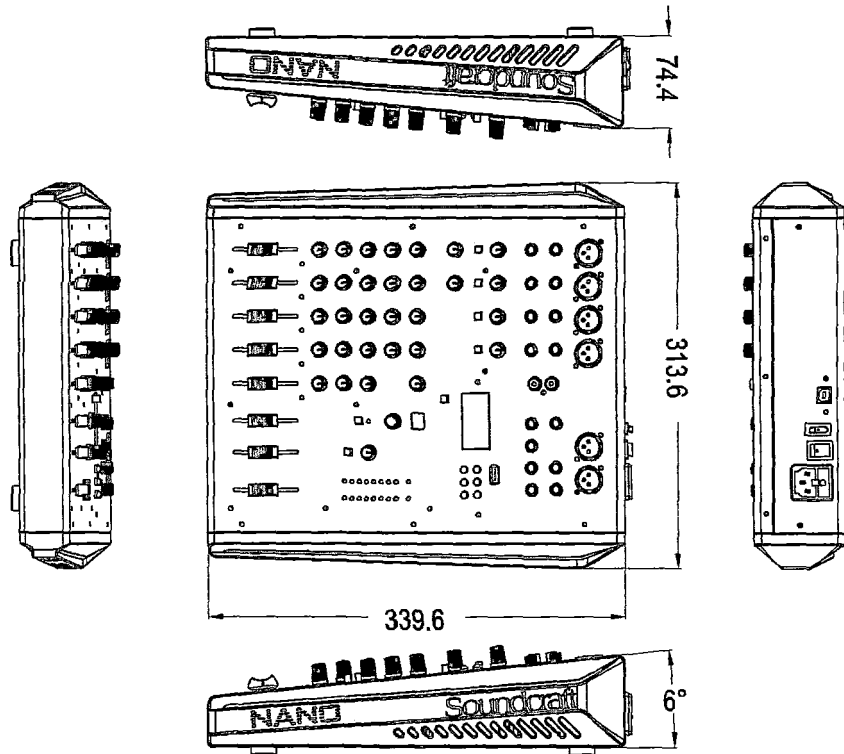
NO.	PRESET	DESCRIPTION	PARAMETER
00-09	Echo	Reproduce the sound in input on the output after a lapse of time or delay.	Delay time: 145~205ms
10-19	Echo+Verb	Echo with room effect.	Delay time: 208~650ms Decay time: 1.7~2.1s
20-29	Tremolo	Amplitude modulation of the signal.	Rate: 0.6 Hz~5 Hz
30-39	Plate	Simulate the transducers sound like classic bright vocal plate.	Decay time: 0.9s~3.6s
40-49	Chorus	Recreate the illusion of more than one instrument from a single instrument sound.	Rate: 0.92Hz~1.72Hz
50-59	Vocal	Simulate a small space with slight decay time.	Rev. decay time: 0.8~0.9s Pre-delay: 0~45ms
60-69	Rotary	Simulate the sound effect achieved by rotating horn speakers and a bass cylinder.	Modulation depth: 20%~80%
70-79	Small Room	Simulate a bright studio room.	Decay time: 0.7~2.1s Pre-delay: 20~45ms
80-89	Flanger+Verb	Simulate to play with another person carrying out the same notes on the same instrument and reverb.	Decay time: 1.5~2.9s Rate: 0.8Hz~2.52Hz
90-99	Large Hall	Simulate a large acoustic space of the sound.	Pre-delay: 23~55ms Decay time: 3.6~5.4s

Specifications

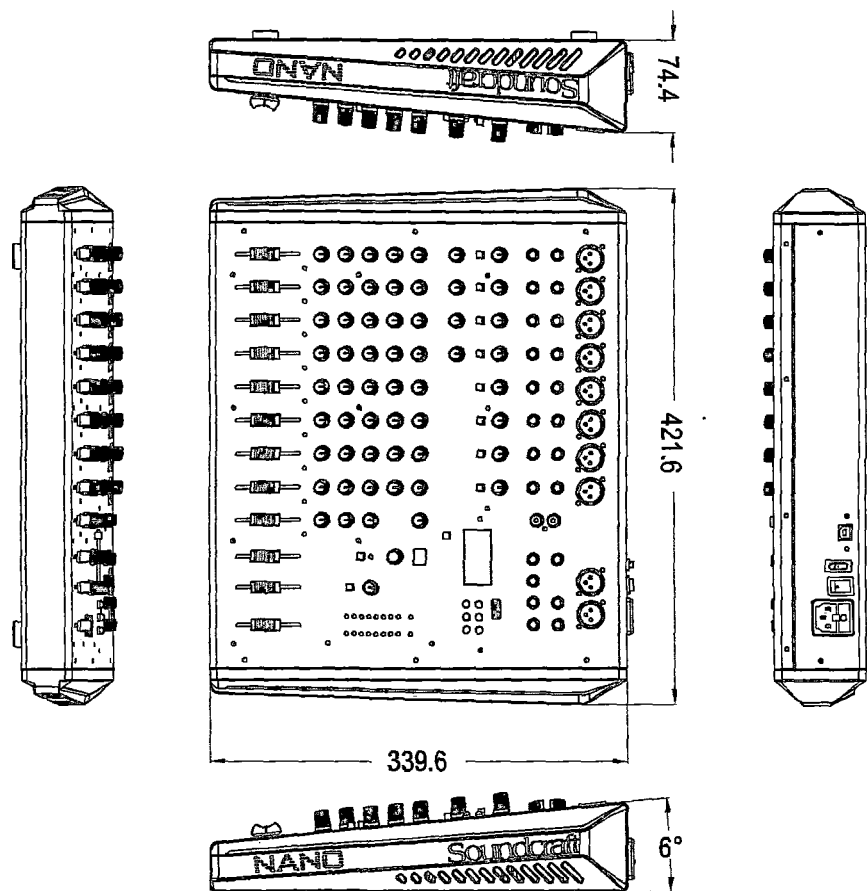
	M08BT	M12BT
Gain		
Mic input gain	0 to 50 dB, ±5%	
Line input gain	-20 to 30 dB, ±5%	
Noise		
Mono channel Mic input E.I.N. (max gain, non-weighted)	< -126 dBu (150Ω source)	
Stereo channel Mic input E.I.N. (max gain, non-weighted)	< -114 dBu (150Ω source)	
Crosstalk		
Fader cut-off, +4 dBu input @ 1 kHz	< -70 dBu	
Pan isolation, +4 dBu input @ 1 kHz	< -60 dBu	
Frequency response		
Mic/Line input to any outputs, 20 Hz-20 kHz	< 1 dB	
THD + N		
+14 dBu @ Mix output, max gain knob, 20-20 kHz	< 0.01% @ 1 kHz	
CMRR		
Typical @ max gain @ 1 kHz	> 80 dB	
Typical @ any gain @ 50 Hz	> 60 dB	
Input and output impedance		
Mic input	2,7 kΩ	
Line input	20,7 kΩ	
Stereo input	10 kΩ	
Mix, aux and insert sends	120 Ω	
Input and output levels		
Mic input max level	+20 dBu	
Line input max level	+20 dBu	
Stereo input max level	+20 dBu	
Headphones (@ 200 Ω)	150 mW	
Compressor		
Threshold	+4 dBu	
Compression ratio	4 : 1	
Make-up gain	0 - 9 dB	
USB IN / OUT		
Inputs / Outputs	2-in, 2-out	
Bit depth	8-bit / 16-bit	
Sample rate	32 kHz / 44.1 kHz / 48 kHz	
USB player		
Playback format	MP3, WAV (PCM16, PCM24, ADPCM), Bluetooth	
Recording format	WAV (IMA ADPCM @48kHz 16 bits)	
Bluetooth		
Version	BT4.2	
Device name	Soundcraft NANO M08BT	Soundcraft NANO M12BT
Power		
Mains voltage	100 V-240 VAC, 50/60 Hz, universal input	
Physical		
Net weight / Gross weight	3.13 kg / 4.22 kg	4.38 kg / 5.37 kg
Dimensions	313.6 x 339.6 x 74.4 mm	421.6 x 339.6 x 74.4 mm

Dimensions

M08BT

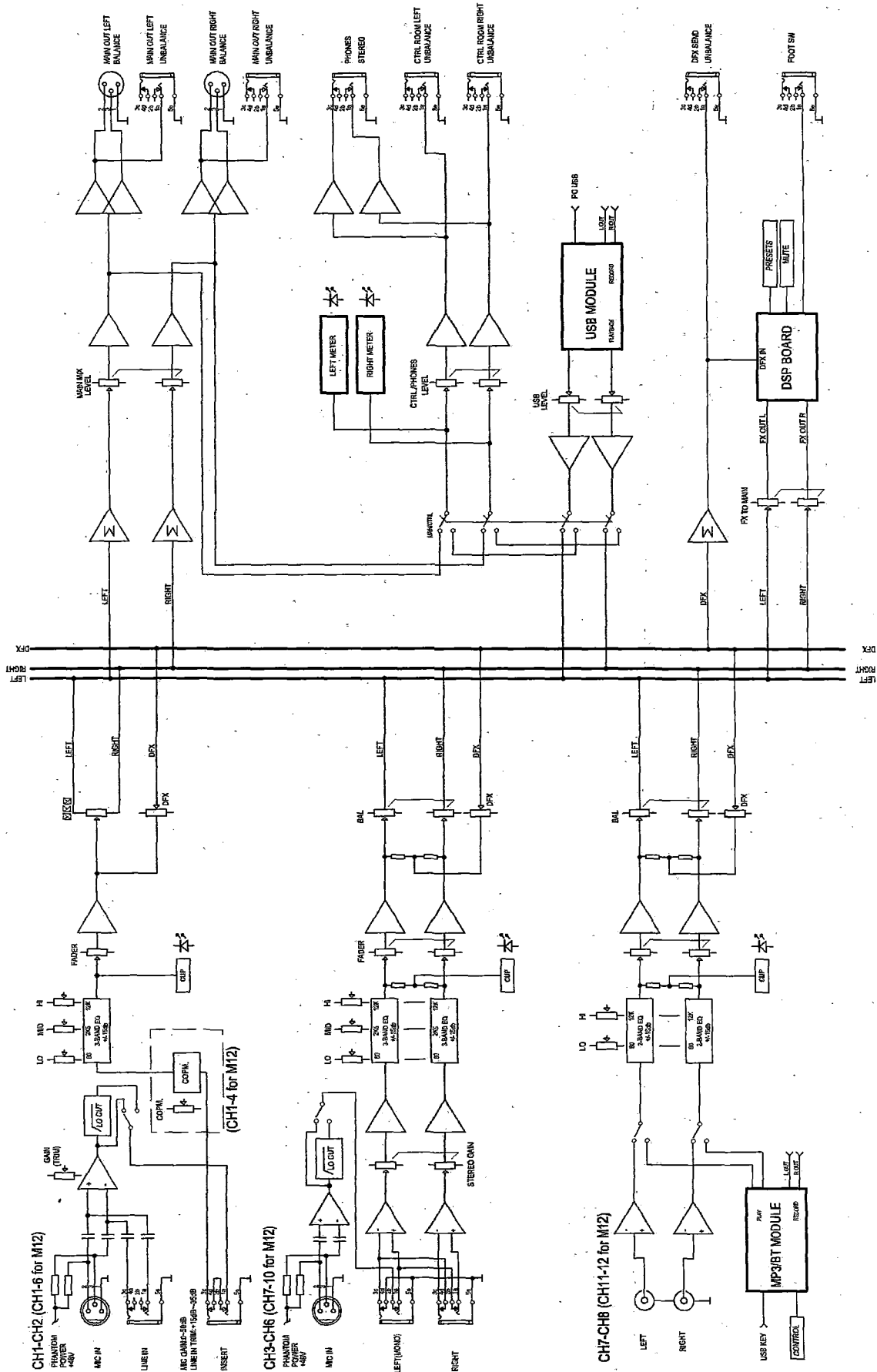


M12BT

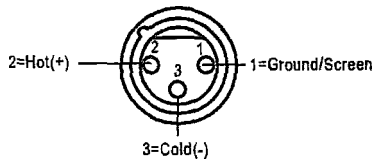


Measured in mm

Block Diagram

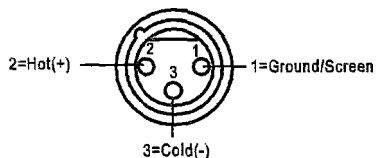


Audio Connectors



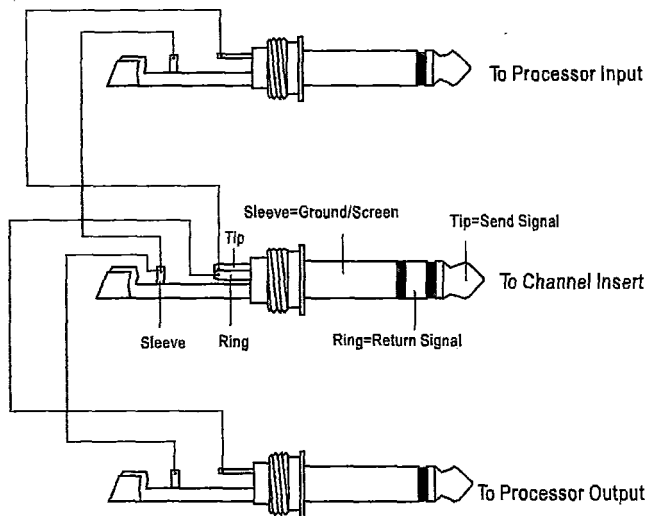
Use for Balanced Mic Inputs
(For unbalanced use, connect pin 1 to 3)

3-pin XLR Male Plug
(seen from soldering side)



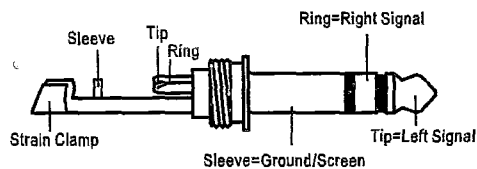
Use for Main output
(For unbalanced use, leave pin 3 unconnected)

3-pin XLR Line Socket
(seen from soldering side)



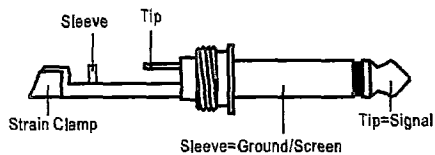
Y-Stereo lead for insert Connection

(To be used when the processor does not employ a single jack connection for the In/Out Connections)



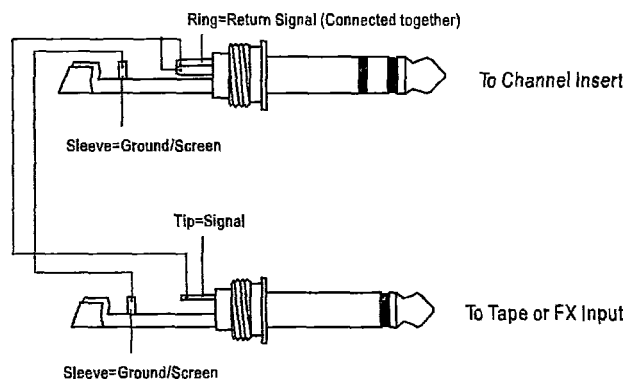
Use for Headphone, Stereo Return

1/4" Stereo (TRS) Jack Plug



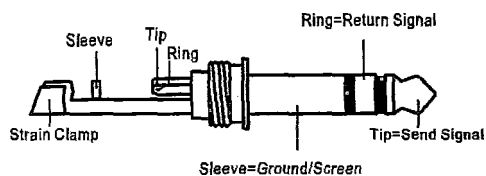
Use for Mono Line In, Mono 1/4" Jack Plugs

1/4" Mono (TS) Jack Plug



'Tapped' Connection Direct Output Lead

(Enables the Insert to be used as a Direct Output while maintaining the channel signal flow)



Use for Pre-Gain Channel Inserts

1/4" Stereo (TRS) Jack Plug

Introductions - M08BT / M12BT

NANO Series multi-channel analog mixing console inherits legendary Soundcraft craftsmanship and is designed to meet various application requirements from studio recording and fixed installations. NANO Series owns two Bluetooth® models in its product portfolio: M08BT (8 channels) and M12BT (12 channels), and represents a new level of design, quality and performance.

M08BT and M12BT offer all the functionalities required for studio recording or fixed installations: 4/8 Mic inputs with ultra-low noise discrete Mic preamp and +48V phantom power; 4/8 Line inputs; 3 stereo inputs (two TRS pair inputs and one RCA pair input); each Mic/Line input channel is equipped with a 3-band EQ; RCA stereo input channel is equipped with a 2-band EQ; insert point for each Mic/Line input channel, etc.

M08BT and M12BT identify themselves for their cutting-edge and eye-catching appearance. The built-in USB player supports playback and recording. 24-bit DSP processor offers up to 100 effect presets. Bluetooth® audio streaming from smart devices is also supported. A USB soundcard interface is embedded for recording and playback with a computer or DAW software.

M08BT and M12BT accommodate all the controls and connection elements in a robust steel case, and use connectors built from metallic materials of highest industrial standards. Compact and ultra-light build, cutting-edge design, and acclaimed Soundcraft craftsmanship make NANO an optimal choice for studio recording or fixed installations.

Features

- 4 / 8 Mic inputs with ultra-low noise discrete Mic preamp with +48V phantom power.
- 4 / 8 Line inputs.
- 3 stereo input channels (two TRS pair inputs and one RCA pair input).
- Insert point for each Mic/Line input.
- Low cut for each Mic/Line input channel.
- Compressor for first 2 / 4 Mic/Line input channels.
- Each Mic/Line input channel is equipped with a 3-band EQ, RCA stereo input channels with a 2-band EQ.
- Main Mix installs a pair of balanced XLR and a pair of balanced TRS connectors.
- 24-bit DSP processor with up to 100 effect presets.
- USB player for playback and recording.
- Switch-mode power supply for 100-240 Voltage.
- USB soundcard interface for recording or playback.
- Bluetooth® audio streaming.

Packing List

- NANO Series Mixing Console x 1
- Power Cord x 1
- User Guide (this document) x 1

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Warranty

1. Soundcraft is a trading division of Harman International Industries 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 with 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.

Safety Instructions

For your own safety and to avoid invalidation of the warranty please read this section carefully.

IMPORTANT SYMBOLS



Caution

Alerts the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



Warning

Alerts the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



Protect your ears

Alerts the user that the product is capable to produce sound which, when monitored through an amplifier or headphones, can damage hearing over time.

SAFETY INSTRUCTIONS

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Clean the apparatus only with a dry cloth.
- Do not install near any heat sources such as radiators, heat resistors, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not use this apparatus near water.
- Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When the cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- No naked flame sources, such as lighted candles or cigarettes etc., should be placed on the apparatus.
- No user serviceable parts. Refer all servicing to a qualified service engineer, through the appropriate Soundcraft dealer.
- The socket-outlet shall be installed near the equipment and shall be easily accessible



THIS UNIT MUST BE EARTHED. Under no circumstances should the mains earth be disconnected from the mains lead.



All maintenance and service on the product should be carried out by Soundcraft or its authorized agents. Soundcraft cannot accept any liability whatsoever for any loss or damage caused by service, maintenance or repair by unauthorized personnel.



WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. Do not expose the apparatus to dripping or splashing and do not place objects filled with liquids, such as vases, on the apparatus. No naked flame sources, such as lighted candles, should be placed on the apparatus.



Ventilation should not be impeded by covering the ventilation openings with items such as newspapers, table cloths, curtains etc.



Please read this manual carefully before using your mixer for the first time!

For further information, please contact:

Harman International Industries Ltd, 8500 Balboa Blvd. Northridge, CA 91329 USA

Email: soundcraft@harman.com.

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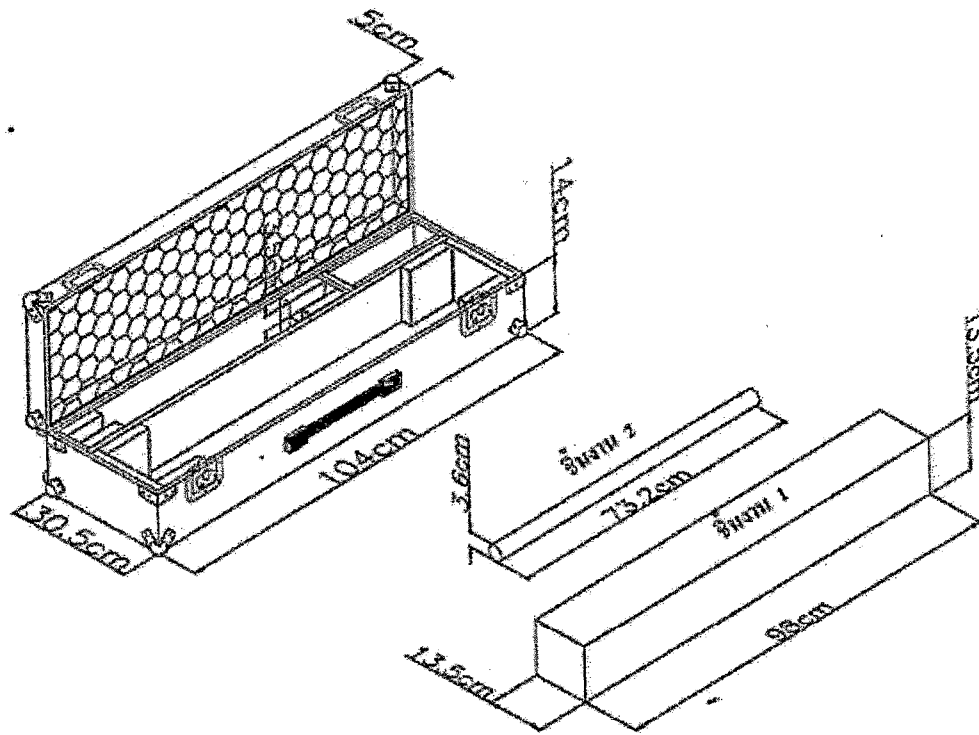
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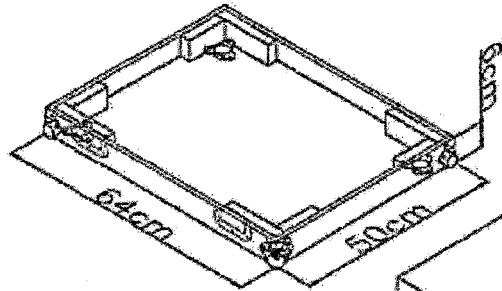
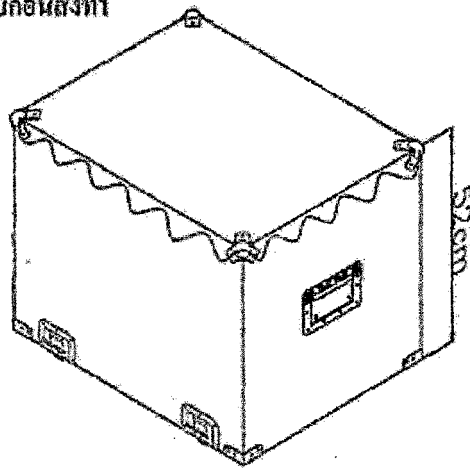
<http://www.soundcraft.com>

** ถูกทำให้ขนาดชิ้นงานมา
** ถูกคัดตรวจสอบแบบก่อนสั่งทำ



1

- ** ถูกถ้าให้ขนาดชิ้นงานมา
- ** ถูกถ้าตรวจสอบแบบก่อนสั่งทำ



กรุณาแก้ไข
บนในแบบ เท่านั้น
แบบถูกต้อง.....

