

Operation Manual

Professional Audio Mixer

MX-1646



interM

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Welcome

A personal welcome to you from the management and employees of Inter-M

All of the co-workers here at Inter-M are dedicated to providing excellent products with inherently good value, and we are delighted you have purchased one of our products.

We sincerely trust this product will provide years of satisfactory service, but if anything is not to your complete satisfaction, we will endeavor to make things right.

Welcome to Inter-M, and thank you for becoming part of our worldwide extended family!



WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

*Do not install this equipment in a confined space such as a book case or similar unit.

*The apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.

*Worded: "WARNING FOR YOUR PROTECTION PLEASE READ THE FOLLOWING-WATER AND MOISTURE: Unit should not be used near water (e.g. near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc). Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings."



This symbol is intended to alert 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.



This symbol is intended to alert the user to the presence of important operation and maintenance (servicing) instructions in the literature accompanying the appliance.

Caution: To prevent electric shock do not use this (polarized) plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.

Attentions: Pour prévenir les chocs électriques ne pas utiliser cette fiche polarisée avec un prolongateur, une prise de courant ou une autre sortie de courant, sauf si les lames peuvent être insérées à fond sans en laisser aucune partie à découvert.

* It can be heated up if you use this product in closed box or unventilated place.

Unpacking

Please take a few minutes to read this manual to familiarize yourself with important information regarding product features, and operation.

As with most electronic devices, ORIGINAL PACKAGING (OR EQUAL) IS REQUIRED in the unlikely event that the product needs to be returned for servicing.

Installation

Environment

Never place this product in an environment which could alter its performance or reduce its service life. Such environments usually include high levels of heat, dust, moisture, and vibration.

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. 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. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. 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.



Introduction

Thank you for choosing the MX-1646 professional audio mixer. Your MX-1646 benefits from over 27 years of Inter-M's professional audio design and manufacturing experience. This operation manual should quickly acquaint you with the mixer's features and controls, while offering some suggestions for its use in various applications.

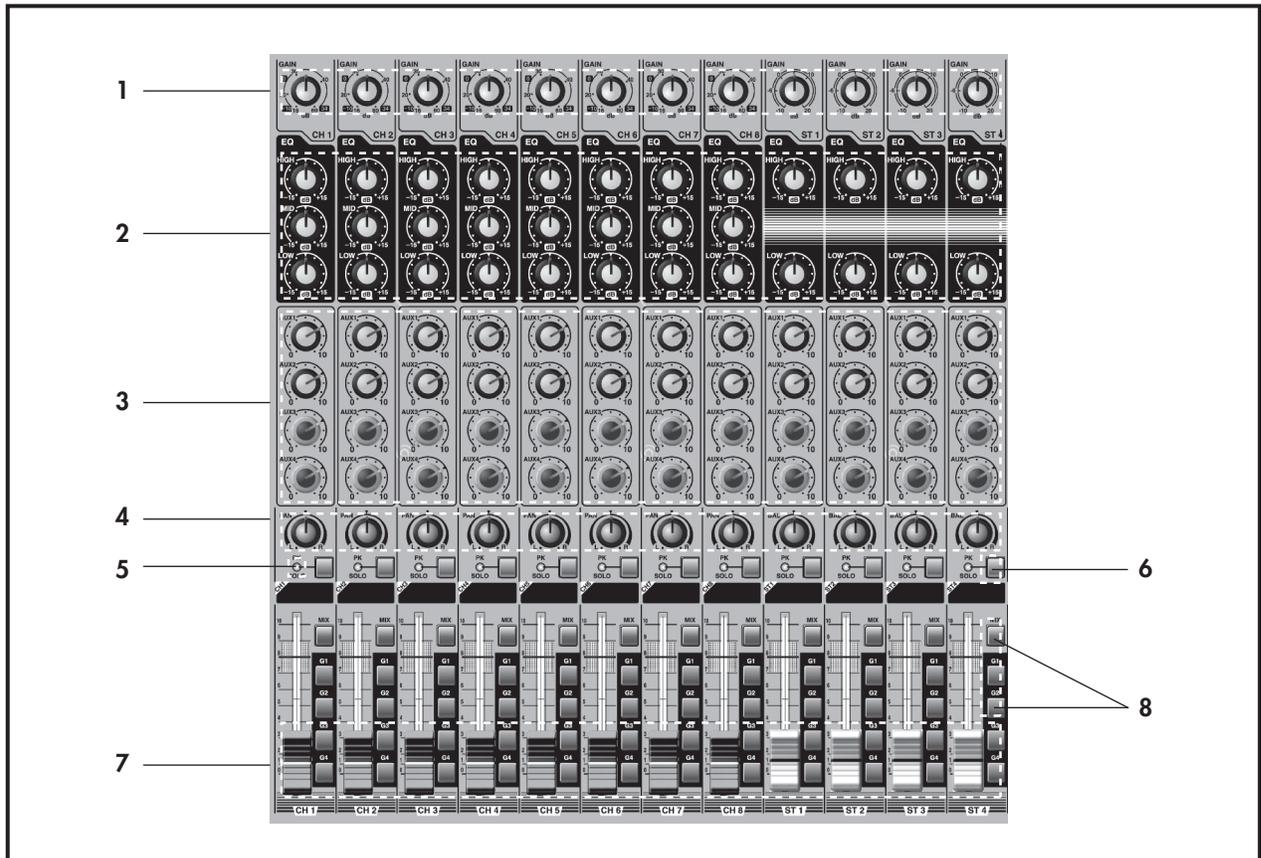
Although we believe the information in this guide to be reliable, we do not assume responsibility for inaccuracies. We also reserve the right to make changes in the interest of further product development.

Features

- **CHANNEL INPUT**
8 Mono inputs, 4 Stereo inputs
- **CHANNEL EQUALIZER**
Mono input ch : 3band, Stereo input ch : 2band
- **4CH AUX OUTPUT**
- **4CH GROUP OUTPUT**
- **2CH STEREO RETURNS**
- **+48V PHANTOM POWER**

Front Panel

Input Channel



1. GAIN

The input signal's gain is continuously variable from +16dB to +60dB(STEREO CH : -10dB~+20dB). The actual value of the gain required will depend upon the source and should ideally be set such that peaks in level on the input should not cause the input amplifier to overload.

You need to watch level indicator placed near FADER, flashing "PEAK" lamp is too high.

2. EQUALIZER

The equalizer section provided on each input channel consists of HIGH, MID, and LOW controls at the following frequencies with the maximum range of ± 15 dB.

(Mono input ch : 3band(HIGH/MID/LOW), Stereo input ch : 2band(HIGH/LOW))

- 1) HIGH : 10kHz, ± 15 dB Shelf type.
- 2) MID : 1.2kHz, ± 15 dB peaking type.
- 3) LOW : 100Hz, ± 15 dB Shelf type.

3. AUXILIARY

Your MX-1646 has 4 auxiliary outputs. These are commonly used for effects, stage monitors and any additional sends, e.g. camera sound.

Auxiliaries are fed post fader, meaning that the channel's fader level will affect the level sent to the auxiliary. These are grouped to allow maximum flexibility.

4. PAN/BAL

Controls the signal's position in the stereo image. This affects both main MIX outputs as well as any groups to which the channel is routed. Panning left sends the signal to odd numbered groups only, and panning right sends it to even numbered groups only.

If, for example, you are panning from hard left to center, you will notice a 3dB drop in the left channel as you do so. This "panning law" ensures that signals sound equally loud at all pan positions.

5. PEAK/SOLO LED

Displays the channel's signal peak level and solo function.

The "RED" lamp warns of signal levels approaching the upper headroom limit within about 3dB. We recommend that you reduce the input gain to avoid unpleasant distortion!

The "GREEN" lamp starts blinking when the solo switch is ON.

6. SOLO SWITCH

Routes the signal to the solo bus for isolated auditioning and detailed metering.

7. CHANNEL FADER

A professional 60mm fader gives you smooth, high-resolution control over the channel level.

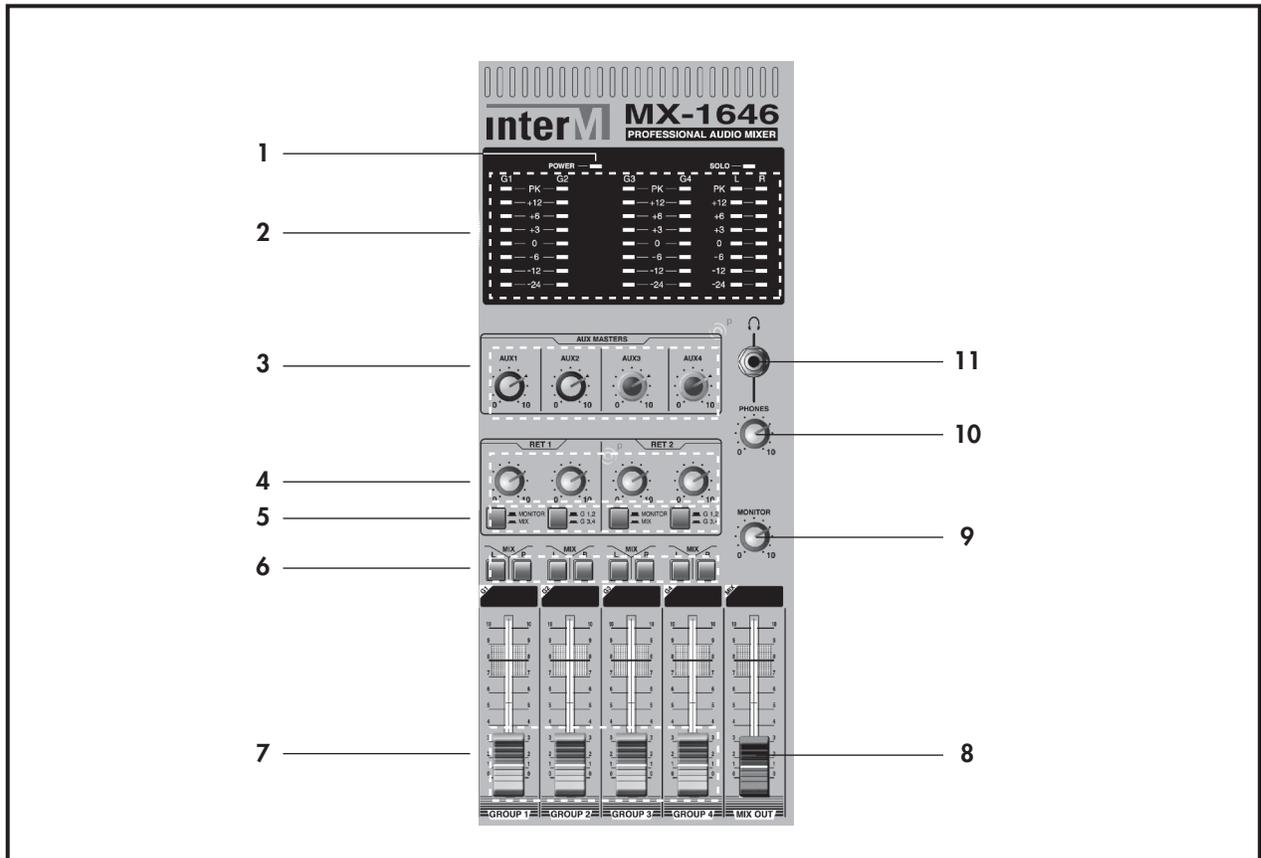
8. BUS ASSIGNMENT SWITCHES

Connects the channel signal to each MIX and GROUP buses.

- MIX SWITCH
- GROUP SWITCHES (G1, G2, G3, G4)

Front Panel

Master Section



1. POWER INDICATOR

The POWER INDICATOR LED lights when the power is ON.

2. OUTPUT LEVEL METER

8-segment peak response meter shows the level of GROUP output and MIX/SOLO output. LED METER's "0" is 0dB.

3. AUX MASTERS

Auxiliary signal sent from each channels is controlled its output level by this potentiometer.

4. RETURN

Two stereo return inputs are available for the connection of stereo devices, such as reverb processors, which do not need extensive processing, or access to the full range of auxiliaries.

5. BUS ASSIGNMENT SWITCHES

Connects the RETURN signal to MONITOR or MIX, G1/2 or G3/4.

6. MIX L/R SWITCHES

Groups can be routed to the MIX L and R output.

7. GROUP OUTPUT FADER

A professional 60mm fader gives you smooth, high resolution control over the group level.

8. MIX OUTPUT FADER

A 60mm stereo fader gives you smooth, high resolution control over the MIX level.

9. MONITOR LEVEL

Controls monitor output level.

10. PHONES LEVEL

Gives independent control over headphone volume.

11. HEADPHONE JACK SOCKET

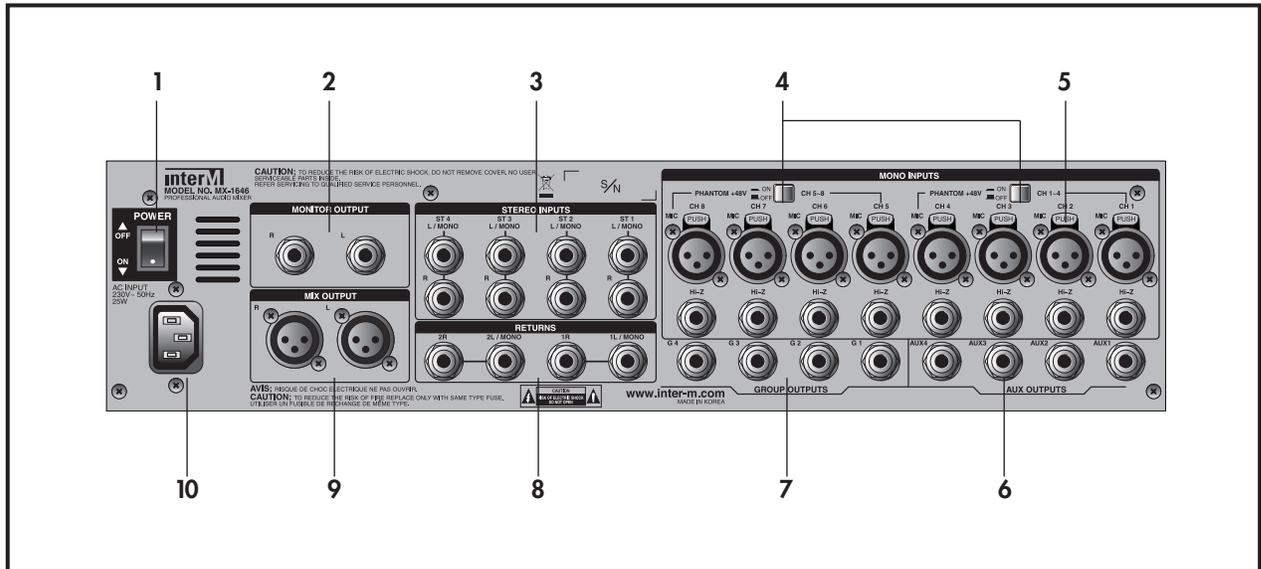
TRS jack socket for headphone plug. Tip is left, and ring is for right signal. You can use the headphones over 35Ω impedance.

NOTE: Use only stereo phones!

When a mono connector is plugged into the stereo connector, it connects both sides of the headphone amplifier to a signal load.



Rear Panel



1. POWER SWITCH

The power switch is used to turn ON/OFF the AC main power.

NOTE: Please make sure the amplifier's main volume is at the minimum position before switching power on or off to avoid loud pops through the sound system loudspeakers.

2. MONITOR OUTPUT

These are unbalanced phone jacks used to connect monitor speakers.

Nominal output level is 0dBu, and approximately input impedance is about 2kΩ.

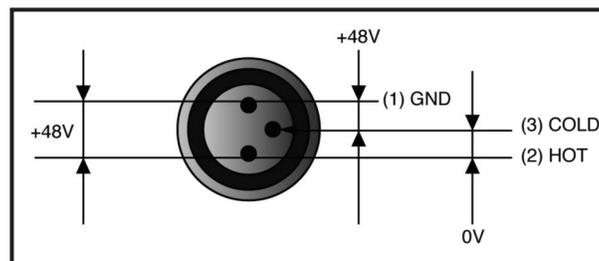
3. STEREO LINE INPUTS

This TRS balanced stereo inputs are designed for attaching line level devices up to +10dBu.

When you connect unbalanced signal to this input, make sure to link "Ring" and "sleeve" of your jack plug.

4. 48V PHANTOM POWER

This switch provides +48V phantom power to XLR input.



NOTE: DO NOT use unbalanced sources with the phantom power switched on. The voltage on pins 2&3 of the XLR connector may cause serious damage. Please minimize the fader before pressing this switch to avoid speaker's damage.

5. MONO INPUTS

MIC INPUT

- Microphone inputs are on Female XLR. The impedance of this input is approximately 2.2k Ω .

Hi-Z INPUT

- Use this input when connecting sources such as instruments, keyboards or playback devices. This input signal is summed with the XLR input, but you needn't worry about phantom power; that will only be supplied from the XLR. Available input level is about 26dB higher than the XLR input, and impedance of this input is approximately 50k Ω . If using an unbalanced source, please make sure to link Sleeve and Ring together to avoid unwanted noise.

6. AUX OUTPUTS

The Auxiliary outputs are on TRS jack socket. The nominal level is 0dBu.

7. GROUP OUTPUTS

1/4" TRS socket for inserting external devices. The tip is wired to a ground compensated send, unbalanced return is via the ring and sleeve. Nominal I/O level is 0dBu.

The "OUTPUT" TRS socket is impedance-unbalanced group signal output.

8. RETURNS INPUTS

L/MONO, R

- A pair of 1/4" TRS jack sockets allow balanced input. Nominal input level is 0dBu, and approximately input impedance is about 10k Ω .

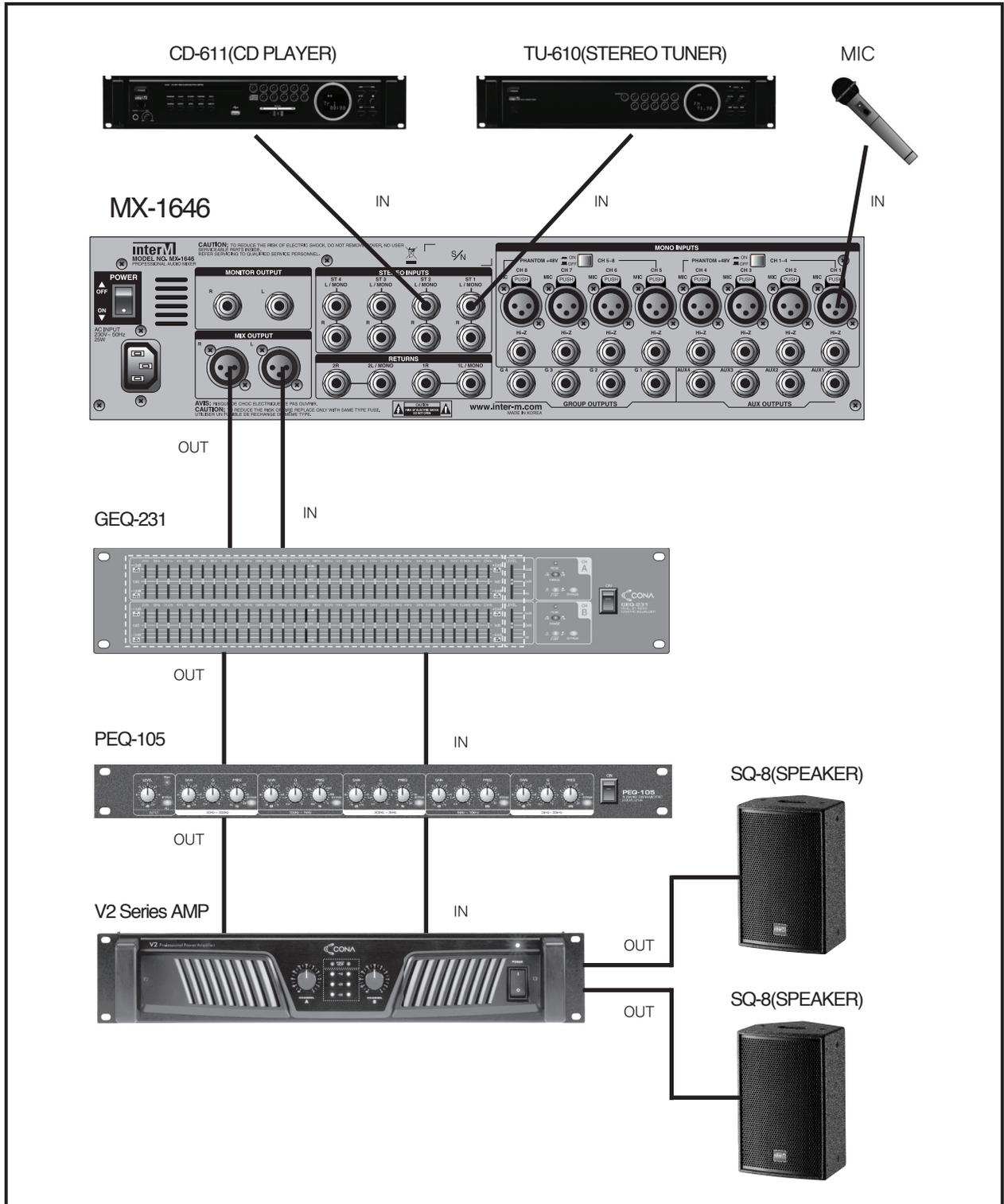
9. MIX OUTPUT

Male XLR connectors for balanced MIX signal outputs. The nominal output level is 0dBu.

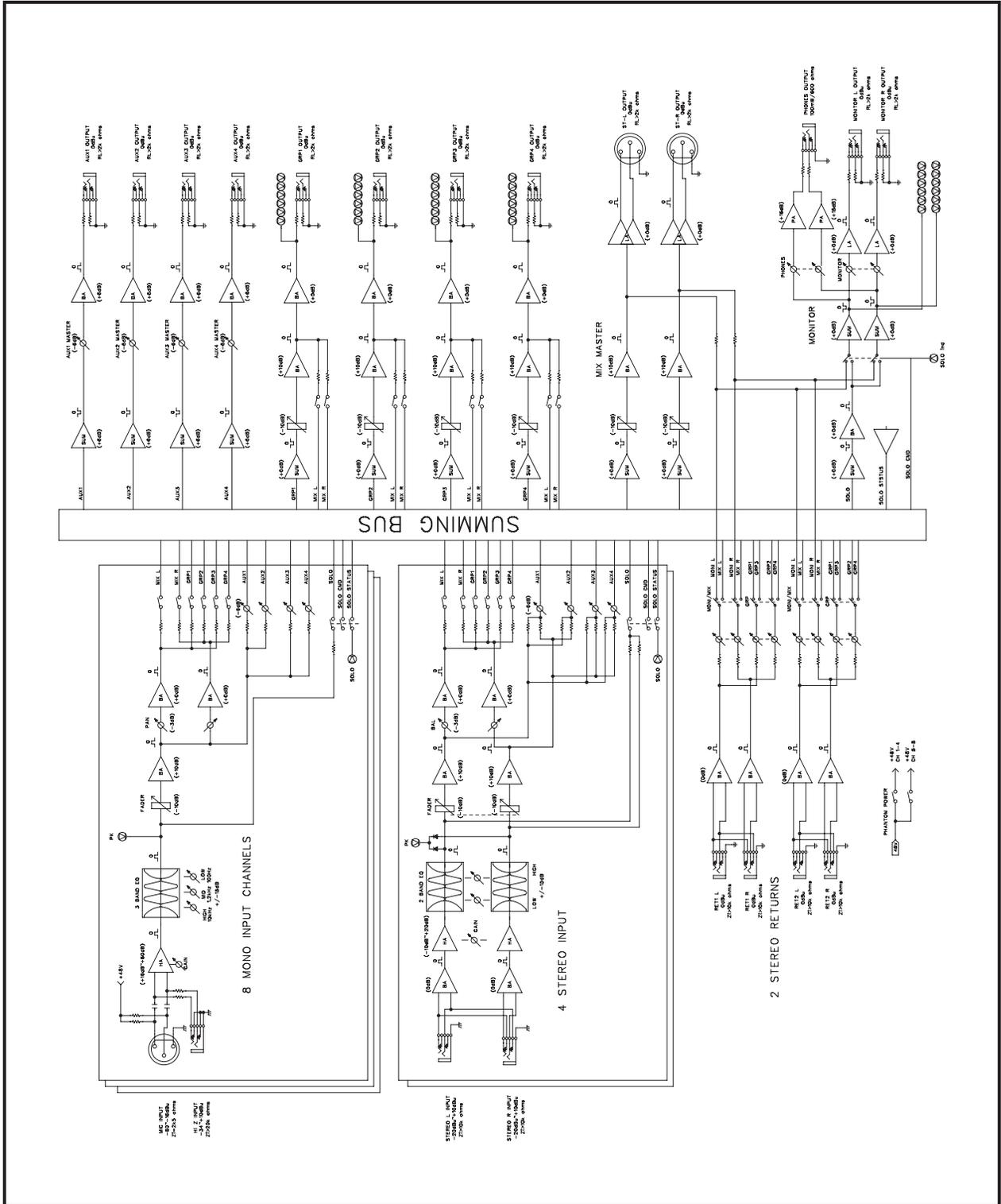
10. AC INLET

Please make sure enclosed power cable matches your AC outlet type.

Applications



Block Diagram



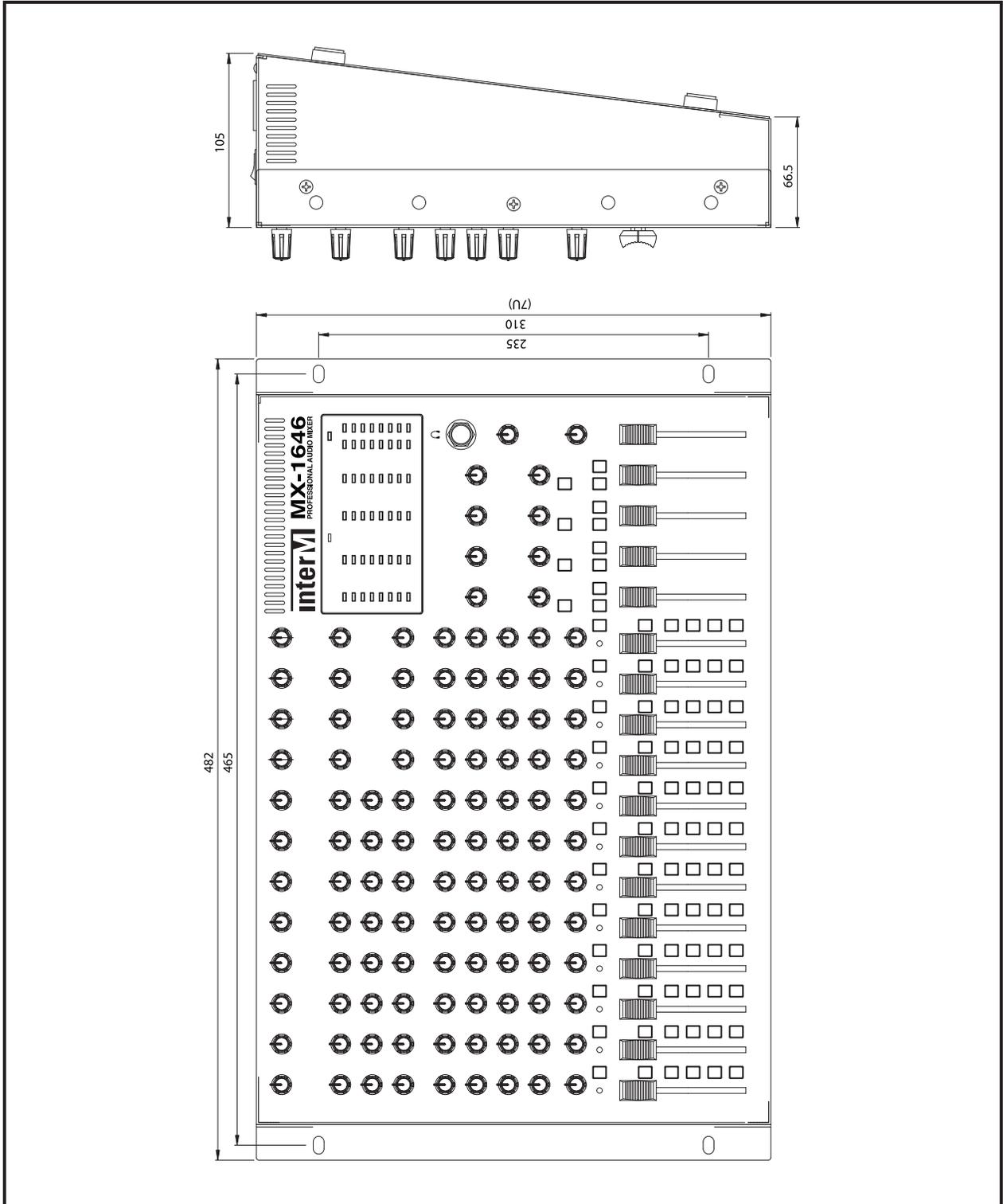
Specifications

*0dBu=0.775V

MX-1646		
INPUT		
MIC INPUT	XLR3 type female Electrically Balanced	
Input Impedance	>2.2kΩ	
Nominal level	-60dBu to -16dBu	
Hi-Z INPUT	TRS Jack socket Electrically Balanced	
Input Impedance	>50kΩ	
Nominal level	-34dBu to +10dBu	
STEREO INPUT	TRS Jack socket Electrically Balanced	
Input Impedance	>10kΩ	
Nominal level	-20dBu to +10dBu	
RETURN INPUT	TRS Jack socket Electrically Balanced	
Input Impedance	10kΩ	
Nominal level	0dBu(+20dBu max)	
OUTPUT		
MIX OUTPUT	XLR3 type male Electrically Balanced	
Minimum load	>600Ω	
Nominal level	0dBu (+20dBu max)	
GROUP OUTPUT	TRS Jack socket Unbalanced	
Minimum load	>2kΩ	
Nominal level	0dBu (+20dBu max)	
AUX OUTPUT	TRS Jack socket Unbalanced	
Minimum load	>2kΩ	
Nominal level	0dBu (+20dBu max)	
MONITOR OUTPUT	TRS Jack socket Unbalanced	
Minimum load	>2kΩ	
Nominal level	0dBu (+20dBu max)	
PHONES OUTPUT	TRS Jack socket Unbalanced	
Minimum load	>35Ω	
Nominal level	100mW / 600Ω	
PHANTOM POWER	XLR 3 type female	
Output Voltage	DC +48V	
TYPICAL PERFORMANCES		
Frequency Response	± 1dB (20Hz to 20kHz, MIC to Mix O/P +60dB input gain)	
NOISE (MIC EIN)	< -125dBu (MIC to Mix +60dB input gain with 150 ohms termination A-weight)	
Distortion	< 0.1% (1kHz MIC to MIX with +16dB input gain at +20dBu output)	
Channel Equalizer (Mono)	High	10kHz, ± 15dB Shelf
	Mid	1.2kHz, ± 15dB Peak
	Low	100Hz, ± 15dB Shelf
Channel Equalizer (Stereo)	High	10kHz, ± 15dB Shelf
	Low	100Hz, ± 15dB Shelf
Operating Temperature Range	-10°C~+35°C	
Humidity	0~90% @35°C	
Power Source	AC 100V to 240V, 50Hz / 60Hz	
Power Consumption	25W	
Dimensions	482(W)x105(H)x310(D)mm / 18.98(W)x4.14(H)x12.21(D)in	
Weight	5.78kg/12.74lb	

* Specifications and design subject to change without notice.

Dimensions



Service

Procedures

Take steps to insure the problem is not related to operator error or other products within the systems. Information provided in the troubleshooting portion of this manual may help with this process. Once it is certain that the problem is related to the product contact your warranty provider as described in the warranty section of this manual.

Schematic

A Schematic is available by contacting your warranty provider.

Parts List

A Parts List is available by contacting your warranty provider.

Variations and Options

Variations

Products supplied through legitimate source are compatible with local AC power requirements.

Options

No Optional items are available for this product.

Warranty

Warranty terms and conditions vary by country and may not be the same for all products. Terms and conditions of warranty for a given product may be determined first by locating the appropriate country which the product was purchased in, then by locating the product type.

To obtain specific warranty information and available service locations contact Inter-M directly or the authorized Inter-M Distributor for your specific country or region.

interM



Inter-M, Ltd. (Korea) began operations in 1983.

Since then, Inter-M has grown to become one of the largest manufacturers of professional audio and commercial sound electronics equipment in the world.

Inter-M has gained worldwide recognition for its own branded products, as well as private label manufacturing of electronics sold under other names (OEM).

The company is no longer just a Korean company, but rather a global company that is truly international in scope, with factories and offices in Korea and China, and sales and marketing operations located in Japan, Europe, and the U.S.A.

With more than 850 employees around the globe, Inter-M is well-poised for further growth and expansion.

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