Operation Manual

Digital Speaker Processor

DSP-48



inter M

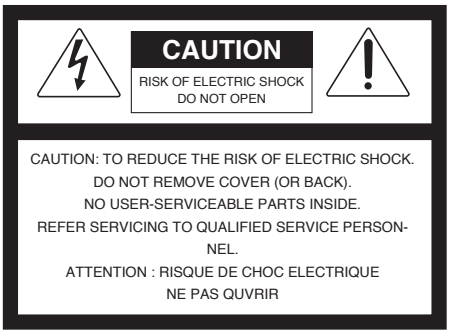
Welcome

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!





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 on une autre sortie de courant, sauf si les lames peuvent étre insérées à fond sans en laisser aucune partie à découvert.
Pour deconnecter completement l’appareil du reseau d’alimentation. deconnecter le cordon d’alimentation de la prise murale.
La prise du reseau d’alimentation doit demeurer aisement accessible.

WARNING

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

*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 than objects do not fall and liquids are not spilled into the enclosure through openings.
*Do not install this equipment in a confined space such as a book case or similar unit.
*Warning : To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture and objects filled with liquids, such as vases,
should not be placed on this apparatus.
*This apparatus shall be connected to a mains socket outlet with a protective earthing connection.
*To completely disconnect this apparatus from the AC mains, disconnect the power supply cord plug from the AC receptacle.
*The mains plug of the power supply cord shall remain readily accessible.

CAUTION
*These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

NOTE
*This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Contents

Unpacking 2

Installation
- Environment 2
- Important Safety Instructions 2

Features 3

Contents and Accessories 3

Front Panel 4

Rear Panel 7

Applications 9

Block Diagram 10

Specifications 12

Service
- Procedures 15
- Schematic 15
- Parts List 15

Variations and Options 15

Warranty 15

Unpacking

Although your DSP-48 is neither complicated nor difficult to operate, we recommend you take a few minutes to read this brief manual and familiarize yourself with the important information regarding product features, setup and operation.

As with most electronic devices, we strongly recommend you retain the original packaging. In the unlikely event the product must be returned for servicing, the original packaging (or reasonable equivalent) is required.

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.


S3125A

Features

- HIGH PERFORMANCE AUDIO INPUT AND OUTPUT
The DSP-48 consists of 4 in, 8 out XLR balanced I/O, and offers high-performance audio with dynamic range of 108 dB or higher and frequency response characteristics with 24-bit 96 kHz sampling rate and 32-bit floating point DSP processing technology.

- VARIOUS DSP FEATURES
Various input/output DSP functions are available, including delay, 8-band PEQ, 31-band GEQ, compressor, matrix, crossover, limiter, gain, and mute.

- DISPLAY INPUT/OUTPUT LEVEL METER
The front LED shows the signal level of the input/output channel.

- EQUIPMENT CONTROL VIA FRONT INTERFACE (OLED AND CONTROL BUTTONS)
The front OLED DISPLAY and control buttons allow you to control the equipment, and each channel has a mute button to mute the desired channel.

- PRESET AND EQUIPMENT LOCK FUNCTION
After you set the DSP value, you can save up to 50 settings as a preset. When saved, the preset name supports alphanumeric characters, numbers, etc., and the saved date and time information are also stored. It also has a lock function to prevent you from changing the value you set. The lock function can be released by entering a user-set 6-digit password.

- GUI REMOTE CONTROL FEATURES
In addition to front interface control, remote control via wired Ethernet is possible. Integrated control GUI software provides equipment control wherever the Ethernet network is connected.

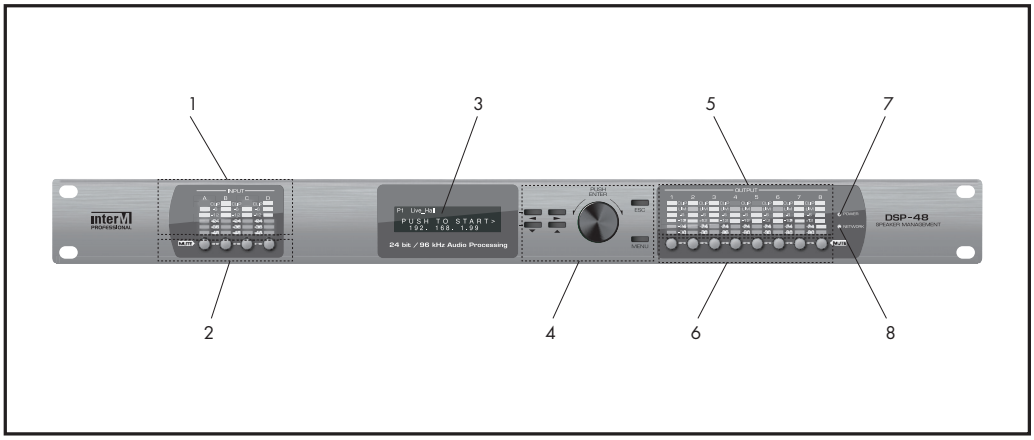
- SAVE INSTALLATION SPACE
The standard 19-inch, 1U size enables efficient use of space when installing a rack.

- CONTACT INPUT
The two-pin euro terminal block allows the input of the contacts. All channels will be muted upon contact input. It operates in a dry contact manner.

Contents and Accessories

1. AC cord x 1EA
2. User's manual x 1EA
3. Euroblock Terminal (5 mm pitch, 2 pin) x 1EA
4. Rack mounting screw x 4 EA

Front Panel



1. INPUT CHANNEL LEVEL METER

Displays the input channel-specific level meter in dBFS scale.

Range	LED	Display
0 dBFS	Red	CLIP
-6 dBFS	Yellow	-6
-12 dBFS	Yellow	-12
-24 dBFS	Green	-24
-36 dBFS	Green	-36
-48 dBFS	Green	-48

2. INPUT CHANNEL MUTE BUTTON AND STATUS LED

Displays and controls the mute status by input channel.

Status	LED Color	LED Light
Mute	Red	ON
Unmute	Red	OFF

3. OLED DISPLAY

Display DSP configuration information, product information, network information, etc.

4. MANIPULATION

It is an interface that manipulates the settings of the equipment in conjunction with the display.

Item	Function	Type	Display
Function of previous DSP	Changing DSP function (Decreasing parameter values)	Tact Switch	◀
Function of next DSP	Changing DSP function (Increasing parameter values)	Tact Switch	▶
Previous Channel	Changing channel (Micro-increasing of parameter value)	Tact Switch	▲
Next Channel	Changing channel (Micro-decreasing of parameter value)	Tact Switch	▼
Select/Adjust	Item select/adjust	ENCODER	ENCODER
Confirm	Confirm select/adjust	ENCODER(Tact)	PUSH
Termination	Termination of control	Tact Switch	ESC
Menu	Run Menu	Tact Switch	MENU

5. OUTPUT CHANNEL LEVEL METER

Displays the output channel-specific level meter in dBFS scale.

Range	LED Color	Display
0 dBFS	Red	CLIP
Set Limit value	Orange	LIMIT
-6 dBFS	Yellow	-6
-12 dBFS	Yellow	-12
-24 dBFS	Green	-24
-36 dBFS	Green	-36

6. OUTPUT MUTE BUTTON AND STATUS LED

Displays and controls the mute status by output channel.

Status	LED Color	LED Light
Mute	Red	ON
Unmute	Red	OFF

7. NETWORK STATUS LED

Displays the network status of the equipment.

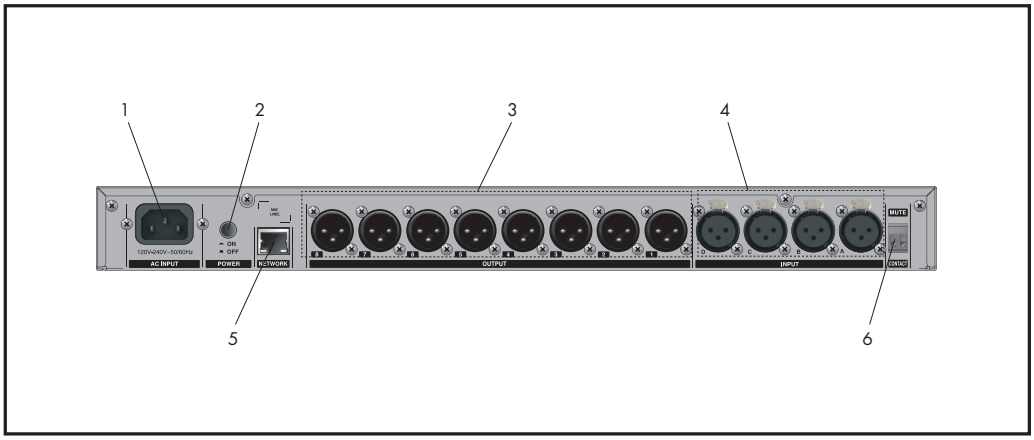
Status	LED Color	LED Light
Ethernet OFF	Green	OFF
Ethernet ON	Green	ON
Data communication	Green	Blink

8. POWER STATUS LED

Displays the power status of the equipment.

Status	LED Color	LED Light
Power OFF	Blue	OFF
Power ON	Blue	ON

Rear Panel



1. AC POWER INPUT TERMINAL

This is the terminal that connects the AC cord and inputs power to the product.

2. POWER SWITCH

A power switch that powers ON or OFF a product.

3. AUDIO OUTPUT TERMINAL

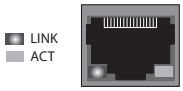
A terminal that outputs audio.

4. AUDIO INPUT TERMINAL

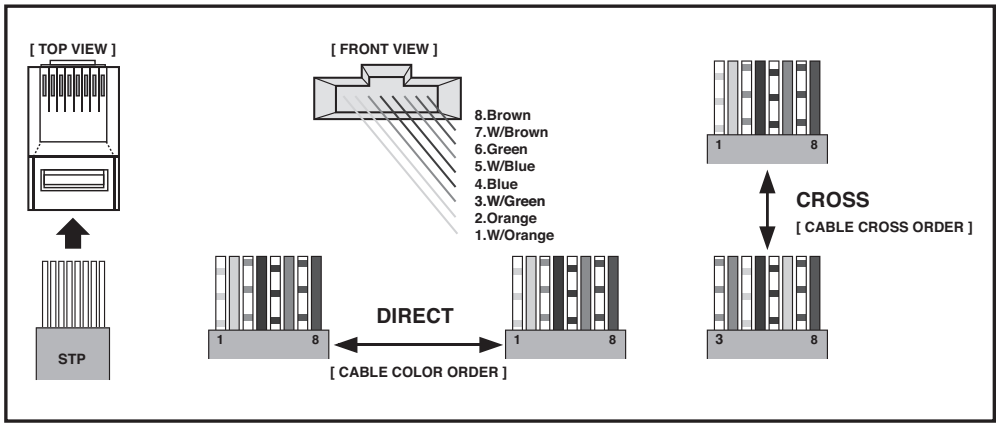
This is the terminal that receives audio input.

5. NETWORK CONNECTION TERMINALS AND STATUS LEDS

The terminal that connects the product's Ethernet network.



	<100 Base-T>		<1G Base-T>
PIN NO	Function	PIN NO	Function
1	TXP	1	MX(0)+
2	TXN	2	MX(0)-
3	RXP	3	MX(1)+
4	NA	4	MX(2)+
5	NA	5	MX(2)-
6	RXN	6	MX(1)-
7	NA	7	MX(3)+
8	NA	8	MX(3)-



Status	Status	LED Color	LED Light
LINK	Ethernet OFF	Green	OFF
	Ethernet ON	Green	ON
ACT	Ethernet OFF	Yellow	OFF
	Ethernet ON	Yellow	ON
	Data Communication	Yellow	Blink

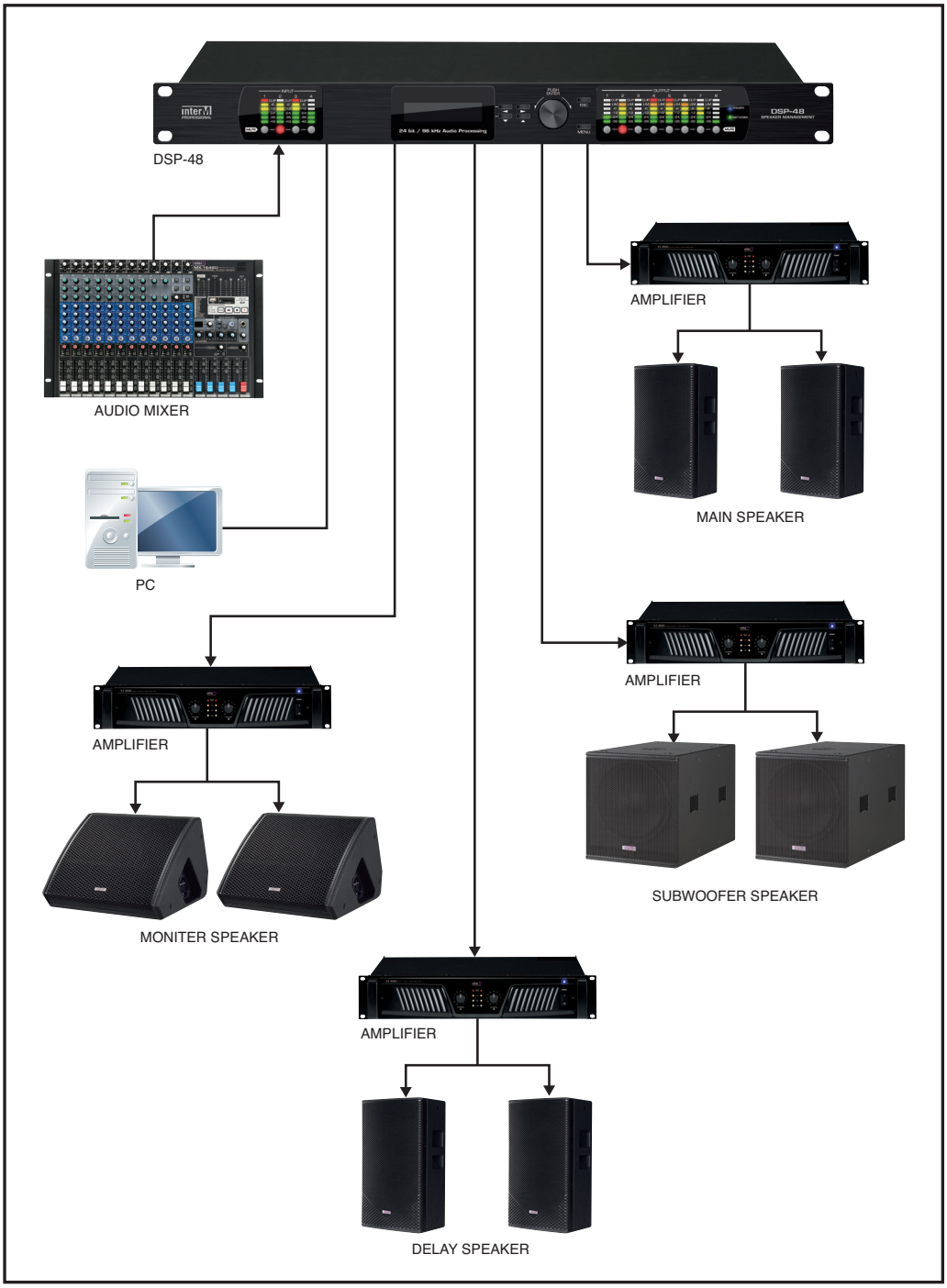
6. CONTACT INPUT TERMINAL

All audio outputs are muted when the contacts are switched on to the Dry Contact input terminal.

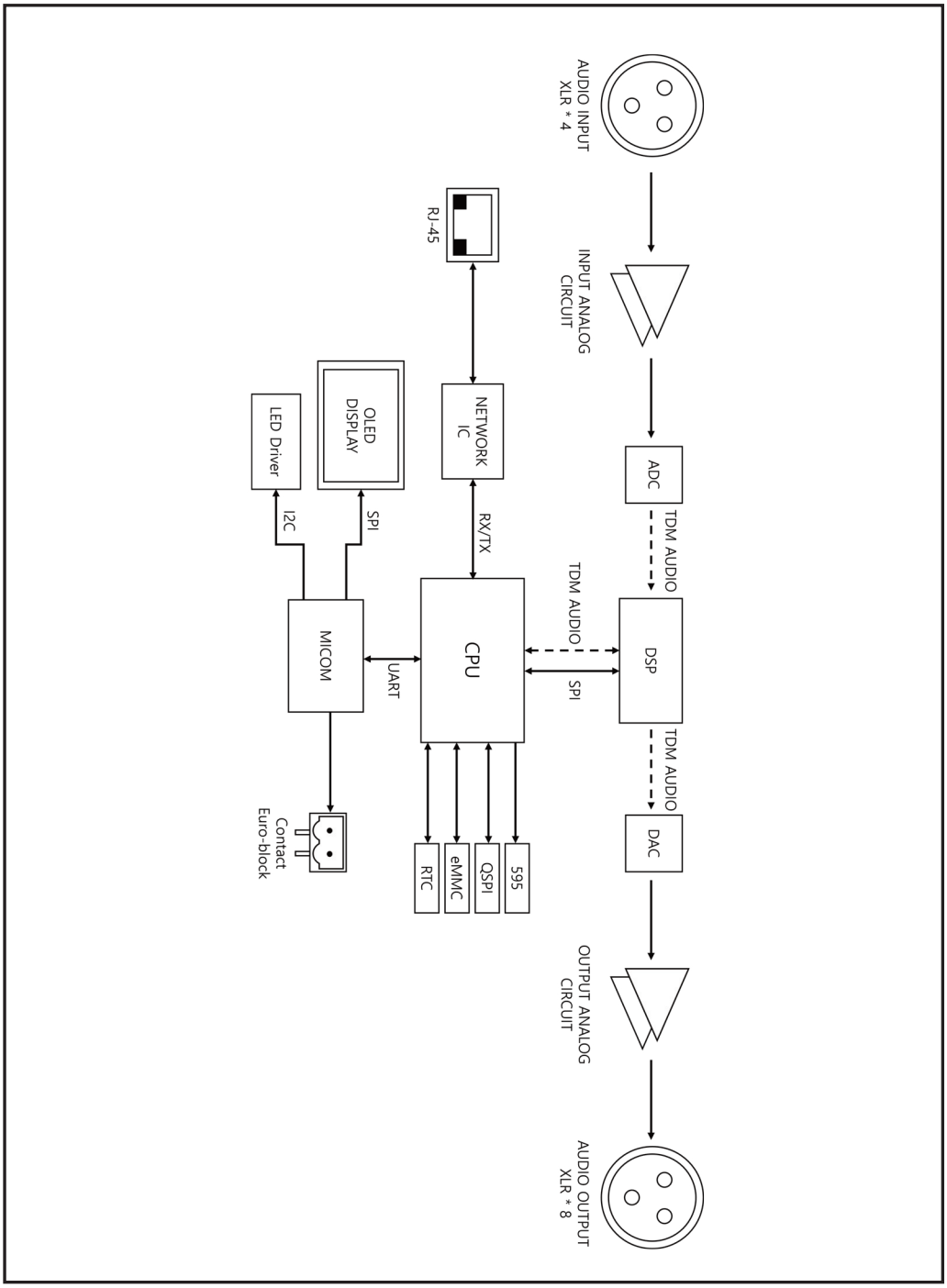
Status	Terminal block pin #
CONTACT	2
GND	1

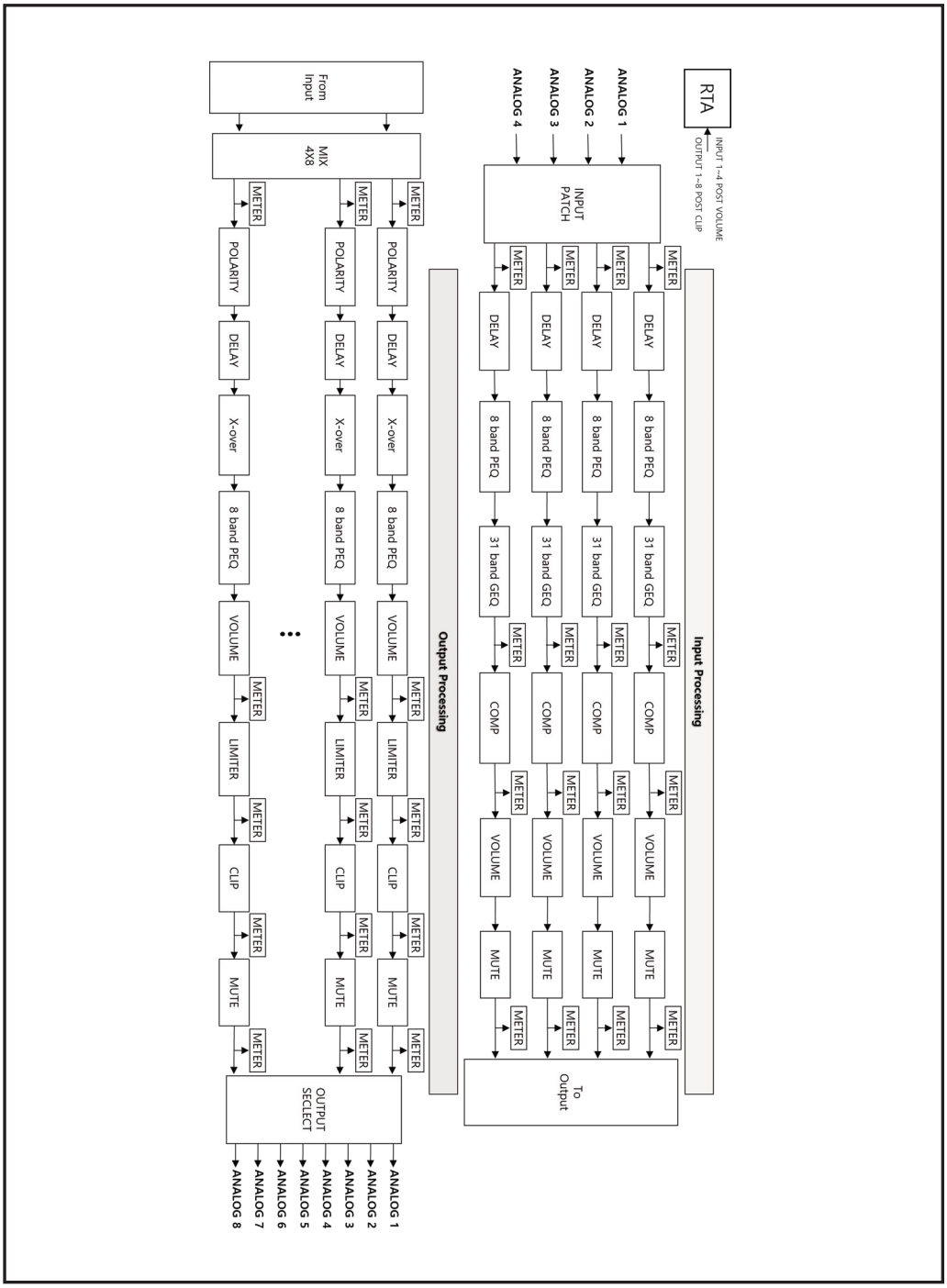
※ Refer to the software manual for operation descriptions

Applications



Block Diagram



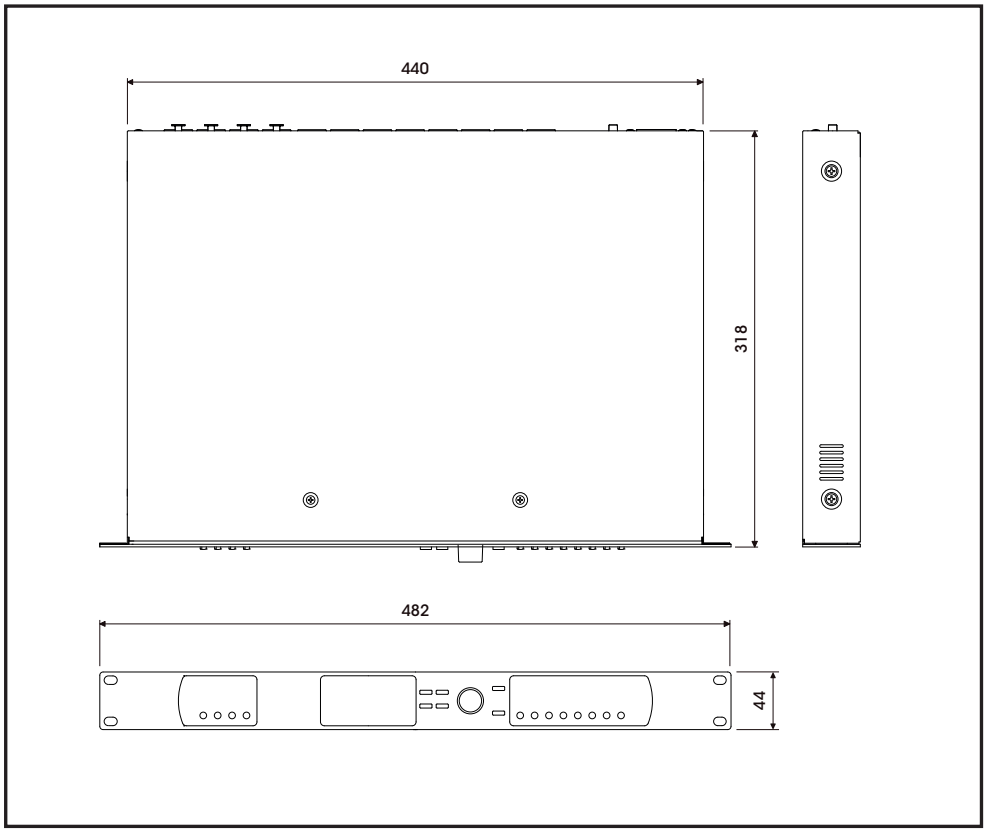

RTA
INPUT 1~4 POST VOLUME
OUTPUT 1~8 POST CLIP
ANALOG 1
ANALOG 2
ANALOG 3
ANALOG 4
INPUT PATCH
Input Processing
METER
DELAY
8 band PEQ
31 band GEQ
COMP
VOLUME
MUTE
To Output
Output Processing
From Input
MIX 4X8
POLARITY
X-over
LIMITER
CLIP
OUTPUT SECLECT
ANALOG 1
ANALOG 2
ANALOG 3
ANALOG 4
ANALOG 5
ANALOG 6
ANALOG 7
ANALOG 8

Specifications

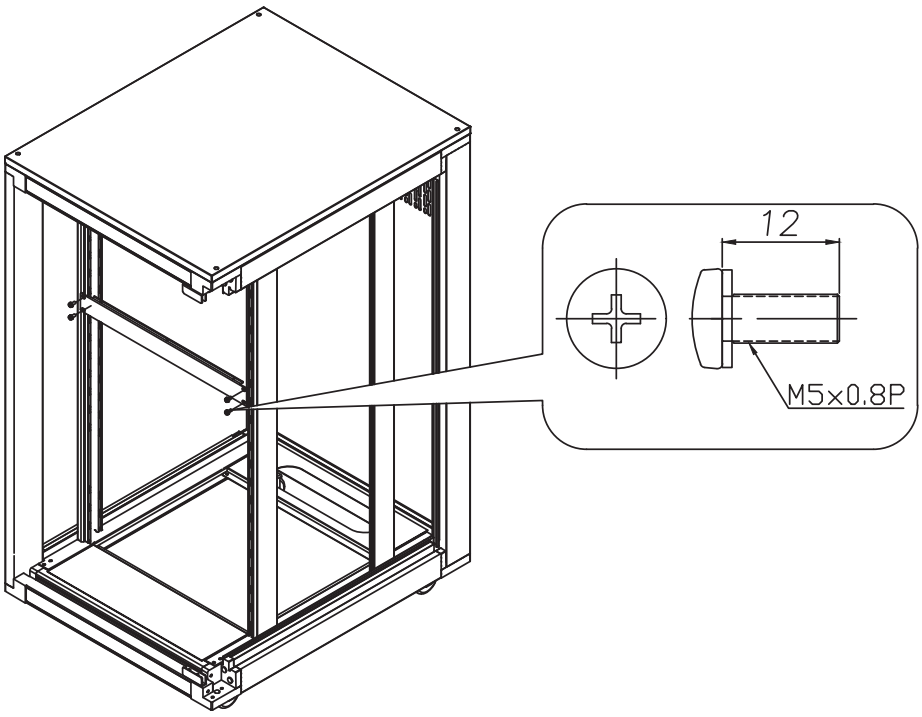
	DSP-48
Audio processing	
AD/DA conversion	24-bit
Sampling frequency	96kHz
Signal processing	32-bit floating point
Propagation delay	< 3ms
A/D Dynamic range	< 118dB
D/A Dynamic range	< 118dB
Dynamic range (Input to Output)	> 108dB, A-weighting filter
Headroom	20dB
Frequency response	±0.5dB, 20Hz ~ 20kHz
THD	< 0.005 % @ 1 kHz, Rated output level
Crosstalk	< -90dB @ 20Hz ~ 20kHz
CMRR	> 40dB @1kHz
Analog Audio Input	
Input	Balanced Line
Connector	Female XLR
Input impedance	> 10kΩ
Nominal level	+4 dBu
Max input	+24 dBu
Analog Audio Output	
Output	Balanced Line
Connector	Male XLR
Load impedance	> 2kΩ
Source impedance	< 100Ω
Nominal level	+4dBu
Max output	+24dBu @THD 0.5%
General	
Ethernet	1 Port, RJ45, 100/1000BASE-TX
Operating Temperature	-10℃ ~ 40℃
Operating Voltage	AC 120-240V, 50/60Hz, 0.3A
Power Consumption	< 20W
Weight (SET)	3.5kg
Dimensions (SET)	482(W) x 44(H) x 318(D)mm

* Design and specification are subject to be changed for the improvement of product quality without pre notice.

※ DIMENSIONS



Instructions for use of screws



This product can be used on a table or fixed to a rack.
However, be sure to observe the installation precautions below when using it in a rack.

1. Place the product in an empty area of the rack.
2. Using the included mounting screws, tighten the 4 mounting holes so that there are no voids and fix them.
3. Please proceed with the wiring for the operation of the product, and apply the power last.
4. Disassemble in the reverse order of the above procedure.
5. In case of fixing by not using the included screws or screws of the same size, or using insufficient number of screws the manufacturer is not responsible for any safety accidents caused by this.

Accessories included for fixing the product
- Specification: SCREW M5x0.8P, L=12
- Quantity: 4pcs

Service

Procedures
Take steps to insure the problem is not related to operator error or other products within the system. 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 sources 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.

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.

Inter-M Corporation
SEOUL OFFICE : 719, DOBONG-RO, DOBONG-GU, SEOUL, KOREA
TEL : +82-2-2289-8140~8, FAX : +82-2-2289-8149
Home Page : http://www.inter-m.com, E-mail : overseas@inter-m.com

MADE IN KOREA
August 2023 158545