# Operation Manual

Audio Matrix Controller

## NPX-8000

interM

# 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 être 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

**Front Panel** ..... 4

**Rear Panel** ..... 6

**Operation** ..... 10

**System Configuration Example** ..... 15

**Block Diagram** ..... 16

**Specifications** ..... 17

**Service**
- Procedures ..... 19
- Schematic ..... 19
- Parts List ..... 19

**Variations and Options** ..... 19

**Warranty** ..... 19

# Unpacking

Although your NPX-8000 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.

# Features

- **DISTRIBUTED CONTROL MATRIX SYSTEM FOR BGM BROADCAST**
  This is the audio matrix system that can control 8 BGM to 8 different regions.

- **INSTALLATION SPACE SAVER.**
  With 1U compact size design, you can use space efficiently.

- **FLEXIBLE EXPANDABILITY**
  It is easy to expand from small areas to massive areas.

- **VARIOUS WALL PLATE**
  Multiple choices are available depending on the field of analog/network wall plates or audio input wall plates.

- **CONTACT CLOSURE CONTROL**
  You can control the device from the external using 8 contact closures in/out, Music Mute C.C. and EXT contact closure port.

- **REMOTE CONTROL**
  Remote control for audio output volume, recall the presets and mute is available using CAN communication and PC application. (MP-8000)

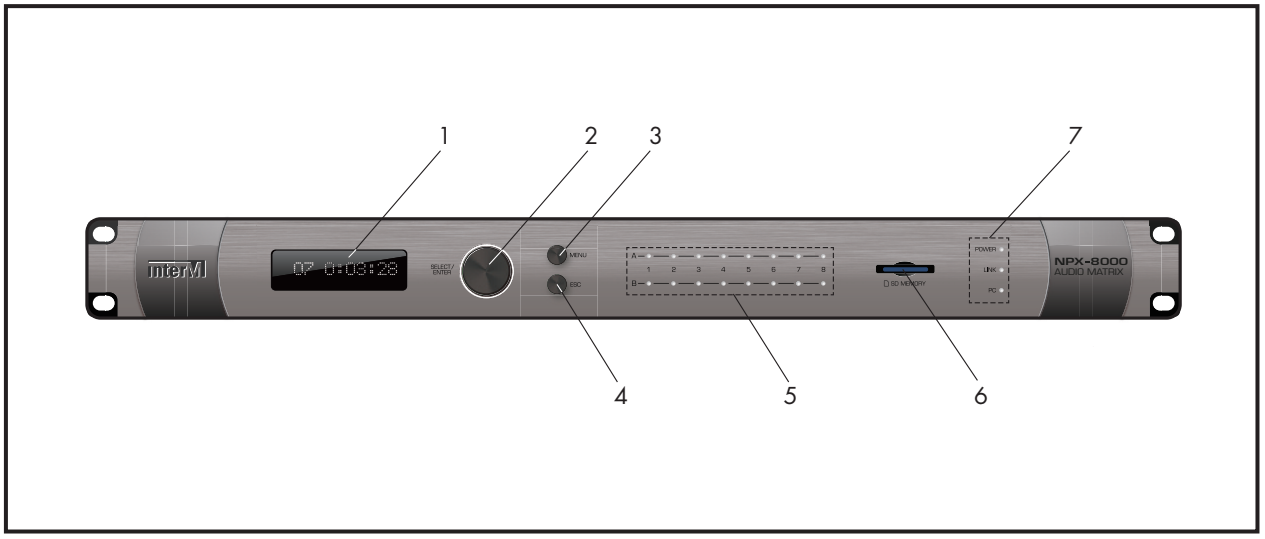
- **SCHEDULE BROADCAST**
  You can control output according to the preset schedules.

- **SD CARD PLAY**
  You can play MP3 files on a SD Card.

- **Monitor output**
  You can monitor the channel selected on the control PC.

- **High performance DSP**
  There is no need for a separate processor device because of the built-in high performance DSP. (Digital Signal Processor)

# Front Panel




**1. DISPLAY (128X32/2.23INCH/OLED)**
OLED Display screen allows the user to check the status and control value of the device.

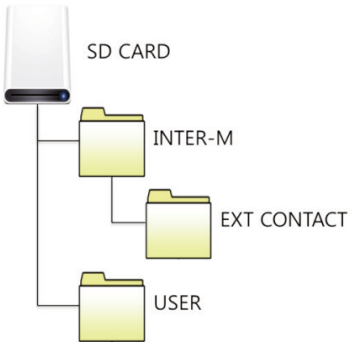
**2. SELECT/ENTERSWITCH (ROTARY-PUSH & ENCODER SWITCH)**
You can select the desired menu by pressing or turning the SELECT/ENTER switch.

**3. MENUBUTTON (MOMENTARY SWITCH)**
Pressing the Menu button, LCD screen shows menu.

**4. ESC BUTTON (MOMENTARY SWITCH)**
Press the ESC button to move to the previous menu.

**5. AUDIO INPUT/OUTPUT STATUS LED**
The input or output status of the audio in/out module's channel on the rear of device is displayed.
- Audio Input : Green LED
- Audio Output : RED LED
- Audio Mute : LED off

**6. SD MEMORY CARD SLOT**
You can insert a SD card containing the sound source files.
Insert the memory card, press it until it clicks.
- It support max 32GB SD card.
- Only MP3 format is available. The other files except the MP3 format is not recognized.
- Please save the MP3 files in the USER folder on the SD card. If the folder name is not USER, the files will not be recognized. MP3 filename should not exceed 80 characters in english. (40 in 2-byte character)

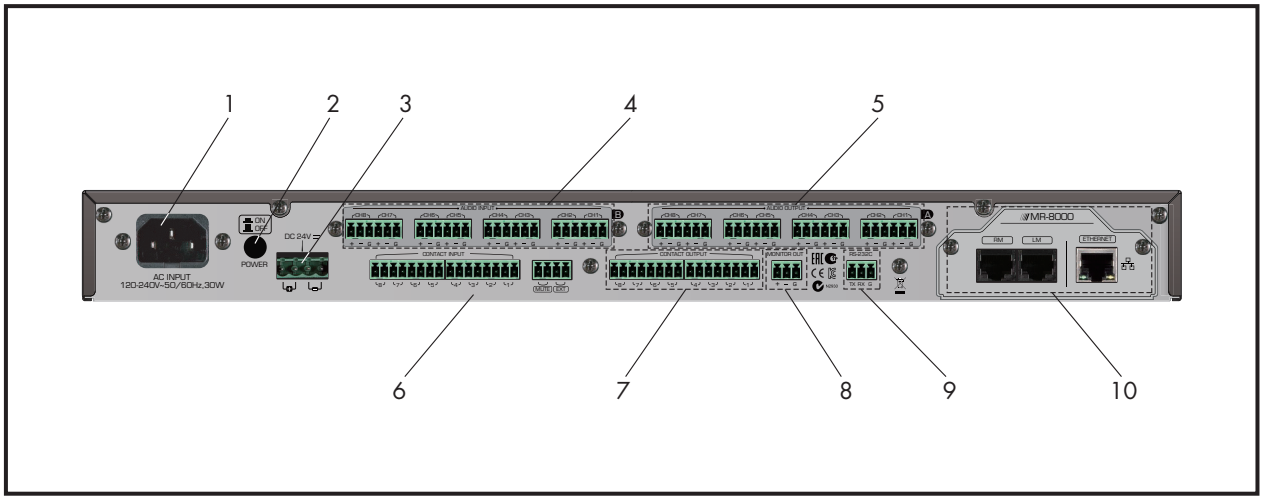


**7. STATUS INDICATOR LED**

- Power LED: Apply the power and press the back switch, LED will be turn on.
- LINK LED: If connections are correctly with NLM-8000A/C, NRM-8000A, LED will be blink.
- PC LED: If connections are correctly with MP-8000 (PC application), LED will be blink.

※ Disconnecting with MP-8000 from normal connection, LED will be turn off after 10 seconds. If you want to link again, you have to reboot MP-8000. Refer to MP-8000 manual for connecting with MP-8000.

# Rear Panel




**1. AC INPUT**

It is connector for power cable. Do not bend, pull, heating or cut cable. Damage to cable may cause fire and electric shock.

**2. POWER SWITCH**

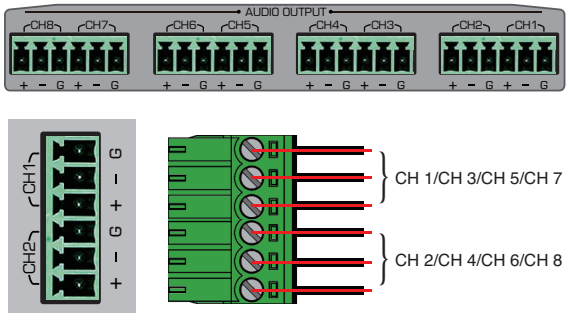
It is switch to turn on and off device.

**3. DC 24V INPUT CONNECTOR**

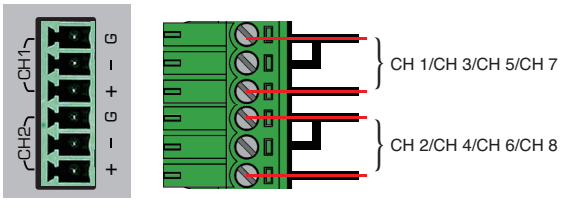
It is connector for emergency battery(DC 24V). The equipment will operate with the connected spare battery when the AC power is encountered. The Device is always turn on when DC 24V power is applied.

**4. 8 CHANNEL AUDIO OUTPUT TERMINAL**

This is an 8 channel audio output terminal. It put the signal of selected channel out by the setting of NPX-8000 matrix. Please refer to the following picture about the suitable cables.




[Balanced cable]

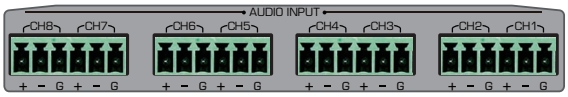


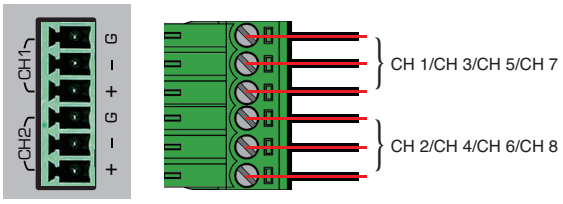

[Unbalanced cable]

※ Refer to MP-8000's manual for setting.

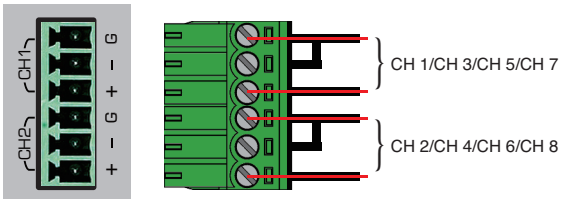
## 5. 8 CHANNEL AUDIO INPUT TERMINAL

This is an 8 channel audio input terminal. It can input several audio sources (e.g.CD, tuner, mics, etc) and control gain from -4dB~+60dB with phantom power. Please refer to the following picture about the suitable cables.




[Balanced cable]

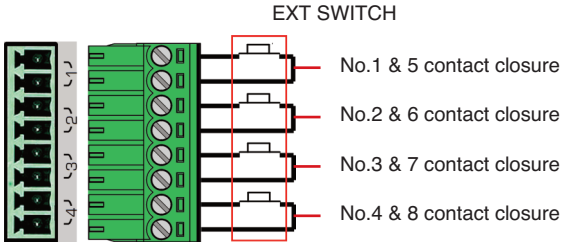


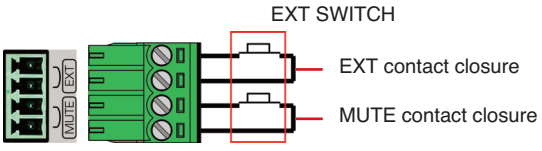

[Unbalanced cable]

※ Refer to MP-8000's manual for setting.

## 6. CONTACT CLOSURE INPUT

- 8 channel contact closure input : When the contact closure signal is received, device will be operated by MP-8000's preset.
- Mute: When the contact closure is received, audio output will be mute.
- EXT: When contact closure signal is entered, play a specific file on the SD card. Refer to blow to connect.

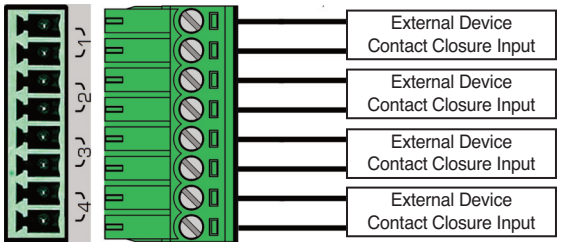



※ Refer to MP-8000's manual for setting.

## 7. 8 CHANNEL CONTACT CLOSURE OUTPUT

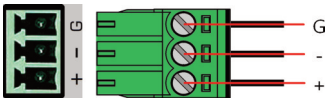
Contact closure signal is send by MP-8000's preset. Refer to below to connect.



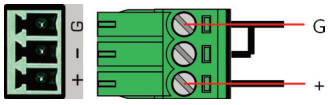

※ Refer to MP-8000 manual to setup.

**8. MONITOR OUTPUT**

It is a port for monitoring of audio input & output. You can monitor input or output channel selected on MP-8000. Refer to below to connect.




[Balanced cable]

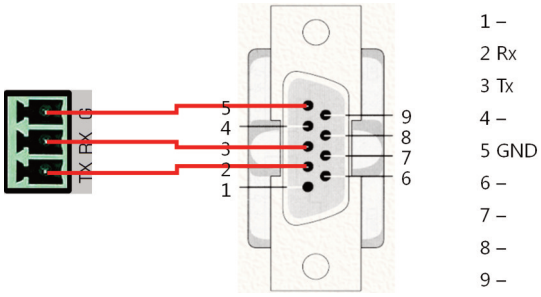



[Unbalanced cable]

※ Refer to MP-8000 manual to setup.

**9. RS-232C PORT**

It is a external control port by RS-232. Refer to below to connect.

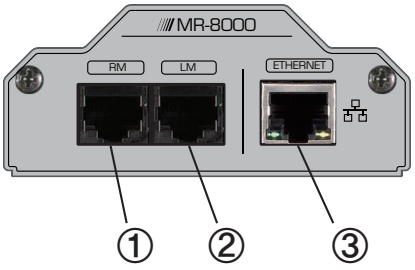



1 –
2 Rx
3 Tx
4 –
5 GND
6 –
7 –
8 –
9 –

※ Contact customer center for detail of external control port.

**10. NETWORK PORT**

It is for connecting NLM-8000A/C and NRM-8000A with NPX-8000. It supports the Ethernet network for link with MP-8000 (PC program).



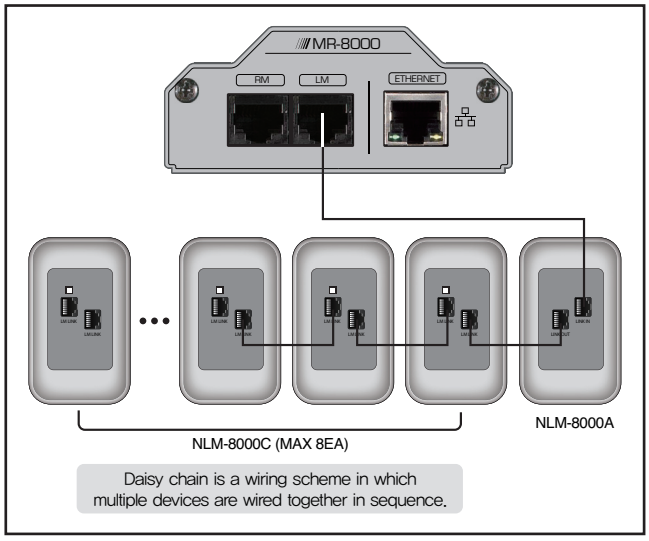

① RM PORT
- It is for NRM-8000A connection. It can be connected with a NRM-8000A.
- Using CIA-1, up to 4 NRM-8000A devices can be connected to one NPX-8000 unit. Refer to the CIA-15 manual for detailed connection instructions.

<RJ 45 Pin Description>

| NO | Description | 6 | N.C |
|---|---|---|---|
| 1 | CAN H | 7 | Audio Out+ |
| 2 | CAN L | 8 | Audio Out- |
| 3 | N.C | | |
| 4 | DC 40V | | |
| 5 | GND | | |

※ Use only direct cable to link with each devices.
※ It is recommended CAT 5E DCR with less than 9.8Ω/100m.

② LM PORT
- It is the port for link with NLM-8000C and NLM-8000A. It can be connected with NLM-8000C up to 8 devices and a NLM-8000A by daisy chain connectivity.




<RJ 45 Pin Description>

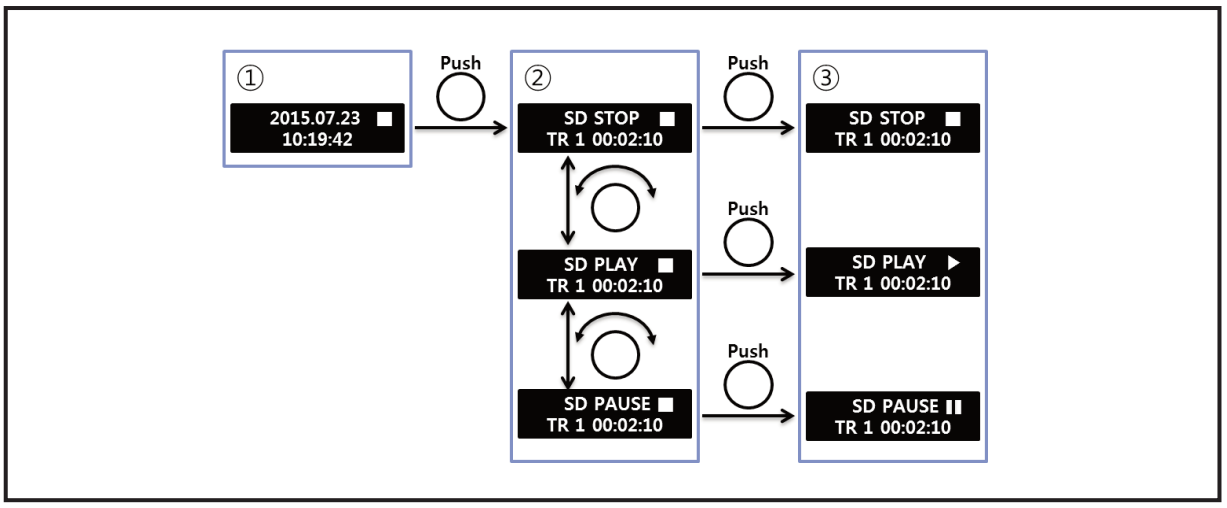
| NO | Description |
|---|---|
| 1 | CAN H |
| 2 | CAN L |
| 3 | N.C |
| 4 | DC 40V |
| 5 | GND |
| 6 | N.C |
| 7 | Audio Out+ |
| 8 | Audio Out- |

※ Use only direct cable to link with each devices.
※ It is recommended CAT 5E DCR with less than 9.8Ω/100m.

③ ETHERNET PORT
- It is for control NPX-8000 with Ethernet network. You can control NPX-8000 by MP-8000 PC program.
※ Refer to MP-8000's manual for setting.

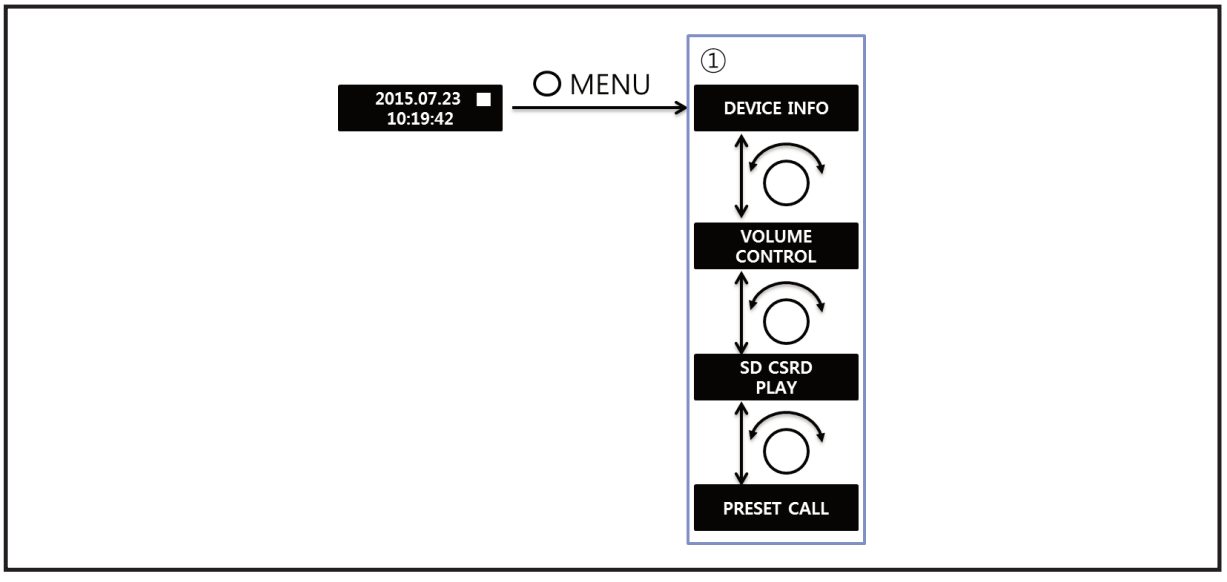
# Operation

### 1. STANDBY SCREEN




① This is the standby screen. You can see date, time and status of MP3 file play.
② Rotating the Select/Enter switch on the front of the standby screen changes the playback status of the MP3 files.
③ When the SELECT/ENTER switch is pressed in play mode, the MP3 file is played and ▶ symbol is displayed on the right.When the SELECT/ENTER switch is pressed in pause mode, the MP3 file is paused and ❙❙ symbol is displayed on the right.When the SELECT/ENTER switch is pressed in stop mode, the MP3 file is stopped and ■ symbol is displayed on the right.
④ Press ESC button in MP3 play screen to return to standby screen.
⑤ It is shown 'NO SD CARD' when there is no memory card.

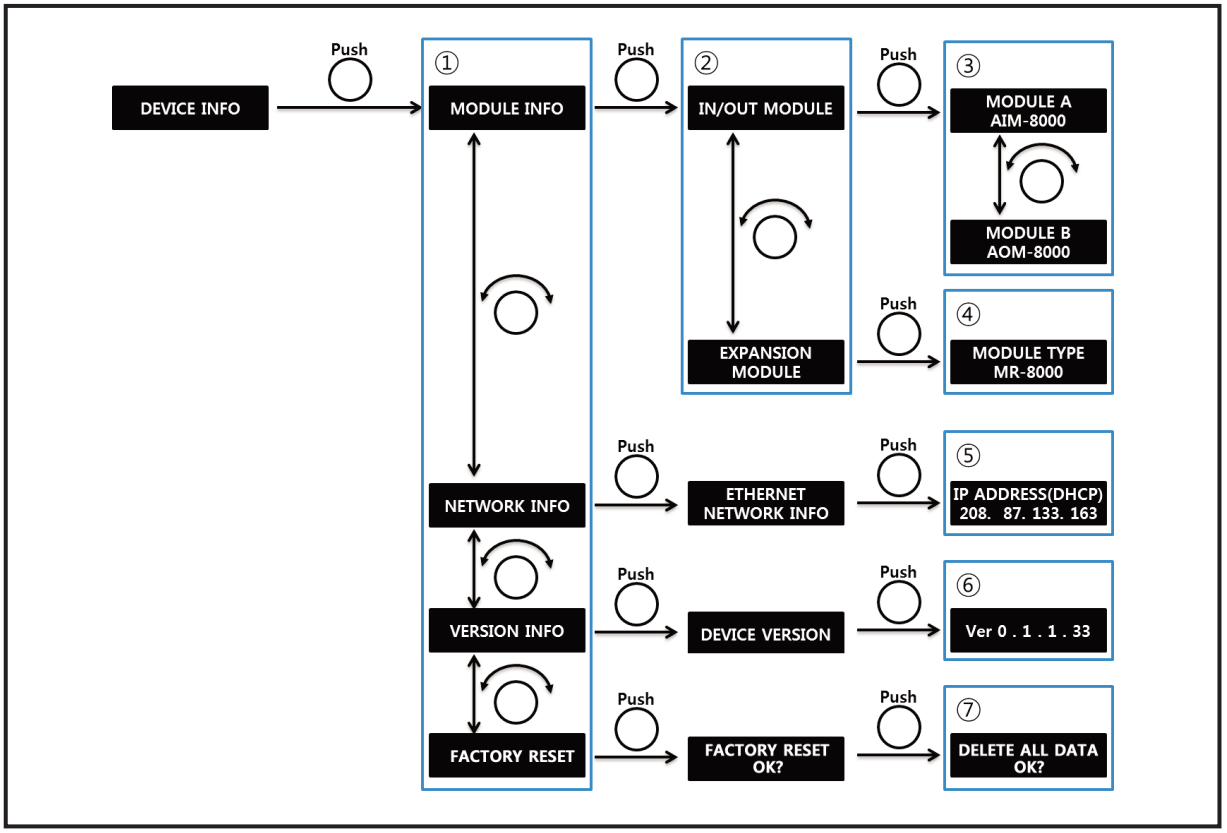
### 2. MENU



① Press the Menu button to move setup screen. Turning SELECT/ENTER switch, you can change setup menu.
② Press ESC button in Menu screen to return to standby screen.

## 2.1 DEVICE INFO

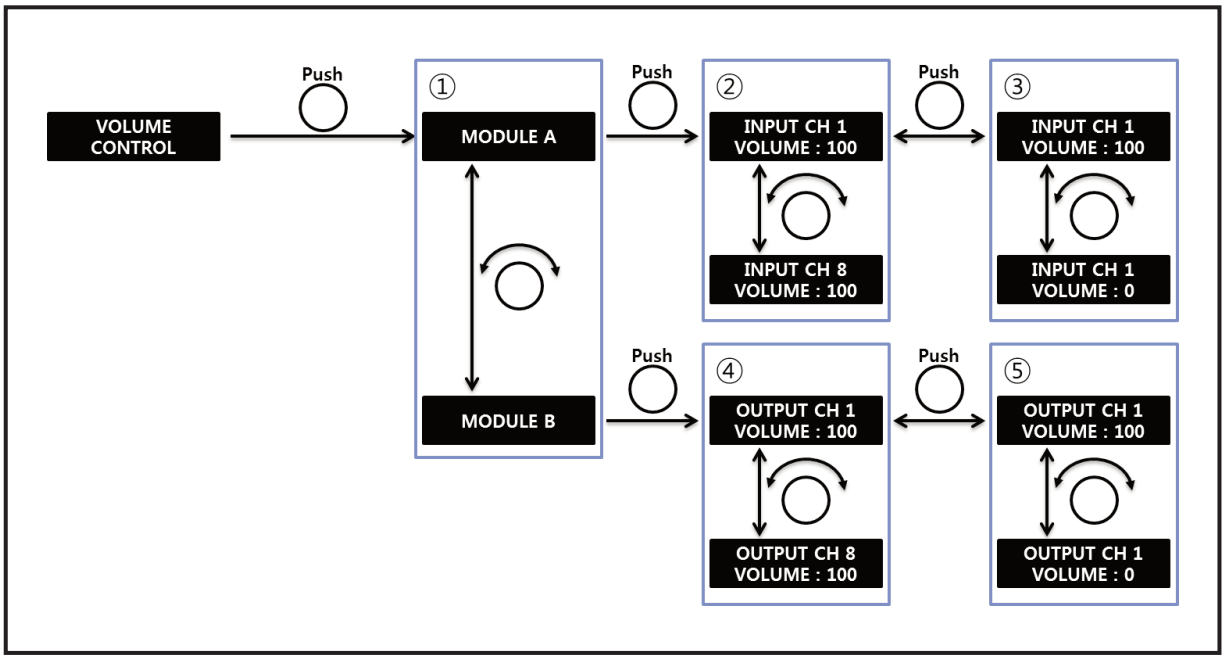
After moving to the DEVICE INFO menu, navigate to the menu, and then press the switch to view the device information.




① Rotating the SELECT/ENTER switch on the DEVICE INFO screen allows you to change the information in the info column.
② Pressing the SELECT/ENTER switch on the MODULE INFO screen displays the module selection screen to confirm.
③ Pressing the SELECT/ENTER switch on the IN/OUT MODULE screen displays the audio input/output modules installed at rear slot A and B of NPX-8000. Rotate the SELECT/ENTER switch to change the slot to confirm.
④ Pressing the SELECT/ENTER switch on the EXPANSION MODULE screen displays MR-8000.
⑤ Pressing the SELECT/ENTER switch on the ETHERNET NETWORK INFO screen displays the IP address of NPX-8000.
⑥ Pressing the SELECT/ENTER switch on the DEVICE INFO screen displays software version of NPX-8000.
⑦ Pressing the SELECT/ENTER switch on the FACTORY RESET OK screen displays DELETE ALL DATA OK. Pressing the SELECT/ENTER switch on the DELETE ALL DATA OK screen displays FACTORY RESET WAIT... and NPX-8000 will be initialization.
⑧ Press ESC button to return previous page.

## 2.2 VOLUME CONTROL

After moving the VOLUME CONTROL menu, you can adjust the device's volume by pressing the SELECT/ENTER switch.




① When turning the SELET/ENTER switch on the volume setting screen, you can change the module to adjust the volume.

② When SELECT/ENTER switch is pressed on MODULE A, the screen displays the selectable input channels. If the SELECT/ENTER switch is turned on, the channel can be changed and the channel is selected by pressing the SELECT/ENTER switch.

③ Select a input channel to control volume, then turn the SELECT/ENTER switch on to adjust volume of the channel. After adjust the volume, press the switch to return to the screen where you can select the input channel.

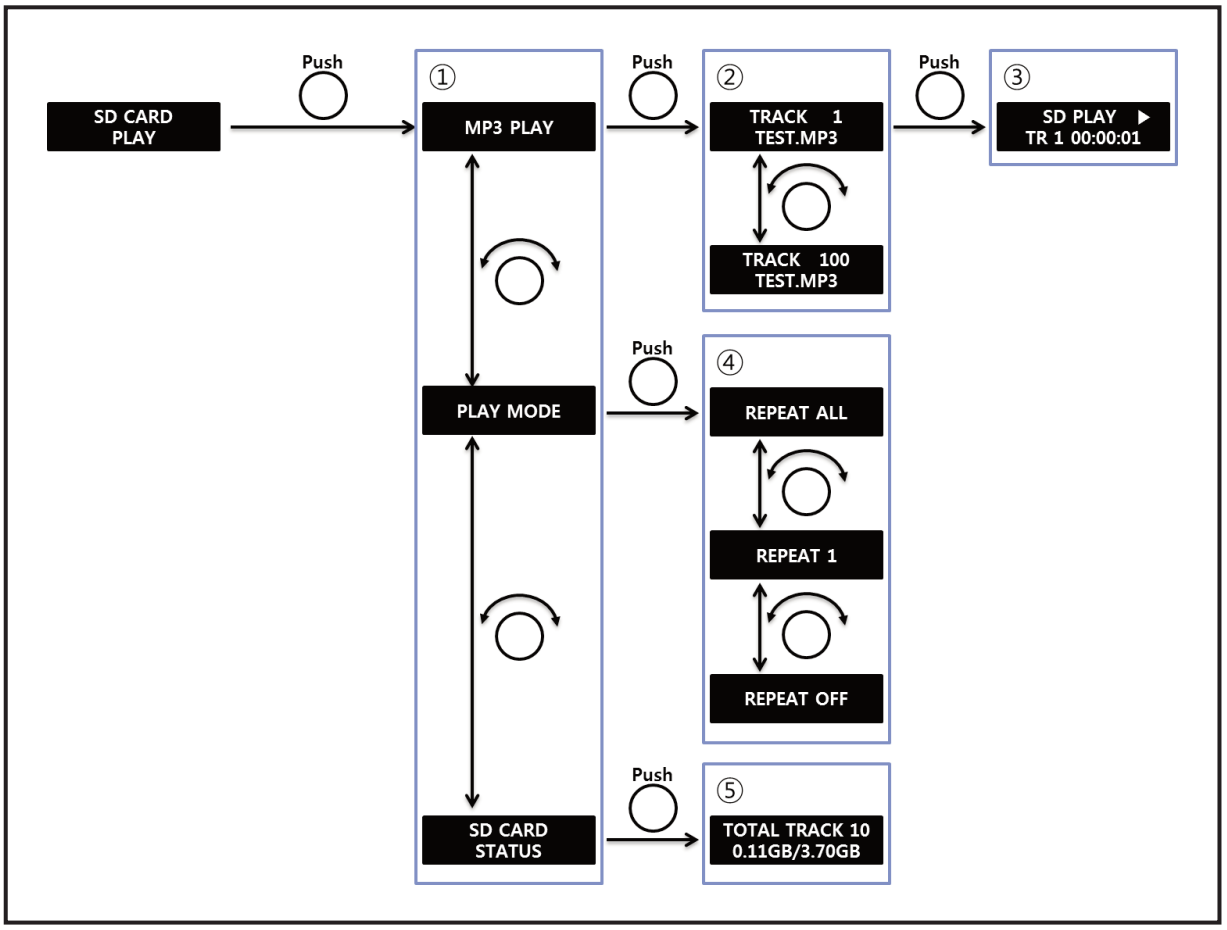
④ When SELECT/ENTER switch is pressed on MODULE B, the screen displays the selectable output channels. If the SELECT/ENTER switch is turned on, the channel can be changed and the channel is selected by pressing the SELECT/ENTER switch.

⑤ Select a output channel to control volume, then turn SELECT/ENTER switch on to adjust volume of the channel. After adjust volume, press the switch to return to the screen where you can select the output channel.

⑥ Press ESC button to return to previous screen.

### 2.3 SD SD CARD PLAY

After you navigate to the SD CARD PLAY menu from the setting screen, you can set the mp3 files playback and playback mode of the SD card by pressing the SELECT/ENTER switch.

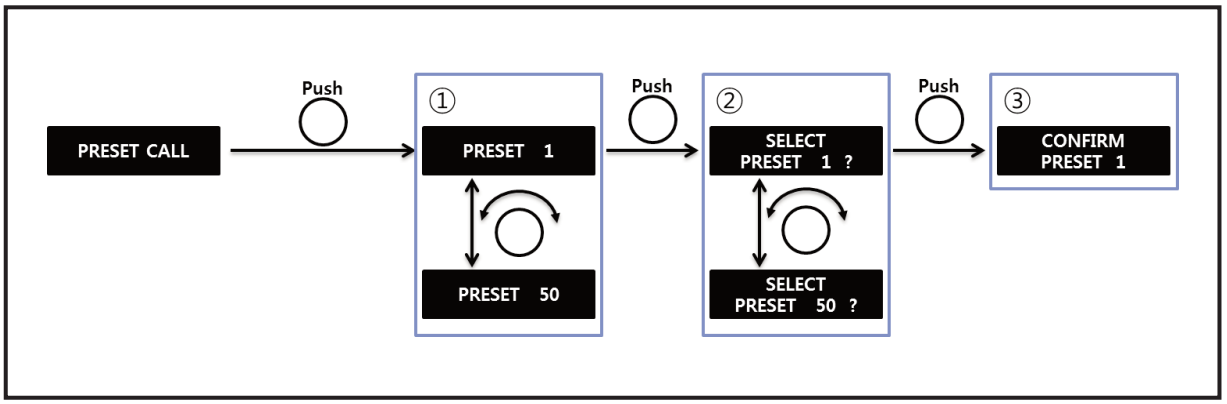



① You can change the setting by turning the SELCTE/ENTER switch on the SD CARD setting screen.
② When you press the MP3 PLAY screen, you can see files stored in the USER folder inside the memory card. You can change the file by rotating the switch.
③ After selecting the MP3 file you want to play, the file will play when you press the SELECT/ENTER switch.
④ Press the switch in PLAY MODE to display the playback mode. You can change the playback mode by rotating the SELECT/ENTER switch.
- REPEAT ALL: Repeat all files.
- REPEAT 1: Repeat a file.
- REPEAT OFF: Disable Repeat function.

⑤ When you press the SELECT/ENTER switch in SD CARD STATUS, the number of all the MP3 files stored in the SD card is displayed and the capacity of memory card is displayed.
⑥ Press ESC button to return to previous screen.

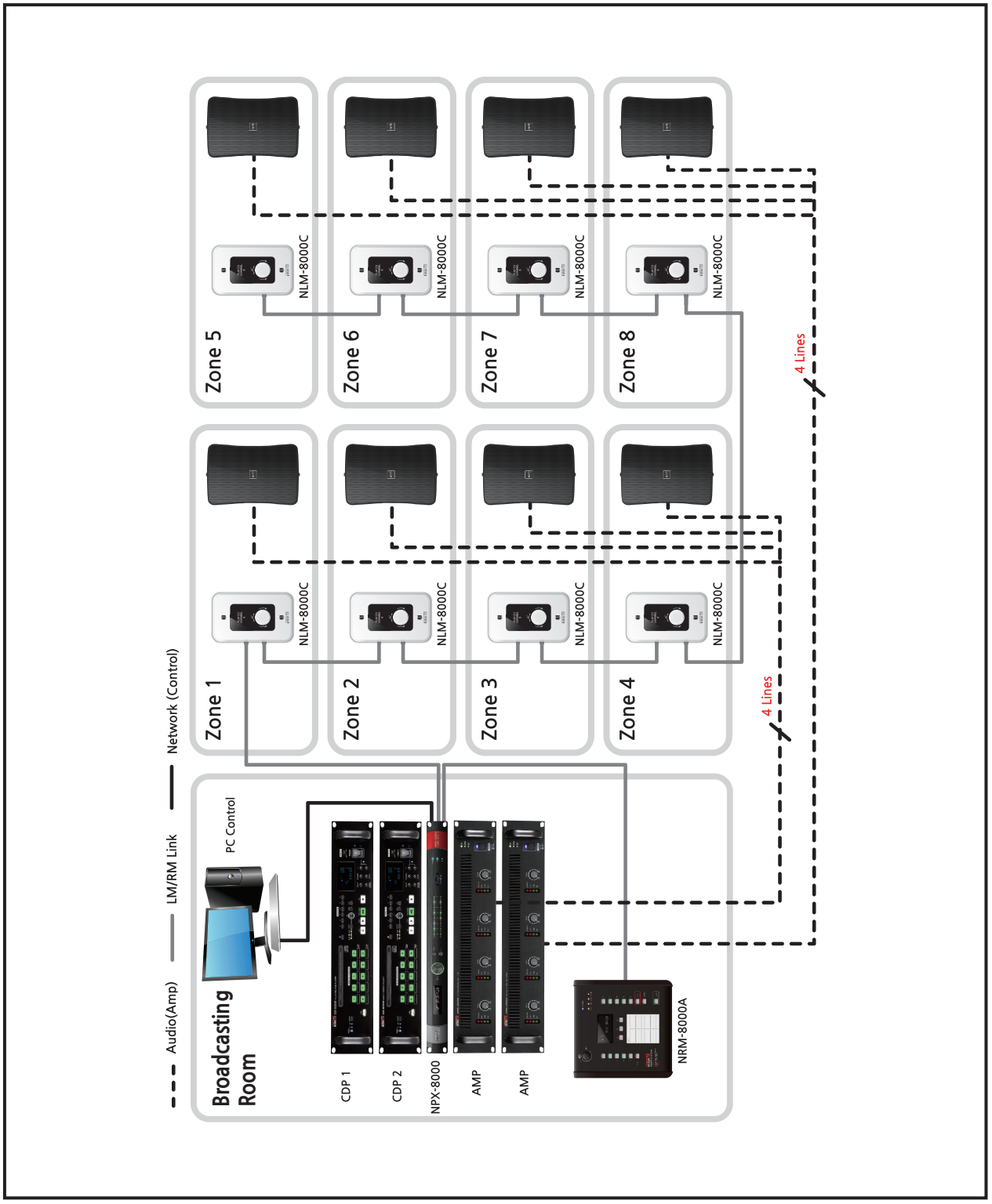
## 2.4 PRESET CALL

Navigate to the PRESET CALL menu from setting screen, then press the switch to recall the preset of the device.

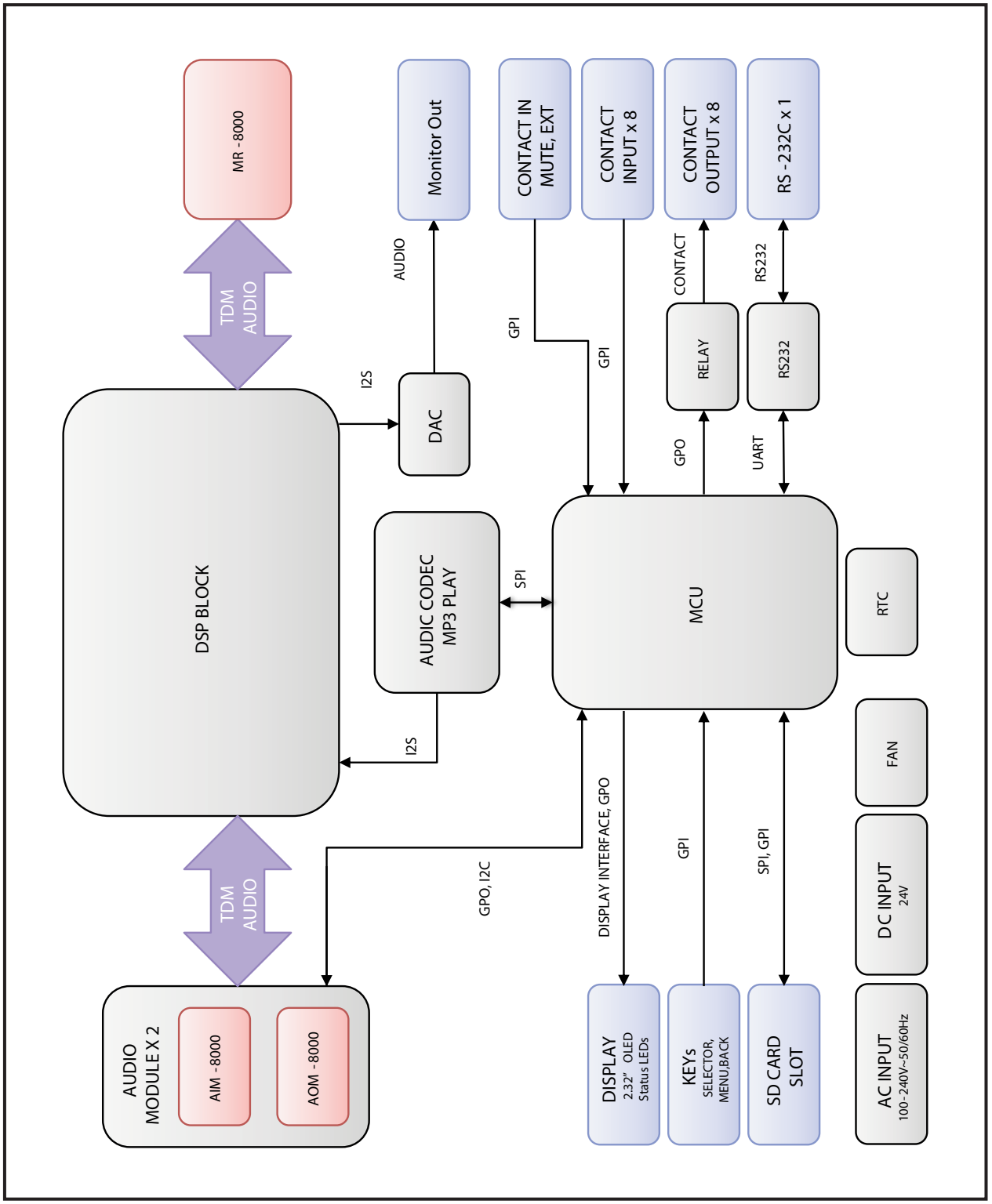



① Rotating the SELECT/ENTER switch on the preset select screen allows you to view the presets stored on the device.
② Select the preset and press the SELECT/ENTER switch to confirm that you will recall that preset. Rotating the SELECT/ENTER switch allows you to change the preset.
③ Pressing the SELECT/ENTER switch on the confirmation screen will recall the preset.
④ Press ESC button to return to previous screen.

# System Configuration Example



# Block Diagram

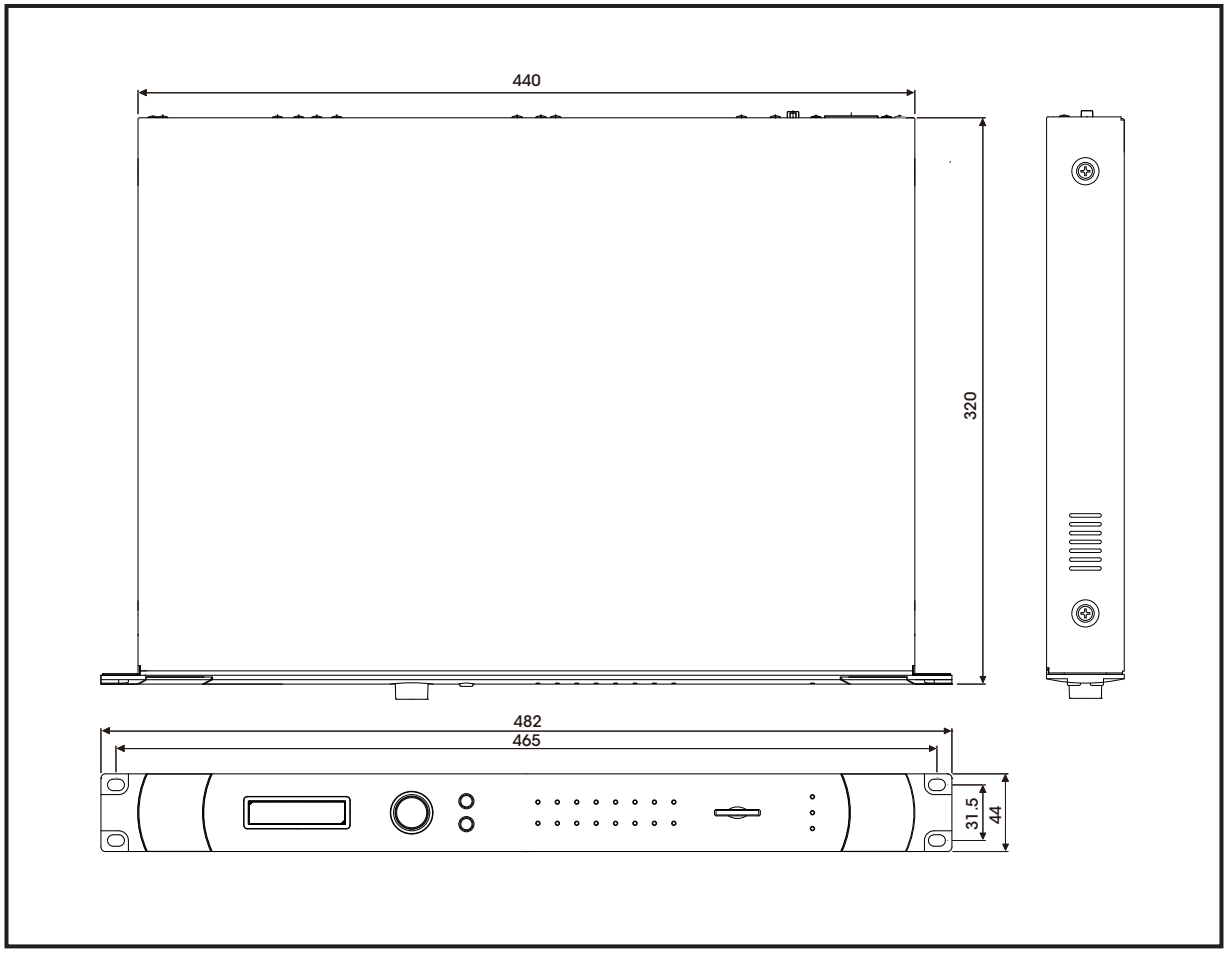


# Specifications

| | NPX-8000 |
|---|---|
| Data Communication | |
| Communication Type | Contact Closure, RS-232C<br>RM, LM Port : CAN<br>Ethernet Network : LAN(TCP/IP) |
| Contact Closure Input/Output | Input 8 channels,<br>Output 8 channels,<br>MUTE, EXT |
| Communication Speed | CAN : 20kbps,<br>AN(TCP/IP) : 100Mbps<br>Serial 115200bps |
| Communication Length | CAN : MAX 300m, LAN(TCP/IP) : MAX 100m |
| Audio Specification | |
| Input Sensitivity | -60~+23dBu |
| Output Level | 0dBu (AIM GAIN=0) |
| Signal to Noise (20kHz LPF) | MIC : More than 55dB<br>LINE : More than 75 dB |
| THD (20kHz LPF) | MIC : Less than 0.5%<br>LINE : Less than 0.2% |
| Frequency Response 40Hz~18kHz (DSP Bypass) | 0dBu±3dBu |
| Operation Temperature | -10℃ ~ +40℃ |
| Power Source | AC 120-240V, 50/60Hz, DC 24V |
| Weight (set) | 4.2kg/9.26lb |
| Dimensions (set) | 482(W) x 44(H) x 320(D)mm/19(W) x 1.7(H) x 12.6(D)in |

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

※ **DIMENSIONS**



# 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.

NOTE

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 Americas, INC.**
5666 CORPORATE AVE. CYPRESS, CA 90630
TEL : +1-714-828-2200, FAX : +1-714-828-2210
Home Page : http://www.inter-m.net, E-mail : info@inter-m.net

**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**
April 2017 140519