Digital Speaker Processor

DSP-48



interM PROFESSIONAL



DSP-48

After the speaker installation is completed at the Professional audio system installation site, it must be tuned to suit the environment in which it is installed. This is because even the same speaker produces different results when installed in other places.

Through Inter-M's high-performance speaker management DSP-48, users can experience various features and ease of use that can maximize the speaker's performance.

24Bit 96kHz Sampling

PEQ/GEQ/Delay/Crossover/Compressor/Mix
Dynamic Range 110dB,
THD 0.005%



The optimal speaker management system designed for Professional audio systems

The DSP-48 is one of the professional audio devices that can be used with audio mixers, power amplifiers, and line array/point source speakers to form a high-quality professional sound system.

The DSP-48 is a device that maximizes audio quality and performance through high-performance digital signal processing technology and hardware design technology. It can be used in various audio environments, such as educational facilities, cultural facilities, religious facilities that require clear audio, and concert halls that require powerful sound.

Feature



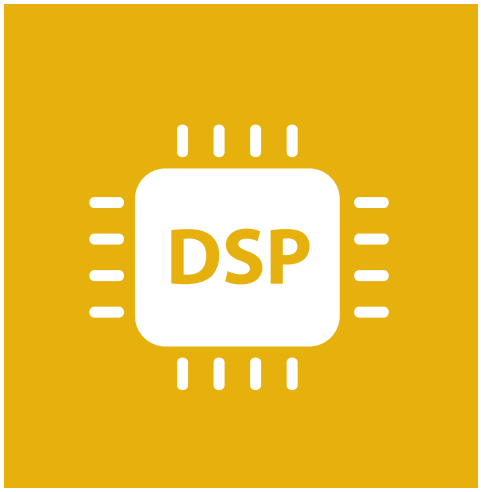
DSP-48

4 Input/8 Output



High-performance audio input and output

- XLR balanced input/output
- 20Hz to 20kHz frequency response
- More than 110dB of dynamic range
- 24-bit 96kHz sample rate applied
- 32-bit floating point DSP processing



Various DSP features

- Input DSP : time delay, 8-band parametric equalizer, 31-band graphic equalizer, compressor, volume, mute
- Output DSP : matrix/mix, crossover (IIR, FIR), time delay, polarity, 8-band parametric equalizer, limiter, clipper, volume, mute



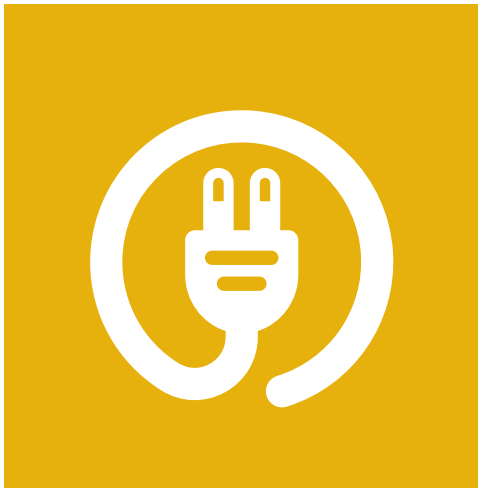
User-friendly features

- Input/output level meter display (dBFS)
- Preset feature
- Device lock feature
- Machine control through the front interface



Remote control feature

- Remote control via wired Ethernet
- Provides integrated control GUI software



Power and device specifications

- AC 120-240V, 50/60Hz
- 1U standard 19-inch rack

Front interface for convenient use



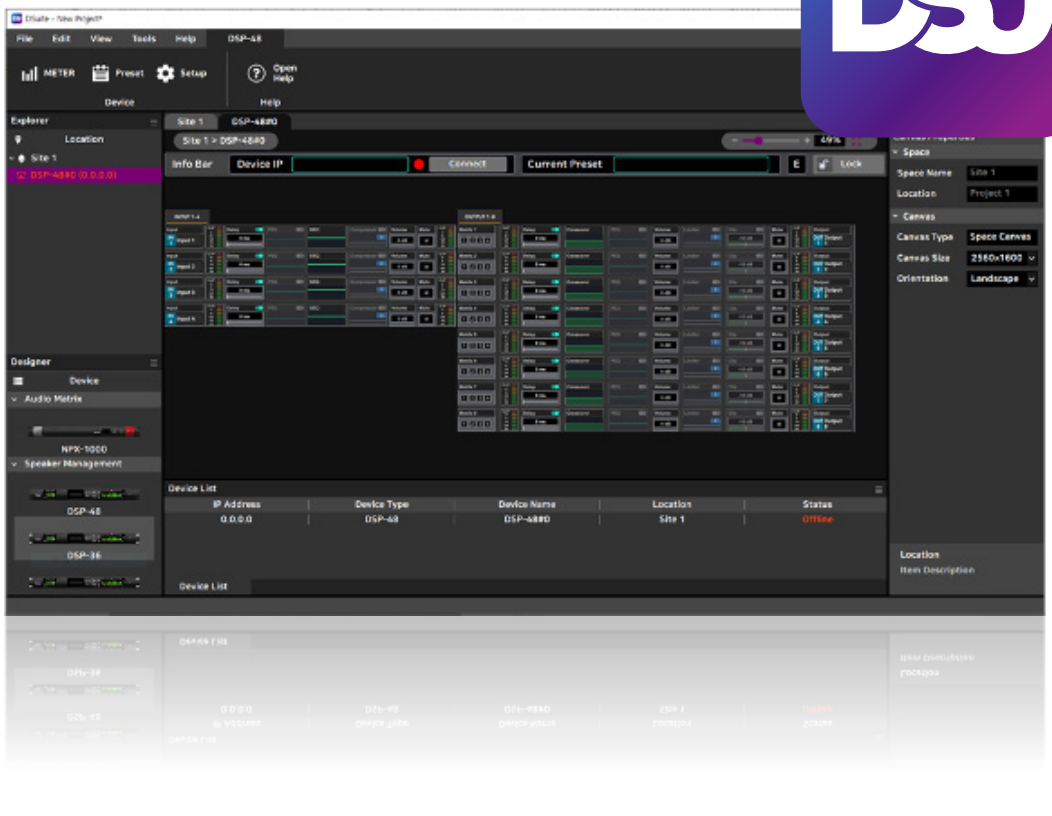
All DSP settings can be easily controlled through the display and encoder buttons on the front, and the device's status can be intuitively checked through the input/output level meter, and status LED.
In addition, users can use various features for user convenience, such as preset save/load, channel copy, channel link, device information check, and system protection lock feature.

The rear design considers high quality, convenience, and safety



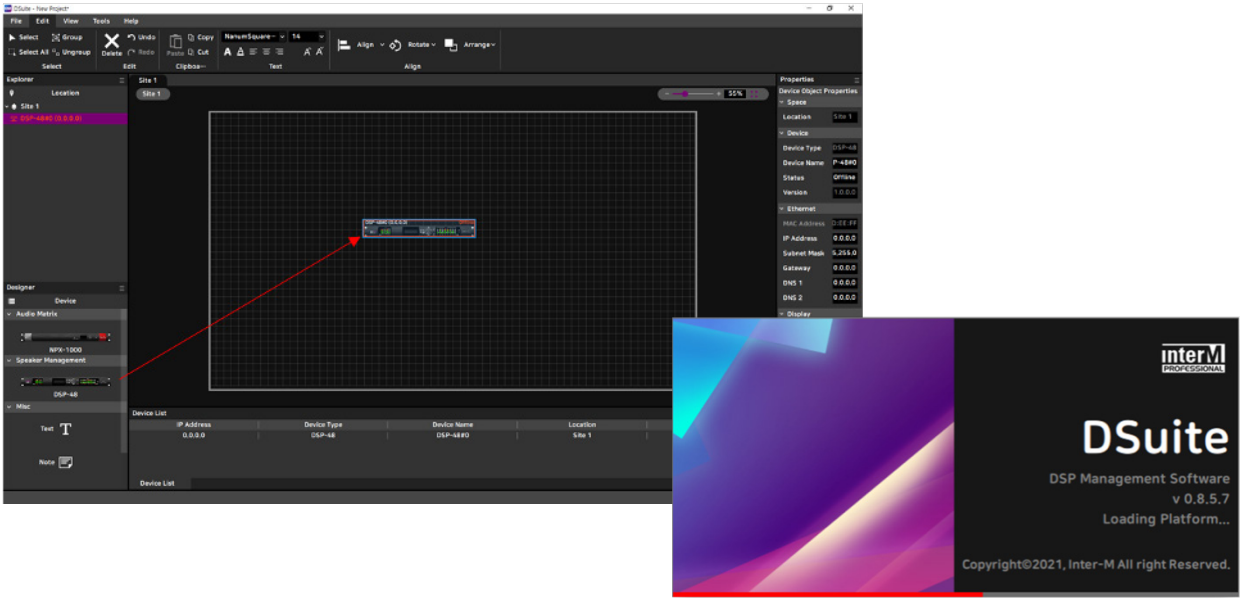
Gold-plated XLR input/output terminals are adopted to provide optimal audio quality, and the device can be remotely controlled by being connected to a network connection through an Ethernet port.
Also, through the MUTE CONTACT terminal, an external contact signal can be input, and audio output can be blocked. (Comply with fire safety standards)

User-friendly
PC GUI software, Dsuite



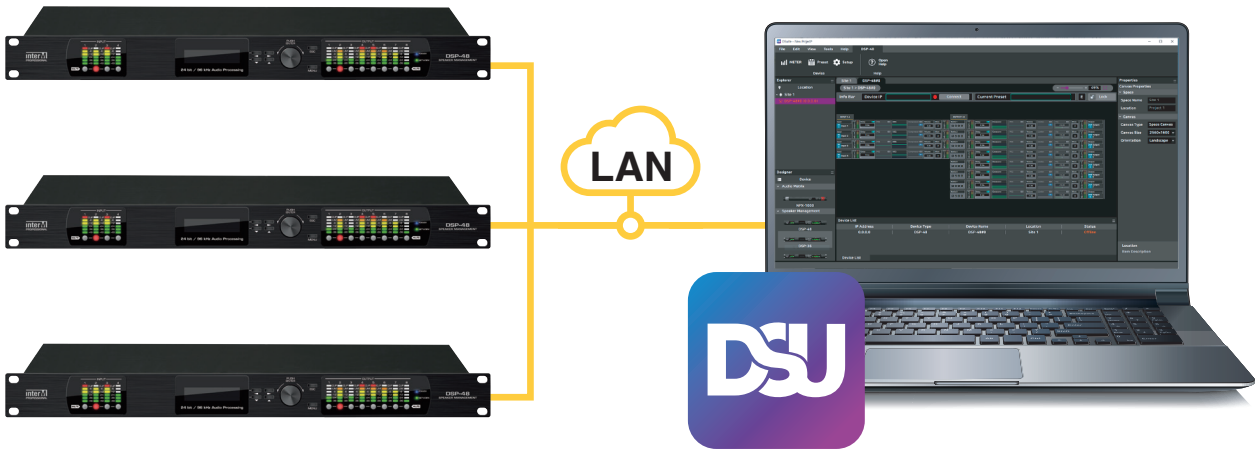
With Dsuite, the operating software, anyone from beginners unfamiliar with digital signal processing technology to professionals who want high-quality pro sound can easily set the audio signal processing feature with a simple mouse operation and realize a Professional audio environment suitable for the environment.

Integrated control software, DSuite



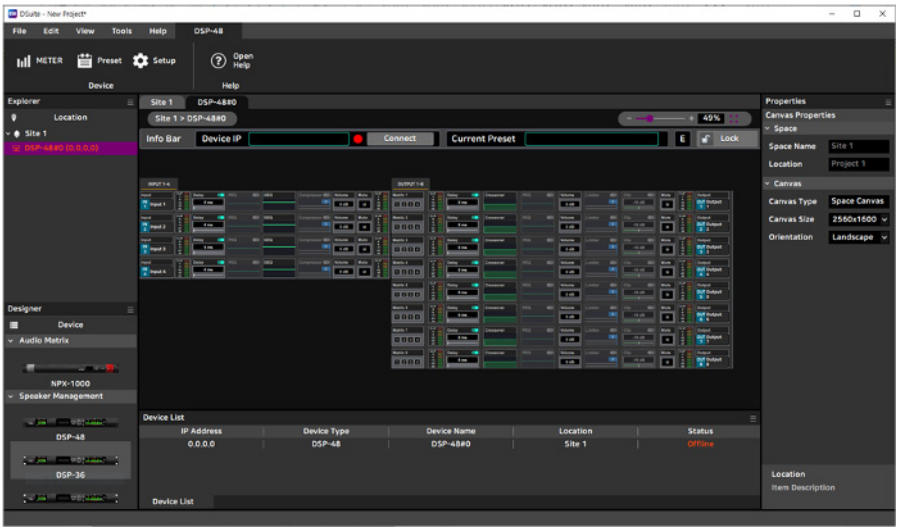
The DSP-48 can use more features through dedicated software, Dsuite. Users can check each device's status, set the device's name and location, arrange multiple devices according to the user environment through the canvas-based system design UI, and design the system through text and pictures.

Provide integrated control feature through the network



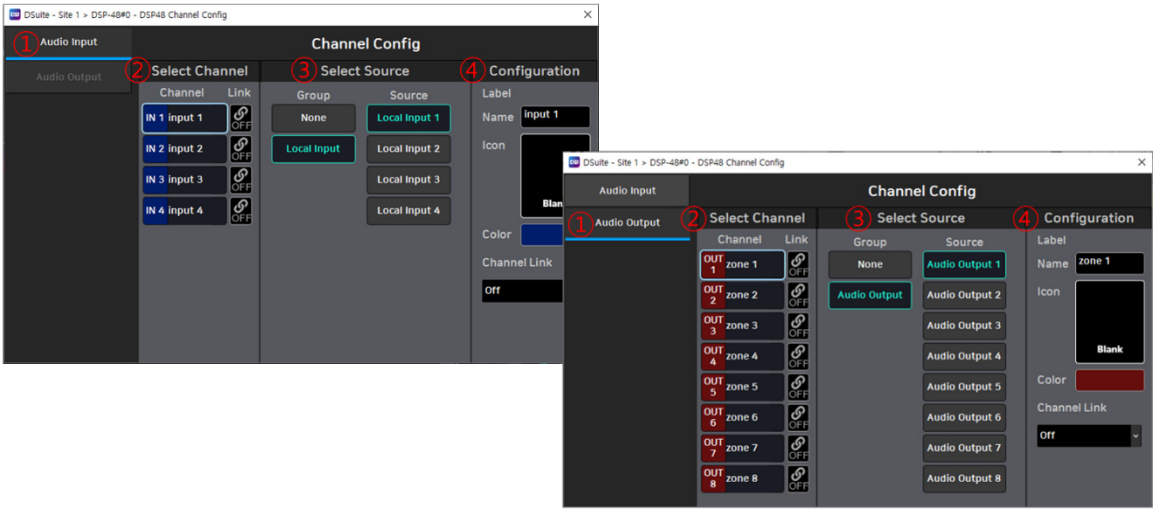
DSuite can connect multiple DSP devices through a network and control them simultaneously, providing various DSP control features such as matrix, EQ, delay, crossover, gain, and level meter for each device.

DSP Home screen



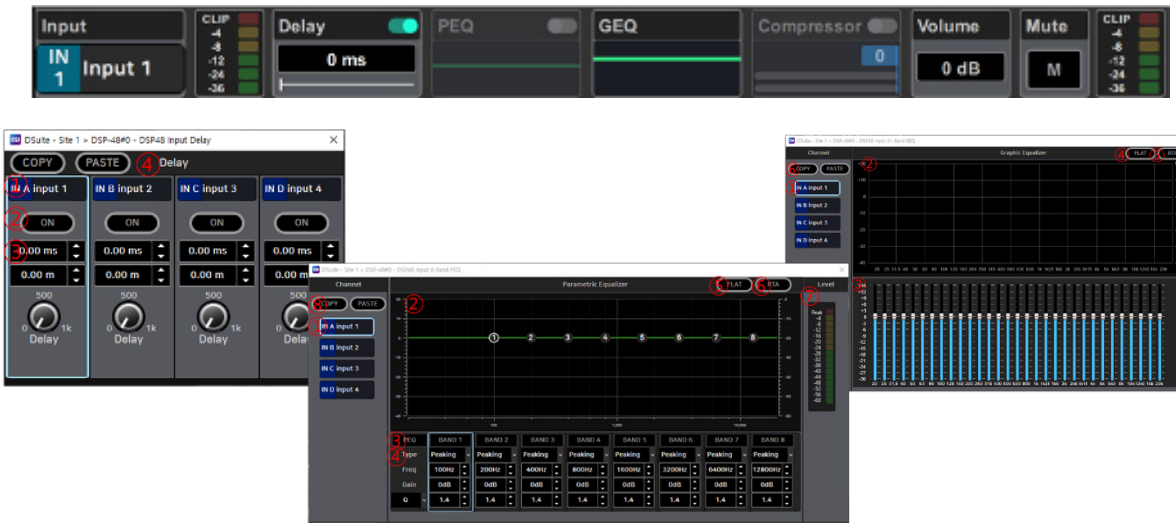
With the DSP-48, the user can quickly check whether all DSP features are applied and set values through the home screen, and frequently set values such as volume and mute can be easily controlled with just a mouse.
In addition, input and output level meters allow users to check the audio signal status in real time.

DSP Feature (Channel setting)



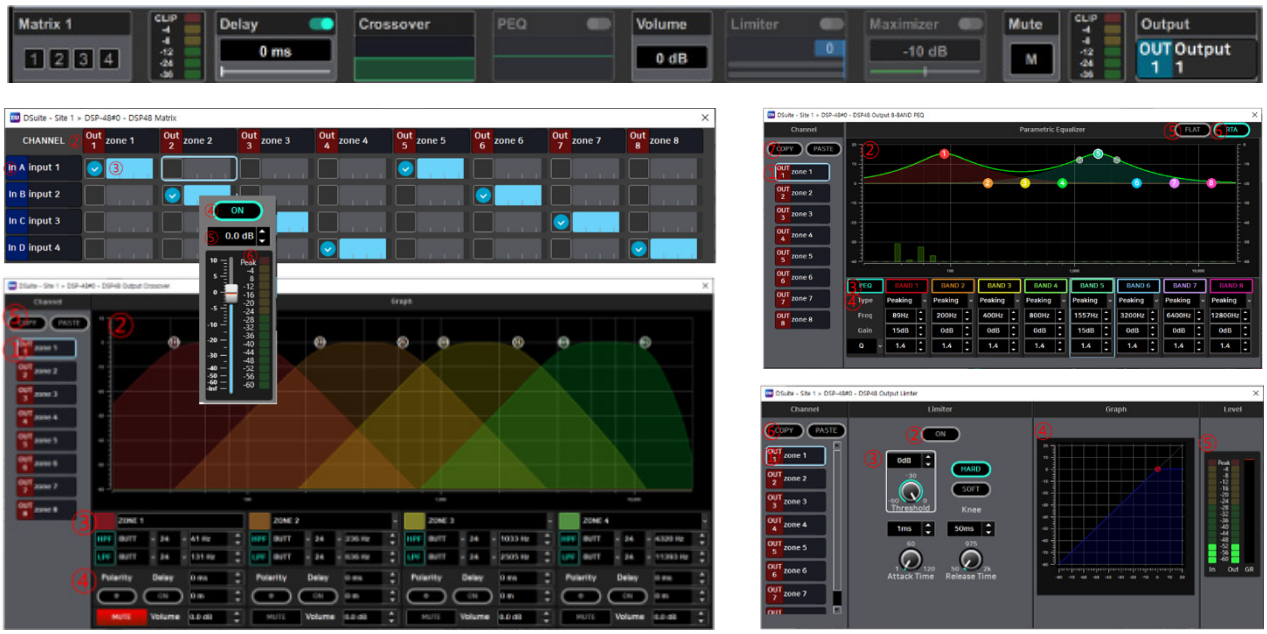
The DSP-48 device provides input and output of 3 IN/6 OUT and 4 IN/8 OUT, respectively, allowing flexible adjustment of channel configuration. For user convenience, names, icons, and colors can be set for each input/output channel, and various input signals can be mixed by providing the MixBus feature.

DSP Feature (Input channel)



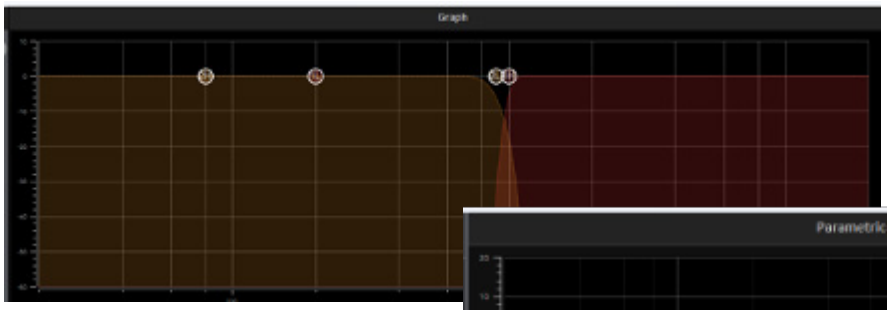
Each input channel features delay, 8-band PEQ, 31-band GEQ, compressor, volume, and mute features. In addition, the status of the input signal can be checked through the pre/post level meter for each input. The user can tune the audio system optimized for the installation space through the DSP feature of the input channel.

DSP Feature (Output channel)



Each output channel provides delay, phase inversion, 8-band PEQ, crossover, limiter, clipper, volume, and mute features. In addition, the user can check the output signal's status through the pre/post level meter for each output. Users can optimize the audio tuning for the connected speakers through the DSP feature of the output channels.

DSP Feature (Notch filter and FIR filter)



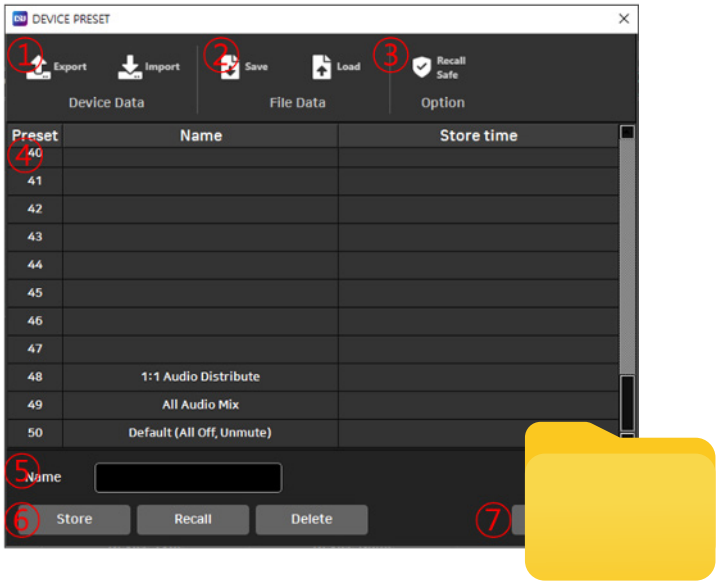
FIR filter graph



Notch filter graph

The notch filter included in the input/output PEQ allows the user to configure a stable audio environment by controlling the frequency at which feedback occurs without changing the timbre.
Butterworth, Bessel, and Linkwitz-Riley filters can be selected via the crossover, and the type can be set up to the 8th order (48dB/Oct). An FIR filter can also be added to control the maximized frequency in installations sensitive to phase shift.

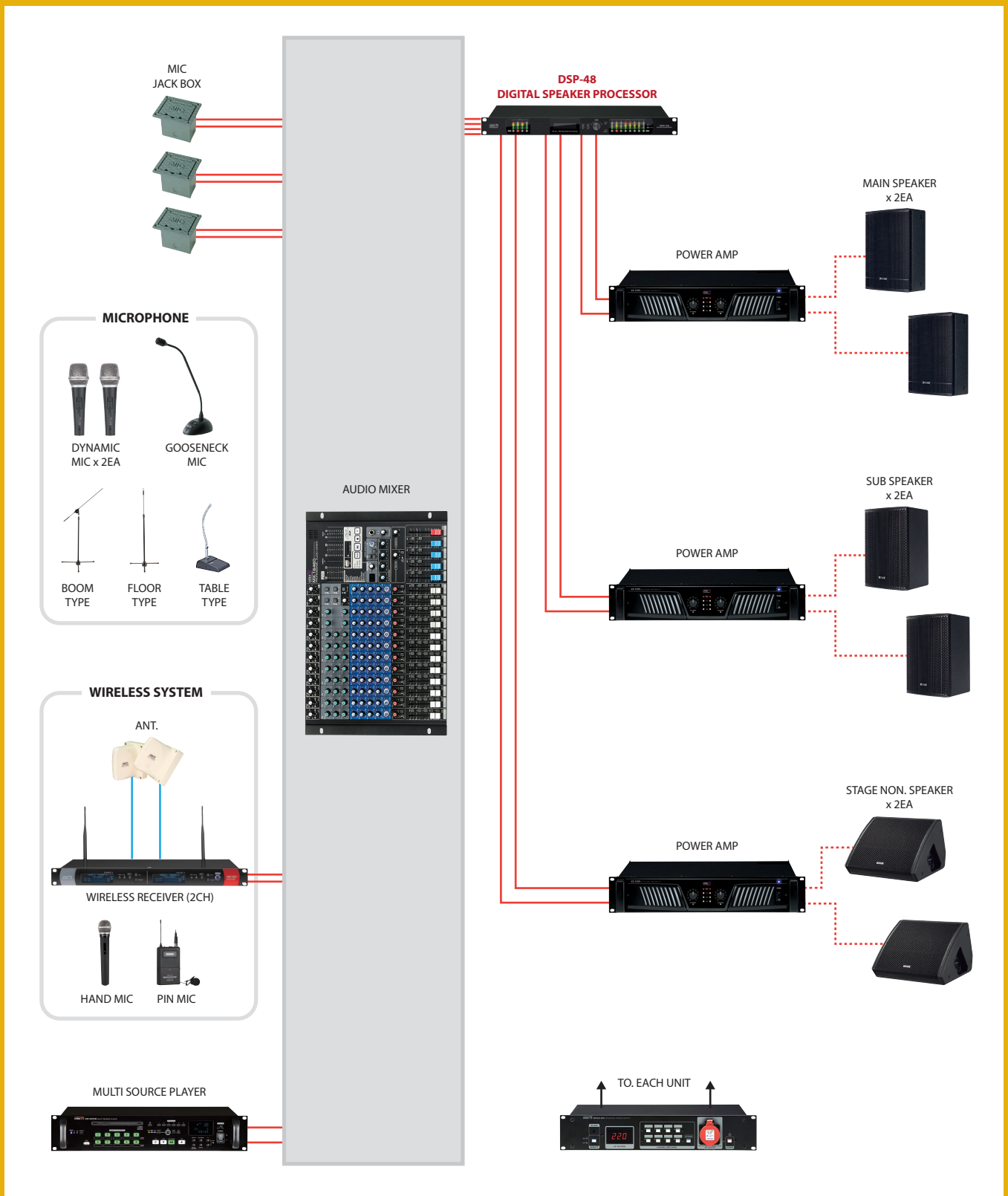
DSP Preset feature



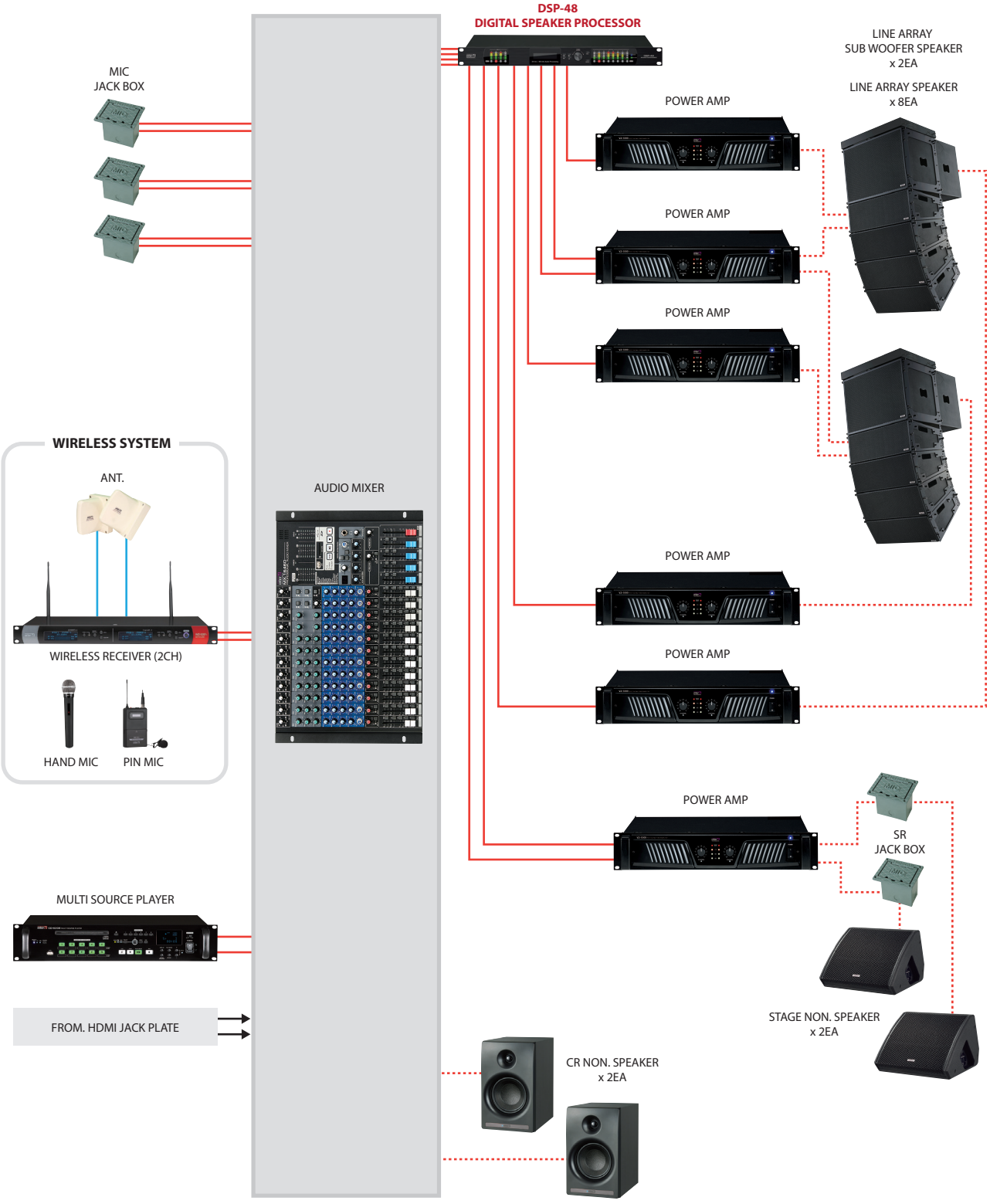
The DSP preset feature allows users to save and recall up to 50 preset data, export saved DSP presets to a file, or load data from a saved file.

Applications

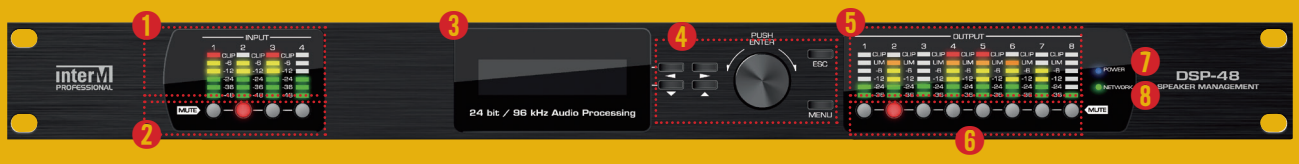
■ Small Auditorium



■ Large Auditorium



Front/Rear Panel



❶ Input Channel Level Meter

The level meter for each input channel is displayed in dBFS scale.

❷ Input Channel Mute Buttons and Status LEDs

Displays and controls mute status for each input channel.

❸ OLED Display

The display shows DSP setting information, product information, network information, etc.

❹ Operation Interface

This is an interface that operates the settings of the device in conjunction with the display.

❺ Output Channel Level Meter

The level meter for each output channel is displayed in dBFS scale.

❻ Output Mute Button and Status LED

Displays and controls mute status for each output channel.

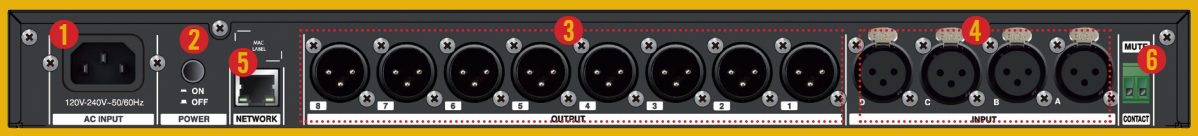
❼ Network Status LED

Displays the device's network status.

❽ Power Status LED

Displays the power status of the device.

Front/Rear Panel



❶ AC Power Input Terminal (AC 120V ~ 240V)

This terminal connects the AC cord to supply power to the product.

❷ Power Switch

A power switch that turns the product on or off.

❸ Audio Output Terminal (8CH BALANCED)

This is the terminal to output audio.

❹ Audio Input Terminal (4CH BALANCED)

This is the terminal to receive audio input.

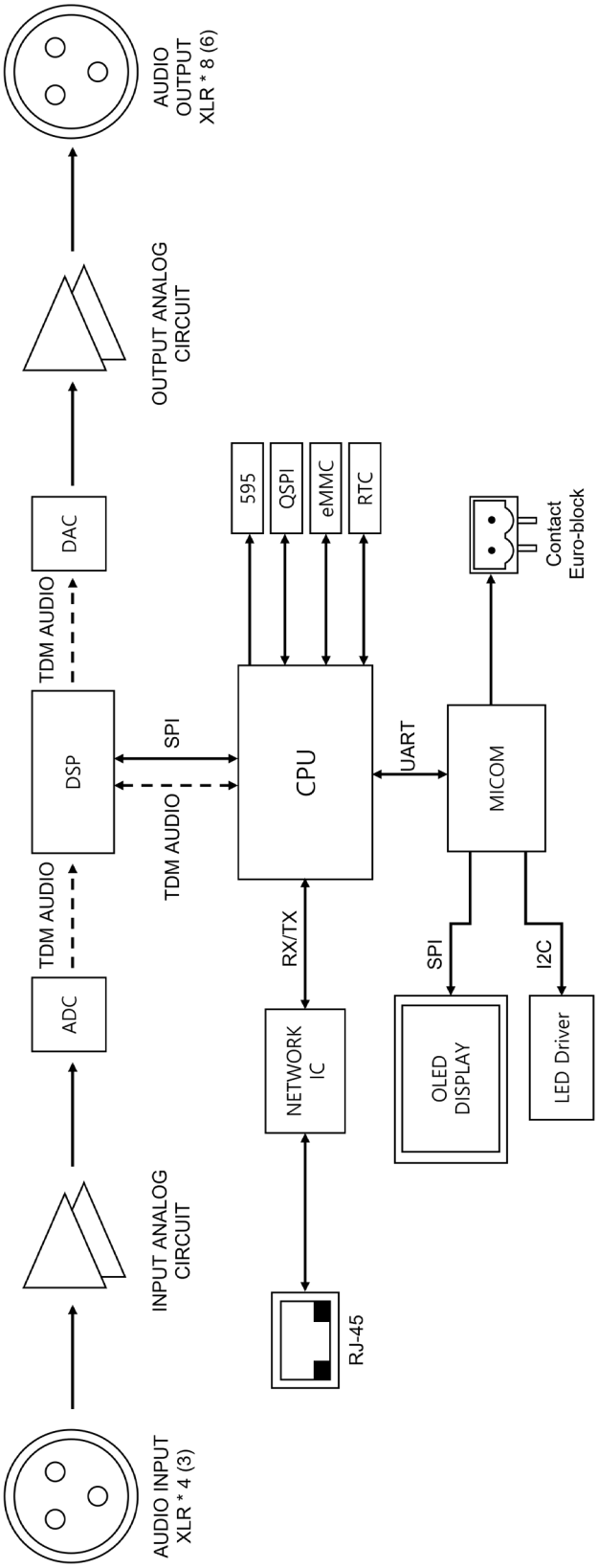
❺ Network Connection Terminal and Status Display LED

This terminal is used to connect the Ethernet network of the product.

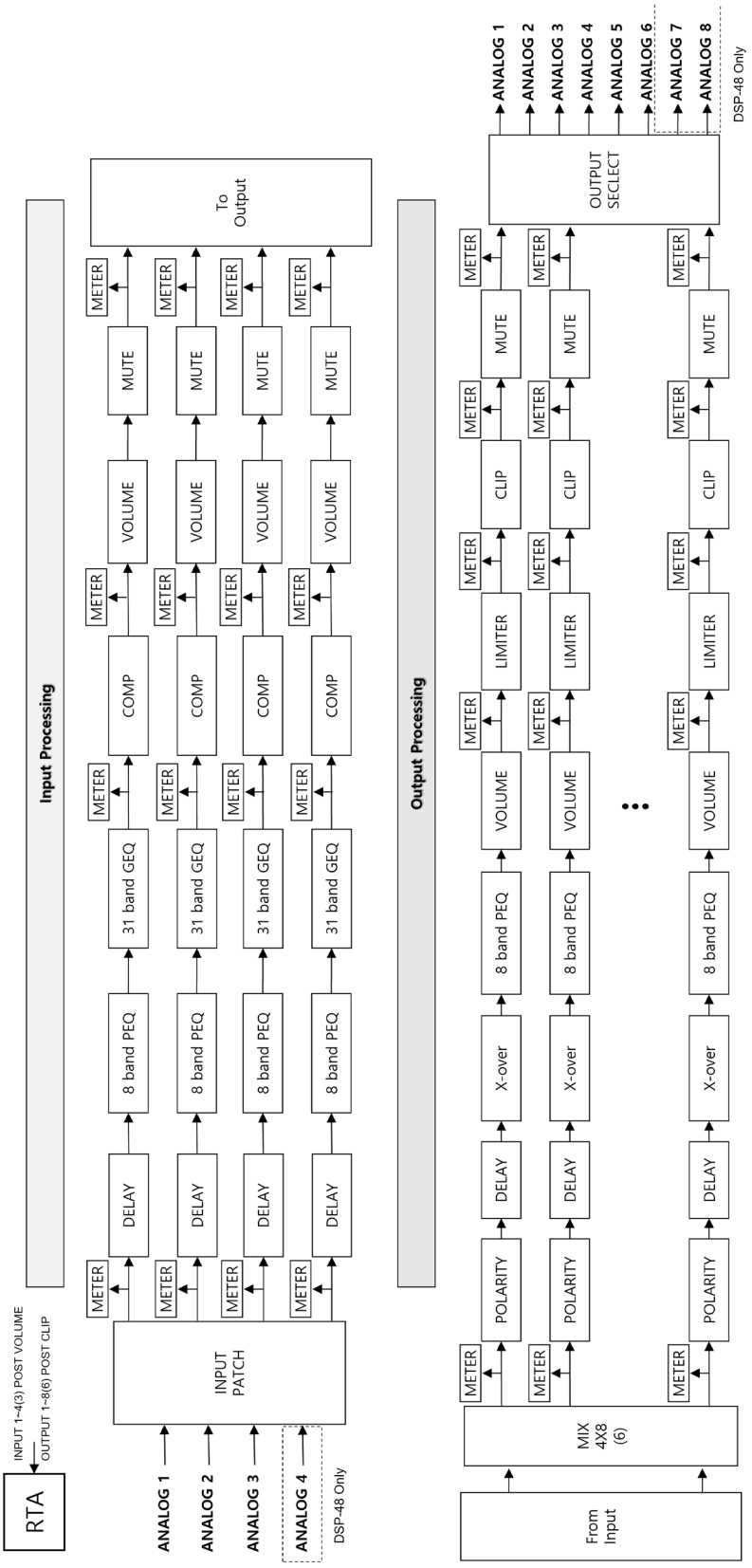
❻ Contact Input Terminal

This is a non-voltage (dry) contact type input terminal. When the contact point is ON, all audio outputs are muted. (Built-in broadcasting blocking feature in accordance with “Fire Safety Performance Standard NFPC 202” when emergency broadcasting contact is input)

Block Diagram



Block Diagram



Specifications

	DSP-48
Audio processing	
AD/DA conversion	24bit
Sampling frequency	96kHz
Signal processing	32bit 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	+4dBu
Max input	+24dBu
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℃
Power supply	AC 120-240V, 50/60Hz, 0.3A
Power Consumption	< 20W
Weight (set)	3.5kg
Dimension (set)	482(W) x 44(H) x 318(D)mm

NOTE



DSP-48

Digital Speaker Processor

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