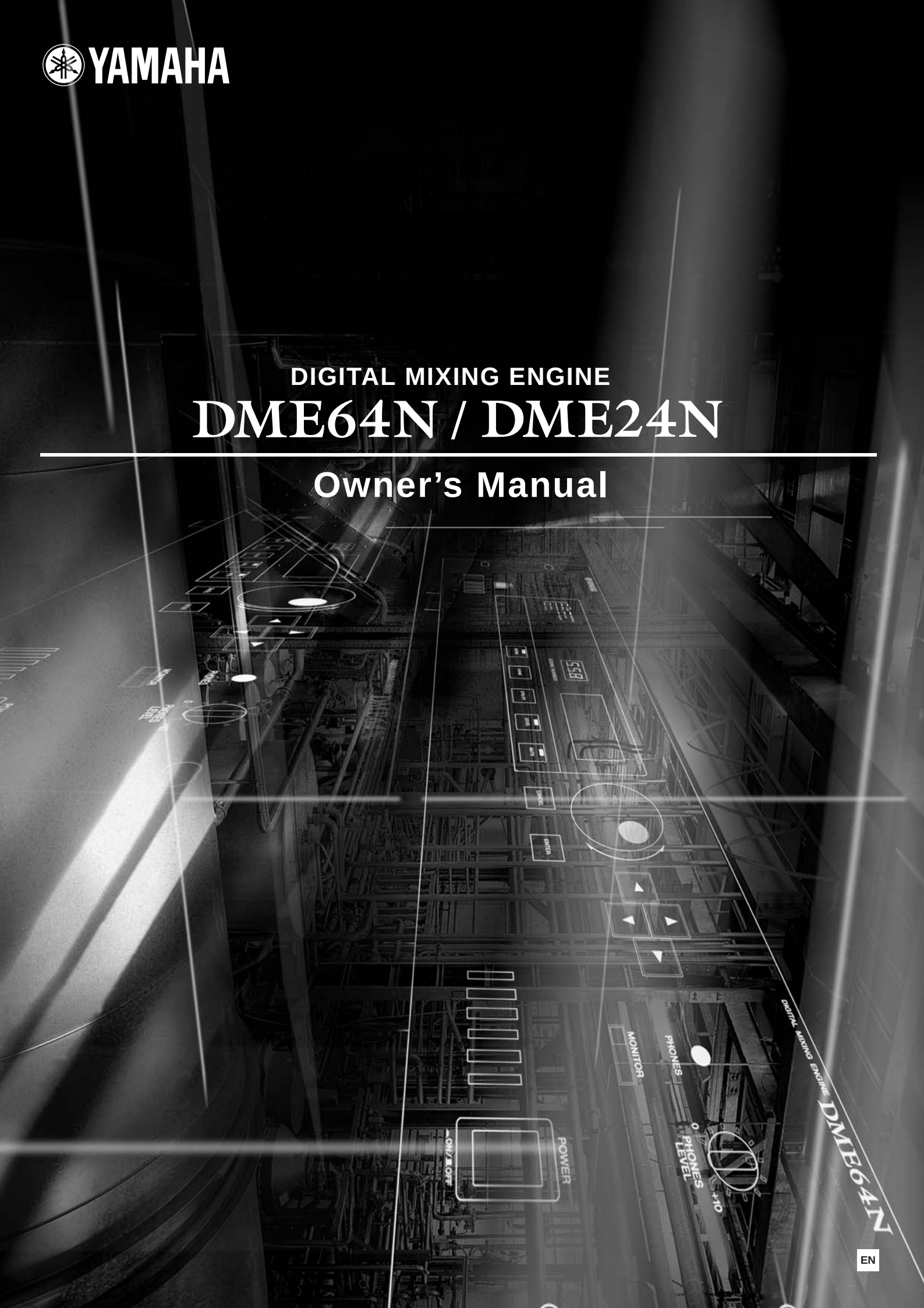
YAMAHA

DIGITAL MIXING ENGINE

DME64N / DME24N

Owner's Manual



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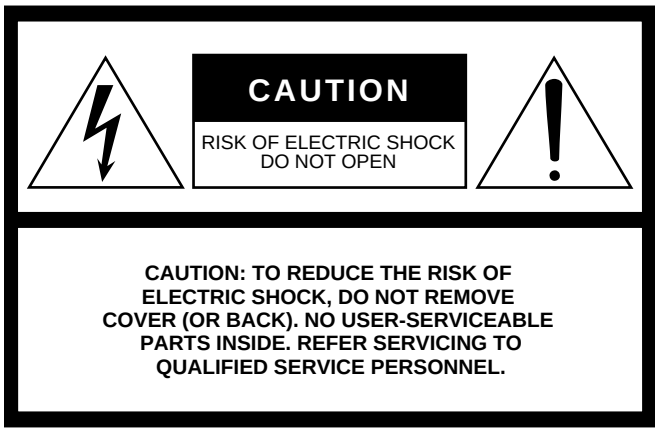
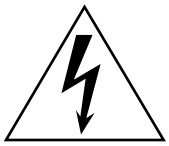


The above warning is located on the top of the unit.

Explanation of Graphical Symbols



The lightning flash with arrowhead symbol within an equilateral triangle 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.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

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.**

WARNING
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK,
DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

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.**

FCC INFORMATION (U.S.A.)

1. **IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT!**
   This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.
2. **IMPORTANT:** When connecting this product to accessories and/or another product use only high quality shielded cables. Cable/s supplied with this product MUST be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.
3. **NOTE:** This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices. This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices. Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures:

   Relocate either this product or the device that is being affected by the interference.

   Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter/s.

   In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to co-axial type cable.

   If these corrective measures do not produce satisfactory results, please contact the local retailer authorized to distribute this type of product. If you can not locate the appropriate retailer, please contact Yamaha Corporation of America, Electronic Service Division, 6600 Orangethorpe Ave, Buena Park, CA90620

   The above statements apply ONLY to those products distributed by Yamaha Corporation of America or its subsidiaries.

* This applies only to products distributed by YAMAHA CORPORATION OF AMERICA. (class B)

IMPORTANT NOTICE FOR THE UNITED KINGDOM

Connecting the Plug and Cord

WARNING: THIS APPARATUS MUST BE EARTHED

IMPORTANT. The wires in this mains lead are coloured in accordance with the following code:

GREEN-AND-YELLOW	:	EARTH
BLUE	:	NEUTRAL
BROWN	:	LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured GREEN-and-YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol ⏚ or colored GREEN or GREEN-and-YELLOW.

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

• This applies only to products distributed by Yamaha-Kemble Music (U.K.) Ltd. (3 wires)

NEDERLAND / THE NETHERLANDS

- Dit apparaat bevat een lithium batterij voor geheugen back-up.
- This apparatus contains a lithium battery for memory back-up.
- Raadpleeg uw leverancier over de verwijdering van de batterij op het moment dat u het apparaat ann het einde van de levensduur afdankt of de volgende Yamaha Service Afdeiing:

  Yamaha Music Nederland Service Afdeiing
  Kanaalweg 18-G, 3526 KL UTRECHT
  Tel. 030-2828425
- For the removal of the battery at the moment of the disposal at the end of the service life please consult your retailer or Yamaha Service Center as follows:

  Yamaha Music Nederland Service Center
  Address : Kanaalweg 18-G, 3526 KL UTRECHT
  Tel : 030-2828425
- Gooi de batterij niet weg, maar lever hem in als KCA.
- Do not throw away the battery. Instead, hand it in as small chemical waste.

(lithium disposal)

ADVARSEL!
Lithiumbatteri—Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandoren.

VARNING
Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

VAROITUS
Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

(lithium caution)

PRECAUTIONS

PLEASE READ CAREFULLY BEFORE PROCEEDING

* Please keep this manual in a safe place for future reference.

⚠ *WARNING*

Always follow the basic precautions listed below to avoid the possibility of serious injury or even death from electrical shock, short-circuiting, damages, fire or other hazards. These precautions include, but are not limited to, the following:

Power supply/Power cord

- Only use the voltage specified as correct for the device. The required voltage is printed on the name plate of the device.
- Use only the specified power cord .
- Do not place the power cord near heat sources such as heaters or radiators, and do not excessively bend or otherwise damage the cord, place heavy objects on it, or place it in a position where anyone could walk on, trip over, or roll anything over it.

Do not open

- Do not open the device or attempt to disassemble the internal parts or modify them in any way. The device contains no user-serviceable parts. If it should appear to be malfunctioning, discontinue use immediately and have it inspected by qualified Yamaha service personnel.

Water warning

- Do not expose the device to rain, use it near water or in damp or wet conditions, or place containers on it containing liquids which might spill into any openings.
- Never insert or remove an electric plug with wet hands.

If you notice any abnormality

- If the power cord or plug becomes frayed or damaged, or if there is a sudden loss of sound during use of the device, or if any unusual smells or smoke should appear to be caused by it, immediately turn off the power switch, disconnect the electric plug from the outlet, and have the device inspected by qualified Yamaha service personnel.
- If this device should be dropped or damaged, immediately turn off the power switch, disconnect the electric plug from the outlet, and have the device inspected by qualified Yamaha service personnel.

⚠ *CAUTION*

Always follow the basic precautions listed below to avoid the possibility of physical injury to you or others, or damage to the device or other property. These precautions include, but are not limited to, the following:

Power supply/Power cord

- Remove the electric plug from the outlet when the device is not to be used for extended periods of time, or during electrical storms.
- When removing the electric plug from the device or an outlet, always hold the plug itself and not the cord. Pulling by the cord can damage it.

Location

- Before moving the device, remove all connected cables.
- Avoid setting all equalizer controls and faders to their maximum. Depending on the condition of the connected devices, doing so may cause feedback and may damage the speakers.
- Do not expose the device to excessive dust or vibrations, or extreme cold or heat (such as in direct sunlight, near a heater, or in a car during the day) to prevent the possibility of panel disfiguration or damage to the internal components.
- Do not place the device in an unstable position where it might accidentally fall over.
- Do not block the vents. This device has ventilation holes at the front and rear to prevent the internal temperature from rising too high. In particular, do not place the device on its side or upside down, or place it in any poorly-ventilated location, such as a bookcase or closet.
- Do not use the device in the vicinity of a TV, radio, stereo equipment, mobile phone, or other electric devices. Otherwise, the device, TV, or radio may generate noise.

Connections

- Before connecting the device to other devices, turn off the power for all devices. Before turning the power on or off for all devices, set all volume levels to minimum.
- Be sure to connect to a properly grounded power source. A ground screw terminal is provided on the rear panel for safely grounding the device and preventing electrical shock.

Maintenance

- Remove the power plug from the AC outlet when cleaning the device.

Handling caution

- Do not insert your fingers or hand in any gaps or openings on the device (vents, ports, etc.).
- Avoid inserting or dropping foreign objects (paper, plastic, metal, etc.) into any gaps or openings on the device (vents, ports, etc.) If this happens, turn off the power immediately and unplug the power cord from the AC outlet. Then have the device inspected by qualified Yamaha service personnel.
- Do not use the device or headphones for a long period of time at a high or uncomfortable volume level, since this can cause permanent hearing loss. If you experience any hearing loss or ringing in the ears, consult a physician.
- Do not rest your weight on the device or place heavy objects on it, and avoid use excessive force on the buttons, switches or connectors.

Backup battery

- This device has a built-in backup battery. When you unplug the power cord from the AC outlet, the internal SRAM data is retained. However, if the backup battery fully discharges, this data will be lost. When the backup battery is running low, the Display indicates “Low Battery” or “No Battery.” In this case, immediately save the data to an external devices such as a computer, then have qualified Yamaha service personnel replace the backup battery.

Yamaha cannot be held responsible for damage caused by improper use or modifications to the device, or data that is lost or destroyed.

Always turn the power off when the device is not in use.

The performance of components with moving contacts, such as switches, volume controls, and connectors, deteriorates over time. Consult qualified Yamaha service personnel about replacing defective components.

- The illustrations in this document are for instructional purposes, and may appear somewhat different from the actual equipment.
- The bitmap fonts used in this device have been provided by and are the property of Ricoh Co., Ltd.
- CobraNet and Peak Audio are trademarks of Cirrus Logic, Inc.
- Ethernet is a trademark of Xerox Corporation.
- All other trademarks are the property of their respective holders and are hereby acknowledged.

Foreword

Thank you for choosing a Yamaha DME64N/24N Digital Mixing Engine.
Using the supplied DME Designer software, the DME64N and DME24N can be easily configured to handle a wide range of audio processing applications – institutional audio installations, sub-mixing, speaker system control, matrix and routing, multi-effect processing, and much more.
In order to take full advantage of the features and performance provided by the DME64N/24N, we urge you to read this owner's manual thoroughly before use, and keep it in a safe place for future reference.
The Yamaha Pro Audio web site is at: **http://www.yamahaproaudio.com/**

Contents

About the Documentation

The following manuals are provided with the DME64N/24N.

DME64N/24N Owner's Manual (This document)

This document covers the specifications, installation, and operation of the DME64N/24N.

DME Designer Installation Guide

This document covers the installation of the DME Designer software application and related drivers (USB-MIDI driver, DME-N Network driver) on a computer, computer setup, and connection of the computer to the DME64N/24N.

DME Designer Owner's Manual (PDF file)

The DME Designer Manual describes operation of the DME Designer software as well as the functions of the individual modules that can be used.

Supplied Accessories

- DME64N/24N Owner's Manual (This document)
- DME Designer Installation Guide
- CD-ROM
- AC power cord
- AC plug clamp
- Euroblock plug (16P) x 2
- Euroblock plug (8P) x 4 (DME64N only)
- Euroblock plug (3P) x 16 (DME24N only)

DME64N and DME24N I/O Configuration

The DME64N has four I/O card slots, while the DME24N has one I/O card slot and eight channels of built-in analog audio I/O.
A single I/O card can handle up to 16 channels of audio I/O, so the DME64N can handle a maximum of 64 audio I/O channels. The DME24N can handle up to 24 audio I/O channels.
The DME64N has approximately double the DSP processing power of the DME24N.

Options

Control Panels

- ICP1 Intelligent Control Panel
- CP4SW Control Panel
- CP4SF Control Panel
- CP1SF Control Panel

NOTE

Refer to the appendix on page 56 for information about the control panels.

mini-YGDAI (Yamaha General Digital Audio Interface) I/O Cards

- MY16-C, MY16-AT, MY16-AE, MY16-TD, and others.

NOTE

Refer to I/O Card Installation on page 22 for information on I/O card installation and the types of I/O cards that can be used.

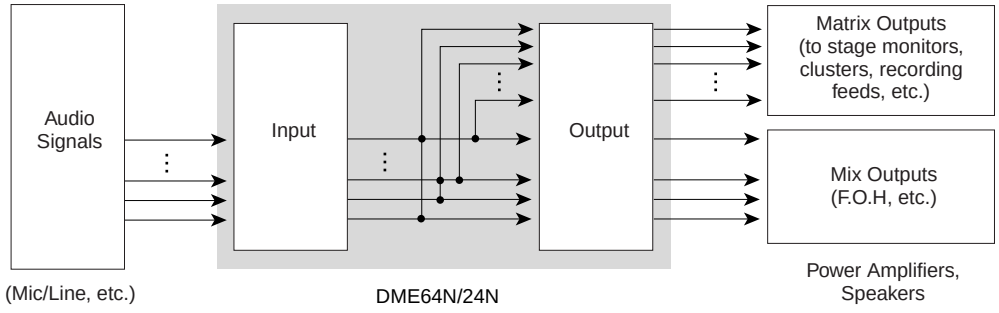
DME64N/24N Audio System Overview

The DME64N/24N Configurable Digital Mixing Engine

In addition to basic mixing and matrix output functions, the DME64N/24N includes a full range of processing modules – equalizers, compressors, reverb and delay, effects, etc. – that can be patched together using the DME Designer software to support just about any audio system you need. It can serve as the central audio processing and routing unit in an installed system, or it can serve to augment the functionality of an existing or touring system. A few examples are provided below:

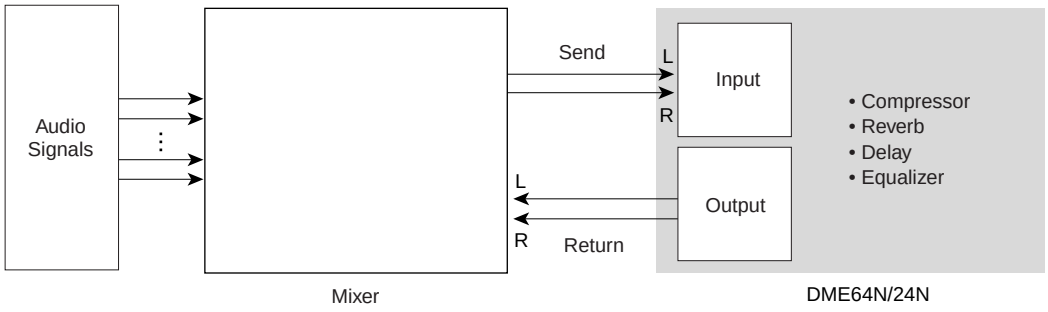
Matrix Output Expansion

Particularly in concert situations there always seems to be a need for more feeds and outputs. The DME64N/24N can function as an extremely versatile output matrix/router system that can be easily reconfigured to meet changing system requirements.



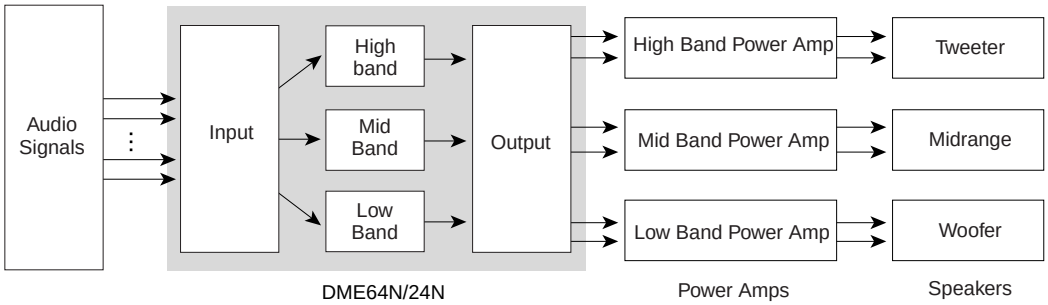
Outboard Signal Processing

A single DME64N/24N can replace racks of standard outboard processing and effects gear.



Output Processor

Multi-band output processing is just one of the many output processing functions the DME64N/24N could be applied to. A single DME64N can handle up to 64 channels, while a DME24N can handle up to 24 channels, for extraordinary capacity and versatility.

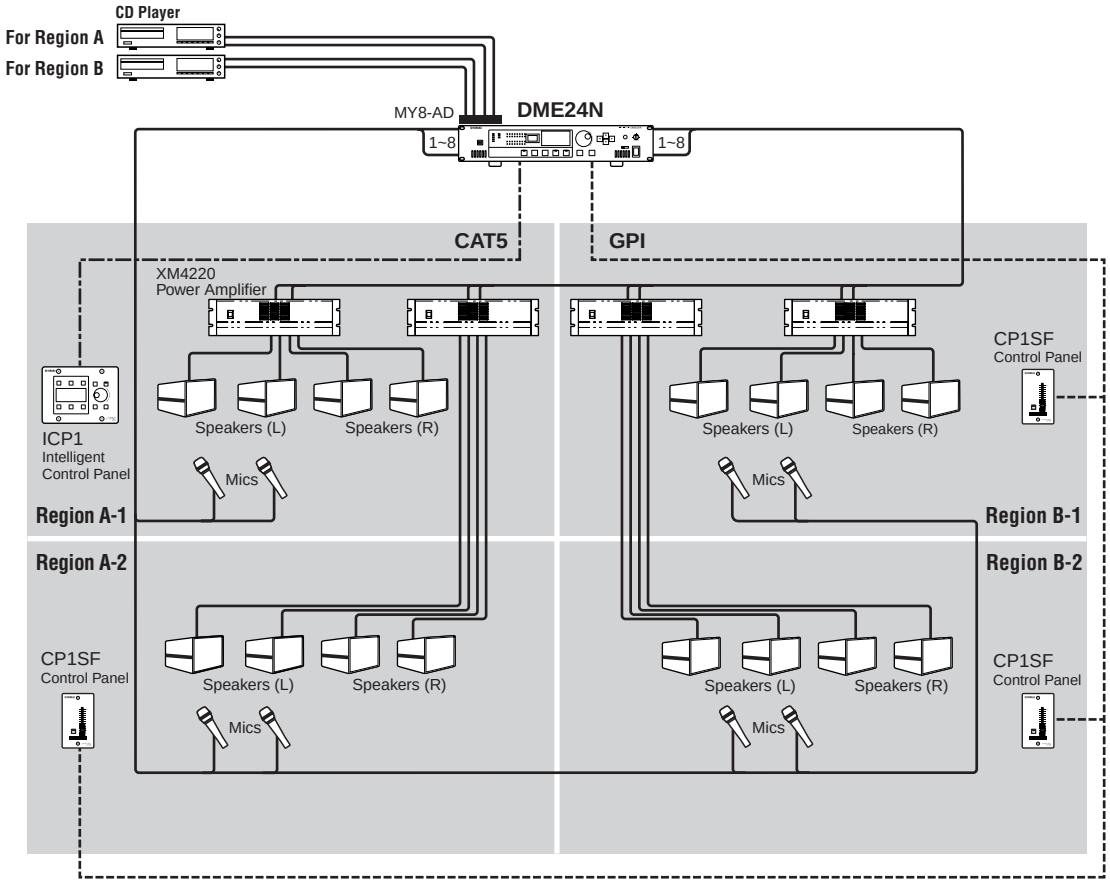


System Examples

Single DME24N: A Meeting Room Installation

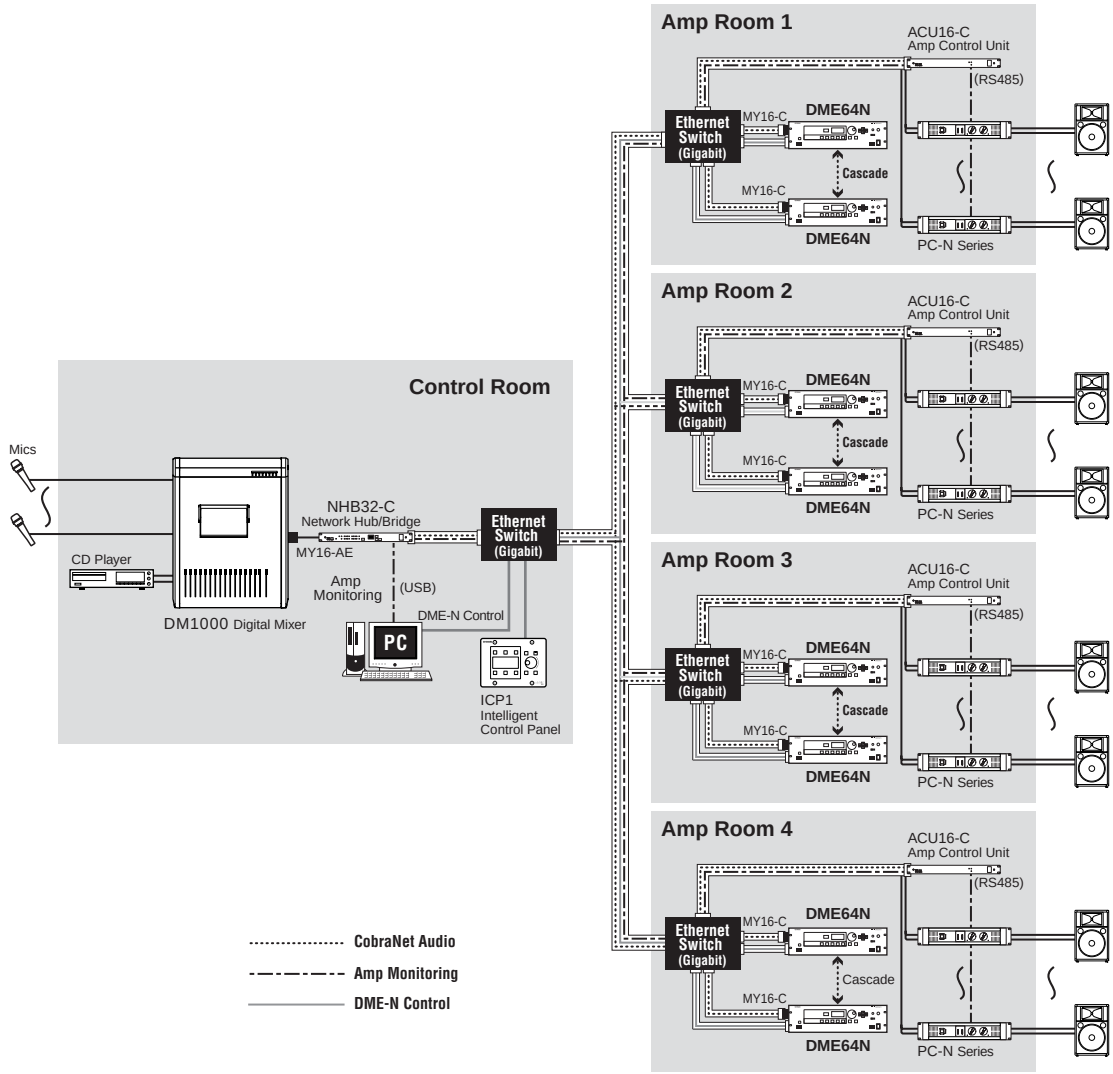
Here's an example of a single DME24N used to control the sound in four partitionable regions. The built-in microphone preamplifiers and A/D converters allow direct connection of up to 8 microphone inputs, while the 8 analog outputs can directly feed four stereo power amplifiers. Scenes can be set up to handle any of the possible partition configurations, allowing background music and microphone sources to be handled as required by each configuration.

In this example an ICP1 Intelligent Control Panel is installed in one region to allow scene recall and parameter control. Other regions have a 1-fader 1-switch CP1SF control panels to allow users to adjust microphone and background music levels.



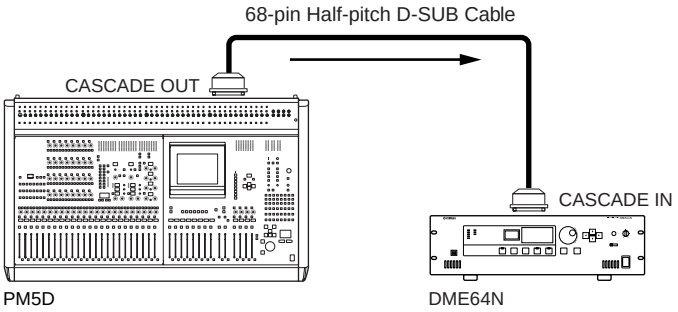
Multiple DME64N: Large Stadium Or Multi-purpose Hall System

In this system live audio from microphones is mixed with background music and other sources in the central control room using a Yamaha DM1000 digital mixing console. A DM1000 equipped with an MY16-AE digital I/O card and an NHB32-C network hub bridge can feed the control room output to the system's DME64N units over distances of up to 2 kilometers via multimode optical fiber cables. The control room also houses the system-control computer running the DME Designer application software, and an ICP1 Intelligent Control Panel for general DME unit control. The audio and control signals from the control room are distributed to four amp rooms (zones) via the CobraNet Ethernet cable. One or more DME64N units in each amp room handles signal routing and output processing (equalization, limiting, crossover) and the resultant digital output is converted to analog audio and fed to the power amplifiers via ACU16-C Amplifier Control Units. Scene switching to accommodate a variety of spectator/audience seating areas for different types of events can be handled from both the control-room PC and ICP1 control panel.



Single DME64N: Sound Reinforcement

For live sound reinforcement applications a DME64N can be connected to a Yamaha PM5D digital mixing console, for example, to provide significantly expanded processing power. In this type of application the DME64N could be used to provide up to an additional 64 matrix outs as well as output processing such as GEQs, level controls, crossovers, delays, and more. The DME-to-console connection can be made either the cascade connector.

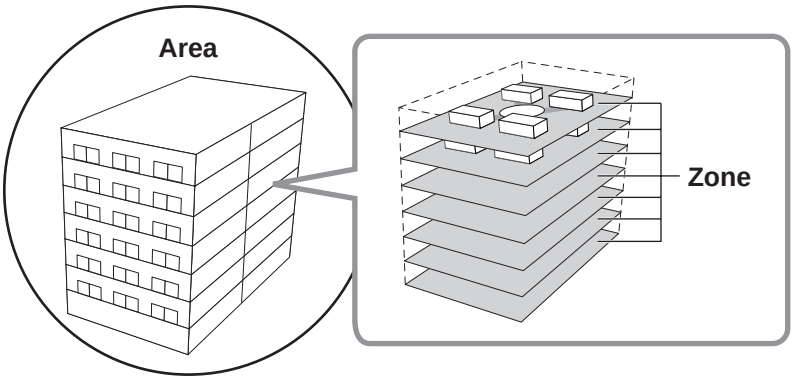


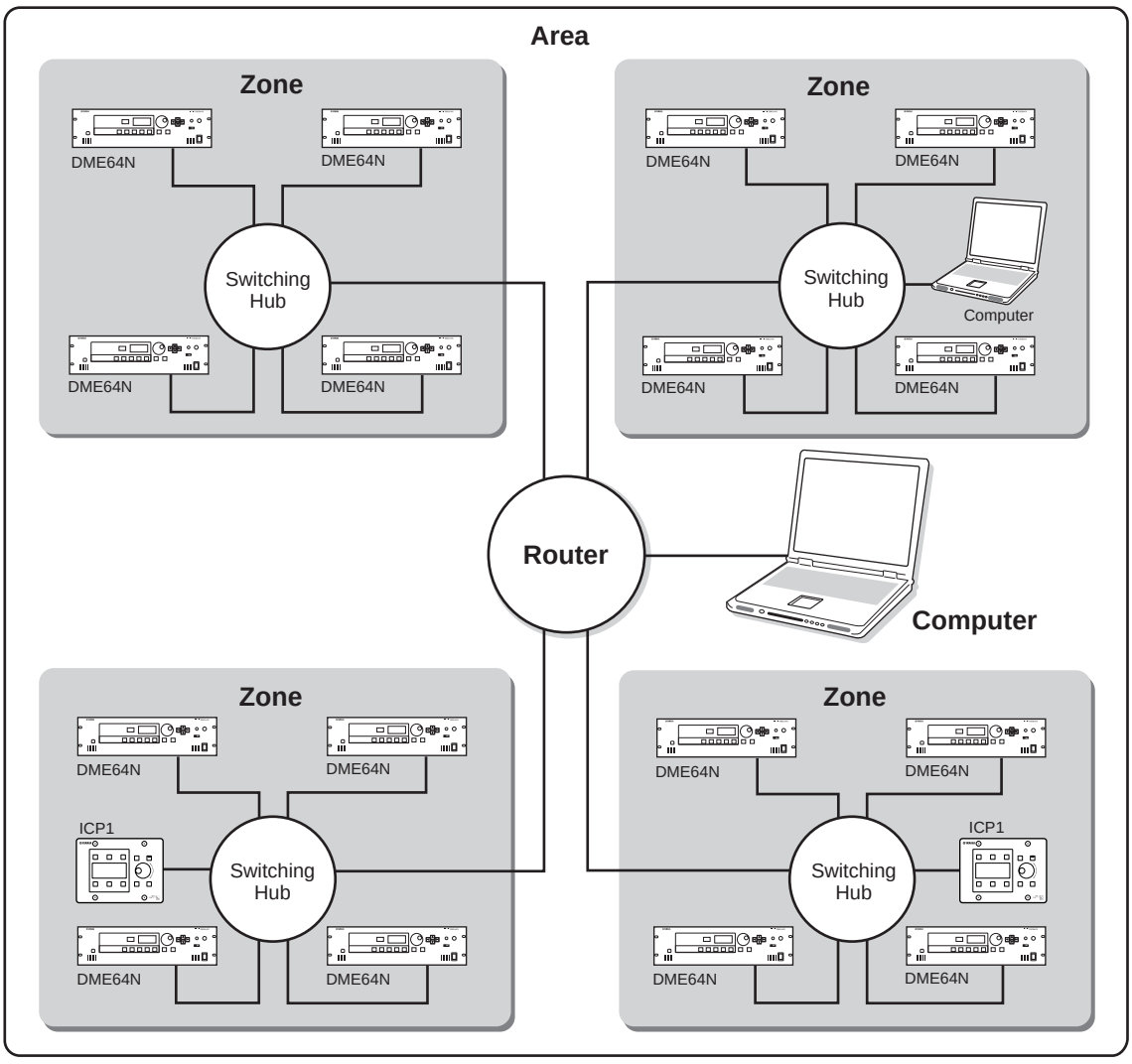
DME64N/24N Audio System Network

To facilitate understanding and conceptualizing an overall DME64N/24N system, the terms “area” and “zone” are applied. The entire area serviced by the system is the “area,” while audio processing divisions within the area are “zones.” A single computer can be used to control the entire area as well as individual zones in a DME64N/24N audio system.

Up to 16 DME64N/24N units can operate in any one zone. DME64N/24N units in each zone are interconnected and function as a single system.

Each zone always includes one DME64N/24N, which functions as the “zone master” and controls all other DME64N/24N and ICP1 units (zone slaves) in the same zone. If a computer is connected to the zone master, the computer can be used to control all devices in the zones.





DME64N/24N Audio System Control

To facilitate understanding and controlling an overall DME64N/24N system, the terms “component,” “parameter,” “scene,” and “user-defined parameter” are applied.

Components & Parameters

The individual audio modules (equalizers, compressors, etc.) are called “components.” Head amplifier modules are also prepared as components. Changing the parameters of components enables control over the operation of the components.

Configurations

A “configuration” is a complete set of components for constructing an audio system. Each configuration determines the audio function(s) of the corresponding DME64N/24N unit. All parameter sets included with each component are called “preset parameters.” One DME64N/24N unit has a number of configurations, and a configuration has a number of preset parameters.

User-defined Parameters

By assigning a parameter to a user-defined parameter, the user-defined parameter can be controlled from the panels of the DME64N/24N and ICP1, or other controllers connected via MIDI or GPI. Multiple parameters assigned to a single user-defined parameter will be controlled simultaneously. Up to 24 user-defined parameters can be used in a zone.

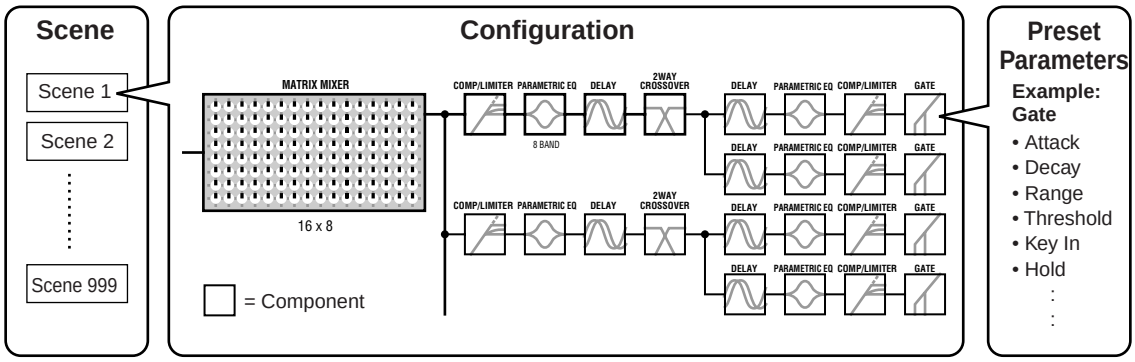
Scenes

A combination of all configuration and preset parameter combinations is called a “scene.” A scene determines the audio effect(s) in the zone. Scenes can be recalled from the panels of the DME64N/24N and ICP1, other controllers connected via MIDI or GPI, or computer control. Up to 999 scenes can be stored for each zone.

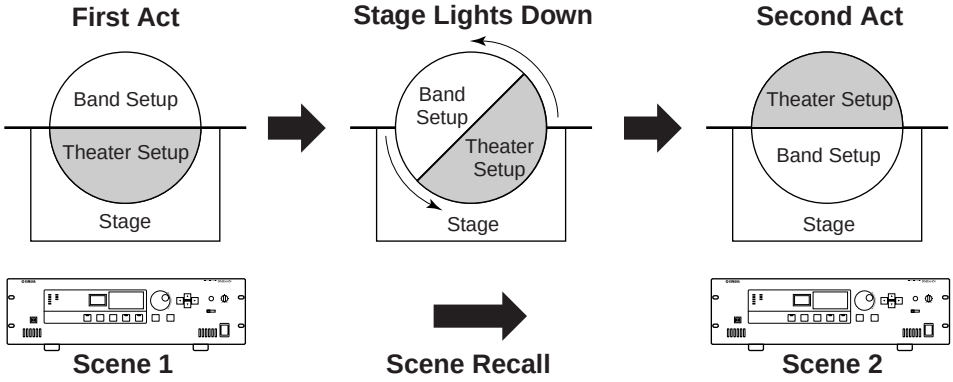
NOTE

Slight delays might be experienced when switching scenes or editing user-defined parameters, depending on the network condition.

Scene Structure



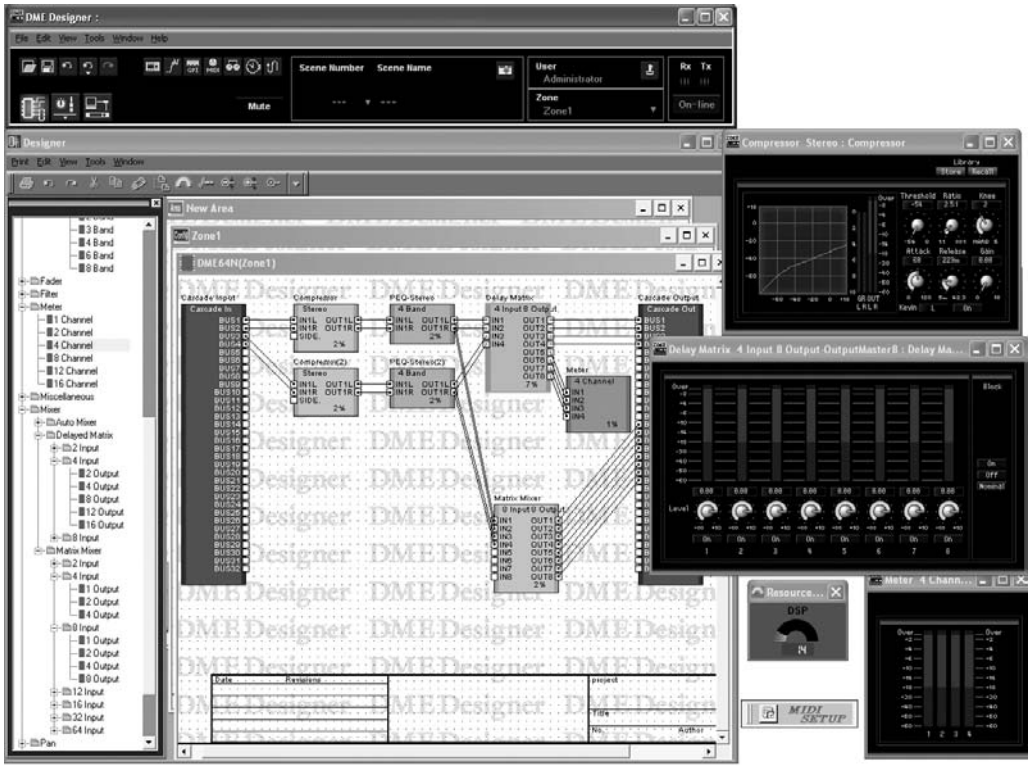
Scene Change



DME Designer

The DME Designer software application, supplied with the DME64N/24N, can be used to create configurations as well as control the entire area.

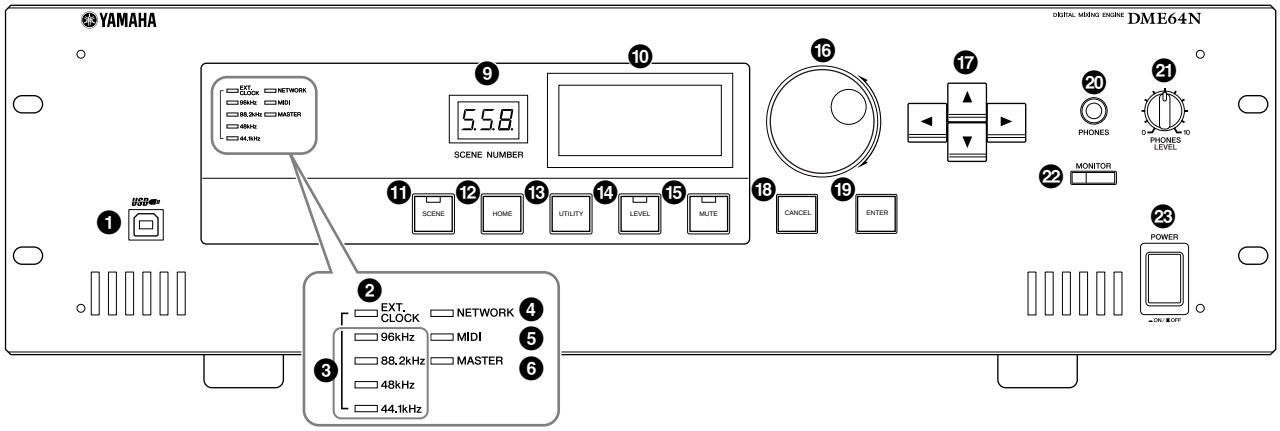
A DME64N/24N network system cannot be set up entirely from the DME64N/24N alone. Configurations and scene data must be created on a computer running the DME Designer application, and then transferred from the computer to the DME64N/24N. The DME Designer can also be used to determine how external controllers will control DME64N/24N parameters.
Refer to the DME Designer Installation Guide for detailed information on connecting a computer to the DME64N/24N and installing the required software drivers.
Refer to the DME Designer Owner's Manual for setup and operation instructions. The PDF manual will automatically be copied to the computer when the DME Designer application is installed.



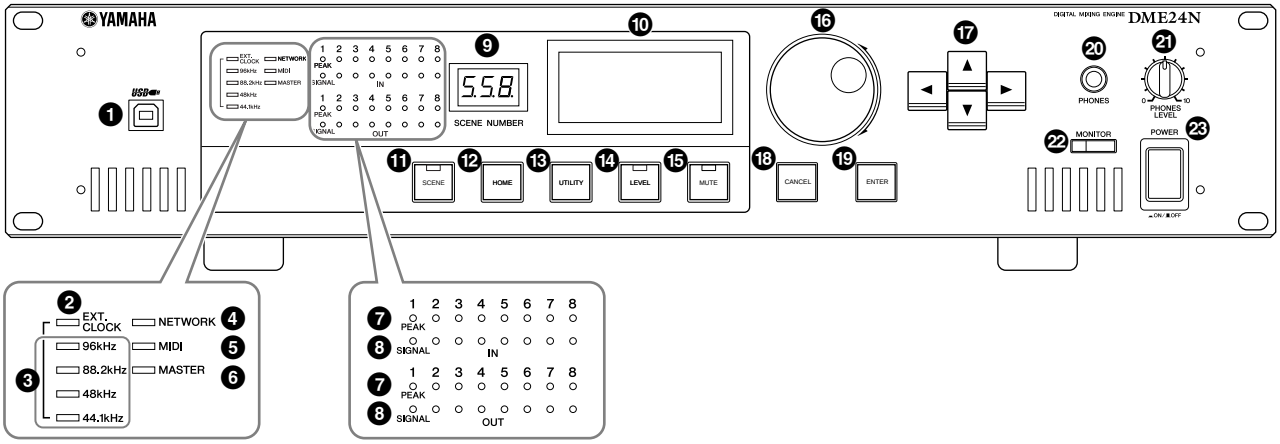
The Controls and Connectors

Front Panel

DME64N



DME24N



❶ [USB] Connector

A computer can be connected here when it is necessary to program or control the device. When a USB connection is to be used, the USB-MIDI driver must be installed on the computer. Refer to the DME Designer Installation Guide for installation instructions.

❷ [EXT. CLOCK] Indicator

When a clock signal from an external device is selected, the indicator will light green. If the clock signal is not appropriate the indicator will flash red. The indicator will go out when the internal word clock is selected.

❸ [96kHz] [88.2kHz] [48kHz] [44.1kHz] Indicator

Normally, the indicator corresponding to the current word clock frequency will light green. If a problem with the master clock is detected all of these indicators will flash red. 2 seconds after a problem is detected with an external master clock the internal clock will temporarily be selected. When this happens the indicator corresponding to the frequency of the internal clock will light green, and all other indicators will continue to flash red.

❹ [NETWORK] Indicator

Lights while data communication is occurring via the [USB], [NETWORK], or [CASCADE] connector. Received data causes the indicator to light in green, while transmitted data causes the indicator to light in orange. If a problem occurs the indicator will light in red.

❺ [MIDI] Indicator
Lights while data communication is occurring via the [MIDI] connector. Received data causes the indicator to light green, while transmitted data causes the indicator to light orange. The indicator will light green when reception and transmission occur simultaneously. If a problem occurs the indicator will light red.

❻ [MASTER] Indicator
Lights green when the device is operating as the zone master (page 13). The indicator will not light if the device is operating as a zone slave. Refer to page 48 for zone master setup instructions.

❼ [PEAK] Indicator (DME24N only)
Light red when a signal on the corresponding built-in analog audio input or output ([IN] and [OUT] connectors) reaches or exceeds -3 dB.

❽ [SIGNAL] Indicator (DME24N only)
Light green when a signal with a level greater than -40 dB is present at the built-in analog audio inputs and outputs ([IN] and [OUT] connectors).

NOTE

The DME64N has no built-in analog audio inputs or outputs ([IN] and [OUT] connectors).

❾ [SCENE NUMBER] Indicator
Shows the current scene number.

❿ Display
Displays scene information and device parameters.

⓫ [SCENE] Button
Calls the scene recall/store display (page 43). The scene store display will appear if the button is held for longer than 2 seconds (page 43). The indicator will light green while the scene recall or store display is showing.

⓬ [HOME] Button
Directly recalls the home (main) display. If pressed while the main display is showing the [HOME] button steps through the user-defined parameter display pages (refer to page 42 in this manual).

⓭ [UTILITY] Button
Calls the output level display. If this button is held for longer than 2 seconds while the main display is showing the utility display will appear. Switches between the Utility display pages if pressed while the Utility display is showing.

⓮ [LEVEL] Button
Calls the output level setup display (page 46).
The indicator will light green.

⓯ [MUTE] Button
Calls the mute display (page 42). The indicator will light orange when mute is on. The indicator will light green when mute is off and the mute display is showing, and will be off if the mute display is not showing.

⓰ Dial
Adjusts the value of selected parameters.

⓱ [◀] [▲] [▼] [▶] Buttons
Move the display cursor in the corresponding directions.

⓲ [CANCEL] Button
Closes the window on the display.

⓳ [ENTER] Button
Confirms and enters a value or setting.

⓴ [PHONES] Jack
A pair of headphones can be plugged in here.

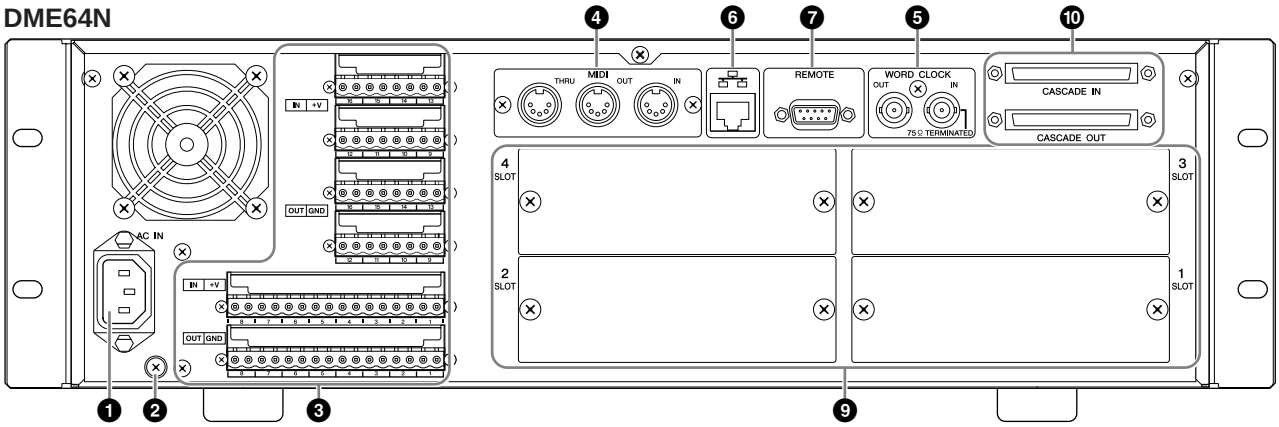
㉑ [PHONES LEVEL] Control
Adjusts the headphone volume. Even when the control is set to the minimum level, the sound at the headphones is not completely muted.

㉒ [MONITOR] Button
Calls the monitoring point slot selection display (page 44). When the [ENTER] button is pressed to select a slot, the monitoring point selection display will appear.
The spectrum analyzer display will then appear when the [ENTER] button is pressed to select a monitoring point.
The indicator will light green while the monitoring slot/point or spectrum analyzer display is showing.

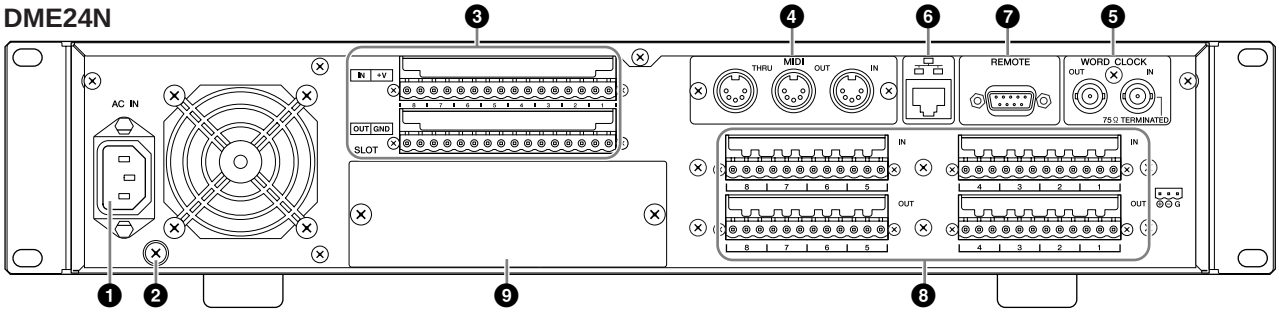
㉓ [POWER] Switch
Turns mains power to the device on and off.

Rear Panel

DME64N



DME24N



❶ [AC IN] Connector

This is the device's three-pronged AC power connector. Connect to the AC mains using the supplied AC power cord. See "Preparation" on page 20 for details.

NOTE

Use the supplied AC cord clamp to prevent accidental disconnection of the AC power.

NOTE

When connecting to two-prong type AC mains outlets use the supplied plug adaptor.

❷ Ground Screw

The supplied power cable has a three-prong plug that will ground the unit when plugged into an appropriate three-prong type AC mains outlet. When connecting to a two-prong type outlet that has a ground screw, use the supplied AC plug adaptor and connect the adaptor's ground lead to the ground screw. When connecting to a two-prong type outlet that does not have a ground screw be sure to connect the DME64N/24N ground screw to a confirmed ground point. Proper grounding can significantly reduce hum, noise, and interference, while stabilizing phase and imaging.

NOTE

Make sure that the device is securely grounded to a single ground point (e.g. either via a three-prong AC connection, or via the ground screw.)

NOTE

Connect the device to only one ground point.
Connecting the device to more than ground point can result in ground loops that can cause increased hum and noise.

❸ [GPI] Connector

This Euroblock connector provides access to the unit's GPI (General Purpose Interface) interface for transfer of control signals to and from external equipment. The DME64N provides 16 channels of GPI input and output, while the DME24N provides 8 channels. Each input channel has an IN terminal and a +V terminal. Output channels each have an OUT terminal and a GND terminal. The open voltage at the +V terminal is 5V, while the IN terminal detects voltage changes from 0V ~ 5V. The OUT terminals output either 0V or 5V. See "GPI Connection" on page 31 for connection details.

❹ [MIDI IN] [MIDI OUT] [MIDI THRU] Connectors

These are standard MIDI connectors that handle reception and transmission of MIDI data: [MIDI IN] receives MIDI data, [MIDI OUT] transmits MIDI data, and [MIDI THRU] re-transmits MIDI data received at the [MIDI IN] connector. See “MIDI Connection” on page 30 for connection details.

❺ [WORD CLOCK IN] [WORD CLOCK OUT] Connectors

These BNC connector receive and transmit word clock from and to external equipment. See “Word Clock Connection” on page 33 for connection details. Word clock settings are available via the device’s Utility display WCLK page (see page 51 of this document).

❻ [NETWORK] Connector

This is a 100Base-TX/10Base-T Ethernet connector for connection to a computer or other DME64N/24N units. Normally this connector will be connected to a network hub via an Ethernet “straight” cable. When two DME64N/24N units are to be directly connected a “cross” cable should be used.

❼ [REMOTE] Connector

This 9-pin D-SUB connector allows connection to Yamaha AD824 or AD8HR remote head amplifiers or other RS-232C compatible controllers. Refer to page 34 for connection details.

❽ [IN] [OUT] Connectors (DME24N only)

These are balanced Euroblock connectors for analog audio input and output. The analog signal from microphones or line sources such as CD players can be input via the IN connectors, while the OUT connectors can deliver analog output to powered speakers or recording equipment. 48V phantom power can be supplied to the IN connectors (page 54). Refer to page 35 for [IN] and [OUT] connection details.

NOTE

The [IN] and [OUT] connectors each have 24 terminal pins. Each of the eight inputs and outputs uses three pins – hot, cold, and ground. Use the supplied 3-pin Euroblock plugs to connect to the appropriate inputs and outputs.

❾ I/O Slots

Optional Yamaha or third-party mini-YGDAI cards can be plugged in here for system expansion. The DME64N has four I/O slots, while the DME24N has one.
One expansion card can be plugged into each slot. Refer to “I/O Card Installation” on page 22 for installation details.

❿ [CASCADE IN] [CASCADE OUT] Connectors (DME64N only)

This 68-pin D-SUB connector can be connected to the CASCADE connector of other devices via a dedicated cascade cable. The CASCADE connector transmits and receives control, audio, and word clock signals. Refer to “Cascade Connection” on page 32 for connection details.

Preparation

Setup Procedure

Follow the steps outlined below to prepare the DME64N/24N for operation.

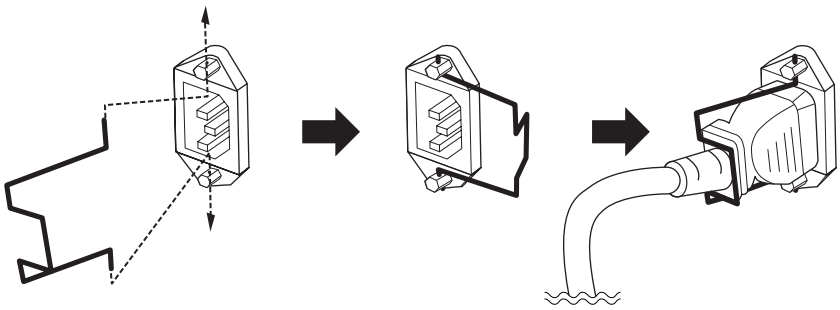
1. Install any required I/O cards.

Refer to "I/O Card Installation" on page 22 for details.

2. Connect the AC power cord.

CAUTION **Be sure to turn all devices OFF before connecting AC mains power. Attach the cable clamp to prevent accidental disconnection.**

Attaching the cable clamp.



Be sure to properly ground the device to prevent possible electrical shock.

First plug the female-connector end of the AC cord into the [AC IN] socket on the rear panel of the DME64N/24N, then plug the male plug into an appropriate AC mains outlet. Make sure the AC power to be used complies with the conditions marked on the top cover of the device.

WARNING **Use only the AC power cord supplied with the DME64N/24N. If the supplied cord is lost or damaged ands needs to be replaced, contact your Yamaha dealer. The use of an inappropriate replacement can pose a fire and shock hazard!**
The type of AC power cord provided with the DME64N/24N may be different depending on the country in which it is purchased (a third prong may be provided for grounding purposes). Improper connection of the grounding conductor can create the risk of electrical shock. Do NOT modify the plug provided with the DME64N/24N. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician. Do not use a plug adapter which defeats the grounding conductor.

Security Cover Mounting

Security cover mounting screw holes (M3 size) are provided on the front panel of the unit. The spacings are 423mm width and 96mm (DME64N) / 52mm (DME24N) height. See "Dimensions" on page 68 for details. A security cover made by the customer or contractor can be attached to the front panel via these mounting holes to prevent accidental operation. Yamaha cannot supply a security cover.
When mounting a cover make sure that the screws used do not go deeper than 15 millimeters into the front panel. Also, to ensure that the cover does not come in contact with the panel controls, leave a space of about 20 millimeters between the front panel and the cover.

3. Install the DME Designer software and necessary drivers on the computer to be used for zone control.

See the separate "DME Designer Installation Guide" for details.

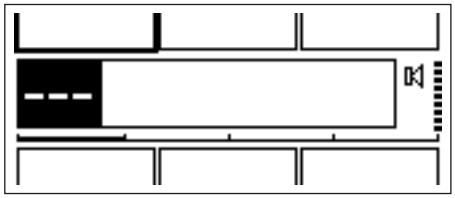
4. Connect the device to the computer and/or other equipment.

Refer to "Connection" on page 24 for details.

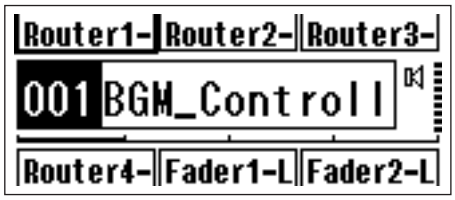
5. Turn power to the computer, DME64N/24N, and related devices on. Press the DME64N/24N [POWER] switch to turn it on.

CAUTION **To prevent the initial power-on surge from generating a large noise spike or damaging your speaker system, turn devices on in the following order: audio sources, mixer and/or recorders, and finally power amplifiers. Reverse this order when turning power off.**

No information will appear on the display the first time the device is turned on. The appropriate scene and other data must first be transferred to the device from the DME Designer.



Once the appropriate data has been transferred to the device, the current number and name will appear on the display:



If any scene data has been stored in the DME64N/24N, the current scene and its name will be displayed.

6. Set up the DME64N/24N operation parameters.

See the "Utility Display" section on page 47 for details.

NOTE

The "NET" page settings must be set up as required before using the unit for the first time.

7. Launch the DME Designer application on the computer.

DME Designer setup, operation, and data transfer instructions can be found in the DME Designer Manual.

This completes preparation of the DME64N/24N system.

I/O Card Installation

The DME64N has four I/O card slots, and the DME24N has one I/O card slot. The number of audio input channels available on the DME64N/24N can be increased by plugging the appropriate mini-YGDAI I/O card(s) into the available card slot(s).

Compatible I/O Cards

As of July 2004, Yamaha mini-YGDAI cards that can be used with the DME64N/24N are as follows:

Card Name	Function	Input	Output	No. of Available Cards	
				DME64N	DME24N
MY8-AT	ADAT	8	8	4	1
MY8-TD	TDIF-1	8	8	4	1
MY8-AE	AES/EBU	8	8	4	1
MY4-AD	ANALOG IN	4	–	4	1
MY8-AD	ANALOG IN	8	–	4	1
MY4-DA	ANALOG OUT	–	4	4	1
MY8-AD24	ANALOG IN	8	–	4	1
MY8-AD96	ANALOG IN	8	–	4	1
MY8-DA96	ANALOG OUT	–	8	4	1
MY8-AE96S	AES/EBU	8	8	4	1
MY8-AE96	AES/EBU	8	8	4	1
MY16-AT	ADAT	16	16	4	1
MY16-AE	AES/EBU	16	16	4	1
MY16-TD	TDIF-1	16	16	4	1
MY16-C	CobraNet	16	16	2	1

The input/output numbers above apply to 44.1/48kHz operation.

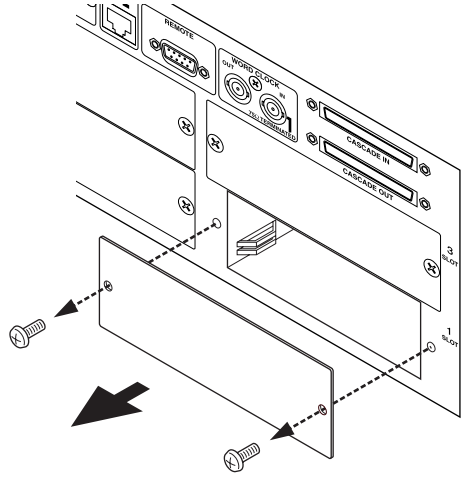
For the latest information on what cards can be used with the DME64N/24N, visit the Yamaha Pro Audio website at: **http://www.yamahaproaudio.com/**

I/O Card Installation Procedure

1. Make sure that the DME64N/24N power is OFF.

If the power is on, turn it off.

2. Loosen the two card slot screws and remove the slot cover, as shown in the diagram.

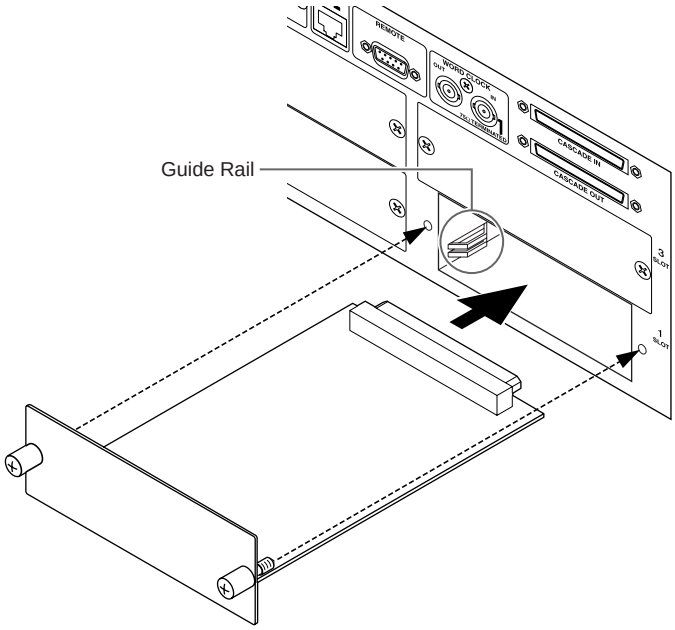


NOTE

The slot cover and screws will need to be re-attached if the I/O card is later removed from the slot, so keep them in a safe place.

3. Slide the I/O card into the slots in the guide rails, as shown in the diagram, and push the card into the slot.

Be sure to push the card all the way back into the slot so that the card contacts make proper contact with the slot connector.



4. Secure the card with the attached screws.

CAUTION **Be sure to tighten the screws securely. If the screws are left loose proper contact may be lost and malfunction of damage may result.**

Connection

The DME64N/24N must be connected to other DME64N/24N units as well as other audio equipment, according to the audio system design.

Signal Types

DME64N/24N audio system signals can be broadly categorized as follows.

1. Audio

The DME64N/24N will be required to send and receive audio signals to and from other DME64N/24N units as well as other audio equipment. Audio signal transmission and reception will occur primarily via I/O cards installed in the unit's I/O card slot(s). The DME24N has 8 channels of built-in audio I/O that can be used without installing any extra cards.

2. Zone Control

Zone control signals control all DME64N/24N units and ICP1 control panels within the zone. There are two types of zone control signals, as follows:

- Signals for communication between the computer or mixer that controls the entire area and the zone master DME64N/24N.
- Signals for communication between the zone master DME64N/24N and other DME64N/24N within the zone.

The DME Designer application running on the area-control computer is used to send components and set parameters as required.

3. Device Control

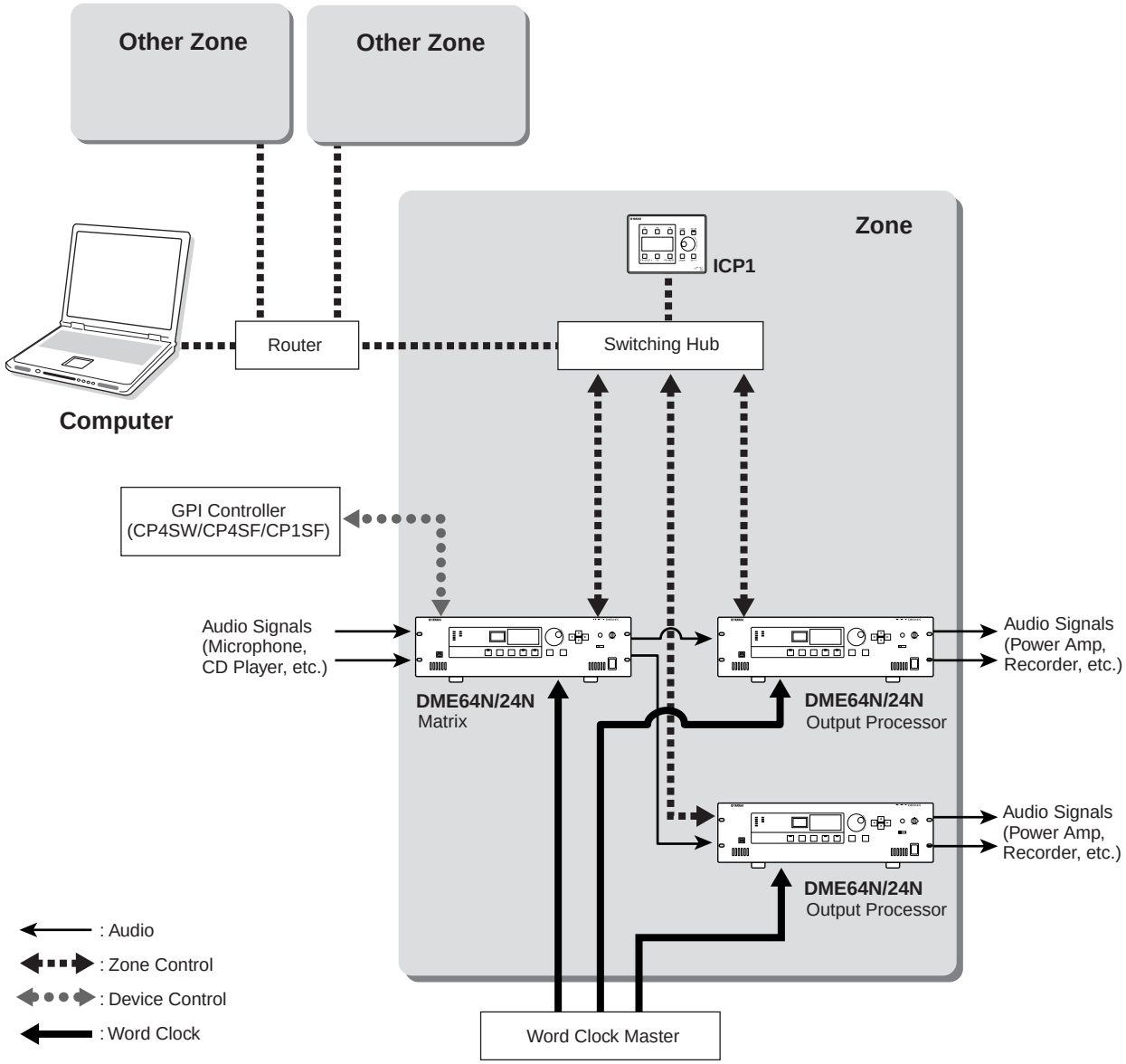
These signals provide communication and control between individual devices. Included in this category are MIDI messages transferred between [USB] and [MIDI] connectors, GPI signals transferred between [GPI] connectors, and remote head amp control signals handle via the [REMOTE] connector.

4. Word Clock

Individual devices that handle the same digital audio signals must be synchronized to a single word clock of the same frequency. The DME64N/24N transmits and receives word clock via the [CASCADE IN] and [CASCADE OUT] connectors, the [WORD CLOCK IN] and [WORD CLOCK OUT] connectors, and via I/O cards plugged into the I/O card slots.

DME64N/24N Signal Types

	Connector	Audio Signal	Zone Control	Device Control	Word Clock	Page
USB Connection	[USB] Connector	–	Control signals from computer to zone master DME64N/24N.	Transmission/reception of control signals (MIDI commands) between computer and DME64N/24N.	–	Page 26
Ethernet Connection	[NETWORK] Connector	–	Control signals between computer and zone master, and between zone master and other DME64N/24N units in the zone.	–	–	Page 27
MIDI Connection	[MIDI] Connector	–	–	Transmission/reception of control signals (MIDI commands) between MIDI controller and DME64N/24N.	–	Page 30
GPI Connection	[GPI] Connector	–	–	Transmission/reception of GPI control signals between GPI device (GPI controller, etc.) and DME64N/24N.	–	Page 31
CASCADE Connection (DME64N only)	[CASCADE] Connector	32 channels of input/output.	Control signals from mixer to zone master DME64N/24N.	–	Word clock transmission and reception to and from other devices.	Page 32
WORD CLOCK Connection	[WORD CLOCK] Connector	–	–	–	Word clock transmission and reception to and from other devices.	Page 33
REMOTE Connection	[REMOTE] Connector	–	–	Control signal transmission and reception to and from head amplifier.	–	Page 34
Audio I/O (DME24N only)	(Audio I/O Connectors)	8 channels of input and output.	–	–	–	Page 35
I/O Card	(I/O Slot)	Number of I/O channels depends on card.	–	Serial signal transmission/ reception (depending on function of card).	Word clock transmission and reception to and from other devices (depending on function of card).	Page 37


Other Zone
Other Zone
Zone
ICP1
Router
Switching Hub
Computer
GPI Controller
(CP4SW/CP4SF/CP1SF)
Audio Signals
(Microphone,
CD Player, etc.)
DME64N/24N
Matrix
DME64N/24N
Output Processor
Audio Signals
(Power Amp,
Recorder, etc.)
Audio Signals
(Power Amp,
Recorder, etc.)
DME64N/24N
Output Processor
: Audio
: Zone Control
: Device Control
: Word Clock
Word Clock Master

USB Connection

Connect the DME64N/24N [USB] connector to the computer's USB connector using a USB cable.
USB connections can be used in the following two ways:

(1) Connect the computer to, and control the zone master DME64N/24N using the DME Designer.
(2) Connect to any individual DME64N/24N and control that DME64N/24N unit using MIDI commands from a MIDI sequencer or similar software.

DME Designer can be used for overall zone control, as well as sending components to the zone via the zone master.

When using MIDI commands from a MIDI sequencer to directly control a DME64N/24N, HOST (see page 52) should be set to USB-1 or USB-2.

NOTE

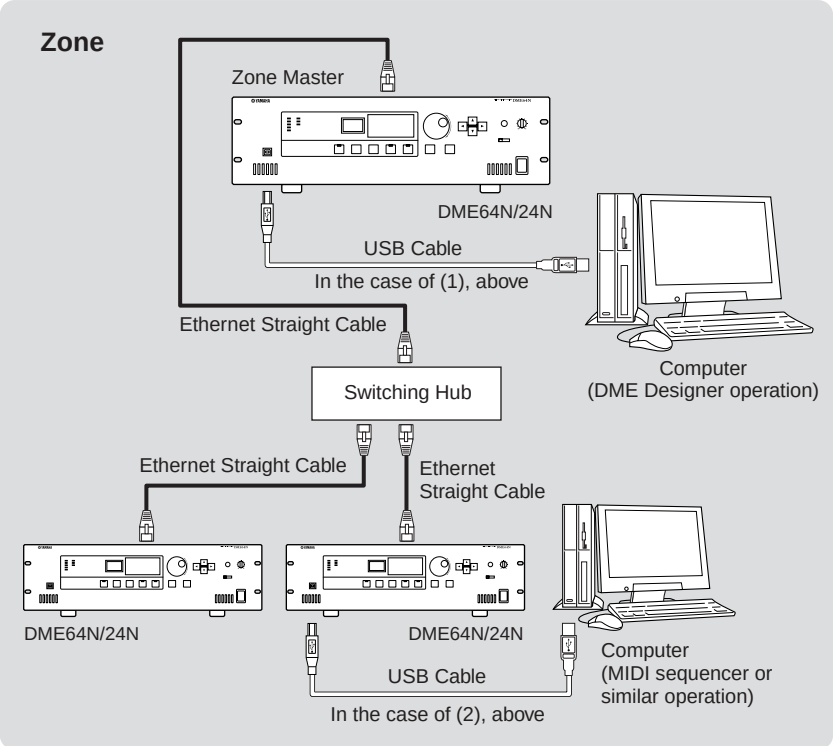
The correspondence between the MIDI commands to be received/transmitted and the scene parameters can be set up using the DME Designer.

NOTE

The USB port being used by the DME Designer cannot also be used by a MIDI sequencer or other application.

NOTE

When connecting a computer to a DME64N/24N via USB, the appropriate USB-MIDI driver must be installed on the computer. Refer to the DME Designer Installation Guide for details on installing the appropriate driver.
Make sure that the USB-MIDI driver THRU setting is "OFF."



Ethernet Connection ([NETWORK] Connector)

Connect the [NETWORK] connector on the rear panel of the DME64N/24N to the network switching hub via a straight Ethernet cable.
Ethernet connections can be used in the following two ways:

- Connect the computer to the zone master DME64N/24N.
- Connect the zone master DME64N/24N to zone slave DME64N/24N units.

Appropriate IP addresses must be assigned to all devices connected to an Ethernet network. Refer to the Utility display Net page (page 48 of this document) for IP address setting details.

NOTE

When connecting a computer to a DME64N/24N via Ethernet, the appropriate DME-N Network driver must be installed on the computer. Refer to the DME Designer Installation Guide for details on installing the appropriate driver.

A DME64N/24N Ethernet connection falls into the "Class C Network" category. In a class C network, of the assignable IP addresses "###.###.###.$$$", "###.###.###" is the network address and "$$$" is the host address. Devices assigned the same network address will function within the same zone. The host address range is 2 ~ 254. When the host address is "2" the device is the zone master, while host addresses from 3 to 254 are assigned to zone slaves. Only one zone master can be assigned in any one zone.

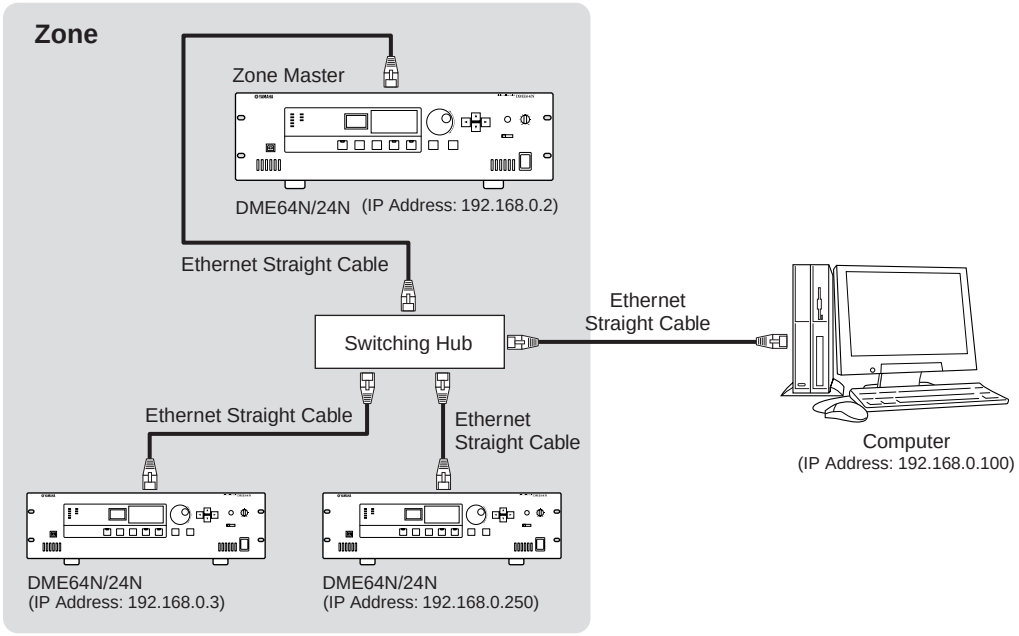
Devices in the same zone (devices having the same network address) can be directly connected using cross cables, or by using straight cables via a switching hub.
Devices in different zones (devices having different network addresses) can be connected via a router or layer-3 compliant switching hub.

DME64N/24N Units Directly Connected via Ethernet

NOTE

A cross cable can be used to directly connect DME64N/24N and/or ICP1 units. In such cases set the Link Mode parameters in the network settings pages of both units the same way (page 49 of this document).

Control from a Computer Having the Same Network Address



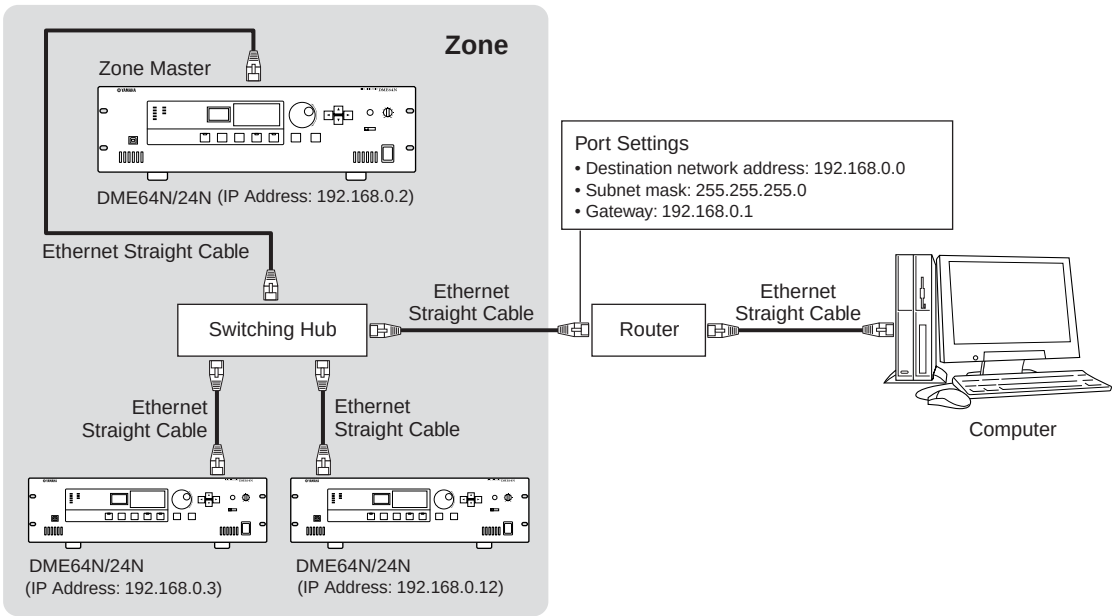
NOTE

The IP addresses in the diagram are examples.

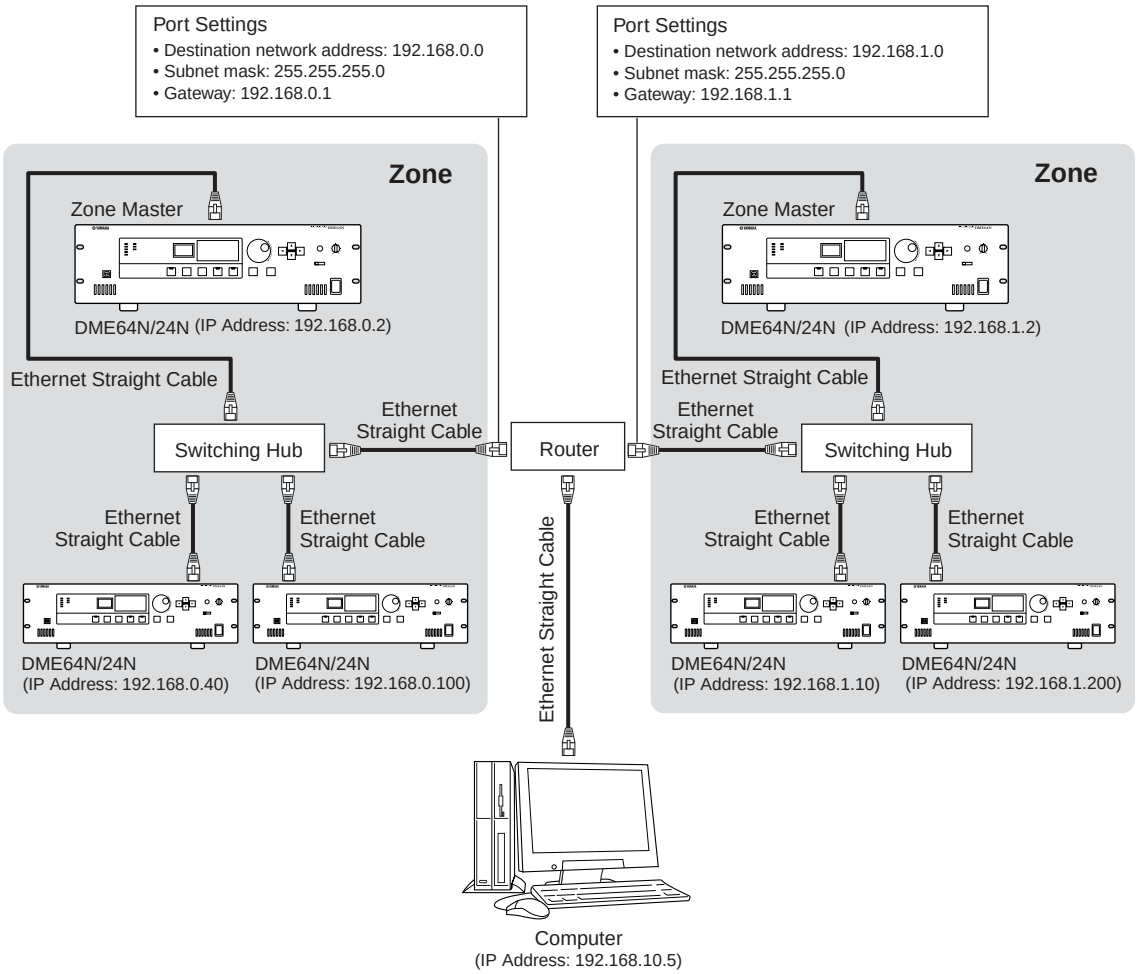
NOTE

Use a switching hub that is compatible with 100Base-TX/10Base-T network speeds.
When using category 5 UTP cable (Unshielded Twisted Pair), the total length of the cables connecting the DME64N/24N to the hub or control panel unit can be up to 100 meters. Due to differences in cable and switching hub performance, however, proper operation at the maximum length cannot be guaranteed in some cases. The maximum usable cable length will also be reduced if joint connectors, cross cable converters, or other extension adaptors are used.

Control from a Computer Having a Different Network Address



Connecting Multiple Zones



MIDI Connection

In this case connection is made to the rear-panel [MIDI] connectors. MIDI commands are sent to the DME64N/24N from a MIDI device.

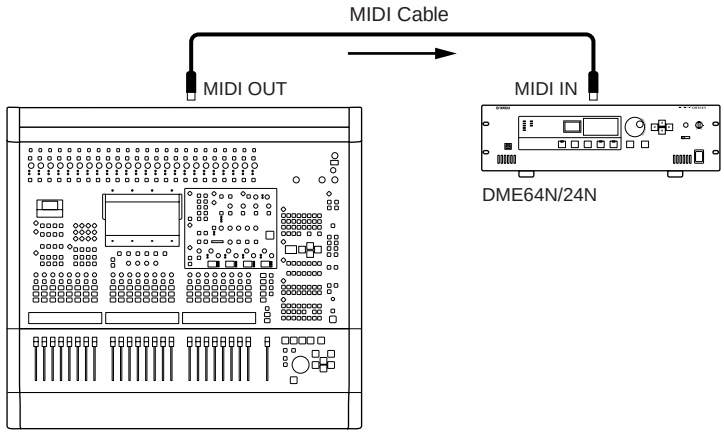
NOTE

Refer to "MIDI Page" on page 52 for MIDI setup details.

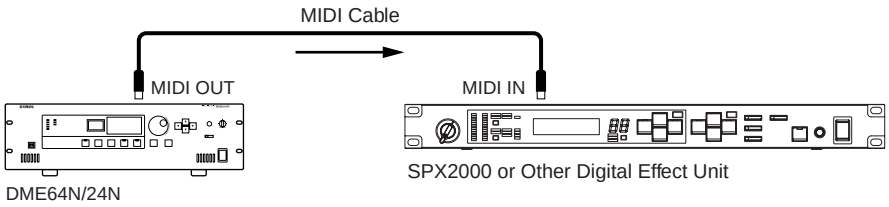
NOTE

The DME Designer can be used to set up the system so that scene recall operations and user parameter control can be carried out from connected MIDI devices. Refer to the DME Designer manual for details.

By connecting the [MIDI OUT] terminal of a digital mixer (such as the DM2000) to the [MIDI OUT] of the DME64N/24N and making the proper settings on the mixer and the DME64N/24N, you can change scenes by sending program change messages from the mixer.



If the [MIDI OUT] connector of the DME64N/24N is connected to the [MIDI IN] connector of an SPX2000 or similar digital effect unit, and if the DME64N/24N and SPX2000 are set up appropriately, DME64N/24N program change operations will case the corresponding effect to be recalled on the effect unit.



GPI Connection

GPI (General Purpose Interface) device (GPI controller, etc.) can be connected to the rear-panel [GPI] connectors. Using GPI a variety of control signals can be transferred between the DME64N/24N and external controllers or other devices. The optional CP4SW, CP4SF, and CP1SF control panels are also connected via GPI.

NOTE

For more information on the CP4SW, CP4SF, and CP1SF control panels refer to "CP4SW, CP4SF, and CP1SF" in the Appendix of this manual (page 59).

The DME64N provides 16 channels of GPI input and output, and the DME24N provides 8 channels. Each input channel has an IN terminal and a +V terminal. Each output channel has an OUT terminal and a GND terminal. The +V terminals have an open-terminal voltage of 5 volts. The IN terminals can detect a full range of input voltages from 0V through 5V, while the OUT terminals output either 0V or 5V.

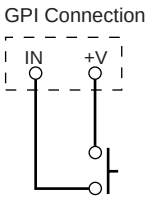
The parameters for each GPI input and output are assigned via the DME Designer application.

NOTE

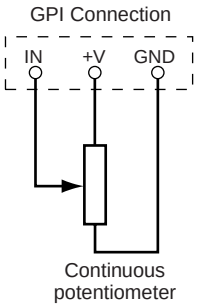
The DME Designer can be used to set up the system so that scene recall operations and user parameter control can be carried out from connected GPI control devices. Refer to the DME Designer manual for details.

Euroblock connectors are used for all GPI input and output connections. Euroblock connection methods are described in "Euroblock Connection" on page 35 in this manual.

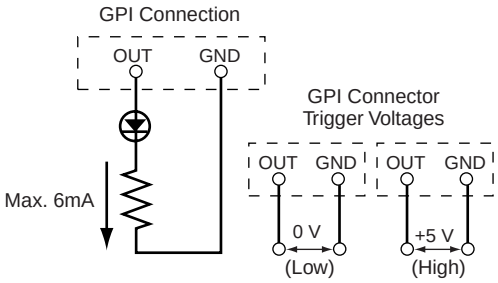
Example: Controlling the DME64N/24N from a switch.



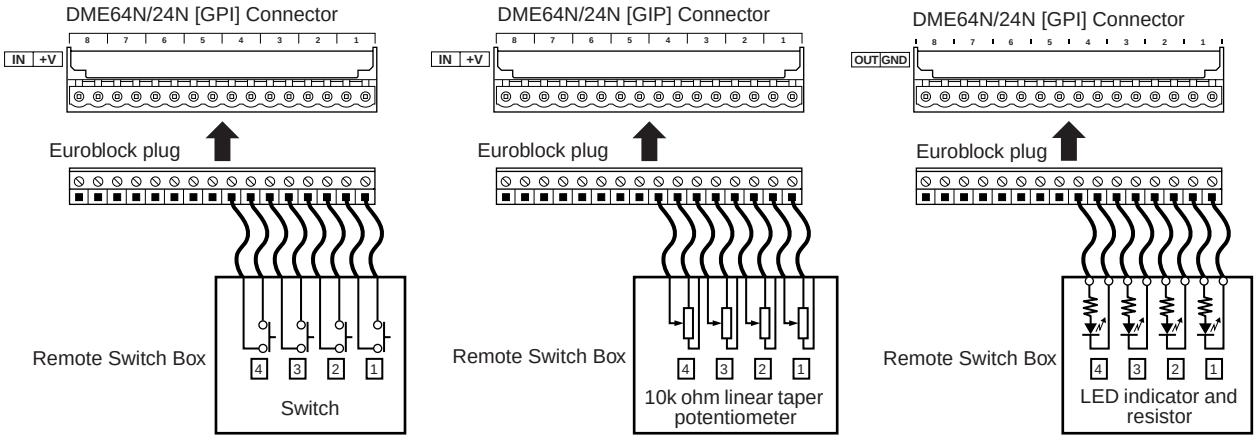
Example: Controlling the DME64N/24N via a 10k ohm linear taper potentiometer.



Example: Lighting external LED indicators from the DME64N/24N.



CAUTION **Make sure that the current between the OUT and GND [GPI] connectors is less than 6mA.**



NOTE

GPI connector calibration procedure is described on page 53 of this manual, in the Utility display GPI page.

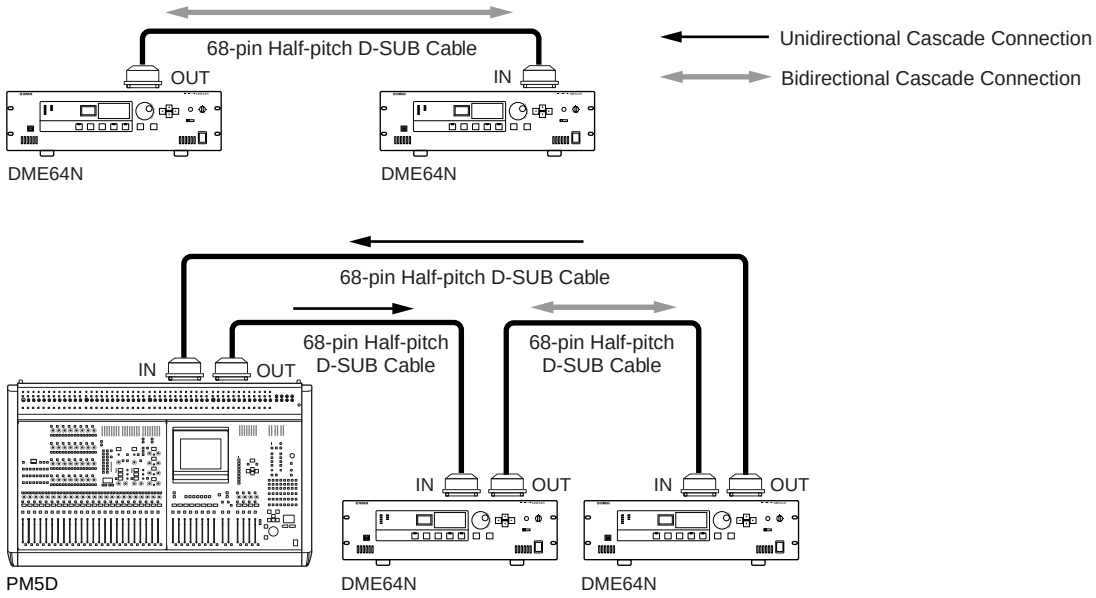
CASCADE Connection (DME64N only)

The rear-panel [CASCADE] connector can be connected to the [CASCADE] connector on another DME64N/24N or other compatible device via a dedicated cascade cable for bidirectional transfer of control, audio, and word clock signals. The communication direction automatically switches to unidirectional when connecting to a mixer such as the PM5D, or bidirectional when connecting to another DME64N/24N unit. In the unidirectional mode the audio signal flow is from the [CASCADE OUT] connector to the [CASCADE IN] connector. In the bidirectional mode signal flow also occurs in the reverse direction via the same cable. The total number of audio channels that can be connected to a mixer or DME64N/24N unit is 32.
Word clock is continuously output from both the [CASCADE IN] and [CASCADE OUT] connectors, and is received by the corresponding [CASCADE IN] or [CASCADE OUT] connector on the connected device.
In all cases the [CASCADE OUT] of one device must be connected to the [CASCADE IN] connector of the other. Do not connect [CASCADE IN] to [CASCADE IN], or [CASCADE OUT] to [CASCADE OUT].

NOTE

Maximum length by the optional dedicated Cascade cables
Unidirectional Cascade connection: 200m (44.1/48kHz), 100m (88.2/96kHz)
Bidirectional Cascade connection: 100m (44.1/48kHz), 30m (88.2/96kHz)

Cascade Connection Example



NOTE

Never create a full cascade loop using only DME64N units!

WORD CLOCK Connection

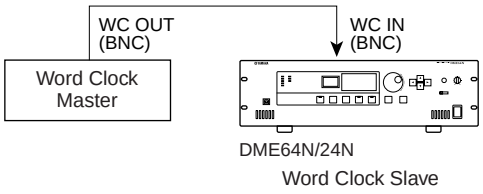
Word clock signals are transferred to and from external devices via the [WORD CLOCK IN] and [WORD CLOCK OUT] connectors. The [WORD CLOCK OUT] connector can be used to supply the DME64N/24N word clock to external equipment. Word clock is continuously output by the DME64N/24N during normal operation. The word clock signal from an external device can be received via the [WORD CLOCK IN] connector.

NOTE

Word clock can also be received and transmitted via a mini-YGDAI card installed in an I/O slot, or the [CASCADE IN] and [CASCADE OUT] connectors. It is necessary to specify whether the DME64N/24N will use the internal word clock or an external word clock for synchronization. Refer to the Utility display WCLK page described on page 51 of this manual for details.

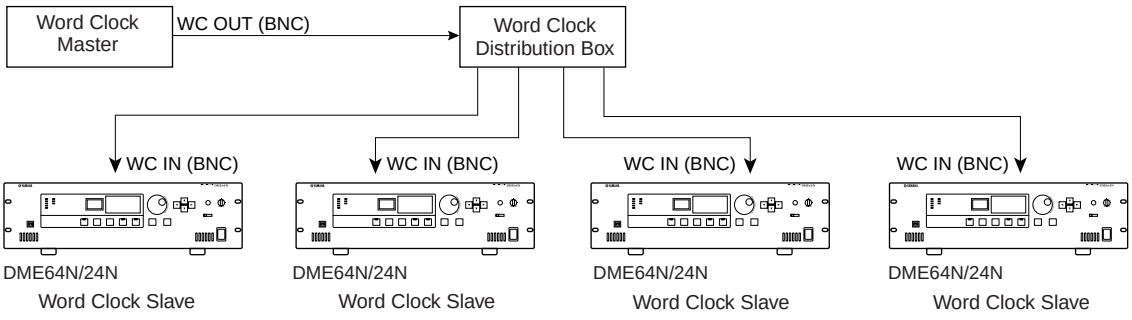
NOTE

A device transmitting the word clock signal that will be used by other devices for synchronization is the "word clock master," while devices received the word clock are "word clock slaves."

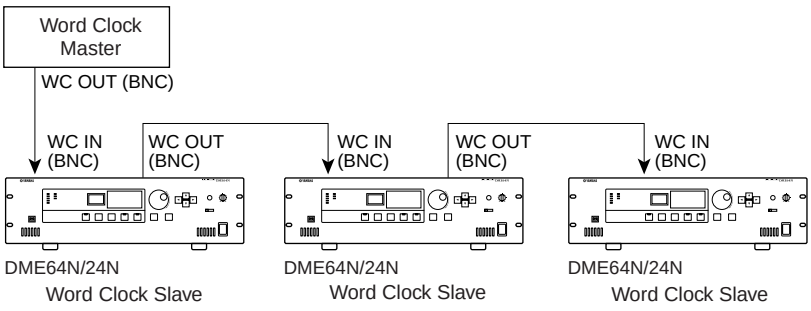


To distribute the word clock signal from one device to multiple slave devices, either a word clock distribution box or daisy-chained connection can be used.

Distribution Box Connection



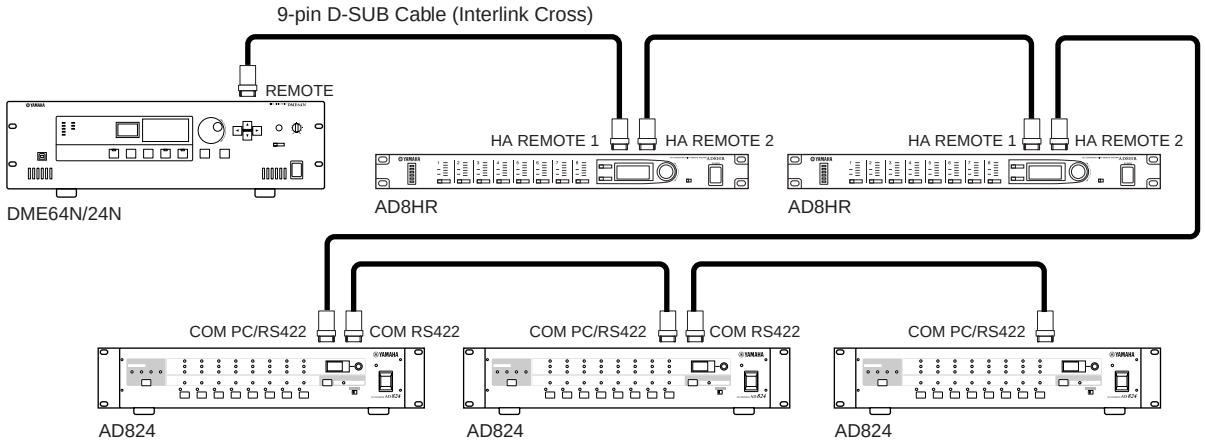
Daisy Chain Connection



REMOTE Connection

The [REMOTE] connector can be connected to remotely-controllable Yamaha AD8HR or AD824 head amplifiers (preamplifiers), or RS-232C compatible controllers. Up to 8 head AD8HR/AD824 head amplifiers can be connected. Control can be handled either from the Utility display HA page (described on page 54 of this manual), or from the DME Designer application.

When connecting to a combination of AD8HR and AD824 head amplifiers, be sure to place the AD8HR units closest to the DME64N/24N in the chain, otherwise the AD8HR unit(s) may not be properly recognized by the DME64N/24N.



NOTE

Only control signals are transmitted and received via the REMOTE connection. Audio connections must be made separately.

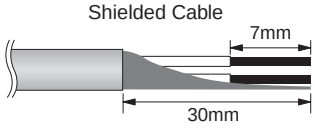
When connecting an RS-232C compatible controller set the Utility display “Misc” page “Remote” parameter to “COM (RS232C)” – see page 51 of this manual.

Analog Audio Connection ([IN] and [OUT] Connectors) (DME24N only)

The DME24N includes [IN] and [OUT] connectors for 8 channels of analog audio input and output. Wire the supplied Euroblock plugs as shown below. Head amplifier gain and phantom power settings can be made via the Utility display HA page described on page 54 of this manual, or via the DME Designer application.

Cable Preparation

Prepare cables to be attached to a Euroblock plug as shown below.



CAUTION **Be sure to use shielded cable.**

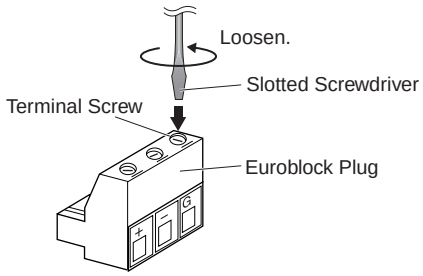
WARNING **Do not tin (plate with solder) the exposed sections of the cable.**

Euroblock Connection

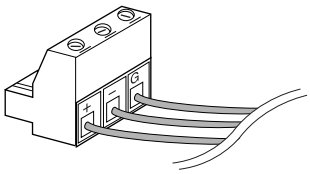
NOTE

A slotted screwdriver with a blade width of about 3 millimeters is recommended.

1. Loosen terminal screws.



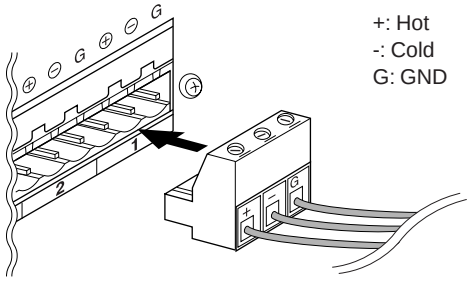
2. Insert cables.

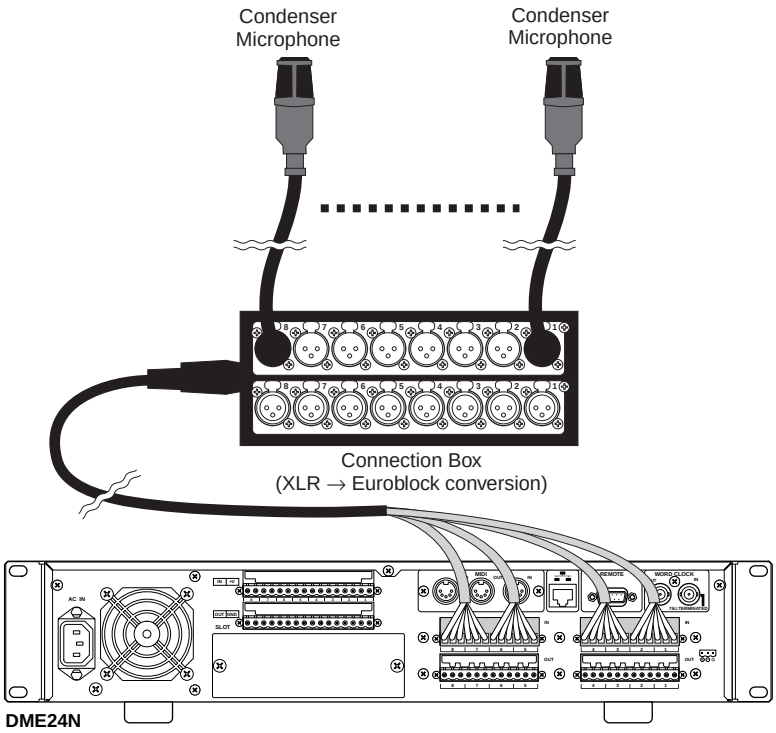


3. Securely tighten terminal screws.

Pull the cables (not too strongly) to confirm that they are securely connected.

4. Plug the Euroblock plug into the panel connector.





NOTE

Analog audio input and output can also be connected via an I/O Card installed in a DME64N/24N I/O card slot.

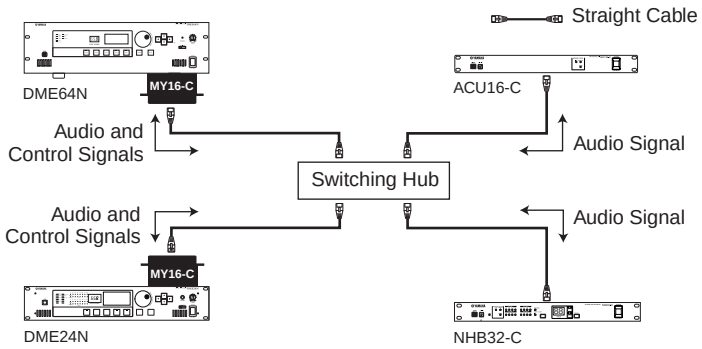
I/O Slots

The DME64N has four I/O card slots, and the DME24N has one I/O card slot. The number of audio input channels available on the DME64N/24N can be increased by plugging the appropriate mini-YGDAI I/O card(s) into the available card slot(s). Some types of cards also provide control and/or word clock transmission and reception functionality.
Refer to "I/O Card Installation" on page 22 of this manual for card installation instructions.
For the latest information on what cards can be used with the DME64N/24N, visit the Yamaha Pro Audio website at: **http://www.yamahaproaudio.com/**

CobraNet Connection

If an MY16-C CobraNet interface card is installed in a DME64N/24N card slot it becomes possible to transfer audio, control, and word clock signals via a CobraNet network. MY16-C equipped DME64N/24N units can be connected to any other CobraNet compatible equipment for broad-ranging audio and word clock signal networkability. Refer to the MY16-C Owner's Manual for CobraNet network details.

Example: Connection to CobraNet Devices



NOTE
Control signals cannot be transferred between devices that do not use the MY16-C card in some cases.

NOTE
CobraNet is an audio networking system developed by Peak Audio (a division of Cirrus Logic, Inc.) that allows real-time transmission and reception of multiple channels of uncompressed digital audio signals via a Fast Ethernet (100 megabits/sec.) network. A single network cable can handle a maximum of 64 channels (128 channels bidirectional) of audio data.
The Peak Audio home page can be viewed on the web at: **http://www.peakaudio.com/**

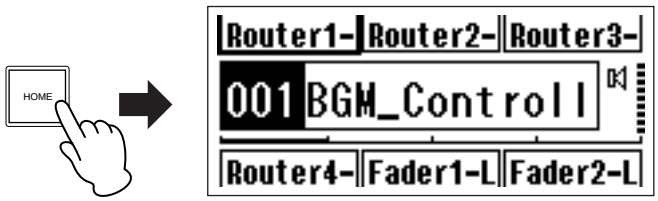
Panel Operation and Displays

The Panel Buttons and Displays

By pressing the panel buttons it is possible to select the DME64N/24N Main display, Utility display, and Parameter Edit displays that allow individual settings to be edited and changed. refer to the pages listed below for more detailed information about each display.

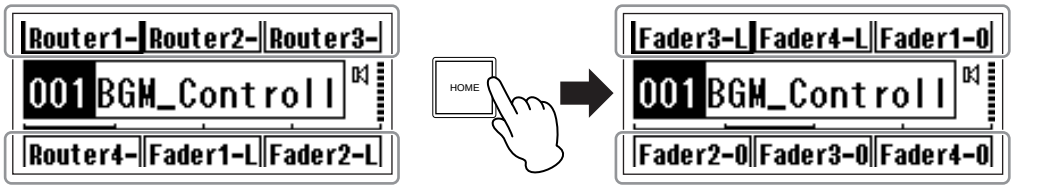
[HOME] button → Main Display (Page 39)

The Main display can be directly recalled from any display other than the Main display by pressing the [HOME] button. The Main display shows the current scene information



[HOME] button → User-defined Parameter Page Selection (Page 42)

Pressing the [HOME] button while the Main display is shown sequentially selects the four user-defined parameter pages.



Main display — Switches the pages of the user-defined parameter

[MUTE] button → Mute Display (Page 42)
[LEVEL] button → Output Level Display (Page 42)
[SCENE] button → Scene Recall Display (Page 43)/Scene Store Display (Page 43)

These buttons can be pressed from the Main or Utility displays to directly call the related parameter edit displays.

[MONITOR] button → Monitor Point Selection Display (Page 44)

This function is useful for level monitoring. When the button is pressed the monitor point selection display will appear, and the spectrum analyzer display will appear when a selection has been made.

[UTILITY] button → Utility Display (Page 47)

The Utility display appears when the [UTILITY] button is pressed for longer than two seconds while the Main display is showing.

The Utility display includes a number of pages that can be selected in sequence by repeatedly pressing the [UTILITY] button.

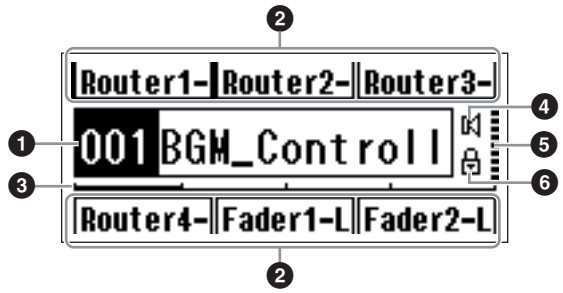
Main Display

The Main display will appear in a few seconds after the power is turned on. The Main display shows information about the current scene.

NOTE

Nothing will appear on the display if no scene data is stored in the DME64N/24N scene memory (this is the case when the unit is initially shipped, for example).

Up to 24 parameters can be accessed from the DME64N/24N or ICP1 control panel for each scene. Six parameters are shown on the Main display at a time.



❶ Scene Information

The current scene number and name. Scene names can be entered by using the DME Designer application.
A maximum of 12 one-byte (Roman) characters can be displayed in a scene name. When "two-byte" characters are to be used for languages such as Japanese, the total number of displayable characters is reduced accordingly.
When the power is turned on the last scene selected before the power was turned off is automatically recalled.

❷ User-defined Parameter Names

Displays the user-defined parameters. The parameters are specified by using the DME Designer application.
A maximum of 24 parameters can be made available for user control, but only six parameters can be shown in any one display page. Press the [HOME] button to switch to other available parameter pages. A maximum of 8 one-byte (Roman) characters can be displayed in a parameter name. When "two-byte" characters are to be used for languages such as Japanese, the total number of displayable characters is reduced accordingly.
Parameters are selected for editing by using the cursor buttons – [◀] [▲] [▼] [▶] – to select the parameter, and then pressing [ENTER].

❸ Page Scroll Bar

The scroll bar provides an indication of which parameter page is currently being displayed. 4 pages are available, and the scroll bar moves one position to the right each time the [HOME] button is pressed and a new page of parameters is selected, and then back to the leftmost position after the rightmost position has been reached.

❹ Mute Indicator

Shows the current mute ON/OFF status.

: Mute ON

: Mute OFF

❺ Output Level Indicator

Displays the current output level in 10 increments.
The longer the "bar," the higher the output level.

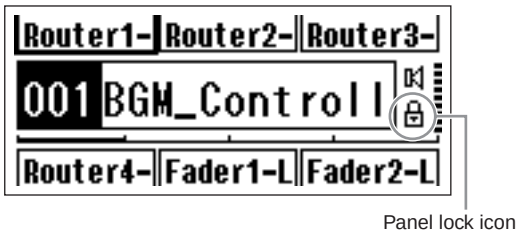
❻ Panel Lock Icon

This icon appears when the panel lock function is turned ON.

: Panel Lock ON (Panel controls locked)

Panel Lock

The panel controls can be "locked" to prevent accidental mis-operation.
To activate the panel lock function simultaneously press and hold the [HOME] and [ENTER] buttons for longer than 2 seconds.
The panel lock icon will appear on the Main display when the panel is locked.



Panel Lock can be disengaged by pressing the [CANCEL] button for longer than 2 seconds.

NOTE

The panel lock function can be set up to lock just the panel buttons ("Key Only"), or the panel buttons and GPI control ("Key+GPI"). You can also select whether or not the panel lock function is automatically engaged when the unit is initially turned on. This selection can be made via the Utility display "Lock" page (refer to the page 50).

Parameter Edit Displays

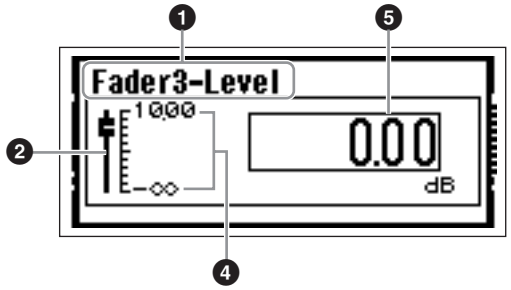
Parameter Edit displays will appear when the [SCENE], [MUTE], [MONITOR] or other button is pressed to allow scene changes, level adjustment, and other settings to be edited as required. Parameter Edit displays are also used to edit utility parameters.
In most cases the desired parameter edit page can be accessed by selecting the item you want to edit in the appropriate display by using the cursor [◀], [▲], [▼], and [▶] buttons, and then pressing the [ENTER] button.

There are basically three types of parameters that can be accessed via a Parameter Edit display:
- Numeric values
- Lists
- ON/OFF switches

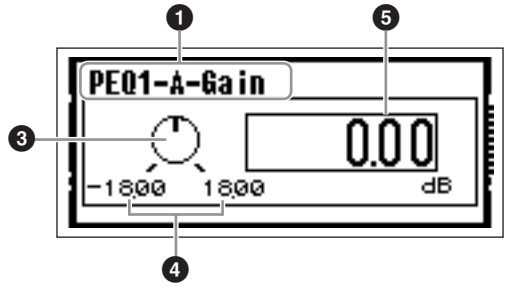
Numeric Parameters

Numeric parameters can be edited in a number of ways, and depending on the parameter a fader, knob, or minimum and maximum values may appear to the left of the numeric value.

A Numeric Value with a fader



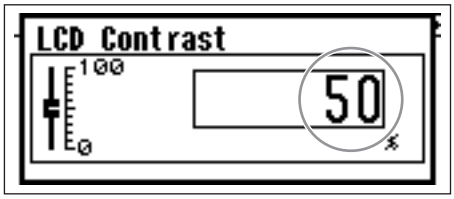
A Numeric Value with a Knob



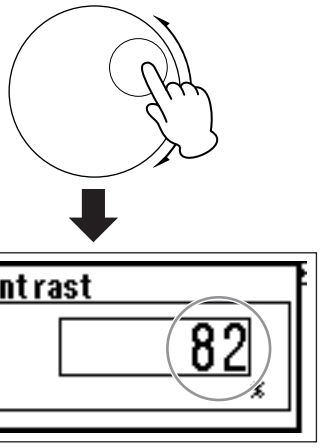
❶ **Name of parameter selected for editing**
❷ **Fader**
❸ **Knob**
❹ **Minimum and maximum values**
❺ **Current value**

Some Parameter Edit displays have just one numeric parameter, while other may have two or more.

Parameter Edit Display with One Numeric Parameter

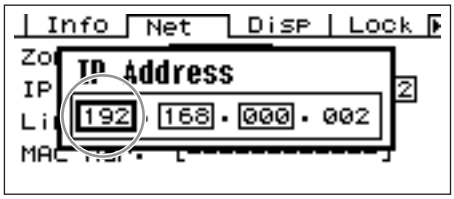


1. Numeric values can be changed by rotating the dial. Dial rotation produces an immediate, corresponding change in the selected value.

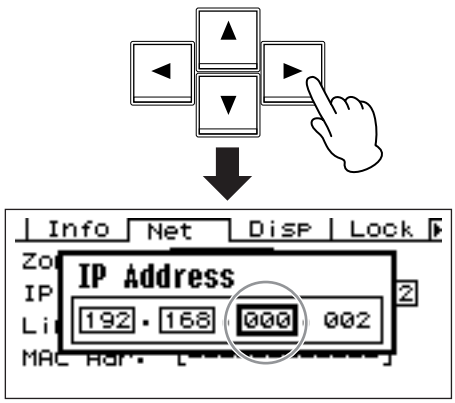


2. Press the [ENTER] button to close the Parameter Edit display after the value(s) have been edited as required.

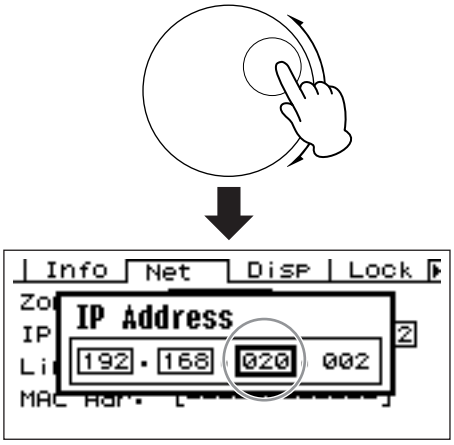
Parameter Edit Display with Multiple Numeric Parameters



1. Use the cursor buttons – [◀] [▲] [▼] [▶] – to select the value to be edited.

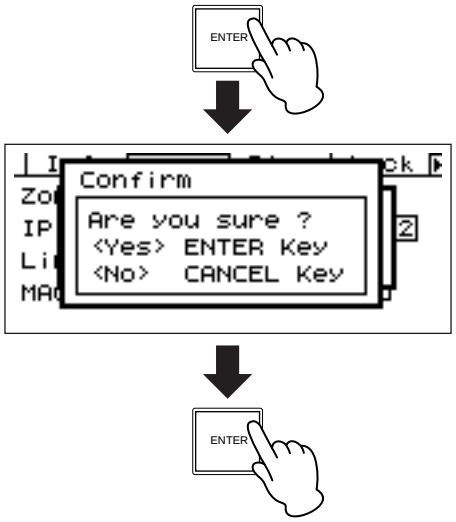


2. Rotate the dial to edit the value as required.



3. Repeat step 1 to select the next value to be edited, use the dial to edit as required, and repeat until all values have been edited as required.

4. When all values have been edited, press the [ENTER] button. A confirmation window will appear: press [ENTER] one more time to confirm the edits and close the window.



NOTE

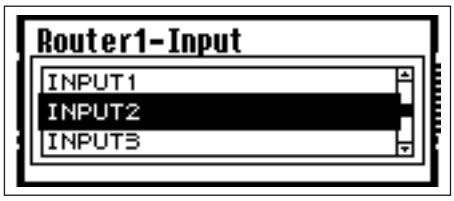
You can close the window without changing any values by pressing the [CANCEL] button rather than the [ENTER] button.

List Parameters

List parameters allow you to make one selection from a list of possibilities.

Rotate the dial to scroll up or down the list. In some cases the centermost item on the display will be always highlighted as the list is scrolled, and in others the same item will remain highlight as the list is scrolled up or down.

List Parameter with Center Item Always Highlighted

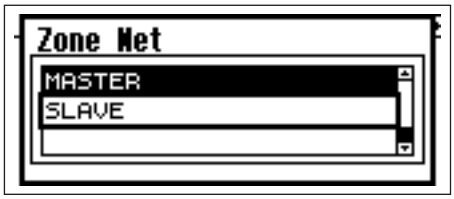


1. Use the dial to scroll up or down the list.

As you scroll the centermost item on the display will be highlighted.

2. Press the [ENTER] button to select the highlighted item and close the window.

List Parameter with Scrolling Highlight



1. Use the dial to scroll up or down the list.

As you scroll the highlighted selection will remain highlighted, and will scroll up or down with the list.

2. Press the [ENTER] button to highlight the centermost item on the display.

NOTE

In some cases a confirmation dialog will appear when the [ENTER] button is pressed. If this occurs press the [ENTER] button a second time to continue.

3. Press the [ENTER] button to select the highlighted item and close the window.

ON/OFF Parameters

Parameters that are either ON or OFF are edited via this type of display (e.g., Mute Parameter Edit display in "Mute Switching" on page 42).

1. Rotate the dial clockwise to select ON, or counterclockwise to select OFF.

2. Press enter to confirm the selection and close the window.

Parameter Edit displays will also appear when the [SCENE], [MUTE], [MONITOR] or other button is pressed.
These allow scene changes, level adjustment, and other settings to be edited as required.

Editing User Defined Parameters

1. If the Main display is not showing, press the [HOME] button to recall it.

2. Press the [HOME] button until the page containing the parameter to be edited appears.

3. Use the [◀] [▲] [▼] [▶] buttons select the parameter to be edited.

4. Press the [ENTER] button.

The Parameter Edit display for the selected user-defined parameter will appear.

NOTE

User-defined parameters can be of all three types: numeric, list, and ON/OFF.

NOTE

When editing from an ICP1 control panel, the [F1] ~ [F6] buttons are used for parameter selection.

5. Edit the user-defined parameter as required.

Refer to "Parameter Edit Displays" on page 40 for editing procedures.

NOTE

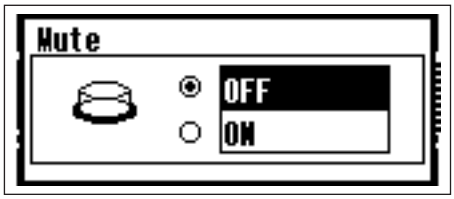
Any changed user-defined parameter values will be lost if the power is turned off or if scenes are changed. To preserve the changed values, store the scene data.

Mute Switching

Turns the DME64N/24N output mute function ON or OFF.

1. Press the [MUTE] button.

The Mute Parameter Edit display will appear.



2. Select Mute ON or OFF.

The mute function is turned on or off as described in "ON/OFF Parameters" on page 42.

NOTE

To access this function from the ICP1 control panel, hold the [F6] button for longer than 2 seconds.

NOTE

PHONES jack output is not muted.

Output Level Control

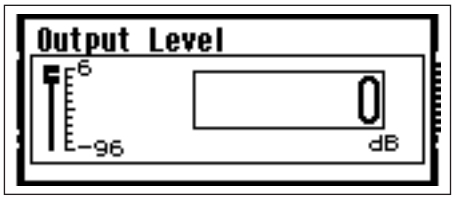
Adjust the output level of the DME64N/24N.

NOTE

Output level settings apply individually to each DME64N/24N unit. There is no overall zone setting.
This function cannot be accessed from the ICP1 control panel.

1. Press the [LEVEL] button.

The "Output Level" Parameter Edit display will appear.



2. Adjust the numeric output level parameter as required.

The Output Level parameter is adjusted as described in "Numeric Parameters" on page 40. The graphic fader provides a visual indication of the current output level setting.

Scene Recall

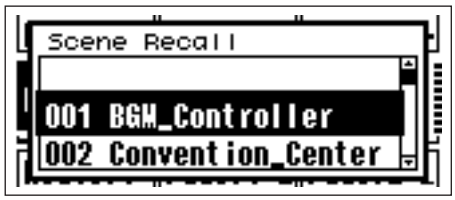
This procedure recalls a new scene (refer to page 14).

NOTE

The same procedure is used for scene recall from an ICP1 control panel.

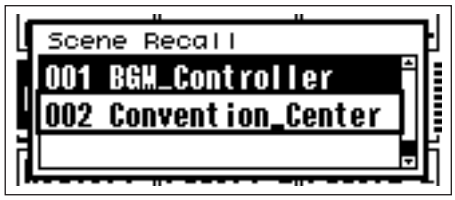
1. Press the [SCENE] button.

The Scene Recall display will appear.



2. Select a new scene.

Scenes are selected as described in the “List Parameters” section on page 41.

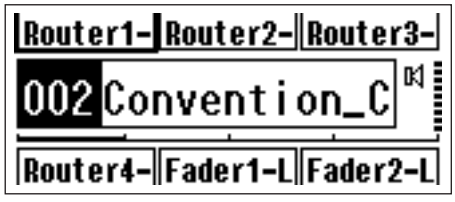


3. Press the [ENTER] button.

A confirmation window will appear.

4. Press the [ENTER] button again.

The new scene will be selected.



NOTE

Scenes can also be changed from a computer or GPI/MIDI controller connected to the device.
The DME Designer application is used to make scene changes from a computer. If a GPI/MIDI controller is to be used for changes it must be initially set up for scene change control by using the DME Designer.

NOTE

If head amplifier parameters are included in the recalled scene data, the head amplifier settings will be changed accordingly.

Scene Store

Stores the current scene data for later recall.

NOTE

This function can be accessed in the same way from the ICP1.

1. Press the [SCENE] button for longer than 2 seconds.

A confirmation window will appear on the display.

2. Press the [ENTER] button.

This stores the scene data in the current scene memory.

NOTE

Press the [CANCEL] button if you want to abort the scene store operation.

NOTE

If head amplifier settings are included in the scene the Utility display HA page settings are also stored. If head amplifier settings are not included in the scene, the HA page settings are stored as head amplifier startup settings.

NOTE

Any parameter values changed by GPI/MIDI controllers will be lost if the power is turned off or if scenes are changed. To preserve the changed values, store the scene data.

Monitoring

The monitor functions allow you to monitor the audio signal at the inputs or outputs of I/O slots, points between components, and other critical monitoring points.

NOTE

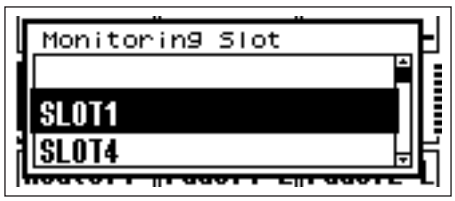
User-defined monitoring functions, such as monitoring at points between components, must specified via the DME Designer application.

NOTE

These functions cannot be accessed from the ICP1.

1. Press the [MONITOR] button.

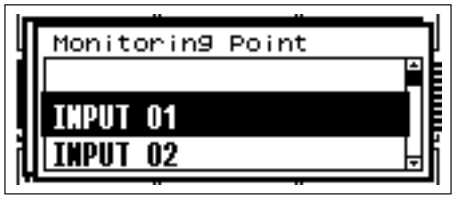
The slots available for monitoring will be shown in the parameter list.



2. Select the desired monitor source from the list.

List selections are made as described in the "List Parameters" section on page 41.

When a selection is made the Monitoring Point display will appear.



3. Select the desired monitor point from the list.

The audio signal from the selected monitoring point will be output via the PHONES jack.

NOTE

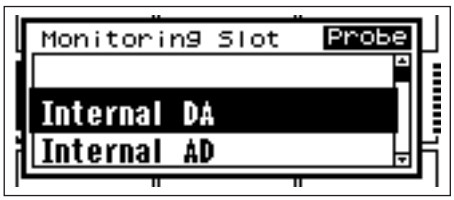
Press the [CANCEL] button to move back to the previous edit display.

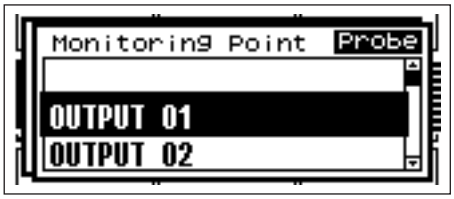
Probe Monitor Functions

The Probe Monitor function allows monitoring points to be selected from the DME Designer application. Only slot inputs and outputs and monitoring points previously specified via the DME Designer application can be selected from the DME64N/24N control panel, but the "Probe Monitoring" function allows monitoring points to be freely selected. Refer to the DME Designer Manual for details.

NOTE

"Probe" will appear on the DME64N/24N display while the Probe Monitor function is active.





Spectrum Display

The monitor functions also provide spectrum analyzer type level display of the signal at the selected monitor point.

NOTE

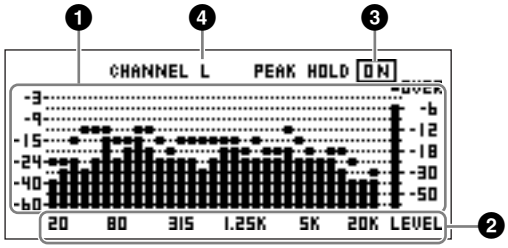
Spectrum display is not available on the ICP1 control panel.

Procedure

1. Select the monitor point for which you want to see a spectrum display from the list.

2. Press the [ENTER] button.

A spectrum display of the audio signal at the selected monitor point will appear.



❶ Frequency

These are the separate frequency bands displayed.

❷ Band Output Level

Signal level is displayed independently in 31 separate frequency bands. Output level is displayed in 12 steps.

❸ Peak Hold

When the peak hold function is ON, peak levels since the current monitor point was selected are held indefinitely. Peak levels are cleared after one second when peak hold is OFF.

To turn the peak hold function ON or OFF, move the cursor to the PEAK HOLD ON/OFF setting and press the [ENTER] key to alternately turn it ON or OFF.

❹ L/R Select

Indicates when the spectrum display is for the left or right channel. The same spectrum display will be shown for the L and R channels of all monitor points other than user-defined points specified via the DME Designer application.

To switch between the L and R displays move the cursor to the CHANNEL L/R setting and press the [ENTER] key to alternately select L or R.

NOTE

The fall rate of the meters can be set up via the Utility display "Disp" page.

Level Meter Display

Individually displays the input/output level for each channel.

NOTE

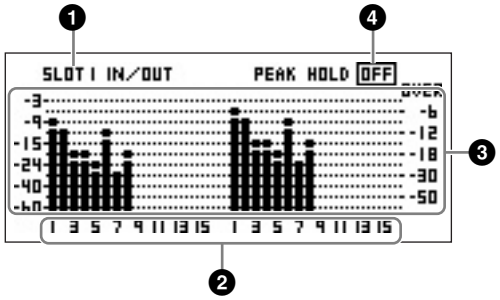
Level display is not available on the ICP1 control panel.

1. Make sure that the Main display is showing.

If the Main display is not showing, press the [CANCEL] to return.

2. Press the [UTILITY] button.

The level meter display will appear.



❶ Level Display Slot

Select from [SLOT1] ~ [SLOT4], [A/D D/A], [CASCADE IN] or [CASCADE OUT].

NOTE

[SLOT2] ~ [SLOT4] and [CASCADE IN], [CASCADE OUT] are only available on the DME64N, while [A/D D/A] is only available on the DME24N.

❷ Channel Number

A maximum of 32 [CASCADE IN]/[CASCADE OUT] channels can be displayed, while for other channels a maximum of 16 can be displayed.

❸ Input/Output Level Display

Shows the levels at the individual inputs and outputs.

❹ Peak Hold

When the peak hold function is set to ON, peak levels are held indefinitely.
Peak levels are cleared after one second when peak hold is set to OFF.

To turn the peak hold function ON or OFF, move the cursor to the PEAK HOLD ON/OFF setting and press the [ENTER] key to alternately turn it ON or OFF.

Utility Displays

Most basic DME64N/24N functions can be accessed via the Utility Display.

Items accessible via the Utility display

Page	Item	Description	Manual Page
Info		Current status and settings for the devices basic parameters.	Page 48
	Name	User ID display.	
	Version	The device's current version number.	
	Date	Current status and setup for the internal calendar/clock.	
	Battery	Shows the status of the internal battery.	
Net		Current status and settings for the Ethernet network.	Page 48
	Zone	Displays current status and determines whether the device is zone master or not.	
	IP Adr.	Current status and setup for the device's IP address.	
	Link Mode	Current status and setup for the [NETWORK] connector.	
	MAC Adr.	Displays the device's MAC address.	
Disp		Current status and setup for the display mode, etc.	Page 49
	LCD Contrast	Current status and setup for display panel contrast.	
	LCD Backlight	Current status and setup for the display panel backlight.	
	Meter Fall Time	Current status and setup for meter fall time.	
Lock		Current status and setup for panel lock and related functions.	Page 50
	Utility	Current status and setup for the Utility display settings.	
	Panel Lock Boot	Current status and setup for the DME64N/24N's power-on panel lock status.	
	Panel Lock Target	Current status and setup for the panel lock target.	
	User Defined Lock	Panel lock and setup for each page of user-defined parameters.	
Misc		Current status and setup for settings not included in other pages.	Page 51
	Scene Store	Current status and setup for scene store accessibility.	
	Remote	Current status and setup for the [REMOTE] connector.	
WCLK		Current status and selection of the DME64N/24N word clock.	Page 51
	Fs	Displays the word clock frequency.	
	Int	Current status of the internal word clock.	
	WCIN	Current status of the word clock received at the [WORD CLOCK IN] connector.	
	Cascade	Current status of the word clock received via the [CASCADE IN] and [CASCADE OUT] connectors.	
	SLOT1-4	Current status of the word clock received via cards plugged in to the I/O card slots.	
Slot		Displays info about an I/O card installed in a DME64N/24N I/O slot.	Page 52
	Card name	Displays the name of the installed card.	
	(no title)	Resets the installed card.	
	Format	Displays the audio format – 88.2 or 96 kHz.	
MIDI		Current status and setup for MIDI functions.	Page 52
	Host	Current status and setup of the MIDI port.	
	DAW	Current status and setup for connected MIDI devices.	
	CH	Current status and setup for the MIDI transmit and receive channels.	
	Program Change	Current status and setup for program change transmission/reception, omni on, and echo on/off.	
	Control Change	Current status and setup for control change transmission/reception, omni on, and echo on/off.	
	Param Change	Current status and setup for parameter change transmission/reception, omni on, and echo on/off.	
GPI		GPI connector calibration and status display.	Page 53
	Reset	Resets the GPI calibration.	
	Max	Sets the maximum calibration value.	
	Min	Sets the minimum calibration value.	
	(no title)	Current calibration status.	
HA		Current status and setup for the internal and connected external head amplifiers.	Page 54
	HA	Current status and setup for head amplifier type.	
	WCLK	Current status and setup for the word clock used by the head amplifier(s).	
	(no title)	Displays the audio format 88.2/96 kHz.	
	Gain	Current status and setup for individual head amplifier channel gain.	
	+48V	Current status and setup for individual head amplifier channel phantom power supply (+48V ON/OFF).	
	(no title)	Displays current status of the master phantom power switch.	
	HPF	Current status and setup for individual head amplifier channel high-pass filter on/off.	
	Frq	Current status and setup for individual head amplifier channel high-pass filter frequency.	
CASCAD		Current status and setup for the [CASCADE] connectors.	Page 55
	Head Margin	Status and setup for the head margin of the audio signal handled via the [CASCADE] connectors.	
	Unit No.	Specifies how many devices the unit is from the beginning of the cascade chain.	
	Mixer I/O	Status and setup for the channels to be used for audio signals cascaded to a mixer.	

Utility Display Operation

The general procedure for operating the Utility displays is outlined below.

1. Press the [UTILITY] button for longer than 2 seconds from the Main display to go to the Utility display.

2. Press the [UTILITY] button as many times as necessary until the desired parameter page appears.

3. Use the cursor buttons – [◀] [▲] [▼] [▶] – to select the parameter you want to edit.

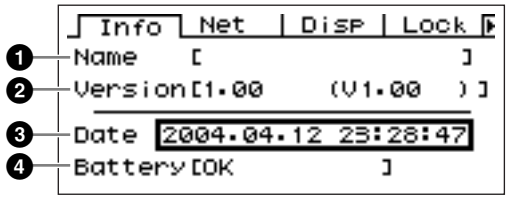
NOTE

On the ICP1 the function buttons are used in place of the cursor buttons as follows:
[F1] button: Left
[F2] button: Up
[F3] button: Right
[F5] button: Down

4. Press the [ENTER] button.

This either confirms a selection or edit, or calls the appropriate parameter edit page.

Info Page



NOTE

The date and time (❸) and the internal battery status (❹) are not shown on the ICP1 control panel display.

❶ Name (User ID)

Shows the user ID. The user ID can be changed via the DME Designer application running on a computer connected to the unit.

NOTE

The user ID can not be changed from the DME64N/24N controls.

❷ Program Version

This is the current firmware version number.

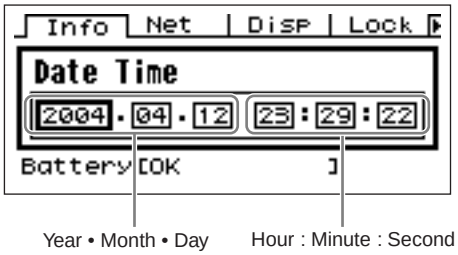
❸ Date

Shows the currently set date and time. The internal clock and calendar can be set here.
Edit using the "Numeric Parameters" editing procedure described on page 40.

NOTE

"Zone slave" cannot be used to set this parameter.

Date/Time Parameter Edit Dialog

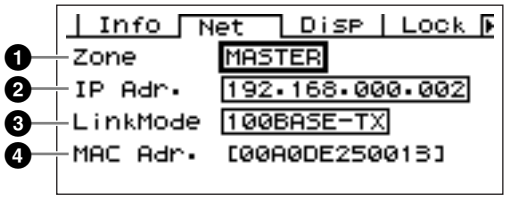


❹ Battery

Shows the status of the internal battery. "Low Battery" will appear when the battery needs to be replaced, and "No Battery" will appear when no battery is present in the device.

Network Settings (Net) Page

Shows the Ethernet network address and other parameters.



❶ Zone

Indicates whether or not the device is functioning as the zone master: "Master" or "Slave."

Master: the device is the zone master.

Slave: the device is a zone slave.

Edit using the "List Parameters" editing procedure described on page 41.

NOTE

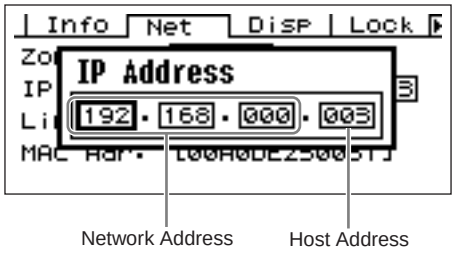
Zone status of ICP1 is fixed to "Slave." This cannot be changed.

NOTE

Make sure that one zone master is assigned for each zone.
If no zone master is assigned, no scene information will appear on the display and scene-related control will not be possible. Mute operations will also not be possible.

❷ IP Adr.

This is the device's IP address.
Edit using the "Numeric Parameters" editing procedure described on page 40.



NOTE

The network addresses of devices in the same zone must be the same.
The host address of the zone master is fixed at "2."

❸ Link Mode

Shows the status of the [NETWORK] connector. The [NETWORK] connector can be set to operate in "10Base-T" or "100Base-TX" mode.

10Base-T: The [NETWORK] connector is compatible with 10Base-T operation.

100Base-TX: The [NETWORK] connector is compatible with 100Base-TX operation.

Edit using the "List Parameters" editing procedure described on page 41.

❹ MAC Adr.

This is the device's MAC (Media Access Control) address.

NOTE

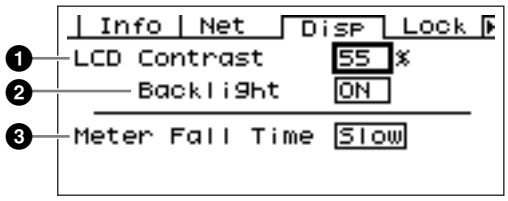
The MAC address is also known as the Ethernet address, and is an independent address assigned to all Ethernet devices. No two devices anywhere in the world can have the same address.

Display Setup (Disp) Page

Provides access to a number of display parameters.

NOTE

The meter fall time (❸) is not shown on the ICP1 control panel display.



❶ LCD Contrast

The current LCD contrast setting. This parameter can be adjusted from 0% through 100%.
Edit using the "Numeric Parameters" editing procedure described on page 40.

❷ LCD Backlight

Specifies LCD backlight operation. Two settings are available: "ON," and "OFF."

ON: The display is continuously lit.

OFF: The display lights when a control is operated, and will go out 10 seconds after panel operation ceases.

Edit using the "List Parameters" editing procedure described on page 41.

❸ Meter Fall Time

Determines the fall time of the level meters – "Fast" or "Slow."

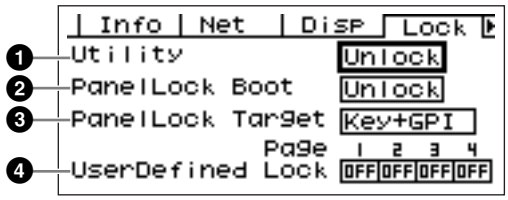
Fast: The meters rapidly follow changes in the signal level.

Slow: The meters fall slower than the actual changes in the signal level, allowing easier reading in some cases.

Edit using the "List Parameters" editing procedure described on page 41.

Security Setup (Lock) Page

Panel lock and related settings.



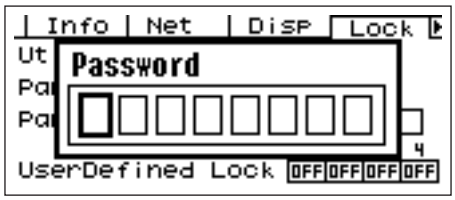
❶ Utility

The lock status for the Utility display settings. This parameter can be set to "Unlock" or "Lock."

Unlock: The Utility display can be accessed without a password.

Lock: A password must be entered to access the Utility display.

When "Lock" is selected a password entry window will appear when the [UTILITY] button is pressed to access the utility pages.



Use the [◀] and [▶] buttons to position the cursor, and the dial to enter the desired character at the cursor location. When all of the password's characters have been entered as required press the [ENTER] button.

The password will also be required when switching from the "Unlock" mode to the "Lock" mode.

NOTE

Password security and management is very important!
If you forget your password the unit cannot be operated!
If you forget your password contact the system administrator.
If the password become unrecoverable for some reason and you need to unlock the system, please contact your Yamaha representative.

❷ Panel Lock Boot

Determines whether or not panel lock will be on when power to the device is turned on. This parameter can be set to "Unlock" or "Lock."

Unlock: Panel lock is OFF when power to the device is turned on.

Lock: Panel lock is ON when power to the device is turned on.

❸ Panel Lock Target

Determines the controls (control functions) to be affected by panel lock. The available settings are "Key Only" and "Key+GPI."

Key Only: Panel lock only affects the panel buttons.

Key+GPI: Panel lock applies to the panel buttons as well as GPI control input.

NOTE

See page 39 for details on how to use the Panel lock feature.

❹ User Defined Lock

Sets the lock status individually for each of the four user-defined parameter pages.

ON: The corresponding user-defined parameters will not appear on the display.

OFF: The corresponding user-defined parameters will appear on the display.

To change the settings use the [◀] and [▶] buttons to move the cursor to the setting for the desired page, the press the [ENTER] button to alternately turn the setting "ON" and "OFF."

NOTE

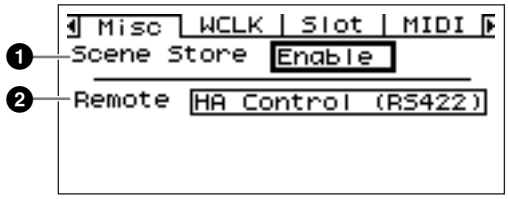
The user-defined parameters are accessed as described in the "Parameter Edit Display" section on page 40.

Miscellaneous Setup (Misc) Page

This page includes parameters not available in any other page.

NOTE

The Remote setting (❷) will not appear on the ICP1 control panel display.



❶ Scene Store

Determines whether or not scene store operations are allowed. This parameter can be set to "Enable" or "Disable."

Enable: Scene store operations are allowed.

Disable: Scene store operations are prohibited.

Edit using the "List Parameters" editing procedure described on page 41.

NOTE

See page 43 for scene store procedure.

NOTE

This setting applies to individual devices only. Even if one DME64N/24N unit is set to "Disable," scene store operations will be possible via another DME64N/24N in the same zone that is set to "Enable."

❷ Remote

Determines the [REMOTE] connector communication mode. Available settings are "HA Control (RS422)" and "COM (RS232C)."

Edit using the "List Parameters" editing procedure described on page 41.

This parameter must be set to "HA Control (RS422)" when connecting to an AD8HR or AD824 remote head amplifier.

Do not change the "HA Control (RS422)" setting while connected a head amplifier to prevent possible damage to the device(s).

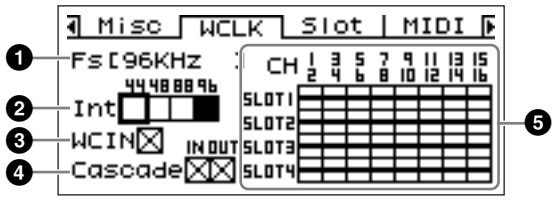
When controlling the DME64N/24N from an RS232C type controller set this parameter to "COM (RS232C)."

Word Clock Setup (WCLK) Page

Shows the status of incoming word clock signals, and allows setup of the DME64N/24N master word clock.

NOTE

This page will not be displayed on the ICP1.



Master Clock Selection Procedure

1. **Use the cursor [◀], [▲], [▼], [▶] buttons to select one of the square blocks representing the available master clock sources.**
2. **Press the [ENTER] button to select the master clock.**

❶ Fs

The current sampling frequency of the master word clock. The value shown here is determined by the system's master word clock signal. To select the word clock to be used as the master, move the cursor to the appropriate word clock indication in this display – the [WORD CLOCK IN] clock, the cascade clock, or a slot clock, for example – and press the [ENTER] button.

❷ Int

Sets the frequency of the internal word clock – 44.1 kHz, 48 kHz, 88.2 kHz, or 96 kHz.

❸ WCIN

Shows the status of the word clock signal at the [WORD CLOCK IN] connector.

❹ Cascade

Shows the status of the word clock signal at the [CASCADE IN] and [CASCADE OUT] connectors.

❺ SLOT1~4

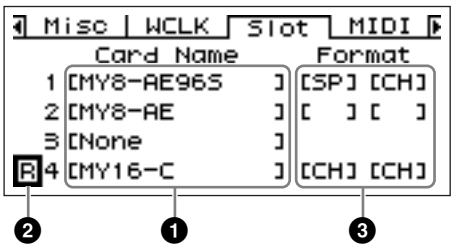
Shows the status of the word clock signal input via I/O cards installed in the I/O slots.

The Status Icons

	A word clock signal is present, and this signal can be selected as the DME64N/24N word clock.
	No word clock signal (cannot be selected as the master clock).
	A word clock signal is present, but is not in sync with the master word clock.
	Currently selected as the DME64N/24N word clock.
	Currently selected as the DME64N/24N word clock, but the clock signal is not useable.
	Inactive slot channel, or no I/O card is present in the slot.

Slot Information (Slot) Page

Displays the name of the card installed in an I/O card slot. Some cards can also be reset via this page.



NOTE

This page will not appear on the ICP1 display.

❶ Card Name

The name of the installed card appears here.

❷ Reset

Resets the installed card.

❸ Format

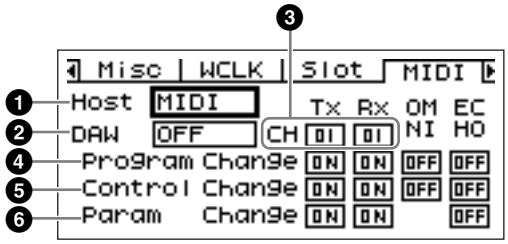
Displays the 88.2/96 kHz audio signal transfer mode. The input setting is on the left and the output setting is on the right.

No Display (Default): 44.1/48 kHz audio signal transfer.

SP (Double Speed): An 88.2/96 kHz capable card is installed, allowing direct transfer at 88.2 or 96 kHz.

CH (Double Channel): A 44.1/48 kHz card is installed, and 88.2 or 96 kHz audio is transferred by using two 44.1/48 kHz channels to transfer each channel of 88.2/96 kHz audio. The number of audio channels that can be handled in this mode is half the number of channels normally handled by the card.

MIDI Setup (MIDI) Page



NOTE

This page will not appear on the ICP1 display.

❶ Host

Determines the active MIDI port: MIDI, USB-1, USB-2, SLOT-1, SLOT-2, SLOT-3, or SLOT-4.

MIDI: The MIDI connector is the currently active MIDI port.

USB-1, USB-2: The corresponding USB port is selected for MIDI input.

SLOT-1, SLOT-2, SLOT-3, SLOT-4: A card installed in the corresponding I/O slot is currently selected for MIDI input.

Edit using the "List Parameters" editing procedure described on page 41.

NOTE

When the DME64N/24N is functioning as the zone master and is connected to a computer running the DME Designer application via USB, the MIDI port being used by the DME Designer will not be available.

❷ DAW

Specifies the type of MIDI device (DAW control surface, etc.) to be connected. The choices are OFF, TYPE1, and TYPE2.

OFF: Use this setting when any MIDI device other than a general-purpose ProTools controller (HUI protocol) or general-purpose Logic or Cubase controller (Mackie control protocol) is to be connected.

TYPE1: Use this setting when a general-purpose ProTools controller (HUI protocol) is to be connected.

TYPE2: Use this setting when a general-purpose Logic or Cubase controller (Mackie control protocol) is to be connected.

Edit using the "List Parameters" editing procedure described on page 41.

Refer to the DAW controller owner's manual as well as the DME Designer manual for setup details.

NOTE

"DAW" stands for "Digital Audio Workstation." ProTools, Logic, and Cubase are DAW applications, and this parameter provides direct compatibility with a number of physical controls surfaces that are available for use with these DAW software packages.

The following parameters are available when the DAW parameter is set to OFF.

❸ CH

Specifies the device's MIDI transmit and receive channel: 1 - 16.
Edit using the "List Parameters" editing procedure described on page 41.

❹ Program Change

Turns transmission and reception, the omni mode, and echo ON or OFF for MIDI program change messages.
Move the cursor to the required parameter, then press the [ENTER] button to alternately turn ON and OFF.

❺ Control Change

Turns transmission and reception, the omni mode, and echo ON or OFF for MIDI control change messages.
Move the cursor to the required parameter, then press the [ENTER] button to alternately turn ON and OFF.

❻ Parameter Change

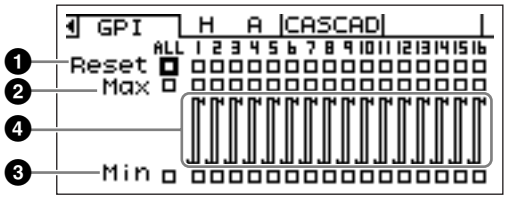
Turns transmission and reception, and echo ON or OFF for MIDI parameter change messages.
Move the cursor to the required parameter, then press the [ENTER] button to alternately turn ON and OFF.

GPI Setup (GPI) Page

Input calibration parameters for the [GPI] connector.

NOTE

This page will not appear on the ICP1 display.



❶ Reset

Resets GPI calibration.
To reset the calibration, use the [◀] [▲] [▼] [▶] buttons to select ALL to reset all inputs, or select an individual input from 1 to 16 to be reset, then press the [ENTER] button.

❷ MAX

Sets the maximum calibration value.
To set the MAX value, use the [◀] [▲] [▼] [▶] buttons to select ALL to set all inputs, or select an individual input from 1 to 16 to be set, then press the [ENTER] button to set the MAX value to the current input voltage.

❸ MIN

Sets the minimum calibration value.
To set the MIN value, use the [◀] [▲] [▼] [▶] buttons to select ALL to set all inputs, or select an individual input from 1 to 16 to be set, then press the [ENTER] button to set the MIN value to the current input voltage.

❹ Calibration Info

Shows the calibration settings as well as the current input voltage.

Head Amplifier Setup (HA) Page

Provides access to the head amplifier settings. Refer to "REMOTE Connection" on page 34 for head amplifier control signal connection.

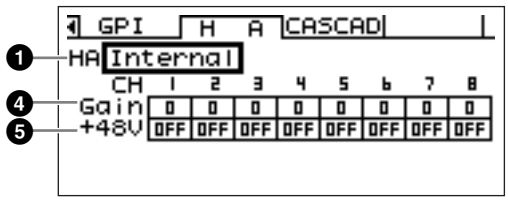
NOTE

This page will not appear on the ICP1 display.

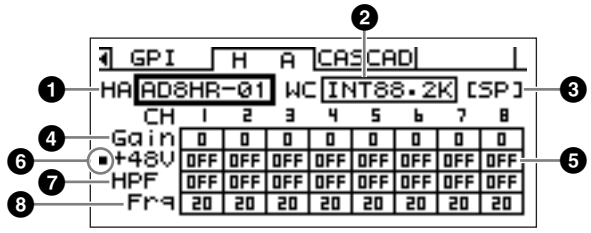
NOTE

Some scenes include head amplifier settings. In such cases, the HA page settings will be saved along with the scene when it is stored.

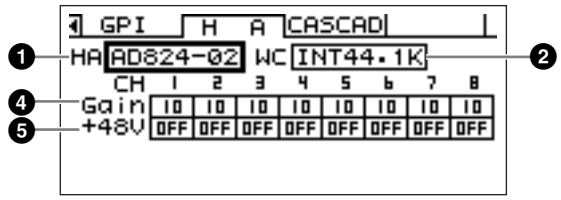
Internal Head Amplifier (DME24N only)



AD8HR



AD824



❶ HA

Specifies the type of head amplifier to be set up. The available options are AD8HR, AD824, and Built-in HA (DME24N only). When the AD8HR and AD824 are selected, a number indicating the connection order will also appear.

Edit using the "List Parameters" editing procedure described on page 41.

❷ WCLK (AD8HR/AD824 only)

Specifies the word clock signal to be used by the head amplifier(s).

Available settings of the AD8HR are "D OUT A," "WCLK IN," "INT44.1K," "INT48K," "INT88.2K," and "INT96K."

D OUT A: Sets the word clock signal at the digital input as the master clock of the AD8HR.

WCLK IN: Sets the word clock signal at BNC connector as the master clock of the AD8HR.

INT44.1K: Sets the 44.1 kHz internal word clock as the master clock of the AD8HR.

INT48K: Sets the 48 kHz internal word clock as the master clock of the AD8HR.

INT88.2K: Sets the 88.2 kHz internal word clock as the master clock of the AD8HR.

INT96K: Sets the 96 kHz internal word clock as the master clock of the AD8HR.

Available settings of the AD824 are "SLOT," "BNC," "INT44.1K," and "INT48K."

SLOT A: Sets the word clock signal input via I/O cards installed in the I/O slots as the master clock of the AD824.

BNC: Sets the word clock signal at the BNC connector as the master clock of the AD824.

INT44.1K: Sets the 44.1 kHz internal word clock as the master clock of the AD824.

INT48K: Sets the 48 kHz internal word clock as the master clock of the AD824.

❸ Format (AD8HR only)

Displays the 88.2/96 kHz audio signal transfer mode. The input setting is on the left and the output setting is on the right.

No Display (default): 44.1/48 kHz audio signal transfer.

SP (Double Speed): Allows direct transfer at 88.2 or 96 kHz.

CH (Double Channel): 88.2 or 96 kHz audio is transferred by using two 44.1/48 kHz channels to transfer each audio channel of 88.2 and 96 kHz respectively. The number of audio channels that can be handled in this mode is half the number of channels normally handled by the AD8HR.

❹ Gain

Individually sets the gain of each head amplifier channel. Edit using the "Numeric Parameters" editing procedure described on page 40.

NOTE

The gain of the DME24N internal head amplifiers can be adjusted from +10 dB to –60 dB in 1-dB increments. The internal circuitry switches at about the –45-dB point, and the signal is automatically muted at that point to prevent noise. The AD8HR gain can be adjusted from +10 dB to –62 dB in 1-dB steps, and the AD824 gain can be adjusted from +10 dB to –62 dB in 6-dB steps.

❺ +48V

Individually turns phantom power ON or OFF for each head amplifier channel.

Use the [◀] and [▶] buttons to position the cursor at the desired channel, then press the [ENTER] button to alternately turn phantom power for that channel ON and OFF.

CAUTION

- **Always turn the phantom power off when it is not needed.**
- **Phantom power should only be used with phantom-powered condenser microphones. Turning phantom power ON when other types of equipment are connected can result in damage. Balanced dynamic microphones, however, will not be affected by phantom power.**
- **To prevent speaker and possible hearing damage, be sure to turn power amplifiers OFF when turning phantom power ON or OFF. It is also a good idea to turn the output level all the way down (page 42).**

❻ Phantom Master Switch (AD8HR only)

Displays overall phantom power ON or OFF.

❼ High-pass Filter (HPF) (AD8HR only)

Individually turns the high-pass filter for each AD8HR head amplifier channel ON or OFF. This parameter is only available for the AD8HR head amplifier. Use the [◀] and [▶] buttons to select a channel, then press the [ENTER] key to turn the HPF for that channel ON or OFF.

❽ High-pass Filter Frequency (Frq) (AD8HR only)

Individually sets the high-pass filter frequency for each AD8HR head amplifier channel. This parameter is only available for the AD8HR head amplifier.

Edit using the "Numeric Parameters" editing procedure described on page 40.

Cascade Setup (CASCAD) Page

Determines the operation of the [CASCADE] connectors. Refer to "CASCADE Connection" on page 32 for connection details.

NOTE

This page only appears on the DME64N.

❶ Head Margin

Shows the status and sets the head margin of the audio signal handled via the [CASCADE] connectors. The options are "0dB" and "-18dB."

0dB: The head margin is 0 dB.

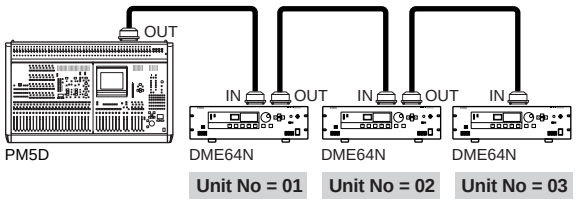
-18dB: The head margin is -18 dB.

NOTE

The Head Margin setting only applies when connected to a mixer. When not connected to a mixer the head margin is automatically set to 0 dB.

❷ Unit No

This parameter specifies how many devices the unit is from the beginning of the cascade chain.



❸ Mixer I/O

Status and setup for the channels to be used for audio signals cascaded to a mixer.

Edit by moving the cursor to a channel number and pressing [ENTER] to set as required.

■**:** Channel audio will be transmitted to and received from mixer.

□**:** Channel audio will be transferred between DME64N/24N units.

NOTE

Make sure that the Mixer I/O setting is the same for all cascaded DME64N/24N units.

Appendix

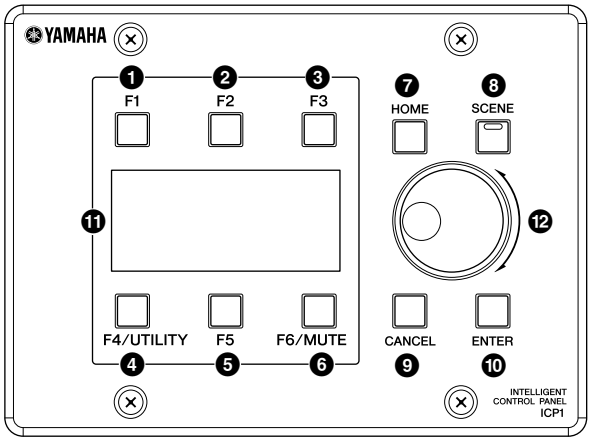
Options

The ICP1, CP4SW, CP1SF, and CP4SF controllers are optionally available for remote external control of the DME64N/24N. The ICP1 connects via Ethernet, while the CP4SW, CP1SF, and CP4SF connect via the GPI interface.

ICP1

This controller connects to the DME64N/24N via Ethernet. Like the DME64N/24N, each ICP1 unit has it's own IP address. With a display that replicates the display on the DME64N/24N, the ICP1 allows comprehensive, familiar control from remote locations.

ICP1 Controls



❶ [F1] Button

When the Main display is showing this button calls the Parameter Edit display for the user-defined parameter in the upper left corner of the display.
When the Utility display is showing it has the same function as the [◀] cursor button on the DME64N/24N.

❷ [F2] Button

When the Main display is showing this button calls the Parameter Edit display for the middle user-defined parameter in the upper part of the display.
When the Utility display is showing it has the same function as the [▲] cursor button on the DME64N/24N.

❸ [F3] Button

When the Main display is showing this button calls the Parameter Edit display for the user-defined parameter in the upper right corner of the display.
When the Utility display is showing it has the same function as the [▶] cursor button on the DME64N/24N.

❹ [F4/UTILITY] Button

When the Main display is showing this button calls the Parameter Edit display for the user-defined parameter in the lower left corner of the display. If this button is pressed and held for longer than 2 seconds when the Main display is showing the Utility display will appear. Pressing the [F4] button while the Utility display is showing sequentially steps through the various Utility pages.

❺ [F5] Button

When the Main display is showing this button calls the Parameter Edit display for the middle user-defined parameter in the lower part of the display.
When the Utility display is showing it has the same function as the [▼] cursor button on the DME64N/24N.

❻ [F6/MUTE] Button

When the Main display is showing this button calls the Parameter Edit display for the user-defined parameter in the lower right corner of the display.
If this button is pressed and held for more that 2 seconds the Mute display will appear.

❼ [HOME] Button

Directly recalls the home (main) display. If pressed while the main display is showing the [HOME] button steps through the user-defined parameter display pages (page 42).

❽ [SCENE] Button

Calls the scene recall display (page 43). Calls the scene store confirmation display if pressed and held from longer than 2 seconds (page 43). The indicator will light green while the scene recall/store display is showing.

❾ [CANCEL] Button

Closes the window on the display.

❿ [ENTER] Button

Confirms and enters a value or setting.

⓫ Display

Displays scene information and device parameters.

⓬ Dial

Adjusts the value of selected parameters. The ICP1 dial functions in the same way as the DME64N/24N dial.

ICP1 Installation

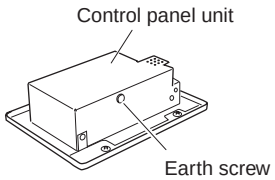
CAUTION **Please have the ICP1 installed by a Yamaha-qualified contractor. Consult your Yamaha representative.**

1. Connect the control panel unit and the ICP1 adaptor box.

Use an Ethernet “straight” cable.

WARNING
- **Do not use a “cross” cable to connect the control panel unit and adaptor box. Also do not use joint connectors, cross cable converters, or other extension adaptors.**

CAUTION
- **Connect ct the control panel unit and adaptor box directly, not via a hub.**
- **For maximum safety be sure to securely connect the ICP1 earth screw to an earth connection.**

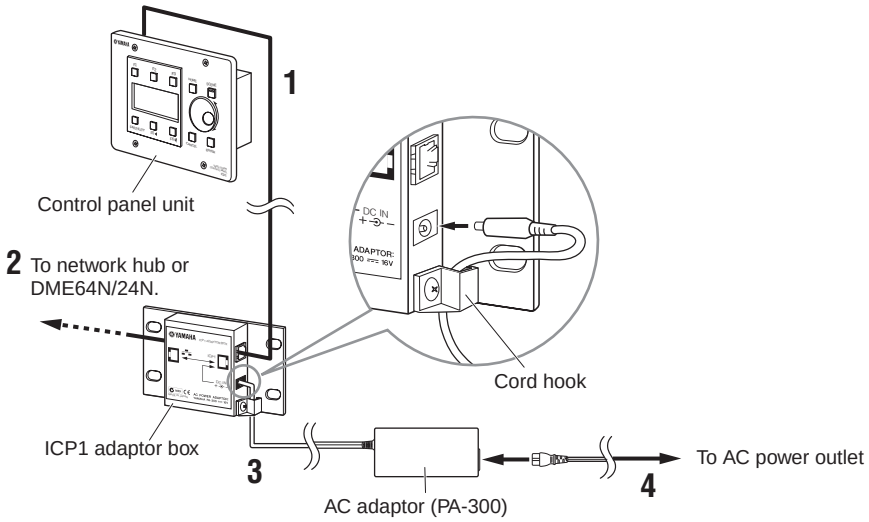


2. Connect the adaptor box to a network hub or the DME64N/24N.

Use a "straight" cable for connection to a hub, or a "cross" cable for direct connection to the DME64N/24N.

NOTE

- Use a 100Base-TX/10Base-T switching hub.
- When using category 5 UTP (Unshielded Twisted Pair) cable, the total length of the cables connecting the control panel unit to the hub or DME64N/24N can be up to 100 meters. Due to differences in cable and switching hub performance, however, proper operation at the maximum length cannot be guaranteed in some cases. The maximum usable cable length will also be reduced if joint connectors, cross cable converters, or other extension adaptors are used.
- Use STP (Shielded Twisted Pair) cable to prevent electromagnetic interference.



3. Connect the PA-300 AC adaptor to the adaptor box.

4. Plug the AC adaptor into an appropriate AC mains outlet.

Frame Plate and Control Panel Installation

1. Screw the frame plate to the terminal box.

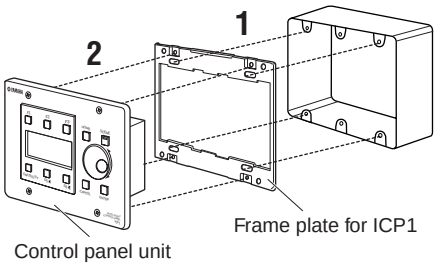
NOTE

- Terminal box not included. Use a standard (US-type) wall box: 3-gang with a depth of 44 millimeters or more.
- The screw heads should extend from the frame plate by no more than 3 millimeters.

2. Screw the control panel to the frame plate.

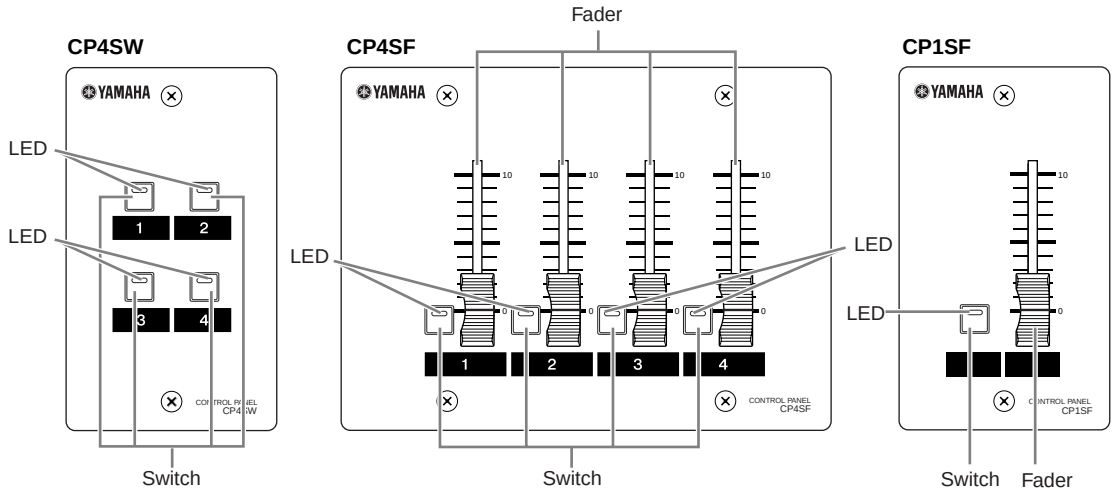
NOTE

Tighten the screws used to attach the control panel to the frame plate with a torque of less than 1.5 Nm.



CP4SW, CP4SF, and CP1SF

These controllers connect to the DME64N/24N via its GPI interface. These controllers only control the DME64N/24N unit to which they are directly connected.
The CP4SW is a four-switch unit with four indicator LEDs, while the CP1SF and CP4SF have one and four faders, switches, and LEDs, respectively. The parameters to be controlled by the switches and faders on these controllers can be specified via the DME Designer.

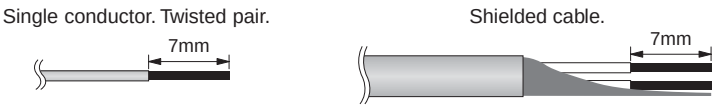


Installation

Please have the CP4SW, CP1SF, and/or CP4SF installed by a Yamaha-qualified contractor. Consult your Yamaha representative.

Cable

Cable lengths up to 100 meters can be used to connect to the DME64N/24N if CPEV cable with a conductor diameter of greater than 0.65 millimeters is used.
Bare cable ends to be connected to the Euroblock as shown in the diagram.



CAUTION **Be sure to use shielded cable.**

WARNING **Do not tin (plate with solder) the exposed sections of the cable.**

NOTE

Refer to “Euroblock Connection” on page 35 for instructions on connecting cables to the Euroblock connectors.

Control Panel Installation

1. Screw the frame plate to the terminal box.

NOTE

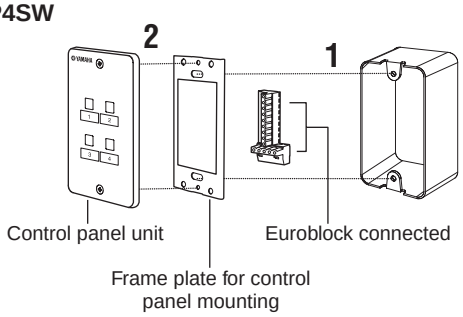
- Terminal box not included. Use a standard (US-type) wall box: 3-gang for CP4SF and 1-gang for CP4SW and CP1SF with depth 44 millimeters or more.
- The screw heads should extend from the frame plate by no more than 3 millimeters.

2. Screw the control panel to the frame plate.

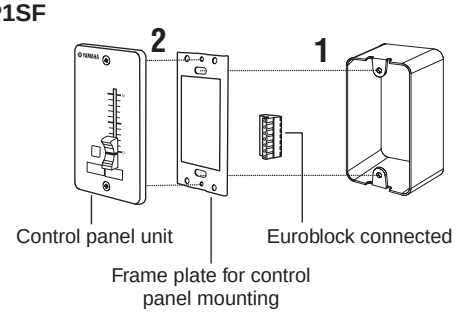
NOTE

Tighten the screws used to attach the control panel to the frame plate with a torque of less than 1.5 Nm.

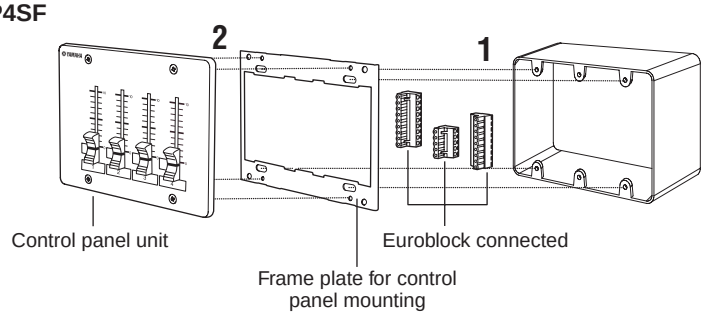
CP4SW



CP1SF



CP4SF



Error Messages

Message	Meaning	Action
Error messages		
Cannot Select	No selectable items are available in the scene or monitoring point list display.	Make the appropriate settings via the DME Designer application.
Flash Rom Full	The flash ROM is full.	Reduce the number of stored scenes.
Invalid Password	An invalid password has been entered.	Enter the correct password. If you have lost or forgotten your password, contact your Yamaha service center or representative.
Low Battery	The backup battery voltage is low.	Stop using the device immediately and contact your Yamaha service center or representative.
MIDI Port In Use	The MIDI host setting is set to the same setting as the DME Designer application.	Set the Utility MIDI page “Host” parameter to a different port.
No Battery	The battery is completely depleted.	Stop using the device immediately and contact your Yamaha service center or representative.
Param Access Err	Current setting cannot be displayed.	Try again.
Param Set Err	Current setting cannot be changed.	Try again.
Saving Failed	A save operation has failed.	Stop using the device immediately and contact your Yamaha service center or representative.
Slots Overloaded	The current being used by all cards installed in I/O slots exceeds the rated limit.	Re-install the cards so that the current limit is not exceeded.
Store Disable	The scene store parameter is set to “Disable.”	Set the scene store parameter to “Enable” via the Utility display “Lock” page.
Status messages		
CAS. In Sync Err	The DME64N/24N clock is not in sync with the clock signal being received at the [CASCADE IN] connector.	Set the device connected to the [CASCADE IN] connector and the DME64N/24N to use the same word clock.
CAS. Out Sync Err	The DME64N/24N clock is not in sync with the clock signal being received at the [CASCADE OUT] connector.	Set the device connected to the [CASCADE OUT] connector and the DME64N/24N to use the same word clock.
Connecting	Connecting to the network.	None required.
Download Success	The DME64N/24N program has been successfully updated.	None required.
Downloading	DME64N/24N program update in progress.	None required.
Duplicate IP Adr.	Duplicate IP addresses.	Change the IP addresses so that there are no duplicates.
File Operating	A file operation in which the computer is manipulating scene data (including configuration and component data) is in progress.	None required.
Illegal MAC Adr.	An illegal MAC address has been encountered.	This could be due do a hardware malfunction. Refer this problem to a Yamaha service center or representative.
Invalid IP Adr.	The network ID address is not appropriate.	Set an appropriate network ID address.
Network Busy	There is too much network traffic. Communication is not possible.	Check the devices connected to the network. If there are too many devices connected, reduce the number of devices.
Network Error	One of the following errors has occurred on the network: • A cable has been unplugged. • The power to a hub or router has been shut off. • A cable is in an inappropriate state (e.g. a heavy object has been placed on the cable, etc.). Static electricity can also cause errors.	Locate and eliminate the cause of the error.
Network Setup	Preparing network connection.	None required.
No Current Scene	There is no data in the current scene.	Send appropriate scene data from a computer running the DME Designer application.
No MAC Adr.	MAC address not specified.	This could be due do a hardware malfunction. Refer this problem to a Yamaha service center or representative.
Panel Locked	Panel operation not allowed.	Press the [CANCEL] button for longer than 2 seconds to disengage panel lock and allow panel operation.
Panel Unlocked	Panel lock has been disengaged. Panel operation is now possible.	None required.
Recovering	A DME64N/24N program update attempt has failed, and the previous program is currently being restored. (Do not turn power off.)	After the program has been restored, try the update operation again. If repeated update attempts fail, a hardware malfunction may be the problem. Contact your Yamaha service center or representative.
Saving HA Info	Head amplifier info save in progress. (Do not turn power off.)	None required.

Message	Meaning	Action
Saving Setup Info	Info set up via the Utility display (other than head amplifier info) is being saved. (Do not turn power off.)	None required.
Scene Recalling	Scene recall in progress.	None required.
Scene Storing	Scene store in progress. (Do not turn power off.)	None required.
SLOT1 Sync Err	The DME64N/24N clock is not synchronized with the clock of the card installed in I/O slot 1.	Make sure that the DME64N/24N and the card installed in I/O slot 1 are set to use the same word clock.
SLOT2 Sync Err	The DME64N clock is not synchronized with the clock of the card installed in I/O slot 2.	Make sure that the DME64N and the card installed in I/O slot 2 are set to use the same word clock.
SLOT3 Sync Err	The DME64N clock is not synchronized with the clock of the card installed in I/O slot 3.	Make sure that the DME64N and the card installed in I/O slot 3 are set to use the same word clock.
SLOT4 Sync Err	The DME64N clock is not synchronized with the clock of the card installed in I/O slot 4.	Make sure that the DME64N and the card installed in I/O slot 4 are set to use the same word clock.
WCLK Unlocked	A usable word clock signal is not being received or cannot be detected.	Recheck all word clock connections and internal parameters.
Zone Sync Err	The DME64N/24N contains data of another zone or no data.	Send appropriate data from a computer running the DME Designer application,

Troubleshooting

Symptom	Possible Causes	Possible Solutions
The DME64N/24N power won't turn on.	The power cord is not plugged into an appropriate AC outlet.	Make sure that the power cord is plugged into an appropriate AC outlet. Refer to "Preparation" on page 20.
	The POWER switch is turned OFF.	Make sure that the POWER switch is turned ON. Refer to "Preparation" on page 20.
	There is a fault in the DME64N/24N.	Contact your Yamaha service center or representative.
No communication between the DME64N/24N and the DME Designer application software.	The DME64N/24N power is not turned on.	Turn power to the DME64N/24N ON.
	The DME Designer application is not running.	Launch the DME Designer application.
	The connection cable is not connected properly.	Make sure that the connection cable is properly connected.
	The computer's USB port is not functioning properly (in the case of USB connection).	Refer to the DME Designer Installation Guide.
	The computer's Ethernet port is not functioning properly (in the case of Ethernet connection).	Refer to the DME Designer Installation Guide.
Cannot recall a scene.	Appropriate scene data has not been stored in the DME64N/24N.	Set up and store an appropriate scene in the DME64N/24N. Use the DME Designer for scene setup.
The 96kHz/88.2kHz/48kHz/44.1kHz indicators flash red.	The DME64N/24N is not synchronized to the selected word clock.	Select a different word clock source. Refer to the "WCLK Page" section on page 51.
	The [WORD CLOCK IN] connector cable is disconnected. Select the [WORD CLOCK IN] connector as the word clock source.	Connect the cable.
No audio output.	An I/O card is not properly installed.	Make sure that an appropriate I/O card is inserted in an I/O slot and that its screws are securely tightened. Refer to "I/O Card Installation" on page 22 for details.
	No audio input is present.	Make sure that an audio input signal is present.
	There is no scene data.	Store appropriate scene data in the DME64N/24N scene memory. Use the DME Designer application for scene setup.
	The current scene is not properly wired to produce audio output.	Redesign the scene to allow the desired audio output.
	The mute function is engaged.	Disengage the mute function. Refer to "Mute Switching" on page 42 for details.
	The output level is set too low.	Increase the output level. Refer to "Output Level Control" on page 42 for details.
	The DME64N/24N is not synchronized to the selected word clock.	Select a different word clock source. Refer to the "WCLK Page" section on page 51.
	You are attempting to run a scene that is not compatible with 88.2/96 kHz operation at 88.2/96 kHz.	Set the word clock to 44.1/48 kHz.
When an external device is being used as the word clock master and the word clock source is changed, noise appears at the analog outputs.	This is normal, and can occur when an MY8-AT I/O card is being used.	Reduce the volume level of the power amplifier(s) to prevent possible speaker damage, or make sure that the DME64N/24N is off beforehand.
The selected scene changes unexpectedly.	Scenes can be recalled via MIDI Program Change message received from external equipment if scene numbers are assigned to the appropriate MIDI Program Change messages. This is not a malfunction.	Use the DME Designer to check the MIDI Program Change assignments.
	Scenes can be recalled via trigger signals received from external controllers connected to the GPI interface if scene recall is assigned as a GPI function.	Use the DME Designer application to check the GPI input assignments.
User-defined parameter settings change unexpectedly.	This can happen if multiple user-defined parameters are assigned to the same parameter.	If it is likely to cause confusion, it may be better not to assign more than one user-defined parameter to the same parameter. User-defined parameter assignments can be changed via the DME Designer application.
	The parameter(s) may have been edited from another DME64N/24N in the same zone.	Use the Panel Lock function (described on page 39) to prevent unwanted operation from specific DME64N/24N units or ICP1 control panels.
	The parameter may be assigned to a MIDI Control Change message via which it can be edited from an external device.	Use the DME Designer application to check the MIDI Control Change assignments.
	The parameter may be assigned to GPI control from an external controller connected to the GPI interface.	Use the DME Designer application to check the GPI input assignments.

Symptom	Possible Causes	Possible Solutions
The panel controls don't work.	The Panel Lock function is engaged.	Disengage the Panel Lock function. Refer to the "Panel Lock" section on page 39.
	No DME64N/24N is assigned as the zone master.	For each zone one DME64N/24N must be assigned as the zone master. This can be accomplished via the Utility display "Net" page described on page 48 of this document.
	The IP address is not set properly.	Set an appropriate IP address. This can be accomplished via the Utility display "Net" page described on page 48 of this document.
User-defined parameters cannot be edited.	The user-defined parameter lock function is engaged.	Disengage the user-defined parameter lock function. This can be accomplished via the Utility display "Lock" page described on page 50 of this document.
Scenes can be recalled but not stored.	The scene store parameter is set to "Disable."	Set the scene store parameter to "Enable." This can be accomplished via the Utility display "Lock" page described on page 50 of this document.
Can't open the Utility display.	The Utility display lock function is engaged.	Disengage the Utility display lock function. This can be accomplished via the Utility display "Lock" page described on page 50 of this document. If you have forgotten your password contact your Yamaha service center or representative.
MIDI messages cannot be transmitted or received.	The connection cable is not properly connected.	Make sure the connection cable is connected properly.
	Power to the MIDI device is not turned on.	Turn power to the MIDI device on.
	Set the MIDI transmit/receive channel of the MIDI device to match the DME64N/24N channel setting(s).	Set the MIDI device MIDI channel appropriately.
	The DME64N/24N MIDI parameters are not set up properly.	Properly set up the DME64N/24N MIDI parameters. MIDI setup can be accomplished via the Utility display "MIDI" page, as described on page 52 of this document.
Scenes cannot be recalled via MIDI Program Change messages.	The MIDI settings may not be properly set up to allow Program Change message reception.	Make sure that the MIDI receive channel and other MIDI parameters are set up to allow Program Change message reception. MIDI setup can be accomplished via the Utility display "MIDI" page, as described on page 52 of this document.
	The appropriate scene numbers are not assigned to the Program Change numbers being received.	Use the DME Designer application to assign the appropriate scene numbers to Program Change messages.
	There is no data in the scene you are attempting to recall (only scenes containing data can be recalled).	Use the DME Designer application to create scene data that can be recalled.
	The MIDI Program Change table has not been set up.	Use the DME Designer to set up the MIDI Program Change Table as required.
Parameters cannot be edited via MIDI Control Change messages.	The MIDI settings may not be properly set up to allow Control Change message reception.	Make sure that the MIDI receive channel and other MIDI parameters are set up to allow Control Change message reception. MIDI setup can be accomplished via the Utility display "MIDI" page, as described on page 52 of this document.
	The MIDI Control Change table has not been set up.	Use the DME Designer to set up the MIDI Control Change Table as required.
Parameters cannot be edited via MIDI Parameter Change messages.	The MIDI parameters may not be properly set up to allow Parameter Change message reception.	Make sure that the MIDI receive channel and other MIDI parameters are set up to allow Parameter Change message reception. MIDI setup can be accomplished via the Utility display "MIDI" page, as described on page 52 of this document.
	The MIDI Parameter Change table has not been set up.	Use the DME Designer to set up the MIDI Parameter Change Table as required.
The audio signal sounds slightly out of synchronization.	The Cascade connection unit number setting is incorrect.	Set the correct unit number of the cascaded units. This can be accomplished via the Utility display "CASCAD" page, as described on page 55 of this document.
The headphone output is not muted when the [MUTE] button is pressed.	This is normal.	The level of the headphone output can be reduced by using the [PHONES LEVEL] control (but cannot be muted completely).
AD824 or AD8HR cannot be selected from the HA setting in the HA page.	The connecting cable has not been properly connected to the [REMOTE] terminal.	Make sure that the cable is properly connected.
	The AD8HR/AD824 power is not turned on.	Turn on the power of the AD8HR/AD824.
	The "Remote" parameter is set to "COM (RS232C)."	Turn off the AD8HR/AD824 and set "HA Control (RS422)" for the Remote setting in the "Misc" page, then turn on the AD8HR/AD824.

Specifications

Specifications and descriptions in this owner's manual are for information purposes only. Yamaha Corp. reserves the right to change or modify products or specifications at any time without prior notice. Since specifications, equipment or options may not be the same in every locale, please check with your Yamaha dealer.

Sampling Frequency	Internal	44.1kHz, 48kHz, 88.2kHz, 96kHz
	External	Normal Rate: 39.69 – 50.88kHz Double Rate: 79.39 – 101.76kHz
Signal Delay (Fs = 96kHz)		DME64N: 0.85 msec (Input of MY8-AD96 to Output of MY8-DA96) DME24N: 0.5 msec ([IN] port to [OUT] port)
Memory	Configuration	16 (depends on size of data)
	Scene	999 (depends on size of data)
Display		160 x 64 dot matrix LCD with backlight
Scene No.		7-segment LED x 3
Indicators	Wordclock	EXT.CLOCK, 96kHz, 88.2kHz, 48kHz, 44.1kHz
	External Control	NETWORK, MIDI
	Zone Configuration	MASTER
	Analog Input*1	SIGNAL x 8, PEAK x 8
	Analog Output*1	SIGNAL x 8, PEAK x 8
Power Requirements		120V AC, 60Hz (USA, Canada) 230V AC, 50Hz (Europe) 100V AC, 50/60Hz (Japan)
Power Consumption		DME64N: 80W DME24N: 75W
Dimensions (W x H x D)		DME64N: 480 x 145 x 411.5mm, 3U DME24N: 480 x 101 x 411.5mm, 2U
Weight		DME64N: 9.5kg DME24N: 8kg
Temperature Range	Free-Air operating	10 – 35 °C
	Storage	-20 – 60 °C
AC Power Cord Length		2.5m
Supplied Accessories		AC power cord, CD-ROM (DME Designer application), Owner's Manual, DME Designer Installation Guide, AC plug clamp, 16-pin Euroblock plug x 2, 8-pin Euroblock plug x 4 (DME64N), 3-pin Euroblock plug x 16 (DME24N)

*1. Available on DME24N only

European models
Purchaser/User Information specified in EN55103-1 and EN55103-2.
Inrush Current: 39A
Conforms to Environments: E1, E2, E3 and E4

Control I/O

Terminals	Format	Level	Connector
REMOTE	-	RS232C	D-SUB Connector 9-pin (Male)
	-	RS422	
MIDI	IN/OUT/THRU	-	DIN Connector 5P
WORDCLOCK	IN/OUT	TTL/75Ω	BNC Connector
Ethernet	Ethernet	-	RJ-45
USB	USB	0 – 3.3V	USB Type B (Male)
GPI	IN	0 – 5V	Euroblock Connector
	OUT	TTL	
	+V	5V	

DME64N: 16-GPI inputs and 16-GPI outputs
DME24N: 8-GPI inputs and 8-GPI outputs

Connector Pin Assign

[CASCADE IN/OUT] Connectors (DME64N only)

CASCADE IN

Pin No.	Signal	Pin No.	Signal
1	GND	35	GND
2	INPUT 1-2 (+)	36	INPUT 1-2 (-)
3	INPUT 3-4 (+)	37	INPUT 3-4 (-)
4	INPUT 5-6 (+)	38	INPUT 5-6 (-)
5	INPUT 7-8 (+)	39	INPUT 7-8 (-)
6	INPUT 9-10 (+)	40	INPUT 9-10 (-)
7	INPUT 11-12 (+)	41	INPUT 11-12 (-)
8	INPUT 13-14 (+)	42	INPUT 13-14 (-)
9	INPUT 15-16 (+)	43	INPUT 15-16 (-)
10	DTR IN (+)	44	DTR IN (-)
11	RTS OUT (+)	45	RTS OUT (-)
12	GND	46	GND
13	WORD CLOCK IN (+)	47	WORD CLOCK IN (-)
14	WORD CLOCK OUT (+)	48	WORD CLOCK OUT (-)
15	CONTROL IN (+)	49	CONTROL IN (-)
16	CONTROL OUT (+)	50	CONTROL OUT (-)
17	GND	51	ID6 IN
18	GND	52	ID6 OUT
19	INPUT 17-18 (+)	53	INPUT 17-18 (-)
20	INPUT 19-20 (+)	54	INPUT 19-20 (-)
21	INPUT 21-22 (+)	55	INPUT 21-22 (-)
22	INPUT 23-24 (+)	56	INPUT 23-24 (-)
23	INPUT 25-26 (+)	57	INPUT 25-26 (-)
24	INPUT 27-28 (+)	58	INPUT 27-28 (-)
25	INPUT 29-30 (+)	59	INPUT 29-30 (-)
26	INPUT 31-32 (+)	60	INPUT 31-32 (-)
27	ID0 IN	61	ID1 IN
28	ID2 IN	62	ID3 IN
29	ID4 IN	63	ID5 IN
30	ID0 OUT	64	ID1 OUT
31	ID2 OUT	65	ID3 OUT
32	ID4 OUT	66	ID5 OUT
33	MSB //LSB IN	67	2CH//4CH IN
34	FG	68	FG

CASCADE OUT

Pin No.	Signal	Pin No.	Signal
1	GND	35	GND
2	OUTPUT 1-2 (+)	36	OUTPUT 1-2 (-)
3	OUTPUT 3-4 (+)	37	OUTPUT 3-4 (-)
4	OUTPUT 5-6 (+)	38	OUTPUT 5-6 (-)
5	OUTPUT 7-8 (+)	39	OUTPUT 7-8 (-)
6	OUTPUT 9-10 (+)	40	OUTPUT 9-10 (-)
7	OUTPUT 11-12 (+)	41	OUTPUT 11-12 (-)
8	OUTPUT 13-14 (+)	42	OUTPUT 13-14 (-)
9	OUTPUT 15-16 (+)	43	OUTPUT 15-16 (-)
10	DTR OUT (+)	44	DTR OUT (-)
11	RTS IN (+)	45	RTS IN (-)
12	GND	46	GND
13	WORD CLOCK OUT (+)	47	WORD CLOCK OUT (-)
14	WORD CLOCK IN (+)	48	WORD CLOCK IN (-)
15	CONTROL OUT (+)	49	CONTROL OUT (-)
16	CONTROL IN (+)	50	CONTROL IN (-)
17	GND	51	ID6 OUT
18	GND	52	ID6 IN
19	OUTPUT 17-18 (+)	53	OUTPUT 17-18 (-)
20	OUTPUT 19-20 (+)	54	OUTPUT 19-20 (-)
21	OUTPUT 21-22 (+)	55	OUTPUT 21-22 (-)
22	OUTPUT 23-24 (+)	56	OUTPUT 23-24 (-)
23	OUTPUT 25-26 (+)	57	OUTPUT 25-26 (-)
24	OUTPUT 27-28 (+)	58	OUTPUT 27-28 (-)
25	OUTPUT 29-30 (+)	59	OUTPUT 29-30 (-)
26	OUTPUT 31-32 (+)	60	OUTPUT 31-32 (-)
27	ID0 OUT	61	ID1 OUT
28	ID2 OUT	62	ID3 OUT
29	ID4 OUT	63	ID5 OUT
30	ID0 IN	64	ID1 IN
31	ID2 IN	65	ID3 IN
32	ID4 IN	66	ID5 IN
33	MSB //LSB OUT	67	2CH//4CH OUT
34	FG	68	FG

[NETWORK] Connector (100Base-TX Ethernet, RJ-45)

Pin	Connection
1	TxD+
2	TxD–
3	RxD+
4	Unused
5	Unused
6	RxD–
7	Unused
8	Unused

Straight/Cross Cable Wiring Details

Straight Cables

Pins
1 —— 1
2 —— 2
3 —— 3
4 —— 4
5 —— 5
6 —— 6
7 —— 7
8 —— 8

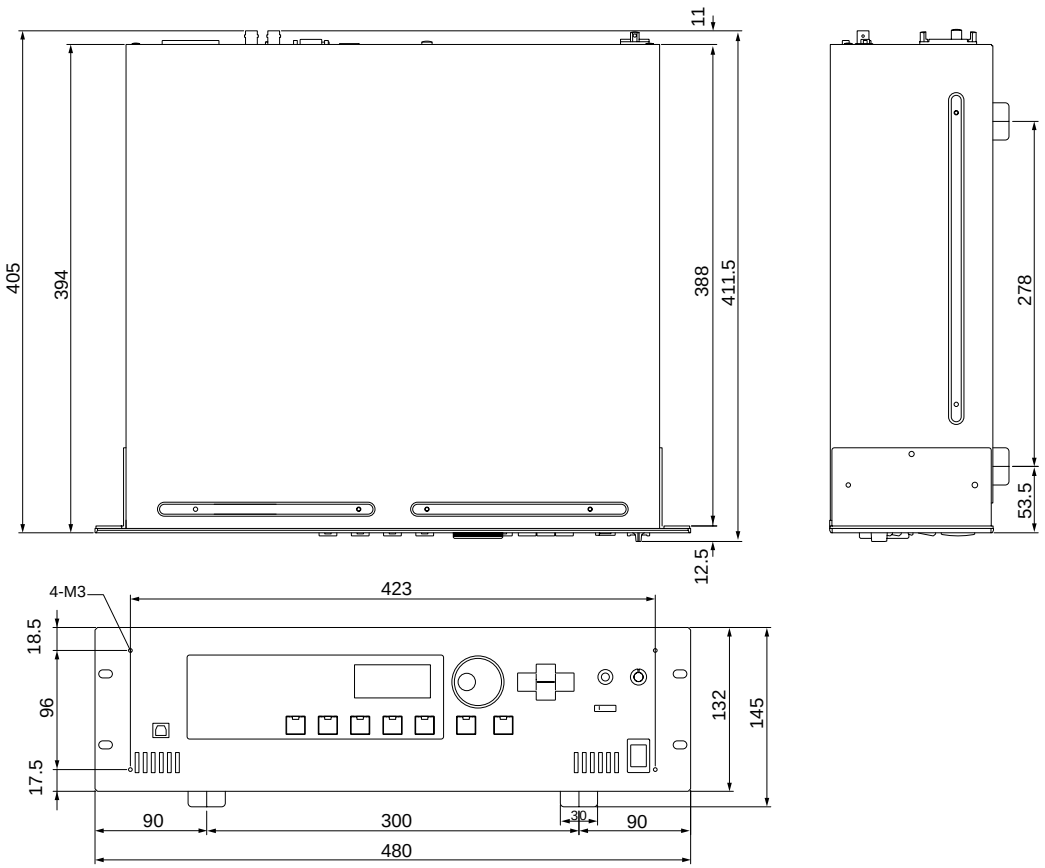
Cross Cables

Pins
1 —— 3
2 —— 6
3 —— 1
4 —— 4
5 —— 5
6 —— 2
7 —— 7
8 —— 8

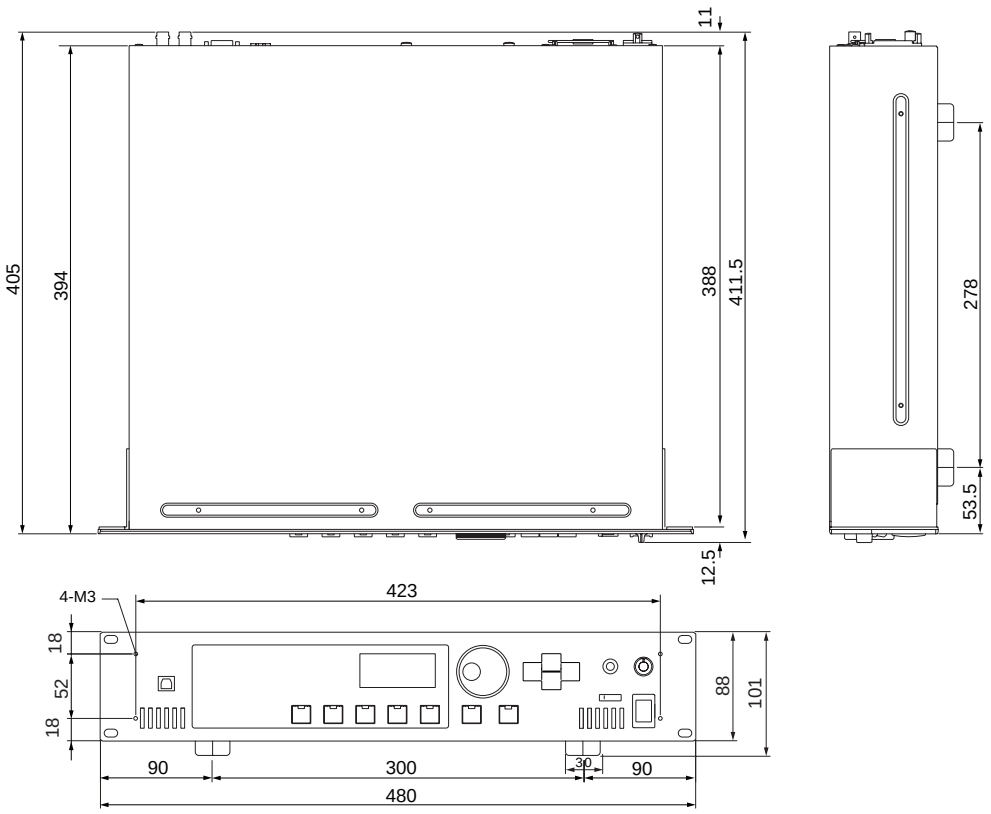
Dimensions

Unit: mm

DME64N



DME24N



MIDI Data Format

1. DME64N/24N MIDI Functions

1.1 Scene Change

Scene recall occurs according to the "MIDI Program Change Table" assignments when appropriate MIDI Bank Select MSB/LSB and Program Change messages are received by the DME64N/24N.

Corresponding MIDI Bank Select MSB/LSB and Program Change messages are also transmitted by the DME64N/24N when a scene recall operation is carried out via the panel controls, as specified by the "MIDI Program Change Table" assignments.
Transmission does not occur when switching Configurations.

1.2 Parameter Control

MIDI Control Change and Parameter Change messages transmitted to the DME64N/24N can be used to control parameters according to the "MIDI Control Change table" and "MIDI Parameter Change Table" assignments.

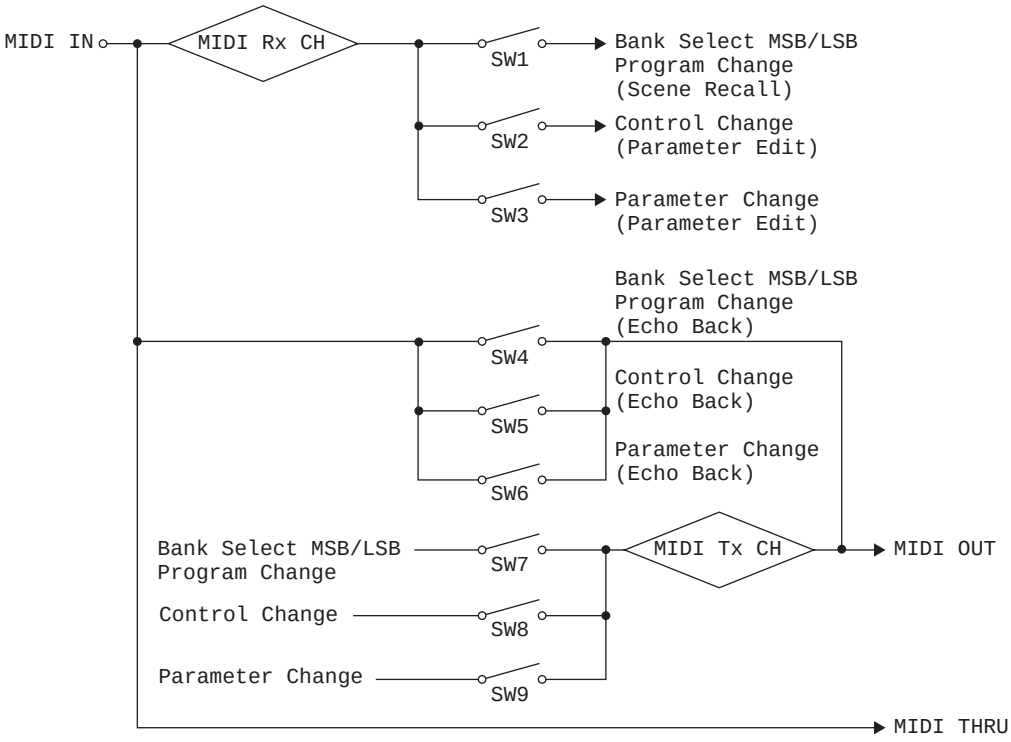
Corresponding MIDI Control Change and Parameter Change messages are also transmitted by the DME64N/24N when a parameter is edited out via the panel controls, as specified by the "MIDI Control Change table" and "MIDI Parameter Change Table" assignments.

1.3 MIDI Clock

BPM (beats per minute) based parameters can be controlled by a MIDI clock signal transmitted to the DME64N/24N.

"MIDI Program Change Table," "MIDI Control Change Table," and "MIDI Parameter Change Table" assignments can be made via the DME Designer application. Refer to the DME Designer Manual for details.

2. MIDI Data Flow



SW1: Program Change Rx Switch [On/Off]
SW2: Control Change Rx Switch [On/Off]
SW3: Parameter Change Rx Switch [On/Off]
SW4: Program Change Echo Back Switch [On/Off]
SW5: Control Change Echo Back Switch [On/Off]
SW6: Parameter Change Echo Back Switch [On/Off]
SW7: Program Change Tx Switch [On/Off]
SW8: Control Change Tx Switch [On/Off]
SW9: Parameter Change
MIDI Rx CH: MIDI Rx Channel (1-16)
MIDI Tx CH: MIDI Tx Channel (1-16)

3. MIDI Setup

Specifies basic MIDI operation.

3.1 Host Select

Selects the input/output port to be used for MIDI communication.

3.2 DAW Controller

Specifies the DAW controller type when a DAW control surface is to be used to control the DME64N/24N. When Type 1/2 is selected, Host Select is automatically set to MIDI.

3.3 MIDI Tx Channel

Specifies the MIDI transmit channel (1 ~ 16).

3.4 MIDI Rx Channel

Specified the MIDI receive channel (1 ~ 16).

3.5 MIDI Tx Switch

Program Change Tx Switch: turns Bank Select MSB, LSB, and Program Change transmission on or off.
Control Change Tx Switch: turns Control Change transmission on or off.
Parameter Change Tx Switch: turns Parameter Change transmission on or off.

3.6 MIDI Rx Switch

Program Change Rx Switch: turns Bank Select MSB, LSB, and Program Change reception on or off.
Control Change Rx Switch: turns Control Change reception on or off.
Parameter Change Rx Switch: turns Parameter Change reception on or off.

3.7 MIDI Omni Switch

Program Change Omni Switch: turns the Bank Select MSB, LSB, and Program Change omni mode on or off.
Control Change Omni Switch: turns the Control Change omni mode on or off.

3.8 MIDI Echo Back Switch

Program Change Echo Back Switch: turns Bank Select MSB, LSB, and Program Change echo back on or off.
Control Change Echo Back Switch: turns Control Change echo back on or off.
Parameter Change Echo Back Switch: turns Parameter Change echo back on or off.

4. MIDI Format

Number Format Notation
Numbers ending with "h" are in hexadecimal format, while numbers ending with "b" are binary format. Characters "A" through "F" in hexadecimal numbers represent decimal values 10 through 15. Other lowercase characters (usually "n" or "x") represent any number.

MIDI Format Chart (Rx: receive, Tx: transmit)

	Command	Rx/Tx	Function
Channel Message	Control Change (Bnh)	Rx/Tx	Parameter Change
	Program Change (Cnn)	Rx/Tx	Scene Recall
System Real-time Message	TIMING CLOCK (F8h)	Rx	MIDI Clock Receive
	ACTIVE SENSING (FEH)	Rx	MIDI Cable Check
System Exclusive Message	Parameter Change	Rx/Tx	Parameter Change

4.1 Program Change (Cnh)

Receive

When the "Program Change Rx Switch" is on, Program Change messages are received on the MIDI channel specified by the "MIDI Rx Channel" parameter.
If the "Program Change Omni Switch" is also on, however, Program Change messages will be received on all MIDI channels regardless of the "MIDI Rx Channel" setting.
When a Program Change message is received, the scene assigned to the received program number in the "MIDI Program Change table" is recalled.
The accepted Bank Select, Program Change range is as follows:

```
Bank Select MSB: 0
Bank Select LSB: 0 ~ 7
Program Change No.: 0 ~ 127
```

Transmit

When the "Program Change Tx Switch" is on, the corresponding Program Change number will be transmitted as specified by the "MIDI Program Change table" and "MIDI Tx Channel" settings.
Transmission does not occur when switching Configurations.
If multiple Program Change numbers are assigned to a single scene, the Bank Select MSB/LSB and Program Change number corresponding to the lowest number will be transmitted.

Bank Select MSB

Status	Bnh (1101nnnnb)	Control Change
Data	00h (00000000b)	Control Change No. 0 (Bank Select MSB)
Data	nnh (0nnnnnnnb)	Control Value (Bank Select MSB No.)

Bank Select LSB

Status	Bnh (1101nnnnb)	Control Change
Data	20h (00100000b)	Control Change No. 32 (Bank Select LSB)
	nnh (0nnnnnnnb)	Control Value (Bank Select LSB No.)

Program Change No.

Status	Cnh (1100nnnnb)	Program Change
Data	nnh (0nnnnnnnb)	Program Change No. (0-127)

4.2 Timing Clock (F8h)

Receive

Controls parameters that depend on the MIDI clock signal.
Timing Clock

Status	F8h (11111000b)	Timing Clock

4.3 Active Sensing (FEh)

Receive

MIDI communication will be initialized if no data is received within 300 ms after reception (Running Status, etc., will be cleared).
Active Sensing

Status	FEh (11111110b)	Active Sensing

4.4 Control Change (Bnh)

Receive

When the "Control Change Rx Switch" is on, Control Change messages are received on the MIDI channel specified by the "MIDI Rx Channel" parameter.
If the "Control Change Omni Switch" is also on, however, Control Change messages will be received on all MIDI channels regardless of the "MIDI Rx Channel" setting.
Control Change parameter resolution is 128 regardless of the parameters effective range. For finer settings use Parameter Change.

Transmit

When the "Control Change Tx Switch" is on, appropriate Control Change data will be transmitted when a parameter is edited via the panel controls, as specified by the "MIDI Control Change table" and "MIDI Tx Channel" settings.
Transmission does not occur when switching Configurations.
Refer to "Supplementary Information 1" for cases in which multiple messages are assigned to single parameter.

Status	Bnh (1011nnnnb)	Control Change
Data	cch (0ccccccb)	Control Change No. (1-31,33-95,102-119)
	vvh (0vvvvvvvb)	Control Value (0-127)

4.5 Parameter Change (F0h ~ F7h)

Receive

When the "Parameter Change Rx Switch" is On, Parameter Change messages are received on the MIDI channel specified by the "Device ID (Rx Ch)" parameter.

Transmit

When the "Parameter Change Tx Switch" is On, appropriate Parameter Change data will be transmitted when a parameter is edited via the panel controls, as specified by the "MIDI Parameter Change table" and "MIDI Tx Channel" settings.
Refer to "Supplementary Information 1" for cases in which multiple messages are assigned to single parameter.
Refer to "Supplemental Information 2" for information on setting Parameter Data values.

Status	F0h (11110000b)	System Exclusive Message
ID No.	43h (01000011b)	Manufacturer's ID No.(YAMAHA)
DEVICE ID.	10h (0001xxxxb)	Rx/Tx Channel (0-15)
GROUP ID.	3Eh (00111110b)	Digital Mixer
MODEL ID.	10h (00010000b)	Device Code (DME)
Parameter Address	aah (0aaaaaaab)	Parameter Address High
	aah (0aaaaaaab)	Parameter Address Low
Parameter Data Value	ddh (0ddddddb)	data 0
	ddh (0ddddddb)	data 1
	ddh (0ddddddb)	data 2
	ddh (0ddddddb)	data 3
	ddh (0ddddddb)	data 4
EOX	F7h (11110111b)	End of Exclusive

Supplemental Information 1

Messages Transmitted When Multiple Messages are Assigned to the Same Parameter

The DME64N/24N MIDI transmit messages are specified via the "MIDI Control Change Table" and "MIDI Parameter Change Table." The "MIDI Control Change Table" and "MIDI Parameter Change Table" can be set up via the DME Designer application.
Multiple messages can be assigned to a single parameter, but the DME64N/24N will only transmit one of the assigned messages.
The transmitted messages are as follows:

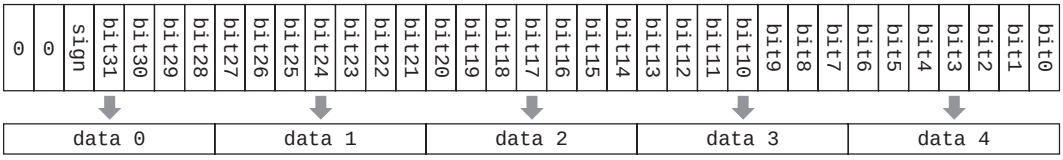
- If a Control Change message and a Parameter Change message are assigned to the same parameter → the Control Change message will be transmitted.
- If multiple Control Change numbers are assigned to the same parameter → the smallest Control Change number message will be transmitted.
- If multiple Parameter Change numbers are assigned to the same parameter → the smallest Parameter Change number message will be transmitted.

Supplemental Information 2

Setting the Parameter Change Message Parameter Data Values

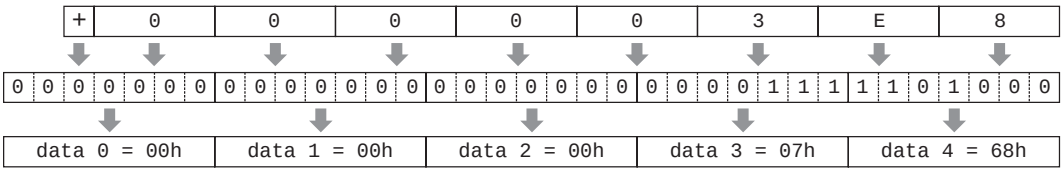
The Parameter change parameter values are expressed as 32-bit integers with or without parity.

- A parity bit (positive: 0, negative: 1) is added above the most significant value bit (bit 31).
- Fractional parameters will be converted according to the integer table.
- For integers with parity, negative numbers are expressed as the 2's complement.

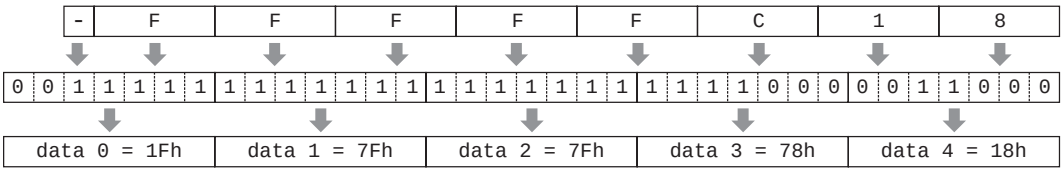


Example

• When value is 1000 (decimal) / 3E8h (hexadecimal):



• When value is 1000 (decimal) / FFFFFC18h (hexadecimal; 2's complement of 3E8h):



YAMAHA [Digital Mixing Engine] Date :31-MAR-2004
Model DME64N/24N MIDI Implementation Chart Version : 1.0

Function...		Transmitted	Recognized	Remarks
Basic Channel	Default	1 - 16	1 - 16	Memorized
	Changed	1 - 16	1 - 16	
Mode	Default	×	×	
	Messages	×	×	
	Altered	**********	×	
Note Number : True voice		×	×	
		**********	×	
Velocity	Note ON	×	×	
	Note OFF	×	×	
After Touch	Key's	×	×	
	Ch's	×	×	
Pitch Bend		○	○	
Control Change	0,32	○ *1	○ *1	Bank Select
	1-31,33-95,102-119	○ *2	○ *2	Assignable
Prog Change : True #		○ 0 - 127 *1 **********	○ 0 - 127 *1 0 - 127	
System Exclusive		○ *3	○ *3	
Common	: Song Pos.	×	×	
	: Song Sel.	×	×	
	: Tune	×	×	
System Real Time	: Clock	×	○	
	: Commands	×	×	
Aux Mes-sages	: All Sound Off	×	×	
	: Reset All Cntrls	×	×	
	: Local ON/OFF	×	×	
	: All Notes OFF	×	×	
	: Active Sense	×	○	
	: Reset	×	○	

Notes: not include "DAW controller" command

*1 transmit/receive if program change switch is on.
*2 transmit/receive if control change switch is on.
*3 transmit/receive if parameter change switch is on.

Mode 1 : OMNI ON , POLY Mode 2 : OMNI ON ,MONO ○ : Yes
Mode 3 : OMNI OFF, POLY Mode 4 : OMNI OFF,MONO × : No

Glossary

Terms	Explanations
100Base-TX	A physical specification for a 100 Mbps Ethernet network connection using 2-conductor Category 5 UTP cable included in the IEEE 802.3u standard. Maximum data transfer distance is 100 meters.
10Base-T	A physical specification for a 10 Mbps Ethernet network connection using 2-conductor Category 3 UTP cable included in the IEEE 802.3i standard. Maximum data transfer distance is 100 meters.
ADAT (Alesis Digital Audio Tape)	A digital audio connection format used by ADAT compliant digital audio devices. Eight channels of digital audio can be carried by a single optical "Tos-Link" cable.
AES/EBU (Audio Engineering Society/ European Broadcasting Union)	A digital audio format jointly devised by the AES and EBU. Used primarily for digital audio transfer between professional equipment. Two channels of digital audio can be handled via a single connector (Left: odd number, Right: even number). Standard XLR connectors are generally used for this type of connection.
BNC (Bayonet Nut Connector, or Bayonet Neill Concelman)	A type of connector used for high-frequency connections using thin-core coaxial cable. An internal spring ensures a solid connection.
Cascade	A means of connecting Yamaha digital audio equipment to allow transfer of audio, control, and word clock signals. Yamaha cascade connections employ half-pitch 68-pin D-Sub connectors.
Category 3	Electrical specifications for one type of UTP cable jointly developed by the TIA (Telecommunications Industry Association) and EIA (Electronic Industry Alliance). Several categories are specified according to electrical characteristics, with higher category numbers denoting higher quality cable. Category 3 cable can be used for transmission speeds up to 10 MHz.
Category 5	Electrical specifications for one type of UTP cable jointly developed by the TIA (Telecommunications Industry Association) and EIA (Electronic Industry Alliance). Several categories are specified according to electrical characteristics, with higher category numbers denoting higher quality cable. Category 5 cable can be used for transmission speeds up to 100 MHz.
CobraNet	An audio networking system developed by Peak Audio (a division of Cirrus Logic, Inc.) that allows real-time transmission and reception of multiple channels of uncompressed digital audio signals via a Fast Ethernet (100 megabits/sec.) network.
Component	The basic modules that are combined to create DME64N/24N audio systems. In addition to complete audio processors such as mixers, compressors, effects, crossovers, etc., a range of smaller functions such as faders, switches, pan controls, and meters are also available. Components can also be customized.
Configuration	A set of components and connections that make up an audio system in the DME64N/24N.
D-Sub	Another common form of connector that gets its name from the "D" shape of the connector. This type of connector can be securely attached using screws. Individual "pins" are used to connect each of the cable's conductors. D-Sub connectors come in 9-pin, 15-pin, 25-pin, 37-pin, and other sizes.
DSP (Digital Signal processor)	A semiconductor chip (LSI), or device containing one or more such chips, developed specifically to process large volumes of data in real time. Ideal for processing digital audio.
Ethernet	A network protocol jointly developed by the Xerox, DEC, and Intel corporations, and codified in the IEEE 802.3 industry standard. Transfer speeds have increased to 100 Mbps, 1000 Mbps, and 10 Gbps from the initial 10 Mbps, while maintaining network compatibility.
Euroblock	A connector system consisting of plug and socket components that allows easy, solder-less wiring for a range of installations and devices. Simply insert the wire into the plug slot, tighten the screw, and plug into the socket to complete the connection.
GPI (General Purpose Interface)	A general-purpose control interface that can be used to allow control of the DME64N/24N via external devices and custom-made controllers. Connections are made via a Euroblock connector. The optional CP4SW, CP1SF, and CP4SF control panels also connect via GPI.
Initial Settings	The initial values and settings of all editable parameters that will be in effect when a device is powered on for the first time after it is shipped from the factory. Also known as "default settings" or "initial factory settings."
MAC (Media Access Control) Address	The MAC address is also known as the Ethernet address, and is an independent address assigned to all Ethernet devices worldwide. No two devices can have the same address.
MIDI (Musical Instrument Digital Interface)	An international standard for data communication between electronic musical instruments and audio devices.
Mini YGDAI (Yamaha General Digital Audio Interface) card	A standard for I/O cards that can be installed to Yamaha audio products.
Phantom Power	A power delivery system that allows power to be delivered to devices along with audio signals via standard balanced audio cables. The term "phantom" is applied because the system uses the audio conductors for power delivery without disrupting the audio signal – the power is not "seen" by the audio signal.
Preset Parameter	The parameter set of all components included in a configuration.

Terms	Explanations
RJ-45	An 8-conductor modular connector used for Ethernet cable and ISDN telephone connections. The appearance is similar to the RJ-11 connectors used for telephone lines, but the connector is actually somewhat larger. “RJ” stands for “Registered Jack,” and is a connector type included in the Bell System USOC (Universal Service Ordering Codes) standards.
Router	An equipment that relays data in network by selecting the most effective route.
RS-232C	A serial communication protocol that allows data transfer over distances of up to 15 meters. RS232C interfaces usually employ 9-pin D-sub connectors. “RS” stands for “Recommended Standard,” and one of the standards developed by the EIA (Electronic Industry Alliance).
RS-422	A balanced serial communication protocol that allows data transfer over distances of up to 1 kilometer. RS-422 offers higher data rates and greater reliability than the RS-232C protocol.
Sampling Frequency	The number of times per second an analog audio signal is “sampled” when it is being converted to digital audio.
Scene	A complete audio setup including configuration data and the related component preset parameters. Up to 999 scenes can be stored for each zone in a DME64N/24N audio system.
STP (Shielded Twisted Pair) Cable	A data transmission cable consisting of a shielded twisted pair. This type of cable is more resistant to noise and interference than UTP (Unshielded Twisted Pair) cable.
Switching Hub	A network hub which automatically connects only ports through which communication is currently taking place. This reduces network load while maximizing security. This type of hub can often mediate between devices having different transmission speeds and standards.
TDIF (Tascam Digital Interface Format)	A digital interface standard used by the TEAC corporation (TASCAM). Eight channels of digital audio input and output are handled via a 25-pin D-Sub connector.
USB (Universal Serial Bus)	A serial bus primarily used for connecting peripheral devices to computer equipment. The USB 1.1 standard allows data transfer rates of up to 12 Mbps.
UTP (Unshielded Twisted pair) Cable	A data transmission cable consisting of an unshielded twisted pair. This type of cable is less expensive and more commonly available than STP (Shielded Twisted Pair) cable, and is widely used in 10Base-T and 100Base-TX network connections.
Word Clock	A signal used to synchronize multiple interconnected digital audio devices. The word clock frequency will be the same as the sampling frequency of the audio signal being processed.

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