TASCAM

D01351300B

ML-4D/OUT-E
ML-4D/OUT-X

DA CONVERTER

OWNER'S MANUAL ENGLISH

MODE D'EMPLOI FRANÇAIS

MANUAL DEL USUARIO ESPAÑOL

BEDIENUNGSANLEITUNG DEUTSCH

MANUALE DI ISTRUZIONI ITALIANO

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IMPORTANT SAFETY INSTRUCTIONS

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

For U.S.A.

Declaration of Conformity

Model Number: ML-4D/OUT-E / ML-4D/OUT-X
Trade Name: TASCAM
Responsible party: TEAC AMERICA, INC.
Address: 10410 Pioneer Blvd. Suite #1 and #4, Santa Fe Springs, California 90670, U.S.A.
Telephone number: 1-323-726-0303

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

INFORMATION TO THE USER

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

a) Reorient or relocate the receiving antenna.

b) Increase the separation between the equipment and receiver.

c) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

d) Consult the dealer or an experienced radio/TV technician for help.

CAUTION

Changes or modifications to this equipment not expressly approved by TEAC CORPORATION for compliance could void the user's authority to operate this equipment.

For Canada

THIS CLASS B DIGITAL APPARATUS COMPLIES WITH CANADIAN ICES-003.

CET APPAREIL NUMERIQUE DE LA CLASSE B EST CONFORME A LA NORME NMB-003 DU CANADA.

CE This product complies with the European Directives request and the other Commission Regulations.

CE Marking Information

EN55103-2

a) Applicable electromagnetic environment: E1, E2, E3, E4

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.

12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.

14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

- The apparatus draws nominal non-operating power from the AC outlet with its POWER or STANDBY/ON switch not in the ON position.
- The mains plug is used as the disconnect device, the disconnect device shall remain readily operable.
- Caution should be taken when using earphones or headphones with the product because excessive sound pressure (volume) from earphones or headphones can cause hearing loss.
- If you are experiencing problems with this product, contact TEAC for a service referral. Do not use the product until it has been repaired.

CAUTION

- Do not expose this apparatus to drips or splashes.
- Do not place any objects filled with liquids, such as vases, on the apparatus.
- Do not install this apparatus in a confined space such as a book case or similar unit.
- The apparatus should be located close enough to the AC outlet so that you can easily grasp the power cord plug at any time.
- If the product uses batteries (including a battery pack or installed batteries), they should not be exposed to sunshine, fire or excessive heat.
- CAUTION for products that use replaceable lithium batteries: there is danger of explosion if a battery is replaced with an incorrect type of battery. Replace only with the same or equivalent type.

For European Customers

Disposal of electrical and electronic equipment and batteries and/or accumulators

(a) All electrical/electronic equipment and waste batteries/ accumulators should be disposed of separately from the municipal waste stream via collection facilities designated by the government or local authorities.

(b) By disposing of electrical/electronic equipment and waste batteries/accumulators correctly, you will help save valuable resources and prevent any potential negative effects on human health and the environment.

(c) Improper disposal of waste electrical/electronic equipment and batteries/accumulators can have serious effects on the environment and human health because of the presence of hazardous substances in the equipment.

(d) The Waste Electrical and Electronic Equipment (WEEE) symbols, which show wheeled bins that have been crossed out, indicate that electrical/electronic equipment and batteries/accumulators must be collected and disposed of separately from household waste.

If a battery or accumulator contains more than the specified values of lead (Pb), mercury (Hg), and/or cadmium (Cd) as defined in the Battery Directive (2006/66/EC), then the chemical symbols for those elements will be indicated beneath the WEEE symbol.

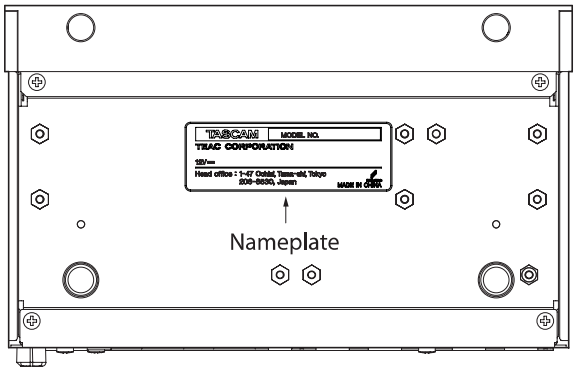
(e) Return and collection systems are available to end users. For more detailed information about the disposal of old electrical/electronic equipment and waste batteries/ accumulators, please contact your city office, waste disposal service or the shop where you purchased the equipment.

.CAUTION

- DO NOT REMOVE THE EXTERNAL CASES OR CABINETS TO EXPOSE THE ELECTRONICS. NO USER SERVICEABLE PARTS ARE INSIDE.
- IF YOU ARE EXPERIENCING PROBLEMS WITH THIS PRODUCT, CONTACT THE STORE WHERE YOU PURCHASED THE UNIT FOR A SERVICE REFERRAL. DO NOT USE THE PRODUCT UNTIL IT HAS BEEN REPAIRED.
- USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

The nameplate is located on the bottom of the unit as shown below.

Front side



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Introduction

Thank you very much for purchasing a TASCAM ML-4D/OUT-E / ML-4D/OUT-X DA Converter.

Before using this unit, read this Owner's Manual carefully so that you will be able to use it correctly and enjoy working with it for many years. After you have finished reading this manual, please keep it in a safe place for future reference.

You can also download this Owner's Manual from the TEAC Global Site (**http://teac-global.com/**).

Features

- Supports 4 channels of analog line/mic outputs
  - ML-4D/OUT-E: balanced Euroblock model
  - ML-4D/OUT-X: balanced XLR model
- Built-in DSP mixer enables a variety of audio processing
- Dante interface included as standard feature
- AES67 (Dante AES67 mode) is also supported, so connection is possible with Ravenna and other network audio technologies compatible with AES67
- Supports daisy-chain connection in Dante switch mode
- Flexible routing is possible using Dante Controller
- Supports PoE (Power over Ethernet)
- Supports power daisy-chaining
- Support for sampling frequencies and bit lengths up to 96kHz and 24-bit
- LEDs for output signal
- Reference level can be set
- Dedicated remote control application for Windows, Mac, iOS and Android (TASCAM DCP CONTROL)
- Half rack size

Included items

This product includes the following items.

Take care when opening the package to avoid damaging the items. Keep the box and packing materials for transportation in the future.

Please contact the store where you purchased this unit if any of these items are missing or have been damaged during transportation.

- Main unit ..... × 1
- Installation brackets ..... × 2
- Euroblock plugs (ML-4D/OUT-E only) ..... × 4
- Cable band kit (ML-4D/OUT-E only) ..... × 1
- Owner's Manual (this document) including warranty ..... × 1

Conventions used in this manual

In this manual, we use the following conventions:

- When we refer to buttons, connectors and other parts of this unit and other equipment, we use a bold font like this: **STATUS** indicator.
- As necessary, additional information is provided under TIP, NOTE and CAUTION headings.

TIP

These are tips about how to use the unit.

NOTE

These provide additional explanations and describe special cases.

ATTENTION

Failure to follow these instructions could result in damage to equipment or lost data, for example.

⚠ CAUTION

Failure to follow these instructions could result in injury.

Precautions for placement and use

- The operating temperature range of this unit is 0–40 °C.
- Do not install this unit in the following types of locations. Doing so could make the sound quality worse or cause malfunction.
  - Places with significant vibrations
  - Next to a window or in another location exposed to direct sunlight
  - Near heaters or other extremely hot places
  - Extremely cold places
  - Very humid or poorly ventilated places
  - Very dusty places
- To enable good heat dissipation, do not place anything on top of the unit.
- Do not place this unit on top of a power amplifier or other device that generates heat.
- When installing this unit on or under a desk, use the included attachment brackets.
- To mount this unit in a rack, use a TASCAM AKRS1 (sold separately).

Beware of condensation

Condensation could occur if the unit is moved from a cold place to a warm place, it is used immediately after a cold room has been heated or it is otherwise exposed to a sudden temperature change.

To prevent this, or if this occurs, let the unit sit for one or two hours at the new room temperature before using it.

Cleaning the unit

Use a dry soft cloth to wipe the unit clean. Do not wipe with chemical cleaning cloths, thinner, alcohol or other chemical agents. Doing so could damage the surface or cause discoloration.

Using the TEAC Global Site

You can download updates for this unit from the TEAC Global Site:

http://teac-global.com/

In the TASCAM Downloads section, select the desired language to open the Downloads website page for that language.

Product registration

Customers in the USA, please visit the following TASCAM website to register your TASCAM product online.

https://tascam.com/us/

About TASCAM customer support service

TASCAM products are supported and warrantied only in their country/region of purchase.

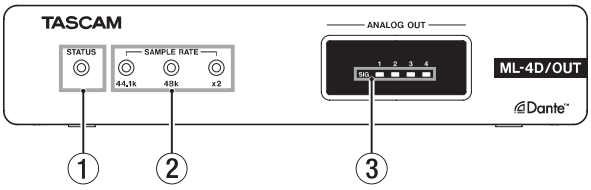
To receive support after purchase, on the TASCAM Distributors list page of the TEAC Global Site (**http:// teac-global.com/**), search for the local company or representative for the region where you purchased the product and contact that organization.

When making inquiries, the address (URL) of the shop or web shop where it was purchased and the purchase date are required.

Moreover, the warranty card and proof of purchase might also be necessary.

Names of parts

Front panel



① STATUS indicator

The **STATUS** indicator blinks blue under the following conditions.

- When no LAN cable is connected
- When the Dante module is not operating properly

② SAMPLE RATE indicator

The lit/unlit state of the three SAMPLE RATE indicators (44.1k, 48k and ×2) show the sampling frequency status of the unit.

	44.1 kHz	48 kHz	x2
44.1 kHz	Lit	Unlit	Unlit
48 kHz	Unlit	Lit	Unlit
88.2 kHz	Lit	Unlit	Lit
96 kHz	Unlit	Lit	Lit

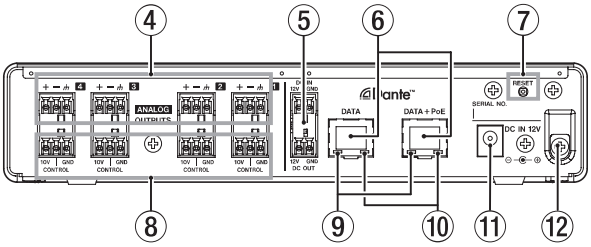
③ OUT SIG indicators

These light when sound is being output through the analog outputs.

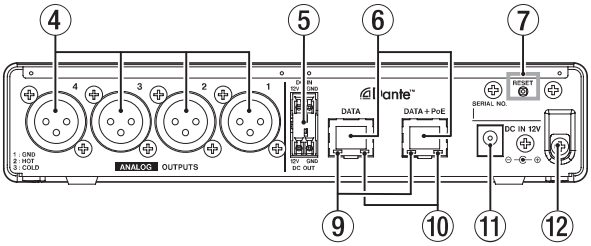
Output is judged to have occurred when the signal level exceeds –60 dBFS.

Rear panel

ML-4D/OUT-E



ML-4D/OUT-X



④ Analog output connectors

ML-4D/OUT-E

These are balanced Euroblock analog output connectors.

(HOT, COLD, GND from the left)

ML-4D/OUT-X

These are balanced XLR analog output jacks.

(1: GND, 2: HOT, 3: COLD)

⑤ DC IN/DC OUT connectors

The DC-IN connector is above, and the **DC-OUT** connector is below. (Left is 12V, and right is GND.)

These connectors are specifically for power daisy-chaining.

ATTENTION

Disconnect the AC adapter before connecting the **DC IN** and **DC OUT** connectors.

NOTE

- Power daisy-chaining can be enabled by connecting the **DC OUT** and **DC IN** connectors. Power daisy-chaining of up to two units is possible
- When powering by PoE, the first unit in the powerdaisy-chain will not be powered. In this case, use a dedicated PS-P1220E AC adapter (sold separately) to power the first unit in the daisy chain.

⑥ DATA/DATA+PoE connectors

These are Dante transmission connectors.

Use to connect the unit to a Dante network.

Use the DATA+PoE connector when connecting to a switching hub that supports PoE power supply. In this case, use of an AC adapter is not necessary.

Either connector can be used when using a switching hub that does not support PoE power supply.

⑦ RESET button

This resets the settings.

Press and hold for 5 seconds to reset all Dante settings.
Press and hold for 10 seconds to reset all unit settings.

⑧ **External control connectors (CONTROL, ML-4D/OUT-E only)**

By connecting variable resistors between the **CONTROL** and **GND** connectors, the selected audio signal levels can be adjusted.

The 10V connectors are for supplying power to variable resistors.

(Left is 10V, center is CONTROL and right is GND.)

⑨ **Gigabit link status indicator**

Orange indicates that a gigabit Ethernet link has been established.

⑩ **Link status/activity indicator**

Green indicates that a link is established between the devices.

Blinking indicates that signals are being transmitted between the devices.

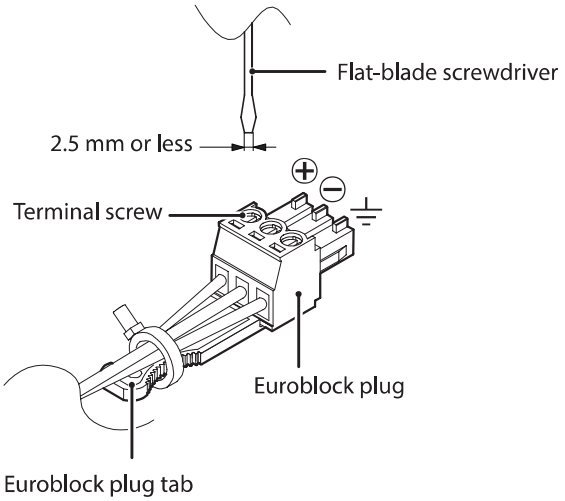
⑪ **DC IN 12V connector**

Connect a PS-P1220E AC adapter (sold separately) here.

⑫ **Cord holder**

When using a PS-P1220E AC adapter (sold separately), hook its cord here to prevent accidental disconnection.

Connecting Euroblock plugs (ML-4D/OUT-E only)



1. Loosen the Euroblock plug terminal screws.

NOTE

Use a flat-blade screwdriver with a width of 2.5mm or less.

2. Insert wires.

NOTE

AWG16–AWG28 wires are compatible with the included Euroblock plugs. Using wires within the compatible range, trim about 7 mm of the protective sheaths from their ends.

3. Tighten the Euroblock plug terminal screws.

NOTE

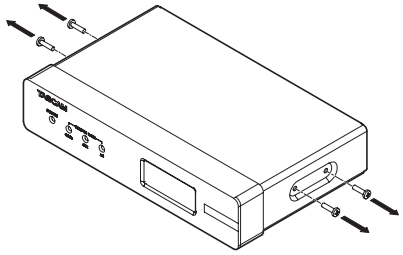
Confirm that the wires cannot be pulled out.

4. Use an included wire band to attach the wires to the Euroblock plug tab.

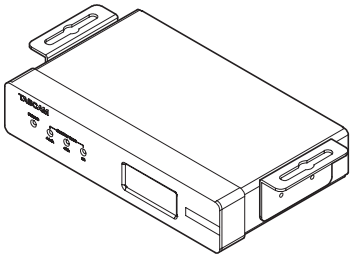
Installing the attachment brackets

By installing the included attachment brackets on this unit, you can fix it in place on top of or underneath a desk, for example.

1. Remove the four screws installed in the left and right sides of the enclosure.

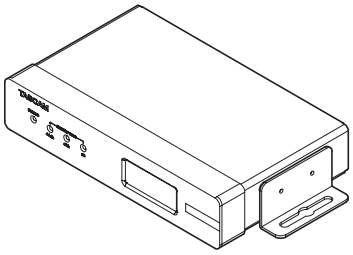


2. Align the included attachment brackets with the enclosure.

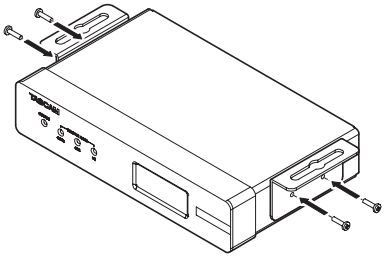


NOTE

When installing this unit on a desk, align the brackets as shown in the illustration below.



3. Use the four removed screws to install the attachment brackets on the unit.



Installing on or under a desk

To install this unit on or under a desk, use 4 commercially-available screws that are suitable for the material and thickness of the desk.

NOTE

The width of the attachment bracket openings is 7.1 mm. See the dimensional diagrams at the end of this manual for details about the attachment brackets.

1. With the two attachment brackets already installed on the unit, align the unit with the desk as desired.
2. Make marks where the screw holes will be made in the desk.
3. Drill pilot holes for the screws in the desk.
4. Attach the unit to the desk with 4 screws.

Overview of settings

Make various settings as necessary according to the connected equipment.

All of the following settings can be made using the dedicated remote control application (TASCAM DCP CONTROL).

Setting the reference level

You can set the analog output headroom (difference between the maximum and reference levels).

DSP overview

This unit has a built-in DSP mixer. A variety of audio processes suitable for different applications and conditions are available.

All of the following settings can be made using the dedicated remote control application (TASCAM DCP CONTROL).

See the back of this manual for DSP block diagrams.

Mixer

Matrix mixer

This unit has simple matrix mixer functions.

Ducking function

When a mic signal is input, the ducking function can automatically lower the volume of background music or other sound input through the line input channels.

Ambient noise compensator (ANC) function

The ANC function can measure ambient noise and automatically adjust the volume to make the main sound source easier to hear.

Routing setting

Audio can be routed to multiple output channels through the matrix mixer, the ducking function and the ANC function.

Output channels

Output equalizer

This unit has 10-band equalizers for the output channels.

Use the equalizer to increase or decrease the levels of specific frequency ranges. This can be used, for example, to enhance the sound of individual instruments, to adjust the balance of a wide frequency range and to cut specific unwanted frequencies.

Delay function

Use to adjust the delay of output channel signals.

Output channel fader

Use to adjust the level sent to the output jack.

Output mute

Mute the output channel signal.

Output limiter function

This prevents distortion caused by sudden excessive output signal levels.

Output polarity setting

Set according to the polarity of the output channel signal.

Application overview

Using the TASCAM DCP CONNECT remote control application, you can operate the unit from a distance.

For details about the application, please see its Owner's Manual.

You can download the application Owner's Manual from the TEAC Global Site (**http://teac-global.com/**).

OUTPUT screen

Notes about Dante

Dante is a transmission protocol developed by Audinate.

Using networks based on gigabit Ethernet standards, it enables multichannel (512 IN/512 OUT) transmission and high precision, for example.

Check the Audinate website for details about Dante.

https://www.audinate.com/

Connecting to a Dante network

In order to set up and use this card, you must also set up the Ethernet network that it is connected to, a computer that runs Dante Controller and other devices that support Dante.

Requirements for LAN cables used for connections with the connectors on this unit

Use STP cables that are at least category 5e.

Both crossover and straight cables can be used.

ATTENTION

This unit is not compatible with 100Mbps Ethernet switching hubs. Always use switching hubs that support Layer 2 and Gigabit Ethernet.

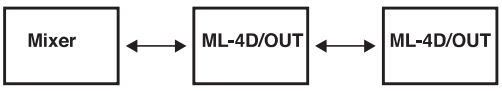
NOTE

- Set the computer to set the IP address automatically.
- Restarting the computer might be necessary if a previous network setting is still active on the computer.

Switched (daisy chain) connection

Dante devices can be daisy-chained when there are few connected devices and when not using a switching hub. Connect them as shown below.

Switched (daisy chain) connection example



NOTE

- When using a switched (daisy chain) connection, either **DATA** or **DATA+PoE** connectors can be used.
- If the number of connected devices increases, raising the latency setting will be necessary.

Using Dante Controller

Dante Controller overview

This unit uses the Dante Controller application, which is available at the Audinate website, to connect with other devices that support Dante.

Download the latest version of the Dante Controller application and an operation manual from the Audinate website.

Audinate download page

https://www.audinate.com/products/software/dante-controller

Make at least the following settings using a computer that has Dante Controller installed.

- Adjust the sampling frequency and bit depth of each Dante device.
- Set the audio routing.

NOTE

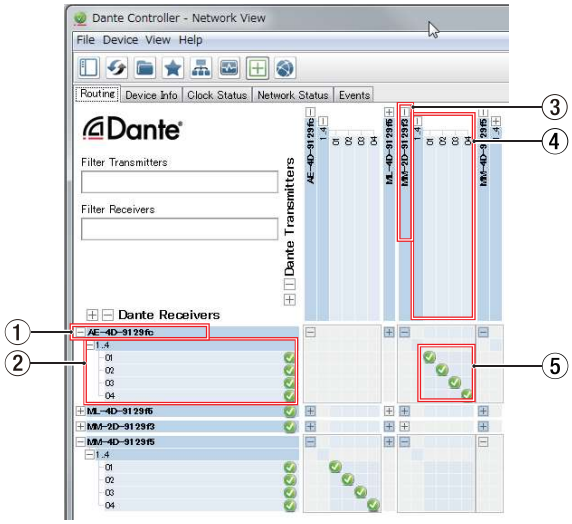
Settings made using Dante Controller are stored in the built-in memory of each Dante device.

Unless settings are modified, connections will not change even if Dante Controller is quit or the computer is disconnected from the Dante network.

Audio routing settings

When Dante Controller is launched, the Network View screen shown below will open.

On this screen, you can set and monitor conditions related to the Dante network.



① Receiving device name

This is the name of a receiving device on the Dante network.

② Receiving device channels

These are the names of the channels of the receiving device on the Dante network.

③ Transmitting device name

This is the name of a transmitting device on the Dante network.

④ Transmitting device channels

These are the names of the channels of the transmitting device on the Dante network.

⑤ Audio routing

Route the audio channels of the transmitting and receiving devices that you want to connect here.

Left-click the intersection of the channels you want to connect on the matrix to connect them.

NOTE

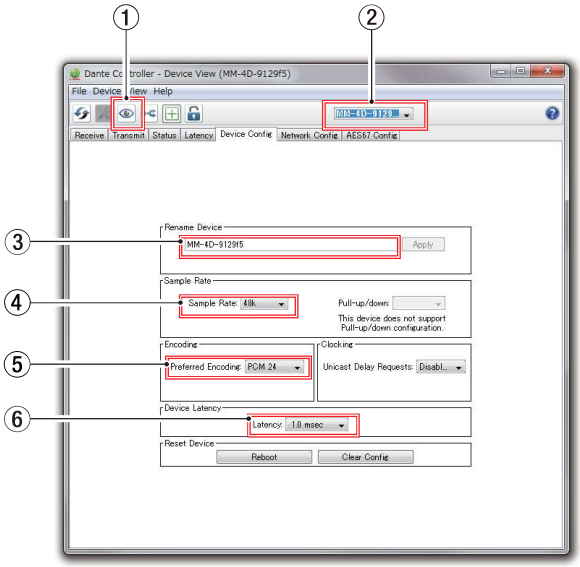
While pressing the computer keyboard Ctrl key, left-click the "-" at the intersection of device names to connect all connectable channels at once.

Changing sampling frequencies and bit depths with Dante Controller

Double-click a device name on the Network View screen to open the Device View screen.

On this screen, you can set and monitor conditions related to devices on the Dante network.

Click the Device Config tab to open the page where you can change the sampling frequency, bit rate and other settings of the device selected in 1 shown in the illustration below.



① Identify Device

If the unit is selected by device name (①), clicking this icon will cause all 3 **SAMPLE RATE** indicators to start blinking.

Clicking it again will return them to their ordinary status.

This allows the quick identification of the device being operated when multiple units are being used at the same time, for example.

② Device name

This is the name of the device that can have its settings changed in the current Device View.

③ **Change device name**
Edit the device name.

④ **Sampling frequency**
Set the sampling frequency.

⑤ **Bit depth**
Set the bit depth.

⑥ **Latency setting**
Set the latency.
Use the following guidelines to change the latency setting.

Selectable latency value	Connected network setup guideline
1 msec	The transmission route from the transmitting device to the receiving device passes through 10 gigabit switching hub.
2 msec	The transmission speed of the transmitting device is 100 Mbps.
5 msec	Use this maximum selectable latency value when creating a large-scale network.

ATTENTION

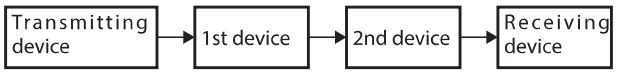
- Changing the name of a device will clear audio routing settings. For this reason, we recommend changing device names to names that are easy to identify before setting audio routings.
- Depending on network connection conditions, setting the latency to a value higher than the guideline might be necessary.

NOTE

When using a switched (daisy chain) connection, which does not use a switching hub, set the latency according to the number of Dante devices that signals pass-through as shown below.

Switched (daisy chain) connection example

Passes through 2 devices



Passes through 1 devices

Specifications

General

Formats and channels

44.1/48/88.2/96 kHz,16/24-bit, 4 channels

Input/output ratings

DATA/DATA+PoE connectors

Connector: RJ-45
Transmission protocol: Dante
Gigabit Ethernet standard: 1000BASE-T (IEEE 802.3ab)
Cables: category 5e or faster STP cables

ANALOG OUT connectors

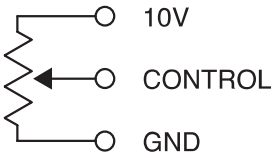
Connector:
Euroblock (balanced) 3.81 mm pitch (ML-4D/OUT-E)
XLR-3-32 (1: GND, 2: HOT, 3: COLD, ML-4D/OUT-X)
Nominal output levels:
+4 dBu (when Ref. Level not –9 dBFS)
+6 dBu (when Ref. Level set to –9 dBFS)
Maximum output level (switchable):
+15 dBu (Ref. Level: –9 dBFS)
+18 dBu (Ref. Level: –14 dBFS)
+20 dBu (Ref. Level: –16 dBFS)
+22 dBu (Ref. Level: –18 dBFS)
+24 dBu (Ref. Level: –20 dBFS)
Output impedance: 200 Ω or lower

● 0dBu=0.775Vrms

Control input/output

External control connectors (CONTROL, ML-4D/OUT-E only)

Connectors: Euroblock (balanced) 3.81mm pitch
10V/CONTROL/GND connectors:
Connect variable resistors (10kΩ recommended)



Audio performance

● DANTE IN ➔ LINE OUT

Frequency response

±0.5 dB: 20 Hz – 20 kHz
(44.1/48 kHz sampling frequency, JEITA)
±0.5 dB: 20 Hz – 40 kHz
(88.2/96 kHz sampling frequency, JEITA)

Distortion (THD+N)

0.002 %
(when –1 dBFS input, 44.1/48/88.2/96 kHz sampling frequency, JEITA)

S/N ratio

105 dB
(44.1/48/88.2/96 kHz sampling frequency, JEITA)

Crosstalk

100 dB
(44.1/48/88.2/96 kHz sampling frequency, JEITA)

Dynamic range

108 dB
(44.1/48/88.2/96 kHz sampling frequency, JEITA)

Note: JEITA indicates compliance with JEITA CP-2150

Other

Power

PoE class 0
TASCAM PS-P1220E AC adapter (sold separately)

Power consumption

4W (ML-4D/OUT-E)
4W (ML-4D/OUT-X)

Dimensions

214 × 44.45 × 136.1 mm (W x H x D, including protrusions)

Weight

863 g (ML-4D/OUT-E)
863 g (ML-4D/OUT-X)

Operating temperature range

0°C–40°C

- See the back of this manual for dimensional drawings and DSP block diagrams.
- Illustrations in this manual might differ in part from the actual product.
- Specifications and external appearance might be changed without notification to improve the product.