TASCAM

16in/16out Dante Stage Box

SB-16D

AD/DA Converter

OWNER'S MANUAL
取扱説明書

ENGLISH

日本語
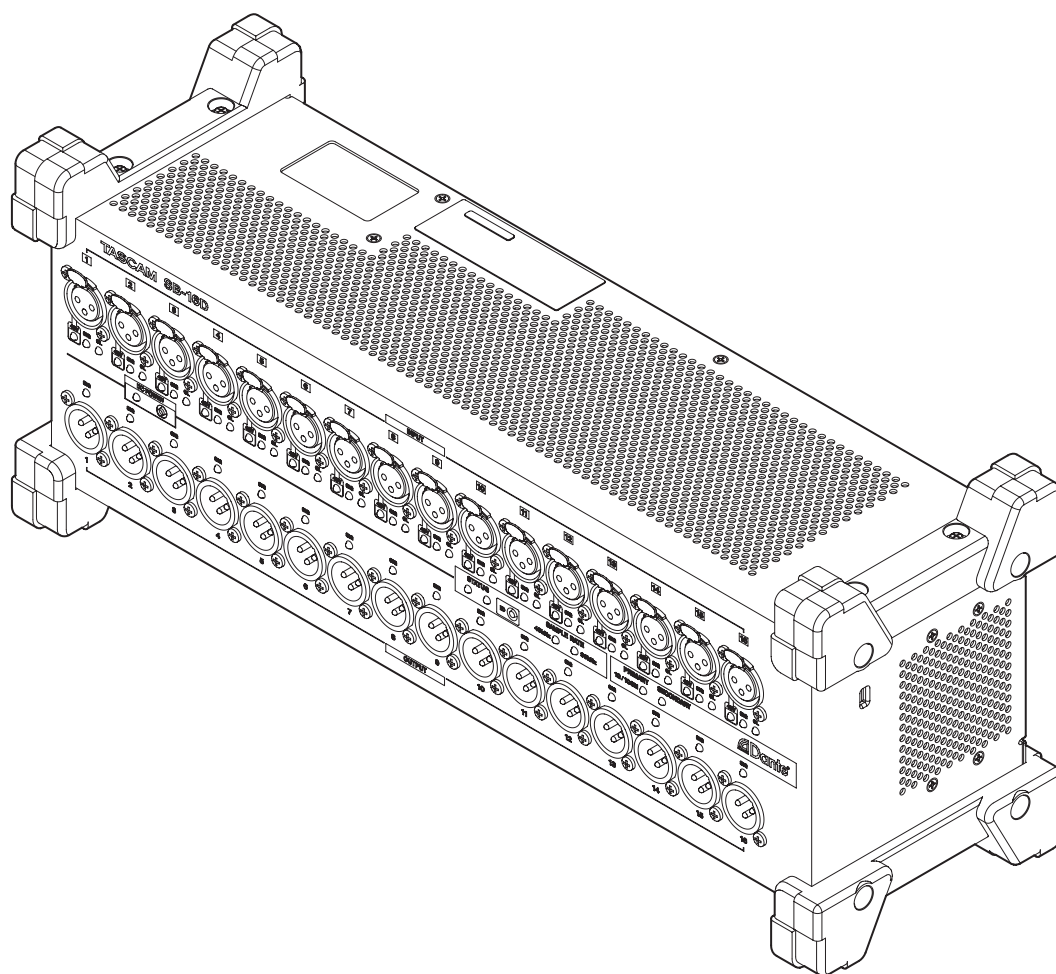
OWNER'S MANUAL

IMPORTANT SAFETY INSTRUCTIONS

CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
⚡	The lightning flash with arrowhead symbol, within 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 appliance.
⚡ 🔌	CAUTION: SHOCK HAZARD DISCONNECT ALL POWER SOURCES ATTENTION: DANGER DE CHOC. DÉCONNECTER TOUTES LES SOURCES D'ÉNERGIE

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

For U.S.A.

Supplier's Declaration of Conformity

Model Number: SB-16D
Trade Name: TASCAM
Responsible party: TEAC AMERICA, INC.

Address: 10410 Pioneer Blvd., Unit #1, 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 instructions, 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.

IN USA/CANADA, USE ONLY ON 120 V SUPPLY.

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.

UKCA This product complies with applicable UK regulations.

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 isrequired 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.
- If you are experiencing problems with this product, contact TEAC for a service referral. Do not use the product until it has been repaired.

WARNING

- Products with Class 1 construction are equipped with a power supply cord that has a grounding plug. The cord of such a product must be plugged into an AC outlet that has a protective grounding connection.

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.

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 top of the unit as shown below.

Front side

Nameplate
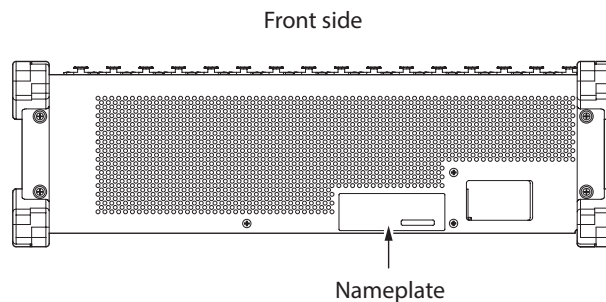
RACK-MOUNTING THE UNIT

Use the supplied rack-mounting kit to mount the unit in a standard 19-inch rack, as shown below.

Remove the feet of the unit before mounting.
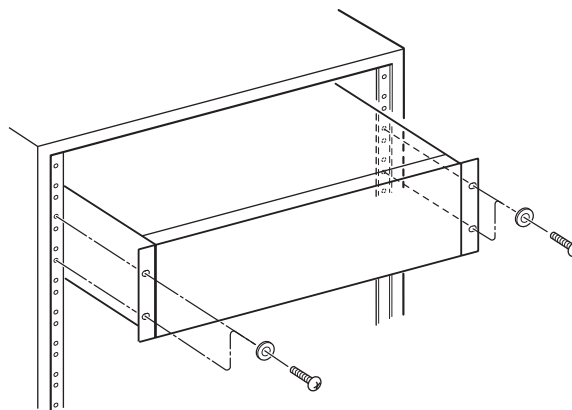
ATTENTION

- Leave 1U of space above the unit for ventilation.
- Allow at least 10 cm (4 in) at the rear of the unit for ventilation.

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, 2013/56/EU), then the chemical symbols for those elements will be indicated beneath the WEEE symbol.

   Pb, Hg, Cd

(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.

For China

"仅适用于海拔2000m以下地区安全使用"

"仅适用于非热带气候条件下安全使用"

"环境保护使用年限"

产品有毒有害物质或元素的名称及含量

机种: SB-16D	有毒有害物质或元素					
品名	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr6+)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
1 CHASSIS部分	○	○	○	○	○	○
2 FRONT PANEL部分	○	○	○	○	○	○
3 螺丝部分	○	○	○	○	○	○
4 线材部分	○	○	○	○	○	○
5 PCB Assy部分	×	○	○	○	○	○
6 电源部分	×	○	○	○	○	○
7 附属品部分	×	○	○	○	○	○
8 LABEL部分	○	○	○	○	○	○
9 包装部分	○	○	○	○	○	○

○：表示该有毒有害物质在该部件所有均质材料中的含有量均在 GB/T26572 标准规定的限量要求以下。

×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 GB/T26572标准规定的限量要求。

(针对现在代替技术困难的电子部品及合金中的铅)

Contents

Introduction

Thank you very much for purchasing the TASCAM SB-16D 16in/16out Dante Stage Box.

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 TASCAM website.

	SB-16D https://tascam.jp/int/product/sb-16d/docs

Features

- Supports 16 channels of analog line/mic inputs
- Supports 16 channels of analog line/mic outputs
- Supports remote control using the dedicated TASCAM IO CONTROL application
  - Gain control
  - Phantom power on/off
  - PAD on/off
  - Other functions
- Dante included as a standard feature with support for redundancy
- AES67 is also supported, so connection is possible with Ravenna and other compatible network audio technologies
- Flexible routing is possible using Dante Controller
- Support for sampling frequencies and bit lengths up to 96kHz and 32-bit
- Inputs have phantom power, signal and overload LEDs
- Outputs have signal LEDs
- Supports redundant power input with AC and DC power supplies
- Reference level can be set
- 3U rackmount size

Included items

This product includes the following items.

Take care when opening the package to avoid damaging the items. Keep the 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 ....x 1
- Power cords (for Japan/USA, Europe and Oceania)..............x 3
- Rackmount ear (with installation screws) set ....x 1
- Rackmount screw kit...x 1
- TASCAM ID registration guide ....x 1
- Owner's Manual (this document) including warranty ....x 1

Conventions used in this manual

In this manual, we use the following conventions:

● Additional information is introduced in the styles below when needed:

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 ℃.

● 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

● Do not block the ventilation ports, which dissipate heat, on the back and sides of the unit.

● To enable good heat dissipation, do not place anything on top of the unit.

● Do not place the unit on top of a power amplifier or other device that generates heat.

Notes about power supplies

● Insert the included power cord all the way into the AC IN connector.

● Only connect a power supply that is AC100-240V (50–60Hz) to the AC IN connector.

● Only connect a power supply that is DC 11V–27V to the EXT DC IN connector.

ATTENTION

Use a power supply that has a 11V–27V Limited Power Source (LPS) rating for output voltage with the EXT DC IN connector.

● Hold the power cord by its plug when connecting or disconnecting it.

NOTE

This product includes 3 types of power cords. Use the power cord that matches the type of power outlet being used.

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.

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 (https:// 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 and functions of parts

Front panel
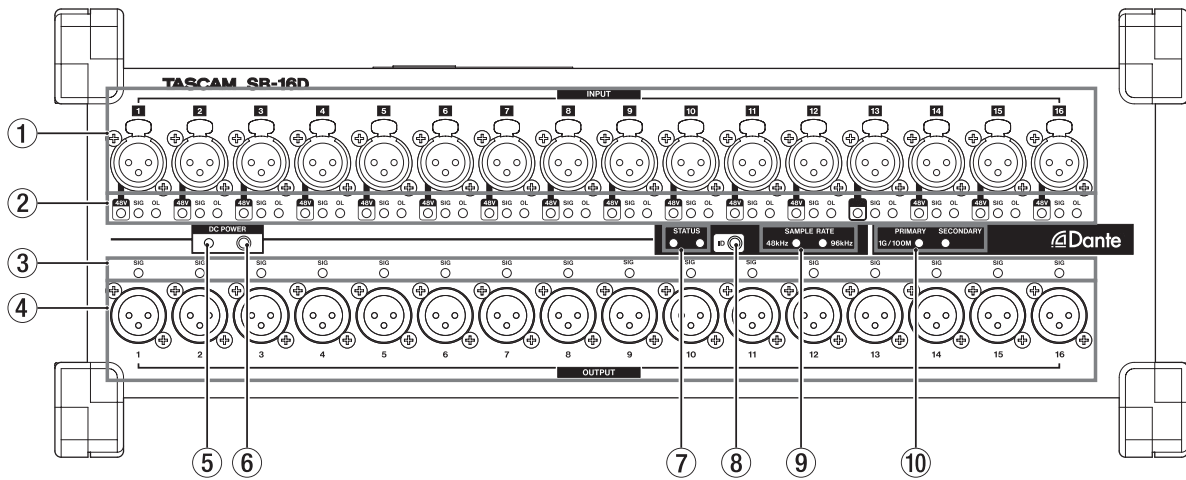
① **Analog input connectors**

These analog inputs are balanced XLR jacks.

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

② **INPUT SIG indicators**

48V Indicators

These light when phantom power is on.

INPUT SIG indicators

These light when sound is being input through the analog inputs.

Input is judged to have occurred when the signal level exceeds -40 dBFS.

OL indicators

These light when analog input signals overload.

③ **OUTPUT SIG indicators**

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

Output is judged to have occurred when the signal level exceeds -40 dBFS.

④ **Analog output connectors**

These analog outputs are XLR jacks.

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

⑤ **DC POWER indicator**

- This indicator will light when a DC power supply is connected.
- This will blink to show that voltage is low when it approaches the threshold voltage value set in advance on the Sonicview 16/24 or using the TASCAM IO CONTROL app.

See "Connecting the power" on page 10 for details.

⑥ **DC POWER button**

- When operating only with DC power, press and hold this button to turn the power on/off.
- Using this button is unnecessary when operating with AC power because it will start up automatically.

See "Connecting the power" on page 10 for details.

⑦ **STATUS indicator**

The STATUS indicator shows the state of the unit by lighting blue or red or staying unlit.

See "STATUS indicator lighting status details" on page 8 for details.

⑧ **ID button**

The device ID setting of this unit can be checked and changed.

See "Device ID settings" on page 11 for setting procedures.

⑨ **SAMPLE RATE indicators**

The lighting of the two SAMPLE RATE indicators (48 kHz/96 kHz) shows the sampling frequency state of the unit.

⑩ **PRIMARY/SECONDARY indicators**

These light to show the Dante network status.

Communication is at 1 Gbps when lit and at 100 Mbps when blinking.

STATUS indicator lighting status details

	STATUS indicator	Note
Ordinary operation	Lit blue	The unit is operating normally.
Malfunctioning (Dante)	Rapidly flashing red (four times per second)	The Dante module is malfunctioning.
Muted	Lit red	The indicator lights red when the clock is stabilizing after the unit starts up and when the sampling frequency or other Dante setting has been changed, for example.
Dante network error	Flashing red (twice per second)	The Dante network is not connected.

	STATUS indicator	Note
Dante redundancy error	Blinking blue (once per second)	The Dante PRIMARY connector is disconnected or another error with redundant connection has occurred.
Update mode	Blinking blue/red (once per second)	The unit firmware is being updated.
Checking device ID	STATUS/SAMPLE RATE indicators and, according to device ID number, OUTPUT channel LEDs blink (once per second)	This is the state when the device ID set in the unit is being shown.
Changing device ID	STATUS/SAMPLE RATE indicators and, according to device ID number, OUTPUT channel LEDs blink (twice per second)	This is the state when the device ID set in the unit is being changed.
Safe mode	STATUS/SAMPLE RATE/PRIMARY/SECONDARY LEDs blink (once per second)	The unit is in safe mode.

Rear panel
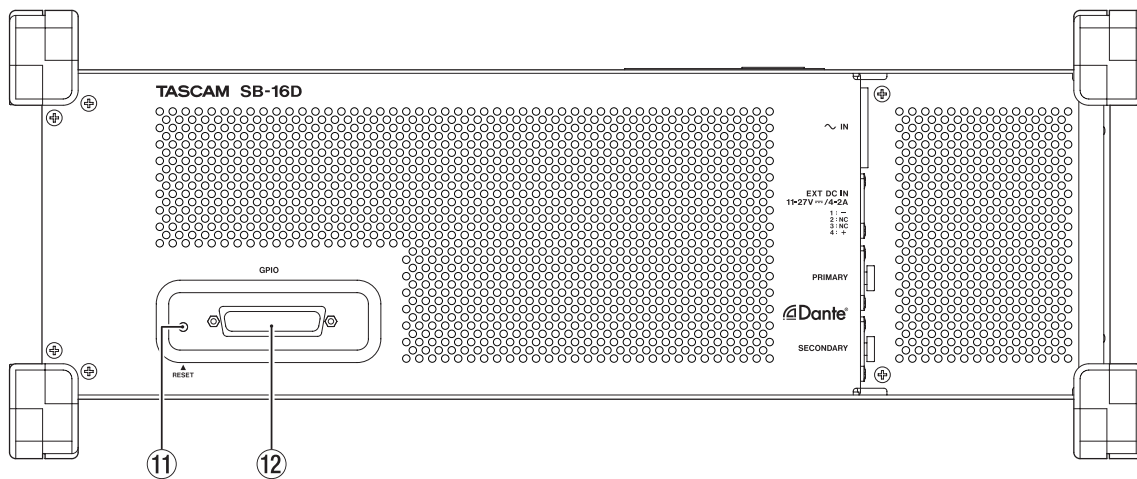
⑪ **RESET button**

Pressing the RESET button while the unit is powered and operating will restore network address settings and all other unit settings to their factory defaults. (see "Restoring factory default settings" on page 12)

⑫ **GPIO connector**

This is a 25-pin D-sub Parallel control input/output connector.

Use this to connect an external controller. (see "Dante Controller overview" on page 14)

Left side panel
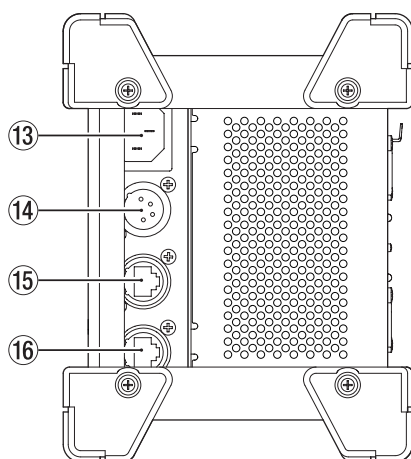
⑬ **AC IN connector**

Connect the included power cord here.

⑭ **EXT DC IN connector**

Connect external DC power here.

Use a power supply that has a 11V -27V Limited Power Source (LPS) rating for output voltage with the EXT DC IN connector.

The connector is XLR-4-32 (1: −, 2: NC, 3: NC, 4: +).

⑮ **PRIMARY connector**

This is the main etherCON Cat5e-compatible Dante transmission connector.

Use this to connect to a Dante network all the time.

⑯ **SECONDARY connector**

This is the secondary etherCON Cat5e-compatible Dante transmission connector. The use changes depending on the mode.

When in redundant mode, this connects to the secondary Dante network.

When in switched (daisy chain) mode, use to connect another Dante device in the chain.

Attaching the rackmount ears

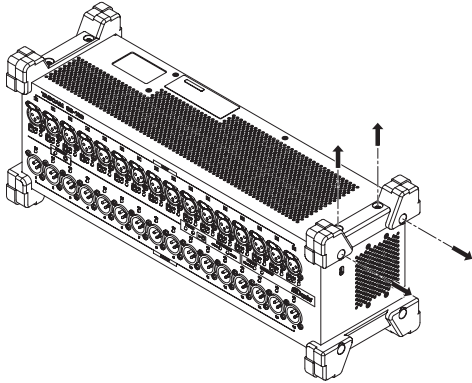Before mounting this unit in a 19 inch rack, you must replace the feet with the included rackmount ears. Follow these procedures to attach the rackmount ears. (Prepare a Phillips screwdriver in advance.)

1. Remove the 4 attached screws as shown in the illustration below, and remove the 4 feet from the ends of the unit.
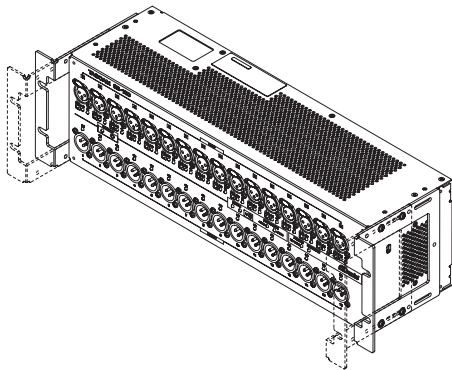

2. Attach the included rackmount ears to the unit using the included rackmount ear installation screws.
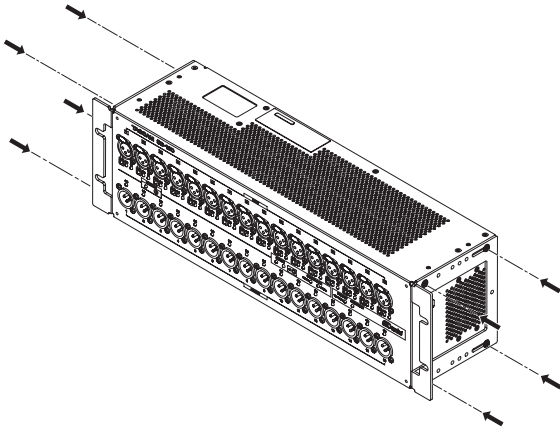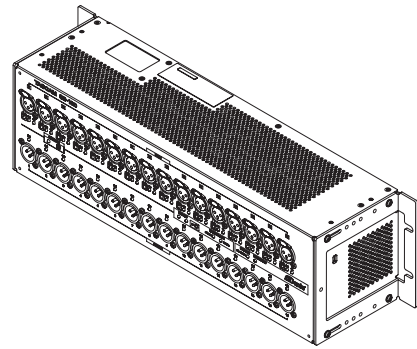

NOTE

- Reverse these procedures to reinstall the feet that were originally attached to the unit.
- By changing the attachment positions of the rackmount ears, the unit can be mounted in a rack with its front panel recessed by 20, 40 or 60 mm.

Furthermore, the rackmount ears can be attached backwards.

Connecting the power

This unit has AC IN and EXT DC IN connectors, enabling redundant power connection.

When both AC and DC power supplies are connected, the unit will switch to the DC power supply if the AC power supply is cut, preventing sound from being interrupted.

To use power supplies, connect them to the AC IN and EXT DC IN jacks.

The unit can be used with power supplied to just one connector or to both connectors simultaneously.

Starting up when operating with only DC power supply

When operating with only DC power supply, the unit will not start up just by supplying the power.

Press and hold the DC POWER (⑥) button for 5 seconds to start the unit. To turn the unit off, press and hold the DC POWER (⑥) button for 5 seconds.

NOTE

The unit will stay on when AC power is supplied. Moreover, pressing and holding the DC POWER (⑥) button for 5 seconds will not shut down the unit.

Notes about the DC POWER indicator

- The DC POWER indicator (⑤) lights when the unit is on and DC power is being supplied.

- This will become unlit when the DC power supply is less than the set stop voltage. This will also be unlit when the unit is off.

- This will blink when below the set alert voltage.

- The stop voltage can be set between 11.0 V and 27 V in 0.1V intervals. Set the stop voltage to the specifications of the battery that is supplying DC power. Set the stop voltage to 11.0 V when the stop voltage specification is unknown or when using power supplies other than batteries (including AC adapters).

- The alert voltage is set by default to a value that is 0.5 V higher than the stop voltage. Adjust this setting as necessary if the alert is shown too quickly or too late. The alert can also be turned off.

- The stop voltage and alert voltage settings can be made using external control by remote protocol, from the Sonicview unit or from the TASCAM IO CONTROL app. Refer to the following documents for details.--SB-16D remote control specifications

  - Sonicview Series Reference Manual

  - TASCAM IO CONTROL app operation manual

Application overview

Using the TASCAM IO CONTROL application, the unit can be operated and its functions can be set remotely.

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

The TASCAM IO CONTROL application and its operation manual can be downloaded from the TEAC Global Site (https://teac-global.com/).

For details about function that can be set, see "Parameter list" on page 15.

Overview of settings

Make various settings as necessary according to the connected equipment.

The following settings can all be made using the TASCAM IO CONTROL application. In addition, when used together with a Sonicview, various settings can be made from the Sonicview. See "Using as a Sonicview extension" on page 12 for details.

Setting mic/line inputs

Mic and line input settings can be made.

Gain, pad and trim settings can also be made in these input settings.

Setting phantom power

Phantom power can be turned on when an external mic that requires it is connected to the unit.

This can be turned on/off independently for each channel.

ATTENTION

- Before connecting condenser mics, turn this unit and all equipment to be connected off (standby).
- Do not connect or disconnect mics while phantom power is on. Doing so could cause a loud noise and might damage this unit and connected equipment.
- Turn phantom power ON only when using a condenser microphone that requires phantom power. Turning phantom power on when a dynamic mic or other mic that does not require it is connected could damage this unit and connected equipment.
- Supplying phantom power to some ribbon mics could break them. If unsure about a ribbon mic, confirm with the mic manufacturer or do not supply phantom power to it.

Setting the reference level

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

Device ID settings

When using an SB-16D with a Sonicview 16/24, the device ID must be set to enable identification of the unit.

Follow the procedures below to check or change the device ID.

Checking the device ID

Press the ID (⑤) button.

The unit will enter device ID checking mode, and the STATUS and SAMPLE RATE indicators will blink.

INPUT SIG indicators and OUTPUT SIG indicators will light at the same time according to the device ID number.

The device ID is assigned by pairing the numbers of the input and output channel indicators.

For example, indicators will light for the following ID numbers as shown in the tables.

Device ID: #3-4

Channel number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
INPUT SIG indicators			●													
OUTPUT SIG indicators				●												

Device ID: #15-8

Channel number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
INPUT SIG indicators															●	
OUTPUT SIG indicators								●								

- ● Indicators that light when in device ID confirmation mode

Changing the device ID

Follow the procedures below to change the device ID.

ATTENTION
> Be careful to set the device ID for this unit so that it is not the same as another SB-16D connected to the same network.

1. Press and hold the ID (⑤) button for 10 seconds.
   The STATUS and SAMPLE RATE indicators will light simultaneously along with OUTPUT SIG indicators according to the device ID number (twice per second).

2. When in device ID changing mode, press the ID (⑤) button to change the device ID.
   The blinking OUTPUT SIG indicator will change.

3. Press and hold the ID (⑤) button for 2 seconds to confirm.

After entering device ID changing mode, each time the ID (⑤) button is pressed, the device ID will be increased by one (+1). The blinking OUTPUT SIG indicator will also change in order according to the device ID number.
After the OUTPUT SIG indicator reaches 16, pressing the ID (⑤) button again will return to OUTPUT SIG indicator 1.

ATTENTION
> When changing the device ID with this unit, changes with OUTPUT SIG indicators 1–16 are possible.
> To change INPUT SIG indicators, do so from a Sonicview 16/24 or using the TASCAM IO CONTROL application.

Restoring factory default settings

Pressing the RESET (⑨) button while the unit is powered and operating will reset network address settings and all other unit settings to their factory defaults.

Resetting Dante settings

Press and hold the RESET (⑨) button for 5 seconds.
The STATUS indicator will blink 2 times and the network address and other settings for Dante will be restored to their default values.

Resetting all settings made in the unit

Press and hold the RESET (⑨) button for 10 seconds.
The STATUS indicator will blink 3 times and all settings made in the unit will be restored to their default values.

Launching the unit in safe mode

Connect a power supply while pressing the RESET (⑨) button.
This will start the unit in safe mode. The STATUS, SAMPLE RATE, PRIMARY and SECONDARY indicators will blink twice per second.

Using as a Sonicview extension

By connecting this unit to the LAN of a Dante port in a TASCAM Sonicview Series unit, this unit can be controlled from that Sonicview. Moreover, mounting this unit on the TASCAM Sonicview Series unit enables its analog inputs to be operated in the same way as the analog inputs of the Sonicview.
Use the following procedures to mount it.

NOTE
- These procedures assume that the Dante Control network settings of this unit and the TASCAM Sonicview Series unit are set to their defaults (Addressing is AUTO).
- A Sonicview can mount a maximum of 4 units.

1. Connect mics, speakers and other equipment with analog connectors.

2. Connect the Dante ports of this unit and the Sonicview Series unit with a LAN cable.
   If the Dante setting for both devices is redundant mode, connect the corresponding PRIMARY and SECONDARY connectors of both units together.
   See "Switched (daisy chain) connection" on page 13 and "Redundant connection" on page 13 for connection instructions.

3. Turn off the power of equipment connected to this unit.

4. Make the Dante routing setting.
   By mounting this unit from the Sonicview unit, the Dante routing between them will be set automatically. Moreover, sampling rate, reference level, Dante latency and other settings will automatically be set to suitable values.
   For details, see the Reference Manual of the Sonicview Series unit.

5. Make the Sonicview Series unit input and output routing settings.
   For details, see "5 – Routing" in the Reference Manual of the Sonicview Series unit.

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.

LAN cables used for connections

Use STP cables that are category 5e or higher.
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 Gigabit Ethernet.
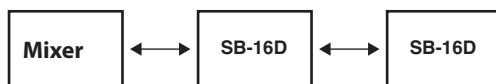
NOTE

- When the Dante Network Addressing setting is AUTO (DHCP), set the computer to set the IP address automatically.
- When the Dante Network Addressing setting is STATIC, set the computer to match the Dante and network address.

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, connect to either the PRIMARY or SECONDARY connector.
- If the number of connected devices increases, raising the latency setting will be necessary.

Redundant connection

For recording situations where retakes are not possible, including live performances, a connection set up like the following uses two completely independent primary and secondary networks.

Redundant connection example
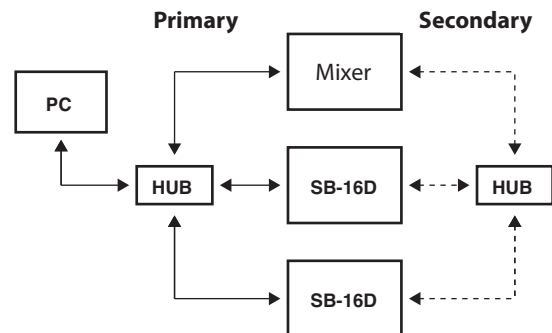
NOTE

Settings for switched (daisy chain) and redundant connections do not change automatically. Change the settings on the Dante Controller Network Config screen.

ATTENTION

The primary and secondary networks can never be connected to each other by the same LAN (VLAN).

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

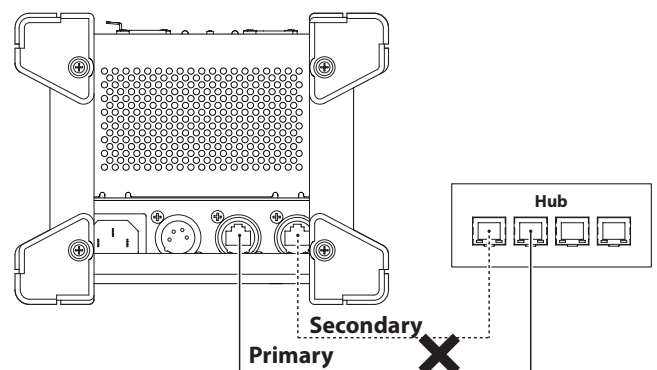Make at least the following settings using a computer that has Dante Controller installed.

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

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.
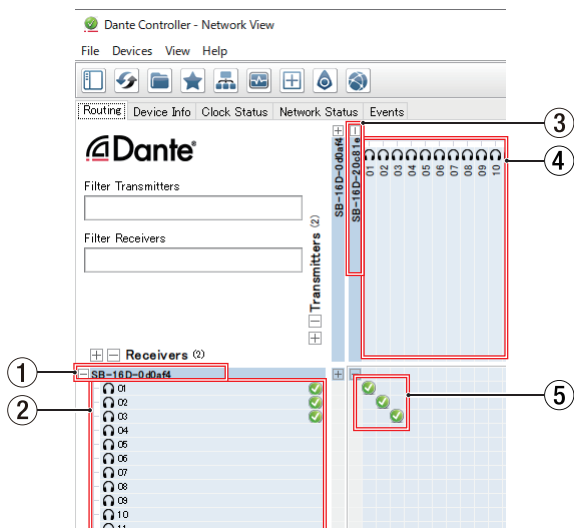
① **Receiving device name**

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.

Click the intersection of the channels you want to connect on the matrix to connect them.

NOTE

While pressing the computer keyboard Ctrl key, 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.
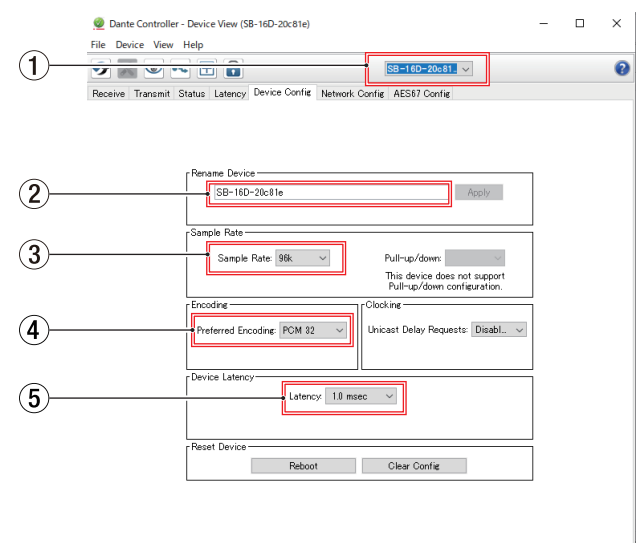
① **Device name**

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

② **Change device name**

Edit the device name.

③ **Sampling frequency**

Set the sampling frequency.

④ **Bit depth**

Set the bit depth.

⑤ **Latency setting**

Set the latency.

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.

Control parameters

Parameter list

This unit has the following parameters.
They can all be controlled using a dedicated app and from a TASCAM Sonicview Series unit.

Function		Notes
Head Amp GAIN adjustment		**When Analog Reference Level = +6 dBu** When PAD OFF: +12 dB – +66 dB When PAD ON: -8 dB – +46 dB **When Analog Reference Level = +4 dBu** When PAD OFF: +3 dB – +57 dB When PAD ON: -17 dB – +37 dB **When Analog Reference Level = 0 dBu** When PAD OFF: +8 dB – +62 dB When PAD ON: -12 dB – +42 dB
PAD ON/OFF		-20 dB when on
PHANTOM ON/OFF		+48V when on
Sampling rate setting		96 kHz (default)/48 kHz
Device name setting		Set/change the device name as desired
Channel label settings		Set/change channel names as desired
Switching the reference level	Digital reference level settings	-9 dBFs/-14 dBFs/-16 dBFs/-18 dBFs/-20dBFs (default)
	Analog reference level settings	+6dBu (when -9dBFs)/+4dBu (default)/+0dBu
Indicator brightness adjustment		Setting range: 0–3 (default) (in 1 ms steps)
Identify		Makes all SIG and STATUS indicators on the unit blink
Network settings (Dante Primary/Dante Secondary/SB-16D unit)	Static/Auto (DHCP)	Automatic acquisition/manual setting for IP address
	IP Address	IP address can be set/changed when "Static"
	Subnet Mask	Subnet Mask can be set/changed when "Static"
Password setting		Set/change password as desired (no password by default)
GPIO setting		Set/change function assigned to GPIO connector
Preset setting		Set presets

GPIO connector overview

The GPIO connector on the back is a parallel control connector for conducting external control of this unit.

In addition to external control of the SB-16D, GPIO connector functions can also be set for use as extensions of the TASCAM digital mixer GPIO connector. These can be set using the TASCAM IO CONTROL app or a TASCAM digital mixer that supports connection with this unit.

To use this unit by itself, see "GPIO settings" in the TASCAM IO CONTROL reference manual.

When connected to a TASCAM Sonicview Series unit, this can be done on the GPIO-IN and GPIO-OUT pages of the USER DEFINED CONTROL screen. For details, see "GPIO-IN page" and "GPIO-OUT page" in "4 – Mixer configuration and other settings" of the Reference Manual for the Sonicview Series unit.

The pin assignments are as follows.

Pin No.	Function	IN/OUT
1	GND	-
2	GPIO IN 2	IN
3	GPIO IN 4	IN
4	GPIO IN 6	IN
5	GPIO IN 8	IN
6	NC	-
7	NC	-
8	NC	-
9	GPIO OUT 2	OUT
10	GPIO OUT 4	OUT

Pin No.	Function	IN/OUT
11	GPIO OUT 6	OUT
12	GPIO OUT 8	OUT
13	NC	-
14	GPIO IN 1	IN
15	GPIO IN 3	IN
16	GPIO IN 5	IN
17	GPIO IN 7	IN
18	NC	-
19	NC	-
20	GND	-
21	GPIO OUT 1	OUT
22	GPIO OUT 3	OUT
23	GPIO OUT 5	OUT
24	GPIO OUT 7	OUT
25	+5V	-

IN: For command input

- Internal circuit with +5V pull-up
- Operates with low signal input of 50 msec or longer

OUT: For command and tally output

- Internal circuit is open collector (10Ω output impedance)
- 20V dielectric strength, 35mA maximum current

+5V: 50mA maximum supplied current

Specifications and rated values

Audio performance

0 dBu = 0.775 Vrms

Mic amp EIN (equivalent input noise)

-128 dBu or less

Frequency response

MIC/LINE IN to DANTE OUT
20 Hz - 20 kHz: +0 dB, -0.5 dB (48 kHz) (JEITA)
20 Hz - 40 kHz: +0 dB, -1.0 dB (96 kHz) (JEITA)
DANTE IN to LINE OUT
20 Hz - 20 kHz: +0 dB, -0.5 dB (48 kHz) (JEITA)
20 Hz - 40 kHz: +0 dB, -1.0 dB (96 kHz) (JEITA)

Dynamic range

110 dB or more (MIC/LINE to DANTE, PAD = OFF, A.Ref = +4 dBu, GAIN = 12, JEITA)
111 dB or more (DANTE to LINE OUT, 48 kHz sampling frequency)
112 dB or more (DANTE to LINE OUT, 96 kHz sampling frequency)

Distortion

0.002% or less (MIC/LINE IN to DANTE, Input at +4 dBu, PAD = OFF, A.Ref = +4 dBu, GAIN = 12, JEITA)
0.002 % or less (DANTE to LINE OUT, Output at 0 dBFS, JEITA)

Crosstalk

100 dB or more (MIC/LINE to LINE OUT, 1 kHz sine wave, JEITA)

A.Ref: Analog Reference Level setting

Inputs and outputs

INPUT 1–16 jacks

Connectors: XLR-3-31 equivalent (1: GND, 2: HOT, 3: COLD)
Input levels:
Pad off
Maximum input level: +12 dBu (TRIM at minimum)
Minimum input level: −62 dBu (TRIM at maximum)
Pad on
Maximum input level: +32 dBu (TRIM at minimum)
Minimum input level: -42 dBu (TRIM at maximum)
Input impedance: 5.0 kΩ or higher

NOTE

+48V phantom power can be supplied to each MIC/ LINE input jack separately.

OUTPUT 1-16 jacks

Connectors: XLR-3-32 equivalent (1: GND, 2: HOT, 3: COLD)
Output impedance: 100 Ω
Nominal output level:
+6 dBu (D.Ref: -9 dBFS, A.Ref:+6 dBu)
+4 dBu (D.Ref: -14/-16/-18/-20 dBFS, A.Ref: +4 dBu)
0 dBu (D.Ref: -18/-20 dBFS, A.Ref: 0 dBu)
Maximum output level:
+15 dBu (D.Ref: -9 dBFS, A.Ref: +6 dBu)
+18 dBu (D.Ref: -18 dBFS, A.Ref: 0 dBu)
+20 dBu (D.Ref: -20 dBFS, A.Ref: 0 dBu)
+18 dBu (D.Ref: -14 dBFS, A.Ref: +4 dBu)
+20 dBu (D.Ref: -16 dBFS, A.Ref: +4 dBu)
+22 dBu (D.Ref: -18 dBFS, A.Ref: +4 dBu)
+24 dBu (D.Ref: -20 dBFS, A.Ref: +4 dBu)

D.Ref: Digital Reference Level setting
A.Ref: Analog Reference Level setting

Dante PRIMARY/SECONDARY connectors

Connector: etherCON Cat5e compatible connector*
Transmission protocol: Dante
Gigabit Ethernet standard: 1000BASE-T (IEEE 802.3ab)
Cables: category 5e or faster STP cables

* etherCON is a registered trademark of Neutrik AG.

GPIO connector

Connector: 25-pin D-sub (8-in/8-out, female, inch-standard)

• See "GPIO connector overview" on page 15 for details about GPIO connector and assignments.

Other

Power

AC 100-240V, 50/60Hz
External power supply (DC 11-27V/4-2A)

• DC voltage/current range: 11V/4A − 27V/2A

Power consumption

44W

Dimensions

With standard feet attached
4540. × 179.6 × 140.0mm (W × H × D)
With rackmount ears attached
482.8 × 132.0 × 120.0mm (W × H × D)

Weight

4.5 kg

Operating temperature range

0 - 40°C (32 - 104°F)

● 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.

取扱説明書

安全にお使いいただくために

製品を安全に正しくお使いいただき、あなたや他の人々への危害や財産への損害を未然に防止するために、以下の注意事項をよくお読みください。

⚠	警告	以下の内容を無視して誤った取り扱いをすると、人が死亡または重傷を負う可能性が想定される内容を示しています。
電源プラグをコンセントから抜く	**万一、異常が起きたら** **煙が出たり、変なにおいや音がするときは** **機器の内部に異物や水などが入ったときは** **この機器を落としたり、カバーを破損したときは** すぐに機器本体の電源スイッチを切り、必ず電源プラグをコンセントから抜いてください。 異常状態のまま使用すると、火災・感電の原因となります。 お買い上げの販売店またはティアック修理センター（巻末に記載）に修理をご依頼ください。	
指示	**電源プラグにほこりをためない** 電源プラグとコンセントの周りにゴミやほこりが付着すると、火災・感電の原因となります。 定期的（年1回くらい）に電源プラグを抜いて、乾いた布でゴミやほこりを取り除いてください。	
禁止	**電源コードを傷つけない** **電源コードの上に重い物を載せたり、コードを壁や棚との間に挟み込んだり、本機の下敷きにしない** **電源コードを加工したり、無理に曲げたり、ねじったり、引っ張ったり、熱器具に近付けて加熱したりしない** コードが傷んだまま使用すると火災・感電の原因となります。 万一、電源コードが破損したら（芯線の露出、断線など）、お買い上げの販売店またはティアック修理センター（巻末に記載）に交換をご依頼ください。	
	付属の電源コードを他の機器に使用しない 故障、火災、感電の原因となります。	
	この機器を設置する場合は、放熱をよくするために、壁や他の機器との間は少し（20cm以上）離して設置する 隙間を空けないと内部に熱がこもり、火災の原因となります。	
	この機器の通風孔などから内部に金属類や燃えやすい物などを差し込む、または落とさない 火災・感電の原因となります。	
	この機器の通風孔をふさがない 通風孔をふさぐと内部に熱がこもり、火災の原因となります。	
禁止	**機器の上に花びんや水などが入った容器を置かない** 内部に水が入ると火災・感電の原因となります。	
分解禁止	**この機器のカバーは絶対に外さない** カバーを外す、または改造すると、火災・感電の原因となります。 内部の点検・修理は、お買い上げの販売店またはティアック修理センター（巻末に記載）にご依頼ください。	
	この機器を改造しない 火災・感電の原因となります。	

日本語

	注意	以下の内容を無視して誤った取り扱いをすると、人が傷害を負う可能性が想定される内容および物的損害のみの発生が想定される内容を示しています。
電源プラグをコンセントから抜く	**移動させる場合は、電源のスイッチを切り、必ず電源プラグをコンセントから抜き、外部の接続コードを外す** コードが傷つき、火災・感電の原因や、引っ掛けてけがの原因になることがあります。	
	旅行などで長期間この機器を使用しないときやお手入れの際は、安全のため必ず電源プラグをコンセントから抜く 通電状態の放置やお手入れは、漏電や感電の原因となることがあります。	
指示	**オーディオ機器を接続する場合は、各々の機器の取扱説明書をよく読み、電源を切り、説明にしたがって接続する** **また、接続は指定のコードを使用する**	
	電源を入れる前には、音量を最小にする 突然大きな音が出て、聴覚障害などの原因となることがあります。	
	この機器はコンセントの近くに設置し、電源プラグは簡単に手が届くようにする 異常が起きた場合は、すぐに電源プラグをコンセントから抜いて、完全に電源が切れるようにしてください。	
	この機器には、付属の電源コードを使用する それ以外の物を使用すると、故障、火災、感電の原因となります。	
禁止	**ぐらついた台の上や傾いた所など不安定な場所に置かない** **湿気やほこりの多い場所に置かない。風呂、シャワー室では使用しない** **調理台や加湿器のそばなど油煙や湯気が当たる場所に置かない** 火災・感電やけがの原因となることがあります。	
	電源プラグを抜くときは、電源コードを引っ張らない コードが傷つき、火災・感電の原因となることがあります。 必ずプラグを持って抜いてください。	
禁止	**濡れた手で電源プラグを抜き差ししない** 感電の原因となることがあります。	
注意	5年に1度は、機器内部の掃除をお買い上げの販売店またはティアック修理センター（巻末に記載）にご相談ください。 内部にほこりがたまったまま、長い間掃除をしないと火災や故障の原因となることがあります。 特に、湿気の多くなる梅雨期の前に行うと、より効果的です。なお、掃除費用については、ご相談ください。	

目次

はじめに

このたびは、TASCAM 16in/16out Dante Stage Box SB-16D をお買い上げいただきまして、誠にありがとうございます。

ご使用になる前に、この取扱説明書をよくお読みになり、正しい取り扱い方法をご理解いただいた上で、末永くご愛用くださいますようお願い申し上げます。お読みになったあとは、本書をいつでも見られる所に保管してください。

また取扱説明書は、TASCAMのウェブサイトからダウンロードすることができます。

SB-16D
https://tascam.jp/int/product/sb-16d/docs

本機の概要

- 16チャンネル アナログライン／マイク入力対応
- 16チャンネル アナログライン出力対応
- 専用アプリケーション「TASCAM IO CONTROL」によるリモートコントロールに対応
  - ゲインコントロール
  - ファンタム電源のオン／オフ
  - PADのオン／オフ

  など
- Danteを標準搭載しリダンダントに対応
- AES67にも対応。RavennaなどAES67と互換のあるネットワークオーディオとも接続可能
- Dante Controllerを使用してフレキシブルなルーティングが可能
- サンプリング周波数／ビット長：96kHz/32bitまで対応
- 入力：ファンタム電源／シグナル／オーバーロードLED
- 出力：シグナルLED搭載
- AC + DC電源の二重化電源入力に対応
- リファレンスレベルの設定が可能
- 3Uラックマウントサイズ

本製品の構成

本製品の構成は、以下の通りです。

開梱は本体に損傷を与えないよう慎重に行ってください。梱包箱と梱包材は、後日輸送するときのために保管しておいてください。

付属品が不足している場合や輸送中の損傷が見られる場合は、お買い上げの販売店にお問い合わせください。

- 本体 x1
- 電源コード（JAPAN USA ／ EUROPE ／ OCEANIA）........x3
- ラックマウントアングル（取付用ねじ）セット x1
- ラックマウントビスキット x1
- TASCAM ID登録ガイド x1
- 取扱説明書（本書、保証書付き）........................x1

日本語

本書の表記

本書では、以下のような表記を使います。

● 必要に応じて追加情報などを、「ヒント」、「メモ」、「注意」として記載します。

ヒント

本機をこのように使うことができる、といったヒントを記載します。

メモ

補足説明、特殊なケースの説明などをします。

注意

指示を守らないと、機器が壊れたり、データが失われたりする可能性がある場合に記載します。

⚠ 注意

指示を守らないと、人がけがをする可能性がある場合に記載します。

設置上の注意

● 本機の動作保証温度は、摂氏0度〜 40度です。

● 次のような場所に設置しないでください。音質悪化の原因、または故障の原因となります。
　　振動の多い場所
　　窓際などの直射日光が当たる場所
　　暖房器具のそばなど極端に温度が高い場所
　　極端に温度が低い場所
　　湿気の多い場所や風通しが悪い場所
　　ほこりの多い場所

● 放熱のため、リアパネルやサイドパネルの通風孔をふさがないでください。

● 放熱をよくするために、本機の上には物を置かないでください。

● パワーアンプなど熱を発生する機器の上に本機を置かないでください。

● 本機をラックにマウントする場合は、付属のラックマウントアングルを取り付けてから、付属のラックマウントビスキットを使って、下図のように取り付けてください。なお、ラック内部では、本機の上に1U以上のスペースを空けてください。
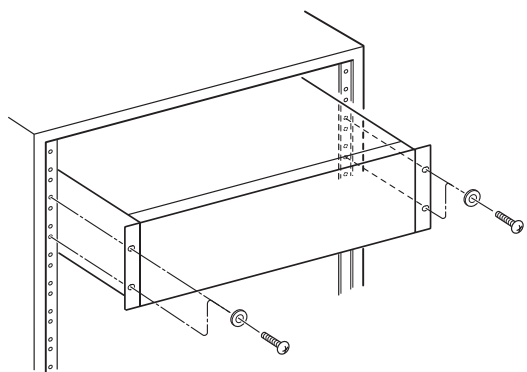
ラックマウントアングルの取り付け方法については、23ページ「ラックマウントアングルの取り付け」をご参照ください。

電源について

● 付属の電源コードをAC IN端子に奥までしっかりと差し込んでください。

● AC IN端子には、AC100V（50-60Hz）以外の電源には、接続しないでください。

● EXT DC IN端子には、DC11V 〜 27V以外の電源を接続しないでください。

注意

EXT DC IN端子には、出力電圧が11V 〜 27Vの範囲内でLimited Power Source（有限電源）に適合する電源を使用してください。

● 電源コードの抜き差しは、プラグを持って行ってください。

メモ

本機には、3種類の電源コードが同梱されています。ご使用になる電源コンセントの形状に合った電源コードをご使用ください。

結露について

本機を寒い場所から暖かい場所へ移動したときや、寒い部屋を暖めた直後など、気温が急激に変化すると結露を生じることがあります。結露したときは、約1 〜 2時間放置してから電源を入れてお使いください。

製品のお手入れ

製品の汚れは、柔らかい乾いた布で拭いてください。化学ぞうきん、ベンジン、シンナー、アルコールなどで拭かないでください。表面を傷める、または色落ちさせる原因となります。

アフターサービス

● この製品には、保証書が添付（巻末に記載）されています。大切に保管してください。万が一販売店の捺印やご購入日の記載がない場合は、無料修理保証の対象外になりますので、ご購入時のレシートなどご購入店・ご購入日が確認できる物を一緒に保管してください。

● 保証期間は、お買い上げの日より1年です。保証期間中は、記載内容によりティアック修理センター（巻末に記載）が無償修理致します。その他の詳細については、保証書をご参照ください。

● 保証期間経過後、または保証書を提示されない場合の修理などについては、お買い上げの販売店またはティアック修理センター（巻末に記載）にご相談ください。修理によって機能を維持できる場合は、お客様のご要望により有料修理致します。

● 万一、故障が発生した場合は使用を中止し、必ず電源プラグをコンセントから抜いて、お買い上げの販売店またはティアック修理センター（巻末に記載）までご連絡ください。修理を依頼される場合は、次の内容をお知らせください。
なお、本機の故障、もしくは不具合により発生した付随的損害（録音内容などの補償）の責については、ご容赦ください。

　● 型名、型番（SB-16D）
　● 製造番号（Serial No.）
　● 故障の症状（できるだけ詳しく）
　● お買い上げの年月日
　● お買い上げの販売店名

● お問い合わせ先については、巻末をご参照ください。

● 本機を廃棄する場合に必要となる収集費などの費用は、お客様のご負担になります。

各部の名称

フロントパネル
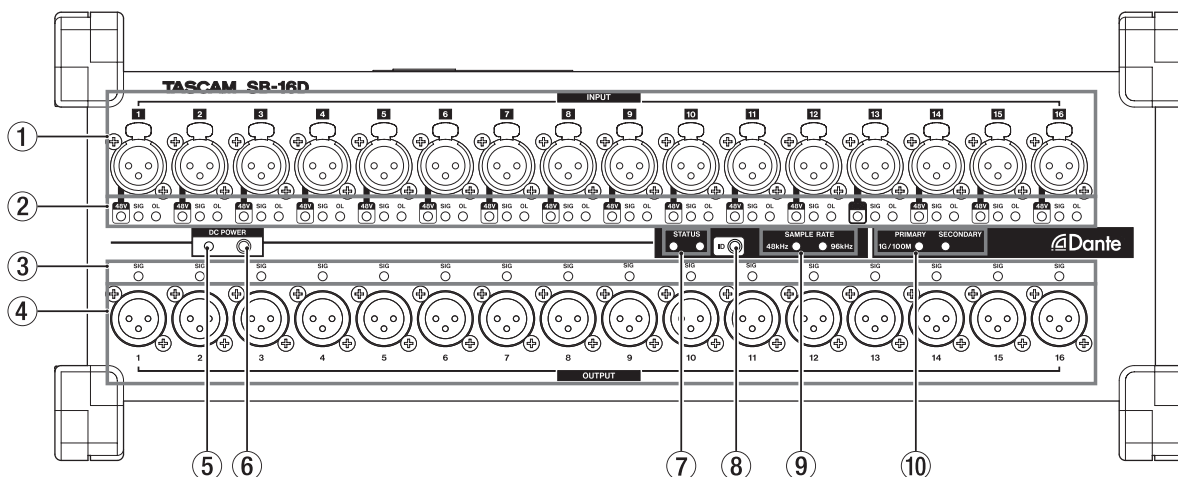
①アナログ入力端子

XLRバランスタイプのアナログ入力端子です。

● XLR（1：GND、2：HOT、3：COLD）

②INPUT SIGインジケーター

48Vインジケーター

ファンタム電源がオンのときにインジケーターが点灯します。

INPUT SIGインジケーター

アナログ入力に音声が入力されていると点灯します。
入力判定条件は、信号レベルが−40dBFsを超えた場合です。

OLインジケーター

アナログ入力信号がオーバーロードすると点灯します。

③OUTPUT SIGインジケーター

アナログ出力に音声が出力されていると点灯します。
出力判定条件は、信号レベルが−40dBFsを超えた場合です。

④アナログ出力端子

XLRタイプのアナログ出力端子です。

● XLR（1：GND、2：HOT、3：COLD）

⑤DC POWERインジケーター

● DC電源が接続されている場合は、インジケーターが点灯します。

● Sonicview 16 ／ Sonicview 24本体から、または専用アプリケーション「TASCAM IO CONTROL」から、あらかじめ設定された電圧の閾値に近づくと点滅し低電圧状態を示します。

詳細は、23ページ「電源を接続する」をご参照ください。

⑥DC POWERボタン

● DC電源のみで駆動する場合は、このボタンの押し続けることで電源のオン／オフの切り換えを行います。

● AC電源で駆動する場合は、自動的に起動するためボタン操作は不要です。

詳細は、23ページ「電源を接続する」をご参照ください。

⑦STATUSインジケーター

STATUSインジケーターは、青色と赤色の2色のインジケーターが点灯／消灯し、本機の状態を表します。
詳細は、21ページ「STATUSインジケーター点灯／消灯状態の詳細」をご参照ください。

⑧IDボタン

本機のデバイスIDの設定確認／変更が可能です。
設定方法は、24ページ「デバイスIDの設定」をご参照ください。

⑨SAMPLE RATEインジケーター

SAMPLE RATEインジケーターは、2つ（48kHz ／ 96kHz）のインジケーターの点灯／消灯により、本機のサンプリング周波数の状態を表します。

⑩PRIMARY ／ SECONDARYインジケーター

Danteネットワークの状態を点灯／点滅で表示します。
点灯が1Gbpsでの通信時、点滅が100Mbpsでの通信時です。

STATUSインジケーター点灯／消灯状態の詳細

	STATUSインジケーター	備考
正常動作	青色点灯	本機が正常に動いている状態です。
故障（Dante）	赤色高速点滅（1秒間に4回）	Danteモジュールの故障です。
ミュート中	赤色点灯	起動後クロックが安定するまでや、Fs切り換え時などDanteの設定が切り換えられたときなどに表示されます。
Dante ネットワークエラー	赤色フラッシュ点滅（1秒間に2回）	Danteネットワークに接続されていません。
Dante リダンダントエラー	青色点滅（1秒間に1回）	Dante PRIMARY端子が抜けているなどのリダンダント（二重化）接続に何らかのエラーが発生しています。
アップデートモード	青色／赤色点滅（1秒間に1回）	本機のファームウェアをアップデート中です。

	STATUSインジケーター	備考
デバイスID確認	STATUS／SAMPLE RATEインジケーターとデバイスID番号に応じたOUTPUTチャンネルLED点滅（1秒間1回）	本機に設定されたデバイスIDを表示しているときの状態です。
デバイスID変更	STATUS／SAMPLE RATEインジケーターとデバイスID番号に応じたOUTPUTチャンネルLED点滅（1秒間2回）	本機に設定されたデバイスIDを変更しているときの状態です。
セーフモード	STATUS／SAMPLE RATE／PRIMARY SECONDARYのLED点滅（1秒間に1回）	セーフモードに入っている状態です。

リアパネル
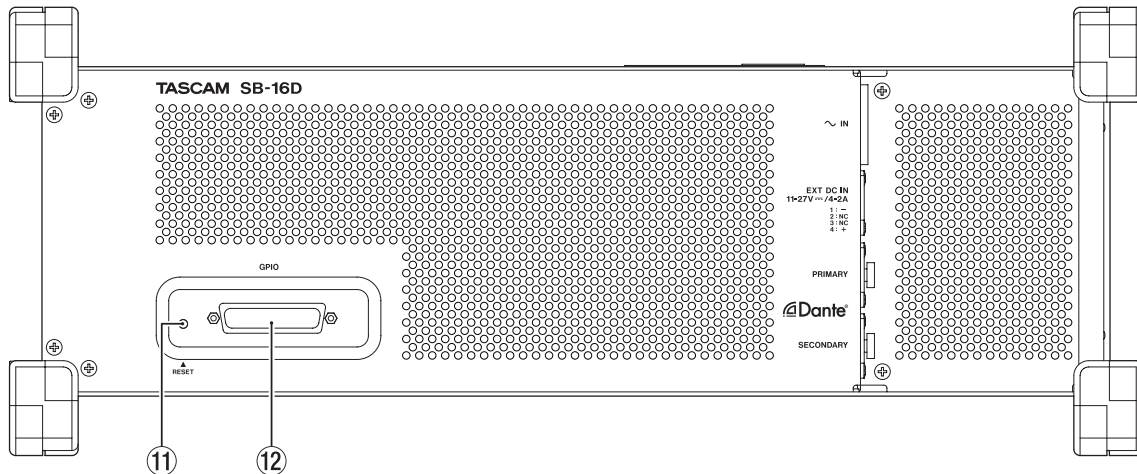
⑪ RESETボタン

本機が電源投入され起動している状態のときにRESETボタンを押すことにより、ネットワークアドレス設定や本体のすべての設定を出荷時の状態に戻すことが可能です。（→ 25ページ「出荷時の設定に戻す」）

⑫ GPIO端子

D-sub 25ピンのパラレルコントロール入出力端子です。
外部コントローラーを接続します。（→ 28ページ「GPIO端子について」）

左サイドパネル
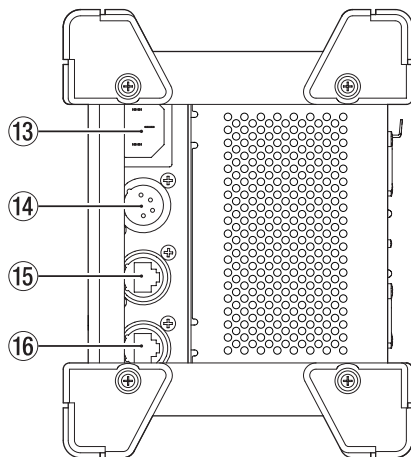
⑬ AC IN端子

付属の電源コードを接続します。

⑭ EXT DC IN端子

外部DC電源を接続します。
DC電源の電圧/電流仕様は、11V/4Aから27V/2A以上の範囲のものをお使いください。
コネクターは、XLR-4-32（1：−、2：NC、3：NC、4：＋）です。

⑮ PRIMARY端子

メインのetherCON Cat5e互換のDante通信端子です。
常時、Danteネットワークに接続します。

⑯ SECONDARY端子

サブのetherCON Cat5e互換のDante通信端子です。モードによって、用途が切り換わります。
リダンダント（二重化）モード時は、二重化したDanteネットワークのうち、セカンダリーネットワークに接続します。
スイッチド（デイジーチェーン）モード時は、数珠つなぎでDante機器と接続する際に使用します。

ラックマウントアングルの取り付け

本機を19インチラックにマウントする場合は、付属のラックマウントアングルに交換する必要があります。下記の手順で交換してください（プラスドライバーをご準備ください）。

1. 下図の位置に取り付けてある4本のネジを取り外して、本機の両側面に付いている4つのフットパーツを取り外します。
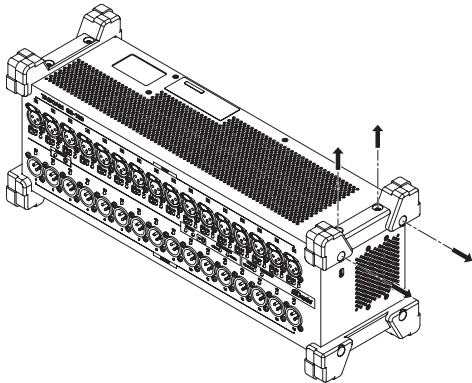
2. 付属のラックマウントアングルを、付属のラックマウントアングル取り付け用ネジを使って本機に取り付けます。
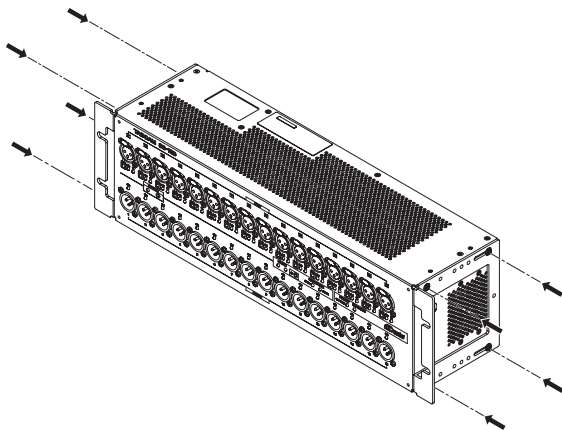
メモ

- 最初に取り付けてあったフットパーツに戻したい場合は、逆の手順で交換してください。
- ラックマウントアングルの本体への取り付け位置を変えることでラックに対してパネル面を約20mm ／ 40mm ／ 60mm下げてラックに取り付けることができます。
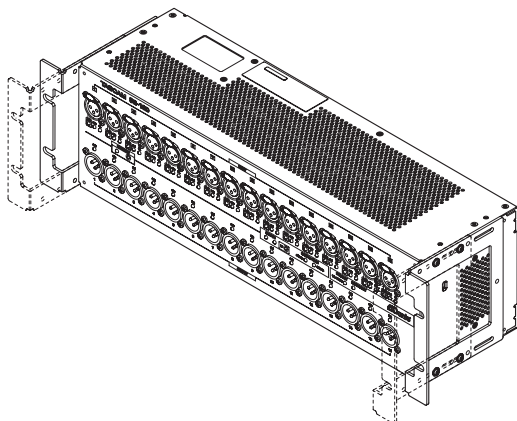
また、ラックマウントアングルの前後方向を変えて取り付けることも可能です。
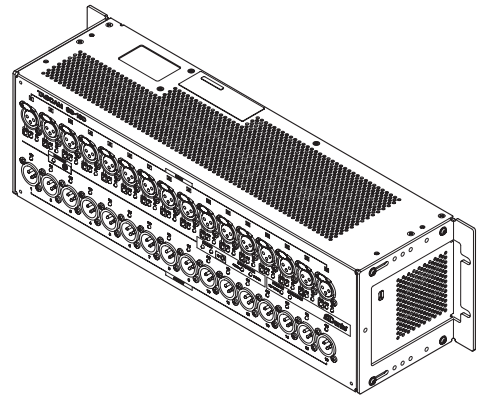
電源を接続する

本機は、AC IN端子とEXT DC IN端子を搭載し電源のリダンダント（二重化）接続に対応しています。
AC電源とDC電源を同時接続時にAC電源が途切れた場合には音切れすることなくDC電源に移行します。
ご使用の際には、AC IN端子またはEXT DC IN端子に接続します。いずれかの電源もしくは、両方同時に電源を投入しお使いいただくことも可能です。

DC電源のみで動作させる場合の起動方法

DC電源のみで動作させる場合は、DC電源を供給するだけでは起動しません。
DC POWERボタン（⑥）を5秒間押し続けることで起動します。また、起動中にDC POWERボタン（⑥）を5秒間押し続けるとシャットダウンします。

メモ

AC電源が供給されている場合は常時起動します。また、DC POWERボタン（⑥）を5秒間押し続けてもシャットダウンしません。

DC POWERインジケーターの表示について

- DC POWERインジケーター（⑤）は、本機が起動中にDC電源が供給されている場合に点灯します。

- DC電源が設定された終止電圧以下の場合は消灯します。また、本機が起動していない場合も消灯しています。

- 設定されたアラート電圧を下回ると点滅します。

- 終止電圧は、11.0Vから27Vまで0.1V刻みで設定可能です。DC電源を供給しているバッテリー仕様の終止電圧を設定してください。終止電圧がわからない場合やバッテリー以外の電源（ACアダプターなど）を使用する場合は11.0Vで設定してください。

- アラート電圧は、初期値で終止電圧から0.5V高い電圧で設定されます。アラートが早すぎたり遅すぎたりする場合は、適宜設定を調節してください。アラートは「OFF」にできます。

- 終止電圧とアラート電圧の設定は、リモートプロトコルによる外部制御、もしくはSonicview本体や専用アプリケーション「TASCAM IO CONTROL」による外部制御によって設定します。詳しくは、以下の資料をご参照ください。

  - SB-16Dのリモートプロトコル仕様書

  - Sonicviewシリーズのリファレンスマニュアル

  - 専用アプリケーション「TASCAM IO CONTROL」の取扱説明書

専用アプリケーションについて

専用アプリケーション「TASCAM IO CONTROL」を使って、本体の機能設定や本体操作を遠隔で操作することができます。
アプリケーションの詳細については、アプリケーションの取扱説明書をご覧ください。
専用アプリケーション「TASCAM IO CONTROL」およびアプリケーションの取扱説明書は、TASCAMのウェブサイト（https://tascam.jp/jp/）からダウンロードすることができます。
設定可能な機能については、28ページ「パラメーターリスト」をご参照ください。

各種設定について

接続する機器に合わせて必要な各種設定を行います。
以下の設定は、すべて専用アプリケーション「TASCAM IO CONTROL」から行います。また、Sonicviewと組み合わせて使用する場合は、Sonicviewからも各種設定を行う事ができます。詳細は、25ページ「Sonicviewの拡張として使用する場合」をご参照ください。

マイク／ライン入力を設定する

マイク、ライン入力の設定を行います。
ゲインやパッド、トリムの設定も同じ入力設定の中で行います。

ファンタム電源を設定する

ファンタム電源を必要とする外部マイクを接続したときにオンにします。
チャンネル単位でオン／オフが可能です。

注意
- コンデンサーマイクを接続する前に、本機および接続する機器の電源をすべてオフまたはスタンバイ状態にしてください。
- ファンタム電源をオンにした状態で、マイクの抜き差しをしないでください。大きなノイズを発生し、本機および接続中の機器が故障する恐れがあります。
- ファンタム電源を必要とするコンデンサーマイクを使用する場合のみ、ファンタム電源をオンにしてください。ファンタム電源を必要としないダイナミックマイクなどを接続しているときにファンタム電源をオンにすると、本機および接続中の機器が故障する恐れがあります。
- リボンマイクの中には、ファンタム電源を供給すると故障の原因になるものがあります。疑わしい場合は、マイクメーカーにご確認いただくか、リボンマイクにファンタム電源を供給しないでください。

リファレンスレベルを設定する

アナログ入出力のヘッドルーム（最大レベルとリファレンスレベルとのレベル差）を設定します。

デバイスIDの設定

SB-16DとSonicview 16 ／ Sonicview 24を組み合わせて使用する場合、機体を識別するためのデバイスIDの設定が必要になります。
以下の手順によってデバイスIDを確認／変更できます。

デバイスIDを確認する

IDボタン（⑤）を押します。
STATUSインジケーターとSAMPLE RATEインジケーターが点滅し、本機がデバイスID確認モードになります。
設定されているデバイスID番号に応じた入力チャンネルのINPUT SIGインジケーターと出力チャンネルのOUTPUT SIGインジケーターが同時に点灯します。
デバイスIDは入力チャンネルインジケーターと出力チャンネルインジケーターの番号を対にして割り当てられます。
例として以下のID番号の場合、各インジケーターは表のように点灯します。

デバイスID：#3-4

チャンネル番号	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
INPUT SIGインジケーター			●													
OUTPUT SIGインジケーター				●												

デバイスID：#15-8

チャンネル番号	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
INPUT SIGインジケーター															●	
OUTPUT SIGインジケーター								●								

● デバイスID確認モード中に点灯するインジケーター

デバイスIDを変更する

以下の手順によってデバイスIDを変更することができます。

注意

> 本機に設定されたデバイスIDは、同じネットワークに接続された別のSB-16Dと重複しないように設定してください。

1. IDボタン（⑤）を5秒間押し続けます。
   STATUSインジケーターとSAMPLE RATEインジケーター、および現在設定されているデバイスID番号に応じたOUTPUT SIGインジケーターが同時に点滅します。（1秒間に2回）
2. デバイスID変更モード中に、IDボタン（⑤）を押してデバイスIDを切り換えます。
   点滅するOUTPUT SIGインジケーターが移動します。
3. IDボタン（⑤）を2秒間押し続けて確定します。

デバイスID変更モードに入ったあとは、再度IDボタン（⑤）を押すたびにデバイスIDが+1足され、点滅するOUTPUT SIGインジケーターがデバイスID番号に応じて順番に切り換わり移動します。OUTPUT SIGインジケーターが16まで移動し、再度IDボタン（⑤）を押すと、OUTPUT SIGインジケーターは「1」に戻ります。

注意

> 本機でのデバイスIDの変更は、OUTPUT SIGインジケーターの1 ～ 16までの変更が可能です。
>
> INPUT SIGインジケーターを変更は、Sonicview 16 ／ Sonicview 24本体から、または専用アプリケーション「TASCAM IO CONTROL」から行ってください。

出荷時の設定に戻す

本機が電源投入され起動している状態のときにRESETボタン（⑨）を押すことにより、ネットワークアドレス設定や本体のすべての設定をリセットすることが可能です。

Danteの設定をリセットするには

RESETボタン（⑨）を5秒間押し続けます。
STATUSインジケーターが2回点滅し、本機のDanteに設定されているネットワークアドレス設定などを出荷時の設定に戻します。

本機に設定されたすべての設定をリセットするには

RESETボタン（⑨）を10秒間押し続けます。
STATUSインジケーターが3回点滅し、本機に設定されたすべての設定を出荷時の設定に戻します。

本機をセーフモードで起動するには

RESETボタン（⑨）を押しながら、電源を接続します。
本機がセーフモードで起動し、STATUS ／ SAMPLE RATE ／ PRIMARY ／ SECONDARYインジケーターが1秒間に2回点滅します。

Sonicviewの拡張として使用する場合

本機をTASCAM SonicviewシリーズのDanteポートのLANに接続することで、TASCAM Sonicviewシリーズから本機を操作することができます。さらに、TASCAM Sonicviewシリーズが本機をマウントすることによって、本機のアナログ入力をSonicviewのアナログ入力と同等に操作できるようになります。
以下の手順でマウントしてください。

メモ

> - 手順は、本機とTASCAM SonicviewシリーズのDante Controlネットワーク設定が初期状態（AddressingがAUTO）であることを前提としています。
> - Sonicviewがマウントできるのは、最大4台までです。

1. マイク／スピーカーなどのアナログ端子を装備した外部機器と接続します。
2. 本機のDante端子とSonicviewシリーズのDante端子をLANケーブルで接続します。
   両機のDante設定がリダンダント（二重化）モードの場合は、両機のPRIMARY端子／ SECONDARY端子同士を接続してください。
   接続方法については、26ページ「スイッチド（デイジーチェーン）接続」、および26ページ「リダンダント（二重化）接続」をご参照ください。
3. 本機と接続した機体の電源を投入します。
4. Danteのルーティング設定を行います。
   Sonicviewから本機をマウントすることによって、本機とSonicviewのDanteルーティングが自動で設定されます。また、サンプリングレートやリファンレンスレベル、Danteレイテンシーの設定なども自動で適切な値に設定されます。詳しくは、Sonicviewシリーズのリファレンスマニュアルをご参照ください。
5. Sonicviewシリーズの入力／出力ルーティング設定を行います。
   詳細は、Sonicviewシリーズのリファレンスマニュアルの「第5章 ルーティング」をご参照ください。

Danteについて

Danteとは、Audinate社が開発した伝送プロトコルです。
ギガビットイーサネット規格に基づいたネットワークにおいて、多チャンネル伝送（512ch IN／512ch OUT）や高精度でのクロック同期などを可能としています。
Danteの詳細については、Audinate社のウェブサイトをご参照ください。

> https://www.audinate.com/

Danteネットワークとの接続方法

本機を設定して使用するには、本機に接続されたイーサネットネットワーク、Dante Controllerが動作するパソコン、および他のDante対応機器の設定を行う必要があります。

各端子の接続に使用するLANケーブルについて

カテゴリー 5e以上のSTPケーブルをご使用ください。
クロスオーバー・ケーブル、ストレート・ケーブルのどちらでも使用できます。

注意

本機は、100Mbpsのイーサネットスイッチングハブには対応しておりません。必ずギガビットイーサネットに対応したスイッチングハブを使用してください。

メモ

- Dante NetworkのAddressing設定がAUTO (DHCP) の場合、パソコンはIPアドレスを自動設定するように設定してください。

- Dante NetworkのAddressing設定がSTATICの場合、パソコンはDanteとネットワークアドレスを合わせて設定してください。

スイッチド（デイジーチェーン）接続

接続機器の台数が少ない場合や、スイッチングハブを使用しない場合に、Dante機器を数珠つなぎに接続する方法です。以下のように接続します。

スイッチド（デイジーチェーン）接続の例

メモ
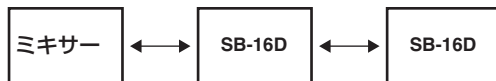
- スイッチド（デイジーチェーン）接続の場合、PRIMARY端子とSECONDARY端子どちらの端子に接続してもかまいません。

- 接続する機器が多くなると、レイテンシーの設定を大きくする必要があります。

リダンダント（二重化）接続

ライブ環境など録り直しができない状況での録音に対応する場合、プライマリーとセカンダリーの完全に独立した2つのネットワークを使用し、以下のように接続します。

リダンダント（二重化）接続の例

メモ
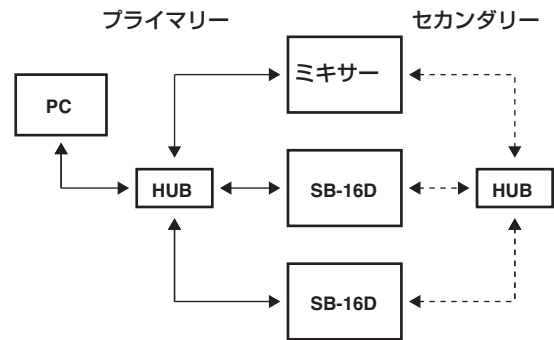
スイッチド（デイジーチェーン）接続とリダンダント（二重化）接続の設定は、自動では切り換わりません。Dante ControllerのNetwork Config画面で設定を切り換えてください。

注意

プライマリーネットワークとセカンダリーネットワーク同士は、いかなる場合でも同じLAN（VLAN）に接続できません。
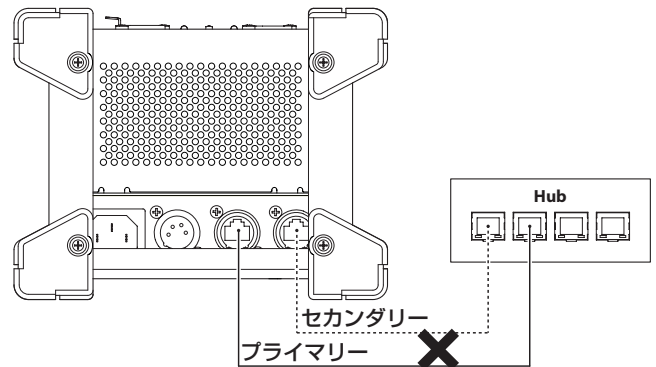
Dante Controller使用方法

Dante Controllerについて

本機は、Audinate社のホームページにて公開されているDante Controllerを使用して、他のDante対応機器と接続します。
Dante Controller本体および取扱説明書は、Audinate社のホームページより最新版をダウンロードしてください。

Audinate ダウンロードページ

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

パソコンにインストールしたDante Controllerで最低限以下を設定してください。

● オーディオ・ルーティングを設定します。
● 各Dante機器のサンプリング周波数および量子化ビット数を合わせます。

メモ

Dante Controllerで設定したデータは、各Dante機器内の内部メモリーに記憶されます。

Dante Controllerを終了した場合やパソコンをDanteネットワークから切断した場合でも、設定を変更しない限り接続は変わりません。

オーディオ・ルーティング設定

Dante Controllerを起動すると、下図のNetwork View画面が開きます。
ここでは、Danteネットワークに関する状態を設定・監視することができます。
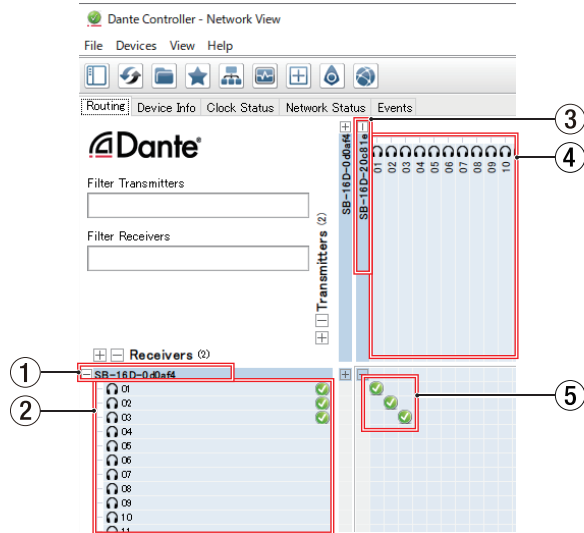
① 受信デバイス名

Danteネットワーク上に存在する受信デバイスの名前です。

② 受信デバイスチャンネル

Danteネットワーク上に存在する受信デバイスのチャンネル名です。

③ 送信デバイス名

Danteネットワーク上に存在する送信デバイスの名前です。

④ 送信デバイスチャンネル

Danteネットワーク上に存在する送信デバイスのチャンネル名です。

⑤ オーディオ・ルーティング

送信機と受信機の接続したいオーディオチャンネル同士をここでルーティングします。
マトリックス上の接続したいチャンネル同士の交点を、マウスでクリックして接続します。

メモ

パソコンキーボードのCtrlキーを押しながら、デバイス名の交点にある「-」をクリックすると、接続可能なすべてのチャンネルが一括で接続でき便利です。

Dante Controller サンプリングレート／量子化ビット数の変更

Network View画面でデバイス名をダブルクリックすると、Device View画面が開きます。
ここでは、Danteネットワーク上に存在するデバイスの状態を設定・監視することができます。
Device Configタブを選択すると、下図①で選択されているデバイスのサンプリングレートや量子化ビット数などの設定を変更できます。
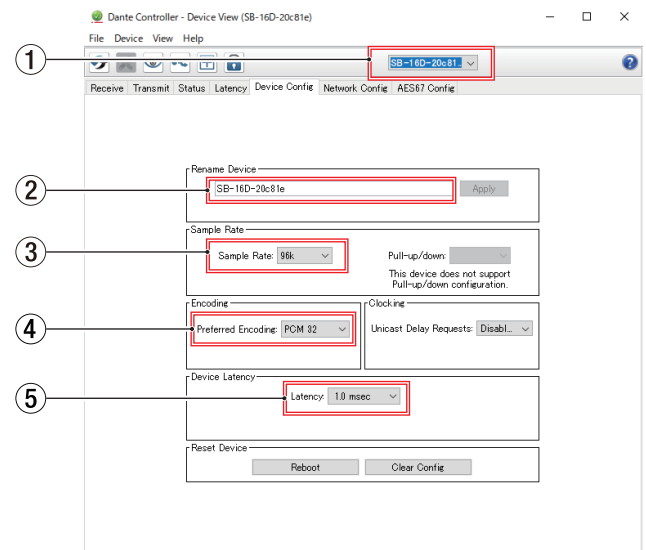
① デバイス名

Device Viewにて設定を変更するデバイスの名前です。

② デバイス名変更

デバイス名を変更します。

③ サンプリングレート

サンプリングレートを変更します。

④ 量子化ビット数

量子化ビット数を変更します。

⑤ レイテンシー設定

レイテンシー設定を変更します。

注意

デバイス名を変更するとオーディオ・ルーティング設定がクリアされます。そのため、オーディオ・ルーティングを設定する前に分かりやすいデバイス名に変更することをお勧めします。

コントロールパラメーター

パラメーターリスト

以下が本機のパラメーターになります。
専用アプリケーションやTASCAM Sonicviewシリーズから、すべて外部制御が可能です。

機能		内容
Head Amp GAIN調節		**Analog Reference Level = +6dBu時** PAD OFF時：+12dB ～ +66dB PAD ON時：−8dB ～ +46dB **Analog Reference Level = +4dBu時** PAD OFF時：+3dB ～ +57dB PAD ON時：−17dB ～ +37dB **Analog Reference Level = 0dBu時** PAD OFF時：+8dB ～ +62dB PAD ON時：−12dB ～ +42dB
PAD ON ／ OFF		ON時：−20dB
PHANTOM ON ／ OFF		ON時：+48V
サンプリングレート設定		96kHz（初期値）/48kHz
デバイス名設定		任意のデバイス名に設定／変更
チャンネルラベルの設定		任意のチャンネル名に設定／変更
リファレンスレベル切り換え	デジタルリファレンスレベル設定	−9dBFs ／−14dBFs ／−16dBFs ／−18dBFs ／−20dBFs（初期値）
	アナログリファレンスレベル設定	+6dBu（−9dBFsの時）／ +4dBu（初期値）／ +0dBu
インジケーターの輝度調節		選択肢：0 ～ 3（初期値：3、1ステップ刻み）
Identify		本機のすべてのSIGインジケーターとSTATUSインジケーターの点滅
ネットワーク設定（Dante Primary ／ Dante Secondary ／ SB-16D本体）	Static ／ Auto（DHCP）	IPアドレスの自動取得／任意設定
	IPアドレス	Staticの場合、任意のIPアドレスに設定／変更
	サブネットマスク	Staticの場合、サブネットマスクを設定／変更
パスワード設定		任意のパスワードを設定／変更可能（初期値：パスワード無し）
GPIOの設定		GPIO端子にアサインする機能の設定／変更
プリセット設定		プリセットの設定

GPIO端子について

リアパネルにあるGPIO端子は、本機器を外部制御するためのパラレルコントロール端子です。
GPIO端子の機能の設定内容は、SB-16D本体の外部制御用途の他、TASCAMデジタルミキサーのGPIO端子の拡張用途としてもご使用できます。専用アプリケーション「TASCAM IO CONTROL」や本製品の接続に対応しているTASCAMデジタルミキサーシリーズから設定が可能です。
本機単独でご使用される場合は、TASCAM IO CONTROLのリファレンスマニュアル「GPIOの設定」をご参照ください。
TASCAM Sonicviewシリーズに接続した場合、USER DEFINED CONTROL画面のGPIO-INタブ画面／ GPIO-OUTタブ画面で行います。詳細は、Sonicviewシリーズのリファレンスマニュアルの「第4章 ミキサーのコンフィギュレーション／各種設定」の「GPIO-INタブ画面」および「GPIO-OUTタブ画面」をご参照ください。
ピンアサインは、以下の通りです。

Pin No.	機能	IN / OUT
1	GND	−
2	GPIO IN 2	IN
3	GPIO IN 4	IN
4	GPIO IN 6	IN
5	GPIO IN 8	IN
6	NC	−
7	NC	−
8	NC	−
9	GPIO OUT 2	OUT
10	GPIO OUT 4	OUT

Pin No.	機能	IN / OUT
11	GPIO OUT 6	OUT
12	GPIO OUT 8	OUT
13	NC	−
14	GPIO IN 1	IN
15	GPIO IN 3	IN
16	GPIO IN 5	IN
17	GPIO IN 7	IN
18	NC	−
19	NC	−
20	GND	−
21	GPIO OUT 1	OUT
22	GPIO OUT 3	OUT
23	GPIO OUT 5	OUT
24	GPIO OUT 7	OUT
25	+5V	−

IN：コマンド入力用

● 内部回路で+5Vにプルアップ

● 50msec以上のLOW信号の入力で動作

OUT：コマンド／タリー出力用

● 内部回路は、オープンコレクタ（出力インピーダンス：10Ω）

● 耐圧20V、最大電流35mA

+5V：最大供給電流50mA

仕様／定格

オーディオ性能

0dBu=0.775Vrms

マイクアンプEIN（入力換算雑音）

−128dBu以下

周波数特性

MIC/LINE IN → DANTE OUT
　20Hz - 20kHz：+0dB、−0.5dB（48kHz）（JEITA）
　20Hz -40kHz：+0dB、−1.0dB（96kHz）（JEITA）
DANTE IN → LINE OUT
　20Hz - 20kHz：+0dB、−0.5dB（48kHz）（JEITA）
　20Hz -40kHz：+0dB、−1.0dB（96kHz）（JEITA）

ダイナミックレンジ

110dB以上（MIC/LINE → DANTE、PAD = OFF、A.Ref
　　　　＝ +4dBu、GAIN = 12、JEITA）
111dB以上（DANTE → LINE OUT、サンプリング周波数：
　　　　48kHz）
112dB以上（DANTE → LINE OUT、サンプリング周波数：
　　　　96kHz）

歪率

0.002%以下（MIC/LINE IN → DANTE、+4dBu入力時、PAD
　　　　＝ OFF、A.Ref = +4dBu、GAIN=12、JEITA）
0.002%以下（DANTE → LINE OUT、0dBFS出力時、JEITA）

クロストーク

100dB以上（MIC/LINE → LINE OUT、1kHzサイン波、JEITA）

A.Ref：Analog Reference Level設定

入出力定格

INPUT 1-16端子

コネクター：XLR-3-31相当（1：GND、2：HOT、3：COLD）
入力レベル：
　パッドオフ時
　　最大入力レベル：+12dBu（TRIM最小）
　　最小入力レベル：−62dBu（TRIM最大）
　パッドオン時
　　最大入力レベル：+32dBu（TRIM最小）
　　最小入力レベル：−42dBu（TRIM最大）
入力インピーダンス：5.0kΩ以上

メモ

+48Vのファンタム電源をMIC/LINE入力端子ごとに供給可能
です。

OUTPUT 1-16端子

コネクター：XLR-3-32相当（1：GND、2：HOT、3：COLD）
出力インピーダンス：100Ω
規定出力レベル：
　+6dBu（D.Ref：−9dBFS、A.Ref：+6dBu）
　+4dBu（D.Ref：−14 ／ −16 ／ −18 ／ −20dBFS、
　　　　A.Ref：+4dBu）
　0dBu（D.Ref：−18 ／−20dBFS、A.Ref：0dBu）
最大出力レベル：
　+15dBu（D.Ref：−9dBFS、A.Ref：+6dBu）
　+18dBu（D.Ref：−18dBFS、A.Ref：0dBu）
　+20dBu（D.Ref：−20dBFS、A.Ref：0dBu）
　+18dBu（D.Ref：−14dBFS、A.Ref：+4dBu）
　+20dBu（D.Ref：−16dBFS、A.Ref：+4dBu）
　+22dBu（D.Ref：−18dBFS、A.Ref：+4dBu）
　+24dBu（D.Ref：−20dBFS、A.Ref：+4dBu）

D.Ref：Digital Reference Level設定
A.Ref：Analog Reference Level設定

Dante PRIMARY ／ SECONDARY端子

コネクター：etherCON Cat5e 互換コネクター ＊
伝送プロトコル：Dante
Gigabit Ethernet規格：1000BASE-T（IEEE 802.3ab）
ケーブル：カテゴリー 5e以上のSTPケーブル

＊ etherCONは、Neutrik AGの登録商標です。

GPIO端子

コネクター：D-sub 25ピン
　　　　（8イン／ 8アウト、メス型インチ規格）

● GPIO端子のピンアサインは、28ページ「GPIO端子について」をご参照ください。

一般

電源

AC100-240V、50/60Hz
外部DC電源（DC11-27V ／ 4-2A）

● DC電圧／電流範囲：11V ／ 4A － 27V ／ 2A

消費電力

44W

外形寸法

標準フット装着時
454 x 179.6 x 140mm（幅 x 高さ x 奥行き）
ラックマウントアダプター装着時
482.8 x 132 x 120mm（幅 x 高さ x 奥行き）

質量

4.5kg

動作温度

0 ～ 40℃

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Dimensional drawings / 寸法図

Foot

454.0mm
399.0mm
140.0mm
132.0mm
179.6mm

Rack Mount

482.8mm
433.0mm
468.2mm
24.9mm
24.9mm
37.4mm
57.2mm
132.0mm
120.0mm

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　http://teac-global.com/support/opensource/form/

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xnprintf for C/C++ (February 26 2005)

Copyright (c) 2002-2005 David TAILLANDIER
http://savannah.nongnu.org/projects/xnprintf
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tropicssl (v6a6997f)

https://github.com/axic/tropicssl
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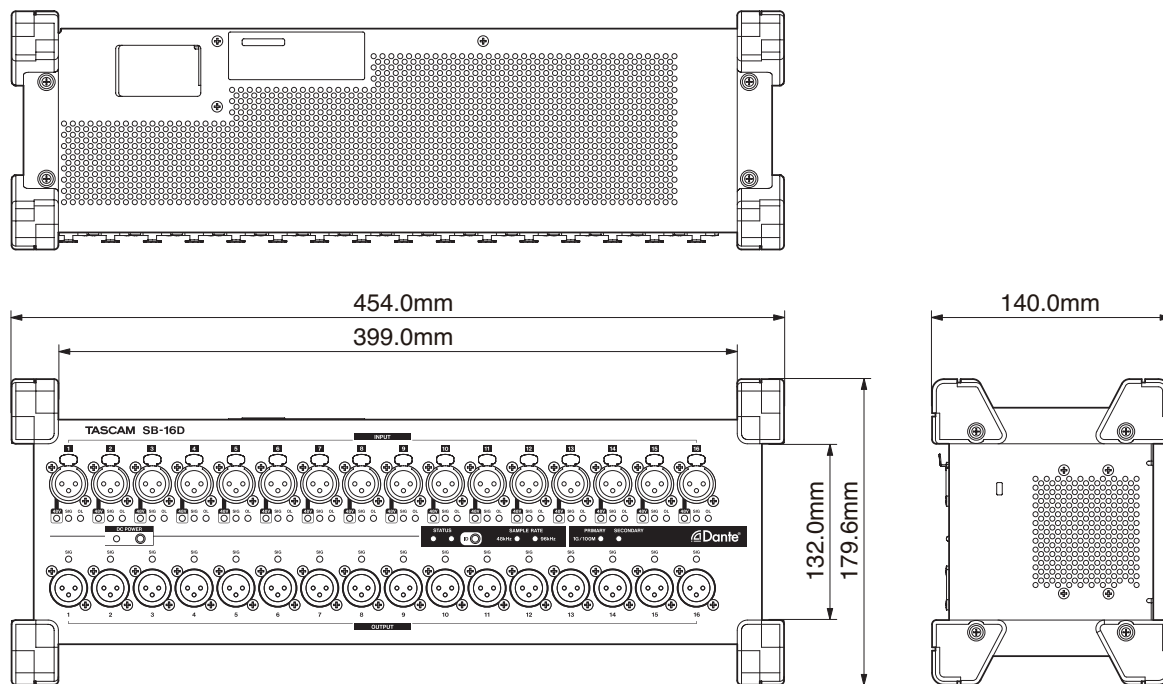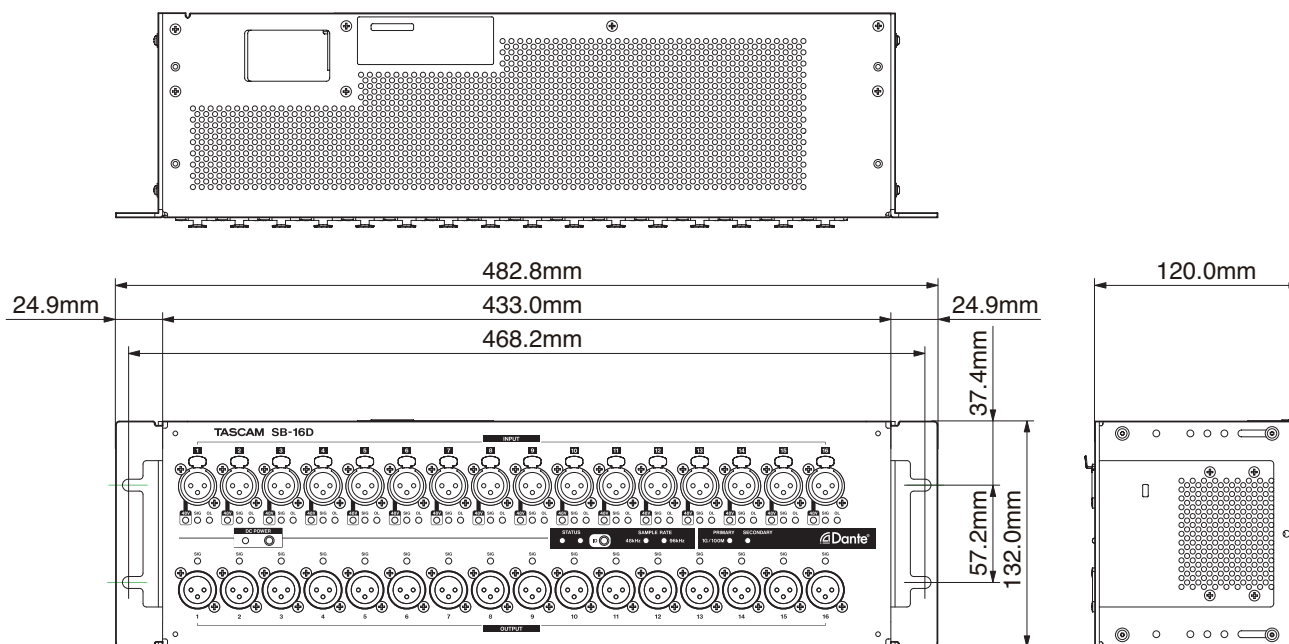
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Precision Time Protocol daemon (v1b2)

http://sourceforge.net/projects/ptpd/files/
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mDNSResponder

http://www.opensource.apple.com/tarballs/mDNSResponder/
versions 107.6, 177 and 258.13
Version 2.0, January 2004
http://www.apache.org/licenses/
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libsodium (v1.0.3.2)

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WARRANTY / 保証書

< In the United States >

This warranty gives you specific legal rights and you may also have other rights which vary from state to state. This warranty is only valid within the country the unit was originally purchased.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as specified below, this warranty covers all defects in materials and workmanship in this product. The following are not covered by the warranty:

1. Damage to or deterioration of the external cabinet.
2. Damage resulting from accident, misuse, abuse or neglect.
3. Damage resulting from failure to perform basic daily maintenance and/or calibration or otherwise resulting from failure to follow instructions contained in your owner's manual.
4. Damage occurring during shipment of the product. (Claims must be presented to the carrier)
5. Damage resulting from repair or attempted repair by anyone other than TEAC or an authorized TASCAM service station.
6. Damage resulting from causes other than product defects, including lack of technical skill, competence, or experience of the user.
7. Damage to any unit which has been altered or on which the serial number has been defaced, modified or is missing.

WHO IS COVERED UNDER THE WARRANTY

This warranty may be enforced only by the original purchaser. This warranty is not valid if the product was purchased through an unauthorized dealer.

LENGTH OF WARRANTY

All parts except heads and disk drives are warranted for one (1) year from the date of original purchase. Heads and disk drives are warranted for ninety (90) days from date of original purchase. Labor is warranted for ninety (90) days from date of original purchase.

WHAT WE WILL PAY FOR

We will pay all labor and material expenses for items covered by the warranty. Payment of shipping charges is discussed in the next section of this warranty.

HOW YOU CAN GET WARRANTY SERVICE

Your unit must be serviced by an authorized TASCAM service station in the United States. (This warranty is not enforceable outside the U.S.) If you are unable to locate an authorized TASCAM service station in your area, please contact us. We either will refer you to an authorized service station or instruct you to return the unit to the factory. Whenever warranty service is required, you must present a copy of the original dated sales receipt from an Authorized TASCAM Dealer.

You must pay any shipping charges if it is necessary to ship the product to service. However, if the necessary repairs are covered by the warranty, we will pay return surface shipping charges to any destination within the United States.

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TEAC's liability for any defective product is limited to repair or replacement of the product, at TEAC's option. TEAC shall not be liable for:

1. Damages based upon inconvenience, loss of use of the product, loss of time interrupted operation or commercial loss; or
2. Any other damages, whether incidental, consequential or otherwise.

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To locate an Authorized Service Center in Your Area

CALL 1-323-726-0303

< Europe >

This product is subject to the legal warranty regulations of the country of purchase. In case of a defect or a problem, please contact the dealer where you bought the product.

Ce produit est sujet aux réglementations concernant la garantie légale dans le pays d'achat. En cas de défaut ou de problème, veuillez contacter le revendeur chez qui vous avez acheté le produit.

Dieses Gerät unterliegt den gesetzlichen Gewährleistungsbestimmungen des Landes, in dem es erworben wurde. Bitte wenden Sie sich im Gewährleistungsfall an den Händler, bei dem sie das Gerät erworben haben.

Questo apparecchio è conforme alle norme sulla garanzia vigenti nel rispettivo Paese in cui esso è stato acquistato. Si prega di rivolgersi al proprio commerciante, presso il quale è stato acquistato l'apparecchio, nel caso in cui si voglia richiedere una prestazione in garanzia.

Las condiciones de garantía de este aparato están sujetas a las disposiciones legales sobre garantía del país en el que ha sido adquirido. En caso de garantía, debe dirigirse al establecimiento donde adquirió el aparato.

<日本>

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   (4) 接続している他の機器に起因する故障および損傷
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< In other countries/areas >

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If you have a warranty claim or request, please contact the dealer where you bought the product.

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If you require repair services for your TASCAM equipment, please contact the dealer where the product was purchased from or the TASCAM Distributor in your country. A list of TASCAM Distributors can be found on our website at: https://teac-global.com/

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WARRANTY / 保証書

Model / Modèle / Modell / Modello / Modelo / 型名

SB-16D

Serial No. / No de série / Seriennummer / Numero di serie / Número de serie / 機番

Date of purchase / Date de l'achat / Datum des ~~~~ / Data dell'acquisto / Fecha de compra / お買い上げ日

Sample

Owner's name / Nom du propriétaire / Name des Eigentümers / Nome del proprietario / Nombre del propietario / お名前

Address / Adresse / Adresse / Indirizzo / Dirección / ご住所

Dealer's name / Nom du revendeur / Name des Händlers / Nome del commerciante / Nombre del establecimiento / 販売店

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