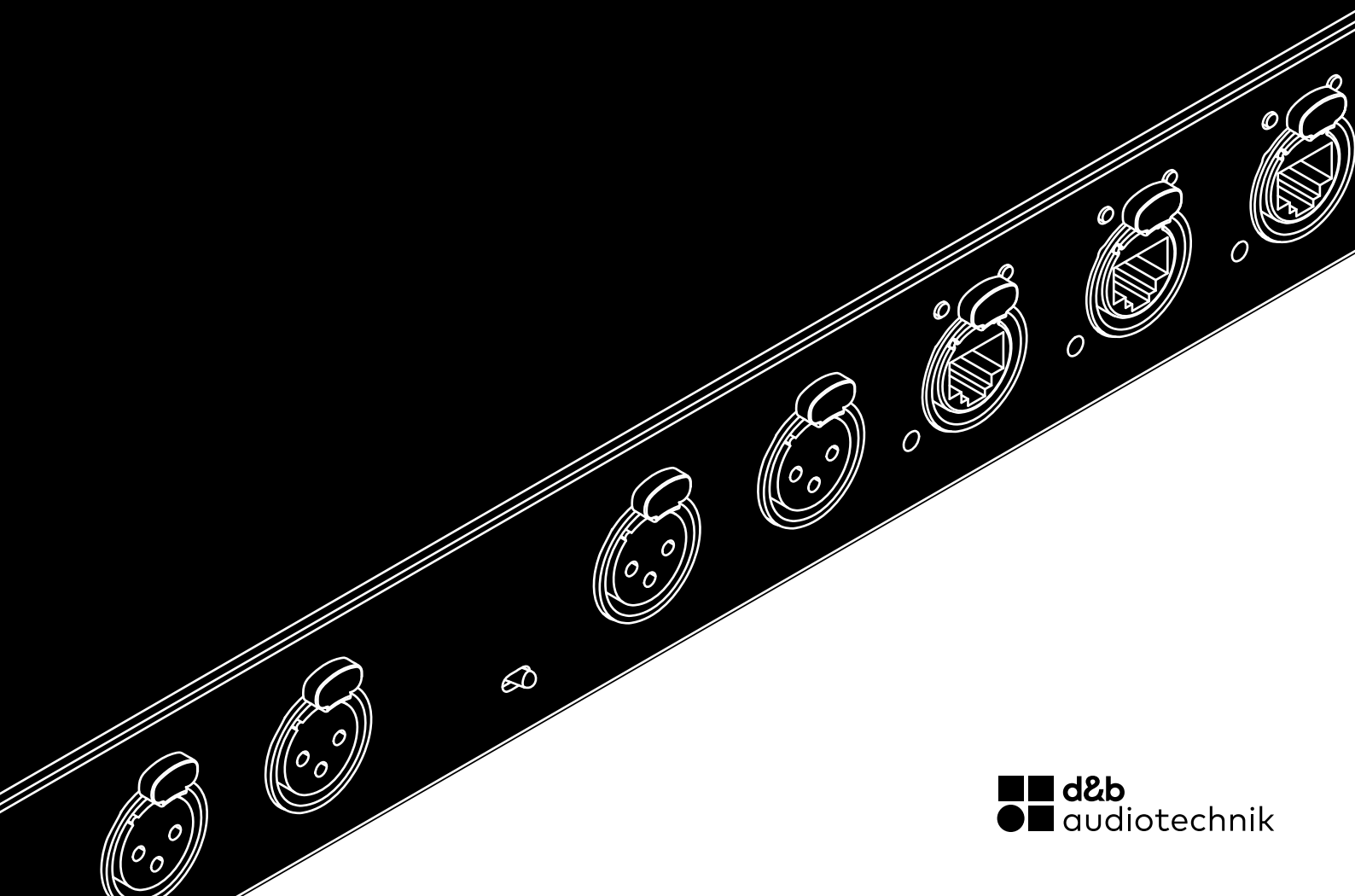


DS

DS22
Manual
1.3 en



Notes on document version

All previous versions of this document are hereby no longer valid.

Version 1.3:

Z4013 DS22 Input panel (XLR) added.

- **Refer to:**

⇒ Chapter 5 "Z4013 DS22 Input panel (XLR)" on page 13.

Avnu DS22 certification details added.

- **Refer to:**

⇒ Chapter 7.4 "Certifications" on page 15.

General information

DS22 Manual

Version: 1.3 en, 04/2026, D2777.EN .01

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Keep this document with the product or in a safe place so that it is available for future reference.

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Explanation of graphical symbols



The lightning symbol within a triangle is intended to alert the user to the presence of uninsulated "dangerous voltages" within the unit's chassis that may be of sufficient magnitude to constitute a risk of electric shock to humans.



The exclamation point within a triangle is intended to alert the user to the presence of important operating and service instructions in the literature accompanying the product.

Before using this product, carefully read the applicable items of the following safety instructions.

1. Keep these instructions for future reference.
2. Read these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. **WARNING!** To reduce the risk of fire or electric shock:
 - Do not expose this unit to rain or moisture.
 - Keep water or other liquids away from the unit.
 - Do not place liquid filled containers, for example beverages, on top of the unit.
 - Do not operate the unit while it is wet or standing in liquid.
6. Always operate the unit with the chassis ground wire connected to the electrical safety earth.
Do not defeat the safety purpose of a grounding-type plug. A grounding-type plug has two blades and a third grounding prong. The third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
7. Do not use this unit if the power cord is damaged or frayed. Protect the power cord from being walked upon or pinched, particularly at the plugs and the point where it exits from the apparatus.
8. The unit is intended for use in a 19" rack. Follow the mounting instructions. When a rack on wheels is used, exercise caution when moving the loaded rack to avoid injury from tipping over.
9. Unplug this apparatus during lightning storms or when unused for long periods of time.
10. Lay all cables connected to the unit carefully so that they cannot be crushed by vehicles or other equipment and that no one can either step on them or trip over them.
11. 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 into the unit.
 - An object has fallen into the unit.
 - The unit has been exposed to rain or moisture.
 - The unit does not operate normally.
 - The unit was dropped or the chassis is damaged.
 - Do not remove top or bottom covers. Removal of the covers will expose hazardous voltages. There are no user serviceable parts inside and removal may void the warranty.
12. Use the mains plug as the disconnecting device and keep it readily accessible. If the mains plug is not readily accessible due to mounting in a 19" rack or equipment cabinet, then the mains plug for the entire rack must be readily accessible.
13. An experienced user must always supervise the equipment, especially if inexperienced adults or minors are using the equipment.

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1.1 Intended use

NOTICE!

The device complies with the electromagnetic compatibility requirements of EN 55032:2019 (product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use) for the environment Class A.

Acoustic interference and malfunctions may occur if the unit is operated in the immediate vicinity of high-frequency transmitters (e.g. wireless microphones, mobile phones, etc.). Damage to the device is unlikely, but cannot be excluded.

Only shielded network cables must be used.

The d&b DS22 is a 16 channel break-in device connecting to the Milan™ audio network and is mainly intended for use at the Front of House position.

This device expands the d&b Workflow to the input side, providing a familiar and secure operating environment with the optional direct connection of analogue audio signals.

On the front panel, it provides 4x analog and/or 4x digital (AES3) input channels while on the rear panel another 12x digital (AES3) input channels are available.

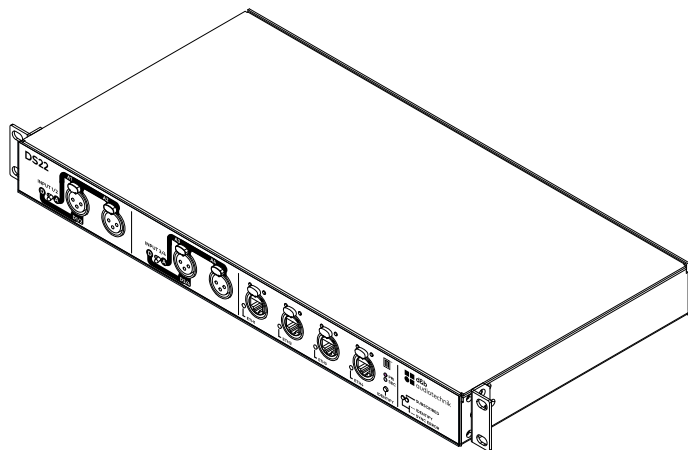
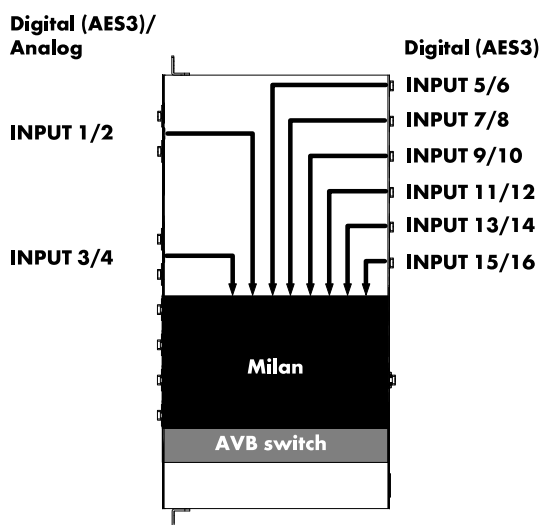
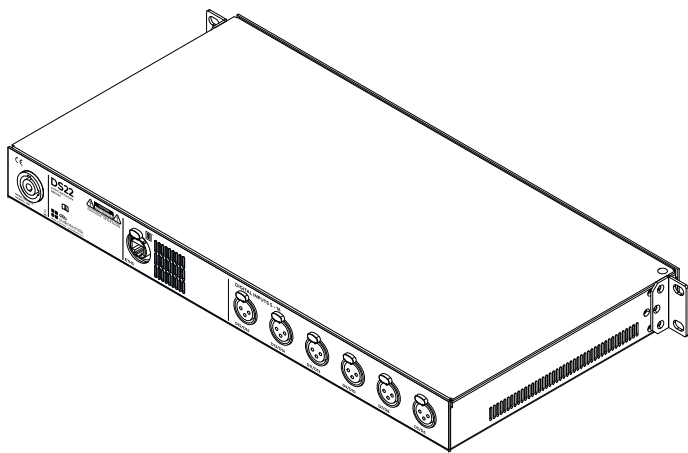
Users can choose from the following input options:
16x AES3, 14x AES3 and 2x analogue, or 12x AES3 and 4x analogue.

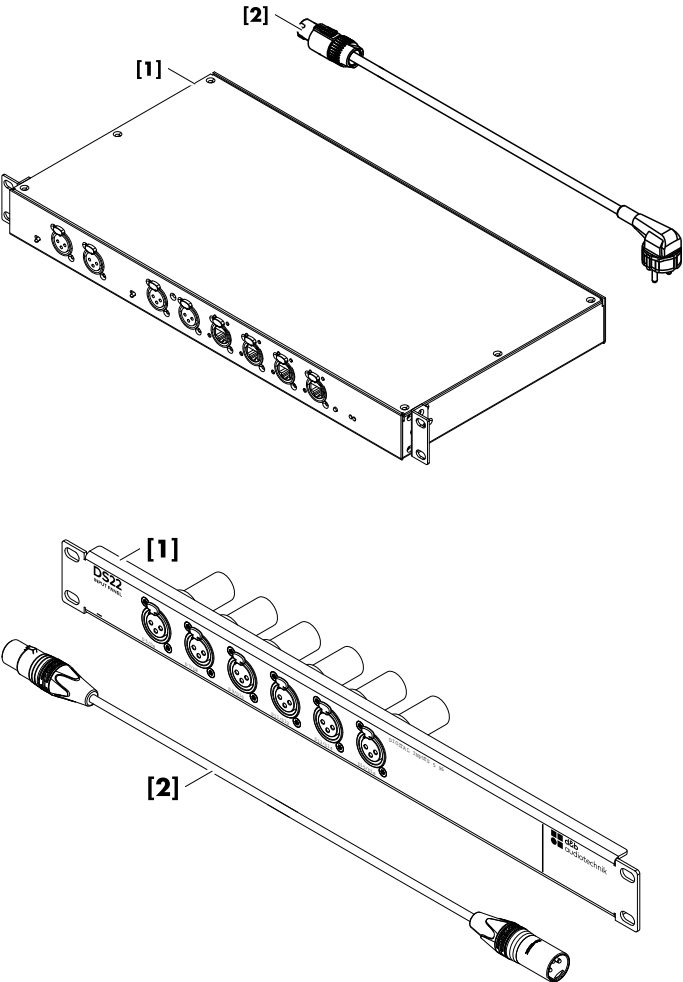
The device has a fully Milan™-AVB enabled integrated 5-port switch, offering 3 primary and 2 secondary network sockets.

The device is configured and controlled via the 'Milan Manager' software, which uses the ATDECC protocol, thus supporting Milan™-AVB.

It sends two talker streams with 8 channels each, both with network redundancy for increased reliability.

The device features a power supply suitable for mains voltages 100 V – 240 V, 50 – 60 Hz, with overvoltage protection of up to 400 V.





Before starting up the device, please verify the shipment for completeness and proper condition of the items.

If there is any sign of obvious damage to the unit and/or the power cord, do not operate the unit and contact your local dealer from whom you received it.

Z4012 DS22

Pos.	Qty.	d&b Code	Description
[1]	1	Z4012	d&b DS22 Audio network bridge.
Including:			
[2]	1	Z2610.xxx	Power cord (specific to country).
	1	D2777.EN .01	DS22 Manual.

2.1 Z4013 DS22 Input panel (XLR) - Option

Pos.	Qty.	d&b Code	Description
[1]	1	Z4013	d&b DS22 Input panel (XLR).
Including:			
[2]	6	E7500.050.0 4	AES/EBU XLR cable 50 cm (1.6 ft).

Refer to: ⇒ Chapter 5 “Z4013 DS22 Input panel (XLR)” on page 13.

Operating conditions

Temperature range 0 °C ... 40 °C / 32 °F ... 104 °F
Storage temperature -20 °C ... 70 °C / -4 °F ... 158 °F
Humidity (rel.), long term average..... < 70%

Power supply

Mains connector powerCON®
Rated mains voltage 100 to 240 V, 50 - 60 Hz
Overvoltage protection Up to 400 VAC
Power consumption 13 W (max)

Audio inputs (break-in)

Digital inputs (D1/2 - D15/16) 3-pin XLR female
..... Up to 16 channels (8 x AES3)
Pin assignment 1 = GND, 2 = AES Signal, 3 = AES Signal
Input impedance 110 ohms
Sampling rate 32 - 192 kHz
Synchronization Sample Rate Converter (SRC)

Analog inputs (A1 - A4)

..... 3-pin XLR female
Pin assignment 1 = GND | 2 = pos. | 3 = neg.
Input impedance 32 kΩ, electronically balanced

Network

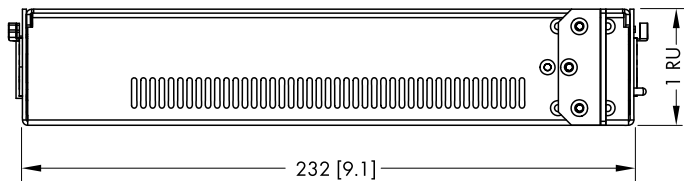
Connectors 5 x etherCON®
..... built-in 3-port PRI switch and 2-port SEC switch
..... 100/ 1000 Mbit/s
Device type..... Bridged End Station
Milan™ Talker Streams 2 streams each up to 8 channels @ 48/96 kHz
Network redundancy Yes (always)

Controls and indicators

IDENTIFY Push button
Milan™ Network indicators..... Magenta (PRI)/Cyan (SEC)
SUBSCRIBED (Rx subscription) LED indicator: Green
IDENTIFY/SYNC ERROR..... LED indicator: Red

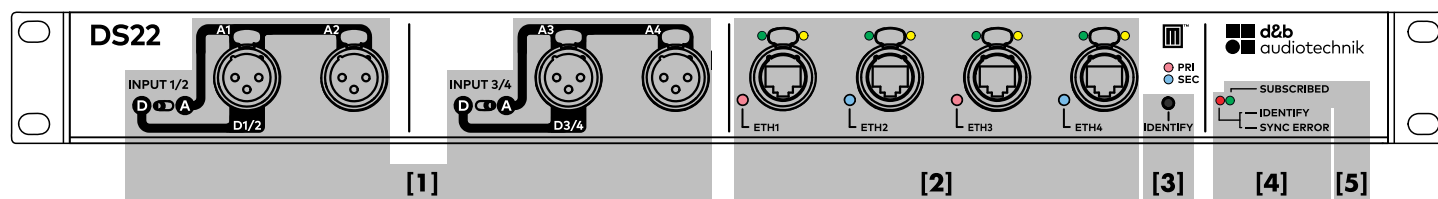
Dimensions and weight

Height x width x depth 1 RU x 19" x 232 mm
..... 1 RU x 19" x 9.1"
Weight 3.8 kg / 8.37 lb



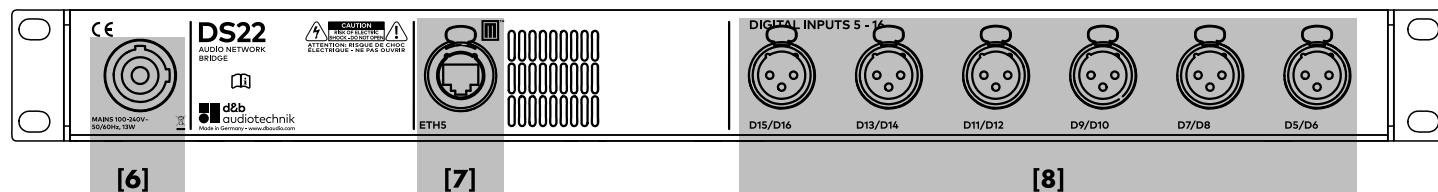
4.1 Overview

Front panel

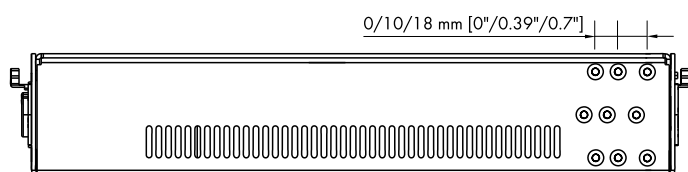
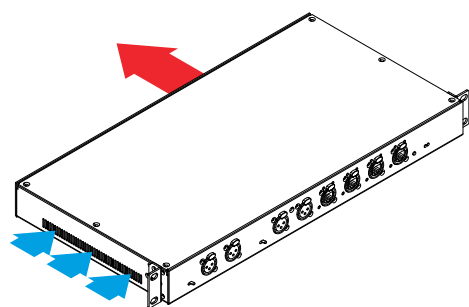
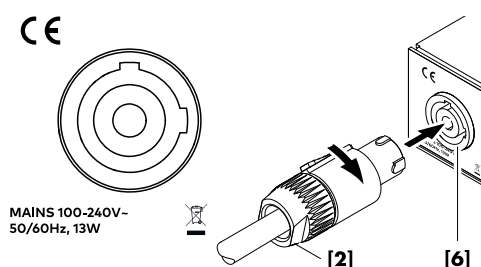


- | | | |
|---|---|---|
| <p>[1] INPUT 1/2 INPUT 3/4.
Refer to ⇒ Chapter 4.4.1 "INPUT 1/2 - INPUT 3/4" on page 10.</p> | <p>[2] etherCON® Milan™-AVB switch ports ETH1-ETH4 with dedicated LED indicators.
Refer to ⇒ Chapter 4.4.2 "ETH1 - ETH4" on page 10.</p> | <p>[3] IDENTIFY button.
Refer to ⇒ Chapter 4.4.3 "IDENTIFY push button" on page 11.</p> <p>[4] IDENTIFY/SYNC ERROR indicators.
Refer to ⇒ Chapter 4.4.4 "SUBSCRIBED/IDENTIFY/SYNC ERROR" on page 11.</p> <p>[5] SUBSCRIBED indicators.
Refer to ⇒ Chapter 4.4.4 "SUBSCRIBED/IDENTIFY/SYNC ERROR" on page 11.</p> |
|---|---|---|

Rear panel



- | | | |
|--|---|---|
| <p>[6] powerCON® Mains connector socket.
Refer to ⇒ Chapter 4.3 "Mains connection" on page 9.</p> | <p>[7] etherCON® AVB switch port ETH5.
Refer to ⇒ Chapter 4.5.1 "ETH5" on page 12.</p> | <p>[8] XLR female DIGITAL INPUTS 5 - 16 (AES3).
Refer to ⇒ Chapter 4.5.2 "DIGITAL INPUTS 5 - 16" on page 12.</p> |
|--|---|---|



4.2 Rack mounting and cooling

Rack mounting

The device is intended to be mounted into standard 19" racks or equipment cabinets.

For this purpose, the enclosure provides three different positions for the rack ears enabling different rack mounting options.

Cooling

Thermal conditions are a vital factor to ensure operational safety of the device. The DS22 is equipped with a fan that draws cool air from one side panel into the housing and channels the warm air towards the rear vents of the device.

- Please ensure that adequate cool airflow is provided.
- Do not block or cover the rear panel vents or the side panel air intake.
- If the DS22 is installed in sealed cabinets (e.g. in fixed installations), use additional fan modules with filters that can be easily replaced without opening the sealed cabinets.

4.3 Mains connection



WARNING!

Potential risk of electric shock or fire.

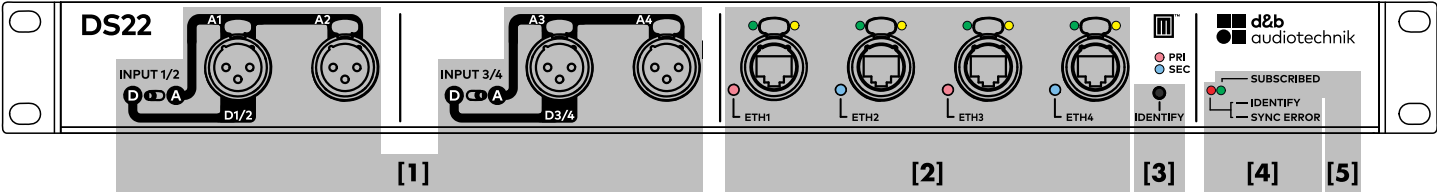
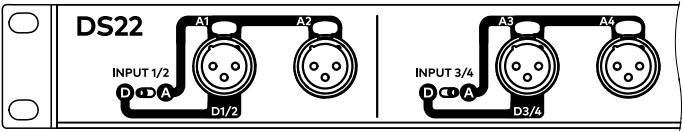
The device is a protective class 1 unit. A missing earth (ground) contact may cause dangerous voltages in the housing and controls and may lead to electric shock.

- Connect the device to mains power supplies with protective earth only.
- If there is any sign of obvious damage to the power cord and/or mains plug, do not use the power cord and replace it before further use.
- Please ensure the mains connector is accessible at any time to disconnect the device in case of malfunction or danger.
If the mains plug is not readily accessible due to mounting in a 19" rack or equipment cabinet, then the mains plug for the entire rack or cabinet must be readily accessible.
- Do not connect or disconnect the mains plug under load.

Before connecting the device to mains voltage, check that the mains voltage and frequency correspond to the specifications on the rating label above the mains connector socket on the rear panel of the unit.

A powerCON® mains connector socket [6] is fitted on the rear panel and an appropriate power cord [2] is supplied.

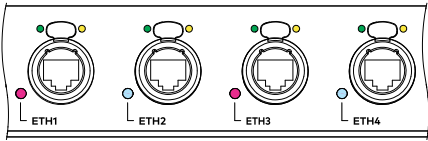
4.4 Front panel



4.4.1 INPUT 1/2 - INPUT 3/4

On the front panel, two XLR female connector socket pairs (INPUT 1/2 - INPUT 3/4) are provided for either digital (D1/2 - D3/4) or analog (A1/A2 - A3/A4) input signals. Each pair can be switched between digital (D) and analog (A) using the corresponding toggle switch. This allows either four AES3 channels or four analog signals or a combination of two AES3 channels and two analog signals to be fed to the device, respectively.

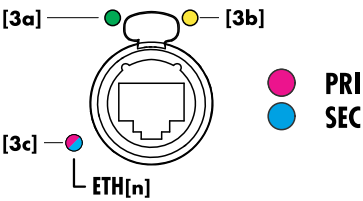
Note: Sample Rate Converters (SRC) are used internally on all digital (AES3) inputs.



4.4.2 ETH1 - ETH4

The DS22 provides a 5-port AVB switch. Four etherCON® connectors (ETH1 - ETH4) are provided on the front panel while a fifth port (ETH5) is provided on the rear panel. LEDs located beneath each port indicate the respective redundancy network (Primary or Secondary network).

Port	ETH1	ETH2	ETH3	ETH4	ETH5
Network	Primary	Secondary	Primary	Secondary	Primary



LED indicators

Each etherCON® connector provides the following LED indicators:

- [3a] Ethernet link/activity indicator (green).
- [3b] Ethernet Gigabit indicator (yellow).
- [3c] Switch port mode indicator (Bi-color-RGB-LED).

In addition, the switch mode indicator on each port flashes as soon as the device detects that at least one of the subscribed audio streams is not available on that port. This allows for faster troubleshooting in the network.

Example

For example, the switch mode indicators of the ports configured as Secondary will flash as soon as the secondary connection is interrupted. When the colors of the LED are alternating between the network's port color and yellow, a network storm is being detected (usually caused by network loops).



4.4.3 IDENTIFY push button

⇒ To identify a specific device on the network, push the IDENTIFY button briefly.

↳ This triggers the IDENTIFY feature and the device is highlighted in the Milan Manager or any other Controller software.



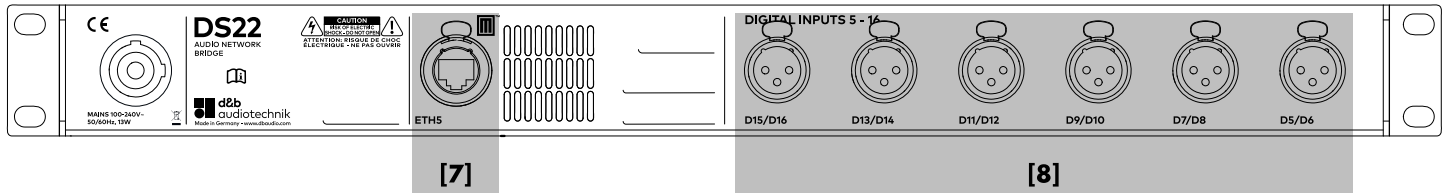
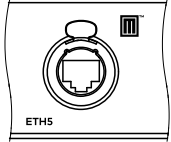
4.4.4 SUBSCRIBED/IDENTIFY/SYNC ERROR

SUBSCRIBED Illuminates green when the device is acting as a listener and has a configured audio stream subscription, or when the device is acting as a talker and has a configured clock reference or audio stream subscription.

IDENTIFY Flashes red for 10 seconds to support identifying a physical device when an «IDENTIFY» request was triggered in the Milan Manager or any other Controller software.

SYNC ERROR Illuminates red when the device cannot synchronize with the Milan™ network.

4.5 Rear panel

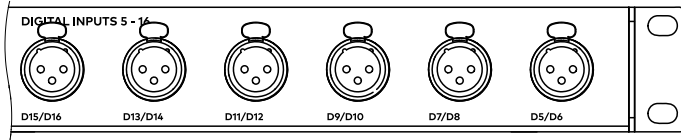


4.5.1 ETH5

A fifth etherCON® port is provided on the rear panel for the primary (PRI) network (Refer to ⇒ Chapter 4.4.2 "ETH1 - ETH4" on page 10).

4.5.2 DIGITAL INPUTS 5 - 16

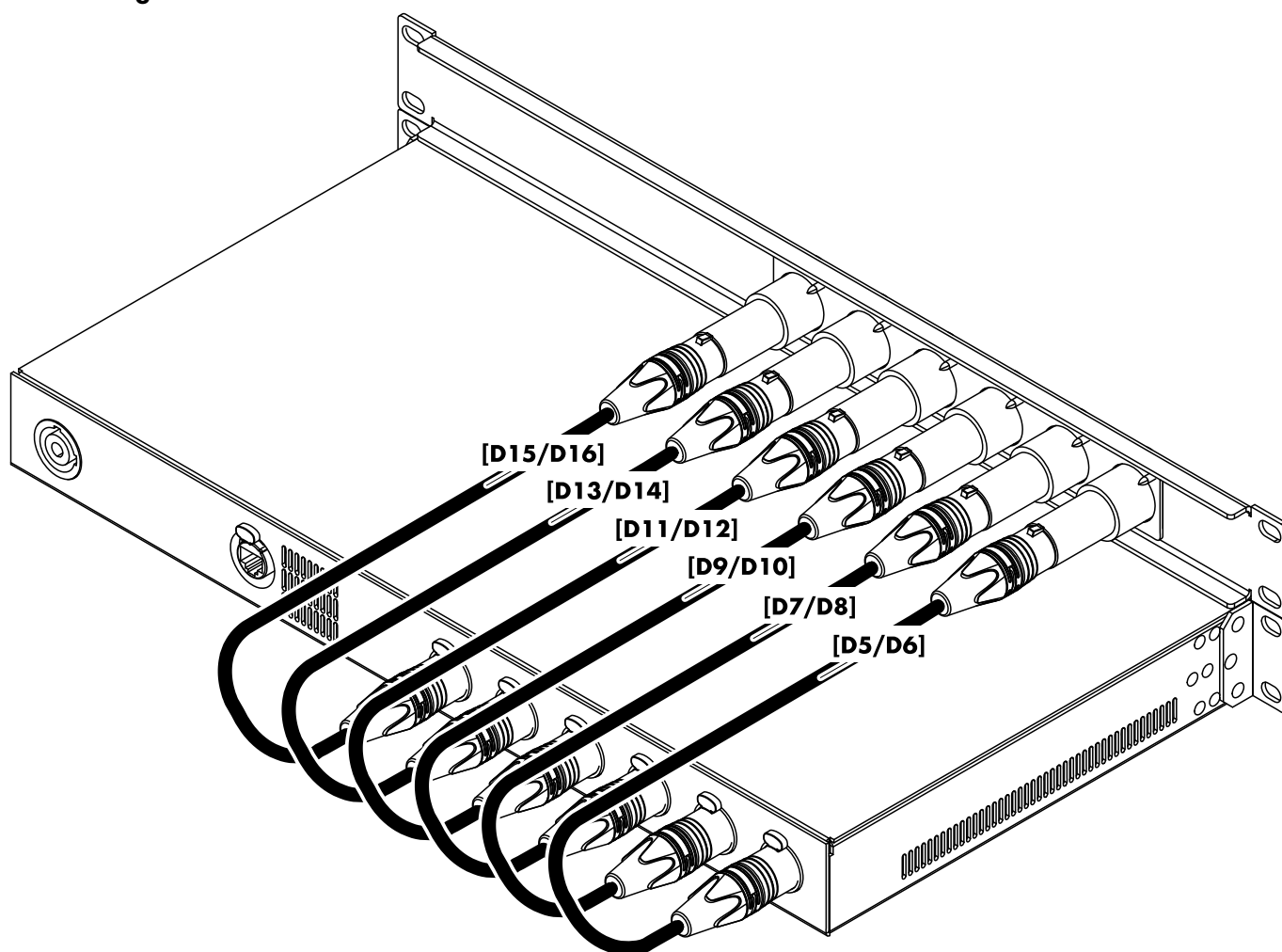
In addition, six digital input connectors (XLR female) are located on the rear panel providing another twelve digital AES3 channel inputs.



Intended use**NOTICE!**

The d&b Z4013 DS22 Input panel (XLR) must only be used in connection with the d&b Z4012 DS22 Milan™ Audio Network Bridge.

It is intended as a patch panel to allow front access to the rear digital inputs (DIGITAL INPUTS 5 - 16) of the DS22.

Rack wiring

6.1 DS22 Firmware update

NOTICE!

Only use firmware files provided by d&b. Using firmware files not provided by d&b can result in the DS22 becoming unusable.

Firmware update files are provided by d&b at www.dbaudio.com.

We recommend you to regularly check the related product page on the d&b website for the latest firmware version together with the update procedure instructions.



7.1 Declaration of Conformity

This declaration applies to:

d&b Z4012 DS22 Audio network bridge

by d&b audiotechnik GmbH & Co. KG.

All product variants are included, provided they correspond to the original technical version and have not been subject to any later design or electromechanical modifications.

We herewith declare that said products are in conformity with the provisions of the respective directives including all applicable amendments.

Detailed and applicable declarations are available on request and can be ordered from d&b or downloaded from the d&b website at www.dbaudio.com.



7.2 WEEE Declaration (Disposal)

Electrical and electronic equipment must be disposed of separately from normal waste at the end of its operational lifetime.

Please dispose of this product according to the respective national regulations or contractual agreements. If there are any further questions concerning the disposal of this product, please contact d&b audiotechnik.

WEEE-Reg.-Nr. DE: 13421928

7.3 Licenses and patents

This device uses a number of third-party libraries to provide certain features. These libraries are supplied along with the firmware of this device.

The licenses and patents information are provided in a separate document which can be downloaded from the related product page on the d&b website at www.dbaudio.com.



7.4 Certifications

Avnu DS22 certification

Certification ID: 317

Date Certified: 2024-04-12

Supported Segments: Milan™

Product Classes: End Station

Product Type: Input Interface

