d:24

owner's manual

sonible

TABLE OF CONTENTS

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1   IMPORTANT SAFETY INSTRUCTIONS

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

WARNING: To reduce the risk of fire or electrical shock, do not expose this appliance to rain or moisture.

AVIS: Risqué De Choc Electrique – Ne Pas Ouvrir

CAUTION: To reduce the risk of electrical shock, grounding of the centre pin of the power plug must be maintained.

This equipment conforms to the requirements of the EMC Directive 2004/108/EC and the requirements of the Low Voltage Directive 2006/95/EC. Standards applied: EMC Emission EN55103-1, E3 EMC Immunity EN55103-2, E3, with S/N below 1% at normal operation level. Electrical Safety EN60065, Class I

FOR RECYCLING INFORMATION VISIT:

www.sonible.com

The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of suffcient 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 maintance (servicing) instructions in the literature accompanying the appliance.

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 a dry cloth.

7. Do not cover any ventilation openings. Install in accordance with the manufacturer's instructions.

8. Do not install near 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 the 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, 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 a long period 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 orbjects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

15. Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the equipment.

16. To completely disconnect this equipment from the AC Mains, disconnect the power supply cord plug from the AC receptacle.

17. The mains plug of the power supply cord shall remain readily operable.

18. No naked flame sources, such as lighted candles, should be placed on the apparatus.

19. The product should be connected to a mains socket outlet with a protective earthing connection.

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1.1   Important Service Instructions

CAUTION: These servicing instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any other servicing than that contained in the owner's manual unless you are qualified to do so. Refer all servicing to qualified service personnel.

1. Security regulations as stated in the EN 60065 (VDE 0860 / IEC 65) and the CSA E65 - 94 have to be obeyed when servicing the appliance.

2. Use of a mains separator transformer is mandatory during maintenance while the appliance is opened, needs to be operated and is connected to the mains.

3. Switch off the power before retrofitting any extensions, changing the mains voltage or the output voltage.

4. The minimum distance between parts carrying mains voltage and any accessible metal piece (metal enclosure), respectively between the mains poles has to be 3mm and needs to be minded at all times. The minimum distance between parts carrying mains voltage and any switches or breakers that are not connected to the mains (secondary parts) has to be 6 mm and needs to be minded at all times.

5. Replacing special components that are marked in the circuit diagram using the security symbol (Note) is only permissible when using original parts.

6. Altering the circuitry without prior consent or advice is not legitimate.

7. Any work security regulations that are applicable at the locations where the appliance is being serviced have to be strictly obeyed. This applies also to any regulations about the work place itself.

8. All instructions concerning the handling of MOS-circuits have to be observed.

SAFETY COMPONENT
(MUST BE REPLACED BY ORIGINAL PART)

1.2 WEEE Recycling / Disposal Instructions

The Wheelie Bin symbol found on the product or in the manual indicates that this product must not be disposed of with other waste. It is in our category the manufacturer's responsibility to properly dispose of their waste electrical and electronic equipment (WEEE) at the end of its life. Due to the differences in each EU country's management of WEEE, please contact your local distributor. We are committed to facilitate our own electronic-waste-management-system, for the free of charge return of all sonible OG products. Arrangements are made with the dealer where you purchased the equipment from, for the returning of all unusable equipment at no cost, to the factory in Graz, for environmental protective disposal. Due to line current harmonics, we recommend that you contact your supply authority before connection.

2   INTRODUCTION

Thank you for choosing sonible d:24 for your sound reinforcement system installation.

The sonible d:24 is a no compromise 24 channel power amplifier for high-end multichannel setups. With its clear focus on professional interfacing, audio quality and minimum packing density, the d:24 offers high flexibility in different application scenarios.
Whether you are planning to use the d:24 in a fixed installation setup, for acoustical measurements or during live concerts, we built the amp for durability, reliability and compatibility. We are confident that you will be pleased with the benefits and overall quality of this innovative and versatile amp.

This manual will guide you through the features and functionalities of the multichannel amp. Please read this manual carefully to become fully acquainted with the configuration options and control layers of the amp.

Please feel free to contact us and send any questions, comments and suggestions to **support@sonible.com**.

We are looking forward to hearing from you!

2.1 Main Features

The d:24 provides a number of features and technologies that offer you maximum flexibility to realize sophisticated projects in sound reinforcement.

compactness
Using high grade class D amplifying technology and very efficient switch mode power supplies, the d:24 provides you a unique packing density. With 24 mid-range amplification channels packed in a 3RU housing, optional digital inputs and with a weight of less than 20kg, the d:24 is the clear technological leader in the market.

user interface
The d:24 can conveniently be configured and monitored via a 7" touch display.

remote
When connected to a LAN, the d:24 can be remote controlled via an interactive web application.

protection
The d:24 incorporates several security precautions.
- DC error, over current and over voltage protection at the speaker outputs to avoid damage of speakers and amplifiers
- low inrush circuitry for soft startup of the system (this ensures that the main fuse does not trip if one or more power amplifiers are switched on simultaneously)
- dedicated hardware panic mute connection

options
The analog d:24 main frame can optionally be equipped with a MADI in/output card called "mio" or a DANTE® network in/output card called "dio".

2.2 Unpacking and Inspection

Carefully open the packing and take out the power amplifier. Inspect the power amp's enclosure for damages that might have happened during transportation. Each amplifier is examined and tested in detail before leaving the manufacturing site to ensure that it arrives in perfect condition at your place. Please inform the transport company immediately, if the power amplifier shows any damage. Being the addressee, you are the only person who can claim damages in transit. Keep the cardboard box and all packing materials for inspection by the transport company.

Keeping the cardboard box including all packing materials is also recommended, if the power amplifier shows no external damages. When shipping the power amp, make sure to always use its original box and packing materials. Packing the power amplifier like it was packed by the manufacturer guarantees optimum protection from transport damage.

⚠️ **Please do not ship the power amp in any other but its original packing!**

2.3 Scope of Delivery

The following items are part of the package:
- 1 quick start guide
- 1 power amplifier d:24
- 1 mains cord (CEE 7/7 to Neutrik® powerCON)
- 2 rack-mount ears for rear mounting
- 1 screw set for rear rack-mount ears

Optional items
- 1 MADI input section (optional in "mio"-configuration)
- 1 DANTE® input section (optional in "dio"-configuration)
- 1 panic mute cascading module
  (for connecting more than one d:24 to one panic mute switch)

Not included items are e.g.:
- signal cables (DSub25 cables)
- speaker cables and connections
- panic mute switch
- rack mounting screws and nuts

Additional cabling and connection material can be purchased from our local distributor **http://www.synthax.de**. For personal support please send an e-mail to **support@sonible.com**.

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2.4   Responsibility of the User

Operating Voltage

The power amplifier receives its power supply via the MAINS IN connector, which is provided as a Neutrik® PowerCon connector. During installation, always separate the power amplifier from the mains. Connect the power amplifier only to a mains network, which corresponds to the requirements.

The d:24 supports only the use on mains networks with 230V / 50Hz up to now.

The d:24 comes with a PCE CEE7/4 mains plug. If you have to change the main plug for any reason and if you are not 100% confident of your competence to replace the mains plug, engage qualified personnel to do that job.

Grounding

Your amplifier must be connected to a grounded socket outlet!
Use balanced input connections and cabling to avoid hum and interference noise.

Dangers at the Loudspeaker Outputs

The d:24 amplifier is capable of producing dangerously high voltage output that is present at the output connectors. To protect yourself from electric shock, do not touch any blank speaker cables during operation of the power amp.

The external wiring connected to the speaker terminals shall be installed by a qualified instructed person or ready-made leads or cords of appropriate capacity shall be used.

As the amplifier outputs produce high voltage, do not connect or disconnect speaker cables when the mains power is on. Also, attach the safety cover on the speaker terminals for safe operation and to comply with electrical product approvals.

⚠️ **The PowerCon is a connector without breaking capacity,
i.e. the PowerCon must not be connected or disconnected under load or live.**

Speaker System Damage

The d:24 power amps provide high power output that might be dangerous for human beings as well as for the connected speaker systems. High output voltages can damage or even destroy the connected speaker systems, especially, when the d:24 amplifier outputs are bridged by the user. Prior to connecting any loudspeakers, make sure to check the speaker system's specifications for continuous and peak power handling capacities.

Maintenance

For safe and reliable operation, the dust filter of the front panel, behind the grilles, should be removed and cleaned regularly to ensure maximum airflow through the device.

If the dust filter is not maintained there will be safety risks. There is also a risk that the unit will malfunction since it is dependent on constant airflow from front to rear. If the dust filters are not clean and the unit malfunctions, any resultant problems will not be covered by the warranty.

⚠️ **If the amplifier malfunctions due to dirty dust-filters, any required repairs or resultant drop out costs are not covered by the warranty.**

3 INSTALLATION & COMMON CAVEATS

Although we kept the use of the d:24 as simple and intuitive as possible, there are a few things we consider to be important enough to be mentioned in this manual.

3.1 Mounting

The amplifier is three rack units (3RU) high and fits into a standard EIA 19" rack. The depth of the amplifier is 451mm (17,7"). The weight of the analog version is approximately 18kg (39,6lb).

To avoid mechanical stress, it is recommended to use the provided rear rack-mount ears. To install the rear rack-mount ears, please remove the four M3 TX10 screws on each side of the amp and attach the ears with the delivered M3 TX10 pan head screws as depicted. After adjusting the desired installation depth, fix the screws and mount the amp in the rack.
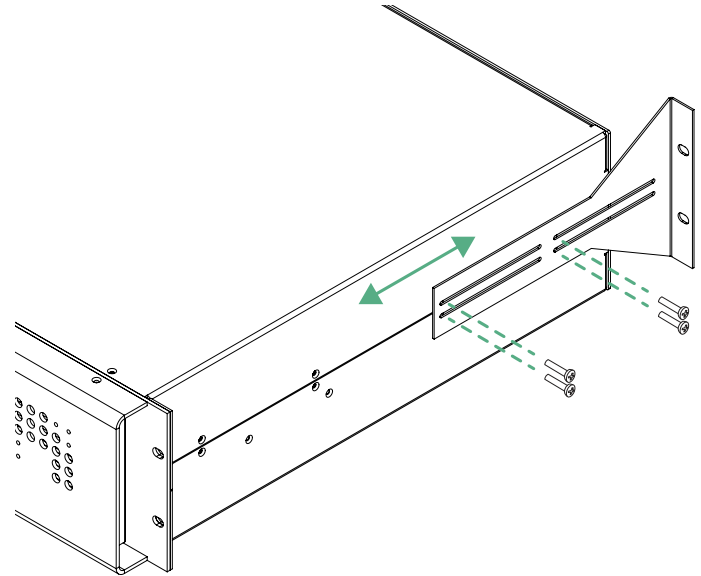
3.2   Air flow and thermal management

The d:24 is a powerful amplifier. Due to the idle loss and the heat arising under heavy working conditions, it is necessary to cool the circuits adequately. Therefore, the amp is equipped with three fans with an air flow direction "front-to-rear".

For adequate cooling, it is mandatory to ensure an unrestricted air-flow of the cooling system. When installing the amplifier in a rack, it is important that fresh/cool air can enter the front panel of the amplifier and warm air can be exhausted from the rear.
(*NOTE*: Never attempt to reverse the airflow in any case!)
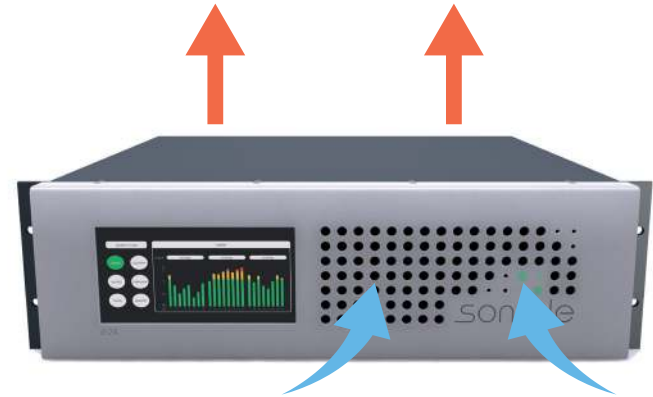
⚠ **Never block the ventilation louvers of the d:24! Without sufficient cooling, the amplifier will automatically enter a protection mode and shut down the power supply for the amplifier modules.**

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We strongly recommend to leave some space (e.g. 1RU) above and below each amplifier in the rack.

> ⚠️ **Don't place the d:24 near to heat sources, like blowers, stoves or any other heat radiating devices. We also highly recommend not to place the d:24 directly above or under other devices in racks!**

Should an amp module exceed the operating temperature, the temperature sensing circuits will mute the overheated channels. As soon as the affected amp module was cooled down to regular operating temperature, it will be activated again.

Should an overheating of a power supply exceed the operating temperature, the temperature sensing circuits will shut down the overheated power supply. The amp modules operated by the affected power supply (group of six consecutive channels) will be shut down as well. As soon as the affected power supply was cooled down to regular operating temperature, it will be activated again.

If the amplifier was not maintained correctly, all necessary repairs and consequential costs will not be covered by the warranty.

3.3　Protection Circuitries

Over Current protection
To avoid the damage of the amplifier due to short circuit, the output current is limited to 15A per amplifier channel.

DC Error protection
In case of a dc error at the amplifier outputs, the power supply of the affected amp is being shut down immediately for security reasons.
Due to the fact, that each group of six amplifier channels are supplied by one power supply, the amplifier channels associated to the same power supply are shut down too!

Over Temperature protection
If one amplifier module is heating up to 90°C at its heatsink for any reason, the over temperature circuitry shuts down the amplifier module until a normal working temperature is reached again.
To avoid thermal shut down, ensure enough airflow and ventilation as described in the last section.
The thermal shutdown is carried out individually for each amplifier channel.

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4 OVERVIEW

4.1 Front panel
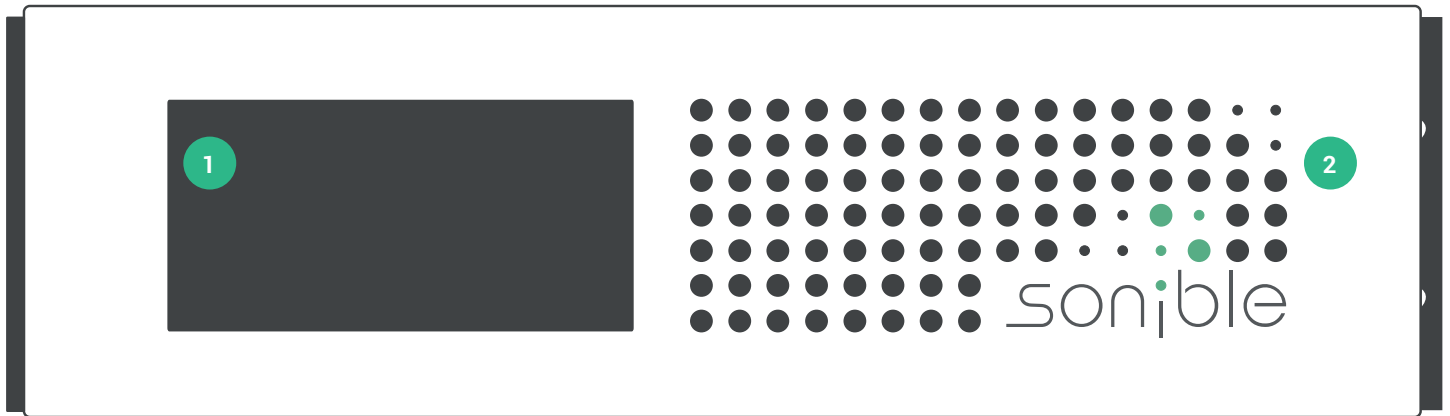
1 **Touch panel**
The amp can be configured using a 7" touch display on the front panel. Besides, the display provides detailed status information (e.g. temperatures, fan speeds) as well as network configuration settings and real time level metering. A detailed description of the graphical user interface of the d:24 can be found in the section *control surface*.

2 **Dust filter**
The dust filter is located behind the front panel. To clean the dust filter, the panel can be removed by unscrewing eight M3 TX10 screws on the top and the bottom of the panel.

If you want to completely replace the filter, you additionally have to remove the display by unfastening the four M3 TX10 screws. Please be very careful with FPC cable when removing the display!
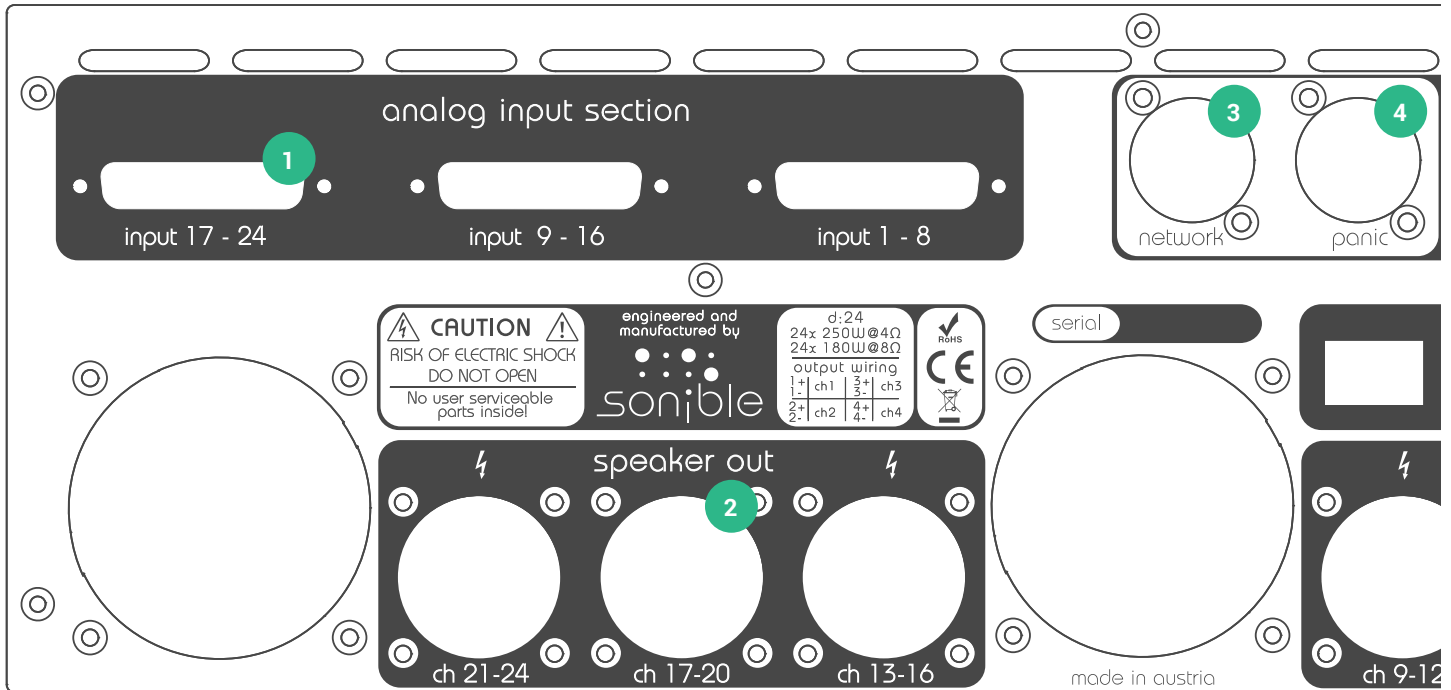
If you want to replace the dust filter, please use original filter sets provided by the local distributor or by sonible.

Feel free to contact us by email: **support@sonible.com**.

> ⚠️ **If you want to replace the dust filter, only use original filter sets which are provided by the local distributor or sonible itself.**

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4.2   Rear panel

analog input section

1

input 17 - 24   input 9 - 16   input 1 - 8

3 network   **4** panic

⚠ **CAUTION** ⚠
RISK OF ELECTRIC SHOCK
DO NOT OPEN

No user serviceable
parts inside!

engineered and
manufactured by

son|ble

d:24
24x 250W@4Ω
24x 180W@8Ω

RoHS ✓

output wiring
1+	ch1	3+	ch3
1-		3-	
2+	ch2	4+	ch4
2-		4-	

CE

serial

⚡ **speaker out** ⚡

2

ch 21-24   ch 17-20   ch 13-16

made in austria

⚡

ch 9-12

son|ble

1 **Analog input section (DSub25 – Tascam® pinout)**
The d:24 has 24 inputs in the form of three standard DSub25 sockets (eight channels each). The pinout is configured in Tascam® standard configuration for analog connections.

2 **Speaker out (Neutrik®speakON NL8)**
The d:24 provides six Neutrik® speakON NL8 connectors for the amplified speaker outputs with four channels each. The pinout of Neutrik® speakON NL8 connectors is assembled in Neutrik® standard configuration.

3 **Network connection (Neutrik® etherCON)**
Using a CAT5 cable (or better), the d:24 can be integrated into any TCP/IP network for remote control. The remote control interface provides amp health parameters, routing possibilities, level metering of input channels, channel mutes and other functionalities (partially only available with a digital input option).
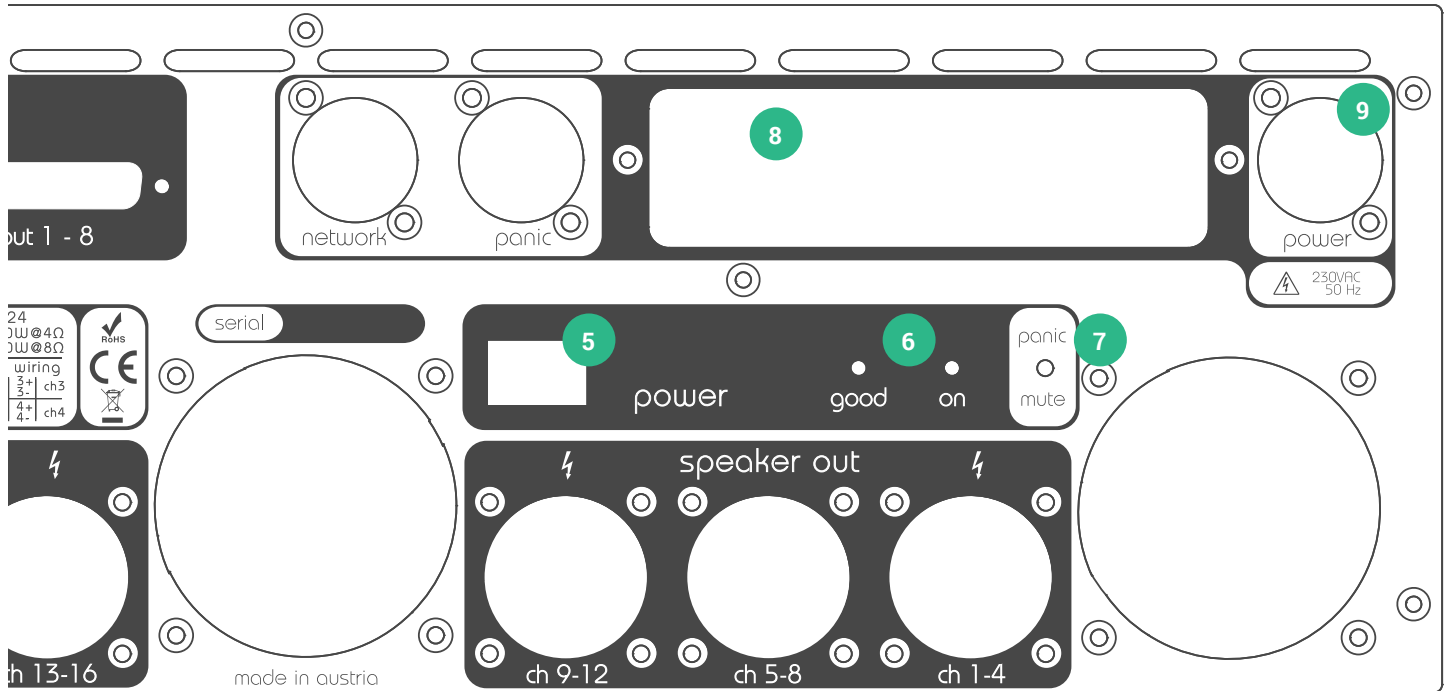
4 **Panic switch connector (lockable ¼″ Jack)**
Operation:
1. closed circuit: normal operation
2. open circuit: panic mute active
   (all amp channels are hard muted)

⚠ **When no plug is inserted in the panic mute terminal the circuit is closed internally.
Never apply a voltage to the connector!**

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out 1 - 8

network   panic

8

9

power

⚠ 230VAC
50 Hz

:24
)W@4Ω
)W@8Ω

wiring
3.+ ch3
3.-
4.+ ch4
4.-

RoHS

CE

serial

5

power

6

good   on

7

panic
mute

⚡
ch 13-16

made in austria

⚡
speaker out ⚡

⚡
ch 9-12   ch 5-8   ch 1-4

5 **Power switch**
When pressing the power switch, the controller boots up and the amplification circuits are activated. Independent to the status of the control surface (the display), the amp modules are active until the amp is switched off again.

6 **Status LEDs "good" and "on"**
Power "good" turns green when the amp is connected to a power supply (even if the amp is turned off).
Power "on" turns green when the amp is switched on and the amplification circuits are active.

7 **Panic Mute Status LED**
The panic mute LED flashes red when the panic mute is active and all amplifier outputs are muted. It does not distinguish if the mute has been triggered by the hardware panic button or by the software.

8 **Digital input option slot**
Optionally, the d:24 can be equipped with a MADI ("mio") DANTE® ("dio") input card. The installation of the input card has to be performed by an authorized service provider or by sonible. Please contact your local distributor or sonible (**support@sonible.com**) fur further information.

9 **Power connector (Neutrik® powerCON)**
The maximum current consumption of the amp is 20A. Therefore, only the original cable shipped with the amp (2,5mm^2, H07RN or equal quality) should be used.

(115V/60Hz mains voltage is currently not supported)

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5 CONTROL SURFACE

1 **Main menu**
The following 6 tabs of the main menu are always visible in the touch display: meter, system, audio, network, tools and stealth. The active tab is highlighted in green.

2 **Content window**
This window changes according to the active tab. The name of the tab is shown at the top of the window.
(The most important functions of each tab are explained in the next section.)

3 **Global mute**
Independent of the chosen tab, you can always access the global "software mute" button to immediately mute all amplifier outputs. If global mute is activated, the button changes its background to red and the meters are grayed out.
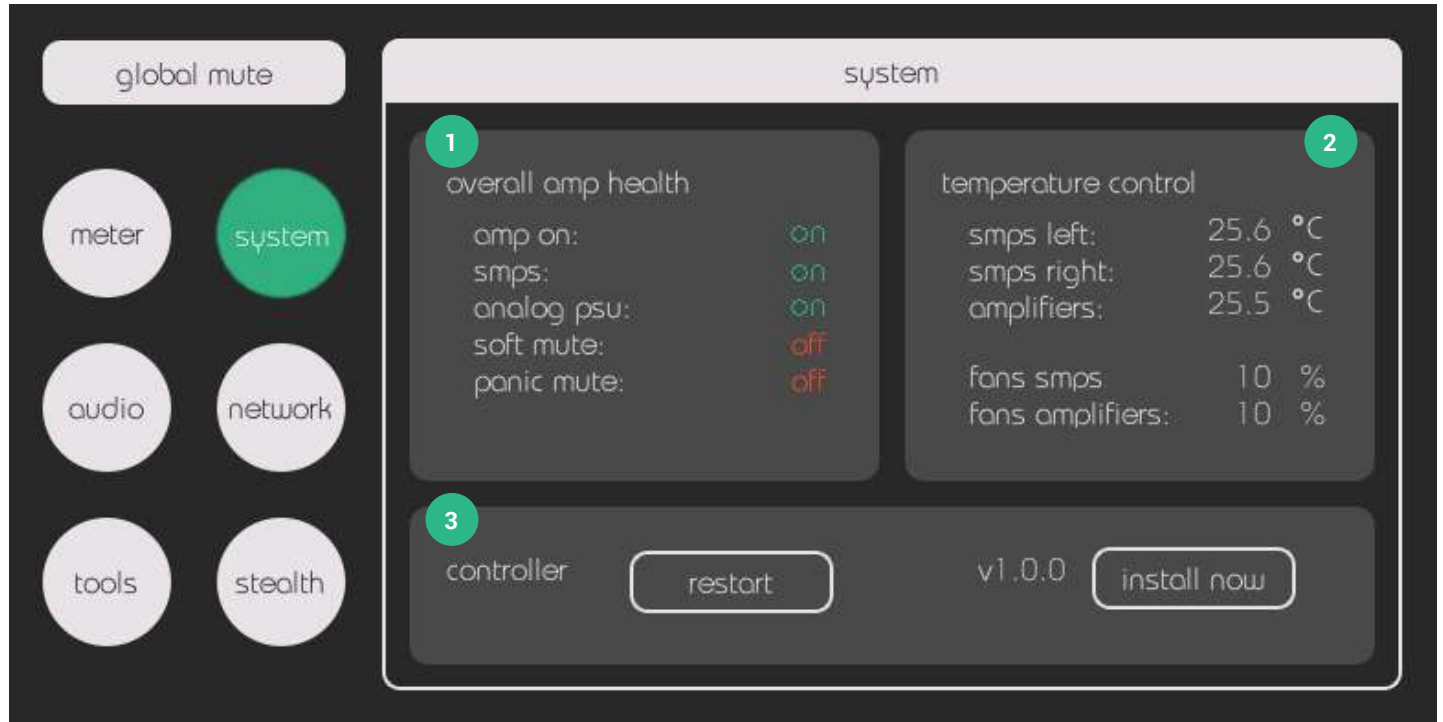
5.1   Meter screen

The start view of the d:24 graphical user interface is the meter screen. There are 24 level meters shown in three groups of eight. If digital input is supported, the buttons above the meters provide to choose analog or digital input for each group.

The channel numbes are depicted below the depending meters. The colors orange and red of the meters are indicating the -6dB to -3dB and -3dB to 0dB level ranges respectively before clipping of the outputs.

⚠ **The „audio" and „tools" screens are only available with eighther „mio" or „dio" input option.**

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5.2   System Screen

global mute

meter | system

audio | network

tools | stealth

system

1

overall amp health

amp on:	on
smps:	on
analog psu:	on
soft mute:	off
panic mute:	off

2

temperature control

smps left:	25.6 °C
smps right:	25.6 °C
amplifiers:	25.5 °C
fans smps	10 %
fans amplifiers:	10 %

3

controller   restart   v1.0.0   install now

The system screen shows the status information for the power supplies and the panic bus as well as temperatures and fan speeds.

The bottom section offers an option to update the firmware and to restart the control surface (e.g. if an unexpected problem occurs).

1 **Overall amp health**
- amp on: state of the main power switch
- smps: state of the four main smps
- analog psu: state of the input buffer psu
- soft mute: When the *global mute* was activated by the touch interface or the remote control, this variable is set to „on".
- panic mute: global mute was activated by either hardware (panic switch) or software (global mute button in touch interface)

2 **Temperature control**
- smps left: temperature of the smps left in °C
- smps right: temperature of the smps right in °C
- amplifiers: temperature of the power amplifiers °C
- fans smps: speed of the smps fans in percentage of maximum fan speed
- fan amplifiers: speed of the amplifier fan in percentage of maximum fan speed

3 **Controller**

update / install now
If the amp is connected to the internet, its firmware can be updated by clicking *update* (only active if a new firmware version is available). After the new firmware has been downloaded, the button will change its text to *install now*. Re-click the button to start the firmware update. After installation, the control surface reboots.

NOTE: Never unplug the amplifier during the update process!

restart
By clicking *restart*, the control surface can be reinitialized. Please note, that all audio functions remain active during initialization.

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5.3 Network screen
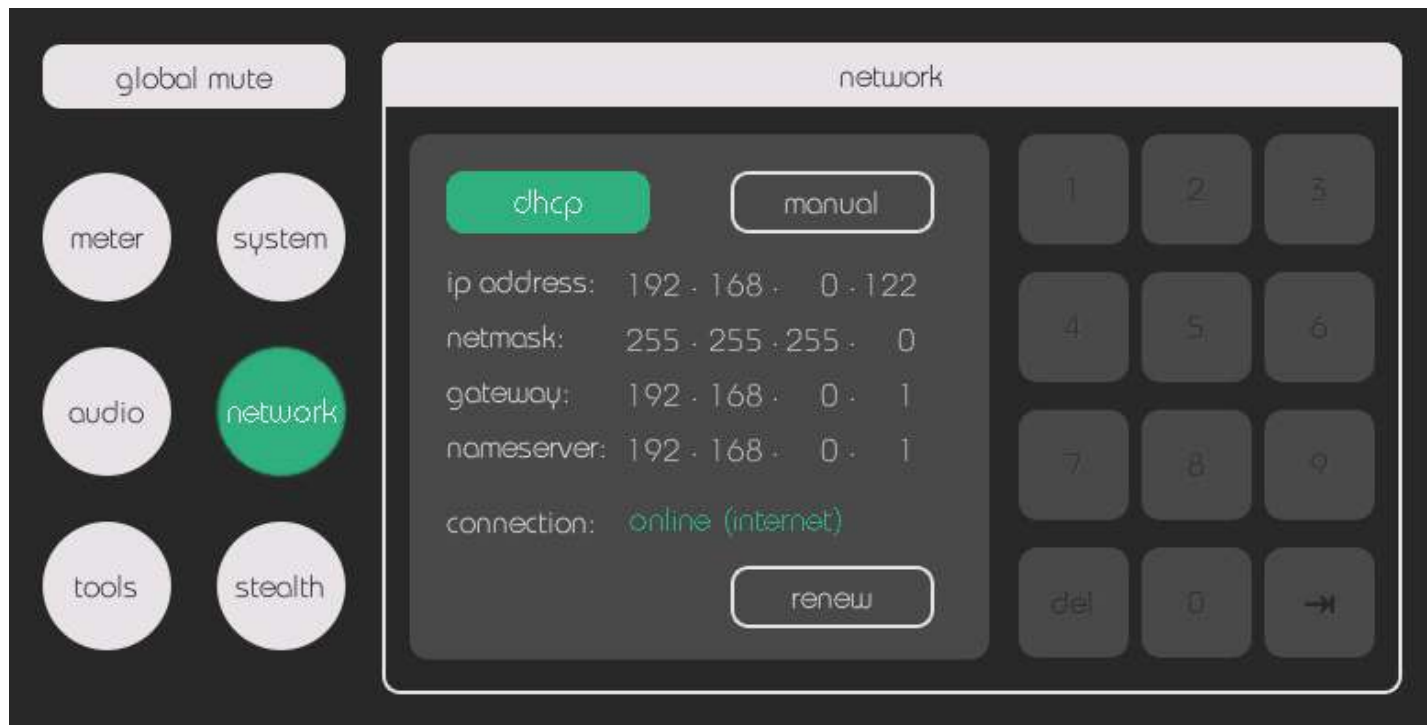
To integrate the d:24 in a network, the network interface has to be configured. You are able to configure the amp by two different modes: *DHCP* and *manual* mode.

The connection status is indicated by *connection* (status):

- *online (internet):*
  a valid internet connection is established
- *online (intranet):*
  only a private LAN connection is established
- *offline:*
  no LAN connection at all (please check if the ethernet cable is plugged in correctly)
- *checking:*
  this state is shown when the controller tries to apply the network configuration

Currently, we only support IPv4.

dhcp mode
In *DHCP* mode, all settings are automatically configured by a connected DHCP server.
By using the *renew* button, the DHCP lease is renewed.

⚠️ **The ip address is the necessary information to access the remote control from your browser (see chapter 7 „remote control").**
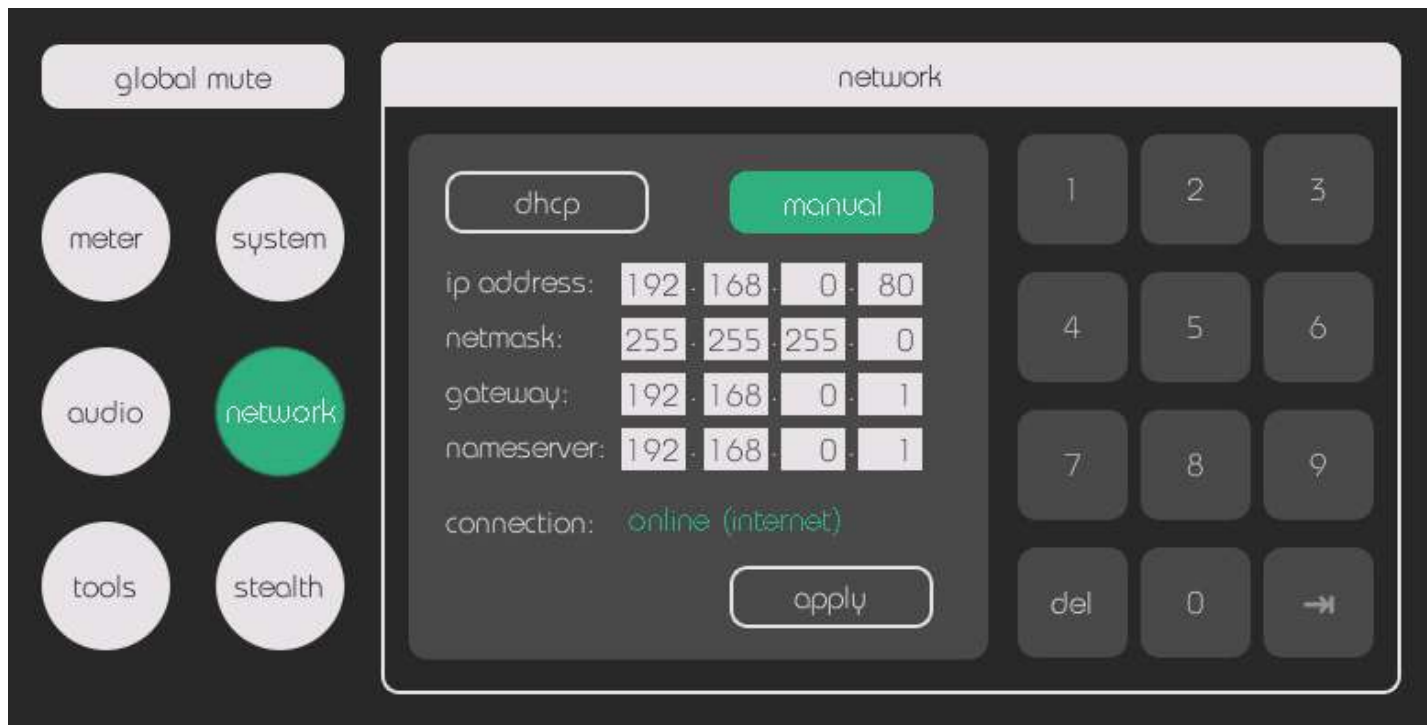
manual mode

In the **manual** mode, all network configuration data has to be entered manually using the number field on right hand side.

To edit the configuration, simply touch the white text box of your interest and type in the new numbers, which will overwrite the existing ones.
Beside the numbers 0-9 the pad also contains a "del" option on the bottom left which will delete the current text box or the previous one if the current text box is empty.
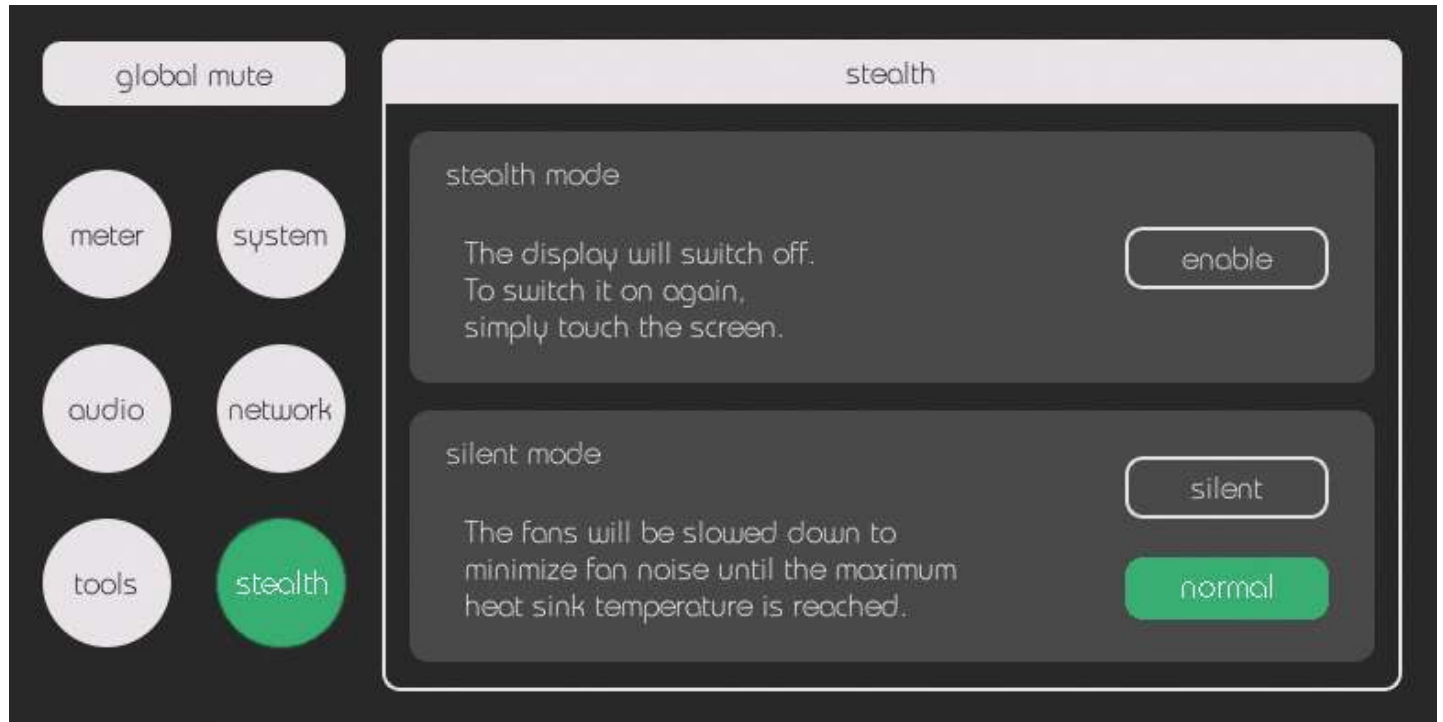On the bottom right of the number pad is a tab button which will jump to the next text box. Thus, you can navigate through the text boxes by touch focus or the tab button.

Pressing the **apply** button placed below the connection state, the d:24 will try to apply your configuration. During this request the button will change its color to yellow. As soon as the request was successful, your configuration is applied, the apply button is grey again and the new connection state is shown.
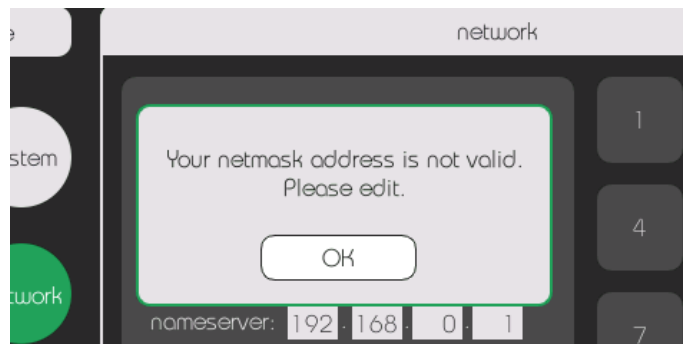
If your entered configuration is wrong, a pop-up will appear with further information.

5.4 Stealth Screen

global mute

meter   system

audio   network

tools   stealth

stealth

stealth mode

The display will switch off.
To switch it on again,
simply touch the screen.

enable

silent mode

The fans will be slowed down to
minimize fan noise until the maximum
heat sink temperature is reached.

silent

normal

The **stealth** screen contains two main features: **stealth** and **silent** mode.

stealth

In case you work in a dark area where the display light would disturb the environment, the **stealth** *mode* helps you out. Clicking the **enable** button on the right, the display will be switched off. The display is switched on again by re-touching the display (at any point).

silent

In **silent** *mode*, the fans slow down to a minimum ventilation noise. When the amp becomes heated up to a maximum temperature, the fans are accelerated again to cool the circuits down to normal working conditions.

Activate the **silent** *mode* by pressing the **silent** button and reset it by pressing the **normal** button.

⚠️ **The silent mode should only be activated if really necessary, e.g. a very silent environment or measurement issues.**

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6 REMOTE CONTROL

d24 - Remote Control Software

1 · 0 dB · -3 dB · -6 dB · -12 dB

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

3 · global mute · stealth mode · silent mode

audio · tools · system

2 · This feature requires the d24:mio option.

4 · overall amp health

amp on	on
smps	on
analog psu	on
soft mute	off
panic mute	off

temperature control

smps left	27.6 °C
smps right	27.5 °C
amplifiers	27.3 °C

fan speeds

fans smps	10 %
fan amplifiers	10 %

1 **Meter window**

The meter window continuously displays the levels of all amplification channels (in sync with the control surface of the amp).

2 **Content window**

The tabs *audio* and *tools* are only available when using one of the digital input options (MADI or DANTE®).

3 **Operation modes**

This window provides easy access to the three functions: *global mute*, *stealth* mode and *silent* mode.

4 **System information**

This window corresponds to the system screen of the touch control interface (see chapter 5.2 „system screen").

6.1 Establishing a connection

If the amp has a valid network connection, it is possible to control it via a remote control web interface.

The interface can be accessed from any device connected to the same network, by typing the IP address of the amp (as listed on the *network* screen) into the address bar of a web browser.

(*NOTE*: The browser has to support HTML5, e.g. Internet Explorer 10, Firefox 4, Safari 5.1)

6.2 Connection problems

If no connection to the amp is available, an overlay will appear showing that the remote control is waiting for a valid connection.


6.3 Remote control of two ore more d:24

If you want to remotely control more than one d:24, you simply have to open multiple tabs in your browser and enter the respective IP addresses of all amps. Please note, that each amp needs a unique IP address (this is ensured in DHCP mode).
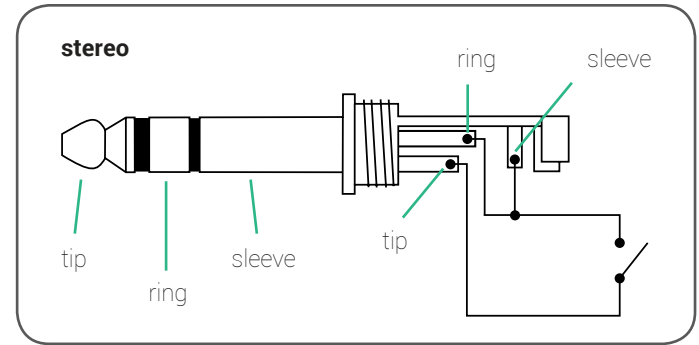
7   PANIC MUTE SWITCH

The d:24 provides a lockable ¼" Jack connector at the back of the amp for a dedicated panic mute switch. The wiring of the switch is outlined below.
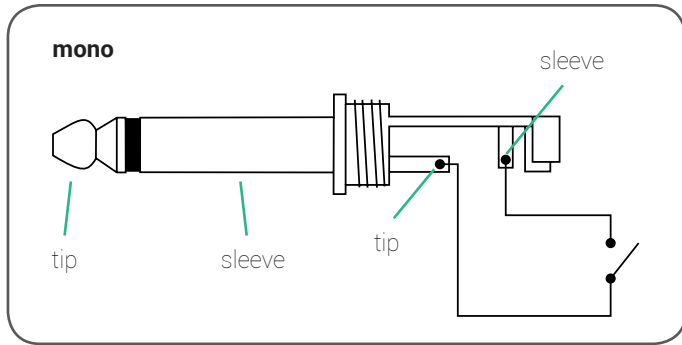
Using a mono Jack plug
A connection between sleeve and ring informs the internal detection circuit about the presence of a connector in the socket. Since mono plugs are already configured this way, you only have to connect both pins to the panic switch.

Using a stereo Jack plug
When using a stereo plug, the two respective pins (sleeve and ring) have to be connected manually. Afterwards, simply connect the two remaining pins to the panic switch.

⚠️ **In order to operate multiple panic mute switches, connect them in series.**

If you want to connect multiple d:24 amplifiers to one panic mute switch, you have to use a panic switch cascading module of sonible. Contact the local distributor or sonible for further information.

⚠️ **Do not connect multiple panic mute sockets without using a cascading module!**
It will destroy the panic mute logic and eliminate the possibility to mute all amp channels using a panic switch.

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8 PINOUTS OF CONNECTORS

8.1 DSub25

The three DSub25 connectors (analog inputs) are patched in Tascam® standard pinout, as depicted in the following illustration.

DSub-25 pinout for analog inputs
Tascam® standard

| g c h | g c h | g c h | g c h | g c h | g c h | g c h | g c h |
| ch 1 | ch 2 | ch 3 | ch 4 | ch 5 | ch 6 | ch 7 | ch 8 |
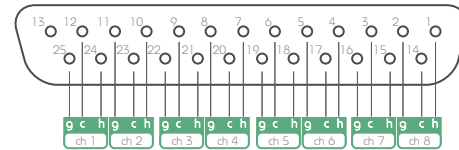
g = ground | c = cold | h = hot

8.2 speakON NL8

The d:24 is equipped with six Neutrik® NL8 connectors for the power outs (four amplified channels each). The patching of the connectors is specified as shown in the following picture for the channels 1 and 3 (channels 2 and 4 are patched identically).
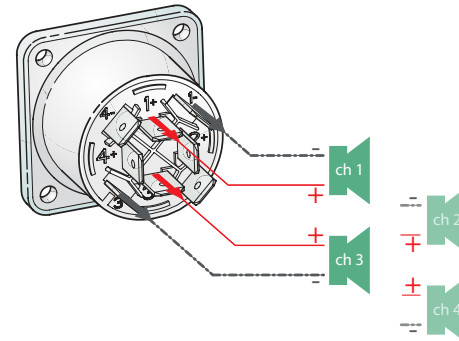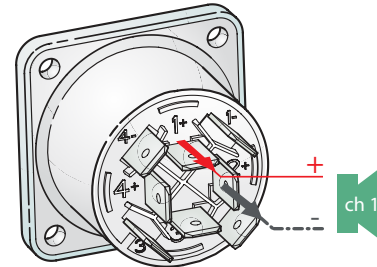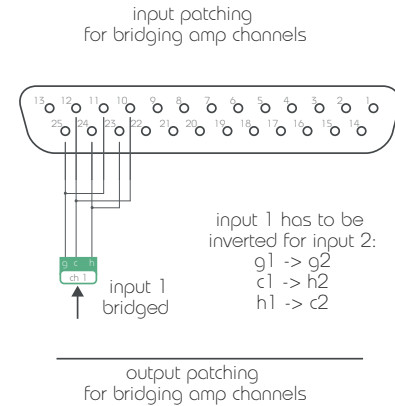
8.3   Bridging

It is possible to bridge adjacent channels in pairs of two. The main benefit of bridging is a doubling of output voltage.

1) When using bridged mode, the same input source hast to be connected to both inputs (e.g. 1+2), but **the second channel has to be inverted** (180° phase shifted).

2) The output speaker cable has to be connected to the **plus pole of the first (1+)** and the **plus pole of the second channel (2+)** as depicted.

input patching
for bridging amp channels

input 1
bridged

input 1 has to be
inverted for input 2:
g1 -> g2
c1 -> h2
h1 -> c2

output patching
for bridging amp channels

ch 1

⚠️ **Please be VERY careful when bridging channels!**
A wrong wiring can damage the amplifier as well as connected speakers.

9   MAINTENANCE & UPDATE

9.1   Maintenance

For safe and reliable operation, the dust filter of the front panel, behind the grilles, should be removed and cleaned regularly to ensure maximum airflow through the device.

To clean the dust filter, the panel can be removed by unscrewing eight M3 TX10 screws on the top and the bottom of the panel.

If you want to completely replace the filter, you additionally have to remove the display by unfastening the four M3 TX10 screws. Please be very careful with FPC cable when removing the display! Please use original filter sets provided by the local distributor or by sonible.

If the dust filter is not maintained there will be safety risks. There is also a risk that the unit will malfunction since it is dependent on constant airflow from front to rear. If the dust filters are not clean and the unit malfunctions, any resultant problems will not be covered by the warranty.

Feel free to contact us by email: **support@sonible.com**.

⚠ **If the amplifier malfunctions due to dirty dust-filters, any required repairs or resultant drop out costs are not covered by the warranty.**

9.2   Firmware update

If the amp is connected to the internet, its firmware can be updated by clicking the button **update** (only active if a new firmware version is available), which is available in the **system** screen. (This option is only available if a new firmware version exists.)

After the new firmware has been downloaded, the button will change its text to **install now**. Re-click the button to start the firmware update. After installation, the control surface reboots.

NOTE: Never unplug the amplifier during the update process!

10   SPECIFICATIONS

general information

dimensions (w x h x d)	482,6mm x 132,5mm x 451mm (19" / 3U / 17,8")
weight	18 kg (39,7 lb)

connections (analog main frame)

power in	1x powerCON by Neutrik®
analog inputs	3x DSub25 (pinout: Tascam® norm)
network connection	1x etherCON by Neutrik®
panic mute switch	1x lockable Jack ¼" by Neutrik®
speaker out	6x speakON by Neutrik®

additional "mio" option

optical MADI in/out	1x SC Connector 50/125µm
coaxial MADI in/out	2x BNC 75Ω

additional "dio" option

DANTE® in/out and thru	2x RJ45

electrical specifications

max. input level	+12dBu
voltage gain	26dB
input impedance	95kΩ

output power P_R	250 @ 4Ω	THD=1%
	180 @ 8Ω	THD=1%
frequency response	15 - 45kHz	+0/-3dB @ all loads
SNR	> 100dB$_{rms}$	@ 1kHz
distortion THD + N	0.02 %	20Hz<f<20kHz & P_{out} < P_R/2
	0.003 %	20Hz<f<20kHz & P_{out} =1W
channel crosstalk damping	> 100dB$_{rms}$	@ 1kHz
	> 87dB$_{rms}$	@ 10kHz
channel sensitivity matching	< ± 0.25dB	@ 1kHz
idle loss	< 250W	
standby power consumption	< 2.5W	

maximum ratings

air temperature	0°C < T < 35°C	
input voltage	210V < V_{acc} < 260V	
minimum loads	>2Ω	in normal mode
	>4Ω	in bridged mode

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11 SIGNAL FLOW
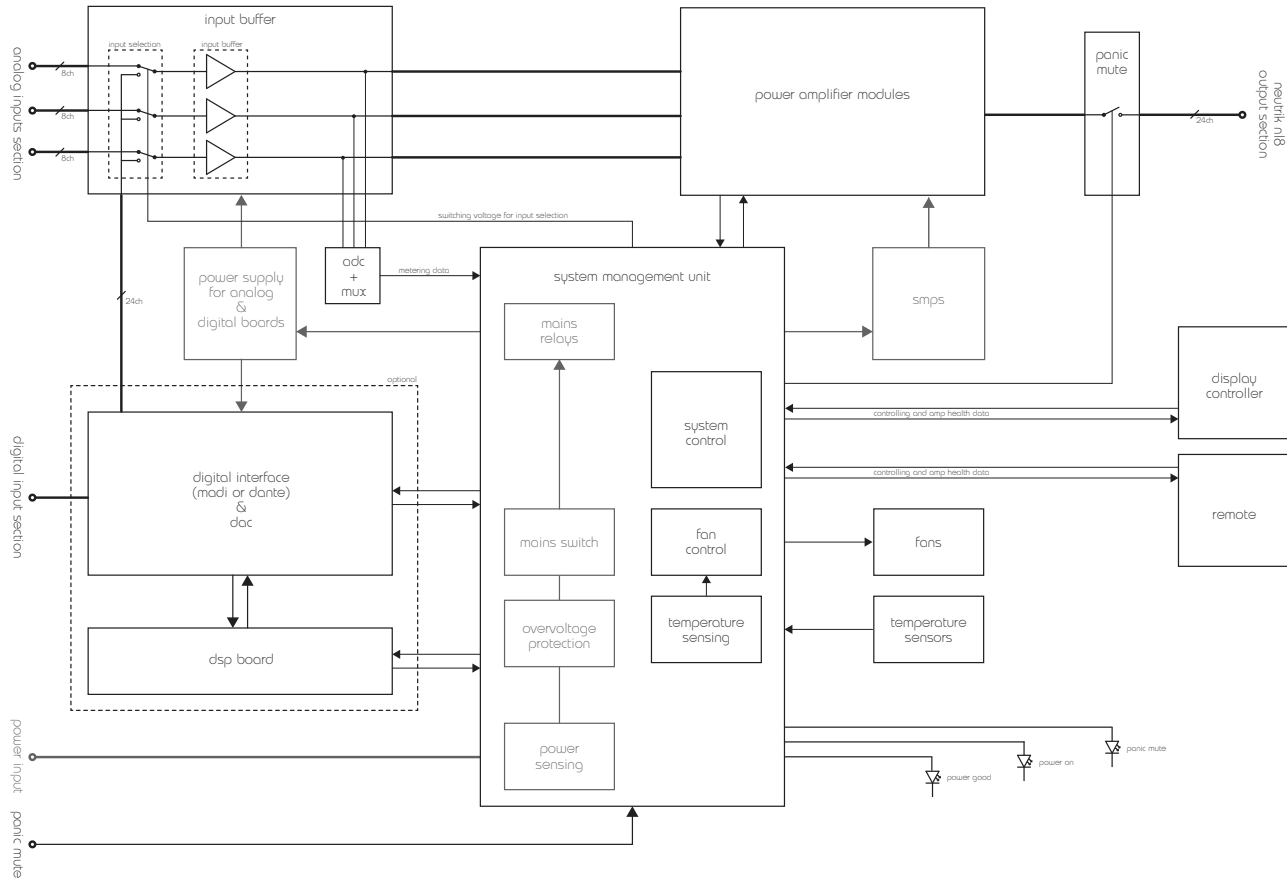
12   MECHANICS & DIMENSIONS
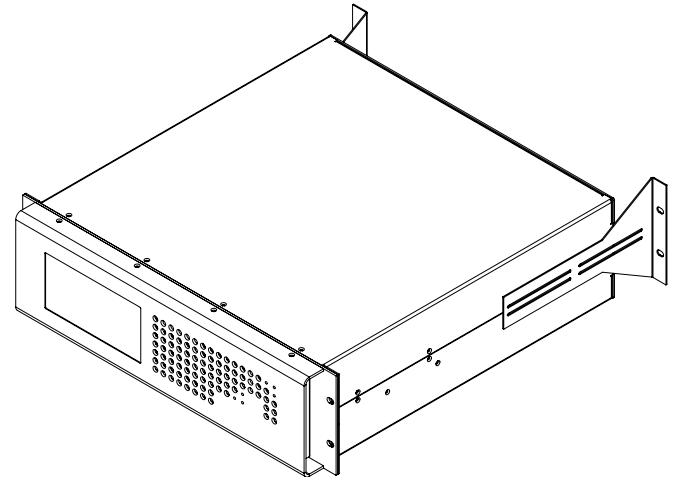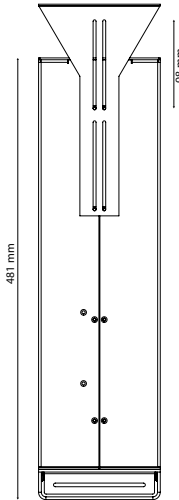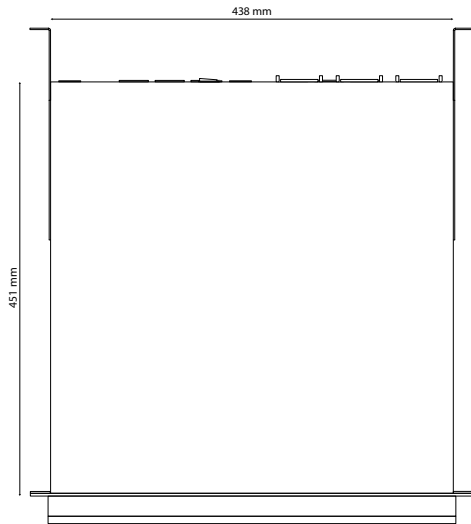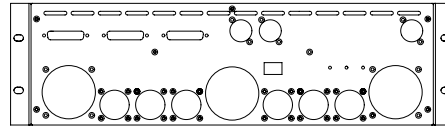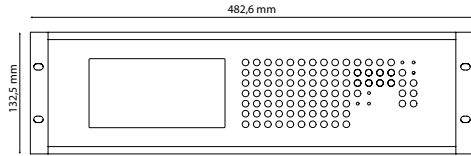
13 DECLARATION OF CONFORMITY

13.1 CE Declaration of Conformity

The product d:24 by sonible was tested tested by an independent test laboratory and found to comply with the limits of the European Council Directive on the approximation of the laws of the member states relating to the following standards:

EN 61000-6-3:2007/A1:2011 Radiated RF emission test

EN 61000-6-1:2007 Immunity against radiated RF disturbances

EN 61000-6-1:2007 Immunity against electrostatic discharges (ESD)

EN 2006/95/EG Low Voltage

Access to the individual test report will be granted on request.

13.2   RoHS

This device has been soldered lead free and all of its internal components comply to the european RoHS directive.

13.3   WEEE / Note on Disposal

Following the European directive RL2002/96/EG (WEEE – Directive on Waste Electrical and Electronic Equipment) this product has to be recycled at the end of its lifetime. Never dispose this product in an inadequate manner, e.g. general trash, but use appropriate collection stations for electronic waste.

In case where no appropriate disposal is possible, you may also return this device in a prepaid shipment to sonible.

14 WARRANTY

General

This product is manufactured by sonible, and it is warranted to be free from any defects caused by components or factory workmanship, under normal use and service, for a period of two (2) years from date of purchase from an authorized sonible dealer.
Keep the original invoice that states the purchase/delivery date at a safe place. Liability claims are accepted solely, when the original and valid invoice is presented by the original owner of the product.

If the product fails to perform as specified during the warranty period, sonible will undertake to repair, or at its option, replace this product at no charge to its owner, provided the unit is returned undamaged, shipping prepaid, to an authorized service facility or to the factory.

This warranty shall be null and void if the product is subjected to:
• Repair work or alteration by a person other than those authorized by sonible
• Mechanical damage including shipping accidents
• war, civil insurrection, misuse, abuse, operation with incorrect AC voltage
• incorrect connections or accessories
• operation with faulty associated equipment
• exposure to inclement weather conditions.

Damage due to normal wear and tear is not covered by the warranty. Units on which the serial number has been removed or defaced will not be eligible for warranty service.

sonible shall not be responsible for any incidental or consequential damages. sonible's responsibility is limited to the product itself. sonible takes no responsibility for any loss due to cancellation of any events, or rent of replacement equipment or costs due to a third party's or customer's loss of profit, or any other indirect cost or losses however incurred.

sonible reserves the right to make changes or improvements in design or manufacturing without assuming any obligation to change or improve products previously manufactured.
This warranty is exclusive, and no other warranty is expressed or implied. This warranty does not affect the customer's statutory rights.

International warranties

Please contact your supplier or distributor for this information, as rights and disclaimers may vary from country to country.

15 LEGAL DISCLAIMER

warranty in DE / AT / CH / B / NL / L

The synthax GmbH assumes the manufacturer's warranty for all devices from sonible. It covers all substantial defects in materials and workmanship for a period of 24 months from the date of purchase. Liability claims are accepted solely, when a valid - correctly and completely filled out within 2 weeks after the date of purchase - Warranty Registration Form is presented by the original owner of the product.

For unregistered devices, only the shortest legal period of warranty for each area is accepted. This warranty is only valid for D/A/CH/B/NL/L.
Please register your device per Fax, letter or online
www.synthax.de > Support > Produktregistrierung.

Technical specifications and appearances are subject to change without notice and accuracy is not guaranteed. sonible accepts no liability for any loss which may be suffered by any person who relies either wholly or in part upon any description, photograph or statement contained herein.

Colors and specifications may vary slightly from product to product. Distributors and dealers are not agents of sonible and have absolutely no authority to bind sonible by any express or implied undertaking or representation.

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For further information please refer to our website
www.sonible.com or contact us by email: **support@sonible.com**.

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