

Installation – Networking

Networking

The Matrix88 is a network-based device. Connecting the Matrix88 to your network will enable Wi-Fi streaming, and also app control of the system's zones with the Dayton Audio Matrio Control app. Connecting the Matrix88 to your network is often as simple as plugging it directly into your network router or a network switch. Although it is possible to connect the device to your network over Wi-Fi, only use this method if it is not possible to hardwire the Matrix88 directly to your network.

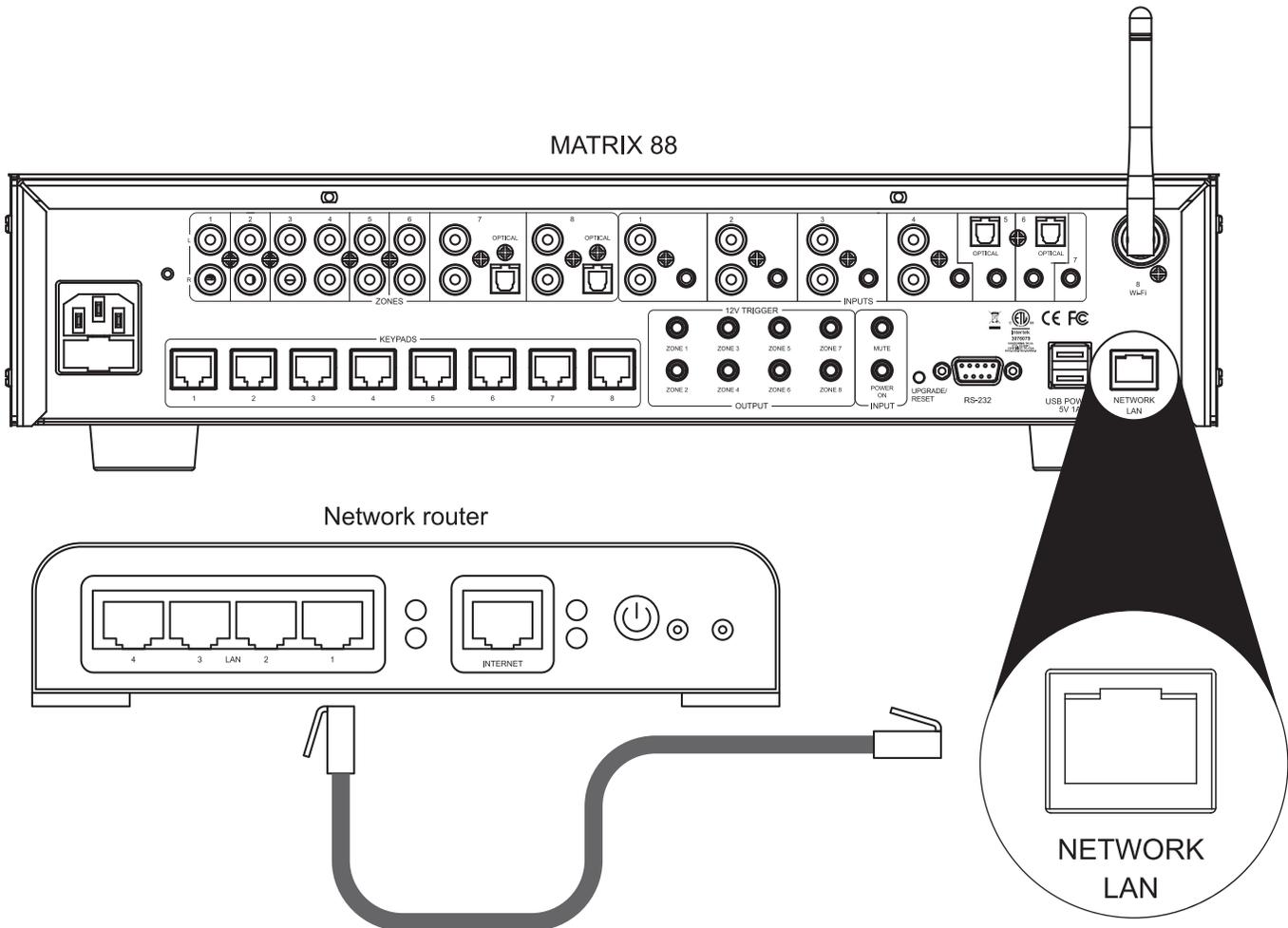
Notes

- 1) Dayton Audio **CANNOT** guarantee the stability of your wireless network. The Matrix88 depends heavily on a high quality and robust wireless network for proper function of the mobile Matrio Control app and for Wi-Fi audio streaming. Even if you connect your device to the network with an ethernet cable, you must still have a properly configured, strong wireless connection for your mobile device in order to wirelessly control the unit with the mobile app.
- 2) If you choose to connect your Matrix88 wirelessly to your network with Wi-Fi instead of a hardwired ethernet connection, it will require a 2.4 GHz Wi-Fi network. If you follow the recommendation to hardwire your Matrix88 to your network, you can skip this note. The typical Wi-Fi network is setup so the 2.4 GHz network is named the same as the 5 GHz network, and switching is automatic within your router. Some networks are setup so these networks have separate names. For example, you might have networks "MyWi-Fi 2.4 GHz" and "MyWi-Fi 5GHz", and you will generally have your mobile device connected to the 5GHz network in this case. If this is your network, you will want to connect your Matrix88 to the 2.4 GHz Wi-Fi during the setup process. In most cases, the Matrio Control app and Wi-Fi streaming will still work correctly while your mobile device is connected to your 5 GHz network, however this depends on your specific network configuration.
- 3) Do not connect your Matrix88 unit to your network over a wired ethernet connection **AND** through Wi-Fi at the same time as this could cause the Matrix88 to experience dropouts. If you experience this issue, hold the upgrade button on the back of your Matrix88 until you see the LEDs flash. This will factory reset the unit. See the factory reset section of this guide for more details.

Installation – Networking

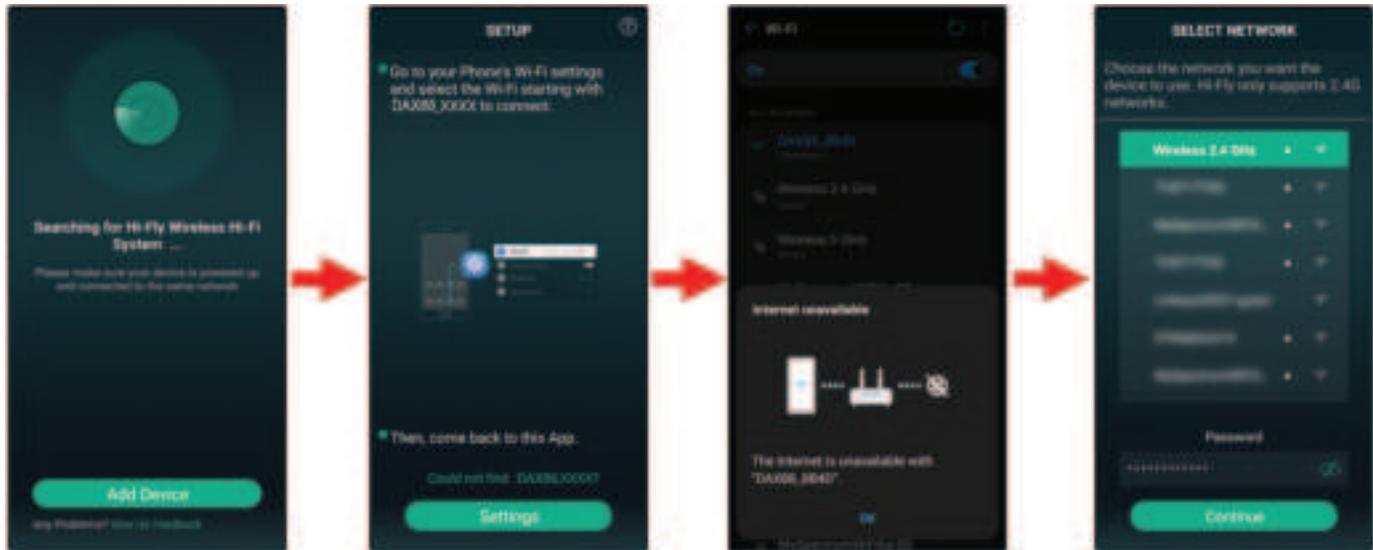
Wired Connection - Recommended

Wire the Matrix88 to your network using a standard ethernet patch cable connected to the RJ45 (ethernet) jack on the back of the Matrix88 device labeled “Network”, and connect the other end to your internet router / switch. Once this connection is correctly made, your Matrix88 will be ready to connect to the Matrio Control app on either Android or iOS after just a few moments. Make sure that you are connecting your Matrix88 to the same network that your mobile devices are on. The Matrix88 should be on the same virtual LAN as the device that you will use to control it with (phones, tablets, etc).



Installation – Networking

Wireless Connection



Step 1: Download and install the “Dayton Audio Hi-Fly” app from the app store. Open the Dayton Audio Hi-Fly application. Note: Hi-Fly can be deleted once these steps are complete, however it can also be used for streaming audio to your Matrix88.



Step 2: Press the “Add Device” button as shown in the diagram above. If you already have a Hi-Fly device configured on your network, press the ‘+’ button in the top right corner of your screen to add the Matrix88.

Step 3: As prompted by the app, press the provided settings button shortcut on the screen. This will take you to your phone or tablet’s Wi-Fi setup screen (this will look slightly different, depending on if you are on iOS or Android)

Step 4: Within your Wi-Fi settings, you will be temporarily connecting to your Matrix88’s internal Wi-Fi network during setup. Find the network called “Matrix88_XXXX”, where “XXXX” is a unique identifier for your specific Matrix88. You will likely be prompted with a message that tells you that internet is unavailable with this network – that is expected, because the connection is only temporarily used in setup, and you will later switch back to your normal Wi-Fi network.

Note: If you are not seeing a Matrix88 Wi-Fi network, try first moving closer to your Matrix88. If that does not work, restart your Matrix88 by powering it off with the switch, waiting 30 seconds, and turning it back on.

Installation – Networking

Step 5: Re-open the Hi-Fly app. You will now be prompted to select your Wi-Fi network and enter the password. This step is done so that the Matrix88 can be connected to your Wi-Fi network, in the same way that your phone or laptop would be.

Step 6: Assuming all previous steps have been completed properly, you will be prompted to give your Matrix88 a custom name. Skip this step for now. If you would like to customize your Matrix88 name, please instead complete this step in the Dayton Audio Matrio Control app.

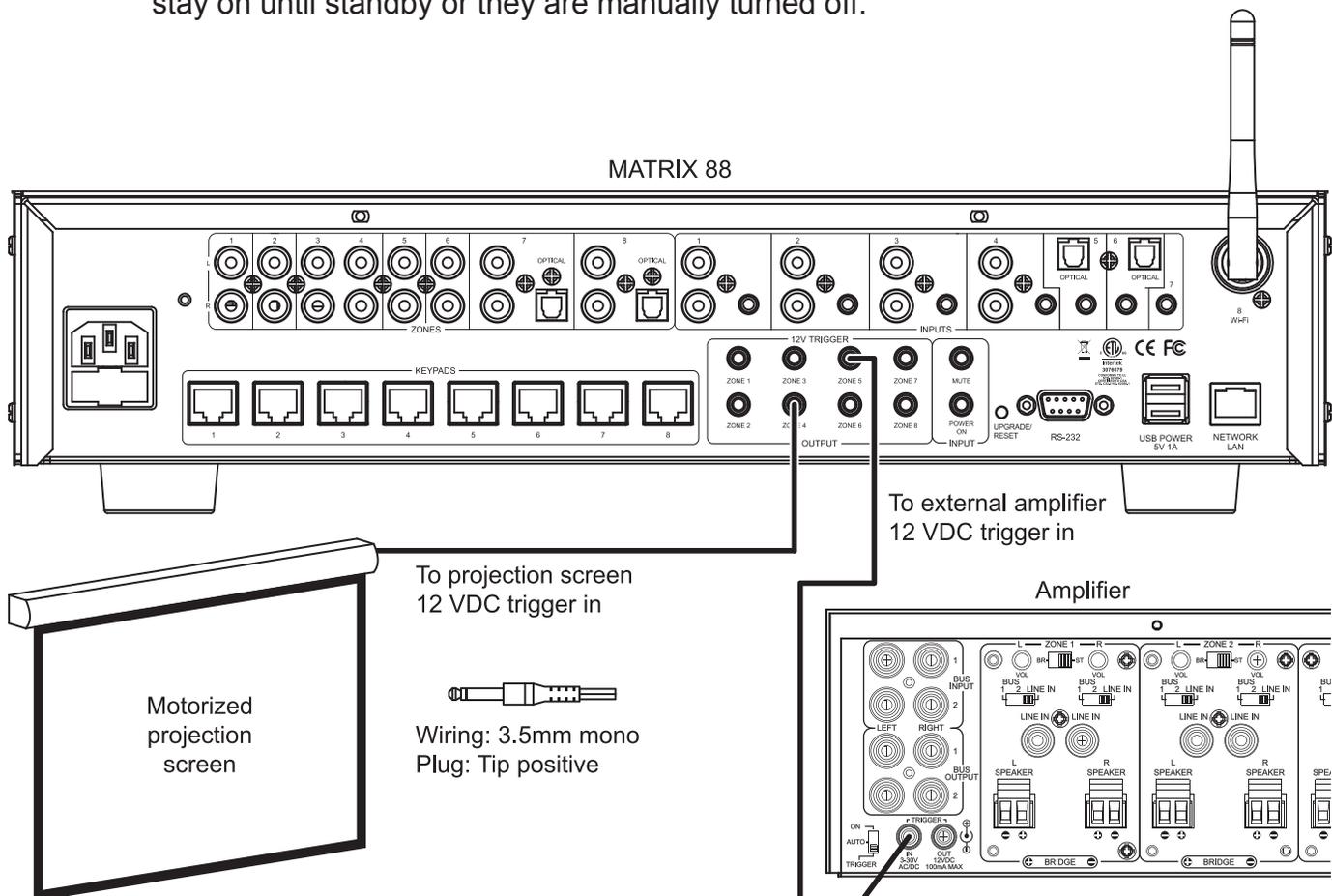
Step 7: Your Matrix88 is now connected to your network via a wireless, Wi-Fi connection, and is available for total control in the Dayton Audio Matrio Control app, and also available for wireless streaming. Your phone should automatically switch back to your original Wi-Fi network (“Wireless 2.4GHz” in this case), however if it does not, enter your Wi-Fi settings menu and select your network. Always make sure your phone or tablet is connected to the same network as your Matrix88.

Installation – Triggers

Using the 12V Input/Output Triggers

The Matrix88 offers both input and output 12V triggers, which can be useful for automation of your system. 12V triggers are an industry standard and can be found on many devices. As the Matrix88 only distributes audio and requires external amplification to power your speakers, a common use case for a zone's output trigger is turning on an external amplifier when a corresponding Matrix88 zone turns on. All connections should be made with a 3.5mm mono cable (tip-sleeve), and connect all signals as tip positive.

- The first set of triggers labeled “output” will output a 12V signal that corresponds to a zone being on or off. For example, if you wire a cable to the 3.5mm port for Zone 1’s trigger, you will get a 12V signal on that wire when the zone is on, and 0V when the zone is off. This 12V signal can be useful for turning on other equipment automatically like a projection screen, lights, or an external amplifier.
- The second set of triggers labeled input contain two different functions.
 - The mute trigger will mute all zones if it receives a 12V signal, but it will unmute once the 12V signal is removed. This trigger will take precedence over any mute settings you make in the Dayton Audio Matrio Control app, keypad, or with the IR remote.
 - The power on trigger will turn on all zones if it receives a 12V signal. Zones will stay on even after the signal is removed. For example, if a 12V signal is applied to the power on trigger, all zones will turn on. When the 12V signal is removed, the zones will stay on until standby or they are manually turned off.



Installation – Additional Notes

Additional Notes

- 1) Consider dedicating a centrally mounted tablet in your home or business to always run the Matrio Control app for control of your Matrix88 device. This could be especially useful in a business setting, or for allowing users not connected to your wireless network to control the audio.
- 2) Name all of your zones and inputs using the Matrio Control app immediately after installation so the Matrix88 system is easy to use for those who did not do the installation.
- 3) Give your Matrix88 a suitable custom name, especially if you are installing multiple units onto a single network. This will change the label for the device in Matrio Control, Spotify Connect, Airplay and DLNA.
- 4) Label all cables during installation.
- 5) Double check all of your connections after installation and before use. Pay special attention to the polarity of your speaker connections, meaning your positive and negative wires must connect to the positive and negative terminals of your speakers. If stereo speakers are wired 'out of phase', they will still work but will lack bass and clarity. Ensure that you do not have frayed speaker wire strands that can cause a short at the connector. See the manual for your specific amplifier for more information.
- 6) Adjust treble and bass to your liking for each zone. However, ensure that your speakers and amplifier will be able to handle any bass boost you might do at higher volumes.

Installing Multiple Matrix88 Units

There is no limit to the number of Matrix88 or DAX88 devices that can be used on a single network. The Matrio Control app will automatically find any Matrix88 or DAX88 units registered to the network (see network set up section below). The Group Control mode of the app can even control multiple zones from different Matrix88 or DAX88 units at the same time. To use multiple Matrix88 units, simply connect each of your units to the same network and the Matrio Control app will handle the rest (p.28). If you are installing multiple units onto your network, it is important to hardwire all units to your network with ethernet patch cables instead of Wi-Fi. Dayton Audio always recommend using a wired ethernet connection for your Matrix88 or any other network devices when possible, but especially if multiple units are installed. Audio inputs cannot be shared between multiple Matrix88 devices on your wired or wireless network.

App Control – Matrio Control

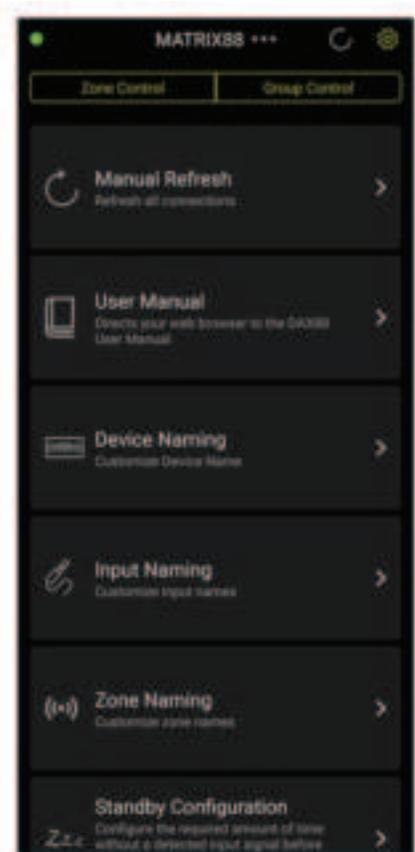
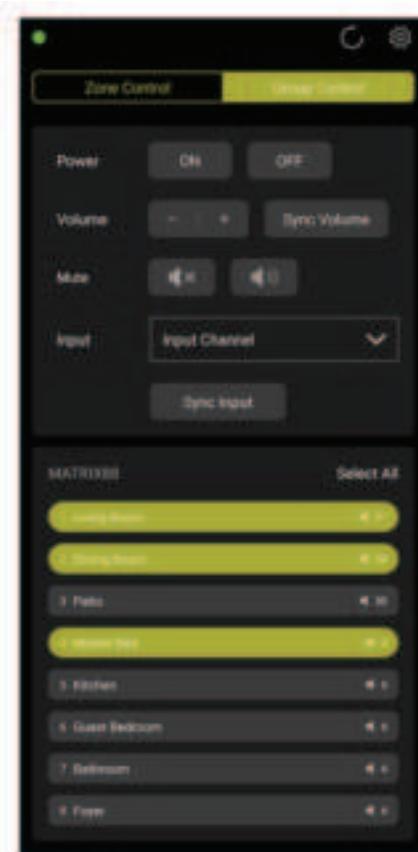
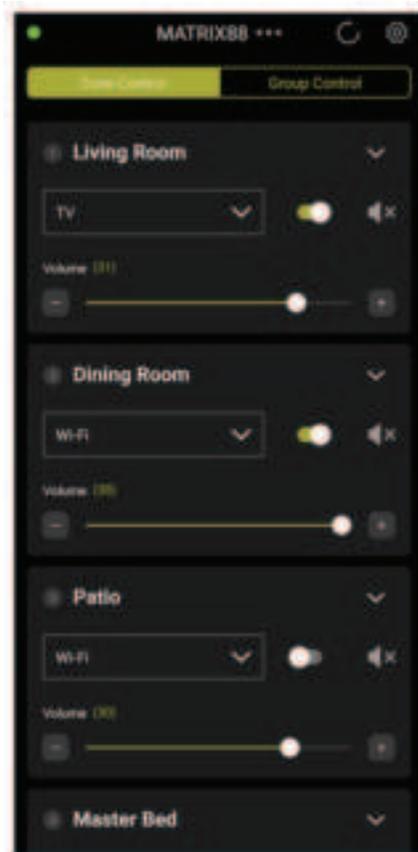
The Matrio Control App

The Dayton Audio Matrio Control app features convenient mobile control over all of the functions of the Dayton Audio Matrix88. The app offers two main screens for control and also a settings menu that offers extra customization.



Installation

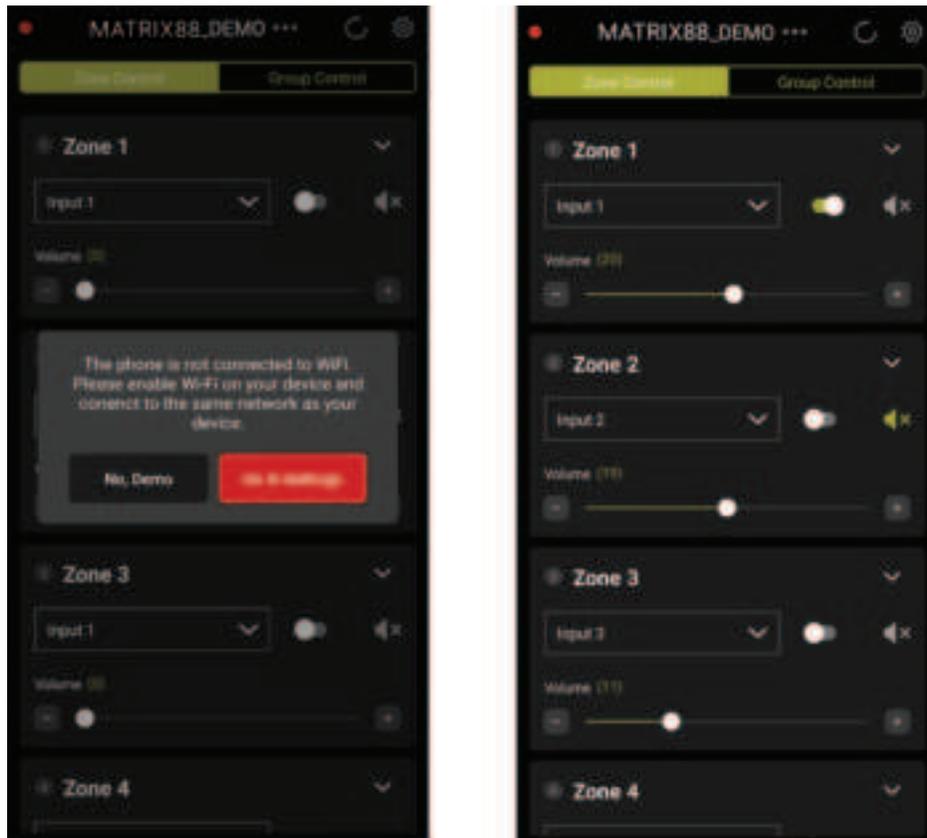
To install the Matrio Control app, simply search for “Dayton Audio Matrio Control” on the iOS or Android Google Play Store or follow the QR code above and install the app as you would any other app. The first time you open Matrio Control, it will ask you to allow permissions for finding devices on your network. It is important to accept these permissions or the app will not find your devices.



App Control – Matrio Control

Demo Mode

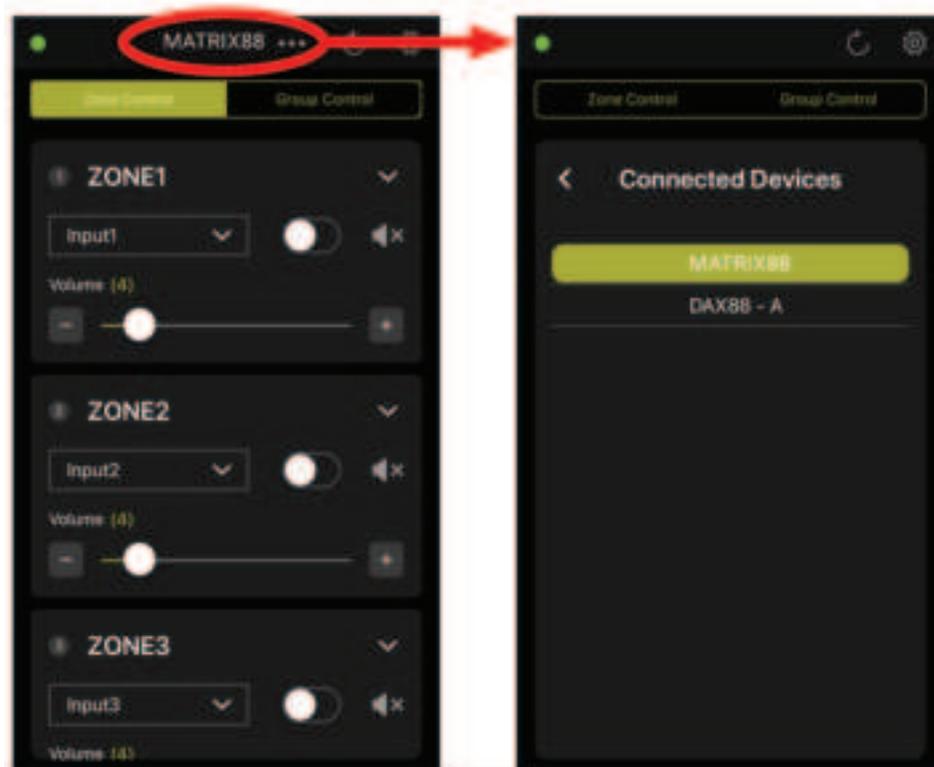
The Dayton Audio Matrio Control app has a built in 'Demo Mode' that allows you to explore functions of the app without having a Matrix88 or DAX88 unit on the current network. The app will say "DAX88 Demo" and function as it would if you had an actual DAX88 unit on the network. This mode can be launched if the device is not connected to Wi-Fi, or if the Matrio Control app does not find a DAX88 on the current Wi-Fi network.



App Control – Matrio Control

Multiple Device Support

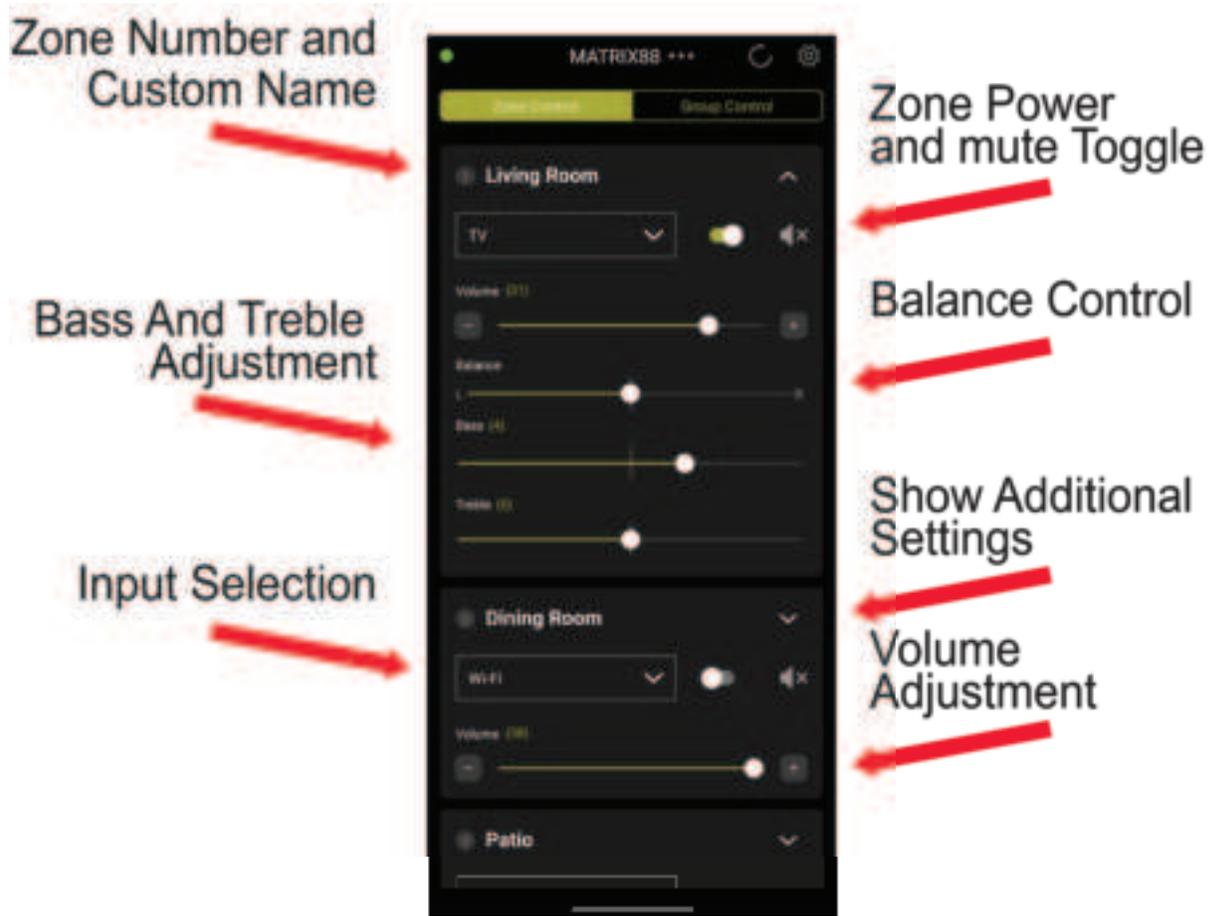
Matrio Control will automatically connect to all Matrix88 devices that it finds on your wireless network. To see a list of all of the currently connected devices, and to switch between them, press the name of the current Matrix88 or the three dots next to it as shown below. Selecting the correct device is necessary while in the zone control and settings menus. If you only have one Matrix88 unit, you will not need to use this menu.



App Control – Matrio Control

Zone Control

The Zone Control menu offers control over all possible settings for each particular zone of your Matrix88. All zones of the currently selected Matrix88 or DAX88 device will be found in a scrollable list. The settings include - power on/off, input selection, volume control, mute on/off. Additional settings such as balance, bass and treble control can be found by expanding each zone's control card with the arrow button. All custom zone names and input names will appear in this menu, allowing for easier control once the device is fully setup.



App Control – Matrio Control

Group Control

The group control menu allows a user to send commands to many zones at once. Create a 'group' by selecting zones from the list below the command section of your screen. Once you have picked your zones, any command you pick from the top will be sent to each of the zones in your group. The app will send the command you press to all of the zones selected in the list, as if you had a remote control pointing at every zone at the same time. Note that any changes made in the Zone Control menu or from another mobile device can 'desync' your group. This mode will not attempt to keep the zones you select in sync, if you want to 'resync' a setting of your group, you must press the appropriate command from the top of the screen.

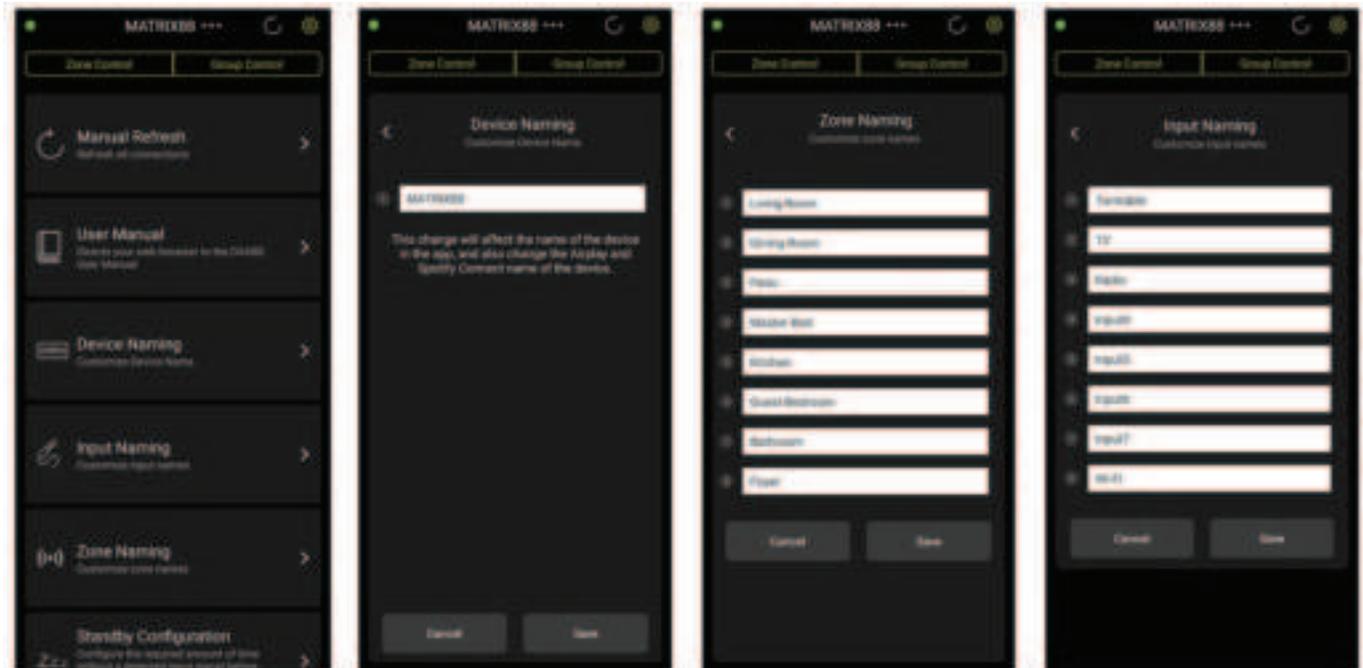


App Control – Matrio Control

Setting up Your Device in the Dayton Audio Matrio App

The Dayton Audio Matrio Control app offers many customization options to make your Matrix88 easy to use for any user. The available customization types are device name, zone naming and input naming. All custom names get stored on the Matrix88 itself and retrieved by the Matrio Control app, so for example, if an installer sets up the names in the app during installation, anyone who uses the app after installation will see these names automatically on any device without additional setup. If multiple Matrix88 or DAX88 devices are on the network, make sure to select the desired unit by clicking the name at the top of the screen.

- 1) **Custom Device Naming** – This name will help you differentiate between units if you have multiple Matrix88 or DAX88 units on your network. These names will then appear where you see “Matrix88” in the screenshots below. This name will also be your AirPlay, DLNA, and Spotify Connect name.
- 2) **Custom Zone Naming** – You can give the zones on your Matrix88 or DAX88 custom names, and these names will appear in the Zone Control and Group Control menus. For example, if you install a Matrix88 in your home, you might have names of “Living Room”, “Dining Room”, “Kitchen”, “Patio”, etc.
- 3) **Custom Input Naming** – Customizing input names is useful if you have many inputs going into your Matrix88 unit. Custom names prevent the need to memorize which device is connected to input 1, input 2, etc. Note that Input 8 is not customizable, as it will always be “Wi-Fi” for network streaming.
 - a. Note: If you will be using input switching across multiple Matrix88 or DAX88 devices using the group control menu, it is important to give any inputs you might have paralleled or common between devices the same exact custom name. More information can be found in the input installation section of this guide (p.17).



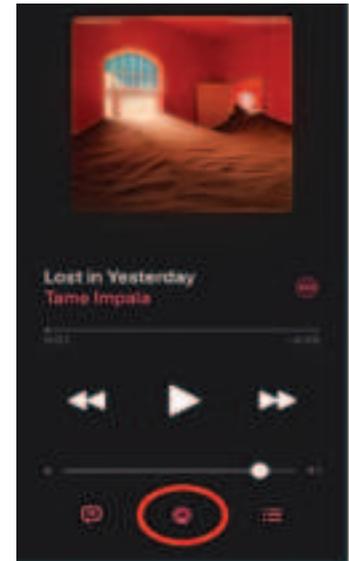
Wireless Audio Streaming

Streaming Overview

The Dayton Audio Matrix88 has Wi-Fi streaming technology built in, which allows you to enjoy Wi-Fi streaming on any or all zones of your Matrix88. There are many streaming options, but these options will vary depending on usage of an iOS or Android device as the streaming source. Make sure to set the appropriate zone of your Matrix88 to Input 8 or 'Wi-Fi' before streaming. The Matrix88 only allows one stream per unit, but this stream can be routed to any or all zones. Your mobile device must be connected to the same wireless network as your Matrix88 device before streaming. If streaming issues occur, consider upgrading your wireless networking setup and see the troubleshooting section below (p.41).

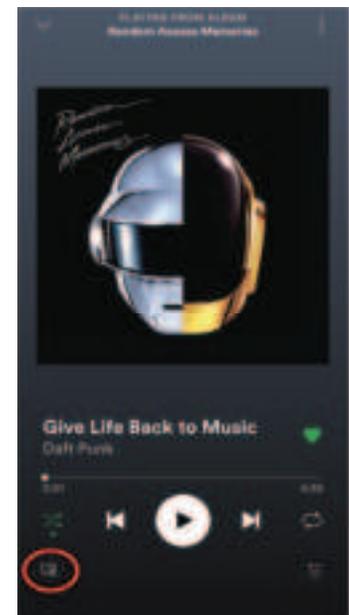
Apple AirPlay

Once connected to your network, the Matrix88 will become available as an Airplay streaming device on any Apple device connected to the same wireless network as the Matrix88. As an example, look for the AirPlay logo as circled to the right in the Apple Music screenshot. AirPlay streaming is available on any modern Apple device, starting from iOS4.2 and OS X Mountain Lion. AirPlay is the most convenient option for streaming to the Matrix88 if you use Apple products. For more information about Airplay, consult Apple's documentation about AirPlay by visiting their website.



Spotify

Once configured on a network, your Matrix88 should automatically show up as an available device in the Spotify Connect menu, regardless of which platform you are using. **Spotify connect requires a Spotify Premium account**, and can be accessed by pressing the button circled to the right. This button is also available in the desktop application version of Spotify. If using an iPhone, the free version of Spotify can be used via Airplay.



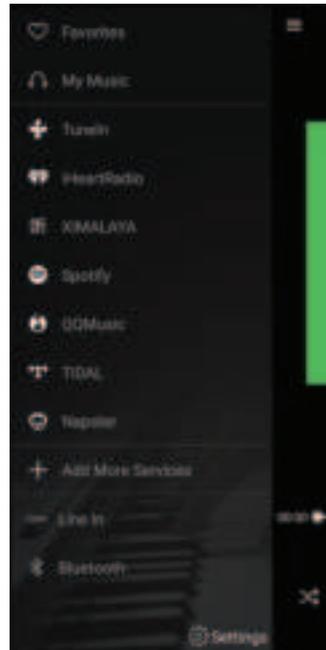
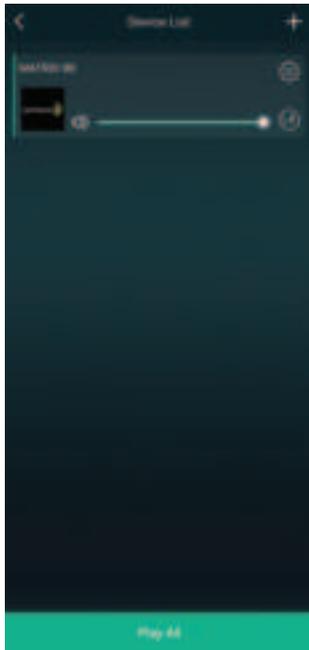
DLNA

The Matrix88 is available as a DLNA device and is compatible with any DLNA certified player / server.

Wireless Audio Streaming

Dayton Audio Hi-Fly

The Dayton Audio Hi-Fly app offers additional streaming services for use with the Matrix88. The list of the services that Hi-Fly supports can be seen in the screenshot below or within the app itself. Install the free Dayton Audio Hi-Fly application from the Google Play or iOS app store, and after launching the application you will see your Matrix88 unit as an available device (as long as you are on the same network as your Matrix88). Tap on your Matrix88 and press “browse” in the bottom left corner, and you will be given a list of steaming options as seen below.



Notes

- 1) Those familiar with Dayton Audio Hi-Fly products will know that they can be grouped together in the Dayton Audio Hi-Fly app. While this is possible to do if you have multiple Matrix88 or DAX88 devices, it is not recommended as it will temporarily disable control of the non-master device(s) with the Matrio Control app while the devices are grouped (This is because it will disconnect the device from your house's / business' Wi-Fi, and connect it to the other Matrix88's Wi-Fi in order to group it).
- 2) Wi-Fi streaming is reliant on a robust network with adequate levels of available bandwidth. If the Matrix88's network connection is not strong enough, or if the wireless network is too congested, it can result in audio dropping in and out during streaming. Free up bandwidth on your network by pausing downloads, videos, or any other high bandwidth network usage. Consider upgrading your connection through your ISP and / or investing in higher quality networking equipment if this is a consistent problem. If you are having issues, and you are using an ISP provided router/modem, we highly recommend to upgrade to something better, as these provided devices are usually not up to the same quality as something bought off of the shelf for a reasonable, mid-tier price.
- 3) With the wide range of inputs on the Matrix88 and the ability to easily switch between them, external streaming devices such as smart assistants and Dayton Audio Hi-Fly devices can be easily added to the Matrix88. The included USB power ports of the Matrix88 can be used to power such devices.

Factory Reset

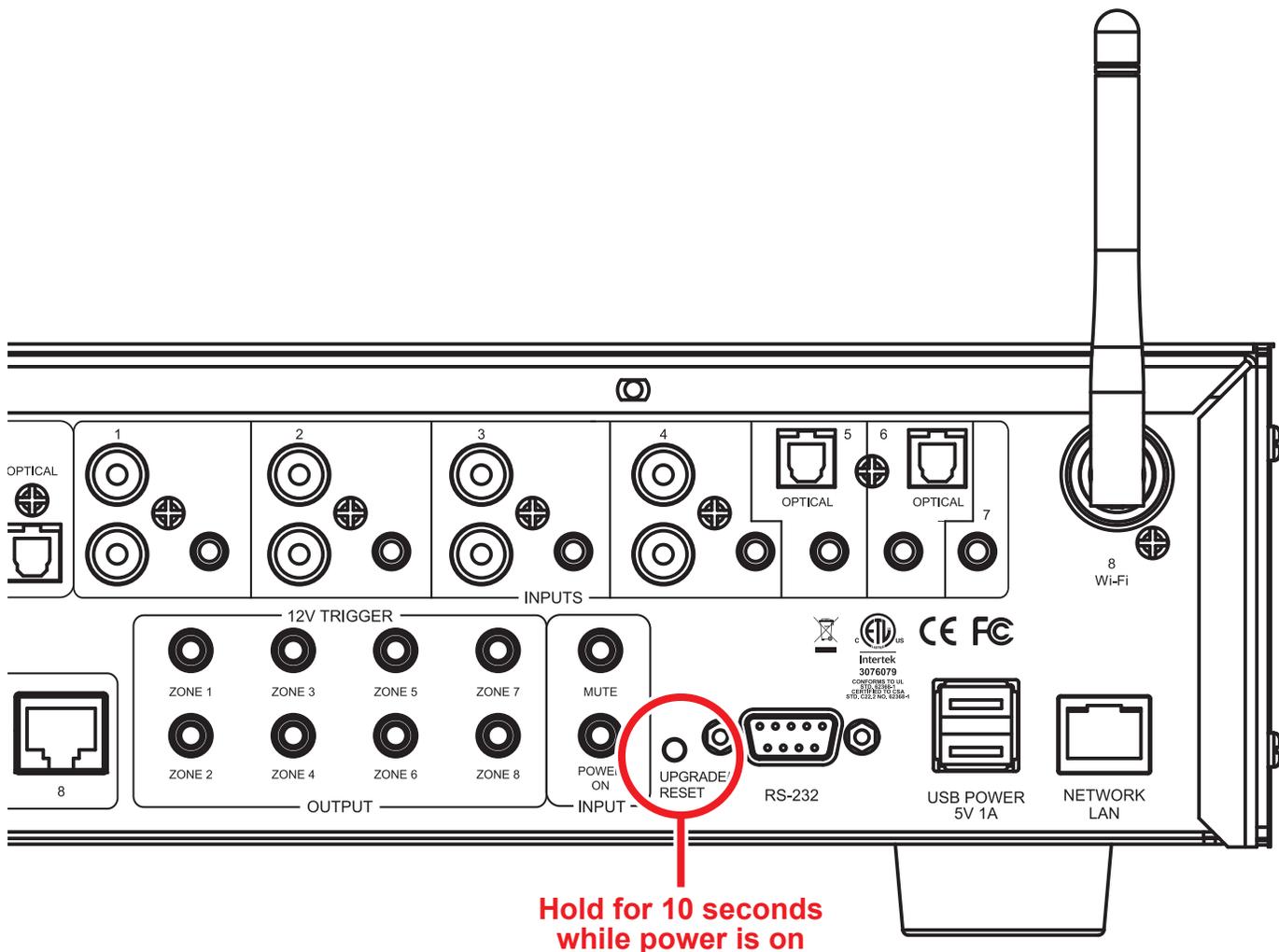
Factory Reset

A factory reset of your Matrix88 can be performed with the Dayton Audio Matrio Control app, or using the Matrix88's upgrade button on the unit. Factory reset will erase custom input names, custom zone names, and custom unit names. It will also erase a wireless configuration, meaning if you originally connect your Matrix88 to your network via Wi-Fi, and then factory reset it, you will have to configure the Matrix88 to your network again.

If you are migrating the Matrix88 to a new network, it is recommended to factory reset the device first.

Via Upgrade Button

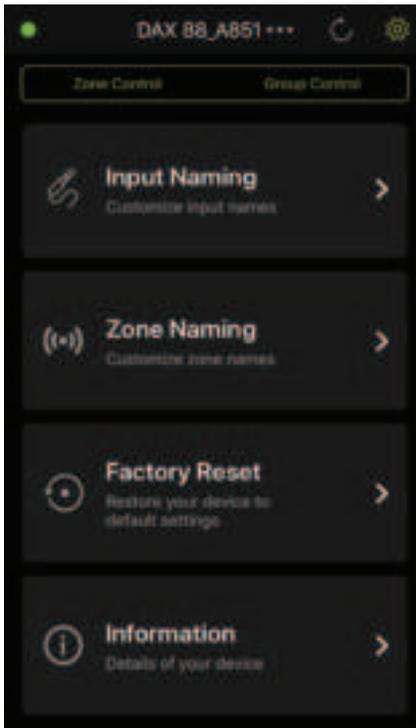
To factory reset the Matrix88, simply hold the "upgrade" button while the device is turned on for 10 seconds until the LEDs on the front of the unit will flash red and blue a couple of times. Once the LEDs start to blink, you can release the upgrade button. Wait a couple of minutes, and your device will be reset to the factory defaults and ready to use again.



Factory Reset

Via Matrio Control App

- 1) Open the Matrio Control app on your iOS or Android device
- 2) If you have multiple Matrix88 units on your network, make sure to select the correct unit that you are trying to factory reset by selecting the Matrix88 name in the top of your screen and selecting the correct unit from the list. While in the settings menu, any changes made to settings or factory reset will ONLY affect one unit at a time.
- 3) Open the Settings menu by pressing the gear icon in the top right corner of your screen.



- 4) Press the Factory Reset button, and then press reset when you are sure you want to reset your unit.
- 5) You will see a message that says your Matrix88 has been reset. If you only had the single unit on your network, the app will close. If you have an additional unit on the network, the app will continue to work with the other unit.

After a factory reset, it will take a few minutes for your device to work normally again. Please allow two minutes after pressing factory reset before resuming usage of your Matrix88 or removing power. If your Matrix88 is connected to the network via a wired ethernet connection, the Matrio Control app will eventually find the unit again and display it in the app after Matrio Control is relaunched. If it does not, simply turn your Matrix88 off and then back on again after waiting the three minutes.

If your device was connected to your network using a Wi-Fi connection instead of a wired connection, it will need to be reconfigured to the Wi-Fi network (instructions can be found within this document). Consider connecting your device with a hardwired ethernet connection for more stable performance.

Standby Control

Standby Control

The Matrix88 will go into standby after 2 hours of inactivity by default, however, this setting can be changed in increments of half hours, or this feature can be turned off completely. 'Activity' in this context is defined as an audio signal being present on any input that is currently assigned to a zone that is on. For example, if music is streaming via Wi-Fi (input 8), but no zone has the Wi-Fi input routed to it, the Matrix88 will eventually enter standby. If a zone has the Wi-Fi input routed to it and that zone is turned on, the device will not enter standby.

Adjustments can be made within the Matrio Control app by pressing the gear icon in the top right corner to enter the settings menu, and then clicking "Standby Configuration".

To configure, simply select the desired standby time, and press the save button so your settings are retained.



Device Specifications

Specifications

Power Consumption (Standby)	12W
Power Consumption (MAX)	60W
Power Input (AC)	100-240V 50/60 Hz (Automatic Switching)
Frequency Response	20 – 20,000 Hz
USB Outputs (Power Only)	5V 1A per USB Port
Audio Outputs	8 x Stereo RCA, 2 x Optical Toslink
Audio Inputs	4 x Stereo RCA, 7 x 3.5mm AUX, 2 x Optical Toslink
Dimensions	16-3/4" W x 9-7/8" x 4" H (425 x 225 x 103 mm)
Weight	9.37 lbs. (4.25 kg)
Bass Control	+/-12dB @ 100Hz (Shelf)
Treble Control	+/-12dB @ 10KHz (Shelf)
Wi-Fi Power	<20 dBm (EIRP)
Wi-Fi Frequency	2400-2483.5 MHz
Warranty	5 Years

RS232 Automation and Control

RS232 Control

The Matrix88 can be controlled by many home and commercial automation systems through its RS232 serial port. Included with the Matrix88 is a USB to Serial cable. The RS232 command structure and transmission specifications for the Matrix88 is detailed below. As a long used standard of serial communication, it is trivial to set up scripts that will send RS232 commands, as libraries and examples can be found for all appropriate programming languages.

Baud Rate: 9600

Data Bits: 8

Stop Bits: 1

Parity: None

Flow Control: None

'CR': Carriage Return (0x0D) is required

Control command structure <xxPPuu'CR'

xx: Zone number

01: Zone1

02: Zone2

03: Zone3

04: Zone4

05: Zone5

06: Zone6

07: Zone7

08: Zone8

uu: indicates a value that the command uses, such as 0-38 for volume control

PP: indicates one of the following control action codes

PR:Power control

PR00:Power off

PR01:Power on

MU:Mute control

MU00:Mute off

MU01:Mute on

VO:Volume control

VO(00-38):Volume control

RS232 Automation and Control

TR:Treble control

TR(00-24): Ranges from -12 to +12

Example: <01TR00 sets zone 1 treble to -12

<03TR12 sets zone 3 treble to 0

<05TR24 sets zone 5 treble to +12

BS:Bass control

BS(00-24):Bass control. Ranges from -12 to +12

Example: <01BS00 sets zone 1 bass to -12

<03BS12 sets zone 3 bass to 0

<05BS24 sets zone 5 bass to +12

BL:Balance control

BL(00-20):Balance control.

Example: <01BL00 sets zone 1 balance to 100% left

<03BS10 sets zone 3 balance to normal

<05BS20 sets zone 5 balance to 100% right

CH:Source control

CH(01-08):Source control

Examples of Various Commands :

Set Zone 1 to Power Off <01PR00

Set Zone 1 to Volume 23 <01V023

Set Zone 1 to Power On <01PR01

Set Zone 6 to Source 4 <06CH04

RS232 Automation and Control

Ask Status command structure ?xx'CR'

xx: Indicates the control object code

01 : Zone1

02 : Zone2

03 : Zone3

04 : Zone4

05 : Zone5

06 : Zone6

07 : Zone7

08 : Zone8

.....

Reply command: >xxaabbccddeeffgghhijj'CR'

aa:PA Control Status

bb:Power Control Status

cc:Mute Control Status

dd:DT Control Status

ee:Volume Control Status

ff:Treble Control Status

gg:Bass Control Status

hh:Balance Control Status

ii:Source Control Status

jj:Keypad Connection status (00:Not connected, 01:Connected)

Notes

Purchased on: _____

5-Year Limited Warranty

See daytonaudio.com for details



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