

# Hybrid

## DSP24 PROFESSIONAL SPEAKER MANAGEMENT PROCESSOR



## USER MANUAL

REV Z0 02-10-2023

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Please carefully read these instructions that include important information about the installation, operation and maintenance of the processor.

## **USER NOTES:**

## IMPORTANT INFORMATION



Symbol to alert the operator to follow important operating instructions and precautions detailed in this document.

- Save the carton and packing material even if the processor has arrived in perfect condition. Should you ever need to ship the processor for servicing, use the original packaging.
- Read all documentation before operating your processor and retain for future reference.
- Follow all instructions in this user manual for proper and safe operation.



Do not spill water or other liquids into or on the processor or operate the processor in wet or damp conditions.



Ensure that the power outlets and mains voltage conform to the power requirements printed on the back panel of the processor.



Do not use the processor if the electrical power cable is frayed or damaged. The power supply cable should be routed so that it is not walked upon or pinched by objects close by. Only use the original power cable supplied with your processor.



Always operate the processor with the AC Earth wire connected to both the processor and mains.



Precaution should be taken to ensure that the Earth connection is not disconnected.



Power down your processor from the mains power before attempting any physical connections to audio sources.



Never use your processor near heat radiating appliances such as stoves and heaters.



Do not remove the top cover of the processor. Removing the cover will expose you to potentially dangerous voltages. There are no user-serviceable parts inside.



Symbol warning the operator that uninsulated dangerous voltages are present within the enclosure that may pose a risk of electric shock.



Do not apply an input signal that is much greater than that which is required to achieve the maximum output level because it may damage the pre-amplification circuitry.



Do not connect the input or output connectors of your processor to any other voltage sources such as batteries, mains power or power supply units, regardless of whether the processor is switched on or off.



If the processor is not used for a long period of time, it should be unplugged from the mains outlet. Furthermore, after a long period of not using the processor, the power cable should be inspected.



Your processor should only be serviced by qualified service personnel. Contact your nearest official retail should your processor need technical attention.

### Your processor should be serviced by a qualified service technician when:

- The power supply cord and/or plug/s have been damaged.
- Liquids have been spilled inside the processor enclosure.
- The processor has been exposed to rain or excessive moisture.
- The processor does not appear to be operating normally or exhibits a drop in performance.
- The processor has been dropped or the enclosure is damaged.

## **INTRODUCTION**

Congratulations on your purchase of the Hybrid DSP24, a professional speaker management processor, and thank you for your confidence in the Hybrid brand.

For your safety, please read the important precautions before installing and operating your processor.

The Hybrid DSP24 has been designed to cater to all applications and users regardless of their technical ability and experience with digital processors, making it the most affordable and versatile speaker management processor on the South African market.

The DSP24 has 32 presets that are divided into three categories. The first category consists of three presets (presets 01–03). These presets are unlocked and can be partially edited by the user, making them ideal for quick setups that require very limited technical knowledge. The second category consists of 27 presets (presets–04 to 30). These presets are locked, thus, cannot be edited by the user. They are pre-programmed to cater to the majority of system setups that use Hybrid and Hybrid+ speakers and amplifiers. The third category consists of two presets (presets 31 and 32). These presets are unlocked, so, using a PC/smart device, the user has access to all the functions and features expected from a speaker management processor.

The Hybrid DSP24 has been designed for high operating efficiency and accurate sonic performance across the full audio bandwidth, even under stressful conditions. The internal components are the finest available, and the sub-assemblies are pre-tested before final assembly.

Finally, each processor is “burned in” and thoroughly tested using precision audio test equipment before shipping. In addition, all DSP24 incorporate extensive protection features to safeguard the internal circuitry. This proven combination of advanced design, quality construction and comprehensive circuit protection is your failsafe guarantee, which means that you can depend on consistent, stable performance from your DSP24.

## **UNPACKING**

Please inspect the processor carefully immediately after unpacking. If you find any visible damage, notify your supplier/retailer immediately. Be sure to save the carton and all packing materials should you need to ship the unit back to your authorised service centre. There is a 1-year “No quibble” carry-in guarantee on the Hybrid DSP24. In the unlikely event that the processor is damaged upon receipt and inspection, we offer an immediate exchange, provided that all packaging and cabling are returned in their original condition.

## **INSTALLATION AND MOUNTING**

The Hybrid DSP24 fits into the space of a 19” rack 1 unit (approx. 45 mm in height). It can be mounted in a standard 19” rack unit using the mounting holes on the processor’s front panel, or, because of its rubber feet, it can be left freestanding. The industry-standard M6 cage nuts, screws and plastic washers are recommended when installing your processor.

# Hybrid

## FRONT PANEL CONTROLS AND FEATURES



### 1. WI-FI AND LOGO WINDOW

The Hybrid logo is also the Wi-Fi aerial, enabling communication between the DSP24 and PC/smart device. The colour and intensity of the LED Hybrid logo can be controlled using the DSP24's software, and the logo can also be configured to indicate the processor's audio signal and whether the system is overloading.

### 2. LCD DISPLAY

A full colour 1.5" LCD display used for setting up presets 01 to 03 and loading Hybrid amplifier and speaker presets 04 to 30 in conjunction with the jog wheel. The Home Page of the display indicates the loaded preset number. It also has six round LED indicators, two at the top for the inputs and four at the bottom for the outputs. The Wi-Fi software is only used for setting up presets 31–32 as well as firmware updates. The screen also indicates whether the Wi-Fi is on or off or linked to a device.

### 3. JOG WHEEL

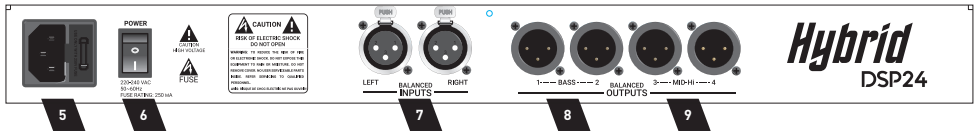
The jog wheel is used for onboard editing and loading presets 01 to 30. Presets 31 and 32 can only be edited by users with the Wi-Fi software. Rotating the jog wheel will change the parameter value displayed, a short press will skip to the next parameter/page and a long press will load or save a preset/password.

### 4. RACK MOUNT HOLES

There are four rack mount holes provided for installation in a 19" rack case.

**TIP: Use the industry-standard M6 cage nuts, screws and plastic washers to avoid scratching the front plate.**

## BACK PANEL CONTROLS AND FEATURES



### 5. IEC CONNECTOR

The mains 220–240 Vac connector. Only use the cable supplied with this processor to power up the unit (IEC 3-pin mains South African plug).

**DO NOT** modify the cable in any way. Inspect the cable before use. Should any sign of damage be visible, replace the cable with the exact same type, available from your nearest authorised retailer.

### 6. POWER ON-OFF SWITCH

Main power switch, which turns the processor ON or OFF. Once the processor is switched ON, the Hybrid logo (1) and LCD screen (2) on the front panel will illuminate.

**XLR Configuration for both the INPUTS and OUTPUTS:**

- Pin 1 – Ground
- Pin 2 – Non-inverting (Positive)
- Pin 3 – Inverting (Negative)

### 7. LEFT AND RIGHT INPUTS

Balanced XLR female connectors.

### 8. BASS: OUTPUTS 1 AND 2

The balanced XLR male output connectors are configured and locked as linked bass outputs for presets 01 to 30. For presets 31 and 32, the bass outputs can be set to any frequency.

### 9. MID-HI: OUTPUTS 3 AND 4

The balanced XLR male output connectors are configured and locked as mid-high outputs for presets 01 to 30. For presets 31 and 32, the mid-high outputs can be set to any frequency.

# Hybrid

## CONNECTING THE INPUTS

Use the XLR input (female) connectors (7) on the rear panel to supply audio signals to your Hybrid DSP24 from your mixer or pre-amplifier. Balanced (recommended) or unbalanced connections may be used with pin 2 configured as the non-inverting (+) pin.

## CONNECTING THE OUTPUTS

Use the XLR output (male) connectors (8) on the rear panel to supply audio signals to your bass amplifier. When using presets 1 to 30, the output connectors (8) marked as BASS 1 and 2 are locked as bass outputs and must be connected to the bass amplifier. Balanced and unbalanced connections may be used with pin 2 configured as the non-inverting (+) pin. Use the XLR output (male) connectors (9) on the rear panel to supply audio signals to your second amplifier. When using presets 1 to 30, the output connectors (9) marked as MID-HI 3 and 4 are locked as mid-high outputs and must be connected to the mid-high amplifier. Balanced (recommended) and unbalanced connections may be used with pin 2 configured as the non-inverting (+) pin.

## SETUP

Now that you have installed your Hybrid DSP24, correctly connected both inputs to a mixer or pre-amplifier and connected the four outputs to the correct amplifiers, you are ready to set up your system for optimal performance and protection.

The Hybrid DSP24 has 32 presets that are divided into three categories. Depending on the speakers and amplifiers used, your technical ability and your experience with processors, you can decide which preset category to use. The following sections will guide you in making your decision.

## SEMI-OPEN USER PRESETS 01, 02 and 03 (CATEGORY 1)

These presets should be used when brands other than Hybrid are used AND the user/installer is NOT familiar with or experienced in setting up systems that use digital processors. Follow the step-by-step guide below for a well-balanced and protected system. Presets 01 to 03 can be partially edited by the user, but many critical parameters have already been set.

## OPEN PRESETS 31 and 32 (CATEGORY 2)

Presets 31 and 32 are completely open; thus, all functions and features can be edited using a PC/ smart device. These presets are for professional use and should only be used when the user/installer is familiar with and/or experienced in setting up systems that use a digital processor. The controls and features for presets 30 and 31 are listed below.

- Linked left and right inputs
- 4 x input PEQs, each with selectable filters (high-shelf, low-shelf, notch, high-pass and low-pass)
- Outputs 1 and 2 as well as outputs 3 and 4 linked by default
- HPF or LPF with 6, 12, 18 and 24 dB/oct slopes
- Crossover types include Linkwitz-Riley, Butterworth or Bessel filters
- Linked outputs 1 and 2 as well as Linked outputs 3 and 4 can switch between PEQ and 30-band graphic EQ
- 8 x PEQs for linked outputs 1 and 2 as well as outputs 3 and 4, each with selectable filters (high-shelf, low-shelf, notch, high-pass and low-pass)
- Time-alignment up to 15 ms on linked outputs 1 and 2 and linked outputs 3 and 4
- Linked outputs 1 and 2 as well as linked outputs 3 and 4 have a limiter with attack, release and threshold
- Independent phase invert for all outputs
- Independent mute function for all outputs
- Electronic Earth-lift
- Utilities menu allows you to load the preset from a smart device, save the preset to a smart device, write the preset to the DSP24, change and save the password, upgrade the firmware and change the LED logo's colour and intensity



## USER PRESETS 04 TO 30 (CATEGORY 3) NON-EDITABLE PRESETS

Preset	Output	Amplifier	Speaker	Preset	Output	Amplifier	Speaker
4	1 & 2	B2400	2 x LB18	18	1 & 2	B4000	2 x HP218
	3 & 4	B1200	2 x PB12N		3 & 4	B1800	2 x PLA10
5	1 & 2	B4000	2 x LB218	19	1 & 2	B4000	2 x HP218
	3 & 4	B1200	2 x PB12N		3 & 4	B2400	4 x PLA10
6	1 & 2	B2400	2 x LB18	20	1 & 2	B4000	2 x DS18-1200
	3 & 4	B1200	2 x PB15		3 & 4	B1200	2 x HP8
7	1 & 2	B4000	2 x LB218	21	1 & 2	B4000	2 x DS18-1200
	3 & 4	B1200	2 x PB15N		3 & 4	B1800	2 x HP12
8	1 & 2	B2400	2 x LB18	22	1 & 2	B4000	2 x HP218
	3 & 4	B1200	2 x PLB12		3 & 4	B1800	2 x H12
9	1 & 2	B4000	2 x LB218	23	1 & 2	B4000	2 x HP218
	3 & 4	B1200	2 x PLB12		3 & 4	B1800	2 x HP12
10	1 & 2	B2400	2 x LB18	24	1 & 2	B4000	2 x HP21
	3 & 4	B1200	2 x PLB15		3 & 4	B1800	2 x HP12
11	1 & 2	B4000	2 x LB218	25	1 & 2	B4000	2 x HP21
	3 & 4	B1200	2 x PLB15		3 & 4	B1800	4 x HP12
12	1 & 2	B4000	2 x PK18UE	26	1 & 2	B4000	2 x DS18-1200
	3 & 4	B1800	2 x PK15UE		3 & 4	B2400	2 x HP15
13	1 & 2	B4000	2 x PK218UE	27	1 & 2	B4000	2 x HP218
	3 & 4	B1800	2 x PK15UE		3 & 4	B2400	2 x HP15
14	1 & 2	B4000	2 x PK218UE	28	1 & 2	B4000	2 x HP218
	3 & 4	B1800	2 x PK15UE		3 & 4	B2400	2 x HP15
15	1 & 2	B4000	2 x PK218UE	29	1 & 2	B4000	2 x HP21
	3 & 4	B1800	2 x PLA10		3 & 4	B2400	2 x HP15
16	1 & 2	B4000	2 x PK218UE	30	1 & 2	B4000	2 x HP21
	3 & 4	B2400	4 x PLA10		3 & 4	B2400	4 x HP15
17	1 & 2	2 x B4000	4 x PK218UE				
	3 & 4	B2400	4 x PLA10				

## DSP24 SETUP PROCEDURE

### 1. CONNECTING THE DSP24

With the DSP24 off:

- Connect the two inputs of the DSP24 to the outputs of a mixer or pre-amplifier using balanced XLR cables.
- Connect outputs 1 and 2 (BASS) to the inputs of the bass amplifier.
- Connect outputs 3 and 4 (MID-HI) to the inputs of the mid-high amplifier using balanced XLR cables.
- Connect the outputs of the bass amplifier to the bass speakers
- Connect the outputs of the mid-high amplifier to the mid-high speakers.

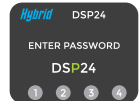
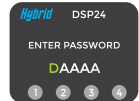
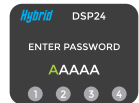
### 2. TURNING THE DSP24 ON, SWITCHING THE EARTH-LIFT ON OR OFF AND INPUTTING THE PASSWORD

- Turn the DSP24 on. Information will be displayed on the LCD screen. For the onboard programming of presets 01 to 03 and loading the pre-programmed presets 04 to 30, the Wi-Fi must be OFF.
- After a few seconds, the DSP24 will automatically navigate to the home page. The last preset saved will be loaded and displayed. The factory default is preset 01.
- Press the jog wheel once and the LCD screen will open the Earth-lift (ON or OFF) page. This feature is not password-protected and can be accessed by any user.
- Rotating the jog wheel either way will toggle the Earth-lift between ON and OFF. The Earth-lift switch is set to OFF as the factory default. When the Earth-lift is ON, it will isolate the main's Earth from the electronic Earth or ground of the DSP24's circuitry. This feature is used to eliminate ground loops within an audio system and reduce/eliminate the 50 Hz hum that may be present in the system.

**TIP: If you do not hear a low-frequency noise on the system when no music is being played or if you are unsure if Earth-lift is needed, leave the Earth-lift OFF.**

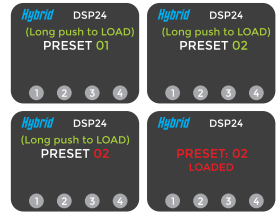
A short press of the jog wheel now will navigate the LCD screen to the ENTER PASSWORD page.

- In order to proceed, the correct 5-character alpha-numeric password must be entered. The factory default password is **DSP24**. Please note: This password can later be changed to a unique password.
- To enter the factory default password (**DSP24**), rotate the jog wheel until the first character (displayed in green) has reached the letter "D" and then press the jog wheel. The second character will now be displayed in green. Follow the same steps for the rest of the characters. Once the correct password has been entered, the LCD screen will navigate to the preset load page and display the loaded preset.



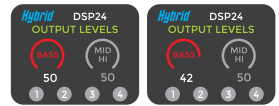
### 3. SELECTING AND LOADING THE PRESET

To change the preset, the process is similar to setting the password. Press the jog wheel to get to the preset menu, then rotate the jog wheel until the desired PRESET number is reached. The PRESET number will be displayed in red, which indicates that the PRESET is not loaded. Press and hold the jog wheel for three seconds to load the PRESET. A timed message will appear, "PRESET: XX LOADED", confirming that the desired PRESET has been loaded. The loaded PRESET will now be displayed in green.



### 4. SETTING UP SEMI-EDITABLE USER PRESETS 01 to 03

a) After selecting preset 01, 02 or 03 as described in point 3, press the jog wheel and the display will automatically navigate to the OUTPUT LEVELS page.



b) The factory default for both the BASS and MID-HI is 50. Rotate the jog wheel to adjust the BASS. A short press of the jog wheel will set the new BASS level and advance to the MID-HI level, which will be displayed in blue. Rotate the jog wheel to adjust the MID-HI level until you reach your desired balance between bass and mid-tops. Short-press the jog wheel to set the new MID-HI level, and the screen will then automatically advance to the ROUTING page.

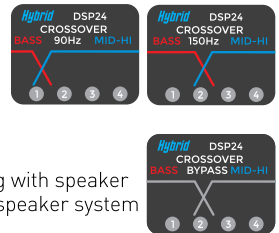


c) The ROUTING page offers two options for the BASS OUTPUTS (mono bass – the factory default – or stereo bass). These are shown as:



BASS 1 linked to L+R IN or BASS 1 linked to LEFT IN  
BASS 2 linked to L+R IN or BASS 2 linked to RIGHT IN

d) A short press of the jog wheel will navigate the screen to the CROSSOVER page, allowing the user to select the crossover point between the BASS and MID-HI. Rotating the jog wheel clockwise will raise the CROSSOVER point, and rotating the jog wheel anti-clockwise will lower the CROSSOVER point. The CROSSOVER frequency can be set to between 60 Hz and 200 Hz, with 90 Hz as the factory default (recommended for most setups). A long press of the jog wheel will bypass the CROSSOVER so that all outputs will work in full-range mode. This mode should be used when working with speaker systems that do not require a CROSSOVER, which would usually be a speaker system that does not have separate, independent bass bins.



e) A short press of the jog wheel will now navigate the screen to the EQ page. This page offers two EQ options, which are both set to 0 dB as the factory default. EQ1 is a wideband notch filter aimed at the midrange in order to reduce harsh midrange frequencies. The level of EQ1, displayed in green, can be increased to a maximum of 3 dB by rotating the jog wheel clockwise and decreased to a minimum of -6 dB by rotating the jog wheel anti-clockwise. A short press sets the new level of EQ1. EQ2 will now be displayed in green and can be edited. EQ2 is a high-shelf treble filter and can be used to achieve the perfect balance/setting for your high frequencies. EQ2 can be increased to a maximum of 4.5 dB by rotating the jog wheel clockwise and decreased to a minimum of -3 dB by rotating the jog wheel anti-clockwise.



# Hybrid

- f) A short press of the jog wheel will navigate the screen to the LIMITER page. If you are using Hybrid A MK4 series or Hybrid B MK6 series amplifiers, a LIMIT reference table is supplied on the processor and at the back of this user manual (page 15) for quick and easy setup.

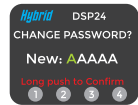
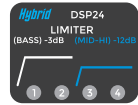
Determine which model of Hybrid amplifier you are using and its load impedance, 8 Ω or 4 Ω, and cross-reference with the RMS power of the speaker you're using. Then, refer to the LIMITER table on page 15 in order to set up the limiter correctly. The factory default for both limiters is set to 3 dB. The first LIMITER level that can be adjusted is for OUTPUTS 1 and 2 (BASS), displayed in red. Rotate the jog wheel to reach your desired BASS LIMIT threshold between -25 dB and 6 dB. Once your desired LIMIT level has been reached, short-press the jog wheel to set the new level and move to the LIMITER for OUTPUTS 3 and 4 (MID-HI), displayed in blue. Rotate the jog wheel to reach your desired MID-HI LIMIT threshold between -25 dB and 6 dB. Once your desired level has been reached, short-press the jog wheel to set the new level and proceed to the BASS PHASE page.

- g) The BASS PHASE page offers a NORMAL PHASE (factory default) and an INVERTED PHASE for the bass output. Rotating the jog wheel will toggle between the two.

The BASS 1 PHASE is normally only set to inverted when the two bass cabinets are far apart and causing a bass cancellation or when one of the bass cabinets has been incorrectly wired, causing the two bass cabinets to be out of phase. Toggling between NORMAL and INVERTED on the BASS 1 output will reinforce or diminish the low frequency response of your system. To set the desired phase, short-press the jog wheel, and the screen will then navigate to the SAVE preset page.

- h) The SAVE page allows the user to save all edited settings to the active PRESET number by pressing and holding the jog wheel for three seconds. The edited settings will now be stored to that preset number and the message "PRESET: XX SAVED" will display on the LCD screen. A short press of the jog wheel will automatically navigate the screen to the CHANGE PASSWORD page.

- i) The CHANGE PASSWORD page offers two options, YES and NO, with the factory default set to NO. Selecting NO will navigate the screen to the HOME page. Selecting YES allows the user to change the PASSWORD to a new 5-character alpha-numeric code. Once YES has been selected, the first alpha-numeric character will be displayed in green. Rotate the jog wheel to the desired first new alpha-numeric character and short-press the jog wheel. The second character will now be displayed in green, ready to be changed. Follow the same process for all five characters and then press and hold the jog wheel for three seconds to save the new password. The LCD screen will now display the message "PASSWORD WRITTEN" and navigate to the HOME page. In the image to the right, the password has been changed to "JAMES".



## 5. HOME PAGE

The home page of the DSP24 displays the loaded preset number in green. For presets 04 to 30, the Hybrid speakers i.e. and amplifiers i.e. to be used are listed below the preset number. The home page also has six round LED indicators, two at the top for the left and right inputs and four at the bottom, which are indicators for the four outputs. The colours of the round LEDs indicate the following:



- Grey – No signal present
- Green – Signal present
- Orange – Limiting (outputs only)
- Red – Overload

**If an overload is detected, reduce the level coming from you mixer or pre-amp.**

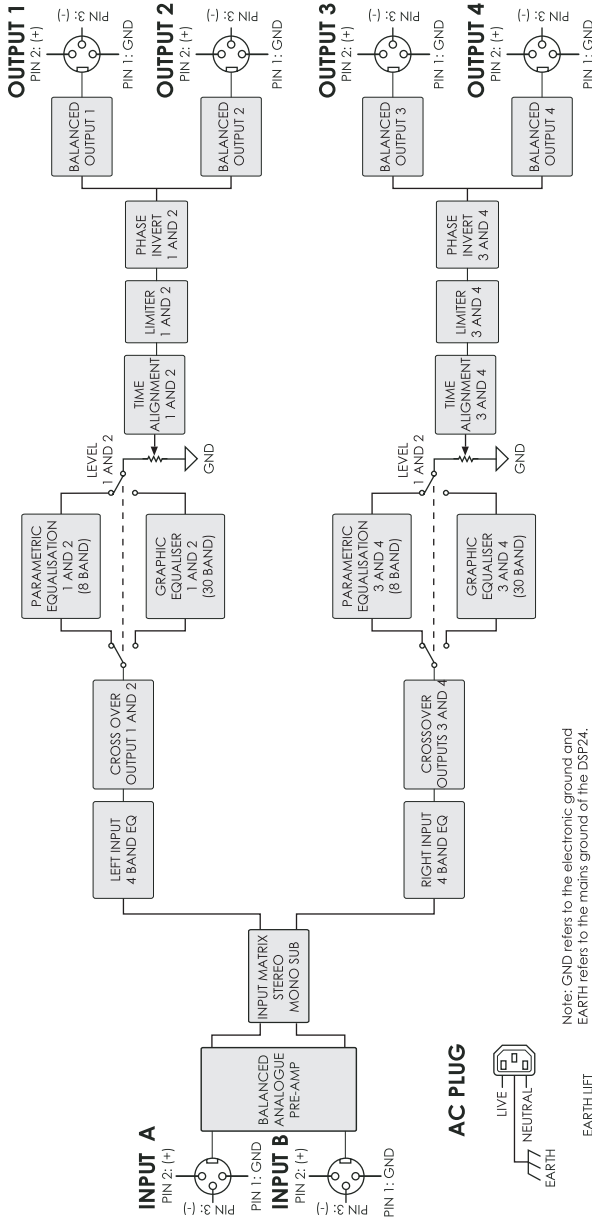
## 6. INSTRUCTIONS ON HOW TO CONNECT TO A SMART DEVICE OR PC

In order to programme open presets 31 and 32 [CATEGORY 3], load a preset from a device, save a preset to a device and upgrade the firmware, follow the steps below.

- a)** With the DSP24 off, press the jog wheel and switch the DSP24 on while still pressing the jog wheel. The LCD screen will display "Please, release switch", and after releasing the jog wheel, the screen will display "Wi-Fi ON".
- b)** The LCD screen will then move on to display the Wi-Fi MODE, indicating that a device is "NOT LINKED". On your smart device or PC, turn the Wi-Fi on. HYBRID\_\*\*\*\*\* [the six digits are unique to each processor] will then come up as an available network on your smart device or PC. Select this network and enter the password, "12345678". The DSP24's LCD screen will now display "LINKED" in green.
- c)** Go to the browser of your smart device or PC and type in the IP address **192.168.4.1**. Your browser will navigate to the web page of the DSP24.
- d)** On the DSP24 web page, click "Unlock" and where it says "Enter Password", type in the password, "DSP24".
- e)** After entering the password, all settings for presets 31 and 32 can be edited using your smart device or PC.
- f)** Set up presets 31 and 32 as desired, and be sure to save the settings by clicking on "Utilities" and selecting "Write Preset to DSP24". You can also save the preset settings to your smart device or PC by selecting "Save Preset to Smart Device" and then load these settings onto another DSP24 by selecting "Load Preset from Smart Device".



## BLOCK DIAGRAM



**LIMITER GUIDE TABLE USING HYBRID AMPLIFIERS**

HYBRID B1200 AMPLIFIER			HYBRID A1800 AMPLIFIER HYBRID B1800 AMPLIFIER			HYBRID A2400 AMPLIFIER HYBRID B2400 AMPLIFIER			HYBRID A4000 AMPLIFIER HYBRID B4000 AMPLIFIER			
LIMITER SETTING FOR 8 Ω SPEAKER	SPEAKER POWER RMS / AES	LIMITER SETTING FOR 4 Ω SPEAKER	LIMITER SETTING FOR 8 Ω SPEAKER	SPEAKER POWER RMS / AES	LIMITER SETTING FOR 4 Ω SPEAKER	LIMITER SETTING FOR 8 Ω SPEAKER	SPEAKER POWER RMS / AES	LIMITER SETTING FOR 4 Ω SPEAKER	LIMITER SETTING FOR 8 Ω SPEAKER	SPEAKER POWER RMS / AES	LIMITER SETTING FOR 4 Ω SPEAKER	LIMITER SETTING FOR 8 Ω SPEAKER
-8.7	20W	-11.7	-10.8	20W	-13.5	-11.6	20W	-14.4	-13.9	20W	-16.7	-16.7
-5.7	40W	-8.4	-7.8	40W	-10.6	-8.7	40W	-11.4	-10.9	40W	-13.7	-13.7
-3.9	60W	-6.6	-6	60W	-8.8	-6.8	60W	-9.6	-9.1	60W	-11.9	-11.9
-2.7	80W	-5.5	-4.8	80W	-7.6	-5.6	80W	-8.4	-7.8	80W	-10.6	-10.6
-1.7	100W	-4.3	-3.9	100W	-6.6	-4.7	100W	-7.3	-6.9	100W	-9.7	-9.7
-0.1	150W	-2.6	-2.1	150W	-4.8	-2.9	150W	-5.7	-5.2	150W	-7.9	-7.9
1.3	200W	-1.4	-0.8	200W	-3.6	-1.7	200W	-4.4	-3.9	200W	-6.6	-6.6
2.2	250W	-0.6	0.1	250W	-2.6	-0.7	250W	-3.5	-2.9	250W	-5.7	-5.7
2.8	300W	-0.2	0.9	300W	-1.9	0.1	300W	-2.7	-2.1	300W	-5	-5
3.5	350W	1	1.6	350W	-1.2	0.6	350W	-2	-1.6	350W	-4.3	-4.3
4.1	400W	1.6	2	400W	-0.6	1.7	400W	-1.4	1	400W	-3.6	-3.6
4.5W	450W	2	2.6	450W	-0.1	1.2	450W	1	-0.5	450W	-3.2	-3.2
500W	500W	2.4	3.1	500W	0.3	2.2	500W	-0.7	0	500W	-2.7	-2.7
600W	600W	3.2	3.8	600W	1.1	3	600W	0.2	0.8	600W	-1.9	-1.9
				700W	1.7	3.6	700W	0.9	1.5	700W	-1.3	-1.3
				800W	2.2	4.3	800W	1.4	2	800W	-0.8	-0.8
				900W	2.8		900W	1.9	2.6	900W	-0.2	-0.2
							1000W	2.4	2.9	1000W	0.2	0.2
							1200W	3.2	3.9	1200W	1	1
										1400W	1.7	1.7
										1600W	2.3	2.3
										1800W	2.8	2.8
										2000W	3.3	3.3

# Hybrid

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## SPECIFICATIONS

Analogue inputs (A and B)	Electronically balanced XLR
Analogue outputs (1, 2, 3 and 4)	Electronically balanced XLR
Maximum RMS input level	+20 dBu
Input impedance	20 k $\Omega$ @ 1 kHz
Dynamic range	100 dB
Resolution	24-bit Delta-Sigma
Maximum RMS output level	+20 dBu
Dynamic range	104 dB typ.
Output impedance	100 $\Omega$ @ 1 kHz
Frequency response	10 Hz to 35 kHz ( $\pm 3$ dB)
Overall dynamic range	102 dB
THD + noise ratio	0,005% @ 0 dBu
Mains voltage	100–240 VAC 50–60 Hz
Fuse rating	250 mA
Power consumption	<10 W
Mains connector	Standard IEC receptacle
Net dimensions (HxDxW)	45 mm $\times$ 127 mm $\times$ 483 mm
Shipping dimensions (HxDxW)	70 mm $\times$ 85 mm $\times$ 560 mm
Net weight	1.6 kg
Shipping weight	2 kg

# Hybrid

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