

Hybrid+

ALTIUM 15/12

**2000W, SELF-POWERED
FULL RANGE SPEAKER**



USER MANUAL

REV Z0 22-02-2022

IMPORTANT PRECAUTIONS



SYMBOL ALERTING THE OPERATOR TO FOLLOW IMPORTANT OPERATING INSTRUCTIONS AND PRECAUTIONS DETAILED IN THIS DOCUMENT.



SYMBOL WARNING THE OPERATOR THAT UNINSULATED, DANGEROUS VOLTAGES ARE PRESENT WITHIN THE ENCLOSURE THAT MAY POSE A RISK OF ELECTRIC SHOCK.

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



Do not spill water or other liquids into or on the speaker, or operate the speaker whilst under wet or damp conditions.



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



Do not use the speaker 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 speaker.



Always operate the speaker with the AC earth wire connected on both sides (Speaker and Mains).



Precaution should be taken so that the earth connection is not defeated.



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



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



Do not operate your speaker on a surface or environment which may impede the normal flow of air around the speaker.

- If the speaker is used in an extremely dusty or smoky environment, the amplifier should periodically be blown free of foreign matter.



Do not remove the aluminium panel of the speaker. Removing this panel will expose you to potentially dangerous voltages. There are no user-serviceable parts inside.



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



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



During long periods of no use, the power cable should be unplugged from the mains voltage outlet.

- After long periods of no use, the power cable should be inspected for any damage before using the speaker again.
- Your speaker should be serviced only by qualified service personnel. Contact your nearest official retailer should your speaker need technical attention.
- Your speaker should be serviced by a qualified service technician when:

- The power supply cord or plug/s have been damaged.
- Liquids have been spilled inside the speaker enclosure.
- The speaker has been exposed to rain or excessive moisture.
- The speaker does not appear to operate normally, or exhibits a reduction in performance.
- The speaker has been dropped or the enclosure is damaged.

INTRODUCTION

- Congratulations on your purchase of the new Hybrid+ Altium15/Altium12 powered speaker, and thank you for your confidence in the Hybrid+ brand. You are amongst the growing number of audio professionals who have made Hybrid+ one of Southern Africa’s leading brands of professional and commercial audio systems.
- For your safety, please read the important precautions before installing and operating your speaker. The Hybrid+ Altium15/Altium12 is based on the same advanced circuit topologies that have made Hybrid products the choice of professionals for the past 30 years. The Hybrid+ Altium15/Altium12 has been designed for high operating efficiency and accurate sonic performance across the full audio bandwidth, even under stressful conditions. Internal components are the finest available, and sub-assemblies are pre-tested before final assembly. Finally, each speaker is “burned in” and thoroughly tested using precision audio test equipment before shipping. In addition, both the Hybrid+ Altium15/Altium12 incorporates extensive protection features to safeguard both internal circuitry and transducers. This proven combination of advanced design, quality construction and comprehensive circuit protection is your guarantee of fail-safe reliability, and you can depend on consistent, stable performance.

UNPACKING

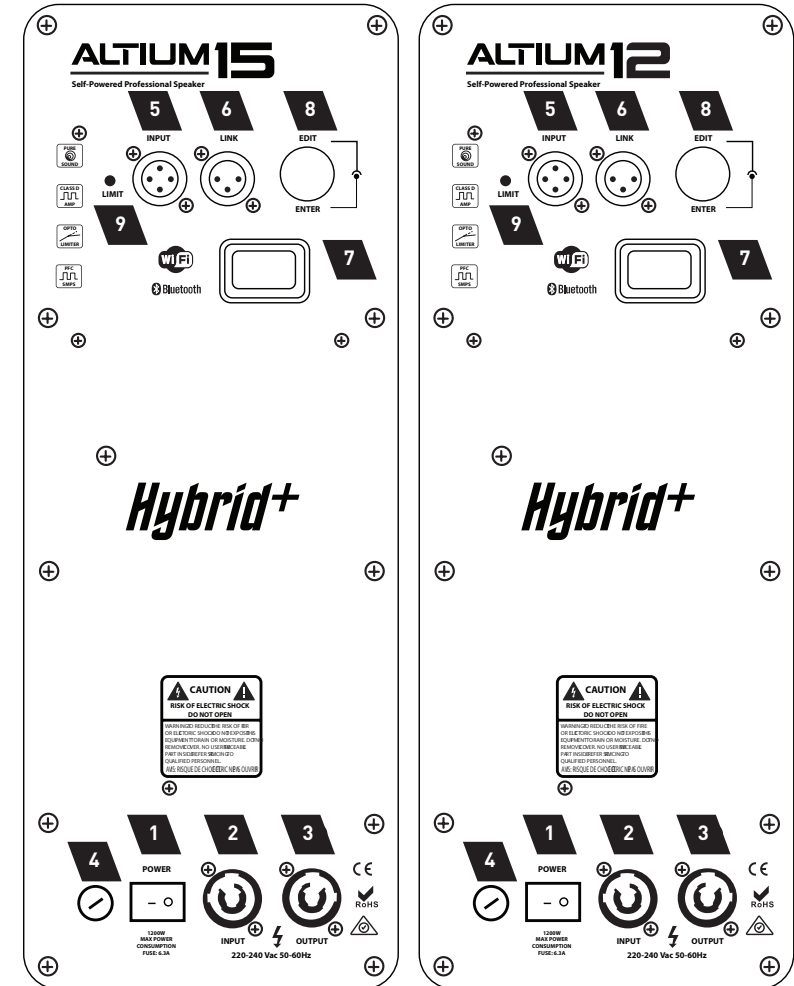
- Please inspect the speaker carefully immediately after unpacking. If you find any visible damage, notify your supplier/retailer immediately. Be sure to save the carton and all packing materials should you need to ship the unit back to your authorised service centre.
- Hybrid+ Altium15/Altium12 offers an 18 month “No-Quibble” carry-in guarantee, and should your speaker, in the unlikely event, be damaged upon receipt and inspection, we offer an exchange immediately, provided that all packaging and cabling is returned in original condition.

INSTALLATION AND MOUNTING

- Both Hybrid+ Altium15/Altium12 speakers can be used as free standing, pole mounted or hung/suspended.
- A Top-Hat has been fitted underneath the speaker for pole mounting, with dual angle operation [0 and 10°]..
- 7 x M8 flypoints have been included for fixed suspended installations. Three of the flypoints are located on the top of the speaker, another three on the bottom and the last one on the rear of the cabinet for angling purposes.

USER INTERFACE ELEMENTS

Rear Panel



- | | | |
|---------------------------|-----------------------|-------------------|
| 1: Power on-off switch | 4: Fuse holder | 7: LCD screen |
| 2: Powercon IN connector | 5: Input connector | 8: Rotary encoder |
| 3: Powercon OUT connector | 6: Input loop through | 9: Limit LED |

1: POWERCON IN CONNECTOR

Main power switch, switching the speaker ON or OFF. Once the speaker is switched ON, the LCD screen will illuminate.

2: POWERCON IN CONNECTOR



- Mains 220 - 240Vac Input connector.
- Only use the cable supplied with this speaker to power up the unit (Powercon – 3 Pin Mains South African plug).
- **DO NOT** modify the cable in any way.
- Inspect the cable before use and should any sign of damage be visible, replace the cable with the exact same, available from your nearest authorised retailer.

3: POWERCON OUT CONNECTOR

- Mains 220 - 240Vac loop through Output connector, allowing multiple Hybrid+ Altium15/ Altium12 speakers to be powered by the same mains outlet.
- Do not load (Daisy Chain) more than 3 cabinets from the same mains outlet. Overloading the power source may cause the line circuit breaker to activate and in extreme cases could be a fire hazard.
- Only use Powercon Output – Powercon Input cables to connect multiple speaker cabinets.
- 3 Core cable (Live, Neutral and Earth), min. 1mm diameter / core.

4: FUSE HOLDER



- It is recommended that should the fuse be blown, take the speaker for testing to your nearest authorised service centre. Usually when a fuse has blown, it indicates that there are damaged components within the circuitry of the speaker. By changing the fuse and restarting the speaker, it may cause further damage to components.



DO NOT attempt to bypass the fuse in any manner by bridging the fuse with solid conductor.



DO NOT replace the fuse with an incorrect value fuse. Only replace the fuse with the exact fuse rating as printed on the back panel.

5: INPUT CONNECTOR

- Speaker Input.
- The XLR input female connector can be configured as a mono balanced input or a stereo unbalanced input. To select between the two input modes, the balanced / Unbalanced switch must be activated within the software via the encoder or app.

PIN-OUT CONFIGURATION AS A MONO BALANCED INPUT

Pin 1 – Ground

Pin 2 – Non-Inverting (Hot)

Pin 3 – Inverting (Cold)

PIN-OUT CONFIGURATION AS A STEREO UNBALANCED INPUT

Pin 1 – Ground

Pin 2 – Right Input

Pin 3 – Left Input

6: INPUT LOOP THROUGH

- Speaker Input.
- The XLR Input Female connector can be configured as a Mono Balanced input or a Stereo Unbalanced input. To select between the two input modes, the Balanced / Unbalanced switch must be activated within the software via the encoder or app.

Pin 1 – Ground

Pin 2 – Non-Inverting (Hot)

Pin 3 – Inverting (Cold)

7: LCD SCREEN

The LCD screen informs the operator of important information, changing page displays when the encoder is activated (Toggle pressed).

- WiFi identification, Model Number, Firmware version, and the wireless mode (WiFi or Bluetooth).
 - Master Channel level in dB, ranging from -33 to 0, including Output VU bar readings for both LF and HF integrated amplifiers.
 - Input Channel level in dB, ranging from -80 to 0.
 - Bluetooth Channel level in dB, ranging from -80 to 0.
 - Mode: Mono Balanced or Stereo Unbalanced.
 - Input Selection: Line Input or Microphone Input.
 - Mid EQ level in dB, ranging from -12 to +6
 - Treble EQ level in dB, ranging from -12 to +6dB
 - Preset Selection:
 - Preset 1 – Full Range FLAT
 - Preset 2 – Music
 - Preset 3 – Satellite Live
 - Preset 4 – Satellite Music
- *Save User settings

8: ROTARY ENCODER

- **The rotary encoder performs two functions. By rotating the encoder clockwise or anticlockwise, parameters can be changed. By pressing the encoder, the parameter is temporarily stored and the next function page appears.**

9: LIMIT LED

- A red LED indicates when the speaker has reached its optimum SPL performance and the internal limiters have activated, protecting the speaker and electronics.

TIP: Do not drive the power amplifier beyond this point as it will degrade the audio quality which may damage your loudspeakers.

- The limit LED has a second function, illuminating briefly when the Line/Mic input selection is changed from Line to Mic or vice versa.

INSTALLATION AND MOUNTING

USING THE XLR CONNECTOR AS THE INPUT SOURCE

- Use the Input XLR (Female) connector (5) on the rear panel to supply an audio signal to your Altium15/Altium12 powered speaker. The link XLR (Male) connector (6) may be used to daisy-chain the audio input to other Altium15/Altium12 powered speaker cabinets when necessary. The link XLR (Male) connector will only mirror input signals from the XLR (Female) connector and NOT from the bluetooth input.
- Mono Balanced and Stereo Unbalanced connections may be used with the following pinout configuration:

MONO BALANCED

- Pin 1 – Ground
- Pin 2 – Non-Inverting Input (+)
- Pin 3 – Inverting Input (-)

STEREO UNBALANCED

- Pin 1 – Ground
- Pin 2 – Right Input
- Pin 3 – Left Input

- The XLR Female input connector (5) can be used in “Normal” mode or “DSP mode”.
- It is recommended that you make all input and loop through connections before powering up your Altium15/Altium12 speaker and the input signal should be muted from your source. This will avoid unexpected “thumps” when powering your Altium15/Altium12 speaker and abnormally high input signals that may overload your speaker.

TIP: It is recommended to always use balanced line inputs as opposed to unbalanced inputs, ensuring a +6dB gain structure and noise reduction throughout your system.

- Connect the powercon mains cable provided with the Altium15/Altium12 to the mains outlet and the speaker, and power up the unit by switching the power switch (1) ON.
- Once the Altium15/Altium12 has been switched on, it will go through its start-up sequence, initially displaying the “HYBRID+ LOGO” on the LCD screen and starting a countdown from 3 to 0, prompting the user to select either “normal mode” or “WiFi mode”. Normal mode will automatically be selected without any further action, whilst WiFi mode is selected by pressing and holding the rotary encoder (8) during the countdown from 3 to 0.

USING BLUETOOTH AS THE INPUT SOURCE

- Connect the Powercon mains cable provided with the Altium15/Altium12 to the mains outlet and the speaker, and power up the unit by switching the power switch (1) ON.
- Once the Altium15/Altium12 has been switched on, it will go through its start-up sequence, initially displaying the “HYBRID+ LOGO” on the LCD screen and starting a countdown from 3 to 0, prompting the user to select either “normal mode” of “WiFi mode”.
- Normal mode will automatically be selected without any further action, whilst WiFi mode is selected by pressing and holding the rotary encoder (8) during the countdown from 3 to 0.
- To access the bluetooth module, the Altium15/Altium12 must be in Normal Mode. The bluetooth module is unavailable when the Altium15/Altium12 is in WiFi Mode.
- Open the Bluetooth application on your mobile device or PC/laptop and find the device starting with HYBRID+_ followed by 6 Alphanumeric (HYBRID+_XXXXXX). Enable the connection to this device. It will prompt you for a Password. Type in the factory default password as follows: **1234 AND PAIR THE TWO DEVICES TOGETHER.** (This password is a factory default password for all Altium15/Altium12 cabinets and can be changed to your own personalised code using the Utilities menu).
- Once successful connection / pairing is made, audio playback from your mobile device or PC/laptop is possible.
- It is recommended that you have the volume setting of the mobile device/PC/laptop muted or at a low level in order to avoid abnormally high input signals that may overload your speaker.

USING THE ALTIUM15/ALTIUM12 IN WIFI MODE

- To access "Normal Mode", switch on the Altium15/Altium12 and allow it to go through its start-up sequence with no further action required by the user. After a few seconds the LCD screen will enter the home page, displaying the Master level with dual bar graph displays of the LF and HF internal amplifiers. Rotating the encoder (8) clockwise will increase the master level in increments of 1dB. Similarly, rotating the encoder anticlockwise, will have the adverse effect. The master level has a range of -33dB to +6dB.
- Pressing the encoder once will toggle the display to the next menu page. Changes are made by rotating the encoder clockwise or anticlockwise. Pressing the encoder once more will display the next menu page and so on. Below is the sequence of menu pages:

- 1) Master level (home page) -30dB to +6dB (Factory default set at +6dB)
- 2) Input level -60dB to 0dB (Factory default set at 0dB)
- 3) Bluetooth player level -60dB to 0dB (Factory default set at 0dB)
- 5) Input Selection between Line or Microphone (Factory default set to Line)
- 6) LF EQ -12dB to +6dB (Factory default set at 0dB)
- 7) MF EQ -12dB to +6dB (Factory default set at 0dB)
- 8) HF EQ -12dB to +6dB (Factory default set at 0dB)
- 9) Preset selection 1 - 4 (Factory default set to Preset 1)

- * Preset 1 - FLAT
- * Preset 2 - MUSIC
- * Preset 3 - SATELLITE LIVE
- * Preset 4 - SATELLITE MUSIC

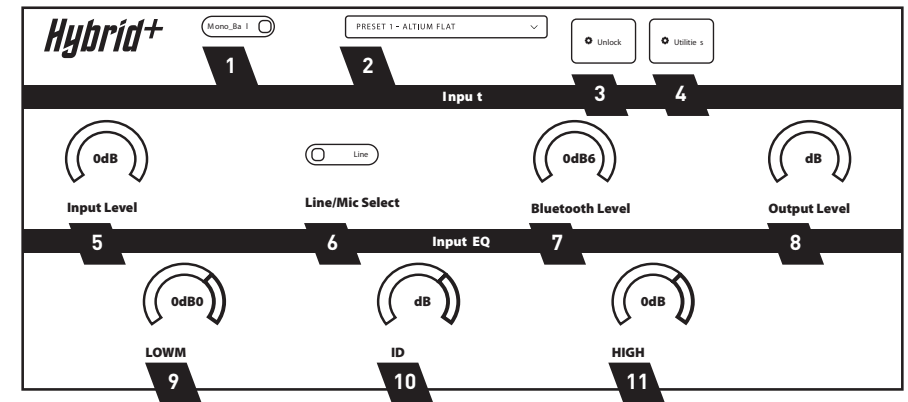
Presets 3 and 4 are recommended when using the Altium15/Altium12 together with a sub-bass cabinet.

10) Save changes

Once the "save changes" are confirmed, any changes to levels, modes, EQ settings and presets 1 - 4 will be stored. Once the speaker is switched off and restarted, the new saved settings will be loaded.

USING THE ALTIUM15/ALTIUM12 IN WIFI MODE

- To access the WiFi Mode, immediately after switch on, press the encoder and hold it down whilst the countdown from 3 to 0 appears on the LCD screen. Once successful the LCD screen will indicate "START WIFI" and thereafter "WiFi Mode". You have now successfully entered WiFi Mode
- Open the WiFi application on your mobile device or PC/Laptop and find the network starting with HYBRID+_ followed by 6 Alphanumerics (HYBRID+_XXXXXX). Enable connection to this network. It will prompt you for a Password. Type in the factory default password as follows: 12345678 (This password is a factory default password for all Altium15/Altium12 cabinets and can be changed to your own personalised code using the Utilities menu).
- Open your web browser and type in the following IP address: 192.168.4.1 After a few seconds the software application will load and display as per the diagram below.



- 1:** Mono_Bal
- 2:** Preset 1- Altium Flat
- 3:** Unlock
- 4:** Utilities
- 5:** Input Level
- 6:** Line/Mic Select
- 7:** Bluetooth Level
- 8:** Output Level
- 9:** LOW
- 10:** MID
- 11:** HIGH

All functions and settings can now be edited using the software app, with a few added features using the Utilities tab:


- 1) Mono Balanced / Stereo Unbalanced switch (Factory default is set to Mono Balanced)
- 2) Preset selection scroll bar:
 - * Preset 1 - FLAT (Factory default)
 - * Preset 2 - MUSIC
 - * Preset 3 - SATELLITE LIVE
 - * Preset 4 - SATELLITE MUSIC
- 3) Unlock: Not available for the user, it is a password protected unlock tab that opens the complete DSP function including crossover networks and limiters – For factory and R&D use only.
- 4) Utilities: Once the utilities tab is selected, a scroll down bar will appear with the following options:
 - WiFi and Bluetooth setup: Allows for WiFi and bluetooth passwords to be edited and saved.
 - Write: Not available for user editing – For factory and R&D use only.
 - Defaults: Once selected all original factory settings will be reloaded to your Altium15/Altium12.
 - Show: Shows the DSP workflow diagram.
 - Upgrade: Allows for future software upgrade files to be loaded.
- 5) Input level -60dB to 0dB (Factory default set at 0dB)
- 6) Line /Mic selection switch (Factory default set to Line)
- 7) Bluetooth player level -60dB to 0dB (Factory default set at 0dB)
- 8) Output Level -30dB to +6dB (Factory default set at +6dB)
- 9) Low: LF EQ -12dB to +6dB (Factory default set at 0dB)
- 10) Mid: MF EQ -12dB to +6dB (Factory default set at +0dB)
- 11) High: HF EQ -12dB to +6dB (Factory default set at +0dB)

NOTE: BLUETOOTH IS NOT AVAILABLE IN WIFI MODE.

USER PRECAUTIONS

SPEAKER PROTECTION

- Your Altium15/Altium12 Self-Powered Speaker automatically protects itself to a certain degree from DC voltages, clipped waveforms and subsonic (20Hz←) frequencies, however, correct usage of the Speaker should always be followed in order to ensure longevity of your

-  Ensure that the speaker does not go beyond its clipping point. This threshold is determined by the illumination of the red CLIP LIMIT LED found on the rear panel.

MAINTENANCE

- Your Altium15/Altium12 requires no routine maintenance other than the occasional cleaning of the cabinet and the amplifier module using a dry cloth and a water-based mild detergent or spray.



Users will not need to make any internal adjustments to the speaker throughout its lifetime. There are no user-serviceable parts inside. Removal of the module or 15" speaker exposes risk of shock, and any servicing needed should be carried out by an authorised and qualified service centre.

SERVICE AND REPAIR

- In the unlikely event that your speaker develops a problem, it should be returned to an authorised distributor or service centre. Due to the complexity of the design and the risk of electrical shock, all repairs must be carried out by authorised and qualified personnel. If the speaker needs to be couriered to the distributor or service centre, ensure that it is correctly packed in its original packaging so as to avoid further damage.
- Your Altium15/Altium12 carries from date of purchase an 18 month, no quibble walk-in guarantee. Hybrid+ prides itself for its excellent after sales service and it is our goal to return your Speaker back to you in perfect working order.

THANK YOU FOR PURCHASING A HYBRID+ PRODUCT AND FOR READING THIS USER MANUAL. YOU ARE NOW READY TO USE YOUR ALTIUM15/ALTIUM12 AND WE HOPE IT BRINGS YOU MANY HOURS OF LISTENING PLEASURE.

Hybrid+

SPECIFICATIONS

ALTIUM15

Cabinet Construction	Precision CNC manufacturing process Braced 15mm Birch plywood Pressurized Tongue and Groove assembly
Cabinet Finish and Accessories	4 coats of Textured Half Gloss Black Paint, Ultratex V3 (USA) Braced 1.5mm powder coated dual tone design grille Anti-corrosion stainless steel machine screws and nuts 2 x Metal cup handles 7 x M8 Fly-points (3 Top, 3 Bottom, 1 Back) Dual angle fibre reinforced ABS 35mm Top-hat (0° and 10°)
15" Low Frequency Speaker	Model: 15MB354-4 Replacement recone: 15MB354-4RK Power rating: 1400W Peak, 700W Program, 350W rms Impedance: 4Ω Aluminium diecast frame Voice Coil: 2.5" (63mm) IN-OUT Copper (350° Celsius EIC grade) Magnet: Ferrite (170 x 20mm) Ribbed fibre-loaded paper cone with triple roll surround
1" High Frequency Driver	Model: PCD440B Replacement Diaphragm: PCD440B DK Power rating: 200W Peak, 100W Program, 50W rms Exit: 1" (25mm) Impedance: 8Ω Diaphragm: Space grade Ketone Polymer (UK) Voice Coil: 1.7" (44mm) Flat aluminium wire (Japan) Magnet: Ferrite (115mm)
Electronic X-Over	1.8KHz, 24dB/Octave, phase corrected
SMPSU	90% Efficiency Metal Shield enclosed Low no-load consumption <0.5W Short circuit protection Overload protection Over voltage protection Thermal protection
Class D Audio Amplifier	Dual channel power amplifier (LF and HF) Rated power: 2 x 1260W Peak, 2 x 630W Program, 2 x 315W rms @ 4Ω THD+N: 0.006%/1W SNR: 112dB Dynamic range: 113dB
DSP	1 IN - 2 OUT 4 user selectable presets Preamp DSP resolution: 56bits Converters: 24bits/48KHz with 104SNR Crossover slopes: Linkwitz-Riley, Butterworth & Bessel EQ: 19 x Full parametric EQ EQ Types: PEQ, Low and High Shelve, Notch, Low and High Pass Time Alignment: 17ms/Output Dual protection compressor-limiters Phase correction Balanced Mic/Line Inputs Bluetooth 5.0 Audio Player 32 bit MCU Control WiFi DSP control - No app installation needed
Gross dimensions	440 x 710 x 450mm (W/H/D) ; Mass: 24kg
Net dimensions	410 x 660 x 420mm (W/H/D) ; Mass: 21kg

ALTIUM12

Cabinet Construction	Precision CNC manufacturing process Braced 15mm Birch plywood Pressurized Tongue and Groove assembly
Cabinet Finish and Accessories	4 coats of Textured Half Gloss Black Paint, Ultratex V3 (USA) Braced 1.5mm powder coated dual tone design grille Anti-corrosion stainless steel machine screws and nuts 2 x Metal cup handles 7 x M8 Fly-points (3 Top, 3 Bottom, 1 Back) Dual angle fibre reinforced ABS 35mm Top-hat (0° and 10°)
15" Low Frequency Speaker	Model: 12MB354-4 Replacement recone: 12MB354-4RK Power rating: 1400W Peak, 700W Program, 350W rms Impedance: 4Ω Aluminium diecast frame Voice Coil: 2.5" (63mm) IN-OUT Copper (350° Celsius EIC grade) Magnet: Ferrite (170 x 20mm) Ribbed fibre-loaded paper cone with triple roll surround
1" High Frequency Driver	Model: PCD440B Replacement Diaphragm: PCD440B DK Power rating: 200W Peak, 100W Program, 50W rms Exit: 1" (25mm) Impedance: 8Ω Diaphragm: Space grade Ketone Polymer (UK) Voice Coil: 1.7" (44mm) Flat aluminium wire (Japan) Magnet: Ferrite (115mm)
Electronic X-Over	1.8KHz, 24dB/Octave, phase corrected
SMPSU	90% Efficiency Metal Shield enclosed Low no-load consumption <0.5W Short circuit protection Overload protection Over voltage protection Thermal protection
Class D Audio Amplifier	Dual channel power amplifier (LF and HF) Rated power: 2 x 1260W Peak, 2 x 630W Program, 2 x 315W rms @ 4Ω THD+N: 0.006%/1W SNR: 112dB Dynamic range: 113dB
DSP	1 IN - 2 OUT 4 user selectable presets Preamp DSP resolution: 56bits Converters: 24bits/48KHz with 104SNR Crossover slopes: Linkwitz-Riley, Butterworth & Bessel EQ: 19 x Full parametric EQ EQ Types: PEQ, Low and High Shelve, Notch, Low and High Pass Time Alignment: 17ms/Output Dual protection compressor-limiters Phase correction Balanced Mic/Line Inputs Bluetooth 5.0 Audio Player 32 bit MCU Control WiFi DSP control - No app installation needed
Gross dimensions	370 x 630 x 390mm (W/H/D) ; Mass: 20kg
Net dimensions	340 x 595 x 345mm (W/H/D) ; Mass: 17.8kg