



# Network **CONNECTSERIES**

# TABLE OF CONTENTS

---

<b>Table of Contents</b> .....	<b>1</b>
<b>Welcome Message</b> .....	<b>2</b>
<b>Introduction</b> .....	<b>3-7</b>
Main Features .....	4
Specifications .....	5-6
Warranty .....	7
<b>Safety Instructions</b> .....	<b>8</b>
<b>Front Panel</b> .....	<b>9-10</b>
<b>Back Panel</b> .....	<b>11-15</b>
<b>Accessories</b> .....	<b>16-18</b>
<b>Getting Started</b> .....	<b>19</b>
Installation .....	19
Power Up .....	19
<b>Web App UI</b> .....	<b>20-27</b>
Connecting to the Network .....	21
Setting up the Web App UI .....	22-27
Saving Amplifier Settings .....	28
Loading Amplifier Settings .....	29
Saving Channel Speaker Tunings .....	30
Loading Channel Speaker Tunings .....	31
<b>DSP Block Diagram</b> .....	<b>32</b>
<b>Glossary</b> .....	<b>33-35</b>
<b>Power Consumption</b> .....	<b>36-38</b>
<b>Support</b> .....	<b>39-40</b>
<b>Sustainability Statement</b> .....	<b>41-42</b>
<b>Declaration of Conformity</b> .....	<b>43</b>

Document Revision Date: February 4, 2020



We've been in the deep end of the pro audio industry for a long time now. What we saw was an appetite for something new. So, we started LEA Professional – a new pro audio technology company with the freedom, agility, knowledge and passion to create not only a great audio amplifier, but also simple systems that focus on supporting you, our customer.

At the end of the day, we are just passionate about audio technology and we want to share our passion with as many people as possible. Because we know that great audio technology, is at the heart of great experiences. So, we are dedicated to providing perfect sound reinforcement through all of our products.

We're deeply proud of our Connect Series amplifiers and we can't wait for you to get working with them. We truly believe that we've produced the best looking, best performing product with the best technology at the best price for you.

Although we've strived to create simple systems and proactive technologies, we are dedicated to continually supporting you with anything you need. Please don't hesitate to contact us anytime for more information, support, or just to talk audio.

As far as we're concerned, we're riding this wave together. Welcome aboard!

---

Get more – join our pro audio community!



**Subscribe:**  
leaprofessional.com

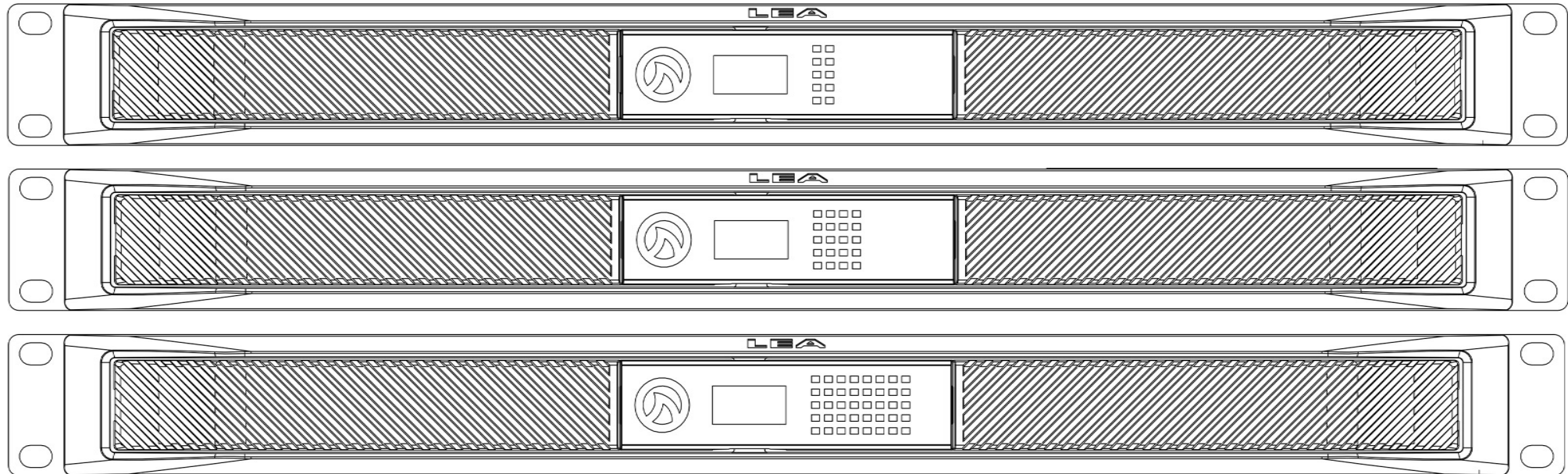


**Follow:**  
@LEAPprofessional

**Follow:**  
@LEA\_Professional

# CONNECT **SERIES**

INTRODUCING THE WORLD'S FIRST IOT-ENABLED PROFESSIONAL AMPLIFIERS



# INTRODUCTION | CONNECT SERIES

---

Introducing an Internet of Things (IoT) enabled, professional-grade amplifier family – the Network Connect Series. Perfectly suited for small to medium scale installations, these two, four, and eight channel amps feature direct HiZ (70V or 100V) or LoZ selectable by channel. With three ways to connect, you can engage the built in WiFi access point, connect to the venue's WiFi, and use the FAST 10/100MB Ethernet to connect to any local area network via Cat5 or Cat6 cable.

Then there's the Cloud... The Network Connect Series is the first professional amplifier family to feature Cloud connectivity. Harness the power of the Cloud for remote control, monitoring, notifications and more from any of your personal devices – no software download needed! Just connect your amp to a network and start commanding your systems. Register for your free LEA Cloud account at [leaprofessional.cloud](http://leaprofessional.cloud)

The power of the Cloud and our Web UI will set the installer up to be able to create a recurring revenue source by adding monitoring and preventative system maintenance to their service contracts. Also included is an Analog Devices 96kHz DSP with up to 48dB/Oct filters, 8 parametric EQ's, speaker protection limiting, and many more features controlled by a web-based UI.

The Network Connect Series also features analog inputs and external I/O control for remote on/off and fault monitoring.

## MAIN FEATURES

1. **Web Browser-based UI** works on any device with no software to download
2. **Direct LoZ and HiZ** (70V or 100V) selectable per channel
3. **Proprietary Smart Power Bridge** double the output power of any single channel without sacrificing other channels on the amplifier
4. **3 Ways to Connect to the amplifier** 1.) Built in WiFi Access Point 2.) Connects to existing WiFi network 3.) Local Area Network Ethernet connection
5. **3<sup>rd</sup> Party API** support for most of the industry leading system processors on the market
6. **96kHz Analog Devices DSP** with Input Routing, multiple 48dB/Oct crossover filters, 8 Parametric EQ filters, user configurable speaker limiters, and real time load monitoring
7. **Universal Switch Mode Power Supply** with PFC. Operation from 100VAC – 240VAC +/-10%
8. **Analog** fully routable inputs with backup capabilities
9. **External I/O Port** for Remote On/Off and fault monitoring
10. **Highly Efficient Class D Output Stage** for low AC Current draw

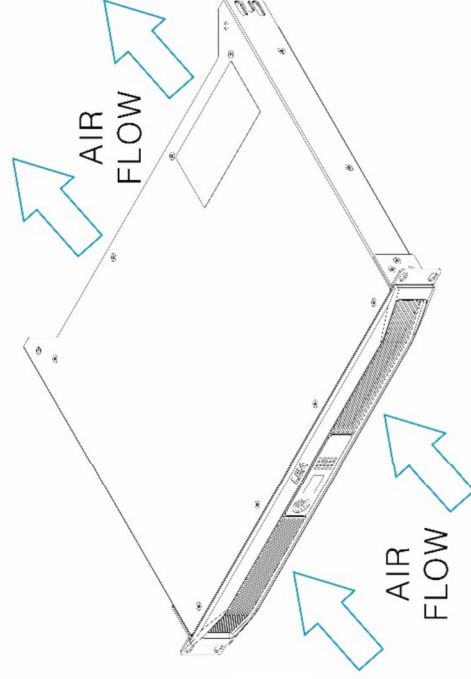
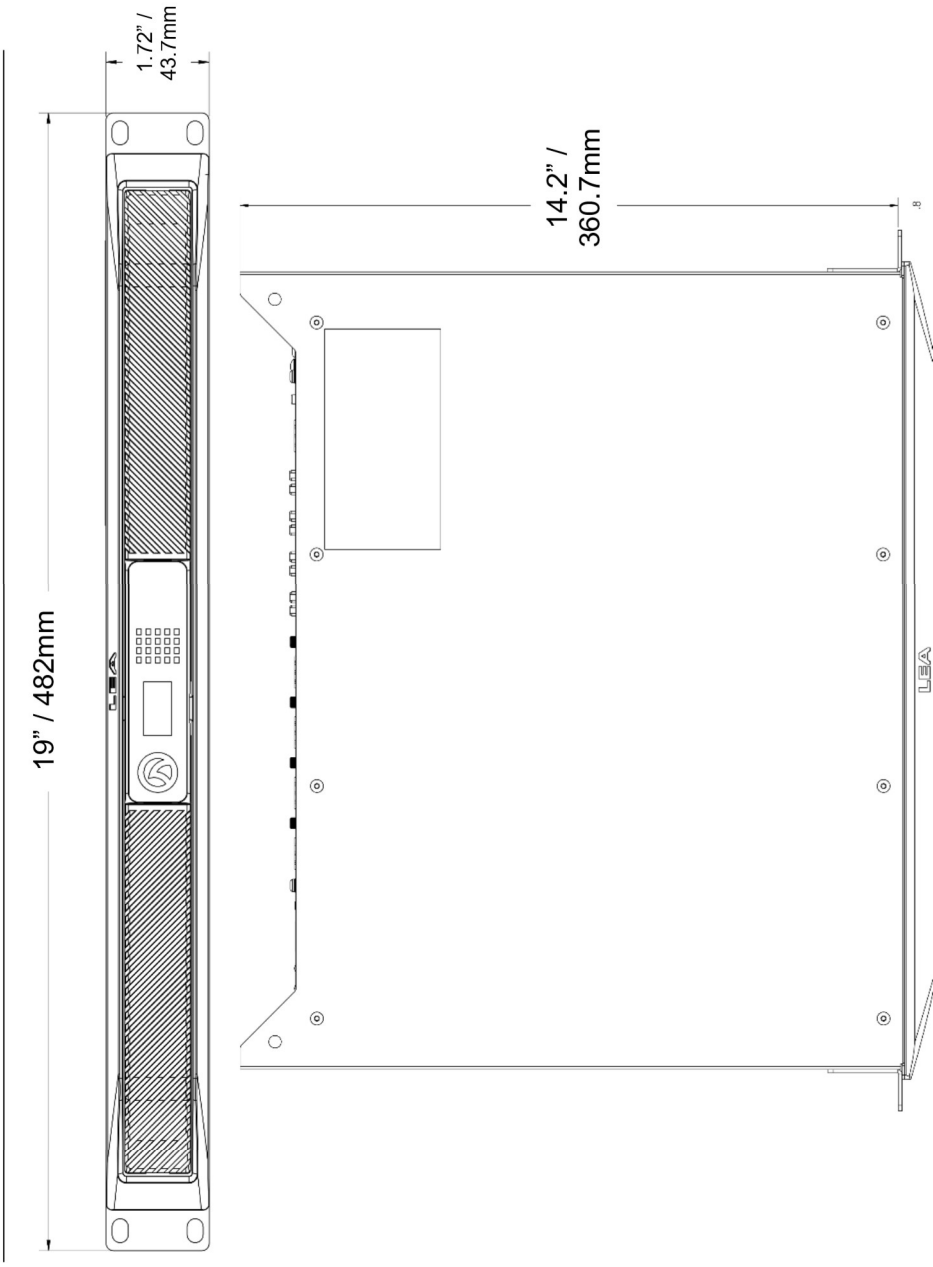
# SPECIFICATIONS | ProductData

Output Power (20Hz to 20kHz)	Connect Series 88	8 x 80 WRMS @ 4Ω, 8Ω, 70V, 100V (40W at 2Ω)
	Connect Series 168	8 x 160 WRMS @ 4Ω, 8Ω, 70V, 100V (80W at 2Ω)
	Connect Series 84	4 x 80 WRMS @ 4Ω, 8Ω, 70V, 100V (40W at 2Ω)
	Connect Series 164	4 x 160 WRMS @ 4Ω, 8Ω, 70V, 100V (80W at 2Ω)
	Connect Series 354	4 x 350 WRMS @ 4Ω, 8Ω, 70V, 100V (175W at 2Ω)
	Connect Series 704	4 x 700 WRMS @ 4Ω, 8Ω, 70V, 100V (350W at 2Ω)
	Connect Series 352	2 x 350 WRMS @ 4Ω, 8Ω, 70V, 100V (175W at 2Ω)
	Connect Series 702	2 x 700 WRMS @ 4Ω, 8Ω, 70V, 100V (350W at 2Ω)
	Connect Series 1504	4 x 1500 WRMS @ 2Ω, 4Ω, 8Ω, 70V, 100V
Audio Spec	Inputs	Analog: Balanced Inputs with user selectable 26 dB and 34 dB input sensitivity (2CH = 2 inputs, 4CH=4 inputs, 8CH = 8 inputs)
	THD+N	0.1% (20Hz to 20kHz)
	Frequency Response	+/- 0.5 dB @ 4Ω, 8Ω, 70V, 100V, -2.5dB @ 20kHz at 2Ω
	Signal to Noise Level	105dB (20Hz to 20kHz referenced to 8Ω)
	Crosstalk	70dB (20Hz to 20kHz)
	I/O Latency	1 ms DSP latency under any condition
	Load Impedance	LowZ down to 2 ohms, 70V direct, and 100V Direct per channel
	Amplifier Output Classification	Class D with Proprietary Smart Power Bridge Technology allowing bridged output functionality without sacrificing an amplifier channel
	DC Offset	+/- 3mV
	DSP Architecture	Analog Devices Sigma 96kHz DSP Processor with 32-bit Core with Sample Rate Converters
DSP	Input Matrix	Routeable matrix; any input to any output with primary and secondary input priority
	Crossovers	Up to 48 dB/Octave IIR Filters (Linkwitz Riley, Butterworth)
	Parametric EQ	8 Band Parametric EQ per channel
	Output Delay	100ms per channel
	Output Protection	DC, VHF, and AC Mains Protection, Overtemp and Current Limiter, fan fault detection
	User Adjustable Limiting	Peak Voltage and RMS Voltage
	Load Monitoring	Realtime Load Monitoring and Pilot Tone Detection from Internal or External Sources
	Network Connectivity	WiFi or 100MB Ethernet with PoE or Built in WiFi Access Point (IEEE 802.11 b/g/n WPA, WAP2, WEP)
	User Interface	Web Browser User Interface, 3rd Party API control, or CLOUD control
	Supported Operating Systems	MAC, iOS, PC, Android
Control, Monitoring, Network	Event Reporting	User Downloadable and Viewable Event and Fault log - POE allows for enhanced error monitoring
	External I/O	External I/O In: Toggles Remote On/Off External I/O Out: Indicates Amplifier Health
	Cloud IoT	Cloud based IoT functionality
	AC Mains	100VAC - 240VAC +/- 10% 50Hz or 60Hz
Operation	Temperature	Storage: -20°C to 90° C - operating temperature 0°C to 35°C (and or 45°C)
	Power Supply	Universal Switch Mode Power Supply with Power Factor Correction (No PFC in Connect Series 84, Connect Series 164, Connect Series 88, & Connect Series 168)
	Safety Approvals	UL, CSA, CE, ETL, FCC, CCC, KETI, NOM, ROHS, PSE
Physical Spec	Dimensions (L x W x H)	Product: 14.25" x 19" x 1U (362mm x 482mm x 1U) Shipping: 20" x 22.75" x 3.75" (508mm x 578mm x 95.25mm) CS 1504 Product: 16.5" x 19" x 24" CS 1504 Shipping: 22.50" x 21.50" x 8"
	Weight	Connect Series 352 & Connect Series 702: 10lbs / 3.4kg   Shipping: 17.4lbs / 7.9kg Connect Series 354 & Connect Series 704: 14lbs / 4kg   Shipping: 18.7lbs / 8.5kg Connect Series 84 & Connect Series 164: COMING SOON   COMING SOON Connect Series 88 & Connect Series 168: COMING SOON   Shipping: COMING SOON Connect Series 1504 Product: 22.75 LBS   Shipping: 33.5 LBS
	Cooling	Front to Rear Variable Fan Speed Cooling Fan Noise at idle is 50dB @ 1m

The Connect Series' WiFi connectivity is achieved using the Japanese certified wireless module ATWILC1000-MR1 10UB.

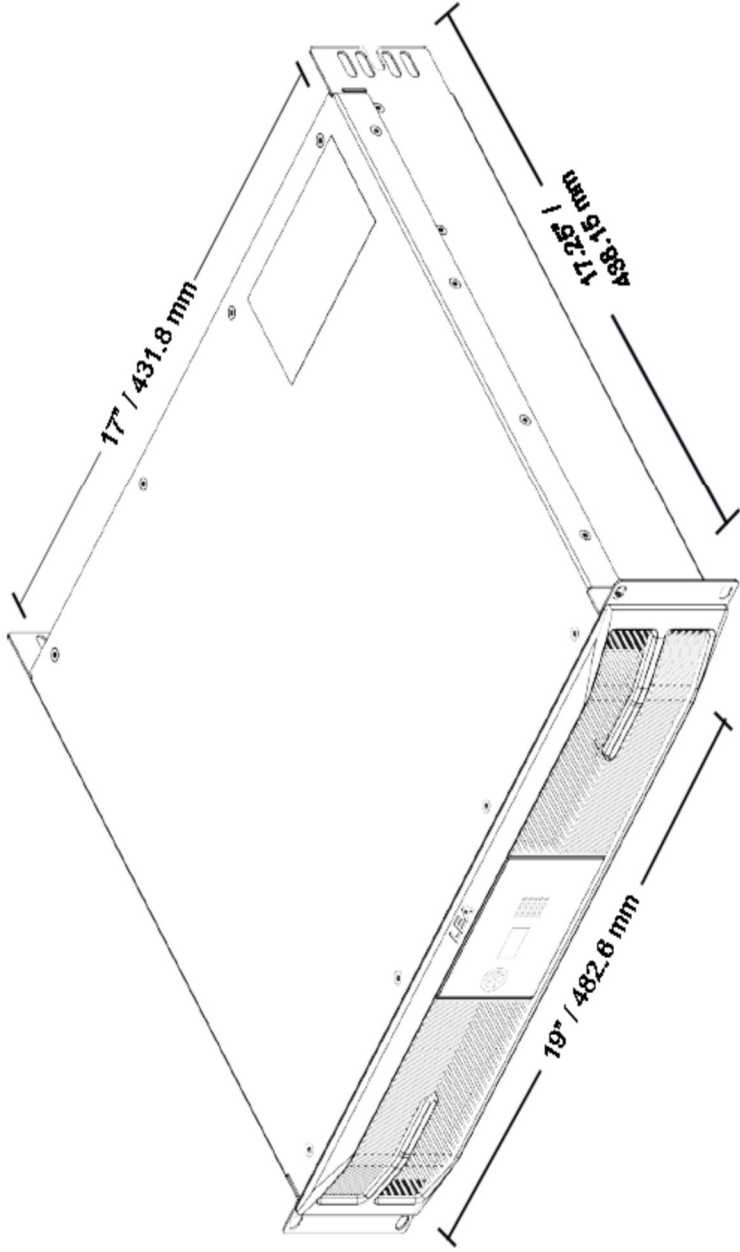
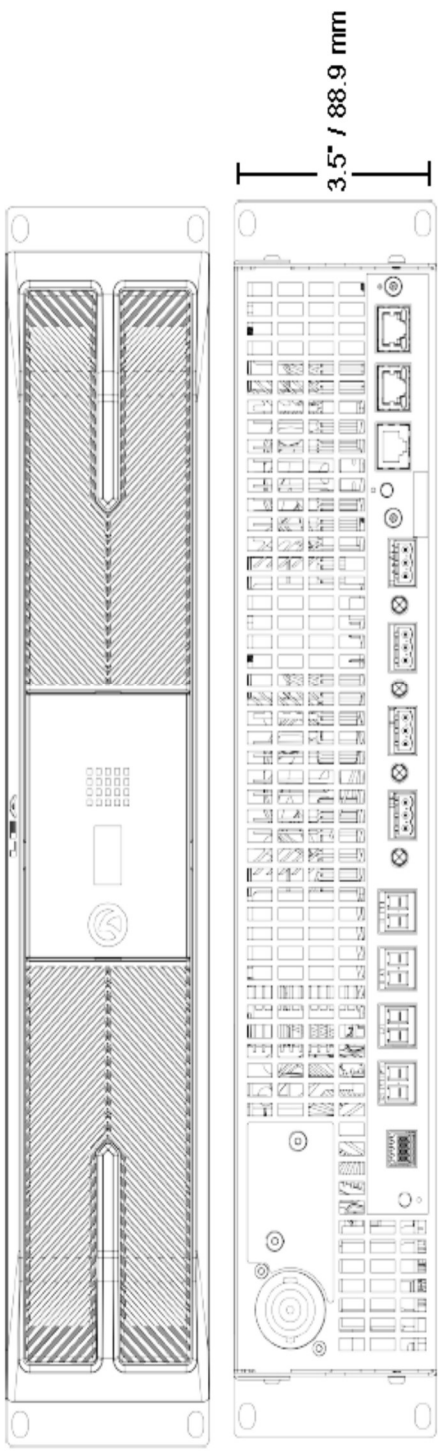
	<p>Fan Noise at 50% is 57dB @ 1m Fan Noise at full speed is 63dB @ 1m</p>
<b>Connectors</b>	<p>Analog Input: 3 pin Amphenol Anytek, Output: 2 pin Amphenol Anytek, External IO: 3 pin Amphenol Anytek, Power In: IEC, Ethernet RJ45 in for Control --Note: Connect Series 84, Connect Series 164, Connect Series 88, &amp; Connect Series 168 do not have potentiometers on the rear panel</p>

## SPECIFICATIONS | ProductData CONTINUED



Front to back airflow  
(See previous page for fan noise)

**SPECIFICATIONS** | ProductData CONTINUED





## LEA LIMITED WARRANTY | U.S. Only

LEA LLC, 635 S. Lafayette Blvd. Building 113, Suite 109, South Bend, Indiana, 46601 U.S.A. warrants for products purchased through an authorized dealer for a period of 3 (three) years from the date of invoice to the dealer (the “warranty period”) that the new LEA LLC product is free of defects in materials and workmanship. Warranty may be extended to a total of 6 (six) years if the product is registered within the first year of original invoice to dealer. Warranty is non-transferrable and is valid within the United States of America. For information on Warranty outside of the U.S.A, please contact your local distributor which can be found here: [www.leaprofessional.com/partner-map](http://www.leaprofessional.com/partner-map)

**Excluded Items:** This Warranty does not cover any product which has been damaged because of any misuse, mishandling, accident, or negligence. This LEA LLC Warranty is not valid if the product serial number has been defaced, altered, or removed. LEA LLC liability shall be limited to the actual purchase price of any defective unit or units of LEA LLC equipment to which a claim is made, and shall in no event include the Customers’ installation costs, design costs, lost profits or goodwill, or any other direct, indirect, special, incidental or consequential damages.

**LEA LLC Obligations:** LEA LLC will remedy any defective product (except as excluded), by advanced replacement with new or equivalent factory refurbished product during the initial three-year warranty period. LEA LLC will provide ground shipment for the replacement product free of charge. LEA LLC will issue a return shipment call tag for the defective unit when RMA is requested.

**Making a Warranty Claim:** A claim for Warranty must be submitted through the original selling dealer. The dealer must notify LEA LLC of the need for Warranty replacement via LEA LLC’s online partner portal. Once Warranty is verified, an RMA number will be provided along with a return shipment call tag. All components must be returned in LEA LLC factory packaging with the RMA number clearly visible on the return shipping label. If a defect product is not returned within 14 days of RMA issuance, the dealer will be billed the full dealer price of the replacement unit. Should a customer wish to have a product repaired and returned instead of replaced, customer should contract LEA Customer Care team for return instructions.

**Alterations:** No person has the authority to extend, amend, or modify this LEA LLC Warranty. Replacement product provided under the terms of this LEA LLC Warranty shall carry only the unexpired portion of Warranty of the originally purchased product.

**Design Changes:** LEA LLC reserves the right to change the design of any product from time to time without notice and with no obligation to make corresponding changes in products previously manufactured.

**Country where Purchased:** LEA LLC Warranty is only available in the country of the products original purchase.

# SAFETY INSTRUCTIONS | SafeOperation

1. Read these instructions before installing or operating this unit.
2. Keep these instructions somewhere for your reference.
3. Heed all warnings provided in these instructions.
4. Follow all instructions found in this document.
5. Keep this unit away from water at all times.
6. Use only a dry cloth to clean the unit.
7. Do not block any ventilation openings. Follow the installation instructions from this manual for proper ventilation.
8. Never install this unit near a heat source such as furnace, radiator, heat registers, ovens, or other anything else that produces heat.
9. Do not alter the safety purpose of the polarized or grounding-type plug. If the provided plug does not fit into your outlet, consult an electrician.
10. Keep the power cord away from areas at risk of being walked on, tripped over, or pinched.
11. Only use attachments/accessories specified within this document.
12. Unplug this device during lightning storms or when unused for long periods of time.
13. Do not attempt to service this unit. All servicing must be performed by a qualified LEA service technician. To find a qualified LEA technician, contact your local LEA dealer/distributor.
14. To disconnect the device from the mains, use the mains plug.
15. **WARNING: DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE. DOING SO CAN RESULT IN AN ELECTRICAL SHOCK.**
16. **ENSURE THAT NO LIQUID-FILLED OBJECTS, SUCH AS DRINKING WATER, ARE PLACED ON THE EQUIPMENT. KEEP EQUIPMENT AWAY FROM DRIPPING OR SPASHING.**
17. **THE MAINS PLUG OF THE POWER SUPPLY CORD SHALL REMAIN READILY OPERABLE.**

## MAGNETIC FIELD

**CAUTION!** All high-gain devices such as preamplifiers should be installed away from the device. Due to the high-power density of this amplifier, it has a strong magnetic field which can induce hum into unshielded devices that are located nearby. The field is strongest just above and below the unit. If an equipment rack is used, we recommend installing the amplifier(s) in the bottom of the rack and the preamplifier or other sensitive equipment at the top.

## BE AWARE OF THESE SYMBOLS:



The lightning bolt alert is used to inform the user to the risk of potential electric shock.



The exclamation point alert is used to inform the user of important operating or maintenance instructions

**DO NOT REMOVE TOP OR BOTTOM COVERS ON THIS DEVICE. NO USER SERVICEABLE PARTS INSIDE. CONTACT QUALIFIED SERVICE PERSONNEL FOR ALL SERVICING MATTERS.**

## FCC COMPLIANCE NOTICE

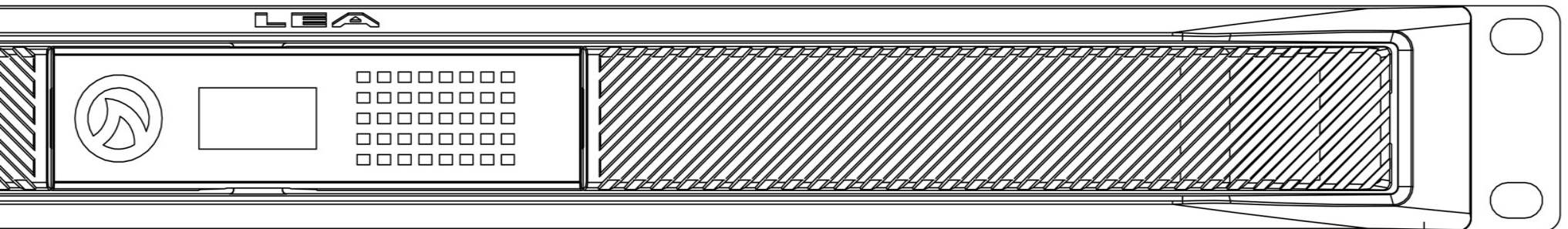
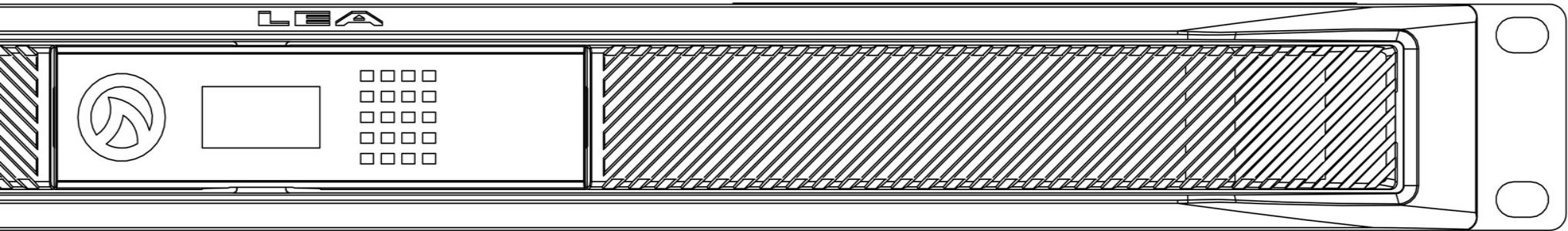
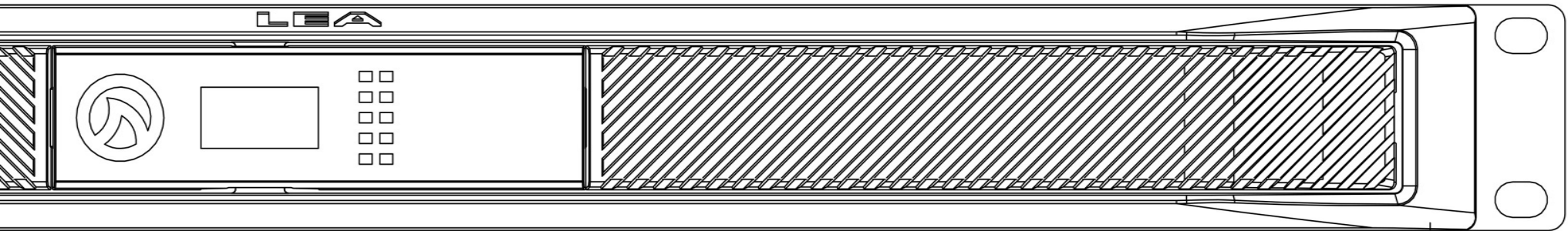
This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**CAUTION:** Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

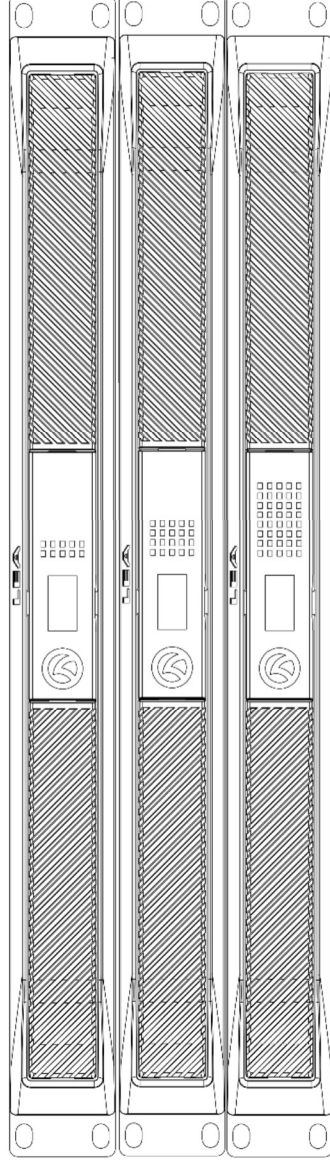
**NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help

# FRONTPANEL



# OUT OF THE BOX | FrontPanel



## The Amp: Front Panel



### Front Panel LCD

Shows IP Address, Amp Name, SSID when in WiFi Access Point Mode, and MAC Address



### Easy Pop out Grille

Removable front grilles with washable foam filters



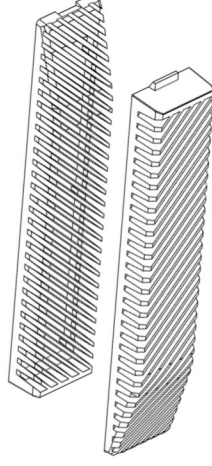
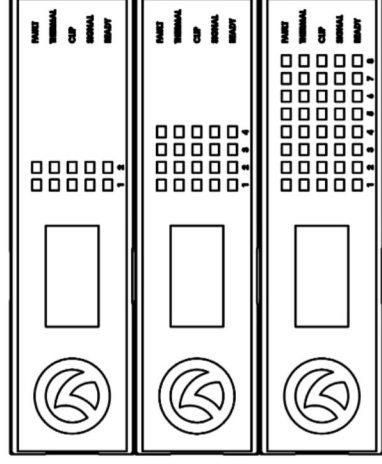
### LEA Shark Fin

Illuminates green with AC plugged in & blue with AC plugged in and when powered on.



### Channel Status Indicator

- ⊗ Channel Fault
- ⊗ Channel Thermal
- ⊗ Channel Clip
- ⊗ Signal Presence
- ⊗ Channel Ready



## Indicator Definitions:

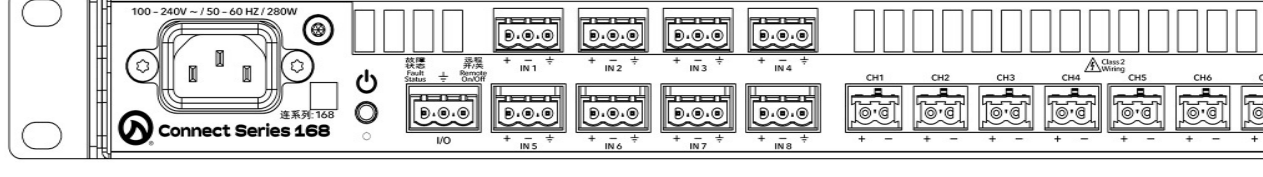
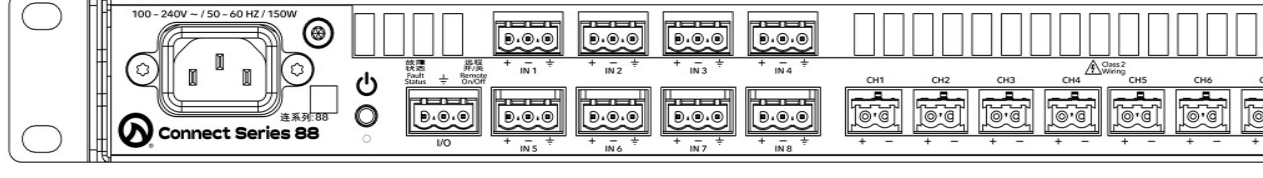
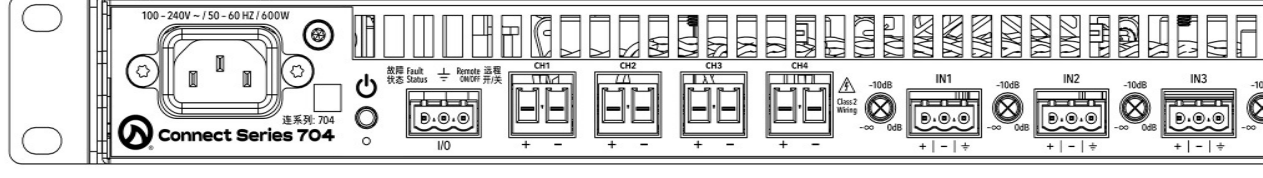
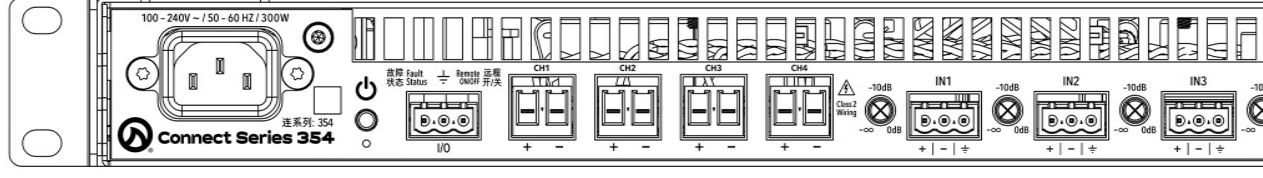
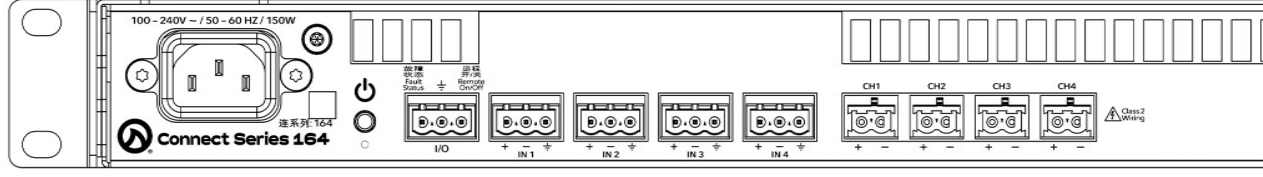
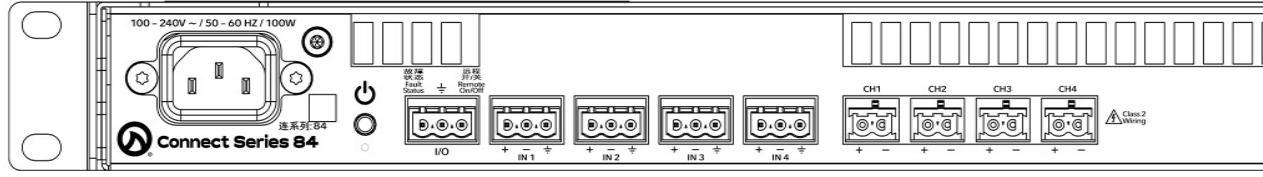
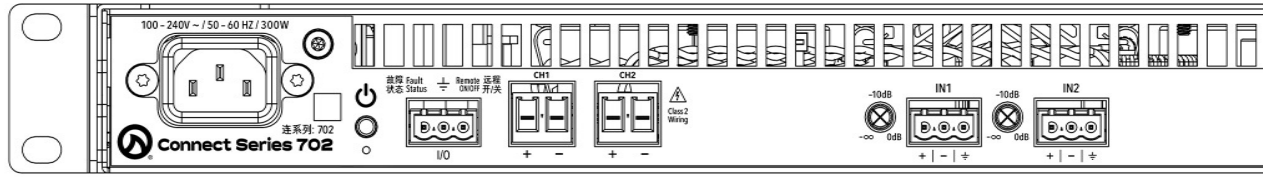
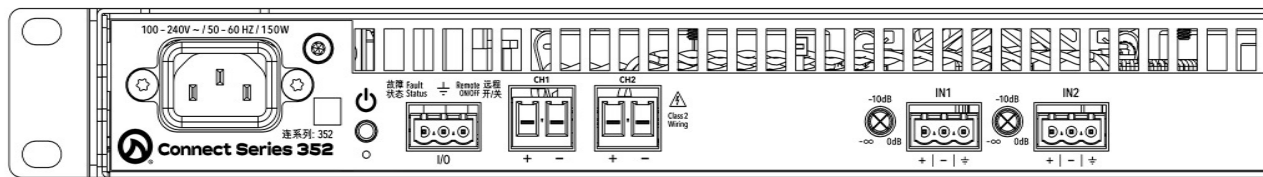
**Channel Fault** – Indicates the channel has shut down due to protection circuits. Check to make sure the output on that channel is not shorted. If all channels indicate fault, the power supply has gone into protection. No audio will be passed until the fault is resolved.

**Channel Thermal** – Indicates channel is at or close to over temp. When dim, the channel will start to lightly limit the output. When bright, the channel is heavily limiting the output.

**Channel Clip** – A red light indicates the channel is at the onset of audible clip on the output. Excessive clipping can damage the speaker connected to the amplifier. If the LED is Amber, that indicates the channel is limiting.

**Signal Presence** – This indicator illuminates when there is -40db of input signal present on that assigned output channel.

**Channel Ready** – Indicates the channel is ready to pass audio. If this indicator is off, the channel may be in standby mode or the amplifier DSP is booting up.



 **BACKPANEL**