



ADAMSON CS7 Full Range Loudspeaker User Manual

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ADAMSON CS7 Full Range Loudspeaker



Specifications

Directive	Product Code	Product Name
Directive 2014/35/EU	971-0005/971-5005	CS7
Directive 2014/35/EU	910-0006	CS7 Amplifier Upgrade
Directive 2014/35/EU	913-0003	Gateway
Directive 2014/35/EU	913-0005	Bridge
Directive 2014/35/EU	914-0002	Power Distribution System 110 V
Directive 2014/35/EU	914-0003	Power Distribution System 230 V
Directive 2006/42/EC	930-0021/930-5021	Extended Beam
Directive 2006/42/EC	930-0025	Ultra-Compact Support Frame
Directive 2006/42/EC	930-0027	Ultra-Compact Micro Frame
Directive 2006/42/EC	930-0033/930-5033	Moving Point Extended Beam
Directive 2006/42/EC	930-0034	Ultra-Compact Pole Mount Adaptor
Directive 2006/42/EC	932-0047/932-5047	Line Array H-Clamp
Directive 2006/42/EC	932-0043/932-5043	Extended Lifting Plates
Directive 2014/30/EU	971-0005/971-5005	CS7
Directive 2014/30/EU	910-0006	CS7 Amplifier Upgrade
Directive 2014/30/EU	905-0039	Network Distribution System
Directive 2014/30/EU	913-0003	Gateway
Directive 2014/30/EU	913-0005	Bridge
Directive 2014/30/EU	914-0002	Power Distribution System 110 V
Directive 2014/30/EU	914-0003	Power Distribution System 230 V

Symbols

- This symbol alerts the user that there are important operating and maintenance instructions in the literature accompanying this appliance
- This symbol alerts the user to the presence of voltages that can cause dangerous electric shock
- This symbol alerts the user to the weight of the appliance that can cause muscle strain or back injury
- This symbol alerts the user that the appliance can be hot to the touch and should not be touched without taking care and instruction

WARNING

- A qualified technician must be present during the installation and use of this product. This product is capable of producing extremely high sound pressure levels and should be used according to the specified local sound level regulations and good judgment. Adamson Systems Engineering will not be liable for damages caused by

any possible misuse of this product.

- Inspect the product before each use. If any sign of defect or damage is detected, immediately withdraw the product from use for maintenance.
- Servicing is required when the loudspeaker has been dropped or damaged in any way or does not operate normally. All service requirements must only be undertaken by a trained service technician.
- View the CS-Series Rigging Tutorial video and/or read the CS-Series Line Array Rigging Manual before suspending this product. Rigging information and safety warnings presented in Array Intelligence must be strictly adhered to. Use only with the rigging frames/accessories specified by Adamson or sold with the loudspeaker system.
- This speaker enclosure is capable of creating a strong magnetic field. Please use caution around the enclosure with data storage devices such as hard drives.
- This product contains potentially dangerous voltages.
- Do not open the unit. There are no user-serviceable parts inside this product. Failure to comply voids the warranty.
- Do not use this product with a power cable that does not have a polarized, grounded plug.
- Do not install this product in wet or humid locations.

Safety & Warnings

Read these instructions and keep them available for future reference. This manual can be downloaded from <https://adamsonsystems.com/support/downloads-directory/cs-series/cs7>

- Heed all warnings and followed all instructions.
- Clean this product with a dry cloth only.
- Never restrict the ventilation ports.
- Protect the cabling from being walked on or pinched.
- Avoid lifting this product. For movement and storage, use only the cart or case sold by Adamson for the product, or one as specified by Adamson. Be sure to use caution while moving the case or cart to avoid injury.
- This product can get hot when in use for extended periods.
- To reduce the risk of overheating the product, avoid exposing it to direct sunlight.
- Do not install this product near heat sources such as radiators, heat registers, stoves, or other apparatus that produce heat.

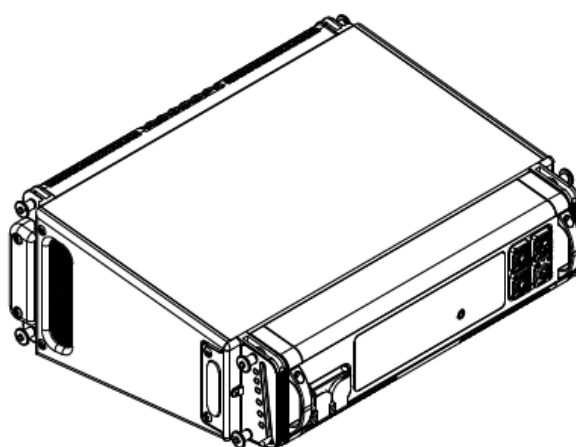
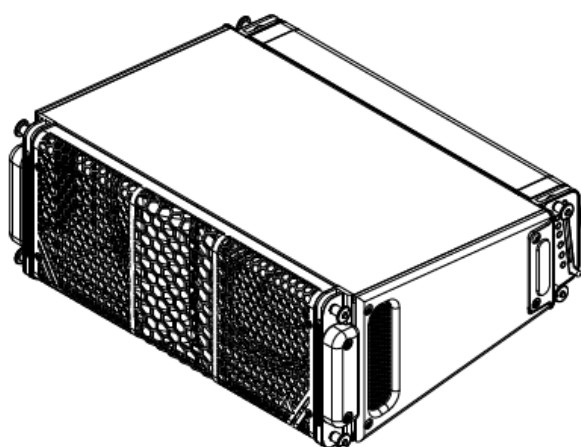
Status LED



	Colour	State
Start-Up	Green	Flashing
Normal Operation	Green	Solid
Amplifier Off	Amber	Solid
Amplifier Clipping	Red	Flashing
General Fault	Red	Solid

To continuously improve its products, Adamson releases updated software, presets, and standards for its products. Adamson reserves the right to change the specifications of its products and the content of its documents with no prior notice.

Product Overview

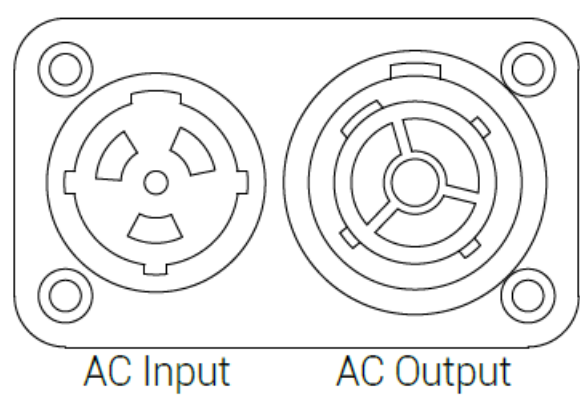


- The CS7 is an ultra-compact, powered, intelligent, line array enclosure designed for medium throw applications. It contains two symmetrically arrayed 7" LF transducers, and a 3" HF compression driver mounted onto an Adamson waveguide. The high-frequency waveguide is designed to couple multiple cabinets across the entire intended frequency band without loss of coherence.
- Each CS7 cabinet houses proprietary Class-D Amplification and comprehensive internal signal processing including Milan AVB connectivity. Internal switch fabric allows multiple enclosures to be daisy-chained in order to reduce the required amount of cabling in complex system setups.
- The operational frequency range of the CS7 is 80Hz to 18kHz. The use of proprietary technologies such as Controlled Summation Technology and Advanced Cone Architecture allows high maximum SPL and maintains a consistent nominal horizontal dispersion pattern of 100° down to 400Hz.
- The enclosure is made of marine-grade birch plywood, with an integrated aluminum and steel four-point rigging system. Without sacrificing low resonance to the composite material, the CS7 weighs only 17.5 kg / 38.6 lbs.
- Up to sixteen CS7 can be flown in the same array when using the Ultra-Compact Support Frame (930-0025) and up to eight when using the Ultra-Compact Micro Frame (930-0027). Nine rigging positions are available, allowing vertical inter-cabinet splay angles from 0° to 12.5°. Always consult Adamson's Array Intelligence software and the CS-Series Line Array Rigging Manual for correct rigging positions and proper rigging instructions.
- The CS7 is intended to be used as a standalone system or with other CS-Series products and is designed to pair easily and coherently with all CS-Series subwoofers.

Power

- **CAUTION:** The CS7 utilizes advanced loudspeaker technology, augmented with advanced power processing. Understanding electrical safety is critical in the safe operation of this product.
- **CAUTION:** This product must always be grounded/earthed. Do not ground-lift the AC cable – never use a ground-lifting adapter or cut the AC cable ground pin.
- **WARNING:** Improper grounding of connections between loudspeakers and the rest of the audio system may produce noise or hum and can damage the input and output stages of the system’s electronics components. Before applying AC power to the loudspeaker, make sure that the voltage potential difference between the neutral and earth/ground lines is less than 5 VAC when using single-phase AC wiring.

The CS7 is equipped with one Neutrik powerCON™ TRUE1 TOP 16 A locking input connector and one Neutrik powerCON™ TRUE1 TOP 16 A locking output connector on the CS7. The accepted voltage range is 100 V – 240 VAC.



WARNING: The CS7 is protected against excessive line voltage spikes but will need to be serviced should that protection be engaged long-term in an overvoltage condition, resulting in the fuse link breaking.

- The input voltage supplied to the AC Input connector will be the same voltage supplied to any additional CS-Series products connected to the CS7’s AC Output connector. The number of loudspeakers that is safe to link in this manner is determined by the supply voltage, the total current draw of all connected loudspeakers on the circuit, the circuit breaker rating, and the rating of the utilized AC cabling.
- When linking AC power for additional CS-Series products, do not exceed the current capability of the AC Input connector. Consider the total current draw for all loudspeakers on the circuit, including the first.
- For long periods of idle, it is recommended to switch amplifiers to standby (requires Adamson’s ArrayIntelligence software) to reduce cooling fan run-time.

	100 V	115V	120 V	208 V	230 V	240 V
RMS Long-Term	3.70	3.22	3.10	1.78	1.60	1.54
RMS Idle	1.04	0.90	0.86	0.50	0.45	0.43

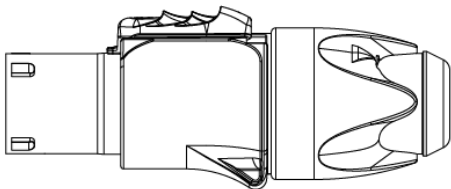
WARNING: The current draw for the CS7 is dynamic and fluctuates as operating levels change. The Power Distribution System (PDS, 914-0002 – 110 V/914-0003 – 230 V) provides six individually protected AC circuits of 208/230 V, 16 A. When using the Adamson PDS, you can link a maximum of six CS7 loudspeakers per circuit.

When wiring an AC cable for use with this product in a single-line system, use the wiring scheme described below in Table 2 and illustrated in Fig. 1. All work must be completed by a qualified technician.



Fig. 1

Hot or Live (L)	Brown
Neutral (N)	Blue
Protective Earth / Ground (E or PE)	Green and Yellow



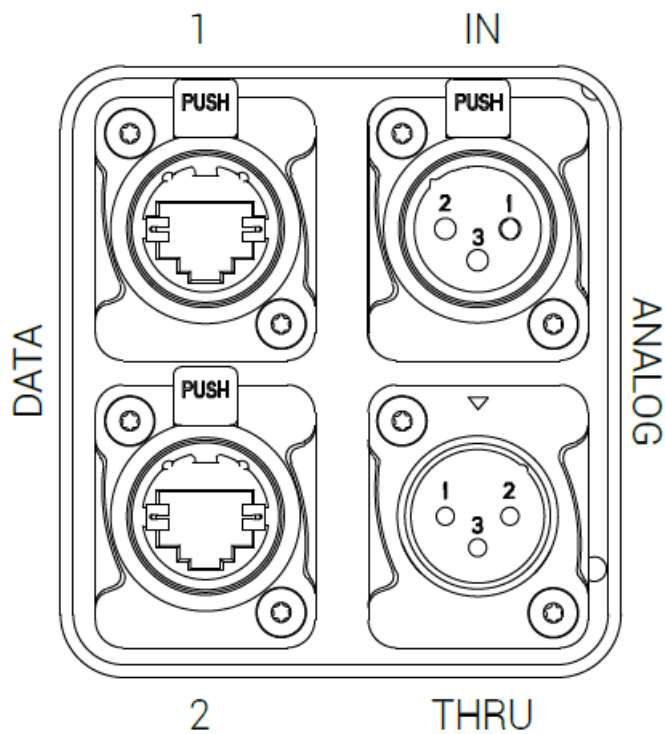
powerCON True1 AC Cable Input Connector



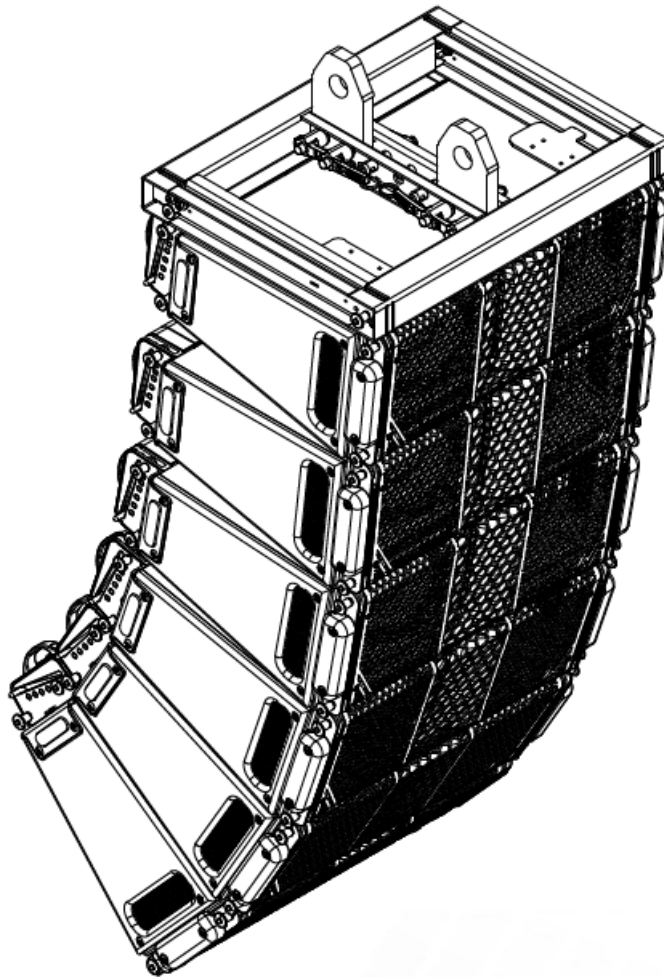
powerCON True1 AC Cable Output Connector

Connectivity

- On-board Digital Signal Processing (DSP) is accessed via two data ports on the rear of the cabinet. These ports are used to stream AVB audio as well as transmit AES70 control data. All CS-Series loudspeakers are configured to receive two separate LAN signals on a single data link. The Network Distribution System (NDS, 905-0039) combines both LANs on one ethernet cable. This approach allows network redundancy as well as the ability to daisy-chain control data and digital audio between enclosures.

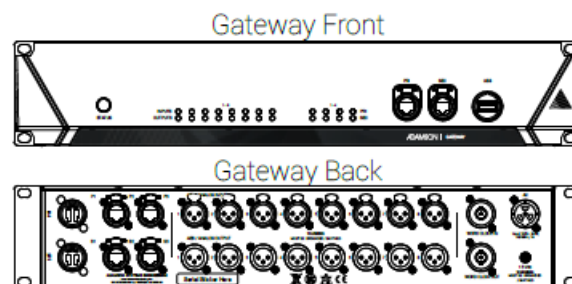


- When using the NDS, up to six CS-Series loudspeakers can be daisy-chained on a single network path. This quantity takes into account the Gateway, the NDS, the network switches, as well as each CS-Series loudspeaker to determine the amount of latency created by each hop, and ensure the total latency remains within pre-determined parameters. The audio signal latency between each CS7 is 0.26 ms, jump to jump.
- All CS-Series cabinets are Milan-certified. With Milan, every device will automatically connect with any other Milan device using a variety of standard formats and definitions in the protocol.
- Each CS-Series loudspeaker is equipped with balanced XLR input and output connectors for line level analog audio signals.
- The CS7's drivers are powered by a proprietary two-channel class D amplifier capable of providing up to 2400 W of combined output power.

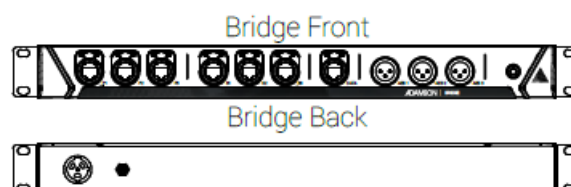


Rack Mounted Systems

- **Gateway (913-0003)** – The AVB on-ramp into the CS-Series ecosystem, the Gateway is a 16×16 matrix with 16 channels of user-accessible DSP, containing dual-LAN, Milan AVB, AES/EBU, and analog connections. The Gateway converts AVB to and from analog and AES/EBU. An extremely powerful tool, the Gateway's network connectivity also allows for integrating other systems to link broadcast feeds or matrixing multiple consoles in a festival environment.

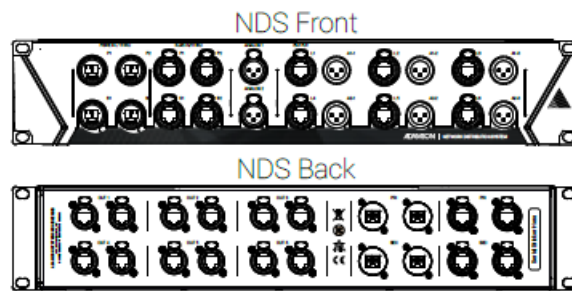


- **Bridge (913-0005)** – The Bridge is designed to replace existing network infrastructure in Adamson's E-Rack, allowing users to seamlessly integrate CS-Series loudspeakers into their existing inventories by converting dual-LAN, Milan AVB signal to AES/EBU for networking to existing Lab Gruppen amplifiers, while also offering six channels of DSP per unit.

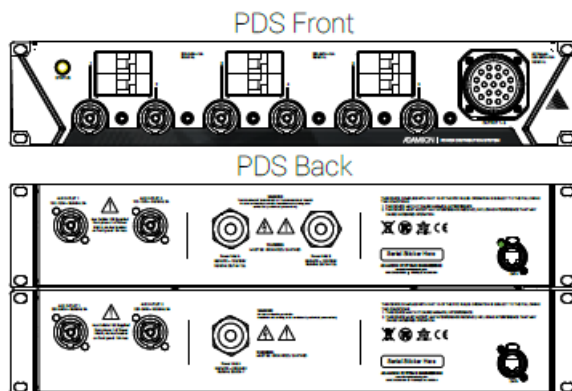


- **Network Distribution System NDS (905-0039)** – The NDS is a network and analog patch bay that allows

users to send redundant audio and control to CS-Series loudspeakers on a single network cable. The NDS combines LAN A and B network ports using two external AVB-enabled switches.



- **Power Distribution System PDS (914-0002/914-0003)** – Available in 110 V (2x L21-30) and 230 V (32 A CEE) models, the PDS is designed to ensure that all components of the CS-Series ecosystem receive ample power. The PDS provides six circuits of 208 V or 230 V, 16 A offered via powerCON or Socapex outputs. An integrated data port allows users to monitor consumption data via ArrayIntelligence, both per power output and for overall draw.



ArrayIntelligence

- **ArrayIntelligence** is a single software platform that allows the user to design and deploy a system, all from a single interface. From room design and simulation to connectivity and diagnostics, this unified platform reduces the need for additional software to properly deploy and deliver complete audio systems.
- **Blueprint** – Design your space using basic geometric shapes. Users can create any environment from a basic field, to a complex structure. When arena or stadium design is needed, multi-point Extrude and Revolve surfaces will easily allow you to set multiple inclines and elevated surfaces with a few keystrokes.



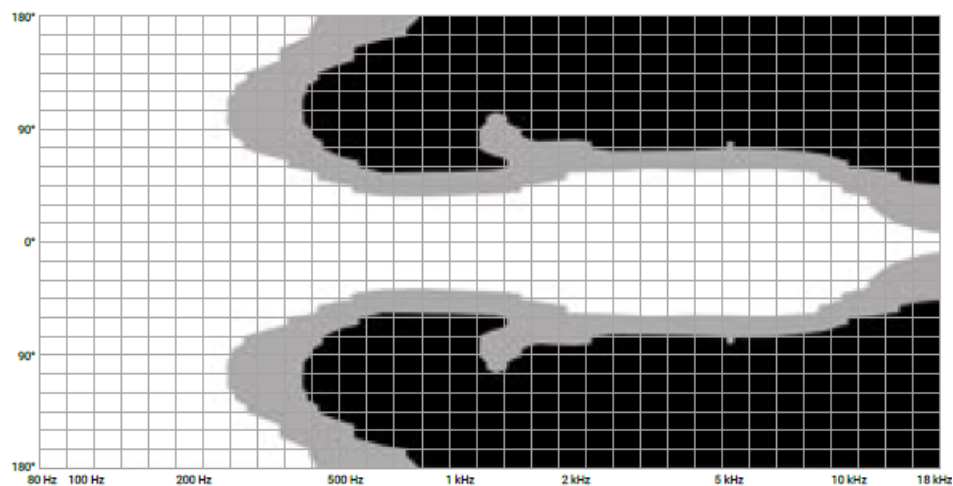
- **Simulation** – After placing virtual cabinets in your room design, different aspects of their behaviour may be simulated, including 2D and 3D SPL, delta time of two cabinets, and speaker directivity.
- **Patch** – Assign virtual loudspeakers to their real-world counterparts quickly and effectively. Determine control zoning and AVB routing to ensure complete control over your environment.
- **Optimization** – With DSP in every cabinet, you have more control than ever over your system. Adamson's proprietary Optimization algorithm gives you incredible control over the listening experience, taking advantage

of each line array element's onboard DSP to deliver accurate, uniform sound.

- **Control** – Gain, Muting, Delay, EQ, and Grouping are all controlled on a single page, allowing you to build and fine-tune your system with as little friction as possible. Implement your changes on a per-box level or use control zones to shape the performance of multiple cabinet groupings.
- **Metering** – Access input and output metering for all online devices on one page, so you can reliably determine headroom for your entire system.
- **Diagnose** – Monitor your system with a comprehensive set of system insight tools including spectral impedance and displacement, inclinometer monitoring, clip and limiter tracking, power consumption, and AVB stream statistics.

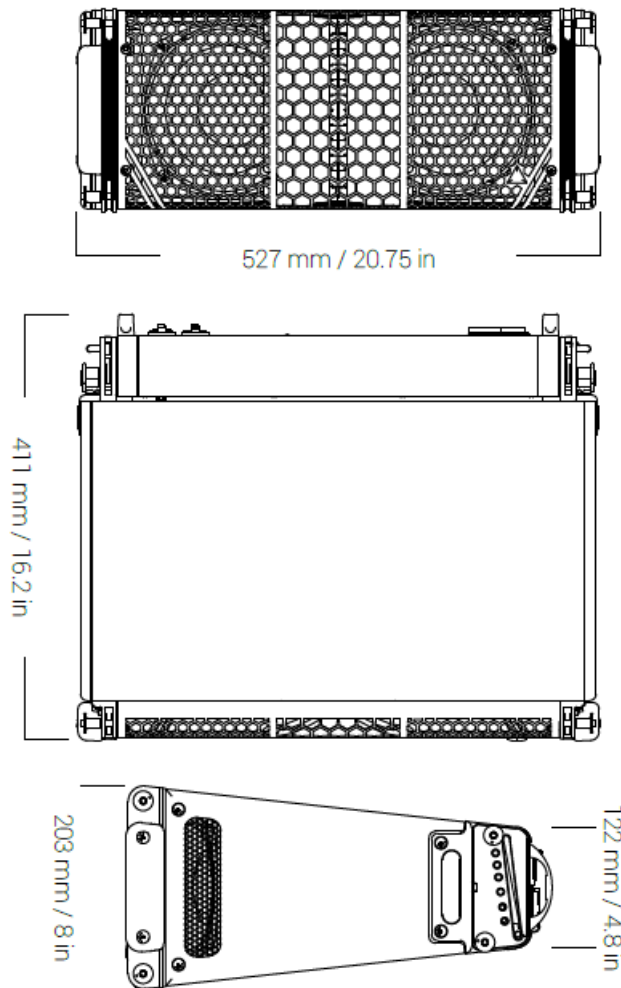
WARNING: For more information, see the ArrayIntelligence User Manual.

Technical Specifications



CS7 Horizontal Pattern

Frequency Range (-6 dB)	80 Hz – 18 kHz
Nominal Directivity (-6 dB) H x V	100° x 12.5°
Maximum Peak SPL**	138 dB
Components LF	2x ND7-LM16 7" Kevlar Neodymium Driver
Components HF	NH3 3" Diaphragm / 1.4" Exit Compression Driver
Rigging	Slidelock Rigging System
Connections	Power: powerCON TRUE1 Network: 2x etherCON Analog: 2x XLR
Width (mm / in)	527 / 20.75
Height Front (mm / in)	203 / 8
Height Rear (mm / in)	122 / 4.8
Depth (mm / in)	411 / 16.2
Weight (kg / lbs)	17.5 / 38.6
Amplification	Two channel Class-D, 2400 W total output peak
Input Voltage	100 – 240 VAC
Current Draw at 230 VAC	0.45 A rms idle, 1.6 A rms long-term
Processing	Onboard / Proprietary



12 dB crest factor pink noise at 1m, free field, using specified processing and amplification.

Distribution Date: June 12, 2023

- Copyright © 2023 by Adamson Systems Engineering Inc.; all rights reserved.
- This manual must be accessible to the person operating this product. As such, the product owner must store it in a safe place and make it available upon request to any operator.
- Resale of this product must include a copy of this manual.
- This manual can be downloaded from: <https://adamsonsystems.com/support/downloads-directory/cs-series/cs7>

EU Declaration of Conformity

Adamson Systems Engineering declares that the products stated below are in conformance with the relevant fundamental health and safety criteria of the applicable EC Directive(s), in particular:

Directive 2014/35/EU: Low Voltage Directive

- 971-0005/971-5005 CS7
- 910-0006 CS7 Amplifier Upgrade
- 913-0003 Gateway
- 913-0005 Bridge
- 914-0002 Power Distribution System 110 V

- 914-0003 Power Distribution System 230 V

Directive 2006/42/EC: Machinery Directive

- 930-0021/930-5021 Extended Beam
- 930-0025 Ultra-Compact Support Frame
- 930-0027 Ultra-Compact Micro Frame
- 930-0033/930-5033 Moving Point Extended Beam
- 930-0034 Ultra-Compact Pole Mount Adaptor
- 932-0047/932-5047 Line Array H-Clamp
- 932-0043/932-5043 Extended Lifting Plates

Directive 2014/30/EU: Electromagnetic Compatibility Directive

- 971-0005/971-5005 CS7
- 910-0006 CS7 Amplifier Upgrade
- 905-0039 Network Distribution System
- 913-0003 Gateway
- 913-0005 Bridge
- 914-0002 Power Distribution System 110 V
- 914-0003 Power Distribution System 230 V

Signed at Port Perry, ON, CA – June 12, 2023
Brock Adamson (President & CEO)


FAQ

- **Q: Where can I download the user manual for the S E R I E S products?**
 - A: The user manual for the S E R I E S products can be downloaded from : <https://adamsonsystems.com/support/downloads-directory/cs-series/cs7>.
- **Q: What should I do if I detect any defect or damage in the product?**
 - A: If any sign of defect or damage is detected in the product, immediately withdraw the product from use and arrange for maintenance by contacting a trained service technician.
- **Q: What is Array Intelligence?**
 - A: ArrayIntelligence is a technology featured in the S E R I E S products that provides advanced control and optimization capabilities for improved audio quality and coverage.



MORE INFORMATION

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- **Website:** www.adamsonsystems.com

Documents / Resources

	<p>ADAMSON CS7 Full Range Loudspeaker [pdf] User Manual</p> <p>CS7 Full Range Loudspeaker, CS7, Full Range Loudspeaker, Range Loudspeaker, Loudspeake r</p>
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References

-  [Adamson - Pro Audio & Live Sound Reinforcement](#)
-  [CS7](#)
- [User Manual](#)