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Cinema Loudspeaker Systems User Manual

LF-4215 and LF-4215-8 Low Frequency Loudspeakers

Introduction

The LF-4215 dual 15" (381mm) low frequency enclosure is designed specifically for cinema applications. Meeting cinema requirements for extended low frequency response differentiates the LF-4215 from more conventional "rock-and-roll" woofer systems. The LF-4215 covers the frequency range from 35 Hertz to 1000 Hertz, depending upon the high frequency system requirements. Close Coupled Woofers (CCW), with its tight spacing between woofers, improves coupling and keeps coverage angles wide over a greater frequency range than more widely spaced designs. The LF-4215-8 is an 8 ohm version of the standard 4 ohm LF-4215.

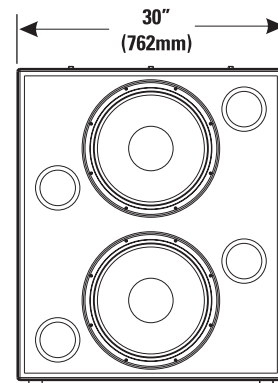
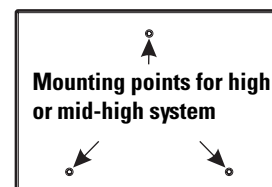
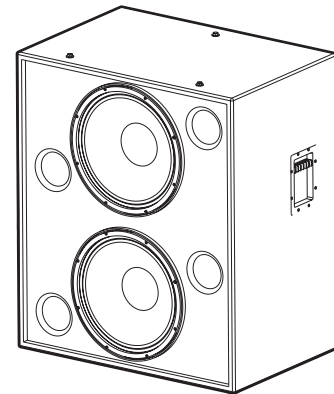
The two custom 400 watt, 15" transducers were developed especially for cinema use. They feature extremely large 4" (100mm) voice coils and a multi-vented pole piece to ensure cool operation, even at high power levels. Cooler temperatures increase transducer lifespan and decrease the problem of power compression at high power. An undercut pole piece ensures the voice coil operates in a Symmetrical Magnetic Gap (SMG), reducing second harmonic distortion.

The enclosure is constructed of high quality MDF panels and features Single Woofer Chambers (SWC, separate chambers for each transducer). In the rare event of a transducer failure, this prevents over-excursion of the remaining transducer caused by improper box loading.

Large, Fully Radiused Ports (FRP) ensure smooth air flow through the ports, especially at higher power. This prevents potentially audible port turbulence noise. Both internal and external port openings are fully radiused.

With Symmetrical Port Loading (SPL), bass ports are evenly spaced on each side of the transducers, making internal pressure more uniform across the back surface of the transducer. This prevents the cone from being displaced to one side or another by unbalanced forces, reducing the chance of driving the voice coil out of the center of the gap at high power.

Three T-nuts in the top of the enclosure provide easy mounting of QSC's HF-75 high frequency system, or MH-1075 mid-high system.



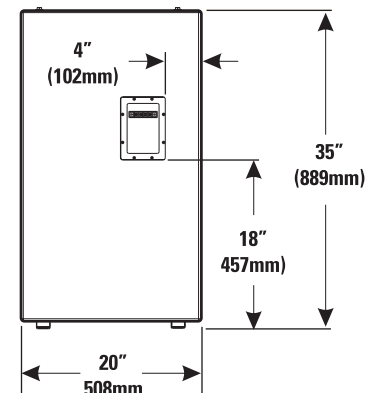
Enclosure is not designed to be suspended, flown, or rigged. Do not suspend, fly, or rig this enclosure.

This product is capable of producing sound pressure levels that can permanently damage human hearing. Always keep sound pressure levels in the listening area below levels that can damage human hearing.

Install in accordance with QSC Audio Product's instructions and a licensed, professional engineer. Only use attachments, mounts, accessories, or brackets specified by QSC Audio Products, Inc. Refer all servicing to qualified personnel. Servicing is required when the apparatus has been damaged in any way.



WARNING! Before placing, installing, rigging, or suspending any speaker product, inspect all hardware, suspension, cabinets, transducers, brackets and associated equipment for damage. Any missing, corroded, deformed or non-load rated component could significantly reduce the strength of the installation, placement, or array. Any such condition severely reduces the safety of the installation and should be immediately corrected. Use only hardware which is rated for the loading conditions of the installation and any possible short-term unexpected overloading. Never exceed the rating of the hardware or equipment. Consult a licensed, professional engineer when any doubt or questions arise regarding a physical equipment installation.



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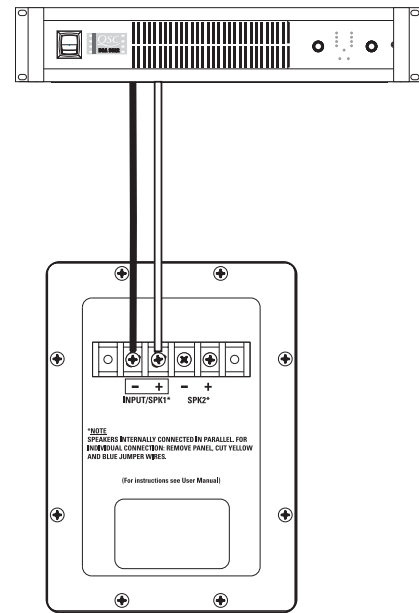
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Connections

Normal Connection

The LF-4215 has barrier strip screw terminals for connection. The terminals accept up to #10 AWG stranded loudspeaker wiring. Use the largest wire size and shortest wire length possible for a given installation. Observe the polarity markings and keep polarity consistent throughout the system for best performance.

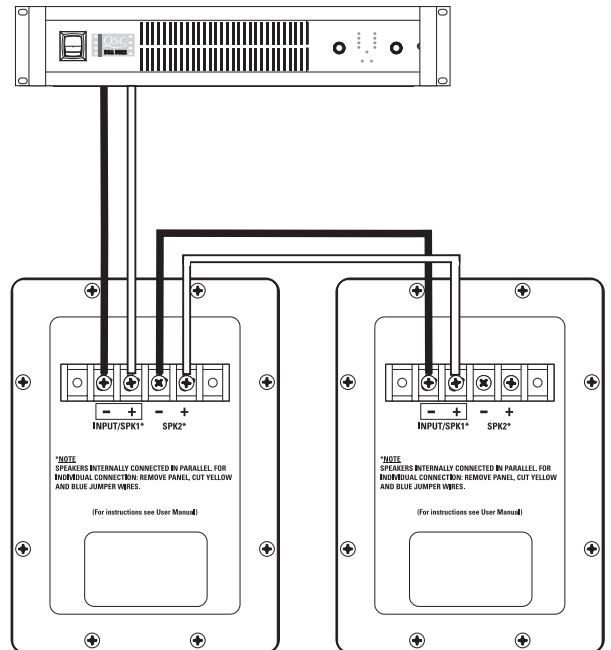
Normal Connection Example:



Parallel Connection of Second LF-4215

The terminals marker SPK2 may be used to connect another LF-4215 in parallel. Connect the wires as shown in the illustration, at right. Note: If the LF-4215's internal wiring has been modified in any way, this may not function. If this is the case, remove the terminal cup and verify the presence of the factory yellow jumper and blue jumper wires; remedy as required or have the loudspeaker serviced.

Parallel Connection Example:



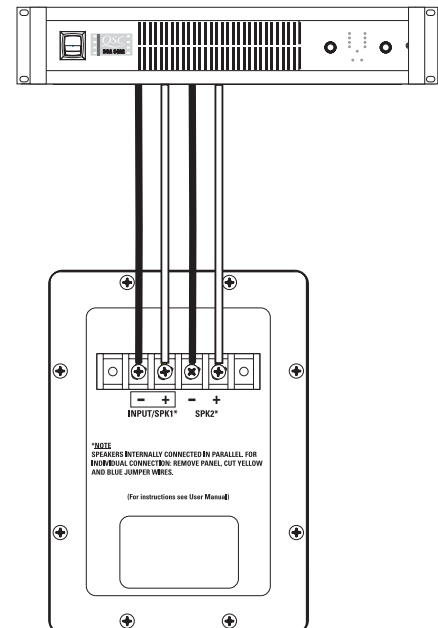
Individual Transducer Connection (requires modification)



CAUTION! Requires removal of terminal cup and cutting of both the yellow and the blue jumper wires that connect the SPK1 and SPK2 terminals.

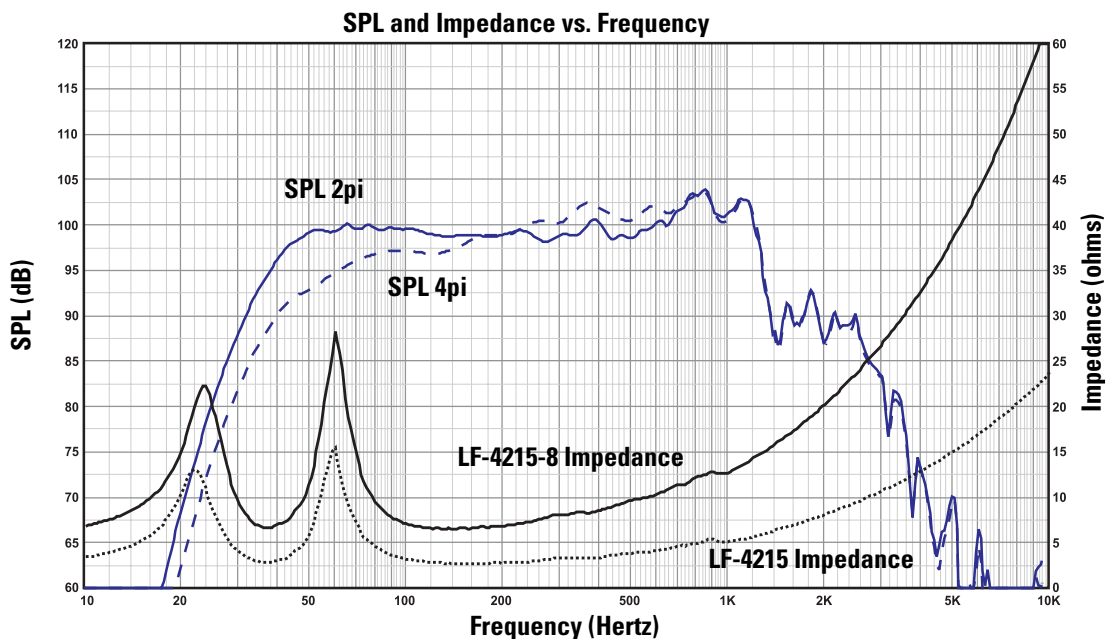
The transducers are wired in parallel inside the enclosure. If individual transducer connection is required, remove the terminal cup and remove the yellow and the blue jumper wires that are connected between the SPK1 and SPK2 terminals. Replace the terminal cup and mark the enclosure with a note of the modification.

Individual Transducer Connection Example:



LF-4215 Specifications (subject to change without notice)

Frequency Range:	38 - 1300 Hertz (± 3 dB) 30 - 1400 Hertz useable range (-10 dB)
Nominal Coverage:	100° horizontal X 55° vertical at 600 Hertz
Maximum Output:	134.5 dB SPL calculated peak, 1 meter, half space, at rated rms power with 6 dB crest factor pink noise input, 25 - 250 Hertz. 128.5 dBA SPL calculated maximum continuous, 1 meter. The dBA scale is typically used to identify sound sources which can cause permanent hearing loss.
Impedance:	4 ohms nominal (8 ohms nominal, LF-4215-8)
Maximum Input Power:	800 watts rms (100 hours of 6 dB crest factor pink noise, 30 - 500 Hertz) 1000 watts rms (2 hours of 6 dB crest factor pink noise, 30 - 500 Hertz, AES method) recommended amplifier power capability- 1600 watts rms maximum into 4 ohms (LF-4215) or 8 ohms (LF-4215-8)
Sensitivity:	99.5 dB half space, 93.5 dB full space, 35 - 1000 Hertz, 1 watt, 1 meter
Recommended Processing:	Subsonic filter below 30 Hertz, >18 dB per octave, maximum recommended crossover frequency is 1000 Hertz. QSC DSP configurations are available at www.qscaudio.com . Parameters for alternative processing hardware are available upon request.
Connectors:	Barrier strip screw terminals accept up to #10 AWG stranded wire. Four terminals: (two INPUT and two PARALLEL OUT). Drivers are internally wired in parallel. For independent transducer connection, remove blue jumper wire and yellow jumper wire on internal-side of terminal cup and mark enclosure accordingly.
Transducers:	Two 15" (381mm) high efficiency low frequency transducers featuring vented 4" (100mm) copper voice coils on Kapton® formers. High excursion/low distortion design, with extremely high power handling, and low thermal and port compression.
Enclosure:	Quasi B4 alignment, ported enclosure with fully flared ports, low turbulence symmetrical port design, tuned to 36 Hertz, constructed of medium density fibreboard and heavily braced. Features vandal resistant woofer mounting bolts.
Size:	30" wide X 35" high X 20" deep (762 mm X 889 mm X 508 mm)
Weight:	195 lbs. shipping, 172 lbs. net (88/78 kg.)



Warranty (USA only; other countries, see your dealer or distributor)

Disclaimer

QSC Audio Products, Inc. is not liable for any damage to amplifiers, or any other equipment that is caused by negligence or improper installation and/or use of this loudspeaker product.

QSC Audio Products 3 Year Limited Warranty

QSC Audio Products, Inc. ("QSC") guarantees its products to be free from defective material and / or workmanship for a period of three (3) years from date of sale, and will replace defective parts and repair malfunctioning products under this warranty when the defect occurs under normal installation and use - provided the unit is returned to our factory or one of our authorized service stations via pre-paid transportation with a copy of proof of purchase (i.e., sales receipt). This warranty provides that the examination of the return product must indicate, in our judgment, a manufacturing defect. This warranty does not extend to any product which has been subjected to misuse, neglect, accident, improper installation, or where the date code has been removed or defaced. QSC shall not be liable for incidental and/or consequential damages. This warranty gives you specific legal rights. This limited warranty is freely transferable during the term of the warranty period.

Customer may have additional rights, which vary from state to state.

In the event that this product was manufactured for export and sale outside of the United States or its territories, then this limited warranty shall not apply. Removal of the serial number on this product, or purchase of this product from an unauthorized dealer, will void this limited warranty. Periodically, this warranty is updated. To obtain the most recent version of QSC's warranty statement, please visit www.qscaudio.com. Contact us at 800-854-4079 or visit our website at www.qscaudio.com.

Contacting QSC Audio Products

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