

CS815, CS815T CS815T8

Full-Range Coaxial Ceiling Loudspeaker Systems

- 15 watts RMS
- 60 watts peak
- WB versions include pre-mounted ceiling baffles
- High SPL (96 dB, 1 watt, 1 meter)
- Multiple transformer taps
- Coaxial design

Description

The University sound CS815, CS815T, CS815T-8, CS815T-8WB and CS815TWB loudspeaker systems are high quality 8-inch, full-range coaxial loudspeakers for distributed sound systems. A dual magnet construction allows each speaker to be structurally, magnetically, electrically and mechanically independent of the other. The CS815 series utilize a single section crossover network, centered at 3 kHz, and providing 6 dB of attenuation for the tweeter. They provide wide dispersion, high-efficiency, ease of installation and wide-range reproduction of music or voice.

To ensure long-term reliability in installations, the CS815 is designed to handle 15 watts continuous power (60 watts peak) of shaped white noise signal for eight hours per EIA RS-426-A 1980.

The CS815T is provided with a transformer that offers a selection of 0.25 watts, 0.5 watts, 1 watt, 2 watts and 4 watts, delivered to the loudspeaker system. The CS815T-8 is provided with a transformer that offers a selection of 1 watt, 2 watts, 4 watts and 8 watts, delivered to the loudspeaker. The CS815T-8WB and CS815TWB are provided with both transformer and premounted ceiling

baffle.

Directional Performance

The directional characteristics of the CS815 in a 1.8 cubic-foot vented enclosure were measured by running a set of polar responses in University Sound's large anechoic chamber. The test signal was 1/3-octave-band-limited pseudo-random pink noise centered at the ISO standard frequencies indicated in Figure 3.

Additional typical data is provided in Figures 4 and 5, which indicate 6-dB-down beamwidth versus frequency and directivity factor, respectively, for a CS815 in the test enclosure.

Power Handling Test

The CS815 is designed to withstand the power test described in EIA RS-426-A 1980. The EIA test spectrum is applied for eight hours. To obtain the spectrum, the output of a white noise generator (white noise is a particular type of random noise with equal energy per bandwidth in Hz) is fed to a shaping filter with 6-dB-per-octave slopes below 40 Hz and above 318 Hz. When measured with usual constant-percentage-bandwidth analyzer (one-third-octave), this shaping filter produces a spectrum whose 3-dB-down

points are at 100 Hz and 1,200 Hz, with a 3-dB-per-octave slope above 1,200 Hz. This shaped signal is sent to the power amplifier with the continuous power set at 15 watts into the EIA equivalent impedance (10.5 volts true RMS). Amplifier clipping sets instantaneous peaks at 6 dB above the continuous power, or 60 watts peak (21.1 volts peak). This procedure provides a rigorous test of both thermal and mechanical failure modes.

Recommended Connections

The CS815 is a nominal 8-ohm impedance loudspeaker with a 15-watt input capability. The CS815T and CS815TWB utilize 4-watt, 70-volt line matching transformer with power taps ranging from 0.25 to 4.0 watts. The rating of these taps are shown in Table 1. In order to use these units with 100-volt lines, connect to the 70.7 V primary winding and refer to Table 1 for the appropriate taps. The 4-watt tap should not be used.

The CS815T-8 and CS815T-8WB utilize an 8-watt, 70.7-volt universal line matching transformer with power taps from 1.0 to 8.0 watts. The range of taps for these units is shown in Table 2. In order to use these units with 100-volt lines, connect to the 70.7 V primary winding and refer to Table 1 for the appropriate taps. The 8-watt tap should not

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	70 V	100 V
0.25 W	Green	n/a
0.5 W	Yellow	Green
1.0 W	Orange	Yellow
2.0 W	Red	Orange
4.0 W	Brown	Red
8 ohms	White	White
Common	Black	Black

TABLE 1 — 4 watt transformer

be used.

All transformers are mounted to the frame of the speaker and the primary wiring is ac-

LINE VOLTAGE	70.7 V	100 V
CS815T-8/ CS815T-8WB	1.0 W	2.0 W
	2.0 W	4.0 W
	4.0 W	8.0 W
	8.0 W	—

TABLE 2—Rating of Secondary Taps

cessible to the user. All wattages marked for the various taps refer to the load on the amplifier, with the insertion loss of the transformer being less than 1.5 dB.

Recommended Enclosures and Baffles

The CS815, CS815T and CS815T-8 are designed to fit on standard 8-inch ceiling speaker baffles. Additionally, the CS815, CS815T, CS815T-8, CS815T-8WB and CS815TWB loudspeakers will accommodate the use of any standard back enclosure with a diameter of 8.6 inches or greater and a depth of at least 3.5 inches. Larger back volumes will increase the low-frequency output. The frequency response of a CS815 in a typical 1.8-cubic-foot back enclosure is shown in Figure 1.

Mounting

The CS815 may be front- or rear-mounted against either surface of its mounting flange and requires an 184 mm (7.25 in.) diameter cutout and a 195 mm (7.68 in.) bolt circle. Normal fasteners up to 5 mm (0.20 in.) will fit through the eight holes in the frame. The CS815 is designed for mounting on standard

ceiling speaker baffles.

Architects' and Engineers' Specifications

The loudspeaker shall be a coaxial type with an 8-inch low-frequency cone and a high-temperature voice coil assembly coaxially mounted with a wide dispersion cone tweeter. The loudspeaker shall meet the following criteria. EIA RS-426-A 1980 power rating shall be 15 watts of band-limited pink noise (85 Hz to 18,000 Hz, 6-dB crest factor). Frequency response, uniform from 85 Hz to 18,000 Hz. Pressure sensitivity, 96 dB SPL at 1 meter (94 dB at 4 feet) on axis with one watt of band-limited pink noise from 500 Hz to 3,000 Hz (ref. 20 uPa). Minimum impedance, 6.0 ohms. The loudspeaker shall be 206.5 mm (8.13 in.) in diameter and 71 mm (2.8 in.) deep. The CS815 shall weigh 1.3 kg (2.8 lb); the CS815T shall weigh 1.4 kg (3.1 lb); the CS815T-8 shall weigh 1.8 kg (4.0 lb).

The coaxial loudspeakers shall be the University Sound models CS815 and CS815T with 4-watt transformer, the CS815TWB with 4-watt transformer and baffle, the CS815T-8 with 8-watt transformer and the CS815T-8WB with 8-watt transformer and baffle.

Warranty (Limited)

University Sound products are guaranteed against malfunction due to defects in materials or workmanship for a specified period, as noted in the individual product-line statement(s) below, or in the individual product data sheet or owner's manual, beginning with the date of original purchase. If such malfunction occurs during the specified period, the product will be repaired or replaced (at our option) without charge. The product will be returned to the customer prepaid. **Exclusions and Limitations:** The Limited Warranty does not apply to: (a) exterior finish or appearance; (b) certain specific items described in the individual product-line statement(s) below, or in the individual product data sheet or owner's manual; (c) malfunction resulting from use or operation of the product other than as specified in the product data sheet or owner's manual; (d)

malfunction resulting from misuse or abuse of the product; or (e) malfunction occurring at any time after repairs have been made to the product by anyone other than University Sound or any of its authorized service representatives. **Obtaining Warranty Service:** To obtain warranty service, a customer must deliver the product, prepaid, to University Sound or any of its authorized service representatives together with proof of purchase of the product in the form of a bill of sale or receipted invoice. A list of authorized service representatives is available from University Sound at 600 Cecil Street, Buchanan, MI 49107 (616/695-6831 or 800/234-6831). **Incidental and Consequential Damages Excluded:** Product repair or replacement and return to the customer are the only remedies provided to the customer. University Sound shall not be liable for any incidental or consequential damages including, without limitation, injury to persons or property or loss of use. Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitation or exclusion may not apply to you. **Other Rights:** This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

University Sound Speakers and Speaker Systems are guaranteed against malfunction due to defects in materials or workmanship for a period of five (5) years from the date of original purchase. The Limited Warranty does not apply to burned voice coils or malfunctions such as cone and/or coil damage resulting from improperly designed enclosures. University Sound active electronics associated with the speaker systems are guaranteed for three (3) years from the date of original purchase. Additional details are included in the Uniform Limited Warranty statement.

For warranty repair, service information, or a listing of the repair facilities nearest you, contact the service repair department at: 616/695-6831 or 800/685-2606.

For technical assistance, contact Technical Support at 800/234-6831 or 616/695-6831, M-F, 8:00 a.m. to 5:00 p.m. Eastern Standard time.

Specifications subject to change without notice.

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Figure 1—Frequency Response

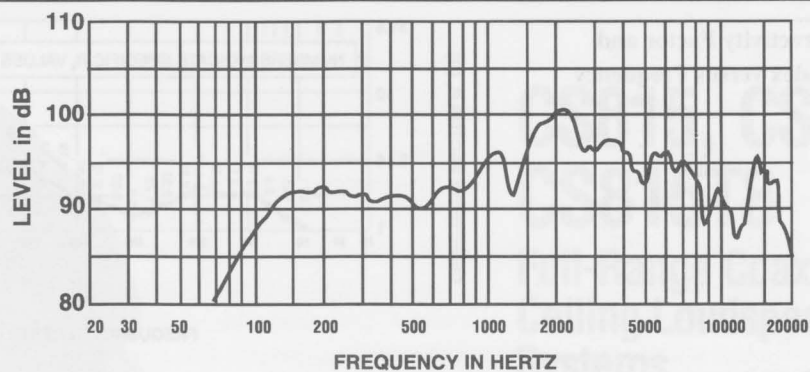


Figure 2—Impedance

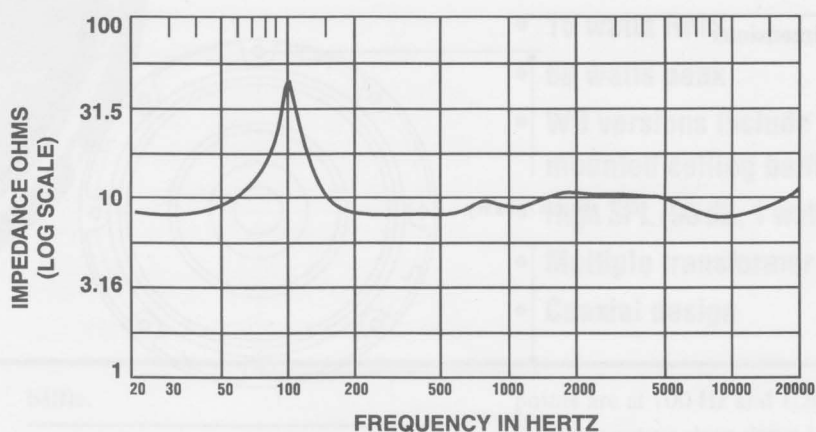


Figure 3—Polar Response

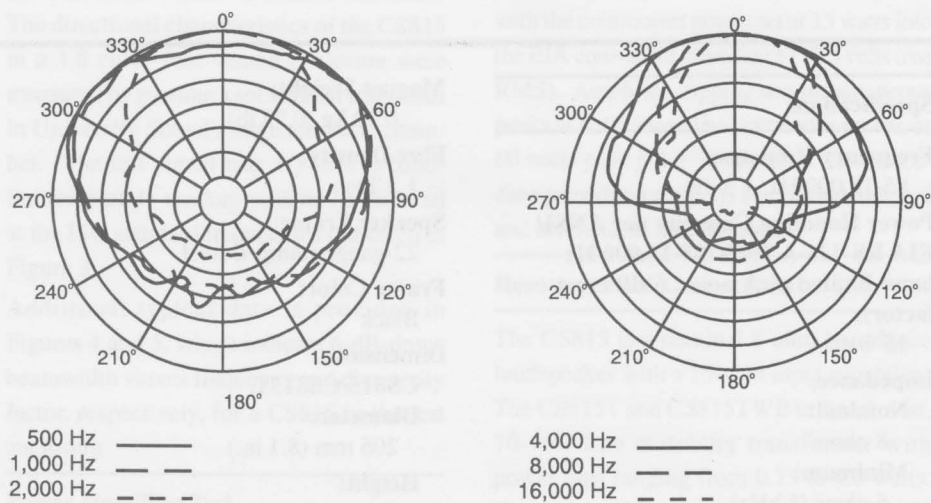
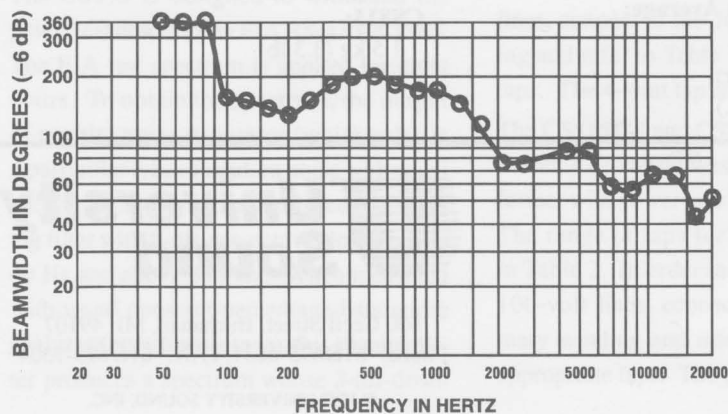


Figure 4—Beamwidth versus Frequency



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Figure 5—Directivity Factor and Directivity Index versus Frequency

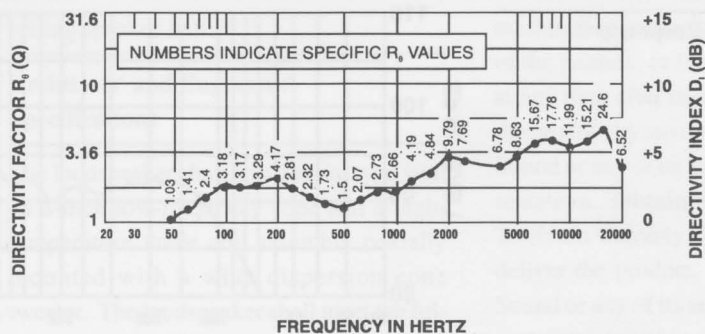
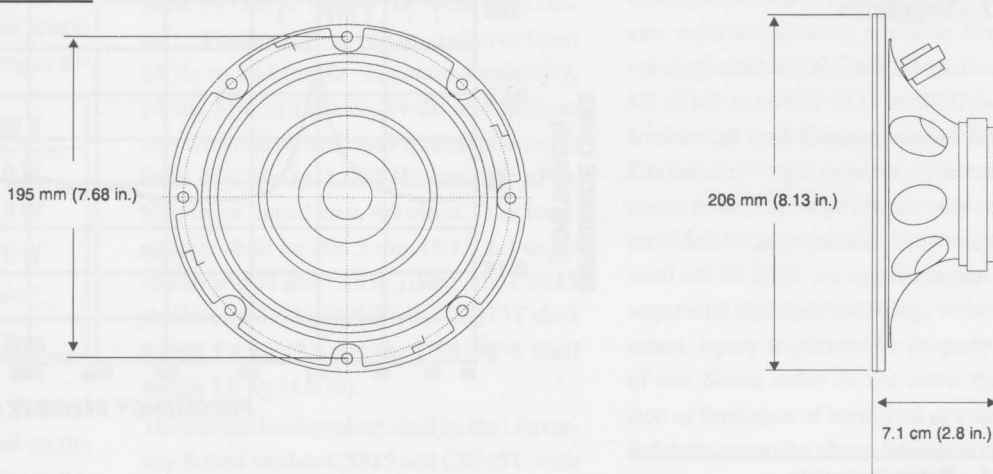


Figure 6—Dimensions



Specifications

Frequency Response:

85-18,000 Hz, ± 5 dB

Power Handling Capacity per ANSI/EIA RS-426-A 1980 (85-15,000 Hz band-limited pink noise, 6-dB crest factor):

15 watts

Impedance,

Nominal:

8 ohms

Minimum:

6 ohms (8 kHz)

Sound Pressure Level at 1 Meter, 1 Watt Input, 200-4,000 Hz Average:

96 dB

Voice-Coil Diameter:

25.4 mm (1.0 in.)

Magnet Weight:

0.32 kg (0.72 lb)

Flux Density:

1.2 Tesla

Speaker Frame:

22-gauge stamped steel

Frame Color:

Black

Dimensions,

CS815/CS815T,

Diameter:

206 mm (8.1 in.)

Height:

71 mm (2.8 in.)

Net Weight,

CS815:

1.5 kg (3.3 lb)

CS815T:

1.4 kg (3.1 lb)

CS815T-8:

2.0 kg (4.5 lb)

Shipping Weight,

CS815:

1.5 kg (3.3 lb)

CS815T:

1.6 kg (3.6 lb)

CS815T-8:

2.0 kg (4.5 lb)

Transformer Input,

CS815T/CS815TWB:

70- or 100-volt line

CS815T-8/CS815T-8WB:

70- or 100-volt line



600 Cecil Street, Buchanan, MI 49107
Phone: 616/695-6831, FAX: 616/695-1304