



Control 16C-VA

Two-Way 6.5" Co-axial Ceiling Loudspeaker for EN54-24 Applications

Professional Series

Key Features:

- ▶ Components:
 - 165 mm (6.5 in) high output driver with polypropylene cone and butyl rubber surround
 - 19 mm (0.75 in) soft-dome liquid-cooled tweeter
- ▶ EN54-24 Compliant
- ▶ Blind-mount backcan for quick and easy install
- ▶ Combined 70V/100V and low impedance direct operation
 - 50 Watts at 8Ω nominal setting
 - 30W multi-tap at 70V/100V
- ▶ 62 Hz – 20 kHz bandwidth with wide 110° coverage
- ▶ High 91 dB sensitivity for high maximum SPL

Applications:

Control 16C-VA is a full-range, EN54-24 certified ceiling speaker consisting of a 165 mm (6.5 inch) high tech cone driver and a 19 mm soft-dome liquid cooled tweeter mounted in a vented, paintable baffle made of UV resistant UL94-V0 and UL94-5VB flammability-rated material, with a pre-attached blind-mount backcan for quick and easy installation. The speaker is designed to provide excellent sound quality for a wide variety of medium to high volume applications such as music cafes, business music systems, retail stores, music/paging systems, airports, reception/waiting rooms, lounges, courtrooms, convention centers, hotels, educational facilities, and more. The speaker delivers consistent sound quality for listeners located both off and on axis.

The high technology low frequency driver is designed with a lightweight, high temperature anodized aluminum voice coil former and high temperature grade voice coil for stable performance and reliability under long-term high power working conditions. The butyl rubber surround provides long-term durability and excellent sonic damping while the polypropylene cone is water and humidity resistant. The FEA-optimized motor construction and cone geometry, along with linear suspension spider design, allow for a smooth frequency response and more consistent off-axis performance. The high frequency driver features a highly damped treated silk dome for clear and warm sound, a lightweight Kapton™ voice coil for better high frequency response and excellent reliability, low viscosity liquid cooling for power handling and reliability, and a wide dispersion waveguide design to produce wide coverage and smooth frequency response.

A high temperature ceramic input connector with brass inserts secures bare wire terminations for +, -, and case ground connections, complying with the BS5839 Part 8 requirements for voice alarm systems for buildings. The included gland nut fitting forms a water-tight seal with round jacketed cable, and the highly water resistant terminal cover prevents ingress of water to a minimum of IP-21, per IEC529/60529.

Ideal for a wide variety of projects, the Control 16C-VA is switchable for use as either an 8 ohm low-impedance speaker or as part of a 70V or 100V distributed loudspeaker system with a 30 Watt multi-tap transformer. Each speaker comes complete with gland nut, two tile rail supports, one C-ring support backing plate, cutout template, paint shield and grille. A safety seismic attachment ring is provided on the terminal cover.



Included grille not shown.

Preliminary Specifications:

System:	Frequency Range (-10 dB) ¹ :	62 Hz – 20 kHz
	Frequency Response (±3 dB) ¹ :	96 Hz – 15 kHz
	Power Capacity (at low-Z) ² :	100 Watts Continuous Program Power 50 Watts Continuous Pink Noise
	Rated Noise Power:	30W (30W tap)
	Rated Noise Voltage:	70V/100V (with 70V/100V tap settings)
	Nominal Sensitivity ³ :	91 dB: 8 ohm tap
	EN54 Sensitivity (@ 4m) ^{1,5} :	77 dB (per EN54-24 spectrum and measurement conditions at 4 meters).
	Coverage Pattern ³ :	110° conical coverage (1 kHz - 16 kHz)
	Coverage Angles (by Frequency):	500 Hz 1000 Hz 2000 Hz 4000 Hz
	Conical (Vertical & Horizontal):	180° 160° 155° 92°
	Reference Axis ¹ :	Specification and measurement reference is directly on-axis vertically and horizontally, directly below the speaker as speaker it is installed in the horizontal ceiling plane
	Directivity Factor (Q) ³ :	7.8
	Directivity Index (DI) ³ :	8.2 dB
	Rated Maximum SPL:	108 dB @ 1 m (3.3 ft) average, 116 dB peak
	EN54 Max SPL (@ 4m) ^{1,5} :	91 dB (per EN54-24 spectrum and measurement conditions, 30W tap, at 4 meters)
	Nominal Impedance:	8 ohms (in direct/bypass 8 ohm setting); EN54 nominal impedance 7 ohms (based on min Z of 5.7 ohms at 11.2 kHz) 3.8W@70V; 7.5W@100V Tap: 1333Ω 7.5W@70V; 15W@100V Tap: 667Ω 15W@70V; 30W@100V Tap: 333Ω 30W@70V; N/C@100V Tap: 166Ω
	Transformer Taps:	30W, 15W, 7.5W @ 70V or 100V (plus 3.8W @ 70V only)
	Crossover Network:	12 dB/oct (2nd order) low-pass to LF driver, 12 dB/oct (2nd order) high-pass to HF driver
Electrical:	Fuse:	Thermal Fuse, open temperature 152 degrees C, Rating >= 10A @ 250VAC
Transducers:	LF Driver:	165 mm (6.5 inch) with polypropylene cone, butyl rubber surround, anodized aluminum voice coil former, high temperature voice coil
	HF Driver:	19 mm (3/4 in), highly-damped treated-silk dome, Kapton™ voice coil, liquid cooling, wide dispersion waveguide
Enclosure:	Connections:	Input +, Input -, Earth (connected to backcan). Ceramic with brass inserts (3.2 mm/0.126 in opening), accommodates 2.5 sq mm / 12 AWG wire.
	Gland Nut/Strain Relief:	Accommodates round jacketed cables 4.0 mm (0.16 in) through 9.0 mm (0.36 in)
	Materials:	ABS baffle with UL94-V0 and UL94-5VB flame class fire rating; Zinc-plated steel backcan
	Safety Agency:	EN54-24:2008 certified Type A (Certificate No. 0359-CPR-00485); Compliant with BS5839/8; UL1480, UL2043, NFPA90 & NFPA70; Suitable for use in air handling spaces, Signaling Speaker; rated IP-21 per IEC529/60529; Transformer UL registered per UL1876; ROHS, C-tick N108, CE compliant; Baffle meets UL94-V0 and UL94-5VB flammability rating; In accordance with IEC60849/EN60849 systems

Specifications continued on back...

▶ Control 16C-VA Two-Way 6.5" Co-axial Ceiling Loudspeaker for EN54-24 Applications

Enclosure:	Dimensions: 253 mm diameter x 262 mm from back of baffle to back of gland nut (10.0 in diameter x 10.3 in in depth)
	Ceiling Cutout Size: Circular cutout with 223 mm (8.8 in) diameter (cardboard cutout template included)
	Ceiling Thickness Range: Up to 38 mm (1.5 in) with stock dog-ears. MTC-TCD thick-ceiling dog-ears available for up to 60 mm (2.4 in) ceiling thicknesses
	Safety Seismic Attachment: One point, top surface
	Net Weight: 3.4 kg (7.4 lbs, one speaker)
	Shipping Weight: 11.2 kg (24.7 lbs, pair in master carton)
	Included Accessories: C-ring support backing plate, 2 tile support rails (for 2 ft or 600 mm tile spans; optional MTC-48TR extension available for larger 4 ft or 1200 mm tile spans), cutout template, paint shield, grille
	Optional Accessories: MTC-16WG high humidity grille MTC-26NC new construction bracket MTC-26MR mud-ring construction bracket MTC-TCD thick-ceiling dog-ears for ceiling thicknesses up to 60 mm (2.4 in, ordering one set = 24 dogears for 6 speakers) MTC-48TR tile rail for 1200 mm (4 ft) tile spans

Contribution of Each One-Third Octave Frequency Band when Speaker is Driven at Full Volume, measured at 4 meter distance (req'd in this manual by EN54-24):

Freq (Hz)	Value (dB)
500	62.5
630	62.3
800	63.7
1000	65.6
1250	62.2
1600	62.9
2000	63.8
2500	64.4
3150	63.7
4000	65.4

¹ Half-space (flush mounted in ceiling)

² Continuous Pink Noise Rating is IEC-shaped pink noise with a 6 dB crest factor for 100 hours continuously. Continuous Program Power is a conservative expression of the system's ability to handle normal speech and music program material, and is defined as 3 dB above the Continuous Pink Noise Rating.

³ Half-space (in ceiling) average 1 kHz to 16 kHz.

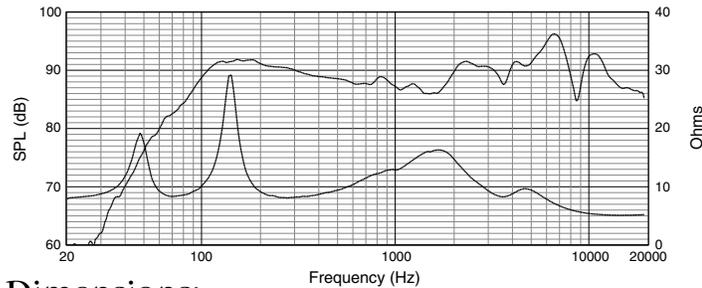
⁴ EN54 acoustical loading baffle utilized for EN54 measurements.

⁵ Per EN54-24 Components of voice alarm system - loudspeakers: Input signal for Sensitivity and Max SPL has 2-to-1 peak-to-average ratio. Measurements taken at distance of 4 meters. Max SPL measured with 100V RMS input signal at top 100V tap.

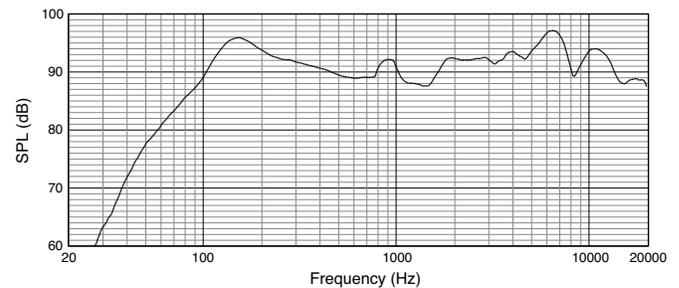
JBL continually engages in research related to product improvement. Changes introduced into existing products without notice are an expression of that philosophy

Frequency Response, Impedance:

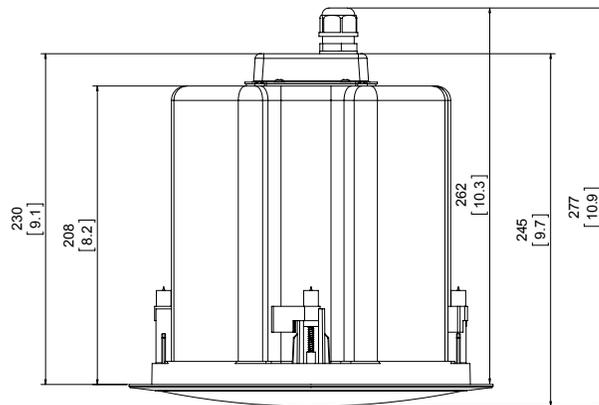
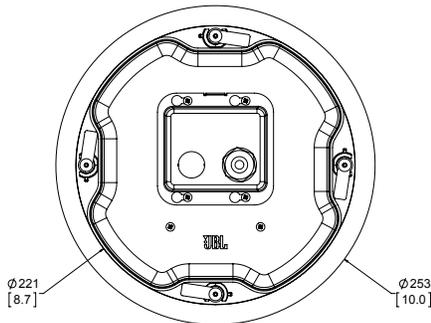
Frequency Response in Half-Space (2 π , mounted in ceiling, 1W, 1m)
Impedance at 8 Ω (low-impedance) setting



Frequency Response chart (2 π , mounted in ceiling), 100V input on 30W tap, measured at 4 meters



Dimensions:



Dimensions in mm (inches)



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