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TQ-310

QLIGHT™ SERIES ENGINEERING INFORMATION

The TQ-310 is a trapezoidal, passive, full range two-way loudspeaker enclosure designed for use in mobile speech and music sound reinforcement applications as well as in a wide range of fixed installations.

The loudspeaker complement consists of a front loaded 10” low-mid frequency driver and a 1” high frequency compression driver on a 100°H x 60°V HF waveguide, matched with an internal passive crossover network.

The TQ-310 features Turbosound’s Converging Elliptical Waveguide™ (CEW™) technology. The comparatively short flare allows physical alignment of the HF and LF devices, and ensures that the wavefront is shaped smoothly, eliminating reflections in the throat area while giving excellent pattern control. Additionally this design does not suffer from the distortion typical of horns employing diffraction edges. The waveguide can be rotated within the enclosure, making it possible to swap the horizontal and vertical coverage patterns, for example when installing the TQ-310 horizontally.

The quasi-trapezoidal enclosure has been designed with a 15° side angle on one side, and with a 15° and 45° angle on the other. This shape allows the loudspeaker to be used for either front of house applications or as a floor monitor.

The TQ-310 includes the provision for fitting optional RT-767 ring-type fittings, enabling it to be suspended and angled in permanent installations as well as in mobile applications. A pole mount socket is fitted for use with 35mm poles and speaker stands. M10 rigging points are provided on each side for horizontal orientation. It is also compatible with optional Turbosound hardware, as well as Omnimount™ and Powerdrive™ brackets.

The cabinet is constructed from 12mm (1/2”) birch plywood, screwed and glued together for maximum strength and rigidity, and includes a reticulated foam and steel mesh grille. It is finished in durable semi-matt black textured paint; TurboBlue™ textured paint is optionally available.

A rear panel connector plate carries two Neutrik Speakon NL4MP connectors for loop in and loop out connections to additional enclosures.

The TQ-310 must be used with professional quality digital controllers, such as the Turbosound LMS-D4 or LMS-D6, providing at least five parametric EQ points per output, and output limiting functions.

Recommended complementary products:
TQ-115, TQ-425 subwoofer enclosures
LMS-D6, LMS-D4 loudspeaker management systems

FEATURES

- CEW™ technology
- Trapezoidal cabinet
- Rotatable HF waveguide
- High power handling
- RT-767 flying points
- Pole mount socket
- Omnimount™ compatible
- Powerdrive™ compatible

APPLICATIONS

- Front of house
- Floor monitor
- Theatre
- Houses of Worship
- Corporate / industrial

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QLIGHT™ SERIES ENGINEERING INFORMATION

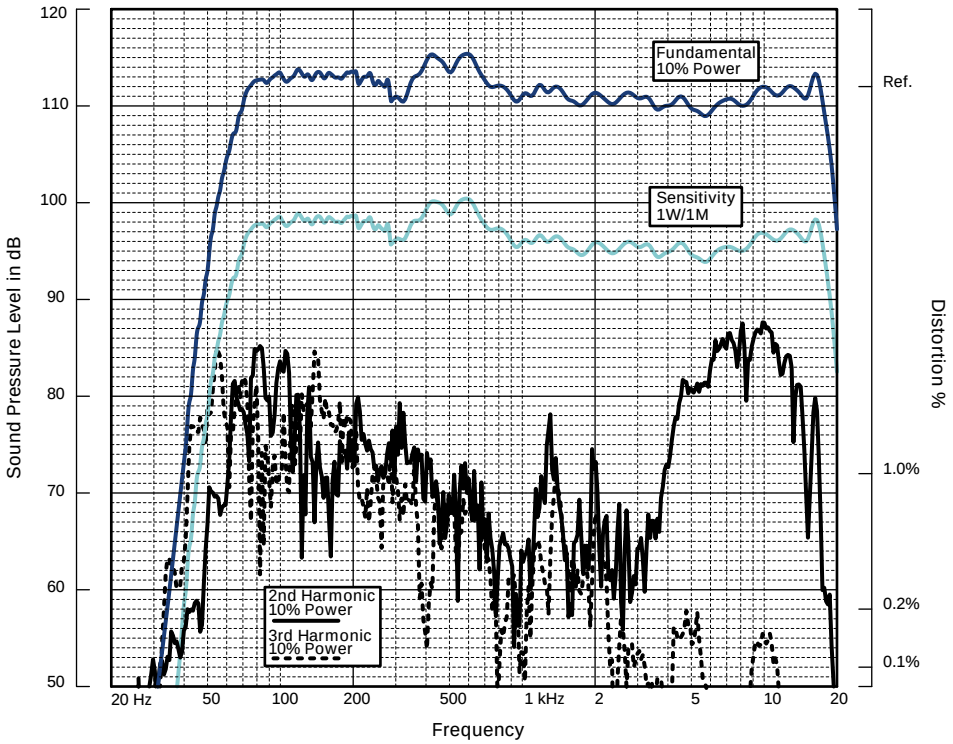
DIMENSIONS (HxWxD)	525mm x 319mm x 277mm (20.7” x 12.5” x 10.9”)
NET WEIGHT	18kg (39.6 lbs)
COMPONENTS	1 x 10” (254mm) LF driver, 1 x 1” (25mm) HF driver on a Converging Elliptical Waveguide™
FREQUENCY RESPONSE[1]	65Hz - 20kHz ±4dB
NOMINAL DISPERSION[2]	100˚H x 60˚V@-6db points. Rotatable waveguide allows swap of horizontal and vertical pattern
POWER HANDLING	350 watts r.m.s., 700 watts program, 875 watts peak Recommended amplifier 700 watts @ 8 ohms
SENSITIVITY[3]	96dB 1 watt @ 1 m
MAXIMUM SPL	124dB continuous[4], 130dB peak[5]
CROSSOVER	Internal passive crossover at 3k5Hz; 12dB/octave Butterworth
RECOMMENDED CONTROLLERS	Turbosound LMS-D4 Turbosound LMS-D6 BSS Minidrive FDS344
NOMINAL IMPEDANCE	8 ohms
CONSTRUCTION	12mm (1/2”) birch plywood; rebated, screwed and glued. Finished in black semi-matt textured paint. One recessed carrying handle. Integral pole mount socket
GRILLE	Powder coated perforated steel with acoustically transparent reticulated foam
CONNECTORS	(2) Neutrik Speakon NL4MP, wired pin1+: positive, pin1-: negative
FLYING HARDWARE	RT-767 ring-type flypoints on the top (2) and back (1) M8 internal rigging points for WB-100 and CB-100 brackets M6 internal rigging points for Powerdrive series 75 and Omnimount series 75 M10 internal rigging points for M10 shoulder eyebolts
OPTIONS	Optional colour: TurboBlue™ textured paint

SPARES AND ACCESSORIES

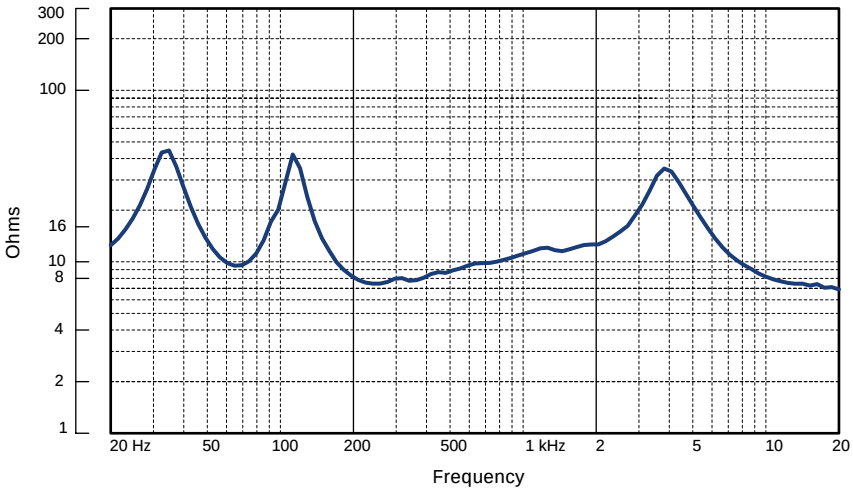
LS-1018	10” (254mm) LF loudspeaker
RC-1018	Recone kit for LS-1018
CD-110	1” (25mm) HF compression driver
RD-110	Replacement diaphragm for CD-110
PX-310	Crossover assembly
MG-310	Replacement grille
RT-767	Ring-type flying points
CB-100	Ceiling bracket
WB-100	Wall bracket
SB-310	Swivel bracket
FH-310	Thomas frame

Notes
[1]Measured on axis
[2]Average over stated bandwidth
[3]Average over stated bandwidth
[4]Unweighted diode-clipped pink noise. Measured in a half space environment
[5]Verified by subjective listening tests of familiar program material, before the onset of perceived signal degradation

FREQUENCY RESPONSE



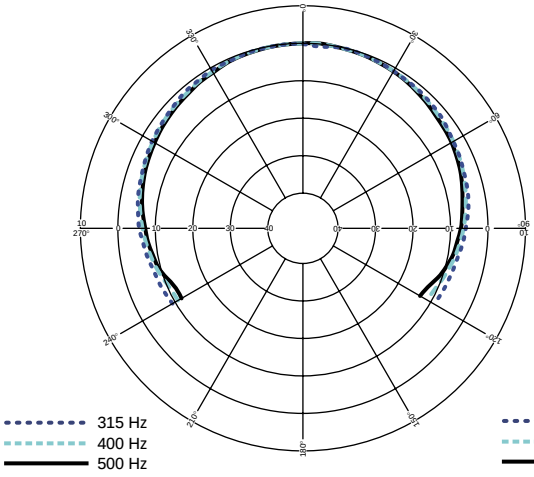
IMPEDANCE

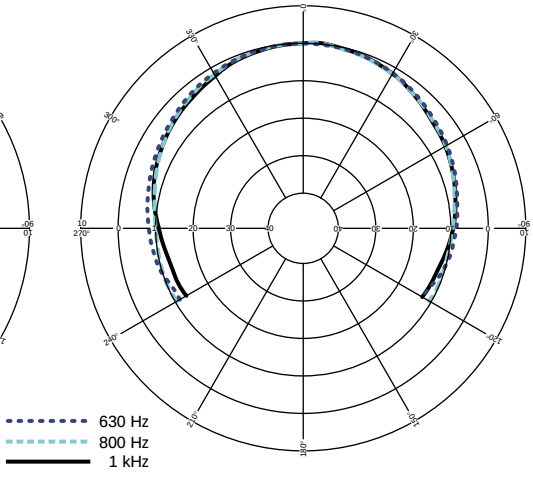


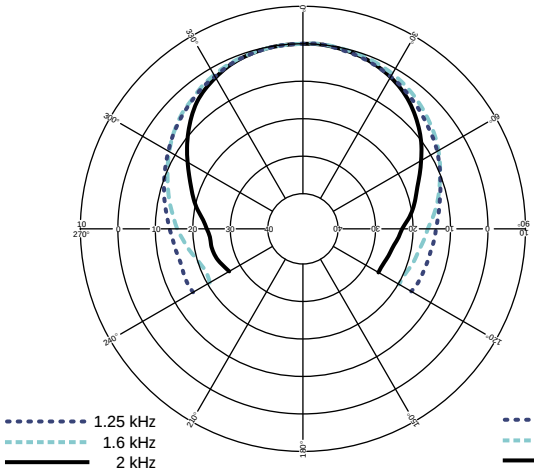
NOTES ON MEASUREMENT CONDITIONS

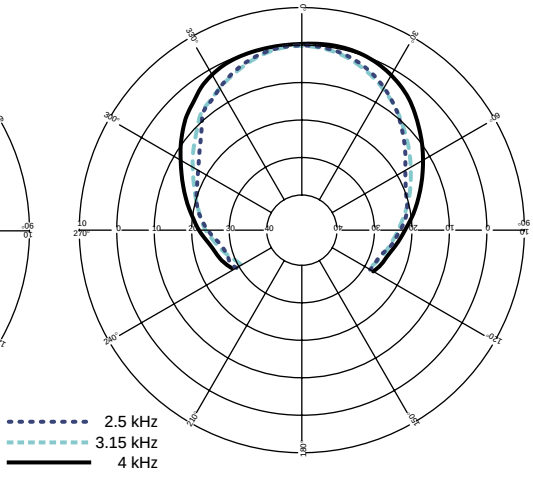
Impedance A constant current circuit was used to measure the impedance. **Frequency response** The frequency response shown was obtained by feeding a swept sine wave through the system in a full space environment. The position of the microphone was vertically on-axis at a distance of 2 metres, then scaled to represent 1 metre. **2nd & 3rd Harmonic Distortion** Distortion measurements were obtained using an Audio Precision harmonic distortion analysis system and comply with AES recommendations for enclosure measurement (AES paper ANSI S4-26-1984). **Data Conversion** All graphs were digitally generated using the APEX custom software system, designed to translate data derived from Audio Precision 'System One' test equipment into AutoCAD™. This program enables graphical information to be plotted to a high degree of accuracy.

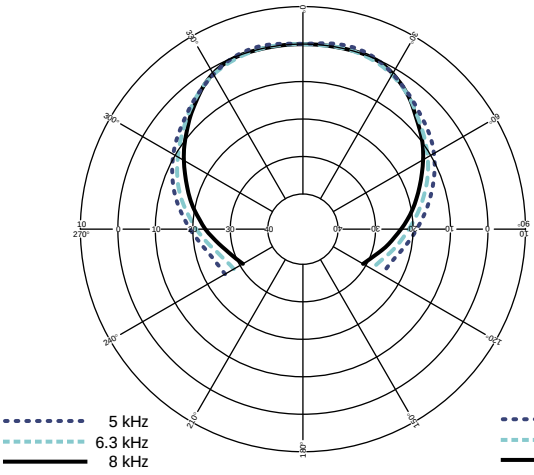
HORIZONTAL THIRD OCTAVE POLARS

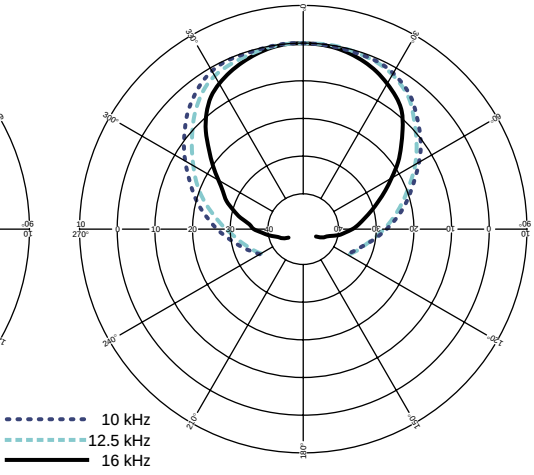




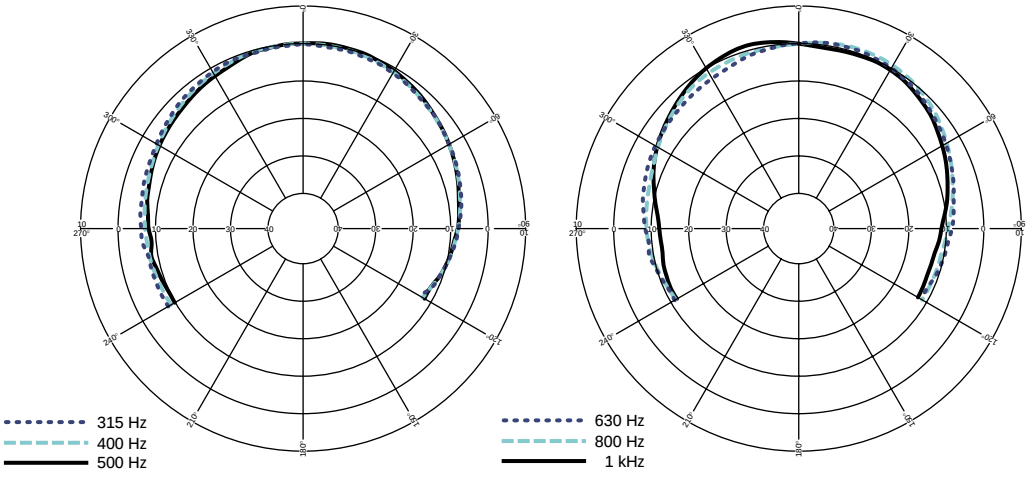


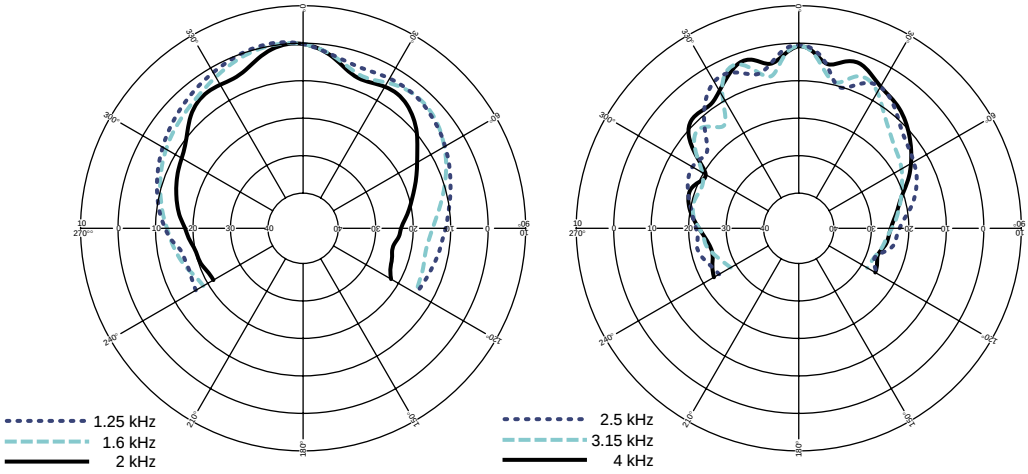


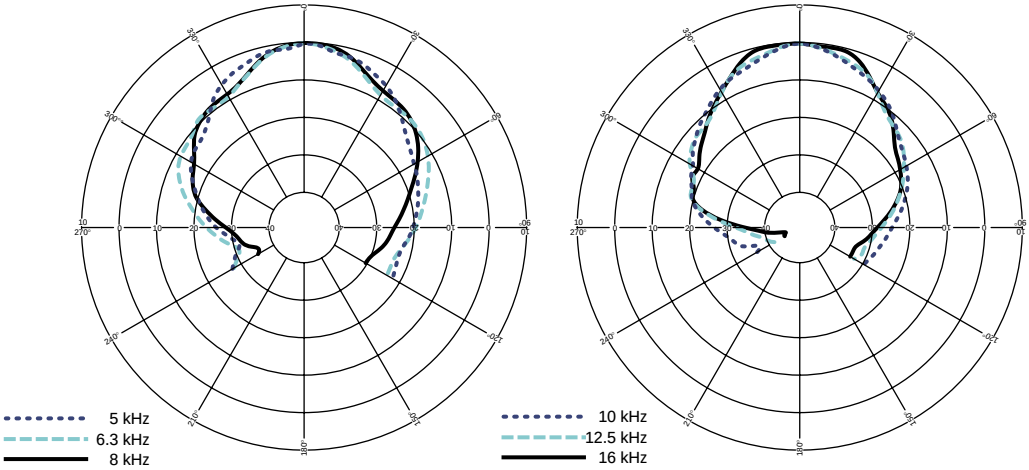




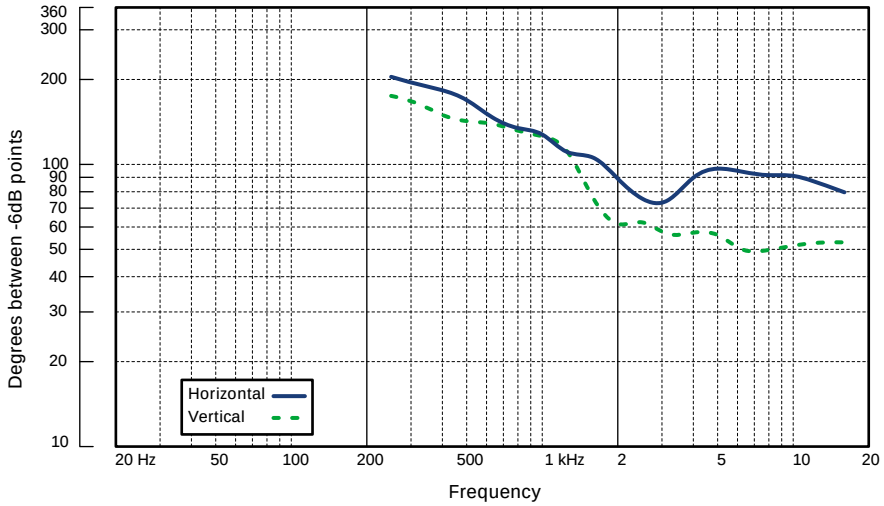
VERTICAL THIRD OCTAVE POLARS



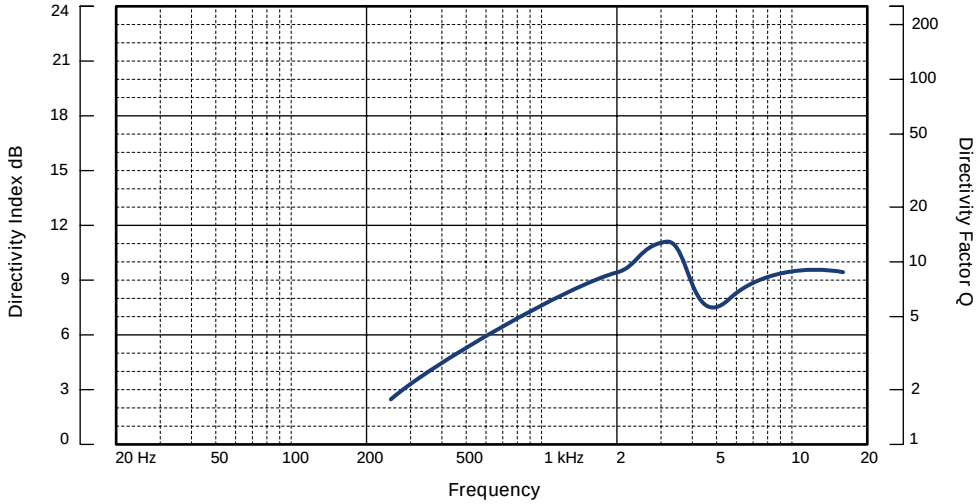




BEAMWIDTH



DIRECTIVITY



INSTALLATION AND FLYING HARDWARE

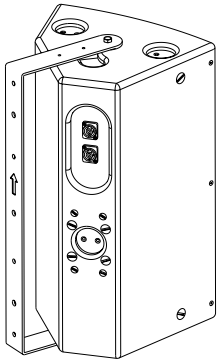
The enclosure is fitted with rigging points on the top and rear of the cabinet for use with optional RT-767 ring type flying points, enabling it to be rigged in permanent installations and for mobile applications. The rear RT-767 rigging point provides a means of adjusting the downward angle of the cabinet.

The TQ-310 can be installed horizontally using M10 shoulder eyebolts attached to the internal rigging points on the sides of the cabinet, using the rear RT-767 point as a pull-back.

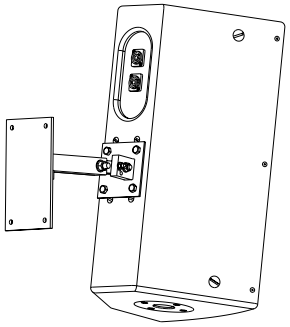
M8 rigging points are provided to allow permanent installation using the WB-100.2 wall bracket or CB-100 ceiling bracket. These allow a range of downward angles to provide the correct venue coverage.

The SB-310 swivel bracket provides a means of wall mounting the TQ-310 in either a horizontal or vertical orientation, or in rental applications using an additional scaffold clamp assembly. The swivel bracket is attached to the box using the integral pole mount fitting at the bottom and the M8 internal rigging point on the top of the cabinet.

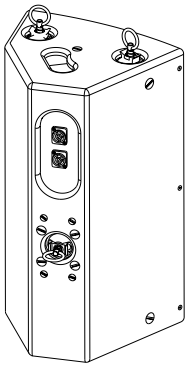
M6 rigging points are also provided on the rear to suit OMNIMOUNT series 75 and POWERDRIVE series 75 wall and ceiling bracket.



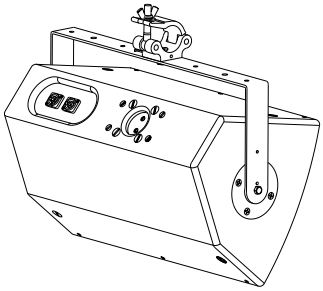
SB-310 swivel bracket



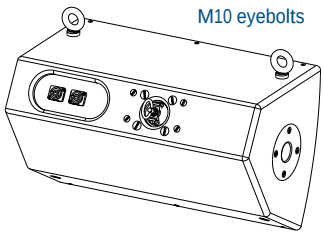
WB-100 wall bracket



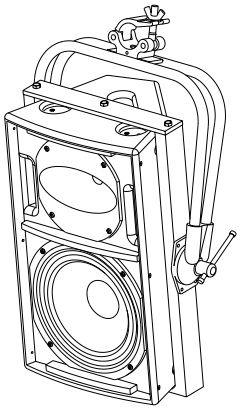
RT-767 ring type flypoints



SB-310 swivel bracket and scaffold clamp



M10 eyebolts



FH-310 Thomas frame

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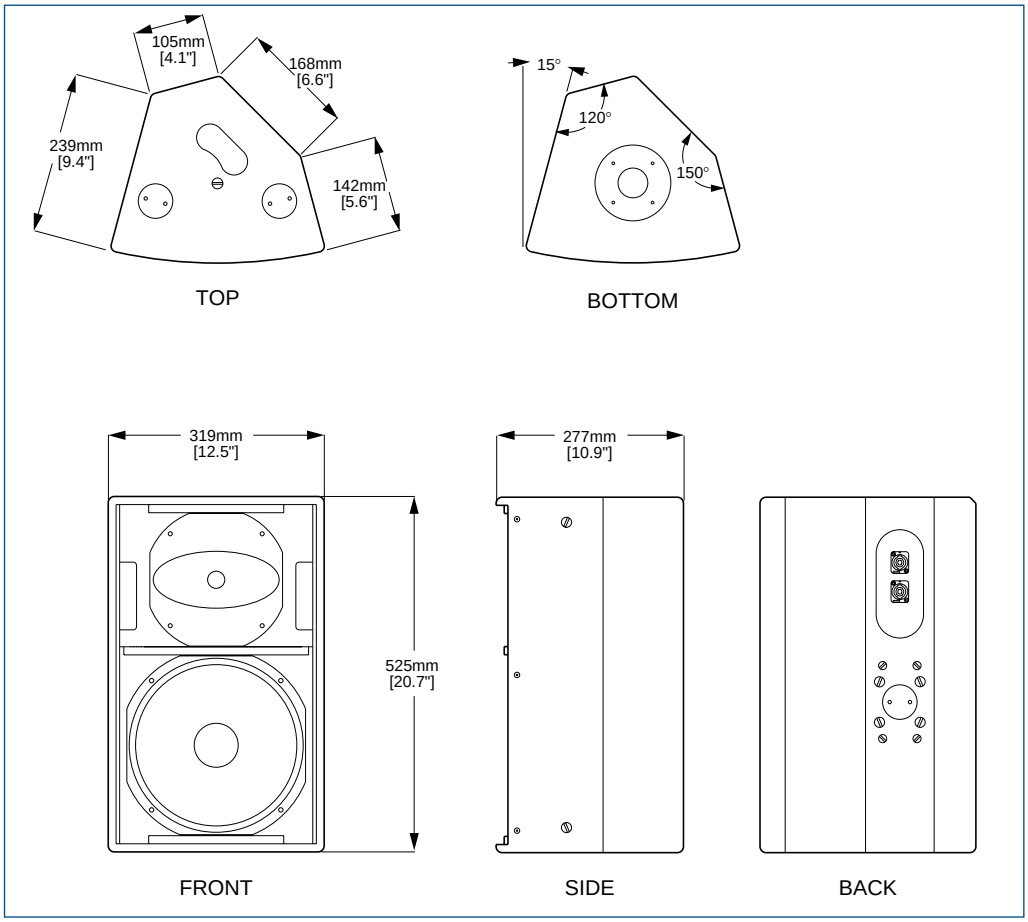
TQ-310

QLIGHT™ SERIES ENGINEERING INFORMATION

ARCHITECTURAL & ENGINEER'S SPECIFICATIONS

The system shall be of the two-way passive trapezoidal type consisting of one 10" (254mm) low-mid frequency loudspeaker and one 1" (25mm) high frequency driver on a rotatable 100° x 60° Converging Elliptical Waveguide™. Performance specifications of a typical production unit when used with a recommended digital controller shall meet or exceed the following: frequency response, measured with swept sine wave input, shall be flat within ±4dB from 65Hz to 20kHz. Nominal dispersion, at –6dB points, shall average 100°H x 60°V. Nominal impedance shall be 8 ohms. Power handling shall be 350 watts r.m.s., 700 watts program, 875 watts peak. Sensitivity, measured with 1 watt input at 1 metre distance on axis, mean averaged over stated bandwidth, shall be 96dB. Maximum SPL (peak) measured with music program at stated amplifier input shall be 130dB. Dimensions: 525mmH x 319mmW x 277mmD (20.7"H x 12.5"W x 10.9"D). Weight: 18kg (39.6lbs). The loudspeaker system shall be the Turbosound TQ-310. No other loudspeaker shall be acceptable unless submitted data from an independent test laboratory verify that the above combined performance / size specifications are equalled or exceeded.

DIMENSIONS



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