

# QLight™ series

## Digitally Powered Loudspeaker Systems

 Turbosound®



# 96kHz DSP Technology for Better Sound

**Turbosound once again leads the field with a major breakthrough in performance and convenience with the new digitally powered QLight™ DP series of loudspeakers. Based on revolutionary 96kHz DSP technology, these products offer the highest power output in their class across a broad spectrum of both portable and fixed installation applications.**

The QLight™ DP series features a new generation of professional lightweight Class D power amplifiers. The DSP is based on a 96kHz sampling rate—twice that of commonly used sampling rates. The result is pristine hi-fi audio quality, highly suitable for all professional sound reinforcement applications, whether they be mobile or permanently installed.

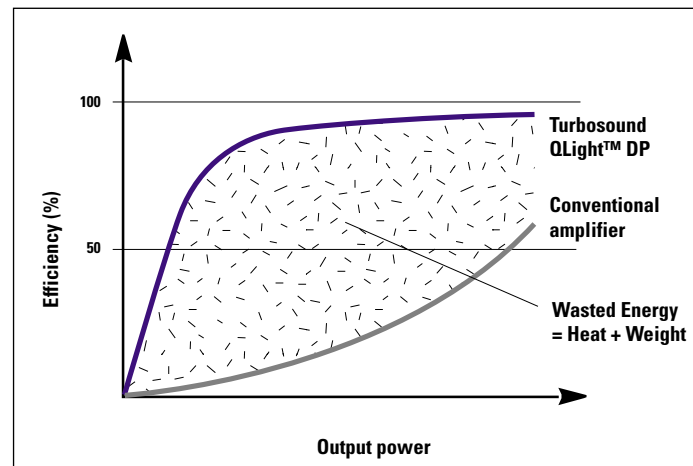
But the major breakthrough is in terms of amplifier efficiency. While it is common for conventional linear power amplifiers to attain efficiencies of around 40% at full output—by definition the ratio of output power at the loudspeaker terminals

compared to the input power—Turbosound's new QLight™ DP series has well and truly broken new ground with a typical operating efficiency in excess of 90%. And in contrast to conventional amplifiers, much better efficiency is reached even at low power levels. So more power is delivered to the loudspeaker and considerably less is wasted as heat.

How is that achieved? In the pulse width modulated (PWM) amplifier there is virtually no loss in the output FET's because they are either turned on or turned off—and because heat build-up is largely due to the transition state between off and on, there is a lot less heat generated in the output transistors. Less heat dissipation means that no heatsinks are required to

cool the amplifier's output stages, and that in turn cuts down on the overall weight of the product. Improvements in the power supply department—QLight™ DP loudspeakers use ultra-fast switch mode PSU's for a smaller, lighter, low loss transformer core—also contribute towards a lighter, more manageable product.

The power amplifier modules incorporate sophisticated DSP, including active crossovers and output limiters, to make a completely self-contained and optimised audio system that requires only a signal feed from a professional mixing console to give consistent performance without the need for additional outboard equipment.



**Turbosound QLight™ Class D amplifiers improve operating efficiency**

signal level connections; a Neutrik Powercon for AC mains input, plus mains power and limiting threshold LED's to monitor system status.

Touring with QLight™ DP series loudspeakers presents no problems either. Power supplies are auto-sensing over a range of AC voltages from 100 to 240 volts, making it possible to connect to mains supplies anywhere in the world. The amplifiers also offer the future potential to use the loudspeakers in networked sound systems with the provision of an RS232 port which is currently used for software updates. The amplifier also offers via the RS232 port a contact-closure mute capability, a feature useful to systems incorporating voice evacuation elements.

The modules have been designed for easy removal from the loudspeaker, so making emergency on-site servicing practical. The rear panels provide an intuitive connection interface, with balanced input and link XLR's for

## TQ-308DP

A compact digitally self-powered loudspeaker incorporating integral amplifiers and control electronics with a high degree of convenient 'plug-and-play' functionality, perfect for corporate and theatre shows where loudspeakers have to be virtually invisible. It delivers high quality, full range audio from an unobtrusive and easily transportable package, and can be set up and operated quickly and accurately.

It consists of a front loaded 8" LF driver and a 1" HF compression driver on a rotatable 100°H x 60°V Converging Elliptical Waveguide™ in a compact trapezoidal enclosure. The CEW™ horn delivers wide and even coverage of any room with superb audio quality, and can be rotated within the cabinet to permit a swap of the vertical and horizontal coverage pattern.

The TQ-308DP features a new generation of innovative digital amplifier module, utilising revolutionary 96kHz DSP technology to give operating efficiencies better than 90%. It combines two independent channels of Class D power amplification with an intelligent



crossover/limiter in an integrated electronics module to ensure that the performance from the loudspeaker system is at all times optimised irrespective of source material or operating conditions.

All connections and operating controls are located on a recessed panel at the rear of the cabinet. Signal input and link connections are catered for by male and female 3-pin XLR's, while AC mains input is provided via a lockable Neutrik Powercon. A low frequency contour switch is provided to roll off the bass response when using additional bass cabinets, as well as an RS232 port for program upgrades.

The birch plywood cabinet includes M10 rigging points on the top, sides and bottom, enabling it to be suspended and angled in permanent installations. A pole mount socket is also fitted on the bottom of the cabinet for use with 35mm poles and speaker stands.

### technical specifications

- **frequency range** 68Hz - 20kHz ±4dB
- **maximum SPL** 120dB cont., 126dB peak
- **dispersion (av.)** 100°H x 60°V @-6dB points
- **amplifier type** Two channels, Class D
- **dynamic range** 110dB
- **power requirement** 100V – 240V AC, 50/60Hz
- **dimensions (hwxwd)** 464mm x 270mm x 301mm
- **net weight** 15.5kg (34.1lbs)



## TQ-310DP

Providing really impressive bass response from a small cabinet, the TQ-310DP is recommended for corporate and dry hire applications where you need high quality, full range audio from an unobtrusive package that can be set up quickly and accurately without the complication of external amplifiers and crossovers.

The TQ-310DP features on-board Class D power amplifiers optimally matched to the drive units, plus active crossovers and output limiters for a lightweight yet powerful package.

The rear panel carries all necessary input, link and mains connections, plus a power switch, status LED's and an RS232 port for program upgrades and future network capability. The bass response of the system can be shelved via a convenient rear panel slide switch when using the enclosure with additional Turbosound bass enclosures such as the TQ-115DP or TQ-425DP.

An auto-sensing power supply allows the system to operate over a range of mains supplies ranging from 100 volts to 240 volts. This means that it is possible to connect the TQ-310DP to mains supplies virtually anywhere in the world without the inconvenience of internal switches.

The loudspeaker components are a front loaded 10" LF driver and a 1" HF compression driver on a rotatable 100°H x 60°V Converging Elliptical Waveguide™, giving wide and even sound coverage of any venue or outdoor space. The HF waveguide can be removed and rotated through 90°, making it possible to install the cabinet in a landscape format where room height is limited, or simply to achieve a 60°H x 100°V pattern in its regular vertical orientation.

Rigging points are fitted to the cabinet for use with optional M10 eyebolts, enabling it to be suspended and angled in permanent installations as well as in mobile applications. A Turbosound



flying frame is available with variable tilt and swivel, ideal for ceiling and scaffold bar mounting. A pole mount socket is also fitted on the bottom of the cabinet for use with 35mm poles and speaker stands.

### technical specifications

- **frequency range** 65Hz - 20kHz ±4dB
- **maximum SPL** 124dB cont., 130dB peak
- **dispersion (av.)** 100°H x 60°V @-6dB points
- **amplifier type** Two channels, Class D
- **dynamic range** 110dB
- **power requirement** 100V – 240V AC, 50/60Hz
- **dimensions (hwxwd)** 525mm x 315mm x 300mm
- **net weight** 20.1kg (44lbs)



## TQ-445DP

The TQ-445DP offers the highest level of audio performance in the QLight™ DP series, due to its unique horn-loaded three-way design, co-axial driver configuration and high efficiency on-board power amplifiers.

The use of digital power amplifier technology brings 'plug-and-play' functionality and high performance audio to a new level. Not only can an exact match be guaranteed between the amplifiers and drive units for greater reliability, it is also now possible to achieve efficiency levels far in excess of conventional self-powered loudspeaker systems, more than 90% under typical operating conditions. Packaging the entire electro-acoustic system—including active crossovers and output limiters—in one convenient, easily transportable package offers unprecedented ease of use.

Consisting of a co-axial 12"/1" combination driver and a 6.5" cone midrange transducer in a compact, trapezoidal enclosure no bigger than a conventional two-way loudspeaker, the TQ-445DP reproduces speech and music with startling dynamism and clarity. The midrange driver is



mounted on a 60°H x 40°V horn and TurboMid™ device, giving focused coverage pattern which results in exceptional projection over unusually large distances.

The trapezoidal cabinet shape allows the loudspeaker to be arrayed with optimum horizontal coverage, and a range of load-tested flying hardware facilitates the rigging of either single or multiple boxes.

The rear panel carries all the necessary signal, control and power connections. A Neutrik Powercon connector allows the unit to be connected to AC mains supplies ranging from 100 volts to 240 volts. A mains switch, mains fuse and RS232 port—used for program updates—are provided, as well as limit Hi and limit Lo LED's which give an instant indication of system status. An EQ contour switch is also provided to optimise the frequency response for either speech or music applications or with additional subs.

### technical specifications

- **frequency range** 55Hz - 20kHz ±4dB
- **maximum SPL** 131dB cont., 137dB peak
- **dispersion (av.)** 60°H x 40°V @-6dB points
- **amplifier type** Two channels, Class D
- **dynamic range** 110dB
- **power requirement** 100V – 240V AC, 50/60Hz
- **dimensions (hwxwd)** 588mm x 409mm x 363mm
- **net weight** 32.5kg (71.5lbs)

## TQ-425DP

The TQ-425DP is a self-powered double 15" subwoofer enclosure incorporating two integral power amplifiers with 96kHz DSP. The use of active power amplifier technology ensures an exact match between the amplifiers and loudspeakers for optimum acoustic output. It offers exceptional ease of use by combining the entire electro-acoustic system in one convenient, easily transportable package.

The TQ-425DP combines with the TQ-445DP enclosure, and other QLight™ speakers, to give a high quality, full range sound reinforcement system ideally suited to all corporate, industrial, theatre and audio visual applications.

Its two 4" voice coil 15" low frequency drivers are optimally tuned to reproduce high sound pressure levels at bass and sub-bass frequencies from a compact reflex cabinet. In fact a TQ-445DP / TQ-425DP system can easily generate over 137dB peak SPL (138dB at bass frequencies) with wide frequency response and exceptional vocal projection.

The power amplifier and DSP are combined into a single self-contained module which is accessible from the rear of the cabinet, carrying all audio, data and power connections to the loudspeaker. Removal and servicing of the complete amplifier module only requires the removal of four screws and a single multi-way connector.

The amplifier has been designed to deliver large amounts of power to the loudspeaker drivers, giving the TQ-425DP the capability to reproduce large transients accurately with ample headroom. Each driver is mounted in its own chamber and fed by a discrete amplifier channel, ensuring exceptional performance and long term reliability. The drivers are additionally protected from excessive excursion and thermal overload by limiters built into the on-board DSP.



Birch plywood construction is used throughout, and the TQ-425DP is finished in black semi-matt textured paint (also available in TurboBlue™ textured paint). Heavy duty wheels are included as standard to aid transportation and handling.

### technical specifications

- **frequency range** 45Hz - 200Hz ±4dB
- **maximum SPL** 132dB cont., 138dB peak
- **dispersion (av.)** n/a
- **amplifier type** Two channels, Class D
- **dynamic range** 110dB
- **power requirement** 100V – 240V AC, 50/60Hz
- **dimensions (hxwxrd)** 836mm x 511mm x 632mm
- **net weight** 68kg (149.6lbs)



## TQ-115DP

The TQ-115DP is a self-powered single 15" subwoofer enclosure incorporating an integral power amplifier and control electronics module with 96kHz DSP. The use of active Class D power amplifier technology ensures an exact match between amplifier and loudspeaker for optimum acoustic output. This offers exceptional output and solid bass response from a small, easily transportable, enclosure.

The TQ-115DP is designed to combine with the TQ-308DP or TQ-310DP to give a high quality, plug-and-play, full-range sound reinforcement system. This combination is ideally suited to all corporate, industrial, theatre and audio visual applications. Due to the consistent voicing across the QLight™ range, this system is also recommended for delays and fills as part of larger QLight™ sound reinforcement systems.

The 400 watt (r.m.s.) 4" voice coil 15" low frequency driver is reflex-loaded and optimally tuned to reproduce high sound pressure levels at bass and sub-bass frequencies from such a compact and transportable cabinet.



The Class D power amplifier and DSP are combined into a single self-contained module which is accessible from the rear of the cabinet for easy removal and service. This module is convection cooled to ensure silent operation for use in corporate and theatre environments.

The amplifier has been designed to deliver large amounts of power to the loudspeaker driver, giving the TQ-115DP the capability to reproduce large transients accurately with ample headroom. The driver is additionally protected from excessive overload by high performance on-board limiters built in to the DSP.

Birch plywood is used throughout for the cabinet construction, and the TQ-115DP is finished in black semi-matt textured paint (also available in TurboBlue™ textured paint). It can be permanently installed using flying strips attached to the rigging points provided on the cabinet.

### technical specifications

- **frequency range** 47Hz - 180Hz ±4dB
- **maximum SPL** 126dB cont., 132dB peak
- **dispersion (av.)** n/a
- **amplifier type** Class D
- **dynamic range** 110dB
- **power requirement** 100V – 240V AC, 50/60Hz
- **dimensions (hxwxrd)** 559mm x 450mm x 600mm
- **net weight** 39kg (85.8lbs)

# Technical Specifications

	TQ-308DP	TQ-310DP	TQ-445DP	TQ-425DP	TQ-115DP
<b>Frequency range (<math>\pm 4</math>dB)</b>	68Hz - 20kHz	65Hz - 20kHz	55Hz - 20kHz	45Hz - 200Hz	47Hz - 180Hz
<b>Maximum SPL (cont.)</b>	120dB	124dB	131dB	132dB	126dB
<b>Maximum SPL (peak)</b>	126dB	130dB	137dB	138dB	132dB
<b>Dispersion (av) @-6dB</b>	100°H x 60°V	100°H x 60°V	60°H x 40°V	n/a	n/a
<b>Dimensions (mm) (HxWxD)</b>	464 x 270 x 301	525 x 315 x 300	588 x 409 x 363	836 x 511 x 632	559 x 450 x 600
<b>Dimensions (ins) (HxWxD)</b>	18.3 x 10.6 x 11.8	20.7 x 12.4 x 11.8	23.1 x 16.1 x 14.3	32.9 x 20.1 x 24.9	22 x 17.7 x 23.6
<b>Net weight (kg)</b>	15.5	20.1	32.5	68	39
<b>Net weight (lbs)</b>	34.1	44	71.5	149.6	85.8
<b>Rigging points</b>	8 x M10	8 x M10	8 x M10	8 x M10	8 x M10
<b>Finish</b>	The standard finish is black semi-matt textured paint; also available in TurboBlue™ textured paint				
<b>AMPLIFIER:</b>					
<b>Type</b>	Class D	Class D	Class D	Class D	Class D
<b>DSP</b>	96kHz	96kHz	96kHz	96kHz	96kHz
<b>Input sensitivity (for max output)</b>	+5.5dBu	+5.5dBu	+5.5dBu	+5.5dBu	+5.5dBu
<b>Input impedance</b>	10k ohms	10k ohms	10k ohms	10k ohms	10k ohms
<b>Output power @ 0.01%THD</b>	2 x 800w @ 8 $\Omega$	2 x 800w @ 8 $\Omega$	2 x 800w @ 8 $\Omega$	2 x 800w @ 8 $\Omega$	800w @ 8 $\Omega$
<b>Dynamic range</b>	110dB	110dB	110dB	110dB	110dB
<b>Bandwidth (<math>\pm 0.5</math>dB)</b>	20Hz - 20kHz	20Hz - 20kHz	20Hz - 20kHz	20Hz - 20kHz	20Hz - 20kHz
<b>Power requirements</b>	100 volts to 240 volts AC, 50/60 Hz				

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