Product description

Tannoy has developed the QFlex Life Safety (LS) models as a cost effective solution for critical, life safety applications, a solution that balances complex power consumption needs with the high performance and intelligibility that is the core of the proven QFlex range. Based on Tannoy's superior knowledge and heritage of speech intelligibility in critical listening in difficult acoustic environments, the new models have an optimised driver placement and improved current draw, making them perfect for applications where emergency voice alarms or communications may be required.

The new QFlex 16LS column loudspeaker is designed primarily for large transportation hubs as part of a PA/VA system where speech is the main audio source, either from live announcements or via pre-recorded message. These new QFlex life safety models are specifically intended to optimise voice reinforcement, and as a result make them more affordable, and therefore applicable, to a wider range of projects.

The QFlex 16LS makes use of a fewer number of wider bandwidth 4-inch low frequency drivers than the equivalently sized QFlex 40 model to achieve an emphasis on the speech band only, over an effective distance of up to 70 metres. Each of the 16 drivers is controlled by its own discrete channel of 100 Watt (RMS) Class D amplification and cutting edge DSP, the reduced driver count and wider spacing enabling a 50% reduction in power consumption. The QFlex 16LS provides a beam steering range of ±40 degrees with effective low frequency control down to 230 Hz. Dispersion is nominally 120 degrees horizontal and a vertical range of between 5 degrees and 100 degrees, either symmetrical or asymmetrical.

Features

- Steering control (+/- 40 degrees)
- Sleek aesthetic design available in custom colours
- Intuitive BeamEngine™ GUI
- Integrated cutting edge VNET DSP, network control and amplification
- Fully PA/VA compliant
- AES / Dante™ digital audio connectivity
- IP54 Certified

Physical data

Driver complement:	16 x 4" Full range
Dimensions HxWxD:	2520 x 172 x 150 mm (99.2 x 6.8 x 5.9")
Net weight:	37.3 kg (82.2 lbs)
Enclosure:	Extruded aluminum
Finish:	WP White
	Special order: Any RAL colour
Protective grille:	Painted aluminium

For mounting instructions and schematics, please refer directly to QFlex Operations Manual - available at Tannoypro.com.

Applications

- Transportation hubs
- Museums
- Shopping malls
- Government buildings

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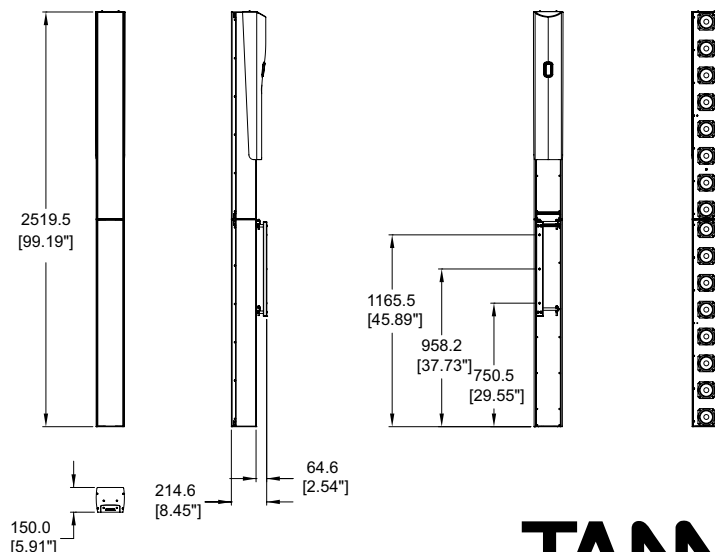
Superior audio quality.
Greater beam control.
Cost-effective solutions.

Overcoming "Acoustical Nightmares"

QFlex comprises a complete range of digitally steerable, multichannel array loudspeaker systems for the professional installation market. Purpose-designed for applications with exceptionally problematic acoustics, QFlex technology gives the system designer a unique set of tools for controlling sound in large, acoustically challenging, highly reverberant spaces – typically involving expansive surfaces of glass, metal, concrete or stone.

QFlex is revolutionary in being able to achieve even coverage and sound pressure levels across the full listening plane. By creating an asymmetrical pattern, QFlex can produce equivalent SPL results in both the near and far field. Precise full-range beam control, effective to frequencies beyond 12 kHz, allows the system designer to steer the QFlex beam away from surfaces that cause reflections. This makes QFlex the first digitally steerable array to maintain music quality over the desired area of coverage, all in a very architecturally pleasing package.
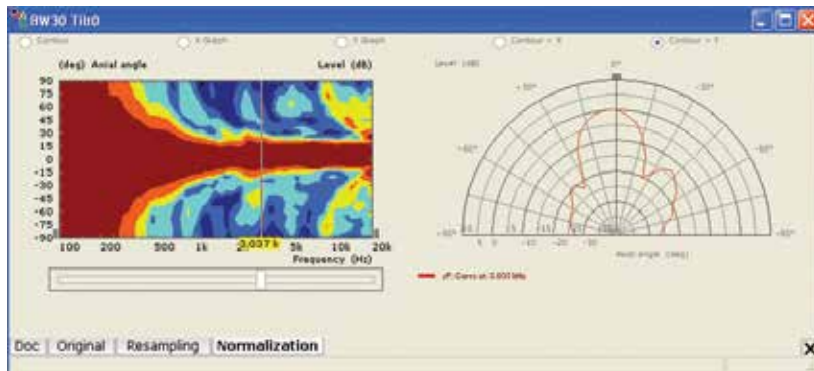
Densely spaced transducers defeat the effects of aliasing, even at higher frequencies.

Which model do I choose ?

The QFlex system you specify depends on a number of criteria:

Distance

Effective coverage at a greater distance requires a larger QFlex column. Typically, as a rule of thumb, a QFlex 16 is effective over distances of up to 20 m (66 ft) and a QFlex 64 in excess of 100 m (328 ft).

at considerable distance, with its high amplifier count producing more available headroom than any column in its class. Qflex is unique in that every transducer has its own dedicated amplifier channel.

Low Frequency Control

The longer the column, the more effective the control and steering at lower frequencies.

QFlex 16 is effective to 700 Hz and QFlex 64 to 110 Hz.
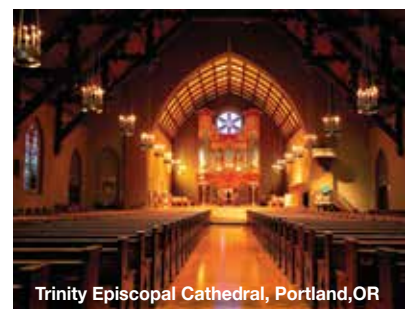
Predictive Simulation

Tannoy's BeamEngine software provides a simple and effective way to select the correct model for your application.

This powerful design and control software for Windows PC is available free to download on tannoypro.com.

SPL Requirements

Larger QFlex arrays will produce higher SPL levels. This is the case with all loudspeakers, as there are more drivers and amplifier channels producing sound. QFlex can generate substantial SPL levels

Life Safety Requirements

Our LS models are specifically engineered to offer fully optimised solutions for life safety and voice only applications with improved current draw and lower bandwidth drivers.

Queen of Peace Croatian Church, Ontario

Kameha Grand hotel, Bonn

Abu Dhabi International Airport

Trinity Episcopal Cathedral, Portland, OR

Museum of Communications, Frankfurt
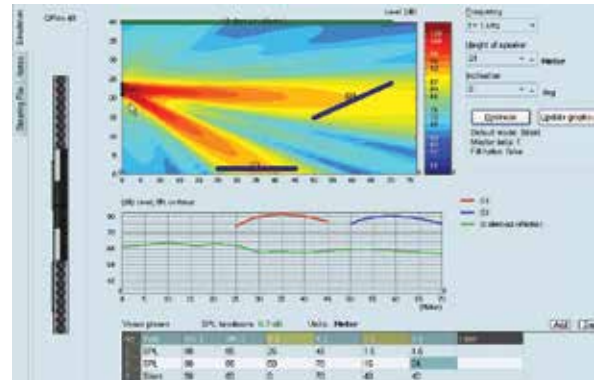
Comprehensive Connectivity

QFlex is designed to allow fast, direct and trouble-free interfacing with virtually any type of audio system. Standard audio inputs are balanced analogue and AES3 digital, each with a loop-through link output. Terminations are oninstallation-standard Euroblock plug-in connectors. As an option, QFlex offers a VNET / AES break-in interface that allows the VNET network and AES3 audio signal to share the same Cat-5 cable.

Also available is the Constant Voltage Interface, which steps down the audio signal from 70 V/100 V to line level for direct connection to a QFlex system. And, for the fully networked future, just one optional Dante network bridge connects all QFlex systems in a zone to Audinate's Dante digital audio network.

PA/VA standards compliance

Recent upgrades deliver the most comprehensive safety and monitoring facilities available, making QFlex fully compliant in any life safety environment. A new pilot tone detection feature enables constant checking of the complete audio signal path and cable integrity, meeting BS5839 requirements. Input switching can be implemented should the pilot tone indicate primary input failure, giving full system redundancy.

For larger QFlex networks, the Sentinel SM1 System Monitor provides complete system-wide fault monitoring and reporting. Built on a thoroughly proven processing platform, Sentinel monitors the entire audio system as well as any controlling PCs, reporting problems via relay contacts and indicating faults on the front panel display complemented by an onboard alarm.

BeamEngine GUI for precise coverage configuration

The intuitive BeamEngine GUI is a Windows™ based program that enables a system designer to specify a target area and then generate a steering algorithm tailored for optimum coverage of that area. BeamEngine graphically represents the sectional view (elevation) of the audience area as well as the location and aiming angle of the QFlex array. The resultant steering algorithm is saved and loaded into the QFlex DSP via the VNET software. For more resolute and comprehensive acoustical simulations, the balloon DLL can be exported for utilisation in EASE or CATT Acoustic™ acoustical modeling software programs.

VNET monitoring and control

QFlex is fully compatible with Tannoy's proprietory VNET monitoring and control protocol, allowing QFlex loudspeakers to share the same network as other VNET-compatible Tannoy loudspeakers and subwoofers. Because VNET supports a free network topology, loudspeakers may be linked in daisy-chain or star topologies, or any combination of the two. The supplied VNET software program supervises and controls all commissioning and performance monitoring functions.

Weather protected

The Q Flex 16LS & 32LS are weather protected as standard providing protection against water and dust ingress to IP54 standard. These enhanced QFlex models benefit from gasket sealed enclosures, solid aluminium rear panels, grade 304 stainless steel mounting hardware and sealed cable gland on the input and power connector. This specification is available with additional lead-time on delivery and makes QFlex capable of operating in more challenging environments where limited moisture and dust/airborne contaminants are an issue, such as railway stations.

Performance

Driver configuration	16 x 4" Full range
Amplifier channels	16 x 100 W rms @ 4 ohms
Amplifier type	Class D
Horizontal dispersion	120 degrees
Vertical dispersion	5 - 100 degrees Symmetrical or asymmetrical Single or multiple beams
Aiming angle limit	+/- 40 degrees
LF beam control limit	230 Hz
Frequency range (-10 dB)	150 Hz - 15 kHz
Maximum SPL [1]	99 dB @ 30 m (100 ft.)
Application distance [2]	Up to 50 m (165 ft.)
Sampling rate	96 kHz
Network	Network VNET monitoring and control standard

Connectors

Analog Audio	2 inputs (A & B), Phoenix 6-pin connectors
VNET	Dual RJ45 connectors In/Link (for Cat-5 cable)
AES / EBU	RJ45 (same Cat-5 as VNET) via AES/VNET interface
Power	GST18 3-pole female power connector

Physical

Enclosure	Extruded aluminium
Power supply	Universal 100 - 230 V / 50 - 60 Hz
Dimensions (H x W x D)	2520 x 172 x 150 mm (99.2 x 6.8 x 5.9")
Net Weight	37.3 kg (82.2 lbs)
Finish	Standard: White Special order: Any RAL colour
Accessories (optional unless stated)	Mounting bracket (included) USB VNET Interface **(Part no: 8001 4150)** Constant Voltage Interface / 100 V Interface **(Part no: 8001 6226)** SM-1 Sentinel Monitor **(Part no: 8001 6300)** AES Break-in box **(Part no: 8001 6010)** VNET AES/Dante Bridge **(Part no: 7600 2131)** Weather Protected Specification **(IP54)**

Power supply specifications

Output	Power consumption (W)	Current draw (A) 230 Vac	Current draw (A) 115 Vac
STIPA Noise [5]	100	0.90	1.45
1/3 rd Full Power	220	1.70	2.60
1/8 th Full Power	140	1.10	1.70
Idling [4]	39	0.39	0.52
Quiescent [3]	26	0.30	0.40
In Rush	-	4.90	2.50

CE

ETL LISTED

Complies with UL60065.
This product can be environmentally protected to IP54 rated standard as an optional extra, specified upon ordering. It is not suitable for fully-exposed (uncovered) outdoor applications.

Notes:
1. Average SPL (1 kHz – 8 kHz). Based on a mounting height of 10 m (33 ft) and a target area @ 30 m (98.5 ft) and 10 m (33 ft) wide. Maximum attainable SPL is dependent on the dimension of the target area(s). Exact figures can be derived in the BeamEngine programme.
2. Based on the above venue criteria achieving 95 dB SPL at the quoted distance.
3. Power save mode (amp switching inactivated).
4. No audio signal (other than pilot tone).
5. Stimulus - STIPA noise (speech-like characteristics), Level - Signal over-riding internal limiters.

A full range of measurements, performance data, can be downloaded from www.tannoypro.com. For project-specific system design assistance, contact the AET group via www.aetgroup.tc

Tannoy operates a policy of continuous research and development. The introduction of new materials or manufacturing methods will always equal or exceed the published specifications. All specifications are subject to change without notice

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