



## Product description

The acoustical principles and physics that govern beam-steering loudspeakers are well established and documented, and therefore not subject to patents. However, the specifics of design, engineering and manufacturing are critical, since it's the implementation of the principles that will determine sound quality, beam control range, uniformity of dispersion, and product reliability. On all these counts, Tannoy's QFlex range defines the global standard for column array beam-steering technology. We determined that full-range beam-steering would be a prerequisite from the outset, rather than placing emphasis only on vocal regions as with competitive products

In the most difficult acoustical environments – whether in traditional cathedrals or vast ultra-modern airport terminals – QFlex loudspeakers precisely control directivity in the vertical axis, resulting in optimal venue coverage and the best possible direct-to-reverberant ratio. Acoustic output is precisely aimed where it needs to be delivered, greatly reducing reflections from hard surfaces – even when the QFlex column must be mounted well above audience level. Whether the audio program is music or critical voice announcements as part of a life safety or mass notification system QFlex will provide exceptionally high voice intelligibility and full-bodied, natural music reproduction. Also, compared to implementing acoustical treatments or even deploying competitive beam-steering loudspeakers, a QFlex solution will result in cost savings coupled with superior performance.

## Features

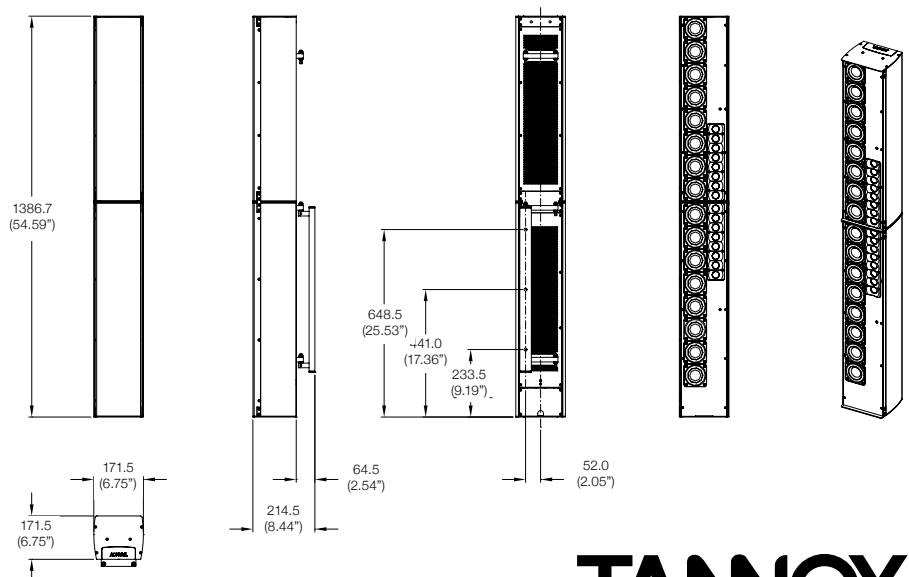
- Extremely intelligible speech and music reinforcement
- Class leading steering control (+/- 70 degrees)
- Densely spaced transducers to defeat the effects of aliasing
- Intuitive BeamEngine™ GUI
- Integrated cutting edge DSP, network control and amplification
- Networkable with Tannoy VNET™ products
- Architecturally pleasing
- Fully PA/VA compliant
- AES Connectivity
- Input options for constant voltage systems and Dante™ digital audio networks
- IP54 Certified (optional)

## Applications

- Traditional houses of worship
- Transportation hubs
- Museums
- Shopping malls
- Theatres and auditoria
- Government buildings
- Conference facilities
- Hotel ballrooms
- Corporate HQ atria

## Physical data

<b>Driver complement:</b>	16 x 3" LF drivers, 16 x 1" HF drivers, 32 x amplifier channels
<b>Dimensions HxWxD:</b>	1387 x 171.5 x 150 mm, ( 54.6 x 6.7 x 5.9")
<b>Weight:</b>	25.3 kg (67.8 lbs)
<b>Enclosure:</b>	Extruded aluminum (optional Weather Protected specification available, rated to IP54)
<b>Finish:</b>	Standard: White Special order: Any RAL colour
<b>Protective grille:</b>	Painted aluminium

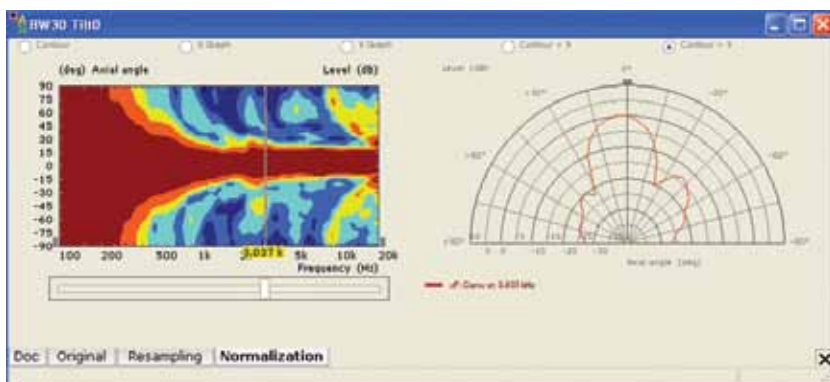


# Superior audio quality. Greater beam control. Cost-effective solutions.

## 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 48 in excess of 80 m (260 ft).

### 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 48 to 200 Hz.

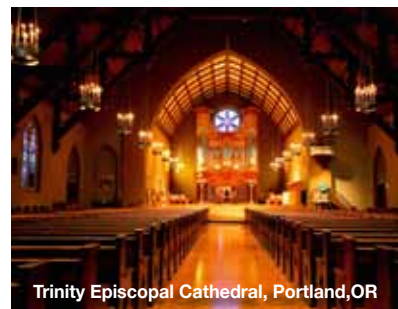
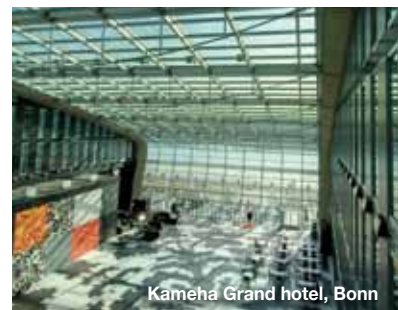
### SPL Requirements

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 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.

### Predictive Simulation

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



## 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 on installation-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



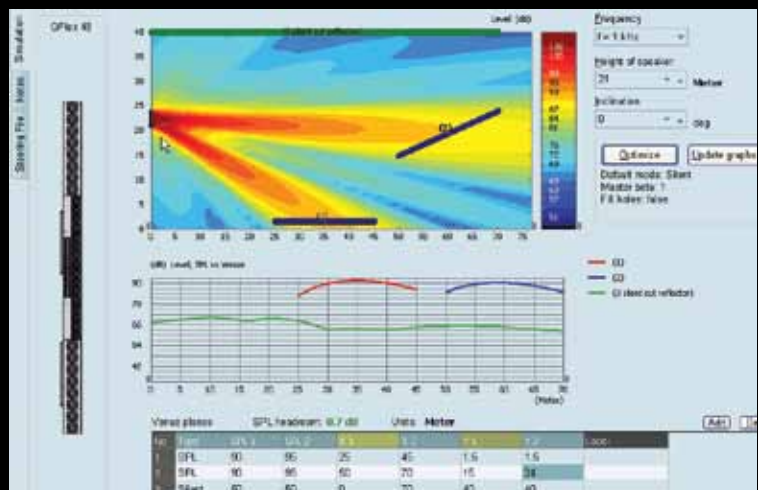
## VNET Monitoring and Control

QFlex is fully compatible with Tannoy's proprietary 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.

## 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 utilization in EASE or CATT Acoustic™ acoustical modeling software programs.



## Performance

Driver configuration	16 x 3" LF, 16 x 1" HF
Amplifier channels	32 x 100 W rms @ 4 ohms
Amplifier type	Class D
Horizontal dispersion	130 degrees horizontal
Vertical dispersion	Variable 5 – 100 degrees
	Symmetrical or asymmetrical
	Single or multiple beams
LF beam control limit	400 Hz
Frequency range (-10 dB)	130 Hz – 20 kHz
Maximum SPL <sup>(1)</sup>	100 dB @ 30 m (100 ft)
Application distance <sup>(2)</sup>	50 m (165 ft) typical
Sampling rate	96 kHz
Network	VNET monitoring and control standard (optional Dante)

## Connectors

Analogue 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

## Construction

Enclosure material	Extruded aluminum
Power supply	Universal 100 – 230 V / 50 – 60 Hz
Dimensions (HxWxD)	1387 x 171.5 x 150 mm, (54.6 x 6.7 x 5.9")
Weight	25.25 kg (55.7 lbs)
Finish	Standard: White Special order: Any RAL colour
Accessories (optional unless stated):	Mounting bracket (included) USB VNET Interface ( <b>Part no: 8001 4150</b> ) Constant Voltage Interface / 100 V Interface ( <b>Part no: 8001 6226</b> ) SM-1 Sentinel Monitor ( <b>Part no: 8001 6300</b> ) AES Break-in box ( <b>Part no: 8001 6010</b> ) VNET AES/Dante Bridge ( <b>Part no: 7600 2131</b> ) Weather Protected specification (IP54)

## Ordering Information

Part Number	Colour
8004 0131	White
8004 0135	WP White
8004 0136	WP Custom Colour



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.

A full range of measurements, performance data, can be downloaded from [www.tannoy.com](http://www.tannoy.com). For project-specific system design assistance, contact the AET group via [www.aetgroup.tc](http://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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## Convenient Shipping and Mounting

To avoid shipping very long products it will be possible to assemble the components of a larger column on site. The master unit is always positioned at the bottom of any speaker column and is slightly longer to accommodate the signal, network and power connections of the column. The top of the master unit allows a slave unit to be mechanically fixed to it, with further slave units added as necessary in the case of the QFlex 40 and QFlex 48 which comprise of 3 and 4 modules respectively. All required mounting hardware and bracketry is included with each column. Design assistance is available for unusual applications like soffit mounting.

## QFlex 32 Assembly and bracket location

