

4435A Smart IP Active In-Ceiling Loudspeaker

Technical Specifications

The 4435A joins our Smart IP product line to provide an in-ceiling loudspeaker solution of the highest quality, with the added ease of installation, system scalability and simple operation of Smart IP's single-cable networked technology. Designed for discreet in-ceiling installation, the durable and functional 4435A provides exceptional long-term value for premium AV installations. The two-way 4435A is delivered with a choice of easy-fit round or square grilles in either a black or white finish.



Frequency Response

70 Hz - 20 kHz (± 2.5 dB)

Low cutoff -6dB
58 Hz

High cutoff -6dB
39 kHz

SPL

Short term max SPL
≥104 dB

Maximum short term sine wave acoustic output on axis in half space, averaged from 100 Hz to 3 kHz at 1 m.

Self-generated noise

Weight

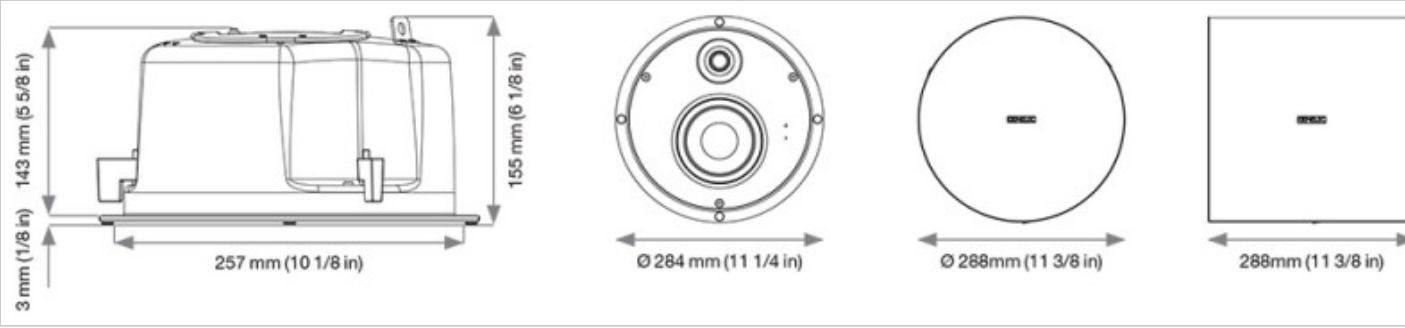
Weight
3.5 kg (7.7 lb)

Dimensions

Height
0 mm (in)

Width
288 mm (11 11/32 in)

Depth
165 mm (6 1/2 in)



- Dimensions with round grille: Ø 288 mm (11 3/8 in) x Depth 165 mm (6 1/2 in).
- Dimensions with square grille: Length 288 mm (11 3/8 in) x Width 288 mm (11 3/8 in) x Depth 159 mm (6 1/4 in).
- Protrusion of round grille with logo out of the ceiling surface: 13 mm (1/2 in) and square grille: 7 mm (1/4 in).
- Minimum installation depth: 162 mm (6 3/8 in). 10 mm clearance included.

Drivers

Bass

Driver type
Cone

Diameter
130 mm (5 1/8 in)

Treble

Driver type
Metal dome

Diameter
19 mm (3/4 in)

Harmonic distortion





Amplifiers

4435A bass amplifier
50 W Class D

4435A tweeter amplifier
50 W Class D

Mains voltage

PoE+/PoE

Power consumption



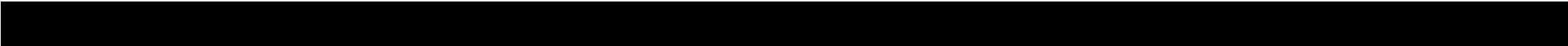
Connectors

Input

1 x RJ45 IP network interface (Power over Ethernet and Audio over IP)

Input

1 x Euroblock analog input. Audio input is via a 10 kOhm balanced connector.



Product codes

Code	Product information	EAN code	CN code
4435AWR	Speaker Smart IP 4435A with White Round Grille	6438128152587	85182200
4435AMR	Speaker Smart IP 4435A with Black Round Grille	6438128152594	85182200
4435AWS	Speaker Smart IP 4435A with White Square Grille	6438128152303	85182200
4435AMS	Speaker Smart IP 4435A with Black Square Grille	6438128152600	85182200

For even more technical details please see product operating manual.



GENELEC®

Smart IP

**Power to
the speaker.**



**Power to
the installer.**



| One cable for audio, power and control

The Smart IP Solution for Smart AV Systems

From the global leader in professional audio monitoring, Smart IP is a scalable open IP networking technology platform delivering power, audio and loudspeaker management — with configuration, supervision and calibration features — all via a single standard CAT cable.

Smart IP saves professional audio system designers, integrators and installers valuable time — without sacrificing Genelec's renowned audio quality. The growing family of Smart IP loudspeakers serve a wide range of applications, room sizes, and project scales.

Smart IP technology offers installers the extraordinary coverage, clarity and intelligibility that Genelec is renowned for, coupled with a time-saving efficiency that will reduce installation man-hours and boost your bottom line.

Complete audio connectivity

Configure and manage networked audio using Dante Controller. 4420 and 4430 Smart IP loudspeakers also support analogue audio via a standard Euroblock (Phoenix) connector.

Switch or even mix between networked audio and analogue sources at the loudspeaker, or simply operate as an analogue input loudspeaker under IP control.



Power
PoE+ and PoE



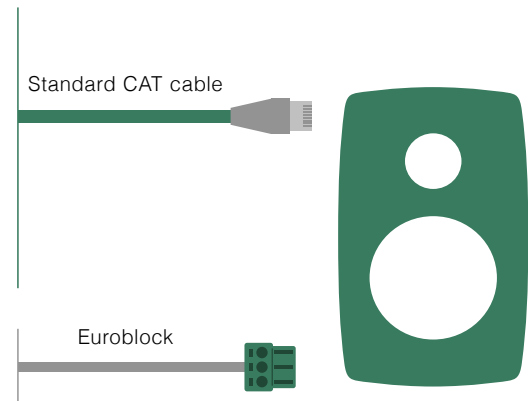
Management
Genelec Smart IP Manager
Open API in loudspeakers



Audio streaming
AES67, Dante plus
Dante Controller



Analogue line in
Euroblock screw
mount connector



Novel power management

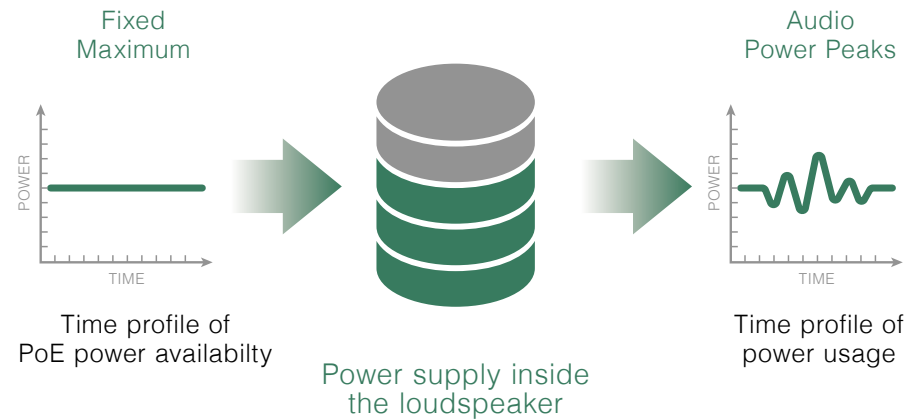
Based on IP and Power-over-Ethernet (PoE) technology, Smart IP utilises proprietary internal power management that delivers a significantly higher SPL than was previously possible via any conventional PoE. In fact, Smart IP can produce maximum SPL whenever needed, sufficient to power small and medium sized audio systems — a world first.

Dynamic power

The internal power supply stores power, to enable Smart IP loudspeakers to work with real audio signals, music and speech. Since audio signals are dynamic, periods of high peak power typically have finite duration while the effective average power level, or RMS power, remains much lower.

PoE+ or PoE?

Smart IP loudspeakers support the widely used PoE+ and PoE technology standards. IEEE 802.3at (30 W) is recommended, with IEEE 802.3af (15 W) simply reducing the time that maximum power output can be maintained.



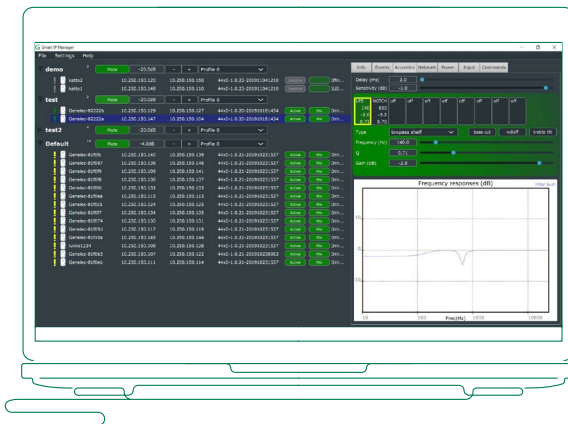
Smart IP Manager

Total control, flexible system management, anywhere, anytime

Single-cable simplicity is only the beginning. Genelec Smart IP Manager software enables flexible system configuration, supervision, management and monitoring over IP. Manage all loudspeakers as one system. Configure, monitor and maintain systems to better serve your clients. Control performance, and create loudspeaker groups for different rooms, spaces and environments. Even operate remotely.

Proven, time-saving software

With an intuitive suite of software tools to solve installation audio challenges — including device discovery, IP configuration, zone assignment and status monitoring. With full access to DSP for room equalisation and delay. Save time and ensure systems perform with outstanding clarity and speech intelligibility, even in challenging acoustic environments.



Connect, calibrate and control

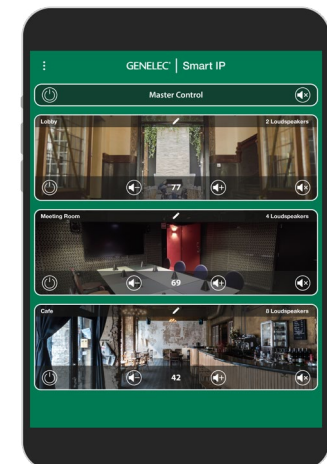
Manage from a single screen, divide your system into any number of rooms or zones. Featuring a public API command set for easy integration with AV control systems. Give end users instant access to volume, power on/off, loudspeaker activity or pre-programmed audio settings.



| Smart IP Controller

Intuitive remote control

For less complex installations, the Smart IP Controller app can be downloaded to mobile devices and tablets, providing the end user with day-to-day control of key loudspeaker functions including mute, volume control and power on/off, plus overall zone control. Once the system has been configured by the installer using Smart IP Manager software, the Smart IP Controller app provides an intuitive, low cost alternative to third party AV control systems.



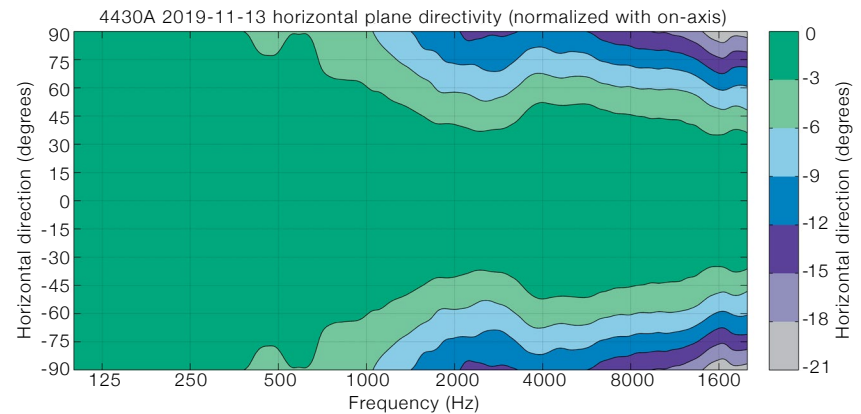
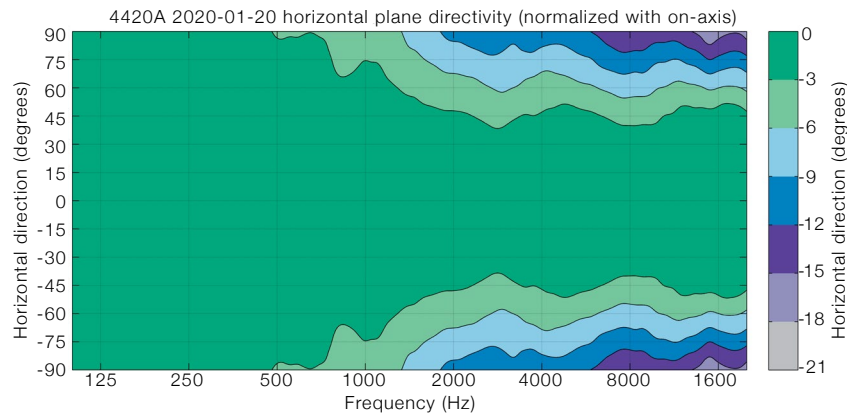
| Sound superiority

There's a reason why professionals around the world trust their audio monitoring to Genelec. And now AV system designers, integrators and installers have plenty of great reasons to follow suit.

Smart IP loudspeaker systems deliver linear low-latency networked audio, with synchronisation to sub-microsecond level for excellent sound intelligibility. With consistent power response, impressive SPL, low distortion and adaptability to different acoustic environments, each Smart IP model provides crisp, clean sound in a compact enclosure — making system installation discreet, reliable and easy.

Exceptional coverage

Faced with the challenging acoustics of real installations with listeners located at different positions in the room, control of loudspeaker directivity is crucial to guaranteeing exceptionally uniform in-room coverage with clarity and speech intelligibility. Genelec has championed tightly controlled directivity for decades, and now brings its remarkable benefits to installed sound systems — even in difficult spaces.



Colourful...

Smart IP loudspeakers are available in black, white, raw or 120 custom RAL colours, allowing them to blend seamlessly with any interior colour scheme. Please note, the 4410 is only available in black or white.



...and flexible

Every installation is unique, so our unrivalled range of mounting accessories allows each Smart IP speaker to be floor, ceiling, wall or truss mounted.



| Loved by the industry



Corporate: Cecil Coworking, Sweden

Genelec provides a widely scalable audio solution for Cecil Coworking's premium environment.

"The solution needed to remain cost-effective, easily serviceable, easy to install, and sustainable." Magnus Westin, Scan AV



Hospitality: Lisa Elmqvist Restaurant, Sweden

Genelec delivers premium audio to one of the world's premier food halls on a tight timescale thanks to Smart IP.

"This kind of flexibility is priceless and clearly a huge advance in the world of AV integration." Dragan Nedeljkovic, JAM Stage & Proaudio





Public Places: Moesgaard Museum, Denmark

Moesgaard Museum recreates the drama of Vesuvius's eruption with Genelec networked loudspeaker technology.

"Despite the openness of the space, the transitions between the different areas work very well." Johan Ahrenfeldt, Moesgaard Museum



Music Venues: G Livelab, Finland

Genelec Smart IP opens up a 'world of possibilities' for new G Livelab venue, ensuring the legacy of live music in Tampere.

"The ability to have everything delivered over just a single cable is every installer's dream." Santtu Sipilä, Bright Installation Oy



| Designed for beauty and performance

Manufactured sustainably in Finland, Smart IP loudspeakers feature recycled aluminium enclosures and low power consumption, total reliability and long life.

You'll also benefit from extensive remote maintenance capabilities and an impressive 5-year parts warranty: not to mention Genelec's exceptional craftsmanship and total commitment to long term loudspeaker support.

Sustainable profitability

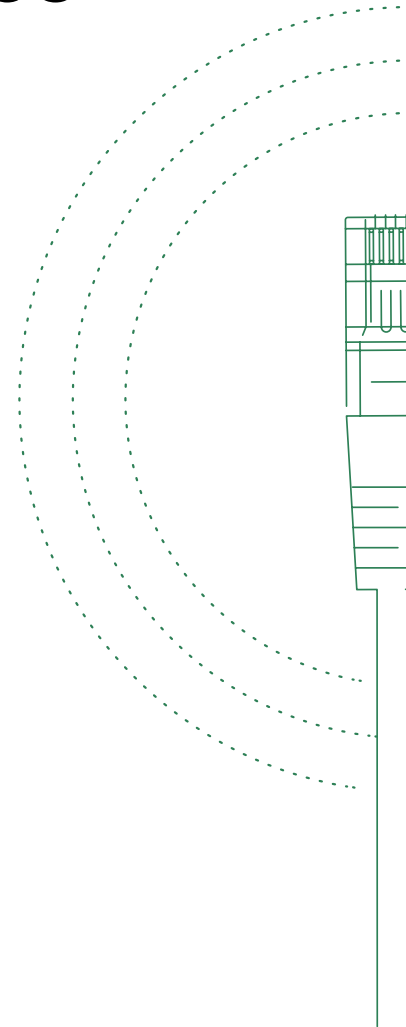
Thanks to its single cable technology and the ability to utilise existing IT infrastructures when possible, Smart IP provides true, sustainable profitability for all installation projects and since our patented dynamic power technology helps Smart IP speakers use less electricity, you'll be benefitting from high performance reproduction and lower power consumption too.



Harri Koskinen

Since the company's birth in 1978, Genelec has recognised the value of high-quality design. Internationally renowned Finnish industrial designer Harri Koskinen has collaborated with Genelec for many years, bringing a unique aesthetic voice to our loudspeakers.

Industrial design has always been at the heart of any loudspeaker and is part of our innovative company culture. Functionality, versatility, noble materials and aesthetics are rooted in Koskinen's designs, leading to timeless loudspeakers with classical beauty. Koskinen's industrial design is an essential part of Genelec's identity, and his vision has changed our corporate image forever.



Beauty and simplicity on both sides of the wall

Simplicity is the ultimate sophistication. And when you combine our innovative Smart IP technology platform with the 4410, 4420 and 4430 loudspeakers, you get both. With everything you need to power small- to medium-sized systems via one standard CAT cable, Genelec has introduced beauty and simplicity to both sides of the wall.

Models & tech specs



Model	Colours	Drivers	Max SPL	Frequency Response	Amplifier	Dimensions/Weight
4410A	Black & white	76 mm + 19 mm	100 dB (1 m)	67 Hz - 40 kHz	Integral	H 181 x W 121 x D 115 mm 1.5 kg
4420A	Black, white, raw & 120 RAL	105 mm + 19 mm	100 dB (1 m)	55 Hz - 39 kHz (-6 dB)	Integral	H 226 x W 189 x D 143 mm 3.1 kg
4430A	Black, white, raw & 120 RAL	130 mm + 19 mm	104 dB (1 m)	45 Hz - 39 kHz (-6dB)	Integral	H 285 x W 189 x D 178 mm 5.1 kg

For more detailed technical information and documentation, please visit www.genelec.com/smart-ip



Genelec Smart IP FAQ

Q: What is Genelec Smart IP?

A: Genelec Smart IP is a revolutionary loudspeaker family for installed audio applications, supporting single cable connectivity via standard Ethernet networking protocols. Smart IP loudspeakers receive power and audio, plus monitoring and management signalling over a single Ethernet cable. Smart IP does not introduce any performance compromises in terms of maximum sound pressure level or acoustic quality. It provides complete professional quality room compensation and multi-loudspeaker system alignment tools built into all loudspeakers, and allows several complete setups to be stored within the loudspeaker's internal memory. Smart IP also enables easy integration into house automation systems by offering a public API command set, or simple day-to-day end user control of basic functions via the Smart IP Controller app.

Q: What makes Smart IP unique?

A:

- Single-cable connectivity using PoE+ without performance sacrifice.
- High maximum SPL on PoE+ power.
- Renowned Genelec audio and build quality.
- Support for open audio and IP standards.
- Uncompromising uncompressed low-latency audio streaming directly into each loudspeaker.
- Loudspeaker synchronisation to sub-microsecond level for solid acoustic imaging.
- Full set of acoustic room compensation and alignment tools built into each loudspeaker.
- Extensive accessory support.
- Complete public API command set.
- Designed and manufactured in Finland for high reliability, long lifetime and respecting environmental sustainability.

Q: What size of projects is Genelec Smart IP aimed at?

A: Almost any project, since the number of Smart IP loudspeakers in one installation is virtually unlimited, and IP networks themselves can support a very high loudspeaker count. This, with the very flexible audio streaming options available, enables complex installations with many speakers to be implemented quickly and easily.

Q: Is there actually an upper limit on the number of speakers in a system?

A: It depends mainly on how you set up your IP network and how many separate audio streams and other traffic you have on the network. A correctly configured network can support hundreds of Smart IP loudspeakers on the same LAN. For more information on technical specifics related to managing the audio synchronisation clock, see also <https://audinate.com/faq/what-s-maximum-number-devices-ultimo-only-network-can-support>.

Q: Is there a system management app I can use?

A: Yes. Genelec offers Smart IP Manager software for the audio system installer. The Smart IP Manager enables the creation of zones and supports the alignment of loudspeakers for different applications and acoustic situations. For day-to-day use, we recommend integrating Smart IP loudspeakers into house automation systems using the public API command set that we offer, or by using the Smart IP Controller app. The Smart IP Manager application is intended for the install engineer only, not the end user.

Q: What situations is the Smart IP Controller app suited to?

A: The free Controller app is designed for smaller, less complex installations and avoids the need for a third party touchscreen. It provides the end user with simple day-to-day control of key functions via a smartphone or tablet (iOS or Android) and allows the user to access zones that have been set up by the installer in Smart IP Manager. The user can then control loudspeaker volume, mute and power on/off by individual zone, plus global control of mute and power on/off across all zones.



Q: How do I connect the Smart IP Controller to the network?

A: Using the Controller app requires use of the wireless network. If you need to use multicast audio streams, make sure that you configure the network in a way that unwanted multicast traffic is not routed to the WiFi. The app uses mDNS to find devices, so multicast traffic to 224.0.0.251 must not be blocked from the WiFi network.

Q: My installation requires acoustical compensation. Can I do this with Smart IP?

A: Absolutely. Genelec Smart IP offers a complete set of acoustic controls inside each loudspeaker. These include a bank of 20 parametric filters that can be set to work as notches and high/low frequency shelving filters, to precisely compensate for room colouration effects. Delay and level alignment controls are also provided to align loudspeakers correctly for a variety of situations - such as creating precise playback systems for immersive audio applications, stage presentations, sound reinforcement applications, as well as background music purposes.

Each Smart IP loudspeaker offers internal memory to support several complete setups that can be easily recalled using public API commands. This enables house automation systems to quickly reconfigure even large installations for new uses, with excellent acoustic precision.

Smart IP loudspeakers have proven high-quality acoustic design that enables excellent performance even in acoustically challenging rooms and spaces. This, with the integral room compensation features ensures fast and accurate deployment in any installed audio application.

Q: How many channels does Smart IP support?

A: Each AES67 audio-over-IP stream received by the loudspeaker can contain up to 8 channels of audio, and you can run an unlimited number of parallel streams. AES67 uses precision time protocol (PTP) version 2 clocking and this ensures complete synchronisation of all parallel streams - so your channel count is not really limited. Very high channel count Dante streams can also be configured and received by Smart IP loudspeakers. Each loudspeaker outputs one of the audio channels in a stream, or the sum of two selected audio channels.

Q: What are your recommendations for the IP network performance?

A: Gigabit networking is recommended. For low channel count audio-only applications, a 100 Mbps network may be used as long as it uses QoS. For high channel count applications, a Gigabit network is strongly recommended. QoS should always be used when the network is also used for data other than audio.

Q: What are the recommended IP switch specs regarding PoE power?

A: We recommend that PoE+ standard IEEE 802.3at is supported in the switches for all outputs where loudspeakers are connected. To maximise performance, allow full power for each loudspeaker; this is the maximum of Class 4 power (30 W). If possible, choose a switch where LLDP power negotiation can be turned off. For additional information on selecting IP switches, visit <https://www.audinate.com/faq-categories/switches>

Q: What Audio Over IP standards do you support?

A: Genelec Smart IP loudspeakers support the AES67 audio-over-IP streaming standard, as well as Audinate's Dante format.

Q: How do you configure the streams?

A: You can use Dante Controller to set up the streams.

Q: What are the requirements for network cabling?

A: CAT5e cable or better.

Q: Is it possible to daisy-chain Smart IP speakers?

A: Daisy-chaining in IP networks is not recommended, since it reduces the network capacity significantly. It is not possible to daisy-chain speakers, since they require PoE+ power from IP switches - therefore direct connection to an IP switch or PoE+ injector is necessary.

Q: Which version of PoE is needed for the system?

A: Smart IP loudspeakers support IEEE 802.3at (30 W) and IEEE 802.3af (15 W) standards. The loudspeakers always output the maximum amplifier power, but using a lower standard reduces the time of maintaining the output at maximum power.



Q: How do I power the loudspeaker?

A: Use an IP switch that supports PoE+ power. Alternatively, use PoE+ power injectors before the loudspeaker.

Q: What are the options to provide IP-addresses in small and large systems?

A: We primarily suggest using automatic IP address assignment with DHCP protocol. Alternatively, we also support Auto IP and static IP addresses in loudspeakers.

Q: Do you support open control? What kind of API are you offering?

A: Genelec Smart IP loudspeakers offer a public API. This is a command set that enables house automation systems to manage and monitor Smart IP loudspeakers. For example, the API can adjust volume, select one of several pre-programmed settings, and turn the loudspeaker on and off. Monitoring of loudspeaker activity is also supported. Pre-programmed settings can include all acoustic settings, audio input as well as other settings.

Q: What kind of information can I read from the speaker?

A: You can monitor device status and settings. For more information on API, consult the Smart IP Operating Manual.

Q: Do you offer ready-made drivers for control systems?

A: Genelec provides Smart IP Manager software for the complete setup of all acoustic features, as well as other operational parameters in the loudspeakers. A specific driver is also available for Control4 systems, and we expect to introduce more automation drivers in the future.

Q: What happens if I lose power?

A: When power returns, Smart IP loudspeakers will resume normal operation automatically. The setting used is the last setting that was in use before power-down.

Q: Does the Smart IP support redundancy?

A: No, Smart IP loudspeakers support one Ethernet port only.

Q: How is the acoustic performance compared to Genelec 4000 series models?

A: Smart IP loudspeakers use the same acoustic design as the 4000 series, but offer improved performance because of the digital signal processing employed.

Q: How do the three Smart IP loudspeaker models differ?

A: The 4410, 4420 and 4430 all share the same basic design, with each one progressively featuring a larger bass driver and larger enclosure dimensions. The 4410 differs from the 4420 and 4430 in that it features no Euroblock analogue audio input, and is available in black or white finishes only.

Q: How do you control speaker volume?

A: The audio streaming into each loudspeaker is uncompressed and fast. Therefore you can adjust system playback level at the source, or you can also adjust loudspeaker level with public API commands, or via the Smart IP Controller app.

Q: Genelec Smart IP supports zones. What does this mean?

A: During the system setup, Genelec Smart IP Manager software can assign each loudspeaker to one or more zones. Each zone shares the output level (volume) setting and one of the several pre-programmed settings stored in each loudspeaker. Zones can be used to implement multiple methods of using loudspeakers in a space, or for addressing separate areas with specific settings.

Q: What kind of accessories do you provide for Smart IP loudspeakers?

A: An extensive selection of accessories provides numerous mounting options for easy, hassle-free installation. Please visit the Genelec website for a complete list of accessories.

Q: What colours are Smart IP speakers available in?

A: The colours available are black or white (for the 4410), and for the 4420 and 4430 models a selection of 120 RAL colour options is available, plus a RAW aluminium finish.



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