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, and compatible with both Dante and AES67 streams.
- 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, for easy integration with third party automation systems.
- Access to Genelec's Smart IP Manager software and Smart IP Controller mobile app.
- 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://www.audinate.com/learning/faqs/whats-the-maximum-number-of-devices-that-an-ultimo-only-network-can-support.

Q: How can I control the system?

A: 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. The Smart IP Manager is a free downloadable software tool running on Windows 10 and 11, that allows installers to configure an almost unlimited number of rooms, zones, loudspeakers, and audio channels, and includes device discovery, a versatile room equalisation tool set, system organisation and status monitoring.

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For day-to-day use, we recommend integrating Smart IP loudspeakers into third party control and house automation systems using the public API command set that we offer, or by using the free Smart IP Controller app.

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 control system. 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/learning/faqs

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 third party control and 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 Q-SYS, AMX and 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 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.

The 4435 Smart IP in-ceiling loudspeaker designed for discreet installations, available with square and round grilles. The 4436 Smart IP pendant loudspeaker is especially designed for installations in open high-ceiling spaces, easing targeted sound distribution. The in-ceiling and pendant speakers mostly share similar acoustic and electronic specifications with the 4430 speaker, with small differences at the value of the low corner frequency.

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. The 4435 in-ceiling loudspeakers are available with square and round grilles in either black or white. The grilles can also be ordered separately. The 4436 pendant loudspeaker is available in black and white finishes. Naturally, grilles can be painted to the interior colours by professionals.

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