

Industry-leading public address and voice alarm solutions

Portfolio overview

All Bosch voice alarm systems are

EN54-16

EVAC Certified
Emergency
Voice Alarm

Bosch Security and Safety Systems

Visit [boschsecurity.com](https://www.boschsecurity.com) for more information.

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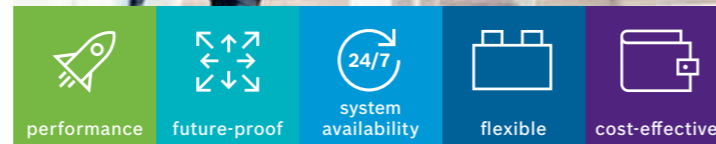
BOSCH
Invented for life

Public address and voice alarm systems from Bosch

With more than 90 years of experience in public address and voice alarm (PA/VA) solutions, Bosch Security Systems develops systems that deliver the highest performance in speech and music quality. Building on industry-leading technology, we work to continuously improve our systems. We focus on putting end-users first, by designing highly intuitive interfaces that make it easy to get the most from our products. Our goal is to address changing customer needs with outstanding systems that cater for applications of every size.



Keeping people informed, secure and entertained, that is our mission.



Saving lives with public safety

Securing people from potentially dangerous situations is our contribution to society. The voice alarm functionalities of Bosch PA/VA systems provide clear guidance and instructions in case of emergencies. Research proves that unlike traditional siren alerts, instructed evacuations reduce the time required to clear buildings, so more lives can be saved.

Unique industry position

As an industry leader, Bosch sets and maintains the highest standards of system availability and innovation. This allows us to meet and exceed the needs of our growing customer base, with guaranteed system reliability and built-in fail-safe redundancies. Our leading-edge technologies have integral compatibility, offering guaranteed interoperability and at the same time ensuring complete protection against eavesdropping and hacking.

Ready for the future

Bosch invests a large part of its turnover in global product and research development every year. Our PA/VA innovations have helped shape the development of the public address and voice alarm market. PRAESIDEO was the world's first networked digital public address and voice alarm system. Today we continue our push for innovation, working hard to stay ahead of the trends identified as part of our ongoing research. Market insights show that customers need solutions that can quickly accommodate changes to building use, instantly incorporating newly defined areas or changes in areas.

Customers prefer solutions that can use existing infrastructure and support remote diagnostics and maintenance, leading to cost efficiencies. And because the current need for integration of all building management systems, there is a clear trend towards

IP-based systems and software-controlled devices, resulting in more future-proof solutions.

The launch of our most recent public address and voice alarm system answers these trends, and more. Fully IP-based PRAESENSA integrates the power of OMNEO media networking architecture. Based on open standards for high interoperability, OMNEO distributes high-quality audio and control data over standard IP networks.

Why choose Bosch?

- ▶ **Expertise** and outstanding quality in PA/VA
we enable target groups to forecast challenging situations and user needs
- ▶ **Wide and resilient portfolio**
we design public address solutions that give a good conscience and contribute to a better world
- ▶ **Intelligent public address technology**
we deliver IP-based technologies that create a fascinating experience in public and commercial spaces
- ▶ **Global partnerships** and closeness to customers
we inspire and support our customers to shape their future

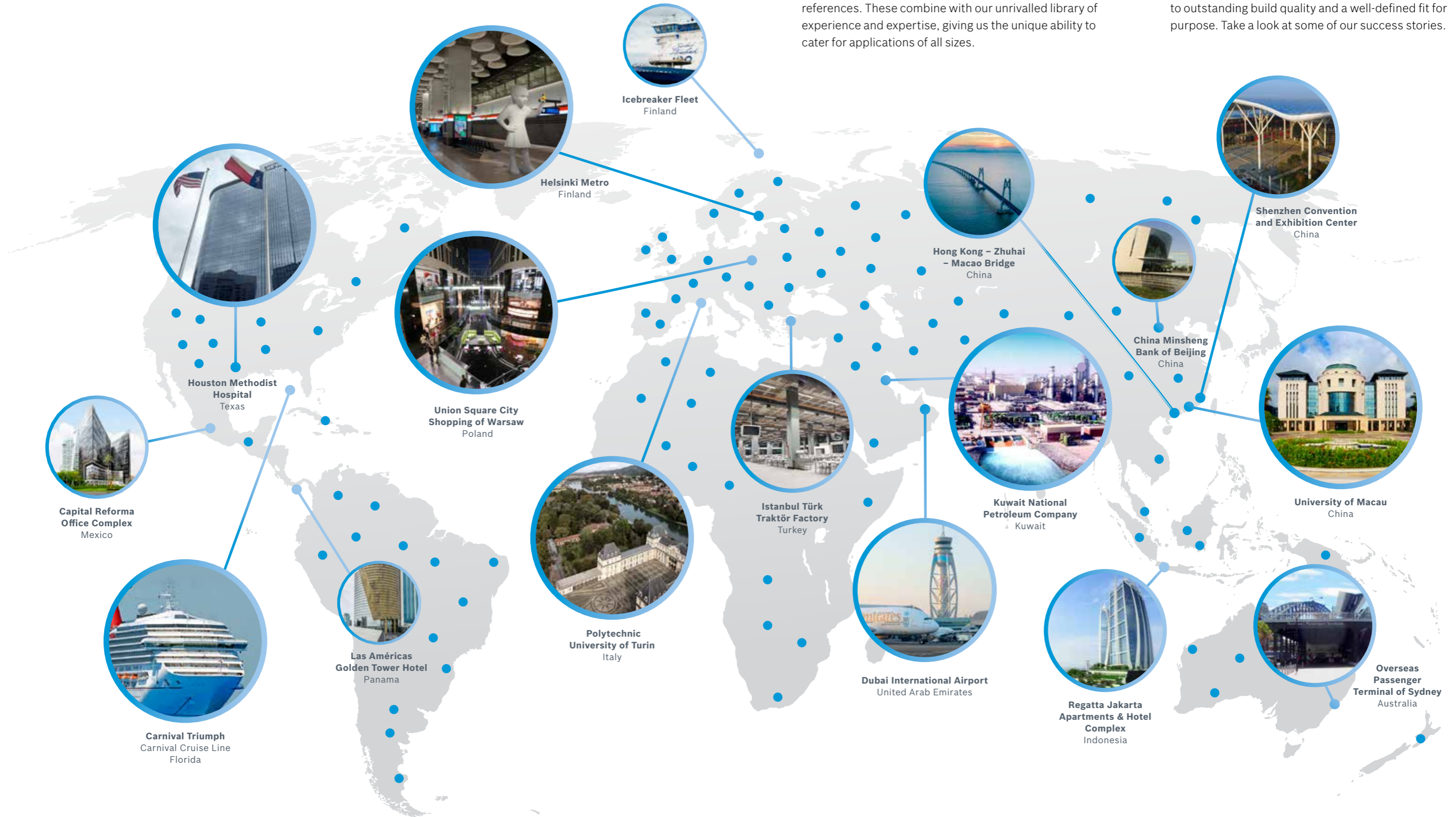
#AlwaysAhead

We strive to **anticipate** our customer needs by always being one step ahead, contribute to a better world through **sustainable** solutions and create **value-adding** ideas that fascinate our customers.

Global presence in every major application area

The Bosch family of products is available worldwide through our extensive partner network. With a global sales and service network that is geared to serve local needs, we have built an international footprint of successful references. These combine with our unrivalled library of experience and expertise, giving us the unique ability to cater for applications of all sizes.

Huge, large, medium or small projects all benefit from the same high level of Bosch product quality and partnership. Our solutions are built to last, some of them still in service 20 years after installation, thanks to outstanding build quality and a well-defined fit for purpose. Take a look at some of our success stories.



Solutions covering large multi-site to small application areas.



Industry-leading solutions for a wide variety of uses

Each application has different system requirements. A crowded international airport communicates travel announcements across terminals and requires a system that can be tailored to handle specific noise levels. Along with educating its students, a university needs to keep its campus safe and secure, requiring a system that provides clear oversight of a range of indoor and outdoor areas at all times. Commercial buildings come in all shapes and sizes, from huge shopping malls that need flexible multi-zone solutions to cater for different needs according to the number of visitors or time of day, to small shops fully served by a single-zone PA system. Regardless of size,

they have one thing in common -- boost sales by informing the shoppers of offers and promotions while keeping them entertained with high-quality background music.

The revolutionary Bosch public address and voice alarm portfolio offers solutions to meet every customer demand and application need. The adjacent table provides a high-level overview of each family, based on several key system selection criteria. After that, more detail is provided about the PRAESENSA, PRAESIDEO, PAVIRO and PLENA VAS system range.



Flexibility and power sharing

There is always a compromise between flexibility and cost. The degree of flexibility in audio routing is determined by the choice of system topology.

Flexibility (System topology)	High Direct (1:1)	High Direct (1:1)	Medium Relay switching (2-n)	Basic Relay switching (1-n)
Power sharing	Yes	No	Yes	Yes

Application size

The number of zones is an indicator for the size of the application handled by a single controller or a multiple-controller solution.

LSP zones / controller	500	240	500	496	120
Controllers (active)	>32	32		4 (up to 984 zones)	1

IP

Integrated IP connectivity increases scalability, flexibility, ease of installation and cost-efficient maintenance.

IP Networked system connections	Yes	Yes	Yes	No
All system components on IP	Yes	No	No	No

Announcements and/or music

Application requirements can range from a single call to a mix of announcement and music across multiple zones.

Background music program	> 100	Up to 28	Up to 4	1
Simultaneous message	8	4	2	1
Simultaneous calls	> 100	28	2	1

Digital Signal Processing (DSP) per zone

Built-in digital audio processing features for adjusting sound volume, enhancing music quality or refining speech intelligibility for every zone.

Volume	Yes	Yes	Yes	No	No
Delay	Yes	Yes	No	No	No
EQ	Yes	Yes	No	No	No
Automatic volume control	Yes	Yes	No	No	No

Ideal for mid-to-large (multi-site) application areas where complete flexibility and scalability is required



PRAESENSA

- ▶ All components of the system are IP-networked for highest flexibility and scalability
- ▶ Innovative amplifier architecture allocates power intelligently, increasing efficiency and lowering cost of ownership
- ▶ No single point of failure and built-in redundancy are at the core of the system concept
- ▶ User-centric design delivers an intuitive interface with feedback on progress and status
- ▶ Comprehensive system adapts to changing needs

When you add or define new areas for use, this advanced and extremely cost-efficient IP-based system updates the changes effortlessly. PRAESENSA uses a smart-power concept with integrated redundancies, and is perfect for both centralized and decentralized topologies. The user interface is incredibly easy to use, intuitive and accessible. The system's use of digital audio contributes to better performance, faster installation and easier positioning of equipment. PRAESENSA's key hardware devices are controlled by custom software solutions, resulting in a system that is feature-rich and future-ready with the potential for further capabilities to be added over time.

Highest flexibility and scalability

All devices across the system are IP-connected, facilitating easy interconnectivity with other systems. PRAESENSA devices are managed via OMNEO media networking technology, enabling better audio quality with greater flexibility and scalability than any other public address and voice alarm system. The possibilities are virtually unlimited.

Effective power utilization

The system comprises innovative multi-channel amplifier architecture, with intelligent power allocation across the amplifier outputs and an integrated spare channel. This significantly improves the effective utilization of available power, regardless of the loudspeaker load in each zone. As a result, fewer amplifiers are needed, saving up to 50 percent on space, energy and backup battery power, leading to a very competitive cost of ownership.

Ensuring reliability

PRAESENSA ensures reliability from the moment of installation, with redundancy incorporated throughout the entire public address and voice alarm system. This includes all devices and network connections, critical signal paths and functions, which can all be constantly supervised. The system also supports smart integration of functions and backup facilities, with encryption (AES128) and authentication (TLS) offering complete protection against eavesdropping and hacking.

Optimized user experience

The intuitive interface of the call station provides an optimized user experience, through an effective combination of touch screen and selection buttons. Clear progress guidance and status feedback ensure comfort and ease of use for operators.



Controller

Full control of PRAESENSA devices and audio routing with built-in five-port Gigabit Ethernet switch

Four-channel amplifier

600 W amplifier with flexible power partitioning across four output channels, built-in two-port Gigabit Ethernet switch and built-in redundancy

Eight-channel amplifier

600 W amplifier with flexible power partitioning across eight output channels, built-in two-port Gigabit Ethernet switch and built-in redundancy

Desktop call station

With built-in two-port Gigabit Ethernet switch and graphical user interface offering clear user guidance and feedback



Advanced Public Address License for PC/Tablet (APAL)

Allows use of a tablet to remotely adjust music volume in specific areas or throughout the installation

Multifunctional power supply

Fully supervised DC-power supply with integrated fail-safe redundancy, built-in six-port Gigabit Ethernet switch

IP-connected and fully-featured

Ideal for mid-to-large application areas where scalability is required



PRAESIDEO

- ▶ Leadership in performance and reliability due to system maturity and full supervision
- ▶ Redundancy and automatic switching guarantee uninterrupted operation
- ▶ Optical fiber connections with daisy chain principle ensuring quality-of-communication and ease-of-installation
- ▶ Wide range of amplifiers differing in amount of power, number of channels and DSP features

PRAESIDEO is the world's first fully-digital, networked, public address and voice alarm system. The system's unique optical network offers total freedom in system design, interference-free audio and a high level of redundancy. It is fully programmable, and interfaces with other security systems. With more than 25,000 installed systems worldwide, PRAESIDEO is the ideal choice for public announcements, scheduled events, background music, voice evacuation and other applications that require operational versatility, reliability, scalability, superb sound quality and absolute clarity.

Proven performance

PRAESIDEO leads the market in reliability, especially in voice evacuation, and has demonstrated years of performance in a wide range of applications worldwide. This system features 28 dynamically assigned digital audio channels, digital event scheduling and message management, and can route background music (BGM) to a virtually unlimited number of zones. PRAESIDEO is fully supervised and ensures message integrity by constantly monitoring system control, amplifier operation, microphones, loudspeaker line integrity and individual loudspeakers.

Uninterrupted operation

Continuity is guaranteed through redundancy and automatic switching to a spare amplifier. The network can be configured as a "redundant loop" for extra reliability. This ensures that even a physical break in the fiber-optic

cable won't affect operation – critical for uninterrupted operation in emergency sound systems. To increase the system reliability still further, other system elements (up to and including the network controller) can also have a backup or spare device.

Customized and easy configuration

The system is straightforward to configure and reconfigure, either locally or remotely, facilitating a response to changes. The logging software provides information about multiple systems for remote monitoring and diagnostics. Extra features offer additional functionality when customizing a PRAESIDEO system, such as integrating numeric keypads for use with access codes, or adding software-driven interfaces, (e.g. PC Call Station) for remote management of announcements and other events.

Network controller

Control and routing of 28 simultaneous audio channels

Multi-channel interface

Interface to PRAESIDEO basic amplifiers

1 x 500 W, 2 x 250 W, 4 x 125 W and 8 x 60 W basic amplifiers

High efficiency class-D amplifier channels

PC call server/client

This software serves multiple call station clients and/or telephone interface clients. It controls user access with selectable rights per user

1 x 500 W, 2 x 250 W, 4 x 125 W and 8 x 60 W power amplifiers

With DSP, amplifier supervision, spare amplifier switching, loudspeaker line and loudspeaker supervision



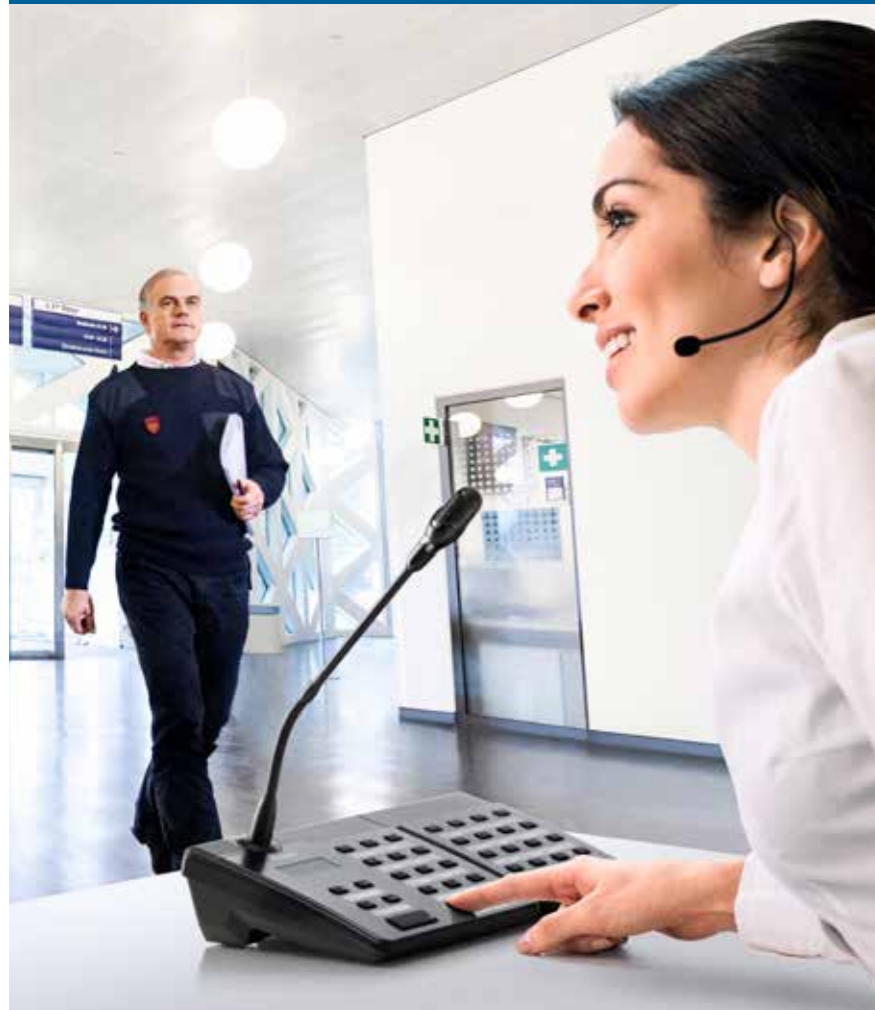
Remote call station
Connects to the call station interface via CAT-5 cable

Call station keypad
Eight freely programmable selection keys

Call station numeric keypad
With zone selection, user access and LCD for user feedback

Get all messages across, no matter what

Ideal for small-to-mid-sized (multi-site) application areas where flexibility and professional sound quality is required



PAVIRO

- ▶ The system can accept architecture changes at any stage during installation and provide a wide range of announcement/music combinations
- ▶ Lowest power consumption of any system in this class
- ▶ Fast, easy and complete set-up with both “Basic” and “Expert” configurations
- ▶ Zone monitoring on the call station

From a single system to an IP-networked solution, PAVIRO allows decentralized application set-ups and more system-wide audio channels. Thanks to its powerful range of features, PAVIRO not only answers an extremely wide variety of application requirements, it also delivers best-in-class performance in power efficiency, ease of installation and configuration convenience. The smart call station design contributes to more efficient evacuation procedures. Thanks to its premium 24-bit digital processor, superior digital-to-analog converters, and outstanding signal-to-noise ratio, PAVIRO delivers truly professional quality sound.

System flexibility

PAVIRO can handle last-minute changes to the system design without issue. That's because intelligent input switching, dynamic channel assignments and power load sharing makes the system extremely flexible, allowing design changes to be made at any stage of the project without risk.

Your own announcement/music combinations

PAVIRO offers highly flexible announcement/music distribution combinations – thanks to its four-channel matrix architecture. For example, you can send classical

music to one set of six zones and pop music to another. You can also send one or more individual announcements to any zone without disrupting the music.

Power consumption and cost-efficiency

The use of high-efficiency class-D amplifiers and intelligent power-management hardware and software dramatically minimize power consumption. Thanks to the combination of dynamic source routing and intelligent amplifier input switching, the system also uses fewer amplifiers than other systems. With fewer amplifiers in use, fewer batteries need to be replaced on a regular basis, lowering operational costs even more.

Controller with DSP for single and networked applications

Control and routing of four simultaneous audio channels

24-zone router with four channels

Zone extension for the PAVIRO system. One router can handle up to 4,000 W speaker load. The maximum load of one zone is 500 W

Call station and call station extension

Soft touch selection buttons and 35 free programmable function keys (15 on the call station and 20 on the call station extension)



Two-channel amplifier
2 x 500 W class-D power amplifier
(70/100 V output)



Flexibility right from the start

Ideal for most basic small-to-mid-sized application areas



PLENA VAS

- ▶ Compact system which can be expanded to a medium-sized system
- ▶ Standalone and plug-and-play concept for most basic applications
- ▶ Smart configuration via DIP-switches, laptop or PC

The PLENA Public Address and Voice Alarm System is designed to be an easy-to-use announcement and emergency sound solution. The system features a standalone and plug-and-play concept ideal for entry applications. The system can also include a specially designed fireman's panel.

Straightforward expandability

The PLENA VAS controller can handle up to six zones with a built-in message manager, emergency microphone and a built-in 240 W power amplifier. There is only one controller and the system can be extended to 120 zones using six-zone routers. In addition, eight call stations with 32 call station keypads with programmable keys can be interconnected for message routing. Easy to install on-site, interconnection is achieved using standard RJ45 connectors and CAT-5 cabling. Additional PLENA amplifiers can be added to create two-channel systems or to deliver extra power.

Smart configuration

Designed as a versatile solution, the system is easy to set up for specific applications using DIP-switches for setting the basic functionality, and a PC or laptop for more advanced system configurations. The built-in message manager handles up to 180 spoken messages. The messages can be merged to allow even more flexible use of pre-recorded announcements and evacuation messages.



Call station and call station keypad

Programmable keys on this six-zone call station and seven-zone keypad with built-in limiter prevents message distortion

Dynamic emergency microphone

Rugged construction with excellent speech reproduction for close-talking applications



Power amplifier

1 x 120 W amplifier in compact housing

Router

Expands the system by six zones

Controller with or without built-in amplifier

The heart of the PLENA VAS with full supervision of up to 120 zones and eight call stations



Remote fireman's panel

Allows flexible system operation from two different locations in the building

The fast route to safety