



Praesideo - Digital Public Address and Emergency Sound System



Praesideo is a fully digital public address system that meets all the requirements placed by professional users on a public address/emergency sound system. It brings highly innovative and advanced digital technology to the public address market. The processing and communication of both audio signals and control data entirely in the digital domain makes the system superior to other currently available public address and emergency sound systems. Digital signal processing allows significant improvements in audio quality to be achieved. The Praesideo system is configured from a PC, making installation and configuration very simple and user-friendly.

All audio processing is digital. Communication between the units is via plastic fiber or glass fiber cabling, depending on the distance between the units. Because the system uses the daisy chain principle, cabling and installation are very quick, simple and easy.

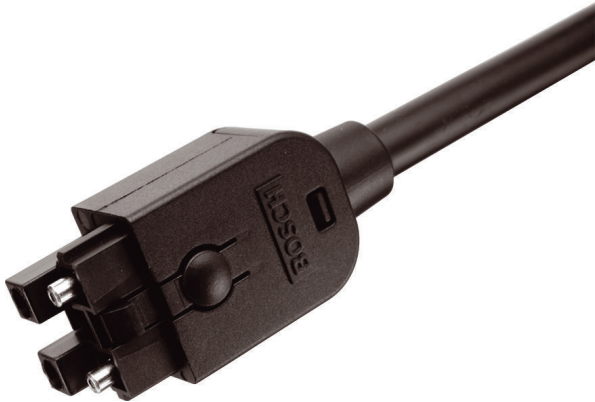
User-friendly Software Control

The system has user-friendly software to configure all system functions. The software is web-based technology, and provides authorized users full freedom of configuration: any time and from anywhere in the network. A simple and well-organized user interface provides an intuitive environment for configuring the system. The software has plausibility checks, and informs the user of any parameters, which have not been set, before exiting from any stage of the configuration process.

Network Approach

The system architecture is based on the daisy chaining of units. Equipment can be placed anywhere a network connection is available. Customers can expand their systems easily without adding additional electronics to the network controller unit. Thanks to this network architecture, a small initial system can be expanded later by simply adding the required new units to the existing network. The same is true for modifications to the PA system that become necessary later, due to reorganizations, structural changes, etc.

The system can be configured for redundant cabling using a ring cabling structure.



Distributed Control

The system design distributes the control of various system functions, as well as processing, throughout the system. The external interfaces, inputs and outputs, can be located anywhere in the network. All units can process audio input and output signals. This allows the network controller to concentrate on other activities such as the routing of announcements, taking actions on control inputs, etc. As a result, the response times are much shorter than for those of systems with centralized processing of all signals. The system scales gracefully, because each new unit increases the overall digital signal processing power of the system.

Combination of Functions

The Praesideo range of equipment has multiple functions combined in a single unit. This feature drastically reduces the number of different types of equipment used in the system. For example, functions such as audio processing, audio delay, amplifier monitoring (including spare switching), and speaker line monitoring are provided by the power amplifier unit itself. This makes the overall system highly cost-effective. The flexible architecture of the Praesideo range of equipment allows the customer to locate any type of equipment anywhere in the building. The configuration software lets an administrator/installer configure any units in the system from any PC with a network connection to the network controller. No local configuring at the equipment end is required, drastically reducing the installation and commissioning time, as well as any changes, which become necessary after commissioning.

EN 60849 and EN 54-16 Certified

The Praesideo range of equipment complies with the various emergency standards, which are applicable all over the world. The network controller can supervise all units in the system, from the microphone capsule of the call station to the loudspeaker line and loudspeakers. A built-in memory stores the last 200 fault messages. All faults are reported back to the network controller. The system also fulfills the requirements for emergency call stations. The open system architecture has the flexibility to provide large numbers of in and outputs, making even the most demanding emergency applications possible.

External Interfaces

Administrators and installers can configure the control inputs to initiate the desired actions in the system. The ability to route any input from one system unit to any other unit makes it possible to use the Praesideo range of products for a wide range of public address and emergency sound system applications.

Reduced Installation Costs

The Praesideo architecture uses the daisy chain principle for both data and audio signals. This makes the system wiring very cost-effective, using two fiber cores for data and audio communication, and a copper wire pair to supply power from the network controller to the units.

High System Flexibility

The Praesideo system is an extremely versatile system. It gives system designers a high degree of flexibility in the number of zones, call stations, audio and control in and outputs, etc., that they can use. The flexibility of unit distribution is also greater than legacy systems, and it is usually easier to place elements closer to where they are needed.

System Overview

Network Controller



The network controller is the heart of the system, and stores all configuration information. It provides the Ethernet interface for connection to the PC to enable system configuration, as well as diagnostic and logging functions. The network controller stores the digital audio messages for (scheduled) announcements on a built-in flash card. The controller monitors all the system components and reports any changes in status. The unit provides four audio inputs and four outputs, as well as eight control inputs and five control outputs. The control inputs can trigger actions in the system. Administrators and installers can define the control input characteristics in the configuration software. Control inputs can be programmed for momentary or toggle operation, act on make or break, supervision, etc. They can be used to initiate actions, and can be linked to external equipment. The network controller stores and shows the last 200 fault messages. The availability of the digital audio messages, the alarm tones, and the control inputs are continuously supervised. An internally generated pilot tone can be provided on the audio outputs for monitoring purposes.

Power Amplifiers

There are four types of power amplifier units in the Praesideo product range. These differ in the number of amplifier channels per frame: one, two, four, or eight. The overall power rating is 500 watts for all of the amplifiers.

The power amplifiers can be selected for 100 V, 70 V and 50 V output tapping. The fiber optic network cable provides audio input. The amplifiers are equipped with amplifier supervision and spare amplifier changeover relays. They have short-to-ground and short-circuit detection functions, and can generate their own pilot tone for supervision purposes.

Loudspeaker and/or line supervision control boards can be added to an amplifier. The control board communicates with supervision boards at the end of the line and/or in individual loudspeakers. Their status is communicated over the loudspeaker line itself without interfering with the audio signal.

The power amplifiers are equipped with audio processing facilities for each amplifier channel. They support configurable delay, three parametric equalizer sections and two shelving equalizers per channel. An ambient microphone connection enables automatic output level adjustment for maximum intelligibility. The power amplifier has a supervised connection for a 48 VDC backup power supply.

Multi Channel Interface and Basic Amplifiers

The basic amplifiers are cost effective alternatives to the regular Praesideo power amplifiers, for situations where no built-in digital signal processing functions, such as equalizers, delay and AVC are required. They do not have a Praesideo network connection. Instead, these amplifiers are connected to the Praesideo network via the multi channel interface.



The basic amplifiers are high-efficiency, class-D power amplifiers for public address and emergency sound systems. The multi channel interface provides audio signals to all basic amplifier channels and has full control. The basic amplifier is fully supervised, and fault events are reported via the multi channel interface to the Praesideo network controller. The amplifiers have connections for separate group A and group B loudspeakers in a zone and can be configured for class-A loudspeaker loop wiring.

The multi channel interface provides 16 configurable output channels (14 main outputs and 2 spare outputs), 32 control inputs and 16 control outputs. With its built-in supervision controller, it can also take care of loudspeaker and loudspeaker line supervision for all connected basic amplifier outputs.

Call Station Basic

The call station basic has a direct network interface, one press-to-talk-key, a monitoring speaker and a headphone socket. The volume control on the front of the unit adjusts the loudspeaker or headphone volume. Up to 16 call station keypads can be connected to the unit. LEDs on the unit indicate the status of the system, call station, and call.



Call Station Keypad

The call station keypad has eight selection keys and status indicators. This unit connects to a basic call station through a local interface. Each selection key has one bi-color LED, which shows the status of the selection.

Call Station Numeric Keypad

The numeric keypad provides a telephone-like user interface for numeric zone and zone group selection. It connects to a basic or remote call station and has a LCD to show selections and their status. Also a user access control function can be configured.

Call Station Kit

The call station kit has the same functions as the basic call station, and is intended for the construction of custom-made units. The kit is supplied without a housing for easy installation in panels, walls or custom made housings. It has a power supply input for both the call station itself and the call station keypads. The external power supply can be monitored by connecting its fault control output to the control input of the call station kit.

Call Station Keypad Kit

The kit is a call station keypad without housing, but with the same functionality. The kit facilitates the construction of custom applications, where special placement, custom switches, and/or custom indicators are desired.

Call Station Remote

In many applications, call stations must be located relatively far away from the rest of the system. For such cases, the Praesideo system provides the remote call station as a cost-effective alternative. It has the same functionality as the basic call station, but does not connect to the Praesideo network directly. Instead, it connects to the call station interface via a CAT 5 cable with a maximum length of 1000 meters. Thus, the distance from the remote call station to the network is not part of the overall network length. Often an existing CAT 5

cable can be used, further reducing costs. Up to 16 call station keypads or call station keypad kits can be connected, including numeric keypad.

Call Station Remote Kit

The remote kit is a version of the remote call station with the same functionality, but without the housing for easy installation in custom-applications.

Call Stacker

The call stacker is a unit that records calls that cannot be sent to all required zones because some are occupied by a higher priority call. Recorded calls are automatically repeated to these zones when they become available. The call stacker can also be used as time-shifter to avoid acoustic feedback from a loudspeaker to the active microphone. The call is recorded and broadcast after the recording has finished. The call can be pre-monitored before broadcast with the option to cancel the call.

Call Station Interface

The call station interface is a unit that interfaces between a remote call station and the Praesideo network. Because a remote call station uses CAT 5 cable for interconnection and does not have Praesideo network connections, a call station interface is needed. The call station interface also provides a local power input as well as control inputs, and delivers power to the remote call station. The call station interface interfaces to the remote call station via a bidirectional digital interface. Because not all 28 Praesideo audio channels, but only the required microphone and monitor audio channels are transported on this interface, the bit-rate is much lower. The lower bit rate allows the interconnection cable to be much longer than the typical Praesideo network connection between units.

Audio Expander

The audio expander can provide additional audio inputs and outputs to the system. The unit has four transformer isolated audio inputs and four transformer isolated audio outputs, as well as eight control inputs and five control outputs. The audio inputs can be configured for background music, microphone or line inputs. The control inputs can be configured to initiate actions.

CobraNet Interface

The CobraNet interface can insert up to four audio channels from CobraNet into the Praesideo system and up to four audio channels from Praesideo into a CobraNet network. CobraNet, developed by Peak Audio (a division of Cirrus Logic, Inc.), is a network protocol for real-time uncompressed digital audio distribution over industry standard 100Base-T Ethernet networks. Digital audio data is directly converted between Praesideo and CobraNet with no audio processing other than sample rate conversion.

Control inputs and outputs provide external interfacing. The CobraNet interface gets its power from the Praesideo network and does not need a mains or battery connection. CobraNet interfaces are often used to interconnect two or more Praesideo subsystems via Ethernet. The audio channels are transported via CobraNet and the Praesideo control data via the Praesideo Open Interface.

IP Audio Interface

The IP audio interface is a universal, IP-based audio device supporting VoIP and audio over IP applications. It is an ideal solution for bridging audio and contact closures over long distance LAN and WAN networks. It extends and interfaces to Praesideo and non-network based traditional public address systems without the need for a PC during operation.

Network Splitter



The network splitter allows the main network line to be split into branches. The branch lines are still supervised, but do not have the redundant cabling of the main network line. The network splitter has an option to connect a 48 VDC supply that can supply additional power if required. The network splitter can also function as a repeater to extend the cable another 50 meters with plastic fiber.

Fiber Interfaces

Most of the Praesideo system units have plastic fiber optic interfaces. Plastic fiber is used to interconnect nodes which are less than 50 meters apart. For distances of more than 50 meters, glass fiber optic cable is used. A fiber interface converts from plastic to glass fiber, and vice versa. The fiber interface has a power supply input to provide power to remote network sections, and two control inputs. The control inputs can pass on supervision information about the power supply connected to the fiber interface.

Different models exist for single-mode and multi-mode glass fiber.

Certifications and Approvals

| Region | Certification | |
|--------|---------------|----------------------------|
| Europe | CE | KEMA German Traction |
| | TUEV-SUED | TUV Certificate IEC60849 |
| | GL | GL-SOLAS |

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