



Public address and voice alarm system

Application note

System integration of emergency and safety systems

Ensuring the safety and security of people – especially in busy environments – is one of the biggest challenges in sectors such as public transportation, education, healthcare, and manufacturing, where multiple different emergency and safety systems are commonly needed to provide a proper safeguard.

Public address and voice alarm (PAVA) systems are an important part of the safety and security concept. Besides informing and entertaining people with announcements and music, these systems also are key when people must be evacuated in case of an emergency. One of the main tasks for control room staff is to manage the growing number of different emergency and safety systems in a facility. Data exchange between multiple systems and a high degree of automated tasks can significantly improve efficiency and contribute towards a better situational awareness for the control room staff.

Our solution

Standardized and secure communications for IP-based PAVA systems using the internet of things is no longer a vision. With the help of OPC Unified Architecture (OPC UA), an open-source standard for data exchange, it is possible to fully interface PRAESENSA, Bosch's state of the art public address and voice alarm system, with the Bosch Building Integration System (BIS). This powerful and proven software solution can manage all safety and security subsystems – such as access control, video surveillance, intrusion systems, fire alarm, public address and voice alarm – at a single glance. Integration itself is quick, error-free, and easy – all necessary configuration data are automatically uploaded from PRAESENSA into the BIS management system. Once the setup is finished, it is possible to easily perform all PAVA tasks within one central user interface, for example, making announcements, playing background music, or starting and managing an evacuation. Due to data exchange with other connected alarm systems, recurring actions can be programmed based on system status changes, resulting in automated calls, or triggering contacts.

BIS improves and simplifies standard emergency handling with its ability to display action plans and location maps, including graphical navigation and the emergency-dependent visualization of layers inside those maps. This ensures optimal guidance to operators, especially in stress situations such as fire or intrusion alarms. Alarm-dependent action plans or workflows provide detailed event-dependent information such as emergency operating procedures,

live images, control buttons, etc., to the operator. Simply create and assign one action plan to each possible alarm type in your system, e.g., fire alarm, access denied, technical alarms, etc. When an alarm message is deleted, an unmodifiable snapshot of the displayed action plan is attached to the event log. This ensures accountability by providing a trace of all steps performed by the operator during the alarm response.

Example 1:

After a fire alarm or security threat in an area, the BIS operator can quickly release an announcement in the respective area.

Example 2:

An operator in a railway control center can create an announcement in different terminals or train stations by selecting the zones and message. With the trigger, additional parameters like location and required workflow can be forwarded to the PRAESENSA system to broadcast the specific message in the selected zones.

Example 3:

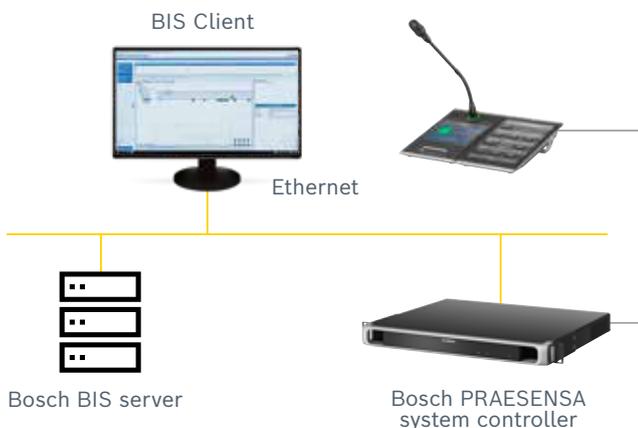
The BIS operator can control the background music and start pre-recorded commercials, call for prayer, or shop closing notifications directly, without leaving his operator desk.

Example 4:

After an intrusion alarm is activated, the corresponding doors block and a pre-recorded message to the intruder is started over the PRAESENSA system. This alarm is logged in the BIS event log.

The benchmark in public address and voice-alarm

PRAESENSA is the new standard for quality, security and reliability in PAVA systems. With all system components fully IP-networked, PRAESENSA offers easy and seamless integration with maximum flexibility for all kind of mission-critical environments, no matter the size. Together with the user-friendly and powerful BIS management software, it is possible to perform all actions or define automated jobs for multiple alarm systems under one convenient graphical user interface.



Bosch Security and Safety Systems

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Application areas

For example:

- ▶ Railway stations
- ▶ Prisons
- ▶ Airports
- ▶ Industrial plants
- ▶ Education
- ▶ Hospitals
- ▶ Entertainment

System components used:

- ▶ PRAESENSA by Bosch
- ▶ PAXGuide OPC-server
- ▶ BIS Automation Engine (v4.9 or higher) by Bosch

Main benefits

For the system integrator/installer:

- ▶ Future proof. The support of OPC allows for an integration of further devices, including third party devices.
- ▶ Merging of sensory and control devices that can perform automated actions and scenarios.
- ▶ Support of the OMNEO interface for large PA networks. Through the use of OMNEO, PRAESENSA provides a professional media networking solution that includes:
 - low latency in sound transmission
 - higher audio channel count
 - full-function remote device control and monitoring
 - ability to interconnect diverse application domains such as PA, intercom, conferencing, and professional audio/video that all assures the highest audio quality, even in large loudspeaker networks.
- ▶ PRAESENSA devices are constantly monitored for faults. BIS uses the PAXGuide OPC-server to communicate and command the PRAESENSA system controllers.
- ▶ PRAESENSA devices like amplifiers, call stations, and network controllers are all monitored by Bosch BIS and provide visual alerts in case of hardware failures.

For the owner:

- ▶ BIS is a proven platform with thousands of installations worldwide.
- ▶ Complete integration of PRAESENSA into one management platform

For the operator:

- ▶ Intuitive user interface to manage calls. An overview and status of the PA equipment is provided via the intuitive Bosch BIS Client GUI, making call management easy.
- ▶ Easy routing of PRAESENSA calls to the affected zone. Operators can now manage calls, zone selection, pre-recorded messages, BGM, and all PRAESENSA devices easily from the Bosch BIS Client GUI. The key benefit is that the solution is easy to operate, resulting in highest operator efficiency and faster reaction to alarms or changing conditions.