

PRA-SCL System controller, large PRAESENSA



The PRA-SCL is the most powerful version in a range of system controllers.

The system controller manages all system related functions in a PRAESENSA Public Address and Voice Alarm system. It routes all audio connections between network-connected PRAESENSA audio sources and destinations. It supervises and plays back messages and tones, stored on its flash memory, either scheduled or manually started from a call station or PC. It manages the routing of background music streams, along with business calls and emergency calls, all based on priority level and zone occupancy. It collects all status information of connected system devices, manages the event logs and reports faults.

The system controller is network-connected via OMNEO and DC-powered from a multifunction power supply with integrated battery backup, accommodating both centralized and decentralized system topologies. Connections to other devices in the system are made using the built-in 5-port switch, supporting RSTP. The built-in web server allows for system configuration using a browser.

Functions

System control and audio routing

- Capability to control a system with up to 250 devices, serving more than 500 zones.
- Native support for switched single-subnet networks, with add-on support for routed multi-subnet topologies.

- ▶ Full control of PRAESENSA devices and audio routing
- ▶ Built-in supervised storage for messages and tone files
- ▶ Support for Dante audio input and output streams
- ▶ Open interface to third party applications
- ▶ IP-networked on OMNEO for audio and control

- Dynamic allocation of multiple and simultaneous audio channels to save on network bandwidth; audio connections are created when a call or a message is broadcast, and freed up immediately afterwards.
- Secure interconnections using Advanced Encryption Standard (AES128) for audio data and Transport Layer Security (TLS) for control data.
- Receiver for Dante or AES67 audio channels from external sources, with dynamic re-routing to open or secure OMNEO channels.
- SIP/VoIP interface for telephone paging and for audio to PRAESENSA and control from 3rd party systems.
- Internal storage capacity for messages and tones; up to eight messages can be played back simultaneously.
- Internal real time clock for scheduled events and event time stamping; support for Network Time Protocol (NTP) with automatic adjustment for Daylight Saving Time (DST).
- Internal system event and fault event log.
- Networked control interface for third party applications.
- Built-in webserver for configuration and file management using a browser.
- Dual redundant system controller option for highest system availability in mission-critical applications.

Sound quality

- Audio-over-IP, using OMNEO, the Bosch high-quality digital audio interface, compatible with Dante and AES67; audio sample rate is 48 kHz with 24-bit sample size.
- Messages and tones are stored as high definition uncompressed wav-files.

Supervision

- Supervision of stored messages and tones.
- Supervision of data integrity of site specific data.
- Internal watchdog timers to detect and recover from processing errors.
- Faults or problems of all system devices are collected, reported and logged.

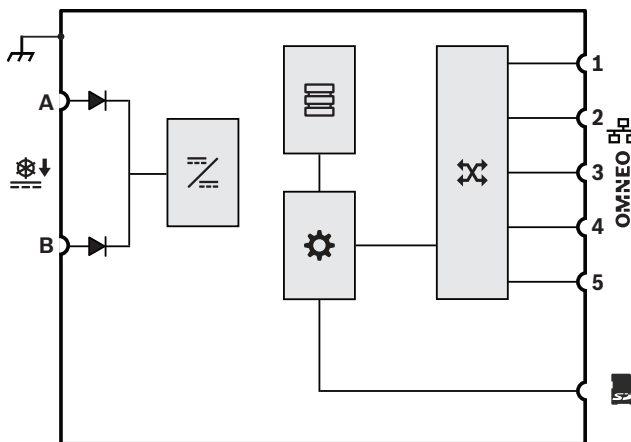
Fault tolerance

- Five OMNEO network connection ports, supporting RSTP.
- Dual DC-inputs with polarity reversal protection.

Variants of the PRAESENZA system controller

Variant	PRA-SCL	PRA-SCS
Dynamic OMNEO audio channels (secure)	Unlimited	Unlimited
Dynamic OMNEO tone/message playback channels (secure)	8	8
Static Dante or AES67 audio channels (secure, input and/or output)	Pool of 8	Pool of 8
Static Dante or AES67 audio channels (open, input)	112	—
Number of amplifiers in the system	Unlimited	6

Connection and functional diagram



	Diode		DC to DC converter
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	Message and tone storage		Controller
	OMNEO network switch		

Front view



Front panel indicators

	Device fault present	Yellow
	Network link present	Green
	Network link lost	Yellow
	Standby for redundancy	Blue
	Power on	Green

Rear view



Rear panel indicators

	100 Mbps network	Yellow
	1 Gbps network	Green
	Power on	Green
	Device in identification mode	Green blinking
	Device fault present	Yellow
	SD card busy; do not remove	Green

Rear panel controls

	Device reset (to factory default)	Button
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Rear panel connections

	24 to 48 VDC input A-B	
	Memory card	
	Network port 1-5	
	Chassis ground	

Architects’ and engineers’ specifications

The IP-networked system controller shall be designed exclusively for use with Bosch PRAESENSA systems. The system controller shall dynamically assign network audio channels for audio routing between system devices across multiple subnets. It shall support >100 simultaneous high-resolution audio channels (24-bit, 48 kHz) for music routing and making calls, with encryption and authentication to protect against eavesdropping and hacking. It shall be capable of receiving Dante and AES67 audio streams. A SIP/VoIP telephone interface shall be available. The system controller shall provide an interface for control data and multi-channel digital audio over OMNEO using an integrated 5-port Ethernet switch for redundant network connections, supporting RSTP and loop-through cabling. The system controller shall have dual power supply inputs and power supplies. The system controller shall manage all devices in the system to provide the configured system functions. It shall incorporate a supervised storage for message and tone files with networked playback of up to eight streams simultaneously. It shall keep an internal log of fault events and call events. The system controller shall provide a secure TCP/IP open interface for remote control and diagnostics. The system controller shall provide front-panel LED indications for the status of power supplies and the presence of faults in the system and provide additional software monitoring and fault reporting features. The system controller shall be rack mountable (1U). It shall be possible to connect a backup system controller for dual redundancy with automatic fail-over. The system controller shall be certified for EN 54-16 / ISO 7240-16, marked for CE and be compliant with the RoHS directive. Warranty shall be three years minimum. If the system size permits, the system controller shall be a Bosch PRA-SCS, otherwise a Bosch PRA-SCL.

Regulatory information

Emergency standard certifications

Europe	EN 54-16 (0560-CPR-182190000)
International	ISO 7240-16
Maritime applications	DNV GL Type Approval
Mass Notifications Systems	UL 2572
Control Units and Accessories for Fire Alarm Systems	UL 864

Emergency standard compliance

Europe	EN 50849
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Emergency standard compliance

UK	BS 5839-8
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Regulatory areas

Safety	EN/IEC/CSA/UL 62368-1
Immunity	EN 55035 EN 50130-4
Emissions	EN 55032 EN 61000-6-3 ICES-003 FCC-47 part 15B class A EN 62479
Environment	EN/IEC 63000
Railway applications	EN 50121-4

Parts included

Quantity	Component
1	System controller
1	Set of 19"-rack mounting brackets (pre-mounted)
1	Set of screw connectors and cables
1	Quick Installation Guide
1	Safety and security information

Technical specifications

Electrical

System	
Routing (audio, dynamic): OMNEO channels	Unlimited
Tone/Message playback (dynamic): OMNEO channels	8
Number of inputs (audio, static): Dante or AES67 channels	120
Number of outputs (audio, static): Dante channels	8
Number of events: Logging (internal storage)	3,000
Call events	1000
Fault events	1000
General events	1000

Real time clock synchronization	NTP
Accuracy with NTP	< 1 s/yr off
Accuracy without NTP	< 11 min/yr off
Daylight saving time correction	Automatic
Backup battery type	Lithium
Battery size	CR2032
Tone/Message storage (min) (mono, uncompressed, 48 kHz, 16 bit)	90 min
SD Memory card capacity (GB)	32 GB
System size	
Networked devices (single subnet)	250
Zones	500
Configuration	Web server/browser

Power transfer

Operating voltage (VDC) range	24 VDC—48 VDC
Operating voltage (VDC) tolerance	20 VDC – 60 VDC
Power consumption (W) duty mode	3.90 W
Power consumption (W) per active port	0.4 W

Supervision

Run fault (watchdog reset)	All processors
Fault report time (s)	< 100 s
Site specific data integrity fault report time (h)	< 1 h
Protection	Watchdog; RSTP

Network interface

Protocols / standards	TCP/IP; OMNEO; Dante; AES70; AES67
Ethernet type	100BASE-TX; 1000BASE-T
Latency (ms)	10 ms
Encryption	AES 128; TLS

Number of Ethernet ports	5
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Reliability

Mean time between failures (MTBF) (h) extrapolated from calculated MTBF of PRA-AD608	1,000,000 h
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Environmental

Operating temperature (°C)	-5 °C – 50 °C
Operating temperature (°F)	23 °F – 122 °F
Storage temperature (°C)	-30 °C – 70 °C
Storage temperature (°F)	-22 °F – 158 °F
Operating relative humidity, non-condensing (%)	5% – 95%
Air pressure (hPa)	560 hPa – 1,070 hPa
Installation altitude (m)	-500 m – 5,000 m
Installation altitude (ft)	-1,640 ft – 16,404 ft

Operating vibration

Amplitude	< 0.7 mm
Acceleration	< 2 G
Bump (transport)	< 10 G (IEC 60068-2-27)

Mechanical

Dimensions (H x W x D) (mm)	44 mm x 483 mm x 400 mm
Dimensions (H x W x D) (in)	1.75 in x 19 in x 15.7 in
Rack unit (U) (in)	1 U (19 in)
IP rating	IP30
Material	Steel; Zamak
Color in RAL	RAL 9017 Traffic black; RAL 9022 Pearl light grey
Weight (kg)	5.80 kg
Weight (lb)	12.80 lb

Ordering information

PRA-SCL System controller, large

Network-connected, DC-powered, system controller and message manager for Public Address and Voice Alarm applications.

Order number **PRA-SCL | F.01U.325.042**

Software Options

PRA-LSPRA License for subsystem PRAESENSA

This software license enables the creation of subsystems connected to a master system controller within the PRAESENSA system.

Order number **PRA-LSPRA | F.01U.402.624**

Services

EWE-PRASCL-IW 12 mths wrty ext Praes Syst Contr Lrg

12 months warranty extension

Order number **EWE-PRASCL-IW | F.01U.387.315**

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