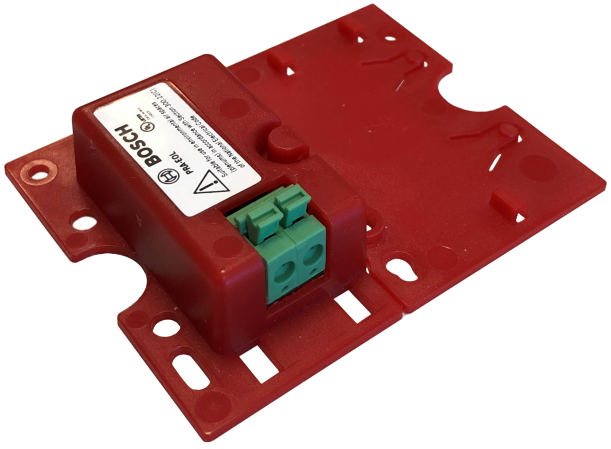
PRA-EOL End-of-line device

PRAESENSA



- Compact device for loudspeaker end-of-line supervision
- Reliable solution for (long) loudspeaker lines
- Fault detection in amplifier without additional wiring
- Low level, high frequency pilot tone
- Flexible mounting options

This end-of-line device is a reliable solution for loudspeaker line integrity supervision, which is a requirement for emergency sound systems.
It is connected at the end of a loudspeaker line, after the last loudspeaker of a series of looped-through loudspeakers.
It communicates with the PRAESENSA amplifier channel driving that loudspeaker line, to confirm the integrity of the line.
Where impedance measurements may not detect a disconnected loudspeaker, depending on the number of connected loudspeakers and cable type, or report false faults, the end-of-line device provides a superior solution to report the correct status of the loudspeaker line.
The enclosure size is compatible with the mounting provisions in most Bosch loudspeakers for supervision boards or devices. It can also be reduced in size to fit most cable junction boxes.

Functions

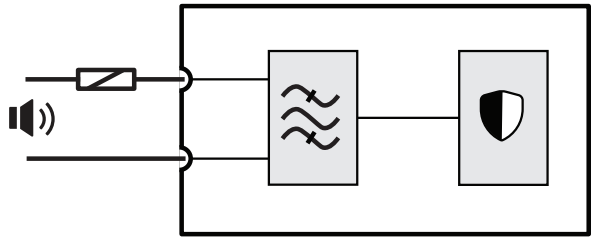
Supervision

- Reliable supervision of a single loudspeaker line, using loudspeakers connected in a loop-through fashion.
- Operation is based on pilot tone detection from the amplifier with feedback to the amplifier using the loudspeaker line itself. No additional wiring is needed for fault or status reporting.
- The A/B outputs of a PRAESENSA amplifier channel are supervised individually, with separate end-of-line devices.
- To reduce power consumption, PRAESENSA amplifier channels use pilot tone modulation.
- The audibility of the pilot tone is virtually eliminated by using a pilot tone amplitude of only 3 VRMS with a frequency of 25.5 kHz, amply outside the human hearing range, even for young children.

Mounting

- The PRAESENSA end-of-line device is small, lightweight and fits to the mounting provisions in most Bosch loudspeakers for supervision boards (board shape). It comes with push terminal connected flying leads, containing a thermal fuse, for easy connection to the last loudspeaker of a loudspeaker line.
- Part of the mounting plate of the device can be broken off and snapped in place as bottom plate, making the device enclosure IP30 compliant, for use outside a loudspeaker enclosure (box shape). The enclosure contains a wiring strain relief for additional protection.
- Various mounting holes in the enclosure allow for mounting the device in most standard cable junction boxes. In this case the loudspeaker line enters the box via a standard cable gland and is connected using the push terminal.

Connection and functional diagram



	Loudspeaker line		Bandpass filter
	Thermal fuse		Supervision receiver/trans-mitter

Board shape view

Box shape view

Device connections

	Loudspeaker line	

Architects' and engineers' specifications

The end-of-line device shall be designed exclusively for use with Bosch PRAESENSA systems. The end-of-line device shall only require a connection with the end of the loudspeaker line to supervise its integrity. Supervision reliability shall not depend on the number of connected loudspeakers. Supervision shall be inaudible and not interrupt audio content. The end-of-line device 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. The end-of-line device shall be a Bosch PRA-EOL.

Regulatory information

Emergency standard certifications	
Europe	EN 54-16 (0560-CPR-182190000)
International	ISO 7240-16
Maritime applications	DNV GL Type Approval

Emergency standard certifications	
Mass Notification Systems	UL 2572 (PRA-EOL-US only)
Control Units and Accessories for Fire Alarm Systems	UL 864 (PRA-EOL-US only)

Emergency standard compliance	
Europe	EN 50849
UK	BS 5839-8

Regulatory areas	
Safety	EN/IEC/CSA/UL 62368-1
Immunity	EN 55035 EN 50130-4
Emissions	EN 55032 EN 61000-6-3 EN 62479
Environment	EN/IEC 63000
Plenum rating	UL 2043
Railway applications	EN 50121-4

Parts included

Quantity	Component
1	End of line device
1	Set of connection wires with thermal fuse
1 per box	Quick Installation Guide
1 per box	Safety information

The PRA-EOL can only be ordered in multiples of eight devices, packed in one box.

Technical specifications

Electrical

Pilot tone frequency (kHz)	25.50 kHz
Pilot tone level (V)	1.5 V – 3 V
Maximum input power (mW)	100 mW
Maximum input voltage (V)	100 V
Supervision	End-of-line

Fault detection	Line shorted; line interrupted
Fault reporting	Via amplifier

Connector type	2-pole spring terminal
Wire size (mm^2)	0.13 mm^2 – 2.0 mm^2
Wire size (AWG)	26AWG – 14AWG
Cable length (m) (maximum)	1,000 m
Maximum cable capacitance (nF)	80 nF
Cable temperature range (°C)	-20 °C – 50 °C
Cable temperature range (°oF)	-4 °F – 122 °F

Reliability	
MTBF (extrapolated from calculated MTBF of PRA-AD608)	5,000,000 h

Environmental

Operating temperature (°C)	-25 °C – 50 °C
Operating temperature (°F)	-13 °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
Operating altitude (m)	-500 m – 5000 m
Operating altitude (ft)	-1640 ft – 16404 ft
Operating vibration amplitude (mm)	< 0.7 mm
Operating vibration acceleration (G)	< 2 G
Transport bump (G)	< 10 G

Mechanical

Dimensions (H x W x D) (mm), board shape	60 mm x 78 mm x 16 mm
Dimensions (H x W x D) (in), board shape	2.40 in x 3.10 in x 0.60 in
Dimension (H x W x D) (mm), box shape	60 mm x 45 mm x 18 mm
Dimension (H x W x D) (in), box shape	2.40 in. x 1.80 in. x 0.70 in.
IP rating	IP30
Material	Plastic
Color in RAL	RAL 3000 Flame red
Weight (g)	25 g
Weight (lb)	0.0550 lb

Ordering information

PRA-EOL End-of-line device
Device for loudspeaker line integrity supervision in Public Address and Voice Alarm applications.
Order number **PRA-EOL | F.01U.403.686 F.01U.325.045**

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