

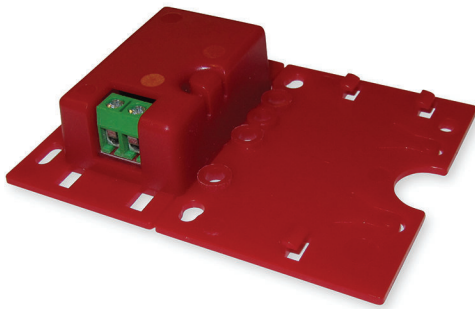
PRA-EOL End-of-line device

www.boschsecurity.com



BOSCH

Invented for life



- ▶ 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

The PRA-EOL is an end-of-line device, 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 and will always 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, but can also be reduced in size to fit most cable junction boxes.

Functions

Supervision

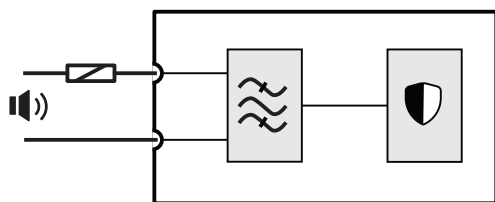
- Reliable supervision of a single loudspeaker line, using loudspeakers connected in a loop-through fashion.
- Operation is based on pilot tone detection from the amplifier with current feedback to the amplifier using the loudspeaker line itself. No additional wiring is needed for fault or status reporting.

- 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 pilot tone is intermittent, it periodically emits a short signal burst for a few seconds every 90 seconds.
- 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

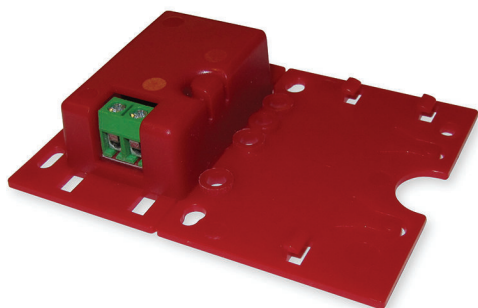
- The PRAESENSA end-of-line device is small, lightweight and fits to the mounting provisions in most Bosch loudspeakers for supervision boards (board shape). It comes with screw terminal connected flying leads, containing a thermal fuse, for easy connection to the last loudspeaker of a loudspeaker line.
- 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 screw terminal.

Connection and functional diagram

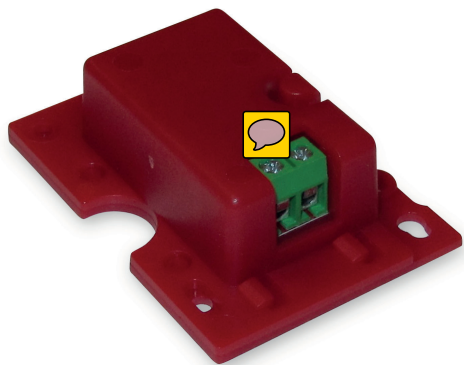


	Loudspeaker line		Bandpass filter
	Thermal fuse		Supervision receiver/transmitter



Board shape view



Box shape view



Device connections

	Loudspeaker line	
---	------------------	---

Architects & Engineers specification - PRA-EOL

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 and 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.

Certifications and approvals

Emergency standard certifications

Europe	EN 54-16
International	ISO 7240-16

Environmental directive compliance

Safety	EN/IEC/CSA/UL 62368-1
Immunity	EN 55103-2 (E1, E2, E3) EN 50130-4
Emissions	EN 55032 EN 61000-6-3 ICES-003 ANSI C63.4 FCC-47 part 15B class A
Maritime	IEC 60945 (excluding salt mist test) DNV Type approval
Railway	EN 50121-4

Conformity declarations

Europe	CE/CPR
USA/Canada	FCC/c-UL/CSA
China	CCC
Korea	KE
Australia	RCM
Taiwan	BSMI
Russian Federation	EAC
Environment	RoHS

Parts included

Quantity	Component
8	End of line device
8	Set of connection wires with thermal fuse
1	Quick Installation Guide

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

Technical specifications

Electrical

Control

Pilot tone detection	
Frequency	25.5 kHz
Level	3 Vrms
Feedback	Current
Amplifier load	< 100 mW
Loudspeaker line	
Maximum length	1000 m
Maximum capacity	300 nF
Maximum input voltage	
20 Hz to 20 kHz	100 Vrms
Fault detection	Line shorted, line interrupted
Fault reporting	By amplifier

Environmental

Climatic conditions

Temperature	
Operating	-5 to +50°C (23 to 122°F)
Storage and transport	-30 to +70°C (-22 to 158°F)
Humidity (non condensing)	5% to 95%
Air pressure (operating)	560 to 1070 hPa
Altitude (operating)	-500 to +5000 m (-1640 to 16404 ft)

Climatic conditions

Vibration (operating)	
Amplitude	< 0.7 mm
Acceleration	< 2 G
Bump (transport)	< 10 G

Reliability

MTBF	> 1,000,000 h
------	---------------

Mechanical

Enclosure

Dimensions (WxHxD)	
Board shape	78 x 60 x 16 mm (3.1 x 2.4 x 0.6 in)
Box shape	45 x 60 x 18 mm (1.8 x 2.4 x 0.7 in)
Ingress protection	IP30
Case	
Material	Plastic
Color	RAL3000
Weight	25 g (0.055 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**

Represented by:

Europe, Middle East, Africa:
Bosch Security Systems B.V.
P.O. Box 80002
5600 JB Eindhoven, The Netherlands
Phone: + 31 40 2577 284
emea.securitysystems@bosch.com
emea.boschsecurity.com

Germany:
Bosch Sicherheitssysteme GmbH
Robert-Bosch-Ring 5
85630 Grasbrunn
Germany
www.boschsecurity.com

North America:
Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, New York, 14450, USA
Phone: +1 800 289 0096
Fax: +1 585 223 9180
onlinehelp@us.bosch.com
www.boschsecurity.us

Asia-Pacific:
Robert Bosch (SEA) Pte Ltd, Security Systems
11 Bishan Street 21
Singapore 573943
Phone: +65 6571 2808
Fax: +65 6571 2699
apr.securitysystems@bosch.com
www.boschsecurity.asia