

**Future expansion**

More zones and extra power per zone can be added by incorporating additional routers (up to 60 zones) and Plena Booster Amplifiers (up to 480 W per 6 zones).

**Installation**

The Plena Voice Alarm System is designed for plug-and-play installation, and is easily configured using DIP-switches or software for more advanced configuration. Once configured, the PC is disconnected. System interconnections are made using standard RJ45 connectors and CAT5 cable. Up to 255 spoken evacuation messages can be stored. Messages can be merged to allow more flexible use of pre-recorded messages.

**EVAC compliancy**

For the installation to be fully EVAC-compliant, loudspeakers and cabling must also conform to the relevant standards. Bosch can provide training and certification for partner installers – details available on request.

Configuration		
LBB 1990/00	Controller	1 x
LBB 1992/00	Router	8 x
LBB 1996/00	Remote control panel	1 x
LBB 1997/00	Remote control panel extension	8 x
LBB 1998/00	Remote control panel kit	1 x
LBB 1999/00	Remote control panel extension kit	8 x
LBB 1956/00	Call station	1 x
LBB 1957/00	Call station keypad	5 x
LBB 1935/00	240 W booster amplifier	3 x
LBB 1938/00	480 W booster amplifier	2 x
LBB 1961/00	BGM source	1 x

# Plena Voice Alarm System

## Shopping malls



Security Systems

**EVAC-compliant voice alarm**

The Plena Voice Alarm System is designed for emergency evacuation in applications where compliance to internationally recognized standards like IEC60849 is required. All the essential EVAC functionality – such as system supervision, loudspeaker line surveillance, spare amplifier switching, digital message management and a fireman's panel – is built in.

Based on the 6-zone LBB 1990/00 system controller with separate call- and background music (BGM) channels, a Plena Voice Alarm System can be easily expanded to up to 60 zones using additional 6-zone routers. It is completely compatible with Plena Public Address equipment, and Bosch EVAC-compliant loudspeakers and accessories.



Voice Alarm System

### Shopping malls

Shopping malls are typical example of applications with a large number of zones with varying output power requirements per zone. The priorities are speech intelligibility and compliance with IEC60849 standard (and its national equivalents).

### Introduction

In addition to mandatory voice alarm functionality for evacuating the public and shop personnel, an EVAC system for shopping centers can have BGM for the public areas. It should be possible to individually call each shop or store. During emergency messages, each shop's BGM volume control is automatically overridden. Additional public address functionality for making general public announcements is an optional requirement.

### Summary of requirements

- Typically up to 60 zones
- Speech intelligibility is the main priority
- Variable power requirement per zone
- Call station in security control room
- Additional public address functionality (non-emergency)
- BGM in public areas
- BGM music with local override in shops

### Solution for a 54-zone system

A Plena Voice Alarm System Controller handles routing to 6 zones, the remaining 48 zones require eight 6-zone routers. The security control room is equipped with a remote control panel and call station plus keypads for individually addressing zones and BGM for the public areas, while the controller unit and routers are located in a fire-resistant cabinet or basement. Fireman's panel (with overall priority) is built in close to the main entrance or emergency exit (subject to relevant local regulations). The Plena Voice Alarm System is a two-channel system, so BGM can still be provided in zones not receiving a call.

### Power requirements

Each zone will have varying power requirements, ranging from small shops with a single loudspeaker to department stores with several floors and more loudspeakers. Parking garages and open-air walkways will require weather-proof sound projectors or horn loudspeakers. To facilitate phased evacuation from different levels of the shopping center, public areas are divided into zones. Additional Plena Booster Amplifiers are incorporated to provide additional power, two-channel operation and for use as a spare amplifier.

### Zones

Zones 1-30	30 small shops/kiosks	30 x 6 W cabinet/ceiling loudspeakers
Zones 31-36	6 shops	12 x 6 W (2 per store)
Zones 37-42	6 medium-sized stores	24 x 6 W ceiling loudspeakers (4 per store)
Zones 43-46	Large store with 4 levels	16 x 6 W ceiling loudspeakers (4 per level)
Zone 47	Security control room	1 x 6 W cabinet loudspeaker
Zone 48	Offices	4 x 6 W cabinet loudspeakers
Zone 49	Walkways ground floor	4 x 6 W sound projectors
Zone 50	Gallery 1st floor	10 x 6 W ceiling loudspeakers
Zone 51	Gallery 2nd floor	10 x 6 W ceiling loudspeakers
Zone 52	Main public square	4 x 18 W horn loudspeakers
Zone 53	Parking garage level 1	6 x 10 W horn loudspeakers
Zone 54	Parking garage level 2	6 x 10 W horn loudspeakers
		Total 858 W

