Safety in every decibel

4EVAC
A Bosch Company

INTRODUCTION

We are 4EVAC. We are a company that is ‘proudly Dutch’, and we design and manufacture the new standard in voice alarm and multimedia solutions. Our commitment is to provide customers with cutting-edge, user-friendly, and highly efficient solutions for a range of applications, from small to large-scale projects.’

Offering systems that are as well as compact as modular, 4EVAC has designed it’s products to meet the demands of installers and users alike. Demystifying the traditional ‘rack-mounted’ systems that rely on complex configuration, 4EVAC has made the Impact voice alarm system product family with remote controlled zone[1] expanders for both simplified zone switching and for complex multi-media applications.

Set apart by it’s design, the Compact500, offers a lean design footprint and makes for lean, cost effective installation and operation. Comprising self-contained compact wall mounted control and indicating voice alarm panels, the C500 offers a ‘mean’ and powerful solution, providing an advanced digital audio distribution on a networked VACIE solution.

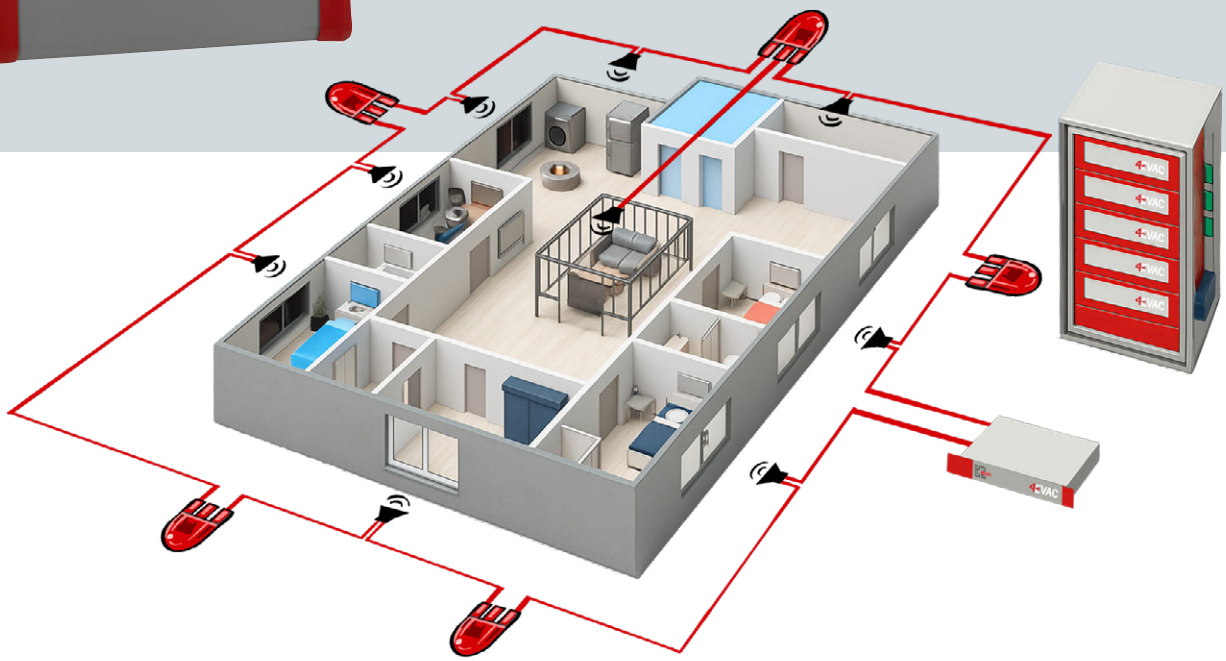
Designing and manufacturing it’s products in Europe to rigorous specifications, 4EVAC delivers unparalleled quality and reliability. Fully compliant with the EN54-16 certification, for additional peace of mind all 4EVAC products are third party approved and certified to all European standards including: EN54-4, EN54-16, EN54-17, EN54-18, EN54-24, CB, EMC and UKCA.

Our mission: Supplying the next generation of “plug and play” Public Address & Voice Alarm systems.

COMPACT | IMPACT SW | IMPACT MM | LOOPDRIVE | LOUDSPEAKERS

COMPACT 500

Compact 500 is equipped with a wide range of pre- and post-processing software modules such as volume controllers, routing, mixing, switching and prioritizing. Processing components as; equalisers, limiters and delay-lines make Compact 500 fit for the job.



Certified

In order to ensure peace of mind for both the installer and end user, 4EVAC products are third party approved and certified to relevant European standards.

4EVAC approvals go beyond the minimum requirements including EN54-16:2008, EN54-4:2006, and EN50130-4:2011. CPR number : 0560-CPR-152190001/00.

System configuration

- Zone 1: Parking area, 85 W (CH-1);
- Zone 2: Floor 1, 65 W (CH-2);
- Zone 3: Floor 2, 95 W (CH-3);
- Zone 4: Floor 3, 100 W (CH-4);
- Zone 5: Floor 4, 85 W (CH-5);
- Zone 6: Floor 5, 85 W (CH-6);

Materials

- 1 x Compact 500;
- 3 x DA200;
- 1 x DA200 (back-up amp);
- 1 x Battery-set: 38AH.

4EVAC new range of products stands for lower costs of installation, maintenance and ownership. Designed to meet from the basic normative requirements up to most demanding needs of engineers, facility managers, building owners and electrical contractors. 4EVAC range of products builds upon the field-proven design culture of experts in de fire-safety and voice-alarm market.
The image above shows a basic system configuration where the Compact 500 fits perfectly! Serving a high-rise building structure. Equipped with 6 evacuation zones the wall-box is installed in the main entry area where it can be easily observed and controlled in case of an incident. The frontpanel controls are adequately accessible and the integrated firemens-microphone provides clear vocals into the evacuation zones.

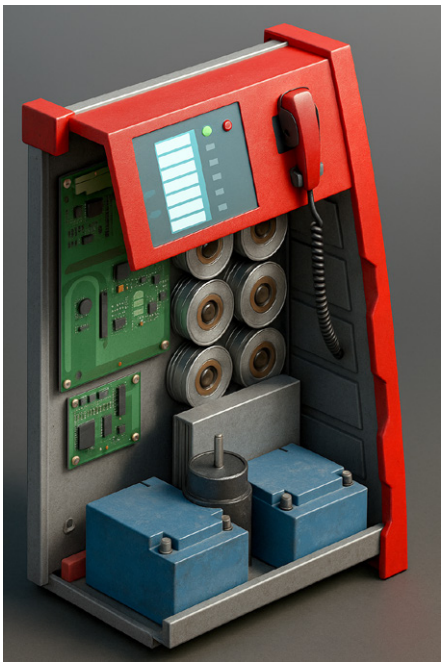
BATTERY COMPARTMENT

Control/Indications
& Firemen microphone at access level 2

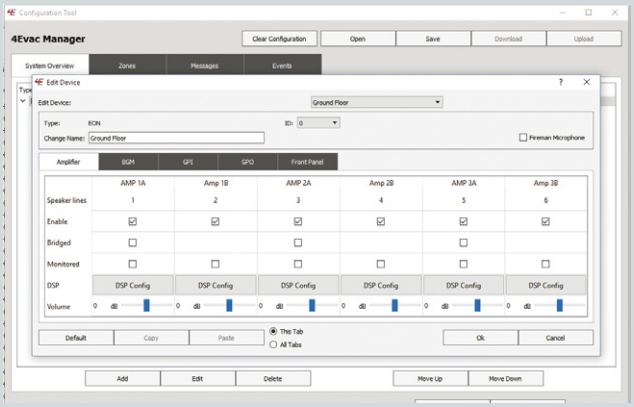
The Compact 500 comes with a special battery bracket that can hold batteries from a minimum of 12 V/10 AH to a maximum of 12 V/55 AH. The integral battery charger, PSE, has been certified to charged up to 12 V/55 AH within 24-hours.

For a standard fully equipped installation with 3-DA200 amplifiers and a backup DA-200 amplifier, that needs to run for the minimum normative period of 30 minutes on full-load and 24 hours in quiescent state, it requires 12 VDC 38 AH batteries.

In case de Compact 500 is not fully equipped with the maximum number of DA200 amplifiers and/or not loaded to the maximum extent of 600 W, there is a choice of batteries in the range of 12 V/10 AH to 12 V/55 AH, or when longer selfsupporting periods are required, i.e. when there is no maintenance contract in place.



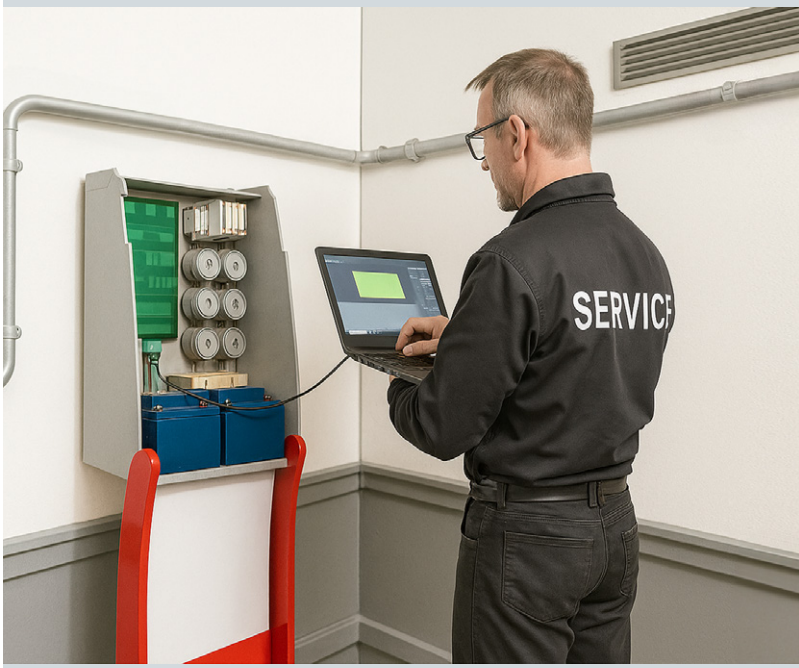
4EVAC MANAGER



4EVAC Manager is a management application tool that provides a comprehensive application specific interface to your Compact 500 networked system. The software provides an easily accessible view of your overall system status and makes system operation very easy through an intuitive and secure configuration tool that makes complex programming and service easier than ever.

4EVAC Manager is the ideal addition to your Compact 500 system management in complex facilities.

- Configuration software supports all integrated system components;
- Firmware upgrades in the field;
- Flashcard exchange protocol for quick system update / programming without the direct need for a computer.



IMPACT SW

Built to meet the highest expectations, still remain user friendly, flexible and cost effective, **IMPACT** sets a new course for the Voice Alarm System industry.

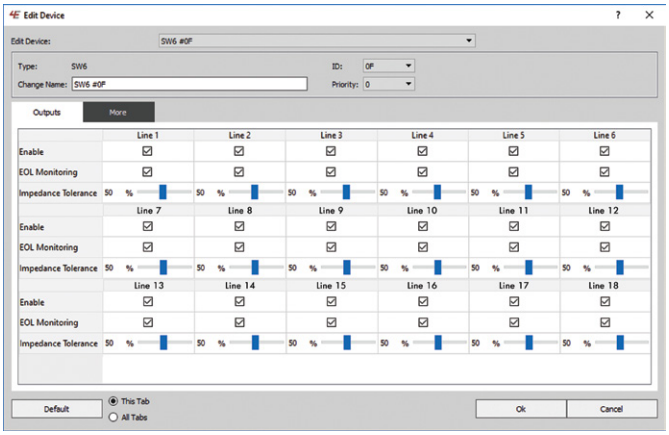
The IMPACT system consists of only two chassis, one controller that transfers the network data stream to the amplifier and a DCA-2.500 amplifier completed with at least one 4E-SW6 module.
The 4E-SW6 is an intelligent 2-into-6 Remote Controlled Zone Expander and zoning module that subdivides broadcasts into a multiple of six sub-areas. The 4E-SW6 provides 'built-in' loudspeaker monitoring.

Time to think smart!
Now it is time to think smart and combine battery charger capabilities with the integrated power amplifier. The DCA-2.500 amplifier not only drives the system up to an impressive 1000 Watt, but it also charges and surveys a scalable battery pack for up to three 1000 Watt amplifiers. This not only reduces hardware and rack-space but most importantly, it decreases installation and operational costs whilst increasing reliability. Simple to configure with it's easy to use GUI tool guiding software you create a systems solution with multiple Voice-Alarm zones, paging-zones and music areas in minutes.

High quality DSP-processing guarantees 4EVAC Manager is an overall programming application tool that provides a comprehensive application specific interface to your IMPACT and COMPACT500 networked system. The software provides an overview of your overall system status and makes system operation very easy through an intuitive and secure user interface configuration tool that makes complex programming and service easier than ever.

4EVAC Manager programming application for IMPACT and COMPACT500 system provides:

- Quick download and upload of the system configuration;
- Update of firmware and configuration over the Network to all-devices (Each CONTROLLER or COMPACT500 holds a complete copy of the system configuration file);
- Flashcard exchange protocol for quick system update/ programming in case of computer access disability or emergency purpose.



CONTROLLER / Audio Matrix

The CONTROLLER deals with inputs according to their own signal priority table, distributing the audio using the digital AMP-link module, which handles two prioritised audio streams through a dynamic assignment technique, to a maximum of 16 DCA-2.500 amplifiers per CONTROLLER.

EXPANDER / L-Net Expander

4EVAC Controller-Expander is an optional component of the 19” rack mounted Impact Voice Evacuation System. The Controller-Expander is identical to the Impact Controller with significant hardware and functional limitations.

DCA2.500 / 2 x 500 Watt Power Amplifier

4EVAC DCA2.500 is a 2x500W transformer-less (Direct-drive) 100V power amplifier with integrated power supply and 24V battery charger. Designed and certified in full compliance with EN54-4 and EN54-16, DCA2.500 is an ideal component of a voice evacuation system or public address installation, where high reliability and safety is required.

The IMPACT concept is simple yet powerful

IMPACT Cluster Charging
The EN54-16 and EN54-4 standard certified, lightweight DCA-2.500 D-Class amplifier provides powerful audio amplification.
It delivers 2 x 500 W outputs and is housed in a 2U 19-inch rackhousing. Multiple DCA-2.500 amplifiers can be stacked together sharing a single battery pack, providing back-up power and collective recharging capabilities.

- The amplifier has been designed along ‘modern-art’ lines and features a transformer-less design with not only a direct 100 V output for distributed loudspeaker systems, but also drives into a low-impedance source from 8ohm and up. With cutting-edge design, the DCA-2.500 sets a standard for the most demanding projects with demanding audio architecture.
- Each DCA-2.500 is equipped with a powerful 4A battery charger capable of charging into a single 100Ah battery set.
- A Master/Slave system architecture, dictated by the AMP-LINK, regulates the battery-cluster charging procedure and status control. This way a single, larger battery pack can be shared with multiple amplifiers.

Remote Controlled Zone Expander Module
The 4E-SW6 Remote Controlled Zone Expander module is a simple and cost-effective way to distribute various loads over a multiple of 6-speaker lines/zones.

DIN-rail mounted remote controlled modules
The 4E-AM448 is a surveillance box with 4 amplifier inputs and 4 A/B loudspeaker outputs also acting as backup amplifier manager. The 4E-SW6 is a simple an cost effective way to distribute various loads over a multiple of 6-speaker lines/zones.
When combined with 4EVAC’s DCA- 2.500, or other third-party single high- power two-channel amplifier, the 4E-SW6 switching module generates simultaneous EVAC and ALERT announcements or paging messages and background music (BGM) into six switched speaker lines. By adding more 4E-SW6 switching modules, it is possible to produce any multiple of six speaker lines, which can be grouped in virtual paging zones.
Powered by a single DCA-2.500 two channel amplifier, the 4E-SW6 switching module provides dual-simultaneous, uninterrupted signals for any combination of paging, BMG, EVAC and ALERT for six manageable speaker lines.
A third internal channel is used by the surveillance tone generator to continuously check the integrity of the cable and detects any faults.
The third internal channel can also be addressed if the speaker lines need to be silenced.

The transmission-line detection is based on End-Of-Line (EOL) measurement.

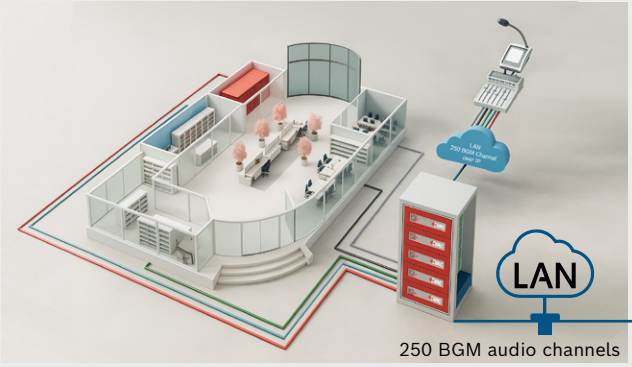
The 4E- SW6 generates a pilot tone that feeds into a tuned EOL. This way each speaker line of the 4E-SW6 is monitored for line-short and line-open faults. The 4E-SW6 switching module is easy to install. It comes in a quick-snap DIN- rail housing and is supplied with speaker line connectors that directly accept external field cabling up to 2.5 mm 2/12 AWG. Each speaker line is able to support loads from as small as 1W to as big as 200 W, with a total load of 500W per 4E-SW6.

The AM448 Line Surveillance Modules offer a versatile solution for managing both high- and low-loaded lines with the impact-SW system. Especially when handling heavily loaded lines (A/B), the combination of AMM448 with SW6 modules provides an efficient and adaptable approach to optimize performance.

This 'dynamic-load-distribution' makes IMPACT the most flexible and versatile VACIE system in the industry and optimises the use of all modules in the network.

IMPACT MM

Impact MM Voice Alarm System offers a palette of EN54 certified solutions for Audio over IP applications.



MAZE: Multi-channel IP streaming network platform

Compared to the Impact SW system, Impact MM adds a multi-channel IP streaming network platform. This proprietary 4EVAC protocol, called MAZE, provides low-latency, lossless audio over IP broadcast, where up to 250 audio channels may be distributed within Local Area Network (LAN) for multi-stream background music distribution, with uncompromised quality.

Configurable via PC, MAZE network offers two-way audio routing between components of Impact MM Voice Alarm System, each having continuous access over the LAN to multiple digital audio channels. All channels can be individually filtered, delayed, mixed, and volume controlled. Impact MM Voice Alarm devices equipped with MAZE interface feature a dual-port 100Base-T Ethernet interface and can be configured to access any channel in the MAZE network, making the platform fully equipped for large Voice Alarm applications, where multi-channel simultaneous background audio broadcast for Public Address is required.

Thanks to the dual port Ethernet switch built-in as a standard, Impact MM components can be connected directly to each other, without additional switch or router in between.

Every 4EVAC device with MAZE interface and analog audio inputs is able to stream it's local audio source to any of 250 available channels within the same LAN. Audio streams are transmitted in lossless, uncompressed format, with minimum latency. Audio can be then received by any system controller or amplifier connected to MAZE network. Additional audio signals can be streamed in and out the network via the i-MATRIX streaming DSP.

4EVAC systems are primarily designed for Voice Alarm, therefore Impact MM features provided by MAZE can be installed as an optional facility, additional to the core functionality of Voice Alarm compliant with EN54 group of safety standards. Architecture and processing embedded in 4EVAC products will always grant highest priority to the mandatory Voice Alarm functions.

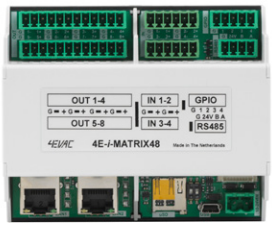
i-CONTROLLER

Impact i-Controller, the brain and network hub of Impact MM Voice Alarm System. Thanks to enabled Ethernet ports and MAZE engine installed, the i-Controller has direct access to 250 audio channels transmitted within the MAZE network. i-Controller can receive simultaneously 2 BGM channels over IP, while the standard analog BGM inputs are still available. Signal from local analog BGM inputs can be also simultaneously broadcasted by i-Controller to the LAN, to be received by amplifiers and other i-Controllers.

i-DCA2.500

Impact MM amplifier, the i-DCA2.500, is the networked MAZE variant of the DCA2.500. Like i-Controller, the i-DCA2.500 has dual-port Ethernet interface with built-in 100Mbps switch and MAZE engine, which opens access to 250 audio BGM channels available in the MAZE network. Each i-DCA2.500 can also broadcast two digital audio streams to the MAZE network from it's local BGM analog inputs. Thanks to dual-port switch onboard, multiple i-DCA2.500 units can be daisy-chained with i-Controller inside the rack, without extra switches or routers. i-DCA2.500 can be used as a standalone amplifier for low priority PA sub-systems, sharing the same network with Voice Alarm rack.

MAZE



i-MATRIX

4 x 8 balanced audio matrix with DSP, with additional with 2in/2out streaming to and from IMPACT-MM system (total 6 IN x 10 OUT). Built-in message player with micro SD card storage, 4xGPIO, RS485, USB port, 100Mbps dual Ethernet port.

UNIVERSAL MICROPHONE CONSOLES | CONTROLLING DEVICES

4E-CSM The 4E-CSM is a Control Station Microphone (CSM) that serves as an extension of the 4EVAC control station software available for both Impact and Compact. It features a gooseneck microphone and an integrated USB hub and communicates over the local network (L-Net bus) with 4EVAC main units.

4E-FMT is a desktop/wall mounted microphone station with touchscreen panel. It can address up to 255 zones.

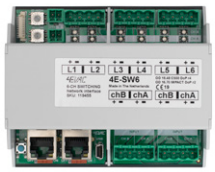
4E-FM is a desktop or wall mounted emergency microphone station with high priority and fault surveillance. 4E-FM includes handheld microphone and monitored PTT TALK button.

4E-FMWB is a low-cost and effective networked Fireman Microphone wall-box.

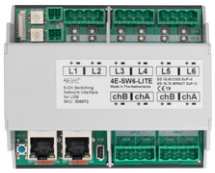
4E-CMP: 6-zones Push-button controlled paging console able to address commercial messages.

4E-CMT touch-screen controlled paging console able to address commercial messages.

4E-SW6 is a DIN-rail mounted 100V audio matrix with 2 inputs and 6 output dedicated for both 4EVAC Compact and Impact systems. 4E-SW6 has two 100V audio inputs (CHA, CHB) which connect directly to amplifier outputs. 4E-SW6 expands the number of independent loudspeaker lines with individual surveillance and short-circuit isolator units (Loopdrive).



4**E-SW6-LITE** has been developed to be used with Loopdrive LDB on the outputs only.



4E-GPIO is a DIN-rail mounted I/O interface with input surveillance and a redundant network link. It features programmable 16 in / 16 out pins, mandatory EVAC and FAULT status output contacts, a monitored analogue audio input and a monitored RS-485 interface for integration with third-party external control panels.

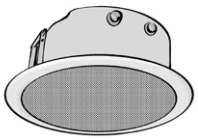
4E-AM448 is a DIN-rail mounted surveillance box with 4 amplifier inputs and 4 A/B loudspeaker outputs, dedicated for Impact SW and Impact MM voice evacuation systems.
4E-AM448 is also the backup amplifier manager.

The **4E-FPI** and **4E-RPI** L-Net power injectors provides additional power injection point to the L-NET (Local Network bus of 4EVAC Voice Evacuation System), where an auxiliary DC power supply may be connected. Thanks to the L-net power injector, more devices can be installed on the same CAT5e cable, devices can be installed in larger distances from the central equipment and from each other.

4E-FPI: Fieldmount Power Injector
4E-RPI: Rackmount Power Injector

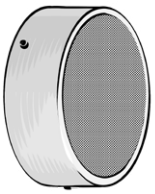
EN54-24 LOUDSPEAKERS

4E-F series - EN



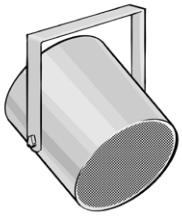
- Ceiling Loudspeaker
- Power: 6/3/1,5 Watt
- DC-blocking capacitor: 2,2uF
- Frequency response: 64 - 21.500 Hz.
- SPL 1Watt/1mtr. : 97 dB
- Dimensions: Ø 180 x 99 mm.
- Cut-out: Ø 161-167 mm
- Dispersion 1kHz.: 180°
- Colour: RAL 9016
- IP rating: IP21

4E-S series - EN



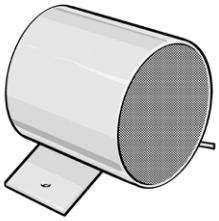
- Surface mount loudspeaker
- Power: 10/6/3/1,5 Watt
- DC-blocking capacitor: 2,2uF
- Frequency response: 230 - 22.000 Hz.
- SPL 1Watt/1mtr. : 102 dB
- Dimensions: Ø 170 x 75 mm.
- Dispersion 1kHz. : 180°
- Rear and side cable entry
- Colour: RAL 9010
- IP rating: IP21

4E-P series - EN



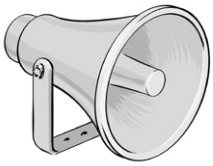
- Sound projector
- Power: 20/10/5/2,5/1,25 Watt
- DC-blocking capacitor: 2,2uF
- Frequency response: 120 - 21.000 Hz.
- SPL 1Watt/1mtr. : 99,5 dB
- Dimensions: Ø 137 x 200 mm.
- Dispersion 1kHz. : 252°
- Colour: RAL 9016
- IP rating: IP66

4E-P series - EN



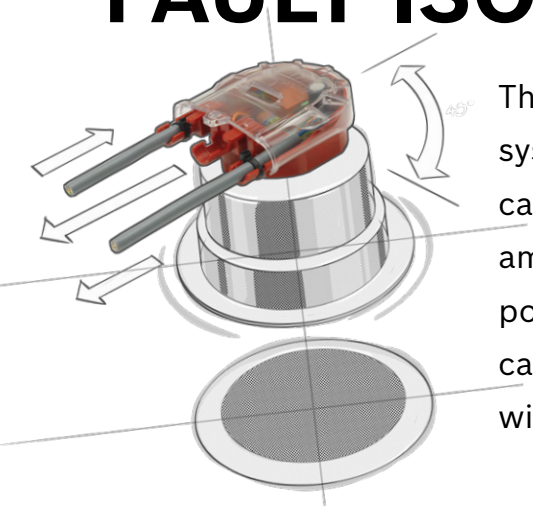
- Bi-directional Sound projector
- Power: 10/5/2,5 Watt
- DC-blocking capacitor: 2,2uF
- Frequency response:
  90 - 25.000 Hz.
- SPL 1Watt/1mtr. : 90,7 dB
- Dimensions : Ø 202x163x170 mm.
- Dispersion 1kHz. : 2x170°
- Colour: RAL 9016
- IP rating: IP56

4E-H series - EN



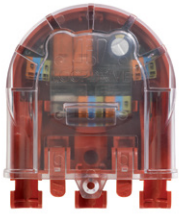
- Horn loudspeaker
- Power: 15/7,5/3,75/1,9 Watt
- DC-blocking capacitor: 2,2uF
- Frequency response:
  300 - 13.800 Hz.
- SPL 1Watt/1mtr.: 108,5 dB
- Dimensions : Ø 209x321 mm.
- Dispersion 1kHz.: 110°
- Colour: RAL 7035
- IP rating: IP66

FAULT ISOLATOR MODULES



The **Loop Drive Booster (LDB)** is the heart of the Loopdrive system. This devices drives up to 200 FIM's over a dual-core cable. A single LDB can pass 800W of audio signal from an amplifier and injects at the same time DC to the loop for powering and managing FIM modules. One amplifier channel can be split into multiple LDB in parallel, creating multi-loop with individual surveillance for multi-zone paging applications.

The loudspeaker line isolator Fault Isolator Module (FIM) is the successor in our range of loudspeaker loop-isolator devices that are using our patent technology to deliver a higher level of availability of evacuation loudspeaker lines that are installed according to the return-loop principle.
A loudspeaker failure in a faulty section between any two FIM's in the loop is automatically detected and isolated in order to ensure maximum availability of the remaining loudspeakers on that same loop. The FIM protects the loop integrity against any open and wire-to-wire short circuits.

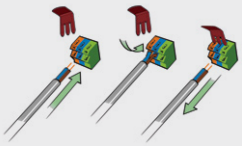


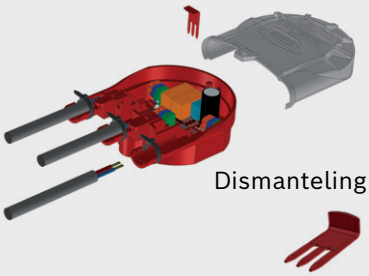
The **FIM-VC** is a T-branch field-isolator-module with integrated volume control and AUX input for local audio source. Additionally the override function for situations where messages must have priority over background music and local volume control.

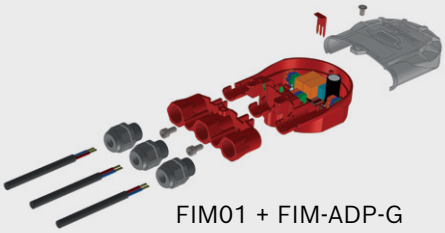
Detect, locate and isolate

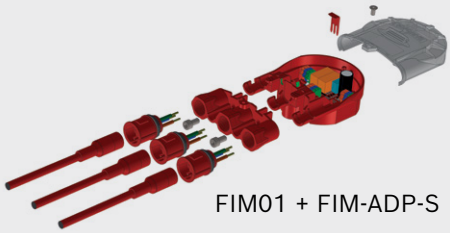
In less than 4 seconds... we broadcast!

FIM assembly

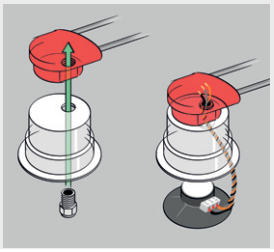




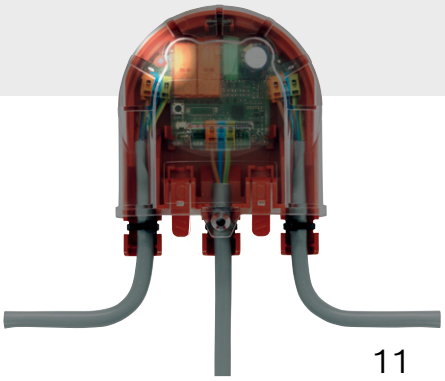




The T-branch output of the FIM interfaces directly with the input of the single loudspeaker through the fixing-hole of the Loopdrive housing and the compression gland.



No extra cable!
No extra junction box!



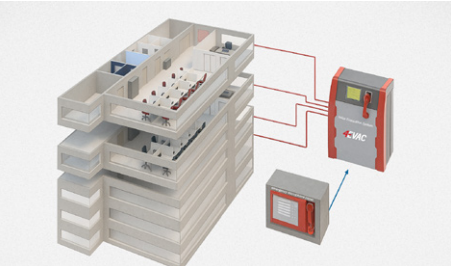
The FIM is equipped with WAGo push-terminals that accept up to 2,5 mm2 core installation cable. aloopdrive housing.

Certificate FIM : EN54-17:2005 - 0560-CPR-142190002 - EP 0967833B1

NETWORKING

We understand the importance of not only providing top-of-the-line voice alarm systems, but also ensuring a seamless connection between all systems. This commitment to integration and connectivity sets 4EVAC apart in the industry, as we strive to provide comprehensive solutions that prioritize safety and peace of mind for our clients.

LOCAL NET

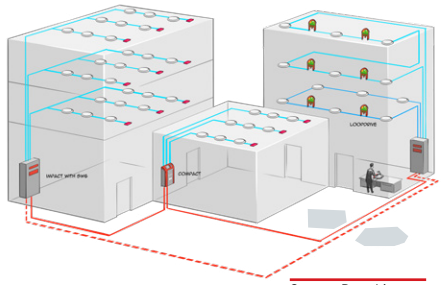


Local Net (L-Net) works as daisy-chain bus between the main system unit and remote network devices, such as paging consoles or additional GPIO interface.

L-Net capacity of each main system unit is limited to the following:

- maximum 8 devices per port, maximum 16 devices per main unit
- L-Net is used to move interfaces and control panels from the central system location to remote control points. Local network is fully monitored and can be set up in a redundant-ring topology, providing two secured paths to the remote device.
- Maximum point-to-point distance over CAT5 cable is 250 meters, with extension possibility up to 2000 meters over multimode optical fiber.

GLOBAL NET



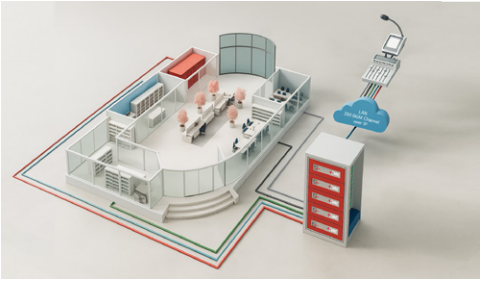
Copper Data Line (RS486) **Max. 300m**

Fiber Optic Data Line (RS485) **Max. 2000m**

Global Net (G-Net) is a redundant network ring where multiple system controllers may be connected into one, fully transparent system. It is used to reliably synchronize data between all connected locations.
G-Net works as a redundant double ring between controllers which keeps the global system intact in case of link failure. Similar to L-Net, maximum point-to-point distance over CAT5 cable is 250 meters, with extension possibility up to 2000 meters over multi mode optical fiber.
Total capacity of the network equals 254 devices, including main system controllers and peripherals, such as microphone stations.

IP BROADCAST NETWORK

Impact Multi-Media (Impact-MM) system features 4EVAC's proprietary MAZE protocol: audio-over-IP transport platform.
Impact MM, equipped with MAZE network cards, enables Ethernet ports, through which the Voice Alarm system has access to 250 high quality, low latency audio channels over IP. Multiple sites with individual Voice Alarm installations can transmit and receive simultaneous background music programs via LAN. Built-in 100Mbps switch allows for point-to-point connections, without use of 3rd party switches or routers.



The MAZE IP broadcast network is an additional BGM facility for most demanding modern audio distribution demands.

4EVAC
A Bosch Company

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