EDWARDS

EST-VES / EST-VES-8003

Compact plug-and-play PA/VA system

EN 54-16

EN 54-4

1438-CPR-0659

- ✓ Standalone or TCP/IP network architecture
- ✓ Scalable and quick to install All-in-One type system
- ✓ Wall or rack mounted versions available
- ✓ Impedance, end of line module or short-circuit isolators for speaker line monitoring
- ✓ Ability to connect standalone EST-VES and EST-VES-8003 devices for large distributed systems
- ✓ Built-in fire microphone and touch screen with easy-to-use interface to control background music sources, volumes, timers and all voice evacuation related functions

Carrier

firesecurityproducts.com

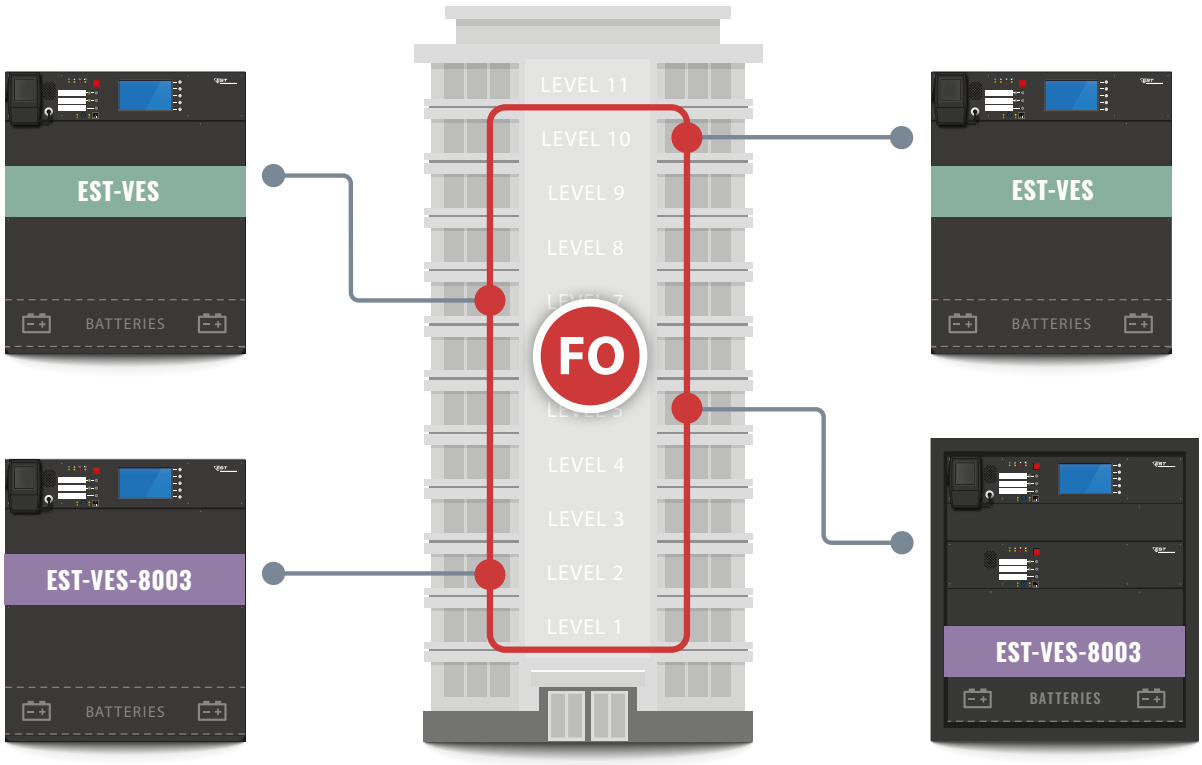
Compact Plug-and-Play PA/VA System

EN 54-16 **EN 54-4**

EST-VES / EST-VES-8003 main features

- *All in one – independent wall mount EN 54-4/16 PA/VA unit*
- *Stand alone or TCP/IP network architecture*
- *DSP audio processing on board*
- *Compatibility with RACK mounted modular EST-ENT-VES*
- *Professional Sound Quality (48 kHz, 16 bit, uncompressed audio)*
- *Evacuation, paging message and background music features*
- *Impedance, end of line module or short-circuit isolators for speaker line monitoring*
- *Simple installation and simple to design*
- *User friendly and intuitive programming software*
- *EN 54-4 charger for up to 65 Ah batteries and 24/48 VDC outputs for powering external devices*
- *VoIP / SIP integration*

EST-VES / EST-VES-8003 system example



EST-VES and EST-VES-8003 are scalable Public Address & Voice Alarm units suitable for multi-purpose architectures. Devices from EST-VES and EST-VES-8003 series are voice alarm compact control units containing all components within one compact housing, which meet all the requirements of EN 54-16 and EN 54-4 (certificate of constancy of performance 1438-CPR-0659).

Whole concept of the system is based on the high quality audio network distribution nodes equipped either with two independent 160 W, 320 W or three independent transformerless 500 W class D amplifiers, which distribute 100 V signals to 4, 8 or 16 speaker lines depending on the type. The system also ensures operation of a backup amplifier for the Emergency priority type of signals.

All type of centrals are equipped with integrated backup power supply and EN 54-4 compliant charging unit.

EST-VES and EST-VES-8003 are designed to be a Plug & Play device with all elements expected from Voice Evacuation Systems; including a built-in fire microphone, touchscreen for global control, DSP, programmable contact inputs and buttons, time scheduler, charger with battery mounting space and expandable memory size for messages – all fitted into IP30 chassis or dedicated 15u rack for EST-VES-8003 8003LNR with 8003R.

EST-VES and EST-VES-8003 belongs to the family of independent EVAC systems which can be networked together and extended by desktop zone microphones or fireman microphones via TCP/IP network to provide live announcements and background music inputs. The system has been designed to be wired using CAT5 cables for paging microphones and fibre-optic redundant interlink connections between the systems.

All systems support up to 45 high quality audio signals distributed over 254 devices in the network.

EST-VES	2001/N/L/LN*	4001/N/L/LN*	4002/N/L/LN*	4002LNR
No of AB zones	2	4	4	4
No of speaker lines	4	8	8	8
No of control inputs	7	7	7	7
No of relay outputs	3	3	3	3
Relay switching current (max.)	3 A peak**			
Relay switching voltage (max.)	50 V AC / DC peak**			
Relay switching power (max.)	90 W**			
Total audio load of the system	320 W rms	640 W rms	640 W rms	640 W rms
No of amplifiers / power	2 / 160 W	2 / 320 W	2 / 320 W	2 / 320 W
Redundant amplifier	Yes	Yes	Yes	Yes
No of messages played at the same time	1	1	2	2
Protection	Over-temperature, short circuit, overload, ground leakage			
Battery working time	30 hours + 30 minutes evacuation			
Ingress protection	IP 30			
Operating condition	-5 to + 45°C / 5% to 95% humidity with no condensation			
Gross weight	26 kg	31 kg	31,5 kg	19 kg
Dimensions (W × H × D)	440 mm × 525 mm × 350 mm			439 mm × 176 mm × 354 mm
Finish	Black			
Optional functions				
No of audio inputs	1 – Stereo to mono			
No of audio outputs	1 – mono line output			
Network card	2 × SFP module 1 Gb/s; 1 × POE 1 Gb/s, 100 Mb/s; 1 × LAN 1 Gb/s, 100 Mb/s connection; RS485 port; 1x LAN/WAN 100 Mb/s connection			
Basic network card	2 × LAN 1 Gb/s, 100 Mb/s, 1 × LAN/WAN 100 Mb/s connection			–
GUI	4,3” color touch screen			
DSP	Input EQ, outputs EQ, feedback eliminator and audio limiter, delay up to 30000 ms – routing, mixing, prioritizing included			

* All devices available with optional touch screen LCD (L) and network card with 2 × SFP modules and POE (N)

** IMPORTANT: any DC combination of V & A not to exceed switching power max. value. Not allowed capacitive nor inductive load, because of large inrush current/voltage spike, that can significantly exceed the maximum allowed switching current or voltage.

EST-VES-8003	8003LN	8003LNR	8003R	8003-LNRX2
No of AB zones	8			16
No of speaker lines	16			32
No of control inputs	7 + 2		7	14 + 2
No of relay outputs	3 + 2		3	6 + 2
Relay switching current (max.)	3A peak*			
Relay switching voltage (max.)	50 V AC / DC peak*			
Relay switching power (max.)	90 W*			
Total audio load of the system	1500 W rms			3000 W rms
No of amplifiers / power	3 / 500 W			6 / 500 W
Redundant amplifier	Yes			Yes
No of messages played at the same time	3			6
Protection	Over-temperature, short circuit, overload, ground leakage			
Battery working time	30 hours + 30 minutes evacuation / 4 × 12 V VRLA batteries			
Ingress protection	IP30	Mounted in IP30 Rack		
Operating condition	-5 to + 45°C / 5% to 95% humidity with no condensation			
Weight	23 kg	16,5 kg	16 kg	N/A
Dimensions (W×H×D)	440 × 525 × 350 mm	440 × 176 × 354 mm		600 × 765 × 600 mm
Finish	Black			
Optional functions				
No of audio inputs	1 – stereo to mono			2 – stereo to mono
Power sources – EN 54-4	1 × 24 V DC (150 mA maximum) and 1 × 48 V DC (350 mA maximum)			2 × 24 VDC (150 mA max.) & 2 × 48 VDC (350 mA max.)
Optional network card	2 × SFP module 1 Gb/s; 1 × POE 1 Gb/s, 100 Mb/s; 1 × LAN 1 Gb/s, 100 Mb/s connection; RS485 port; 1 × WAN 100 Mb/s connection		2 × LAN 1 Gb/s, 100 Mb/s, 1 × WAN 100 Mb/s connection	2 × SFP module 1 Gb/s; 1 × POE 1 Gb/s, 100 Mb/s; 3 × LAN 1 Gb/s, 100 Mb/s connection; RS485 port; 2 × WAN 100 Mb/s connection
GUI 4,3” color touch screen	Yes	Yes	No	Yes
DSP	Input EQ, outputs EQ, feedback eliminator and audio limiter, delay up to 30000 ms – routing, mixing, prioritizing included			
Fire microphone	Yes	Yes	No	Yes

* IMPORTANT: any DC combination of V & A not to exceed switching power max. value. Not allowed capacitive nor inductive load, because of large inrush current/voltage spike, that can significantly exceed the maximum allowed switching current or voltage.

Microphones

EN 54-16

EST-M01 Microphone

The EST-M01 microphone is an affordable fully analog device. It is equipped with a built in gong generated onboard the device, accessible through the switch on the back panel. The gong as well as the microphone itself has an individual volume control knob also placed on the back panel of the device.

To operate the device press the MIC ON button, the status LED will switch to steady green light. In the event of an active built in gong, the status LED will turn green once the gong has ended. When finished transmitting the message release the MIC ON button to deactivate the gooseneck mic.

EST-M04 Microphone

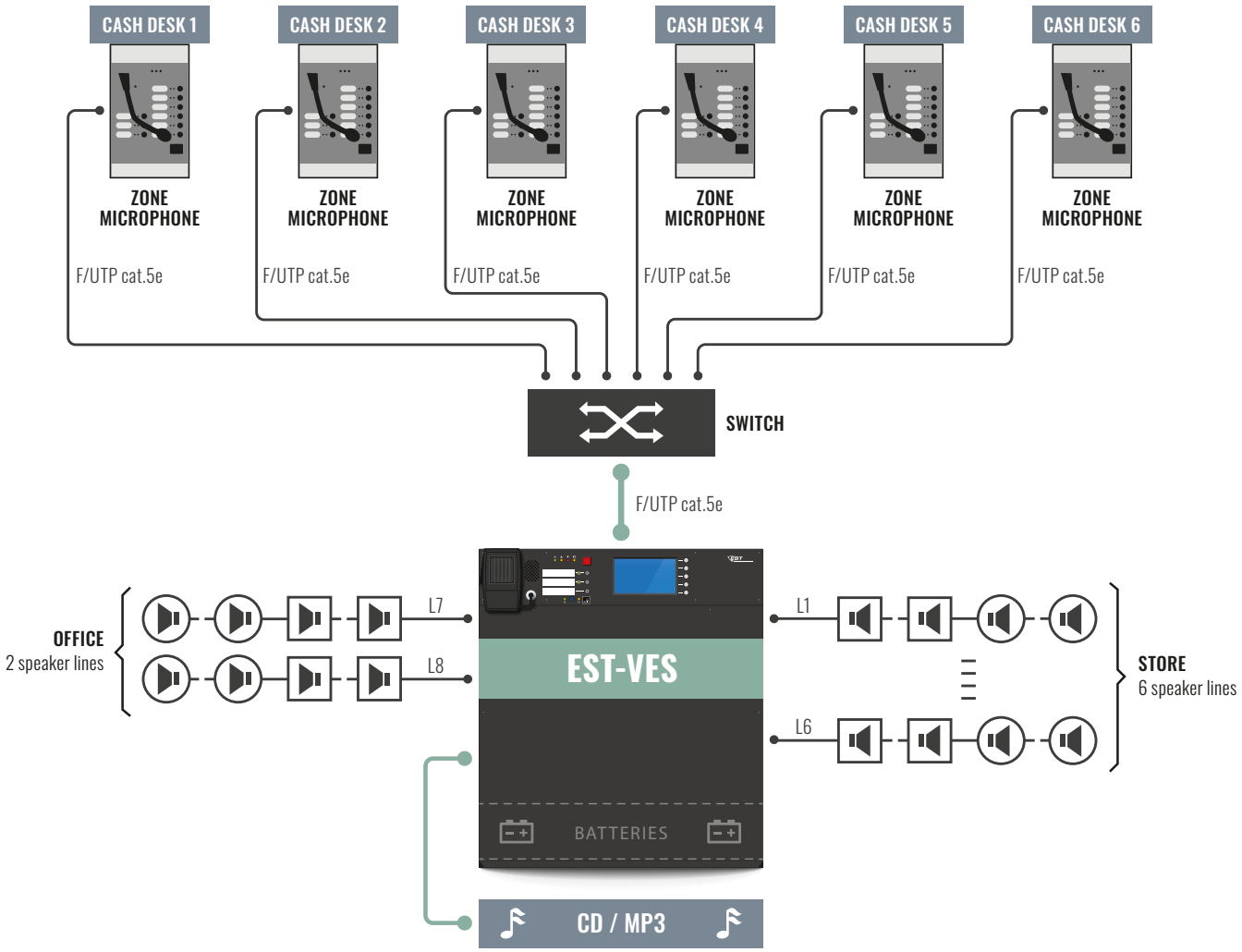
The EST-M04 is a 4 button analog microphone with built in gong, push to talk and bi-color LED indicating the ready-to-speak status.

To operate the device first select the Zones by pressing designated buttons and then press MIC ON button, the status LED will switch from red (not ready for broadcast) to steady green light. In the event of an active built in gong, the status LED will turn green once the gong has ended. When finished transmitting the message release the MIC ON button to deactivate the gooseneck mic.

	EST-M01	EST-M04
Operating voltage	20–57 VDC	
Efficiency	10 mV/a	
Output level	775 mV	
Maximum distance from amplifier	250 m	
Recommended cable type	UTP	
Connector Type	8P8C (RJ45)	
Dimensions without packaging (not more than)	150 × 60 × 165 mm	
Net weight (not more than)	1,2 kg	

Examples of Implementations

STORE / PA system



» **Zone microphone at the till:**

› Public announcements;

› Fully programmable buttons can be easily activated to broadcast specific announcements e.g. previously recorded public information regarding opening of tills or staff announcements.

» **Zone microphone in the office:**

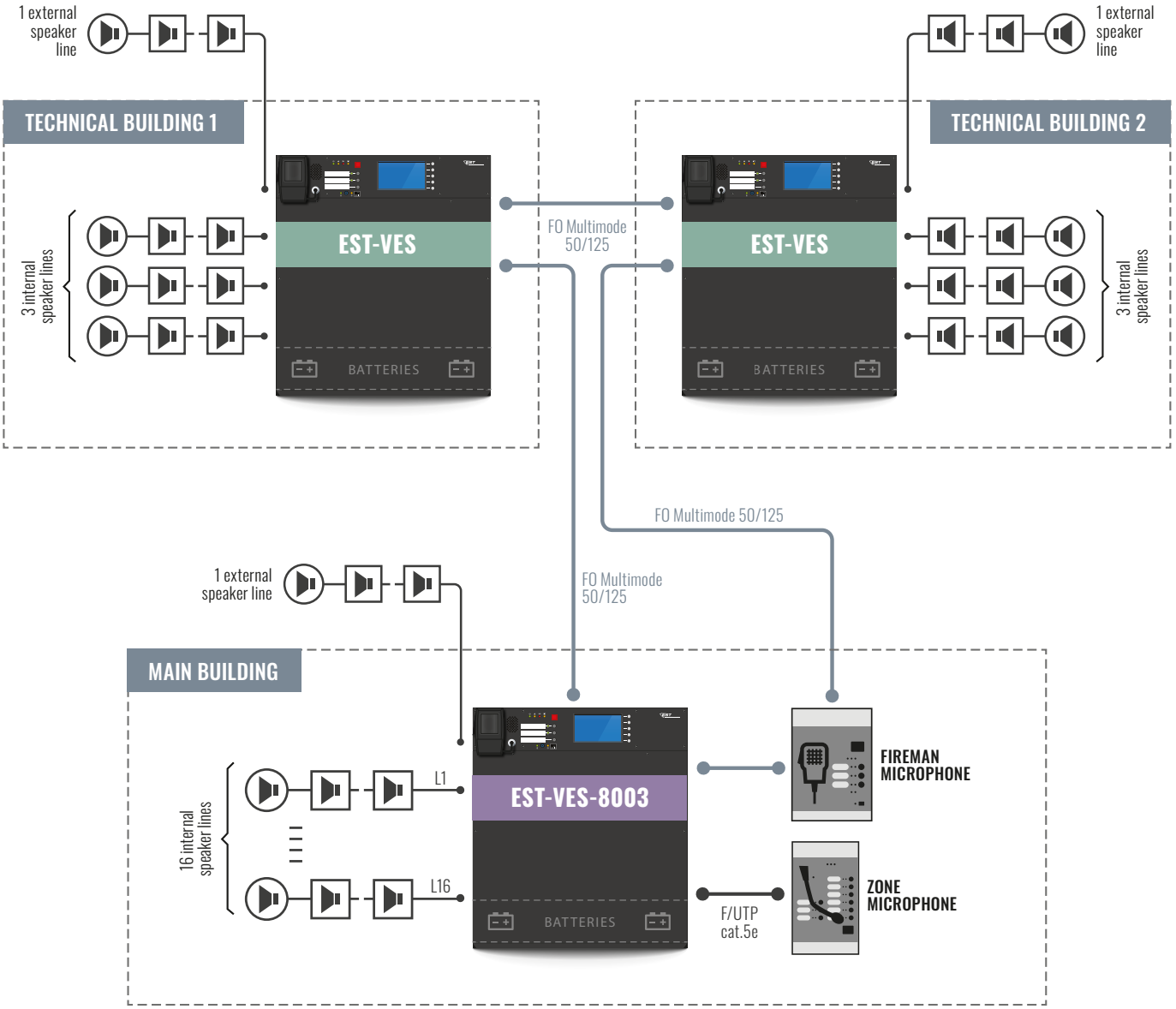
› It acts as the PA control panel allowing to select zones, switch on/off specific sound sources and regulate the sound volume;

› Ethernet protocols enable seamless communication between zone/fireman microphones and the control units via standard switches connecting mic cables to EST-VES control unit;

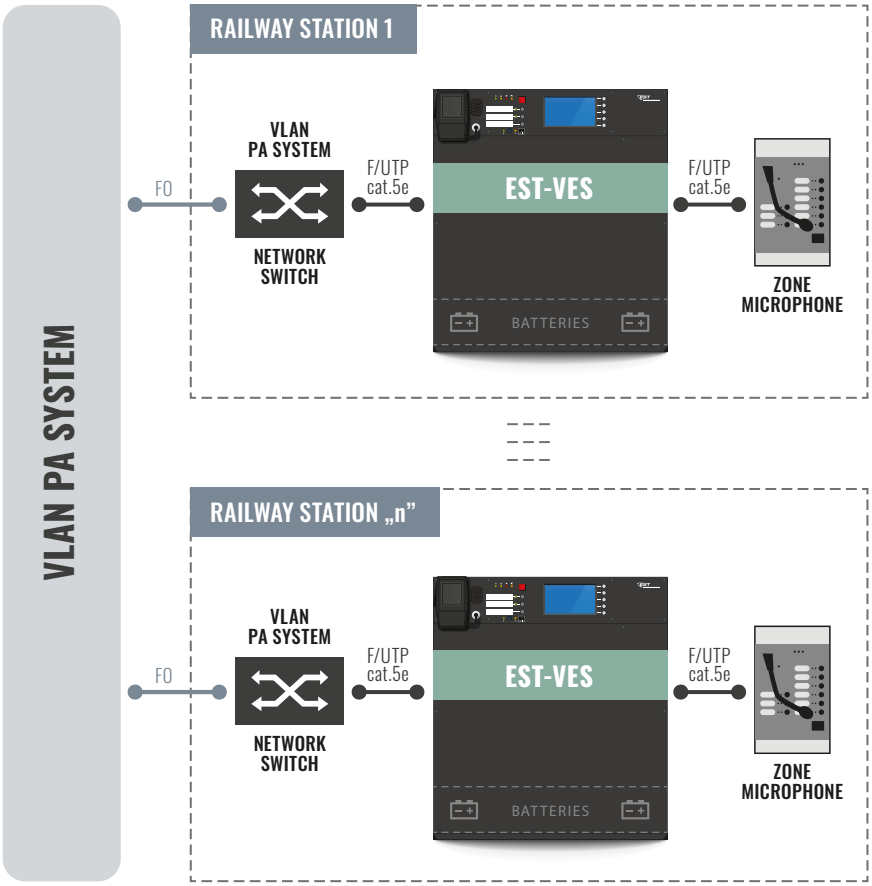
› In-built audio setup can be used to connect external sound sources to broadcast marketing announcements or to provide background music in the venue.

INDUSTRIAL FACILITY – networked Voice Evacuation System

- EST-VES and EST-VES-8003 control unit's network cards allow to join several industrial buildings into one integrated system.
- Use of fibre-optic loops between EST-VES and EST-VES-8003 central units guarantees that in the event of a single fault/damage, the system will continue to function properly.
- Microphones located in the main building enable broadcasting of live announcements and/or pre-recorded automatic messages to selected zones in all buildings.
- Fireman microphone can perform all key functions of a EST-VES and EST-VES-8003 control unit e.g. activate alarm messages or public announcements in selected or all zones and to broadcast live voice messages.
- Once the fire warning is triggered (automatically via the fire alarm system or manually using fireman microphones), the system starts broadcasting alarm messages recorded on each control unit. Loss of connectivity in one part of the networked system (including damage to messaging memory of one control unit) does not impact on the system's ability to broadcast warning messages – the devices work independently thus ensuring continuous alarm warning functions.
- Loudspeakers lines in open spaces are connected to central units via certified power surge protectors thus ensuring safety of devices during electric storms or lightning.



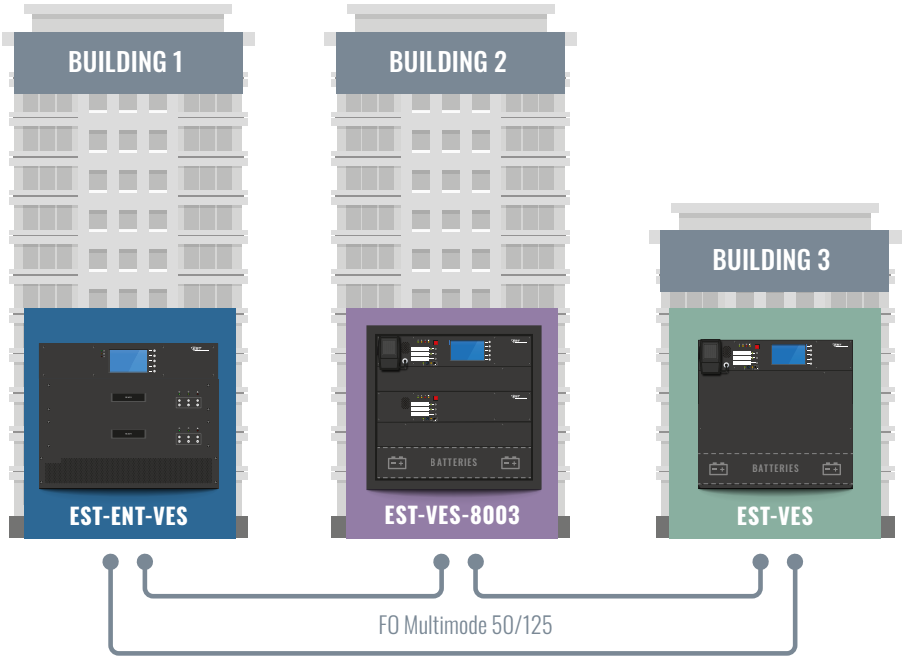
TRAIN / TUBE / BUS STATIONS – using Voice Evacuation System



- EST-VES control unit's network cards allow to join several stations into one integrated system via Ethernet and VLAN protocols.
- Zone microphones located at each station enable broadcasting of live announcements and/or pre-recorded automatic messages to selected zone(s) at the station as well as to all zones in the whole system. Information can be broadcasted by staff to all or selected platforms to advise passengers of changes in the timetable or to warn them of an emergency.
- In-built audio inputs in each central unit and microphones allow to connect external sound sources and to transmit information controlled by the external authority.
- In-built buffering function enables recording of lower priority information to be transmitted once the priority zones are freed up.

Expansion of existing EST-VES system – connection with EST-ENT-VES

- Connecting EST-VES and EST-VES-8003 system to EST-ENT-VES system, designed to work with medium and large structures, can provide full networking capabilities. A networked solution of EST-ENT-VES, EST-VES-8003 and EST-VES can be then installed at large train stations, airports and other complex structures while providing tangible cost efficiencies.



10.2021

EDWARDS

United Technologies

EST ENT VES

Public Address & Voice Evacuation System

- Flexible and scalable configuration
- Fully digitalised audio transmission
- Redundant communication between control units & fireman microphones
- Modular structure of control units
- Full integration with Fire Alarm Systems
- Remote management via Ethernet and WAN connectivity
- Intercom function between all fireman and zone microphones
- Unique dynamic allocation of spare amplifiers
- Advanced DSP functions

EN 54-16

EN 54-4

1488-CPR-0718/W

Flexible Fully Digital PA & VES

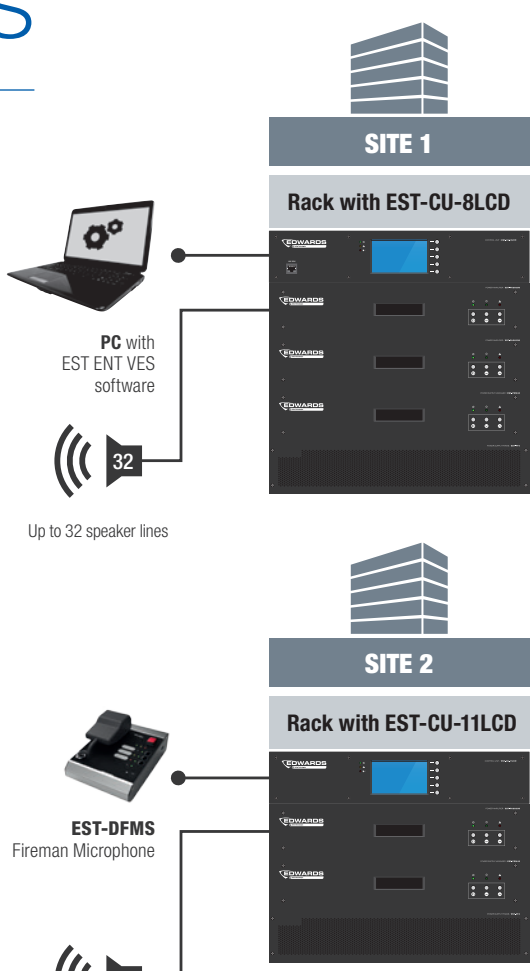
The EST ENT VES system has been designed to offer exceptional versatility and it is therefore equally suitable for medium-range buildings as well as complex commercial structures such as train stations, airports, refineries, sport stadiums, shopping malls etc. The system's architecture is based on proven fibre-optic Ethernet connectivity between control units and other elements of the system thus enabling digital transmission of voice messages, including public address functions and music.

Its modular structure allows tailoring the design to meet clients' specific requirements with regard to design and development.

The main role of EST ENT VES is to effectively warn the public of eminent danger thus allowing efficient evacuation. As the system works seamlessly with the Fire Alarm systems; its warning and informative functions can be either triggered automatically via the fire alarm system or manually using fireman microphones. The audible alarm system is designed to cover all areas of a building to reach its occupants in the event of an emergency.

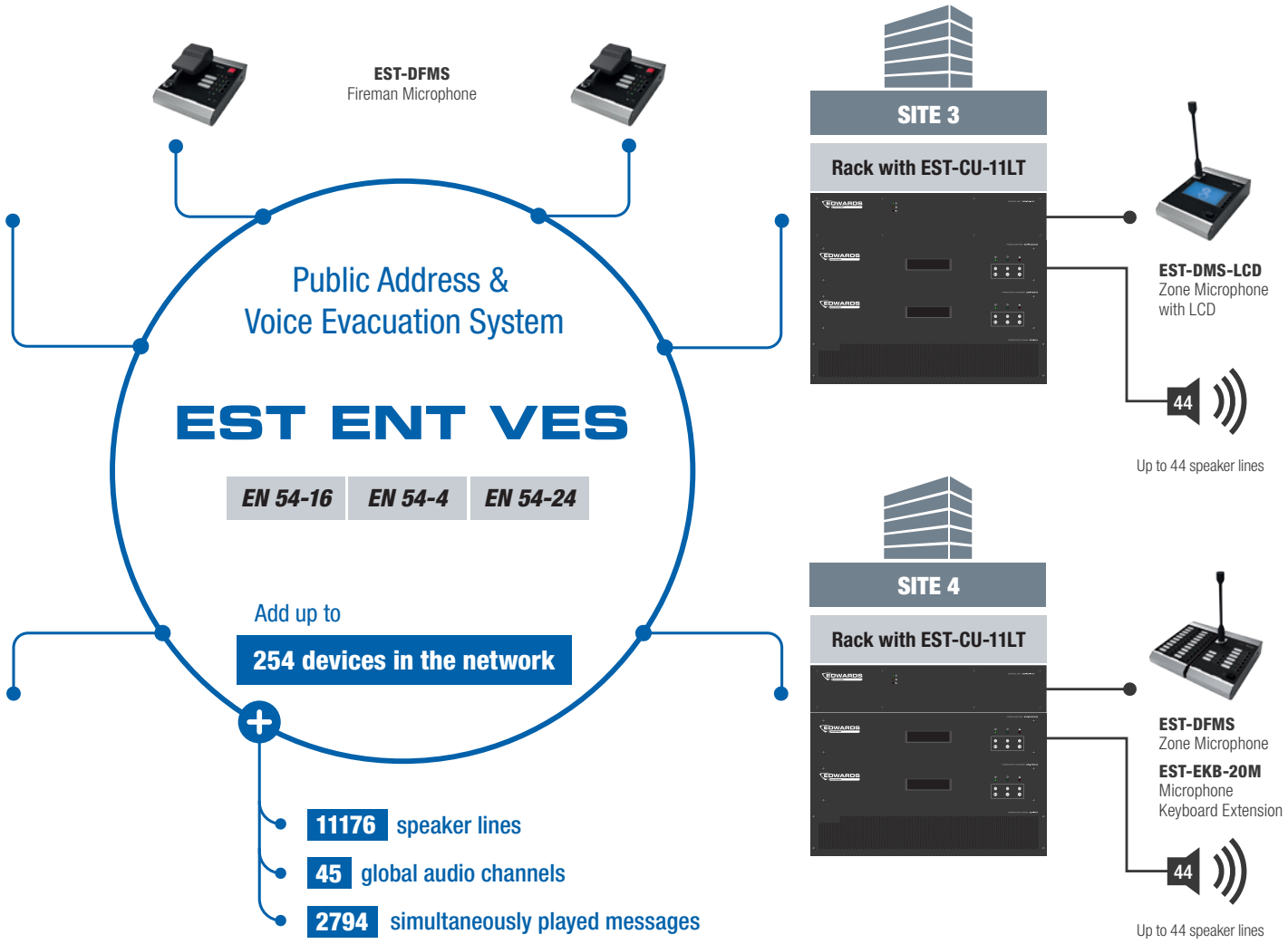
The system fully complies with a European mandatory standard EN-54-16 (Fire detection and fire alarm systems; Components for fire alarm voice alarm systems; Voice alarm control and indicating equipment), which is also recognised in numerous countries outside of the European Union (e.g. Latin America, several of African and Asian countries).

The EST ENT VES system comprises control devices, multi-channel amplifiers, fireman and zone microphones and 20-key extension keyboards. The system enables digital scaling of communications between all elements of the system and other integrated safety systems.



Main Parameters of the EST ENT VES System

- Compliance with EN 54-16, EN 60849
- 45 global audio channels
- Up to 254 units in the network
- Up to 32 GB SD flash memory card designated for playback and recording messages (48 kHz, 16 bit)
- Number of simultaneously played messages dependent on the number of xCtrLine-4 and xCtrLine-2 cards in the system
- Intercom function between all microphones
- External audio inputs in all control units and zone microphones
- Up to 12 secured amplifiers fully supported
- Cost-efficient solution allows for up to 4 messages to be played simultaneously thanks to 4 common 100 V audio buses in each control unit
- DSP with implemented 3 band parametric EQ on all inputs on control units, 8 band parametric EQ, delay lines, audio limiter and feedback eliminator on each of the audio outputs
- Complex control inputs/outputs, RS485 interface for integration with Fire Alarm systems and Building Management Systems (BMS)
- Wide choice of bridgeable Class D amplifiers (8x80W, 8x160W, 4x160W, 2x650W, 1x650W)



Elements of the Integrated EST ENT VES System

EST ENT VES devices

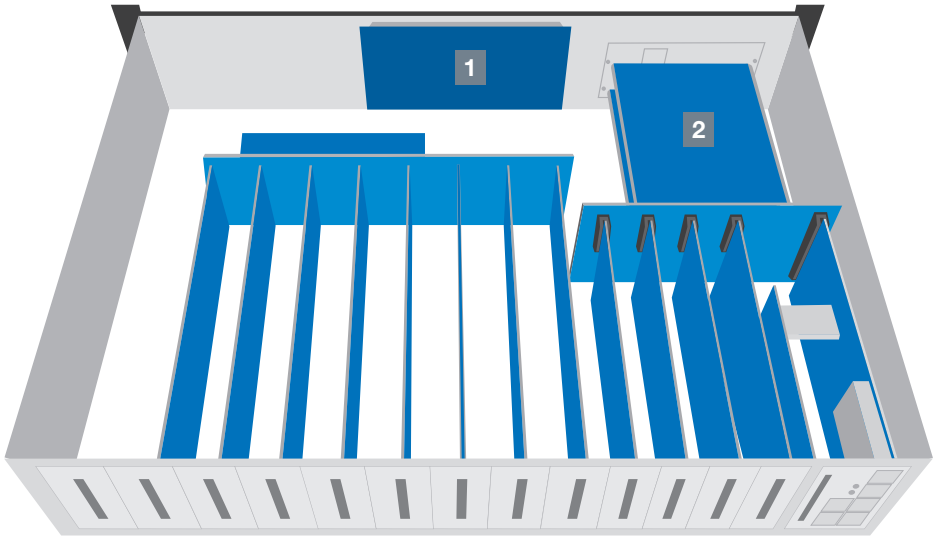
EST-CU-8LCD	stand-alone control unit with 8 control slots, 3 Audio-DSP extension (function) slots and touch screen GUI
EST-CU-11LT	control unit with 11 control slots
EST-CU-11LCD	control unit with 11 control slots and touch screen GUI
EST-DFMS	desktop fireman microphone station
EST-DMS-LCD	desktop zone microphone with touch screen
EST-DMS	desktop zone microphone station
EST-EKB-20M	20-key extension keyboard
EST-ISLE	interface communication moduleand audio signal splitter with RS485 for external systems

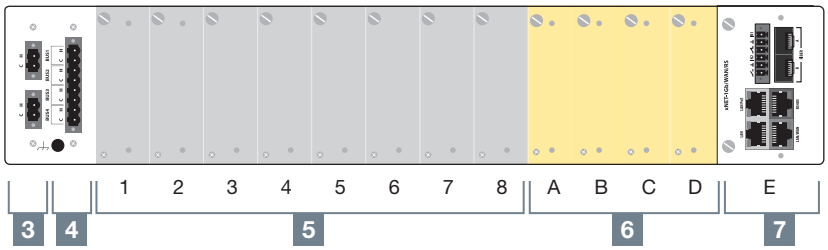
EST ENT VES exchangeable modules

EST-xNET-1Gb/WAN/RS	communication card
EST-xLogIN-8f	logical input card for function slot
EST-xLogIN-8c	logical input card for control slot
EST-xLogOUT-8f	logical output card for function slot
EST-xLogOUT-8c	logical output card for control slot
EST-xAudIO-4/8-RS	audio card 4 IN / 8 OUT AUDIO / RS485
EST-xAudI-8	audio card 8 IN AUDIO
EST-xCtrLine-2	2 loudspeaker line control card
EST-xCtrLine-4	4 loudspeaker line control card

Control Units

EN 54-16 | **EN 54-4** | **1488-CPR-0718/W**





EST ENT VES
Control Unit elements:

1. **GUI Card for EST-CU-8LCD**
2. **EST-xCPU card**
3. **Power Supply**
4. **100 V audio global BUS**
5. **1–8 slots** for loudspeaker line control cards and logical output and input cards
6. **A–D slots** for logical and audio output and input cards
7. **E slot** for communication card with SFP modules and copper RJ45 connectors

Flexible, multi-functional and modular Control Units (CU) are the key elements of the EST ENT VES system. They are central units managing all other elements of the system to enable flexible configuration of routes for audio signals received from various sources to any outlet. Global switching of audio routes is achieved via a programmable logic system as well as Ethernet 1G network (UDP/IP, TCP/IP). A CU is controlled by an EST-xCPU processor card which reproduces audio communications from SD cards to make them available locally and globally. The EST-xCPU card integrates Control Units with other elements of the EST ENT VES system and enables remote access to the configuration parameters of each element of the system. It also controls the whole network traffic and manages audio routing, digital matrix (8x8) as well as all DSP functions.

The main characteristics of the EST ENT VES system are its versatility and interchangeability of three types of the CUs that function in a redundant communication ring i.e. EST-CU-8LCD, EST-CU-11LT and EST-CU-11LCD. Each CU is equipped with unique features, which allow the EST ENT VES system toeffectively warn the public of eminent danger thus fulfilling its Voice Evacuation purpose; as well as provide non-emergency and Public Address functions. The modular design of the CU and its flexibility enable optimisation of equipment and cost efficiencies regardless of size, number of structures and buildings, their location and connectivity. The CUs can be used to perform either major functions of the system controls or form a minor element of a local character.

Furthermore, fireman microphone panels can be used to manage the functions of the system normally controlled by central units. The system's flexibility and scalability help achieve the cost efficiency and functional optimisation of the projects notwithstanding the complexity of the design.

EST-CU-11LT / EST-CU-11LCD Control Units

EST-CU-11LT Control Unit (CU) is a matrix mixer of input signals which it routes to 4 100 V internal audio buses, a 45-channel digital system buses or directly to audio outputs in a unit. EST-CU-11LT is designed to work for small PA & VE systems or as an extension unit in more complex systems. It means that the CU can function independently as the central unit of a small system or be part of a large complex system for which it represents another level of either territorial extension (operation in a remote structure) or functional extension (operation of further fire zones and loudspeaker lines in such a structure). The modular design of the CU and its flexibility enables optimisation of equipment and cost efficiency regardless of size / number of structures, their location and connectivity.

In the event of losing connectivity with a networked master unit, EST-CU-11LT is able to perform fire alarm scenarios independently thanks to the configuration recorded locally. While attached to the main communication ring of the system, EST-CU-11LT can control amplifiers and power supply managers as well as receive alarm and digital signals; and send them to other system devices.

EST-CU-11LT Control Unit distributes audio signals to individual zones and ensures that individual zones function properly. It also controls the condition of loudspeaker lines and amplifiers. If a fault is detected, it sends the signal to the system and automatically switches to a backup amplifier. The CU is equipped with an EST-cAudIO-4/12 card offering 4 symmetrical line audio inputs and 12 symmetrical outputs to lead audio signals out to external devices or amplifiers of the EST ENT VES system.
Furthermore, EST-CU-11LT can be equipped with an LCD touch screen with a control module, which allows easy access to management functions and monitoring of the whole system – such extended configuration is included in EST-CU-11LCD Control Unit.

Characteristics

- Compliance with EN 54-16
- Network-based system allowing configuration, diagnostics and management via Ethernet
- Managing up to 254 devices on the network
- 11 slots available for any configuration of loudspeaker control cards and control input / output cards
- Built-in audio card with 4 inputs and 12 audio outputs
- Up to 12 messages played simultaneously in different zones
- Up to 32GB SD flash memory designated for playback and recording messages (48 kHz, 16 bit)
- 1x POE port
- Support of up to 12 secured amplifiers
- Built-in 2 control inputs and outputs
- 2x 1 GB ports available for system extension
- Integrated DSP with implemented 3 band parametric EQ on all inputs on control units, 8 band parametric EQ , delay lines, audio limiter and feedback eliminator on each of the audio outputs
- Comprehensive solution based on RS485 functionality enabling seamless integration of the EST ENT VES system with 3rd party systems thanks to implementation of standard and proprietary communication interfaces

EST-CU-8LCD Control Unit

EST-CU-8LCD Control Unit (CU) is a matrix mixer of input signals which it routes to 4 100 V internal audio buses, a 45-channel digital system buses or directly to audio outputs in a unit.

In basic factory configuration EST-CU-8LCD is a stand-alone system which enables only connections with DFMS and zone micro-phones. For networking with other CU optional xNET card is needed.

The CU is equipped with 1x EST-xCtrLine-4 card in slot 1, 1x AudIO-4/8-RS card in slot A and 1x LogIN-8f card in slot B. Slot C and D can extend control unit audio dsp abilities up to 24 audio outputs / 12 audio inputs. Slots from 2 to 7 are free for any cards assignment (EST-xCtrLine-2/4 and EST-xLogIN/OUT).

Furthermore, EST-CU-8LCD is equipped with an LCD touch screen with a control module, which allows easy access to management functions and monitoring of the whole system.

Characteristics

- Network-based system allowing configuration, diagnostics and management via Ethernet
- Managing up to 254 devices on the network
- 7 slots available for any configuration of loudspeaker control cards, control input and output cards
- Additional 2 slots designated for audio input/output cards and control input/output cards
- Up to 8 messages played simultaneously in different zones
- Up to 32GB SD flash memory designated for playback and recording messages (48 kHz, 16 bit)
- Support of up to 12 secured amplifiers
- Optional equipment: EST-xNET-1Gb/WAN/RS for optical fiber redundant connection
- Integrated DSP with implemented 3 band parametric EQ on all inputs on control units, 8 band parametric EQ , delay lines, audio limiter and feedback eliminator on each of the audio outputs
- Comprehensive solution based on RS485 functionality enabling seamless integration of the EST ENT VES system with 3rd party systems thanks to implementation of standard and proprietary communication interfaces

Microphones

EN 54-16

EST-DFMS
Fireman Microphone

A EST ENT VES fireman microphone is a monitored external device working with Control Units in a redundant communication ring. It can thereby perform a superior function of a system control unit, too. A fireman microphone can be used to activate alarm messages as well as general public announcements, to choose individual zones and to broadcast live voice messages. It is equipped with programmable function keys which can be used to assign functions as required. Up to 5 EST-EKB-20M keyboard extensions with additional function keys can be attached to a fireman microphone.
A CPU switch enables immediate and direct broadcasting of announcements to all zones without any involvement of the control system even during a failure of the central processor. The microphone is able to automatically detect a key failure and an audio path from the microphone capsule (inclusive) to the Control Unit.
A fireman microphone is also equipped with an intercom function and is able to communicate with other microphones in the system.

Characteristics

- **Monitored microphone and connection of the microphone module to the system**
- **A dedicated evacuation key**
- **3 fully-programmable keys with a possibility of connecting up to five 20-key extensions**
- **Built-in 2 contact inputs and 2 relay outputs**
- **POE or external feeder based power supply**
- **Black-box function – recording all announcements played during an alarm**
- **Built-in SFP modules and CAT5e for simplicity of implementation of the loop topology**
- **RS485 for communication with external systems**
- **Intercom function between all fireman and zone microphones**

EST-DMS-LCD
Zone Microphone with LCD

This microphone performs the same role as an EST-DMS zone microphone. In order to facilitate its operation and to make it more intuitive, the microphone is equipped with an LCD touch screen.

Characteristics

- **4.5” LCD touch screen for fast and clear matricing and system management**
- **Ability to select zones and messages to be played (pre-recorded or ‘live’) and other audio input**
- **Monitored connection of the unit to the system**
- **5 fully-programmable keys with a possibility of connecting up to five 20-key extensions**
- **4 non-symmetrical audio inputs, (1/8”) stereo jack connector**
- **Built-in speaker**
- **Stereo jack sockets for a headset**
- **Implemented intercom function**
- **Power supply via POE**

EST-EKB-20M
Microphone Keyboard Extension

Each extension attached to a fireman microphone or a zone microphone offers additional 20 function keys which can be programmed as required.

EST-DMS
Zone Microphone

This zone microphone is used to activate general public announcements, to choose individual zones and to broadcast live voice messages. It can be connected directly to a selected Control Unit or via an additional Ethernet switch. A zone microphone can be powered locally (48 V) or from a Control Unit via POE.
It is equipped with programmable function keys which can be used to assign functions as required. All operational parameters can be programmed e.g. assignment of zones to various keys, naming of zones and zone groups, determining priorities, setting up access rights to announcements, volume controls, ‘push to talk’ key, music on/off and music routing. Furthermore, LEDs on the EST-DMS provide information about existing fault on the system, any faults in a specific speaker zone, evacuation mode on and type of announcement in the zone (BGM, PA, EVAC, Warning, fireman microphone). Up to 5 EST-EKB-20M keyboard extensions with additional function keys can be attached to a zone microphone.
Similarly to a fireman microphone, it is also equipped with an intercom function and is able to communicate with other microphones in the system.

Characteristics

- **Monitored connection of the unit to the system**
- **9 fully-programmable keys with a possibility of connecting up to five 20-key extensions**
- **4 non-symmetrical audio inputs, (1/8”) stereo jack connector**
- **Built-in speaker**
- **Stereo jack sockets for a headset**
- **Implemented intercom function**
- **Power supply via POE**

Power Amplifiers

EN 54-16

EST-PA8080B / EST-PA4160B / EST-PA8160B / EST-PA1650B / EST-PA2650B

The Amplifiers are designed for perfect integration into the EDWARDS solutions. Thanks to their flexibility, they can also be used for any other Public Address and Voice Evacuation applications. These amplifiers have been developed to meet the specific requirements of the EN 54-16 standard for safety installations.

The EST-PAXXXXB is a family of 2U, rack mountable, 8-channel (EST-PA8080B, EST-PA8160B), 4-channel (EST-PA4160B), 2 channel (high power EST-PA2650B) and 1 channel (EST-PA1650B) class-D transformer isolated power amplifiers for 50 V and 100 V distributed loudspeaker systems. Amplifier EST-PA8080B can deliver up to 8x 80 W, for EST-PA8160B and EST-2650B delivering power increases respectively to the 8x 160 W and 2x 650 W. In a bridged mode amplifier channels are combined and can deliver 4x 160 W for EST-PA8080B, 4x 320 W for EST-PA8160B and 1x 1300 W for EST-PA2650B. These amplifiers have 48 VDC input which allows to connect with battery backup system for maximum availability and durability in an voice evacuation system.

The EST-PAXXXXB amplifiers are powered from external power supply module EST-PS48800 working in a block. The current from block is distributed to individual amplifiers through the “power manager” EST-PSM48 (device includes a battery charger and is in compliance with EN 54-4).

Characteristics

- **Front panel indicators include:**
  - Supply / Active / Fault
- **100 / 50 Volt available via terminal blocks at the rear**
- **Output channels can be linked into:**
  - EST-PA8080B, EST-PA4160B, EST-PA8160B: 4x 160 W, 2x 320 W or 4x 320 W by daisy-chaining 50 V apping (input on parallel)
  - EST-PA2650B: 1x 1300 W by daisy-chaining 50 V tapping (input on parallel)
- **EST-PAXXXXB series combines with the EST-PSM48 Power Supply Manager (charger and back-up supply)**

EST-PA8080B / 8x 80 Watt class-D power amplifier
Can be bridge into: 1x 160 W + 6x 80 W; 2x 160 W + 4x 80 W; 3x 160 W + 2x 80 W or 4x 160 W

EST-PA4160B / 4x 160 Watt class-D power amplifier
Can be bridge into: 1x 320 W + 2x 160 W or 2x 320 W

EST-PAXXXXB casings: are 2U high, 19-inch rack mountable.

EST-PA8160B / 8 x 160 Watt class-D power amplifier
Can be bridge into: 1x 320 W + 6x 160 W; 2x 320 W + 4x 160 W; 3x 320 W + 2x 160 W or 4x 320 W

EST-PA1650B / 1x 650 Watt class-D power amplifier

EST-PA2650B / 2x 650 Watt class-D power amplifier
Can be bridge into: 1x 1300 W

	EST-PA8080B	EST-PA4160B	EST-PA8160B	EST-PA1650B	EST-PA2650B
Power supply					
Nominal DC input voltage			48 V		
DC input voltage range			42 – 57 V		
DC fuse rating (internal)	6 x 7,5 AF-H	2 x 15 AF- H 2 x 7,5 AF-H	4 x 15 AF-H 2 x 7,5 AF-H	1 x 15 AF- H 2 x 7,5 AF-H	2 x 15 AF- H 2 x 7,5 AF-H
Overall power efficiency nominal DC input max output power at 1 kHz			80%		
Power consumption (48 V DC)					
Standby	0,2 A	0,18 A	0,2 A	0,15 A	0,15 A
Active	0,7 A	0,43 A	0,7 A	0,23 A	0,33 A
Max. nominal current	20 A	19 A	38 A	19 A	38 A
Amplifier					
Continuous nominal output power per channel, all channels driven into nominal load at 1 kHz 30°C ambient	80 W 125 Ω / 100 nF	160 W 62 Ω / 200 nF	160 W 62 Ω / 200 nF	650 W 15,4 Ω / 200 nF	650 W 15,4 Ω / 200 nF
Continuous nominal output power per channel, all channels driven into nominal load at 1 kHz 55°C ambient			TBA		
Nominal balanced input level for 100 V output at 1 kHz and nominal load			1 V		
Max balanced input level			3 V		
Input impedance at 1 kHz			22 kΩ		
Input common mode rejection at <1 kHz			>61 dB		
Frequency response (-6 dB)	75 Hz – 20 kHz 125 Ω / 100 nF	75 Hz – 20 kHz 62 Ω / 200 nF	75 Hz – 20 kHz 62 Ω / 200 nF	75 Hz – 22 kHz 15,4 Ω / 200 nF	75 Hz – 22 kHz 15,4 Ω / 200 nF
S/N ref nominal power at 1 kHz 22 Hz – 22 kHz	>85 dB 125 Ω / 100 nF	>85 dB 62 Ω / 200 nF	>85 dB 62 Ω / 200 nF	>85 dB 15,4 Ω / 200 nF	>85 dB 15,4 Ω / 200 nF
THD power 1 kHz (42 V – 57 V)			<10%		
Crosstalk between channel 50 Hz–20 kHz nominal load dB	< -70 dB 125 Ω / 100 nF	< -70 dB 62 Ω / 200 nF	< -70 dB 62 Ω / 200 nF	< -70 dB 15,4 Ω / 200 nF	< -70 dB 15,4 Ω / 200 nF
Connectivity					
DC input socket			DG58C-A-2P13		
Audio output socket			3 pin PHOENIX 5.08 mm		
Nominal output voltage taps V			50 / 100		
Mechanical					
Front panel width			482 mm		
Back panel width			445 mm		
Height			88.5 mm		
Net Weight	15 kg	13 kg	18,6 kg	10,8 kg	15 kg
Gross weight (including packaging)	16,2 kg	14,2 kg	19,8 kg	12 kg	16,2 kg
Packaging dimensions			150 x 530 x 610 mm		

Power Supply Equipment

EST-PSM48 Power Supply Manager **/ EST-PS48800** Power Supply Unit **/ EST-PF4** Power Frame

EST-PSM48 Power Supply Manager is designed for distribution of DC Power Supply from Power Supply Units (PSU) and a back-up battery. The unit controls battery charging and distributes power supply to all Voice Evacuation System (VES) equipment at max 60 A. When the system uses battery back-up, the power supplied is 3.2 kW (48 V).

The unit complies with the EN 54-4 VES standards and also EN 12101-10 Smoke and Heat Control System standards.

As a main source of energy distribution, the manager uses external modules 800 W (EST-PS48800) for 48 V.

As a source of stand-by power supply it uses the battery bank of the capacity of up to 200 Ah.

EST-PSM48 cooperates with the 4x 12 V VRLA battery bank. It maintains the bank in charged condition, ensures temperature compensation of charging parameters and monitors serial resistance of the battery and its wiring as specified in Exhibit No. A2 to the EN 54-4 Standard.

EST-PSM48 co-operates with up to 4 modules of EST-PS4880 Power Supply Units. The manager ensures safe connection for the purpose of parallel operations and monitors the output parameters of each power supply unit.

EST-PS48800 is designed for assembling in a dedicated EST-PF4 Power Supply Unit Frame. The elements of the system are designed for assembling in a Rack 19" IP30-type.

EN 54-4

EN 12101-10

	EST-PSM48
Maximum configuration	1x EST-PSM48 – Power Supply Manager 4x EST-PS4880 – Power Supply Unit 1x EST-PF4 – Power Supply Units Frame
AC power supply	230 VAC + 10%-15%; 50/60 Hz
Max nominal power consumption	885 W / 3.85 A
Efficiency at rated power	> 90%
DC input	4; bolted terminals; dedicated power supply unit EST-PS48800
DC input protection	4 x 20 A 58 V DC
DC outputs	8 x 48 V, each output max 30 A (total for all 8 outs max. 63 A)
Summary maximum DC output load (24 V and 52 V)	3200 W
Battery (type)	4 pieces, VRLA 12 V 15-200 Ah
Charging current	max. 14 A
Charging voltage	54,6 V ± 0,6 V (at 25°C)
Maximum resistance of wiring and fuses	10 mΩ
Maximum total serial resistance of wiring, fuses, and batteries	28 – 100 mΩ
Operating temperature	-5°C up +40°C
Dimensions	482 (W) x 85 (H) x 443 (D)
Weight	7,2 kg
	EST-PS48800
AC power supply	230 VAC +10% -15%, 50/60Hz, 3.85 A Wire with IEC 60320 C13 3x0,75 mm^2 coupling (supplied with the unit)
Maximum power consumption	885 W / 3.85 A
Efficiency at rated power	> 90%
AC input protection	T6.3 A/250 V 5x20 mm slow-blow fuse (accessed when the casing is open)
Protection from electric shock	Class I (EN 60065)
DC output	52 VDC; max. 15.4 A
Dimensions	85 (W) x 95 (H) x 395 (D)
Weight	2,6 kg

Exchangeable modules

EN 54-16

CPU card
EST-xCPU

The card integrates EST-CU8 and EST-CU-8LCD Control Units with other elements of the EST ENT VES system. CPU controls the whole network traffic and manages audio routing, digital matrix (8x8) as well as all DSP functions. EST-xCPU enables remote access to the configuration parameters of each element of the system.

4 audio input / 8 audio output card
EST-xAudIO-4/8-RS

This audio input/output card is designed for a function slot of EST-CU-8/LCD Control Unit. It offers 4 line audio inputs (via an RJ45 connector) and 8 symmetrical outputs to lead audio signals out via RJ45 connectors to external devices or amplifiers of the EST ENT VES system. The card is also equipped with an RS485 interface through which the EST ENT VES system can be controlled or integrated with devices offered by other producers

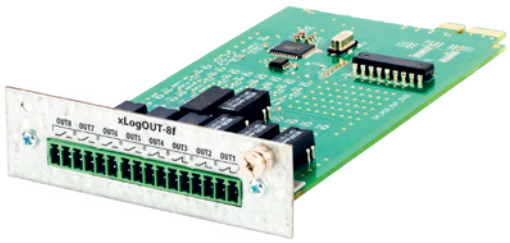
8-audio input extension card
EST-xAudI-8

This audio input extension card is designed for a function slot in EST-CU-8/LCD Control Unit. It offers 8 symmetrical line audio inputs via a Phoenix-type connector.

Comunication card
EST-xNET-1Gb/WAN/RS

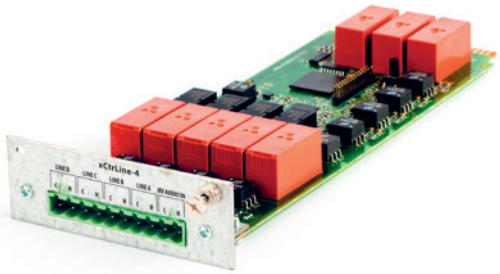
EST-xNET is a communication card, which offers two independent 1 GB network switches; switch no 1 is designed solely for data transmission in connection with the base functionality of the EST ENT VES system i.e. operations of the emergency sound system and AVB whereas switch no 2 is used for remote connections. This card operates under TCP/UDP/PTP/DHCP protocols and assures CPU-OFF based audio data exchange by means of a protocol developed by EDWARDS. Furthermore, the card has an RS485 port enabling seamless integration of the EST ENT VES system with any other systems (e.g. FAS) by means of exchangeable libraries with protocol descriptions. The card also includes POE splitter functionality to provide power to fireman microphones among others.

Logical output card for function/control slots
EST-xLogOUT-8f / EST-xLogOUT-8c



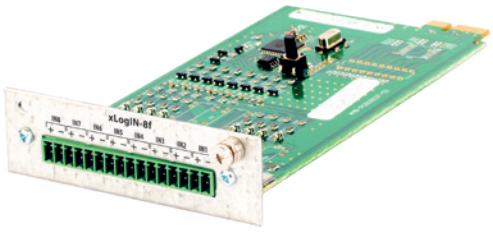
The logical output card has 8 relays i.e. 4 x normally-closed (NC) and 4 x normally-open (NO). All of them are fully programmable in terms of NC/NO functioning as well as function correlation.

4 loudspeaker line control card
EST-xCtrLine-4



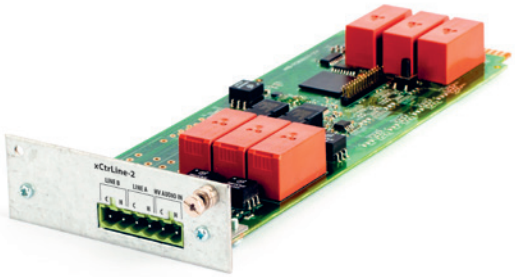
This card is designed for a control slot in every Control Unit; it offers 4 independent loudspeaker line outlets. Lines can be measured either by the impedance or loop methods. The card detects failure of the amplifier and switches the 100 V signal between internal buses and individual amplifier input on the card. Thanks to a built-in measuring component, EST-xCtrLine-4 card monitors the status of the internal rail.

Logical input card for function/control slots
EST-xLogIN-8f / EST-xLogIN-8c



The logical input card has 8 independently-programmable control inputs which may receive signals from other systems in order to trigger a desired reaction of the EST ENT VES system. Inputs of an EST-xLogIN-8f card offer two modes of work i.e. a non-potential mode (short-circuited / open-circuited) and a voltage mode where the card enables monitoring of short-circuiting and open-circuiting of cables connected to inputs.

2 loudspeaker line control card
EST-xCtrLine-2



This card is designed for a control slot in every Control Unit; it offers 2 independent loudspeaker line outlets (A and B). Lines can be measured either by the impedance or loop methods. The card detects failure of the amplifier and switches the 100 V signal between internal buses and individual amplifier input on the card.

EST-ISLE

The EST-ISLE is both a communication module enabling integration with external systems via RS485 protocol, and an audio signal splitter.

Address settings – Number of addresses in the range of 0-F (16 addresses).

Local AUDIOIN – 4 input channels on the 8 pin connector. For easier and faster connection of audio sources, Phoenix-type connectors can be used. LOCAL AUDIO IN jack (8 pin connector Phoenix) is bridged with LOCAL AUDIO OUT (RJ-45).

Output amplifiers – RJ-45 connector for the 4-channel amplifier. // Local AUDIOOUT – RJ-45 connector for input signals to the system // PSM – RJ-45 connector for the link with power manager.

EST ENT VES system configuration

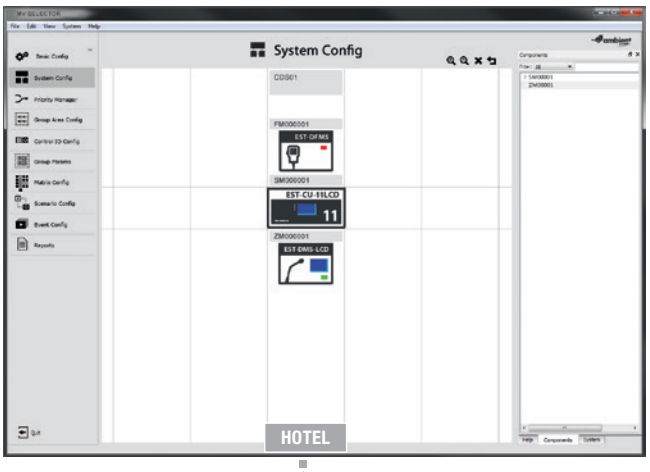
software / system examples

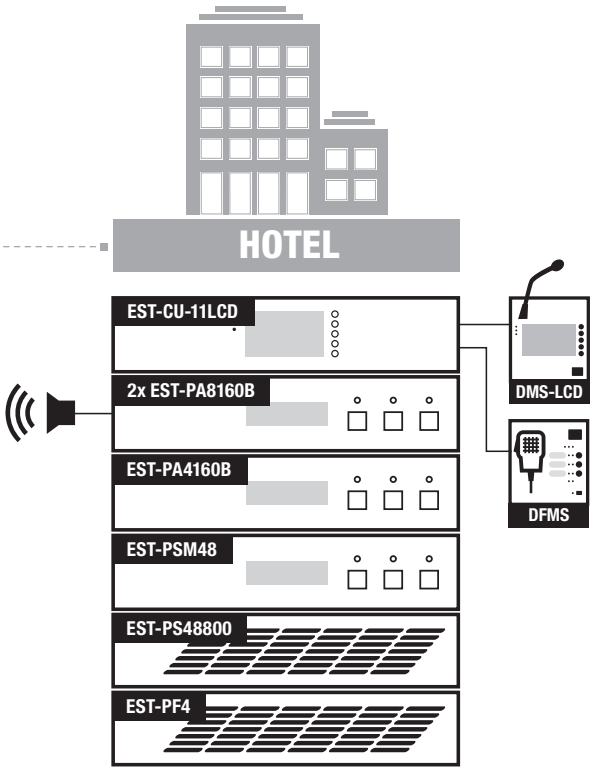
EST ENT VES SELECTOR

EST ENT VES SELECTOR is an essential tool for the EST ENT VES system configuration via PC (Windows). EST SELECTOR allows to select and match Public Address & Voice Evacuation EST ENT VES Systems with a large number of similar or different devices to be configured and managed centrally from a single user interface.

EST SELECTOR supports all IP-based EST ENT VES devices offering control and configuration of control units (EST-CU-8LCD, EST-CU-11LT, EST-CU-11LCD) and microphones (EST-DFMS Fireman Microphone, EST-DMS-LCD Zone Microphone with Lcd, EST-DMS Zone Microphone).

EXAMPLE 1 / Hotel





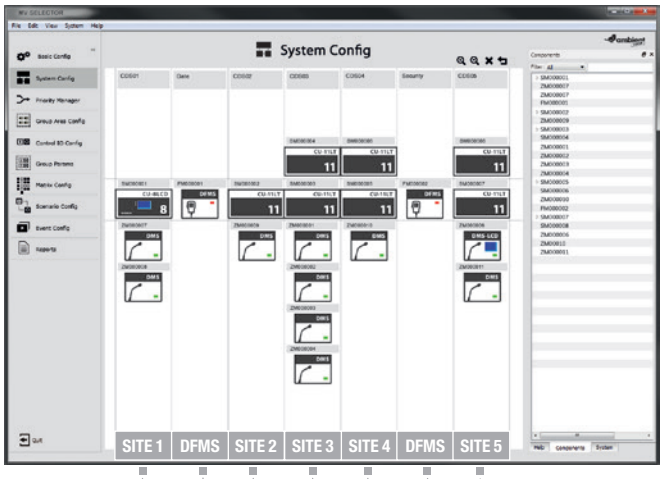
Example of a small EST ENT VES system configuration:

- 1 building / Hotel
- 32 x loudspeaker lines (16 AB)
- 8 x audio channels

with dedicated devices:

- EST-CU-11LCD (8x EST-xCtrLine-4)
- 2x 4 channels x 320 W (2x EST-PA8160B) amplifier
- 1x 2 channels x 320 W (1x EST-PA4160B) backup amplifier
- Power Supply Equipment
- 1x EST-DFMS fireman microphone
- 1x EST-DMS-LCD zone microphone with LCD

EXAMPLE 2 / Oil Refinery

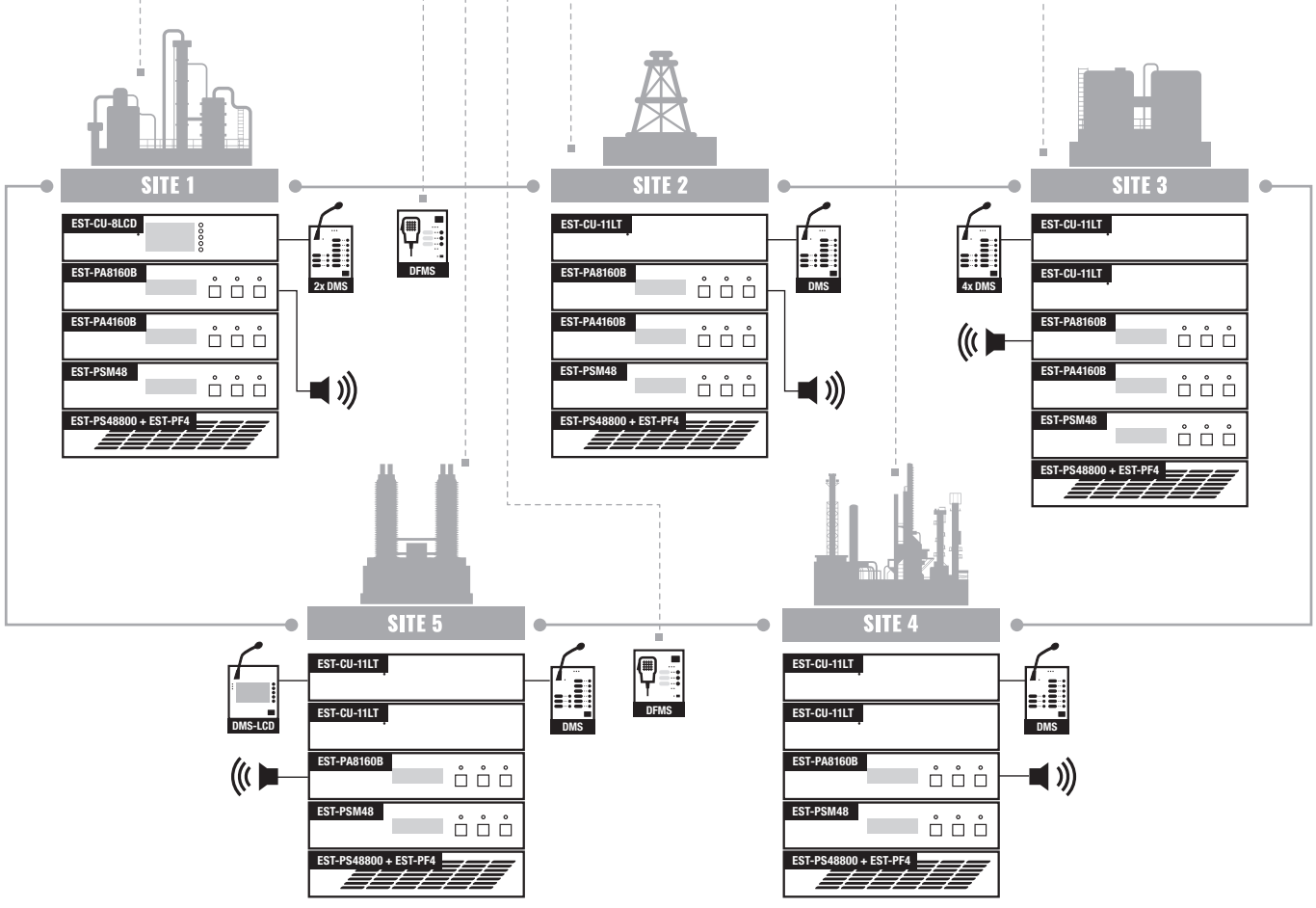


Example of a large EST ENT VES system configuration:

- 5 buildings (Oil Refinery)
- 292 x loudspeaker lines (146 AB)
- 28 x audio channels

with dedicated devices:

- 1x EST-CU-8LCD Control Unit (8x EST-xCtrLine-4)
- 7x EST-CU-11LT Control Unit (8x EST-xCtrLine-4)
- 5 x 4 channels x 320 W (5x EST-PA8160B amplifiers)
- 4 x 2 channels x 320 W (4x EST-PA4160B backup amplifiers)
- Power Supply Equipment
- 2x EST-DFMS fireman microphone
- 1x EST-DMS-LCD zone microphone with LCD
- 9x EST-DMS zone microphone



rev. 06.2019

EDWARDS
United Technologies

Fire Alarm Loudspeakers

- Wall-mounted Loudspeakers EST-W6
- Ceiling-mounted Loudspeakers EST-S136
- Ceiling-mounted Loudspeakers EST-S206B/S206BC
- Ceiling-mounted Loudspeakers EST-S186
- Horn-type Loudspeakers EST-T1510
- Line Array Loudspeakers Columns ABT-LA30 / ABT-LA60
- Ceiling-mounted Loudspeakers ABT-S276/AB / ABT-S106 / ABT-S2010, ABT-S2710
- Sound Projectors MCR-SMSP20
- Horn-type Loudspeakers ABT-T2215 / ABT-T2430
- High Power Loudspeaker ABT-HP240EN / ABT-HP120EN

EN 54-24

EST-W6

EN 54-24

Wall-mounted Loudspeakers

- Compliance with EN 54-24
- Certificates of Conformity issued by CNBOP: 1438-CPR-0675 and DC-UAE-0135
- Compliance with BS5839-8 standard (Thermal protection)

The EST-W6 is an elegant multi-function loudspeaker designed to guarantee the highest acoustic parameters. Its solid casing offers an effective protection against acts of vandalism. The loudspeaker can be mounted either on a wall or on a ceiling. Additionally, the EST-W6 can be fixed as an recessed speaker and therefore it is an ideal solution for rooms where aesthetic factors play a significant role.

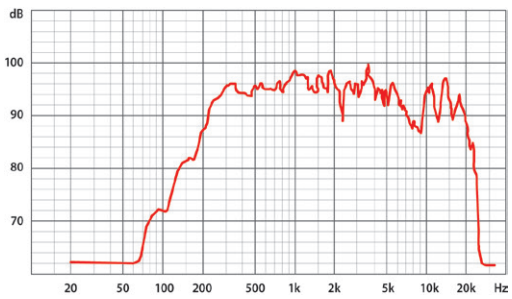
The loudspeaker offers adjustable power regulation through connectivity to applicable transformer tappings thus allowing suitable acoustic pressure (the level of sound) within areas of sound emission adequately to the acoustic conditions existing in those areas.

Characteristics

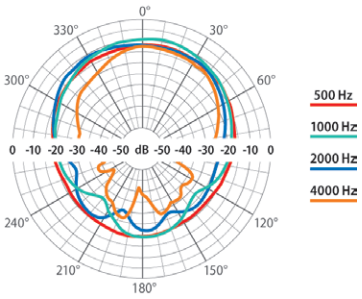
- Easy and quick to mount
- Modern and elegant design
- High quality sound of both speech and music
- Ideal for on-wall or in-wall mounting

	EST-W6
Electrical	
Rated power, W	6
Tappings 100 V line according to EN 54-24, W	6 / 3 / 1,5 / 0,75
Tappings 70 V line, W	3 / 1,5 / 0,75 / 0,37
Transformer impedance, Ω	1667 / 3333 / 6667 / 13333
Driver impedance, Ω	8
Effective frequency range, Hz	120–20 000
Sensitivity @ 4 m, 1 W, dB	79
SPL @ 4 m, Rated power, dB	85
SPL @ 1 m, 1 W, dB, Test signal bandwith 300 Hz–6 kHz	94
SPL @ 1 m, Rated power, dB, Test signal bandwith 300 Hz–6 kHz	101
Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]	180 / 180 / 163 / 80
Environmental	
Environmental type / IP Rating according to EN 54-24	A / IP21C
IP Rating	32
Min/Max Amb Temp	-10°C / 55°C
Mechanical	
Dimensions, mm	260 × 180 × 80
Net Weight, kg	1,75
Colour	White (RAL 9003) / Black (RAL 9011)
Material	Steel
Mounting	Screw
Option	
For DC line monitoring	Capacitor (EST-W6C)
Colour optional	RAL Palette

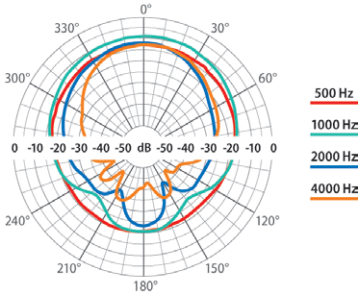
Frequency band:

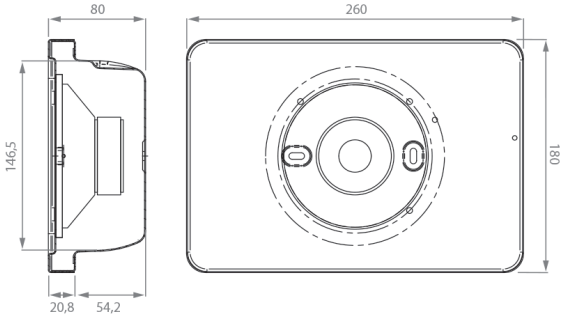


Circular chart of directional characteristic – horizontal:



Circular chart of directional characteristic – vertical:

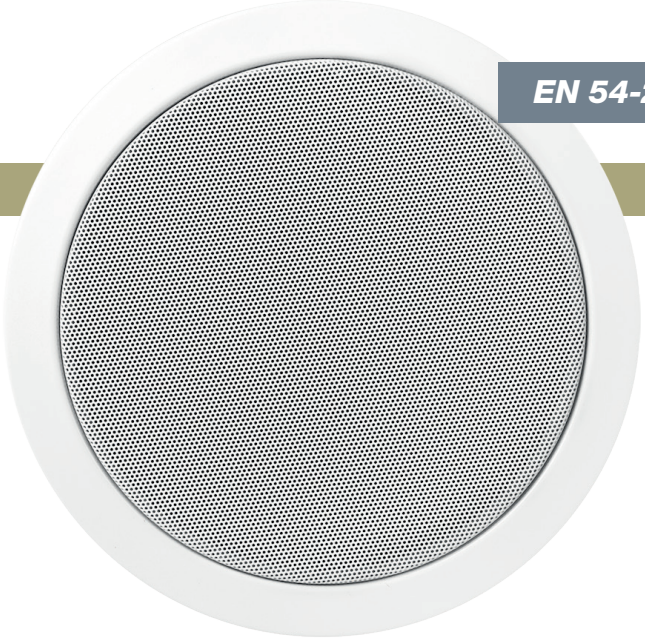




EST-S136

EN 54-24

Ceiling-mounted Loudspeakers



- Compliance with EN 54-24
- Certificates of Conformity issued by CNBOP: 1438-CPR-0678 and DC-UAE-0138
- Compliance with BS5839-8 standard (Thermal protection)

Ceiling-mounted fire alarm loudspeakers EST-S136 are designed for applications which require the minimum size at the maximum sound quality. Their parameters have been carefully selected to match the operating requirements in the rooms exposed to after-sound and high-humidity.

Thanks to the most advanced technologies the EST-S series loudspeakers combine excellent acoustic parameters and high aesthetics with resistance to mechanical damages and varying weather conditions. They are distinguished by easy and quick installation.

Quality standards and audio characteristics have been confirmed through tests and trials in an anechoic chamber, resistance and integrity testing equipment, as well as chambers for resistance to weather and air humidity testing.

The need to maintain the best acoustic parameters, even with easily installed fire-protecting screens, was the idea underlying the design process. The EST-S series loudspeakers ensure a balanced sound which is extremely important in emission of highly understandable speech and reliable music reproduction.

The series of ceiling-mounted EST-S loudspeakers is noticeable thanks to its elegant looks. The loudspeaker part which becomes visible after the installation is protected by means of electroplating and covered by a common and aesthetic white paint coat (RAL 9003) – optionally available other colours (RAL palette).

The entire EST-S series is equipped with a standardized fire dome made of soft steel and supplied with two cable penetrations with rubber glands. Special jig for sling assembling facilitates quick installation. The delivery comprises the 1-metre long sling. Two ceramic blocks and fireproof wiring coupled with temperature limit fuse are located under the screen. This solution ensures 100% protection of the sound-transmitting line from any break or short-circuits which may be produced as a result of loudspeaker burn. The individual power rating is selected by means of connection with applicable transformer branch.

EST-S series loudspeakers equipped with fire dome and thermal protections entirely comply with EN 54-24 Standards. In order to ensure 100% consistency with the highest quality standards we test our loudspeakers following the most meticulous procedures that warrant high parameters of sound emission, safety, and reliability.

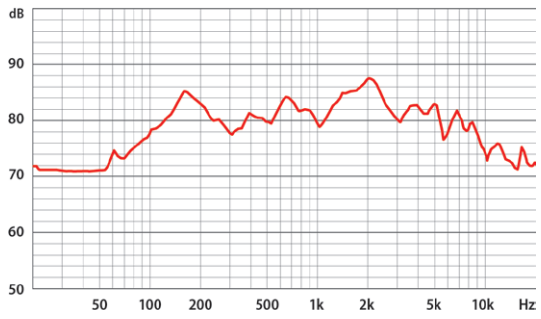
In spite of the fact our loudspeakers are designed for the highest reliability under fire conditions, their acoustic parameters and attractive low prices make them successful in any and all public address systems.

Characteristics

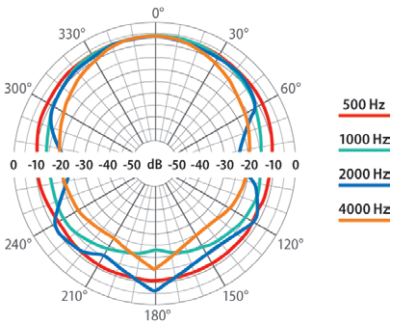
- Minimum dimensions
- A and C working environment, ideal for bathrooms
- The highest level of speech intelligibility
- Elegant looks
- 6 W transformer allowing a precise selection of loudspeaker output power
- 100% protection of line from breaks and short-circuits

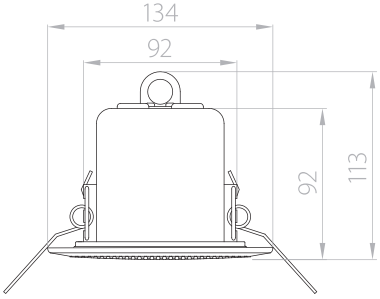
	EST-S136
Electrical	
Rated power, W	6
Tappings 100 V line according to EN 54-24, W	6 / 3 / 1,5 / 0,75
Tappings 70 V line, W	3 / 1,5 / 0,75 / 0,38
Transformer impedance, Ω 100 V	1667 / 3333 / 6667 / 13333
Driver impedance, Ω	8
Effective frequency range, Hz	60–20000
Sensitivity @ 4 m, 1 W, dB	68
SPL @ 4 m, Rated power, dB	78
SPL @ 1 m, 1 W, dB, Test signal bandwidth 300 Hz–6 kHz	82
SPL @ 1 m, Rated power, dB, Test signal bandwidth 300 Hz–6 kHz	90
Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]	180 / 180 / 170 / 90
Environmental	
Environmental type / IP Rating according to EN 54-24	A, C / IP21C
IP Rating	32
Min/Max Amb Temp	-10°C / 55°C
Mechanical	
Dimensions, mm	Height 113 / ø 134
Net Weight, kg	0,82
Colour	White (RAL 9003)
Material	Steel
Mounting	Spring clamp
Cut-out, mm	ø 106
Option	
For DC line monitoring	–
Colour optional	RAL Palette

Frequency band:



Circular chart of directional characteristic:





EST-S206B/S206BC

EN 54-24

Ceiling-mounted Loudspeakers

- Compliance with EN 54-24
- Certificates of Conformity issued by CNBOP: 1438-CPR-0634 and DC-UAE-0111
- Compliance with BS5839-8 standard (Thermal protection)

Ceiling mounted fire alarm EST-S206B loudspeaker is designed for operations at high acoustic levels and the highest reduction in power supply. Actual wide band high efficiency ensures the best understanding of verbal messages. Its parameters have been carefully selected to comply with suspended ceiling applications, both at standard and considerably elevated ceiling-to-floor distance.

Thanks to the most advanced technologies EST-S206B loudspeaker combines excellent acoustic parameters and high aesthetics with resistance to mechanical damages. It is distinguished by easy and quick installation.

Quality standards and audio characteristics have been confirmed through tests and trials in an anechoic chamber, resistance and integrity testing equipment, as well as chambers for resistance to weather and air humidity testing.

The EST-S206B loudspeaker ensure a balanced sound which is extremely important in emission of highly understandable speech.

The EST-S206B loudspeaker is noticeable thanks to its elegant looks. The loudspeaker part which becomes visible after the installation is covered by a common and aesthetic white paint coat (RAL 9003) – optionally available other colours (RAL palette).

EST-S206B is equipped with a standardized fire dome made of soft steel and supplied with two cable penetrations with rubber glands. Special jig for sling assembling facilitates quick installation. Ceramic blocks and fireproof wiring coupled with temperature limit fuse are located inside fire dome.

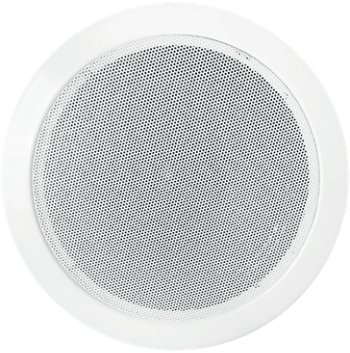
The individual power rating is selected by means of connection with applicable transformer branch.

EST-S206B loudspeaker equipped with fire dome and thermal protections entirely comply with EN 54-24 Standards. In order to ensure 100% consistency with the highest quality standards we test our loudspeaker following the most meticulous procedures that warrant high parameters of sound emission, safety, and reliability.

In spite of the fact our loudspeaker is designed for the highest reliability under fire conditions, their acoustic parameters and attractive low prices make them successful in any and all public address systems.

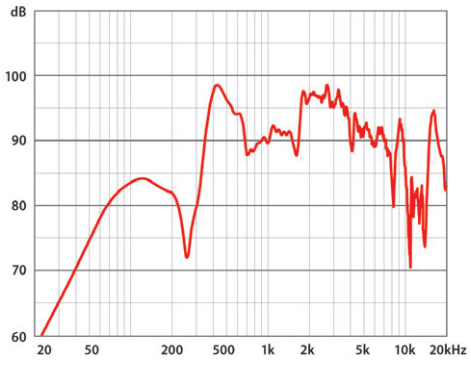
Characteristics

- The highest level of speech intelligibility
- Elegant looks
- 6 W transformer allowing a precise selection of loudspeaker output power
- 100% protection of line from breaks and short-circuits

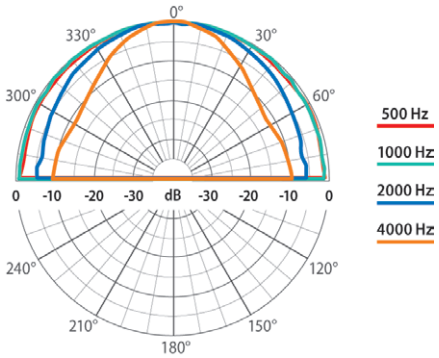


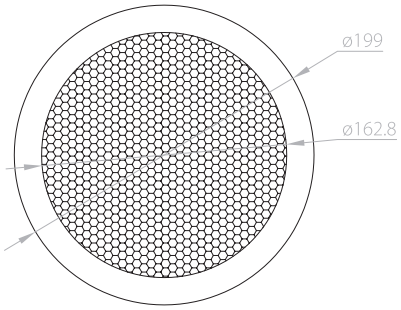
	EST-S206B/S206BC
Electrical	
Rated power, W	6
Tappings 100 V line according to EN 54-24, W	6 / 3 / 1,5 / 0,75
Tappings 70 V line, W	3 / 1,5 / 0,75 / 0,37
Transformer impedance, Ω	1667 / 3333 / 6667 / 13333
Driver impedance, Ω	8
Effective frequency range, Hz	120–20 000
Sensitivity @ 4 m, 1 W, dB	81
SPL @ 4 m, Rated power, dB	88
SPL @ 1 m, 1 W, dB, Test signal bandwidth 300 Hz–6 kHz	93
SPL @ 1 m, Rated power, dB, Test signal bandwidth 300 Hz–6 kHz	101
Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]	180 / 180 / 95 / 70
Environmental	
Environmental type / IP Rating according to EN 54-24	A / IP21C
IP Rating	32C
Min / Max Amb Temp	-10°C / 55°C
Mechanical	
Dimensions, mm	Height 115, ø 199
Net Weight, kg	1,13
Colour	White (RAL 9003) / Black (RAL 9011)
Material	Steel
Mounting	Spring clamp
Cut-out, mm	ø 175
Option	
For DC line monitoring	Capacitor (EST-S206BC)
Colour optional	RAL Palette

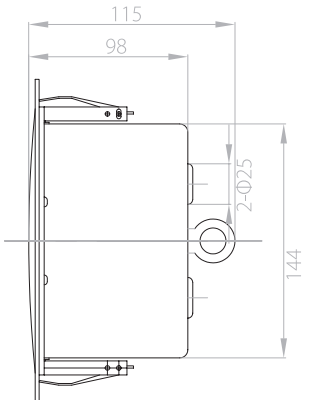
Frequency band:



Circular chart of directional characteristic:



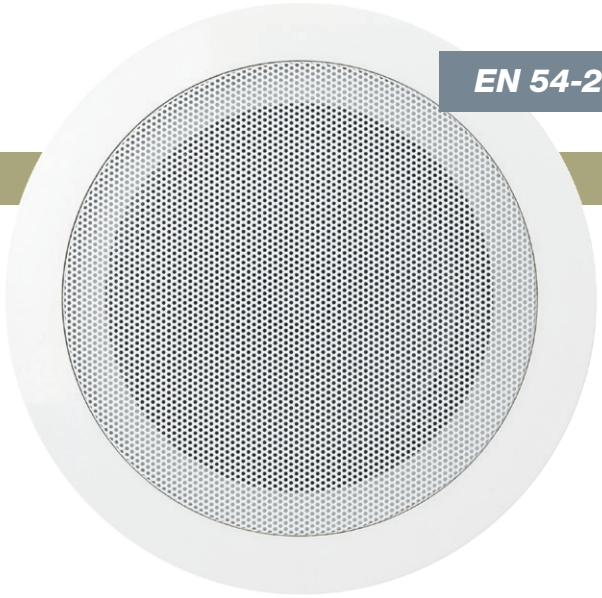




EST-S186

EN 54-24

Ceiling-mounted loudspeakers



- Full compliance with EN 54-24 Standard
- Certificates of Conformity issued by CNBOP: 1438-CPR-0671 and DC-UAE-0132
- Compliance with BS5839-8 standard (Thermal protection)

Ceiling mounted fire alarm loudspeaker EST-S186 is designed for operations at high acoustic levels. Actual wide band high efficiency ensures the best understanding of verbal messages. Its parameters have been carefully selected to comply with suspended ceiling applications.

Thanks to the most advanced technologies EST-S186 loudspeaker combines excellent acoustic parameters and high aesthetics. It is distinguished by easy and quick installation.

Quality standards and audio characteristics have been confirmed through tests and trials in an anechoic chamber, resistance and integrity testing equipment, as well as chambers for resistance to weather and air humidity testing.

The EST-S186 loudspeaker ensure a balanced sound which is extremely important in emission of highly understandable speech.

EST-S186 is equipped with a standardized fire dome made of ABS and supplied with two cable penetrations with rubber glands.

The individual power rating is selected by means of connection with applicable transformer branch.

EST-S186 loudspeaker equipped with fire dome, ceramic block and thermal protections entirely comply with EN 54-24 Standard. In order to ensure 100% consistency with the highest quality standards we test our loudspeakers following the most meticulous procedures that warrant high parameters of sound emission, safety, and reliability.

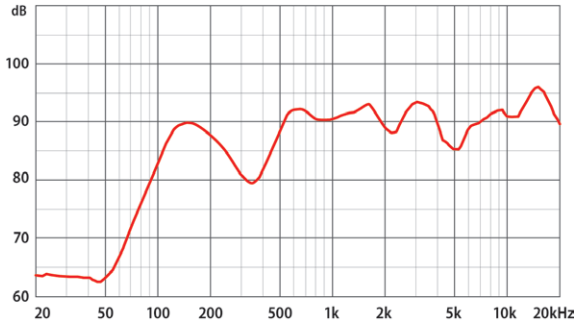
In spite of the fact our loudspeaker is designed for the highest reliability under fire conditions, their acoustic parameters and attractive low prices make them successful in any and all public address systems.

Characteristics

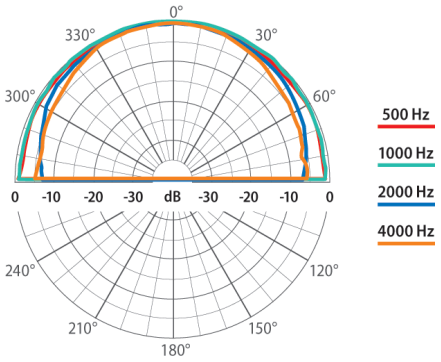
- The highest level of speech intelligibility
- Elegant looks
- 6 W transformer allowing a precise selection of loudspeaker output power
- 100% protection of line from breaks and short-circuits

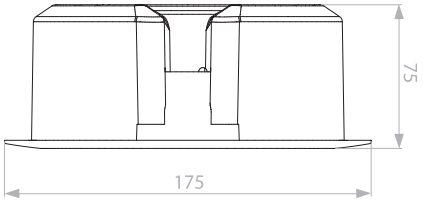
	EST-S186
Electrical	
Rated power, W	6
Tappings 100 V line according to EN 54-24, W	6 / 3 / 1,5 / 0,75
Tappings 70 V line, W	3 / 1,5 / 0,75 / 0,37
Transformer impedance, Ω	1667 / 3333 / 6667 / 13333
Driver impedance, Ω	8
Effective frequency range, Hz	120 – 20 000
Sensitivity @ 4 m, 1 W, dB	79
SPL @ 4 m, Rated power, dB	86
SPL @ 1 m, 1 W, dB, Test signal bandwidth 300 Hz – 6 kHz	91
SPL @ 1 m, Rated power, dB, Test signal bandwidth 300 Hz – 6 kHz	99
Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]	180 / 180 / 150 / 90
Environmental	
Environmental type / IP Rating according to EN 54-24	A / IP21C
IP Rating	32C
Min / Max Amb Temp	-10°C / 55°C
Mechanical	
Dimensions, mm	Height 75, ø 175
Net Weight, kg	0,66
Colour	White (RAL 9003)
Material	ABS
Mounting	Spring clamp
Cut-out, mm	ø 150
Option	
For DC line monitoring	Capacitor (EST-S186C)

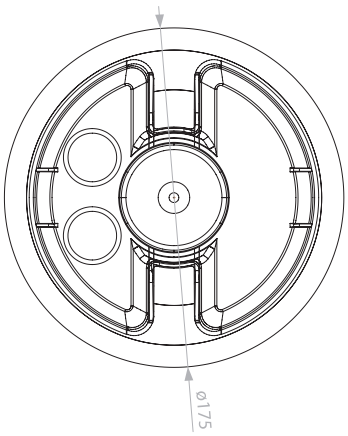
Frequency band:



Circular chart of directional characteristic:







EST-T1510

EN 54-24

Horn-type Loudspeakers

- Compliance with EN 54-24
- Certificates of Conformity issued by CNBOP: 1438-CPR-0680 and DC-UAE-0140
- Compliance with BS5839-8 standard (Thermal protection)

Horn-type fire alarm EST-T loudspeakers are designed for either simple or most complex and sophisticated sound-transmitting applications. They combine excellent acoustic parameters and high aesthetics with resistance to mechanical damages and varying weather conditions as well as simple assembling and low price. Quality standards and audio characteristics have been confirmed through tests and trials in an anechoic chamber, resistance and integrity testing equipment, as well as chambers for resistance to weather and air humidity testing.

The EST-T series comprises highly efficient loudspeakers which produce sounds featuring directional characteristics and operate in any atmospheric conditions (A, B, C environmental type). Thanks to their balanced frequency band they guarantee high understanding of verbal communication. Their casings are made of ABS UL94V0, a synthetic material featuring high resistance to mechanical damages and self-extinguishing properties. Loudspeakers are perfectly protected from dust and humidity (IP66). The assembling jig ensures adjusting the inclination for the optimum coverage of the area of communications.

EST-T loudspeakers are applied on circulation routes and inside the rooms with high reverberation time as well as in widespread outdoor area broadcasting. They are perfect for sport sites, at swimming pools, in expo and industrial halls, warehouses, open and underground car parks, and in open areas such as stadiums, parks, etc.

EST-T loudspeakers entirely comply with global requirements concerning evacuation systems, including the standards such as BS5839 Part 8 and EN 54-24. They have been certified for product compliance and acceptance by CNBOP. Ceramic blocks, internal flame-resistant wiring, and temperature limit fuses protect the broadcasting line from short-circuits or breaks and ensure continuous operations even in case of fire-produced damages or burns. The loudspeaker located in the zone of fire is isolated from the sound-transmitting line. A special design eliminates the risk of fall of any of its burnt components, which ensures safe fire escape process.

The individual rated power is selected by means of connection with applicable transformer branch. All the EST-T loudspeakers are designed so as to ensure continuous operations at rated parameters for at least 100 hours (consistent with IEC-268-5 Standard).

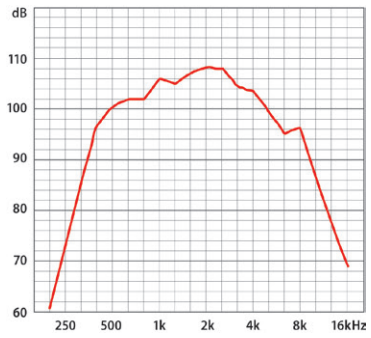
In spite of the fact our loudspeakers are designed for the highest reliability under fire conditions, they can be also used in any and all public address systems.

Characteristics

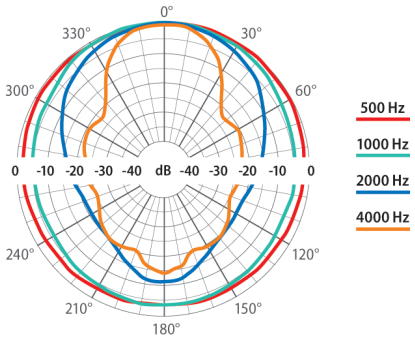
- Directional characteristic of sound emission and the highest verbal communication understanding
- All the working environments – A, B and C
- Wall and ceiling installation
- Protection from dust and humidity: IP66 rating
- Casing made of self-extinguishing ABS UL94V0 plastic, with steel assembling jig
- 100% line protection from short-circuit and break in fire conditions

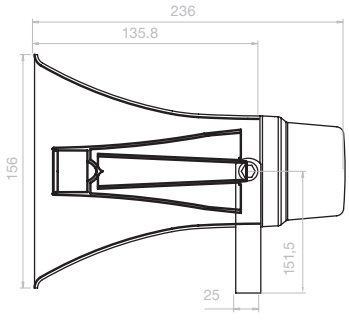
	EST-T1510
Electrical	
Rated power, W	10
Tappings 100 V line according to EN 54-24, W	10 / 5 / 2,5 / 1,25
Tappings 70 V line, W	5 / 2,5 / 1,25 / 0,62
Transformer impedance, Ω 100 V	1000 / 2000 / 4000 / 8000
Driver impedance, Ω	8
Effective frequency range, Hz	340–9000
Sensitivity @ 4 m, 1 W, dB	86
SPL @ 4 m, Rated power, dB	96
SPL @ 1 m, 1 W, dB, Test signal bandwidth 300 Hz–6 kHz	103
SPL @ 1 m, Rated power, dB, Test signal bandwidth 300 Hz–6 kHz	113
Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]	240 / 200 / 88 / 45
Environmental	
Environmental type / IP Rating according to EN 54-24	B / IP33C
IP Rating	66
Min/Max Amb Temp	-25°C / 70°C
Mechanical	
Dimensions, mm	Lenght 236, ø156
Net Weight, kg	1,75
Colour	Light Grey (RAL 7035)
Material	ABS UL94V0
Mounting	Screw, U Type Bracket
Option	
For DC line monitoring	–
Colour optional	RAL Palette

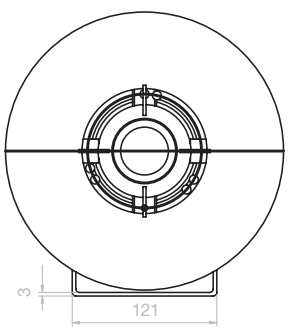
Frequency band:



Circular chart of directional characteristic:







ABT-LA30 / ABT-LA60

EN 54-24

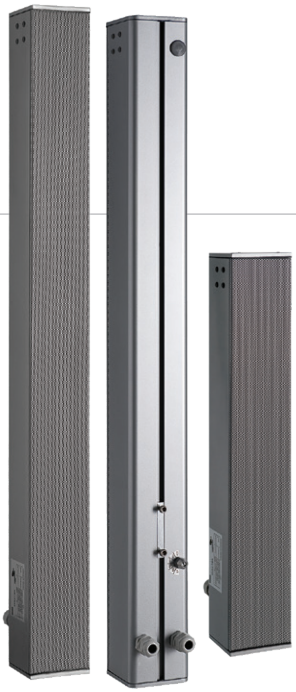
Line Array Loudspeakers Columns

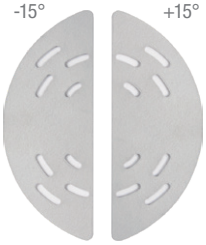
- Compliance with EN 54-24
- Certificate of Conformity issued by CNBOP: 1438-CPR-0574
- Compliance with BS5839-8 standard (Thermal protection)

ABT-LA fire-alarm loudspeakers mean a new quality among the facilities of the kind. ABT-LA30 and ABT-LA60 units are line-array loudspeaker columns, which means they ensure considerably farther reach than conventional units at simultaneous maintenance of high uniformity of sound level in the area of broadcasting. Being line-array acoustic sources, ABT-LA columns feature a unique high directionality in vertical plane so that the sound they generate will rather go exactly towards the controlled audiospace instead of unwanted areas, such as e.g. ceiling or floor. ABT-LA columns are mostly designed for the rooms with high reverberation time as well as for other places where the quality of speech is reduced due to unfavourable conditions.

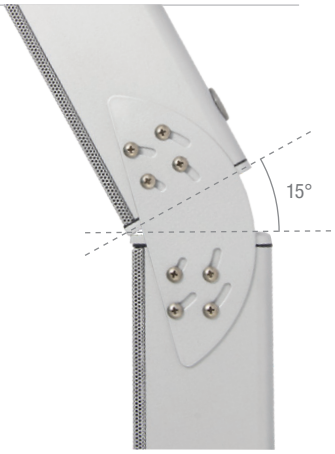
The ABT-LA design allows easy mechanical and electrical integration of the two columns into a single consistent unit which becomes a loudspeaker with higher power output and farther reach. It makes a better use of the benefits offered by the line-array source. Variable geometry of the column allows generating two sound beams to be randomly sent at various angles to the two different areas. Sound transfer band of the ABT-LA columns has been designed to achieve the highest possible fidelity of speech signal reproduction and to ensure unchallenged parameters of the quality of speech, all as required by the standards applicable to the Voice Evacuation Systems.

Solid aluminium enclosure, steel assembly jigs, and IP 65 guarantee long-term failure-free operations under any conditions, both in outdoor and indoor environments. The columns are entirely dustproof and resistant to the impact of direct water jet.





Connect angle:
-15° ÷ +15°



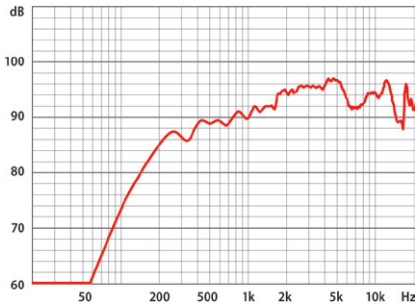
	ABT-LA30	ABT-LA60
Electrical		
Maximum power, W	48	96
Rated power, W	30	60
Tappings 100 V line according to EN 54-24, W	30 / 15 / 7,5 / 3,8	60 / 30 / 15 / 7,5
Tappings 70 V line	15 / 7,5 / 3,8 / 1,9	30 / 15 / 7,5 / 3,8
Transformer impedance, Ω 100 V	333,3 / 666,6 / 1333,3 / 2631,5	166,6 / 333,3 / 666,6 / 1333,3
Driver impedance, Ω	12	6
Effective frequency range, Hz	141 – 20 000	136 – 20 000
Sensitivity @ 4 m, 1 W, dB	77	79
SPL @ 4m, Rated power, dB	90	94
SPL @ 1 m, 1 W, dB, Test signal bandwidth 300 Hz – 6 kHz*	93	95
SPL @ 1 m, Rated power, db, Test signal bandwidth 300 Hz – 6 kHz*	105	109
Horizontal dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]	360 / 220 / 185 / 120	360 / 215 / 185 / 115
Vertical dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]	250 / 75 / 35 / 15	95 / 35 / 15 / 5
Environmental		
Environmental type / IP Rating according to EN 54-24	B / IP33C	B / IP33C
IP Rating**	65	65
Min / Max Amb Temp	-25°C / 70°C	-25°C / 70°C
Mechanical		
Dimensions H × W × D, mm	510 × 80 × 110	870 × 80 × 110
Net Weight, kg	3,1	4,9
Colour	Silver (RAL 9006)	Silver (RAL 9006)
Enclosure material	Aluminium	Aluminium
Option		
For DC line monitoring	Capacitor	Capacitor
Colour optional	RAL Palette	RAL Palette
Ease Model	✓	✓

* calculated from line-array far field measurement at 8 m

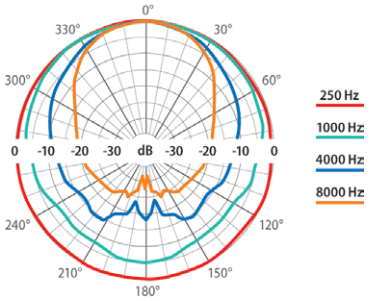
** parameters not confirmed by CNBOP-PIB

ABT-LA 30

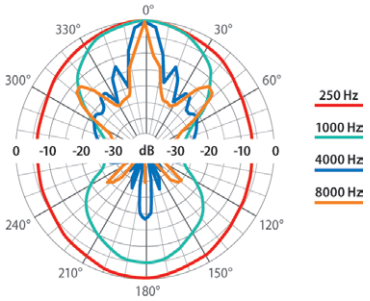
Frequency band:



Circular chart of directional characteristic – horizontal:

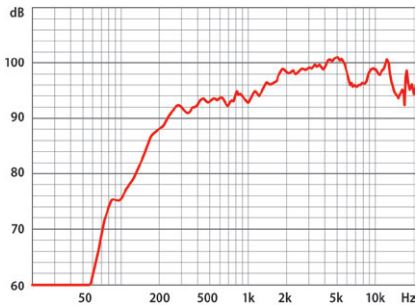


Circular chart of directional characteristic – vertical:

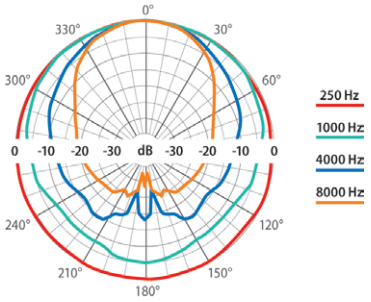


ABT-LA 60

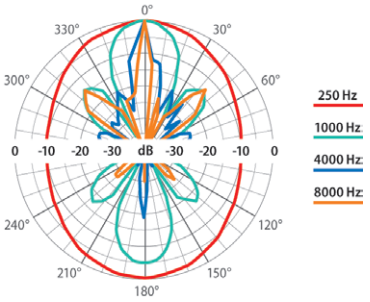
Frequency band:



Circular chart of directional characteristic – horizontal:



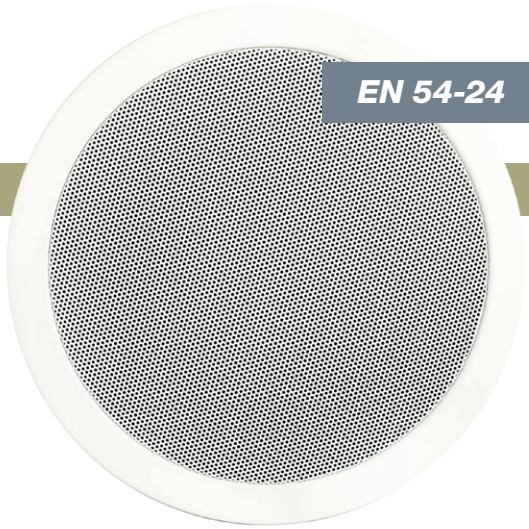
Circular chart of directional characteristic – vertical:



ABT-S276/AB

EN 54-24

Ceiling-mounted AB loudspeaker

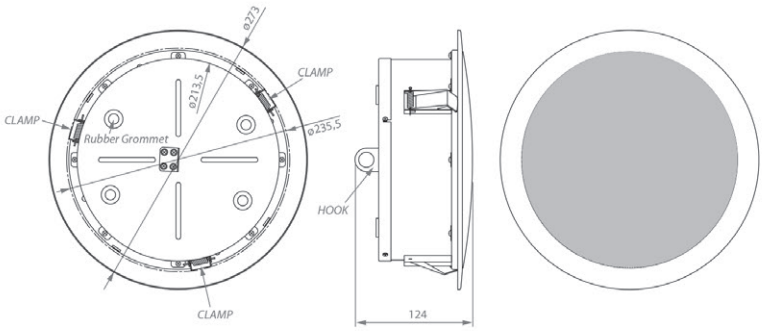


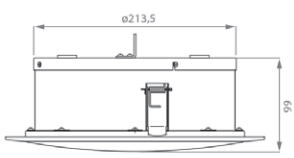
- Compliance with EN 54-24
- Certificate of Conformity issued by CNBOP: 1438-CPR-0414
- Compliance with BS5839-8 standard (Thermal protection)
- 6-watt transformer enabling precise handling of loudspeaker power
- Optimised level of speech intelligibility
- Operation of two A/B loudspeaker lines

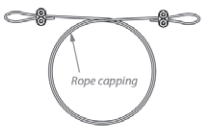
The ceiling-mounted ABT-S276/AB loudspeaker has been designed to guarantee the highest acoustic quality of speech and sound recordings even in difficult conditions. It is meant to be mounted on ceilings (incl. suspended ones).

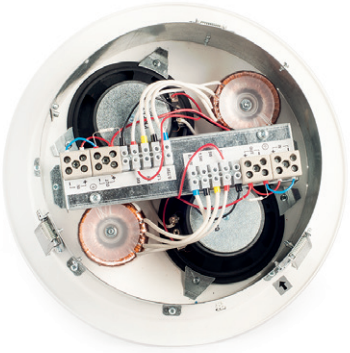
Unlike the standard ceiling fire alarm loudspeakers, the ABT-S276/AB is equipped with two in-built electro-acoustic transducers, two transformers and two separate sets of ceramic clamps and fuses, which allows connectivity of two independent A/B loudspeaker lines. ABT-S276/AB has been designed for application in rooms of such size and acoustic conditions that the design proposes one ceiling-mounted loudspeaker of VES standard. In case of a single fault on the loudspeaker line, there is no loss of the sound coverage area in rooms with installed ceiling-mounted ABT-S276/AB loudspeakers.

ABT-S276/AB is equipped with an additional mounting lug allowing attachment of a safety steel line fastened on the other side with a steel pin secured to construction elements of adequate fire-resistance e.g. the ceiling. Such a solution enables mounting the loudspeaker to surfaces of zero fire-resistance rating. The loudspeaker offers adjustable power regulation through connectivity to applicable transformer tappings thus enabling application of suitable acoustic pressure (the level of sound) within areas of sound emission adequately to the character and acoustic conditions existing in those areas.



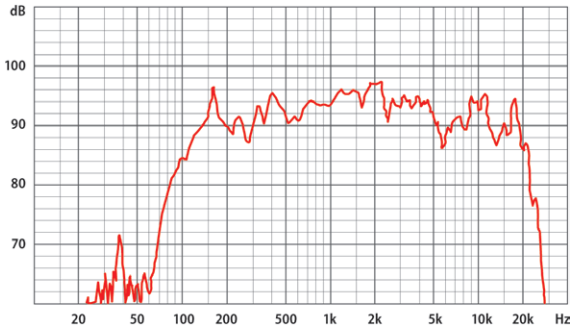




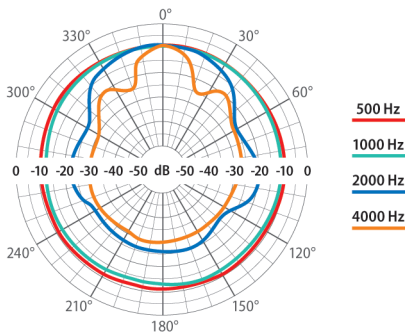


	ABT-S276/AB
Electrical	
Number of transducers	2
Rated power, W	2× 6
Tappings 100 V line according to EN 54-24, W	2× 6 / 3 / 1,5 / 0,75
Tappings 70 V line, W	2× 3 / 1,5 / 0,75 / 0,37
Transformer impedance, Ω 100 V	2× 1667 / 3333 / 6666 / 13333
Driver impedance, Ω	8
Effective frequency range, Hz	100 – 20 000
Sensitivity @ 4 m, 1 W, dB	85
SPL @ 4 m, Rated power, dB	91
SPL @ 1 m, 1 W, dB, Test signal bandwidth 300 Hz – 6 kHz	97
SPL @ 1 m, Rated power, dB, Test signal bandwidth 300 Hz – 6 kHz	103
Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]	180 / 175 / 163 / 90
Environmental	
Environmental type / IP Rating according to EN 54-24	A / IP21C
IP Rating	32
Min / Max Amb Temp	-10°C / 55°C
Mechanical	
Dimensions, mm	Height 124 mm , ø273
Net Weight, kg	2,29
Colour	White (RAL 9003)
Material	Steel
Mounting	Spring clamp
Option	
For DC line monitoring	Capacitor
Colour optional	RAL Palette
Ease Model	✓

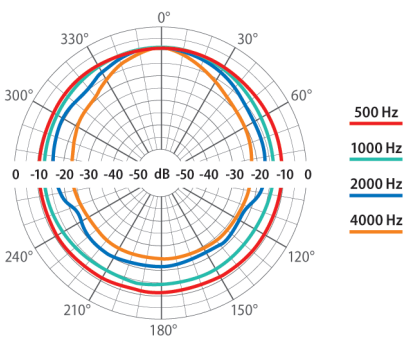
Frequency band:



Circular chart of directional characteristic – horizontal:



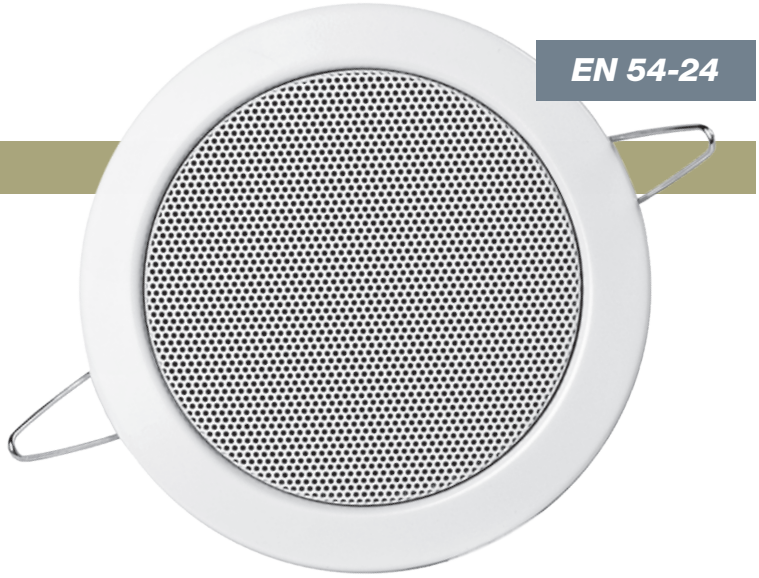
Circular chart of directional characteristic – vertical:



ABT-S106

EN 54-24

Ceiling-mounted loudspeakers



- Compliance with EN 54-24
- Certificate of Conformity: 1438-CPR-0635
- Compliance with BS5839-8 standard (Thermal protection)

Ceiling-mounted fire alarm loudspeakers ABT-S106 are designed for applications which require the minimum size at the maximum sound quality. Their parameters have been carefully selected to match the operating requirements in the rooms exposed to after-sound and high-humidity.

Thanks to the most advanced technologies the ABT-S series loudspeakers combine excellent acoustic parameters and high aesthetics with resistance to mechanical damages and varying weather conditions. They are distinguished by easy and quick installation.

Quality standards and audio characteristics have been confirmed through tests and trials in an anechoic chamber, resistance and integrity testing equipment, as well as chambers for resistance to weather and air humidity testing.

The need to maintain the best acoustic parameters, even with easily installed fire-protecting screens, was the idea underlying the design process. The ABT-S series loudspeakers ensure a balanced sound which is extremely important in emission of highly understandable speech and reliable music reproduction.

The series of ceiling-mounted ABT-S loudspeakers is noticeable thanks to its elegant looks. The loudspeaker part which becomes visible after the installation is protected by means of electroplating and covered by a common and aesthetic white paint coat (RAL 9003) – optionally available other colours (RAL palette).

The entire ABT-S series is equipped with a standardized fire dome made of soft steel and supplied with two cable penetrations with rubber glands. Special jig for sling assembling facilitates quick installation. The delivery comprises the 1-metre long sling. Two ceramic blocks and fireproof wiring coupled with temperature limit fuse are located under the screen. This solution ensures 100% protection of the sound-transmitting line from any break or short-circuits which may be produced as a result of loudspeaker burn. The individual power rating is selected by means of connection with applicable transformer branch.

ABT-S series loudspeakers equipped with fire dome and thermal protections entirely comply with EN 54-24 Standards. In order to ensure 100% consistency with the highest quality standards we test our loudspeakers following the most meticulous procedures that warrant high parameters of sound emission, safety, and reliability.

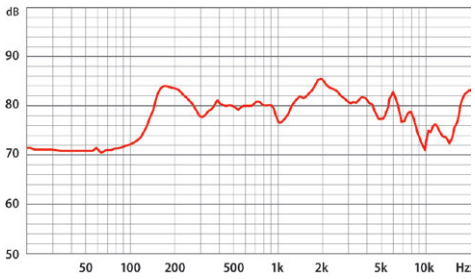
In spite of the fact our loudspeakers are designed for the highest reliability under fire conditions, their acoustic parameters and attractive low prices make them successful in any and all public address systems.

Characteristics

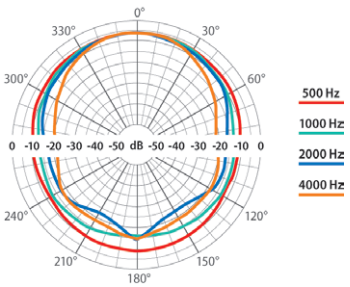
- Minimum dimensions
- A and C working environment, ideal for bathrooms
- The highest level of speech intelligibility
- Elegant looks
- 6 W transformer allowing a precise selection of loudspeaker output power
- 100% protection of line from breaks and short-circuits

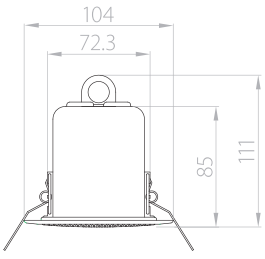
	ABT-S106
Electrical	
Rated power, W	6
Tappings 100V line according to EN 54-24, W	6 / 3 / 1,5 / 0,75
Tappings 70V line, W	3 / 1,5 / 0,75 / 0,38
Transformer impedance, Ω 100V	1667 / 3333 / 6667 / 13333
Driver impedance, Ω	8
Effective frequency range, Hz	100–20000
Sensitivity @ 4m, 1W, dB	65
SPL @ 4m, Rated power, dB	76
SPL @ 1m, 1 W, dB, Test signal bandwidth 300 Hz–6 kHz	80
SPL @ 1m, Rated power, dB, Test signal bandwidth 300 Hz–6 kHz	88
Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]	180 / 180 / 170 / 150
Environmental	
Environmental type / IP Rating according to EN 54-24	A, C / IP21C
IP Rating	32
Min/Max Amb Temp	-10°C / 55°C
Mechanical	
Dimensions, mm	Height 111, ø104
Net Weight, kg	0,72
Colour	White (RAL 9003)
Material	Steel
Mounting	Spring clamp
Cut-out, mm	ø85
Option	
For DC line monitoring	Capacitor
Colour optional	RAL Palette
Ease Model	✓

Frequency band:



Circular chart of directional characteristic:

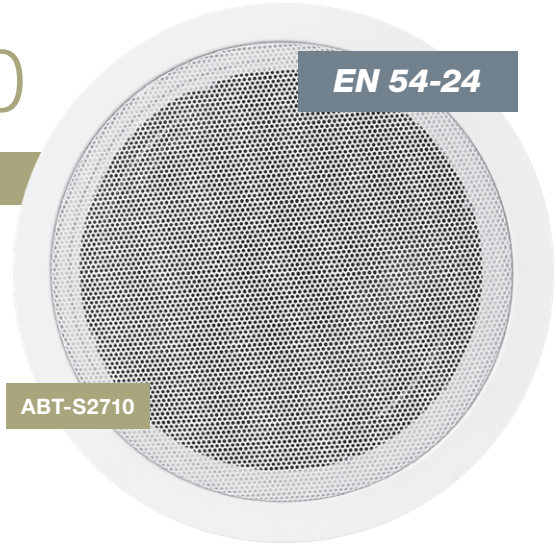




ABT-S2010 / ABT-S2710

Ceiling-mounted loudspeakers

- Compliance with EN 54-24
- Certificate of Conformity: 1488-CPR-0170/W
- Compliance with BS5839-8 standard (Thermal protection)



Ceiling mounted fire alarm ABT-S2010 and ABT-S2710 loudspeakers are designed for operations at high acoustic levels and the highest reduction in power supply. Actual wide band high efficiency ensures the best understanding of verbal messages. Their parameters have been carefully selected to comply with false ceiling applications, both at standard and considerably elevated ceiling-to-floor distance.

Thanks to the most advanced technologies the ABT-S series loudspeakers combine excellent acoustic parameters and high aesthetics with resistance to mechanical damages and varying weather conditions. They are distinguished by easy and quick installation.

Quality standards and audio characteristics have been confirmed through tests and trials in an anechoic chamber, resistance and integrity testing equipment, as well as chambers for resistance to weather and air humidity testing.

The need to maintain the best acoustic parameters, even with easily installed fire-protecting screens, was the idea underlying the design process. The ABT-S series loudspeakers ensure a balanced sound which is extremely important in emission of highly understandable speech and reliable music reproduction.

The series of ceiling-mounted ABT-S loudspeakers is noticeable thanks to its elegant looks. The loudspeaker part which becomes visible after the installation is protected by means of electroplating and covered by a common and aesthetic white paint coat (RAL 9003) – optionally available other colours (RAL palette).

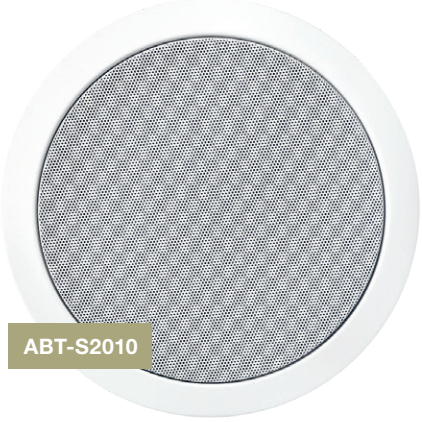
The entire ABT-S series is equipped with a standardized fire dome made of soft steel and supplied with two cable penetrations with rubber glands. Special jig for sling assembling facilitates quick installation. The delivery comprises the 1-metre long sling. Two ceramic blocks and fireproof wiring coupled with temperature limit fuse are located under the screen. This solution ensures 100% protection of the sound-transmitting line from any break or short-circuits which may be produced as a result of loudspeaker burn. The individual power rating is selected by means of connection with applicable transformer branch.

ABT-S series loudspeakers equipped with fire dome and thermal protections entirely comply with EN 54-24 Standards. In order to ensure 100% consistency with the highest quality standards we test our loudspeakers following the most meticulous procedures that warrant high parameters of sound emission, safety, and reliability.

In spite of the fact our loudspeakers are designed for the highest reliability under fire conditions, their acoustic parameters and attractive low prices make them successful in any and all public address systems.

Characteristics

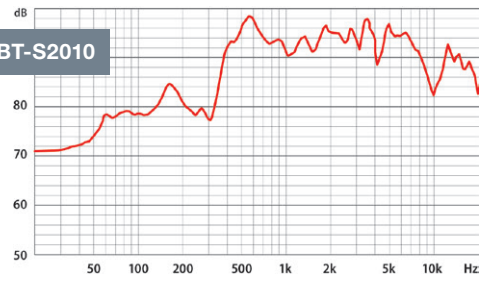
- High efficiency
- High acoustic pressure level
- Exceptionally reliable full band music reproduction
- The highest level of speech intelligibility
- Elegant looks
- 10 W transformer allowing precise selection of loudspeaker output power
- 100% protection of line from breaks and short-circuits



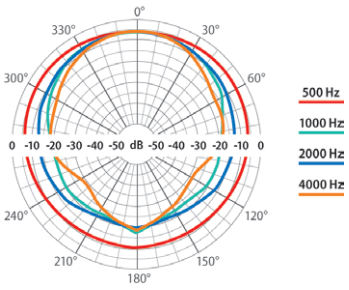
	ABT-S2010	ABT-S2710
Electrical		
Rated power, W	10	10
Tappings 100V line according to EN 54-24, W	10 / 5 / 2,5 / 1,25	10 / 5 / 2,5 / 1,25
Tappings 70V line, W	5 / 2,5 / 1,25 / 0,625	5 / 2,5 / 1,25 / 0,625
Transformer impedance, Ω 100V	1000 / 2000 / 4000 / 8000	1000 / 2000 / 4000 / 8000
Driver impedance, Ω	8	8
Effective frequency range, Hz	150–20000	100–20000
Sensitivity @ 4m, 1W, dB	77	78
SPL @ 4m, Rated power, dB	90	92
SPL @ 1m, 1 W, dB, Test signal bandwidth 300 Hz–6 kHz	94	95
SPL @ 1m, Rated power, dB, Test signal bandwidth 300 Hz–6 kHz	104	105
Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]	180 / 170 / 115 / 55	180 / 170 / 90 / 60
Environmental		
Environmental type / IP Rating according to EN 54-24	A / IP21C	A / IP21C
IP Rating	32	32
Min/Max Amb Temp	-10°C / 55°C	-10°C / 55°C
Mechanical		
Dimensions, mm	Height 110, ø200	Height 120, ø267
Net Weight, kg	1,4	1,75
Colour	White (RAL 9003)	
Material	Steel	
Mounting	Spring clamp	
Cut-out, mm	ø172	ø222
Option		
For DC line monitoring	Capacitor	
Colour optional	RAL Palette	
Ease Model	✓	

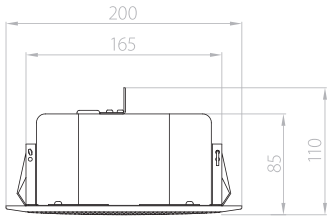
Frequency band:

ABT-S2010



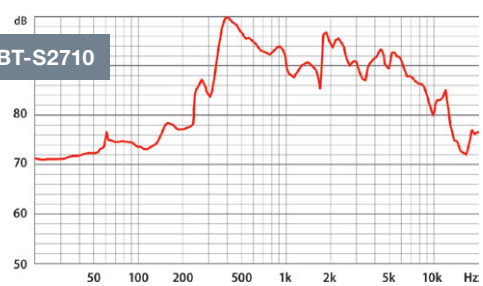
Circular chart of directional characteristic:



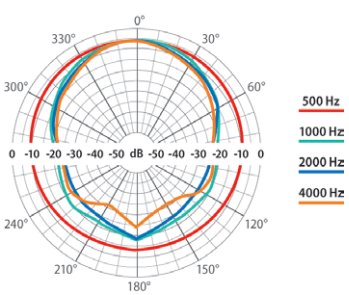


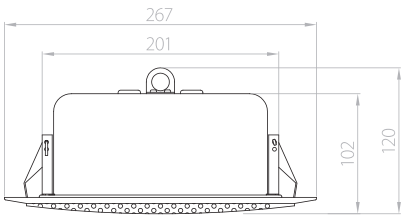
Frequency band:

ABT-S2710



Circular chart of directional characteristic:





MCR-SMSP20

EN 54-24

Sound Projectors

- Compliance with EN 54-24
- Certificate of Conformity issued by ITB: 1488-CPR-0167/W
- Compliance with BS5839-8 standard (Thermal protection)

Fire alarm MCR-SMSP20 loudspeakers have been designed and manufactured for the most demanding customers as well as to meet the requirements of the most complex and sophisticated sound transmitting applications. Thanks to the contribution of advanced technologies they combine excellent acoustic parameters and high aesthetics with resistance to mechanical damages and varying weather conditions as well as low prices. Their additional quality is an exceptionally quick and simple installation.

Quality standards and audio characteristics have been confirmed through tests and trials in an anechoic chamber, resistance and integrity testing equipment, as well as chambers for resistance to weather and air humidity testing. The need to maintain the best acoustic parameters was the idea underlying the design process.

MCR-SMSP20 loudspeaker models emitting the sound which features directional characteristic and high efficiency. 5-inch 2-cone wide band loudspeakers used in these series are excellent alternative solution for horn-type units due to wide frequency band. They prove excellent in both musical and verbal applications. Loudspeakers are enclosed in round casings made of extruded aluminium; they feature a high class of protection from humidity. Thanks to directional characteristic of sound propagation our loudspeakers are mostly applied on circulation routes and in wide area sound emission. Due to resistance to weather conditions the loudspeakers prove excellent in industrial halls, warehouses, as well as partly open spaces exposed to outdoor weather conditions.

Apart from high mechanical and functional resistance MCR-SMSP20 loudspeakers entirely comply with global requirements for systems, including also the British Standard No. BS5839 Part 8 and EN 54-24. They have been certified by ITB.

Technical solutions applied in the design ensure continuous operations of sound-transmitting line connected with the loudspeaker even in the case the latter is damaged or burnt as a result of fire. The said protection is composed of ceramic blocks installed inside the loudspeaker, internal fireproof wiring, and temperature limit fuse. Two sound-transmission cable penetrations in the casing are insulated by means of two cable glands. Inside the fire zone the loudspeaker is isolated from the entire line, which ensures line continuity and uninterrupted broadcasting of emergency messages. The individual power rating is selected by means of connection with applicable transformer branch.

MCR-SMSP20 is designed for continuous operations at rated parameters for at least 100 hours in compliance with the IEC-268-5 Standard.

To be quite sure our loudspeakers comply with the highest quality standards we test them thoroughly following the most meticulous procedures that warrant excellent parameters of sound emission, safety and reliability.

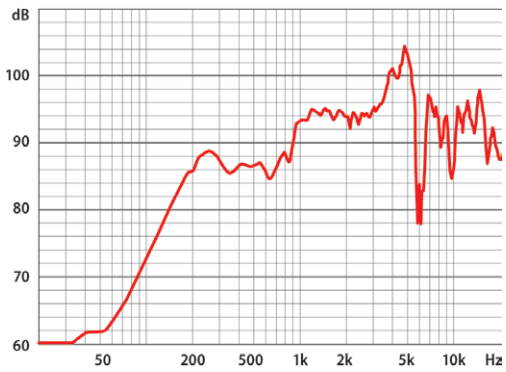
Characteristics

- Designed to achieve directional characteristic of sound emission
- 20 W transformer with multiple branches ensuring accurate selection of output power
- Enclosed in an advance and functional cylindrical casing made of extruded aluminium
- Ideal for either ceiling or wall installation
- Fireproof casing with ceramic block and thermal fuse
- Fireproof internal wiring
- High sound quality in music and speech emission

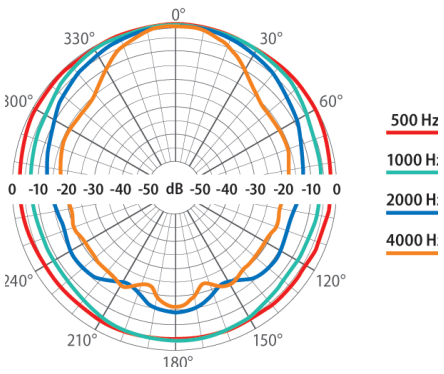
	MCR-SMSP20
Electrical	
Rated power, W	20
Tappings 100 V line according to EN 54-24, W	20 / 10 / 5 / 2,5
Tappings 70 V line, W	10 / 5 / 2,5 / 1,25
Transformer impedance, Ω 100 V	500 / 1000 / 2000 / 4000
Driver impedance, Ω	8
Effective frequency range, Hz	150–20000
Sensitivity @ 4 m, 1 W, dB	78
SPL @ 4 m, Rated power, dB	92
SPL @ 1 m, 1 W, dB, Test signal bandwidth 300 Hz–6 kHz	92
SPL @ 1 m, Rated power, dB, Test signal bandwidth 300 Hz–6 kHz	105
Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]	360 / 230 / 120 / 65
Environmental	
Environmental type / IP Rating according to EN 54-24	B / IP33C
IP Rating*	66
Min / Max Amb Temp	-25°C / 70°C
Mechanical	
Dimensions, mm	Lenght 200, ø146
Net Weight, kg	2,45
Colour	Light Grey (RAL 7035)
Material	Aluminium
Mounting	Screw, U Type bracket
Option	
Colour optional	RAL Palette
Ease Model	✓

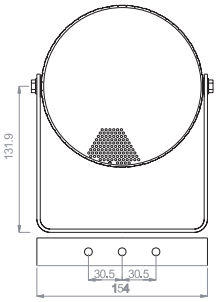
* not confirmed by CNBOP-PIB

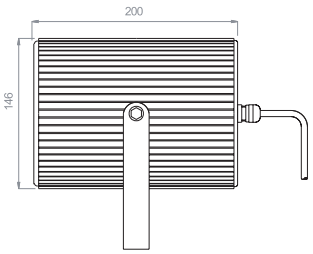
Frequency band:



Circular chart of directional characteristic:







ABT-T2215 / ABT-T2430

EN 54-24

Horn-type Loudspeakers

- Compliance with EN 54-24
- Certificate of Conformity issued by CNBOP: 1438-CPR-0640
- Compliance with BS5839-8 standard (Thermal protection)

Horn-type fire alarm ABT-T loudspeakers are designed for either simple or most complex and sophisticated sound-transmitting applications. They combine excellent acoustic parameters and high aesthetics with resistance to mechanical damages and varying weather conditions as well as simple assembling and low price. Quality standards and audio characteristics have been confirmed through tests and trials in an anechoic chamber, resistance and integrity testing equipment, as well as chambers for resistance to weather and air humidity testing.

The ABT-T series comprises highly efficient loudspeakers which produce sounds featuring directional characteristics and operate in any atmospheric conditions (A, B, C environmental type). Thanks to their balanced frequency band they guarantee high understanding of verbal communication. Their casings are made of ABS UL94V0, a synthetic material featuring high resistance to mechanical damages and self-extinguishing properties. Loudspeakers are perfectly protected from dust and humidity (IP66). The assembling jig ensures adjusting the inclination for the optimum coverage of the area of communications.

ABT-T loudspeakers are applied on circulation routes and inside the rooms with high reverberation time as well as in widespread outdoor area broadcasting. They are perfect for sport sites, at swimming pools, in expo and industrial halls, warehouses, open and underground car parks, and in open areas such as stadiums, parks, etc.

ABT-T loudspeakers entirely comply with global requirements concerning evacuation systems, including the standards such as BS5839 Part 8 and EN 54-24. They have been certified for product compliance and acceptance by CNBOP. Ceramic blocks, internal flame-resistant wiring, and temperature limit fuses protect the broadcasting line from short-circuits or breaks and ensure continuous operations even in case of fire-produced damages or burns. The loudspeaker located in the zone of fire is isolated from the sound-transmitting line. A special design eliminates the risk of fall of any of its burnt components, which ensures safe fire escape process.

Our ABT-T loudspeaker offer comprises two power rating models, i.e. 15 W, and 30 W. The individual rated power is selected by means of connection with applicable transformer branch. All the ABT-T loudspeakers are designed so as to ensure continuous operations at rated parameters for at least 100 hours (consistent with IEC-268-5 Standard).

In spite of the fact our loudspeakers are designed for the highest reliability under fire conditions, they can be also used in any and all public address systems.

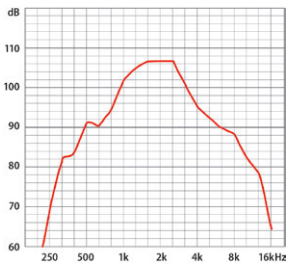
Characteristics

- Directional characteristic of sound emission and the highest verbal communication understanding
- All the working environments – A, B and C
- Wall and ceiling installation
- Protection from dust and humidity: IP66 rating
- Casing made of self-extinguishing ABS UL94V0 plastic, with steel assembling jig
- 100% line protection from short-circuit and break in fire conditions

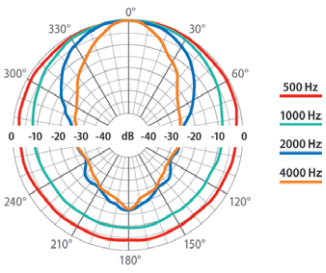
	ABT-T2215	ABT-T2430
Electrical		
Rated power, W	15	30
Tappings 100 V line according to EN 54-24, W	15 / 7,5 / 3,75 / 1,87	30 / 15 / 7,5 / 3,75
Tappings 70 V line, W	7,5 / 3,75 / 1,87 / 0,94	15 / 7,5 / 3,75 / 1,87
Transformer impedance, Ω 100 V	667 / 1330 / 2770 / 5330	333 / 666 / 1330 / 2660
Driver impedance, Ω	8	8
Effective frequency range, Hz	460–9000	400–7500
Sensitivity @ 4 m, 1 W, dB	87	88
SPL @ 4 m, Rated power, dB	100	103
SPL @ 1 m, 1 W, dB, Test signal bandwidth 300 Hz–6 kHz	104	105
SPL @ 1 m, Rated power, dB, Test signal bandwidth 300 Hz–6 kHz	116	120
Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]	180 / 121 / 68 / 36	180 / 120 / 75 / 41
Environmental		
Environmental type / IP Rating according to EN 54-24	B / IP33C	B / IP33C
IP Rating	66	66
Min/Max Amb Temp	-25°C / 70°C	-25°C / 70°C
Mechanical		
Dimensions, mm	Lenght 284, ø216	Lenght 325, ø233
Net Weight, kg	1,95	2,20
Colour	Light Grey (RAL 7035)	
Material	ABS UL94V0	
Mounting	Screw, U Type Bracket	
Option		
For DC line monitoring	Capacitor	
Colour optional	RAL Palette	
Ease Model		✓

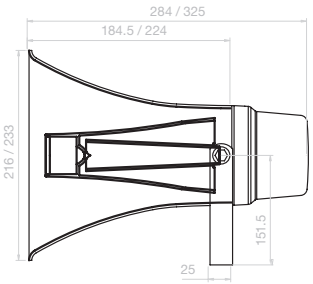
ABT-T2215

Frequency band:

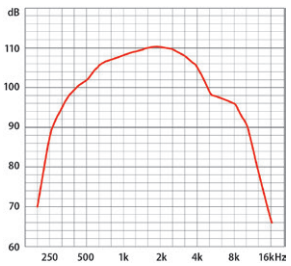


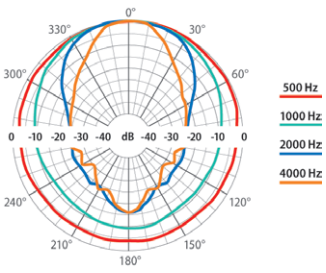
Circular chart of directional characteristic:

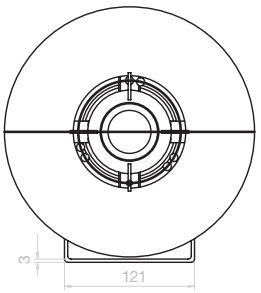




ABT-T2430







ABT-HP240EN
ABT-HP120EN

EN 54-24

High Power Loudspeaker

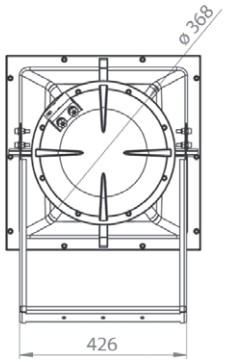
- Compliance with EN 54-24
- Certificate of Conformity issued by CNBOP: 1438-CPR-0482
- 240 W and 120 W transformers 100V
- Highest level of speech intelligibility
- Waterproof housing IP65
- Wide frequency range suitable for music
- Compliance with BS5839-8 standard (Thermal protection)

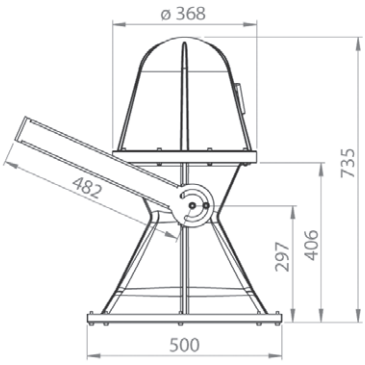
ABT-HP240EN and ABT-HP120HP are powerful loudspeakers designed for sport venues. They are two-way loudspeaker equipped with electroacoustic transducers 12” + 1,75” and 8” + 1,3”.
These speakers sets have a wide effective frequency band, which is perfect for the transmission of verbal and musical communication.

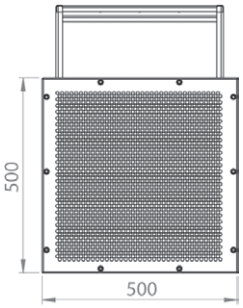
Universal mounting method allows to mount the speakers in a simple manner. Waterproof housing makes that it can be successfully used outdoors (stadiums, halls, etc.).

ABT-HP240EN and ABT-HP120EN are equipped with the necessary instrumentation required to connect them to the voice evacuation system. Between the ceramic block and speaker transformer there is installed thermal fuse isolating transformer from a loudspeaker line.

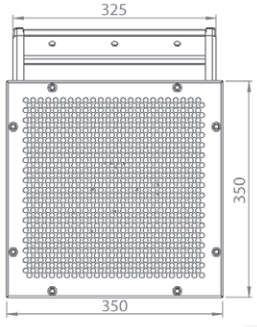
ABT-HP240EN

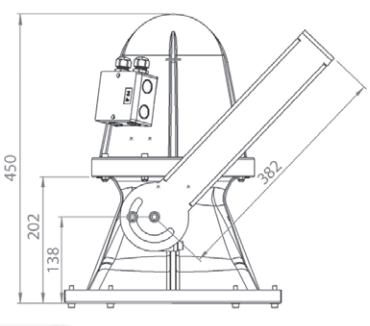


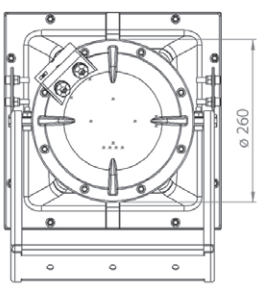




ABT-HP120EN



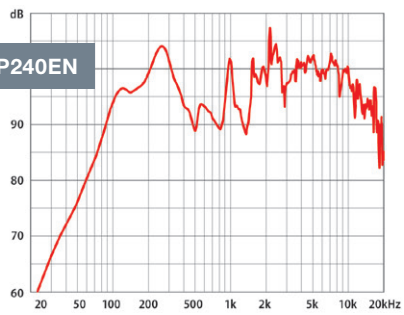




	ABT-HP240EN66	ABT-HP240EN94	ABT-HP120EN66	ABT-HP120EN94
Electrical				
Number of transducers	2	2	2	2
Rated power, W	240	240	120	120
Tappings 100V line according to EN 54-24, W	240 / 120 / 60	240 / 120 / 60	120 / 60 / 30	120 / 60 / 30
Tappings 70V line, W	120 / 60 / 30	120 / 60 / 30	60 / 30 / 15	60 / 30 / 15
Transformer impedance @100V, Ω	42 / 84 / 167	42 / 84 / 167	84 / 167 / 333	84 / 167 / 333
Driver impedance, Ω	8	8	8	8
Effective frequency range, Hz	65 – 20 000	65 – 20 000	85 – 20 000	85 – 20 000
Sensitivity @4 m, 1 W, dB	84	84	81	81
SPL @4 m, Rated power, dB	108	108	105	105
SPL @1 m, 1 W, dB	96	96	93	93
SPL @1 m, Rated power, dB	120	120	117	117
Horizontal dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]	110 / 60 / 65 / 55	110 / 60 / 85 / 55	160 / 90 / 45 / 35	165 / 120 / 80 / 60
Vertical dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]	105 / 60 / 65 / 55	105 / 65 / 80 / 65	160 / 90 / 45 / 35	160 / 100 / 65 / 45
Environmental				
Environmental type / IP Rating according to EN 54-24	B / IP33C			
IP Rating	IP65			
Min/Max Amb Temp	-25°C / 70°C			
Mechanical				
Dimensions, mm	500 × 500 × 735	500 × 500 × 735	350 × 350 × 450	350 × 350 × 450
Net Weight, kg	29	29	16	16
Colour	Black (RAL 9005)			
Material	Glass fiber			
Mounting	U Type Bracket			
Option				
Colour optional	RAL Palette			
Ease Model	✓			

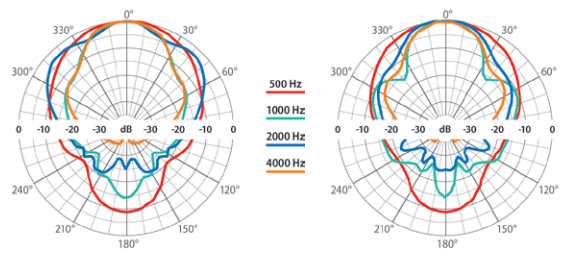
Frequency band:

ABT-HP240EN

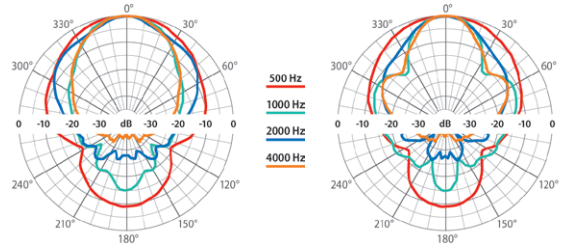


horizontal << circular chart of directional characteristic >> vertical

ABT-HP240EN66

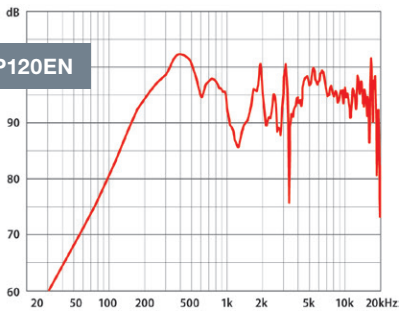


ABT-HP240EN94



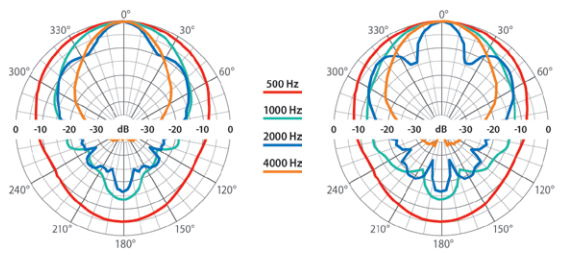
Frequency band:

ABT-HP120EN

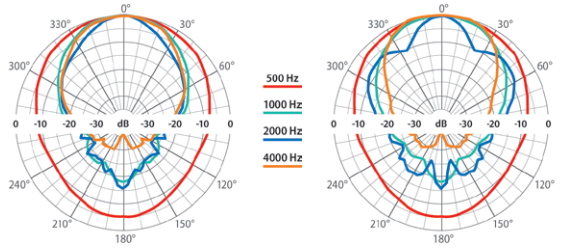


horizontal << circular chart of directional characteristic >> vertical

ABT-HP120EN66



ABT-HP120EN94



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