Ambient System

We make everyday life safer
About us

Ambient System is leading Polish provider of modern PAVA systems to clients worldwide. Our projects range from complex installations such as refineries, airports, stadiums, tunnels and shopping centres to medium and small structures like hospitals, train stations, hotels, office buildings, supermarkets or schools.

- proven and reliable technology – we’ve been delivering PAVA systems for over 10 years
- innovative solutions tailored to client needs
- digital, scalable & cost-effective solutions compliant with Fire Safety industry standard EN-54
- full ownership of our product cycle – design, solution development, quality testing and implementation support – all in ONE place
- more than 600 objects in our portfolio
- technical expertise and specialist engineering skills

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Portfolio

Ambient System has more than 600 objects in portfolio:
Public Address & Voice Evacuation System

- Flexible and scalable configuration
- Fully digitalised audio transmission
- Redundant communication between control units and 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
The MULTIVES 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 MULTIVES 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 MULTIVES 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 MULTIVES 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 xCtrLn-4 and xCtrLn-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 100V 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 bridgable Class D amplifiers (8x 80 W, 8x 160 W, 4x 160W, 2x 650 W, 1x 650 W)

Elements of the Integrated MULTIVES System

<table>
<thead>
<tr>
<th>MULTIVES Devices</th>
<th>MULTIVES Exchangeable modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABT-CU-8LCD</td>
<td>ABT-xNET-1Gb/WAN/RS communication card</td>
</tr>
<tr>
<td>ABT-CU-11LT</td>
<td>ABT-xLogIn-8f logical input card for function slot</td>
</tr>
<tr>
<td>ABT-CU-11LCD</td>
<td>ABT-xLogIn-8c logical input card for control slot</td>
</tr>
<tr>
<td>ABT-DMS</td>
<td>ABT-xLogOUT-8f logical output card for function slot</td>
</tr>
<tr>
<td>ABT-DFMS</td>
<td>ABT-xLogOUT-8c logical output card for control slot</td>
</tr>
<tr>
<td>ABT-DMS-LCD</td>
<td>ABT-xAudio-4IN/8 OUT AUDIO / RS485 audio card</td>
</tr>
<tr>
<td>ABT-DMS</td>
<td>ABT-xAudio-8 audio card /IN AUDIO</td>
</tr>
<tr>
<td>ABT-EKB-20M</td>
<td>ABT-xCrLn-2 2 loudspeaker line control card</td>
</tr>
<tr>
<td>ABT-ISLE</td>
<td>ABT-xCrLn-4 4 loudspeaker line control card</td>
</tr>
</tbody>
</table>

The modular system design allows the system to be tailored to specific requirements in terms of design and development.
Control Units

Flexible, multi-functional and modular Control Units (CU) are the key elements of the MULTIVES 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).

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

The CUs is equipped with 1xABT-xCtrLine-4 card in slot 1, 1xAudIO-4/8-RS card in slot A and 1xLogIN-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 (ABT-xCtrLine-2/4 and xLogIN/OUT).

ABT-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.

The main characteristics of the MULTIVES system are its versatility and interchangeability of three types of CUs that function in a redundant communication ring i.e. ABT-CU-8LCD, ABT-CU-11LT and ABT-CU-11LCD. Each CU is equipped with unique features, which allow the MULTIVES system to effectively warn the public of eminent danger thus fulfilling its Voice Evacuation purpose; as well as provide non-emergency and Public Address functions.

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.
ABT-CU-11LT / ABT-CU-11LCD Control Units

ABT-CU-11LT Control Unit (CU) is a matrix mixer of input signals which it routes to 4 100V internal audio buses, a 45-channel digital system buses or directly to audio outputs in a unit. ABT-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 control cards). 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, ABT-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, ABT-CU11LT can control amplifiers and power supply managers as well as receive alarm and digital signals; and send them to other system devices.

ABT-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 ABT-CU40-B/12 card offering 4 symmetrical line audio inputs and 12 symmetrical outputs to load audio signals out to external devices or amplifiers of the MULTIVES system.

Furthermore, ABT-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 ABT-CU-11LCD Control Unit.

CHARACTERISTICS

» Compliances 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)
» 1 x POE port
» Support of up to 12 secured amplifiers
» Built-in 2 control inputs and outputs
» 2 x 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 MULTIVES system with 3rd party systems thanks to implementation of standard and proprietary communication interfaces

Microphones

ABT-DFMS
A MULTIVES 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 ABT-EBK-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 (embedded) 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

» 4.5” LCD touch screen for fast and clear matrixing 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

ABT-DMS-LCD
This microphone performs the same role as an ABT-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 matrixing 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

ABT-DMS
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 ABT-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 ABT-EBK-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

ABT-EBK-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.

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
**Exchangeable modules**

**CPU CARD**
**ABT-xCPU**

The card integrates ABT-CU8 and ABT-CU8LCD Control Units with other elements of the MULTIVES system. CPU controls the whole network traffic and manages audio routing, digital matrix (8x8), as well as all DSP functions. ABT-xCPU enables remote access to the configuration parameters of each element of the system.

**8 AUDIO INPUT EXTENSION CARD**
**ABT-xAudI-8**

This audio input extension card is designed for a function slot in ABT-CU8/LCD Control Unit. It offers 8 symmetrical line audio inputs via a Phoenix-type connector.

**COMUNICATION CARD**
**ABT-xNET-1Gb/WAN/RS**

ABT-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 MULTIVES 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/GHCP protocols and assures CPU-OFF based audio data exchange by means of a protocol developed by Ambient System. Furthermore, the card has an RS485 port enabling seamless integration of the MULTIVES 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.

**4 AUDIO INPUT / 8 AUDIO OUTPUT CARD**
**ABT-xAudI0-4/8-RS**

This audio input/output card is designed for a function slot of ABT-CU8/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 MULTIVES system. The card is also equipped with an RS485 interface through which the MULTIVES system can be controlled or integrated with devices offered by other producers.

**4 LOUDSPEAKER LINE CONTROL CARD**
**ABT-xCtrLn-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 bases and individual amplifier input on the card. Thanks to a built-in measuring component, ABT-xCtrLn-4 card monitors the status of the internal rail.

**2 LOUDSPEAKER LINE CONTROL CARD**
**ABT-xCtrLn-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 bases and individual amplifier input on the card.

**LOGICAL OUTPUT CARD FOR FUNCTION / CONTROL SLOTS**
**ABT-xLogOUT-8f / ABT-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.

**LOGICAL INPUT CARD FOR FUNCTION / CONTROL SLOTS**
**ABT-xLogIN-8f / ABT-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 MULTIVES system. Inputs of an ABT-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.

**ABT-ISLE**

The ABT-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.
MULTIVES system configuration
software / system examples

MULTIVES SELECTOR

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

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

EXAMPLE 1 / HOTEL

Example of a small MULTIVES system configuration:

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

with dedicated devices:

- 1 x ABT-CU-11LCD Control Unit (8xABT-xCtrLn-4)
- 2 x 4 channels x 320 W (2xABT-PA8160B amplifiers)
- 1 x 2 channels x 320 W (1xABT-PA4160B amplifier) backup amplifier
- Power Supply Equipment
- 1 x ABT-DFMS fireman microphone
- 1 x ABT-DMS-LCD zone microphone with LCD

EXAMPLE 2 / OIL REFINERY

Example of a large MULTIVES system configuration:

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

with dedicated devices:

- 1 x ABT-CU-8LCD Control Unit (8xABT-xCtrLn-4)
- 7 x ABT-CU-11LT Control Unit (8xABT-xCtrLn-4)
- 5 x 4 channels x 320 W (5xABT-PA8160B amplifiers)
- 4 x 2 channels x 320 W (4xABT-PA4160B backup amplifiers)
- Power Supply Equipment
- 2 x ABT-DFMS fireman microphone
- 1 x ABT-DMS-LCD zone microphone with LCD
- 9 x ABT-DMS zone microphone
Compact plug and play wall mounted box

- Compliance with EN 54-16
- Impedance or loop speaker monitoring
- Remote management via WAN
- Up to 254 devices can be connected on the network (incl. fireman and zone microphones)
- Ability to connect standalone miniVES boxes via an optional network card
miniVES is a standalone compact Voice Evacuation System which meets all requirements of EN 54-16 standard. It is ideal for small to medium-size applications requiring EN 54-16:2008 system.

The control units are equipped with two independent Class D amplifiers (2x160 W or 2x320 W) distributing 100 V signals to 2AB and 4AB lines. The amplifiers are configured so that the 2nd amplifier is used as a standby device in case of a failure of the main amplifier.

miniVES is equipped with integrated backup power supply, a charging unit and EN S4-4 compliant circuit for the DC back-up and batteries checker.

The miniVES is designed to be a Plug & Play device with all elements expected from Voice Evacuation Systems; including a built-in fire microphone, programmable contact inputs and outputs, 1 h space for pre-recorded messages; and battery slots – all fitted into IP30 chassis.

**miniVES main features:**

- **Compliance with EN 54-16**
- **Allows phased evacuation**
- **Fully controlled by 4.5” colour touch screen**
- **Impedance or loop speaker monitoring**
- **RJ45 (TCP/ IP) socket for programming**
- **Industrial SD card for storage of messages and FW**
- **Remote management via WAN**
- **Up to 254 devices can be connected on the network (incl. fireman and zone microphones)**
- **Ability to create distributed Voice Evacuation System by connecting any number of standalone miniVES boxes via an optional network card (up to 254 devices)**

### miniVES system example

<table>
<thead>
<tr>
<th>miniVES 2001*</th>
<th>miniVES 4001*</th>
<th>miniVES 4002*</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of AB zones</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>No of speaker lines</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>No of control inputs</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>No of relay outputs</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>No of amplifiers / Power</td>
<td>2 / 160 W RMS</td>
<td>2 / 320 W RMS</td>
</tr>
<tr>
<td>Redundant amplifier</td>
<td>Yes – 160 W RMS</td>
<td>Yes – 320 W RMS</td>
</tr>
<tr>
<td>No of messages played at the same time</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Protection</td>
<td>Over-temperature, short circuit, overload, ground leakage</td>
<td></td>
</tr>
<tr>
<td>Battery working time</td>
<td>30 hours + 30 minutes evacuation</td>
<td></td>
</tr>
<tr>
<td>Ingress protection</td>
<td>IP 30</td>
<td></td>
</tr>
<tr>
<td>Operating condition</td>
<td>-5 to + 45°C / 5% to 95% humidity with no condensation</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>60 kg</td>
<td></td>
</tr>
<tr>
<td>Dimensions (W x H x D)</td>
<td>439 mm x 529 mm x 350 mm</td>
<td></td>
</tr>
<tr>
<td>Finish</td>
<td>Black / Graphite</td>
<td></td>
</tr>
<tr>
<td><strong>Optional functions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No of audio inputs</td>
<td>1-Stereo to mono</td>
<td></td>
</tr>
<tr>
<td>Network card</td>
<td>2x SFP module 1 Gb/s, 1x POE 100 Mb/s, 1xLAN 100 Mb/s connection; RS485 port; 1xLAN/WAN 100 Mb/s connection</td>
<td></td>
</tr>
<tr>
<td>GUI</td>
<td>4,5” color touch screen</td>
<td></td>
</tr>
<tr>
<td>DSP</td>
<td>Input EQ, outputs EQ, Feedback eliminator and audio limiter</td>
<td></td>
</tr>
<tr>
<td>Volume regulators</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
ADVANCED Voice Evacuation System with Specialized Tunnel Loudspeakers

- Advanced DSP for best audio transmission in harsh acoustic conditions
- Communication redundancy between control units and fireman microphone
- Distributed intelligence of the system
- Flexible and scalable configuration
- Specially designed for tunnel applications
- Highly directional asymmetric horn
- Excellent speech intelligibility
- Stainless steel construction
Intelligent Voice Evacuation System for Tunnel

Add up to 254 devices on the network

Main Parameters of the MULTIVES System:

- Compliance with EN 54-16, EN 60849
- 28 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 xCtrLn-4 and xCtrLn-2 cards
- Intercom function between all microphones
- 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
- External audio inputs in all control units and zone microphones
- Up to 12 secured amplifiers fully supported
- 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 (8x 80 W, 8x 160 W, 2x 650 W)

Safety for Tunnel
Advanced Voice Evacuation System with Specialized Tunnel Loudspeakers

Elements of S4T System

<table>
<thead>
<tr>
<th>MULTIVES Devices</th>
<th>Fire Alarm Loudspeakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABT-CU-4LCD</td>
<td>ABT-TNL100</td>
</tr>
<tr>
<td>ABT-CU-11LT</td>
<td>highly directional tunnel loudspeaker</td>
</tr>
<tr>
<td>ABT-CU-11LCD</td>
<td>ABT-PA8080B</td>
</tr>
<tr>
<td></td>
<td>8x 80 Watt class-D power amplifier</td>
</tr>
<tr>
<td>ABT-DFMS</td>
<td>ABT-PA8160B</td>
</tr>
<tr>
<td></td>
<td>8x 160 Watt class-D power amplifier</td>
</tr>
<tr>
<td>ABT-DMS-LCD</td>
<td>ABT-PA2650B</td>
</tr>
<tr>
<td></td>
<td>2x 650 Watt class-D power amplifier</td>
</tr>
<tr>
<td>ABT-DMS</td>
<td>ABT-PSM48</td>
</tr>
<tr>
<td></td>
<td>Power Supply Manager</td>
</tr>
<tr>
<td>ABT-DFMS</td>
<td>ABT-PS48800</td>
</tr>
<tr>
<td></td>
<td>Power Supply Unit 48 V/100 W</td>
</tr>
</tbody>
</table>

TUNNEL SITE 1

Rack with ABT-CU-4LCD

ABT-CU-4LCD control unit with 8 control slots, 4 Audio-DSP extension (function) slots and touch screen GUI

ABT-TNL100

ABT-CU-11LT control unit with 11 control slots

ABT-CU-11LCD control unit with 11 control slots

ABT-DFMS desktop fireman microphone station

ABT-DMS-LCD desktop zone microphone with touch screen

ABT-DMS desktop zone microphone station

ABT-EBK-20M 20-key extension keyboard

ABT-ISLE interface communication module and audio signal splitter with RS485 for external systems

TUNNEL SITE 2

Rack with ABT-CU-11LCD

2794 tunnel loudspeakers

45 global audio channels

2794 simultaneously played messages

EN 54-16

EN 54-4

EN 54-24

TUNNEL SITE 3

Rack with ABT-CU-11LT

ABT-DMS-LCD Zone Microphone with LCD

ABT-DFMS Fireman Microphone

TUNNEL SITE 4

Rack with ABT-CU-11LT

ABT-DMS + ABT-EBK-20M Zone Microphone, Microphone Keyboard Extension

ABT-TNL100

ABT-TNL100 up to 11 tunnel loudspeakers

EN 54-16

EN 54-4

EN 54-24

Safety for Tunnel
Advanced Voice Evacuation System with Specialized Tunnel Loudspeakers

External audio inputs in all control units and zone microphones

Up to 12 secured amplifiers fully supported

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 (8x 80 W, 8x 160 W, 2x 650 W)

Fire Alarm Loudspeakers

ABT-TNL100 highly directional tunnel loudspeaker

Power Amplifiers

ABT-PA8080B 8x 80 Watt class-D power amplifier

ABT-PA8160B 8x 160 Watt class-D power amplifier

ABT-PA2650B 2x 650 Watt class-D power amplifier

Power Supply Equipment

ABT-PSM48 Power Supply Manager

ABT-PS48800 Power Supply Unit 48 V/100 W
Compliance with EN 54-16
Can be used in every Public Address System
Designed for the MULTIVES system

Power Amplifiers
ABT-PA8080B / ABT-PA8160B / ABT-PA2650B
The Amplifiers are designed for perfect integration into the Ambient System 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 ABT-PAXXXXB is a family of 2U, rack mountable, 8-channel (ABT-PA8080B, ABT-PA8160B) and 2-channel (high power ABT-PA2650B) class-D transformer isolated power amplifiers for 50V and 100V distributed loudspeaker systems. Amplifier ABT-PA8080B can deliver up to 8x 160 W, for ABT-PA8160B and ABT-2650B delivering power increases respectively to the 8x 160 W and 2x 650 Watt class-D power amplifier (ABT-PA2650B) class-D transformer isolated ABT-PA8160B) and 2-channel (high power ABT-PA2650B) delivering power increases respectively to the 8x 160 W and 2x 650 Watt class-D power amplifier.

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

The ABT-PAXXXXB amplifiers are prepared to connect an external audio source by using up to the eight BGM inputs (1 per channel) with the sensitivity level regulation. In the alarm mode the BGM inputs have to be muted by shorting the lines from BGM CTRL to the ground.

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

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  - ABT-PA8080B, ABT-PA8160B: 4 x 160 W or 4 x 320 W by daisy-chaining
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- ABT-PAXXXXB series combines with the ABT-PSM48 Power Supply Manager (charger and back-up supply)
**Power Supply Equipment**

ABT-PSM48 / PS48800 / PF4  
ABT-PSM24 / PS24500 / PF4  

- **EN 54-4**
- **EN 12101-10**

✓ Compliance with:
  - EN 54-4 standard applicable to Voice Evacuation System
  - EN 12101-10 standard applicable to Smoke and Heat Control System

✓ ABT-PSM48 – Designed for the MULTIVES system

✓ ABT-PSM24 and ABT-PSM48 – can be used in every 24 V or 48 V PAVA and other systems
ABT-PSM48/PSM24
ABT-PS48800/PS24500/PF4

**POWER SUPPLY EQUIPMENT**

ABT-PSM48/24 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) and 1.6 kW (24 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 (ABT-PS48800) for 48 V and 500 W (ABT-PS24500) for 24 V. PSM48 power supply manager uses internal power converter for 24 V equipment. As a source of stand-by power supply it uses the battery bank of the capacity of up to 200 Ah.

ABT-PSM48/24 cooperates with the 4x12 V / 2x12 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.

ABT-PS48800/PS24500 is designed for assembling in a dedicated ABT-FF4 Power Supply Unit Frame. The elements of the system are designed for assembling in a Rack 19” IP30-type.

**ABT-PSM48**

- Maximum configuration: 1x ABT-PSM48/PSM24 – Power Supply Manager
- 4x ABT-PS4880/PS24500 – Power Supply Unit
- 1x ABT-FF4 – Power Supply Units Frame
- AC power supply: 230 VAC +10% -15%, 50/60 Hz
- Max nominal power consumption: 885 W / 3.85 A
- 590 W / 2.6 A
- Efficiency at rated power: > 90% > 85%
- DC input: 4; bolted terminals; dedicated power supply unit (ABT-PS48800/PS24500)
- DC input protection: 4 x 20 A 80 Volt DC
- DC outputs: 8 x 48 V, each output max. 30 A
- 6 x 24 V, each output max. 5 A
- Summary maximum DC output load: 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

**ABT-PS24500**

- AC power supply: 230 VAC +10% -15%, 50/60Hz, 3.85 A
- Wire with IEC 60320 C13 3x0,75 mm² coupling (supplied with the unit)
- Maximum power consumption: 885 W / 3.85 A
- 590 W / 2.6 A
- Efficiency at rated power: > 90% > 85%
- AC input protection: T6.3 A/230 V 5x20mm slow blow fuse (accessed when the casing is open)
- Protection from electric shock: Class I (EN 60606)
- DC output: 52 VDC, max. 15.4 A
- 26 VDC, max. 19.2 A
- Dimensions: 85 (W) x 95 (H) x 395 (D)
- Weight: 2.6 kg
Fire Alarm
Loudspeakers

- ABT-LA30, ABT-LA60
- ABT-W6 / ABT-W6/AB
- MCR-SWSM6, MCR-SMSP20
- ABT-T1510, ABT-T2215, ABT-T2430
- ABT-TNL100, ABT-TNL100-1
- ABT-HP240EN, ABT-HP120EN
- ABT-S276/AB
- ABT-S106, ABT-S136, ABT-S206
- ABT-S2010, ABT-S2710
ABT-LA30 / LA60

LINE ARRAY LOUDSPEAKERS COLUMNS

✓ Compliance with EN 54-16
✓ Certificate of Conformity issued by ITB: 1488-CPD-0207/W

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.

### Electrical

<table>
<thead>
<tr>
<th>Parameter</th>
<th>ABT-LA30</th>
<th>ABT-LA60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum power, W</td>
<td>48</td>
<td>96</td>
</tr>
<tr>
<td>Rated power, W</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>Tappings 100 V line, W</td>
<td>30 / 15 / 7,5 / 3,75</td>
<td>60 / 30 / 15 / 7,5</td>
</tr>
<tr>
<td>Driver impedance, Ω</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Effective frequency range, Hz</td>
<td>141 - 20 000</td>
<td>136 - 20 000</td>
</tr>
<tr>
<td>Sensitivity @ 4m, 1 W, dB</td>
<td>80</td>
<td>81</td>
</tr>
<tr>
<td>SPL @ 1m, Rated power, dB</td>
<td>92</td>
<td>96</td>
</tr>
<tr>
<td>SPL @ 1m, Rated power, db. Test signal bandwidth 300Hz – 6kHz*</td>
<td>107</td>
<td>114</td>
</tr>
</tbody>
</table>

Horizontal coverage angle at 500 Hz / 1 kHz / 2 kHz / 4 kHz [°] | 360 / 220 / 180 / 110 | 360 / 230 / 160 / 110 |

Vertical coverage angle at 500 Hz / 1 kHz / 2 kHz / 4 kHz [°] | 160 / 70 / 36 / 18 | 70 / 30 / 16 / 8 |

### Environmental

<table>
<thead>
<tr>
<th>Parameter</th>
<th>ABT-LA30</th>
<th>ABT-LA60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental type / IP Rating according to EN 54-24</td>
<td>B / IP33C</td>
<td>B / IP33C</td>
</tr>
<tr>
<td>IP Rating</td>
<td>65</td>
<td>65</td>
</tr>
<tr>
<td>Min/Max Amb Temp</td>
<td>-25°C / 70°C</td>
<td>-25°C / 70°C</td>
</tr>
</tbody>
</table>

### Mechanical

| Dimension H x W x D, mm    | 510 x 80 x 110 | 870 x 80 x 110 |
| Colour                     | Silver (RAL 9006) | Silver (RAL 9006) |
| Net Weight, kg             | 2,8       | 5,5       |

### Option

- For DC line monitoring: Capacitor
- Colour optional: RAL Palette
- Ease Model: √

### ABT-LA30

- Frequency band
- Circular chart of directional characteristic – horizontal
- Circular chart of directional characteristic – vertical

### ABT-LA60

- Frequency band
- Circular chart of directional characteristic – horizontal
- Circular chart of directional characteristic – vertical
**ABT-W6/W6/AB**

**WALL-MOUNTED LOUDSPEAKER (SINGLE/AB)**

- Compliance with EN 60849 and EN 54-24
- Certificate of Conformity issued by CNBOP: 1438-CPR-0413 and 1438-CPR-0415
- Compliance with BSS839-8 standard (Thermal protection)
- Exceptionally 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

The ABT-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 ABT-W6 can be fixed as a 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.

Unlike the standard wall-mounted fire alarm loudspeakers, the ABT-W6/AB is equipped with two in-built electro-acoustic transducers, two transformers and two separate sets of ceramic clamps and fuses, which allow connectivity of two independent A/B loudspeaker lines.

**Technical Specifications**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>ABT-W6</th>
<th>ABT-W6/AB</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Electrical</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated power, W</td>
<td>6</td>
<td>2x 6</td>
</tr>
<tr>
<td>Tappings 100V line, W</td>
<td>6 / 3 / 1.5 / 0.75</td>
<td>2x 6 / 3 / 1.5 / 0.75</td>
</tr>
<tr>
<td>Tappings 70V line, W</td>
<td>3 / 1.5 / 0.75 / 0.375</td>
<td>2x 3 / 1.5 / 0.75 / 0.375</td>
</tr>
<tr>
<td>Transformer impedance, Ω</td>
<td>1667 / 3333 / 6667 / 13333</td>
<td>2x 1667 / 3333 / 6667 / 13333</td>
</tr>
<tr>
<td>Driver impedance, Ω</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Effective frequency range, Hz</td>
<td>120–20 000</td>
<td>150–20 000</td>
</tr>
<tr>
<td>Sensitivity @ 4m, 1W, dB</td>
<td>80</td>
<td>84</td>
</tr>
<tr>
<td>SPL @ 4m, Rated power, dB</td>
<td>84</td>
<td>91</td>
</tr>
<tr>
<td>SPL @ 1m, 1W, dB, Test signal bandwidth 300 Hz–6kHz</td>
<td>94</td>
<td>97</td>
</tr>
<tr>
<td>SPL @ 1m, Rated power, dB, Test signal bandwidth 300 Hz–6kHz</td>
<td>98</td>
<td>104</td>
</tr>
<tr>
<td>Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]</td>
<td>180 / 180 / 163 / 80</td>
<td>180 / 165 / 53 / 30</td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental type / IP Rating according to EN 54-24</td>
<td>A / IP21C</td>
<td>A / IP21C</td>
</tr>
<tr>
<td>IP Rating</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>Min / Max Amb Temp</td>
<td>-10°C / 55°C</td>
<td>-10°C / 55°C</td>
</tr>
<tr>
<td><strong>Mechanical</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions, mm</td>
<td>260 x 180 x 80</td>
<td>260 x 180 x 80</td>
</tr>
<tr>
<td>Net Weight, kg</td>
<td>2.3</td>
<td>2.8</td>
</tr>
<tr>
<td>Colour</td>
<td>White (RAL 9003)</td>
<td>White (RAL 9003)</td>
</tr>
<tr>
<td>Material</td>
<td>Steel</td>
<td>Steel</td>
</tr>
<tr>
<td>Mounting</td>
<td>Screw</td>
<td>Screw</td>
</tr>
<tr>
<td><strong>Option</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For DC line monitoring</td>
<td>Capacitor</td>
<td>Capacitor</td>
</tr>
<tr>
<td>Colour optional</td>
<td>RAL Palette</td>
<td>RAL Palette</td>
</tr>
</tbody>
</table>

**Ease Model**

- Exceptionally 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

**The ABT-W6/AB** has been designed for application in rooms of such size and acoustic conditions that the design proposes one wall-mounted loudspeaker of VES standard. However, in case of a single fault on the loudspeaker line, there is no loss of the sound coverage area in rooms with installed wall-mounted ABT-W6 loudspeakers; therefore it is still possible to use the VES recordings.
Fire alarm MCR-S 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 use 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 multiple tests and trials we have applied for many years, including e.g. our own echo-proof chamber, resistance and integrity testing equipment, as well as chambers for resistance to varying weather and air humidity testing. The need to maintain the best acoustic parameters was the idea underlying the design process. MCR-SWSM6 Loudspeakers have been designed as surface or ceiling-mounted units for a wide area of applications. Thanks to their steel casings the loudspeakers are vandal-proof and more resistant to any mechanical damages. Our loudspeakers are perfect on any circulation routes and in staircases located in shopping centres, offices, schools, hotels, hospitals, and industrial buildings. Moreover, loudspeakers of the kind are commonly used in underground car parks. In spite of its steel casing the loudspeaker mingles well with any interior and is virtually invisible thanks to its small dimensions and neat white finish.

Apart from high mechanical and functional resistance MCR-SWSM6 loudspeakers entirely comply with global requirements for evacuation 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 temperature-proof 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 rubber cable glands. Inside the fire zone the loudspeaker is isolated from the entire line, which ensures line continuity and uninterrupted broadcasting of fire escape messages. The individual power rating is selected by means of connection with applicable transformer branch. All the MCR-S loudspeakers are 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. They are also recommended for use in any and all public address systems.

### Electrical

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated power, W</td>
<td>6</td>
</tr>
<tr>
<td>Tappings 100 V line, W</td>
<td>6 / 3 / 1.5 / 0.75</td>
</tr>
<tr>
<td>Transformer impedance, Ω 100V</td>
<td>1667 / 3333 / 6667 / 13333</td>
</tr>
<tr>
<td>Driver impedance, Ω</td>
<td>8</td>
</tr>
<tr>
<td>Effective frequency range, Hz</td>
<td>150 – 18000</td>
</tr>
<tr>
<td>Sensitivity @ 4m, 1 W, dB</td>
<td>77</td>
</tr>
<tr>
<td>SPL @ 4m, Rated power, dB</td>
<td>86</td>
</tr>
<tr>
<td>SPL @ 1 m, 1 W, dB, Test signal bandwidth 300Hz – 6 kHz</td>
<td>93</td>
</tr>
<tr>
<td>SPL @ 1 m, Rated power, dB, Test signal bandwidth 300Hz–6kHz</td>
<td>101</td>
</tr>
<tr>
<td>Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz [°]</td>
<td>360 / 170 / 120 / 70</td>
</tr>
</tbody>
</table>

### Mechanical

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions, mm</td>
<td>163,5 x 163.5 x 60</td>
</tr>
<tr>
<td>Net Weight, kg</td>
<td>2</td>
</tr>
<tr>
<td>Colour</td>
<td>White (RAL 9003)</td>
</tr>
<tr>
<td>Mounting</td>
<td>Screw</td>
</tr>
<tr>
<td>Option</td>
<td>For DC line monitoring, Capacitor, Colour optional, RAL Palette</td>
</tr>
</tbody>
</table>

### Ease Model

- Compliance with EN 54-24
- Certificate of Conformity issued by ITB: 1488-CPD-0168/W

### Characteristics

- Exceptionally simple and quick installation
- Advanced and functional finish of external visible cover which mingles with every interior
- High sound quality of either musical or verbal messages
- 6 W transformer with multiple branches ensuring accurate selection of output power
- External screen made of galvanised steel available in any colour according to the RAL Palette

### Environmental

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental type / IP Rating according to EN 54-24</td>
<td>B / IP33C</td>
</tr>
<tr>
<td>Min / Max Amb Temp</td>
<td>-25°C / 70°C</td>
</tr>
</tbody>
</table>

### Technical Data

**Frequency band:**

- 150 – 18000 Hz

**Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz [°]:**

- 360° (500 Hz)
- 170° (1 kHz)
- 120° (2 kHz)
- 70° (4 kHz)

**SPL @ 1 m, Rated power, dB, Test signal bandwidth 300 Hz – 6 kHz:**

- 101 dB

**SPL @ 1 m, Rated power, dB, Test signal bandwidth 300 Hz – 6 kHz:**

- 101 dB

**Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz [°]:**

- 360° (500 Hz)
- 170° (1 kHz)
- 120° (2 kHz)
- 70° (4 kHz)

**SPL @ 1 m, Rated power, dB, Test signal bandwidth 500 Hz – 6 kHz:**

- 101 dB

**Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz [°]:**

- 360° (500 Hz)
- 170° (1 kHz)
- 120° (2 kHz)
- 70° (4 kHz)

**SPL @ 1 m, Rated power, dB, Test signal bandwidth 1 kHz – 6 kHz:**

- 101 dB

**Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz [°]:**

- 360° (500 Hz)
- 170° (1 kHz)
- 120° (2 kHz)
- 70° (4 kHz)

**SPL @ 1 m, Rated power, dB, Test signal bandwidth 2 kHz – 6 kHz:**

- 101 dB

**Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz [°]:**

- 360° (500 Hz)
- 170° (1 kHz)
- 120° (2 kHz)
- 70° (4 kHz)

**SPL @ 1 m, Rated power, dB, Test signal bandwidth 4 kHz – 6 kHz:**

- 101 dB

**Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz [°]:**

- 360° (500 Hz)
- 170° (1 kHz)
- 120° (2 kHz)
- 70° (4 kHz)

**SPL @ 1 m, Rated power, dB, Test signal bandwidth 6 kHz:**

- 101 dB
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 multiple tests and trials we have applied for many years, including e.g. our own echo-proof chamber, resistance and integrity testing equipment, as well as chambers for resistance to varying weather and air humidity testing. The need to maintain the best acoustic parameters was the idea underlying the design process.

MCR-SMSP20 series include 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 polished 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 up to 650°C temperature proof 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 rubber cable glands. Inside the fire zone the loudspeaker is isolated from the entire 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 up to 650°C temperature proof 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 rubber cable glands. Inside the fire zone the loudspeaker is isolated from the entire transmitting line connected with the loudspeaker even in the case the latter is damaged or burnt as a result of fire.

Selected loudspeakers from the MCR-SMSP20 series are certified by ITB. The said protection is composed of up to 650°C temperature proof 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 rubber cable glands. Inside the fire zone the loudspeaker is isolated from the entire transmitting line connected with the loudspeaker even in the case the latter is damaged or burnt as a result of fire.

MCR-SMSP20 is 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, available in silver – optionally in any colour according to the RAL Palette.

Ideal for either ceiling or wall installation.

Two gland insulated penetrations for external cabling.

Fireproof casing with ceramic block and temperature limit fuse.

Fireproof internal wiring.

High sound quality in music and speech emission.

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, available in silver – optionally in any colour according to the RAL Palette
- Ideal for either ceiling or wall installation
- Two gland insulated penetrations for external cabling
- Fireproof casing with ceramic block and temperature limit fuse
- Fireproof internal wiring
- High sound quality in music and speech emission

- Compliance with EN 54-24
- Certificate of Conformity issued by ITB: 1488-CPD-0167/W
HORN-TYPE LOUDSPEAKERS

ABT-T1510 / ABT-T2215 / ABT-T2430

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 employing echo-proof 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 condition (A, B, C environmental type). Thanks to their balanced frequency band they guarantee high understanding of verbal communication. Furthermore, they can transmit musical background. Their casings are made of ABS UL94V0, a synthetic material featuring high resistance to mechanical damages and self-extinguishing properties. The casings are designed so as to 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. This feature has been confirmed by means of the most rigorous testing under the temperature of 822°C + 240°C (consistent with IEC-268-5 Standard).

Our ABT-T loudspeakers offer comprises three power rating models, i.e. 10 W, 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.
VOICE EVACUATION SYSTEMS
FIRE ALARM LOUDSPEAKERS

ABT-TNL100 / TNL100-1

HIGHLY DIRECTIONAL TUNNEL LOUDSPEAKER

- Compliance with EN 54-24
- Specially designed for tunnel applications
- Highly directional asymmetric horn
- Excellent speech intelligibility
- Stainless steel construction
- Waterproof housing IP66
- High power output 100 / 50 W

In case of an emergency, the Voice Evacuation System needs to guide people in the tunnel to safety so the audio transmission should be as clear as possible. In general, due to high levels of reverberation and noise, a tunnel is not an ideal environment for Voice Evacuation System and therefore speech intelligibility becomes a critical parameter for any voice alarm application. To establish a sufficient level of speech intelligibility, a highly directional speakers system is required. By reducing the energy emitted to other surfaces, reflective sound energy can be minimized which results in a better direct to reverberant ratio. This will improve the maximum feasible speech intelligibility. To minimize disturbing echo effects, resulting in a loss of speech intelligibility, each horn speaker is driven by an individual signal channel in a 100 V installation, which is equipped with audio DSP including EQ and delay. Our product S4T (Safety For Tunnel) offers the most effective solution which seamlessly combines a dedicated Voice Evacuation System with tailored Tunnel Loudspeakers.

<table>
<thead>
<tr>
<th>ABT-TNL100</th>
<th>ABT-TNL100-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated power, W</td>
<td>100</td>
</tr>
<tr>
<td>Tappings 100 V line, W</td>
<td>100 / 50</td>
</tr>
<tr>
<td>Transformer impedance, Ω 100 V</td>
<td>100 / 200</td>
</tr>
<tr>
<td>Driver impedance, Ω</td>
<td>6</td>
</tr>
<tr>
<td>Effective frequency range, Hz</td>
<td>250-8000</td>
</tr>
<tr>
<td>Sensitivity @ 4 m, 1 W, dB</td>
<td>99</td>
</tr>
<tr>
<td>SPL @ 4 m, Rated power, dB</td>
<td>119</td>
</tr>
<tr>
<td>SPL @ 1 m, 1 W, dB</td>
<td>111</td>
</tr>
<tr>
<td>SPL @ 1 m, Rated power, dB</td>
<td>131</td>
</tr>
<tr>
<td>Dispersion, horizontal x vertical, [°]</td>
<td>25 x 35</td>
</tr>
</tbody>
</table>

**Environmental**

- Environmental type: B
- IP Rating: IP66
- Min / Max Amb Temp: -25°C / 70°C

**Mechanical**

- Dimensions, mm: 1770 x 1020 x 455
- Net Weight, kg: 32
- Colour: Grey (RAL 7035)
- Material: Stainless steel
- Mounting: Anchor for concrete
- Option: For DC line monitoring
- Colour optional: RAL Palette

**Frequency Band**

- Frequency Range: 60 Hz to 18 kHz
**ABT-HP240EN**
**ABT-HP120EN**

**HIGH POWER LOUDSPEAKER**

- Compliance with EN 54-24
- 240 W and 120 W transformers 100 V
- Highest level of speech intelligibility
- Waterproof housing IP65
- Wide frequency range suitable for music

ABT-HP240EN and ABT-HP120EN are powerful loudspeakers designed to amplify large objects. 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.

### Electrical

<table>
<thead>
<tr>
<th></th>
<th>ABT-HP240EN</th>
<th>ABT-HP120EN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of transducers</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Rated power, W</td>
<td>240</td>
<td>120</td>
</tr>
<tr>
<td>Tappings, W</td>
<td>240 / 120 / 60</td>
<td>120 / 60 / 30</td>
</tr>
<tr>
<td>Transformer impedance @100 V, Ω</td>
<td>42 / 84 / 167</td>
<td>84 / 167 / 333</td>
</tr>
<tr>
<td>Driver impedance, Ω</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Effective frequency range, Hz</td>
<td>65 – 20 000</td>
<td>85 – 20 000</td>
</tr>
<tr>
<td>Sensitivity, dB</td>
<td>95</td>
<td>92</td>
</tr>
<tr>
<td>SPL @ 1 m, max power, dB</td>
<td>125</td>
<td>119</td>
</tr>
<tr>
<td>Dispersion, H x V, [°]</td>
<td>90 x 40 / 90 x 60 / 60 x 60</td>
<td>90 x 40 / 90 x 60 / 60 x 60</td>
</tr>
</tbody>
</table>

### Environmental

<table>
<thead>
<tr>
<th></th>
<th>ABT-HP240EN</th>
<th>ABT-HP120EN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental type</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>IP Rating</td>
<td>IP65</td>
<td>IP65</td>
</tr>
<tr>
<td>Min / Max Amb Temp</td>
<td>-25°C / 70°C</td>
<td>-25°C / 70°C</td>
</tr>
</tbody>
</table>

### Mechanical

<table>
<thead>
<tr>
<th></th>
<th>ABT-HP240EN</th>
<th>ABT-HP120EN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions, mm</td>
<td>497 x 497 x 727</td>
<td>345 x 345 x 462</td>
</tr>
<tr>
<td>Net Weight, kg</td>
<td>29</td>
<td>16</td>
</tr>
<tr>
<td>Colour</td>
<td>Black (RAL 9005)</td>
<td>Glass fiber</td>
</tr>
<tr>
<td>Material</td>
<td>Glass fiber</td>
<td>Glass fiber</td>
</tr>
<tr>
<td>Mounting</td>
<td>U Type Bracket</td>
<td>U Type Bracket</td>
</tr>
</tbody>
</table>

### Ease Model

- Colour optional
- RAL Palette

**Frequency band**

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**ABT-HP240EN**

**ABT-HP120EN**
CEILING-MOUNTED AB LOUDSPEAKER

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-mounted 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; therefore it is still possible to use the VES recordings. ABT-S276/AB is equipped with an additional mounting lug allowing attachment of a safety steel cable 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.

### Specifications

<table>
<thead>
<tr>
<th><strong>Electrical</strong></th>
<th><strong>ABT-S276/AB</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of transducers</td>
<td>2</td>
</tr>
<tr>
<td>Rated power, W</td>
<td>2x 6</td>
</tr>
<tr>
<td>Tappings 100 V line, W</td>
<td>2x 6 / 3 / 1.5 / 0.75</td>
</tr>
<tr>
<td>Transformer impedance, Ω 100 V</td>
<td>2x 1667 / 3333 / 6666 / 13333</td>
</tr>
<tr>
<td>Driver impedance, Ω</td>
<td>8</td>
</tr>
<tr>
<td>Effective frequency range, Hz</td>
<td>100 – 20000</td>
</tr>
<tr>
<td>Sensitivity at 4 m, 1 W, dB</td>
<td>85</td>
</tr>
<tr>
<td>SPL at 1 m, Rated power, dB</td>
<td>91</td>
</tr>
<tr>
<td>SPL at 1 m, 1 W, dB, Test signal bandwidth 300 Hz – 6 kHz</td>
<td>94</td>
</tr>
<tr>
<td>Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]</td>
<td>180 / 175 / 162.5 / 90</td>
</tr>
</tbody>
</table>

**Environmental**

| Environmental type / IP Rating according to EN 54-24 | A / IP21C |
| Min / Max Amb Temp | -10°C / 55°C |

**Mechanical**

| Dimensions, mm | Height 124 mm, ø273 |
| Net Weight, kg | 2.5 kg |
| Colour | White (RAL 9003) |
| Material | Steel |
| Mounting | Spring clamp |
| Option | For DC line monitoring |
| Colour optional | Capacitor |
| Ease Model | RAL Palette |

**Frequency Band**

Circular chart of directional characteristic – horizontal:

- 50 Hz
- 100 Hz
- 300 Hz
- 1000 Hz
- 3000 Hz
- 8000 Hz

Circular chart of directional characteristic – vertical:

- 50 Hz
- 100 Hz
- 300 Hz
- 1000 Hz
- 3000 Hz
- 8000 Hz
Ceiling-mounted fire alarm loudspeakers ABT-506 and ABT-516 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.

Ceiling mounted fire alarm ABT-5210, ABT-52710 and ABT-526 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 multiple tests and trials employing such facilities as e.g. echoproof 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 wiring coupled with temperature limit fuse. The series of ceiling-mounted ABT-S loudspeakers is intended 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.

The ABT-S series loudspeakers have been successfully tested by means of the most rigorous trials at the temperature of 822°C. The individual power rating is selected by means of connection with applicable transformer branch.

ABT-S106 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.

**ABT-S106 / S136**
- **Output power, dB**
  - Rated: 1000 / 2000 / 4000 / 8000
  - SPL @ 1 m, 1 W, dB:
    - Test signal bandwidth 300 Hz – 6 kHz: 88 / 90 / 99 / 104 / 105
  - SPL @ 4 m, 1 W, dB:
    - Test signal bandwidth 300 Hz – 6 kHz: 131 / 153 / 180 / 180 / 180
  - SPL @ 1 W, dB:
    - Test signal bandwidth 300 Hz – 6 kHz: 131 / 153 / 180 / 180 / 180

**ABT-S206 / S2010 / S2710**
- **Output power, dB**
  - Rated: 1000 / 2000 / 4000 / 8000
  - SPL @ 1 m, 1 W, dB:
    - Test signal bandwidth 300 Hz – 6 kHz: 180 / 153 / 180 / 180 / 180
  - SPL @ 4 m, 1 W, dB:
    - Test signal bandwidth 300 Hz – 6 kHz: 180 / 153 / 180 / 180 / 180
  - SPL @ 1 W, dB:
    - Test signal bandwidth 300 Hz – 6 kHz: 180 / 153 / 180 / 180 / 180

<table>
<thead>
<tr>
<th>Model</th>
<th>Width, mm</th>
<th>Height, mm</th>
<th>Mounting</th>
<th>Colour</th>
<th>Paintcoat</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABT-S106</td>
<td>ø 85</td>
<td>108</td>
<td>Spring clamp</td>
<td>White (RAL 9003)</td>
<td>Steel</td>
</tr>
<tr>
<td>ABT-S136</td>
<td>ø 115</td>
<td>109</td>
<td>Spring clamp</td>
<td>White (RAL 9003)</td>
<td>Steel</td>
</tr>
<tr>
<td>ABT-S206</td>
<td>ø 170</td>
<td>108</td>
<td>Spring clamp</td>
<td>White (RAL 9003)</td>
<td>Steel</td>
</tr>
<tr>
<td>ABT-S2010</td>
<td>ø 170</td>
<td>108</td>
<td>Spring clamp</td>
<td>White (RAL 9003)</td>
<td>Steel</td>
</tr>
<tr>
<td>ABT-S2710</td>
<td>ø 170</td>
<td>108</td>
<td>Spring clamp</td>
<td>White (RAL 9003)</td>
<td>Steel</td>
</tr>
</tbody>
</table>