



We make everyday life safer



## Content



**MULTIVES** Public Address & Voice Evacuation System

Control Units	10
Microphones	13
Power Amplifiers	14
Power Supply Equipment	16
Exchangeable modules	18
System configuration	20



SIP Family Equipment

VES SIP Gateway	24
SIP Intercom Station	26

23

35



**NETIO** Compact Plug & Play Multi Purpose Power Amplifier **43** 



YELLOW Security System Management Software 51



## Additional Devices

Noise Sensing Microphone	30
Noise Sensing Controller	31
End of Line Supervision Module	32

29



**miniVES** Integrated Mini PA/VA Unit

Microphones	38
Examples of implementations	39

\_\_\_\_\_\_2

47



## Safety for Tunnel Voice Evacuation System with

Voice Evacuation System with Specialized Tunnel Loudspeakers





## **About us**

## **Ambient System is leading Polish provider** of modern PA/VA 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 PA/VA systems for over 10 years

<b>▼</b> -	
<b>~</b> -	

digital, scalable & cost-effective solutions compliant with Fire Safety industry standard EN-54



more than 2000 objects in our portfolio

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## technical expertise and specialist engineering skills

full ownership of our product

quality testing and implementation

support – all in ONE place

**cycle** – design, solution development,

innovative solutions

tailored to client needs



## **Portfolio**





**Gdańsk Airport** Poland





Warsaw Spire Office Poland



**Office Center of Pankrac Prague** 





## Ambient System has **more than 2000 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
- $\checkmark$  Full integration with Fire Alarm Systems
- $\checkmark$  Remote management via Ethernet and WAN connectivity
- Intercom function between all fireman and zone microphones  $\checkmark$
- Unique dynamic allocation of spare amplifiers  $\checkmark$
- ✓ Advanced DSP functions



7

## **Flexible Fully Digital PA & VES**

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 xCtrLine-4 & 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 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 bridgeable Class D amplifiers (8x 80 W, 8x 160 W, 4x 160 W, 2x 650 W, 1x 650 W)

## **Elements of the Integrated MULTIVES System**

MULTIVES Devices MULTIVES Exchangeable modules		odules	
ABT-CU-8LCD	stand-alone control unit with 8 control slots,	ABT-xNET-1Gb/WAN/RS	communication card
	and touch screen GUI ABT-xLogIN-8f		logical input card for function slot
ABT-CU-11LT	control unit with 11 control slots	ABT-xLogIN-8c	logical input card for control slot
ABT-CU-11LCD	control unit with 11 control slots and touch screen GUI	ABT-xLogOUT-8f	logical output card for function slot
ABT-DFMS	desktop fireman microphone station	ABT-xLogOUT-8c	logical output card for control slot
ABT-DMS-LCD	desktop zone microphone with touch screen	ABT-xAudIO-4/8-RS	audio card 4 IN / 8 OUT AUDIO / RS485
ABT-DMS	desktop zone microphone station	ABT-xAudI-8	audio card 8 IN AUDIO
ABT-EKB-20M	20-key extension keyboard	ABT-xCtrLine-2	2 loudspeaker line control card
ABT-ISLE	interface communication moduleand audio signal splitter with RS485 for external systems	ABT-xCtrLine-4	4 loudspeaker line control card



Up to 44 speaker lines



## **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). A CU is controlled by an ABT-xCPU processor card which reproduces audio communications from SD cards to make them available locally and globally. The ABT-xCPU card integrates Control Units with other elements of the MULTIVES 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.

EN 54-16

EN 54-4

1488-CPR-0500/W

**MULTIVES CONTROL UNIT ELEMENTS:** 

2. ABT-xCPU card

3. Power Supply

1. GUI Card for ABT-CU-8LCD

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. Eslot for communication card with SFP modules

and copper RJ45 connectors

The main characteristics of the MULTIVES system are its versatility and interchangeability of three types of the 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. 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.

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 4 100 V 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 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

ring of the system, ABTCU-11LT can control

amplifiers and power supply managers as well

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-cAudIO-4/12 card offering 4 symmetrical line audio inputs and 12 symmetrical outputs

## **CHARACTERISTICS**

- » Compliance with EN 54-16
- » Network-based system allowing configuration, diagnostics and management via Ethernet
- » Managing up to 254 devices on the network
- a networked master unit, ABT-CU-11LT is able » 11 slots available for any configuration of loudspeaker control to perform fire alarm scenarios independently cards and control input / output cards thanks to the configuration recorded locally. While attached to the main communication
  - 12 audio outputs » Up to 12 messages played
- as receive alarm and digital signals; and send simultaneously in different zones
  - » Up to 32 GB SD flash memory designated for playback and recording messages (48 kHz, 16 bit)

to lead 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.

- » Built-in audio card with 4 inputs and

- » 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



## ABT-CU-8LCD Control Unit



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.

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 CU is equipped with 1x ABT-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 (ABT-xCtrLine-2/4 and xLogIN/OUT).

Furthermore, ABT-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: ABT-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 MULTIVES system with 3rd party systems thanks to implementation of standard and proprietary communication interfaces

## **Microphones**

# ABT-DFMS **Fireman Microphone**



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 kevs which can be used to assign functions as required. Up to 5 ABT-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



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

### **ABT-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.



## EN 54-16

### **ABT-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 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-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** / E series

EN 54-16

## ABT-PA8080B/BE / ABT-PA4160B/BE / ABT-PA8160B/BE / ABT-PA1650B/BE / ABT-PA2650B/BE



The Amplifiers are designed for perfect integration into the Ambient System 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 durability in an voice evacuation system. standard for safety installations.

mountable, 8-channel (ABT-PA8080B/BE, ABT-PA8160B/BE), 4-channel (ABT-PA4160B/BE), 2 channel (high power ABT-PA2650B/BE) and 1 channel (ABT-PA1650B/BE) class-D transformer isolated power amplifiers for 50 V and 100 V distributed loudspeaker systems. Amplifier The ABT-PAXXXXBE amplifiers are prepared to ABT-PA8080B/BE can deliver up to 8x 80 W, for ABT-PA8160B/BE and ABT-2650B/BE 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 ABT-PA8080B/BE, 4x320 W for ABT-PA8160B/BE and 1x 1300 W for ABT-PA2650B/BE. These amplifiers have 48 VDC input which allows to connect with battery backup system for maximum availability and

The ABT-PAXXXXB/BE amplifiers are powered The ABT-PAXXXXB/BE is a family of 2U, rack 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).

> 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.

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

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

ABT-PAXXXXB/BE casings: are 2U high, 19-inch rack mountable.

## **CHARACTERISTICS**

- » 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/BE, ABT-PA4160B/BE, **ABT-PA8160B/BE:** 4 x 160 W, 2 x 320 W or 4 x 320 W by daisy-chaining 50 V tapping (input on parallel)
  - > ABT-PA2650B/BE: 1 x 1300 W by daisychaining 50 V tapping (input on parallel)
- » ABT-PAXXXXB/BE series combines with the ABT-PSM48/E Power Supply Manager (charger and back-up supply)
- » At the rear of the ABT-PAXXXXBE you will find: Individual level adjusters / General fault contact (Dry contact) / BGM inputs

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

**ABT-PA1650B/BE** / 1 x 650 Watt class-D power amplifier

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

	ABT-PA8080B/BE	ABT-PA4160B/BE	ABT-PA8160B/BE	ABT-PA1650B/BE	ABT-PA2650B/BE
Power supply					
Nominal DC input voltage			48 V		
DC input voltage range			42 – 57 V		
DC fuse rating (internal)	6x 7,5 AF-H	2x 15 AF- H 2x 7,5 AF-H	4x 15 AF-H 2x 7,5 AF-H	1 x 15 AF- H 2 x 7,5 AF-H	2x 15 AF- H 2x 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		
Balanced input level trim range for 100 V output at 1 kHz and nominal load*			0,95 – 3 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 m	m	
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** / E series

ABT-PSM48/E Power Supply Manager / ABT-PS48800 Power Supply Unit / PF4 Power Frame



ABT-PSM48/E 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 (ABT-PS48800) for 48 V. ABT-PSM48E 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/E 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.

ABT-PSM48/E cooperates with up to 4 modules of ABT-PS48800 Power Supply Units. The manager ensures safe connection for the purpose of parallel operations and monitors the output parameters of each power supply unit.

ABT-PS48800 is designed for assembling in a dedicated ABT-PF4 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 – Power Sup 4x ABT-PS4880 – Power S 1x ABT-PF4 – Power Supply
AC power supply	
Max nominal power consumption	
Efficiency at rated power	
DC input	4; bolted term
DC input protection	
DC outputs	8 x 48 V, each output m (total for all 8 outs ma
Summary maximum DC output load (24 V and 52 V)	
Battery (type)	
Charging current	
Charging voltage	
Maximum resistance of wiring and fuses	
Maximum total serial resistance of wiring, fuses, and batteries	
Operating temperature	
Dimensions	
Weight	
AC power supply	Wire with IEC 603
Maximum power consumption	
Efficiency at rated power	
AC input protection	T6.3 A/250 V 5x 20 r
Protection from electric shock	
DC output	
Dimensions	
Weight	

### ABT-PSM48E

ply Manager Supply Unit Units Frame 1x ABT-PSM48E – Power Supply Manager 4x ABT-PS4880 – Power Supply Unit 1x ABT-PF4 – Power Supply Units Frame

230 VAC + 10%-15%; 50/60 Hz

885 W / 3.85 A

> 90%

ninals; dedicated power supply unit ABT-PS48800

### 4x20 A 58 V DC

nax 30 A x. 63 A) 8x 48V, each output max. 30 A (total for all 8 outs max 63 A) 6x 24V, each output max. 5 A (total for all 6 outs max. 6,25 A)

### 3200 W

4 pieces, VRLA 12 V 15-200 Ah

max. 14 A

54,6 V ± 0,6 V (at 25°C)

 $10\,m\Omega$ 

 $28 - 100 \text{ m}\Omega$ 

-5°C up +40°C

482 (W) x 85 (H) x 443 (D)

7,2 kg

### **ABT-PS48800**

230 VAC +10% -15%, 50/60Hz, 3.85 A 320 C13 3x0,75 mm² coupling (supplied with the unit)

885 W / 3.85 A

> 90%

mm slow-blow fuse (accessed when the casing is open)

Class I (EN 60065)

52 VDC; max. 15.4 A

85 (W) x 95 (H) x 395 (D)

2,6 kg

## **Exchangeable Modules**

EN 54-16

## **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.

## 4 AUDIO INPUT / 8 AUDIO OUTPUT CARD ABT-xAudIO-4/8-RS



This audio input/output card is designed for a function slot of ABT-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 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.

8-AUDIO INPUT EXTENSION CARD ABT-xAudI-8



This audio input extension card is designed for a function slot in ABT-CU-8/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/DHCP 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.



The logical output card has 8 relays i.e. 4 x normally-closed (NC) and 4x 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 **ABT-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, ABT-xCtrLine-4 card monitors the status of the internal rail.

## 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).

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.

### 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.

## 2 LOUDSPEAKER LINE CONTROL CARD ABT-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.

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).

## **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:

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



## EXAMPLE 2 / OIL REFINERY







# **SIP Family Equipment**

- ✓ VES SIP Gateway
- ✓ SIP Intercom Station
  - $\checkmark~$  ABT-IC-1 / Intercom Panel with One Call Button
  - ✓ ABT-IC-K1 / Intercom Panel with Keyboard

Call Button board NEW!



## **VES SIP Gateway**

## **VES SIP GATEWAY**



FRONT PANEL

REAR PANEL



SPECIFICATION	
Processor	Intel Xeon E3-1220v6 (3.0 GHz)
Chipset	Intel C323
Operating memory	1x 8 GB DIMM DDR4 ECC
Hard drive	1x 240 GB SSD
Graphic layout	Aspeed AST2400
Network	2x Intel i210 AT Gigabit LAN
Ports	2 x USB 2.0 / 2 x USB 3.0 / 1 x PS / 2
Dimensions	65 x 482 x 314 mm
Operating system	Linux

## **CHARACTERISTICS**

- » Providing a graphical interface to the initial configuration
- » Assigning the "Hunting group" in the VES SIP Gateway of the loudspeaker zones programmed in the Selector MULTIVES/miniVES software
- » Assigning a telephone number / DTMF code to the "Hunting group" – functionality by simple Graphical interface
- » Assign an access code to the "Hunting group". The code will be provided via the DTMF code
- » Ability to register to a SIP operator and 3rd party IP PBX systems
- » Ability to call via SIP registration or directly after the IP address (in the same network)
- » Connection setup with VES systems via SMS protocol
- » Voice transmission with VES systems via the RTP protocol
- » 16 simultaneous connections to the VES SIP Gateway
- » The basic supported codecs are G.711u and G.711A
- » Manage network settings via the GUI interface







## **SIP Intercom Station**

## ABT-IC-1 / ABT-IC-K1

- ✓ Full Duplex Echo Cancellation
- ✓ High quality HD Audio
- ✓ Supports wide set of IP and networking standards
- ✓ Relays enable control functions
- ✓ Wide operating temperature range from -40 to +65°C
- ✓ High environmental protection level – IP65
- ✓ Robust vandal resistant die-cast aluminium housing – rating IK 08

### MODELS

ABT-IC-1 SIP Intercom, 1 button, IP65, POE or 24 V, 1x relay

ABT-IC-K1 SIP Intercom, keyboard + 1 button, IP65, POE or 24 V, 1x relay

## FUNCTION

- » Two SIP lines, support SIP 2.0 (RFC3261) and related RFC
- » POE Enabled
- » Full-duplex hands-free (HF)
- » Default Auto Answer
- » Open the door operation: DMTF, password
- » Support customized DSS key
- » Network Time Synchronization
- » Action URL / Active URI remote control



AUDIO

» Narrowband speech codec:

» Broadband speech codec: G.722

» Full Duplex Echo Cancellation (AEC)

G.711a / u, G.723.1, G.726-32K, G.729AB

## **NETWORKING / PROTOCOLS**

- » Support: PoE / RTSP / SNTP client / VPN L2TP/open VPN / SRTP / HTTP/HTTPS web pages / Qos:802.1p/q, DSCP / MD5 authentication / Web filter / STUN
- » Primary and secondary DNS servers are supported
- » VLAN
- » DHCP / static / PPPoE
- » Auto-Provisioning via: FTP / TFTP / HTTP / HTTPS / DHCP / TR069 / SIP PNP
- » Web Management Portal



PHYSICAL SPECIFICATION
Relay
Active switching output
Microphone
Speaker
WAN port
Power Supply
Network cable
Mounting
Storage temperature
Working humidity
Protection level
Overall dimension

- wall-mounting or flush-mounting
- -40 70°C
- 10-90%
- IP65 and IK10
- 223 x 130 x 74 mm (W x H x L)





# **Additional Devices**

- ✓ ABT-NSM / Noise Sensing Microphone
- ✓ ABT-NSC6 / Noise Sensing Controller
- ✓ ABT-EOL / End of Line Supervision Module

29



## **ABT-NSM**

### **NOISE SENSING MICROPHONE**

- ✓ Operate under extreme temperatures
- ✓ IP 66 rated housing
- ✓ 2 wire analog connection up to 300 meters from ABT-NSC6

ABT-NSM (A)

ABT-NSM is measurement microphone which is designed to operate under extreme temperatures. Up to 6 microphones can be connected to ABT-NSC6 via 2-wire cable. The ABT-NSM

is available in two housings. Lightweight for indoor applications (A) and enclosures for severe climatic conditions (B).

	NSM (A)	NSM (B)	
Environmental			
Temperature (storage/operating)	-10°C/+55°C	-40°C/+70°C	
Operating Humidity	5% to 95% non-	-condensing	
Ingress Protection	IP 32	IP 66	
General			
Output impedance	1000 Ω	500 Ω	
Frequency response	150 Hz – 20 000 kHz		
Connector for microphones	3 pin ceramic block (+, – , screen)		
Output level (min / max)	250 μV <sub>RMS</sub> / 200 mV <sub>RMS</sub>		
Measurement Range	57–115 dBA		
Mechanical Dimensions	Height 110 mm, ø 200 mm	Length 200 mm, ø 146 mm	
Colour	White (RAL 9003)	Light Grey (RAL 7035)	
Material	Steel	Aluminium	
Mounting	Spring clamp, cut-out ø 170 mm	Screw, U type bracket	
Net Weight	1,5 kg	2,5 kg	

## **ABT-NSC6**

## **NOISE SENSING CONTROLLER**

- ✓ Operate under extreme temperatures
- ✓ IP 66 rated chassis
- ✓ Powered over external PS or POE
- ✓ TCP /IP connection supporting MULTIVES and miniVES
- ✓ Up to 24 controllers in the network
- ✓ Up to 6 Noise sensing mics per controller

ABT-NSC6 is a TCP/IP controller specially designed for the use with MULTIVES and miniVES systems. The main roll of the device is collecting audio data from 6 measurement

Power source	PoE (RJ4
Number of audio inputs	6 dif
Power Consumption (typical / maximum)	
Input voltage range	
Sampling frequency	
Frequency measurement band	
Differential input impedance	
Range of measured values (for input voltages)	
Phantom power	
Temperature (operating)	
Ingress protection	
Enclosure	
Weight	
Purpose of use	

Types of LAN cables used: category 5e F/UTP twisted pair, up to 100 m between control unit/switch and ABT-NSC6; Microphone inputs: YnTKSYekw  $1 \times 2 \times 0.8$ , up to 300m



microphones and automatic volume control of background music and announcements in assigned speaker zones.

## **ABT-NSC6**

45), or by the connector 2-pin Phoenix MSTBVA – 5,08 mm

fferential channels, connector type 3-pin 15EDGVC-3.5

3,5 W / 6 W

36 V – 57 V

24 kHz

200 Hz – 9 kHz @3 dB

 $6500\,\Omega\,@\,1\,kHz$ 

57 dB<sub>SPI</sub> (250 μV<sub>RMS</sub>) – 115 dB<sub>SPI</sub> (200 mV<sub>RMS</sub>)

30 VDC

-5°C to + 60°C

54 // 66 – with additional packing glands

Aluminium

1,2 kg

Ambient noise microphone controller



## **ABT-EOL**

## END OF LINE SUPERVISION MODULE

- ✓ EN 54-16 certified
- ✓ Four power settings (A,B,C,D)\*
- ✓ Fits on built-in mounts on selected Ambient System loudspeakers
- ✓ Powering of the module from the amplifier
- ✓ Loudspeaker line monitoring without additional cabling
- ✓ Open-circuit , short and ground leakeage detection



**INTERCONNECTIONS** 

» Pair of 20cm leads

2 pins connector

» Phoenix contact type 3,5 mm,

## NEW!

32

ABT-EOL monitors the integrity of a loudspeaker line and all of its branches. Supervision of branched lines requires EOL module for each branch. ABT-EOL provides a filtered load exclusively at the pilot tone frequency and increases reliability of loudspeaker surveillance method based on impedance measurement. Module connects in paralel to the last loudspeaker on a line. It has a 4 different modes which has to be selected according to the results calculated by the EOL calculator.

## The following speakers work correctly with the ABT-EOL module:

ABT-S106\*\* / ABT-S136\*\* / ABT-S186\*\* / ABT-S2010 ABT-S206 / ABT-S206B ABT-W6 / ABT-W6W / ABT-W6/AB ABT-LA30/60 / MCR-SMSP20 / ABT-P10 / ABT-P20

The EOL calculator can be found on the following website: https://ambientsystem.eu/en/customer-area

Technical specifications	
Туре	
Connector	
Voltage	
Load	
Operating temperature	
Storage temperature	
Relative humidity	
Dimensions	
Mounting	Internally in t
Weight	

\* Use EOL calculator to choose optimal load settings

\*\* Installation box required

## **OPTIONAL INSTALLATION BOX**



## **ABT-EOL**

End of line module for speaker lines

Phoenix contact type 3,5 mm; 5 pins

100 V loudspeaker line

10 W - 480 W\*

-10°C to 55°C

-40°C to 70°C

< 95%

### 65 (W) x 16 (H) x 37 (D) mm

the loudspeaker / Optional installation box is available

Approx. 46 g / Set of 10 modules - 500 g





34





## **Integrated Mini PA/VA Unit**

- ✓ Stand alone or TCP/IP network architecture
- ✓ All in one independent wall mount EN 54-4/16 PA/VA unit
- ✓ Impedance speaker monitoring
- ✓ Remote management
- $\checkmark$  Up to 254 devices can be connected on the network (incl. fireman and zone microphones)
- $\checkmark$  Ability to connect standalone miniVES units via fiber optic / copper or both cables





## **Integrated Mini PA/VA Unit**









miniVES is scalable Public Address & Voice Alarm unit suitable for multi-purpose architectures. Devices from miniVES 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-0527).

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

miniVES is equipped with integrated backup power supply and EN 54-4 compliant charging unit.

miniVES is 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.

miniVES 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.

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

## miniVES main features:

- » All in one independent wall mount EN54-4/16 PAVA unit
- » Stand alone or TCP/IP network architecture
- » DSP audio processing on board
- » Compatibility with RACK mounted modular MULTIVES
- » Professional Sound Quality
- » Evacuation, paging message and background music features
- » Impedance speaker monitoring
- » Simple installation
- » User friendly and intuitive programming software



	miniVES 2001/N/L/LN*	miniVES 4001/N/L/LN*	miniVES 4002/N/L/LN*
No of AB zones	2	4	4
No of speaker lines	4	8	8
No of control inputs	ntrol inputs 7 7		7
No of relay outputs	3	3	3
NO of amplifiers / Power	2 / 160 W RMS	2 / 320 W RMS	2 / 320 W RMS
Redundant amplifier	Yes – 160 W RMS	Yes – 320 W RMS	Yes – 320 W RMS
No of messages played at the same time	1	1	2
Protection	Over-temper	rature, short circuit, overload, gro	und leakage
Battery working time	3	80 hours + 30 minutes evacuation	
Ingress protection		IP 30	
Operating condition	-5 to + 45°C	/ 5% to 95% humidity with no co	ndensation
Gross Weight	2001 – 26 kg / 4001 – 31 kg / 4002 – 31,5 kg		
Dimensions (WxHxD)	440 mm x 525 mm x 350 mm		
Finish	Black		
Optional functions			
No of audio inputs		1 – Stereo to mono	
No of audio outputs		1 – mono line output	
Network card	2x SFP module 1 Gb/s; 1x POE 1 Gb/s, 100 Mb/s; 1x LAN 1 Gb/s, 100 Mb/s connection; RS485 port; 1x LAN/WAN 100 Mb/s connection		
Basic Network card	2x Lan 1 Gb/s, 100 Mb/s, 1x LAN/WAN 100 Mb/s connection		s connection
GUI		4,5" color touch screen	
DSP	Input EQ, out	outs EQ, Feedback eliminator and	audio limiter

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



## **Microphones**

## **ABT-M01** Microphone

The ABT-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.

ABT-MO4 Microphone

EN 54-16



The ABT-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.

	ABT-M01	ABT-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 x 60 x 165	mm
Net weight (not more than)	1,2 kg	

## **Examples of Implementations**



## PA SYSTEM WITHIN THE STORE

### » 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 miniVES 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.

10

## **INDUSTRIAL FACILITY – networked Voice Evacuation System**

- » miniVES control unit's network cards allow to join several industrial buildings into one integrated system.
- » Use of fibre-optic loops between miniVES 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 miniVES 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 miniVES 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



## **Expansion of existing** miniVES system connection with MULTIVES

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



**BUILDING 1** 

- » miniVES 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.





42



# **NETIO**

## **Compact Plug & Play Multi Purpose Power Amplifier**

- ✓ All in one networkable power amplifier with digital signal processing
- $\checkmark$  Up to 254 devices can be connected on the network sharing up to 45 global high definition audio signals (48 kHz, 32 bit)
- $\checkmark$  Interkom functionality between NETIO and IP microphones
- ✓ User friendly and intuitive programming software
- ✓ Designed for high energy efficiency
- $\checkmark$  Redundant power source with battery charger
- $\checkmark$  Fully integrated with management software

## **Compact Plug & Play** Multi Purpose POWER AMPLIFIER



**NETIO (Network Power Amplifier)** is a high performance 100 V power amplifier that features digital audio networking. NETIO can receive audio from remote other NETIO devices over a standard Local Area Network or locally through analog audio inputs. NETIO includes an advanced, energy efficient Class D 100 V amplifiers design,

and offer several professional features like Feedback Eliminator, Audio Limiter, Delay line up to 30000 ms, input and output EQ. User friendly and intuitive TCP/IP software for PC makes configuration of the stand- alone NETIO or networked system simple and quick.



## **GUI direct access to:**

- Zones statuses: fault, blocked or playing including type of the source
- Simple matrix activation by selecting » zones/groups and audio inputs/messages
- » Fault register in details
- Speaker line impedance preview » local and global
- Global audio signal management over the network

## **Technical Specification**

No of speaker lines
No of control inputs
No of relay outputs
No of amplifiers / Power
Redundant amplifier
No of messages played at the same time
Total audio load of the system
Protection
No of LAN ports
Control by
Additional features
Additional features No of audio inputs
Additional features No of audio inputs No of audio outputs
Additional featuresNo of audio inputsNo of audio outputsPower sources
Additional featuresNo of audio inputsNo of audio outputsPower sourcesDSP
Additional featuresNo of audio inputsNo of audio outputsPower sourcesDSPIngress protection
Additional featuresNo of audio inputsNo of audio outputsPower sourcesDSPIngress protectionWeight
Additional featuresNo of audio inputsNo of audio outputsPower sourcesDSPIngress protectionWeightDimensions (W x H x D)
Additional featuresNo of audio inputsNo of audio outputsPower sourcesDSPIngress protectionWeightDimensions (W x H x D)Finish



NETIO
8
7
3
2 / 320 W
Yes – 320 W
2
400 W
over-temperature, short circuit, overload, ground leakage
1xLAN/WAN for PC configuration 2x LAN 100/1000 Mb Auto-negotiation
programmable 4 buttons and color touch screen

1 – Stereo to mono

1 – mono line output

24 V DC (150 mA maximum) and 48 V DC (350 mA maximum)

input EQ, outputs EQ, Feedback eliminator and audio limiter, delay up to 30000 ms

IP 30

19 kg

439 mm x 176 mm x 354 mm

Black

19" rack or desktop

Up to 8 speaker line







Safety for Tunnel

## **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
- $\checkmark$  Flexible and scalable configuration
- $\checkmark$  Specially designed for tunnel applications
- ✓ Highly directional asymmetric horn
- Excellent speech intelligibility  $\checkmark$
- ✓ Stainless steel construction

## EN 54-16 EN 54-4



**Safety** for **Tunnel** 

**Advanced Voice Evacuation** System with Specialized **Tunnel Loudspeakers** 

- » 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
- » 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 (8x80W, 8x160W, 4x160W, 2x650W, 1x650W)

MULTIVES Devices		Fire Alarm Loudspeakers	
ABT-CU-11LT	control unit with 11 control slots	ABT-TNL100	highly directional tunnel loudspeaker
ABT-CU-11LCD	control unit with 11 control slots and touch screen GUI	MCR-SMSP20	sound projectors
ABT-DFMS	desktop fireman microphone station	Power Amplifiers	
ABT-DFMS BOX	desktop fireman microphone station	ABT-PA4160B	8x 80 Watt class-D power amplifier
ABT-DMS-LCD	desktop zone microphone with touch screen	ABT-PA8160B	8x 160 Watt class-D power amplifier
ABT-DMS	desktop zone microphone station	Power Supply Equipment	
ABT-EKB-20M	20-key extension keyboard	ABT-PSM48	sower supply manager
ABT-ISLE	interface communication module and audio signal splitter with RS485 for external systems	ABT-PS48800	power supply unit 48 V/800 W





# YELLOW

## Security System Management Software

- ✓ Activation of virtual and local control inputs in MULTIVES / miniVES
- Visualisation of statuses Virtual outputs, Zones, Group zones, System statuses  $\checkmark$
- ✓ Identification of playing sources in all visualized zones
- $\checkmark$  Visualization of many independent systems
- The use of TCP/IP, UDP and RS232 and RS485 interfaces  $\checkmark$
- ✓ Automatic presentation of the alarm location
- ✓ Object-oriented visualization, vector and in web browsers
- Support for up to 8 monitors for 4 operators at the same time  $\checkmark$
- ✓ Detection of faults and irregularities in integrated systems
- ✓ Logging events such as alarm, operators, system

## **YELLOW** Security System Management Software



## FEATURES

- » Activation of virtual and local control inputs in MULTIVES/miniVES
- » Visualisation of statuses Virtual outputs, Zones, Group zones, System statuses
- » Activation matrixes dynamically by selecting which source should be played in the selected zone or group of zones
- » Activation of static matrixes
- » Activation of evacuation mode on the MULTIVES/miniVES
- » Volume control

52

» Identification of playing sources in all visualized zones

- » Visualization of many independent systems and objects
- » The use of TCP/IP, UDP and RS232 and RS485 interfaces
- » SNMP and OPC protocol available
- » Oracle type databases
- » Automatic presentation of the alarm location
- » Object-oriented visualization, vector and in web browsers
- » Support for up to 8 monitors for 4 operators at the same time
- » Detection of faults and irregularities in integrated systems
- » Logging events such as alarm, operators, system





Visualization offered by YELLOW is both userfriendly and very rich in functional features. With a comprehensive visualization, you are provided with a dynamic presentation of your devices – both graphic and textual. Visualization is easily adapted to your needs so it keeps its functionality regardless of the nature of the facility. An aesthetic design will help you to create your perfect system for shopping malls, offices, military sites, industrial objects and other.

Visualization can be provided in a form of the classic object technology, vector technology, as well as a WEB browser. For the simplest and most basic form of presentation of your integrated devices put your icons on your pre-defined views (graphic panels) with a simple click. All your icons represent the actual status of the corresponding devices. YELLOW also offers a feature called functional block: for example, you can build whole tables with events, a dynamic list of current events, reception modules, etc. You can also enrich your visualization with special effects, such as semi-transparency

and 3D effects. YELLOW does not require any special set of skills for day-to-day operations. It's a very user-friendly solution designed to guide you through every process.

YELLOW is designed for computer networks with client server structure. This way you can manage the system from multiple locations simultaneously.

You can manage multiple buildings either from one place or from many different places at the same time. In case you have to handle a big number of facilities, cluster technology might be your best bet. This way you can set up a local monitoring center on site, as well as the main monitoring center for global control of all your buildings. Regardless of the location of your devices, the visualisation of events and status is realized on all of the workstations within your network. Likewise, you can conduct all configuration and steering procedures using any computer connected to your network. This way you are more flexible in your work organization.







SYSTEM REQUIREMENTS		
Systems that do not	display video	
Processor	min. Intel Core i3	
Memory	RAM 8 GB	
Hard drive	HDD 200 GB	
Network card	100 Mbit/s	
Recommended operating system	Windows 10 64bit Professional	

Database stores all your configuration and events. Any changes are automatically saved and implemented on all other workstations included in your system. Such a solution allows you to work online.





# Loudspeakers

Fire Alarm Loudspeakers S		
~	ABT-LA30 / ABT-LA60	$\checkmark$
$\checkmark$	ABT-W6 / ABT-W6/AB	$\checkmark$
$\checkmark$	ABT-W6W	$\checkmark$
$\checkmark$	ABT-S206B	$\checkmark$
$\checkmark$	ABT-S186	$\checkmark$
$\checkmark$	ABT-S106 / ABT-S136	$\checkmark$
$\checkmark$	ABT-S2010 / ABT-S2710	$\checkmark$
$\checkmark$	ABT-S276/AB	
$\checkmark$	ABT-P10/ABT-P10P	
$\checkmark$	ABT-P20/ABT-P20P	
$\checkmark$	ABT-T1510 / ABT-T2215 / ABT-T2430 / AB	3T-T2435
$\checkmark$	ABT-HP240EN / ABT-HP120EN	

## EN 54-24



## ecial Application Loudspeakers

- ABT-TNL100
- ABT-TNL100-1
- ABT-T2520A
- ETH20MD Loud
- ETHY20MD Loud
- ETH20MD Loud 24/48 VDC
- ETH2OMD Loud 24/48 VDC Special



## ABT-LA30 / ABT-LA60

## 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°

0,0



## EN 54-24

### Electrical

Maximum power, W Rated power, W Tappings 100 V line according to EN 54-24, W Tappings 70 V line Transformer impedance, Ω 100V Driver impedance,  $\Omega$ Effective frequency range, Hz Sensitivity @ 4 m, 1 W, dB SPL @ 4m, Rated power, dB SPL @ 1m, 1W, dB, Test signal bandwidth 300 Hz-6 kHz\* SPL @ 1 m, Rated power, db, Test signal bandwidth 300 Hz-6 kHz\* Horizontal dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°] Vertical dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°] Environmental Environmental type / IP Rating according to EN 54-24 IP Rating \*\* Min/Max Amb Temp Mechanical Dimensions HxWxD, mm Net Weight, kg Colour Enclosure material Option For DC line monitoring Colour optional



Ease Model



Circular chart of directional characteristic - horizontal:



5k 10k H:

ABT-LA30	ABT-LA60	
48	96	
30	60	
30 / 15 / 7,5 / 3,8	60 / 30 / 15 / 7,5	
15 / 7,5 / 3,8 / 1,9	30 / 15 / 7,5 / 3,8	
333,3 / 666,6 / 1333,3 / 2631,5	166,6 / 333,3 / 666,6 / 1333,3	
12	6	
141 – 20 000	136-20 000	
77	79	
90	94	
93	95	
105	109	
360 / 220 / 185 / 120	360 / 215 / 185 / 115	
250 / 75 / 35 / 15	95 / 35 / 15 / 5	
B / IP33C	B / IP33C	
65	65	
-25°C / 70°C	-25°C / 70°C	
510 × 80 × 110	870 × 80 × 110	
3,1	4,9	
Silver (RAL 9006)	Silver (RAL 9006)	
Aluminium	Aluminium	
Capacitor	Capacitor	
RAL Palette	RAL Palette	
✓	✓	

Circular chart of directional characteristic – horizontal



250 Hz 1000 Hz 4000 Hz 8000 Hz

Circular chart of directional characteristic – vertical:





250 Hz 1000 Hz 4000 Hz 8000 Hz

Circular chart of directional characteristic - vertical:



## ABT-W6 / ABT-W6/AB

## WALL-MOUNTED LOUDSPEAKER (SINGLE/AB)

- ✓ Compliance with EN 54-24
- ✓ Certificate of Conformity issued by CNBOP: 1438-CPR-0413 and 1438-CPR-0654
- ✓ Compliance with BS5839-8 standard (Thermal protection)

EN 54-24



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 loudspeaker 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. 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.

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/AB loudspeakers.

## **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







	ABT-W6	ABT-W6/AB
Electrical		
Rated power, W	6	2×6
Tappings 100 V line according to EN 54-24, W	6/3/1,5/0,75	2× 6/3/1,5/0,75
Tappings 70 V line, W	3/1,5/0,75/0,37	2× 3/1,5/0,75/0,37
Transformer impedance, $\Omega$	1667/3333/6667/13333	2× 1667/3333/6667/13333
Driver impedance, $\Omega$	8	8
Effective frequency range, Hz	120-20 000	150-20 000
Sensitivity @ 4 m, 1 W, dB	79	84
SPL @ 4m, Rated power, dB	85	91
SPL @ 1 m, 1 W, dB, Test signal bandwith 300 Hz – 6 kHz	94	97
SPL @ 1m, Rated power, dB, Test signal bandwith 300Hz-6kHz	101	104
Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]	180 / 180 / 163 / 80	180 / 165 / 53 / 30
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	260  imes 180  imes 80	$260 \times 180 \times 80$
Net Weight, kg	1,75	2,25
Colour	White (RAL 9003) / Black (RAL 9011)	White (RAL 9003)
Material	Steel	Steel
Mounting	Screw	Screw
Option		
For DC line monitoring	Capacitor (ABT-W6C)	Capacitor
Colour optional	RAL Palette	RAL Palette
Ease Model	✓	✓





ABT-W6/AB





Circular chart of directional characteristic – horizontal:



500 Hz

1000 Hz

2000 Hz

4000 Hz

Circular chart of directional characteristic – vertical:



Circular chart of directional characteristic – horizontal:



Circular chart of directional characteristic – vertical:





## **ABT-W6W**

## WALL-MOUNTED LOUDSPEAKER

- ✓ Compliance with EN 54-24
- ✓ Compliance with BS5839-8 standard (Thermal protection)



## NEW!

The ABT-W6W is an elegant multi-function loudspeaker designed to guarantee the highest acoustic parameters. The loudspeaker can be mounted either on a wall or on a ceiling.

Our loudspeakers are perfect on any circulation routes and in staircases located in shopping centres, offices, schools, hotels, hospitals, and industrial buildings. The loudspeaker mingles well with any interior and is virtually invisible thanks to its small dimensions and neat white finish. 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.

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.

## **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
- » 6 W transformer with multiple branches ensuring accurate selection of output power







Rated power, W
Tappings 100 V line according to EN 54-24, W
Tappings 70 V line, W
Transformer impedance, $\Omega$
Driver impedance, $\Omega$
Effective frequency range, Hz
Sensitivity @ 4m, 1W, dB
SPL @ 4 m, Rated power, dB
SPL @ 1 m, 1 W, dB, Test signal bandwith 300 Hz – 6 kHz
SPL @ 1 m, Rated power, dB, Test signal bandwith 300 Hz-6 kHz
Horizontal dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]
Vertical dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]
Environmental
Environmental type / IP Rating according to EN 54-24
IP Rating
Min/Max Amb Temp
Mechanical
Dimensions, mm
Net Weight, kg
Colour
Material
Mounting
Mounting Option
Mounting Option For DC line monitoring
Mounting Option For DC line monitoring Colour optional
Mounting Option For DC line monitoring Colour optional Ease Model

dB 120 100 60 40 10 20 50 100 200 500 1k 2k 5k 10k 20k H

Frequency band:





ABT-W6W
6
6 / 3 / 1,5 / 0,75
3/1,5/0,75/0,37
1667/3333/6667/13333
8
130-20 000
78
84
90
96
320 / 160 / 95 / 70
290 / 140 / 100 / 70
A / IP21C
32
-10°C / 55°C
254 x 196 x 78
1,8
White (RAL 9003)
MDF
Screw
Capacitor (ABT-W6WC)
 RAL Palette
✓

Circular chart of directional characteristic – horizontal:

0° 30° 60° B - 50 - 40 - 30 - 20 - 10 0 120°

500 Hz 1000 Hz 2000 Hz 4000 Hz  $\label{eq:circular} Circular \ chart \ of \ directional \ characteristic - vertical:$ 





## **ABT-S206B**

### **CEILING-MOUNTED LOUDSPEAKERS**

- ✓ Full compliance with EN 54-24 Standard
- ✓ Certificate of Conformity: 1438-CPR-0605
- ✓ Compliance with BS5839-8 standard (Thermal protection)



**CHARACTERISTICS** 

intelligibility

» Elegant looks

» The highest level of speech

» 6 W transformer allowing a precise

» 100% protection of line from

breaks and short-circuits

selection of loudspeaker output power

Ceiling mounted fire alarm ABT-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 ceilingto-floor distance.

Thanks to the most advanced technologies ABT-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 ABT-S206B loudspeaker ensure a balanced sound which is extremely important in emission of highly understandable speech.

The ABT-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).

ABT-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.

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 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.



Ele	ectrical	
-		

Rated power, W
Tappings 100 V line according to EN 54-24, W
Tappings 70 V line, W
Transformer impedance, $\Omega$
Driver impedance, $\Omega$
Effective frequency range, Hz
Sensitivity @ 4 m, 1 W, dB
SPL @ 4 m, Rated power, dB
SPL @ 1 m, 1 W, dB, Test signal bandwidth 300 Hz – 6 kHz
SPL @ 1 m, Rated power, dB, Test signal bandwidth 300 Hz – 6 kHz
Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]
Environmental
Environmental type / IP Rating according to EN 54-24
IP Rating
Min/Max Amb Temp
Mechanical
Dimensions, mm
Net Weight, kg
Colour
Material
Mounting
Cut-out, mm
Option
For DC line monitoring
Colour optional
Ease Model







ABT-S206B	
6	
6/3/1,5/0,75	
3 / 1,5 / 0,75 / 0,37	
1667/3333/6667/13333	
8	
120-20 000	
81	
88	
93	
101	
180 / 180 / 95 / 70	
A / IP21C	
32C	
-10°C / 55°C	
Height 115, ø 199	
1,13	
White (RAL 9003) / Black (RAL 9011)	
Steel	
Spring clamp	
 ø 175	
Capacitor (ABT-S206BC)	
RAL Palette	

Circular chart of directional characteristic:







## **ABT-S186**

## **CEILING-MOUNTED LOUDSPEAKERS**

- ✓ Full compliance with EN 54-24 Standard
- ✓ Compliance with BS5839-8 standard (Thermal protection)
- ✓ Certificate of Conformity: 1438-CPR-0648

Ceiling mounted fire alarm ABT-S186 loudspeaker 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 ABT-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 ABT-S186 loudspeaker ensure a balanced sound which is extremely important in emission of highly understandable speech.

ABT-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.

ABT-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

EN 54-24

» 100% protection of line from breaks and short-circuits

Electrical
Rated power, W
Tappings 100 V line according to EN 54-24, W
Tappings 70 V line, W
Transformer impedance, $\Omega$
Driver impedance, Ω
Effective frequency range, Hz
Sensitivity @ 4 m, 1 W, dB
SPL @ 4 m, Rated power, dB
SPL @ 1 m, 1 W, dB, Test signal bandwidth 300 Hz-6 kHz
SPL @ 1 m, Rated power, dB, Test signal bandwidth 300 Hz – 6 kHz
Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]
Environmental
Environmental type / IP Rating according to EN 54-24
IP Rating
Min/Max Amb Temp
Min/Max Amb Temp Mechanical
Min/Max Amb Temp Mechanical Dimensions, mm
Min/Max Amb Temp Mechanical Dimensions, mm Net Weight, kg
Min/Max Amb Temp Mechanical Dimensions, mm Net Weight, kg Colour
Min/Max Amb Temp Mechanical Dimensions, mm Net Weight, kg Colour Material
Min/Max Amb Temp Mechanical Dimensions, mm Net Weight, kg Colour Material Mounting
Min/Max Amb Temp Mechanical Dimensions, mm Net Weight, kg Colour Material Mounting Cut-out, mm
Min/Max Amb Temp Mechanical Dimensions, mm Net Weight, kg Colour Material Mounting Cut-out, mm Option
Min/Max Amb Temp Mechanical Dimensions, mm Net Weight, kg Colour Material Mounting Cut-out, mm Option For DC line monitoring
Min/Max Amb Temp Mechanical Dimensions, mm Net Weight, kg Colour Material Mounting Cut-out, mm Option For DC line monitoring
Min/ Max Amb Temp Mechanical Dimensions, mm Net Weight, kg Colour Material Mounting Cut-out, mm Option For DC line monitoring









ABT-S186	
6	
6/3/1,5/0,75	
3/1,5/0,75/0,37	
1667/3333/6667/13333	
8	
120-20 000	
79	
86	
91	
99	
180 / 180 / 150 / 90	
A / IP21C	
32C	
-10°C / 55°C	
Height 75, ø 175	
0,66	
White (RAL 9003)	
ABS	
Spring clamp	
 ø 150	

Capacitor (ABT-S186C)



500 Hz
1000 Hz
2000 Hz
4000 Hz





## ABT-S106 / ABT-S136

### **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 and ABT-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 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
- » Exceptionally reliable reproduction of full band music
- » 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



Elec	trical
Rate	ed power, W
Тарр	pings 100 V line according to EN 54-24, W
Тарр	pings 70 V line, W
Tran	sformer impedance, Ω 100 V
Driv	er impedance, Ω
Effe	ctive frequency range, Hz
Sen	sitivity @ 4 m, 1 W, dB
SPL	@ 4 m, Rated power, dB
SPL	@ 1 m, 1 W, dB, Test signal bandwidth 300 Hz – 6 kHz
SPL	@ 1 m, Rated power, dB, Test signal bandwidth 300 Hz-6 kHz
Disp	ersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]
Env	ironmental
Envi	ronmental type / IP Rating according to EN 54-24
IP Ra	ating
Min	/Max Amb Temp
Мес	hanical
Dim	ensions, mm
Net	Weight, kg
Colo	bur
Mat	erial
Μοι	inting
Cut-	out, mm
Opt	ion
For	DC line monitoring
Colo	our optional



Ease Model

Frequency band

**ABT-S136** 



330°



ABT-S106	ABT-S136
6	6
6 / 3 / 1,5 / 0,75	6 / 3 / 1,5 / 0,75
3/1,5/0,75/0,38	3/1,5/0,75/0,38
1667 / 3333 / 6667 / 13333	1667 / 3333 / 6667 / 13333
8	8
100-20000	60-20000
65	68
76	78
80	82
88	90
180/180/170/150	180 / 180 / 170 / 90
A, C / IP21C	A, C / IP21C
32	32
-10°C / 55°C	-10°C / 55°C
Height 111, ø 104	Height 113, ø 134
0,72	0,82
White (RAL 9003)	)
Steel	
Spring clamp	
ø85	ø106
Capacitor	
RAL Palette	
✓	

Circular chart of directional characteristic:



500 Hz 1000 Hz 2000 Hz 4000 Hz



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 guick 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



Electrical	
Rated power, W	
Tappings 100 V line according t	:o EN 54-24, W
Tappings 70 V line, W	
Transformer impedance, $\Omega$ 10	0 V
Driver impedance, $\Omega$	
Effective frequency range, Hz	
Sensitivity @ 4 m, 1 W, dB	
SPL @ 4m, Rated power, dB	
SPL @ 1 m, 1 W, dB, Test signal	bandwidth 300 Hz–6 kHz
SPL @ 1 m, Rated power, dB, Te	est signal bandwidth 300 Hz-6 kHz
Dispersion at 500 Hz / 1 kHz /	2 kHz / 4 kHz, [°]
Environmental	
Environmental type / IP Rating	g according to EN 54-24
IP Rating	
Min/Max Amb Temp	
Mechanical	
Dimensions, mm	
Net Weight, kg	
Colour	
Material	
Mounting	
Cut-out, mm	
Option	
For DC line monitoring	
Colour optional	
Ease Model	

**ABT-S2010** 

Frequency band:







ABT-\$2010	ABT-\$2710
10	10
10 / 5 / 2,5 / 1,25	10 / 5 / 2,5 / 1,25
5/2,5/1,25/0,625	5/2,5/1,25/0,625
1000 / 2000 / 4000 / 8000	1000/2000/4000/8000
8	8
150-20000	100-20000
77	78
90	92
94	95
104	105
180 / 170 / 115 / 55	180/170/90/60
A / IP21C	A / IP21C
32	32
-10°C / 55°C	-10°C / 55°C
Height 110, ø 200	Height 120, ø 267
1,4	1,75
White (RAL 9003)	
Steel	
Spring clamp	
ø 172	ø222
Capacitor	
RAL Palette	

Circular chart of directional characteristic:





500 Hz

1000 Hz

2000 Hz

4000 Hz



Circular chart of directional characteristic:





## ABT-S276/AB

## **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.

EN 54-24











### Electrical

Ease Model

Number of transducers Rated power, W Tappings 100 V line according to EN 54-24, W Tappings 70 V line, W Transformer impedance, Ω 100 V Driver impedance,  $\Omega$ Effective frequency range, Hz Sensitivity @ 4 m, 1 W, dB SPL @ 4m, Rated power, dB SPL @ 1 m, 1 W, dB, Test signal bandwidth 300 Hz-6 kHz SPL @ 1 m, Rated power, dB, Test signal bandwidth 300 Hz-6 kHz Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°] Environmen<u>tal</u> Environmental type / IP Rating according to EN 54-24 IP Rating Min/Max Amb Temp Mechanical Dimensions, mm Net Weight, kg Colour Material Mounting Option For DC line monitoring Colour optional



Circular chart of directional characteristic – horizontal:

Circular chart of directional characteristic – vertical:





ABT-S276/AB
2
2×6
2× 6/3/1,5/0,75
2× 3 / 1,5 / 0,75 / 0,37
2× 1667 / 3333 / 6666 / 13333
8
100 – 20 000
85
91
97
103
180 / 175 / 163 / 90
A / IP21C
32
-10°C / 55°C
Height 124 mm , ø273
2,29
White (RAL 9003)
Steel
 Spring clamp
Capacitor
RAL Palette







## ABT-P10 / ABT-P10P

### **SOUND PROJECTORS**

- ✓ Compliance with EN 54-24
- ✓ Compliance with BS5839-8 standard (Thermal protection)

EN 54-24

## NEW!

Fire alarm ABT-P10, ABT-P10P 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.

ABT-P 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. ABT-P10 and ABT-P10P loudspeakers are enclosed in round casings made of resistant and durable ABS; 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 ABT-P loudspeakers entirely comply with global requirements for systems, including also the British Standard No. BS5839 Part 8 and EN 54-24.

All ABT-P loudspeakers have built-in a ceramic connection block and a thermal 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.

ABT-P loudspeakers are designed for continuous operations at rated parameters for at least 100 hours in compliance with the IEC-268-5 Standard.

ABT-P10P loudspeakers are designed for pendant mounting. They are equipped with an additional junction box enabling simple and quick speaker installation. They are used wherever the distance from ceiling mounted speaker is too large.

## **CHARACTERISTICS**

- » Designed to achieve directional characteristic of sound emission
- » 10 W transformer with multiple branches ensuring accurate selection of output power
- » Enclosed in an advance and functional cylindrical casing made of resistant and durable ABS
- » Ideal for either ceiling or wall installation
- » Durable casing with ceramic block and thermal fuse
- » High sound quality in music and speech emission



### Electrica

Ease Mode

Rated power, W
Fappings 100 V line according to EN 54-24, W
Fappings 70 V line, W
Fransformer impedance, Ω 100 V
Driver impedance, $\Omega$
Effective frequency range, Hz
Sensitivity @ 4 m, 1 W, dB
SPL @ 4 m, Rated power, dB
SPL @ 1 m, 1 W, dB, Test signal bandwidth 300 Hz-6 kHz
SPL @ 1 m, Rated power, dB, Test signal bandwidth 300 Hz-6 kHz
Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]
Environmental
Environmental type / IP Rating according to EN 54-24
P Rating <sup>*</sup>
Nin / Max Amb Temp
Mechanical
Dimensions, mm
Net Weight, kg
Colour
Material
Nounting
Option
For DC line monitoring
Colour optional









ABT-P10 / ABT-P10P
10
10 / 5 / 2,5 / 1,25
5 / 2,5 / 1,25 / 0,625
1000 / 2000 / 4000 / 8000
8
130-20000
80
88
92
100
360 / 210 / 120 / 65
B / IP33C
66
-25°C / 70°C
Length 205, ø 135
1,6
White (RAL 9003)
ABS
Screw, U Type bracket
Capacitor (ABT-P10C / ABT-P10PC)
RAL Palette
✓

Circular chart of directional characteristic:







## **ABT-P20 / ABT-P20P**

### **SOUND PROJECTORS**

- ✓ Compliance with EN 54-24
- ✓ Compliance with BS5839-8 standard (Thermal protection)



Fire alarm ABT-P20, ABT-P20P 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.

ABT-P 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. ABT-P20 and ABT-P20P 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 ABT-P loudspeakers entirely comply with global requirements for systems, including also the British Standard No. BS5839 Part 8 and EN 54-24.

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.

ABT-P loudspeakers are designed for continuous operations at rated parameters for at least 100 hours in compliance with the IEC-268-5 Standard.

ABT-P20P loudspeakers are designed for pendant mounting. They are equipped with an additional junction box enabling simple and quick speaker installation. They are used wherever the distance from ceiling mounted speaker is too large.

### **CHARACTERISTICS**

» Designed to achieve directional characteristic of sound emission

EN 54-24

(9)

- » 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
- » High sound quality in music and speech emission



### Electrical

Rated power, W
Tappings 100 V line according to EN 54-24, W
Tappings 70 V line, W
Transformer impedance, $\Omega$ 100 V
Driver impedance, Ω
Effective frequency range, Hz
Sensitivity @ 4 m, 1 W, dB
SPL @ 4 m, Rated power, dB
SPL @ 1 m, 1 W, dB, Test signal bandwidth 300 Hz – 6 kHz
SPL @ 1 m, Rated power, dB, Test signal bandwidth 300 Hz-6 kHz
Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]
Environmental
Environmental type / IP Rating according to EN 54-24
IP Rating*
Min/Max Amb Temp
Mechanical
Dimensions, mm
Net Weight, kg
Colour
Material
Mounting
Option
For DC line monitoring
Colour optional

Frequency band:







74

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ABT-P20 / ABT-P20P
20
20 / 10 / 5 / 2,5
10 / 5 / 2,5 / 1,25
500 / 1000 / 2000 / 4000
8
130-20000
79
90
91
102
360 / 230 / 110 / 65
B / IP33C
66
-25°C / 70°C
Length 210, ø 143
2,4
White (RAL 9003)
Aluminium
Screw, U Type bracket
Capacitor (ABT-P20C / ABT-P20PC)
RAL Palette
✓

Circular chart of directional characteristic:



500 Hz

1000 Hz

2000 Hz

4000 Hz







## ABT-T1510/T2215/T2430/T2435



### **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 four power rating models, i.e. 10 W, 15 W, 30 W and 35 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-T1510	ABT-T2215	ABT-T2430	ABT-T2435
Electrical				
Rated power, W	10	15	30	35
Tappings 100 V line according to EN 54-24, W	10/5/2,5/1,25	15 / 7,5 / 3,75 / 1,87	30 / 15 / 7,5 / 3,75	35 / 17,5 / 8,75 / 4,38
Tappings 70 V line, W	5 / 2,5 / 1,25 / 0,62	7,5 / 3,75 / 1,87 / 0,94	15 / 7,5 / 3,75 / 1,87	17,5 / 8,75 / 4,38 / 2,19
Transformer impedance, $\Omega100V$	1000/2000/4000/8000	667 / 1330 / 2770 / 5330	333/666/1330/2660	285 / 571 / 1142 / 2284
Driver impedance, $\Omega$	8	8	8	8
Effective frequency range, Hz	340-9000	460-9000	400-7500	400-7500
Sensitivity @ 4 m, 1 W, dB	86	87	88	88
SPL @ 4m, Rated power, dB	96	100	103	103
SPL @ 1 m, 1 W, dB, Test signal bandwidth 300 Hz – 6 kHz	103	104	105	105
SPL @ 1 m, Rated power, dB, Test signal bandwidth 300 Hz – 6 kHz	113	116	120	120
Dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]	240/200/88/45	180/121/68/36	180 / 120 / 75 / 41	180 / 120 / 75 / 41
Environmental				
Environmental type / IP Rating according to EN 54-24		B/IP	33C	
IP Rating		6	6	
Min/Max Amb Temp		-25 °C,	/ 70 °C	
Mechanical				
Dimensions, mm	Length 236, ø 156	Length 284, ø 216	Length 325, ø 233	Length 325, ø 233
Net Weight, kg	1,75	1,95	2,20	2,20
Colour		Light Grey	(RAL 7035)	
Material		ABS U	L94V0	
Mounting		Screw, U Ty	pe Bracket	
Option				
For DC line monitoring		Сара	citor	
Colour optional		RAL P	alette	
Ease Model			/	







Kruhový diagram směrové charakteristiky:

500 Hz

1000 Hz

2000 Hz

4000 Hz

### FIRE ALARM LOUDSPEAKERS ABT-T1510/T2215/T2430/T2435

Frekvenční pásmo:



Frekvenční pásmo:



Kruhový diagram směrové charakteristiky:



Kruhový diagram směrové charakteristiky:



77

## **ABT-HP240EN ABT-HP120EN**

## **HIGH POWER LOUDSPEAKER**

- ✓ Compliance with EN 54-24
- ✓ Certificate of Conformity issued by CNBOP: 1438-CPR-0482
- ✓ 240 W and 120 W transformers 100 V
- ✓ 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.

EN 54-24





	ABT-HP240EN66	ABT-HP240EN94	ABT-HP120EN66	ABT-HP120EN94
Electrical				
Number of transducers	2	2	2	2
Rated power, W	240	240	120	120
Tappings 100 V line according to EN 54-24, W	240/120/60	240/120/60	120/60/30	120 / 60 / 30
Tappings 70 V line, W	120/60/30	120/60/30	60/30/15	60/30/15
Transformer impedance @100 V, Ω	42 / 84 / 167	42 / 84 / 167	84 / 167 / 333	84 / 167 / 333
Driver impedance, $\Omega$	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 / IF	P33C	
IP Rating		IP	65	
Min/Max Amb Temp		-25°C	/ 70°C	
Mechanical				
Dimensions, mm	$500 \times 500 \times 735$	500  imes 500  imes 735	$350 \times 350 \times 450$	350  imes 350  imes 450
Net Weight, kg	29	29	16	16
Colour		Black (R	AL 9005)	
Material		Glass	fiber	
Mounting		U Type	Bracket	
Option				
Colour optional		RAL P	alette	
Ease Model		``	/	



horizontal << circular chart of directional characteristic >> vertical















## **ABT-TNL100 / ABT-TNL100-1**

## HIGHLY DIRECTIONAL TUNNEL LOUDSPEAKER

- ✓ Specially designed for tunnel applications
- ✓ Highly directional asymmetric horn
- ✓ Excellent speech intelligibility
- ✓ Stainless steel construction
- ✓ Waterproof housing IP66
- ✓ High power output 100/50 W
- ✓ Thermal protection

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.





	ABT-TNL100	ABT-TNL100-1
Electrical		
Rated power, W	100	)
Tappings 100 V line, W	100 /	50
Tappings 70 V line, W	50/2	25
Transformer impedance, Ω 100 V	100/2	200
Driver impedance, $\Omega$	6	8
Effective frequency range, Hz	250-8	000
Sensitivity @ 4 m, 1 W, dB	99	96
SPL @ 4 m, Rated power, dB	119	116
SPL @ 1 m, 1 W, dB	111	108
SPL @ 1 m, Rated power, dB	131	128
Horizontal dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]	39 / 24 / 29 / 32	141 / 66 / 29 / 49
Vertical dispersion at 500 Hz / 1 kHz / 2 kHz / 4 kHz, [°]	77 / 42 / 26 / 19	192 / 117 / 59 / 47
Environmental		
Environmental type	В	
IP Rating	IP66	5
Min/Max Amb Temp	-25°C/	70°C
Mechanical		
Dimensions, mm	1714 × 1020 × 450	729 × 365 × 253
Net Weight, kg	32	14,5
Colour	Grey (RAL 7035)	Grey (RAL 7035)
Material	Stainless	steel
Mounting	Anchor for a	concrete
Option		
For DC line monitoring	Сарас	itor
Colour optional	RAL Pal	lette
Ease Model	v	









Circular chart of directional characteristic – horizontal:



500 Hz

1000 Hz

2000 Hz

4000 Hz







Circular chart of directional characteristic - vertical:







SPECIAL APPLICATIONS LOUDSPEAKERS ACTIVE HORN LOUDSPEAKER

## **ABT-T2520A**

## ACTIVE HORN LOUDSPEAKER with built-in 20W amplifier

- ✓ High sound pressure level
- ✓ Aluminum housing
- ✓ Protection from dust and humidity: IP65 rating
- ✓ Internal volume control



## NEW!

ABT-T2520A is an active horn loudspeaker with a built-in 20 W amplifier designed to work with security systems.

It is an ideal choice for applications in security systems, industrial and commercial camera. Built-in systems in both outdoor and indoor areas gain allows you such as train stations, airports, parking lots, volume level of

parks, gardens, corridors and much more. Built-in 20 W amplifier powered with 12 V voltage has an audio line-in input. It allows to connect the speaker directly to CCTV camera. Built-in internal volume control of gain allows you to choose the appropriate volume level of the broadcast message.

The high efficiency and directionality of the loudspeaker allow broadcasting voice messages directly to even distant places, while ensuring a high sound pressure level. The aluminum housing guarantees increased resistance to adverse weather conditions provided by the IP65 rating.



Electrical
Rated power of amplifier
Input impedance
Power supply
Signal gain
Volume adjustment
Effective frequency range
Dispersion at 1 kHz
SPL (20 W @ 1 m)
SPL (20W @ 1 m) Environmental
SPL (20 W @ 1 m) Environmental IP Rating
SPL (20 W @ 1 m) Environmental IP Rating Min / Max Amb Temp
SPL (20 W @ 1 m) Environmental IP Rating Min / Max Amb Temp Mechanical
SPL (20 W @ 1 m) Environmental IP Rating Min / Max Amb Temp Mechanical Dimensions
SPL (20 W @ 1 m) Environmental IP Rating Min / Max Amb Temp Mechanical Dimensions Net Weight
SPL (20 W @ 1 m) Environmental IP Rating Min / Max Amb Temp Mechanical Dimensions Net Weight Colour
SPL (20 W @ 1 m) Environmental IP Rating Min / Max Amb Temp Mechanical Dimensions Net Weight Colour Material



Circular chart of directional characteristic:



### **ABT-T2520A**

20 W

10 kΩ

DC 12 V / 2 A

8 dB, 16 dB, 24 dB, 32 dB

internal volume control

350 Hz – 9 kHz

110°

112 dB

IP65

-20°C / 55°C

250 x 320 mm 2,3 kg Light Grey (RAL 7035) Aluminium U Type Bracket







## **ETH20MD Loud**

## **EXPLOSION PROOF LOUDSPEAKER**

- ✓ Full compliance with directive 2014/34/UE
- ✓ Full compliance with: EN 60079-0:2012/A11:2013, EN 60079-1:2014, EN 60079-31:2014
- ✓ Ex db IIB+H2 Gb Ex tb IIIC Db II2GD T6 T5
- ✓ Ex db IIC Gb Ex tb IIIC Db II2GD T6 T5
- ✓ zone 1, zone 2, zone 21, zone 22



The explosion-proof loudspeakers ETH20MD LOUD series have been designed for use in potentially explosive atmospheres in presence of explosive gases and dusts. They have a high degree of protection (IP66) to withstand the harsh off-shore and on-shore plants environmental conditions. They are suitable for connection to standard amplification system with output 100 V, to alarm systems and for public address. The chamber of acoustic compression is separated from the outer atmosphere through a special filter of sintering. They are equipped with a transformer offering the possibility to adapt and select the sound level according to the real needs of the installation point.

### Materials:

Body, cover and horn cone in aluminium alloy. Adjustable galvanized steel bracket. Bolts and screws in stainless steel. Epoxy coating RAL 7000. Selectable power.





## Ξx〉

## Electrical features

- Selectable power, Rated voltage
- Audio line

Output

Frequency range

## Environmental

## IP Rating

Min/Max Amb Temp

Mechanical

Material

Installation

Hardware

Gaskets Cable entry

Weight

Outdoor loudness distribution polar diagram:



## ETH20MD LOUD

6W - 12W - 20W - 25W

100 V

16Ω

 $\begin{array}{l} 100 \div 102 \ dB @ \ 6 \ W \\ 104 \div 106 \ dB @ \ 12 \ W \\ 107 \div 108 \ dB @ \ 20 \ W \\ 109 \div 112 \ dB @ \ 25 \ W \end{array}$ 

 $\begin{array}{c} 650 \div 10\ 000\ Hz\ @\ 6\ W\\ 450 \div 9000\ Hz\ @\ 12\ W\\ 400 \div 9000\ Hz\ @\ 20\ W\\ 350 \div 10\ 000\ Hz\ @\ 25\ W \end{array}$ 

IP66

-20°C / 60°C

Light alloy body, cover and horn cone

Adjustable galvanized steel lugs

Stainless steel

EPDM

N° 1 Ø 3/4″

3,5 kg

## ETHY20MD Loud

## **EXPLOSION PROOF LOUDSPEAKER STAINLESS STEEL 316**

- ✓ Full compliance with directive 2014/34/UE
- ✓ Full compliance with: EN 60079-0:2012/A11:2013, EN 60079-1:2014, EN 60079-31:2014
- ✓ Ex de mb IIB+H2 Gb Ex mb tb IIIC Db II2GD T6 T5
- ✓ Ex de mb IIC Gb Ex mb tb IIIC Db II2GD T6 T5
- ✓ zone 1, zone 2, zone 21, zone 22



### Materials:

Body, cover and horn cone in stainless steel 316. Adjustable stainless steel 316 bracket. Bolts and screws in stainless steel 316. Epoxy coating RAL 7000. Selectable power.







Rated voltage

Audio line

Output

Frequency range

## Environmental

IP Rating

Min/Max Amb Temp

Mechanical

Material

Installation

Hardware

Gaskets Cable entry

Weight

Outdoor loudness distribution polar diagram:



## ETHY20MD LOUD

6W - 12W - 20W - 25W

100 V

16Ω

 $\begin{array}{c} 100 \div 102 \ dB @ \ 6 \ W \\ 104 \div 106 \ dB @ \ 12 \ W \\ 107 \div 108 \ dB @ \ 20 \ W \\ 109 \div 112 \ dB @ \ 25 \ W \end{array}$ 

 $\begin{array}{l} 650 \div 10\ 000\ \text{Hz} @\ 6\ \text{W} \\ 450 \div 9000\ \text{Hz} @\ 12\ \text{W} \\ 400 \div 9000\ \text{Hz} @\ 20\ \text{W} \\ 350 \div 10\ 000\ \text{Hz} @\ 25\ \text{W} \end{array}$ 

IP66

-20°C / 60°C

Body, cover and horn cone in stainless steel 316

Adjustable stainless steel 316 bracket

Stainless steel

SILICONE

N° 2 Ø M20

7 Kg



## ETH20MD Loud 24/48 VDC

## **EXPLOSION PROOF LOUDSPEAKER with 24/48 VDC AMPLIFIER**

- ✓ Full compliance with directive 2014/34/UE
- ✓ *Full compliance with:* EN 60079-0:2012/A11:2013, EN 60079-1:2014, EN 60079-31:2014
- ✓ Incorporate amplifier 24/48 VDC
- ✓ Acoustic pressure a 1 m maximum power 112 dB
- ✓ Ex db IIB+H2 Gb Ex tb IIIC Db II2GD T6 T5
- ✓ Ex db IIC Gb Ex tb IIIC Db II2GD T6 T5
- ✓ zone 1, zone 2, zone 21, zone 22





The explosion-proof loudspeakers ETH20MD LOUD 24/48 VDC series have been designed for use in potentially explosive atmospheres in presence of explosive gases and dusts. They have a high degree of protection (IP66) to withstand the harsh off-shore and on-shore plants environmental conditions. They are equipped with a class D audio amplifier powered at 24/48 VDC, to alarm systems and for public address. The chamber of acoustic compression is separated from the outer atmosphere through a special filter of sintering.

Possibility to select the sound level according to the real needs of the installation site. (4 power steps are available).

### Materials:

Body, cover and horn cone in aluminium alloy. Adjustable galvanized steel bracket. Bolts and screws in stainless steel. Epoxy coating RAL 7000. Selectable power.



	ETH20MD LOUD 24/48 VDC
Features transducer	
Work power	25 W
Maximum power	40 W
Impedance 1 kHz	80
Environmental	
IP Rating	IP66
Min/Max Amb Temp	-20°C / 60°C
Class D audio amplifier	
Input signal	0 dB at 600 8 Ω
Input sensitivity	40 mV / 150 kΩ
Power supply	from 24 VDC to 48 VDC
Absorption at maximum power	0.8 A @ 48 V - 1.2 A @ 24 VDC
Piloting	8 Ω loudspeakers
Output power	30 W
Total harmonic distortion + noise	(f = 1 kHz, PO = 20 W) 0.2%
Signal report / noise	(f = 1 kHz, Gain = 20 dB) 102 dB
Power regulation	adjustable with trimmer from zero to maximum power of the set step
Power Step	4 power steps are available, selectable by SW1 dip-switch Step 1 (gain 20 db) = 1.57 W Step 2 (gain 26 db) = 5.4 W

Frequency response



Step 3 (gain 32 db) = 21.5 W Step 4 (gain 36 db) = 30.4 W

from 20 Hz to 20 kHz



## ETH20MD Loud 24/48 VDC Special



## LOUDSPEAKER EXPLOSION PROOF with 24/48 VDC AMPLIFIER

- ✓ Full compliance with directive 2014/34/UE
- ✓ *Full compliance with:* EN 60079-0:2012/A11:2013, EN 60079-1:2014, EN 60079-31:2014
- ✓ Incorporate amplifier 24/48 VDC
- ✓ Acoustic pressure a 1 m maximum power 112 dB
- ✓ Ex db IIB+H2Gb Ex tb IIIC Db II2GD T6 T5
- ✓ Ex db IIC Gb Ex tb IIIC Db II2GD T6 T5
- ✓ zone 1, zone 2, zone 21, zone 22

## NEW!

The explosion-proof loudspeakers ETH20MD LOUD 24/48 VDC series have been designed for use in potentially explosive atmospheres in presence of explosive gases and dusts. They have a high degree of protection (IP66) to withstand the harsh off-shore and on-shore plants environmental conditions. They are equipped with a class D audio amplifier powered at 24/48 VDC, to alarm systems and for public address. The chamber of acoustic compression is separated from the outer atmosphere through a special filter of sintering.

Possibility to select the sound level according to the real needs of the installation site. (4 power steps are available).

### Materials:

Body, cover and horn cone in aluminium alloy. Adjustable galvanized steel bracket. Bolts and screws in stainless steel. Epoxy coating RAL 9005. Selectable power.





	ETH20MD LOUD 24/48 VDC
Features transducer	
Work power	25W
Maximum power	40 W
Impedance 1 kHz	8Ω
Environmental	
IP Rating	IP66
Min/Max Amb Temp	-20°C / 60°C
Class D audio amplifier	
Input signal	0 dB at 600 8 Ω
Input sensitivity	40 mV / 150 kΩ
Power supply	from 24 VDC to 48 VDC
Absorption at maximum power	0.8 A @ 48 V - 1.2 A @ 24 VDC
Piloting	8 Ω loudspeakers
Output power	30 W
Total harmonic distortion + noise	(f = 1 kHz, PO = 20 W) 0.2%
Signal report / noise	(f = 1 kHz, Gain = 20 dB) 102 dB
Power regulation	adjustable with trimmer from zero to maximum power of the set step
Power Step	4 power steps are available, selectable by SW1 dip-switch Step 1 (gain 20 db) = 1.57 W Step 2 (gain 26 db) = 5.4 W

Frequency response



Step 3 (gain 32 db) = 21.5 W Step 4 (gain 36 db) = 30.4 W

from 20 Hz to 20 kHz





We make everyday life safer



Ambient System products are continually improved. All specifications are therefore subject to change without prior notice.