MULTIVES

Public Address & Voice Evacuation System

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

ambient SYSTEM

We make everyday life safer
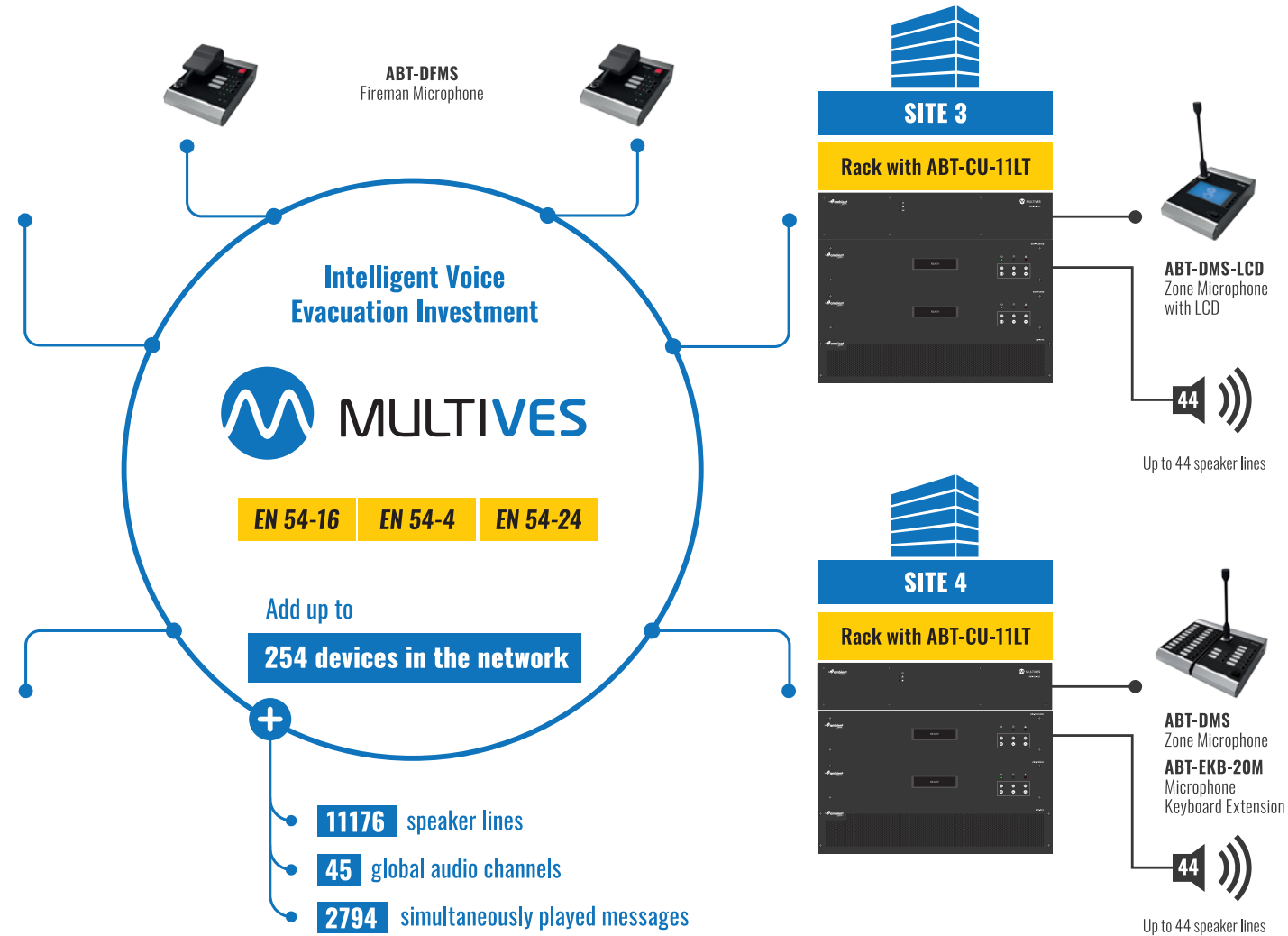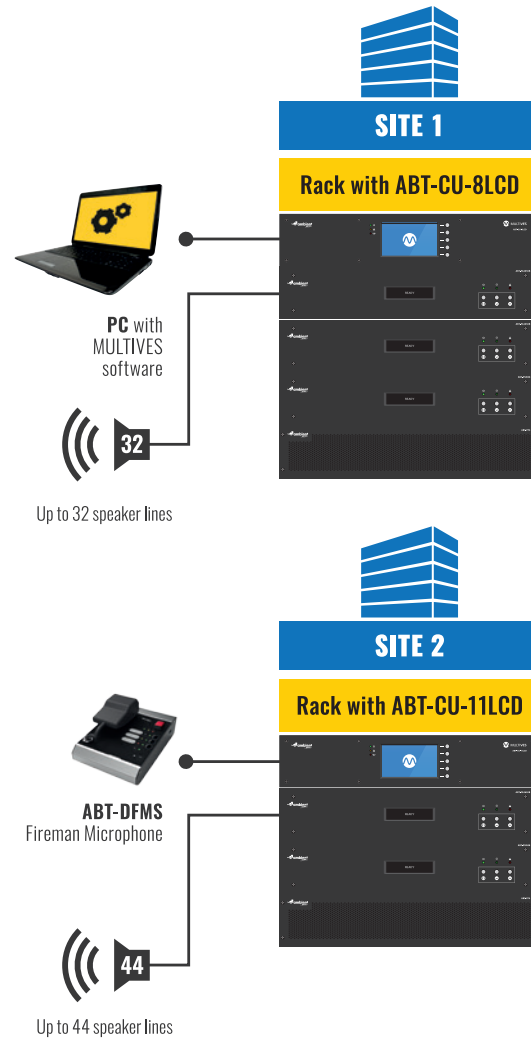
Flexible Fully Digital PA & VES

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.

EN 54-16
EN 54-4

SITE 1
Rack with ABT-CU-8LCD

PC with MULTIVES software

32

Up to 32 speaker lines

SITE 2
Rack with ABT-CU-11LCD

ABT-DFMS
Fireman Microphone

44

Up to 44 speaker lines

ABT-DFMS
Fireman Microphone

Intelligent Voice Evacuation Investment

MULTIVES

EN 54-16   EN 54-4   EN 54-24

Add up to
254 devices in the network

11176 speaker lines
45 global audio channels
2794 simultaneously played messages

SITE 3
Rack with ABT-CU-11LT

ABT-DMS-LCD
Zone Microphone with LCD

44

Up to 44 speaker lines

SITE 4
Rack with ABT-CU-11LT

ABT-DMS
Zone Microphone
ABT-EKB-20M
Microphone
Keyboard Extension

44

Up to 44 speaker lines

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 160W, 2x 650 W, 1x 650 W)**

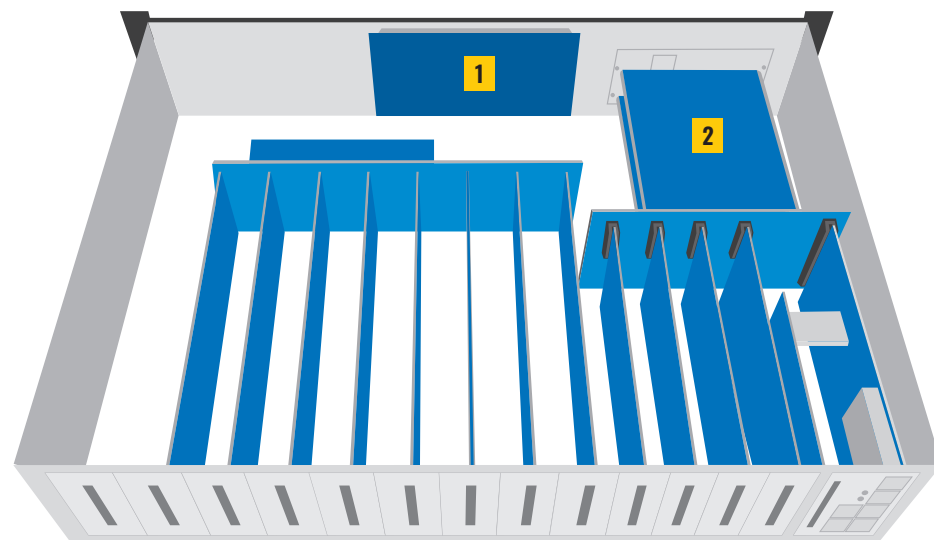## Elements of the Integrated MULTIVES System

MULTIVES Devices		MULTIVES Exchangeable modules	
ABT-CU-8LCD	stand-alone control unit with 8 control slots, 3 Audio-DSP extension (function) slots and touch screen GUI	**ABT-xNET-1Gb/WAN/RS**	communication card
ABT-CU-11LT	control unit with 11 control slots	**ABT-xLogIN-8f**	logical input card for function slot
ABT-CU-11LCD	control unit with 11 control slots and touch screen GUI	**ABT-xLogIN-8c**	logical input card for control slot
		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

Control Units

| EN 54-16 | EN 54-4 | 1488-CPR-0500/W |

MULTIVES CONTROL UNIT ELEMENTS:

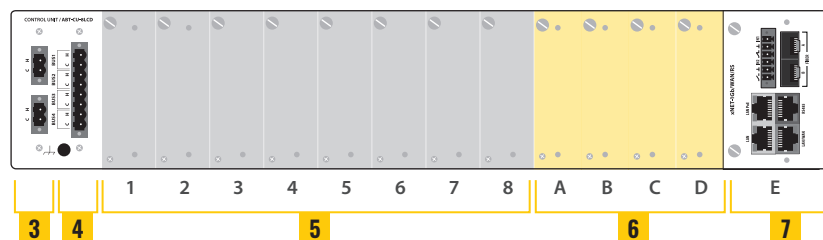1. **GUI Card** for ABT-CU-8LCD

2. **ABT-xCPU card**

3. **Power Supply**

4. **100 V audio global BUS**

5. **1 – 8 slots** for loudspeaker line control cards and logical output and input cards

6. **A –D slots** for logical and audio output and input cards

7. **E slot** for communication card with SFP modules and copper RJ45 connectors

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

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

ABT-CU-11LT Control Unit distributes audio signals to individual zones and ensures that individual zones function properly. It also controls the condition of loudspeaker lines and amplifiers. If a fault is detected, it sends the signal to the system and automatically switches to a backup amplifier. The CU is equipped with an ABT-cAudIO-4/12 card offering 4 symmetrical line audio inputs and 12 symmetrical outputs

to lead audio signals out to external devices or amplifiers of the MULTIVES system.

Furthermore, ABT-CU-11LT can be equipped with an LCD touch screen with a control module, which allows easy access to management functions and monitoring of the whole system – such extended configuration is included in ABT-CU-11LCD Control Unit.

CHARACTERISTICS

» **Compliance with EN 54-16**

» **Network-based system allowing configuration, diagnostics and management via Ethernet**

» **Managing up to 254 devices on the network**

» **11 slots available for any configuration of loudspeaker control cards and control input / output cards**

» **Built-in audio card with 4 inputs and 12 audio outputs**

» **Up to 12 messages played simultaneously in different zones**

» **Up to 32 GB SD flash memory designated for playback and recording messages (48 kHz, 16 bit)**

» **1 x POE port**

» **Support of up to 12 secured amplifiers**

» **Built-in 2 control inputs and outputs**

» **2 x 1 GB ports available for system extension**

» **Integrated DSP with implemented 3 band parametric EQ on all inputs on control units, 8 band parametric EQ , delay lines, audio limiter and feedback eliminator on each of the audio outputs**

» **Comprehensive solution based on RS485 functionality enabling seamless integration of the MULTIVES system with 3rd party systems thanks to implementation of standard and proprietary communication interfaces**

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 keys 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**

ABT-DMS-LCD
Zone Microphone with LCD

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

CHARACTERISTICS

» **4.5" LCD touch screen for fast and clear 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.

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 standard for safety installations.

The ABT-PAXXXXB/BE is a family of 2U, rack 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 ABT-PA8080B/BE can deliver up to 8 x 80 W, for ABT-PA8160B/BE and ABT-2650B/BE delivering power increases respectively to the 8 x 160 W and 2 x 650 W. In a bridged mode amplifier channels are combined and

can deliver 4 x 160 W for ABT-PA8080B/BE, 4 x320 W for ABT-PA8160B/BE and 1 x 1300 W for ABT-PA2650B/BE. These amplifiers have 48 VDC input which allows to connect with battery backup system for maximum availability and durability in an voice evacuation system.

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

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

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 daisy-chaining 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-PA8080B/BE / 8 x 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 / 4 x 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.

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; 3 x 320 W + 2 x 160 W or 4 x 320 W

ABT-PA1650B/BE / 1 x 650 Watt class-D power amplifier
ABT-PA2650B/BE / 2 x 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)	6 x 7,5 AF-H	2 x 15 AF- H 2 x 7,5 AF-H	4 x 15 AF-H 2 x 7,5 AF-H	1 x 15 AF- H 2 x 7,5 AF-H	2 x 15 AF- H 2 x 7,5 AF-H
Overall power efficiency nominal DC input max output power at 1 kHz			80%		
Power consumption (48 V DC)					
Standby	0,2 A	0,18 A	0,2 A	0,15 A	0,15 A
Active	0,7 A	0,43 A	0,7 A	0,23 A	0,33 A
Max. nominal current	20 A	19 A	38 A	19 A	38 A
Amplifier					
Continuous nominal output power per channel, all channels driven into nominal load at 1 kHz 30°C ambient	80 W 125 Ω / 100 nF	160 W 62 Ω / 200 nF	160 W 62 Ω / 200 nF	650 W 15,4 Ω / 200 nF	650 W 15,4 Ω / 200 nF
Continuous nominal output power per channel, all channels driven into nominal load at 1 kHz 55°C ambient			TBA		
Nominal balanced input level for 100 V output at 1 kHz and nominal load			1 V		
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 mm		
Nominal output voltage taps V			50 / 100		
Mechanical					
Front panel width			482 mm		
Back panel width			445 mm		
Height			88.5 mm		
Net Weight	15 kg	13 kg	18,6 kg	10,8 kg	15 kg
Gross weight (including packaging)	16,2 kg	14,2 kg	19,8 kg	12 kg	16,2 kg
Packaging dimensions			150 x 530 x 610 mm		

* Available only for ABT-PA E series

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.

EN 54-4

EN 12101-10

	ABT-PSM48	ABT-PSM48E
Maximum configuration	1x ABT-PSM48 – Power Supply Manager 4x ABT-PS4880 – Power Supply Unit 1x ABT-PF4 – Power Supply Units Frame	1x ABT-PSM48E – Power Supply Manager 4x ABT-PS4880 – Power Supply Unit 1x ABT-PF4 – Power Supply Units Frame
AC power supply	230 VAC + 10%-15%; 50/60 Hz	
Max nominal power consumption	885 W / 3.85 A	
Efficiency at rated power	> 90%	
DC input	4; bolted terminals; dedicated power supply unit ABT-PS48800	
DC input protection	4 x20 A 58 V DC	
DC outputs	8 x 48 V, each output max 30 A (total for all 8 outs max. 63 A)	8 x 48 V, each output max. 30 A (total for all 8 outs max 63 A) 6 x 24 V, each output max. 5 A (total for all 6 outs max. 6,25 A)
Summary maximum DC output load (24 V and 52 V)	3200 W	
Battery (type)	4 pieces, VRLA 12 V 15-200 Ah	
Charging current	max. 14 A	
Charging voltage	54,6 V ± 0,6 V (at 25°C)	
Maximum resistance of wiring and fuses	10 mΩ	
Maximum total serial resistance of wiring, fuses, and batteries	28 – 100 mΩ	
Operating temperature	-5°C up +40°C	
Dimensions	482 (W) x 85 (H) x 443 (D)	
Weight	7,2 kg	

|	ABT-PS48800
AC power supply	230 VAC +10% -15%, 50/60Hz, 3.85 A Wire with IEC 60320 C13 3x0,75 mm² coupling (supplied with the unit)
Maximum power consumption	885 W / 3.85 A
Efficiency at rated power	> 90%
AC input protection	T6.3 A/250 V 5x 20 mm slow-blow fuse (accessed when the casing is open)
Protection from electric shock	Class I (EN 60065)
DC output	52 VDC; max. 15.4 A
Dimensions	85 (W) x 95 (H) x 395 (D)
Weight	2,6 kg

Exchangeable Modules

EN 54-16

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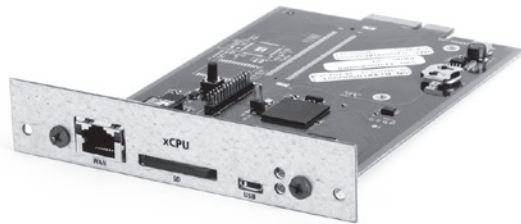
The card integrates ABT-CU8 and ABT-CU8LCD Control Units with other elements of the MULTIVES system. CPU controls the whole network traffic and manages audio routing, digital matrix (8x8) as well as all DSP functions. ABT-xCPU enables remote access to the configuration parameters of each element of the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

## 4 AUDIO INPUT / 8 AUDIO OUTPUT CARD
ABT-xAudIO-4/8-RS
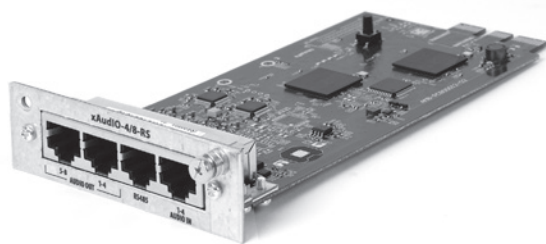
This audio input/output card is designed for a function slot of ABT-CU-8/LCD Control Unit. It offers 4 line audio inputs (via an RJ45 connector) and 8 symmetrical outputs to lead audio signals out via RJ45 connectors to external devices or amplifiers of the MULTIVES system. The card is also equipped 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
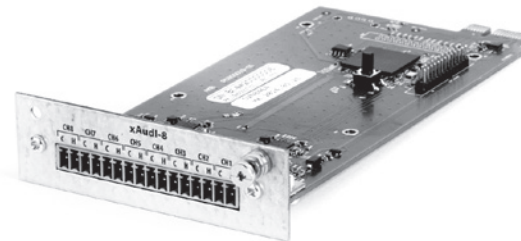
This audio input extension card is designed for a function slot in ABT-CU-8/LCD Control Unit. It offers 8 symmetrical line audio inputs via a Phoenix-type connector.

COMUNICATION CARD
### ABT-xNET-1Gb/WAN/RS
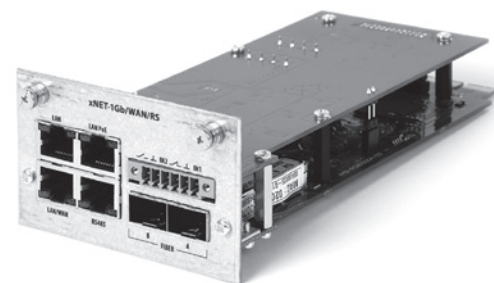
ABT-xNET is a communication card, which offers two independent 1 GB network switches; switch no 1 is designed solely for data transmission in connection with the base functionality of the MULTIVES system i.e. operations of the emergency sound system and AVB whereas switch no 2 is used for remote connections. 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.

LOGICAL OUTPUT CARD FOR FUNCTION / CONTROL SLOTS
### ABT-xLogOUT-8f / ABT-xLogOUT-8c
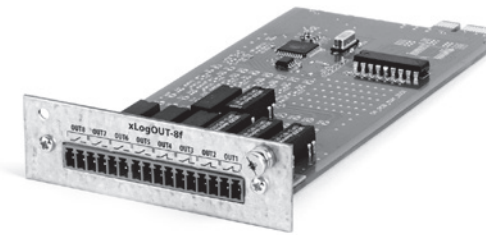
The logical output card has 8 relays i.e. 4 x normally-closed (NC) and 4 x normally-open (NO). All of them are fully programmable in terms of NC / NO functioning as well as function correlation.

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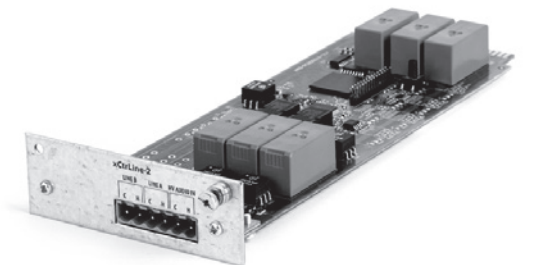### ABT-xCtrLine-4
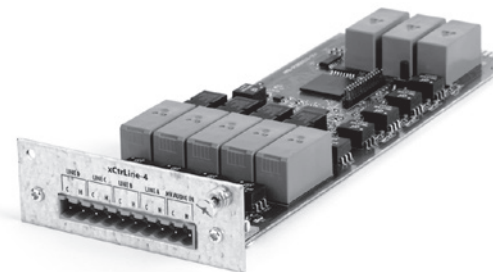
This card is designed for a control slot in every Control Unit; it offers 4 independent loudspeaker line outlets. Lines can be measured either by the impedance or loop methods. The card detects failure of the amplifier and switches the 100 V signal between internal buses and individual amplifier input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

LOGICAL INPUT CARD FOR FUNCTION / CONTROL SLOTS
ABT-xLogIN-8f / ABT-xLogIN-8c
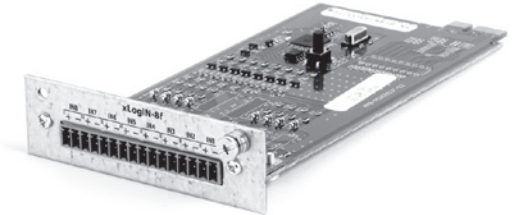
The logical input card has 8 independently-programmable control inputs which may receive signals from other systems in order to trigger a desired reaction of the MULTIVES system. Inputs of an ABT-xLogIN-8f card offer two modes of work i.e. a non-potential mode (short-circuited / open-circuited) and a 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.

ABT-ISLE

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

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

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

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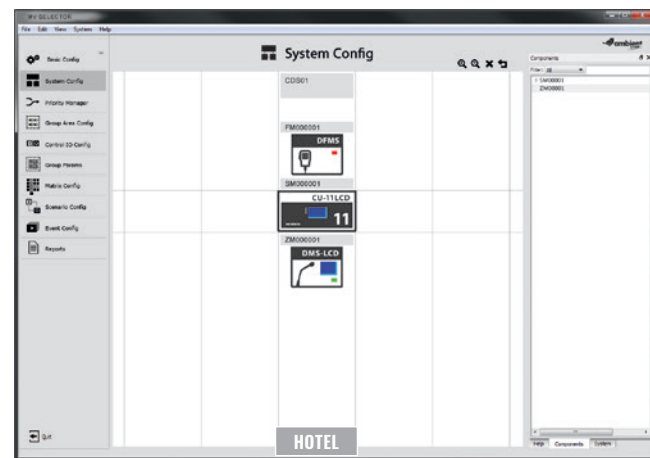
MULTIVES System Configuration

software / system examples

MULTIVES SELECTOR

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

MV SELECTOR supports all IP-based MULTIVES devices offering control and configuration of control units (ABT-CU-8LCD, ABT-CU-11LT, ABT-CU-11LCD) and microphones (ABT-DFMS Fireman Microphone, ABT-DMS-LCD Zone Microphone with LCD, ABT-DMS Zone Microphone).
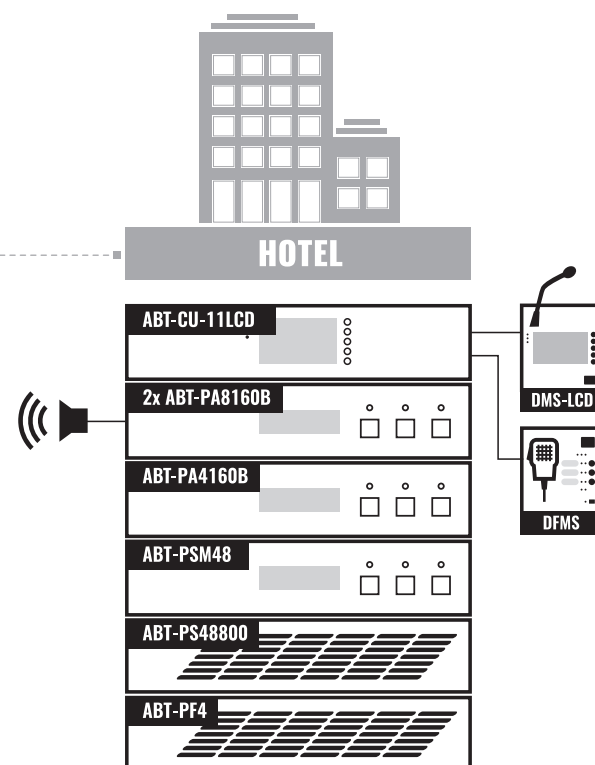
EXAMPLE 1 / HOTEL

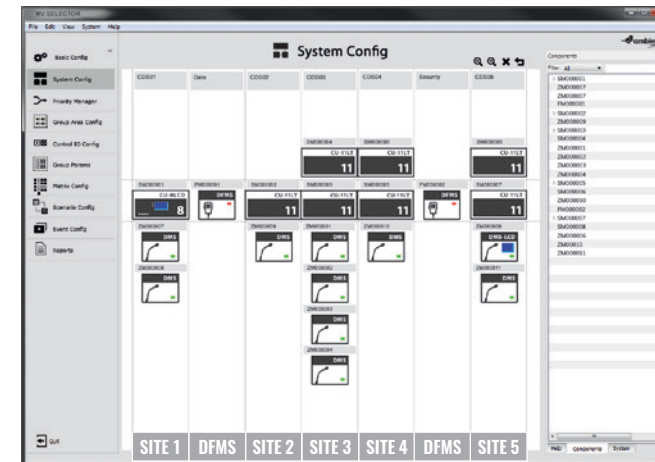### Example of a small MULTIVES system configuration:

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

with dedicated devices:

» **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**
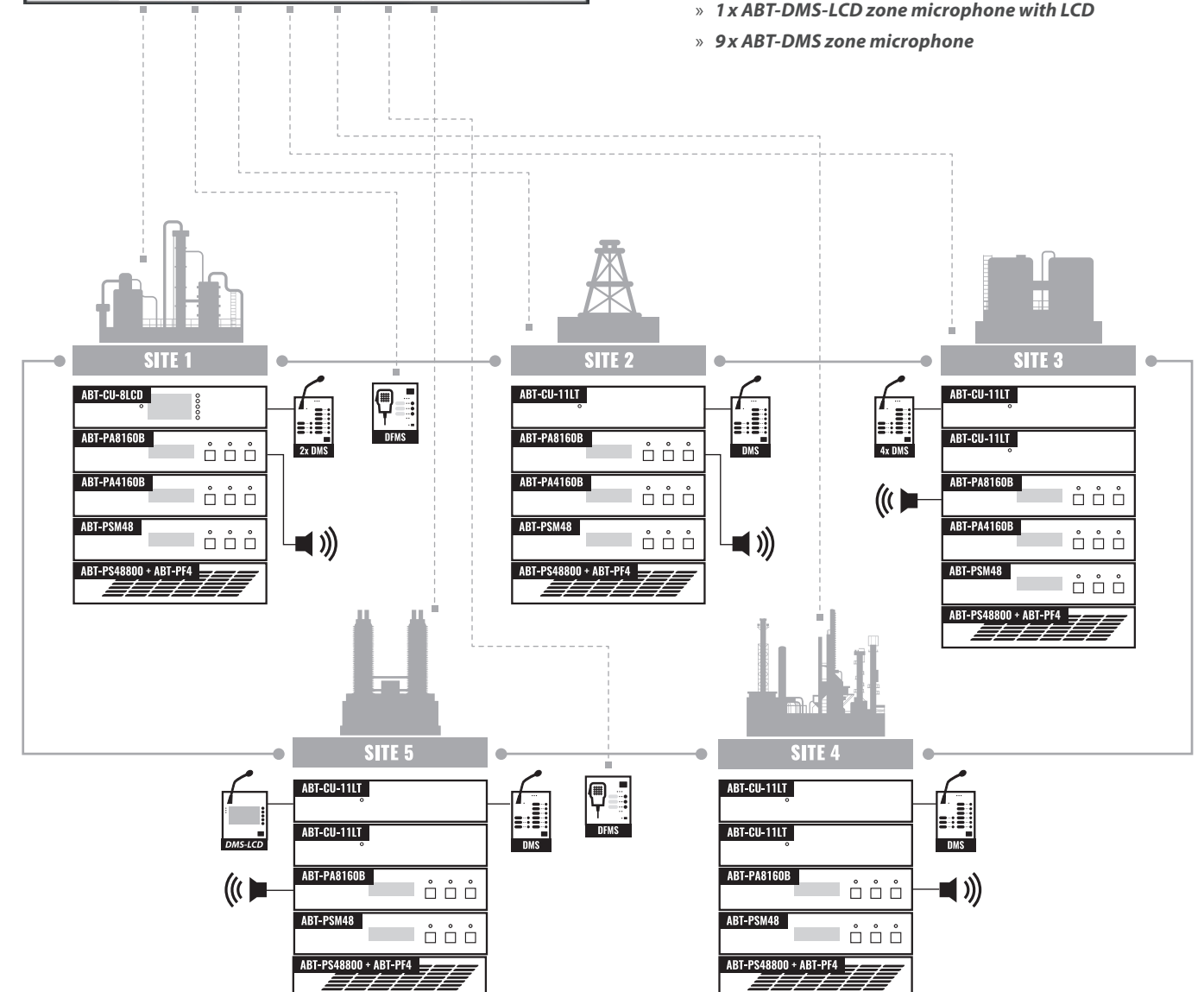» **1x ABT-DMS-LCD zone microphone with LCD**

EXAMPLE 2 / OIL REFINERY

Example of a large MULTIVES system configuration:

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

with dedicated devices:

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

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