Sounds under control

PAudio®
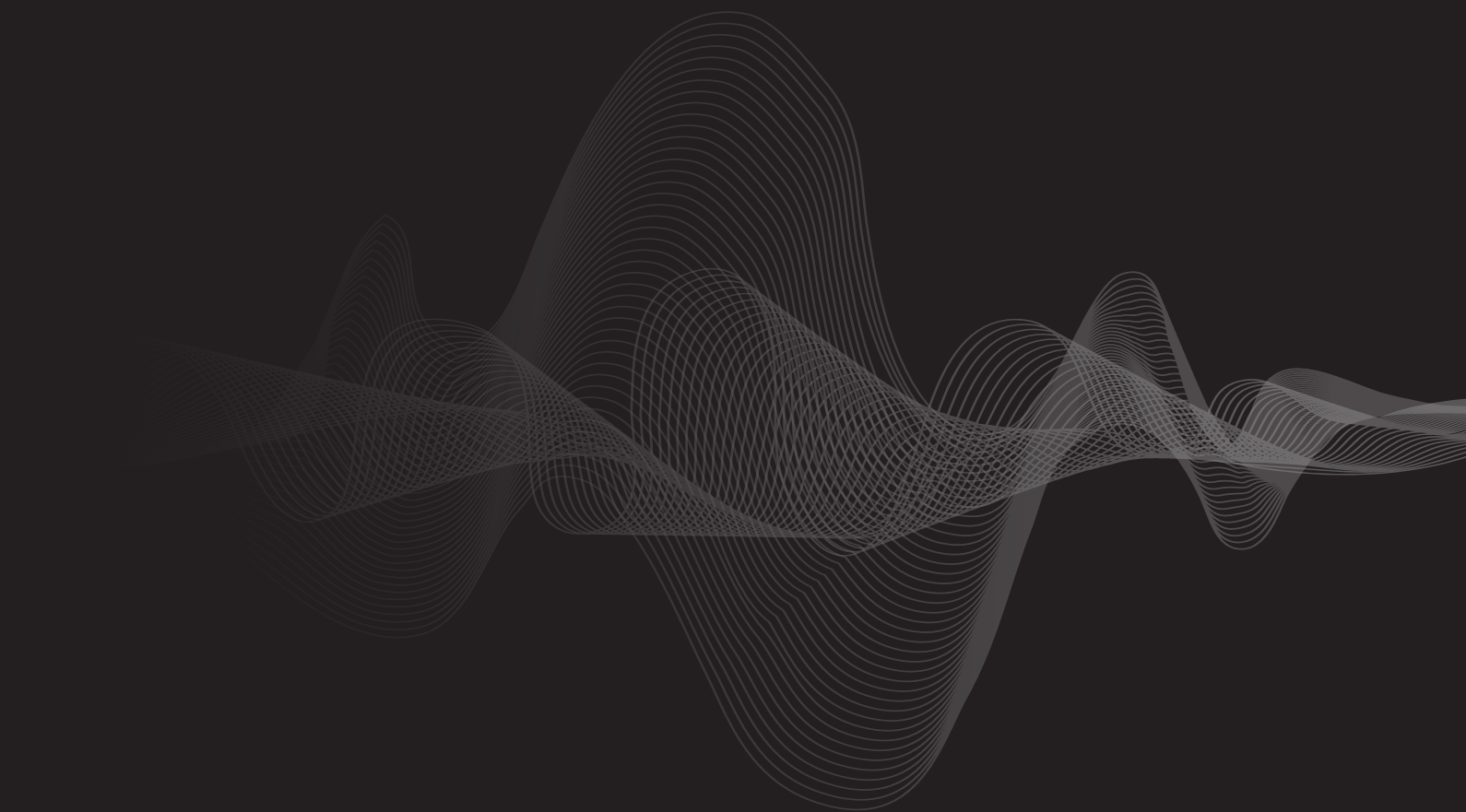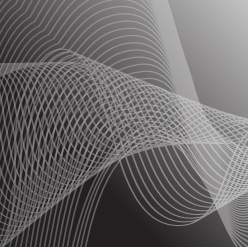
Innovative solution | Made in EU | European Construction

Voice
Alarm System

EN 54-16
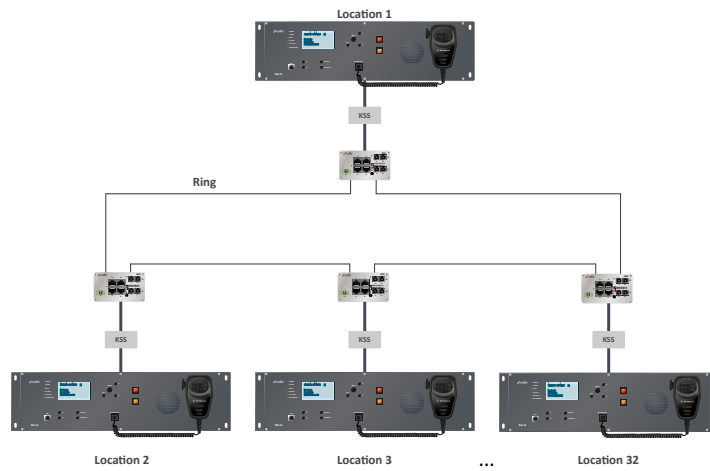
IVO®

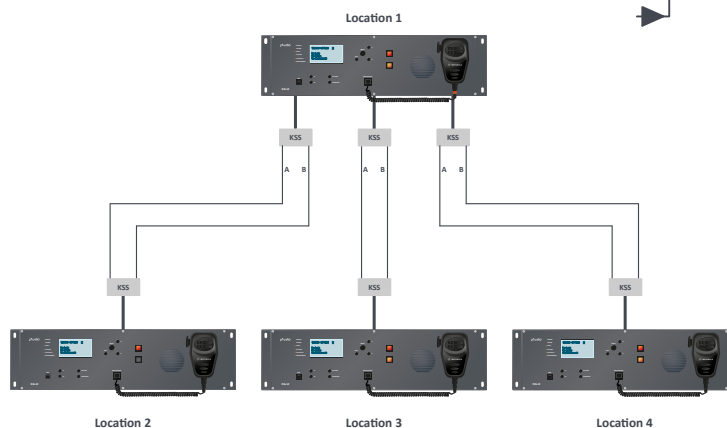# System network (fiber optic)

Location 1

KSS

Ring

KSS

KSS

KSS

Location 2

Location 3 ...

Location 32

16 loudspeaker lines module

Standard configuration

16SG ... 1
16

B

Sharing amplifiers

16SG ... 1
16

16SG 17
32

B

2 loudspeaker lines card

Standard configuration

Backup only
2LG2

2LG2 Zone 1
A
B

B

... 2LG2 Zone 3
A
B

2LG2 Zone 2
A
B

Sharing amplifiers

2LG2 Zone 1
A
B

2LG2 Zone 1 ...
A
B

B

Separate backup for each zone

2LG2 Zone 1
A
B

2LG2 Zone 2
A
B

B

B

Standard configuration with local audio input

CD/MP3

Backup only
2LG2

2LGA

2LG2 Zone 1
A
B

B

CD/MP3

... 2LGA

2LG2 Zone 3
A
B

CD/MP3

2LGA

2LG2 Zone 2
A
B

Example configurations

TCP/IP

BMS

MA - Alarm microphone
KKO

MAR - Alarm microphone
KKO

MI - Paging microphone
8 ... 1

KKO

CD/MP3
KKO

INT - Fire intercom
8 ... 1

KKO

CD/MP3
WAA

~ 18-20 kHz
WAA

MPT - Noise sensing microphone
WAA

GPIO

Logic output
1 ... 8
PPW

Logic output
1 ... 6
PPW2

Logic input
1 ... 8
WSS

KSS

KSS

A B
Copper

A B
Fibber optic

Network configuration

KSS
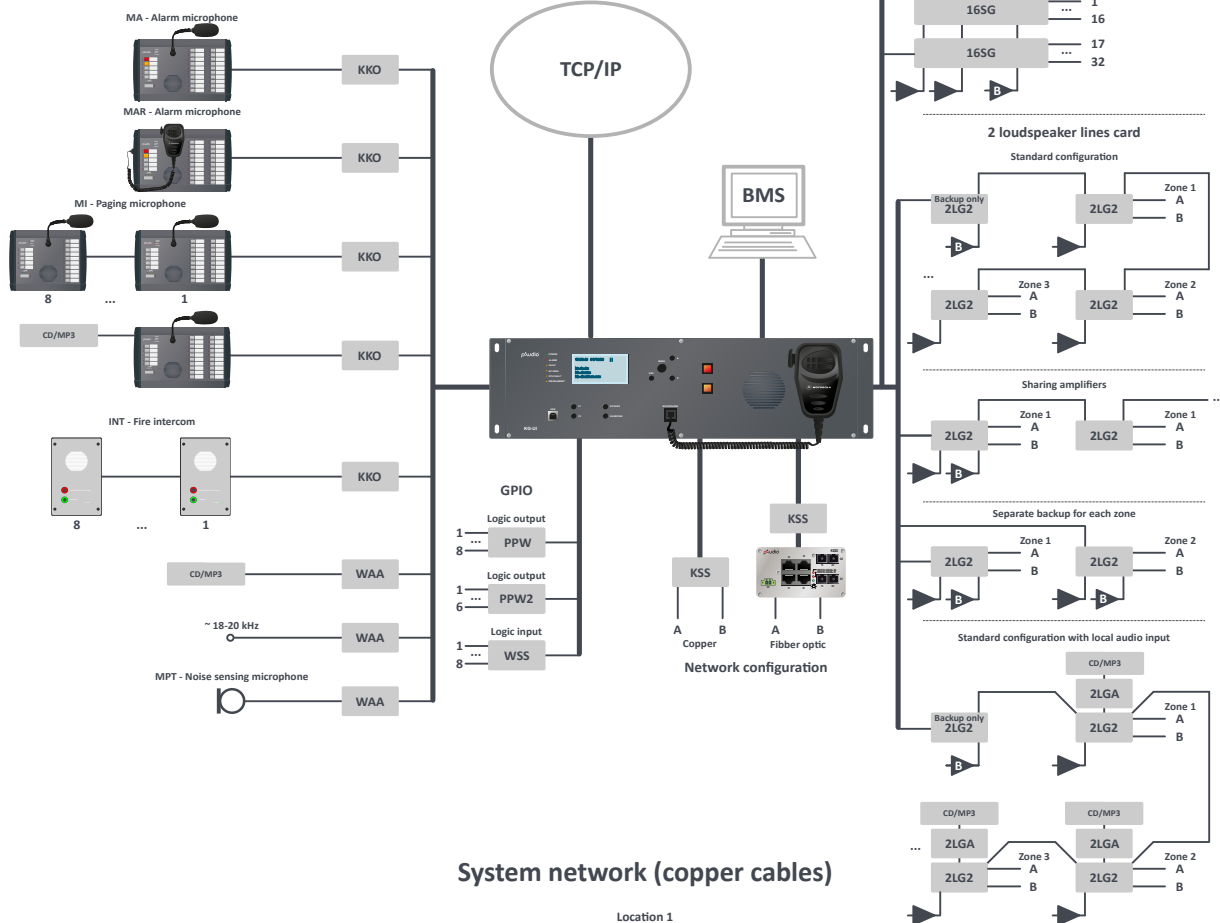
System network (copper cables)

Location 1

KSS KSS KSS

A B A B A B

KSS KSS KSS

Location 2

Location 3

Location 4

Voice Alarm IVO has been designed by engineers and practitioners who very well know what market and Voice Alarm Systems require. Inventors of the system have been actively participating in both development and implementation of numerous VAS installations in various types of buildings.

In developing the system, well-known European engineering companies in the industry participated, bringing decades of experience in designing electronic devices for fire systems.

The use of modern components allows for expanded functionality without the need to develop new electronics.

Significant emphasis has been placed on using components and technologies that substantially reduce energy consumption during both operation and standby modes of the system.

The system features a modular design. Its core component is the KG-ETH main controller, equipped with a set of mandatory inputs and outputs. Expanding the system requires adding the appropriate module card to the system chassis.

The main controller manages the operation of other cards in the system and handles the flow of audio streams. It includes a main processor and a bypass controller and comes with a built-in alarm and signal module. It also records verbal announcements made by system operators. It supports integration functions via Modbus protocol or in ASCII mode. Besides the mandatory inputs and outputs, the main controller is also equipped with RS232/RS485 ports and LAN/WAN connectivity. The KG-ETH controller can handle up to four different audio streams simultaneously. It features a handheld emergency microphone, a listening speaker, and a series of configurable buttons on its front panel.

The system works in conjunction with consoles equipped with emergency microphones MA and MAR, and paging consoles MI. The basic version of the console includes a main part with a set of mandatory indicators and a set of 5 quick access buttons and 10 programmable buttons. Variations of this units feature 20, 30, 40, or more programmable buttons. Microphone consoles allow advanced control of the central unit functions. The MA and MI consoles feature a microphone on a flexible gooseneck.

The MAR console is equipped with a handheld microphone with a "push-to-talk" button instead of a gooseneck. Additionally, the MAR microphone can be enclosed in a metal case equipped with a key-lock that can be opened with a lightweight firefighter's axe.

Fire intercoms are designed for voice communication with other intercoms, the KG-ETH main controller, and microphone consoles. They are equipped with up to 5 programmable, illuminated buttons. Communication along the bus takes place in the digital domain. Intercoms are powered directly from the ZDSOP24 power plant.

MPT measurement microphones are designed to measure ambient acoustic background and automatically adjust audio volume on speaker lines.

Audio signal transmission between modules, consoles, and central units of the network system is digital. Connections between components of the centralized and networked system use fireproof copper cables. DSO network system control units can also be interconnected using fireproof fiber optic in a ring configuration.

The KSS card is used for communication between VAS IVO main controllers in a networked system. It features dual ports for audio stream and control transmission. KSSO converters are designed to connect network system control units via fireproof fiber optic. KSSO module parameters enable transparent and delay-free transmission of multiple high-quality audio streams.

Network modules allow for connections between IVO main controllers in either a chain or ring configuration.

The WSS card is primarily intended for connection to potential-free zone outputs of fire signaling devices. Activation of binary inputs on the card enables advanced control of the IVO.

PPW and PPW2 relay output cards are equipped with high-power relays and are used to control external fire and building automation devices. The high load capacity of the relay outputs allows for direct control of high-power receivers.

The 16SG module allows for connection to up to 16 speaker lines and three power amplifiers. One of these amplifiers is used for monitoring and serves as a backup amplifier, while the other two act as the primary amplifiers. The lines can freely switch between these amplifiers, enabling the support of two audio signals simultaneously within a single 16SG module. Up to 32 16SG modules can be installed in one system, providing a total of 512 speaker lines.

2LG2 modules are designed for handling speaker lines. A single module can connect two speaker lines in either A/B configuration or as independent zones 1 and 2. The system allows powering from a single power terminal of one speaker line, two lines of the same zone (in A/B configuration), or any number of speaker lines (linking 2LG2 cards under common amplifiers). Mixed operation is also possible.

2LG2 cards are also compatible with VCT series controllers, which are used for volume control (attenuation) on IVO system speaker lines.

The 2LGA card is a module that connects directly to the 2LG2 card, adding a local audio input to it. The signal can be processed exclusively within a specific 2LG2 card or within a group of interconnected 2LG2 cards. As a result, up to 64 independent, non-alarm audio signals can be processed simultaneously (on a single main controller KG-ETH).

A wide range of energy-efficient amplifiers is available. WB amplifiers are powered by 24 V DC directly from ZDSOP24 battery power plants and include 1- to 8-channel devices with powers (per channel) of 150, 200, and 500 W RMS.

ZDSOP24 is a family of power plants with a nominal output voltage of 24 V DC and a maximum power of 7 kW. The VAS IVO units, along with the ZDSOP24 power system, is housed in a 19" telecommunications rack ranging from 24 to 50U in height.

Chosen technical data of VAS IVO Control Panel
based on one KG-ETH Controller

1438-CPR-0401

Number of simultaneously processing audio signals	4
Digital messages format (playing and recording)	PCM
Log event buffer	2048
Frequency response (- 3 dB)	20..20 kHz
Signal to noise ratio	> 80 dB
Distortion THD (1 kHz)	< 0,5 %
Interfaces for 3-rd party system integration	2x RS232/RS485
Service and maintenance interfaces	1x USB, 1x Ethernet
Number of loudspeaker lines	128 (64x 2LG2), lub 512 (32x 16SG)
Number of microphone stations	8
Number of binary inputs	64 (WSS) + 18 (KG-ETH)
Number of relay outputs	64 (PPW) + 2 (KG-ETH)
Loudspeaker lines monitoring methodology	Impedance using pilot signal
Number of sub-systems in network configuration	32
Topology of network	Chain or ring
Amplifiers range	1x 500 W, 2x 500 W, 4x 500 W, 8x 150 W, 2x 200 W, 4x 200 W
Maximum power of power supply system	3480 W for each main controller KG-ETH
Voltage	20..60 V DC
Rack dimensions	600x600 or 600x800 mm, 24 to 50 U