



Sounds Under Control



Made in Poland

2025

COMPANY PROFILE

pAudio Technologies Sp. z o.o.

Innovative Solution | European Construction



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INTRODUCTION

Since 2010, pAudio Technologies has specialized in certified Public Address, Voice Alarm, and Background Music systems. With a focus on acoustics and safety, we deliver high-fidelity audio solutions designed for seamless integration and maximum speech intelligibility.

Our products, which are engineered and manufactured in Poland, meet the highest international standards, including the exclusive EN 54-16:2008 optional requirements. Backed by years of R&D and a customer-first mindset, we offer modular, scalable, and future-proof systems for commercial, public, and residential spaces.

INTELLIGENT PUBLIC ADDRESS AND VOICE ALARM SYSTEMS





ABOUT US

Since 2010, we have been designing and manufacturing certified Public Address, Voice Alarm, and background music systems - IVO. We specialize in acoustics and prioritize safety. pAudio Systems stands for high-fidelity audio communication, ensuring comfort and protection in both public and private spaces.

We focus on the engineering, manufacturing, and distribution of advanced audio systems for commercial, public, and residential buildings. Our solutions are appreciated not only by our partners but also by independent institutions.

We are proud to offer products that meet all the optional requirements of the harmonized EN54-16:2008 standard. Our systems are certified, award-winning, and continuously being improved. For us, acoustics and safety are more than just slogans – they reflect real needs and real solutions.

Our development strategy centers on maximizing sound quality and speech intelligibility, supported by decades of electroacoustic research and cross-sector experience.

Our products are designed for ease of use and seamless integration with building management systems. The 'Made in Poland' label reflects our strong R&D capabilities, product quality, and full compliance with international standards.

Driven by a commitment to excellence and a customer-first approach, we build lasting relationships, respond quickly to evolving needs, and adapt to market challenges. Our systems are modular, scalable, redundant, and backward compatible - ready for the demands of today and tomorrow.



SOUNDS UNDER CONTROL

FEATURES

- ✓ EN 54-16 certified
- ✓ Modular and easily expandable headend products
- ✓ TCP/IP connectivity
- ✓ Dante-enabled
- ✓ Dedicated fiber optic and copper cable network
- ✓ Integrated intercom functionality
- ✓ DSP-based controller
- ✓ User-friendly interface



Mission

We harness the power of digital audio to deliver the right message and music – at the right time, in the right place.



Vision

To enhance safety and spatial experience through the power of electroacoustics.

OUR APPLICATIONS



Education



Health



Hospitality



Industrial Theme
Parks



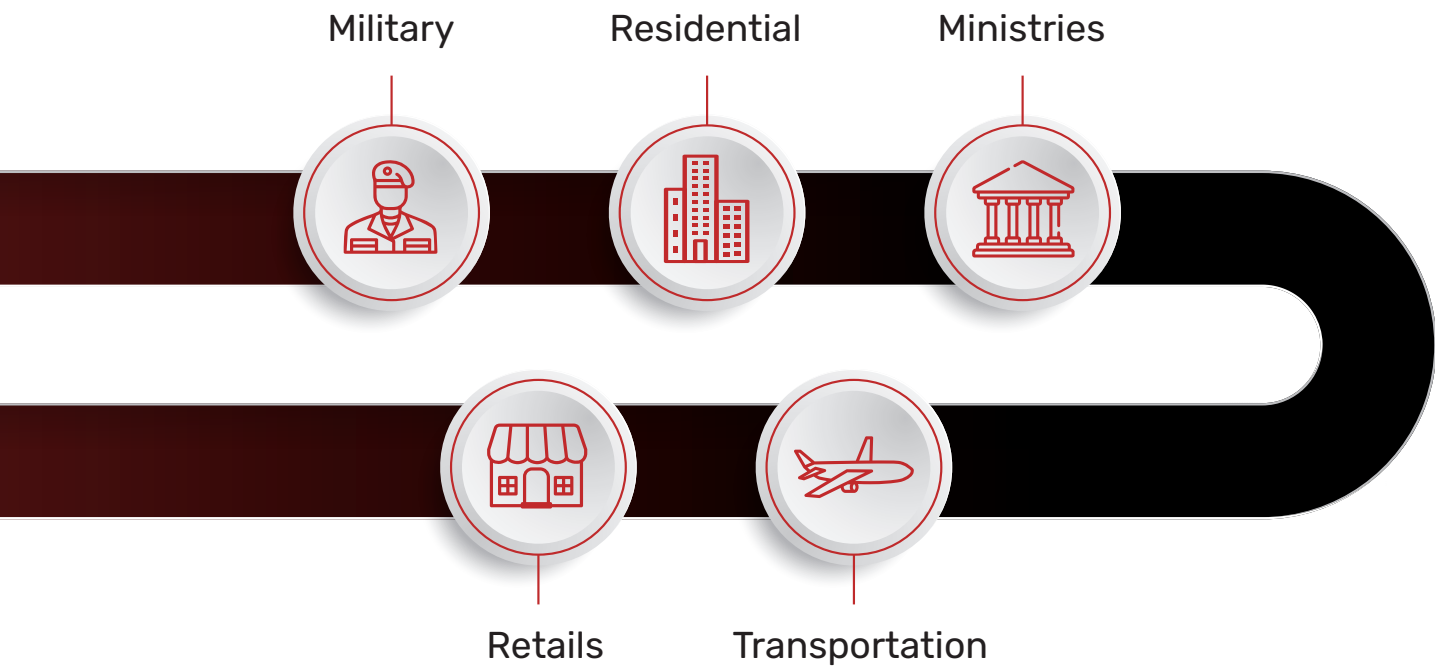
Correction
Facilities



Stadiums and
Arenas



SCALABLE FOR EVERY BUILDING AND APPLICATION



PAVA SYSTEM IVO COMPACT

The most powerful wall-mounted PAVA solution.

IVO Compact is a wall-mounted PAVA system designed for small to medium-sized facilities. It offers a true Plug & Play experience – preconfigured and ready to operate immediately after installation.

System supports full-phase evacuation with two simultaneous audio streams and up to 16 loudspeaker lines, delivering a total power output of up to 1000 W. It matches the functionality of classic rack-based voice alarm systems while significantly reducing overall system cost.

The built-in emergency power supply provides up to 24 hours of standby time and 30 minutes of alarm operation. Both times can be extended by using an external battery enclosure with higher-capacity batteries.

IVO Compact is fully compatible with the IVO rack system, sharing the same range of console microphones and intercom units. It can also be networked with other IVO PAVA systems. The standard version is expandable with additional modules (KKOC, WAAC, KSSC) to meet specific project needs.



EN54 16

FEATURES:

- EN54-16 certified
- A fully equipped PAVA system
- Plug & Play
- Up to 16 single Class B or 8 Class A/B lines
- Up to 8 Class A lines
- Maximum 500 W or 125 W power load per line depending on version
- Maximum 1000 W power load per unit
- Phase evacuation with separate redundant amplifier
- Main processor with secondary bypass processor
- Real-time system monitoring
- 32-bit DSP audio processor
- Up to 32 subsystems in network
- Wide frequency response
- CD quality audio
- Ultra-low quiescent mode
- Modbus for 3rd party integration
- 12 monitored control inputs
- 2 output relays
- Built-in operating buttons
- Programmable emergency and functional buttons
- Built-in LCD screen
- Built-in monitoring loudspeaker
- Built-in handheld alarm microphone
- 4 slots for additional system cards
- Diagnostic USB port
- Compatible with the flagship IVO rack system
- Custom RAL available

KKOC - MICROPHONE CONSOLE CARD

KKOC card allows to connect alarm (MA, MAR), paging (MI) console microphones and fire intercoms (INT) to IVO Compact.

FEATURES:

- Support of up to 8 microphone consoles or 8 intercoms
- 32-bit DSP audio processor
- Digital communication
- Maximum cable length 1200 m (RS485)
- Optional redundant fiber connection with alarm microphones
- Wide frequency response
- Ultra-low quiescent mode
- Direct power supply of connected units (copper connection)
- Overvoltage, overcurrent and short circuit protection



KSSC - NETWORK CARD

The KSSC card allows to link and communicate IVO Compact with any other IVO system.

FEATURES:

- Up to 32 subsystems in network
- Redundancy of transmission path
- No significant audio signal delays between subsystems
- Full synchronization of messages between main units
- Galvanically isolated circuits
- Digital communication
- Maximum cable length between subsystems 1200 m (RS485)
- Point-point, multi-point or ring configuration
- Ultra-low quiescent mode
- Overvoltage, overcurrent and short circuit protection



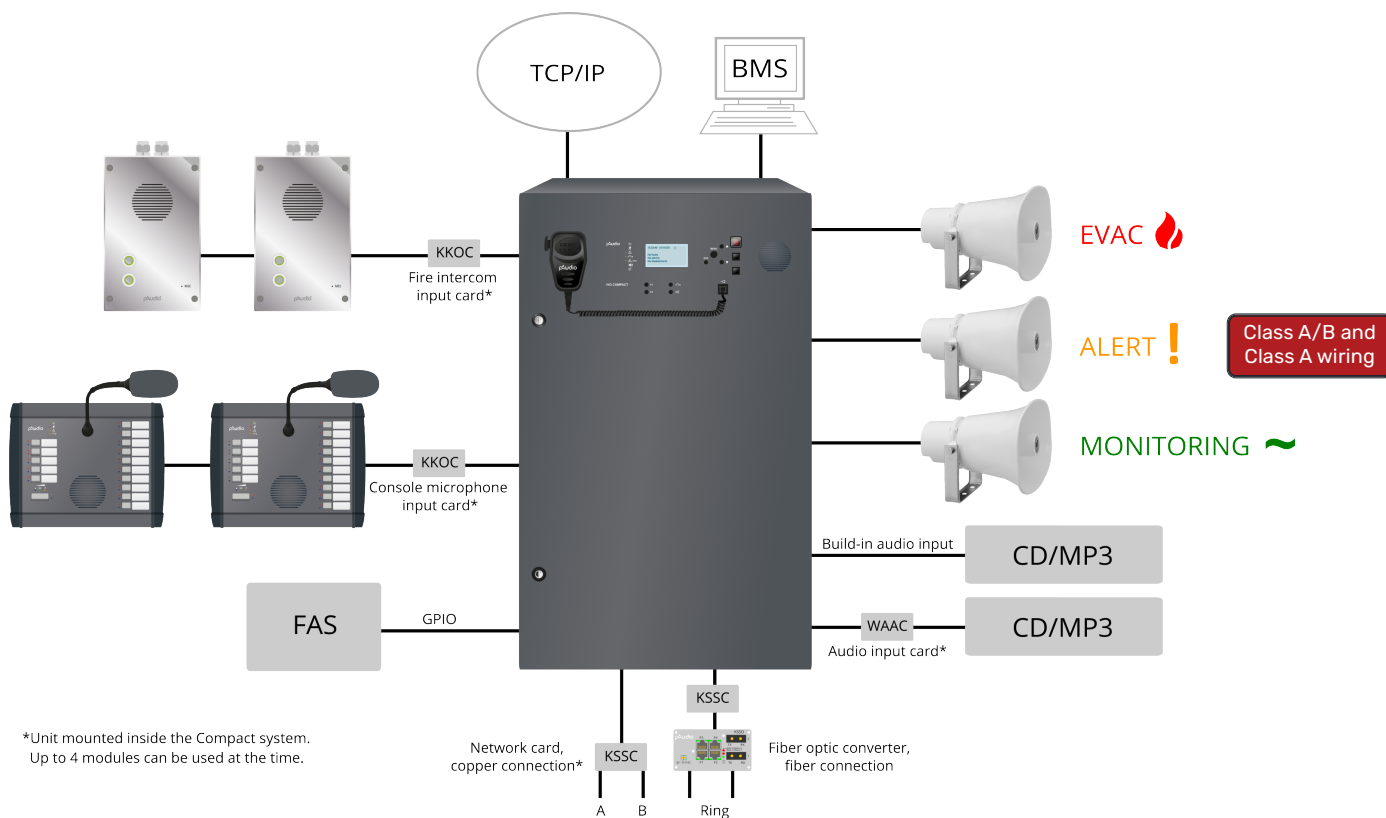
WAAC - AUDIO INPUT CARD

WAAC card allows to connect any kind of analog audio sources and background measurement microphones (MPT) to the IVO Compact.

FEATURES:

- Symmetrical 0 dB input
- Phantom power
- 32-bit DSP audio processor
- Wide frequency response
- Ultra-low quiescent mode





TECHNICAL FEATURES

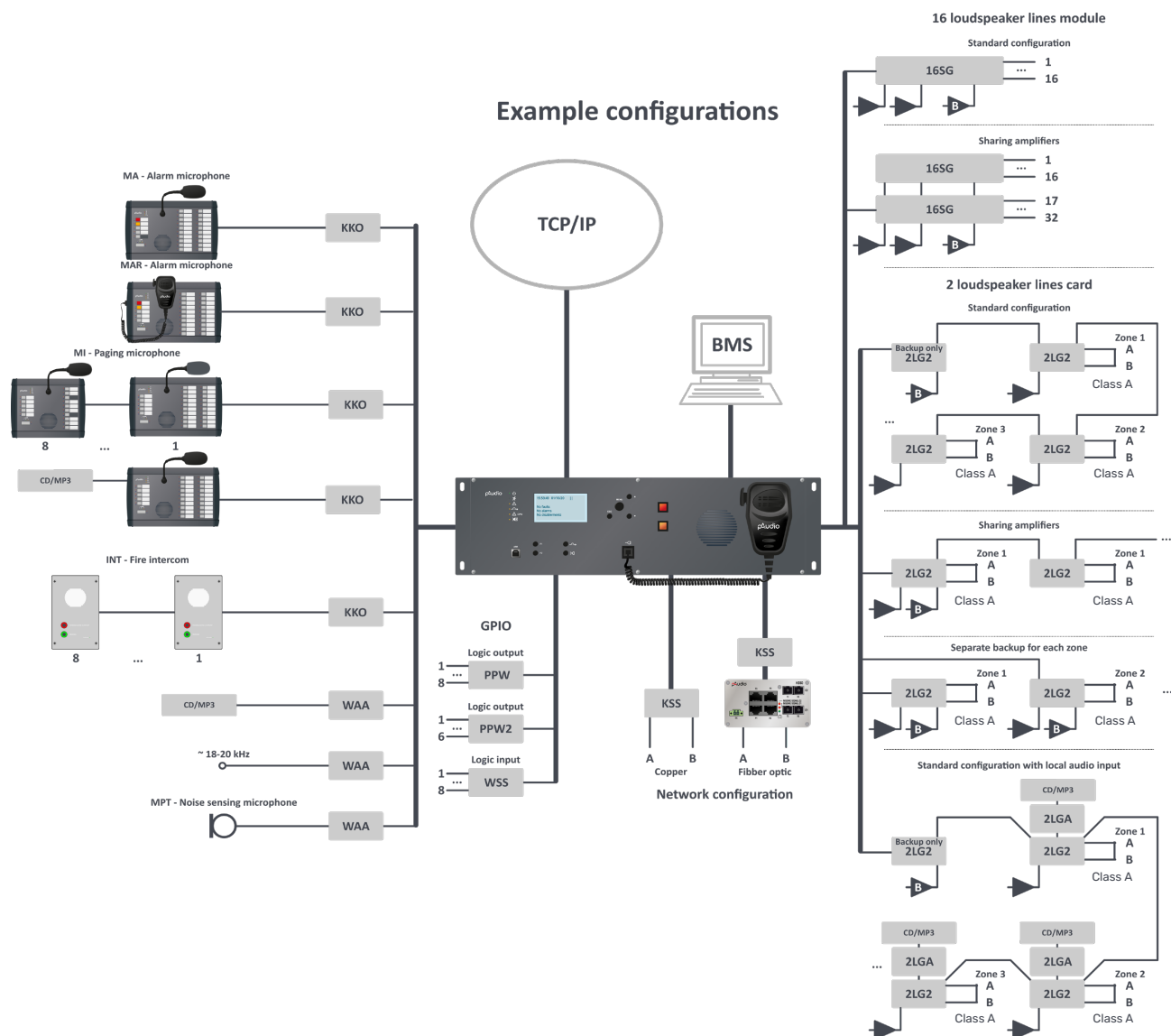
Frequency response:	10 Hz - 30 kHz (- 3 dB)
Distortion (THD + N) (1 kHz):	< 0,1 %
Signal-to-noise ratio:	> 86 dB
Digital audio format:	PCM 16-bit / 48 kHz
Total power efficiency:	> 86%
Indicators:	Power, Alarm, Fault, Bypass, CPU fault, Disablement, Test
3rd party integration:	1x RS232/RS485 (Modbus)
Maintenance:	1x USB, 1x Ethernet
Log event buffer:	2048

PAVA SYSTEM IVO

IVO has been designed with energy efficiency and scalability in mind. In daily-use installations where background music is played continuously, low power consumption directly translates into reduced electricity costs. PAVA systems often require high power output – sometimes reaching several dozen kilowatts – and also consume energy in standby mode.

IVO's advanced logic control system minimizes energy consumption without compromising performance. Full output power is maintained even when operating on backup batteries.

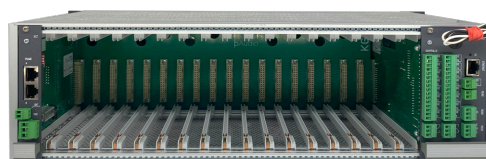
For larger systems requiring independent audio control across multiple loudspeaker lines, multi-channel amplifiers are essential. The IVO control panel supports centralized, distributed, and hybrid configurations, allowing flexible adaptation to a wide range of installation scenarios.



KG-ETH – SYSTEM CONTROLLER



KG-ETH-MAR main controller with handheld microphone (front)



KG-ETH main controller (back)

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The KG-ETH is designed to control and operate the IVO PAVA system. The system's operational status is indicated using LED indicators.

Detailed system information is displayed in text form on the built-in LCD screen. A monitoring loudspeaker is integrated for listening to audio signals from loudspeaker lines or for voice communication via fire intercoms. The KG-ETH controller supports the connection of a handheld emergency microphone and features colored buttons for manual operation of the IVO unit.

KG-ETH-MAR – variant with a front-mounted microphone.

FEATURES:

- EN54-16 certified
- TCP/IP Connectivity
- Dante enabled
- Main processor with by-pass processor switch
- Manage audio and control data
- Real-time system monitoring
- 32-bit DSP audio processor
- Up to 4 alarm audio channels per main controller
- Up to 64 non-alarm audio channels per main controller
- Up to 32 main controllers per system
- Wide frequency response
- Audio CD quality
- Ultra-low quiescent mode
- Modular structure
- Hot-swap functionality
- BMS Modbus communication
- 17 monitored control inputs
- 2 output relays (fault and freely programmable)
- Built-in LCD screen
- Built-in KG-UI user interface, KG controller, BP backplane and WZ digital bus modules
- 68HP expansion slots for system cards
- Diagnostic USB port on the front
- KG-ETH-MAR version with alarm microphone MR

TECHNICAL FEATURES

Frequency response:	20 Hz - 20 kHz (-3 dB)
Signal-to-noise ratio:	> 86 dB
Distortion (THD + N) (1 kHz):	< 0,1 %
Sampling rate:	48 kHz
Bit resolution:	16-bits
Operating temperature:	-5 : +50 °C
Max number of subsystems in the network system:	32
Supply voltage range:	24 V DC $\pm$ 20 %; 48 V DC $\pm$ 15 %

KAS – RACK EXPANSION MODULE

The KAS unit is designed for mounting system cards and expanding the main IVO device. It is equipped with a WZ power supply module, a BP board with a Eurocard socket, and a digital communication bus.

FEATURES:

- EN54-16 certified
- Modular structure
- Hot-swap functionality
- Built-in BP backplane card and WZ digital bus module



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WZ – DIGITAL BUS CARD

FEATURES:

- EN54-16 certified
- Power supply of main controller or expansion enclosures
- Digital communication of IVO units
- Digital bus termination



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KKO – MICROPHONE CONSOLE CARD

FEATURES:

- EN54-16 certified
- Support of up to 8 microphone consoles, 8 intercoms or 1 control devices
- Manage audio and control data
- 32-bit DSP audio processor
- Frequency response: 10 Hz – 30 kHz, (-3 dB)
- Distortion (THD) (1 kHz): < 0,1 %
- Signal-to-noise ratio: > 86 dB
- Digital audio format: PCM 16-bit / 48 kHz
- Digital communication
- Maximum cable length 500 m
- Optional redundant connection with alarm microphones
- Wide frequency response
- Ultra-low quiescent mode
- Direct power supply of connected units
- Hot-swap functionality
- Overvoltage, overcurrent and short circuit protection



EN54 16

2LG2 – LOUDSPEAKER LINES CARD

The 2LG2 card is used for direct connection of 100 V loudspeaker lines. Each card supports up to two loudspeaker lines or one Class A circuit. The card allows two independent lines or two lines in A/B configuration to be powered from the same power amplifier. Multiple 2LG2 cards can share a common amplifier output. Loudspeaker line monitoring is carried out using either the impedance measurement method or a pilot signal method.

2LG2 cards can be paired with 2LGA modules, enabling a local audio source to be connected to each 2LG2 card individually.

FEATURES:

- EN54-16 certified
- Support of 2 single or A/B lines
- Support one Class A circuit (loop)
- High power load up to 500 W per line
- Frequency response: 10 Hz – 30 kHz, (-3 dB)
- Distortion (THD + N) (1 kHz): < 0,1 %
- Signal-to-noise ratio: > 86 dB
- Digital audio format: PCM 16-bit / 48 kHz
- 32-bit DSP audio processor
- Indicators: ID, fault A, fault B, switch to redundant amplifier or port A, port B
- Optional audio 0 dB input card 2LGA
- Impedance or pilot method monitoring
- Wide frequency response
- Ultra-low quiescent mode
- Delays on loudspeaker lines (eg. tunnel SLASS method)
- Hot-swap functionality
- Overvoltage, overcurrent and short circuit protection



EN54 16

WAA – AUDIO INPUT CARD

The WAA card is designed to connect external analog audio sources. Its balanced input can be configured as either a microphone or a line-level input.

The card converts the analog signal into digital format, which is then transmitted via the IVO mainboard bus. Incoming audio signals can be monitored using a remote control signal.

The WAA card also supports MPT background microphones.

FEATURES:

- EN54-16 certified
- Symmetrical 0 dB input card
- Phantom power
- 32-bit DSP audio processor
- Wide frequency response
- Ultra-low quiescent mode
- Hot-swap functionality
- Frequency response: 10 Hz - 30 kHz, (- 3 dB)
- Distortion (THD + N) (1 kHz): < 0,1 %
- Signal-to-noise ratio: > 86 dB
- Digital audio format: PCM 16-bit / 48 kHz (CD Quality)
- Equipped with VOX functionality



EN54 16

WSS – CONTROL INPUT CARD

The WSS card provides additional control inputs for the IVO system when all inputs on the KG-ETH unit are occupied. It can be installed inside either the KG-ETH or KAS enclosures.

The card offers 8 potential-free NO/NC control inputs, which can be used to connect external control devices or systems – such as fire alarm panels. These inputs can also be configured for non-emergency functions.

FEATURES:

- EN54-16 certified
- 8 monitored control inputs
- NO/NC, short, open states
- EOL or voltage activation
- Delay time up to 10 s
- Ultra-low quiescent mode
- Hot-swap functionality



EN54 16

PPW2 – RELAY OUTPUT CARD

The PPW2 card provides six signal relay outputs for controlling external devices, both alarming and non-alarming, that require higher current loads – such as volume attenuators.

It can be installed inside KG-ETH or KAS enclosures.

FEATURES:

- EN54-16 certified
- 6 high power control relays
- Volume bypass relays
- NO or NC
- 8 A / 250 VAC (8 A / 24 V DC switching capacity each relay)
- Ultra-low quiescent mode
- Hot-swap functionality



EN54 16

2LGA – LOCAL AUDIO INPUT CARD

The 2LGA card is used as an extension to the 2LG2 card, enabling a local audio source to be connected to each individual 2LG2 card. This allows local background music to be injected directly into specific loudspeaker lines.

FEATURES:

- EN54-16 certified
- Local symmetrical audio 0 dB input for single or multiple 2LG2
- Phantom power
- 32-bit DSP audio processor
- Compatible with 2LG2 card
- Frequency response: 10 Hz – 30 kHz, (– 3 dB)
- Distortion (THD + N) (1 kHz): < 0,1 %
- Signal-to-noise ratio: > 86 dB
- Digital audio format: PCM 16-bit / 48 kHz
- Equipped with VOX functionality



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KSS – NETWORK SYSTEM CARD

The KSS card is used for communication between the IVO PAVA units in a network system.

The card has a dual port for transmission of audio and control streams. The KSS module enables connection between network cabinets in a chain, ring or loop configuration.

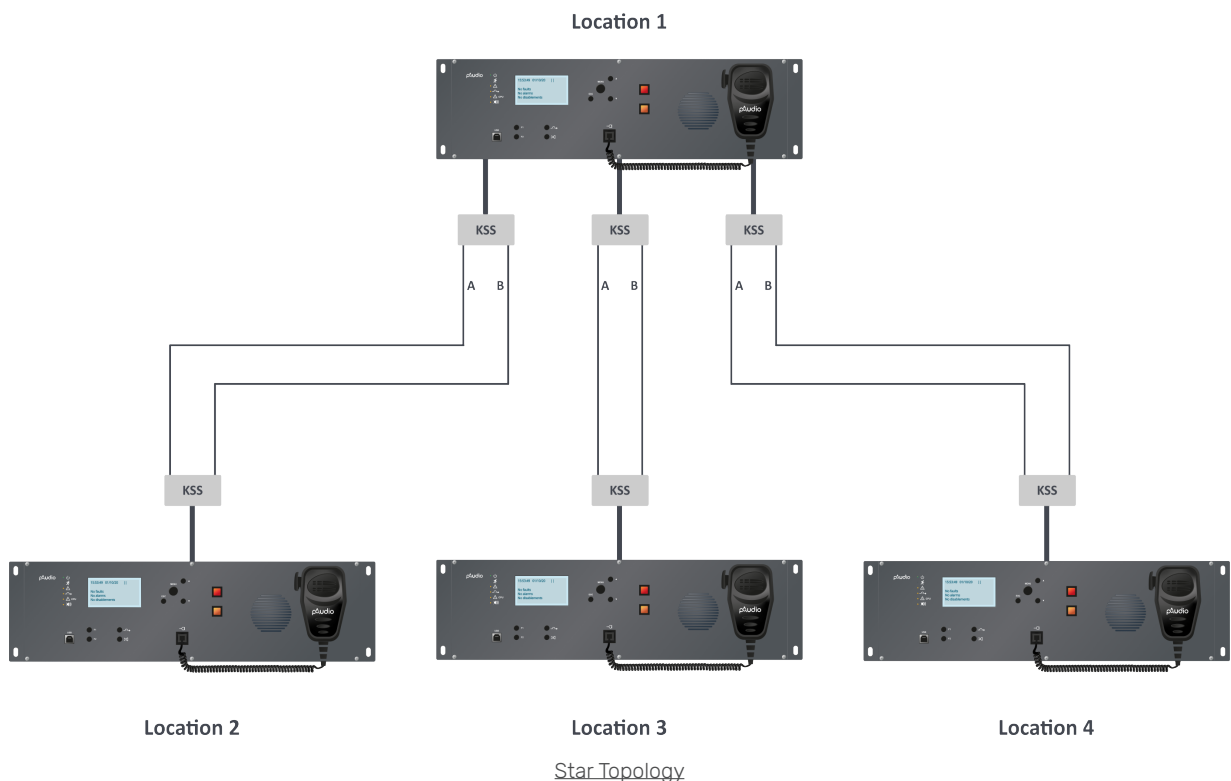
FEATURES:

- EN54-16 certified
- Up to 32 subsystems in network
- Redundancy of transmission path between subsystems
- No significant audio signal delays between subsystems
- Full synchronization of messages between subsystems
- Galvanically isolated circuits
- Digital communication
- Maximum connection length between subsystems 500 m
- Point-point, multi-point or ring configuration
- Ultra-low quiescent mode
- Hot-swap functionality
- Overvoltage, overcurrent and short circuit protection
- Frequency response: 10 Hz - 30 kHz, (- 3 dB)
- Distortion (THD + N) (1 kHz): < 0,1 %
- Signal-to-noise ratio: > 86 dB
- Digital audio format: PCM 16-bit / 48 kHz (CD Quality)



EN54 16

System network (copper cables)



KSD – 4X4 DANTE CARD

The KSD card is designed for connecting the Touch MDT Dante console microphone and enabling communication between IVO PAVA units in a networked system. It also supports integration with third-party Dante-enabled devices and systems.

It can be installed inside KG-ETH or KAS enclosures.

FEATURES:

- EN54-16 certified
- Connection support for dedicated Touch MDT Dante console microphone
- 4x4 digital Dante audio interface
- Optional KSDA module to extend Dante channels to 8x8
- Network communication between IVO PAVA units
- Ultra-low quiescent mode
- Hot-swap functionality



 Dante®

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16SG – 16 LOUDSPEAKER LINES MODULE



EN54 16

The 16SG module allows direct connection of up to 16 loudspeaker lines or 8 class A loudspeaker loops (100 V). It is designed for PAVA systems that require a large number of low-power loudspeaker lines and support phased evacuation with independent backup amplifiers.

Housed in a compact 1 U enclosure, the 16SG is ideal for installations in office buildings, hotels, and hospitality facilities – reducing the number of power amplifiers needed while maintaining full system reliability.

FEATURES:

- EN 54-16 certified
- Support of 16 single or 8 A/B lines
- Support 8 Class A circuits (loop)
- Full-phase evacuation with two simultaneous audio signals
- Up to 1000 W total power load per module
- Backup amplifier functionality
- Maximum 125 W power load per line
- Integrated 32-bit DSP audio processor
- Local balanced 0 dB audio input
- Loudspeaker line impedance monitoring
- Wide frequency response
- Ultra-low quiescent power mode
- Overvoltage, overcurrent and short circuit protection

WB – POWER AMPLIFIER



EN54 16

WB amplifiers are equipped with transformerless outputs and a microprocessor-based control system that ensures precise management and continuous of amplifier performance. Thanks to their high efficiency, they require minimal battery capacity when operating on backup power. Powered directly by 24 V DC from the ZDSOP24 power supply unit, WB amplifiers offer flexible redundancy: one of the independent channels can be configured as a backup channel.

The WB range includes 1-, 2-, 4-, and 8-channel models, with output power ratings of 150 W, 200 W, or 500 W RMS per channel. All models are housed in a compact 1 U design for standard 19-inch rack installations.

FEATURES:

- EN 54-16 certified
- Class D amplifier technology
- Transformerless 100 V outputs
- True RMS output power
- 24 V DC direct supply
- Independent audio channels
- Dynamic, high-quality sound
- Wide frequency response: 10 Hz – 30 kHz (–3 dB)
- Distortion (THD + N) (1 kHz): < 0,1 %
- High signal-to-noise ratio: > 92 dB
- Ultra-low quiescent power mode
- Fully isolated amplifier stages
- Compact size and lightweight design
- Overvoltage, overcurrent, short circuit, and thermal protection

CONSOLE MICROPHONE (MA, MAR, MI)



Console microphones are designed for voice evacuation messages, triggering automatic alert or evacuation sequences (MA, MAR), as well as standard paging functions (MA, MAR, MI). Alarm consoles differ from paging consoles by the color of their function keys and the availability of signal connectors.

Each console includes programmable buttons that can be configured via dedicated software. The basic version features a main unit with required status indicators, 5 quick-access buttons, and 10 programmable keys. Extended versions provide 20, 30, 40, or more programmable keys, depending on the model.

Console microphones deliver advanced control of core system functions.

CONSOLES MICROPHONES COME IN THREE MAIN VERSIONS:

- MA – console with gooseneck alarm microphone
- MAR – console with a handheld alarm microphone
- MI – console with gooseneck paging microphone

FEATURES:

- EN 54-16 certified
- Frequency response: 150 Hz – 16 kHz (–3 dB)
- Distortion (THD + N) (1 kHz): < 0,1 %
- Signal-to-noise ratio: > 75 dB
- Gooseneck or handheld microphone
- High-performance microphone capsule
- 32-bit DSP audio processor
- Reliable mechanical buttons
- 5 buttons for automatic message activation
- Up to 150 additional programmable buttons
- 2 status LED indicators per button
- Freely programmable buttons
- Power, Alarm, Fault, Bypass notification LED indicators
- Adjustable sensitivity for microphone
- Advanced control of the IVO PAVA system
- Aluminum housing
- Built-in audio input
- Built-in loudspeaker
- Intercom functionality
- Wall-mounting option
- Digital communication
- Maximum cable length: 500 m
- Direct power supply from the IVO PAVA system
- Wide frequency response
- Ultra-low quiescent mode
- Password protection

MAR-K – ALARM MICROPHONE CONSOLE WITH FIBER OPTIC CONNECTIVITY



EN54 16

The MAR console is equipped with a handheld microphone instead of a gooseneck type. The microphone features a push-to-talk (PTT) button for simple and intuitive operation.

For added security, the MAR microphone can be enclosed in an OME metal housing with a key lock, designed to be opened in emergencies using a standard fireman's axe.

FEATURES:

- EN 54-16 certified
- Frequency response: 150 Hz – 16 kHz (–3 dB)
- Distortion (THD + N) (1 kHz): < 0,1 %
- Signal-to-noise ratio: > 75 dB
- Handheld alarm microphone with PTT button
- Reliable mechanical buttons
- 32-bit DSP audio processor
- 5 buttons for automatic message activation
- 2 status LED indicators per button
- Freely programmable buttons
- Advanced control of the IVO system
- Aluminum housing
- Built-in audio input
- Built-in loudspeaker
- Intercom functionality
- Wall-mounting option
- Digital communication
- Maximum cable length: 500 m
- Optional redundant connection with the IVO system
- Optional OME1 / OME2 metal housing
- Direct power supply from the IVO PAVA system
- Ultra-low quiescent power mode
- Optional fiber optic connectivity available

MDT - DANTE TOUCHSCREEN MICROPHONE



The MDT (Microphone Dante Touch) is the next-generation console that builds upon and extends the functionality of the existing MAI series.

Equipped with a touchscreen and a service interface, the MDT console offers all features of current MAI units, along with enhanced control and configuration capabilities.

Communication with IVO systems is handled via the Dante network using the KSD card, which enables high-quality transmission and full networking between IVO PAVA systems.

FEATURES:

- Secure console configuration via network
- Factory reset function using onboard button (resets settings and passwords)
- Password protection with user-defined password management
- Adjustable microphone sensitivity
- Voice announcement broadcasting via microphone
- Optional gong tone before announcements (requires audio signal processing)
- Audio routing with source and message selection
- Scenario control through bit activation via controller
- Output card volume adjustment
- Real-time alarm, fault, and event monitoring
- Voice announcement level indicator (relative to digital maximum)
- Quick-access icons for triggering automatic messages
- Remote monitoring of microphone capsule from speaker side

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INT – FIRE INTERCOM

Fire intercoms are designed for voice communication with other intercom units, the KG-ETH main controller, or console microphones.

Each unit can be equipped with up to 5 programmable backlit buttons. Communication over the system bus is fully digital.

Fire intercoms are powered directly from the IVO system's emergency power supply.



EN54 16

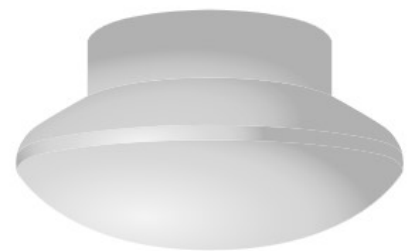
FEATURES:

- EN 54-16 certified
- Frequency response: 150 Hz – 16 kHz (–3 dB)
- Distortion (THD + N) (1 kHz): < 0,1 %
- Signal-to-noise ratio: > 65 dB
- Designed for alarm use and accessibility for the disabled
- Hands-free operation
- High-performance microphone capsule
- 32-bit DSP audio processor
- Reliable backlit mechanical buttons
- Up to 5 freely programmable buttons
- Vandal-resistant metal housing
- Advanced control of PAVA IVO
- Digital communication
- Maximum cable length: 500 m
- Direct power supply from PAVA IVO
- Ultra-low quiescent power mode
- Half-duplex / full-duplex operation depending on scenario and system equipment
- Surface or flush mounting
- Custom RAL colors available

MPT – NOISE SENSING MICROPHONE

MPT measuring microphones are designed to measure acoustic background noise and automatically adjust the volume of audio signals on loudspeaker lines.

They connect to the IVO PAVA system via the WAA audio input card.



EN54 16

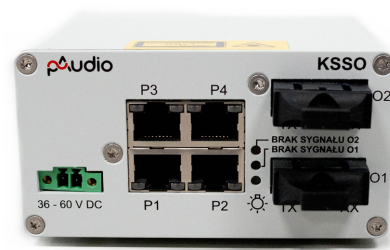
FEATURES:

- Frequency response: 150 Hz – 16 kHz (–3 dB)
- Distortion (THD + N) (1 kHz): < 0,1 %
- Signal-to-noise ratio: > 65 dB
- Noise measurement microphone
- Automatic volume control for loudspeaker lines
- Compact design
- Balanced 0 dB audio path
- Phantom powered
- Maximum cable length: 150 m
- Compatible with WAA audio input card
- LED status indicator

KSSO – FIBER OPTIC CONVERTER FOR THE NETWORK SYSTEM

KSSO converters are designed to connect VA IVO rack cabinets within a networked system using fiber optic links.

They provide transparent, simultaneous transmission of high-quality audio streams with zero latency. KSSO modules also support loop network configurations for enhanced reliability.



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FEATURES:

- EN 54-16 certified
- Compatible with KKO and KSS cards
- Redundant transmission path
- Adjustable audio signal delay between units
- Full synchronization of messages across subsystems
- Digital communication
- Maximum connection length between units: up to 20 km
- Supports single-mode and multi-mode fiber
- Configurable as point-to-point, multi-point, or ring topology
- Ultra-low quiescent power mode

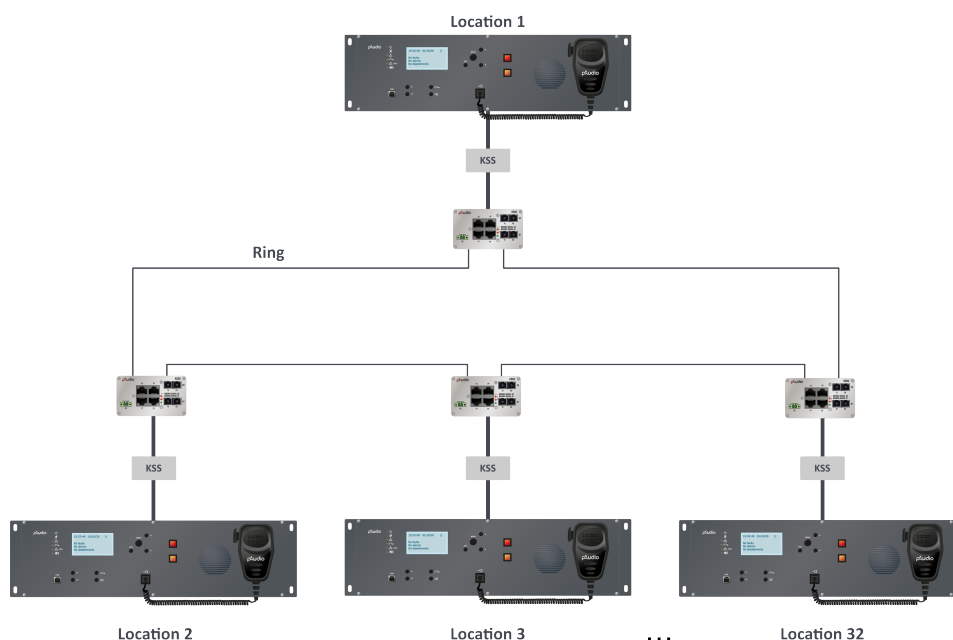
KSS024 converters are designed to establish various types of connections using fiber optic cables. They can be used to create a fiber optic RS485 network link in conjunction with:

- KSS card – for connecting up to 32 KG-ETH units
- KKO card – for connecting non-emergency microphone consoles with a KKO card

The converter supports both single-mode and multi-mode fiber optic cables and enables RS485 communication between networked rack cabinets in a ring configuration.

- Frequency response: 10 Hz – 30 kHz (–3 dB)
- Distortion (THD + N) (1 kHz): < 0,1 %
- Signal-to-noise ratio: > 86 dB
- Digital audio format: PCM 16-bit / 48 kHz
- Connectors: Power, 4x optic S.C. (9/125 µm or 62,5/125 µm), 4x digital bus RJ45

System network (fiber optic)



ZDSOP24 – IVO SYSTEM POWER SUPPLY



EN54

4

The ZDSOP24 series is a family of high-efficiency, switching power supply units designed for the IVO PAVA system offering power capacities from 500 W up to 3460 W.

Specification per version:

- ZDSOP24-05 - 500 W
- ZDSOP24-1 - 1000 W
- ZDSOP24-2 - 2000 W
- ZDSOP24-3 - 3000 W
- ZDSOP24-4 - 3460 W

FEATURES:

- High efficiency: up to 90 %
- High-power output: up to 3460 W
- Compact size
- Software configurable
- Direct 24 V DC output
- Modbus communication
- Maximum battery capacity: 2 × 230 Ah
- Overvoltage, overcurrent, short circuit and temperature protection
- Safety strip with overcurrent fuses, surge arresters and a dummy connector available
- Battery electrical continuity control, voltage control, fuse status control, charge and maintenance control, Under-voltage protection (UVP), overload protection, output protection against short-circuit, discharge current control
- Status indicators: AC mains, DC, fault, and DC output status for each channel
- Integrated temperature sensor with automatic battery charging temperature compensation and fault relays for system monitoring
- Outputs: 1x 24 V DC AUX, 1x 24 V DC controller and 8x 24 V DC amplifiers

TECHNICAL FEATURES

Mains Input:	1-phase, 230 V, 50 Hz
Current consumption:	22 A max. @ 230 V AC
Max battery capacity :	460 Ah
The number of battery strings:	2
Low battery voltage indication:	Ubat < 23V during battery operation
Battery charging current:	21 A max.
Operation temperature:	-5 : +50 °C
Max output current (outputs):	-
OUT1-OUT8:	20 A each
CONTROLLER:	8,3 A
AUX:	4,1 A

LOUDSPEAKERS

CSFLD-06W-130

6 Watts Ceiling Loudspeaker - Frameless type

Applications

Public Address/Voice Alarm and Background Music		
Power (100 V)	Sensitivity	Frequency Range
6/3/1,5 W	(89 Hz - 11,2 kHz) EN54-24, 1 W/1m = 90 dB	80 - 20 000 Hz
Dimension	Dispersion	Maximum cable cross
180 x 99 mm	-6dB, 500Hz = h/v 180°, -6dB, 4 kHz = h/v 75°	4 mm²



EN54 24

CSSP-06W-140

6 Watts Ceiling Loudspeaker - Frameless type (IP54)

Applications

Public Address/Voice Alarm and Background Music		
Power (100 V)	Sensitivity	Frequency Range
6/3/1,5 W	(89 Hz - 11 kHz) EN54-24, 1W/1m = 80,5 dB	98 - 20 000 Hz
Dimension	Dispersion	Maximum cable cross
140x98 mm	-6dB, 500Hz = h/v 180°, -6dB, 4 kHz = h/v 81°	4 mm²



EN54 24

CSSP-06W-140-LZ

6 Watts Ceiling Loudspeaker - Frameless type (IP54)

Applications

Public Address/Voice Alarm and Background Music		
Power	Sensitivity	Frequency Range
8 or 16 ohms, 6 W	(89 Hz - 11 kHz) EN54-24, 1W/1m = 80,5 dB	98 - 20 000 Hz
Dimension	Dispersion	Maximum cable cross
140 x 98 mm	-6dB, 500 Hz = h/v 180°, -6dB, 4 kHz = h/v 81°	4 mm²



EN54 24

CSFLD-20W-200

20 Watts Ceiling Loudspeaker – Frameless type

Applications

Public Address/Voice Alarm and Background Music		
Power (100 V)	Sensitivity	Frequency Range
20/10/5 W	(89 Hz – 11 kHz) EN54-24, 1W/1m = 97,8 dB	60 - 17 500 Hz
Dimension	Dispersion	Maximum cable cross
265 x 115 mm	-6dB, 500 Hz = h/v 180°, -6dB, 4 kHz = h/v 60°	4 mm²



EN54 24

CSFLD-50W-165

50 Watts Two-way Ceiling Loudspeaker – Frameless type

Applications

Public Address/Voice Alarm, Background Music and Audio Visual		
Power (100 V)	Sensitivity	Frequency Range
50/25/12,5/6,25 W	(89 Hz – 11 kHz) EN54-24, 1W/1m = 89,5 dB	65 - 24 000 Hz
Dimension	Dispersion	Maximum cable cross
264 x 240 mm	-6dB, 500 Hz = h/v 180°, -6dB, 4 kHz = h/v 56°	4,9 mm²



EN54 24

CSFLD-10W-165

10 Watts Ceiling Loudspeaker – Frameless Type

Applications

Public Address/Voice Alarm, Background Music and Audio Visual		
Power (100 V)	Sensitivity	Frequency Range
10/5/2,5 W	(89 Hz – 11 kHz) EN54-24, 1W/4m = 81,4 dB	63 - 16 000 Hz
Dimension	Dispersion	Maximum cable cross
220 x 104 mm	-6dB, 500 Hz = h/v 180°, -6dB, 4 kHz = h/v 94°	4 mm²



EN54 24

CS-06W-70-CS

6 Watts Compact Ceiling Loudspeaker

Applications

Public Address/Voice Alarm, Background Music and Audio Visual

Power (100 V)	Sensitivity	Frequency Range
6/3/1,5 W	(89 Hz – 11 kHz) EN54-24, 1W/4m = 70 dB	200 - 20 500 Hz
Dimension	Dispersion	Mounting
104 x 70 mm	-6dB, 500 Hz = h/v 180°, -6dB, 4 kHz = h/v 180°	Ball stud for angle joints



EN54 24

CSFLD-15W-100-BR

15 Watts Ceiling Loudspeaker

Applications

Public Address/Voice Alarm and Background Music

Power (100 V)	Sensitivity	Frequency Range
5/7,5/3,75 W	EN54-24, Pmax/4m = 81 dB	64 - 20 800 Hz
Dimension	Dispersion	
242 x 108 mm	-6dB, 4 kHz = h/v 95°	



EN54 24

CSFLD-30W-130-BR

30 Watts Ceiling Loudspeaker

Applications

Public Address/Voice Alarm and Background Music

Power (100 V)	Sensitivity	Frequency Range
30/15/7,5 W	EN54-24, Pmax/4m = 85,8 dB	62 - 23 700 Hz
Dimension	Dispersion	
320 x 128 mm	-6dB, 4 kHz = h/v 61°	



EN54 24

CSFS-AB-06W-200

6 Watts Ceiling Loudspeaker (A/B Lines)

Applications

Public Address/Voice Alarm and Background Music		
Power (100 V)	Sensitivity	Frequency Range
6/3/1,5 W	EN54-24, 1W/1m = 89 dB	162 - 18 600 Hz (Single), 159 - 16 000 Hz (Double)
Dimension	Dispersion	Maximum cable cross
268 x 136 mm	-6dB, 500 Hz = h/v 180°, -6dB, 1 kHz = h/v 160°	8 mm² (Single)



EN54 24

CSFLD-06W-66

6 Watts Ceiling Loudspeaker – Frameless Type

Applications

Public Address/Voice Alarm and Background Music		
Power (100 V)	Sensitivity	Frequency Range
6/3/1,5 W	EN54-24, 1W/1m = 68,4 dB	98 - 20 000 Hz
Dimension	Dispersion	Maximum cable cross
105 x 83 mm	-6dB, 500 Hz = h/v 180°, -6dB, 4 kHz = h/v 81°	4,9 mm²



WCS-06W-ABS

6 Watts Wall Mount (Cabinet Type) Loudspeaker
(Impact resistant housing)

Applications

Public Address/Voice Alarm and Background Music		
Power (100 V)	Sensitivity	Frequency Range
6/3/1,5 W	(89 Hz – 11 kHz) EN54-24, 1W/4m = 72,9 dB	125 - 21 000 Hz
Dimension	Dispersion	Connector
133 x 133 x 72 mm	-6dB, 500 Hz = h/v 360°, -6dB, 4 kHz = h/v 110°	4 pin ceramic block, IP Rating: IP54



EN54 24

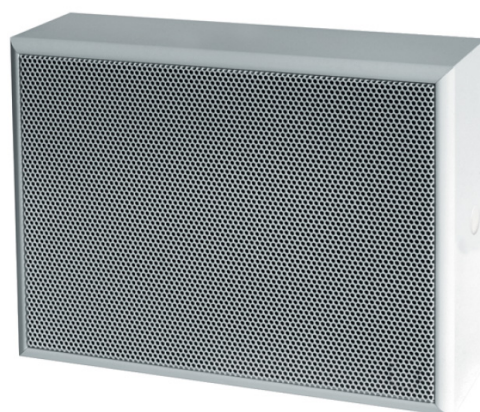
FMS-AB-06W-100

6 Watts Wall Mount (Cabinet Type) Loudspeaker

Applications

Public Address/Voice Alarm and Background Music

Power (100 V)	Sensitivity	Frequency Range
2 x 6/3/1,5 W	EN54-24, 1W/1m = 91,6 dB	227 - 14 600 Hz (Single), 224 - 14 300 Hz (Double)
Dimension	Dispersion	Maximum cable cross
252 x 194 x 82 mm	-6dB, 500 Hz = h/v 180°, -6dB, 1 kHz = h/v 145°/130°	8 mm ² (Single)



EN54 24

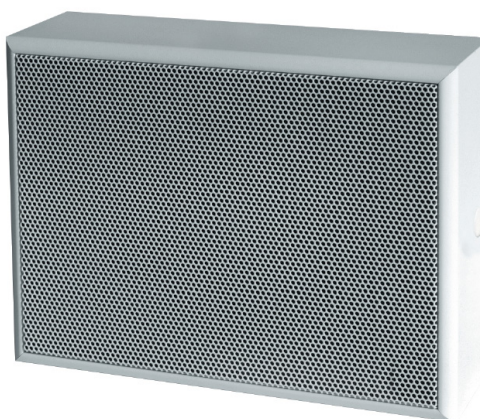
WMS-R-06W-W

6 Watts Wall Mount Loudspeaker IP54

Applications

Public Address/Voice Alarm and Background Music

Power (100 V)	Sensitivity	Frequency Range
6/3/1,5 W	EN54-24, 1W/1m = 93 dB	197 - 21 900 Hz
Dimension	Dispersion	Maximum cable cross
253 x 194 x 82 mm	-6dB, 500 Hz = h/v 180°, -6dB, 1 kHz = h/v 160°	8 mm ²



EN54 24

WMS-R-06W-M

6 Watts Wall Mount Loudspeaker Metal

Applications

Public Address/Voice Alarm and Background Music

Power (100 V)	Sensitivity	Frequency Range
6/3/1,5 W	EN54-24, 1W/1m = 94 dB	170 - 18 500 Hz
Dimension	Dispersion	Maximum cable cross
252 x 192 x 81 mm	-6dB, 500 Hz = h/v 180°, -6dB, 1 kHz = h/v 160°	8 mm ²



EN54 24

WMS-S-06W-US-ABS

6 Watts Wall Mount Loudspeaker

Applications

Public Address/Voice Alarm and Background Music		
Power (100 V)	Sensitivity	Frequency Range
6/3/1,5 W	EN54-24, 1W/1m = 79 dB	210 - 21 800 Hz
Dimension	Dispersion	Maximum cable cross
252 x 182 x 70 mm	-6dB, 500 Hz = h/v 180°, -6dB, 4 kHz = h/v 89°	8 mm ²



HS-10W-ABS

10 Watts Horn Loudspeaker (IP66)
(Impact resistant housing)

Applications

Public Address/Voice Alarm		
Power (100 V)	Sensitivity	Frequency Range
10/5/2,5/1,25 W	(89 Hz - 11 kHz) EN54-24, 1W/1m = 95 dB	569 - 7 000 Hz
Dimension	Dispersion	Maximum cable cross
142 x 256 mm	-6dB, 500 Hz = h/v 360°, -6dB, 4 kHz = h/v 50°	8 mm ²



EN54 24

HS-30W-ABS

30 Watts Horn Loudspeaker (IP66)
(Impact resistant housing)

Applications

Public Address/Voice Alarm		
Power (100 V)	Sensitivity	Frequency Range
30/20/10/5 W	(89 Hz - 11 kHz) EN54-24, 1W/1m = 97,9 dB	592 - 6 900 Hz
Dimension	Dispersion	Maximum cable cross
235 x 351 mm	-6dB, 500 Hz = h/v 155°, -6dB, 4 kHz = h/v 35°	8 mm ²



EN54 24

HS-50W-C-AL

50 Watts Horn Loudspeaker

Applications

Public Address/Voice Alarm		
Power (100 V)	Sensitivity	Frequency Range
50/30/15 W	P _{max} /1m = 130,1 dB	300 - 3 000 Hz
Dimension	Dispersion	
505 x 335 mm	-10dB = h/v 100°	



ETSS-100W-ABS

Emergency Tunnel Surface Loudspeaker

Applications

Public Address/Voice Alarm and Background Music		
Power (100 V)	Sensitivity	Frequency Range
100/60/30 W	EN54-24, 1W/4m = 96 dB	280 - 9 000 Hz
Dimension	Dispersion	Maximum cable cross
1228 x 832 x 413 mm	-6dB, 500 Hz = h/v 58°/35°, -6dB, 1 kHz = h/v 35°/25°	-



EN54 24

PB-3150WA

150 Watts Coaxial Horn Loudspeaker (IP66)

Color: Black/White

Applications

Public Address/Voice Alarm and Background Music		
Power (100 V)	Sensitivity	Frequency Range
150/75/38 W	(89 Hz - 11 kHz) EN54-24, 1W/4m = 84,7 dB, SPL 1W/1m, peak: 104 dB	90 - 19 000 Hz
Dimension	Dispersion	Maximum cable cross
315 x 305 x 350 mm	-6dB, 500 Hz = h/v 170°/180°, -6dB, 4 kHz = h/v 85°/70°	4,9 mm²



EN54 24

PB-3250WA

250 Watts Coaxial Horn Loudspeaker (IP66)
Color: Black/White

Applications

Public Address/ Voice Alarm and Background Music		
Power (100 V)	Sensitivity	Frequency Range
250/125/63 W	(89 Hz – 11 kHz) EN54-24, 1W/4m = 86 dB, SPL 1W/1m, peak: 103 dB	85 - 19 000 Hz
Dimension	Dispersion	Maximum cable cross
390 x 425 x 418 mm	-6dB, 500 Hz = h/v 130°/135°, -6dB, 4 kHz = h/v 85°/60°	4,9 mm²



EN54 24

WMS-50W-ABS

50 Watts Two-way Wall Mount (Monitor) Loudspeaker

Applications

Public Address/Voice Alarm and Background Music		
Power (100 V)	Sensitivity	Frequency Range
50/25/12,5/6,25W	(89 Hz – 11 kHz) EN54-24, 1W/1m = 84,8 dB	52 - 24 000 Hz, Frequency Response: 48 - 25 000 Hz
Dimension	Dispersion	Maximum cable cross
326 x 202 x 192 mm	-6dB, 500 Hz = h/v 360°, -6dB, 4 kHz = h/v 80°/25°	4,9 mm²
ABS material housing		



EN54 24

WMS-30W-ABS

30 Watts Two-way Wall Mount (Monitor) Loudspeaker
(IP65)

Applications

Public Address/Voice Alarm and Background Music		
Power (100 V)	Sensitivity	Frequency Range
30/15/7,5 W	(89 Hz – 11 kHz) EN54-24, 1W/1m = 82,4 dB	60 - 24 000 Hz
Dimension	Dispersion	Maximum cable cross
260 x 160 x 152 mm	-6dB, 500Hz = h/v 360°, -6dB, 4kHz = h/v 120°/40°	2,5 mm²
ABS material housing		



EN54 24

CLS-20W-AL

20 Watts Column Loudspeaker (IP66)

Applications

Public Address/Voice Alarm and Background Music		
Power (100 V)	Sensitivity	Frequency Range
20/15/10/5 W	(89 Hz - 11 kHz) EN54-24, 1W/1m = 92,5 dB	217 - 16 900 Hz
Dimension	Dispersion	Maximum cable cross
510 x 100 x 92 mm	-6dB, 500 Hz = h/v 360°/124°, -6dB, 4 kHz = h/v 86°/14°	8 mm²
Aluminium Finish material		



EN54 24

CLS-30W-AL

30 Watts Column Loudspeaker (IP66)

Applications

Public Address/Voice Alarm and Background Music		
Power (100 V)	Sensitivity	Frequency Range
30/15/7,5 W	(89 Hz - 11 kHz) EN54-24, 1W/1m = 93 dB	230 - 16 500 Hz
Dimension	Dispersion	Maximum cable cross
700 x 100 x 92 mm	-6dB, 500 Hz = h/v 360°/114°, -6dB, 4 kHz = h/v 85°/13°	8 mm²
Aluminium Finish material		



EN54 24

CLS-50W-AL

50 Watts Column Loudspeaker (IP66)

Applications

Public Address/Voice Alarm and Background Music		
Power (100 V)	Sensitivity	Frequency Range
50/30/15/7,5 W	(89 Hz - 11 kHz) EN54-24, 1W/1m = 94,7 dB	250 - 15 800 Hz
Dimension	Dispersion	Maximum cable cross
971 x 100 x 92 mm	-6dB, 500 Hz = h/v 360°/73°, -6dB, 4 kHz = h/v 98°/6°	8 mm²
Aluminium Finish material		



EN54 24

PS-20W-AL

20 Watts Aluminium type Projector Loudspeaker

Applications

Public Address/Voice Alarm and Background Music		
Power (100 V)	Sensitivity	Frequency Range
20/15/10/5 W	(89 Hz – 11 kHz) EN54-24, 1W/1m = 92,3 dB	800 – 16 700 Hz Frequency Response: 150 – 20 000 Hz
Dimension	Dispersion	Maximum cable cross
140 x 163 mm	-6dB, 500 Hz = h/v 360°, -6dB, 4 kHz = h/v 55°	8 mm²
Aluminium finish material		



EN54 24

PS-20W-N-PL

20 Watts Projector Loudspeaker (IP65)

Applications

Public Address/Voice Alarm and Background Music		
Power (100 V)	Sensitivity	Frequency Range
20/10/5 W	(89 Hz – 11 kHz) EN54-24, 1W/4m = 76,4 dB	142 – 14 300 Hz Frequency Response: 112 – 15 800 Hz
Dimension	Dispersion	Maximum cable cross
169 x 283,5 mm	-6dB, 500 Hz = h/v 360°, -6dB, 4 kHz = h/v 80°/85°	8 mm²
ABS material finish		



EN54 24

BIPS-10W-AL

10 Watts Bidirectional Projector Loudspeaker (IP65)

Applications

Public Address/Voice Alarm and Background Music		
Power (100 V)	Sensitivity	Frequency Range
10/6/3/1,5 W	(89 Hz – 11 kHz) EN54-24, 1W/1m = 89,6 dB	237 – 12 400 Hz Frequency Response: 79 – 17 500 Hz
Dimension	Dispersion	Maximum cable cross
201 x 176 x 160 mm	-6dB, 500 Hz = h/v 2x 130°, -6dB, 4 kHz = h/v 2x 75°	8 mm²
Aluminium housing		



EN54 24

SS-20W-ABS

20 Watts Hemisphere Two-way Loudspeaker (IP65)

Applications

Public Address/Voice Alarm and Background Music		
Power (100 V)	Sensitivity	Frequency Range
20/10/5/2,5 W	(89 Hz – 11 kHz) EN54-24, 1W/4m = 71,9 dB	80 - 20 000 Hz
Environment:	Dispersion	Maximum cable cross
Indoor / outdoor	-6dB, 500 Hz = h/v 360°, -6dB, 4 kHz = h/v 86°	8 mm²



EN54 24

SS-60W-ABS

60 Watts Hemisphere Two-way Loudspeaker (IP65)

Applications

Public Address/Voice Alarm and Background Music		
Power (100 V)	Sensitivity	Frequency Range
60/40/20/10 W	(89 Hz – 11 kHz) EN54-24, 1W/1m = 80,5 dB	80 - 20 000 Hz
Environment	Dispersion	Maximum cable cross
Indoor / outdoor	-6dB, 500 Hz = h/v 180°, -6dB, 4 kHz = h/v 81°	8 mm²



EN54 24

SAS-400W-ABS

Stackable Array Loudspeaker

Applications

Public Address/Voice Alarm and Background Music		
Power	Sensitivity	Frequency Range
100/50/25 W (8 ohm) 100 W	(89 Hz – 11 kHz) EN54-24, 1W/4m = 74,3 dB	54 - 20 500 Hz
Dimension	Dispersion	Maximum cable cross
341 x 192 x 245 mm	-6dB, 500 Hz = h/v 160°/230°, -6dB, 4 kHz = h/v 145°/68°	4 mm²



EN54 24

LSFS-50W-AL

50 Watts Floor standing Loudspeaker

Applications

Background Music		
Power (100 V)	Sensitivity	Frequency Range
50/25/12,5 W	1W/4m = 90,5 dB	120 - 16 000 Hz
Dimension	Dispersion	Environment
240 x 760 mm	-10dB = 360°	IP66



LSS-80W-BR-200/T

80 Watts Landscape and Inground Loudspeaker

Applications

Background Music		
Power (100 V)	Sensitivity	Frequency Range
80/40/20 W	Pmax/1m, peak = 110 dB	42 - 22 500 Hz (music, full range), 62 - 22 500 Hz (EN54-24)
Dimension	Dispersion	Environment
390 x 450 mm	-6dB, 500 Hz = h/v 360°/180°, -6dB, 4 kHz = h/v 360°/80°	IP65



REFERENCES

HOTELS

- Altus Palace Wrocław
- PURO Gdańsk Hotel
- Bliska Wola Tower
- Q Hotel Bielany Wrocławskie
- GRAND HOTEL
- Hampton by Hilton Balice
- Słoneczny Młyn Hotel
- Polonia Hotel
- Craft Beer Central Hotel
- Mikołajki Hotel
- Jantar Hotel
- Holiday Inn Hotel
- Hamilton Hotel
- Conrad Hotel
- AC Hotel by Marriott
- Posejdon Center
- Perła Bałtyku

SHOPPING CENTERS

- Bonarka Shopping Center in Gdańsk
- CORSO Shopping Center in Świnoujście
- VIVO Shopping Center in Stalowa Wola
- Focus Park in Bydgoszcz
- Galaxy Shopping Center in Szczecin
- Alma Kraków
- Atrium Gallery Koszalin
- Auchan Legnica
- Auchan Racibórz
- Bricoman in Szczecin
- Carrefour in Rybnik
- Carrefour in Jastrzębie
- MOLO Shopping Center in Szczecin
- Felicity Lublin
- Bryza Shopping Center in Kołobrzeg
- VIVO Shopping Center in Piła
- Galeria Turzyn in Szczecin

- Kaufland in Gryfice
- Kaufland in Stargard
- Kaufland in Świnoujście
- Nova Park Shopping Center in Gorzów Wielkopolski
- Ogrody Shopping Center in Elbląg
- Plaza Shopping Center in Zgorzelec
- Galeria Piastów in Legnica
- Tesco in Nowy Sącz
- Factory Shopping Center in Luboń

HOSPITALS

- Hospital in Gdynia
- Hospital in Ostrów Wielkopolski
- Hospital in Chrzanów
- City Hospital in Hajnówka
- Psychiatric Hospital in Stronie Śląskie
- Nicolaus Copernicus Hospital in Warszawa
- Provincial Hospital in Szczecin
- Provincial Hospital in Zduńowo

OFFICE BUILDINGS

- Organika Office Building in Gdańsk
- Bliska Wola in Warszawa
- Office Building Sokolska in Katowice
- Galileo in Kraków
- Aurea Business House in Wrocław
- Energa Gdańsk Office Building
- Whirlpool factory office building in Wrocław

TRAIN STATIONS

- PKP Jawor
- PKP Żagań
- PKP Chojnów
- PKP Pruszków

AIRPORTS

- Kutaisi Airport in Georgia

OTHER

- Cinema in VIVO Shopping Center in Stalowa Wola
- Educational Building of the Engineering and Chemical Troops Training Center in Wrocław
- Tax Office in Zabrze
- Ministry of Justice office in Warsaw
- State Medical Higher Vocational School in Opole
- Dormitories in Wrocław
- Senior Home in Kraków
- Academy of Art in Szczecin
- ZUS buildings in Warsaw
- Sokolnicki's Fort in Warszawa
- Sports and entertainment hall in Gryfino
- Netto Arena in Szczecin
- Interlab in Szczecin
- Kiabi in Blue City in Warszawa
- Cultural Center in Przeźmierowo
- State Music School in Stalowa Wola
- CSWLĄD in Poznań
- Poznań City Hall
- DGS acoustic testing laboratory in Szczecin
- ATR building in Stargard

NOTES

[illegible]

NOTES

This image shows a full page of a handwriting practice worksheet. It consists of multiple sets of three horizontal dashed lines, providing a guide for letter height and placement. The lines are evenly spaced across the entire page, leaving ample room for writing practice. There is no text or other markings on the page.

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