ATEÏS RING PROTECTOR SYSTEM

AUDIO TRANSMISSION PATH PROTECTION UNIT RPU

www.ateis-europe.com

ATEÏS RING PROTECTOR UNIT, RPU

The **Ring Protector Unit (RPU)** represents the latest advancement in loudspeaker ring-isolation devices, incorporating cutting-edge design and technology to deliver enhanced **availability and resilience** for evacuation loudspeaker lines configured in a **return-loop topology**.
When a fault occurs—such as a wire-to-wire short circuit or an open line—the RPU automatically **detects and isolates** the affected segment between two RPUs. This ensures that all loudspeakers **outside the faulty section** remain fully operational, enabling the **uninterrupted delivery** of critical evacuation messages.

KEY FEATURES:

- Automatic detection and isolation of ring faults
- Protection against short-circuit conditions
- Increased fault tolerance in life-safety loudspeaker systems
- Built for use in EN54 compliant Voice Alarm installation

THE RPU SAFEGUARDS RING INTEGRITY, SUPPORTS SYSTEM RELIABILITY, AND ENSURES CONTINUOUS AUDIO PERFORMANCE — EXACTLY WHEN IT MATTERS MOST

FEATURES

1 Automatic Fault Detection
Identifies short circuits and open-loop conditions in real time
Triggers isolation of faulty segments without manual intervention

2 Segment Isolation
Isolates the faulty portion of a return-loop between two isolators
Ensures unaffected loudspeakers remain operational during a fault

3 Loop Continuity Preservation
Maintains audio signal integrity throughout the rest of the loop
Prevents system-wide audio loss due to localized faults

4 Bi-Directional Compatibility
Supports signal flow in both directions (critical for ring topologies)
Facilitates redundancy and fault tolerance

5 Fast Response Time
Fault detection and isolation typically within 4 seconds
Ensures minimal interruption in emergency messaging

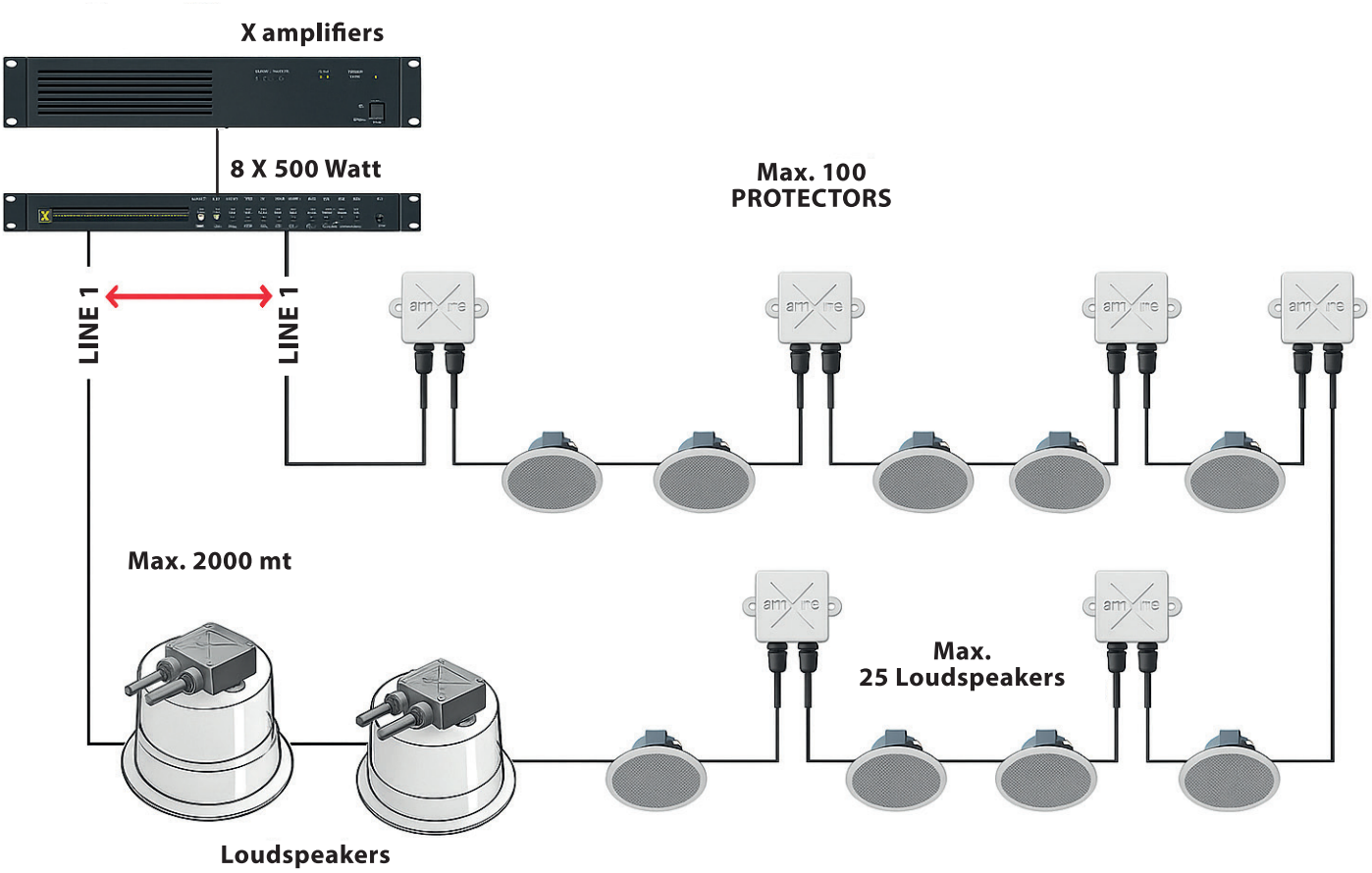
6 EN54-17 Compliance
Meets regulatory requirements for fault isolator devices in life-safety systems
Often used alongside EN54-16-certified Voice Alarm controller

7 Compact and Scalable Design
Small form factor for easy integration in distributed loudspeaker networks
Suitable for large-scale installations such as airports, hotels, or tunnels

8 Low Power Consumption
Draws minimal current from the line, <100uA.
Powered directly from the loop, requiring no separate supply

9 Diagnostic and Monitoring Support
Compatible with ATEÏS control systems for supervision and fault reporting
Remote fault diagnostic for minimum interruption during fault recovery

RING DRIVER RACK-FRAME - (RDR), RING PROTECTOR UNIT - (RPU) SMART REDUNDANCY FOR UNINTERRUPTED EMERGENCY COMMUNICATION



The central **Rack Device (RDR)** is designed to accommodate up to **8 Ring Driver Card (RDC)**.
Each RDR is factory-equipped with **2 RDC** as standard for 2 rings.
Each **Ring Driver Card** supports a **loudspeaker load of up to 500 Watts** and can manage up to **100 Ring Protector Units (RPU)**.

The **RPU** can be mounted directly onto the **fire dome of a loudspeaker**, enabling **one-to-one loudspeaker surveillance**. Alternatively, multiple loudspeakers may be installed between 2 RPU —**up to a maximum of 25 loudspeakers**, in accordance with the **Dutch national standard** (note: **local standards** may vary by country).

The RDR acts also as Ring Protector unit meaning can be placed on the in and outgoing line from RDR to RPU.

Note:
Loudspeakers requires DC-by-polar decoupling capacitor.
Typical values are: Up to 6W - 1uF / 6 to 10W - 2,2 uF / 10 to 20W - 4,7uF.

SMART REDUNDANCY FOR UNINTERRUPTED EMERGENCY COMMUNICATION

In Voice Alarm systems, **reliability is non-negotiable**. That's why many professional installations use a **ring wiring topology**—a closed-loop loudspeaker connection designed to maintain uninterrupted audio, even in the event of a fault.

Unlike traditional radial wiring, **ring wiring** connects the amplifier to the loudspeakers in a loop. The audio signal travels in **two directions simultaneously**—starting at the amplifier and returning from the far end. This approach allows the system to **continuously monitor the integrity** of the entire loudspeaker line.

But the real magic happens when something goes wrong.

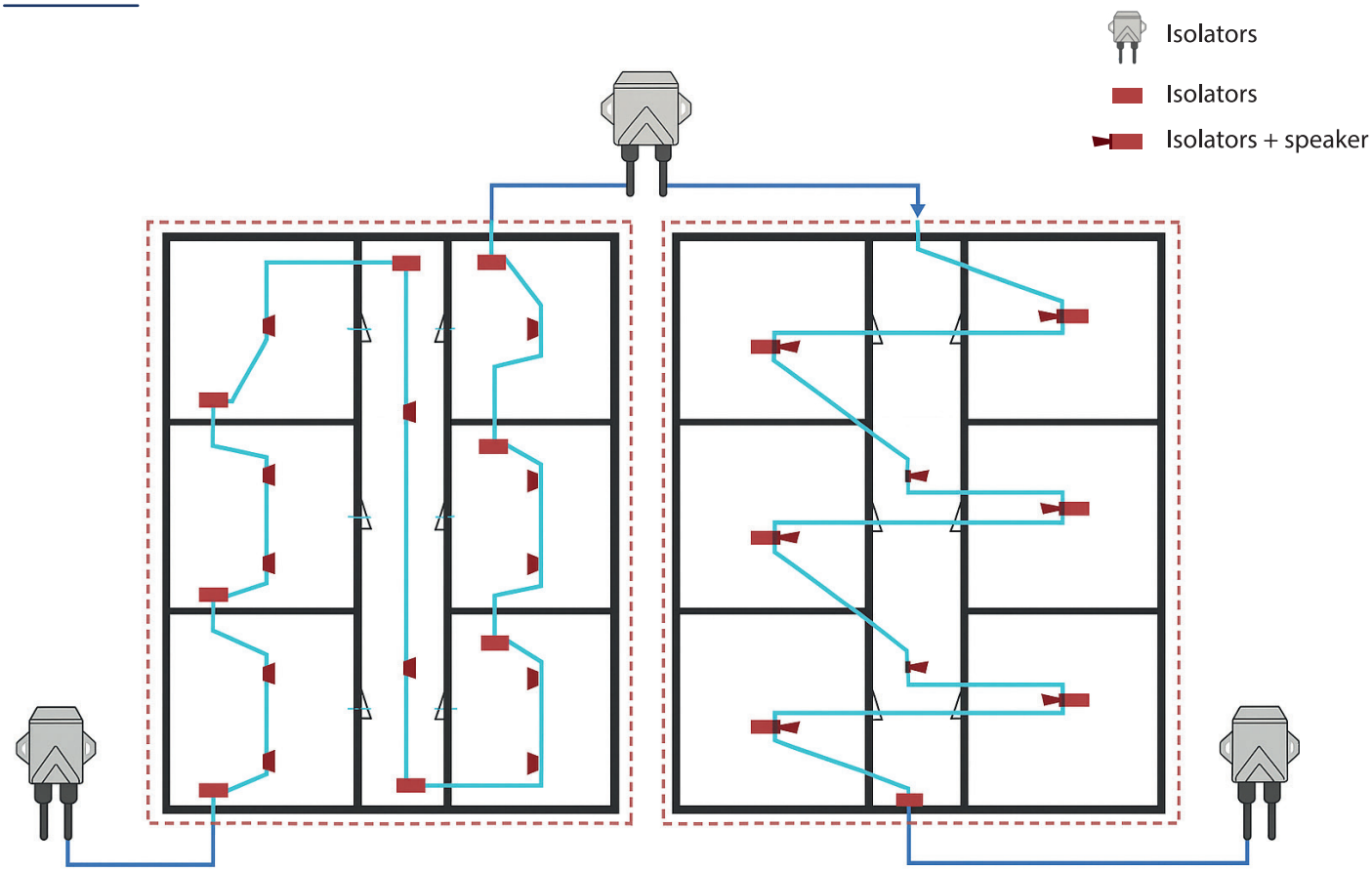
With **intelligent loop isolator units**—like our **Ring Protector Units (RPU)**—the system can **automatically detect and isolate** any fault (such as a short-circuit or open wire) in the loop. The result? The rest of the system **keeps operating** and critical evacuation messages continue to be heard, loud and clear.

WHY RING WIRING MATTERS

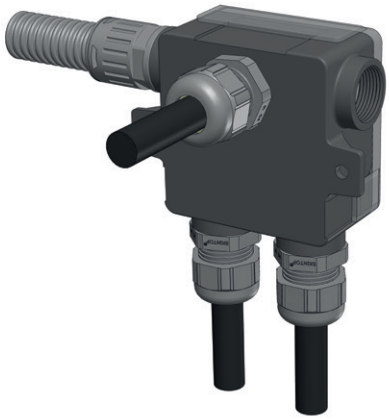
- **Built-in fault tolerance**: maintains loudspeaker coverage despite line faults
- **Automatic isolation**: keeps unaffected zones operational
- **Real-time monitoring**: constant supervision of the loudspeaker loop
- **EN54-compliant**: meets international life-safety standards

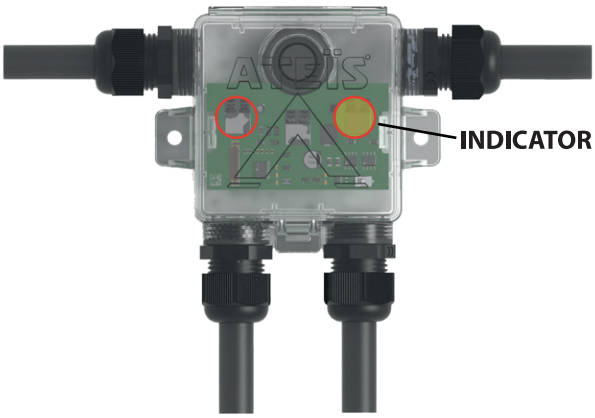
WHEN EVERY SECOND COUNTS, RING WIRING ENSURES THAT YOUR MESSAGE ALWAYS GETS THROUGH — BECAUSE LIFE SAFETY DESERVES NOTHING LESS.

TYPICAL LOOP WIRING EXAMPLE



RING PROTECTOR UNIT - RPU





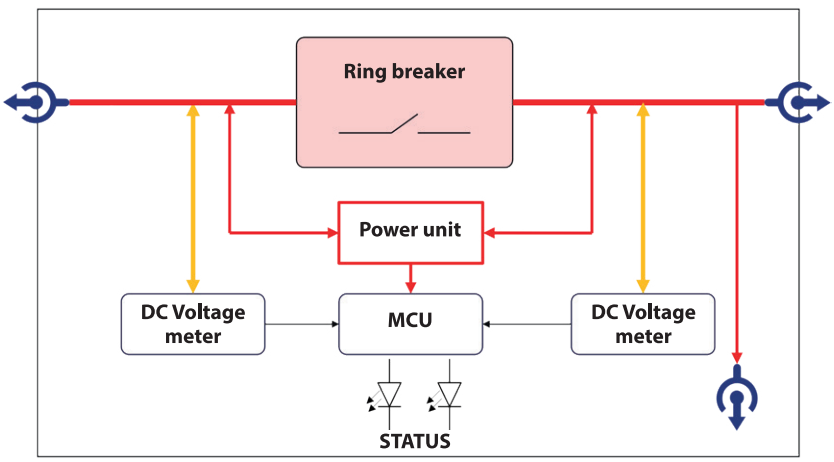
The **Ring Protector Unit (RPU)** is an intelligent isolator designed to safeguard loudspeaker ring-wiring in Voice Evacuation systems by automatically isolating faults and maintaining uninterrupted audio performance. When the DC voltage carrier on the loop drops below a defined threshold, the RPU automatically switches to an open-circuit state, isolating the affected section. RPU should be installed between loudspeaker groups—typically every 25 loudspeakers, in line with national standards (refer to your local authority for specific regulations). If a short-circuit occurs between any 2 RPU, both units immediately isolate the fault by opening the circuit. The group of loudspeakers between them is disconnected, while the rest of the system remains fully operational:

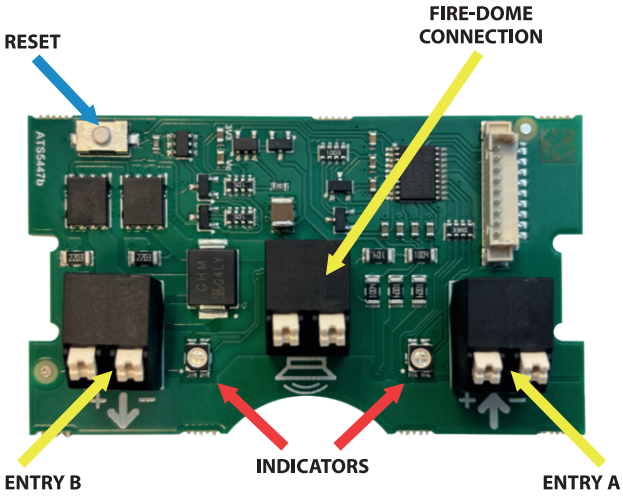
- **Loudspeakers on both sides of isolated fault continue to function**
- **System integrity and evacuation message delivery are preserved**

During a fault condition, the Ring Driver Rack (RDR) supplies both loop branches A and B independently, and the fault is visually indicated via **LED status** on the corresponding RDC (Rind Driver Card) and field RPU. The RPU ensures maximum loop availability, fast fault response, and compliance with modern life-safety requirements.

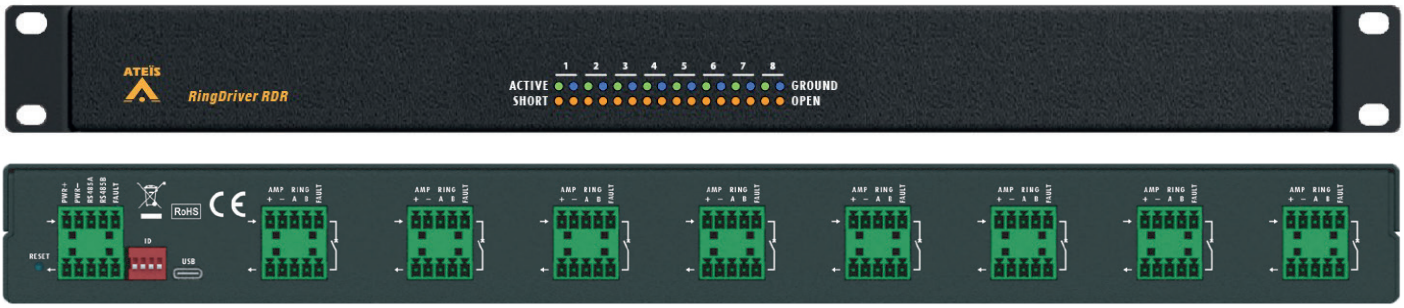
Note:
The Ring Protector Unit (RPU) can be mounted directly onto the fire dome of a loudspeaker for one-to-one supervision.

RPU - CONNECTIVITY:





RING DRIVER UNIT - RDR

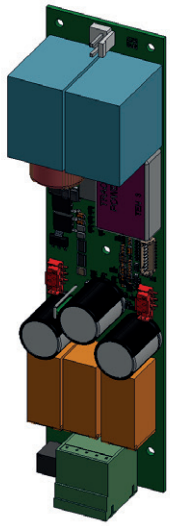


The Ring Driver Rack (RDR) serves as the central unit in the ATEÏS ring-surveillance architecture, capable of managing up to **8 Ring Driver Cards (RDC)**. Each RDR is delivered with 2 RDC modules preinstalled as factory default, and can be expanded up to 8 RDC's based on system requirements.

Each **Ring Driver Card (RDC)** supports:

- A maximum loudspeaker load of 500 Watts
- Up to 100 Ring Protector Units (RPU)

This modular design ensures scalable loop protection, flexible installation, and high loudspeaker line availability, making the RDR an ideal backbone for certified Voice Evacuation Systems.



Ring Driver Card-RDC

Ring Driver Card - RDC:

The Ring Driver Card - RDC can be safely retrofitted or pre-fitted when ordered from factory.

TECHNICAL SPECIFICATIONS:

RPU		RDR	
DC Power supply	24VDC	DC Power supply	18 - 50VDC Max. 5Amp inrush
Power consumption	15mW	Power consumption	30W
Max. power handling	500WAC/100VAC	Max. number of RDC	8
Short isolation time	<3sec.		
Connectors	3 x 2 PIN	General fault contact 1	1
	Push-pin type	General reset button	Pinhole
Wiring	2-wire, 2.5mm2 max	Frequency range	20 - 20kHz (-3dB)
	Max. length 1Km		
Safety	EN54-17	**Mechanical**	
	EN60065, EN50130-4	Dimension	2U - 19 inch (WxDxH)
0063-CPR-252190016 / 00	Pending for Autumn '25	Mounting	Rack-mount
		Environmental	IP30
Mechanical		**RDC**	
Dimension	70x70x50mm (WxDxH)	Max. number RPU	100 pcs
Mounting	Surface	Max. power handling	500WAC/100VAC
Environmental	IP30	Local fault contact	1

RVC - RING VOLUME CONTROLLER

The **ATEÏS Ring Volume Controller- (RVC)** is a multifunctional extension to the Ring Isolator system, offering advanced local control without compromising the integrity of the Voice Alarm network.
Installed within a **return-loop loudspeaker topology**, this intelligent device not only isolates loop faults, but also allows for:

- **Local volume adjustment** of connected loudspeakers
- Connection to a **local amplifier** for background music or media playback
- **Automatic override** of the local music source upon any emergency or paging call

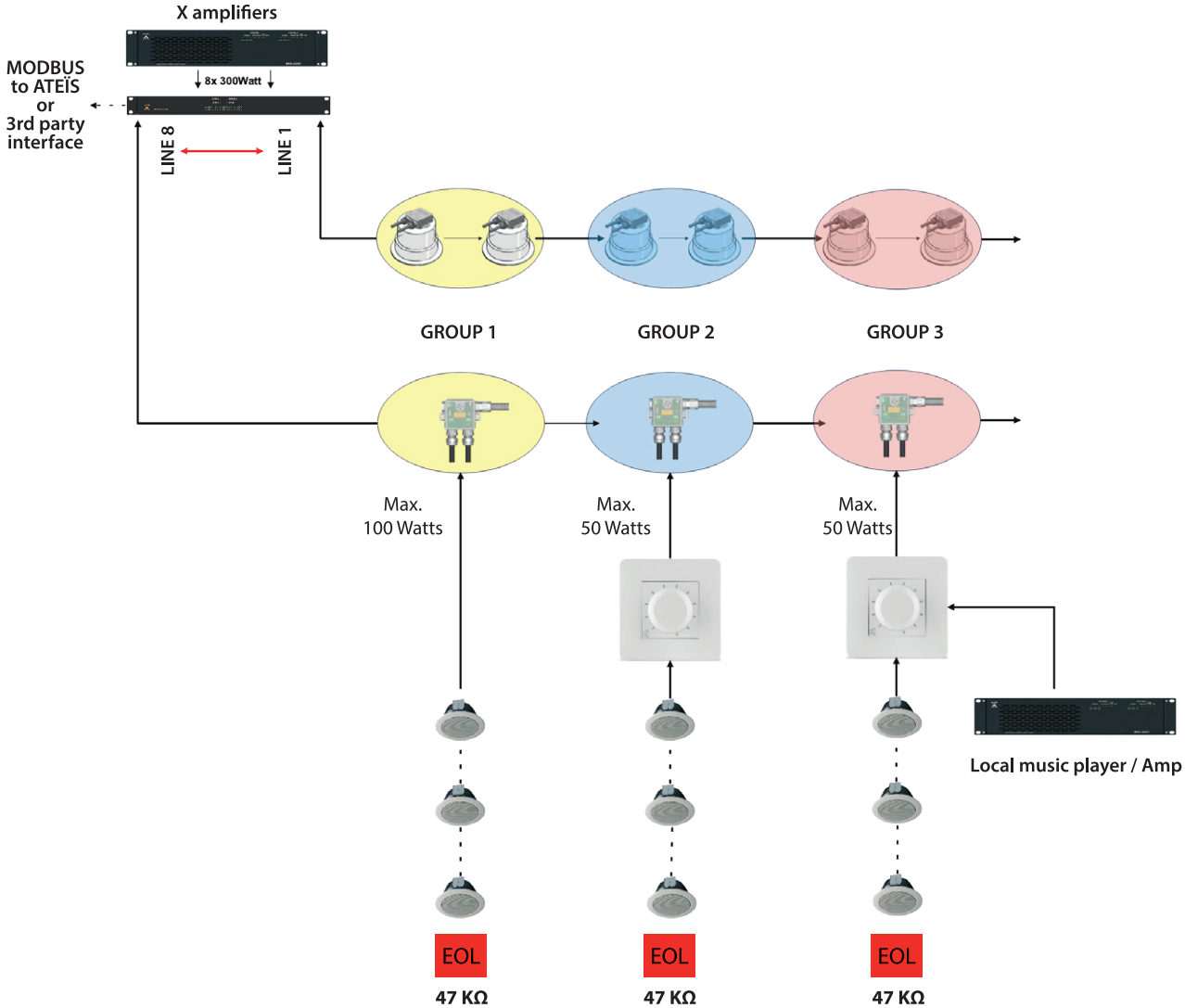
Ring Volume Controller-RVC

Using the integrated pilot-tone technology from the **ATEÏS Ring Driver Unit**, the system can transmit up to **4 independent pilot tones** embedded within the paging or evacuation signal. These tones are recognized by the Ring Volume Controller, allowing **selective paging** across up to **3 independently configurable local loudspeaker groups** or to receive an All-CALL using pilot tone 4.

During an emergency, the controller ensures that:

- All local audio sources are muted
- The priority call signal takes full control
- The designated loudspeaker groups broadcast the correct message — clearly and without delay

This makes the Ring Volume Controller ideal for environments such as **hotels, retails, offices and mixed-use buildings** where **zonal music control** is desired during normal operation, but **instant, intelligible messaging** is essential during emergencies.



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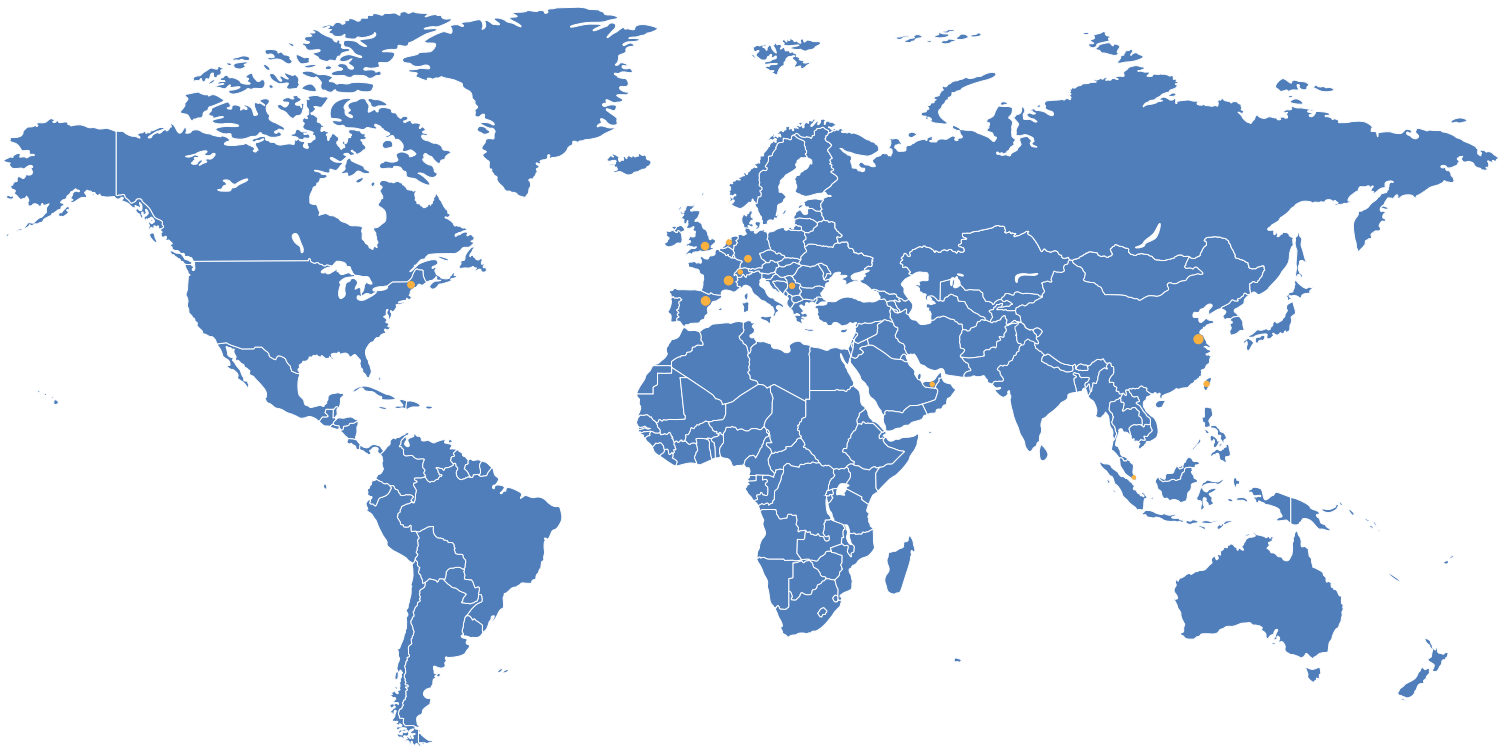

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