Low-noise Swedish smart PDU for railway communication

Article Overview

Swedish railway stations use intelligent, low-noise smart PDUs integrated with PAVA systems to support communication while minimizing acoustic and electrical interference.

Overview

Modern Swedish railway stations, such as those managed by the Swedish Transport Administration (TRVT), employ smart power distribution solutions as part of their Public Address and Voice Alarm (PAVA) systems. These systems are designed to enhance passenger safety and communication while reducing noise pollution for surrounding communities . The smart PDUs in these setups are integrated with intelligent amplifier modules and climate-resistant loudspeakers, ensuring reliable operation in harsh platform environments .

Key Features

o Intelligent Sound Level Control: PDUs work with adaptive noise-sensing microphones and audio processors to automatically adjust amplifier output, optimizing message clarity and minimizing noise for residents .
o Remote Monitoring and Diagnostics: Integration with SNMP-based control platforms allows operators to monitor PDU performance, perform self-testing, and manage power distribution remotely .
o Climate-Resistant Components: Designed for Swedish weather conditions, PDUs and connected amplifiers are robust against temperature fluctuations, moisture, and dust .
o EN54 Certification: Components, including amplifier modules and loudspeakers, comply with EN54 standards for fire safety and alarm systems, ensuring reliability in emergency situations .
o Support for Platform Displays and Clocks: Smart PDUs power multiple devices, including displays and clocks, while maintaining low electrical noise to prevent interference with communication systems .

Integration with Railway Communication Systems

These smart PDUs are compatible with modern digital railway communication standards, including FRMCS (Future Railway Mobile Communication System), which is being tested on Swedish train routes to replace legacy GSM-R systems . The PDUs ensure stable power delivery to critical communication devices, amplifiers, and sensors, supporting fully digitalized railway operations and automatic train operation (ATO) systems .

Example Deployment

At Linkoping railway station, the system includes:

o 129 loudspeakers and 24 speaker lines
o Adaptive noise-sensing microphones
o Audio processors and control units
o ICO MAM amplifier modules powered via smart PDUs
o Calibration and reporting tools for noise minimization and system diagnostics This deployment demonstrates how low-noise smart PDUs are central to maintaining high-quality, reliable communication while reducing environmental noise and ensuring operational safety.

Conclusion

For railway communication applications in Sweden, low-noise smart PDUs integrated with intelligent amplifier modules and PAVA systems provide a robust solution. They combine remote monitoring, adaptive noise control, climate resistance, and EN54 compliance, making them ideal for modern, digitally managed railway stations .

The report presents the findings and recommendations of the Low-Cost Noise Control by Optimised Rail Pad (LOWNOISEPAD)

Mahindra & Mahindra Dealer Business World Register

Aiming at applying the Nord2000 propagation model to predict high speed train noise in Sweden, the noise emission data of X2

PDU Communication Modules Explained: Gateway, Controller or Daisy Chain? Standard rarely means perfect fit. So why invest in

17 September 2025 - Alstom, a world leader in smart and sustainable mobility, launches today the report "Bringing the railway up to

Learn about smart railways, the implementation of mission-critical 4G and 5G technology will digitize rail making the travel faster,

Learn about considerations for selecting the ideal Power Distribution Unit (PDU) for your data center in this article to enhance your

Hier sollte eine Beschreibung angezeigt werden, diese Seite lässt dies jedoch nicht zu.

The numerous output sockets and their positioning help this PDU fit perfectly into high density network

solutions. Using two PDUs in

A key feature of the system is intelligent sound level control, which dynamically adjusts announcement volumes based on ambient

With a focus on smart PDU and smart power supplies, the ISO9001-certified company has

Thanks to advanced digital sound processing - including noise reduction, echo cancellation, and automatic volume control - the

The PX4 is more than just a rack power distribution unit. It is a unified rack PDU solution that provides forward-thinking tools,

Power Distribution Unit PDU The Power Distribution Unit (PDU) is designed for incorporation into each rack of a data centre. Within

In 2024, the Swedish Transport Administration (TRVT) partnered with Ambient System to modernize analog sound systems in

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