GSM signal amplifier

Signal optimization for demanding conditions and locations

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Description of the device

A ***GSM signal amplifier***, also known as a wireless signal repeater, is an electronic device designed to extend the coverage area of a GSM network. It is available in several variants supporting different frequency ranges and can operate across multiple signal bands simultaneously. This is a reliable, certified product.

Functionality

- ✓ Unlimited number of simultaneous connections
- ✓ Remote management and monitoring
- ✓ Configurable alarms
- ✓ Automatic operation
- ✓ GPS signal reception (optional)

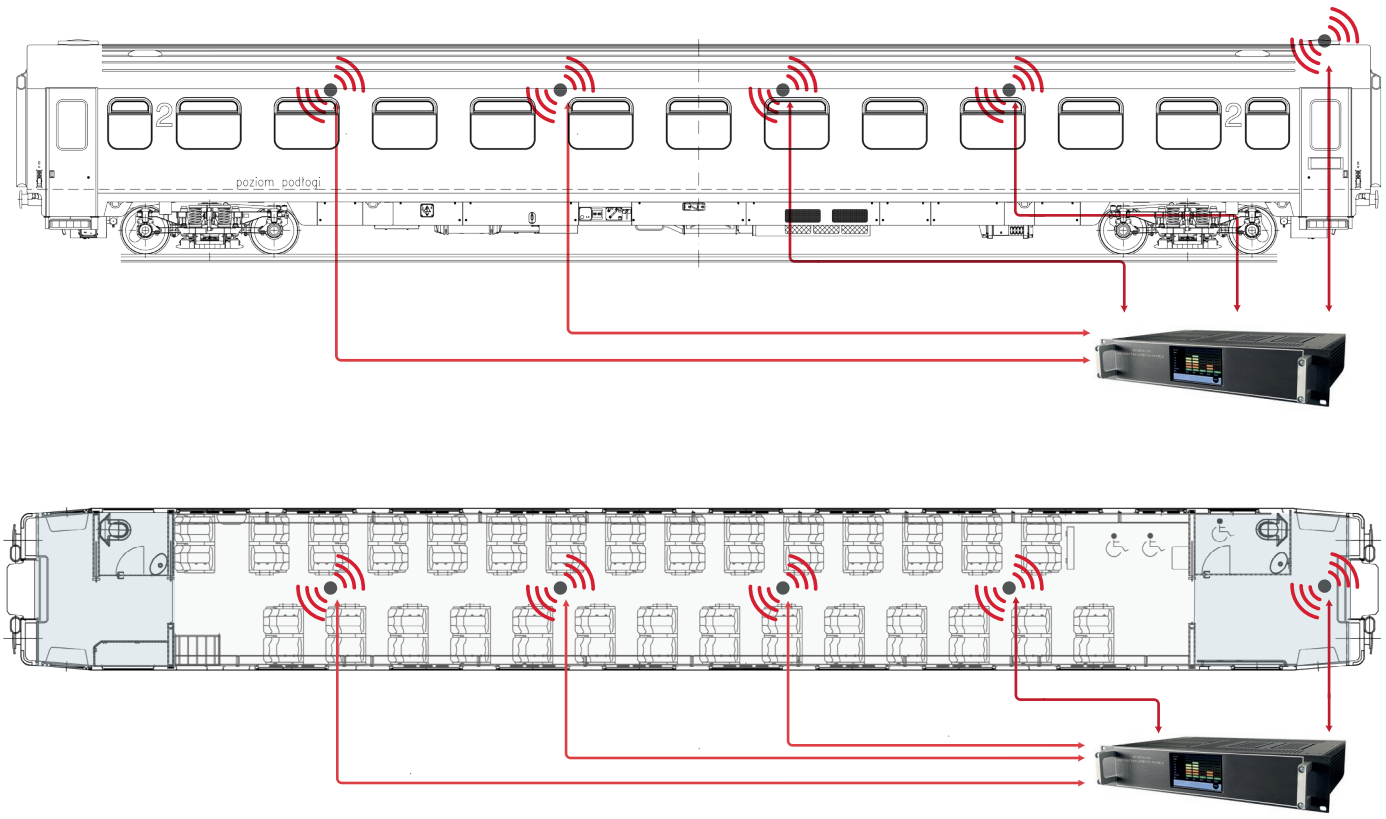
The GSM signal is distributed via one (up to four) internal GCO AIC2 – GSM antennas included in the set.

Key features

- ✓ Support for 2G, 3G, 4G, and 5G networks
- ✓ Low radiation level (SAR compliant)
- ✓ Touchscreen LCD display
- ✓ CE compliant

Application

Example of antenna placement in a railcar



Compliance with standards

PN-EN 50155	Railway applications- Electronic equipment used in rolling stock.
EN 50121-4	Railway applications- Electromagnetic compatibility
EN 45545-2	Fire protection in rail vehicles. Part 2: materials and elements on the combustion properties at HL1, HL2 and HL3.
PN-EN 61373	Railway applications - Rolling stock equipment - Shock and vibration tests
EN 60950-1	Information technology equipment – Safety – Part 1: General requirements.
EN 50385:2002	Product standard to demonstrate the compliance of radio base stations and fixed terminal stations for wireless telecommunication systems with the basic restrictions or the reference levels related to human exposure to radio frequency electromagnetic fields (110 MHz – 40 GHz) – General public.
EN 301 489-1 V2.2.3	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard for ElectroMagnetic Compatibility.
EN 301 489-50 v2.3.1	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 50: Specific conditions for Cellular Communication Base Station (BS), repeater and ancillary equipment; Harmonised Standard for ElectroMagnetic Compatibility.
EN 301 489-52 v1.1.2	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 52: Specific conditions for Cellular Communication User Equipment (UE) and ancillary equipment; Harmonised Standard for ElectroMagnetic Compatibility.
EN 301 908-1 V11.1.2	IMT cellular networks; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 1: Introduction and common requirements.
EN 301 908-11 v11.1.2	IMT cellular networks; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 11: CDMA Direct Spread (UTRA FDD) User Equipment (UE).
EN 301 908-15 v11.1.2	IMT cellular networks; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 15: Evolved Universal Terrestrial Radio Access (E-UTRA) User Equipment (UE).
EN 303 609-4 v12.5.1	Satellite Earth Stations and Systems (SES); Harmonised EN for Land Mobile Earth Stations (LMES) operating in the 1,5 GHz and 1,6 GHz bands providing voice and/or data communications covering essential requirements of article 3.2 of the R&TTE directive.

Technical parameters

4-Band GSM Amplifier

Frequency range	800MHz, 900MHz, 1800MHz, 2100MHz

5-Band GSM Amplifier

Frequency range	791-862 / 880-960/ 1710-1880/ 1920-2170/2500-2620 MHz

6-Band GSM Amplifier

Frequency range	703-788 / 791-862 / 880-960/ 1710-1880/ 1920-2170/ 2500-2620 MHz

Range	1000m^2 per each internal antenna at maximum external signal (typically 500m^2)
Number of Users	Unlimited
Gain	60 dB > 50 dB per frequency band > 57 dB broadband
Dual BandwidthIMD (Intermodulation Distortion)	Better than -55 dBm at maximum power
Bandwidth	< 3 dB
Input/Output Impedance	50 Ohm
Input Connector	N FEMALE Connector maximum -30 dBm
Output Connector	4 x SMA
Ethernet Port	RJ45
GPS Connector	SMA female with 3.3 V DC power supply
Operating Temperature	-30 °C ~ +60 °C passive cooling
Power Supply	110...230 V AC + 12V DC adapter
Maximum Power Consumption	50 W power consumption
Power Supply Protection	12VDC port with reverse polarity and surge protection
Oscillation Control	Automatic
Transmit Signal Control	Automatic on/off, noise transfer < -80 dBm
Transmit and Receive Signal Control Level	Automatic, continuously monitored and adjusted; AGC range 30 dB
Fuse	Integrated on all connectors and external antennas
Maximum Distance from Base Station	Operator dependent; typically up to 35 km
LCD Touchscreen	Status information for each frequency (status, signal, AGC, transmitted signal, overload, and activation)
Dimensions (height x width x depth)	2U 88 mm x 450 mm x 310 mm (excluding 40 mm front and back handles)
Weight	5 kg
MTBF (Mean Time Between Failures)	80,000 hours

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