

1023122061

ENA2060-DC1

Exigo Network Amplifier with 2 60 W Amplifier Channels 110 V DC

- Compact Ruggedised Enclosure
- Fan-less Design Minimising Maintenance
- 110V DC Power Input
- Rolling Stock Certified to EN45545 and EN50155
- 2 SIP Addressable channels
- High Power 60 W per Channel
- SNMP Support
- Designed according to UIC code 568
- Dual Ethernet Ports for Redundancy

See our Rolling Stock page.

SIP Exigo

Description

The ENA2060-DC1 Network Amplifier for Rolling Stock incorporates SIP-addressable loudspeaker loops that enable the use of the same software for handling both Passenger Emergency Intercom / Crew Communication and Public Address (PA), as well as the required Train Radio Integration, thus eliminating one entire subsystem from the solution. This results in a well-integrated system with less complexity and more functionality, while the use of open standards offers freedom of choice when it comes to future upgrades and supply.

- Two SIP addressable audio channels – 2x60W
- Supports wide set of IP and networking standards
- Easily integrated into existing information concepts
- 100V speaker line technology – ease of cabling with galvanic separation
- UIC Code 558/568 Compatibility
- Supports direct audio routing to wide range of induction loop amplifiers
- Designed, manufactured and tested according to EN50155
- Designed, manufactured and tested according to EN45545
- Speaker loop monitoring
- Local audio inputs
- Additional I/Os for various integration options
- Fanless design

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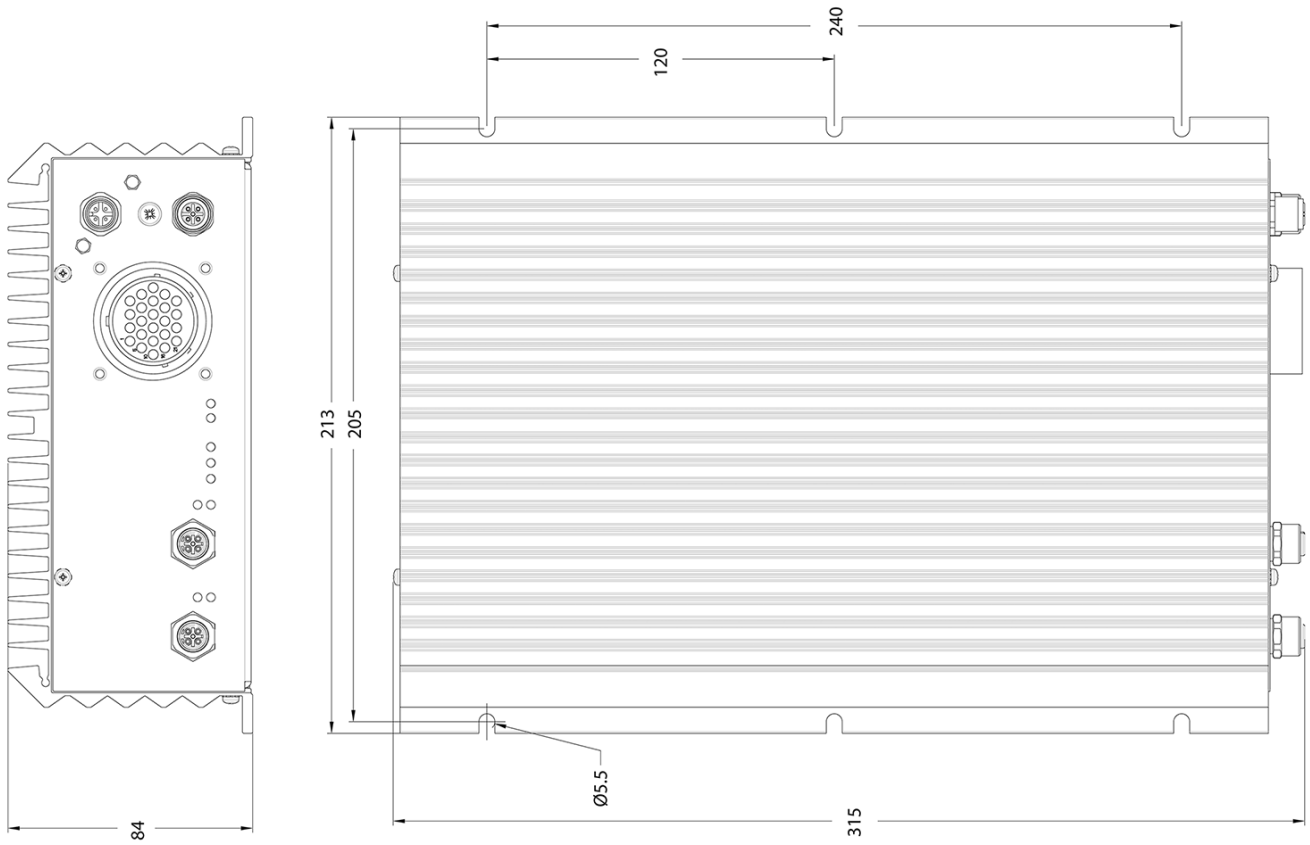
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- Built to last with robust extruded aluminum frame
- Easy to install and commission with minimum maintenance overhead

A modern on-board system normally features an IPBX with SIP capability for emergency call points and their radio integration. The IPBX can be based on proprietary or an open source software architecture that runs on EN50155 approved hardware. Given the usual requirement for on-board PA, the IPBX can easily handle the function of being the PA controller. A complete PA System can thus be provided just through the use of an EN50155 approved SIP amplifier. Eliminating one entire proprietary subsystem not only reduces the total system cost, but also time spent in integration work. Moreover, a clean and robust integration means enhanced passenger safety.

The ENA2060-DC1 Network Amplifier is intended to cover one carriage consisting of two or more PA zones. Examples of such zones can be the left and right side of the carriage, upper and lower deck, or even outside speakers. Redundancy can be achieved by using two amplifiers which ensure that at least 50% of the loudspeakers will still work in case of a failure in one IP PA amplifier (A-B amplifier setup). Hence, public address announcements will still be audible with only a minor drop in sound pressure level.
https://youtu.be/2NIU64wTf8c?si=h_lyTjIesSLiHPmp
Or see our Rolling Stock page.

Technical Dimensions



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Specifications

MECHANICAL	
Dimensions (HxWxD)	84 x 213 x 315 mm
Mounting	Flange mounting - 6 pcs M5 bolts
Weight	5.3 kg

ENVIROMENTAL	
Operating temperature	-40C +70C, EN50155 Class T2 + T3
Operating humidty	Yearly average <75% RH; during 30 consecutive days 95%
Air pressure	70kPa - 106 kPa, according to EN300 019
Ingress protection	IP-42

ELECTRICAL POWER	
Connector	M12 A male
Power supply interruptions	EN50155 Class S2
Power supply change over	EN50155 Class C1 and C2
Standby power consumption	< 15W
Max power consumption	< 170W

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AUDIO 100V OUTPUT

Connector	M12 A female
Audio output power	Class-D, 60W per channel, 2 channels
Frequency response	Hardware: 200Hz - 19kHz
Audio codec	G.722 (200Hz - 7kHz)
THD	< 0.4%
SNR	70 dB
Protection	Self protecting during overload or shorts with temporary shutdown according to EN50121-3-2
Monitoring	Line impedance measurements @21kHz
	Detects: Short circuit between phases and ground faults
	Control: Digitally controlled

MULTICONNECTOR

Connector	Circular 24pos connector, TE 1-796387
	Contains signals desribed below

AUDIO 0DBV LINE OUTPUT

Audio channel	Parallel output of each 100V channels
Gain	-40 dB +2dB
Impedance	600 Ohm
Levels	0 dBV (1Vrms)
Frequency response	Hardware: 200 Hz - 19kHz
Audio codec	G.722 (200Hz - 7kHz)

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AUDIO INPUTS

Microphone input:	Electret microphone suitable for 2V bias
Input impedance	1 kOhm
Frequency response	Hardware: 200 - 19kHz
Audio codec	G.722 (200Hz - 7kHz)
THD	0.4 %
SNR	70dB

NETWORK AND PROTOCOLS

Connector	M12 D female x 2
Ethernet	2 x 10BASE-T, 100BASE-X, Auto negotiation, Audio MDIX
LAN protocols	IPv4 (with DiffServ), TCP, UDP, HTTPS, TFTP, RTP, DHCP, SNMP, STENTOFON CCoIP® , NTP
SIP	RFC 32612 (SIP base standard), RFC 3515 (SIP refer), RFC 2976 (SIP Info)
DTMF	RFC 2833, RFC 2976 (SIP Info)
Management	HTTP/HTTPS (web configuration)
	SNMPv1, SNMPv2c

GENERAL INPUTS AND OUTPUTS

2 x GPI	Configurable
2 x 24Vdc Control outputs	200 mA per output
	Short circuit protection according to EN50121-3-2

UIC

Designed according to UIC code 568	
UIC Audio input	2 Vrms
	200 Hz - 19 kHz bandwidth
	Input impedance 10kOhm
UIC priority, UIC on/off	Current loop 24Vdc/10mA
	Galvanically isolated

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INDICATORS

Power indicator	Green LED
Fault indicator	Yellow LED
Status indicator	Green LED
Audio indicators - one per channel	Blue LED

CERTIFICATIONS

EN50155 – S2	Railway applications – Electronic equipment used on rolling stock – Voltage variations
EN50155 – T2 + T3	Railway applications – Electronic equipment used on rolling stock – Temperature requirements
EN50155 – C1 + C2	Railway applications – Electronic equipment used on rolling stock – Supply changeover
EN50121-3	Railway Applications – Electromagnetic compatibility Part 3-1: Rolling stock – Train and complete vehicle
IEC/EN 61373 Category 1, Class B	Railway applications – Rolling stock equipment – Shock and vibration tests
EN45545	Railway applications. Fire protection on railway vehicles
EN/AS 60849	Requirements related to speech intelligibility
ROHS	2011/65/EU (ROHS) + 1907/2006EU (REACH)

OPERATIONAL

MTBF	161000 hous
MTTR	10 minutes

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LINE INPUT

Input levels	1 Vrms
Input impedance	10 kOhm
Frequency response	Hardware: 200 - 19kHz
Audio codec	G.722 (200Hz - 7kHz)
THD	0.4%
SNR	70 dB

Used With



TCIS-2 | Audio Intercom

IP and SIP Intercom



TCIS-5 | Audio Intercom

IP and SIP Intercom



ELSIR-10C

Network Ceiling Speaker, 10W, Ethernet

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