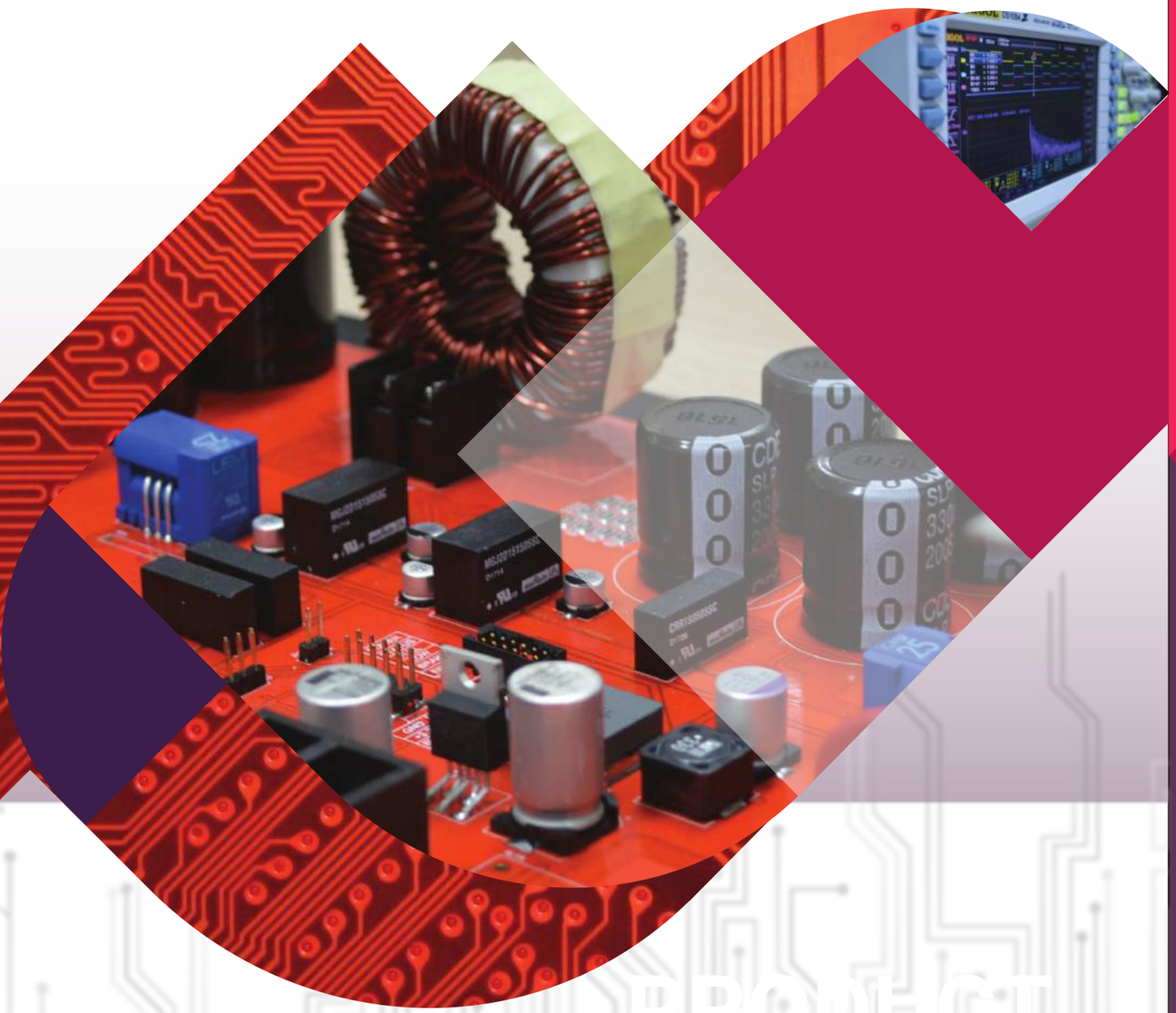
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PRODUCT CATALOG

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Product Overview

NSAD Product Series

1. SCADA Panel System
2. Compact Series
3. Subrack Series
4. Traction Inverter

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1 SCADA Panel System

Integrated monitoring, data acquisition, and remote control for railway and industrial systems.



Mobile Jig Panel



TRU-LL



TRU-HC

2 Compact Series

Space-efficient control solutions delivering reliable performance in compact installations.



GLVC G2



RGE Series

3 Subrack Series

Modular, scalable control systems with flexible configurations and interchangeable modules.



MRCU-3U



MRCU-6U



MRCU-9U

4 Traction Inverter

High-performance motor control with precise speed and torque regulation for railway traction.



HV250

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Mobile Jig Panel



The Mobile JIG is a versatile, mobile testing platform designed for rolling stock maintenance, functional verification, and troubleshooting of onboard electrical and electronic systems. Incorporating railway-grade components selected with reference to EN 50155, the unit features a robust, wheeled enclosure for convenient relocation and flexible deployment across railway workshops and maintenance depots. Its integrated controller supports I/O testing, data logging, and remote operation, enabling efficient, repeatable, and reliable testing procedures while streamlining maintenance activities and reducing equipment downtime.

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Technical Specification

Standard					
Railway EN 50155					
Mobile Jig Specification					
Specification	**Description**	**Min**	**Nominal**	**Max**	**Unit**
Power Input	Panel Power Input		380		VAC
	Frequency		50		Hz
	Control Power Input		220		VAC
	Frequency		50		Hz
Controller	Controller Type	3U Controller			
	Sampling Frequency	10 kHz			
Dimension	Long		1.6		M
	Wide		1.5		M
	Height		1.6		M
Visual	Panel Color	Powder Coating RAL 7032			

Controller Specification

Main CPU	
Specification	IEC 61508 SIL 3-capable MCU (device-level), real-time embedded control architecture
Power Supply Specification	
Input Voltage	24 VDC (Nominal), 14 – 33 VDC
	72 VDC (Nominal), 43 – 100 VDC
	110 VDC (Nominal), 66 – 154 VDC
Signal Input/Output Specification for rack 3U (upgradeable up to 6 rack)	
Analog Input	Up to 80 analog input
Analog Output	Up to 40 analog input
Digital Input	Up to 128 channels input
	Wet type digital input
Digital Output	Up to 128 channels output
	Compatible with inductive and resistive loads
Communication	
CAN Bus	Isolated 1 channel, compatible with SAE J1939 and CANopen standard
Ethernet	10/100 Ethernet MAC and PHY (2 pairs signal cabling)
	MQTT and TRDP train communication protocol
	Default firmware works as MQTT client
RS-485	Isolated 1 channel, full-duplex
RS-232	Isolated 1 channel, for debug or general communication purpose
Environment	
Temperature	0 – 40°C
Humidity	0 – 90% non-condensing
Structure	
Controller Dimension	421.74 x 274.94 x 133 mm

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TRU-LL



TRU-LL | Transformer Rectifier Unit – Light Load

The TRU-LL is a programmable DC power supply designed for railway maintenance, commissioning, and light-load equipment testing. Featuring an adjustable 0 – 2,000 VDC output and a power capacity of up to 30 kVA, the unit provides a practical solution for testing railway electrical equipment under simulated traction supply conditions.

Unlike conventional regulated DC power supplies, the TRU-LL utilizes a motorized variable transformer, an isolation step-up transformer, and 6-pulse or 12-pulse uncontrolled rectification to reproduce the characteristic DC voltage ripple of transformer-rectifier-based railway traction power systems. This enables testing at voltage levels associated with EN 50163 and IEC 60850, including nominal 750 VDC and 1,500 VDC traction networks, while supporting selected functional verification and maintenance activities relevant to IEC/EN 61287-1 and EN 50155.

Designed for flexible workshop and depot operation, the TRU-LL features a mobile, wheeled enclosure and an integrated controller supporting programmable voltage adjustment, I/O testing, data logging, and remote operation. These capabilities simplify testing, troubleshooting, and maintenance while improving operational convenience and test repeatability.

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Technical Specification

Standard					
Railway EN 50155					
TRU Specification					
Specification	**Description**	**Min**	**Nominal**	**Max**	**Unit**
Power Input	Panel Power Input		380		VAC
	Frequency		50		Hz
	Capacity			30	kVA
	Control Power Input		220		VAC
	Frequency		50		Hz
	Capacity			3	kVA
Power Output	HV Output Voltage	0		2000	VDC
	HV Output Current			16	A
	LV Output Voltage		110		VDC
	LV Output Current			18	A
Controller	Controller Type	3U Controller			
	Sampling Frequency	10 kHz			
Dimension	Long		1.6		M
	Wide		1.5		M
	Height		1.6		M
Visual	Panel Color	Powder Coating RAL 7032			

Controller Specification

Main CPU	
Specification	IEC 61508 SIL 3-capable MCU (device-level), real-time embedded control architecture
Power Supply Specification	
Input Voltage	24 VDC (Nominal), 14 – 33 VDC
	72 VDC (Nominal), 43 – 100 VDC
	110 VDC (Nominal), 66 – 154 VDC
Signal Input/Output Specification for rack 3U (upgradeable up to 6 rack)	
Analog Input	Up to 80 analog input
Analog Output	Up to 40 analog input
Digital Input	Up to 128 channels input
	Wet type digital input
Digital Output	Up to 128 channels output
	Compatible with inductive and resistive loads
Communication	
CAN Bus	Isolated 1 channel, compatible with SAE J1939 and CANopen standard
Ethernet	10/100 Ethernet MAC and PHY (2 pairs signal cabling)
	MQTT and TRDP train communication protocol
	Default firmware works as MQTT client
RS-485	Isolated 1 channel, full-duplex
RS-232	Isolated 1 channel, for debug or general communication purpose
Environment	
Temperature	0 – 40°C
Humidity	0 – 90% non-condensing
Structure	
Controller Dimension	421.74 x 274.94 x 133 mm

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TRU-HC



TRU-HC | High-Capacity Modular Transformer Rectifier Unit

The TRU-HC is a high-capacity DC power supply designed for railway maintenance, commissioning, and traction equipment testing. Available in 100 – 600 kVA configurations with selectable output voltages up to 2,000 VDC, the system utilizes multiple isolated transformer-rectifier modules connected in series, with contactor-controlled switching to provide programmable voltage steps.

Featuring 6-pulse or 12-pulse rectification, it reproduces characteristic railway traction DC supply behavior, supporting testing activities with reference to EN 50163, IEC 60850, and IEC/EN 61287-1. Housed in a robust, floor-mounted enclosure, the TRU-HC includes an integrated controller for voltage selection, I/O testing, monitoring, data logging, and remote operation, enabling efficient and repeatable railway equipment maintenance.

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Technical Specification

Standard					
Railway EN 50155					
MV Distribution Panel Specification					
Specification	**Description**	**Min**	**Nominal**	**Max**	**Unit**
Power Input	Panel Power Input		380		VAC
	Frequency		50		Hz
	Capacity			600	kVA
	Control Power Input		220		VAC
	Frequency		50		Hz
	Capacity			5	kVA
Power Output	HV Output Voltage	500		1800	VDC
	Capacity	100		600	kVA
Controller	Controller Type	3U Controller			
	Sampling Frequency	10 kHz			
Dimension	Long		10.9		M
	Wide		1.5		M
	Height		2.4		M
Visual	Panel Color	Powder Coating RAL 7032			

Controller Specification

Main CPU	
Specification	IEC 61508 SIL 3-capable MCU (device-level), real-time embedded control architecture
Power Supply Specification	
Input Voltage	24 VDC (Nominal), 14 – 33 VDC
	72 VDC (Nominal), 43 – 100 VDC
	110 VDC (Nominal), 66 – 154 VDC
Signal Input/Output Specification for rack 3U (upgradeable up to 6 rack)	
Analog Input	Up to 80 analog input
Analog Output	Up to 40 analog input
Digital Input	Up to 128 channels input
	Wet type digital input
Digital Output	Up to 128 channels output
	Compatible with inductive and resistive loads
Communication	
CAN Bus	Isolated 1 channel, compatible with SAE J1939 and CANopen standard
Ethernet	10/100 Ethernet MAC and PHY (2 pairs signal cabling)
	MQTT and TRDP train communication protocol
	Default firmware works as MQTT client
RS-485	Isolated 1 channel, full-duplex
RS-232	Isolated 1 channel, for debug or general communication purpose
Environment	
Temperature	0 – 40ºC
Humidity	0 – 90% non-condensing
Structure	
Controller Dimension	421.74 x 274.94 x 133 mm

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GLVC G2



GLVC G2 is a second-generation railway Vehicle Control Unit (VCU) engineered for high reliability, deterministic control, and seamless communication across modern rolling stock. Its ruggedized architecture integrates real-time processing, railway communication protocols, and flexible I/O interfaces to support demanding onboard environments.

Designed as the central onboard vehicle control and communication platform, the GLVC G2 features 10/100 Mbps IP67 Ethernet connectivity, supporting IEC 61375 TRDP and MQTT, alongside CAN 2.0B and RS-485 interfaces. These capabilities enable reliable data exchange and coordinated operation of traction, braking, door control, auxiliary systems, and vehicle monitoring.







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Technical Specification

Parameter	Specification
Processor	IEC 61508 SIL 3-capable MCU (device-level), real-time embedded control architecture
Ethernet Interface	10/100 Mbps IP67 Ethernet Port
Railway Communication	IEC 61375 TRDP, MQTT, 2x CAN 2.0B / CANopen, 1x RS-485
Analog Input	Up to 10 Channels, each configurable for 4-20 mA or 0-5 VDC operation
Analog Output	Up to 3 Channels, each configurable for 4-20 mA or 0-10 VDC operation
Digital Input	Up to 26 Channels (24 VDC operation, wet type digital input)
Digital Output	Up to 18 Channels (24 VDC operation, 500 mA low side output)
Insulation Coordination & Railway Compliance	EN 50124-1, Railway applications – Insulation coordination EN 50155, Railway applications – Rolling stock - Electronic equipment
Power Supply	24 VDC nominal, EN 50155 – Class S2 power input design
Operating Temperature	EN 50155 – Class OT4. Railway applications – Rolling stock – Electronic equipment
Mechanical	EN 61373 – Class 1A/B

Implementation



Bus



Train



Ship



Industrial Automation

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RGE Series



The RGE Series is a versatile, railway-grade communication gateway platform engineered to deliver reliable, secure, and seamless connectivity across modern rolling stock networks.

Designed for next-generation railway applications, the RGE Series brings together multi-protocol railway communication, 4G/5G train-to-ground connectivity, and network segmentation within a unified embedded platform. Its flexible architecture enables streamlined system integration, remote diagnostics, and operational data exchange across diverse onboard applications.







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Technical Specification

Parameter	Specification
Processor	IEC 61508 SIL 3-capable MCU (device-level), real-time embedded control architecture
Ethernet Interface	10/100 Mbps M12 D-coded or Gigabit M12 X-coded, model-dependent
Communication Interfaces	IEC 61375 TRDP, IEC 20922, IEC 13239, 4G/5G dual-SIM cellular modem
Insulation Coordination & Railway Compliance	EN 50124-1, Railway applications - Insulation coordination EN 50155, Railway applications - Rolling stock - Electronic equipment
Power Supply	24 VDC or 110 VDC nominal input, orderable variants EN 50155 – Class S2 power input design.
Operating Temperature	EN 50155 – Class OT4. Railway applications - Rolling stock - Electronic equipment
Mechanical	EN 61373 – Class 1A/B
Dimension	128.00 mm x 103.00 mm x 70.00 mm (without connector and DIN rail mounting) 145.63 mm x 117.50 mm x 70.00 mm (with connectors and DIN rail mounting)

Implementation



Train



Industrial Automation

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MRCU-3U



MRCU-3U is a fourth-generation modular railway control platform engineered for high reliability, deterministic real-time control, and robust onboard communication. Its ruggedized 3U rack architecture integrates processing, communication, power supply, and scalable I/O modules through a common backplane, providing a flexible foundation for demanding rolling stock applications.

Designed for seamless onboard integration and reliable system coordination, the MRCU-3U features dual 10/100 Mbps Ethernet connectivity supporting IEC 61375 TRDP and MQTT, complemented by CANopen and RS-485 interfaces. An optional 4-channel fiber-optic real-time control interface extends its capabilities with electrically isolated, EMI-immune control signaling, ideal for electrically demanding railway applications.







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Technical Specification

Parameter	Specification
System Architecture	Modular 3U rack-mounted system with configurable backplane and plug-in modules
Reliability & Redundancy	Integrated diagnostics, watchdog supervision, optional redundant CPU and power supply
Processor	IEC 61508 SIL 3-capable MCU (device-level), real-time embedded control architecture
Ethernet Interface	Dual independent 10/100 Mbps Ethernet ports, M12 D-coded connector option
Railway Communication	IEC 61375 TRDP, MQTT, 2x CAN 2.0B / CANopen, 2x RS-485
Modular Configuration	Configurable CPU, communication, power supply, and analog/digital I/O modules
Analog Input	Up to 8 channels per module, configurable 4-20 mA or 0-10 VDC
Analog Output	Up to 5 channels per module, configurable 4-20 mA or 0-10 VDC
Digital Input	Up to 16 Channels (24 VDC operation, wet type digital input)
Digital Output	Up to 16 Channels (24 VDC operation, 500 mA low side output)
Fiber-Optic Interface	Up to 4-channel fiber-optic control interface for electrically isolated, EMI-immune communication with external control systems
Telemetry Configuration	5G/4G, GNSS
Insulation Coordination & Railway Compliance	EN 50124-1, Railway applications - Insulation coordination EN 50155, Railway applications - Rolling stock - Electronic equipment
Power Supply	24 VDC nominal, optional 72/110 VDC power supply modules, EN 50155 input design
Operating Temperature	EN 50155 – Class OT4. Railway applications - Rolling stock - Electronic equipment
Mechanical	3U, 19-inch rack-compatible enclosure, EN 61373 Category 1 Class A/B design target
Dimension	421.74 mm x 274.94 x 133 mm

Product Configuration

Configuration	Architecture	Target Application
Standard	Single CPU, single PSU, configurable I/O	Auxiliary control, communication gateway, distributed I/O
High Availability	Dual CPU, dual PSU, configurable I/O	Central vehicle control, TCMS, critical subsystem coordination
Custom / Expanded	Application-specific CPU, communication, and I/O mix	Integrated control cabinets, traction and auxiliary control systems, special-purpose railway automation

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MRCU-6U



MRCU-6U is a subrack-type modular controller designed to manage static inverters for the railway industry and other sectors that demand maximum reliability.

MRCU-6U system incorporates two processors certified under the IEC 61508 standard, ensuring that algorithms operate with the highest possible level of reliability. Additionally, the MRCU-6U features a fiber-optic interface for controlling actuators, providing superior performance by eliminating interface from electronic noise.







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Technical Specification

Parameter	Specification
System Architecture	Modular 6U rack-mounted system with configurable backplane and plug-in modules
Reliability & Redundancy	Integrated diagnostics, watchdog supervision, optional redundant CPU and power supply
Processor	2x IEC 61508 SIL 3-capable MCU (device-level), real-time embedded control architecture
Ethernet Interface	Dual independent 10/100 Mbps Ethernet ports, M12 D-coded connector option
Railway Communication	IEC 61375 TRDP, MQTT, 2x CAN 2.0B / CANopen, 2x RS-485
Modular Configuration	Configurable CPU, communication, power supply, and analog/digital I/O modules
Analog Input	Up to 23 channels per module, configurable 4-20 mA or 0-10 VDC
Analog Output	Up to 4 channels per module, configurable 4-20 mA or 0-10 VDC
Digital Input	Up to 24 Channels (110 VDC operation, wet type digital input)
Digital Output	Up to 16 Channels (110 VDC operation, 1000 mA low side output)
Fiber-Optic Interface	Up to 6-channel fiber-optic control interface for electrically isolated, EMI-immune communication with external control systems
Telemetry Configuration	5G/4G, GNSS
Insulation Coordination & Railway Compliance	EN 50124-1, Railway applications - Insulation coordination EN 50155, Railway applications - Rolling stock - Electronic equipment
Power Supply	110 VDC nominal, optional 24/72 VDC power supply modules, EN 50155 input design
Operating Temperature	EN 50155 – Class OT4. Railway applications - Rolling stock - Electronic equipment
Mechanical	6U, 19-inch rack-compatible enclosure, EN 61373 Category 1 Class A/B design target
Dimension	332.94mm x 210mm x 267.40mm

Product Configuration

Configuration	Architecture	Target Application
Standard	Single CPU, single PSU, configurable I/O	Auxiliary control, communication gateway, distributed I/O
High Availability	Dual CPU, dual PSU, configurable I/O	Central vehicle control, TCMS, critical subsystem coordination
Custom / Expanded	Application-specific CPU, communication, and I/O mix	Integrated control cabinets, traction and auxiliary control systems, special-purpose railway automation

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MRCU-9U



MRCU-9U is a subrack-type modular controller designed to manage static inverters for the railway industry and other sectors that demand maximum reliability.

MRCU-9U system incorporates two processors certified under the IEC 61508 standard, ensuring that algorithms operate with the highest possible level of reliability. Additionally, the MRCU-9U features a fiber-optic interface for controlling actuators, providing superior performance by eliminating interface from electronic noise.







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Technical Specification

Parameter	Specification
System Architecture	Modular 9U rack-mounted system with configurable backplane and plug-in modules
Reliability & Redundancy	Integrated diagnostics, watchdog supervision, optional redundant CPU and power supply
Processor	3x IEC 61508 SIL 3-capable MCU (device-level), real-time embedded control architecture
Ethernet Interface	Dual independent 10/100 Mbps Ethernet ports, M12 D-coded connector option
Railway Communication	IEC 61375 TRDP, MQTT, 2x CAN 2.0B / CANopen, 2x RS-485
Modular Configuration	Configurable CPU, communication, power supply, and analog/digital I/O modules
Analog Input	Up to 17 channels per module, configurable 4-20 mA or 0-10 VDC
Analog Output	Up to 5 channels per module, configurable 4-20 mA or 0-10 VDC
Digital Input	Up to 30 Channels (110 VDC operation, wet type digital input)
Digital Output	Up to 18 Channels (110 VDC operation, 2000 mA low side output)
Fiber-Optic Interface	Up to 12-channel fiber-optic control interface for electrically isolated, EMI-immune communication with external control systems
Telemetry Configuration	5G/4G, GNSS
Insulation Coordination & Railway Compliance	EN 50124-1, Railway applications - Insulation coordination EN 50155, Railway applications - Rolling stock - Electronic equipment
Power Supply	110 VDC nominal, optional 24/72 VDC power supply modules, EN 50155 input design
Operating Temperature	EN 50155 – Class OT4. Railway applications - Rolling stock - Electronic equipment
Mechanical	9U, 19-inch rack-compatible enclosure, EN 61373 Category 1 Class A/B design target
Dimension	380.70mm x 196mm x 400mm

Product Configuration

Configuration	Architecture	Target Application
Standard	Single CPU, single PSU, configurable I/O	Auxiliary control, communication gateway, distributed I/O
High Availability	Dual CPU, dual PSU, configurable I/O	Central vehicle control, TCMS, critical subsystem coordination
Custom / Expanded	Application-specific CPU, communication, and I/O mix	Integrated control cabinets, traction and auxiliary control systems, special-purpose railway automation

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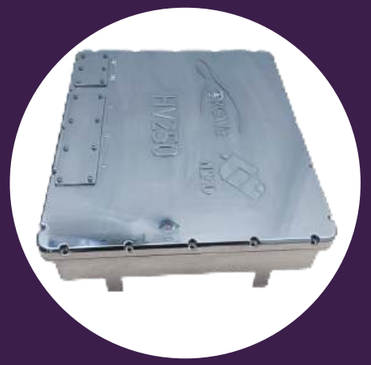
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Inverter HV250



HV-250 inverter is a component that converts DC voltage from a battery into 3-phase AC voltage which serves as the power source for an induction electric motor and utilize IGBTs as switching devies.







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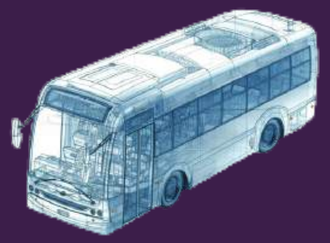
Technical Specification

Main CPU	
Processor	1x IEC 61508 SIL 3-capable MCU (device-level), real-time embedded control architecture
Power Supply Specification	
Input Voltage (Power)	750 VDC (Nominal), 500 – 1000 VDC
Input Voltage (Control)	24 VDC (Nominal), 20 – 28 VDC
Input / Output Specification	
Analog Input	Up to 5 channels analog input for Accelerator pedal
	Accelerator pedal Differential, Single-ended
Digital Input	Up to 16 Channels input (0-24 VDC)
	Encoder sensor, Digital Transmission, Braking siwtch, Keyswitch
Digital Output	Up to 8 channels output (0-24 VDC, 500 mA)
	Compatible with inductive and resistive loads
Communication	
CAN Bus	2 channels independent, compatible with SAE J1939 and CANopen standard
Ethernet	10/100 Ethernet MAC and PHY (2 pairs signal cabling),
	Default firmware works as MQTT client
RS-232	Non-Isolated 1 channel, full duplex
Environment	
Temperature	-40 to 125^{o}C (non-operating), 20 to 85^{o}C (operating)
Humidity	0 – 99% non-condesing
Structure	
Dimension	320 mm x 295 mm x 115 mm

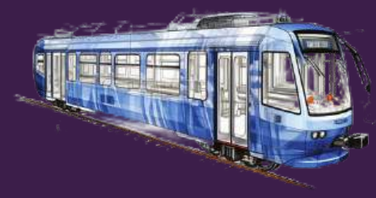
Implementation



Train



BUS



Tram