



Hind Rectifiers Limited



hirect.com

Perfectly Engineered

Power Conversion System

About Us

Hind Rectifiers Ltd. established in 1958 in collaboration with Westinghouse, Brake and Signal, UK is a public listed company (BSE & NSE) with over 800 employees.

Hirect has four manufacturing units in India, each dedicated to a specialised range of products designed scientifically using Theory of Constraints and the highest quality standards set forth as per IRIS.

Since the past 6 decades, Hirect has been designing and manufacturing a multi purpose range of products across Railways, Industrial and Defence applications and leading the Industry in terms of reliability and innovation.

Hirect is easily accessible from any of the offices across India or in Europe. For more information you may visit hirect.com or connect on email.

65 YEARS OF EXPERTISE



1650+
Converters

4500+
Locomotive &
Coach Panels

2500+
Coach Underslung
Inverters

800+
Traction
Transformers



Traction Converter



HIRECT make Traction Converter is an indigenous development under "Make in India", backed by a strong local manufacturing setup and a dynamic R&D team.

This 2 x 3000KVA propulsion converter takes single phase AC and converts it to 3 phase variable voltage and variable frequency for providing traction power to the wheels of the locomotive and controlling the speed of the motors.

It is a complex water cooled, high power electronic system which includes sophisticated microprocessor based control electronics used to control slip-slide action of the wheels, and line side harmonic correction.

Hotel Load Converter



This energy efficient IGBT based 2x500KVA Hotel Load Converter installed in passenger locomotives, utilizes power from 25KV AC OHE to provide 750 V, 3-Phase 50 Hz supply required for feeding the electrical loads of passenger trains with up to 24 coaches.

Output of HLC has sine filters to reduce harmonic current and voltage, and it protects connected equipment against overload, short circuit, and earth faults.

Auxiliary Converter



Auxiliary Converters provide VVVF control for Electric Locomotive's auxiliary systems, and Battery Charger built in the converters charges the Locomotive's battery.

HIRECT has delivered more than 1500 sets of auxiliary converters in various configurations like 180kVA, 3x130kVA, 2x130kVA.

The 3X130kVA Auxiliary Converters is IGBT based using microprocessor based control electronics providing redundant auxiliary power.

It is forced air cooled and housed in two stainless steel cubicles.

Battery Charger



HIRECT has expertise in power electronic applications for railway vehicles, whether it is for on-board or underslung execution.

Battery chargers for Locomotives, Coaches, and other railway vehicles provide regulated and smooth charging for 110V battery backup.

Underslung cabinets are designed with IP65 protection to work in harsh conditions. The units provide suitable protection features with user friendly keyboard and display for calibration, diagnostics.

Locomotive Main Transformer



Traction Transformer solutions transform 25kV OHE voltage and provide power for 6000HP Electric Locomotives.

Depending on application for goods or passenger locomotives, transformer is built for a capacity of 6531KVA or 7775KVA respectively, to cater to additional passenger coach requirement.

HIRECT is an approved manufacturer, and ToT partner of Indian Railways, and has already supplied more than 450 locomotive grade transformers.

EMU Traction Transformers

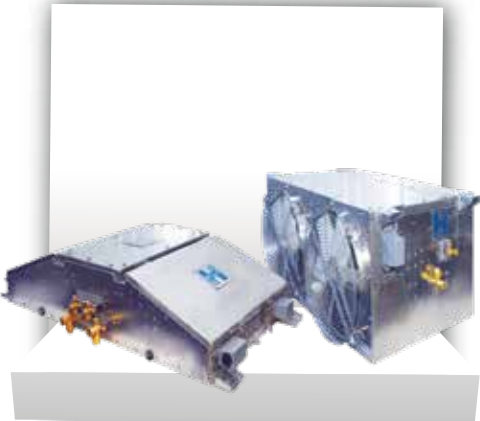


Electrical Multiple Unit (EMU) train sets with distributed power enable efficient and effective transport solutions for suburban and regional passenger traffic.

Since more than 20 years, HIRECT has been supplying & repairing under-slung EMU transformers with natural / forced cooled designs, rated from 1050kVA up to 1550kVA.

These traction transformers are deployed on train sets using conventional and modern IGBT propulsion systems.

Railway Airconditioning Equipment



HIRECT's innovative HVAC solutions covers complete range of air-conditioning for all types of rolling stock, starting from 1.5TR units for cooling driver cab, and up to 18TR capacity for providing human comfort during long distance travel in passenger coaches.

Our modern manufacturing setup, test facilities, and automated Psychrometric Lab are conceptualized for manufacturing HVAC systems for Locomotives, Coaches, Metro, and LRT projects.

Traction Motors



Rugged and reliable traction motors facilitate transmission of tractive power to the wheels of rail vehicles.

HIRECT's state of the art facilities can manufacture Squirrel Caged motors covering power range required from EMU, Metro, and up to Mainline Locomotives for goods & passenger duty.

6000HP Electric Locomotive grade motors are built with individual motor ratings of 850kW for CoCo arrangement, and 1150kW for BoBo type of wheel arrangement.

Rolling Stock DC Rectifiers

HIRECT has been providing entire range of Rectifiers for on board application in Diesel Locomotives, Diesel-Electric Multiple Units, and Diesel-Electric Maintenance Vehicles.

Our compact & efficient rectifiers convert AC from the generator to DC power for traction as well as onboard auxiliaries.

The rectifiers can be designed for customized ratings from 500KW to 5,000KW output power, and voltages up to 1200V, depending on the application.



Electrical Cubicles

Electrical Cubicles in locomotives and coaches function to control and distribute power, protect aggregates, power quality management, provide status information, and Smart Coaches with 4G network remote monitoring.

Depending on application the electrical panels can be configured to be fully on board or with an underslung portion in IP65 enclosure.

These are customized to handle various power systems either AC 750V, 415V, 230V or in DC 110V, 24V.



DC Traction Substation Rectifiers

HIRECT is a leading manufacturer of High Current Rectifiers, and has supplied several AC to DC rectifiers for Traction Substations providing DC traction power through Overhead or 3rd Rail to drive Suburban, Metro, Light Rail and Monorail applications.

Our rugged and reliable diode bridge rectifiers can be configured as 6 or 12 pulse operation, with power ratings from 1MW up to 6MW.



Underslung Inverter

Railway coaches need to ensure uninterrupted power supply for passenger comfort. Coaches with self-generation, deploy under slung 25KVA Inverters which convert available DC voltage to 415V 3 phase AC power for loads like lighting, ventilation, and others on the coach.

These IGBT based inverters have a rugged, natural air cooled, IP65 construction to enable longer life and maintenance schedules.



End of Train Telemetry



End of Train Telemetry system (EoTT) enables automatic monitoring of train integrity and train movement by radio frequency communication, between the Head of Train (HoT) mounted in the driver cabin, and End of Train (EoT) mounted on the last wagon of the train.

This safety system transmits critical train parameters using AAR radio standards, 4G Remote data transmission, and GPS receiver compatible with GAGAN, NAVIC providing location accuracy of ± 8 Meter. Air Turbine generator in EoT charges its battery providing 36-hour back up, and transmits to oncoming trains to avoid collision.

Vehicle Control Unit



Vehicle Control Unit (VCU) controls and monitors the overall safe operation and is the most critical systems of the Locomotive, maintaining communication with all sub-systems using "Train Communication Network" Protocol.

HIRECT VCU is designed in a 6U Rack, with Multiple Processor architecture providing faster real time response.

Interfaces include Analog and Digital I/O Cards, MVB, ETH, WTB and CAN communication

Driver Display Unit



The Driver Display Unit (DDU) provides a man machine interface for the driver with a graphical mimic window in which various pre-defined screens to monitor major sub-systems of the locomotive or train.

it uses High Resolution 10.4" 1024x768 Colour Display and supports Communication protocols like RS-232 serial, RS-422/ RS-485, USB, MVB (optical) for real time data communication with VCU / TCMS unit.

Safety Electronic Equipment



HIRECT is Railway approved manufacturer of a range of electronic relays and equipment for ensuring safe functioning.

These are installed in locomotive panels, and indicate alarm / fault status to VCU and driver.

Minimum Voltage Relay (MVR) detects low voltage condition for locomotive auxiliary systems, whereas Fire Detection Unit (FDU) FDU detects presence of smoke, rupture, blockage, and leakage in its air suction system.

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