

Autometers Alliance Ltd



COMPANY **PROFILE**

www.autometers.com



CORPORATE OVERVIEW



QUALITY POLICY

Key Theme : Learning-Change-Reliable
We are committed to create an environment which encourages continual improvement in technology, processes and other functional areas through learning and change mechanism encompassing our customers, collaborators, suppliers and employees to deliver to our customer a product with reliable operational performance.”



MISSION

Design, Manufacture, Market and Service:

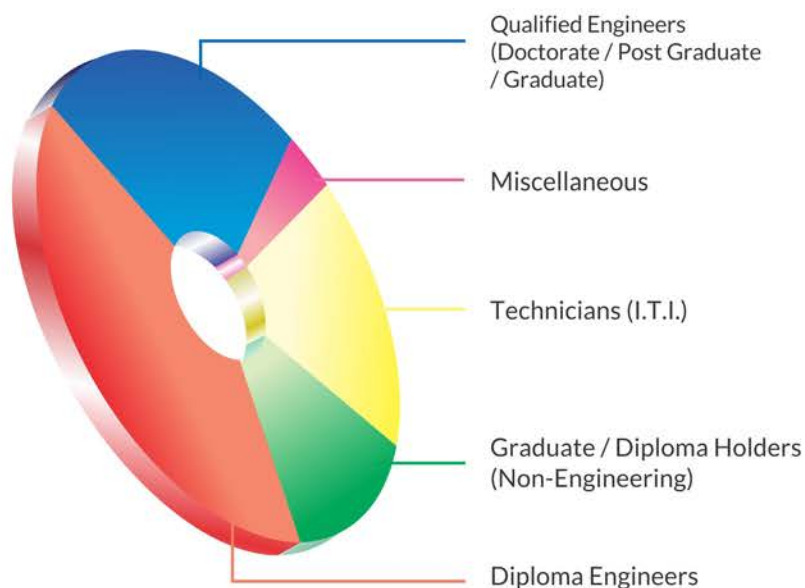
- Power Conditioning Equipment
- HT/LT Switchgears and Electrical Panels
- Measuring, Recording and Control Devices
- Passenger Information System



VISION

To design and manufacture world class Electronic and Electrical equipments to highest quality and reliability standards for traction and other applications

HUMAN RESOURCE



TECHNICAL PERSONNEL \approx 80%

ADMN. / COMM. PERSONNEL \approx 20%

“Continuous product and process related internal and external training programmes, for improvement in quality and skill of human resource at all levels, is an integral part of our corporate philosophy”

INFRASTRUCTURE OVERVIEW



- Production area of 30,000 sq. mts. with modern layout, matching international standards
- Production floors separated on the basis of various product categories, for ease of production & testing functions as well as movement of men & material
- Production floors fully equipped with modern machines, tools and trained operators, as required
- Fully IT enabled and secured work environment deploying state-of-art I&C technologies including Wi-fi
- Implemented Baan ERP System for organizational efficiency and optimisation of resources
- Connected power of 750 kVA, backed-up by captive generating capacity of 1450 kVA
- Compressed clean & dry air available in production sections
- Dust free, ESD protected & controlled environment for electronic board production
- Plant equipped with modern material handling facilities, including, goods elevator, overhead cranes, pallet trucks etc
- Storage area with specialised vertical storage systems for specialized parts & assemblies



JOURNEY SO FAR...

1959

- Company Incorporated
- Set up Plant in Ballabhgarh (Haryana) for manufacturing of Automotive Instruments



1981

- Signed Joint Venture agreement with Lucas Industries Plc, UK, for manufacturing of Automotive Instruments with 40% shareholding with Lucas

1988

- Lucas Shares bought back
- Major diversification of business activity for manufacturing of traction equipment for Indian Railways
- Established new production facility at Noida, Delhi NCR
- Started production of Railway Tachographs in technical collaboration with Hasler AG, Switzerland



1989

- Set up R&D centre at Noida



1992

- Started production of Protection Relays for Indian Railways in technical collaboration with Secheron SA, Switzerland



1993

- Recognition of R&D Centre by Government of India
- Started production of Wheel Flange Lubricating System for Indian Railways in technical collaboration with Secheron SA, Switzerland

1994

- Obtained ISO 9001 certification



1996

- Started production of Online Uninterruptible Power Supply Systems upto 40 kVA in technical collaboration with Powertronics SpA, Italy



1998

- Started production of Vacuum Circuit Breakers for Electric Locomotives and EMUs in technical collaboration with Secheron SA, Switzerland
- Relocated to a larger and modern manufacturing facility in Noida



1999

- Started production of 300 kVA GTO based Auxiliary Converter for Electric Locomotives (AC propulsion) in technical collaboration with Chittaranjan Locomotive Works, Indian Railways. [Technology from ABB (now Bombardier)]



2000

- Started production of IGBT based Underslung Converter (DC to AC) for Passenger Coaches in technical collaboration with Hyundai Heavy Industries Co Ltd, South Korea



- Started production of IGBT based Static Converter for Electric Locomotives (DC Propulsion) in technical collaboration with Hyundai Heavy Industries Co Ltd, South Korea



- Started production of IGBT based On-board Converter (DC to AC) for Passenger Coaches in technical collaboration with Hyundai Heavy Industries Co Ltd, South Korea



2001

- Started production of Electrical Circular Connectors for traction application in technical collaboration with Gimota AG, Switzerland



2002

- Started production of Passenger Information System for Indian Railways & Metro Railways in technical collaboration with Whiteley Electronics Ltd, UK



- Started production of IGBT based Underslung Converter (AC to AC) for Passenger Coaches in technical collaboration with Hyundai Heavy Industries Co Ltd, South Korea



2004

- Started manufacturing On-board Electrical Panels for Delhi Metro under technical alliance with Daeyang Electric Co Ltd, South Korea

2006

- In-house designed and developed DSP based Efficient Controller (H/W & S/W) for 180kVA Auxiliary Converter used in Locomotives
- Signed technical collaboration agreement with Ganz Transelectro Vehicle Devices Ltd, Hungary for manufacturing of Onload Tap Changers for Electric Locomotives
- Signed technical collaboration agreement with Powertronix SpA, Italy for manufacturing of UPS Systems upto 2400kVA (8×300)
- Signed agreement for joint development of specialised Switchgear items for traction application with Alfa Union AS, Czech Republic
- Signed technical licence agreement with Pixy AG, Switzerland for production of On-board Diagnostic Terminal for Railways



2010

- In-house designed, developed and started production of Earthing Switches, for Electric Locomotives and EMUs
- In-house designed, developed and started production of Master Controllers for 3 Phase AC Locomotives
- In-house designed, developed and started production of Key Multipliers Safety Interlocking system for Locomotives & EMUs
- Obtained CE & E Marking for the range of Display Systems, for Automobile industry
- Obtained Technical Approval from RDSO, Ministry of Railways for supply & installation of Heavy-duty Passenger Escalators at Indian Railway & Metro Stations



2007

- Improved Vacuum Circuit Breaker design & technology for enhanced reliability and applied for its patenting
- In-house designed & developed GPS based Passenger Information Display System for Railway Coaches



2008

- Technological improvement in design of various On-board Data Acquisition Systems by incorporating Field Programmable Gate Array (FPGA) Chip
- Initiated co-operation with Neurocom, JSC Moscow, Russia for manufacturing and selling of Driver Vigilance Telemetric Control System (DVTCS) to Indian railways

2011

- Selected by Railway Board, Ministry of Railways for its "Pilot Project" of design, supply & installation of Heavy-duty Escalators at various Railway Stations, under consortium with Canny Elevator Co Ltd, China
- Entered into Technical Alliance with Elno Societe Nouvelle, France for Public Address System for networked Mainline and Metro Railway Stations & control centres
- In-house design and development of 1Ø and 3Ø unity power factor rectifier technology for ratings upto 500kVA
- In-house design and development of 2×500kVA Hotel Load Converter for Locomotive using Heat Pipe based thermal management
- In-house designed & developed Vigilance Control Device for Electric Locomotives to supervise the alertness of driving crew for functions like throttle, master controller, horn, sander, loco brake, train brake, and various others
- In-house developed safety critical electronic modules for control system of Power Plant of Submarine conforming to MIL standards incorporating redundant logics / CAN Bus / RS485 Bus / MIL 1553 Bus



2009

- In-house designed & developed a range of DC to 3 Phase AC and DC to DC IGBT based Underslung Converters for Metro Railways
- In-house designed & developed LED based Destination Display Boards and Passenger Announcement & Vehicle Tracking Systems for modern buses
- In-house designed & developed GPS/GSM compatible Public Information System for Bus-Q-Shelters
- Obtained TS 16949 certification for the Company's Display Systems range for Automobile industry



JOURNEY SO FAR...

2011

- In-house designed & developed 180kVA Static Converter with unity power factor rectifier used as Auxiliary Power source in conventional Locomotives



- In-house designed & developed MICAS-S2 Communication Interface with FPGA based hardware for 130kVA Auxiliary Converter used in 3-Phase Locomotives

2017

- In-house designed and development of stretched LCD based Dynamic Route Map Panel for Metro trains



- In-house designed and development of AFNOR based Indoor and Outdoor Digital Clocks for Metro stations



- In-house design and development of LED PIDS boards as in-situ replacement of existing PIDS boards and integration with third party control system

2012

- In-house designed & developed main controlled unit (Dual Core-ARM+DSP based main controller) of On board Public Address / Passenger Information System used in Metro and Railways application



- In-house designed & developed Hall Effect based Active Speed Sensor for Traction Motor



- In-house development under taken for 35kVA Underslung Converter for AC coach giving 40% more power with 30% less volume and weight thereby giving twice the power density



2018

- Auxiliary Supply Panel HB1 & HB2 and Filter Cubicle developed and started production for Three Phase AC Electric Locomotives.



- In-house designed, developed and production started of Electro pneumatic 3000V, -600A and Electro magnetic 3000V-50A heavy duty conductor for traction vehicles.

- In-house design and development of IP based Public Address System, Touch Screen based Digital Call Station, Digital Zone Controller and Exchange Interface Unit



- In-house design and development of NTP based Indoor and Outdoor Digital Clocks for Metro stations



2013

- Signed MOU with Ansaldo STS, Italy for joint development of high end Train Protection & Warning System (TPWS) for Indian Railways
- Obtained IPC-A610 & IPC / WHMA-A-620 Quality Standard Certification in PCB & Electric Assembly Area

2014

- Expansion of production facility for new product lines, thus adding another 4600 Sq. m. floor area.



2015

- Obtained Environment Management System in accordance with ISO 14001:2004 and Occupational Health and Safety Management System in accordance with OHSAS 18001:2007

2016

- In-house designed, developed and started production of 3x130kVA Auxiliary Converter for IGBT based Three Phase AC Locomotives



- In-house design and development of External Side Destination Display Boards (ESDDB), Outside Speaker Box and Relay Box for On Board Public Address and Passenger Information System for Metro

2019

- In-house design and development of Touch screen based Emergency Talk Back (ETB) system for Indian Railways



- In-house design and development of LED based PIDS board with integrated Digital Clock

- In-house design and development of 46" LED backlit TFT panels for Metro station.

- In-house design and development of 46" LED backlit high bright TFT panels for Metro stations



- In-house design and development of 49" LED backlit TFT panels for Metro stations.


















2020

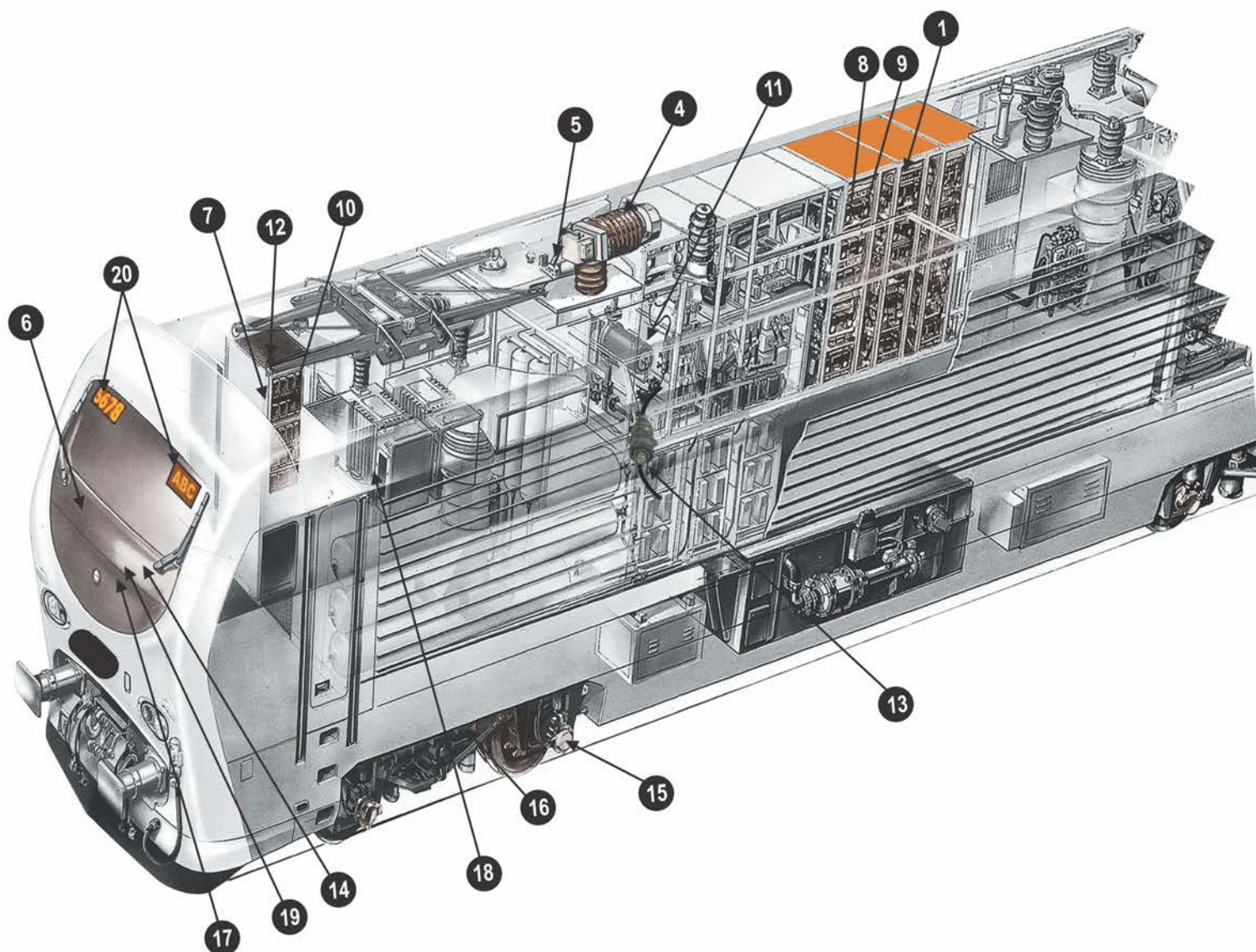
- In-house design and development of Multi-colour SMD LED based PIDS boards for Metro stations.

ALLIANCES MANAGED SUCCESSFULLY



PRESTIGIOUS ALLIANCES		PRODUCTS
	Hasler AG, Switzerland	Electro-Mechanical Tachograph
	Secheron SA, Switzerland	Protection Relays for Locos, VCB & WFL
	Powertronix SpA, Italy	UPS
	Gimota AG, Switzerland	Connectors
	Indian Institute of Technology Delhi, India	Data Acquisition & Power Electronics
	Hyundai Heavy Industries, Korea	Data Acquisition & Power Electronics
	Chittaranjan Locomotive Works, Indian Railways, India [Technology from ABB (now Bombardier)]	300 kVA GTO based Auxiliary Converter for Electric Locomotives (AC propulsion)
	Whiteley Electronics, U.K.	On-board PA/PIS Systems
	Central Power Research Institute Bangalore, India	On-board PA/PIS Systems
	Ganz Transelektro Vehicle Devices Ltd, Hungary	Onload Tap Changer for Electric Locomotives (DC propulsion)
	Pixy AG, Switzerland	On-board Diagnostic Terminal for Railways
	Elna SN SAS, France	Public Address System (PAS) for Mainline & Metro Railways
	Daeyang Electric Co Ltd, South Korea	On-board Electrical Panels for Metro Railways
	Canny Elevator Co Ltd, China	Heavy Duty Passenger Escalators for Railway Stations
	Societe De Constructions Electroniques Lilloise, France (Visionor)	TFT / LCD Display for Railway Application

PRODUCT	PRODUCT NO.	MARKET	TECHNOLOGY
TRACTION POWER ELECTRONICS			
■ Hotel Load Converter	1	Electric Locomotives	IGBT based
■ Auxiliary Converter	1	Electric Locomotives	GTO based
■ Static Converter	1	Electric Locomotives	IGBT based
■ Auxiliary Converter	1	Electric Locomotives	IGBT based
■ Underslung Converter (DC - AC)	2	Railway Passenger Coaches	IGBT based
■ Underslung Converter (AC - AC)	2	Railway Passenger Coaches	IGBT based
■ Third Rail Fed U/S Converter (DC - AC & DC - DC)	2	Metro Railway Coaches	IGBT based
■ Third Rail Fed U/S Converter (DC - AC)	2	Metro Railway Coaches	IGBT based
■ Pre-cooling battery Charger (AC-DC)	3	SGAC Coaches	IGBT based
■ SMPS Battery Charger (AC-DC) Onboard / Underslung	3	LHB Coaches	IGBT based
■ Third Rail Fed U/S Converter (DC -DC)	3	Metro Railway Coaches	IGBT based
TRACTION HT/LT SWITCHGEAR & PANELS			
■ Vacuum Circuit Breaker	4	Electric Locomotives, EMUs & Metro Cars	Electro-mechanical
■ Earthing Switch	5	Electric Locomotives, EMUs & Metro Cars	Electro-mechanical
■ Master Controller	6	Electric Locomotives, EMUs & Metro Cars	Electro-mechanical
■ Key Multiplier	7	Traction Vehicles	Mechanical
■ Electro-pneumatic Contactor	8	Traction Vehicles	Electro-mechanical
■ Electro-magnetic Contactor	9	Traction Vehicles	Electro-mechanical
■ Protection Relays	10	Electric Locomotives	Electro-mechanical, (current/voltage operated)



TRACTION POWER ELECTRONICS



IGBT based Hotel Load
Converter 2x500 kVA
- Electric Locomotives
(AC propulsion)



IGBT based Static
Converter 180 kVA
- Electric Locomotives
(AC propulsion)



IGBT based Auxiliary
Converter 3x130 kVA
- Electric Locomotives
(AC propulsion)



GTO based Auxilliary
Converter 300 kVA 1ø to 3ø
- Electric Locomotives
(AC propulsion)



IGBT based Underslung
Converter 25 kVA SGC
- Railway Passenger Coaches



IGBT based Underslung
Converter 25 kVA HOG
- Railway Passenger Coaches



IGBT based Underslung
Converter 100 kVA
- Metro Railways



IGBT based Underslung
Converter 50 kVA
- Metro Railways



IGBT based - Underslung
Converter 5 kW
- Metro Railways



IGBT based Battery
Charger 30 kW Pre-Cooling
- SGAC Coaches



IGBT based SMPS Battery
Charger 4.5 kW + 2.5 kW
- LHB Coaches



IGBT based SMPS Battery
Charger 6.5 kW
- LHB Coaches

TRACTION HT/LT SWITCHGEAR AND PANELS



Vacuum Circuit Breaker
Electro-Pneumatic for Electric
Locomotives, EMUs and Metro Cars



Earthing Switch
For Electric Locomotives,
EMUs and Metro Cars



Master Controller
For Electric Locomotives,
EMUs and Metro Cars



Key Multiplier
for Traction Vehicles



Contactors Electro-Pneumatic
Electro-Pneumatic
for Traction Vehicles



Contactors Electro-Magnetic
Electro-Mechanical
for Traction Vehicles



Protection Relay
Electro - Mechanical
for Electric Locomotives



General Purpose Relay
Electro - Mechanical
for Diesel Locomotives / EMUs



Onload Tap Changer
- Electric Locomotives



Auxiliary Supply Control
Panel For Mainline and
Metro Railways



HB1



HB2



SB1



SB2

Auxiliary Supply & Control Panel
Electric Panel for 3Ø Locomotive WAG9 & WAP7

ELECTRICAL CONNECTORS & ACCESSORIES



Circular & D Type Connectors
For Onboard & Stationary Traction

ONBOARD MEASUREMENT DEVICES



Tachograph System
For Electric, Diesel Locomotives & DMUs



Primary Current Sensor
Hall Effect for Electric Locomotives



Active Speed Sensor
For Electric Locomotives



Opto Electronic Pulse Generator
For Electric, Diesel Locomotive, EMUs and Metro Trains

ONBOARD CONTROL DEVICES



Driver Display Unit
LCD Displays for Electric & Diesel Locomotives



Locotrol/RRCS for
Electric Locomotives



Diagnostics Terminal
LCD Displays for Electric,
Diesel Locomotives and EMUs



Event Recorder For Electric,
Diesel Locomotives & EMUs



Vigilance Control Device
For Electric, Diesel Locomotives and EMUs

PUBLIC ADDRESS & PASSENGER INFORMATION SYSTEM



Head Code
(Destination Indicator)



Saloon Display



Stretched LCD Based
Dynamic Route Map Panel



Concourse Display



Driver Interface
Unit with Mic



Emergency Talk Back
System



Central Electronic
Control Unit



Emergency
Communication Unit



Auxiliary
Operating Panel



Passenger Interface
Unit & Emergency
Alarm Button



Train Number
Indicator



Digital Outdoor
Real Time Clock



Digital Indoor
Real Time Clock



Analogue Real
Time Clock



IP Call Station
Unit



External
Loudspeakers



Power Amplifier



IP Zone Controller



Station Amplifier



PABX Interface Unit



Relay Box



49" IP based Passenger
Information Display System -
TFT Display Panel



IP based Passenger Information
Display System -
LED Display Board



IP based Passenger Information
Display System -
LED Display Board



Passenger
Announcement
System Cabinet

ESCALATORS



Passenger Escalators

UNINTERRUPTIBLE POWER SUPPLIES

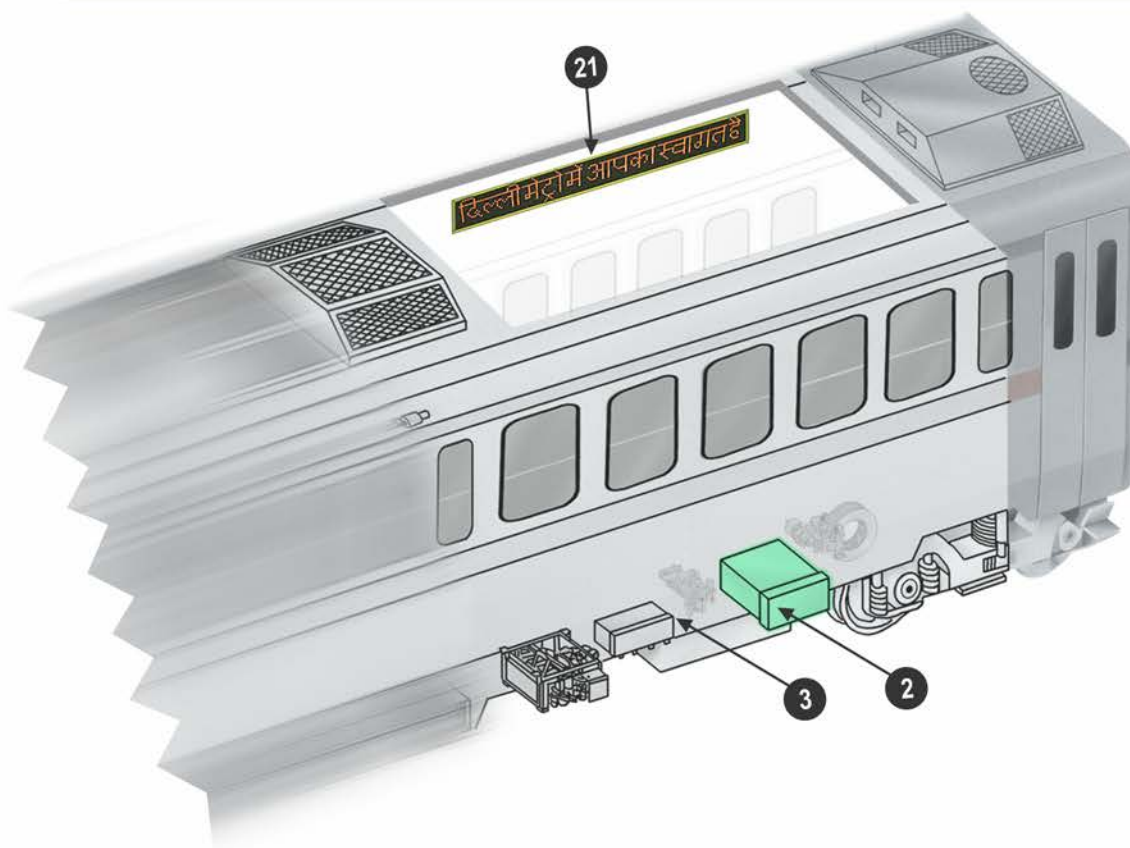


UPS



IP based 46" TFT Display

PRODUCT	PRODUCT NO.	MARKET	TECHNOLOGY
TRACTION HT/LT SWITCHGEAR & PANELS			
■ General Purpose, Wheel Slip & Ground Relays	10	Diesel Locomotives/EMUs	Electro-mechanical
■ Tap Changer	11	Electric Locomotives	Electro-mechanical
■ Electrical Panels	12	Main line & Metro Railways	Electro-mechanical
■ Circular Power and Data Connectors	13	Onboard & Stationary Traction	Electro-mechanical
ONBOARD MEASUREMENT DEVICES			
■ Tachograph System	14	Electric & Diesel Locomotives and EMUs	Microprocessor based Electronic
■ Pulse Generator	15	Electric & Diesel Locomotives, EMUs and Metro Trains	Opto-electronic
■ Active Speed Sensor	16	Electric Locomotives	Hall effect



PRODUCT	PRODUCT NO.	MARKET	TECHNOLOGY
ONBOARD CONTROL DEVICES			
■ Driver Display Unit	17	Electric & Diesel Locomotives	Microprocessor based LCD displays
■ Diagnostic Display/Terminal	17	Electric & Diesel Locomotives and EMUs	Microprocessor based LCD displays
■ Event Recorder	18	Electric & Diesel Locomotive and EMUs	Microprocessor based Electronic
■ Vigilance Control Device	19	Electric & Diesel Locomotives and EMUs	Microprocessor based Electronic
DISPLAY & AUDIO SYSTEMS			
■ Onboard Public Address & Passenger Information System	20	Mainline & Mass-transit Vehicles	DSP based control unit with redundant CPU & Power Supply Boards
■ Integrated Public Address System, Passenger Information Display System & Master Clock System for Stations	21	Networked Stations	DSP & high end Processor based
ESCALATORS			
■ Escalators		Railway & Metro Stations and Airports	Microprocessor based Electro-mechanical
UNINTERRUPTIBLE POWER SUPPLIES			
■ UPS		Industrial & IT Application	IGBT based double conversion high frequency power

ENGINEERING CAPABILITY



- Research and Development Centre, recognised by Department of Science and Industrial Research (DSIR), Government of India, Ministry of Science and Technology
- Advanced CAD/CAM software for precision mechanical designing including 3D and surface modeling
- In-house multilayer PCB designing employing fine pitch component and BGAs using advanced software tools
- Competence in simulating power electronic products/systems under different network and load conditions to validate designs and integrated system behaviour
- Competence in development of embedded software on different platforms

- Competence in developing microprocessor based products for control / instrumentation, traction electronics, industrial and power electronics applications
- Thermal management and system design capability
- Mould and Die designing competency
- Conversant with International Standards such as IEC, DIN, IEEE, EN, MIL etc. and competent to develop products in compliance





MANUFACTURING FACILITY



ELECTRONICS

- Comprehensive manufacturing facility for assembly and testing of multilayer PCBs both with surface mount and through-hole technologies
- Surface mount PCB manufacturing line, equipped with Semi-automatic Screen Printer, Fully Automatic "Pick and Place" machine, Programmable Reflow Oven, Ultra sonic PCB Cleaner, In-circuit Tester, Customized Automated Test Jigs and Rework Stations
- Through-hole PCB manufacturing line equipped with light guided "Pick and Place" machines, Wave Soldering machine
- ESD - protected Kardex Shuttle Storage systems for storing specialised Electronic components and boards
- Environmental chambers for temperature and humidity cycling
- State-of-art measuring and test equipment like CRO, Harmonic Analyzer, Temperature Scanners, Power supplies, Multi-meters etc.



MANUFACTURING FACILITY



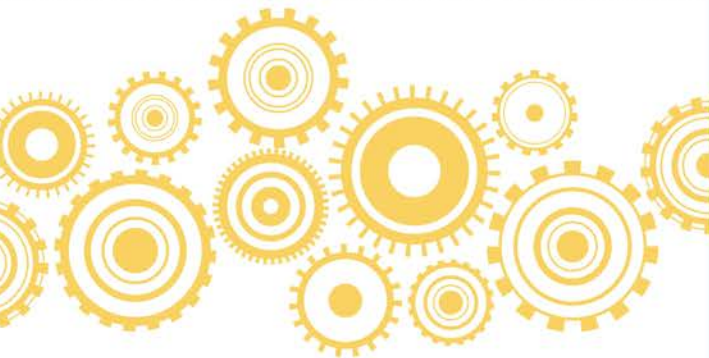
ELECTRICAL

- Well-equipped manufacturing and testing facilities for assembly and testing of
Power Electronics equipment upto 500 kVA
- Complete manufacturing and testing facilities for assembly and testing of
HT/LT Switchgear products and Electrical Panels
- Complete manufacturing and testing facilities for making and testing of
Wire Harness, both power and control
- Single phase variable voltage source upto 300 kVA
- Variable voltage DC source upto 50 kW
- Resistive & inductive loading facilities
- High voltage test setup upto 100 kV
- Facilities for manufacturing of Coils and Bushings using customized
CNC winding machines
- Shielded tan delta and partial discharge test facilities
- Specialized Endurance test setup for various products
- High voltage test facility for Contactors
- Electrical test facility for high current upto 2000A DC & AC





MANUFACTURING FACILITY



MECHANICAL

- Well-equipped CNC machine shop with modern machines for production of precision mechanical components and prototypes, with consistent accuracy index
- CNC Machine shop includes CNC machining centers, CNC lathe machines, gear hobbing machines, jig boring machine, multi-spindle drilling machine, cylindrical grinding machine, vibro-benz vibratory de-burring machine, ultrasonic cleaning machine etc.
- Tool room capability
- Tool design and manufacturing capability
- Heat treatment facility



QUALITY ASSURANCE



- ISO 9001 certified since 1994
- Specific products certified for CE and E Marking
- Products certified for ISO/TS 16949:2002
- In-house calibration facility (having traceability) with National accredited test labs and full compliance with National and International Standards
- Continuous vendor evaluation and assessment using an in-house developed software for decision support
- Quality assurance and enhancement plans for all products according to International quality standards and collaborators/customer specifications
- Computerised decision support and control system for inspection of all incoming material
- Automated data-logging from instruments through Multiplexers in the computers, thereby eliminating human errors
- Computerised 3-dimensional co-ordinate measuring machine
- Computerised profile projector with magnifying capability upto 100 times for fine measurements of mechanical components



- State-of-the-art instruments and gauges for testing of electronic, electrical and mechanical components
- Test facilities for inspection of coating thickness and surface treatment
- Surface roughness tester
- Spring constant checking machine
- Hardness tester, electrical conductivity tester
- Well defined Quality audits for in-process & final stages of production
- Product prototypes testing facility, including load test, high voltage / di-electric test, environmental test, heat test, dust test, water-ingress level test and more



PRODUCTS DEVELOPED



OWN DEVELOPMENT

- Microprocessor based Tachograph system type UGT
- Microprocessor based Tachograph system type 'SP-90'
- Microprocessor based Energy cum Speed Monitoring system (Telpro) for Electric Locomotives
- Microprocessor based Energy cum Speed Monitoring system for AC and DC EMUs
- Vigilance Control Device
- Electronic Signal Converter
- General Purpose, Wheel Slip & Ground Relays
- True Online IGBT based Uninterruptible Power Supply systems (from 1kVA to 20kVA)
- Electrical Control Panels
- Various types of Onboard SMPS type Power Supplies and Chargers
- GPS based passenger information display system
- GPS/GSMR compatible PA/PIS System for Automotive Application
- IGBT based Third Rail Fed Underslung DC to AC converter (upto 100 kVA) for metro application
- IGBT based Third Rail Fed DC-DC convertors (upto 25 kVA)
- Networked Passenger Information Display System for station of Metro Rail System
- IGBT based AC to DC Pre-cooling battery charger (30 kW)
- IGBT based Dynamic Reactive Power compensating solutions (350 kVAR and extendable for higher kVAR)
- Earthing Switches for Electric Locomotives and EMUs
- Master Controllers for 3 Phase AC Locomotives
- Key Multipliers Safety Interlocking system for Locomotives & EMUs
- Hotel Load Converter 2x500kVA for Locomotive using Heat Pipe technology
- Bushing (Double Pole) for On Load Tap Changer
- Hall Effect based Active Speed Sensor for Traction Motor
- Safety critical electronic modules for control system of Power Plant conforming to MIL standards incorporating redundant logics/CAN Bus/RS485 Bus/MIL 1553 Bus
- Dual Core-ARM+DSP based main controller unit for On board Public Address/Passenger Information System (PA/PIS)
- IGBT based 3x130kVA Auxiliary Converter for Three Phase AC Locomotives

IN COLLABORATION

- Electro-mechanical Tachograph system type 'RT'
- Wheel Flange Lubricating system
- GTO based 300 kVA Auxiliary Converter for Electric Locomotives
- IGBT based 180 kVA Static Converter for Electric Locomotives
- IGBT based 25 kVA Underslung Converter (DC to AC) for Coaches
- IGBT based 25 kVA Underslung Converter (AC to AC) for Passenger Coaches
- IGBT based 25 kVA Onboard Converter (DC to AC) for Passenger Coaches
- 25 kV, 1000 A Vacuum Circuit Breaker
- Protection Relays (current/voltage operated)
- True Online IGBT based, Green Power uninterruptible power supply systems (from 1kVA to 40kVA)
- Passenger Information System
- Opto-Electronic Pulse Generator
- Onload Tap Changer
- Atlas Series UPS (10kVA to 120kVA)



Disclaimer

Autometers Alliance Ltd reserves the right to introduce changes and improvements made possible by advances in technology and functionality without prior intimation or justification up to the time of both parties endorsing this document with their signatures, or up to the time when the product is actually completed. This document is a 'Quick Reference' and does not mention all features of the equipment.