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 **SENSING TECHNOLOGIES**

Automotive Sensors & Electronics

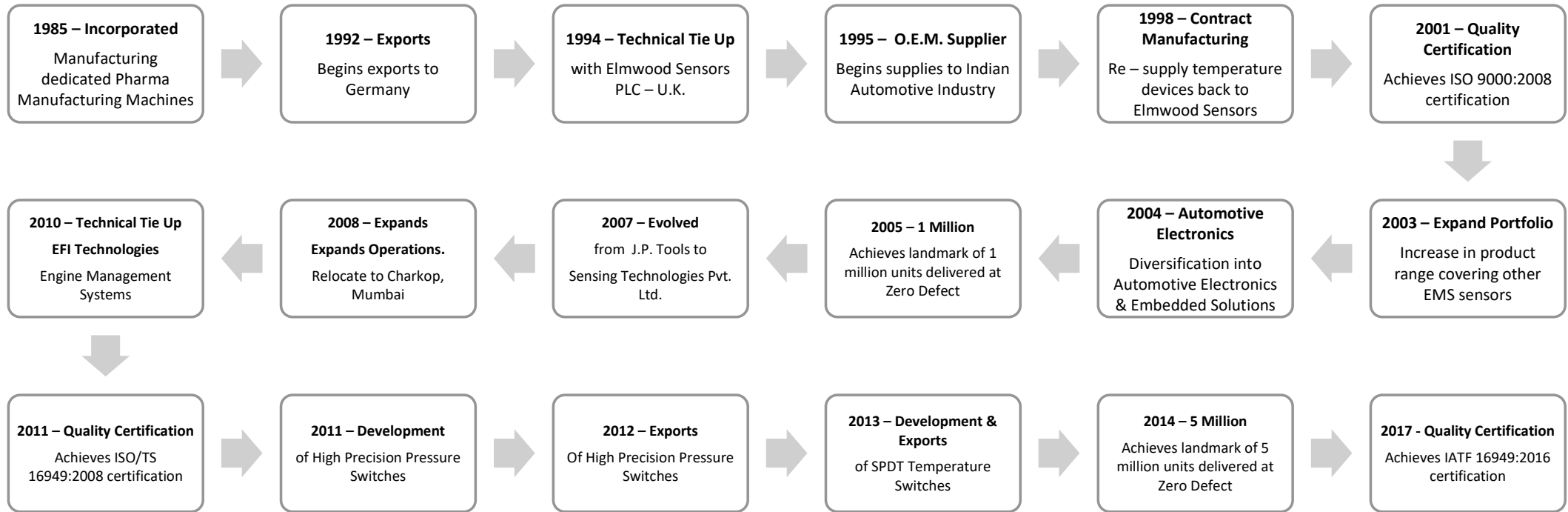
About Us



- Founded in 1985 as J P Tools & Components, a manufacturer of mechanical machined components for the Auto Industry, we diversified into Electrical & Electronic components. One of the first indigenous manufacturers of Thermo Switches, J P Tools began with a humble beginning with a technical collaboration with Elmwood Sensors PLC, UK. In 2 short years, our company had successfully absorbed the manufacturing & high quality standards of Elmwood Sensors so as to successfully re-export back indigenous devices to the parent company for international consumption to the likes of Toyota, Honda, Ford, GM, Chrysler, etc. With the quick absorption of technology in sensor devices, the company moved into a new and current state of the art premises at Charkop, Kandivali in Mumbai.
- The group is a major supplier to OEM's in India. The group companies are accredited with the quality & environment certification and have collaborations & strategic alliances with international manufacturers.

“Innovation for Quality, value through Technology”

A Glimpse of our Story

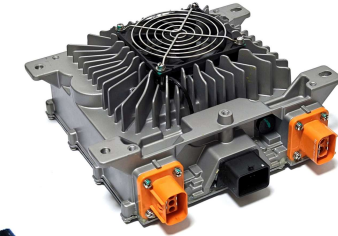


Product Portfolio

- Thermostat Switches
- NTC Temperature Sensors
- Temperature controllers
- Pressure Switches
- Water In Fuel Relay
- FM / Am Antenna
- Speed Sensors
- Pickup Sensors
- Hall Sensors
- Digital Clocks
- Analog Clocks
- Body Electronics
- Driver Info. Systems
- OBC + DC - DC Converter



DC - DC Converter



OBC



Temperature
Sensor +
Switch



Pressure Sensors



Coolant level
Switch



Cam & Crank
Speed Angle
Sensors



Digital Clock



Driver Info System
CAN and LIN based



Pressure Switches



Temperature Switches



Temperature Sensors

Technology Overview

- Bi-Metallic Thermostats
- Thermally Stable Engg. Plastics
- NTC Sensors
- Hall Sensors
- Magnetic Speed Pick Up sensors
- Solid State Lighting
- Established Electronic Lab
- RISC based Mi-Cons
- C/C++ for Real Time Solutions
- In house CAD / CAM for Mechanical designs, PCBs
- Ceramic based Pressure Sensors
- Custom Solutions for Driver Info Systems with multiple I/O, Analog, PWM, CAN, RS232, etc.

Temperature Switches



- Design & Manufacturing Capability for a very wide range of Automotive Thermostat switches, Temperature Sensors & Controllers
- Range includes -30°C to $+250^{\circ}\text{C}$ accuracy of $\pm 0.2^{\circ}\text{C}$
- Design Tested for 1,00,000 cycles
- Fast turn around time for new designs due to in house expertise
- Complex solutions with experienced designers in house and from Elmwood Sensors
- Multiple Dedicated ATEs for mass production and 100% Testing



Temperature Sensors



Applications :

1. Radiator Fan Switching
2. EGR applications
3. HVAC control and Compressor protection
4. Coolant Temperature Sensors
5. Air Charge Temperature Sensors (ACT)
6. Battery Management
7. Radiator Fan Control
8. Oil Temperature
9. Annunciation
10. Temperature Switches SPST & SPDT



Pressure Switches



- Fast turn around time for new designs due to in house expertise
- Complex solutions with experienced designers in house and from Elmwood Sensors
- Multiple Dedicated ATEs for mass production and 100% Testing



Pressure Sensors



Applications :

1. EGR applications
2. HVAC Compressor protection
3. Manifold Air Pressure Sensors (MAP, MAP/T)
4. Air Filter Element Quality
5. Oil Pressure



Position Sensors



Applications :

1. Engine Management Systems (Cam & Crank Angle)
2. Wheel Speed Sensing (For Stability Programs)

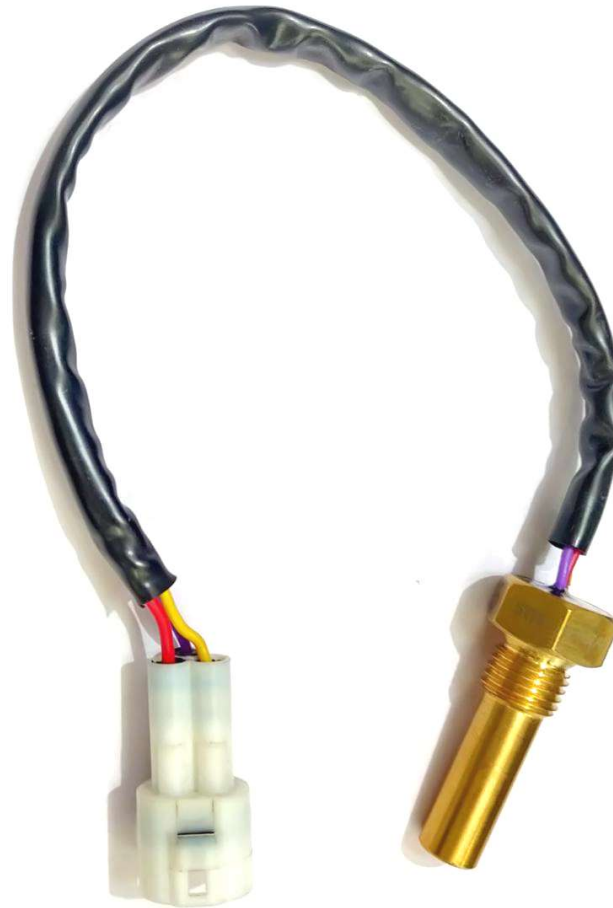


Temperature Sensor + Switch & Coolant level Switch



Applications :

1. Temperature switch + Temperature sensor for Engine Management.
2. Coolant Level switch.



Custom Electronics & Body Control Units



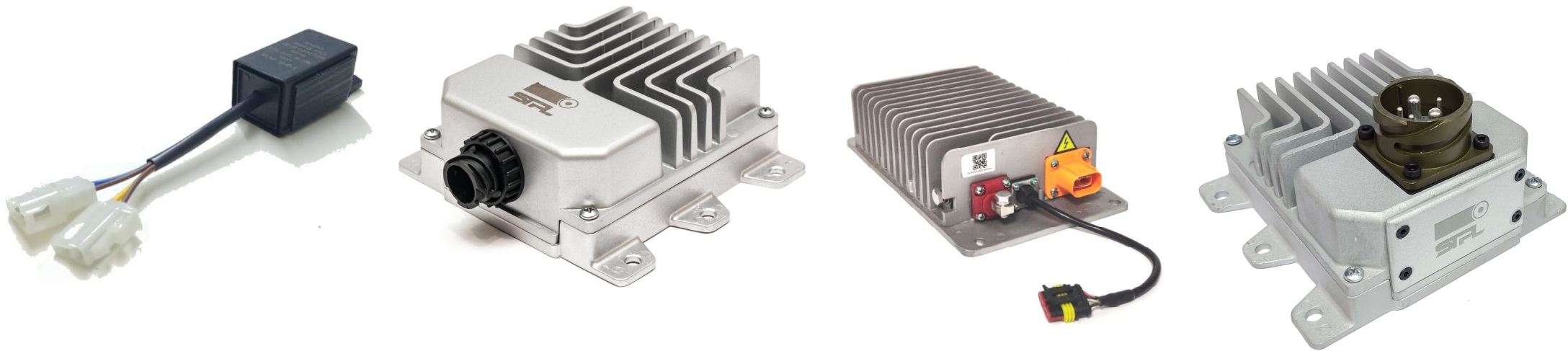
- Sliding Door Switch
- Water In Fuel Relay
- LCD Clock
- VFD Clock
- Driver Information System - LE, HE
- Driver Information System - TFT Display



DC - DC Converters



- Our proven ability to blend circuit topologies and high performance components with contemporary construction techniques has led to our premier position in the industry as the supplier of DC - DC Converters.
- From standard models to modified products and complete custom designs, DC - DC Converters can meet the needs for miniaturization, low profile, high efficiency, power-saving, low noise designs for use in automotive applications.



Salient Features

- Custom Design
- Short Circuit Protection
- Reverse Polarity Protection
- Ingress Protection
- Input Transient Protection
- Corrosion Resistant
- Low Output Ripple
- Overload Protection
- **EMI/ EMC (AIS 004 Certified)**
- Efficiency greater than **95%**
- Output available at time of vehicle cranking.
- Voltage regulation **+/- 0.5V** at full load condition.
- **IP67** design
- No voltage drop at full load.
- Rated for continuous operation.



Various DC - DC Converter



Specifications:

DC Input :-

Input Voltage Range	:	24/36/48/60/72/96 V
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DC Output :-

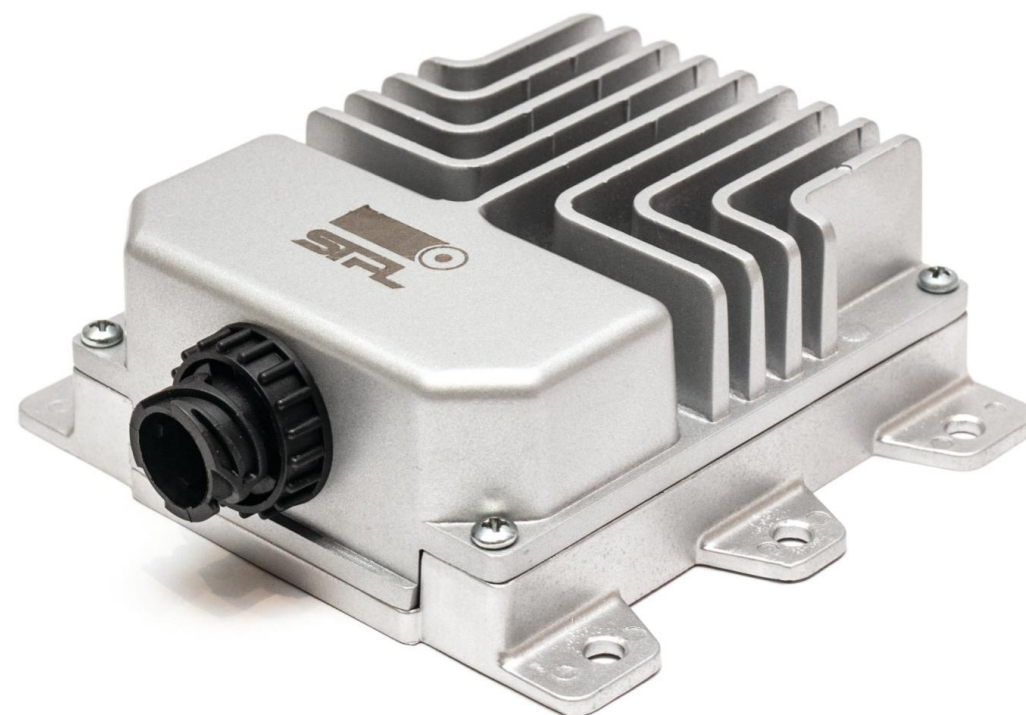
Output Voltage	:	12V, 13.5V, 14V
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Output Current	:	5/10/20/30/40/60/80A
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Efficiency	:	90 -95%
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Working Temperature Range	:	-40° C ~+70° C
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Ingress Protection	:	IP56~IP 67
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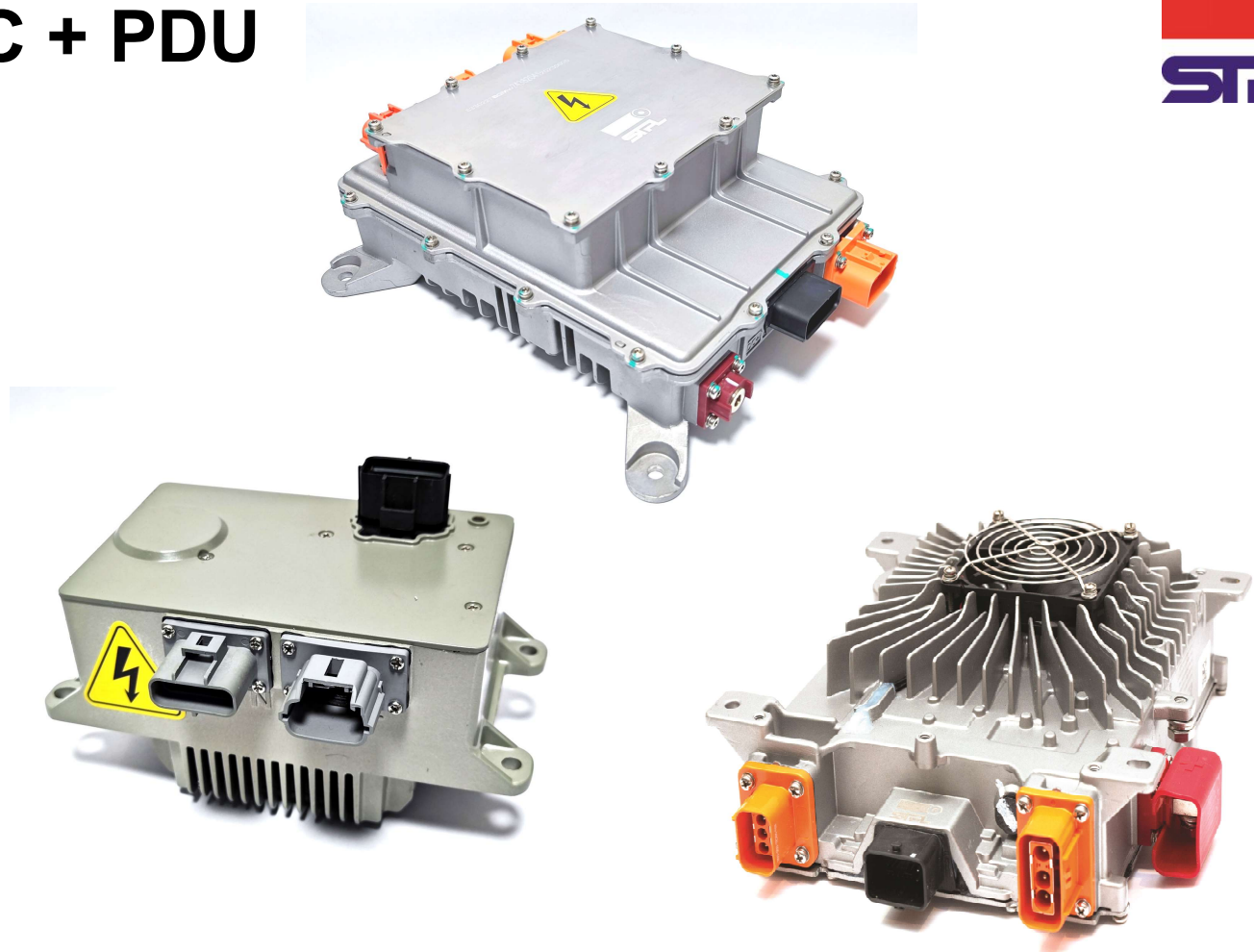


Various OBC + DCDC + PDU



Specifications:

Hardware	:	48/72/96/108/216/ 312/ 540V
Input Range	:	AC 90~265V
Cooling Method	:	Air/ Liquid cooled
Max Output Current	:	50A
Power Factor	:	≥0.99 (Half-Load more)
Full Load Efficiency	:	≥93%

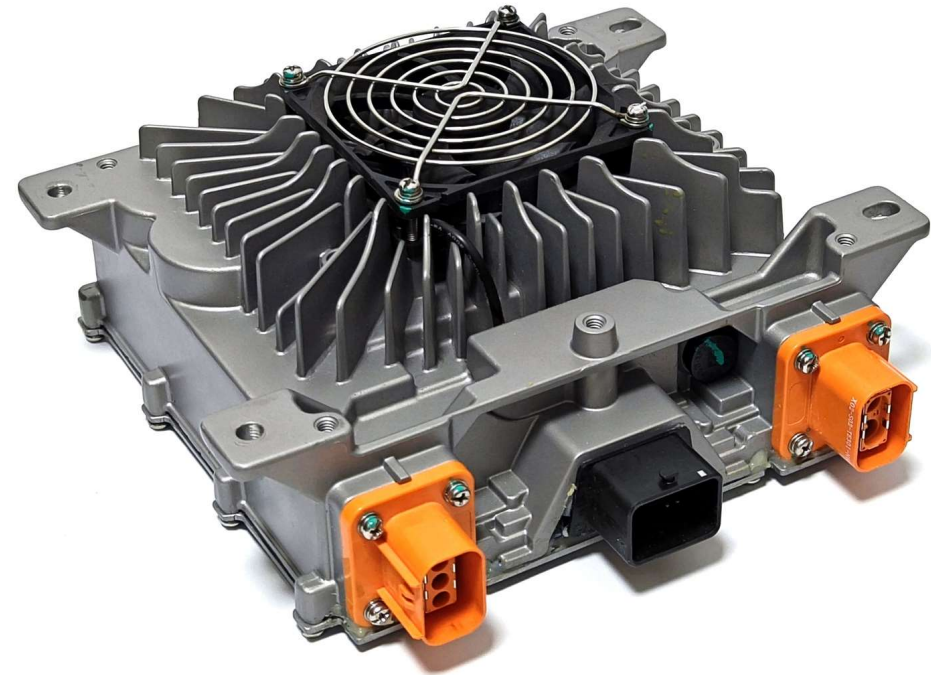


3.3KW / 6.6KW OBC

With Or W/O DCDC



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STPL-Manufacturing unit

Manufacturing Infrastructure



- CNC Wire Cutting & Stripping lines.
- Hydro Pneumatic Line for swaging / crimping.
- Processor controlled epoxy dispenser for potting .
- Dedicated Component based dies, jigs, fixtures.
- Multiple Assembly Lines.
- Special dedicated SPM's for final assembly.

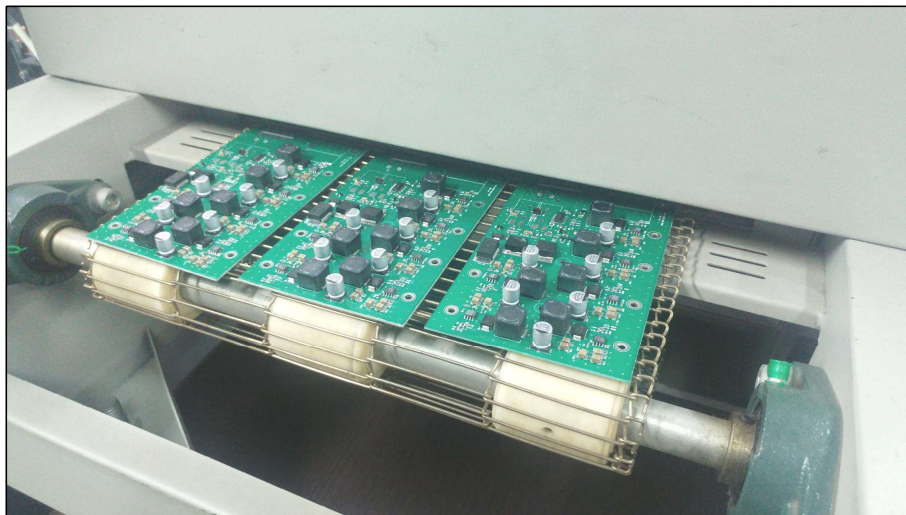


Hydro Pneumatic Swaging & Testing Machine

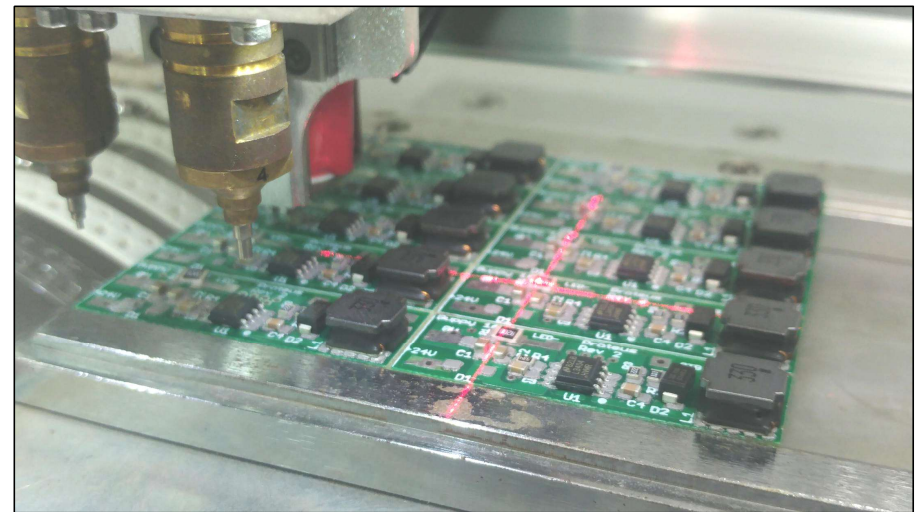
➤ AUTOMATIC SMT LINE



SMT Pick & Place Machine for placement of micro components. Automated Reflow Machine for curing process.

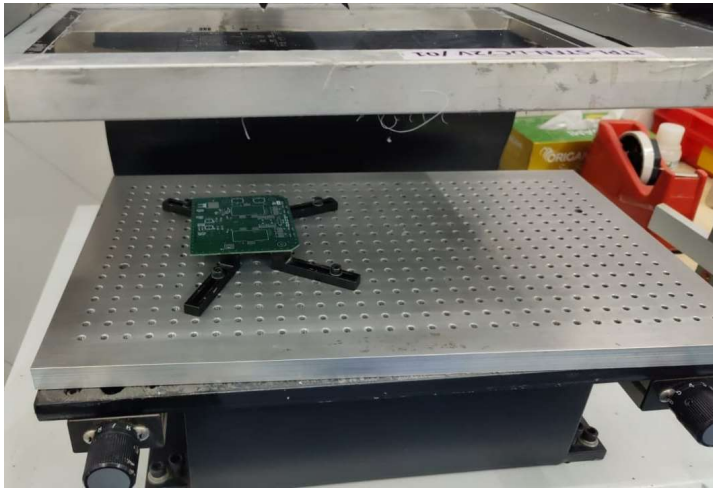


Reflow Machine



SMT Pick & Place
Machine

➤ CIRCUIT BOARD ASSEMBLY



➤ Automatic Solder Paste

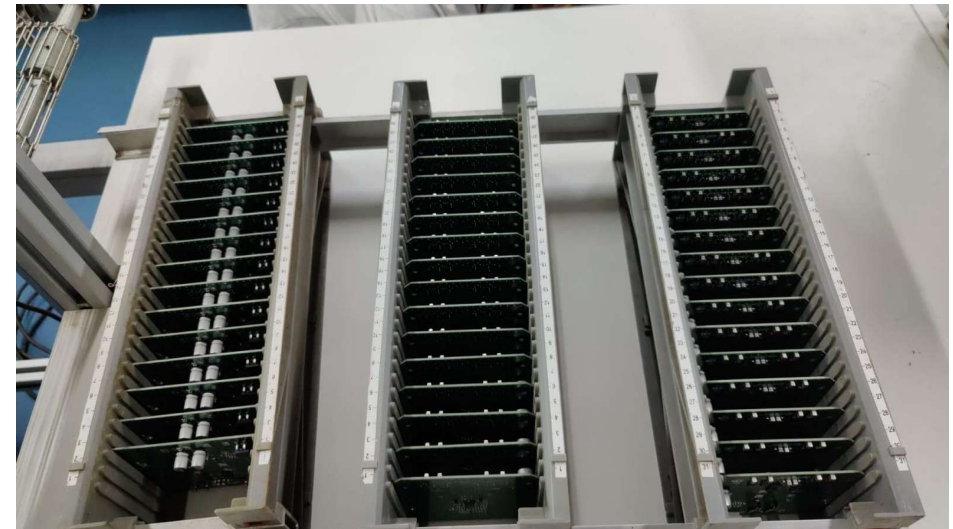


➤ Automatic SMT Pick & Place

➤ Circuit Board Assembly- II



➤ SOLDER REFLOW & COOLING



➤ ASSEMBLED PCBS

➤ OBC / DCDC Housing, PCB Assembly



➤ Robotic Gasketing



➤ DCDC FG Process



➤ DCDC High Temperature Ageing Line



➤ FG Laser Marking Model & Serial Number



➤ DCDC FG PDI, Packing & Dispatch

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Quality Assurance



- **SPMS : Special purpose test equipments for product specific.**
- Laser scan control machine for inspection of critical dimensions.
- Laser marking for component marking & 100% traceability.



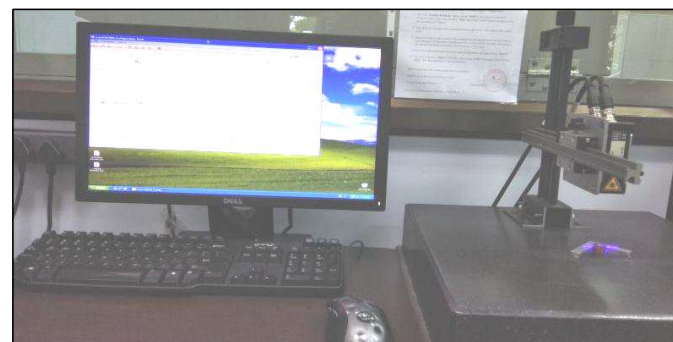
Computerised Sensors & Switches Testing Machine



Manual Sensors & Switches Testing Machine



Temperature & Pressure Switches Testing Machine



Inspection Machine



Laser Marking Machine

Achievements - Zero Defect / Zero PPM

- 2001 - Received ISO 9000:2008 Quality Certification.
- 2005 - Achieved **1 million** units with **Zero Defect**.
- 2010 - Awarded by Tata Toyo Radiator Ltd. for **Best Vendor Performance, Quality and Delivery**.
- 2010 - Received Cummins Award for **Excellent Performance**.
- 2011 - Received ISO / TS 16949 : 2009 Quality Certification.
- 2014 - Achieved **5 million** units with **Zero Defect**.
- 2016 - Awarded by Tata Cummins Pvt. Ltd. for achieving **Zero Defect Supplies**.
- 2016 - Awarded by Cummins Inc. for **Best Category Partner Award**.
- 2017 - Received IATF 16949 : 2016 Quality Certification.



Total Quality Management



Total Quality is the cornerstone of every activity at Sensing Technologies. It is implemented by every stakeholder of the company - from the suppliers to every member of the company and through every process from design to packaging.

Quality process begins from participation and encouraging our personnel to improving our productivity and value of our products. This has encouraged our customer to certify us with “Zero Defect” partners.

We are IATF 16949 certified company. Sensing Technologies is a One Stop Shop for most components that includes:

- Product Design & Development
- Prototyping
- Project Management
- Design
- Engineering
- Manufacturing

Clientele



Mahindra



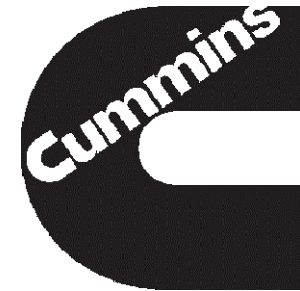
SIEMENS

ElectraEV



Honeywell

TATA MOTORS



GREAVES
SINCE 1859

GREAVES COTTON LIMITED



BUS & COACH



Sensata
Technologies



PIAGGIO



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Clientele



Our Group and Associates



- **Proteus Electronics Pvt. Ltd.** is a Design House specializing in the design and development of high end LED lighting systems. It is the design house of Sensing Technologies Pvt. Ltd. and has done numerous turn-key product developments.
- Proteus Electronics started of as a design house for Automotive Illumination. Over the years it have taken its knowledge across various industries. Constantly conducting Research and Development to make sure they are able to deliver the latest technologies to our customers.



- **Aquarius Appliances Pvt. Ltd.** is one of India's reputed providers of laundry equipment and turnkey solutions.
- Starting in 1990 as a manufacturer of garment finishing equipment, we diversified into the allied field of laundry equipment for the hotel and hospitality industry in 2006. Known for our superior products and efficient services, we have gained a reputation of being one of the most quality-conscious and competitively priced laundry equipment providers. We are looking at expanding our capabilities by also providing machinery to address other washing and drying needs.

Key Personnel

Jai Bhambhani **Managing Director**

With a degree in Mechanical Engineering, Mr. Bhambhani is our current MD. With the responsibility of Customer engagement he is responsible for OEM sales and marketing.

Rajiv Patel **CEO**

A electrical engineer, Mr. Patel is the current CEO of STPL and looks after production and purchase. With experience in manufacturing technologies of white goods and bulk manufacturing, he is responsible for our JIT systems.

Piyush Merchant **Director, Technical**

With Bachelors in Electronics and background in telecom, instrumentation and power electronics, Mr. Piyush Merchant brings a vast experience of design, manufacturing and testing of sensors, electronic control and firmware and power electronics for our upcoming EV Module solutions.

Succession Strategy

Mr. Rajiv Patel and Jai Bhambhani are expected to step down from their roles in 2025. Mr. Jai Bhambhani would relinquishing his executive roles and would continue as a Director. Mr. Piyush Merchant has been entrusted to take Over operations at STPL and would be joined by Mr. Siddhant Bhambhani, a graduate in supply chain from Michigan University and is currently under training at ACG – Group as a Management Trainee.

Thank You

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