

# Electrical & Automation Business

## Overview

L&T's electrical and automation (E&A) business manufactures a wide range of products and system for distribution, regulation and control of electricity along with metering products. The business is a major player in the system integration business. Its products include low and medium voltage switchgear products, electrical systems, marine switchgear, industrial and building automation products, energy management systems and metering solutions that cater to industry, utility, building, infrastructure and agriculture segments. The E&A business is structured into two Strategic Business Groups (SBGs) – Products SBG and Projects SBG.

The business has been increasing its penetration in new segments like telecom, smart e-cities, healthcare, etc., by offering innovative solutions, while consolidating its position in the retail segment with a new range of consumer products.

The major strength of the business is its elaborate in-house design and development facilities for new products and life cycle management of its existing range of products. The business has six DSIR-approved R&D facilities and dedicated test laboratories in India

that specialise in diverse skill sets. These centres network with international labs, testing centres and academic institutions to keep abreast of new technology trends and introduce them to customers in different segments. The business also has well-developed tooling facilities with state-of-the-art manufacturing systems and processes in place for high precision tools, which are a pre-requisite for high-quality products.

Additionally, its six Switchgear Training Centres at Pune, Lucknow, Coonoor, Vadodara, Delhi and Kolkata promote good electrical practices in the industry.

Manufacturing operations are located at facilities at Navi Mumbai (Mahape & Rabale), Ahmednagar, Vadodara, Coimbatore and Mysore in India as well as in Saudi Arabia, UAE (Jebel Ali, Dubai), Malaysia, Indonesia and the UK.

## Business Environment

With a notable rebound in global trade, the world economic growth rate reached 3.6 % in 2017. This was driven by an investment recovery in advanced economies, rebound of the European economy, continued strong growth in emerging Asian markets, and signs of recovery in several commodity exports. The global growth rate is expected to clock up to 3.9 % in 2018, which would be highest in this decade. The geopolitical situation across the world is also changing fast.

The private investment climate in India has remained subdued due to stresses in the balance sheet. The dust around GST implementation is yet to settle. The year witnessed a good monsoon, as well as policy announcements in many sectors such as infrastructure,

*L&T offers India's widest range of switchgear to a variety of sectors*



power, health, sanitation, etc., creating an environment for further growth in the economy, which grew by 7.2% in 2017.

Implementation of initiatives like Dindayal Upadhyaya Gram Jyoti Yojana, UDAY, SAUBHAGYA, Smart Grid, Pradhan Mantri Krishi Sinchayee Yojana and increased focus on renewable energy are visible on the ground. Other Governmental initiatives like Make in India, Smart Cities, increased infrastructure spending, etc., also hold promise. The rising oil and metal prices, slow climate of order finalisation and liquidity issues continued to pose challenges for the businesses.

With the formation of UDAY, the liquidity position of utilities has improved, thereby giving more powers to state utilities to decide and award orders. This has resulted in improved order intake by the metering business. The switchboard business posted a good performance for the year, except that the international order intake was lower. Overall, the domestic business posted improved performance over the previous year. VAT implementation with effect from 1<sup>st</sup> January 2018 in the Middle East, e.g. KSA and the UAE, has so far been smooth.

#### Significant Initiatives:

In its endeavour to deliver quality products and solutions at competitive prices, the business always revalidates its processes, providing vigour and sustainability to its operations. The business launched 'Project Optima' for all domestic businesses and TAMCO. The project is an operational excellence initiative, aimed at achieving refined cost structures, improved operational efficiency and faster throughput. The outcome of the programme has been

encouraging. Various recommendations of the project have been implemented, contributing to improved efficiency and cost reduction.

In FY 2017-18, the R&D spend by the business was approximately 2 % of total sales revenue. During the year, the business filed 76 Patents, 1 Trademark and 32 Design applications. Focused R&D activities have enabled the Electrical Standard Products business unit to have a healthy New Product Intensity (NPI) index of approximately 25% - an index which measures the sales of new products introduced in the market during the last five years with reference to the total sales in the financial year.

The Standard Products business implemented a SAP tool known as 'Advanced Planning and Optimisation' (APO) for end-to-end supply chain management. The tool aims at improving capability to give a reliable commitment of delivery date to customers while receiving orders, based on real-time visibility in the supply chain. It works on the Theory of Constraints (TOC) and uses a diagnostic metrics framework based on Supply Chain Operation Reference (SCOR).

In line with its 'Shrink to grow' initiative, the switchboard business has successfully shifted its Low Voltage switchboard manufacturing operations from Ahmednagar to Coimbatore campus, which helped in creating additional manufacturing capacity for Medium Voltage products.

The business participated in Asia's largest electrical fair 'ELECARAMA' held at Greater Noida in March, 2018 and showcased a wide range of offerings, including products which are lined up for launch in the coming months.

*Air Insulated Switchgear (AIS) from TAMCO Malaysia, an L&T Group company.*



Subsidiaries such as LTEASA and Servowatch also undertook business re-structuring exercises to achieve efficiencies in business operations by reducing fixed overheads.

The business has undertaken numerous initiatives to improve the use of technology and prepare for the digital future. This will enable the generation of informative dashboards from diverse data sources, improve efficiency, ease out manual work by machine computing and build artificial intelligence. Initiatives implemented during the year include:

**A. Mobile Applications**

- AutoNaT mobility solution for E&A employees
- StockNaT mobile app for channel partners and customers
- Retail Management Solution for retail sales force, distributors and retailers

**B. Collaboration, Document Management & Workflow – To create a centralised document repository with work flow functionality**

**C. Analytical Reports & Dashboards – Real-time information on key business metrics.**

Listed below are few initiatives on which significant progress has been made:

**1. Asset Intelligence Management (use of Internet of Things)**

- Optimising productive time of machines
- Tool life monitoring and asset tracking

**2. Training and education using Augmented Reality / Virtual reality**

- Guided servicing of 'Omega' Air Circuit Breaker using Augmented Reality
- Interactive Induction Training module for new joiners using virtual reality

**Product Launches**

In FY 2017-18, the business introduced various new products in the power distribution, motor control and power quality market segments to further strengthen its leadership position. Notable additions include higher rating air-break and vacuum contactors, 4-Pole MCCBs, electronic trip units - SR 18G with enhanced features, S-Line copper busways and S-Line aluminium busways for lower (250A) ratings, Ti-APFC panels as per IEC61439, APFC relays, etc.

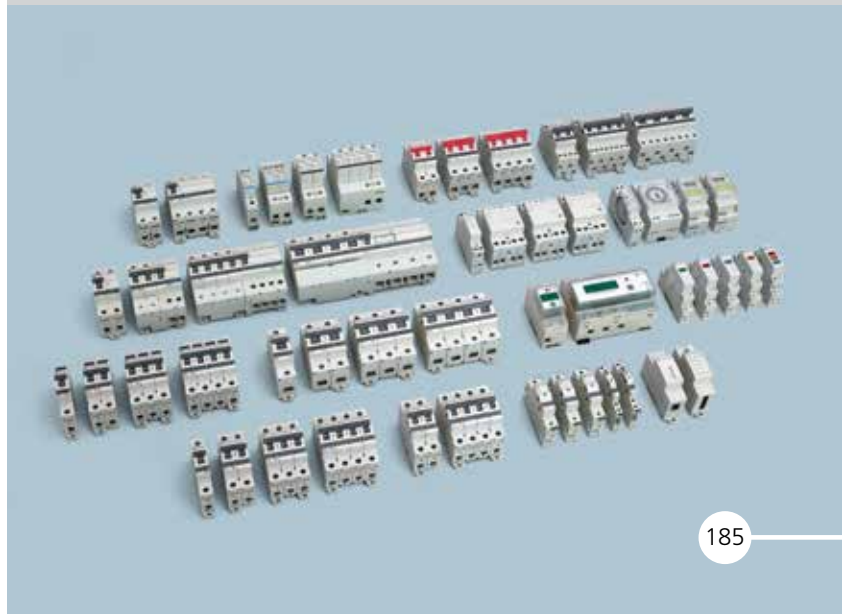
L&T's Metering & Protection Systems business was engaged in developing new cost-optimized metering platforms offering better features to maintain competitiveness in the market, and the development of new products to meet the unfulfilled needs of customers. During the year, the business launched 1-phase and 3-phase kWh meters in whole current small form factor and prepaid category. It also actively launched 1-phase and 3-phase smart meters on various communication platforms in line with emerging demands and trends.

L&T's Electrical Systems & Equipment (ESE) business introduced outdoor cabinets for the telecom segment and feeder pillars and front RMU with FRTU (Feeder Remote Terminal Unit) for the utilities segment. For the international market, a Sub-Main Distribution Board (SMDB) was introduced to cater to the infrastructure segment such as

*T-era Panels*



*AU Solutions for final distribution – a comprehensive range for real world applications.*



metros, airports, smart e-cities, and high-end residential complexes. ESE also started manufacturing Ring main units (RMU) and introduced a new variant to its GIS (Gas insulated switchgear) range.

L&T's Control and Automation (C&A) business successfully adapted its in-house developed software for SCADA, reducing dependence on imported technology. The business also put in significant efforts towards developing drives using FPGA (Field Programmable Gate Array devices) and batch controllers.

### Business Outlook

In an environment where uptick in private capex is not visible, liquidity continues to remain a worry; and with core sectors not holding any promise, fresh order bookings continue to be a challenge. As per industry estimates, the LV Switchgear market is expected to grow by 8 to 10 % and reach ₹ 7,600 crore by 2020.

With the increase in commodity prices and consolidation of procurement for state DISCOMS, profitability in the metering business is expected to remain under pressure. The market for conventional meters is expected to remain flat. However, in view of the SAUBHAGYA scheme, the market for smart meters seems to be growing. The trend is towards higher technology products like AMR, prepaid and smart meters. UDAY and other centrally funded schemes like DDUJY and IPDS will lead to improvement in payment position at utilities.

The automation business is expected to build on its success in the infrastructure sector. Government regulations, which have made use of RCCB mandatory, will help the modular

device business to grow. Various announcements made in the Fiscal Budget FY 2018-19 such as replacement of existing pumps with energy efficient pumps and increase in area under drip irrigation are expected to contribute to higher growth in the agricultural product business. With new medium voltage products, the switchboard business will be in a better position to increase its market share in DISCOMS. Telecom enclosures still look promising and are expected to generate revenue for the business.

The Marine business envisages a positive sentiment through the 'Make in India' initiative taken by the Government for emphasizing on indigenous content – which has given us an edge over foreign suppliers. FY 2018-19 will see the conclusion of orders for the electrical and degaussing equipment for 24 ships of the Indian Navy. This provides the potential to fill up the order book after a lean patch during the last few years.

With the oil prices improving, investment in the oil & gas sector of the GCC continues to improve. Growth in the MENA region is expected to accelerate to 3 % in 2018. Within MENA, GCC economies are expected to lead due to stronger growth in the region, supported by easing fiscal adjustment, infrastructure investment such as the UAE Expo 2020, and reforms to promote non-oil-sector activity. In Kuwait and Oman, for all major EPC awards, In-country Value (ICV) content and Export Credit Agencies (ECA) are likely to impact the businesses. Major growth is expected from the infrastructure segment. With the addition of focused products for infrastructure in the product basket, we are hopeful of getting a significant share of Infra business.

Mumbai International Airport's Network Operations Centre



Smart, prepaid meters

