

TYPES OF TESTING AND MEASURING (T&M) INSTRUMENTS

Digital multimeters - A multimeter or a multimeter or volt/ohm meter, is an electronic measuring instrument that combines several measurement functions in one unit. It can measure voltage, current and resistance.

Digital clamp meters/tong testers - An electrical meter with integral AC current clamp is known as a clamp meter, clamp-on ammeter or tong tester.

Analog and digital insulation testers - These are used by electricians and cabling technicians to check the quality of the electrical installation.

Current leakage testers - They measure the amount of current that leaks to ground.

Battery testers - These are designed to determine how much current is available.

Ammeters - They measure the current in a circuit.

Power meters or wattmeters - These measure power signals and related parameters.

Potentiometers - These control electrical devices such as volume controls on audio equipment.

Galvanometer - This is a type of ammeter and can be used to detect and measure electric currents.

Reflectometer - An instrument to measure the electrical power flowing in both directions in the main line.

Oscilloscope - An instrument that allows observation of constantly varying signal voltages.

Semiconductor test equipment - This can test a wide range of electronic devices and systems, from simple components to completely-assembled electronic systems.

Circuit testers - Electrical probes to test a populated printed circuit board.

Thermal imagers - Used for infrared electrical inspection to detect faults.

Power quality analyser - An instrument to measure and monitor electrical power parameters.

Transformer test instrument - A high precision measurement instrument for different kinds of current instrument transformers.

Power/harmonic analyser - Instruments that can measure all aspects of power such as voltage, current, frequency and power besides harmonics.

Millivolt meters - These measure AC voltages.



A technician with a thermal imager.

A POSITIVE OUTLOOK

Haren Shah, Marketing Executive, Meco Instruments, said, "The Indian economy is growing rapidly so the demand for power will grow. Our instruments will help design better energy efficient consumer and industrial products. This will ensure that energy will be



available to more equipment. The power industry is the biggest growth driver. With the move towards deregulation within the power utility industry, customers are demanding superior power quality and reliability of supply. Many utilities have responded to the needs of their customers by establishing power quality divisions within their marketing departments. Some of the main objectives of these energy management programmes are: Cultivating good communication on energy issues; improving energy efficiency, reducing energy use and cost-effective monitoring; preparing reports and implementing steps for wise energy usage after analysing reports; finding new and better ways to increase returns from energy investment through research and development; developing interest and dedication to the energy management programme from employees and reducing the impact of burnouts or

“Real-time monitoring of networks is a key trend to watch out for this year”

- Sridharan P, Business Unit Head (Power Quality), TTL Technologies

How do you intend to leverage the various capacity addition programmes in the power sector to your advantage?

Any power sector capacity addition involves huge installation and commissioning of new machinery. These are required not just to generate power but also for T&D purposes. Testing of performance during installation and commissioning will open up a good market for testing and calibration instruments.



We have a dedicated customer service department that is spread across India to provide warranty and post-warranty support.

Do local manufacturers face a threat from international brands?

The primary difference between local manufacturers and international brands is that T&M products from premium international brands are tested and certified against stringent norms and thereby guarantee a dependable performance. But the threat is vice versa too since the price of the local manufacturer will be comparatively cheaper.

What is the range of T&M instruments that you manufacture or export? To which power utilities or companies do you supply these instruments?

Over the years the company has grown into a multi-faceted technical marketing organisation with a pan-Indian reach. World-famous brands such as Fluke Corporation, Giga-tronics Incorporated, Exctech Electronics, Voltech Instruments, etc, are brands that have identified with our company in the markets that it serves. We cater to the needs of generation, T&D utilities. To name a few, our customer base includes NTPC, MahaDiscom, TNEB, KSEB, Reliance, Torrent Power, etc.

What (specific) T&M equipment is not produced locally which you import? What advantages do consumers perceive in imported equipment?

Our company is the foremost supplier of world-renowned brands in India. The role of multinational companies in getting modern instruments is phenomenal. The primary advantage of these instruments is that they are designed and tested for stringent standards and we can rely on the measurements and results.

Apart from extended warranties, what repair and calibration solutions do you offer?

Pre and post-sales initiatives like extended warranties, standard price repairs, competitive and responsive annual maintenance contracts, technical support with a huge emphasis on training, upgrades, etc, have all helped in retaining a loyal base of customers across India. Our company emphasises on strengthening our local support experience for our customers and over 70 per cent of our engineering staff is dedicated to supporting customers with the right selection, application advice, and post-sales support and calibration functions. Our company has calibration labs at Bangalore, Bhiwandi (Mumbai) and Delhi. We do calibration for all the products that we sell in India prior to supply. We also support the periodical calibration needs of our customers. Some of the products are even provided with free second year calibration facility when the product is registered with us after purchase.

In views of business volumes, which products or industry segments are the biggest growth areas?

We broadly categorise the market for T&M into: education, facility maintenance for manufacturing and commercial establishments, installation and service for equipment manufacturers and calibration. Though the education sector does not form a considerable portion of the total market, this is an emerging sector for the T&M market and has shown growth in recent years.

Kindly comment on how the potential of T&M rental seems to be a viable solution for buyers in view of the increasing pressure on reducing capital spending.

The rental option for T&M instruments is not so popular in India but it helps very small scale industries who cannot afford to invest. But with emerging technologies and the awareness of the importance of test and calibration, industries prefer to have their own set of instruments rather than looking for rental equipment.

“ One of the greatest challenges that the industry faces is lack of consumer awareness. Many of them simply pencil in power quality testing and measuring instruments into their budgets as an afterthought. Since losses caused by power quality disturbances are often difficult to quantify, most consumers hesitate to invest significantly on instrumentation.”



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any interruption in energy supplies.

In the 12th Plan, Rs 11 trillion has been earmarked for the power industry and this will also flow into transmission and distribution (T&D) projects where testing and measuring instruments will play a vital role. After all, poor quality power or damaged equipment can lead to huge economical losses. Therefore, quality monitoring, analysis and correction are vital to optimise performance.

THE CHALLENGES

One of the greatest challenges that the industry faces is lack of consumer awareness. Many of them simply pencil in power quality testing and measuring instruments into their budgets as an afterthought. Since losses caused by power quality disturbances are often difficult to quantify, most consumers hesitate to invest significantly on instrumentation. Companies must adopt effective communication channels to educate end-users about the selection and use of equipment or systems that are vulnerable to power quality disturbances, the source of power quality problems, and the methods in which low power quality affects their facilities.

Other problems that the industry faces are ever-increasing labour costs, government policies, bureaucratic delays, non-availability of locally manufactured key vital components, total dependence on the import of components and inadequate infrastructure.

Apart from this, most imported T&M products attract zero customs duties and pay only the countervailing duty (CVD). However, when the same product is manufactured in India, raw materials, such as electronic components and mechanical parts that need to be imported, attract customs duties ranging from five to 10 per cent, apart from the CVD. This is a major drawback for local manufacturers.

Haren Shah of Meco Instruments, a company that manufactures a wide range of testing and measuring equipment, said, “MECO has an in-house R&D centre that is recognised by the Department of Scientific and Industrial Research, Ministry of Science and Technology, Government of India. We have a service centre in Navi Mumbai which takes care of repair and recalibration of our products, apart from extended warranties.”

THE FUTURE

The user segments are process industry, laboratories, training institutions and R&D centres. The T&M industry is expected to grow at a rapid rate and real-time monitoring of networks is a key trend to watch out for this year.

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