Reliable and Green Energy UPS System
100 KVA to 800 KVA

Answering All Needs!!
TMUPS® is the most efficient online double-conversion UPS in the market with less space per kilowatt than any similar capacity UPS. It delivers the utmost in design flexibility and can provide the ideal solution, regardless of the user’s backup power needs.

With the highest knowledge of energy conversion and the rich legacy of parent companies - Toshiba and Mitsubishi-Electric, in power electronics, there is no doubt, TMUPS® is capable of delivering highest performance and reliability for your Mission Critical Load!
Development History

50+ years of manufacturing experience and pioneering in cutting-edge inverter and converter technology

- **TRANSISTOR UPS**: 1964
- **SCR UPS**: 1964
- **CNV:SCR INV:Transistor**: 1982
- **TRANSISTOR UPS**: 1982
- **CNV:SCR INV:SCR**: 1991
- **IGBT UPS**: 1991
- **CSTBT UPS**: 2008
- **Next-Gen UPS**: 2015

**Next-Gen UPS**
First to introduce the highest efficient UPS in the world, with AC-AC efficiency >97.51%

*Next Gen UPS are designed with Silicon Carbide (SiC) power modules for benefit of large data centers by significant saving of energy cost and footprint. Please contact us for detailed specifications.*
Maximum Performance and Reliability

TMEIC Uninterruptible Power System (UPS) utilizes state-of-the-art design and construction to deliver industry-leading efficiency, reliability, performance and flexibility to meet today's critical power demands.

Key Features
- All-IGBT (CSTBT-Carrier Stored Trench Bipolar Transistor) - Innovative Circuit Concept
- Advanced 3-level bi-directional conversion technology
- High-speed digital control to supply stable power to the critical load even with 100% unbalanced load and regenerative type loads
- Handles leading power factor loads without de-rating
- Modular design flexibility and redundancy up to eight (8) UPS systems
- An IGBT DC-to-DC chopper charging circuit, extending battery life
- Smart test facility available
- Smallest footprint with highest power density
- Complete front-access for installation and with multiple cable entry points
- Product service life of 15+ years including the AC/DC capacitors
- High performance supported with extended warranty and service contract

PWM Converter (AC-DC)
- All-advance IGBT (CSTBT) design
- Unity power factor
- Wide input voltage range
- Low current distortion
- High efficiency
- Surge withstand meets IEEE587, ANSI C62.41-1991
- Works on reverse phase sequence

PWM Inverter (DC-AC)
- Advance IGBT (CSTBT) design
- Low total harmonic distortion
- Clean sinusoidal output voltage
- High efficiency

DC-DC Converter
- Bidirectional capability
- Battery charge and discharge control
- Low-ripple topology
Special Features

High Efficiency > 96%

This unique combination of 3-level conversation technology and CSTBT structure, simply means our UPS offers superior reliability and the most efficient system in the industry.

TMUPS® has incorporated its Digital Signal Processor and Direct Digital Control (DDC) to gain the full benefits of the most advanced generation CSTBT that is utilized in the UPS.

TMUPS® is the most efficient true on-line double conversation UPS in the industry at all load levels. The result reduces cost of ownership and improved Power Usage Effectiveness (PUE) compared to conventional design UPS.

The Advanced Multi-level Design

TMEIC, with its patented most advanced 3-level system design, reduces the switching loss by 56%. The advanced 3-level uses a new circuit topology to create 3 output voltage levels. With this new design, the UPS size has also been significantly reduced.

Advantages

- Lower voltage stresses on power semi-conductors devices
- Considerable reduction of acoustic noise and electromagnetic interface
- Higher efficiency (lower losses)
- Higher system reliability and compactness

Voltage variation at the terminals

E @ Two-level, E/2 @ Three-level

Reduction of conversion loss, reduced EMI interface, reduction of the harmonic and reactor size
Unique Control Circuit

TMUPS® design uses the Mitsubishi IGBT in the UPS that many UPS systems in the market today have followed. It is not enough to merely use IGBT device but how the IGBT is controlled is the key!

Features

- 3-phase independent control (100% unbalanced loads)
- Feed forward control with characteristic current minor loop
- Compatible with regenerative loads (reversed power flow)
- High speed controller supports highly reliable multi-module system up to 8 UPSs
- Instantaneous Wave Form Control for both input current and output voltage

Performance

- Reduced output voltage fluctuation
- Reduced output voltage distortion
- Unbalanced load capability
- Eliminate input current harmonics
- Self diagnostic function

 UPS System Flexibility

TMUPS® is the most efficient double-conversion UPS in the market with less space per kilowatt than any similar capacity UPS. It delivers the utmost in design flexibility and can provide the ideal solution, regardless of the user’s backup power needs. The TMUPS® Multi-Module System (MMS) configuration incorporates individual parallel control and static bypass circuitry in each independent UPS Module.

Our UPS MMS Configuration, therefore, offers complete system redundancy, reliability and flexibility with cost saving scalability and reduced footprint.

Features

- Protecting up to 6400kVA using 8 UPS modules in parallel
- Instantaneous equal load sharing
- Cross current sensor less control
Low Cost of Ownership

TMUPS® utilizes state-of-the-art design and construction to deliver industry-leading efficiency, reliability, performance and flexibility to meet today’s critical power demands. That’s why we have developed the best performing, most reliable and efficient UPS in market.

500 kW Efficiency = 95%

TMUPS® Design

500 kW Efficiency > 96%

In 15 years, the electricity bill cost saved = approx. ₹ 30 Lacs

Load on UPS = 50%

Consider cost of electricity = 7 INR / kW / hr.

The operating cost can be reduced with the overall system efficiency improvement.

UPS Monitoring and Control Function

TMUPS® provides monitoring and control function for a variety of communication methods with features that make the product inherently easy to use and maintain.

UPS Monitoring Features

- Network monitoring (SNMP)
- USB interface
- Serial communication (RS232 / RS485)
- SMS / email facility
- External dry contacts

Control Functions

- Input dry contacts / power demand reduction
- Emergency stop / UVT for battery protection / isolation

SCADA : Kind of industrial control systems typical stands for Supervisory Control And Data Acquisition
UPS Life Cycle Support

The maintenance needs of TMUPS® are minimal but crucial. TMEIC provides the service support appropriate to your needs and budget while maximizing its performance life of your TMEIC UPS systems with factory trained team of engineers.

TMUPS® Service Care

The tailored, site-specific service agreements range from simple scheduled preventive maintenance program to extended warranty program 24 x 7 x 365 coverage and discounted replacement spares, with guaranteed response time.

TMUPS® Service Plus

The periodic inspection and maintenance by TMEIC service team, calibration and adjustment of the UPS’s control and monitoring systems are necessary to ensure continued optimal performance and the highest level of reliability and availability of UPS System.

24 x 7 x 365 Customer Service Support Call Center

Customer Benefits

Industry-leading Power Electronics

- All CSTBT Circuit Topology-Innovative Circuit concept
- Advanced 3-level technology
- DC-DC chopper charging circuit, extending battery life

Green-Oriented Design

- World leading Double Conversion Efficiency >96%
- Efficiency across full load spectrum

High Reliability through Unique Control System

- Paralleled upto 8 UPS modules for increased capacity
- High speed controller design with 3-phase independant, feed forward control and supports the regenerative load, i.e., reversed power
- Significant energy and opex saving
- Product Service life of 15+ years - including AC/DC capacitors
- Complete front access for installation
Product Specifications

AC Input
- 380/400/415VAC 3P, 4W, +15%, -20% Voltage Range
- 50Hz (+10%, -10%)
- <3% THD @ 100% load
- Power Factor: 0.99

DC Link Voltage
- 480V DC (400-540VDC)

AC Output
- 380, 400, 415VAC + 1% 3P4W 50Hz
- Power factor - 0.9
- Voltage THD: 2% max. @ 100% linear load
- Overload: 125% for 10 minutes, 150% for 1 minute

Operating Environment
- Audible noise: 70dB @1 meter
- Temperature: 0-40° C for UPS
- Relative Humidity: 5-95% (non-condensing)
- Altitude: 1000m above sea level

Applications

We cater to various applications according to the respective needs for the UPS systems varying from 100 KVA to 800 KVA. The quality is ensured along with the best service provided.
TMEIC History

Built on the proud history of Toshiba and Mitsubishi - Electric, TMEIC continues their legacy of providing high performance and high power solutions to customers around the world.

TOSHIBA (TOSHIBA CORPORATION) established in 1896
Tokyo Electric Co. Ltd.

MITSUBISHI (MITSUBISHI CORPORATION) established in 1921
Mitsubishi Electric Corporation

POWER ELECTRONICS & INDUSTRIAL SYSTEMS DEPARTMENT

(TOSHIBA MITSUBISHI ELECTRIC INDUSTRIAL SYSTEMS CORPORATION) established in 2003

The industrial systems departments of Toshiba Corporation and Mitsubishi Electric Corporation were merged to create Toshiba Mitsubishi-Electric Industrial Systems Corporation (TMEIC).

TMEIC is a world-class leader in industrial systems integration, contributing to production technology and management of the environment with cutting-edge technology.

As an industrial system integrator, we are focused on the future of “industry”, “society”, and “environment” in order to respond to the on-site needs of production, and to facilitate the harmonization of social development and beautiful global environment.

Our core technologies lie in the power electronics which transforms and control the required electric power, and the engineering that extends from planning to operations of the plant as a whole. Our cutting edge technology in these core areas contributes to production and environment management. “We make production possible”. We are TMEIC.
Manufacturing Facility

50+ years of manufacturing experience

in pioneering cutting edge inverter and converter technology allows us to give our customers the best performing, energy-efficient and the most reliable products.

Our world-class manufacturing plant has the state-of-the-art production, testing facility, quality, SCM capabilities and products that meet IEC standards. It has well trained employees having expertise in development of UPS systems, PV inverters and M V drives.

It is our endeavour to bring full capabilities of our Japanese operations to India as we take on the new challenge of building a better tomorrow for India.
TMEIC Industrial Systems India Private Limited

Corporate Office:
The Millenia, Tower A, 10th Floor, #1 & 2, Murphy Road,
Halasuru, Bengaluru 560 008. India.
Tel.: +91 80 675 15599

Registered Office:
Unit #03-01, Third Floor, Block 2, Cyber Pearl, HITEC City,
Madhapur, Hyderabad 500 081. India.
Tel.: +91 40 443 40000

Branch Offices:
MUMBAI:
901 / D, Filix, LBS Road,
Bhandup (W),
Mumbai 400 078. India.
Tel.: +91 22 615 55444

PUNE:
412-413, Fourth Floor,
Ganga Osian Square, Wakad,
Pune 411 057. India.
Tel.: +91 20 679 05700

DELHI / GURGAON:
Unit #105, First Floor,
Tower A, Park Centra, Sector 30,
Gurgaon 122 003. India.
Tel.: +91 124 403 4966

Enquiry: tmups@tmeic.in
URL: www.tmeic.in

Manufacturing Sites:
TUMKUR:
#316, Vasanthanarasapura Industrial Area,
Phase II, Yaladadlu Village, Kora Hobli,
Tumkur Tal. & Dist. 572 128. India.
Tel.: +91 8162 294 040

BENGALURU:
#85, Kanminike Village, Kengeri Hobli,
Bangaluru South Tal. 560 074. India.
Tel.: +91 80 674 66000

TMUPS® series is a trademark of TMEIC.
TMEIC is a registered trademark of Toshiba Mitsubishi-Electric Industrial Systems Corporation.
All other products mentioned are registered trademarks and/or trademarks of their respective companies.

All specifications in this document are subject to change without notice. The above brochure is provided free of charge and without obligation to the reader or to TMEIC.
TMEIC does not accept, not imply, the acceptance of any liability with regard to the use of the information provided. TMEIC provides the information included herein as is and without warranty of any kind, express or implied, including but not limited to any implied statutory warranty of merchantability or fitness for particular purposes. The information is provided solely as a general reference to the potential benefits that may be attributable to the technology discussed. Individual results may vary.
Independent analysis and testing of each application is required to determine the results and benefits to be achieved from the technology discussed. If you have any questions regarding your project requirements, please contact TMEIC India.

@2016 Toshiba Mitsubishi-Electric Industrial Systems Corporation, India
All Rights Reserved.