TMEiC
We drive industry

TMUPS®

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



2015 Next-Gen UPS*
First to introduce the highest efficient UPS in the world, with AC-AC efficiency **>97.51%**



2008 CSTBT UPS
First to introduce multi-level UPS in the world, with AC-AC efficiency **>96%**



1991 IGBT UPS
First to introduce in the world



1982 TRANSISTOR UPS
CNV:SCR
INV:Transistor



1964 SCR UPS
CNV:SCR
INV:SCR

**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)

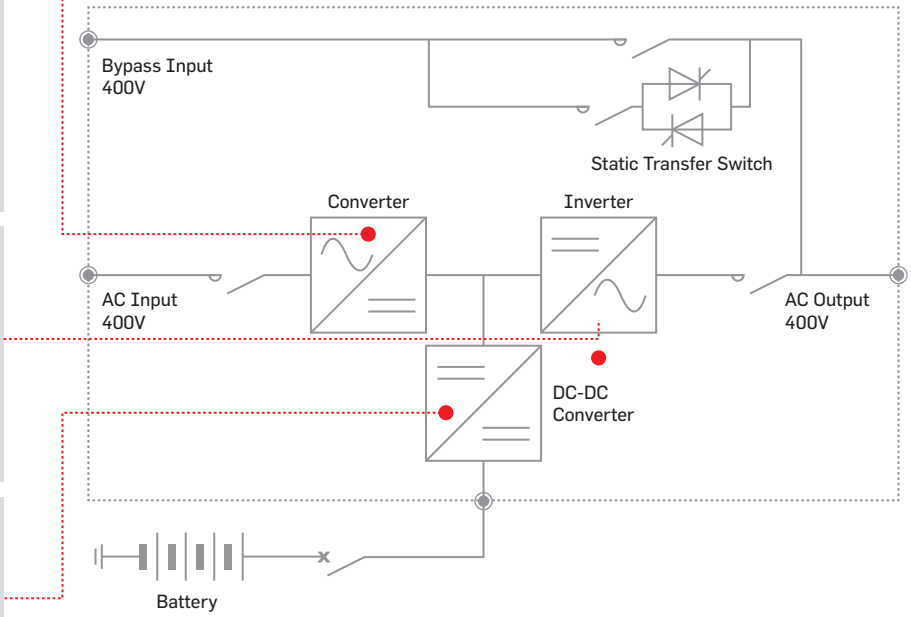
- All advance IGBT (CSTBT) design
- Unity power factor
- Wide input voltage range
- Low current distortion
- High efficiency
- Surge withstand meets IEEE587, ANSI C62.41-1991
- Works on reverse phase sequence

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



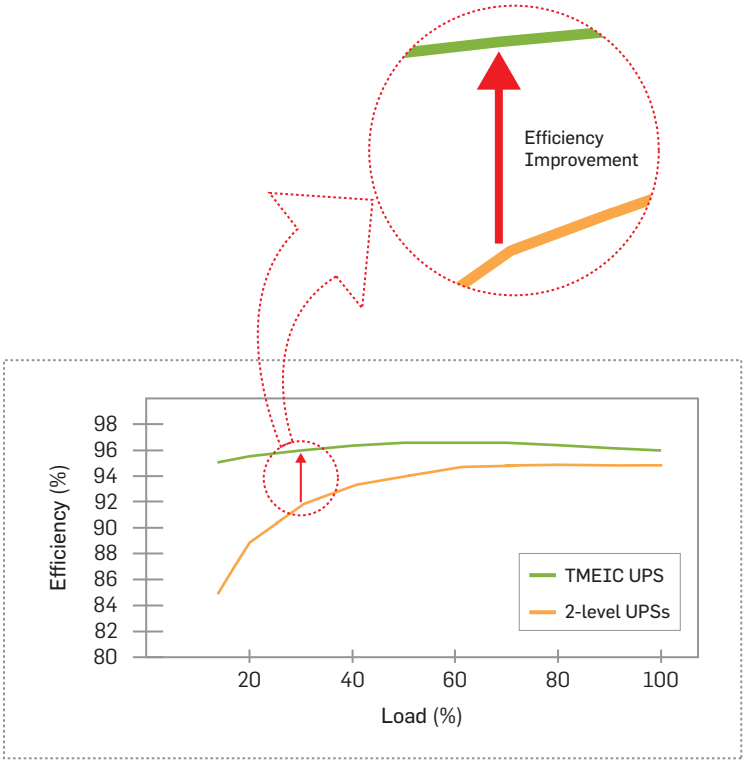
Special Features

High Efficiency > 96%

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

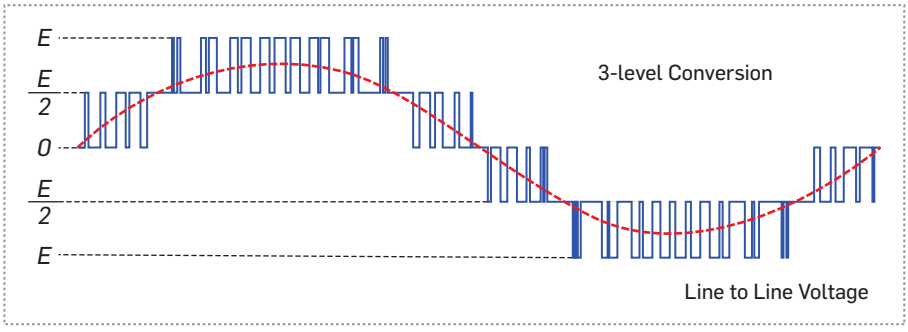


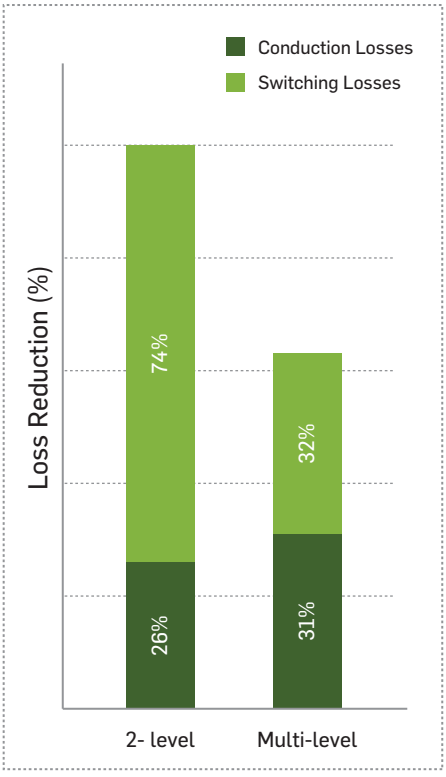
The Advanced Multi-level Design

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 Δv 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

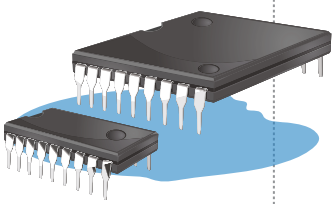
TMUPS® design uses the Mitsubishi IGBT in the UPS that many UPS systems in the market today have followed. It is not enough to merely used IGBT device but how the IGBT is controlled is the key!

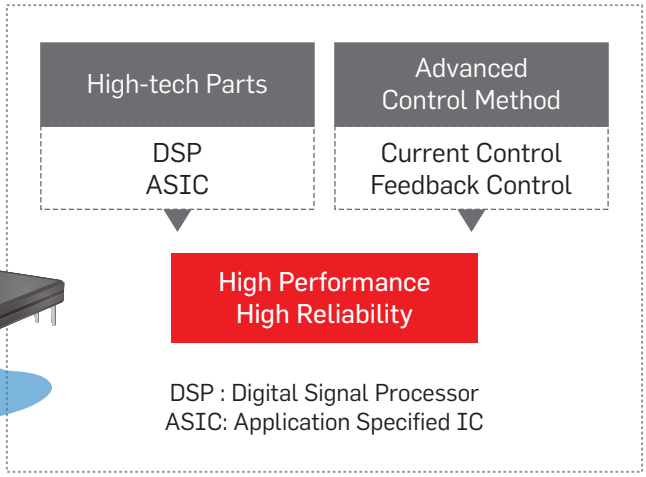
Features

- 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 outpur voltage

Performance

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





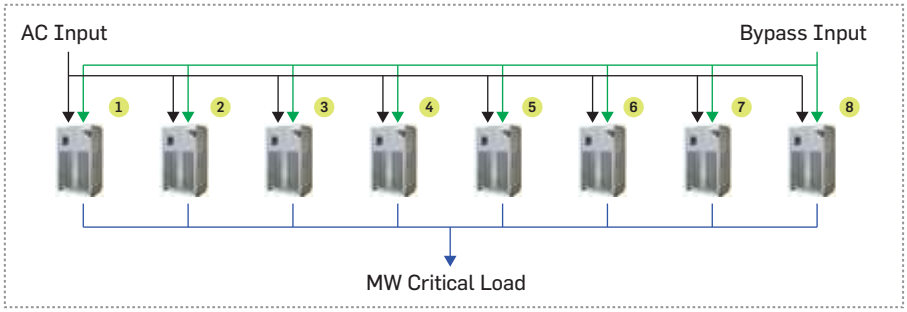
UPS System Flexibility

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.

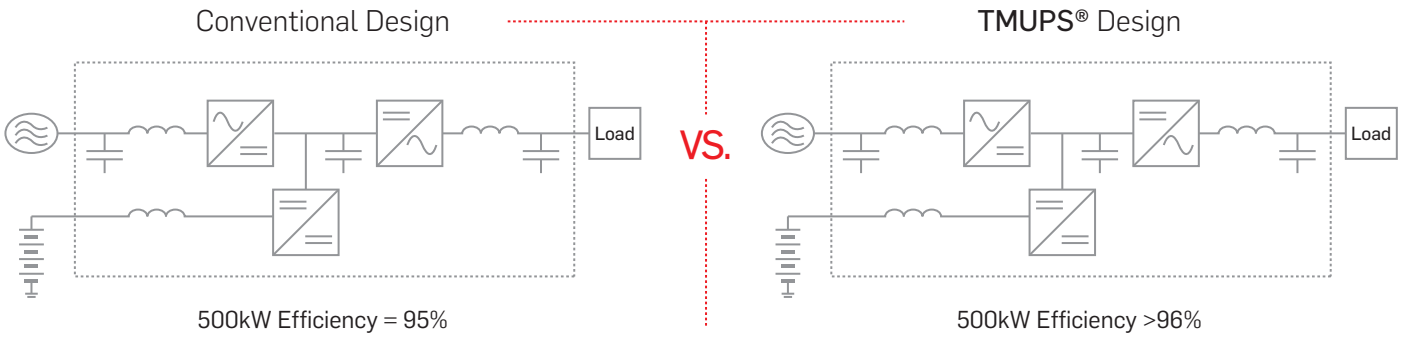
Features

- Protecting upto 6400kVA using 8 UPS modules in parallel
- Instantaneous equal load sharing
- Cross current sensor less control

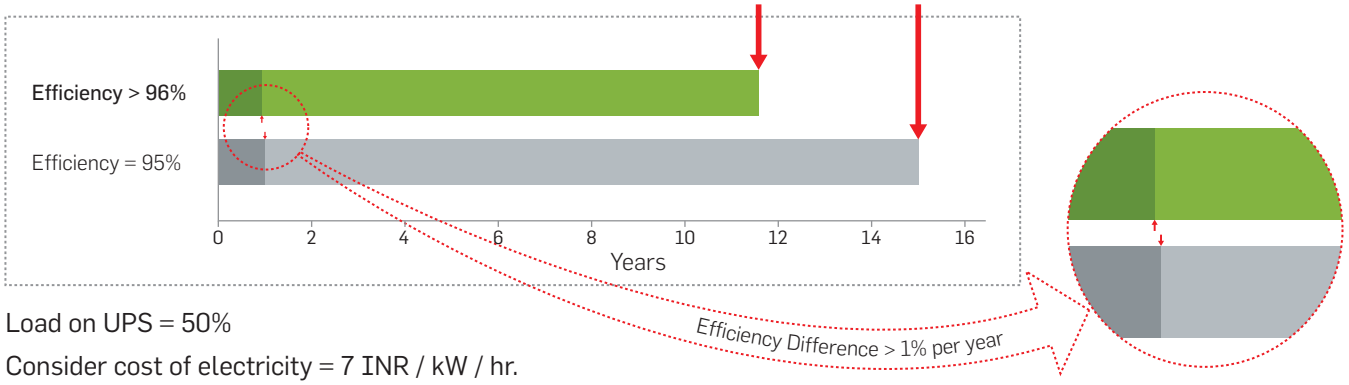


Low Cost of Ownership

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. Thats is why we have developed the best performing, most reliable and efficient UPS in market.



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

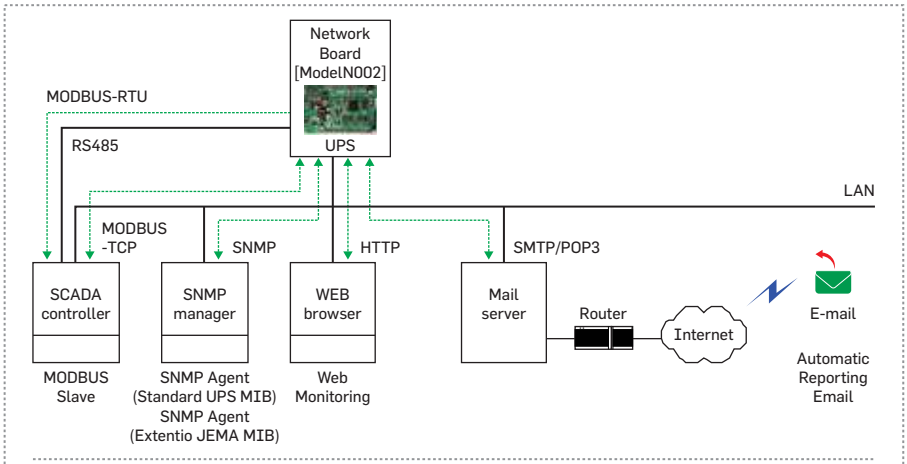
TMUPS® provides monitoring and control function for a variety of communication methods with features that make the product inherently easy to use and maintain.

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
SNMP : Network Management Protocol typical stands for Simple Network Management Protocol

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% THDi 100% load
- Power Factor: 0.99
- Surge withstand: meets IEEE, 587, ANSI C62, 41-1991

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.

Data Centers | Financial Services | Telecom | Industrial | Healthcare | Commercial

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

TMEIC
(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



Power Electronics Factory (Mysore Road, Bengaluru)



Rotating Machine Factory (Tumkur, Bengaluru)

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
We drive industry

TMEIC Industrial Systems India Private Limited

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