TOSHIBA

Leading Innovation

G9000 400 V Series

UNINTERRUPTIBLE POWER SYSTEMS

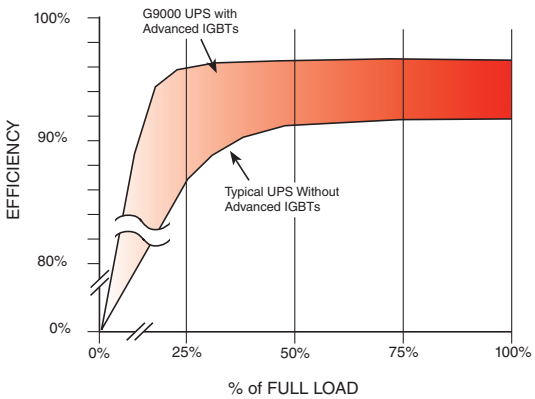
POWER & EFFICIENCY REDEFINE UPS PERFORMANCE STANDARDS

The Toshiba G9000 400 V Series 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 all over the world.

- Next-Generation IGBT Technology
- True On-Line, Double-Conversion UPS
- Parallel Up to Eight Units
- Input Power Factor > 0.99
- Input Current THD < 3%
- 100% Unbalanced Load Capability
- Wide Input Voltage Range +15%, -20% (Without Utilizing Batteries)
- High Efficiency for Lower Operational Cost
- Smallest Footprint & Highest Power Density in Industry
- Electronic Battery Isolation for Battery Longevity
- Generator-Friendly Design & Compatibility
- Complete Front-Access for Installation, Operation, & Service
- Handles Leading Power Factor Loads (Without Derating)
- SNMP/Web-Based Monitoring
- 380, 400, & 415 V 3- or 4-Wire, 50 or 60 Hz
- For Use With Transformerless Distribution or With All International Voltages

SMALLEST FOOTPRINT WITH HIGHEST POWER DENSITY

- ***A High Efficiency Design*** separates the G9000 from the competition. Efficiency greater than 92.5% at 20% loading means lower power losses, reduced air conditioning needs, and reduced utility costs across a wide load range without sacrificing frequency or output voltage stability.
- ***A Transformer-Less Design*** allows the G9000 to be lighter with a smaller footprint. With its compact size, the G9000 has the highest energy density per square foot of any UPS of similar capacity.



ADVANCED FEATURES FOR MAXIMUM PERFORMANCE

- ***Fast-Switching IGBT Control Technology*** delivers up to 95.5% efficiency.
- ***A Full IGBT Rectifier & Harmonic Input Filter*** reduce input total harmonic distortion (THD) which also reduces heat loss in associated feed equipment and increases component life.
- ***An IGBT DC-to-DC Chopper*** produces lower DC ripple on the charging circuit, extending battery and capacitor life.
- ***A Hybrid Static-Bypass Switch*** offers the highest level of dependability.
- ***Improved Output Voltage Regulation*** provides superior transient response, easily handling 100% step loads without requiring battery support.
- ***A Generator-Friendly Design*** allows sizing of 1.1 kW generator capacities per 1.0 UPS kVA load.
- ***Units can be Paralleled*** up to eight modules for increased capacity and redundancy.
- ***Robustly Engineered Units*** are built using the highest quality components to ensure reliability.

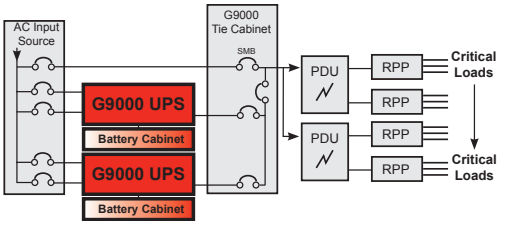
G9000 400 V Series

HARDWARE OPTIONS

Batteries & Flywheels are two options for energy storage. The robust recharge circuitry of the G9000 allows use of VRLA batteries in matching cabinets or wet cell betteries without requiring a supplemental charger.

The G9000 UPS Tie Cabinet provides an attractive, simple landing point for a multi-module G9000 system's output. Toshiba's solution is a smaller, lighter option with no control electronics compared to those offered by competitors. An optional 15-inch color LCD display is available for centralized monitoring of module and system status as a supplement to individual module monitors.

Maintenance Bypass Cabinets are available in wall-mount and stand-alone versions, as well as a custom designed slim-line version that matches the height and depth of the G9000 to seamlessly blend with the UPS.



MONITORING OPTIONS

RemotEye II® interface offers remote monitoring and analysis of UPS operation via HTTP and SNMP.

- Detailed Real-Time Status of UPS
- Email Notification of Status & Events
- Event & Alarm History Logging
- Remote Control of UPS via Internet

Industrial Bus ProtoNode protocol adapter supports:

- SNMP
- Modbus/RTU
- Modbus/TCP
- BACnet MSTP
- BACnet IP
- AB EtherNet/IP
- Metasys N2

Hard-Wired Remote Status Alarm Panel (RSAP) enables remote-monitoring of UPS alarm/status points up to 1000 feet away.

FACTORY WITNESS TESTING

Toshiba's dedicated power electronics plant in Houston, Texas, features a 3 MVA Witness Test Facility. Customers can perform witness testing to validate their system's performance specifications in all operating modes prior to taking delivery.

Multi-module parallel configurations, including battery or flywheel backup, can be assembled and tested in all modes before shipment for final installation.

SERVICE PROVIDERS

Toshiba's growing network of more than 120 Authorized Service Providers supply factory trained technicians to service and support Toshiba UPSs throughout the contiguous United States, Canada, Caribbean, Mexico, and Central and South America.

MAINTENANCE AGREEMENTS

Three standard levels of maintenance agreement packages are available to provide the service support appropriate to your needs and budget while maximizing the performance and life of your Toshiba UPS. Tailored, site-specific service agreements range from simple scheduled preventive maintenance programs to extended warranty programs with guaranteed response times, 24/7/365 coverage, and discounted replacement parts.

PREVENTIVE MAINTENANCE

Derived Mean Time Between Failure (MTBF) rates are based on an ideal operating environment. Real operating environments vary from benign to outright hostile. Preventive maintenance will help ensure you get the maximum service out of your Toshiba system.

The maintenance needs of a UPS are minimal but crucial.

- Periodic inspection, calibration, and adjustment of the UPS's control and monitoring systems are necessary to ensure continued optimal performance and the highest level of reliability.
- Regular maintenance can help detect early signs of degradation in capacitors, fans, and other components, to allow for timely repair without the UPS unexpectedly failing. This is particularly important in harsh environments with excessive humidity, temperature extremes, frequent out-of-specification voltage excursions, and abrasive air particles.

WARRANTY

The G9000 UPS and the UPS backup battery system are supported by Toshiba's industry-leading three-year parts and labor warranty* and a 24/7/365 hotline. This ensures that customers get the quickest possible resolution to any warranty or service issues that may arise.

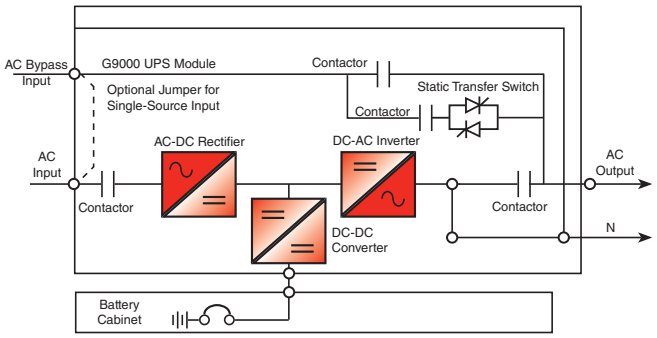
* Conditional to system startup by an authorized Toshiba UPS service provider. See three-phase warranty for details.

FLEXIBLE BY DESIGN

The G9000 400 V is designed to deliver the utmost flexibility. Regardless of a user's back-up power needs, Toshiba's G9000 UPS provides the ideal solution. This UPS can be uniquely tailored to fit a customer's power requirements by working as a single unit or in parallel up to eight units.

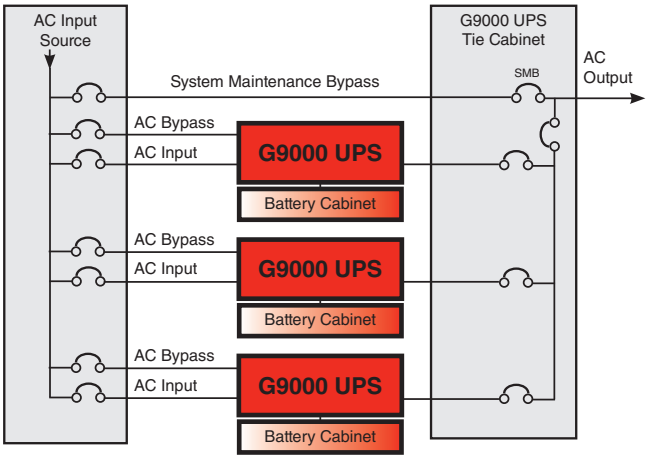
SINGLE MODULE

- Single- or Dual-Source Input
- DC-to-DC Isolation
- Internal Hybrid Static Bypass Circuit
- Controllable at Local LCD Panel or Through Customer Supplied Interface
- Monitor UPS Locally or Remotely



MULTI-MODULE

- Parallel Up to Eight Units without Additional Control Circuitry
- Load Capacity 500 kVA to 4 MVA
- Distributed Bypass Eliminates Potential Single Point of Failure in Bypass Mode
- Tie Cabinet Does Not Require Special Control Circuitry for Future Expansion
- Individual Modules & Entire System Monitored & Controlled via Local Displays in Each UPS or Through Optional System Display in TTC
- Load Balance & Synchronization Intelligence are Self-Contained in Each UPS Module & Not in External Sync Controller, Increasing System Reliability & Making Expansion/Reconfiguration of Parallel Multi-Module Systems Easy



APPLICATIONS

- Financial Institutions
- Call Centers
- Datacenters Using Transformerless Distribution
- Co-Locations

G9000 400 V Series

MODEL NUMBER	T90N3P50KPAXSN
Capacity (KVA/KW)	500/450
INPUT	
Voltage	380, 400, 415 V, Three-Phase, Three-Wire + Ground/Bypass Input; 380, 400, 415 V, Three-Phase, Three- or Four-Wire + Ground
Voltage Range	–20% to +15%
Power Factor	Greater than 0.99
Current THD	< 5% at 100% Load (No Input Filter Required)
Frequency	50/60 Hz (±10%)
OUTPUT	
Voltage	Three-Phase, Three- or Four-Wire + Ground 380/220, 400/230, & 415/240 V
Frequency	50/60 Hz, ±0.01% (In Free-Running Mode)
Voltage Regulation	±1.0% (0.5% Typical)
Power Factor	0.9 Lagging
Power Factor Range	0.9 Lagging to 0.95 Leading
Voltage THD	< 2% for Linear Load; < 5% for Non-Linear Load
Overload (Inverter)	125% for 2 Minutes; 150% for 60 Seconds
Overload (Bypass)	500% for One Cycle
BATTERY	
DC Link	480 VDC
ENVIRONMENT	
Temperature Range	32° to 104°F (0° to 40°C)
Relative Humidity	5% to 95% Non-Condensing
Heat Rejection	79.1 kBTU/Hour
Efficiency (Full Load)	95.1%
Efficiency (25% Load)	94.5%
Altitude	3281 Feet Maximum Without Derating (1000 Meters)
Audible Noise	71 DBA at 1 Meter (50 Hz); 73 DBA at 1 Meter (60 Hz)
DIMENSIONS	
Dimensions (W x D x H)	70.9 x 32.7 x 81.7 in. (1800 x 832 x 2075 mm)
Weight	3858 lbs. (1750 kg)
FEATURES	
	Digital Signal Processor (DSP) Control, Fully Digital IGBT Converter & Inverter, High Efficiency Over Wide Load Range, Transformer-Less Design, N+1 & N+N (Up to Four in Parallel) Capability, Dual-Input Feed, Electronic Battery Isolation, RS232 and Dry Contact Interface, Small Footprint, & Lightweight Design
STANDARDS	
	UL 1778 and UL-C Listed, C.E. ISO9001, ISO14001, ANSI C62.41 (IEEE 587), IEC 62040-2
WARRANTY	
	Three Years Onsite (Optional Two-Year Extended Warranty); See Toshiba Warranty Policy for Full Details
SERVICE	
	24-Hour, 365-Day Technical Support 1-877-867-8773

TOSHIBA POWER ELECTRONICS DIVISION:
- Uninterruptible Power Systems
- Rechargeable Batteries
- Power Conditioning Systems
- Remote Monitoring

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