



GT **+** CHALLENGER Series

10-300 kVA

Three/three-phase Online Ups

Advanced 3 Phase Power
Protection for Small-Medium
Server Rooms, Data
Centers, Industrial, Telecom
and other mission-critical
Applications





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GT CHALLENGER SERIES UPS

Advanced 3 Phase Power Protection for Small-Medium Server Rooms, Data Centers, Industrial, Telecom and other mission-critical Applications

10~300 KVA

3 Phase Input - 3 Phase Output

GENERAL FEATURES

- ✓ True On Line - Double Conversion Technology
- ✓ Latest Technology Floating Point (DSP) Controllers
- ✓ IGBT PWM Rectifier & Inverter Technology
- ✓ Multi microprocessor controlled
- ✓ Low Input Current THD (<%3)
- ✓ High input power factor (>0,99)
- ✓ High Efficiency > %94
- ✓ Wide input voltage range 140-280 V(L-N)
- ✓ Dual mains input
- ✓ Advanced battery management
- ✓ Short circuit and overload protection
- ✓ Selectable number of batteries
- ✓ 500 event log with detailed parameters record
- ✓ Static& manual bypass operation
- ✓ Easy and free power upgrade
- ✓ Multi lingual LCD panel
- ✓ Overload and short circuit protection
- ✓ Different rated units parallelable
- ✓ Small footprint and easy maintenance
- ✓ Advanced Communication Capabilities
- ✓ Perfect Generator compatibility
- ✓ Customizable as frequency converter
- ✓ Cold Start function
- ✓ Auto Restart function
- ✓ Emergency Power Off

ONLINE UPS



The GT Challenger 10-300kVA Series is the next generation true Online Double Conversion fully digital controlled UPS. Designed to meet high availability and high power quality needs of a wide variety of critical applications. It is the result of advanced development in the field of modern UPS technology. Fully DSP controlled inverter technology provides a highly accurate, drift-proof control compared to traditional analog electronics. These features enable the UPS to provide accurate, reliable power protection under a wide range of conditions.

The GT Challenger Series with its new IGBT rectifier ensures that your systems prevent all interruptions to your series-connected network. The innovative rectifier guarantees a sinusoidal current consumption. The advantages of this technology are perfectly simple – thanks to the improved power factor at the input of the rectifier, your UPS system will consume up to 30 % less kVA compared with conventional UPS systems with thyristor rectifiers. The reduction of current at the input to the rectifier brings considerable savings in the dimensioning of your distribution switchboard, fuses and cable.

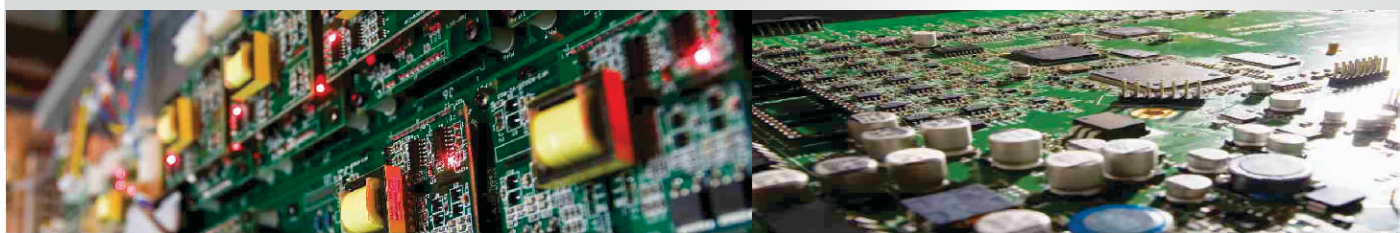
All the control mechanisms of GT Challenger Series are implemented through software. The Ups is designed with “All in One” technology and a compact construction to meet minimum space requirement in technical environments.

The GT Challenger Series Combines;

- ✓ High efficiency,
- ✓ High reliability,
- ✓ Low cost of ownership and flexibility.

It handles the challenge to keep running today's critical applications which needs more active power.

Uninterruptible Power Supplies



CHALLENGER

DSP Power Factor Corrected IGBT Rectifier:

IGBT based power factor correction technology provides near to 1 Input Power Factor ($\geq 0,99$) and Input Current Total Harmonic Distortion (THDi) less than %3 which avoids the disturbance

✓ 0,99 Input power factor ensures clean and sinusoidal input current. Maximizes active power leading to reduced electricity pay-out, minimizes cable, switchboard, fuse , generator requirement to reduced investment cost.

✓ (THDi) less than %3 avoids the disturbance to connected loads



DSP Controlled IGBT inverter:

DSP controlled IGBT Inverter provides the highest quality output power, ensures the cleanest output voltage waveform to protect connected loads.



■ **Advanced Battery Management:**



GT ChallengerSeries guarantee enhanced battery life and maximizes battery performance, life, and reliability through intelligent, precision charging.

Temperature Compensated Battery Charging monitors external and internal battery emperature changes and adjusts the charge current rate accordingly. The Ups adjusts charge parameters automatically when the battery capacity and quantity is entered through LCD panel.

Advance battery management provides real-time information about battery capacity and back up time. These informations can be seen from LCD panel. The Ups tests the batteries at adjustable periods by users without switching off the system. The tests can be done automatically or manually. GT Challenger Series Ups with its hot-swap feature allows battery change without disconnecting the unit.

With Advanced battery management capability of GT Challenger Series Ups you can have confidence that your batteries are managed for maximum performance and life time and are always ready for critical role they play in your power protection system.

Functions

- Automatic and manual battery test
- Accurate back up time prediction
- Temperature compensated battery charging
- Charging by main control board
- Low current and voltage ripple
- High accurate runtime prediction
- Full and quick battery test
- Deep-discharge protection
- Records for all battery usage
- Records for all battery temperature statistics
- Allows battery change without disconnecting the Ups

■ **High Efficiency & Low Total Cost of Ownership:**

GT Challenger Series Ups consumes less energy to supply the loads with its high efficiency up to %94.

Thanks to this high efficieny rate, the percentage of energy that is produced as heat becomes miminum. As a result power loss becomes very low and users can reduce their electricity usage and airconditioning requirement.

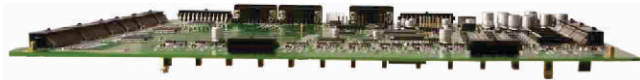
Also with reduced THDi and 0,99 power factor correction, Challenger Ups enables to save money by reducing generator size requirements.

■ **EPO (Emergency Power Off) :**

EPO function is designed to switch off the UPS in emergency conditions (fire, flood, etc.). The system will turn off the rectifier, inverter and stop powering the load immediately (including the inverter and bypass), and the battery stops charging or discharging.

If the input utility is present, the UPS's controls will remain active; however, the output will be turned off. To remove all power from the UPS, the external feeder breaker should be opened .

■ **Digital Control System:**



Digital Control System of GT Challenger Series increases integration and provide lower system cost. Noise immunity, programmability advantage and reduction of hardware are the qualities of this new approach. The Ups ensures uninterrupted operation and protects the loads in abnormal cases that may cause failure thanks to its complex control algorithms which operates with floating point controllers.

All the control functions for GT Challenger Series UPS, which includes power-on start-up control, input stage power factor control, battery charging and boosting control, output stage ac voltage regulation, and shut-down control, are realized by using a single DSP control board.

DSP-controlled UPS system can achieve fast dynamic response for nonlinear loads and high power factor under various loading conditions.

■ **Static & Manual (Maintenance) Bypass :**

GT Challenger Series includes standard static and manual bypass.

Static bypass provides safe failure to mains if the UPS is overloaded or develops a fault condition. Where EMI filters are used to help neutralises spikes and electrical noise, the load may be routed through these on bypass to provide further protection.

The circuit blocks labeled Static Switch contain electronically controlled switching circuits that enable the critical load to be connected to either the inverter output or to a bypass power source via the static bypass line. During normal system operation the load is connected to the inverter; but in the event of a UPS overload or inverter failure, the load is automatically transferred to the static bypass line.

To provide a clean (no-break) load transfer between the inverter output and static bypass line, the static switch activates, connecting the load to bypass. To achieve this, the inverter output and bypass supply must be fully synchronized during normal operating conditions. This is achieved through the inverter control electronics, which make the inverter frequency track that of the static bypass supply, provided that the bypass remains within an acceptable frequency window.

Manual bypass function is intended for maintenance work. A manually controlled, maintenance bypass supply is incorporated into the Challenger UPS design. It is used to power down the UPS without interrupting the power to the load. It is thus possible to work on a faulty UPS in complete safety. This function is of no use on a UPS which is replaced by a standard exchange unit when it requires repairs as it is necessary to stop the load in order to replace the UPS.

■ **Auto Restart:**

When the main and bypass sources fail, the UPS draws power from the battery system to supply the load until the batteries are depleted. When the UPS reaches its end of discharge , it will shut down.

The UPS will automatically restart and enable output power: After utility power is restored. After the "Auto Start Delay Time" expires (the default delay is 5 minutes).

Perfect Generator Compatibility



GT Challenger Series is perfectly compatible with diverse sources especially generators. The UPS ensures clean, uninterrupted power to protected equipment when generator power is used thanks to its robust IGBT rectifier.

With the IGBT rectifier Low THD is kept less than <3% without compromising efficiency. Ups is therefore uniquely compatible with a wide range of generators. With power factor performance of Challenger Ups, the user can choose only %20 higher rated than of the Ups.

GT Challenger Series has the ability to adjust power walk-in from 5 seconds to 15 seconds, along with reduced input current distortion. The UPS gradually increases the power supplied from the utility source to the load on the output port based on the measured current level at the input port. The power supplied from the input port to the load on the output port, however, varies according to the input voltage, input current and input power factor.

Backfeed Protection

Back-feed protection, in UPS, prevents the risk of electric shock from any electric current feeding back from the UPS output in the event of a mains supply failure. When mains fails and connected loads are protected by UPS, back-feed protection prevents current from being passed back to the input terminals of the UPS from the inverter output. This is extremely important for health and safety reasons because it enables a service engineer to work on the incoming supply side of the UPS without risk of receiving an electric shock.

The GT Challenger Series has a back feed protection that prevents any back feed current from the UPS towards the mains power supply, thus ensuring the safety of maintenance personnel.

Reverse Energy Tolerance for Regenerative Loads:

The GT Challenger UPS can be used with regenerative loads, such as synchronous motors. The regenerative loads the energy pumps back to mains. Traditional Ups systems burns this feedback energy. This causes lower efficiency. Challenger Series Ups with IGBT rectifier can absorb intermittent load generated power. Additionally, this reverse power tolerance permits important system operations like closed transition transfers of the UPS load directly to an engine generator source.

Advanced Communication Capabilities:

GT Challenger Series has a wide range of advanced communication options. Provides remote management of the UPS over the network and Enables centralized management via the Software.

Advantages :

- Automatic Shutdown/restart of unlimited number of servers
- Power systems status view from any point of WAN
- Integration with all management systems
- Communication cards for every application
- Environmental monitoring and management
- Load shedding for optimized use of backup power
- Email notification of power events



RS232, RS485 Communication Port:

With RS232 and 485 communication port and the software, the UPS input-output parameters can be observed and controlled. By the software the changes in UPS status are reported by email and operating systems on network can be shutdown safely.



SNMP:

SNMP is Simple Network Management Protocol that can monitor and manage the Ups over TCP/IP network. All the Ups's on network can be monitored and managed via the SNMP software and adaptor. Ups events can be recorded. Warning messages, notifications can be sent by email

External Battery Management Kit:

This kit consists of two different cards. These are following;



a)R326-R01A Data Expansion Modul

R326-R01A module is directly connected to one of two expanding slots of UPS. The main duty of this module is to collect information from other battery cabins. Here, in physical intercommunication environment CAN works with MAKBUS protocol.



b)R336-R01A External Battery Cabinet Temperature Sensor

R336-R01A module is mounted on battery cabinet. From the batteries inside the cabinet, position information about the key on the cabin besides temperature details. A single card from this type is needed for each cabin.



Dry Contact Card:

A "dry" contact is a contact that is not initially connected to a voltage source and provides isolated dry contact signals which indicate any failure of UPS. Relay contacts totally isolated from UPS and Ground. All isolated contacts can operate between 3.3Vdc - 24Vdc. By using isolated contacts UPS can be controlled remotely and via other devices.

Modbus / JBUS :

Modbus is an industrial automation communication port. This device provides continuous, reliable and accurate remote monitoring of a UPS system through a Building Management System or Industrial Automation System. It connects to the network via RS-485 through either an isolated DB-9 port or terminal block.



Remote Panel:

The Ups Remote Panel helps the user to observe the operational status of the UPS from a distant place. The user can be informed via LCD of remote panel, about all operational status, event and parameters of UPS.



GPRS Modem:

The GPRS Modem allows the system to notify through email / SMS. It helps to reduce the repair and troubleshooting time.

Remote Ethernet LED

TCP/IP Based Remote Power Switch

Sensors (temperature, humidity..etc)

Parallel and Redundant Operation:

GT Challenger Series features easy and simple scalability and redundancy. It is ready to grow with your business demands. Different power rated units and any number of UPS can be connected in parallel.

Power Increase: The Ups's can be connected in parallel to increase total capacity of the system. If one of the Ups goes out of order, the critical loads are transfered to by-pass.

Redundancy: In redundant operation N number of units supplies the load and one more unit (N+1) remain as standby. All units in this system share the loads equally. If one of the Ups goes out of order because of failure or maintenance the other standby Ups continue feeding the critical loads without any interruption.

Parallel Operation Features :

- ✓ Internal standard parallel microprocessor for all models.
- ✓ Paralleable up to 16 units
- ✓ Parallel connection with ring cable
- ✓ Autosensing disconnected parallel cable
- ✓ Equal current share with DSP control
- ✓ Easy power upgrade without any interruption
- ✓ All parallel system can be controlled from the one unit s front panel
- ✓ Full synchronization of two parallel units
- ✓ Isolated parallel operation card
- ✓ Static by pass for all units



Advanced User Interface:

GT Challenger Series UPS has Large and user-friendly 4x20 LCD display which provides operating information in four different languages. Thanks to this user friendly advance LCD display, all parameters can be monitored and controlled. 500 events can be recorded by UPS.

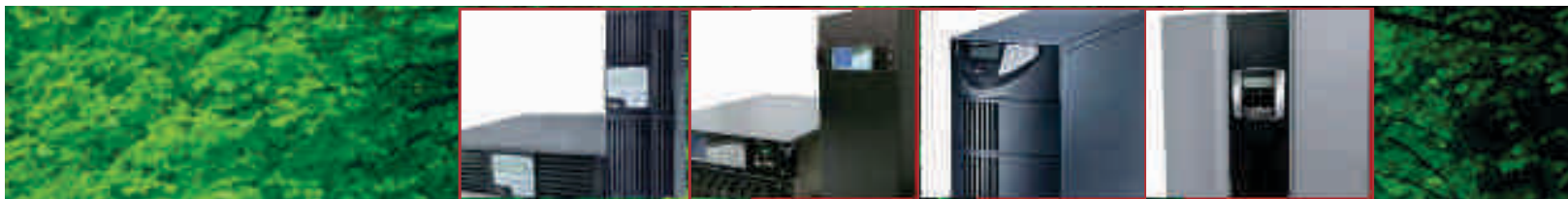


Single or Dual Input Operation:

GT Challenger Series can operate with either single or dual power inputs. Dual Input feature increases availability by allowing the UPS to be connected to two separate power sources. In dual configuration the rectifier is fed from utility (main source), the static and maintenance by-pass are fed from a secondary source.



MODEL													
Capacity VA	10kVA	15kVA	20kVA	30kVA	40kVA	60kVA	80kVA	100kVA	120kVA	160kVA	200kVA	250kVA	300kVA
Power Watt	8kW	12kW	16kW	24kW	32kW	48kW	64kW	80kW	96kW	120kW	160kW	200kW	240kW
Power Factor	0.8												
INPUT													
Input Voltage Range	220 ± %20 (L-N) veya 380 ± %20 (L-L) 3P+N +PE												
Input Power Factor	>0.99												
Input Frequency Range	50Hz ± 10% / 60Hz ± 10% (selectable)												
Rectifier	PWM IGBT Technology PFC												
Total Harmonic Distortion (THDI)	<%3												
OUTPUT													
Output Voltage Range	220/380 VAC (230/400 VAC) 3 Phase + N ± 1%												
Recovery Time	± 1 static, +3 dynamic at 100% load , 5msn												
Efficiency	Normal Mode up to %93 Eco Mode %98												
Output Frequency Range	50Hz/60Hz ± 0.01% (Battery mode)												
Output THD	Linear Load <%2 / Non Linear Load <%3												
Crest Factor	03:01												
Overload Capacity	At %125 load 10 min. %150 load 1 min.,												
Protection	IGBT Controlled Electronic Short Circuit Protection												
BATTERY													
Type	VRLA/AGM/GEL												
Quantity	28,38,40	38 , 40	38	50									
Battery Test	Programmable without load, Automatic Battery test												
Battery Temperature	20 C -25 C (for maximum efficiency)												
BY-PASS													
By-pass Input Voltage Range	230 / 400 VAC (220 / 380VAC) 3 FAZ + N ± 10% (selectable)												
COMMUNICATION													
Communication Port	RS232 / RS485 Rj11 / SNMP												
Dry Contact Alarms	7 dry contact alarms (voltage, overload, temperature, pressure, water, vs.)												
Software	MAKnet software, Megatech, SEC, vs. Compatibility with all protocols												
Central Service & Monitoring	Available												
SNMP Adaptor	Optional												
Advanced Communic. Options	MOD-Bus / J-Bus / Profibus / Modbus / Web / Tel-net / GPRS / CAN - Bus, SNMP												
CERTIFICATES													
Quality	ISO 9001 : 2008 , ISO14001												
Standard	CE, TSEK												
Safety	EN62040-1-1, IEC60950												
EMC/LVD	EN62040-2, Class A												
GENERAL													
Technology	Online, Double Conversion, Transformerless, DSP Controlled Full Digital, SMD Technology Main Board (All in one) 1/1, 3/1, 1/3, 3/3 Input – Output, Customizable as frequency converter												
Design	Modular Design enable easy, fast maintenance and serviceability (Replaceable Power and Battery Module)												
Front Panel	320x 240 LCD Front Panel + Mimic Diagram Turkish, English, Russian, German Menu												
Running Temperature	For Ups 0- 40 C, For Battery 22-25 C												
Protections	Overload, Short Circuit, Over Temperature, High Charge, Low Charge, Over Humidity												
Protection Class	IP20												
Humidity	0 - 95 % (non condensing)												
Altitude	<1000m.												
Noise	<60 dBA												
Alerts	500 Event Log - Operational Status Record												
Generator Compatibility	Soft Start, Power walk in 5 - 30 sec. (adjustable)												
Parallel Operation	N+1 Redundant Parallel, Unlimited Number of Paralellable Modules												
EMI / RFI	Standard												
EPO (Emergency Power Off)	Standard												
Galvanic Isolation Transformer	Optional												
Service & Maintenance	7 / 24 Tele Service												
Net Weight (without battery)	115kg.	115kg.	125kg.	150kg.	156kg.	165kg.	320kg	360kg	385kg	550kg	575kg	700kg	750kg
Dimensions (WxDxH) mm	46 x 80,5 x119 cm.						88.2 x 77 x 166 cm			105.5 x 80 x190.5 cm		150 x 80 x190.5 cm	



Best Power Equipments (I) Pvt. Ltd.

CORPORATE OFFICE: B-68, Setcor-65, Noida, UP : 201301
Tel: +91-120-4143400, 4143450, Fax: +91-120-4143468, Mob.: +91- 9310295859
Email : sales@bpee.com, crm@bpe.co.in Http://www.bpe.co.in, www.bpee.com

DELHI BRANCH:
A-432, New Ashok Nagar,
Delhi-100 096

AHMEDABAD BRANCH:
A-29, Popular Plaza,
Opp. Medilink Hospital,
Nr. Shyamal Cross Road,
Satellite, Ahmedabad - 380 015

MUMBAI BRANCH:
104, 1st Floor, Glare,
Mahavir Classic, Opp. L&T
Gate No. 5, Saki Vihar Road,
Powai, Mumbai - 400 072

KOLKATA BRANCH:
71/1F, Prince Bakhtiar Shah Road,
Tolly Gunge, Kolkata-700033

BHUBNESWAR BRANCH:
Lohia Academy, A-3, Unit-9
Second Floor,
Bhubaneswar-22, Orissa

KERALA BRANCH:
DDOR No. 31/1330A,
Subhash Chandra Bose Road,
Koduvel Building, Ponnurunni,
Vyttila, Ernakulam-682019, Kerala

BANGALORE BRANCH:
No 40, 4th Cross Road, K.S. Garden,
Lal Bagh Road, Bangalore - 560027

SURAT BRANCH:
S1025, World Trade Centre,
Udhana Darwaja, Ring Road,
Surat-395 002, Gujarat

CHENNAI BRANCH:
No-42/31, 3rd Floor, Gee Gee Complex,
Anna Salai, (Near Anna Theater)
Chennai - 600 002, Tamilnadu

CHANDIGARH BRANCH:
S.C.O-371-373, 1st Floor,
Sector-34A, Chandigarh-160001

HYDERABAD BRANCH:
G - 4, C Block,
G.K. Sreelakshmi Residency,
R. K. Puram, Secunderabad - 500 056.