

ONLINE UPS
10-250kVA
Three Phase / Three Phase

+CHALLENGER Series

Advanced 3 Phase Power Protection for
Small-Medium Server Rooms, Data Centers,
Industrial, Telecom and Other
Mission-Critical Applications



- ◉ True On Line - Double Conversion Technology
- ◉ IGBT PWM Rectifier & Inverter Technology
- ◉ DSP Control
- ◉ Low Input Current THD (<3%)
- ◉ High Input Power Factor (>0.99)
- ◉ High Efficiency up to 93%
- ◉ DC-DC Charger/Booster
- ◉ Wide Input Voltage Range
- ◉ Advanced Battery Management
- ◉ Short Circuit and Overload Protection
- ◉ Unlimited Number of Paralellable Modules
- ◉ Selectable Number of Batteries
- ◉ 500 Real Time Event Log with Detailed Parameters
- ◉ Static&Manual Bypass Operation
- ◉ Overload and Short Circuit Protection
- ◉ Small Footprint and Easy Maintenance
- ◉ Advanced Communication Capabilities
- ◉ Perfect Generator Compatibility
- ◉ Customizable as Frequency Converter
- ◉ Cold Start Function
- ◉ Auto Restart Function
- ◉ Local and Remote Emergency Power Off

10kVA • 15kVA • 20kVA • 30kVA • 40kVA • 60kVA • 80kVA • 100kVA • 120kVA • 160kVA • 200kVA • 250kVA

MAKELSAN®
Uninterruptible Power Supplies

The Challenger Series An Advanced UPS Technology

The Challenger Series is the new generation true Online Double Conversion fully digital controlled UPS. It is designed to meet high availability and high power quality needs of a wide variety of critical applications.

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 Challenger Series UPS handles the challenge to keep running today's critical applications that need more active power

The 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 reduction of current at the input to the rectifier brings considerable savings in the dimensioning of your distribution switchboard, fuses and cable.

The Challenger Series Combines ○ High efficiency ○ High reliability ○ Low cost of ownership and flexibility.

The sizes available include: 10, 15, 20, 30, 40, 60, 80, 100, 120, 160kVA, 200kVA and 250kVA all with a three-phase input and output.

DSP Power Factor Corrected IGBT Rectifier

IGBT based power factor correction technology provides Input Power Factor close to 1 (≥ 0.99) and keeps Input Current Total Harmonic Distortion (THDi) less than %3, that helps to avoid the disturbance.

- Input current the high input power leads to reduced electricity pay-out, minimizes cable, switchboard, fuse and generator requirements, thus reducing investment cost.
- Considerably reduced disturbance to connected loads with (THDi) less than %3.

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

Challenger Series guarantees enhanced battery life and maximizes battery performance, life span and reliability through intelligent precision charging. Advanced battery management provides real-time information about battery capacity and back up time, this information can be seen on LCD panel. The Ups tests the batteries at adjustable periods without switching off the system, the test periods can be set by users. Tests can be done either automatically or manually. Equipped with "hot-swap" feature Challenger Series Ups allows battery change without disconnection of the unit.

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

Digital Control System

Digital Control System of Challenger Series increases integration and provides lower system cost. Noise immunity, programmability advantage and reduction of hardware are the qualities of this new approach. DSP-controlled UPS system can achieve fast dynamic response for nonlinear loads and high power factor under various loading conditions.



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 will stop powering the load immediately (including the inverter and bypass) also the battery stops charging or discharging. If the input utility is present, the UPS's control units will remain active; however, the output will be turned off. To remove all power from the UPS the external feeder breaker should be opened.



	THD	Power Factor
Challenger with IGBT Rectifier	<3%	<0.99
Traditional UPS with Input Filter	<10%	<0.95
UPS without Input Filter	<25%	<0.85



Static & Manual (Maintenance) Bypass

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 to neutralize spikes and electrical noise, the load may be routed through bypass to provide further protection. Manual bypass is used to power down the UPS without interrupting the power to the load. With this feature technical personnel can work on the faulty UPS and it is completely safe to change the inner units.

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 UPS will reach its end of discharge, it will shut down. UPS will automatically restart and enable output power:

- After utility power is restored
- After the "Auto Start Delay Time" is expired (the default delay is 5 minutes).

Perfect Generator Compatibility

Challenger Series are perfectly compatible with diverse sources, especially with generators. When generator power is used, thanks to its robust IGBT rectifier, Challenger Series Ups ensures clean, uninterrupted power to protected equipment.



With the IGBT rectifier Low THD is kept less than <3% without compromising efficiency UPS is uniquely compatible with a wide range of generators. With high input power factor performance it is enough to choose generator with power only %20 higher rated than the UPS. Challenger Series has the ability to adjust power walk-in from 5 to 15 seconds, along with reduced input current distortion. Based on the measured current level at the input port, UPS gradually increases the power supplied from the utility source to the load on the output port.

Backfeed Protection

The Challenger Series UPS 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. Back-feed protection prevents the risk of electric shock from any electric current feeding back from the UPS outputs in the event of a mains supply failure.

Reverse Energy Tolerance for Regenerative Loads

The Challenger UPS can be used with regenerative loads, such as synchronous motors. The regenerative loads pump the energy back to mains, traditional Ups systems burn this feedback energy and this causes lower efficiency. Challenger Series Ups with IGBT rectifier are able to absorb intermittent load generated power.

Advanced Communication Capabilities

Challenger Series has a wide range of advanced communication options. Remote control management of the UPS is provided over the Network and enables centralized management via the MAKNet Software.

High Efficiency & Low Total Cost of Ownership

Challenger Series UPS consumes less energy to supply the loads with its high efficiency up to 93%. Thanks to this high efficiency rate, the percentage of energy that is produced as heat is reduced to a minimum. As a result of decreased heat emission and power loss users can reduce their electricity usage and air conditioning requirements.

With its reduced THDi and 0.99 input power factor, Challenger Ups helps to save money also by reducing generator size requirements.

Single or Dual Input Operation

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

Advanced User Interface

Challenger Series UPS has Large and user-friendly 320x240 LCD display that provides operating information in four different languages. Thanks to this advanced LCD display all parameters of working device can be monitored and controlled. UPS is capable of recording up to 500 events.



Parallel Operation

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 devices goes out of order, the critical loads are transferred to by-pass.

Parallel Operation Features :

- Internal standard parallel microprocessor for all models.
- Parallelable 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 systems can be controlled from the front panel of one unit
- Full synchronization of two parallel units
- Isolated parallel operation card
- Static by - pass for all units

MODEL												
Capacity	10kVA	15kVA	20kVA	30kVA	40kVA	60kVA	80kVA	100kVA	120kVA	160kVA	200kVA	250kVA
Power Watt	8kW	12kW	16kW	24kW	32kW	48kW	64kW	80kW	96kW	120kW	160kW	200kW
Power Factor	0.8											
INPUT												
Input Voltage Range	220/380VAC -15% +18% 3P+N+PE Optional 220/380VAC -37% +22% 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	220/380VAC, 230/400VAC and 240/415VAC 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 (CF)	3:1											
Overload Capacity*	At 125% load 10 min. 150% load 1 min.											
Protection	IGBT Controlled Electronic Short Circuit Protection											
BATTERY												
Type	VRLA/AGM/GEL											
Quantity	28-38-40-48-50	38-40-48-50	48-50				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	230/400VAC (220/380VAC) 3 PHASE+N ±10% (Selectable)											
COMMUNICATION												
Communication Port	RS232 / RS485 RJ11 / SNMP											
Dry Contact Alarms	7 Dry Contact Alarms (Voltage, Overload, Temperature, Pressure, Water, etc.)											
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											
STANDARDS												
Quality	ISO 9001 - ISO 14001 - ISO 18001											
Performance	EN62040 -3											
EMC/LVD	EN62040 - 2 / EN62040 -1 EN60950											
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	Compact Design Enable Easy, Fast Maintenance and Serviceability (Replaceable Power and Batterie Module)											
Front Panel	320x240 LCD Front Panel + Mimic Diagram Turkish, English, Russian, German Menu											
Running Temperature	For Ups 0°C-40°C, For Battery 22°C - 25°C											
Protections	Overload, Short Circuit, Over Temperature, High Charge, Low Charge, Over Humidity											
Protections Class	IP20											
Humidity	0 - 95% (Non Condensing)											
Altitude	<1000m											
Noise	<60dBA											
Alerts	500 Event Log-Operational Status Record											
Generator Compatibility	Soft Start, Power Walk in 5-30sec (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	Service & Maintenance											
Net Weight (without battery) (kg)	115	115	125	150	156	165	320	360	385	550	575	700
Dimensions (WxDxH) (mm)	460 x 805 x 1190						880 x 770 x 1160			1055 x 815 x 1905		
*under certain conditions	* 3 Phase in / 1 Phase Out Version is Available. (10 to 40kVA)											

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