

EVERY MOMENT COUNTS



N+1 Parallel



Easy
Communication



Hot
Swappable



Power Share



DSP
Digital Signal
Processing



MSII-RT

PARALLEL REDUNDANCY ON-LINE UPS WITH RACK-TOWER CONFIGURATIONS
FOR MISSION CRITICAL USER

HELIOS
POWER SOLUTIONS

PARALLEL REDUNDANCY ON-LINE UPS WITH RACK-TOWER CONFIGURATIONS

The Ablerex MSII-RT Parallel Redundancy On-Line UPS, is the perfect solution for mission critical users who demand high reliability, availability and performance for critical electronic equipment and computer loads.

It features double conversion True Online Technology, field-proven full Digital Signal Processor (DSP) and utilises our uniquely patented inverter control technology. The Ablerex MSII Parallel On-Line UPS is a scalable system which achieves N + 1 redundancy without any additional parts.

Simple Parallel Installation (No extra PCB require)

Install for operation in parallel to increase power capacity or make redundant system. Simply connect the parallel control lines through the RJ-45 connector on the rear panel with CAM-bus and communication is established to all units. The maximum parallel operation configuration is 4 units.

Full Digital Signal Processor (DSP) Control

Provides both pure sine waves at the output and perfect sine waves to the input current to ensure compatibility with all kinds of loads. Full DSP technology also allow :

- **Programmable Frequency Converter**

Reprogram the UPS to be a Frequency Converter for either 50Hz or 60Hz through front keypad configuration.



- **Easy-to-Set User Personalization**

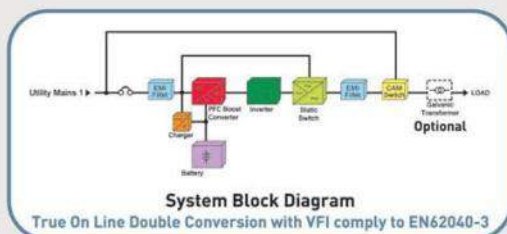
Through the LCD front panel, you can easily change the built-in parameters and settings of the DSP controllers, such as UPS operation modes voltage configurations, synchronization frequency windows, bypass voltage tolerance and buzzer alarm status.

- **Intelligent Self-Diagnostics**

Through the self-diagnostics inside the DSP, system faults can be pin-pointed rapidly which results in faster repair times easier servicing. Simply access the service mode and check each device step by step, through the results displayed on the LCD display.

- **Smart Fan Control**

The speed of the internally mounted cooling fans are controlled according to load percentage to reduce noise levels and energy consumption.

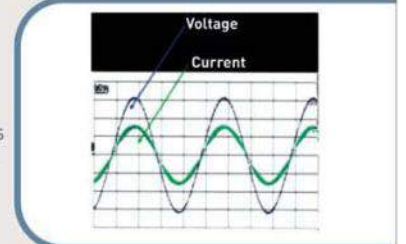


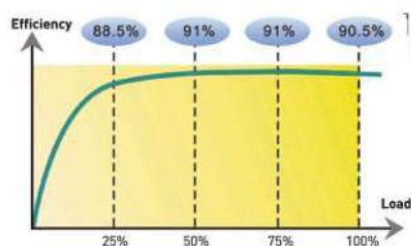
True Double Conversion On-Line Technology

Corrects power disturbances from the utility power and regenerates clean and safe AC power. The Voltage Frequency Independent (VFI) working mode of the UPS complies with EN62040-3, European Directives for True-On-Line Technology.

High Input Power Factor and Low Current THD

Provides a clean rectifier connection to the utility power. It meets today's industry standards for energy saving and low current harmonic pollution to the utility power and achieves up to 0.99 at Input Power Factor as well as <5% Current THD.





Energy-efficient UPS

The AC to AC efficiency of the UPS reaches up to 90% at 50% load and better at larger loadings. Using the ECO mode, efficiencies of up to 97% can be achieved.

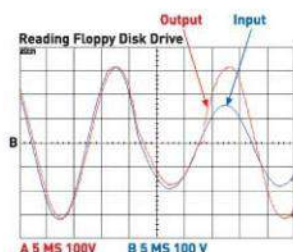
LCD/LED Mimic Panel



An easy-to-read front panel LCD/LED display provides real-time status of all major system parameters and statuses such as operation modes, AC voltage, frequency, battery voltage, load level, inner temperature, etc.

2 X Customer Options Slots

The UPS also provides two additional Customer Option Communication slots (MSII 4500 RT come with 1 slot) in addition to the standard RS232 port. All communication cards are designed for easy installation as electrical connections are made through a 26-pin edge card connector. The first RS232 port on the rear panel will remain active, when other optional communication card(s) are installed.



Smart ECO Mode

In ECO operation mode, power is supplied to load via Bypass Utility. It will automatically transfer to controlled inverter supply instantly without any break, if Bypass Utility is out of tolerance or unavailable.

i-Batt

Automatically manages end of discharge voltage according to load capacity. The i-Batt function prevents deep-discharge of the built-in battery during a power failure with ultra low load conditions.

Cold Start Function

Enables users to turn on the UPS without connecting to the utility.



Power Range and Runtime Scalability

The Aplerex MSII UPS provides excellent return on investment. The system is fully modular, which allows you to increase the overall power output, battery runtime and redundancy as your system grows. It is important however that you design your electrical installation to support your needs.

Communication Capability

The UPS is equip with monitoring/shutdown software as standard. The software not only allows the control of the UPS and its scheduled shutdown when the utility power fails, but also allows the user to

- Remotely test the major operating functions of the UPS
- Communicate via SNMP/WEB card
- Access UPS functions via the WEB

Matching Battery Cabinet Connectivity

Standard matching battery cabinets are available to extend the UPS runtime easily to several hours.

Space-Saving Tower/Rack Convertible Design

Offers a flexible form factor which enables its integration even in the most difficult of environments with space constraints. The space-saving design means the UPS only occupy 4U in the 19" or 21" rack cabinets with optional 21" rack accessories.



Optional EPO Function

Enables users to perform one-touch emergency shutdown of the UPS remotely via dry contact relay.

Optional Maintenance Manual Bypass

It ensures continuous supply of power to the critical load during service or periodical maintenance of the UPS system. The built-in Manual Bypass Switch is electrically interlocked with the inverter to provide safe operation. An External Maintenance Bypass switchbox is available for complete unit hot swap. [Optional, please check with your dealer]

Optional Galvanic Isolated Transformer

The galvanic isolation transformer not only provides a complete isolation between input and output, but also allow various secondary voltages such as 220/230/240Vac, 208Vac/120Vac and 240Vac/120Vac. This provides an intrinsic safety between input and output either at normal system mode or at bypass mode. [refer to system block diagram]

Model	Description	Dimension(WxDxH)mm	Net Weight
GTM-W05	Galvanic Isolation transformer & Maintenance Bypass Switch	440 x 88 x 680	42kgs
GTM-WS	Galvanic Isolation transformer	440 x 88 x 680	41kgs
RacPDU-230	Rack Power Distribution Unit	326 x 88 x 100	3.5kgs

Optional External Battery Charger Box (1000Watts / 4Amps)

The optional charger box, with its isolated conversion technology plus precision control, can be installed in parallel operation of up to 4 charges. The specifications are as follows;



AC Input Range	100-280Vac, 45-65Hz
Maximum Power Output	1000W, continuously
Operation Mode	Constant Voltage with Current Limitation
Maximum Parallel Units	Up to 4 charges
Protections	Over-temperature, Over-voltage, Against Output Short-circuit & Isolated devices for Opposite polarity Connection
Mounting	Mounted on the rear of the UPS or wall mounted
Dimension(WxDxH)	166 x 282 x 86mm
Net Weight	3.2kgs

TECHNICAL SPECIFICATIONS

Model	MSII 4500RT	MSII 6000RT	MSII 10000RT
INPUT			
Voltage	160 ~ 280Vac* single phase		160 ~ 280Vac* (1P / 1P) 277 ~ 485Vac (3P / 1P)
Frequency	45 ~ 65 Hz		
Phase / Wire	Single, Line + Neutral + Ground		
Power Factor	Up to 0.99 at 100% Linear Load		
Current THD	<6% at 100% Linear Load		
OUTPUT			
Voltage	200/208/220/230/240Vac Selectable [208/120Vac Optional]		
Voltage Adjustment	Nominal + 1%, +2%, +3%, -1%, -2% or -3%		
Voltage Regulation	±2%		
Capacity	4500VA/3150W	6000VA/4200W	10000VA/7000W
Rated Power Factor	0.7 lagging		
Wave Form	Sine Wave, Voltage THD <3% (no load to full load)		
Frequency Stability	±0.2% On Inverter Free-Running Mode		
Frequency Regulation	+/-1Hz, +/-3Hz [programmable by user]		
Transfer Time	0msec		
Crest Factor	3:1 acceptable		
Efficiency [AC to AC, Normal]	Up to 90%		
Efficiency [AC to AC, ECO]	Up to 95%		
Autonomy (run time at full load)	~5-30 mins depending on Load		
DC Start	Yes		
BATTERY			
Type	Sealed Lead Acid Maintenance Free		
Capacity	4.5AH	7AH	9AH
Quantity	20pcs		
Voltage	240Vdc		
Recharge Time	4 Hours to 90%		
DISPLAY			
Status on LED + LCD	Line Mode, Backup Mode, ECO Mode, Bypass Supply, Battery Low, Battery Bad/Disconnect, Overload, Transferring with Interruption, & UPS Fault		
Readings on LCD	Input Voltage, Input Frequency, Output Voltage, Output Frequency, Load Percentage, Battery Voltage & Inner Temperature.		
Self-Diagnostics	Upon Power-on & Front Panel Setting		
PROTECTION			
Overload [with simulated thermal tripping I-T curve]	AC Mode : <105% continuously >106% ~ 120% for 30 sec Bypass Mode: <105% continuously >106% ~ 120% for 250 sec shut down >121% ~ 130% for 125 sec shut down >131% ~ 135% for 50 sec shut down >136% ~ 145% for 20 sec shut down		>121% ~ 150% for 10 sec >150% immediately >146% ~ 148% for 5 sec shut down >149% ~ 157% for 2 sec shut down >158% ~ 176% for 1 sec shut down >177% ~ 187% for 0.32 dec shut down >188% for 0.16 sec shut down
Short Circuit	Inverter Switch Off Immediately		
Overheat	AC mode : Switch to Bypass Backup mode: UPS shuts down immediately		
Battery Low	Alarm and Switch Off		
Noise Suppression	Complies with EN62040-2		
Spike Suppression	Complies with EN61000-4-5		
ALARMS			
Audible and Visual	Line Failure, Battery Low, Transfer to Bypass, System Fault Condition		

ablerex **MSII-RT** TECHNICAL SPECIFICATIONS

Model	MSII 4500RT	MSII 6000RT	MSII 10000RT
PHYSICAL			
Dimensions (W x H x D) Rack Configuration	440 x 176 (4U) x 680 (UPS + Battery)	440 x 88 (2U) x 680 (UPS module) 440 x 133 (3U) x 680 (Battery module)	440 x 133 (3U) x 680 (UPS module) 440 x 133 (3U) x 680 (Battery module)
Net Weight - kgs	~72kg	~24kgs (UPS module), ~68kg (Battery module)	~30kgs (UPS module), ~70kg (Battery module)
Optional Extended Battery Bank BBC20J0007 (20pcs 12V/7AH)	Dimension : 440 x 133 (3U) x 660, weight 68kg		
Input & Output Connection	Hardwire		
External Battery Connection	Plug & Play		
ENVIRONMENT			
Operating Temperature	0°C - 40°C		
Temperature Warning	The battery design life is based on a temperature of 25°C. Ambient temperature above this range will reduce battery life		
Altitude	0~2000m up to 40°C, 3000m up to 35°C		
Humidity	90% RH Maximum, Non-Condensing		
Noise	<50dB (at 1 meter)		
COMPUTER INTERFACE			
Interface Type	Standard RS232 Interface		
Communication Slots	2 nd RS232 with EPO**, USB with EPO**, RS485 with EPO**, Relay Contact & EPO, SNMP/WEB Card, etc. (Optional)		
SAFETY CONFORMANCE			
Quality Assurance	ISO9001 Certified Company		
Safety Standard	EN62040-1, UL1778		
EMC Standard	EN62040-2, EN61000-3-2, EN61000-3-3, FCC Class A		
Marks	CE, UL		

* 160 ~ 176Vac at ≤75% load.

** These cards are not suitable to use simultaneously.
Specifications subject to change without prior notice.

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