

EVERY MOMENT COUNTS



N+1 Parallel



Easy
Communication



Hot
Swappable



Power Share



DSP
Digital Signal
Processing



• **ablerex**MSII-RT

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

 **Ablerex**
every moment counts

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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**

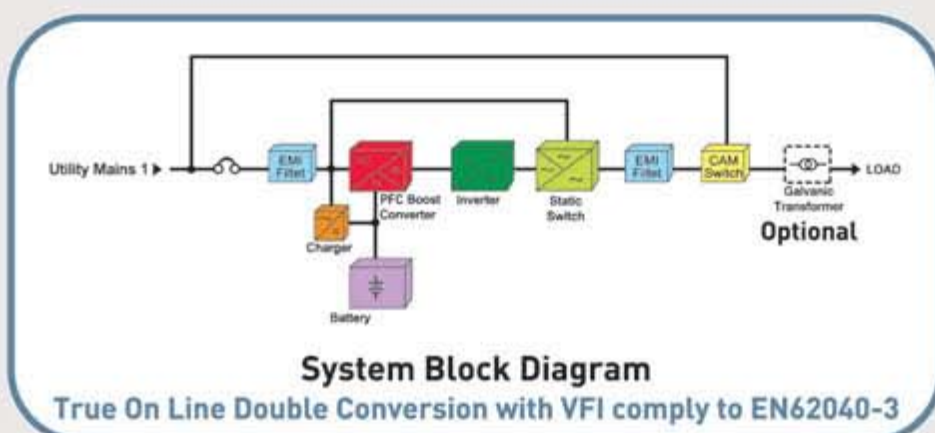
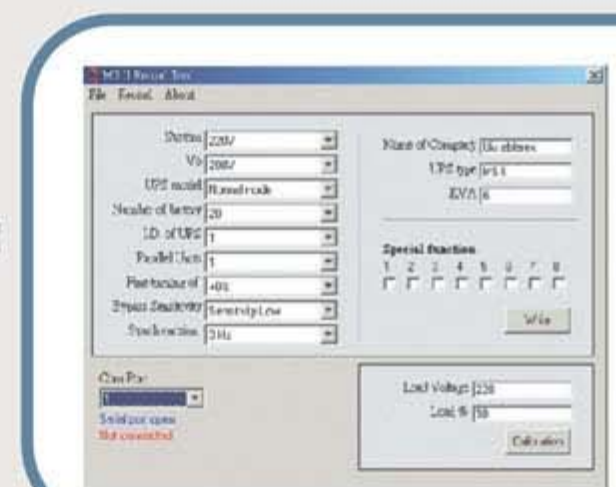
Through the LCD front panel, you can easily change the built-in parameters and settings of the DSP controllers, such as UPS operation modes voltage configurations, synchronization frequency windows, bypass voltage tolerance and buzzer alarm status.

- **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.



System Block Diagram

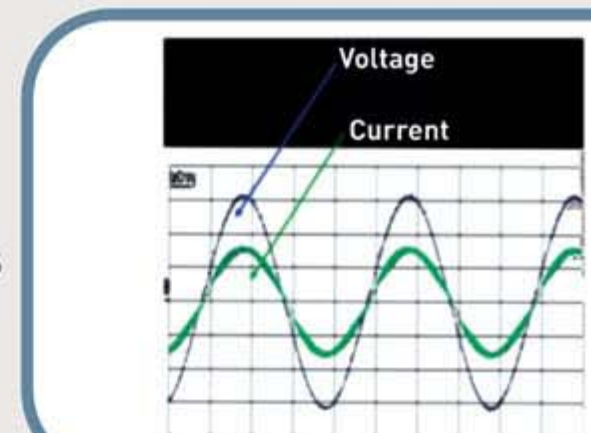
True On Line Double Conversion with VFI comply to EN62040-3

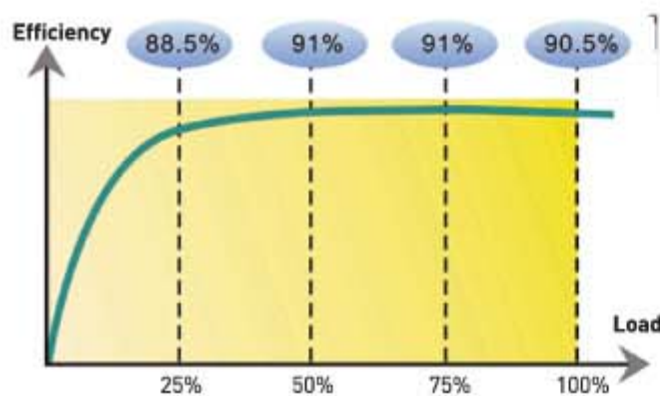
True Double Conversion On-Line Technology

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.

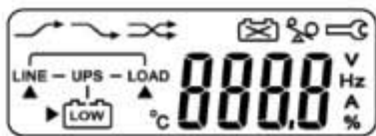




Energy-efficient UPS

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.

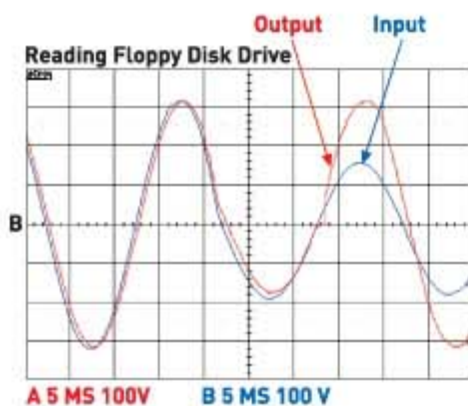
LCD/LED Mimic Panel



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-W0S	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

Model	MSII 4500RT (V)	MSII 6000RT (V)	MSII 10000RT (V)	MSII 15000RT (V)	MSII 20000RT (V)
INPUT					
Voltage	160 ~ 280Vac* single phase		160 ~ 280Vac* (1P/1P) 277 ~ 485Vac (3P/1P)	190 ~ 486Vac (3P/1P)	
Frequency	45 ~ 65 Hz			45 ~ 70 Hz	
Phase / Wire	Single + G		Single / Three + G		Three + G
Power Factor	1P/1P: Up to 0.99 at 100% Linear Load			3P/1P: Up to 95% at 100% Linear Load	
Current THD	1P/1P: <5% at 100% Linear Load			3P/1P: <30% at 100% Linear Load	
OUTPUT					
Voltage	200/208/220/230/240Vac Selectable [208/120Vac Optional]			200/208/220/230/240Vac	
Voltage Adjustment	Nominal + 1%, +2%, +3%, -1%, -2% or -3%				
Voltage Regulation	±1%				
Capacity	4500VA / 4050W	6000VA / 5400W	10000V± / 9000W	15000VA / 13500W	20000VA / 18000W
Rated Power Factor	0.9 lagging				
Wave From	Sine wave / Voltage THD <1% (max with linear load)				
Frequency Stability	±0.2% On Inverter Free-Running Mode				
Frequency Regulation	50/60Hz ± 1Hz or ± 3Hz (Selectable)				
Transfer Time	0msec				
Crest Factor	3:1 acceptable				
Efficiency (AC to AC, Normal)	Up to 90%				
Efficiency (AC to AC, ECO)	Up to 97%				
Autonomy (run time at full load)	~5-30 mins depending on Load				
DC Start	Yes				
BATTERY					
Type	Sealed Lead Acid Maintenance Free				
Capacity	5AH	7AH/9AH	9AH		
Quantity	20pcs			16pcs or 20pcs	
Voltage	240Vdc			192Vac or 240Vac	
Recharge Time	<3 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% continously >106% ~ 120% for 30 sec Bypass Mode: <105% continously >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 (V)	MSII 6000RT (V)	MSII 10000RT (V)	MSII 15000RT (V)	MSII 20000RT (V)
PHYSICAL					
Dimensions (W x H x D) UPS Module Rack Configuration	440 x 176 (4U) x 680	440 x 88 (2U) x 680	440 x 132 (3U) x 680	440 x 220 (5U) x 720	
Dimensions (W x H x D) Battery Module Rack Configuration	(UPS + Battery)	440 x 132 (3U) x 680	440 x 132 (3U) x 680	440 x 132 (3U) x 680	
Net Weight - kgs	~72kg	~24kg (UPS), ~68kg (Battery)	~30kg (UPS), ~70kg (Battery)	~42kg (UPS), ~70kg (Battery)	
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	0 to 95% RH maximum, Non-Condensing				
Noise	<50dB (at 1 meter)				
COMPUTER INTERFACE					
Interface Type	Standard RS232 Interface & EPO				
Communication Slots	2nd RS232**, USB**, RS485**, Dry Contact Relay**, SNMP/WEB Card**, etc. (Optional)				
SAFETY CONFORMANCE					
Quality Assurance	ISO9001 Certified Company				
Safety Standard	EN62040-1, UL1778				
EMC Standard	EN61000-6-2, EN62040-2, EN61000-4, EN61000-2, 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.



**DESIGNED AND
ENGINEERED BY :**



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