

Online UPS 1-10KVA SAFELOAD SERIES  
Low Frequency 10-600KVA SAFEGUARD SERIES



GREEN  
ENERGY SAVING  
ENVIRONMENTAL PROTECTION

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# SAFELOAD SERIES

## Online UPS 1-3kVA

1/2/3kVA

1 Phase Input/1 Phase Output



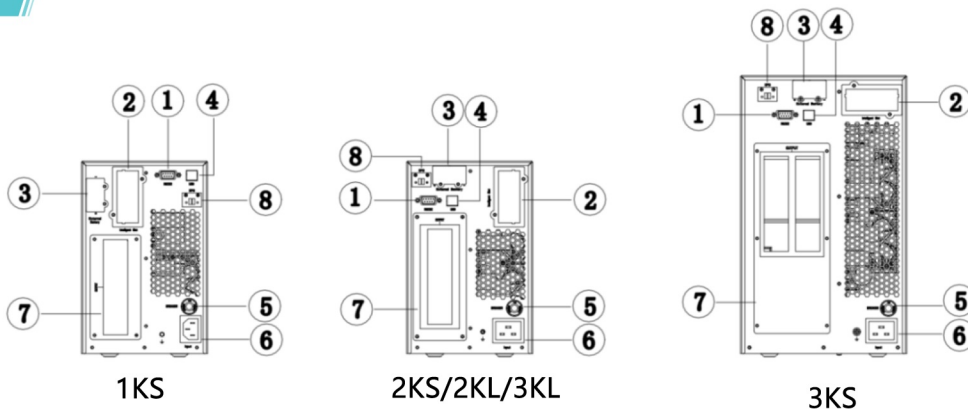
### Features

- True online double-conversion technology
- Wide input voltage range
- DSP technology
- Advanced PFC technology, input PF>99%
- Strong charging capacity
- Lighting and surge protection
- LCD/LED display
- Smart RS232 and USB Ports with monitoring software

### Application

IDC (Internet Data Center), Network, Servers and Workstations, Control System, Communication System, Office, PC etc.

### Rear Panel



- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>① RS232</li> <li>② Smart slot</li> <li>③ External battery connection port</li> <li>④ USB</li> </ul> | <ul style="list-style-type: none"> <li>⑤ Input over current protection breaker</li> <li>⑥ AC input</li> <li>⑦ Output socket</li> <li>⑧ EPO</li> </ul> |
|--|---|



# SAFELOAD SERIES ONLINE UPS 6-10kVA

6/10kVA

1 Phase Input/1 Phase Output

PF=1



6/10KL



6/10KS

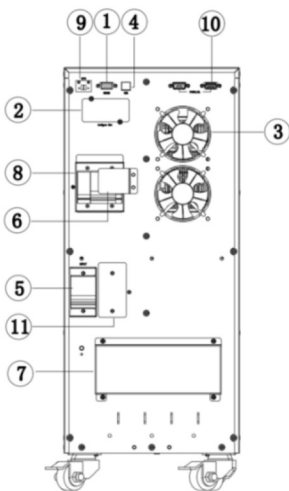
## Features

- True online double-conversion technology
- Wide input voltage range
- DSP based technology
- Advanced PFC technology, input PF>99%
- Strong charging capacity
- Lighting and surge protection
- LCD/LED display
- Compatible with the generator

## Application

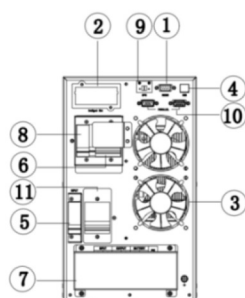
IDC (Internet Data Center), Network, Servers and Workstations, Control System, Communication System, Office, PC etc.

## Rear Panel



6KS/10KS

3/10



6KL/10KL

- ① RS232
- ② Smart slot
- ③ Fan
- ④ USB
- ⑤ Input breaker
- ⑥ Maintenance bypass breaker (optional)
- ⑦ Terminal block
- ⑧ Output breaker (optional)
- ⑨ EPO
- ⑩ Parallel kit (optional)
- ⑪ Battery breaker (optional)

## Specifications

Model	SLOAD 1KS	SLOAD 1KL	SLOAD 2KS	SLOAD 2KL	SLOAD 3KS	SLOAD 3KL
Capacity	1kVA/1kW		2kVA/2kW		3kVA/3kW	
<b>Input</b>						
Rated Voltage	208/ 220/230/240Vac, L+N+PE					
Voltage Range	110~300Vac					
Frequency Range	40-70Hz					
Power Factor	≥0.99					
THDi	≤4% (linear load); ≤5% (non-linear load)					
<b>Output</b>						
Rated Voltage	208/220/230/240Vac,L+N+PE					
Voltage Regulation	±1%					
Frequency	50/60Hz ± 0.1%					
THDu	≤2% (linear load); ≤5% (non-linear load)					
Transfer Time	Zero					
Waveform	Pure sine wave					
Crest Factor	3:1					
Overload Capacity (Line Mode)	102%~110% load, 30min;110%~130% load, 10min; 130%~150% load, 30s; >150% load, 200ms					
Overload Capacity (Battery Mode)	102%~110% load, 1min;110%~130% load, 10s; 130%~150% load, 3s;>150% load, 200ms					
<b>Efficiency</b>						
Line Mode	94.5%		95.5%		95.5%	
Battery Mode	88.5%		91.5%		91.5%	
ECO Mode	98%					
<b>Battery</b>						
Nominal Voltage	24Vdc /36Vdc	36Vdc	48Vdc /72Vdc	72Vdc	72Vdc / 96Vdc	96Vdc
Battery Number	7Ah*2 / *3	External	7Ah*4 / *6	External	7Ah*6/*8	External
Charge Current	1A	1-12A settable	1-12A	1-12A settable	1A	1-12A settable
<b>Communication</b>						
Interface	RS232 / USB / SNMP card(optional) /Dry contact card(optional)					
<b>Environment</b>						
Operation Temperature	0~40℃					
Humidity	0~95%(non-condensing)					
Noise	≤50dB@1meter away					
Altitude	Up to 1000m without derating					
<b>Physical</b>						
Dimensions (W*D*H)mm	145*354*224	145*354*224	190*418*322	145*405*224	190*418*322	145*405*224
Weight (kg)	9 /11	4.5	16.3 /20.2	6	23.5 /27	6.3

All specifications are subject to change without prior notice.



Model	SLOAD 6KS	SLOAD 6KL	SLOAD 10KS	SLOAD 10KL
Capacity	6kVA/6kW		10kVA/10kW	
<b>Input</b>				
Rated Voltage	208/ 220/230/240Vac, L+N+PE			
Voltage Range	110~300Vac			
Frequency Range	40-70Hz			
Power Factor	≥0.99			
THDi	≤5%(linear load); ≤8%(non-linear load)			
<b>Output</b>				
Rated Voltage	208/220/230/240Vac, L+N+PE			
Voltage Regulation	±1%			
Frequency	50/60Hz±0.1%			
THDu	≤2% (linear load); ≤5% (non-linear Load)			
Transfer Time	Zero			
Waveform	Pure sine wave			
Crest Ratio	3:1			
Overload Capacity (Line Mode)	102%~105% load, 30min; 105%~125% load, 10min; 125%~150% load, 30s; >150% load, 500ms			
Overload Capacity (Battery Mode)	102%~105% load, 10min; 105%~125% load, 1min; 125%~150% load, 10s; >150% load, 500ms			
<b>Battery</b>				
Battery Type	Sealed lead acid maintenance free			
Nominal Voltage	192Vdc / 240Vdc			
Battery Number	7Ah*16/20pcs	External	9Ah*16/20pcs	External
Charge Current	1A	1-12A settable	1A	1-12A settable
<b>Efficiency</b>				
Line Mode	95%			
Battery Mode	94.5%			
ECO Mode	98%			
<b>Communication</b>				
Interface	RS232 / USB/ SNMP card(optional) /Dry contact card (optional)			
<b>Environment</b>				
Operation Temperature	0~40℃			
Humidity	0~95%(non-condensing)			
Noise	≤50dB@1meter away			
Altitude	Up to 1000m without derating			
<b>Physical</b>				
Dimensions (W*D*H) mm	250*523*602	190*437*322	250*523*602	190*437*322
Weight (kg)	57/67	10	61.3/71.5	11

All specification are subject to change without prior notice.






# SafeGuard Series

## Low Frequency Online UPS 10-600KVA

Data Center   Local Area   Industrial Processes   Servers



**Product Snapshot**

- SafeGuard 10-100KVA(3Ph/1Ph)
- SafeGuard Max 10-600KVA(3Ph/3Ph)
- Nominal Input Voltage: 380/400/415VAC
- Output Power Factor: 0.9
- Parallel: Maximum 6 PCS UPS
- Battery can be shared in parallel mode



### High intelligence and reliable power supply:

Due to its outstanding mechanical and electrical design, SafeGuard series UPS provides maximum protection for vital mission-critical networks, security applications (electro-medical) and industrial applications.

The load is powered continuously by the inverter with a filtered, stabilized and regulated sinewave supply. The input and output EMI filters considerably increase the immunity of the load to mains disturbances and surges.

The SafeGuard series uses on-line double conversion technology (VFI) with isolation transformer on the inverter output.

The SafeGuard is supplied with Watch & Save 3000 software as standard and can be remotely monitored using the Power NetGuard system from anywhere in the world. Additional battery extension packs allow the standard battery runtime to be extended up to several hours.

### APPLICATION:

Servers  
Local area Network(LAN)  
Data centers  
Telecommunications  
Electro-medical equipment

### MAXIMUM BATTERY CARE:

- Battery deep discharge protection;
- Temperature compensating charger;
- Built-in automatic and manual battery test feature.

### MINIMUM IMPACT ON SUPPLIES EASY SOURCE:

Input current distortion <4% for the SafeGuard/Max with filter with sinusoidal absorption to remove the risk of resonance with other input supply users or phase shift capacitor sets. The absorbed current distortion is independent of input supply parameters such as impedance. This enable SafeGuard/Max to deliver maximum performance levels regardless of the installation environment. With these input features SafeGuard/Max can achieve significant savings in terms of sizing and power supply courcesiso- ation transformers and generators over less sophisticated power systems.

### SIMPLE TO INSTALL:

- Capability to install the UPS into any distribution system (neutral not required on rectifier input);
- Capability to separate the rectifier/bypass power networks and to power them from two separate sources, without Galvanic isolation (Necessary on UPS without an output transformer).

### HIGH RELIABILITY:

- Extremely high short-circuit current to ensure compatibility with the most difficult transformer applications (lighting, drives and industrial processes) and an isolation transformer on the inverter output;
- Full microprocessor control with no-break static and manual bypasses;
- IGBT technology.

### OTHER CHARACTERISTICS:

- 0.9 power factor makes SafeGuard and Max suitable for powering ICT and Industrial loads
- High level diagnostics: event log with 128 messages, states, measurements and alarms-available from the built-in LCD with several languages;
- BACK FEED protection: to avoid energy feeding back into the mains supply cause a fault occur.

### MAXIMUM RELIABILITY AND AVAILABILITY:

Connect up to 6 units in parallel or N+1 redundancy, even of different power ratings. The UPS continue to work in parallel even if one of the interconnecting communication cables is disconnected (CLOSED LOOP).

### PRODUCTION & APPLICATION:



### LOW CONSUMPTION LEVELS:

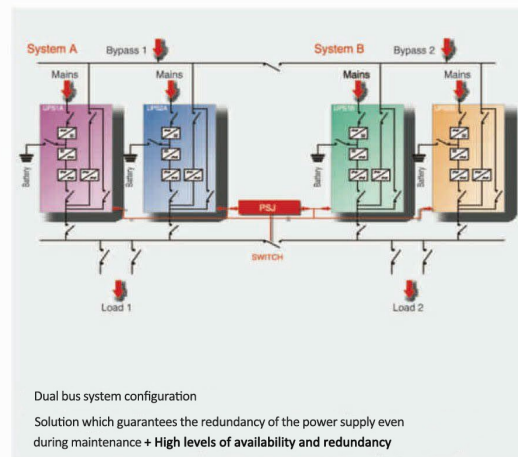
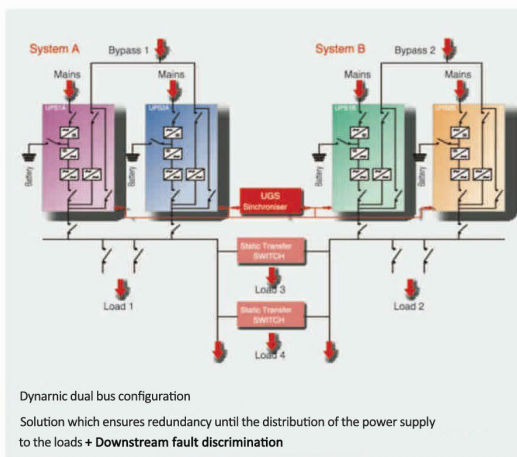
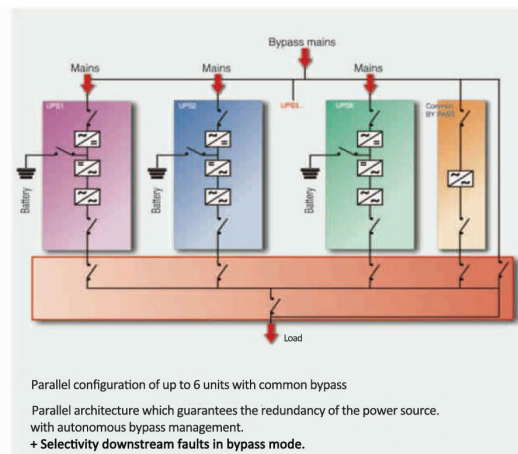
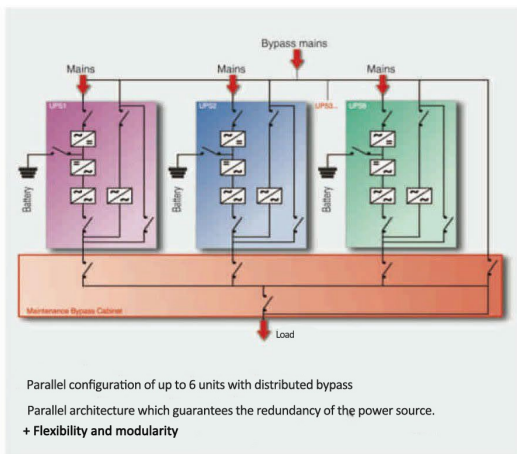
SafeGuard & Max can achieve efficiencies >98% thanks to selectable Economy Mode which can be used in stable electrical environments to provide power supply continuity when the mains fail.

### ADVANCE COMMUNICATION:

- Compatible with TeleNetGuard for remote maintenance;
- Advanced, multi-platform communication for all operation systems and network environments: Watch & Save 3000 monitoring and shut-down software included, with SNMP agent, for Windows 2008, Vvista, 2003, XP; Mac OS X, Linux, Novel and most popular Unix operating systems;
- The UPS is supplied with a cable for direct connection to the PC (Plug and Play)
- RS232 double Serial port Installation slot for an Emergency Power Off (EPO) interface to allow the UPS to be switched off remotely in an emergency
- Generator interface: enables desynchronisation of the UPS output from a generator supply which may be subject to phase and frequency variations. The interface also enables more economic use of the battery charge..

### EXPANDABILITY:

- The units can be connected in parallel up to 6 units to increase power availability or redundancy. The single module or the system can be expanded any time to suit power requirements without influencing the initial investment.
- Thanks to the peculiarity of the "Hot System Expansion" feature, the additional unit can be connected in parallel while the other units are on-line and supplying regular power to the load. The new UPS is on-line and will be set up automatically.



## SafeGuard Series Technical Specifications

SafeGuard 10-100KVA								
Model	10KVA	15KVA	20KVA	30KVA	40KVA	60KVA	80KVA	100KVA
Capacity	9KW	13.5KW	18KW	27KW	36KW	54KW	72KW	90KW
<b>Input</b>								
Rated Voltage	380/400/415 Vac three-phase							
Voltage Range	±20%							
Frequency Range	45-65Hz							
Range(Hz)	50±5%(±10%)Bypass synchronization tracking							
Rectifying Pulse Number	6 pulse rectification							
Phase System	3φ4W +PE(Three phase five wire system)							
Battery Voltage(VDC)	384							
Battery Quantity(Section)	Standard with 32(30~34, can be set through the LCD panel)							
<b>Output</b>								
Power Factor	0.9							
Voltage(V)	L-N: 220±1%							
Voltage Regulation	<1%(online and battery mode) at 100% linear load,<2% allow 100% imbalance							
Frequency(Hz)	Normal power, tracking the frequency of power, Frid abnormal.50±0.2%							
Transfer Time(ms)	0							
Recovery Time	Dynamic load voltage transient <5%, recovery within 5ms							
Waveform Distortion	Linear load THD 3%: Nonlinear load THD 5%							
Overload Capacity	125% full load for 10 minutes, maintain 150% full load for 1 minute and then switch to bypass power supply, after reducing the load can automatically restore the inverter							
Crest Factor	3:1							
<b>System</b>								
Communication Function	Provides dry contract communication and RS232/RS485, Optional SNMP option to achieve intelligent monitoring of UPS							
Panel Display	LED displays working status and fault indication: LCD displays three-phase input voltage, input frequency, output voltage, load, battery boltage, battery charge and discharge current, etc							
Display	LCD 7' touch screen display							
The Audio Noise(dB)	<65(within 1 meter)							
Alarm Function	Battery low voltage, abnormal power supply, overload, UPS failure, over temperature protection							
Protection	Input over voltage, battery under voltage, overload, short circuit, over temperature protection							
Cooling Way	Forced cooling							
Operating Temperature(°C)	-10~35 without de-rating							
Humidity	0~95%, non-condensing							
Max Altitude	Rated power at 1000m,(increase 100m and decrease by -1%), maximum 4000m							
Protect Level	IP21							
Size (W*D*H)(mm)	540*657*1132				555*725*1290		800*745*1700	
Net Weight(KG)	173	199	211	254	306	385	390	665
Gross Weight(KG)	196	222	233	276	329	415	419	724

Note: Product specifications are subject to change without further notice.

## SafeGuard Max Technical Specifications

SafeGuard Max 10-600KVA																	
Model	10KVA	20KVA	30KVA	40KVA	60KVA	80KVA	100KVA	120KVA	160KVA	200KVA	250KVA	300KVA	400KVA	500KVA	600KVA		
Capacity	9KW	18KW	27KW	36KW	54KW	72KW	90KW	108KW	144KW	180KW	225KW	270KW	360KW	450KW	540KW		
Input																	
Rated Voltage	400 Vac three-phase																
Voltage Range	380/400/415VAC ( $\pm 25\%$ , Can be set through the LCD panel)																
Frequency Range	40-70Hz (Automatically select synchronization range according to grid frequency)																
Range(Hz)	50 $\pm 5\%$ ( $\pm 10\%$ )Bypass synchronization tracking																
Rectifying Pulse Number	6 pulse rectification									6/12 pulse rectification			12 pulse rectifier				
Phase System	3 $\phi$ 4W +PE(Three phase five wire system)																
Battery Voltage(VDC)	384												480				
Battery Quantity(Section)	Standard with 32(30~34, can be set through the LCD panel) Standard 40 knots (38~42 knots, can be set by LCD panel)																
Output																	
Power Factor	0.9																
Voltage(V)	L-N: 220 $\pm 1\%$ L-L: 380 $\pm 1\%$																
Voltage Regulation	<1%(online and battery mode) at 100% linear load,<2% allow 100% imbalance																
Frequency(Hz)	Normal power, tracking the frequency of power, Frid abnormal.50 $\pm 0.2\%$																
Transfer Time(ms)	0																
Recovery Time	Dynamic load voltage transient <5%, recovery within 5ms																
Waveform Distortion	Linear load THD 3%: Nonlinear load THD 5%																
Overload Capacity	125% full load for 10 minutes, maintain 150% full load for 1 minute and then switch to bypass power supply, after reducing the load can automatically restore the inverter																
Crest Factor	3:1																
System																	
Communication Function	Provides dry contact communication and RS232/RS485, Optional SNMP option to achieve intelligent monitoring of UPS																
Panel Display	LED displays working status and fault indication: LCD displays three-phase input voltage, input frequency, output voltage, load, battery boltage, battery charge and discharge current, etc																
Display	LCD 7' touch screen display																
The Audio Noise(dB)	<65(within 1 meter)																
Alarm Function	Battery low voltage, abnormal power supply, overload, UPS failure, over temperature protection																
Protection	Input over voltage, battery under voltage, overload, short circuit, over temperature protection																
Cooling Way	Forced cooling																
Operating Temperature( $^{\circ}$ C)	-10~35 without de-rating																
Humidity	0~95%, non-condensing																
Max Altitude	Rated power at 1000m, (increase 100m and decrease by -1%), maximum 4000m																
Protect Level	IP21																
Size (W*D*H)(mm)	540*657*1132			555*725*1290			800*745*1700			800*850*1900			1204*850*1900			2600*1200*2000	
Net Weight(KG)	173	211	254	306	385	390	665	675	805	900	1080	1200	1300	1768	1972		
Gross Weight(KG)	196	233	276	329	415	419	724	730	863	973	1160	1275	1375	1880	2190		

Note: Product specifications are subject to change without further notice.