UPS MAXSAFE

Technology:	**TRUE ON LINE Double Conversion**
Classification:	**VFI-SS-111**
Power range:	**50 - 600 kW**
Phase configuration:	**3:3**

Applications

- Large computer networks
- Data processing centers
- Industrial facilities and equipment
- Laboratory apparatus
- Telecomunnication
- Automation and control systems

Specification

True On-Line Double Conversion technolog ensures excellent output voltage performance regardless of power interference and the type of loads being powered.
IGBT rectifier the most advanced technology providing very low THDi and high power factor.
The modular design provides easy power scalability in the range of 50 - 300 kW, 50 - 400 kW, 50 – 500kW or 60 - 600kW at any time without interrupting system operation - "Hot Swap" replacement. The modular solution minimizes MTTR (Mean Time To Repair) and guarantees the ability to configure an N+X redundant system within a single chassis, thereby increasing the level of reliability of the power system.
Automatic bypass - uninterruptible bypass ensures uninterrupted power supply to consumers in critical situations such as overheating or failure.
Service bypass - allows servicing of equipment without shutting down the powered consumers.
Dual Input Lines or Bypass track power gives you the ability to provide a backup power source for loads even in the event of a device failure or UPS protection tripping in the main track.
Communication interfaces:

- RS232, RS485, MODBUS To monitor and manage UPS operation,
- DryContact relay contacts for cooperation with BMS systems ,
- SNMP Integration with NMS-type network management systems ,
- Remote Fire Switch Connector. (REPO) for providing remote disconnection of power supply to consumers in case of fire,
- Fire Switch. (EPO) on the control panel allows you to immediately disconnect power from the consumers,
- The 10,4" LCD control and monitoring panel (touchscreen) gives the possibility to diagnose the parameters and the operation mode of the power supply, enables the registration of events and, among others, a graphic preview of current and voltage waveforms.

The high efficiency of the device (>96,5%) reduces the emitted heat, making eventual cooling of the premises simpler and cheaper.
The "Sleep Mode" of operation allows power modules to be automatically switched off if the power of the supplied loads is very low, thus minimizing power losses.
ECO-Mode significantly reduces the unit's operating costs and virtually eliminates heat emissions.
The Self-Aging function allows the device to be tested with a full load, even without connected receivers.
Automatic diagnostics and digital control (32 bit DSP x2) guarantees full efficiency of the device, control of components and operating parameters without user intervention.
A high input power factor of 0.99 limits the value of the current drawn by the device from the grid.
The high output power factor of 1.0 allows the power supply to be loaded with full active power.
The wide input voltage range in normal operation ensures stable operation of the device without the need to use batteries, which significantly extends their life.
A wide range of input frequency in normal operation mode allows the power supply to be freely used in a network with unstable parameters and when powered by a generator set.
Simplicity of operation - the ease of connection to the network and the simple switching on and off of the device does not require special skills from the user.
Advanced battery management guarantees optimal charging and utilization of battery banks, increases battery life and reduces operating costs. Temperature compensation function of charging voltage.
The excellent quality of the output voltage, achieved thanks to a 3-level IGBT inverter and advanced PWM control technology, makes sure that a voltage with stable parameters is delivered, regardless of energy disturbances and the type of powered devices.
The high overload capacity ensures protection of the device and continuity of power supply when transient transients occur.
Advanced software that allows the user to have full control over the device and the powered receivers.
The configurability of operating parameters - nominal voltages, frequencies, preferred modes of operation, method of communication - greatly expands the range of possible applications.
Redundant configurations:
- redundant parallel operation for increased reliability
- capacitive parallel operation for increased power
- max. 2400kW - HotStandby operation
- Dual Bus operation (using LBS)

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Model	MAXSAFE 305	MAXSAFE 405	MAXSAFE 505	MAXSAFE 605
Power	**300 kVA / 300 kW**	**400 kVA/ 400kW**	**500 kVA/ 500kW**	**600 kVA / 600kW**
Number of phases in:out	3:3			
Input				
Voltage	380 / 400 / 415 VAC			
Voltage range	304 – 478 Vac full load, 228 – 304 Vac linear decreasing load to 80%.			
Frequency	50 / 60 Hz			
Frequency range	-20% ÷ +20%			
THDi	<3%			
Input power factor	≥0,99			
Output				
Modules quantity	7 x 50 kW	10 x 50 kW	12 x 50 kW	12x 50 kW
Redundant configuration	6+1	8+2	10+2	12+0
Voltage	380 / 400 / 415 VAC			
Power factor	1,0			
Voltage regulation static/dynamic	±1% / ±2%			
Frequency	50 / 60 ± 0,01%			
Overload capacity inverter	105% - no limitation, 110% - 60 min., 125% - 10 min., 150% - 1 min., >150% - 200 ms			
Efficiency	>96,5%			
Eco mode efficiency	99%			
Crest factor	3:1			
Batteries				
Cold start	yes			
Max charging current	91A	130A	156A	156A
Number of batteries in 1 chain	36 - 44 pcs of 12V battery (full load)			
Charging time	3 – 8 hours to 90% capacity (configurable)			
Charging cycle	According to DIN 41773 with automatic charging shutdown according to current and voltage criteria, with time control, optional: temperature compensation of charging voltage			
Weight and dimensions				
UPS dimensions (w x d x h) [mm].	600 x 1100 x 2000	1000 x 1100 x 2000		
Weight of PM50/PM60 power module	33,5 kg / 35 kg			
Weight of UPS cabinet without modules	286,5 kg	372,5 kg		
Weight of full equipped cabinet	521,0 kg	707,5 kg	774,5 kg	792,5 kg
Signaling and communication ports				
Operating status indicator	Touch color LCD display 10,4'', LED indicators, LCD panel on each power module, audible alarm			
Communications	RS232, RS485/MODBUS RTU, 2 x Dry Contact In, 2 x DryContact Out, 2 x SNMP slot, Intelligent Slot, REPO connector, parallel operation connectors, LBS.			
Environmental conditions				
Noise level (depending on the number of modules)	<70 dB @ load 100%			
Permissible operating temperature	0°C ÷ 40°C			
Recommended operating temperature	15°C ÷ 25°C			
Storage temperature	-20°C ÷ 40°C			
Humidity	0 ÷ 95% (no condensing)			
Standards				
EMC	EN 62040-2: 2018			
Safety	EN 62040-1: 2019, EN 62040-3:2022, CE			
Optional equipment				
- Uninterruptible External Bypass, Service - Temperature compensation circuit for charging voltage, - SNMP card, - Environmental conditions sensor (EMD).	- Rack batteries or battery modules - Additional power modules - 2 UPS synchronization system - LBS (Load Bus Synchronization) - Parallel operation cables between UPS units.			

The publication provides parameters for standard models. Due to the continuous improvement of the product, we reserve the right to change the parameters without prior notice.

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