



SATURN

10 - 20 kVA single phase/single phase and three phases/single phase

10 - 200 kVA three phases/three phases



- + DATACENTER & SERVERS
- + TELECOMMUNICATION DEVICE
- + INDUSTRIAL APPLICATION
- + TRANSPORTS



Overview



- + HIGH PERFORMANCE
- + FLEXIBILITY
- + MAXIMUM RELIABILITY
- + LOW IMPACT TO THE MEANS
- + SMART BATTERY MANAGEMENT

The output power factor $PF=0.9$ (range 10-125 kVA) and $PF=1$ (range 160-200 kVA), combined to the operating efficiency up to 96% in online mode, make SATURN series suitable to supply a wide range of devices such as server, data center, telecommunication and security systems. It is also equipped with input power factor correction function that allows to avoid disturbances of the mains supply.

SATURN series is available both in single-phase/single-phase and three-phases/single-phase versions (10 to 20 kVA) as well as in three-phases/ three-phases (10 to 200 kVA), with Online double conversion technology according to the VFI-SS-111 standard, as defined by the IEC EN 62040-3.

Controlled by microprocessor DSP (Digital Signal Processor) to guarantee maximum protection of the loads, SATURN guarantees significant energy savings and no impact on the supply line.

The high flexibility allows full compatibility both with three-phase and single-phase mains, thus eliminating any issue related to the UPS connection.

Flexibility

SATURN provides different usage modes:

Normal operation: load supplied by inverter through the double conversion of energy from the mains (Online Mode).

Eco Mode: load supplied by the emergency mains and, in case of out of tolerance values, power is automatically transferred to the inverter.

Smart Active: the UPS automatically determines whether to operate in Online Mode or Eco Mode according to the collected statistical data of the mains.

Frequency converter: it's possible to select the operational mode of UPS as a frequency converter from 50Hz to 60Hz or viceversa. In this condition, the static bypass is disabled. This mode can be operational both with or without internal batteries.

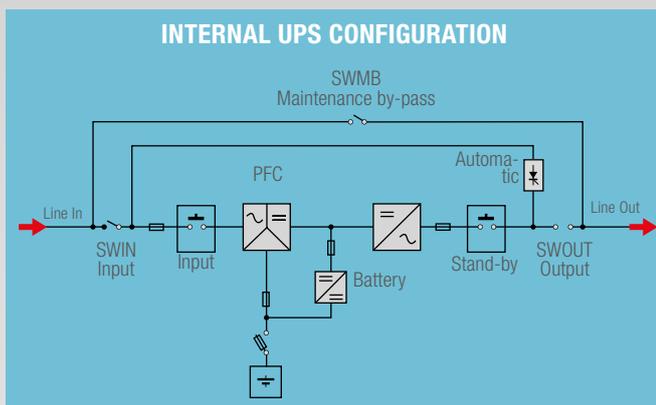
Among additional features, Saturn provides:

Smart Ventilation: units from 160kVA to 200kVA has been equipped with special devices related to the ventilation, in order to increase control and efficiency.

Cold Start: the UPS can be switched-on in case of mains absence too.

Power Share: allows the selection of critical loads depending on the backup time (available up to 125 kVA).

Double Input: double input feature is available in case of two mains supply line (this is a standard feature for 125-160-200 kVA, and an optional feature for the other sizes).



LCD DISPLAY

The multilingual LCD display provides direct access to the main UPS functions.

- Menu
- 1. Sistem ON
- 2. Sistem Stand-By
- 3. Temperature
- 4. Comands
- 5. History log
- 6. Wave form
- 7. Diagnostics
- 8. Configuration

Minimum impact on the mains

SATURN is designed to have a nearly zero impact on the power source, both for mains or generator.

This is made possible thanks to:

- Input rectifier with PFC;
- DSP microprocessors;
- Use of IGBT power components;
- Possibility to set START DELAY, programmable from 1 to 120 seconds;
- Possibility to set a SOFT START of input rectifier, programmable from 1 to 125 secs programmable.

Saturn acts also as a filter since it eliminates harmonic components and reactive power.



Maximum reliability & performances

SATURN is a Transformerless type UPS with inverter structure designed on three levels with high switching frequency IGBT modules.

This ensures:

- High performances;
- High efficiency (up to 96%);
- Lower noise level;
- Output power factor 0.9 for up to 125 kVA models;
- Output power factor 1 for 160 kVA to 200 kVA models.

Smart battery management

SATURN is equipped with an intelligent battery monitoring system that optimizes batteries performance and monitors their status, lengthening the operating lifetime.



Battery management provides:

- Temperature control (optional) and voltage recharging balance, in order to avoid batteries excessive recharge and overheating;
- Scheduled battery test;
- Protection against slow-discharge;
- Low ripple current;
- Possibility to operate with different types of batteries, such as ermetic lead acid (VRLA), opened valve AGM and Ni-Cd.



Connectivity devices

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SUPPORTED OPERATING SYSTEMS

Windows 95-OSR2 and later; Linux; Novell Netware; Mac OS X; IBM OS/2 Warp and Server; HP OPEN VMS; the most widely used UNIX operating system: IBM AIX, HP UNIX, SUN Solaris INTEL and SPARC, SCO Unix and UnixWare, Silicon Graphic IRIX, Compaq Tru64 UNIX and DEC UNIX, BSD UNIX and FreeBSD UNIX, NCR UNIX



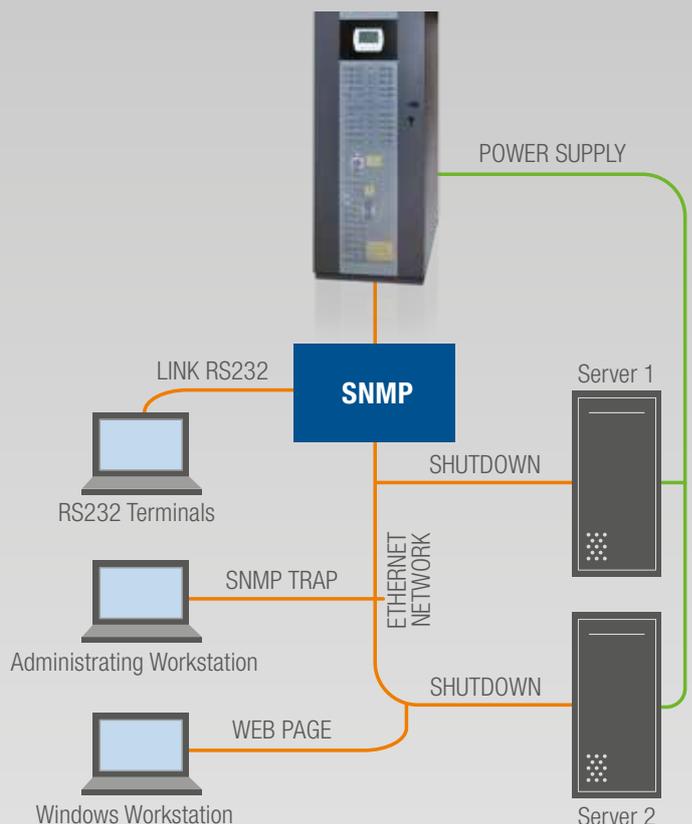
UPSMON offers easy UPS management. The software displays real-time information, shown by charts and values for critical data such as mains voltage, UPS load and battery charge. It allows remote interrogation of logs and operating parameters to help diagnose alarms and potential fault conditions. The software allows you to perform an automatic shutdown of connected equipment, in order to always ensure maximum security level.

Advanced communication

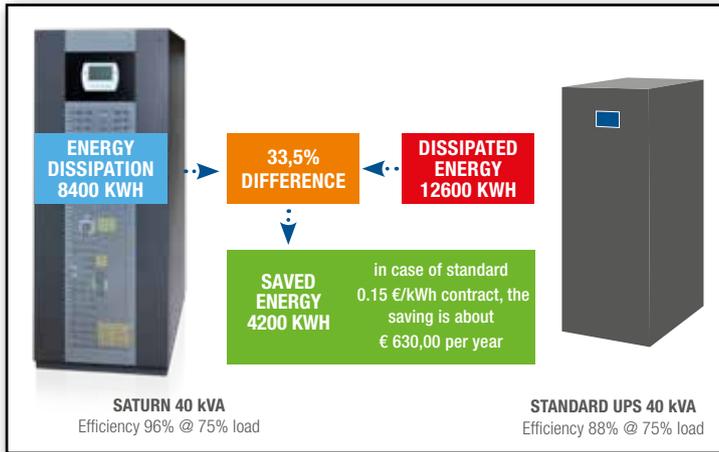


- The alphanumeric display provides very detailed information about measures, state and alarms, available with 8 different languages.
- Communication is cross-platform and supports all operating systems and network including monitoring software, UPSMON shut down with SNMP agent too.
- There are 3 slots available for installation of optional communication accessories such as network adapters, free contacts, etc.
- There are hardware devices available like:
 - REPO (Remote Emergency Power Off) for emergency switch off of the UPS through emergency button;
 - connection of the auxiliary contact of an external manual bypass;
 - input for synchronization from an external power source.

Direct connection with ethernet



Green Technology



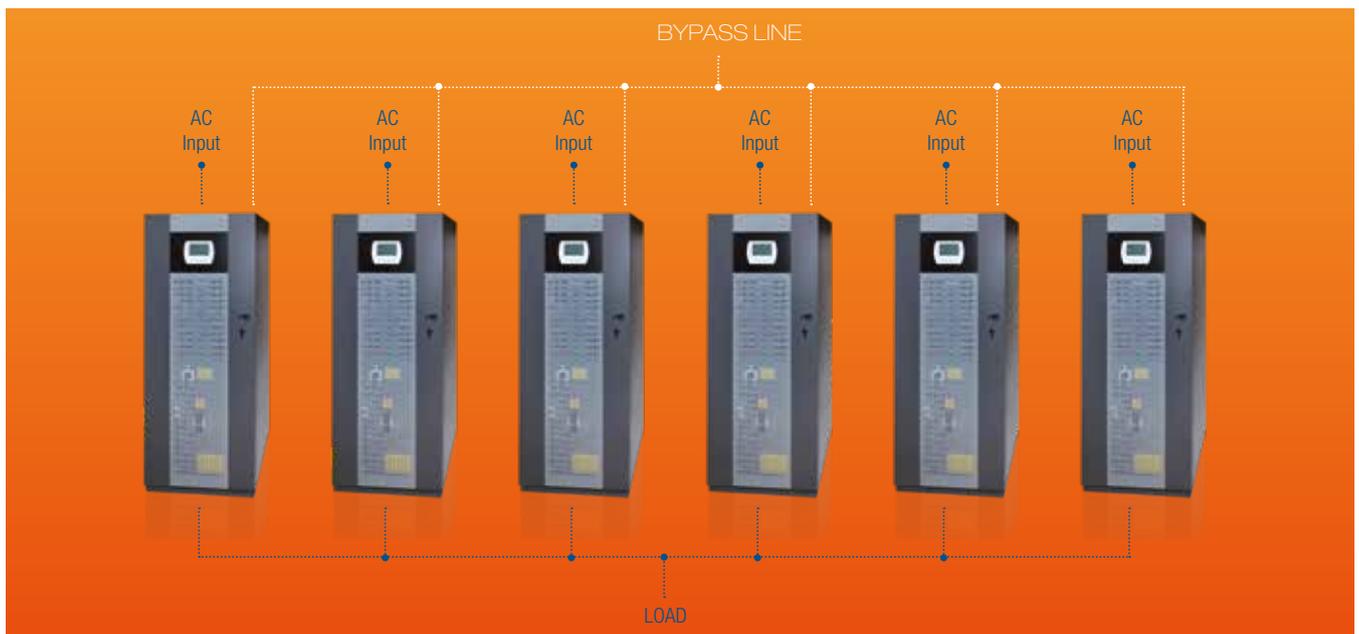
SATURN is designed with technologies that ensure high efficiency, up to 96.5%.

This allows to save over 50% energy usage per year, compared to other similar products on the market.

The SATURN compact sizes permit to make it suitable for application in small spaces, maintaining excellent performance and efficiency.



Parallel configuration



The Parallel redundant configuration consists in putting in parallel more than one UPS of the same size, connected together into a single output bus. SATURN can work in parallel up to 4 units with three-phase/single-phase models and up to 6 units with three-phase/three-phase models. This configuration allows proper operation even in case of failure of one of the connected UPSs.

Technical specifications

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Model	ST010M	ST012M	ST015M	ST020M
Nominal power	10kVA	12kVA	15kVA	20kVA
Active power	9kW	10.8kW	13.5kW	18kW
MAIN INPUT				
Grid system	1 Phase + Neutral + Ground / 3 Phases + Neutral + Ground			
Rated voltage / Frequency	380/400/415VAC (3P+N+G), 220/230/240VAC (1P+N+G), 50/60Hz			
Voltage range	320~480VAC full load, 240~480VAC at 50% load (3P+N+G) 184~276VAC full load, 140~276VAC at 50% load (1P+N+G)			
Frequency range	40~72Hz			
Power factor	0.99			
Current THDi	≤3%			
BYPASS INPUT				
Grid system	1 Phase + Neutral + Ground / 3 Phases + Neutral + Ground			
Rated voltage / Frequency	220/230/240VAC, 50/60Hz			
Voltage range	Selectable, 180 ÷ 264V			
Frequency range	Selectable, ±5Hz			
Bypass overload	110%, long term operation 110%<load<133%, 60 minutes 133%<load<150%, 10 minutes 150%<load<200%, 3 seconds load>200%, 2 seconds			
OUTPUT				
Rated voltage / Frequency	220/230/240VAC, 50/60Hz			
Power factor	0.9			
Static stability	± 1%			
Dynamic stability	± 3%			
Voltage THDv	<1% (from 0% to 100% linear load); <3% (non-linear load according to IEC/EN62040-3)			
Inverter overload	110%, 10 minutes 133%, 1 minute 150%, 5 seconds			
Frequency regulation	50/60Hz±0.01%			
Crest factor	3:1			
BATTERIES				
Battery rate voltage	±240VDC			
Batteries quantity	40			
Charger voltage precision	1%			
Batteries arrangement	Internal and/or external			
Battery type	VRLA AGM/GEL; Ni-Cd; WET TYPE			
SYSTEM				
Efficiency - Normal operation	93.3%	93.5%	93.8%	94%
Efficiency - Eco Mode operation	98%			
Efficiency - Battery operation	92.5%		93.5%	
Display	LED + LCD			
Protection degree	IP20			
Interface	Standard equipment: RS232, USB, dry contacts, Cold Start Optional: SNMP, parallel kit, MODBUS, PROFIBUS			
ENVIRONMENT				
Operating temperature	0 ~ 40°C			
Storage temperature	-25 ~ 55°C (UPS) -15 ~ 40°C (UPS with batteries)			
Relative humidity	0 ~ 95% (no condensing)			
Noise at 1 meter (Eco Mode)	40dB maximum			
Altitude	<1000m; load derated 1% per 100m, from 1000 ~ 4000m			
MECHANICAL DATA				
Cabinet dimensions W*D*H (mm)	440*850*1320			
Cabinet weight (Kg)	105	110	115	120
Color	Cabinet: RAL 7016 Door: RAL 7016 + RAL 7012			
Compliance	European directive: 2014/35/EU Low voltage directive; and 2014/30/EU Electromagnetic compatibility directive • Security: EN62040-1 • EMC: EN62040-2 • Performance: EN62040-3 (Voltage Frequency Independent) VFI - SS - 111			

Note: technical specifications and data could be changed without notification

SATURN

Technical specifications

Model	ST010T	ST012T	ST015T	ST020T	ST030T	ST040T	ST060T	ST080T	ST100T	ST125T	ST160T	ST200T	
Nominal power	10kVA	12kVA	15kVA	20kVA	30kVA	40kVA	60kVA	80kVA	100kVA	125kVA	160kVA	200kVA	
Active power	9kW	10.8kW	13.5kW	18kW	27kW	36kW	54kW	72kW	90kW	112.5kW	160kW	200kW	
MAIN INPUT													
Grid system	3 Phases + Neutral + Ground												
Rated voltage / Frequency	380/400/415VAC, 50/60Hz												
Voltage range	320~480VAC, full load 240~480VAC, at 50% load												
Frequency range	40~72Hz												
Power factor	0.99												
Current THDi	≤3%						≤2.5%						
BYPASS INPUT													
Grid system	3 Phases + Neutral + Ground												
Rated voltage / Frequency	380/400/415VAC, 50/60Hz												
Voltage range	Selectable, 180 ÷ 264V												
Frequency range	Selectable, ±5Hz												
Bypass overload	110%, long term operation 110%<load<133%, 60 minutes 133%<load<150%, 10 minutes 150%<load<200%, 3 seconds load>200%, 2 seconds										110%, long term operation 110%<load<125%, 60 min 125%<load<150%, 10 min load>150%, 1 minute		
OUTPUT													
Rated voltage / Frequency	380/400/415VAC, 50/60Hz												
Power factor	0.9										1		
Static stability	± 1%						± 0.5%						
Dynamic stability	± 3%												
Voltage THDv	<1% (from 0% to 100% linear load); <3% (non-linear load according to IEC/EN62040-3)								<1% (full load); <3.5% (non linear load)		<1% (full load); <3% (non linear load)		<0.5% (linear load); <3% (non linear load)
Inverter overload	110%, 10 minutes 133%, 1 minute 150%, 5 seconds										110%, 60 minutes 125%, 10 minutes 150%, 1 minute		
Frequency regulation	50/60Hz±0.01%												
Crest factor	3:1												
BATTERIES													
Battery rate voltage	±240VDC												
Batteries quantity	40												
Charger voltage precision	1%												
Batteries arrangement	Internal and/or external						External						
Battery type	VRLA AGM/GEL; Ni-Cd; WET TYPE												
SYSTEM													
Efficiency - Normal operation	93.3%	93.5%	93.8%	94%	96%			95%			95.5%		
Efficiency - Eco Mode operation	98%				99.1%				99.2%		99%		
Efficiency - Battery operation	92.5%		93.5%				98%			98%			
Display	LED + LCD												
Protection degree	IP20												
Interface	Standard equipment: RS232, USB, dry contacts, Cold Start Optional: SNMP, parallel kit, MODBUS, PROFIBUS												
ENVIRONMENT													
Operating temperature	0 ~ 40°C												
Storage temperature	-25 ~ 55°C (UPS) -15 ~ 40°C (UPS with batteries)												
Relative humidity	0 ~ 95% (no condensing)												
Noise at 1 meter (Eco Mode)	40dB maximum						63dB maximum			50dB maximum			
Altitude	<1000m; load derated 1% per 100m, from 1000 ~ 4000m												
MECHANICAL DATA													
Cabinet dimensions W*D*H (mm)	440*850*1320						500*850*1600			650*830*1600	840*1050*1900		
Cabinet weight (Kg)	105	110	115	120	135	145	190	200	220	250	450	460	
Color	Cabinet: RAL 7016 Door: RAL 7016 + RAL 7012												
Compliance	European directive: 2014/35/EU Low voltage directive; and 2014/30/EU Electromagnetic compatibility directive • Security: EN62040-1 • EMC: EN62040-2 • Performance: EN62040-3 (Voltage Frequency Independent) VFI - SS - 111												

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G-Tec Service

G-Tec supports its customers throughout the whole product life cycle, providing technical assistance and after-sales service at the highest professional standards.

MAINTENANCE is an essential activity in order to guarantee a safe and stable load protection. G-Tec shows maximum care about this topic, providing the best service in terms of experience, instrumentation and safety level.

Through the dedicated **CALL CENTER**, customers receive prompt answers to any request, and the specialized technicians directly schedule maintenance activities.

The partnership between G-Tec and its customers gets consolidated through the **TRAINING SESSIONS** proposal for technical staff, so that each user can operate on the UPSs with maximum consciousness and safety.

Also, in the G-Tec Service offers, a **PROJECT CONSULTING** team is available, in order to provide the best solution according to the designer's needs.



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