SATURN Online UPS

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

10 - 200 kVA three phases/three phases

- DATACENTER
- TELECOMMUNICATION DEVICES
- INDUSTRIAL APPLICATION
- TRANSPORT

GTEC
Quality Energy Provider

Smart Energy
Solutions

Product

MAINS FEATURES:

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

WITH THE OUTPUT POWER FACTOR 0,9 (RANGE 10-125 KVA) AND 1 (RANGE 160-200 KVA) AND OPERATING EFFICIENCY UP TO 96% IN ONLINE MODE, THE SATURN SERIES IS SUITABLE TO SUPPLY A WIDE RANGE OF DEVICES SUCH AS SERVER, DATA CENTER, TELECOMMUNICATION SYSTEMS AND SECURITY. IT IS ALSO EQUIPPED WITH INPUT POWER FACTOR CORRECTION FUNCTION THAT ALLOWS TO AVOID DISTURBANCES OF THE MAINS SUPPLY.

The SATURN series is available in models from 10 to 20 kVA three-phase or single phase input and single-phase output, 10-200 kVA three phases input and output, on-line double conversion technology according to the VFI-SS-111 standard, as defined by the IEC EN 62040-3.

This range of UPS has been designed and built with cutting edge technologies and components.

Controlled by microprocessor DSP (Digital Signal Processor) to guarantee maximum protection of the loads, it 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 the problems related to the UPS connection.

Flexibility

Saturn can be used in several modes:

Normal operation: in On Line mode with the load supplied by the inverter through the double conversion of energy from the mains.

Ecomode: load supplied by the emergency mains (up to 99% efficiency) and in case of out of tolerance values, the power is automatically transferred to the inverter.

Smart Active: the UPS automatically determines whether to operate in On-Line mode or Eco-mode accordingly to the statistical data collected 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.

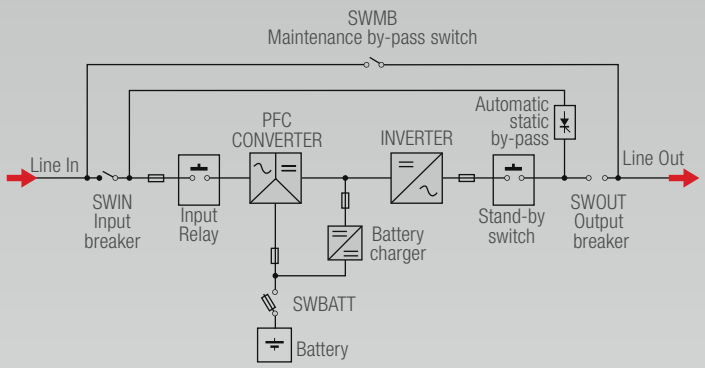
Additional features: Range from 160kVA to 200KVA has been equipped with special devices related to the ventilation in order to increase control and efficiency (Smart Ventilation).

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

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

Double Input: available double input feature in case of two mains supply line. (This is standard feature for 125 kVA and bigger sizes).

INTERNAL UPS CONFIGURATION



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

MENU:
1. SYSTEM ON
2. SYSTEM STAND-BY
3. TEMPERATURE
4. COMMANDS
5. HISTORY LOG
6. VAWEFORM
7. DIAGNOSTICS
8. CONFIGURATION

Low impact on the mains

Saturn is designed to have a nearly zero impact on the power source, both mains or generator.
This is made possible by the following elements:

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

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

3 Level IGBT inside

Maximum reliability and 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 series up to 125 kVA
- Output power factor 1 from 160 kVA to 200 kVA models

Smart battery management

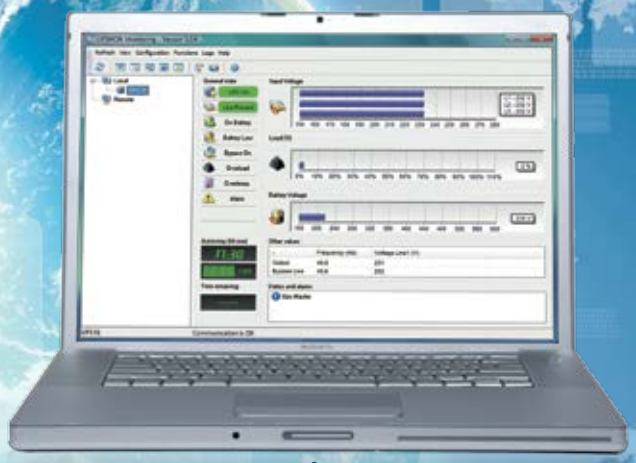
Saturn is equipped with an intelligent battery monitoring that optimizes its performances, and monitors the status and lengthens the operating lifetime.

Battery Monitoring System

The battery management provides:

- Control of the temperature (optional) and voltage recharging balance in order to avoid excessive recharge and battery overheating
- Scheduled battery test
- Protection againt slow-discharge
- Low ripple current
- Possibility to operate with different types of batteries, such as ermetic lead acid (VRLA), opened valve AGM and NiCd.

Communication



SUPPORTED OPERATING SYSTEMS

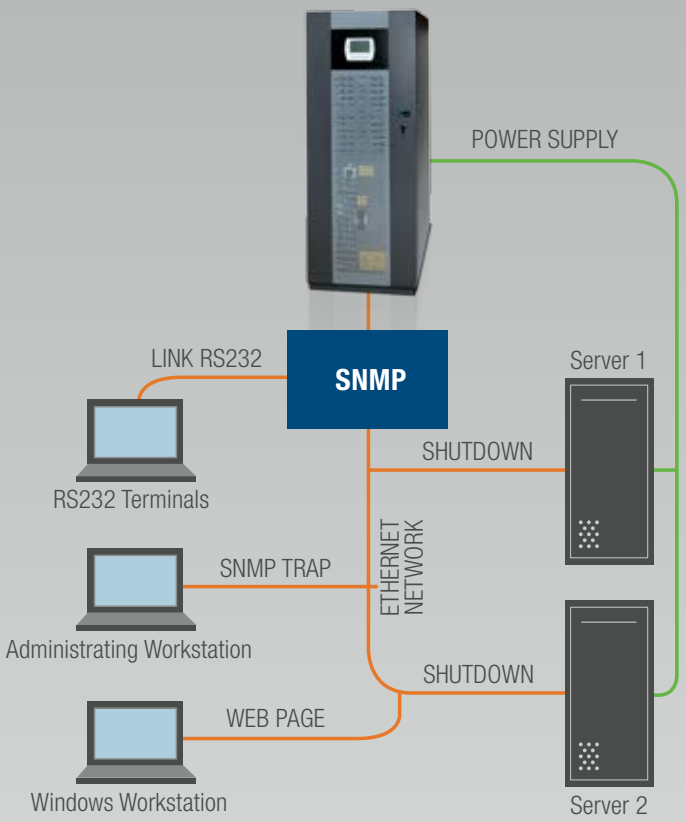
Windows 95-OSR2 and later; Linux; Novell Netware; Mac OS X; IBM OS/2 Warp and Server; HP OPEN VMS; the most widely used UNIX operating system: IBM AIX, HP UNIX, SUN Solaris INTEL and SPARC, SCO Unix and UnixWare, Silicon Graphic IRIX, Compaq Tru64 UNIX and DEC UNIX, BSD UNIX and FreeBSD UNIX, NCR UNIX

UPSMON offers easy UPS management. The software displays real-time information in the 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 ensure its safety.

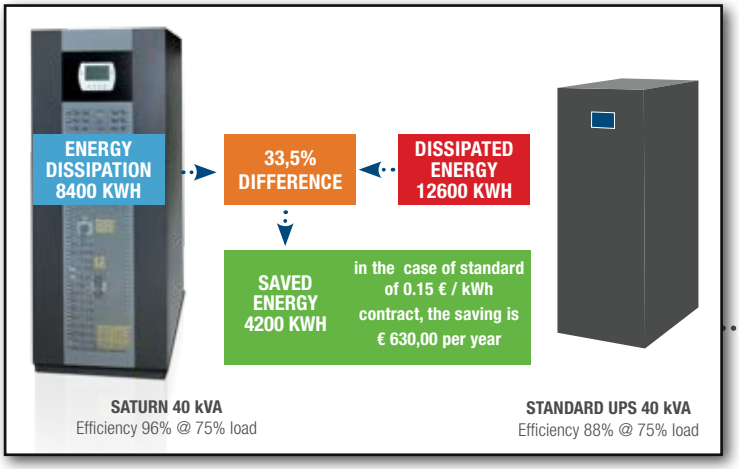
Advanced communication

- The alphanumeric display provides very detailed information of measures, states and alarms 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 for the installation of optional communication accessories such as network adapters, free contacts, ... etc.
- There are hardware devices 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 by-pass available
  - Input for synchronization from an external power source.
  - Remote LCD.

Direct connection with ethernet

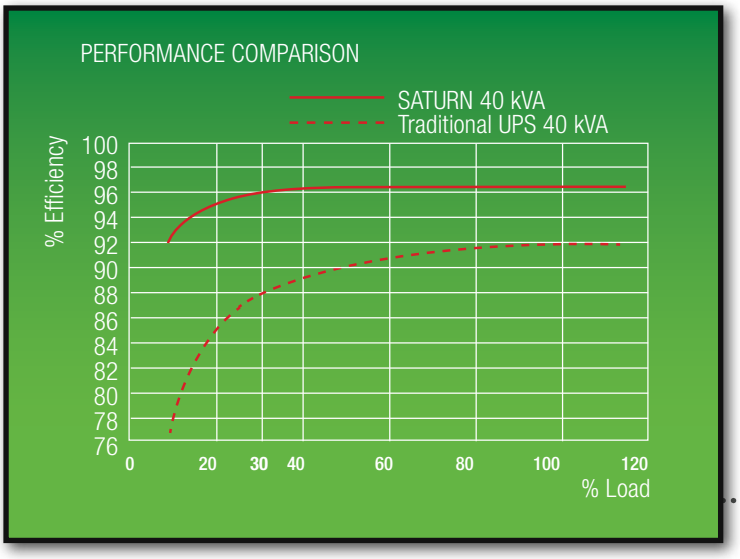


Green Technology

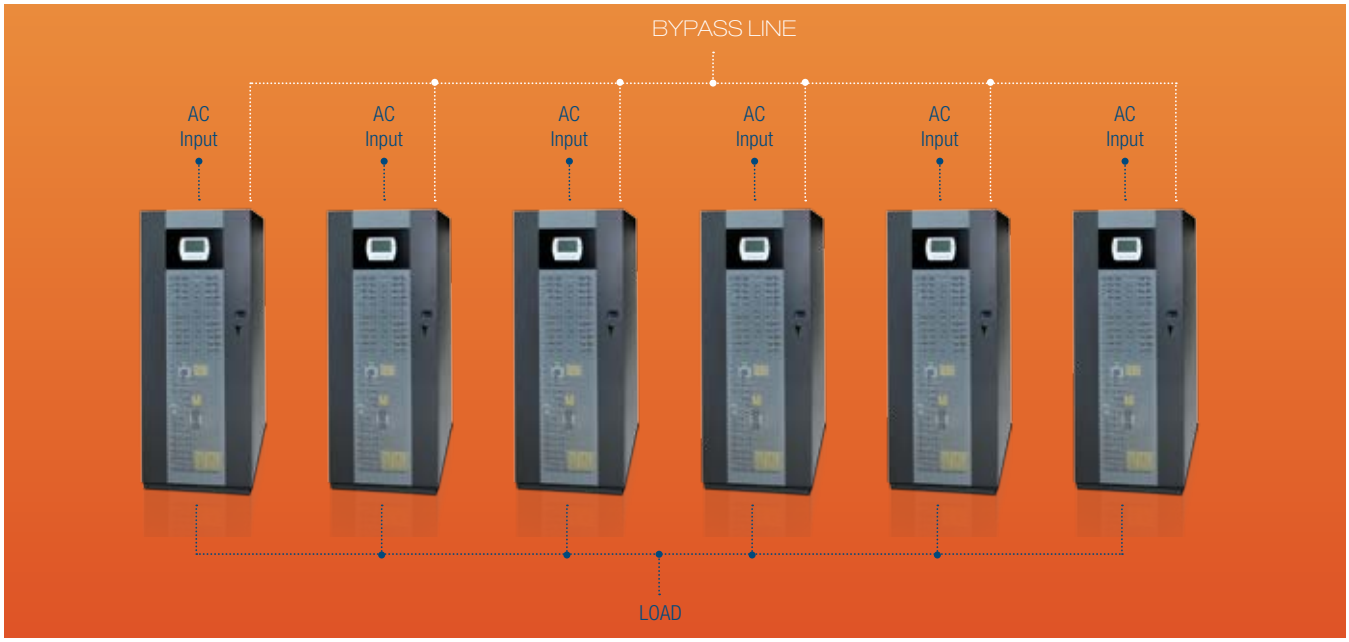


Saturn is designed with technologies that ensure high efficiency up to 96.5%.
This allows in a year, saving over 50% energy usage, compared to other similar products on the market.

The Saturn dimensions permit to make it suitable for application in small spaces maintaining excellent performances.



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. The SATURN can work in parallel up to 4 units with three-phase in/single-phase out 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 UPSs.

Technical specifications

MODEL	ST010M	ST012M	ST015M	ST020M
INPUT				
Rated Voltage	380-400-415 Vac three phases with neutral / 220-230-240 singlephase			
Voltage range	320-480V @ 100% load; 240-480V @ 50% load (3ph) 184-276V @ 100% load; 140-276V @ 50% load (1ph)			
Rated frequency	50/60 Hz			
Frequency range	40 ÷ 72 Hz			
Power factor at full load	0.99			
Current distortion	THDI ≤ 3%			
BYPASS				
Rated voltage	220-230-240 Vac single phase with neutral			
Voltage tolerance	180 ÷ 264 V (selectable)			
Rated frequency	50/60 Hz (selectable)			
Frequency tolerance	±5% (selectable)			
OUTPUT				
Rated power (kVA)	10	12	15	20
Active power (kW)	9	10.8	13.5	18
Power factor	0.9			
Rated voltage	220-230-240 Vac (selectable) single phase with neutral			
Static stability	± 1%			
Dynamic stability	± 3%			
Crest factor	3: 1			
Voltage distortion	≤ 1% with linear load / ≤ 3% with not linear load			
Frequency	50/60 Hz			
Frequency stability	0.01%			
Overload	110% for 10 minutes, 133% for 1 minute, 150% for 5 seconds			
BATTERIES				
Number of batteries	40 batt. 12V (internal up to 2 strings of 9 Ah)			
Type	VRLA AGM/GEL; Ni-Cd; WET TYPE			
Recharging time	6 h			
GENERAL				
Weight with internal batteries	315	320	325	330
Dimensions (HxLxD mm)	1320x440x850			
Communication	USB - RS232 - SNMP Agent - MODBUS – PROFIBUS - Relay			
Operating temperature	0°C / +40°C			
Relative humidity	90% without condensing			
Color	Dark Grey RAL 7016 + Light Grey RAL 7012			
Noise at 1 m	< 48 dBA		< 52 dBA	
Protection degree	IP20			
Efficiency	93,3%	93,5%	93,8%	94%
Standards	• European directive: L V 2006/95/CE Low voltage directive; EMC 2004/108/EC Electromagnetic compatibility directive • Standards: Safety IEC EN 62040-1; EMC IEC EN 62040-2 C2 • Classification according to IEC 62040-3 (Voltage Frequency Independent) VFI - SS - 111			

Note: UPS specification and data are subject to change without notice

Technical specifications

MODEL	ST010T	ST012T	ST015T	ST020T	ST030T	ST040T	ST060T	ST080T	ST100T	ST125T	ST160T	ST200T
INPUT												
Rated Voltage	380-400-415 Vac, three phases with neutral											
Voltage range	320-480V@100% load 240-480 V@50% load											
Rated frequency	50/60 Hz											
Frequency range	40 ÷ 72 Hz											
Power factor at full load	0.99											
Current distortion	THDI ≤ 3%						THDI ≤ 2,5%					
BYPASS												
Rated voltage	380-400-415 Vac, threephase with neutral											
Voltage tolerance	180 ÷ 264 V phase with neutral (selectable)											
Rated frequency	50/60 Hz (selectable)											
Frequency tolerance	±5% (selectable)											
OUTPUT												
Rated power (kVA)	10	12	15	20	30	40	60	80	100	125	160	200
Active power (kW)	9	10.8	13.5	18	27	36	54	72	90	112,5	160	200
Power factor	0.9										1	
Rated voltage	380-400-415 Vac (selectable) threephase with neutral											
Static stability	± 1%						± 0,5%					
Dynamic stability	± 3%											
Crest factor	3: 1											
Voltage distortion	≤ 1% with linear load / ≤ 3% with not linear load								≤ 1% with linear load ≤ 3,5% with not linear load	≤ 1% with linear load ≤ 3% with not linear load	≤ 0,5% With linear load ≤ 3% With not linear load	
Frequency	50/60 Hz											
Frequency stability	0.01%											
Overload	110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute at PF 0,8											
BATTERIES												
Number of batteries	40 batt. 12V (internal up to 2 strings of 9 Ah)						40 batt 12V (external)					
Type	VRLA AGM/GEL; Ni-Cd; WET TYPE											
Recharging time	6 h											
GENERAL												
Weight with internal batteries	315	320	325	330	345	355	190	200	220	250	450	460
Dimensions (HxLxD mm)	1320x440x850						1600x500x850			1600x 650x 830	1900x 840 x 1050	
Communication	USB-RS232 - SNMP Agent - MODBUS – PROFIBUS - Relay											
Operating temperature	0°C / +40°C											
Relative humidity	90% without condensing											
Color	Dark Grey RAL 7016 + Light Grey RAL 7012											
Noise at 1 m	< 48 dBA		< 52 dBA		< 48 dBA		< 63 dBA				< 68 dBA	< 70 dBA
Protection degree	IP20											
Efficiency	93,5%		94%		96%				f95%		95,5%	
Standards	• European directive: L V 2006/95/CE Low voltage directive; EMC 2004/108/EC Electromagnetic compatibility directive • Standards: Safety IEC EN 62040-1; EMC IEC EN 62040-2 C2 • Classification according to IEC 62040-3 (Voltage Frequency Independent) VFI - SS - 111											

* internal batteries where required
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G-Tec Service

The G-TEC Service takes advantage of technicians highly qualified to provide technical support and after-sales service efficient and competent.

There is a **CALL CENTER** dedicated and designed to ensure an immediate response of always available assistance for the installation, maintenance and repair UPS.
G-TEC Service can also provide assistance during the operations of both COMMISSIONING and START-UP UPS on-site with additional training to staff on site.

Through **MAINTENANCE CONTRACTS** you can minimize response times and repair costs.

FAST & READY: a quick repair is guaranteed by UPS design with cutting-edge technology, the professionalism of the G-TEC Service personnel and Authorised Assistance Centres.
G-TEC Service guarantees to replace defective parts with original parts, tested and updated in order to maintain the safety, reliability and UPS operation.

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