



Smart Double Conversion Series

1- Introduction of Product

Faratel Smart Double Conversion UPS series are designed based on On-line Double Conversion technology and can provide pure sine wave in output independent from input AC line even in power failure. This series are equipped with smart micro-processing system to check for proper operation of UPS and find probable errors in any part of the UPS.

SDC-UPS series are designed for computer systems, sensitive measurement instruments, laboratory precision instruments, medical devices, telecommunication or any other power sensitive devices.

1-1- Advanced Features

Features	Benefits
Equipped with intelligent microcontroller	AC conditions are monitoring precisely and by complex controlling-protecting algorithms the integral operating is certified.
Works in frequency range of 50±3Hz or 50±5Hz	Ability to work with Generator
Equipped with Smart reboot system	To detect incorrect operation of computers and restarts UPS in abnormal cases such as PC hanging or any errors in serial port
Very low output voltage variations about ±1% (Good regulation ability)	Output voltage is independent from input variations and loads level, so sensitive devices can continue their activities without any problem
Ability to remove EMI and RFI noises	<ul style="list-style-type: none"> ▶ Decrease common mode noises less than 50db ▶ Designed for medical devices, Telecommunication or any other power sensitive devices ▶ Decrease the frequency conflictions with other equipments Prevent losses in wires and UPS's loads
System modulated	Better and easy servicing
IGBT technology or transformerless design	Compact design, small dimensions and low weight
Fan speed control	Energy saving, low acoustic noise, longer fan and device life

Features	Benefits
Power factor correction	<p>High power factor and low input current harmonic distortion. This helps:</p> <ul style="list-style-type: none"> ▶ No need for installation extra equipment extra (cables, transformers, generators) ▶ Reducing frequency interference with other equipment thanks to input current low THD ▶ Minimize neutral current in balanced 3 phase systems because of eliminating the input current harmonic
Equipped with smart RS232 and ability to add UPS device managers as SNMP cards	<ul style="list-style-type: none"> ▶ Ability to interface with UPSwing Pro software for controlling and monitoring UPS, auto saving open files and shutdown OS and UPS in critical events ▶ Making report from different events ▶ Shut down all servers and saving all information even in critical situations
Ability to bypass manually (Some models)	In order to service the UPS without turning off the load (with used bypass module)
LCD indicator	<ul style="list-style-type: none"> ▶ User friendly ▶ ability of monitoring different warnings and errors in text files ▶ monitoring different input and output parameters ▶ monitoring power consumption and battery level in all conditions
Ability to install in Rack systems	▶ place nearby rack equipments and fits with the adequate space needed
Possibility of placing UPS on battery cabinet without using rack systems	<ul style="list-style-type: none"> ▶ Optimum use of space suitable for data center systems ▶ No need to rack systems + cost reduction

Features	Benefits
Battery management equipped with switching charger	<p>Thanks to algorithms used in battery charging and discharging:</p> <ul style="list-style-type: none"> ▶ Battery lifetime is extended ▶ Current ripple is at its minimum level during the discharge period ▶ Automatically battery charging in UPS standby mode ▶ cold Start ▶ Includes test button for checking if UPS works properly in lack of AC line voltage ▶ Indicating battery level Load ▶ Independent charging voltage ▶ Equipped with external battery connector to prolong backup time
On-line double conversion technology	<ul style="list-style-type: none"> ▶ Output voltage and frequency are independent from input ones ▶ UPS output voltage is pure sine wave same as ideal mains source and UPS output total harmonic distortion is very low
Temperature management	UPS measures the temperature of different internal parts, and calculates semi-conductor junctions' temperature in order to protect device
Overload time management	UPS continues its online operation for a certain period during overload condition
High efficiency	<ul style="list-style-type: none"> ▶ Low power consumption ▶ Decreasing the cost ▶ Low thermal loss that increases the life time of UPS
EPO terminal	▶ Power disconnection in emergency conditions
ITR terminal (Some models)	▶ Good regulation

1-2- Protection Systems

- Lightning, spike and surge protection (Only in the case of using standard Earth)
- Back feed protection on battery mode (some models)
- Protection of UPS loads against two phased AC line
- Protection against out of range output voltage variations
- Protection against Input voltage and frequency variations
- Over heat protection
- Common mode noise protection (Only in the case of using standard Earth)
- Output short circuit and overload protection
- Reversed battery connection protection (with special connector)
- Charger short circuit protection
- Protection against over-discharge
- Protection against out of range battery chargers over voltage
- Tel/Fax/Modem/Network surge suppression (Some models)

2- UPS Block Diagram

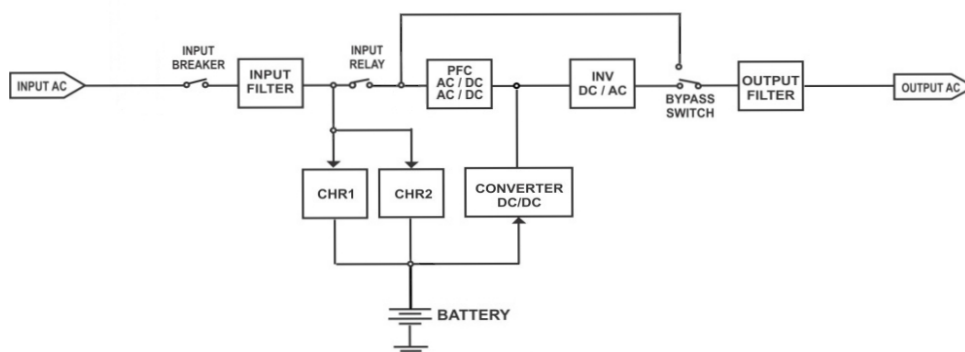


Figure 1: Block Diagram of SDC1500X-RT

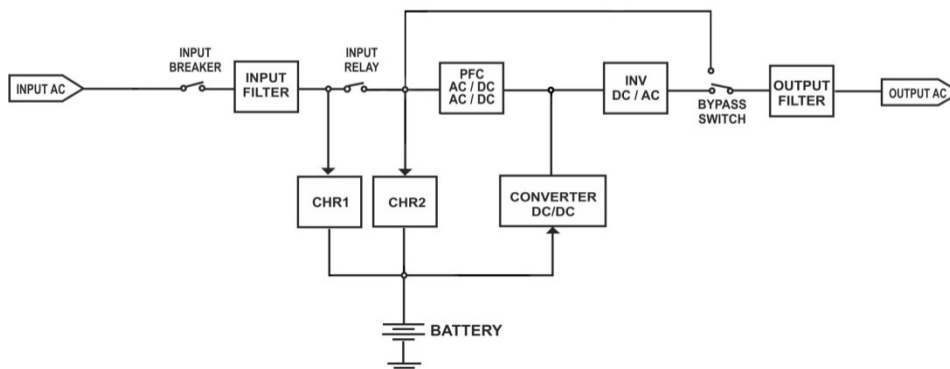


Figure 2: Block Diagram of SDC2000X-RT , SDC3000X-RT

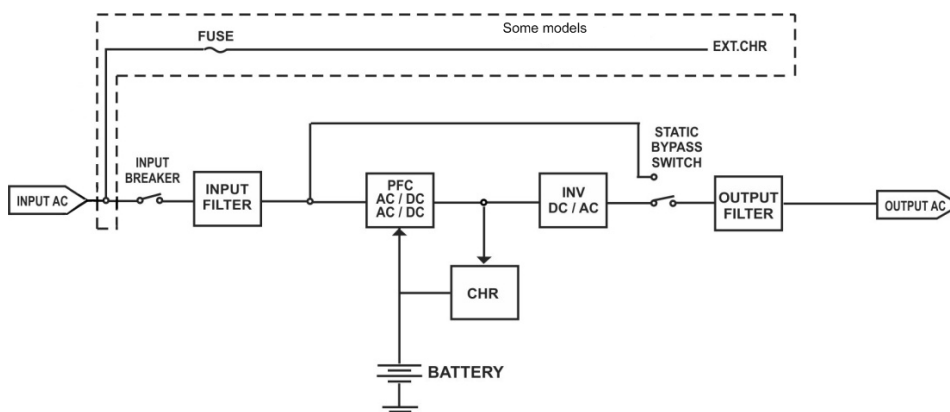


Figure3: Block Diagram of SDC6000X-RT

3- Front Panel View

- | | |
|----------------------------|---------------------------------------|
| ① ON/Test Button | ⑥ Select Button |
| ② Line Indicator | ⑦ Scroll Up Button |
| ③ Backup/Battery Indicator | ⑧ Voltage/ Frequency/ Temperature/... |
| ④ Fault Indicator | ⑨ OFF Button |
| ⑤ Scroll Down Button | |

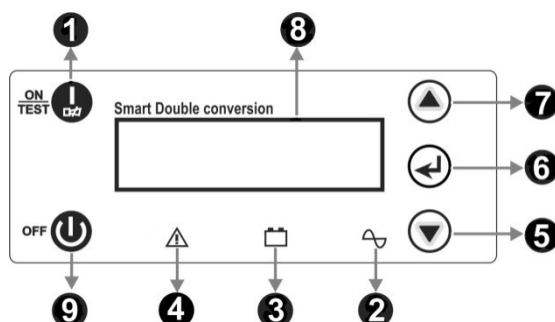


Figure 3: Front Panel of SDC UPS Series

4- Rear Panel View

- | | |
|---|--|
| ① Input AC Line cable/terminal | ⑨ Fans |
| ② Earth Terminal | ⑩ Intelligent Card Slot |
| ③ External Battery Connector | ⑪ Breaker Fuse For Battery Cabinet Charger |
| ④ Receptacles/Output Terminal | ⑫ Receptacle For Charger Of External Battery |
| ⑤ Input and Output Connectors RJ45/11 (Some Models) | ⑬ Input Breaker Fuse |
| ⑥ Site Wiring Fault (SWF) | ⑭ Bad Wiring Indicator |
| ⑦ Smart RS-232 port, USB | ⑮ EPO Port (Some Models) |
| ⑧ Input Filter Fault Indicator | ⑯ Bypass Switch Connector |
| | ⑰ ITR Connector (Some Models) |

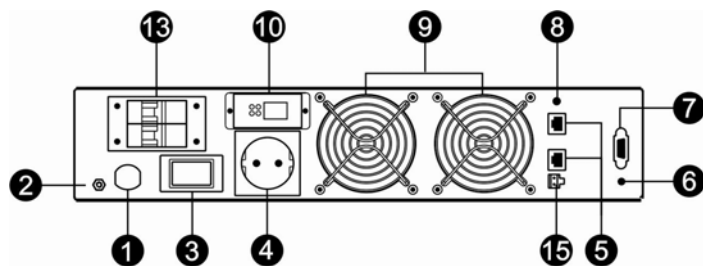


Figure 4: Rear Panel of SDC-RT 2U

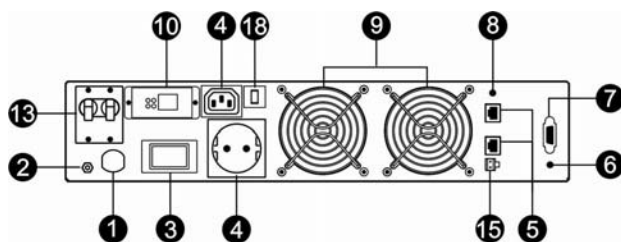


Figure 5: Rear Panel of SDC-RT 2U

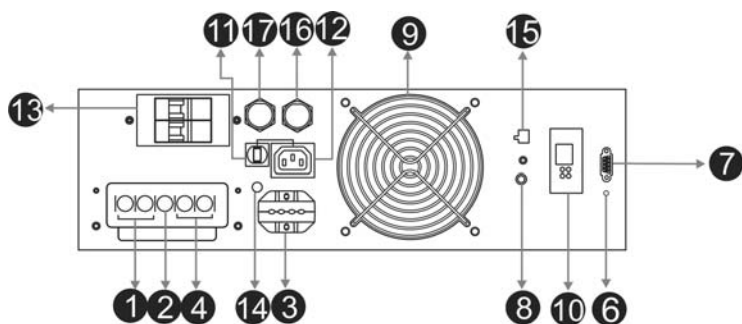


Figure 6: Rear Panel of SDC6000X-RT 3U

5- Technical Specification Table

Model			SDC1500X-RT	SDC2000X-RT	SDC3000X-RT	SDC6000X-RT
Technology			On-Line Double Conversion			
Power			1500VA 1050Watt	2000VA 1400Watt	3000VA 2100Watt	6000VA 4200Watt
Input	Voltage		Full Load: 160~300VAC Half Load: 110~300VAC			170~300VAC
	Max. current		8A	11A	16A	30A
	Frequency		50±3Hz			
	Phase		Single phase			
	Power factor		Full Load: >0.98			
Output	Voltage		Pure Sine Wave 220VAC±1%			
	Current		6.8A	9.1A	13.6A	27.3A
	Frequency		50±0.25Hz			
	Phase		Single phase			
	Nominal power factor		0.7			
	THD		At linear load <2%			
	Overload capacity		105% Up to 125% Of nominal power for 1 minutes 126% Up to150% for 30 sec.			126% Up to 150% for 0.4 sec.
Battery	Type		Sealed Lead Acid Batteries with free maintenance			
	Voltage		48VDC	96VDC		240VDC
	Recharge time		Approximately 4~10 hours after 90% discharge			
	CHARGER CURENT MAX		6A	5.5A		1.7A
Efficiency			In normal mode >85%			
Transfer time			AC line to back up and vice versa: 0msec			
Environment	Audible noise		Less than 41dB at 1 meter from UPS			Less than 48dB at 1 meter from UPS
	Ambient operation	Temperature	0~40°C			
		Humidity	0~95 (Non-condensing)			
		Altitude	1000 Meters max. elevation (Based on IEC62040)			

6- Physical Specification Table

Model	Dimension [W*D*H] (mm)	Weight(Kg)	
		Net weight (Kg)	Shipping weight (Kg)
SDC1500X-RT	With handles: 490*540*90	11.3	13.3
SDC2000X-RT	Shipping dimension: 530*620*205	12.2	14.2
SDC3000X-RT	With base in order to stand on battery cabinet: 440*510*102	13.2	15.2
SDC6000X-RT	With handles: 490*570*135	18.3	20.5
	Shipping dimension: 440*536*147.5		
	With base in order to stand on battery cabinet: 530*620*250		

7- How to Contact Faratel

7-1- Central Sales Department

Address: Faratel Bldg., No. 21, Kandovan Alley (Opposite of Nejatolahi St.), Engelab St., Tehran, Iran

Postal Code: 1131834914

Telephone: (+98 21) 6670 0001 up to 5

Fax: (+98 21) 6670 9493

Email: sales@faratel.com

URL: <http://www.faratel.com>

7-2- Central Customer Service

Address: Faratel, Shahid Abdolrahimi St., 17 Shahrivar St., Sanay-e Felezi St., Fifth Kilometer of Old Karaj Rd., Tehran, Iran

Postal Code: 1378763511

Telephone: (+98 21) 6680 9495 up to 7

Support: (+98 21) 61922

Fax: (+98 21) 6680 5525

Email: support@faratel.com

URL: <http://www.faratel.com>

In order to find the nearest authorized representatives of Customer Service in Iran please refer to the above URL.