

**UNINTERRUPTIBLE POWER SUPPLY**

SPH IND series represents the last transformer double conversion (VFI) power protection technology designed to protect a wide area of critical applications including server rooms, networks, telecommunication system, industrial processes and medical equipment. Unmatched reliability, excellent electrical performance, exceptionally compact size and outstanding cost-efficiency housed in an attractive enclosure are only some features of this new UPS solution. Monitoring and control data are shown on an easy to understand front panel display featuring pushbutton controls, LCD read out for event logs and diagnostics and a mimic diagram for system status. The power protection system can be remotely monitored via RS232, RS485, dry contact or SNMP interface. The SPH IND series is available from 10kVA to 100kVA models.

PRINCIPLES OF WORKING

The backup series is composed by: Rectifier, Inverter with transformer, Static Switch, manual by-pass and Battery.

The Rectifier-Inverter line normally feeds the users, and the Battery is kept charged by the Rectifier.

If a black out occurs, the Battery supplies power energy to users always through the Inverter. When the blackout is over, the Rectifier provides for Battery charge.

If a short circuit or an overload occurs to the users, the Static By-pass switches the load over the emergency line. When the fault is over, the Inverter feeds users.

FEATURES

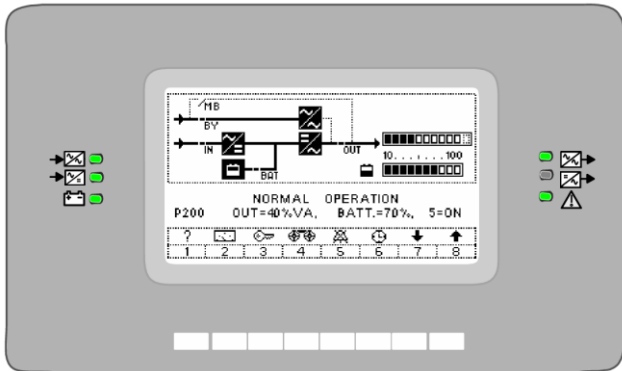
- IGBT inverter with transformer.
- Backfeed protection.
- Zero transfer time.
- Filtered, stabilized sinewave supply.
- Wide input voltage and frequency range, minimizing the battery usage.
- Superior overload capability.
- Battery monitoring and temperature dependent charging function as option.
- Measurements, alarms and power history.
- Device to avoid a full battery discharge.
- ON LINE – OFF LINE working settable.
- Personalizing stabilizer features.

OPTIONS

- Internal battery housing 10-15-20kVA
- LCD remote panel
- Synchronization device (UGS)
- Hot connection device (PSJ)
- Accessory slot, 2nd RS 232, dry contact, RS485 and SNMP.
- Parallel Kit
- Bypass isolation transformer
- Cold Start
- Top Cable Entry cabinet
- Cabinet protection degree IP31 & IP42

CONTROL PANEL

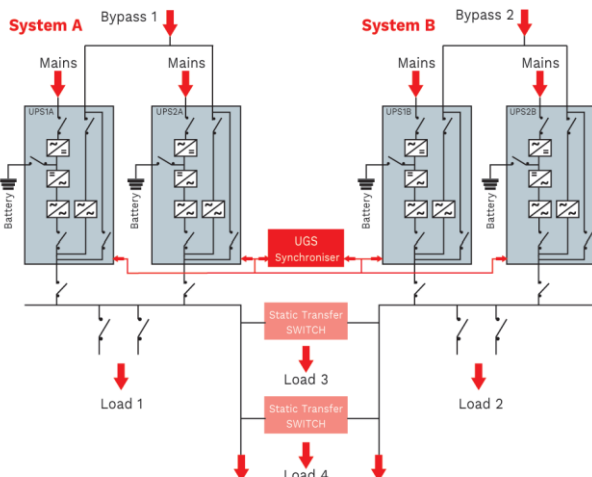
The control panel consists of a graphic display, 6 LEDs of visual signal and 4 function keys. 5.1” LCD Display with 16 lines and up to 40 characters each. The resolution is 240x128 pixels in black and white.



Messages are available in the following languages: Italian, English, French, German, Spanish, Polish, Chinese, and Russian. A large graphic display is located at the center of the control panel, enabling you to always have a detailed overview of UPS status in the foreground and in real time. Directly from the control panel, the user can turn on / off the UPS, check the electrical measurements of the network, output, battery, etc., and perform the main machine settings.

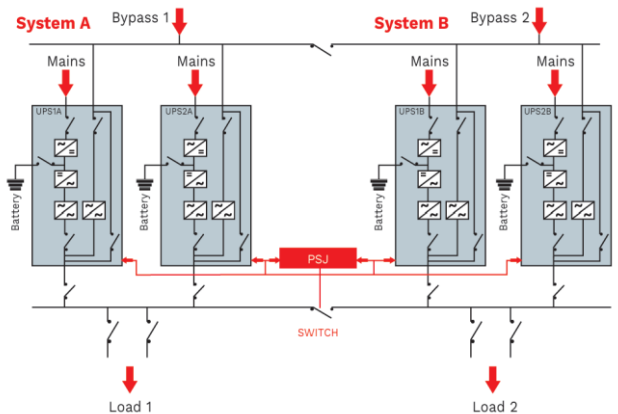
SYNCHRONISATION DEVICE USG (option)

The USG option allows two non-parallel UPS systems to remain synchronized even during mains power failure.



HOT CONNECTION DEVICE – PSJ (option)

The Parallel Systems Joiner option solution allows two groups of UPS to be connected in parallel to ensure redundancy of the power supply even during maintenance. In the case of malfunction of one of the UPS in parallel this self-excludes. The PSJ allows you to connect UPS remaining to the other group in parallel through an external bypass, in order to continue to guarantee the redundancy of the load



INTERFACES

The front panel (behind the door) allows access to the following communication ports:

- Serial port, available with RS232 connector and USB connector.
- Emergency Power Off
- No.2 expansion slots for additional accessory interfaces as:
- Dry contact card
- SNMP card
- RS 485 Modbus
- Profibus DP gateway

ADDITIONAL ACCESSORIES

Remote Panel

Remote Panel that allows remote UPS monitoring and real-time detailed overview of operating conditions; it can display on the display the values of the UPS specifying input and output, and battery measurements. The graphic display has a high definition and manages 7 languages: English, Italian, German, French, Spanish, Russian and Chinese.

External battery temperature sensor

The UPS has a dedicated input to detect the temperature inside a Remote Battery Box and display the temperature on the UPS display.

External maintenance bypass

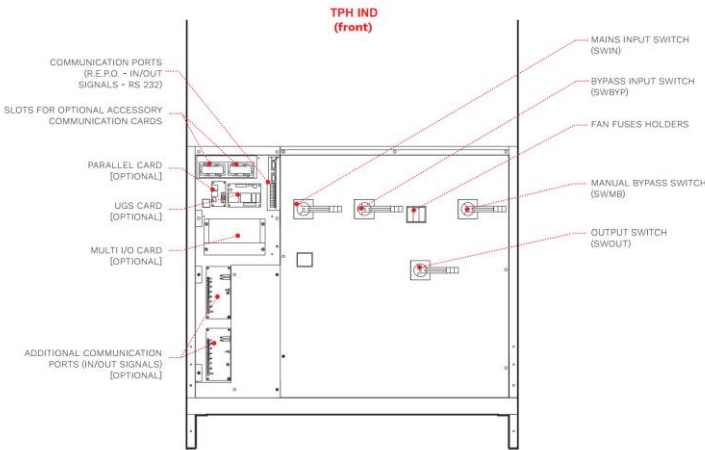
You can install a remote maintenance bypass on a peripheral electrical board, for example to allow UPS to be replaced without interrupting power supply.

INPUT AND OUTPUT

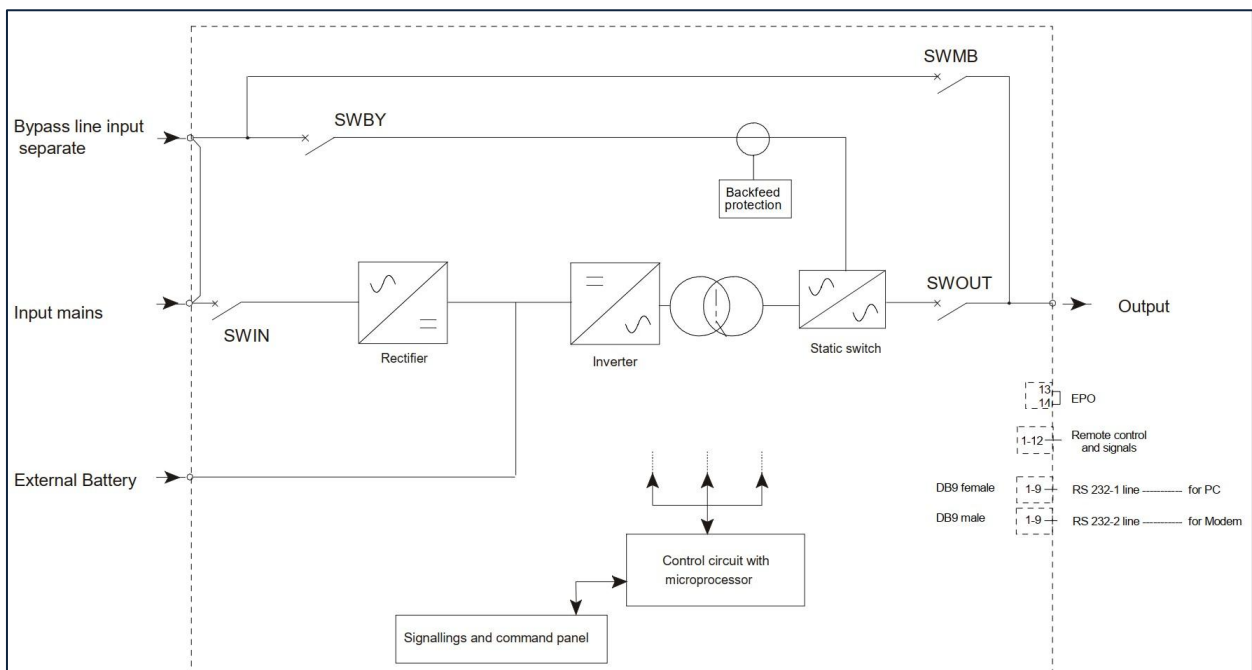
In/outlet terminals are placed in the front bottom under the switch isolators of the apparatus. On request is possible to provide the apparatus with input/output and battery terminals from the top.

N+X POWER SCALABLE PARALLEL REDUNDANCY

The TPH IND UPS may be paralleled for power capacity or for redundancy up to 8 units to increase the power capacity or configuring a parallel redundant UPS system. The standard version is not provided with this feature which is optional and field upgradable.



BLOCK DIAGRAM





CATALOGUE

3:1PH UPS 10 ÷ 100kVA
IGBT INVERTER WITH TRANSFORMER

Rev. 2

SPH IND Series

Model	SPH IND 10	SPH IND 15	SPH IND 20	SPH IND 30
Rated power kVA/kW	10/9	15/13.5	20/18	30/27
INPUT				
Nominal voltage	380-400-415Vac Three phase with neutral			
Voltage tolerance	300÷480Vac @ 100% load			
Power factor	≥0.9 at full load			
Frequency tolerance	45 ÷ 65Hz			
Current distortion THDI	≤27% (5% as option)			
Inrush current	Absent			
OUTPUT				
Voltage	220-230-240Vac 1Ph+N			
Voltage tolerance	±1% static stability; ±5% dynamic stability			
Voltage distortion	<1% with linear load, <3% with non-linear load			
Frequency	50Hz or 60Hz			
Frequency stability during battery operation	0.05%			
Waveform	Sinusoidal			
Transfer time	0 ms.			
Power factor	3:1			
Overload	110% for 60 min. – 125% for 10 min. – 150% 1 min. – 300% 1 sec.			
BATTERY				
Type	Sealed Lead Acid maintenance free – NiCd – Li-ion			
Max recharge current @ 80% load	7A	7A	14A	21A
Nominal voltage	384Vdc			
EFFICIENCY				
OFF LINE mode	Up to 98%			
MISCELLANEOUS				
Relative humidity	90% without condensing			
Operating temperature	from 0°C to + 40°C			
Noise level 1mt (0-100% Load)	60-62dBA			
Interfaces	RS232 & EPO standard, dry contact, SNMP, RS485 as option			
Colour	Dark grey RAL7016			
Dimensions w/o battery	555x740x1400mm			
Net weight w/o battery	200kgs	220kgs	230kgs	270kgs
Protection degree	IP20			
STANDARDS				
Safety	EN 62040-1			
EMC	EN 62040-2			
Performance	EN 62040-3			



Model	SPH IND 40	SPH IND 60	SPH IND 80	SPH IND 100
Rated power kVA/kW	40/36	60/54	80/72	100/90
INPUT				
Nominal voltage	380-400-415Vac Three phase with neutral			
Voltage tolerance	300÷480Vac @ 100% load			
Power factor	≥0.9 at full load			
Frequency tolerance	45 ÷ 65Hz			
Current distortion THDI	≤27% (5% as option)			
Inrush current	Absent			
OUTPUT				
Voltage	220-230-240Vac 1Ph+N			
Voltage tolerance	±1% static stability; ±5% dynamic stability			
Voltage distortion	<1% with linear load, <3% with non-linear load			
Frequency	50Hz or 60Hz			
Frequency stability during battery operation	0.05%			
Waveform	Sinusoidal			
Transfer time	0 ms.			
Power factor	3:1			
Overload	110% for 60 min. – 125% for 10 min. – 150% 1 min. – 300% 1 sec.			
BATTERY				
Type	Sealed Lead Acid maintenance free – NiCd – Li-ion			
Max recharge current @ 80% load	27A	41A	56A	69A
Nominal voltage	384Vdc			396Vdc
EFFICIENCY				
OFF LINE mode	Up to 98%			
MISCELLANEOUS				
Relative humidity	90% without condensing			
Operating temperature	from 0°C to + 40°C			
Noise level 1mt (0-100% Load)	60-62dBA			
Interfaces	RS232 & EPO standard, dry contact, SNMP, RS485 as option			
Colour	Dark grey RAL7016			
Dimensions w/o battery	555x740x1400mm			800x800x1900mm
Net weight w/o battery	320kgs	440kgs	500kgs	580kgs
Protection degree	IP20			
STANDARDS				
Safety	EN 62040-1			
EMC	EN 62040-2			
Performance	EN 62040-3			

ELIT Srl reserves his right to do modifications to his products without notice.