UNINTERRUPTIBLE POWER SUPPLY

TPH 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 TPHIND series is available from 10kVA to 200kVA 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

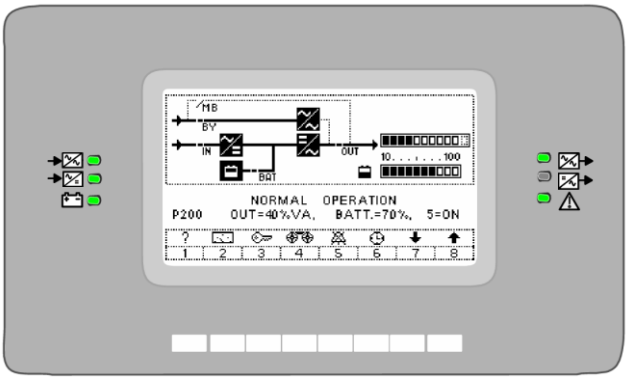
- IGBT inverter with transformer.
- Backfeed protection.
- Zero transfer time.
- Filtered, stabilized sinewave supply.
- Wide input voltage and frequency range, minimizing the battery usage.
- Superior overload capability.
- Battery monitoring and temperature dependent charging function as option.
-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

OPTIONS

- 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

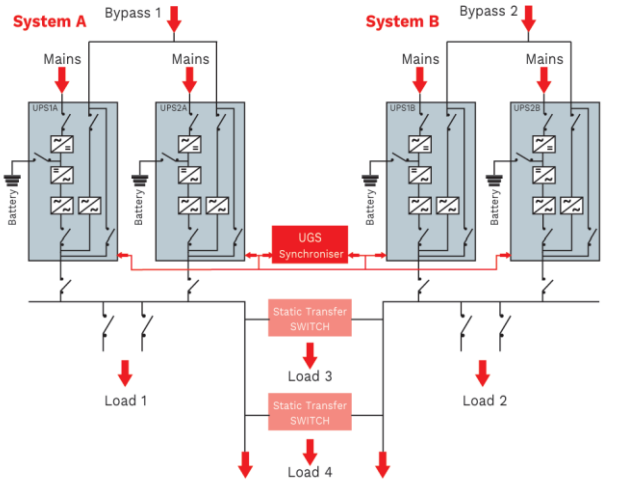
The control panel consists of a graphic display, 6 LEDs of visual signal and 4 function keys. 5.1" LCD Display with 16 lines and up to 40 characters each. The resolution is 240x128 pixels in black and white.



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 mains, output, battery, etc., and perform the main apparatus settings.

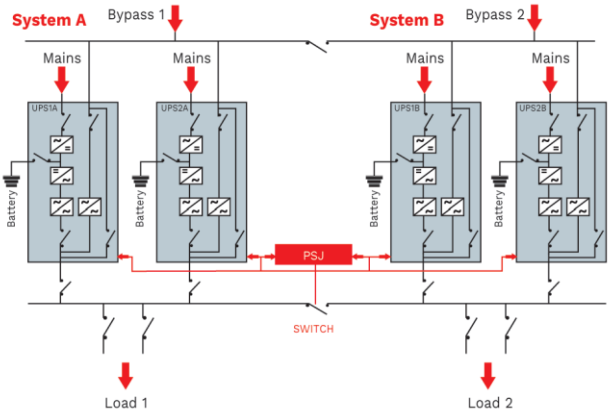
SYNCHRONISATION DEVICE USG (option)

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

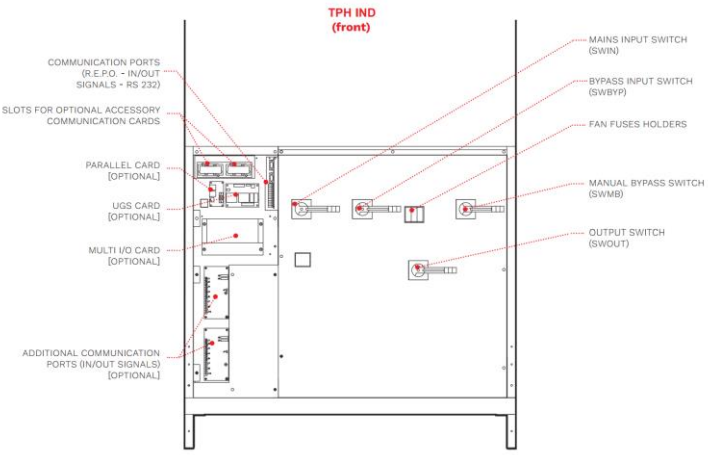
The UPS has a dedicated input to detect the temperature inside a Remote Battery Box and display the temperature on the UPS display.

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

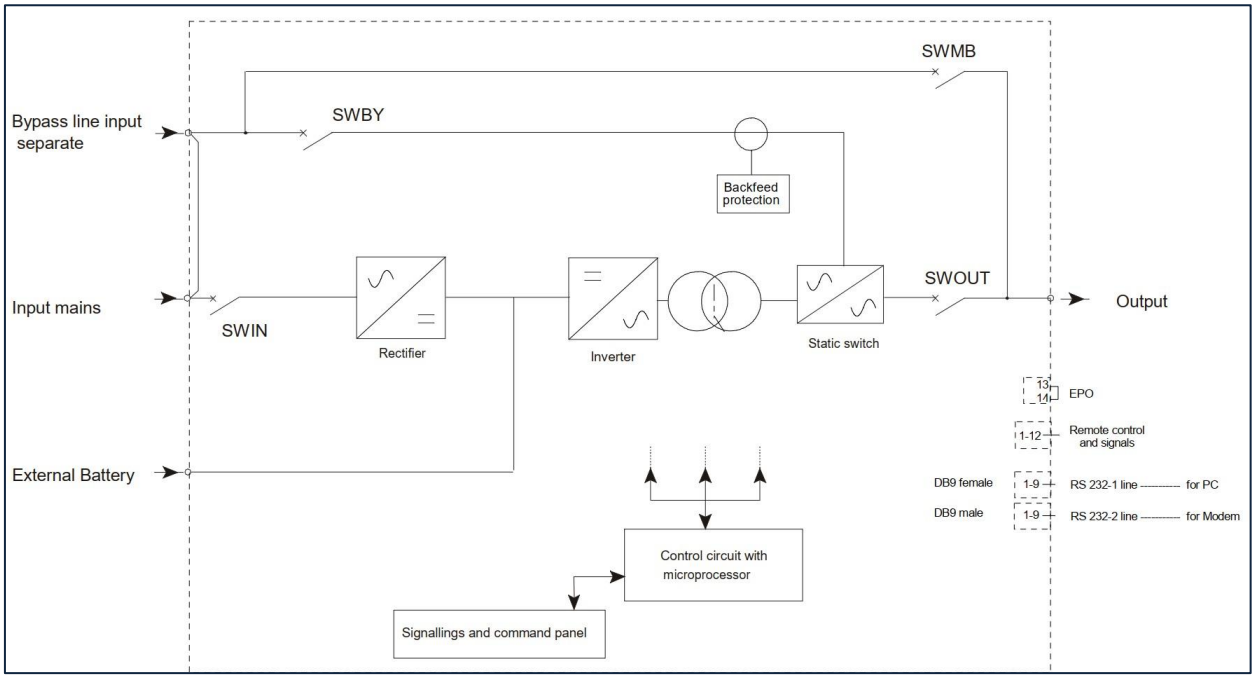
In/outlet terminals are placed in the front bottom under the switch isolators of the apparatus. On request is possible to provide the apparatus with input/output and battery terminals from the top.



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



Model	TPH IND 10	TPH IND 15	TPH IND 20	TPH IND 30
INPUT				
Rated voltage	380-400-415Vac Three phase			
Voltage tolerance	300÷480Vac @ 100% load			
Frequency	45 ÷ 65Hz			
Soft start	0 - 100% in 120 s (selectable)			
BYPASS				
Rated voltage	380-400-415Vac Three phase + N			
Rated frequency	50 or 60 (selectable)			
Frequency tollerance	±2% (selectable from ±1% to ±5%)			
Standard feature	Backfeed protection; separable bypass line			
OUTPUT				
Rated power kVA/kW	10/9	15/13.5	20/18	30/27
Rated Voltage	380-400-415Vac Three phase with neutral			
Voltage stability	±1% static stability; EN 62040-3 class performance 1 non-linear load			
Voltage distortion	<1% with linear load, <3% with non-linear load			
Frequency	50Hz or 60Hz (selectable)			
Frequency stability during battery operation	0.05%			
Crest factor Ipeack/Irms	3:1			
Overload	110% for 60 min. – 125% for 10 min. – 150% 1 min..			
BATTERY				
Type	VRLA AGM/GEL/NiCd/Li-ion/SuperCaps			
Recharging method	One level, Two level, Cyclic recharge (selectable)			
Nominal voltage	384Vdc			
MISCELLANEOUS				
Dimensions w/o battery	555x740x1400mm			
Net weight w/o battery	228kgs	241kgs	256kgs	315kgs
Remote signals	1x opto insulated Input and 3x relays Outputs			
Auxiliary signals	R.E.P.O. - External manual bypass - External output switch			
Relative humidity	5-95% non-condensing			
Communications	UPS status LEDs - Graphic display - 2 slots for comm. interface - 2x RS232			
Ambient temperature	0 °C - +40 °C			
Recommended temp. for battery life	+20 °C - +25 °C			
Noise level 1m Eco Mode	60dBA			62dBA
Colour	Dark grey RAL7016			
Protection degree	IP20			
STANDARDS				
Safety	EN 62040-1			
EMC	EN 62040-2			
Performance	EN 62040-3			
RoHS	compliant			

Model	TPH IND 40	TPH IND 60	TPH IND 80	TPH IND 100
INPUT				
Rated voltage	380-400-415Vac Three phase			
Voltage tolerance	300÷480Vac @ 100% load			
Frequency	45 ÷ 65Hz			
Soft start	0 - 100% in 120 s (selectable)			
BYPASS				
Rated voltage	380-400-415Vac Three phase + N			
Rated frequency	50 or 60 (selectable)			
Frequency tollerance	±2% (selectable from ±1% to ±5%)			
Standard feature	Backfeed protection; separable bypass line			
OUTPUT				
Rated power kVA/kW	40/36	60/54	80/72	100/90
Rated Voltage	380-400-415Vac Three phase with neutral			
Voltage stability	±1% static stability; EN 62040-3 class performance 1 non-linear load			
Voltage distortion	<1% with linear load, <3% with non-linear load			
Frequency	50Hz or 60Hz (selectable)			
Frequency stability during battery operation	0.05%			
Crest factor lpeack/lrms	3:1			
Overload	110% for 60 min. – 125% for 10 min. – 150% 1 min..			
BATTERY				
Type	VRLA AGM/GEL/NiCd/Li-ion/SuperCaps			
Recharging method	One level, Two level, Cyclic recharge (selectable)			
Nominal voltage	396Vdc			
MISCELLANEOUS				
Dimensions w/o battery	555x740x1400	800x740x1400		800x800x1900
Net weight w/o battery	335kgs	460kgs	520kgs	620kgs
Remote signals	1x opto insulated Input and 3x relays Outputs			
Auxiliary signals	R.E.P.O. - External manual bypass - External output switch			
Relative humidity	5-95% non-condensing			
Communications	UPS status LEDs - Graphic display - 2 slots for comm. interface - 2x RS232			
Ambient temperature	0 °C - +40 °C			
Recommended temp. for battery life	+20 °C - +25 °C			
Noise level 1m Eco Mode	62dBA			65dBA
Colour	Dark grey RAL7016			
Protection degree	IP20			
STANDARDS				
Safety	EN 62040-1			
EMC	EN 62040-2			
Performance	EN 62040-3			
RoHS	compliant			

Model	TPH IND 120	TPH IND 160	TPH IND 200
INPUT			
Rated voltage	380-400-415Vac Three phase		
Voltage tolerance	300÷480Vac @ 100% load		
Frequency	45 ÷ 65Hz		
Soft start	0 - 100% in 120 s (selectable)		
BYPASS			
Rated voltage	380-400-415Vac Three phase + N		
Rated frequency	50 or 60 (selectable)		
Frequency tollerance	±2% (selectable from ±1% to ±5%)		
Standard feature	Backfeed protection; separable bypass line		
OUTPUT			
Rated power kVA/kW	120/108	160/144	200/180
Rated Voltage	380-400-415Vac Three phase with neutral		
Voltage stability	±1% static stability; EN 62040-3 class performance 1 non-linear load		
Voltage distortion	<1% with linear load, <3% with non-linear load		
Frequency	50Hz or 60Hz (selectable)		
Frequency stability during battery operation	0.05%		
Crest factor Ipeack/Irms	3:1		
Overload	110% for 60 min. – 125% for 10 min. – 150% 1 min..		
BATTERY			
Type	VRLA AGM/GEL/NiCd/Li-ion/SuperCaps		
Recharging method	One level, Two level, Cyclic recharge (selectable)		
Nominal voltage	396Vdc		
MISCELLANEOUS			
Dimensions w/o battery	800x800x1900		
Net weight w/o battery	640kgs	700kgs	800kgs
Remote signals	1x opto insulated Input and 3x relays Outputs		
Auxiliary signals	R.E.P.O. - External manual bypass - External output switch		
Relative humidity	5-95% non-condensing		
Communications	UPS status LEDs - Graphic display - 2 slots for comm. interface - 2x RS232		
Ambient temperature	0 °C - +40 °C		
Recommended temp. for battery life	+20 °C - +25 °C		
Noise level 1m Eco Mode	65dBA	68dBA	
Colour	Dark grey RAL7016		
Protection degree	IP20		
STANDARDS			
Safety	EN 62040-1		
EMC	EN 62040-2		
Performance	EN 62040-3		
RoHS	compliant		