



TPH KING series represents the last transformer-less double conversion (VFI) power protection ELIT 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.

TPH KING series is available in a variety of models: 7.5-10-15-20-30-40-60 and 80kVA. TPH KING series is provided in three cabinet size in order to allow longer battery back up times therefore avoid the use of additional

battery cabinets. 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, dry contact or SNMP interface.

PRINCIPLES OF WORKING

The back up series is composed by: Rectifier, Inverter, 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 black out 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

- High efficiency > 93%
- Filtered, stabilized and regulated sine wave supply;
- Unity input power factor for energy saving and low reflected harmonic pollution to the utility;
- Wide input voltage window and input frequency window, the battery usage is minimized;
- Zero transfer time;
- Superior overload capability;
- Battery monitoring and temperature dependent charging function;
- LCD display for measurements, alarms and power history;
- Device to avoid a complete battery discharge;
- ON LINE – OFF LINE working settable;
- Insulation transformer (option);
- Low audible noise, variable load-dependent DC fan speed;

- Customer slot, RS 232 and dry contact interface as standard, USB, RS485 and SNMP as option;
- Dual input feed as option;
- Personalizing 60Hz output converter;
- Emergency Power Off.

Keys

The keys allow the user to operate the UPS to perform settings and adjustments, to start up and shut down the UPS, to monitor on the LCD display the voltages, currents, frequencies and other values.

CONTROL PANEL

The user friendly control panel is composed by three parts:

- Power Management LCD Display (PMD);
- LED indicators;
- Keys.



Power Management Display (PMD)

The 2x20 character LCD simplifies the communication with the UPS and provides the necessary monitoring information about the UPS.

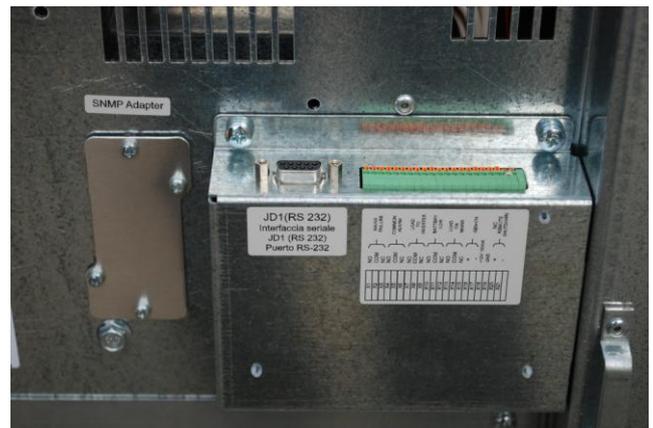
The menu driven LCD enables the access to the:

- Event register;
- Monitor the input and output U, I, f, P
- Battery runtime;
- Start up and shutdown of UPS;
- ON LINE – OFF LINE modality settable
- Diagnosis (Service Mode);
- Adjustments and testing.

LED indicators

The mimic diagram serves to indicate the general status of the UPS. The LED indicators show the power flow status and in the event of mains failure or load transfer from inverter to by-pass and vice-versa. The corresponding LED indicators will change colors from green (normal) to red (warning).

INTERFACES



The TPH KING is provided with two standard interfaces:

- Serial RS232;
- Dry contacts.

Serial RS 232

The smart port is an intelligent RS232 serial port that allows the UPS to a computer. The connector is a standard D-Type, 9 pin, female. The software optionally allows the computer to monitor the mains voltage and the UPS status continuously.

Dry Port (volt-free contacts)

The dry port may be used for:

- Connection of remote emergency stop facilities;
- Connection of remote status panel;
- Provision of signals for the automatic and orderly shutdown of servers or IBM AS400

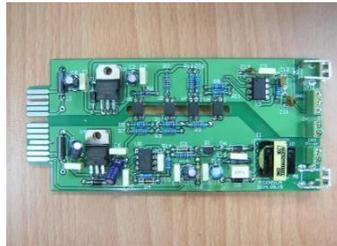
NO – NC available contacts: mains, common alarm, inverter, battery and EPO.

The UPS TPH KING is provided with the following accessories:

2nd RS232



RS485 interface



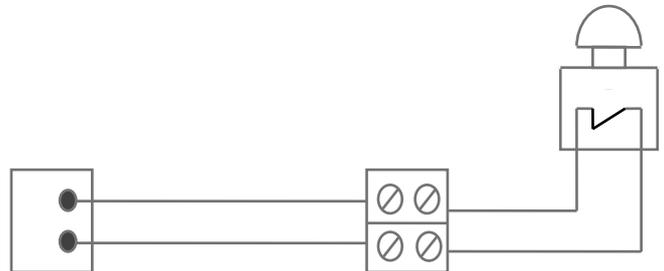
USB interface



SNMP interface



EMERGENCY STOP SWICHT
(N.C. = Normally Closed)



REAR & FRONT PANEL EXPLANATION



EMERGENCY POWER OFF

The Emergency Power Off facility must use a normally closed contact, which opens to operate the emergency stop sequence. The emergency stop port is located at the front of the UPS TPH KING module. In order to allow removal, maintenance or testing of any remote emergency stop facility without disturbing the normal operation of the UPS, it is recommended that a terminal block, with linking facilities, be installed between the UPS and the stop button.

1. Use a screened cable with 1 pair (section of wire 0.6mm²) and maximum length of 100m.
2. Connect the cable as shown in figure.

- Input/output terminal block;
- Cooling fan;
- Input fuses, emergency line fuses, battery fuses;
- Maintenance By-pass switch
- Output switch;
- Dry contact interface;
- RS 232 interface;
- Customer options Slot.

| Model | TPH 7.5 | TPH 10 | TPH 15 | TPH 20 | TPH 30 | TPH 40 | TPH 60 | TPH 80 |
|--------------------|---------|--------|--------|--------|--------|--------|--------|--------|
| Rated power kVA/kW | 7.5/6 | 10/8 | 15/12 | 20/16 | 30/24 | 40/32 | 60/48 | 80/64 |

| INPUT | | | | | | | | | |
|--------------------|--|--|--|--|--|--|-----------|--|--|
| Nominal voltage | 400V 3F+N | | | | | | | | |
| Voltage tolerance | Load <100% (-23% +15%), <80% (-30% +15%), <60% (-40% +15%) | | | | | | | | |
| Power factor | >0.95 standard (>0.98 optional) | | | | | | > 0.99 | | |
| Nominal frequency | 35 ÷ 70Hz | | | | | | 45 ÷ 66Hz | | |
| Current distortion | Sinewave | | | | | | | | |
| Inrush current | Absent | | | | | | | | |

| OUTPUT | | | | | | | | |
|---------------------|---|--|--|--|--|--|--|--|
| Voltage | 400V 3F+N | | | | | | | |
| Voltage tolerance | ±1% with linear load, ±3% with non-linear load | | | | | | | |
| Voltage distortion | <2% with linear load, <4% with non-linear load | | | | | | | |
| Frequency | 50Hz or 60Hz | | | | | | | |
| Frequency tolerance | ±0.1% free running, ±2% or ±4% with mains, adjustable | | | | | | | |
| Waveform | Sinusoidal | | | | | | | |
| Transfer time | 0 ms. | | | | | | | |
| Power factor | 3 : 1 | | | | | | | |
| Overload | 125% for 10 minutes, 150% for 1 minute | | | | | | | |

| BATTERY | | | | | | | | |
|-----------------------|-----------------------------------|-----|-----|-----|-----|-----|-----|-----|
| Type | Sealed Lead Acid maintenance free | | | | | | | |
| Recharge time | 5h at 90% | | | | | | | |
| Nominal voltage | ±288Vcc | | | | | | | |
| Standard back up time | 15' | 10' | 10' | 15' | 15' | 10' | 10' | 15' |

| EFFICIENCY | | | | | | | | | |
|---------------|-------|--|--|--|--|--|-------|--|--|
| ON LINE mode | 93.5% | | | | | | > 93% | | |
| OFF LINE mode | 98% | | | | | | | | |

| MISCELLANEOUS | | | | | | | | |
|-----------------------|---|--------|------|--------------|--------|-------|--------------|-------|
| Relative humidity | < 95% without condensing | | | | | | | |
| Operating temperature | from 0°C to + 40°C | | | | | | | |
| Noise | 50dBA | <53dBA | | | <59dBA | | <56dBA | |
| Interfaces | RS232, dry contact and EPO standard, SNMP, RS485 & USB optional | | | | | | | |
| Heat dissipation | 380W | 500W | 700W | 800W | 1200W | 1600W | 2400W | 3200W |
| Dimensions (mm) | 340x800x820 | | | 450x860x1250 | | | 600x800x1400 | |
| Net weight w/o (kg) | 75 | 75 | 75 | 154 | 154 | 154 | 180 | 200 |
| Protection degree | IP20 | | | | | | | |

| STANDARDS | | | | | | | | |
|-------------|---|--|--|--|--|--|--|--|
| Safety | EN 62040-1-1, EN 60950-1 | | | | | | | |
| EMC | EN 61000-6-4, EN62040-2, EN 61000-6-2, EN 61000-4-3/4/5 | | | | | | | |
| Performance | EN 62040-3 | | | | | | | |