Three Phase UPS Systems
Range: 10 to 500kVA
Three Phase UPS Systems

Hitachi Hi-Rel Power Electronics Pvt. Ltd. is a recognized name for high quality, proven technology and custom engineered Back-up and Power Conditioning solutions for critical applications across all segments of the industry. Being the first UPS manufacturer in the country to receive ISO : 9001 certification in 1987, HHPE Industrial UPS systems are also IEC 62040 approved.

We have one of the finest manufacturing set-ups in the country backed by a seven star testing facility through which each and every UPS has to pass before being cleared for shipment. A comprehensive network of service support, strategically located around the country is available on 24 x 7 basis.

Our In-house R&D is constantly working on innovation and up-gradation of topologies to ensure tailor made solutions to meet customer specifications and demands.

Block Diagram

IBGT modules in inverter

DSP based digital control board
Standard Features

- Latest DSP controlled IGBT technology
- Energy efficient and ECO mode facility (Efficiency up to 98%)
- **Suitable for 45°C ambient temperature (Work in NON AC Environment)**
- Vermin Proof UPS enclosure design option
- Suitable for Regenerative loads
- In built Output Galvanic isolation (using K-13 design transformer)
- Optical fiber links used for Internal communication
- Fully Electronics static switch for Inverter output as well as Bypass side
- UPS with dual input facility
- Input Phase reversal protection
- Manual Bypass switch - Available
- True RMS power measurement facility
- Cold start facility available
- Back feed protection available
- 8 nos. POT free contacts available for Remote signaling purpose
- 24 x 7 Service Support
- Programmable automatic two stage charger compatible with SMFB & VRLA batteries.
- Built-in advanced battery management system.
- Highly efficient, latest and intelligent power device based inverter.
- Capable to withstand 100% unbalance load.
- SVM based PWM generation.
- Comprehensive LED mimic.
- LCD display keypad interface.
- Date and time stamped event recording for last 999 alarms.
- Programming and monitoring of various system parameters.
- Make before break bypass operation.
- Terminals suitable for industrial armored power cable.
- Default RS485 port.

Options

- 12 Pulse rectification option
- Remote Signal Panel
- Parallel Redundancy configuration with common battery bank design
- Input Isolation Transformer
- Harmonics TRAP LC / Active Filter
- Bypass line equipment option (Servo stabilizer Panel / Isolation transformer panel)
- AC Distribution Panel
- PC Based Monitoring and Recording Unit
- Monitoring through SNMP
- Monitoring through Profibus
- Battery Monitoring System
- Automatic Shutdown Kit
Digital Control Panel

LCD Display

<table>
<thead>
<tr>
<th>Meters-Digital-LCD Display</th>
<th>Major Alarms-Text Readout - LCD Display</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Voltage Meters</strong></td>
<td>INPUT</td>
</tr>
<tr>
<td>Mains</td>
<td>Under Voltage</td>
</tr>
<tr>
<td>Alternate</td>
<td>Over Voltage</td>
</tr>
<tr>
<td>Battery</td>
<td></td>
</tr>
<tr>
<td>Inverter</td>
<td></td>
</tr>
<tr>
<td>Load</td>
<td></td>
</tr>
<tr>
<td><strong>Frequency Meters</strong></td>
<td>DC</td>
</tr>
<tr>
<td>Mains</td>
<td>Over Voltage</td>
</tr>
<tr>
<td>Alternate</td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td></td>
</tr>
<tr>
<td><strong>Metering with true RMS measurement</strong></td>
<td>Battery</td>
</tr>
<tr>
<td>Mains</td>
<td>Discharging</td>
</tr>
<tr>
<td>Alternate</td>
<td>Under Voltage</td>
</tr>
<tr>
<td>Output</td>
<td>End of Battery Discharge</td>
</tr>
<tr>
<td><strong>Current Meters</strong></td>
<td>INVERTER</td>
</tr>
<tr>
<td>Mains</td>
<td>Under Voltage</td>
</tr>
<tr>
<td>Battery</td>
<td>Over Voltage</td>
</tr>
<tr>
<td>Inverter</td>
<td>IGBT Limb Fault</td>
</tr>
<tr>
<td>Load</td>
<td>Over load</td>
</tr>
<tr>
<td></td>
<td>Over load Trip (Inverse Time)</td>
</tr>
<tr>
<td></td>
<td>Over Temperature</td>
</tr>
<tr>
<td><strong>Power Meters</strong></td>
<td>ALTERNATE</td>
</tr>
<tr>
<td>Load kVA</td>
<td>Under Voltage</td>
</tr>
<tr>
<td>Load kW</td>
<td>Over Voltage</td>
</tr>
<tr>
<td>Load Power Factor</td>
<td>Frequency out of Range</td>
</tr>
<tr>
<td>UPS kVA</td>
<td></td>
</tr>
<tr>
<td>UPS kW</td>
<td></td>
</tr>
<tr>
<td>UPS Power Factor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STATIC SWITCH</td>
</tr>
<tr>
<td></td>
<td>Transfer to Bypass</td>
</tr>
</tbody>
</table>
## Technical Specifications

### MAINS INPUT
- **Voltage**: 415 V ±15%, -20%
- **Frequency**: 50 Hz ± 10%

### DC BUS
- **Voltage**: 357 VDC to 476 VDC
- **Maximum DC Bus Ripple**: <1%

### OUTPUT
- **Nominal Voltage**: 380-400-415 VAC, Three Phase + Neutral
- **Load Power Factor Rated**: 0.8 (Standard), 0.9 (Optional)
- **Load Crest Factor**: 3:1
- **Voltage Regulation**:
  - Steady State: ± 1%
  - 100% Step Load: ± 5%
  - Recovery Time to 98%: < 20 msec
- **Over Load**:
  - 25%: 600 Seconds
  - 50%: 60 Seconds
- **UPS Efficiency**: up to 94% overall (Up to 98% in ECO mode)
- **Frequency**: 50 Hz
- **Bypass Synchronization**:
  - Window: ± 1% to 6 % Field
  - Programmable
- **Internal Oscillator**: ± 0.1%
- **Slew Rate**: 1 Hz/Sec
- **Total Harmonic Distortion**:
  - Linear Load: <2% ON Linear Load
  - Nonlinear Load (CF 3:1): <3% on NON Linear Load.

### OPERATING CONDITIONS
- **Ambient Temperature**: 45°C, option available for 50°C
- **Audible Noise @1metre from PanelFront**: 55 dBA to 70 dBA (depending on system rating & system configuration)

### ENCLOSURE
- **Construction**: CRCA Steel Sheet
- **Protection Class**: IP 20 / IP 30 (Vermin Proof design option)
- **Finish (Powder Coated)**: RAL 7032 (Other Colours Optional)
- **Ventilation**: Forced Air (Internal Fans)
- **Cable Entry**: Bottom
## Dimensions

<table>
<thead>
<tr>
<th>Rating kVA</th>
<th>Height (mm)</th>
<th>Width (mm)</th>
<th>Depth (mm)</th>
<th>Weight (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>1600</td>
<td>800</td>
<td>860</td>
<td>450</td>
</tr>
<tr>
<td>20</td>
<td>1600</td>
<td>800</td>
<td>860</td>
<td>465</td>
</tr>
<tr>
<td>30</td>
<td>1600</td>
<td>800</td>
<td>860</td>
<td>480</td>
</tr>
<tr>
<td>40</td>
<td>1600</td>
<td>800</td>
<td>860</td>
<td>520</td>
</tr>
<tr>
<td>60</td>
<td>1600</td>
<td>800</td>
<td>860</td>
<td>540</td>
</tr>
<tr>
<td>80</td>
<td>1900</td>
<td>1200</td>
<td>800</td>
<td>1000</td>
</tr>
<tr>
<td>100</td>
<td>1900</td>
<td>1200</td>
<td>800</td>
<td>1000</td>
</tr>
<tr>
<td>120</td>
<td>1900</td>
<td>1200</td>
<td>800</td>
<td>1100</td>
</tr>
<tr>
<td>150</td>
<td>1900</td>
<td>1200</td>
<td>800</td>
<td>1200</td>
</tr>
<tr>
<td>200</td>
<td>1900</td>
<td>1610</td>
<td>800</td>
<td>1350</td>
</tr>
<tr>
<td>250</td>
<td>1900</td>
<td>1610</td>
<td>800</td>
<td>1650</td>
</tr>
<tr>
<td>300</td>
<td>1900</td>
<td>1610</td>
<td>1000</td>
<td>1850</td>
</tr>
<tr>
<td>400</td>
<td>2100</td>
<td>2800</td>
<td>1000</td>
<td>2200</td>
</tr>
<tr>
<td>500</td>
<td>2100</td>
<td>2800</td>
<td>1000</td>
<td>2500</td>
</tr>
</tbody>
</table>

Dimensions & weights indicated are approximate. Dimensions and weights are subject to change based on configurations and options selected.

## Serving Entire Gamut of Industries

We have rich experience in supplying power electronics products in automotive, pharmaceutical, glass, plastic, printing & packaging, pulp & paper, petro chemical, machine tools, food & beverages as well as other light industries applications.

[Icons representing various industries]

and many more...

### Note:

Overall dimensions, weight, audible noise, heat generation, module height etc. depend upon the system configuration and options required.
About Us

Founded & established in 1983 as Hi-Rel Electronics Pvt. Ltd., we are now a 100% Hitachi group company - Hitachi Hi-Rel Power Electronics Pvt. Ltd., recognized as a pioneer in power electronics. More than 3 decades of experience, we have garnered a significant level of trust in our market segment and continue to offer world class power electronics products, value added services & customized solutions.

Our state-of-the-art product portfolio includes UPS for Industrial (non-IT) and IT & commercial applications, medium & low voltage variable frequency drives, steel automation & engineered drives for customized applications, industrial automation & control products like PLC, SCADA & DCS, solar inverters, railway products and other customized products like UMPS, iDip, etc.

- Leading Manufacturer of UPS, DRIVES & AUTOMATION PRODUCTS and SOLAR INVERTERS
- State-of-the-Art MANUFACTURING FACILITY at Gandhinagar & Sanand in Gujarat, India
- IN-HOUSE R&D Facility recognized by DSIR, Government of India
- APPROVED by Leading Consultants and EPC Vendors
- PAN INDIA & GLOBAL Presence
- SERVING Entire Garnet of Industries
- Rich Experience in "MISSION CRITICAL" Applications
- Dedicated & Decentralized 24X7 AFTER-SALES-SERVICE at 45+ Locations
- OFFERS Products with Greater Energy Efficiency & Lower Carbon Footprint

With expertise, experience and an efficient product line, we will always try to be your power electronics partner.

When you choose to do business with us, you are partnering with a company who cares.