

HITACHI
Inspire the Next

Single Phase Industrial UPS System
Range: 5 to 250 kVA

**i4 Series
UPS System**



Exceptional safeguard against Power Disruption

About i4 Series Single Phase Industrial UPS System

Hitachi Hi-Rel Power Electronics Private Limited 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, Hitachi Industrial UPS systems are also IEC 62040-3 approved.

i4 series UPS systems are specifically designed to provide secure power to mission critical loads in

Refineries, Petrochemicals, Power Generation, Pipeline, Steel and Process Industries as well as for critical data processing applications.

This Hitachi UPS system is true online industrial grade UPS for critical load. Use of DSP and latest technology offers maximum reliability and flexibility at the lowest operating cost. It is available in rating from 5 kVA to 250 kVA and is custom built to your exact specifications.

Highlights

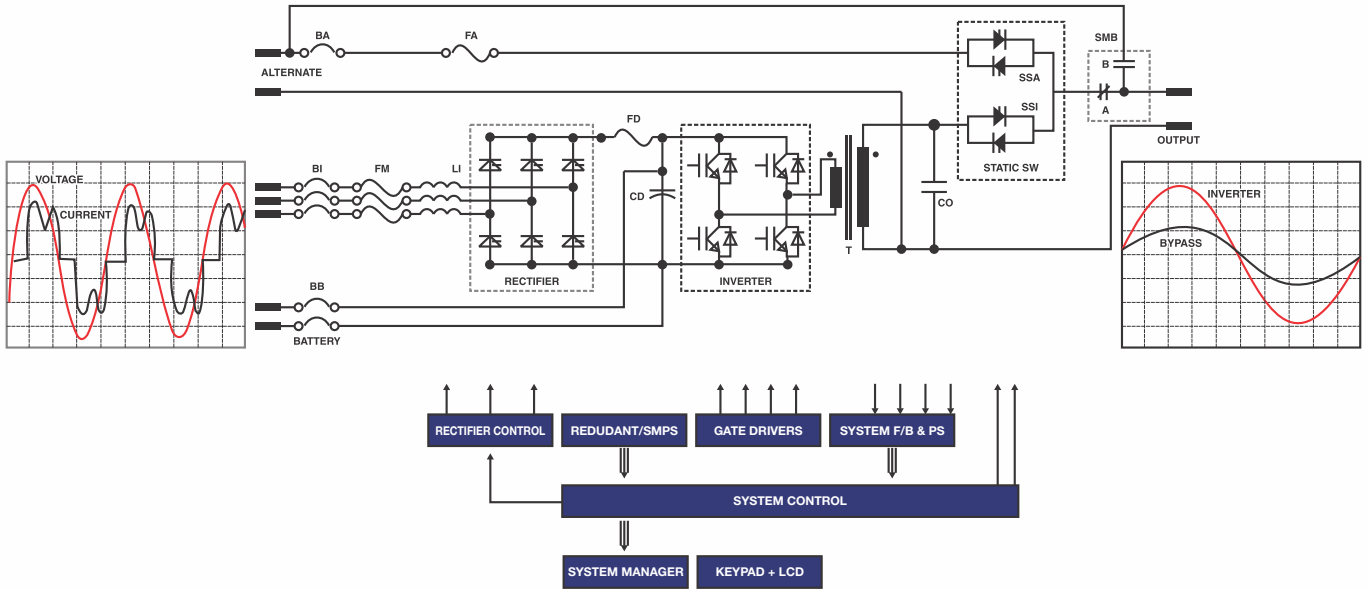
- Higher grade enclosure protection
- High frequency PWM based inverter
- Multiple rectifier options with controlled bridge configuration
- G3 conformal coating
- Full digital signal processing using the latest DSP technology
- User friendly HMI / display for monitor & control parameters
- Wide range of connectivity

Key Features

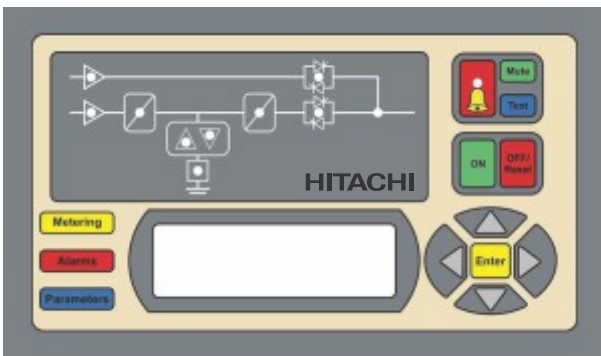
- Input reactors to minimize AC mains notching
- Automatic battery charging float / boost mode selection with current limit
- High efficiency : IGBT based inverter
- Specially designed output transformer for PWM operation
- Sinusoidal – PWM operation with direct AC feedback – handle nonlinear loads upto crest factor 3:1 with <5% THD
- High branch fast-acting fuse clearing capacity (upto 30% rated fuse)
- DSP based control redundant control power supplies
- Programmable static switch with upto $\pm 6\%$ synchronization window
- Comprehensive LED mimic and LCD + keypad enabled
 - Date – Time stamped event recording – Last 999 events logged in non volatile memory
 - Programming & monitoring of various system parameters
- RS485 interface and programmable potential free contacts
- 50°C ambient in IP 41 enclosure
- Front access oriented layout
- PC based monitoring, control & reporting unit (Optional)
 - Monitors the system performance with automatic generation of daily weekly reports with fault and alarm log details.
 - Higher level connectivity with DCS/PLC through RTU for modbus TCP/IP.
 - Monitoring on LAN through SNMP
 - Battery monitoring system.
- A large array of options available including 12 pulse charger, parallel or hot standby redundancy, redundant cooling fans and more...



Block Diagram



LCD Display



METERS-DIGITAL-LCD DISPLAY

| | |
|-------------------------------------|---|
| VOLTAGE & CURRENT METERS | Mains Alternate Battery Inverter Load |
| FREQUENCY METERS | Alternate Inverter |

TRIPS-TEXT READOUT-LCD DISPLAY

| |
|--------------------------|
| End of Battery Discharge |
| IGBT Fault |
| Overload (Inverse Time) |
| Over Temperature |
| Communication Fail |

ALARMS-TEXT READOUT-LCD DISPLAY

| | |
|----------------------|--|
| INPUT | Under Voltage Over Voltage |
| DC | Over Voltage |
| BATTERY | Discharging Under Voltage |
| INVERTER | Under Voltage Over Voltage Over Load Disconnected |
| ALTERNATE | Under Voltage Over Voltage Frequency out of Limit |
| STATIC SWITCH | Transfer to Alternate |

Note: All Alarms and trips initiate an audible warning

Technical Specifications

| MAINS INPUT | |
|--|---|
| Voltage | 415 V +10% - 15% 3Ph 3W |
| Frequency | 50 Hz ±10% |
| DC BUS | |
| DC Voltage Range | 305V to 482V |
| Maximum DC Bus Ripple (without battery) | 2% RMS |
| Max DC Bus Ripple (with battery) | 1% RMS |
| OUTPUT | |
| Nominal AC Voltage | 110/115/120/220/230/240 V |
| Load Power Factor - Rated | 0.8 |
| Load Power Factor - Range | 0.6 to Unity |
| Voltage Regulation | |
| Steady State | ±1% |
| 100% Step Load | ±5% Typical |
| Recovery Time to 98% | < 20 ms |
| Over Load | |
| 110% | 3600 Seconds |
| 125% | 600 Seconds |
| 150% | 60 Seconds |
| Branch Fuse Clearing Ability | 30% of UPS rated current (fast acting semiconductor protection fuse) 10% of UPS rated current (slow acting fuse) |
| 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 | <2.5% |
| Nonlinear Load (CF 3:1) | <5% |
| OPERATING CONDITIONS | |
| Ambient Temperature | 50°C |
| Altitude | 1000 Meter from MSL |
| Humidity | 95% Non condensing |
| Atmosphere | Non Corrosive, Dust Free, Freely Ventilated |
| Audible Noise @ 1 metre from Panel Front | 55 dBA to 75 dBA (depending on system rating and configuration) |
| ENCLOSURES | |
| Construction | CRCA Steel Sheet |
| Protection Class | IP41 / IP42 |
| Finish (Powder Coated) | RAL 7032 (other colours optional) |
| Ventilation | Forced air (internal fans) |
| Cable Entry | Bottom (top optional) |

Note: Overall audible noise, heat generation etc. depend upon the system configuration and options required.

Dimensions

| Rating (kVA) | Height (mm) | Width (mm) | Depth (mm) | Weight (Kg) |
|--------------|-----------------------|------------|------------|-------------|
| 10 | 1400+100 | 660 | 660 | 300 |
| 20 | 1400+100 | 660 | 660 | 300 |
| 25 | 1400+100 | 660 | 660 | 350 |
| 30 | 1800+100 | 800 | 800 | 500 |
| 40 | 1700+100 | 1000 | 800 | 700 |
| 50 | 1700+100 | 1000+1000 | 900 | 850 |
| 60 | 1700+100 | 1000+1000 | 900 | 950 |
| 75 | 1700+100 | 1000+1000 | 900 | 1150 |
| 100 | 2100+100 | 1200+1200 | 1000 | 1550 |
| 120 | 2100+100 | 1200+1200 | 1000 | 1650 |
| 130 | 2100+100 | 1200+1200 | 1000 | 1650 |
| 150 | 2100+100 | 1200+1200 | 1000 | 2000 |
| 180 | 2100+100 | 1200+1400 | 1000 | 2500 |
| 200 | 2100+100 | 1200+1400 | 1000 | 2500 |
| 225 | 2100+100 | 1200+1400 | 1000 | 2750 |
| 250 | Dimensions on request | | | |

Note:

Height of canopy and top fan box not included in the height dimension indicated above.

Dimensions & weights indicated are approximate.

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

Dimensions for 10 kVA to 40 kVA UPS systems are without I/P x'mer.

Optional Features

- Input isolation transformer
- Input harmonics filters
- Fan redundancy
- AC distribution panels
- PC based monitoring & recoding unit
- 60Hz product option
- Monitoring on LAN through SNMP
- Battery management system
- Remote annunciator
- Automatic server shutdown kit
- DCS connectivity through MODBUS / POFIBUS protocol
- 110 VDC* / 220 VDC** / 490 VDC bus voltage
- Front accessible design
- Bypass line equipment isolation
Transformer / SCVS / SSVS / CVCF

* Up to 10 kVA & ** Up to 100 kVA



System Control Board of an i4 Series UPS -
The DSP based digital control advantage!

Serving entire gamut of Industries

Hitachi Hi-Rel has rich experience in supplying power electronics products & complete customized solutions for mission critical applications in refineries, petro-chemicals, power generation, steel & metal and process industries as well as critical data processing applications.



Power Generation & Utility Industries



Petrochemicals & Refineries



Oil & Gas Production



Steel & Metal Industries



Cement Industry



Pulp & Paper Industry



Coal & Mining Industries



Chemical Industry



Fertilizer Industry



Pharmaceutical



Textile



Plastic

and many more...

Customer Support

“Have peace of mind with Hitachi Hi-Rel flexible and nimble footed, 24 X 7 service”

Hitachi Hi-Rel service program includes:

On Site Installation, Supervision and Commissioning

- Provides comprehensive check at user site to ensure trouble free installation of product
- Our technical experts give recommendations to the site engineer or electrical contractor and supervise the UPS installation before load power-up
- Offers commissioning services along with site acceptance test report



Training

- On site training for safe & efficient operation of equipment
- Training at factory (optional)
 - Course-1 : Operation, System Principle, Hands on Training, Predictive and Preventive Maintenance – 3 days training
 - Course-2 : Predictive and Preventive Maintenance, Hardware, Settings, UPS System Panel & Batteries Troubleshooting & Repair Services – 5 days training



Preventive Maintenance Services

- Ensures safe and reliable operation
- Contracts includes cleaning, measurements of various parameters, calibrations, functional tests, event log and power quality analysis, battery health check, hardware and software upgrades supported by Field Service Report.
- Maintenance plan is one of the most cost-effective actions that can preserve initial investment and ensures business continuity.
- Ensure optimal performance and to protect critical application from potential downtime.



Break Down Maintenance & EMERGENCY CALL

- In the event of an emergency call, our service expert, located as close to your site as possible, guarantees a quick intervention time with the help of 24x7-365 days.
- With the help of powerful diagnostics software, quick troubleshooting is possible by a service expert, which guarantees a short MTTR (Mean Time to Repair).
- Corrective actions are performed (Part replacement, adjustments and upgrades of software's etc.)
- Helpline number for service support - (080) 6112 0800



*Service program is separate from equipment supply and subject to applicable terms and conditions.

About Hitachi Hi-Rel Power Electronics

Founded & established in 1983 as Hi-Rel Electronics Pvt. Ltd., which later on in year 2015 had become the 100% subsidiary company of Hitachi, Japan which is one of the Global fortune 500 companies with a new name as Hitachi Hi-Rel Power Electronics Private Limited, which is being recognized as one of the pioneers in power electronics domain. Hitachi Hi-Rel, today, is a leading manufacturer of Industrial UPS, IT & Infra UPS, Medium & Low Voltage Variable Frequency Drives, Grid Tied Solar Inverters, Air Compressors and Railway Inverters.

Hitachi Hi-Rel has state-of-the art manufacturing facility at Sanand near Ahmedabad in Gujarat-India. Hitachi Hi-Rel is helping a wide array of industries and organizations to meet the mission critical demands through technologically superior, low polluting and innovative products Solutions and continue to offer world class power electronics products, value added services & customized solutions.

With a vision of “To be recognized as the most trusted Power Electronics Company by supplying superior products and services”, Hitachi Hi-Rel has garnered a significant level of trust in Indian power electronics market segment wherein it serves the entire gamut of Industries, particularly in mission critical applications for Refineries, Petro-Chemicals, Power Generation, Steel & Metals, and Process Industries as well as Critical Data Processing Applications. Besides offering greater energy efficiency & lower carbon footprint, each of the company product streams bears the hallmark of excellence with company accreditations. Hitachi Hi-Rel is an ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 certified company having export house status. Hitachi Hi-Rel sales network & service infrastructure expands out to the world & with this network, we have made strong inroad in Global markets like South East Asia, Middle East, Africa and Brazil. Also, with a presence of strategically located skilled service engineers in India helps us to score high in terms of customer expectations on service deliverables & uptime of the product.

Hitachi Hi-Rel's UPS and power conditioning back-up systems, the flagship product, works as an exceptional safeguard against power disruption and reflects the industry's ultimate in advanced technology with proven track record in mission critical applications. Its variable frequency drives represent the most energy efficient means of process control and reflect the best in

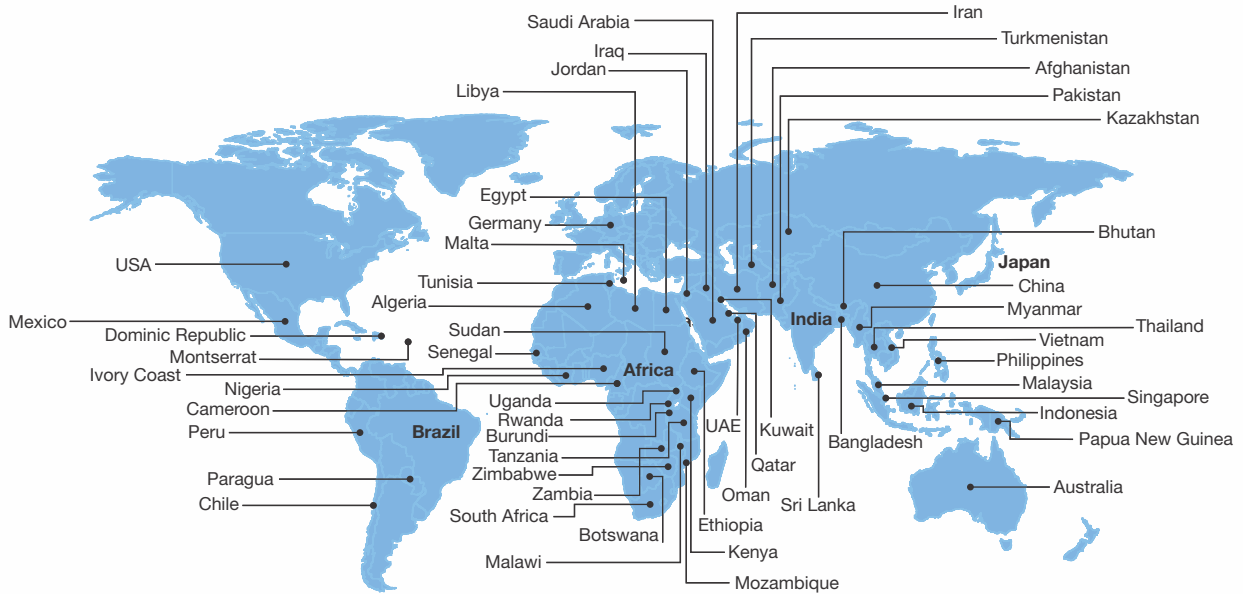
process control. Hitachi Hi-Rel's Grid Tied Solar Inverters are based on the contemporary technology of Hitachi Ltd, Japan. Currently Hitachi branded Solar Inverters are generating more than 5.5 GW renewable power in Global Solar Domain as well as more than 3 GW+ renewable power in Indian Solar Domain.

Sprawling across an area of 26,000 sq. meter and modelled on Hitachi's Omika Works in Japan, Hitachi Hi-Rel's Sanand manufacturing works is the world class and one of the most modern power electronics manufacturing facility in India. All aspects of manufacturing, testing and quality assurance are supported by highly experienced Japanese Expats stationed at the facility. Sanand Works employs Hitachi Omika Works (Japan) based software tools for engineering and manufacturing and has one of the most advanced product testing facilities in the country. Innovation through research & development has been rooted in its DNA. Hitachi Hi-Rel also has an additional facility at Gandhinagar near Ahmedabad in Gujarat which is sprawled across an area of 5,000 sq. meter. Its new products are developed by the R&D team which are on par with global standards. Along with indigenisation of products from Hitachi, original design of UPS and railway products are done regularly by the in-house R&D team.

With expertise, experience and an efficient product line, Hitachi Hi-Rel will always try to be your power electronics partner. When you choose to do business with Hitachi Hi-Rel, you are partnering with a company who cares.



Worldwide Presence



Pan India Presence



Contact us

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