

Single Phase Industrial UPS System

Range: 5 to 250 kV A

i4 Series

UPS System

Exceptional safeguard against Power Disruption

Highlights 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. About i4 Series Single Phase Industrial UPS System

i4 Series Single Phase

Industrial UPS System

—Full digital signal processing using the latest DSP—Higher grade enclosure protection

—Wide range of connectivity—High frequency PWM based inverter

technology—Multiple rectifier options with controlled bridge

parameters configuration

—G3 conformal coating

—User friendly HMI / display for monitor & control Hitachi Hi-Rel Power Electronics Private Limited is a

recognized name for high quality, proven technology

and custom engineered Back-up and Power

i4 series UPS systems are specifically designed to

provide secure power to mission critical loads in 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.

Key Features

- Date ■ Time stamped event recording ■ last

999 events logged in non volatile memory— DSP based control redundant control power supplies

- Programming & monitoring of various

system parameters —Programmable static switch with upto $\pm 6\%$

synchronization window

—Comprehensive LED mimic and LCD + keypad

enabled —Specially designed output transformer for PWM

operation

—Sinusoidal ■ PWM operation with direct AC—High efficiency : IGBT based inverter

feedback ■ handle nonlinear loads upto

crest factor 3:1 with <5% THD

— High branch fast-acting fuse clearing capacity

(upto 30% rated fuse)—Input reactors to minimize AC mains notching

—Automatic battery charging float / boost mode

selection with current limit —RS485 interface and programmable potential free

with fault and alarm log details.— PC based monitoring, control & reporting

unit (Optional)

— A large array of options available including 12 pulse - Battery monitoring system. contacts

- Higher level connectivity with DCS/PLC

through RTU for modbus TCP/IP .

charger, parallel or hot standby redundancy,

redundant cooling fans and more

- Monitoring on LAN through SNMP— 0
50C ambient in IP 41 enclosure
—Front access oriented layout
- Monitors the system performance with
automatic generation of daily weekly reports
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Block Diagram

GATE DRIVERS SYSTEM F/B & PS RECTIFIER CONTROL REDUNDANT/SMPS

SYSTEM CONTROL

KEYPAD + LCD SYSTEM MANAGER

VOLTAGE &

CURRENT METERS

FREQUENCY

METERS METERS - DIGITAL - LCD DISPLAY

Mains

Alternate

Battery

Inverter

Load

Alternate

Inverter

TRIPS-TEXT READOUT-LCD DISPLAY

End of Battery Discharge

IGBT Fault

Overload (Inverse Time)

Over Temperature

Communication Fail

Note: All Alarms and trips initiate an audible warning LCD Display

INPUT

DC

BATTERY

INVERTER

ALTERNATE

STATIC SWITCH Under Voltage

Over Voltage

Over Voltage

Discharging

Under Voltage

Under Voltage

Over Voltage

Frequency out of Limit

Transfer to AlternateALARMS-TEXT READOUT -LCD DISPLAY

Under Voltage

Over Voltage

Over Load

Disconnected i4 Series Single Phase

Industrial UPS System

Technical Specifications

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

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i4 Series Single Phase

Industrial UPS System

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50C
1000 Meter from MSL
95% Non condensing
Non Corrosive, Dust Free, Freely Ventilated
55 dBA to 75 dBA (depending on system rating and configuration)
CRCA Steel Sheet
RAL 7032 (other colours optional)
Forced air (internal fans)
Bottom (top optional) 415 V +10% - 15% 3Ph 3W
50 Hz $\pm 10\%$
305V to 482V
2% RMS
1% RMS
110/115/120/220/230/240 V
0.8
0.6 to Unity
50 Hz
 $\pm 1\%$ to 6% (field programmable)
 $\pm 0.1\%$
1 Hz/Sec
<2.5%
<5% $\pm 1\%$
 $\pm 5\%$ Typical
< 20 ms
600 Seconds 3600 Seconds
60 Seconds
30% of UPS rated current (fast acting semiconductor protection fuse)
10% of UPS rated current (slow acting fuse)
Ambient Temperature
Altitude
Humidity
Atmosphere
Audible Noise @ 1 metre from Panel Front
OPERATING CONDITIONS
ENCLOSURES
Construction
Protection Class
Finish (Powder Coated)
Ventilation
Cable Entry DC BUS
OUTPUT MAINS INPUT
Voltage
Frequency
DC Voltage Range
Maximum DC Bus Ripple (without battery)
Max DC Bus Ripple (with battery)
Nominal AC Voltage
Load Power Factor - Rated
Frequency
Bypass Synchronization Window
Internal Oscillator
Slew Rate
Total Harmonic Distortion
Linear Load
Nonlinear Load (CF 3:1)
Load Power Factor - Range
Voltage Regulation
Steady State

100% Step Load
Recovery Time to 98%
125%110%
150%Over Load
Branch Fuse Clearing Ability

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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 kV A to 40 kV A UPS systems are without I/P x'mer .Dimensions

Rating
(kVA)Height
(mm)Width
(mm)Depth
(mm)Weight
(Kg)
10
20
25
30
40
50
60
75
100
120
130
150
180
200
2251400+100
1400+100
1400+100
1800+100
1700+100
1700+100
1700+100
1700+100
2100+100
2100+100
2100+100
2100+100
2100+100
2100+100
2100+100
2100+100
2100+100660
660
660
800
1000
1000+1000
1000+1000
1000+1000
1200+1200
1200+1200
1200+1200
1200+1200

1200+1400
1200+1400
1200+14001000

1000
1000
1000
1000

1000300

300

350

500

700

850

950

1150

1550

1650

1650

2000

2500

2500

2750

250 Dimensions on request660

660

660

800

800

900

900

900

1000

Optional Features

—Bypass line equipment isolation

Transformer / SCVS / SSVS / CVCF

* Up to 10 kV A & ** Up to 100 kV A— Automatic server shutdown kit

— DCS connectivity through MODBUS / PROFIBUS

protocol

— 110 VDC / 220 VDC / 490 VDC bus voltage * **—Input isolation transformer

— Input harmonics filters

— Fan redundancy

— AC distribution panels

— PC based monitoring & recording unit

— 60Hz product option

— Monitoring on LAN through SNMP

— Battery management system

— Remote annunciator

—Front accessible design

System Control Board of an i4 Series UPS -

The DSP based digital control advantage!i4 Series Single Phase

Industrial UPS System

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Industrial UPS System

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.
and many more...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

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Customer Support i4 Series Single Phase
Industrial UPS System

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

Helpline number for service support - (080) 6112 0800 — - Course-2 : Predictive and Preventive
Maintenance,

Hardware, Settings, UPS System Panel &

Batteries Troubleshooting & Repair Services Our technical experts give recommendations to the
site —

With the help of powerful diagnostics software, —

Corrective actions are performed (Part replacement, —Break Down Maintenance & EMERGENCY
CALL

In the event of an emergency call, our service expert, — engineer or electrical contractor and
supervise the UPS

continuity .

adjustments and upgrades of software's etc.) located as close to your site as possible, guarantees
a

quick intervention time with the help of 24x7-365 days. Training at factory (optional) —

Maintenance plan is one of the most cost-effective actions —

that can preserve initial investment and ensures business trouble free installation of product

■ 5 days training installation before load power -up

Preventive Maintenance Services Training, Predictive and Preventive Maintenance ■ 3
days training

Ensures safe and reliable operation —Training

Ensure optimal performance and to protect critical — test report

parameters, calibrations, functional tests, event log

and power quality analysis, battery health check, hardware

and software upgrades supported by Field Service Report. On site training for safe & efficient
operation of equipment —

application from potential downtime. Contracts includes cleaning, measurements of various —

quick troubleshooting is possible by a service expert,

which guarantees a short MTTR (Mean Time to Repair). - Course-1 : Operation, System Principle,

Hands on Offers commissioning services along with site acceptance —Hitachi Hi-Rel service
program includes:

On Site Installation, Supervision and Commissioning

— Provides comprehensive check at user site to ensure

*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'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 With a vision of ■T o be r ecognized 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 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.

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i4 Series Single Phase

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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.

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i4 Series Single Phase

Industrial UPS System

Pan India Presence Worldwide Presence

Sivasagar

AHMEDABAD

CHENNAIHYDERABADKOLKATA

MUMBAI

PUNEAgartalaPatna

Angul

BellaryBhilai Raipur BhubaneswarCuttackBokaroGuwahati

JaipurGwaliorKanpur

Jamshedpur

JajpurKorba

CoimbatoreLucknowMoradabadDehradun

NagpurBelgaum

RajahmundryRajkotSiliguri

Vapi

VizagJammu & KashmirJammu

ChandigarhLudhianaHimachal

Pradesh

Bhadla

Haryana Mandi

Uttar

Pradesh

BiharRanchiAllahabadGorakhpur

Muzaffarpur

Jharkhand

Madhya Pradesh

Maharashtra Chhattisgarh

Orissa

Andhra

Pradesh

Karnataka

Tamil NaduGujaratJodhpur

GANDHINAGAR

BarodaJamnagarMehsana

SuratUdaipurBarmer

BENGALURUSANAND

West BengalNOIDA

Mandsaur

Anantapur

KamuthiTelanganaJhansi
Charanka
TadipatriSangar eddySiwan
GiridihDeoghar
JharsugudaBhawanipatnaMidnapor eBurdwanMurshidabad
Jabalpur
Satna
KolhapurRatlam
Nashik
AurangabadGoaBikaner
ValsadKotaDelhi/NCR Agra
BanarasAzamgarhBatinda
MansaJalandharPathankot
BareillyShimlaKarnal
Gonda
Salem
MaduraiAriyalurCuddalor eVelloreHisar
TirunelveliChittor garhIndor e
BhopalPunjab
GundurRaigad
AmalapuramSambalpurDibrugarh
SingrauliNumaligarh
BharuchAsansol
Rourkela
JalgaonKadri
Manufacturing Plant
Corporate Of fice
Solar Pr oject Of fice
200+ Residential Service
Engineer LocationsNational Customer
Support CenterBranch Of fice AustraliaBangladeshBhutan
BurundiCamer oon
ChileChina
Dominic Republic Egypt
EthiopiaGermany
Indonesialran
Iraq
Ivory CoastJordan
Kazakhstan
KenyaKuwaitLibya
MalawiMalaysiaMexico
Montserrat
MozambiqueMyanmar
Nigeria
OmanPakistan
ParaguaPeruPhilippines
QatarRwandaSaudi Arabia
Senegal
Singapor e
South AfricaSri LankaSudan
TanzaniaThailandTunisiaTurkmenistan
UAEUgandaUSA
Vietnam
ZambiaZimbabweAlgeria
Papua New GuineaAfghanistan
Malta
Japan

Middle East
Botswana Brazil India
Africa

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In the spirit of innovation, specifications and features are subject to change without notice.

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