

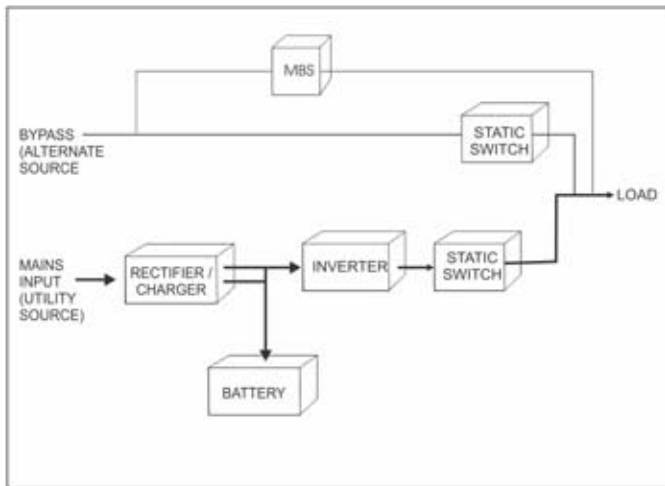
HI-REL
Powering Growth



INDUSTRIAL
UNINTERRUPTIBLE
POWER SUPPLY
(UPS) SYSTEMS



Latest Generation Industrial UPS Systems



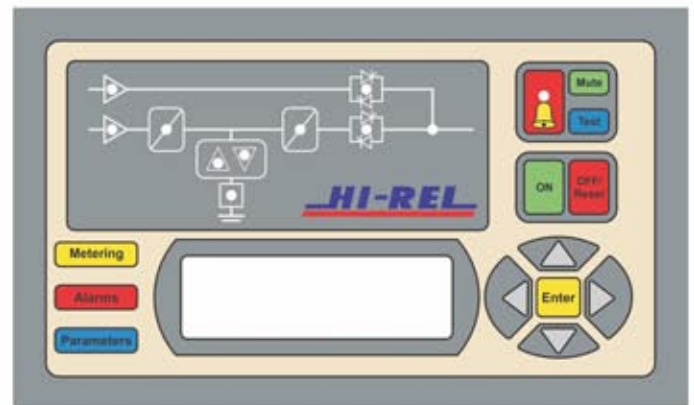
Hi-Rel is a recognized name for high quality, proven technology and custom engineered Back-up and Power Conditioning solutions for critical applications across all segments of the industry. Being the first UPS manufacturer in the country to receive ISO : 9001 certification in 1987, Hi-Rel Industrial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

■ Eco-Mode Configurable

- DSP based digital control
- Use of advanced power devices
- State-of-the-art IGBT driver for higher reliability
- Comprehensive and integrated battery health monitoring system
- Unmatched power status
- Capability to withstand 100% un-balanced load
- High speed CANbus interface for internal communication
- SVM based PWM generation for lower harmonics
- Front and back access oriented layout
- True power measurement
- Metering with RMS measurement
- Most comprehensive LED mimic
- LCD display keypad interface
- Date - Time stamp event recording (Last 250 events logged in non-volatile memory)
- Programming and monitoring of various system parameters
- Automatic battery charging Float / Boost mode selection
- PC based monitoring & recording unit - RS 232 port with Hi-Rel PC end software (Optional)
- Higher level connectivity with DCS / PLC through MODBUS protocol (Optional)
- Monitoring on LAN through SNMP (Optional)
- Automatic service call fax generation with alarm log details (Optional)



350kVA System Under Testing

Technical Specification

Mains Input	
Voltage	415 v \pm 15% Three phase Three wire
Frequency	50 Hz \pm 6%
Input Power Factor	0.8, 0.9 or 0.95
DC BUS charger	
Voltage	305 to 425 Vdc
Maximum DC Bus Ripple Without Battery	2% RMS
Output	
Nominal Voltage	380-400-415 Vac Three Phase + Neutral
Load Power Factor Rated	0.80
Load Crest Factor	3:1
Voltage Regulation	
▪ Steady State	\pm 1%
▪ 100% Step Load	\pm 5%
▪ Recovery Time to 98%	< 20 ms
Over Load	
▪ 25%	600 Seconds
▪ 50%	60 Seconds
UPS Efficiency	Up to 95% (In energy optimization mode)
Frequency Bypass Synchronization Window	50 Hz \pm 1% to 6 % Field Programmable
Internal Oscillator Slew Rate	\pm 0.1% 1 Hz/Sec
Total Harmonic Distortion Linear Load	<3%
Nonlinear Load (CF 3:1)	<5%

Operating Conditions	
Ambient Temperature	>40° C
Audible Noise @ 1metre from Panel Front	55 dBA to 70 dBA (depending on system rating & system configuration)

ENCLOSURE	
Construction	- CRCA Steel Sheet
Protection Class	- IP 20
Finish (Powder Coated)	- RAL 7032 (Other Colours Optional)
Ventilation	- Forced Air (Internal Fans)
Cable Entry	- Bottom

OPTIONS	
▪ IGBT Based Active Front End Rectifier	
▪ Input Harmonics < 5%	
▪ Parallel or Hot Standby Redundancy	
▪ Input Isolation Transformer	
▪ 12 Pulse Rectifier	
▪ Harmonics TRAP LC / Active Filter	
▪ Bypass Line Regulator	
▪ AC Distribution Panel	
▪ PC Based Monitoring and Recording Unit	
▪ RS-485 Communication Port	
▪ Monitoring through SNMP	
▪ Monitoring through Profibus	
▪ Individual battery cell monitoring system	
▪ Remote Annunciator	
▪ Automatic Shutdown Kit	
▪ DCS connectivity through Modbus	
▪ Battery Cell Health Monitoring System	

Dimension:-

kVA	Height (mm)	Width (mm)	Depth (mm)	Weight (Kg)
10	1400	710	800	450
20	1400	710	800	465
30	1400	710	800	480
40	1400	710	800	520
50	1400	710	800	540
60	1400	710	800	540
80	1900	1250	850	1000
100	1900	1250	850	1000
120	1900	1250	850	1100
150	1900	1250	850	1200
180	1900	1640	850	1250
200	1900	1640	850	1350
250	1900	2280	850	1350
300	1900	2280	850	1850
400	Dimensions on request			
450				
500				

*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.

LCD Display

METERS - DIGITAL - LCD DISPLAY

VOLTAGE METERS

Mains
Alternate
Battery
Inverter
Load

FREQUENCY METERS

Mains
Alternate
Output

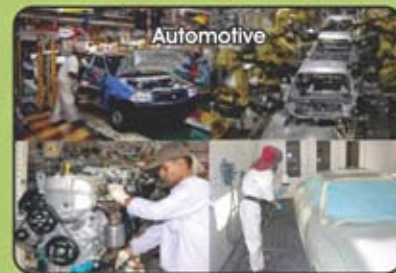
Metering with true RMS measurement

CURRENT METERS

Mains
Battery
Inverter
Load

POWER METERS

LOAD KVA
LOAD KW
LOAD power factor
UPS KVA
UPS KW
UPS power factor



Automotive



Pharmaceuticals

MAJOR ALARMS - TEXT READOUT - LCD DISPLAY

INPUT

Under voltage
Over voltage

DC

Over voltage

BATTERY

Discharging
Under voltage
End of battery discharge

INVERTER

Under voltage
Over voltage
IGBT limb fault
Overload
Overload Trip (Inverse time)
Over temperature

ALTERNATE

Under voltage
Over voltage
Frequency out of range

STATIC SW

Transfer to Bypass

Note:

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

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

In-House R&D approved by Department of Scientific and Industrial Research - Government of India.



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