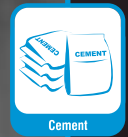


Industrial Inverter System

Stand Alone DC to AC Industrial Inverter

Range available from 10 to 200kVA (5-90kVA Single Phase Output, 10-200kVA Three Phase Output)

- DC Pre-Charge Circuit
- Front Access Only
- Epoxy Coated Boards
- PR Capable
- Bypass Options



INDUSTRIAL INVERTER SYSTEM

Hitachi Hi-Rel Power Electronics Pvt. Ltd., is in the business of industrial UPS systems since 1987 and has rich experience in supplying power back-up and power quality solutions for mission critical applications in refineries, petrochemicals, power generation, steel & metal, process industries as well as for critical data processing applications.

Hitachi Hi-Rel Power Electronics Pvt. Ltd. offers Industrial Inverter System, which is stand alone DC to AC industrial inverter. It is available in the range of 5 to 200kVA (5-90 kVA single phase output, 10-200 kVA three phase output)

This industrial inverter system is mainly used where customers have an existing plant battery that the invests will tap into without needing a separate battery bank. It is used in the power generation industry for applications like turbine & boiler control, DCS, SCADA and PLC. It is also used in steel & glass industry for furnace control & process control. It is being used in many other industries using a station battery where DC and AC are separate components.

KEY FEATURES

- DC pre-charge circuit
- Front access
- Epoxy coated boards
- PR capable
- Bypass options
- HMI
- RS-484, Communications Link
- Potential free Contacts (Alarm Board)

KEY BENEFITS

- Rugged and harsh duty UPS
- Remote monitoring
- High ambient temperature for continuous operation

KEY APPLICATIONS

- Power Generation - Turbine & Boiler Control, DCS, SCADA, PLC
- Steel Industry - Furnace control, Process Control
- Glass Industry - Furnace control, Process Control
- Other Industries using a station battery where DC and AC are separate components



DESIGN PHILOSOPHY

Inverter systems has been designed to perform under extreme operating conditions that normally exist in industrial environment. The use of Digital Signal Processors (DSP) has made the control loop of the inverter system very stable, drift free and with better HMI for monitoring, control and precise settings of parameters.

High speed CAN bus interfaced sections make the system response very fast to handle the extreme transient load conditions. Intelligent power device with sandwich bus architecture makes the systems highly efficient and reliable.

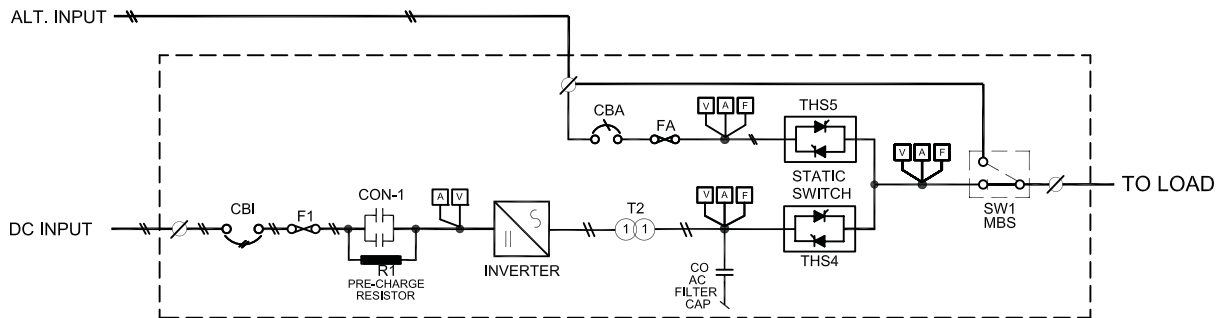


IGBT module



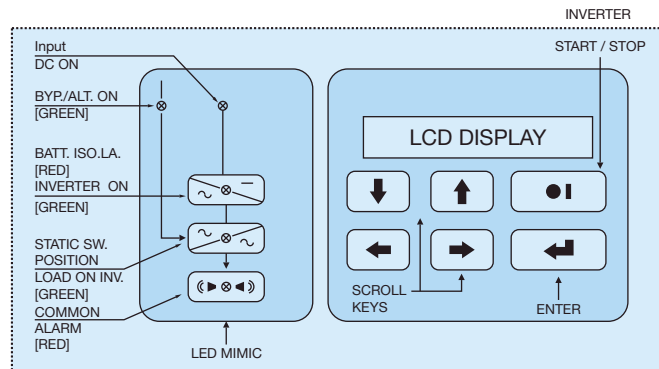
DSP based digital system control

SINGLE LINE DIAGRAM



STANDARD FEATURES

- Input circuit breakers
- DSP based digital control and redundant control power supply
- Highly efficient, latest and intelligent power device based inverter
- SVM based PWM generation
- High branch fuse clearing ability (30% of FLA)
- 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



METERS : [DIGITAL-LCD DISPLAY]		ALARMS : [TEXT READOUT-LCD DISPLAY]		FAULTS : [TEXT READOUT-LCD DISPLAY]	
VOLTAGE	INPUT ALTERNATE BATTERY INVERTER LOAD	DC	LOW BATT.	IGBT LIMB1 FAULT [SAT TRIP]	
CURRENT	INPUT DC CURRENT ALTERNATE BATTERY CHARGE/DISCHARGE INVERTER LOAD	INVERTER	OVER LOAD UNDER VOLTAGE	IGBT LIMB2 FAULT [SAT TRIP]	
FREQUENCY	ALTERNATE INVERTER LOAD	ALTERNATE	OVER VOLTAGE UNDER VOLTAGE FREQ. OUT OF LIMIT	DC OVER VOLTAGE	
		STATIC SW SYSTEM	TRANSFER TO ALTERNATE SERVICE MODE ACCESS	INVERTER OVER VOLTAGE	
				INVERTER OVER LOAD TRIP	
				CPU FAULT	
				INVERTER DISCONNECTED [FOR PARALLEL READOUT SYSTEMS]	
				OVER TEMP. FAULT	

NOTE:
ALL ALARMS & FAULTS INITIATE AN AUDIBLE ANNUNCIATION & ARE LOGGED

OPTIONS

- Parallel redundant configuration
- DC Input breaker 50 kA
- Other Output voltage level
- Top cable entry
- PC based monitoring and recording
- SNMP, Profibus, Modbus communication protocols
- 50°C ambient temperature
- Bypass line Input isolation transformer
- Bypass line equipment
 - SCVS - Servo Controlled Voltage Stabilizers
 - SSVS - Solid State Voltage Stabilizer
 - CVCF - Constant Voltage Constant Frequency
- Redundant Fan (N+1)
- Colour Options
- Space heater

TECHNICAL SPECIFICATIONS

Inverter Input (DC INPUT)	
Input Voltage	110/125/140/220/240/260 VDC
Voltage Tolerance	+20%, -15%
Inrush Current	Built-in Soft Start
Bypass (ALT) Input	
Input Voltage	110/115/120/220/230/240 V, 1 Phase, 50/60Hz 380/400/415 V, 3 Phase, 50/60Hz
Voltage Tolerance	+20%, -15%
Frequency Tolerance	±6%
UPS Output	
Normal UPS Rating	kVA at 0.8 PF
Voltage	110/115/120/220/230/240 VAC, 1 Phase, 380/400/415 VAC, 3 Phase
Voltage Tolerance:-	
Steady State	±1%
100% Step Load	±5%
Recovery Time	< 20mSec
Power Supply Interruption and Restoration	±1%
Overload:-	
Inverter 1 min	150%
Inverter 10 min	125%
Inverter 60 min	110%
Frequency	50Hz / 60Hz
Frequency Stability, Free Running	±0.1%
Synchronization Range	±6% (±1 to ±6% Field Programmable)
Slew Rate Single Unit	1Hz / Second
Wave Form	Sinusoidal
Distortion Factor:-	
Linear Load	< 2.5%
Non-linear Load	< 5%
Admissible Output Crest Factor	3:1
Rated Load Power Factor	0.8
Branch Fuse Clearing Ability	30% Rated (Semiconductor Type Fuse)
Output Voltage Adjustment Range Step Less	±10%
Static Switch Transfer time in Sync Mode	< 4mSec
Static Switch Transfer Time in Async Mode	< 20mSec
Maintenance Bypass	Make Before Break
Operating Conditions	
Ambient Temperature Range for Storage	0-60°C
Ambient Temperature Range for Operation	0-45°C
Altitude Above Sea Level	1000 Meters From MSL
Allowable Air Humidity	95% Non Condensing
Atmosphere	Non Corrosive, Dust Free, Freely Ventilated
Audible Noise @ 1meter From Panel Front	55 dBA to 74 dBA (Depending on System Rating and System Configuration)
Enclosures	
Construction	CRC A Steel Sheet
Protection Class	IP 41
Finish (Power Coated)	RAL 7035
Ventilation	Forced Air (Internal Fans)
Cable Entry	Bottom
Standards	
Safety	IEC 62040-1
Performance	IEC 62040-3
EMC Standard	IEC 62040-2
Product Certification	IEC 62040-3
IP Rating	IP 41 According to IEC 60947
Protection	
Input Protections	DC Input Circuit Breaker, DC Over Voltage and DC under Voltage Protection
Output Protections	Overload, Short Circuit, Over Temperature, Over and Under AC Voltage Protection

 **Hitachi Hi-Rel Power Electronics Pvt. Ltd.**

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