

# Power

## INEX System

### 48V Modular Inverter System



- Versatile modular design provides flexibility for different power applications
- Expandable capacity up to 24KVA with N+1 redundancy configuration
- “All master” dynamic mechanism eliminates single point failure to optimize reliability
- Hot-swappable operation allows module addition or removal without powering down
- High power density and high efficiency (89%)

INEX inverter series is an integrated telecommunication power system, including inverter, static switch, LCD display controller, and interface modules. With versatile “building block” design and N+1 redundant configuration, the INEX inverter system facilitates complex telecommunication and industrial power demands, and provides ultimate flexibility for your current and future power requirements.

N+1 parallel redundancy allows power capacity expandable up to 24KVA. INEX “all master” dynamic mechanism automatically shares and re-organizes critical loads to prevent interruption should any inverter module fail. The DSP-microprocessing controller gives real-time system status through comprehensive LCD display, and allows program settings through the display panel. With a communication interface module installed, you can further control and monitor the system remotely.

## Inverter Module

INEX inverter module provides pure sine wave AC power output for critical telecommunication equipment. Adopting N+1 redundancy design, INEX Inverter can operate up to 24 units in parallel. INEX inverter module is specially designed with compact size of maximized power density and can reach up to 5.57W/inch<sup>3</sup> for INEX 1000 and 8.36W/inch<sup>3</sup> for INEX1500. 1U height design allows the module to be installed onto a standard ETSI 300mm Rack. INEX module provides the revolutionary telecom power solution in terms of maximum flexibility and reliability.



- Pure sine wave
- Hot-swap replacement in shelf
- High efficiency >89%
- DSP design for higher system reliability
- Lower audible noise <55dBA
- Smart fan speed control
- N+1 redundancy system, load sharing difference < 5%
- High power density
- Emergency Power Off function embedded
- CAN Bus interface embedded
- -48Vdc Telecom system application
- Wide operation temperature range, -20°C to 70°C

## STS Module

INEX STS (Static Transfer Switch) module increases system reliability by automatic power transfer between the inverter output and the AC mains. By setting up the priority of operation mode, users can change the system status of "on line mode" or "off line mode". The on line mode will keep the input power provided by inverter line and when inverter fails, the line will switch to AC utility line. In off line mode, the system power is always connected to the AC utility line and will switch to inverter power line when AC utility fails. The transfer time is less than 1/4 cycle which prevents the power interruption. The reliable performance of INEX STS module will provide the maximum protection to the connected telecommunication equipment against possible damage caused by the system power failure.



- Universal input range
- Hot-swap replacement in shelf
- Back-feed protection
- Redundant fan design
- Redundant power supply design
- Operation Priority Setup of transfer side by setting in Control Module
- Fast transfer time, typically less than 1/4 cycle
- Wide operation temperature range, -20°C to 70°C
- Lower audible noise <55dBA
- Emergency Power Off function embedded
- No-cross connect
- Optional maintenance bypass switch function
- CAN Bus interface embedded

## Controller Module

INEX controller module allows users to monitor the system status in real time. The superior design enables users to manage the inverter and STS module status including voltage, current, frequency, capacity and temperature. With a user-friendly interface design, users can easily manage the inverter and STS module settings including voltage, frequency, redundancy (for inverter module), and priority (STS module). The controller module can also record the alarm history which can help to understand the operating status while maintaining the system or making further adjustments to improve system performance.



- CAN Bus protocol for module communication
- Relay contact output for customized alarms
- Hot swappable design
- Real time clock embedded
- Comprehensive LCD & LED for status display
- Audible alarm function

## Communication Interface

The communication interface includes several options for wider applications which facilitates the remote managing to the system. The standard ports include relay contacts, RS-232, RS-485, USB. Relay contacts provide five programmable settings to display customized information. RS-232 & USB ports provide the serial connection to PC for software monitoring. RS-485 provides long distance connection for direct monitoring. The optional SNMP offers remote monitoring capability using a browser interface. The communication interface provides powerful monitoring and managing solutions to the system manager.



- Relay contacts
- RS-232
- RS-485
- SNMP (Optional)
- USB

## TelecomPower Monitoring Software

TelecomPower is a monitoring software which supports either stand alone computer or network connected computers.

- Monitoring to each module in the inverter system in real time.
- Provides panoramic view of all the related information of utility power, system status, STS status
- Auto search function with any inverter power modules in LAN.
- Password security protection
- Install and uninstall is easy and clear



## Inex System 48V Modular Inverter System

### Electrical

#### Inverter Module

**DC input**  
 Nominal voltage: 48VDC  
 Operating range: 40.5VDC ~ 58VDC  
 Input protection: Reverse Polarity Protection  
 Psophometric noise voltage:  $\leq 1.0\text{mV ITU-T O.41 (16.66}\sim\text{6000Hz)}$

#### AC output

**Power Rating:** 1000VA/800W, 1500VA/1200W  
**Waveform:** Pure Sine Wave  
**Power factor:** 0.8  
**Nominal output voltage:** 110/115/120Vac, 208/220/230/240Vac  
**Voltage variation:** Max  $\pm 2\%$   
**Output frequency:** 50/60Hz  
**Crest factor:** 3:1  
**THD:** <3%, linear load  
 <5%, non-linear load  
**Efficiency:** Min 89%  
**Isolation AC-Enclosure:** Basic isolation (Pri-Gnd) 2121Vdc/1min  
**Dynamic Response:** < $\pm 10\%$   
**Over Load Protection:** 1.5\*Inom >20s  
 1.25\*Inom temperature controlled

#### STS Module

**Input**  
**Over voltage threshold:** Adjustable between  
 127 to 138Vac for 120Vac systems,  
 the default value is 132Vac  
 233 to 252Vac for 220Vac systems,  
 the default value is 242Vac  
**Under voltage threshold:** Adjustable between  
 100 to 114Vac for 120Vac systems,  
 the default value is 108Vac  
 176 to 209Vac for 220Vac systems,  
 the default value is 198Vac  
**Backfeed Protection:** Comply with safety requirement  
**Redundant Power:** Startup power-on by priority  
**Design:** Source or alternative

#### Output

**Nominal Output Voltage:** Same as utility or the output of  
 Inverter modules  
**Permissible Frequency Area:** Max.  $\pm 2.5\%$   
 (inverter synchronization)  
**Transfer Time:** Typical 1/4cycle  
**Rated Power:** 50A for 110/115/120Vac  
 & 208/220/230/240Vac  
**Operation Methods:** Inverter priority/Mains priority

### Environmental

**Operating Temperature:** -20°C to 70°C (-4° to 158°F)  
 -5°C to 58°C (23° to 122°F)  
 with full performance  
**Storage Temperature:** -40°C to +85°C (-40° to 185°F)  
**Humidity:** 90% Relative Humidity (non condensing)  
**Audible Noise:** 55dB

### Controller Module

#### Input

Nominal voltage: 48VDC  
 Operating range: 30VDC ~ 72VDC  
 Over Current Protection: 2A Fuse

#### Human Interface

**LCD:** Resolution (Line X Array)  
 4 X 16 Character  
**LED Indicator:** 3 colored indicators for normal, warning  
 and fault display  
**Alarm:** Audio alarm when inverter, STS, controller  
 module operate abnormally

#### System Parameter

**BaudRate:** Setting controller com port baud rate  
**Keypad tones:** Setting keypad tones  
**Time & Date:** Setting current time and date  
**Setting Password:** Setting system password  
**Brightness:** Setting LCD brightness  
**Default:** Change current system parameters  
 to default value  
**Battery Calibration:** Calibration battery voltage

### Mechanical

#### Inverter Module

**Dimension**  
 mm: 270D x 215W x 43.8H  
 inches: 10.63D x 8.46W x 1.72H  
**Weight:** 2.5kg (5.5lb)

#### STS Module

**Dimension**  
 mm: 270D x 215W x 43.8H  
 inches: 10.63D x 8.46W x 1.72H  
**Weight:** 2.0kg (4.4lb)

#### Controller Module

**Dimensions (D x W x H):**  
 mm: 277D x 87.9W x 43.5H  
 inches: 10.9D x 3.46W x 1.71H  
**Weight:** 1.0kg (2.2lb)

#### Hot-swap Chassis

19/23" mounting brackets  
**Inverter Chassis**  
**Dimension**  
 mm: 329.5D x 440W x 44H  
 inches: 13D x 17.32W x 1.73H  
**Weight:** 2.5kg (5.5lb)  
**STS & Controller Chassis**  
**Dimension**  
 mm: 329.5D x 440W x 44H  
 inches: 13D x 17.32W x 1.73H  
**Weight:** 3.4kg (7.5lb)

### Communication Interface

RS-232x1: Communicate with PC  
 RS-485x2: Communicate with supervision  
 Dry Contactx5: Communicate with external Monitor  
 USBx1: Communicate with PC

### Standards

UL, CE, RoHS