



*SABRE Series Inverter System*

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# SABRE Series Inverter Power System

## KEY FEATURES

- Ultimate Power Density
- Hot-Plug N+1 Operation
- Highly Configurable
- Expandable to 18kVA
- “All Master” Dynamic Mechanism
- System Status Display
- Maintenance Bypass
- Various AC Load Distribution Options

The Gravitas Energy Systems **SABRE** is an integrated inverter power system, including, inverter, static transfer switch, controller, and remote communications interface modules.

The modular design and N+1 redundant capability of **SABRE** allows the system to be configured for a variety of complex Telecommunication and Industrial power requirements.

An “All Master” dynamic mechanism prevents interruption to critical loads from one or more inverter module failures.

**SABRE**'s static transfer switch provides automatic instantaneous load transfer, ensuring secure uninterrupted operation of sensitive electronic equipment.

The microprocessor controller gives real-time system status via an LCD display and LEDs indicators and also allows settings to be programmed through the front panel. With the communication interface module installed, it is possible to control and monitor the system remotely.



## 'LITE' SYSTEM

SABRE 'Lite' consists of a number of different 19-inch power shelves housing either two 1000VA/800W or two 1500VA/1200W hot-swap inverter modules. The shelves are 1RU high (1.75 inches) and provide various AC output termination / distribution types including NEMA 5-15, IEC60320-C13 and field wiring terminal blocks. A separate [datasheet](#) gives details of the available configurations.



- One Rack Spaces High: 1.75"
- 2000 or 3000 VA for Two Units
- Automatic N+1 redundant operation
- 120VAC or 230VAC
- Form C Alarm Output
- NEMA, IEC320 & Terminal Block Output Options

SABRE 'Lite' can be coupled with the Vigilant Series AC Power Distribution units to provide a simple inverter solution which offers AC output distribution with 8 remotely switched NEMA or IEC60320 outlets. See the Vigilant Series [datasheet](#) for full details.

- True RMS Digital Current Meter
- Individual Outlet Switching
- User Programmable ON/OFF Sequencing
- Audible Alarm
- Remote Power Monitoring via WEB, SNMP & Bundled Software
- Event Alerts via Email, SNMP Trap



VIGILANT SERIES - PDUAC1US

## PRE-CONFIGURED SYSTEMS

The SABRE Series offers unparalleled flexibility of system configuration, but for most applications have similar requirements. For this reason we have defined several 'pre-configured' systems with 3, 6 or 9kVA capacity. All pre-configured systems include a Static Transfer Switch, Controller and Communications Module with SNMP option already installed.

Customers can choose bulk output only, bulk/distributed output without Manual Bypass, or bulk/distributed output with Manual Bypass. Distributed outputs are available with IEC60320 outlets for 120VAC or 230VAC operation and NEMA 5/15 outlets for 120VAC operation only.

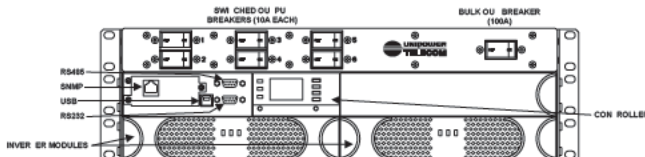
A separate [datasheet](#) details each of the available system units, which can accommodate either 1kVA or 1.5kVA inverter modules as required.

## CUSTOMER DEFINED SYSTEMS

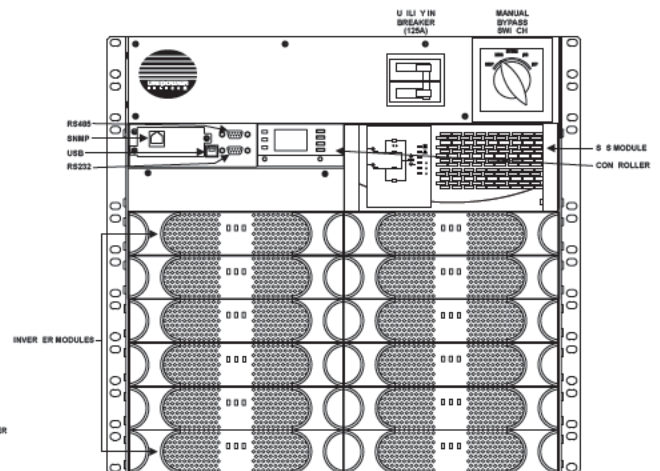
Customers can configure systems to their exact requirements ranging from 2KVA with no STS and optional 1RU distribution to a maximum of 18KVA with STS and MBS or any combination in between.

Examples of such a configurations are shown here.

For details on how to configure an alternate pre-configured or application specific system configuration see the last page of this brochure.



**2kVA system with controller, communications with SNMP and 1U AC distribution with IEC outlets**  
(pre-configured model number: IX3U-S-D1E)



**18kVA system with 100A STS and MBS, controller and communications with SNMP**  
(pre-configured model number: IX10U-TS100S-D2B)

## HOT-SWAP INVERTER MODULES

The SABRE Series inverter modules utilize advanced power electronic techniques for reduced size, achieving power densities 5.57W/inch<sup>3</sup> for the 1kVA models and 8.36W/inch<sup>3</sup> for the 1.5kVA models.

With dimensions of 1.59"(40.5mm) height x 8.46"(215mm) width x 10.63"(270mm) depth these units install in pairs into a 1U high 19" rack-mountable ETSI 300mm power shelf.



- Pure sine wave
- Hot-swap replacement in shelf
- High efficiency, >89%
- Smart fan speed control
- Wide operation temperature range, -20 to +70°C
- N+X redundancy system, load sharing < 5%
- Lower audible noise < 55dBA
- High power density
- CAN Bus interface embedded

INVERTER MODULE SPECIFICATION	
<b>DC INPUT</b>	
Operating Range	40.5Vdc - 58Vdc for 48Vdc System
<b>AC OUTPUT</b>	
Output Waveform	Pure sine wave
Output Power	1000VA/800W - INV1048 & INV1048H, 1500VA/1200W - INV1548 & NV1548H
Power Factor	0.8 maximum lagging or leading
Nominal Output Voltage	110/115/120Vac - NV1048, INV1548, 208/220/230/240Vac - INV1048H, INV1548H
Output Voltage Variation	Maximum ±2%
Frequency	50/60Hz ±0.5%, programmable

## STATIC TRANSFER SWITCH MODULES

The SABRE Series Static Transfer Switch modules increase system reliability by automatically switching between the inverter output and the utility supply. The STS5048 (50A capacity) and STS10048 (100A capacity) can be programmed so that the system operates in a standby backup mode were the utility is the normal source of supply or alternatively the system can be the normal source of supply with automatic switch-over to the utility in the event of system failure.

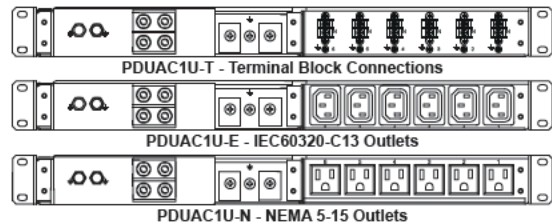
- Universal AC input range
- Hot-swap capability with MBS
- Back-feed protection
- Redundant fan design
- Redundant power supply design
- Fast transfer time, typically less than 1/4 cycle
- Wide operation temperature range, -20 to 70°C
- Lower audible noise <55dBA
- Emergency Power Off function embedded
- No-cross connect
- Optional maintenance bypass switch function
- CAN Bus interface embedded



## 1U AC DISTRIBUTION MODULE

The PDUAC1U has 100A overall capacity and provides two means of distributing AC to the load; as a single bulk output and via eight IEC320 or NEMA outlet sockets with individual Magnetic Circuit Breakers.

- Compact design (1RU Height)
- Bulk Output Terminal Block with 50A CB
- 6 x NEMA 5-15 outlets with 15A CBs (-N)
- 6 x IEC320-C14 outlets with 10A CBs (-E)
- 100A overall capacity



## 2U MANUAL BYPASS / DISTRIBUTION MODULES

The DPMS2U and MBS2U manual bypass and power distribution modules enable the user to manually switch between inverter output or utility output and to override the STS module for maintenance purposes. A mechanical interlock between these units and the STS module ensures that AC to the load cannot be inadvertently interrupted.

The DPMS2U, used with systems up to 50A output capacity, provides two means of distributing AC to the load as standard; as a single bulk output or via eight IEC320 or NEMA outlet sockets with individual Magnetic Circuit Breakers.

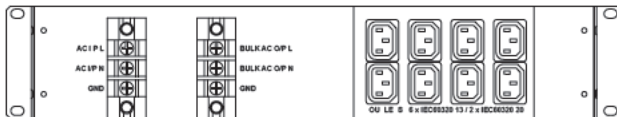
The MBS2U-100 is used with systems employing the STS10048 100A STS module and provides AC through a single bulk output.



DPMS2U



DPMS2U-N connections

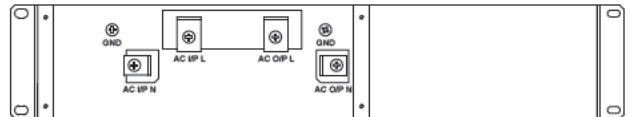


DPMS2U-E connections

- 75A (DPMS2U) or 125A (MBS2U-100) Bypass switch
- Enables hot-swap of STS module
- Bulk output on terminal block
- AC utility can be isolated via MCB
- 100A Master MCB
- 6 x NEMA 5-15 + 2 x NEMA 50-20 outlets (DPMS2U-N)
- 6 x IEC320-C14 + 2 x IEC320-C20 outlets (DPMS2U-E)
- Individual CBs for each circuit on DPMS2U models



MBS2U-100



MBS2U-100 connections

## CONTROLLER MODULE

The SABRE Series Controller, allows the user to monitor real-time system status such as output voltage, output current, alarm status, and also allows system parameters, to quickly be changed with the touch of a few keys on the front panel. With the Communications Interface Module installed the system can be monitored over a variety of interfaces with a local PC running Winpower.

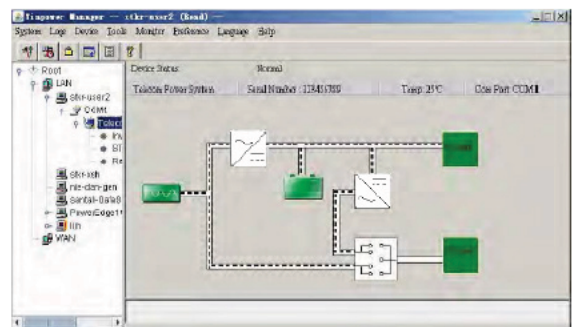


- Compact design (1RU Height)
- Programmable Dry contact alarms (5 in total)
- RS-232, USB TCP/IP (with IFC2000)
- CAN Bus interface embedded
- Hot swappable
- RealTime Clock
- LCD and LED indicator
- Audible alarm function embedded

## COMMUNICATIONS INTERFACE

The SABRE Series Communications Interface provides system connection to a computer via RS232 or USB for the purposes of monitoring, control or programming using the Winpower PC based software that provides a user friendly GUI interface.

An optional SNMP module provides alarm traps over a LAN interface.

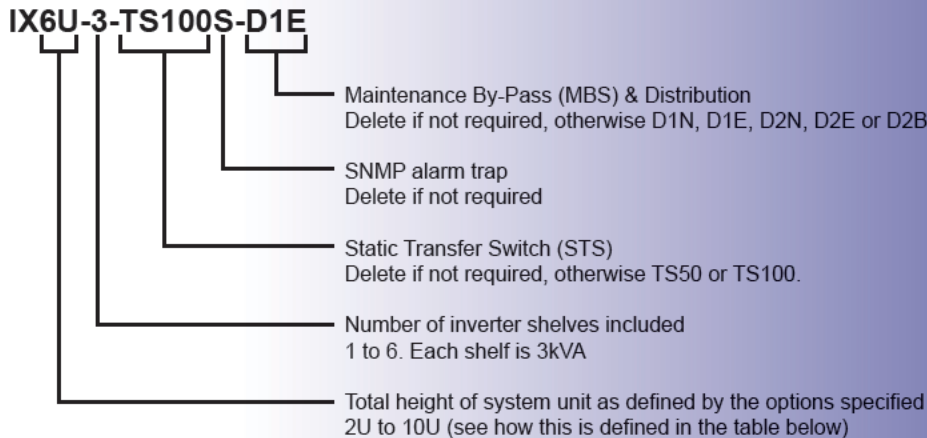


Winpower PC Software

## DEFINING ALTERNATE & CUSTOM SYSTEM CONFIGURATIONS

Customers can customize an inverter design to meet their application requirements and still benefit from delivery of a factory assembled and fully tested product that minimizes installation time. Customers can choose the number of inverter shelves and types of distribution as well as adding or removing STS, MBS and communication options.

The following shows how to build an alternate configuration part number:



To define a custom systems complete the following table:

STEP	INSTRUCTIONS	SELECTION OPTION	RU	SELECTION	RU	EXAMPLE	
						SELECTION	RU
1	<b>Select the number of inverter shelves</b> (each shelf is 3KVA)	1-6	1-6			3	3
2	<b>Control Shelf/STS/Inverter alarm options, choose only one:</b>					TS50S	1
	NO STS and Relay Alarms	leave blank	1				
	NO STS and SNMP Alarm trap module	S	1				
	50A STS and Relay Alarms	TS50	1				
	50A STS and SNMP Alarm trap module	TS50S	1				
	100A STS and Relay Alarms	TS100	2				
	Controller + 100A STS	TS100S	2				
3	<b>Distribution Options choose only one:</b>					D2E	2
	NO Distribution	leave blank	0				
	6 NEMA 5-15 + 1 Bulk (120V only) 100A	D1N	1				
	6 IEC C13 + 1 Bulk (120/230V) 100A	D1E	1				
	6 Terminal Block + 1 Bulk (120/230V) 100A	D1T	1				
	6 NEMA 5-15/ 2 NEMA 5-20/ 1 Bulk + 75A MBS*	D2N	2				
	6 IEC C13/ 2 IEC C19/ 1 Bulk + 75A MBS*	D2E	2				
1 Bulk + 125A MBS (for use with 100A STS)	D2B	2					
4	Place the number of RU's for each selection 1-3 in the height column and this total goes in selection #4 to give the system total height in RU's				↵	6	↵

\* Use with 50A STS

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