

SLI15 SERIES INVERTERS

1U x 19" | 24V or 48VDC INPUT
115 or 230VAC | 1500W OUTPUT

DESCRIPTION

The SLI15 Inverter Series provides an ideal solution for telecom, IT, and industrial applications. Due to innovative technology solutions, the SLI15 inverters pack 1500 watts of power into a light (5.6 kg) and compact package that is mountable in 19" racks and is only one rack unit high.

The SLI15 1.5kVA Inverter Series offers four models for different input (24 and 48 VDC) and output (115 and 230 VAC) voltage combinations.

An integrated controller, along with an optional internal Static Transfer Switch (STS) enable flexible and scalable systems which are truly "plug and play", and require no external subsystems. The inverters can be stacked up to the power level needed by each application up to a maximum of 6 units and also have the capability to be configured for generating a 3-phase voltage source.

Electrical performance of the SLI15 is exemplary of a top-of-the-market product with efficiency that peaks at 93% and a patent-pending control algorithm that compensates current harmonics on the DC side without using bulky and expensive filters.

The SLI15 includes a powerful on-board Digital Signal Processor (DSP) that allows easy programming of main parameters through use of its front-panel keypad and LCD display. In addition, the SLI15 can be interfaced with an RS-485 serial communications link and this in turn can be interfaced with most Aspiro and Guardian DC Power Systems using a translator board.

TWO-YEAR WARRANTY

SAFETY COMPLIANCE

UL60950-1 2nd Edition
CSA22.2, No. 60950-1 2nd Edition
EN60950-1 2nd Edition



FEATURES

- ◆ 1U height x 19" width x 14.94" depth; 19" rack-mount
- ◆ Input isolated from ground for positive or negative ground connection at 24VDC or 48VDC
- ◆ High efficiency: up to 93%
- ◆ True sine wave output
- ◆ Parallelable output with current share and synchronization of up to 6 inverters working in parallel
- ◆ Front panel LCD display to monitor and set the main parameters
- ◆ RS-485 serial link
- ◆ Constant input current sink from battery for extended life
- ◆ Optional hot-swappable configuration
- ◆ Optional internal Static Transfer Switch
- ◆ In the -STS version, ON line (primary source to the load) or OFF line mode (UPS mode)
- ◆ Configurable for being used as Three Phase source (3 units required, see page 6 for further details)
- ◆ Can be integrated into Guardian Access Power Systems

STANDARD MODELS

MODEL *	INPUT VOLTAGE	OUTPUT VOLTAGE NOMINAL	OUTPUT VOLTAGE RANGE
SLI-24-115-I	24VDC	115VAC	100-120VAC
SLI-24-230-I		230VAC	200-240VAC
SLI-48-115-I	48VDC	115VAC	100-120VAC
SLI-48-230-I		230VAC	200-240VAC

* Output isolated from ground.

OPTIONS

(see ordering guide on page 7)

Code	Function
-STS	Built-in Static Transfer Switch
-SC	Terminal Block AC Output
-HP	Hot-Plug (requires 1U sub-rack)

INDUSTRIES & APPLICATIONS



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SPECIFICATIONS

Input

PARAMETER	DESCRIPTION / CONDITION	MIN	NOM	MAX
Input Voltage	Input is fully floating and may be connected to +Ve or -Ve ground DC source as required	20VDC 40VDC	24VDC 48VDC	36VDC 72VDC
Input Current	24 VDC Models @ 18 VDC: 48 VDC Models @ 36 VDC:		67(24V) 36(48V)	100A 48A
Inrush Current				<10A

Output

PARAMETER	DESCRIPTION / CONDITION	MIN	NOM	MAX
Output Power				1500W 1600VA
Output AC Voltage	Standard is VAC floating from Ground; -GN version is available with Neutral connected to Ground (Grid Input shall be supplied by means of an isolation transformer)	100VAC 200VAC	115VAC 230VAC	120VAC 240VAC
Frequency	50Hz / 230VAC, 60Hz / 115VAC	50Hz		60Hz
Efficiency				93%
Load Power Factor	Lagging or leading	0.33		1
Crest Factor	Ip _k /I _{rms}		4	
Regulation in single mode	Load: over full operating range (R-Load) Line: over full operating range (R-Load)	-3.0% -0.1%		+1.0% +0.1%
Regulation in parallel mode	Load: over full operating range (R-Load)	115VAC 230VAC	-8.5% -6.0%	0% 0%
Total Harmonic Distortion	On Resistive Load			<2%

Protection

PARAMETER	DESCRIPTION / CONDITION	MIN	NOM	MAX
Input Overcurrent	24VDC Models; Internal Fuse. 48VDC Models; Internal Fuse.		140A 70A	
Input Overvoltage	24VDC Models: 48VDC Models:		37.5VDC 74VDC	
Input Undervoltage	24VDC Models: 48VDC Models:		18VDC 36VDC	
Output Overload	115VAC Models: 230VAC Models:		1610W 1840W	
Output Surge	115VAC Models for 200 ms: 230VAC Models for 200 ms:		1750VA 2300VA	
Output Overvoltage		113%	115%	117%
Output Undervoltage		83%	85%	87%
Output Overcurrent	Load: over full operating range (R-Load)	115VAC 230VAC		10A 15A
Output Short-circuit	Peak current type protection	115VAC 230VAC		60A 30A
Overtemperature	Visual and acoustic indication 5°C before shutdown at Tamb >65°C and at Tint >100°C.			
Protection Restore Modes	The restore mode of each protection can be individually selected to "latch" or "auto-restart".			

Static Transfer Switch Functions (only applicable with STS option is fitted)

PARAMETER	DESCRIPTION / CONDITION
On-Line (Inverter mode)	Output is normally from the inverter and switches to the utility supply if the inverter output goes out of tolerance or fails completely. (Limits are set through the settings menu on the front panel.)
Off-Line (UPS mode)	Output is normally from the utility supply and switches to the inverter if the utility supply goes out of tolerance or fails completely. (Limits are set through the settings menu on the front panel.)
Transfer Time	<2.5mS

Interface & Control Signals

PARAMETER	DESCRIPTION / CONDITION	
LCD Panel	2-line LCD panel with keypad for menu navigation.	
LED Indicators (Front panel)	GREEN LED indicates:	Inverter is ON
	RED LED indicates a generic fault such as:	Overtemperature (OT) Fan fail Input or Output OV, UV, OC
General Alarm Signal	Activated by an open photo-relay if in fault mode, available at rear signal connector	
Serial link	RS485 port, 500VDC isolated, available at rear signal connector. Can be used to communicate between single or paralleled inverters and Guardian systems ACC Extended controller, YTM.00007 translator required (see page 6).	

Safety, Regulatory and EMC

PARAMETER	DESCRIPTION / CONDITION	CRITERION
Safety Certifications	EN60950-1/A11:2009; IEC60950-1:2005. (CB Report); UL/CSA 60950-1 2nd Ed.; CE Mark for LVD	
Insulation	Primary-to-Secondary: Primary-to-Ground: Secondary-to-Ground: Signal-to-Ground:	3000Vrms 1000Vrms 1500Vrms 0Vrms

Environmental

PARAMETER	DESCRIPTION / CONDITION	MIN	NOM	MAX
Altitude	Operating: Non-Operating:			13K ft 40K ft
Operating Temperature	@ full load; Power Derating: 75W/°C: +55°C to +65°C	-25°C		+65°C
Storage Temperature		-40°C		+85°C
Relative Humidity	@ 40 °C, non-condensing			90%
Output Voltage Temperature Coefficient	@ rated load			0.02% per °C
MTBF	@ 40°C excluding fan	250k hrs		

Mechanical

PARAMETER		
Dimensions	19" Width x 1.71" Height x 14.94" Depth	482.6mm Width x 43.5mm Height x 379.5mm Depth
Weight	12.34 lb	5.6 kg

Connections

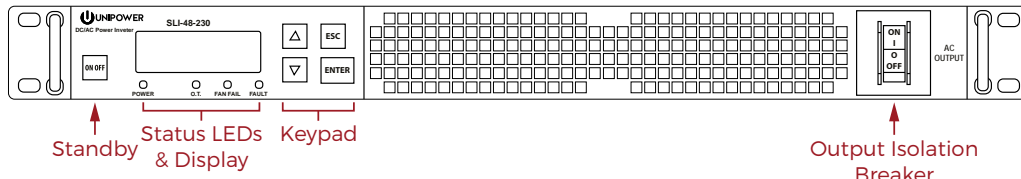
PARAMETER	DESCRIPTION / CONDITION
DC Input (Located at rear left)	+Ve and -Ve bus bars with one 6mm diameter hole; hot plug version (-HP option) has PCB bars with pre-charging system, see page 5 for details of sub-rack.
AC Output (Located at rear right)	IEC320 plug. For screw terminal blocks specify option "-SC".
AC Input (-STS option) (Located at rear right)	IEC320 socket marked "Grid Input".
Signals * (Located at rear center)	Female Sub-D15 connector, Molex 89263-6062 or equivalent. (Provides general failure alarm, serial port, synch. for paralleling or three phase, remote on/off.)

* NOTE: It is possible to connect up to 6 inverters in parallel. In order to do this it is necessary to purchase a paralleling kit (see page 1).

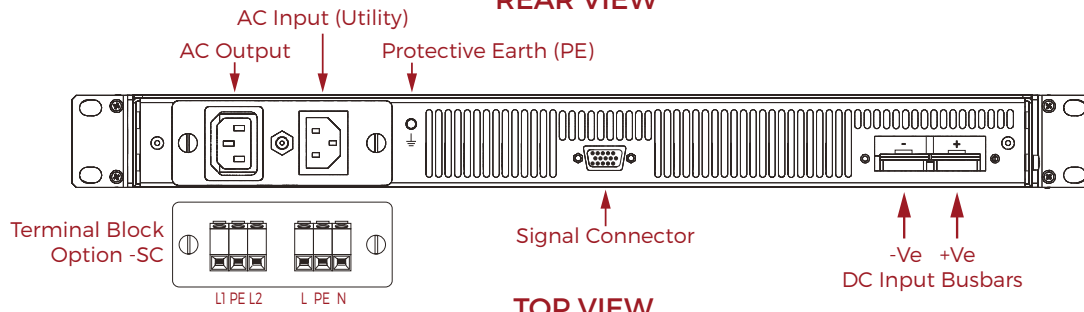
IMPORTANT: -STS and -GN options are compatible just supplying Grid Input by means of an isolation transformer, same indication if Neutral is tied to Ground on user side.

Panel Description & Mechanical Outline

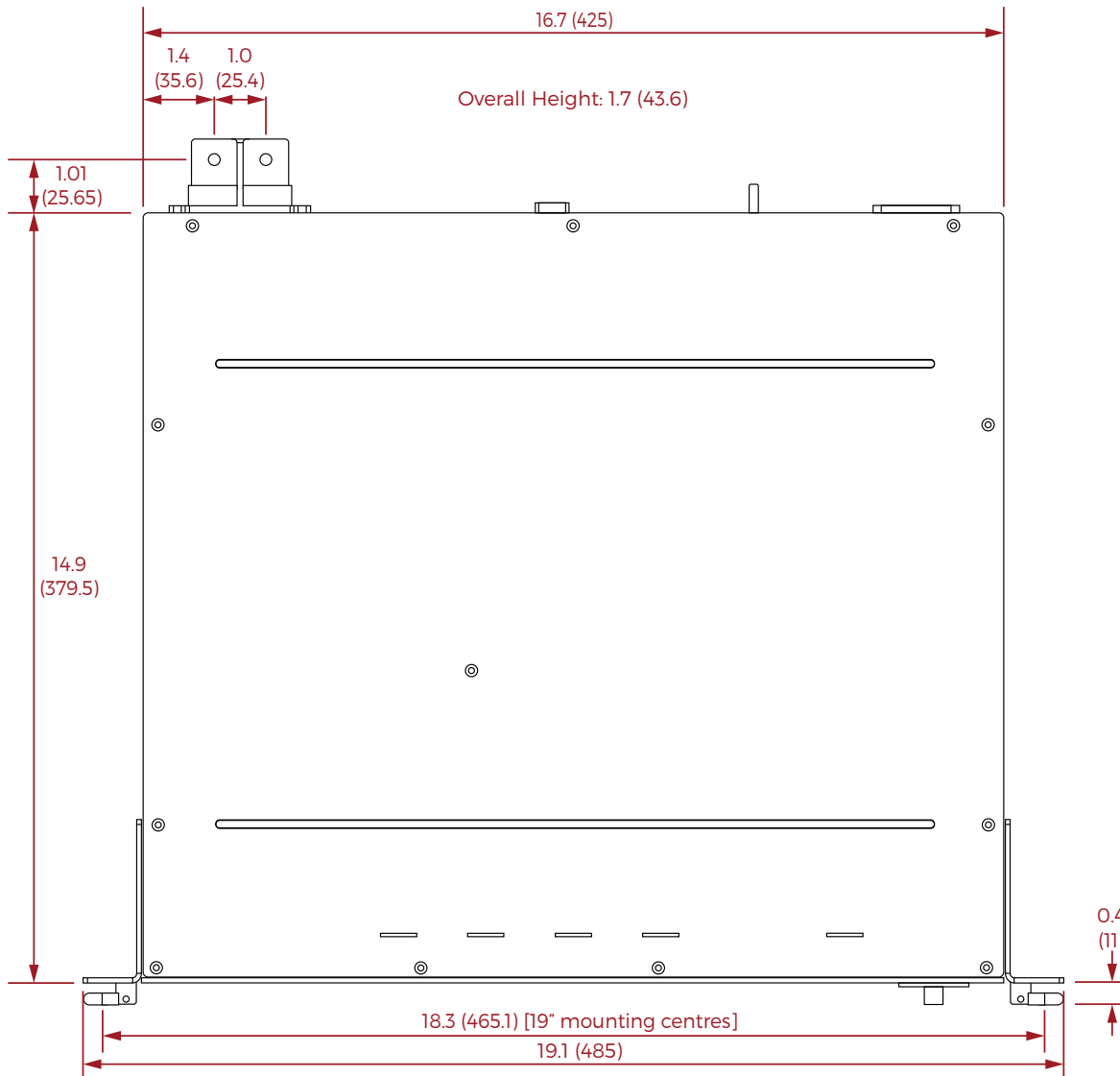
FRONT VIEW



REAR VIEW

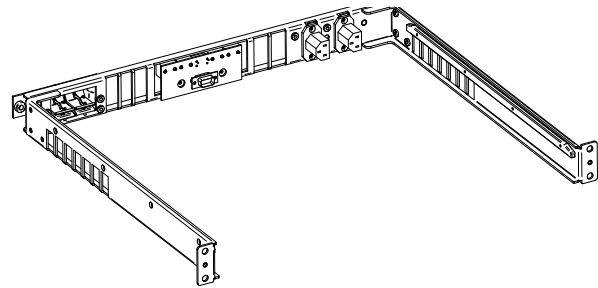


TOP VIEW



Hot-Plug Subrack

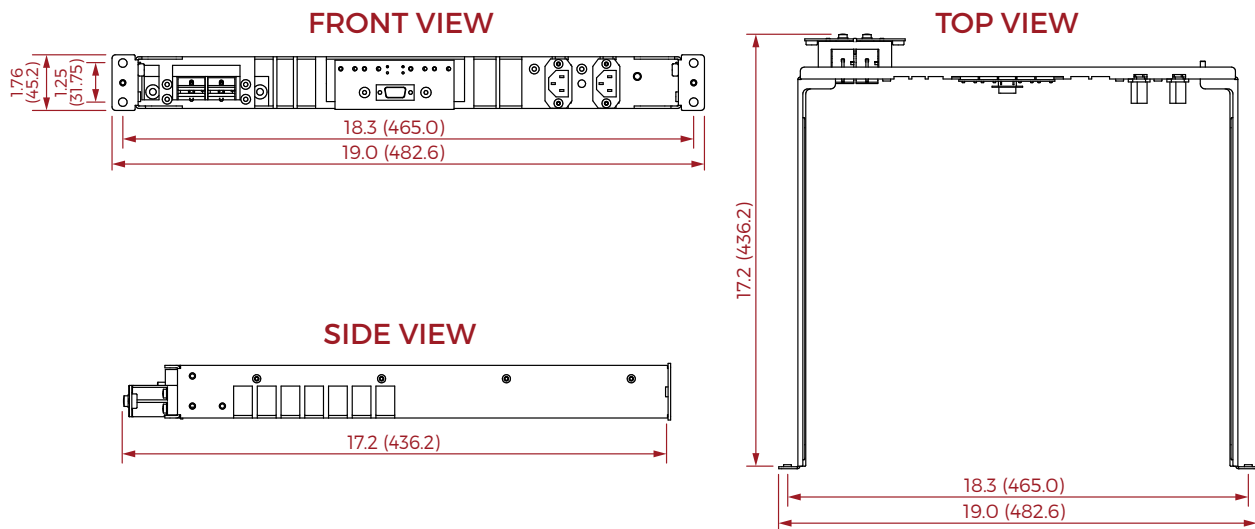
The SLI15 hot-plug subrack is designed for hot-plugging of SLI 15 Inverters to the power system without significant interruption to system operation.



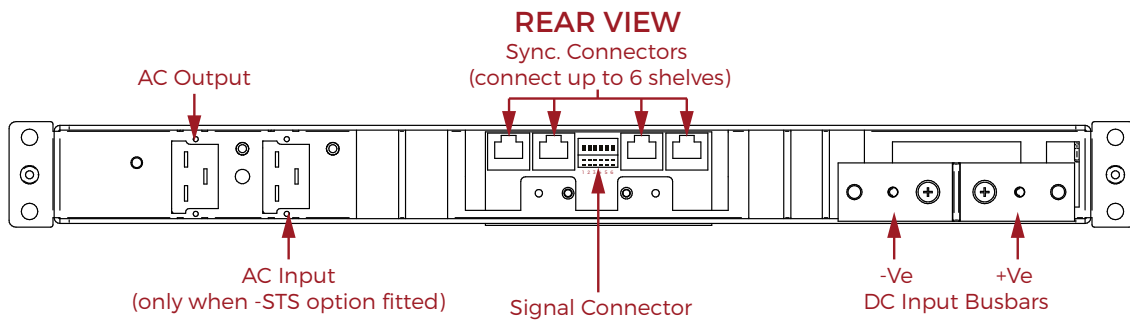
There are two versions available:

- Hot Plug Subrack for models without an STS
- Hot Plug Subrack for models with an STS

They differ only in the number of connectors at the rear. See the ordering guide on page 7.



Dimensions in inches (mm)



Signal Connector Details

Module			
Pin	Function	Pin	Function
1	General Failure (GF)	6	Sync & Remote On/Off Rtn *
2	+T/R (RS485)	7	Remote On/Off
3	-T/R (RS485)	8	Sync-120
4	GF & RS485 Rtn	9	-
5	Master Indicator	10	-TR/I (Reserved)

Subrack	
Pin	Function
1	Remote On/Off
2	GND
3	+T/R (RS485)
4	-T/R (RS485)
5	General Failure
6	GND-EXT

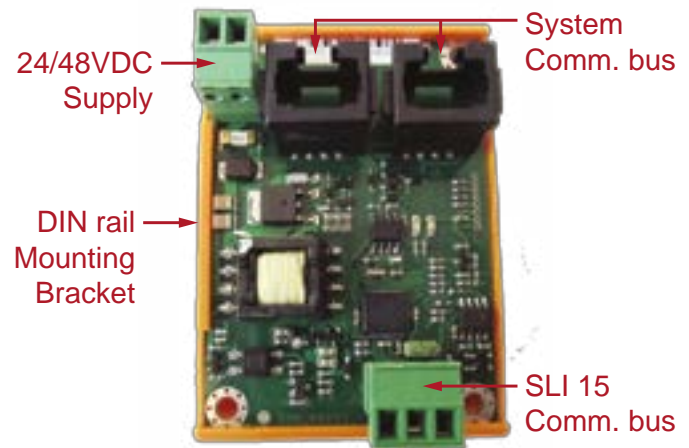
* Also Chassis Ground

NOTE: Module pins not shown on subrack signal connector are distributed to the 'sync' connectors on the subrack/standalone parallel boards.

SLI15 to ACC Translator

The SLI15 to ACC Translator converts the data that is transmitted on the SLI15 RS485 interface into a format that can be understood by the HCC and ACC Extended controllers used in the Aspiro and Guardian DC and Hybrid Power Systems. It can be internally installed in systems using the 4U distribution module such as the Guardian Access 5U/6U and cabinet systems. When deployed with an Aspiro or Guardian 2U or 3U system it has to be separately mounted.

When one or a paralleled set of SLI15 inverters and this adaptor are installed with an Aspiro or Guardian system the following data is available via the system controller:



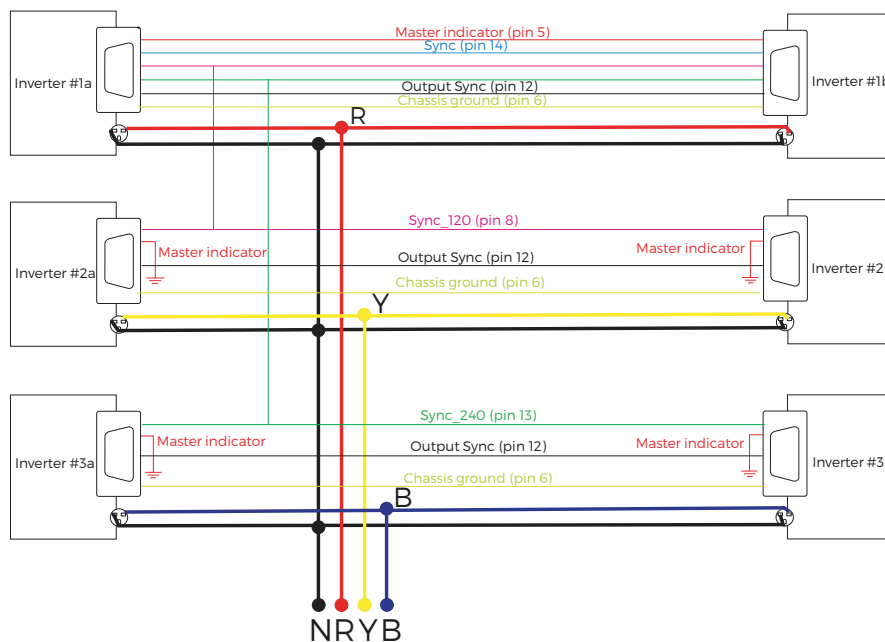
Signal	Menu / PowCom	SNMP
Grid Voltage (V)	STS version only	STS version only
Grid Current (I)	STS version only	STS version only
Voltage (V)	Yes	Yes
Current (I)	Yes	Yes
Power (W)	Yes	Yes
Unit Status	No	Yes

Signal	Menu / PowCom	SNMP
DSP Status	No	Yes
STS Status	No	Yes
System Fault	Yes	Yes
Fan Fault	No	Yes
Version	Yes	No
Serial number	Yes	Yes

One SLI15 to ACC Translator is required for each standalone or paralleled set of inverters. When ordered for retrofit or as an accessory it comes as a kit including all required cables (See the ordering guide on page 7).

Generating a 3-phase Y voltage

It is possible to generate a 3-phase voltage by connecting either 3 or 6 inverters into a Y configuration. The adjacent diagram shows an example of the necessary connections. Note that 3-phase configuration needs to be enabled in the "service" menu. See the installation and operating manual for more details.



Ordering Guide

The following table details the available models. For combinations of options not shown please contact sales.

Model Number	Part Number (UNIPOWER use only)	Input Voltage	Output Voltage	Static Transfer Switch	Terminal Block AC output	Hot-Plug ²	N-G Internally Connected
SLI-24-115-I ¹	3C32991F200G	24VDC	115VAC				
SLI-24-115-I-HP	3C32991F500G	24VDC	115VAC			✓	
SLI-24-115-I-SC	3C32991F21CG	24VDC	115VAC		✓		
SLI-24-115-I-SC-STS	3C32991FT0CG	24VDC	115VAC	✓	✓		
SLI-24-115-I-STS	3C32991FT00G	24VDC	115VAC	✓			
SLI-24-230-I ¹	3C34991F200G	24VDC	230VAC				
SLI-24-230-I-HP	3C34991F500G	24VDC	230VAC			✓	
SLI-24-230-I-SC	3C34991F20CG	24VDC	230VAC		✓		
SLI-24-230-I-SC-STS	3C34991FT0CG	24VDC	230VAC	✓	✓		
SLI-24-230-I-STS	3C34991FT00G	24VDC	230VAC	✓			
SLI-48-115	3C33991F300G	48VDC	115VAC				✓
SLI-48-115-I ¹	3C33991F200G	48VDC	115VAC				
SLI-48-115-I-HP	3C33991F600G	48VDC	115VAC			✓	
SLI-48-115-I-SC	3C33991F500G	48VDC	115VAC		✓		
SLI-48-115-SC-STS	3C33991FT0CG	48VDC	115VAC	✓	✓		✓
SLI-48-115-I-STS	3C33991FT00G	48VDC	115VAC	✓			
SLI-48-115-I-STS-HP	3C33991FT0HG	48VDC	115VAC	✓		✓	
SLI-48-230-HP	3C35991F20CG	48VDC	230VAC			✓	✓
SLI-48-230-I ¹	3C35991F200G	48VDC	230VAC				
SLI-48-230-I-HP	3C35991F500G	48VDC	230VAC			✓	
SLI-48-230-I-SC	3C35991F20CG	48VDC	230VAC		✓		
SLI-48-230-I-SC-STS	3C35991FT0CG	48VDC	230VAC	✓	✓		
SLI-48-230-I-STS	3C35991FT00G	48VDC	230VAC	✓			
SLI-48-230-I-STS-HP	3C35991FTHPG	48VDC	230VAC	✓		✓	

Notes:

1. Standard base models.

2. Hot-Plug units require a suitable 1U sub-rack which must be ordered separately, see below.

Accessories (order separately)

HOT-PLUG SUB-RACKS (see page 5 for details)

Order pt. no.: 3E969910001 - must be ordered with each hot-plug inverter without the Static Transfer Switch option fitted.

Order pt. no.: 3E969910000 - must be ordered with each hot-plug inverter with the Static Transfer Switch option fitted.

PARALLELING KITS

Order pt. no.: 3C3500KIT7G - for standalone units (one for each inverter).
Includes one board assembly and one cable/ferrite assembly.



Order pt. no.: 3C3500KITHPG - for hot-plug units (one for each inverter less one, i.e. N-1).
Includes one cable/ferrite assembly (board is part of hot-plug sub-rack).



SLI to ACC TRANSLATOR & CABLE KIT

Order pt. no.: YTM.00007 for translator board only.

Order pt. no.: YGA.01209 for complete kit including standard cable set.



DC INPUT COVER KIT (for standalone units only)

Order pt. no.: 3C31000KIT5.

23" MOUNTING KIT (for standalone units only)

Order pt. no.: 3C3100KIT23.