

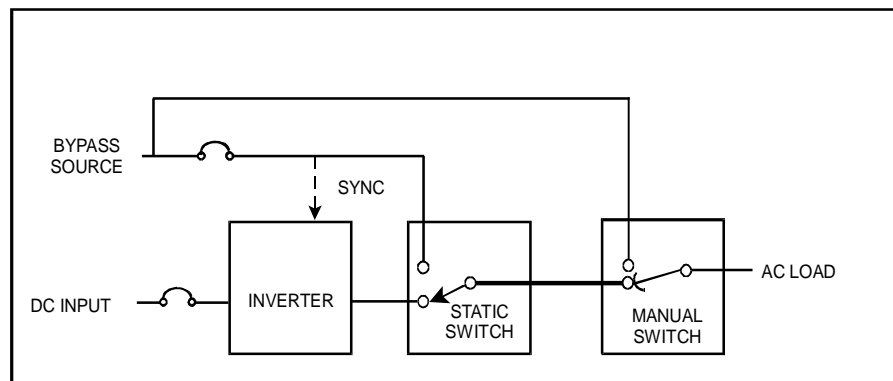
# SINGLE PHASE STATIC INVERTER 3-50 kVA



The SS<sup>Plus</sup> Series Inverters are true on-line ferroresonant transformer-based designs intended for use in UPS systems or in stand-alone applications.

The inverter's basic function is to convert DC power from a rectifier/charger or battery to an extremely accurate, regulated AC output for powering the critical AC load.

- ◆ High reliability - exceeds 140,000 hours (16 years) MTBF
- ◆ Integral Lighted mimic panel
- ◆ High efficiency, microprocessor controlled bridge
- ◆ Long life LED indicators, front panel accessible
- ◆ Crystal controlled AC output frequency
- ◆ Unique crest factor circuitry provides full capacity for non-linear loads
- ◆ Industrial grade- designed to operate in extreme environments
- ◆ All components are accessible from the front – no side or back clearance required
- ◆ Integral system event data log recording for systems diagnostics
- ◆ RS232 Communication interface, accessible through front door



**On-Line UPS Block Diagram Float System**

# General Specifications

## Circuit Breakers:

DC Input  
Bypass Source Input

## Meters:

AC Inverter Output Voltmeter  
AC Output Ammeter  
Inverter Output Frequency Meter

## Indicators & Alarms\*:

Battery Supplying Load  
Bypass Source Failure  
In Sync (Pilot Light)  
Fan Failure  
Low DC Disconnect  
Static Switch Transfer (Alarm)  
Inverter Failure

## Cabinet:

NEMA-1 (IP-20)

\*Note: Alarms supplied with one SPDT contact rated for 3 Amps at 120VAC.

## Optional Features

### Indicators & Alarms\*:

(Not to exceed 12)

High DC Voltage  
High DC Disconnect  
Negative/Positive to Ground (counted as 2)  
Latching Alarms  
Lamp Test Pushbutton  
Over Temperature  
Bypass Source Low Voltage  
Bypass Source High Voltage  
Low AC Output  
High AC Output  
Summary  
Out of Sync  
Fuse Blown Alarms  
Audible Alarm  
MBS Position Indicator

### Meters:

System Output Voltmeter  
Bypass Source Input Voltmeter  
Bypass Frequency Meter  
DC Input Voltmeter  
DC Input Ammeter

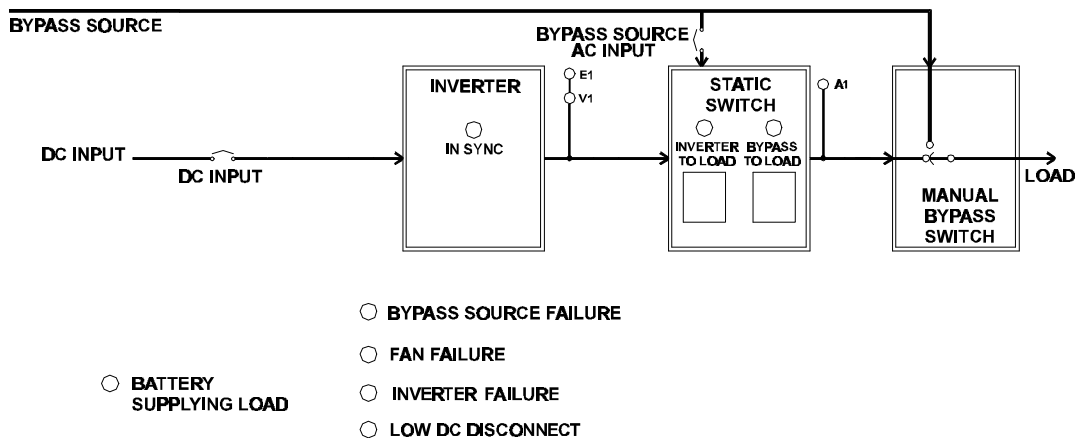
### Cabinet Options:

Top-Mounted Dripshield  
Fungus/Moisture Spray

### Circuit Breakers:

Inverter Output (Non-automatic)  
AC Output (Static Switch)

Consult factory for additional options.



**Lighted Mimic Panel Block Diagram**

# General Specifications

The **Inverter** uses Insulated Gate Bi-polar Transistors (IGBT's) to produce an alternating current square wave at a frequency determined by a crystal controlled oscillator. The output is filtered by a ferroresonant regulator, which creates a low distortion sine wave output from the square wave input and also regulates with a minimum amount of components. In addition, it has a built-in current limiting feature for inverter protection.

The **Static Switch** is isolated using high voltage reed relays and automatically transfers a critical load from the output of a failed or overloaded inverter to a bypass source of power without interruption.

The **Manual Bypass Switch** is a two-position manual make-before-break switch used to bypass the inverter and static transfer switch for maintenance purposes.

## Inverter

### DC Input

Range: -19% – +8%

### AC Output

Sizes: 3 – 50kVA (at 1.0 P.F.)

\*Voltages: 120, 220VAC, 1-phase, 2-wire

Regulation: ±2%

Frequency: 50 or 60Hz ± 0.1%

Load Power Factor: 0.8 to 1.0

Harmonic Distortion: < 5% THD

Overload Capacity: 500% for 1 cycle, 120% continuous

Crest Factor: 3:1 at full load

\*120/240 VAC 3 wire output is available  
Consult Factory

## Environmental

Ambient Temperature: 0°C to 40°C (50°C optional)

Relative Humidity: 0-95% non-condensing

Operating Altitude: 0 to 2500 meters (8200 ft.)

Audible Noise: <67dB(A) at 1.5 meters

## Cable Entry

Bottom front via removable gland plate (one plate per bay)

Consult factory for top side cable entry

## Controls

(Pushbutton & Indicator)

Inverter to Load Pushbutton  
Bypass to Load Pushbutton  
Precharge Pushbutton  
(20kVA and above)

## Conversion Efficiency

Inverter DC-AC: 130VDC: 83-88%  
260VDC: 84-88%

## Static Switch

Normal Source:  
Alternate Source:  
Voltage:

Inverter Output  
Bypass Supply  
Bypass Supply voltage must match the inverter output voltage

Transfer Time:

Zero (make-before-break in both directions)

Transfer Criteria:  
(from inverter to bypass)

1. Inverter Bridge Failure
2. Load Overcurrent
3. Low Inverter Voltage
4. Manual Pushbutton Operation

Retransfer Criteria:  
(from bypass to inverter)

1. Inverter in Sync
2. Auto Retransfer Defeat Switch Off

Overcurrent Transfer:

120%

Overload Capacity:

1000% for 1 cycle

## Manual Bypass Switch

Switch Style:

(Optional Remote Bypass Switch Available)\*  
600VAC, rotary drum, make-before-break switching

Transfer Time:

Zero

Transfer Criteria:

The inverter must be in synchronism with the bypass

\*Internal Manual Bypass Switch is normally removed when a Remote Bypass Switch is selected

# General Specifications

## 110,130 VDC LINK

Model	kVA	kW	DC-AC Efficiency %	Nom. DC Volts	Heat Loss (Watts)	Cabinet Style	Circuit Breaker Ampacity			Weight	
							DC Input	Bypass Input		Lbs.	'(Kg)
								120/60	220/50		
SS12030U**	3	3	83	110 130	614	E	50 50	40	20	850	386
SS12050U**	5	5	85	110 130	882	E	70 70	60	30	900	409
SS12075U**	7.5	7.5	85	110 130	1324	E	100 100	80	45	1000	455
SS12100U**	10	10	85	110 130	1696	E	150 125	125	60	1050	477
SS12150U**	15	15	86	110 130	2442	E	200 200	175	90	1225	567
SS12200U**	20	20	86	110 130	3121	E	300 250	225	125	1325	602
SS12300U**	30	30	87	110 130	4483	K	400 400	350	175	2150	977
SS12400U**	40	40	88	110 130	5455	H	600 450	450	225	2550	1159
SS12500U**	50	50	88	110 130	6818	H	700 600	600	300	3050	1386

## 220,260 VDC LINK

SS25030U**	3	3	83	220 260	572	E	25 25	40	20	850	386
SS25050U**	5	5	85	220 260	747	E	40 40	60	30	900	409
SS25075U**	7.5	7.5	85	220 260	1023	E	50 50	80	45	1000	455
SS25100U**	10	10	85	220 260	1364	E	70 60	125	60	1050	477
SS25150U**	15	15	86	220 260	2045	E	100 100	175	90	1225	567
SS25200U**	20	20	86	220 260	2727	E	150 125	225	125	1325	602
SS25300U**	30	30	87	220 260	4090	K	200 200	350	175	2150	977
SS25400U**	40	40	88	220 260	5455	H	300 250	450	225	2550	1159
SS25500U**	50	50	88	220 260	6818	H	350 300	600	300	3050	1386

A complete inverter model number includes the DC bus (link) voltage, AC output voltage, and system frequency. To "build" a model number, use the "code" in the matrix shown below.

<sup>1</sup> Weight of 60Hz units, 50Hz 7% more

Model Number: SS12100U - YY-ZZ-AA

where: YY=DC Bus Voltage  
ZZ=AC Output Voltage  
AA=System Frequency

DC Bus Volts	Code	AC Output Volts	Code	Freq	Code
130	13	120	12	60Hz	60
260	26	120/240**	24	50Hz	50
110	11	220	22		
220	22				

**\*\* Note: For 120/240 volt output, also place a "2" before the "SS".**

Example: A 30 kVA Inverter with 260 VDC bus, 220 VAC output voltage, 50 Hz:

Model No. SS12300U-26-22-50. If voltage code is not listed...place a "C" after the "U".

Example: Model No. SS3030UC.

### Cabinet Dimensions

Cabinet Style	Inches (mm)			
	H	x	W	x D
E	78 (1981)	x	29 737	x 32 813)
H	85 (2159)	x	56 1422	x 36 914)
J	85 (2159)	x	29 737	x 32 813)
K	85 (2159)	x	56 1422	x 32 813)

**Consult your local Solidstate Controls representative or the Solidstate factory if you have any questions.**

Specifications subject to change without notice



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