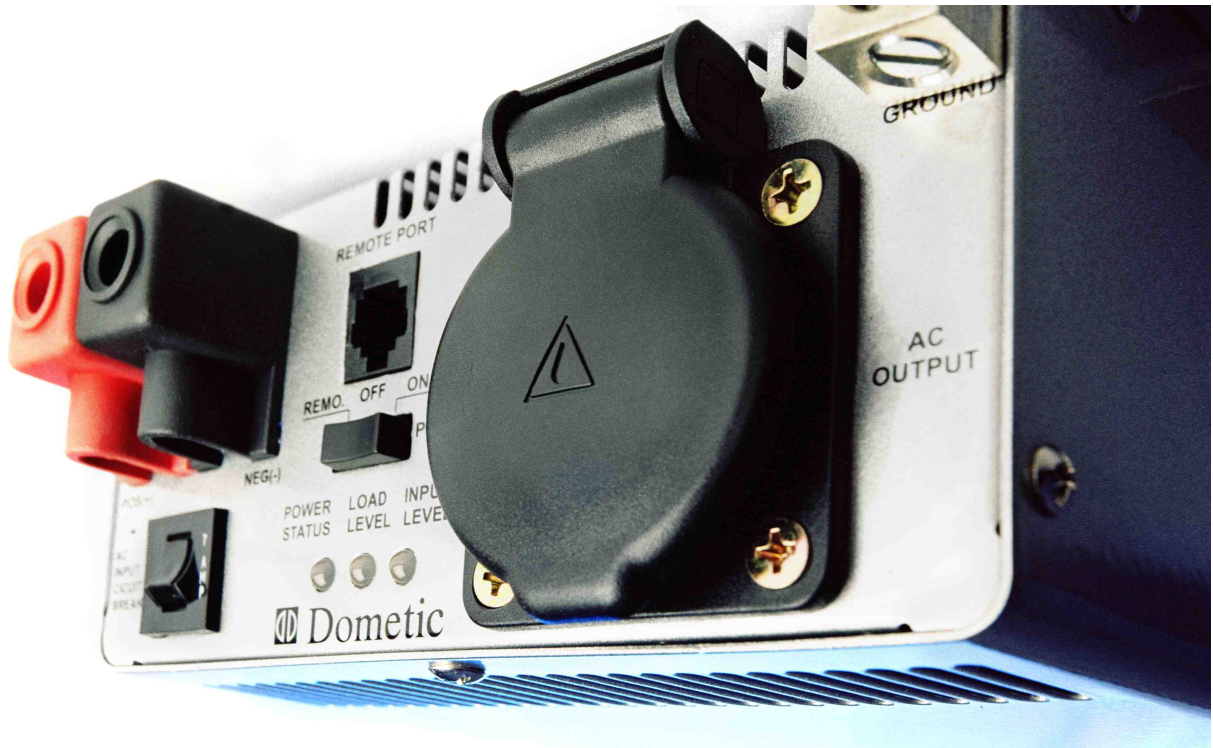




# SI 600 acs – 12V/24V Pure Sine Wave Inverter

230Vac from 12Vdc / 24Vdc source

Integrated automatic 230Vac transfer switch - aCS



User's Manual / Benutzerhandbuch / Manuel de l'utilisateur  
Användarhandbok / Manuale d'uso / Manual del usuario



## **Welcome to the Dometic world**

### **Dometic Pure Sine wave Inverters – A sign of comfort**

The SI 600acs Inverter is designed as a stand –alone power inverter with an AC transfer switch feature with a bypass for an AC utility connection when available. This Inverter is extremely suitable for RV, Commercial Vehicle, Marine and Emergency appliances.

When utility AC power is cut off, the transfer relay is de-energized and the load is automatically transferred to the SI 600acs output and driven by your 12 or 24 Vdc source. Once the AC utility is restored, the relay is energized and the load is automatically reconnected to the AC utility.

You have made a wonderful choice to use Inverters from Dometic. Feel free to contact our dealers for more information or other recommendations within mobile power supply.

Best regards,

Dometic





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# 1 Important Safety Instructions

## **WARNING !**

Before you install and use your Dometic SI 600acs Inverter, be sure to read these safety instructions.



## **1.1 General Safety Precautions**

- 1-1-1. Do not expose the SI 600acs inverter to rain, snow, spray, bilge or dust. To reduce risk of hazard, do not cover or obstruct the ventilation openings. Do not install the SI 600acs Inverter in a zero-clearance compartment. Overheating may result.
- 1-1-2. To avoid the risk of fire or electric shock, make sure that existing wiring is in good electrical condition and that wire size is not under sized. Do not operate the SI 600acs inverter with damaged or substandard wiring.
- 1-1-3. This equipment contains components which can produce arcs or sparks. To prevent fire or explosion do not install in compartments containing batteries or flammable materials or in locations which require ignition protected equipment. This includes any space containing gasoline-powered machinery, fuel tanks, or joints, fittings, or other connections between components of the fuel system.

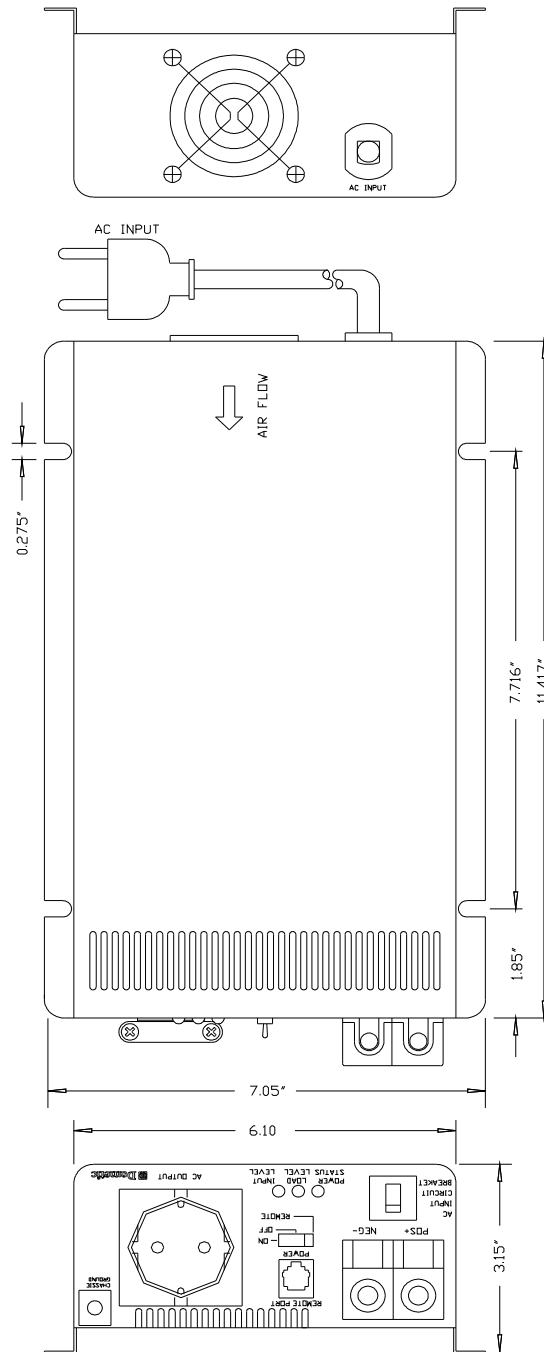
## **1.2 Precautions When Working with Batteries**

- 1-2-1. If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flood eye with running cold water for at least 20 minutes and seek medical attention at once.
- 1-2-2. Never smoke or allow a spark or flame in vicinity of battery or engine.
- 1-2-3. Do not drop a metal tool on the battery. The resulting spark or short-circuit on the battery or other electrical part may cause an explosion.
- 1-2-4. Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead-acid battery.  
A lead-acid battery produces a short-circuit current high enough to weld a ring or other metal, causing a severe burn.

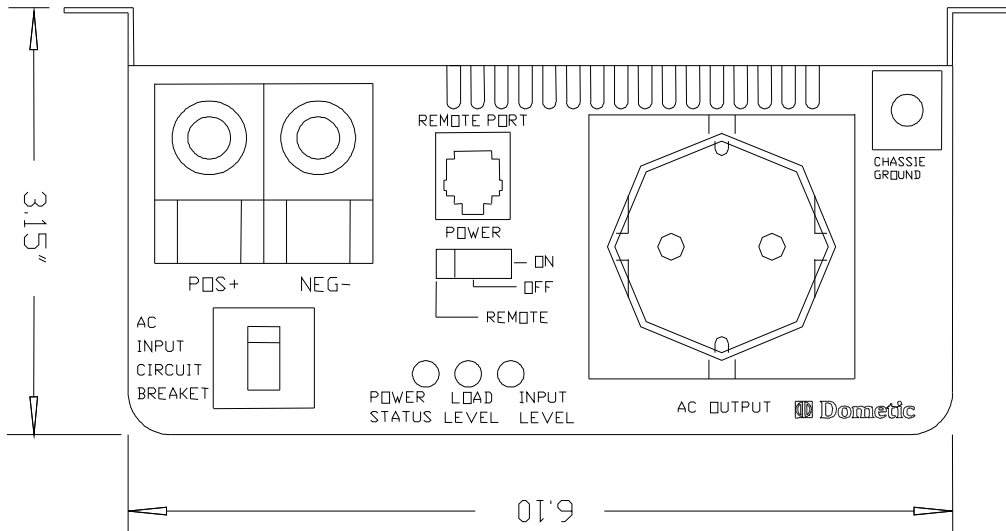


## 2 Basic Descriptions

### 2.1 Mechanical drawings



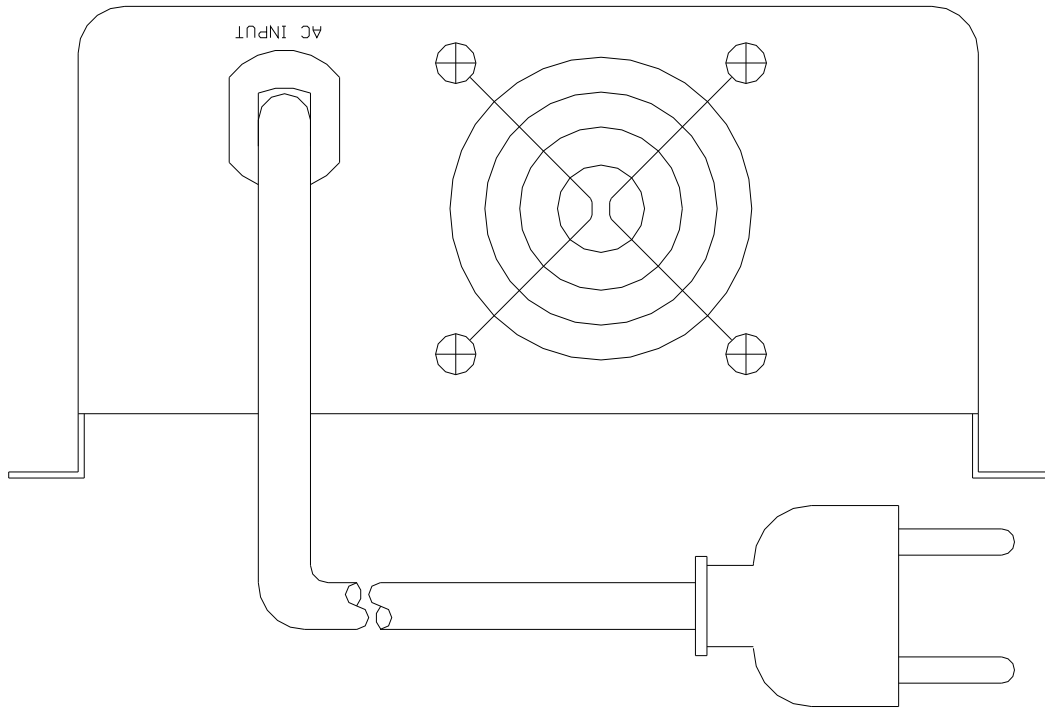
## 2.2 The Front panel interface



- 2-2-1. Power ON / OFF / REMOTE switch: If you use the optional remote control unit, put the “on/off “ switch to “remote”.
- 2-2-2. 230Vac input Circuit Breaker: The 7Amp circuit breaker protects the model from overload. When an overload condition exists, the circuit breaker stops output AC grid power. To reset, push the circuit breaker switch and then the model will be back to a normal operation. The source fault should be corrected prior reset.
- 2-2-3. Remote port: Connect RJ-11 wiring with remote control unit.
- 2-2-4. Battery terminals:  
Connect 12V/24V batteries or other 12V/24V power sources.
- 2-2-5. Chassis ground: Connect the inverter chassis ground terminal to earth.



## 2.3 The rear panel interface



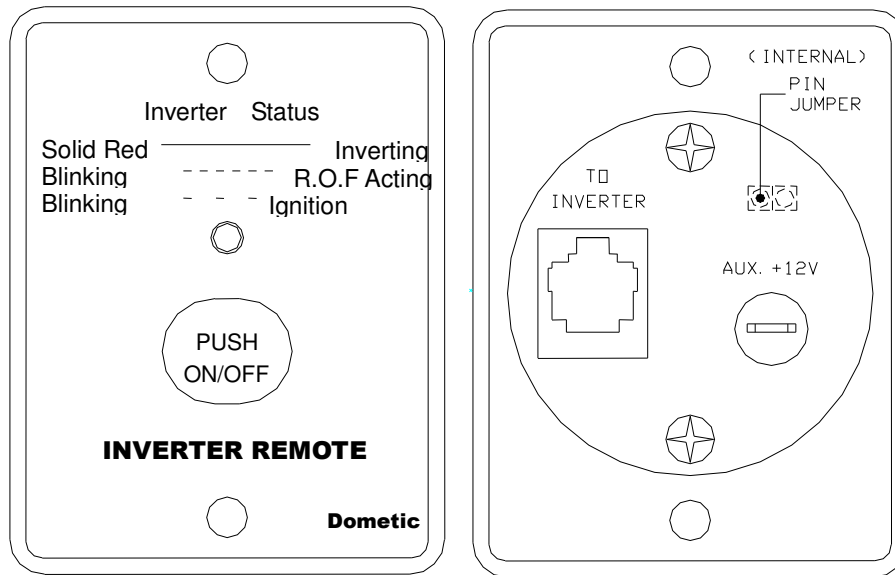
### 2-3-1. Ventilation:

Do not obstruct, allow at least 2-3 inches/ 50-75mm of clearance for airflow.

### 2-3-2. 230V AC input: (source)

If available and desired, plug into 230Vac source directly.

## 2.4 The Remote Control panel



The Remote control is a basic ON/ OFF remote control. The control has features which disable and override the ON/OFF function such as:

### Ignition Lockout function

This will automatically turn the Inverter OFF when the auxiliary input wiring receives a continuous 12V/24V signal.

### R.O.F (Remote override function)

This will automatically turn the Inverter ON when the auxiliary input wiring receives a continuous 12V/24V signal. (The auxiliary input wire must be placed with a 12/24 Volt fuse (0.5A))

The internal pin jumper that is placed inside the remote control stipulates a choice, either the **Ignition lockout** or **R.O.F** function:

Pin jumper "Short" - **Ignition lockout function.**

Pin jumper "Open" - **R.O.F.**

### LED Signals

- The LED glows steadily red when the Inverter is on.
- The LED blinks fast when the **R.O.F** function is enabled.
- The LED blinks slowly when the **Ignition Lockout** function is enabled.

Connect RJ-11 wire with the remote port in front of panel of the Inverter.





## **3 Functional Characteristics**

### **3.1 General Information**

The SI 600acs Inverter is designed as a stand –alone power inverter with an AC transfer switch feature which is suitable for RV, marine and emergency appliances.

When utility AC power is cut off, the transfer relay is de-energized and the load is automatically transferred to the SI 600acs output. Once the AC utility is restored, the relay is energized and the load is automatically reconnected to the AC utility.

The SI 600acs is also GFCI compliant. This provides with the GFCI safety receptacle easier use of appliances.

Please read all instructions and cautionary marking on this manual before using SI 600acs series.



## 3.2 Features

### Product:

- 600W continuous output with 800W power surge for electronic appliances.
- Pure sine wave output (THD < 3%) to operate higher-end electronic equipment.
- Built in 7A rating AC transfer switch with plug-in socket that is easy to maintain.
- Speed up transfer time and synchronized operation with the AC source at all times which allows the transfer to be interruption-free for sensitive equipment.
- Built in advance microprocessor for user friendly interface and operation.
- Optional smart remote control.
- 3 tri-color LED indicators display all operation status.
- UL 458 approval and FCC class B.

### Protection:

- Battery over- and under voltage protections.
- Over temperature protection.
- Over load protection.
- Short Circuit protection.
- Ground fault protection by GFCI receptacle.
- Reverse polarity protection.
- ROF (remote override function) or Ignition Lockout function option.
- AC circuit breaker (7Amp).

### 3.3 Electrical Performance

Specification	Model No.	
	SI600acs 24V	SI600acs 12V
Item	SI600acs 24V	SI600acs 12V
Continuous Output Power	600W	
Maximum Output Power (3Min.)	680W	
Surge Rating	800W	
Input Voltage	24V	12V
Output Voltage / Frequency	230V ± 3%	
	50Hz +/- 0.05%	
Efficiency (full load)	90.0%	
No Load Current Draw	0.43A	0.87A
Output Waveform	Pure Sine Wave (THD <3%)	
Power Factor Allowed	cos.-90° ~ cos.+90°	
Output Voltage Regulation	230V	
Input Voltage Regulation	21.0-30VDC	10.5-15VDC
Input Level Indicator	Red / Orange / Green LED	
Load Level Indicator		
Power Status	Red / Green LED	
Protection	Overload, Short Circuit, Reverse Polarity (Fuse), Over/Under Input Voltage, Over Temperature. AC Input Circuit Breaker, GFCI.	
ACS Circuit Breaker	7Amp	7Amp
ACS Transfer switch	10Amp	
ACS Transfer Time	4~8 msec.	
Safety	UL458/CE	
EMC	FCC Class B	
Optional Remote Control	YES	
Synchronous AC transfer		
Operating Temperature Range	-25°C to 50°C	
Storage Temperature Range	-30°C to 70°C	
Cooling	Loading controlled cooling fan	
Dimensions	11.42 (L) x 7.05 (W) x 3.15 (H) Inch	
Weight	3.3 kgs. / 6.6 Lbs.	

## 4 Installation

### 4.1 Where to install

The power inverter should be installed in a location that meets the following requirements:

- 4-1-1. Dry – Do not allow water to drip or splash on the inverter.
- 4-1-2. Cool – Ambient air temperature.
- 4-1-3. Safety – Do not install batteries in a compartment or other areas where flammable fumes existence such as fuel storage areas or engine compartments.
- 4-1-4. Ventilated – Allow at least 2 to 3 inches/ 50-75mm of clearance around the Inverter for air flow. Ensure the ventilation openings on the rear and bottom of the unit are not obstructed.
- 4-1-5. Dust-free – Do not install the SI 600acs Inverter in a dusty environment where there is dust, wood particles or other filings/shavings present. These dusts can be pulled into the unit when the cooling fan is operation.
- 4-1-6. Near the battery – avoid excessive cable lengths. Do not install the SI 600acs Inverter in the same compartment as batteries. Use the recommended wire lengths and sizes. Also do not mount the SI 600acs Inverter where it will be exposed to the gases produced by the battery. These gases are very corrosive and prolonged exposure also will damage the SI 600acs Inverter.

#### **WARNING !**

Do not connect output terminal of the SI 600acs Inverter to an incoming 230VAC source. This could permanently damage the inverter and will void warranty.





## 4.2 AC Safety Grounding

During the AC wiring installation, AC input and output grounding should be present in the connection with the inverter. The AC input grounding must connect to the incoming grounding of your AC utility sources and the AC output grounding should connect to the grounding point for your loads (for example, a distribution panel ground bus).

### Neutral Grounding (GFCI'S):

The neutral conductor of the AC output circuit of the SI 600acs Inverter is automatically connected to the safety ground during inverter operation. This conforms to National Electrical Code requirements that derived AC sources separately (such as inverter and generators) to have their neutral conductors tied to ground in the same way that the neutral conductor from the utility is tied to ground at the AC breaker panel.

For models configured with a transfer relay, while AC utility power is in use and the SI 600acs Inverter is in bypass mode, this connection (neutral of the SI 600acs Inverter's AC output to input safety ground ) is not presented so that the utility neutral is only connected to ground at your breaker panel, as required.

## 4.3 Ground Fault Circuit Interrupters (GFCI):

Recreational Vehicles Installations (for North American approvals) will require GFCI protection. In addition, electrical codes require GFCI protection of certain receptacles in residential installations.

While the pure sine wave output of the SI 600acs Inverter is equivalent to the waveform provided by utilities, compliance with UL standards requires us to test and recommend specific GFCI.

The following GFCI-protected 20A receptacles, UL listed, Pass & Seymour, type no. 2091-W & 2094-W , have been tested and found that it functioned properly when connected to the output of the SI 600acs Inverter.

## 4.4 Making DC Wiring Connections

The following procedure is for connections between the battery and the DC input terminals on the SI 600acs Inverter. The cables should be high quality copper wiring and keep cable length as short as possible, the maximum length is 6 feet /2m which will handle the current required from the electrical codes or regulations.

If cables are not correctly dimensioned, the inverter performance will decrease. DC voltage will drop, poor surge capability, low input voltage warnings and shutdowns will be caused.

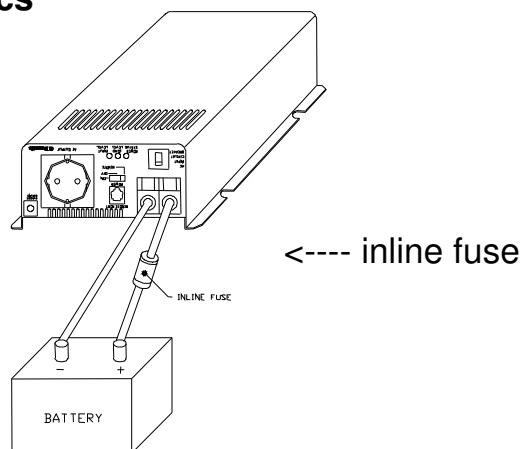
The longer the cables - the more the voltage will drop.

**Battery cable fusing** --- A fuse is required by the National Electrical Code (NEC) to protect the battery and cables, A UL listed DC rated slow blow fuse must be installed in line with the positive battery cable, within 18 inches/ 0.5m of the battery.

DOMETIC recommends the following cables for an optimum inverter performance.

Model No	Wire	Inline Fuse
SI 600 ACS 12V	25mm <sup>2</sup> , AWG# 4	100A
SI 600 ACS 24V	16mm <sup>2</sup> , AWG# 6	50A

### Dometic SI 600acs





**WARNING !**

The installation of an inline fuse must be on positive cable. Failure to place a fuse on “+” cables running between the Inverter and battery may cause damage to the inverter and will void warranty.





## 5 Operation

To operate the SI 600acs Inverter, turn it on by using the ON/OFF/REMOTE switch. The inverter is now ready to deliver AC power to your loads. If you are loading several appliances, turn them on separately after the inverter is switched on; this process is to avoid delivering all the starting currents at once to all the loads.

### 5.1 Controls and indicators:

The ON/OFF switch turns on/off the control circuit of the power inverter. The inverter will function within voltage ranges as follows:

**10.5 to 15.0 VDC for 12V models**

**21.0 to 30.0 VDC for 24V models**

The SI 600acs Inverter indicates DC voltage status as follows:

Model	DC Input over voltage shut-down	DC Input under voltage alarm	DC Input under voltage shut-down
SI 600acs 12V	15.3V	11.0V	10.5V
SI 600acs 24V	30.6V	22.0V	21.0V



## 5.2 System Status LEDs.

There are 3 LED indicators located on the front panel of the inverter. Input Level, Load Level, and Power status.

### 1. Input Level: Displays Input Voltage

LED Status	DC 12V	DC 24V
Red Blink (slow)	10.5~10.9	21.0~21.8
Red	10.9~11.3	21.8~22.6
Orange	11.3~12.0	22.6~24.0
Green	12.0~14.0	24.0~28.0
Orange Blink	14.0~14.7	28.0~29.4
Red Blink	14.7	>29.4

### 2. Load Level: Displays AC Load Watts

LED Status	Load Condition
Dark	0~30W
Green	30W~200W
Orange	200W~450W
Red	450W~580W
Red Blink	Over 580W

### 3. Power status: Displays power good / fault status

LED Status	Power Status
Green	AC power supplied from an external AC source
Orange	Supply AC power from an inverter
Red Blinking Fast	OVP: over voltage
Red Blinking Slowly	UVP: under voltage
Red Blinking Intermittently	OTP: over temperature
Red	OLP: over load



# 6 Information

## 6.1 Troubleshooting

**WARNING !**

Do not open or disassemble the SI 600acs Inverter. Attempting to service the unit may result in a risk, electrical shock or fire.



Problems and Symptoms	Possible Cause	Solutions
No output voltage, the LED glows RED light.		
a. Power status light is blinking fast.	Over input voltage.	Check input voltage. Reduce input voltage.
b. Power status light is blinking slowly.	Low input voltage.	Recharge battery. Check connections and cables.
c. Power status light is blinking intermittently.	Thermal shutdown	Improve ventilation. Make sure ventilation openings in inverter are not obstructed. Try to reduce ambient temperature.
d. Power status light glows steadily.	Short circuit, wiring error, or over loading	Check AC wiring for short circuit or reduce load.



## **6.2 Maintenance**

To keep your inverter operating properly, there is very little maintenance required. You should clean the exterior periodically with a damp cloth to prevent accumulation of dust and dirt at the same time, tighten the screws on the DC input terminals.

## **6.3 Warranty**

We warrant this product against defects in materials and workmanship for a period of 12 months from the date of purchase and will repair or replace any defective Dometic Inverter when directly returned, postage paid, to us.

This warranty will be considered void if the unit has suffered any obvious physical damage or alteration either internally or externally. The warranty does not cover damage arising from improper use such as plugging the unit into an unsuitable power sources or attempts to operate products with excessive power consumption requirements, or use in unsuitable environments.

This is the only warranty that the company makes. No other warranties express or imply including warranties of merchantability and fitness for a particular purpose.

Repair and replacement are your sole remedies and the company shall not be liable for damages, whether direct, incidental, special or consequential, even though caused by negligence or other fault.



Further Information about Dometic products

[www.dometic.com](http://www.dometic.com)