

SR-1600 PLUS Inverter Operation Handbook

Document: IPN 997-00012-97A

Issue 2, May 2025

Eaton Corporation
Eaton.com
DCinfo@eaton.com

The product discussed in this literature is subject to terms and conditions outlined in Eaton selling policies. The sole source governing the rights and remedies of any purchaser of this equipment is the relevant Eaton selling policy.

No warranties, express or implied, including warranties of fitness for a particular purpose or merchantability, or warranties arising from course of dealing or usage of trade, are made regarding the information, recommendations and descriptions contained herein.

In no event will Eaton be responsible to the purchaser or user in contract, in tort (including negligence), strict liability or otherwise for any special, indirect, incidental or consequential damage or loss whatsoever, including but not limited to damage or loss of use of equipment, plant or power system, cost of capital, loss of power, additional expenses in the use of existing power facilities, or claims against the purchaser or user by its customers resulting from the use of the information, recommendations and descriptions contained herein.

The information contained in this literature is subject to change without notice.

Subject to the right to use its equipment, Eaton Corporation does not convey any right, title or interest in its intellectual property, including, without limitation, its patents, copyrights and know-how.

No part of this literature may be reproduced or transmitted in any form, by any means or for any purpose other than the Purchaser's personal use, without the express written permission of Eaton Corporation.

Eaton®, Matrix, Powerware®, Intergy™, CellSure™, SiteSure™, PowerManagerII™ and DCTools™ are trade names, trademarks, and/or service marks of Eaton Corporation or its subsidiaries and affiliates. Unless otherwise noted, brands, product names, trademarks or registered trademarks are the property of their respective holders.

Copyright © 2007-2023 Eaton Corporation. All Rights Reserved.

About This Guide

Scope

This guide covers operation of the SR-1600 Modular Pure Sine Wave Telecom Inverter.

Audience

This guide is intended for use by:

- Installers competent in:
 - installing and commissioning dc and ac power systems
 - safe working practices for ac and dc powered equipment
 - the relevant local electrical safety regulations and wiring standards
- Operators and maintenance staff competent in:
 - operation of dc and ac power systems
 - safe working practices for ac and dc powered equipment

Related Information

Reporting Problems with this Guide

Please use this email address to report any problems you find in this guide:

DCInfo@eaton.com

For Further Information and Technical Assistance

For further information and technical assistance see Worldwide Support on page 29.



Powering Business Worldwide

Table of Contents

Table of Contents

About This Guide	i
Scope	i
Audience	i
Related Information	i
Reporting Problems with this Guide	i
For Further Information and Technical Assistance	i
Table of Contents	i
1 Safety Instructions	1
1.1 General Safety Precautions	1
1.2 Other Safety Notes	1
2 Functional Characteristics Introduction	3
2.1 System	3
2.2 Electrical Specification	4
2.3 Block Diagram	5
2.4 Mechanical Drawings	5
2.4.1 SR-1600 PLUS Single Module	5
2.4.2 SR-1600 PLUS Rack (19" 2U)	6
2.5 SR-1600 PLUS De-rating Curve	7
2.6 Protection Mechanism	7
3 Installation and Maintenance	8
3.1 Introduction	8
3.1.1 LED Indicator ①	9
3.1.2 Green Terminal Introduction ③⑧⑨	11
3.1.3 AC Input / Output Terminal ④⑦	15
3.1.4 Parallel Connection Port ⑤⑥	15
3.1.5 Battery Cabling ⑪⑫⑬⑭	16
3.1.6 Chassis Ground ⑮	18
3.1.7 Installation Space Requirement	18
3.1.8 RS-485 Modbus ⑩	18
3.2 Parallel Connection	19
3.2.1 Multi-shelves Installation	19
3.2.2 Parallel Connection with Jumper Setting	19
3.2.3 Wrong Connection Example	22
3.3 Maintenance	23
3.3.1 Inverter Module Replacement	23
3.3.2 Fan Module Replacement	24
4 Trouble Shooting	26
5 Warranty	27
6 Equipment Incident Report	28
7 Contacts	30

1 Safety Instructions

1.1 General Safety Precautions



Warning! Before using the Inverter, read the safety instructions.

- Do not expose the inverter to rain, snow, spray or dust. To reduce the risk of fire hazard, do not cover or obstruct the ventilation openings and do not install the inverter in a zero-clearance compartment.
- To avoid the risk of fire and electric shock, make sure that the existing wiring is in good electrical condition, and the wire size is not undersized.
- 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 connection between components of the fuel system.
- Depending on the user scenario, the AC output of the inverter will require user installed breakers or fuses. In AC output hardwire applications, AC sockets are not be provided. The inverter incorporates standard AC short circuit protection.
- The following precautions should be taken when working on the inverter:
 - Step 1 Remove watches, rings, or other metal objects
 - Step 2 Use tools with insulated handles
 - Step 3 Wear rubber gloves and boots, and safety glasses
 - Step 4 Follow local PPE and OH&S requirements



Warning! For the terminals on the backplane including AC, battery, output, signal, please do not change or rework the terminal wiring unless you are a qualified electrical engineer.

1.2 Other Safety Notes

- Upon receipt, examine the carton box for damage. Notify the carrier immediately, before opening, if damage is evident.
- Do not operate near water or in excessive humidity.
- Do not open or disassemble the inverter, as warranty may be voided.
- The DC side connections should be firm and tight.
- Grounding: Reliable grounding must be maintained.
- Do not drop a metal tool on the battery. The resulting spark or short-circuit on the battery or on the other electrical part may cause an explosion.
- Install the inverter in a well-ventilated area. Do not block the front air vents, or the rear air exhausts of the unit.

- Wiring: Adequate input power must be supplied to the inverter for proper use; correct wiring sizes must be ensured.
- Mount the inverter such that the fan axis is horizontal.
- Do not operate the inverter close to combustible gas or open fire.
- Do not operate appliances that may feed power back into the inverter.
- Temperature: The inverter should be operated in an ambient temperature range of -25°C to 40 °C otherwise the output efficiency may be affected. Air flow to the inverter must not be blocked.
- This equipment is intended for installation in restricted access locations, such that only suitably qualified service personal can access/perform works on any electrical connections, including but not limited to the rear AC/DC connections.
- This equipment must be installed in an enclosed cabinet rack and dummy inverter modules must be installed in positions where working modules are not required.
- Inverter rack/shelves must be mechanically supported and fixed both at the front and the rear.

2 Functional Characteristics Introduction

2.1 System

The SR-1600 PLUS is a highly reliable, modular design DC-AC inverter system, designed with advanced power electronics and microprocessor technology offering the following features:

- Simple setting and scalable system capacity that supports up to 32 pcs (51.2KW)
- Seamless switch between AC and DC source
- Built-in input and output full isolation
- Wide AC input range Adjustable 150~265V (230V system), 75~132V (120V system)
- High efficiency (~95%)
- Power factor ≥ 0.99
- Advanced Protection Features
 - Input reverse, under-voltage, and over voltage protection
 - Output protection: short circuit, overload, over temperature, and over voltage protection
- Operating mode
 - AC mode (Default): AC utility power is the main source. DC power is the secondary source. PFC>0.99. Max efficiency 95%. When the AC utility is abnormal, the switching time is 0 seconds.
 - AC Ratio mode: DC and AC inputs at same time. The percentage of AC and DC load can be assigned to 100%. If AC is set 70%, then remaining 30% is DC.



Note: The AC input power must be higher than 300W after assigning DC and AC ratio.

- DC mode: DC power is the main source. AC utility is the secondary source. THD<3%, Max efficiency is 91%. The switching time between AC and DC power is 0 seconds.

2.2 Electrical Specification

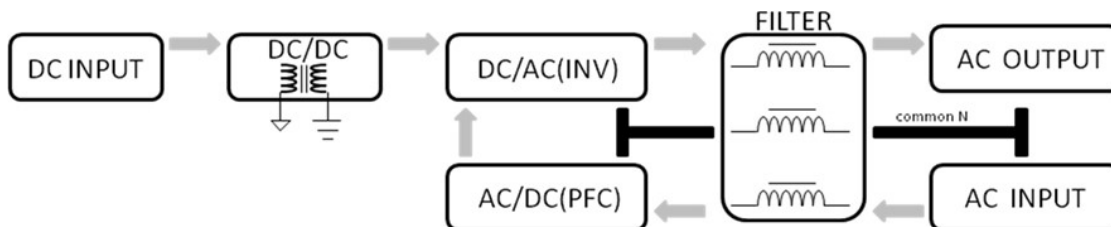
Electrical	Specification	Model No.			
	Item	SR-1600-124 PLUS	SR-1600-148 PLUS	SR-1600-224 PLUS	SR-1600-248 PLUS
AC Input	Nominal Voltage	120VAC		230VAC	
	Voltage Range (Full power rating)	90~130VAC ± 3%		180~260VAC ± 2%	
	Compliance range before transfer to DC	Adjustable from 75-132.5Vac		Adjustable from 150-265Vac	
	Power Factor	> 0.99 @ rating power			
	Frequency	50 / 60 Hz			
	Synchronization Range	47~53 Hz, 57~63 Hz			
DC Input	Nominal Voltage (Voltage range)	24VDC	48VDC	24VDC	48VDC
	Voltage Range	18~34VDC ± 3%	36~68VDC ± 3%	18~34VDC ± 3%	36~68VDC ± 3%
	Nominal Current	56A	37A	56A	37A
	Max. Input Current (15 sec.)	90A	60A	90A	60A
AC Output	Rating Power	1200W/1600VA	1600W/1600VA	1200W/1600VA	1600W/1600VA
	Overload Capacity	105%~150% rated power (15 seconds)			
	Nominal Voltage	120VAC		230VAC	
	Output Voltage Range	100~120VAC ± 3%		200~240VAC ± 2%	
	Max. Efficiency (AC)	94%		95%	
	Max. Efficiency (DC)	89%	90%	90%	91%
	Frequency	50 / 60Hz			
	THD	< 3% (Above 80% Resistive Load)			
	Turn ON Delay	< 10 seconds			
	Crest Factor at Nominal Power With short circuit management and protection	DC mode: 3 times nominal current AC mode: 6 times nominal current		DC mode: 3 times nominal current AC mode: 10 times nominal current	
Control & Signal	Indicator	LED			
	Advanced Control (Comm. protocol)	RS-485 control module (MODBUS)			
	Failure Indicator	Buzzer alarm			
Protection	DC Input	Over Voltage / Under Voltage / Reverse Polarity			
	AC Input	Over Voltage / Under Voltage / Over Current			
	Output	Short Circuit / Overload / Over Temperature			
	Inverter to Utility AC	0 second			

Electrical	Specification	Model No.			
	Item	SR-1600-124 PLUS	SR-1600-148 PLUS	SR-1600-224 PLUS	SR-1600-248 PLUS
Transfer Performance	Utility AC to Inverter	0 second			
Environment	Operating Temp.	-25°C(-13°F) ~ 40°C(104°F); refer to SR-1600 PLUS power de-rating curve			
	Operating Temp. (Extended)	-25°C(-13°F) ~ 60°C(149°F); refer to SR-1600 PLUS power de-rating curve			
	Storage Temp.	-40°C~70°C			
	Relative Humidity	95%, non-condensing			
	Vibration	Meet BS EN 61373			
Safety & EMC	Safety standards	Meets UL 62368-1		Certificated EN 62368-1	
	EMC standard	Certificated FCC Class B		EN 55032: 2015+A11:2020 EN 55035: 2017 / A11: 2020	
Others	Dimension-Module	105x83x410 mm / 4.13x3.27x16.14 inch			
	Dimension-Shelf	446x85x509mm / 17.56x3.35x20.04 inch			
	Weight (net)	Module : 3.8kg; 4pcs / Shelf : 6.5kg; 1pcs			

Table 1. SR-1600 PLUS specification

The specifications are subject to change without notice. Always check with local sales organization about availability of listed models in your region. MoQ's may apply. Some models may not be available.

2.3 Block Diagram



2.4 Mechanical Drawings

2.4.1 SR-1600 PLUS Single Module

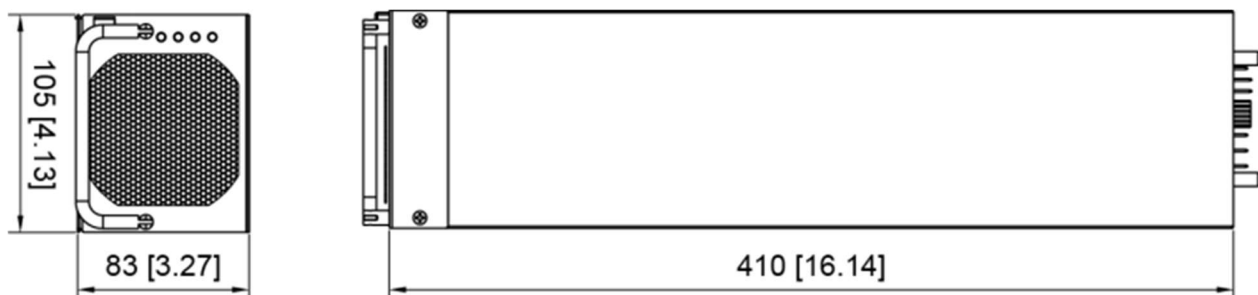


Figure 1. SR-1600 PLUS mechanical drawing-single module

2.4.2 SR-1600 PLUS Rack (19" 2U)

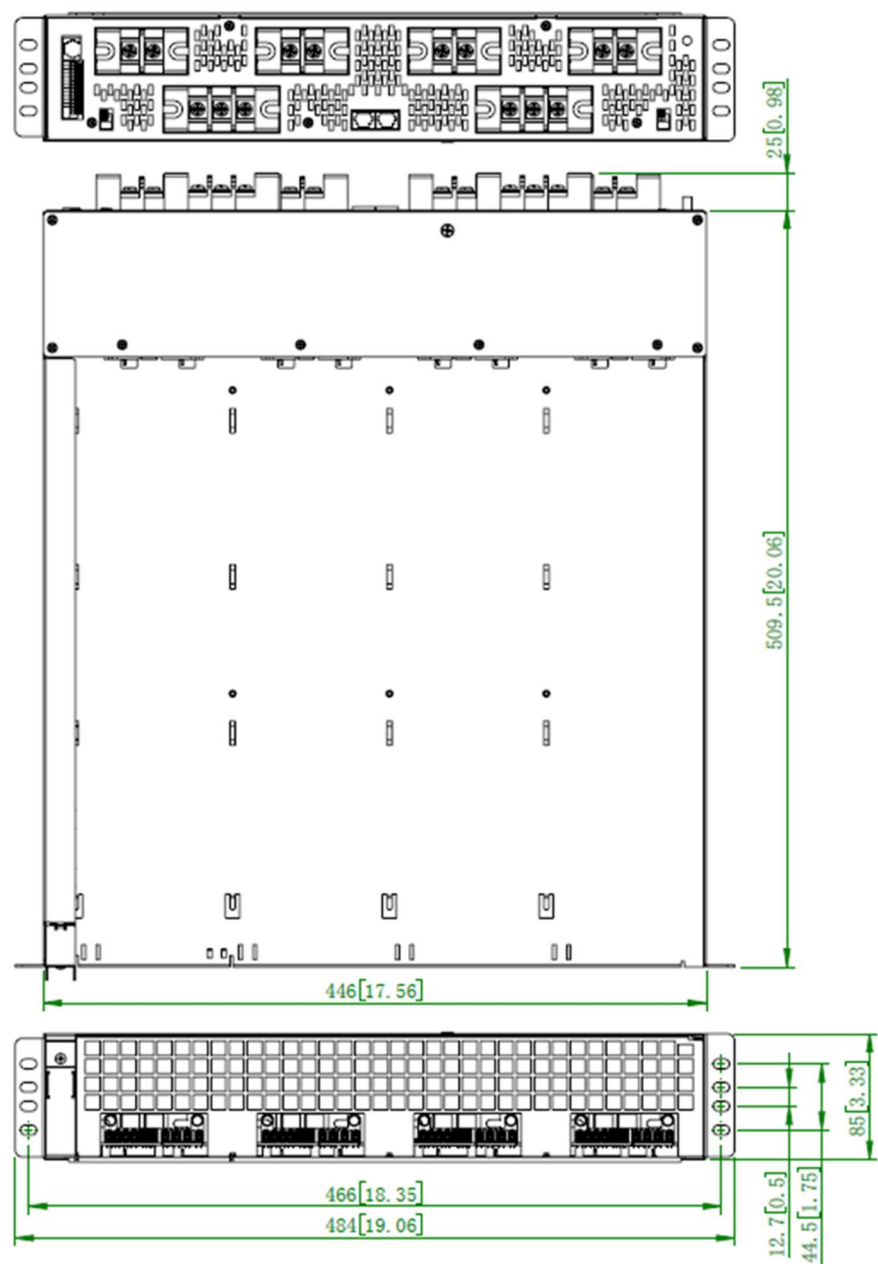


Figure 2. SR-1600 PLUS mechanical drawing-rack

2.5 SR-1600 PLUS De-rating Curve

SR-1600-124/224

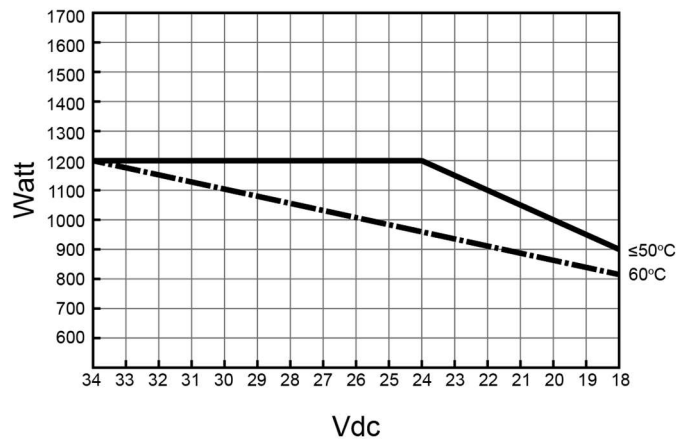


Figure 3. SR-1600 PLUS de-rating curve: SR-1600-124/224 PLUS

SR-1600-148/248

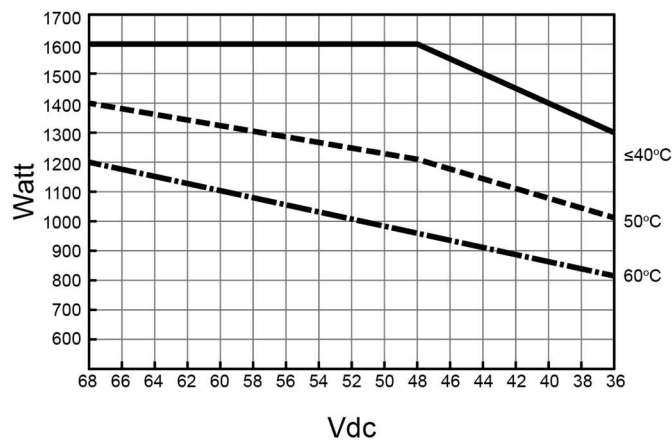


Figure 4. SR-1600 PLUS de-rating curve: SR-1600-148/248 PLUS

2.6 Protection Mechanism

Type	Over Voltage			Under Voltage		
	Shutdown	Restart	Alarm	Shutdown	Restart	Alarm
110 Vac	130 \pm 3%	125 \pm 3%	125 \pm 3%	90 \pm 3%	95 \pm 3%	95 \pm 3%
230 Vac	260 \pm 3%	250 \pm 3%	250 \pm 3%	180 \pm 3%	190 \pm 3%	190 \pm 3%
24 Vdc	34 \pm 0.5	28 \pm 0.5	33 \pm 0.5	18 \pm 0.5	25 \pm 0.5	21 \pm 0.5
48 Vdc	68 \pm 1	56 \pm 1	66 \pm 1	36 \pm 1	50 \pm 1	42 \pm 1

Table 2. SR-1600 PLUS protection mechanism

3 Installation and Maintenance

3.1 Introduction

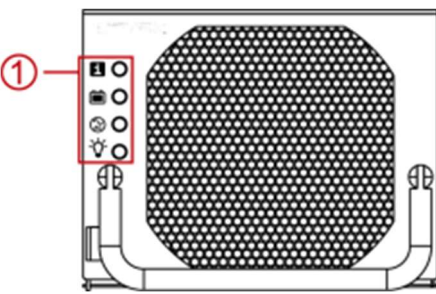


Figure 5. SR-1600 PLUS module front panel view

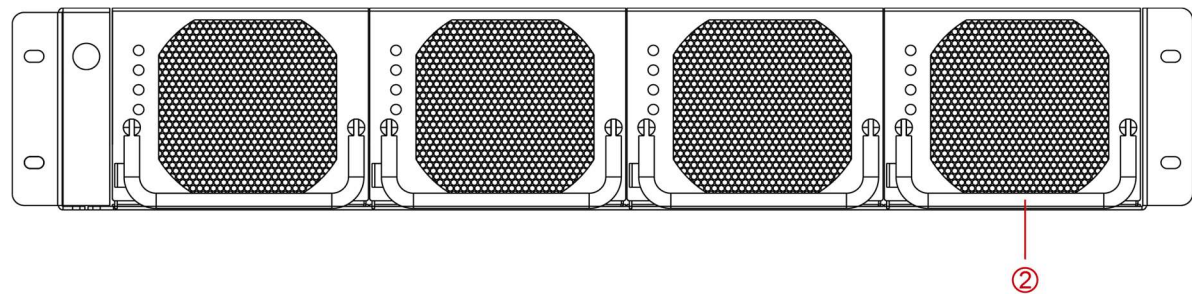


Figure 6. SR-1600 PLUS shelf front panel view

Description	
① LED indicator	② Inverter handle

Table 3. SR-1600 PLUS description

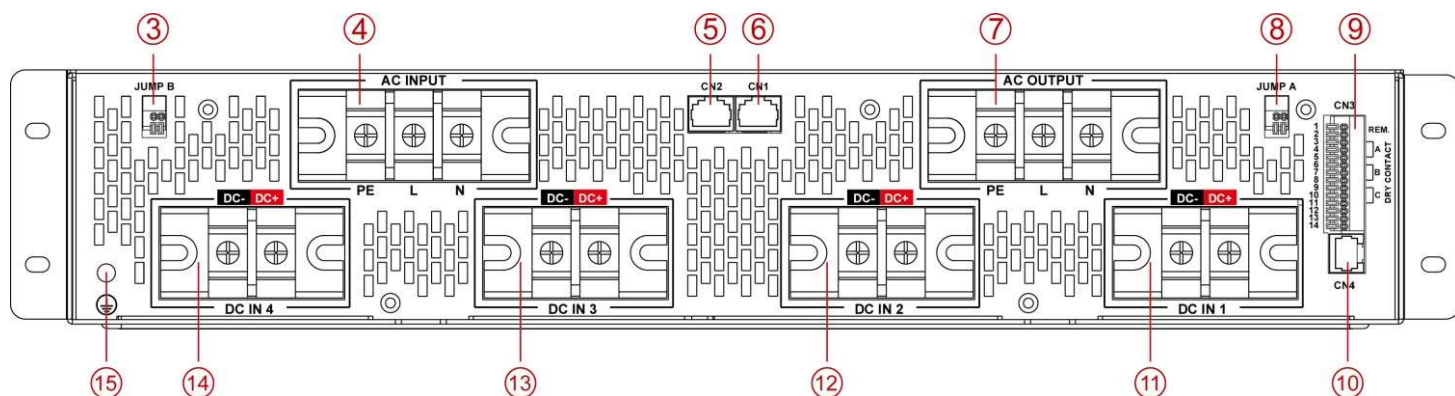


Figure 7. SR-1600 PLUS shelf rear panel view

Description			
③	Jumper B (terminal resistor)	⑩	RS-485
④	AC input terminal	⑪	DC input (Battery) #1
⑤	Parallel connection port CN2	⑫	DC input (Battery) #2
⑥	Parallel connection port CN1	⑬	DC input (Battery) #3
⑦	AC output terminal (load)	⑭	DC input (Battery) #4
⑧	Jumper A (terminal resistor)	⑮	Chassis ground
⑨	CN3 Dry contact and remote		

Table 4. SR-1600 PLUS

3.1.1 LED Indicator ①

Icon	Description	Icon	Description
	System status LED indicator		AC input power indicator
	DC battery power indicator		Load indicator

Example: SR-1600- 248 PLUS Type








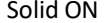





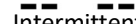
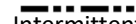
Status	LED Indicator				
Green	Off				No output
		Power by AC (Grid)	Normal (48~66V)	Voltage & Frequency OK	Load 0~60%
		Power by AC & DC (Grid & Battery)			
		Start-up		Frequency synchronization	
Orange		Power by DC (Battery)	Battery Low voltage (42~48V)		Load 60~105%
			Battery High voltage alarm (Default > 66V)	Grid AC high voltage alarm (Default >250V)	Overload alarm (>105%)
		Remote off	Battery Low voltage alarm (Default < 42V)	Grid AC low voltage alarm (< 190V)	
Red		Module failure			Overload /Short protection
		Different system output voltage	Battery over voltage (Default >68V)	Over voltage (Default >260V)	
		Different system frequency (50/60Hz)	Battery under voltage (Default <36V)	Under voltage (Default <180V)	
		Temp. protection		Abnormal Frequency	
		Fan failure			

Table 5. LED indicator

3.1.2 Green Terminal Introduction ③⑧⑨

There are three green terminals at the rear side, please refer to following figure:

Terminal	Description
Jumper A & B	Single shelf / Parallel connection setting
CN3 Dry contact and remote	Remote setting, and dry contacts

Table 7. SR-1600 PLUS green terminal introduction

3.1.2.1 Jumper A & B ③⑧



Figure 8. Jumper A & B

Pin	Function	Wiring	Status description
1	Terminal Resistor	Pin#1 and Pin#2 short/open	Short: 1. Single shelf setting ^{*Note} 2. Parallel connection setting at first and last shelf (terminal shelf)
2			Open: Parallel connection: non-terminal shelf (Refer to 3-2-2.)

Table 8. SR-1600 PLUS jumper A & B status description

* Note: Jumper A pin1 & pin2 must be shorted and Jumper B pin1 & pin2 must be shorted.

3.1.2.2 Dry contact and remote ⑨

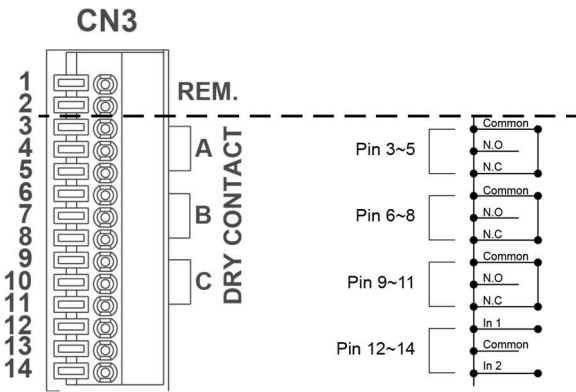


Figure 9. CN3 dry contact pin assignment

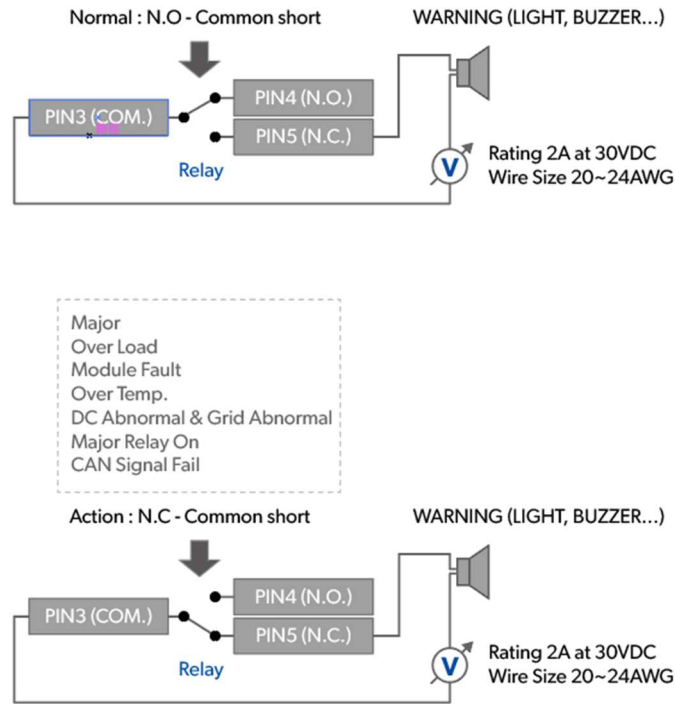


Figure 9-1. Application diagram of dry contact pin3~5(Major)

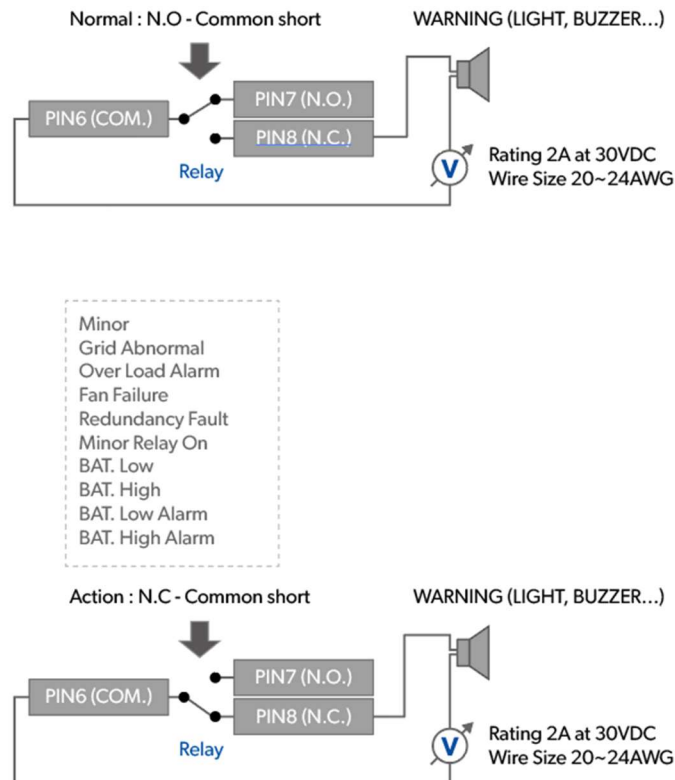


Figure 9-2. Application diagram of dry contact pin6~8(Minor)

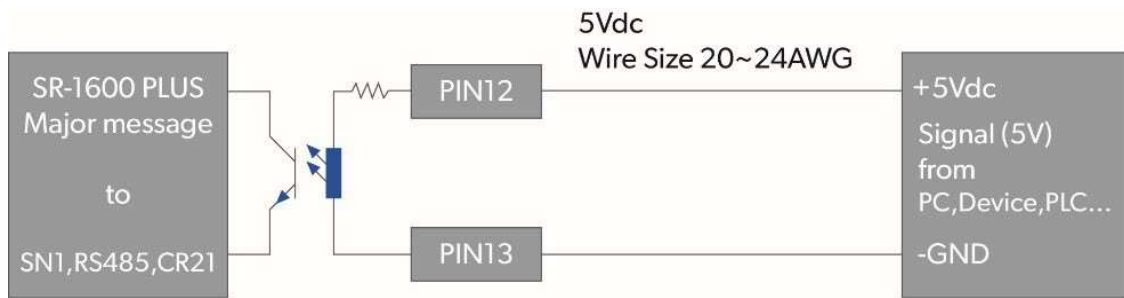


Figure 9-3. Application diagram of dry contact pin12~13(Major)

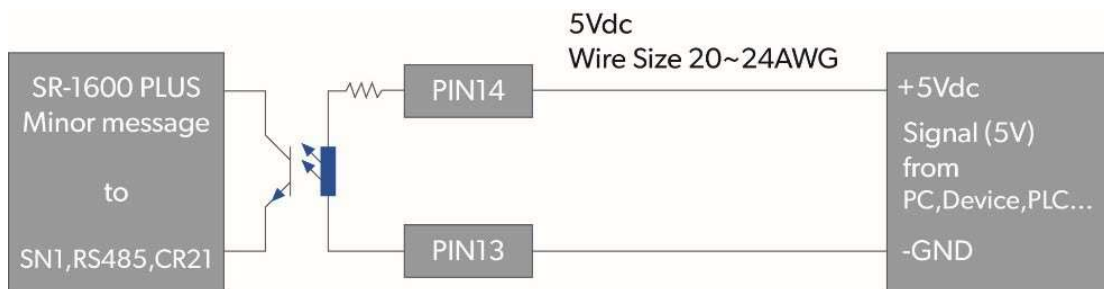


Figure 9-4. Application diagram of dry contact pin14~13(Minor)

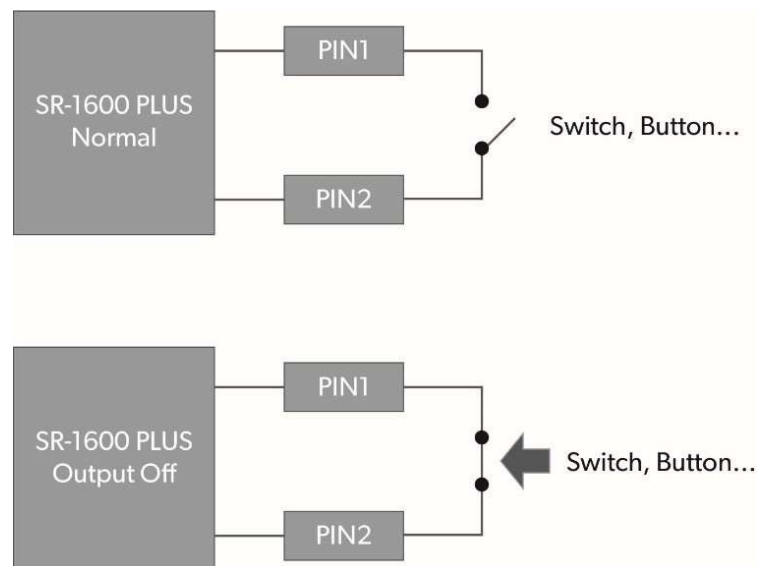


Figure 9-5. Application diagram of dry contact pin1~2

Pin	Function	Wiring	Status Description
Pin 1~2	Remote ON/OFF	Pin#1 and pin #2 short/open	Open: Normal output Short: Stop output
Pin 3~5	Major alarm	Switching power 60W Rating 2A at 30VDC wire size 20~24AWG / 0.5~0.25mm ²	Normal: N.O-Common short Action: N.C-Common short (Refer to Figure 9.)
Pin 6~8	Minor alarm		
Pin 9~11	Selectable extra alarm to go with Major or minor alarm by RS485/LCM		
Pin 12~13	Digital signal input for Major alarm	Signal voltage: 5V wire size 20~24AWG / 0.5~0.25mm ²	High: +5V Action Low: 0V Normal
Pin 13~14	Digital signal input for Minor alarm		

Table 9. SR-1600 PLUS CN3 status description

Alarm	Description	Possible Cause
Major	Overload	The system over the rated capacity (OLA >15sec)
	Module Fault	Parallel Fault or Module Fault
	Over Temp.	Temperature is too high
	DC abnormal & Grid abnormal	Both sources fail (AC&DC source abnormal)
	Major relay on	Pin 12~13 Action
	CAN signal fail	Not connected properly
Minor	Grid abnormal	AC source failure (Can be set on 485 card 0:Enable Alarm 1:Disable Alarm)
	Overload Alarm	The system over the rated capacity (OLA)
	Fan failure	Fan does not work
	Redundancy Fault	Remove the redundancy module or redundant module failure
	Minor relay on	Pin 13~14 Action
	BAT. Low	Under DC voltage protection
	BAT. High	Over DC voltage protection
	BAT. Low Alarm	Under DC voltage Alarm
	BAT. High Alarm	Over DC voltage Alarm

Table 10. Alarm list for dry contact

3.1.2.3 Single Shelf Setting

1. Please short the Jumper A pin#1 and pin#2.
2. Please short the Jumper B pin#1 and pin#2.

3.1.3 AC Input / Output Terminal ④⑦

3.1.3.1 AC Input Terminal ④

SR-1600 PLUS provides the AC utility input terminal at the rear side, and the user can connect the AC cable at L / N / PE. The SR-1600 PLUS supports the AC input side internal parallel connection.

3.1.3.2 AC Output Terminal ⑦

The AC output terminal at the rear side of the SR-1600 PLUS. User can connect the L / N / PE.

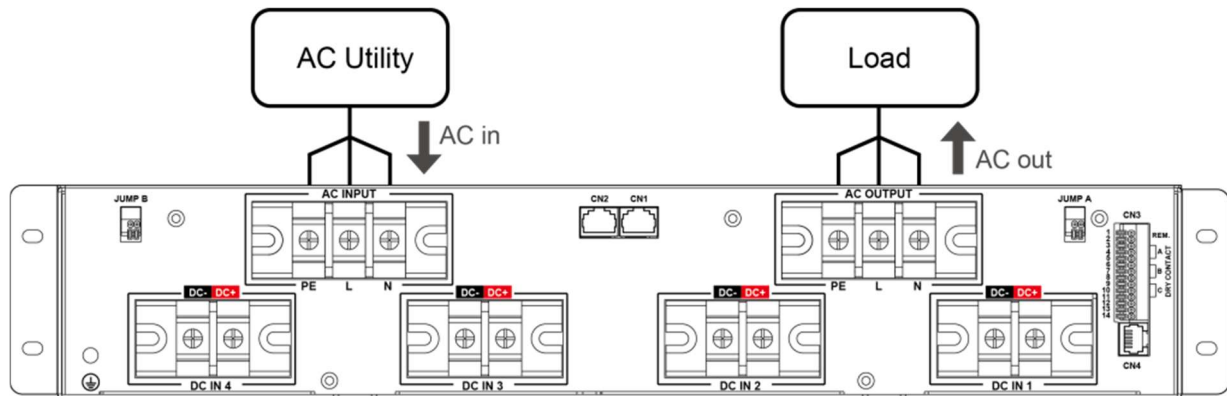


Figure 10. AC terminal connection

3.1.3.3 Cabling

Interface		Wire Colour *	Wire AWG / mm ² *
AC Input	Line (L)	Black / Brown	Breaker suggestion 200-240Vac : 50A/Shelf / 8AWG / 10 100-120Vac : 80A/Shelf / 6AWG / 16
	Neutral (N)	White / Blue	
AC Output	Line (L)	Black / Brown	
	Neutral (N)	White / Blue	
Ground		Green-Yellow	6~16AWG / 16~1.5

Table 11. AC cabling definition

* Typical only. Refer to actual wiring rules/standard for your location or region. Ensure that the installation complies with those rules.

3.1.4 Parallel Connection Port ⑤⑥

In case the user needs more than 1 shelf, please use the CN1 and CN2 port to connect multi-shelves. Ensure that user sets the terminal resistor first (please refer to section 3-2).

Please use RJ-45 cable for connection. To have better performance, we suggest the cable length is less than 100cm.

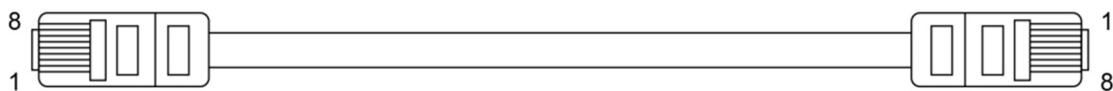


Figure 11. RJ-45 cable

#Pin	CN 1	CN 2
1	CAN_H	CAN_H
2	CAN_L	CAN_L
3	Reserved	Reserved
4	Reserved	Reserved
5	Reserved	Reserved
6	Reserved	Reserved
7	GND	GND
8	5V	5V

Table 12. RJ-45 pin assignment

3.1.5 Battery Cabling ⑪⑫⑬⑭

Connect the 24V/48V battery [+] / [-] to the SR-1600 PLUS [DC+] / [DC-]

There are four battery input sets (DC+, DC-) on the SR-1600 PLUS rear side, and every set is independent. In case the user needs parallel connection, please do the parallel wiring outside the SR-1600 PLUS (please refer to following typical wiring figures). Fuses should be placed in the live conductor. Wiring and fusing needs to be in accordance with local rules and standards.

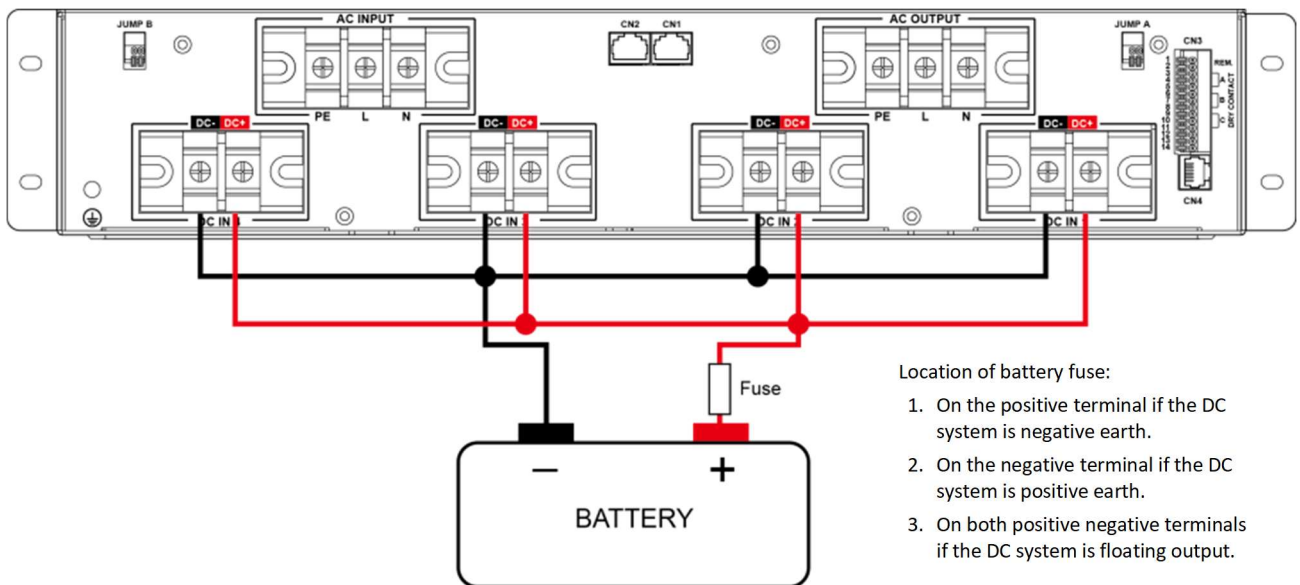


Figure 12. SR-1600 PLUS battery cabling

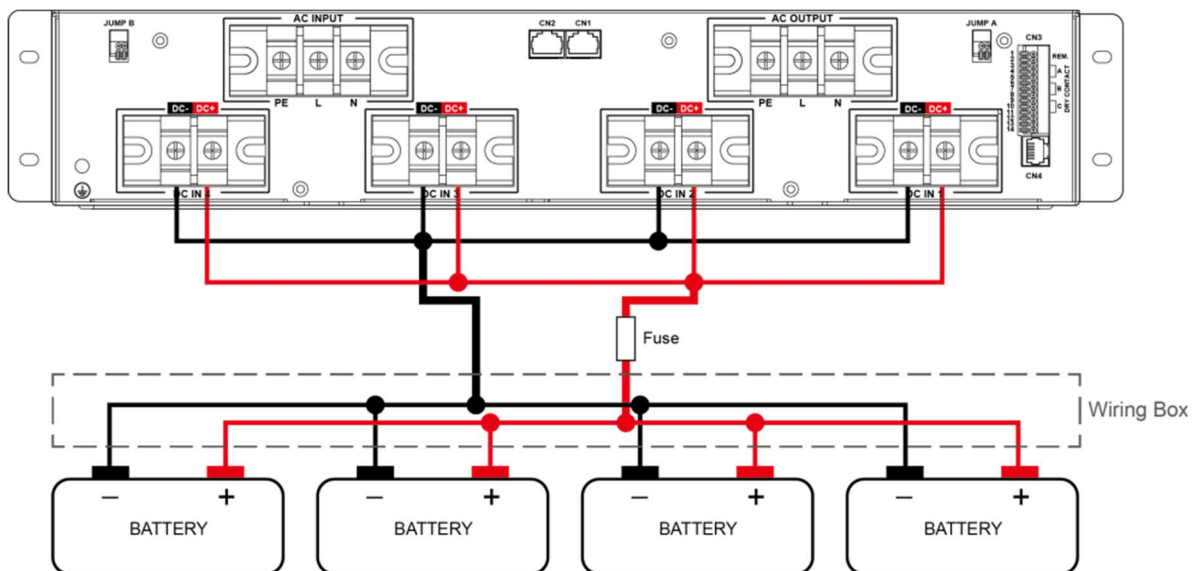


Figure 13. SR-1600 PLUS battery cabling (multi battery I)

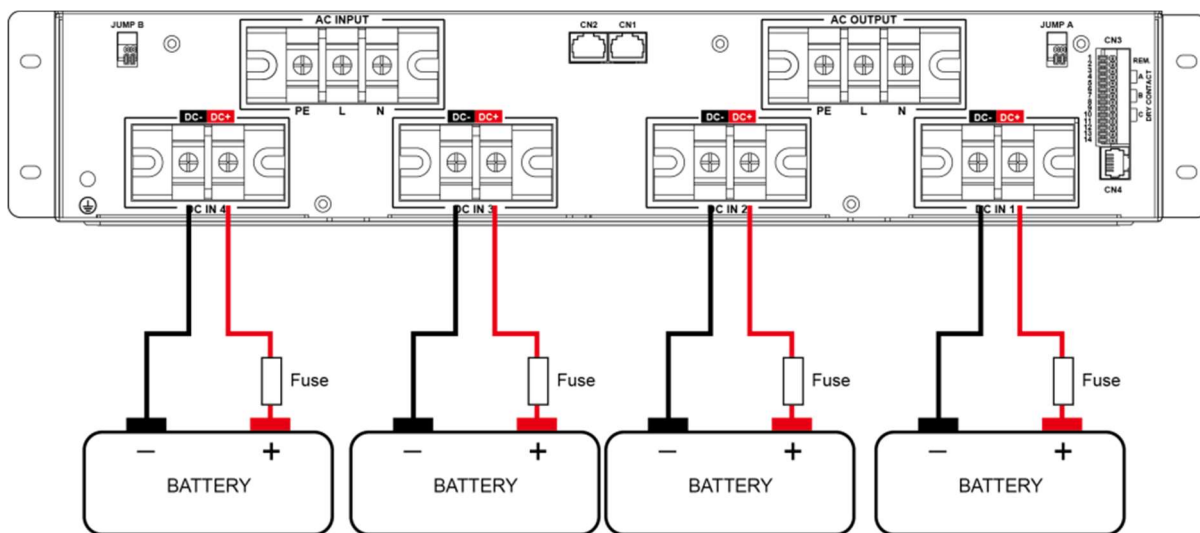


Figure 14. SR-1600 PLUS battery cabling (multi battery II)

Please refer to the suggested battery cable size.

Models	AWG / mm ² *	Cable diameter / per module	Fuse (slow) / per rack *	Fuse (slow) / per module *
SR-1600-124 / 224 PLUS	#6 / 16	4 mm	400A	100A
SR-1600-148 / 248 PLUS	#8 / 10	3.1 mm	300A	75A

Table 13. Cable and fuse size

* Typical only. Refer to actual wiring rules/standard for your location or region. Ensure that the installation complies with those rules.

3.1.6 Chassis Ground ⑮

To prevent the electric shock, please make sure the chassis ground is connected.



Warning! High current needs grounding.

3.1.7 Installation Space Requirement

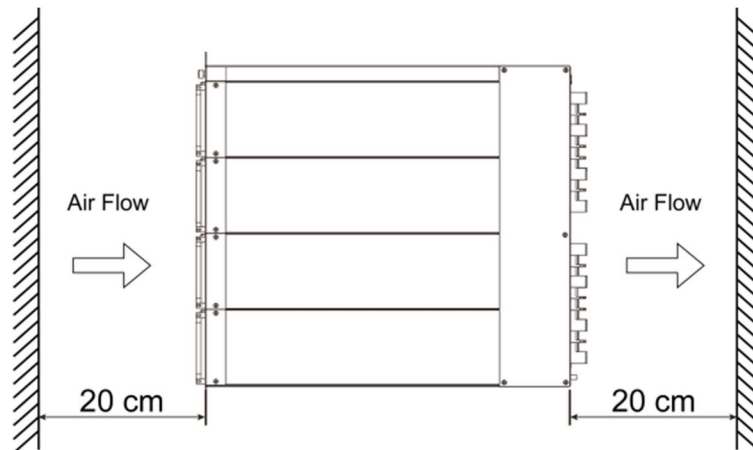


Figure 15. SR-1600 PLUS installation space requirement



Note: Keep minimum 20 cm clear space for air flow at front and rear side of SR-1600 Plus.

Note: The rack chassis must be fixed and supported at both the front and rear.

3.1.8 RS-485 Modbus ⑩

ModBus is available on the on RJ45 connector located on the back plane of the SR-1600 PLUS rack. The serial port monitor and control through computer interface.



Figure 16. RS-485

SR PLUS Series		
PIN Num.	RS-485 Description	RS-485 Transfer RS-232(HC-05) D-SUB PIN Num.
1	Not used	Not used
2	Not used	Not used
3	Not used	Not used
4	Data+(A)	1
5	Data-(B)	2
6	Not used	Not used
7	Not used	Not used
8	GND	GND(Optional)

Table 14. RS-485 PIN Assignment

3.2 Parallel Connection

3.2.1 General instructions for SR-1600 Plus parallel connection

The parallel design of the SR-1600 Plus is single phase and common-Neutral, AC phase and frequency synchronization is very critical. In a three-phase power supply, It is important that the same phase shall apply to all the shelves in parallel.

Please pay attention to the following parallel wiring instructions:

- AC Input: If N shelves are connected in parallel, single-phase AC input can only go through one circuit breaker and then be connected to the L and N ports of each shelf.
- AC Output: If N shelves are connected in parallel, it is recommended to use a BUS BAR to collectively connect the outputs of each shelf before wiring them to the load.

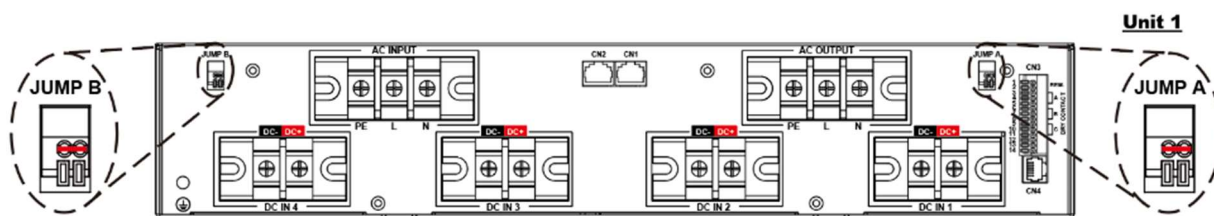
Below are illustrations of Correct and Incorrect wiring(examples):

3.2.2 Parallel Connection with Jumper Setting

Please make sure below DIP Switch (SW1 on RS485 board) setting is done following each parallel connection



DIP SW1 at RS485 board

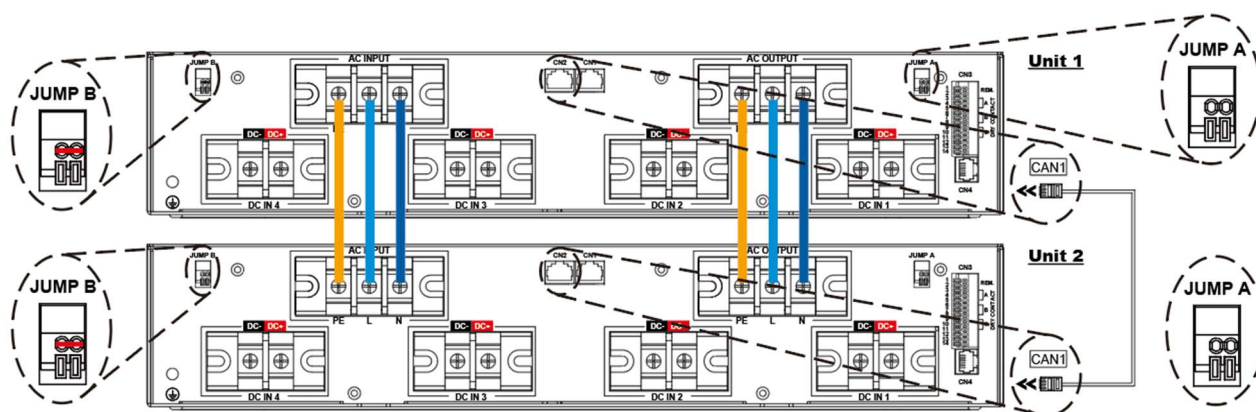


DIP Switch	1	2
RACK 1	ON	OFF

DIP SW1 at RS485 board



Figure 17-1. Parallel Connection DIP SW & jumper setting

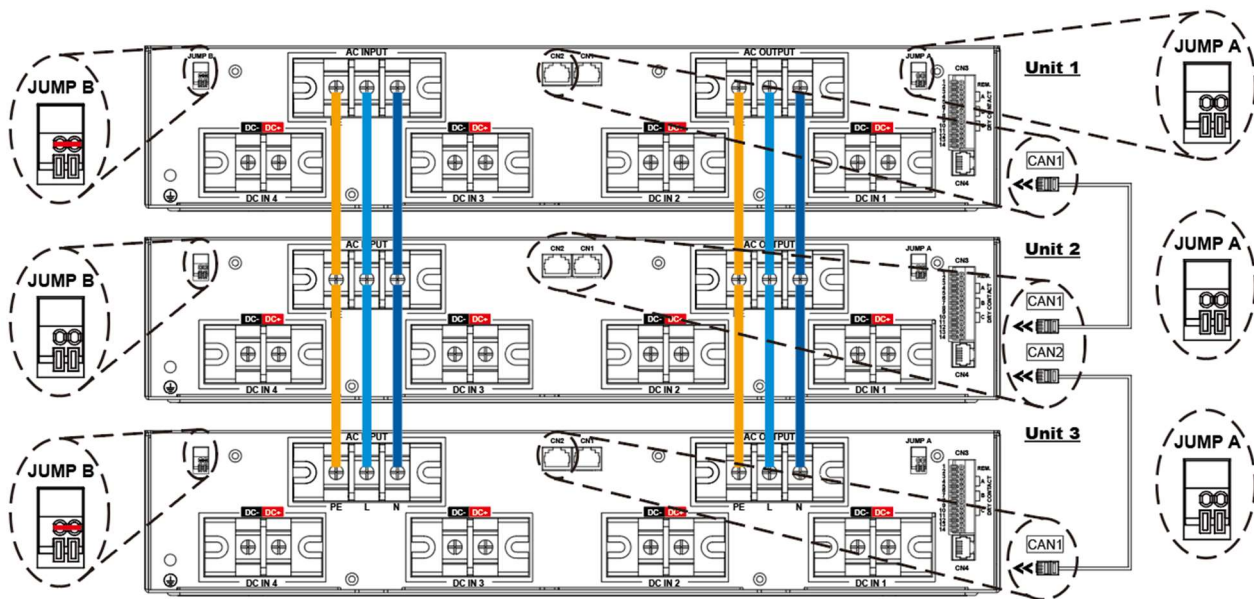


DIP Switch	1	2
RACK 1	ON	OFF
RACK 2	OFF	OFF

DIP SW1 at RS485 board



Figure 17-2. Parallel Connection DIP SW & jumper setting



Green terminal JUMP connection:

Parallel connect	Unit 1	Unit 2	Unit 3
JUMP A	Not connected	Not connected	Not connected
JUMP B	Connected	Not connected	Connected

※ Take 3 units for example, only the first and the last unit need to connect jumper.

DIP Switch	1	2	DIP SW1 at RS485 board
RACK 1	ON	OFF	
RACK 2	OFF	OFF	
RACK 3	OFF	OFF	

Figure 17-3. Parallel Connection DIP SW & jumper setting



Note: When three or more shelves are connected in parallel (for example, N shelves), Jumper B on the first and Nth shelves needs to be shorted.

Note: All shelves, when connected in parallel, need to be linked by communication lines, namely CAN 1 & CAN 2 ports. This allows for signal synchronization between the shelves.

Since CN1 and CN2 are internally connected in parallel, there is no difference between connecting CN1 or CN2 between the shelves.

Note: SR-1600 Plus utilizes Auto Master mechanism. The module that first acquires priority becomes the Master, while the other modules become Slaves.

If the Master module stops working due to unforeseen circumstances, another module will take over as the new Master. Therefore, maintaining communication between the shelves is necessary when they are connected in parallel.

3.2.3 Wrong Connection Example

3.2.3.1 Only AC Input or AC Output is paralleled

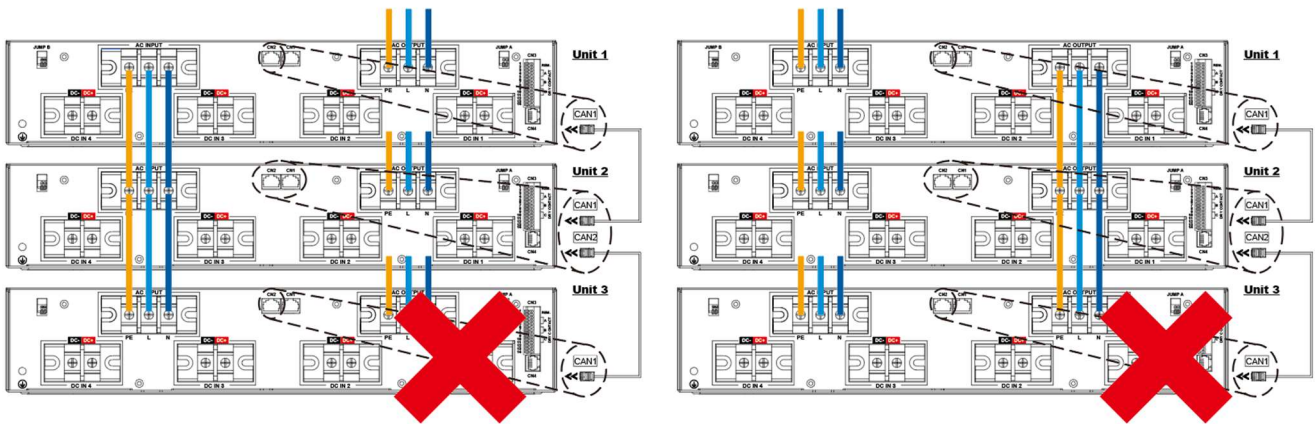


Figure 17-4. Incorrect parallel wiring, failure to connect AC INPUT or AC OUTPUT

3.2.3.2 AC Input and AC Output are both paralleled, but no communication is linked. (CAN1, CAN2) between shelves

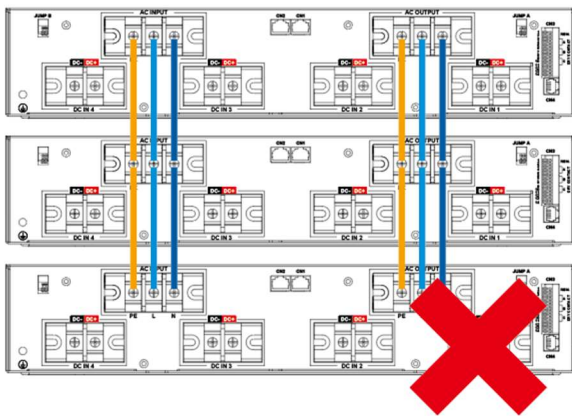


Figure 17-5. Incorrect parallel wiring, failure to connect communication lines

3.3 Maintenance

3.3.1 Inverter Module Replacement

3.3.1.1 Remove the inverter module

Step 1: Pull up the SR-1600 PLUS handle

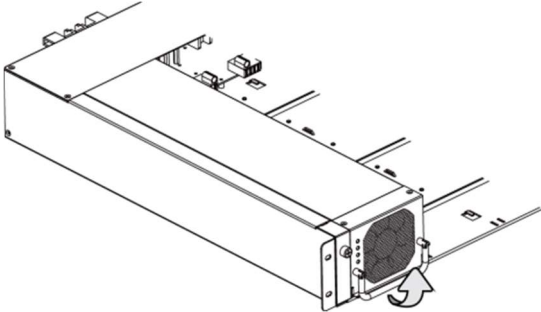


Figure 19. Remove the inverter module: step 1

Step 2: Remove the SR-1600 PLUS out of the shelf

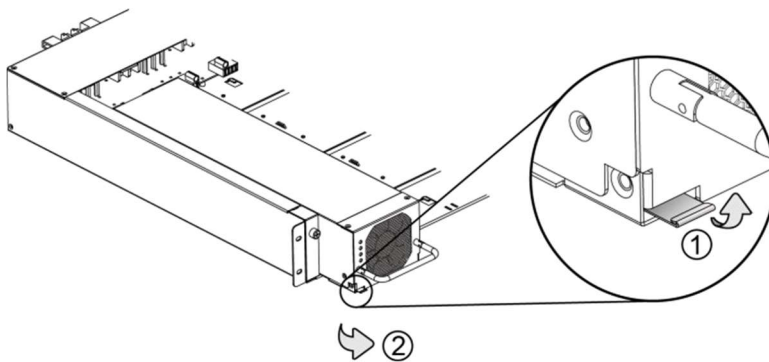


Figure 20. Remove the inverter module: step 2

3.3.1.2 Insert the inverter module

Step 1: Insert the SR-1600 PLUS Plus into the shelf slot

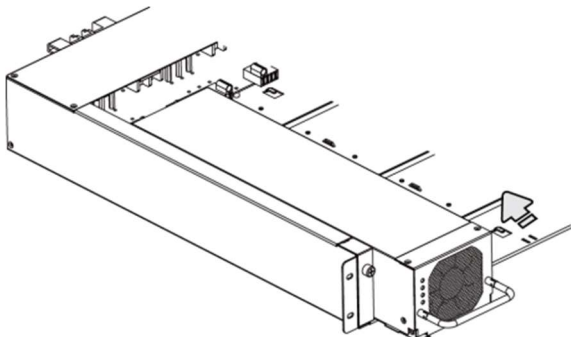


Figure 21. Insert the inverter module: step 1

Step 2: Make sure the handle is at the down position

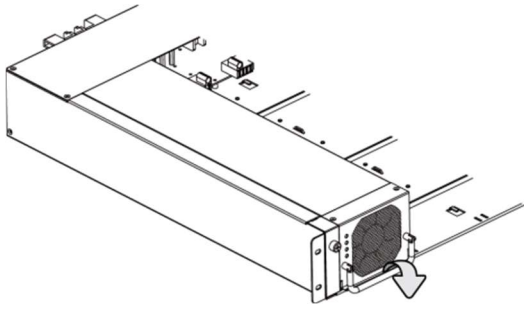


Figure 22. Insert the inverter module: step 2

3.3.2 Fan Module Replacement



Warning! Please utilise a technically competent person to replace fan the module.

Step 1: Please follow the 3-3-1-1. to remove the SR-1600 PLUS module out of shelf.

Step 2: Use a screwdriver to remove the 4 screws on the fan module (top side 2 pcs, rear side 2 pcs), and user can then remove the fan module.

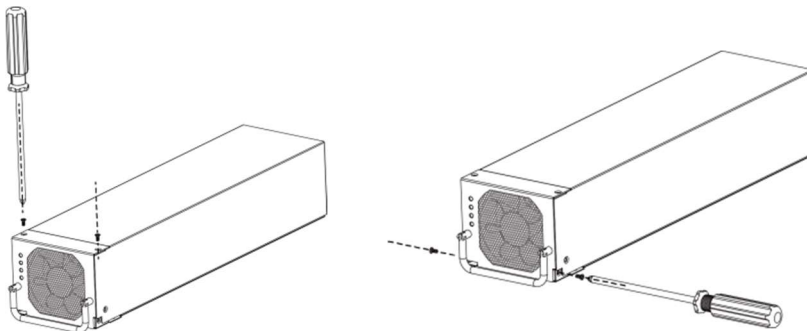


Figure 23. Fan module replacement: step 2

Step 3: Remove 4 screws and power cord on fan

Step 4: Replace the new fan and fix 4 screws and power cord on new fan

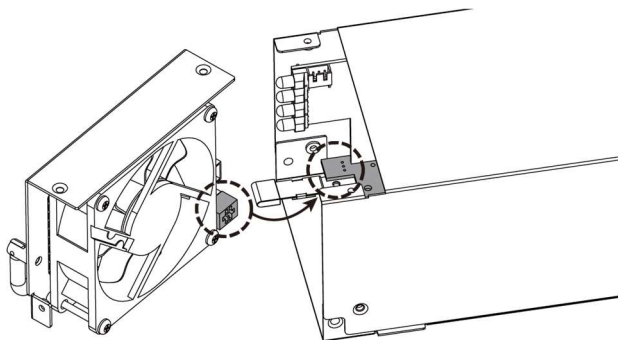


Figure 25. Fan module replacement: step 5

Step 6: Use the screwdriver to fix 4 screws on fan module.














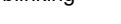






Step 7: Follow 3-3-1-2 to insert the inverter module.

Note:



1. Please make sure the fan power cable is connected well.
2. Suggest cleaning the dust of the fan guards (every 3 months), to keep the fans operating longer.

4 Trouble Shooting

LED status	Possible Description	Solution
 LED red intermittent blinking 	Fan failure	1. Make sure the fan is not stuck 2. Replace the fan
 LED red intermittent blinking 	Over temperature protection (OTP)	1. Make sure the installation space 2. Check the fan and clean the fan filter 3. Reduce the environment temperature 4. Reduce the load
 LED red fast blinking 	Different output voltage module in the same rack	1. Confirm system output voltage 2. Remove abnormal module 3. Confirm module type
 LED red slow blinking 	Module frequency mismatch	1. Confirm system frequency 2. Use RS-485 to set the frequency
 LED red fast blinking 	Input over voltage protection (OVP)	1. Check input voltage 2. Reduce the input voltage
 LED red slow blinking 	Input under voltage protection (UVP)	1. Battery deep discharge: please charge the battery 2. Please check the battery connection A. Cable diameter B. Tighten the connector
 LED red intermittent blinking 	AC frequency not synchronization	1. Check the AC source frequency 2. Check the SR-1600 PLUS frequency setting
 LED red slow blinking 	Under AC voltage	Check the AC source voltage
 LED red fast blinking 	Over AC voltage	Check the AC source voltage
 LED red solid on 	Short / Overload	1. Check the connection and make sure the cable is not short 2. Reduce the load

5 Warranty



Warning! Do not open or disassemble the Inverter. Attempting to do so may cause risk of electrical shock or fire.

We guarantee this product against defects in materials and workmanship. In case you need to repair or replace any defective power inverters, please contact Eaton or local distributor. Your local Eaton sales office can confirm the warranty status, duration and conditions.

This warranty will be considered void if the unit has been misused, altered, or accidentally damaged. Eaton is not liable for anything that occurs as a result of the user's fault.

6 Equipment Incident Report

Please enter as much information as you can. Send the completed form, together with the item for repair to your nearest authorized service agent. NOTE: Only one fault to be recorded per form.

For further information contact your local Eaton dc product supplier or Eaton (see contact details on page 39).

Date: _____

Customer Information

Company: _____

Postal Address: _____

Return Address: _____
(Not PO Box)

Telephone: _____ Fax: _____ Email: _____

Contact Name: _____

Location of Failure

Product code: _____ Serial number: _____ Document number: _____

System type installed in: _____ Serial number: _____

Site name or location: _____

Fault discovered

☐
☐

Delivery

Initial test

☐
☐

Unpacking

Operation after _____ years

☐
☐

Installation

Other _____

Failure source

☐
☐
☐

Design

Transportation

☐
☐

Manufacturing

Installation

☐
☐

Documentation

Handling

Effect on system operation

☐

None

☐

Minor

☐

Major

☐

[illegible]

Reference No: _____ RMA: _____ NCR: _____ Signature: _____ Date: _____

7 Contacts

For product information and a complete listing of worldwide sales offices, visit Eaton's website at:

Eaton.com or email:

DCinfo@eaton.com