

USER MANUAL

Hybrid

Solar Inverter

DATOU BOSS

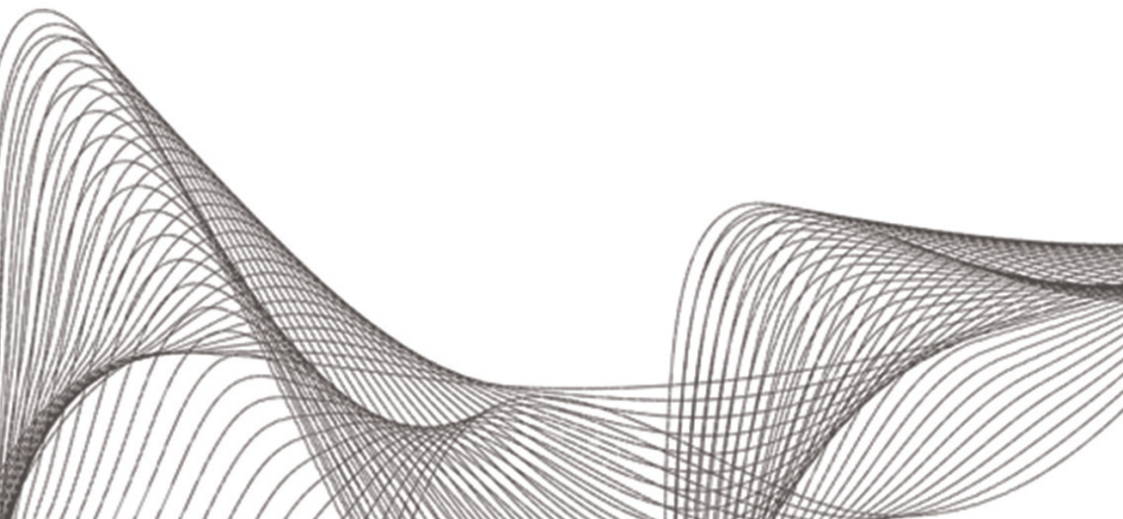


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1 About This Manual

1.1 Purpose

This manual describes the assembly, installation, operation and troubleshooting of this unit. Please read this manual carefully before installations and operations, Keep manual for future reference.

1.2 Scope

This manual provides safety and installation guidelines as well as information on tools and wiring.

2 Safety Instructions



WARNING: This chapter contains important safety and operating instructions. Read and keep this manual for future reference.

1. Before using the unit read all instructions and cautionary markings on the unit, the batteries and all appropriate sections of this manual.
2. **CAUTION**-To reduce risk of injury, charge only deep-cycle lead acid type rechargeable batteries. Other types of batteries may burst, causing personal injury and damage.
3. Do not disassemble the unit Take it to a qualified service center when service or repair is required. Incorrect re-assembly may result in a risk of electric shock or fire.
4. To reduce risk of electric shock, disconnect all wirings before attempting any maintenance or cleaning. Turning off the unit will not reduce this risk.
5. **CAUTION**-Only qualified personnel can install this device with battery.
6. **NEVER** charge a frozen battery.
7. For optimum operation of this inverter/charger, please follow required spec to select appropriate cable size. It's very important to correctly operate this inverter/charger.
8. Be very cautious when working with metal tools on or around batteries. A potential risk exists to drop a tool to spark or short circuit batteries or other electrical parts and could cause an explosion.
9. Please strictly follow installation procedure when you want to disconnect AC or DC terminals, Please refer to INSTALLATION section of this manual for the details
10. One piece of 150A fuse is provided as over-current protection for the battery supply.
11. **GROUNDING INSTRUCTIONS** -This inverter/ charger should be connected to a permanent grounder wiring system. Be sure to comply with local requirements and regulation to install this inverter.
12. **NEVER** cause AC output and DC input short circuited. Do NOT connect to the mains when DC input short circuits.
13. **Warning!!** Only qualified service persons are able to service this device. If errors still persist after following troubleshooting table, please send this inverter/charger back to local dealer or service center for maintenance.

3 Introduction

This is a multi-function Inverter/charger, combining functions of inverter, solar charger and battery charger to offer uninterruptible power support with portable size. Its comprehensive LCD display offers user-configurable and easy-accessible button operation such as battery charging current, AC/solar charger priority, and acceptable input voltage based on different applications.

3.1 Features

- ♦ Pure sine wave inverter
- ♦ Configurable input voltage range for home appliances and personal computers via LCD setting
- ♦ Configurable battery charging current based on applications via LCD setting
- ♦ Configurable AC/Solar Charger priority via LCD setting
- ♦ Compatible to mains voltage or generator power
- ♦ Auto restart while AC is recovering
- ♦ Overload/Over temperature/short circuit protection
- ♦ Smart battery charger design for optimized battery performance
- ♦ Cold start function

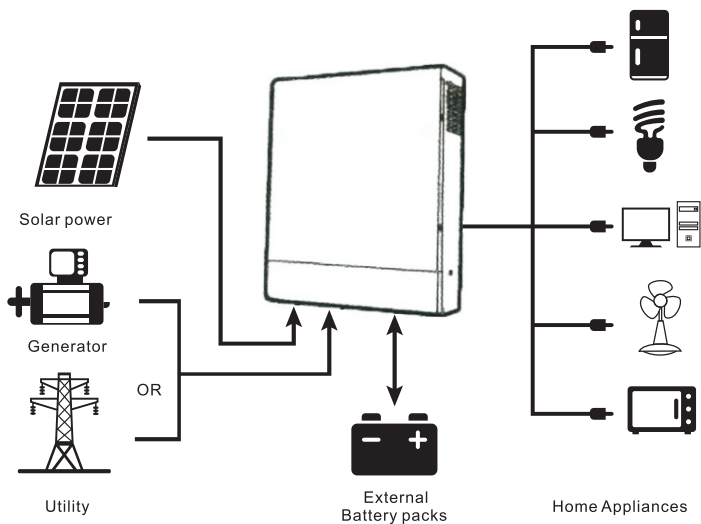
3.2 Basic System Architecture

The following illustration shows basic application for this inverter/charger. It also includes following devices to have a complete running system:

- ♦ Generator or Utility
- ♦ PV modules

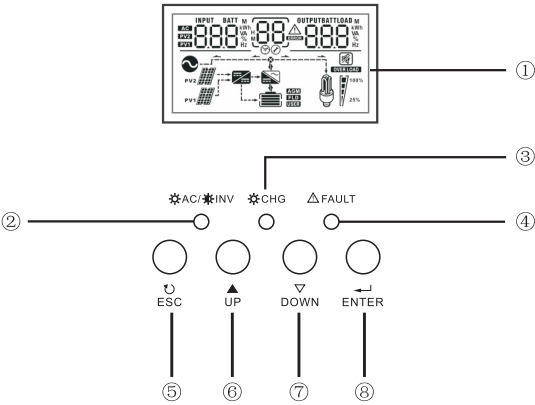
Consult with your system integrator for other possible system architectures depending on your requirements.

This inverter can power all kinds of appliances in home or environment, including motor-type appliances such as tube light, fan, refrigerator and air conditioner.



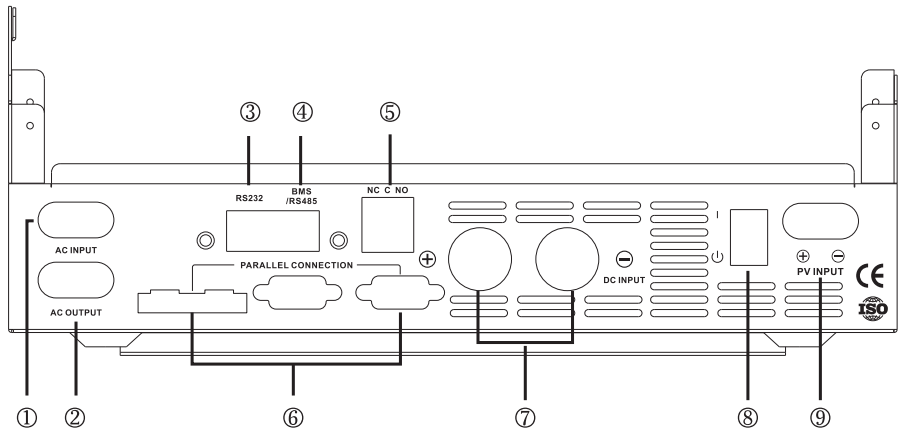
3.3 Product Overview

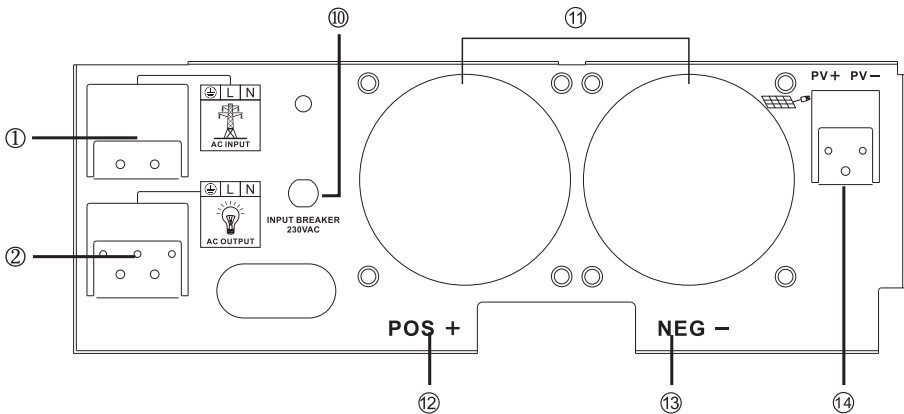
3.3.1 LCD Screen



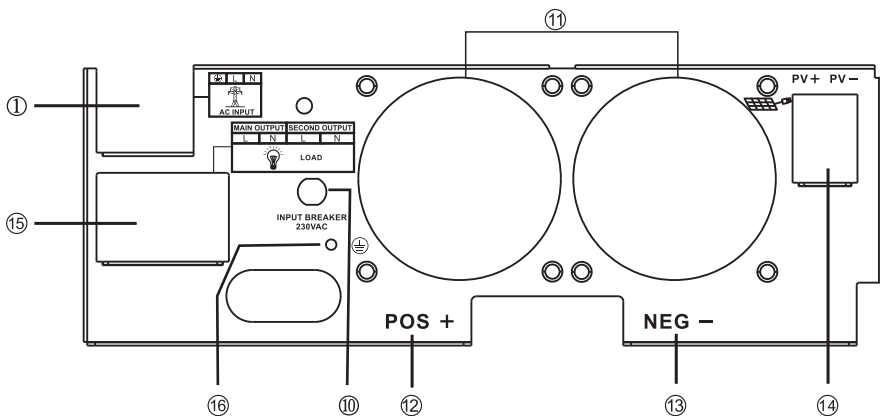
- | | |
|--------------------------|-------------|
| 1.....LCD display | 5.....ESC |
| 2.....Status indicator | 6.....UP |
| 3.....Charging indicator | 7.....DOWN |
| 4.....Fault indicator | 8.....ENTER |

3.3.2 Back Panel

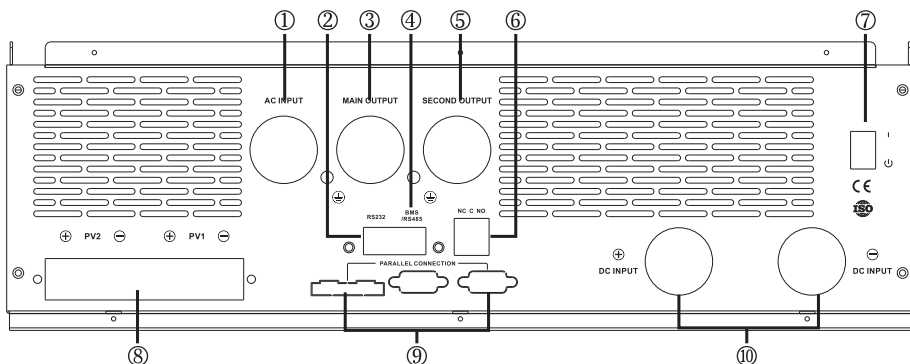
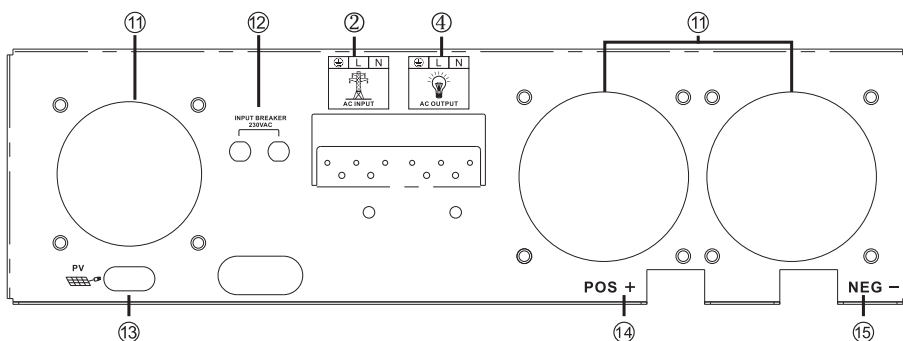




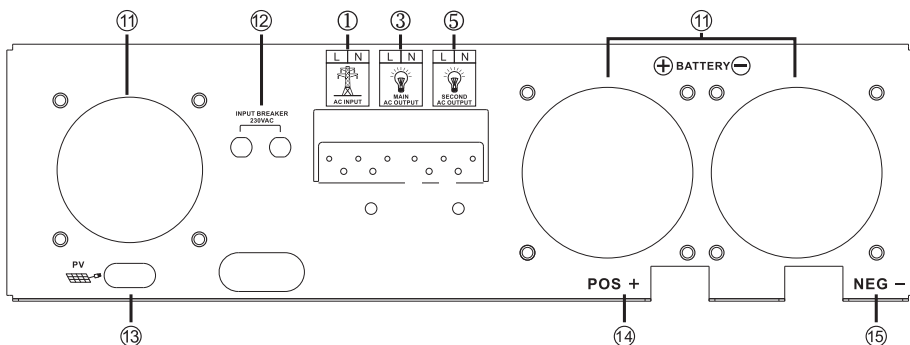
Dual Output Back Panel



- | | |
|------------------------------------|--------------------------------|
| 1..... AC Input | 9.....PV Input |
| 2..... AC Output | 10...Input Breaker |
| 3.....Communication Port | 11...Fan |
| 4.....BMS/RS485 Communication Port | 12...Battery Terminal Positive |
| 5.....Dry Contact | 13...Battery Terminal Negative |
| 6.....Parallel connection | 14...Solar Panel Input |
| 7.....Battery Input | 15...AC Main/Second Output |
| 8.....Power ON/ OFF Switch | 16...Output ground wire |



Dual Output Back Panel



- 1.....AC Input
- 2.....RS232 Communication Port
- 3.....Main output
- 4.....BMS/RS485 Communication Port
- 5.....Second Output
- 6.....Dry Contact
- 7.....Power ON/OFF Switch
- 8.....Solar Panel Input

- 9.....Parallel connection
- 10...Battery Input
- 11...Fan
- 12...Input Breaker
- 13...PV Input
- 14...Battery Terminal Positive
- 15...Battery Terminal Negative

4 INSTALLATION

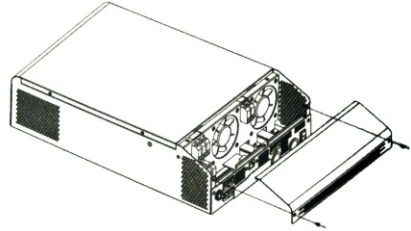
4.1 Unpacking and Inspection

Before installation, please inspect the unit. Be sure that nothing inside the package is damaged. You should have received the following items inside of package:

- ◆ The unit x 1
- ◆ User manual 1

4.2 Preparation

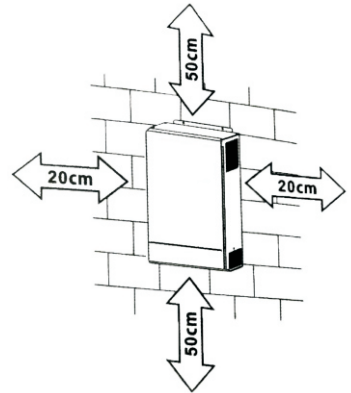
Before connecting all please take off bottom cover by removing two screws as shown below.



4.3 Mounting the Unit

Consider the following points before selecting where to install:

- ※ Do not mount the inverter on flammable construction materials.
- ※ Mount on a solid surface
- ※ Install this inverter at eye level in order to allow the LCD display to be read at all times.
- ※ For proper air circulation to dissipate heat, allow a clearance of approx. 20 cm to the side and approx. 50 cm above and below the unit.
- ※ The ambient temperature should be between and to ensure optimal operation.
- ※ The recommended installation position is to be adhered to the wall vertically.
- ※ Be sure to keep other objects and surfaces as shown in the diagram to guarantee sufficient heat dissipation and to have enough space for removing wires.



SUITABLE FOR MOUNTING ON CONCRETE OR OTHER NON-COMBUSTIBLE SURFACE ONLY.

Install the unit by screwing three screws.

- 1,2 Use the M6*80mm expansion bolts.
- 3 Use M4 or M5.

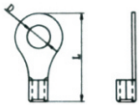


4.4 Battery Connection

CAUTION: For safety operation and reguation compliance,it's requested to install a separate DC over-current protector or disconnect device between battery and inverter.It l may not be requested to have a disconnect device in some applications, however, it's still requested to over-current protection installed. Please refer to typical amperage in below table as required fuse or breaker size.

WARNING! All wiring must be performed by be qualified personnel.
WARNING! It's very important for system safety and efficient operation to use appropriate cable for battery connection. To reduce risk of injury, plese use the proper recommended cable and terminal size as below.

Ring terminal:

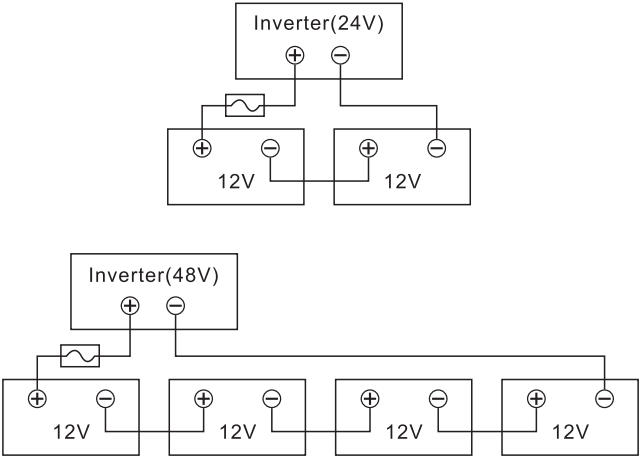


Recommended battery cable and terminal size:

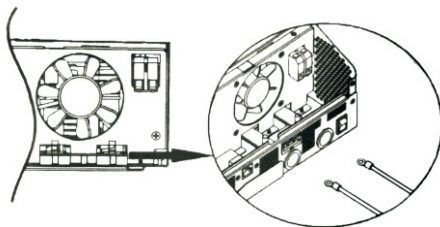
Rated Capacity	Typical Amperage	Battery capacity	Wire Size	Ring Terminal			Torque value
				Cable(mm²)	Dimensions		
					D(mm)	L(mm)	
3KVA	132A	100AH	1*4AWG	22	6.4	33.2	2~3 Nm
		200AH	2*8AWG	9	6.4	29.2	
3.6KVA	165A	200AH	2*4AWG	25	8.4	33.2	5Nm
4KVA	165A	200AH	2*4AWG	25	8.4	33.2	5Nm
5.5KVA	121A	200AH	1*2AWG	34	6.4	39.2	2~3 Nm
			2*6AWG	14	6.4	33.2	
6.2KVA	124A	200AH	1*2AWG	38	8.4	39.2	5Nm
			2*4AWG	25	8.4	33.2	
11KVA	228A	250AH	1*3/0AWG	85	8.4	54	5Nm

please follow below steps to implement battery connection:

1.Assemble battery ring terminal based on recommended battery cable and terminal size.



2. Insert the battery wires flatly into battery connectors of inverter and make sure the bolts are tightened with torque of 2 Nm in clockwise direction. Make sure polarity at both the battery and the inverter/charge is correctly connected and conductors are tightly screwed into the battery terminals. Recommended tool: # 2 Pozi Screwdriver



WARNING: Shock Hazard

Installation must be performed with care due to high battery voltage in series.



CAUTION!! Before making the final DC connection or closing DC breaker/disconnector, be sure positive(+) must be connected to positive(+) and negative(-) must be connected to negative (-).

4.5 AC Input Output Connection

CAUTION!! Before connecting to AC input power source, please Install a separate AC breaker between inverter and AC input power source. This will ensure the Inverter can be disconnected during maintenance and fully protected from over current of AC input. The recommended spec of breaker is 32A for 24V system and 63A for 48V system .

CAUTION! ! There are two terminal blocks with " IN " and " OUT " markings. Please do NOT mis-connect input and output connectors.

WARNING! All wiring must be performed by qualified personnel.

WARNING! It's very important for system safety and efficient operation to use appropriate cable for AC input connection. To reduce risk of injury, please use the proper recommended cable size as below.

Suggested cable requirement for AC wires

Rated Capacity	Gauge	Torque value
3KVA	12AWG	1.2~1.6Nm
3.6KVA	12AWG	1.2~1.6Nm
4KVA	12AWG	1.2~1.6Nm
5.5KVA	10AWG	1.4~1.6Nm
6.2KVA	10AWG	1.4~1.6Nm
11KVA	8AWG	1.4~1.6Nm

Please follow below steps to implement AC input/ output connection

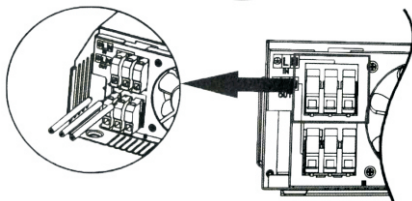
1. Before making AC input/output connection be sure to open DC protector or disconnector first.
2. Remove insulation sleeve 10mm for six conductors. And shorten phase L and neutral conductor N3 mm.

3. Insert AC input wires according to polarities indicated on terminal block and tighten the terminal screws. Be sure to connect PE protective conductor(⊕)first.

⊕→Ground(yellow-green)

L→LINE(brown or black)

N→Neutral (blue)



WARNING:

Be sure that AC power source is disconnected before attempting to hardwire it to the unit.

4. Make sure the wires are securely connected

CAUTION: Appliances such as air conditioner are required at least 2~3 minutes to restart because it's required to have enough time to balance refrigerant gas inside of circuits. If a power shortage occurs and recovers in a short time, it will cause damage to your connected appliances. To prevent this kind of damage, please check manufacturer of air conditioner if it's equipped with time-delay function before installation. Otherwise, this inverter/ charger will trig overload fault and cut off output to protect your appliance but sometimes it still causes internal damage to the air conditioner.

4.6 PV Connection

PV Connection(Only apply for the model with solar charger)

CAUTION:Before connecting to PV modules, please install **separately** a DC circuit breaker between inverter and PV modules.

WARNING! All wiring must be performed by a qualified personnel.

WARNING! It's very important for system safety and efficient operation to use appropriate cable for PV module connection. To reduce risk of injury, please use the proper recommended cable size as below.

Typical Amperage	Gauge	Torque Value
30A	12AWG	1.4~1.6Nm

PV module selection:

When choosing the right PV module, be sure to first consider the following requirements:

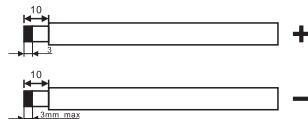
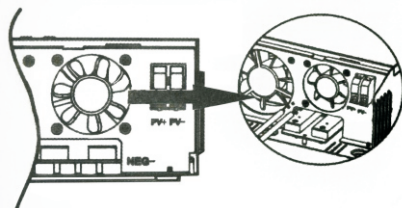
The open circuit voltage (Voc) of the PV modules does not exceed the maximum PV array open circuit voltage of the inverter. The maximum supply voltage of the PV modules should be close to the optimal PV access voltage range of the inverter for best performance. If one PV module cannot meet this requirement, it is necessary to connect multiple PV modules in series.

Model	DT2430	DT2436	DT2440	DT4855	DT4862L	DT4811B
PV Charging Mode	MPPT	MPPT	MPPT	MPPT	MPPT	MPPT Dual MPPT
MAX.PV Input Power	5000W	6500W	6500W	8500W	8500W	2*5500W
MPPT Tracking Range	60~500Vdc					90~500Vdc
Best voltage	300~400V	300~400V	300~400V	360~430V	360~430V	300~400V
MAX.PV Input Voltage	500Vdc	500Vdc	500Vdc	500Vdc	500Vdc	500Vdc
PV max input current	18A	27A	27A	27A	27A	18A/18A
MAX.PV Charging Current	100A	120A	120A	100A	120A	150A
MAX.AC Charging Current	60A	100A	100A	100A	100A	150A
MAX.Charging Current	100A	120A	120A	100A	120A	150A

PV Module Wire Connection

Please follow below steps to implement PV module connection:

1. Remove insulation sleeve 10 mm for positive and negative conductors.
2. Suggest to put bootlace ferrules on the end of positive and negative wires with a proper crimping tool
3. Fix wire cover to the inverter with supplied screws as shown in below chart.



4. Check correct polarity of wire from PV modules and PV input connectors. Then, connect positive pole(+) of connection wire to positive pole(+) of PV input connector. Connect negative pole (-) of connection wire to negative pole(-) of PV input connector. Screw two wires tightly in clockwise direction. Recommended tool: 4mm blade screwdriver.

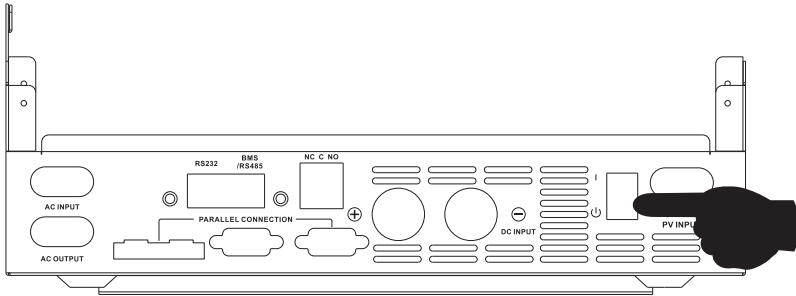
4.7 Final Assembly

After connecting all wirings, please put bottom cover back by screwing two screws as shown below.



5 OPERATION

5.1 Power ON/OFF



Once the unit has been properly installed and the batteries are connected well, simply press On/Off switch (located on the bottom of the case) to turn on the unit.

5.1.1 Steps to start up

Connect the battery that meets the requirements (battery voltage needs to be beyond 23V) or AC (AC needs to confirm the suitable input range depends on the output mode), then you can start up the inverter.

➤ Mains power on

Connect to normal AC power, press the switch, the system will automatically turn on. If you set AC output power priority, after waiting for a period of time, the panel will display AC mode that represents turn on the machine successfully, then will enter the AC mode.

When the normal mains power is connected and press the power-on button then the system will automatically power on. If it is set as AC output priority, after a period of time, the panel will display the AC mode to indicate that the power-on is complete and enter the AC mode.

➤ Battery boot

Connect to battery, press the power-on button to establish a working power source.

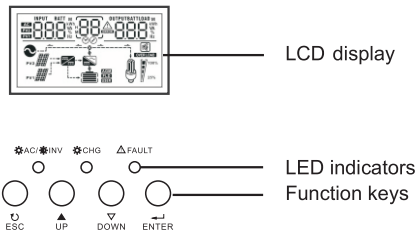
The system will automatically turn on, after waiting for a period of time, the panel will display battery mode that represents turn on the machine successfully, then will enter the battery mode.

5.1.2 Shutdown steps

When the system is in battery mode or AC mode output, press the switch again, then the system will be turned off.

5.2 Operation and Display Panel

The operation and display panel, shown in below chart , is on the front panel of the inverter. It includes three indicators , four function keys and a LCD display, indicating the operating status and input/output power information.



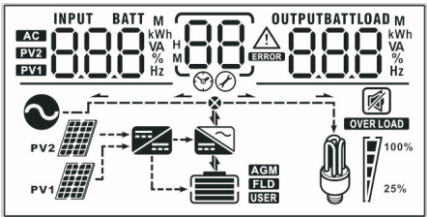
LED Indicator

LED Indicator			Messages
AC / INV	Green	Solid On	Output is powered by utility in Line mode.
		Flashing	Output is powered by battery or PV in battery mode.
CHG	Yellow	Solid On	Battery is fully charged.
		Flashing	Battery is charging.
FAULT	Red	Solid On	Fault occurs in the inverter.
		Flashing	Warning condition occurs in the inverter.

Function Keys

Function Key	Description
ESC	To exit setting mode
UP	To go to previous selection
DOWN	To go to next selection
ENTER	To confirm the selection in setting mode or enter setting mode

LCD Display Icons

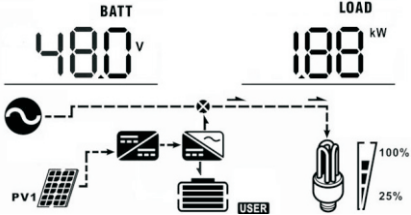
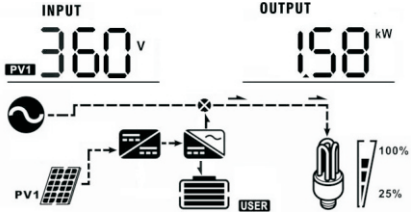
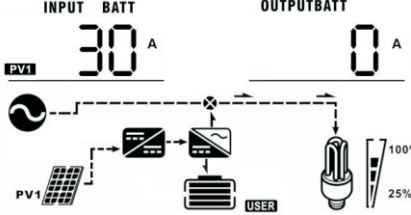
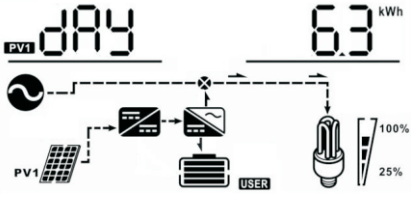


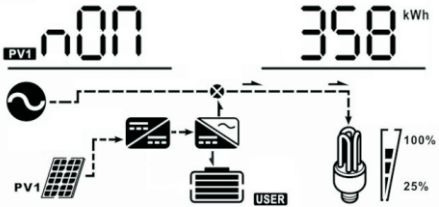
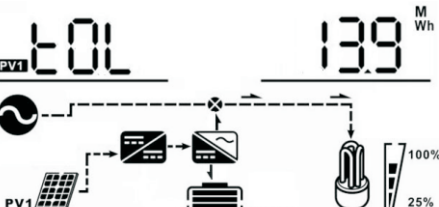
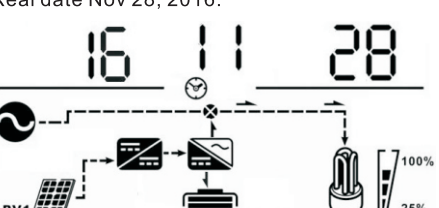
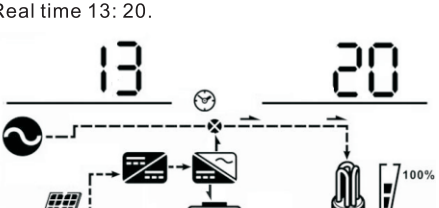
Icon	Function			
Input source information				
	Indicates the AC input			
	Indicates the 1 st PV panel input			
	Indicates the 2 nd PV panel input			
Left digital display information				
	Indicate input voltage, input frequency, battery voltage, V1 voltage, PV2 voltage, charger current			
Middle digital display information				
	Indicates the setting programs.			
	Indicates the warning and fault codes. Warning: Flashing  with warning code Fault: display  with fault code			
Right digital display information				
	Indicate the output voltage, output frequency, load percent, load VA, load W, PV1 charger power, PV2 charger power, DC discharging current.			
Battery information				
	Indicates battery level by 0-24%,25-49%,50-74% and 75-100% and charging status.			
	Indicates the battery type: AGM, Flooded or User-defined battery.			
Load information				
	Indicates overload.			
	Indicates the load level by 0-24%,25-50%,50-74%,and 75-100%.			
	0%~25%	25%~50%	50%~75%	75%~100%
				
Mode operation information				
	Indicates unit connects to the mains.			
	Indicates unit connects to the 1 st PV panel			
	Indicates the solar charger is working			
	Indicates the DC/AC inverter circuit is working.			
Mute operation				
	Indicates unit alarm is disabled.			

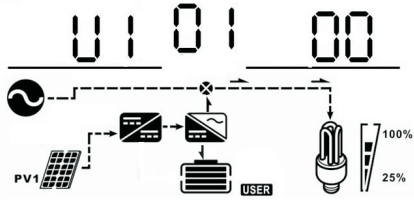
Display Setting

The LCD display information will be switched in turns by pressing "UP" or "DOWN" key. The selectable information is switched as below order: input voltage, input frequency, PV voltage, charging current, battery voltage, output voltage, output frequency, load percentage, load in Watt, load in VA, load in Watt, DC discharging current, main board firmware version and SCC firmware version.

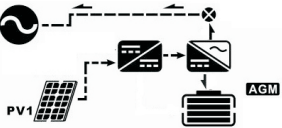
Select item	LCD display
Input voltage and output voltage (Default Display Screen)	<p>Input Voltage=230V, output voltage=230V</p>
Input frequency and output frequency	<p>Input frequency=50.0Hz, output frequency=50.0Hz</p>
Battery voltage and output voltage	<p>Battery Voltage=48.0V, output voltage=230V</p>
Battery voltage and load percentage	<p>Battery Voltage=48.0V, load percentage 68%</p>

Battery voltage and load in VA	<p>Battery Voltage=48.0V, load in VA=1.08kVA</p> 
Battery voltage and load in Watt	<p>Battery Voltage=48.0V, load in Watt=1.88kW</p> 
PV1 voltage and PV1 charger power	<p>PV1 Voltage=360V, charging power=1.58kW</p> 
Charger current and DC discharging current	<p>Charging current=30A, discharging current=0A</p> 
PV energy generated today	<p>Today energy = 6.3kWh</p> 

PV energy generated this month	<p>This month energy = 358kWh.</p>  <p>The diagram shows a PV system with a PV1 panel connected to an inverter, which is connected to a battery and a user load. The energy meter displays 358 kWh. The user load is represented by a light bulb and a battery icon, with a 100% and 25% indicator.</p>
PV energy generated this year	<p>This year energy = 8.32MWh</p>  <p>The diagram shows a PV system with a PV1 panel connected to an inverter, which is connected to a battery and a user load. The energy meter displays 8.32 MWh. The user load is represented by a light bulb and a battery icon, with a 100% and 25% indicator.</p>
PV energy generated totally	<p>Total energy = 13.9MWh</p>  <p>The diagram shows a PV system with a PV1 panel connected to an inverter, which is connected to a battery and a user load. The energy meter displays 13.9 MWh. The user load is represented by a light bulb and a battery icon, with a 100% and 25% indicator.</p>
Real date	<p>Real date Nov 28, 2016.</p>  <p>The diagram shows a PV system with a PV1 panel connected to an inverter, which is connected to a battery and a user load. The date display shows 16 11 28. The user load is represented by a light bulb and a battery icon, with a 100% and 25% indicator.</p>
Real time	<p>Real time 13: 20.</p>  <p>The diagram shows a PV system with a PV1 panel connected to an inverter, which is connected to a battery and a user load. The time display shows 13 20. The user load is represented by a light bulb and a battery icon, with a 100% and 25% indicator.</p>

Main board firmware version	Version 00001.00 
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Operating Mode Description

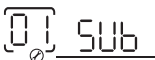
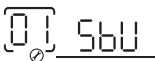
Operating mode	Behaviors	LCD display
Standby mode Note: *Standby mode: The inverter is not turned on yet but at this time, the inverter can charge battery without AC output. *Power swing mode: If enabled, the output of inverter will be off when connected load is pretty low or not detected.	No output power, solar or utility charger available	Battery is charged by utility. 
		Battery is charged by PV energy. 
		Battery is charged by utility and PV energy. 
		Battery is charged by PV energy and feed PV energy grid. 
		No charging. 
Line mode	Output power from utility. Charger available	Utility charges battery and provides power to load. 
		Utility and battery power provide power to load. 

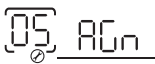
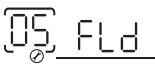
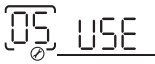
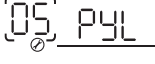
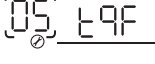
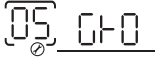
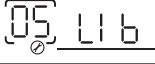
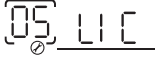
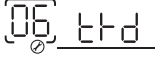
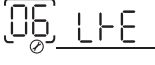
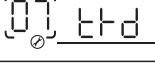
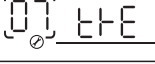
Line mode	Output power from utility. Charger available	<p>PV energy, battery power and utility provide power to load.</p>
	Output power from utility. Charger available	<p>PV energy and utility charge battery, and utility provides power to load.</p>
		<p>PV energy charges battery, utility and PV energy provide power to the load.</p>
		<p>PV energy charges battery, PV energy provides power to the load and feeds remaining energy to the grid.</p>
Battery mode	Output power from battery or PV	<p>PV energy charges battery, PV energy provides power to the load and feeds remaining energy to the grid.</p>
		<p>PV energy and battery energy supply power to the load.</p>
		<p>Battery provides power to the load.</p>
Only PV mode	Output power from PV	<p>PV provides power to the load.</p>

5.3 LCD Setting

After pressing and holding ENTER button for 3 seconds, the unit will enter setting mode. Press “UP” or “DOWN” button to select setting programs. And then, press “ENTER” button to confirm the selection or ESC button exit.

Setting Programs:

Program	Description	Selectable option	
00	Exit setting mode	Escape 	
01	Output source priority selection		Solar energy provides power to the loads as first priority. If solar energy is not sufficient to power all connected loads, Utility energy will supply power to the loads at the same time.
			Solar energy provides power to the loads as first priority. If solar energy is not sufficient to power all connected loads, battery energy will supply power to the loads at the same time. Utility provides power to the loads only when battery voltage drops to either low-level warning voltage or the setting point in program 12 or solar and battery is not sufficient.
02	Maximum charging current: To configure total charging current for solar and utility chargers. (Max. charging current = utility charging current + solar charging current)	60A(default) 	Setting range is from 10A to maximum charging current. Increment of each click is 10A.
03	AC input voltage range	Appliances (default) 	If selected, acceptable AC input voltage range will be within 90-280VAC.
		UPS 	If selected, acceptable AC input voltage range will be within 170-280VAC.

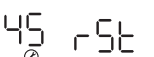
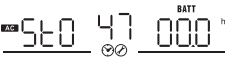
05	Battery type	AGM (default) 	Flooded 
		User-Defined 	If "User-Defined" is selected, battery charge voltage, low DC cut-off voltage and dual cut -off voltage can be set up in program 24,26,27,29 and 61.
		LIA-protocol compatible battery 	If selected, programs of 24,26,27 and 29 will be automatically set up. No need for further setting.
		Pylontech battery 	
		Techfine battery 	
		Growatt battery 	
		LIB-protocol compatible battery 	Select "LIB if using Lithium battery compatible to Lib protocol. If selected, programs of 26,27 and 29 will be automatically se up. No need for further setting.
		3 rd party lithium battery 	If selected, programs of 26,27 and 29 will be automatically set up. No need for further setting. Please contact the battery supplier for installation procedure.
06	Auto restart when overload occurs	Restart disable(default) 	Restart enable 
07	Auto restart when over temperature occurs	Restart disable (default) 	Restart enable 

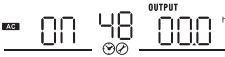
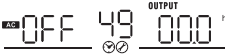
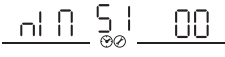
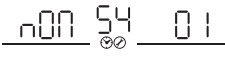
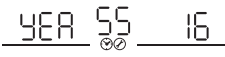
08	ECO function: System will temporarily stop when the load is low in battery mode.	disable (default) ECO 08 SdS	
		enable ECO 08 SEN	
09	Output frequency	50Hz(default) 09 50 Hz	60Hz 09 60 Hz
10	Output voltage	220V 10 220 ^v	230V (default) 10 230 ^v
		240V 10 240 ^v	
11	Maximum utility charging current Note: If setting value in program 02 is smaller than that in program in 11, the inverter will apply charging current from program 02 for utility charger.	30A(default) 11 30A	Setting range is 2A, then from 10A to max.AC charging current. Increment of each click is 10A.
12	Setting voltage point back to utility source when selecting"SBU priority" in program 01.	Available options in 24 system model:	
		23.0V (default) 12 BATT 230 ^v	Setting range is from 22V to 25.5V. Increment of each click is 0.5V.
		Available options in 48 system model:	
		46V (default) 12 BATT 46 ^v	Setting range is from 44V to 51V. Increment of each click is 1V.
13	Setting voltage point back to battery mode when selecting"SBU priority" in program 01.	Available options in 24 system model:	
		Battery fully charged 13 BATT FUL	27V(default) 13 BATT 270 ^v
		Setting range is from 24V to 29V. Increment of each click is 0.5V.	
		Available options in 48 system model:	
		Battery fully charged 13 BATT FUL	54V (default) 13 BATT 540 ^v
		Setting range is from 48V to 58V. Increment of each click is 1V.	

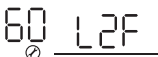
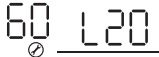
16	Charger source priorit: To configure charger source priority	If this inverter/charger is working in Line, Standby or Fault mode, charger source can be programmed as below:	
		Solar first 16 C50	Solar energy will charge battery as first priority. Utility will charge battery only when solar energy is not available.
		Solar and Utility(default) 16 SNU	Solar energy and utility will charge battery at the same time.
		Only Solar 16 050	Solar energy will be the only charger source no matter utility is available or not.
		If this inverter/charger is working in Battery mode, only solar energy can charge battery. Solar energy will charge battery if it's available and sufficient.	
18	Alarm control	Alarm on (default) 18 bOn	Alarm off 18 bOf
19	Auto return to default display screen	Return to default display screen (default) 19 ESP	If selected, no matter how users switch display screen, it will automatically return to default display screen (Input voltage /output voltage) after no button is pressed for 1 minute.
		Stay at latest screen 19 LEP	If selected, the display screen will stay at latest screen user finally switches.
20	Backlight control	Backlight on (default) 20 LOn	Backlight off 20 LOF
22	Beeps while primary source is interrupted	Alarm on (default) 22 AOn	Alarm off 22 AOf
23	Overload bypass: When enabled, the unit will transfer to line mode if overload occurs in battery mode.	Bypass disable (default) 23 byd	Bypass enable 23 byE
24	Battery low voltage ● If battery power is only power source available inverter will alarm.	Battery low voltage 44.0V LOV 24 44.0 ^v BATT	
		Setting range is from 20.0V-27.0V for 24V system and 40.0V-54.0V for 48V system.	

25	Record fault code	Record enable (default) 25 FEN	Record disable 25 FdS
26	Bulk charging voltage (C.V voltage)	24V system default setting:28.2V CU 26 BATT 28.2 ^v	
		48V system default setting:56.4V CU 26 BATT 56.4 ^v	
		If self-defined is selected in program 5, this program can be set up. Setting range is from 24.0V to 30.0V for 24V system and 48.0V to 60.0V for 48V system. Increment of each click is 0.1V.	
27	Floating charging voltage	24V system default setting:27.0V FLU 27 BATT 27.0 ^v	
		48V system default setting:54.0V FLU 27 BATT 54.0 ^v	
28	Reset factory setting	default: Std 28 OFF	
		48V system default setting:54.0V Std 28 ON	
29	Low DC cut-off voltage: <ul style="list-style-type: none"> • If battery power is only power source available inverter will shut down. • If PV energy and battery power are available, inverter will charge battery without AC output. 	24V system default setting:21.0V COU 29 BATT 21.0 ^v	
		48V system default setting:42.0V COU 29 BATT 42.0 ^v	
		If self-defined is selected in program 5, this program can be set up. Setting range is from 20.0V to 26.0V for 24V system and 40.0V to 52.0V for 48V system. Increment of each click is 0.1V Low DC cut-off voltage will be fixed to setting value no matter what percentage of load is connected.	

30	Battery equalization	Battery equalization 30 EEN	Battery equalization disable (default) 30 EdS
		If "Flooded" or "User Defined" is selected in program 05, this program can be set up.	
31	Battery equalization voltage	24V system default setting: 29.2V EV 31 ^{BATT} 29.2 ^v	
		48V system default setting: 58.4V EV 31 ^{BATT} 58.4 ^v	
		Setting range is from 24.0V to 30.0V for 24V system and 48.0V to 60.0V for 48V system. Increment of each click is 0.1V.	
33	Battery equalized time	60min (default) 33 60	Setting range is from 5min to 900min. Increment of each click is 5min.
34	Battery equalized timeout	120min (default) 34 120	Setting range is from 5min to 900min. Increment of each click is 5min.
35	Equalization interval	30days (default) 35 30d	Setting range is from 0 to 90 days. Increment of each click is 1 day.
36	Equalization activated immediately	Enable 36 AEN	Disable (default) 36 AdS
		If equalization function is enabled in program 30, this program can be set up. If "Enable" is selected in this program, it's to activate battery equalization immediately and LCD main page will show "EQ". If "Disable" is selected, it will cancel equalization function until next activated equalization time arrives based on program 35 setting. At this time, "EQ" will not be shown in LCD main page.	
37	BMS Function Switch	off(default) bns 37 OFF	Whether to enable the BMS communication function
		bns 37 ON	

38	Bat Soc Under Lock		<p>If any type of lithium battery is selected in program 5.</p> <p>BMS low voltage SOC value, if the BMS SOC value is lower than the set value, the inverter will shut down to protect the battery.</p>
39	Bat Soc Turn To Ac		<p>If any type of lithium battery is selected in program 5.</p> <p>When the working mode of the inverter is set to the battery priority mode, the inverter will be forced to enter the mains charging when the SOC of the BMS is lower than the set value.</p>
40	Bat Soc Turn To Dc		<p>If any type of lithium battery is selected in program 5.</p> <p>When the working mode of the inverter is set to the battery priority mode, the inverter resumes the DC working mode when the SOC of the BMS is higher than the set value.</p>
41	Bat Restart Soc		<p>If any type of lithium battery is selected in program 5.</p> <p>When the inverter is turned on, the SOC must be higher than the set value to work normally.</p>
43	Solar supply priority		Solar energy provides power to charge battery as first priority.
			Solar energy provides power to the loads as first priority.
44	Solar energy feed to grid configuration		Solar energy feed to grid disable.
			Solar energy feed to grid enable.
45	Reset PV energy storage	<p>Notre set (Default)</p> 	<p>Reset</p> 
46	Start charging time for AC charger	<p>00:00(Default)</p>  <p>The setting range of start charging time for AC charger is from 00:00 to 23:00, increment of each click is 1 hour.</p>	
47	Stop charging time for AC charger	<p>00: 00(Default)</p>  <p>The setting range of scheduled Time for AC output on is from 00: 00 to 23:00, increment of each click is 1 hour.</p>	

48	Scheduled time for AC output on	00:00(Default)  The setting range of scheduled Time for AC output off is from 00:00 to 23:00, increment of each click is 1 hour.	
49	Scheduled time for AC output off	00:00(Default)  The setting range of scheduled Time for AC output off is from 00:00 to 23:00, increment of each click is 1 hour.	
50	Set country customized regulations	Mode 1 	If selected, acceptable feed-in grid voltage range will be 195.5-253VAC. Acceptable feed-in grid frequency range will be 49-51Hz.
		Mode 2 	If selected, acceptable feed-in grid voltage range will be 184-264.5VAC. Acceptable feed-in grid frequency range will be 47.5-51.5Hz.
		Mode 3 	If selected, acceptable feed-in grid voltage range will be 184-264.5VAC. Acceptable feed-in grid frequency range will be 57-62Hz.
		Mode 4(Default) 	If selected, acceptable feed-in grid voltage range will be 170-264.5VAC. Acceptable feed-in grid frequency range will be 47.5-51.5Hz.
51	Time setting-Minute	 For minute setting, the range is from 00 to 59.	
52	Time setting-Hour	 For hour setting, the range is from 00 to 23.	
53	Time setting-Day	 For day setting, the range is from 00 to 31.	
54	Time setting-Month	 For month setting, the range is from 1 to 12	
55	Time setting-Year	 For year setting, the range is from 16 to 99.	
56	GRID-tie current		Increment of each click is 1A.

60	Dual output	Disable(default) 	Use 
61	Enter the dual output functional voltage point	Default setting:44.0V 	
		Default setting:22.0V 	
		If battery voltage lower than inverter setting, second output will be cutted of, Increment of each click is 0.1V.	
62	Enter the dual output functional SOC point		If any type of lithium battery is selected in program 5. If BMS capacity lower than SOC setting, second output will be cutted of.
63	Dual battery voltage receiver		Default 52V/26V,if the battery voltage is higher than the inverter setting, the dual will be restored.
64	Dual battery SOC Receiver		If any type of lithium battery is selected in program 5. Default 50%,if the BMS capacity is higher than the SOC setting, the second output will be restored.
65	Setting discharge time on the second output	Disable(default) 	Setting range is disable and then from 0 min to 990 min. Increment of each dick is 5 min. *If the battery discharge time achieves the setting time in program 61 and the program 60 function is not triggered, the output will be turned off.
66	Dual Recover Delay Time		The value ranges from 0-60min.
			
67	Output Open Time		The value ranges from 0 to 23.
68	Output Stop Time		The value ranges from 0 to 23.