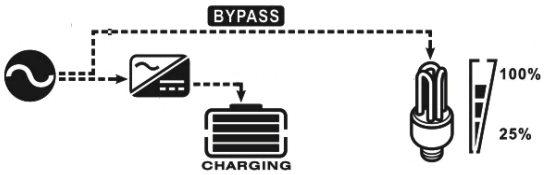
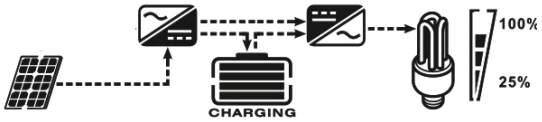
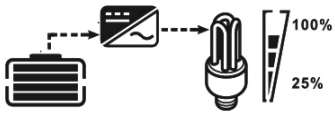
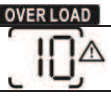
		
Battery Mode	The unit will provide output power from battery and PV power.	Power from battery and PV energy. 
		Power from battery only. 

Fault Reference Code

Fault Code	Fault Event	Icon on
01	Fan is locked when inverter is off.	
02	Over temperature	
03	Battery voltage is too high	
04	Battery voltage is too low	
05	Output short circuited or over temperature is detected by internal converter components.	
06	Output voltage is abnormal. (For 1K/2K/3K model) Output voltage is too high. (For 4K/5K model)	
07	Overload time out	
08	Bus voltage is too high	
09	Bus soft start failed	
11	Main relay failed	
51	Over current or surge	
52	Bus voltage is too low	
53	Inverter soft start failed	
55	Over DC voltage in AC output	
56	Battery connection is open	
57	Current sensor failed	
58	Output voltage is too low	

NOTE: Fault codes 51, 52, 53, 55, 56, 57 and 58 are only available in 4K/5K model.

Warning Indicator

Warning Code	Warning Event	Audible Alarm	Icon flashing
01	Fan is locked when inverter is on.	Beep three times every second	
03	Battery is over-charged	Beep once every second	
04	Low battery	Beep once every second	
07	Overload	Beep once every 0.5 second	
10	Output power derating	Beep twice every 3 seconds	
12	Solar charger stops due to low battery.		
13	Solar charger stops due to high PV voltage.		
14	Solar charger stops due to overload.		

SPECIFICATIONS

Table 1 Line Mode Specifications

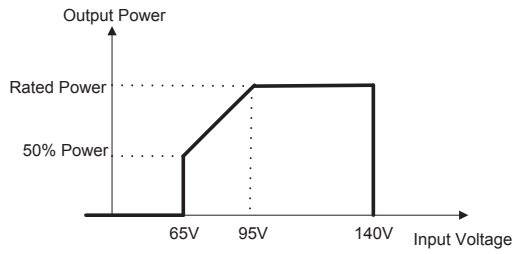
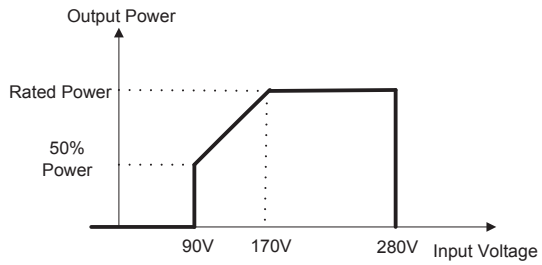
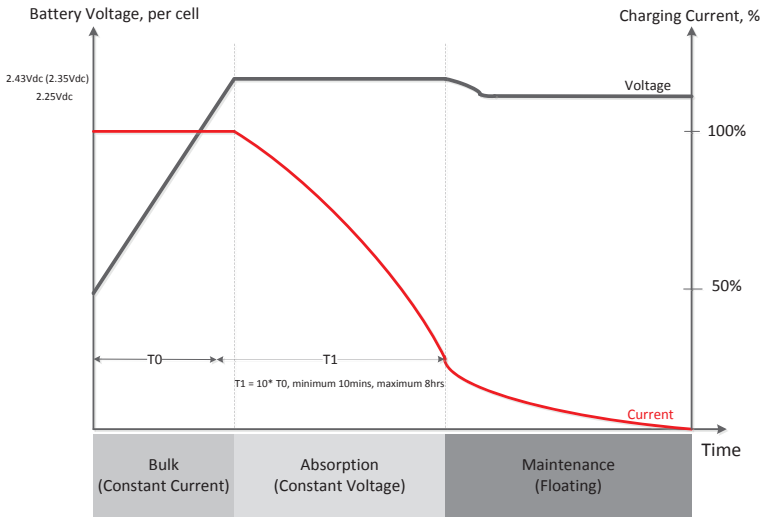
INVERTER MODEL	1KVA 24V 2KVA 24V 3KVA 24V 1KVA 48V 3KVA 48V	2KVA 24V Plus 3KVA 24V Plus 2KVA 48V Plus 3KVA 48V Plus	4KVA 5KVA
Input Voltage Waveform	Sinusoidal (utility or generator)		
Nominal Input Voltage	120Vac or 230Vac		
Low Loss Voltage	95Vac±7V or 170Vac±7V (UPS) 65Vac±7V or 90Vac±7V (Appliances)		
Low Loss Return Voltage	100Vac±7V or 180Vac±7V (UPS); 70Vac±7V or 100Vac±7V (Appliances)		
High Loss Voltage	140Vac±7V or 280Vac±7V		
High Loss Return Voltage	135Vac±7V or 270Vac±7V		
Max AC Input Voltage	150Vac or 300Vac		
Nominal Input Frequency	50Hz / 60Hz (Auto detection)		
Low Loss Frequency	40±1Hz		
Low Loss Return Frequency	42±1Hz		
High Loss Frequency	65±1Hz		
High Loss Return Frequency	63±1Hz		
Output Short Circuit Protection	Line mode: Circuit Breaker Battery mode: Electronic Circuits		
Efficiency (Line Mode)	>95% (Rated R load, battery full charged)		
Transfer Time	10ms typical (UPS); 20ms typical (Appliances)		
Output power derating: When AC input voltage drops to 95V or 170V depending on models, the output power will be derated.	120Vac model:  230Vac model:  		

Table 2 Inverter Mode Specifications

INVERTER MODEL	**1KVA 24V** **2KVA 24V** **3KVA 24V** **2KVA 24V Plus** **3KVA 24V Plus**	**1KVA 48V** **3KVA 48V** **2KVA 48V Plus** **3KVA 48V Plus**	**4KVA** **5KVA**
Rated Output Power	1KVA/0.8KW 2KVA/1.6KW 3KVA/2.4KW	1KVA/1KW 2KVA/1.6KW 3KVA/2.4KW	4KVA/3.2KW 5KVA/4KW
Output Voltage Waveform	Pure Sine Wave		
Output Voltage Regulation	110/120VAC±5% or 230Vac±5%		
Output Frequency	60Hz or 50Hz		
Peak Efficiency	90%		
Overload Protection	5s@≥150% load; 10s@110%~150% load		
Surge Capacity	2* rated power for 5 seconds		
Nominal DC Input Voltage	24Vdc	48Vdc	
Cold Start Voltage	23.0Vdc	46.0Vdc	
Low DC Warning Voltage @ load < 20% @ 20% ≤ load < 50% @ load ≥ 50%	 22.0Vdc 21.4Vdc 20.2Vdc	 44.0Vdc 42.8Vdc 40.4Vdc	
Low DC Warning Return Voltage @ load < 20% @ 20% ≤ load < 50% @ load ≥ 50%	 23.0Vdc 22.4Vdc 21.2Vdc	 46.0Vdc 44.8Vdc 42.4Vdc	
Low DC Cut-off Voltage @ load < 20% @ 20% ≤ load < 50% @ load ≥ 50%	 21.0Vdc 20.4Vdc 19.2Vdc	 42.0Vdc 40.8Vdc 38.4Vdc	
High DC Recovery Voltage	29Vdc	58Vdc	
High DC Cut-off Voltage	31Vdc	62Vdc	
No Load Power Consumption	<25W		<50W
Saving Mode Power Consumption	<10W		<15W

Table 3 Charge Mode Specifications

Utility Charging Mode						
INVERTER MODEL		**1KVA 24V 2KVA 24V Plus 120Vac**	**2KVA 24V 3KVA 24V 2KVA 24V Plus 3KVA 24V Plus**	**2KVA 48V Plus 120Vac**	**1KVA 48V 3KVA 48V 2KVA 48V Plus 3KVA 48V Plus**	**4KVA 5KVA**
Charging Current (UPS) @ Nominal Input Voltage		10/20A	20/30A	5/10A	10/15A	2/10A 20/30A
Bulk Charging Voltage	**Flooded Battery**	29.2		58.4		
	AGM / Gel Battery	28.2		56.4		
Floating Charging Voltage		27Vdc		54Vdc		
Charging Algorithm		3-Step				
Charging Curve						

Solar Charging Mode				
INVERTER MODEL	**1KVA 24V 2KVA 24V 3KVA 24V**	**1KVA 48V 3KVA 48V**	**2KVA 24V Plus 3KVA 24V Plus**	**2KVA 48V Plus 3KVA 48V Plus 4KVA 5KVA**
Rated Power	600W	900W	1500W	3000W
Efficiency	98.0% max.			
Max. PV Array Open Circuit Voltage	75Vdc max	102Vdc max	145Vdc	
PV Array MPPT Voltage Range	30~66Vdc	60~88Vdc	30~115Vdc	60~115Vdc
Min battery voltage for PV charge	17Vdc	34Vdc	17Vdc	34Vdc
Standby Power Consumption	2W			
Battery Voltage Accuracy	+/-0.3%			
PV Voltage Accuracy	+/-2V			
Charging Algorithm	3-Step			

Table 4 General Specifications

INVERTER MODEL	1KVA 24V 1KVA 48V	2KVA 24V	3KVA 24V 3KVA 48V	2KVA 24V Plus 3KVA 24V Plus 2KVA 48V Plus 3KVA 48V Plus	4KVA	5KVA
Safety Certification	CE					
Operating Temperature Range	0°C to 55°C					
Storage temperature	-15°C~ 60°C					
Dimension (D*W*H), mm	128 x 272 x 355			140 x 295 x 479	140 x295 x540	
Net Weight, kg	7.4	7.6	8.0	11.5	12.5	13.5

TROUBLE SHOOTING

Problem	LCD/LED/Buzzer	Explanation / Possible cause	What to do
Unit shuts down automatically during startup process.	LCD/LEDs and buzzer will be active for 3 seconds and then complete off.	The battery voltage is too low (<1.91V/Cell)	1. Re-charge battery. 2. Replace battery.
No response after power on.	No indication.	1. The battery voltage is far too low. (<1.4V/Cell) 2. Battery polarity is connected reversed.	1. Check if batteries and the wiring are connected well. 2. Re-charge battery. 3. Replace battery.
Mains exist but the unit works in battery mode.	Input voltage is displayed as 0 on the LCD and green LED is flashing.	Input protector is tripped	Check if AC breaker is tripped and AC wiring is connected well.
	Green LED is flashing.	Insufficient quality of AC power. (Shore or Generator)	1. Check if AC wires are too thin and/or too long. 2. Check if generator (if applied) is working well or if input voltage range setting is correct. (UPS→Appliance)
	Green LED is flashing.	Set "Solar First" as the priority of output source.	Change output source priority to Utility first.
When the unit is turned on, internal relay is switched on and off repeatedly.	LCD display and LEDs are flashing	Battery is disconnected.	Check if battery wires are connected well.
Buzzer beeps continuously and red LED is on.	Fault code 07	Overload error. The inverter is overload 110% and time is up.	Reduce the connected load by switching off some equipment.
	Fault code 05	Output short circuited.	Check if wiring is connected well and remove abnormal load.
		Temperature of internal converter component is over 120°C. (Only available for 1-3KVA models.)	Check whether the air flow of the unit is blocked or whether the ambient temperature is too high.
	Fault code 02	Internal temperature of inverter component is over 100°C.	
	Fault code 03	Battery is over-charged.	Return to repair center.
		The battery voltage is too high.	Check if spec and quantity of batteries are meet requirements.
	Fault code 01	Fan fault	Replace the fan.
	Fault code 06/58	Output abnormal (Inverter voltage below than 190Vac or is higher than 260Vac)	1. Reduce the connected load. 2. Return to repair center
	Fault code 08/09/53/57	Internal components failed.	Return to repair center.
	Fault code 51	Over current or surge.	Restart the unit, if the error happens again, please return to repair center.
	Fault code 52	Bus voltage is too low.	
	Fault code 55	Output voltage is unbalanced.	
	Fault code 56	Battery is not connected well or fuse is burnt.	If the battery is connected well, please return to repair center.

Appendix: Approximate Back-up Time Table

Model	Load (VA)	Backup Time @24Vdc 100Ah (min)	Backup Time @24Vdc 200Ah (min)
1KVA	200	766	1610
	400	335	766
	600	198	503
	800	139	339
	1000	112	269
2KVA	200	766	1610
	400	335	766
	600	198	503
	800	139	339
	1000	112	269
	1200	95	227
	1400	81	176
	1600	62	140
	1800	55	125
	2000	50	112
3KVA	300	449	1100
	600	222	525
	900	124	303
	1200	95	227
	1500	68	164
	1800	56	126
	2100	48	108
	2400	35	94
	2700	31	74
	3000	28	67

Model	Load (VA)	Backup Time @ 48Vdc 100Ah (min)	Backup Time @ 48Vdc 200Ah (min)
1KVA	100	2529	5058
	200	1264	2529
	300	843	1686
	400	608	1279
	500	482	1035
	600	406	872
	700	310	710
	800	268	615
	900	231	540
	1000	186	471

Model	Load (VA)	Backup Time @ 48Vdc 100Ah (min)	Backup Time @ 48Vdc 200Ah (min)
2KVA	200	1581	3161
	400	751	1581
	600	491	1054
	800	331	760
	1000	268	615
	1200	221	508
	1400	172	387
	1600	136	335
	1800	120	295
	2000	106	257
3KVA	300	1054	2107
	600	491	1054
	900	291	668
	1200	196	497
	1500	159	402
	1800	123	301
	2100	105	253
	2400	91	219
	2700	71	174
	3000	63	155
4KVA	400	766	1610
	800	335	766
	1200	198	503
	1600	139	339
	2000	112	269
	2400	95	227
	2800	81	176
	3200	62	140
	3600	55	125
	4000	50	112
5KVA	500	613	1288
	1000	268	613
	1500	158	402
	2000	111	271
	2500	90	215
	3000	76	182
	3500	65	141
	4000	50	112
	4500	44	100
	5000	40	90

Note: Backup time depends on the quality of the battery, age of battery and type of battery.
Specifications of batteries may vary depending on different manufacturers.