The GR (green) family of inverters provide clean energy with a modified sine wave power and comes available in four different power levels starting with a 1200 watt unit, 1600 watt unit at 12 volts and a 2400 watt unit and a 3000 watt unit at 24 volts. It is the most convenient and silent back up energy provider for households and businesses. It can provide power all common appliances.

GR FAMILY OF INVERTER CHARGERS

Main Features:

- Front panel indicators for inverting, charging and fault condition
- Power factor correction four stage battery charger
- Automatic switching from ac mains to inverting with a transfer time of around 8 to 15 ms
- Surge capacity for two times rated power
- Continuous voltage regulation until low battery level condition
- Adjustable battery charge level
- Switchable battery charging profile for lead acid or gel battery types
- Front panel LED display indicator for battery voltage, percentage load used , battery current and fault codes
- Battery overcharge protection
- Temperature monitoring and fault detection for critical components
- Fault condition indicator for overload (Three automatic recovery), low battery, high battery and over temperature
- Powder finish coated to prevent corrosion
- Battery terminal covers to protect DC terminals and battery cables from damage

Model	GR1212	GR1612	GR2424	GR3024
Line Mode Specifications:				
Input Waveform	Sinusoidal/Generator			
Nominal Input Voltage	120Vac	120Vac	120Vac	120Vac
Low Line Disconnect	90Vac±4%			
Low Line Re-connect	95Vac±4%			
High Line Disconnect	135Vac±4%			
High Line Re-connect	130V±4%			
Max AC Input Voltage	135Vrms			
Nominal Input Frequency	60Hz			
Output Voltage Waveform	Same as Input Waveform			
Over-Load Protection	Circuit breaker			
Output Short Circuit Protection	Circuit breaker			
Efficiency (Line Mode)	>95%			
Transfer Time	8 to 15 ms			
Transfer Switch Rating	20 Amp	20 Amp	30 Amp	30 Amp
Max Bypass Overload Current	20 Amp	20 Amp	30 Amp	30 Amp
Invert Mode Specifications:				
Output Waveform	Modified sine wave			
Rated Output Power(w)	1200W	1600W	2400W	3000W
Nominal Output Voltage(V)	118 Vac; +/-7% (110 Vac – 126 Vac)			
Minimum Peak Output Voltage at Rated Power	>124Vac			
Output Frequency(Hz)	60 HZ; +/-0.2%			
Output Voltage Regulation	± 7% Vrms			
Nominal Efficiency	> 90%			
Over-Load Protection	>110%+/-10%: Over-Load (shutdown output) after 10 secs;			
Surge rating (4s)	Current limit (overload 4 seg), three times			
Output Short Circuit Protection	2400W	3200W	4800W	6000W
Nominal DC Input Voltage	12 ± 20% Vdc		24Vdc+/- 20%	
Min DC start voltage	9.5 ± 2% Vdc		18 ± 2% Vdc	
High battery cut out	16.5Vdc ± 2%Vdc		33Vdc ± 2% Vdc	
Low battery cut out re-connects manually and/or electric energy.	10.0 Vdc ± 2%Vdc		20Vdc ± 2%Vdc	
Capable of Starting an electric motor	½ HP	½ HP	¾ HP	1HP

Charge Mode Specifications:				
Nominal Input Voltage	120Vac			
Input Voltage Range	90 ~ 135Vac			
Charger Four State	First State: Bulk (constant current stage)			
	Second State: Absorption			
	Third State: Float			
	Fourth State: Savings Sleep Mode			
Nominal Bulk Charge Current selected by user	0-30 Amp	0-30 Amp	0-40 Amp	0-40 Amp
Charge Current Regulation	± 5 Adc			
Maximum DC Charging current	Selected by user (± 5%)			
Battery Type Select	Flooded/Gel			
Max Efficiency Charger	88%			
Power Factor Charger	> 0.85; range 110 Vca – 125 Vca			
Charger Short Circuit Protection	Circuit breaker			
Charger Breaker Size	15 Amp	20 Amp	20 Amp	25 Amp

Charge Algorithm	
Algorithm	Four stage: Bulk (constant current stage) Absorption (constant voltage stage) Float (constant voltage stage) Saving SLP Mode
Charge Stage Transition Definitions	Bulk Stage: If A/C input is applied, the charger will run at full current in constant current mode until the charger reaches the absorption voltage. Software timer will measure the time from A/C start until the battery charger reaches the absorption voltage. If battery does not reach this setting in a time limit, then the charger goes to next stage, absorption.
	Absorption Stage: Starts a timer, the charger will keep the absorption voltage in constant voltage mode until the timer has run out or the DC current goes below 8 Adc. The timer has a maximum set time of 1 hour.
	Float Stage: In float mode, the voltage will stay at the float voltage for twice the time taken by the previous stage.
	Saving SLP: Sleep stage, the charger is turned off and keeps monitoring the battery voltage.
	Note: The charger will reset the cycle above if the A/C is reconnected, or the battery voltage drops below 12.7 Vdc / 25.4 Vdc, or the sleep mode has been activated for 8 hours.

LEDs Operation	
Battery Mode	Green Blinking - Inverting / Green Solid - AC available
Charging	Yellow Blinking (4 times per sec) for Bulk charging stage
	Yellow Blinking (2 per sec) for absorption charging stage
	Yellow Blinking (1 per sec) in float stage
	Yellow Solid in Sleeping Mode/Line Detect
Fault	Red solid

LED Display Operation	
Battery Mode	Battery Voltage/ Load percent connected
Charging Mode	Battery Voltage/ Charge current
Low battery	Lob
High battery	Hib
Overload	OLP
High Temperature	Hot

General Specifications	
Cooling	Forced air, fixed speed fan
Fan Operation	Charging: Fan on during over temperature Battery Mode: Fan on after 70% of load and for over temperature Charger Mode: Only for high temperature
Fan Noise Level	< 80 dB
Operating Temperature Range	0℃ to 40℃
Storage temperature	-15ºC □ 60ºC
Operation humidity	5% to 95%