

## Quick Guide

### PowerWalker VFI RMG PF1 Series

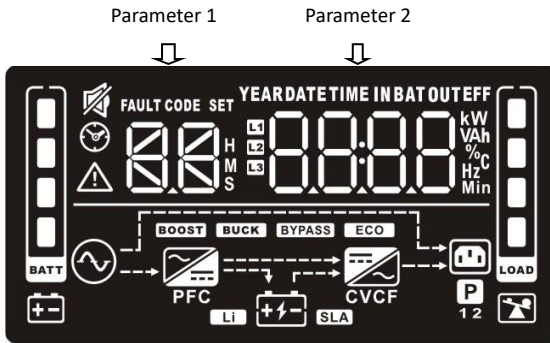
#### I. Assembly

The UPS can be assembled in a rack form using rack ears (Rack Mount Kit is not included) or in tower form using tower holder. The LCD part can be taken out and turned 90 degrees to align with orientation of the UPS.

Internal batteries are disconnected for transportation. It is necessary to open front panel and connect the two available connectors before first usage. External batteries are connected in front using third connector.

Details at <https://support.powerwalker.com/kb/faq.php?id=83> (faq.powerwalker.com)

#### II. LCD Panel

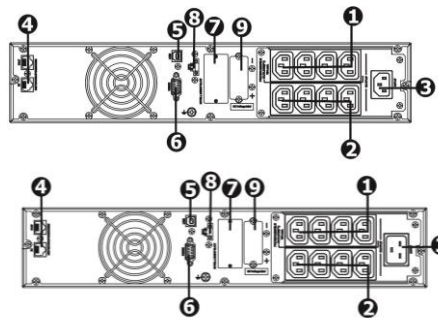


Display	Function
	Indicates the estimated backup time. H: hours, M: minute, S: second.
	Indicates the configuration items
	Indicates the warning and fault codes
	Indicates that the UPS alarm is disabled.
	Indicates the input voltage, input frequency, input current, battery voltage, battery current, battery Power, ambient temperature, output voltage, output frequency, load current and load percent.

	Indicates the load level by 0-24%, 25-49%, 50-74% and 75-100%.
	Indicates overload.
	Indicates that programmable management outlets are working.
	Indicates the UPS connects to the mains.
	Indicates the battery is working.
	Indicates charging status
	Indicates the bypass circuit is working.
	Indicates the ECO mode is enabled.
	Indicates the AC to DC circuit is working.
	Indicates the PFC circuit is working.
	Indicates the inverter circuit is working.
	Indicates the UPS is working in converter mode.
	Indicates the output is working.
	Indicates the battery level by 0-24%, 25-49%, 50-74%, and 75-100%.
	Indicates low battery.

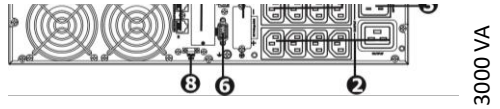
**III. Rear panel view**

- 10. Programmable outlets: connect to non-critical loads.
- 11. Output receptacles: connect to mission-critical loads.
- 12. AC input
- 13. Network/Fax/Modem surge protection
- 14. USB communication port
- 15. RS-232 communication port
- 16. SNMP intelligent slot
- 17. Emergency Power Off connector (EPO)
- 18. External battery connection



1000-1500 VA

2000 VA

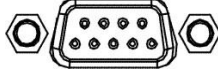


**IV. Communication connection**

USB port



RS-232 port



Intelligent slot



Network Surge Protection















Apart from standard USB Port, the UPS is equipped with RS-232. Those two ports do not work at the same time.

**V. Battery Replacement**

The series offers hot-swappable battery sets easily accessible from front. The battery set can be disconnected and replaced without changing any settings in the UPS.

**VI. Modes and warnings**

Warning	Icon	Alarm	Muted	
Online mode		No Alarm	N/A	
ECO mode		No Alarm	N/A	
Frequency Converter mode		No Alarm	N/A	
Battery mode		Sounding every 5 seconds	Yes	
Bypass mode		Sounding every 10 seconds	Yes	
Standby mode		No Alarm	N/A	
Low Battery		bl	Sounding every 2 seconds	No
Overload		OL	Sounding every second	No
Over input current		OI	Sounding 2 beep every 10 seconds	No
Battery is not		NC	Sounding every 2 seconds	No

connected				
Over Charge	 	OC	Sounding every 2 seconds	No
Site wiring fault	 	SF	Sounding every 2 seconds	No
EPO enable		EP	Sounding every 2 seconds	No
Over temperature		EP	Sounding every 2 seconds	No
Charger failure		CH	Sounding every 2 seconds	No
Battery fault		bF	Sounding every 2 seconds (At this time, UPS is off to remind users something wrong with battery)	No
Out of bypass voltage range	 <b>BYPASS</b>	bV	Sounding every 2 seconds	No
Bypass frequency unstable		FU	Sounding every 2 seconds	No
Battery replacement		bT	Sounding every 2 seconds	No
EEPROM error		EE	Sounding every 2 seconds	No

### VII. Frequency Converter Mode

When input frequency is within 40 Hz to 70 Hz, the UPS can be set at a constant output frequency, 50 Hz or 60 Hz. The UPS will still charge battery under this mode. Frequency Converter requires de-rating of the UPS Power to 80%.

### VIII. Button operation

#### ON/Mute Button

- Press and hold ON/Mute button for at least 2 seconds to turn on the UPS.
- When the UPS is on battery mode, press and hold this button for at least 3 seconds to disable or enable the alarm system. But it's not applied to the situations when warnings or errors occur.
- Press this button to display previous selection in UPS setting mode (up key)
- Press and hold ON/Mute button for 3 seconds to enter UPS self-testing while in AC mode, ECO mode, or converter mode.

#### OFF/Enter Button

- Press and hold this button at least 2 seconds to turn off the UPS. UPS will be in standby mode under power normal or transfer to Bypass mode if the Bypass enable setting by pressing this button.
- Press this button to confirm selection in UPS setting mode.

#### Select Button

- Press this button to change the LCD message for input voltage, input frequency, battery voltage, output voltage and output frequency. It will return back to default display when pausing for 10 seconds.
- Press and hold this button for 3 seconds to enter UPS setting mode when UPS is in

standby mode or bypass mode.

- Press this button to display next selection in UPS setting mode. (down key)

#### ON/Mute + Select Button

- When the main power is normal, press the two buttons simultaneously for 3 seconds. Then UPS will enter to bypass mode. This action will be ineffective when the input voltage is out of acceptable range.
- In setting mode, press the two buttons simultaneously for 0.2s to exit the setting mode.

### IX. UPS Setting

Parameter 1		Parameter 2		
01	Output voltage setting	200/208/220 /230/240	Value in V AC	
02	Frequency Converter Mode	ENA/dIS	Enable or Disable (default)	
03	Output frequency setting	50 / 60	Value in Hz	
		50 / 60	Value in Hz	
04	ECO Mode	ENA/dIS	Enable or Disable (default)	
05	ECO voltage range setting	HLS	Upper Limit for Input Voltage	
		LLS	Bottom Limit for Input Voltage	
	HS	Upper Limit for Input Voltage	Nominal +7V to +24V	Value in V AC
	LS	Bottom Limit for Input Voltage	Nominal -7V to -24V	Value in V AC
06	Bypass	ENA/dIS	Enable or Disable (default) bypass mode	
07	Bypass Input Voltage setting	HLS	Upper Limit for Input Voltage	
		LLS	Bottom Limit for Input Voltage	
	HS	Upper Limit for Input Voltage	Nominal +7V to +24V	Value in V AC
	LS	Bottom Limit for Input Voltage	Nominal -7V to -24V	Value in V AC
08	Bypass frequency range setting	HLS	Upper Limit for Input Frequency	
		LLS	Bottom Limit for Input Frequency	
	HS	Upper Limit for Input Voltage	Nominal +1 to +5 Hz	Value in Hz
	LS	Bottom Limit for Input Voltage	Nominal -1 to -5 Hz	Value in Hz
09	Programmable outlets	ENA/dIS	Enable or Disable (default)	
10	Programmable outlets setting	0-999	Backup time limit in minutes for programmable outlets. 0 actually means 10s and 999 means disabled	
11	Autonomy limitation setting	0-999/dIS	Backup time limit in minutes. 0 actually means 10s	

12	Battery total AH setting		7-999	Total Power of batteries in Ah (2 strings of 9Ah means 18Ah regardless of the length of the string)
13	Maximum charger current setting		1 / 2 / 4 / 6 / 8 / 10 / 12	Total Power of batteries in Ah (2 strings of 9Ah means 18Ah regardless of the length of the string)
14	Charger boost voltage setting		2.25-2.40V	Boost Charging voltage per cell. Each battery has 6 cells.Default is 2.36V/cell means 14.16V/bat
15	Charger float voltage setting		2.20-2.33V	Float Charging voltage per cell. Each battery has 6 cells.Default is 2.28V/cell means 13.68V/bat
16	EPO logic setting		AO	Active Open (default). EPO will be activated if pins 1 and 2 are not shorted
			AC	Active Close. EPO will be activated if pins 1 and 2 are shorted
17	External output isolation transformer connection		ENA/dis	Allow or disallow (default) external output isolation transformer connection.
18	Display setting for autonomy time		EAT/RAT	EAT will display the remaining autonomy time (Default). RAT will show accumulated autonomy time.
19	Acceptable input voltage range setting		HLS	Upper Limit for Input Voltage
			LLS	Bottom Limit for Input Voltage
	HS	Upper Limit for Input Voltage	280 / 290 / 300	Value in V AC
	LS	Bottom Limit for Input Voltage	110 / 120 / 130 / 140 / 150 / 160	Value in V AC
00	Exit Settings			

**Maximum charger current setting**

Please set the appropriate charger current based on battery Power used. The recommended charging current is 0.1C~0.3C of battery Power as following table for reference.

Charging current (A)	2	4	6	8	10	12
Battery Power(AH)	7-20Ah	20-40Ah	40-60Ah	60-80Ah	80-100Ah	100-150Ah

**X. Technical Specification**

MODEL	VFI 1000 RMG	VFI 1500 RMG	VFI 2000 RMG	VFI 3000 RMG
POWER*	1000VA/1000W	1500VA/1500W	2000VA/2000W	3000VA / 3000W
<b>INPUT</b>				
Voltage	Low Line Transfer	160VAC/140VAC/120VAC/110VAC ± 5 %		
	Low Line Comeback	175VAC/155VAC/135VAC/125VAC ± 5 %		
	High Line Transfer	300 VAC ± 5 %		
	High Line Comeback	290 VAC ± 5 %		

<b>Frequency Range</b>	40Hz ~ 70 Hz			
<b>Power Factor</b>	$\geq 0.99$ @ full load			
<b>THDi</b>	$\leq 5\%$ @ 205-245VAC THDU < 1.6% @ input and full linear load condition			
OUTPUT				
<b>Output voltage</b>	200/208/220/230/240VAC			
<b>AC Voltage Regulation</b>	$\pm 1\%$ (Batt. Mode)			
<b>Frequency Synchronized Range</b>	47 ~ 53 Hz or 57 ~ 63 Hz			
<b>Frequency Range</b>	50 Hz $\pm 0.1$ Hz or 60Hz $\pm 0.1$ Hz (Batt. Mode)			
<b>Current Crest Ratio</b>	3:1			
<b>Harmonic Distortion</b>	$\leq 2\%$ THD (Linear Load) ; 4 % THD (Non-linear Load)			
<b>Transfer Time</b>	Zero from AC Mode to Battery Mode Below 4ms from Inverter to Bypass			
<b>Waveform</b>	Pure Sinewave			
EFFICIENCY				
<b>AC Mode</b>	$\geq 89\%$ @ full charged battery		$\geq 91\%$ @ full charged battery	
<b>ECO Mode</b>	$\geq 96\%$ @ full charged battery			
<b>Battery Mode</b>	$\geq 88\%$		$\geq 90\%$	
BATTERY				
<b>Battery Type</b>	12V/7AH	12V/9AH	12V/7AH	12V/9AH
<b>Numbers</b>	3		6	
<b>Recharge Time</b>	3 hours recover to 95% Power for internal battery@ 2A charging current			
<b>Charging Current</b>	Default 2A, max. 12A adjustable		Default: 2A, Max: 8A adjustable	
PHYSICAL				
<b>Dimension, D x W x H</b>	410 x 438 x 88		630 x 438 x 88	
<b>Net Weight (kgs)</b>	14.1	15.5	23.3	27.5
ENVIRONMENT				
<b>Operation Humidity</b>	20-95 % RH @ 0- 40°C (non-condensing)			
<b>Noise Level</b>	Less than 50dBA @ 1 Meter (With fan speed control)			
MANAGEMENT				
<b>USB with HID</b>	PowerWalker ViewPower			

\* Derate Power to 80% of Power when the output voltage is adjusted to 200VAC or 208VAC.