

# VFI-RT+ UPS

**POWER**  
*Inspired*

Extra Features

Rack / Tower

Online Double Conversion



## The New UPS Benchmark

- Available 1.5 & 3KVA
- VFI Technology
- Matching Battery Cabs
- High Capacity Charger
- Adjustable Charge Current
- Adjustable Output Voltage
- Frequency Conversion Mode
- Intelligent Port for SNMP / Relay Options
- Rack/Tower Format
- Programmable Outlets
- Hot Swap Battery
- HID USB Interface
- Conformally Coated PCB

The VFI-RT+ Uninterruptible Power Supplies are the benchmark in power protection performance. True online double conversion technology provides the highest degrees of power protection making the UPS suitable for a wide variety of mission critical equipment and infrastructure.

The VFI-RT+ can be mounted in a 19" rack installation and occupies only 2U of rackspace. Alternatively, the unit can be vertically mounted with the supplied support brackets.

The high output power factor of 0.9 removes the risk of overload on power factor corrected loads. The high efficiency of the VFI-RT+ reduces the need for additional cooling requirements, reducing operating costs and can be set into even higher efficiency ECO mode operation if required.

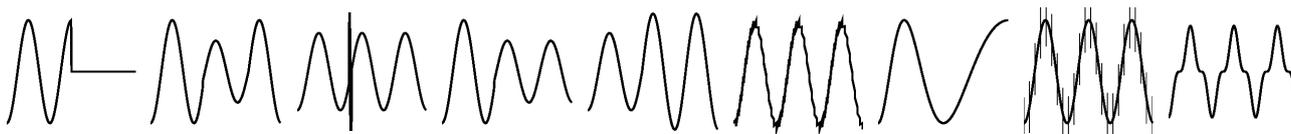
Additional battery packs can be added to extend runtime. The VFI-RT+ has the added benefit of an adjustable current high capacity chargers, allowing large battery strings to be recharged in a timely fashion. These can be added at a later date as and when required. Internal UPS batteries and those of matching cabinets can be hot-swapped during the UPS life for ease of maintenance.

To improve reliability and protect against environmental contaminants such as moisture and dust, the PCB boards have been conformally coated.

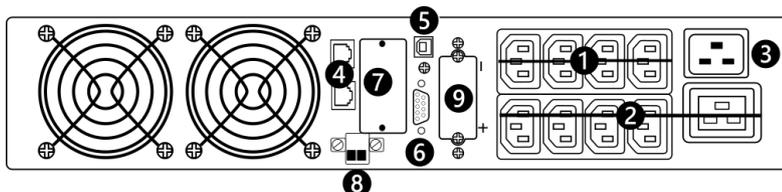
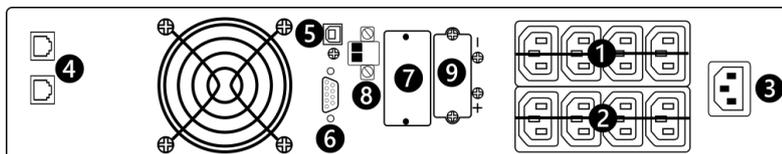
Full HID Compliant USB interface for connection directly to operating system power management, with capability of SNMP / Relay for added communication options.

## Online Double Conversion Topology Protects Against the 9 Recognised Power Quality Problems

✓ Blackouts ✓ Sags ✓ Spikes ✓ Under Volts ✓ Over Volts ✓ Noise ✓ Frequency ✓ Transients ✓ Harmonics



## Rear Panel Configuration & Description



- 1 Programmable Outlets. Can be configured to shut off when on battery after set time.
- 2 Output Receptacles. Non Programmable.
- 3 Input Receptacle
- 4 Network Surge Protection
- 5 HID Compliant USB Port
- 6 RS232 Interface
- 7 Intelligent Slot for Relay/SNMP
- 8 Emergency Power Off (EPO) Connector
- 9 External Battery Connection Port

## UPS LCD and Parameter Settings



The comprehensive LCD provides at a glance battery and load level bars. The UPS status is provided in a easy to read graphical display.

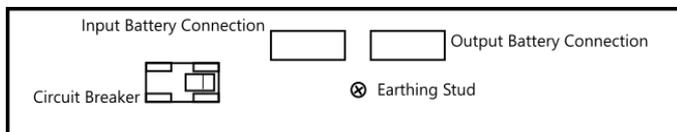
The UPS can be interrogated to show input voltage and frequency, output voltage and frequency, battery voltage and charge percentage. In battery mode the remaining battery time or on battery time is displayed.

The LCD can be rotated depending upon rack or tower use and is also used for setting UPS parameters:

- Output voltage to 208/220/230 or 240V.
- Frequency Converter Mode and Output Frequency of 50 or 60Hz.
- ECO mode enable / disable and adjustable revert to online voltage points.
- Bypass enable / disable and adjustable voltage and frequency levels.
- Programmable outlets and setting time from 0-999 minutes after battery operation when outlets will shut off.
- Autonomy time management. None, or limit to a set value to prevent a deep discharge or preserve battery status.
- Setting the total attached battery capacity, the UPS charge current and boost and float voltages if required.
- EPO polarity input. Activate emergency power off on normally closed (default) or normally open contact.
- Set for output isolation transformer which will alter UPS output dependent on load to account for transformer regulation.
- Setting the display to show estimated time remaining on battery, or time on battery.
- Adjusting input voltage parameters before UPS reverts to battery operation.

## Batteries and External Battery Cabs

The VFI-RT+ contains an internal battery tray and an adjustable, high capacity charger. This allows the unit to be used in standard runtime configurations, but also allows the addition of further battery packs without the need to either specify an extended run UPS in the first instance, or provide additional chargers. Each cab is similar in appearance, 2U rackmount or vertical standing, and can be hot-swapped.



**Adjustable charging currents from 1A to 12A on the 1500VA and 1A to 8A on the 3KVA are standard.**

Each battery cabinet can be daisy chained to the next cab to provide extendable runtime. The provided cable in each cab connects to the UPS or the next cabinet. Each cab is complete with a circuit breaker for protection and isolation.



The UPS internal batteries as well as the cabinet batteries are contained within self contained trays and are fully hot-swappable.

Each cab contains 2 trays consisting of 9Ah blocks adding 18Ah to the battery capacity.

The cab comes with vertical support extenders that mate with the UPS brackets to allow for vertical configuration.



## Communications

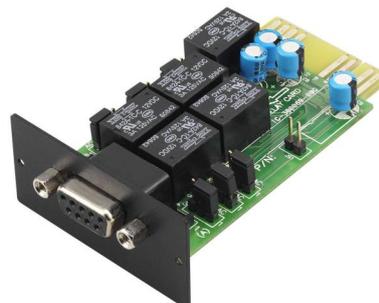


The USB port provides full serial communications to an attached computer. Being HID compliant the unit will "talk" to the operating system directly (effectively making a desktop like a laptop in terms of power operation). Alternatively, shutdown software can be downloaded and installed.

Legacy RS232 is also available.



The rear panel includes an "intelligent slot" for the addition of either an SNMP or an AS400 relay card. SNMP allows monitoring of the UPS over a network connection. The advanced card also contains an event log. The relay card allows connection to AS400 servers or any other remote alarm or Building Management Systems.



# SPECIFICATIONS

MODEL		VFI1500RT+	VFI3000RT+
		<b>INPUT</b>	
Capacity		1500 VA / 1350 W	3000 VA / 2700 W
Voltage Range	Low Line Transfer	160 VAC / 140 VAC / 120 VAC / 110 VAC $\pm$ 3% (80Vac/70Vac/60Vac/55Vac $\pm$ 3%) based on load percentage 100% - 80% / 80% - 70% / 70 - 60% / 60% - 0	
	Low Line Comeback	175 VAC / 155 VAC / 135 VAC / 125 VAC $\pm$ 3%	
	High Line Transfer	300 VAC $\pm$ 3%	
	High Line Comeback	290 VAC $\pm$ 3%	
Frequency Range		40Hz ~ 70Hz	
Phase		Single phase with ground	
Power Factor		$\square$ 0.99	
THDi		$\square$ 5%	
		<b>OUTPUT</b>	
Voltage		200*/208*/220/230/240 VAC	
Voltage Regulation		$\pm$ 1%	
Frequency Range (Synchronized Range)		50Hz system: 47 ~ 53 Hz (60Hz system: 57~63Hz)	
Frequency Range (Batt. Mode)		50 Hz $\pm$ 0.1 Hz (60Hz $\pm$ 0.1 Hz)	
Current Crest Ratio		3:1	
Harmonic Distortion		$\square$ 2% THD (Linear Load) $\square$ 4% THD (Non-linear Load)	
Transfer Time	AC to DC	Zero	
	Inverter to Bypass	4 ms (Typical)	
	ECO to Battery mode	8 ms (Typical), 10 ms(max)	
Waveform (Batt. Mode)		Pure Sinewave	
Over Load Capacity	On-line Mode	100% < Load < 110% Overload warning only 110% < Load < 130% (-0%/+10%) 5min (+/- 4sec) @ Ambient temperature < 40°C or 2.5min(+/- 4sec) @ Ambient temperature $\geq$ 40°C. 130% < Load < 140% (-0%/+10%) 30sec (+/- 1sec) 140% < Load (-0%/+10%) 1.5sec (+/- 0.5sec).	
	Inverter(Battery) Mode	100% < Load < 110% Overload warning only 110% < Load < 130% (-0%/+10%) 2min (+/- 4sec) @ Ambient temperature < 40°C or 1min(+/- 4sec) @ Ambient temperature $\geq$ 40°C. 130% < Load < 140% (-0%/+10%) 10sec (+/- 1sec) 140% < Load (-0%/+10%) 1.5sec (+/- 0.5sec).	
		<b>EFFICIENCY</b>	
ECO mode		$\square$ 96% @ full charged battery	
AC Mode		$\square$ 89% @ full charged battery	$\square$ 91% @ full charged battery
Battery Mode		$\square$ 88% @ full load	$\square$ 90% @ full load
		<b>BATTERY</b>	
Battery Type		12 V / 9 AH	12 V / 9 AH
Numbers		3	6
Typical Recharge Time		2.5 hours recover to 95% capacity of battery(if 3A charging current)	
Charging Current (CC)		1/2/3/4/6/8/10/12A Selectable	1/2/3/4/6/8A Selectable
Charging Voltage(FV)		41.1VDC $\pm$ 1%	82.2VDC $\pm$ 1%
		<b>INDICATORS</b>	
Status		Load level, Battery level, AC mode, Battery mode, Bypass mode, and Fault indicator Via LCD	
		<b>ALARM</b>	
Battery Mode		Sounding every 4 seconds	
Low Battery		Sounding every second	
Overload		Sounding twice every second	
Fault		Continuously sounding	
		<b>PHYSICAL</b>	
Dimension, D X W X H (mm)		410 x 438 x 88	630 x 438 x 88
Net Weight (kgs)		15.5	27.5
		<b>ENVIRONMENT</b>	
Humidity		20-95% RH @ 0- 45°C (non-condensing)	
Noise Level		Less than 50dBA @ 1 Meter with Fan speed control	
		<b>MANAGEMENT</b>	
Smart RS-232		Supports Windows 98 SE/ME/NT 4.x/2000/2003/XP/Vista/2008/7/8/10, Linux, MAC.	
USB		HID Compliant USB	
Optional external Slot (for SNMP, Dry contact, ...)		Power management from SNMP manager and web browser	

\*Derate capacity to 80% when the output voltage is adjusted to 200VAC/208VAC.

Battery Packs	BV-VFI-RT-36-18	BV-VFI-RT-72-18
Battery Type	12 V / 9 AH	12 V / 9 AH
Numbers	6	12
Dimension, D X W X H (mm)	510 x 438 x 88	630 x 438 x 88
Net Weight (kgs)	30	44

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