



Vanguard UPS

Multi Functional double conversion LCD On-Line UPS

- ¥ True on-line technology provides all power protection
 - ¥ Pure sine-wave output with less than 3% THD
 - ¥ Fully digitized microprocessor controlled
 - ¥ Cold start function (DC power on)
 - ¥ Lightning and surge protection
 - ¥ Short Circuit and overload protection
 - ¥ Advanced battery management (ABM)
 - ¥ Automatic battery charge in UPS off mode
 - ¥ Battery replacement warning
 - ¥ Automatic diagnostics & battery check
 - ¥ RS-232 communication port with monitoring software
 - ¥ Load segmentation receptacles controllable *
 - ¥ Fan speed auto control when loads varies
 - ¥ Extended back up time with battery pack
 - ¥ Network/fax/modem surge protection
 - ¥ UPSMON plus software monitoring
 - ¥ Hot swappable battery by user *
 - ¥ Emergency Power Off function
 - ¥ Support USB communication
 - ¥ High efficiency mode selectable
 - ¥ Battery remain time display
 - ¥ Multiple language LCD display
 - ¥ On line output voltage selected
 - ¥ LCD display front panel
 - ¥ Power factor correction
- * means function available only for model VGD-700~3000



Remote Panel



VGD-700~1500VA VGD-2K~3K VA VGD-4K-5KKVA VGD-6KVA VGD-8K-10KVA VGD-12K-20KVA



Complete Power Solution™

ISO 9001 Certified Company



Vanguard UPS

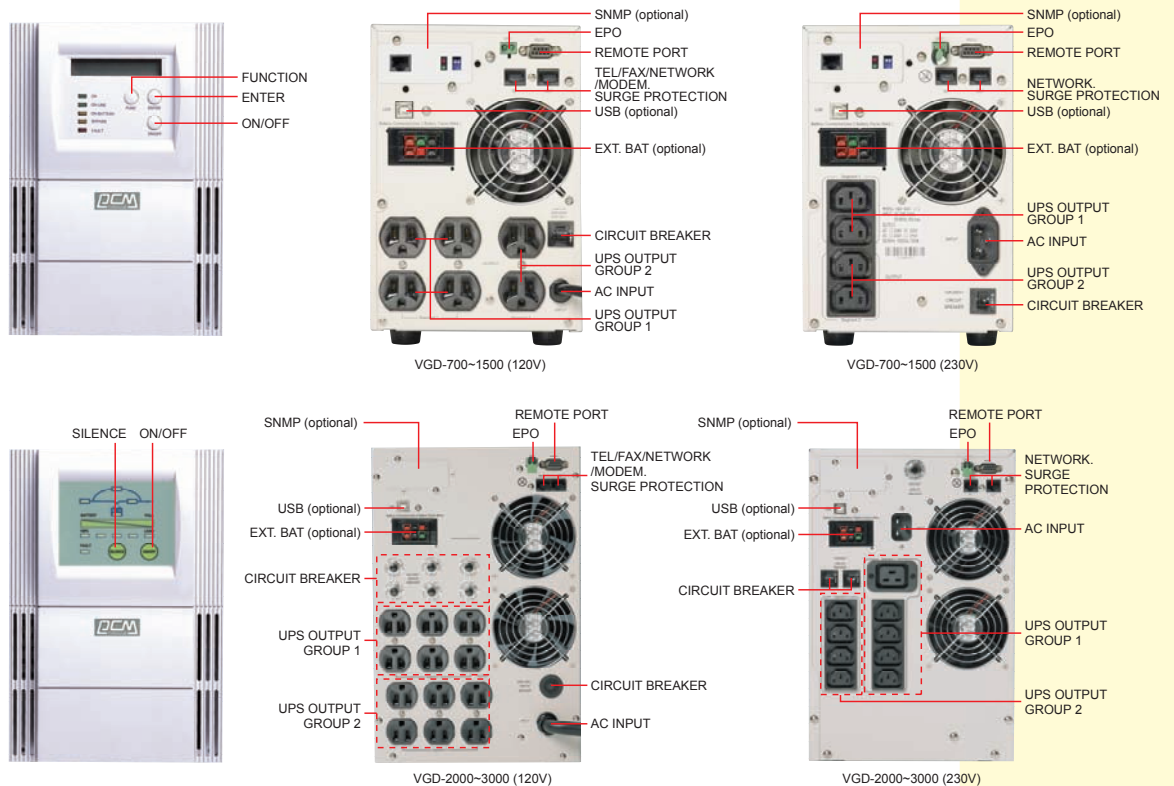
PRODUCT INTRODUCTION :

As business become increasingly dependent on technology for their fundamental operation, the need for system availability is of paramount importance. The Powercom Vanguard series UPS is designed for those applications that need maximum protection in the 700VA - 20KVA range. With its high-frequency, double-conversion online topology, providing nonstop clean sine wave power, advanced communications and space-saving tower design, the Powercom Vanguard series is the ideal power solution for networks, web servers, telecommunications applications and other critical electronic equipment.

In addition to its proven design, the Powercom Vanguard series offer Advanced Battery Management (ABM) and sophisticated communications to provide maximum system availability. ABM uses a three-stage charging technique that not only doubles service life of battery but optimizes charging time.

The Powercom Vanguard series's communications are flexible, allowing for local, network or remote monitoring and management. The Powercom Vanguard includes the latest version of Powercom's UPSMON Software Suite, which provides power monitoring and shutdown software.

With the Powercom Vanguard, Powercom delivers a best-in-class power solution for maximum system availability, and peace of mind.



FUNCTION :

Application:

Workgroup Server, Departmental Server, Enterprise Server, WEB server, Workstation.

Problems:

Power Failures, Power sags, Power Surges, Under-voltage Electrical Line Noise, Over-Voltage, Frequency Variation, Switching Transient, Harmonic Distortion.

Even when presented with the most severe of these power problems, the Powercom Vanguard series output remains within a remarkable +/-2% of nominal voltage.

It means that your critical system always receives steady and clean power.

In addition, the Powercom Vanguard series transfer to backup mode with no break in power, making it the perfect UPS for equipment in environment plagued by poor power.

SPECIAL FEATURES :

1. 15 LCD Display:

Easy viewing of UPS status from LCD panel including:

O/P Voltage	O/P Load (%)	Battery Charge (%)
O/P Frequency	O/P Watt (W)	Temperature (°C)
I/P Voltage	O/P VA	Battery Pack Number
I/P Frequency	O/P Currency (A)	Rating (VA)
Battery Voltage	Back Up Time (Min.)	CPU Version

2. 14 UPS parameter settings:

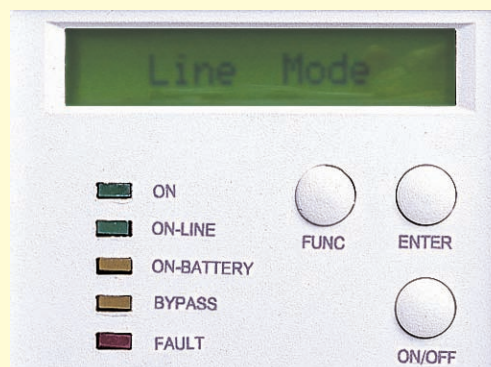
O/P Voltage Set	Manual Bypass	Site Failure Set
I/P Frequency Set	Outlet Segment Set	Language Selection
I/P Bypass Set	Battery Test	Generator Option Set
Free Run Set	Silence Mode Set	RS232 Control
High Efficiency Mode	Battery Cabinet Set	

3. SNMP Control Card (option)

Optional slot is available for Network Management Control Card to allow direct control and monitoring capabilities in SNMP-based.

4. Extended Battery Pack (EBP) (option)

Optional extended battery pack connection allow Vanguard to connect to extended batteries to provide longer backup time for certain applications.



5. USB port (option)

Connecting the UPS to your computer is accomplished through the USB port on the back of your computer. USB compliant hardware and operating system will be necessary including installation of a UPS driver.

The serial port cannot be used when using the USB port. The USB cable is standard and can be bought separately.

6. EPO port (emergency power off)

A customer-supplied switch located remotely can be used to open the EPO connection and allows UPS output receptacles to be switched off.

Since the EPO shuts down the equipment immediately, orderly shutdown procedures are not followed and not by any power management software.

The UPS will have to be manually restarted in order to regain power to the outlets.

Transient protector isolates your modem, fax machine, and other electronic equipment from "back door" power surges.

7. Network Transient protector (700 - 3000 VA)

The network transient protector, located on the back panel, has both IN and OUT jacks, and houses a single RJ-45 (10BaseT) network connector.

Connect the input connector to the jack labeled IN, and the output connector to the jack labeled OUT.

8. Load segments (700 - 3000 VA)

The power management software controls the sets of receptacles known as load segments which provides organized shutdown and startup of the equipment. Less critical equipment can be turned off during power outages saving battery power for critical loads.

The power management software manual has more details regarding this.

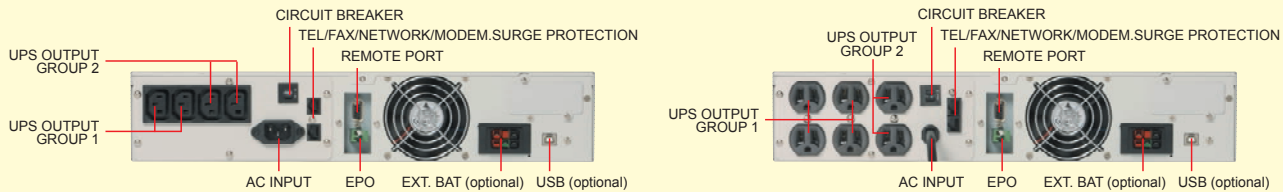


VGD-700~1500VA-LCD VGD-2K~3K VA-LCD



VGD-700~1500VA-LED VGD-2K~3K VA-LED

The load group status can be viewed from the LCD display and can be changed if necessary. These load segments are usually handled with the UPS management software. Refer to chapter 5.2 regarding the two load segments that come with each model.



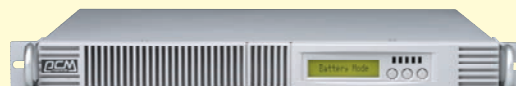
VGD-1K.2K.3K RM2U real panel

Unique Design

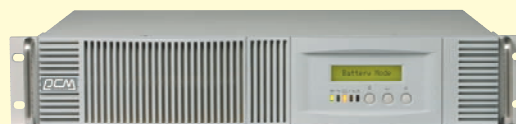
- ¥ Vanguard rack mount models come in different heights such as 1U, 2U, or 3U to meet different space demands.
- ¥ Vanguard rack mount now is available from 700VA up to 10 KVA.
- ¥ Vanguard 3U rack mount model is designed to be flexible and able to fit in different spaces.
- ¥ The control panel can be adjust 90 around to accommodate the UPS installation direction (vertically or horizontally).
- ¥ Remote tontrol panel feature is designed for easy control of the UPS which is placed in the unreachable area.



6K~10KVA (3U+3U)



700~1KVA (1U)



1K~3KVA (2U)



4K~5KVA (3U)

1) Remote control panel feature:

The display panel can be removed from the front panel and attached to the back panel with a cable in order to provide the wired-remote feature.

2) Display panel is designed to be easy removable.

3) 2 different direction of insertion slots are designed to be attached with display panel providing 2 different angles to suit in different space demands.

4) The Vanguard 3U rack mount can also be tower model after switching the display panel by turning the front panel and putting up the unit to vertical position.



remote control panel feature



display panel can be 90°rotated



display panel after rotation



90°rotatable



can be used as tower model

VGD-4K.5K.6K.8K.10K RM panel

Software and Communications Options

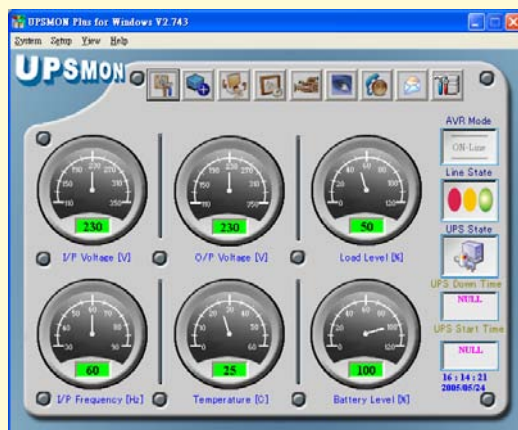
- * USB port (optional) allows UPS to communicate with Windows 98/ME, and XP computers
- * RS232 Port (standard) for interface with power management software
- * SNMP/Web card (optional) adds direct control and monitoring capabilities in SNMP-based networks. Ability to monitor UPS status and meters through web browser interface.
- * Relay card (optional) adds integration to industrial environment and building management systems, shutdown for IBM AS/400.


Powercom UPSMON Software

The industry's most comprehensive software bundle, the Powercom Software Suit, is free and included with every Powercom Vanguard UPS.

Special features with Powercom UPSMON software:

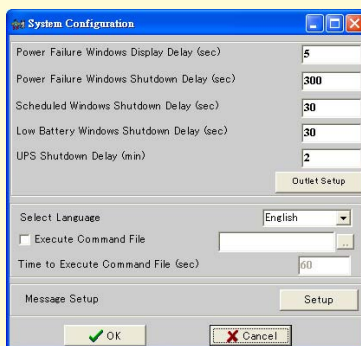
- ¥ Easy Installation: UPSMON plus Wizard guides you through software selection and installation.
- ¥ Support Windows NT Service and start UPS monitoring software before user log in under Windows 95/98/2000/NT/ME/XP.
- ¥ Automatic shutdown
- ¥ User notification of power events
- ¥ UPS power events log
- ¥ Automatic reboot
- ¥ Broadcast power abnormal status
- ¥ Smart save file
- ¥ Scheduled system shutdown/reboot
- ¥ UPS Battery low warning
- ¥ Real-Time graphical display
- ¥ Battery level display
- ¥ Power quality data log
- ¥ Printing power events list
- ¥ Graphic display by meter



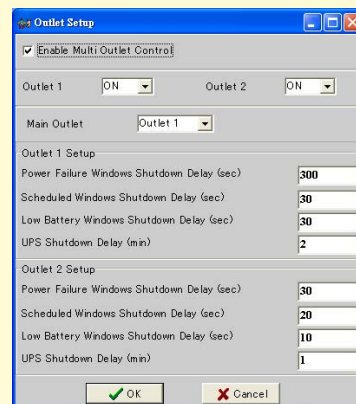
While UPSMON connects to VGD unit, the UPS Setup  feature can manage all the UPS related setups.



Enable Outlet Setup functions



Enable Multi Outlet Control



Manage Outlets schedule and auto shutdown

VANGUARD TOWER

Specifications

Tower model (with LCD display)		VGD-700	VGD-1000	VGD-1500	VGD-2000	VGD-3000	VGD-4000	VGD-5000	
CAPACITY	Capacity (VA)	700VA	1000VA	1500VA	2000VA	3000VA	4000VA	5000VA	
	Capacity (W)	490W	700W	1050W	1400W	2100W	2800W	3500W	
INPUT	Voltage / Load	100V, 110V, 115V, 120V, 127V			208V, 220V, 230V, 240V				
		Voltage / Range	Load Capacity		Voltage / Range	Load Capacity		Voltage / Range	Load Capacity
		60 ~ 69V	0 ~ 40%		120 ~ 139V	0 ~ 40%		120 ~ 139V	0 ~ 40%
		70 ~ 79V	0 ~ 70%		140 ~ 159V	0 ~ 70%		140 ~ 159V	0 ~ 70%
	80 ~ 144V	0 ~ 100%		160 ~ 276V	0 ~ 100%		160 ~ 276V	0 ~ 100%	
Frequency	50 / 60 Hz Auto Sensing								
OUTPUT	Voltage (on battery)	100V, 110V, 115V, 120V, 127V / 208V, 220V, 230V, 240V +/-2% (Selectable Output Voltage)							
	Frequency (on battery)	50 / 60 Hz +/-0.5%							
	Transfer Time	0 ms							
	Overload Recovery	Auto transfer to UPS							
	High Efficiency mode (AC to AC)	> 95 %							
	UPS Design Technology	On-Line / Fully digitized microprocessor controlled							
	Output Wave Form	Sinewave							
	Harmonic distortion	< 3% of T.H.D. at linear load							
	Crest Factor	3 : 1							
PROTECTION AND FILTERING	Surge Protection	120V (IEEE C62.41) / 230V (IEEEC61000-4-5 level 3)							
	Overload Protection	125% for 1 minutes and 150% for 10 seconds							
	Short Circuit Protection	UPS output cut off immediately or input fuse / circuit breaker protection							
SYSTEM DISPLAY / WARNING	Visual Display (LED model)	UPS on(green), line-mode(green), battery mode(yellow), bypass(yellow), fault(red)							
	Visual Display (LCD model)	Input / output voltage, input / output frequency, on-line mode, back up mode, battery capacity, load level							
	Audible Alarm (Battery back-up)	Beep every 5 sec							
	UPS Fault	Continuous beeping sound and LCD display							
	Communication	RS-232 Serial Port and USB							
BATTERY	Type	Sealed, maintenance-free lead acid batteries							
	DC Voltage (V) Battery (Tower)	24V / 12V7.2AH x 2	36V / 12V7.2AH x 3	36V / 12V9AH x 3	72V / 12V7.2AH x 6	72V / 12V9AH x 6	120V / 12V7AH x 10	120V / 12V9AH x 10	
	Typical Recharge Time to 90% Full	4 hours							
	Management	Self-test, adjustable battery transfer points and alarm settings							
	Battery Protection	Cut off without draining any current when battery is low							
	Cold Start (DC start)	YES							
	Back Up Time (Tower model)	7 min	7 min	6 min	7 min	6 min	5 min	6 min	
Back Up Time (Half Load)	15 min	15 min	15 min	15 min	15 min	15 min	15 min		
PHYSICAL	Input Inlet	NEMA 5-15 (120V) / IEC 320 (230V)					Hardwire		
	Receptacles	NEMA 5-15 (120V) / IEC 320 (230V)					IEC 320		
	Total Receptacles (UPS+Surge / Surge Only)	6 (120V) 4 (230V)			12 (120V) 8 (230V)		IEC 320 C13*8 IEC 320 C19*2		
	Tower Dimensions Inches mm (inch) W x D x H	152 x 420 x 237 (6.0" x 16.5" x 9.3")			225 x 420 x 360 (8.9" x 16.5" x 14.2")		257 x 590 x 570 (10.1"x23.2"x22.4")		
	Net Weight kg (lb)	13.9 (30.6)	17.1 (37.6)	17.7 (38.9)	33.8 (74.4)	35.6 (78.3)	86.0 (189.2)		
	Shipping Weight kg (lb)	15.6 (34.3)	18.9 (41.6)	19.5 (42.9)	36.0 (79.2)	38.0 (83.6)	106.0 (233.2)		
	ENVIRONMENT	Operating Temperature	0 - 40°C / 32 ~ 104°F						
		Storage Temperature	-20 ~ 50°C / -4 ~ 122°F						
Altitude		3,500 meters max							
Audible Noise (1 meter from surface)		< 40 dBA							
Relative Humidity		0 ~ 95% humidity, non-condensing							
CONFORMANCE	Safety	UL 1778, CE							
	EMC (EMS / EMI)	IEC 61000-4, FCC Part 15, CISPR 22							
	Warranty	2 years							
	Equipment Protection Policy	Warranty policy may vary depends on region							

VANGUARD TOWER

Specifications

Tower model (with LCD display)		VGD-6000	VGD-8000	VGD-10000	VGD-12000	VGD-15000	VGD-20000
CAPACITY	Capacity (VA)	6000VA	8000VA	10000VA	12000VA	15000VA	20000VA
	Capacity (W)	4200W	5600W	7000W	8400W	10500W	14000W
INPUT	Voltage / Load	208V, 220V, 230V, 240V					
		Voltage / Range	Load Capacity		Voltage / Range		Load Capacity
		120 ~ 139V	0 ~ 25%		180 ~ 276V		0 ~ 100%
		140 ~ 159V	0 ~ 50%				
	160 ~ 179V	0 ~ 75%					
Frequency	50 / 60 Hz Auto Sensing						
OUTPUT	Voltage (on battery)	100V, 110V, 115V, 120V / 208V, 220V, 230V, 240V +/-2% (Selectable Output Voltage)					
	Frequency (on battery)	50 / 60 Hz +/-0.5%					
	Transfer Time	0 ms					
	Overload Recovery	Auto transfer to UPS					
	High Efficiency mode (AC to AC)	> 97 %					
	UPS Design Technology	On-Line / Fully digitized microprocessor controlled					
	Output Wave Form	Sinewave					
	Harmonic distortion	< 3% of T.H.D. at linear load					
	Crest Factor	3 : 1					
PROTECTION AND FILTERING	Surge Protection	IEC61000-4-5 level 3					
	Overload Protection	125% for 1 minutes and 150% for 10 seconds (On-line) 130% for 10 seconds and 150% for 1.5 seconds (On-battery)					
	Short Circuit Protection	UPS output cut off immediately or input fuse / circuit breaker protection					
SYSTEM DISPLAY / WARNING	Visual Display (LED model)	UPS on(green), line-mode(green), battery mode(yellow), bypass(yellow), fault(red)					
	Visual Display (LCD model)	Input / output voltage, input / output frequency, on-line mode, back up mode, battery capacity, load level					
	Audible Alarm (Battery back-up)	Beep every 5 sec					
	UPS Fault	Continuous beeping sound and LCD display					
Communication	RS-232 Serial Port and USB						
BATTERY	Type	Sealed, maintenance-free lead acid batteries					
	DC Voltage (V) Battery (Tower)	240V / 12V7.2AH x 20	240V / 12V7.2AH x 20	240V / 12V9AH x 20	240V / 12V7.2AH x 20 x 2SET	240V / 12V7.2AH x 20 x 2SET	240V / 12V9AH x 20 x 2SET
	Typical Recharge Time to 90% Full	4 hours					
	Management	Self-test, adjustable battery transfer points and alarm settings					
	Battery Protection	Cut off without draining any current when battery is low					
	Cold Start (DC start)	YES					
	Back Up Time (Tower model)	About 6 min Full load / 15min Half load					
PHYSICAL	Input Inlet	Hardwire					
	Receptacles	Hardwire					
	Tower Dimensions Inches	257 x 590 x 570 (10.1"x23.2"x22.4")	257 x 690 x 715 (10.1" x 27.2" x 28.1")		342 x 690 x 878 (13.5"x27.2"x34.6")	342 x 863 x 905 (13.5" x 34.0" x 35.6")	
	Net Weight kg (lb) W/O ISOTR	86.0 (189.2)	80.0 (176.0)		130.0 (286.0)	175.0 (385.0)	
	Shipping Weight kg (lb) W/O ISOTR	106.0 (233.2)	101.5 (223.3)		151.5 (333.3)	196.0 (432.3)	
	Tower Dimensions Inches	257 x 590 x 700 (10.1"x23.2"x27.6")	342 x 690 x 715 (13.4" x 27.2" x 28.1")		342 x 690 x 878 (13.5"x27.2"x34.6")	342 x 863 x 905 (13.5" x 34.0" x 35.6")	
	Net Weight kg (lb) W/ ISOTR	123.0 (270.6)	130.0 (286.0)		180.0 (396.0)	225.0 (495.0)	
	Shipping Weight kg (lb) W/ ISOTR	145.0 (319.0)	151.5 (333.3)		201.5 (443.3)	246.5 (542.3)	
ENVIRONMENT	Operating Temperature	0 - 40°C / 32 ~ 104°F					
	Storage Temperature	-20 ~ 50°C / -4 ~ 122°F					
	Altitude	3,500 meters max					
	Audible Noise (1 meter from surface)	< 55 dBA					
	Relative Humidity	0 ~ 95% humidity, non-condensing					
CONFORMANCE	Safety	UL 1778, CE					
	EMC (EMS / EMI)	IEC 61000-4, FCC Part 15, CISPR 22					
	Warranty	2 years					
	Equipment Protection Policy	Warranty policy may vary depends on region					

VANGUARD RACK MOUNT

Specifications

19" rack-mount model	VGD-700-RM	VGD-1000-RM	VGD-1500-RM	VGD-2000-RM	VGD-3000-RM	VGD-5000-RM	VGD-6000-RM	
CAPACITY	Capacity (VA)	700VA	1000VA	1500VA	2000VA	3000VA	6000VA	
	Capacity (W)	490W	700W	1050W	1400W	2100W	4200W	
INPUT	Voltage / Load	100V, 110V, 115V, 120V, 127V			208V, 220V, 230V, 240V			
		Voltage / Range	Load Capacity	Voltage / Range	Load Capacity	Voltage / Range	Load Capacity	
	60 ~ 69V	0 ~ 40%	120 ~ 139V	0 ~ 40%	120 ~ 139V	0 ~ 40%		
	70 ~ 79V	0 ~ 70%	140 ~ 159V	0 ~ 70%	140 ~ 159V	0 ~ 70%		
	80 ~ 144V	0 ~ 100%	160 ~ 276V	0 ~ 100%	160 ~ 276V	0 ~ 100%		
Frequency	50 / 60 Hz Auto Sensing							
OUTPUT	Voltage (on battery)	100V, 110V, 115V, 120V, 127V / 208V, 220V, 230V, 240V +/-2% (Selectable Output Voltage)						
	Frequency (on battery)	50 / 60 Hz +/-0.5%						
	Transfer Time	0 ms						
	Overload Recovery	Auto transfer to UPS						
	High Efficiency mode (AC to AC)	> 95 %						
	UPS Design Technology	On-Line / Fully digitized microprocessor controlled						
	Output Wave Form	Sinewave						
	Harmonic distortion	< 3% of T.H.D. at linear load						
	Crest Factor	3 : 1						
	PROTECTION AND FILTERING	Surge Protection	120V (IEEE C62.41) / 230V (IEEEC61000-4-5 level 3)					
Overload Protection		125% for 1 minutes and 150% for 10 seconds						
Short Circuit Protection		UPS output cut off immediately or input fuse / circuit breaker protection						
SYSTEM DISPLAY / WARNING	Visual Display (LED model)	UPS on(green), line-mode(green), battery mode(yellow), bypass(yellow), fault(red)						
	Visual Display (LCD model)	Input / output voltage, input / output frequency, on-line mode, back up mode, battery capacity, load level						
	Audible Alarm (Battery back-up)	Beep every 5 sec						
	UPS Fault	Continuous beeping sound and LCD display						
	Communication	RS-232 Serial Port and USB						
BATTERY	Type	Sealed, maintenance-free lead acid batteries						
	DC Voltage (V) Battery (1U)	24V / 6V7.2AH x 4			None			
	DC Voltage (V) Battery (2U)	24V / 12V7.2AH x 2	36V / 12V7.2AH x 3	36V / 12V9AH x 3	72V / 12V7.2AH x 6	72V / 12V9AH x 6	None	
	DC Voltage (V) Battery (6U)	None					240V / 12V7.2AH x 20	
	Typical Recharge Time to 90% Full	4 hours						
	Management	Self-test, adjustable battery transfer points and alarm settings						
	Battery Protection	Cut off without draining any current when battery is low						
	Cold Start (DC start)	YES						
	Back Up Time (Full Load)	2U* = 7 min, 1U = 7 min	2U* = 7 min, 1U = 4 min	6 min	7 min	6 min	9 min	7 min
	Back Up Time (Half Load)	2U* = 15 min, 1U = 15 min	2U* = 15 min, 1U = 10 min	15 min	15 min	15 min	27 min	20 min
PHYSICAL	Input Inlet	NEMA 5-15 (120V) / IEC 320 (230V)						
	Receptacles	NEMA 5-15 (120V) / IEC 320 (230V)						
	Total Receptacles (UPS+Surge / Surge Only)	6 (120V) 4 (230V)			4 (120V) 4 (230V)		Hardwire	
	19" rack-mount	428 x 525 x 44			None		428 x 597 x 130 (Power Module)	
	Dimensions Inches mm (inch) W x D x H	(16.9" x 20.7" x 1.7") 1U					(16.9" x 23.5" x 5.1") 3U	
		428 x 425 x 84 (16.9" x 16.7" x 3.3") 2U			428 x 635 x 84 (16.9" x 25.0" x 3.3") 2U		428 x 597 x 130 (Battery Module) (16.9" x 23.5" x 5.1")	
	Net Weight kg (lb)	1U=15.0(33.0), 2U=15.4(33.9)	1U=15.0(33.0), 2U=18.7(41.4)	19.1 (42.0)	33.6 (73.9)	34.3 (83.6)	20.0 (44.0)(Power Module) 66.0 (145.2)(Battery Module)	
	Shipping Weight kg (lb)	1U=17.7(38.9), 2U=17.9(39.4)	1U=17.7(38.9), 2U=21.6(47.5)	21.7 (47.7)	36.7 (80.7)	38.3 (84.3)	24.0 (52.8)(Power Module) 75.5 (166.1)(Battery Module)	
ENVIRONMENT	Operating Temperature	0 - 40°C / 32 ~ 104°F						
	Storage Temperature	-20 ~ 50°C / -4 ~ 122°F						
	Altitude	3,500 meters max						
	Audible Noise (1 meter from surface)	< 40 dBA						
	Relative Humidity	0 ~ 95% humidity, non-condensing						
CONFORMANCE	Safety	UL 1778, CE						
	EMC (EMS / EMI)	IEC 61000-4, FCC Part 15, CISPR 22						
	Warranty	2 years						
	Equipment Protection Policy	Warranty policy may vary depends on region						

VANGUARD RACK MOUNT

Specifications

19" rack-mount model		VGD-8K-RM	VGD-10K-RM	VGD-2000-RM	VGD-4000-RM	VGD-5000-RM	VGD-2K-RM(2U+2U)	VGD-3K-RM(2U+2U)	
CAPACITY	Capacity (VA)	8000VA	10000VA	2000VA	4000VA	5000VA	2000VA	3000VA	
	Capacity (W)	5600W	7000W	1400W	2800W	3500W	1400W	2100W	
INPUT	Voltage / Load	208V, 220V, 230V, 240V							
		Voltage / Range	Load Capacity	Voltage / Range	Load Capacity	Voltage / Range	Load Capacity		
		60 ~ 69V	0 ~ 40%	120 ~ 139V	0 ~ 40%	120 ~ 139V	0 ~ 25%		
		70 ~ 79V	0 ~ 70%	140 ~ 159V	0 ~ 70%	140 ~ 159V	0 ~ 40%		
	80 ~ 144V	0 ~ 100%	160 ~ 276V	0 ~ 100%	160 ~ 179V	0 ~ 75%			
Frequency	50 / 60 Hz Auto Sensing								
OUTPUT	Voltage (on battery)	100V, 110V, 115V, 120V, 127V / 208V, 220V, 230V, 240V +/-2% (Selectable Output Voltage)							
	Frequency (on battery)	50 / 60 Hz +/-0.5%							
	Transfer Time	0 ms							
	Overload Recovery	Auto transfer to UPS							
	High Efficiency mode (AC to AC)	> 95 %							
	UPS Design Technology	On-Line / Fully digitized microprocessor controlled							
	Output Wave Form	Sinewave							
	Harmonic distortion	< 3% of T.H.D. at linear load							
	Crest Factor	3 : 1							
PROTECTION AND FILTERING	Surge Protection	120V (IEEE C62.41) / 230V (IEEEC61000-4-5 level 3)							
	Overload Protection	125% for 1 minutes and 150% for 10 seconds							
	Short Circuit Protection	UPS output cut off immediately or input fuse / circuit breaker protection							
SYSTEM DISPLAY / WARNING	Visual Display (LED model)	UPS on(green), line-mode(green), battery mode(yellow), bypass(yellow), fault(red)							
	Visual Display (LCD model)	Input / output voltage, input / output frequency, on-line mode, back up mode, battery capacity, load level							
	Audible Alarm (Battery back-up)	Beep every 5 sec							
	UPS Fault	Continuous beeping sound and LCD display							
	Communication	RS-232 Serial Port and USB							
BATTERY	Type	Sealed, maintenance-free lead acid batteries							
	DC Voltage (V) Battery	240V / 12V7.2AH x 20	240V / 12V9AH x 20	48V / 12V9AH x 4	120V / 12V7.2AH x 10	120V / 12V9AH x 10	72V / 12V7AH x 6	72V / 12V9AH x 6	
	Typical Recharge Time to 90% Full	4 hours							
	Management	Self-test, adjustable battery transfer points and alarm settings							
	Battery Protection	Cut off without draining any current when battery is low							
	Cold Start (DC start)	YES							
	Back Up Time (Full Load)	5 min	6 min	6 min	5 min	6 min	7 min	6 min	
	Back Up Time (Half Load)	12 min	15 min	15 min	12 min	15 min	15 min	15 min	
PHYSICAL	Input Inlet	NEMA 5-15 (120V) / IEC 320 (230V) / Hardwire							
	Receptacles	NEMA 5-15 (120V) / IEC 320 (230V)							
	Total Receptacles (UPS+Surge / Surge Only)	IEC 320 C13*4 IEC 320 C19*4		4 (120V) 4 (230V)		IEC 320 C13*8 IEC 320 C19*2		4 (120V) 4 (230V)	
	19" rack-mount Dimensions	428 x 658 x 260		428 x 500 x 84		428 x 658 x 130		428 x 425 x 84 (2U) (Power Module)	
	Inches mm (inch) W x D x H	(16.9" x 25.9" x 10.2") 6U		(16.9"x19.7"x33.0")2U		(16.9" x 25.9" x 5.1") 3U		428 x 425 x 84 (2U) (Battery Module)	
	Net Weight kg (lb)	110 (242)		27.0 (59.4)		51.0 (112.2)		24 (52.8) (Battery Module)	
	Shipping Weight kg (lb)	130 (286)		29.5 (64.9)		66.0 (145.2)		22 (48.4) (Battery Module)	
	ENVIRONMENT	Operating Temperature	0 - 40°C / 32 ~ 104°F						
		Storage Temperature	-20 ~ 50°C / -4 ~ 122°F						
Altitude		3,500 meters max							
Audible Noise (1 meter from surface)		< 40 dBA							
Relative Humidity		0 ~ 95% humidity, non-condensing							
CONFORMANCE	Safety	UL 1778, CE							
	EMC (EMS / EMI)	IEC 61000-4, FCC Part 15, CISPR 22							
	Warranty	2 years							
	Equipment Protection Policy	Warranty policy may vary depends on region							

VANGUARD 3 PHASE IN 1 PHASE OUT

Specifications

Tower model (with LCD display)		VGD-8K31	VGD-10K31	VGD-12K31	VGD-15K31	VGD-20K31
CAPACITY	Capacity (VA)	8000VA	10000VA	12000VA	15000VA	20000VA
	Capacity (W)	5600W	7000W	8400W	10500W	14000W
INPUT	Voltage / Load	208/360V, 220/380V, 230/400V, 240/415V (3 [±] 5W)				
		Load Capacity		Voltage / Range		Load Capacity
		208 ~ 241V	0 ~ 25%	312 ~ 478V		0 ~ 100%
		242 ~ 276V	0 ~ 40%			
	277 ~ 311V	0 ~ 75%				
Frequency	50 / 60 Hz Auto Sensing					
OUTPUT	Voltage (on battery)	100V, 110V, 115V, 120V / 208V, 220V, 230V, 240V +/-2% (Selectable Output Voltage)				
	Frequency (on battery)	50 / 60 Hz +/-0.5%				
	Transfer Time	0 ms				
	Overload Recovery	Auto transfer to UPS				
	High Efficiency mode (AC to AC)	> 97 %				
	UPS Design Technology	On-Line / Fully digitized microprocessor controlled				
	Output Wave Form	Sinewave				
	Harmonic distortion	< 3% of T.H.D. at linear load				
	Crest Factor	3 : 1				
PROTECTION AND FILTERING	Surge Protection	IEC61000-4-5 level 3				
	Overload Protection	125% for 1 minutes and 150% for 10 seconds 130% for 10 seconds and 150% for 1.5 seconds (On-battery)				
	Short Circuit Protection	UPS output cut off immediately or input fuse / circuit breaker protection				
SYSTEM DISPLAY / WARNING	Visual Display (LED model)	UPS on(green), line-mode(green), battery mode(yellow), bypass(yellow), fault(red)				
	Visual Display (LCD model)	Input / output voltage, input / output frequency, on-line mode, back up mode, battery capacity, load level				
	Audible Alarm (Battery back-up)	Beep every 5 sec				
	UPS Fault	Continuous beeping sound and LCD display				
Communication	RS-232 Serial Port and USB					
BATTERY	Type	Sealed, maintenance-free lead acid batteries				
	DC Voltage (V) Battery (Tower)	240V / 12V7.2AH x 20	240V / 12V9AH x 20	240V / 12V7.2AH x 20 x 2SET	240V / 12V7.2AH x 20 x 2SET	240V / 12V9AH x 20 x 2SET
	Typical Recharge Time to 90% Full	4 hours				
	Management	Self-test, adjustable battery transfer points and alarm settings				
	Battery Protection	Cut off without draining any current when battery is low				
	Cold Start (DC start)	YES				
	Back Up Time (Tower model)	About 6 min Full load / 15min Half load				
PHYSICAL	Input Inlet	Hardwire				
	Receptacles	Hardwire				
	Tower Dimensions Inches	257 x 690 x 715		342 x 690 x 878		342 x 863 x 905
	mm (inch) W x D x H W/O ISOTR	(10.1" x 27.2" x 28.1")		(13.5"x27.2"x34.6")		(13.5" x 34.0" x 35.6")
	Net Weight kg (lb) W/O ISOTR	80.0 (176.0)		176.5 (388.3)		175.0 (385.0)
	Shipping Weight kg (lb) W/O ISOTR	101.5 (223.3)		206.5 (454.3)		196.0 (432.3)
	Tower Dimensions Inches	342 x 690 x 715		342 x 690 x 878		342 x 863 x 905
	mm (inch) W x D x H W/ ISOTR	(13.4" x 27.2" x 28.1")		(13.5"x27.2"x34.6")		(13.5" x 34.0" x 35.6")
Net Weight kg (lb) W/ ISOTR	130.0 (286.0)		176.5 (388.3)		225.0 (495.0)	
Shipping Weight kg (lb) W/ ISOTR	151.5 (333.3)		206.5 (454.3)		246.5 (542.3)	
ENVIRONMENT	Operating Temperature	0 - 40°C / 32 ~ 104°F				
	Storage Temperature	-20 ~ 50°C / -4 ~ 122°F				
	Altitude	3,500 meters max				
	Audible Noise (1 meter from surface)	< 55 dBA				
Relative Humidity	0 ~ 95% humidity, non-condensing					
CONFORMANCE	Safety	UL 1778, CE				
	EMC (EMS / EMI)	IEC 61000-4, FCC Part 15, CISPR 22				
	Warranty	2 years				
	Equipment Protection Policy	Warranty policy may vary depends on region				

Available Through:

OUTPUT RECEPTACLE OPTION

