VRU Series UPS

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Corporate Profile

Velocity Technology Industries is a young, potent & dynamic growing company. Despite its humble beginnings, the company has been dedicated to establishing a professional relationship with its clients and setting an example in this field by providing the cutting-edge technological solutions while assuring high quality products and maintaining a remarkable record of market reputation. Backed up with its state-of the–art design and manufacturing technologies, we are able to stay in line with the changing market trend by being innovative through our continuous effort in research and development, to meet the ever increasing market demand.

Velocity has been working intensively to achieve its goal of maximizing the localization of products and intends to provide a one stop shopping experience for its local and regional customers.

Through the clear vision and entrepreneur spirit of our Managing Director, we have focused on developing long term relationships with our customers, suppliers and especially our employees. By being honest, reliable and trustworthy, we have succeeded in helping our customers to achieve product satisfaction towards our goods and services provided. We have implemented stringent quality control system to monitor the production line and finished products so as to assure our customers with only top quality and uniformity of our products.

We are a company that will overcome all difficulties and as such has committed ourselves to being flexible. With your support, we will be able to realize our vision. The best is yet to be.

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1.6 KVA ~ 6 KVA

True, Double-Conversion, On-line UPS

The advent of the 20th century brought about the Industrial age, foreseeing the major powers of the world going through the Industrial Revolution. As we enter a new era in the 21st century, industrialization became global, this translated to a massive demand in power requirements. The Information age further increased our dependency on power. Power sufficiency was not the only requirement, with it came the demand for quality, reliability and consistency.

We at Velocity are dedicated to provide your business that edge with our state-of-the art series of true on-line Uninterruptible Power Supplies (UPS).

The VRU Series features:

- Double Conversion
- Continuous battery charger and inverter for primary power path
- Constant battery connection to inverter and load
- Guaranteed full power operation during power failure
- No voltage drop and zero transfer time
- Light weight unit
- Hot-swappable battery
- User-friendly Graphic LCD
- 19” Rack Mount or Vertical Tower Type

Applications

- Computers
- Network Servers
- Workstations
- Wireless Communications
- Security
- Other Electronic Peripherals

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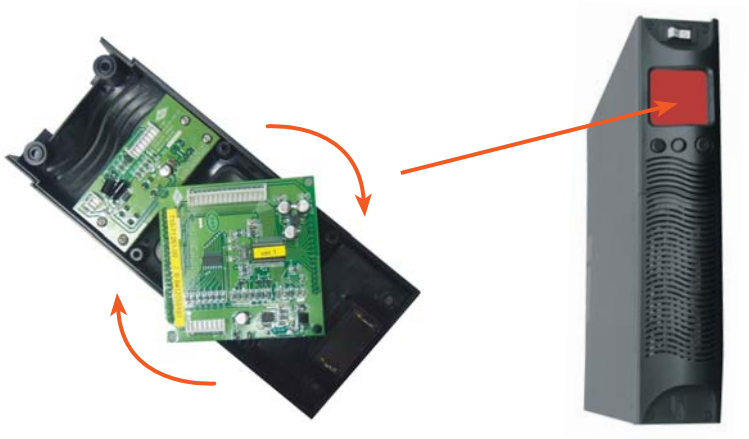
Features & Benefits

Flexible Mounting Orientation

Allows system integrators more flexibility in designing their backup power system to maximize space. With the rotatable LCD design, installers can mount the UPS vertically or horizontally.



User-friendly Graphic LCD

This robust LCD display field service engineers to easily troubleshoot the UPS without opening the case, thus reducing downtime.

Single Voltage Battery Pack Design

A 48VDC standard battery pack design comprised of 4 x 12V7AH is used in all VRU series UPS models and is interchangeable with each other.

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Features & Benefits

Hot-swappable Battery

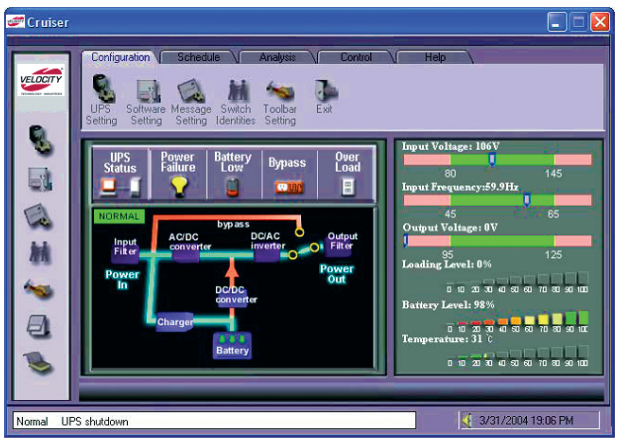
The standard 48VDC battery pack saves user the hassle of battery replacement. Users simply slide the used battery pack out of the unit and replace it with a new pack. Interchangeability of the VRU battery pack allows the system operate with no downtime.

Light Weight Advantage

The light weight of VRU model allows user to install as one man team installation. In addition the light weight design not only significantly reduces the risk of any injuries during installation, but also is cost effective.

User remote interface

The off-site user can now test, set parameters, monitor power status, save file, and shutdown the system all via remote interface. The user-remote interface includes SNMP/HTTP Card, RS232, USB, DB9 and AS400 interface.



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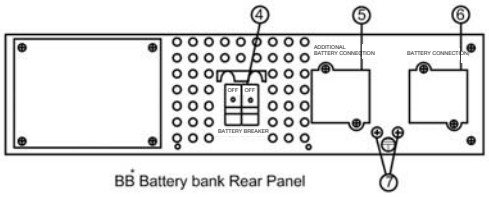
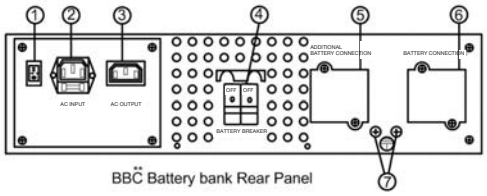
Battery Bank Connection

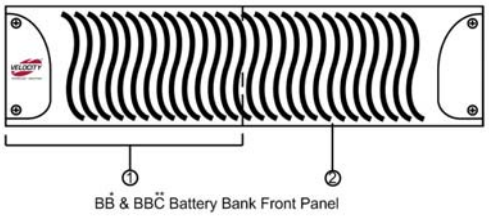


BB* Battery bank Rear Panel



BBC** Battery bank Rear Panel

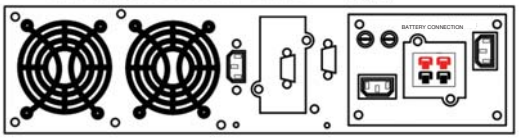
No.	Item	No.	Item
1	ON / OFF	5	Additional Battery Connection
2	AC Input	6	Battery Connection
3	AC Output	7	Grounding Terminal
4	Battery Breaker		



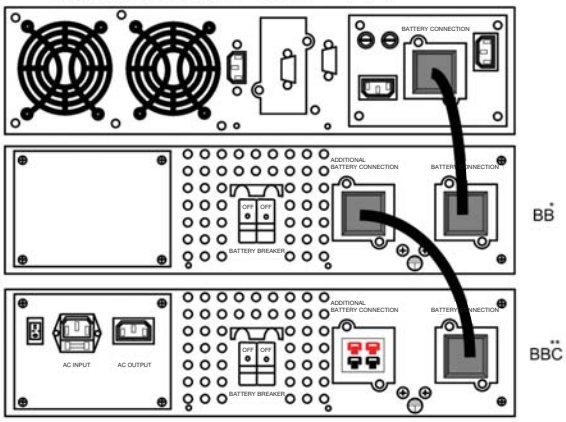
BB* & BBC** Battery Bank Front Panel

No.	Item
1	Battery Bank Front Panel
2	Battery Pack Panel

VRU Series UPS 1500VA ~ 1600VA (Fig 1)

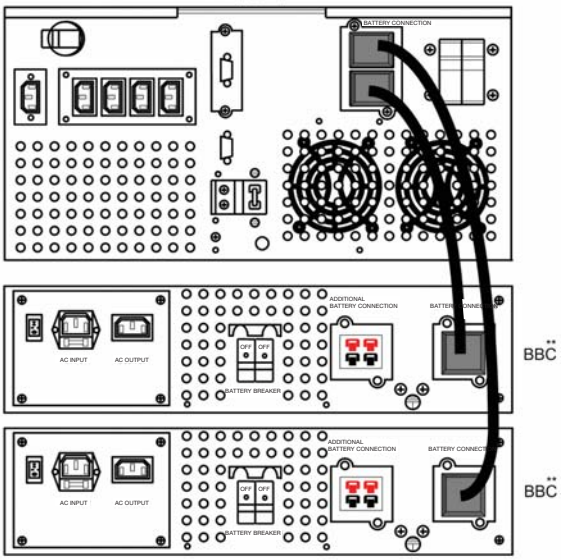


VRU Series UPS 1500VA ~ 1600VA (Fig 2)



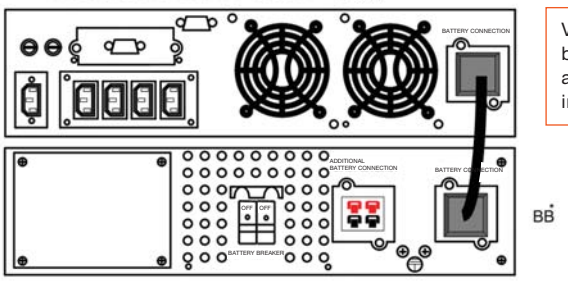
VRU 1500 ~ 1600 comes with internal battery pack (Fig. 1). For extended and longer back-up time, battery bank (BB or BBC) could be used. Refer to (Fig. 2) for installation.

VRU Series UPS 6KVA (Fig 4)



VRU 6000 does not contain internal battery pack and it operates with 192VDC. Since each battery bank delivers 96VDC, this unit requires two battery banks (BB to BBC) in order to deliver 192V DC for operation. For installation, refer to (Fig. 4).

VRU Series UPS 2200VA ~ 3200VA (Fig3)



VRU 2200 ~ 3200 does not contain internal battery pack. In order to operate the unit, a battery bank (BB or BBC) must be installed. For installation, refer to (Fig. 3).

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*BB Stands for Battery Bank
**BBC Stands for Battery Bank with Internal Charger

Specification

Model	VRU1500	VRU1600	VRU2200
Topology	True On - Line, Double Conversion		
On-Battery Output Waveform	True Sine Wave		
Number of Phase	Single (1µ2W + G)		
Input			
Maximum Capacity (VA/W)	1500 VA / 1050 W	1600 VA / 1120 W	2200 VA / 1540 W
Nominal Input Voltage	120 V	230 V	120 V
Input Voltage Regulation	80 to 138 VAC	160 to 276 VAC	80 to 138 VAC
Nominal Input Frequency	50 / 60 Hz +/- 5Hz		
Input PFC	>0.98 @ full load		
Input Short Protection	Circuit Breaker		
Output			
Nominal Output Voltage	100 / 110 / 115 / 120 VAC	208 / 220 / 230 / 240 VAC	100 / 110 / 115 / 120 VAC
Output Voltage Regulation	Rated Voltage +/- 2%		
Output THD	<3% @ Linear Load		
High Efficiency Mode (AC to AC)	>86%	>86%	>88%
Crest Factor	3:01		
Start on Battery	Yes		
Output Frequency	50 / 60 Hz (Autotracking)		
Overload Capability	Sustaining 50 sec @ 108% load: 28 sec @ 110-120% load; 15 sec @ 120-130% load; 9 sec @ 140-145% load; immediate Response @ 150% load		
Battery			
User Replaceable Battery	1 x 48 VDC Battery Pack	1 x 48 VDC Battery Pack	96V (2 x 48 VDC Battery Pack)
Typical Backup Time (Full/Half Load)	7 / 18 minutes	7 / 18 minutes	8 / 20 minutes
Battery Type	Sealed VRLA 12V7AH; Hot Swap		
Recharge Time to 90%	8 hours		
Extended Battery Cabinet	Extendible Battery Module in 2U High (Comprises 2 x 48VDC Battery Packs)		
Advance Warning Diagnostics			
Front Panel Indication	Front Panel menu driven LCD Monitoring and control panel for all functions		
Audible Alarms	DC Mode, Low Battery, Voltage / Frequency Error, Charger Fail. High Temp, Over Load, Fault, PFC Overload		
Communication Interface			
Communication Port	RS-232 Port (Standard): DB9, AS400, USB Cards (Optional)		
SNMP Manageable	Yes		
Environmental			
Operation Temperature	0-40°c (32 - 104F)		
Storage Temperature	-15 - 40°c (5 - 122F)		
Relative Humidity	0% to 95% non-condensing		
Audible Noise (at 1 meter from surface of unit)	<45 dBA @ 1 meter		
Mechanical			
Dimensions-Rackmount (W x H x D mm)	426 x 88.4 (2U) x 545 mm	426 x 88.4 (2U) x 545 mm	426 x 176.8 (4U) x 545 mm
Dimensions-Tower (W x H x D mm)	88.4 x 426 x 545 mm	88.4 x 426 x 545 mm	176.8 x 426 x 545 mm
Weight (UPS / Battery Banks)	24.5 kg	24.5 kg	14.5 / 32.5 kg
Total Weight	24.5 kg	24.5 kg	47 kg
Conformance			
EMI / RFI Compatibility	FCC Class A	EN50091-2 Class B, EN55022B	FCC Class A
Safety Certifications	UL	CE, TUV / GS	UL

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Specification

VRU2500	VRU3000	VRU3200	VRU6000
True On - Line, Double Conversion			
True Sine Wave			
Single (1µ2W + G)			
2500 VA / 1750 W	3000 VA / 2100 W	3200 VA / 2240 W	6000 VA / 4200 W
230 V	120 V	230 V	230 V
160 to 276 VAC	80 to 138 VAC	160 to 276 VAC	160 to 276 VAC
50 / 60 Hz +/- 5Hz			
>0.98 @ full load			
Circuit Breaker			
208 / 220 / 230 / 240 VAC	100 / 110 / 115 / 120 VAC	208 / 220 / 230 / 240 VAC	208 / 220 / 230 / 240 VAC
Rated Voltage +/- 2%			
<3% @ Linear Load			
>88%	>88%	>88%	>88%
3:01			
Yes			
50 / 60 Hz (Autotracking)			
Sustaining 50 sec @ 108% load: 28 sec @ 110-120% load; 15 sec @ 120-130% load; 9 sec @ 140-145% load; immediate Response @ 150% load			
96V (2 x 48 VDC Battery Pack)	96V (2 x 48 VDC Battery Pack)	96V (2 x 48 VDC Battery Pack)	192V (2 x 96 VDC Battery Banks)
8 / 20 minutes	6 / 17 minutes	6 / 17 minutes	5 / 14 minutes
Sealed VRLA 12V7AH; Hot Swap			
8 hours			
Extendible Battery Module in 2U High (Comprises 2 x 48VDC Battery Packs)			
Front Panel menu driven LCD Monitoring and control panel for all functions			
DC Mode, Low Battery, Voltage / Frequency Error, Charger Fail. High Temp, Over Load, Fault, PFC Overload			
RS-232 Port (Standard): DB9, AS400, USB Cards (Optional)			
Yes			
0-40°c (32 - 104F)			
-15 - 40°c (5 - 122F)			
0% to 95% non-condensing			
<45 dBA @ 1 meter			
426 x 176.8 (4U) x 545 mm	426 x 176.8 (4U) x 545 mm	426 x 176.8 (4U) x 545 mm	426 x 353.6 (8U) x 545 mm
176.8 x 426 x 545 mm	176.8 x 426 x 545 mm	176.8 x 426 x 545 mm	353.6 x 426 x 545 mm
13.5 / 32.5 kg	14.5 / 32.5 kg	13.5 / 32.5 kg	26.5 / 65 kg
46 kg	47 kg	46 kg	91.5 kg
EN50091-2 Class B, EN55022B	FCC Class A	EN50091-2 Class B, EN55022 B	EN50091-2 Class A, EN55022 A
CE, TUV / GS	UL	CE, TUV / GS	CE, TUV / GS

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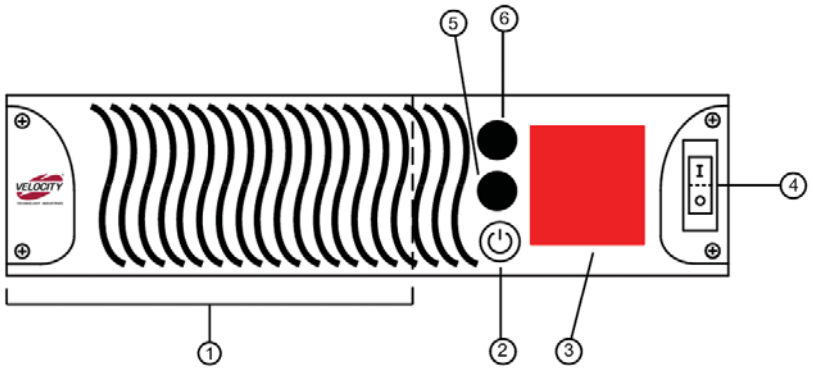
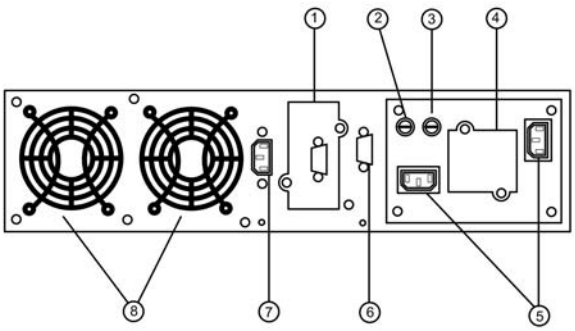
Mechanical Overview

Front Panel Layout

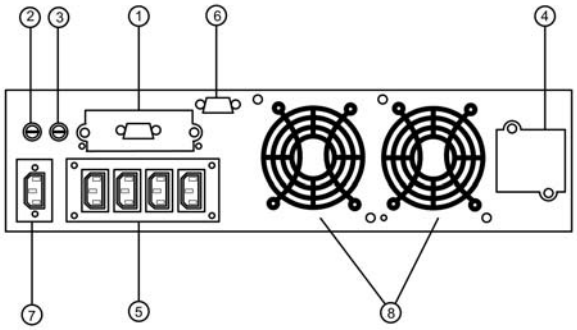
Front Panel Layout	
No.	**Item**
1	Battery Pack for VRU 1500 / 1600 or Power Electronic Board for VRU 2200/2500/3000/3200 and 6000
2	ON / OFF
3	Graphic LCD
4	Input Breaker
5	Set / Alarm Silence
6	Function Test



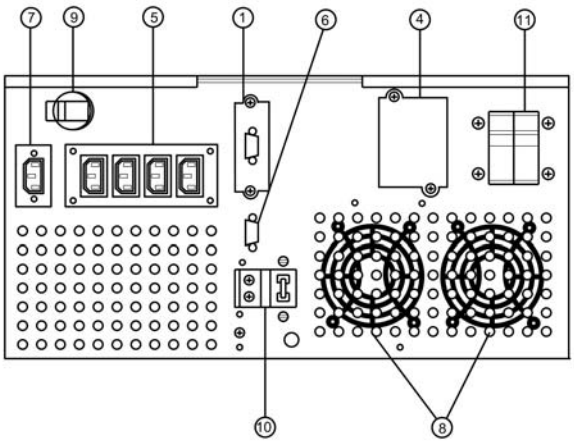
Rear Panel Layout



VRU Series UPS 1.5KVA ~ 1.6KVA



VRU Series UPS 2.2KVA ~ 3.2KVA



VRU Series UPS 6KVA

Rear Panel Layout		
No.	**Item**	**Description**
1	Option communication Interface Slot	Option slot allows user to fit VRUPS-VFC dry contact card or SNMP internal network adaptor
2	I/P Fuse	Input Fuse
3	O/P Fuse	Output Fuse
4	Battery Connector	Allow user to connect external battery packs
5	Outlets	AC Outlets
6	RS232	Standard serial RS232 communications via 9 pin D type connector
7	Main Inlet	AC Inlet
8	Fan	Air Circulation
9	Main Input Breaker	Input breaker for 6 KVA models
10	REPO Port	Remote emergency power off (remove link to shutdown)
11	Battery Fuse	Battery fuse

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Mechanical Format

VRU UPS1500 ~ VRU UPS1600
- Standard unit with internal batteries 2U
- Each additional battery adds 2U

VRU UPS2200 ~ VRU UPS3200
- Standard unit without battery 4U
- Each additional battery adds 2U

VRU UPS6000
- Standard unit without battery 4U
- Each additional battery comprises 2 x 2U (4U)

Standard Accessories

Foot Assembly

Two foot assembly for tower configuration are supplied with VRU series UPS with standard autonomy. The optional links that extend the standard foot assembly are available when extended battery modules apply.

Mounting Angles

A pair of endplate is available for 19” rack mounting.

Graphic LCD display

Buzzer	When the UPS fails, the symbol will flash.
Green Mode	When UPS is in Green Mode, the symbol will flash.
Fault	When the UPS has failed and must be repaired, the symbol will flash.
Test	When UPS is conducting Battery Self-Test under Normal Mode, the symbol will flash.
Load	The higher the load, the more bars will illuminate.
Inverter	When inverter is normal, the symbol will illuminate.
PFC	When Power factor Corrector (PFC) is normal, the symbol will illuminate.
Line	When utility power is normal, the symbol will illuminate.
Charger	When Charger is in normal operation, the symbol will illuminate.
Boost	When UPS starts Battery Boost, the symbol will illuminate.
Battery	The bars indicate an approximate amount of battery charge remaining. Every bar represents 25% of battery capacity.
Fan (High Speed)	UPS is in Battery Mode.
Fan (Medium Speed)	UPS is in Normal Mode.
Fan (Low Speed)	UPS is in Bypass Mode.

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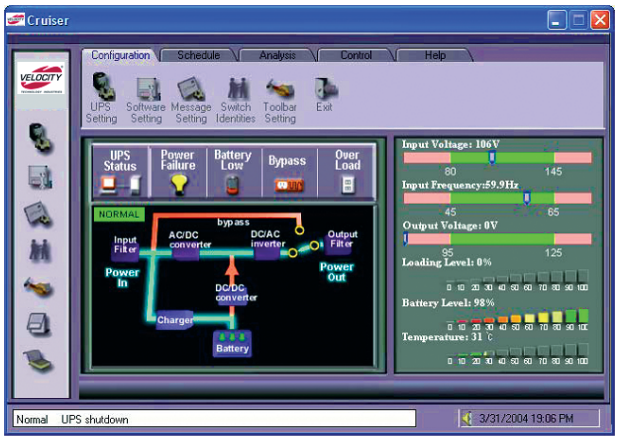
Intelligent Power Management Software

Cruiser

Cruiser software has been designed in such a way that it allow users to modify according to their requirement. Cruiser can control and monitor any failures such as power failure, system shutdown and range of any events, that might take place and will send message via LAN or wireless communication to the responsible operator.



Features

- Green mode supported
- PFC status display
- Cross platform supported
- UPS monitoring utility
- Scheduled system shutdown
- Graphic display of UPS status
- Warning notification via LAN or wireless
- Customised controls
- User-definable warnings
- Multi-language versions
- “Read & Write” functions when setting output voltage and frequency (optional)

Interface & OS compatibilities

- **RS232**
  Windows : Win95, WinNT4.0, Win98SE, Win2000, Winme, WinXP
  Linux : 7.0~7.3, 8.0~8.4, 9.0
  Mandrake: 8.2, 8.3, 8.4, 9.0
  Novell : 4. x, 5.1

- **USB**
  Windows : Win98SE, Win2000, Winme, WinXP

Other major UPS monitoring software and SNMP/HTTP Cards compatible with all VRU Series UPS

(For more information, please contact Velocity US sales offices)

Rups via contact Closure(DB9)

Internal or External Networking Card:
Net Agent II or USHA PRO (SNMP,HTTP,PPP,TCP/IP, etc)

UPSilon via RS232

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Battery Runtime

RUN TIME CHART in Minutes

Output Load / UPS Model	200 VA (140 W)	400 VA (280 W)	600 VA (420 W)	800 VA (560 W)	1000 VA (700 W)	1500 VA (1050 W)	2000 VA (1400 W)	2500 VA (1750 W)	3000 VA (2100 W)	3200 VA (2240 W)	4000 VA (2800 W)	6000 VA (4200 W)
VRU 1500	63	34	19	13	9	7						
+1BB**	274	142	88	62	53	31						
+1BB +1BBC***	491	260	175	131	96	60						
+2BB +1BBC	-	377	264	193	154	92						
VRU 1600	67	38	21	15	10	8						
+1BB	279	148	93	64	55	33						
+1BB +1BBC	505	266	179	135	98	62						
+2BB +1BBC	-	380	268	196	157	94						
VRU 2200	242	88	62	42	31	12	9					
+1BB	373	241	184	98	75	43	27					
+1BB +1BBC	-	487	244	172	140	62	52					
+1BB +2BBC	-	-	364	243	195	101	66					
VRU 2500	247	92	65	47	34	15	9	8				
+1BB	379	244	186	107	78	44	29	20				
+1BB +1BBC	-	491	249	179	142	66	53	41				
+1BB +2BBC	-	-	366	255	197	104	68	58				
VRU 3000	253	94	67	49	36	18	11	8	6			
+1BB	383	246	189	109	79	49	29	21	16			
+1BB +1BBC	-	493	153	182	147	69	54	42	31			
+1BB +2BBC	-	-	367	259	202	106	69	59	49			
VRU 3200	255	95	69	50	36	19	12	9	7	6		
+1BB	385	247	190	111	81	50	30	21	17	16		
+1BB +1BBC	-	495	156	183	148	70	55	43	32	30		
+1BB +2BBC	-	-	369	261	204	107	70	60	50	48		
VRU 6000	-	140	95	68	59	40	25	18	14	12	9	5
+2BBC	-	313	231	179	148	91	62	54	44	38	28	15
+2BB +2BBC	-	503	365	290	238	161	112	82	65	58	52	28

RUN TIME CHART in Minutes

Output Load / UPS Model	400 VA (280 W)	800 VA (420 W)	1000 VA (560 W)	1500 VA (700 W)	2000 VA (1050 W)	2500 VA (1400 W)	3000 VA (1750 W)	4000 VA (2240 W)	6000 VA (4200 W)
VRU 1500 +2BB +3BBC	550	280	220	132					
VRU 1600 +2BB +3BBC	560	290	230	135					
VRU 2200 +2BB +4BBC	750	330	240	168	120	90			
VRU 2500 +2BB +4BBC	760	338	246	171	124	92			
VRU 3000 +2BB +3BBC	570	250	195	128	95	65	55		
VRU 3200 +2BB +3BBC	580	260	208	135	99	68	57		
VRU 6000 +2BB +8BBC	1230	590	450	290	230	200	160	85	65

***BP Stands for Battery Pack**	**1 x 48VDC 7Ah**	**4 x 12 x 7**	**P/No. VRU-BP**
****BB Stands for Battery Bank**	**2 x 48VDC 7Ah**	**2 x (4 x 12 x 7)**	**P/No. VRU-BB**
****BBC Stands for Battery Bank with Internal Charger**	**2 x 48VDC 7Ah**	**2 x (4 x 12 x 7)**	**P/No. VRU-BBC**

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Notes

VRU Series UPS

Worldwide Office:

USA
Velocity Technology Industries LLC
115 Vista Del Prado
Los Gatos Ca. 95030 USA
Tel : 408-354-4184
Fax : 408-354-3452
E-mail : sales@velocityti.com
www.velocityti.com

Asia Pacific
Velocity Technology Industries Pte Ltd
35 Tannery Road,
#09-03, Ruby Industrial Complex
Tannery Block,
Singapore 347740
Tel : 6741 7229
Fax : 6741 1986
E-mail : velocity.sg@velocityti.com
www.velocityti.com

For drawing, technical data or samples, contact our Velocity sales engineer. Specification subject to change. Consult Velocity Technology Ind. for latest specification.