RT1.5kVA, RT2.2kVA and RT3kVA 2U Rack or Tower Uninterruptible Power Supplies
Product Guide (withdrawn product)

The RT1.5kVA, RT2.2kVA, and RT3kVA 2U Rack or Tower Uninterruptible Power Supply (UPS) offerings provide extended power protection with increased efficiency and simplified power management to safeguard the high-availability of Lenovo server environments. With efficiency ratings of up to 99%, these compact 2U rack or tower designs can help reduce energy usage without compromising performance or reliability.

The 2U Rack or Tower UPS units can be installed in a data center rack cabinet or can be used as tower UPS units in office and distributed IT environments where extended power protection is required.

The 2U Rack UPS unit with the Extended Battery Module is shown in Figure 1.

Figure 1. 2U Rack UPS unit (top) with Extended Battery Module (bottom)

Did you know?

2U Rack or Tower UPS units feature Advanced Battery Management (ABM) technology that uses a unique, three-stage charging technique that significantly extends battery service life and optimizes recharge time compared to traditional charging methods.

2U Rack or Tower UPS units can enhance system availability with individual receptacle groups or load segments that can be programmed and controlled, which allows mission-critical devices to be prioritized during shutdown to preserve battery run time if there is a prolonged power outage.

2U Rack or Tower UPS units come standard with UPS Power Manager software that integrates seamlessly with the major virtualization platforms, which enables you to view and manage your entire power system from your current dashboard. It also triggers live migration during power outages and avoids data loss by gracefully shutting down virtual machines and hosts in a cluster if there is an extended power outage.

Ordering information

Table 1 shows the orderable part numbers and feature codes for the 2U Rack or Tower UPS models and options.

Table 1. Ordering part numbers and feature codes

Part number	Feature code	Description
UPS units		
55941AX	A53S (5594-RU1)	RT1.5kVA 2U Rack or Tower UPS (100-125VAC)
55941KX	A53T (5594-RU1)	RT1.5kVA 2U Rack or Tower UPS (200-240VAC)
55942AX	A53U (5594-RU2)	RT2.2kVA 2U Rack or Tower UPS (100-125VAC)
55942KX	A53V (5594-RU2)	RT2.2kVA 2U Rack or Tower UPS (200-240VAC)
55943AX	A53W (5594-RU3)	RT3kVA 2U Rack or Tower UPS (100-125VAC)
55943KX	A53X (5594-RU3)	RT3kVA 2U Rack or Tower UPS (200-240VAC)*
Extended Battery Modules (EBMs)		
55942BX	A53Y	1.5kVA/2.2kVA 2U Rack or Tower Extended Battery Module
55943BX	A53Z	3kVA 2U Rack or Tower Extended Battery Module
Options		
46M4110	6145	UPS Network Management Card*
46M4113	6146	Environmental Monitoring Probe

* RT3kVA 2U Rack or Tower UPS (200-240VAC) comes standard with the UPS Network Management Card included in the box.

Note: listed units above, are not entitled to a free 3-year IPM license.

The UPS models are shipped with the following items:

- An accessory kit that contains the following items:
    - Rack-mount kit
    - Rack installation instructions
    - Tower kit
    - Serial cable: 1.2 m (4 ft)
    - USB cable
    - Remote On/Off (ROO) and Remote Power Off (RPO) connector
- Documentation package
- Software CD, which contains UPS Manager power management software

The Extended Battery Modules are shipped with the following items:

- An accessory kit that contains the following items:
    - Rack-mount kit
    - Tower kit
    - EBM power cable
    - EBM detection cable

The 100-125 V UPS models ship with the following fixed line cords:

- RT1.5kVA 2U Rack or Tower UPS (100-125VAC): 2.5 m (8 ft) line cord with NEMA 5-15P plug
- RT2.2kVA 2U Rack or Tower UPS (100-125VAC): 2.5 m (8 ft) line cord with NEMA 5-20P plug
- RT3kVA 2U Rack or Tower UPS (100-125VAC): 2.5 m (8 ft) line cord with NEMA L5-30P plug

The RT1.5kVA, RT2.2.kVA, and RT3kVA 200-240 V UPS models do not ship with line cords. Table 2 and Table 3 list the compatible line cords which are suitable for RT1.5kVA and RT2.2kVA/RT3kVA 200-240 V UPS models, respectively.

Table 2. Line cords for 200-240 V units (RT1.5kVA models)

Description	Part number	Feature code
Argentina 10A/250V C13/ IRAM 2073 4.3m line cord	81Y2384	6492
Australia 10A/250V C13/ AS/NZS 3112/2000 4.3m line cord	81Y2383	6574
Brazil 10A/250V C13/ NBR 14136 4.3m line cord	81Y2387	6404
China 10A/250V C13 / GB2099.1 4.3m line cord	81Y2378	6580
Denmark 10A/250V C13/SB107-2-DI 4.3m line cord	81Y2382	6575
Europe 10A/250V C13 / CEE 7/7 4.3m line cord	81Y2376	6572
India 10A/250V C13/IS 6538 4.3m line cord	81Y2386	6567
Israel 10A/250V C13/ SI 32 4.3m line cord	81Y2381	6579
Italy 10A/250V C13/ CEI 23-16 4.3m line cord	81Y2380	6493
Korea 12A/250V C13/KSC 8305 4.3m line cord	81Y2385	6494
South Africa 10A/250V C13/ SANS 164-1 4.3m line cord	81Y2379	6576
Switzerland 10A/250V C13/SEV 1011 4.3m line cord	81Y2390	6578
Taiwan 10A/250V C13/CNS 10917 4.3m line cord	81Y2389	6531
United Kingdom 10A/250V C13 / BS 1363A 4.3m line cord	81Y2377	6577

Table 3. Line cords for 200-240 V units (RT2.2kVA/RT3kVA models)

Description	Part number	Feature code
C19 4.3m cord - NEMA L6-20P	40K9772	6275
C19 4.3 meter Line Cord - UK	40K9767	6278
C19 4.3 meter Line Cord - Europe	40K9766	6279
C19 4.3 meter Line Cord - S Africa	40K9770	6280
C19 4.3 meter Line Cord - Italy	40K9768	6281
C19 4.3 meter Line Cord - Israel	40K9771	6282
C19 4.3 meter Line Cord - Dmk/Swiss	40K9769	6283
C19 4.3 meter Line Cord - Australia/NZ	40K9773	6284
C19 4.3 meter Line Cord - India	40K9776	6285
Taiwan 16A/250V C19/CNS 10917 4.3m line cord	90Y3035	6287
C19 4.3 meter Line Cord - China	40K9774	6288
South Korea 15A/250V C19/KSC 8305 4.3m line cord	90Y3034	6289
Japan 15A/200V C19/JIS C-8303 4.3m line cord	41Y9233	6291
C19 4.3 meter Line Cord - Argentina	40K9777	6276
C19 4.3 meter Line Cord - Brazil	40K9775	6277

All 2U Rack or Tower UPS models except model 3KX come equipped with a communication bay for the installation of an optional Network Management Card (46M4110). Model 3KX ships standard with a Network Management Card (NMC) in the box.

The NMC provides convenient, over-the-network UPS remote monitoring and management through a standard web browser or UPS Power Manager software. Figure 2 shows the UPS NMC.

Figure 2. UPS Network Management Card

The NMC has the following features:

- Versatile connectivity through HTTP, SNMP, SMTP, Telnet, SSL, and SSH
- Simultaneous shutdown of protected servers
- Configuration of automatic email messages in response to UPS alarms and to transmit reports
- Customizable actions, including automatic shutdown if there is an extended power failure with standard UPS Power Protector software
- Control of UPS on/off switching with a web browser
- Adjustment and control of load segments through the HTML interface, including sequential starting of the installation and optimization of backup time by shutting down non-priority systems
- Automatic date and time adjustment through an NTP server
- Dual stack IP v4/IP v6
- Recording of events and measurements in the card log
- Data and event logging in the nonvolatile memory
- Card firmware update through the network
- 10/100 Mb Ethernet (RJ-45 connector) with auto-negotiation
- Measurement of humidity and temperature with the optional Environmental Monitoring Probe (EMP)
- Easy installation (can be installed while the UPS is online, which maintains the highest availability)

An optional EMP (part number 46M4113) is used to report local temperature and humidity values and make that information available to management tools. The EMP connects to the UPS via the NMC.

Figure 3. Environmental Monitoring Probe

The EMP has the following features:

- Monitors temperature, humidity, and status of two user-provided contact devices/sensors
- Connects to an NMC through an RJ-45 CAT5 Ethernet cable (1 m cable included with the EMP)
- Can be located up to 20 m (65.6 ft) from the UPS
- Measures ambient temperatures between 0 - 80 °C (32 - 176 °F) with an accuracy of ±1 °C
- Measures relative humidity between 10 - 90% with an accuracy of ±5%
- Temperature, humidity, and contact closure status can be displayed through a web browser
- Supports user-defined alarm thresholds for temperature, humidity, and contact closure status
- Events are stored in the NMC's event log
- Sends SNMP alarms to network management systems
- Sends e-mail notifications through SMTP

Features

A UPS is a device that acts as a defensive barrier between electronic equipment and incoming power problems. It conditions, regulates, and filters out power disturbances to ensure a clean power source for IT equipment. A UPS also provides battery backup if there is a power failure.

In today's high availability server environments, unplanned power outages or line quality irregularities can have a considerable financial impact on all sized businesses. The typical utility power is 99.9% available, but that means that there can be almost 9 hours of downtime a year, not to mention brownouts and other power quality problems. Selecting the right UPS can help protect against these potentially costly incidents.

The RT1.5kVA, RT2.2kVA and RT3kVA 2U Rack or Tower UPS units are most effective against power failures, power sags, power surges, under-voltage, and over-voltage.

The RT1.5kVA, RT2.2kVA and RT3kVA 2U Rack or Tower UPS models offer the following features:

- High-efficiency protection for more real power (Watts) in a compact tower or 2U rack design, which lowers power and cooling consumption
- A graphical Liquid Crystal Display (LCD) that provides intuitive configuration, management, and monitoring capabilities in the following languages to reduce management complexity:
  - English
  - French
  - German
  - Spanish
  - Russian
  - Portuguese
  - Italian
- Hot-swappable batteries for maximum uptime, availability, and ease of maintenance
- Standard UPS Power Manager software that provides effective local or remote power monitoring and management for servers and virtual machines, and allows for graceful remote system shutdown
- ABM technology that significantly extends battery service life and optimizes recharge time
- Load segments for individual control of receptacle groups to manage sequential shut downs and start ups and reserve battery run time for the most critical equipment
- Optional external battery modules (EBMs) that provide extra run time to critical systems during a prolonged power outage
- An optional NMC for enhanced UPS monitoring and control over-the-network through a standard web browser
- An optional EMP for thermal management requirements (temperature and humidity)

- Dual channel communication through the USB or RS-232 port and an optional NMC at the same time to maximize communications flexibility
- The USB port supports HID (Human Interface Device) Power Device Class which means that the UPS can be directly managed by operating systems that support such USB classes.
- Remote flash upgradeable firmware for the UPS and NMC, which makes it an ideal solution for remote locations
- An ROO/RPO port to control power of the UPS unit through a wired remote switch

Technical specifications

Table 4 lists the technical specifications for the 100-125 V UPS models.

Table 3. Technical specifications for 100-125 V models

Specification	RT1.5kVA 2U Rack or Tower UPS (100-125VAC)	RT2.2kVA 2U Rack or Tower UPS (100-125VAC)	RT3kVA 2U Rack or Tower UPS (100-125VAC)
General			
Part number	55941AX	55942AX	55943AX
Form factor	2U Rack or Tower	2U Rack or Tower	2U Rack or Tower
Topology	Line interactive, high frequency, sinewave output		
VA/Watts rating	1440 VA/1440 W @ 120 V	1950 VA/1920 W	3000 VA/2700 W
Efficiency (on utility power)	Up to 98%	Up to 99%	Up to 99%
Energy Star compliant	Yes	Yes	Yes
Electrical input			
Input voltage	100 - 125 V AC	100 - 125 V AC	100 - 125 V AC
Input frequency	50/60 Hz	50/60 Hz	50/60 Hz
Max input amperage	12 A	16 A	24 A
Input connector	NEMA 5-15P (12 A)	NEMA 5-20P (16 A)	NEMA L5-30P (24 A)
Input line cord	Fixed 2.5 m (8 ft) NEMA 5-15P	Fixed 2.5 m (8 ft) NEMA 5-20P	Fixed 2.5 m (8 ft) NEMA L5-30P
Electrical output			
Output voltage settings	100/120/125 V AC	100/120/125 V AC	100/120/125 V AC
Output frequency	50/60 Hz	50/60 Hz	50/60 Hz
Output power capacity	100 V AC: 1200 VA/1200 W 120-125 V AC: 1440 VA/1440 W	100 V AC: 1330 VA/1300 W 120-125 V AC: 1950 VA/1920 W	100 V AC: 2400 VA/2160 W 120-125 V AC: 3000 VA/2700 W
Output connectors	8x NEMA 5-15R (12 A)	8x NEMA 5-20R (16 A)	6x NEMA 5-20R (16 A) 1x NEMA L5-30R (24 A)

Specification	RT1.5kVA 2U Rack or Tower UPS (100-125VAC)	RT2.2kVA 2U Rack or Tower UPS (100-125VAC)	RT3kVA 2U Rack or Tower UPS (100-125VAC)
Output load segments	- Master: 4x 5-15R - Group 1: 2x 5-15R - Group 2: 2x 5-15R	- Master: 4x 5-20R - Group 1: 2x 5-20R - Group 2: 2x 5-20R	- Master: 2x 5-20R, 1x L5-30R - Group 1: 2x 5-20R - Group 2: 2x 5-20R
Batteries			
Battery type	Valve Regulated Lead Acid (VRLA): Maintenance-free, sealed, leak-proof		
Battery capacity	7.2 Ah	9 Ah	9 Ah
Battery management	ABM technology or temperature-compensated charging method (user selectable), automatic battery test and deep discharge protection, automatic recognition of external battery units		
Battery replacement	Hot-swap internal battery and extended battery modules		
External battery support	Up to 4 (PN 55942BX)	Up to 4 (PN 55942BX)	Up to 4 (PN 55943BX)
Typical backup times	See Table 6		
Communications and management			
USB port (Type B)	Yes	Yes	Yes
RS-232 serial port (RJ-45)	Yes	Yes	Yes
10/100 Mbps Ethernet port (RJ-45)	Optional with Network Management Card, 46M4110		
Environmental monitoring	Optional with Environmental Monitoring Probe, 46M4113 (requires Network Management Card, 46M4110)		
Management software	UPS Power Manager (UPM) and UPS Power Protector (UPP)		
Control panel	Intelligent 5-button graphical LCD		
LED indicators	Power On, On Battery, and Alarm		
Remote On/Off and Power Off	Remote On/Off (ROO) and Remote Power Off (RPO) terminal block connector		

The following table lists the technical specifications for the 2U Rack or Tower 200-240 V UPS models.

Table 4. Technical specifications for 200-240 V models

Specification	RT1.5kVA 2U Rack or Tower UPS (200-240VAC)	RT2.2kVA 2U Rack or Tower UPS (200-240VAC)	RT3kVA 2U Rack or Tower UPS (200-240VAC)
General			
Part number	55941KX	55942KX	55943KX
Form factor	2U Rack or Tower	2U Rack or Tower	2U Rack or Tower
Topology	Line interactive, high frequency, sinewave output		
VA/Watts rating	1500 VA/1100 W	2200 VA/1980 W	3000 VA/2700 W
Efficiency (on utility power)	Up to 98%	Up to 99%	Up to 99%
Energy Star compliant	Yes	Yes	Yes
Electrical input			
Input voltage	200 - 240 V AC	200 - 240 V AC	200 - 240 V AC
Input frequency	50/60 Hz	50/60 Hz	50/60 Hz

Specification	RT1.5kVA 2U Rack or Tower UPS (200-240VAC)	RT2.2kVA 2U Rack or Tower UPS (200-240VAC)	RT3kVA 2U Rack or Tower UPS (200-240VAC)
Max input amperage	10 A	16 A	16 A
Input connector	IEC 320 C14 (10 A)	IEC 320 C20 (16 A)	IEC 320 C20 (16 A)
Input line cord	Optional (See Table 2)	Optional (See Table 3)	Optional (See Table 3)
Electrical output			
Output voltage settings	200/208/220/230/240 V AC	200/208/220/230/240 V AC	200/208/220/230/240 V AC
Output frequency	50/60 Hz	50/60 Hz	50/60 Hz
Output power capacity	200-240 V AC: 1550 VA / 1100 W	• 200 V AC: 1700 VA/1530 W • 208 V AC: 1980 VA/1780 W • 220-240 V AC: 2200 VA/1980 W	• 200 V AC: 2700 VA/2430 W • 208-240 V AC: 3000 VA/2700 W
Output connectors	8x IEC 320 C13 (10 A)	• 8x IEC 320 C13 (10 A) • 1x IEC 320 C19 (16 A)	• 8x IEC 320 C13 (10 A) • 1x IEC 320 C19 (16 A)
Output load segments	• Master: 4x C13 • Group 1: 2x C13 • Group 2: 2x C13	• Master: 4x C13, 1x C19 • Group 1: 2x C13 • Group 2: 2x C13	• Master: 4x C13, 1x C19 • Group 1: 2x C13 • Group 2: 2x C13
Batteries			
Battery type	Valve Regulated Lead Acid (VRLA): Maintenance-free, sealed, leak-proof		
Battery capacity	7.2 Ah	9 Ah	9 Ah
Battery management	ABM technology or temperature-compensated charging method (user selectable), automatic battery test and deep discharge protection, automatic recognition of external battery units		
Battery replacement	Hot-swap internal battery and extended battery modules		
External battery support	Up to 4 (PN 55942BX)	Up to 4 (PN 55942BX)	Up to 4 (PN 55943BX)
Typical backup times	See Table 7		
Communications and management			
USB port (Type B)	Yes	Yes	Yes
RS-232 serial port (RJ-45)	Yes	Yes	Yes
10/100 Mbps Ethernet port (RJ-45)	Optional with the Network Management Card, 46M4110		Yes (on the NMC)
Environmental monitoring	Optional with the Environmental Monitoring Probe, 46M4113 (requires the Network Management Card, 46M4110)		
Management software	UPS Power Manager (UPM) and UPS Power Protector (UPP)		
Control panel	Intelligent 5-button graphical LCD		
LED indicators	Power On, On Battery, and Alarm		
Remote On/Off and Power Off	Remote On/Off (ROO) and Remote Power Off (RPO) terminal block connector		

The following two tables list the expected period that the 2U Rack or Tower UPS models operate based only on batteries, depending on the load.

Note: Battery backup times are approximate and can vary with equipment, configuration, battery age, and temperature.

Table 5. 2U Rack or Tower 100-125 V UPS runtime chart

Load		Run time, Minutes				
Percentage	Watts	No EBM	1x EBM	2x EBMs	3x EBMs	4x EBMs
RT1.5kVA 2U Rack or Tower UPS (100-125VAC)						
20%	288 W	39	171	288	405	523
30%	432 W	23	109	188	266	344
40%	576 W	16	77	134	191	248
50%	720 W	11	54	97	140	183
60%	864 W	7	45	82	119	155
70%	1008 W	6	37	69	101	133
80%	1152 W	5	31	58	86	113
90%	1296 W	4	25	49	72	96
100%	1440 W	3	21	41	62	82
RT2.2kVA 2U Rack or Tower UPS (100-125VAC)						
20%	384 W	35	137	242	346	451
30%	576 W	21	83	150	218	286
40%	768 W	13	57	106	155	203
50%	960 W	9	40	75	109	143
60%	1152 W	6	32	59	82	114
70%	1344 W	5	27	49	66	94
80%	1536 W	4	22	40	53	78
90%	1728 W	3	18	34	43	65
100%	1920 W	3	15	29	36	57
RT3kVA 2U Rack or Tower UPS (100-125VAC)						
10%	270 W	55	242	416	590	764
20%	540 W	30	144	247	349	452
30%	810 W	18	87	151	214	277
40%	1080 W	13	61	107	153	199
50%	1350 W	10	41	74	107	140
60%	1620 W	8	35	64	92	121
70%	1890 W	7	29	54	78	103
80%	2160 W	5	25	46	67	88
90%	2430 W	4	22	40	58	77
100%	2700 W	4	19	35	52	68

Table 6. 2U Rack or Tower 200-240 V UPS runtime chart

Load		Run time, Minutes				
Percentage	Watts	No EBM	1x EBM	2x EBMs	3x EBMs	4x EBMs
RT1.5kVA 2U Rack or Tower UPS (200-240VAC)						
20%	270 W	30	158	267	375	483
30%	405 W	20	105	197	289	380
40%	540 W	14	77	150	223	296
50%	675 W	10	74	125	176	227
60%	810 W	8	61	104	146	189
70%	945 W	7	48	82	117	151
80%	1080 W	5	38	68	97	127
90%	1215 W	4	32	60	88	116
100%	1350 W	3	25	52	78	105
RT2.2kVA 2U Rack or Tower UPS (200-240VAC)						
20%	396 W	29	101	181	261	341
30%	594 W	16	66	124	182	240
40%	792 W	10	49	91	132	173
50%	990 W	7	35	66	97	128
60%	1188 W	6	30	56	81	106
70%	1386 W	4	25	45	65	84
80%	1584 W	3	21	38	54	70
90%	1782 W	2	19	34	49	64
100%	1980 W	2	17	30	44	58
RT3kVA 2U Rack or Tower UPS (200-240VAC)						
10%	270 W	65	240	437	636	833
20%	540 W	33	128	223	320	416
30%	810 W	21	84	152	218	285
40%	1080 W	14	59	108	157	205
50%	1350 W	10	44	80	116	152
60%	1620 W	8	37	69	100	131
70%	1890 W	5	31	57	83	110
80%	2160 W	4	26	49	72	95
90%	2430 W	3	23	45	66	87
100%	2700 W	3	21	40	60	79

Leak current: Important specifications on UPS leak current and circuit breaker recommendations can be found in Support Tip HT511959, https://datacentersupport.lenovo.com/solutions/HT511959.

Connectors and controls

The front of the 2U Rack or Tower UPS units feature a 5-button graphical LCD. The display provides useful information about the UPS, load status, events, measurements, and settings.

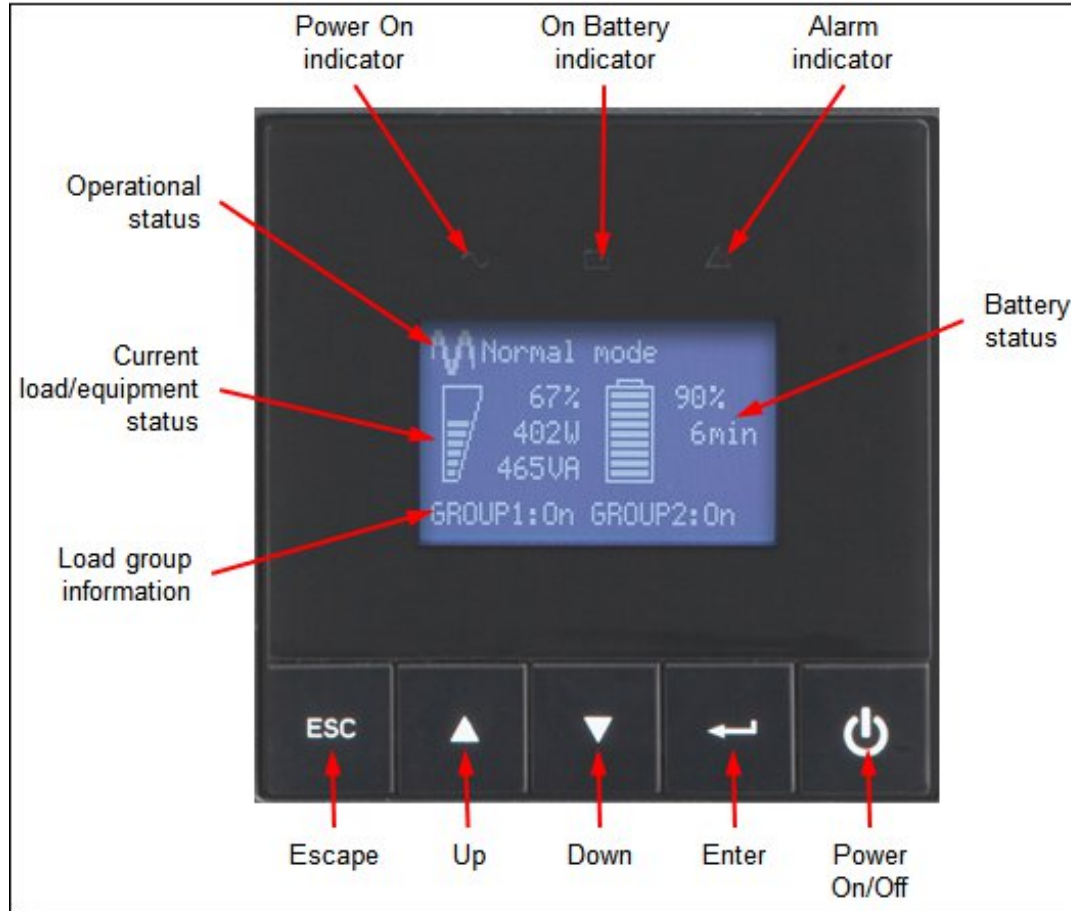The following figure shows the control panel on the front of the 2U Rack or Tower UPS.

Figure 4. Control panel on the front of the 2U Rack or Tower UPS

The following functions are available on the control panel:

- Status information: Displays the battery status, load percentage, output power, operational mode, and load group information.

- Measurements: Displays the output Watts VA, amperage, power factor, voltage, frequency, input voltage, input frequency, battery voltage, efficiency, and power usage.

- Control: Displays the battery test, reset error state, configure load segments, clear power usage measurements, and restore settings.

- Settings: Allows you to change product general parameters and set input and output parameters, on/off conditions, and battery configuration.

- Fault log: Displays the event log and alarm history.

- Identification: Displays the machine type, model, and serial number of the unit, and the firmware level of the UPS, including the optional NMC's firmware level and IP address, if installed.

The following figure shows the rear view of the RT1.5kVA 2U Rack or Tower UPS (100-125VAC) (55941AX).
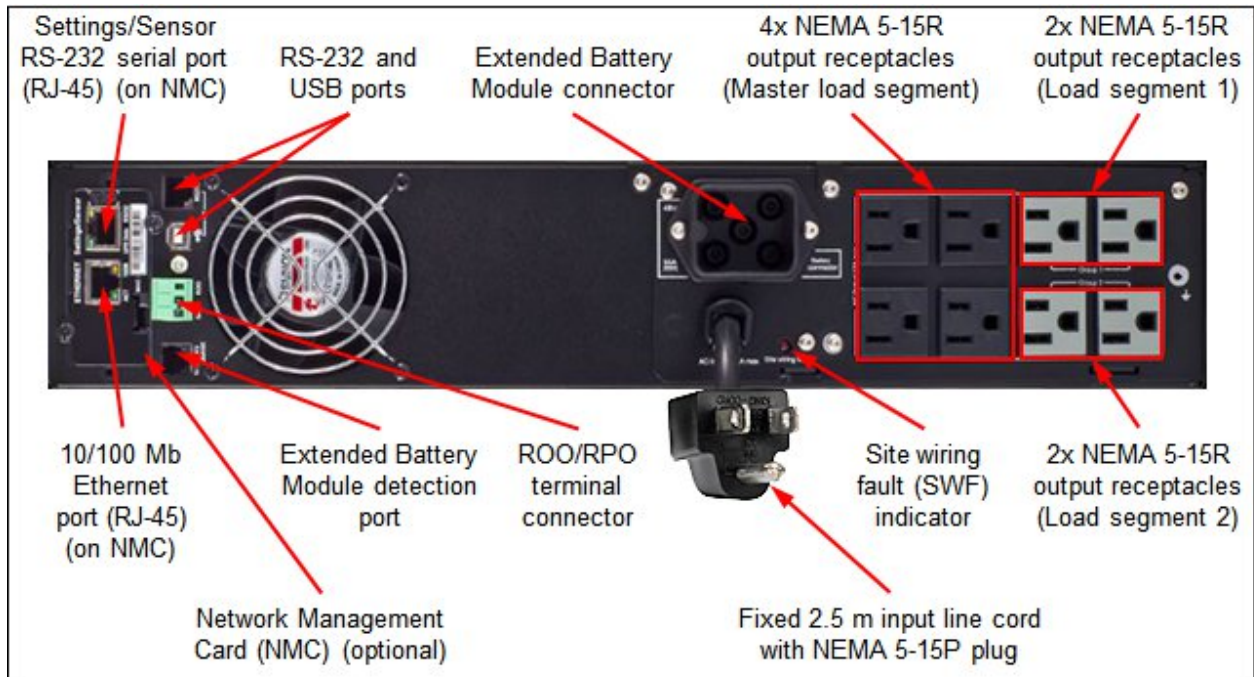

Figure 5. Rear view of the RT1.5kVA 2U Rack or Tower UPS (100-125VAC) (55941AX)

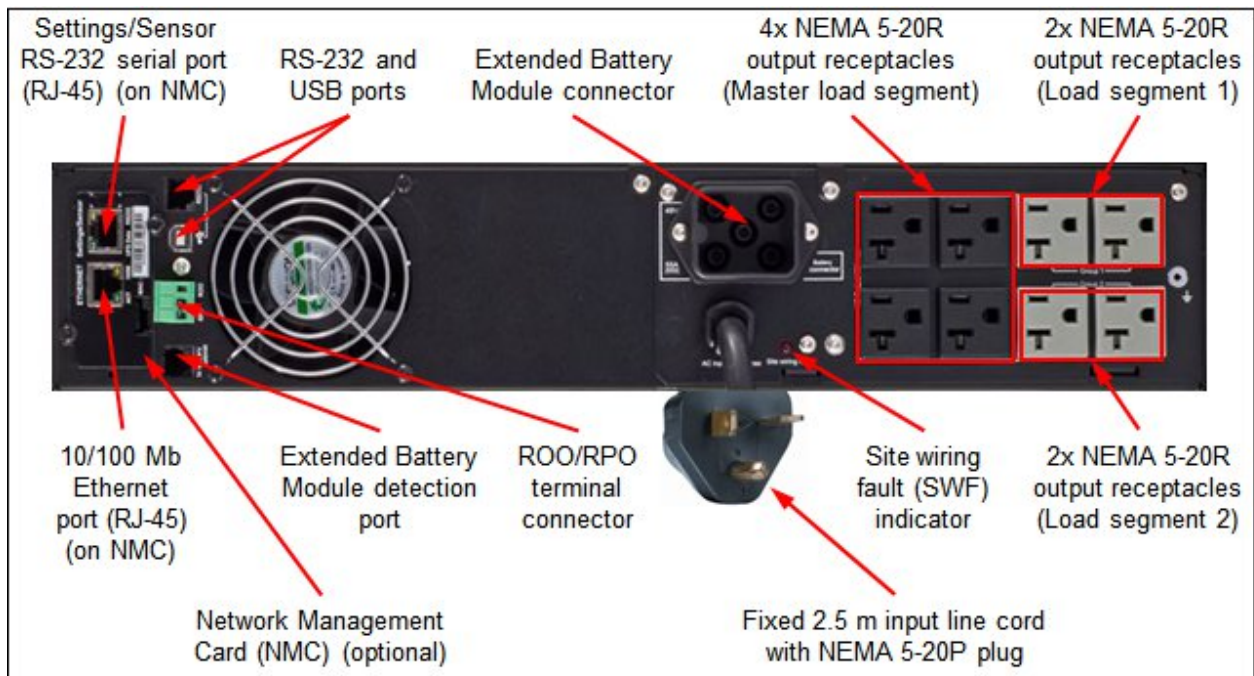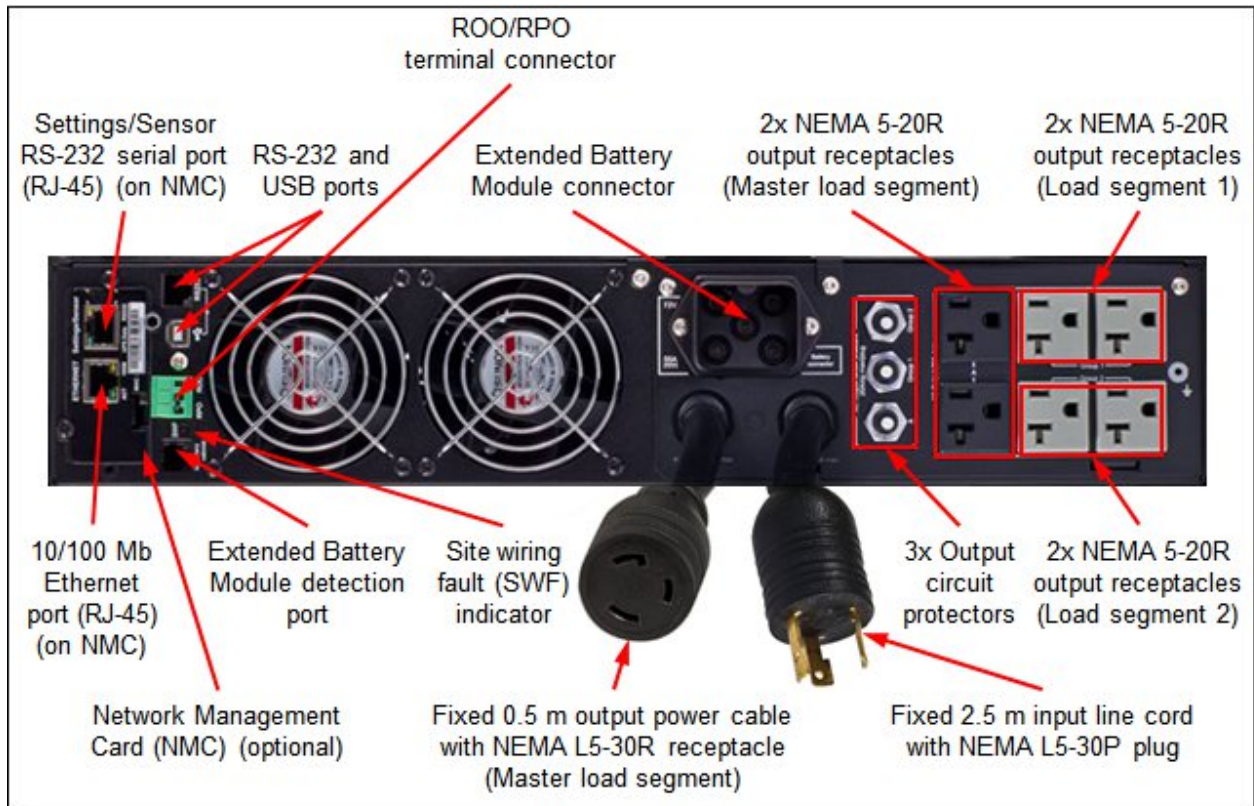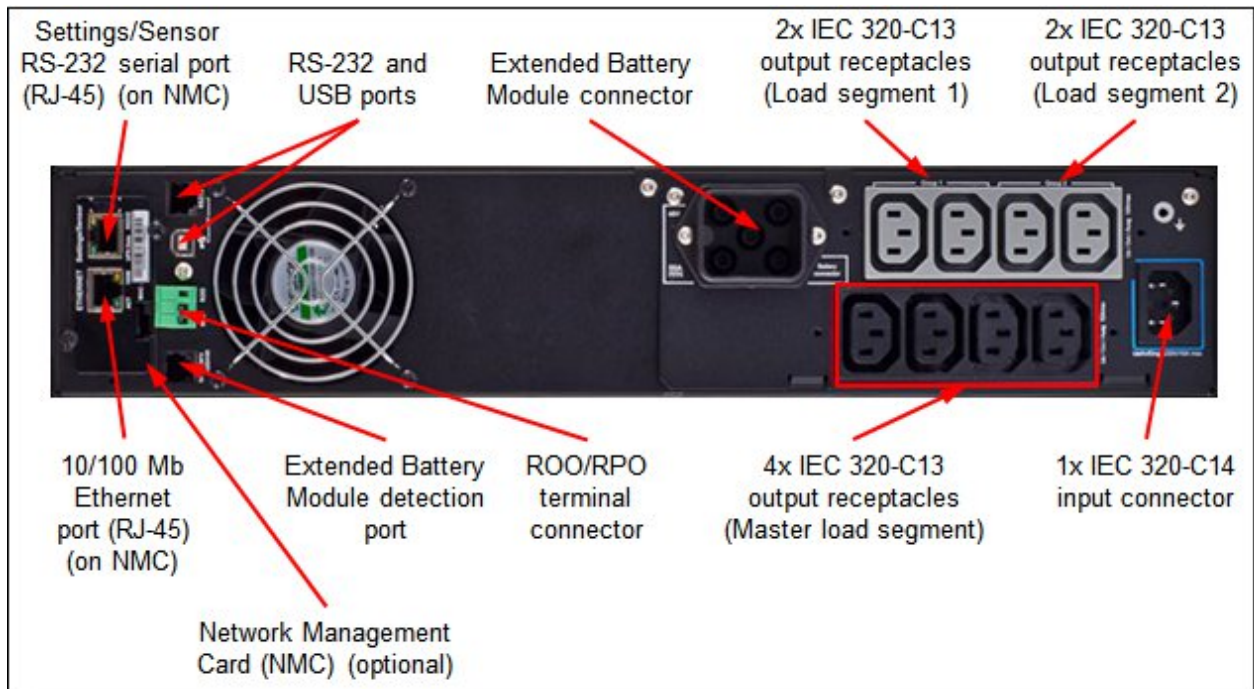The following figure shows the rear view of the RT2.2kVA 2U Rack or Tower UPS (100-125VAC) (55942AX).
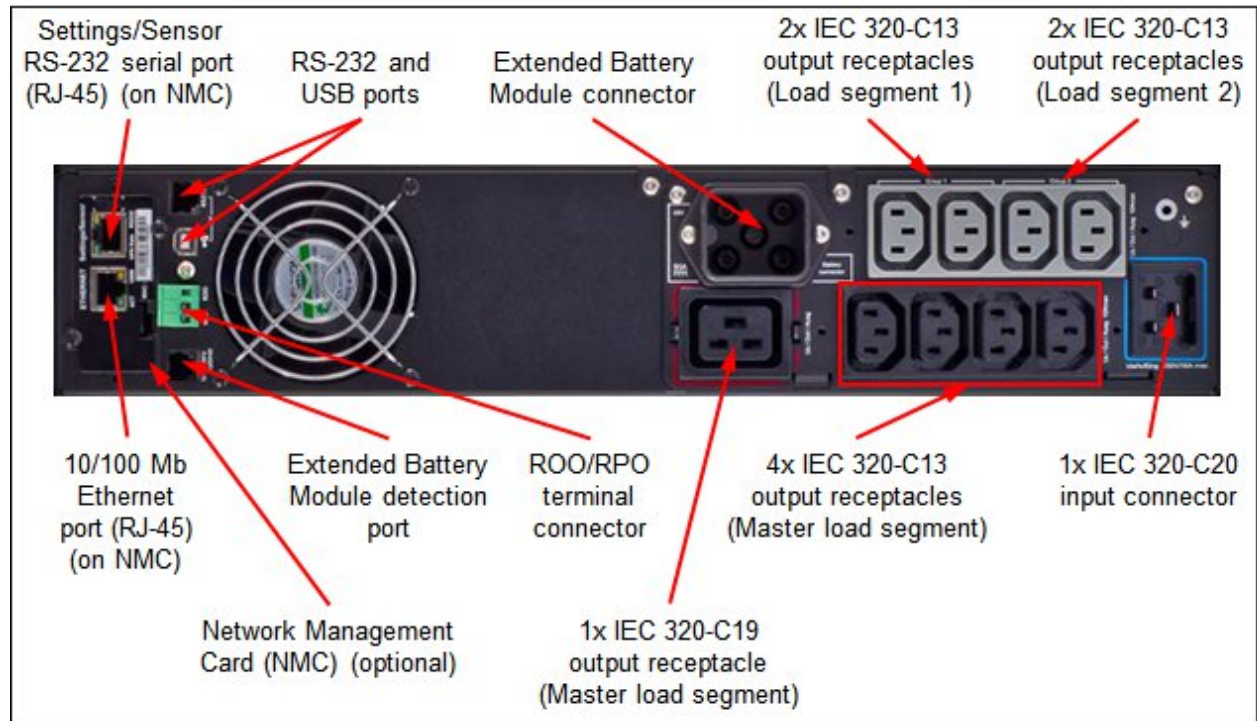

Figure 6. Rear view of the RT2.2kVA 2U Rack or Tower UPS (100-125VAC) (55942AX)

The following figure shows the rear view of the RT3kVA 2U Rack or Tower UPS (100-125VAC) (55943AX).

Figure 7. Rear view of the RT3kVA 2U Rack or Tower UPS (100-125VAC) (55943AX)

The following figure shows the rear view of the RT1.5kVA 2U Rack or Tower UPS (200-240VAC) (55941KX).

Figure 8. Rear view of the RT1.5kVA 2U Rack or Tower UPS (200-240VAC) (55941KX)

The following figure shows the rear view of the RT2.2kVA 2U Rack or Tower UPS (200-240VAC) (55942KX).

Figure 9. Rear view of the RT2.2kVA 2U Rack or Tower UPS (200-240VAC) (55942KX)

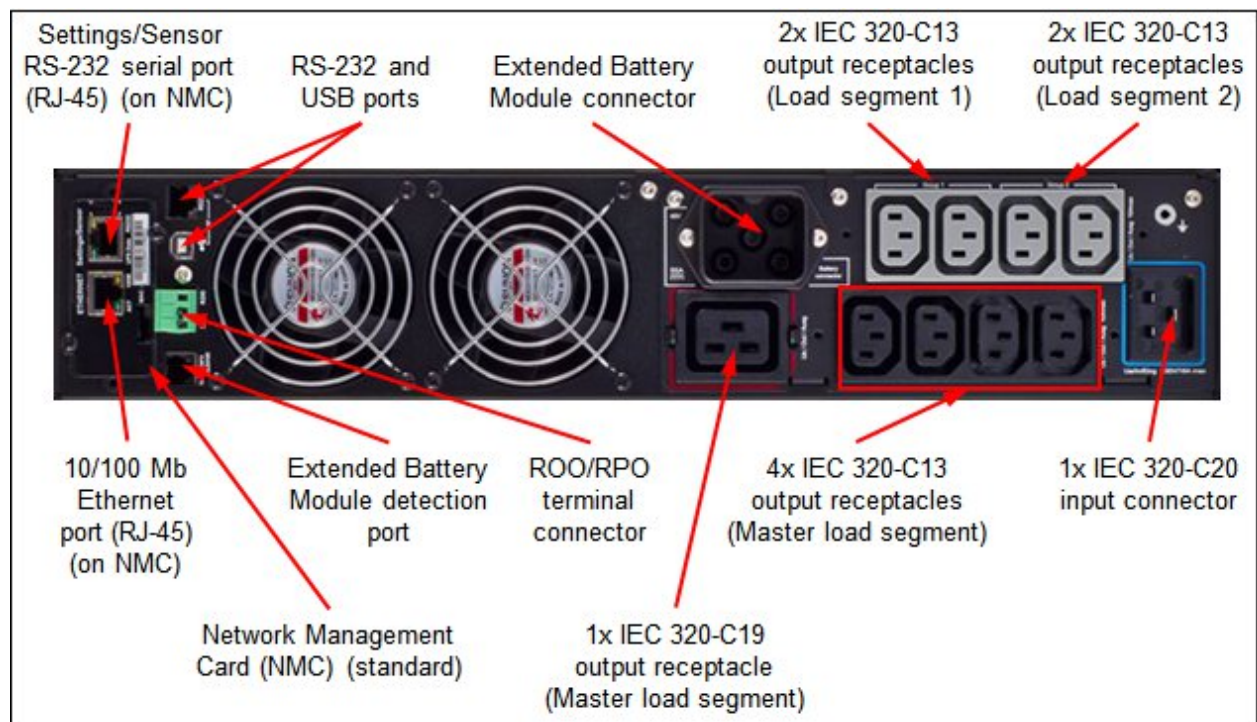The following figure shows the rear view of the RT3kVA 2U Rack or Tower UPS (200-240VAC) (55943KX).

Figure 10. Rear view of the RT3kVA 2U Rack or Tower UPS (200-240VAC) (55943KX)

The following figure shows the rear view of the 1.5kVA/2.2kVA (top) and 3kVA (bottom) 2U Rack or Tower Extended Battery Modules.
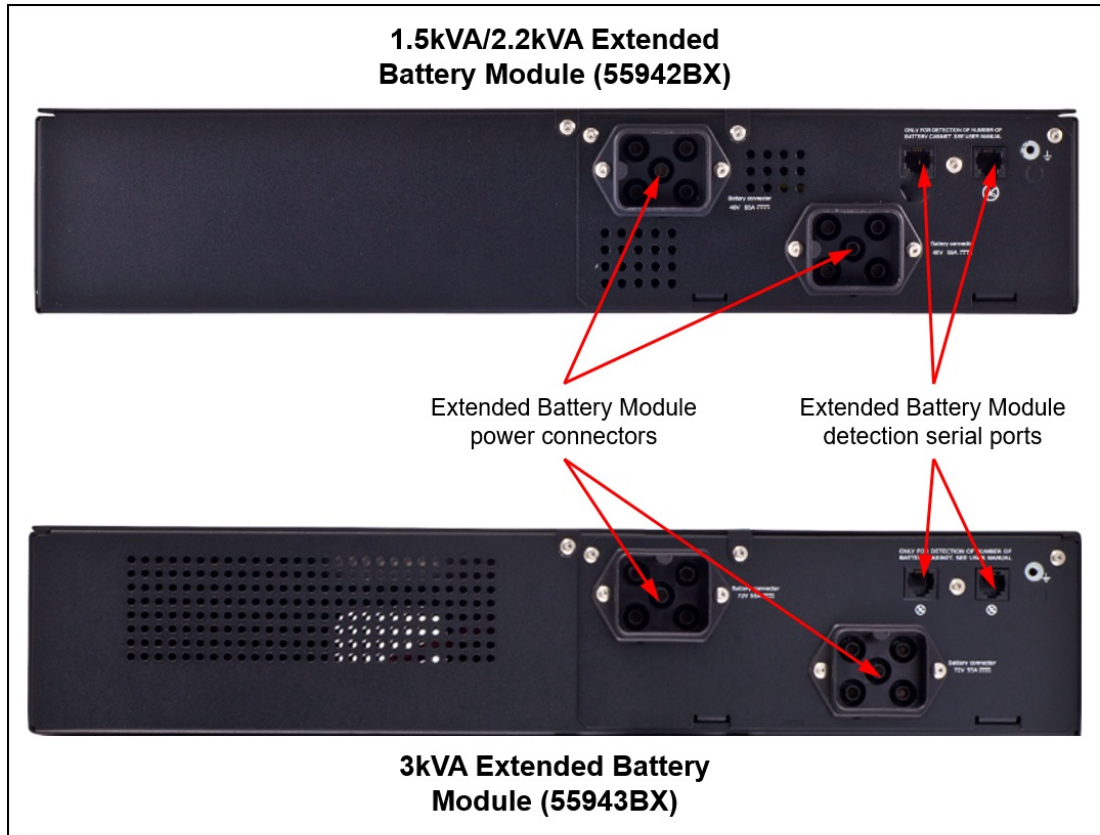

Figure 11. Rear view of the 1.5kVA/2.2kVA (top) and 3kVA (bottom) 2U Rack or Tower Extended Battery Modules

Physical specifications

The 2U Rack or Tower UPS units have the following physical specifications (approximate):

- Height: 86 mm (3.4 in.)
- Width: 441 mm (17.4 in.)
- Depth:
  - RT1.5kVA and RT2.2kVA: 522 mm (20.6 in.)
  - RT3kVA: 647 mm (25.5 in.)
- Weight:
  - RT1.5kVA (100-125VAC): 29.4 kg (64.7 lb)
  - RT2.2kVA (100-125VAC): 29.6 kg (65.3 lb)
  - RT3kVA (100-125VAC): 39.5 kg (87.2 lb)
  - RT1.5kVA (200-240VAC): 27.6 kg (60.9 lb)
  - RT2.2kVA (200-240VAC): 28.5 kg (62.8 lb)
  - RT3kVA (200-240VAC): 38.1 kg (84.0 lb)

The 2U Rack or Tower Extended Battery Modules have the following physical specifications (approximate):

- Height: 86 mm (3.4 in.)
- Width: 441 mm (17.4 in.)
- Depth:
  - RT1.5kVA/RT2.2kVA: 522 mm (20.6 in.)
  - RT3kVA: 647 mm (25.5 in.)
- Weight:
  - RT1.5kVA/RT2.2kVA: 32.8 kg (72.3 lb)
  - RT3kVA: 46.4 kg (102.3 lb)

Operating environment

The 2U Rack or Tower UPS units are supported in the following environment:

- Temperature (operation): 0 - 40 °C (32 - 104 °F)
- Relative humidity: 20 - 90%
- Maximum altitude (operation): 3,000 m (9,843 ft)

Note: These UPS units are not supported in a maritime environment.

Agency approvals

The 2U Rack or Tower UPS units conform to the following regulations:

- FCC
- UL
- CSA or cUL
- CE Mark
- NOM
- GOST
- BSMI Taiwan
- CB Report
- VCCI
- C-Tick (Australia)
- IRAM (Argentina)

Warranty

The 2U Rack or Tower UPS models and the Extended Battery Module (EBM), including batteries, have a 3-year limited warranty. Optional features have a 1-year warranty.

Management software

Optional software can be downloaded to be used the UPS units. This software is the UPS Power Manager (UPM) and UPS Power Protector (UPP) software. The UPM software can manage multiple devices. The UPP software is used to manage a single device. Note that a device refers to a UPS or a PDU.

> **Tip**: The UPS offers a USB port that supports the HID (Human Interface Device) Power Device Class that enables the UPS to be locally managed directly by the operating system of the attached server.

UPS Power Manager

The UPS Power Manager (UPM) software is free to use for up to 10 devices (PDUs or UPS units). It is available either as a Windows application or a virtual appliance (OVF file). Download the software from: https://datacentersupport.lenovo.com/us/en/solutions/lnvo-ups-mgmt

For up to 100 devices, a Silver license can be purchased. For up to 600 devices, a Gold license can be purchased. The following table shows the part number ordering information for each version of the UPM software.

Table 7. UPM part numbers

Part Number	Feature Code	Description
None	None	Basic (free) UPM software (1-10 devices can be managed)
00YE464	ATS2	Silver key license (up to 100 devices can be managed)
00YE465	ATS3	Gold key license (up to 600 devices can be managed)

The purchase of a Silver or Gold license adds additional management features not found in the Basic license. The following table shows the UPM licenses and features for each license when managing Lenovo UPS units.

Table 8. Comparison of UPM features

Features of UPM	Basic License (free)	Silver License	Gold License
Number of devices (UPS or PDU)	Up to 10	Up to 100	Up to 500
Identify and monitor third-party power devices	Yes	Yes	Yes
Shut down server and host without crashing	Yes	Yes	Yes
Configuration Policy	Yes	Yes	Yes
Control rack PDUs (on, off and reboot sections or outlets) (1)	Yes	Yes	Yes
Plug-in for VMware vCenter	Yes	Yes	Yes
Enter and exit maintenance mode	Yes	Yes	Yes
Shutdown Virtual Hosts (e.g. VMware ESXi)	Yes	Yes	Yes
Shutdown Storage	Yes	Yes	Yes
Advanced Event Action with Standard Events	No	Yes	Yes
Miscellaneous Advanced Actions, Generic SSH action	No	Yes	Yes
Shut down specific, targeted virtual machines	No	Yes	Yes
Migrate virtual machines to targeted hosts	No	Yes	Yes
Virtual machines load shedding	No	Yes	Yes
Trigger targeted, automatic advanced actions	No	Yes	Yes
Safely shut down and restore high availability environments	No	Yes	Yes
Fully virtualized cluster shutdown	No	Yes	Yes
Integrated with Microsoft Hyper-V virtualization platform to facilitate guest virtual machine shutdown or suspend, and graceful shutdown of the Hyper-V hypervisor	No	Yes	Yes
Integrated with VMware vSAN hyperconverged infrastructure software to enable graceful shutdown of logical data layer used by vSAN and full vSAN clusters	No	Yes	Yes
Integrated with Nutanix Acropolis Hypervisor to gracefully shut down of user VMs, controller VMs then AHV on Lenovo HX appliances running AHV	No	Yes (2)	Yes
Manage third-party power devices	No	No	Yes
OpenStack monitoring and control	No	No	Yes

(1) Support for SNMPv1 required at target device
(2) Requires UPM v1.65.221 or higher

UPM brings managing various power and environmental devices under control through a single, web-based interface. The UPM software solution ensures system uptime and data integrity by allowing you to monitor, manage, and control the devices on your network remotely.

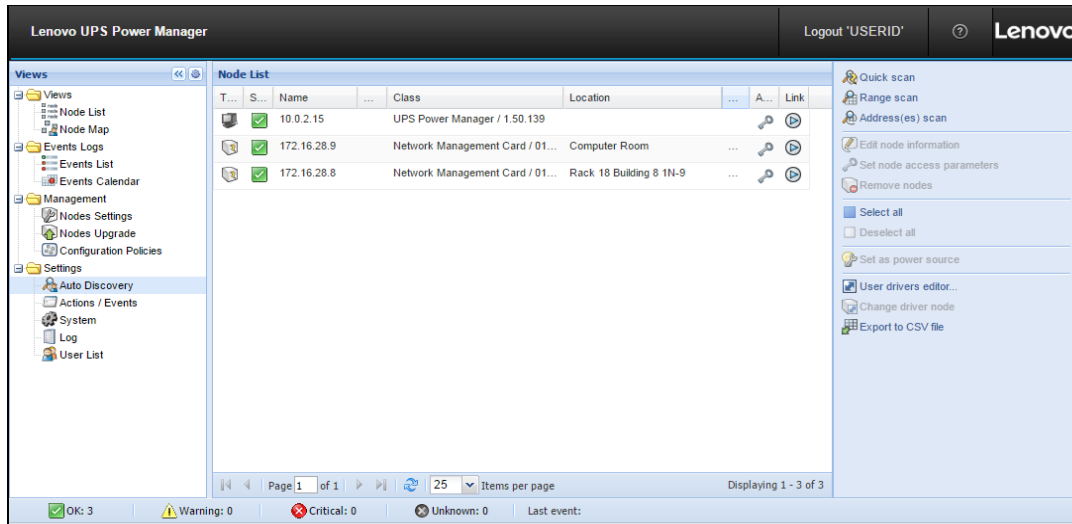The UPM user interface is shown in the following figure.

Figure 12. UPM User Interface

The UPM software offers the following features:

- Monitors and manages multiple power and environmental devices from a web browser or your virtual machine management dashboard
- Seamlessly integrates into popular virtualization infrastructures, including VMware ESXi, Microsoft Hyper-V, Citrix XenServer, and Linux KVM
- Triggers live migration for virtual machines during power outages
- By using a user-definable tree structure, enables grouping, access, and management of multiple devices across multiple locations
- Monitors power consumption, which helps track ways to improve energy efficiency
- Uses auto discovery to provide fast installation by automatically detecting devices on the network
- Mass-upgrades firmware, which reduces network management card setup and maintenance time

UPS Power Protector

The UPP software is free to download and use. Download it from the following links (v1.52.007):

- Windows: https://datacentersupport.lenovo.com/us/en/downloads/DS119231
- Linux: https://datacentersupport.lenovo.com/us/en/downloads/DS119230

UPP software facilitates automatic, graceful shutdown of computers, servers, and network devices that are powered by a UPS, which saves all work-in-progress and ensures data integrity. UPP's user interface provides detailed information about connected servers and UPS units through USB and serial or network communication.

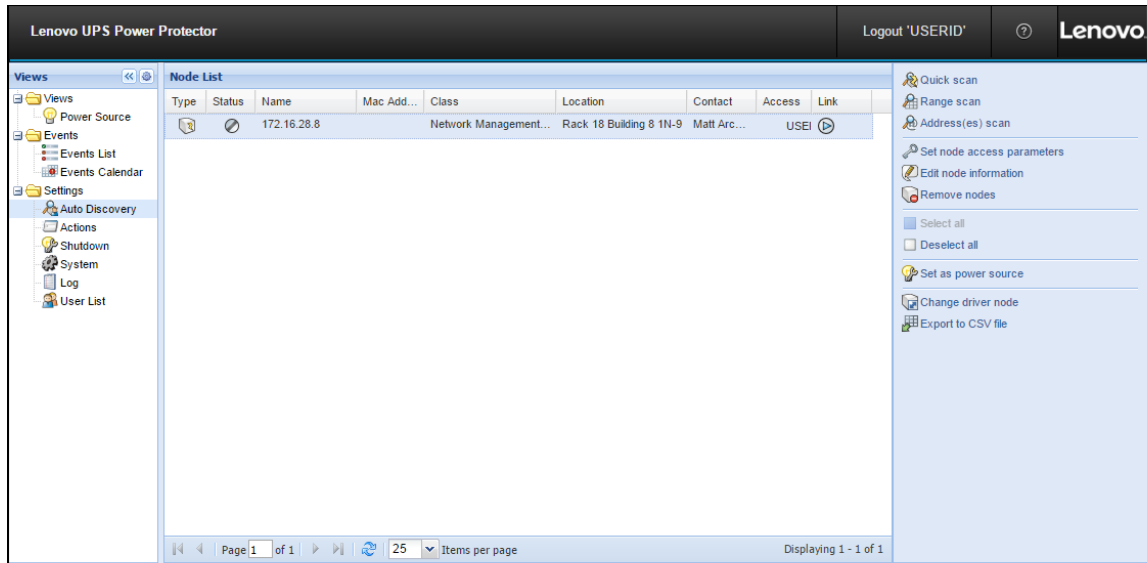The UPP user interface is shown in the following figure.

Figure 13. UPP User Interface

The UPP software offers the following features:

- Helps avoid data loss by gracefully shutting down computers and virtual machines or servers that are powered by a UPS during an extended power outage
- Keeps servers running smoothly by automatically identifying hang-ups and rebooting the machine by using a watchdog capability
- Provides redundancy capability for dual-cord servers
- An easy-to-use web browser interface
- Communicates with the protected device directly (via USB or serial) or through the network (via NMC)

Supported servers

The 2U Rack or Tower UPS offerings are compatible with all ThinkSystem, System x and ThinkServer systems and other devices that require AC power.

To determine the best fit UPS for a particular configuration, the following needs to be considered:

- Total power load of the hardware that will be connected to the UPS
- Number and type of outlets required
- UPS outlet and group limitations for connecting the hardware to the UPS

To determine chassis, node and server overall power capacities, use the Power Configurator tool. The tool can be downloaded from http://support.lenovo.com/documents/LNVO-PWRCONF

To determine the power draw of other devices such as storage and switching that will be attached to the UPS, refer to the products user manual for the maximum power draw.

For additional technical information on the UPS line cords, outlets and grouping refer to the UPS Technical Reference, https://support.lenovo.com/docs/UM104477

Supported rack cabinets

The 2U Rack or Tower UPS units can be installed in the compatible rack cabinets as listed in Table 8.

Table 9. Rack cabinets

Part number	Description
201886X	11U Office Enablement Kit
93072RX	25U Standard Rack
93072PX	25U Static S2 Standard Rack
93634PX	42U 1100mm Dynamic Rack
93634EX	42U 1100mm Dynamic Expansion Rack
93604PX	42U 1200mm Deep Dynamic Rack
93604EX	42U 1200mm Deep Dynamic Expansion Rack
93614PX	42U 1200mm Deep Static Rack
93614EX	42U 1200mm Deep Static Expansion Rack
93084PX	42U Enterprise Rack
93084EX	42U Enterprise Expansion Rack
93074RX	42U Standard Rack
93074XX	42U Standard Rack Extension
93624PX	47U 1200mm Deep Static Rack
93624EX	47U 1200mm Deep Static Expansion Rack
93634AX	PureFlex® System 42U Rack
93634BX	PureFlex System 42U Expansion Rack
93634CX	PureFlex System 42U Rack
93634DX	PureFlex System 42U Expansion Rack

Related publications and links

For more information about this topic, see the following resources:

- Power and Cooling Technical References:
  http://support.lenovo.com/us/en/documents/LNVO-POWINF
- Power Configurator Tool:
  http://support.lenovo.com/au/en/documents/LNVO-PWRCONF
- *Installation and User's Guide - 2U Rack or Tower UPS*
  http://systemx.lenovofiles.com/help/topic/com.lenovo.sysx.racks.doc/rk_2u_ups_iug.pdf
- *Network Management Card User Guide*
  http://ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-5085199

Related product families

Product families related to this document are the following:

- Uninterruptible Power Supplies

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