

Powerstar PS3204rm2u  
True online 2KVA /1800W (19.7" deep)

**PowerStar**



**Powerstar PS3204rm2u PS3204 tower** (120V) 3.4"H x16.9"W x19.7"D 85 x 430 x 497mm

Model upgrade from PS3200 (GXT2) and PS3203 (GXT3)- now using Liebert **GXT4** electronics  
Double Conversion true online type 2KVA UPS, can be wired for  $\Delta$  Delta power or conventional power  
Dual pole circuit breaker for  $\Delta$  Delta power on your ship. We can ruggedize this unit to meet many MIL specs. **(PS3204irm2u 230VAC model also available.)**

- True online allows generators to vary in frequency
- NEW! Active **ECO mode option** allows unit to operate as a Line interactive UPS when ACMAINS is within range. (**Green ECO mode** offers less heat dissipated when on MAINS). *You may not want to use this mode if the input power has powerful spike conditions.*
- 2 remotely switchable outlet groups can be used to reset 'Stuck' equipment loads- blink their power off /on via SNMP command
- Smart UPS tests itself and batteries periodically –alarms to advise it's time to replace the cells
- Auto restart after a full run upon utility restoration
- Cold Start capable- it will become an AC power source if you need it.
- Hot swappable battery pack via front panel while on ACMAINS – Battery door behind front panel
- **NOW!** Output Power Capacity **1800 Watts / 2000 VA** (up to 10,000ft without derating)
- Nominal Output Voltage 110v, 115v, 120V (std.), 127V adjustable via software  $\pm 3\%$  **(230V i model PS3204irm2u is available.)**
- Output V can be set to 110V/115V/ 120V  $\pm 3\%$
- Output Voltage Distortion Less than 3% THD at full linear load; <5% into non linear load /C factor 3:1
- Output Frequency (sync to mains) or select a frequency via software- Waveform Type Sine wave
- Mounting rails included for 4 post rack mounting- Front control panel can be rotated 90° for vertical tower mount Adjustable rails from 20"-38" deep cabinet.
- Built-in Dynamic Bypass switches input directly to output if an overload or UPS failure should occur- *(sync to mains mode only)*
- Emergency Power OFF contacts are located on rear of unit. Short the contacts with a switch and the UPS output is disabled- think smoke detector signal shutting down the power.
- Rear mounted plug also contains Programmable dry contacts to signal Loss of ACMAINS, and LOW Batt. (<35ma)
- \*Optional Ethernet SNMP card for monitoring the UPS, command, and signaling to remote computers of loss of power, graceful shutdown commands to PC. Control 1 computer and optional software available to signal up to 10 computers.
- New Unity card available which can also add, report /Alarm external temperature /humidity probe.

Output Connections (standard)

(6) NEMA 5-20R or Military Spec optional

Output Overload 200% capacity for 2 seconds



Output Overload 150% capacity for 50 seconds

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**Input**

Nominal Input Voltage 120V *(230VAC i model available-PS3204i)*

Input Frequency 40/70 Hz

Input Cord 10 ft. NEMA L5-20P or Military Spec



Input voltage range for main operations 77V - 140V (30% load)

Input voltage range for mains operation 90V - 140V (+90% load)

Transfer Time 0 ms- Inverter is always online

**Batteries & Runtime**

AGM Battery Type Maintenance-free sealed Lead-Acid battery with suspended electrolyte: leakproof

Typical recharge time 3 hours to 90% after full run

Replacement Battery PSRBC3204

*Optional (high temperature long life batteries available for this unit-PSrbc3204H)*

Battery capacity Volt amp hour 432 VA/hr

**Runtime in minutes with UPS (row1) and additional 2u battery Cabinet(s) - PS3204rm2uBP**

	180Watt	360W	540W	720W	900W	1080W	1260W	1440W	1720W	1800W
UPS	92 min.	38'	23'	16'	12'	9'	7'	5'	4'	3'
+1BP	303 min.	140'	96'	66'	49'	38'	33'	28'	23'	20'
+2BP	431'	207	150	124	97	75	61	50	41	38
+3BP	455'	326	197	155	136	111	96	78	68	56'
+4BP	480'	424	308	192	157	142	126	107	95	81'

Up to 4 additional 2u battery cabinets may be daisy chained to main unit.

**PS3204rm2uBP** 19.7" deep and weighs 58LB and is supplied with mounting rail. The **BP** uses circuit breaker for safety – not a fuse.

**Battery Upgrades: Long life rated 8-10 year @25°C, -15 to +50 °C charge rated and -20 to +60 °C discharge rating**

**Interface Port(s)**

USB, New! DB9 Serial port, and 8 pin terminal block standard. Available Option card slot for optional SNMP Ethernet Network card (PS9059 Web card or Unity card - Use Multilink software (supplied) or SNMP software to communicate with UPS and capture alarms with USB, Serial port DB9, or Ethernet.

**8 pin terminal block –**

- Output signals: Battery Mode indicator and Low Battery indicator dry contacts (30ma max.) These output contacts can be programmed NO or NC.
- Input: Any mode Shutdown (immediate) and Battery Mode Shutdown (2 minute) inputs.

The purpose of 'Any Mode Shutdown' is to shut down the UPS output by turning off the rectifier, inverter and bypass so that there is no power to the loads. Any Mode Shutdown can be operated locally and remotely, as described as follows:

- Any Mode Shutdown can be performed by shorting Pin1 and Pin2 with external switch (not supplied) i.e., a smoke detector or Panic button could be connected
- Battery mode Shutdown can be performed by shorting Pin3 and Pin4 with external switch (not supplied). *A battery shutdown signal will not cause an immediate shutdown. It will start a 2 minute shutdown timer. This timer cannot be stopped once triggered. If utility power returns during this*

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countdown, the PS3204 will still shut down and must remain shut down for 10 seconds. Whether the UPS turns back on when the power is restored depends on the auto-restart setting.

### NEW! Front mounted Control panel

- The front panel is equipped with 4 buttons; **Escape**, **↑**, **↓**, **↵** for user input and interrogation.
- **7** LED status lamps to attract your attention, **GREEN, ORANGE, RED**

**Table 3 LED indicators**

LED Indicators	LED Color	Description
Inverter	Green	On when the inverter is supplying power
Bypass	Amber	On when the load is supplied by the mains through automatic/manual bypass
Battery	Amber	On when the load is supplied by the battery
Fault	Red	On when an error has occurred within the UPS
Programmable Outlet1	Green	On when programmable Outlet1 is On
Programmable Outlet2	Green	On when programmable Outlet2 is On
ECO Mode	Green	On when the UPS is in ECO Mode

- And an Audible Buzzer, (BEEP!) will sound on alarm.
- NEW ! LCD display now has a multi line text readout capability and can change colors and will blink if alarms are not acknowledged. It can display a variety of information for the technician including, V, I, frequency, estimated runtime, battery condition, % of capacity of UPS, or alarms if they exist.



Sample readout here:

Possible Warning and Fault readout messages.

**Table 6 Warning list**

Warning	Description
Mains Power Not Available	The mains power is not available, or it cannot satisfy the input requirements for the UPS to operate from mains power
UPS Batteries Low And Exhausted Soon	The battery capacity is low and will be exhausted soon
UPS Has Switched To Battery Mode	The mains power is abnormal or the PFC side is faulty, the UPS transfers back to Battery mode
Load On Bypass	The UPS transfers to Bypass mode, at this point, the input mains power supplies power to the load directly, and the load is not protected
Input Power Wiring Error	L-N line reverse or PE not connected. for non shipboard apps only
Bypass Power Not Available	The bypass power is not available, or it cannot satisfy the requirements for the UPS transfers to bypass
UPS Maintenance Bypass Output	The UPS transfers to maintenance bypass.

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**Table 7**    **Fault list**

<b>Fault</b>	<b>Description</b>
UPS Self-Test Failed	The battery is bad or weak or not connected.
UPS Overload	The UPS is overloaded.
Inverter Out Of Order	The inverter has failed.
Battery Weak/Bad	The battery is bad or weak.
Output Short Circuit	The output connection is short-circuited.
DC Bus Overvoltage	The DC bus is faulty.
UPS Overtemperature	Overtemperature occurs to the UPS and the UPS will transfer to Bypass mode.
Charger Out Of Order	The charger has failed.
Fan Out Of Order	At least one fan is failed.
DC Bus Discharge Fail	DC-DC failure occurs.
Rectifier Out Of Order	Rectifier failure occurs.

### Protection

The PS3204 has surge protection and filters that protect the connected load from power surges, Electromagnetic interference (EMI) and radio frequency interference (RFI). These features can minimize any surges or interference present in the utility power. The filters also prevent surges or interference generated by the UPS from adversely affecting devices connected on the same branch. Surge immunity IEC 62040-2 2<sup>nd</sup> Ed.

### Input Protection

The UPS has built-in protection against undervoltage, overcurrent, and overvoltage conditions including low-energy lightning surges, introduced on the primary AC source. The 120 and 208 VAC models can sustain input surges without damage per criteria listed in ANSI C62.41 Cat A Lev3. The 230 VAC UPS can sustain input surges without damage per criteria listed in EN61000-4-5.

### Dimensions

Maximum Height 3.4 inches (133 mm)  
 Maximum Width 16.9 inches (483 mm) for 19" rack mounting  
 Maximum Depth 19.7 inches (660 mm) *Included Rail kit is adjustable for depth to 38".*  
*Rack Height 2U*  
 Net Weight 56 lbs. (27 kg) Shipping Weight 71 lbs. (32 kg)  
 Shipping Height 10.6 inches (270 mm) 24.00 inches (610 mm) Depth 26 inches (650 mm)  
 UPS color: Gun-Metal Black

### Operating Environment

32 - 104 °F (0 - 40 °C) (battery dependant) *Increase this range to -20 +60 °C with Powerstar Premium battery*  
 Operating Relative Humidity 0 - 95% non condensing (*add conformal coating optional*)  
 Operating Elevation 0-10000 feet (0-3000 meters)  
 Storage Temperature 5 - 113 °F (-15 - 45 °C)  
 Storage Relative Humidity 0 - 95%  
 Storage Elevation 0-50000 feet (0-15000 meters)  
 Audible noise at 1 meter from front surface of unit <48 dBA , rear <48 dBA. Variable speed fans  
 Online Thermal Dissipation-375 BTU /h

**Standards** Mother board manufactured in ISO 9001:2008 facility.

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### *120VAC and 208V models*

- Listed to UL Standard 1778, 4th Edition; and c-UL Listed
- CSA 22.2 No. 107.1
- ANSI C62.41, Category A, Level 3
- IEC 61000-3-2
- EN62040-2
- EN61000-4-2
- EN61000-4-3
- EN61000-4-4
- EN61000-4-5
- EN61000-4-6
- FCC Part 15, Class A (RFI and EMI)
- ISTA Procedure 1A/1E
- RoHS2 (6 by 6) Compliant

### *230 Volt Units (PS3204irm2u)*

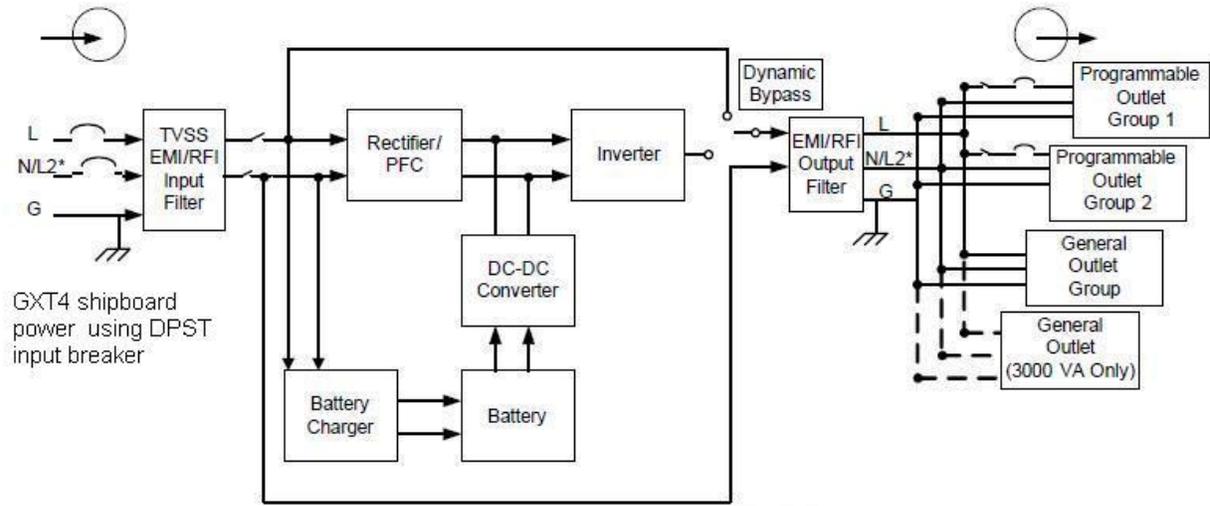
- EN 62040-1:2008
- TUV/GS and CE compliance mark
- EN50091-1-1
- EN50091-2, Class A
- EN50082-1
- EN62040-2, 2<sup>nd</sup> Ed, Category C2
- EN61000-4-2
- EN61000-4-3
- EN61000-4-4
- EN61000-4-5
- EN61000-4-6
- EN61000-3-2
- ISTA Procedure 1A/1E
- RoHS2 (6 by 6) Compliant
- REACH and WEEE Compliant
- Listed to UL Standard 1778, 4th Edition; and c-UL Listed (700, 1000, and 3000VA models only)

Designed to be compliant with Mil Std 1399-300A and can be built to meet 810F shock and temperature specifications. Also can be built to Mil 901D grade B. Powerstar also has Military 901D grade A units available. See our PS3200rm2uSS for MIL-Std-461 and MIL-S-901D/a compliance. Contact us.

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Figure 7 Operating principle diagram



The UPS is composed of utility input, TVSS and EMI/RFI filters, rectifier/PFC, inverter, battery charger, DC-to-DC converter, battery, dynamic bypass and UPS output.

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Figure 4 Rear panel components—Liebert GXT4 120V rack/tower, 2000VA model

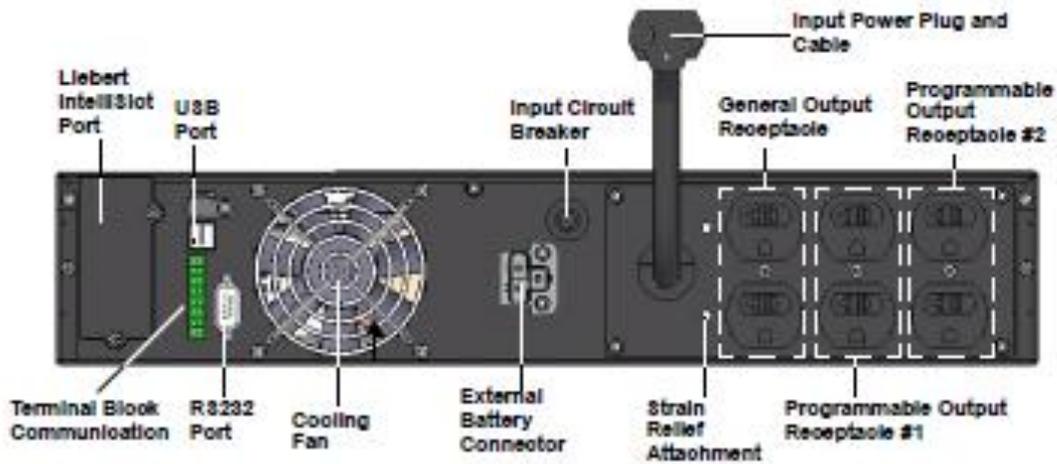
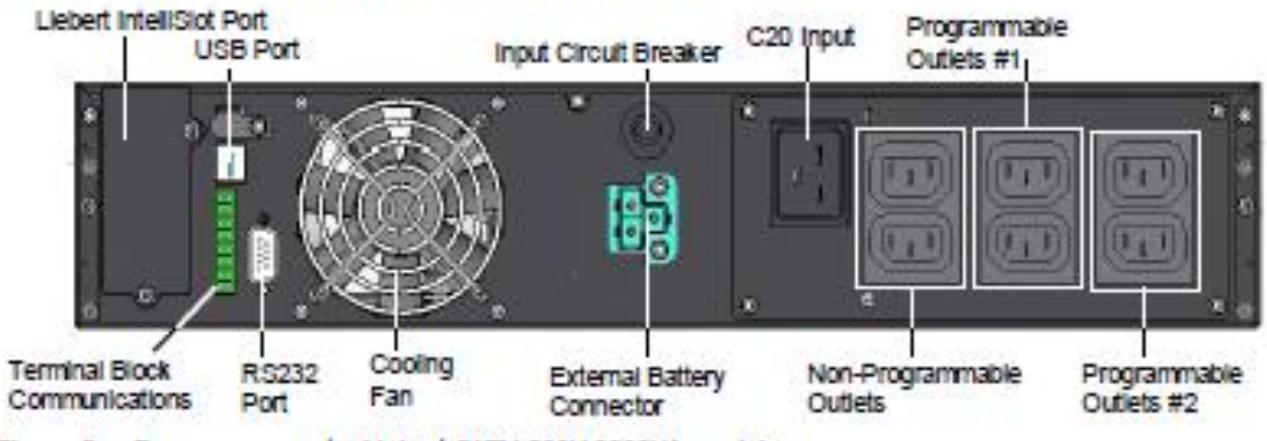


Figure 4 Rear components, Liebert GXT4 230V 2000VA models



PS3204rm2uBP or PS3204rm2uBP H 1

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2 year warranty on parts, batteries and Labor

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The logo for PowerStar, featuring the word "PowerStar" in a stylized, bold, yellow font with a black outline and a slight shadow effect.

*Other model sizes available:*

*500VA /450W,  
700VA /630W,  
1000VA / 800W  
1500VA / 1350W  
3000VA / 2700W and a 208V model 3KVA.*

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