

UPS

SOLUTIONS GUIDE



POWER SYSTEM APPLICATIONS

Legrand offers power solutions that are designed to deliver and backup power, with an array of density, capacity, and connector options for compatibility with nearly any application. Each product and system is engineered with installation efficiency and performance in mind—providing the flexibility to design and efficiently install in any **building network** or **data center** application, as defined below.



Building Network

Commonly referred to as a Local Area Network (LAN) or Edge network, these applications connect computers, servers, switches, and other devices in a single building.



Data Center

Commonly referred to as an Enterprise, Colocation, Edge, Hyperscale, or Storage Area Network (SAN), these applications connect a group of servers and storage devices.

Legrand offers a broad range of power distribution and backup systems, including Basic and Intelligent Power Distribution Units and Online and Line-Interactive Uninterruptible Power Supplies, that make the most of an IT budget. Legrand power systems deliver benefits like simple installation, easy administration, and high performance. As networks and data centers evolve to support higher bandwidths and new architectures, Legrand helps maximize power investments by designing our power systems to allow for quick swaps of components or simple firmware updates while utilizing the same equipment.

UNINTERRUPTIBLE POWER SUPPLY (UPS)

A UPS is designed to protect attached from surges, spikes, equipment damage, data corruption, or data loss. This protection is accomplished by providing back up power in case of power loss, orderly shutdown of equipment, and power regulation to handle over and under voltages.

Considerations & Common Applications

When selecting the UPS that will best fit, many variables must be taken into consideration

- 1) What is the site's voltage?
- 2) What voltage do you need?
- 3) What are the power consumption requirements/sizing requirement of the UPS?
- 4) How long will equipment need to run in the case of a power outage?
- 5) Is a generator on site to provide backup power?
- 6) How much space is available?
- 7) Where will the UPS be installed?
- 8) What receptacles are needed by equipment (UPS Outlets)?
- 9) What receptacle is available for the UPS (Power Inlet Cord)?
- 10) Does the application require redundancy?
- 11) Does the battery run time need to be scalable?



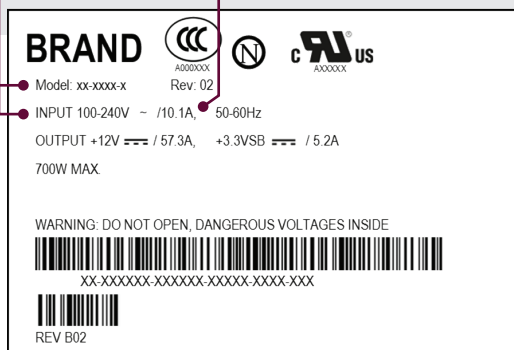
Selecting a Uninterruptible Power Supply (UPS)

- 1) Identify the equipment to back up
- 2) Determine total power consumption: VoltAmps (VA) or Watts (W)
 - Determine individual equipment VA (Volts x Amps = Individual equipment VA)
 - VA of individual equipment x quantity of individual equipment to be utilized = VA Subtotal
 - Add all VA Subtotals together = Total
 - Total x 1.2 = Grand Total
 - Utilize the Grand Total to select the UPS (it is recommend to not exceed 80% of the UPS VA capacity)

Converting VA to Watts

- Divide Watts by Power Factor = VA
- VA x Power Factor = Watts

Equipment	Volts	x	Amps	=	VA	x	Quantity of Equipment	=	VA Sub Total
xx-xxxx-x	120	x	10.1	=	1212	x	1	=	1212
zz-xxxx-y	120	x	3	=	360	x	3	=	1080
Total									x 1.2
Factor to not exceed 80% UPS VA Capacity									
Grand Total									2750.4



3) Calculate the runtime needed during an outage

- 10-15 minutes is the duration of 95% of all power outages—having 10-15 minutes of run time will cover nearly every situation
- If relying on a generator expect between 1-5 minutes to startup

4) Choose a topology

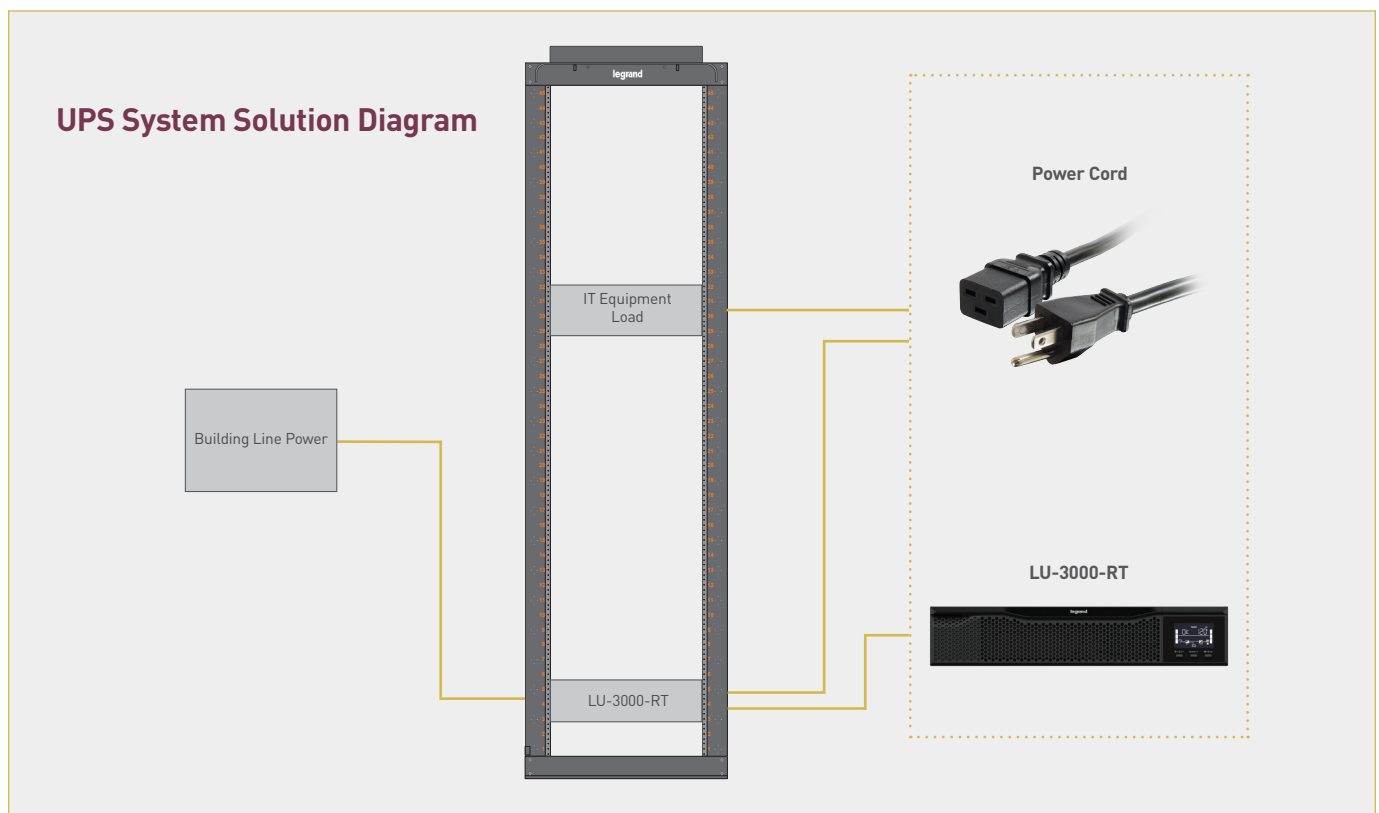
- Double-Conversion Online
 - A Double-Conversion Online UPS completely isolates output power from input power

Feature	Function	Benefit
Two inverters	Convert to DC to charge batteries—converted to AC to output to devices	Zero transfer time—power is always coming from the battery
Pure Sinewave Output	Output power is always a pure sinewave to provide clean, high-quality power to critical equipment	Prevents damage to the most critical equipment

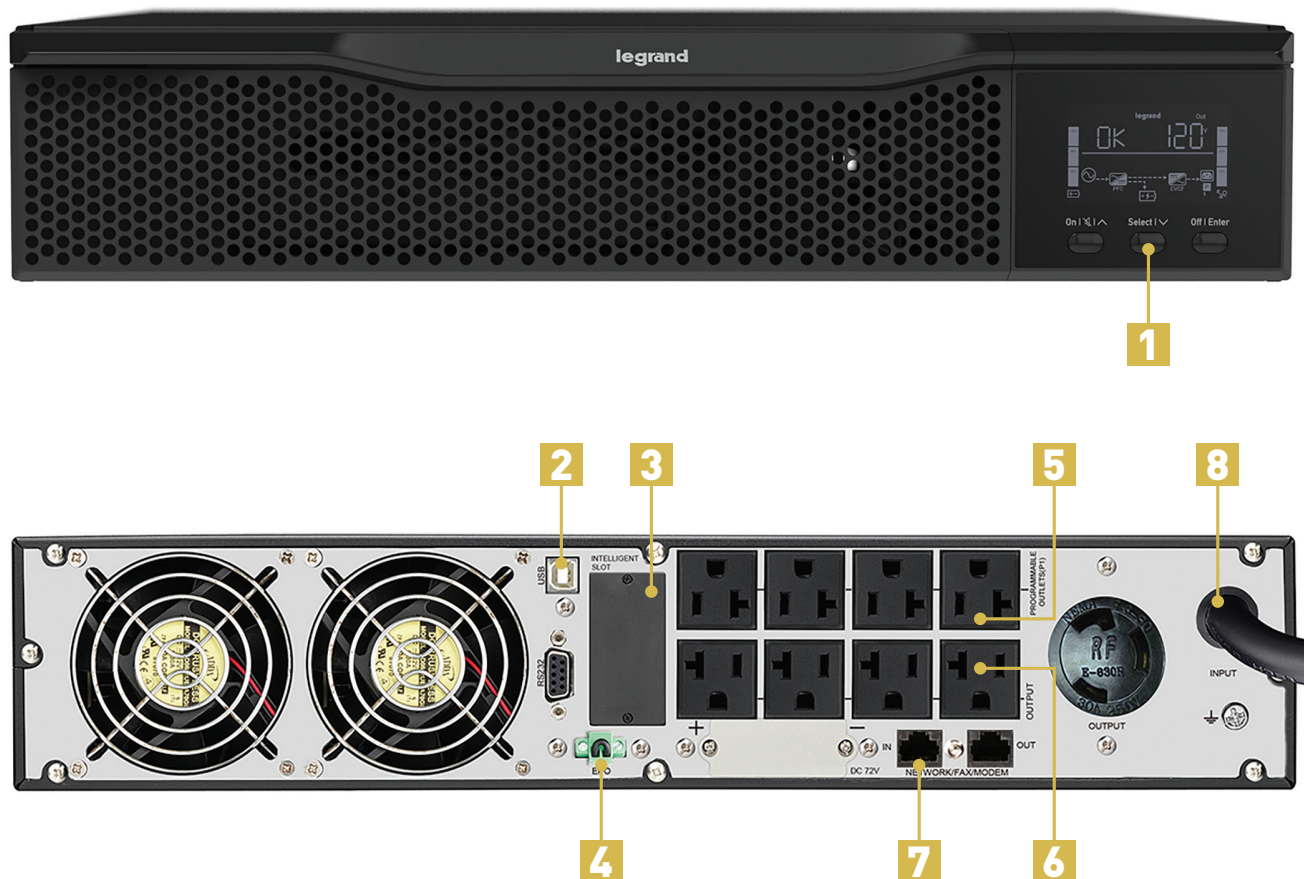
- Line Interactive
 - A Line Interactive UPS uses Automatic Voltage Regulation (AVR) to provide minor corrections in power without switching directly to battery

Feature	Function	Benefit
Automatic voltage regulator	Corrects low or high voltage without switching to battery	Preserves the longevity of the internal battery pack
2-6 millisecond transfer time	Transfers to battery backup power when input power is lost or out of acceptable range	Prevents damage to critical equipment

NOTE: The "Selecting a Uninterruptible Power Supply (UPS)" section and "Selecting a UPS" section is provided only for guidance and convenience. Its calculations are not warranted by Legrand. Check all your work with actual measurements, seek guidance from Legrand support, or for project support reach out to Legrand's Technology Center of Excellence.



UPS IN DETAIL



1

LCD Control Panel

Bright screen with configuration control, load information, mode operation, and battery information

2

Communication Ports

USB & RS232 ports enable direct connection, communication, and control to the UPS

3

SNMP Card Slot

Optional SNMP network card allows remote access and control via a network connection

4

Emergency Power Off

Emergency Power Off (EPO) is a safety shutoff. In the case of emergency, all power from the UPS will cease

5

Programmable Outlets

Allows for unattended shutdown of non-critical devices during power failure after user-specified length of runtime

6

Outlet Receptacles

Provides backup power to attached devices during short term power loss or ensures a smooth transition to generators during longer outages

7

Network Surge Protection

Enables surge protection to a network connection such as a router or modem

8

AC Inlet

Power input for the UPS system

DOUBLE-CONVERSION ONLINE UPS

Protect mission critical hardware in IT closets, voice and data networks, unmanned facilities, light industrial, and financial branches through double-conversion online power protection. Multiply the reach and ability of IT staff and caretakers through a single portal, providing visibility and control of power usage and available capacity, simplifying maintenance responsibilities for taxed IT departments.

FEATURES:

- **Zero Transfer Time:** Seamless transfer of power from AC to battery and inverter to bypass
- **True Double-Conversion:** Provides the highest protection from raw input power (surges, spikes, and dips)
- **Pure Sinewave Output:** Provides the ideal waveform for the most sensitive equipment
- **Wide Input Voltage Range:** Enables stable wide range application usage
- **Input Power Factor Correction:** Optimized and ideal efficiency at full load
- **Programmable Outlet Bank:** Ensures efficient and timely powering down of attached non-critical equipment
- **Designed to Work in Tandem with a Generator:** Ensures smooth transition to generators during longer outages
- **Optional Remote Management Control:** Provides visibility and control of power usage and availability, both on-site or at a remote unmanned facility
- **4-Post Rack Mounting Kit:** Included for simplified rack mounting
- **Tower Mounting Option:** Includes feet for non-rack applications, enabling the UPS to stand up by providing stability



DOUBLE-CONVERSION ONLINE UPS – SINGLE-PHASE

Part No.	Topology	Runtime Under Load (minutes)		Form Factor	Inlet Plug	Nominal Voltage (V)	5-15R	5-20R	L5-30R	Power Capacity (VA)	Power Capacity (W)	Output Voltage (V)	Power Factor @ 120V	Remote Management
		Half	Full											
LU-1000-RT	Double-Conversion Online	10.1	3.0	2U Rack/Tower	5-15P	80-150V	8			1000	1000	100/110/115/120/127 V	≥0.99	Smart RS-232
LU-1500-RT		10.3	3.0		5-15P		8			1500	1300		0.9	USB
LU-2000-RT		9.9	3.0		5-20P			8		2000	1850			Optional SNMP Card
LU-3000-RT		10.1	3.0		L5-30P			8	1	3000	2740			

LINE INTERACTIVE UPS

Protect critical hardware in IT closets, data networks, retail, and financial branches through automatic voltage regulation (AVR) to correct voltage irregularities without switching to battery. Multiply the reach and ability of IT staff and caretakers through a single portal, providing visibility and control of power usage and available capacity, simplifying maintenance responsibilities for taxed IT departments.

FEATURES:

- **Ultra Low Transfer Time:** Quick transfer of power from AC to battery
- **Automatic Voltage Regulation (AVR):** Corrects voltage irregularities without switching to battery
- **Pure Sinewave Output on Battery Mode:** Provides the ideal waveform for the most sensitive equipment
- **Wide Input Voltage Range:** Enables stable wide range application usage
- **Input Power Factor 0.9:** Optimized and ideal efficiency at full load
- **Programmable Outlet Bank:** Power management outlets enable programmable control of load segments to extend battery time to mission critical equipment
- **Optional Remote Management Control:** Provides visibility and control of power usage and availability, both on-site or at a remote unmanned facility
- **4-Post Rack Mounting Kit:** Included for simplified rack mounting
- **Tower Mounting Option:** Includes feet for non-rack applications, enabling the UPS to stand up by providing stability

LINE INTERACTIVE UPS – SINGLE-PHASE

Part No.	Topology	Runtime Under Load (minutes)		Form Factor	Inlet Plug	Input Voltage Range (V)	5-15R	5-20R	L5-30R	Power Capacity (VA)	Power Capacity (W)	Output Voltage (V)	Power Factor @ 120V	Remote Management
		Half	Full											
LU-1100-RTL	Line-Interactive	10.2	3.0	2U Rack/Tower	5-15P	81-145V	8			1100	990	100/110/115/120/127 V	0.9	Smart RS-232
LU-1500-RTL		12.8	4.5		5-15P		8			1440	1296			USB
LU-2000-RTL		12.0	3.8		5-20P			8		1920	1728			Optional SNMP Card
LU-3000-RTL		12.3	4.0		L5-30P			6	1	2880	2592			

UPS ACCESSORIES

Legrand offers a variety of accessories for UPS systems including an SNMP Network Card to enable network interface for monitoring and control, battery expansion packs to extend runtime, and replacement batteries for hot-swappable replacement of battery units.

Part No.	Description	Online						Line Interactive			
		KVA						KVA			
		1	1.5	2	3	6	10	1.1	1.5	2	3
LU-IPCARD	Legrand SNMP Network Card	•	•	•	•	•	•	•	•	•	•
LU-BATT1	Battery Expansion Pack	•						•			
LU-BATT2	Battery Expansion Pack		•								
LU-BATT3	Battery Expansion Pack			•					•	•	
LU-BATT4	Battery Expansion Pack				•						•
LU-RPB1	Replacement Battery 12V,9AH	•	•	•	•		•	•		•	•
LU-RPB2	Replacement Battery 12V,7AH					•			•		



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