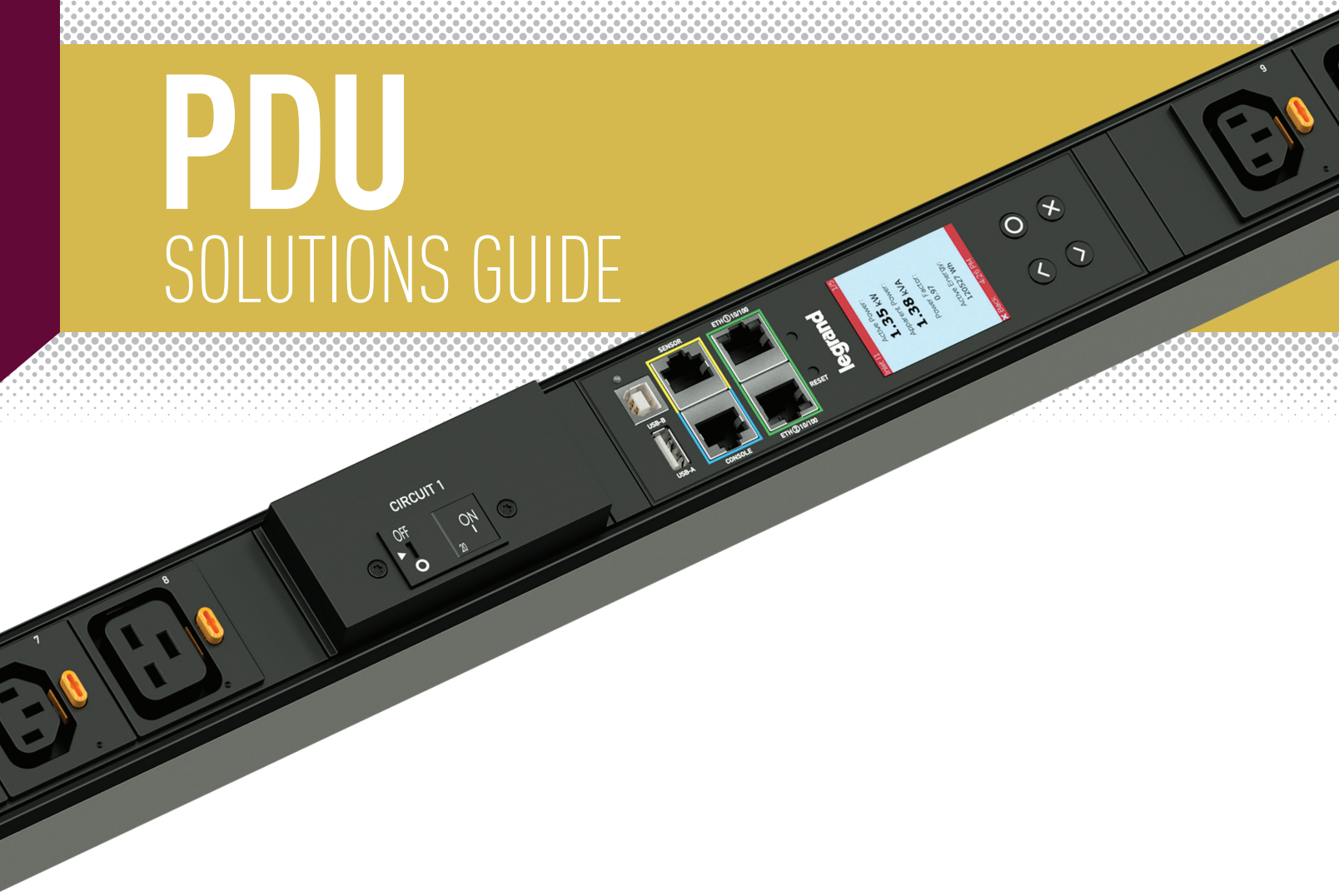
# PDU

## 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.

# POWER DISTRIBUTION UNIT (PDU)

A PDU is designed to protect and distribute power to attached equipment. Networked PDU models provide remote monitoring and control, alert notifications, and visibility of usage, power problems, and availability to IT staff. This is accomplished through the Legrand® PDU controller, which allows for delayed power sequencing, power regulation, and the aggregation of sensors.

## Selecting a Power Distribution Unit (PDU)

**1) Determine form-factor**

- Vertical: 0U
- Horizontal: 1U or 2U (19" EIA)

**2) Verify the PDU input voltage, phase, and current that will work with the feed to your rack or cabinet and with the connected equipment**

- Voltage: 120 or 208V
- Phase: Single-phase
- Current:

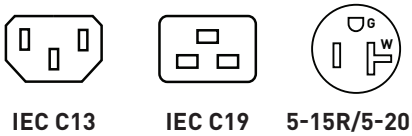
| Input Current | Input Current Rated |
|---|---|
| 15 Amps | 12 Amps |
| 20 Amps | 16 Amps |
| 30 Amps | 24 Amps |

**3) Determine the input-plug type that will work with the feed to your rack or cabinet**

- NEMA 5-15P
- NEMA 5-20P
- NEMA L5-20P
- NEMA L5-30P
- NEMA L6-20P
- NEMA L6-30P


**4) Determine the outlet receptacle types and quantities needed to power the equipment connected to the PDU**

- IEC C13
- IEC C19
- NEMA 5-15R/5-20R




**4) Remote access and control requirements**

**Non-Intelligent PDUs**

- **Basic PDUs:** Basic PDUs distribute voltage and current to power IT equipment in racks and cabinets.

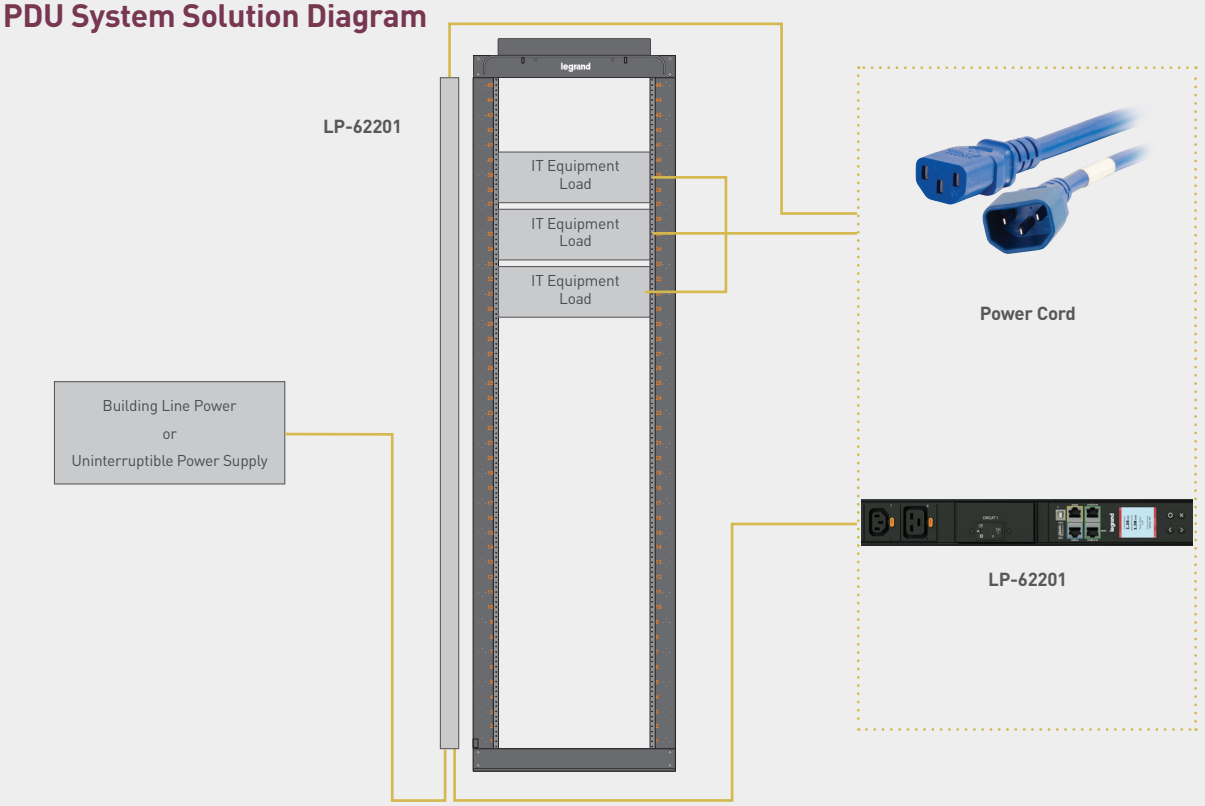
**Networked PDUs**

- **Network Metered PDUs:** Network Metered PDUs offer the same power distribution capabilities as the Basic PDUs, but also meter power at the PDU inlet-level. Network Metered PDUs display the inlet power data both locally and over a network. They also allow for sensors to be connected and monitored through the PDU interface.
- **Network Switched PDUs:** Network Switched PDUs offer the same features as Network Metered PDUs, but also enable authorized users to securely power-cycle outlets remotely. Network Switched PDUs minimize inrush currents through power sequencing, prevent unauthorized device provisioning, power off devices that are not in use to conserve energy, and reboot devices to quickly restore services.

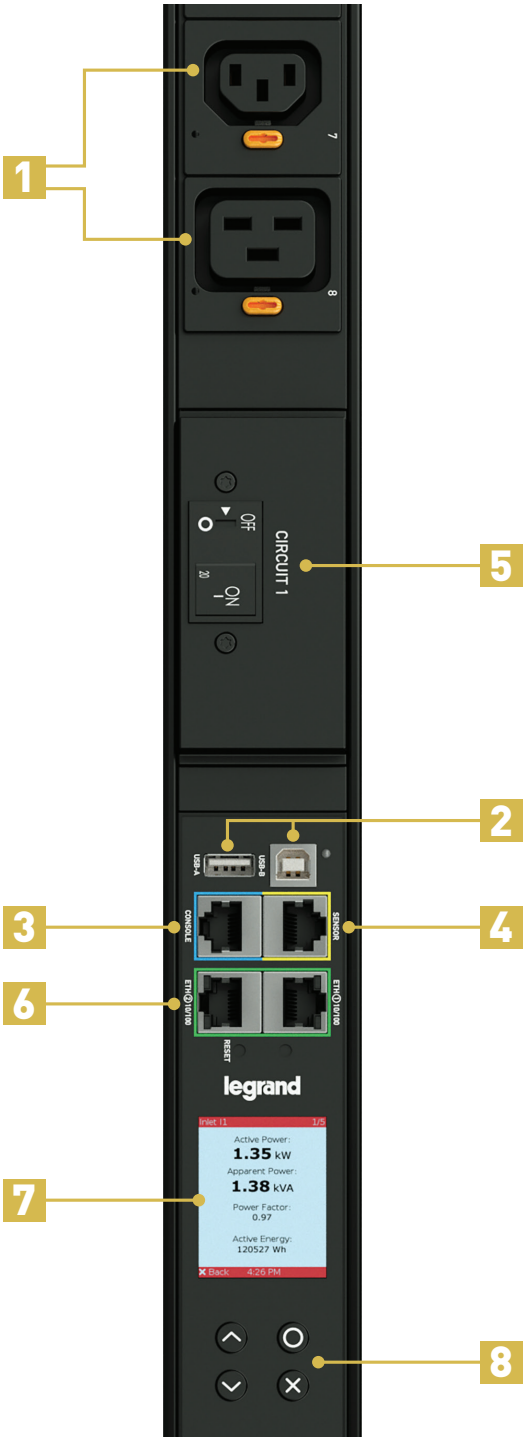
## LEGRAND'S PDU PRODUCT FAMILY OVERVIEW

| FEATURES | Network Switched Series | Network Metered Series | Basic Series |
|---|---|---|---|
| Distribute Power to Multiple Devices | • | • | • |
| Inlet Metering | • | • | |
| Branch Circuit Metering | • | • | |
| Circuit Breaker Alarming | • | • | |
| Outlet Level Switching | • | | |
| **OPTIONAL FEATURES** | | | |
| Environmental Sensors | • | • | |
| Remote & Automatic Locking | • | • | |

### PDU System Solution Diagram



# PDU IN DETAIL




**1**

## Outlet Receptacles

IEC or NEMA outlet receptacle options. Integrated locking receptacles, available on C13 and C19 outlets, provide maximum port retention without the need of special cords that lock at the PDU

**2**

## USB-A and B Ports

USB-A and B ports for connecting peripheral devices, so data can be viewed on smartphones

**3**

## RJ45 Console Port

Data connection for direct control and management

**4**

## RJ45 Sensor Port

Plug-and-Play sensor port for directly connecting optional temperature and humidity sensors

**5**

## Circuit Breaker

Hydraulic-magnetic breakers on 30A units provide local protection, quick recovery from circuit overload, and are not affected by ambient temperature

**6**

## Dual Network Ports

Dual network connection ports (Fast Ethernet) allow for redundant and configurable access to the PDU from two different networks—ideal for daisy-chaining PDUs or colocation environments

**7**

## LCD Color Screen

220 x 176mm super bright screen with configurable measurement data display

**8**

## Intuitive Navigation Buttons

Intuitive control buttons to navigate local PDU screen

# INNOVATION & PERFORMANCE

## CORD LOCKING SYSTEM

The security of cable connections is a critical element which must be considered to ensure longevity of the installation. Legrand PDUs with IEC receptacles have a power supply cord locking system which prevents accidental disconnection due to human error or vibration.

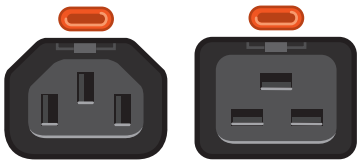
Functionality integrated in all Legrand PDUs with IEC receptacles: Basic, Network Metered, and Network Switched.

*Not available on high-density unit: LP-42300

CORD LOCKING SYSTEM

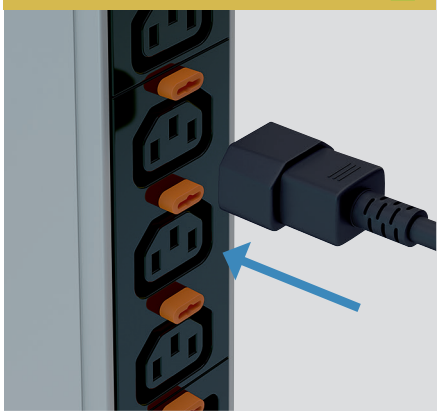
### UNIVERSAL SYSTEM

Takes all standard power cords for C13 and C19 sockets



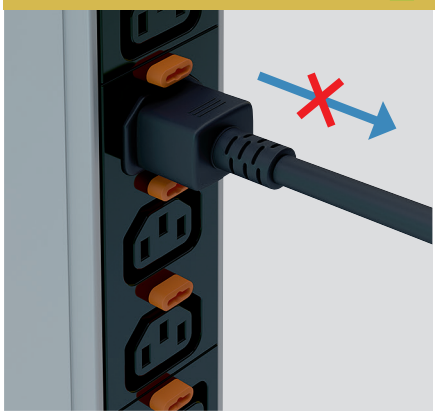
EXCLUSIVE TO LEGRAND

### CONNECTION



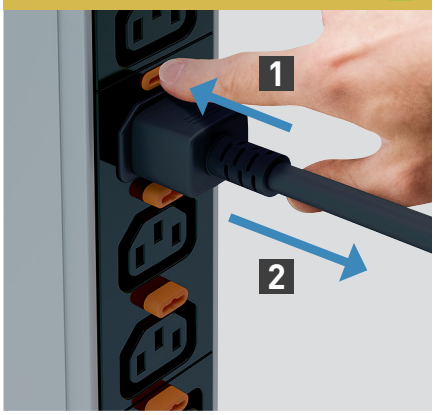
**CORD CONNECTION**
The cord connects to the socket smoothly with one quick action

### AUTO LOCKING



**CORD HELD IN PLACE**
Once the power supply cord is connected, it locks automatically and cannot be removed

### UNLOCKING




**EASY REMOVAL**
Simply pressing the unlock button releases the cord from the socket

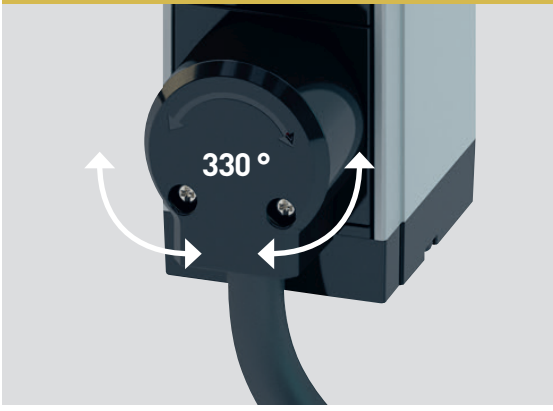
## ZERO U PDUs

Every detail matters! Legrand's unique and original innovations help ensure optimum performance for the Zero U range of PDUs. A rotatable inlet cord allows for flexibility in design, installation, and configuration of your setup.

*Not available on high-density unit: LP-42300

STANDARD FEATURE FOR ZERO U BASIC, METERED, & SWITCHED PDUs

### ROTATIVE CABLE ENTRY




**CABLE ORIENTATION**
330° rotatable cable entry for perfect cable orientation and no interference in the cabinet

# NETWORK SWITCHED PDU – SINGLE-PHASE

Distribute, manage, and control power to connected equipment, enabling load monitoring, individual outlet power cycling, and power sequencing. This control can be accessed locally or remotely, multiplying the reach and ability of IT staff and caretakers. A single portal view provides visibility and control of power usage and available capacity, which simplifies the maintenance responsibilities of taxed IT departments.

## FEATURES:

- **Networked Controller:** Enables remote and local monitoring and control of the PDU and peripherals
- **Circuit Breaker Trip Detection / Alerting:** Get notification instantly in the instance of a tripped circuit breaker
- **Advanced Load Monitoring:** View and control the power being drawn for the entire PDU, receive notifications of potential issues or when near max amperage draw
- **Delayed Power Sequencing:** Sequence the order in which each outlet is turned on or off to avoid dropped power loads or circuit overloading
- **Outlet Use Management:** From the PDU GUI, you can remotely identify named outlets and if an outlet is on or off
- **High-Res Color LCD:** Displays energy reading, current, and voltage; important configuration settings, alarm settings, and control outlets which simplifies commissioning
- **Hydraulic-Magnetic Breakers:** Provide less heat dependent local protection and quick recovery from circuit overload, by utilizing a two-step response curve—these breakers provide a delay on normal overcurrents, while tripping quickly on short circuits
- **Integrated Locking Outlets on IEC Receptacles:** Eliminates the need for special cords that lock at the PDU
- **Rotatable Cord:** Enables maximum flexibility for routing the input plug – simplifying the installation of Zero U PDU's
- **Mounting Types:** Available in horizontal and vertical (on rail, flush rail, and button mount) configurations to ensure power distribution is optimally located and simple to install
- **PDU Linking:** Cascade up to 16 PDUs via Ethernet or USB—this can minimize port usage on network switches or consolidate accessibility to multiple PDUs from a single IP address
- **Optional Environmental Sensors and Remote Locking:** Can alert of any threats of downtime or potential physical security breaches
- **Software Interoperability:** Seamlessly integrate into any monitoring software with open JSON_RPC interface
  **Compatibility:** SNMP, LUA, Java, JavaScript, and Perl

| | | | INPUT | | | | | | RECEPTACLES | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Part No. | Form Factor | Mounting Type | Input Nominal Voltage (V) | Input Current (A) | Input Current Rated (A) | Input Power Capacity (kW) | Inlet Location | Input Plug Type | IEC C13 | IEC C19 | NEMA 5-20R | Integrated Locking Outlets | Circuit Breaker |
| LP-61110 | 1U | Horizontal Rack | 120V | 15 | 12 | 1.4 | Rear C20 | 5-15P | | | 8 | | |
| LP-61210 | 1U | Horizontal Rack | 120V | 20 | 16 | 1.9 | Rear C20 | L5-20P | | | 8 | | |
| LP-62211 | 1U | Horizontal Rack | 208V | 20 | 16 | 3.3 | Rear | L6-20P | 8 | | | • | |
| LP-61320 | 2U | Horizontal Rack | 120V | 30 | 24 | 2.9 | Rear | L5-30P | | | 16 | | 2x20A |
| LP-62320 | 2U | Horizontal Rack | 208V | 30 | 24 | 5 | Rear | L6-30P | 16 | | | • | 2x20A |
| LP-61100 | Zero U | Button | 120V | 15 | 12 | 1.4 | Front Rotatable | 5-15P | | | 8 | | |
| LP-61200 | Zero U | Button | 120V | 20 | 16 | 1.9 | Front Rotatable | L5-20P | | | 24 | | |
| LP-61300 | Zero U | Button | 120V | 30 | 24 | 2.9 | Front Rotatable | L5-30P | | | 24 | | 3x20A |
| LP-62201 | Zero U | Button | 208V | 20 | 16 | 3.3 | Front Rotatable | L6-20P | 21 | 3 | | • | |
| LP-62300 | Zero U | Button | 208V | 30 | 24 | 5 | Front Rotatable | L6-30P | 21 | 3 | | • | 3x20A |

# NETWORK METERED PDU – SINGLE-PHASE

Network Metered PDUs enable line level power metering in real time. Allowing remote monitoring of the load level, custom notifications, and user specified conditions. Each Network Metered PDU provides visibility and reporting of power usage on the PDUs Color LCD screen and to tablets, smart phones, or computers from nearly anywhere.

## FEATURES:

- **Load Monitoring:** View the power being drawn for the entire PDU, receive notifications of potential issues or when near max amperage draw
- **User Defined Notifications:** User defined thresholds for power draw or environmental factors with notifications if threshold have been met
- **Remote Management:** Manage and configure the unit from any location
- **High-Res Color LCD:** Displays energy reading, current, and voltage; important configuration settings, alarm settings, and control outlets which simplifies commissioning
- **Hydraulic-Magnetic Breakers:** Provide less heat dependent local protection and quick recovery from circuit overload; by utilizing a two-step response curve—these breakers provide a delay on normal overcurrents, while tripping quickly on short circuits
- **Integrated Locking Outlets on IEC Receptacles:** Eliminates the need for special locking cords
- **Rotatable Cord:** Enables maximum flexibility for routing the input plug—simplifying the installation of Zero U PDU's. (Rotatable cord is not available on vertical PDU LP-42300)
- **Mounting Types:** Available in horizontal and vertical configurations to ensure power distribution is optimally located
- **PDU Linking:** Cascade up to 16 PDUs via Ethernet or USB—this can minimize port usage on network switches or consolidate accessibility to multiple PDUs from a single IP address
- **Optional Environmental Sensors and Remote Locking:** Can alert of any threats of downtime or potential physical security breaches
- **Software Interoperability:** Seamlessly integrate into any monitoring software with open JSON_RPC interface
  **Compatibility:** SNMP, LUA, Java, JavaScript, and Perl

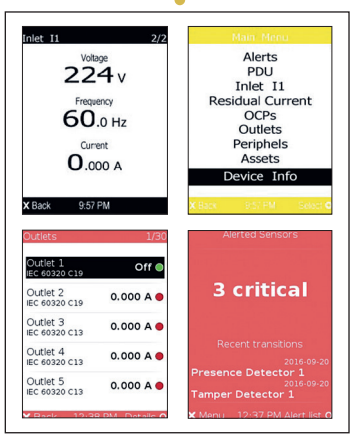
| | | | INPUT | | | | | | RECEPTACLES | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Part No. | Form Factor | Mounting Type | Input Nominal Voltage (V) | Input Current (A) | Input Current Rated (A) | Input Power Capacity (kW) | Inlet Location | Input Plug Type | IEC C13 | IEC C19 | NEMA 5-20R | Integrated Locking Outlets | Circuit Breaker |
| LP-41110 | 1U | Horizontal Rack | 120V | 15 | 12 | 1.4 | Rear C20 | 5-15P | | | 8 | | |
| LP-41210 | 1U | Horizontal Rack | 120V | 20 | 16 | 1.9 | Rear C20 | L5-20P | | | 8 | | |
| LP-42211 | 1U | Horizontal Rack | 208V | 20 | 16 | 3.3 | Rear | L6-20P | 8 | | | • | |
| LP-41320 | 2U | Horizontal Rack | 120V | 30 | 24 | 2.9 | Rear | L5-30P | | | 16 | | 2x20A |
| LP-42320 | 2U | Horizontal Rack | 208V | 30 | 24 | 5 | Rear | L6-30P | 12 | 4 | | C13 Only | 2x20A |
| LP-41100 | Zero U | Button | 120V | 15 | 12 | 1.4 | Front Rotatable | 5-15P | | | 10 | | |
| LP-41200 | Zero U | Button | 120V | 20 | 16 | 1.9 | Front Rotatable | L5-20P | | | 24 | | |
| LP-41300 | Zero U | Button | 120V | 30 | 24 | 2.9 | Front Rotatable | L5-30P | | | 24 | | 2x20A |
| LP-42201 | Zero U | Button | 208V | 20 | 16 | 3.3 | Front Rotatable | L6-20P | 18 | 2 | | • | |
| LP-42300 | Zero U | Button | 208V | 30 | 24 | 5 | End | L6-30P | 36 | 6 | | | 2x20A |

# NETWORKED PDU CONTROLLER

## THE HEART OF NETWORKED PDUs

### A WIDE BRIGHT COLOR LCD DISPLAY

The new Legrand® PDU controller allows local and remote access to all critical measurement data. The bright color LCD display will change color according to the alert level detected by the iPDUs; your field technicians can quickly identify iPDUs on which the thresholds have been exceeded, obtain correct power supply data immediately, and take appropriate action.


**DIRECTLY ACCESSIBLE DATA**

Makes it easier to view the data center power supply data and information about the environment. The responsive web user-interface can be accessed from any device or tablet, or directly from a desktop computer.

The redesigned overview screen provides the most important information at a glance, so you can easily monitor your PDU health and critical data, and also view the cabinet energy consumption in real time.

**ADAPTIVE COLOR SCREEN**

The LCD display on the unit changes color according to the alert level, making it easier for the technical teams to see the critical information.

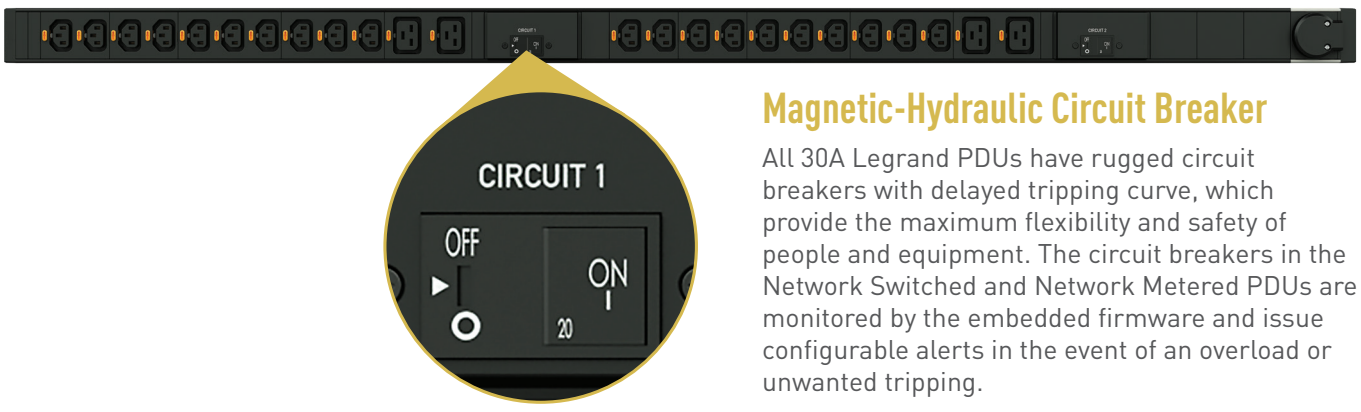
# BASIC PDU – SINGLE-PHASE

Basic PDUs provide reliability and simple installation. Standardized power distribution enables cost effective scaling, speed to deployment, and simplifies procurement due to a common platform.

## FEATURES:

- **Hydraulic-Magnetic Breakers:** Providing less heat-dependent local protection and quick recovery from circuit overload by utilizing a two-step response curve, these breakers provide a delay on normal overcurrents, while tripping quickly on short circuits
- **Integrated Locking Outlets on IEC Receptacles:** Eliminate the need for special cords that lock at the PDU
- **Rotatable Cord:** Enables maximum flexibility for routing the input plug—simplifying the installation of Zero U PDUs
- **Mounting Types:** Available in horizontal and vertical configurations to ensure power distribution is optimally located

| | | | INPUT | | | | | | RECEPTACLES | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Part No. | Form Factor | Mounting Type | Input Nominal Voltage (V) | Input Current (A) | Input Current Rated (A) | Input Power Capacity (kW) | Inlet Location | Input Plug Type | IEC C13 | IEC C19 | NEMA 5-20R | Integrated Locking Outlets | Circuit Breaker |
| LP-21110 | 1U | Horizontal Rack | 120V | 15 | 12 | 1.4 | Side | 5-15P | | | 10 | | |
| LP-21210 | 1U | Horizontal Rack | 120V | 20 | 16 | 1.9 | Side | 5-20P | | | 10 | | |
| LP-21211 | 1U | Horizontal Rack | 120V | 20 | 16 | 1.9 | Side | L5-20P | | | 10 | | |
| LP-21310 | 1U | Horizontal Rack | 120V | 30 | 24 | 2.9 | Rear | L5-30P | | | 10 | | 2x20A |
| LP-22210 | 1U | Horizontal Rack | 208V | 20 | 16 | 3.3 | Side | L6-20P | 12 | | | • | |
| LP-22310 | 1U | Horizontal Rack | 208V | 30 | 24 | 5 | Rear | L6-30P | 10 | | | • | 2x20A |
| LP-22311 | 1U | Horizontal Rack | 208V | 30 | 24 | 5 | Rear | L6-30P | | 4 | | • | 2x20A |
| LP-21100 | Zero U | Button | 120V | 15 | 12 | 1.4 | Front Rotatable | 5-15P | | | 14 | | |
| LP-21200 | Zero U | Button | 120V | 20 | 16 | 1.9 | Front Rotatable | L5-20P | | | 14 | | |
| LP-21201 | Zero U | Button | 120V | 20 | 16 | 1.9 | Front Rotatable | L5-20P | | | 24 | | |
| LP-21300 | Zero U | Button | 120V | 30 | 24 | 2.9 | Front Rotatable | L5-30P | | | 24 | | 2x20A |
| LP-22200 | Zero U | Button | 208V | 20 | 16 | 3.3 | Front Rotatable | L6-20P | 20 | 4 | | • | |
| LP-22300 | Zero U | Button | 208V | 30 | 24 | 5 | Front Rotatable | L6-30P | 20 | 4 | | • | 2x20A |




## Magnetic-Hydraulic Circuit Breaker

All 30A Legrand PDUs have rugged circuit breakers with delayed tripping curve, which provide the maximum flexibility and safety of people and equipment. The circuit breakers in the Network Switched and Network Metered PDUs are monitored by the embedded firmware and issue configurable alerts in the event of an overload or unwanted tripping.

# POWER CORDS

Power cords are the ideal solution for powering a server or connecting to a PDU in a data center or network wiring closet. With optimal lengths, colors and configurations, they can minimize troubleshooting time and keep your data center clean and clutter-free. Power cords are available to meet multiple application environments and will provide maximum durability and long life.

## COLORED POWER CORDS

When working in a wiring closet or a cabinet space is limited and cords can easily be misidentified and disconnected causing detrimental downtime. Perform maintenance tasks with confidence by using color power cords in a data environment allowing for quick and accurate identification of equipment. Please contact your Legrand sales representative for ordering information.

## FEATURES:

- Full length color jacket with matched color connectors
- Options constructed of heavy duty 18, 14, and 12AWG conductors
- Options rated up to 250V 20A
- Options C14 to C13 in 18 and 14AWG / C19 to C20 in 12AWG
- UL listed

| Color | Available Lengths (Feet) |
|---|---|
| Red | 1, 2, 3, 4, 5, 6, 8, 10 |
| Orange | 1, 2, 3, 4, 5, 6, 8, 10 |
| Yellow | 1, 2, 3, 4, 5, 6, 8, 10 |
| Green | 1, 2, 3, 4, 5, 6, 8, 10 |
| Blue | 1, 2, 3, 4, 5, 6, 8, 10 |
| White | 1, 2, 3, 4, 5, 6, 8, 10 |
| Black | 1, 2, 4, 6, 10, 12, 15 |

## LOCKING POWER CORDS

Ensure a secure power connection to critical equipment while saving both time and money using this innovative locking connector. Please contact your Legrand sales representative for ordering information.

## FEATURES:

- Locking C13 or C19 connector ensures port retention to critical equipment
- Constructed of heavy duty 17 (C13) or 15 (C19) AWG conductors
- Rated up to 250V 10A (C13) or 15A (C19)

| Lengths | | | | | |
|---|---|---|---|---|---|
| 1ft | 2ft | 3ft | 6ft | 10ft | 15ft |

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