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The Basics of Selecting Rack-Mount Power Distribution Units for Remote Monitoring

Almost every Information and Communications Technologies (ICT) equipment rack used to store compute, storage or network equipment requires a rack-mount Power Distribution Unit (PDU) or power strip to distribute power to equipment. But, if you are unfamiliar with electrical power distribution systems or even the differences in industry jargon, selecting a PDU—especially those that offer remote monitoring capabilities—can be challenging.

Establish Your Ground Rules

Before you decide on remote monitoring capabilities, you'll want to establish PDU selection based on a few basic factors and components unique to your application needs. These include:

1. Form Factor

Use a vertical PDU in a full-height, free-standing rack to maximize possible equipment connections. Use a horizontal PDU in smaller wall-mount racks or edge deployments.

2. Input Plug

Make sure the input plugs of the PDU match the branch power circuit receptacle at the rack. This also helps determine the total amount of power available to equipment in the rack.

3. Outlets

If the equipment going in the cabinet is known, match the type and total number of outlets available on the PDU with the plug types on the equipment. If equipment is unknown, choose a PDU that provides a good mix of C13 and C19 outlets.

4. Functionality

Rack-mount PDUs are generally available in six different functionality levels. Choose the functionality that best meets your budget and requirements.



PDU Model and Functionality

eConnect® Model	Basic Power Distribution	Inlet Metering	Branch Circuit Metering	Remote Access	Access Control	Outlet Metering	Switched Outlets
Basic	✓						
Metered	✓	✓					
Monitored	✓	✓	✓	✓	✓		
Monitored Pro	✓	✓	✓	✓	✓	✓	
Switched	✓	✓	✓	✓	✓		✓
Switched Pro	✓	✓	✓	✓	✓	✓	✓

Remote Monitoring and Control

To fully optimize power distribution, monitoring and control in your IT infrastructure, selecting an intelligent PDU option fully unlocks the benefits of remote monitoring, but you'll want to understand what you're monitoring, why and how to harness that insight. Remember that remote monitoring includes a network connection with a web interface for network monitoring. Once you've established the need and the capability, determine the level of remote monitoring that's right for your application, including:

Branch Circuit Monitoring: To assure power availability, it is important to monitor all circuit breakers in the power chain. Within the data center white space, overcurrent protection is utilized on rack PDUs, as well as remote power panels or busway systems. Since there are several branch circuits on a PDU, it is critical that all branch circuits be monitored on the rack PDU. In general, monitoring as close to the device as possible provides better reporting to inform optimization.

Remote Management (threshold alarms and data logging): Select a PDU with intelligent remote management capability for continual automated monitoring. Features such as the ability to set thresholds and get notifications or alerts when warning or critical thresholds are exceeded are crucial. Plus, data logging to keep records for analysis is important. Generally, there is a one-to-one association between a branch circuit on a floor PDU and the input of a rack PDU.

Outlet-Level Monitoring: Reducing energy footprint of the IT equipment is best served with monitoring of power consumption at the outlet level of the rack PDU. Information obtained can be used to identify servers that are over or underutilized. Outlet-level readings also provide information to determine what servers and applications would be best suited for virtualization, and where there is available space and capacity in racks. Outlet level control is an important element for remote sites. By providing ability to turn on, turn off or reboot hung up equipment, you improve availability of IT equipment. It also helps with provisioning of equipment for edge locations.



Don't Forget the Environment

One of the most common causes of downtime is hardware failure resulting from exceeded temperature or humidity levels within a cabinet. An excellent way, then, to mitigate this challenge is also select intelligent PDUs with environmental monitoring capabilities and accessories.

Measuring and tracking inlet and outlet temperature and inlet humidity at each rack/cabinet in order to assure conditions are within ASHRAE recommended limits is a good strategy and can be achieved by placing a temperature and humidity probe near the top front and rear of each cabinet, connected to the PDU, like the one seen here.

Furthermore, integrating your remote monitoring capable PDUs with a Data Center Infrastructure Management (DCIM) software will give you the ability to trend and plot temperature and humidity conditions that can then help visualize patterns, and identify root cause of out of bounds conditions. This helps operators recognize the need to move a workload or a piece of equipment to another rack, or indicates that airflow management is deficient in a particular rack.

Once you've determined for all the factors recommended above, be sure to work with a partner that can offer a quick, easy way to select the right PDU. With so many variables, it's important that your search be accurate and thorough.

CPI offers an easy-to-use, online tool called the CPI Power Selector that will provide an exact part number and product specification based on your selections. Try the tool for free at selectapdu.com.



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Power Selector

Select the best power product for your application by narrowing down options based on your requirements. You can compare up to four products at once, and then email or print the results. If you require a product not listed below, please contact Technical Support.

Input Plug



- C20 Inlet to IEC 16A 1P+N+E
- C20 Inlet to L5-20
- C20 Inlet to L6-20
- CS8365
- IEC 16/20A 3P+N+E
- IEC 16A 1P+N+E
- IEC 16A 3P+N+E

[+] more

Form Factor

- Horizontal
- Vertical

Outlet Type

- NEMA 5-15R 
- NEMA 5-20R 

Showing Items 1 - 15 of 202

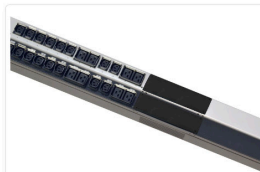
Items per page ▾

Clear Filters: Vertical, Black + Glacier White



E0-1001-CE

Basic eConnect PDU Redundancy Pack; 1 Black/1 Glacier White; Vertical; For 42U & Higher Cabinets; C20 Inlet to L5-20 Input; (24) 5-20 Outlets; 1.9kW; 149°F (65°C); 100% Rated Hydraulic Magnetic Breakers; Tool-less Mounting

 Compare


E0-1002-CE

Basic eConnect PDU Redundancy Pack; 1 Black/1 Glacier White; Vertical; For 42U & Higher Cabinets; 120V 1P/30A/L5-30 Input; (24) 5-20 Outlets; 2.9kW; 149°F (65°C); 100% Rated Hydraulic Magnetic Breakers; Tool-less Mounting

 Compare


E0-1003-CE

Basic eConnect PDU Redundancy Pack; 1 Black/1 Glacier White; Vertical; For 42U & Higher Cabinets; C20 Inlet to L6-20 Input; (24) C13 Outlets; 3.3kW; 149°F (65°C); Locking Outlets; 100% Rated Hydraulic Magnetic Breakers; Tool-less Mounting

 Compare

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