

# Power & Thermal PDU Reference Guide

A PDU, or power distribution unit, is an essential device to protect and power computer and network equipment. It can also be referred to as a power strip, a rack distribution unit (RDU) or cabinet power distribution unit (CPDU). While PDU generally refers to single phase (230 V) voltage power units, many manufacturers produce three phase (400 V) higher voltage PDUs to cater for greater power requirements at the rack or cabinet. The more sophisticated PDUs offer additional features such as surge protection, remote monitoring or control capabilities particularly suitable for specific applications. Monitoring and remote control capabilities are often recommended for purpose-built data centres and computer rooms.

Manufacturers are increasingly offering multi-functional outlet configurations in their PDUs, supporting both C13 and C19 in the same socket which, while not yet standardised, offers the considerable benefit of flexibility to users. Other features routinely offered now include colour-coding of A/B inputs, outlet locking, accessories for easy rack mounting, supply cord management options, operating temperature ratings and cybersecurity protocols.

In this reference guide the term PDU is used to refer to CPDUs, as distinguished from floor PDUs.

PDU Type*	What Is It	Best Usage Environment	Note
<b>Basic/ Standard PDUs</b> (Non-Intelligent)	A basic PDU is typically a power strip that distributes voltage and current to multiple outlets within an IT environment. Basic PDUs are used with its sole purpose to supply power to connected IT equipment within racks and do not carry an on-board management controller. Other than its different application usage, it's effectively a power strip with just a few more receptacles and supply power plug types than on a plug strip you may have at home.	Small computer rooms and server rooms with a limited number of installed servers and IT equipment. Basic PDUs are typically used in both easily accessible and non-mission-critical environments (i.e. where server applications do not instantly impact business continuity).	Basic PDUs <b>do not</b> offer: <ul style="list-style-type: none"> <li>Remote monitoring &amp; alerting</li> <li>Remote (incident) management - i.e. power cycling off/on in case of server crash</li> <li>Real-time power consumption at PDU and/or outlet-level (neither local or remote)</li> <li>DCIM integration possibilities</li> <li>Connectivity options such as sensors</li> </ul>
<b>Monitored PDUs</b> (Non-Intelligent)	As its name suggests, a monitored PDU visually displays the current electric information on a build-in display. It is important to note that in non-intelligent rack PDUs, the display information can only be viewed locally, provide very limited power data, and lack remote management & alerting capabilities.	Server rooms and non-mission-critical data centres where IT manager may need to 'manually' check power load at the rack from time to time.	Monitored PDUs <b>do not</b> offer: <ul style="list-style-type: none"> <li>Remote monitoring &amp; alerting</li> <li>Remote (incident) management - i.e. power cycling off/on in case of server crash</li> <li>DCIM integration possibilities</li> <li>Connectivity options such as env. sensors</li> </ul>
<b>Metered Input PDUs</b> (Intelligent)	This type of intelligent rack PDU displays metered power locally and over a secure network, measuring at the inlet and branch circuit. The PDU inlet metering capability helps managers to see rack power load and helps avoid overloading circuits. It also helps them to more easily calculate the Power Usage Effectiveness (PUE).	Server rooms and data centres where per rack capacity load needs to be monitored (for billing or other purposes). Offers connectivity options such as plug-n-play sensors to monitor rack conditions (i.e. temperature, humidity, and airflow).	Metered Input PDUs <b>do not</b> offer: <ul style="list-style-type: none"> <li>Outlet level metering/monitoring</li> <li>Remote (incident) management - i.e. power cycling off/on in case of server crash</li> <li>Sequential power booting</li> <li>IT device failure alerting</li> </ul>
<b>Metered Outlet PDUs</b> (Intelligent)	Local and over a secure network display of detailed power data points, measuring at outlet, inlet, and branch circuit level. It is used to accurately determine power usage, as well as the available capacity at the rack level. Outlet-level metering can help managers efficiently identify the power consumption at the device and server level. This identification makes it easier to effectively allocate costs to specific data center customers and can send alerts in case of power loss to IT devices.	Any size server room and lights out remote data centres where remote access is required without physical presence. Provides detailed IT device power data. Connectivity options available with these PDUs (i.e. environmental rack sensors, electronic door handle locking, web cam).	Metered Outlet PDUs <b>do not</b> offer: <ul style="list-style-type: none"> <li>Remote (incident) management - i.e. power cycling off/on in case of server crash</li> <li>Sequential power booting</li> </ul>
<b>Switched PDUs</b> (Intelligent)	Switched PDUs offer the features of Metered Inlet PDUs and also provide controlled on/off switching of individual outlets or groups of outlets. They enable authorized users to power cycle devices remotely in a specific order, offer power sequencing delays to minimize inrush currents, and prevent unauthorized device provisioning.	Remote and colocation facilities (any size). Allows quick restore service by rebooting servers. Devices that are not in use can be powered off remotely to conserve energy.	Switched PDUs <b>do not</b> offer: <ul style="list-style-type: none"> <li>Outlet monitoring (PDU-level/Circuit branch only)</li> </ul>
<b>Switched PDUs with Outlet Metering</b> (Intelligent)	Switched PDUs with Outlet Metering combine all the capabilities of Switched PDUs with those of Outlet Metered PDUs, making it the most feature-rich PDU type.	Data centres and server rooms (any size!) in need of the most granular local and remote real-time power data, switching capabilities and connectivity options.	Maximum Features, Maximum Benefits.

\* Manufacturers sometimes use the terms metered and monitored interchangeably, so it is worth checking the specific features of the PDU to make sure it meets your requirements.



Ingenuity delivered.

Wesco.com/emea

240133D001 © 2024 Wesco International