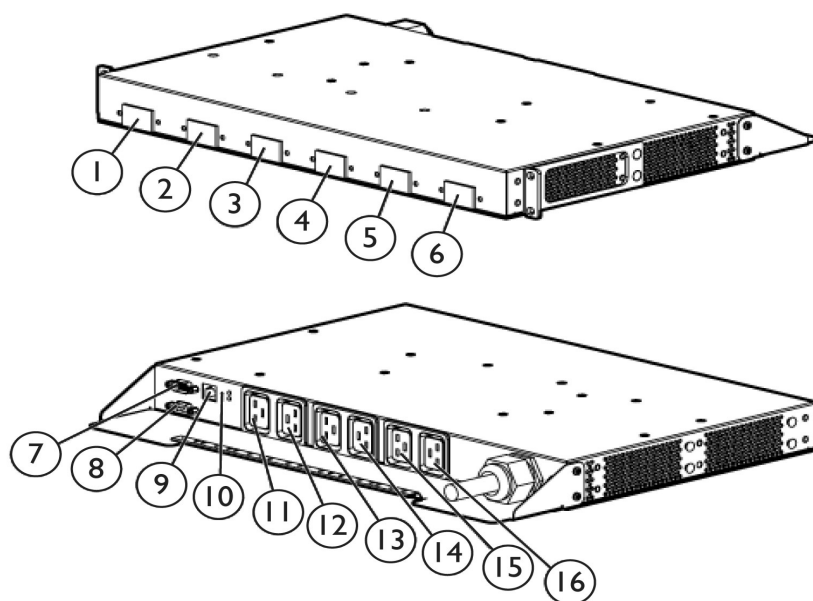


Overview

You cannot control what you cannot monitor. The new HP Intelligent Power Distribution Unit (iPDU) brings state of the art management and control to rack mounted power distribution units (PDU) to prevent over provisioning of power from restricting growth in your data center.

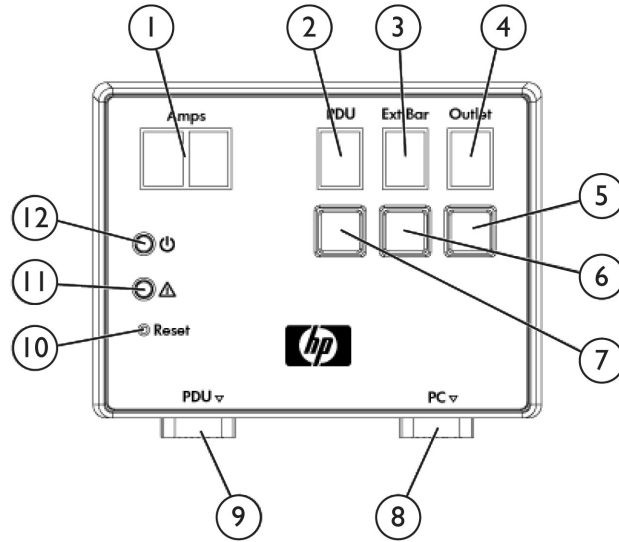
Using the popular core and stick architecture of HP's Modular PDU line the HP Intelligent PDU provides monitoring of power consumption at the core, load segment, stick, and outlet level with unmatched precision and accuracy. Remote management is built in and even provides power cycle ability of individual outlet on the Intelligent Extension Bars. HP is also the first to incorporate Intelligent Power Discovery, which when combined with HP's line of Platinum level high efficiency power supplies the Intelligent PDU actually communicates with the attached servers to collect asset information for the automatic mapping of the power topology inside a rack, greatly reducing the risk of human errors that can cause power outages.



Intelligent PDU Core Unit

- | | | | |
|------|--|--------|------------------------------|
| 1-6. | Load segment circuit breakers, one per IEC C19 | 9. | Network connection (RJ-45) |
| 7. | LED Display Connection (DB-9) | 10. | Reset button (recessed) |
| 8. | For future use (DB-9) | 11-16. | IEC C19 Load segment outlets |

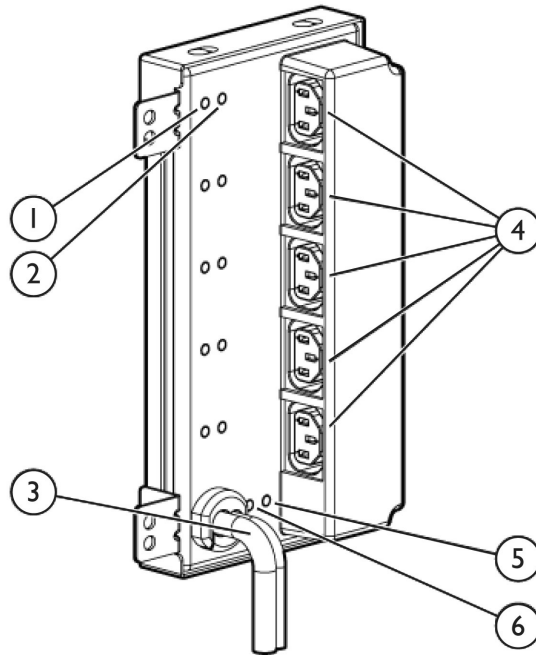
Overview



Intelligent PDU rear mount LED Display

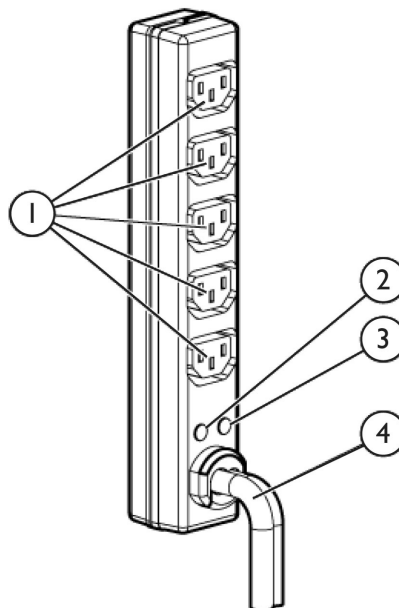
- | | |
|---|--|
| 1. Multi segment LED for amperage display | 7. Scroll button for PDU Core Unit selection |
| 2. Multi segment LED for PDU Core Unit identification | 8. DB-9 for firmware updates |
| 3. Multi segment LED for Load segment /Extension Bar identification number | 9. DB-9 for connection to iPDU Core Unit |
| 4. Multi segment LED for outlet identification number (Intelligent Extension bars only) | 10. Recessed reset button |
| 5. Scroll button for outlet selection (intelligent Extension bars only) | 11. Alarm indicator |
| 6. Scroll button for load segment/extension bar selection | 12. Power Indicator |

Overview



Intelligent Extension Bar for iPDU

- | | |
|--|--|
| 1. Outlet Status indicator (red/green LED) | 4. Individually monitored and switchable IEC C13 outlets with PLC connectors |
| 2. Outlet UID indicator (blue LED) | 5. Extension Bar UID indicator (blue LED) |
| 3. Inlet cord with IEC C19 PLC connector to attach to iPDU Core Unit | 6. Power on indicator for Intelligent Extension Bar (green LED) |



Standard Extension bar for iPDU

Overview

1. 5 x IEC C13 outlets
2. Extension Bar power indicator (green LED)
3. Extension Bar UID indicator (blue LED)
4. Inlet cord with IEC C19 PLC connector to attach to iPDU Core Unit

Models

HP Intelligent Power Distribution Units (iPDU)	iPDU Core Units	
	4.9kVA iPDU Core, 24A Single phase L6-30 input NA/JPN	AF520A
	8.3kVA iPDU Core, 40A Single phase CS8265C Input, NA/JPN	AF521A
	8.6kVA iPDU Core, 24A Three phase L15-30 input, NA/JPN	AF522A
	14.4kVA iPDU Core, 40A Three phase CS8365C input, NA/JPN	AF533A
	17.3kVA iPDU Core, 48A Three phase IEC460P9 input, NA/JPN	AF523A
	7.3kVA iPDU Core, 32A Single Phase IEC332P6 input, INTL	AF525A
	11kVA iPDU Core, 16A Three phase IEC516P6 input, INTL	AF526A
	22kVA iPDU Core, 32A Three phase IEC532P6 input, INTL	AF527A
	NOTE: Each iPDU Core has 6 IEC C19 outlets and includes the LED display unit.	
	iPDU Kits with Standard Extension Bars	
	4.9kVA iPDU Kit, 24A Single phase L6-30 input NA/JPN	AF531A
	8.6kVA iPDU Kit, 24A Three phase L15-30 input, NA/JPN	AF532A
	7.3kVA iPDU Kit, 32A Single Phase IEC332P6 input, INTL	AF534A
	NOTE: iPDU Kits include one Core Unit, LED Display, and 4 Standard (non-intelligent) Extension Bars. Total outlets would be 20 IEC C13 and 2 IEC C19 per kit. Additional Standard or Intelligent Extension bars can be added for a maximum of 30 IEC C13 outlets.	

Key Features

- 4.9kVA to 22kVA modular PDU core units
 - Unique modular design architecture
 - Small form factor with flexible mounting options
 - 6 IEC C19 outlets accept optional Extension Bars or
 - Easy installation
 - Consolidate and maximize cord management
 - Easily accessible outlets
 - All outlets can be used with either PLC Power Cables or standard IEC jumper cables. Intelligent Power Topology requires PLC power cables and Common Slot Platinum Power Supplies with PLC connectors.

Product Highlights

Unique Modular Design Architecture

HP's Intelligent PDUs have a patented modular architecture that improves their flexibility. This "Building block" concept consists of two main parts, the iPDU Core Unit, and the Extension Bar(s). The HP Intelligent PDUs ship with one Core Unit, the mountable LED display and mounting hardware. The Core Unit is zero-U or 1U rack mountable. Optional Extension Bars mount directly to the rack-frame or the rack extension unit.

PDU Core Units

- Each iPDU Core Unit incorporates a built in web engine for remote monitoring and control and includes the LED display unit for local monitoring of current at the rack.
- Core units can be mounted in zero U configurations in HP 10000 series racks or in 1U configurations in any industry standard rack.
- Core units are available in a variety of single phase or three phase inputs to match any application.
- Each core unit has 6 individually monitored IEC C19 outlets that are individually protected by high quality commercial grade breakers.
- Each IEC C19 on the HP Intelligent PDU incorporates Power Line Communication (PLC) technology to communicate with either the Standard Extension Bars or the Intelligent Extension bars.
- The iPDU extension bars can be plugged into the Core Unit, and can be mounted directly to the rack frame, spanning the entire length of the rack.

LED Monitoring Display

- Each Intelligent PDU Core Unit includes a LED Display for local monitoring of power consumption at the rack.
- LED Displays are mountable on the inside rear door of the rack.
- LED Displays have an external alert indicator that is visible from the rear of the rack with doors closed.
- LED Displays show power draw (amperage) at the iPDU and can scroll through individual C19 outlet (load segments), and individual C13 outlets on the Intelligent Extension Bars.

All PDU Extension Bars (overview)

- All iPDU Extension bars are sold in pairs.
- Each Extension bar has five IEC C13 outlets for connection to external equipment.
- Extension Bars can be mounted in the rear of the rack to ease cable management.
- Individual extension bars do not extend into the maintenance zone between RETMA rails at the rear of the rack.
- Extension Bars have power indicators and UID LEDs
- Extension bars have bright blue PLC IEC C20 input connectors for use with HP Intelligent PDU Core Units.

Intelligent PDU Extension Bars

- Each Intelligent Extension Bar has 5 individually monitored and switchable IEC C13 outlets.
- Each IEC C13 outlet has a status indicator and UID LED that is activated when scrolling through the local display unit or remotely via the embedded web engine.
- Each IEC C13 on the Intelligent Extension Bar incorporates bright blue PLC connections to communicate with HP Common Slot Platinum Power Supplies with PLC.
- Standard IEC C14 jumper cables can be used with the Intelligent Extension bars for powering non-PLC enabled devices.



Product Highlights

- Each IEC C13 outlet on the Intelligent Extension Bar is capable of remote power cycling or remote lock out to prevent unauthorized equipment from being installed in the rack.

Standard PDU Extension Bars (non-intelligent)

- Standard Extension Bars can be mounted side by side for high density or redundant applications.
- Standard Extension bars are monitored as a single load segment of 5 x C13 outlets at the IEC C19 outlet on the Intelligent PDU Core Unit.
- Standard Extension Bars have a power indicator and UID LED that is activated when scrolling through the local display unit or remotely via the embedded web engine.

Power Line Communications (PLC) power cables

- Each PLC power cable incorporates RS232 serial connections to enable Intelligent Power Discovery.
- Intelligent Power Discovery uses PLC to transfer server identity information between the HP Common Slot Platinum Power Supplies and the HP Intelligent PDU's Intelligent Extension Bars and automatically maps the server to outlets on the iPDU.
- PLC cables and connectors conform to standard IEC specifications and sizes.

Easy Installation

Installation is quick and easy. Whether you choose to mount the Intelligent PDU core in zero-U or 1U, all required mounting brackets, accessories, and installation instructions are shipped with the product. The Extension Bars come with easy to use, snap-in brackets, which fit directly into the rack frame of HP 9000, 10000, and 10000 G2 Series racks.

Compatibility

Ideal for use with the HP 9000, 10000, and 10000 G2 Series Racks, the Intelligent PDUs are largely designed for the dense rack environment. These Modular PDUs connect directly to the facility input power.



Service and Support, HP Care Pack, and Warranty Information

Warranty

Standard three year warranty with first year including parts and labor. HP UPSs are backed by a standard three year limited warranty; 3 year parts, 1 year Labor, 1 year onsite.

Care Pack Services

HP Care Pack Services include HP branded hardware options qualified for the server, purchased at the same time or afterwards, internal to the enclosure, as well as 22" and smaller external monitors and rack mounted UPS and PDU options. HP Power Distribution Units will be covered at the same service level as the server for a maximum of up to 3 years from original PDU purchase.

NOTE: For more information on HP Care Pack services, contact any of our worldwide sales offices or resellers or visit our worldwide Web site on the internet at: <http://www.hp.com/hps/carepack>

NOTE: For more complete information on HP Services offerings, customers and resellers, please visit us at: <http://www.hp.com/hps>

NOTE: Additional information regarding worldwide limited warranty and technical support is available at: <http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>



Related Options

Related Options

iPDU Extension Bars	<p>Intelligent Extension Bars, 5 x C13 outlets, individual monitoring and control, Pair AF529A</p> <p>NOTE: Intelligent Extensions Bars have individually monitored outlets that are also individually switchable for power cycling attached equipment. Each individual C13 outlet has Power Line Communications to support Intelligent Power Discovery when connected to PLC enabled common slot power supplies.</p> <p>Standard Extension Bar, 5 x C13 outlets, power and UID LEDs, Pair AF528A</p> <p>NOTE: Standard (non-intelligent) Extension Bars are monitored as a single load segment and do not support Intelligent Power Discovery.</p> <p>NOTE: Extension Bars can be mixed on a PDU core to create custom configurations. Up to 6 extension bars may be added to each Intelligent PDU Core unit.</p>
Power Line Communication (PLC) power cables	<p>2.5ft PLC power cable with data lines, single SG506A</p> <p>2.5ft PLC power cable with data lines, 5 Pack SG507A</p> <p>4.5ft PLC power cable with data lines, single SG508A</p> <p>4.5ft PLC power cable with data lines, 5 Pack SG509A</p> <p>6ft PLC power cable with data lines, single SG510A</p> <p>6ft PLC power cable with data lines, 5 pack SG511A</p> <p>10ft PLC power cable with data lines, single SG512A</p> <p>NOTE: All PLC Power cables are IEC C13 to IEC C14 connections and designated by bright blue IEC connectors.</p> <p>NOTE: PLC power cables enable Intelligent Power Discovery communications between HP Common Slot Platinum Power Supplies and the HP Intelligent Extension Bars when used with the HP Intelligent PDU cores.</p>
Common Slot Platinum Power Supplies with PLC connectors	<p>HP 460W CS Platinum Power Supply Kit 593831-B21</p> <p>HP 750W CS Platinum Power Supply Kit 593188-B21</p> <p>HP 1200W CS Platinum Power Supply Kit 578322-B21</p> <p>NOTE: HP Common Slot Platinum Power Supplies are 94% efficient. PLC enabled power supplies and PLC power cables are required to enable Intelligent Power Discovery.</p>
HP Care Pack Services	<p>Hardware Installation U2871A</p> <p>Hardware Installation (Electronic) U2871E</p>



Intelligent PDU Family Information

Model Selection Matrix

Intelligent PDU core only units

	4.9 kVA iPDU Core	8.3 kVA iPDU Core	8.6 kVA iPDU Core	14.4kVA iPDU Core	17.3 kVA iPDU Core	7.3 kVA iPDU Core	11 kVA iPDU Core	22kVA iPDU Core
Part Number	AF520A	AF521A	AF522A	AF533A	AF523A	AF525A	AF526A	AF527A
Input Connection (Single Input)	3.6m input cord with L6-30P	3.6m input cord with Non-NEMA Locking CS8265C, 50A	3.6m input cord with NEMA L15-30P	3.6m input cord with Non-NEMA Locking CS8365C, 50A	3.6m input cord with IEC-309 3 pole, 4 wire 200-240VAC 60A Waterproof	3.6m input cord with IEC 309-32A Splashproof	3.6m input cord with IEC-309 4 pole, 5 wire, 380-415VAC, 16A, Splashproof	3.6m input cord with IEC-309 4 pole, 5 wire, 380-415VAC, 32A, Splashproof
Facility power connection	NEMA L6-30R	Non-NEMA CS8264C or CS8269, 50A or equivalent	208V 3 phase 3 pole 4 wire (Delta) NEMA L15-30R	208V 3 phase 3 pole 4 wire (Delta) CS8364C, CS8369, or equivalent	IEC60309 3 pole, 4 wire, 208VAC 60A IEC 460C9W, 460R9W, or equivalent	IEC60309 2 pole, 3 wire, 200-240VAC, 32A IEC 332C6S, 332R6S, or equivalent	IEC60309 4 pole, 5 wire, 380-415 VAC, 16A IEC 516C6S, 516R6S, or equivalent	4 pole, 5 wire, 380-415 VAC, 32A IEC 532C6W, 532R6W, or equivalent
Output Connections on iPDU core	6 IEC 320 C-19	6 IEC 320 C-19	6 IEC 320 C-19	6 IEC 320 C-19	6 IEC 320 C-19	6 IEC 320 C-19	6 IEC 320 C-19	6 IEC 320 C-19
Extension Bars	None	None	None	None	None	None	None	None
Current (max)	24A	40A	41.52A, 13.84A/phase	69A, 23A/phase	83.04A 27.68/phase	32A	16A/Phase	32A /phase
AC Voltage Range	200-208V	200-208V	208v 3Ø Delta	208v 3Ø Delta	208v 3Ø Delta	200-240V	380-415v 3Ø Wye	380-415v 3Ø Wye
Frequency (Hertz)	60Hz	60Hz	60Hz	60Hz	60Hz	50Hz	50Hz	50Hz
Load Capacity (VA)	4992 (@208V)	8320 (@208V)	8600 (@208V)	14393 (@208V)	17300 (@208V)	7360 (@230V)	11000 (@230v)	22000 (@230V)
Output Circuit Breakers	6 X 20A	6 X 20A	6 X 20A	6 X 20A	6 X 20A	6 X 16A	6 X 16A	6 X 16A
Overload Protection	Yes, per individual IEC C19 outlet on Core Unit							

Intelligent PDU Kits (includes 4 Standard Extension bars)



Intelligent PDU Family Information

	4.9 kVA iPDU Kit	8.6 kVA iPDU Kit	7.3 kVA iPDU Kit
Part Number	AF531A	AF532A	AF534A
Input Connection (Single Input)	3.6m input cord with L6-30P	3.6m input cord with NEMA L15-30P	3.6m input cord with IEC 309-32A Splashproof
Facility power connection	NEMA L6-30R	208V 3 phase 3 pole 4 wire (Delta) NEMA L15-30R	IEC60309 2 pole, 3 wire, 200-240VAC, 32A IEC 332C6S, 332R6S, or equivalent
Output Connections on iPDU core	6 IEC 320 C-19	6 IEC 320 C-19	6 IEC 320 C-19
Extension Bars	4 Standard Extension Bars w/ 5x C13 each	4 Standard Extension Bars w/ 5x C13 each	4 Standard Extension Bars w/ 5x C13 each
Total outlets	20 x IEC C13, 2x IEC C19		
Current (max)	24A	41.52A, 13.84A/phase	32A
AC Voltage Range	200-208V	208v 3Ø Delta	200-240V
Frequency (Hertz)	60Hz	60Hz	50Hz
Load Capacity (VA)	4992 (@208V)	8600 (@208V)	7360 (@230V)
Output Circuit Breakers	6 X 20A	6 X 20A	6 X 16A
Overload Protection	Yes, per individual IEC C19 outlet		

HP Power Cables	Cable	Description	Part Number
IEC C-13	4.5 ft (1.37 m), x15	10A, IEC320 C-14 to IEC 320 C-13 cables for connecting devices to the power distribution unit extension bars.	142257-007
	4.5 ft (1.37 m), x1		142257-006
	1.6 ft (0.5m) x1		142257-B28
	8 ft (2.5m) x1		142257-002
NOTE: Standard power cables and jumpers do not support Power Line Communications or Intelligent Power Discovery.			
IEC C-19	8 ft (2.5m) x 1	16A, IEC C-19 to IEC C-20 for connecting directly to PDU core units.	295633-B22
NOTE: Standard power cables and jumpers do not support Power Line Communications or Intelligent Power Discovery.			

Please refer to the Power Cord Matrix for more information on power cords/cable part numbers, input/output descriptions.

<http://www.hp.com/go/powercordmatrix>.

Disclaimer: HP makes no recommendations regarding power connector manufactures. The model numbers listed in the above tables are strictly for the purpose of providing examples. Please consult a licensed professional to determine the best connector or receptacle for your specific needs.



Technical Specifications

All PDUs

Shipping Weight	20.2 lb (9.16 kg)
Operating Temperature	50° to 122° F (10° to 50° C)
Operating Relative Humidity (%)	10% to 90%
Operating Elevation	0 to 10,000 ft (0 to 3048 m)
Storage Temperature	-4° to 140° F (-20° to 60° C)
Storage Relative Humidity (%)	5% to 95%
Storage Elevation	0 to 30,000 ft (0 to 9144 m)
Input Plug Length	142 inches (360.7 cm)
Conformance Standards	UL, CUL, CE, NOM, D - 16A and 40A models UL, CUL, NOM - 24A High and Low voltage models CE, D - 32A model
Mechanical Dimensions (WxHxD)	17.5 x 1.62 x 7.5 in (44.45 x 4.11 x 19.22 cm)
Unit Weight	20 lb (9.07 kg)
Shipping Dimensions (WxHxD)	21.5 x 12.25 x 15.0 in (54.61 x 31.12 x 38.1 cm)
Shipping Weight	22.2 lb (10.07 kg)
Kit Contents	iPDU Core Unit, Rear mount LED Display, mounting brackets
All iPDU Core Units	All models ship with: 0U/1U Mounting brackets/hardware for Control Unit Cord Retention bracket for the Control Unit Tie wraps Install Card
Skus Specific Kit Contents	AF531A, AF532A, and AF534A Include iPSU Core Unit, LED Display, and 4 standard (non-intelligent) Extension bars plus all mounting hardware.

Environment-friendly Products and Approach

End-of-life Management and Recycling

Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: <http://www.hp.com/go/green>. To recycle your product, please go to: <http://www.hp.com/go/green> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <http://www.hp.com/go/green>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.



Technical Specifications

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