



## HP Intelligent Power Distribution Unit

Data sheet

**You cannot control what you cannot monitor. Majority of the data center outages are caused by manual error and improper failover. Now, avoid all of this with the HP Intelligent Power Distribution Unit.**

The new HP Intelligent Power Distribution Unit (iPDU) brings world-class management and control to rack-mounted power distribution units (PDU) in order to prevent over-provisioning of power that restricts further growth in your data center.

Based on the modular PDU's flexible core and stick design, the iPDU offers you a new level of remote power monitoring and control in your data center. Integrated remote management in the iPDU core provides high-precision monitoring of current, voltage, wattage, and power that is 99 percent\* accurate across all six International Electrical Commission (IEC) C19 outlets. Optional Intelligent Extension Bars can be plugged into the core and they have five individually monitored IEC C13 outlets. Each of these outlets can also be remotely managed through common Web browsers.

### iPDU in brief

- Six individually monitored IEC C19 outlets on each core
- 99 percent\* accurate high-precision monitoring at or above 1 amp
- Built-in remote Web management
- Rear mount display
- 1U or 0U mounting (flexible core and stick design)
- Extension bars are sold separately
  - Five IEC C13 outlets per bar, sold in pairs
  - Standard—monitored as a single load segment
  - Intelligent—individually monitored and switchable outlets
- Power line communication connectors (PLC)

\* HP Performance Engineering Team, 2010 benchmark.



## HP Intelligent Power Discovery

HP Intelligent Power Discovery (IPD) automatically tracks new server installation and provides higher precision, control, and automation to power distribution. It helps you enhance data center capacity, while reducing downtime and the possibility of error by human intervention.

IPD provides automated server discovery on a network through PLC technology that is embedded into HP Common Slot (CS) Platinum power supplies. PLC allows the power supply unit (PSU) to “talk” to the iPDU. The communication between the PSU and iPDU allows for:

- Auto-discovery of the server when plugged into power source
- Identification of redundant PSUs (redundant PSUs require redundant PDUs)
- Ascertain redundant iPDU
- Avoid human errors and prevent downtime

Using PLC technology, HP ProLiant G6 and G7 servers now provide identification information such as server name, Universally Unique Identifier (UUID) number, and IP address to the iPDU and HP Insight Control Management software. This reduces the time necessary to configure power distribution.

The iPDU and the iPDU Intelligent Extension Bars are key components of the IPD. Backed by the bars, IPD automatically discovers ProLiant servers powered by HP CS Platinum Power Supplies. It maps them to individual outlets on the Intelligent Extension Bars, and records server asset information on the iPDU and on the Insight Control Management software. The mapping saves you hours of configuration time and reduces errors caused by human intervention. The iPDU gives you accurate, automated, error-free power mapping, monitoring, and control.

### iPDU: Key features and benefits

#### **Accuracy in power-monitoring**

- Topology: Automatically detects and maps servers to specific power outlets for balanced power usage.
- Accuracy: Effectively measures power usage to all outlets on the core and the Intelligent Extension Bars.
- Data collection: Efficiently gathers information from all monitoring points at half-second intervals so that the latest data is collected.

- Sensitivity: Effectively measures power consumption below 100 mW and lets you know when a server is plugged in and not just powered on.
- Information: Easily identifies available power capacity to add more servers.

#### **Greater flexibility**

- Mounting: Mountable in 1U or 0U spaces to save valuable rack space. Flexible mounting of extension bars eases cable management.
- Architecture: Mix different kinds of extension bars on a PDU core for a variety of configurations.
- Monitoring: Displays power consumption for the core, stick, and outlet levels at the rack or remotely from standard Web browsers.
- Control: Remotely control power per outlet or even per pair of outlets for redundantly powered equipment.

#### **Superior protection**

- Six load segment breakers: Individual breakers for each load segment prevent a problem in one segment from causing a power outage on the entire PDU.
- Event alerts: SNMP and email alerts notify operators of impending issues that could cause a power outage.
- Lock-out outlets: Remotely locking-out individual outlets on the Intelligent Extension Bars, which prevents unauthorized equipment from overloading PDUs or circuits.
- Automatic redundancy checking: Detects power configuration errors automatically and notifies IT administrators/operators.
- 3-year warranty: Comes with a 3-year warranty that safeguards your IT investment and lets you make the most of it.

#### **Simple and easy to use**

- Installation: Compatible with industry-standard racks.
- Configuration: Simply assign an IP address to the PDU and is ready to use.
- Integration: Automatically detected by HP Systems Insight Manager (SIM) and Insight Control Power Management software.
- Multiple account levels: Users can be assigned full or restricted access levels as required.

**Table 1: Intelligent PDUs (North America, Japan, and South America except Chile and Argentina)**

| Part Number | Input circuit                         | kVA  | C19 | Extension bars            | C13 | Input cord       |
|-------------|---------------------------------------|------|-----|---------------------------|-----|------------------|
| AF520A      | 30A, 208v, 1 $\Phi$ <sup>1</sup>      | 4.9  | 6   | Core only                 | n/a | NEMA L6-30p      |
| AF521A      | 50A, 208v, 1 $\Phi$ <sup>1</sup>      | 8.3  | 6   | Core only                 | n/a | Non-NEMA CS8265C |
| AF522A      | 30A, 208v 3 $\Phi$ <sup>1</sup> Delta | 8.6  | 6   | Core only                 | n/a | NEMA L15-30P     |
| AF533A      | 50A, 208v 3 $\Phi$ <sup>1</sup> Delta | 14.4 | 6   | Core only                 | n/a | Non-NEMA CS8365C |
| AF523A      | 60A, 208v 1 $\Phi$ <sup>1</sup> Delta | 17.3 | 6   | Core only                 | n/a | IEC 309 460P9W   |
| AF531A      | 30A, 208v 3 $\Phi$ <sup>1</sup>       | 4.9  | 6   | 4 Standard Extension Bars | 20  | NEMA L6-30p      |
| AF532A      | 30A, 208v 3 $\Phi$ <sup>1</sup> Delta | 8.6  | 6   | 4 Standard Extension Bars | 20  | NEMA L15-30P     |

**Table 2: Intelligent PDUs (International models)**

| Part Number | Input circuit                            | kVA | C19 | Extension bars            | C13 | Input cord                       |
|-------------|--|-----|-----|---------------------------|-----|----------------------------------|
| AF525A      | 32A, 220–240v, 1 $\Phi$ <sup>1</sup>     | 7.3 | 6   | Core only                 | n/a | IEC 309 332P6, 3 wire 2 pole 32A |
| AF526A      | 16A, 380–415v, 3 $\Phi$ <sup>1</sup> Wye | 11  | 6   | Core only                 | n/a | IEC 309 516P6, 5 wire 4 pole 16A |
| AF527A      | 32A, 380–415v, 3 $\Phi$ <sup>1</sup> Wye | 22  | 6   | Core only                 | n/a | IEC 309 532P6, 5 wire 4 pole 32A |
| AF534A      | 32A, 220–240v, 1 $\Phi$ <sup>1</sup>     | 7.3 | 6   | 4 Standard Extension Bars | 20  | IEC 309 332P6, 3 wire 2 pole 32A |

**Table 3: Intelligent Power Distribution Unit (iPDU) Options****iPDU Extension Bars (In pairs)**

|        |   |
|--------|---|
| AF529A | Intelligent Extension Bars for iPDU; 5xC13; individually switched and monitored outlets; power line communication supports IPD. |
| AF528A | Standard Extension Bars for iPDU; 5xC13; monitored as single load segment only.   |

**Power Line Communication (PLC) Power Cables**

|        |   |
|--------|---|
| SG506A | 2.5ft (.76m) C13-C14 PLC power cable, single    |
| SG507A | 2.5ft (.76m) C13-C14 PLC power cable, five pack |
| SG508A | 4.5ft (1.3m) C13-C14 PLC power cable, single    |
| SG509A | 4.5ft (1.3m) C13-C14 PLC power cable, five pack |
| SG510A | 6ft (1.8m) C13-C14 PLC power cable, single      |
| SG511A | 6ft (1.8m) C13-C14 PLC power cable, five pack   |
| SG512A | 10ft (3m) C13-C14 PLC power cable, single       |

## HP Insight Control

HP Insight Control is essential server management software that helps deploy servers quickly, manage the health of virtual or physical servers proactively, control servers remotely, and streamline power consumption. Insight Control's power management integrates seamlessly with IPD to automatically discover and map the power distribution inside a rack.

## HP Common Slot (CS) Platinum Power Supplies

Choose the 1200W CS Platinum Power Supply, or from the two new CS Platinum Power Supplies added to the portfolio—460W CS Platinum and 750W CS Platinum. HP CS Platinum power supplies are rated as the most efficient in the industry with a power efficiency of at least 94 percent. This efficiency level is the highest rating recognized by 80 PLUS and Electric Power Research Institute (EPRI). All three power supplies are Platinum-certified through the ECOS/80 PLUS certification program.

## HP Financial Services

HP Financial Services provides innovative financing and financial asset management programs to help you cost-effectively acquire, manage, and ultimately retire your HP solutions. For more information on these services, please contact your HP sales representative or visit: [www.hp.com/go/hpfinancialservices](http://www.hp.com/go/hpfinancialservices)

## HP Services

### When Technology Works. Business Works

The challenge of virtually every IT organization is similar: To develop and maintain an agile, efficient server infrastructure that delivers the service levels your business needs. HP Technology Services offer a comprehensive portfolio of HP Care Pack Services to help design, deploy, manage, and support your IT environment, enabling cost-effective upgrades to standard warranty with easy-to-buy, easy-to-use support packages.

### Rack option hardware support

HP Care Pack services support rack-mounted HP ProLiant DL servers, storage products, and all HP-branded rack hardware options that qualify for inclusion with your server at the time of or after purchase. Additionally, 22-inch and smaller external monitors, power distribution units, and uninterruptible power supply (UPS) options up to 12 kVA are covered under the same service level as the server for up to 3-years from the date of purchase at no additional cost.

For more information, visit: [www.hp.com/services/proliant](http://www.hp.com/services/proliant) or [www.hp.com/go/proliant/carepack](http://www.hp.com/go/proliant/carepack)

Visit [www.hp.com/go/ipdu](http://www.hp.com/go/ipdu) and learn more about the HP Intelligent Power Distribution Unit for accurate, automated, error-free power mapping, monitoring, and control.

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