# Data Center Planning

System x PDU Technical Reference – International

v3.0.2

## BASIC PDUS

Lenovo basic Power Distribution Units (PDUs) provide an economical, basic power distribution capacity for rack based systems.

## MONITORED PDUS

Lenovo switched Power Distribution Units (PDU) provides outlet dense advanced power distribution for efficient energy monitoring to help protect and manage your System x® rack environment.

## SWITCHED & MONITORED PDUS

Lenovo switched and monitored Power Distribution Units (PDUs) simplify deployment and provide outlet-dense advanced power distribution for efficient energy management to protect and manage your high-availability System x rack environment.

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## Revision History

| | |
|---|---|
| 1.0 – July 15, 2009 | Initial Release. First published by William S Champion. |
| 1.2.0 – February 17, 2010 | Corrected Ultra Density PDU part numbers, update server label ratings. |
| 1.3.0 – April 21, 2010 | Added Switched and Monitored PDU section |
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| 2.1.0 – January 19, 2011 | New Switched & Monitored PDUs added. Update to line cord information, helpful links, and IEC 309 Pin & Sleeve Plug Decode section. |
| 2.2.0 – August 12, 2011 | Updated pictures for some of the new Switched & Monitored PDUs, System x server label ratings, and look/feel of tables. |
| 2.3.0 – June 20, 2012 | Updated 3 phase PDU information to include total derated circuit capacity. Updated withdrawn. List statistics the Switched and Monitored PDUs gather. Added navigational aids and circuit capacities section to Introduction. Updated images of PDUs. Added withdrawn PDUs section to the Introduction. Update FE diagrams. |
| 2.3.1 – February 03, 2014 | Update to Label Rating section to include new systems. Add feature code information for PDUs. |
| 3.0.0 – August 01, 2014 | Major Release, format change, and corrections. Added the Higher Voltage DC PDU. |
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| 3.0.2 – March 27, 2015 | Update to template |

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# Table of Contents

# Introduction

Only Lenovo System x Power Distribution Units (PDUs) that are currently marketed Internationally are included in this guide. The intent of this guide is to provide PDU information needed in planning power requirements.

This guide is best used in softcopy form, since it contains hyperlinks for navigation.

This guide covers the following PDUs:

- Basic PDUs (non-Monitored)
- Monitored PDUs
- Switched and Monitored PDUs

For questions or additional information on rack, stack and power related topics, contact power@lenovo.com.

## How to use this guide

This guide is sectioned up by PDU types (non-Monitored, Monitored, and Switched and Monitored PDUs).

To help determine the type of PDU required, refer to the PDU types explained section which discusses the differences between these type of PDUs.

Once the type is selected, refer to the individual sections on Basic PDUs, Monitored PDUs, and Monitored and Switched PDUs for additional information and options available.

## PDU types explained

The following section discusses the differences between an Lenovo Basic PDU, a Monitored PDU, and a Switched and Monitored PDU.

### Basic PDUs (non-Monitored)

A Basic PDU does not have the ability to collect power statistics or have the outlets controlled remotely.

### Monitored PDUs

A Monitored PDU (also known as PDU+) has the ability to collect power statistics. These statistics can be viewed through the PDUs web interface or via System Management tool such as Lenovo Systems Director, Active Energy Manager (AEM).

A Monitored PDU does not have the ability to control the outlets remotely.

### Switched and Monitored PDUs

A Switched and Monitored PDU has the ability to collect power statistics. These statistics can be viewed through the PDUs web interface or via System Management tool such as Lenovo Systems Director, Active Energy Manager (AEM).

A monitored PDU has the ability to control the outlets remotely (switch individual outlets on/off) via the PDUs web interface or via Lenovo Active Energy Manager (AEM).

All monitored (and switched and monitored) PDUs collect the below data at a PDU level and outlet level:

**PDU Input Statistics:**
Input Voltage (V) - Present Value, Min, Max
Input Current (A) - Present Value, Min, Max
Power Factor (0.0 – 1.0) - Present Value, Min, Max
Input Frequency (Hz) - Present Value, Min, Max
Input Power (W) - Present Value, Min, Max
Cumulative Kilowatt Hours – Present Value, Min, Max

**Individual Outlet Statistics:**
Output Voltage (V) - Present Value, Min, Max
Output Current (A) - Present Value, Min, Max
Output Power Factor (0.0 – 1.0) - Present Value, Min, Max
Load Watts (W) - Present Value, Min, Max
Cumulative Kilowatt Hours – Present Value, Min, Max

## Summary of PDUs

This section is a quick summary and links to all of the available PDUs Internationally.

| Basic PDUs | | | | | | |
|---|---|---|---|---|---|---|
| PDU | Option Number | Phase (ph) | Voltage (V) | Line Cord (Derated) | Number / Type Outlet | Page Link |
| Universal Rack PDU* | 39Y8952 | 1ph | 230VAC | 16A CEE7-VII Europe | 7 / C13 | 18 |
| | 39Y8953 | | 230VAC | 32A Denmark/Switz. IEC309 P+N+G | | |
| | 39Y8954 | | 220VAC | 16A Israel SI-32 | | |
| | 39Y8955 | | 230VAC | 16A Italy CEI 23-16 | | |
| | 39Y8956 | | 220-250VAC | 16A Sth Afr SABS 164 | | |
| | 39Y8957 | | 230VAC | 13A UK BS 1363/A | | |
| | 39Y8958 | | 230-240VAC | 15A AUS/NZ 3112 | | |
| | 39Y8959 | | 220VAC | 16A China GB 2099.1 | | |
| | 39Y8960 | | 220-240VAC | 16A Brazil NBR 6147 | | |
| | 39Y8961 | | 230VAC | 16A India IS 6538 | | |
| | 39Y8962 | | 220VAC | 16A Arg IRAM 2073 | | |
| | All** | | 100-250VAC | 16A IEC320 C19 to C20 | | |
| Front End PDU | 39Y8934 | 1ph | 220-240VAC | 32A IEC 309 P+N+G | 3 / C19 | 31 |
| | 39Y8935 | | | 63A IEC 309 P+N+G | | |
| | 39Y8936 | | 230-240VAC | 32AAUS/NZ 3112 | | |
| | 39Y8937 | | 220VAC | 30A KSC 8305 | | |
| DPI® Enterprise – C13 PDU | 39Y8941 | 1ph | 220-240VAC | 32A IEC 309 P+N+G | 12 / C13 | 42 |
| | | | | 63A IEC 309 P+N+G | | |
| | | | 230-240VAC | 32A AUS/NZ 3112 | | |
| | | | 220VAC | 30A KSC 8305 | | |
| DPI Enterprise – C19 PDU | 39Y8948 | 1ph | 220-240VAC | 32A IEC 309 P+N+G | 6 / C19 | 53 |
| | | | | 63A IEC 309 P+N+G | | |
| | | | 230-240VAC | 32AAUS/NZ 3112 | | |
| | | | 220VAC | 30A KSC 8305 | | |
| | | 3ph Y | 380-415VAC | 32A (32A/ph) IEC309 | | |

* - The Universal Rack PDU has a 15A a limit due to all the outlets are connected to a single 15A internal breaker.

** - This line cord comes with all the Universal Rack PDUs in addition to country specific line cord.

**Note:** ph indicates phase (1 or 3), Δ indicates three phase delta, and Y Indicates three phase Wye

| Basic PDUs Continued | | | | | | |
|---|---|---|---|---|---|---|
| PDU | Option Number | Phase (ph) | Voltage (V) | Line Cord (Derated) | Number / Type of Outlet | Page Link |
| Ultra Density Enterprise PDU | 71762NX | 1ph | 220-240VAC | 32A IEC 309 P+N+G | 9 / C19 3 / C13 | 64 |
| | | | | 63A IEC 309 P+N+G | | |
| | | | 230-240VAC | 32A AUS/NZ 3112 | | |
| | | | 220VAC | 30A KSC 8305 | | |
| | | 3ph Y | 380-415VAC | 32A (32A/ph) IEC 309 3P+N+G | | |
| 0U 24 C13 PDU | 46M4122 | 3ph Y | 380-415VAC | 16A (16A/ph) IEC 309 3P+N+G | 24 / C13 | 76 |
| | 46M4131 | 1ph | 200-240VAC | 32A IEC 309 P+N+G | | |
| 0U 12 C19 / 12 C13 PDU | 46M4143 | 3ph Y | 380-415VAC | 32A IEC 309 P+N+G | 12 / C12 12 / C13 | 86 |
| 1U Higher Voltage PDU | 44T0966 | - | 240V-380VDC | 90A DC Hardwired (no plug) | 6 / Rong Feng RF-203P | 94 |

| Monitored PDUs | | | | | | |
|---|---|---|---|---|---|---|
| PDU | Option Number | Phase (ph) | Voltage (V) | Line Cord (Derated) | Number / Type of Outlet | Page Link |
| DPI Enterprise PDU+ C13 | 39M2816 | 1ph | 220-240VAC | 32A IEC 309 P+N+G | 12 / C13 | 103 |
| | | | | 63A IEC 309 P+N+G | | |
| | | | 230-240VAC | 32A AUS/NZ 3112 | | |
| | | | 220VAC | 30A KSC 8305 | | |

| Switched and Monitored PDUs | | | | | | |
|---|---|---|---|---|---|---|
| PDU | Option Number | Phase (ph) | Voltage (V) | Line Cord (Derated) | Number / Type of Outlet | Page Link |
| 1U 12 C13 Switched and Monitored PDU | 46M4004 | 1ph | 220-240VAC | 32A IEC 309 P+N+G | 12 / C13 | 116 |
| | | | | 63A IEC 309 P+N+G | | |
| | | | 230-240VAC | 32A AUS/NZ 3112 | | |
| | | | 220VAC | 30A KSC 8305 | | |
| | | 3ph Y | 380-415VAC | 32A (32A/ph) IEC 309 3P+N+G | | |
| 1U 9 C19 / 3 C13 Switched and Monitored PDU | 46M4002 | 1ph | 220-240VAC | 32A IEC 309 P+N+G | 9 / C19 3 / C13 | 128 |
| | | | | 63A IEC 309 P+N+G | | |
| | | | 230-240VAC | 32A AUS/NZ 3112 | | |
| | | | 220VAC | 30A KSC 8305 | | |
| | | 3ph Y | 380-415VAC | 32A (32A/ph) IEC 309 3P+N+G | | |
| 0U 24 C13 Switched and Monitored PDU | 46M4119 | 1ph | 220-240VAC | 32A IEC 309 P+N+G | 24 / C13 | 139 |
| 0U 12 C13 / 12 C19 Switched and Monitored PDU | 46M4137 | 3ph Y | 380-415VAC | 32A (32A/ph) IEC 309 3P+N+G | 12 / C19 12 / C13 | 147 |

Note: ph indicates phase (1 or 3), Δ indicates three phase delta, and Y Indicates three phase Wye

## C13 and C19 plugs

There are two types of PDU to PSU line cords available. These are C13 to C14 and C19 to C20.

Figure 1 shows the C13 to C14 plugs. These plugs are used for the following:

- Lenovo NeXtScale chassis's.,
- Lenovo System x Rack servers,
- Lenovo System x Tower servers, and
- Lenovo BladeCenter S (model dependent)

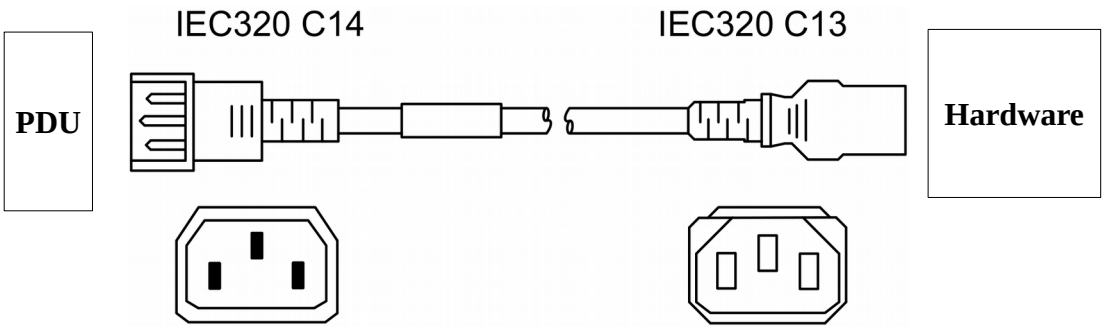



*Figure 1: C13 to C14 plugs*

Figure 2 shows the C19 to C20 plugs. These plugs are used for the following:

- Lenovo BladeCenter,
- Lenovo Flex System, and
- Lenovo PureFlex System

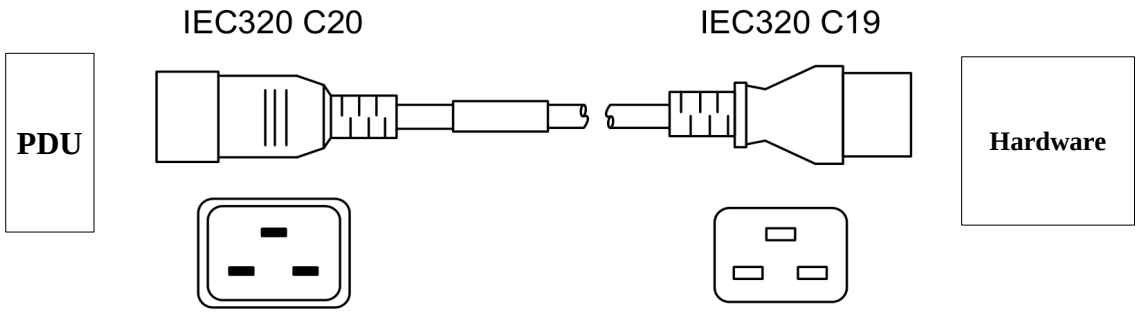



*Figure 2: C19 to C20 plugs*

## Circuit Capacities

The following table represents the derated values/Watt capacities for power circuits running between 13A-63A@100V-415V for both single phase and three phase electrical circuits.

| Branch Circuit Rating | Volt-ampere (VA) |
|---|---|
| 13A / 230V 1ph | 2990VA |
| 15A / 230V 1ph | 3450VA |
| 15A/ 240V 1ph | 3600VA |
| 16A/ 220V 1ph | 3520VA |
| 16A / 230V 1ph | 3680VA |
| 16A / 240V 1ph | 3840VA |
| 16A / 380V 3ph Y | 6080VA / ph |
| 16A / 415V 3ph Y | 6640VA / ph |
| 30A / 220V 1ph | 6600VA |
| 32A / 220V 1ph | 7040VA |
| 32A / 230V 1ph | 7360VA |
| 32A / 240V 1ph | 7680VA |
| 32A / 380V 3ph Y | 12160VA / ph |
| 32A / 415V 3ph Y | 13280VA / ph |
| 63A / 220V 1ph | 13860VA |
| 63A/ 240V 1ph | 15120VA |

**Note:** the symbols represent the following:

**ph** indicates phase (1 or 3),
**Δ** indicates three phase delta,
**Y** indicates three phase WYE,
**P** indicates pole or hot conductor,
**N** indicates neutral conductor, and
**G** indicates ground conductor.

# Basic PDUs (non-Monitored)

The following section provides information and part numbering for Basic PDUs. Click on the description of each PDU to read more information.

| PDU | Option Number | Phase (ph) | Voltage (V) | Line Cord (Derated) | Number / Type of Outlet* | Page Link |
|---|---|---|---|---|---|---|
| Universal Rack PDU** | 39Y8952 | 1ph | 230VAC | 16A CEE7-VII Europe | 7 / C13 | 18 |
| | 39Y8953 | | 230VAC | 32A Denmark/Switz. IEC309 P+N+G | | |
| | 39Y8954 | | 220VAC | 16A Israel SI-32 | | |
| | 39Y8955 | | 230VAC | 16A Italy CEI 23-16 | | |
| | 39Y8956 | | 220-250VAC | 16A South Africa SABS 164 | | |
| | 39Y8957 | | 230VAC | 13A UK BS 1363/A | | |
| | 39Y8958 | | 230-240VAC | 15A AUS/NZ 3112 | | |
| | 39Y8959 | | 220VAC | 16A China GB 2099.1 | | |
| | 39Y8960 | | 220-240VAC | 16A Brazil NBR 6147 | | |
| | 39Y8961 | | 230VAC | 16A India IS 6538 | | |
| | 39Y8962 | | 220VAC | 16A Argentina IRAM 2073 | | |
| | All*** | | 100-250VAC | 16A IEC320 C19 to C20 | | |
| Front End PDU | 39Y8934 | 1ph | 220-240VAC | 32A IEC 309 P+N+G | 3 / C19 | 31 |
| | 39Y8935 | | | 63A IEC 309 P+N+G | | |
| | 39Y8936 | | 230-240VAC | 32AAUS/NZ 3112 | | |
| | 39Y8937 | | 220VAC | 30A KSC 8305 | | |
| DPI® Enterprise – C13 PDU | 39Y8941 | 1ph | 220-240VAC | 32A IEC 309 P+N+G | 12 / C13 | 42 |
| | | | | 63A IEC 309 P+N+G | | |
| | | | 230-240VAC | 32A AUS/NZ 3112 | | |
| | | | 220VAC | 30A KSC 8305 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| DPI Enterprise – C19 PDU | 39Y8948 | 1ph | 220-240VAC | 32A IEC 309 P+N+G | 6 / C19 | 53 |
| | | | | 63A IEC 309 P+N+G | | |
| | | | 230-240VAC | 32AAUS/NZ 3112 | | |
| | | | 220VAC | 30A KSC 8305 | | |
| | | 3ph Y | 380-415VAC | 32A (32A/ph) IEC 309 3P+N+G | | |
| **PDU** | **Option Number** | **Phase (ph)** | **Voltage (V)** | **Line Cord (Derated)** | **Number / Type of Outlet*** | **Page Link** |
| Ultra Density Enterprise PDU | 71762NX | 1ph | 220-240VAC | 32A IEC 309 P+N+G | 9 / C19<br>3 / C13 | 64 |
| | | | | 63A IEC 309 P+N+G | | |
| | | | 230-240VAC | 32A AUS/NZ 3112 | | |
| | | | 220VAC | 30A KSC 8305 | | |
| | | 3ph Y | 380-415VAC | 32A (32A/ph) IEC 309 3P+N+G | | |
| 0U 24 C13 PDU | 46M4122 | 3ph Y | 380-415VAC | 16A (16A/ph) IEC 309 3P+N+G | 24 / C13 | 76 |
| | 46M4131 | 1ph | 200-240VAC | 32A IEC 309 P+N+G | | |
| 0U 12 C19 / 12 C13 PDU | 46M4143 | 3ph Y | 380-415VAC | 32A IEC 309 P+N+G | 12 / C12<br>12 / C13 | 86 |
| 1U Higher Voltage PDU | 44T0966 | - | 240V-380VDC | 90A DC Hardwired (no plug) | 6 / Rong Feng RF-203P | 94 |

* For outlet types refer to the C13 and C19 plugs section for additional information.

** The Universal Rack PDU has a 15A a limit due to all the outlets are connected to a single 15A internal breaker.

*** This line cord comes with all the Universal Rack PDUs in addition to country specific line cord.

# Universal Rack PDU

This section discusses the Lenovo Universal Rack PDU. This section is broken up into the following sections.

- Quick Specs
- Front View and Outlets
- Input Line Cords
- Specifications – Asia Pacific
- Accessory Kit
- Racking
- Installation and Maintenance Guide

## Quick Specs

The following table is a quick overview of the Universal Rack PDU. For additional information refer to the Specifications – Asia Pacific and Specifications – EMEA sections.

| PDU 39Y8956 + Line Cord 4.3m SABS (South Africa) | |
|---|---|
| Outlets types | Seven IEC C13 |
| Type | 16A /230V |
| Power Capacity | 3680VA @ 230V |
| Power Limit per PDU | 15A |
| Phase | Single phase |

| PDU 39Y8952 + Line Cord 4.3m CEE7-VII (Europe) | |
|---|---|
| Outlets types | Seven IEC C13 |
| Type | 16A /230V |
| Power Capacity | 3680VA @ 230V |
| Power Limit per PDU | 15A |
| Phase | Single phase |

| PDU 39Y8957 + Line Cord 4.3m BS 1363/A (HK/UK) | |
|---|---|
| Outlets types | Seven IEC C13 |
| Type | 13A/230V |
| Power Capacity | 2990VA @ 230V |
| Power Limit per PDU | 15A (line cord 13A) |
| Phase | Single phase |

| PDU 39Y8958 + Line Cord 4.3m AS/NZ 3112 (Aust/NZ) | |
|---|---|
| Outlets types | Seven IEC C13 |
| Type | 15A/230V |
| Power Capacity | 3450VA @ 230V |
| Power Limit per PDU | 15A |
| Phase | Single phase |

| PDU 39Y8959 + Line Cord 4.3m GB 2099.1 (China) | |
|---|---|
| Outlets types | Seven IEC C13 |
| Type | 16A/220V |
| Power Capacity | 3520VA @ 220V |
| Power Limit per PDU | 15A |
| Phase | Single phase |

| PDU 39Y8960 + Line Cord 4.3m NBR 6147 (Brazil) | |
|---|---|
| Outlets types | Seven IEC C13 |
| Type | 15A/125V |
| Power Capacity | 1875VA @ 125V |
| Power Limit per PDU | 15A |
| Phase | Single phase |

| PDU 39Y8961 + Line Cord 4.3m IS6538 (India) | |
|---|---|
| Outlets types | Seven IEC C13 |
| Type | 16A/240V |
| Power Capacity | 3840VA @ 240V |
| Power Limit per PDU | 15A |
| Phase | Single phase |

| PDU 39Y8962 + Line Cord 4.3m IRAM 2037 (Argentina) | |
|---|---|
| Outlets types | Seven IEC C13 |
| Type | 16A/220V |
| Power Capacity | 3520VA @ 220V |
| Power Limit per PDU | 15A |
| Phase | Single phase |

| PDU 39Y8953 + Line Cord 4.3m IEC 309 P+N+G (Denmark/Switzerland) | |
|---|---|
| Outlets types | Seven IEC C13 |
| Type | 16A/230V |
| Power Capacity | 3680VA @ 230V |
| Power Limit per PDU | 15A |
| Phase | Single phase |

| PDU 39Y8954 + Line Cord 4.3m SI 32 (Israel) | |
|---|---|
| Outlets types | Seven IEC C13 |
| Type | 16A/230V |
| Power Capacity | 3680VA @ 230V |
| Power Limit per PDU | 15A |
| Phase | Single phase |

| PDU 39Y8955 + Line Cord 4.3m CEI 23-16 (Italy) | |
|---|---|
| Outlets types | Seven IEC C13 |
| Type | 16A/230V |
| Power Capacity | 3680VA @ 230V |
| Power Limit per PDU | 15A |
| Phase | Single phase |

| All PDUs + Line Cord IEC320 C19 to C20 | |
|---|---|
| Outlets types | Seven IEC C13 |
| Type | 16A/100-250VAC |
| Power Capacity | 3200VA @ 200V |
| Power Limit per PDU | 15A |
| Phase | Single phase |

## Front View and Outlets

Figure 3 displays a front view of the DPI Universal Rack PDU.

*Figure 3: Front view of the DPI Universal PDU*

Figure 4 displays the outlet numbering and amperage of the DPI Universal Rack PDU. The PDU has a 15A internal breaker and C13 outlets. See the Specifications – Asia Pacific and Specifications – EMEA sections for additional information.

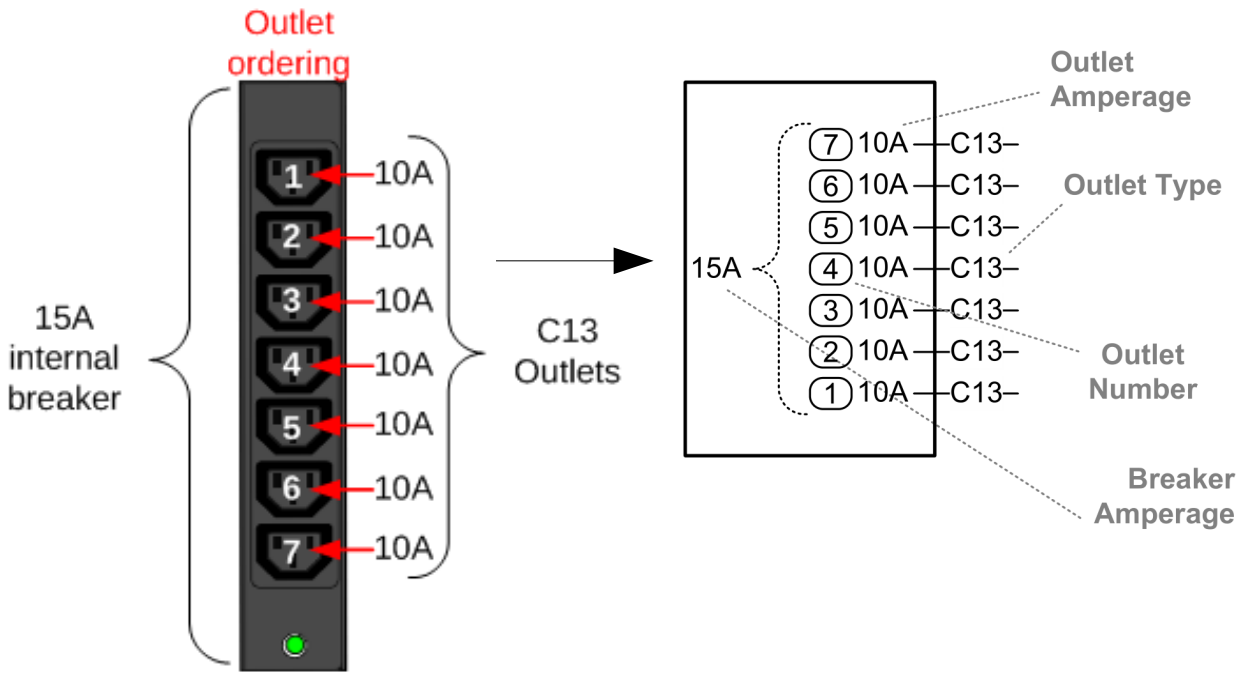



*Figure 4: Outlets and amperage*

## Input Line Cords

The following input line cords are for connecting the PDU to appropriate power circuits. This may include for example, the wall or floor outlets to provide power to the PDU. See the Universal Rack PDU line cord plugs section for pictures of the plugs.

| PDU P/N | Feature Code | Country | Line Cord Shipped with PDU | Current Limit |
|---|---|---|---|---|
| 39Y8956 | 5958 | South Africa | 4.3m SABS 164 single phase 16A/230V | 16A/15A** |
| 39Y8952 | 5954 | Europe | 4.3m CEE7-VII single phase 16A/230V | 16A/15A** |
| 39Y8957 | 5959 | HK/ UK | 4.3m BS 1363/A single phase 13A/230V | 13A |
| 39Y8958 | 5960 | Aust/NZ | 4.3m AS/NZ 3112 single phase 15A/230V | 15A |
| 39Y8959 | 5961 | China | 4.3m GB 2099.1 single phase 16A/220V | 16A/15A** |
| 39Y8960 | 5953 | Brazil | 4.3m NBR 6147 single phase 15A/125V | 15A |
| 39Y8961 | 5962 | India | 4.3m IS6538 single phase 16A/240V | 16A/15A** |
| 39Y8962 | 5952 | Argentina | 4.3m IRAM 2037 single phase 16A/220V | 16A/15A** |
| 39Y8953 | 5955 | Den/Swis | 4.3m IEC 309 P+N+G single phase 16A/230V | 16A/15A** |
| 39Y8954 | 5956 | Israel | 4.3m SI 32 single phase 16A/230V | 16A/15A** |
| 39Y8955 | 5957 | Italy | 4.3m CEI 23-16 single phase 16A/230V | 16A/15A** |
| All PDUs | 6252 | All | IEC320 C19 to C20 1phase 16A/100-250VAC | 16A/15A** |

*For technical specification refer to Specifications – Asia Pacific / Specifications – EMEA section.

** Line current is limited to 15A due to the input circuit breaker of the PDU.

## Specifications – Asia Pacific

The following table are specifications for the Universal Rack PDU for AP.

| Asia Pacific - Universal Rack PDU – Specifications | | | | | |
|---|---|---|---|---|---|
| Input Line Cord* | to PDU or UPS | Aus/NZ | Honk Kong / UK | Taiwan (US LV) | China |
| Outlets types | seven IEC C13 | seven IEC C13 | seven IEC C13 | seven IEC C13 | seven IEC C13 |
| Power Capacity** | 3000VA @ 200V | 3450VA @ 230V | 2990VA @ 230V | 1800VA @ 120V | 3300VA @ 220V |
| Power Limit per Outlet | 10A | 10A | 10A | 10A | 10A |
| Power Limit per PDU | 15A circuit breaker | 15A circuit breaker | 15A circuit breaker | 15A circuit breaker | 15A circuit breaker |
| Monitoring/ Switching | No/No | No/No | No/No | No/No | No/No |
| U Space | 1U, half rack width | | | | |
| Grounding Screw | No | | | | |

* For input line cord part numbers refer to the Input Line Cords section.

** For the purpose of this table, you can consider 1VA = 1 Watt.

## Specifications – EMEA

The following table are specifications for the Universal Rack PDU for EMEA.

| EMEA – Universal Rack PDU – Specifications | | | | |
|---|---|---|---|---|
| Input Line Cord* | to PDU or UPS | 16A/230V | United Kingdom | Saudi Arabia (US LV) |
| Outlets types | seven IEC C13 | seven IEC C13 | seven IEC C13 | seven IEC C13 |
| Power Capacity** | 3000VA @ 200V | 3450VA @ 230V | 2990VA @ 230V | 1800VA @ 120V |
| Power Limit per Outlet | 10A | 10A | 10A | 10A |
| Power Limit per PDU | 15A circuit breaker | 15A circuit breaker | 15A circuit breaker (13A line cord) | 15A circuit breaker |
| Monitoring/ Switching | No/No | No/No | No/No | No/No |
| U Space | 1U, half rack width | | | |
| Grounding Screw | No | | | |

* For input line cord part numbers refer to the Input Line Cords section.
** For the purpose of this table, you can consider 1VA = 1 Watt.

## Accessory Kit

The following items make up the accessory kit that contains miscellaneous hardware for installing the Rack PDU in a rack cabinet. These are shipped with the PDUs.

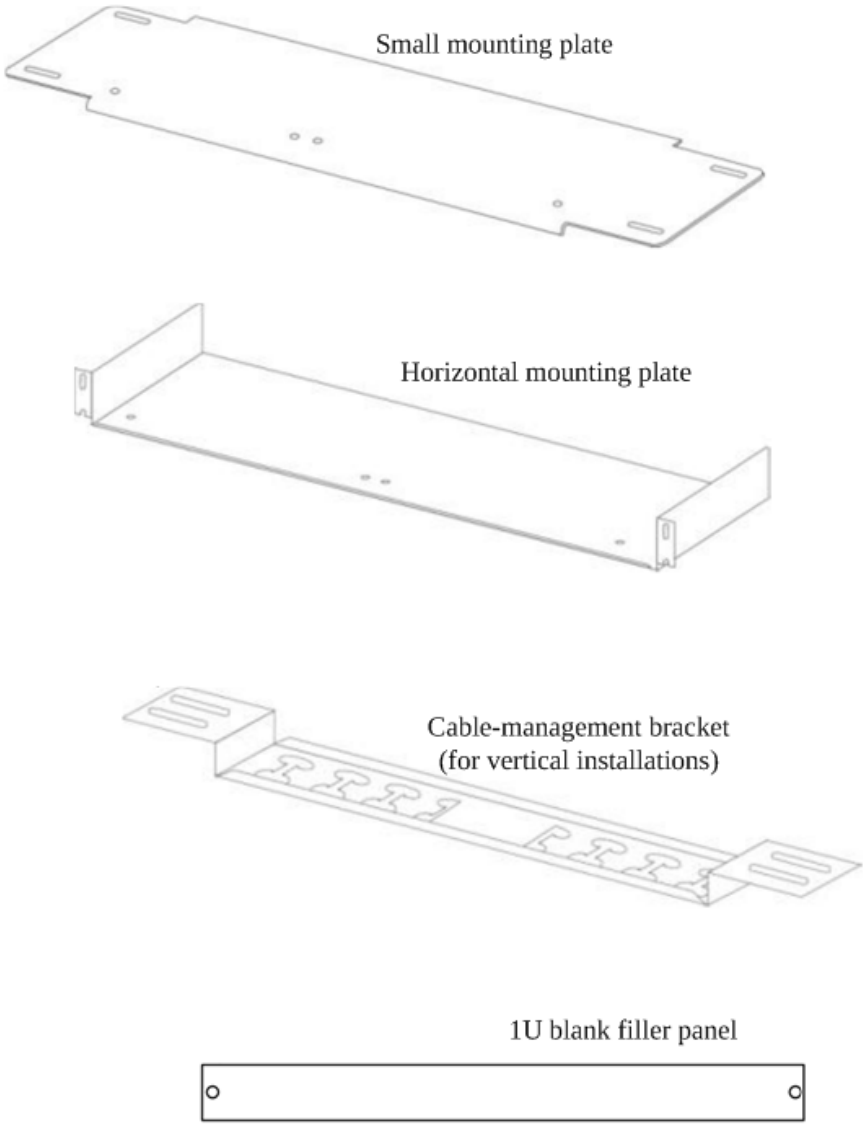



*Figure 5: Accessory kit*

These accessories are for supporting the racking of the DPI PDUs in either the side pocket of a rack or U space of a rack. Some parts may be unused, depending on how and where the PDU is installed.

Refer to the following Racking section for information on racking the DPI PDU.

## Racking

This section discusses mounting the DPI PDU in the side pockets of a rack and EIA (U space) of a rack.

### Mounting in side pocket

Mounting the DPI PDUs in the side pocket requires the use of the small vertical mounting plate, shipped as part of the PDU accessory kit, see the Accessory Kit section for additional information.

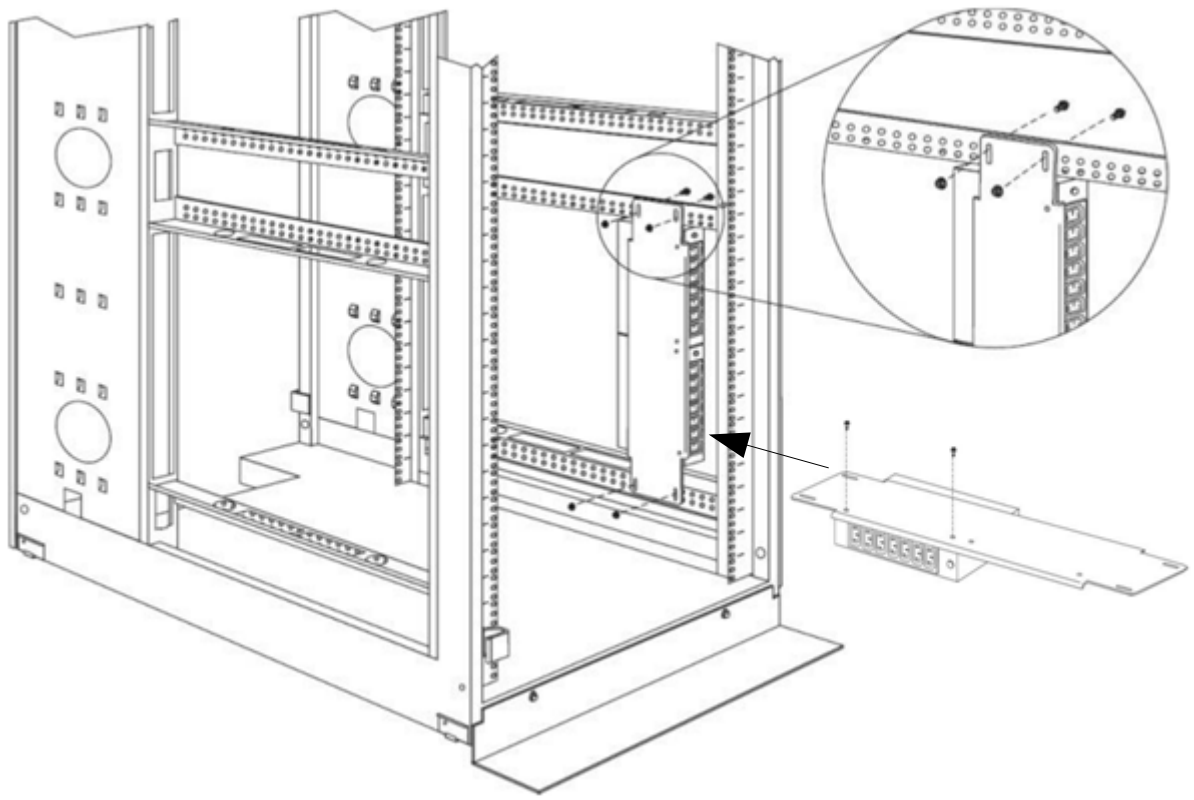


*Figure 6: Mount in side of rack*

For racking in an Enterprise rack see the following section.

## Mounting In Lenovo Enterprise Rack (9308 & 1410) & Lenovo Enterprise V2 Rack (9363) Rear Zero Pocket

Mounting the DPI PDU (39Y8951) in the side pocket of an enterprise rack requires the use of the horizontal mounting bracket, shipped as part of the PDU accessory kit, see the Accessory Kit section for additional information.

Two DPI PDUs will fit in the side pocket with this mounting bracket.

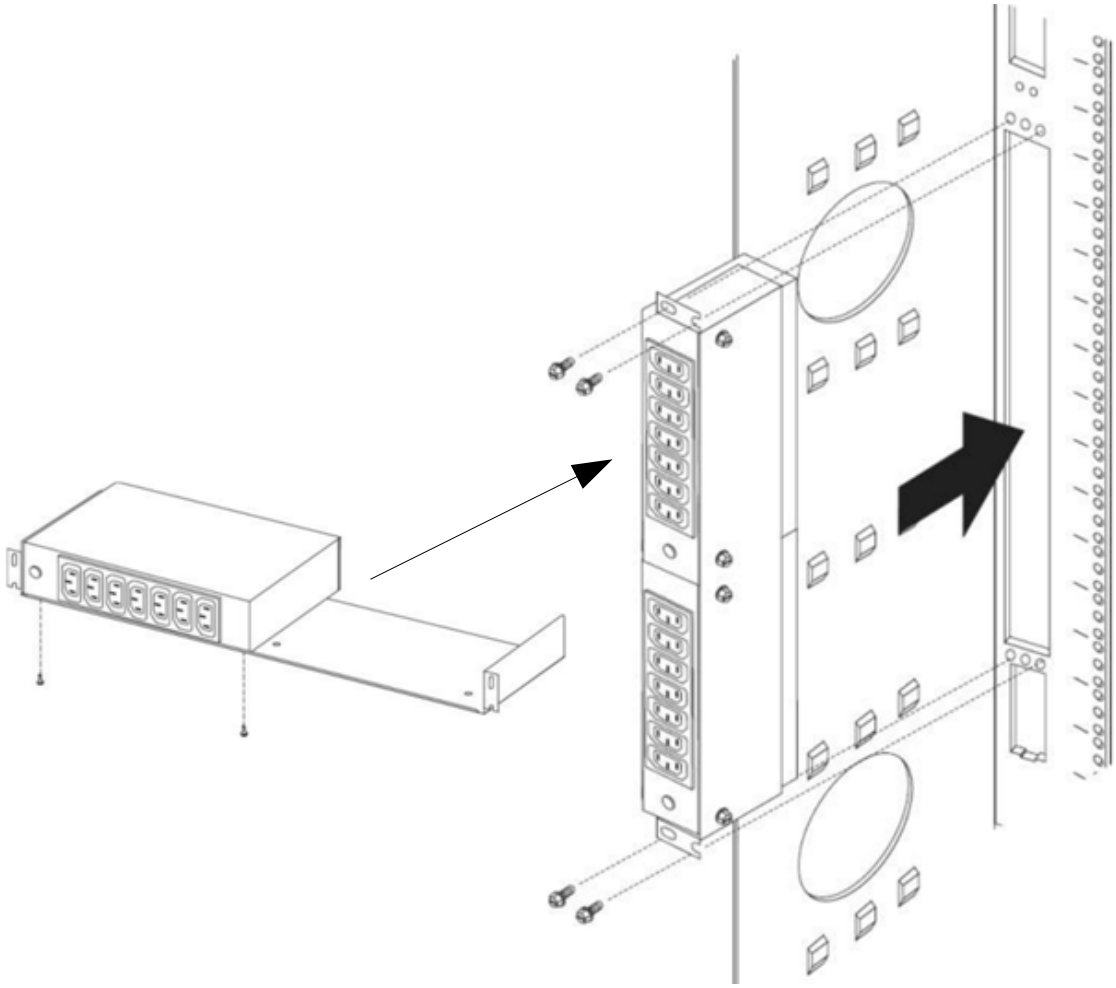


*Figure 7: DPI PDU side pocket mounting in Enterprise rack*

## Mounting in EIA (U space) of rack

Mounting the DPI PDU (39Y8951) in the U space of a rack requires the use of the horizontal mounting bracket, shipped as part of the PDU accessory kit, see the Accessory Kit section for additional information.

Two PDUs will fit in 1U of rack space as seen in figure 8.

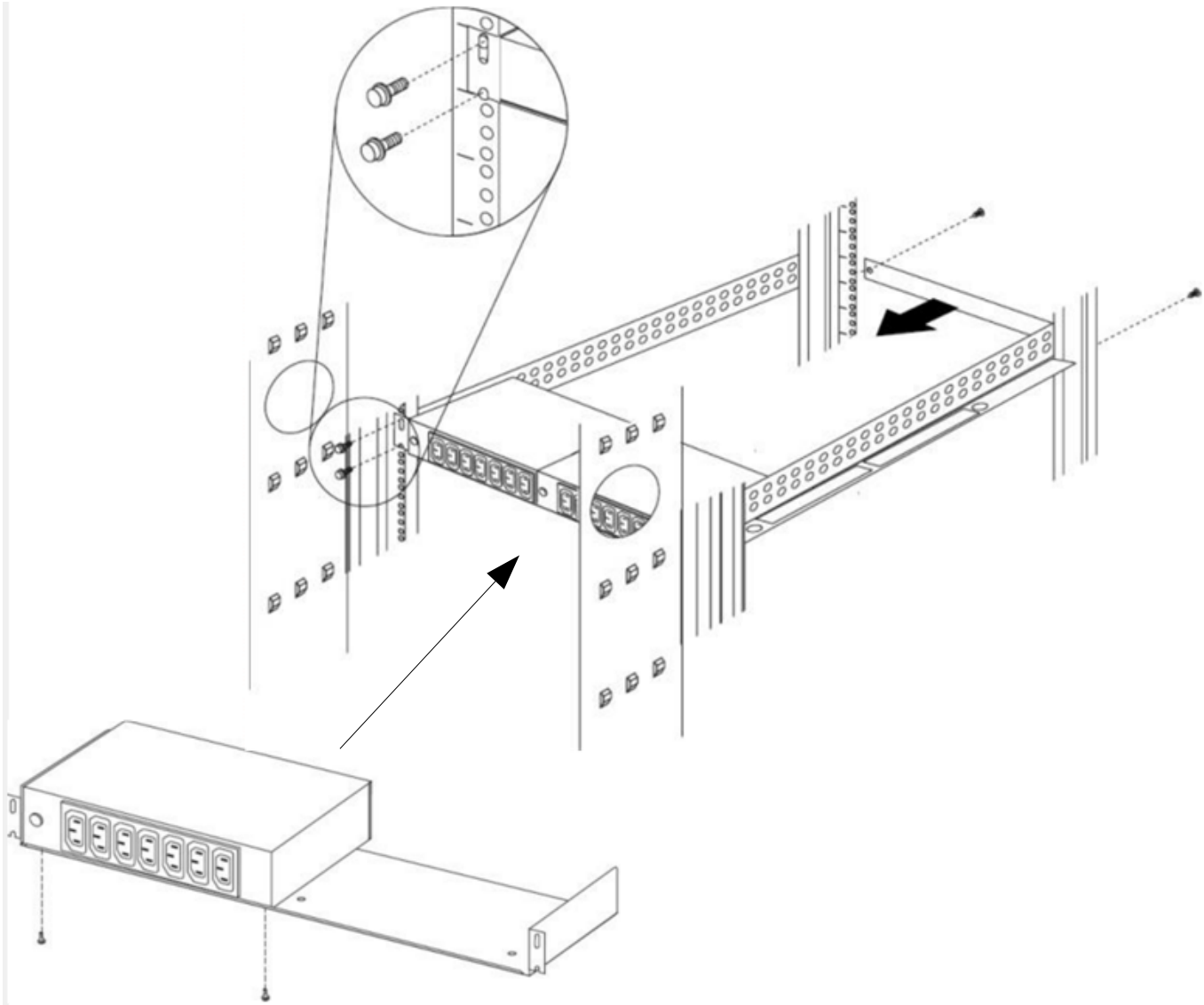


*Figure 8: DPI PDU horizontal U Space mounting in rack*

## Installation and Maintenance Guide

The following link is the installation and maintenance guide for the Lenovo Universal Rack PDU:

ftp://ftp.software.ibm.com/systems/support/system_x_pdf/02r2738.pdf

# Front End PDU

This section discusses the Front End PDU. There are 3 types of Front End PDUs (39Y8934, 39Y8935, 39Y8936, and 39Y8937). Each model is shipped with a different line cord.



## Quick Specs

The following tables are quick overviews of the Lenovo Front End PDUs. For additional information refer to the Specifications section.

| PDU 39Y8934 + Included Line Cord IEC 309 P+N+G | |
|---|---|
| Outlet Types | three IEC C19 |
| Type | 32A/220-240V |
| Power Capacity | 7360VA @ 230V |
| Power Limit per PDU | 32A |
| Phase | Single phase |

| PDU 39Y8935 + Included Line Cord IEC 309 P+N+G | |
|---|---|
| Outlet Types | three IEC C19 |
| Type | 63A/220-240V |
| Power Capacity | 14490VA @ 230V |
| Power Limit per PDU | 63A |
| Phase | Single phase |

| PDU 39Y8936 + Included Line Cord KSC 8305 | |
|---|---|
| Outlet Types | three IEC C19 |
| Type | 30A/220V |
| Power Capacity | 6600VA @ 220V |
| Power Limit per PDU | 30A |
| Phase | Single phase |

| PDU 39Y8937 + Included Line Cord AS/NZS 3112 | |
|---|---|
| Outlet Types | three IEC C19 |
| Type | 32A/230V |
| Power Capacity | 7360VA @ 230V |
| Power Limit per PDU | 32A |
| Phase | Single phase |

## Front and Back View and Outlets

Figure 9 displays the front and back view of the Front End PDU. Figure 10 and 11 displays the outlets and amperage.

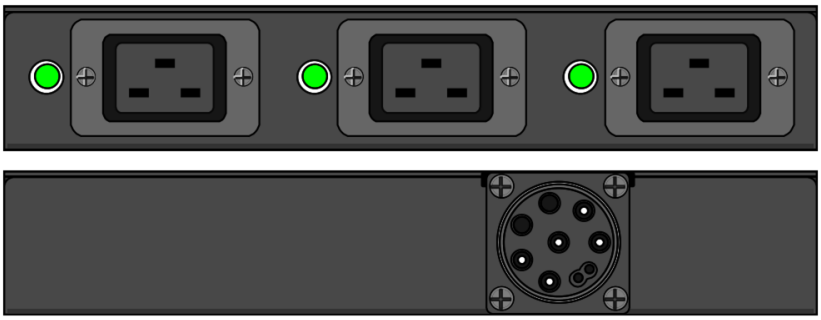


*Figure 9: Front and back view of the FE PDU*

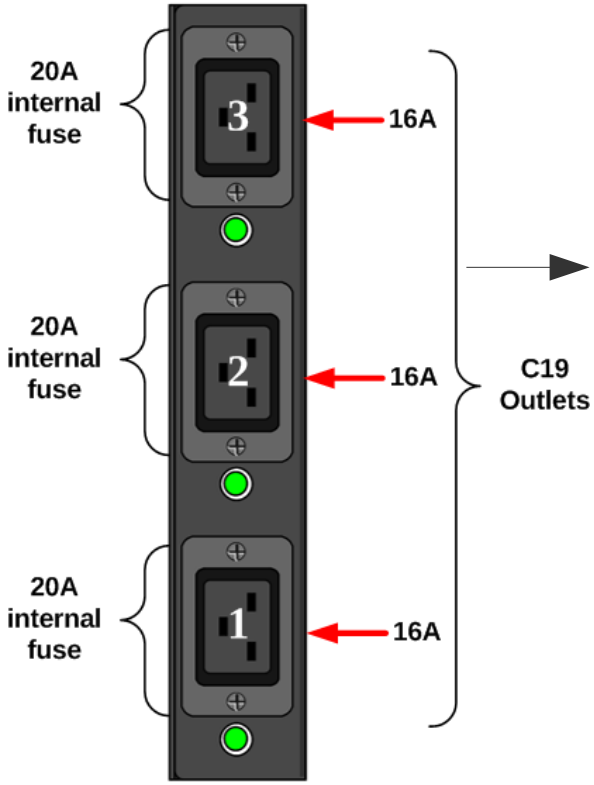



*Figure 10: Outlets and amperage*

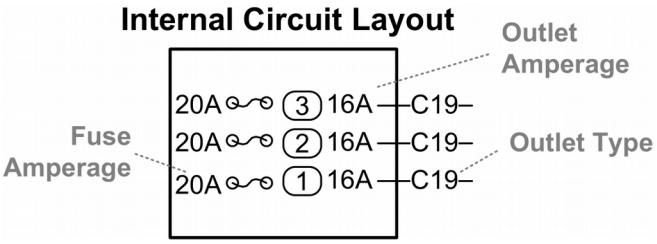



*Figure 11: Internal outlet and amperage*

## Input Line Cords

The following input line cords are for connecting the PDU to appropriate power circuits. This may include for example, the wall or floor outlets to provide power to the PDU. There are 3 types of Front End PDUs (39Y8934, 39Y8935, 39Y8936, and 39Y8937). Each model is shipped with a different line cord, outlined below. See the Front End PDU Line cord plugs for a picture of the line cord plugs.

| PDU P/N | FC | Line Cords shipped with PDU |
|---|---|---|
| 39Y8934 | A11V | Lenovo DPI IEC 309 P+N+G (2.5m) line cord 32A / 220-240VAC Single Phase |
| 39Y8935 | A11W | Lenovo DPI IEC 309 P+N+G (2.5m) line cord 63A 220V-240VAC Single Phase |
| 39Y8936 | A11Y | Lenovo DPI KSC 8305 30A (2.5m) line cord 30A 230VAC Single Phase |
| 39Y8937 | A11X | Lenovo DPI AS/NZS 3112 32A (2.5m) line cord 32A 220VAC Single Phase |

## Specifications

The following table are specifications for the 39Y8934, 39Y8935, 39Y8936, and 39Y8937 Front End PDUs.

| Specifications | | | | |
|---|---|---|---|---|
| PDU Part Number | 39Y8934 | 39Y8935 | 39Y8936 | 39Y8937 |
| PDU Feature Code* | A11V | A11W | A11Y | A11X |
| Type | 32A/220-240V | 63A/220-240V | 30A/220V | 32A/230V |
| Phase | Single | Single | Single | Single |
| Outlets types | three IEC C19 | three IEC C19 | three IEC C19 | three IEC C19 |
| Power Capacity** | 7360VA @ 230V | 14490VA @ 230V | 6600VA @ 220V | 7360VA @ 230V |
| Power Limit per Outlet | 16A | 16A | 16A | 16A |
| Power Limit per PDU | 32A | 64A | 30A | 32A |
| Power Monitoring/ Switching | No/No | No/No | No/No | No/No |
| U Space | 1U, half rack width or side pocket | | | |
| Grounding Screw | No | | | |

* For input line cord descriptions refer to the Input Line Cords section.

** For the purpose of this table, you can consider 1VA = 1 Watt.

## Accessory Kit

The following is miscellaneous hardware for installing the Rack PDU in a rack cabinet. The large vertical mounting bracket is shipped standard with the PDU.

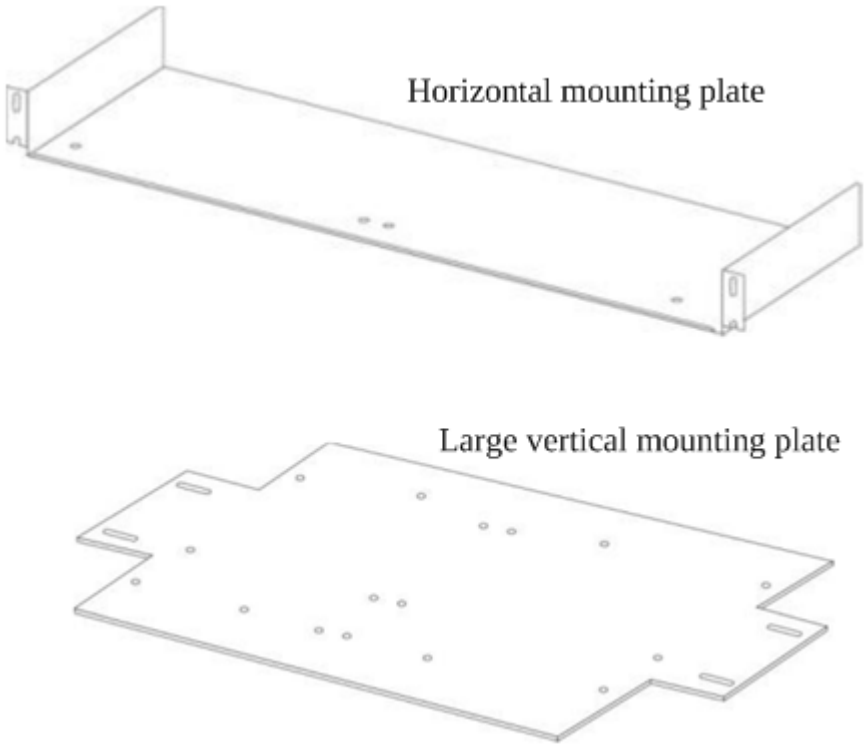



*Figure 12: Accessory kit*

Miscellaneous hardware kit also included for attaching the front-end PDU to the a mounting plate and installing in a rack cabinet. Cable straps also included.

These accessories are for supporting the racking of the Front End PDUs in either the side pocket of a rack or U space of a rack. Some parts may be unused, depending on how and where the PDU is installed.

Refer to the following Racking section for information on racking the Front End PDU.

## Racking

This section discusses mounting the Front-end PDUs (39Y8934, 39Y8935, 39Y8936, and 39Y8937) in the side pockets of a rack and EIA (U space) of a rack.

### Mounting in side pocket of rack

Mounting the Front-end PDUs (39Y8934, 39Y8935, 39Y8936, and 39Y8937) in the side pocket requires the use of the large vertical mounting plate, shipped as part of the PDU accessory kit, see the Accessory Kit section for additional information.

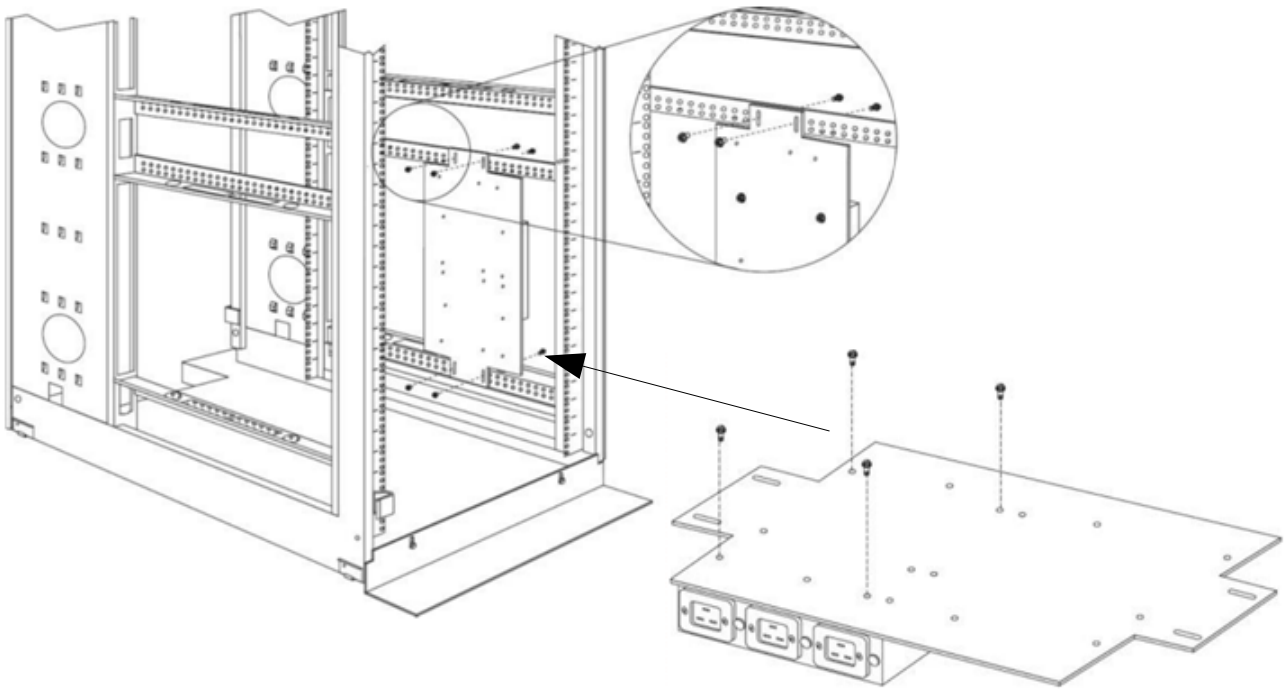


*Figure 13: Front-end PDU vertical mounting in side pocket*

## Mounting In Lenovo Enterprise Rack (9308 & 1410) & Lenovo Enterprise V2 Rack (9363) Rear Zero Pocket

Mounting the Front-end PDUs (39Y8934, 39Y8935, 39Y8936, and 39Y8937) in the side pocket of an Enterprise rack, requires the use of the large vertical mounting plate, shipped as part of the PDU accessory kit, see the Accessory Kit section for additional information. There are several ways to mount it.

### Option 1

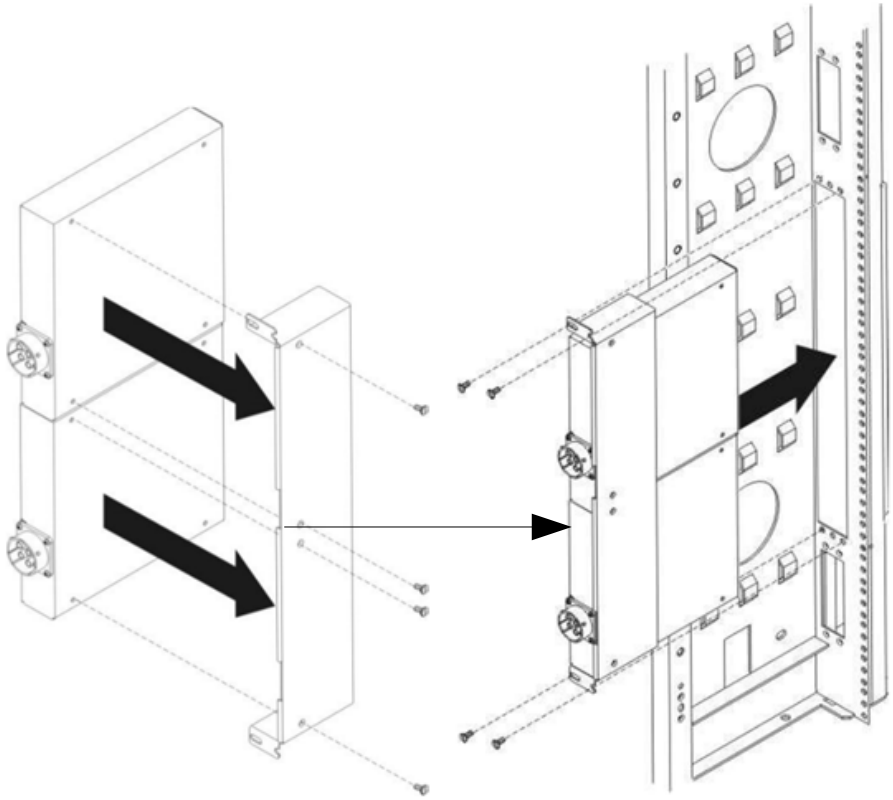
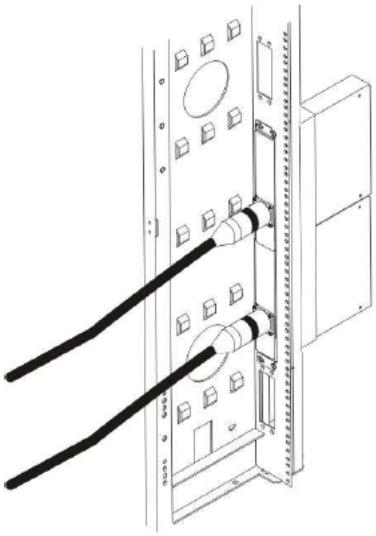


*Figure 14: Front-end PDU mounting in side pocket of enterprise PDU option 1*

The line cord will be routed directly at the back of the rack.



### Option 2

Mounting the Front-end PDUs (39Y8934, 39Y8935, 39Y8936, and 39Y8937) in the side pocket of an Enterprise rack, requires the use of the large vertical mounting plate, shipped as part of the PDU accessory kit, see the Accessory Kit section for additional information. There are several ways to mount it.

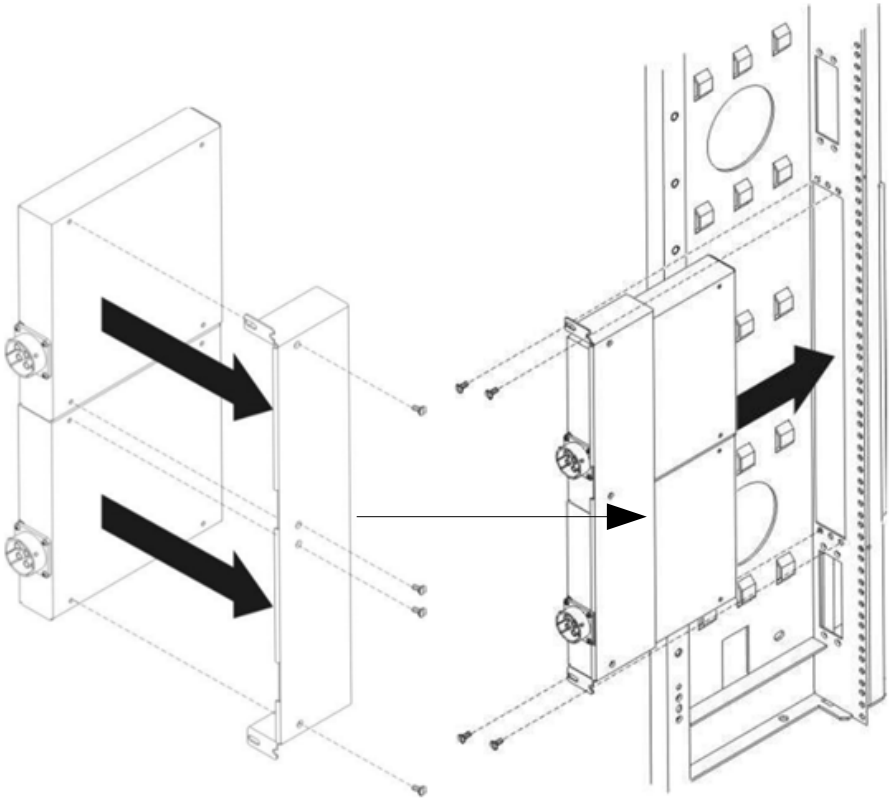
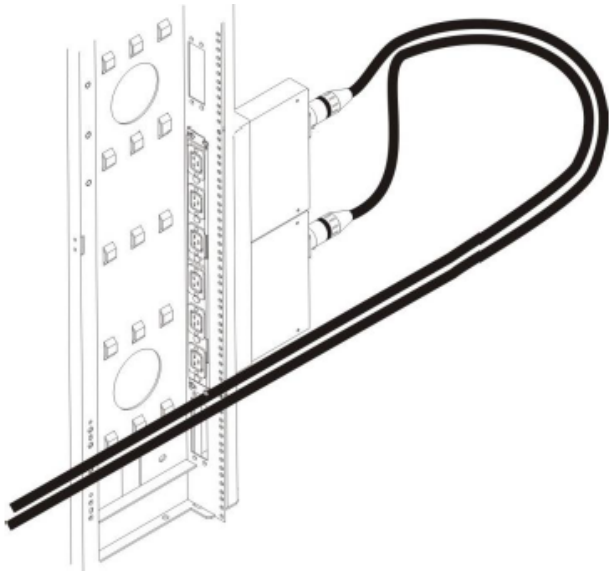


*Figure 15: Front-end PDU mounting in side pocket of enterprise PDU option 2*

Line cord routed back through rack U space when the PDU is installed this way.



### Mounting in side pocket

Mounting the Front-end PDUs (39Y8934, 39Y8935, 39Y8936, and 39Y8937) in 1U space of the rack requires a horizontal mounting plate.

**Note:** The Front-end PDU is only shipped with the large vertical wall mounting plate. The PDU can be mounted in a 1U horizontal space of the rack if you have rack PDU hardware to mount it in. See the Accessory Kit section for additional information on a horizontal panel.

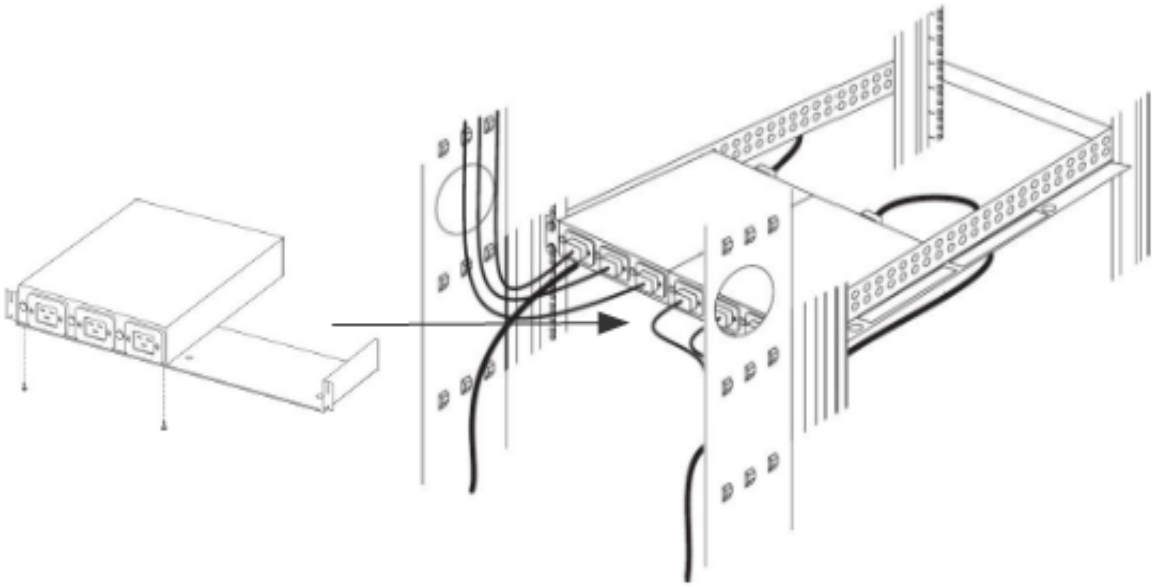


*Figure 16: Front-end PDU horizontal mounting in 1U space of rack*

**Note:** You must remove any horizontally-mounted Front End PDUs from the EIA mounting space before you relocate your rack cabinet. Horizontal installation of Front End PDUs is not supported during relocation or shipping of a rack cabinet.

## Installation and Maintenance Guide

The following link is the installation and maintenance guide for the Lenovo Front End PDU:

39Y8934, 39Y8935, 39Y8936, and 39Y8937

ftp://ftp.software.ibm.com/systems/support/system_x_pdf/02r2739.pdf

# DPI® Enterprise – C13 PDU

This section discusses the 39Y8941 DPI C13 PDU. This section is broken up into the following sections.



## Quick Specs

The following tables is a quick overview of the 39Y8941 PDU, for additional information refer to the Specifications section.

| PDU 39Y8941 + Line Cord 40K9611 | |
|---|---|
| Type | 32A/380-415V |
| Outlets types | twelve IEC C13 |
| Power Capacity | 22080VA @ 230V |
| Power Limit per PDU | 96A |
| Phase | Three phase |

| PDU 39Y8941 + Line Cord 40K9612 | |
|---|---|
| Type | 32A/220-240V |
| Outlets types | twelve IEC C13 |
| Power Capacity | 7360VA @ 230V |
| Power Limit per PDU | 32A |
| Phase | Single phase |

| PDU 39Y8941 + Line Cord 40K9613 | |
|---|---|
| Type | 63A/220-240V |
| Outlets types | twelve IEC C13 |
| Power Capacity | 14490VA @ 230V |
| Power Limit per PDU | 63A |
| Phase | Single phase |

| PDU 39Y8941 + Line Cord 40K9617 | |
|---|---|
| Type | 32A/230V |
| Outlets types | twelve IEC C13 |
| Power Capacity | 7360VA @ 230V |
| Power Limit per PDU | 32A |
| Phase | Single phase |

| PDU 39Y8941 + Line Cord 40K9618 | |
|---|---|
| Type | 30A/220V |
| Outlets types | twelve IEC C13 |
| Power Capacity | 6600VA @ 220V |
| Power Limit per PDU | 30A |
| Phase | Single phase |

## Front View and Outlets

Figure 17 displays a front view of the 39Y8941 PDU.

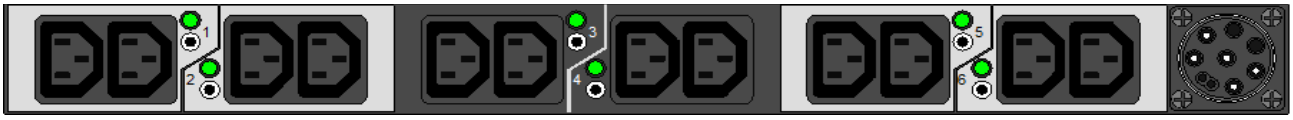


*Figure 17: Front and back view of the DPI Enterprise C13 PDU*

Single phase 39Y8941PDU

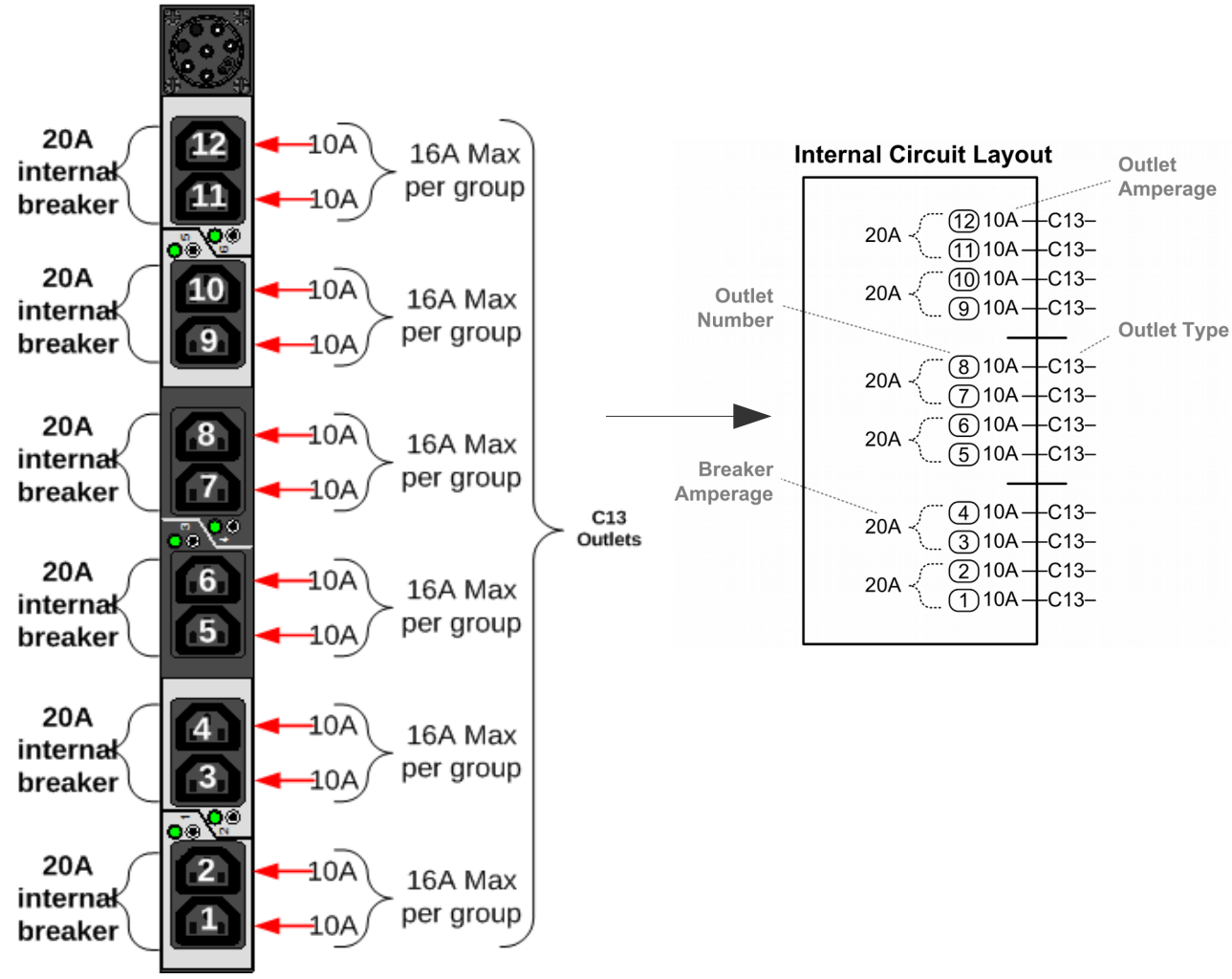



*Figure 18: Outlets and amperage*

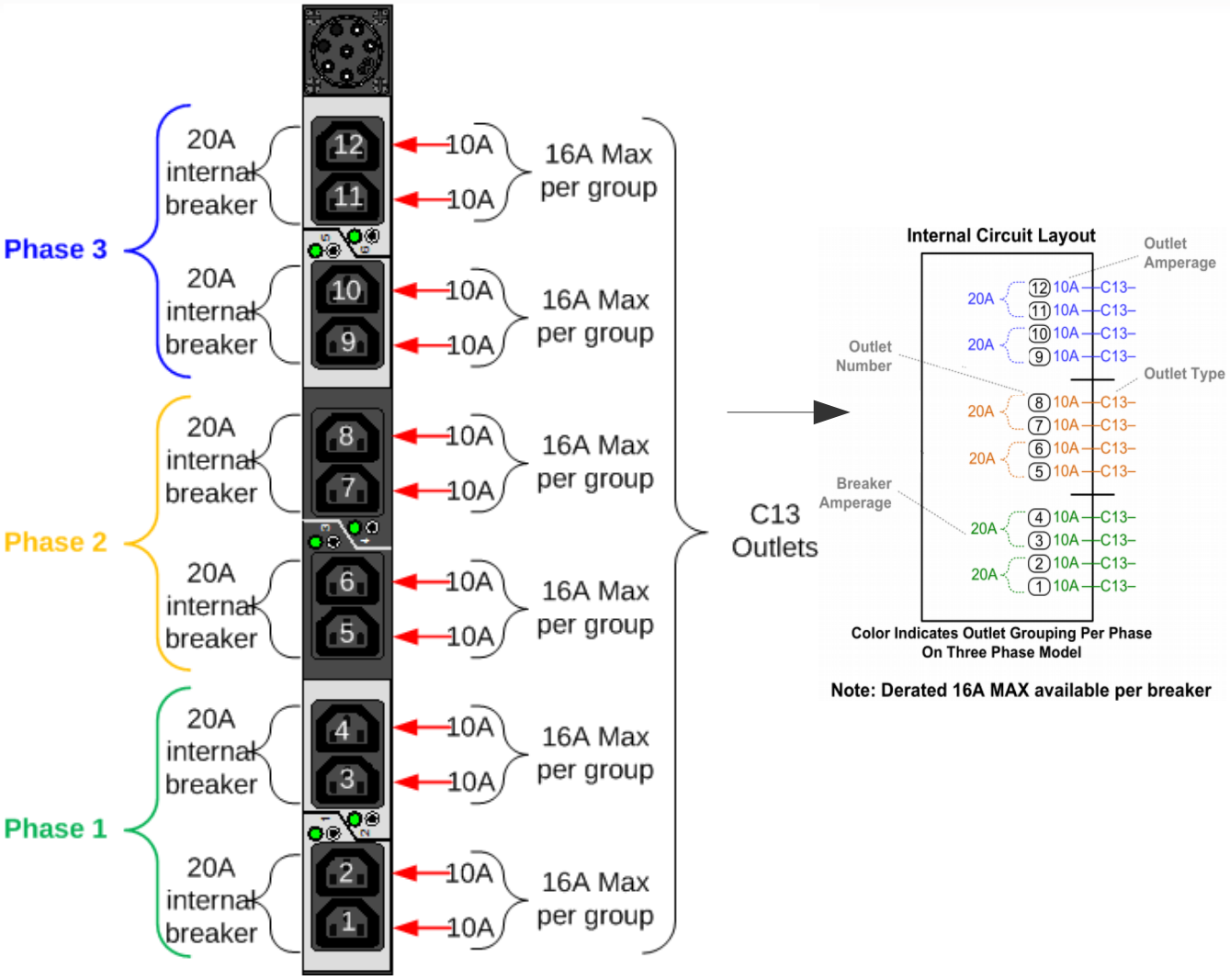



*Figure 19: Outlet and amperage*

## Input Line Cords

The following input line cords are for connecting the PDU to appropriate power circuits. This may include for example, the wall or floor outlets to provide power to the PDU. See the 1U PDU Detached line cord plugs section for a picture of the line cord plugs.

| PDU P/N | Line Cord P/N | Feature Code for Bundle (PDU & Line Cord) | Orderable Line cord description |
|---|---|---|---|
| 39Y8941 | 40K9611 | 6016 | Lenovo DPI IEC-309 3P+N+G (4.3m) line cord 32A (32A / Phase) 380-415VAC Three Phase Wye 96A Total Circuit Capacity |
| 39Y8941 | 40K9612 | 6014 | Lenovo DPI IEC 309 P+N+G (4.3m) line cord 32A / 220-240VAC Single Phase |
| 39Y8941 | 40K9613 | 6015 | Lenovo DPI IEC 309 P+N+G (4.3m) line cord 63A / 220V-240VAC Single Phase |
| 39Y8941 | 40K9617 | 6017 | Lenovo DPI AS/NZS 3112 32A (4.3m) line cord 32A / 220VAC Single Phase |
| 39Y8941 | 40K9618 | 6018 | Lenovo DPI KSC 8305 30A (4.3m) line cord 30A / 230VAC Single Phase |

## Specifications

The following table are specifications for the 39Y8941 DPI C13 PDU.

| Specifications | Line cord PN | Line cord PN | Line cord PN | Line cord PN | Line cord PN |
|---|---|---|---|---|---|
| Input Line Cord Type* | 40K9611 | 40K9612 | 40K9613 | 40K9617 | 40K9618 |
| Type | 32A/380-415V | 32A / 220-240V | 63A/220V-240V | 32A / 230V | 30A / 230V |
| Phase | Three | Single | Single | Single | Single |
| Outlets types | twelve IEC C13 | twelve IEC C13 | twelve IEC C13 | twelve IEC C13 | twelve IEC C13 |
| Power Capacity** | 22080VA @ 230V | 7360VA @ 230V | 14490VA @ 230V | 7360VA @ 230V | 6900VA @ 230V |
| Power Limit per Outlet | 10A | 10A | 10A | 10A | 10A |
| Grouping*** | Two C13 outlets per breaker Four C13 outlets per phase | Two C13 outlets per breaker | Two C13 outlets per breaker | Two C13 outlets per breaker | Two C13 outlets per breaker |
| Power Limit per Group | 16A per breaker 32A per phase | 16A | 16A | 16A | 16A |
| Power Limit per PDU | 96A | 32A | 63A | 32A | 30A |
| Monitoring/ Switching | No/No | | | | |
| U Space | 1U or side pocket | | | | |
| Grounding Screw | Yes on back panel | | | | |

* For input line cord part numbers refer to the Input Line Cords section.
** For the purpose of this table, you can consider 1VA = 1 Watt.
*** There are 2 outlets per group. See the Front View and Outlets section for group details.

## Accessory Kit

The following items make up the accessory kit that contains miscellaneous hardware for installing the Rack PDU in a rack cabinet. These are shipped with the PDU.

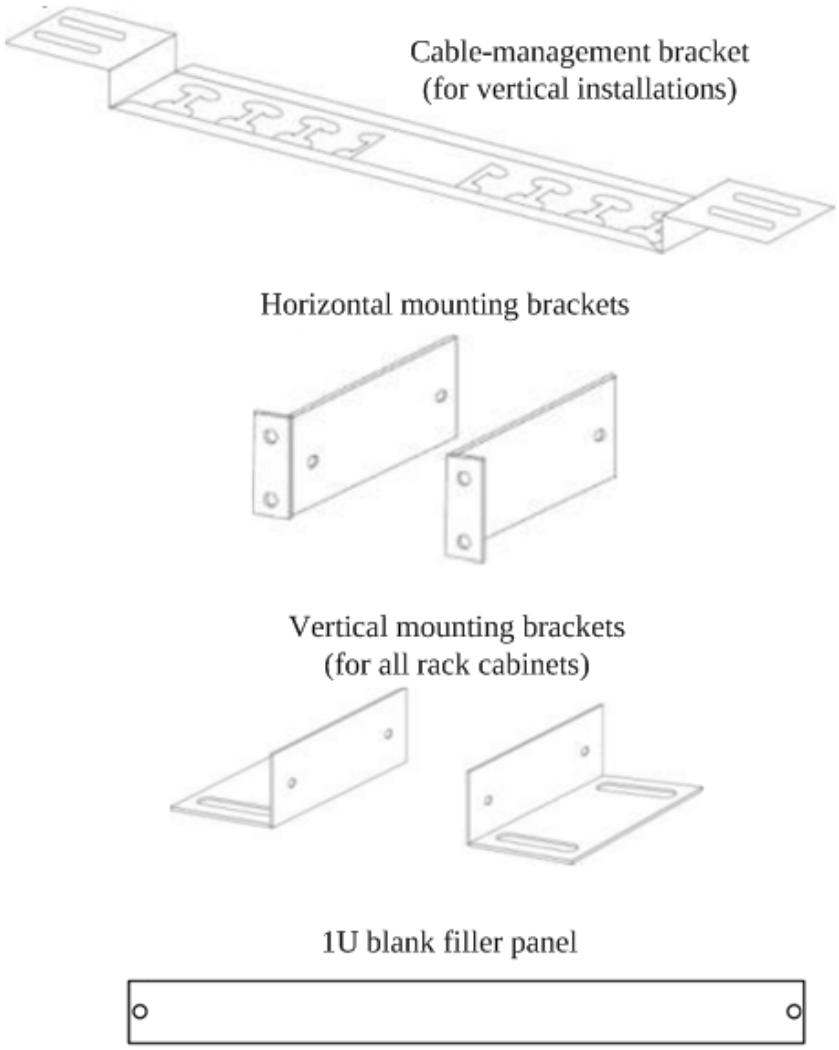



*Figure 20: Accessory kit*

Miscellaneous hardware kit for attaching the mounting brackets to the PDU and installing in a rack, and cable straps are also included.

These accessories are for supporting the racking of the DPI C13 PDUs in either the side of a rack, the side pocket of a rack or U space of a rack. Some parts may be unused, depending on how and where the PDU is installed.

Refer to the following Racking section for information on racking the DPI C13 PDU.

## Racking

This section discusses mounting the DPI C13 (39Y8941) in the side of a rack, the side pockets of a rack and EIA (U space) of a rack.

### Mounting in side pocket

Mounting the DPI C13 PDUs in the side pocket requires the use of the vertical mounting bracket, shipped as part of the PDU accessory kit, see the Accessory Kit section for additional information.

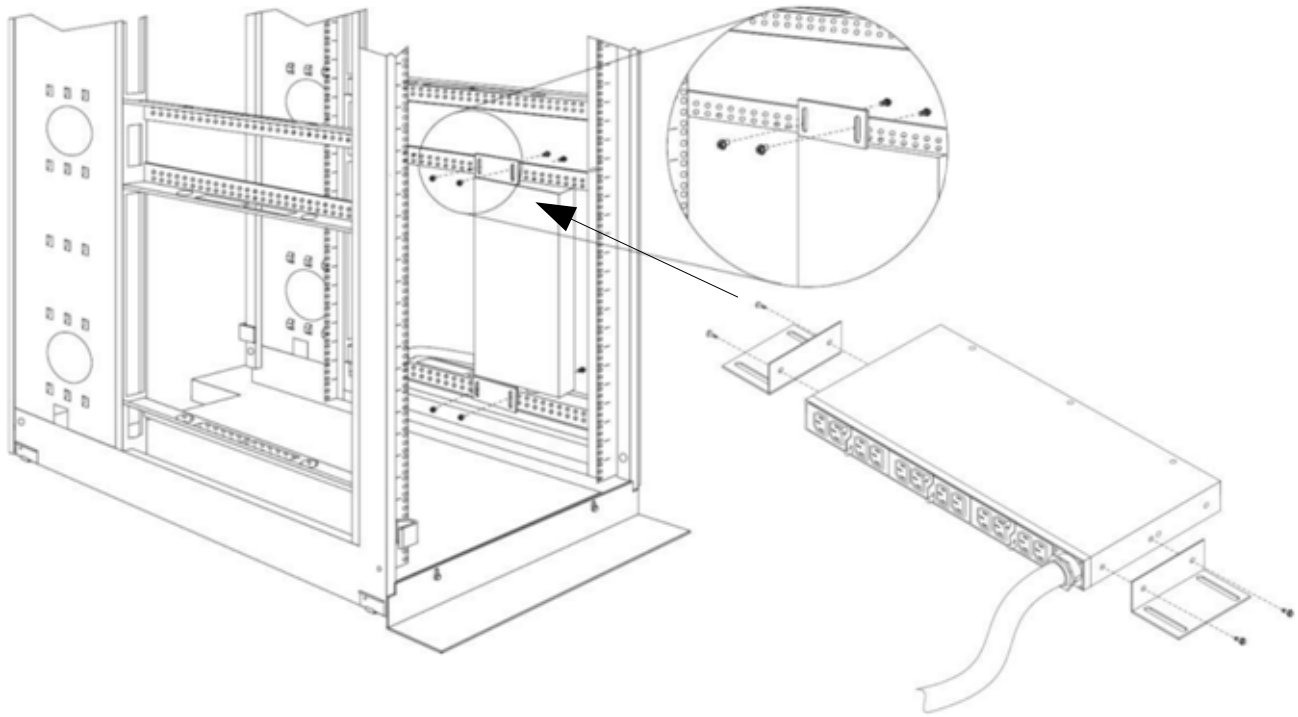


*Figure 21: DPI C13 PDU vertical mounting in rack*

## Mounting In Lenovo Enterprise Rack (9308 & 1410) & Lenovo Enterprise V2 Rack (9363) Rear Zero Pocket (side pocket)

Mounting the DPI PDUs (39Y8941) in the side pocket of an enterprise rack requires the use of the horizontal mounting bracket, shipped as part of the PDU accessory kit, see the Accessory Kit section for additional information.

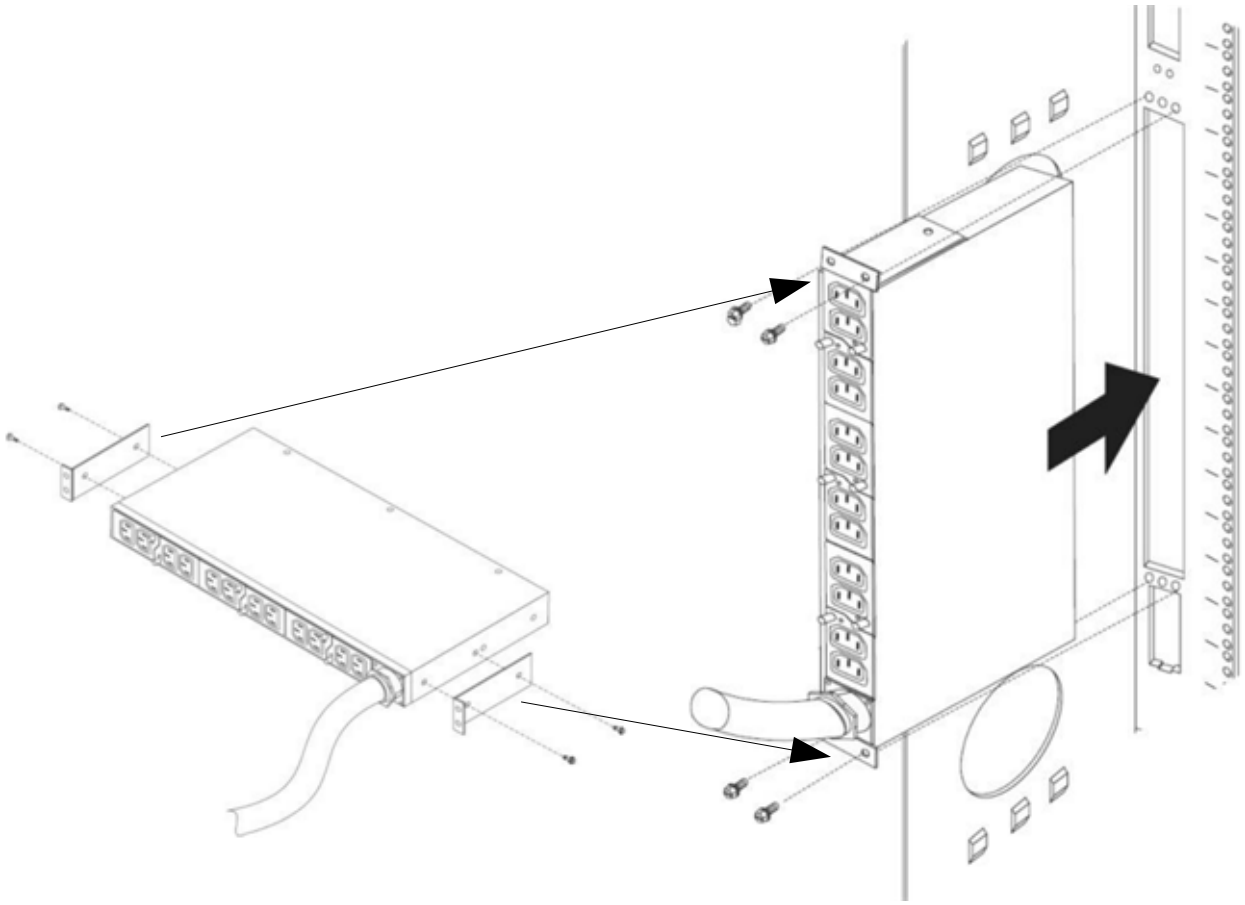


*Figure 22: DPI C13 PDU side pocket mounting in Enterprise rack*

### Mounting in EIA (U space) of rack

Mounting the DPI C13 PDUs (39Y8941) in the U space of a rack requires the use of the horizontal mounting bracket, shipped as part of the PDU accessory kit, see the Accessory Kit section for additional information.

1 PDU will fit in 1U of rack space see figure 23.

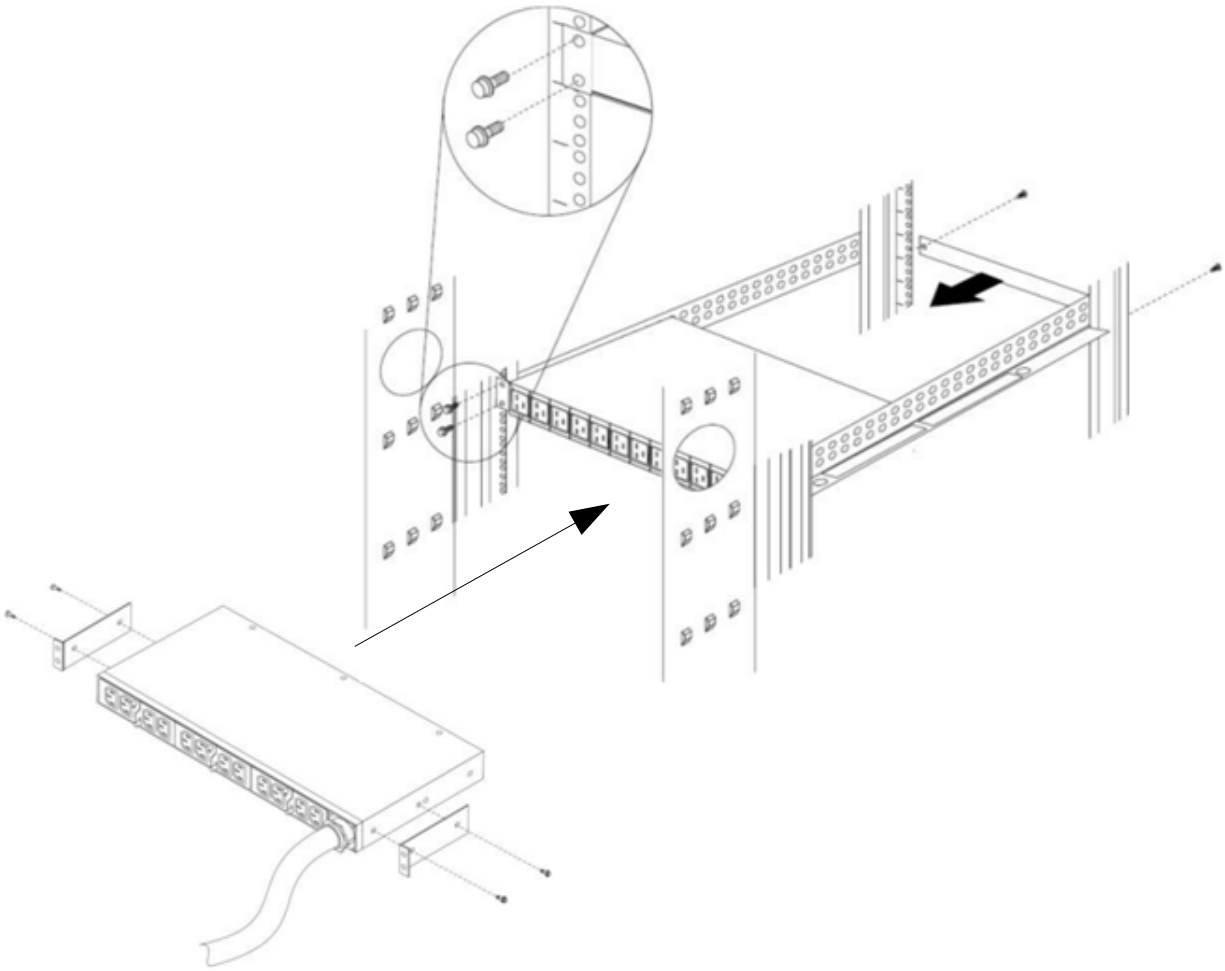


*Figure 23: DPI C13 PDU horizontal mounting in rack*

**Note:** You must remove any horizontally-mounted Front End PDUs from the EIA mounting space before you relocate your rack cabinet. Horizontal installation of Front End PDUs is not supported during relocation or shipping of a rack cabinet.

## Installation and Maintenance Guide

The following link is the installation and maintenance guide for the Lenovo DPI Enterprise – C13 PDU

39Y8941

ftp://ftp.software.ibm.com/systems/support/system_x_pdf/43v6030.pdf

# DPI Enterprise – C19 PDU

This section discusses the 39Y8948 DPI Enterprise C19 PDU. This section is broken up into the following sections.



## Quick Specs

The following table are quick specs for the 39Y8948 PDU with each available line cord. For additional information refer to the Specifications section.

| PDU 39Y8948 + Line Cord 40K9611 | |
|---|---|
| Type | 32A / 380V-415V |
| Outlets types | six IEC C19 |
| Power Capacity | 22080VA @ 230V |
| Power Limit per PDU | 96A |
| Phase | Three phase |

| PDU 39Y8948 + Line Cord 40K9612 | |
|---|---|
| Type | 32A / 220V-240V |
| Outlets types | six IEC C19 |
| Power Capacity | 7360VA @ 230V |
| Power Limit per PDU | 32A |
| Phase | Single phase |

| PDU 39Y8948 + Line Cord 40K9613 | |
|---|---|
| Type | 63A / 220V-240V |
| Outlets types | six IEC C19 |
| Power Capacity | 14490VA @ 230V |
| Power Limit per PDU | 63A |
| Phase | Single phase |

| PDU 39Y8948 + Line Cord 40K9617 | |
|---|---|
| Type | 32A / 230V |
| Outlets types | six IEC C19 |
| Power Capacity | 7360VA @ 230V |
| Power Limit per PDU | 32A |
| Phase | Single phase |

| PDU 39Y8948 + Line Cord 40K9618 | |
|---|---|
| Type | 30A / 220V |
| Outlets types | six IEC C19 |
| Power Capacity | 6600VA @ 220V |
| Power Limit per PDU | 30A |
| Phase | Single phase |

## Front View and Outlets

The 39Y8948 PDU has 5 optional line cords for use in different regions. The following figure displays a front view picture of the PDU.

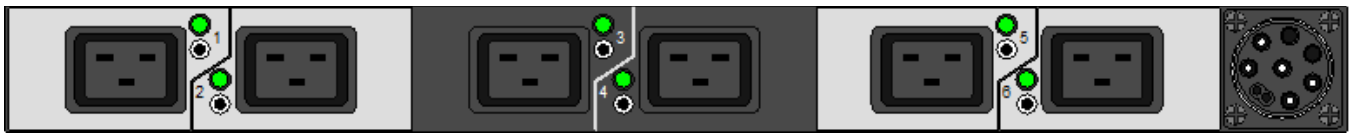



*Figure 24: Front panel of the DPI Enterprise C19 PDU*

Figure 25 shows the 39Y8948 PDU outlets and amperage.

Outlet and amperage for the three and single phase 39Y8941 PDU.

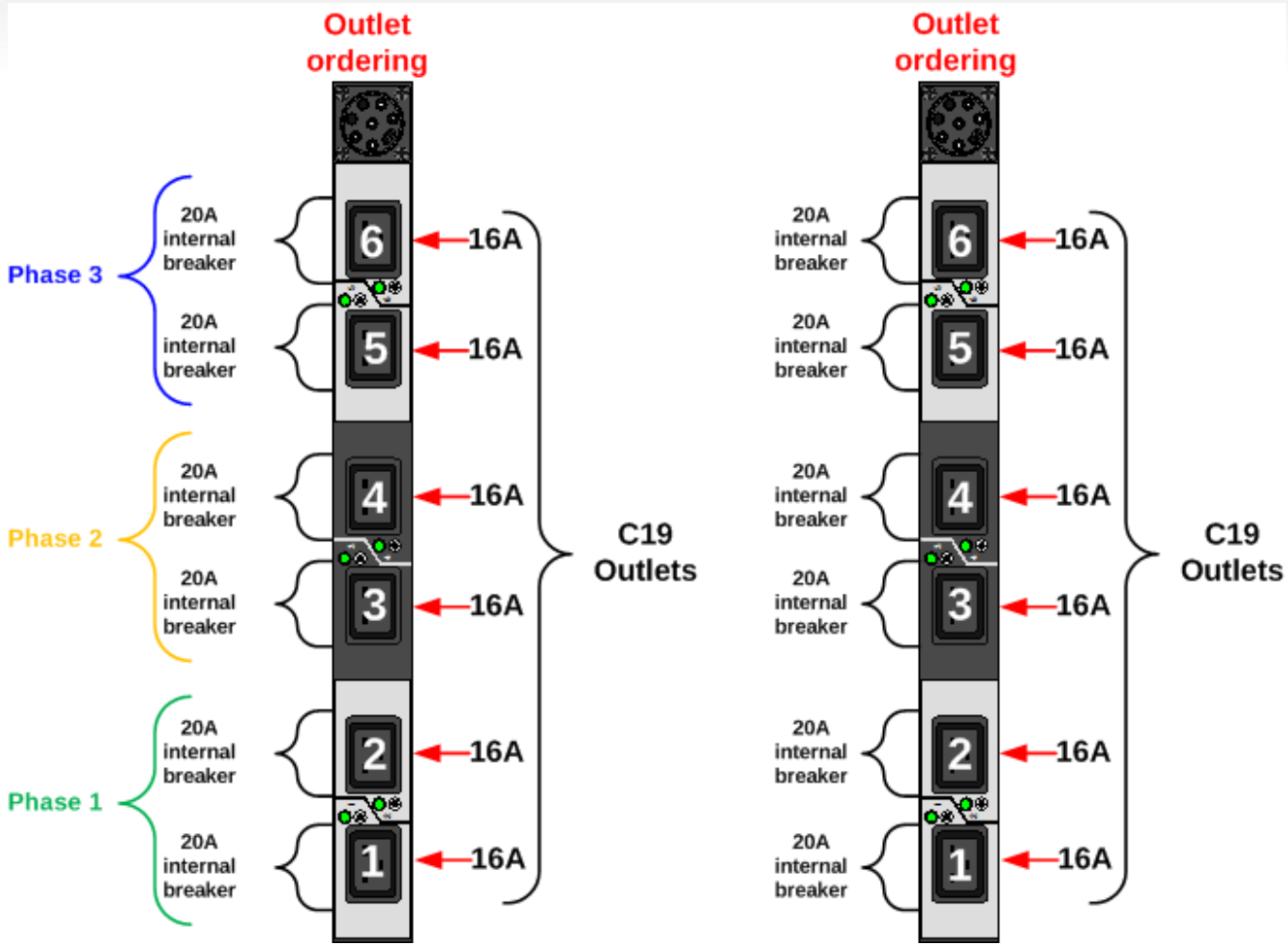
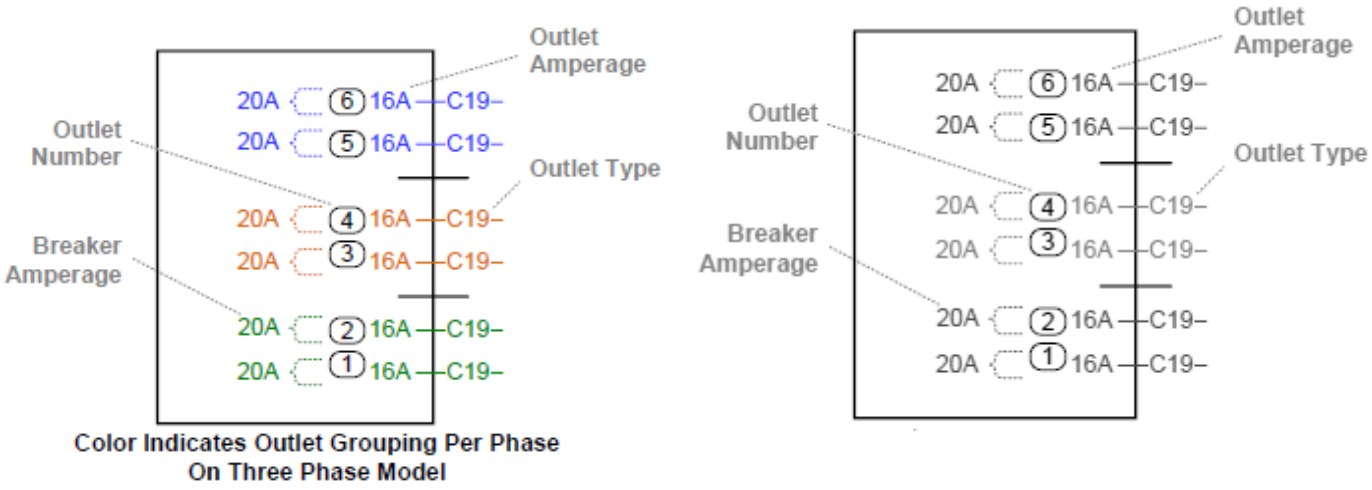



*Figure 25: Lenovo DPI C19 PDU outlet and breaker amperage*




Note: Derated 16A MAX available per breaker/group.

## Input Line Cords

The following input line cords are for connecting the PDU to appropriate power circuits. This may include for example, the wall or floor outlets to provide power to the PDU. See page 1U PDU Detached line cord plugs for a picture of the line cord plugs.

| PDU P/N | Line Cord P/N | Feature Code for Bundle (PDU & Line Cord) | Orderable Line cord description |
|---|---|---|---|
| 39Y8948 | 40K9611 | 6066 | Lenovo DPI IEC-309 3P+N+G (4.3m) line cord 32A (32A / Phase) 380-415VAC Three Phase Wye 96A Total Circuit Capacity |
| 39Y8948 | 40K9612 | 6064 | Lenovo DPI IEC 309 P+N+G (4.3m) line cord 32A / 220-240VAC Single Phase |
| 39Y8948 | 40K9613 | 6065 | Lenovo DPI IEC 309 P+N+G (4.3m) line cord 63A / 220V-240VAC Single Phase |
| 39Y8948 | 40K9617 | 6067 | Lenovo DPI AS/NZS 3112 32A (4.3m) line cord 32A / 220VAC Single Phase |
| 39Y8948 | 40K9618 | 6068 | Lenovo DPI KSC 8305 30A (4.3m) line cord 30A / 230VAC Single Phase |

## Specifications

The following table are specifications for the 39Y8948 DPI C19 PDU.

| Specifications | Line cord PN | Line cord PN | Line cord PN | Line cord PN | Line cord PN |
|---|---|---|---|---|---|
| Input Line Cord Type* | 40K9611 | 40K9612 | 40K9613 | 40K9617 | 40K9618 |
| Type | 32A/380-415V | 32A / 220-240V | 63A/220V-240V | 32A / 230V | 30A / 230V |
| Phase | Three | Single | Single | Single | Single |
| Outlets types | six IEC C19 | six IEC C19 | six IEC C19 | six IEC C19 | six IEC C19 |
| Power Capacity** | 22080VA @ 230V | 7360VA @ 230V | 14490VA @ 230V | 7360VA @ 230V | 6600VA @ 220V |
| Power Limit per Outlet | 16A | 16A | 16A | 16A | 16A |
| Power Limit per Phase | 32A | - | - | - | - |
| Power Limit per PDU | 96A | 32A | 63A | 32A | 30A |
| Monitoring/ Switching | No/No | | | | |
| U Space | 1U or side pocket | | | | |
| Grounding Screw | Yes on back panel | | | | |

* For input line cord descriptions refer to the Input Line Cords section.

** For the purpose of this table, you can consider 1VA = 1 Watt.

## Accessory Kit

The following items make up the accessory kit that contains miscellaneous hardware for installing the Rack PDU in a rack cabinet. These are shipped with the PDU.

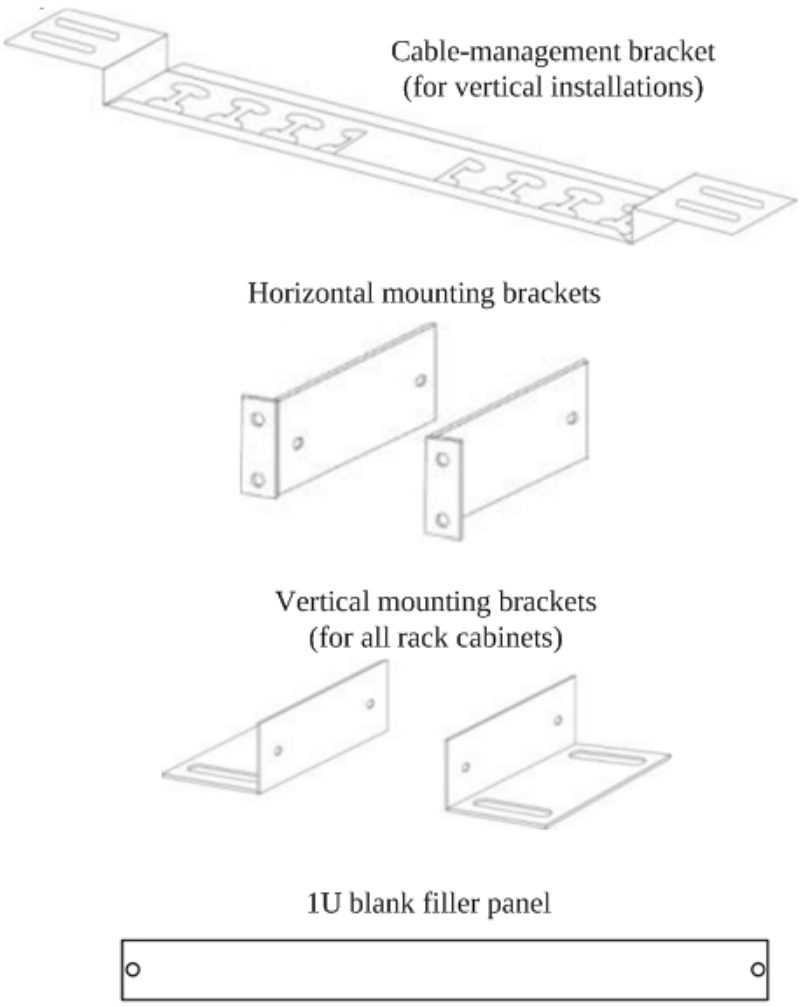



*Figure 26: Accessory kit*

Miscellaneous hardware kit for attaching the mounting brackets to the PDU and installing in a rack, and cable straps are also included.

These accessories are for supporting the racking of the DPI C19 PDU in either the side of a rack, the side pocket of a rack or U space of a rack. Some parts may be unused, depending on how and where the PDU is installed.

Refer to the following Racking section for information on racking the DPI C19 PDU.

## Racking

This section discusses mounting the DPI C19 (39Y8948) in the side of a rack, the side pockets of a rack and EIA (U space) of a rack.

### Mounting in side pocket

Mounting the DPI C19 PDU in the side pocket requires the use of the vertical mounting bracket, shipped as part of the PDU accessory kit, see the Accessory Kit section for additional information.

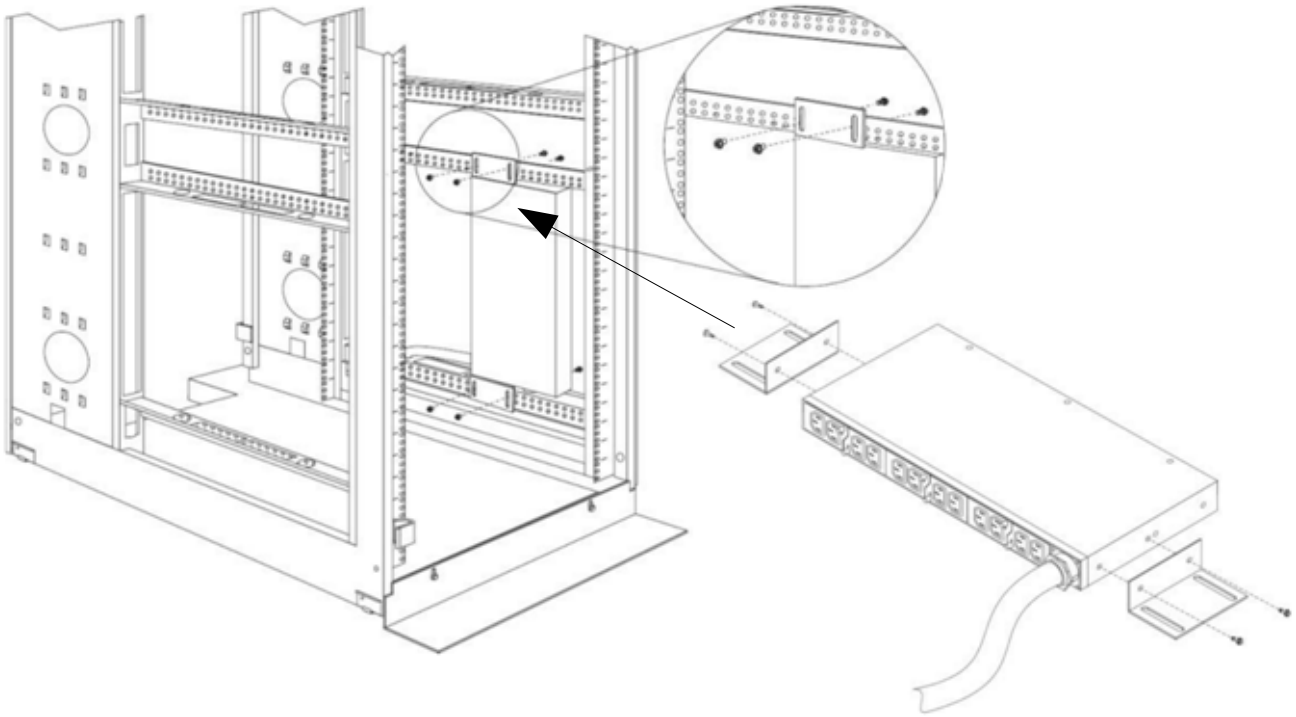


*Figure 27: DPI C19 PDU vertical mounting in rack*

## Mounting In Lenovo Enterprise Rack (9308 & 1410) & Lenovo Enterprise V2 Rack (9363) Rear Zero Pocket (side pocket)

Mounting the DPI PDU (39Y8948) in the side pocket of an enterprise rack requires the use of the horizontal mounting bracket, shipped as part of the PDU accessory kit, see the Accessory Kit section for additional information.

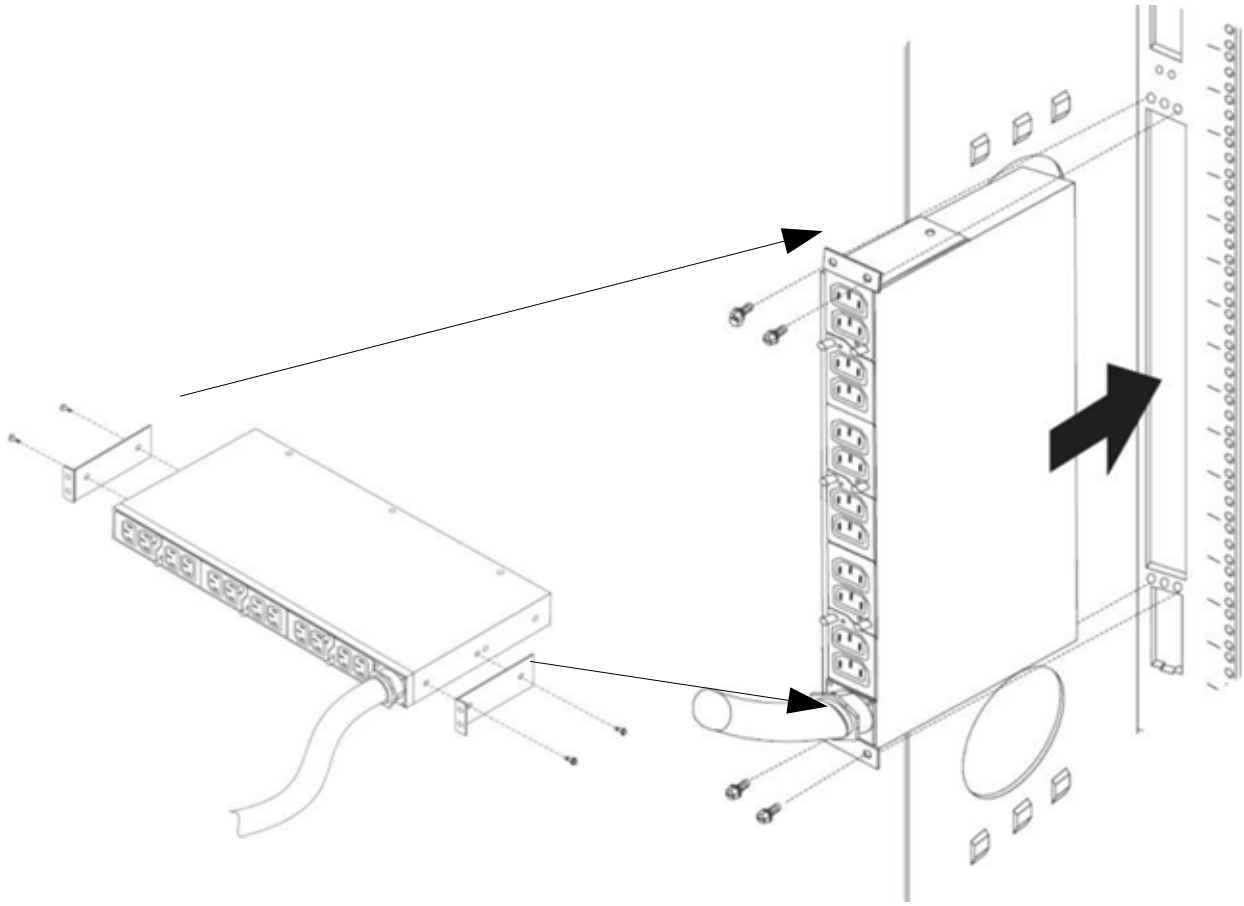


*Figure 28: DPI C19 PDU side pocket mounting in Enterprise rack*

## Mounting in EIA (U space) of rack

Mounting the DPI C19 PDU (39Y8948) in the U space of a rack requires the use of the horizontal mounting bracket, shipped as part of the PDU accessory kit, see the Accessory Kit section for additional information.

1 PDU will fit in 1U of rack space see figure 29.

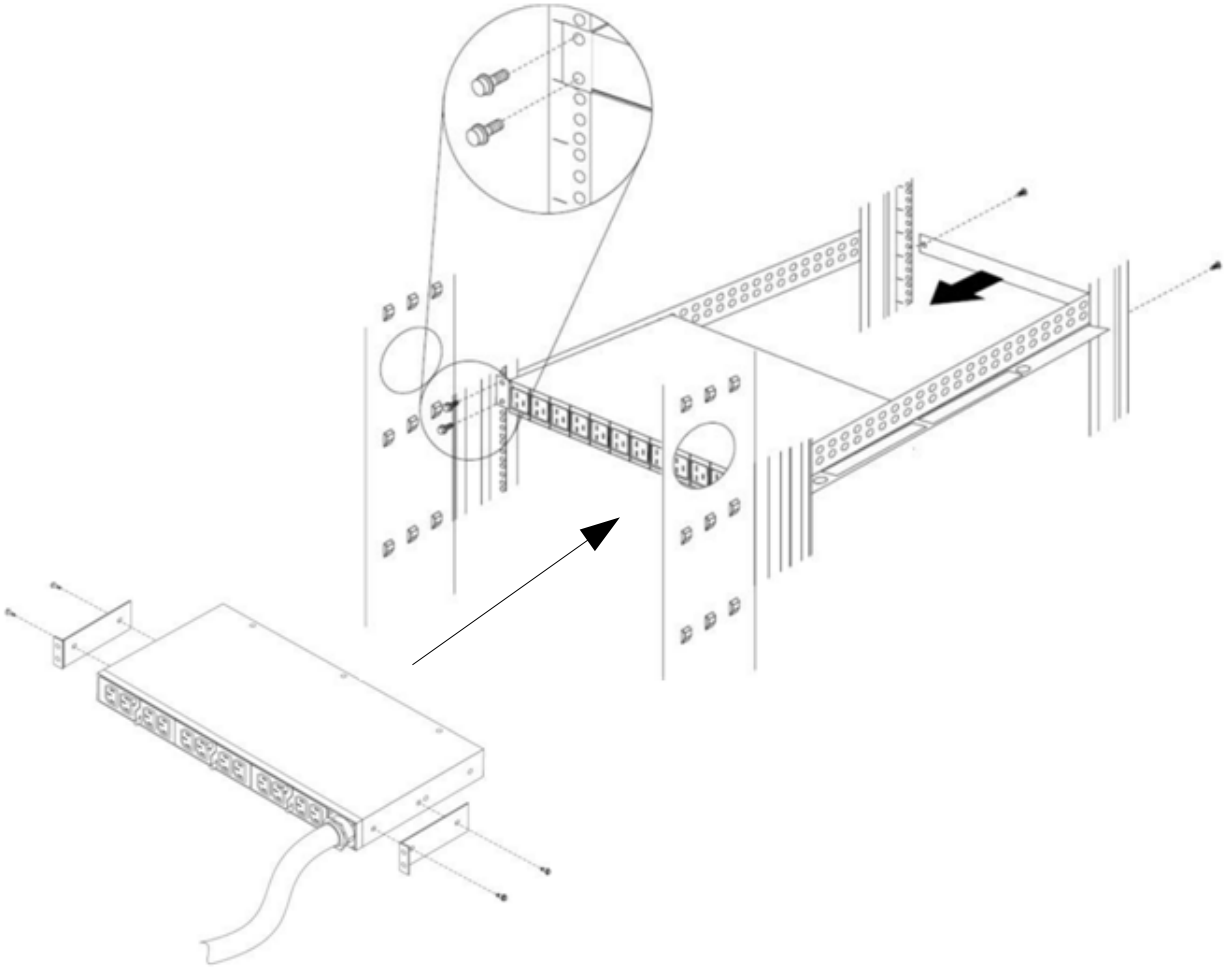


*Figure 29: DPI C19 PDU horizontal mounting in rack*

**Note:** You must remove any horizontally-mounted Front End PDUs from the EIA mounting space before you relocate your rack cabinet. Horizontal installation of Front End PDUs is not supported during relocation or shipping of a rack cabinet.

## Installation and Maintenance Guide

The following link is the installation and maintenance guide for the Lenovo DPI Enterprise – C19 PDU

39Y8948

ftp://ftp.software.ibm.com/systems/support/system_x_pdf/43v6030.pdf

# Ultra Density Enterprise PDU

This section discusses the 71762NX Ultra Density Enterprise C19/C13 PDU. This section is broken up into the following sections.



## Quick Specs

The following tables ares a quick overview of the 71762NX PDU with each available line cord. For additional information refer to the Specifications section.

| PDU 71762NX + Line Cord 40K9611 | |
|---|---|
| Type | 32A / 380V-415V |
| Outlets types | Nine IEC C19, and three IEC C13 |
| Power Capacity | 22080VA @ 230V |
| Power Limit per PDU | 96A |
| Phase | Three phase |

| PDU 71762NX + Line Cord 40K9612 | |
|---|---|
| Type | 32A / 220V-240V |
| Outlets types | Nine IEC C19, and three IEC C13 |
| Power Capacity | 7360VA @ 230V |
| Power Limit per PDU | 32A |
| Phase | Single phase |

| PDU 71762NX + Line Cord 40K9613 | |
|---|---|
| Type | 63A / 220V-240V |
| Outlets types | Nine IEC C19, and three IEC C13 |
| Power Capacity | 14490VA @ 230V |
| Power Limit per PDU | 63A |
| Phase | Single phase |

| PDU 71762NX + Line Cord 40K9617 | |
|---|---|
| Type | 32A / 230V |
| Outlets types | Nine IEC C19, and three IEC C13 |
| Power Capacity | 7360VA @ 230V |
| Power Limit per PDU | 32A |
| Phase | Single phase |

| PDU 71762NX + Line Cord 40K9618 | |
|---|---|
| Type | 30A / 220V |
| Outlets types | Nine IEC C19, and three IEC C13 |
| Power Capacity | 6600VA @ 220V |
| Power Limit per PDU | 30A |
| Phase | Single phase |

## Front and Back View and Outlets

The 71762NX has detachable single phase line cord options and three phase option. The following figures displays a front and back view of the PDU.

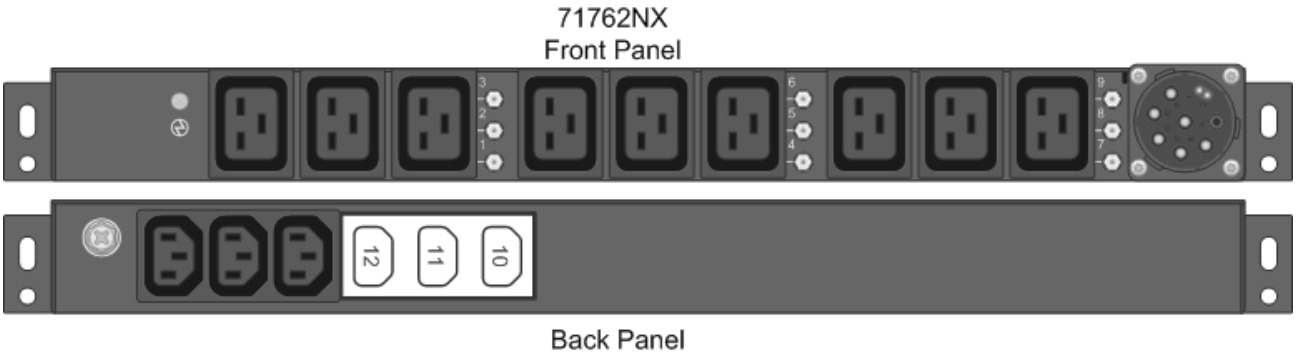



*Figure 30: Front and back panels of the Ultra Density Enterprise C19 PDU*

The following figures show the PDUs outlets and amperage for single phase and three phase.

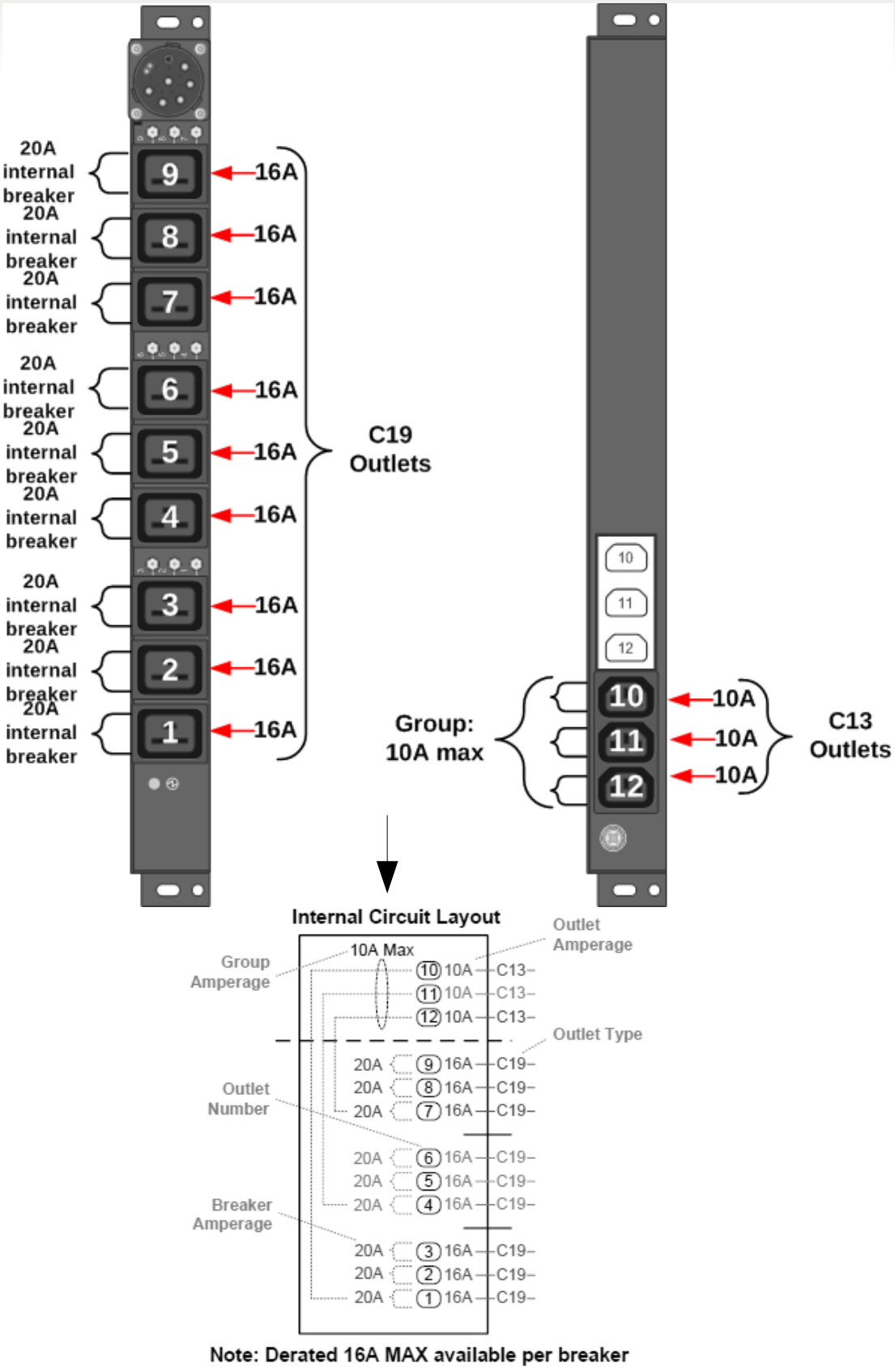



*Figure 31: Outlets and amperage*

Single phase model 71762NX PDU

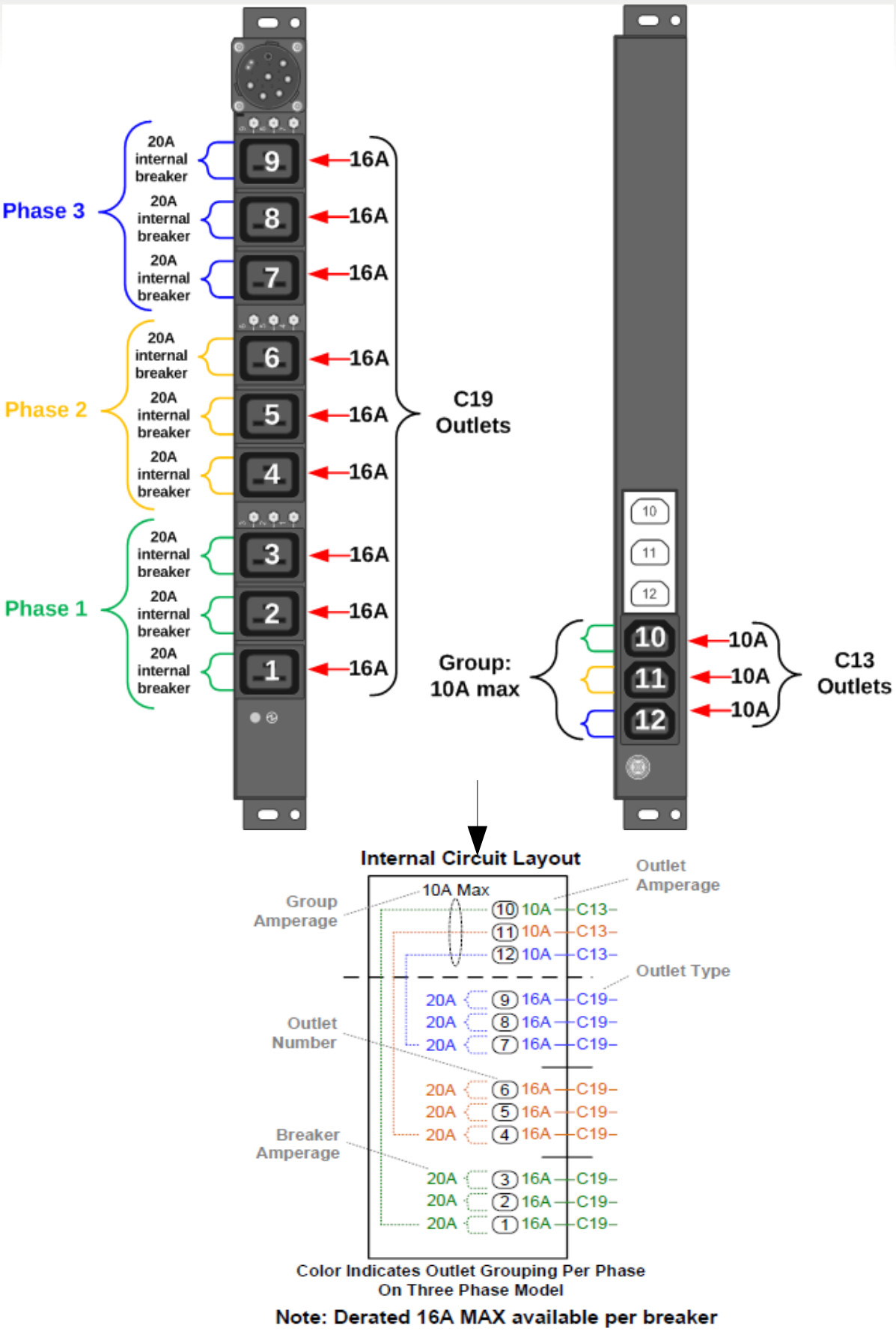



*Figure 32: Outlets and amperage*

## Input Line Cords

The following input line cords are for connecting the PDU to appropriate power circuits. This may include for example, the wall or floor outlets to provide power to the PDU. See the 1U PDU Detached line cord plugs for a picture of the line cord plugs.

| PDU P/N (& Feature Code) | Line Cord P/N (& Feature Code) | Feature Code for Bundle (PDU & Line Cord) | Orderable Line cord description |
|---|---|---|---|
| 71762NX | 40K9611 | 6504 | Lenovo DPI IEC-309 3P+N+G (4.3m) line cord 32A (32A / Phase) 380-415VAC Three Phase Wye 96A Total Circuit Capacity |
| 71762NX | 40K9612 | 6502 | Lenovo DPI IEC 309 P+N+G (4.3m) line cord 32A / 220-240VAC Single Phase |
| 71762NX | 40K9613 | 6503 | Lenovo DPI IEC 309 P+N+G (4.3m) line cord 63A / 220V-240VAC Single Phase |
| 71762NX | 40K9617 | 6505 | Lenovo DPI AS/NZS 3112 32A (4.3m) line cord 32A / 220VAC Single Phase |
| 71762NX | 40K9618 | 6506 | Lenovo DPI KSC 8305 30A (4.3m) line cord 30A / 230VAC Single Phase |

## Specifications

The following table are specifications for 71762NX DPI Ultra Density Enterprise PDU.

| Specifications | Line cord PN | Line cord PN | Line cord PN | Line cord PN | Line cord PN |
|---|---|---|---|---|---|
| Input Line Cord Type* | 40K9611 | 40K9612 | 40K9613 | 40K9617 | 40K9618 |
| Type | 32A/380-415V | 32A / 220-240V | 63A/220V-240V | 32A / 230V | 30A / 230V |
| Phase | Three | Single | Single | Single | Single |
| Outlets types | nine IEC C19, three IEC C13 | nine IEC C19, three IEC C13 | nine IEC C19, three IEC C13 | nine IEC C19, three IEC C13 | nine IEC C19, three IEC C13 |
| Power Capacity** | 22080VA @ 230V | 7360VA @ 230V | 14490VA @ 230V | 7360VA @ 230V | 6600VA @ 220V |
| Power Limit per Outlet | IEC C19: 16A IEC C13: 10A | IEC C19: 16A IEC C13: 10A | IEC C19: 16A IEC C13: 10A | IEC C19: 16A IEC C13: 10A | IEC C19: 16A IEC C13: 10A |
| Grouping | One C19 + one C13 or One C19 outlet per breaker / Three C19 + one C13 outlets per phase | One C19 + one C13 or One C19 outlet per breaker | One C19 + one C13 or One C19 outlet per breaker | One C19 + one C13 or One C19 outlet per breaker | One C19 + one C13 or One C19 outlet per breaker |
| Power Limit per Group | 20A per breaker / 32A per phase | 20A | 20A | 20A | 20A |
| Power Limit per PDU | 96A | 32A | 63A | 32A | 30A |
| Monitoring/ Switching | No/No | | | | |
| U Space | 1U or side pocket | | | | |
| Grounding Screw | Yes on back panel | | | | |

* For input line cord part numbers refer to the Input Line Cords section.

** For the purpose of this table, you can consider 1VA = 1 Watt.

## Accessory Kit

The following items make up the accessory kit that contains miscellaneous hardware for installing the Rack PDU in a rack cabinet. These are shipped with the PDU.

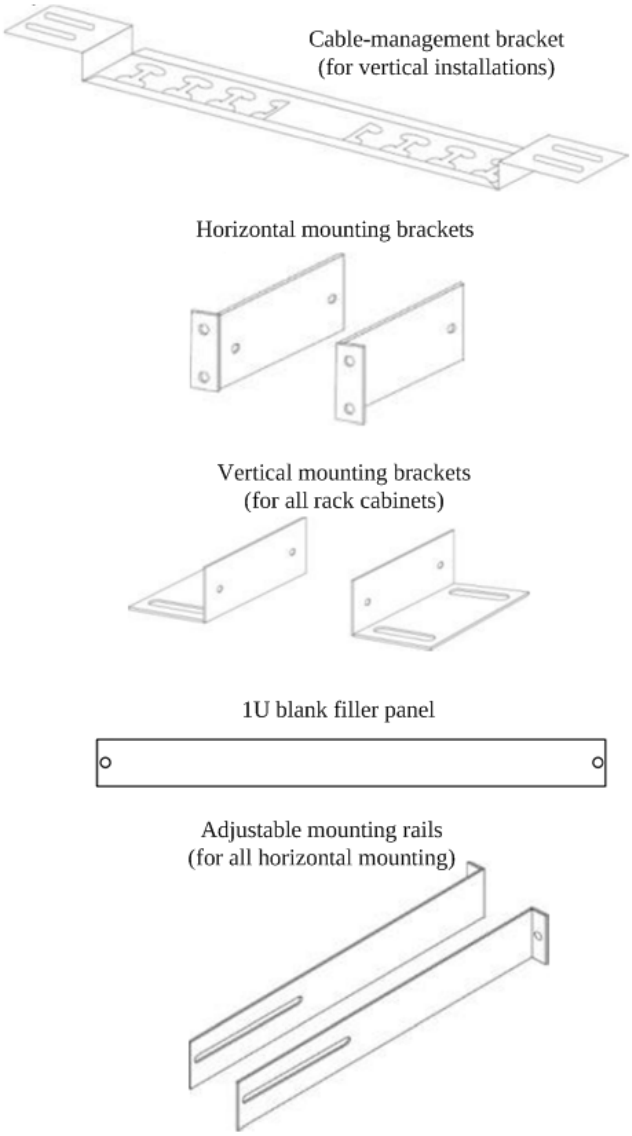



*Figure 33: Accessory kit*

Misc hardware kit also included for attaching PDU to brackets and installing in a rack. Cable straps also included.

These accessories are for supporting the racking of the C19/C13 Ultra Density Enterprise PDU in either the side of a rack, the side pocket of a rack or U space of a rack. Some parts may be unused, depending on how and where the PDU is installed.

Refer to the following Racking section for information on racking the C19/C13 Ultra Density Enterprise PDU.

## Racking

This section discusses mounting for the 71762NX Ultra Density C19/C13 PDU in the side of a rack, the side pockets of an Enterprise rack (0U space) and EIA (U space) of a rack.

### Mounting in side pocket

Mounting the Ultra Density C19/C13 PDU in the side pocket requires the use of the vertical mounting bracket, shipped as part of the PDU accessory kit, see the Accessory Kit section for additional information.

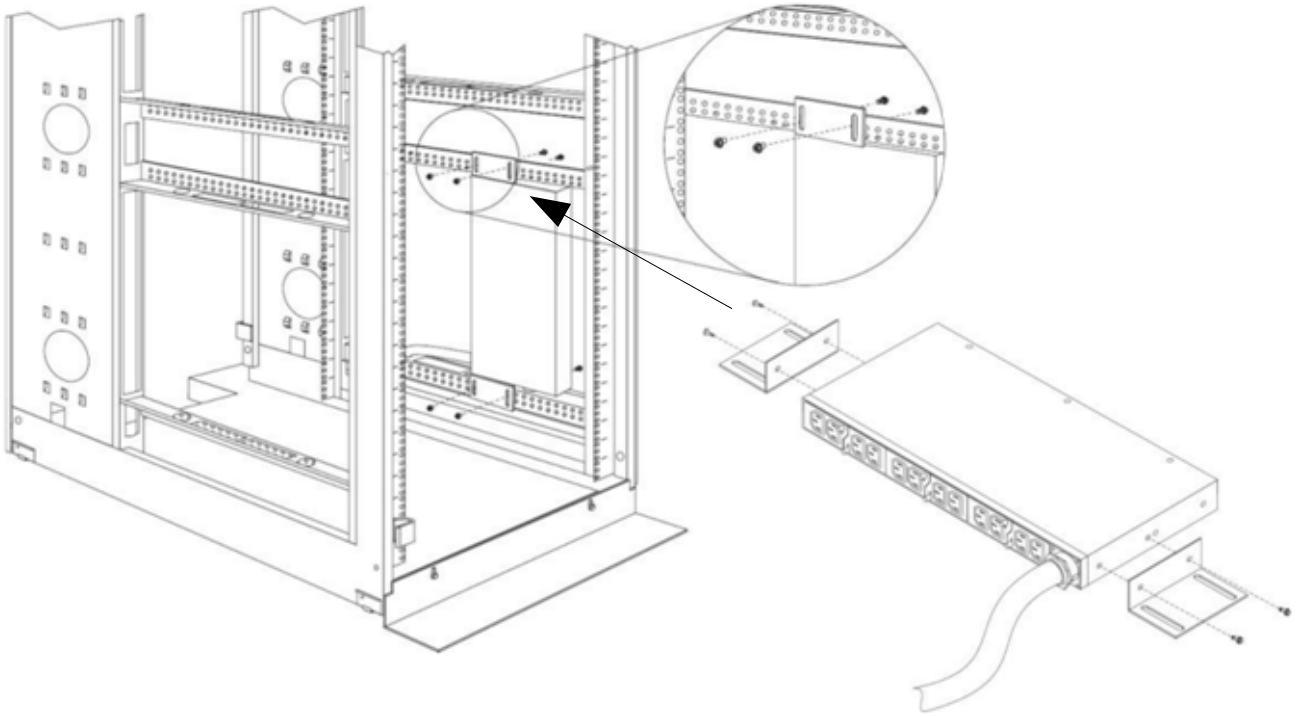


*Figure 34: Enterprise Ultra Density C19/C13 PDU vertical mounting in rack*

## Mounting In Lenovo Enterprise Rack (9308 & 1410) & Lenovo Enterprise V2 Rack (9363) Rear Zero Pocket (side pocket)

Mounting the 71762NX Ultra Density C19/C13 PDU in the side pocket of an enterprise rack requires the use of the horizontal mounting bracket, shipped as part of the PDU accessory kit, see the Accessory Kit section for additional information.

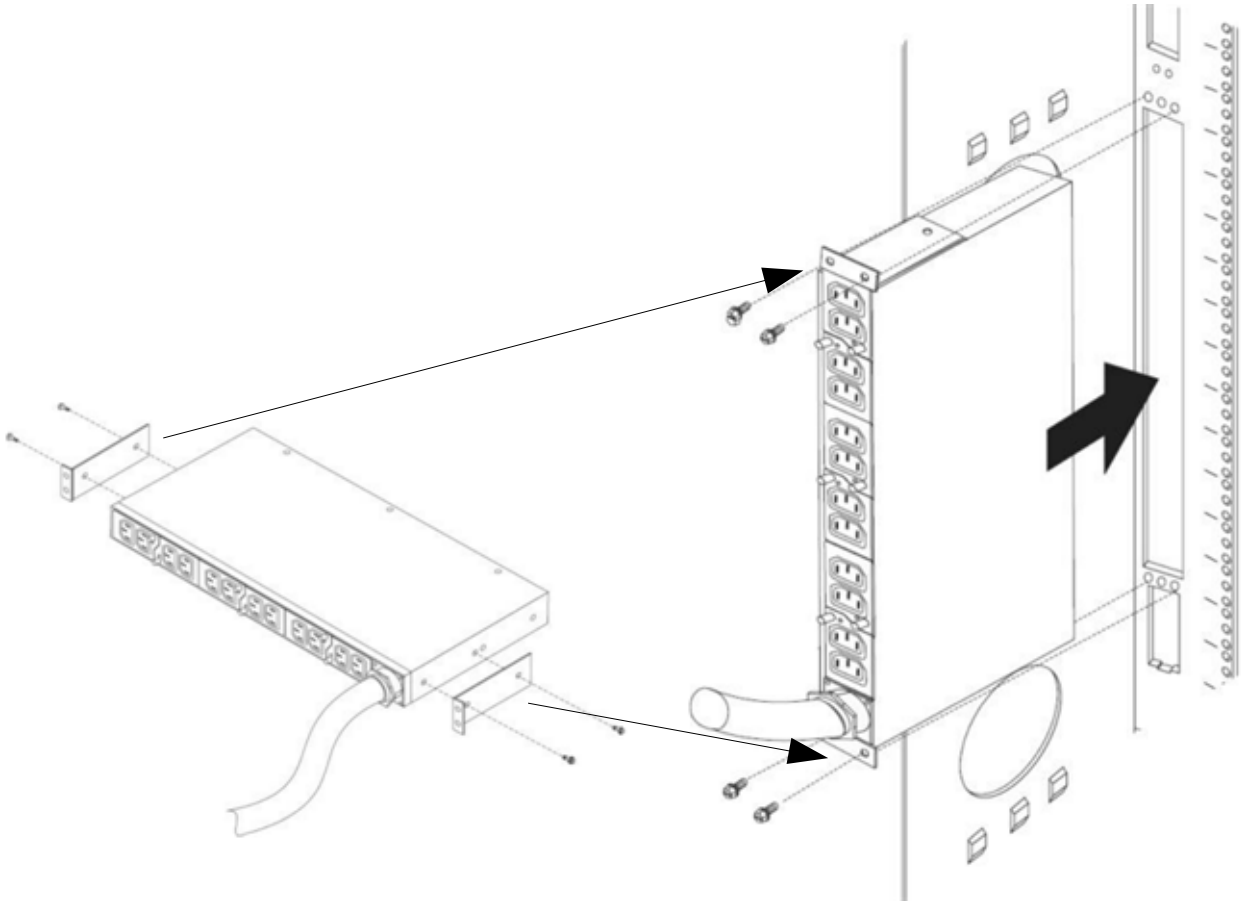


*Figure 35: Ultra Density Enterprise PDU side pocket mounting in Enterprise rack*

## Mounting in EIA (U space) of rack

Mounting the 71762NX Ultra Density C19/C13 PDU in the U space of a rack requires the use of the horizontal mounting bracket, shipped as part of the PDU accessory kit, see the Accessory Kit section for additional information.

1 PDU will fit in 1U of rack space see figure 36.

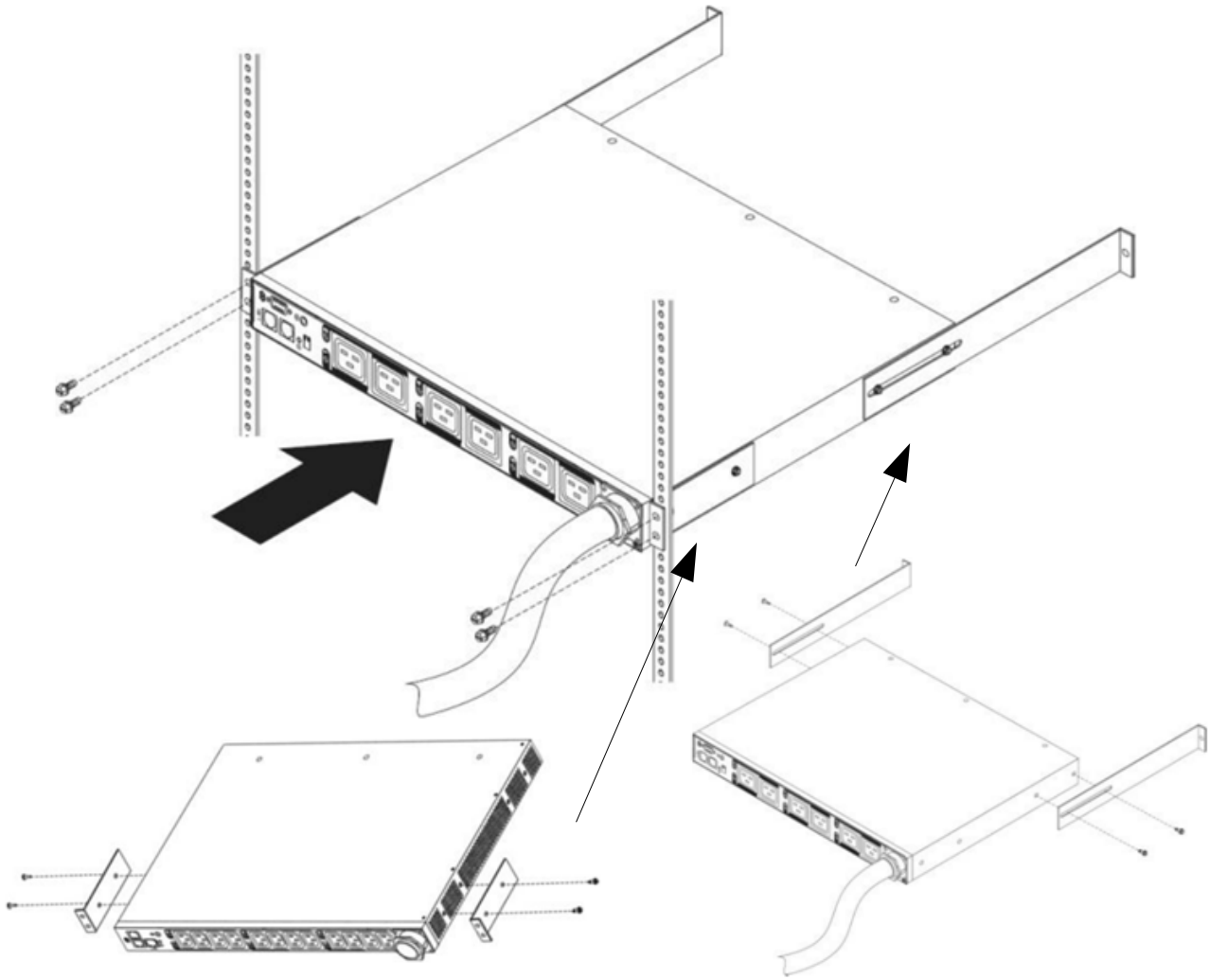


*Figure 36: Ultra Density Enterprise PDU horizontal mounting in rack*

## Installation and Maintenance Guide

The following link is the installation and user guide for the Lenovo Ultra Density Enterprise PDU

71762NX

http://www.ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-5076527

# 0U 24 C13 PDU

This section discusses the 46M4131 and 46M4122 0U 24 C13 PDU. This section is broken up into the following sections.



## Quick Specs

The following tables are quick specs for the 46M4122 and 46M4131 PDUs. For additional information, refer to the Specifications section.

| PDU 46M4131 + Attached Line Cord | |
|---|---|
| Type | 32A / 220V-240V |
| Outlets types | twenty four IEC C13 |
| Power Capacity | 7360VA @ 230V |
| Power Limit per PDU | 32A |
| Phase | Single phase |

| PDU 46M4122 + Attached Line Cord | |
|---|---|
| Type | 16A / 220V-240V |
| Outlets types | twenty four IEC C13 |
| Power Capacity | 11040VA @ 230V |
| Power Limit per PDU | 48A |
| Phase | Three phase |

## Front View and Outlets

There are 2 type of 0U 24 C13 PDU's. The 46M4122 and 46M4131. The PDUs are identical except for the line cord. The line cord determines single phase or three phase operation. The 46M4131 has an attached single phase line cord. The 46M4122 has an attached 3 phase line cord. The following figure displays a front view picture of the PDU.

*Figure 37: Front panel of the 0U 24 C13 PDU*

Figure 38 below shows the single phase outlets and amperage, and figure 39 on page 78 shows the three phase PDU outlets and amperage.

Single phase 46M4131 PDU

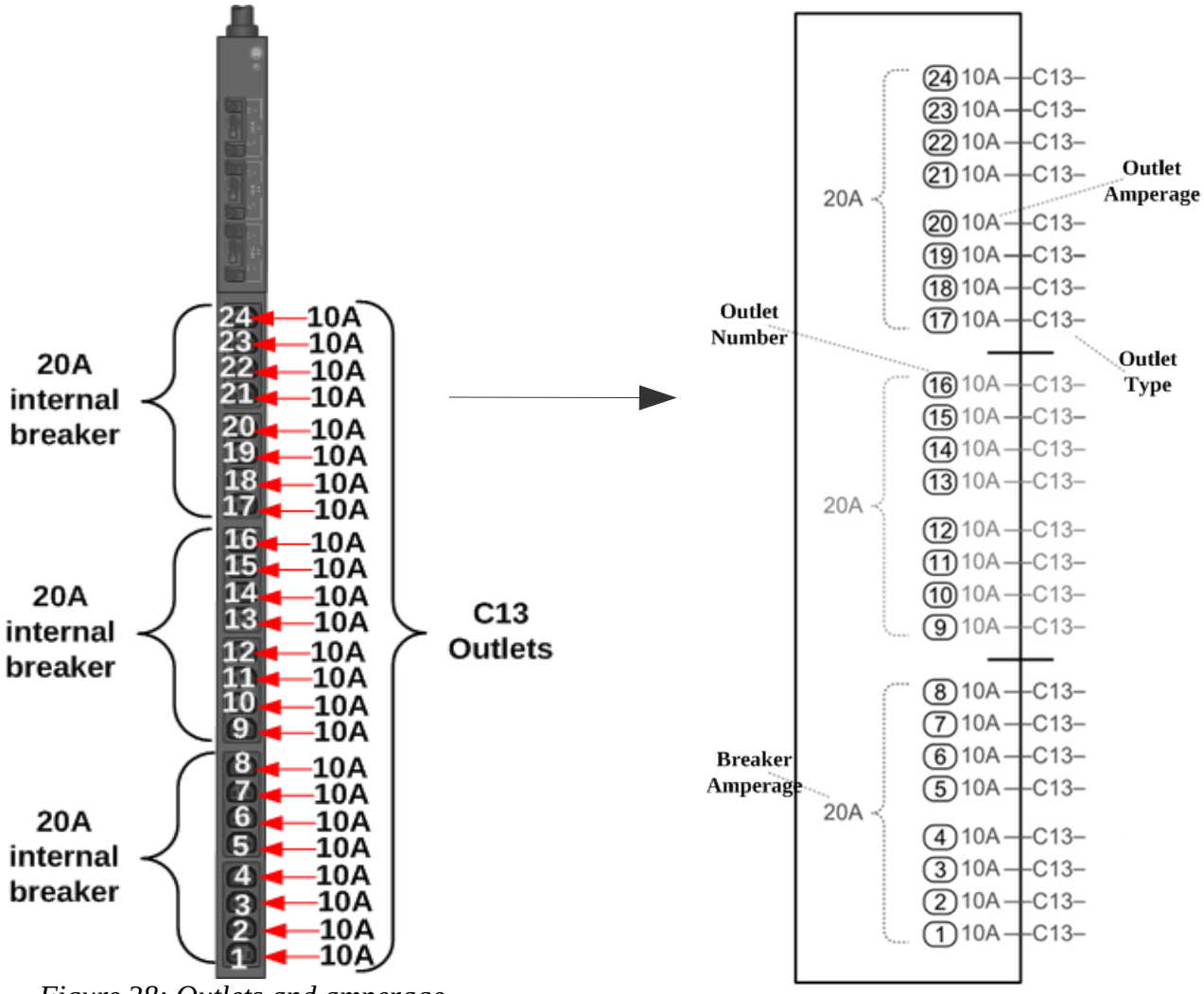



*Figure 38: Outlets and amperage*

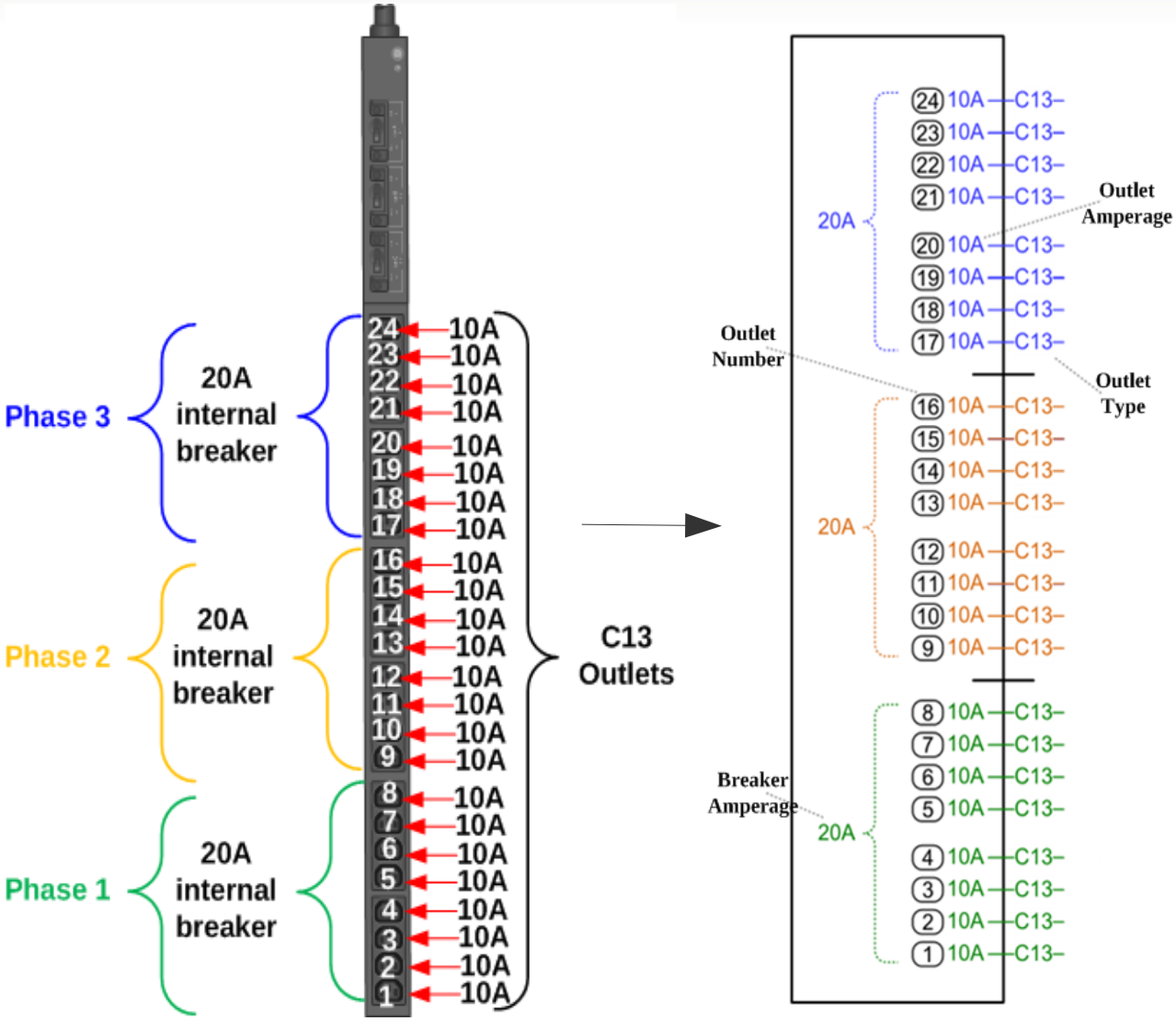



*Figure 39: Outlets and amperage*

Each phase has eight 10A outlets. For derated, 16A max is available per breaker.

Refer to the Specifications for additional information.

## Input Line Cords

The following input line cords are for connecting the PDU to appropriate power circuits. This may include for example, the wall or floor outlets to provide power to the PDU. See page 0U PDU Attached line cord and plugs for a picture of the line cord plugs.

| PDU P/N | Feature Code | Line Cord P/N | Line Cord Description |
|---|---|---|---|
| 46M4131 | 5925 | Attached | Attached 3.0 meter line cord IEC 309 P+N+G 32A / 220-240VAC Single Phase |
| 46M4122 | 5922 | Attached | Attached 3.0 meter line cord IEC-309 3P+N+G 16A (16A / Phase) 380-415VAC Three Phase Wye 48A Total Circuit Capacity |

## Specifications

The following table are specifications for the 46M4131 and 46M4122 0U C13 PDUs.

| Specifications | | |
|---|---|---|
| PDU Part Number | 46M4131 | 46M4122 |
| Feature Code | 5925 | 5922 |
| Input Line Cord Type* | Attached | Attached |
| Phase | Single phase | Three phase |
| Type | 32A / 220V-240V | 16A / 220V-240V |
| Outlets types | twenty four IEC C13 | twenty four IEC C13 |
| Power Capacity** | 7360VA@230V | 11040VA@230V |
| Power Limit per Outlet | 10A | 10A |
| Grouping | Eight C13 outlets per breaker | Eight C13 outlets per breaker /<br>Eight C13 outlets per phase |
| Power Limit per Group | 20A | 20A*** / 16A |
| Power Limit per PDU | 32A | 48A |
| Power Monitoring/Switching | No/No | No/No |
| U Space | Side pocket | |
| Grounding Screw | Yes on front panel | |

* For input line cord part numbers refer to the Input Line Cords section.

** For the purpose of this table, you can consider 1 VA = 1 Watt.

*** 20A breaker in the PDU is limited to 16A due to the supply circuit limit

## Accessories

The following items make up the accessory kit that contains miscellaneous hardware for installing the Rack PDU in a rack cabinet. These are shipped with the PDU.

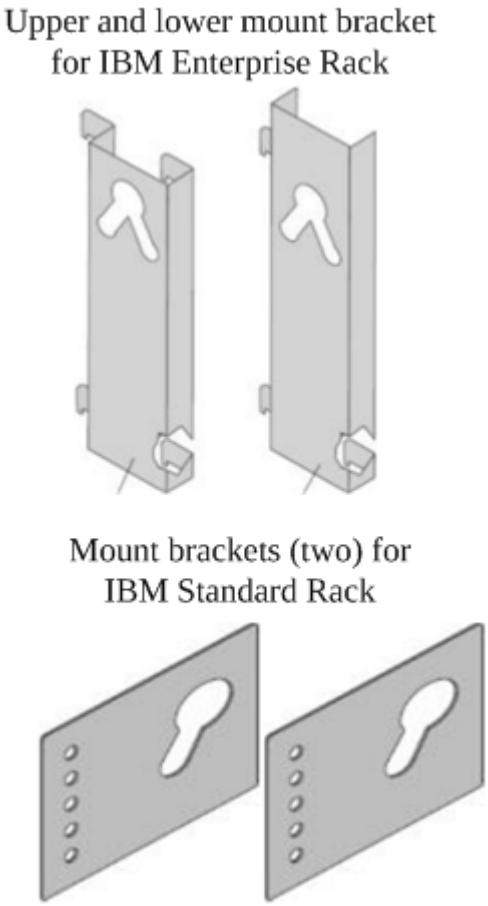



*Figure 40: Accessory kit for PDUs 46M4128, 46M4125, and 46M4140*

Miscellaneous hard ware kit for attaching the mounting brackets to the PDU and installing in a rack cabinet.

These accessories are for supporting the racking of the 0U C13 PDUs in the side pocket of a rack. Some parts may be unused, depending on how and where the PDU is installed.

Refer to the following Racking section for information on racking the 0U C13 PDU.

## Racking

This section discusses mounting for the Lenovo 0U PDUs in the back of the Lenovo Standard racks (9307 and 9956), mounting in the back of the Lenovo Enterprise racks (9308 and 1410), and the Lenovo Enterprise rack v2 (9363), and the mounting in Lenovo racks with integrated PDU mounting keyholes (9362, 9361, and 9360). This section applies to the following 0U Basic PDUs:

46M4131 – 1ph 0U 24 C13 PDU
46M4122 – 3ph 0U 24 C13 PDU

### Mounting in the Lenovo Standard Rack Cabinet (9307 and 9956)

Mounting the 0U PDUs at the back of a Standard Rack Cabinet (9307 and 9956) requires the use of the two small mounting brackets, shipped as part of the PDU accessory kit, see the Accessories section for additional information.

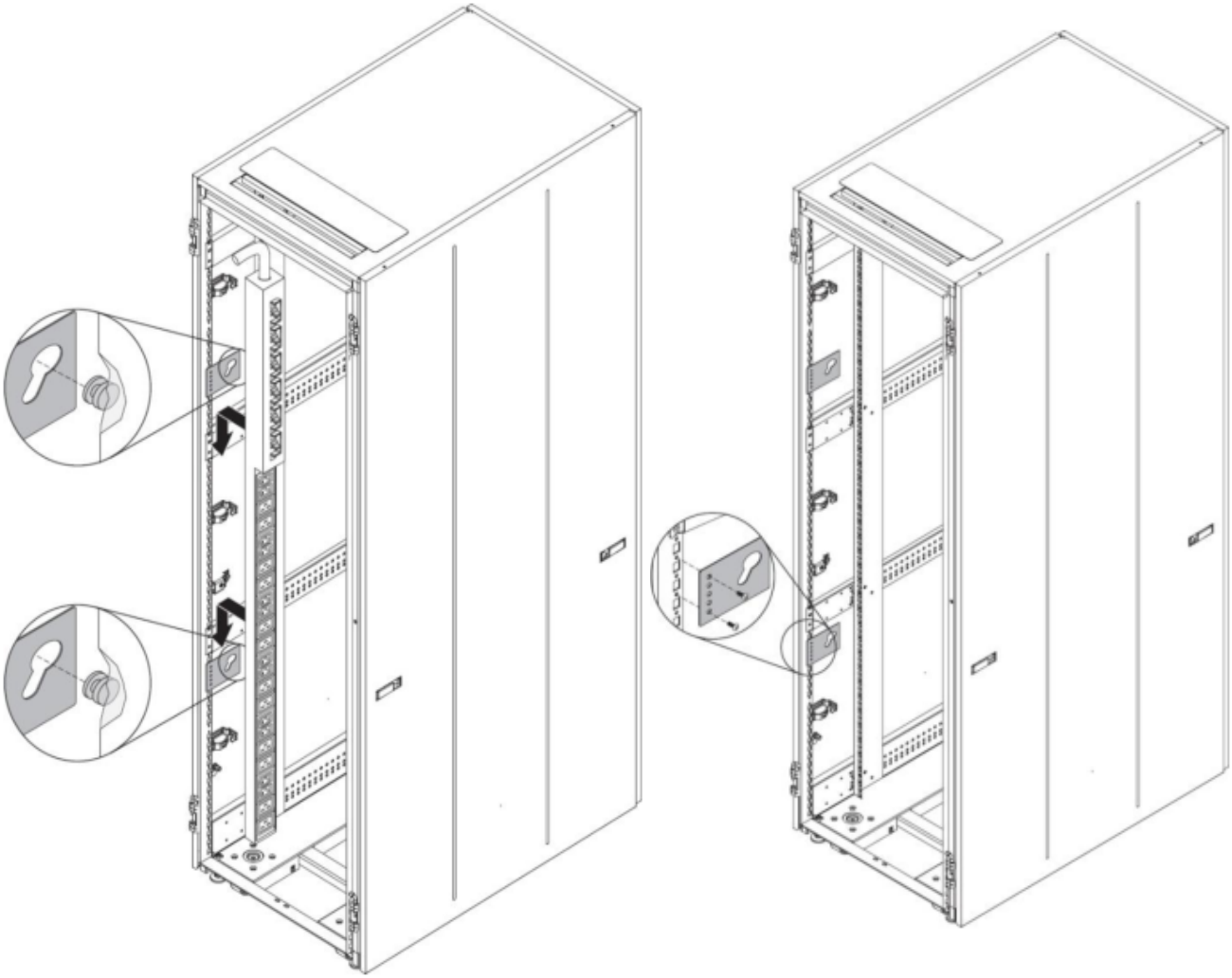


*Figure 41: Standard rack cabinet mounting*

## Mounting In Lenovo Enterprise Rack (9308 & 1410) & Lenovo Enterprise V2 Rack (9363) Rear Zero Pocket (side pocket)

Mounting the 0U PDUs at the back of an Enterprise Rack Cabinet (9308 and 1410) and the Lenovo Enterprise V2 Rack (9363) requires the use of the two upper and two lower mounting brackets, shipped as part of the PDU accessory kit, see the Accessories section for additional information.

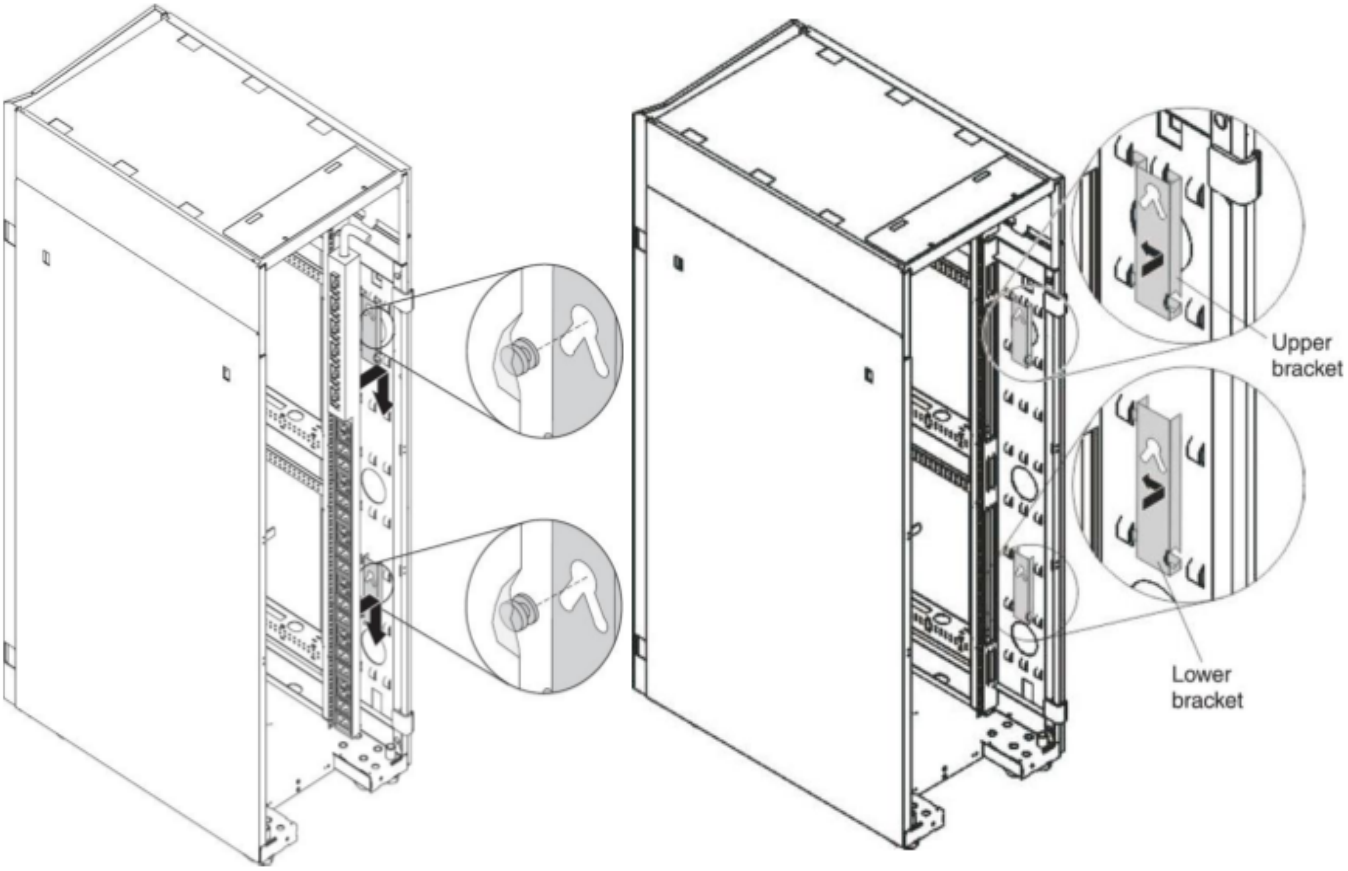



*Figure 42: Enterprise rack cabinets*

## Mounting In the Back of Lenovo Racks with Integrated PDU Mounting Keyholes (9362, 9361, and 9360)

Mounting the 0U PDUs at the back of a rack with mounting key holes is displayed in Figure 43.

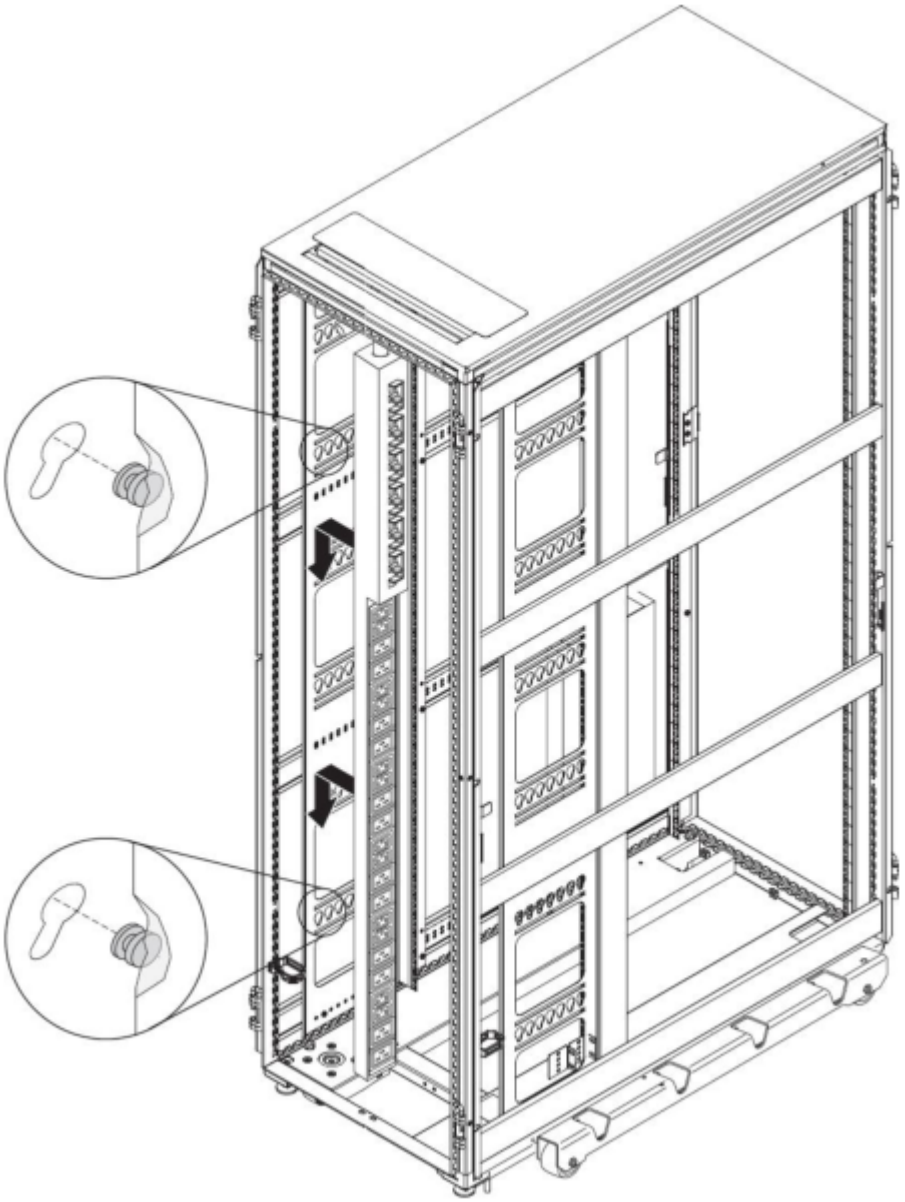


*Figure 43: Rack with mounting keyholes at the rear*

## Installation and Maintenance Guide

The following link is the installation and user guide for the Lenovo 0U 24 C13 PDU

46M4122, and 46M4131
http://www.ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-5085549

# 0U 12 C19 / 12 C13 PDU

This section discusses the 46M4143 0U 12 C19 / 12 C13 PDU. This section is broken up into the following sections.



## Quick Specs

The following table is a quick overview of the 46M4143 PDU. For additional information refer to the Specifications section.

| PDU 46M4143 + Attached Line Cord | |
|---|---|
| Type | 32A / 220V-240V |
| Outlets types | twelve IEC C13 & twelve IEC C19 |
| Power Capacity | 22080VA @ 230V |
| Power Limit per PDU | 96A |
| Phase | Three phase |

## Front View and Outlets

The 46M4140 has 12 C19 outlets and 12 C13 outlets on the front of the PDU. It comes with an attached line cord for plugging in to a suitable wall/floor outlet. The following figure displays a front view picture of the PDU.

*Figure 44: Front panel of the 0U 12 C19 / 12 C13 PDU – PN 46M4140*

Figure 45 on page 87 shows the PDUs outlets and amperage.

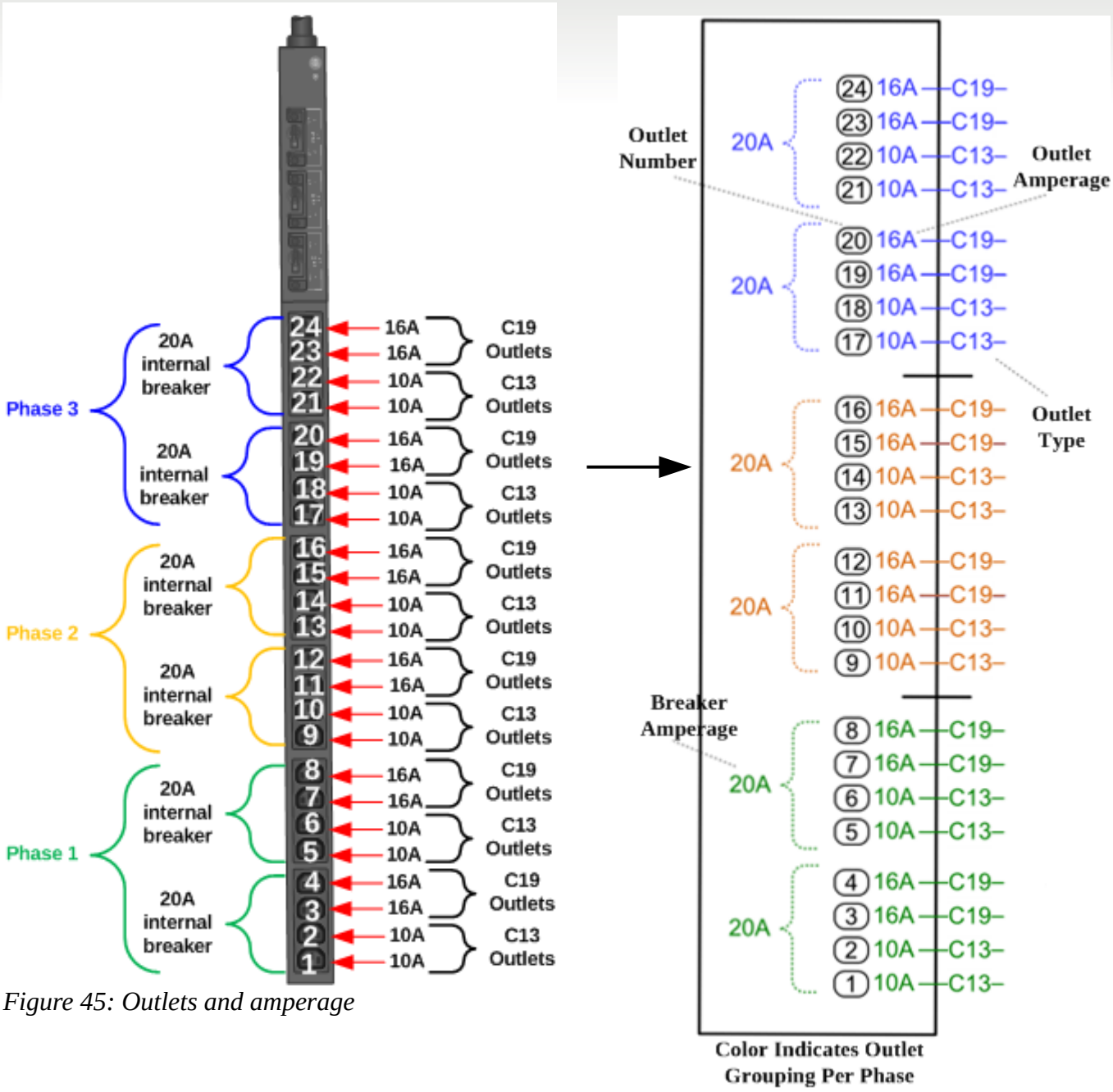



*Figure 45: Outlets and amperage*

Each phase has four 10A outlets and four 16A outlets. For derated, 16A max is available per breaker.

Refer to the Specifications for additional information.

## Input Line Cords

The following input line cords are for connecting the PDU to appropriate power circuits. This may include for example, the wall or floor outlets to provide power to the PDU. See the 0U PDU Attached line cord and plugs section for a picture of the line cord plug.

| PDU P/N | Feature Code | Line Cord P/N | Line Cord Description |
|---|---|---|---|
| 46M4143 | 5927 | Attached | Attached 3.0 meter line cord IEC-309 3P+N+G 32A (32A / Phase) 380-415VAC Three Phase Wye 96A Total Circuit Capacity |

## Specifications

The following table are specifications for the 46M4143 0U 12 C19 / 12 C13 PDU.

| Specifications | |
|---|---|
| PDU Part Number | 46M4143 |
| Feature Code | 5927 |
| Input Line Cord Type | Attached |
| Phase | 3 phase |
| Type | 32A/ 220V-240V, 380-415V |
| Outlets types | twelve IEC C13 & twelve IEC C19 |
| Power Capacity* | 22080VA@230V |
| Power Limit per Outlet | Each C13 outlet is limited to10A<br>Each C19 outlet is limited to 16A |
| Grouping | Two C13 + two C19 outlets per breaker<br>Four C13 + four C19 outlets per phase |
| Power Limit per Group | 20A |
| Power Limit per PDU | 96A |
| Power Monitoring/Switching | No/No |
| U Space | Side pocket |
| Grounding Screw | Yes on front panel |

* For the purpose of this table, you can consider 1 VA = 1 Watt.

## Accessories

The following items make up the accessory kit that contains miscellaneous hardware for installing the Rack PDU in a rack cabinet. These are shipped with the PDU.

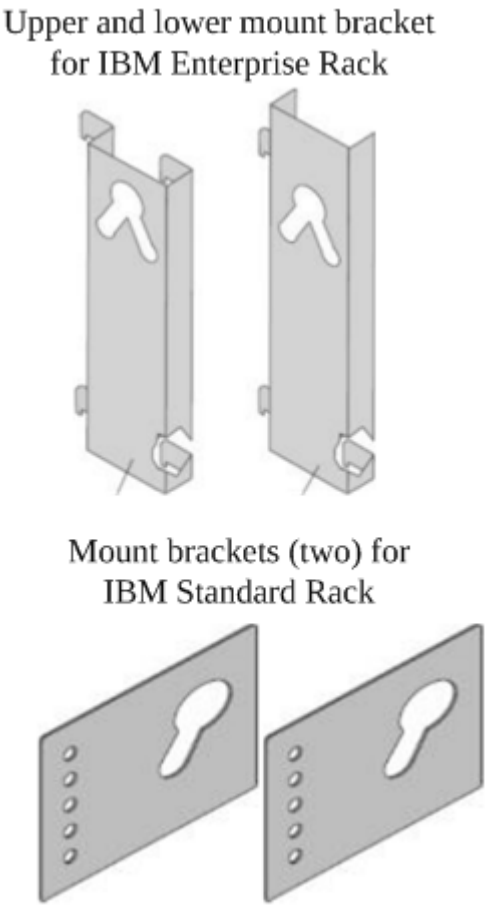



*Figure 46: Accessory kit*

Miscellaneous hardware kit for attaching the PDU to the mounting brackets and installing the PDU in a rack cabinet.

These accessories are for supporting the racking of the 0U C19 / C13 PDU in the side pocket of a rack.

Refer to the following Racking section for information on racking the 0U C19 / C13 PDU.

## Racking

This section discusses mounting for the Lenovo 0U PDU (46M4143) in the back of the Lenovo Standard racks (9307 and 9956), mounting in the back of the Lenovo Enterprise racks (9308 and 1410), and the Lenovo Enterprise rack v2 (9363), and the mounting in Lenovo racks with integrated PDU mounting keyholes (9362, 9361, and 9360).

### Mounting in the Lenovo Standard Rack Cabinet (9307 and 9956)

Mounting the 0U PDUs at the back of a Standard Rack Cabinet (9307 and 9956) requires the use of the two small mounting brackets, shipped as part of the PDU accessory kit, see the Accessories section for additional information.

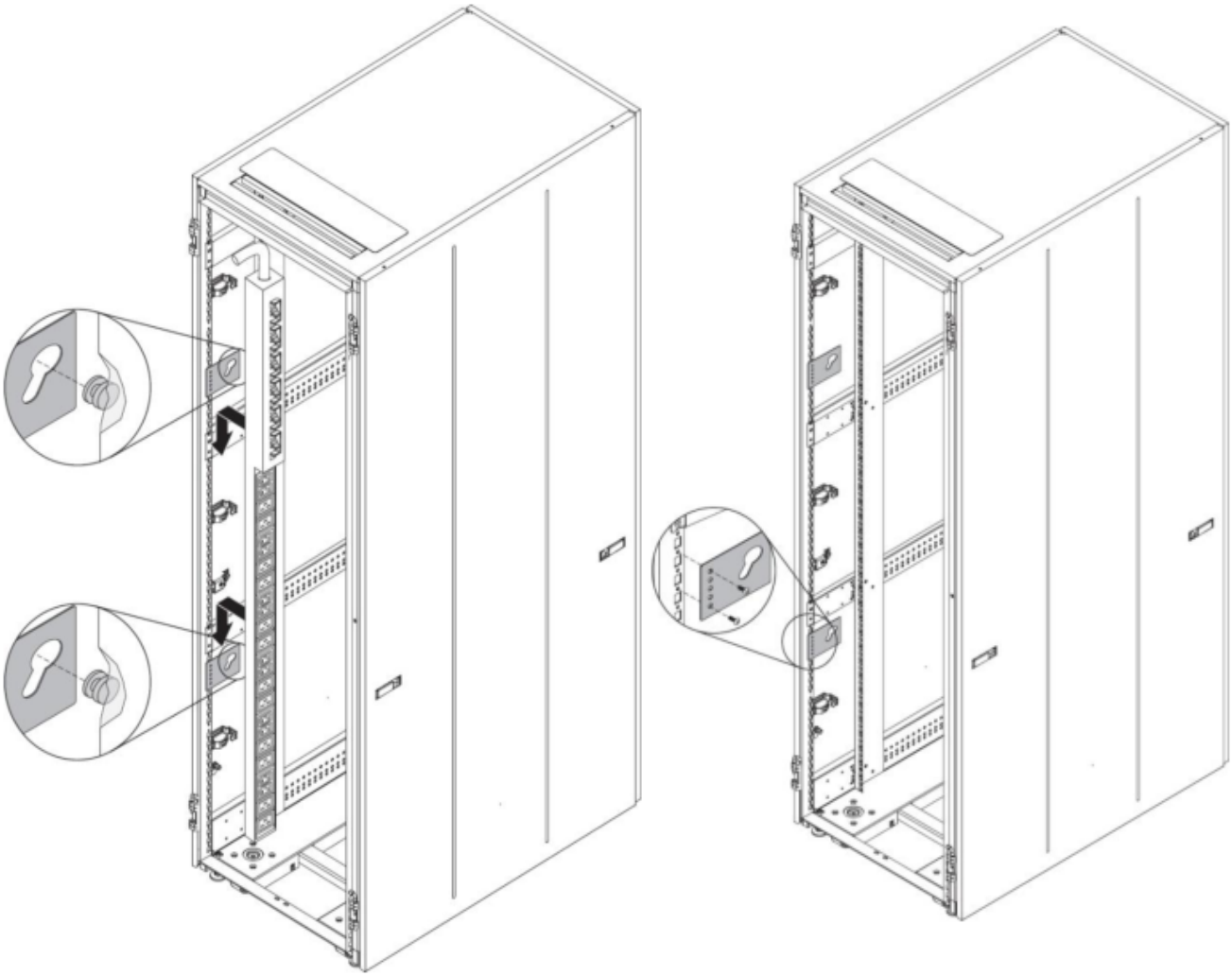


*Figure 47: Standard rack cabinet mounting*

## Mounting In Lenovo Enterprise Rack (9308 & 1410) & Lenovo Enterprise V2 Rack (9363) Rear Zero Pocket (side pocket)

Mounting the 0U PDU at the back of an Enterprise Rack Cabinet (9308 and 1410) and the Lenovo Enterprise V2 Rack (9363) requires the use of the two upper and two lower mounting brackets, shipped as part of the PDU accessory kit, see the Accessories section for additional information.

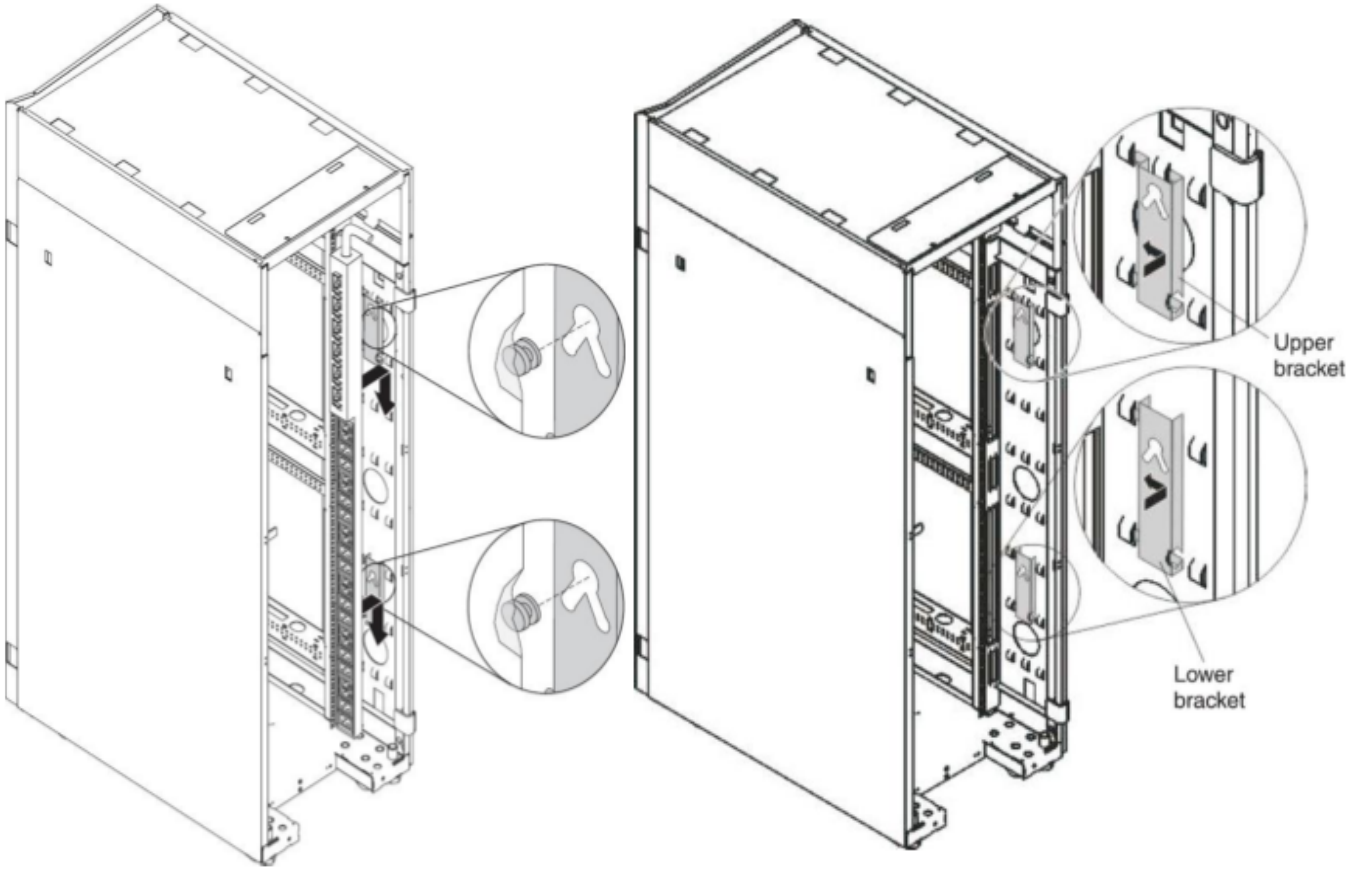



*Figure 48: Enterprise rack cabinets*

## Mounting In the Back of Lenovo Racks with Integrated PDU Mounting Keyholes (9362, 9361, and 9360)

Mounting the 0U PDU at the back of a rack with mounting key holes is displayed in Figure 49.

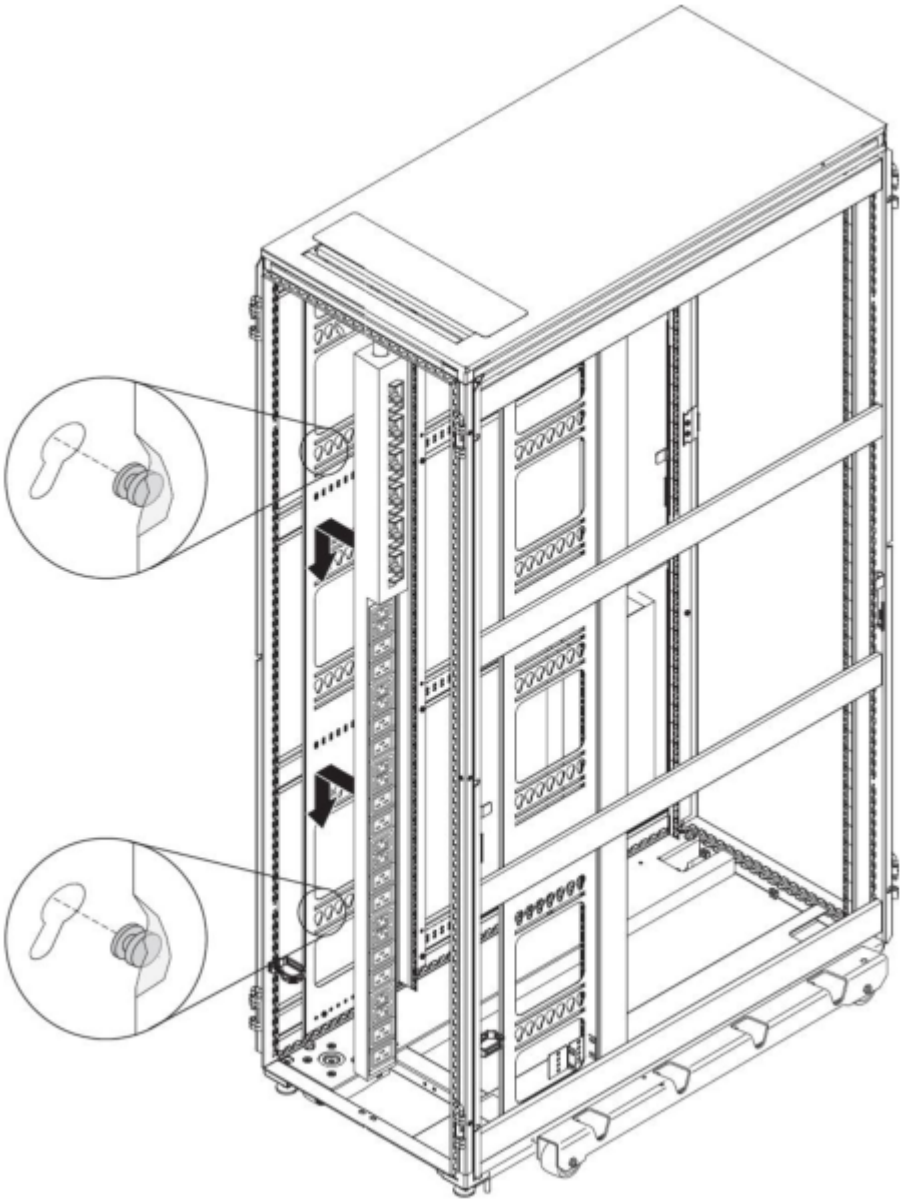


*Figure 49: Rack with mounting keyholes at the rear*

## Installation and Maintenance Guide

The following link is the installation and user guide for the 0U 12 C19 / 12 C13 PDU

46M4143
http://www.ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-5085549

# 1U Higher Voltage PDU

This section discusses the 44T0966 1U Higher Voltage PDU. This section is broken up into the following sections.



## Quick Specs

The following table is a quick overview of the 44T0966 Higher Voltage DC (HVDC) PDU. For additional information refer to the Specifications section.

| PDU 44T0966 + Attached Line Cord | |
|---|---|
| Type | 90A/240V-380VDC |
| Outlets types | Six RF-203P |
| Power Capacity | 21600W |
| Phase | -N/A |

## Front View and Outlets

The 44T0966 has detachable single phase line cord options and three phase option. The following figure displays a front view of the PDU.

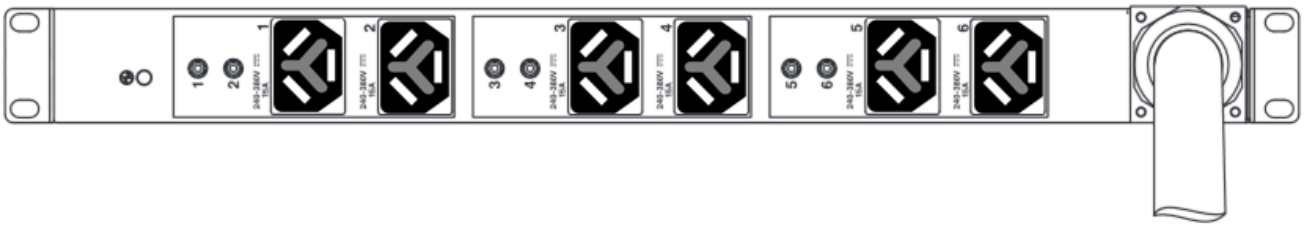


*Figure 50: Front and back panels of the Ultra Density Enterprise C19 PDU*

The following figures show the PDU outlets and amperage.

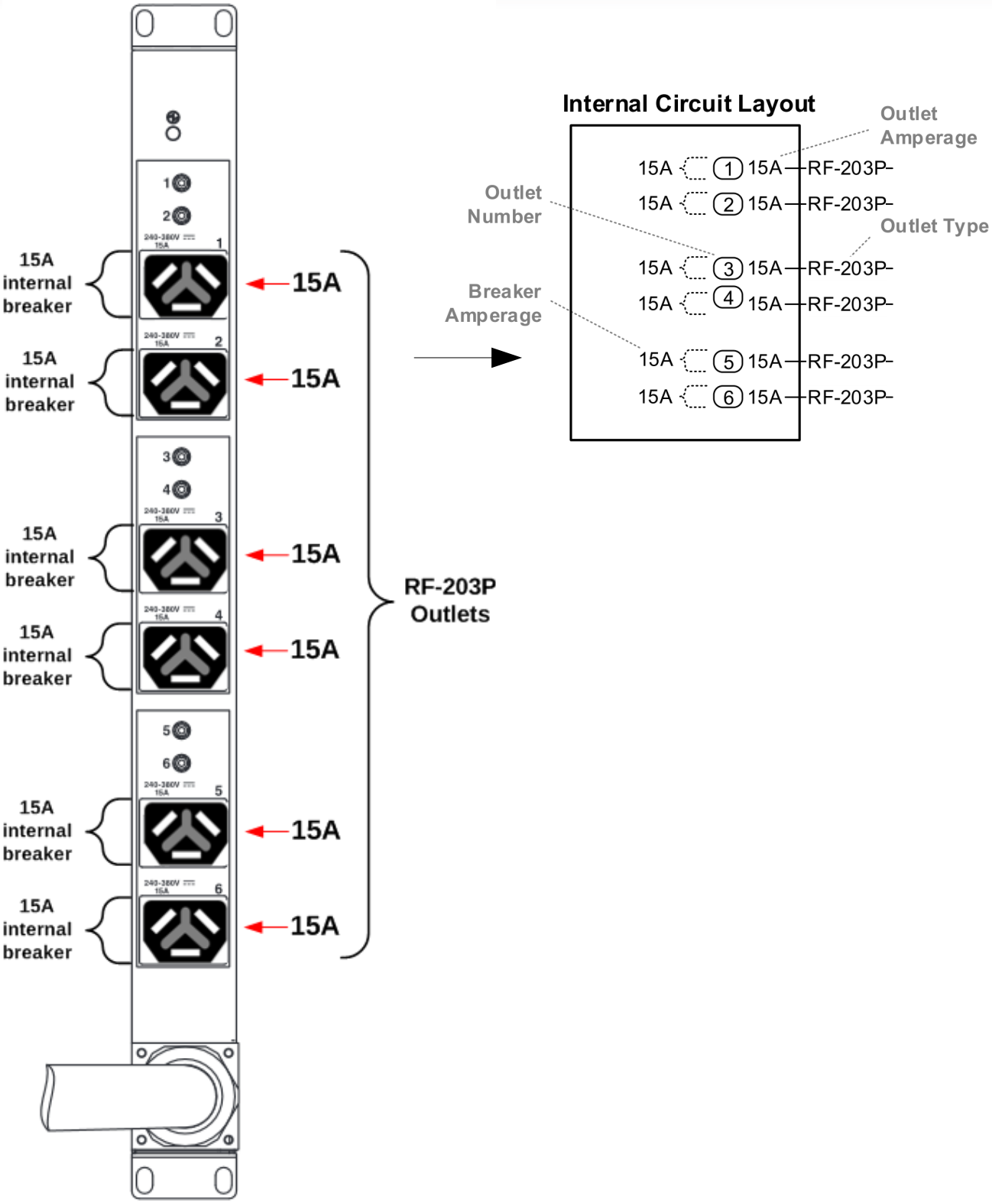



*Figure 51: Outlets and amperage*

## Input Line Cords

The following input line cords are for connecting the PDU to appropriate power circuits. This may include for example, the wall or floor outlets to provide power to the PDU. This PDU will need to be hardwired and has no plug. Refer to the Higher Voltage DC PDU Line cord and hard wiring section for additional information.

| PDU P/N | Line Cord P/N | Feature Code for Bundle (PDU & Line Cord) | Orderable Line cord description |
|---|---|---|---|
| 44T0966 | Attached | A580 | Attached 90A DC line cord 90A@240-380VDC (4.3m) line cord hard wired (i.e. no plug) |

**Note:** RF-203P outlet refers to Rong Feng RF-203P DC outlet.

**Note**: The high-voltage dc power cord that comes with the PDU must be connected to a properly wired and grounded high-voltage dc power source by a licensed electrician. Refer to the HVDC Line cord and plug section for additional details.

## Specifications

The following table are specifications for the 44T0966 1U Higher Voltage DC PDU.

| Specifications | Line cord PN |
|---|---|
| Input Line Cord Type* | 44T0966 |
| Type | 90A/240V-380VDC |
| Phase | - |
| Outlets types | Six Rong Feng RF-203P DC |
| Power Capacity** | 21600W |
| Power Limit per Outlet | 15A |
| Power Limit per PDU | 90A |
| Monitoring/Switching | No/No |
| U Space | 1U or side pocket |
| Grounding Screw | Yes on back panel |

* For input line cord part numbers refer to the Input Line Cords section.

## Accessory Kit

The following items make up the accessory kit that contains miscellaneous hardware for installing the Rack PDU in a rack cabinet. These are shipped with the PDU.

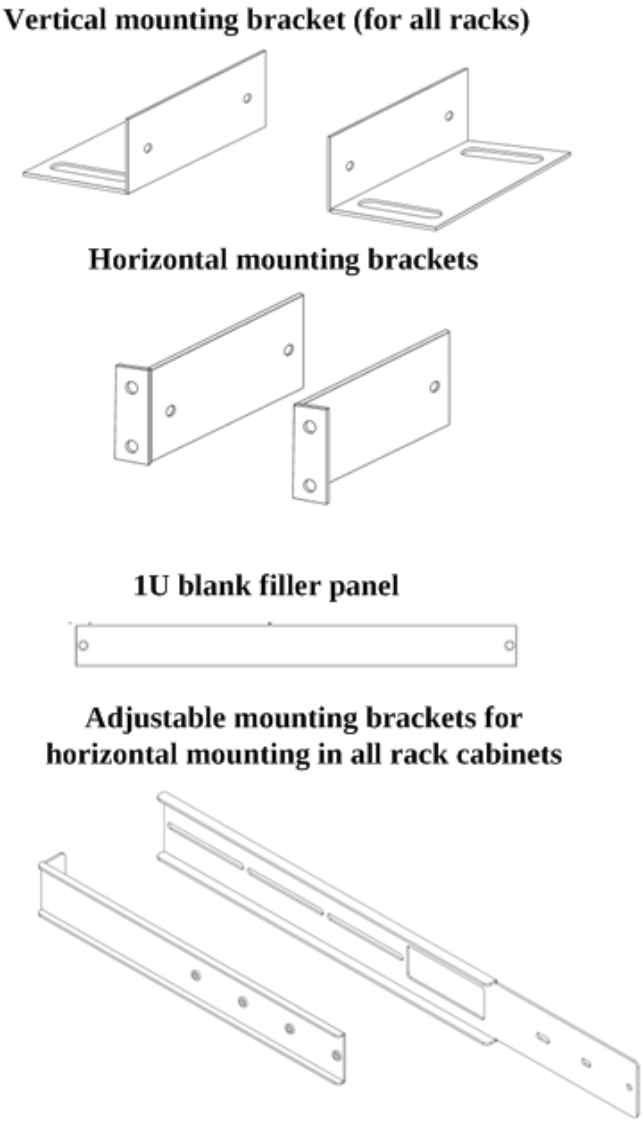



*Figure 52: Accessory kit*

Misc hardware kit also included for attaching PDU to brackets and installing in a rack. Cable straps also included.

These accessories are for supporting the racking of the 1U Higher Voltage DC PDU in either the side of a rack, the side pocket of a rack or U space of a rack. Some parts may be unused, depending on how and where the PDU is installed.

Refer to the following Racking section for information on racking the 44T0966 PDU.

## Racking

This section discusses mounting for the 44T0966 PDU in the side of a rack, the side pockets of an Enterprise rack (0U space) and EIA (U space) of a rack.

### Mounting in side pocket

Mounting the Higher Voltage DC PDU in the side pocket requires the use of the vertical mounting bracket, shipped as part of the PDU accessory kit, see the Accessory Kit section for additional information.

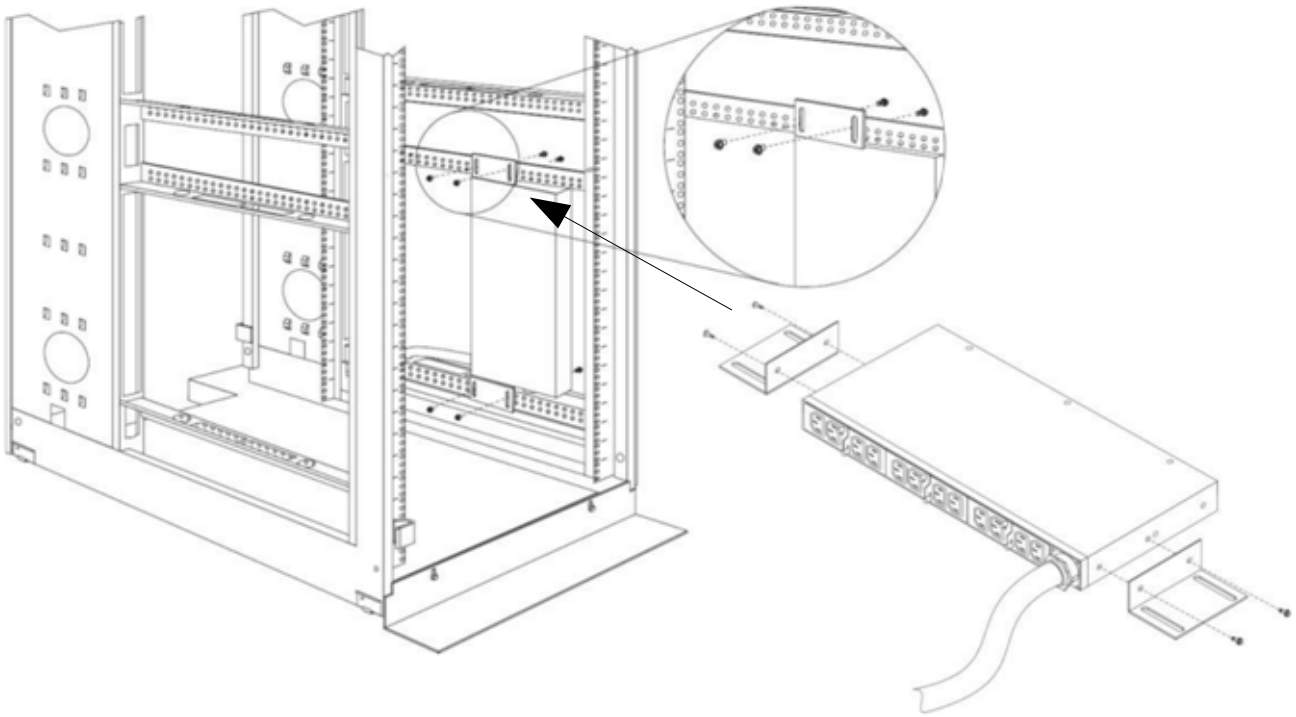


*Figure 53: 44T0966 PDU vertical mounting in rack*

## Mounting In Lenovo Enterprise Rack (9308 & 1410) & Lenovo Enterprise V2 Rack (9363) Rear Zero Pocket (side pocket)

Mounting the 44T0966 PDU in the side pocket of an enterprise rack requires the use of the horizontal mounting bracket, shipped as part of the PDU accessory kit, see the Accessory Kit section for additional information.

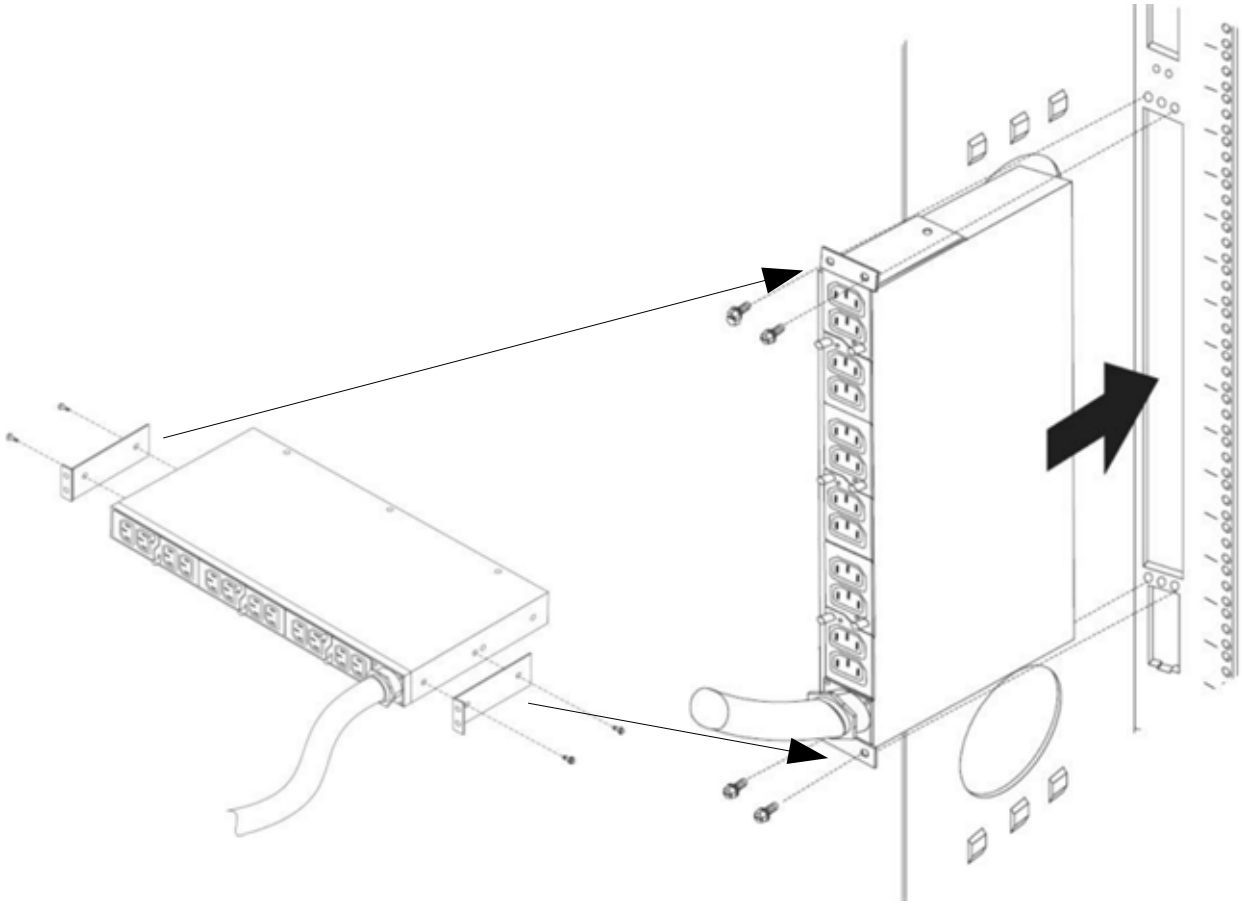


*Figure 54: 44T0966 PDU side pocket mounting in Enterprise rack*

## Mounting in EIA (U space) of rack

Mounting the 44T0966 PDU in the U space of a rack requires the use of the horizontal mounting bracket, shipped as part of the PDU accessory kit, see the Accessory Kit section for additional information.

1 PDU will fit in 1U of rack space see figure 55.

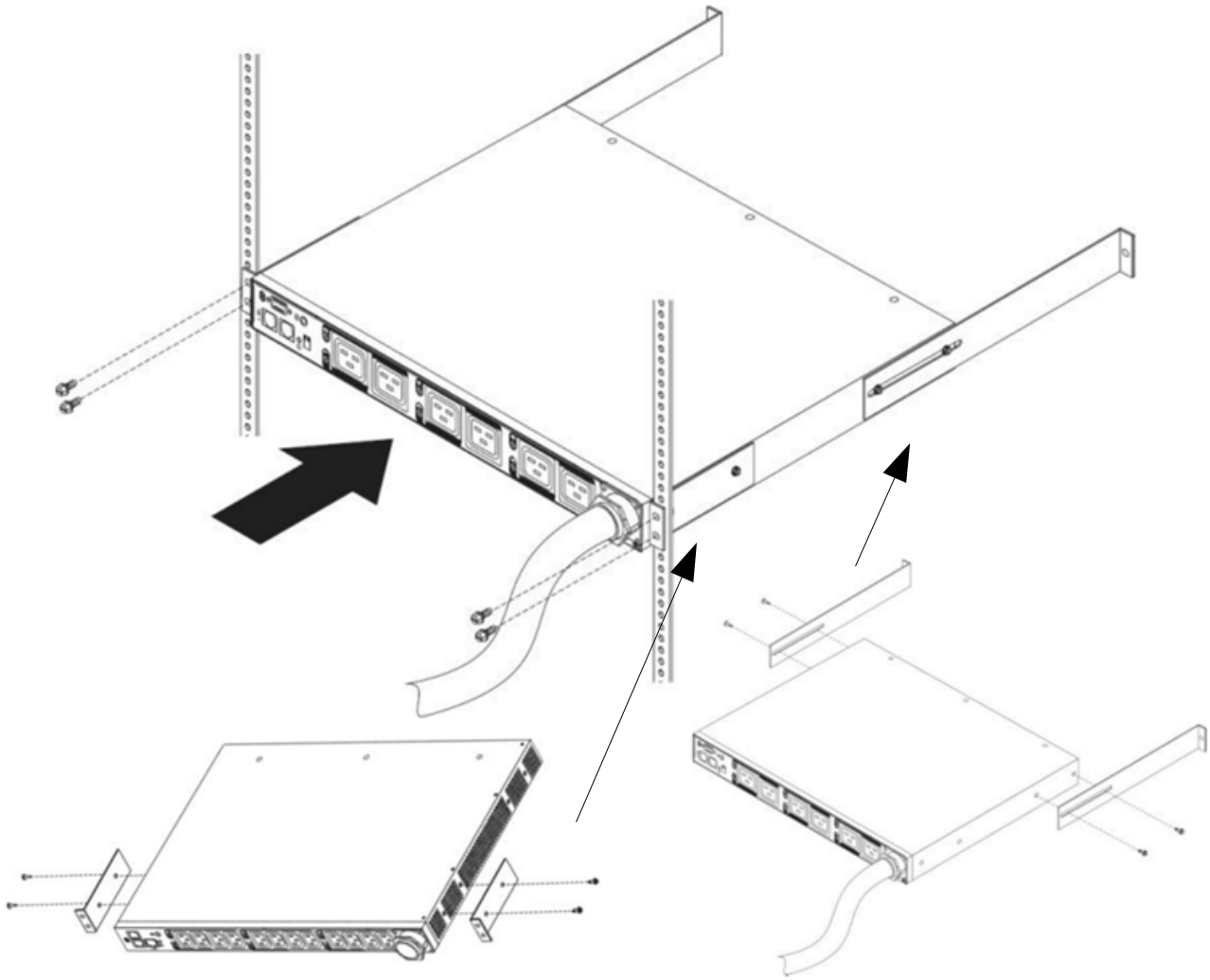


*Figure 55: 44T0966 PDU horizontal mounting in rack*

## Installation and Maintenance Guide

The following link is the installation and user guide for the 1U Higher Voltage DC PDU

44T0966
http://www.ibm.com/support/entry/portal/docdisplay?lndocid=migr-5095319

# Monitored PDUs

The following section provides information and part numbering for Monitored PDUs. Click on the description of the PDU to read more information.

| PDU | Option Number | Phase (ph)* | Voltage (V) | Line Cord (Derated) | Number / Type of Outlet^ | Page Link |
|---|---|---|---|---|---|---|
| DPI Enterprise PDU+ C13 | 39M2816 | 1ph | 220-240VAC | 32A IEC 309 P+N+G | 12 / C13 | 103 |
| | | | | 63A IEC 309 P+N+G | | |
| | | | 230-240VAC | 32A AUS/NZ 3112 | | |
| | | | 220VAC | 30A KSC 8305 | | |

* For circuit capacities and symbols, refer to the Circuit Capacities on page 15 for additional information.
^ For outlet types refer to the C13 and C19 plugs section on page 14 for additional information.

For information on monitored PDU+ functionality, refer to the PDU types explained section.

**Note:** These PDUs can be monitored remotely, but do not have the ability to control the outlets remotely. For Lenovo PDUs that have the ability to control outlets remotely see the Switched and Monitored PDUs section on page 115.

# DPI Enterprise PDU+ C13

This section discusses the 39M2816 DPI Enterprise PDU+ C13. This section is broken up into the following sections.



## Quick Specs

The following tables are quick specs for the 39M2816 PDU+. For additional information, refer to the Specifications section.

| PDU 39M2816 + Line Cord 40K9611 | |
|---|---|
| Type | 32A / 380V-415V |
| Outlets types | twelve IEC C13 |
| Power Capacity | 22080VA @ 230V |
| Power Limit per PDU | 96A |
| Phase | Three phase |

| PDU 39M2816 + Line Cord 40K9612 | |
|---|---|
| Type | 32A / 220V-240V |
| Outlets types | twelve IEC C13 |
| Power Capacity | 7360VA @ 230V |
| Power Limit per PDU | 32A |
| Phase | Single phase |

| PDU 39M2816 + Line Cord 40K9613 | |
|---|---|
| Type | 63A / 220V-240V |
| Outlets types | twelve IEC C13 |
| Power Capacity | 14490VA @ 230V |
| Power Limit per PDU | 63A |
| Phase | Single phase |

| PDU 39M2816 + Line Cord 40K9617 | |
|---|---|
| Type | 32A / 230V |
| Outlets types | six IEC C19 |
| Power Capacity | 7360VA @ 230V |
| Power Limit per PDU | 32A |
| Phase | Single phase |

| PDU 39M2816 + Line Cord 40K9618 | |
|---|---|
| Type | 30A / 220V |
| Outlets types | twelve IEC C13 |
| Power Capacity | 6600VA @ 220V |
| Power Limit per PDU | 30A |
| Phase | Single phase |

## Front and Back View and Outlets

The 39M2816 has 12 C13 outlets on the front of the PDU. The following figure displays a front and back view picture of the PDU.

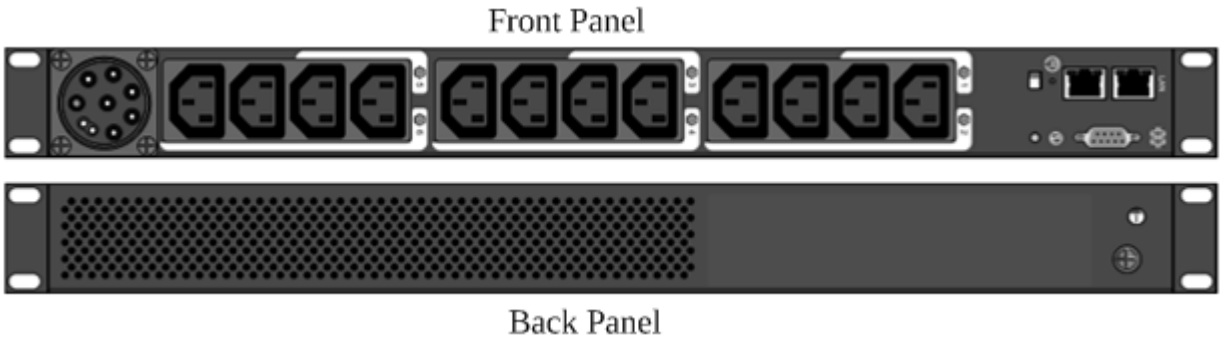



*Figure 56: Front and back panel of the Lenovo DPI Enterprise PDU+ C13*

Figure 58 on page 107 displays the PDU outlets and amperage.

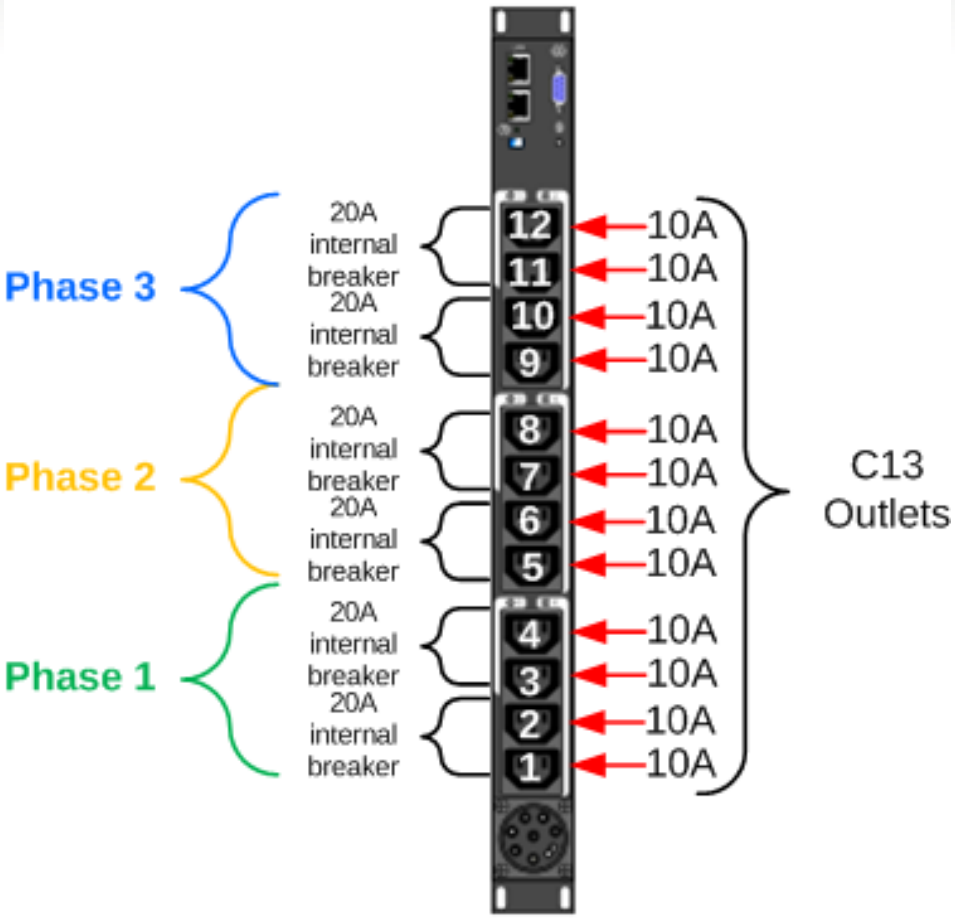
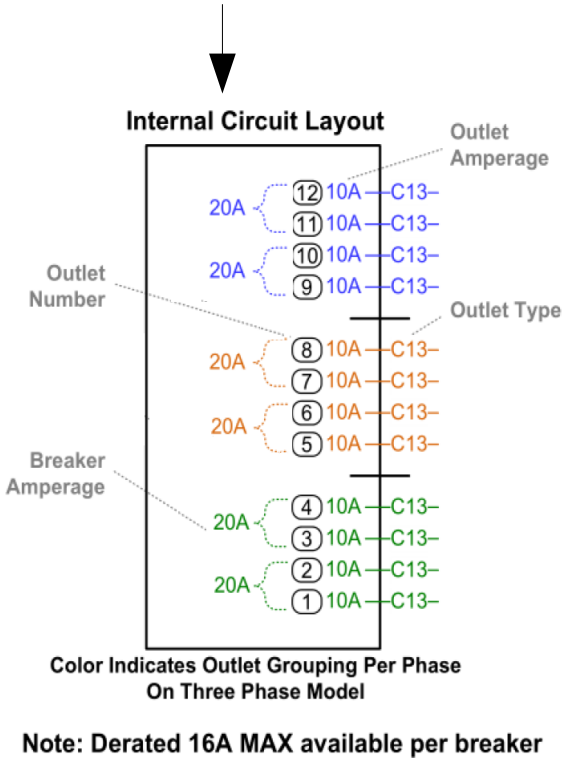



*Figure 57: Outlets and amperage*




**Note: Derated 16A MAX available per breaker**

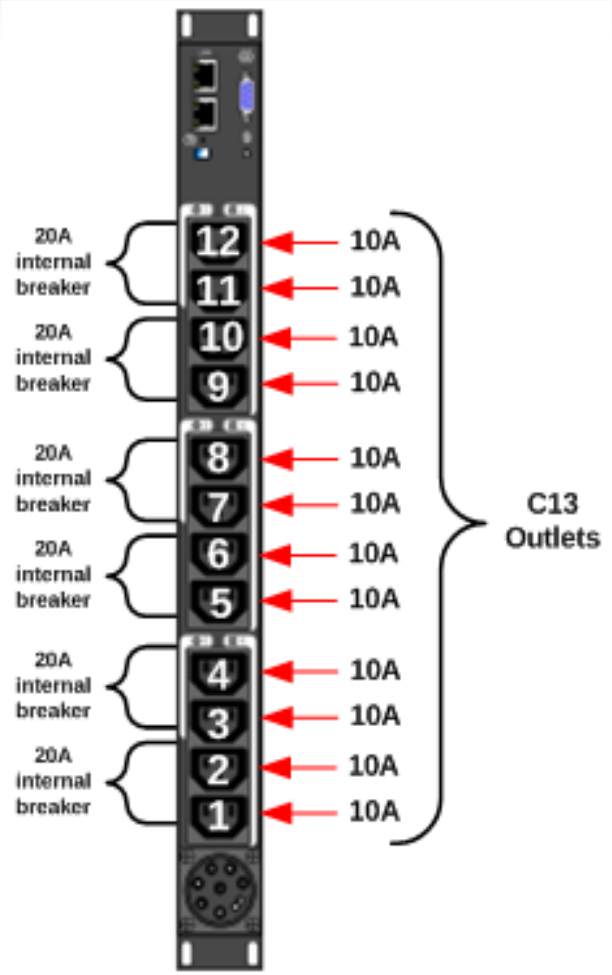
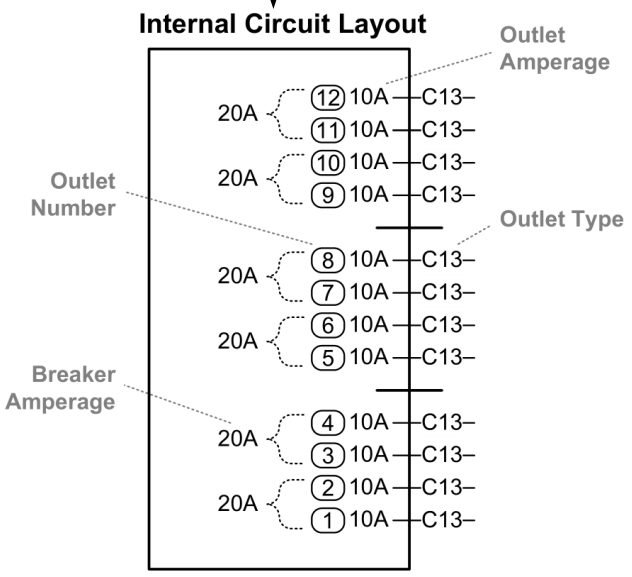



*Figure 58: Outlets and amperage*




**Note: Derated 16A MAX available per breaker**

## Input Line Cords

The following input line cords are for connecting the PDU to appropriate power circuits. This may include for example, the wall or floor outlets to provide power to the PDU. Refer to the 1U PDU Detached line cord plugs section for a picture of the line cord plugs.

| PDU P/N | Line Cord P/N | Feature Code for Bundle (PDU & Line Cord) | Orderable Line cord description |
|---|---|---|---|
| 39M2816 | 40K9611 | 6036 | Lenovo DPI IEC-309 3P+N+G (4.3m) line cord 32A (32A / Phase) 380-415VAC Three Phase Wye 96A Total Circuit Capacity |
| 39M2816 | 40K9612 | 6034 | Lenovo DPI IEC 309 P+N+G (4.3m) line cord 32A / 220-240VAC Single Phase |
| 39M2816 | 40K9613 | 6035 | Lenovo DPI IEC 309 P+N+G (4.3m) line cord 63A / 220V-240VAC Single Phase |
| 39M2816 | 40K9617 | 6037 | Lenovo DPI AS/NZS 3112 32A (4.3m) line cord 32A / 220VAC Single Phase |
| 39M2816 | 40K9618 | 6038 | Lenovo DPI KSC 8305 30A (4.3m) line cord 30A / 230VAC Single Phase |

Note: For additional information refer to the Specifications section.

## Specifications

The following table are specifications for the 39M2816 DPI C13 PDU+.

| Specifications | Line cord PN | Line cord PN | Line cord PN | Line cord PN | Line cord PN |
|---|---|---|---|---|---|
| Input Line Cord Type* | 40K9611 | 40K9612 | 40K9613 | 40K9617 | 40K9618 |
| Type | 32A/380-415V | 32A / 220-240V | 63A/220V-240V | 32A / 230V | 30A / 230V |
| Phase | Three | Single | Single | Single | Single |
| Outlets types | twelve IEC C13 | twelve IEC C13 | twelve IEC C13 | twelve IEC C13 | twelve IEC C13 |
| Power Capacity** | 22080VA @ 230V | 7360VA @ 230V | 14490VA @ 230V | 7360VA @ 230V | 6900VA @ 230V |
| Power Limit per Outlet | 10A | 10A | 10A | 10A | 10A |
| Grouping | Two C13 outlets per breaker / Four C13 outlets per phase | Two C13 outlets per breaker | Two C13 outlets per breaker | Two C13 outlets per breaker | Two C13 outlets per breaker |
| Power Limit per Group | 20A per breaker 32A per phase | 20A per breaker | 20A per breaker | 20A per breaker | 20A per breaker |
| Power Limit per PDU | 96A | 32A | 63A | 32A | 30A |
| Monitoring/ Switching | Yes/No (Monitoring only) | | | | |
| U Space | 1U or side pocket | | | | |
| Grounding Screw | Yes on back panel | | | | |

* For input line cord part numbers refer to the Input Line Cords section.

** For the purpose of this table, you can consider 1 VA = 1 Watt.

## Accessories kit

The following items make up the accessory kit that contains miscellaneous hardware for installing the Rack PDU in a rack cabinet. These are shipped with the PDU.

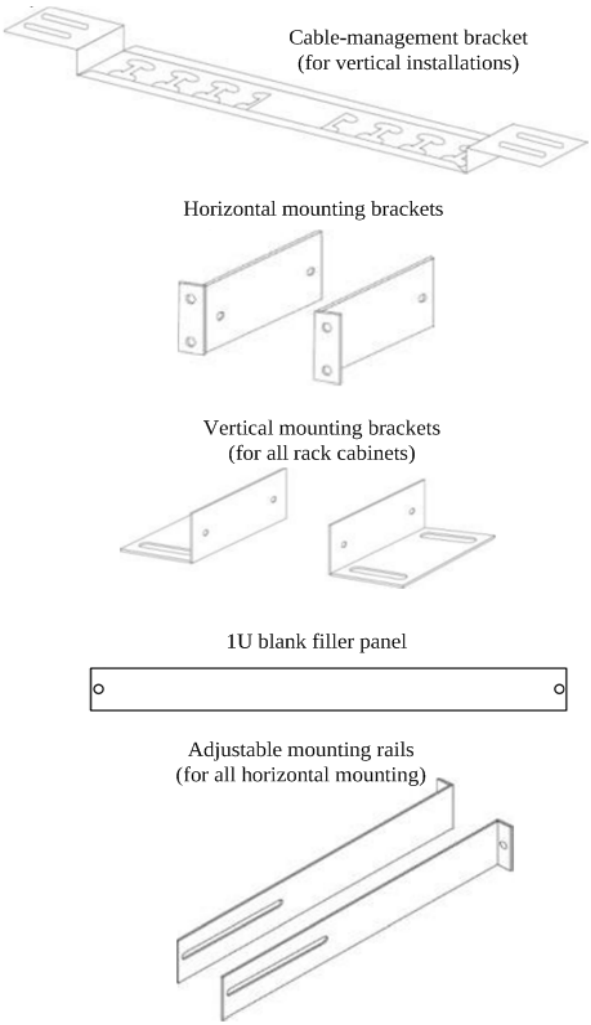



*Figure 59: Accessory kit for 39M2816*

Also included: 1 x EMP (see below), 1 x DB9 to RJ-45 cable, 1 x CAT5 6ft/1.8m cable, cable straps.

These accessories are for supporting the racking of the Lenovo DPI Enterprise PDU+ in an Lenovo rack. Some parts may be unused, depending on how and where the PDU is installed.

Refer to the Racking section for information on racking the Lenovo DPI Enterprise PDU+.

The 39M2816, ships standard with a PDU environmental sensor kit (EMP). Refer to the following Environmental Monitoring Probe for Monitored PDUs section for additional details.

## Racking

This section discusses mounting the 39M2816 DPI Enterprise C13 PDU+ in the side of a rack, the side pockets of an Enterprise rack (0U space) and EIA (U space) of a rack.

### Mounting in side pocket

Mounting the 39M2816 DPI Enterprise C13 PDU+ in the side pocket requires the use of the vertical mounting bracket, shipped as part of the PDU accessory kit, see the Accessories kit section for additional information.

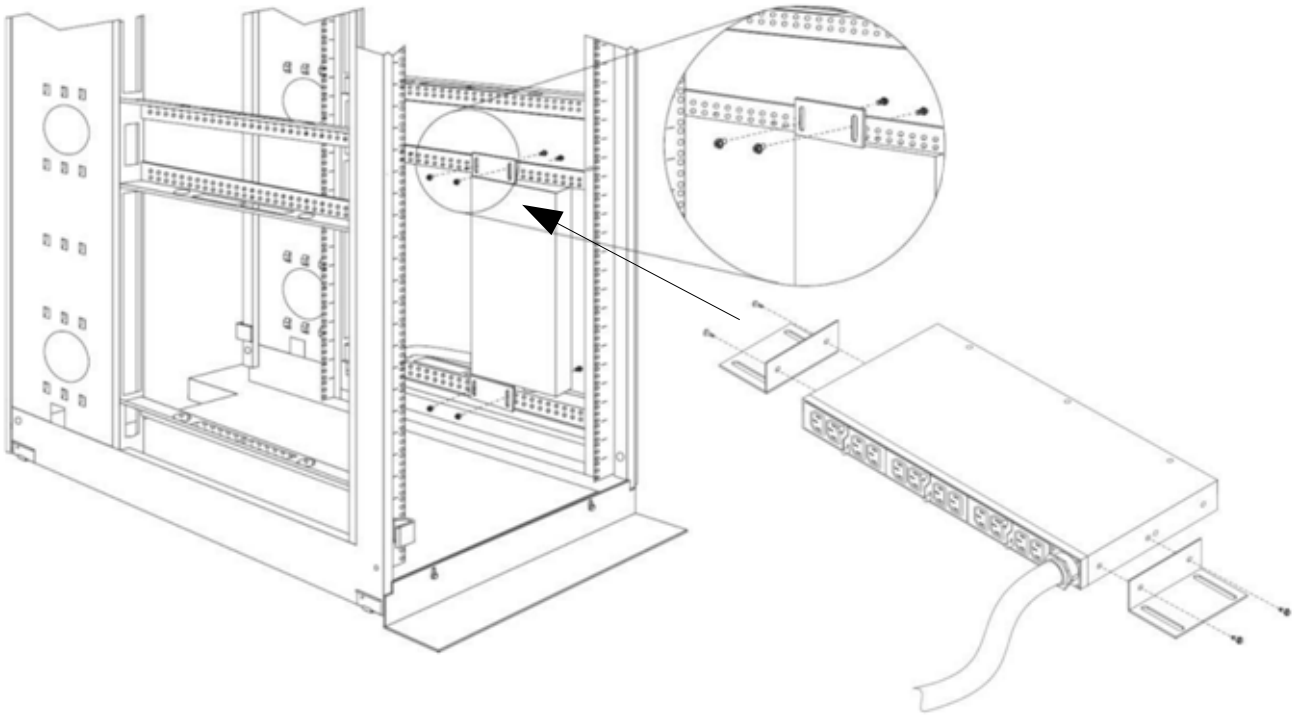


*Figure 60: Enterprise Ultra Density C19/C13 PDU vertical mounting in rack*

## Mounting In Lenovo Enterprise Rack (9308 & 1410) & Lenovo Enterprise V2 Rack (9363) Rear Zero Pocket (side pocket)

Mounting the 39M2816 DPI Enterprise C13 PDU+ in the side pocket of an enterprise rack requires the use of the horizontal mounting bracket, shipped as part of the PDU accessory kit, see the Accessories kit section for additional information.

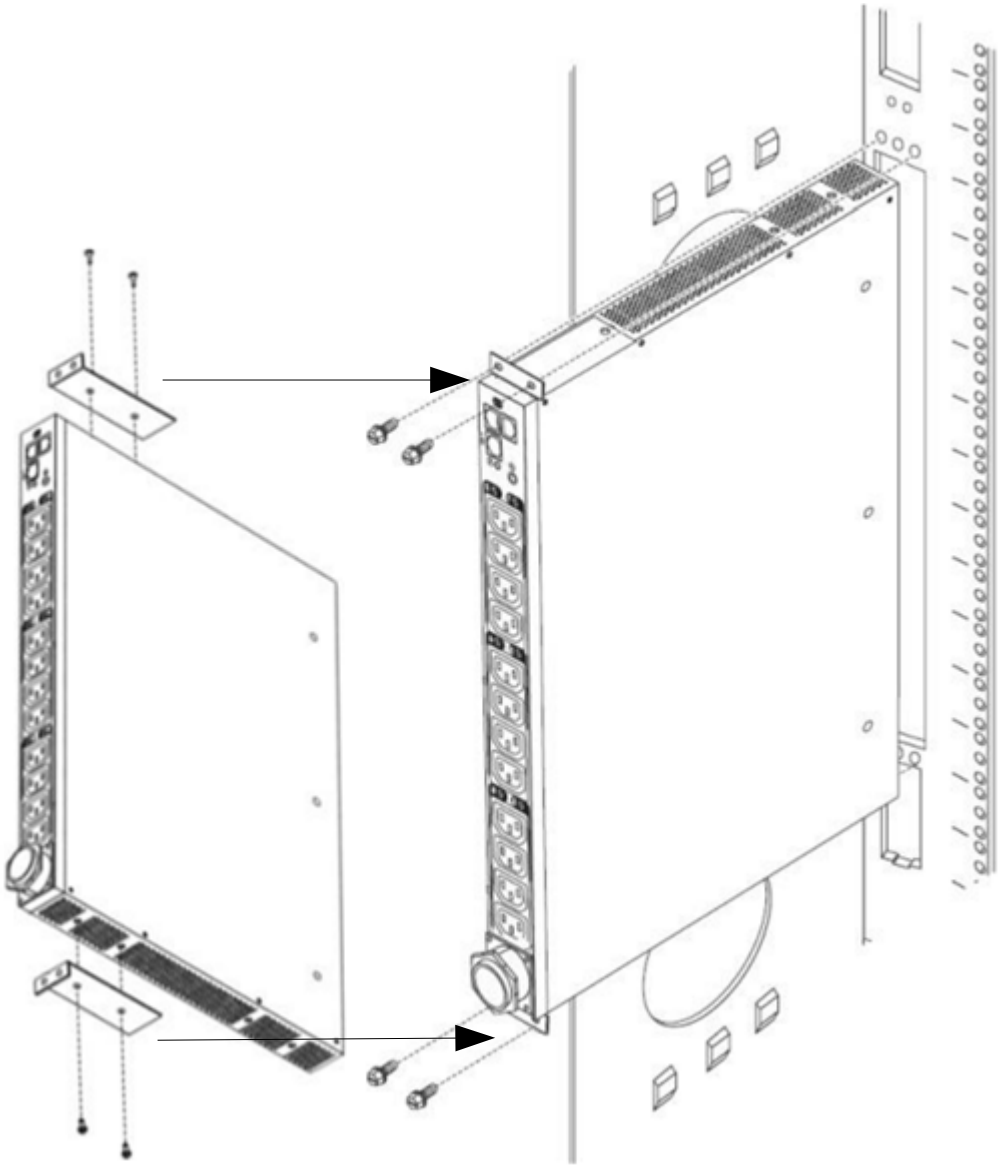


*Figure 61: Ultra Density Enterprise PDU side pocket mounting in Enterprise rack*

## Mounting in EIA (U space) of rack

Mounting the 39M2816 DPI Enterprise C13 PDU+ in the U space of a rack requires the use of the horizontal mounting bracket, shipped as part of the PDU accessory kit, see the Accessories kit section for additional information.

1 PDU will fit in 1U of rack space see figure 62.

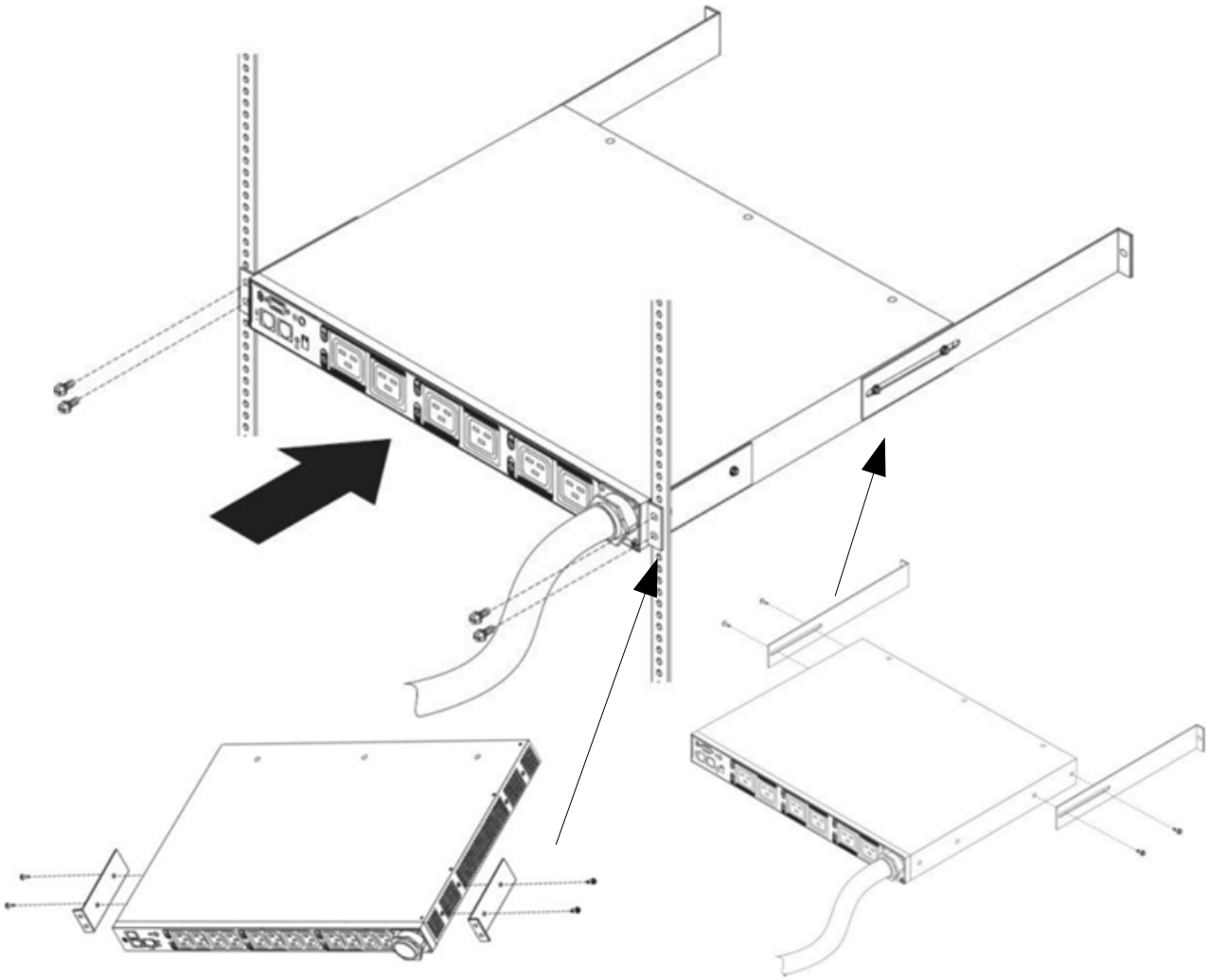


*Figure 62: Ultra Density Enterprise PDU horizontal mounting in rack*

## Installation and Maintenance Guide

The following link is the installation and user guide for the Lenovo DPI Enterprise PDU+ C13

39M2816

ftp://ftp.software.ibm.com/systems/support/system_x_pdf/43v6030.pdf

# Switched and Monitored PDUs

The following section provides information and part numbering for Switched and Monitored PDUs. Click on the description of each PDU to read more information.

| PDU | Option Number | Phase (ph) | Voltage (V) | Line Cord (Derated) | Number / Type of Outlet^ | Page Link |
|---|---|---|---|---|---|---|
| Lenovo Switched and Monitored PDUs | | | | | | |
| 1U 12 C13 Switched and Monitored PDU | 46M4004 | 1ph | 220-240VAC | 32A IEC 309 P+N+G | 12 / C13 | 116 |
| | | | | 63A IEC 309 P+N+G | | |
| | | | 230-240VAC | 32A AUS/NZ 3112 | | |
| | | | 220VAC | 30A KSC 8305 | | |
| | | 3ph Y | 380-415VAC | 32A (32A/ph) IEC 309 3P+N+G | | |
| 1U 9 C19 / 3 C13 Switched and Monitored PDU | 46M4002 | 1ph | 220-240VAC | 32A IEC 309 P+N+G | 9 / C19 3 / C13 | 128 |
| | | | | 63A IEC 309 P+N+G | | |
| | | | 230-240VAC | 32A AUS/NZ 3112 | | |
| | | | 220VAC | 30A KSC 8305 | | |
| | | 3ph Y | 380-415VAC | 32A (32A/ph) IEC 309 3P+N+G | | |
| 0U 24 C13 Switched and Monitored PDU | 46M4119 | 1ph | 220-240VAC | 32A IEC 309 P+N+G | 24 / C13 | 139 |
| 0U 12 C13 / 12 C19 Switched and Monitored PDU | 46M4137 | 3ph Y | 380-415VAC | 32A (32A/ph) IEC 309 3P+N+G | 12 / C19 12 / C13 | 147 |

Note: ph indicates phase (1 or 3), Δ indicates three phase delta, and Y Indicates three phase WYE* For circuit capacities and symbols, refer to the Circuit Capacities on page 15 for additional information.
^For outlet types refer to the C13 and C19 plugs section for additional information.

For information on switched and monitored PDU functionality, refer to the PDU types explained section.

# 1U 12 C13 Switched and Monitored PDU

This section discusses the 46M4004 Lenovo 1U 12 C13 Switched and Monitored PDU. This section is broken up into the following sections.



## Quick Specs

The following tables are quick specs for the 46M4004 PDU. For additional information, refer to the Specifications section.

| PDU 46M4004 + Line Cord 40K9611 | |
|---|---|
| Type | 32A/380-415V |
| Outlets types | twelve IEC C13 |
| Power Capacity | 22080VA @ 230V |
| Power Limit per PDU | 96A |
| Phase | Three phase |

| PDU 46M4004 + Line Cord 40K9612 | |
|---|---|
| Type | 32A/220-240V |
| Outlets types | twelve IEC C13 |
| Power Capacity | 7360VA @ 230V |
| Power Limit per PDU | 32A |
| Phase | Single phase |

| PDU 46M4004 + Line Cord 40K9613 | |
|---|---|
| Type | 63A/220-240V |
| Outlets types | twelve IEC C13 |
| Power Capacity | 14490VA @ 230V |
| Power Limit per PDU | 63A |
| Phase | Single phase |

| PDU 46M4004 + Line Cord 40K9617 | |
|---|---|
| Type | 32A/230V |
| Outlets types | twelve IEC C13 |
| Power Capacity | 7360VA @ 230V |
| Power Limit per PDU | 32A |
| Phase | Single phase |

| PDU 46M4004 + Line Cord 40K9618 | |
|---|---|
| Type | 30A/220V |
| Outlets types | twelve IEC C13 |
| Power Capacity | 6600VA @ 220V |
| Power Limit per PDU | 30A |
| Phase | Single phase |

## Front and Back View and Outlets

The 46M4004 has detachable single phase and three phase line cord options. The following figure displays a front and back view of the PDU.

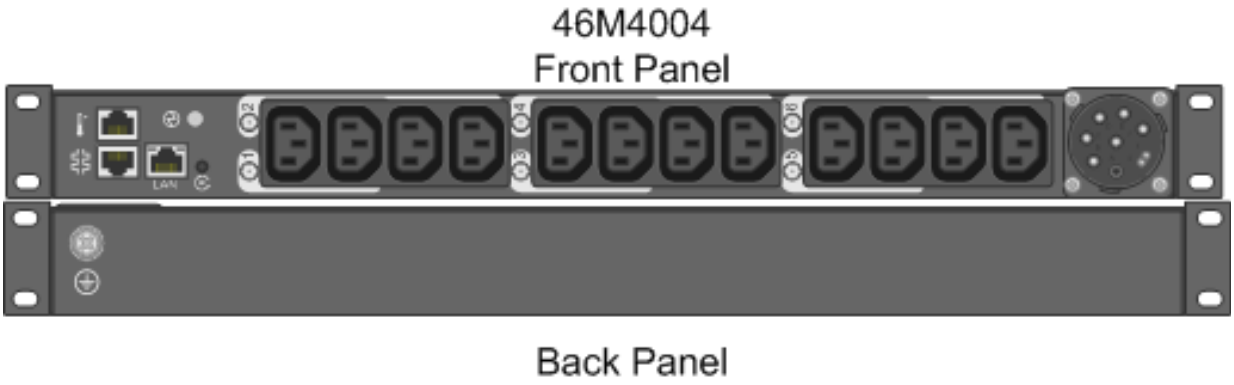
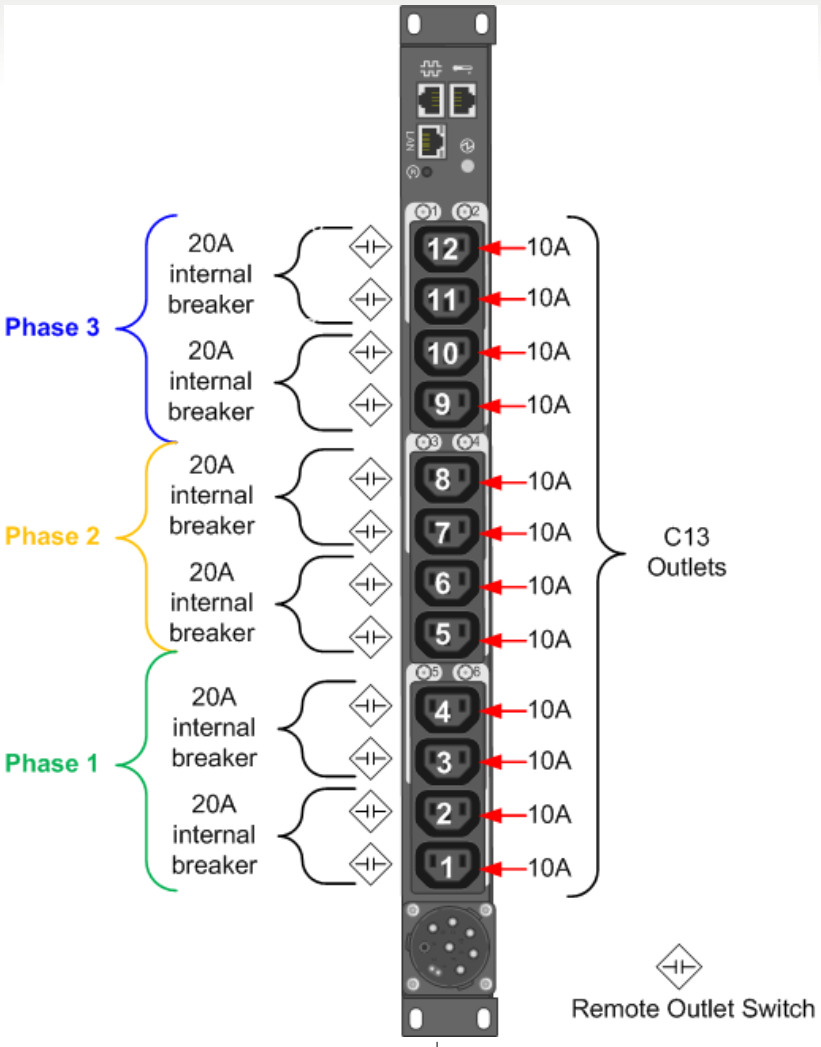
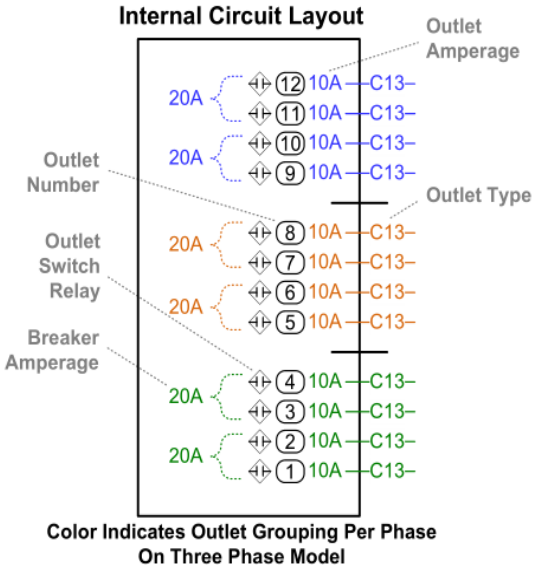



*Figure 63: Front and back view*

Figure 64 on page 120 displays the 1U 12 C13 Switched and Monitored PDU outlets and amperage.




**Note: Derated 16A MAX available per breaker**

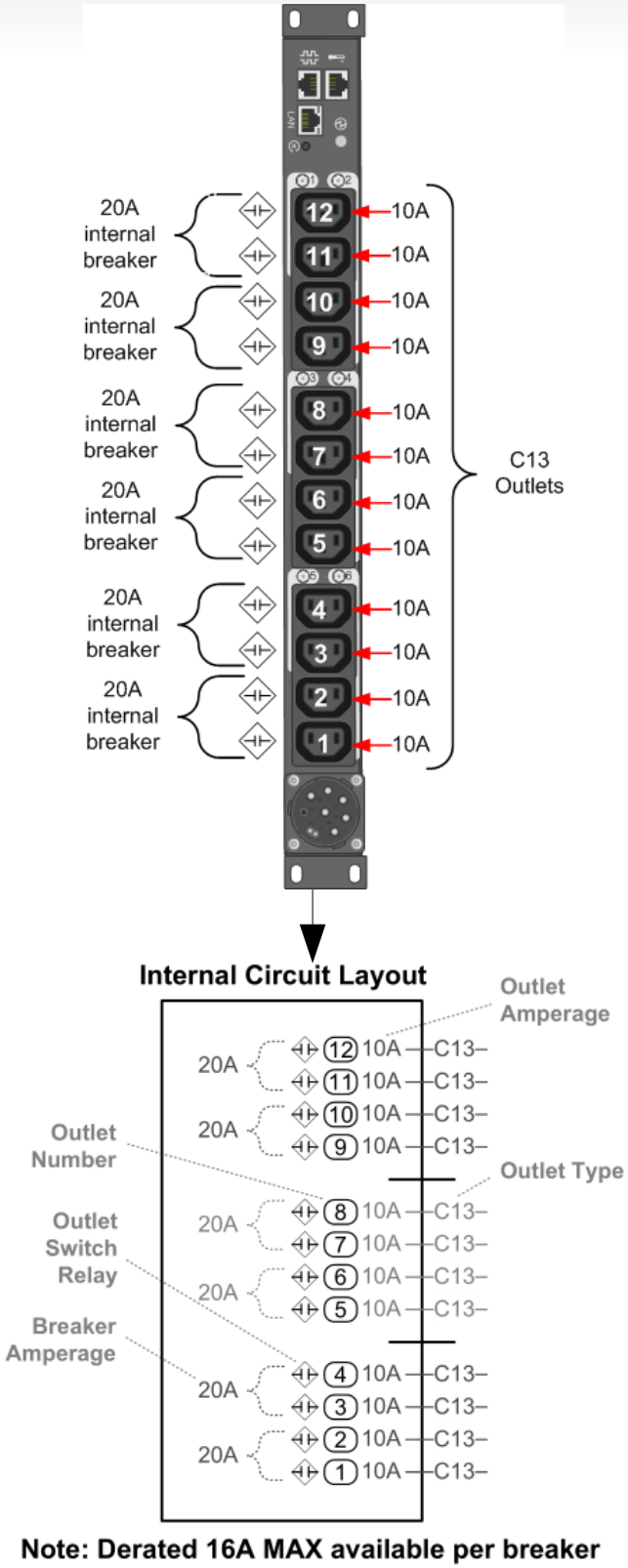



*Figure 64: Outlets and amperage*

## Input Line Cords

The following input line cords are for connecting the PDU to appropriate power circuits. This may include for example, the wall or floor outlets to provide power to the PDU. Refer to the 1U PDU Detached line cord plugs section for a picture of the line cord plugs.

| PDU P/N (& Feature Code) | Line Cord P/N (& Feature Code) | Feature Code for Bundle (PDU & Line Cord) | Orderable Line cord description |
|---|---|---|---|
| 46M4004 | 40K9611 | 5912 | Lenovo DPI IEC-309 3P+N+G (4.3m) line cord 32A (32A / Phase) 380-415VAC Three Phase Wye 96A Total Circuit Capacity |
| 46M4004 | 40K9612 | 5910 | Lenovo DPI IEC 309 P+N+G (4.3m) line cord 32A / 220-240VAC Single Phase |
| 46M4004 | 40K9613 | 5911 | Lenovo DPI IEC 309 P+N+G (4.3m) line cord 63A / 220V-240VAC Single Phase |
| 46M4004 | 40K9617 | 5913 | Lenovo DPI AS/NZS 3112 32A (4.3m) line cord 32A / 220VAC Single Phase |
| 46M4004 | 40K9618 | 5914 | Lenovo DPI KSC 8305 30A (4.3m) line cord 30A / 230VAC Single Phase |

## Specifications

The following table are specifications for the 46M4004 C13 Switched and Monitored PDU.

| Specifications | Line cord PN | Line cord PN | Line cord PN | Line cord PN | Line cord PN |
|---|---|---|---|---|---|
| Input Line Cord Type* | 40K9611 | 40K9612 | 40K9613 | 40K9617 | 40K9618 |
| Type | 32A/380-415V | 32A / 220-240V | 63A/220V-240V | 32A / 230V | 30A / 230V |
| Outlets types | twelve IEC C13 | twelve IEC C13 | twelve IEC C13 | twelve IEC C13 | twelve IEC C13 |
| Power Capacity** | 22080VA @ 230V | 7360VA @ 230V | 14490VA @ 230V | 7360VA @ 230V | 6900VA @ 230V |
| Power Limit per Outlet | 10A | 10A | 10A | 10A | 10A |
| Grouping | Two C13 outlets per breaker Four C13 outlets per phase | Two C13 outlets per breaker | Two C13 outlets per breaker | Two C13 outlets per breaker | Two C13 outlets per breaker |
| Power Limit per Group | 20A per breaker 32A per phase | 20A per breaker | 20A per breaker | 20A per breaker | 20A per breaker |
| Power Limit per PDU | 96A | 32A | 63A | 32A | 30A |
| Monitoring/ Switching | No/No | | | | |
| U Space | 1U or side pocket | | | | |
| Grounding Screw | Yes on back panel | | | | |

* For input line cord part numbers refer to the Input Line Cords section.

** For the purpose of this table, you can consider 1 VA = 1 Watt.

## Accessory Kit

These accessories are for supporting the racking of the Lenovo Switched and Monitored C13 PDU in an Lenovo rack. Some parts may be unused, depending on how and where the PDU is installed.

Refer to the Racking section for information on racking the Lenovo C13 PDU.

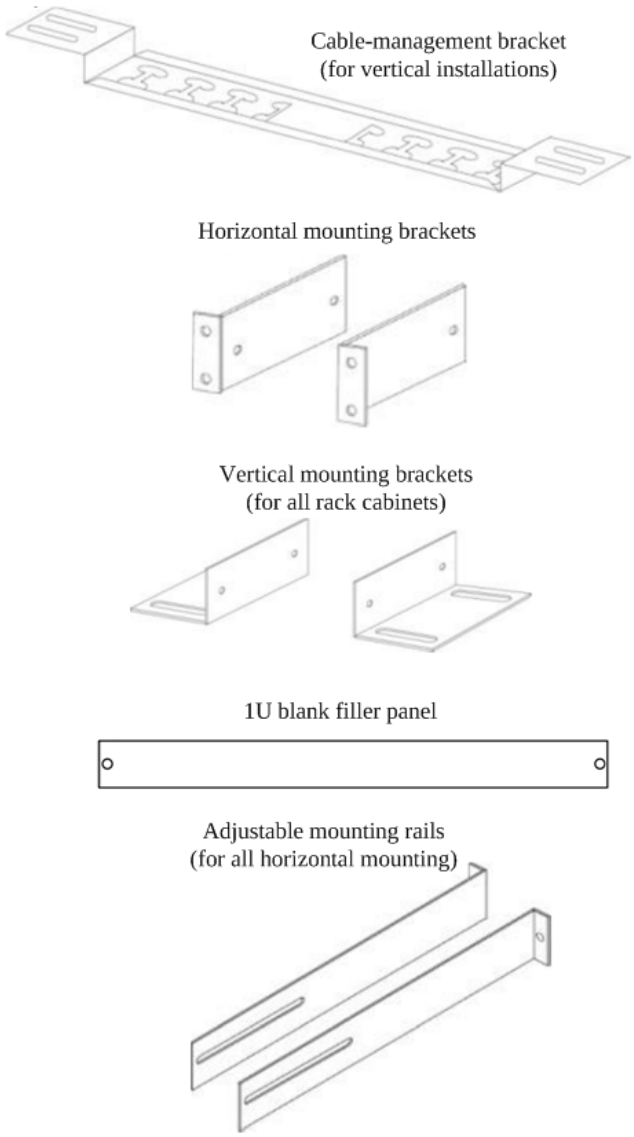



*Figure 65: Accessory kit for 46M4004*

Also included: 1 x EMP (see below), 1 x DB9 to RJ-45 cable, 1 x CAT5 6ft/1.8m cable, cable straps.

The 46M4004 PDU ships standard with a PDU environmental sensor kit, as listed above. Refer to the following Environmental Monitoring Probe for Monitored PDUs section for additional details on the device.

## Racking

This section discusses mounting the 46M4004 1U C13 PDU in the side of a rack, the side pockets of an Enterprise rack (0U space) and EIA (U space) of a rack.

### Mounting in side of a rack

Mounting the 46M4004 in the side pocket requires the use of the vertical mounting brackets, shipped as part of the PDU accessory kit, see the Accessory Kit section for additional information.

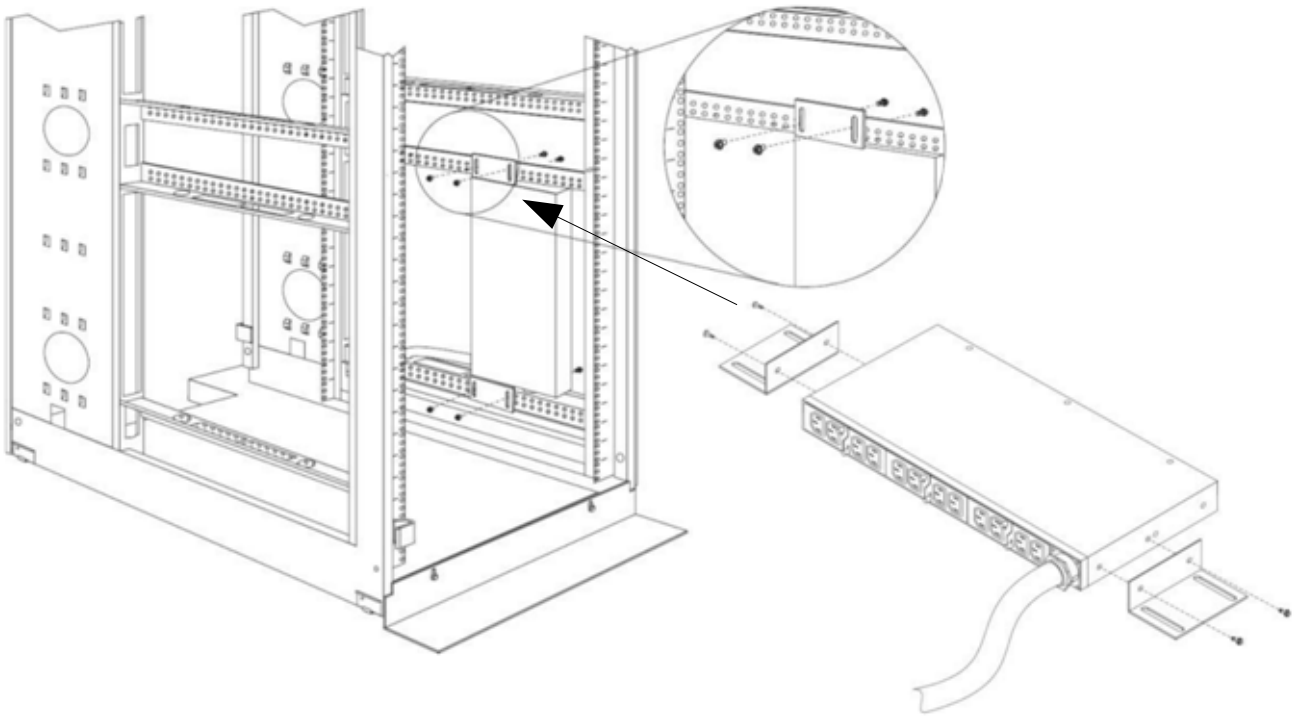


*Figure 66: 1U Switched C13 PDU vertical mounting in rack*

## Mounting In Lenovo Enterprise Rack (9308 & 1410) & Lenovo Enterprise V2 Rack (9363) Rear Zero Pocket (side pocket)

Mounting the 46M4004 in the side pocket of an enterprise rack requires the use of the horizontal mounting bracket, shipped as part of the PDU accessory kit, see the Accessory Kit *s*ection for additional information.

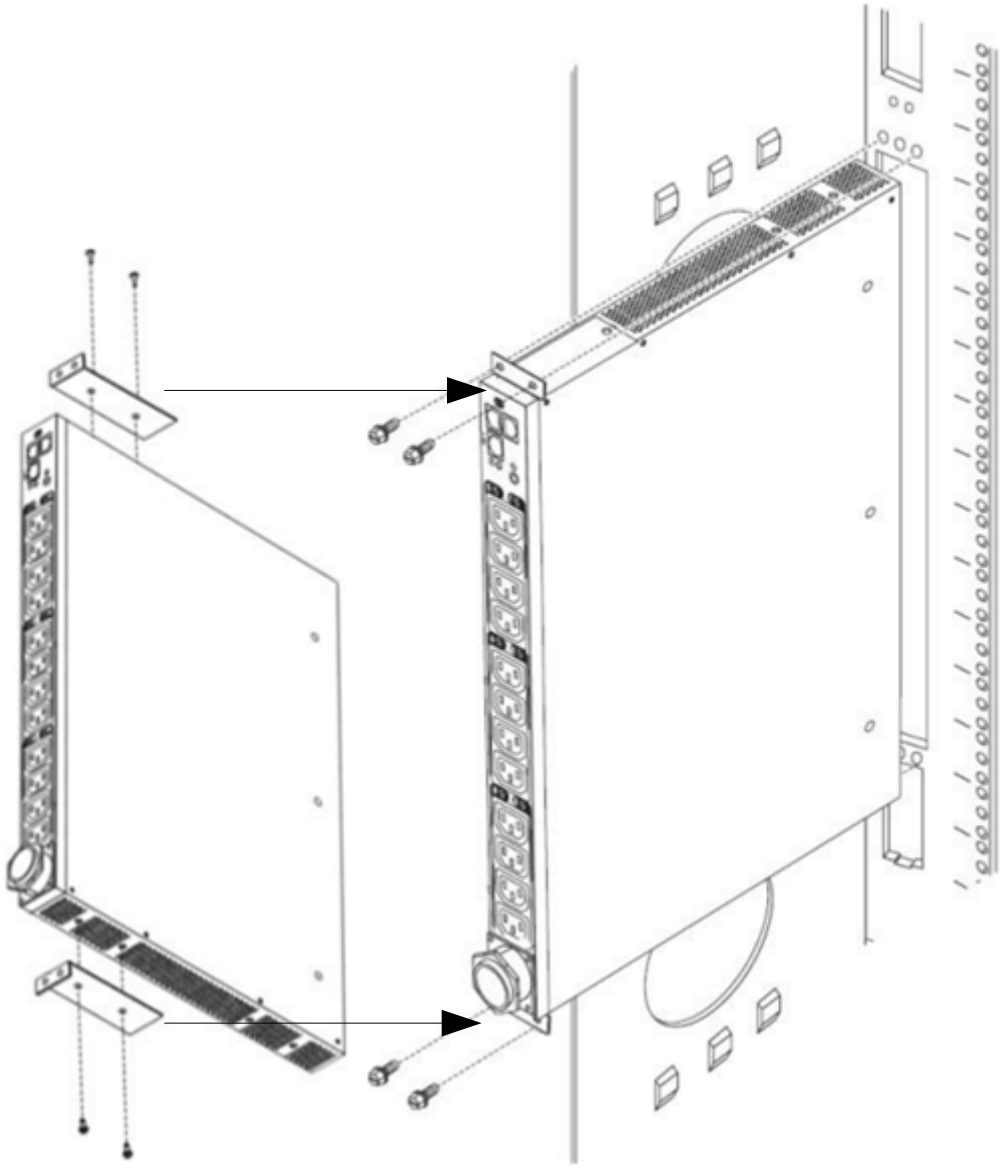


*Figure 67: 1U Switched C13 PDU vertical mounting in rack*

## Mounting in EIA (U space) of rack

Mounting the 46M4004 in the U space of a rack requires the use of the 2 horizontal mounting rails and small brackets, shipped as part of the PDU accessory kit, see the Accessory Kit section for additional information.

1 PDU will fit in 1U of rack space see figure 68.

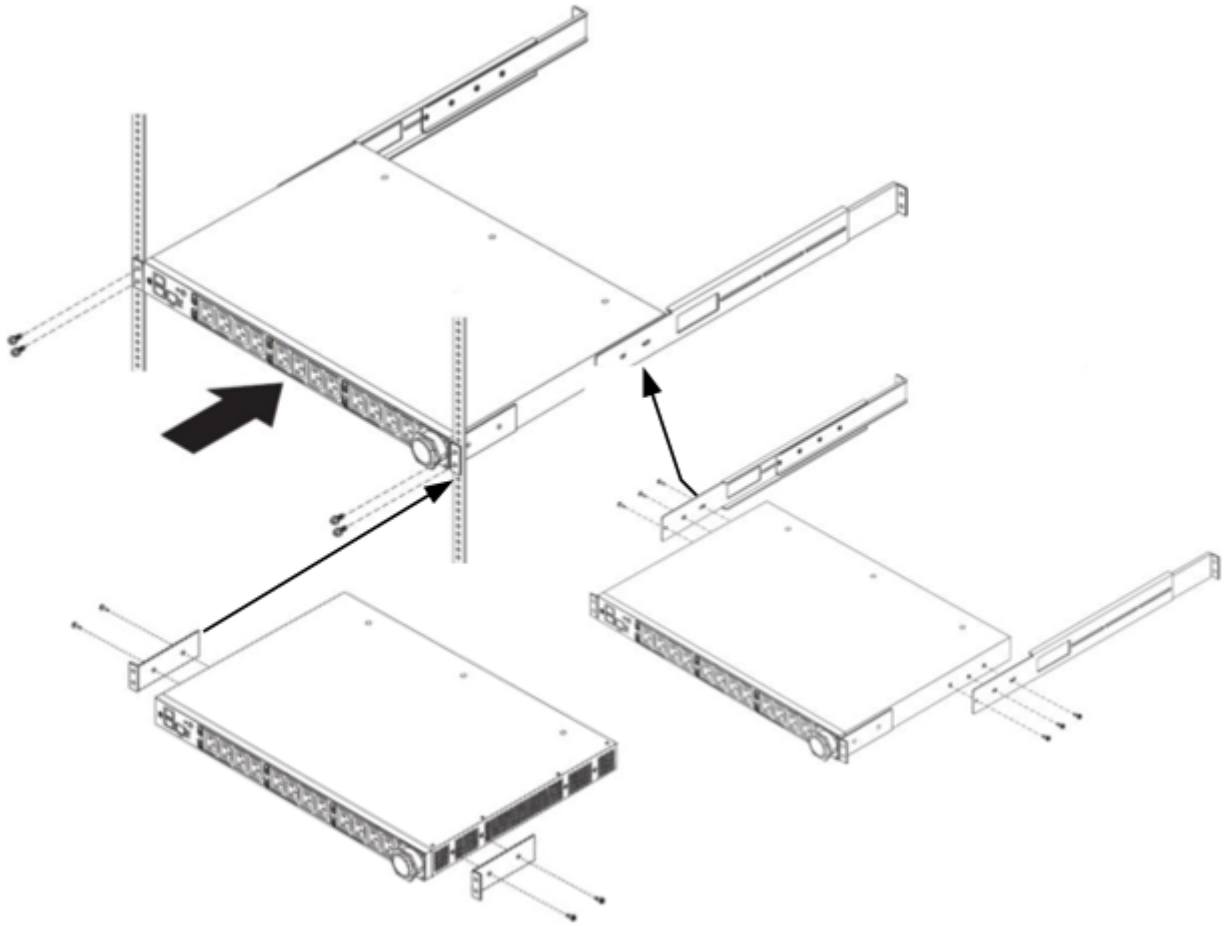


*Figure 68: Mounting in U space of rack*

## Installation and Maintenance Guide

The following are the Installation and Maintenance manuals for the Lenovo 1U 12 C13 Switched and Monitored PDU.

46M4004
http://www.ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-5084069

# 1U 9 C19 / 3 C13 Switched and Monitored PDU

This section discusses the 46M4002 1U 9 C19 / 3 C13 Switched and Monitored PDU. This section is broken up into the following sections.



## Quick Specs

The following tables are quick specs for the 46M4002 PDUs. For additional information, refer to the Specifications section.

| PDU 46M4002 + Line Cord 40K9611 | |
|---|---|
| Type | 32A/380-415V |
| Outlets types | nine IEC C19, three IEC C13 |
| Power Capacity | 22080VA @ 230V |
| Power Limit per PDU | 96A |
| Phase | Three phase |

| PDU 46M4002 + Line Cord 40K9612 | |
|---|---|
| Type | 32A/220-240V |
| Outlets types | nine IEC C19, three IEC C13 |
| Power Capacity | 7360VA @ 230V |
| Power Limit per PDU | 32A |
| Phase | Single phase |

| PDU 46M4002 + Line Cord 40K9613 | |
|---|---|
| Type | 63A/220-240V |
| Outlets types | nine IEC C19, three IEC C13 |
| Power Capacity | 14490VA @ 230V |
| Power Limit per PDU | 63A |
| Phase | Single phase |

| PDU 46M4002 + Line Cord 40K9617 | |
|---|---|
| Type | 32A/230V |
| Outlets types | nine IEC C19, three IEC C13 |
| Power Capacity | 7360VA @ 230V |
| Power Limit per PDU | 32A |
| Phase | Single phase |

| PDU 46M4002 + Line Cord 40K9618 | |
|---|---|
| Type | 30A/220V |
| Outlets types | nine IEC C19, three IEC C13 |
| Power Capacity | 6600VA @ 220V |
| Power Limit per PDU | 30A |
| Phase | Single phase |

### Front and Back View and Outlets

The 46M4002 has detachable single phase and three phase line cord options. The following figure displays a front and back view of the PDU.

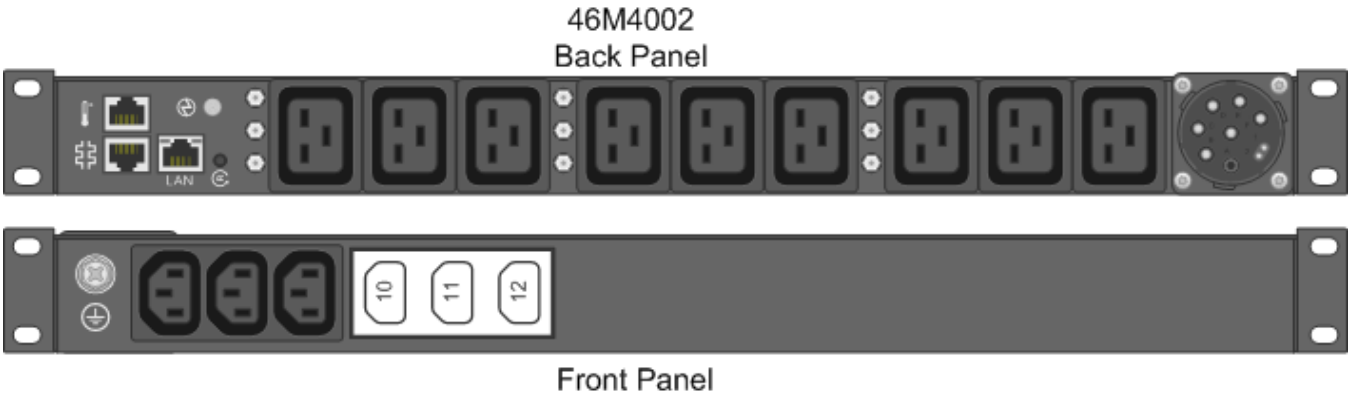



*Figure 69: Front and back view*

The following figures display the 1U C19/C13 Switched and Monitored PDU outlets and amperage.

Three phase operation

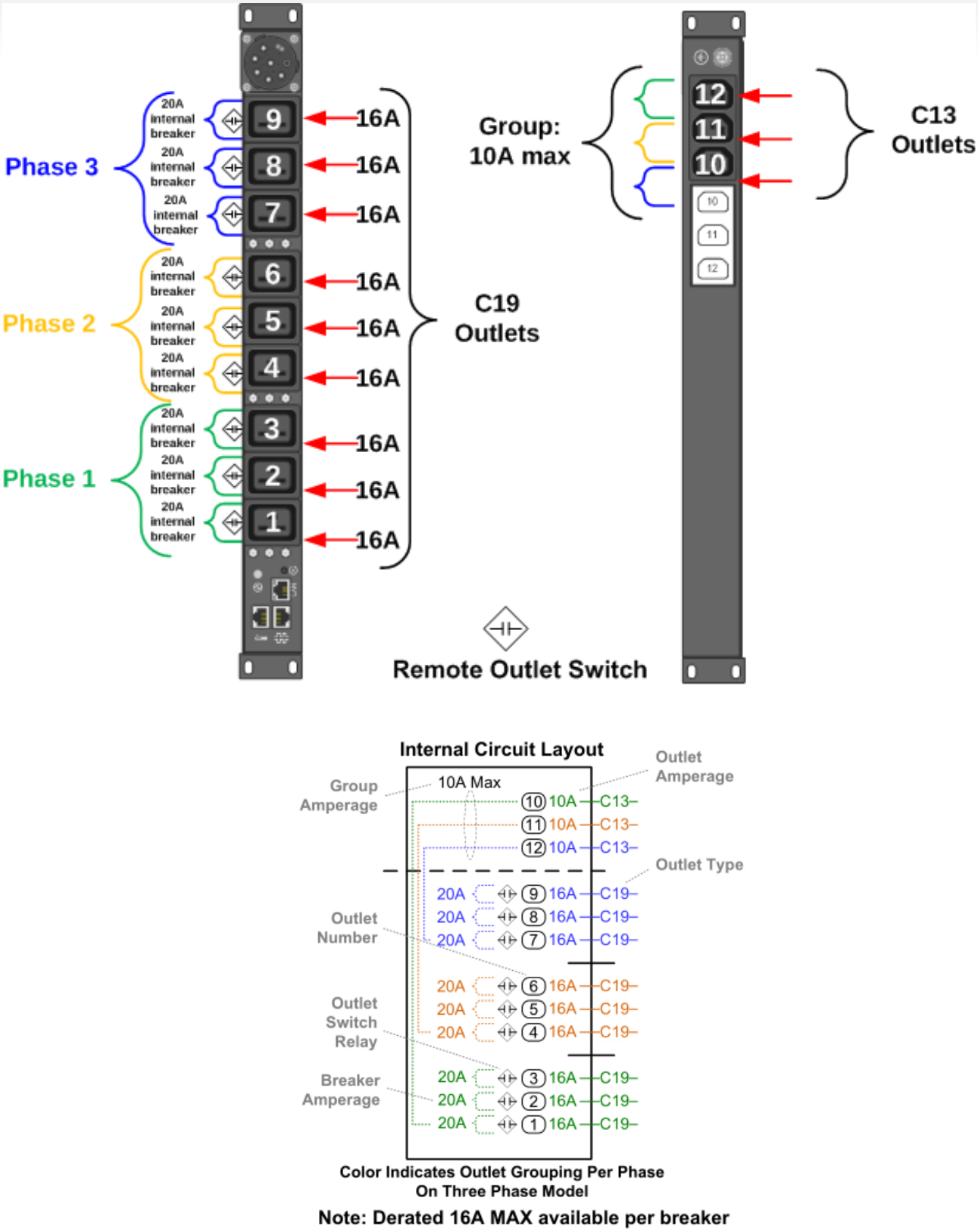
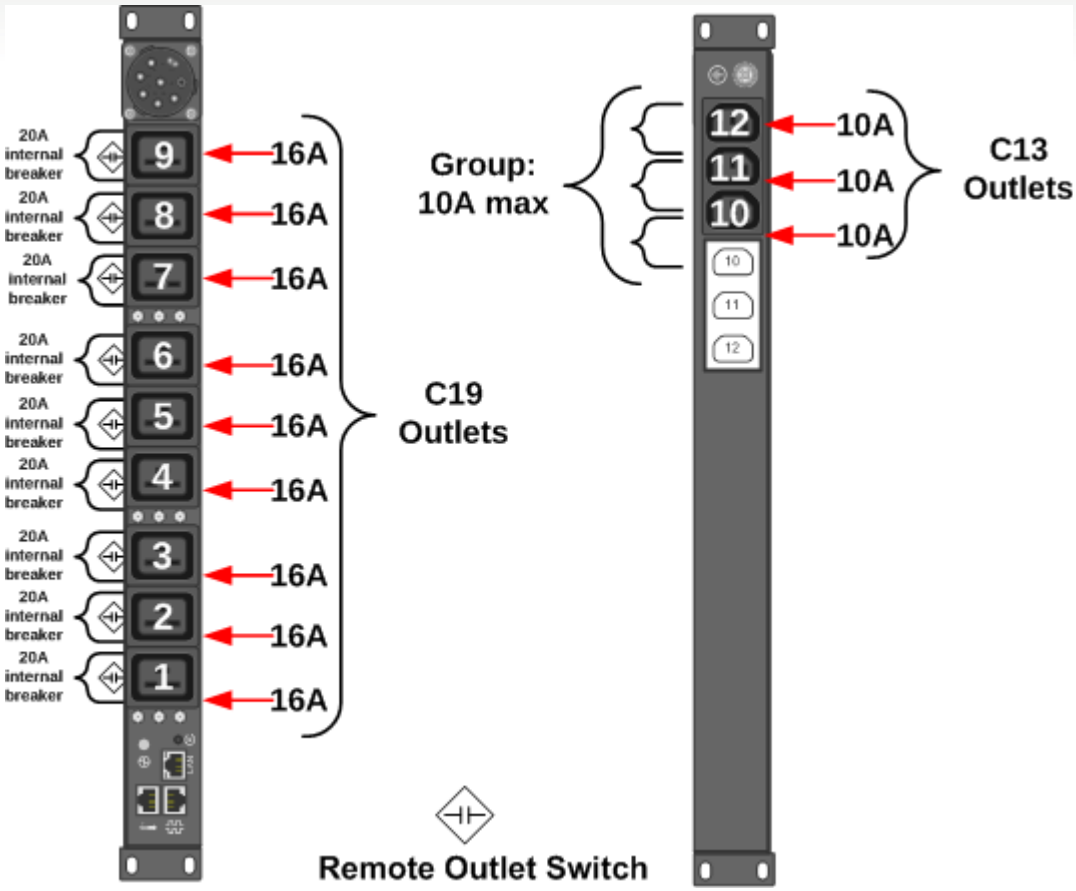



*Figure 70: Outlets and amperage*

Each phase has three IEC C19 and one IEC C13 outlets.



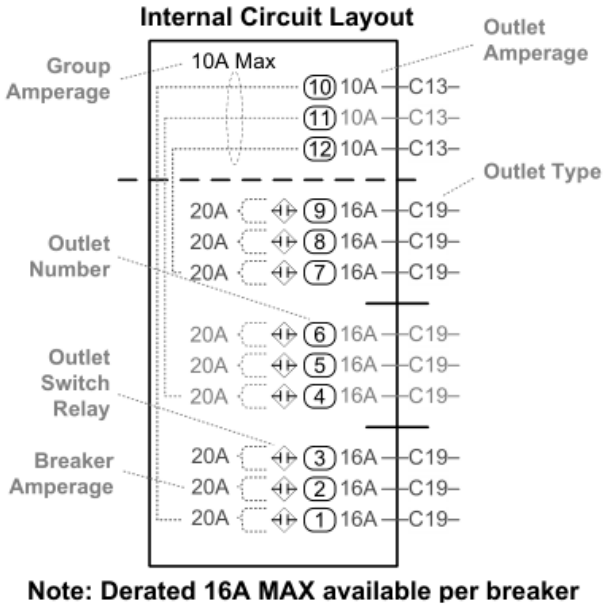




*Figure 71: Outlets and amperage*

## Input Line Cords

The following input line cords are for connecting the PDU to appropriate power circuits. This would include for example, the wall or floor outlets to provide power to the PDU. Refer to the 1U PDU Detached line cord plugs section for a picture of the line cord plugs.

| PDU P/N (& Feature Code) | Line Cord P/N (& Feature Code) | Feature Code for Bundle (PDU & Line Cord) | Orderable Line cord description |
|---|---|---|---|
| 46M4002 | 40K9611 | 5905 | Lenovo DPI IEC-309 3P+N+G (4.3m) line cord 32A (32A / Phase) 380-415VAC Three Phase Wye 96A Total Circuit Capacity |
| 46M4002 | 40K9612 | 5903 | Lenovo DPI IEC 309 P+N+G (4.3m) line cord 32A / 220-240VAC Single Phase |
| 46M4002 | 40K9613 | 5904 | Lenovo DPI IEC 309 P+N+G (4.3m) line cord 63A / 220V-240VAC Single Phase |
| 46M4002 | 40K9617 | 5906 | Lenovo DPI AS/NZS 3112 32A (4.3m) line cord 32A / 220VAC Single Phase |
| 46M4002 | 40K9618 | 5907 | Lenovo DPI KSC 8305 30A (4.3m) line cord 30A / 230VAC Single Phase |

## Specifications

The following table are specifications for the 46M4002 1U C19/C13 PDU.

| Specifications | Line cord PN | Line cord PN | Line cord PN | Line cord PN | Line cord PN |
|---|---|---|---|---|---|
| Input Line Cord Type* | 40K9611 | 40K9612 | 40K9613 | 40K9617 | 40K9618 |
| Type | 32A/380-415V | 32A / 220-240V | 63A/220V-240V | 32A / 230V | 30A / 230V |
| Phase | Three phase | Single phase | Single phase | Single phase | Single phase |
| Outlets types | nine IEC C19, three IEC C13 | nine IEC C19, three IEC C13 | nine IEC C19, three IEC C13 | nine IEC C19, three IEC C13 | nine IEC C19, three IEC C13 |
| Power Capacity** | 22080VA @ 230V | 7360VA @ 230V | 14490VA @ 230V | 7360VA @ 230V | 6900VA @ 230V |
| Power Limit per Outlet | C19 limited to 16A<br>C13 limited to 10A | C19 limited to 16A<br>C13 limited to 10A | C19 limited to 16A<br>C13 limited to 10A | C19 limited to 16A<br>C13 limited to 10A | C19 limited to 16A<br>C13 limited to 10A |
| Grouping | One C19 + one C13 outlet or One C19 outlet per breaker / Three C19 + one C13 outlets per phase | One C19 + one C13 outlet or One C19 outlet per breaker | One C19 + one C13 outlet or One C19 outlet per breaker | One C19 + one C13 outlet or One C19 outlet per breaker | One C19 + one C13 outlet or One C19 outlet per breaker |
| Power Limit per Group | 20A per breaker 32A per phase | 20A per breaker | 20A per breaker | 20A per breaker | 20A per breaker |
| Power Limit per PDU | 96A | 32A | 63A | 32A | 30A |
| Monitoring/ Switching | Yes/Yes | | | | |
| U Space | 1U or side pocket | | | | |
| Grounding Screw | Yes on back panel | | | | |

* For input line cord part numbers refer to the Input Line Cords section.

** For the purpose of this table you can consider 1 VA = 1 Watt.

## Accessory Kit

These accessories are for supporting the racking of the Lenovo Switched and Monitored C19/C13 PDU in an Lenovo rack. Some parts may be unused, depending on how and where the PDU is installed.

Refer to the Racking section for information on racking the Lenovo C19/C13 PDU.

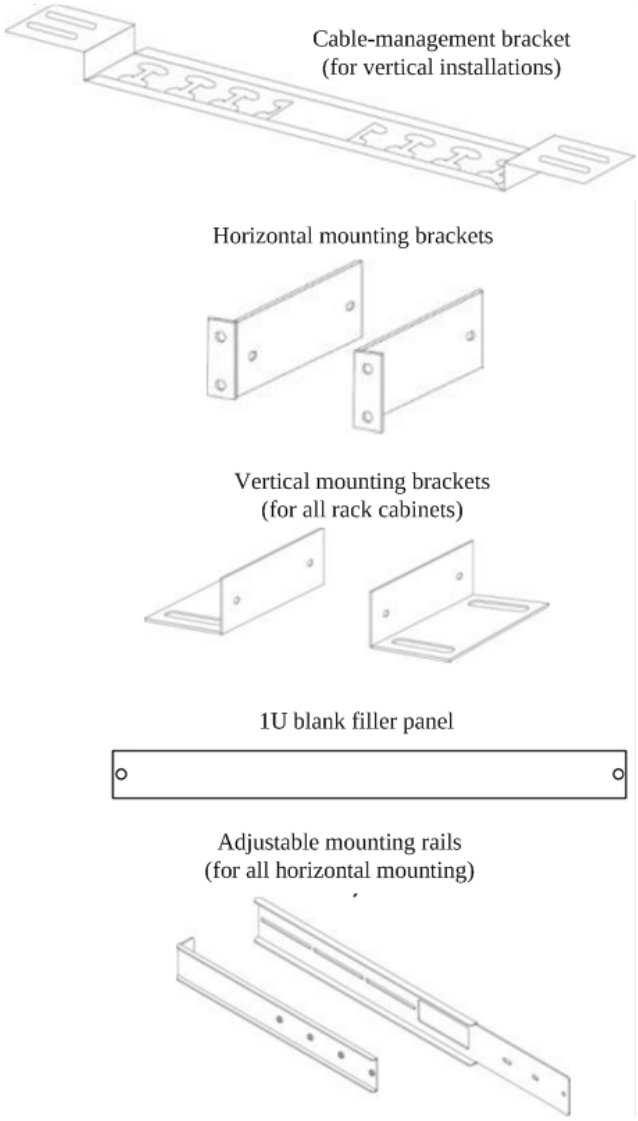



*Figure 72: Accessory kit*

Also included: 1 x EMP (see below), 1 x DB9 to RJ-45 cable, 1 x CAT5 6ft/1.8m cable, cable straps, and miscellaneous hardware kit for attaching the PDU and installing in a rack cabinet.

The 46M4002 PDU ships standard with a PDU environmental sensor kit, as listed above. Refer to the following Environmental Monitoring Probe for Monitored PDUs section for additional details on the device.

## Racking

This section discusses mounting the 46M4002 1U C19/C13 PDU in the side of a rack, the side pockets of an Enterprise rack (0U space) and EIA (U space) of a rack.

### Mounting in side of a rack

Mounting the 46M4002 in the side pocket requires the use of the vertical mounting brackets, shipped as part of the PDU accessory kit, see the Accessory Kit section for additional information.

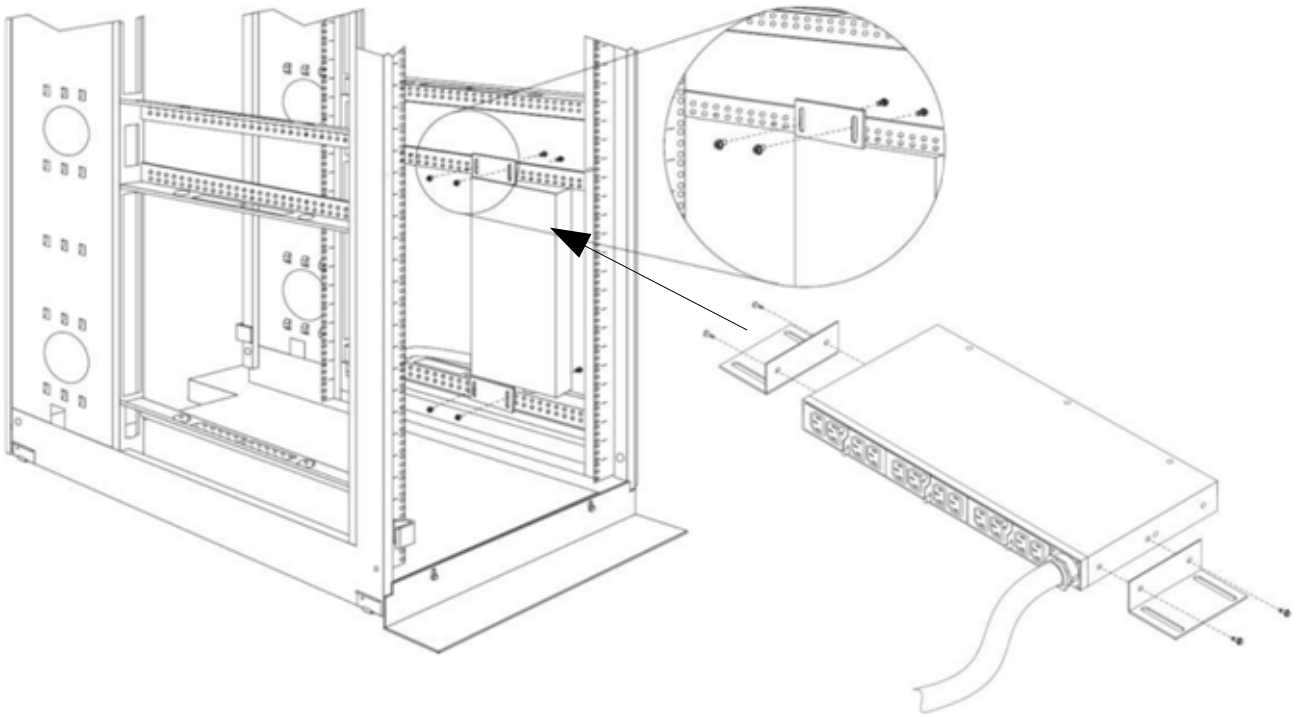


*Figure 73: 1U Switched C19/C13 PDU vertical mounting in rack*

## Mounting In Lenovo Enterprise Rack (9308 & 1410) & Lenovo Enterprise V2 Rack (9363) Rear Zero Pocket (side pocket)

Mounting the 46M4002 in the side pocket of an enterprise rack requires the use of the horizontal mounting bracket, shipped as part of the PDU accessory kit, see the Accessory Kit *section* for additional information.

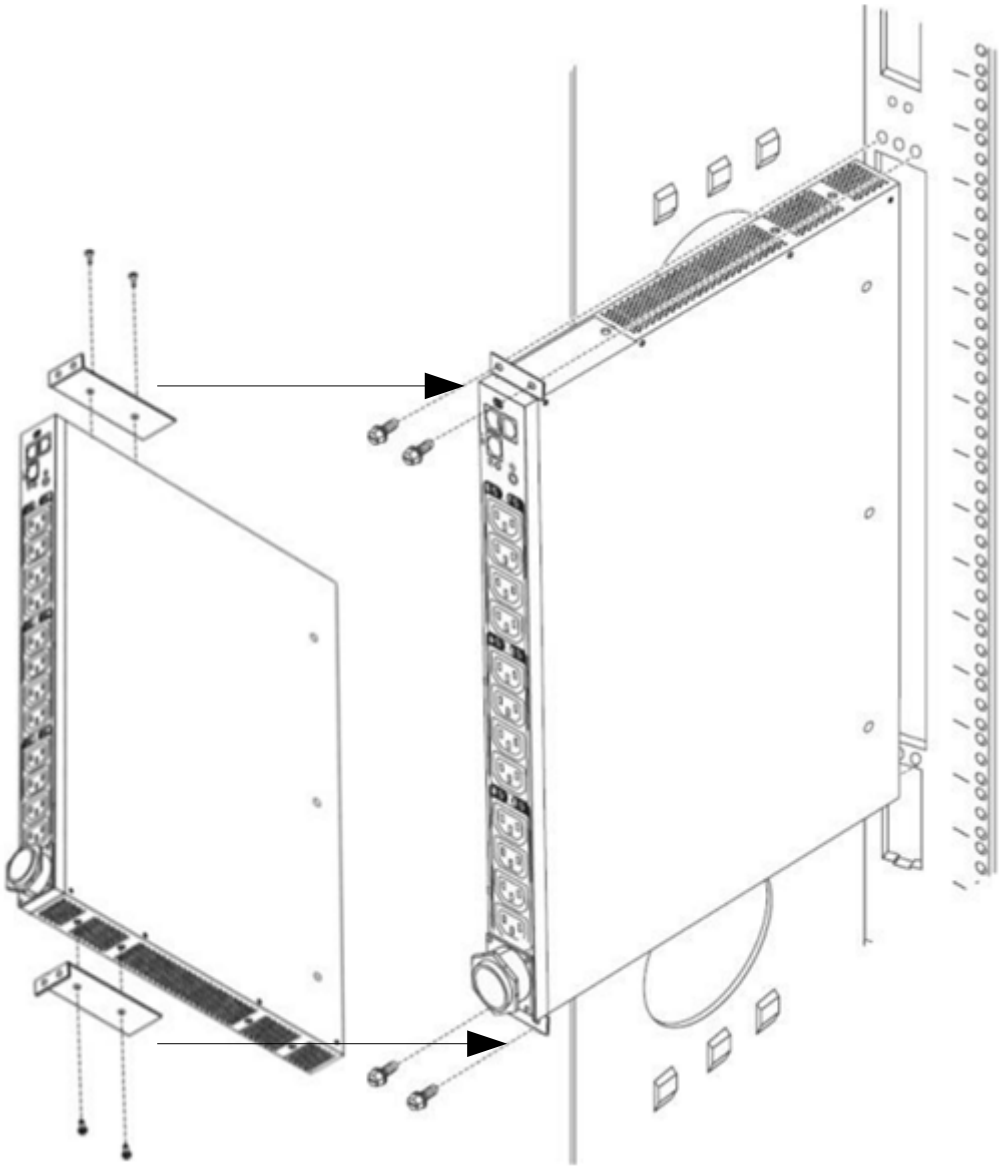


*Figure 74: 1U Switched C19/C13 PDU vertical mounting in rack*

## Mounting in EIA (U space) of rack

Mounting the 46M4002 in the U space of a rack requires the use of the 2 horizontal mounting rails and small brackets, shipped as part of the PDU accessory kit, see the Accessory Kit section for additional information.

1 PDU will fit in 1U of rack space see figure 75.

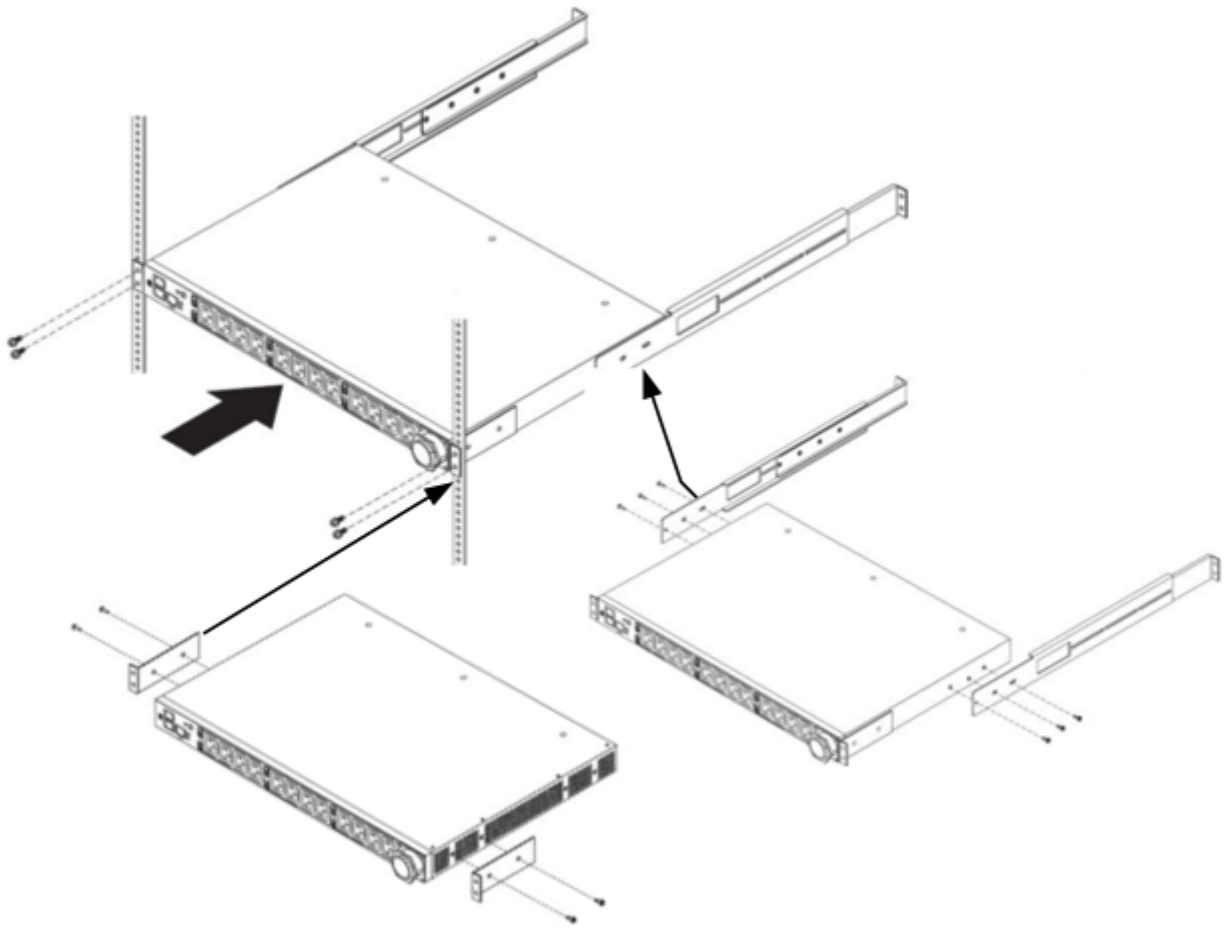


*Figure 75: Mounting in U space of rack*

## Installation and Maintenance Guide

The following are the Installation and Maintenance manuals for the 1U 9 C19 / 3 C13 Switched and Monitored PDU

46M4002
http://www.ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-5084069

# 0U 24 C13 Switched and Monitored PDU

This section discusses the 46M4119 0U 24 C13 Switched and Monitored PDU. This section is broken up into the following sections.



## Quick Specs

The following tables are quick specs for the 46M4119 PDU. For additional information, refer to the Specifications section.

| PDU 46M4119 + Attached Line Cord | |
|---|---|
| Type | 32A / 220-240VAC |
| Outlets: | twenty four IEC C13 |
| Power Capacity: | 7360VA @ 230W |
| Power Limit per PDU | 32A |
| Phase | Single phase |

## Front View and Outlets

The 46M4119 0U 24 C13 Switched and Monitored PDU comes with an attached line cord for single phase operation. The following figure displays the front view of the PDU.

*Figure 76: Front view*

Figure 77 on page 140 displays the 1U C13 Switched and Monitored PDU outlets and amperage.

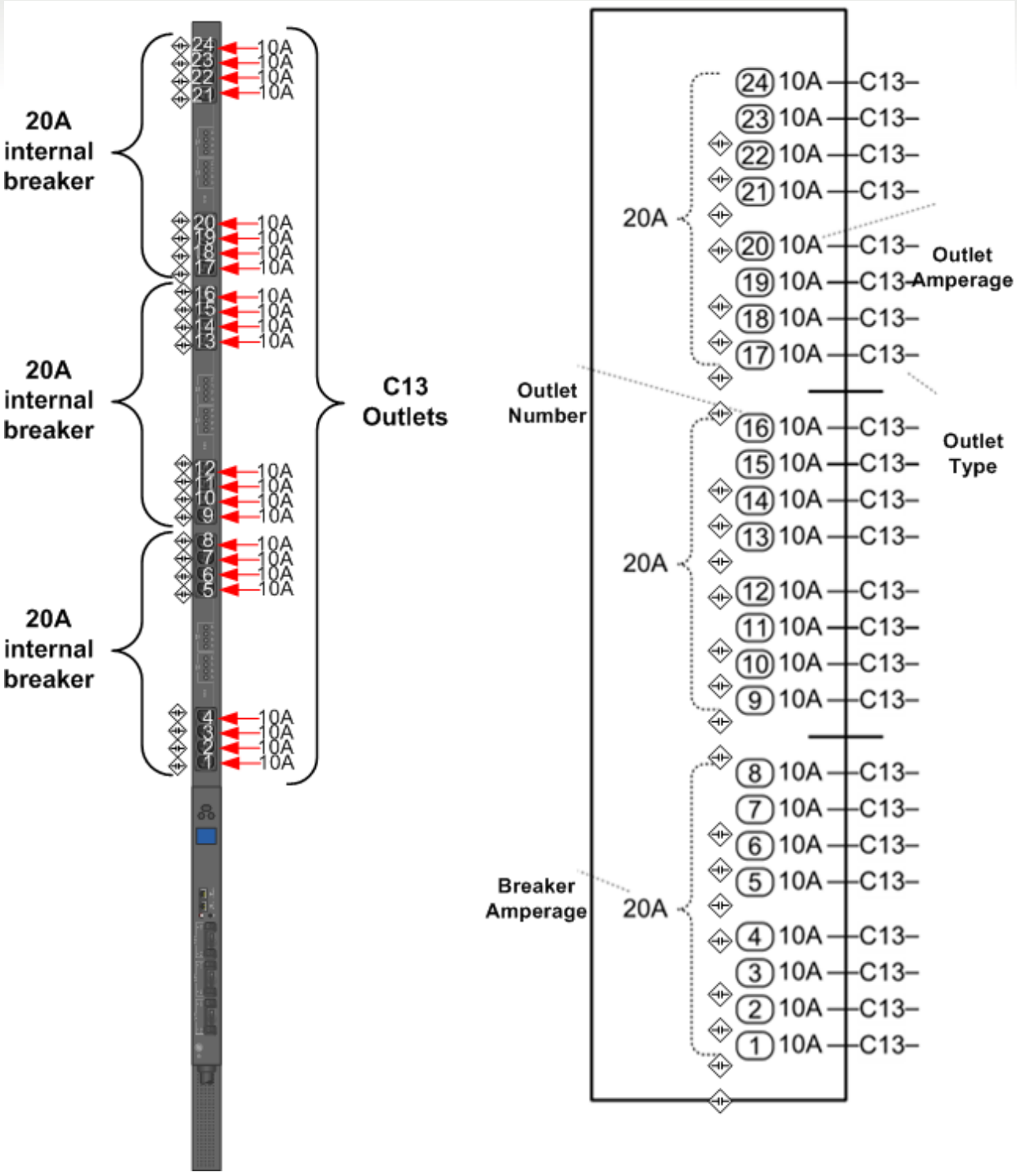



*Figure 77: Outlets and amperage*

The outlets are broken up into three groups, each group represents a group: A1 – A8, B1 – B8, and C1 – C8.

## Input Line Cord

The following input line cord is for connecting the PDU to an appropriate power circuits. This may include for example, the wall or floor outlets to provide power to the PDU. Refer to the 0U PDU Attached line cord and plugs section for a picture of the line cord plugs.

| PDU P/N | Feature Code | Line Cord P/N | Line Cord Description |
|---|---|---|---|
| 46M4119 | 5930 | Attached | Attached 3.0 meter line cord IEC 309 P+N+G 32A / 220-240VAC Single Phase |

## Specifications

The following table are specifications for the 46M4119 24 C13 PDU.

| Specifications | |
|---|---|
| PDU Part Number | 46M4119 |
| Line Cord Feature Code | 5930 |
| Input Line Cord Type* | Attached |
| Outlets: | twenty four IEC C13 |
| Power Capacity:** | 7360VA@230W |
| Power Limit per Outlet: | 10A |
| Grouping: | Eight C13 outlets per breaker |
| Power Limit per Group: | 20A |
| Power Limit per PDU: | 32A |
| Power Monitoring/Switching | Yes/Yes |
| U Space | 0U |
| Grounding Screw | No |

* For input line cord information refer to the Input Line Cord section.
** For the purpose of this table, you can consider 1 VA = 1 Watt.

## Accessories

The following items make up the accessory kit that contains miscellaneous hardware for installing the Rack PDU in a rack cabinet. These are shipped with the PDU.

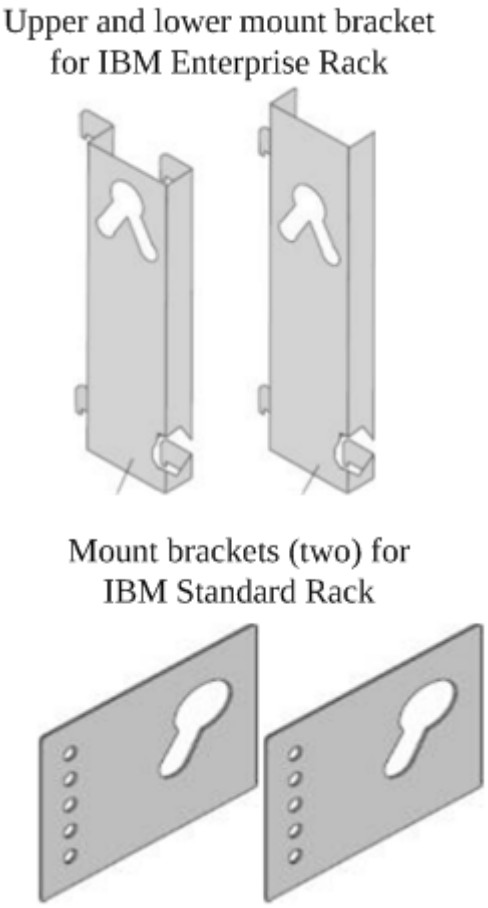



*Figure 78: Accessory kit*

Also included: 1 x DB9 to RJ-45 cable, and miscellaneous hardware kit for attaching the PDU and installing in a rack cabinet.

An optional P/N 46M4113 Environmental Monitoring Probe (EMP) can be ordered to connect to this PDU. Refer to the Environmental Monitoring Probe for Monitored PDUs section for additional information on the EMP.

These accessories are for supporting the racking of the 0U C13 PDU in the back of a rack. Some accessory parts may be unused, depending on the rack it is installed in.

Refer to the following Racking section for information on racking the 0U C13 PDU.

This section discusses mounting for all Lenovo 0U PDU in the back of the Lenovo Standard racks (9307 and 9956), mounting in the back of the Lenovo Enterprise racks (9308 and 1410), and the Lenovo Enterprise rack v2 (9363), and the mounting in Lenovo racks with integrated PDU mounting keyholes (9362, 9361, and 9360).

### Mounting in the Lenovo Standard Rack Cabinet (9307 and 9956)

Mounting the 0U PDU at the back of a Standard Rack Cabinet (9307 and 9956) requires the use of the two small mounting brackets, shipped as part of the PDU accessory kit, see the Accessories section for additional information.

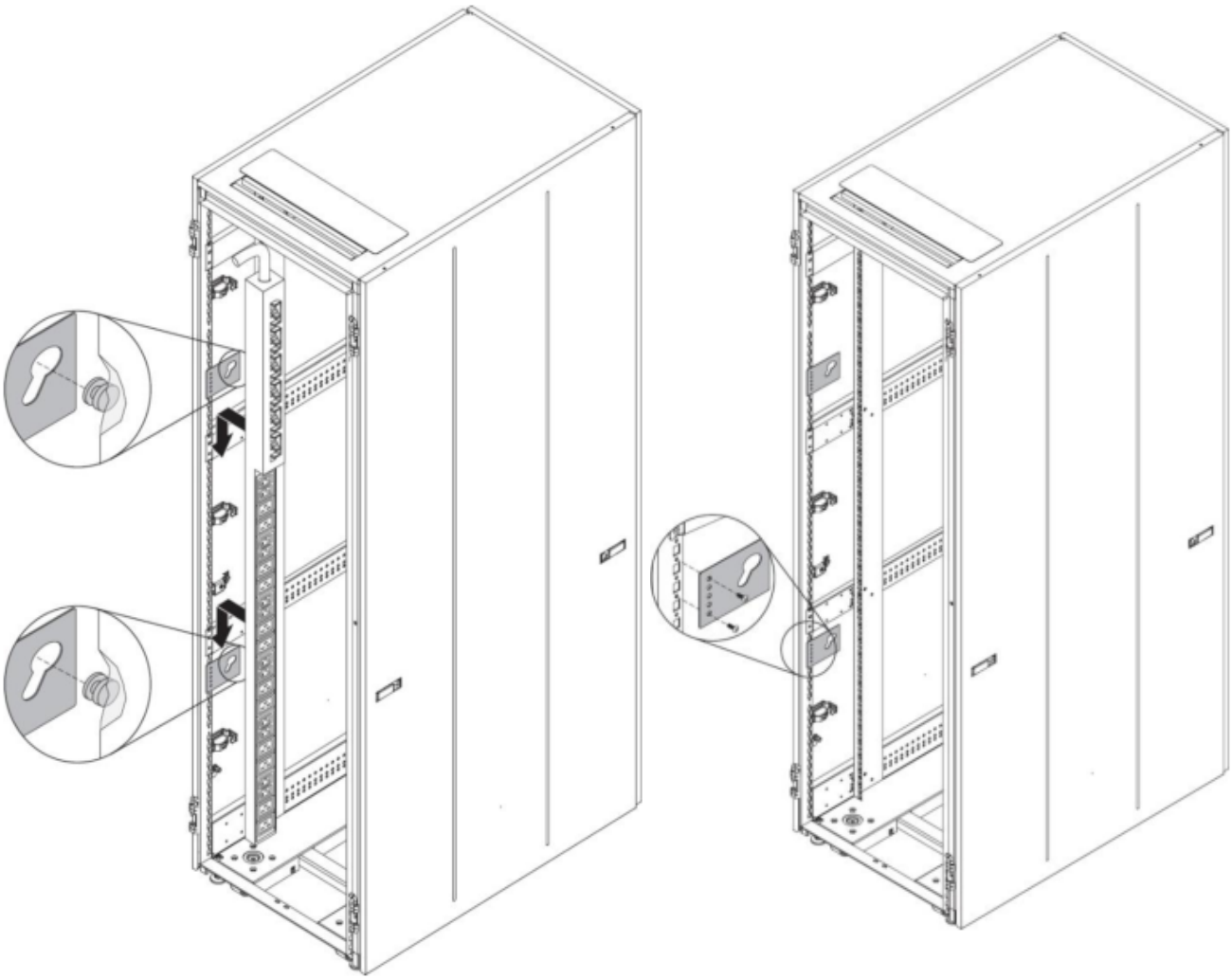


*Figure 79: Standard rack cabinet mounting*

## Mounting In Lenovo Enterprise Rack (9308 & 1410) & Lenovo Enterprise V2 Rack (9363) Rear Zero Pocket (side pocket)

Mounting the 0U PDUs at the back of an Enterprise Rack Cabinet (9308 and 1410) and the Lenovo Enterprise V2 Rack (9363) requires the use of the two upper and two lower mounting brackets, shipped as part of the PDU accessory kit, see the Accessories section for additional information.

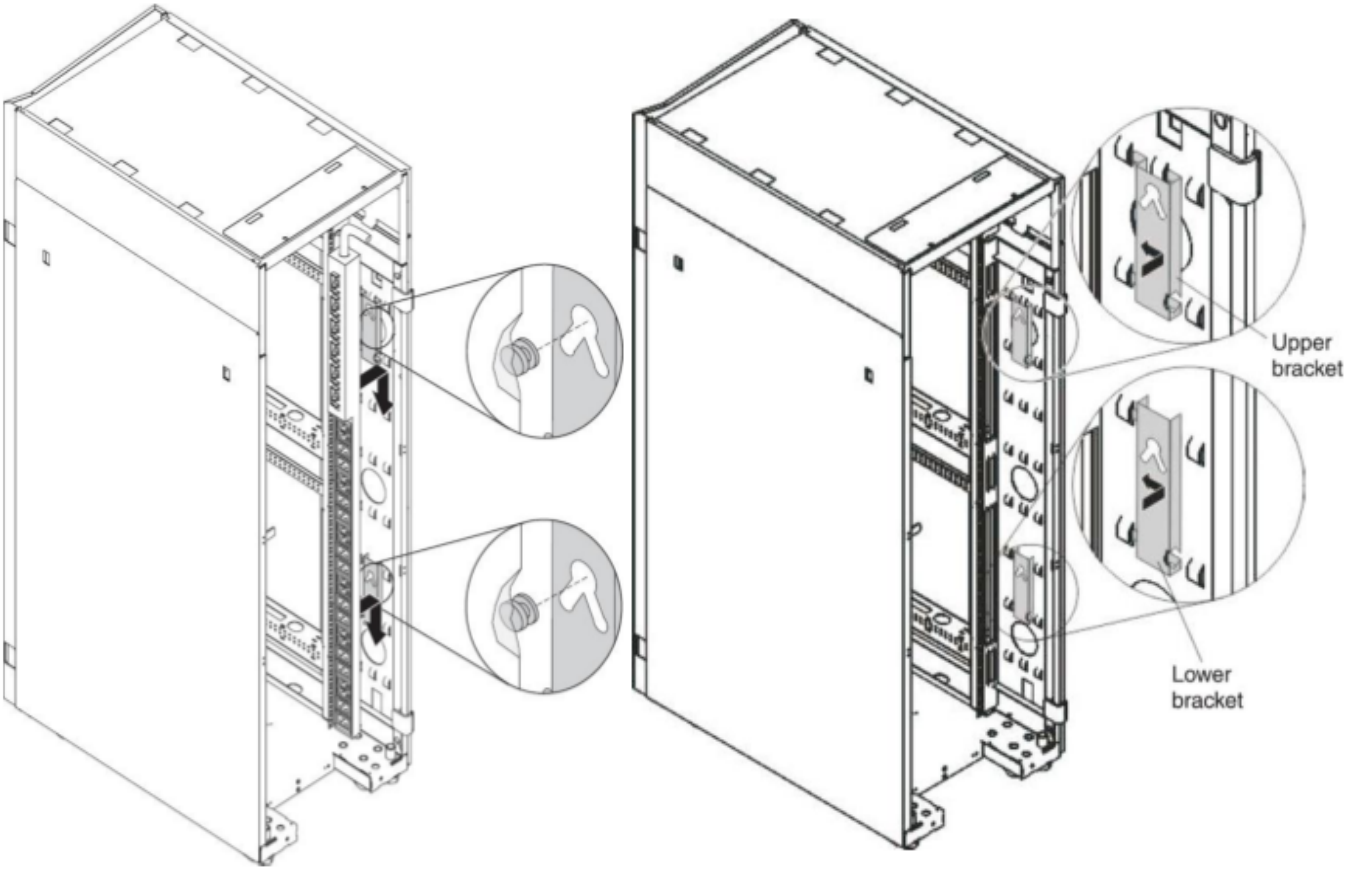



*Figure 80: Enterprise rack cabinets*

## Mounting In the Back of Lenovo Racks with Integrated PDU Mounting Keyholes (9362, 9361, and 9360)

Mounting the 0U PDUs at the back of a rack with mounting key holes is displayed in Figure 81.

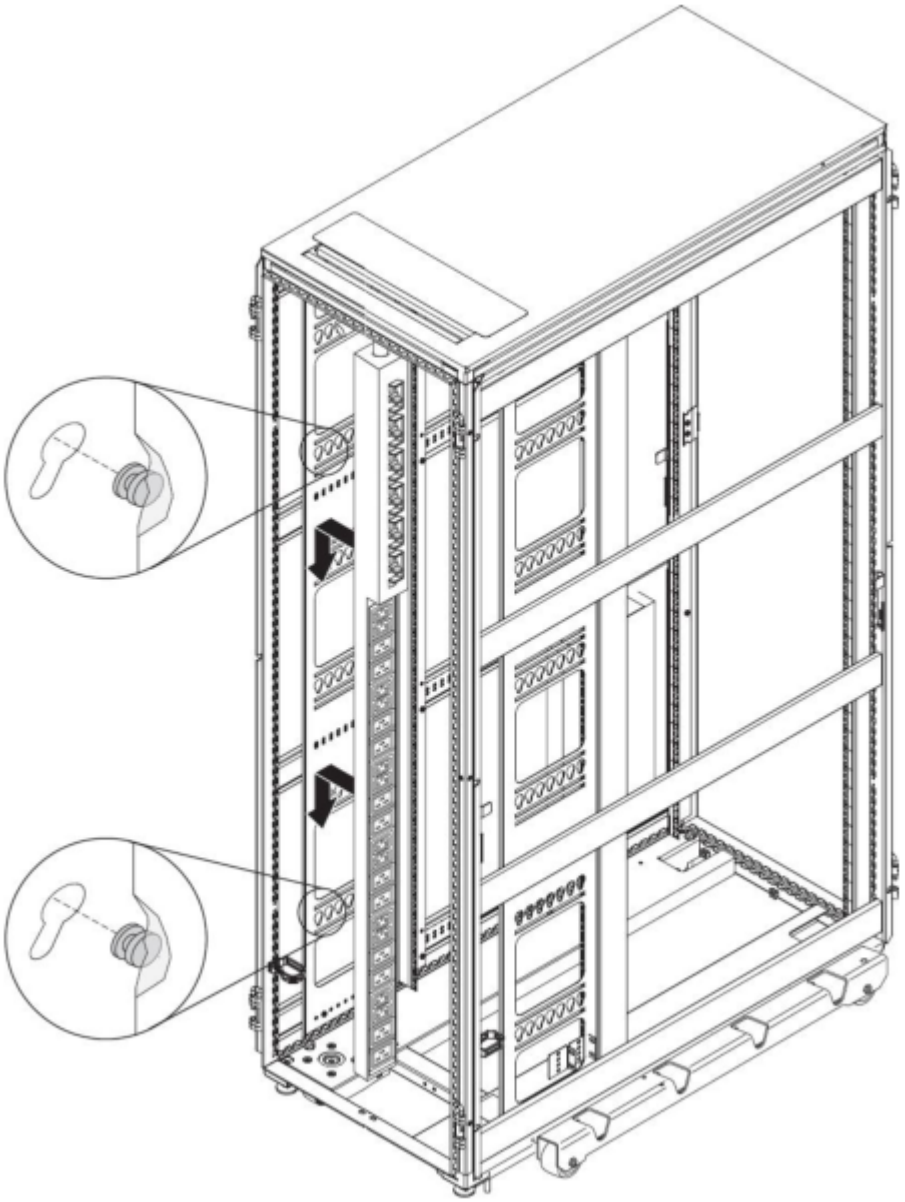


*Figure 81: Rack with mounting keyholes at the rear*

## Installation and Maintenance Guide

The following are the Installation and Maintenance manuals for the 0U 24 C13 Switched and Monitored PDU

46M4119
http://www.ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-5086798

# 0U 12 C13 / 12 C19 Switched and Monitored PDU

This section discusses the 46M4137 0U 12 C13 / 12 C19 Switched and Monitored PDU. This section is broken up into the following sections.



## Quick Specs

The following tables are quick specs for the 46M4137 PDU. For additional information, refer to the Specifications section.

| PDU 46M4137 + Attached Line Cord | |
|---|---|
| Type | 32A / 380-415VAC |
| Outlets: | Twelve IEC C13, twelve IEC C19 |
| Power Capacity | 36480VA @ 380W |
| Power Limit per PDU | 96A |
| Phase | Three Phase |

## Front View and Outlets

The 46M4137 Lenovo 0U 12 C13 / 12 C19 Switched and Monitored PDU. This PDU comes with an attached line cord for three phase operation. The following figure displays the front view of the PDU.

*Figure 82: Front view*

Figure 83 on page 148 displays the 1U C13/C19 Switched and Monitored PDU outlets and amperage.

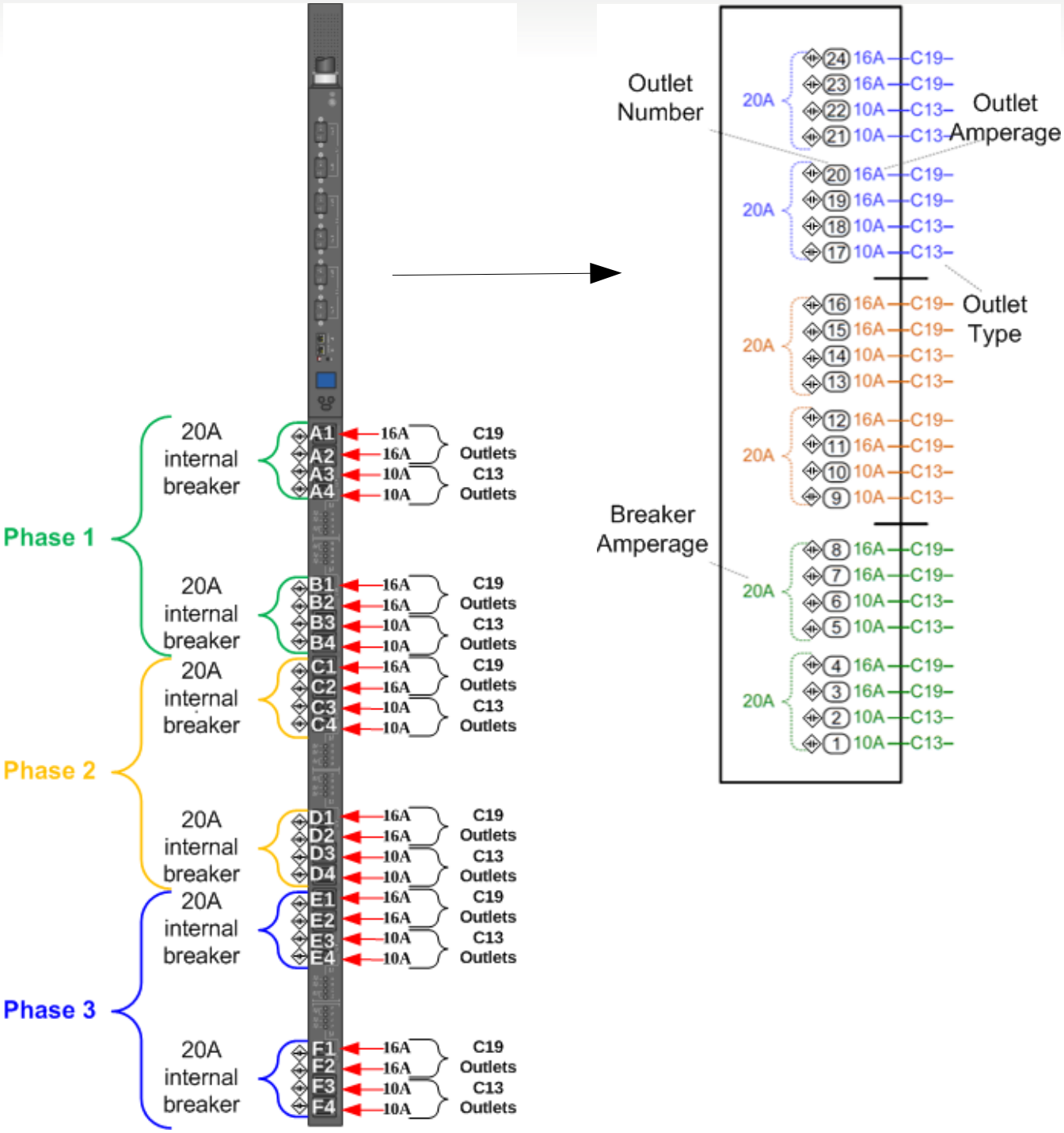



*Figure 83: Outlets and amperage*

**Note:** Derated 16A MAX available per breaker.
The outlets are broken up into 6 groups across 3 phases, A1-A4 and B1-B4 represent phase 1, C1-C4 and D1-D4 represent phase 2, and E1-E4 and F1-F4 represent phase 3.
Refer to the Specifications section for additional information.

## Input Line Cord

The following input line cord is for connecting the PDU to an appropriate power circuits. This may include for example, the wall or floor outlets to provide power to the PDU. Refer to the 0U PDU Attached line cord and plugs section for a picture of the line cord plug.

| PDU P/N | Feature Code | Line Cord P/N | Line Cord Description |
|---|---|---|---|
| 46M4137 | 5932 | Attached | Attached 3.0 meter line cord IEC-309 3P+N+G 32A (32A / Phase) 380-415VAC Three Phase Wye 96A Total Circuit Capacity |

## Specifications

The following table are specifications for the 46M4137 12 C13 / 12 C19 PDU.

| Specifications | |
|---|---|
| PDU Part Number | 46M4137 |
| Feature Code | 5932 |
| Input Line Cord Type* | Attached |
| Type | 32A/380-415VAC |
| Phase | Three Phase |
| Outlets: | Twelve IEC C13, twelve IEC C19 |
| Power Capacity** | 36480VA @ 380-415VACC19 limited to 16A<br>C13 limited to 10A |
| Power Limit per Outlet | C19 limited to 16A<br>C13 limited to 10A |
| Grouping | Two C13 and two C19 outlets per breaker /<br>Four C13 and four C19 outlets per phase |
| Power Limit per Group | 20A per breaker /<br>32A per phase |
| Power Limit per PDU | 96A |
| Power Monitoring/Switching | Yes/Yes |
| U Space | 0U |
| Grounding Screw | Yes on front panel |

* For input line cord information refer to the Input Line Cord section.

** For the purpose of this table, you can consider 1 VA = 1 Watt.

## Accessories

The following items make up the accessory kit that contains miscellaneous hardware for installing the Rack PDU in a rack cabinet. These are shipped with the PDU.

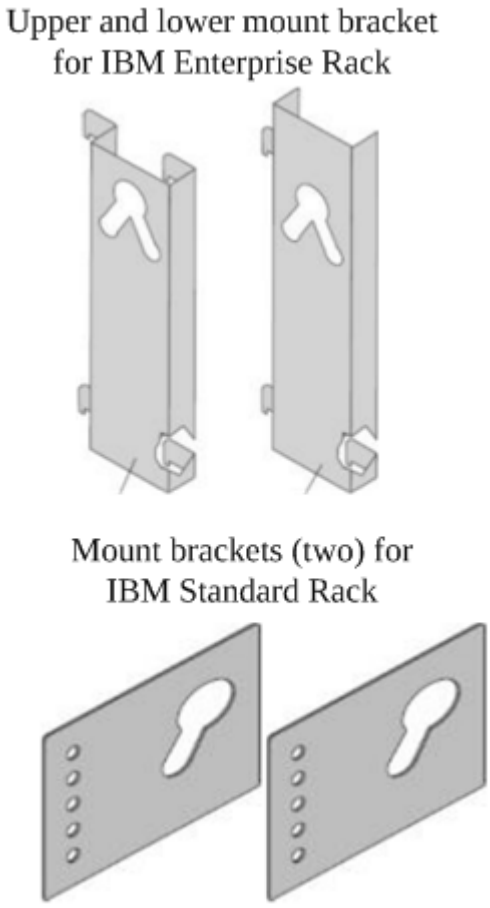



*Figure 84: Accessory kit*

Also included: 1 x DB9 to RJ-45 cable, and miscellaneous hardware kit for attaching the PDU and installing in a rack cabinet.

An optional P/N 46M4113 Environmental Monitoring Probe (EMP) can be ordered to connect to this PDU. Refer to the Environmental Monitoring Probe for Monitored PDUs section for additional information on the EMP.

These accessories are for supporting the racking of the 0U C13/C19 PDU in the back of a rack. Some accessory parts may be unused, depending on the rack it is installed in.

Refer to the following Racking section for information on racking the 0U C13/C19 PDU.

This section discusses mounting for the Lenovo 0U PDU in the back of the Lenovo Standard racks (9307 and 9956), mounting in the back of the Lenovo Enterprise racks (9308 and 1410), and the Lenovo Enterprise rack v2 (9363), and the mounting in Lenovo racks with integrated PDU mounting keyholes (9362, 9361, and 9360).

### Mounting in the Lenovo Standard Rack Cabinet (9307 and 9956)

Mounting the 0U PDU at the back of a Standard Rack Cabinet (9307 and 9956) requires the use of the two small mounting brackets, shipped as part of the PDU accessory kit, see the Accessories section for additional information.

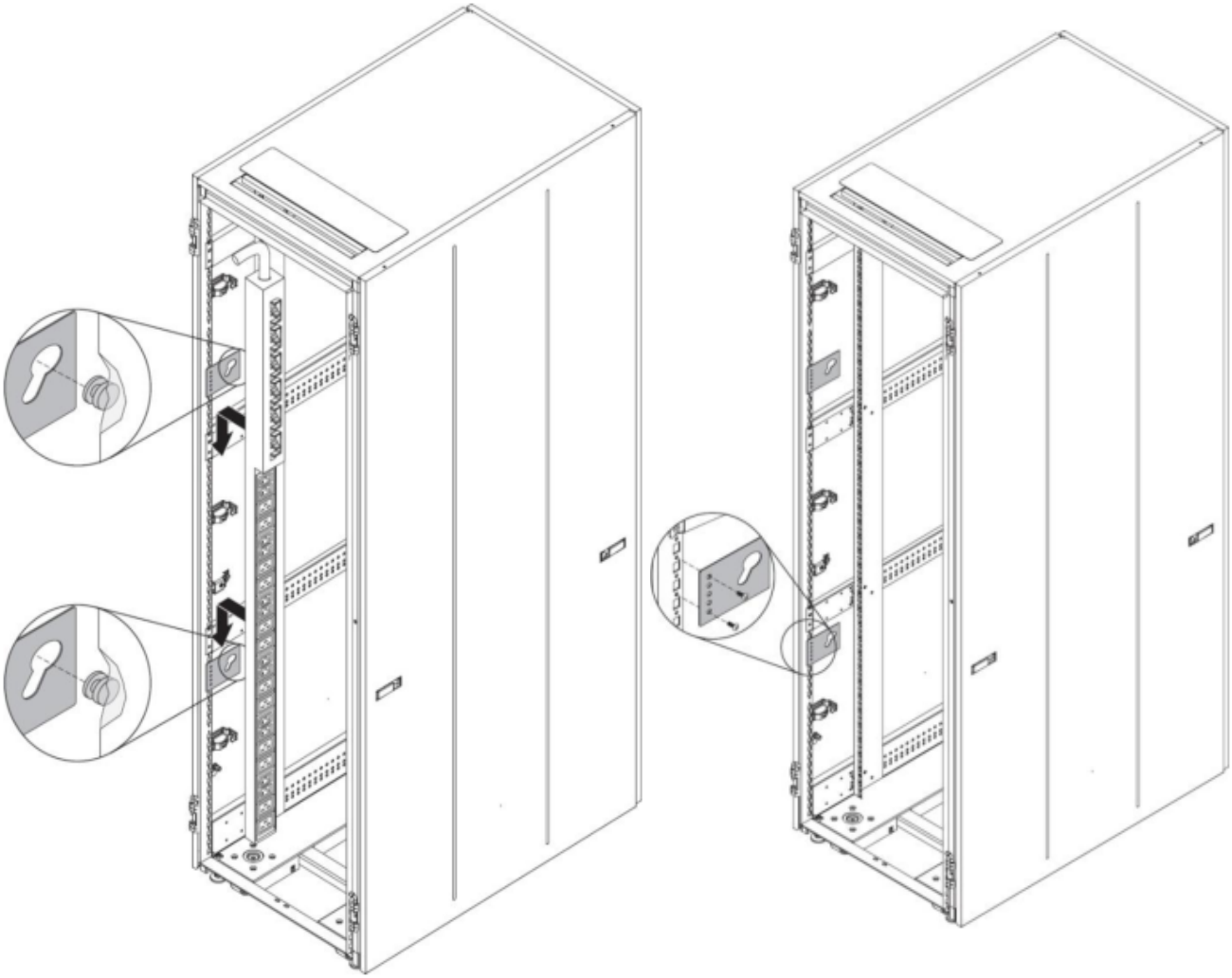


*Figure 85: Standard rack cabinet mounting*

## Mounting In Lenovo Enterprise Rack (9308 & 1410) & Lenovo Enterprise V2 Rack (9363) Rear Zero Pocket (side pocket)

Mounting the 0U PDUs at the back of an Enterprise Rack Cabinet (9308 and 1410) and the Lenovo Enterprise V2 Rack (9363) requires the use of the two upper and two lower mounting brackets, shipped as part of the PDU accessory kit, see the Accessories section for additional information.

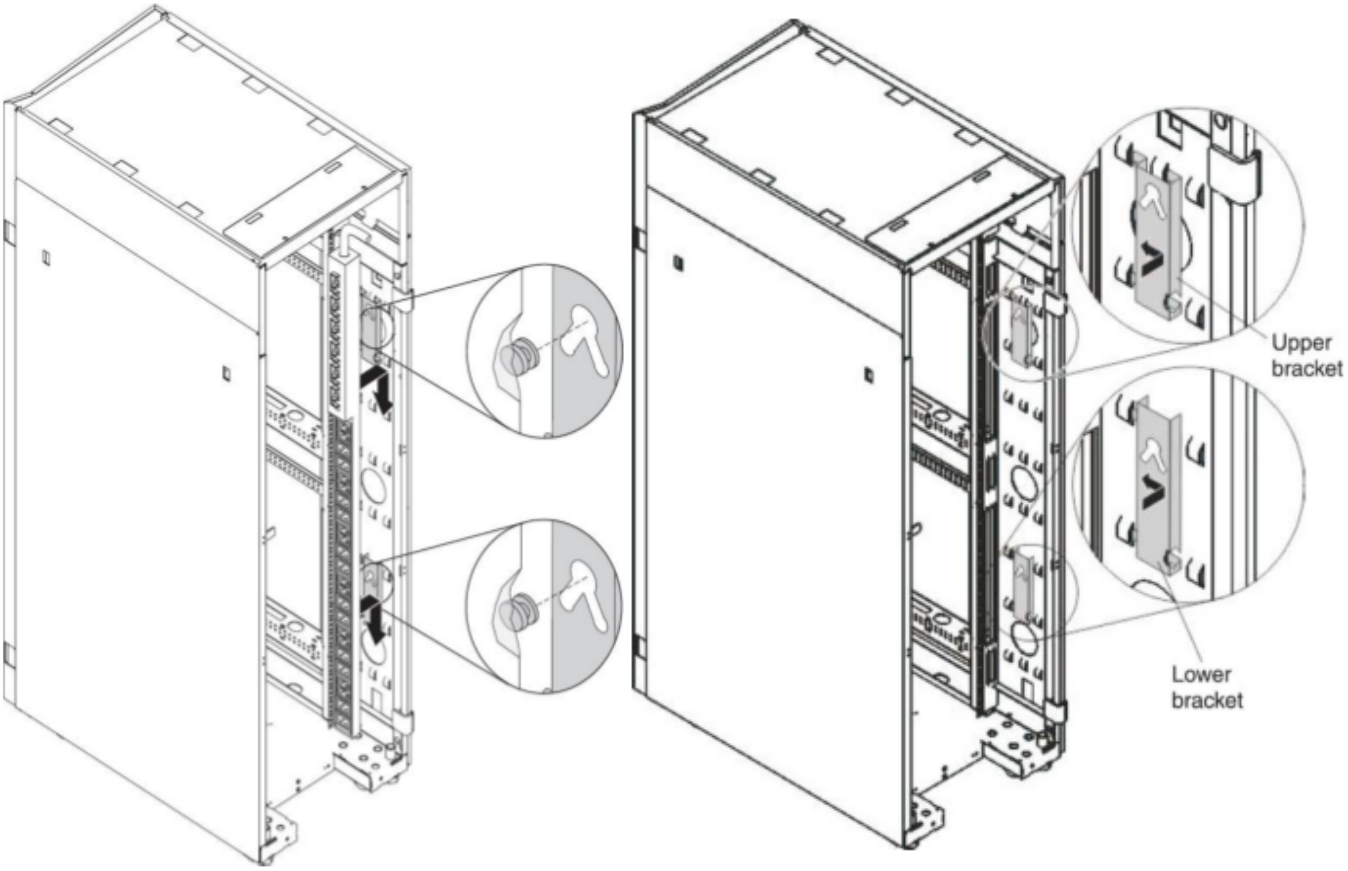



*Figure 86: Enterprise rack cabinets*

## Installation and Maintenance Guide

The following are the Installation and Maintenance manuals for the Lenovo 0U 12 C13 / 12 C19 Switched and Monitored PDU.

46M4137
http://www.ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-5086798

# Line Cords and Plugs

The following section displays the plugs used on each PDU line cord. The following sections are covered.



## Universal Rack PDU line cord plugs

This section covers all the plugs on each line cord for the Universal Rack PDU which includes:



### 39Y8952 Universal Rack PDU 230VAC (CEE7-VII Europe)

39M5281 – C19 to CEE7-VII Europe (1.8m) @ 230VAC Single Phase
39M5282 – C19 to CEE7-VII Europe (2.5m) @ 230VAC Single Phase
39M5283 – C19 to CEE7-VII Europe (4.3m) @ 230VAC Single Phase

Used with: 39Y895 – Universal Rack PDU

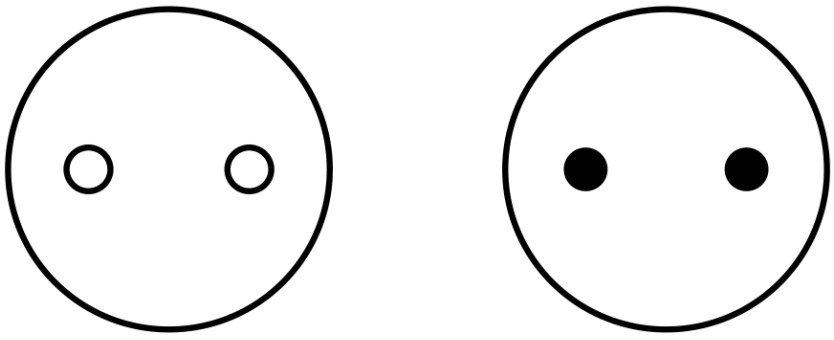


*Figure 87: CEE7-VII Europe plug*

### 39Y8953 Universal Rack PDU 230VAC (Denmark/Switz. IEC 309 P+N+G)

39M5321 – C19 to Denmark IEC 309 P+N+G (1.8m) @ 230VAC Single Phase
39M5322 – C19 to Denmark IEC 309 P+N+G (2.5m) @ 230VAC Single Phase
39M5323 – C19 to Denmark IEC 309 P+N+G (4.3m) @ 230VAC Single Phase

Used with:
39Y8953 – Universal Rack PDU

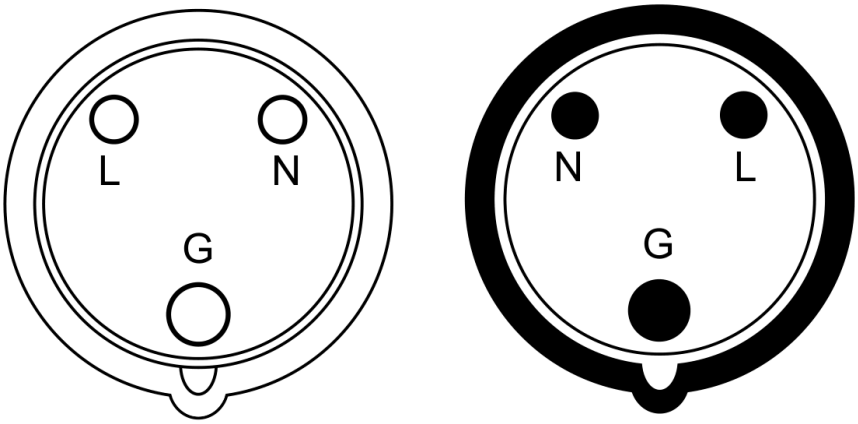



*Figure 88: Denmark/Switz. IEC 309 P+N+G plug*

### 39Y8954 Universal Rack PDU 220VAC (Israel SI-32)

39M5309 – C19 to Israel SI-32 (1.8m) @ 220VAC Single Phase
39M5310 – C19 to Israel SI-32 (2.5m) @ 220VAC Single Phase
39M5311 – C19 to Israel SI-32 (4.3m) @ 220VAC Single Phase

Used with:
39Y8954 – Universal Rack PDU

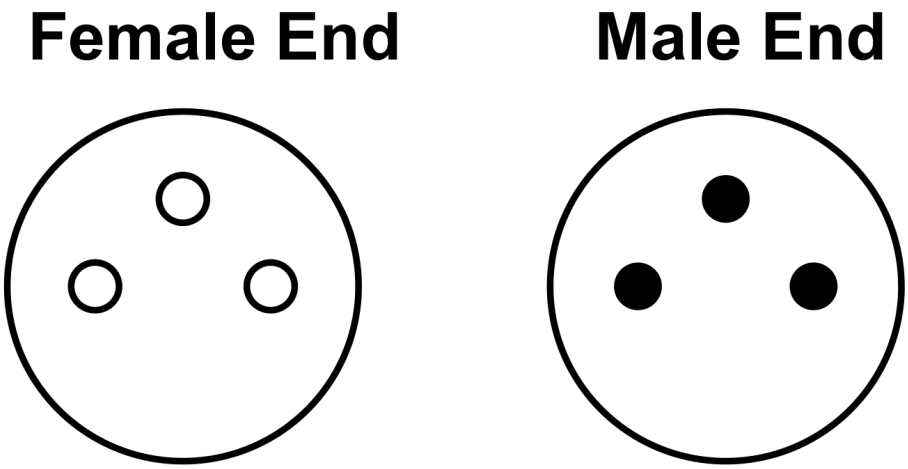



*Figure 89: Israel SI-32 plug*

### 39Y8955 Universal Rack PDU 230VAC (Italy CEI 23-16)

39M5297 – C19 to Italy CEI 23-16 (1.8m) @ 230VAC Single Phase
39M5298 – C19 to Italy CEI 23-16 (2.5m) @ 230VAC Single Phase
39M5299 – C19 to Italy CEI 23-16 (4.3m) @ 230VAC Single Phase

Used with:
39Y8955 – Universal Rack PDU

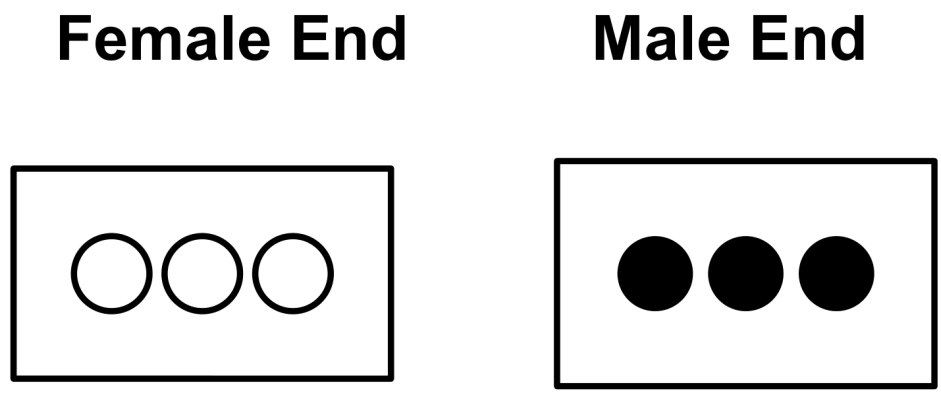



*Figure 90: Italy CEI 23-16 plug*

### 39Y8956 Universal Rack PDU 220-250VAC (South Africa SABS 164)

39M5290 – C19 to South Africa SABS 164 (2.5m) @ 220-250VAC Single Phase
39M5291 – C19 to South Africa SABS 164 (4.3m) @ 220-250VAC Single Phase

Used with:
39Y8956 – Universal Rack PDU

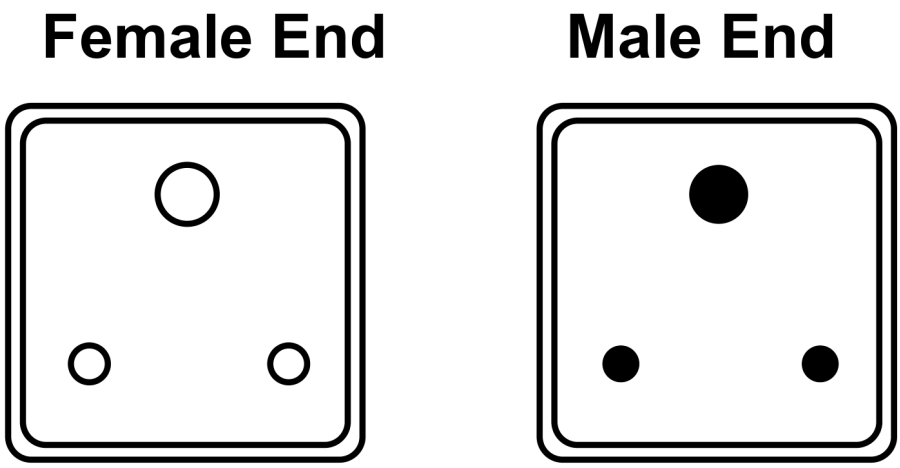



*Figure 91: South Africa SABS 164 plug*

### 39Y8957 Universal Rack PDU 230VAC (UK BS 1363/A)

39M5293 – C19 to UK BS 1363/A (1.8m) @ 230VAC Single Phase
39M5294 – C19 to UK BS 1363/A (2.5m) @ 230VAC Single Phase
39M5295 – C19 to UK BS 1363/A (4.3m) @ 230VAC Single Phase

Used with:
39Y8957 – Universal Rack PDU

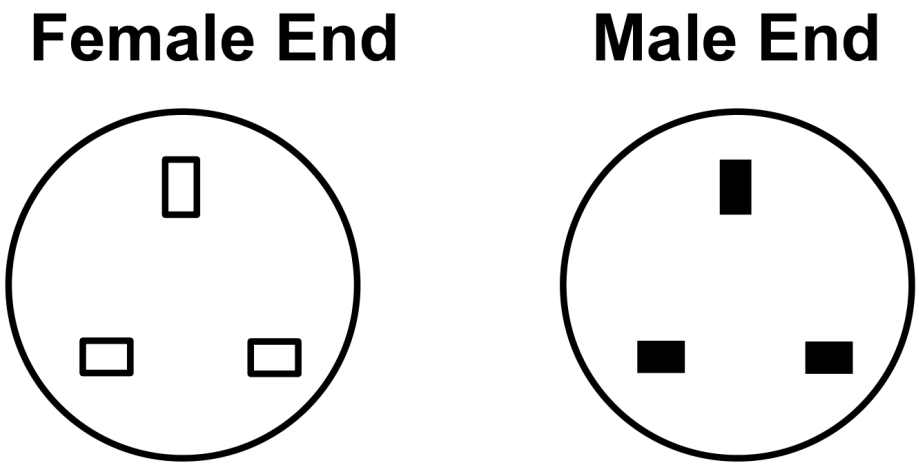



*Figure 92: UK BS 1363/A plug*

### 39Y8958 Universal Rack PDU 230-240VAC (AUS/NZ 3112 Australia/NZ)

39M5329 – C19 to AUS/NZ 3112 Australia/NZ (1.8m) @ 230-240VAC Single Phase
39M5330 – C19 to AUS/NZ 3112 Australia/NZ (2.5m) @ 230-240VAC Single Phase
39M5331 – C19 to AUS/NZ 3112 Australia/NZ (4.3m) @ 230-240VAC Single Phase

Used with:
39Y8958 – Universal Rack PDU

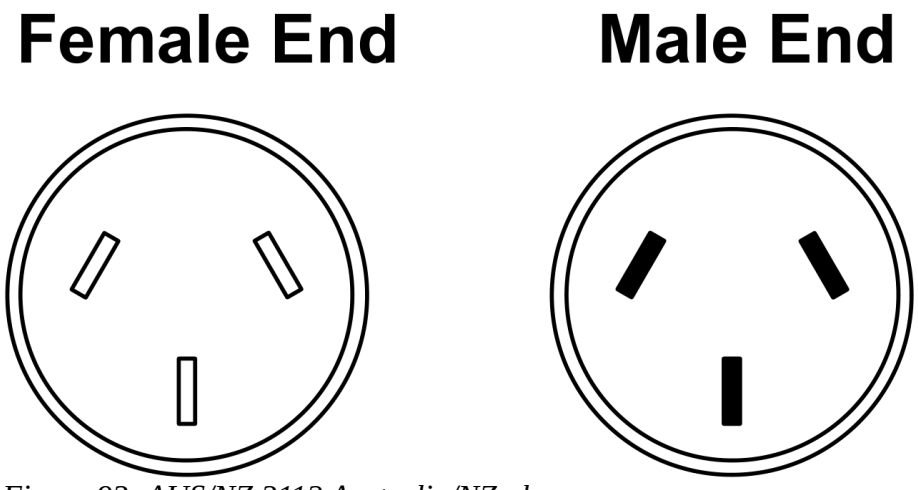



*Figure 93: AUS/NZ 3112 Australia/NZ plug*

### 39Y8960 Universal Rack PDU 220-240VAC (Brazil NBR 14136)

39M5357 – C19 to Brazil NBR 14136 (1.8m) @ 220-240VAC Single Phase
39M5358 – C19 to Brazil NBR 14136 (2.5m) @ 220-240VAC Single Phase
39M5359 – C19 to Brazil NBR 14136 (4.3m) @ 220-240VAC Single Phase

Used with:
39Y8960 – Universal Rack PDU

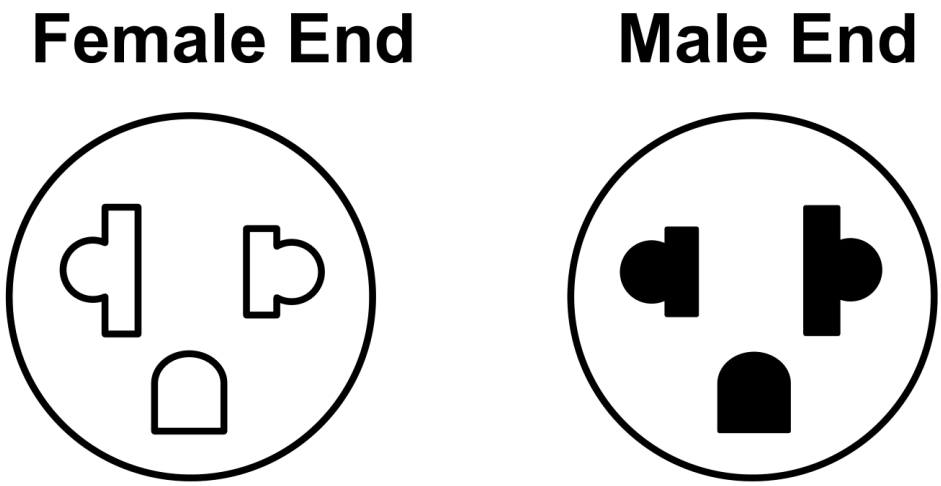



*Figure 94: Brazil NBR 14136 plug*

### 39Y8961 Universal Rack PDU 230VAC (India IS 6538)

39M5444 – C19 to India IS 6538 (1.8m) @ 230VAC Single Phase
39M5445 – C19 to India IS 6538 (2.5m) @ 230VAC Single Phase
39M5446 – C19 to India IS 6538 (4.3m) @ 230VAC Single Phase

Used with:
39Y8961 – Universal Rack PDU

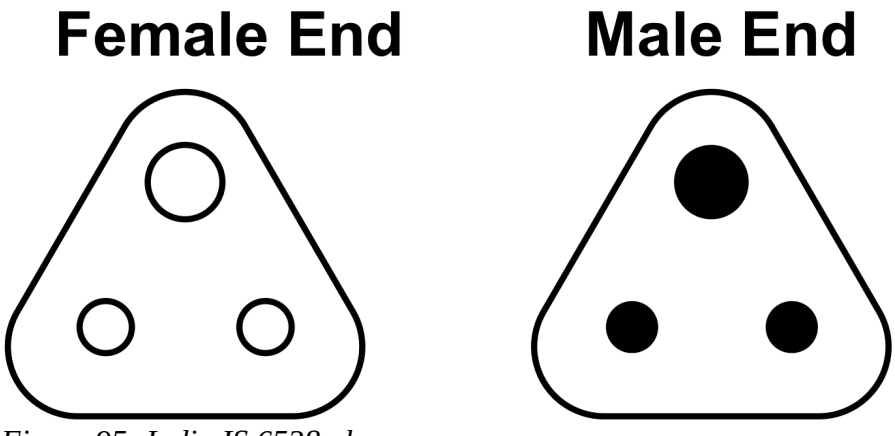



*Figure 95: India IS 6538 plug*

### 39Y8962 Universal Rack PDU 220VAC (Argentina IRAM 2073)

39M5341 – C19 to Argentina IRAM 2073 (1.8m) @ 220VAC Single Phase
39M5342 – C19 to Argentina IRAM 2073 (2.5m) @ 220VAC Single Phase
39M5343 – C19 to Argentina IRAM 2073 (4.3m) @ 220VAC Single Phase

Used with:
39Y8962 – Universal Rack PDU

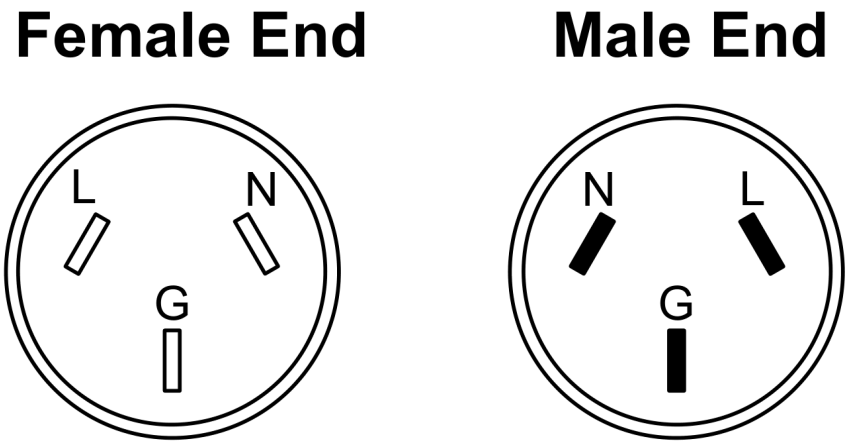



*Figure 96: Argentina IRAM 2073 plug*

### Universal Rack PDU 16A/200-240VAC (IEC320 C19 to C20)

39M5389 – C19 to IEC320 C20 to (2.5m) 16A @ 100-240VAC Single Phase

Used to connect Rack PDU to another PDU with IEC320 C19 outlets. This line cord ships with all Universal Rack PDUs in addition to country specific line cord.

Used with:
39Y8951 – Universal Rack PDU

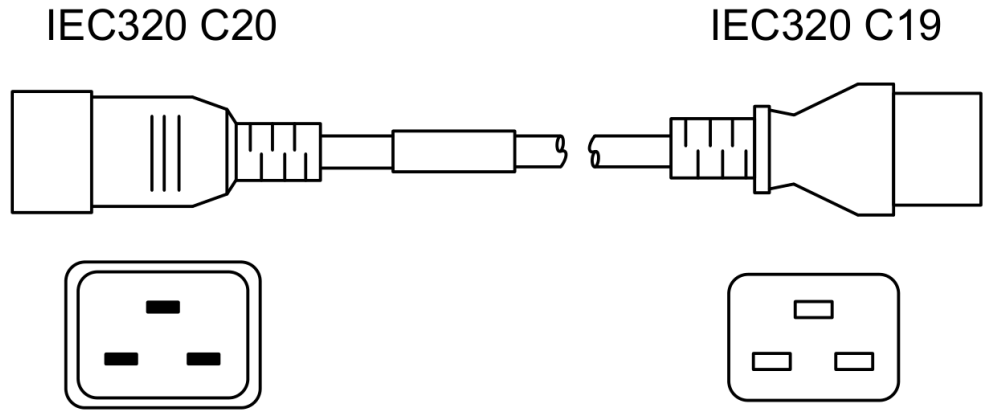



*Figure 97: IEC320 C19 to C20 plug*

Also available:
39M5388 – C19 to IEC320 C20 to (2.0m) 16A @ 100-250VAC Single Phase

## Front End PDU Line cord plugs

This section covers all the plugs on each line cord for the Front End PDU which includes:

- 39Y8934 Front End 220-240VAC / 32A Cord (IEC 309 P+N+G)
- 39Y8935 Front End 220-240VAC / 63A Cord (IEC 309 P+N+G)
- 39Y8936 Front End 220VAC / 30A Cord (KSC 8305 30A)
- 39Y8937 Front End 230VAC / 32A Cord (AUS/NZ 3112 32A)

### 39Y8934 Front End 220-240VAC / 32A Cord (IEC 309 P+N+G)

IEC 309 P+N+G (2.5m) - 32A 220-240VAC Single Phase
Only a receptacle or a connector is needed to mate with the plug on the PDU input line cord. See the Additional Plug Information on page 190 in this document for further details on IEC309.

> **Note**: Note that this is not the same cord as the 40K9612 cord. PDU line cord connector pin out is different.

Matching receptacle listing 332R6W IP-67 HUBBELL, Hubbell receptacle P/N HBL332R6W
Matching connector listing 332C6W IP-67 HUBBELL, Hubbell connector P/N HBL332C6W

Used with: 39Y8934 – Front End PDU

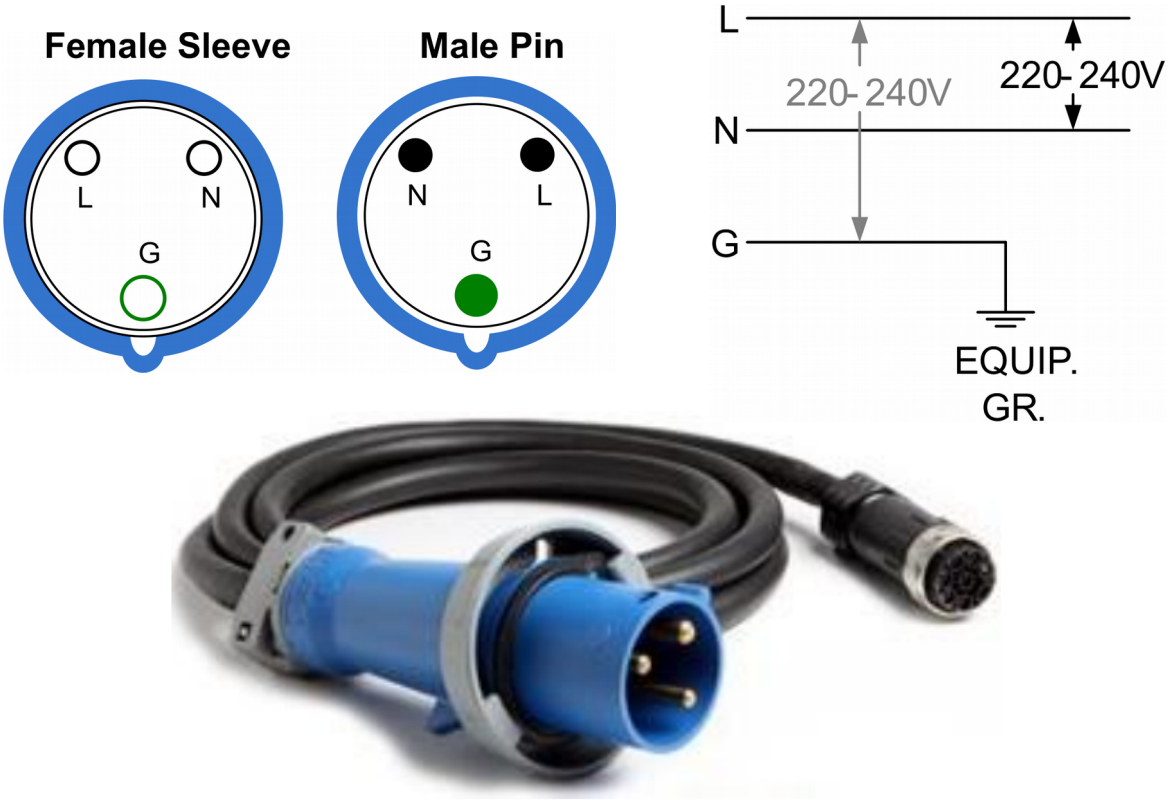



*Figure 98: IEC 309 P+N+G 32A single phase plug*

## 39Y8935 Front End 220-240VAC / 63A Cord (IEC 309 P+N+G)

IEC 309 P+N+G (2.5m) - 63A 220- 240VAC Single Phase

Only a receptacle or a connector is needed to mate with the plug on the PDU input line cord. See the Additional Plug Information on page 190 in this document for further details on IEC309.

> **Note**: Note that this is not the same cord as the 40K9613 cord. PDU line cord connector pin out is different.

Matching receptacle listing 332R6W IP-67 HUBBELL, Hubbell receptacle P/N HBL332R6W
Matching connector listing 332C6W IP-67 HUBBELL, Hubbell connector P/N HBL332C6W

Used with:39Y8935 – Front End PDU

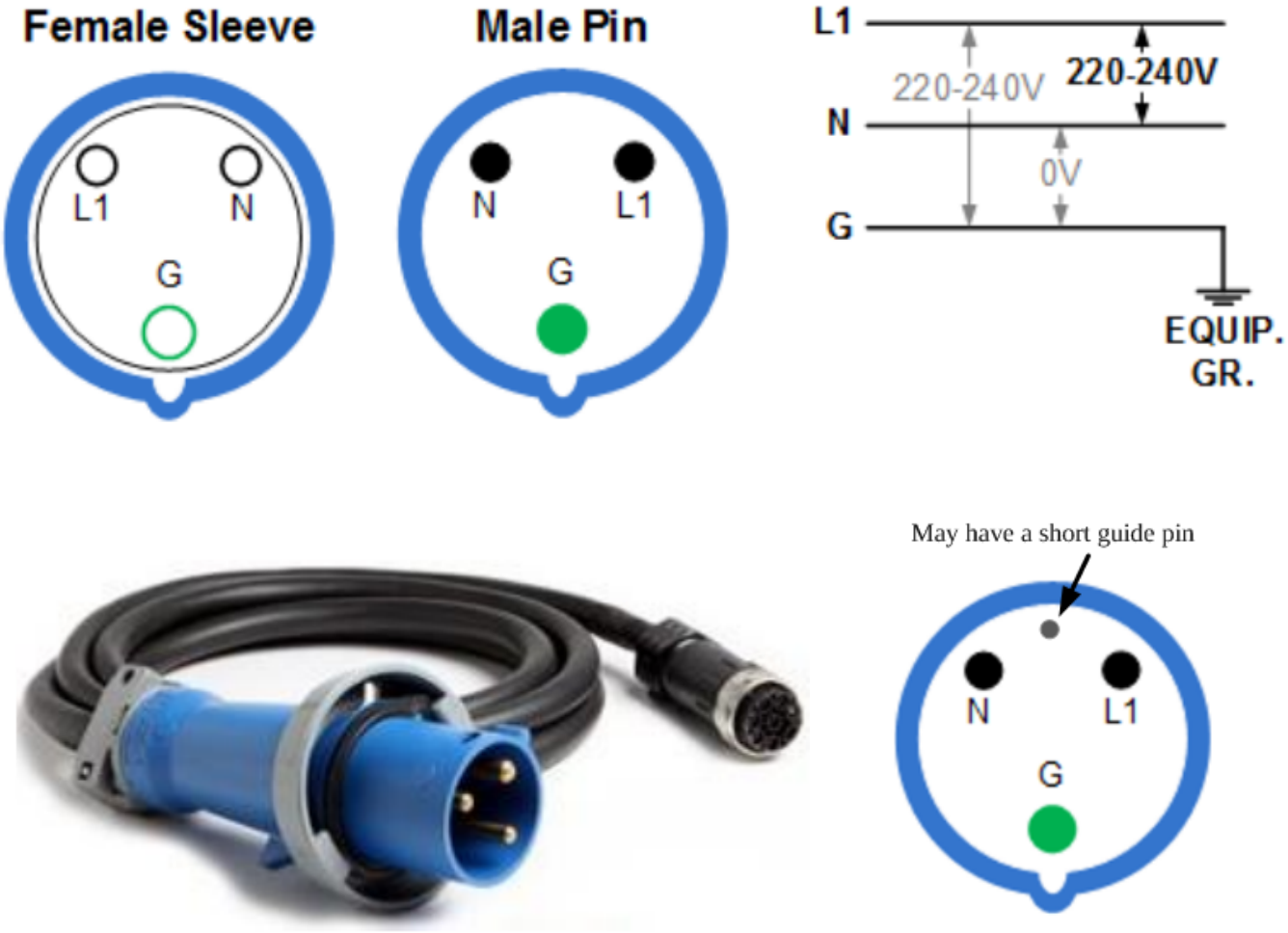



*Figure 99: IEC 309 P+N+G plug (63A) single phase*

39Y8936 Front End 220VAC / 30A Cord (KSC 8305 30A)

P+N+G (Shin Ju P/N SJ-P3302) Korea connector

Used with:
39Y8936 – Front End PDU

**Note**: Note that this is not the same cord as the 40K9618 cord. PDU line cord connector pin out is different.

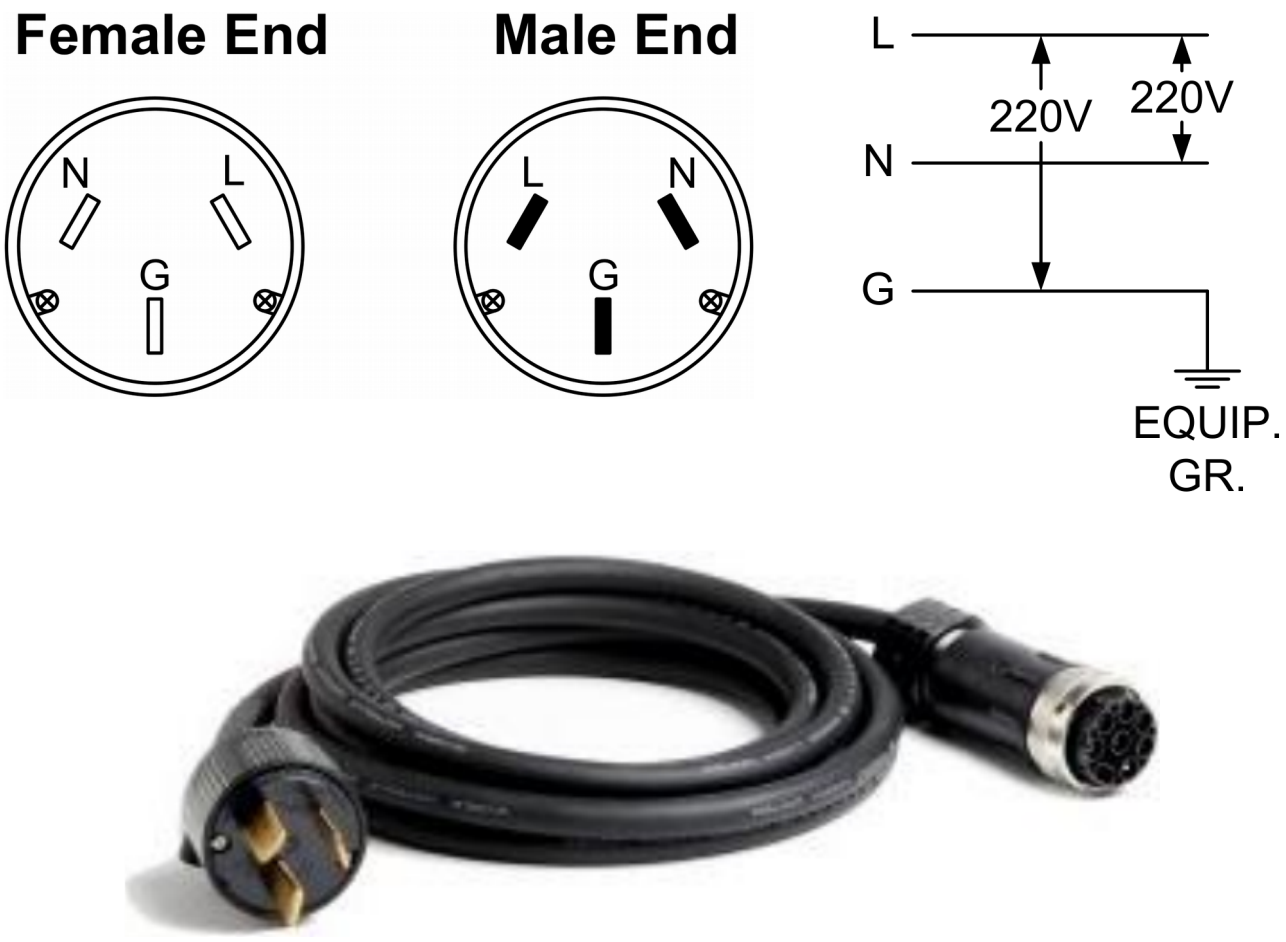





*Figure 100: KSC 8305 30A plug*

## 39Y8937 Front End 230VAC / 32A Cord (AUS/NZ 3112 32A)

P+N+G (PDL P/N 56P332) Australia/New Zealand connector

Used with:
39Y8937– Front End PDU

**Note**: Note that this is not the same cord as the 40K9617 cord. PDU line cord connector pin out is different.

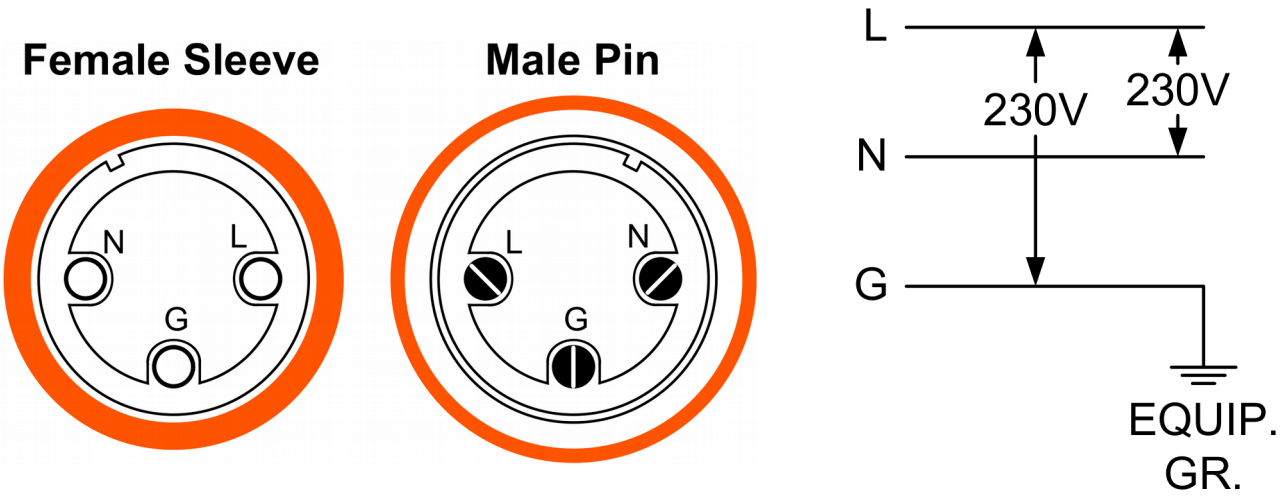



*Figure 101: AUS/NZ 3112 32A plug*

## 1U PDU Detached line cord plugs

This section covers all the plugs on each line cord for the 1U Rack PDUs which include line cords:

- 40K9611 – DPI 32A Cord (IEC 309 3P+N+G)
- 40K9612 – DPI 32A Cord (IEC 309 P+N+G)
- 40K9613 – Lenovo DPI 63A Cord (IEC 309 P+N+G)
- 40K9617 – Lenovo DPI 32A Cord (AUS/NZ 3112 32A)
- 40K9618 – DPI 30A Cord (KSC 8305 30A)

## 40K9611 – DPI 32A Cord (IEC 309 3P+N+G)

IEC-309 3P+N+G (4.3m) 32A, 3P5W plug (Type 532P6W)
32A (32A / Phase) 380-415VAC Three Phase Wye
96A Total Circuit Capacity

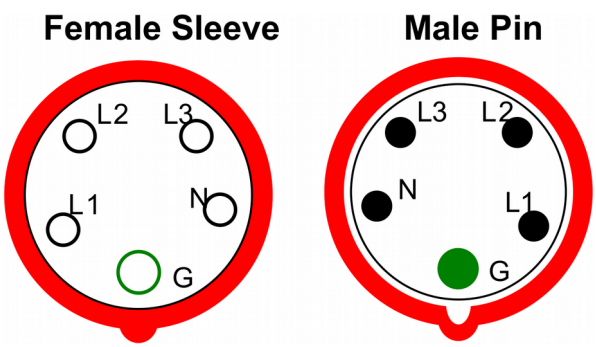
Only a receptacle or a connector is needed to mate with the plug on the PDU input line cord. See the Additional Plug Information on page 190 in this document for further details on IEC309.

Matching receptacle listing 532R6W IP-67 HUBBELL, Hubbell receptacle P/N HBL532R6W
Matching connector listing 532C6W IP-67 HUBBELL, Hubbell connector P/N HBL532C6W

Used with:
**Basic PDUs:**
39Y8941 – DPI® Enterprise – C13 PDU
39Y8948 – DPI Enterprise – C19 PDU
71762NX – Ultra Density Enterprise PDU

**Monitored PDU:**
39M2816 –DPI Enterprise PDU+ C13
71762MX – DPI Ultra Density Enterprise PDU+ (withdrawn)

**Switched and Monitored PDUs:**
46M4002 – 1U 9 C19 / 3 C13 Switched and Monitored PDU
46M4004 – 1U 12 C13 Switched and Monitored PDU



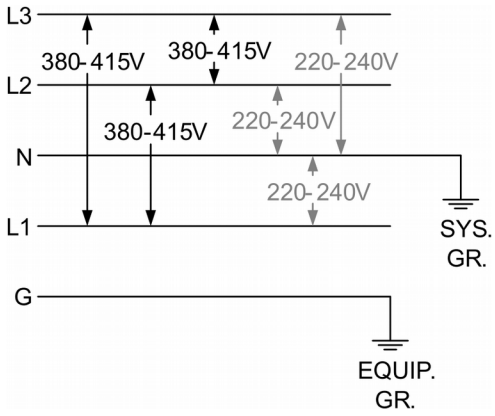




*Figure 102: IEC 309 3P+N+G 32A plug*

* **Note:** For Australia and New Zealand refer to the 'Re-termination for A/NZ' section.

## 40K9612 – DPI 32A Cord (IEC 309 P+N+G)

IEC 309 P+N+G (4.3m) - 32A / 220-240VAC Single Phase

Only a receptacle or a connector is needed to mate with the plug on the PDU input line cord. See the Additional Plug Information on page 190 in this document for further details on IEC309.

Matching receptacle listing 532R6W IP-67 HUBBELL, Hubbell receptacle P/N HBL532R6W
Matching connector listing 532C6W IP-67 HUBBELL, Hubbell connector P/N HBL532C6W

Used with:

**Basic PDUs:**

39Y8941 – DPI® Enterprise – C13 PDU
39Y8948 – DPI Enterprise – C19 PDU
71762NX – Ultra Density Enterprise PDU

**Monitored PDU:**

39M2816 –DPI Enterprise PDU+ C13
71762MX – DPI Ultra Density Enterprise PDU+ (withdrawn)

**Switched and Monitored PDUs:**

46M4002 – 1U 9 C19 / 3 C13 Switched and Monitored PDU
46M4004 – 1U 12 C13 Switched and Monitored PDU

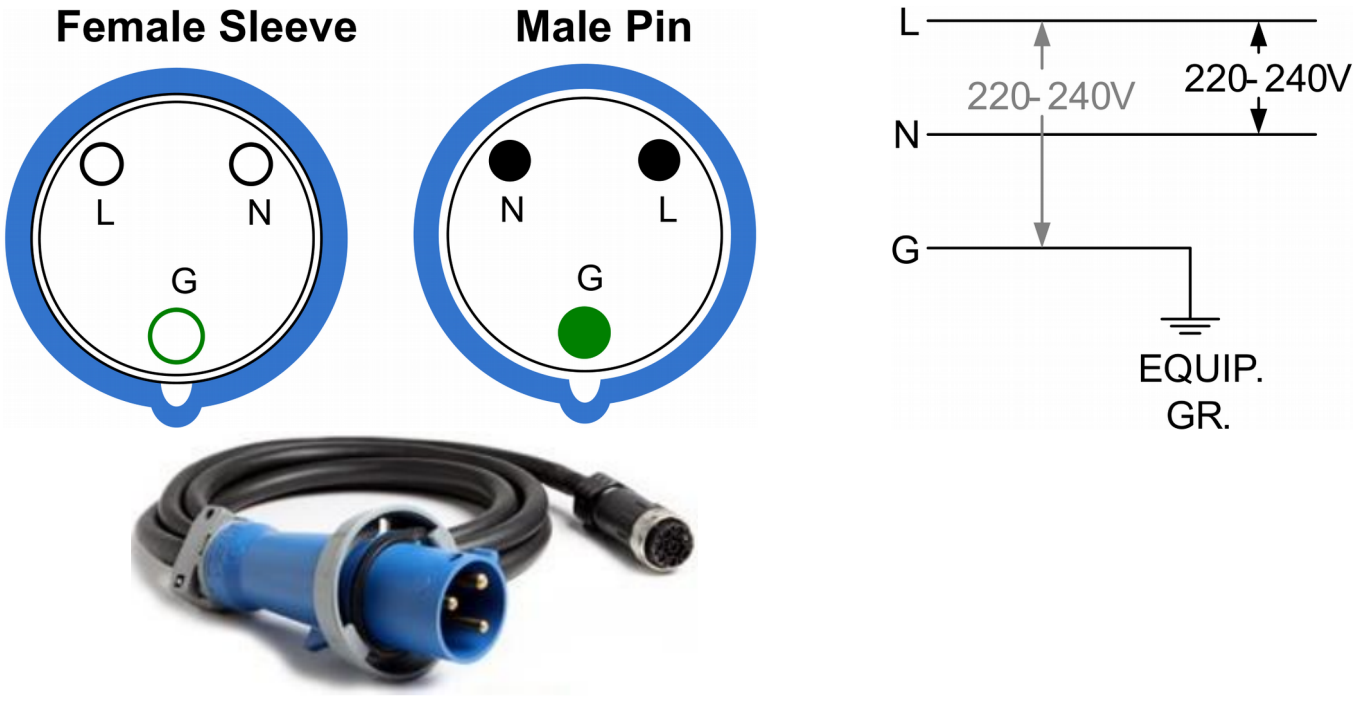



*Figure 103: IEC 309 P+N+G 32A single phase 220-240V plug*

## 40K9613 – Lenovo DPI 63A Cord (IEC 309 P+N+G)

IEC 309 P+N+G (4.3m) - 63A / 220-240VAC Single Phase

Only a receptacle or a connector is needed to mate with the plug on the PDU input line cord. See the Additional Plug Information on page 190 in this document for further details on IEC309.
Matching receptacle listing 532R6W IP-67 HUBBELL, Hubbell receptacle P/N HBL532R6W
Matching connector listing 532C6W IP-67 HUBBELL, Hubbell connector P/N HBL532C6W

Used with:

**Basic PDUs:**

39Y8941 – DPI® Enterprise – C13 PDU
39Y8948 – DPI Enterprise – C19 PDU
71762NX – Ultra Density Enterprise PDU

**Monitored PDU:**

39M2816 –DPI Enterprise PDU+ C13
71762MX – DPI Ultra Density Enterprise PDU+ (withdrawn)

**Switched and Monitored PDUs:**

46M4002 – 1U 9 C19 / 3 C13 Switched and Monitored PDU
46M4004 – 1U 12 C13 Switched and Monitored PDU

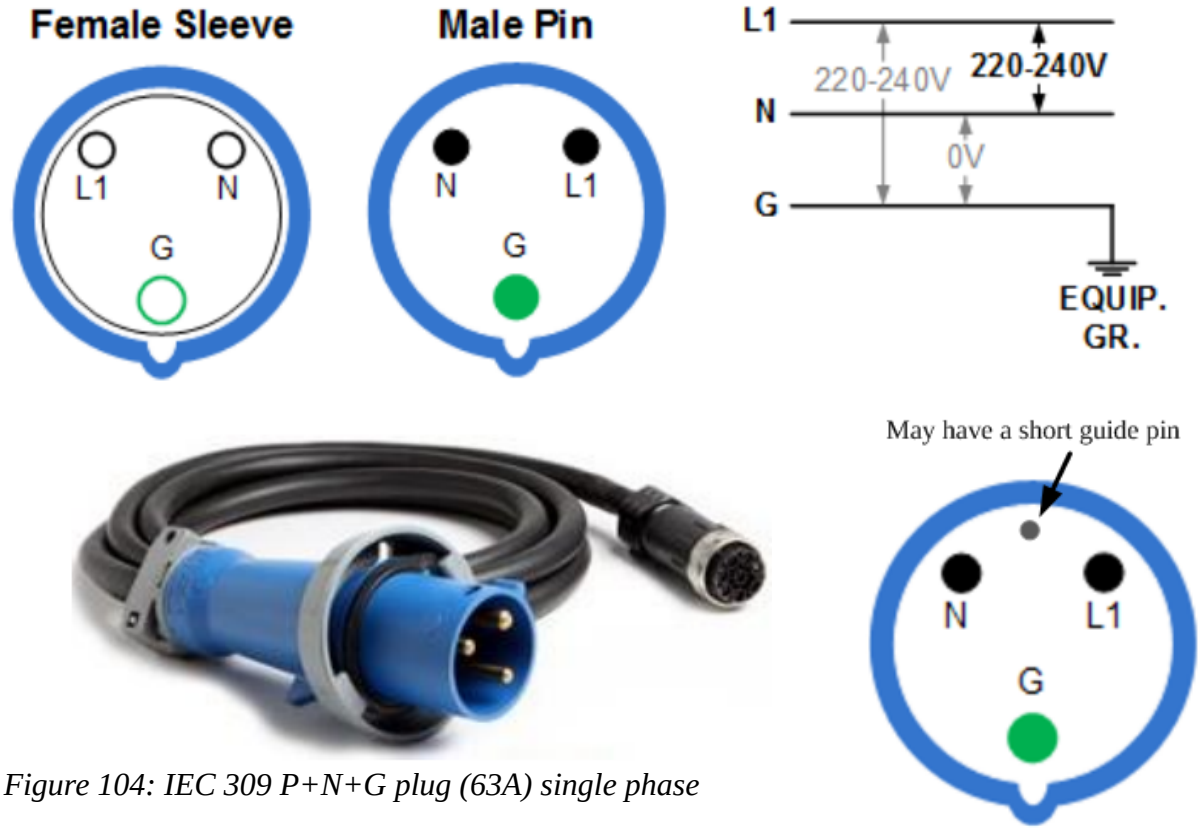



*Figure 104: IEC 309 P+N+G plug (63A) single phase*

## 40K9617 – Lenovo DPI 32A Cord (AUS/NZ 3112 32A)

P+N+G (PDL P/N 56P332) Australia/New Zealand connector

Used with:

**Basic PDUs:**

39Y8941 – DPI® Enterprise – C13 PDU

39Y8948 – DPI Enterprise – C19 PDU

71762NX – Ultra Density Enterprise PDU

**Monitored PDU:**

39M2816 –DPI Enterprise PDU+ C13

71762MX – DPI Ultra Density Enterprise PDU+ (withdrawn)

**Switched and Monitored PDUs:**

46M4002 – 1U 9 C19 / 3 C13 Switched and Monitored PDU

46M4004 – 1U 12 C13 Switched and Monitored PDU

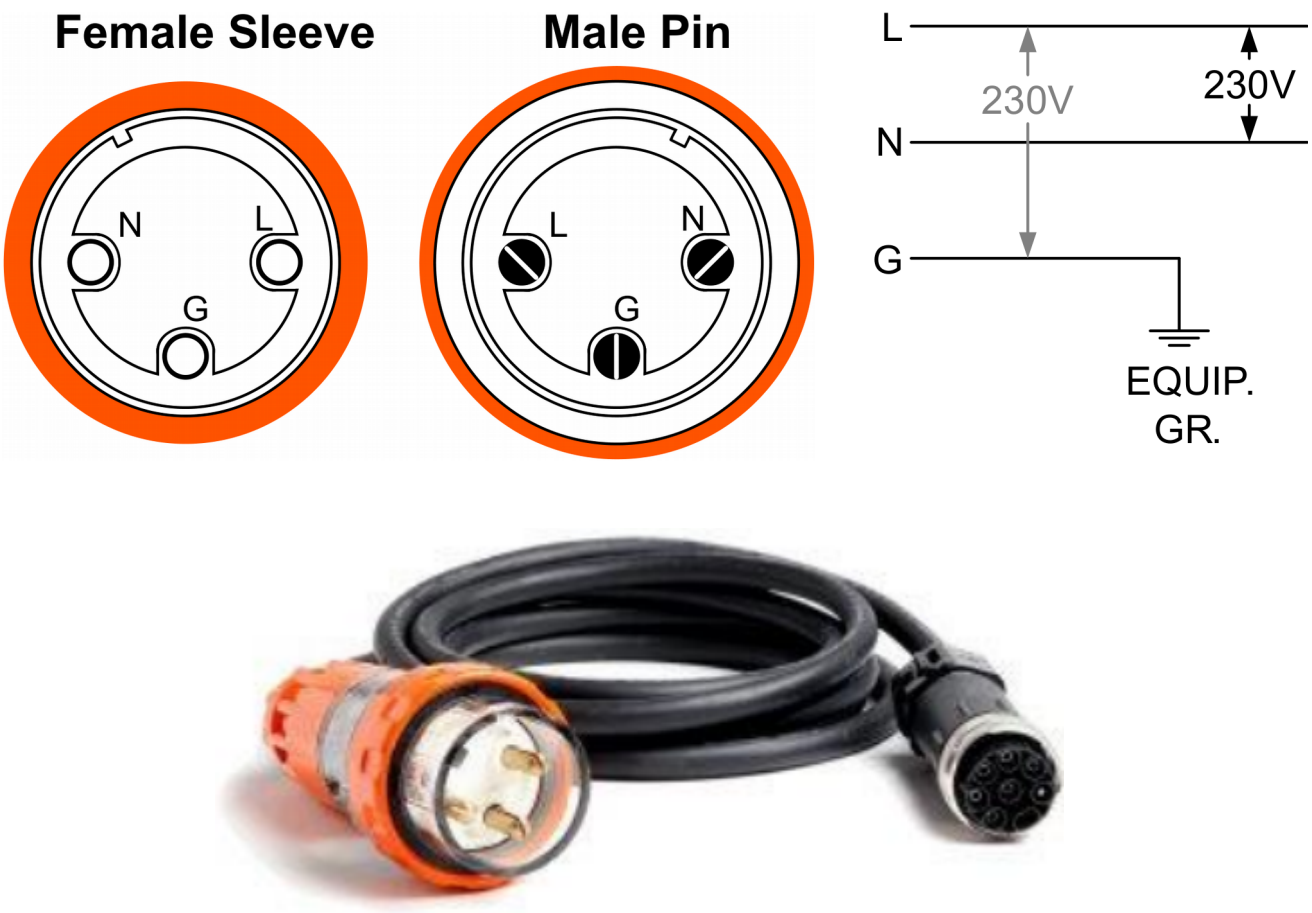



*Figure 105: AUS/NZ 3112 32A plug*

40K9618 – DPI 30A Cord (KSC 8305 30A)

P+N+G (Shin Ju P/N SJ-P3302) Korea connector

Used with:
**Basic PDUs:**
39Y8941 – DPI® Enterprise – C13 PDU
39Y8948 – DPI Enterprise – C19 PDU
71762NX – Ultra Density Enterprise PDU

**Monitored PDU:**
39M2816 –DPI Enterprise PDU+ C13
71762MX – DPI Ultra Density Enterprise PDU+ (withdrawn)

**Switched and Monitored PDUs:**
46M4002 – 1U 9 C19 / 3 C13 Switched and Monitored PDU
46M4004 – 1U 12 C13 Switched and Monitored PDU

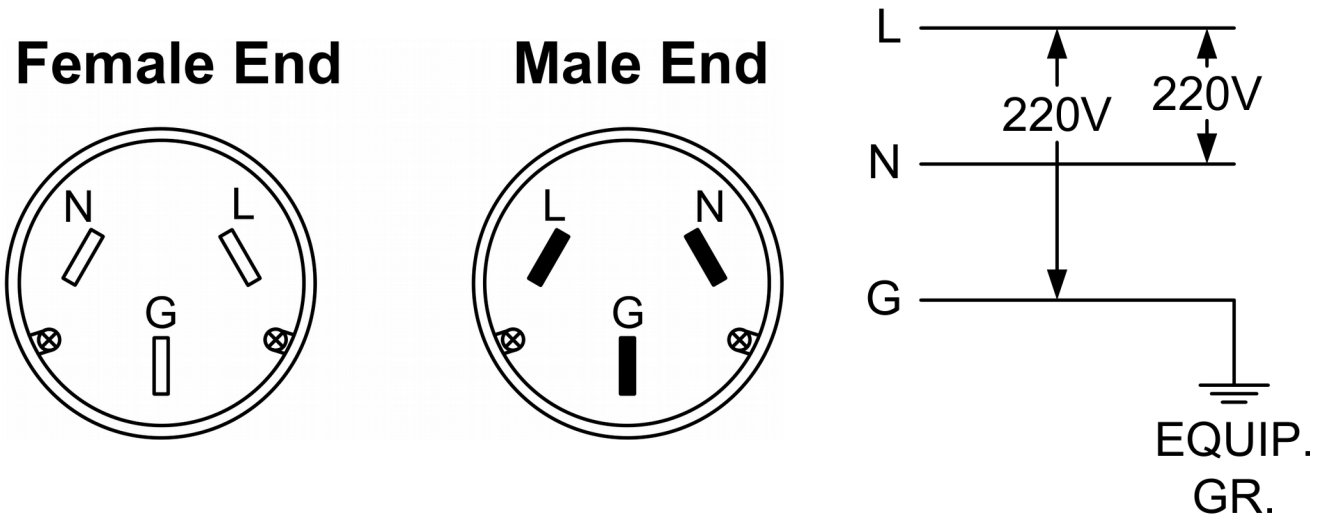



*Figure 106: KSC 8305 30A plug*

## 0U PDU Attached line cord and plugs

This section covers all the plugs on each line cord for the 1U Rack PDUs which include line cords:

- Attached 16A 3ph Cord (IEC309 3P+N+G)
- Attached 32A 1ph Cord (IEC309 P+N+G)
- Attached 32A 3ph Cord (IEC309 3P+N+G)

### Attached 16A 3ph Cord (IEC309 3P+N+G)

IEC-309 3P+N+G 3.0 meter 16A, 3P5W plug (Type 516P6W)
32A (32A / Phase) 380-415VAC Three Phase Wye
48A Total Circuit Capacity

Only a receptacle or a connector is needed to mate with the plug on the PDU input line cord. See the Additional Plug Information on page 190 in this document for further details on IEC309.

Matching receptacle listing 532R6W IP-67 HUBBELL, Hubbell receptacle P/N HBL532R6W
Matching connector listing 532C6W IP-67 HUBBELL, Hubbell connector P/N HBL532C6W

Used with:

**Basic PDU:**
46M4122 – 0U 24 C13 PDU

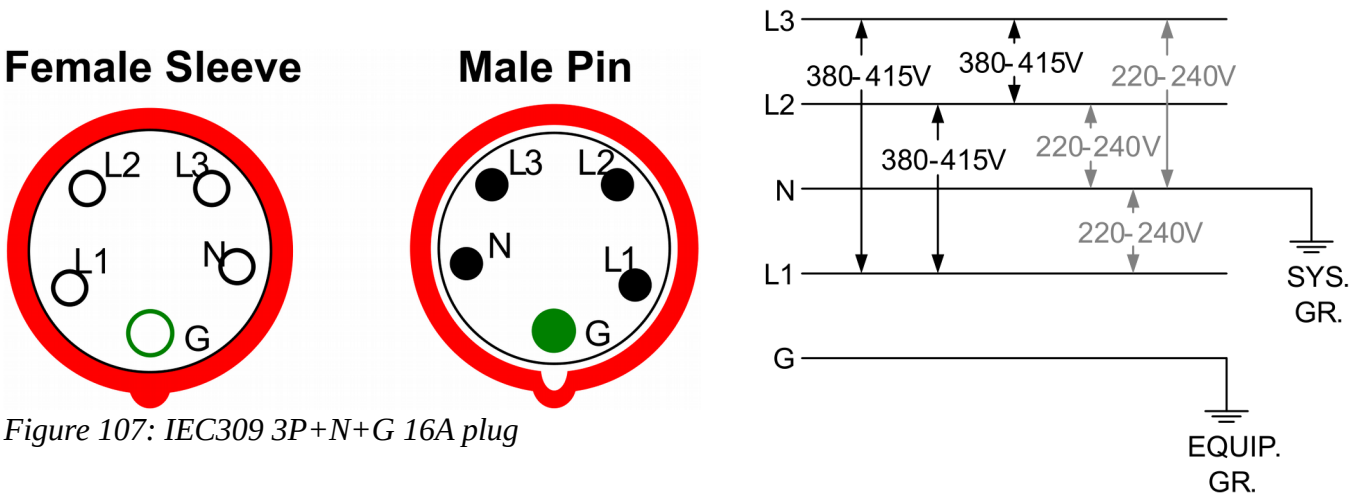



*Figure 107: IEC309 3P+N+G 16A plug*

### Attached 32A 1ph Cord (IEC309 P+N+G)

IEC 309 P+N+G 3.0 meter (4.3m) - 32A / 220-240VAC Single Phase

Only a receptacle or a connector is needed to mate with the plug on the PDU input line cord. See the Additional Plug Information on page 190 in this document for further details on IEC309.

Matching receptacle listing 532R6W IP-67 HUBBELL, Hubbell receptacle P/N HBL532R6W
Matching connector listing 532C6W IP-67 HUBBELL, Hubbell connector P/N HBL532C6W

Used with:

**Basic PDU:**
46M4131 – 0U 24 C13 PDU

**Switched and Monitored PDU:**
46M4119 – 0U 24 C13 Switched and Monitored PDU

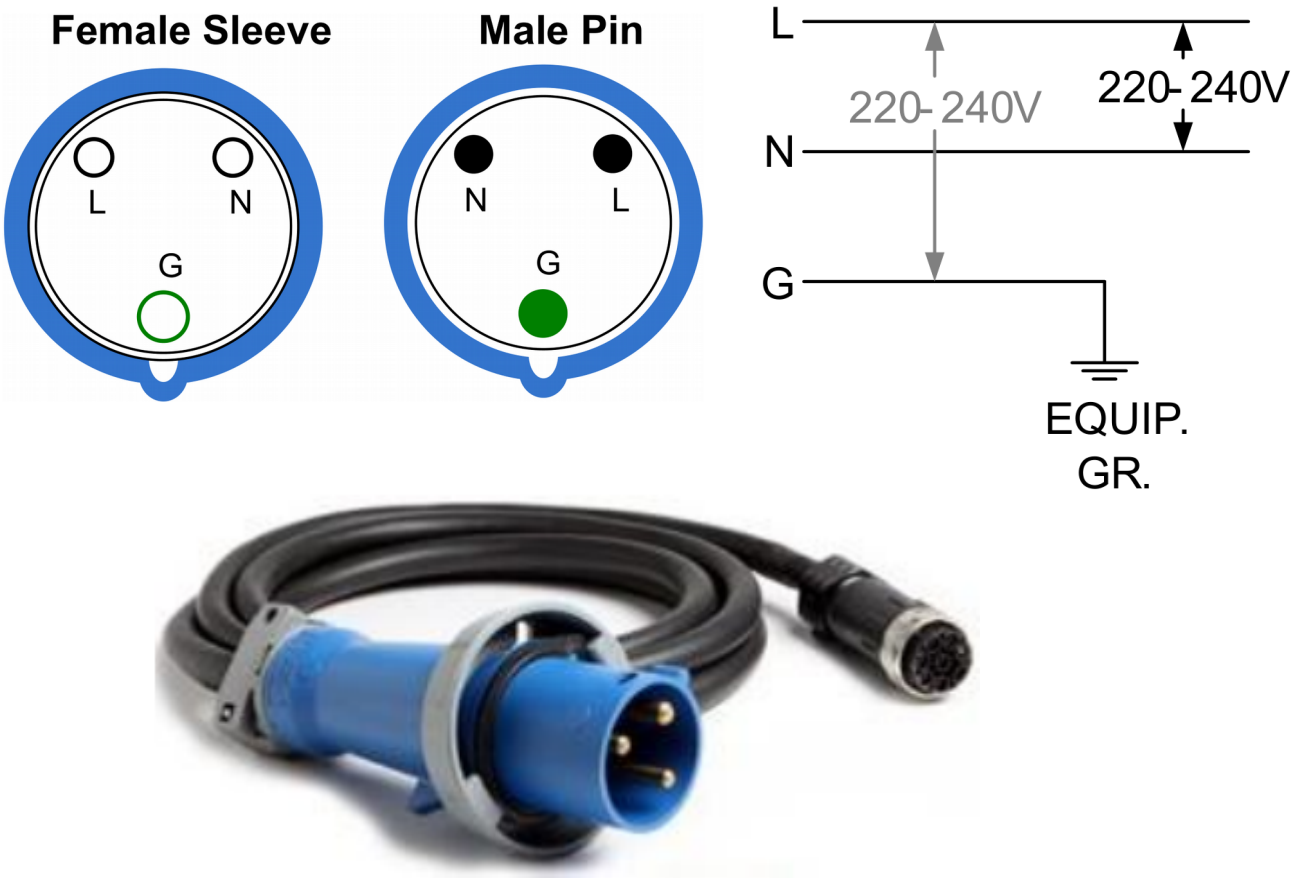



*Figure 108: IEC309 P+N+G 32A single phase plug*

### Attached 32A 3ph Cord (IEC309 3P+N+G)

IEC-309 3P+N+G 3.0 meter 32A , 3P5W plug (Type 532P6W)
32A (32A / Phase) 380-415VAC Three Phase Wye
96A Total Circuit Capacity

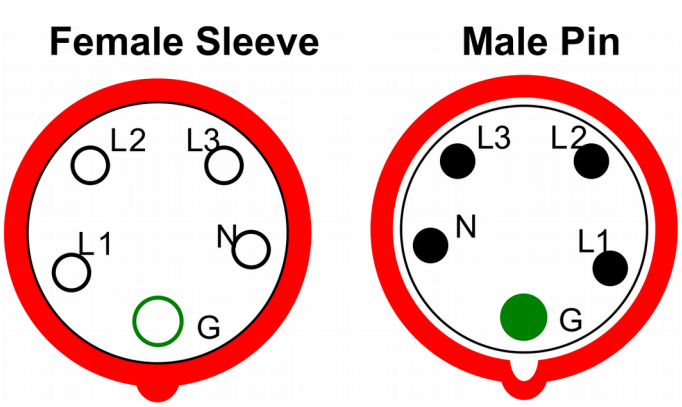
Only a receptacle or a connector is needed to mate with the plug on the PDU input line cord. See the Additional Plug Information on page 190 in this document for further details on IEC309.

Matching receptacle listing 532R6W IP-67 HUBBELL, Hubbell receptacle P/N HBL532R6W
Matching connector listing 532C6W IP-67 HUBBELL, Hubbell connector P/N HBL532C6W

Used with:

**Basic PDU:**
46M4143 – 0U 12 C19 / 12 C13 PDU

**Switched and Monitored PDU:**
46M4137 – 0U 12 C13 / 12 C19 Switched and Monitored PDU



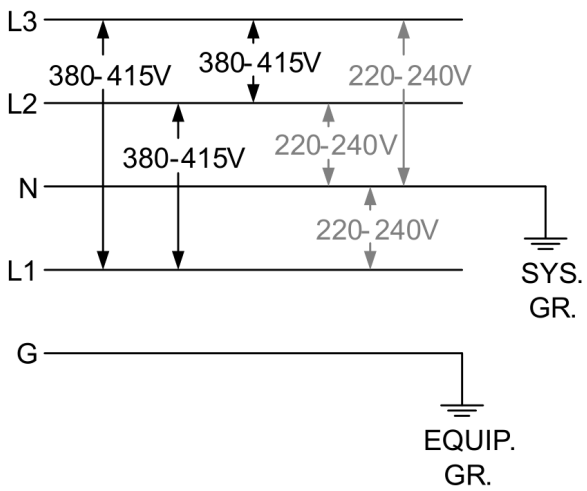




*Figure 109: IEC309 3P+N+G 32A 3phase plug*

## Higher Voltage DC PDU Line cord and hard wiring

The following section discusses the Higher Voltage DC (HVDC) line cord and hard wiring.

### HVDC Line cord and plug

90A@240-380VDC cable 4.3 meter
Pig-tail termination (hardwired, no plug).
Three stranded copper conductors, each with a cross section of 25 sq. mm.

Used with:

**HVDC PDU:**
44T0966 – 1U Higher Voltage PDU

There is no plug on the HVDC PDU and it must be hardwired. See Figure 110 for a picture of the cord.

The cord must be connected to an appropriately wired and grounded high-voltage dc power source by a licensed electrician, following the local electrical codes or requirements.

The PDU conductors are connected to a high-voltage dc power source as described in the table.

| Wired Color | Function |
|---|---|
| Yellow | Earth / Ground wire |
| Blue | Negative DC Voltage wire |
| Brown | Positive DC Voltage wire |

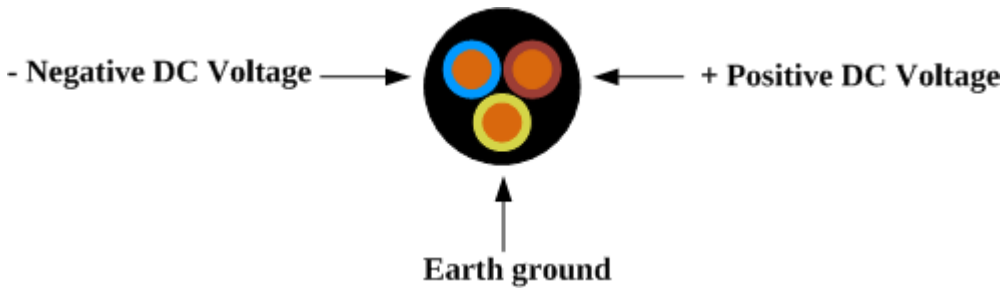



*Figure 110: HVDC PDU cord for hard wiring*

## Re-termination for A/NZ

When using the 40K9611 in Australia or New Zealand, a licensed electrician will be required to re-wire the plug.

The IEC-309 3P+N+G will need to be replaced with a Clipsal 5 Round Pin, 32A, Three Phase Wye plug (P/N 56PA532).

The following pictures depict the rewired plug on 40K9611 for A/NZ.

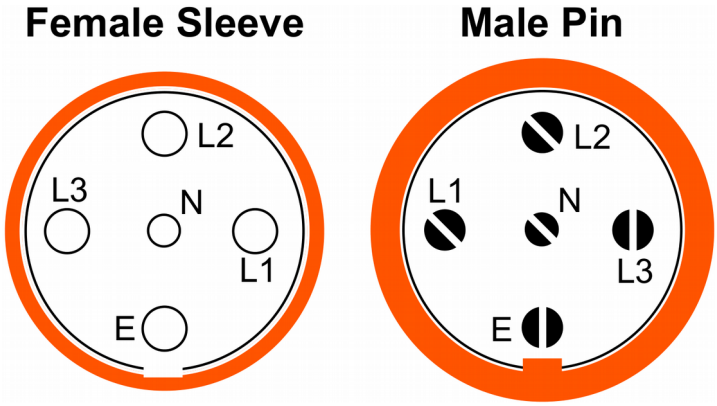
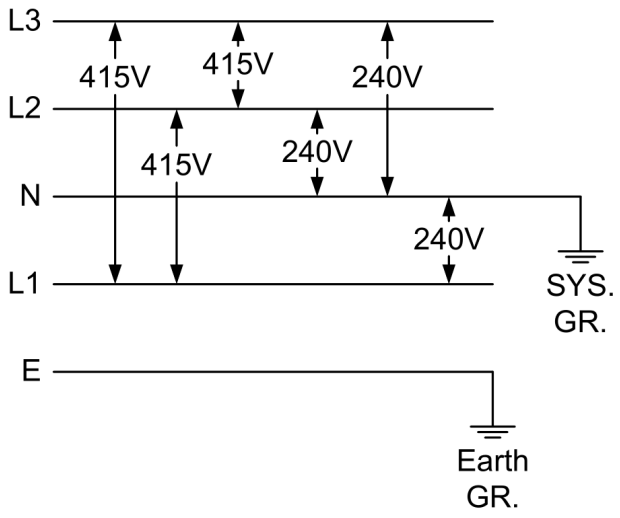



*Figure 111: 56PA532 plug*



# Environmental Monitoring Probe for Monitored PDUs

Figure 112 displays the Environmental Monitoring Probe (EMP) which connects to the PDU. Some Monitored PDUs ship standard with the probe, and for others it can be ordered optionally.

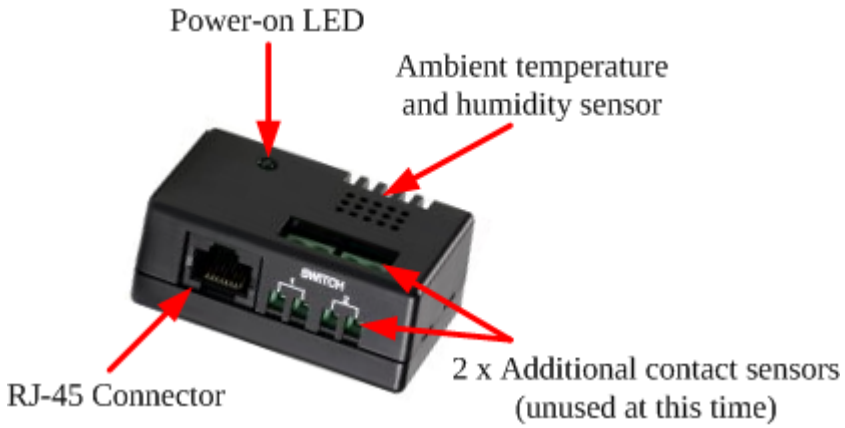



*Figure 112: The EMP*

Although the EMP device needs to be connected to a monitored PDU to function, the EMP device is not a necessity for the monitored PDU to function. The monitored PDUs have their own internal sensors to report on temperature and humidity values of the PDU.

The EMPs purpose is to report on local environmental temperature and humidity at its installed location. For example, if the EMP device is installed at the top of a rack, it will report on the temperature and humidity values at that location.

The EMP reports the local temperature and humidity values to management tools such as Lenovo Systems Director Active Energy Manager (AEM) or to the PDU web interface. The following image shows an example of the EMP connected to an Lenovo Monitored PDU communication port via a CAT5 cable.

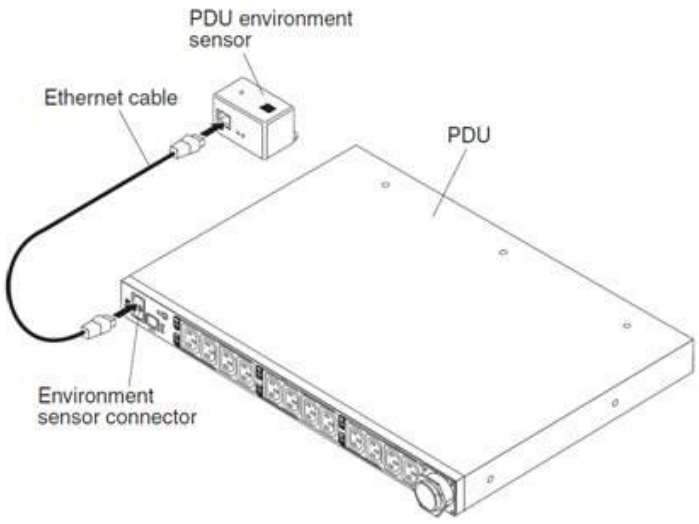



*Figure 113: EMP connection example to PDU*

## EMP Shipment Matrix

The Environmental Monitoring Probe (EMP) ships standard with some monitored (and monitored and switched) PDUs, and is an (optional) orderable part for other monitored PDUs. The EMP needs to be connected to a PDU with monitoring capabilities and can not be used with the basic PDUs. The following table displays the PDUs that ship standard with the EMP and those that do not.

| PDU Part Number | FC | Description | EMP Ships Standard (Yes/No) |
|---|---|---|---|
| 39M2816 | 6032/33 | DPI Enterprise PDU+ C13 | Yes |
| 46M4004 | 5894 | 1U 12 C13 Switched and Monitored PDU | Yes |
| 46M4002 | 5896 | 1U 9 C19 / 3 C13 Switched and Monitored PDU | Yes |
| 46M4119 | 5929 | 0U 24 C13 Switched and Monitored PDU | No (optional) |
| 46M4137 | 5931 | 0U 12 C13 / 12 C19 Switched and Monitored PDU | No (optional) |

The optional EMP can be ordered for PDUs 46M4119, and 46M4137 with:

| Part Number | Description |
|---|---|
| 46M4113 | Optional Lenovo Environmental Monitoring Probe (EMP) Kit |

You can install the device anywhere on the rack by using either the screws or the self-adhesive hook-and-loop fasteners. Once attached to the rack, connect the CAT5 cable to the PDU Sensor connector (1U PDU) or the Ethernet connector (0U PDU) as seen below.


*Figure 114: 1U EMP connector* *0U EMP connector*

**Note:** The EMP can also be connected to a supported UPS if the UPS is equipped with a Network Management Card (NMC).

### What's in the box?

The Environmental Monitoring Kit (46M4113) is shipped with the following items:

- One Environmental Monitoring Probe (EMP)
- Screws
- Hook-and-loop fasteners
- Tie wrap
- Ethernet cable
- Warranty and Important Notices Flyer, and Environmental Notices CD

# Reference

The following section can be used as a reference for the contents in this guide.

## Label Ratings

This section contains the label ratings for Flex System, NeXtScale System, BladeCenter, Top of Rack Switches, System x servers, Storage, iDataPlex, and xSeries Servers.

### Label Ratings Explained

The "Rating" is the label rating of the product. It is the absolute worst case power consumption for a
fully configured system or chassis. This means all DIMM slots, CPU sockets, PCI slots, HDD slots etc., are fully populated and are running at maximum capacity assuming the worst case power load across the entire system/chassis. It is calculated on assuming the highest power consuming hardware is installed, for example: 130W CPUs, quad rank DIMMs, 15k HDD spindles etc. It also assumes highest fan speeds.

For these reasons, if you are running a system with 95W CPUs for example, it is not realistic to provide the rating number as an accurate guide for your systems power load. Use the System x Power Configurator tool to better define your hardware's power draw. The tool is available for download from:

http://www.ibm.com/support/entry/portal/docdisplay?lndocid=LNVO-PWRCONF

## Flex System Enterprise Chassis Label Rating

The following table represents the label rating numbers for the Flex System Enterprise Chassis.

| Chassis | Power Supply Wattage | Power Supplies Standard | Power Supplies Max | 100-127V Rating | 200-240V Rating | 240-380V Rating |
|---|---|---|---|---|---|---|
| Flex Enterprise | 2100W | 2 | 6 | - | 11.8A / Supply | - |
| Flex Enterprise | 2500W | 2 | 6 | - | 13.85A / Supply | - |
| Flex Enterprise | 2500W DC* | 2 | 6 | - | - | 11.5A / Supply |

* This PSU can only be used with the HVDC PDU

## NeXtScale System Chassis Label Rating

The following table represents the label rating numbers for the NeXtScale System Chassis.

| Chassis | Power Supply Wattage | Power Supplies Standard | Power Supplies Max | 100-127V Rating | 200-240V Rating |
|---|---|---|---|---|---|
| n1200 | 900W | 6 | 6 | 6.8A / Supply | 5A / Supply |
| n1200 | 1300W | 2 | 6 | - | 6.9A / Supply |

## BladeCenter System Chassis Label Rating

The following table represents the label rating numbers for the BladeCenter System Chassis.

| Chassis | Power Supply Wattage | Power Supplies Standard | Power Supplies Max | 100-127V Rating | 200-240V Rating |
|---|---|---|---|---|---|
| BC-E | 2000W | 2 | 4 | - | 12A / Supply |
| BC-E | 2320W | 2 | 4 | - | 13.8A / Supply |
| BC-H | 2900W | 2 | 4 | - | 16A / Supply + 16A / Supply + 5A / Blower = 37A / Connector |
| BC-H | 2980W | 2 | 4 | - | 16A / Supply + 16A / Supply + 5A / Blower = 37A / Connector |
| BC-HT | 3160W | 2 | 4 | - | 16A / Supply |
| BC-T | 1300 | 2 | 4 | - | 8A / Supply |
| BC-S | 950W/1450W* | 2 | 4 | 11.2A/ Supply | 8A / Supply |

* - 950W is at 100-127V and 1450W is at 200-240V

# System x Tower Server Label Rating

The following table represents the label rating numbers for System x Tower Servers.

| Server | Power Supply Wattage | Power Supplies | | Server Ratings | | | Redundant @ 100-127V |
|---|---|---|---|---|---|---|---|
| | | Standard | Max | 100-127V | 200-208V | 220-240V | |
| **x3100** | | | | | | | |
| x3100 (4348) | 310W | 1 | 1 | 4.5A | 2.25A | | - |
| x3100 M3 (4253) | 350W | 1 | 1 | 4.9A | 2.4A | | - |
| x3100 M4 (2582) | 300W | 1 | 1 | 6A | 3A | | - |
| x3100 M4 (2582) | 350W | 1 | 1 | 7A | 3.5A | | - |
| x3100 M5 (5457) | 300W | 1 | 1 | 4A | 3A | | - |
| x3100 M5 (5457) | 350W | 1 | 1 | 4.5A | 2.2A | | |
| x3100 M5 (5457) | 430W | 2 | 2 | 5A | 2.5A | | - |
| x3105 (4347) | 310W | 1 | 1 | 4.5A | 2.25A | | - |
| **x3200** | | | | | | | |
| x3200 (4362, 4363) | 400W | 1 | 1 | 5.5A | 2.75A | | - |
| x3200 (4362, 4363) | 430W | 1 | 2 | 5.5A | 2.75A | | Yes |
| x3200 M2 (4367, 4368) | 401W | 1 | 1 | 5.5A | 2.75A | | - |
| x3200 M2 (4367, 4368) | 430W | 1 | 2 | 5.5A | 2.75A | | Yes |
| x3200 M2 (9234) | 400W | 1 | 1 | 5.5A | 2.75A | | - |
| x3200 M2 (9234) | 430W | 1 | 2 | 5.5A | 2.75A | | Yes |
| x3200 M3 (7327, 7328) | 401W | 1 | 1 | 5.5A | 2.75A | | - |
| x3200 M3 (7327, 7328) | 430W | 1 | 2 | 5.5A | 2.75A | | Yes |
| **x3300** | | | | | | | |
| x3300 M4 (7382) | 460W | 1 | 1 | 5.3A | 2.6A | | - |
| x3300 M4 (7382) | 550W | 1 | 2 | 6.5A | 3.3A | | Yes |
| x3300 M4 (7382) | 750W | 1 | 2 | 8.9A | 4.5A | | Yes |

| x3400 | | | | | | |
|---|---|---|---|---|---|---|
| x3400 (7973, 7974) | 670W | 1 | 1 | 5A | 2.5A | - |
| x3400 (7975, 7976) | 835W | 1 | 2 | 6.5A | 3.25A | Yes |
| x3400 M2 (7836, 7837) | 670W | 1 | 1 | 10A | 5A | - |
| x3400 M2 (7836, 7837) | 920W | 1 | 2 | 10A | 5A | Yes |
| x3400 M3 (7378, 7379) | 670W | 1 | 1 | 10A | 5A | - |
| Server | Power Supply Wattage | Power Supplies | | Server Ratings | | Redundant @ 100-127V |
| | | Standard | Max | 100-127V | 200-208V / 220-240V | |
| x3400 M3 (7378, 7379) | 920W | 1 | 2 | 10A | 5A | Yes |
| x3500 | | | | | | |
| x3500 (7977) | 835W | 1 | 2 | 6.5A | 3.25A | Yes |
| x3500 M2 (7839) | 670W | 1 | 2 | 10A | 5A | - |
| x3500 M2 (7839) | 920W | 1 | 2 | 10A | 5A | Yes |
| x3500 M3 (7380) | 670W | 1 | 2 | 10A | 5A | - |
| x3500 M3 (7380) | 920W | 1 | 2 | 10A | 5A | Yes |
| x3500 M4 (7383) | 750W | 1 | 2 | 8.9A | 4.5A | Yes |
| x3500 M4 (7383) | 900W | 1 | 2 | 10A | 5A | Yes |

## System x Rack Server Label Rating

The following table represents the label rating numbers for System x Rack Servers.

| Server | Power Supply Wattage | Power Supplies | | Server Ratings | | | Redundant @ 100-127V |
|---|---|---|---|---|---|---|---|
| | | Standard | Max | 100-127V | 200-208V | 220-240V | |
| **x3250** | | | | | | | |
| x3250 (4364, 4365) | 350W | 1 | 1 | 6A | 3A | | - |
| x3250 M2 (4190, 4194) | 351W | 1 | 1 | 4.5A | 2.25A | | - |
| x3250 M3 (4251, 4252) | 351W | 1 | 1 | 4.5A | 2.25A | | - |
| x3250 M4 (2583) | 300W | 1 | 1 | 6A | 3A | | - |
| x3250 M4 (2583) | 460W | 1 | 2 | 5.3A | 2.6A | | Yes |
| x3250 M5 (5458) | 460W | 1 | 2 | 5.3A | 2.6A | | Yes |
| x3250 M5 (5458) | 300W | 1 | 1 | 6A | 3A | | - |
| **x3350** | | | | | | | |
| x3350 (4192, 4193) | 450W | 1 | 2 | 4.1A | 2A | | Yes |
| **x3455** | | | | | | | |
| x3455 (7984) | 650W | 1 | 1 | 6.1A | 3.0A | | - |
| x3455 (7940, 7941) | 650W | 1 | 1 | 6.1A | 3.0A | | - |
| **x3530** | | | | | | | |
| x3530 M4 (7160) | 460W | 1 | 2 | 5.3A | 2.6A | | Yes |
| x3530 M4 (7160) | 675W | 1 | 2 | 7.8A | 3.8A | | Yes |
| **x3550** | | | | | | | |
| x3550 (7879) | 670W | 1 | 2 | 7A | 3.5A | | Yes |
| x3550 M2 (7946) | 675W | 1 | 2 | 7.8A | 3.8A | | Yes |
| x3550 M3 (7944) | 460W | 1 | 2 | 5.3A | 2.6A | | Yes |
| x3550 M4 (7914) | 550W | 1 | 2 | 6.5A | 3.3A | | Yes |
| x3550 M4 (7914) | 750W | 1 | 2 | 8.9A | 4.5A | | Yes |
| x3550 M3 (7944) | 675W | 1 | 2 | 7.8A | 3.8A | | Yes |

| x3620 | | | | | | |
|---|---|---|---|---|---|---|
| x3620 M3 (7376) | 460W | 1 | 2 | 5.3A | 2.6A | Yes |
| x3620 M3 (7376) | 675W | 1 | 2 | 7.8A | 3.8A | Yes |
| | | | | | | |
| x3630 M3 (7377) | 675W | 1 | 2 | 7.8A | 3.8A | Yes |
| Server | Power Supply Wattage | Power Supplies | | Server Ratings | | Redundant @ 100-127V |
| | | Standard | Max | 100-127V | 200-208V / 220-240V | |
| x3630 M4 (7158) | 550W | 1 | 2 | 6.5A | 3.3A | Yes |
| x3630 M4 (7158) | 750W | 1 | 2 | 8.9A | 4.5A | Yes |
| x3650 | | | | | | |
| x3650 (7979) | 835W | 1 | 2 | 9.7A | 4.85A | Yes |
| x3650 T (7980) | 600W | 2 | 2 | 6A | 3A | Yes |
| x3650 M2 (7838) | 675W | 1 | 2 | 7.8A | 3.8A | Yes |
| x3650 M2 (7947) | 675W | 1 | 2 | 7.8A | 3.8A | Yes |
| x3650 M3 (7945) | 460W | 1 | 2 | 5.3A | 2.6A | Yes |
| x3650 M3 (7945) | 675W | 1 | 2 | 7.8A | 3.8A | Yes |
| x3650 M4 (7915) | 550W | 1 | 2 | 6.5A | 3.3A | Yes |
| x3650 M4 (7915) | 750W | 1 | 2 | 8.9A | 4.5A | Yes |
| x3650 M4 (7915) | 900W | 1 | 2 | 10A | 5A | Yes |
| x3650 M4 BD (5466) | 750W | 1 | 2 | 8.9A | 4.5A | Yes |
| x3650 M4 BD (5466) | 900W | 1 | 2 | 10A | 5A | Yes |
| x3650 M4 HD (5460) | 550W | 1 | 2 | 6.5A | 3.3A | Yes |
| x3650 M4 HD (5460) | 750W | 1 | 2 | 8.9A | 4.5A | Yes |
| x3650 M4 HD (5460) | 900W | 1 | 2 | 10A | 5A | Yes |
| x3655 | | | | | | |
| x3655 (7985) | 835W | 1 | 2 | 9.7A | 4.85A | Yes |
| x3690 X5 | | | | | | |
| x3690 X5 (7147, 7148) | 675W | 1 | 1 | 7.8A | 3.8A | Yes |

| | | | | | | |
|---|---|---|---|---|---|---|
| x3690 X5 (7147, 7148) | 675W | 2 | 4 | | | |
| Server Rating | | | | 15.6A | 7.6A | Yes |
| Power Supply Rating (per plug) | | | | 7.8A | 3.8A | Yes |
| **x3750** | | | | | | |
| x3750 M4 (8722) | 900W | 1 | 2 | 10A | 5A | Yes |
| x3750 M4 (8722) | 1400W | 1 | 2 | 10A | 8A | Yes |
| **x3755** | | | | | | |
| x3755 (8877, 7163) | 1500W | 1 | 2 | 17.6A | 8.8A | No |
| x3755 M3 (7164) | 1100W | 1 | 1 | 12 | 6.7A | - |
| x3755 M3 (7164) | 1100W | 2 | 3 | | | |
| Server Rating | | | | 19A | 11.6A | Yes |

| Server | Power Supply Wattage | Power Supplies | | Server Ratings | | | Redundant @ 100-127V |
|---|---|---|---|---|---|---|---|
| | | Standard | Max | 100-127V | 200-208V | 220-240V | |
| Power Supply Rating (per plug) | | | | 12A | 6.7A | | Yes |
| **x3800** | | | | | | | |
| x3800 (8866) | 775W | 2 | 3 | 18.4A | 9.2A | | Yes |
| **x3850/x3950** | | | | | | | |
| x3850 (8863, 8864) | 1300W | 1 | 2 | 15.75A | 7.875A | | No |
| x3950 (8872, 8878) | 1300W | 2 | 2 | 15.75A | 7.875A | | No |
| x3850/3950 M2 (7141) | 1440W | 1 | 2 | 17.2AA | 8A | | No |
| x3850/3950 M2 (7233) | 1440W | 1 | 2 | 17.2AA | 8A | | No |
| x3850 X5 (7143, 7145) | 1975W | 2 | 2 | 20A | 12A | 10A | No |
| x3850 X6 (3837) | 900W | 2 | 4 | 10A | 5A | | Yes |
| x3850 X6 (3837) | 1400W | 2 | 4 | 10A | 8A | | Yes |
| x3850 X6 DC* (3837) | 750W** | 2 | 4 | - | - | | - |

* Input Voltage Range: -48V (-30V to -60V), max input Amps@-36V = 24A

** DC model requires the use of a HVDC PSU

## DS Storage Label Rating

The following table represents the label rating numbers for the DS Storage Units.

| Storage Device | Power Supply Wattage | 100-127V Rating | 200-240V Rating |
|---|---|---|---|
| DS3200 | 515W | 3.9A | 1.95A |
| DS3300 | 515W | 3.9A | 1.95A |
| DS3400 | 515W | 3.9A | 1.95A |
| DS3512 | 385W | 3.8A | 1.9A |
| DS3524 | 330W | 3.8A | 1.9A |
| DS4100 | 390W | 3.01A | 1.57A |
| DS4200 | 390W | 4.45A | 2.27A |
| DS4800 | 390W | 5A | 2.25A |
| DS5020 | 600W | 6A | 2.5A |
| DS5100 | 580W | 5.4A | 2.25A |
| DS5300 | 580W | 5.4A | 2.25A |
| DCS 3860 | 896W | 15A | 7A |

## Expansion (EXP) Unit Storage Label Rating

The following table represents the label rating numbers for the Storage Expansion Units.

| Storage Device | Power Supply Wattage | 100-127V Rating | 200-240V Rating |
|---|---|---|---|
| EXP420 | 600W | 4.54A | 2.27A |
| EXP500 | 390W | 3.9A | 1.98A |
| EXP700 | 390W | 3.9A | 1.98A |
| EXP710 | 390W | 3.9A | 1.98A |
| EXP810 | 600W | 4.54A | 2.27A |
| EXP3000 | 390W | 3.9A | 1.98A |
| EXP3500 | 330W | 3.8A | 1.9A |
| EXP5000 | 580W | 5.4A | 2.25A |
| EXP520 | 600W | 6A | 2.5A |
| EXP3800 | 802W | 15A | 7A |

## Storwize Label Rating

The following table represents the label rating numbers for the Storwize Storage Units.

| Storage Device | Power Supply Wattage | 100-127V Rating | 200-240V Rating |
|---|---|---|---|
| Storwize V3500 | 735W | 3.93A | 1.96A |
| Storwize V3700 | 735W | 3.93A | 1.96A |
| Storwize V3700 DC | 800W | 9.89A | 4.89A |
| Storwize V3700 EXP | 735W | 3.26A | 1.63A |
| Storwize V3700 DC EXP | 800W | 7.72A | 3.39A |
| Storwize V7000 | 580W | 8A | 3A |
| Storwize V7000 | 764W | 10A | 6A |

## iDataPlex Chassis Label Rating

The following table represents the label rating numbers for the Storwize Storage Units.

| Chassis | Slot Configuration | Power Supply Wattage | Number of Power Supplies | | Chassis Rating |
|---|---|---|---|---|---|
| | | | Standard | Max | |
| 2U Flex Chassis (7831, 6385) | 2 Planars | 900W High Efficiency | 1 | 1 | 100V – 8.62A<br>110V – 7.71A<br>115V – 7.35A<br>120V – 7.00A<br>127V – 6.63A<br>200V – 4.19A<br>208V – 3.98A<br>220V – 3.81A<br>230V – 3.61A<br>240V – 3.46A |
| 2U Flex Chassis (7831, 6385) | 1 Planar with I/O Tray | 900W High Efficiency | 1 | 1 | 100V – 5.90A<br>110V – 5.28A<br>115V – 5.01A<br>120V – 4.83A<br>127V – 4.61A<br>200V – 2.93A<br>208V – 2.83A<br>220V – 2.68A<br>230V – 2.57A<br>240V – 2.47A |
| 2U Flex Chassis (7381, 6385) | 1 Planar with Storage Tray | 900W High Efficiency | 1 | 1 | 100V – 5.54A<br>110V – 4.89 A<br>115V – 4.67A<br>120V – 4.44A<br>127V – 4.20A<br>200V – 2.67A<br>208V – 2.56A<br>220V – 2.43A<br>230V – 2.33A<br>240V – 2.24A |

| Chassis | Slot Configuration | Power Supply Wattage | Number of Power Supplies | | Chassis Rating |
|---|---|---|---|---|---|
| | | | Standard | Max | |
| 3U Storage Chassis (7834, 6386) | | 900W High Efficiency | 1 | 1 | 100V – 7.61A<br>110V – 6.90A<br>115V – 6.52A<br>120V – 6.28A<br>127V – 5.90A<br>200V – 3.73A<br>208V – 3.59A<br>220V – 3.37A<br>230V – 3.24A<br>240V – 3.13A |
| 2U Flex Chassis (7831, 6385) | 2 Planars | Dual 750W Power Supply | 2 | 2 | 200V – 3.90A<br>208V – 3.80A<br>220V – 3.53A<br>230V – 3.38A<br>240V – 3.22A |
| 2U Flex Chassis (7831, 6385) | 1 Planar with I/O Tray | Dual 750W Power Supply | 2 | 2 | 200V – 2.37A<br>208V – 2.27A<br>220V – 2.15A<br>230V – 2.05A<br>240V – 1.97A |
| 2U Flex Chassis (7381, 6385) | 1 Planar with Storage Tray | Dual 750W Power Supply | 2 | 2 | 200V – 2.43A<br>208V – 2.32A<br>220V – 2.19A<br>230V – 2.11A<br>240V – 1.99A |
| 3U Storage Chassis (7834, 6386) | | Dual 750W Power Supply | 2 | 2 | 200V – 2.89A<br>208V – 2.76A<br>220V – 2.61A<br>230V – 2.51A<br>240V – 2.39A |

## System x Top of Rack (ToR) Ethernet Switch Label Rating

The following table represents the label rating numbers for the ToR Ethernet Switches.

| Switch | Power Supply Wattage | Power Supplies Standard | Power Supplies Max | 100-127V Rating | 200-240V Rating | Power Supply Inlet |
|---|---|---|---|---|---|---|
| Lenovo G7028* | 100W | 1 | 1 | 1.15A | 0.58A | IEC320 C14 |
| Lenovo G8000 | 150W | 2 | 2 | 1.5A | 0.65A | IEC320 C14 |
| Lenovo G8052 | 450W | 2 | 2 | 2.0A | 1.0A | IEC320 C14 |
| Lenovo G8124 | 275W | 2 | 2 | 2.75A | 1.25A | IEC320 C14 |
| Lenovo G8264 | 750W | 2 | 2 | 3.75A | 1.875A | IEC320 C14 |
| Lenovo G8316 | 750W | 2 | 2 | 3.95A | 1.95A | IEC320 C14 |
| Lenovo J48E (4273-48E) | 320W | 1 | 2 | 3.75A | 2.0A | IEC320 C14 |
| Lenovo J48E (4273-48E) | 600W | 1 | 2 | 6.75A | 3.25A | IEC320 C14 |
| Lenovo J48E (4273-48E) | 930W | 1 | 2 | 5.5A | 4.0A | IEC320 C14 |
| Lenovo B48Y (4002AY4) | 210W | 1 | 2 | 2.5A | 1.2A | IEC320 C14 |
| Lenovo B24X | 300W | 1 | 2 | 2.5A | 1.2A | IEC320 C14 |

* Redundant power supplied through external power supply.

## xSeries Server Label Rating

The following table represents the label rating numbers for Lenovo xSeries Servers.

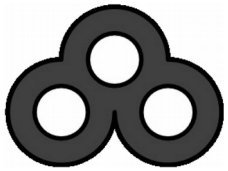
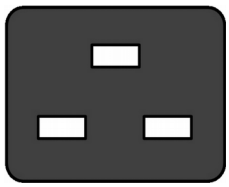
| Server | Power Supply Wattage | Power Supplies | | Server Ratings | | | Redundant @ 100-127V |
|---|---|---|---|---|---|---|---|
| | | Standard | Max | 100-127V | 200-208V | 220-240V | |
| x100 | 310W | 1 | 1 | 4.5A | 2.25A | | - |
| x206 | 400W | 1 | 1 | 5.5A | 2.75A | | - |
| x206 | 430W | 1 | 2 | 5.5A | 2.75A | | Yes |
| x226 | 530W | 1 | 1 | 7A | 3.5A | | - |
| x226 | 514W | 1 | 2 | 7A | 3.5A | | Yes |
| x236 | 670W | 1 | 2 | 8.93A | 4.465A | | Yes |
| x255 | 370W | 2 | 4 | 10A | 5A | | Yes |
| x260 | 775W | 2 | 3 | 18.4A | 9.2A | | No |
| x306 | 350W | 1 | 1 | 4.3A | 2.15A | | - |
| x335 | 332W | 1 | 1 | 4A | 2A | | - |
| x335 | 411W | 1 | 1 | 3.5A | 1.75A | | - |
| x336 | 585W | 1 | 2 | 5.5A | 2.75A | | Yes |
| x346 | 625W | 1 | 2 | 8.3A | 4.15A | | Yes |
| x366 | 1300W | 1 | 2 | 15.75A | 7.875A | | No |
| x445 | 1200W | 2 | 2 | 9.5A | 4.75A | | No |
| x445 16-way | 1200W | 4 | 4 | 19A | 9.5A | | No |
| x460 | 1300W | 2 | 2 | 15.75A | 7.875A | | No |

## Additional Plug Information

The following section discusses more details on the PDU plugs.

### IEC 320 Connectors

The following table displays the plug types for different hardware such as monitors, switches, servers, high-end servers, power distribution units (PDUs), and Uninterruptable Power Supplies (UPSs).

| Name | Amp Rating (A) | Connector | Usage |
|---|---|---|---|
| C5 – Female<br>C6 – Male | 2.5A |  | Laptop Power Supplies And Other Portable Power Supplies |
| C7 – Female<br>C8 – Male | 2.5A |  | Laptop Power Supplies And Other Portable Power Supplies |
| C13 – Female<br>C14 – Male | 10A |  | Desktop Computers, Monitors, Switches, And Servers |
| C15 – Female<br>C16 – Male | 10A |  | Used In Hot Conditions Since It Is Rated To 1200 C (2480F), Unlike C13/C14 Which Is Rated To 700 C (1580 F) |
| C19 – Female<br>C20 – Male | 16A |  | 16A Blade Chassis, Flex System, High-power Servers, UPSs, PDUs, And Other High Current Equipment. Note: IEC 320 has changed to IEC 60320 IEC 309 |

**Note:** IEC 320 has changed to IEC 60320

## Rong Fend RF-203P Connector

The following table displays the plug type for the Higher Voltage DC PDU.

| Name | Connector | AMP Rating | Use |
|---|---|---|---|
| RF-203P |  | 10/15A | For systems requiring DC power from a DC power source. |

## IEC 309 Plug Sleeve Ratings

The color of the sleeve around a plug indicates its voltage rating. The colors and ratings are listed
below.

| Color | Voltage Rating |
|---|---|
| Yellow | 100V - 130V |
| Orange | 125V/250V |
| Blue | 200V - 250V |
| Gray | 277V |
| Red | 380V - 480V |
| Black | 500V - 690V |

## IEC 309 Pin Decode

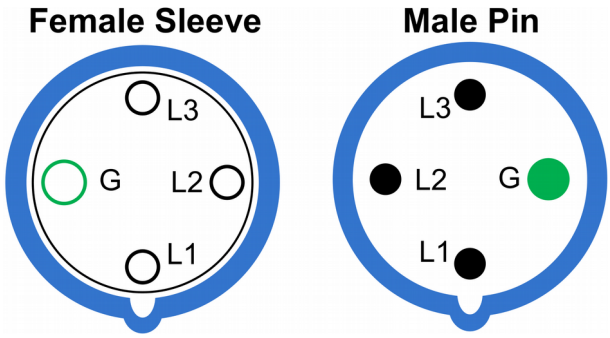
The following table is a break down of the Hubbell (HBL) part number.

The numbers and letters circled in red below is an example HBL part number: HBL**460R9W**.

| 4 | 60 | R | 9 | W |
|---|---|---|---|---|
| **Pin Configuration** | **Amperage** | **Device Type** | **Polarization** | **Environmental Rating** |
| 3 - 2 Pole + G<br>4 - 3 Pole + G<br>5 – 3 Pole + N + G | 20 30 32<br>60 63 100 | P - Plug<br>C - Connector<br>R - Receptacle<br>B - Inlet | Clock Position Of Female Sleeve | W-WATERTIGHT (SCREW CAP & LOCKING RING) |

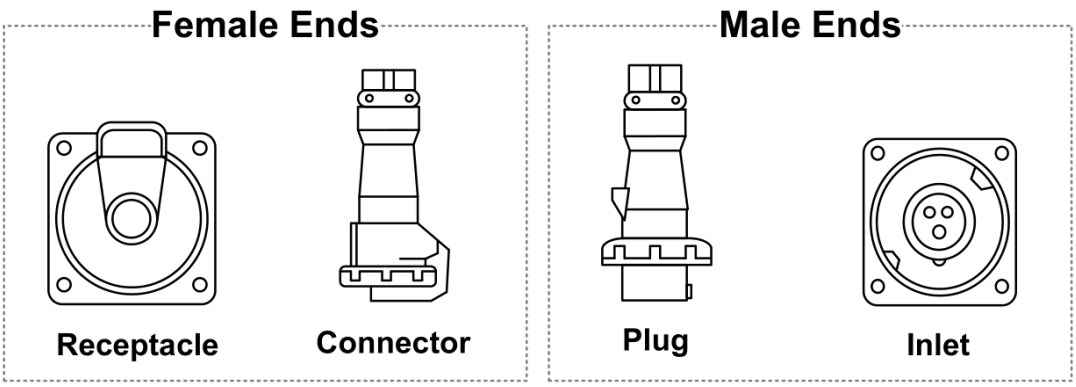
The P/N: HBL**460R9W** plug description is listed below:

HBL**460R9W** = **4** pin (3ph), **60**A, **R**eceptacle, **9** ground (G) clock face pin position, **W**atertight.




**Note:** The number of pins indicates the phase: **3 pins** = 1ph, **4 pins** = 3ph Δ, and **5 pins** = 3 ph Y

The device types (R, C, P, and B) are pictured below.



## Ingress Protection (IP) Decode

| Code Letters | First Number | Second Number |
|---|---|---|
| **Ingress Protection** | **Protection Against Ingress of Solid Foreign Objects** | **Protection Against Ingress of Water with Harmful Effects** |
| **IP** | 0 – No Protection<br>1 ≥ 50mm Diameter<br>2 ≥ 12.5mm Diameter<br>3 ≥ 2.5mm Diameter<br>4 ≥ 1.0mm Diameter<br>5 – Dust-Protected<br>6 – Dust-Tight | 0 – No Protection<br>1 – Vertically Dripping<br>2 – Dripping At 15° Of Tilt<br>3 – Spraying Up To 60° Of Tilt<br>4 – Splashing<br>5 – Jetting<br>6 – Power Jetting<br>7 – Temporary Immersion<br>8 – Continuous Immersion |

**First Number:** degree of protection for persons against access of hazardous parts inside the enclosure and/or against foreign objects.

**Second Number:** degree of protection of equipment inside enclosures against damage from ingress of water.

*Ingress Protection (IP ) is defined in IEC 60529 Standard.*

Example: IP67 = Ingress Protection / Dust-Tight / Temporary Immersion

## Three Phase Power Calculation Diagrams

The following figures explain three phase power values for various amperage.

### 60A Three Phase Delta Power Calculations

$$E_{LL} = E_{AC} = E_{BA} = E_{CB} = 208V$$

$$I_L = 60A$$

$$P_{Total} = \sqrt{3} \times E_{LL} \times I_L \times pf$$

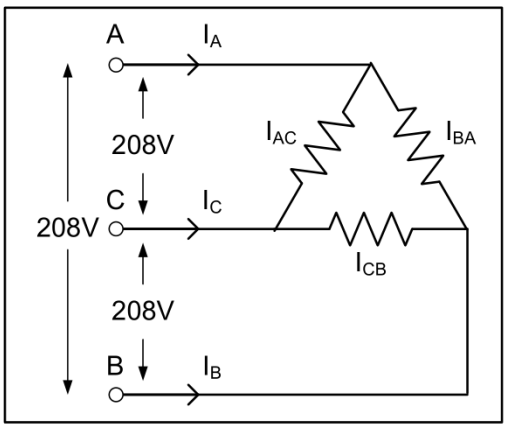
$$= \sqrt{3} \times 208 \times 60 \times 1$$

$$= 21616W$$

$$P_{Derated} = P_{Total} \times 0.8$$

$$= 21616W \times 0.8$$

$$= 17293W$$




$$I_\Phi = I_{AC} = I_{BA} = I_{CB} = \frac{I_L}{\sqrt{3}} = \frac{60}{\sqrt{3}} = 34.64A$$

$$I_{Derated} = I_\Phi \times 0.8 = 34.64 \times 0.8 = 27.7A$$

Variables Defined

$I_\Phi$ = Phase Current
$I_L$ = Line Current
$E_{LL}$ = Line to Line Voltage
pf = Power Factor
P = Power In Watts

## 50A Three Phase Delta Power Calculations

$E_{LL} = 208V$

$I_L = 50A$

$P_{Total} = \sqrt{3} \times E_{LL} \times I_L \times PF$

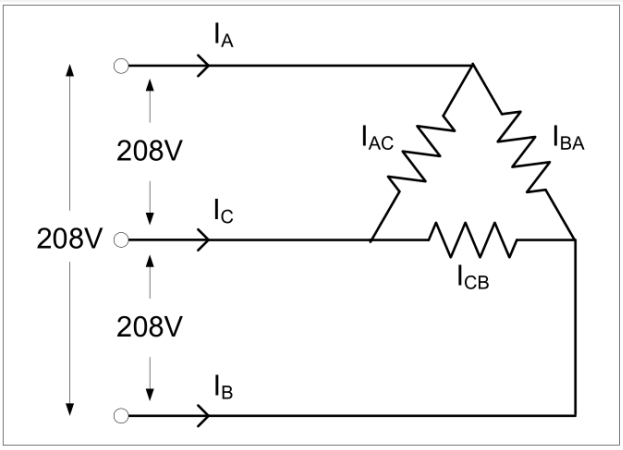
$= \sqrt{3} \times 208 \times 50 \times 1$

$= 18013W$

$P_{Derated} = P_{Total} \times 0.8$

$= 18013W \times 0.8$

$= 14410W$




Variables Defined

$I_\Phi$ = Phase Current
$I_L$ = Line Current
$E_{LL}$ = Line to Line Voltage
PF = Power Factor
P = Power In Watts

$$I_{AC} = I_{BA} = I_{CB} = \frac{I_L}{\sqrt{3}} = \frac{50}{\sqrt{3}} = 28.86A$$

$I_{Derated} = I \times 0.8 = 28.86 \times 0.8 = 23.09A$

## 30A Three Phase Delta Power Calculations

$E_{LL} = E_{AC} = E_{BA} = E_{CB} = 208V$

$I_L = 30A$

$P_{Total} = \sqrt{3} \times E_{LL} \times I_L \times PF$

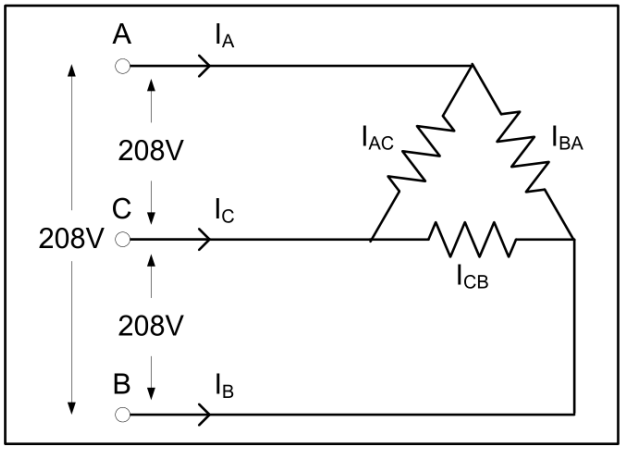
$= \sqrt{3} \times 208 \times 30 \times 1$

$= 10808W$

$P_{Derated} = P_{Total} \times 0.8$

$= 10808W \times 0.8$

$= 8646W$




Variables Defined

$I_\Phi$ = Phase Current
$I_L$ = Line Current
$E_{LL}$ = Line to Line Voltage
PF = Power Factor
P = Power In Watts

$$I_\Phi = I_{AC} = I_{BA} = I_{CB} = \frac{I_L}{\sqrt{3}} = \frac{30}{\sqrt{3}} = 17.32A$$

$I_{Derated} = I_\Phi \times 0.8 = 17.32 \times 0.8 = 13.85A$

## 32A Three Phase Delta Power Calculations

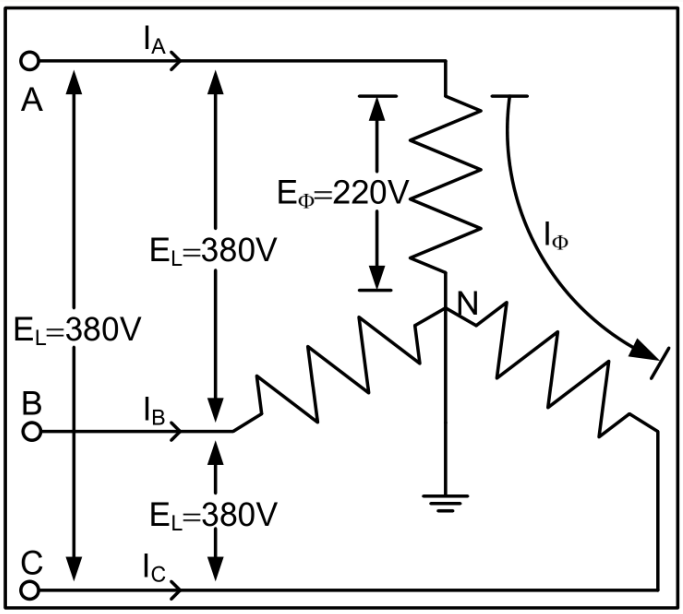
$I_A = I_B = I_C = I_L = I_\Phi = 32A$

$P_\Phi = E_{\Phi Y} \times I_{\Phi Y} \times pf \quad (W)$

$P_{TOTAL} = 3 \times P_\Phi$
$= 3 \times E_L/\sqrt{3} \times I_\Phi \times pf$
$= \sqrt{3} \times E_L \times I_L \times pf$
$= \sqrt{3} \times 380V \times 32A \times 1$
$= 21061W$

$E_{AN} = E_{BN} = E_{CN} = E_\Phi$

$= \frac{E_L}{\sqrt{3}} = \frac{380}{\sqrt{3}} = 220V$




## 16A Three Phase Delta Power Calculations

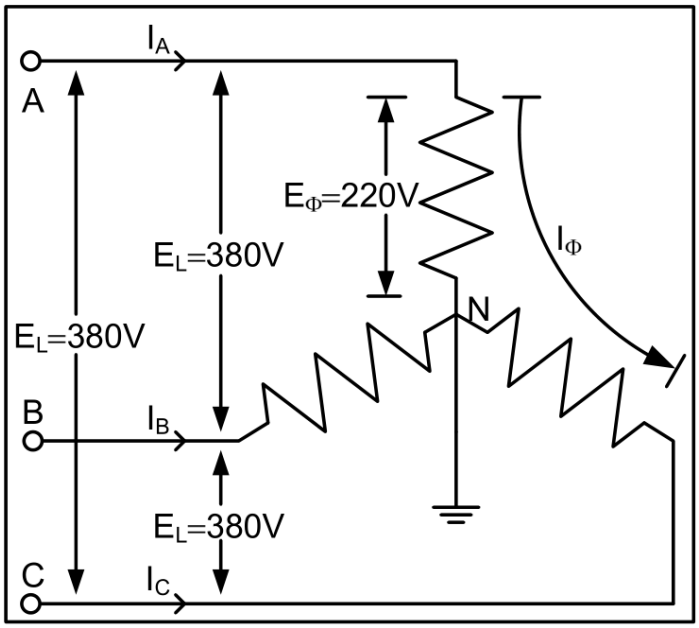
$I_A = I_B = I_C = I_L = I_\Phi = 16A$

$P_\Phi = E_{\Phi Y} \times I_{\Phi Y} \times pf \quad (W)$

$P_{TOTAL} = 3 \times P_\Phi$
$= 3 \times E_L/\sqrt{3} \times I_\Phi \times pf$
$= \sqrt{3} \times E_L \times I_L \times pf$
$= \sqrt{3} \times 380V \times 16A \times 1$
$= 10530W$

$E_{AN} = E_{BN} = E_{CN} = E_\Phi$

$= \frac{E_L}{\sqrt{3}} = \frac{380}{\sqrt{3}} = 220V$



## Helpful Links

Power and Cooling Guides
http://www.ibm.com/support/entry/portal/docdisplay?lndocid=LNVO-POWINF

Power Configurator
http://www.ibm.com/support/entry/portal/docdisplay?lndocid=LNVO-PWRCONF

Hubbell - Twist Lock Plug/Outlet Catalog (Includes NEMA Outlets)
http://www.hubbellcatalog.com/wiring/catalogpages/section-b.pdf

Hubbell - Pin & Sleeve Plug/Outlet Catalog (Includes IEC309 Outlets)
http://www.hubbellcatalog.com/wiring/catalogpages/section-E.pdf

System x Configuration and Options Guide
http://www.ibm.com/systems/xbc/cog/

System x BladeCenter and System x Reference Sheets
http://www.redbooks.ibm.com/abstracts/redpxref.html

Official System x Visio Stencils
http://www.visiocafe.com/lenovo.htm