Data Center Planning

System x PDU Technical Reference – North America
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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1.0 – July 15, 2009	Initial Release. First published by William S Champion.
1.1.1 – January 7, 2010	Updated copyright and other dates
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
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 Updated withdrawn.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 46M4002, 46M4003, 46M4004, and 46M4005 PDUs. Added withdrawn PDUs section to the Introduction. Update information and diagrams for Front End PDU mounting options.
2.3.1 – February 03, 2014	Update to Label Rating section to include new systems. Add feature code information for PDUs.
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3.0.1 – March 06, 2015	Update to template, tables, link errors
3.0.2 – March 07, 2015	Update to template

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Table of Contents

Introduction

Only System x Power Distribution Units (PDUs) that are currently marketed in North America, Japan and Saudi Arabia 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 soft copy form as 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 for North America.

Basic PDUs						
PDU	Option Number	Phase (ph)	Voltage (V)	Line Cord (derated)	Number / Type of Outlet	Page Link
DPI Universal Rack PDU	39Y8951	1ph	100-127V	20A (15A)	7 / C13	15
			200-240V	20A (15A)		
			100-127V & 200-240V	16A (15A)		
DPI NEMA Rack PDU	39Y8905	1ph	100-127V	20A (15A)	6 / 5-15	24
Front End PDU	39Y8938	1ph	100-127V	30A (24A)	3 / C19	32
	39Y8939		200-240V	30A (24A)		
	39Y8940			60A (48A)		
DPI® Enterprise – C13 PDU	39Y8941	1ph	200-240V	30A (24A)	12 / C13	41
				60A (48A)		
DPI Enterprise – C19 PDU	39Y8948	1ph	200-240V	30A (24A)	6 / C19	49
				60A (48A)		
	39Y8923	3ph Δ	208V	60A (27.7A/ph)		
Ultra Density Enterprise PDU	71762NX	1ph	200-240V	30A (24A)	9 / C19 3 / C13	59
				60A (48A)		
	71763NU	3ph Δ	208V	60A (27.7A/ph)		
0U 24 C13 PDU	46M4125	3ph Δ	208V	30A (13.85A/ph)	24 / C13	70
	46M4128	1ph	200-240V	30A (24A)		
0U 12 C19 / 12 C13 PDU	46M4140	3ph Δ	208V	50A (23.09A/ph)	12 / C19 12 / C13	81
1U Higher Voltage DC PDU	44T0966	-	240V-380VDC	90A DC Hardwired (no plug)	6 / Rong Feng RF-203P	89

Monitored PDU						
PDU	Option Number	Phase (ph)*	Voltage (V)	Line Cord (derated)	Number / Type of Outlet	Page Link
DPI Enterprise PDU+ C13	39M2816	1ph	200-240V	30A (24A)	12 / C13	98
				60A (48A)		
	44X3193	3ph	208V	60A (27.7A)		

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	200V-240V	30A (24A)	12 / C13	110
				60A (48A)		
	46M4005	3ph Δ	208V	60A (27.7A)		
1U 9 C19 / 3 C13 Switched and Monitored PDU	46M4002	1ph	200V-240V	30A (24A)	3 / C13 9 / C19	121
				60A (48A)		
	46M4003	3ph Δ	208V	60A (27.7A)		
0U 24 C13 Switched and Monitored PDU	46M4116	1ph	200V-240V	30A (24A)	24 / C13	132
0U 12 C13 / 12 C19 Switched and Monitored PDU	46M4134	3ph Δ	208V	50A (23.09A/ph)	12 / C13 12 / C19	140
1U 9 C19 / 3 C13 Switched and Monitored PDU	46M4167	3ph Δ	208V	30A (13.85A/ph)	3 / C13 9 / C19	147

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)

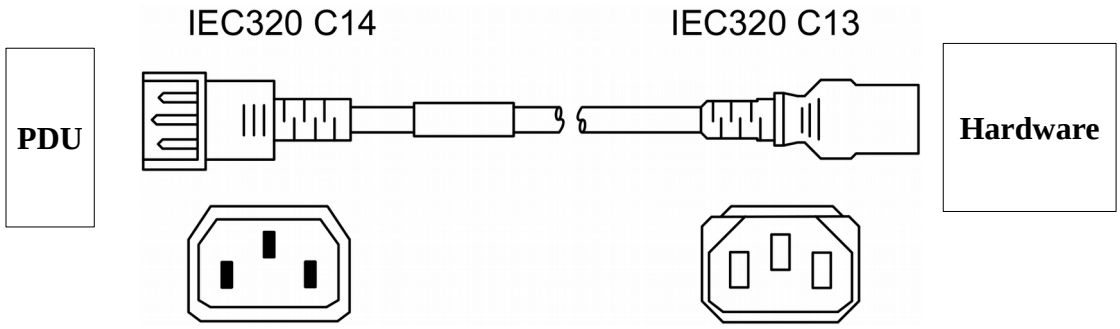


Figure 1: C13 to C14 plugs

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

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

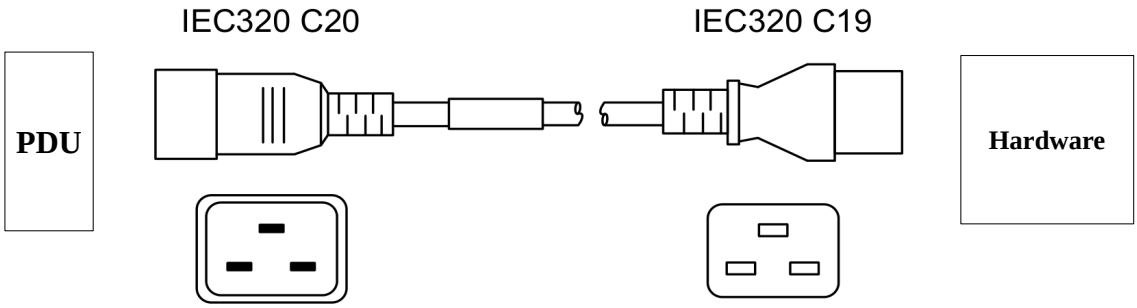


Figure 2: C19 to C20 plugs

Circuit Capacities

The following table represents the derated values/Watt capacities for power circuits running between 15A-60A@120V-208V for both single phase and three phase electrical circuits.

Branch Circuit Rating	derated Value (per phase)	derated Watts	Number of Conductors
15A / 120V 1ph	12A / 120V 1ph	1440W	3 (P+N+G)
20A / 120V 1ph	16A / 120V 1ph	1920W	3 (P+N+G)
20A / 208A 1ph	16A / 208V 1ph	3328W	3 (2P+G)
30A / 120V 1ph	24A / 120V 1ph	2880W	3 (P+N+G)
30A / 208V 1ph	24A / 208V 1ph	4992W	3 (2P+G)
30A / 208V 3ph Δ	24 A / 208V 3ph Δ (13.85A / 208V)	8646W	4 (3P+G)
50A / 208V 3ph Δ	40 A / 208V 3ph Δ (23.09A / 208V)	14410W	4 (3P+G)
60A / 208V 1ph	48A / 208V 1ph	9984W	3 (2P+G)
60A / 208V 3ph Δ	48 A / 208V 3ph Δ (27.7A / 208V)	17292W	4 (3P+G)

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 Lenovo 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
DPI Universal Rack PDU	39Y8951	1ph	100-127V	20A (15A)	7 / C13	15
			200-240V	20A (15A)		
			100-127V & 200-240V	16A (15A)		
DPI NEMA Rack PDU	39Y8905	1ph	100-127V	20A (15A)	6 / 5-15	24
Front End PDU	39Y8938	1ph	100-127V	30A (24A)	3 / C19	32
	39Y8939		200-240V	30A (24A)		
	39Y8940			60A (48A)		
DPI® Enterprise – C13 PDU	39Y8941	1ph	200-240V	30A (24A)	12 / C13	41
				60A (48A)		
DPI Enterprise – C19 PDU	39Y8948	1ph	200-240V	30A (24A)	6 / C19	49
				60A (48A)		
	39Y8923	3ph Δ	208V	60A (27.7A/ph)		
Ultra Density Enterprise PDU	71762NX	1ph	200-240V	30A (24A)	9 / C19 3 / C13	59
				60A (48A)		
	71763NU	3ph Δ	208V	60A (27.7A/ph)		
0U 24 C13 PDU	46M4125	3ph Δ	208V	30A (13.85A/ph)	24 / C13	70
	46M4128	1ph	200-240V	30A (24A)		
0U 12 C19 / 12 C13 PDU	46M4140	3ph Δ	208V	50A (23.09A/ph)	12 / C19 12 / C13	81
1U Higher Voltage DC PDU	44T0966	-	240V-380VDC	90A DC Hardwired (no plug)	6 / Rong Feng RF-203P	89

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

DPI Universal Rack PDU

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

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

Quick Specs

The following table is a quick overview of the 39Y8951 PDU. For additional information refer to the Specifications section.

PDU 39Y8951	
Outlets types	seven IEC C13
Power Capacity (VA)	3000VA @ 200V
Power Limit per Outlet	10A
Power Limit per PDU	15A circuit breaker
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 section for additional information.

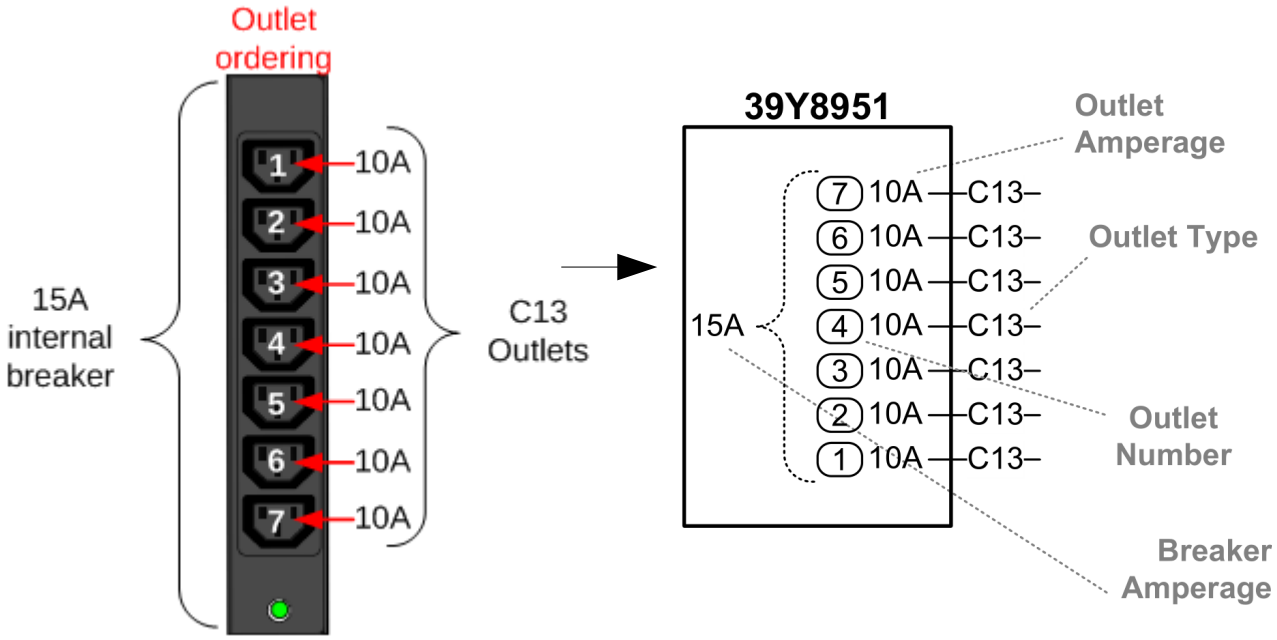


Figure 4: DPI Universal PDU

***Important Notice:** The Universal Rack PDU (39Y8951) has a single internal 15A breaker. All outlets are derated and can not support any more than 10A.

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 155 for a picture of the line cord plugs.

PDU P/N	Included Feature Codes	Line Cords shipped with 39Y8951
39Y8951	5949	NEMA L5-20 (2.5m) 20A (16A derated) 100-127V Single Phase (LV)*
	5951	NEMA L6-20 (2.5m) 20A (16A derated) 200-240V Single Phase (HV)*
	-	IEC 320 C20 to C19 (4.3m) 16A 100-127V Single Phase (LV)*
	-	IEC 320 C20 to C19 (4.3m) 16A 200-240V Single Phase (HV)*
	Optional Feature Codes	Line Cords Descriptions (F/C + 39Y8951 Base PDU)
	5950	2m C19/C20 attach to another PDU or UPS (100-250V)
	5950	IEC 320 C20 to C19 (4.3m)
	5949	IEC 320 C20 to C19 (4.3m) + NEMA L5-20 (2.5m)
	5951	IEC 320 C20 to C19 (4.3m) + NEMA L6-20 (2.5m)

*For technical specifications for LV and HV input line cords refer to the Specifications section.

Specifications

The following table are specifications for the 39Y8951 DPI Universal Rack PDU for the U.S.

39Y8951 – Specifications			
Input Line Cord Type*	to PDU or UPS	LV line cord	HV line cord
Outlets types	seven IEC C13	seven IEC C13	seven IEC C13
Power Capacity**	3000VA @ 200V	1800VA @ 120V	3120VA @ 208V
Power Limit per Outlet	10A	10A	10A
Grouping	seven per phase	seven per phase	seven per phase
Power Limit per Group	15A	15A	15A
Power Limit per PDU	15A circuit breaker	15A circuit breaker	15A circuit breaker
Power Monitoring/Switching	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 Cordssection.

** 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.

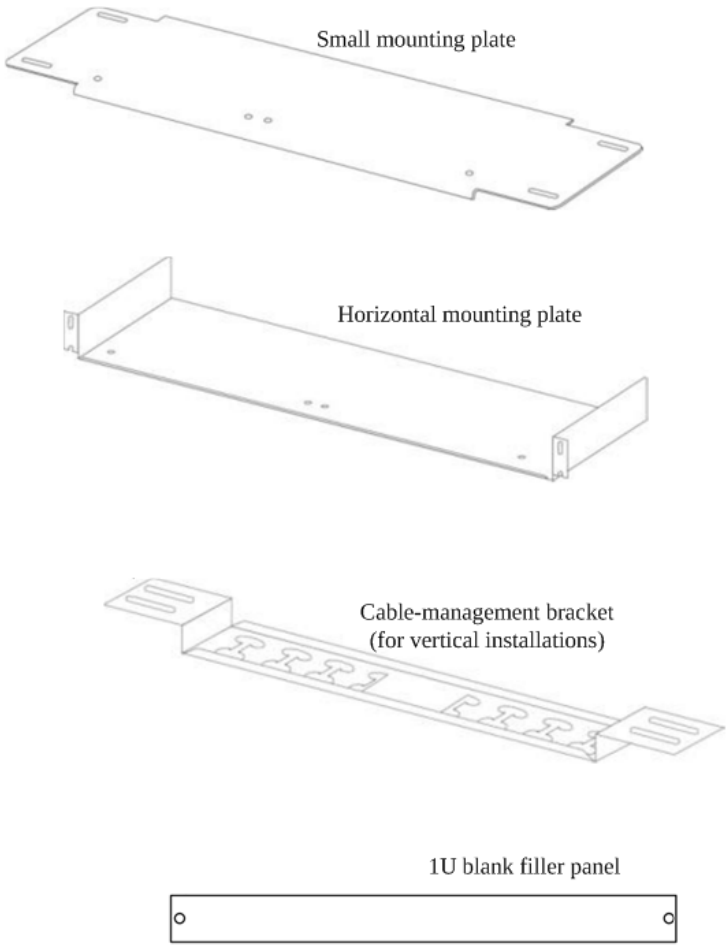


Figure 5: Accessory kit

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 (39Y8951) 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.

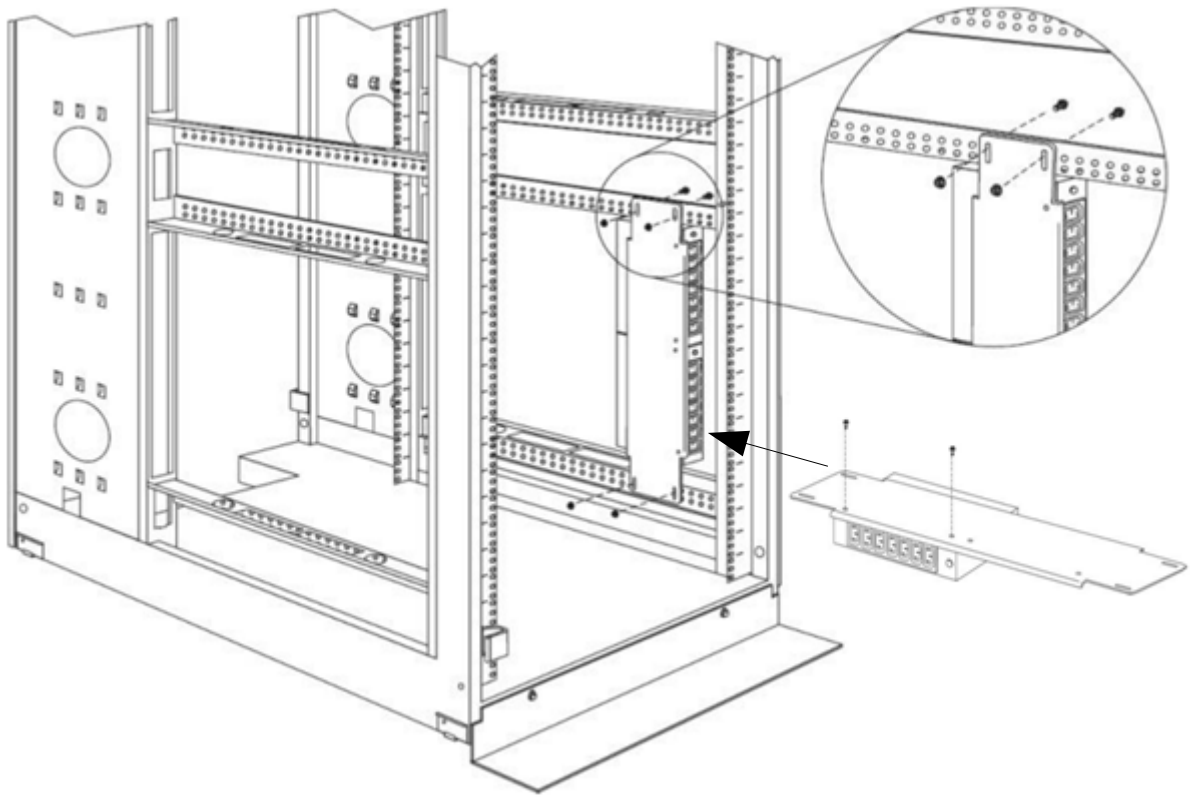


Figure 6: Mount in side of rack

For racking in an Enterprise rack see the following section.

Mounting In Enterprise Rack (9308 & 1410) & 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.

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

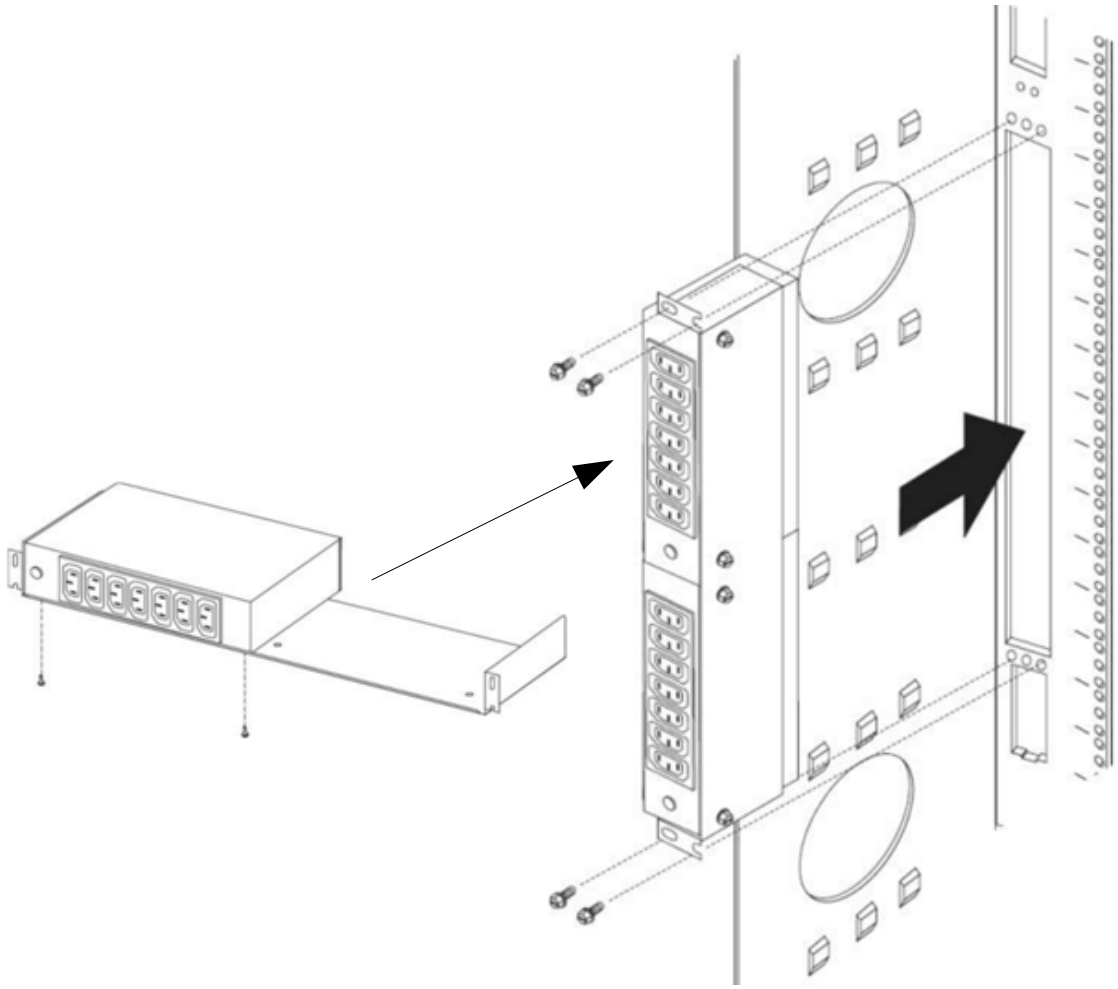


Figure 7: DPI PDU side pocket mounting in Enterprise rack

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.

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

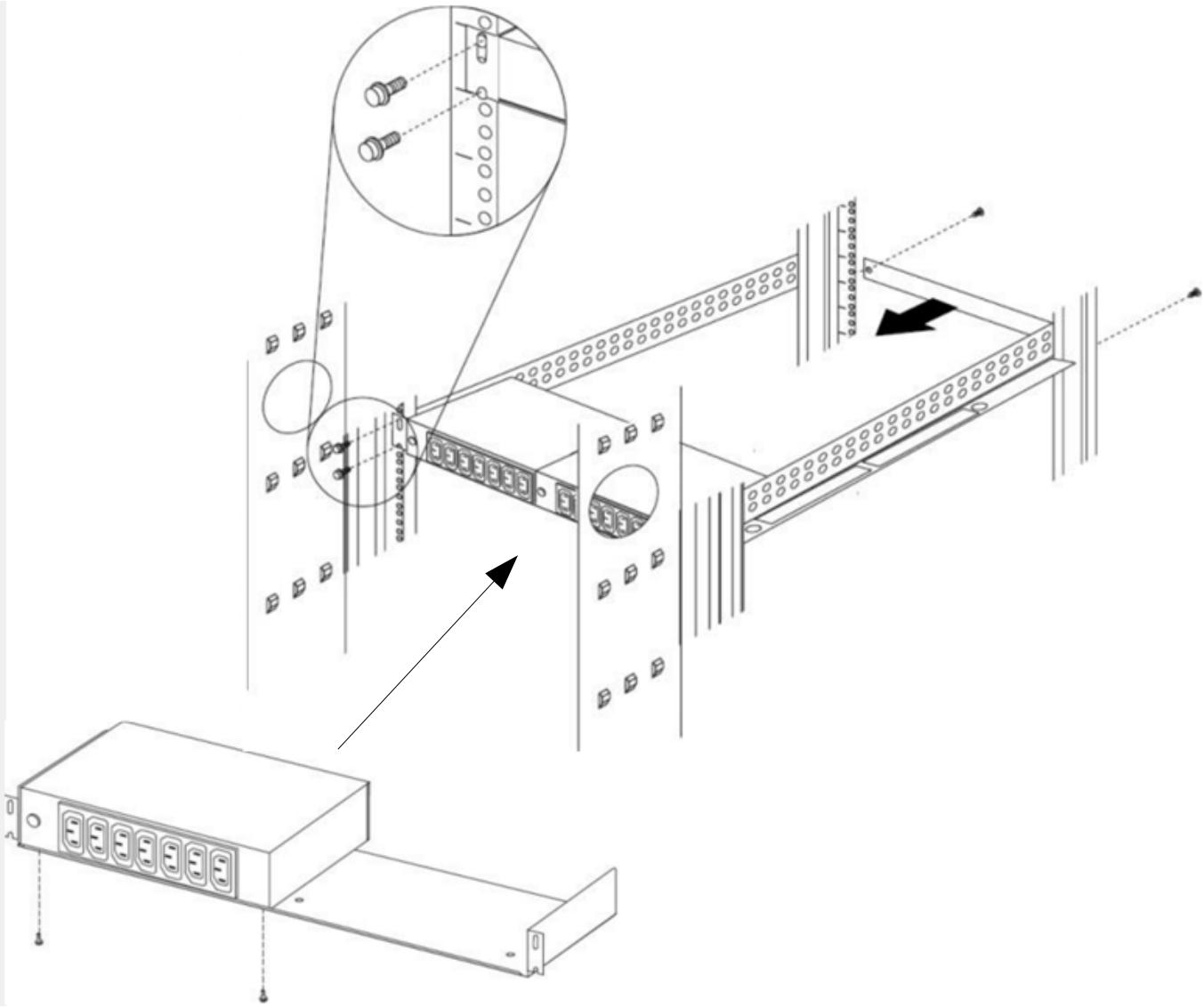


Figure 8: DPI PDU horizontal U Space mounting in rack

Installation and Maintenance Guide

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

39Y8951

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

DPI NEMA Rack PDU

This section discusses the DPI NEMA Rack PDU. This section is broken up into the following sections.

Quick Specs

The following table is a quick overview of the 39Y8905 PDU. For additional information refer to the Specifications section.

PDU 39Y8905 + Attached Line Cord	
Outlets	six NEMA 5-15R
Power Capacity	1500VA @ 100V
	1800VA @ 120V
	1905VA @ 127V
Power Limit per PDU	15A circuit breaker
Phase	Single phase

Front View and Outlets

The following figures displays a front view picture of the NEMA PDU.

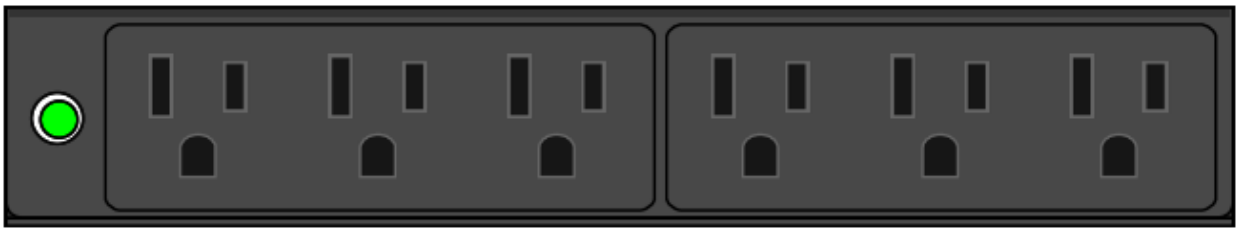


Figure 9: Front view of the DPI NEMA PDU

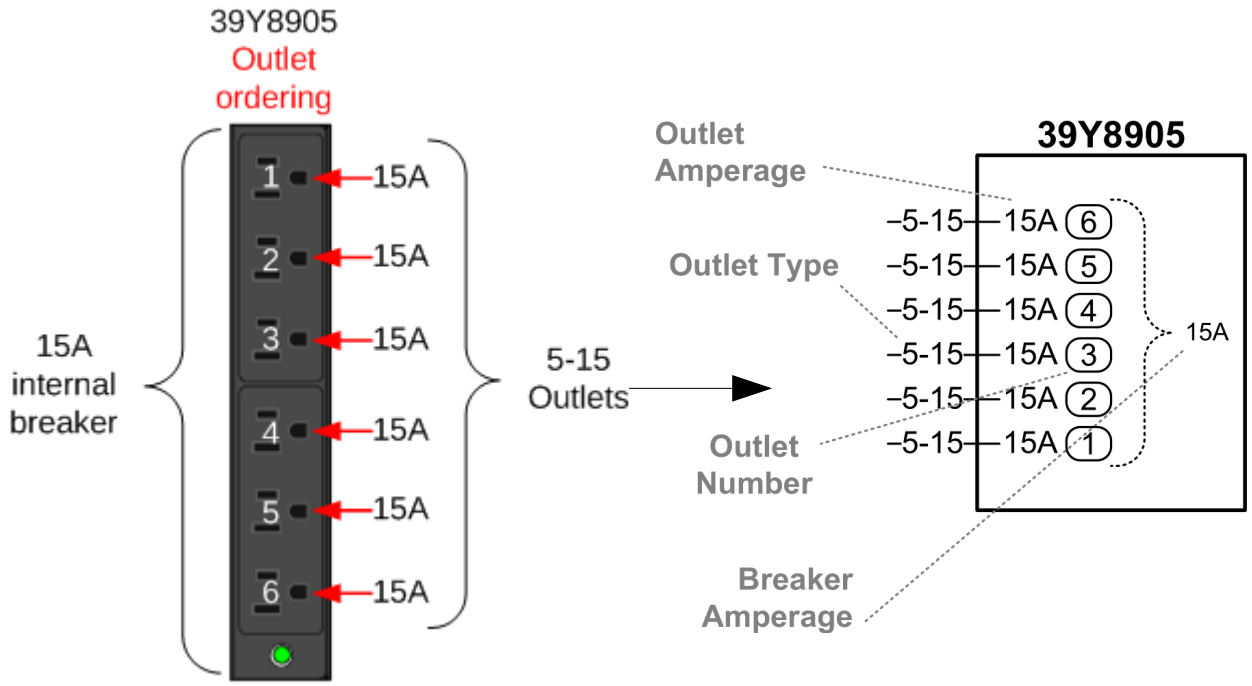


Figure 10: DPI NEMA PDU

***Important Notice:** The NEMA Rack PDU (39Y8905) has a single internal 15A breaker. All outlets are derated and can not support any more than 15A.

Input Line Cords

The following input line cord is for connecting the PDU to an appropriate power circuit. This may include for example, the wall or floor outlets to provide power to the PDU. See page 157 for a picture of the line cord plug.

PDU P/N	Feature Code	Line Cords shipped with 39Y8905
39Y8905	5900	Attached line cord: 9ft NEMA L5-15P Single Phase

Specifications

The following table are specifications for the 39Y8905 DPI 100-127V NEMA PDU. This PDU is primarily used in North America, Japan, Taiwan, the Philippines and various other nations that have the ability to power systems at 100V-127.

Specifications	
PDU Part Number	39Y8905
PDU Feature Code	5900
Input Line Cord Type*	Attached
Outlets	six NEMA 5-15R
Power Capacity**	1500VA @ 100V
	1800VA @ 120V
	1905VA @ 127V
Power Limit per Outlet	10A
Grouping	six per phase
Power Limit per Group	N/A
Power Limit per PDU	15A circuit breaker
Power Monitoring/Switching	No/No
U Space	1U, half rack width
Grounding Screw	No

*For input line cord information 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.

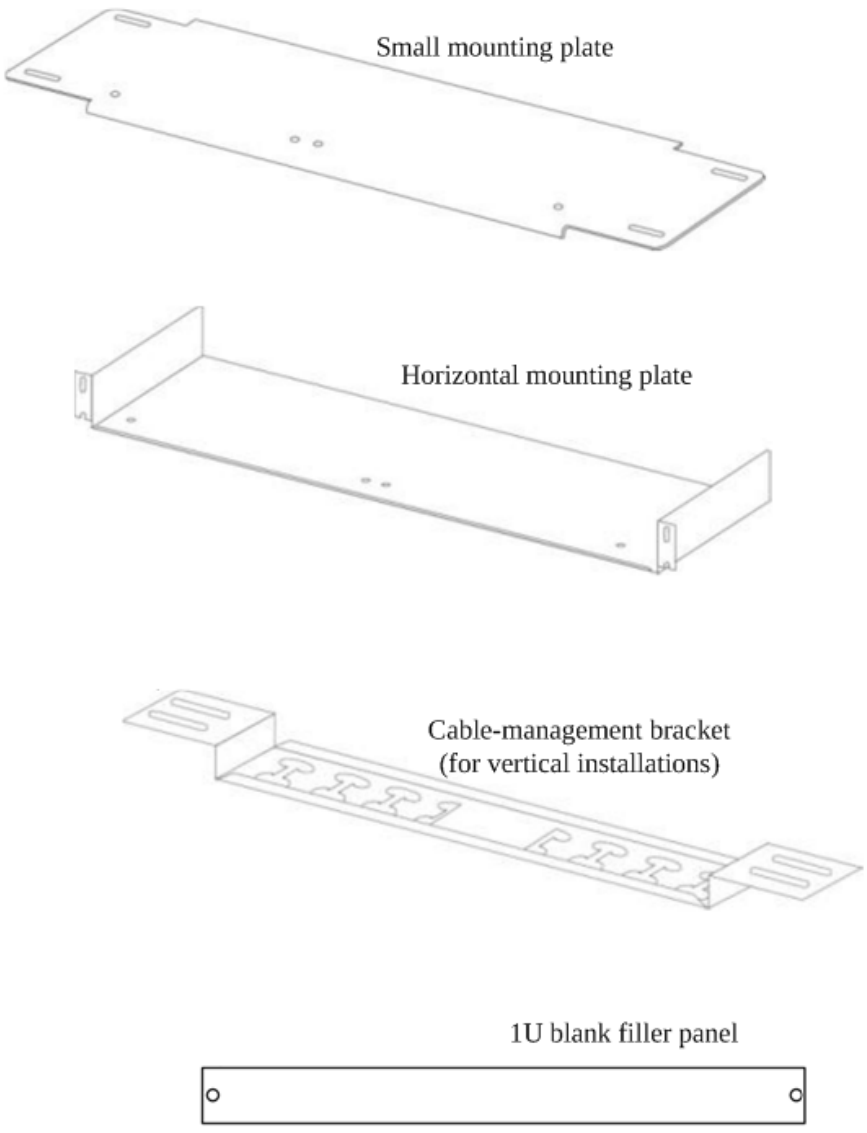


Figure 11: Accessory kit

These accessories are for supporting the racking of the DPI PDU 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 (39Y8905) 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.

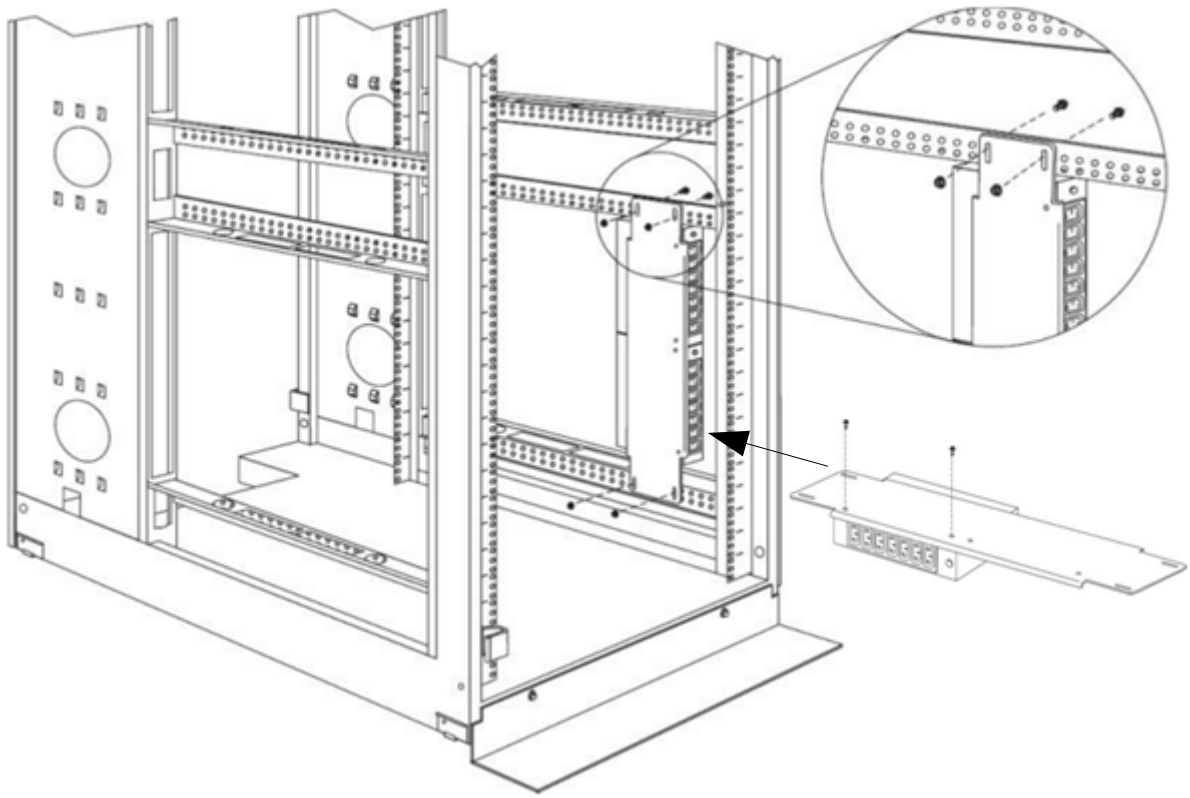


Figure 12: Mount in side of rack

For racking in an Enterprise rack see the following section.

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

Mounting the DPI PDU (39Y8905) 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.

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

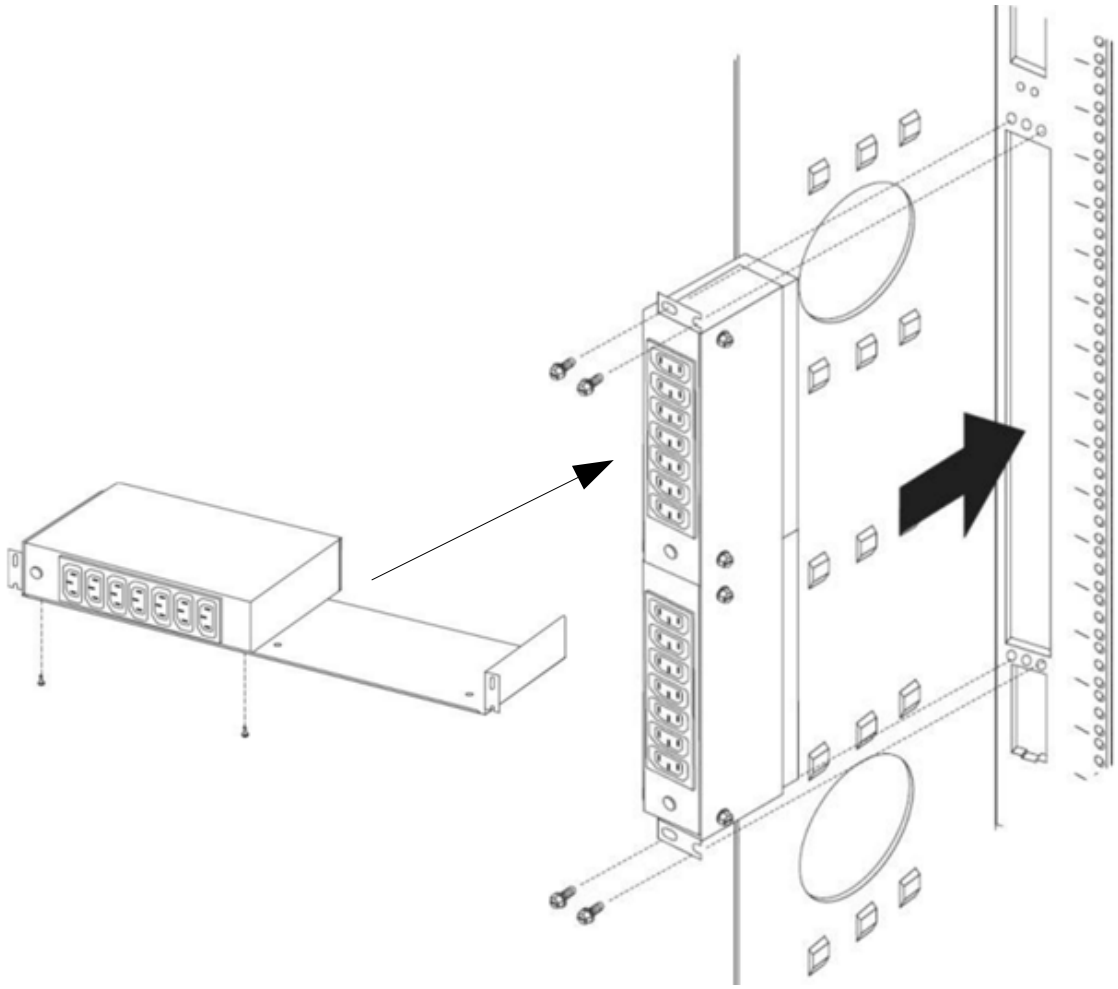


Figure 13: DPI PDU side pocket mounting in Enterprise rack

Mounting in EIA (U space) of rack

Mounting the DPI PDU (39Y8905) 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.

2 PDUs will fit in 1U of rack space as seen in figure 14.

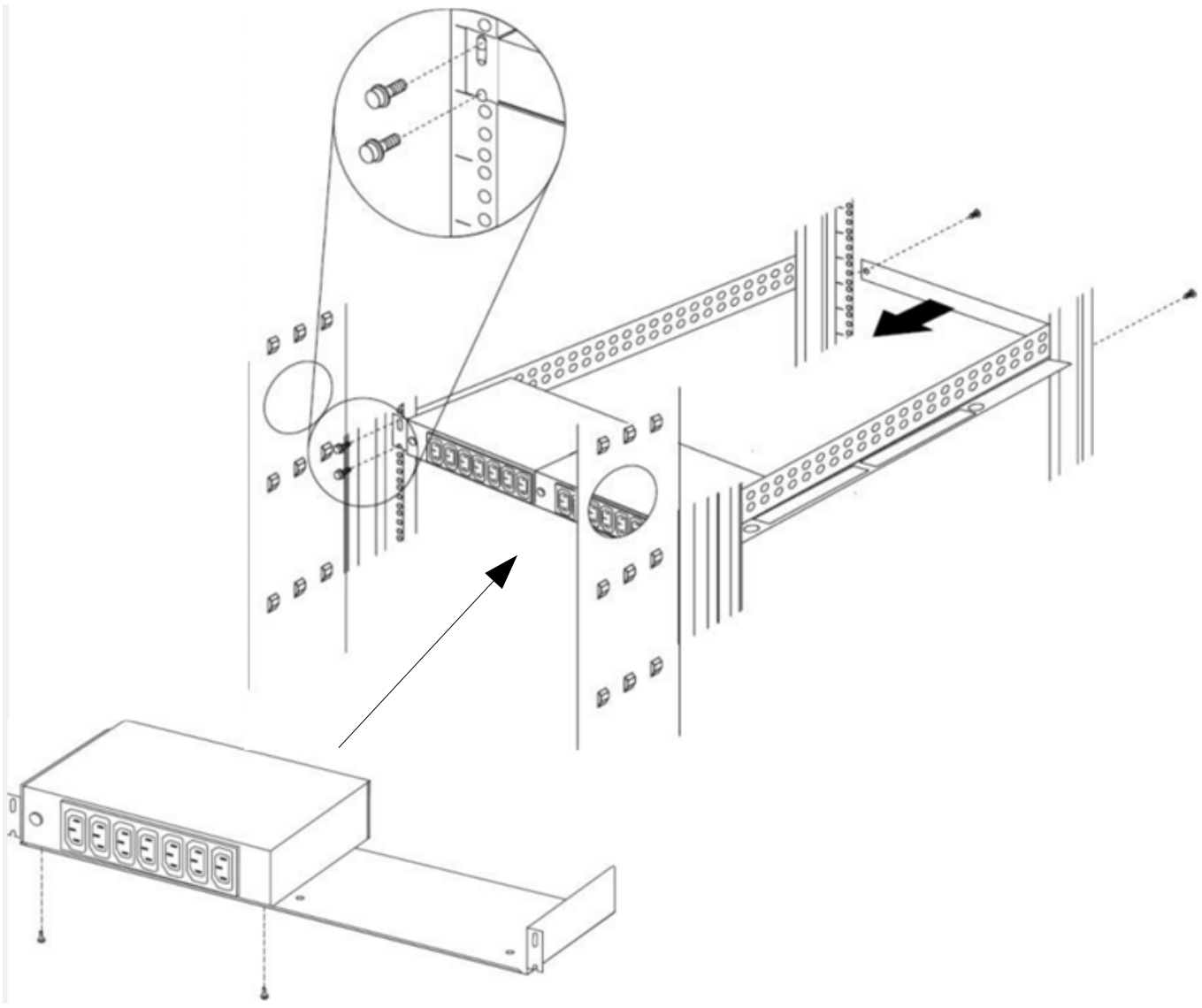


Figure 14: DPI PDU horizontal U Space mounting in rack

Installation and Maintenance Guide

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

39Y8905

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

Front End PDU

This section discusses the Front End PDU. This section is broken up into the following sections. There are 3 types of Front End PDUs (39Y8938, 39Y8939, and 39Y8940). Each model is shipped with a different line cord.

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

Quick Specs

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

PDU 39Y8938 + Included Line Cord NEMA L5-30	
Outlet Types	three IEC C19
Type	30A/120V
Power Capacity	2880VA @ 120V
Power Limit per PDU	24A
Phase	Single phase

PDU 39Y8939 + Included Line Cord NEMA L6-30	
Outlet Types	three IEC C19
Type	30A/208V
Power Capacity	4992VA @ 208V
Power Limit per PDU	24A
Phase	Single phase

PDU 39Y8940 + Included Line Cord IEC 309 60A 1ph	
Outlet Types	three IEC C19
Type	60A/208V
Power Capacity	9984VA @ 208V
Power Limit per PDU	48A
Phase	Single phase

Front and Back View and Outlets

Figure 15 displays the front and back view of the Front End PDU. Figure 16 and 17 displays the outlets and amperage.

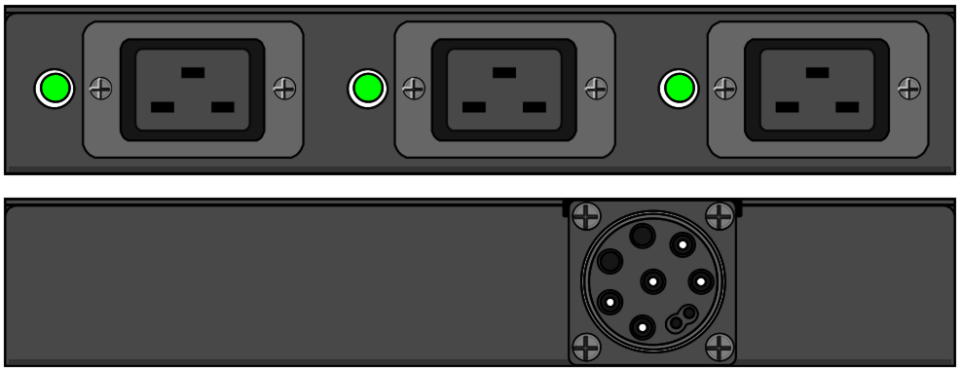


Figure 15: Front and back view of the FE PDU

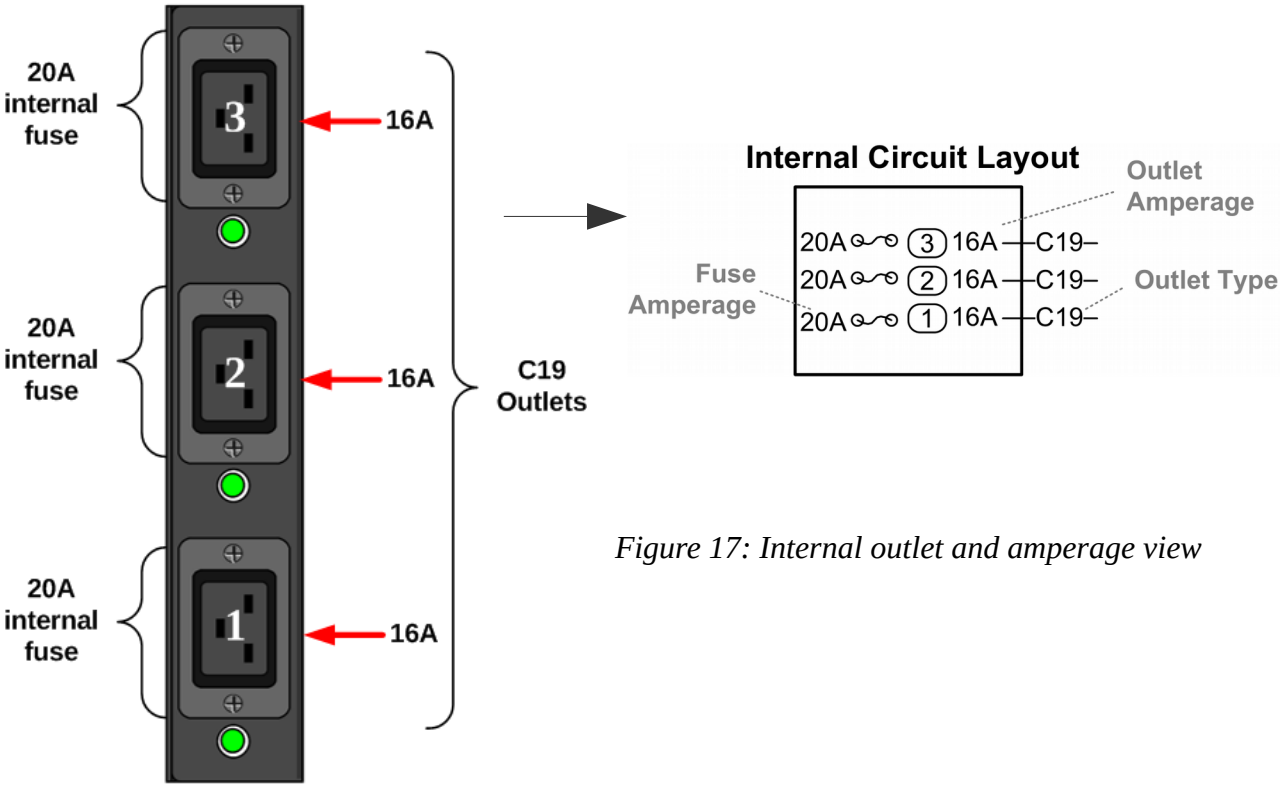


Figure 16: Outlets and amperage

Figure 17: Internal outlet and amperage view

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 (39Y8938, 39Y8939, and 39Y8940). Each model is shipped with a different line cord, outlined below. See pages 158, 159, and 160 for a picture of the line cord plugs.

PDU P/N	Feature Code	Line Cords shipped with PDU
39Y8938	A11S	Line cord included: NEMA L5-30 (2.5m) line cord 30A (24A derated) 100-127V Single Phase
39Y8939	A11T	Line cord included: NEMA L6-30 (2.5m) line cord 30A (24A derated) 200-240V Single Phase
39Y8940	A11U	Line cord included: PDU & IEC 309 60amp 2P+G (2.5m) line cord 60A (48A derated) 200-240V Single Phase

Specifications

The following table are specifications for the 39Y8938, 39Y8939, and 39Y8940 Front End PDUs.

Specifications			
PDU Part Number	39Y8938	39Y8939	39Y8940
PDU Feature Code*	A11S	A11T	A11U
Type	30A/120V	30A/208V	60A/208V
Outlets types	three IEC C19	three IEC C19	three IEC C19
Power Capacity**	2880VA @ 120V	4992VA @ 208V	9984VA @ 208V
Power Limit per Outlet	16A	16A	16A
Power Limit per PDU	24A	24A	48A
Power Monitoring/Switching	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.

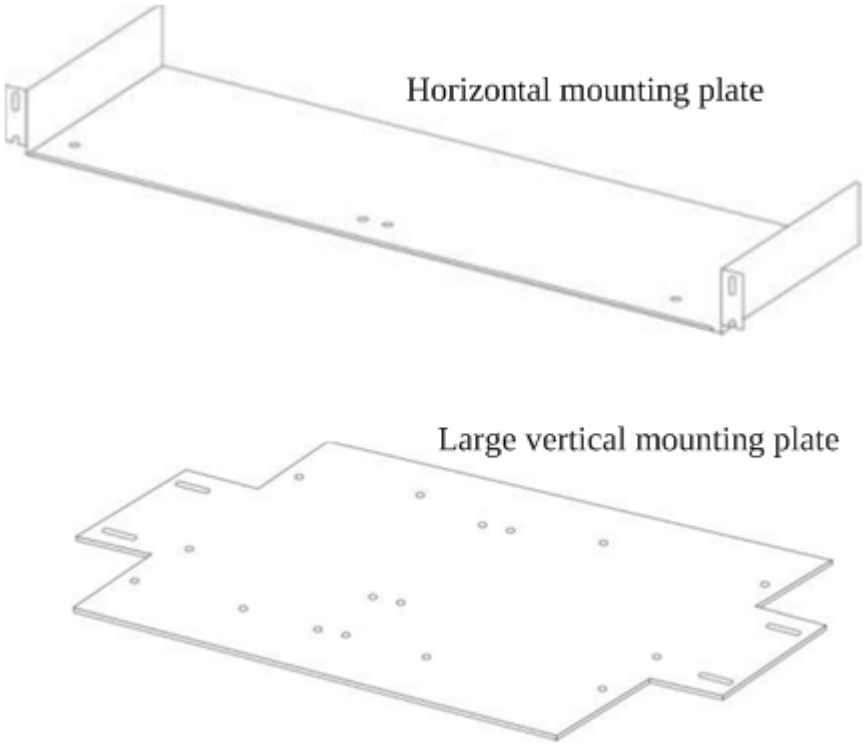


Figure 18: Accessory kit

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 (39Y8938, 39Y8939, and 39Y8940) 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 (39Y8938, 39Y8939, and 39Y8940) 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.

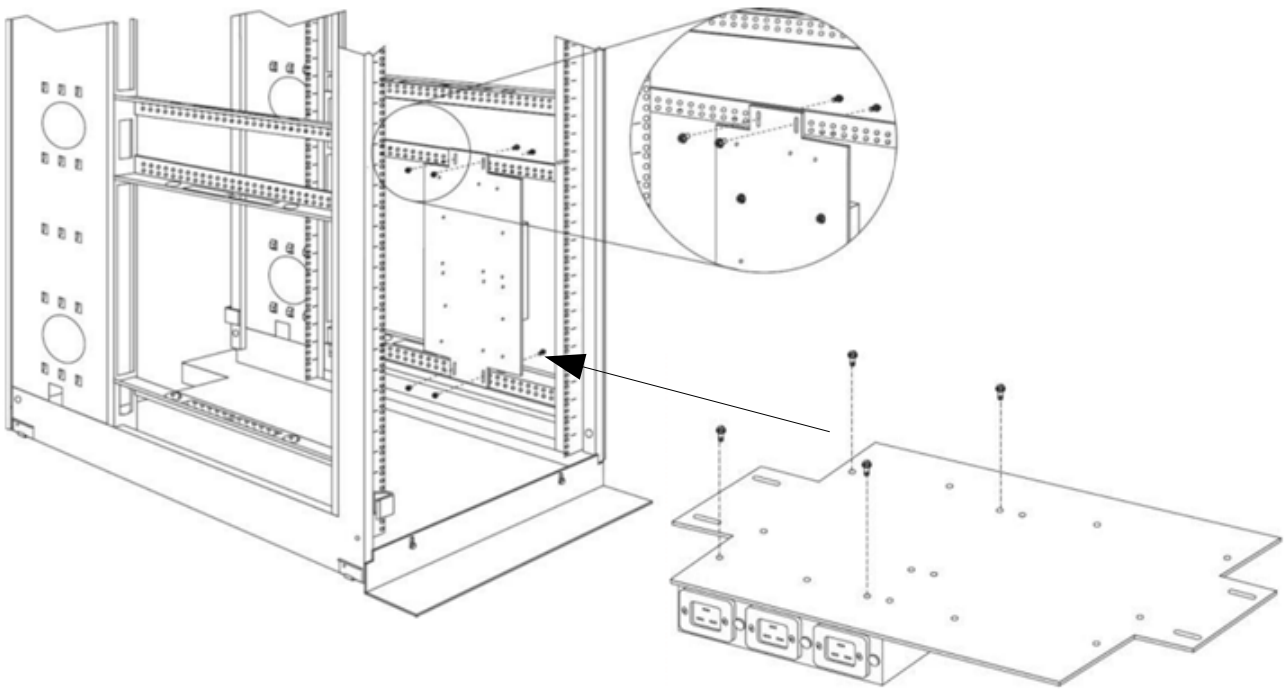


Figure 19: Front-end PDU vertical mounting in side pocket

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

Mounting the Front-end PDUs (39Y8938, 39Y8939, and 39Y8940) 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

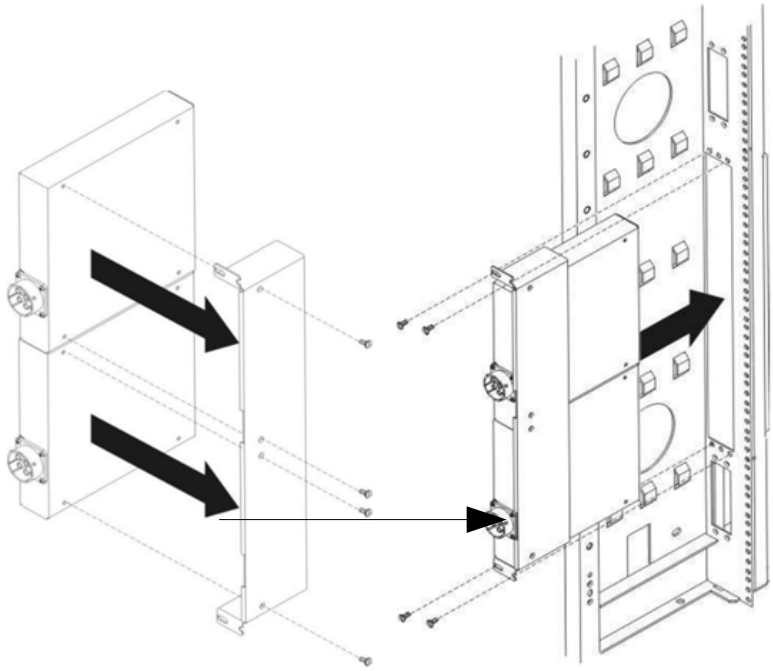
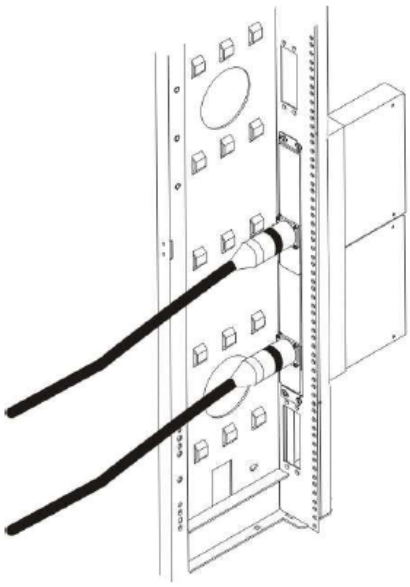


Figure 20: Front-end PDU mounting in side pocket of enterprise PDU option 1

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



Option 2

Mounting the Front-end PDUs (39Y8938, 39Y8939, and 39Y8940) 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.

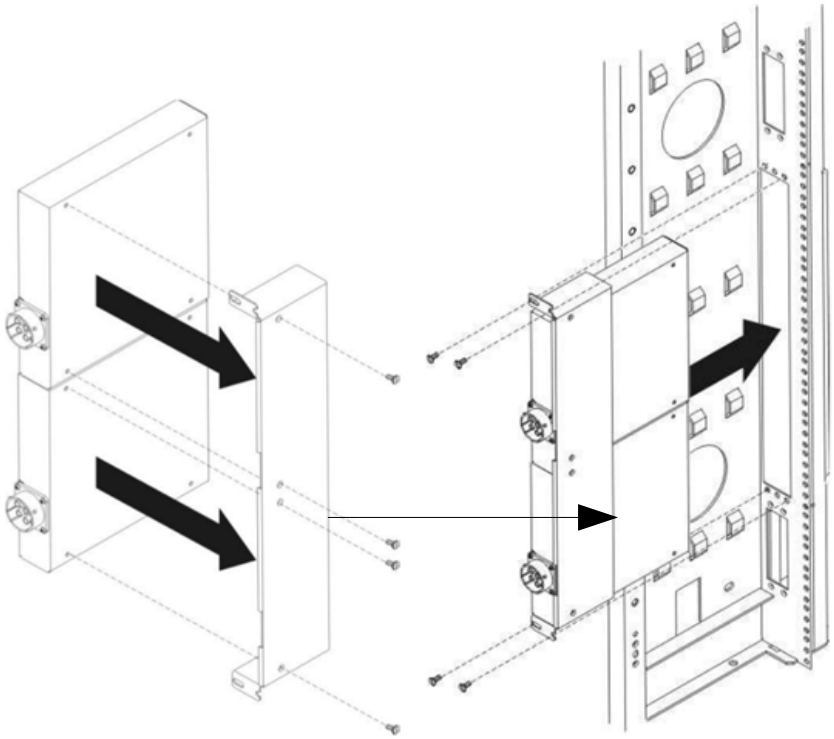
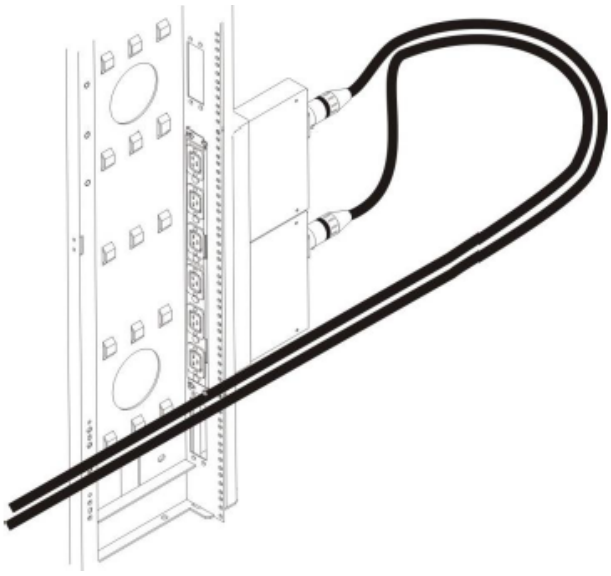


Figure 21: Front-end PDU mounting in side pocket of enterprise PDU option 2

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



Mounting in side pocket

Mounting the Front-end PDUs (39Y8938, 39Y8939, and 39Y8940) 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.

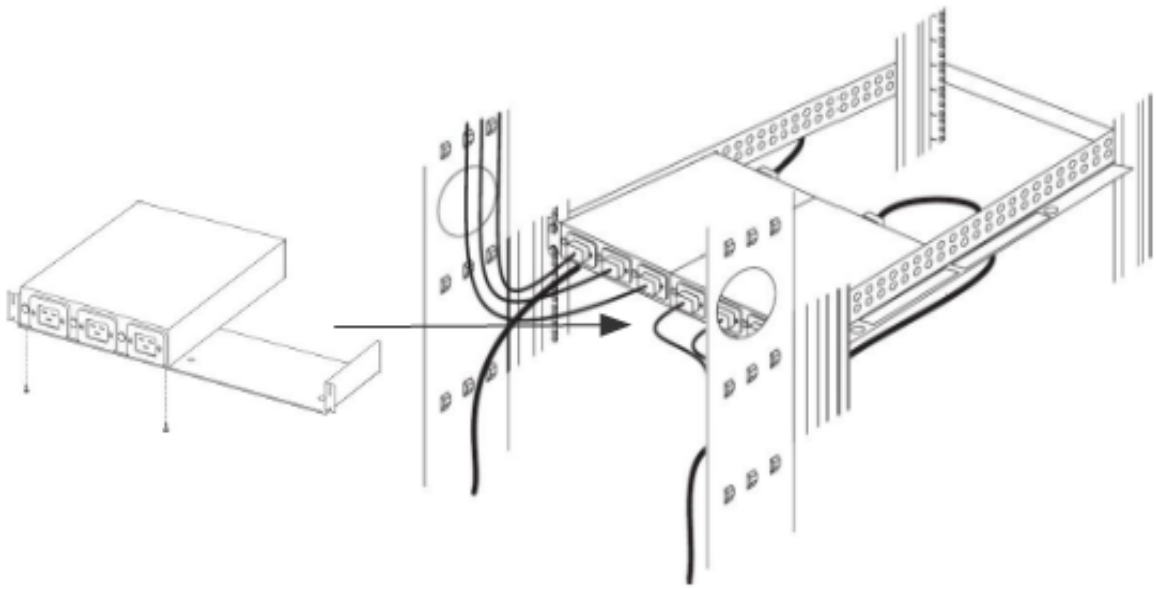


Figure 22: Front-end PDU horizontal mounting in 1U space of rack

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:

39Y8938, 39Y8939, and 39Y8940

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

DPI® Enterprise – C13 PDU

This section discusses the 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 40K9614	
Type	30A/208V
Outlets types	twelve IEC C13
Power Capacity	4992VA @ 208V
Power Limit per PDU	24A
Phase	Single phase

PDU 39Y8941 + Line Cord 40K9615	
Type	60A/208V
Outlets types	twelve IEC C13
Power Capacity	9984VA @ 208V
Power Limit per PDU	48A
Phase	Single phase

Front and Back View and Outlets

The 39Y8941 is the DPI C13 PDU. Figure 23 displays a front view and a back view of the PDU.

Figure 23: Front and back view of the DPI Enterprise C13 PDU

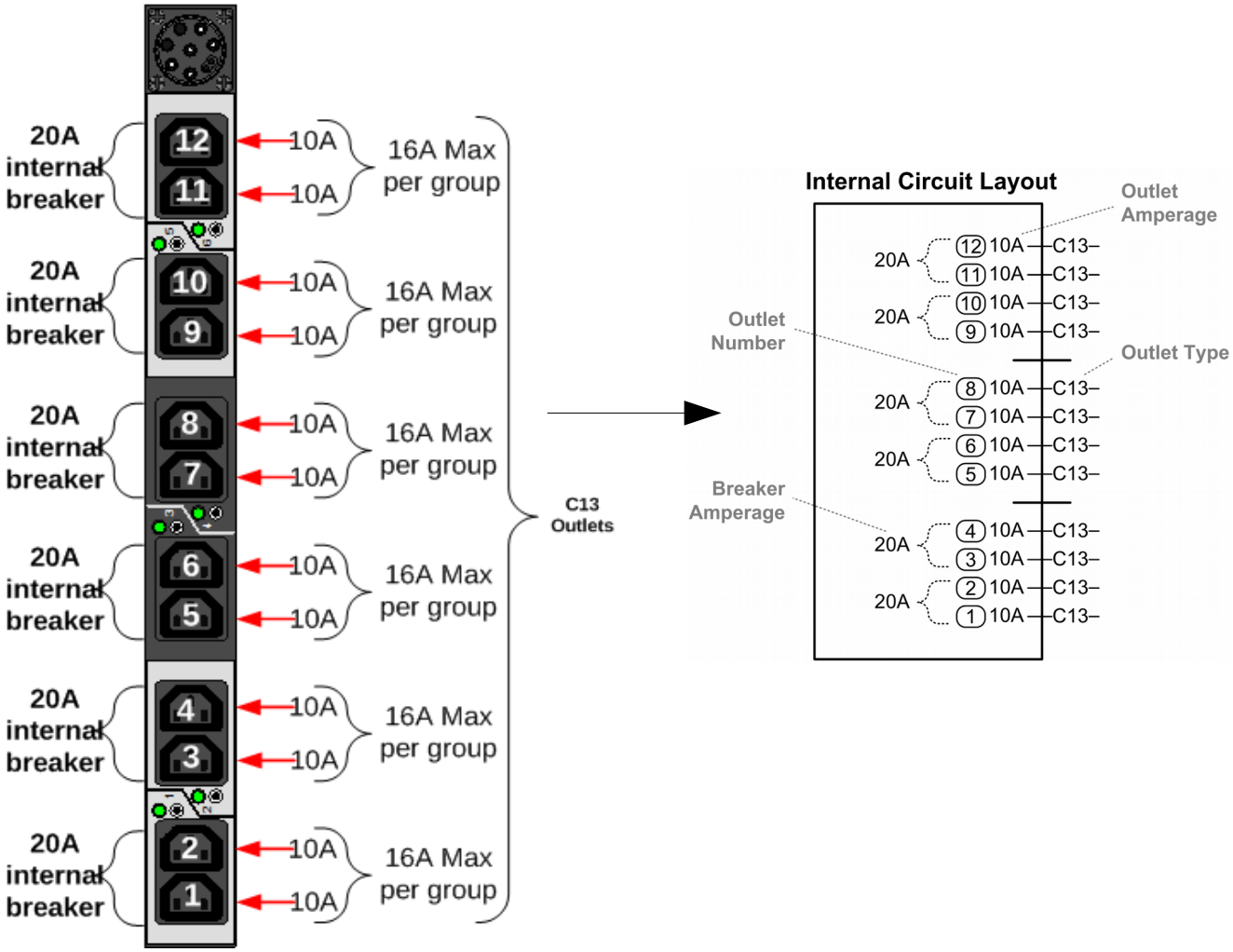


Figure 24: Outlets and amperage

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 page 161 for a picture of the line cord plug.

PDU P/N (& Feature Code)	Line Cord P/N (& Feature Code)	Feature Code for Bundle (PDU & Line Cord)	Orderable Line cord description
39Y8941 (6010)	40K9614 (6500)	6012	Lenovo DPI 30A (4.3m) Cord NEMA L6-30P 30A (24A derated) 200-240V Single Phase
39Y8941 (6010)	40K9615 (6501)	6013	Lenovo DPI 60A (4.3m) Cord IEC 309 2P+G 60A (48A derated) 200-240V Single Phase

Specifications

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

Specifications	Line cord PN / FC	Line cord PN / FC
Input Line Cord Type*	40K9614 / 6012	40K9615 / 6013
Type	30A/208V	60A/208V
Outlets types	twelve IEC C13	twelve IEC C13
Power Capacity**	4992VA @ 208V	9984VA @ 208V
Power Limit per Outlet	10A	10A
Grouping	2 outlets per breaker	2 outlets per breaker
Power Limit per Group	16A	16A
Power Limit per PDU	24A	48A
Power Monitoring/Switching	No/No	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.

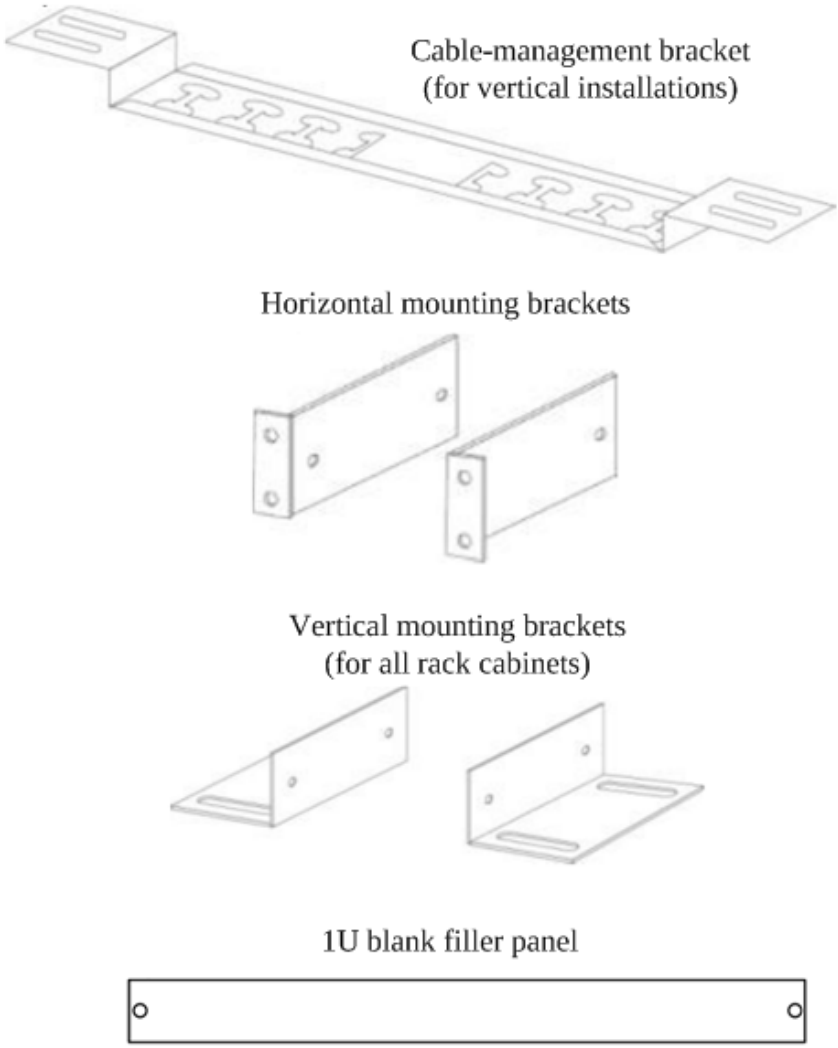


Figure 25: Accessory kit

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.

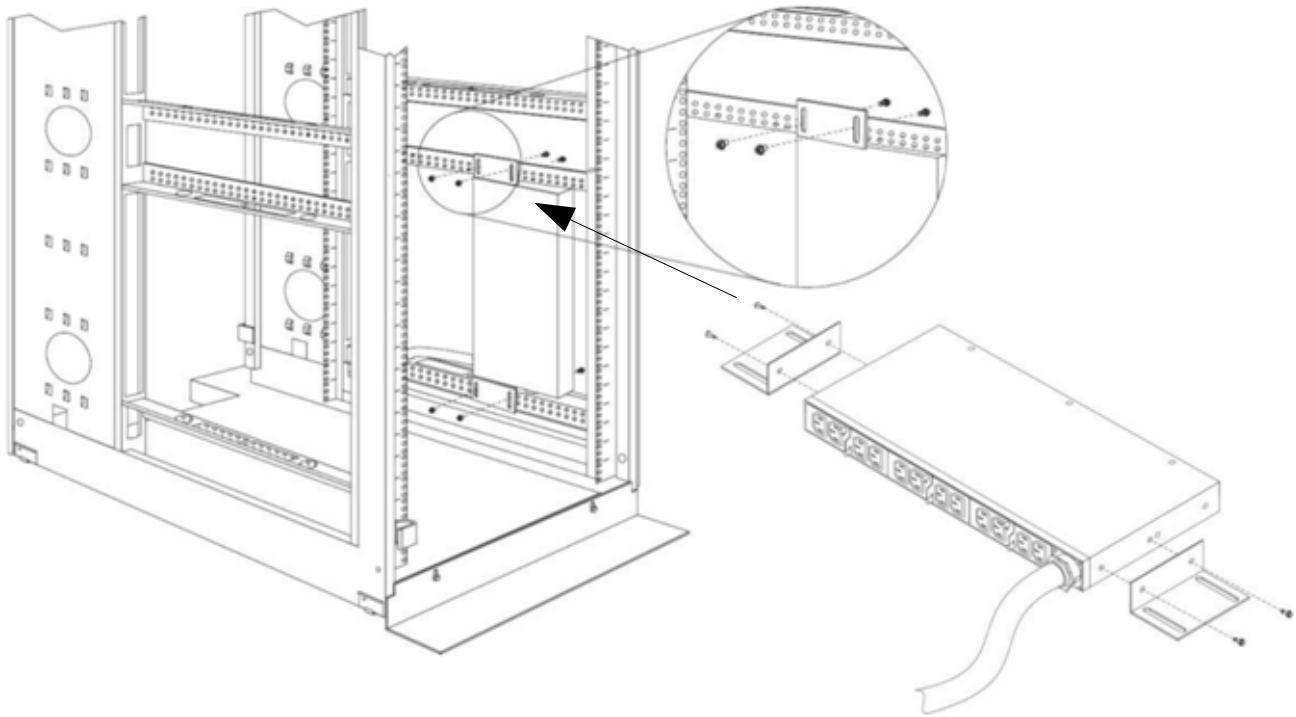


Figure 26: DPI C13 PDU vertical mounting in rack

Mounting In Enterprise Rack (9308 & 1410) & 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.

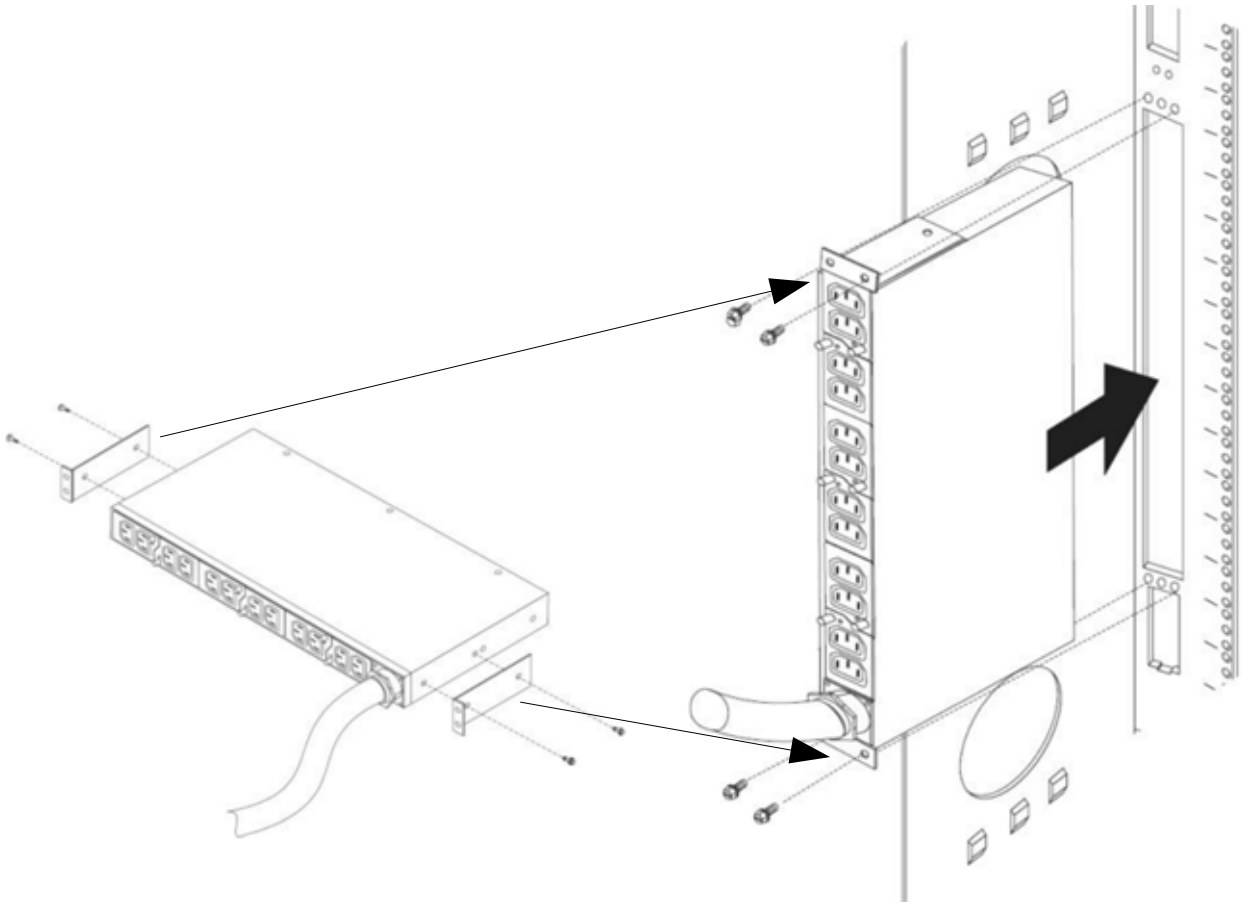


Figure 27: DPI C13 PDU side pocket mounting in Enterprise rack

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 28.

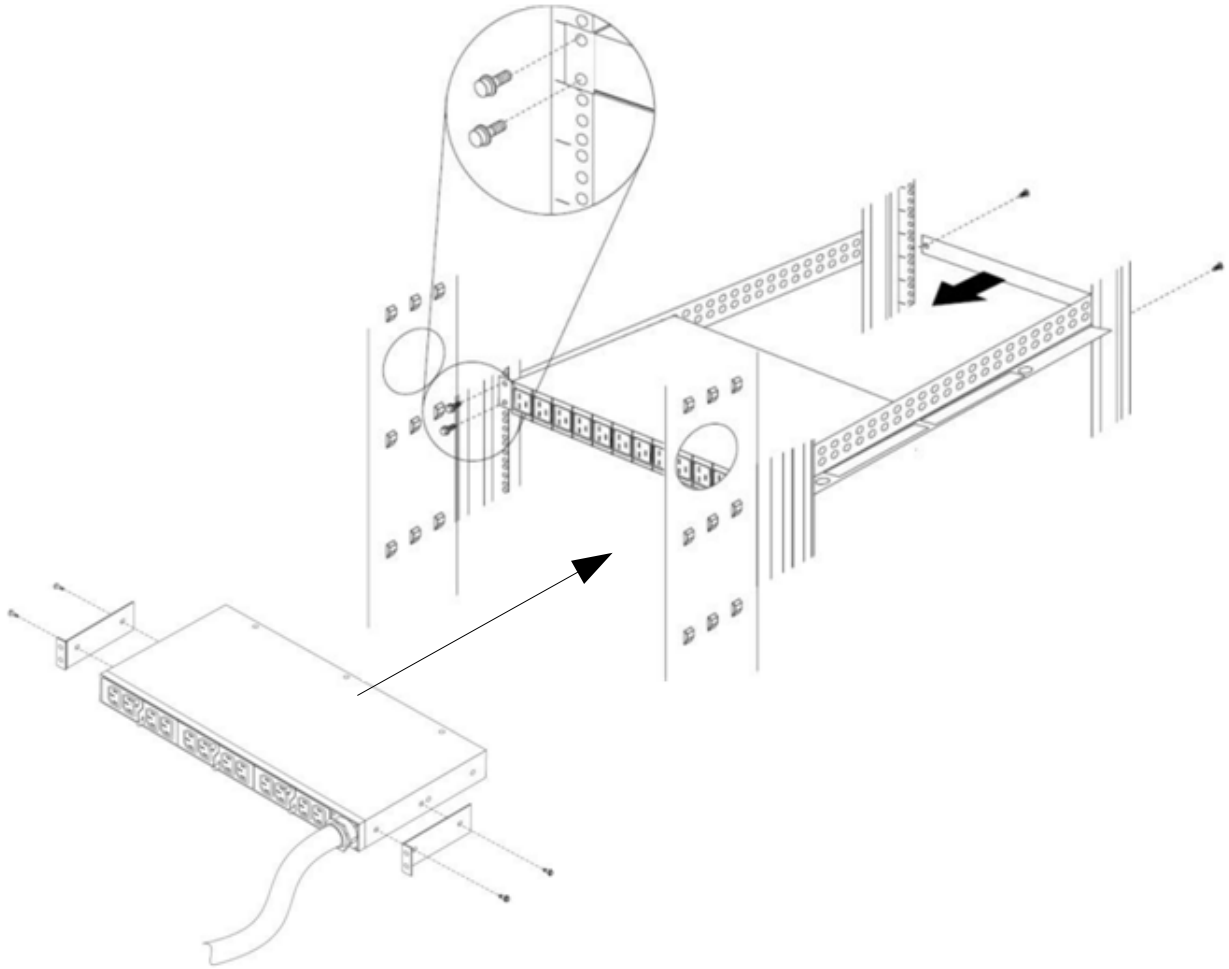


Figure 28: DPI C13 PDU horizontal mounting in rack

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 and 39Y8923 DPI Enterprise C19 PDU. This section is broken up into the following sections.

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

Quick Specs

The following table are quick specs for the 39Y8948 and 39Y8923 PDUs. For additional information refer to the Specifications section.

PDU 39Y8948 + Line Cord 40K9614	
Type	30A/208V
Outlets types	six IEC C19
Power Capacity	4992VA @ 208V
Power Limit per PDU	24A
Phase	Single phase

PDU 39Y8948 + Line Cord 40K9615	
Type	60A/208V
Outlets types	six IEC C19
Power Capacity	9984VA @ 208V
Power Limit per PDU	48A
Phase	Single phase

PDU 39Y8923 + Attached Line Cord	
Type	60A/208V
Outlets types	six IEC C19
Power Capacity	17285VA @ 208V
Power Limit per PDU	83.1A
Phase	Three phase

Front and Back View and Outlets

There are 2 type of DPI Enterprise C19 PDUs. The 39Y8948 and the 39Y8923. The PDUs are identical except for the line cord. The line cord determines single phase or three phase operation. The 39Y8948 has detachable single phase line cord options. The 39Y8923 comes with an attached 3 phase line cord. The following figures displays a front view picture of each PDU.

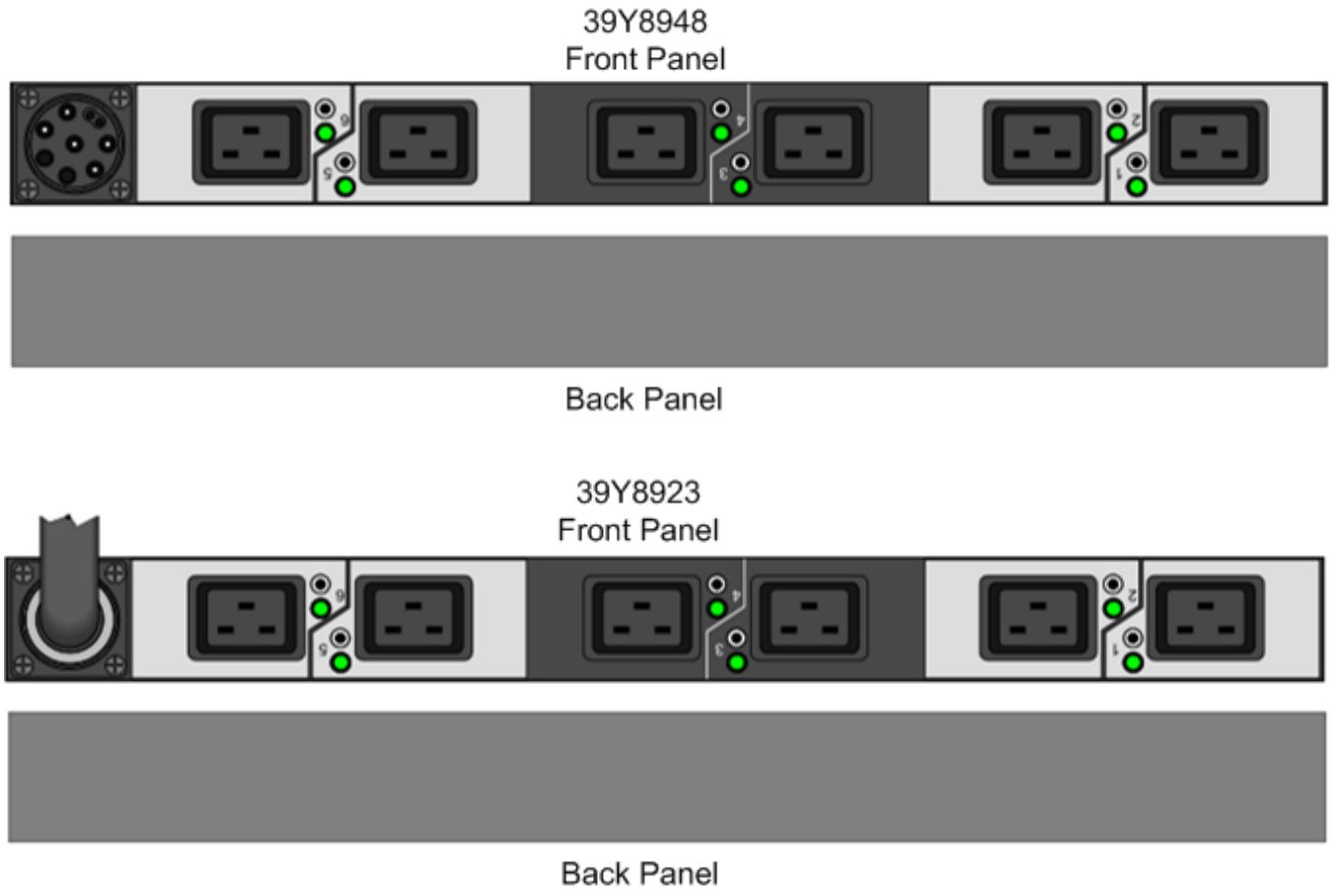


Figure 29: Front and back panels of the DPI Enterprise C19 PDU

Figure 30 shows the 39Y8948 single phase and 39Y8923 3 phase outlet and breaker amperage. For the 3 phase PDU, the power limit per phase group is 27.7A.

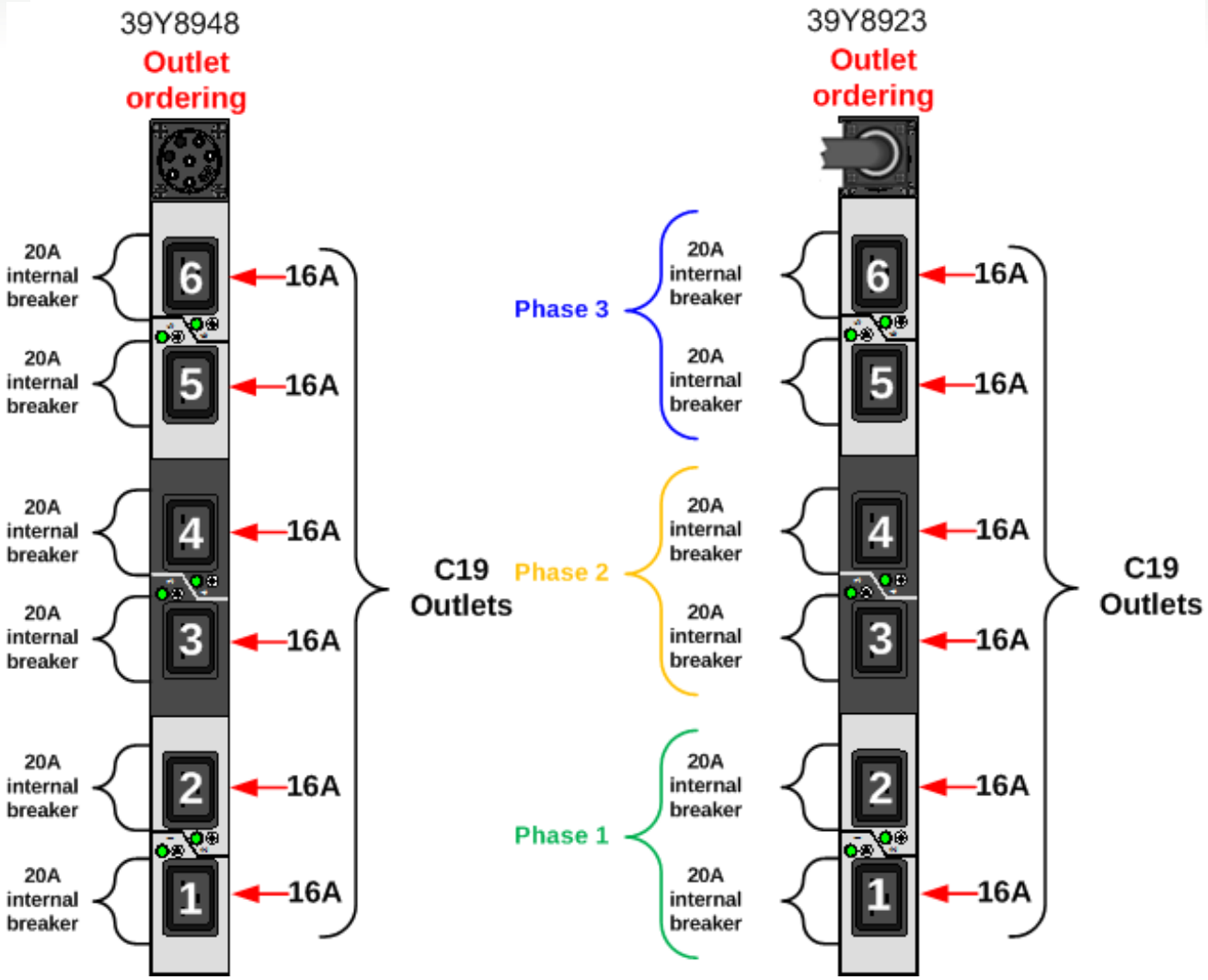
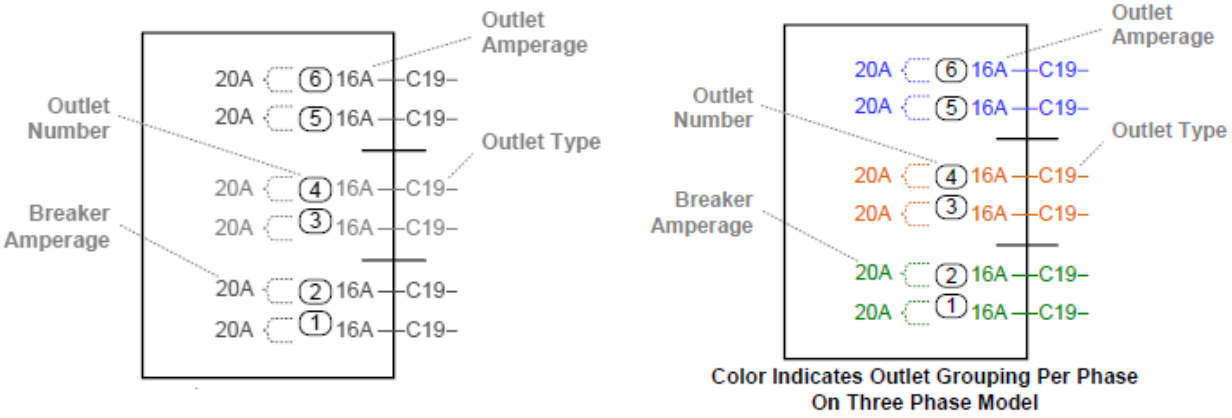


Figure 30: Lenovo DPI C19 PDU outlet and breaker amperage



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 163 and 165 for a picture of the line cord plugs.

PDU PN / FC	Line Cord PN / FC	FC for PDU / Line Cord Bundle	Line Cord Description
39Y8948 / 6060	40K9614 / 6500	6062	Lenovo DPI 30A (4.3m) Cord NEMA L6-30P 30A (24A derated) 200-240V Single Phase
39Y8948 / 6060	40K9615 / 6500	6063	Lenovo DPI 60A (4.3m) Cord IEC 309 2P+G 60A (48A derated) 200-240V Single Phase
39Y8923 / 6061	Attached	6061	14-foot (4.3m) line cord with IEC-309 60A, 3P4W plug (Type 460P9W) 60A (27.7A / Phase derated) 83.1A Total derated Circuit Capacity 200-240V Three Phase Delta

Specifications

The following table are specifications for the 39Y8948 and the 39Y8923 DPI C19 PDUs.

Specifications			
PDU Part Number	39Y8948		39Y8923
Feature Code Bundle*	6062	6063	6061
Input Line Cord Type**	40K9614	40K9615	Attached
Type	30A/208V	60A/208V	3 phase
Outlets types	six IEC C19	six IEC C19	six IEC C19
Power Capacity***	4992VA @ 208V	9984VA @ 208V	17285VA @ 208V
Power Limit per Outlet	16A	16A	16A
Grouping	1 outlet per breaker	1 outlet per breaker	1 outlet per breaker 2 outlets per phase
Power Limit per Group	16A	16A	16A per breaker / 27.7A per group
Power Limit per PDU	24A	48A	83.1A
Power Monitoring/Switching	No/No	No/No	
U Space	1U or side pocket		
Grounding Screw	Yes on back panel		

* Feature code bundle includes PDU and line cord.

** 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.

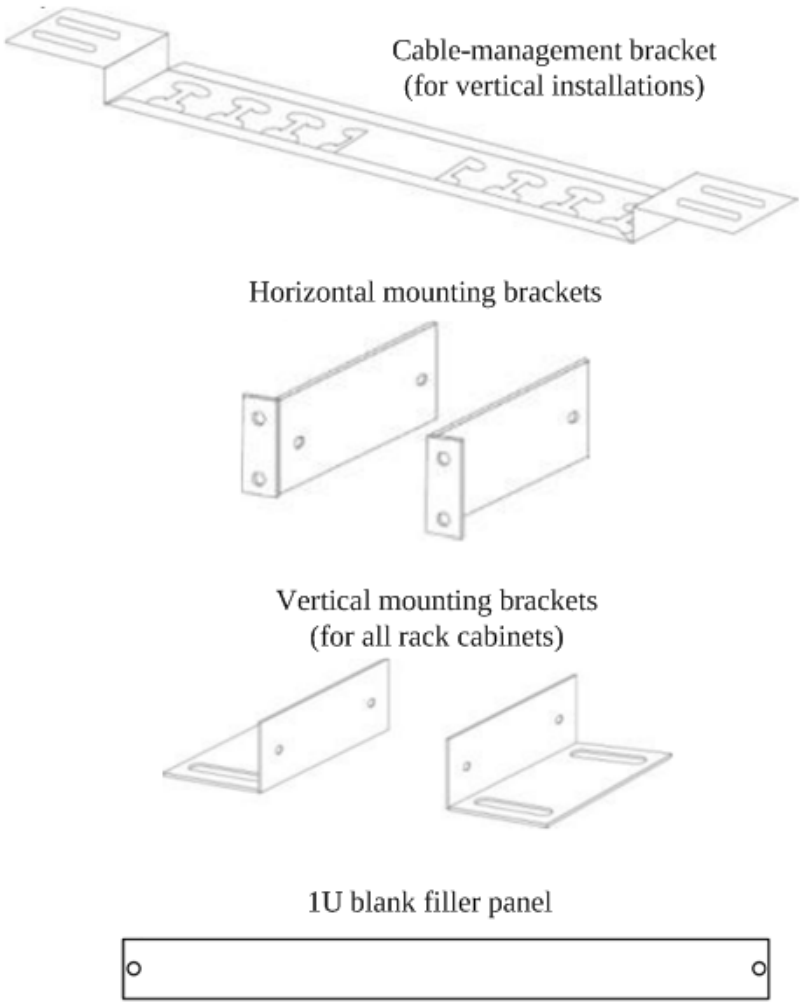


Figure 31: Accessory kit

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 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 C19 PDU.

Racking

This section discusses mounting the DPI C19 (39Y8948 and the 39Y8923) 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 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.

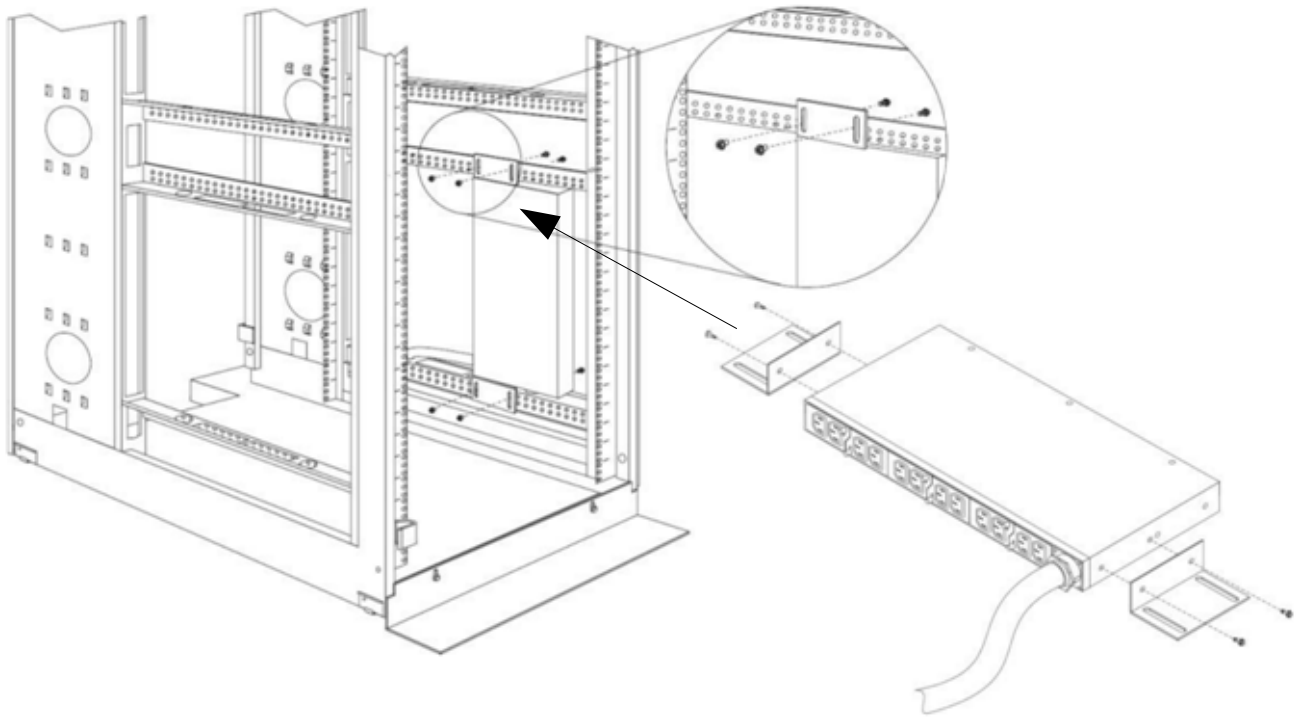


Figure 32: DPI C19 PDU vertical mounting in rack

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

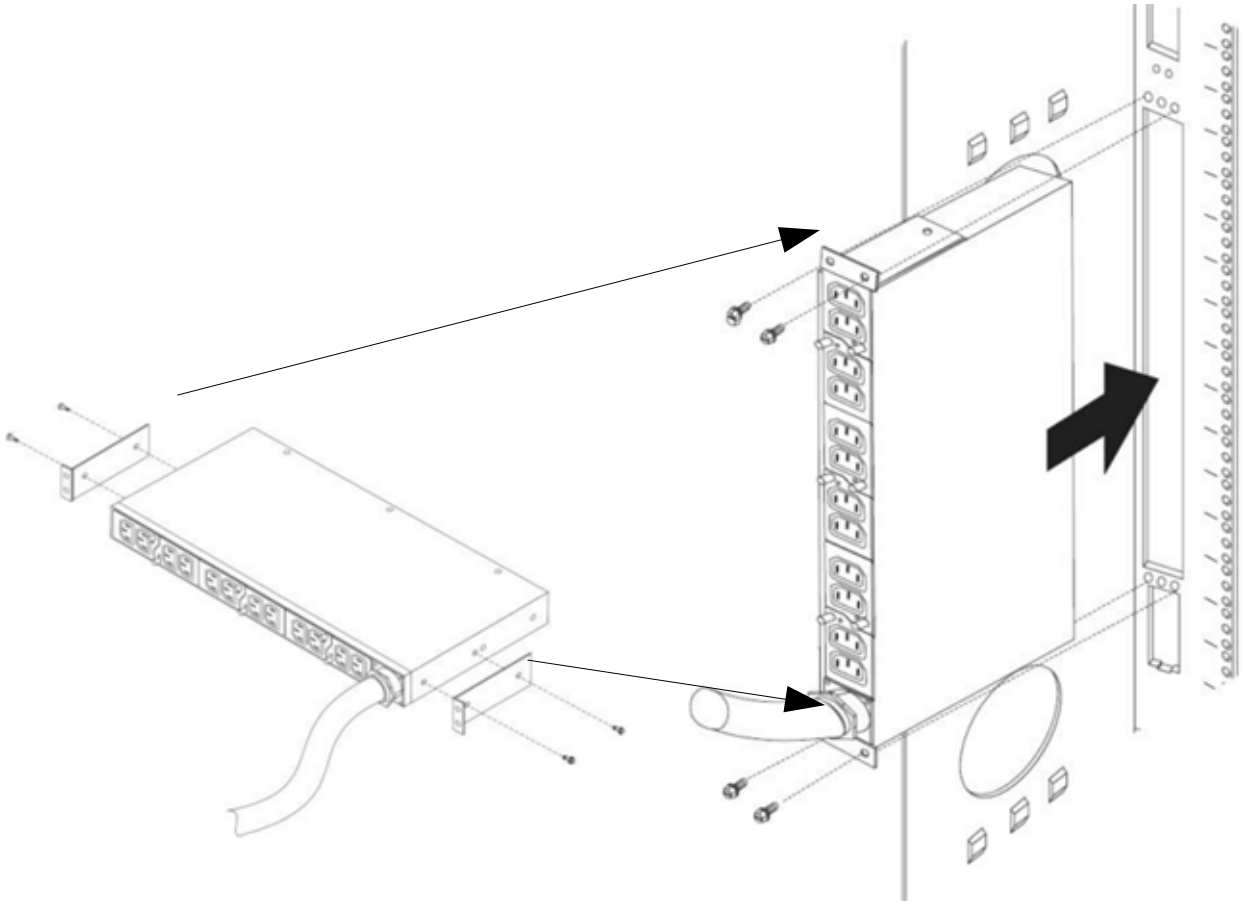


Figure 33: DPI C19 PDU side pocket mounting in Enterprise rack

Mounting the DPI PDUs (39Y8948 and the 39Y8923) 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

Mounting in EIA (U space) of rack

Mounting the DPI C19 PDUs (39Y8948 and the 39Y8923) 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 34.

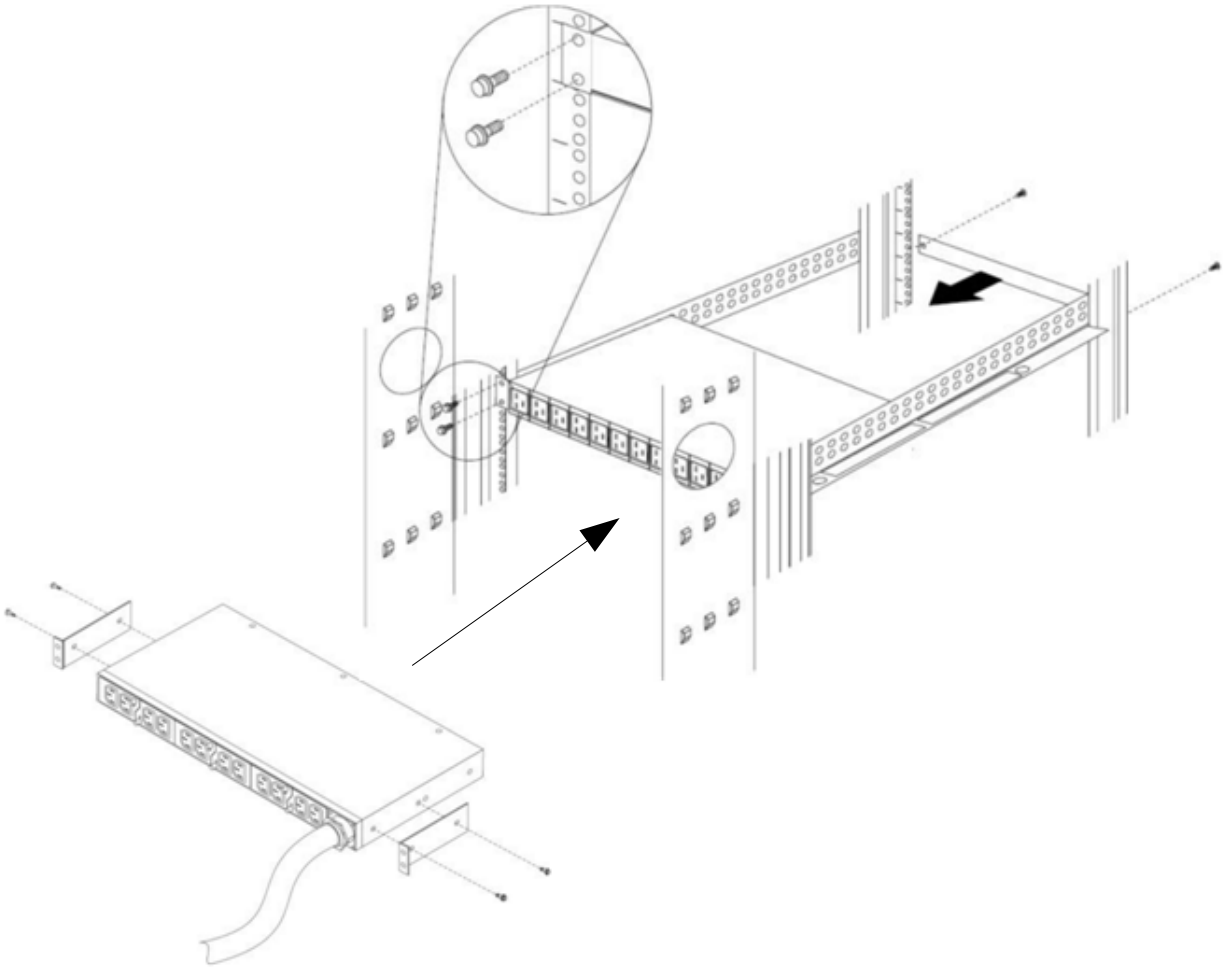


Figure 34: DPI C19 PDU horizontal mounting in rack

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, and 39Y8923

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

Ultra Density Enterprise PDU

This section discusses the 71762NX and 71763NU Ultra Density Enterprise C19/C13 PDU. This section is broken up into the following sections.

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

Quick Specs

The following tables is a quick overview of the 71762NX and 71763NU PDUs. For additional information refer to the Specifications section.

PDU 71762NX + Line Cord 40K9614	
Type	30A/208V
Power Capacity	4992VA @ 208V
Outlets types	nine IEC C19, and three IEC C13
Power Limit per PDU	24A
Phase	Single phase

PDU 71762NX + Line Cord 40K9615	
Type	60A/208V
Power Capacity	9984VA @ 208V
Outlets types	nine IEC C19, and three IEC C13
Power Limit per PDU	48A
Phase	Single phase

PDU 71763NU + Attached Line Cord	
Type	60A/208V
Power Capacity	17285VA @ 208V
Outlets types	nine IEC C19, and three IEC C13
Power Limit per PDU	83.1A
Phase	Three phase

Front and Back View and Outlets

There are 2 type of Ultra Density Enterprise PDUs. The 71762NX and the 71763NU. The PDUs are identical except for the line cord. The line cord determines single phase or three phase operation.

The 71762NX has detachable single phase line cord options. The 71763NU comes with an attached 3 phase line cord. The following figures displays a front and back view of each PDU.

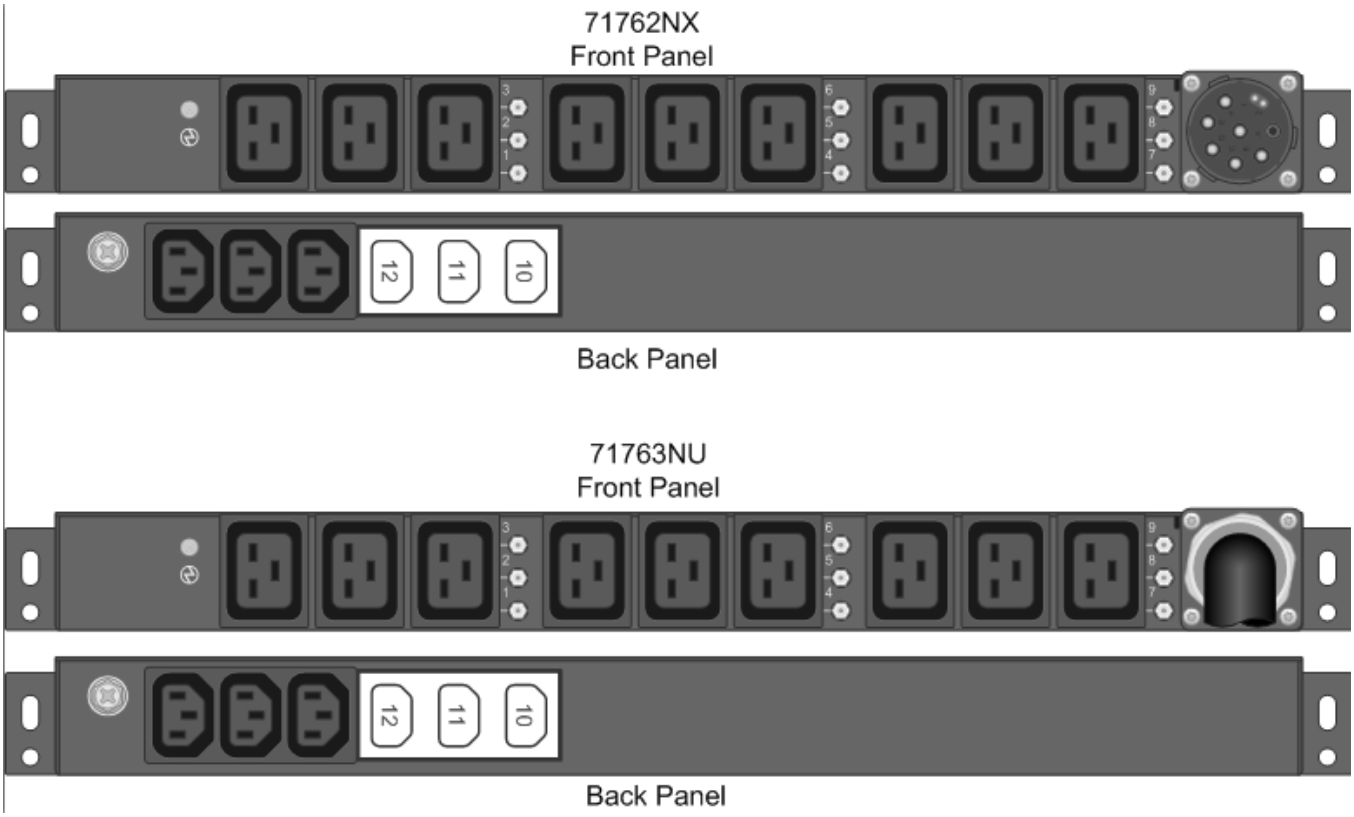
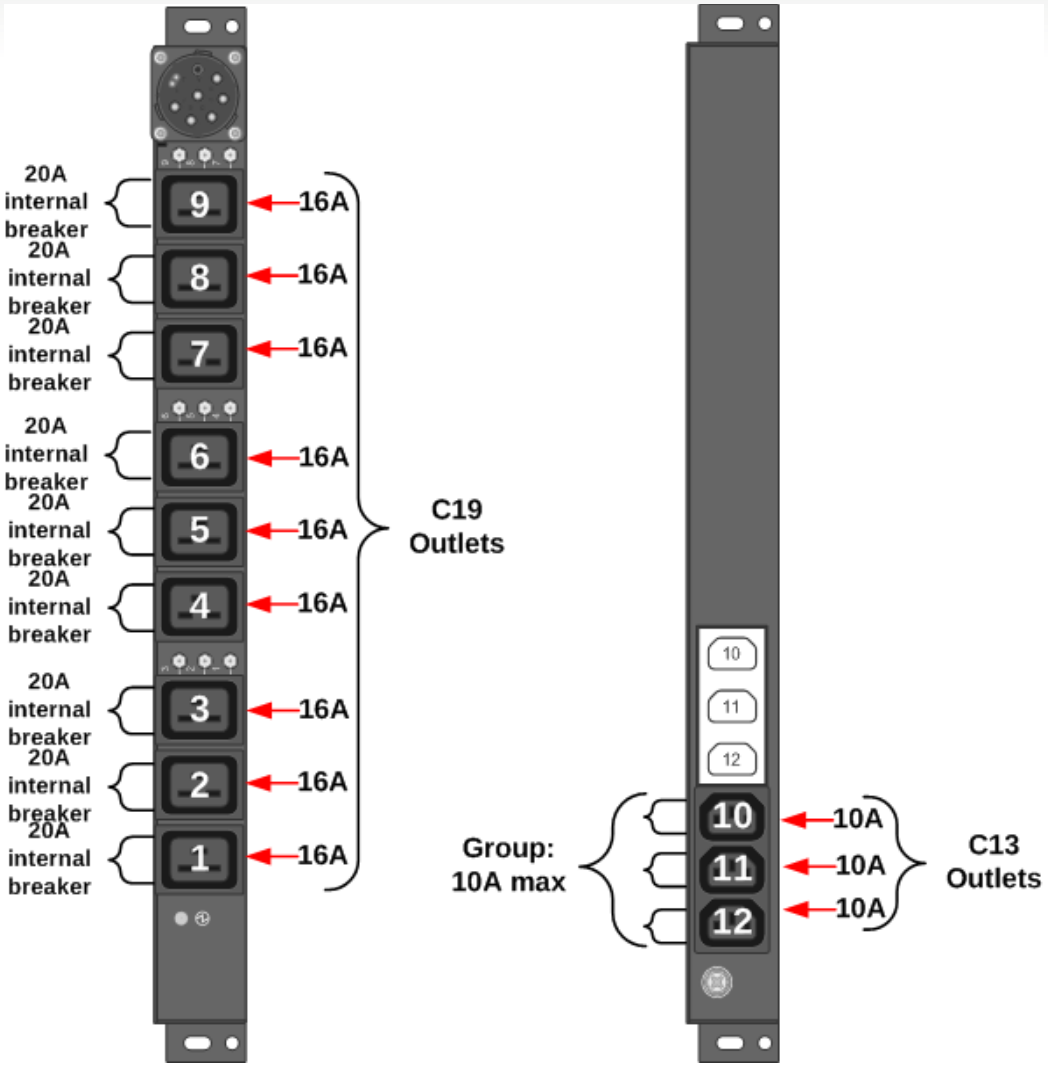
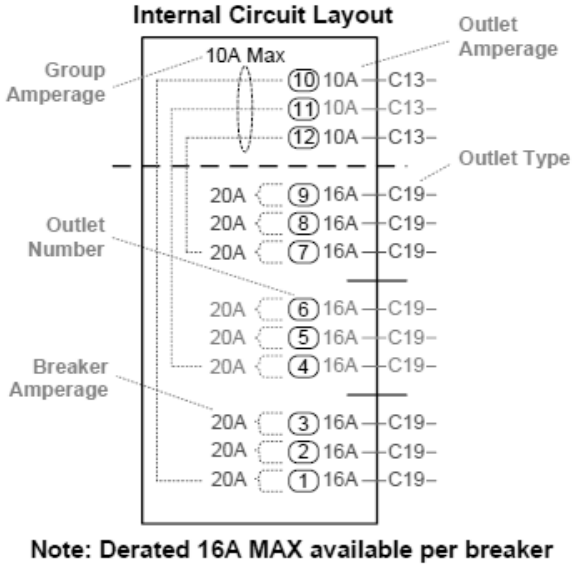


Figure 35: Front and back panels of the Ultra Density Enterprise C19 PDU

The following figures show the PDUs outlets and amperage.

Single phase model – 71762NX

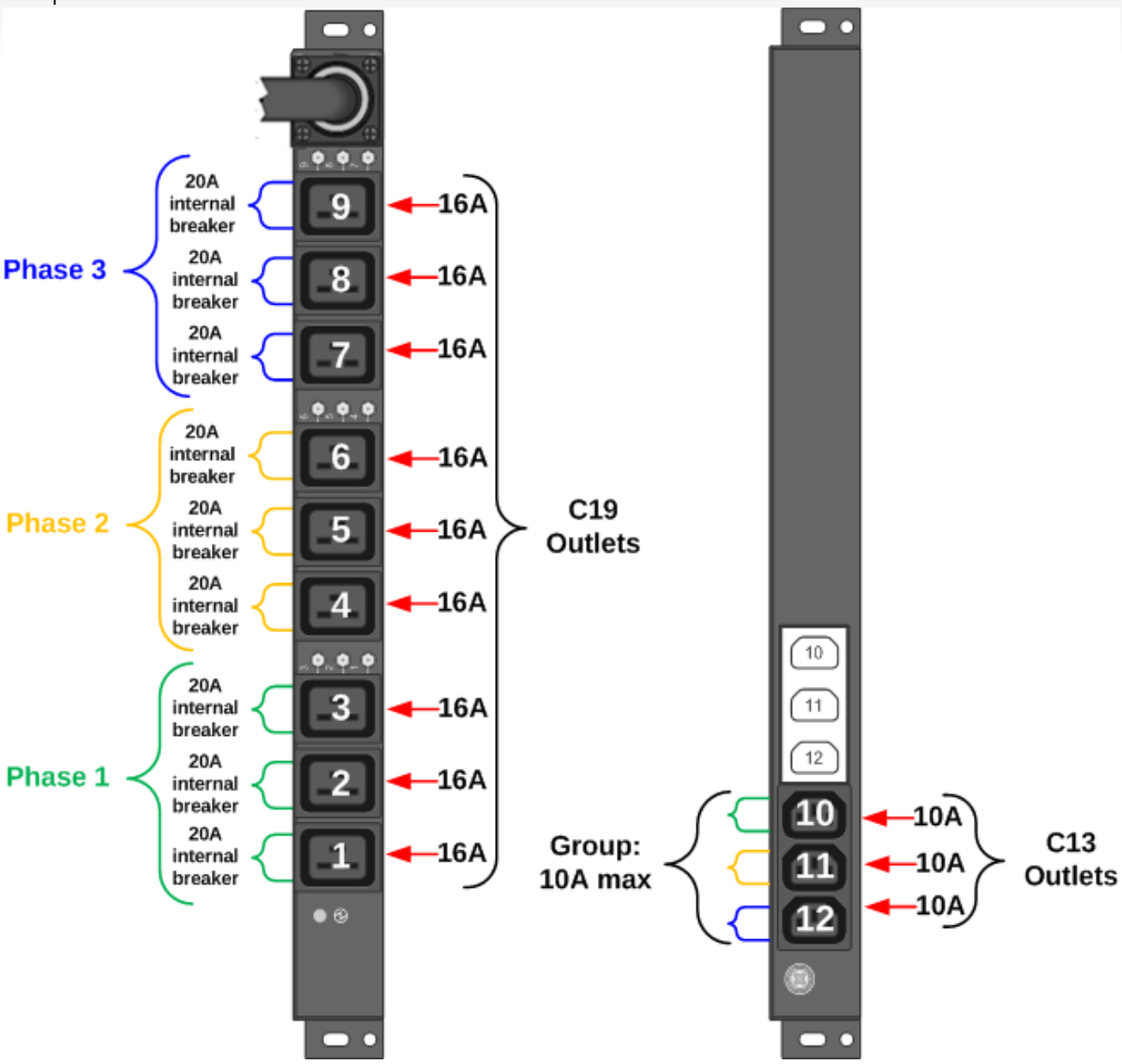




Note: Derated 16A MAX available per breaker

Figure 36: Outlets and amperage

Three phase model – 71763NU



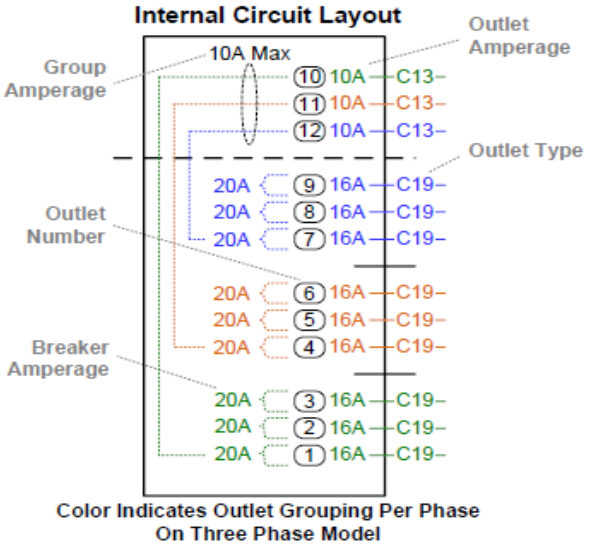


Figure 37: Outlets and amperage

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 page 166, and 168 for a picture of the line cord plugs.

PDU P/N / FC	Line Cord P/N / FC	FC Bundle	Line Cord Description
71762NX / 6030	40K9614 / 6500	6032	Lenovo DPI 30A (4.3m) Cord NEMA L6-30P 30A (24A derated) 200-240V Single Phase
71762NX / 6030	40K9615 / 6501	6033	Lenovo DPI 60A (4.3m) Cord IEC 309 2P+G 60A (48A derated) 200-240V Single Phase
71763NU	Attached	-	Attached 14-foot (4.3m) line cord with IEC-309 60A, 3P4W plug (Type 460P9W) 60A (27.7A / Phase derated) 83.1A Total derated Circuit Capacity 200-240V Three Phase Delta

Specifications

The following table are specifications for the 71762NX and the 71763NU DPI C19/C13 PDUs.

Specifications						
PDU Part Number	71762NX				71763NU	
PDU Feature Code	6030				6030	
Line Cord P/N*	40K9614		40K9615		Attached	
Line Cord FC	6500		6501		-	
Type	30A/208V		60A/208V		3 phase	
Power Capacity**	4992VA @ 208V		9984VA @ 208V		17285VA @ 208V	
Outlets types	nine IEC C19	three IEC C13	nine IEC C19	three IEC C13	nine IEC C19	three IEC C13
Power Limit per Outlet	16A	10A	16A	10A	16A	10A
Grouping	One C19 or One C19 + one C13 per breaker		One C19 or One C19 + one C13 per breaker		One C19 or One C19 + one C13 per breaker Three C19 + one C13 per phase	
Power Limit per Group	16A		16A		16A per group / 27.7A per phase	
Power Limit per PDU	24A		48A		83.1A	
Power Monitoring/Switching	No/No		No/No		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.

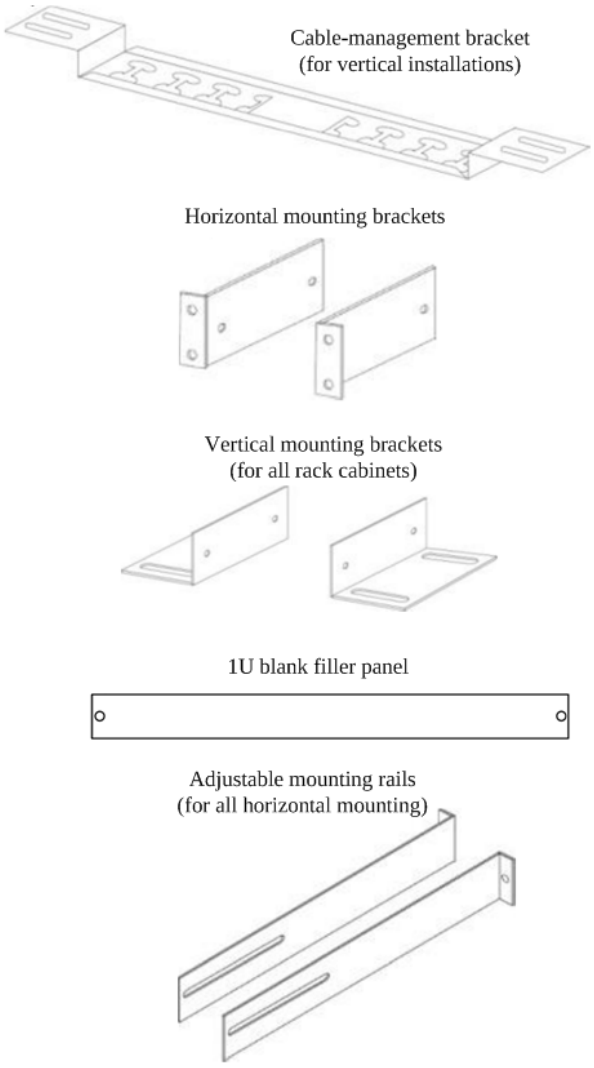


Figure 38: Accessory kit

Misc hardware kit also included for attaching PDUs 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 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 C19/C13 Ultra Density Enterprise PDU.

Racking

This section discusses mounting for the 71762NX and the 71763NU Ultra Density C19/C13 PDUs .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.

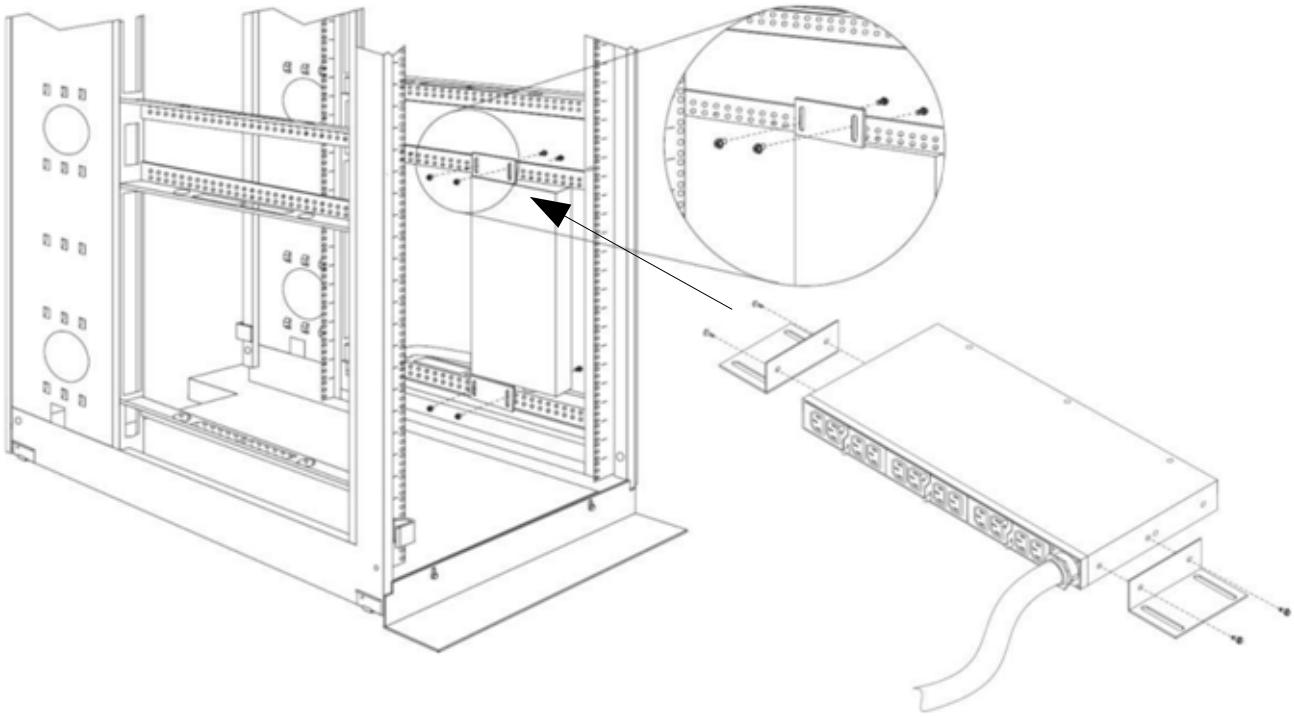


Figure 39: Enterprise Ultra Density C19/C13 PDU vertical mounting in rack

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

Mounting the 71762NX and the 71763NU Ultra Density C19/C13 PDUs 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.

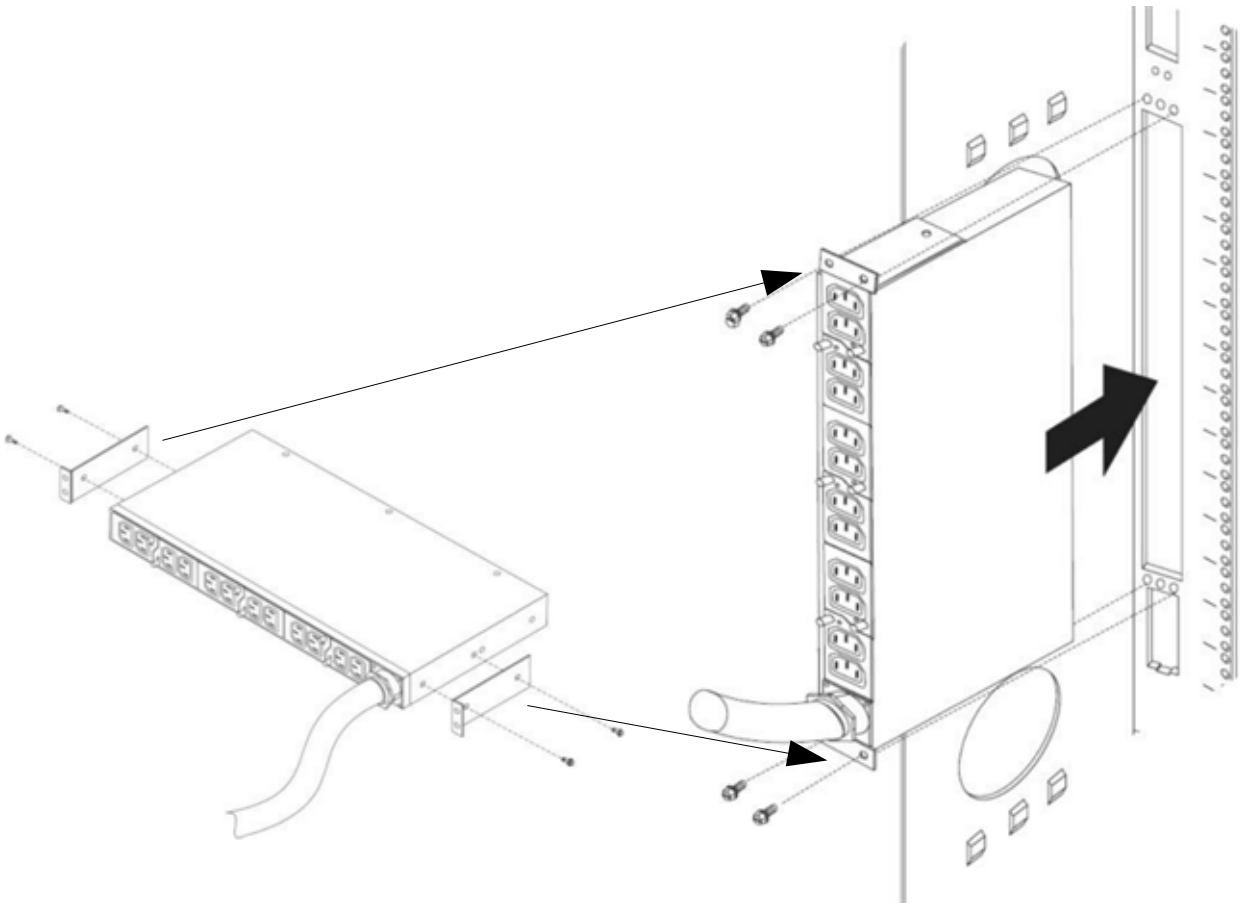


Figure 40: Ultra Density Enterprise PDU side pocket mounting in Enterprise rack

Mounting in EIA (U space) of rack

Mounting the 71762NX and the 71763NU Ultra Density C19/C13 PDU's 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 41.

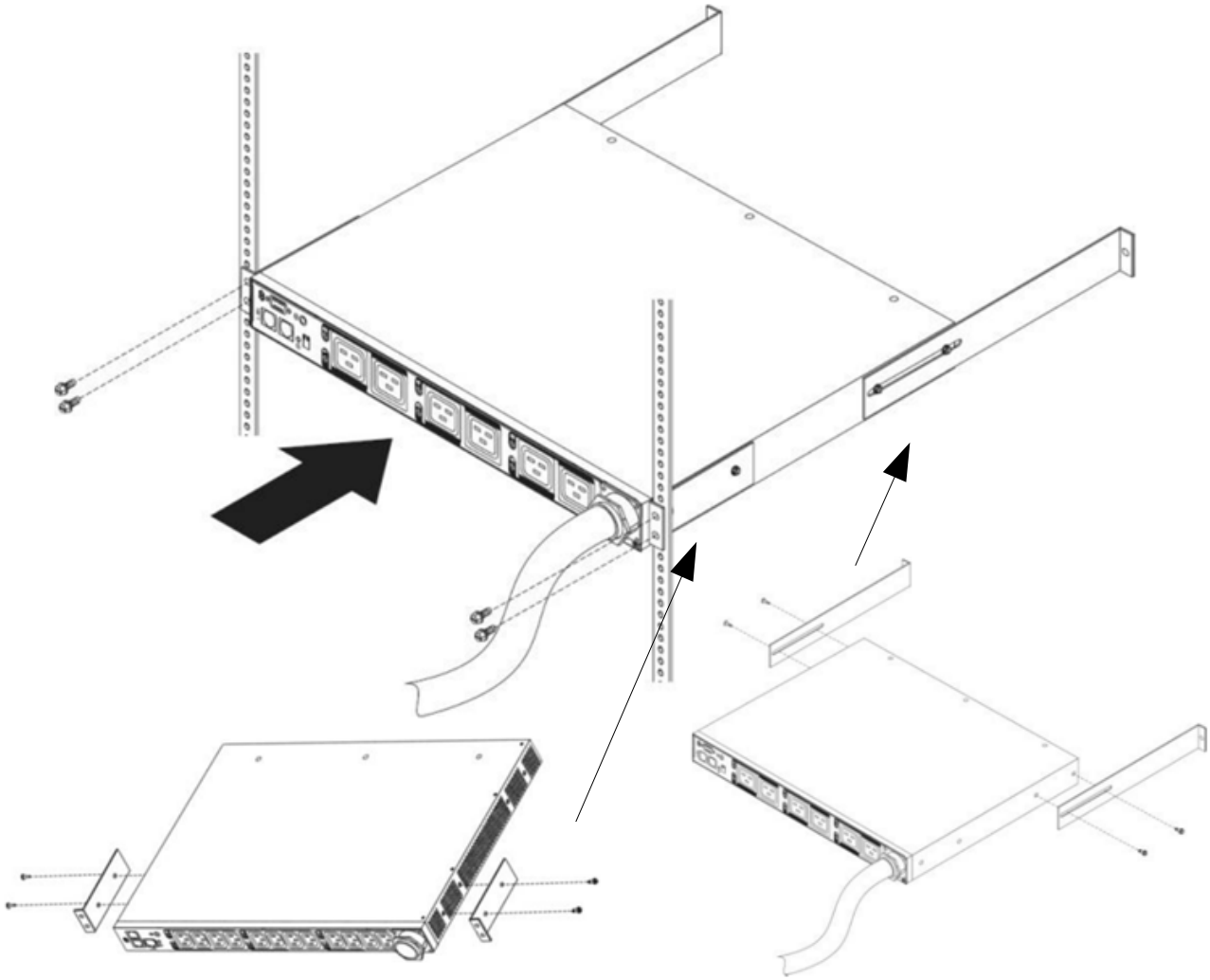


Figure 41: Ultra Density Enterprise PDU horizontal mounting in rack

Installation and Maintenance Guide

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

71762NX, and 71763NU

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

0U 24 C13 PDU

This section discusses the 46M4128 and 46M4125, 0U 24 C13 PDU. This section is broken up into the following sections.

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

Quick Specs

The following tables are quick specs for the 46M4128 and 46M4125 PDUs. For additional information, refer to the Specifications section.

PDU 46M4128 + Attached Line Cord	
Type	30A/208V
Outlets types	twenty four IEC C13
Power Capacity	4800VA @ 208V
Power Limit per PDU	24A
Phase	Single phase

PDU 46M4125 + Attached Line Cord	
Type	30A/208V
Outlets types	twenty four IEC C13
Power Capacity	8647VA @ 208V
Power Limit per PDU	41.6A
Phase	Three phase

Front View and Outlets

There are 2 type of 0U 24 C13 PDU's. The 46M4128 and the 46M4125. The PDUs are identical except for the line cord. The line cord determines single phase or three phase operation.

The 46M4128 has an attached single phase line cord. The 46M4125 has an attached 3 phase line cord. The following figure displays a front view picture of the PDU.

Figure 42: Front panel of the 0U 24 C13 PDU

Figure 44 on page 73 shows the PDUs outlets and amperage.

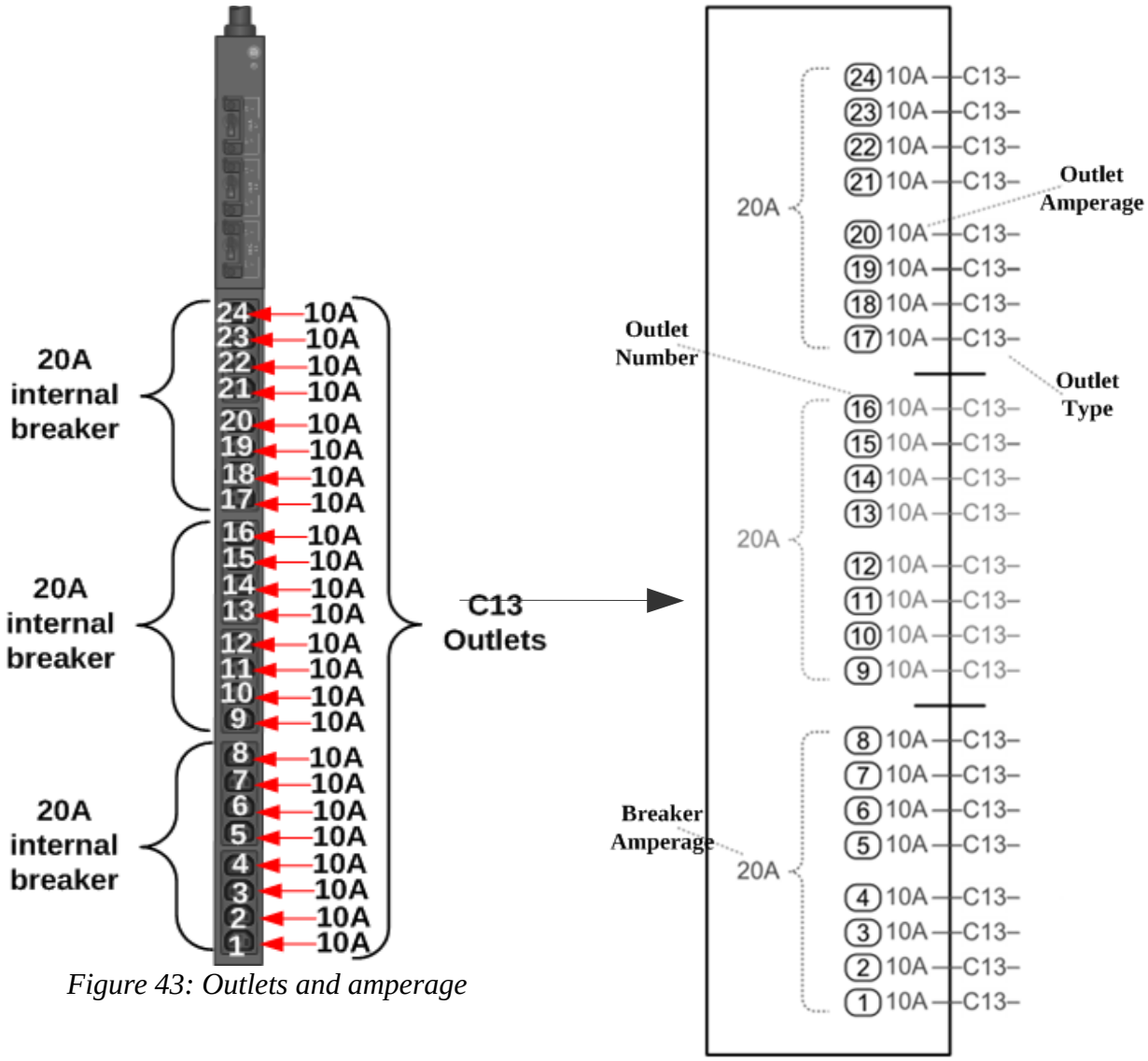


Figure 43: Outlets and amperage

Refer to the Specifications for additional information.

Three phase model – 46M4125

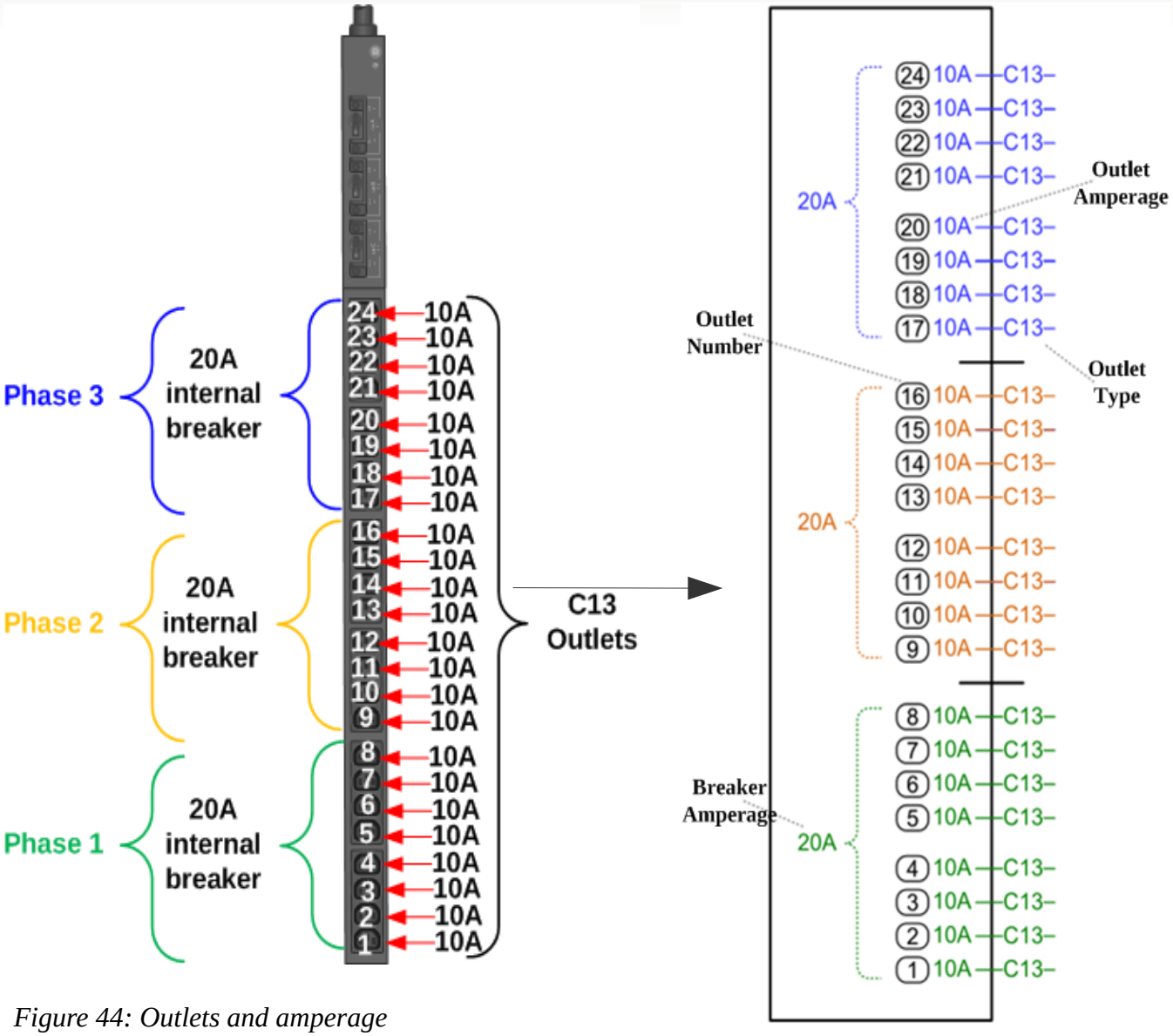


Figure 44: Outlets and amperage

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 169, and 170 for a picture of the line cord plugs.

PDU P/N	Feature Code	Line Cord P/N	Line Cord Description
46M4128	5924	Attached	Attached 3.0 meter line cord with NEMA L6-30P plug 30A (24A derated) 200-240V Single Phase
46M4125	5923	Attached	Attached 3.0 meter line cord with NEMA L21-30P plug 30A (13.85A / Phase derated) 41.55A Total derated Circuit Capacity 200-240V Three Phase Delta

Specifications

The following table are specifications for the 46M4128 and 46M4125 0U C13 PDUs.

Specifications		
PDU Part Number	46M4128	46M4125
Feature Code	5924	5923
Input Line Cord Type*	Attached	Attached
Phase	Single phase	Three phase
Type	30A/208V	30A/208V
Outlets types	twenty four IEC C13	twenty four IEC C13
Power Capacity**	4992VA @ 208V	8674VA @ 208V
Power Limit per Outlet	10A	10A
Grouping	Eight outlets per breaker	Eight outlets per breaker Eight outlets per phase
Power Limit per Group	16A	13.9A
Power Limit per PDU	24A	41.7A
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.

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.

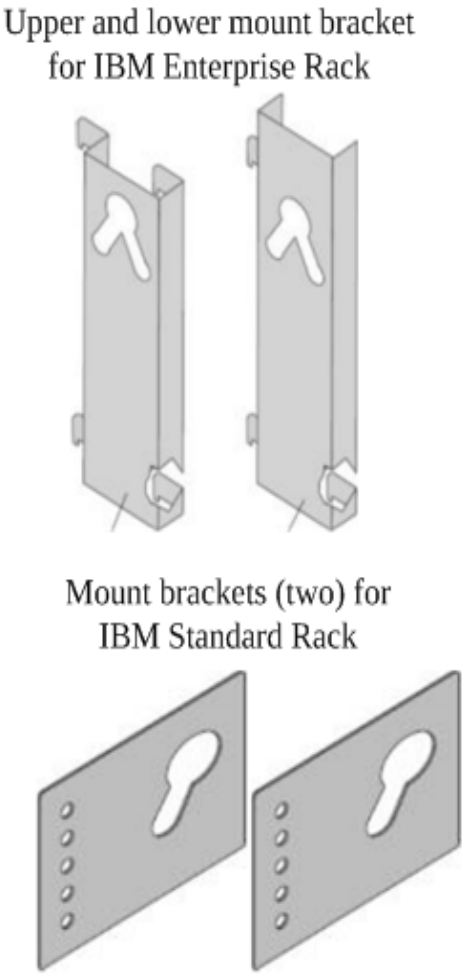


Figure 45: Accessory kit for PDUs 46M4128, 46M4125, and 46M4140

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 Enterprise racks (9308 and 1410), and the 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:

46M4128 – 1ph 0U 24 C13 PDU
46M4125 – 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 Accessory Kit section for additional information.

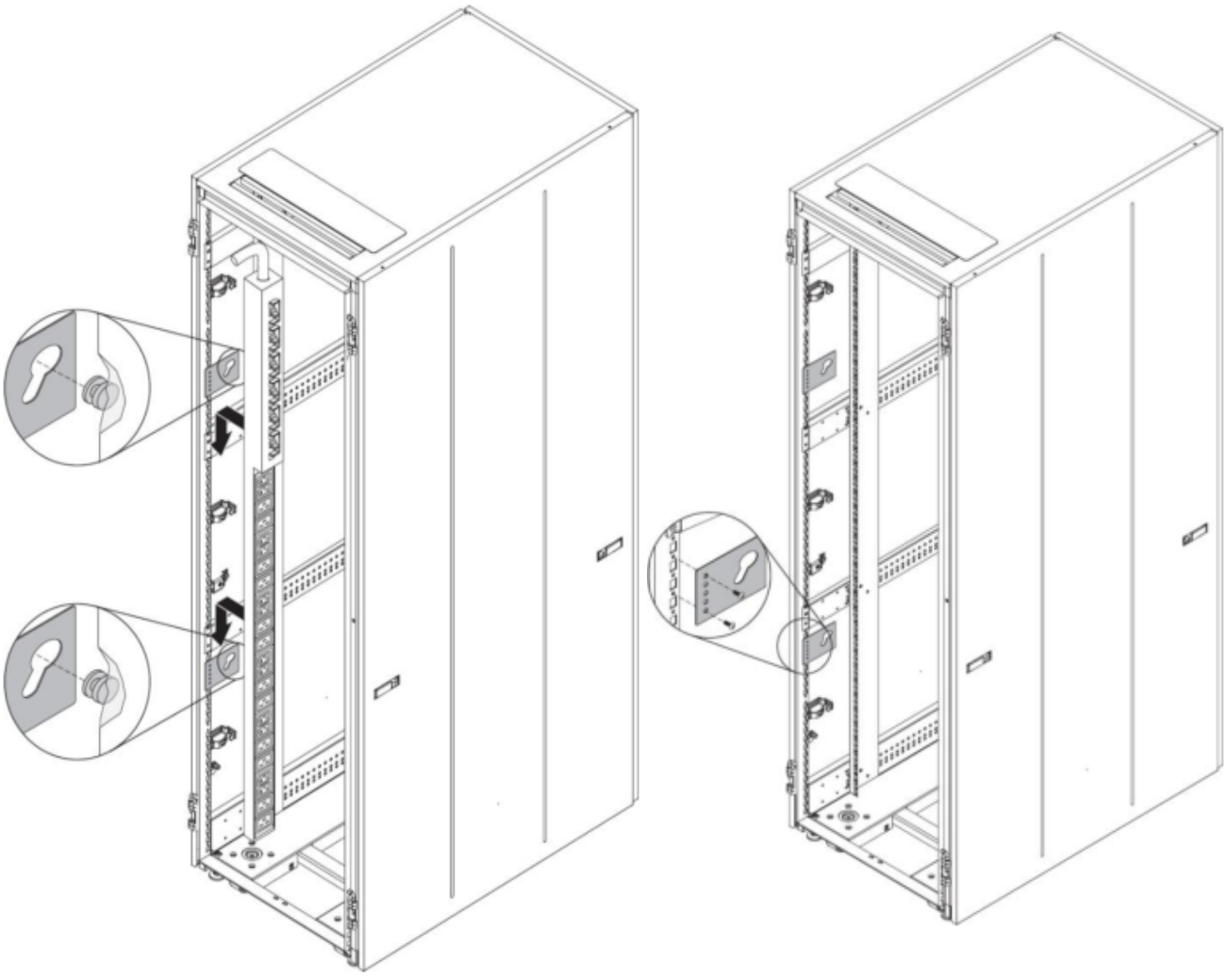


Figure 46: Standard rack cabinet mounting

Mounting In Enterprise Rack (9308 & 1410) & 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 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 Accessory Kit section for additional information.

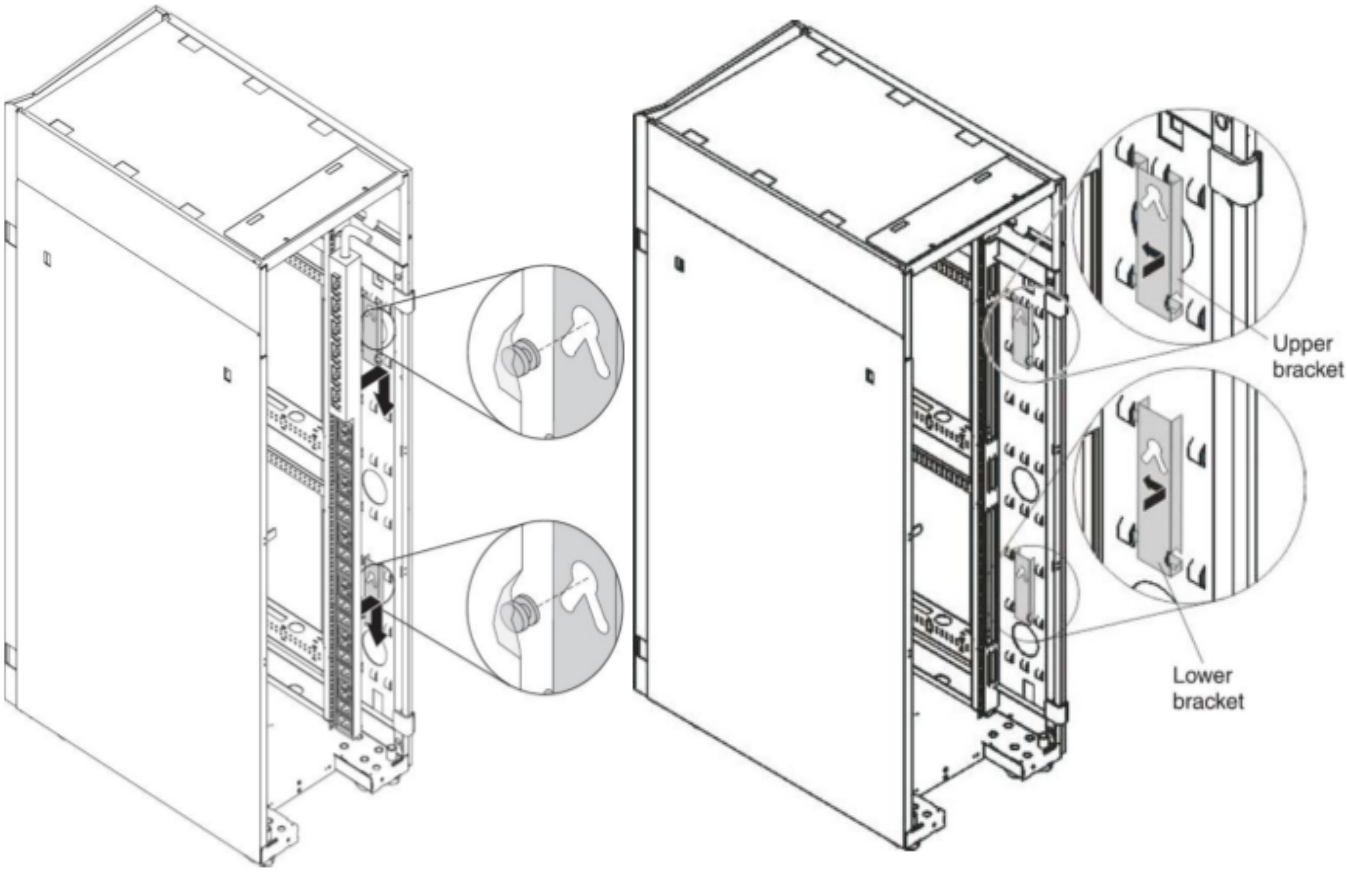


Figure 47: Enterprise rack cabinets

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 48.

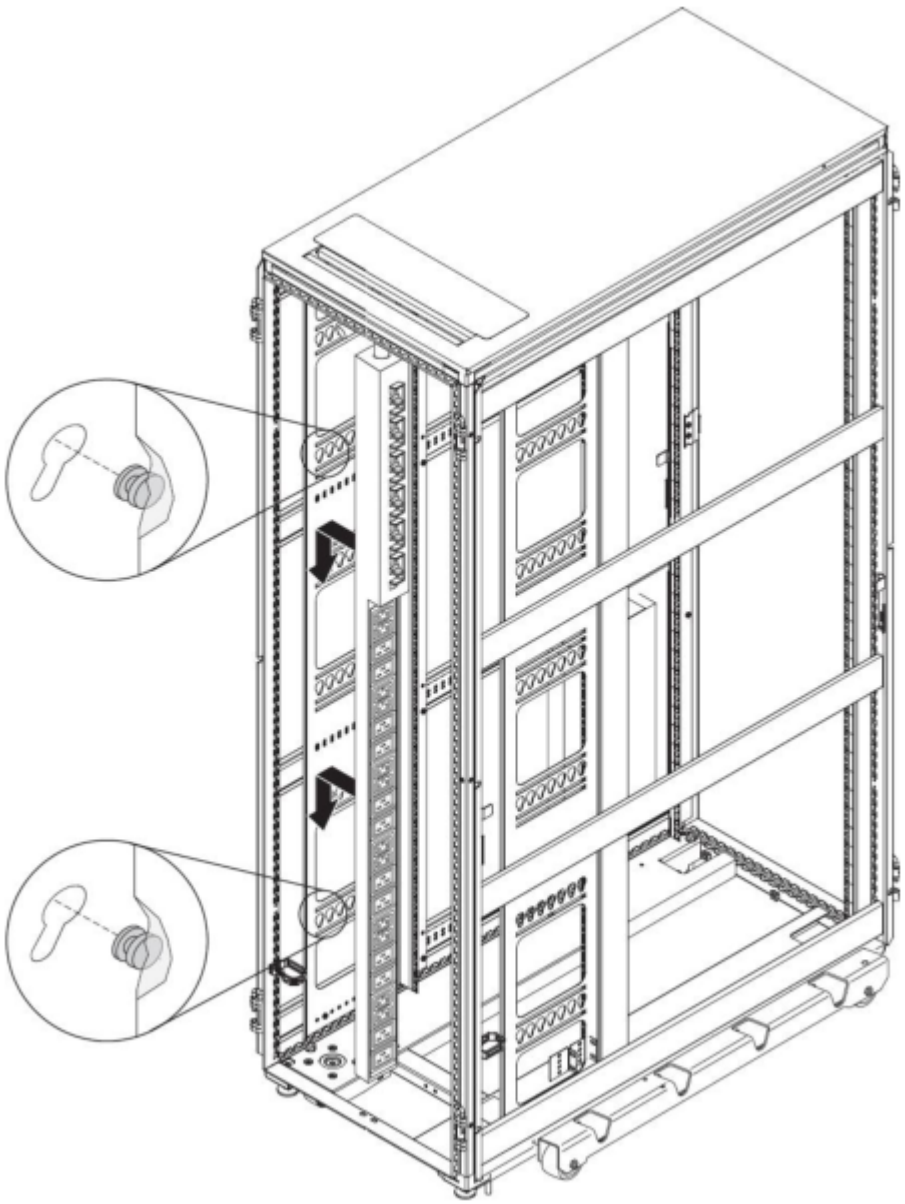


Figure 48: Rack with mounting keyholes at the rear

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

46M4125, and 46M4128
http://www.ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-5085549

0U 12 C19 / 12 C13 PDU

This section discusses the 46M4140 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 46M4140 PDU. For additional information refer to the Specifications section.

PDU 46M4140 + Attached Line Cord	
Type	50A/208V
Outlets types	twelve IEC C13 & twelve IEC C19
Power Capacity	14602VA @ 208V
Power Limit per PDU	70.2A
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 49: Front panel of the 0U 12 C19 / 12 C13 PDU – PN 46M4140

Figure 50 on page 82 shows the PDUs outlets and amperage.

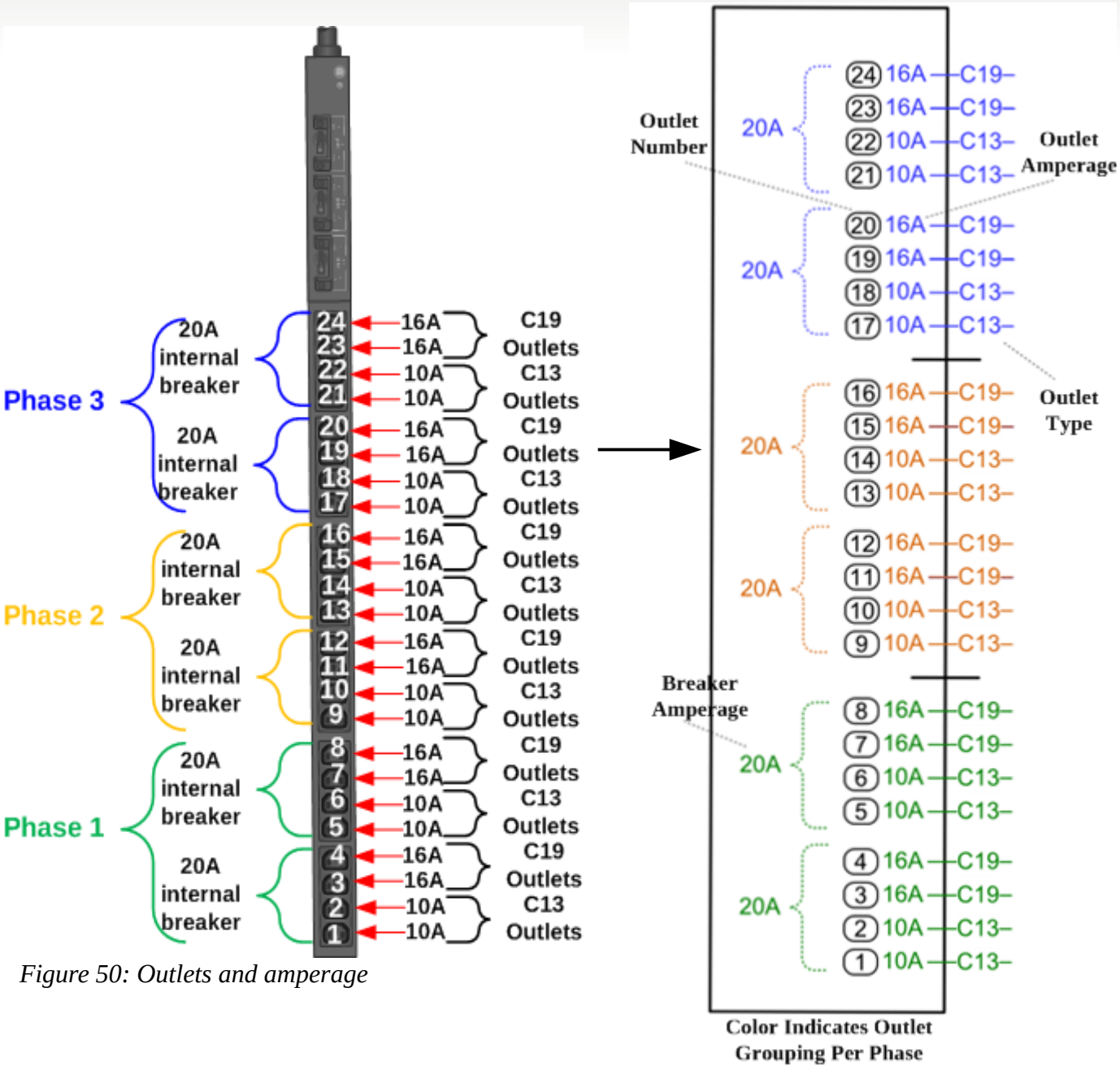


Figure 50: Outlets and amperage

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 page 171 for a picture of the line cord plug.

PDU P/N	Feature Code	Line Cord P/N	Line Cord Description
46M4140	5926	Attached	Attached 3.0 meter line cord with CS8365L plug, 50A (23.09A / Phase derated), 69.27A Total derated Circuit Capacity, 200-240V Three Phase Delta

Specifications

The following table are specifications for the 46M4140 0U 12 C19 / 12 C13 PDU.

Specifications	
PDU Part Number	46M4140
Feature Code	5926
Input Line Cord Type	Attached
Phase	3 phase
Type	50A/208V
Outlets types	twelve IEC C13 & twelve IEC C19
Power Capacity*	14602VA @ 208V
Power Limit per Outlet	10A (C13 outlets), & 16A (C19 outlets)
Grouping	four C13 & four C19 outlets per phase four C13 & four C19 outlets per breaker
Power Limit per Group	23.4A
Power Limit per PDU	70.2A
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.

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.

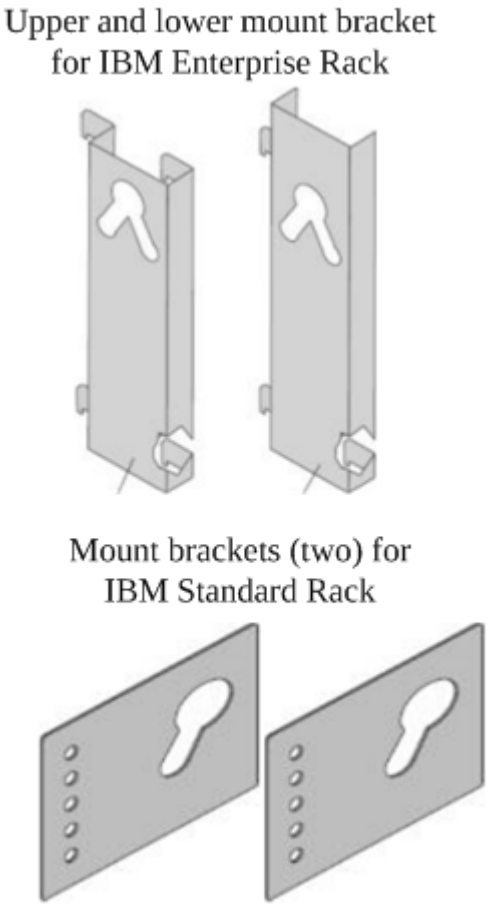


Figure 51: Accessory kit

Miscellaneous hardware kit for attaching the PDUs to the mounting brackets and installing the PDUs 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 (46M4140) in the back of the Lenovo Standard racks (9307 and 9956), mounting in the back of the Enterprise racks (9308 and 1410), and the 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 Accessory Kit section for additional information.

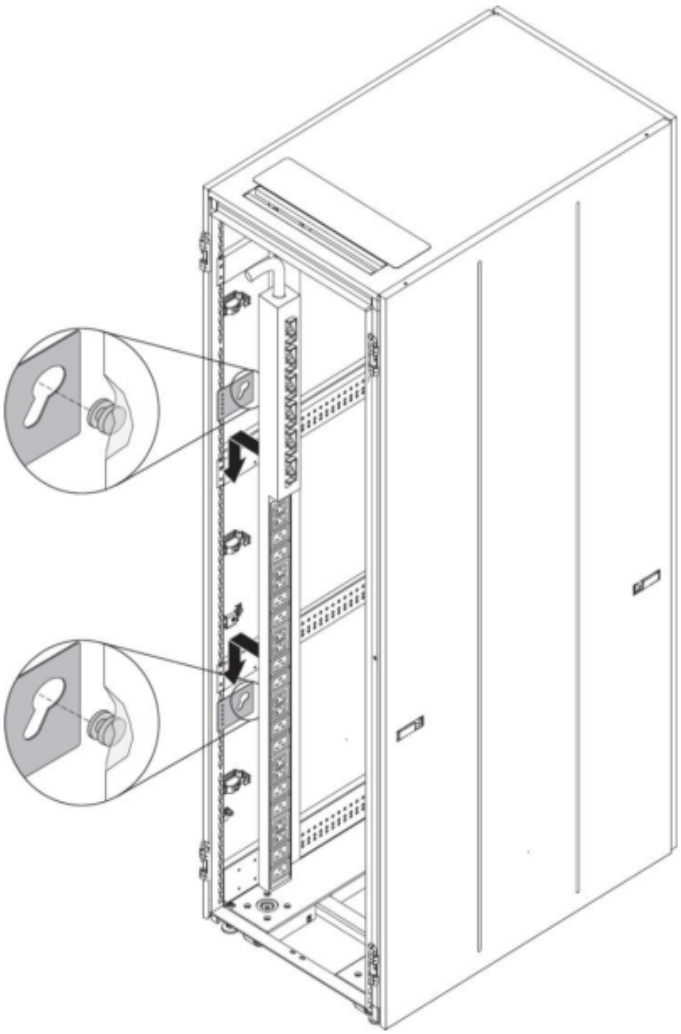


Figure 52: Standard rack cabinet mounting

Mounting In Enterprise Rack (9308 & 1410) & 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 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 Accessory Kit section for additional information.

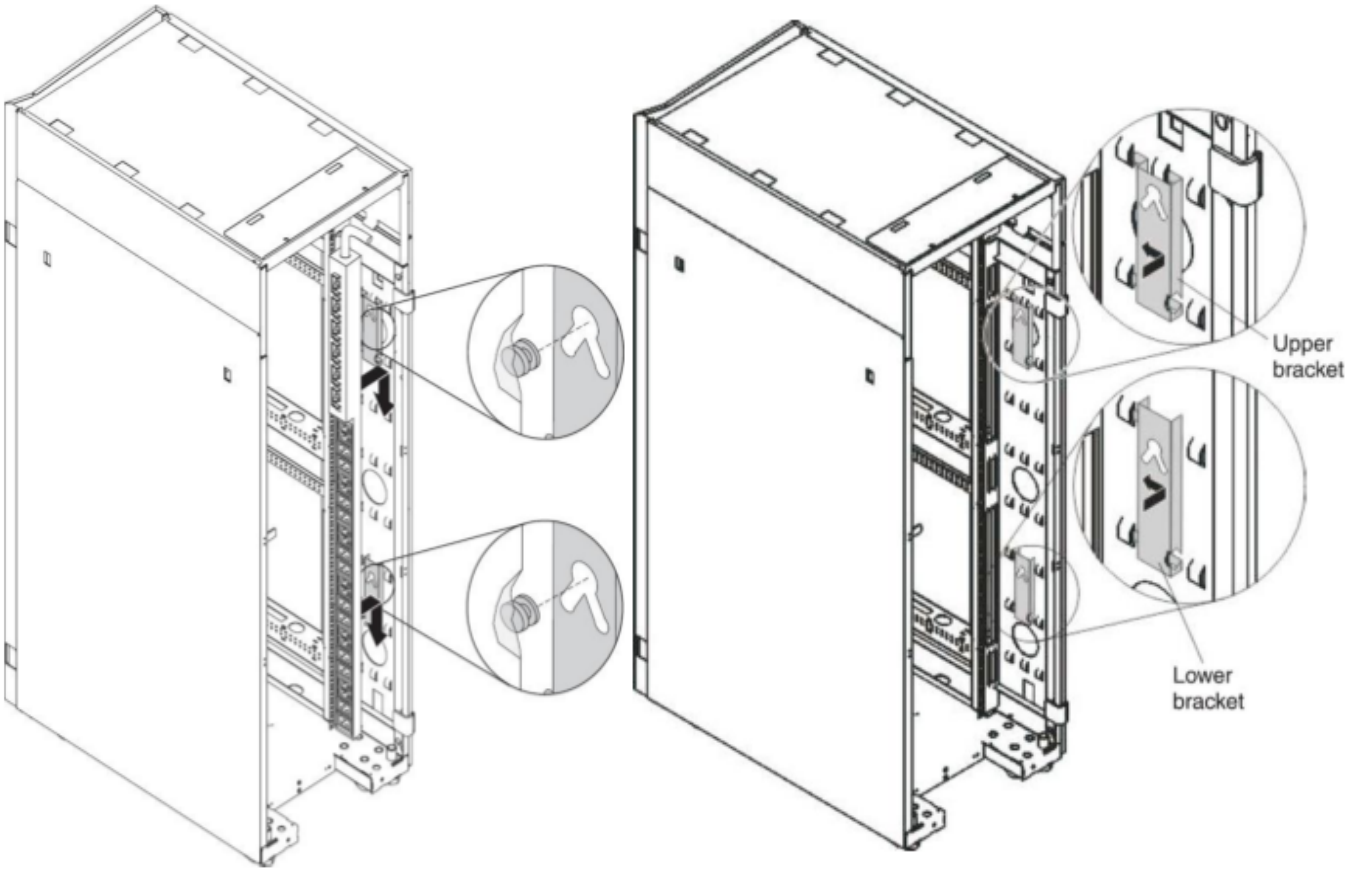


Figure 53: Enterprise rack cabinets

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 54.

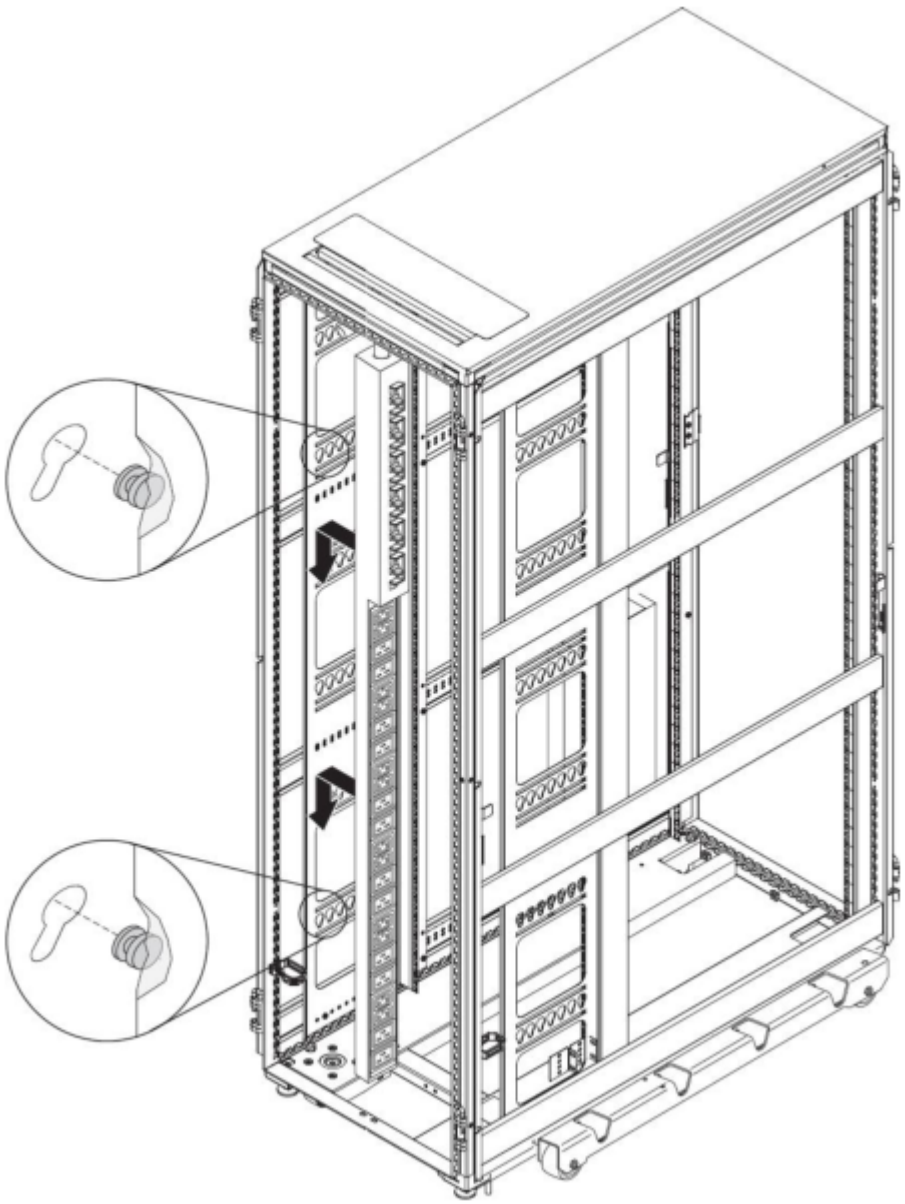


Figure 54: Rack with mounting keyholes at the rear

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

46M4140
http://www.ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-5085549

1U Higher Voltage DC PDU

This section discusses the 44T0966 1U Higher Voltage Direct Current (HVDC) PDU. This section is broken up into the following sections.

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

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	-

Front and Back 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.

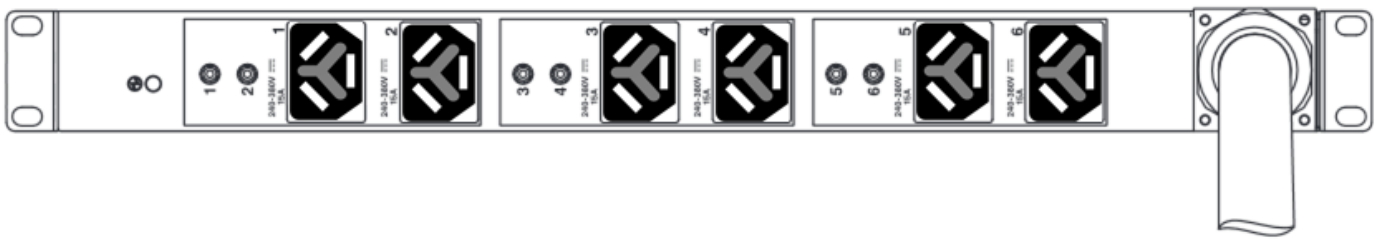


Figure 55: Front and back panels of the Ultra Density Enterprise C19 PDU

The following figures show the PDU outlets and amperage.

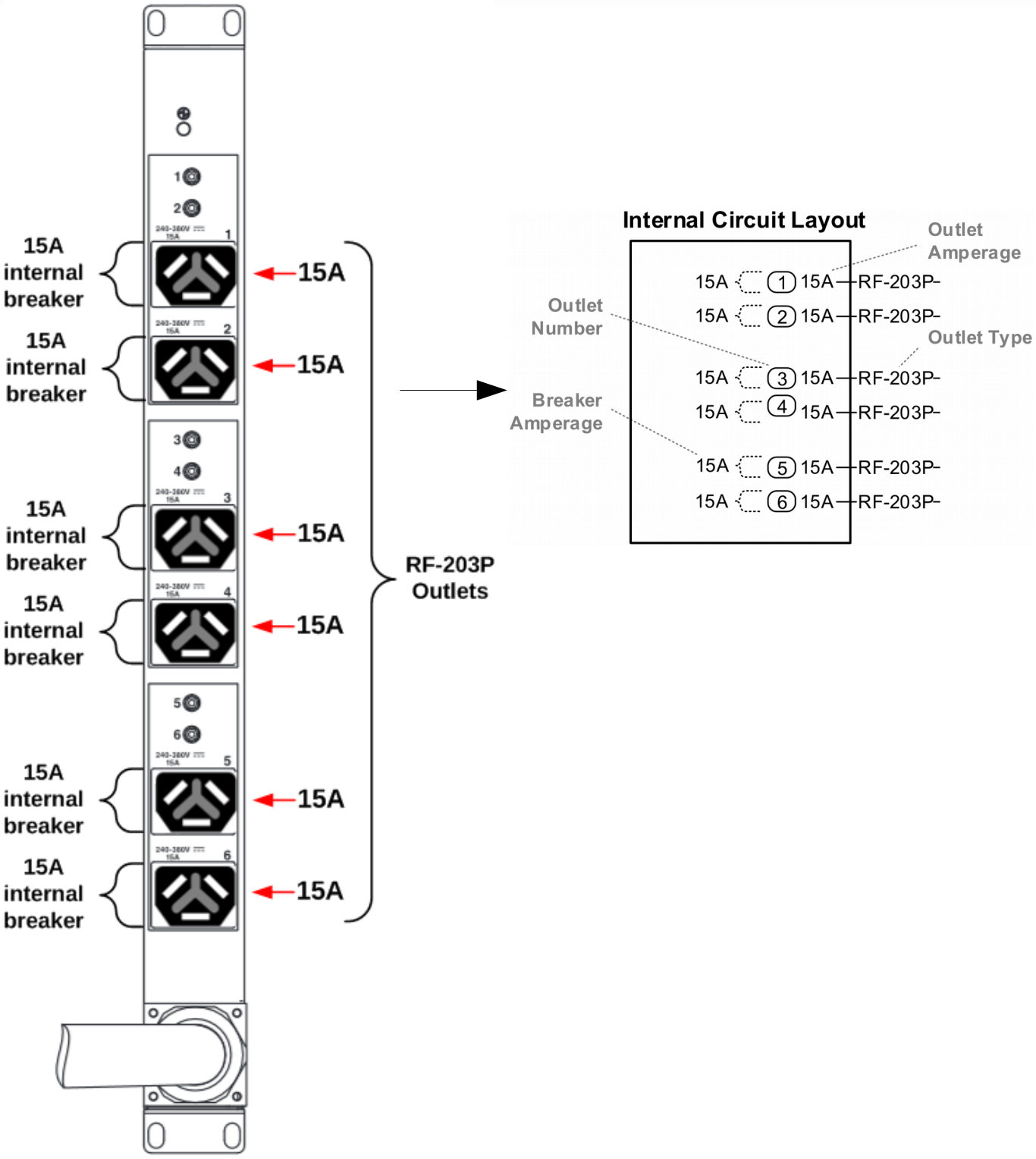


Figure 56: Outlets and amperage

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 page 166, and 168 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
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 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.

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
Power Capacity	21600W@240VDC
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

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.

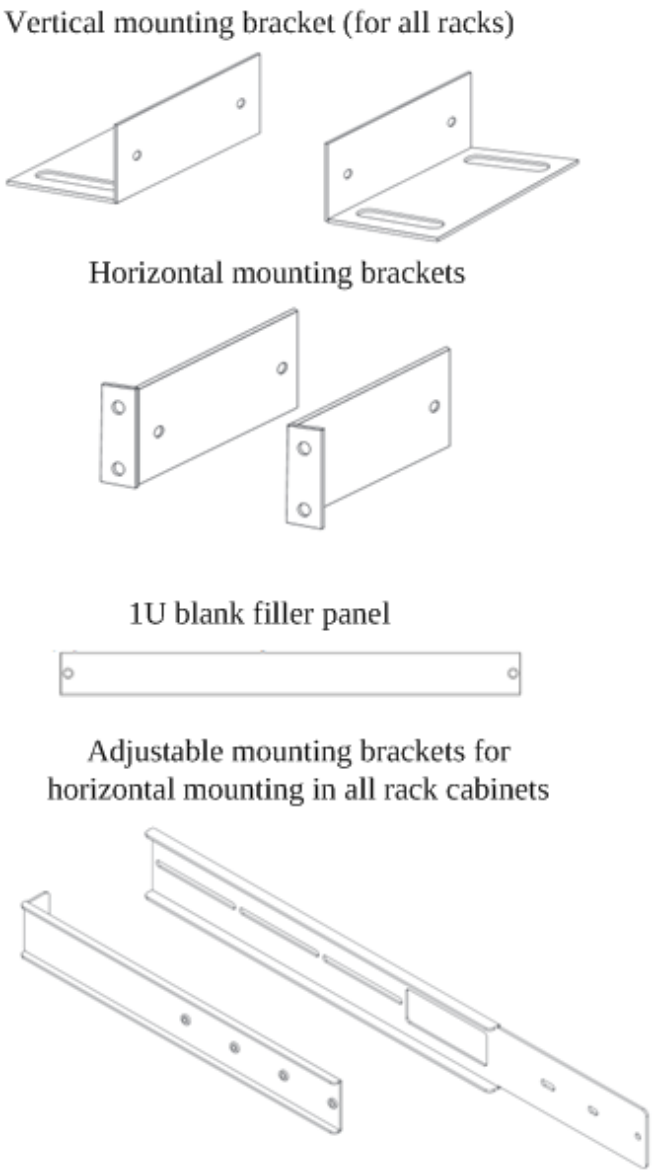


Figure 57: Accessory kit

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.

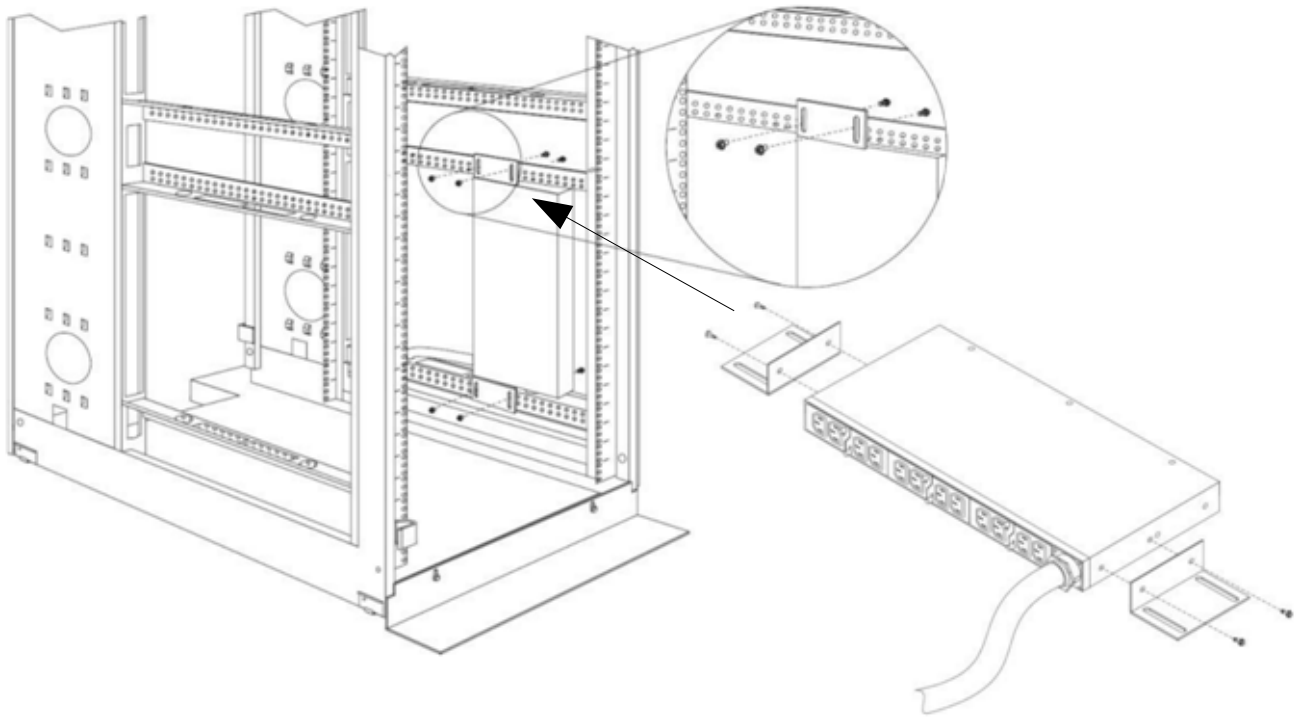


Figure 58: 44T0966 PDU vertical mounting in rack

Mounting In Enterprise Rack (9308 & 1410) & 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.

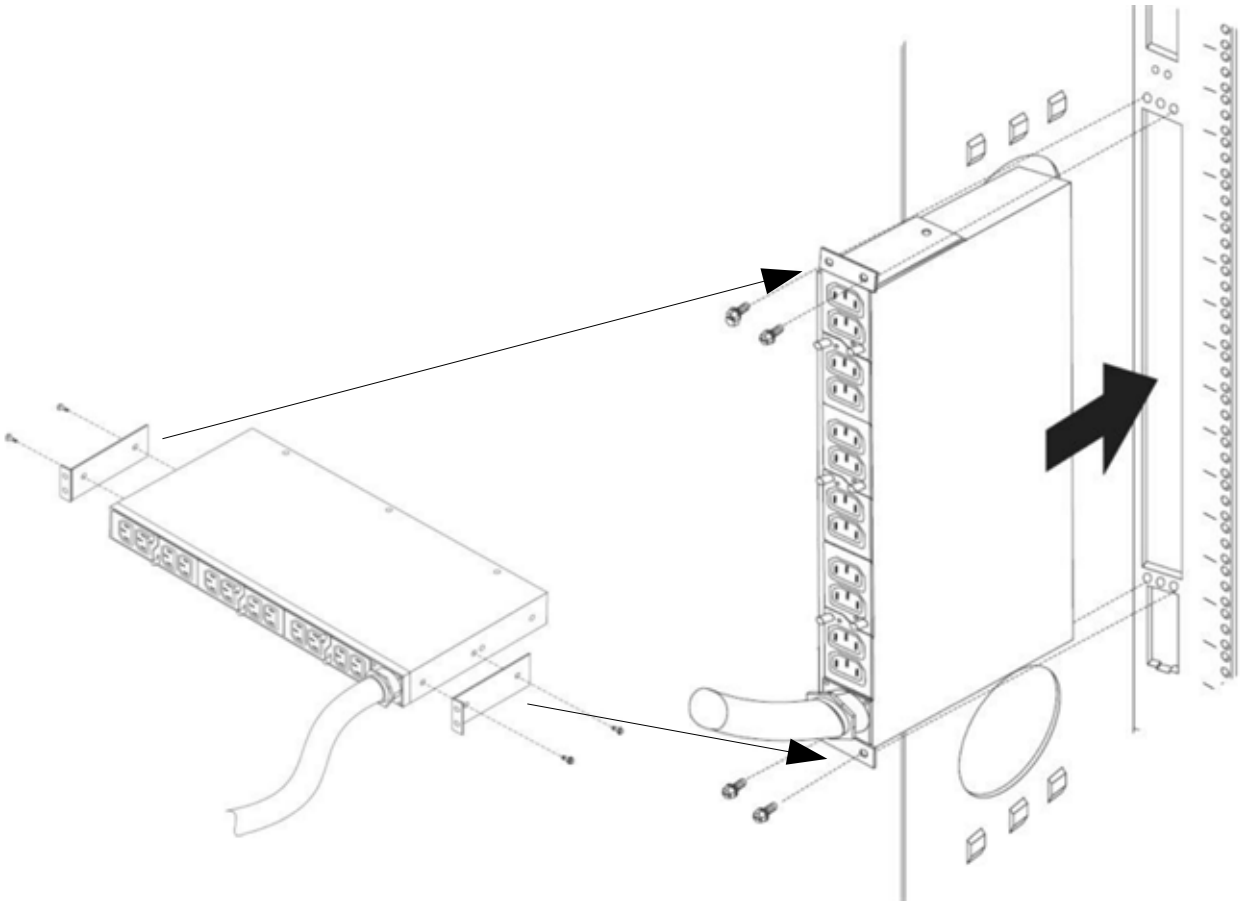


Figure 59: 44T0966 PDU side pocket mounting in Enterprise rack

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 60.

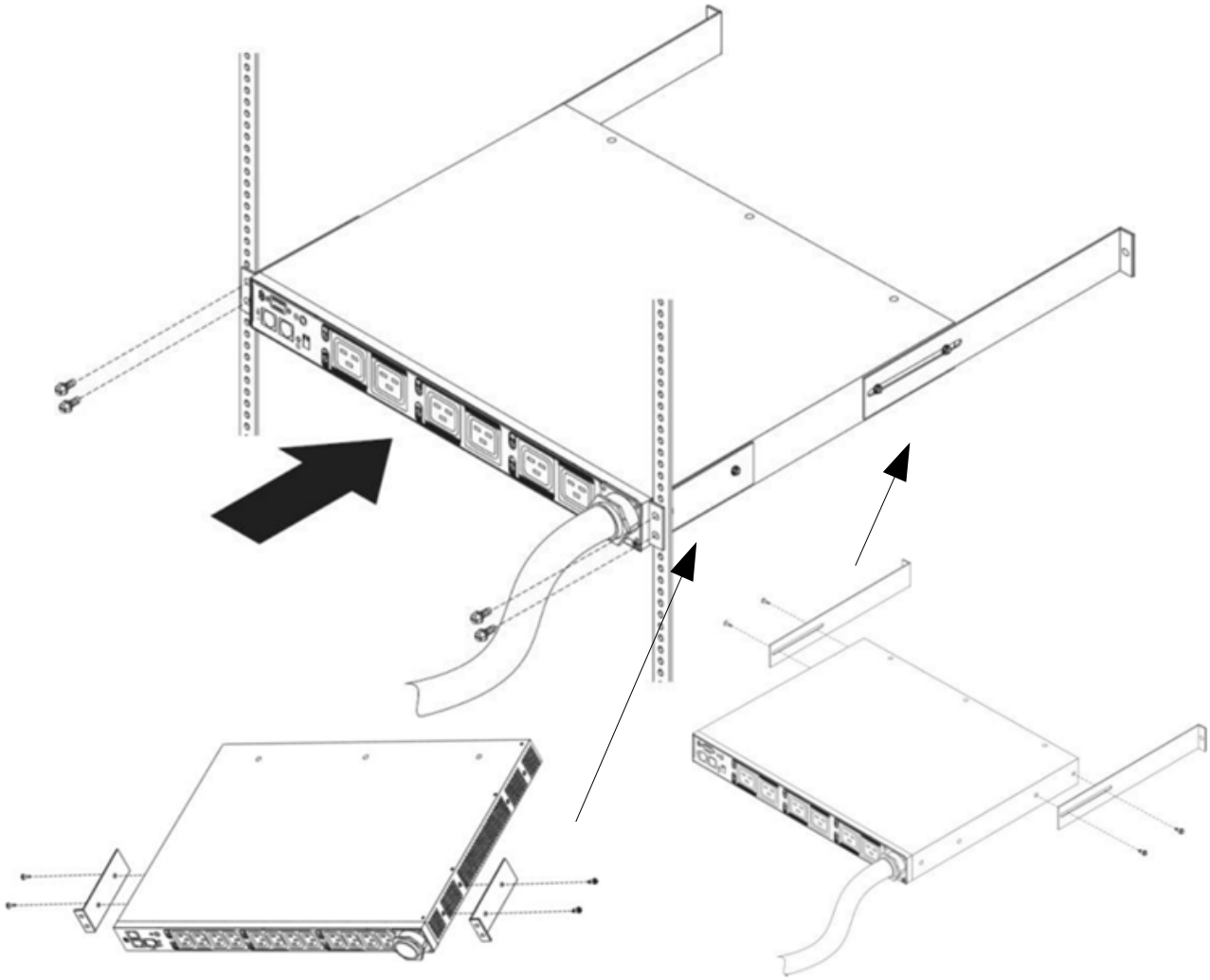


Figure 60: 44T0966 PDU horizontal mounting in rack

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

44T0966

http://www-947.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	200-240V	30A (24A)	12 / C13	98
				60A (48A)	12 / C13	
	44X3193	3ph	200-240V	60A (27.7A)		

* For circuit capacities and symbols, refer to the Circuit Capacities on page 13 for additional information.
^ For outlet types refer to the C13 and C19 plugs section on page 12 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 109.

DPI Enterprise PDU+ C13

This section discusses the 39M2816 and 44X3193 Lenovo DPI Enterprise PDU+ C13. This section is broken up into the following sections.

- Quick Specs
- Front View and Outlets
- Input Line Cords
- Specifications
- Accessories kit
- Racking
- Installation and Maintenance Guide

Quick Specs

The following tables are quick specs for the 39M2816 and 44X3193 PDUs. For additional information, refer to the Specifications section.

PDU 39M2816 + Line Cord 40K9614	
Type	30A/208V
Outlets types	twelve IEC C13
Power Capacity	4992VA @ 208V
Power Limit per PDU	24A
Phase	Single phase

PDU 39M2816 + Line Cord 40K9615	
Type	60A/208V
Outlets types	twelve IEC C13
Power Capacity	9984VA @ 208V
Power Limit per PDU	48A
Phase	Single phase

PDU 44X3193 + Attached Line Cord	
Type	60A/208V
Outlets types	twelve IEC C13
Power Capacity	17285VA @ 208V
Power Limit per PDU	83.1A
Phase	Three phase

Front View and Outlets

The 39M2816 and 44X3193 have 12 C13 outlets on the front of the PDU. The 39M2816 has 2 orderable line cords for either 30A or 60A single phase operation.

The 44X3193 has an attached line cord for Three phase operation. The following figure displays a front view picture of the PDUs.

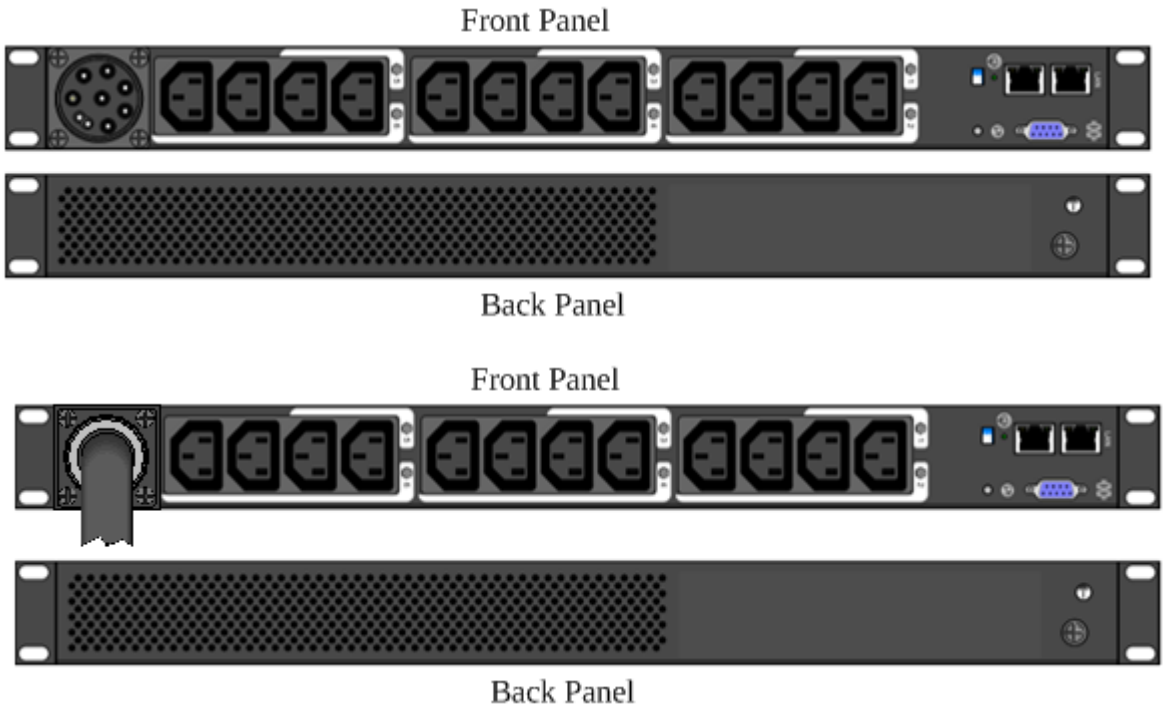


Figure 61: Front and back panel of the Lenovo DPI Enterprise PDU+ C13

The following figures display the PDUs outlets and amperage.

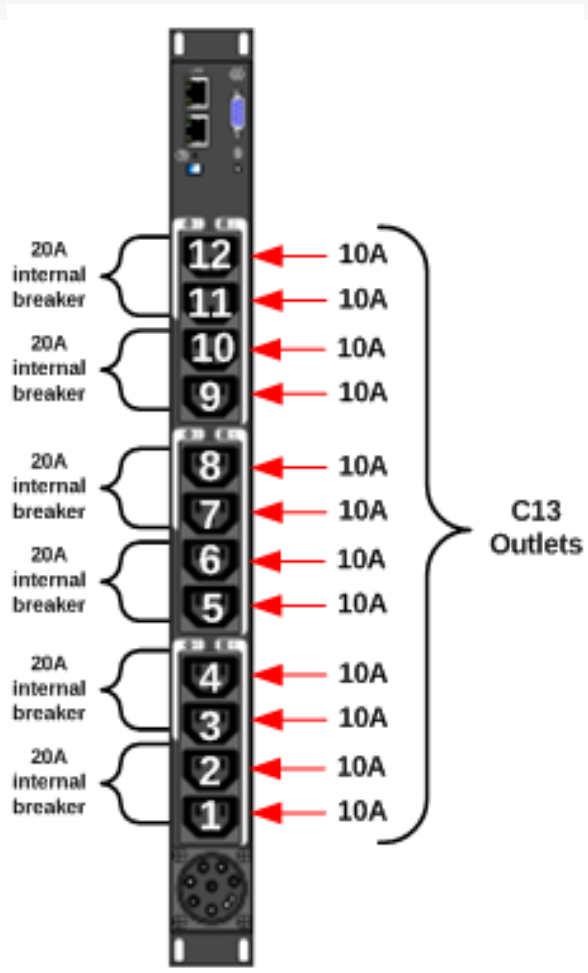
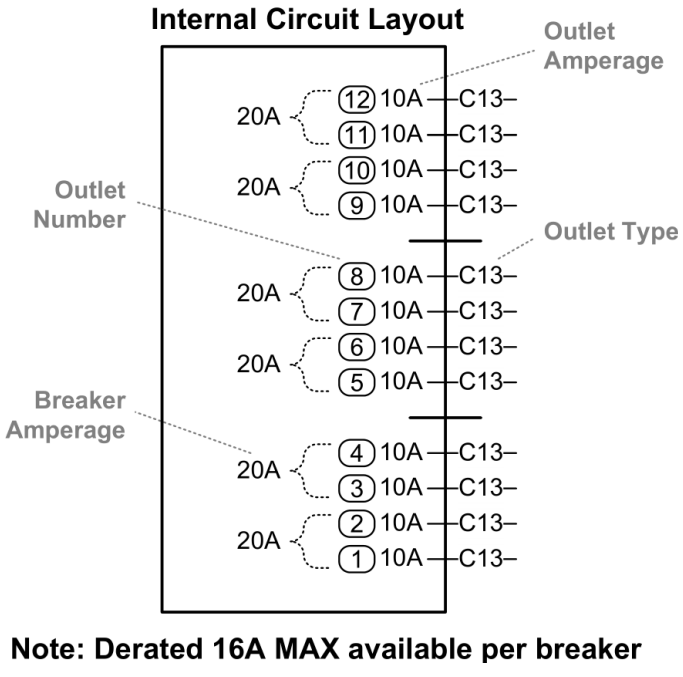
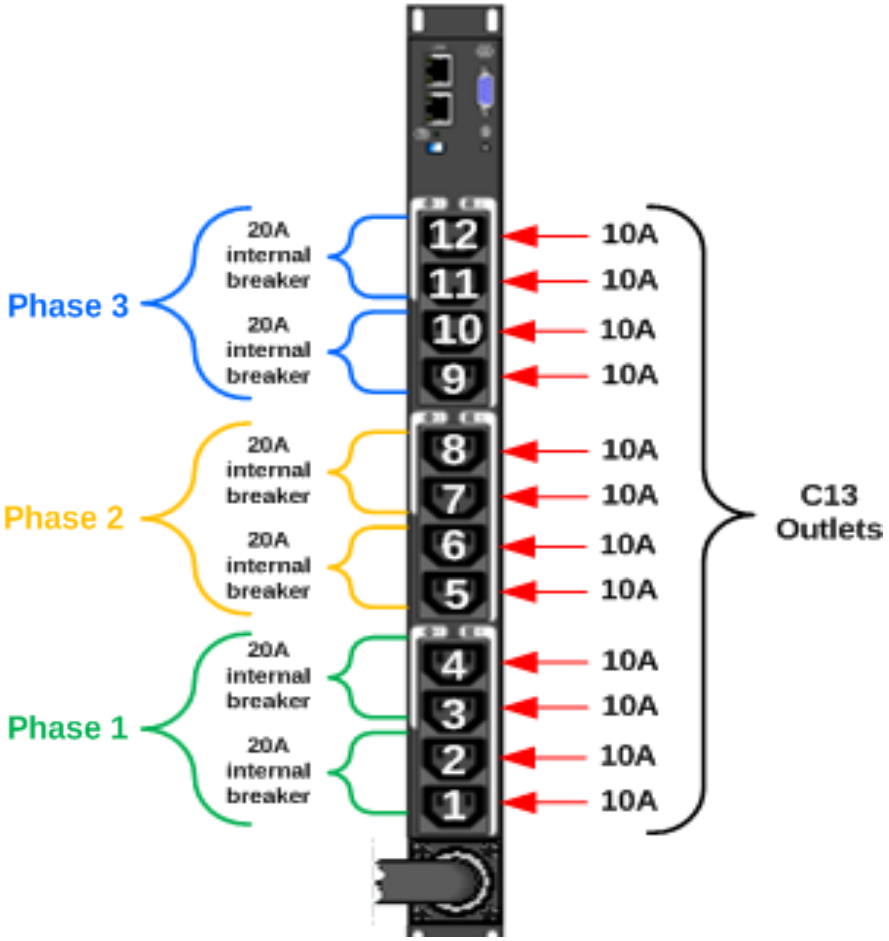


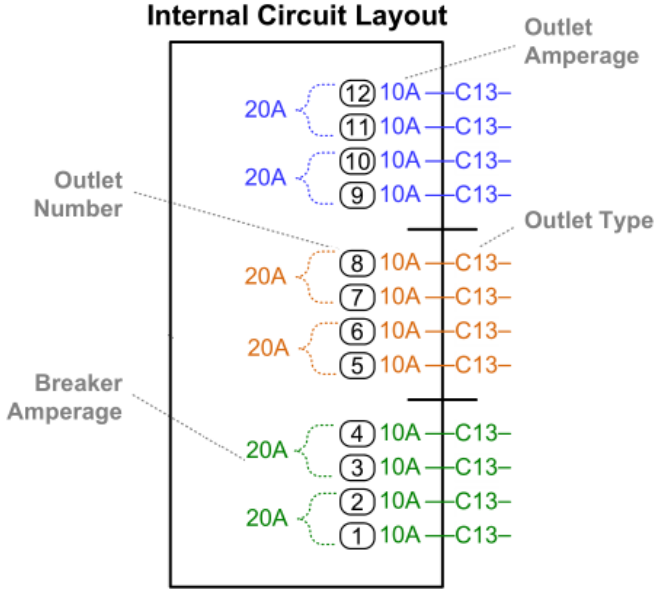
Figure 62: Outlets and amperage



Note: Derated 16A MAX available per breaker



Internal Circuit Layout



Color Indicates Outlet Grouping Per Phase On Three Phase Model

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. See page 172 for a picture of the line cord plugs.

PDU P/N	Feature Code	Line Cord P/N	Orderable Line cord description*
39M2816	6032	40K9614	Lenovo DPI 30A (4.3m) Cord NEMA L6-30P 30A (24A derated) 200-240V Single Phase
39M2816	6033	40K9615	Lenovo DPI 60A (4.3m) Cord IEC 309 2P+G 60A (48A derated) 200-240V Single Phase
44X3193	A3TF	Attached	Attached Line Cord: 4.3m IEC 309 3P+G (US) Line Cord 60A/208V Three Phase

*For specifications for 30A and 60A input line cords refer to the Specifications section.

Specifications

The following table are specifications for the 39M2816 and 44X3193 DPI C13 PDU.

Specifications			
PDU Part Number	39M2816	39M2816	44X3193
Feature Code	6032	6033	A3TF
Input Line Cord Type*	40K9614	40K9615	Attached
Phase	Single	Single	Three
Type	30A/208V	60A/208V	60A/208V
Outlets types	twelve IEC C13	twelve IEC C13	twelve IEC C13
Power Capacity**	4992VA @ 208V	9984VA @ 208V	17285VA @ 208V
Power Limit per Outlet	10A	10A	10A
Grouping	Two C13 outlets per breaker	Two C13 outlets per breaker	Two C13 outlets per breaker / Four C13 outlets per phase
Power Limit per Group	16A per breaker	16A per breaker	16A per breaker 27.7A per phase
Power Limit per PDU	24A	48A	83.1A
Power Monitoring/Switching	Yes/No	Yes/No	Yes/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.

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.

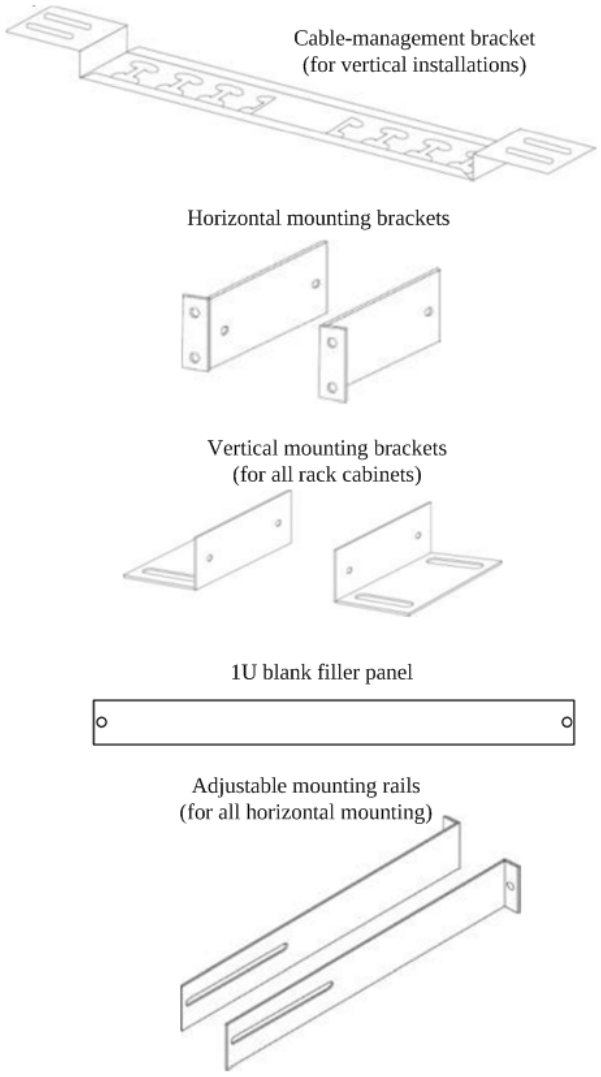


Figure 63: Accessory kit for 39M2816

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 and 44X3193, ship standard with a PDU environmental sensor kit (EMP). Refer to the following EMP Shipment Matrix section for additional details.

Racking

This section discusses mounting the 39M2816 and 44X3193 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 and 44X3193 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.

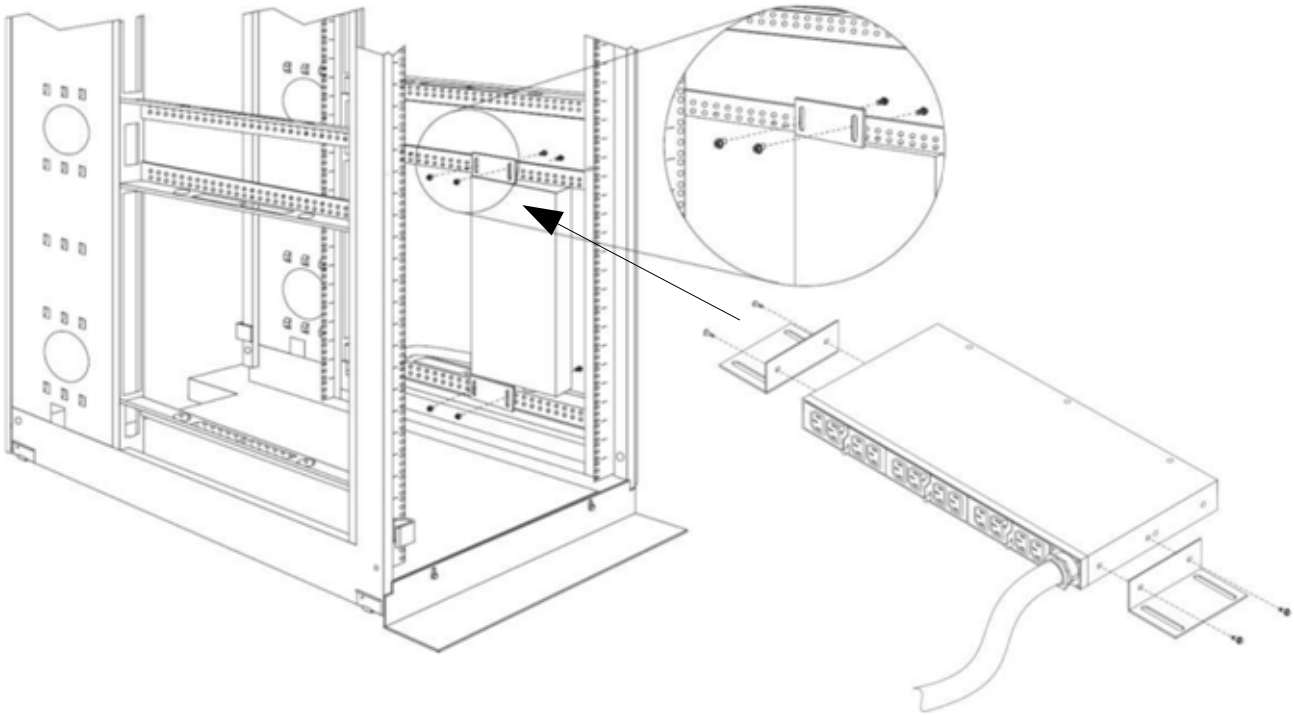


Figure 64: Enterprise Ultra Density C19/C13 PDU vertical mounting in rack

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

Mounting the 39M2816 and 44X3193 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.

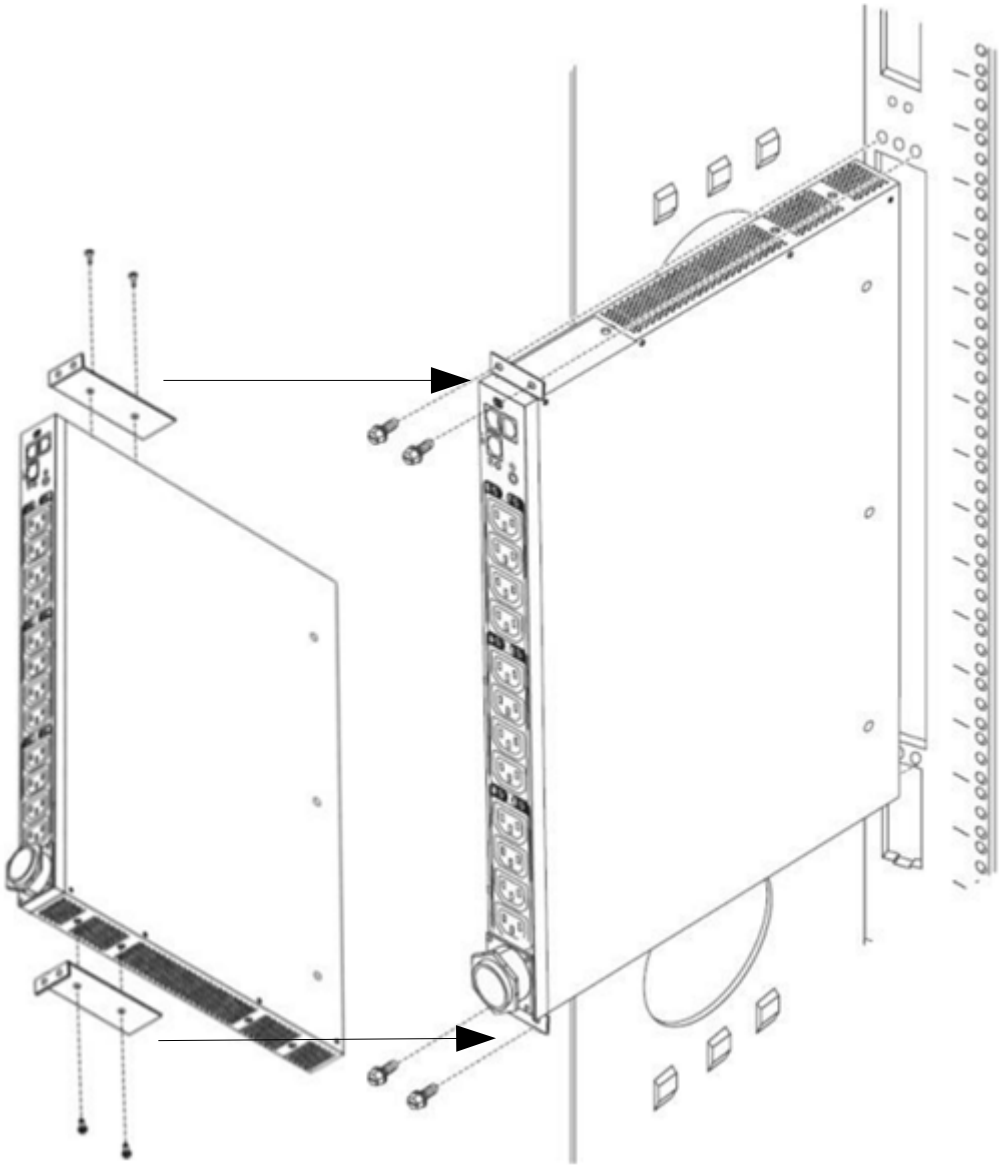


Figure 65: Ultra Density Enterprise PDU side pocket mounting in Enterprise rack

Mounting in EIA (U space) of rack

Mounting the 39M2816 and 44X3193 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 66.

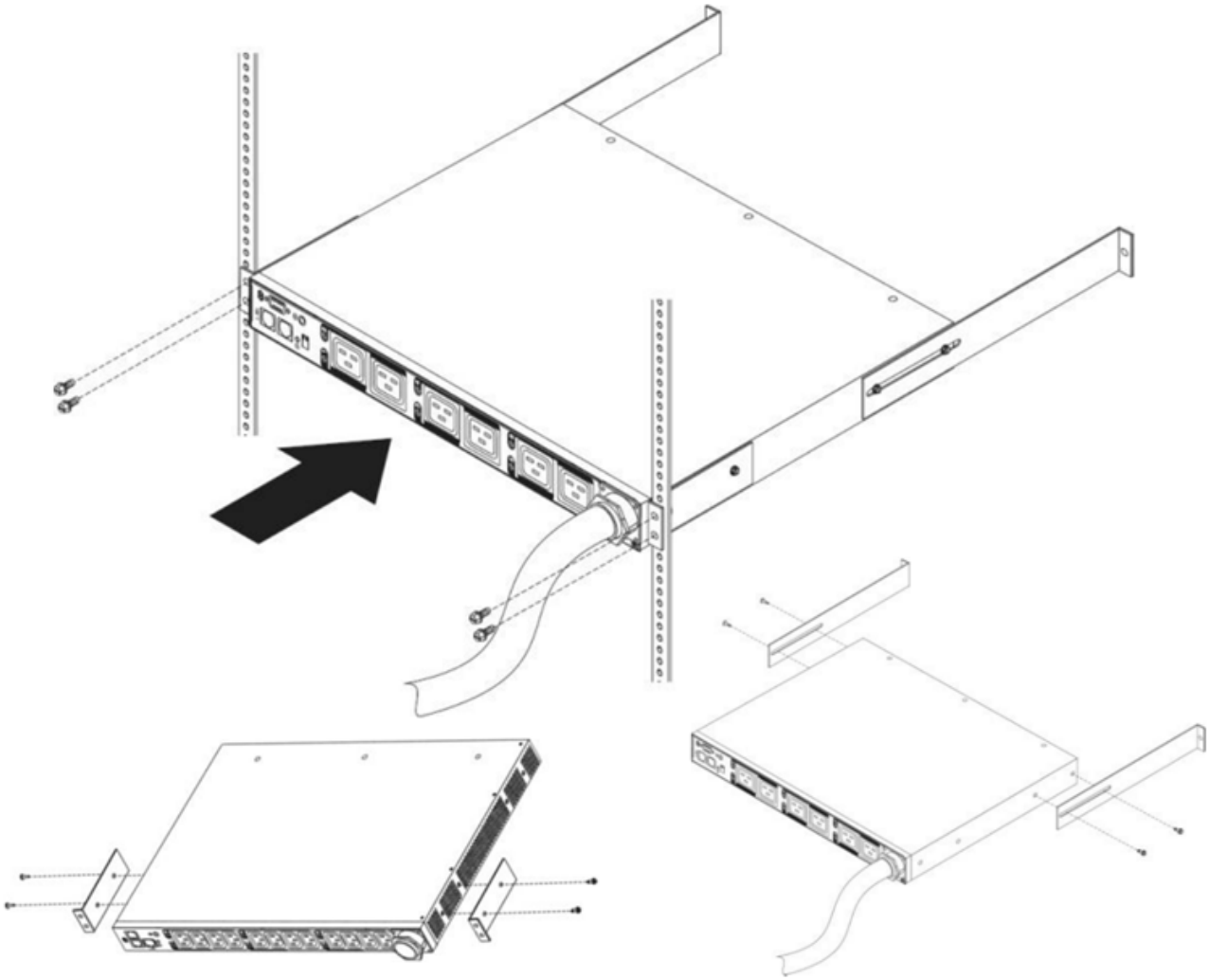


Figure 66: Ultra Density Enterprise PDU horizontal mounting in rack

Installation and Maintenance Guide

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

39M2816 and 44X3193

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
1U 12 C13 Switched and Monitored PDU	46M4004	1ph	200V-240V	30A (24A)	12 / C13	110
				60A (48A)		
	46M4005	3ph Δ	208V	60A (27.7A)		
1U 9 C19 / 3 C13 Switched and Monitored PDU	46M4002	1ph	200V-240V	30A (24A)	3 / C13 9 / C19	121
				60A (48A)		
	46M4003	3ph Δ	208V	60A (27.7A)		
0U 24 C13 Switched and Monitored PDU	46M4116	1ph	200V-240V	30A (24A)	24 / C13	132
0U 12 C13 / 12 C19 Switched and Monitored PDU	46M4134	3ph Δ	208V	50A (23.09A/ph)	12 / C13 12 / C19	140
1U 9 C19 / 3 C13 Switched and Monitored PDU	46M4167	3ph Δ	208V	30A (13.85A/ph)	3 / C13 9 / C19	147

* For circuit capacities and symbols, refer to the Circuit Capacities on page 13 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 and 46M4005 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 and 46M4005 PDUs. For additional information, refer to the Specifications section.

PDU 46M4004 + Line Cord 40K9614	
Outlets types	twelve IEC C13
Type	30A/208V
Power Capacity	4992VA @ 208V
Power Limit per PDU	24A
Phase	Single Phase

PDU 46M4004 + Line Cord 40K96145	
Outlets types	twelve IEC C13
Type	60A/208V
Power Capacity	9984VA @ 208V
Power Limit per PDU	48A
Phase	Single Phase

PDU 46M4005 + Attached Line Cord	
Outlets types	twelve IEC C13
Type	60A/208V
Power Capacity	17285VA @ 208V
Power Limit per PDU	83.1A
Phase	Three Phase

Front View and Outlets

There are 2 types of the 12 C13 PDU. The 46M4004 and the 46M4005. The PDUs are identical except for the line cord. The line cord determines single phase or three phase operation.

The 46M4004 has detachable single phase line cord options. The 46M4005 comes with an attached 3 phase line cord. The following figures displays a front and back view of each PDU.

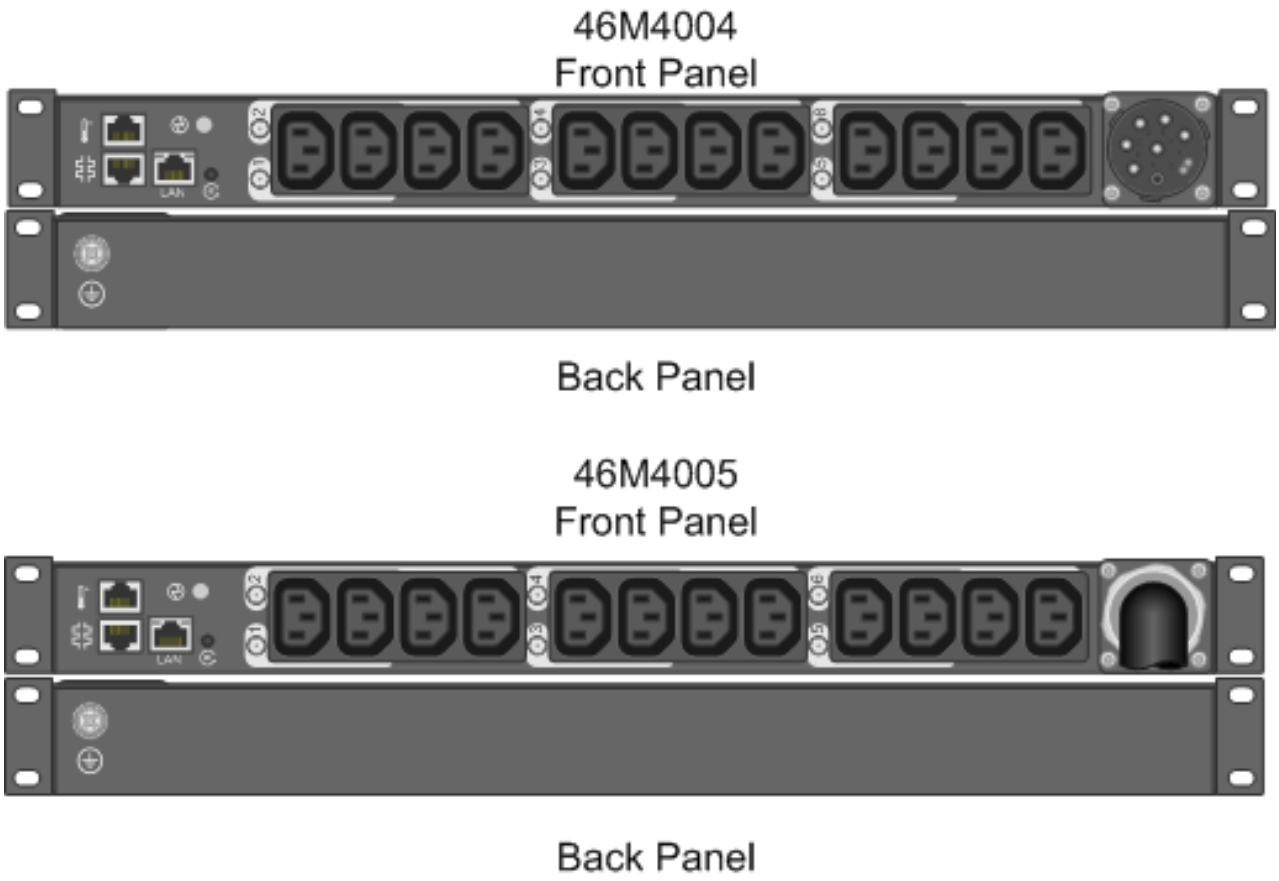
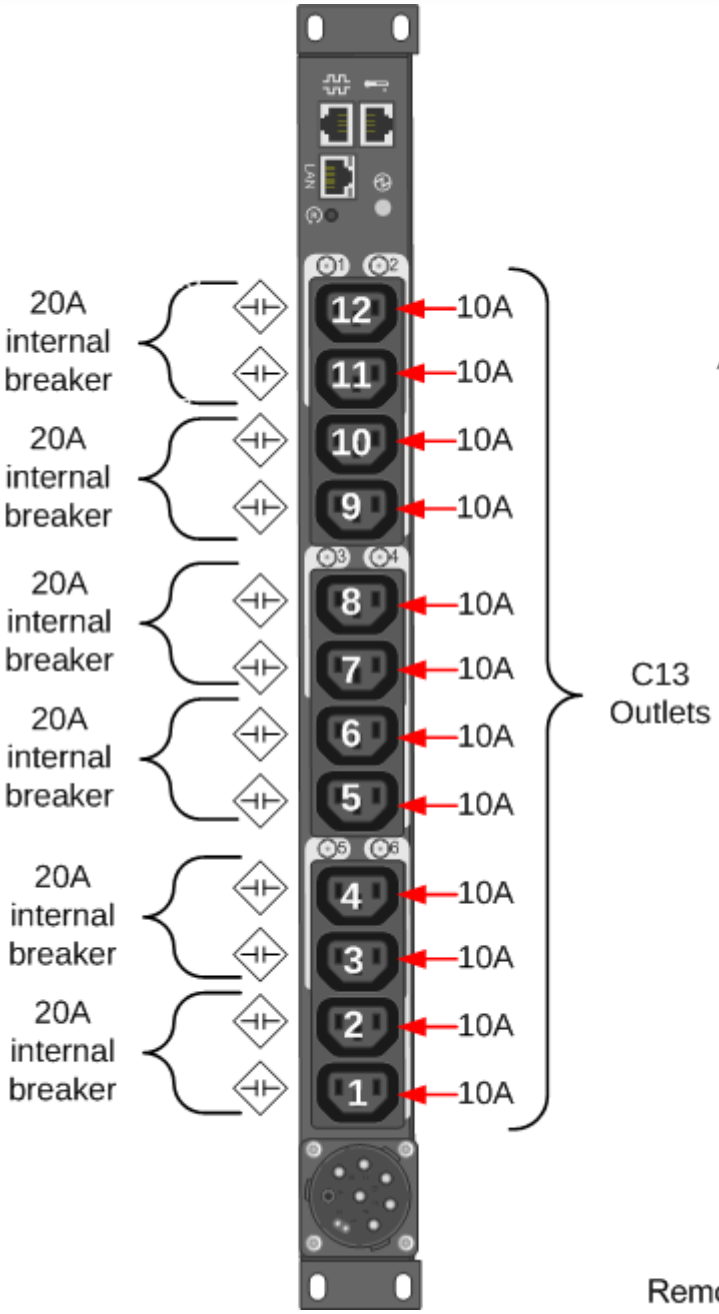
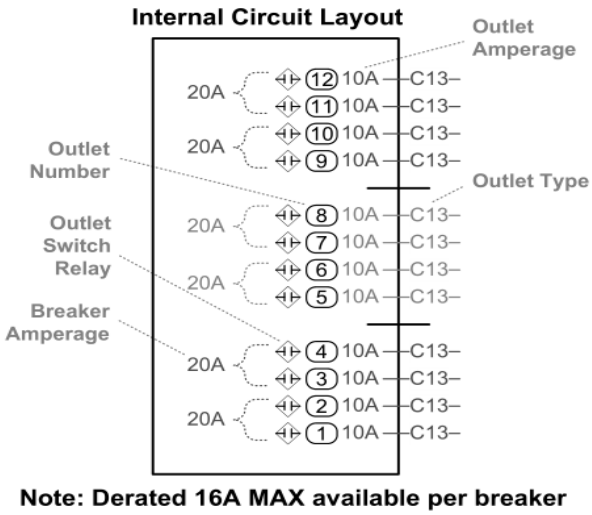


Figure 67: Front and back view

Figure Error: Reference source not found on page Error: Reference source not found displays the 1U 12 C13 Switched and Monitored PDU outlets and amperage.

Single phase – 46M4004

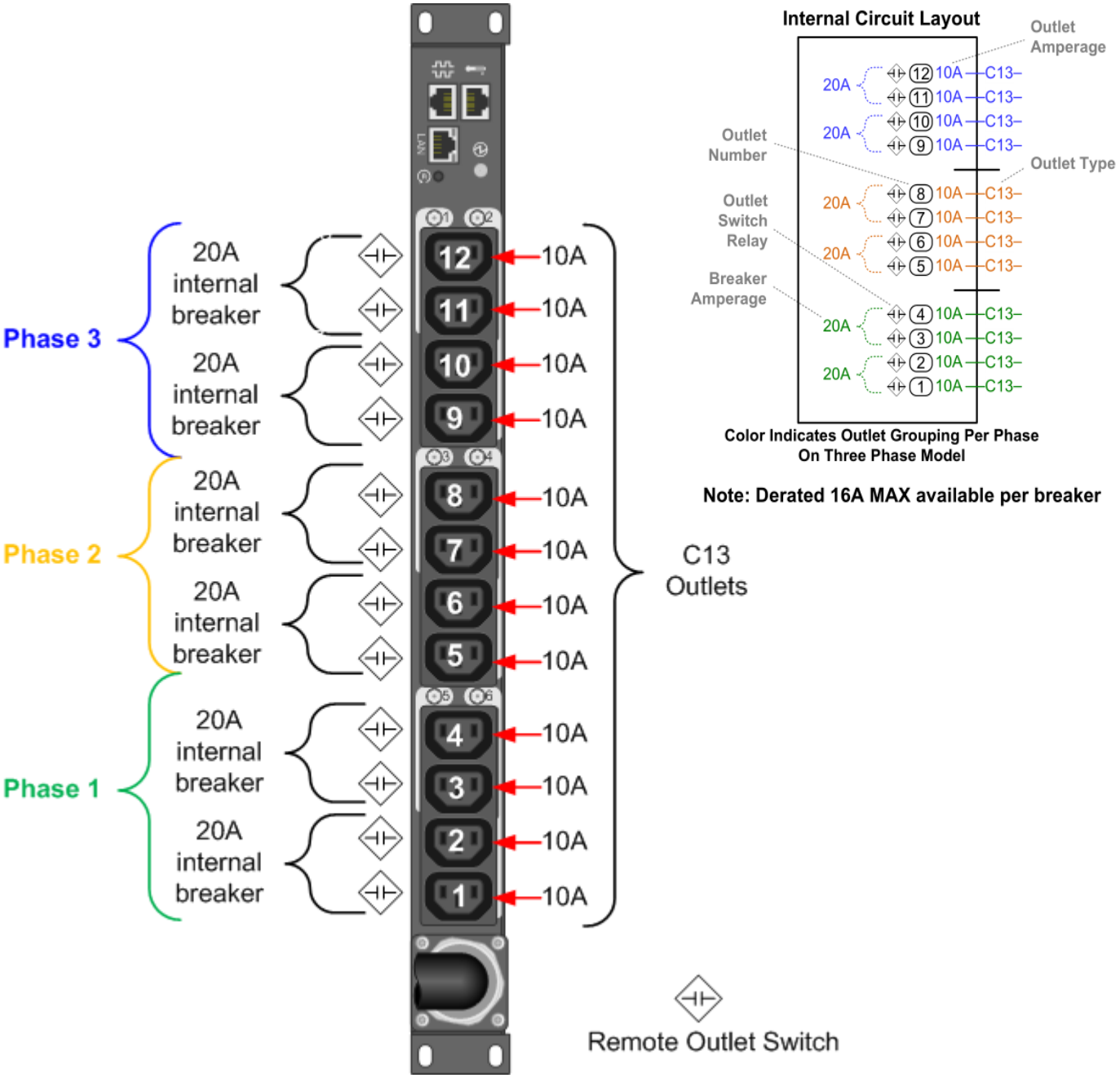




Note: Derated 16A MAX available per breaker

Remote Outlet Switch

Three phase – 46M4005



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 175, and 177 for a picture of the line cord plugs.

PDU P/N	Feature Code	Line Cord P/N	Line Cord Description
46M4004	5908	40K9614	Lenovo DPI 30A (4.3m) Cord NEMA L6-30P 30A (24A derated) 200-240V Single Phase (F/C – 5908)
46M4004	5909	40K9615	Lenovo DPI 60A (4.3m) Cord IEC 309 2P+G 60A (48A derated) 200-240V Single Phase (F/C – 5909)
46M4005	5895	Attached	Attached 14-foot (4.3m) line cord with IEC-309 60A, 3P4W plug (Type 460P9W) 60A (27.7A / Phase derated) 83.1A Total derated Circuit Capacity 200-240V Three Phase Delta (F/C – 5895)

Specifications

The following table are specifications for the 46M4004 and the 46M4005 1U C13 PDUs.

Specifications			
PDU Part Number	46M4004		46M4005
Input Line Cord Type*	40K9614	40K9615	Attached
Feature Code	5908	5909	5895
Phase	Single Phase	Single Phase	Three Phase
Type	30A/208V	60A/208V	60A/208V
Power Capacity**	4992VA @ 208V	9984VA @ 208V	17285VA @ 208V
Outlets types	twelve IEC C13	twelve IEC C13	twelve IEC C13
Power Limit per Outlet	10A	10A	10A
Grouping	two C13 outlets per breaker	two C13 outlets per breaker	four C13 outlets per phase / two C13 outlets per breaker
Power Limit per Group	16A	16A	27.7A
Power Limit per PDU	24A	48A	83.1A
Power Monitoring/Switching	Yes/Yes	Yes/Yes	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 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.

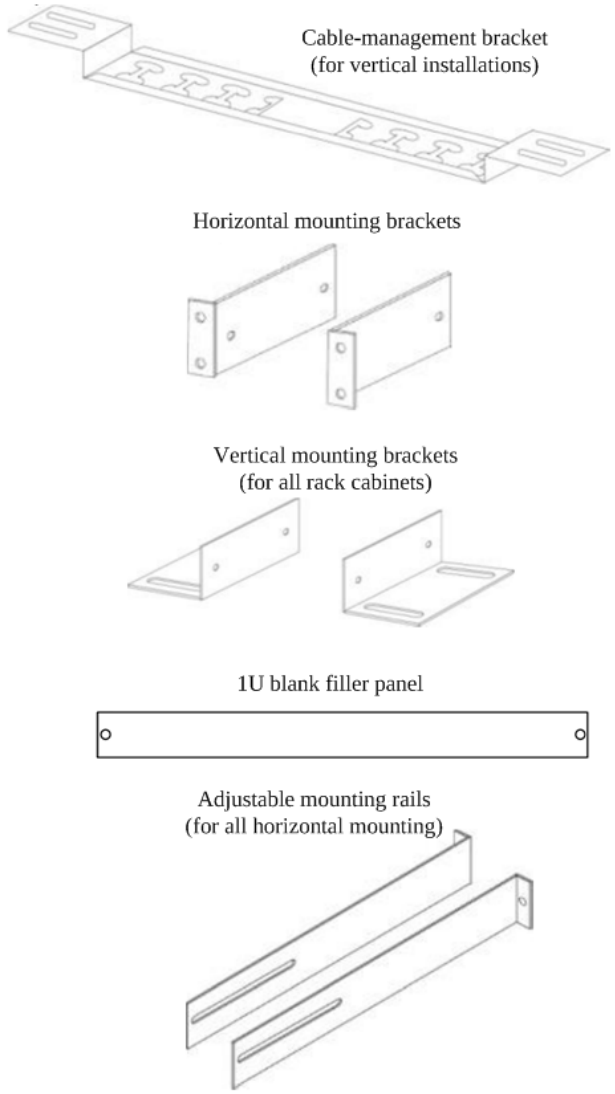


Figure 68: Accessory kit for 39M2816

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

The 46M4004 and 46M4005 PDUs ship 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 and 46M4005 1U C13 PDUs 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 and 46M4005 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.

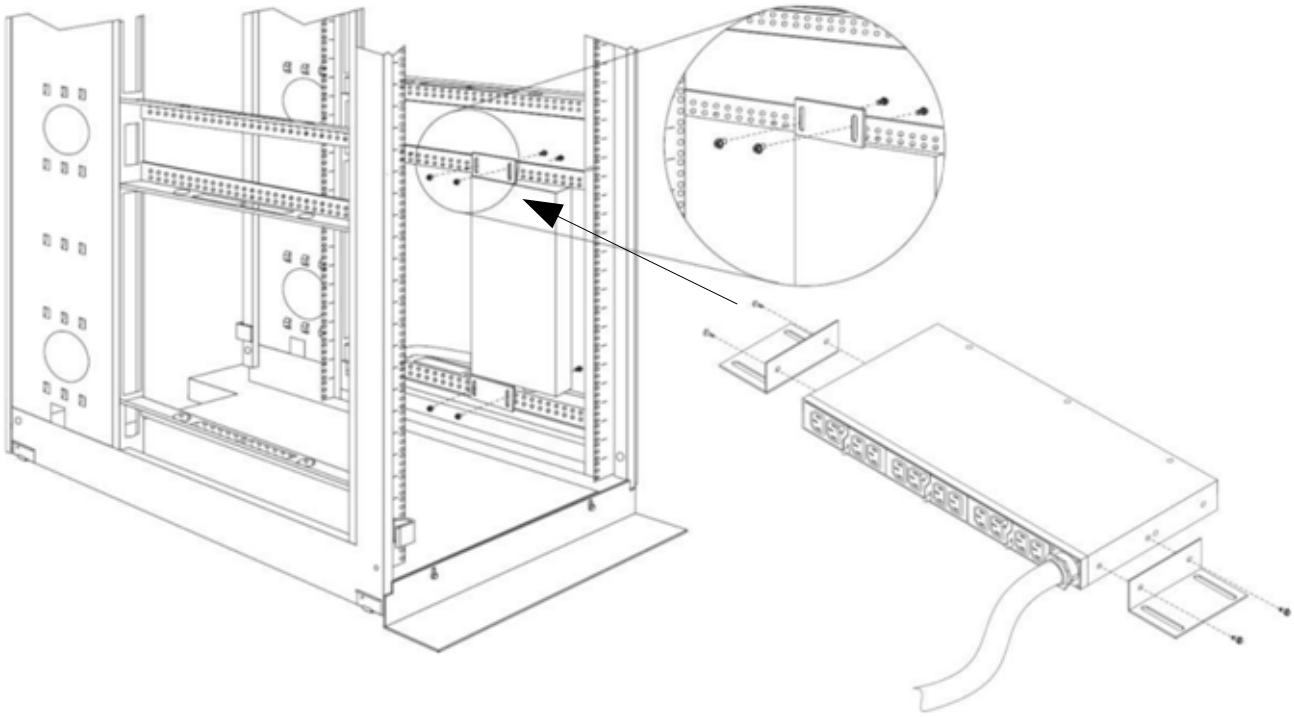


Figure 69: 1U Switched C13 PDU vertical mounting in rack

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

Mounting the 46M4004 and 46M4005 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.

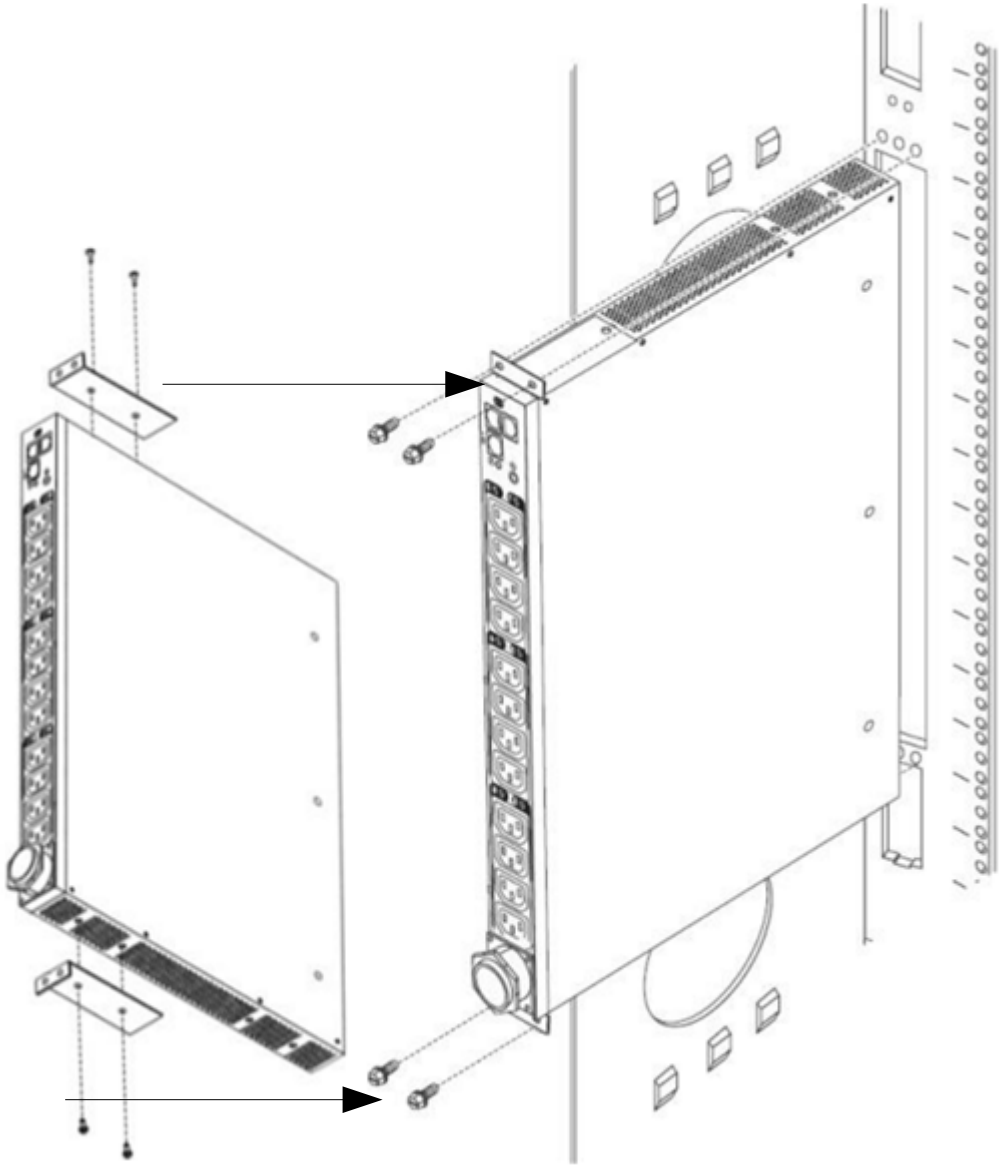


Figure 70: 1U Switched C13 PDU vertical mounting in rack

Mounting in EIA (U space) of rack

Mounting the 46M4004 and 46M4005 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 71.

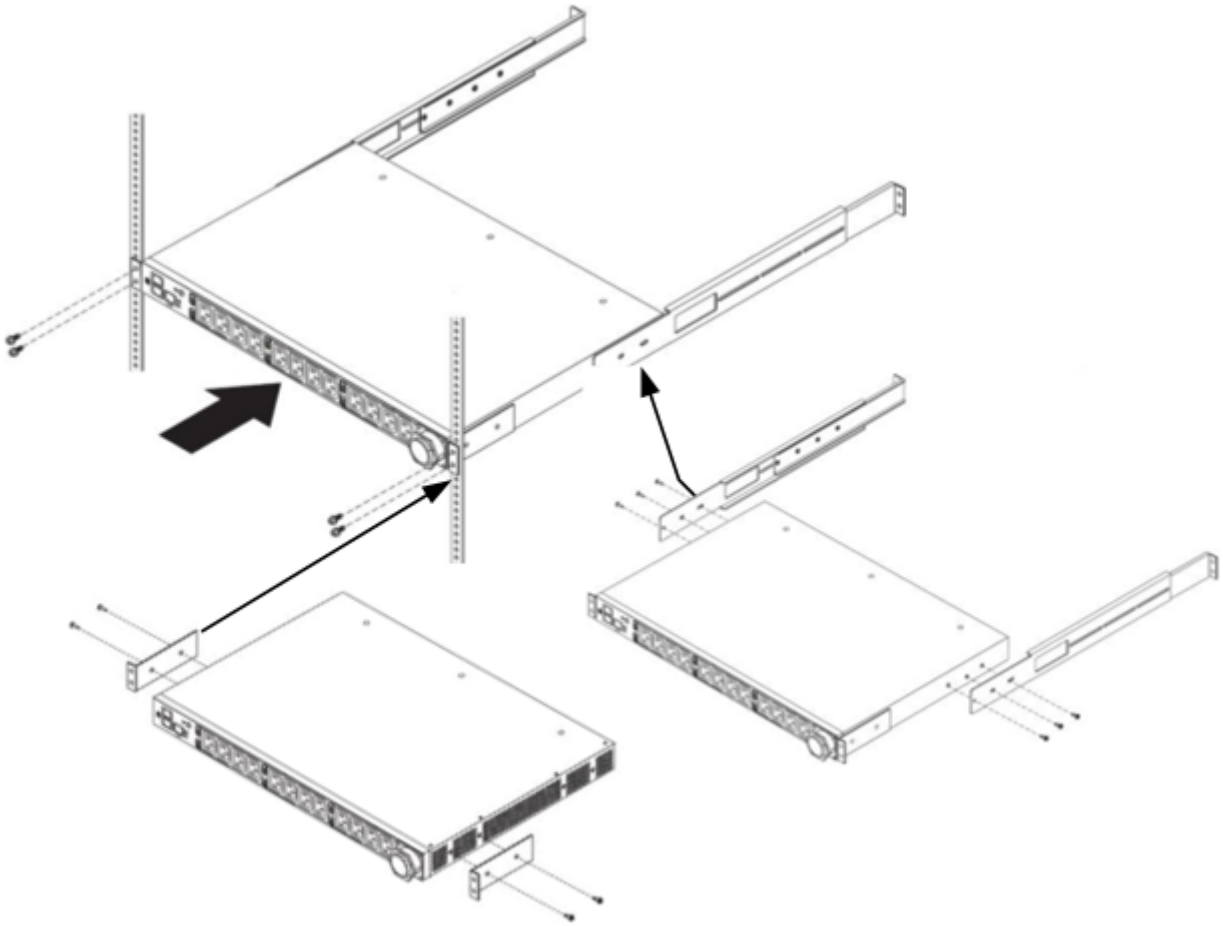


Figure 71: Mounting in U space of rack

Installation and Maintenance Guide

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

46M4004, and 46M4005
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 and 46M4003 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 and 46M4003 PDUs. For additional information, refer to the Specifications section.

PDU 46M4002 + Line Cord 40K9614	
Outlets types	nine C19 / three C13
Type	30A/208V
Power Capacity	4992VA @ 208V
Power Limit per PDU	24A
Phase	Single Phase

PDU 46M4002 + Line Cord 40K9615	
Outlets types	nine C19 / three C13
Type	60A/208V
Power Capacity	9984VA @ 208V
Power Limit per PDU	48A
Phase	Single Phase

PDU 46M4003 + Attached Line Cord	
Outlets types	nine C19 / three C13
Type	60A/208V
Power Capacity	17285VA @ 208V
Power Limit per PDU	83.1A
Phase	Three Phase

Front View and Outlets

There are 2 types of the C19/C13 PDUs. The 46M4002 and the 46M4003. The PDUs are identical
except for the line cord.

The line cord determines single phase or three phase operation. The 46M4002 has detachable single phase line cord options.

The 46M4003 comes with an attached 3 phase line cord. The following figures displays a front and back view of each PDU.

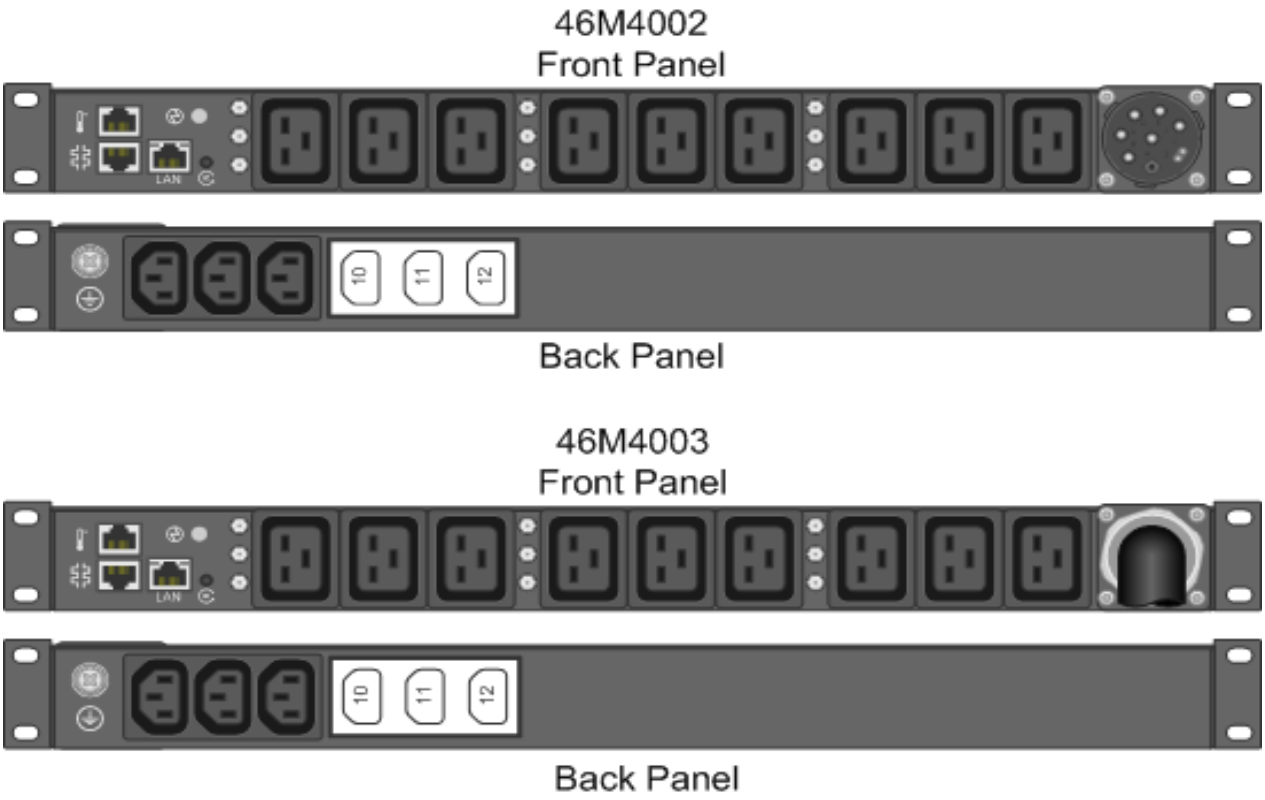
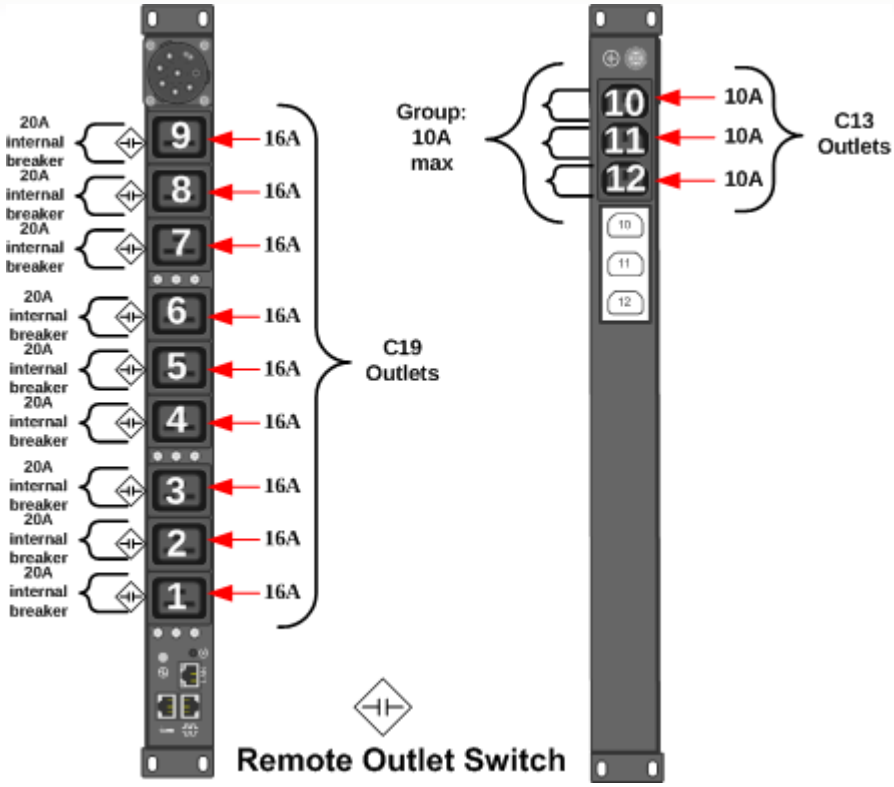


Figure 72: Front and back view

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

Single phase operation, 46M4002, detachable line cord.



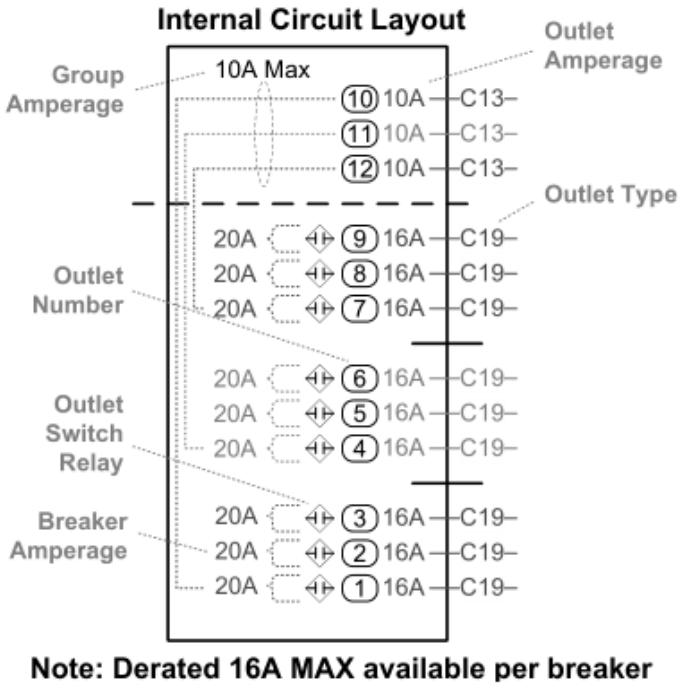
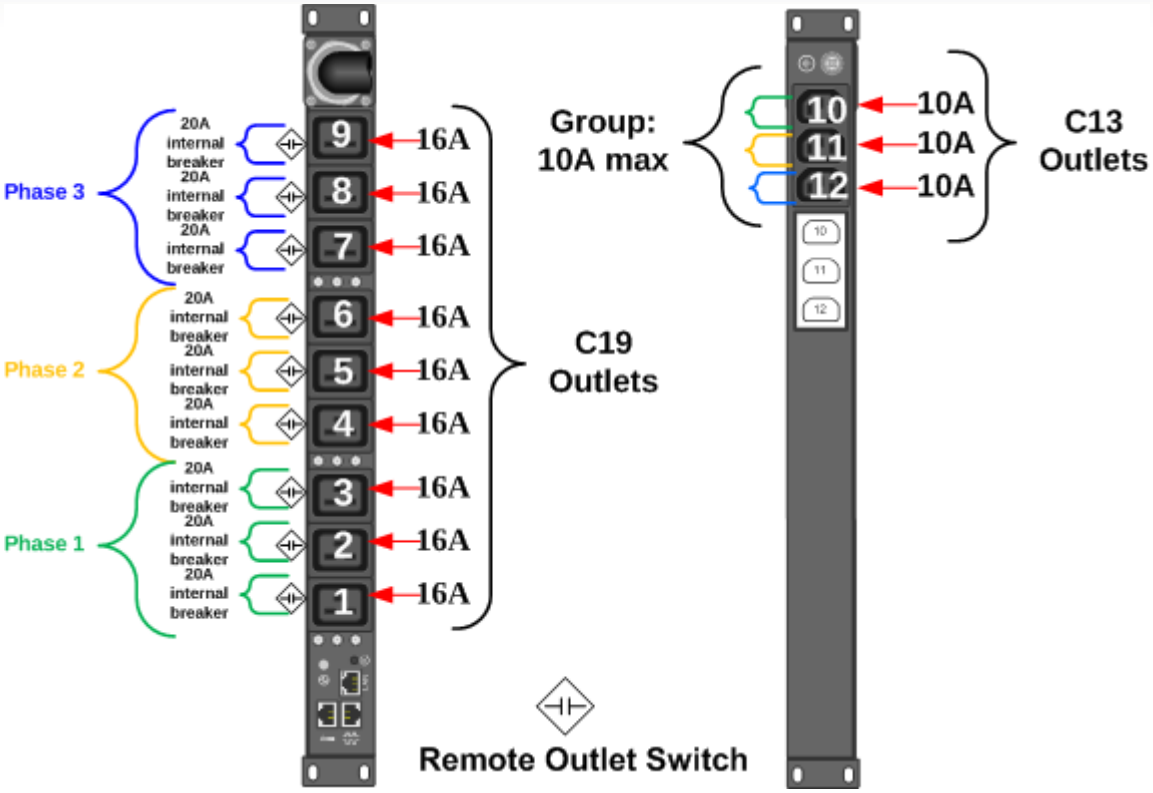


Figure 73: Outlets and amperage

Three phase operation, 46M4003 attached line cord.



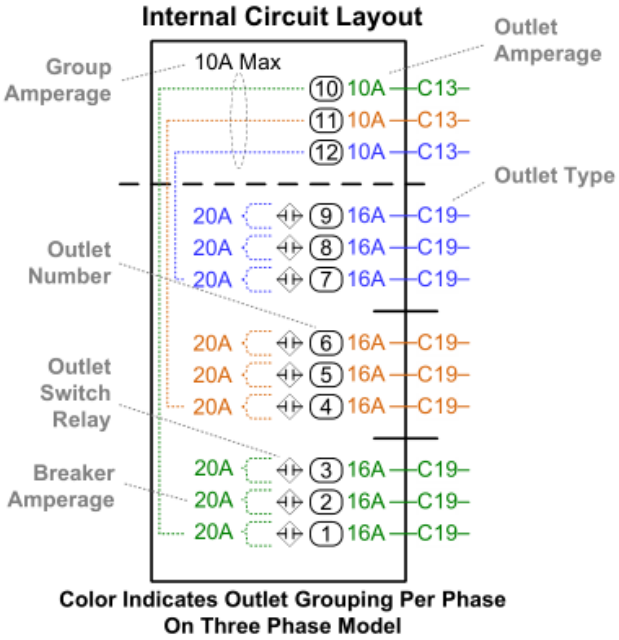


Figure 74: Outlets and amperage

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

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. See page 178, and 180 for a picture of the line cord plugs.

PDU P/N	Feature Code	Line Cord P/N	Line Cord Description
46M4002	5901	40K9614	Lenovo DPI 30A (4.3m) Cord NEMA L6-30P 30A (24A derated) 200-240V Single Phase (F/C – 5901)
46M4002	5902	40K9615	Lenovo DPI 60A (4.3m) Cord IEC 309 2P+G 60A (48A derated) 200-240V Single Phase (F/C – 5902)
46M4003	5897	Attached	Attached 14-foot (4.3m) line cord with IEC-309 60A, 3P4W plug (Type 460P9W) 60A (27.7A / Phase derated) 83.1A Total derated Circuit Capacity 200-240V Three Phase Delta (F/C – 5897)

Specifications

The following table are specifications for the 46M4002 and the 46M4003 1U C19/C13 PDUs.

Specifications			
PDU Part Number	46M4002		46M4003
Input Line Cord Type*	40K9614	40K9615	Attached
Feature Code	5901	5902	5895
Phase	Single Phase	Single Phase	Three Phase
Type	30A/208V	60A/208V	60A/208V
Power Capacity**	4992VA @ 208V	9984VA @ 208V	17285VA @ 208V
Outlets types	nine C19 / three C13	nine C19 / three C13	nine C19 / three C13
Power Limit per Outlet	IEC C19 16A, IEC C13 10A	IEC C19 16A, IEC C13 10A	IEC C19 16A, IEC C13 10A
Grouping	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 Three C19 and one C13 per phase
Power Limit per Group	16A	16A	16A per breaker 27.7A per phase
Power Limit per PDU	24A	48A	83.1A
Power Monitoring/Switching	Yes/Yes	Yes/Yes	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.

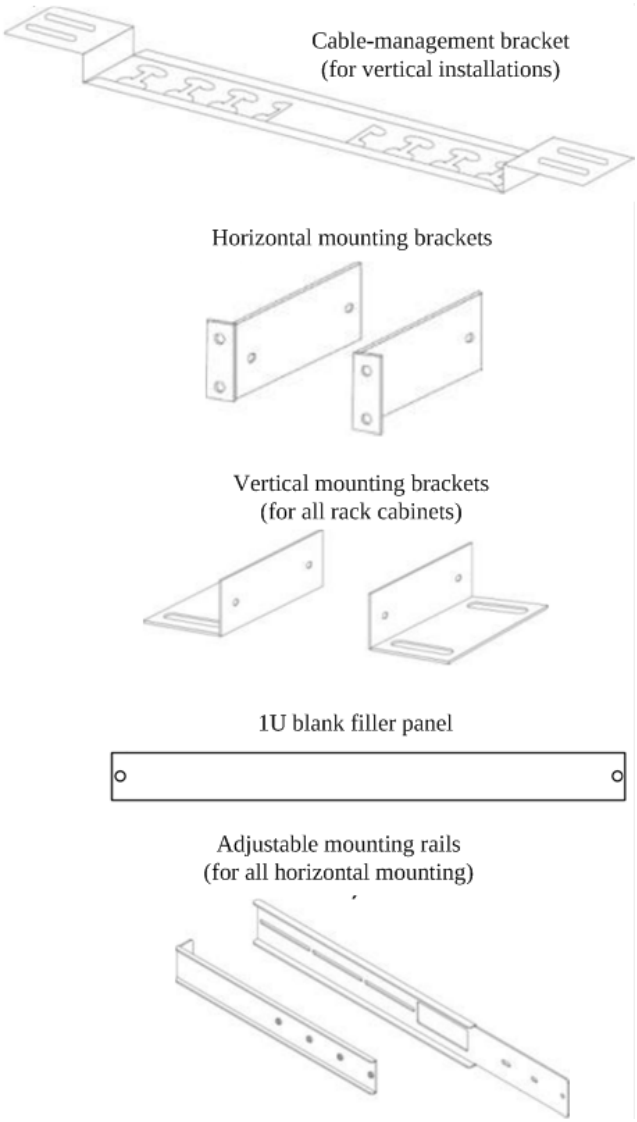


Figure 75: Accessory kit

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 and 46M4003 PDUs ship 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 and 46M4003 1U C19/C13 PDUs 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 and 46M4003 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.

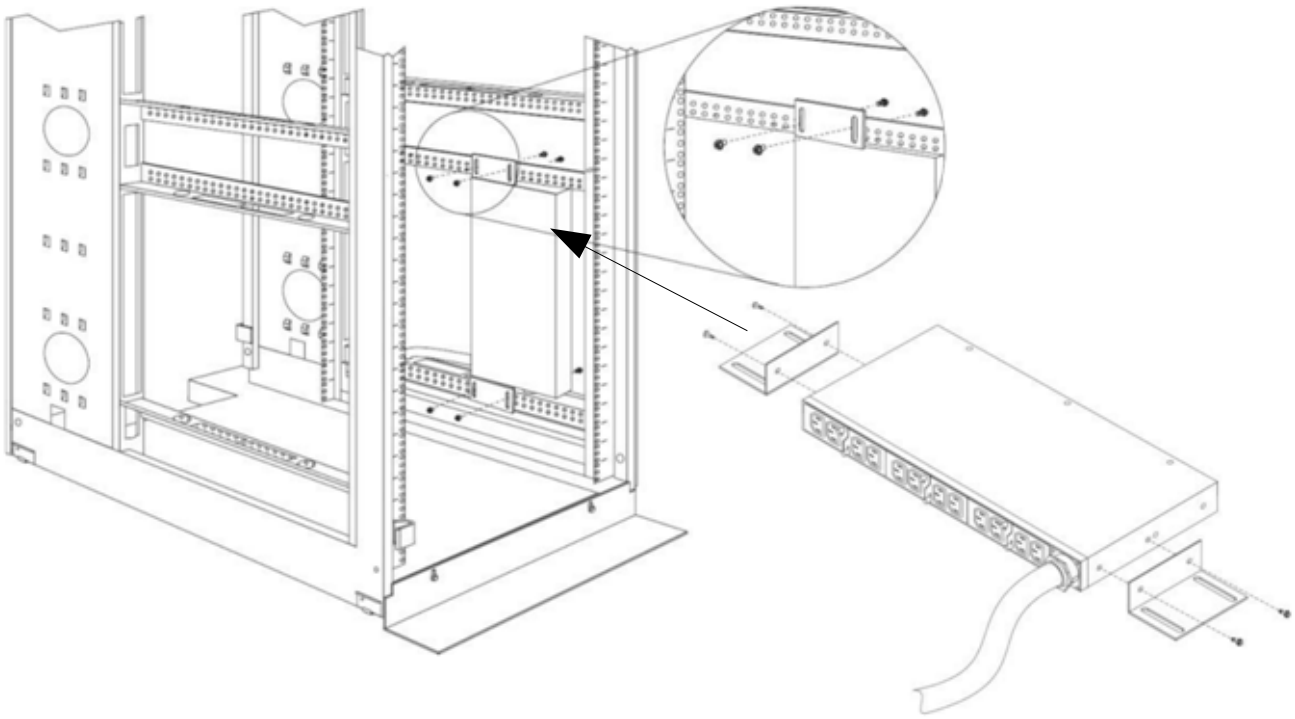


Figure 76: 1U Switched C19/C13 PDU vertical mounting in rack

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

Mounting the 46M4002 and 46M4003 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.

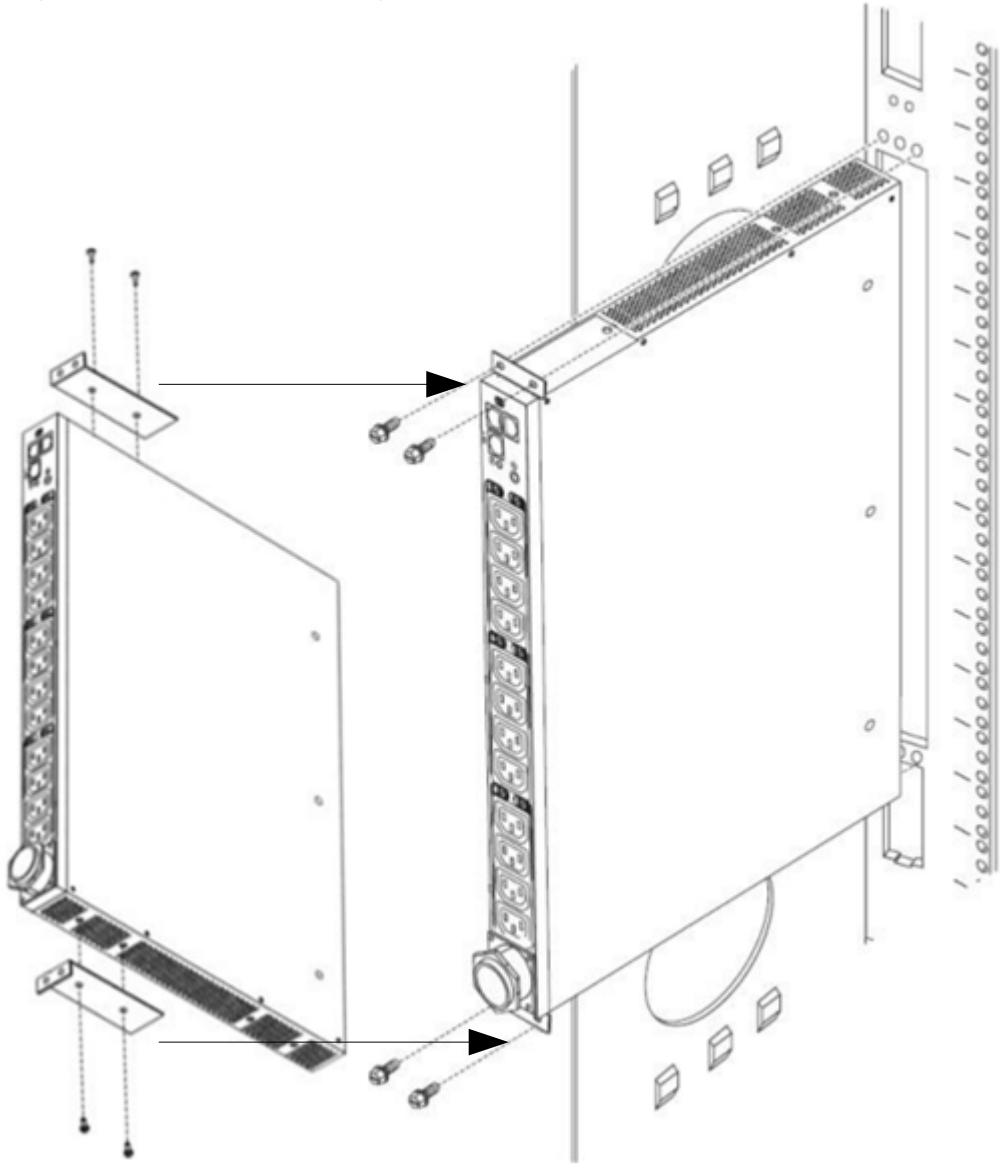


Figure 77: 1U Switched C19/C13 PDU vertical mounting in rack

Mounting in EIA (U space) of rack

Mounting the 46M4002 and 46M4003 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 78.

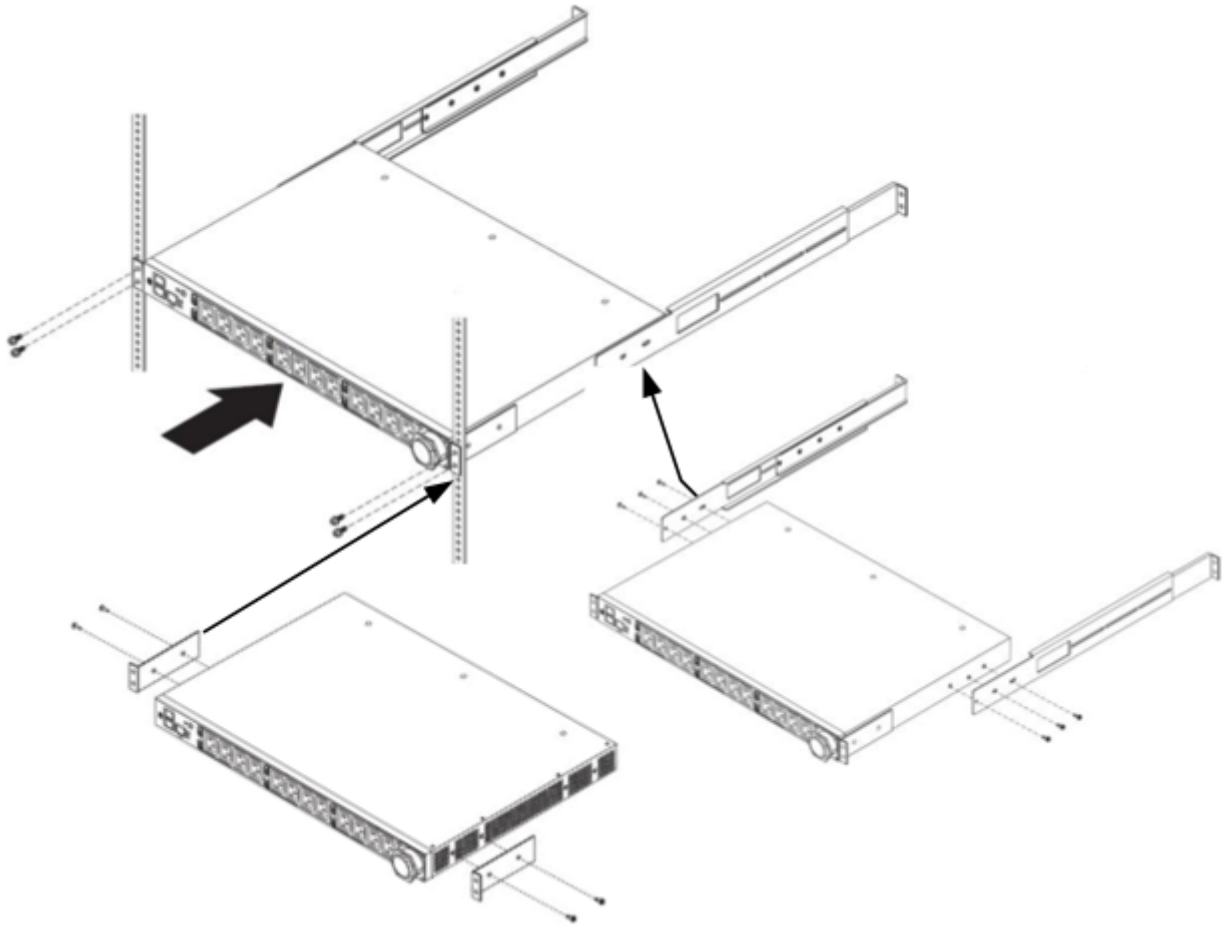


Figure 78: Mounting in U space of rack

Installation and Maintenance Guide

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

46M4002, and 46M4003
http://www.ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-5084069

0U 24 C13 Switched and Monitored PDU

This section discusses the 46M4116 Lenovo 0U 24 C13 Switched and Monitored PDU. This section is broken up into the following sections.

- Quick Specs
- Front View and Outlets
- Input Line Cord
- Specifications
- Accessory Kit
- Racking
- Installation and Maintenance Guide

Quick Specs

The following tables are quick specs for the 46M4116 PDU. For additional information, refer to the Specifications section.

PDU 46M4116 + Attached Line Cord	
Type	30A/208V
Outlets:	twenty four IEC C13
Power Capacity:	4992VA @ 208V
Power Limit per PDU	24A
Phase	Single phase

Front View and Outlets

The 46M4116 Lenovo 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 79: Front view

Figure 80 on page 133 displays the 1U C13 Switched and Monitored PDU outlets and amperage.

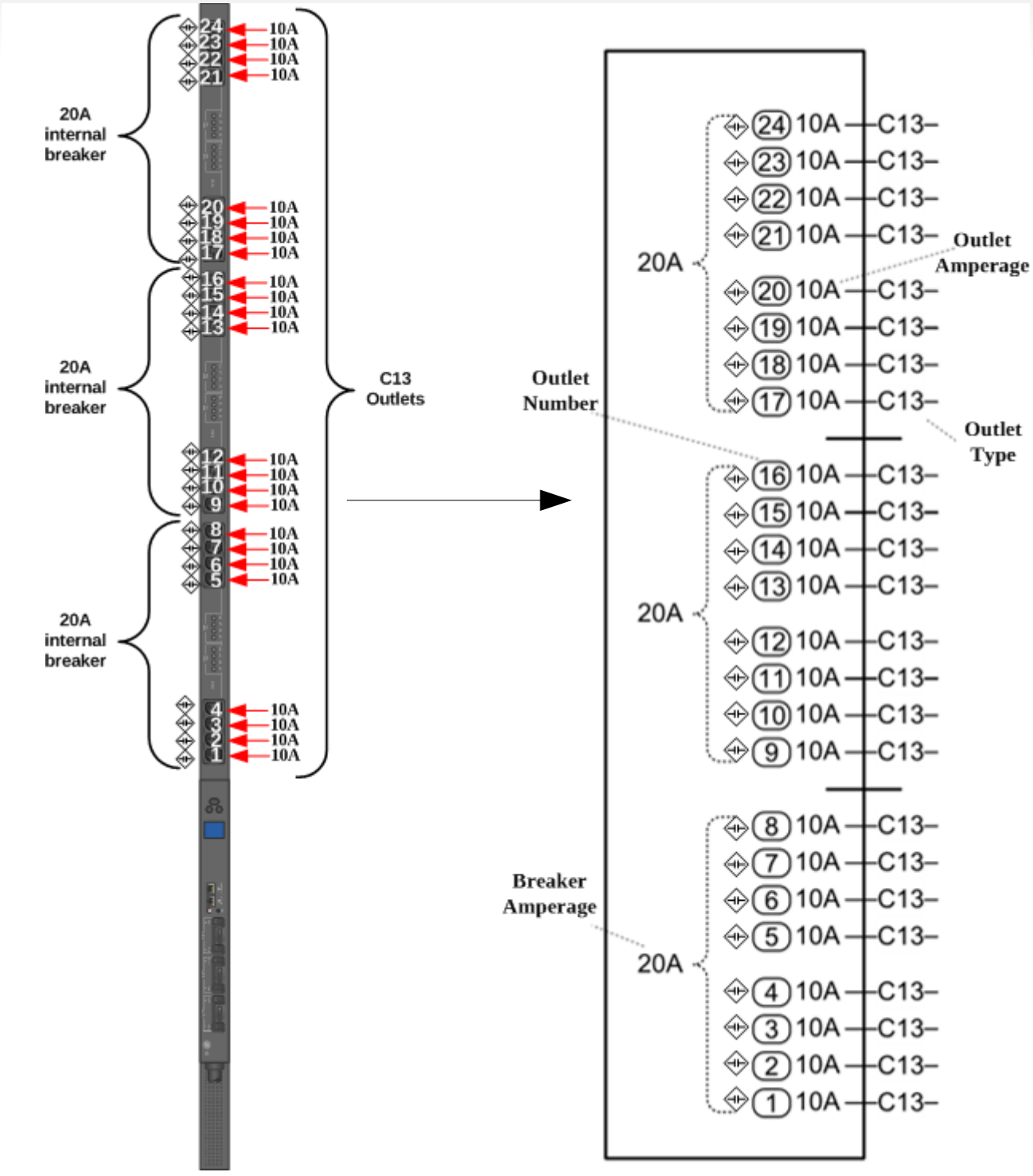


Figure 80: Outlets and amperage

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. See page 181 for a picture of the line cord plug.

PDU P/N	Feature Code	Line Cord P/N	Line Cord Description
46M4116	5929	Attached	Attached 3.0 meter line cord with NEMA L6-30P plug, 30A (24A derated) 200-240V Single Phase

Specifications

The following table are specifications for the 46M4116 24 C13 PDU.

Specifications	
PDU Part Number	46M4116
Line Cord Feature Code	5929
Input Line Cord Type*	Attached
Outlets:	twenty four IEC C13
Power Capacity:**	4992VA @ 208V
Power Limit per Outlet:	10A
Grouping:	Eight C13 outlets per breaker
Power Limit per Group:	16A
Power Limit per PDU:	24A
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.

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.

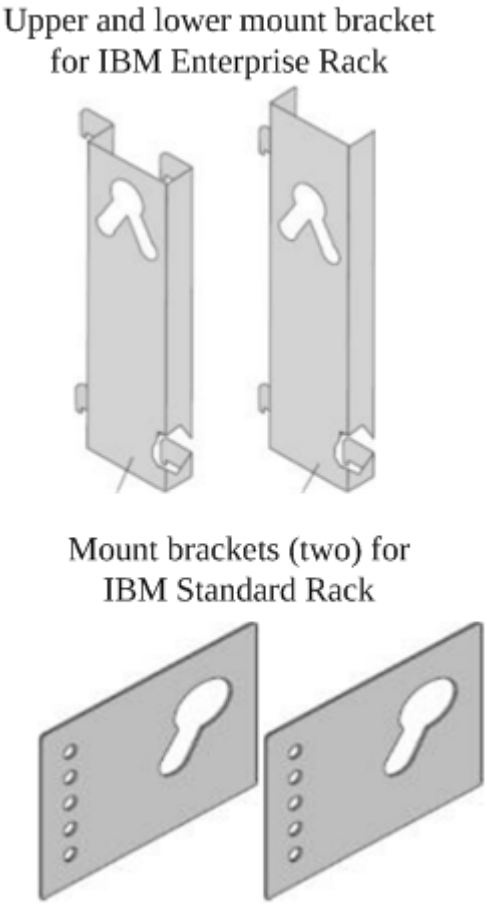


Figure 81: Accessory kit

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.

Racking

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 Enterprise racks (9308 and 1410), and the 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 Accessory Kit section for additional information.

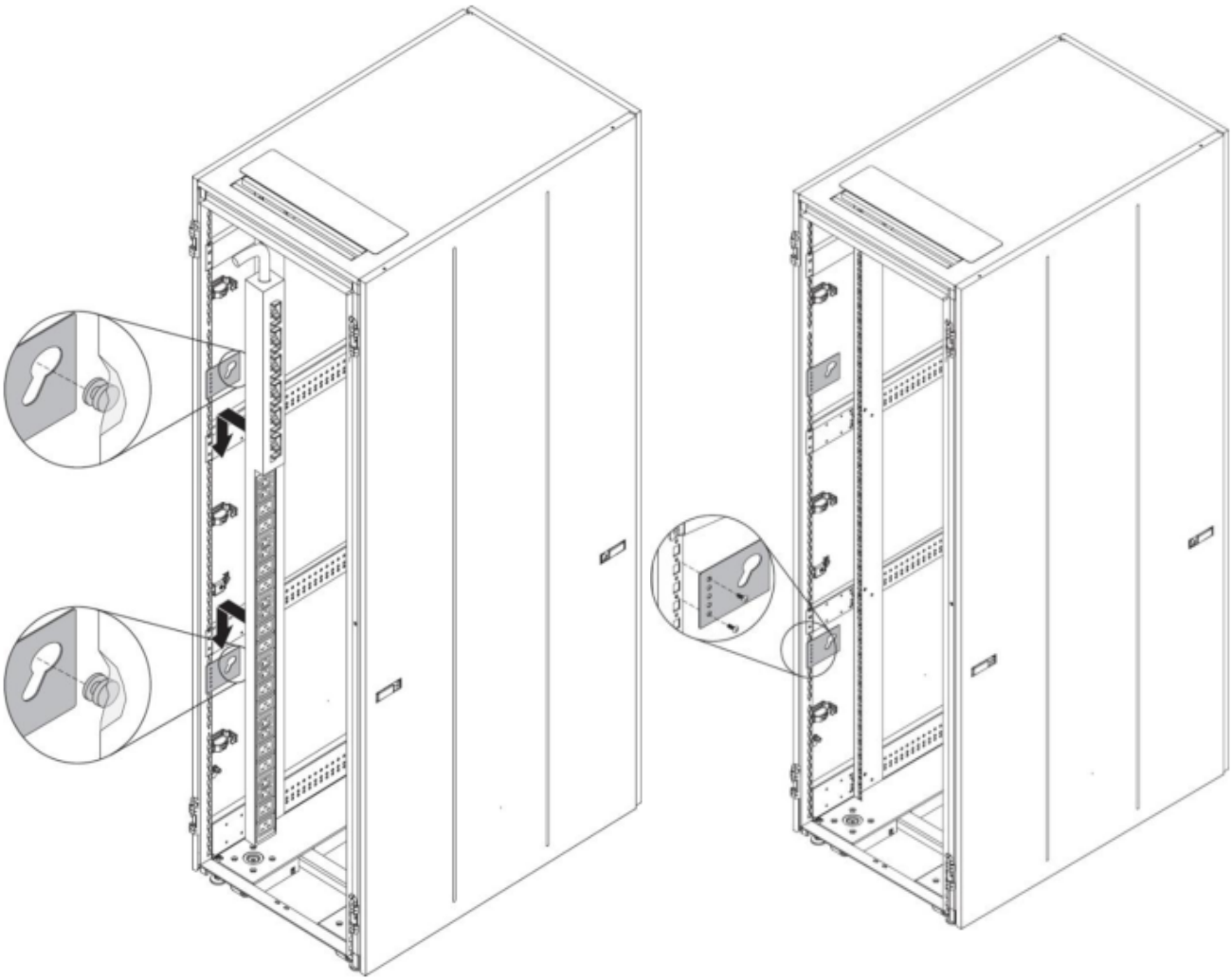


Figure 82: Standard rack cabinet mounting

Mounting In Enterprise Rack (9308 & 1410) & 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 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 Accessory Kit section for additional information.

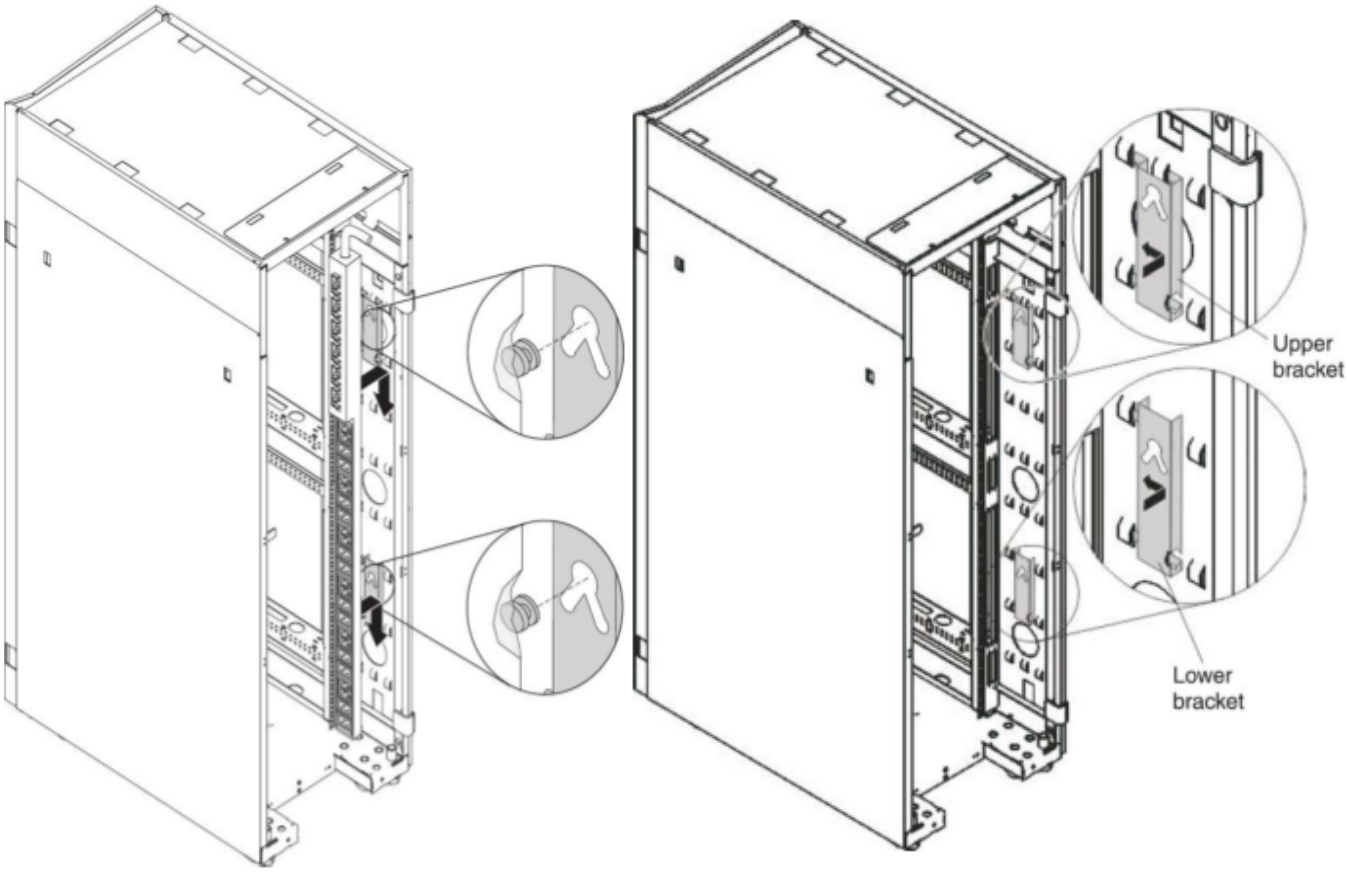


Figure 83: Enterprise rack cabinets

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 84.

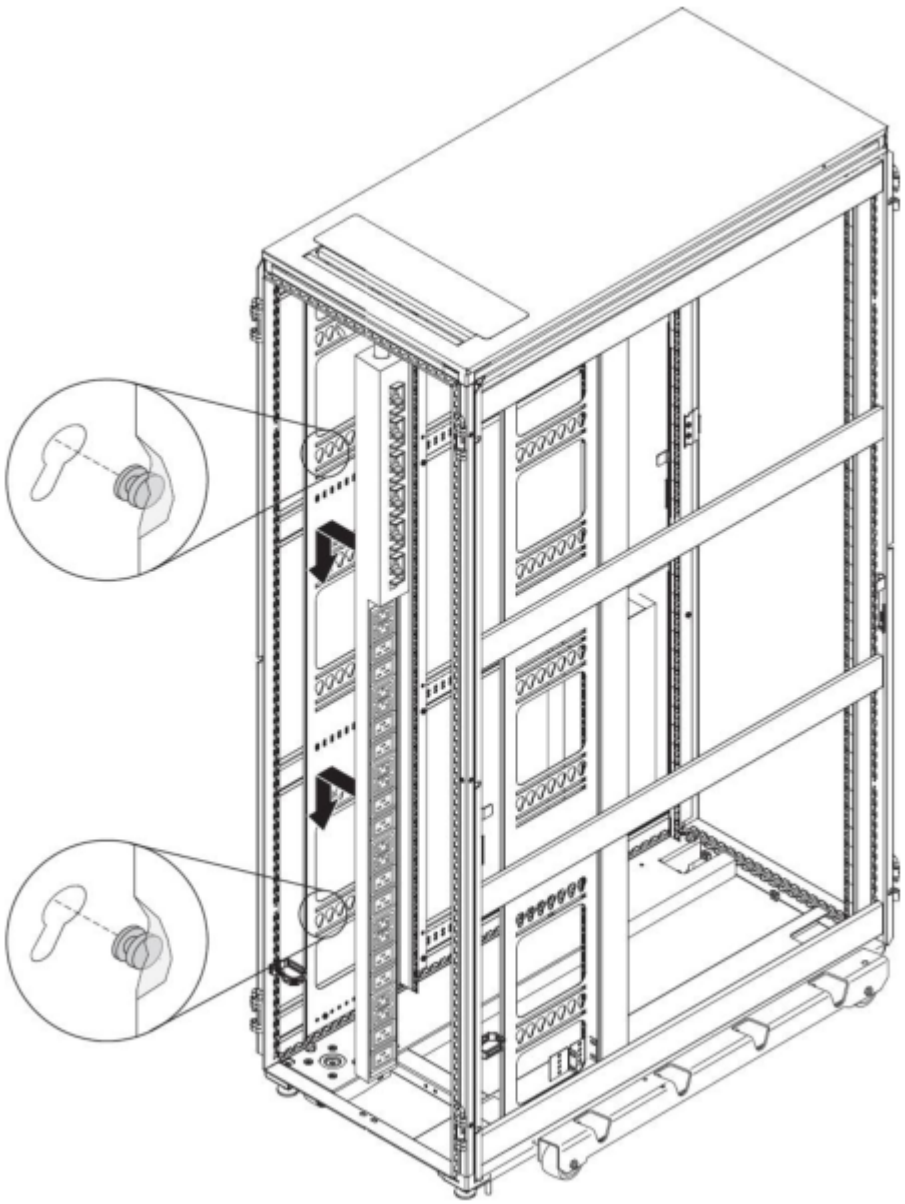


Figure 84: Rack with mounting keyholes at the rear

Installation and Maintenance Guide

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

46M4116
http://www.ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-5086798

0U 12 C13 / 12 C19 Switched and Monitored PDU

This section discusses the 46M4134 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 46M4134 PDU. For additional information, refer to the Specifications section.

PDU 46M4134 + Attached Line Cord	
Type	50A/208V
Outlets:	Twelve IEC C13, twelve IEC C19
Power Capacity	14602VA @ 208V
Power Limit per PDU	70.2A
Phase	Three phase

Front View and Outlets

The 46M4134 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 85: Front view

Figure 86 on page 141 displays the 1U C13/C19 Switched and Monitored PDU outlets and amperage.

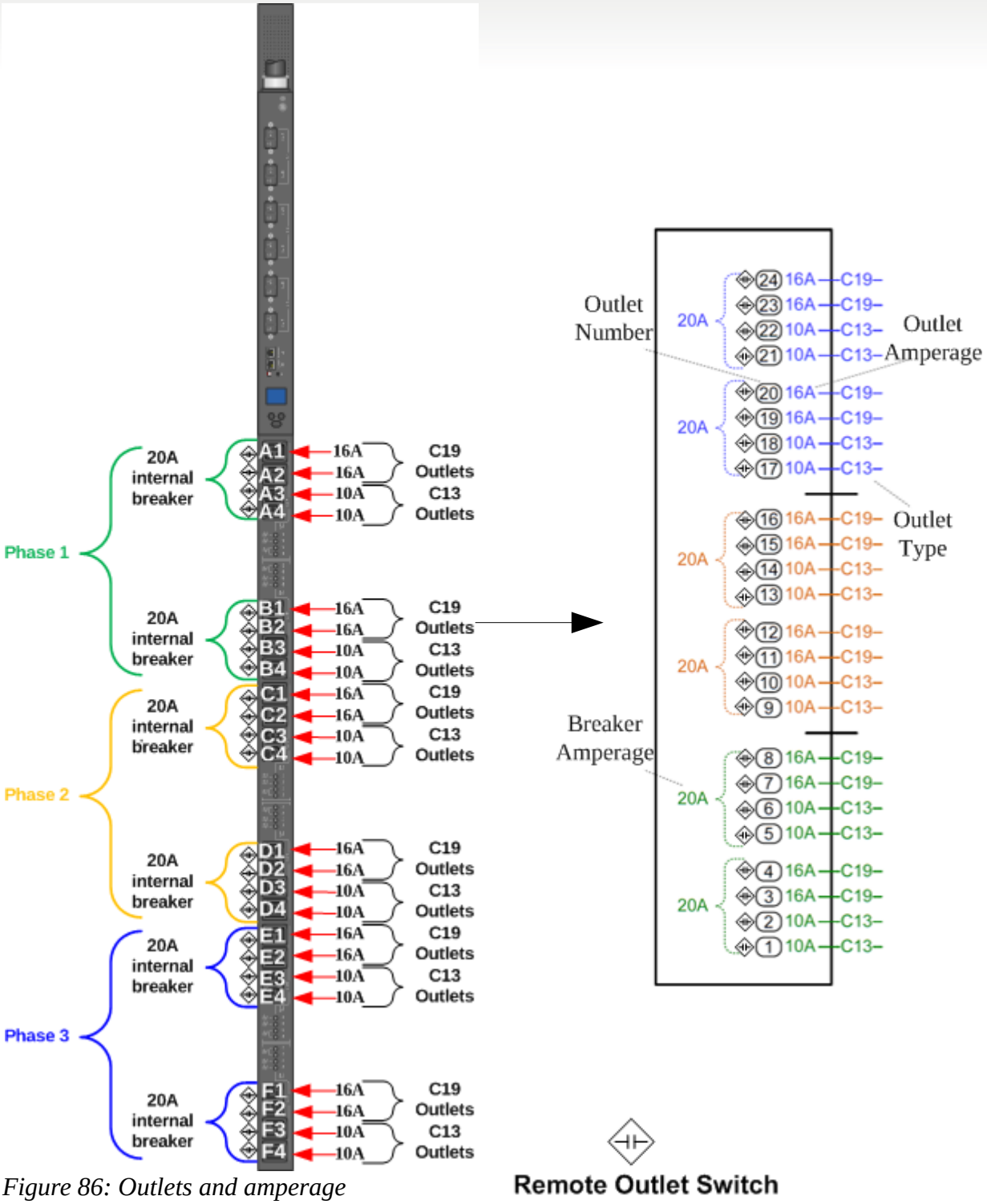


Figure 86: Outlets and amperage

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. See page 182 for a picture of the line cord plug.

PDU P/N	Feature Code	Line Cord P/N	Line Cord Description
46M4134	5931	Attached	Attached 3.0 meter line cord with CS8365L plug, 50A (23.09A / Phase derated) , 69.27A Total derated Circuit Capacity, 200-240V Three Phase Deltaion (F/C – 5931)

Specifications

The following table are specifications for the 46M4134 12 C13 / 12 C19 PDU.

Specifications	
PDU Part Number	46M4134
Feature Code	5931
Input Line Cord Type*	Attached
Type	50A/208V
Phase	Three Phase
Outlets:	Twelve IEC C13, twelve IEC C19
Power Capacity**	14602VA @ 208V
Power Limit per Outlet	C13 10A, C19 16A
Grouping	Two C13 outlets and two C19 outlets per breaker / Four C13 outlets and four C19 outlets per phase
Power Limit per Phase	23.1A
Power Limit per Breaker	16A
Power Limit per PDU	69.3A
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.

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.

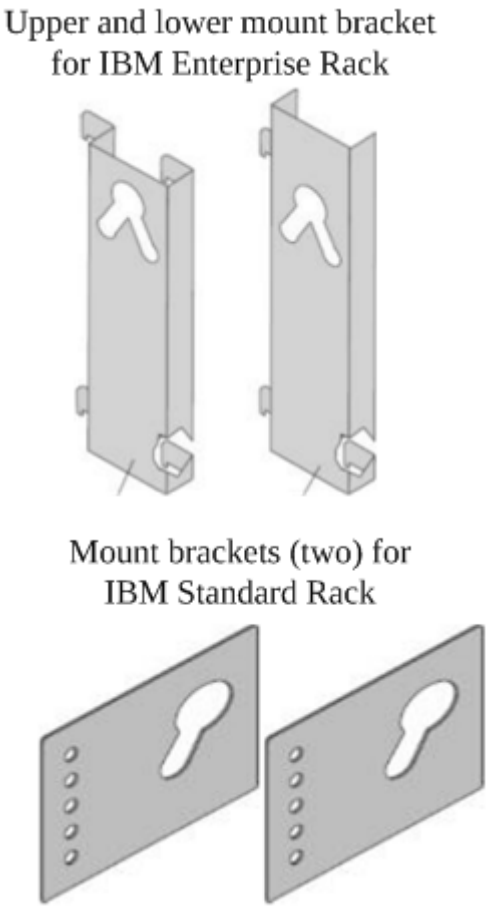


Figure 87: Accessory kit

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.

Racking

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 Enterprise racks (9308 and 1410), and the 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 Accessory Kit section for additional information.

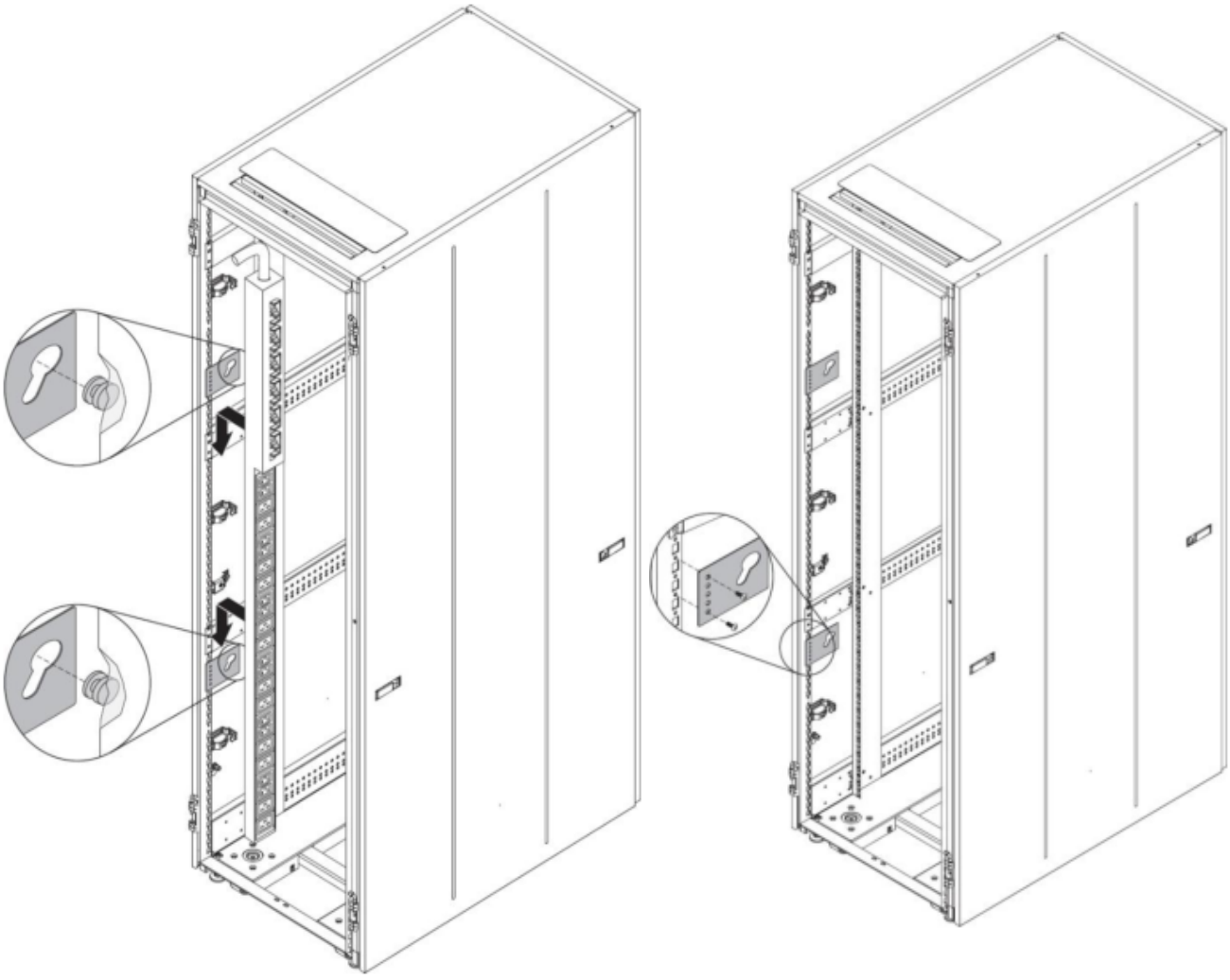


Figure 88: Standard rack cabinet mounting

Mounting In Enterprise Rack (9308 & 1410) & 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 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 Accessory Kit section for additional information.

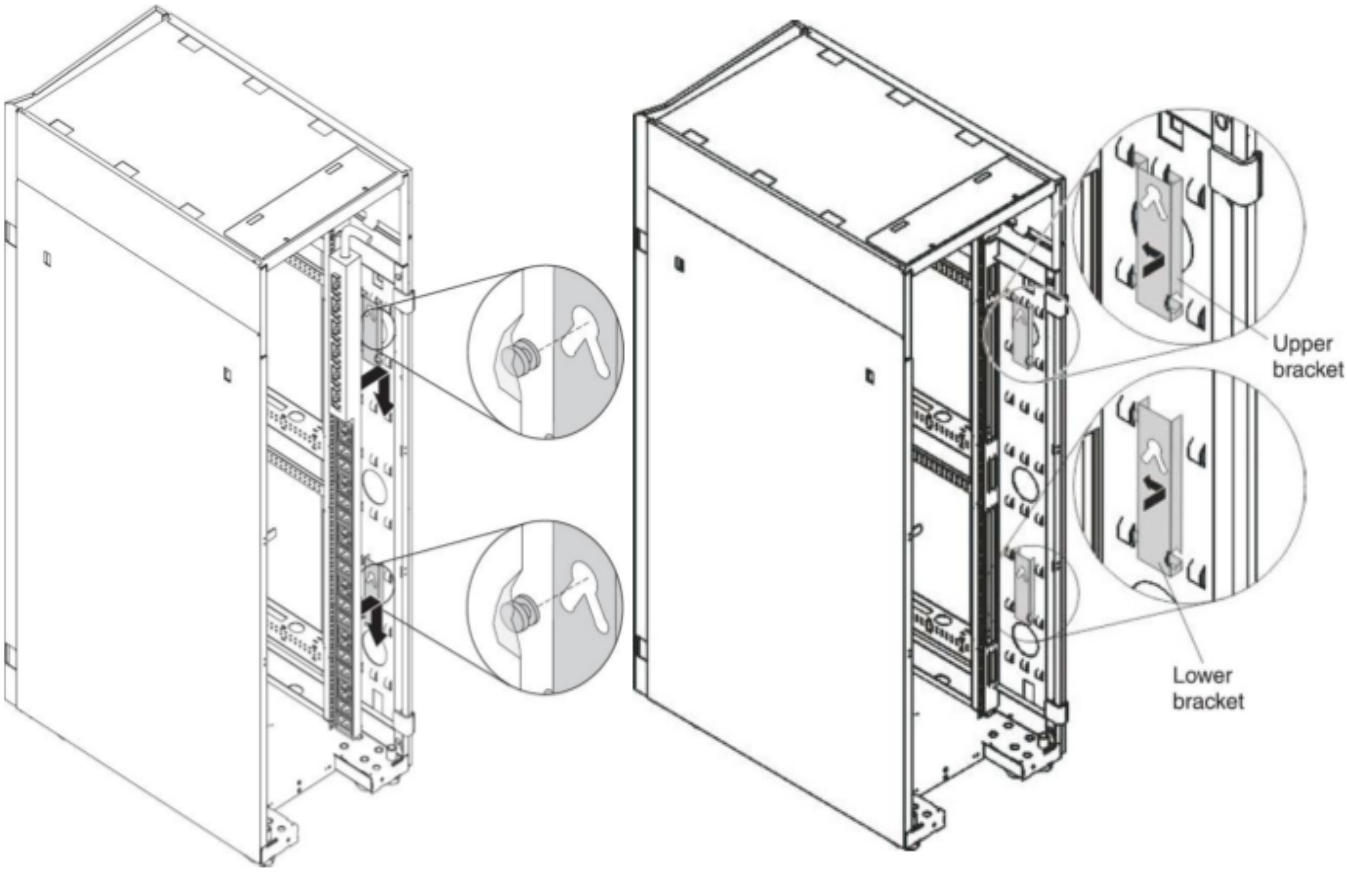


Figure 89: Enterprise rack cabinets

Installation and Maintenance Guide

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

46M4134
http://www.ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-5086798

1U 9 C19 / 3 C13 Switched and Monitored PDU

This section discusses the 46M4167 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 46M4167 PDU. For additional information, refer to the Specifications section.

PDU 46M4167 + Attached Line Cord	
Outlets	nine IEC C19, three IEC 13
Type	30A/208V
Power Capacity	8646VA @ 208V
Power Limit per PDU	41.6A
Phase	Three phase

Front View and Outlets

The 46M4167 Lenovo 1U 9 C19 / 3 C13 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 90: Front and back view

Figure 91 on page 148 displays the 1U 9 C19 / 3 C13 Switched and Monitored PDU outlets and amperage.

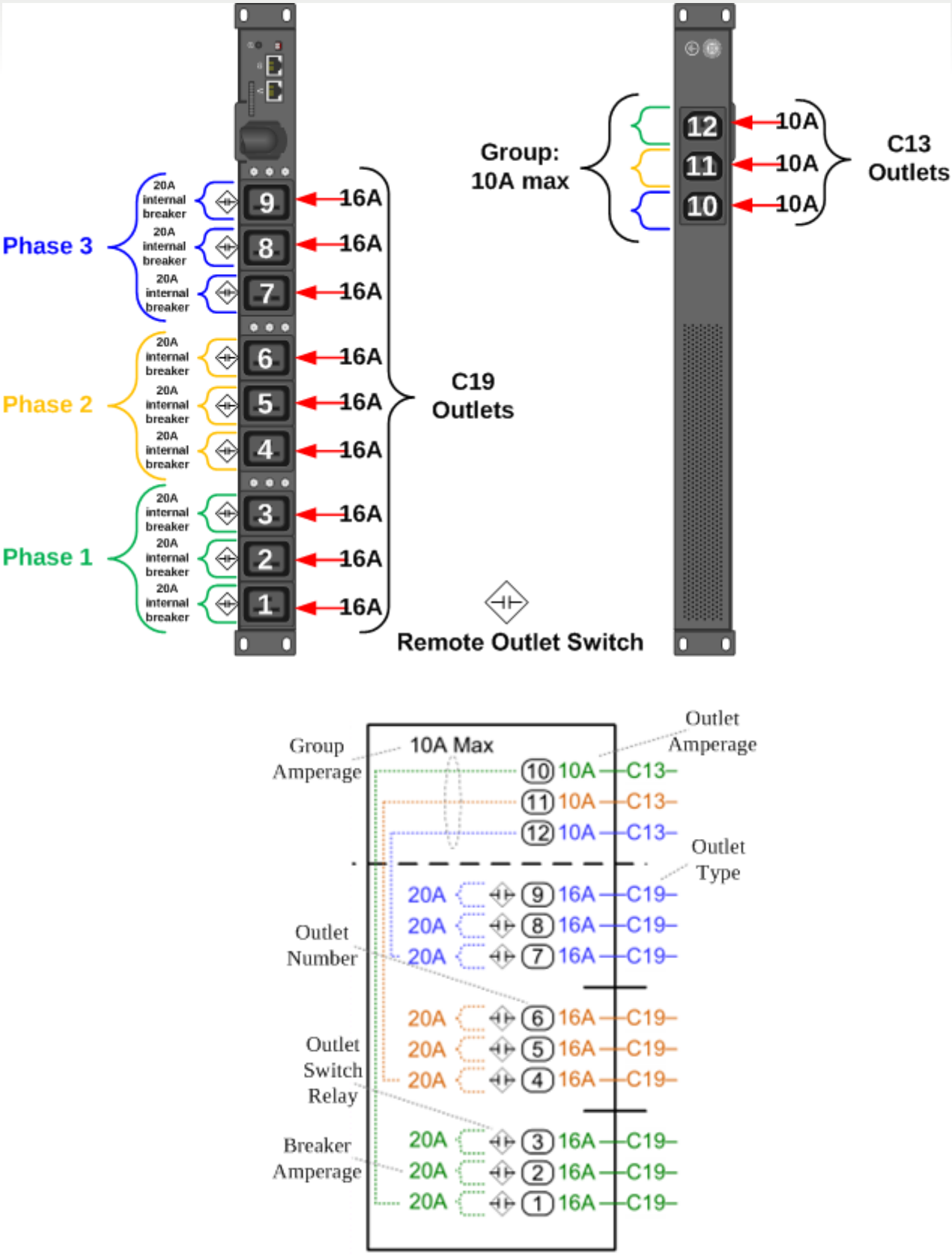


Figure 91: Outlets and amperage

Note: derated 16A max available per breaker

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. See page 183 for a picture of the line cord plug.

PDU P/N	Feature Code	Line Cord P/N	Line Cord Description
46M4167	5928	Attached	Attached 3.0 meter line cord with NEMA L21-30P plug, 30A (13.85A / Phase derated), 41.55A Total derated Circuit Capacity, 200-240V Three Phase Delta

Specifications

The following table are specifications for the 46M4167 9 C19 / 3 C13 PDU.

46M4167 – Specifications	
PDU Part Number	46M4167
Feature Code	5928
Input Line Cord Type*	Attached
Type	30A/208V
Phase	Three phase
Outlets	nine IEC C19, three IEC 13
Power Capacity**	8646VA @ 208V
Power Limit per Outlet	C19 16A, C13 10A
Grouping	One C19 and one C13 or one C19 per breaker / Three C19 and one C13 per phase
Power Limit per Phase	13.85A
Power Limit per Breaker	16A
Power Limit per PDU	41.6A
Power Monitoring/Switching	Yes/Yes
U Space	1U
Grounding Screw	Yes on back 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.

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.

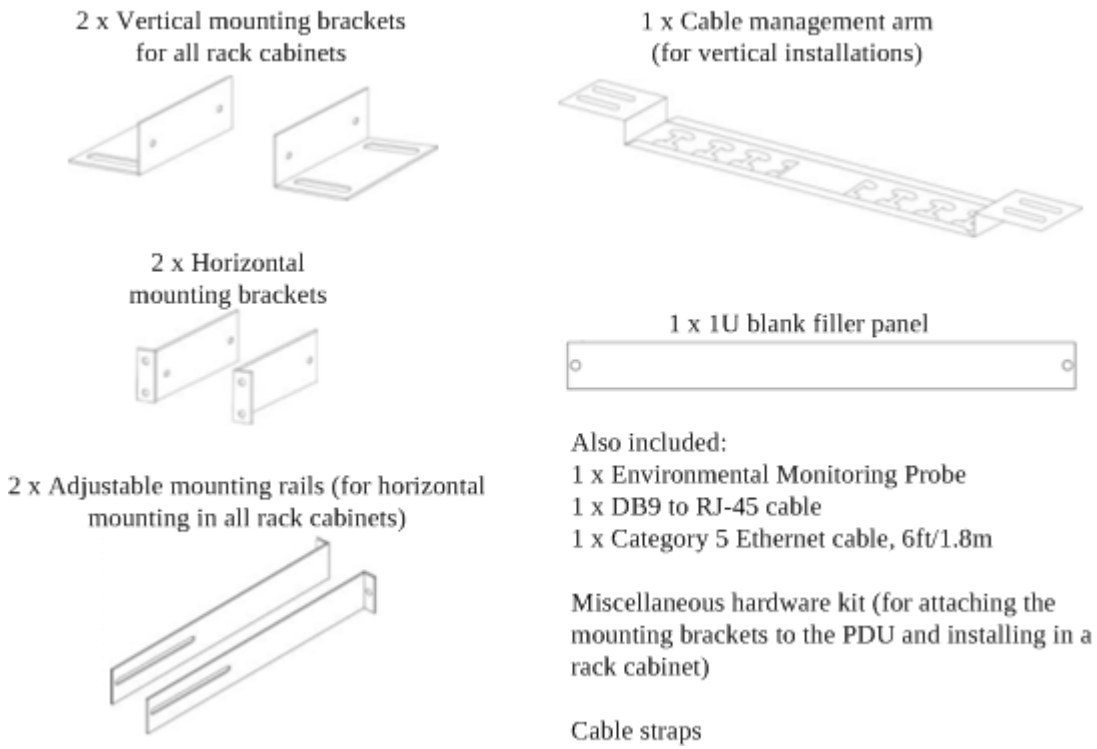


Figure 92: Accessory kit

Note: The Environmental Monitoring Probe (EMP) does not ship standard with this PDU. Refer to the Environmental Monitoring Probe for Monitored PDUs section for ordering and technical information.

These accessories are for supporting the racking of the 46M4167 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 1U C13/C19 PDU.

Racking

This section discusses mounting the 46M4167 1U C19/C13 PDUs 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 46M4167 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.

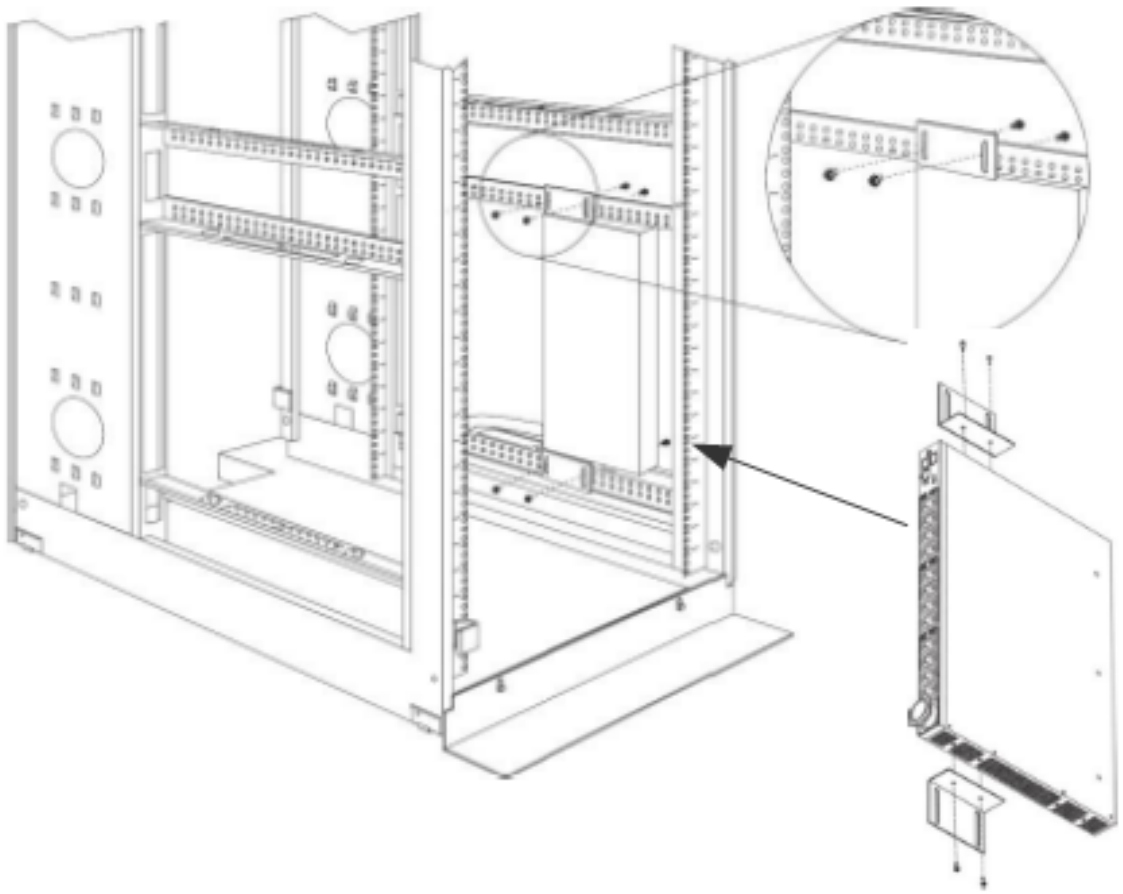


Figure 93: 1U Switched C19/C13 PDU vertical mounting in rack

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

Mounting the 46M4167 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.

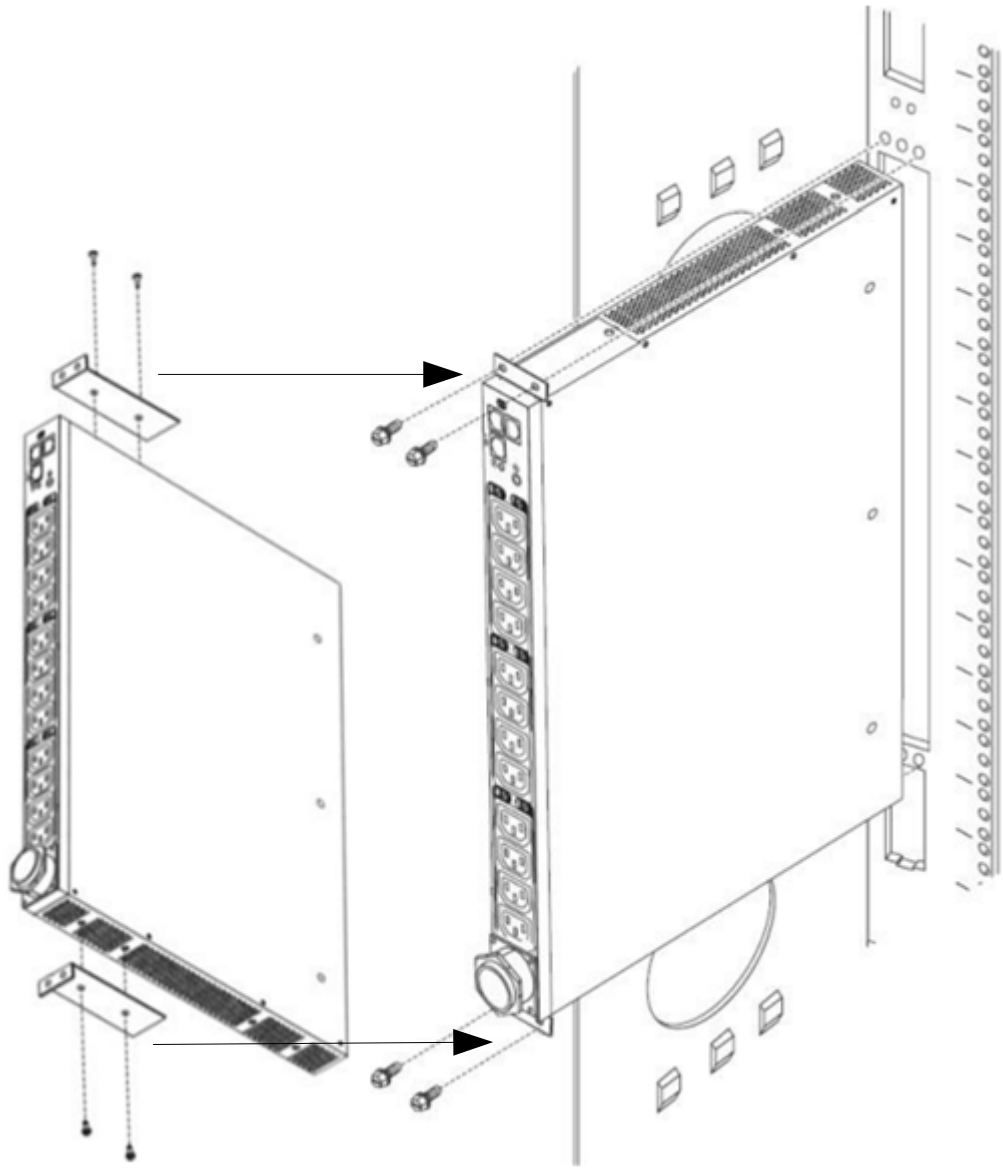


Figure 94: 1U Switched C19/C13 PDU vertical mounting in rack

Mounting in EIA (U space) of rack

Mounting the 46M4167 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 95.

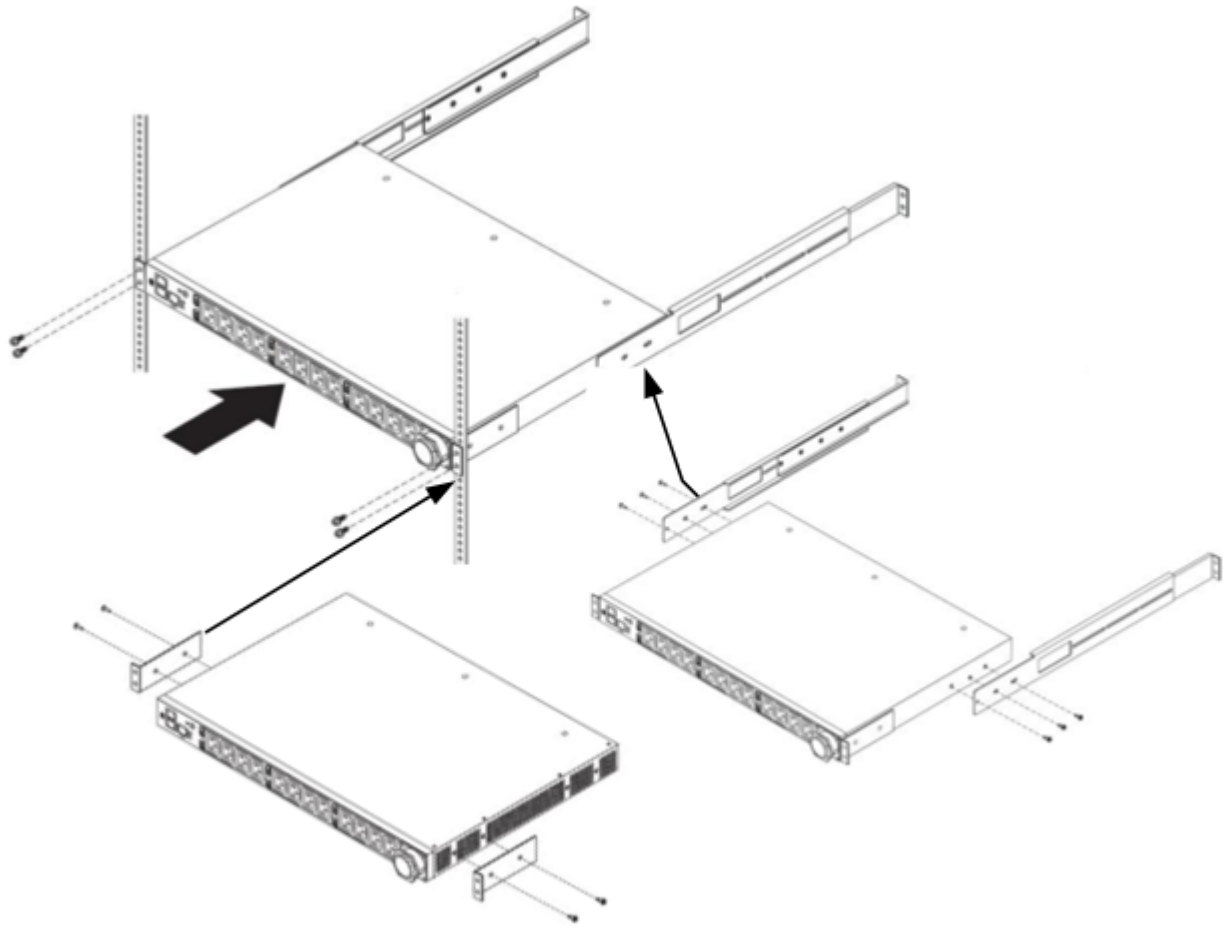


Figure 95: Mounting in U space of rack

Installation and Maintenance Guide

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

46M4167
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.

Basic PDU Line Cord Plugs

This section covers the Lenovo Basic PDU line cord plugs from the PDUs covered in the Basic PDUs (non-Monitored) section.

39Y8951 – Universal Rack PDU

There are 3 line cord types for the 39Y8951 Universal Rack PDU; 20A@100-127V, 20A@200-240V, and 20A@200-240V. The plugs on each line cord are listed below.

20A@100-127V

NEMA L5-20P (4.3m) 20A (15A derated) @ 100V-127V Single Phase.

Used with:
39Y8951 – DPI Universal Rack PDU

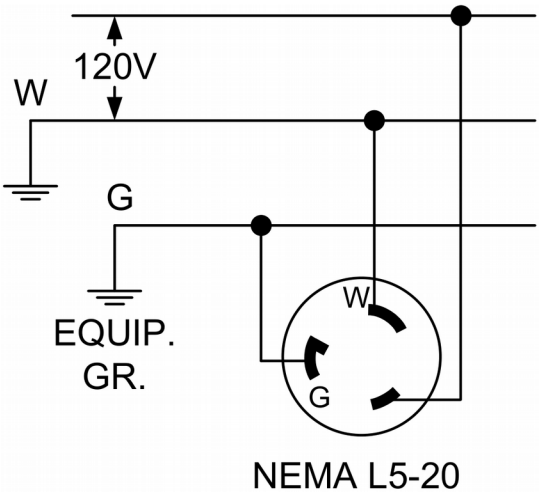


Figure 96: NEMA L5-20 plug

20A@200-240V

NEMA L6-20P (4.3m) 20A (15A derated) @ 200V-240V Single Phase.

Used with:
39Y8951 – DPI Universal Rack PDU

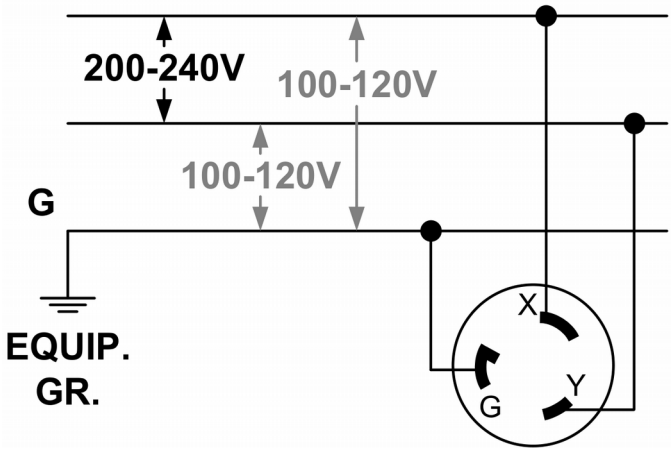


Figure 97: NEMA L6-20P plug

16A@200-240V & 200-240V

IEC320 C20 to C19 (2m) 16A @ 100V-127V & 200V-240V Single Phase

This cord is used to connect Rack PDU to another PDU with IEC320 C19 outlets.

Used with:
39Y8951 – DPI Universal Rack PDU

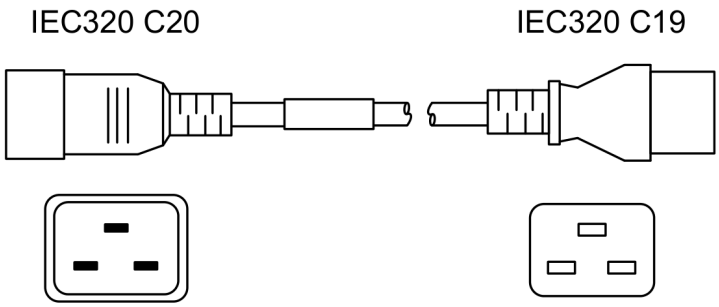


Figure 98: C20-C19 plugs

39Y8905 – Universal Rack PDU

There is one line cord type for the 39Y8905 PDU; 20A@100-127V, listed below.

15A@100V-127V

NEMA L5-15P (9ft) 15A @ 100V-127V Single Phase.

Used with:
39Y8905 – DPI NEMA Rack PDU

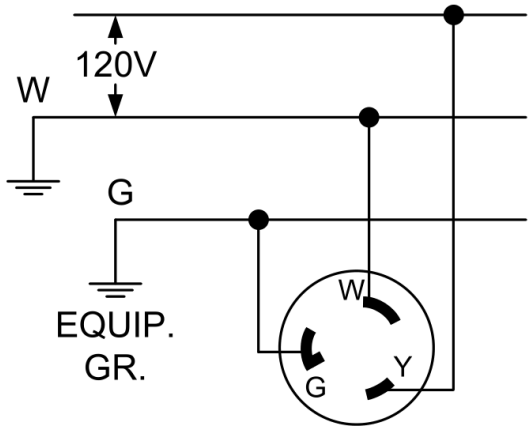


Figure 99: NEMA L5-15P plug

39Y8938 – Front End PDU

There is one line cord type for the 39Y8938 PDU; 30A@100-127V, listed below.

20A@100-127V

NEMA L5-20P (4.3m) 20A (15A derated) @ 100V-127V Single Phase.

Used with:
39Y8938 – Front End PDU

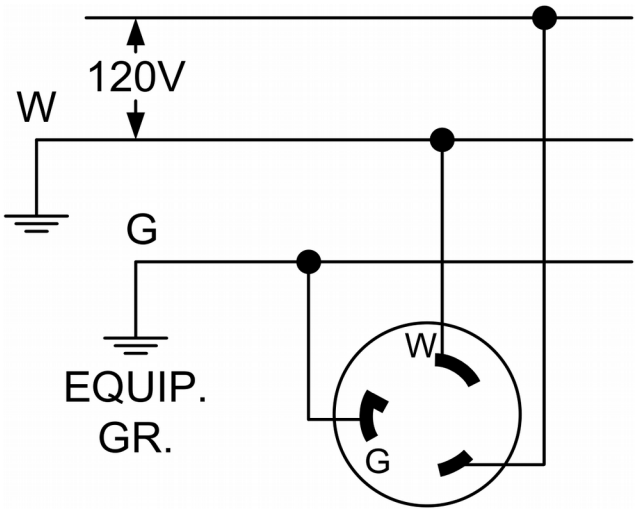


Figure 100: NEMA L5-20P plug

39Y8939 – Front End PDU

There is one line cord type for the 39Y8939 PDU; 30A@200-240V, listed below.

20A@100-127V

EMA L6-30P (2.5m) 30A (24A derated) @ 200V-240V Single Phase

Used with:
39Y8939 – Front End PDU

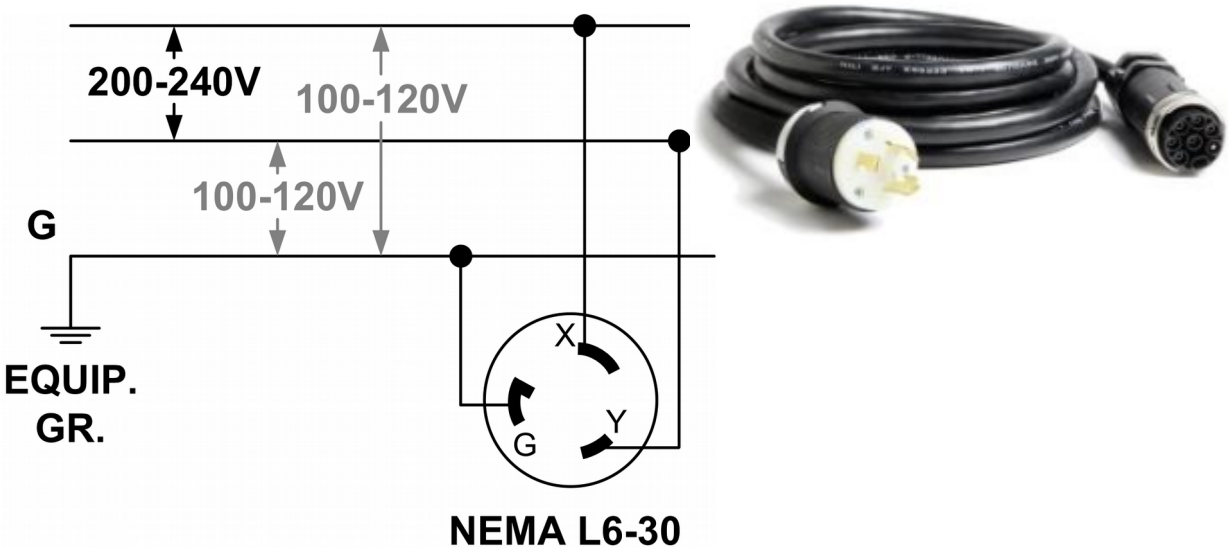


Figure 101: NEMA L6-30P plug

Note: This line cord ships with the PDU and is not sold separately from Lenovo. The cord is available from other vendors if required, and can be found under P/N 74P4312.

Note: This line cord plug is not the same as the 40K9615 line cord. The PDU line cord connector pin out is different.

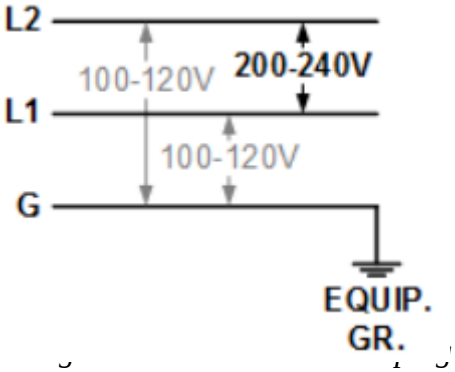
39Y8940 – Front End PDU

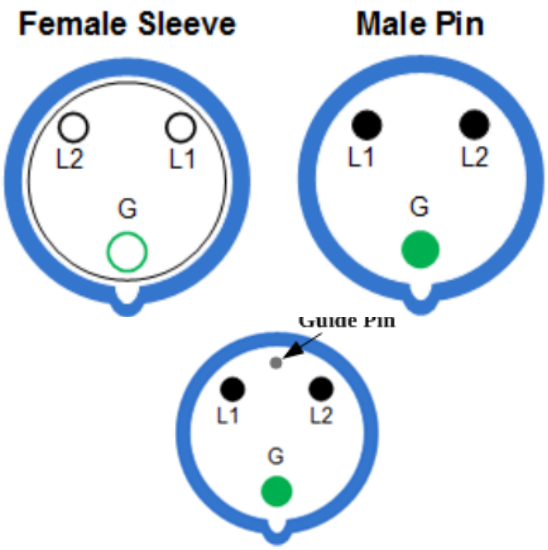
There is one line cord type for the 39Y8940 PDU; 60A@200-240V, listed below.

60A@200V-240V

IEC 309 2P+G (2.5m) - 60A (48A derated) @ 200V-240V Single Phase Plug (Type 360P6W)

Used with:
39Y8940 – Front End PDU





Note: Only a receptacle or a connector is needed to mate with the plug on the PDU input line cord. See the Additional Plug Information section for more information.
Matching receptacle listing 360R6W IP-67 HUBBELL, Hubbell receptacle P/N HBL360R6W
Matching connector listing 360C6W IP-67 HUBBELL, Hubbell connector P/N HBL360C6W

Note: This line cord plug is not the same as the 40K9615 line cord. The PDU line cord connector pin out is different.

39Y8941 – DPI Enterprise – C13 PDU

There are two line cord types for the 39Y8941 PDU; 30A@200-20V, and 60A@200-240V, listed below.

30A@200-240V

NEMA L6-30P (4.3m) 30A (24A derated) @ 200V-240V Single Phase

39Y8941 – Used with:
DPI® Enterprise – C13 PDU

Figure 103: NEMA L6-30P plug

60A@200V-240V

IEC 309 2P+G (2.5m) - 60A (48A derated) @ 200V-240V Single Phase Plug (Type 360P6W)

39Y8941 – Used with:
DPI® Enterprise – C13 PDU

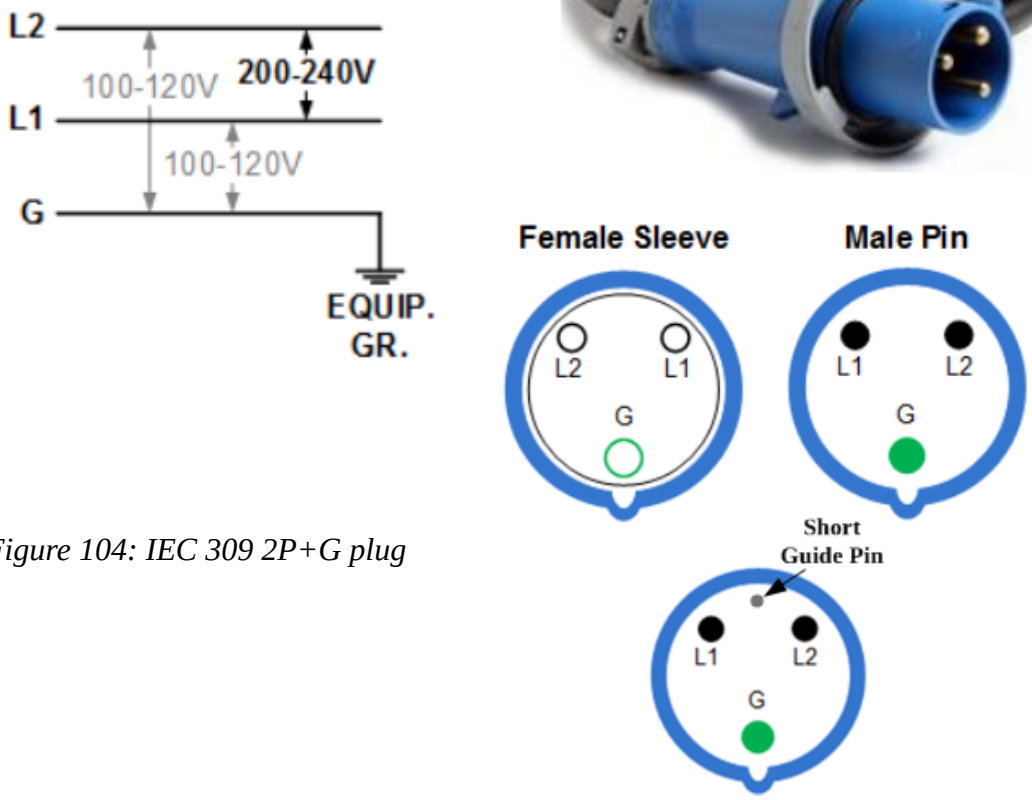


Figure 104: IEC 309 2P+G plug

Note: Only a receptacle or a connector is needed to mate with the plug on the PDU input line cord. See the Additional Plug Information section for more information..

Matching receptacle listing 360R6W IP-67 HUBBELL, Hubbell receptacle P/N HBL360R6W
Matching connector listing 360C6W IP-67 HUBBELL, Hubbell connector P/N HBL360C6W

Note: This line cord plug is not the same as the 40K9615 line cord. The PDU line cord connector pin out is different.

39Y8948 – DPI Enterprise – C19 PDU

There are two line cord types for the 39Y8948 PDU; 30A@200-20V, and 60A@200-240V, listed below.

30A@200-240V

NEMA L6-30P (4.3m) 30A (24A derated) @ 200V-240V Single Phase

39Y8941 – Used with:
DPI® Enterprise – C13 PDU

Figure 105: NEMA L6-30P plug

60A@200V-240V

IEC 309 2P+G (2.5m) - 60A (48A derated) @ 200V-240V Single Phase Plug (Type 360P6W)

Used with:
39Y8948 – DPI Enterprise – C19 PDU

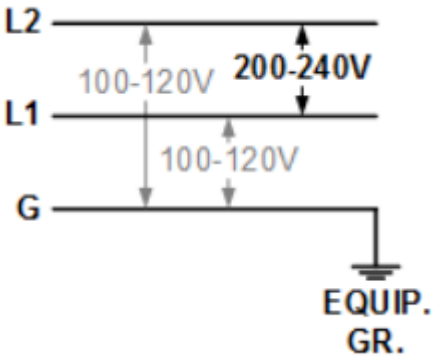
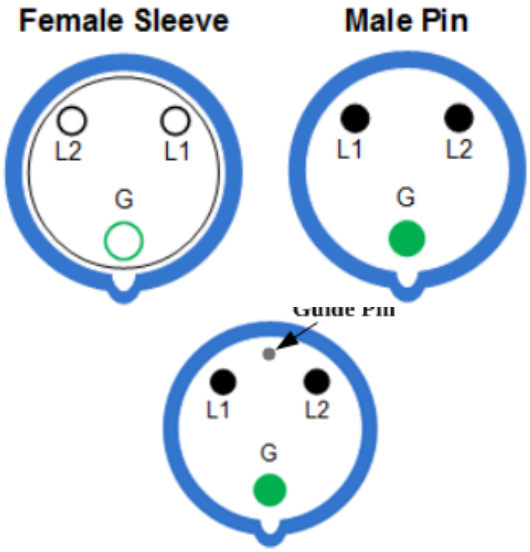


Figure 106: IEC 309 2P+G plug



Note: Only a receptacle or a connector is needed to mate with the plug on the PDU input line cord. See the Additional Plug Information section for more information.

Matching receptacle listing 360R6W IP-67 HUBBELL, Hubbell receptacle P/N HBL360R6W
Matching connector listing 360C6W IP-67 HUBBELL, Hubbell connector P/N HBL360C6W

Note: This line cord plug is not the same as the 40K9615 line cord. The PDU line cord connector pin out is different.

39Y8923 – DPI Enterprise – C19 PDU

There is an attached line cord type for the 39Y8923 PDU; 3ph 60A@200-240V, listed below.

60A@200V-240V

Attached 14-foot (4.3 meter) line cord with IEC-309 60A, 3P4W Plug (Type 460P9W),
60A (27.7A / Phase derated) 200V-240V Three Phase Delta,
83.1A Total derated Circuit Capacity.

Figure 107: IEC 309 60A, 3PAW plug

Note: Only a receptacle or a connector is needed to mate with the plug on the PDU input line cord. See the Additional Plug Information section for more information.

Matching receptacle listing 460R9W IP-67 HUBBELL, Hubbell receptacle P/N HBL460R9W
Matching connector listing 460C9W IP-67 HUBBELL, Hubbell connector P/N HBL460C9W

There are two line cord types for the 71762NX PDU; 30A@200-240V, 60A@200-240V, listed below.

30A@200V-240V

NEMA L6-30P (4.3m) 30A (24A derated) @ 200V-240V Single Phase

Used with:
71762NX – Ultra Density Enterprise PDU

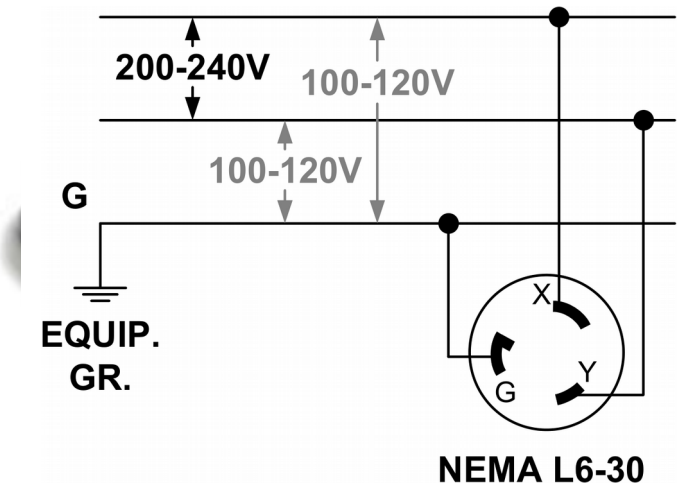


Figure 108: NEMA L6-30P plug

60A@200V-240V

IEC 309 2P+G (2.5m) - 60A (48A derated) @ 200V-240V Single Phase Plug (Type 360P6W)

Used with:
71762NX – Ultra Density Enterprise PDU

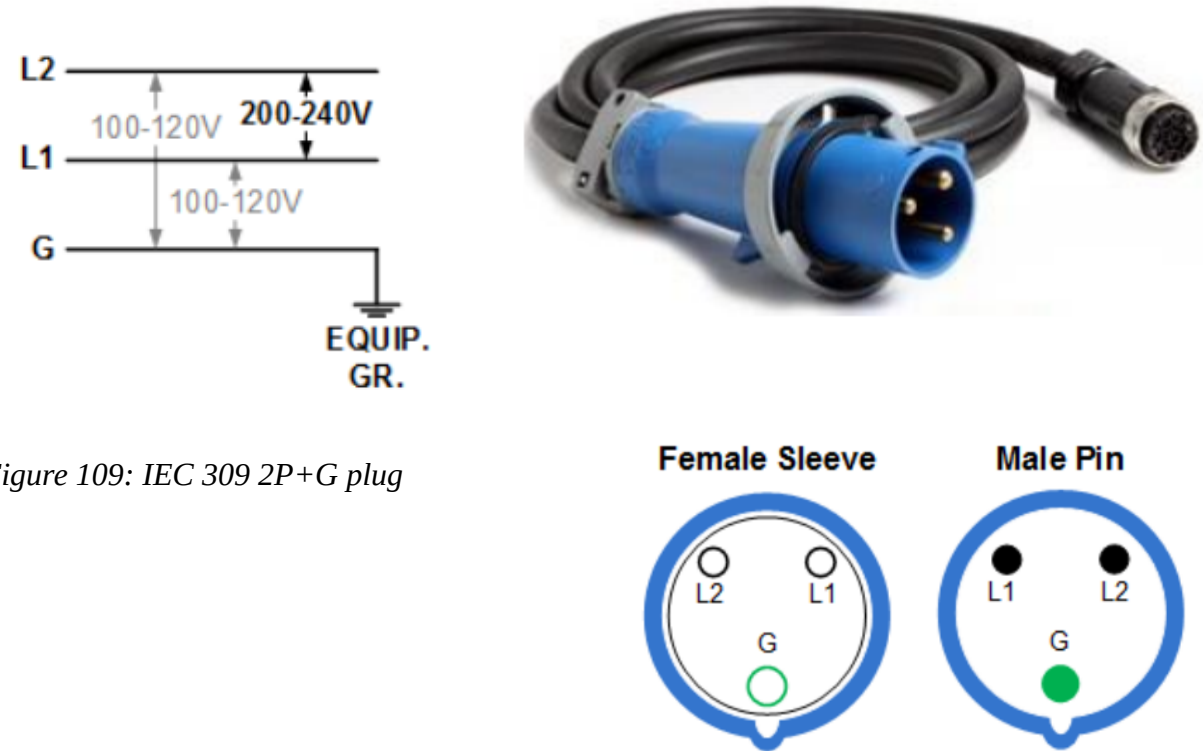


Figure 109: IEC 309 2P+G plug

Note: Only a receptacle or a connector is needed to mate with the plug on the PDU input line cord. See the Additional Plug Information section for more information.

Matching receptacle listing 360R6W IP-67 HUBBELL, Hubbell receptacle P/N HBL360R6W
Matching connector listing 360C6W IP-67 HUBBELL, Hubbell connector P/N HBL360C6W

71762NU – Ultra Density Enterprise PDU (Withdrawn)

There is one line cord type for the 71762NU PDU; 30A@200-240V, listed below.

60A@200V-240V

Attached 14-foot (4.3 meter) line cord with IEC-309 60A, 3P4W Plug (Type 460P9W),
60A (27.7A / Phase derated) 200V-240V Three Phase Delta,
83.1A Total derated Circuit Capacity.

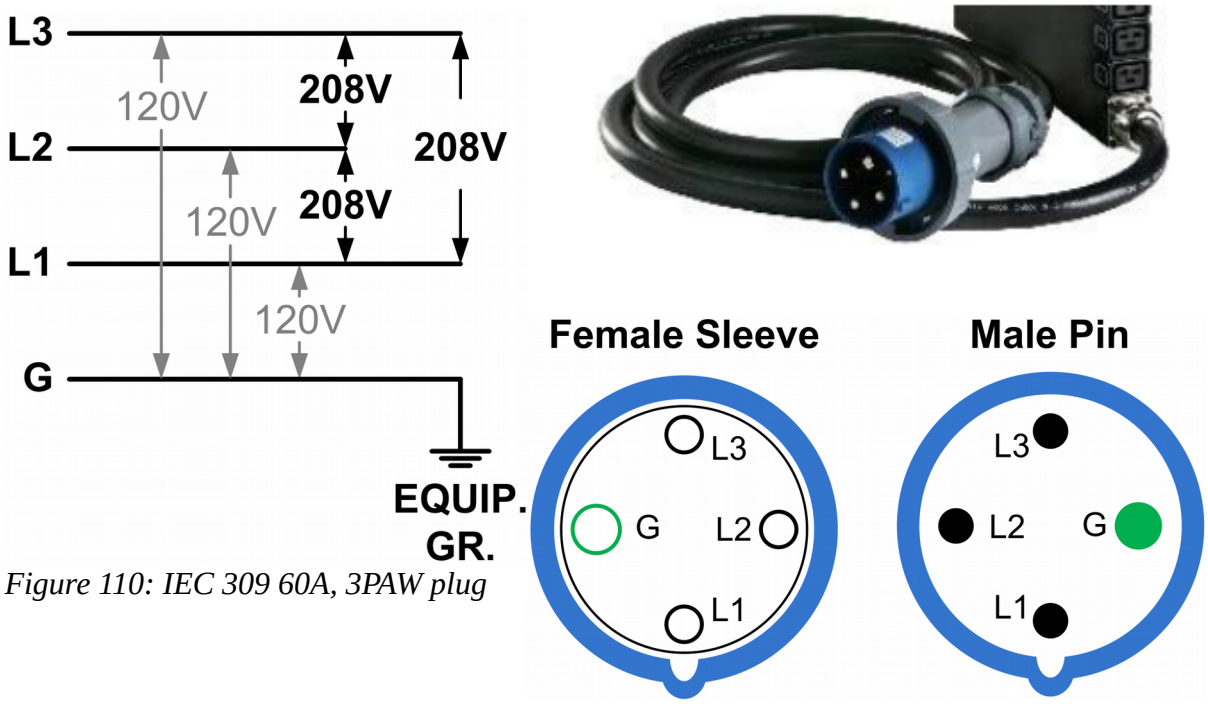


Figure 110: IEC 309 60A, 3PAW plug

Note: Only a receptacle or a connector is needed to mate with the plug on the PDU input line cord. See the Additional Plug Information section for more information.

Matching receptacle listing 460R9W IP-67 HUBBELL, Hubbell receptacle P/N HBL460R9W
Matching connector listing 460C9W IP-67 HUBBELL, Hubbell connector P/N HBL460C9W

46M4128 – 0U 24 C13 PDU

There is an attached line cord for the 46M4128 PDU; 1ph 30A@200-240V, listed below.

3ph 30A@200V-240V

Attached 3.0 meter line cord with NEMA L6-30P Plug,
30A (24A derated) @ 200V-240V Single Phase.

Used with:
46M4128 – 0U 24 C13 PDU

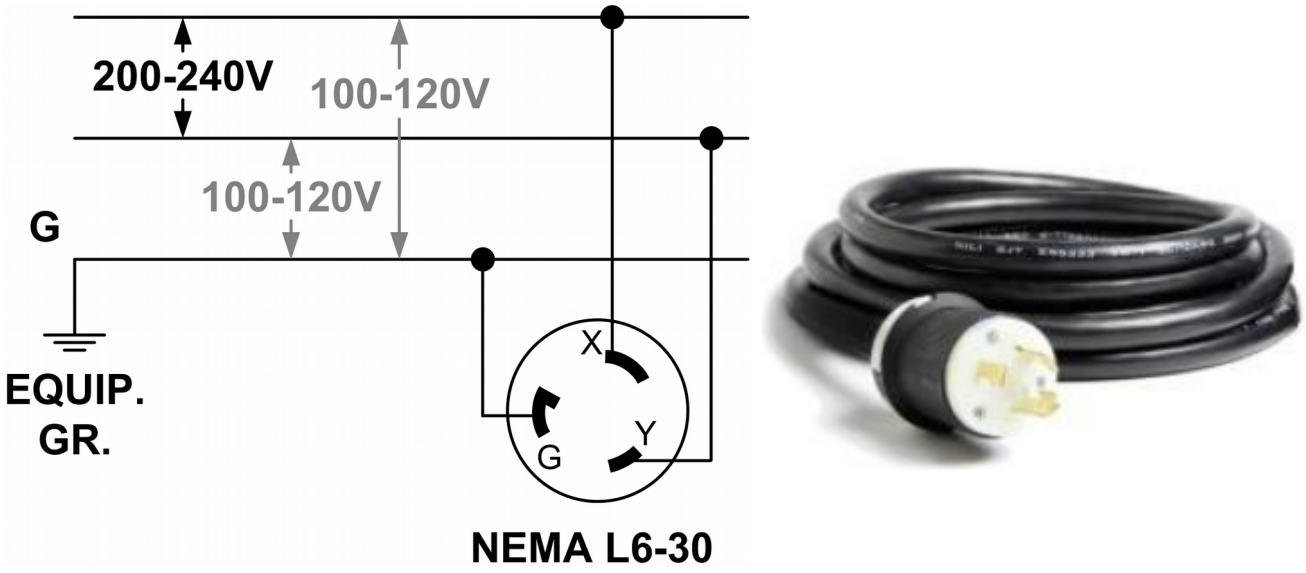


Figure 111: NEMA L6-30 plug

46M4125 – 0U 24 C13 PDU

There is an attached line cord for the 46M4125 PDU; 3ph 30A@200-240V, listed below.

3ph 30A@200V-240V

Attached 3.0 meter line cord with NEMA L21-30P Plug,
30A (13.85A / Phase derated) @ 200V-240V Three Phase Delta,
41.55A Total derated Circuit Capacity.

Used with:
46M4125 – 0U 24 C13 PDU

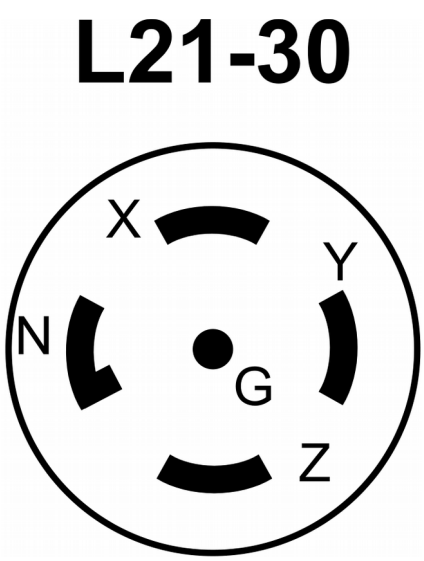
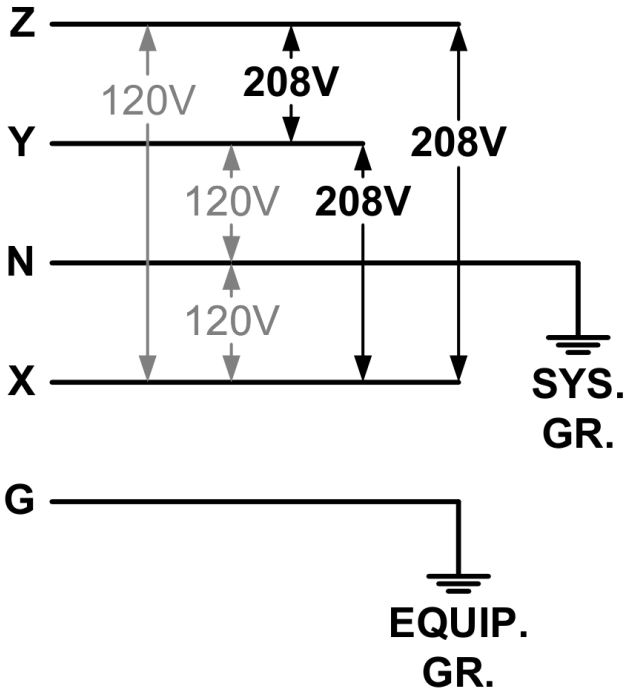


Figure 112: NEMA L21-30P plug



46M4140 – 0U 12 C19 / 12 C13 PDU

There is an attached line cord for the 46M4140 PDU; 3ph 50A@200-240V, listed below.

3ph 50A@200V-240V

Attached 3.0 meter line cord with CS8365L Plug,
50A (23.09A / Phase derated) 200V-240V Three Phase Delta,
69.27A Total derated Circuit Capacity.

Used with:
46M4140 – 0U 12 C19 / 12 C13 PDU

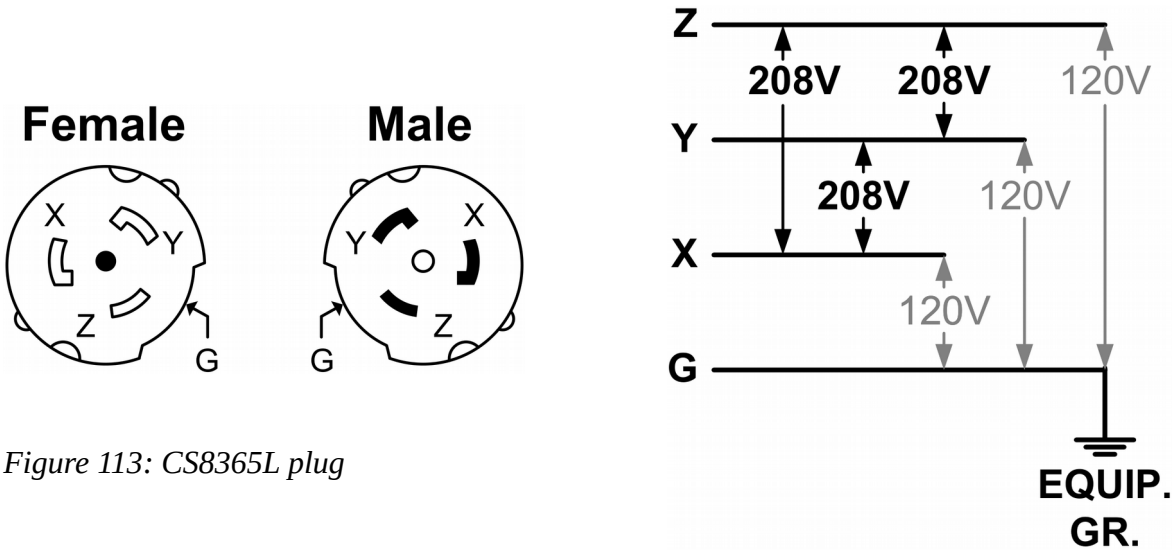


Figure 113: CS8365L plug

Monitored PDU Line Cord Plugs

This section covers the Lenovo Monitored PDU line cord plugs from the PDUs covered in the Monitored PDUs section.

39M2816 – DPI Enterprise PDU+ C13

There are two line cord types for the 39M2816 PDU+; 30A@200-240V, 60A@200-240V, listed below. The plugs on each line cord are listed below.

30A@200V-240V

NEMA L6-30P (4.3m) 30A (24A derated) @ 200V-240V Single Phase

Used with:
39M2816 – DPI Enterprise PDU+ C13

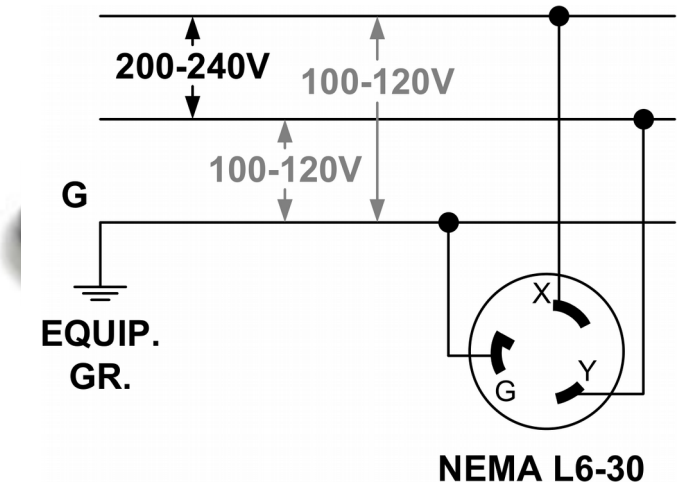
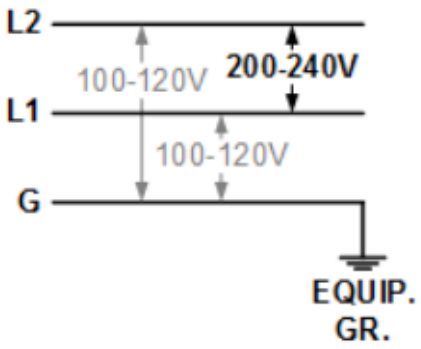


Figure 114: NEMA L6-30P plug

60A@200V-240V

IEC 309 2P+G (2.5m) - 60A (48A derated) @ 200V-240V Single Phase Plug (Type 360P6W)

Used with:
39M2816 – DPI Enterprise PDU+ C13



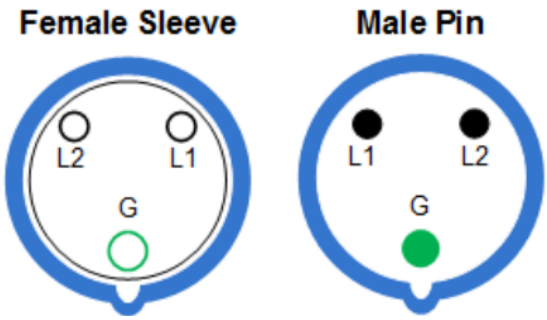


Figure 115: IEC 309 2P+G plug

Note: Only a receptacle or a connector is needed to mate with the plug on the PDU input line cord. See the Additional Plug Information section for more information.

Matching receptacle listing 360R6W IP-67 HUBBELL, Hubbell receptacle P/N HBL360R6W
Matching connector listing 360C6W IP-67 HUBBELL, Hubbell connector P/N HBL360C6W

There is one line cord type for the 71762MU PDU; 30A@200-240V, listed below.

60A@200V-240V

Attached 14-foot (4.3 meter) line cord with IEC-309 60A, 3P4W Plug (Type 460P9W),
60A (27.7A / Phase derated) 200V-240V Three Phase Delta,
83.1A Total derated Circuit Capacity.

Figure 116: IEC 309 60A, 3PAW plug

Note: Only a receptacle or a connector is needed to mate with the plug on the PDU input line cord. See the Additional Plug Information section for more information.

Matching receptacle listing 460R9W IP-67 HUBBELL, Hubbell receptacle P/N HBL460R9W
Matching connector listing 460C9W IP-67 HUBBELL, Hubbell connector P/N HBL460C9W

Monitored & Switched PDU Line Cord Plugs

This section covers the Lenovo Monitored PDU line cord plugs from the PDUs covered in the Switched and Monitored PDUs section.

46M4004 – 1U 12 C13 Switched and Monitored PDU

There are two line cord types for the 46M4004 PDU; 30A@200-240V, 60A@200-240V, listed below. The plugs on each line cord are listed below.

30A@200V-240V

NEMA L6-30P (4.3m) 30A (24A derated) @ 200V-240V Single Phase

Used with:
46M4004 – 1U 12 C13 Switched and Monitored PDU

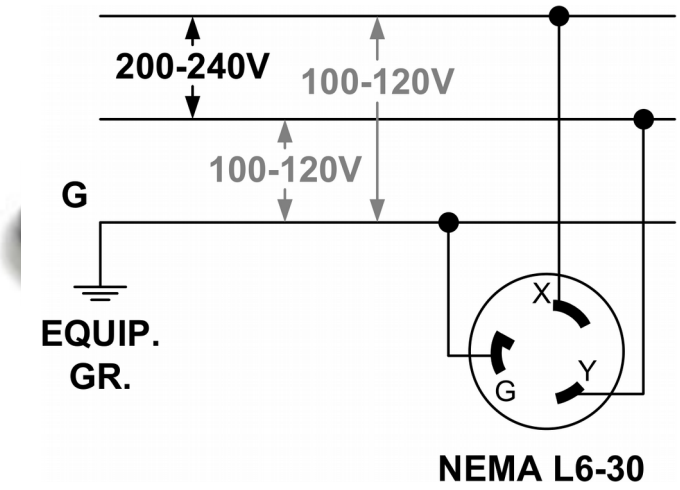


Figure 117: NEMA L6-30P plug

60A@200V-240V

IEC 309 2P+G (2.5m) - 60A (48A derated) @ 200V-240V Single Phase Plug (Type 360P6W)

Used with:
46M4004 – 1U 12 C13 Switched and Monitored PDU

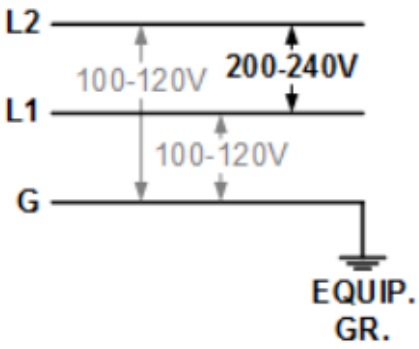


Figure 118: IEC 309 2P+G plug

Note: Only a receptacle or a connector is needed to mate with the plug on the PDU input line cord. See the Additional Plug Information section for more information.

Matching receptacle listing 360R6W IP-67 HUBBELL, Hubbell receptacle P/N HBL360R6W
Matching connector listing 360C6W IP-67 HUBBELL, Hubbell connector P/N HBL360C6W

46M4005 – 1U 12 C13 Switched and Monitored PDU

There is one attached line cord type for the 46M4005 PDU; 30A@200-240V, listed below.

3ph 60A@200V-240V

Attached 14-foot (4.3 meter) line cord with IEC-309 60A, 3P4W Plug (Type 460P9W),
60A (27.7A / Phase derated) 200V-240V Three Phase Delta,
83.1A Total derated Circuit Capacity.

Used with:
46M4005 – 1U 12 C13 Switched and Monitored PDU

Figure 119: IEC 309 60A, 3PAW plug

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

There are two line cord types for the 46M4002 PDU; 30A@200-240V, 60A@200-240V, listed below. The plugs on each line cord are listed below.

30A@200V-240V

NEMA L6-30P (4.3m) 30A (24A derated) @ 200V-240V Single Phase

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

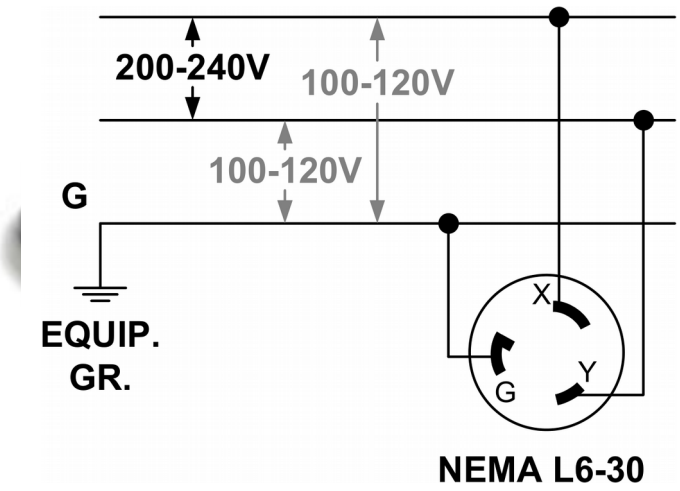


Figure 120: NEMA L6-30P plug

60A@200V-240V

IEC 309 2P+G (2.5m) - 60A (48A derated) @ 200V-240V Single Phase Plug (Type 360P6W)

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

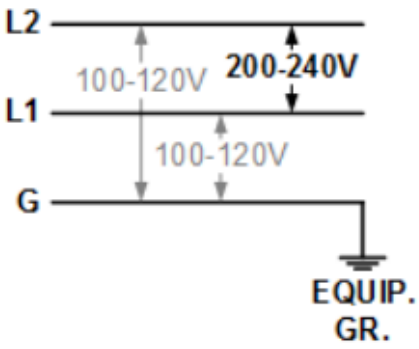


Figure 121: IEC 309 2P+G plug

Note: Only a receptacle or a connector is needed to mate with the plug on the PDU input line cord. See the Additional Plug Information section for more information.

Matching receptacle listing 360R6W IP-67 HUBBELL, Hubbell receptacle P/N HBL360R6W
Matching connector listing 360C6W IP-67 HUBBELL, Hubbell connector P/N HBL360C6W

46M4003 – 1U 9 C19 / 3 C13 Switched and Monitored PDU

There is one attached line cord type for the 46M4003 PDU; 30A@200-240V, listed below.

3ph 60A@200V-240V

Attached 14-foot (4.3 meter) line cord with IEC-309 60A, 3P4W Plug (Type 460P9W),
60A (27.7A / Phase derated) 200V-240V Three Phase Delta,
83.1A Total derated Circuit Capacity.

Used with:
46M4003 – 1U 9 C19 / 3 C13 Switched and Monitored PDU

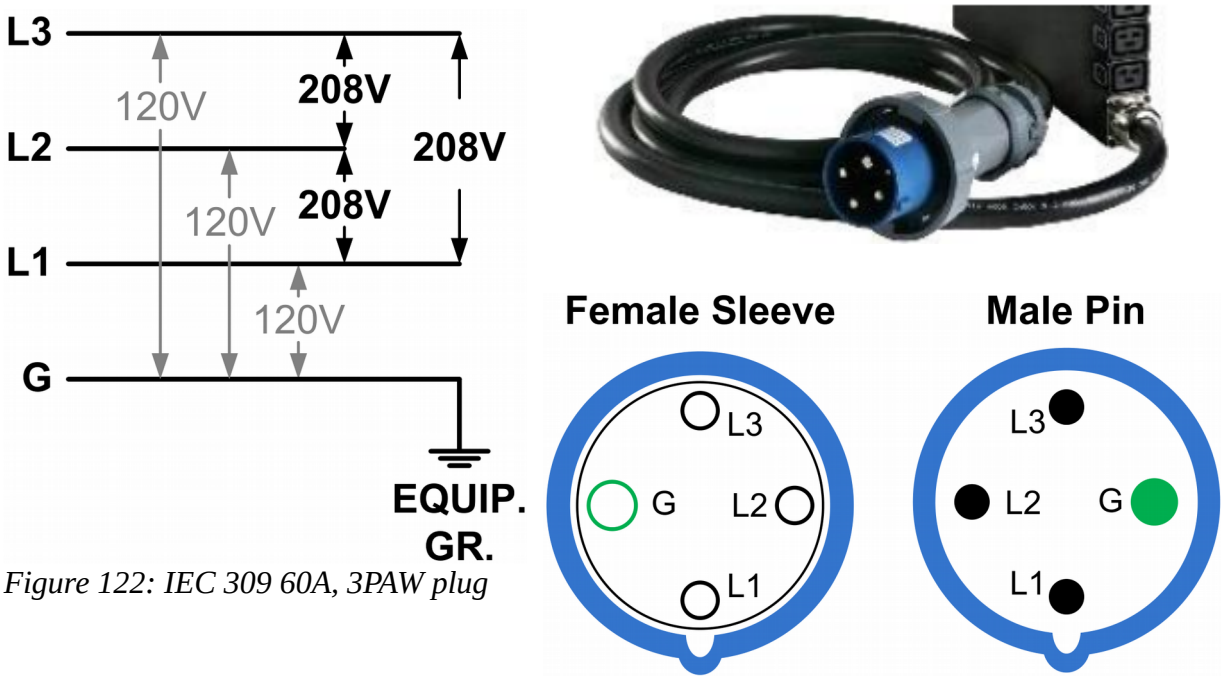


Figure 122: IEC 309 60A, 3PAW plug

46M4116 – 0U 24 C13 Switched and Monitored PDU

There is an attached line cord for the 46M4116 PDU; 1ph 30A@200-240V, listed below.

3ph 30A@200V-240V

Attached 3.0 meter line cord with NEMA L6-30P Plug,
30A (24A derated) @ 200V-240V Single Phase.

Used with:
46M4116 – 0U 24 C13 Switched and Monitored PDU

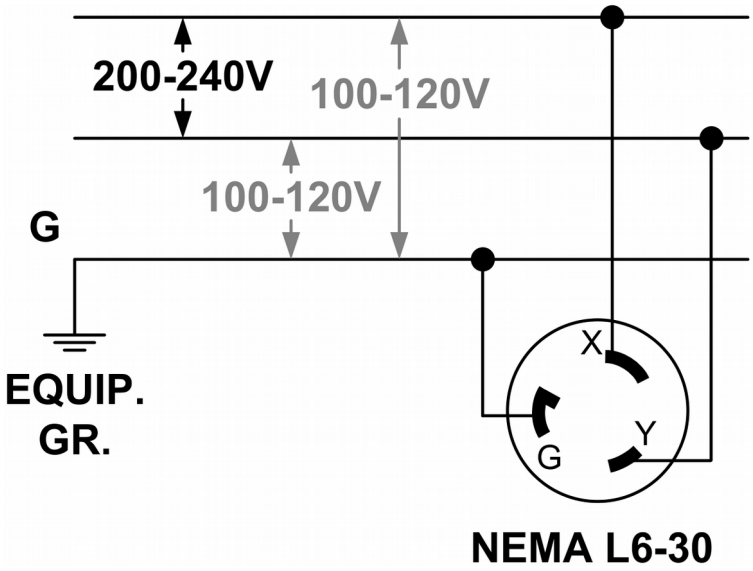


Figure 123: NEMA L6-30 plug

There is an attached line cord for the 46M4134 PDU; 3ph 50A@200-240V, listed below.

3ph 50A@200V-240V

Attached 3.0 meter line cord with CS8365L Plug,
50A (23.09A / Phase derated) 200V-240V Three Phase Delta,
69.27A Total derated Circuit Capacity.

Used with:
46M4134 – 0U 12 C13 / 12 C19 Switched and Monitored PDU

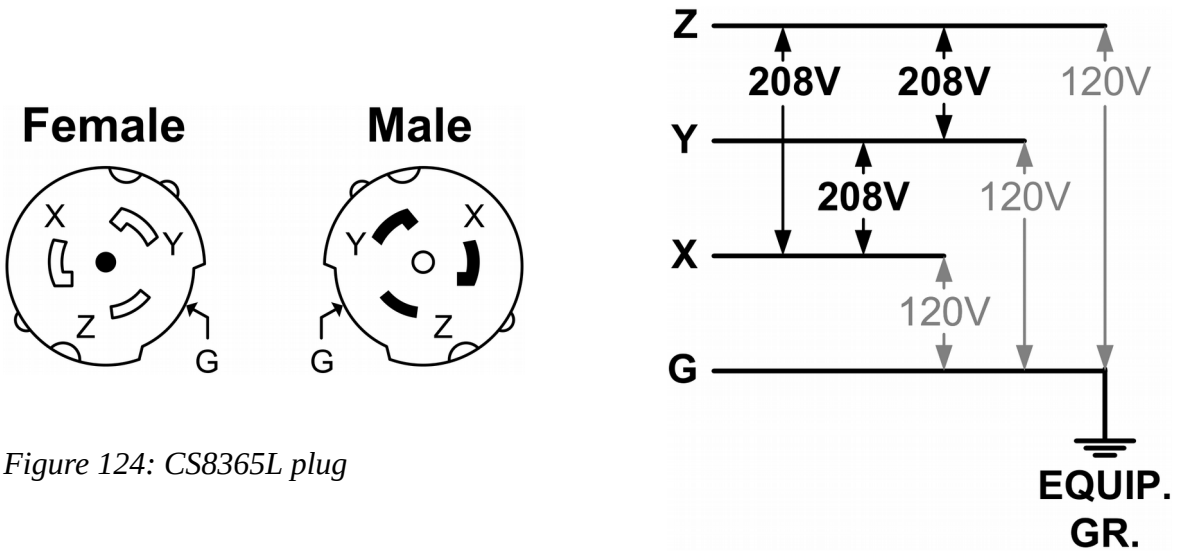


Figure 124: CS8365L plug

46M4167 – 1U 9 C19 / 3 C13 Switched and Monitored PDU

There is an attached line cord for the 46M4167 PDU; 3ph 30A@200-240V, listed below.

3ph 30A@200V-240V

Attached 3.0 meter line cord with NEMA L21-30P Plug,
30A (13.85A / Phase derated) @ 200V-240V Three Phase Delta,
41.55A Total derated Circuit Capacity.

Used with:
46M4167 – 1U 9 C19 / 3 C13 Switched and Monitored PDU

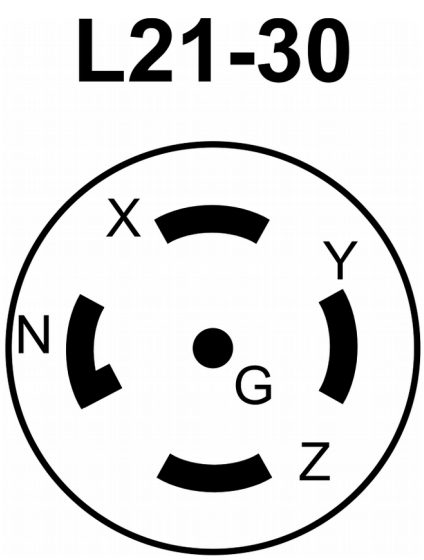
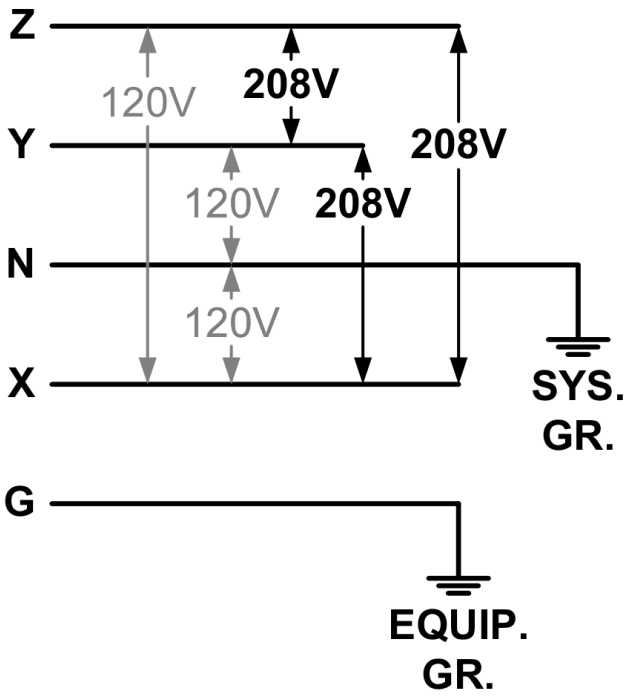


Figure 125: NEMA L21-30P plug



Environmental Monitoring Probe for Monitored PDUs

Figure 126 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.

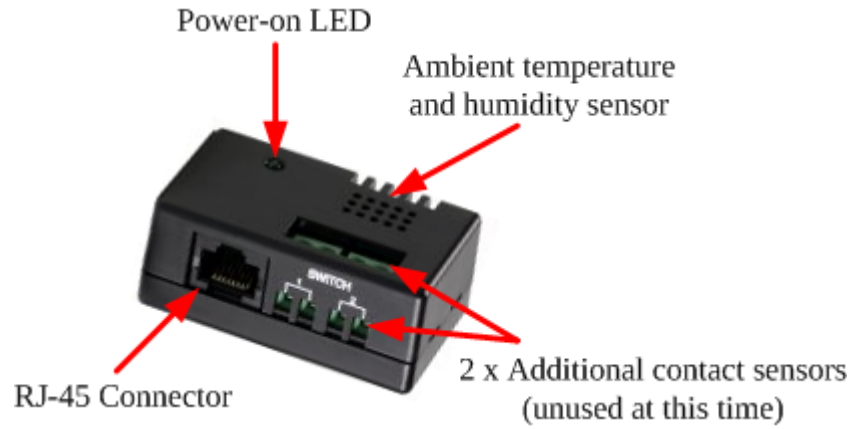


Figure 126: The EMP

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 the PDUs management web interface. The following image shows an example of the EMP connected to a monitored PDU communication port via a CAT5 cable.

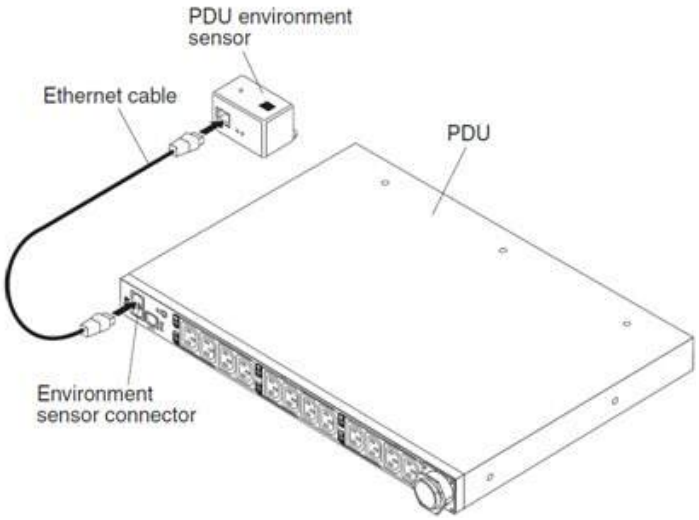


Figure 127: EMP connection example to PDU

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 P/N	FC	Description	EMP Ships Standard (Yes/No)
39M2816	6032/33	DPI Enterprise PDU+ C13	Yes
44X3193	A3TF	DPI Enterprise PDU+ C13	Yes
46M4004	5894	1U 12 C13 Switched and Monitored PDU	Yes
46M4005	5895	1U 12 C13 Switched and Monitored PDU	Yes
46M4002	5896	1U 9 C19 / 3 C13 Switched and Monitored PDU	Yes
46M4003	5897	1U 9 C19 / 3 C13 Switched and Monitored PDU	Yes
46M4116	5929	0U 24 C13 Switched and Monitored PDU	No (optional)
46M4134	5931	0U 12 C13 / 12 C19 Switched and Monitored PDU	No (optional)
46M4167	5928	1U 9 C19 / 3 C13 Switched and Monitored PDU	No (optional)

The optional EMP can be ordered for PDUs 46M4116, 46M4134, and 46M4167 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 128: 1U EMP connector *0U EMP connector*

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, and 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 Lenovo 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 (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						
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	1100W	1	1	12	6.7A	-

(7164)							
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 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 110V – 7.71A 115V – 7.35A 120V – 7.00A 127V – 6.63A 200V – 4.19A 208V – 3.98A 220V – 3.81A 230V – 3.61A 240V – 3.46A
2U Flex Chassis (7831, 6385)	1 Planar with I/O Tray	900W High Efficiency	1	1	100V – 5.90A 110V – 5.28A 115V – 5.01A 120V – 4.83A 127V – 4.61A 200V – 2.93A 208V – 2.83A 220V – 2.68A 230V – 2.57A 240V – 2.47A
2U Flex Chassis (7381, 6385)	1 Planar with Storage Tray	900W High Efficiency	1	1	100V – 5.54A 110V – 4.89 A 115V – 4.67A 120V – 4.44A 127V – 4.20A 200V – 2.67A 208V – 2.56A 220V – 2.43A 230V – 2.33A 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 110V – 6.90A 115V – 6.52A 120V – 6.28A 127V – 5.90A 200V – 3.73A 208V – 3.59A 220V – 3.37A 230V – 3.24A 240V – 3.13A
2U Flex Chassis (7831, 6385)	2 Planars	Dual 750W Power Supply	2	2	200V – 3.90A 208V – 3.80A 220V – 3.53A 230V – 3.38A 240V – 3.22A
2U Flex Chassis (7831, 6385)	1 Planar with I/O Tray	Dual 750W Power Supply	2	2	200V – 2.37A 208V – 2.27A 220V – 2.15A 230V – 2.05A 240V – 1.97A
2U Flex Chassis (7381, 6385)	1 Planar with Storage Tray	Dual 750W Power Supply	2	2	200V – 2.43A 208V – 2.32A 220V – 2.19A 230V – 2.11A 240V – 1.99A
3U Storage Chassis (7834, 6386)		Dual 750W Power Supply	2	2	200V – 2.89A 208V – 2.76A 220V – 2.61A 230V – 2.51A 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.

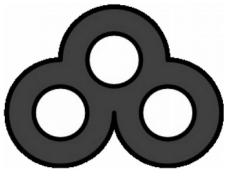
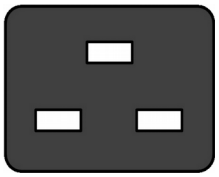
Server	Power Supply Wattage	Power Supplies		Server Ratings			Redundant @ 100-127V
		Standard	Max	100-127V	200-208V	220-240V	
x100	310W	1	1	4.5A	2.25A		-
x206	400W	1	1	5.5A	2.75A		-
x206	430W	1	2	5.5A	2.75A		Yes
x226	530W	1	1	7A	3.5A		-
x226	514W	1	2	7A	3.5A		Yes
x236	670W	1	2	8.93A	4.465A		Yes
x255	370W	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 Uninterpretable Power Supplies (UPSs).

Name	Amp Rating (A)	Connector	Usage
C5 – Female C6 – Male	2.5A		Laptop Power Supplies And Other Portable Power Supplies
C7 – Female C8 – Male	2.5A		Laptop Power Supplies And Other Portable Power Supplies
C13 – Female C14 – Male	10A		Desktop Computers, Monitors, Switches, And Servers
C15 – Female 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 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

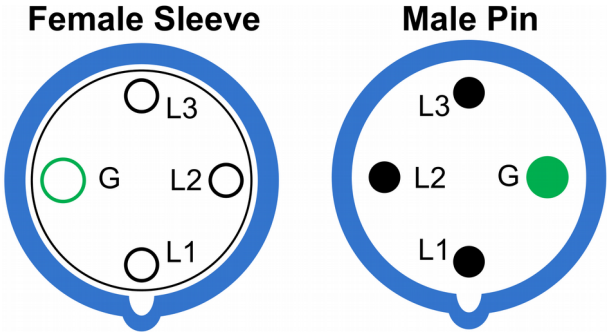
IEC 309 Pin Decode

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**.

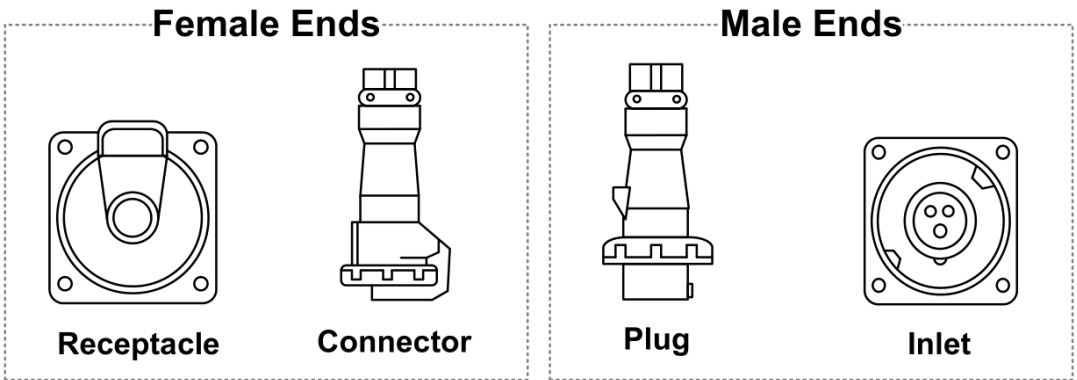
4	60	R	9	W
Pin Configuration	**Amperage**	**Device Type**	**Polarization**	**Environmental Rating**
3 - 2 Pole + G 4 - 3 Pole + G 5 – 3 Pole + N + G	20 30 32 60 63 100	P - Plug C - Connector R - Receptacle B - Inlet	Clock Position Of Female Sleeve	W-WATERTIGHT (SCREW CAP & LOCKING RING)

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 1 ≥ 50mm Diameter 2 ≥ 12.5mm Diameter 3 ≥ 2.5mm Diameter 4 ≥ 1.0mm Diameter 5 – Dust-Protected 6 – Dust-Tight	0 – No Protection 1 – Vertically Dripping 2 – Dripping At 15° Of Tilt 3 – Spraying Up To 60° Of Tilt 4 – Splashing 5 – Jetting 6 – Power Jetting 7 – Temporary Immersion 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

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

$$I_L = 60A$$

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

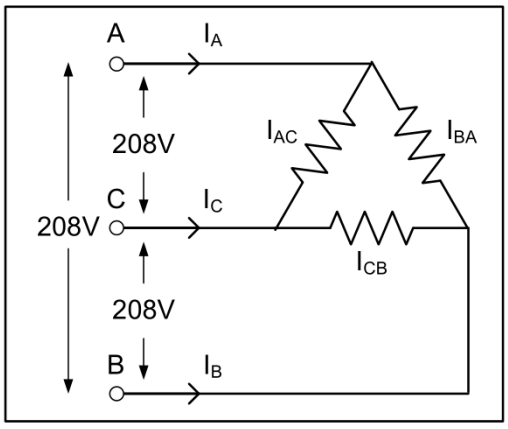
$$= \sqrt{3} \times 208 \times 60 \times 1$$

$$= 21616W$$

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

$$= 21616W \times 0.8$$

$$= 17293W$$



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

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

Variables Defined

I_Φ = 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

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

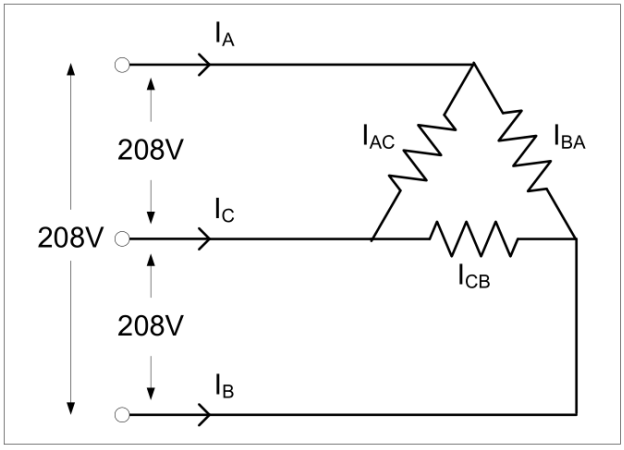
$= \sqrt{3} \times 208 \times 50 \times 1$

= 18013W

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

= 18013W x 0.8

= 14410W



Variables Defined

I_Φ = 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

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

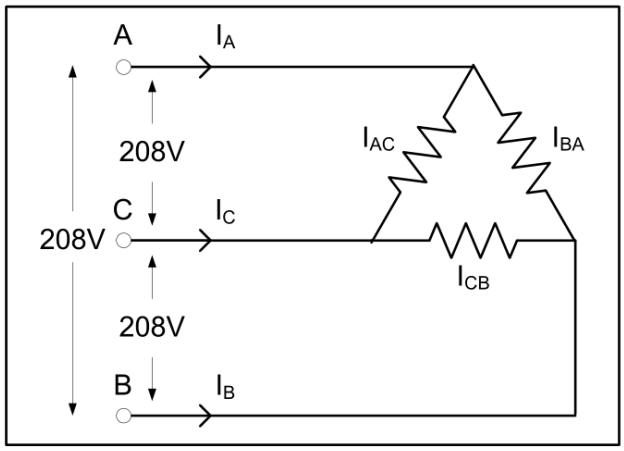
$= \sqrt{3} \times 208 \times 30 \times 1$

= 10808W

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

= 10808W x 0.8

= 8646W



Variables Defined

I_Φ = 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

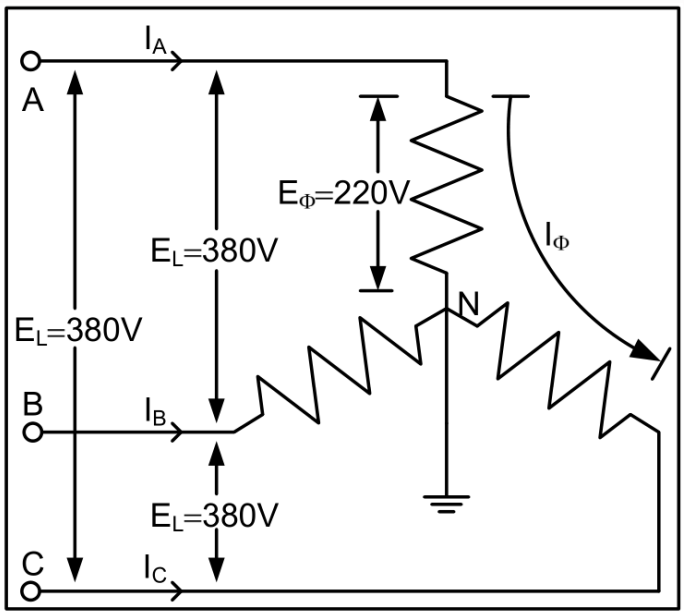
$I_A = I_B = I_C = I_L = I_\Phi = 32A$

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

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

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

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



16A Three Phase Delta Power Calculations

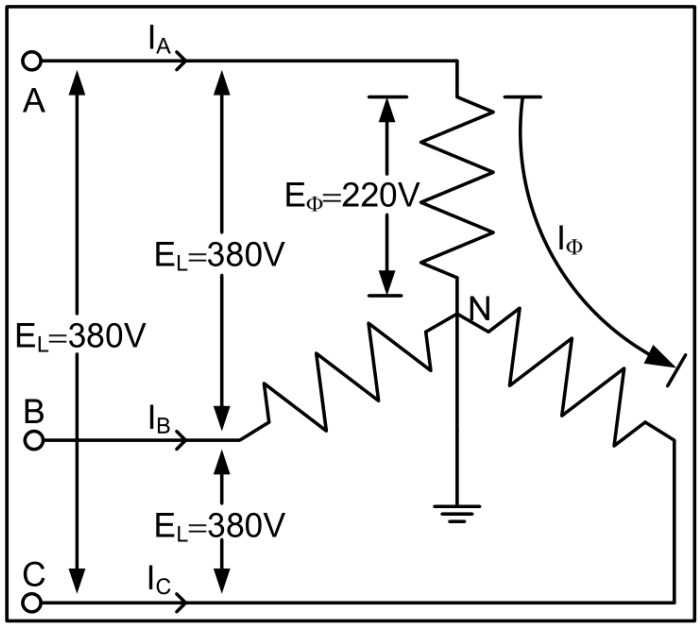
$I_A = I_B = I_C = I_L = I_\Phi = 16A$

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

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

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

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



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