



## Instruction Manual

Rack PDU  
BR, SP, SVR, VRT, NSV, and  
VSS Series

[geistglobal.com](http://geistglobal.com)





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# Introduction

## Welcome

### Notice to Users

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### Trademarks

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### Use and Disclosure Restrictions

The software and documentation contained in this publication are copyrighted materials.

### Recovery Act Buy American

Geist products adhere to the Buy American provisions of the American Recovery and Reinvestment Act of 2009 (Recovery Act). All Geist goods manufactured in our Lincoln, Nebraska, plant have undergone substantial transformation during production.

### Trade Agreements Act (TAA)

Geist goods manufactured in our Lincoln, Nebraska, plant have undergone substantial transformation during production. These Geist products adhere to U.S. Trade Agreements Act and can be supplied for GSA Schedules and other government contracts.

### Geist Policy on Conflict Minerals

This document details Geist's corporate policy regarding the use of conflict minerals. The policy expressed in this document should be considered to cover the Geist and Geist Europe divisions of Vertiv Inc.

Section 1502 of the Dodd-Frank Act which was passed by the US Congress in 2010 requires certain companies to annually disclose their use of conflict minerals. Conflict minerals covered under this act include tantalum, tin, tungsten, and gold.

Although Geist is not directly subjected to the requirements of the Dodd-Frank Act, Geist recognizes that all companies within the electronics manufacturing industry supply chain are impacted by this legislation. Geist supports the intent of the law, which is the reduction of violence within the Democratic Republic of the Congo and will take several actions to both advance the goals of the Dodd-Frank Act and to provide exceptional support to our customers.

- Geist will work with our direct suppliers to identify purchased components and materials that contain tin, tantalum, tungsten or gold.
- Geist will work with our direct suppliers to trace sources of any tin, tantalum, tungsten or gold used in our products back to the smelter.
- Geist will document our efforts to trace tin, tantalum, tungsten, and gold minerals back to the smelter and will accurately report the results to our customers.
- Geist will continue to monitor industry progress in identifying conflict-free smelters and will adjust corporate policy as the electronics supply chain becomes more fully documented.

Geist will not require that our direct suppliers source only conflict-free minerals until an adequate number of smelters has been reliably identified and audited by The Electronic Industry Citizenship Coalition (EICC) and the Global e-Sustainability Initiative (GeSI) to service the electronic industry supply chain. Mandating a conflict-free supply chain before an adequate number of smelters has been identified will prohibit the use of all tin, tantalum, tungsten, and gold originating in the Democratic Republic of the Congo and surrounding countries. This prohibition would cut off the sole income source for many artisanal miners within the region and may result in increased violence within the Democratic Republic of the Congo in direct opposition to the goals of the Dodd-Frank Act. Geist will work continuously with our direct suppliers in order to annually increase the percentage of documented conflict-free minerals that are used in our products until all products can be certified as conflict-free.

## WEEE Declaration

Geist Europe is obligated to finance the cost of the collection, treatment, recovery and environmentally sound disposal of all products sold by Geist Europe into the UK market this includes:

- New WEEE (displaying 'the crossed out wheeled bin symbol') that Geist Europe has placed onto the market after the 13th August 2005; and
- Historic WEEE (not displaying 'the crossed out wheeled bin symbol'), when Geist Europe is supplying new WEEE that is intended to replace the historic WEEE and is of equivalent type or fulfills the same function even if the historic WEEE was manufactured by a third party.

Please contact Geist Europe on 01823 275100 for further details or to arrange collection. (UK Only)

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## About this Manual

This document provides an overview of Geist product(s), the major topics covered include:

- Copyright, Trademarks, and Disclosure Restrictions.
- Instructions for installing, powering and using the equipment.
- Information that will aid in managing and maintaining the equipment.

## Revision History

Revision	Date	Notes	Approved By
1.0	3/2/2017	Original Published Version	JLP
2.0	6/27/2017	Changed logo, email, and website	QTN
3.0	6/30/2017	Updated Information and Format	JB
3.1	5/15/2018	Updated Receptacle table, Vertiv info.	JB

## Organization of the Manual

This Geist document contains the following product information:

- Product Specifications - This chapter describes the major product characteristics and its functional role within the system. Where appropriate, reference to cabling among product components and to other Geist product(s) is provided.
- Installation - This chapter provides installation information for the preparation and use of Geist products as well as procedures required to adequately mechanically and electrically attach Geist product into supporting systems.
- Optional Surge Suppression - This chapter provides information on the surge suppression circuits in specified models.
- Optional Local Metering - This chapter provides information on Local Metering options for specific models.

## Audience Profile

This document is intended for use by authorized technicians experienced with some of similar product types and for personnel requiring guidance for equipment installation, operation, maintenance, and support.

## On-line Documentation

This document is available on-line and within the corresponding [Geist Product Manuals](#). Additional Geist product supporting [Videos](#), [Product Literature](#) and [Case Studies](#) can be found on the [Geist Resource](#) page.



Product firmware updates can be found and downloaded from the [Geist Support](#) site, under [Firmware Updates](#).

Should this product fail within its warranty period and be in need of repair or replacement, a Return Material Authorization may be obtained on-line from the [RMA Form](#) link located within the [Geist Support](#) site.

## Reporting Document Errors

Should you discover any error or identify a deficiency in this document, please take time to contact us at the following email address:

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Please be sure to provide us with the document name, part number, and page number(s). Also, please provide us with description of the error or the deficiency for the document. If you would like for us to contact you, please provide us with your name and contact information.

Thank you for your time. We appreciate any comments and feedback you can provide.

## Conventions

The information contained within this document is established around the framework of various conventions, which are defined as follows:

### Software

- Release Management: Product name, Version control ; (GU V 3.0.0)
  - Product Name: Name of Hardware Platform
  - Version control: V(ersion) Platform #, Major #, Minor #

### Hardware

Product Classification

- Power Distribution Unit
  - Basic
  - Monitored only
  - Switched only
  - Monitored + Switched
- Environmental Monitoring
- Cooling
- Data Center Infrastructure Management (DCIM)

Figure 1 Overlay Symbology Guide

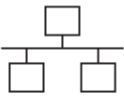

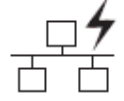

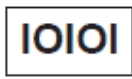













	Ethernet		Activity / Idle
	Power over Ethernet		Power
	Serial		Amps
	Remote Display		Reboot
	Remote Sensors		Silence
	Uplink		Scroll
	Temp		GU Right
	Sensor Configuration		GU Left
		GU Center	


Figure 1 The chart above depicts the symbols used on Geist overlays.


## Safety


This document contains varying levels of alerts pertaining to product and user safety. The alerts are visually presented with graphics and text per Geist equipment guidelines.

The representations are:

	<h3>DANGER</h3> <p>INDICATES AN <b>IMMINENT</b> HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN <b>DEATH OR SERIOUS INJURY</b>.</p>
---	--

	<h3>WARNING</h3> <p>INDICATES A <b>POTENTIAL</b> HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN <b>DEATH OR SERIOUS INJURY</b>.</p>
---	---

	<h3>CAUTION</h3> <p>INDICATES A <b>POTENTIAL</b> HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN <b>PRODUCT DAMAGE AND MINOR TO MODERATE INJURY</b>.</p>
---	---

	<h3>NOTE</h3> <p>Provides useful information that is beneficial for operation and usage of this product.</p>
---	--

## Figures

Figures presented in this document are identified and designated as follows:

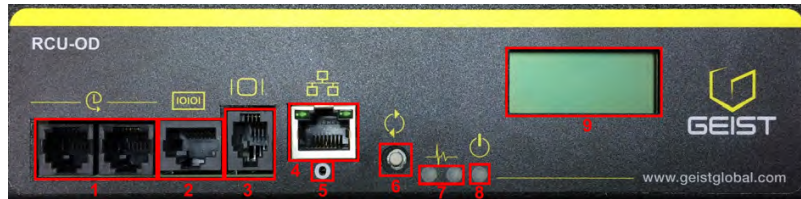
'Figure:', Chapter # - Image #

Example:

---

Figure 1-1      Name and/or Title goes here

---



## Tables

Tables presented in this document are identified and designated as follows:

'Table:', Chapter # - Image #

Example:

---

Table 1-1      Name and/or Title goes here

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Column 1	Column 2	Column 3	Column 4	Column 5
Text	Text	Text	Text	Text
Text	Text	Text	Text	Text
Text	Text	Text	Text	Text
Text	Text	Text	Text	Text

# Chapter 1 - Product Specifications

## Overview

The BR, SP, SVR, VRT, NSV, and VSS Series products are Power Distribution Units (PDU) intended for connection to a 15 or 20 Amp AC Mains circuit. The PDUs may include optional single pole thermal breakers for supplementary over-current protection of the output receptacles. The VRT, SVR, NSV, and VSS Series are available in vertical configurations rated 125 V, while the BR and SP Series are available in horizontal configurations rated 125 V. All PDU Series covered by this instruction sheet can optionally be configured with a Geist Power Meter that provides local monitoring and display of Current, Voltage, Wattage, and Power Factor.

## Environmental

### Temperature

Table 1-1 Temperature Limits

	Minimum	Maximum
Operating	10°C (50°F)	45°C (113°F)
Storage	-25°C (13°F)	65°C (149°F)

### Humidity

Table 1-2 Humidity Limits

	Minimum	Maximum
Operating	5%	95% (non-condensing)
Storage	5%	95% (non-condensing)

### Elevation

Table 1-3 Elevation Limits

	Minimum	Maximum
Operating	0 m (0 ft)	3,050 m (10,000 ft)
Storage	0 m (0 ft)	15,240 m (50,000 ft)

## Electrical

Electrical product characteristics and performance are defined below. Also, please see the product nameplate for additional rating limits.

## Receptacle Ratings

Table 1-4 Receptacle Ratings

Type	Ratings
NEMA 5-15R or L5-15R	125Vac, 12A
NEMA 5-20R or L5-20R	125Vac, 16A

## Regulatory Compliance

Geist products are regulated for Safety, Emissions, and Environment Impact per the below agencies and policies.

### Underwriters Laboratories (UL)

UL Standards are used to assess products; test components, materials, systems and performance; and evaluate environmentally sustainable products, renewable energies, food and water products, recycling systems and other innovative technologies.

The UL standards specific to this equipment are as noted on the device nameplate.

### Federal Communications Commission (FCC)

The Federal Communications Commission (FCC) regulates interstate and international communications by radio, television, wire, satellite, and cable in all 50 states, the District of Columbia and U.S. territories. An independent U.S. government agency overseen by Congress, the commission is the United States' primary authority for communications laws, regulation and technological innovation.

The FCC standards specific to this equipment are:

This Class A device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.



## WARNING

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

## Chapter 2 - Installation

### Pre-Installation

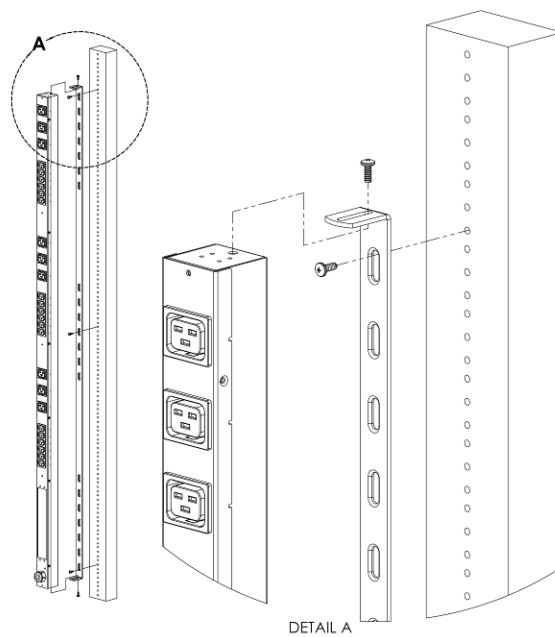
- Install the PDU such that the amount of airflow required for safe operation of equipment is not compromised.
- Mount the PDU so that a hazardous condition is not achieved due to uneven mechanical loading.
- Follow nameplate ratings when connecting equipment to the branch circuit. Take into consideration the effect that overloading of the circuits might have on overcurrent protection and supplied wiring.
- The PDU relies on the building installation for protection from overcurrent. A certified overcurrent protection device is required in the building installation. The overcurrent protection device should be sized according to the PDU's nameplate ratings and local/national electrical code.
- Reliable earthing of rack-mount equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit. The PDU must be connected to an earthed socket outlet.
- PDU is intended for restricted-access locations. Only qualified service personnel should install and access the PDU.
- For pluggable equipment, install the PDU so the input plug or appliance coupler may be disconnected for service.
- The PDU is intended for indoor use only. Do not install the unit in wet or outdoor environments, and do not install it next to water tanks or plumbing.
- The PDU is intended for use with TN, TT, or IT power supply systems.

## Installation

1. Using appropriate hardware, mount unit to rack. See next section for examples.
2. Plug PDU into an appropriately-rated and protected branch-circuit receptacle.
3. Plug in the devices to be powered by the PDU.
4. Turn on each device connected to the PDU. Sequential power-up is recommended to avoid high inrush current.

## Mounting

Figure 2-1 Full Length Bracket

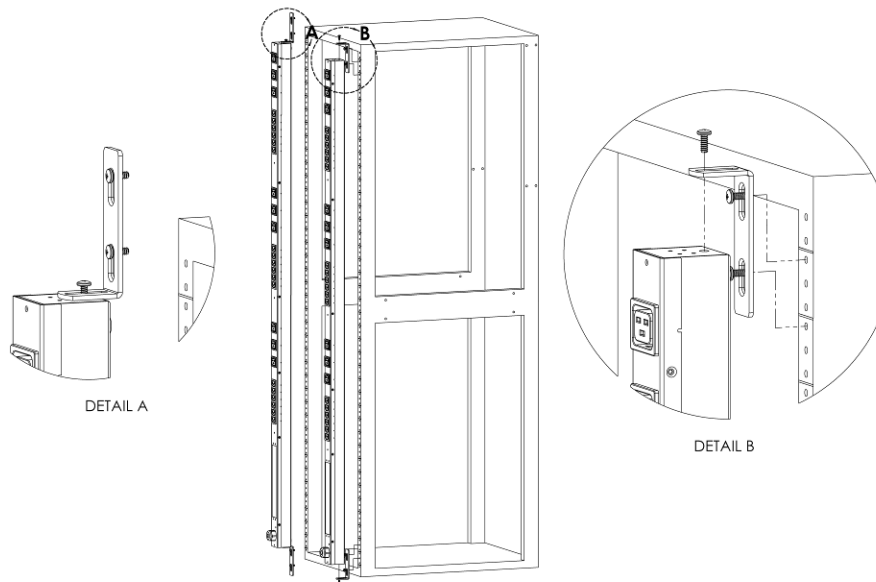


### Full Length Bracket

Using the full length bracket, mount PDU to rack as shown.

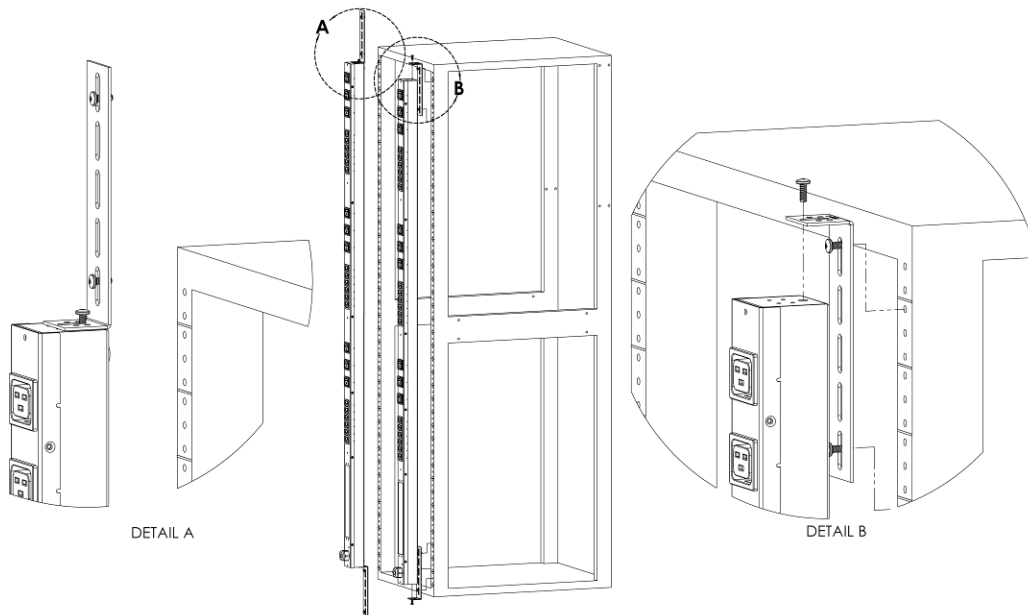


Figure 2-2 Mini L Brackets

**Mini "L" Brackets (SLB-4)**

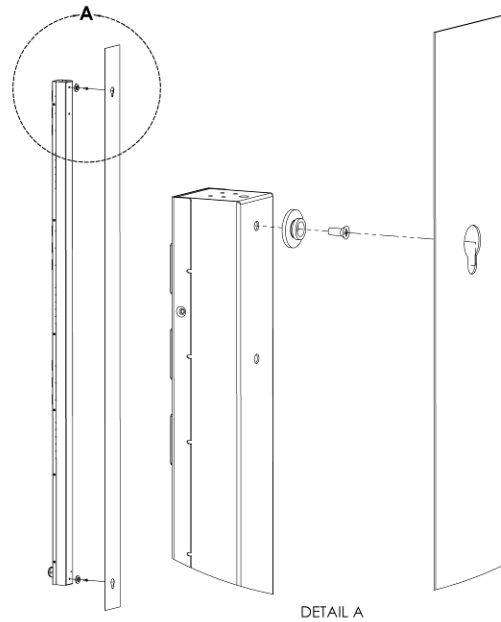
Using the mini "L" brackets, attach PDU to rack as shown.

Figure 2-3 Vertical Extension Brackets

**Vertical Extension Brackets (VCB-1)**

Using the vertical extension brackets, attach PDU to rack as shown.

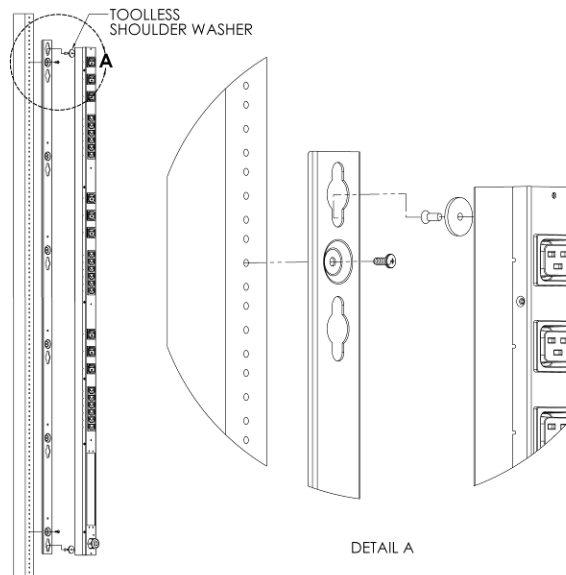
Figure 2-4 Toolless Mounting Hardware



### Toolless Mounting Hardware (11621)

Secure toolless mounting buttons to PDU as shown. Use toolless buttons with key-holed slots built into cabinet or with optional Geist key-holed brackets.

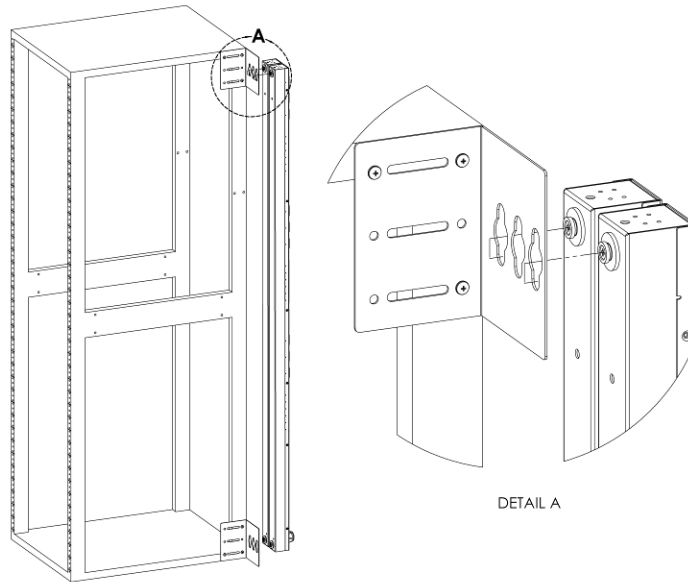
Figure 2-5 Toolless Full Length Brackets



### Toolless Full Length Bracket (TLFL)

Using full length toolless bracket and toolless mounting buttons, attach PDU to rack as shown.

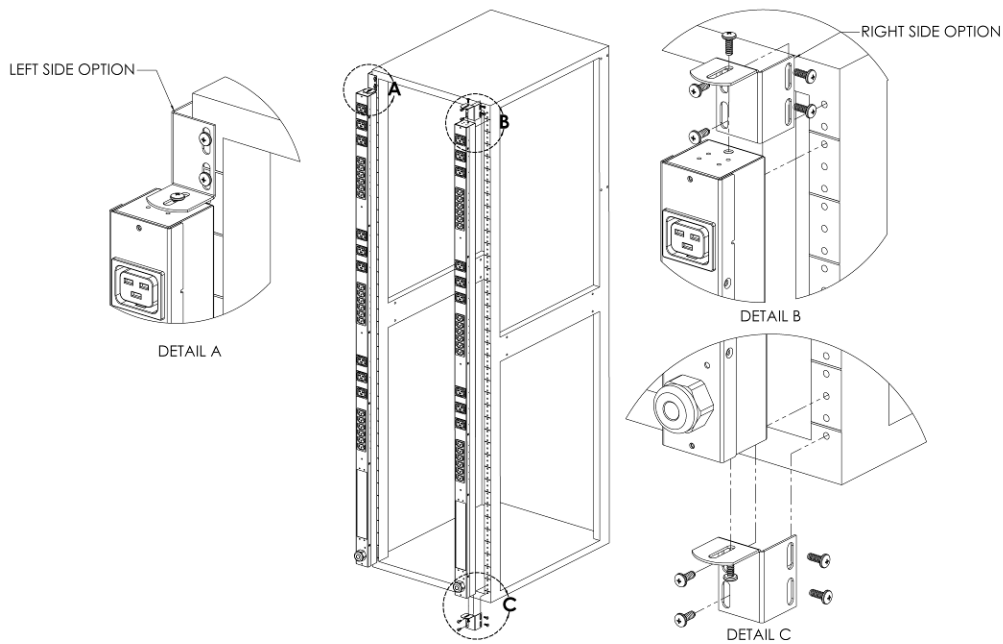
Figure 2-6 Single Side Mount 2 Units Brackets



### Single Side Mount Two Unit Brackets (TSMX2)

Using single side mount two unit brackets and toolless mounting buttons, attach PDU to rack as shown.

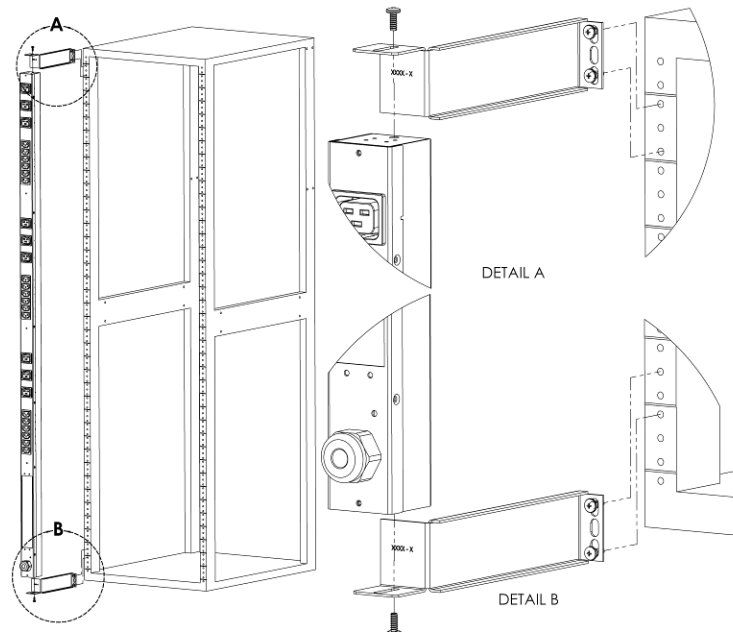
Figure 2-7 Offset/Side Mount Brackets



### Offset/Side Mount Brackets (EZB-1)

Using the offset/side mount brackets, attach PDU to rack as shown.

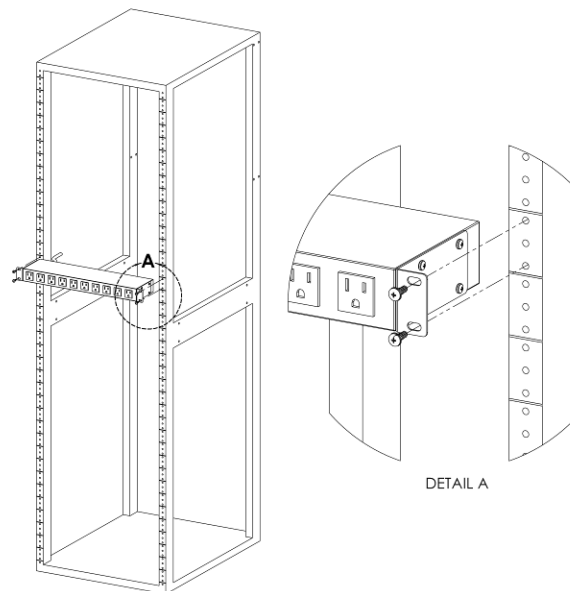
Figure 2-8 7" Extension Brackets



### 7" Extension Brackets (XB-7)

Using the 7" extension brackets, attach PDU to rack as shown.

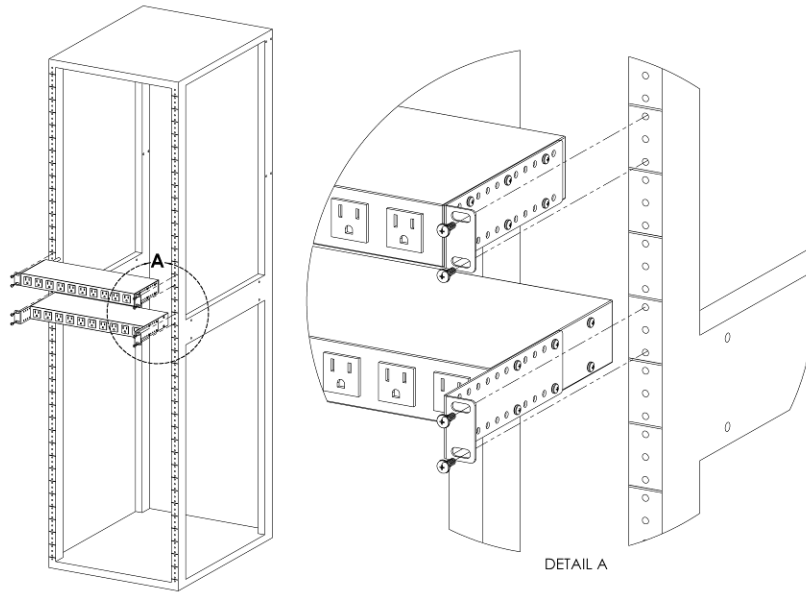
Figure 2-9 Flush Mount Brackets



### Flush Mount Brackets (FM)

Using flush mount brackets, attach PDU to rack as shown.

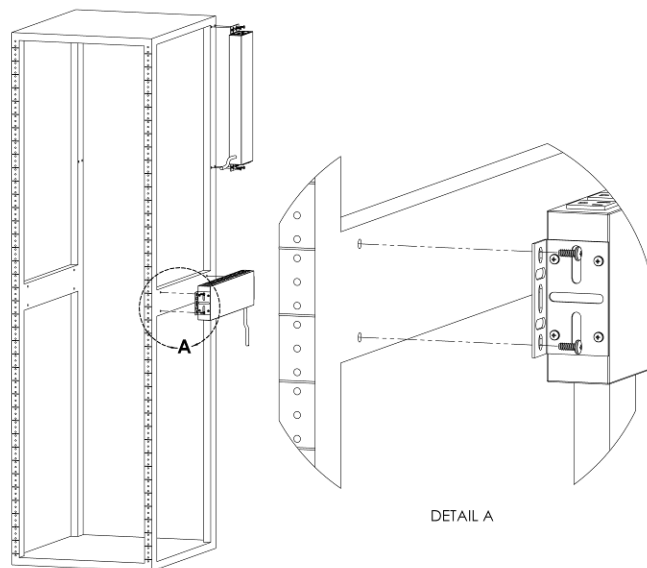
Figure 2-10 Adjustable Mount Brackets



### Adjustable Mount Brackets (AM)

Using adjustable mount brackets, attach PDU to rack as shown.

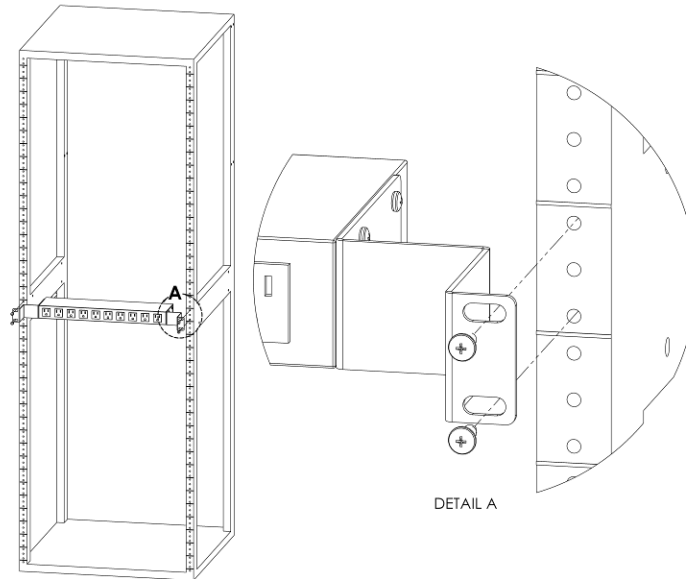
Figure 2-11 Panel Mount Brackets



### Panel Mount Brackets (PM)

Using panel mount brackets, attach PDU to rack as shown.

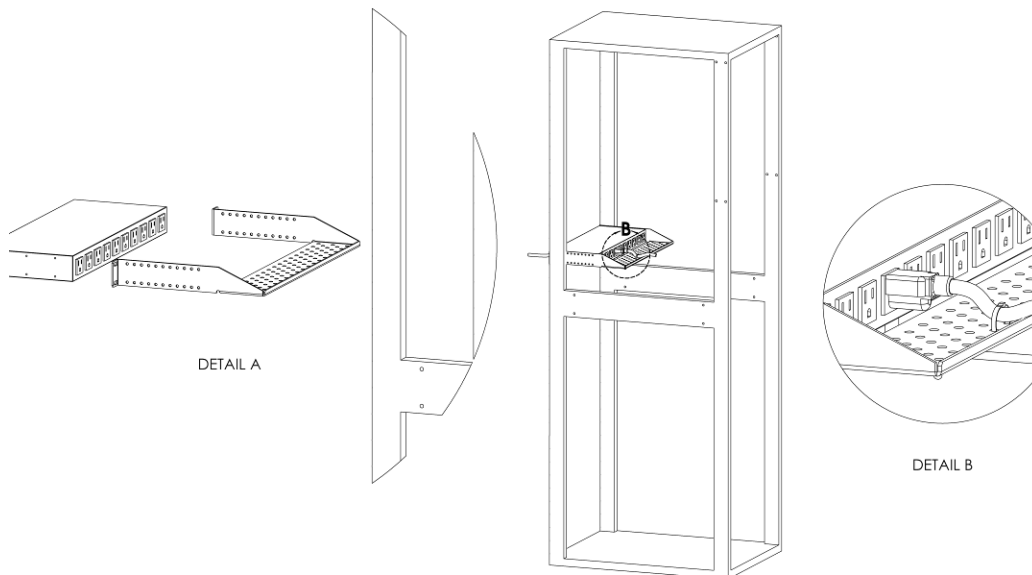
Figure 2-12 23" Conversion Mounting Brackets



### 23" Conversion Mounting Brackets (23-RM)

Using conversion mounting brackets, attach 19" PDU to 23" rack as shown.

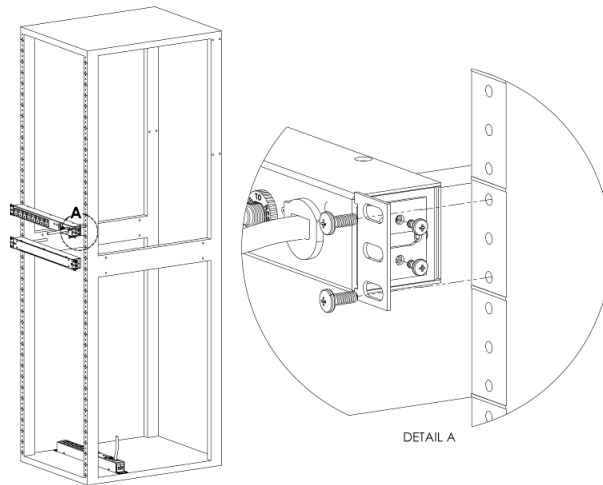
Figure 2-13 Cable Mount Brackets



### Cable Mount Bracket (CMB-1)

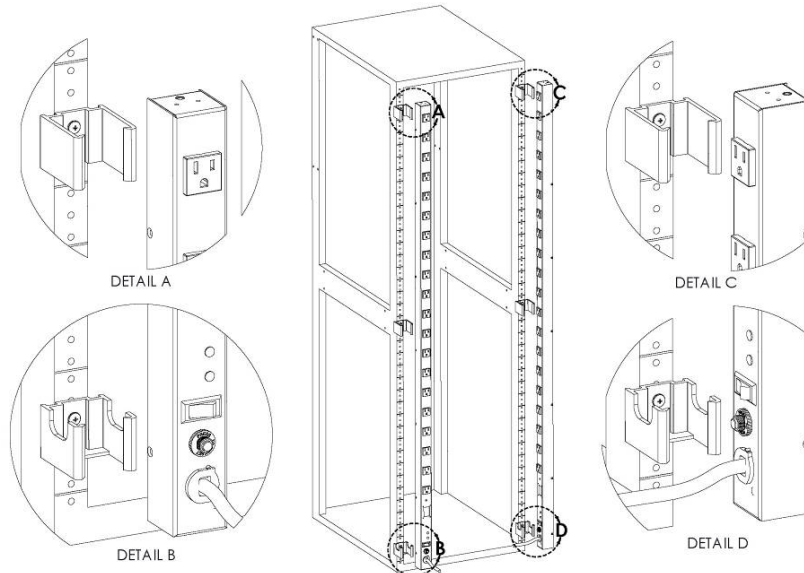
Attach cable mount bracket to PDU as shown; use tie-wraps to secure cords to bracket.

Figure 2-14 19" Horizontal/Panel Mount Brackets

**19" Horizontal/Panel Mount Brackets (7938)**

Using the 19" horizontal/panel mount brackets, attach PDU to rack as shown.

Figure 2-15 Top and Bottom Mounting Clips

**Top and Bottom Mounting Clips (9083C & 9084C)**

Using the top and bottom mounting clips, attach the PDU to the rack as shown. Please note that mounting clips are only intended for use with NSV and VSS Series PDUs.

## Chapter 3 - Optional Surge Suppression

Figure 3-1 Surge Suppression LEDs



The SP, SVR, and VSS Series PDUs include a surge suppression circuit that is designed to prevent voltage surges on the input power line from reaching devices powered by the PDU. The surge suppression circuit uses Metal Oxide Varistors (MOVs) connected between Line, Neutral, and Ground wires to prevent voltage surges from damaging connected devices.

### Surge Protection Circuit Ratings

Protection Modes	Line-Line, Line-Neutral, Neutral-Ground
Maximum Clamping Voltage	340V
Energy Absorption	720 Joules
Green Light Indicator	Power On
Red Light Indicator	Surge Protection Active



## Chapter 4 - Optional Local Metering

### Power Meter

The Geist PM-1 power meter is a low-power, high accuracy meter capable of measuring true RMS Current, Voltage, Power, and Power Factor. These values are individually shown on an easy to read, 4-digit LED Display, which continuously scrolls through the four different measured values. Each one of these displayed parameters is defined below. The Power Meter will automatically begin cycling through the displayed values when the PDU is connected to AC Mains power.

- Current: PDU output current draw measured in true RMS Amps.
- Voltage: PDU output voltage measured in true RMS Voltage.
- Power: PDU output power measured in Watts – referred to as real or active power.
- Power Factor: Ratio of real PDU output power to apparent PDU output power.

Figure 4-1 Power Meter



Power Meter Display

### Current Meter

The Geist CM-1 current meter is a low-power, high accuracy meter capable of measuring true RMS Current. The value of current is continuously shown on an easy to read, 4-digit LED Display. The Current Meter will automatically begin to display value of output current when the PDU is connected to AC Mains power.

Figure 4-2 Current Meter



Current Meter Display

## Service/Tech Support

### Service and Maintenance

No service or maintenance is required. Do not attempt to open the PDU or you may void the warranty. No serviceable parts inside. It is recommended that power be removed from the unit before installing or removing any equipment.

### More Technical Support

<http://www.geistglobal.com>

Email: [support@geistglobal.com](mailto:support@geistglobal.com)

#### Americas

- 1 888 630 4445

#### Europe and Middle East

- From within the UK 0845 026 3853
- From abroad +44 845 026 3853

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- English +1 888 630 4445 (US number)
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