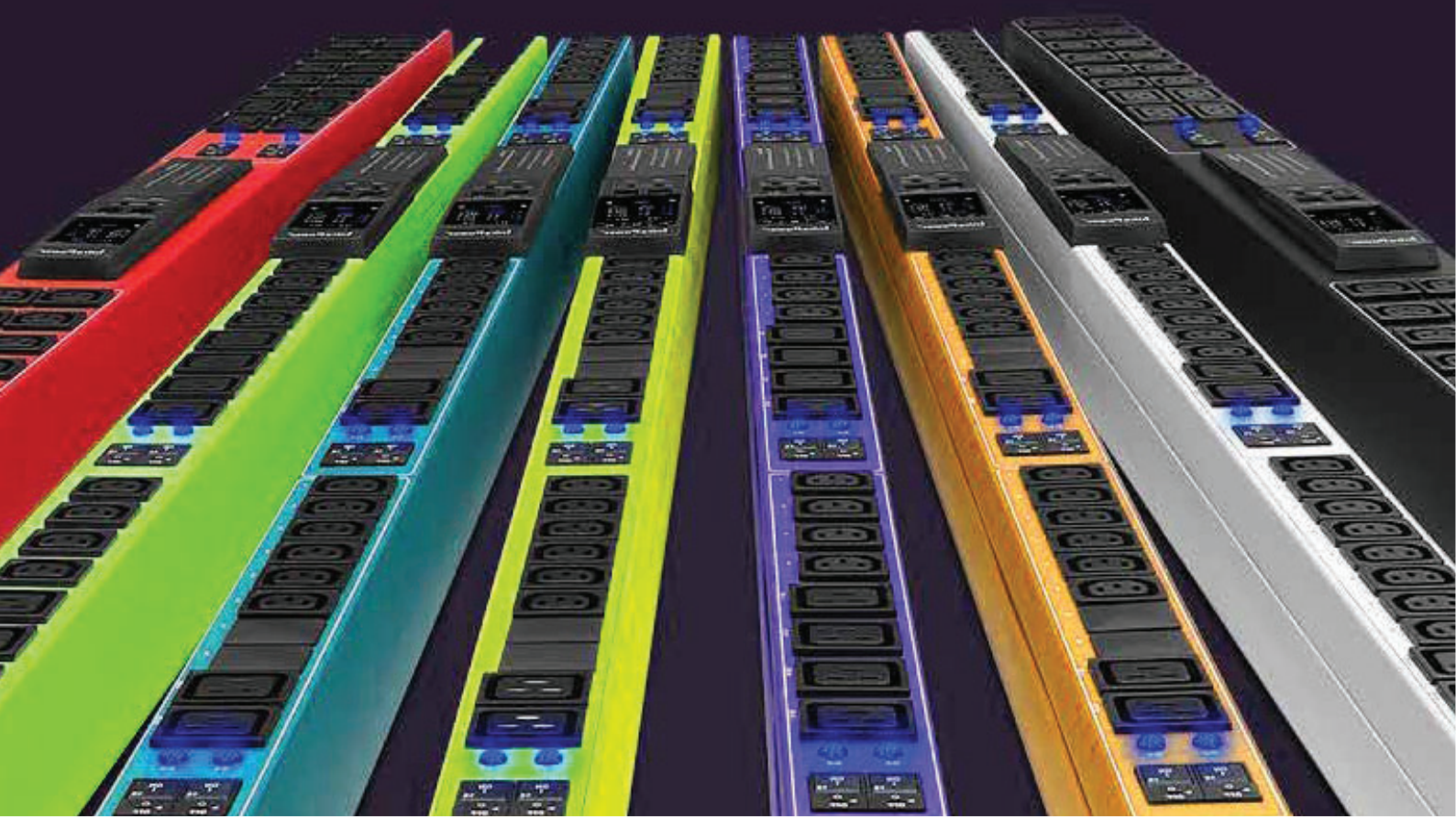# PDU

POWER DISTRIBUTION UNITS

CANOVATE **IP-PDU**

Product Overview

- Canovate IP-PDU (Internet Protocol P Power Distribution Unit) is a specialized piece of equipment designed to manage and distribute electrical power to the various devices and equipment within a data center. It is often used to improve the efficiency, reliability, and management of power distribution in a data center environment.

- Canovate IP-PDU play a critical role in maintaining the uptime and efficiency of modern data centers by providing visibility into power usage and enabling proactive management of power-related issues. They are key component of overall data center infrastructure management.

- Here are some key features and functions of a Canovate IP-PDU as follows; remote monitoring, real-time data, outlet-level control, alerts&notifications, energy efficiency, load balancing, historical data&reporting, security, environmental monitoring, integration with data center management software, remote power cycling, rack-level and device-level management, predictive maintenance.

- In summary, Canovate IP-PDU is a critical component that enhances power management and monitoring capabilities, helping organizations improve energy efficiency, reduce downtime, and maintain the reliability of their IT infrastructure.

CANOVATE IP-PDU
Product Features

Canovate IP-PDU Features	A Series	B Series	C Series	D Series
PDU LEVEL POWER MONITORING - PDU-level power measurements (V, A, VA, W, kWh, PF, Hz). - Phase-level power measurements (V, A, VA, W, kWh, PF, Hz). - Circuit level power measurements (V, A, VA, W , kWh, PF). - High-accuracy, billing-grade metering capabilities. - Event log record/view. - 4-level user-defined alarm thresholds & notifications.	■	■	■	■
OUTLET LEVEL SWITCHING - Remote On / Off power control by individual outlet. - User-defined power on/off delay of individual outlet. - Last Known State Power-on. - Individual outlet on/off time scheduling.			■	■
OUTLET LEVEL POWER METERING - Outlet-level power measurements (A, VA, PF). - Outlet-level watt-hour energy metering (kWh). - Outlet-level alarm thresholds & notifications.		■		■
ENVIRONMENTAL MONITORING - Real-time breaker ON / OFF status montioring and alarm.	■	■	■	■
CIRCUIT BREAKER STATUS MONITORING - Plug & Play environmental sensors including temp & hum, smoke, water, door contact, dry contact. - Customizable alarm thresholds and notifications.	■	■	■	■
NETWORK MANAGEMENT - Supports HTTP, HTTPS, Telnet/SSH, SSL/TLS, SNMP v1/v2c/v3, NTP, SMTPS, - Daisy Chain up to 9 slave CANOVATE IP-PDU for 1 master	■	■	■	■

CANOVATE IP-PDU

CANOVATE IP-PDU
Product Features

CE | DVE | CCC | EAC | FC | RoHS

High resolution LCD display
- 2.8" FTF color LCD with high resolution displays shows clear and rich information of PDU data and configuration.

Billing grade accuracy
- Accurate power metering capability which meets IEC and GB accuracy standard and provides reliable data to Data Center managers for billing reference.

Daisy-Chain
- This enables multiple CANOVATE IP-PDUs to share one IP address to save network resources (up to 10 x CANOVATE IP-PDUs).

Comprehensive rack environment monitoring
- 2x T/H sensor, 1x door contact sensor, 1x smoke sensor, 1x water logging sensor and 1x dry contact sensor supported as default.

Individual outlet control
- Remote outlet on/off switching function provides possibility to turn off individual outlets in extreme over-load or short- circuit condition; users can also schedule the on/off time of individual outlets for special use cases.

Enhanced cyber security
- CANOVATE IP-PDU supports multiple communication protocols in secured connection and latest version to prevent its system from cyber attack.

Compact body design
- Slim chassis and low profile magnetic circuit breaker save valuable space in the rack.

Breaker status monitoring
- CANOVATE IP-PDU provides real-time status monitor-ing and alarming of circuit breakers at bank level.

Upgradable & hot-swap controller
- The Controller can be replaced or upgraded without shutting down the power to the rack. breakers at bank level.

Cable retention
- CANOVATE IP-PDU's patented socket retention mechanism can effectively prevent downtime caused by accidental cable fallout.
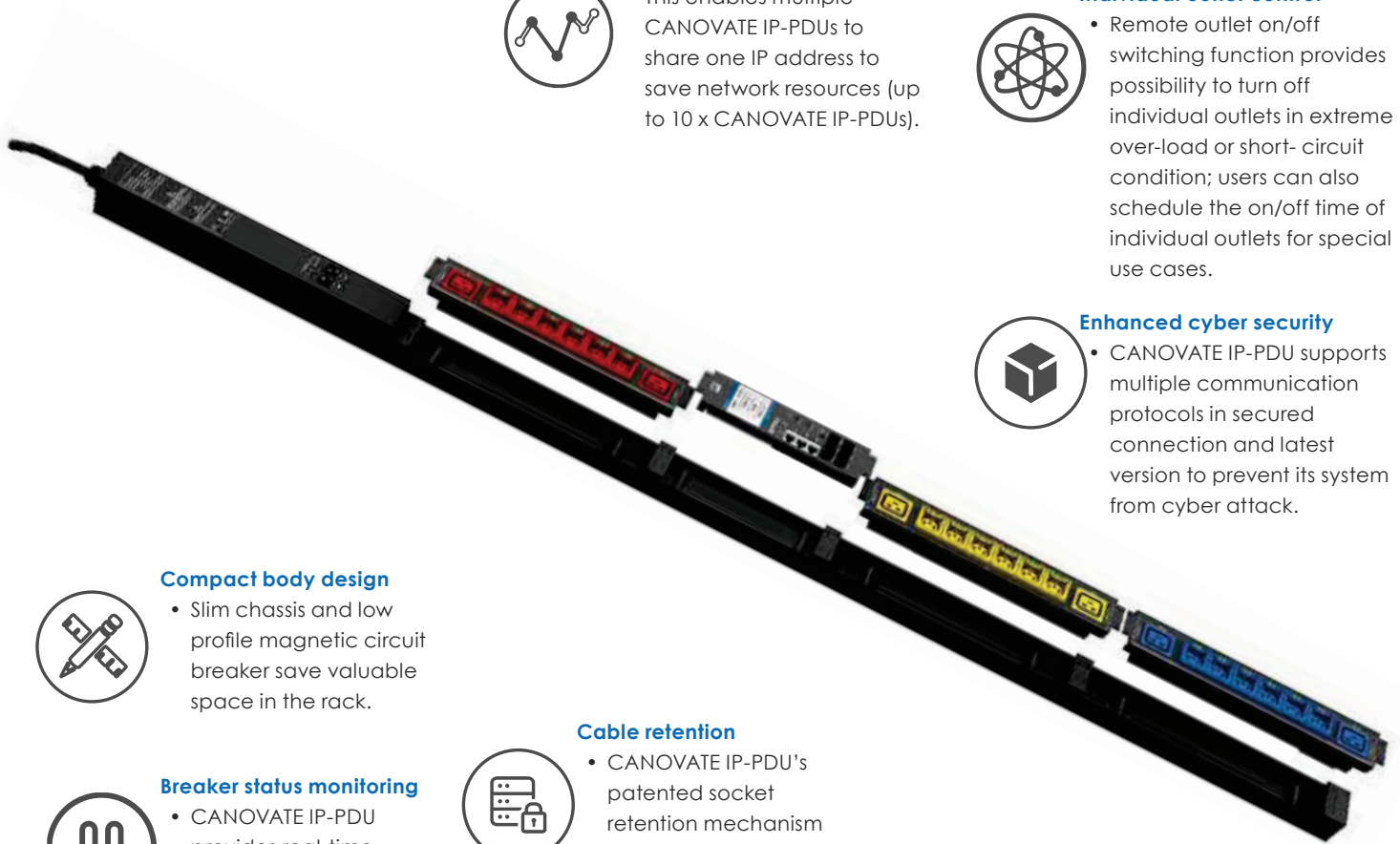
Upgradable & scalable output modules
- Output socket combinations, outlet quantities can be changed and module functionality can be upgraded live in field.
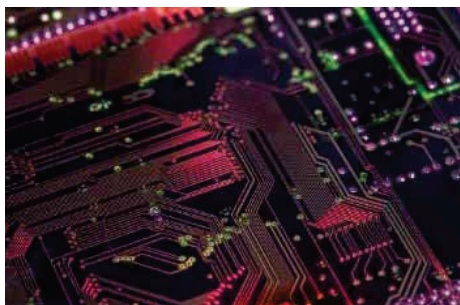
High-density power distribution
- CANOVATE IP-PDU supports up to 42 IEC outlets in an outlet monitored and switched version which is top of the industry.

HOW WILL YOU BENEFIT FROM CANOVATE IP-PDU?

Product Features

Designed for higher availability
- Hot-swappable and upgradeable PDU platform allow user to repair or upgrade the PDU in-field without power interruption thus increasing the uptime of IT devices.
- Patented locking IEC outlets to prevent accidental plug falling.

Optimized energy consumption and capacity management
- With Canovate IP-PDU, user can quickly determine where energy is being used, simplify load balancing and reveal the locations where spare power capacity is.
- Saving energy by turning off idle servers.
- Provide on-spot power status and rack environment monitoring to help cut cooling costs.

Simplified integration with management tools
- Multiple remote access method supported such as HTTP, SNMP, Modbus, Telnet/SSH in secured connection.
- Integration with Canovate Manager software to simplify implementation and change management of IT assets.

Experience the continuously evolving pdu functionality and performance
- The live upgradeable PDU controller and output socket module enables Canovate IP-PDU to maintain its functionality and performance always up-to-date.

Real-time and historical power consumption data viewing and graphing
- View logs of user access, settings, user actions and alarms for troubleshooting.
- Record / view / report power and environmental data and graph to understand the trend in a given time period.

Enhanced security
- Strong encryption and password policy, advanced authorization options including TLS, SSH, Radius etc.
- Customizable SSL or TLS certificate allows users to upload their own certificate for better safety.

Comprehensive rack environment monitoring
- Canovate IP-PDU is designed to accommodate up to 5 external sensor probes with user customizable alarms and notification.
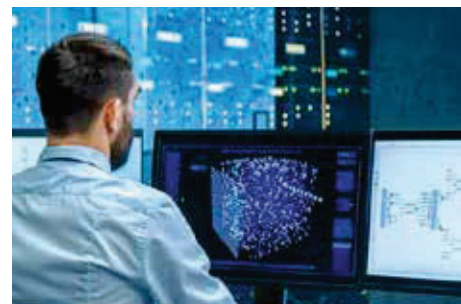- Extended Sensor box is available for more sensor probes.

SMART INTEGRATION FOR YOU

Canovate IP-PDU provides users with local display, Web interface, CanovateManager software or 3rd party DCIM to monitor and manage all PDUs.

Home	Phase L1	Sensors		
Type: ZPDU (D)	U: 228.5V I: 4.45A	T1: 29℃	H1: 60%	
	Apparent Power:	T2: 33℃	H2: 64%	
192.168.1.192	1.02KVA			
	Power Factor:	Door:	Open	
Address:1	0.68	Smoke:	Normal	
Version: 6.14.14.14	Apparent Energy:			
	37.3KWh	Water:	Normal	
2019-12-19 11:29	2019-12-19 11:29	2019-12-19 11:29		

Local LCD display
- Remove the risk of overload when deploying or moving critical IT equipment through a local crystal clear LCD display, offering better capacity management in addition to reliable distribution.

Built-in Web interface
- Monitors Canovate IP-PDU parameters via web browser with no dedicated software required. Through single IP address, users can view up to 10 Canovate IP-PDU.

IP-PDU Manager
- Enable you to manage thousands of PDUs with a combined dashboard view, management, consolidated alerts & reporting.

DCIM integration
- Integrate your Canovate IP-PDU with users' existing DCIM or BMS solution through SNMP or standard Modbus protocol.

SENSOR OPTIONS FOR YOUR CABINET ENVIRONMENT

To Real-time monitor rack environment status with Canovate plug-and-play sensors. Every Canovate IP-PDU is designed to accommodate up to 11 external sensor probes with user customizable alarms and notification.

A variety of sensors are available to meet your needs including temperature, humidity, smoke, door contact, water detection and more.

Every sensor probe is factory calibrated and designed for easy installation, setup, and identification.

Sensor status light

Smoke sensor

Temp / humi sensor

Door sensor

Water leakage sensor
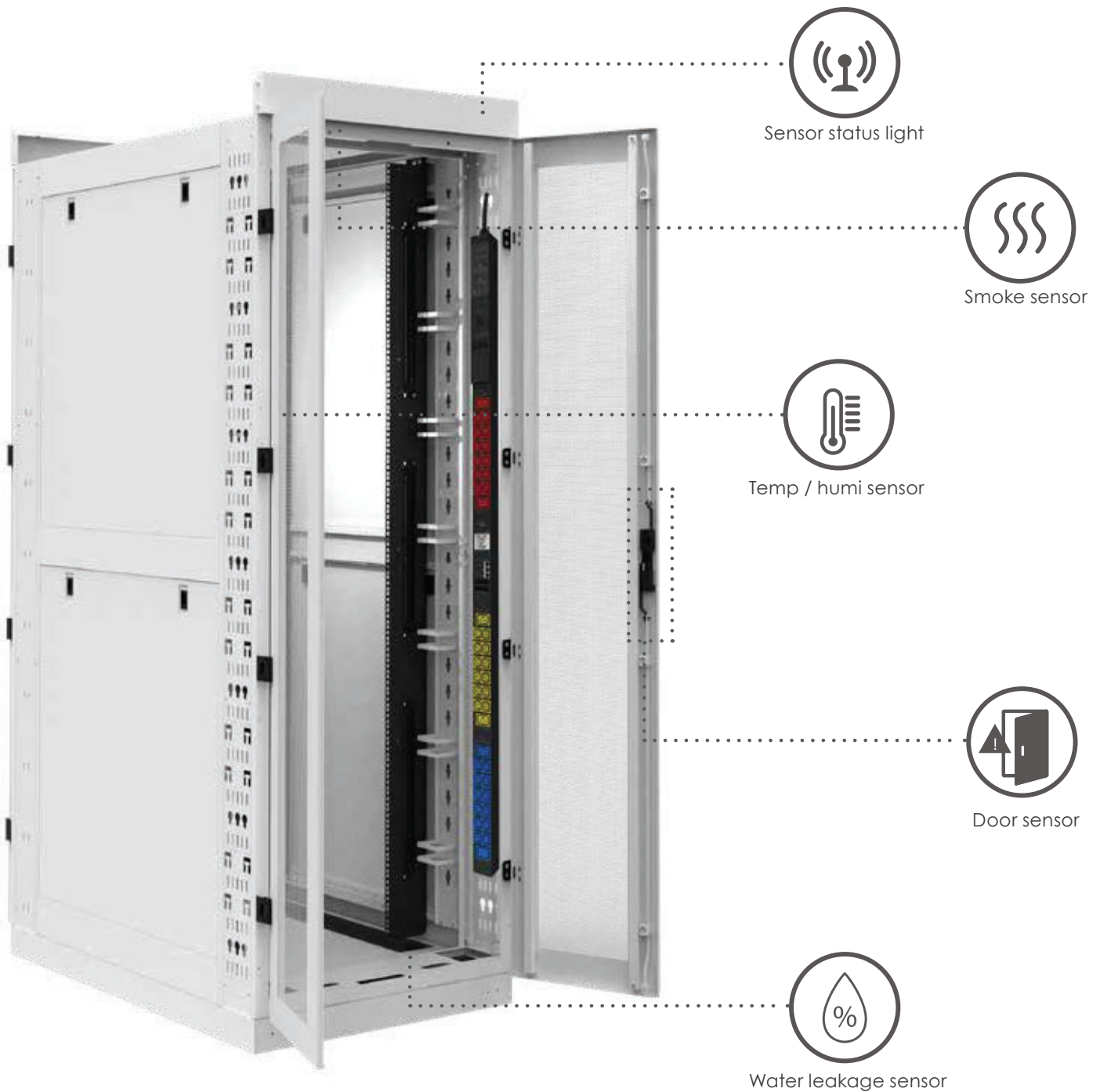
FLEXIBLE INSTALLATION

Multiple form factors give you the flexibility to choose

- 0U models are vertically mounted in the rear of your rack, providing the most amount of receptacles and not occupying your valuable rack space.
- 1U models are horizontally mounted in the U space of your rack, providing a smaller footprint for those with less equipment to power.
- Toolless mounting buttons are pre-installed to reduce installation time.
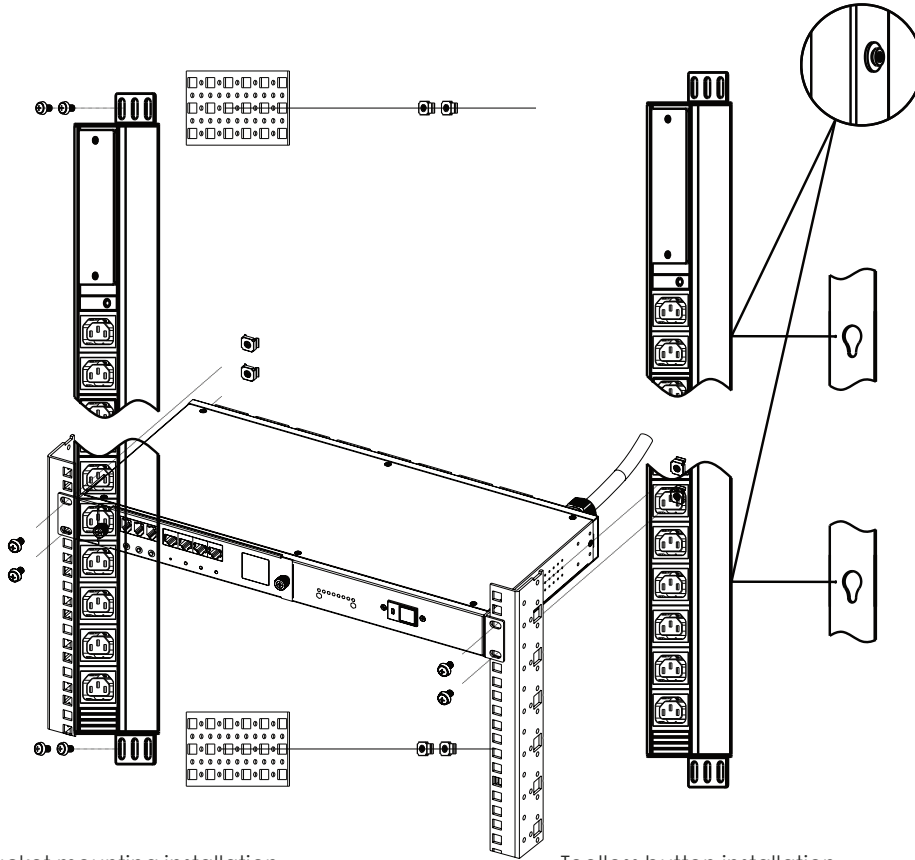
Bracket mounting installation   Toolless button installation
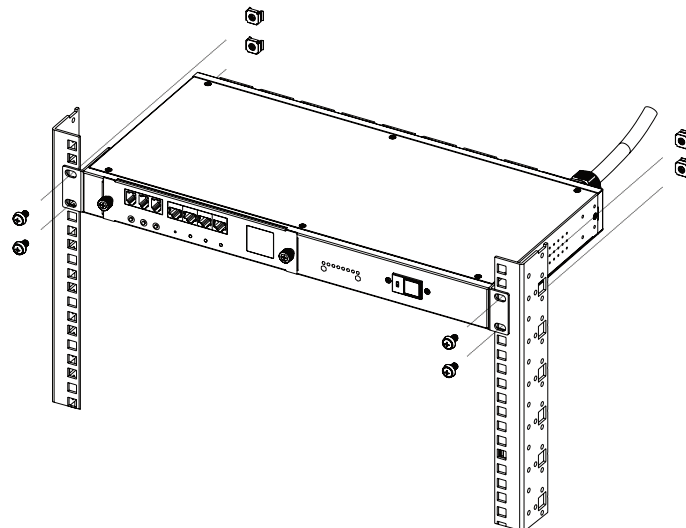
Side barcket installation

Category	Rack Space	Input Voltage	Derated AMP	Input Plug	#of Bank	Outlet
Total Metered PDU	0U	100-240V	32A	IEC 60309 32A	2x16A	21xIEC 60320 C13+3xIEC 60320 C19
						20xIEC 60320 C13+4xIEC 60320 C19
						18xIEC 60320 C13+6xIEC 60320 C19
						36xIEC 60320 C13+6xIEC 60320 C19
			63A	IEC 60309 63A	2x32A	21xIEC 60320 C13+3xIEC 60320 C19
						20xIEC 60320 C13+4xIEC 60320 C19
						18xIEC 60320 C13+6xIEC 60320 C19
						36xIEC 60320 C13+6xIEC 60320 C19
	0U	200-415V	3x16A	IEC 60309 16A	3x16A	21xIEC 60320 C13+3xIEC 60320 C19
						20xIEC 60320 C13+4xIEC 60320 C19
						18xIEC 60320 C13+6xIEC 60320 C19
						36xIEC 60320 C13+6xIEC 60320 C19
	0U		3x32A	IEC 60309 32A	3x32A	21xIEC 60320 C13+3xIEC 60320 C19
						20xIEC 60320 C13+4xIEC 60320 C19
						18xIEC 60320 C13+6xIEC 60320 C19
						36xIEC 60320 C13+6xIEC 60320 C19
Outlet Metered PDU	0U	100-240V	32A	IEC 60309 32A	2x16A	21xIEC 60320 C13+3xIEC 60320 C19
						20xIEC 60320 C13+4xIEC 60320 C19
						18xIEC 60320 C13+6xIEC 60320 C19
						36xIEC 60320 C13+6xIEC 60320 C19
			63A	IEC 60309 63A	2x32A	21xIEC 60320 C13+3xIEC 60320 C19
						20xIEC 60320 C13+4xIEC 60320 C19
						18xIEC 60320 C13+6xIEC 60320 C19
						36xIEC 60320 C13+6xIEC 60320 C19
		200-415V	3x16A	IEC 60309 16A	3x16A	21xIEC 60320 C13+3xIEC 60320 C19
						20xIEC 60320 C13+4xIEC 60320 C19
						18xIEC 60320 C13+6xIEC 60320 C19
						36xIEC 60320 C13+6xIEC 60320 C19
			3x32A	IEC 60309 32A	3x32A	21xIEC 60320 C13+3xIEC 60320 C19
						20xIEC 60320 C13+4xIEC 60320 C19
						18xIEC 60320 C13+6xIEC 60320 C19
						36xIEC 60320 C13+6xIEC 60320 C19
Total Metered & Outlet Switched PDU	0U	100-240V	32A	IEC 60309 32A	2x16A	21xIEC 60320 Cl3+3xIEC 60320 C19
						20xIEC 60320 C13+4xIEC 60320 C19
						18xIEC 60320 C13+6xIEC 60320 C19
			63A	IEC 60309 63A	2x32A	21xIEC 60320 C13+3xIEC 60320 C19
						20xIEC 60320 C13+4xIEC 60320 C19
						18xIEC 60320 C13+6xIEC 60320 C19
		200-415V	3x16A	IEC 60309 16A	3x16A	21xIEC 60320 C13+3xIEC 60320 C19
						20xIEC 60320 C13+4xIEC 60320 C19
						18xIEC 60320 C13+6xIEC 60320 C19
			3x32A	IEC 60309 32A	3x32A	21xIEC 60320 C13+3xIEC 60320 C19
						20xIEC 60320 C13+4xIEC 60320 C19
						18xIEC 60320 C13+6xIEC 60320 C19
Outlet Metered & Switched PDU	0U	100-240V	32A	IEC 60309 32A	2x16A	21xIEC 60320 C13+3xIEC 60320 C19
						20xIEC 60320 C13+4xIEC 60320 C19
						18xIEC 60320 C13+6xIEC 60320 C19
		100-240V	63A	IEC 60309 63A	2x32A	21xIEC 60320 C13+3xIEC 60320 C19
						20xIEC 60320 C13+4xIEC 60320 C19
						18xIEC 60320 C13+6xIEC 60320 C19
		200-415V	3x16A	IEC 60309 16A	3x16A	21xIEC 60320 C13+3xIEC 60320 C19
						20xIEC 60320 C13+4xIEC 60320 C19
						18xIEC 60320 C13+6xIEC 60320 C19
		200-415V	3x32A	IEC 60309 32A	3x32A	21xIEC 60320 C13+3xIEC 60320 C19
						20xIEC 60320 C13+4xIEC 60320 C19
						18xIEC 60320 C13+6xIEC 60320 C19

BASIC PDU

Basic PDU (power distribution unit) is a device for providing electrical power in a data center or where any power connectivity needed. It is designed to provide standard electrical outlets for data center equipment. Canovate homemade produced Basic PDUs will lower purchasing costs.

Applications

Wide area of usage in Telecom and Data Center market even in Enterprise and SME.

Features

- 1U-1.5U Horizontal and 0U Vertical enclosure with C13,C19, Schuko, UK, French, Universal Type and etc. availability.
- 115V AC-230V AC, 50/60 Hz, 13-16 Amp or 32-Amp power inlet and single or 3 phase option
- Circuit breaker, surge protector or on-off switch availability.
- Design and production for all varieties of plug and socket types

Schuko Type

Part No	Product Description
PB-S04-100-116-XX	1,5U 19'' PDU 4 way Schuko with on/off switch
PB-S04-010-116-XX	1,5U 19'' PDU 4 way Schuko with circuit breaker
PB-S06-100-116-XX	1U 19'' PDU 6 way Schuko with on/off switch
PB-S06-010-116-XX	1U 19'' PDU 6 way Schuko with circuit breaker
PB-S08-100-116-XX	1U 19'' PDU 8 way Schuko with on/off switch
PB-S08-010-116-XX	1U Vertical PDU 8 way Schuko with circuit breaker
PB-S12-010-116-XX	1,5U Vertical PDU 12 way Schuko with circuit breaker
PB-S16-050-132-XX	1,5U Vertical PDU 16 way Schuko with circuit breaker
PB-S18-050-132-XX	1,5U Vertical PDU 18 way Schuko with circuit breaker
PB-S24-050-132-XX	1,5U Vertical PDU 24 way Schuko with circuit breaker

French Type

Part No	Product Description
PB-F04-100-116-XX	1,5U 19'' PDU 4 way French with on/off switch
PB-F04-010-116-XX	1,5U 19'' PDU 4 way French with circuit breaker
PB-F06-100-116-XX	1U 19'' PDU 6 way French with on/off switch
PB-F06-010-116-XX	1U 19'' PDU 6 way French with circuit breaker
PB-F08-100-116-XX	1U 19'' PDU 8 way French with on/off switch
PB-F08-010-116-XX	1U Vertical PDU 8 way French with circuit breaker
PB-F12-010-116-XX	1,5U Vertical PDU 12 way French with circuit breaker
PB-F16-050-132-XX	1,5U Vertical PDU 16 way French with circuit breaker
PB-F18-050-132-XX	1,5U Vertical PDU 18 way French with circuit breaker
PB-F24-050-132-XX	1,5U Vertical PDU 24 way French with circuit breaker

UK Type

Part No	Product Description
PB1-U05-100-113-XX	1,5U 19'' PDU 5 way UK with on/off switch
PB1-U05-010-113-XX	1,5U 19'' PDU 5 way UK with circuit breaker
PB1-U07-100-113-XX	1,5U 19'' PDU 7 way UK with on/off switch
PB1-U08-100-113-XX	1,5U 19'' PDU 8 way UK with on/off switch
PB1-U08-010-113-XX	1,5U Vertical PDU 8 way UK with circuit breaker
PB1-U12-100-113-XX	1,5U Vertical PDU 12 way UK with on/off switch
PB1-U12-010-113-XX	1,5U Vertical PDU 12 way UK with circuit breaker
PB1-U16-050-132-XX	1,5U Vertical PDU 16 way UK with circuit breaker
PB1-U18-050-132-XX	1,5U Vertical PDU 18 way UK with circuit breaker
PB1-U24-050-132-XX	1,5U Vertical PDU 18 way UK with circuit breaker

IEC Type

Part No	Product Description
PB-C06-100-116-XX	1,5 U 19'' PDU 6 way C13 with on/off switch
PB-C06-010-116-XX	1,5 U 19'' PDU 6 way C13 with circuit breaker
PB-C08-100-116-XX	1,5 U 19'' PDU 8 way C13 with on/off switch
PB-C08-010-116-XX	1,5 U Vertical PDU 8 way C13 with circuit breaker
PB-C12-010-116-XX	1,5 U Vertical PDU 12 way C13 with circuit breaker
PB-C16-050-132-XX	1,5U Vertical PDU 16 way C13 with circuit breaker
PB-C18-050-132-XX	1,5U Vertical PDU 18 way C13 with circuit breaker
PB-C20B04-050-132-XX	1,5U Vertical PDU 24 way C13 with circuit breaker

Universal Type

Part No	Product Description
PB-E06-100-116-XX	1U 19'' PDU 6 way Universal with on/off switch
PB-E06-010-116-XX	1U 19'' PDU 6 way Universal with circuit breaker
PB-E08-100-116-XX	1U 19'' PDU 8 way Universal with on/off switch
PB-E08-010-116-XX	1U Vertical PDU 8 way Universal with circuit breaker
PB-E12-010-116-XX	1U Vertical PDU 12 way Universal with circuit breaker
PB-E16-010-132-XX	1U Vertical PDU 16 way Universal with circuit breaker
PB-E18-010-132-XX	1U Vertical PDU 24 way Universal with circuit breaker

PDU ACCESSORIES

AC SOCKET/OUTLET TYPES

IEC320 C13

IEC320 C19

Multi
Universal Type

B51363 (UK)

CCE 7/5 (French)

CCE 7/3
(German/Schuko)

AC PLUG/INLET TYPES

IEC320 C14-10A

IEC320 C20-16A

CCE 7/7-16A
(German and French Schuko)

IEC-60309 1P+N+E -16A or 32A
Commando Single Phase

IEC320 C14-10A

IEC-60309 3P+N+E -16A or 32A
Commando Three Phase

SURGE PROTECTED BASIC PDU

When distributing power to equipment such as servers or similar devices, proactive actions should be taken to eliminate any power fluctuation such as power surges or peaks coming from the Grid or Generator Power Network of devices.

Applications

Canovate offered Protected PDUs can be used in any industry including the data center market, any 230VAC Telecom application, shops, markets, offices, branch offices, post offices, government building as well as for home usage to connect portable or personal computers.

Features

Canovate offers the "Protected PDU" series to eliminate all overvoltage occurance towards a sensitive and also expensive device. The overvoltage protector is included in line with the PDU sockets and being fed by the PDU Input cable. Existing LED lamps will indicate the proper earthing, the health of the protection device itself and also the presence of the Power Input.

Technical Specifications	
Rated Voltage	230VAC
Rated Frequency	50/60Hz
Max. Power	4000W
Measured Limit Voltage	<1000V
Nominal Discharge Current (8/20µS)	10KA
Response Time (tA)	<25nS
Protection Mode	L-N, L-PE, N-PE
Visual Indicators	3-color LED lamps
Operating Temperature	0-50°C
Relative Humidity	0-95%

Order Information	
PA-C12-001-116-XX	1,5U Vertical PDU 12 way C13 with ampermeter and surge protection
PA-C12-011-116-XX	1,5U Vertical PDU 12 way C13 with ampermeter, circuit breaker and surge protection

AMPER-METERED BASIC PDU

Canovate Amper-metered Power Distribution Units (PDUs) provide network-grade power distribution in any datacenter and IT application. Each Amper-metered PDU has a digital LCD meter for real-time load monitoring. The features of the series include durable Aluminium housing and horizontal/vertical mounting options.

Technical Specifications	
Description	Single-power inlet; 6-11 outlets per rack-mount 1.5U enclosure Max. 32 outlet for vertical 0U models
Power	115VAC-230VAC, 50/60 Hz, 16 or 32-Amp power inlet options
Input Current Monitor	Precisely measure the aggregate current (in amps) of power inlet. On site verification of the input current with the LED digital display. (Optional voltage monitor)

IEC Type

Part No	Product Description
PA-S06-000-116	1,5U 19" PDU 6 way Schuko with ampermeter
PA-S12-000-116	1,5U Vertical PDU 12 way Schuko with ampermeter
PA-S16-000-132	1,5U Vertical PDU 16 way Schuko with ampermeter
PA-S18-000-132	1,5U Vertical PDU 18 way Schuko with ampermeter
PA-U06-000-116	1,5U 19" PDU 6 way UK with ampermeter
PA-U12-000-116	1,5U Vertical PDU 12 way UK with ampermeter
PA-U16-000-132	1,5U Vertical PDU 16 way UK with ampermeter
PA-U18-000-132	1,5U Vertical PDU 18 way UK with ampermeter
PA-C06-000-116	1,5U 19" PDU 6 way C13 with ampermeter
PA-C12-000-116	1,5U Vertical PDU 12 way C13 with ampermeter
PA-C16-000-132	1,5U Vertical PDU 16 way C13 with ampermeter
PA-C18-000-132	1,5U Vertical PDU 18 way C13 with ampermeter

# ATS (AUTOMATIC TRANSFER SWITCH)

In the data center, it is vitally important to have uninterrupted power. To achieve this goal, an automatic transfer switch (ATS) is used that automatically transfers a power supply from its primary source to a backup source when it senses a failure or outage in the primary source. When a failure occurs in a primary power system, the ATS invokes a standby power source, such as an uninterruptable power supply. An ATS can also start up more long-term backup power systems, such as local diesel generators, to run electric equipment until utility power is restored.

Since the ATS is connected to both primary and backup power sources, it serves as an intermediary between equipment and the power supplies, acting as an electrical relay. An ATS can also act as a redundant, rack-mounted power supply for equipment that is connected to a power source with only one cord.

Canovate® ATS provides high reliable and redundant power to the attached equipment. Single fed servers and other telecom equipment, small power supplies, our front & side coolers and many more devices can be connected to the ATS to gain more power secure and redundant characteristics. The ATS has two input power sources, so if the primary source shut down, it will seamlessly switch to the secondary power source automatically. Canovate® ATS has 2 basic models available, if the user is looking for remote management, we can place the optional SNMP card to upgrade the basic type to the remote management, intelligent one.

Highlights

- Fail safe redundant power feeds can achieve TIER layer III or IV requirements
- Seamlessly transfer between source A and source B
- Input power monitoring of source A and B
- Input monitoring function locally or remotely as well
- Input and output voltage monitoring
- Load current monitoring
- Local and remote automatic alarm
- Built in Web Interface will bring all notifications and alerts remotely
- Ability to provide automated alerts (through SNMP Traps or Email) for power conditions
- Available in basic edition or IP edition
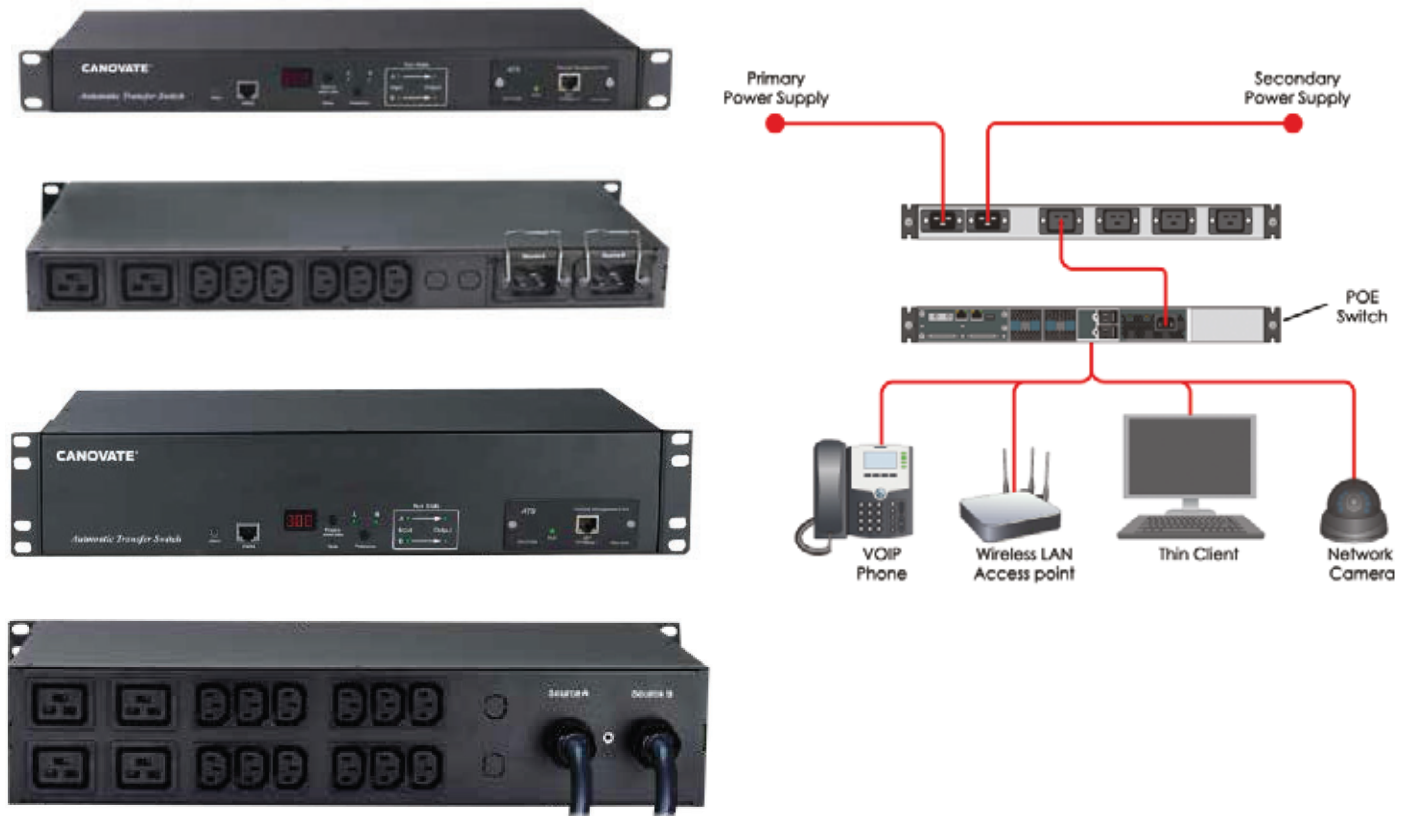
Part No	Product Description
CAN-CLE-AR128H0812	IP ATS 19", 1U, 250V, input: 2 x 16A IEC320 C20 socket, output: 6xC13, 2xC19 socket, SNMP Card included
CAN-CLE-AR228H1622	IP ATS 19", 2U, 250V, input: 2 x 32A IEC60309 socket, output: 12xC13, 4xC19 socket, SNMP Card included
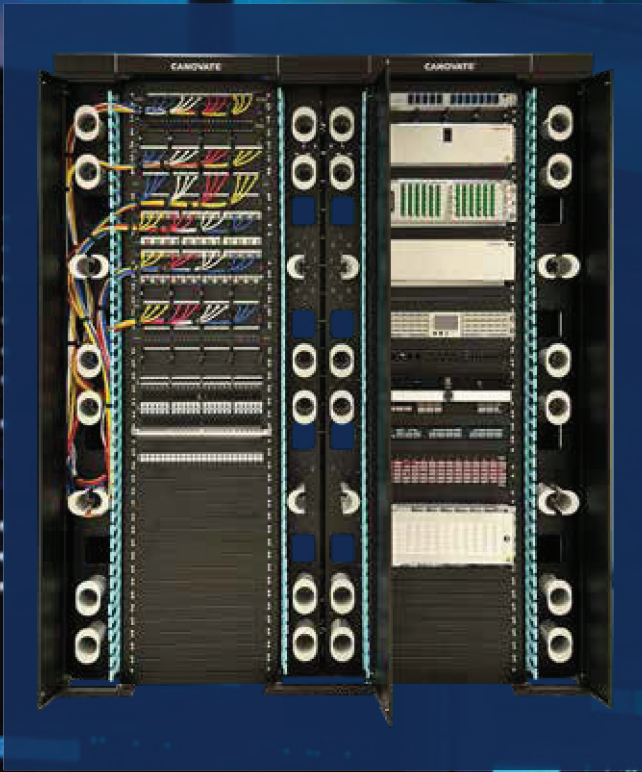
OPEN FRAME PATCH RACK

4 & 2 POST OPEN FRAME RACKS

SERVER RACK CABINETS

NEWWORK RACK CABINETS