PX® Intelligent Rack PDUs

Rack Power Distribution Units for Your Data Center

Raritan's PX intelligent rack PDU series offers more than just power distribution -- it's a launch pad for real-time remote power monitoring, environmental sensors, data center infrastructure management, and so much more.

The PX series offers hundreds of models to power all your data center applications, including models with outlet switching, individual outlet metering, high power for blade servers and high density applications, and 400V three-phase power distribution.

Raritan offers a variety of intelligent rack power distribution models that satisfy all of your metering requirements. Get certain off-the-shelf models delivered in as little as a few days, or have your PDUs engineered to meet your unique application.

In the next few pages you'll learn how Raritan was able to take over twenty-five years of embedded computing expertise and customer insights to reinvent the rack PDU and set the gold standard for data center power chain management. Find out why some of the world's largest data centers trust Raritan's intelligent rack PDUs to power their mission critical equipment.

Family	Outlet Switching	Outlet Metering	Inlet Metering	Breaker Metering
PX-5000	✓	✓	✓	✓
PX-4000		✓	✓	✓
PX-2000	✓		✓	✓
PX-1000			✓	✓

Find the PDU that's right for you.
Visit our interactive PDU Selector at www.findmypdu.com

Industry Leading Innovation

Soaring energy prices, greater competition in the marketplace, and global concerns over climate change are forcing companies to reconsider how they utilize power in the most valuable and energy intensive resource they own – the data center. It's why data centers are now so focused on cutting operational costs by improving efficiencies, and making optimal use of energy, space, and cooling.

They're also tasked with the most important responsibility of all: to make sure the data, services, and applications that we all rely on are always available. Not surprisingly, many of the major strategies being employed to address these challenges depend on capabilities that were not present in the simple commodity power strips of a few years ago.

Consider how Raritan's intelligent rack power distribution units (iPDUs) help data centers to achieve those goals:

+/-1%

kWH Metering Accuracy

Accurate kWh metering allows you to measure actual energy usage for accurate customer or department charge-back billing. The data can be used to encourage energy efficient behavior among users, establish power consumption baselines, and analyze the effect of efficiency initiatives.
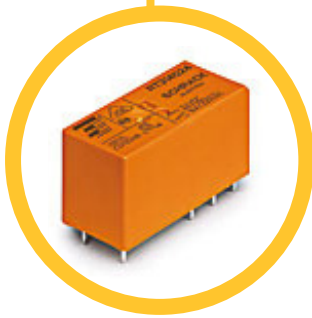
Energy Efficient Latching Relays

Latching bistable relays only require power to switch from one state to another so PDUs consume 67% less energy†, produce less heat, and can be configured to return to pre-outage state instantly, or leverage patent-pending outlet sequencing technology that minimizes inrush current.

† For a 24-outlet switched PDU the energy consumption is 7W with latching relays vs. 21W for non-latching relay models.

Full Color Chassis

In 2013 the average cost of downtime was an estimated $7,900 per minute with human error cited as a leading cause††. Raritan's intelligent PDUs are available in ten colors that help reduce errors, and make it easier to identify power feeds, and troubleshoot, thereby lowering the risk and duration of unplanned downtime.

†† Ponemon Institute LLC. December 2013. 2013 Cost of Data Center Outages

See it in Action
Visit Raritan.com or call 800.724.8090 to speak to a product expert and schedule an online demo.

DCIM Monitoring

Power IQ® DCIM Monitoring software automatically gathers power, energy, and environmental data from your intelligent PDUs and connected devices to help maintain uptime, improve capacity planning, and support energy efficiency initiatives. With Raritan's intelligent rack concept you have one-click access to rack power, cooling, airflow, events, and much more.

Data center health maps, power analytics, cooling charts, and reports alert you to potential trouble and help you to understand real-time power load, trends, and capacity at the data center, room, rack, or customer level. DCIM puts the most powerful information you need to manage your data center effectively right at your fingertips.

XDCIM Visit RaritanDCIM.com to learn more.

Environmental Sensors

Optional plug-and-play environmental sensors for temperature, humidity, airflow, differential air pressure, and leaks connect to a dedicated iPDU port, feature field replaceable heads, and alert you to potential threats that can cause downtime. Contact closure sensors are also supported for use with third-party sensors, webcams, and door locks.

Environment data is instantly sent to Raritan's DCIM software and allows you to confidently raise ambient temperatures and adjust fan speed in CRAHs and CRACs to increase your energy savings and get the most out of your cooling systems.

SecureLock™ Power Cords

IEC outlets often fail to hold plugs as securely as data center managers would like. Raritan's intelligent rack PDUs are equipped with SecureLock outlets that work with standard power cords, or lock when using SecureLock power cords to prevent cables from coming unplugged due to vibration or human error. Available in three colors - black, blue, and red - that help you to easily identify power feeds.

Setting the Standard

Raritan employs some of the best and brightest engineers in the industry to work alongside leading data center operators and incorporate their feedback and real-world use cases into new features and enhancements that make all the difference in their day-to-day operations.

Our intelligent rack PDUs feature ISO 9000 quality manufacturing, soldered connections to copper bus bars in PCBs, and quality components from Tyco, Hubbell®, and Mennekes®. Other quality and convenience enhancing features include:

Intelligent Replaceable Controller
Flush mount controller with industrial-grade reliability, configurable firmware, disaster recovery support, and hot swap capability in the event of a malfunction. So in the unlikely event that your controller should fail, you'll be able to replace it without having to interrupt any business critical services!

Brilliant Color Display
The highest on-board resolution in the industry at 220 x 176, and easy-to-navigate menus. A built-in accelerometer enables the LCD display to change orientation automatically facilitating installation.
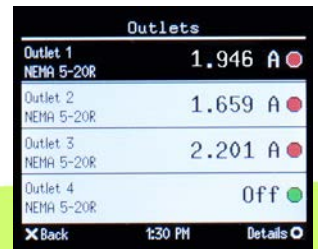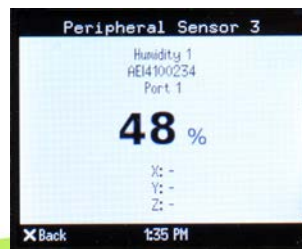
UL Listed and Certified
Our PDUs are run through a rigorous set of tests to ensure they are compliant with the most stringent electrical standards including: FCC Part 15, A; UL Listed and cUL, CE, PSE, SAA, RoHS/WEEE

Mechanical Design

We use 3D modeling tools to create the perfect fit for your rack with space-saving Zero U, 1U, 2U, and 3U form factors that provide unobstructed access to your rack for faster service calls, equipment changes, and deploying newly provisioned equipment.

Remote Power Control

Keep outlets switched off to prevent unauthorized access, ensure proper provisioning, and avoid tripped circuit breakers. Use remote power controls to reboot hung servers or provision outlets for new devices without ever having to step foot in the facility.

User Configurable Power on Sequencing

Sophisticated outlet sequencing can power on equipment with single outlet or outlet groups in a set order to minimize circuit breaker trips from inrush currents. Organizations can maximize uptime when powering on circuits and racks full of equipment.

Low Profile Flush Mount Circuit Breakers

Eliminate the need to stock fuses, have licensed electricians change fuses, and the possibility of installing an incorrect fuse compromising safety and voiding product warranties. Alerts are sent when thresholds are crossed which could result in circuit breakers tripping. Improve rack accessibility by eliminating circuit breaker dog houses.

Residual Current Monitoring Option

Reduces the risk of electric shock by measuring current flowing in the ground wire. These residual currents will generate a system alert and keep technicians working on racks safe from harm.

For Dense, High Power Racks

Whether you operate a large, medium, or small data center, it may be time for you to consider deploying high power to at least some of your racks. Good candidates are racks that will be packed with 1U servers, network switches, blade servers, network storage devices, and other high density applications. Consider how Raritan's three phase, high voltage rack PDUs can increase energy savings and increase capacity:

55kW

400V Three-Phase Models

We offer a broad range of 400V three-phase high power models that support up to 55kW per rack PDU. Running higher voltages at lower currents means smaller and fewer cables, which use less copper, weigh less, occupy less space, and cost less.

Plugs and receptacles are also less expensive at higher voltages and lower current ratings, and additional savings are achieved by eliminating voltage transformations.
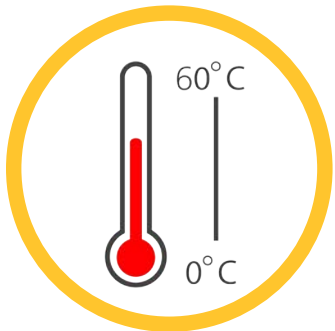
60°C (140°F) Max Temp

Although many data centers monitor cold aisle temperatures to provide optimal cooling for IT equipment, most rack PDUs are located at the rear of the rack where the exhaust temperatures from IT equipment are much higher.

Raritan's intelligent PDUs support a maximum operating temperature of up to 60°C / 140°F for reliable performance in dense high-heat environments so you can rest assured that they'll continue to operate reliably in the harshest of conditions.
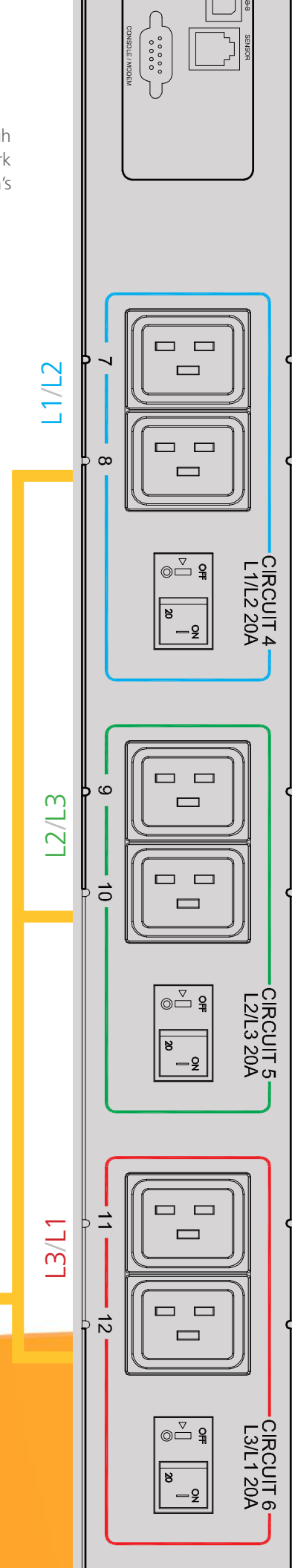
Terminal Block Accessible Option

Simply remove the outer cover from your intelligent rack PDU for quick access to the terminal block and wire the unit directly to an existing power whip.

This intelligent feature can save operators thousands of dollars by eliminating the need for plugs, connectors, and excess cables.

Alternate Phase Sequenced Outlets – V2

Certain three-phase models feature phased sequence outlets: a unique wiring scheme that simplifies deployment of IT devices and balances the three lines to get the most power headroom. Power phases are alternated on a per-outlet rather than per-branch basis.

L1/L2
7
8
CIRCUIT 4
L1/L2 20A
OFF
ON
20

L2/L3
9
10
CIRCUIT 5
L2/L3 20A
OFF
ON
20

L3/L1
11
12
CIRCUIT 6
L3/L1 20A
OFF
ON
20

The Power of USB

While few vendors offer USB ports on their PDUs, or only offer firmware upgrade capabilities, Raritan USB ports can lower your capital expenditures, improve your power management capabilities, and give you greater control over your IT equipment racks! Our full-featured racks provide the following capabilities:

Quick Setup Use ordinary USB sticks to configure hundreds of PDUs in mere minutes. Save big on deployment time and costs.

Cascading Easily cascade (daisy chain) multiple PDUs in a rack. Save money on IP drops, Ethernet ports, and patch ports.
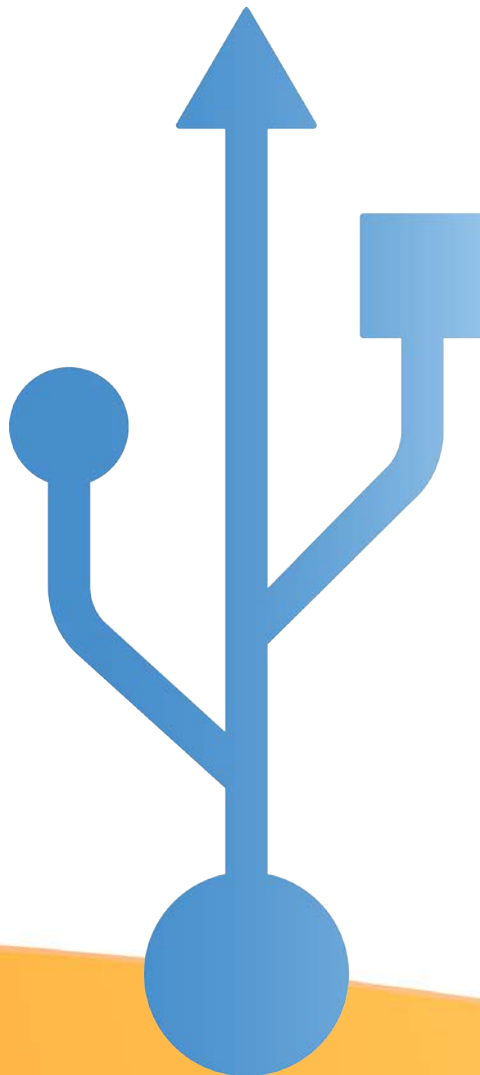
WiFi Run out of network drops? No problem. With USB WiFi, Raritan iPDUs can be networked without additional expense.

PDView App Turn your tablet or phone into a remote display. Raritan's PDView app provides at-the-rack display of all critical data.

Camera Built-in support for USB cameras allow you to remotely monitor your racks or take a snapshot when doors are opened.

Why Raritan Power?

Raritan has been a provider of data center solutions for nearly three decades. More importantly, it has always been at the forefront of intelligent rack PDU design and innovation. It was the first to introduce metering at individual outlets and the first to provide a full featured USB port for plug-and-play quick setup, firmware upgrades, third-party webcam, and WiFi networking.

Additionally, it developed PDU cascading - a more efficient and less costly method of stringing PDUs together for network management. It's a legacy that continues into the next generation of Raritan intelligent PDUs that feature energy efficient latching relays with patent-pending outlet sequencing technology which minimizes inrush current. Here are some of the other notable features of Raritan's intelligent PDUs:

Range of Options

- 100V, 120V, 200V, 208V, 230V, 240V, 400V and 415V Inputs
- Single-Phase and Three-Phase Power
- 12A to 100A Input
- Zero U, 1U, 2U, and 3U Form Factors
- NEMA, IEC, Clipsal® and more Plugs and Receptacles
- Mixed Outlet and Voltage Configurations
- FCC Part 15, A, UL and cUL, IEC 60950, CE, plus PSE for Japan

Power Metering

- Individual Outlet, PDU, and Line
- Branch Circuit, Circuit Breaker Status
- Current (A)
- Voltage (V)
- Power (W. VA)
- Power Factor (PF)
- Energy Usage (kWh)

Outlet Controls

- Power-on Sequencing with Customizable Delays
- Outlet Grouping Across Multiple PDUs
- PDU-based Load Shedding
- Last Known State Power-on
- Compatible with Raritan KVM
- Remote Outlet and Outlet Group On/Off

Environment Sensors

- Temperature Sensor
- Humidity Sensor
- Airflow Sensor
- Differential Air Pressure Sensor
- Water/Fluid Leak Sensor
- Contact Closure Sensors Supported For Use with Third-Party Sensors, Webcams, and Door Locks

Security Protocols

- Strong Passwords
- User and User Group Permissions
- Active Directory®, LDAP, LDAP/S
- Up to 256-bit AES Encryption
- SSH, SSL, and HTTPS

Network Protocols

- Ethernet, GigE Option
- USB-A, USB-B
- Wi-Fi, 802.11 a/b/g/n
- GSM Text, Email, Syslog
- SNMPv2, v3, SETs, GETs, TRAPs
- IPv6/IPv4 Support
- JSON-RPC, Modbus TCP
- Web Browser (HTTP, HTTPS)
- SSH Command Line Interface

Raritan.

Visit www.raritan.com/px or call 1.800.724.8090 for more information