

# Solution Brief: Intelligent Inline Meter



## Dominion® PX™-3000 Series Inline Meters

- ▶ Remote power monitoring and metering of current (amps), voltage, power (kVA, kW) and energy consumption (kWh)
- ▶ Capable of ISO / IEC +/- 1% billing grade accuracy
- ▶ Environment probe/sensor ready
- ▶ Ethernet and serial access
- ▶ Alerts via SNMP, e-mail and syslog when thresholds are exceeded
- ▶ Supports HTTP, HTTPS, SSH, Telnet and SNMP
- ▶ Advanced authorization options, including permissions and LDAP/S, RADIUS and Active Directory®
- ▶ 256-bit AES encryption and strong passwords
- ▶ 1U rack-mountable form factor
- ▶ Compatible with Raritan's Power IQ™ energy management software

## Manage power more effectively with a solution that gathers critical data from your basic rack PDUs.

### Challenge

Access to electrical power is becoming more and more difficult at a time when the need for power is increasing to support blade servers, network storage devices and racks densely packed with other IT equipment. Because every watt of power consumed by IT equipment becomes a watt of heat that needs to be removed, this increase in IT equipment power demand has also driven increases in data center cooling power consumption.

There are growing environmental concerns and regulations that will affect data center operations. Suboptimal data center energy use incurs waste and needlessly harms the environment. The United States Department of Energy estimates that about 4,000,000 cars worth of carbon can be saved by 2015 through better data center design.

### Solution

Raritan has developed Dominion PX-3000 Series Inline Meters – a new line of intelligent inline power meters – that easily add power, energy and rack environment data collection capabilities to stand-alone IT equipment and basic rack power distribution units (PDUs).

These next-generation inline power meters simplify management of power usage and environmental conditions in the data center while allowing you to monitor the power on dedicated circuits. There is no need to remove or recable IT equipment. Just wire the inline meter into existing circuits.

Our intelligent inline meters also provide:

- ▶ Real-time remote power monitoring, including current (amps), voltage, power (kVA, kW) and energy consumption (kWh) to +/- 1% accuracy, even in real-world situations when the power isn't a pristine sine wave
- ▶ Rack temperature and humidity monitoring

By deploying Dominion PX-3000 Series Inline Meters in a data center environment, IT administrators and facilities managers enjoy a number of important benefits, including:

- ▶ Saving power and money
- ▶ Efficiently utilizing power resources
- ▶ Making informed capacity planning decisions
- ▶ Improving uptime and staff productivity
- ▶ Taking a step towards becoming a greener data center

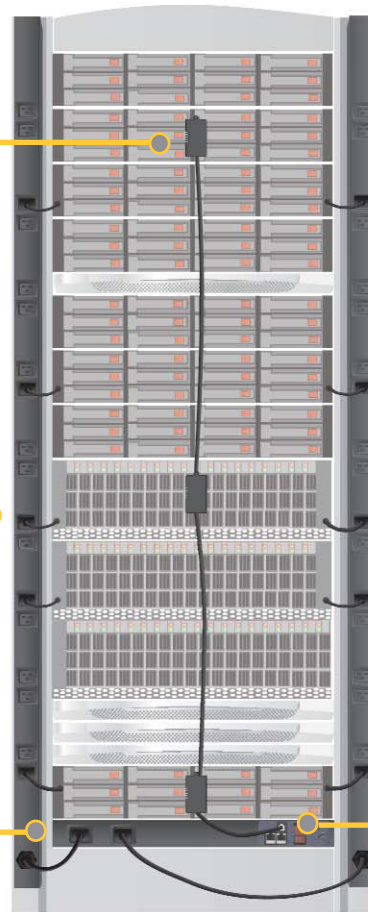


Optional plug-and-play environmental sensors, including temperature and humidity

Servers plug into dumb PDUs



The dumb PDUs are connected to a PX-3000 Series Inline Meter



At-the-rack power monitoring of current (amps), voltage and active power (watts)



Ethernet and serial ports for easy Web-based GUI or CLI access. Environmental sensors are plugged into the PX-3000 feature port

## Why add intelligent power monitoring to your dumb power strips?

Power needs to be monitored to understand the impact of efficiency measures and to qualify for credits. Dominion PX-3000 Series Inline Meters enable data to be gathered frequently over a period long enough to ensure that times of peak demand have been captured. This helps managers:

- ▶ Maximize IT asset utilization
- ▶ Improve capacity planning
- ▶ Determine where to set power thresholds and alerts

By running data centers at higher ambient temperatures, air conditioning systems don't need to work as hard. So adding Dominion PX-3000 Series Inline Meters and plug-and-play environmental sensors to basic power strips allows IT administrators to:

- ▶ Monitor temperatures at the rack to confidently meet ASHRAE cool air inlet temperature guidelines
- ▶ Set high and low temperature thresholds and receive alerts when ambient temperatures become high enough to pose problems for servers or low enough that they are wasteful of energy

Just as access to servers should be secure, so should access to the power that controls them.

Intelligent power monitoring through Dominion PX-3000 Series Inline Meters offers secure access with 256-bit AES encryption and strong passwords.

They also provide:

- ▶ Advanced authorization options, including permissions and LDAPS, RADIUS and Active Directory
- ▶ Flexible management interfaces that support HTTP, HTTPS, IPMI, SMASH-CLP, SSH, Telnet, SNMPv2 and SNMPv3 with encryption

## Monitor the power on dedicated circuits feeding stand-alone equipment

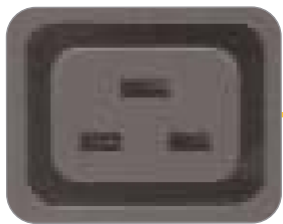
With virtualization, physical servers work harder and consume more power. Individual racks may be challenged by the additional power and cooling demand. Dominion PX-3000 Series Inline Meters enable IT managers to:

- ▶ Check for hot spots. By placing temperature sensors on each rack, changes in temperature and airflow can be detected – especially useful since these factors may affect sections of the data center differently or in unintuitive ways
- ▶ Set both high and low exhaust temperature thresholds to provide alerts in the event of a fan failure or a blocked vent

Dominion PX-3000 Series Inline Meters also benefit environments that utilize cloud computing. Since these IT architectures are lights-out facilities, remotely monitoring power and environmental parameters is very important. Dominion PX-3000 Series Inline Meters allow IT administrators to add remote power and environmental monitoring and management to their existing infrastructure without extensive retrofitting.

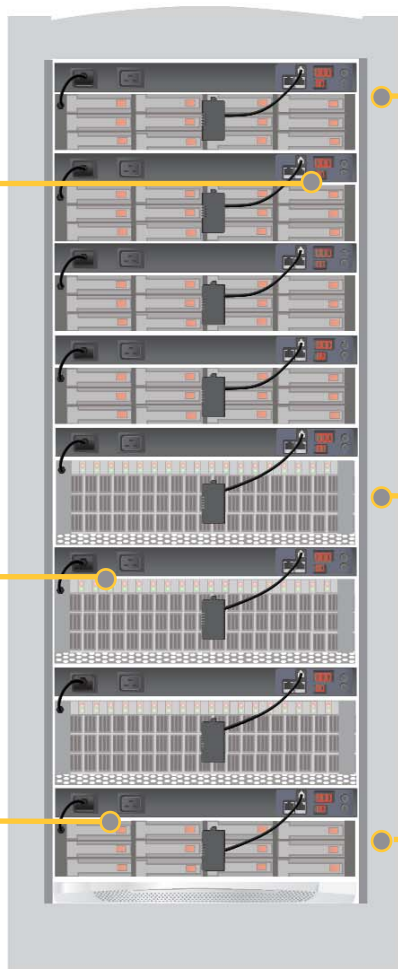


Environmental sensors are plugged into the PX-3000 feature port



Servers are plugged directly into a PX-3000 Series Inline Meter

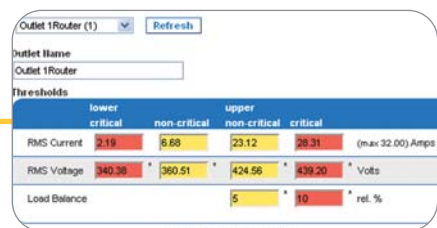
1U rack-mountable form factor



Remote power monitoring, including current (amps), voltage, power (kVA, kW) and energy consumption (kWh)



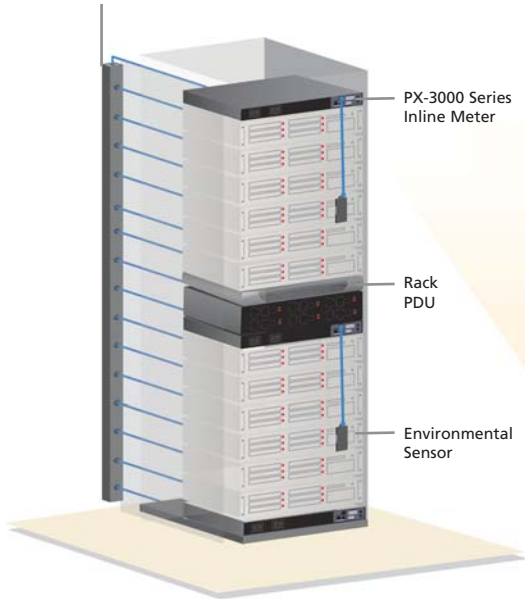
Two-line and four-line models available



Alerts via SNMP, e-mail and syslog when thresholds are exceeded

## Monitor power usage remotely with Power IQ software

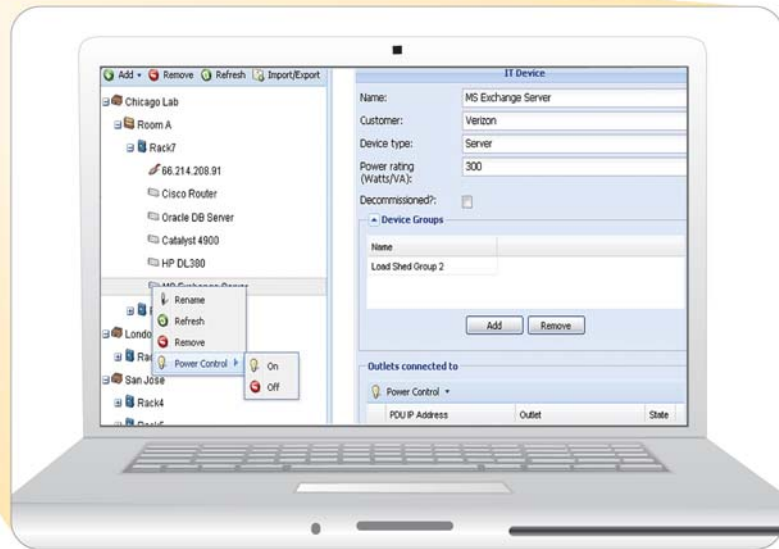
Zero U Strip PDU



PX-3000 Series  
Inline Meter

Rack  
PDU

Environmental  
Sensor



Compatible with Raritan's Power IQ Web-based energy management software

## Data center power management

Deployed with Power IQ, our data center energy management software, our inline meters enable you to:

- ▶ Continuously monitor energy consumption and capacity
- ▶ Monitor the power of existing third-party rack PDUs
- ▶ View power data in consolidated, customizable reports by end-user customer or department to drive behavior
- ▶ Provide analytics and reports, including carbon footprint
- ▶ Evaluate how changes affect your whole data center

For detailed specifications and mechanical drawings, go to:

[www.raritan.eu/PX-3000](http://www.raritan.eu/PX-3000)

**Ready to manage smarter? Contact Raritan today.**  
Call +31(0)10 284 4040 or visit [www.raritan.eu/PX-3000](http://www.raritan.eu/PX-3000)