

# Smart Rack Controller and Sensors



Raritan's environmental rack controller is an IP-based appliance that allows you to use any of Raritan's sensors such as temperature, humidity, air pressure and airflow.

## Smart Rack Controller (EMX)

- ▶ Works with Raritan's Power IQ® energy management software and dcTrack® DCIM software
- ▶ Up to 16 sensors per EMX2-111
- ▶ Up to 128 sensors per EMX2-888
- ▶ Wired or wireless network options
- ▶ USB camera option

## Environment Sensors

- ▶ Temperature
- ▶ Humidity
- ▶ Airflow
- ▶ Air pressure
- ▶ Contact closure – enables use of additional sensors, including water, smoke, door open/closed and door locked

## Electronic Asset Tracking

- ▶ Intelligent asset management tracking
- ▶ Works with Raritan's AMT/AMS tags and sensors

## Comprehensive Rack Monitoring Easy to use and easy on your budget

Every data center has some method of monitoring temperature even if it is just a thermometer or a thermostat on a data center wall. But today, that is hardly considered a best practice. The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) recommends measuring the cool air entering IT equipment near the bottom, in the middle and near the top of each IT rack. Today, many data center managers want to equip their racks with ways to detect water, smoke or when a cabinet door is opened. Some want to install cameras for security so they can spot changes or remotely view the physical environment.

Now it is easy to add simplified yet comprehensive environment monitoring to your IT racks. Raritan's EMX offers up to eight Raritan sensor ports, eight feature ports for Raritan's dynamic asset-tracking solution, and eight RS-485 ports, all in a 1U form factor.

### Why do you need rack monitoring?

- ▶ Do you want real-time, accurate visibility into your IT asset management inventory?
- ▶ Do you want to install temperature sensors at your rack in accordance with ASHRAE guidelines?
- ▶ Do you want to locate a USB webcam at your rack?
- ▶ Do you want to instrument your rack with contact closure sensors so you can detect when a cabinet door has been opened?
- ▶ Do you want to aggregate, report and analyze sensor data across all your data center racks globally?

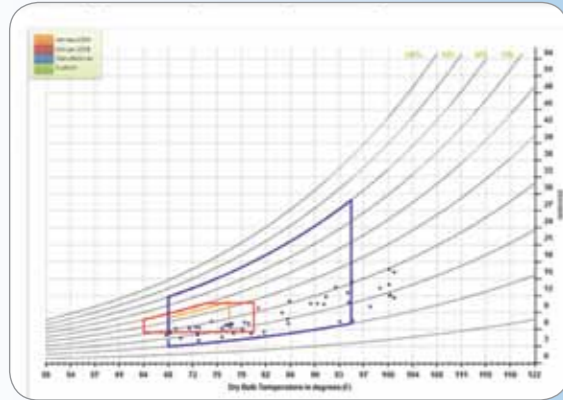
### Benefits

Raritan's rack monitoring solution helps you manage the physical environment of your rack. With this solution and the appropriate sensors you can:

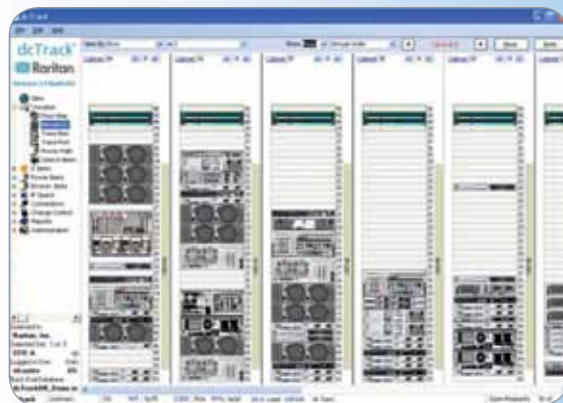
- ▶ Minimize the hours needed to track IT assets, thereby saving time and money
- ▶ Ensure uptime by monitoring racks for possible hot spots
- ▶ Save on cooling costs by confidently raising data center temperatures
- ▶ Maintain cabinet security with USB webcams and contact closure sensors
- ▶ Improve data center uptime by receiving environment alerts
- ▶ Optimize strategic and tactical decision making for the IT environment by tracking IT changes and growth in real time

# A total solution to manage and monitor all aspects of your rack environment

## Compatible with Raritan dcTrack, Power IQ and third-party management tools



**Power IQ** – Using Raritan’s environment sensors, EMX acts as a gateway to feed data such as temperature, humidity, airflow, air pressure and contact closure information to Power IQ, Raritan’s energy management and data center monitoring software. Power IQ can create a variety of reports and charts. It can also send alerts when thresholds are crossed. With the unique Power IQ cooling chart you can understand if you are compliant with manufacturers’ and industry-accepted recommendations, and project how much you can save by increasing room ambient temperatures.



**dcTrack** – Using Raritan’s intelligent Asset Management Tags (AMT) and Asset Management Sensors (AMS), EMX provides real-time asset location to dcTrack, Raritan’s data center infrastructure management (DCIM) software providing accurate asset location tracking to the 1U level in a rack.

Feature ports support Raritan’s electronic asset tagging to track assets in 1U rack increments



USB port supports USB Wi-Fi networking and USB webcams



Sensor ports for temperature, humidity, air pressure, airflow and contact closure sensors



LCD display for at-the-rack monitoring of all sensor data

## How does it work?

The Raritan EMX is a central connection point for all of Raritan’s environment sensors. The EMX LCD display and remote GUI provide access to sensor readings, including temperature, humidity, asset tags, airflow, air pressure and contact closure. These readings can be viewed with a Web browser or the information can be passed on to Raritan’s dcTrack data center infrastructure management (DCIM) software, Power IQ energy management and monitoring software, or third-party data center management tools.

With the asset management capability, you can remotely track IT equipment locations after tagging the IT devices electronically. This feature is especially useful when there are hundreds of IT devices to administer.

The asset management solution includes:

- ▶ Raritan Asset Management Tags (AMT): An electronic asset tag with a unique ID attaches to an IT device
- ▶ Raritan Asset Management Sensors (AMS): The asset sensors mounted on your racks monitor and provide location information on each asset
- ▶ Raritan EMX: A Web-based EMX GUI allows you to remotely see the location of each IT device or pass the information on to Raritan’s dcTrack DCIM software

With a Logitech® webcam connected to the EMX USB port, you can remotely view real-time images or video inside the data center from anywhere. The USB port can also support other USB devices like Wi-Fi® networking.

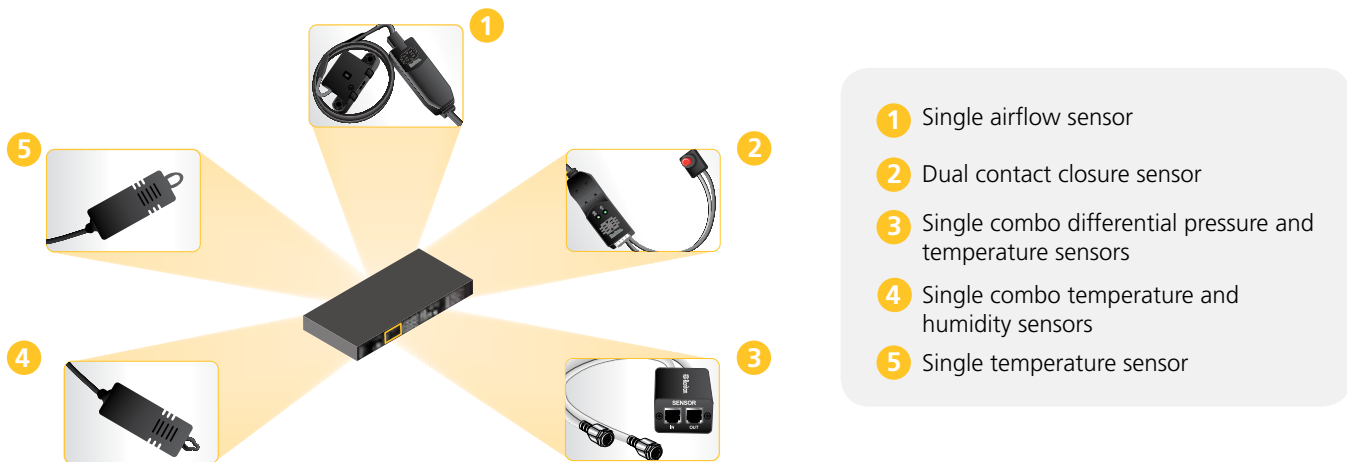
A standards-based SNMP interface can be used by any third-party data center management system. The SNMP interface offers the following features:

- ▶ Support for SNMPv1, v2 and v3 GETs/SETs/TRAPs
- ▶ The ability to configure and set values like thresholds through SNMP and receive TRAPs when sensors cross set points
- ▶ Read all asset tag IDs per rack and their physical location
- ▶ Receive TRAPs in case an asset tag is added, removed or moved
- ▶ Set an RGB color LED indicator for each rack unit (“U”) slot on the AMS. This can be used to implement a custom color indicator-controlled change management process, e.g., a red, blinking LED indicates a server replacement request

# Flexible monitoring and sensor options

## Smart controller and sensor options for data centers of all sizes

Model	Description
<b>EMX2-111</b>	Smart rack controller with 1 RJ-12 sensor port, 1 RJ-45 feature port for AMS, 1 RJ-45 RS-485 port, 1 USB-A port, 1 USB-B port, 1 RJ-45 Ethernet port, 1 DB-9M console/modem, LCD display
<b>EMX2-888</b>	Smart rack controller with 8 RJ-12 sensor ports, 8 RJ-45 feature ports for AMS, 8 RJ-45 RS-485 ports, 2 USB-A ports, 1 USB-B port, 1 RJ-45 Ethernet port, 1 DB-9M console/modem, 2 contact closure, LCD display
<b>DPX-T1</b>	Single temperature sensor – 3m (10 ft) cable length – RJ-12 connector
<b>DPX-T1H1</b>	Single combo temperature and humidity sensors – 3m (10 ft) cable length – RJ-12 connector
<b>DPX-T2H2</b>	Dual combo temperature and humidity sensors – 3m (10 ft) cable length from RJ-12 connector to combined temperature/humidity sensor, and additional 3m (10 ft) between additional combined temperature/humidity sensor (total length 6m/20 ft)
<b>DPX-T3H1</b>	Three temperatures, with the middle temperature also supporting humidity (four sensors total in three sensor housings). RJ-12 connection to the PX®/PX2 PDU. 4m (13 ft) cable length from RJ-12 to first sensor, 3 ft (1m) between first and second and second and third sensor housings
<b>DPX-AF1</b>	Single airflow sensor – 3m (10 ft) cable length – RJ-12 connector
<b>DPX-T1DP1</b>	Single combo differential pressure and temperature sensors – 3m (10 ft) cable length – RJ-12 connector
<b>DPX-CC2-TR</b>	Dual contact closure sensor – requires customer-provided Normally Closed (NC) or Normally Open (NO) switch like door open/closed, door locked/unlocked, smoke present/absent. Factory default is NC. Each of the two ports (channels) can be independently set to NC or NO. RJ-12 connector
<b>DPX-ENVHUB4</b>	Four-port hub for DPX-xxxx sensors only; comes with mounting bracket and RJ-12-to-RJ-12 cable to connect to and receive power from all PX and EMX models
<b>AMS-42</b>	Asset Management Sensor kit for 42U height rack. 1 connector and 1 RGB LED per U space. RJ-45 connector
<b>AMS-45</b>	Asset Management Sensor kit for 45U height rack. 1 connector and 1 RGB LED per U space. RJ-45 connector
<b>AMS-48</b>	Asset Management Sensor kit for 48U height rack. 1 connector and 1 RGB LED per U space. RJ-45 connector
<b>AMS-54</b>	Asset Management Sensor kit for 54U height rack. 1 connector and 1 RGB LED per U space. RJ-45 connector
<b>AMT-100</b>	100-pack of intelligent Asset Management Tags for AMS-nn with electronic ID and bar code



- 1 Single airflow sensor
- 2 Dual contact closure sensor
- 3 Single combo differential pressure and temperature sensors
- 4 Single combo temperature and humidity sensors
- 5 Single temperature sensor

Call +31 (0)10 284 4040 or visit [www.raritan.eu/EMX](http://www.raritan.eu/EMX)

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Raritan provides secure IT infrastructure management solutions that increase data center efficiency and productivity by delivering integrated in-band and out-of-band server access, control and power management. Raritan's KVM, serial console and intelligent PDU products are in use at over 50,000 locations worldwide. Raritan's OEM division provides embedded hardware and firmware for server and client management, including KVM over IP, IPMI, intelligent power management and other industry standards-based management applications.

Based in Somerset, NJ, Raritan has 38 offices worldwide, serving 76 countries. For more information, please visit [www.raritan.eu](http://www.raritan.eu)