

*Packet Powers' compact wireless Environmental Monitors makes it easy and affordable to monitor all environmental conditions in your facility.*

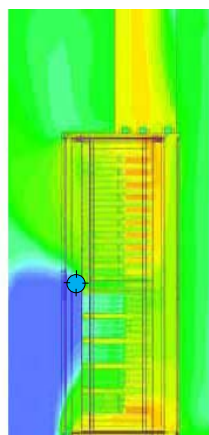
## From installation to monitoring in minutes

- 1 Place wireless monitoring nodes where you need them
- 2 New devices automatically join the network
- 3 Access data instantly

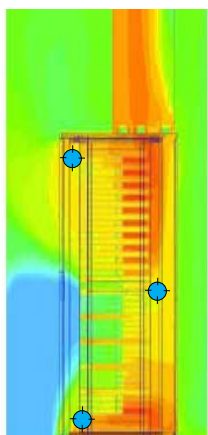


## Monitoring that adapts to your needs

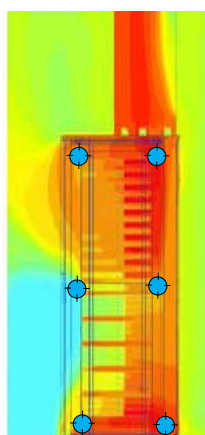
The highly flexible system lets you **gather temperature data from 1 to 12 points per cabinet**. Increase the number of points per cabinet to gain detailed insight into high-heat cabinets and scale it back to lower monitoring costs in low-heat areas. Customize the length of the temperature probes to perfectly match your monitoring strategy or use **pre-configured probe kits** to maximize ease of installation; And add relative humidity and differential pressure monitoring just where you need it



Low Density Cabinet:  
1 probe per cabinet



Standard Cabinet:  
3 probes per cabinet



High Density Cabinet:  
6 probes per cabinet

● Probe Location

## FEATURES

- ▶ Measure up to 12 temperature points per monitor
- ▶ Low cost per monitoring point
- ▶ Each monitor can cover one to 12 cabinets based on your needs
- ▶ Monitors temperature, differential pressure and humidity
- ▶ High precision measurement
- ▶ AC or battery powered
- ▶ Enables real-time facility heat maps
- ▶ Scalable to thousands of monitoring points per facility
- ▶ Minimizes IT resource requirements
- ▶ Isolates monitoring devices from primary data networks
- ▶ Instant access to data locally or using our cloud service
- ▶ Easy integration with third party BMS and DCIM systems
- ▶ Built on wireless technology proven to work in critical facilities

## Environmental Monitor Models



**E306-0000**

- ▶ Up to 6 temperature probes
- ▶ Relative humidity
- ▶ Dry contact status
- ▶ AC powered or PoE w/ splitter



**E306-P000**

- ▶ Up to 6 temperature probes
- ▶ Differential pressure
- ▶ Dry contact status
- ▶ AC powered or PoE w/ splitter



**E312-H000**

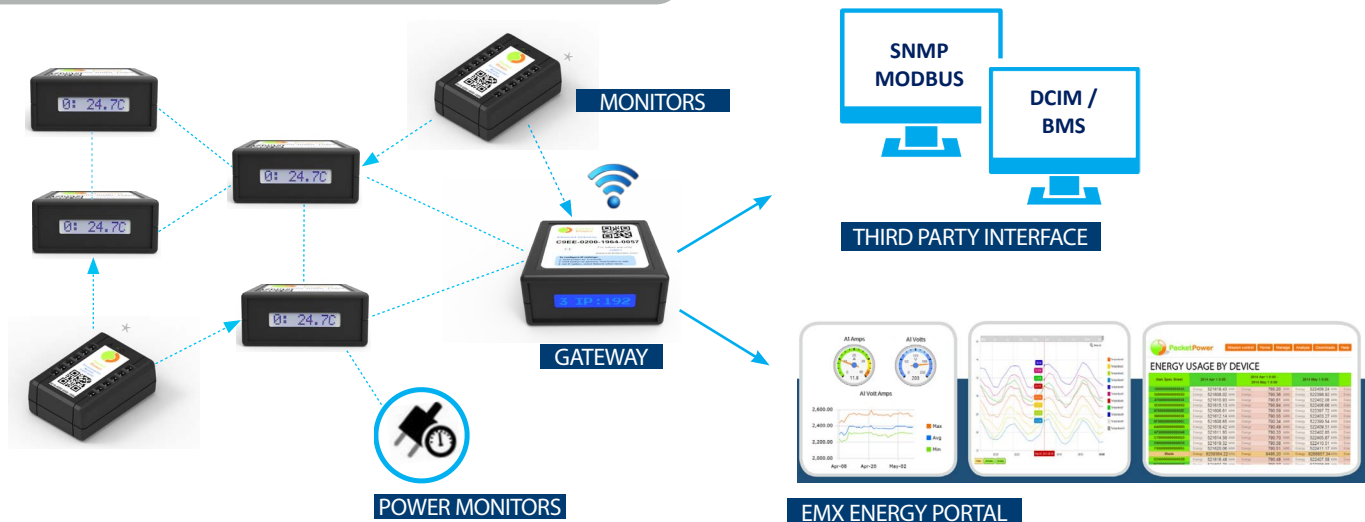
- ▶ Up to 12 temperature probes
- ▶ 2 year battery life
- ▶ Battery status reporting
- ▶ Optional AC power
- ▶ Optional relative humidity



**Temperature Probes**

Use easy to install pre-built kits or buy individual probes in lengths up to 15m

## Packet Power Architecture



Packet Power makes it easy to manage your monitoring network. The Ethernet Gateway automatically detects any new monitoring devices, seamlessly adding them to the network. The monitors communicate via a mesh network routing traffic through any nearby monitors to find the optimal path to a Gateway. This robust and resilient technology results in a wireless network that is as reliable as a wired network but much easier to install, manage and secure. Gateways, which can each support up to 300 monitoring units, can be added to expand capacity and provide redundancy.

\* Battery powered devices can transmit through the relay network but can not act as a relay nodes.

## Packet Power Wireless Monitor Family



Three phase power monitor for busway, PDUs and underfloor whips



Smart Cables : Three phase power cables with embedded wireless monitoring from 16 to 63A



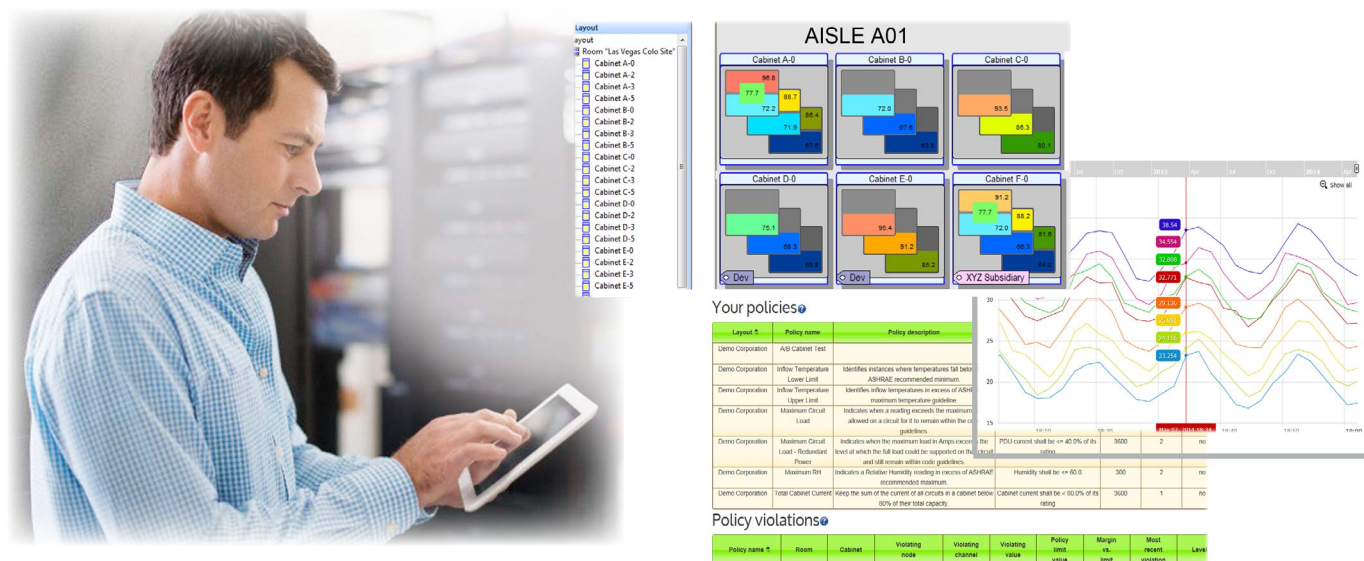
Smart Cables : Single phase power cables with embedded wireless monitoring from 10 to 63A



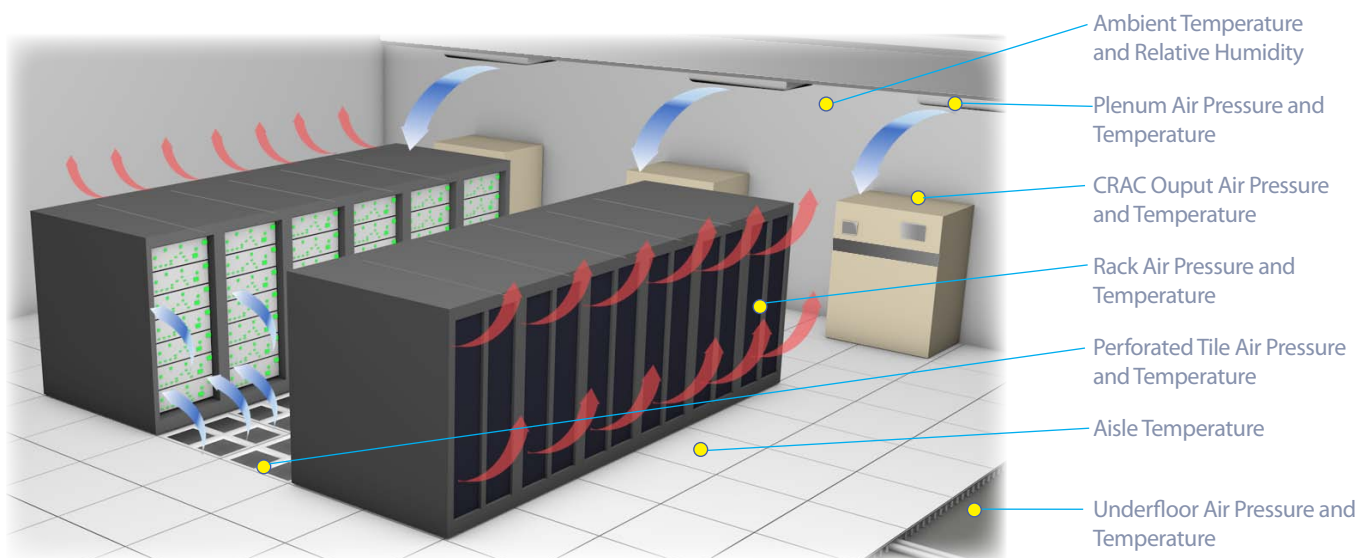
Multi-Circuit Panel: Monitors up to 9 three phase circuits

## Delivering the information you need

Access monitoring data from your existing DCIM application or use Packet Power's EMX Energy Portal to quickly and easily gain insight into how your facility is performing. EMX provides useful data instantly without the need for expensive consultants or lengthy customization and can be easily tailored by you as your needs evolve over time. With full support for real-time heat maps, enterprise-level alerts, and in-depth reporting, it provides a monitoring system that is high on capability but low on complexity. You can either run EMX at your site or just sign in to Packet Power's cloud service.



## How Packet Power monitoring can help you



Packet Power Environmental Monitors provide a detailed picture of heat, humidity and air flow in your facility. The information can be used to:

- ▶ Identify wasted or misdirected air flow
- ▶ Optimize flow and focus cooling on areas where most needed
- ▶ Verify the effects of containment systems and other air handling efficiency efforts
- ▶ Be alerted to changes that may indicate potential performance problems
- ▶ Avoid damage to equipment from overheating
- ▶ Safely raise ambient temperature
- ▶ Ensure compliance with industry guidelines
- ▶ Easily correlate pressure and temperature changes

**MEASUREMENT**

Temperature	±1° C at 0.1° C resolution with readings in °C or °F.
Relative Humidity	From 0 to 100% RH at ±2 % RH at 0.1% resolution
Dry Contact	Contact Packet Power for specific sensing devices
Differential Pressure	±500 Pa (±2"H <sub>2</sub> O), 0.2Pa or ±3% accuracy full span

**COMMUNICATIONS**

Operating Frequency	860 to 920MHz and 2.4 GHz (frequencies vary by region)
Wireless Network Protocol	Frequency hopping self-configuring load-balancing mesh
Data Output	SNMP and Modbus TCP/IP protocols
Firmware Updates	Wireless
Typical Transmission Range	10 to 30 meters indoors between any two devices in mesh network
Antenna	Fully enclosed, fixed configuration
Monitoring Unit to Gateway Radio	Up to 300 monitoring units per gateway and unlimited Gateways per site
Multi-site Support	Yes
Encryption	128-bit
System Status	Local LCD display on E306 models

**OPERATING ENVIRONMENT / MECHANICAL / POWER SUPPLY**

Operating Temperature	Monitoring Unit: 0° to +40° C (+32 to +104 °F) Temperature probes: -40° to +85 °C (-40 to +185 °F)
Operating Humidity	10% to 90% non-condensing
Water and Dust Resistance	NEMA 1 / IP20 (indoor use)
Module Size and Weight (E306)	65 mm (2.6") x 65 mm (2.6") x 28 cm (1.1"), 90 g (3 oz)
Module Size and Weight (E312)	80 mm (3.1") x 53 mm (2.1") x 40 cm (1.6") (3 oz; 5 oz with batteries)
Batteries (E312 only)	2 x AA (included)
External AC Power Supply	100- 240 VAC input voltage, 50-60Hz / 5 VDC output ; 0.5 W power consumption
Power Supply Plug Types	C14, NEMA 1-15, Euro CEE 7/16, ANZ AS 3112, China GB 2009, UK BS1363, India BS546

**MONITORING MODULES**

Model	Max. Probes	Relative Humidity	Differential Pressure	Power AC	Battery	Mounting Bracket
E306-0000	6	N	N	Y	N	Optional
E306-H000	6	Y	N	Y	N	Optional
E306-P000	6	Y	Y	Y	N	Optional
E312-0000	12	N	N	Opt.	Y	Standard
E312-H000	12	Y	N	Opt.	Y	Standard

**TEMPERATURE PROBE ASSEMBLIES**

Model	Probes per Rack	Racks Per Monitor	Total Probes	Probe Lengths	Use with Monitor
TP03-01X6	1	6	6	1x 3m, 4x 4m, 1x 5m	E306
TP03-02X3	2	3	6	1x 2m, 3x 3m, 2 x 4m	E306
TP03-03X2	3	2	6	1x 1m, 2x 2m, 2x 3m, 1x 4m	E306
TP03-06x1	6	1	6	2x 1m, 2x 2m, 2x 3m	E306
TP03-06X2	6	2	12	2x 1m, 5x 2m, 3x 3m, 2x 4m	E312
TP03-04X3	4	3	12	2x 1m, 4x 2m, 2x 3m, 4x 4m	E312
TP03-03X4	3	4	12	1x 1m, 3x 2m, 4x 3m, 4x 4m	E312
TP03-02X6	2	6	12	1x 1m, 2x 2m, 4x 3m, 4x 4m, 1x 5m	E312

**INDIVIDUAL TEMPERATURE PROBES**

Model	Length
TPP3-001M	1 m
TPP3-002M	2 m
TPP3-003M	3 m
TPP3-004M	4 m

**PROBE EXTENDERS**

Model	Length
TPP3-X02M	2 m extension cable
TPP3-X04M	4 m extension cable
TPP3-X09M	9 m extension cable

Maximum probe length is 15m

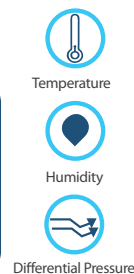
Packet Power, 2716 Summer St. NE, Minneapolis, MN, 55413 USA

Tel: 877-560-8770 - Fax: 866-324-2511

www.packetpower.com







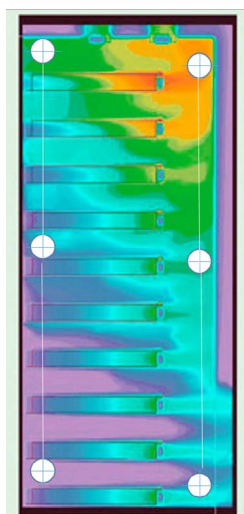
### From installation to monitoring in minutes

Packet Powers' compact wireless Environmental Monitors makes it easy and affordable to monitor all environmental conditions in your facility. The wireless and battery powered monitors let you can locate sensors exactly where they are needed. Installation is further simplified by a self configuring network that automatically adds new devices.

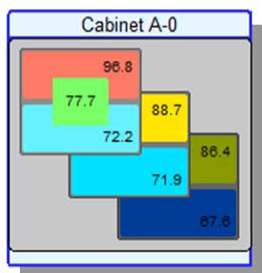


### Multi-zone thermal monitoring advantages

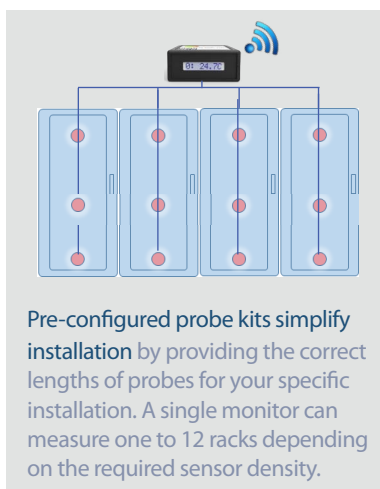
Traditional rack thermal monitors look at only a single point, missing the true thermal picture of your rack. Using the Packet Power multi-point sensor system, you can reveal critical hot spots and accurately identify your thermal range. These temperatures are instantly translated to an easy visual reference using the Packet Power EMX Portal.



Server Rack (side view)



3D Thermal Map showing rack temperatures for each zone



High Resolution: 6 probes per cabinet

Standard: 3 probes per cabinet

Low Heat: 2 probes per cabinet

### FEATURES

- ▶ Measure up to 12 temperature points per monitor
- ▶ Low cost per monitoring point
- ▶ Captures up to 12 sensor readings per monitor
- ▶ Monitors temperature, differential pressure and humidity
- ▶ High precision measurement ( $\pm 1^\circ\text{C}$ ,  $\pm 2\%$  RH, 3% pressure)
- ▶ AC or battery powered options
- ▶ Enables real-time facility heat maps; easy mapping of temperature readings to facility layout diagrams
- ▶ Scalable to thousands of monitoring points per facility
- ▶ Minimizes IT resource requirements
- ▶ Isolates monitoring devices from primary data networks
- ▶ Instantly connects with EMX monitoring solution (cloud based or local application)
- ▶ Easy integration with third party BMS and DCIM systems (ModBus TCP/IP or SNMP output)
- ▶ Built on wireless technology proven to work in critical facilities