Wireless Environmental Monitoring

PACKETPOWER

The easiest and most affordable way to monitor environmental conditions in your facility

Packet Power's wireless Environmental Monitors provide the flexibility to monitor temperature, relative humidity and differential pressure exactly where you need. They're an easy to install, cost-effective way to reduce energy costs and improve reliability in your facility.

Gain real-time insight that can be used to:

- Identify hot spots, optimize airflow and focus cooling on areas where it's most needed
- Safely raise ambient temperature to reduce energy costs while avoiding damage to equipment from overheating
- Manage humidity
- Ensure compliance with industry guidelines and SLAs
- Be alerted to changes that may indicate potential performance problems.

Environmental Monitoring Options

Gather temperature data from one to three points per unit, and measure relative humidity just where you need it.

	E300	E302	E306	E312
Temperature points (max)	1	3	6	12
Temperature probe ports	0	2	6	12
Power source	Battery	Battery	AC / POE*	Battery / AC / POE*
Relative humidity	Standard	Standard	Optional	Optional
Differential pressure	-	-	Optional	-

** POE sources can be used with a POE splitter*

Installs quickly

Battery or AC power? One reading per row or 12 readings per rack? No problem. Our range of environmental monitors combines industry-leading flexibility with exceptionally low costs. From the pure wire-free simplicity of the "stick and go" E300 to the tremendous flexibility of covering twelve points across as much as 30 meters with an E312, Packet Power's ability to match the amount of metering to your needs and eliminate all data communications wiring makes it easy to measure what matters to you.

Why Packet Power

Lowers costs

- Monitor only where you need at the lowest cost-per-monitoring point in the industry
- Installs easily with no ongoing maintenance required
- Provides insights needed to manage cooling effectively

Secure

- Unique purpose-built wireless protocol can only be used for monitoring
- Full separation of wireless monitoring and wired data networks
- Proven in data centers worldwide

Open

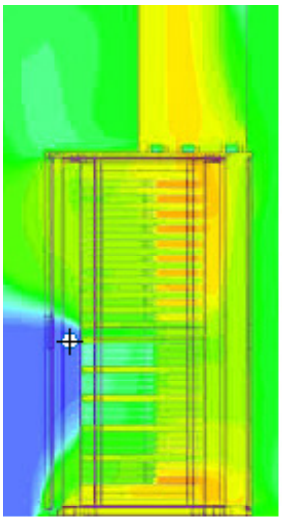
- Send data to any DCIM or BMS using SNMP or Modbus

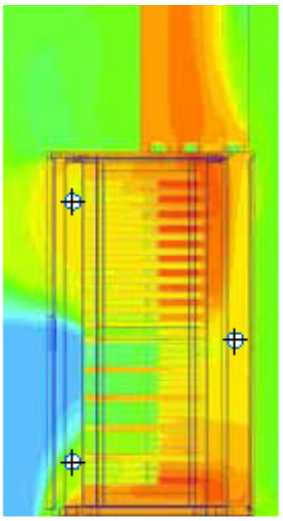
Scalable

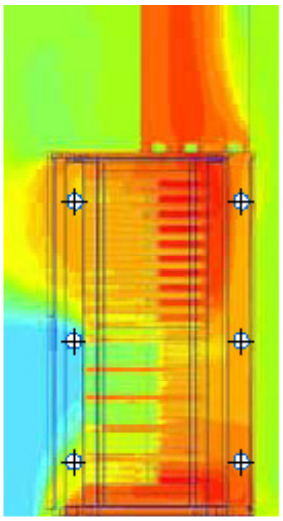
- Grows easily from tens to thousands of monitoring points per facility

Cost effective monitoring that adapts to your needs

Why monitor at the same number of points in every rack? Packet Power makes it easy to vary the number of monitoring points in each cabinet based on your needs.







Probe location

Low Density Cabinet

1 probe per cabinet

Standard Cabinet

3 probes per cabinet

High Density Cabinet

6 probes per cabinet (2 monitors)

Monitor at 6 points for high density cabinets and 2 or 3 points in a standard cabinet. Target known problem areas or specific customer racks. Use under the floor, in plenum, in containment and across rows. Installation is easy and total cost of ownership is much less than our competitors' wired and wireless offerings.

Technical Specifications

Measurement

Temperature	±0.3°C at 0.1°C resolution with readings in °C or °F Temperature probe range: -34° to 75°C (-31° to 167°F) Internal sensor range: 0° to 50°C (32° to 122°F)
Relative humidity	0 to 100% RH at ±2% RH at 0.1% resolution
Dry contact	Contact Packet Power for specific sensing devices; specific ports may be configured for dry contact sensing
Differential pressure	±125 Pa (±0.5 inch WC) range, 0.1 Pa zero point accuracy, ±3% accuracy full span
Time constant	30 seconds in moving air

Communications

Operating frequency	860 to 930 MHz and 2.4 GHz (frequencies vary by region)
Wireless network protocol	Frequency hopping self-configuring load-balancing mesh
Data output (Gateway)	SNMP and Modbus TCP/IP protocols with one IP address needed per Gateway. Simultaneous output to EMX cloud or local energy management system
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 ratio	Up to 150 monitoring units per gateway with unlimited gateways per site with AC powered devices; up to 25 monitoring units per gateway with battery powered devices
Multi-site support	Yes
Encryption	128-bit encryption
System status	Local LCD display on E306 models
Radio Certifications	FCC, Industry Canada and CE / IEC

Environmental & Mechanical

Operating temperature	Monitoring unit: 0° to 50°C (32° to 122°F) Temperature probe: -40° to 90°C (-40° to 194°F)
Operating humidity	10% to 90% non-condensing
Water and dust resistance	Indoor use
Module size and weight (E300 and E302)	40mm x 40mm x 20mm; 20g 40mm x 55mm x 20mm (with mounting flanges)
Module size and weight (E306)	65mm x 65mm x 28mm; 70g
Module size and weight (E312)	80mm x 53mm x 40mm; 70g (120g with batteries)
Batteries	Lithium coin cell for E300 and E302; 2 AA alkaline for E312
External AC power supply	100 to 240V AC input; 50 to 60 Hz (5V DC) output; 0.5W power consumption

Temperature Probes

Pre-bundled Temperature Probe Assemblies

Model	Probes per rack	Racks per monitor	Total probes	Probe lengths	Use with Monitor
TP03-01X6	1	6	6	1 x 3m, 4 x 4m, 1 x 5m	E306
TP03-02X3	2	3	6	1 x 2m, 3 x 3m, 2 x 4m	E306
TP03-03X2	3	2	6	1 x 1m, 2 x 2m, 2 x 3m, 1 x 4m	E306
TP03-06X1	6	1	6	2 x 1m, 2 x 2m, 2 x 3m	E306
TP03-06X2	6	2	12	2 x 1m, 5 x 2m, 3 x 3m, 2 x 4m	E312
TP03-04X3	4	3	12	2 x 1m, 4 x 2m, 2 x 3m, 4 x 4m	E312
TP03-03X4	3	4	12	1 x 1m, 3 x 2m, 4 x 3m, 4 x 4m	E312
TP03-02X6	2	6	12	1 x 1m, 2 x 2m, 4 x 3m, 4 x 4m, 1 x 5m	E312

Individual Temperature Probes

Use with E302, E306 or E312

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

Probe Extenders

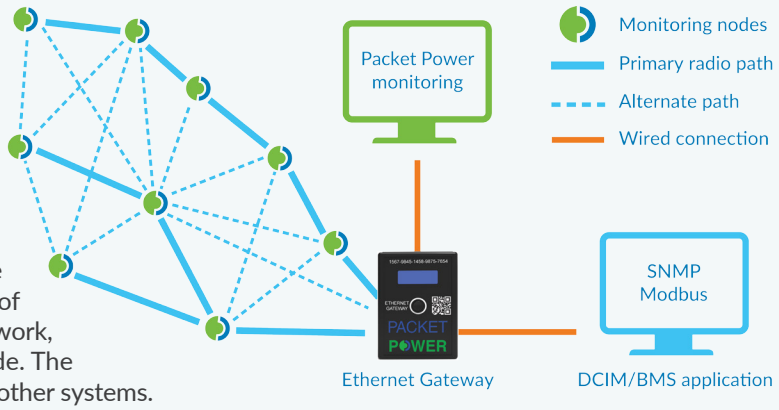
Model	Length
TPP3-X02M	2m extension cable
TPP3-X04M	4m extension cable
TPP3-X09M	9m extension cable

Packet Power Wireless Mesh

The most proven wireless monitoring system for data centers worldwide

Packet Power's self-configuring mesh network makes installation simple. Adding new monitors and gateways is easy as the system automatically configures and manages itself. Because the system determines the optimal path for every transmission, performance stays consistent even as the network grows.

The unique wireless monitoring protocol is different than WiFi or Zigbee and was purpose-built for data centers. It uses 900 MHz and 2.4 GHz frequencies that can only be used for monitoring. It allows for a complete separation of the wireless monitoring network from the wired data network, supports full encryption and is certified for use worldwide. The resulting mesh network is more resilient and secure than other systems.



Packet Power Wireless Monitoring Solutions

Packet Power offers power monitors that can be used throughout a facility -- both AC and DC -- from the utility feeds all the way down to an individual device. Our unique, purpose-built wireless protocol makes them easier to install, easier to operate, and more secure than competing solutions. Monitoring data is easily accessed using standard SNMP or Modbus protocols.

Smart Power Cables
feature a power meter embedded into a power cable providing true plug-and-play installation for metering at the IT cabinet. Single- or 3-phase circuits, 10 to 63 Amps, any connector type.

Direct current (DC) meters
measure energy usage in both telco (48V) and data center (380V) deployments on circuits from 35 to 3,000 Amps.

Power and environmental monitoring software
that is offered as both a hosted service and a locally installed application.

Selective circuit monitoring
units capable of measuring utilization on circuits ranging from 20 to 1,000's of Amps in distribution panels, RPPs and switchgear.

Ethernet Gateways
are required in all installations and link the wireless monitors to the customer's data network.

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