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.*

<table>
<thead>
<tr>
<th></th>
<th>E300</th>
<th>E302</th>
<th>E306</th>
<th>E312</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Temperature points (max)</strong></td>
<td>1</td>
<td>3</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td><strong>Temperature probe ports</strong></td>
<td>0</td>
<td>2</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td><strong>Power source</strong></td>
<td>Battery</td>
<td>Battery</td>
<td>AC / POE*</td>
<td>Battery / AC / POE*</td>
</tr>
<tr>
<td><strong>Relative humidity</strong></td>
<td>Standard</td>
<td>Standard</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td><strong>Differential pressure</strong></td>
<td>-</td>
<td>-</td>
<td>Optional</td>
<td>-</td>
</tr>
</tbody>
</table>

*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.

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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

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**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.*

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**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**: ±500 Pa (±2 inch water column) range, 0.2 Pa or ±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
- **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

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

#### Individual Temperature Probes

Use with E302, E306 or E312

<table>
<thead>
<tr>
<th>Model</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPP3-001M</td>
<td>1m</td>
</tr>
<tr>
<td>TPP3-002M</td>
<td>2m</td>
</tr>
<tr>
<td>TPP3-003M</td>
<td>3m</td>
</tr>
<tr>
<td>TPP3-004M</td>
<td>4m</td>
</tr>
</tbody>
</table>

### Probe Extenders

<table>
<thead>
<tr>
<th>Model</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPP3-X02M</td>
<td>2m extension cable</td>
</tr>
<tr>
<td>TPP3-X04M</td>
<td>4m extension cable</td>
</tr>
<tr>
<td>TPP3-X09M</td>
<td>9m extension cable</td>
</tr>
</tbody>
</table>
Packet Power Wireless Mesh

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.

Packet Power Wireless Monitoring Solutions

The most proven wireless monitoring system for data centers worldwide

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