Critical Things®

Ekko Sense

EkkoSensor

Wireless Temperature and Humidity Sensors with optional display

- **Ultra-low-cost IoT wireless sensors**
- **Unrivalled levels of sensing accuracy and granularity**
- **Secure solution with 128-bit AES encryption and physical airgaps**
- **Rapid installation and low-cost deployment**

Whether it's...
- handling increased IT workloads,
- remodeling for AI compute
- or delivering against corporate ESG and net zero demands,

today's data center operations teams require absolute real-time white space visibility.

The only reliable way for teams to achieve this is to gather massive amounts of data from across their enterprise. For years ASHRAE advocated measuring just one out of every three racks. However, new research from EkkoSense has shown that all IT racks should have at least one thermal sensor on their inlet air surface in order to provide adequate thermal monitoring coverage.

More sensors ensure much higher and granular spatial resolution – right down to rack level. With sensors on every rack, you can not only better optimize your environment, but also ensure that key team members are alerted when a threshold is breached - enabling rapid response.

The good news is that all the data is out there, ready to be collected. Operations teams just need to capture it. That's why EkkoSense has disrupted traditional data collection. By using the ultra-low-cost Internet of Things wireless EkkoSensor, much higher numbers of sensors can be deployed across the data center.

Our unrivalled levels of IoT sensing bring new levels of accuracy and granularity to data center operations. This provides the core machine learning data that enables true real-time visibility of critical cooling, power and capacity performance.

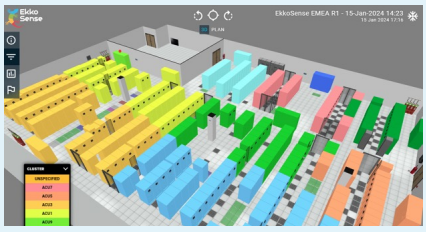
The machine learning data collected by EkkoSensors feeds into our EkkoSoft Critical AI-powered data center optimization software. This approach unlocks the intelligence needed to help teams stay on top of their escalating workloads and sustainability tasks. EkkoSensor data directly supports key EkkoSoft Critical functionality.

EkkoSensor enables...

EkkoSoft® Critical 8

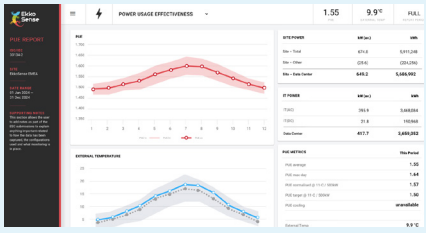
ASHRAE Compliance

EkkoSensors are low-cost and easy-to-install, encouraging data center teams to comply with ASHRAE guidelines for inlet temperatures and protect against cooling issues that account for a third of unplanned outages.



3D Data Center Visualization

Thanks to EkkoSensor data, operations teams get to see all their cooling, power and thermal conditions presented via intuitive 3D visualizations



ESG Reporting

EkkoSoft Critical's granular accuracy allows access to key ESG Reporting metrics including PUE, CUE, WUE and CER for CSRD and EED.

Images show actual software footage

Critical Things®

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EkkoSensors disrupt the traditional sensor cost model and made the real-time thermal management of critical facilities such as data centers a possibility.

Our ultra-low cost 'Critical Things®' sensors are compact and unobtrusive, and can be deployed in large numbers – ensuring that high spatial resolution is available, down to rack-level where required. This allows the air temperature and humidity at each asset of interest to be accurately monitored, and wirelessly transmitted to enable the measurement of values at predefined intervals.

EkkoSensors are entirely self-contained and battery-powered for simpler installation, and provide a direct sensor-to-hub linkage to keep the radio network simple and deliver predictable battery life and performance. Each sensor is uniquely identified at manufacture, and associated with a specific asset at installation.

The TDX EkkoSensor includes a local display of the measured temperature and relative humidity values and supports configurable temperature alert thresholds. The screens can be cycled through to show alert status, temperature profiles over the last hour, 24 hours and 7 days for quick thermal assessment on site.

All measurement data is encrypted with 128-bit AES encryption before transmission to an EkkoHub wireless data receiver for forwarding to our cloud-based EkkoSoft® Critical visualization and analysis software.

EkkoSensors also support two optional additional external thermistors, enabling compliance monitoring to add more coverage for liquid cooling or hybrid cooling environments. The sensor automatically detects the presence of additional thermistors and starts transmitting measurement values. 1.2m flylead thermistors are available as a standard accessory.

Technical specifications

Operating temperature range
-10°C to 55°C (14°F to 131°F)

Operating humidity range
0% to 100% non-condensing

Temperature accuracy (internal sensor)
±0.3°C typical (±0.5°F)

External inputs measurement accuracy (excluding accuracy of thermistor)
±0.6°C typical (±1°F)

External thermistor characteristic
10k at 25°C, B=3435K. Standard length 1.2m, other lengths available subject to minimum order quantity

Humidity accuracy
±2% typical from 20%to 80% RH

Temperature alerts (TDX model only)
Low and high thresholds configurable between -30°C and 69°C (-22°F and 156°F)
Alerts can be generated by some or all temperature inputs

Weight
51g (1.8oz), 62g (2.2oz) in clip

Dimensions
75mm x 55mm x 22mm (3" x 2.2" x 0.9") 80mm x 58mm x 28mm (3.1" x 2.3" x 1.1") in clip

Operating range (from EkkoHub)
> 20m (21yds)

Battery life
> 5 years at 2 minute transmit interval (THX)
> 3 years at 2 minute transmit interval (TDX)

RF data link
GFSK 250kbit/s at 868.3MHz (ES versions) or 923MHz (FS versions)

Enclosure material
Black ABS with polycarbonate front window

Mounting method
Cable tie through clip or self-adhesive pad

Power supply
Internal field replaceable ½ AA lithium thionyl chloride battery

Core regulatory approvals
CE marked:
Radio Equipment Directive (RED) 2014/53/EU
Low Voltage Directive (LVD) 2014/35/EU
Radio EN 300 220
EMC EN 61326-1 with reference to EN 301 489
Safety - EN 60950
FCC rules CFR 47 Part 15.107 and 15.109 Class A
FCC rules CFR 47 Part 15.247 ISED RSS-247

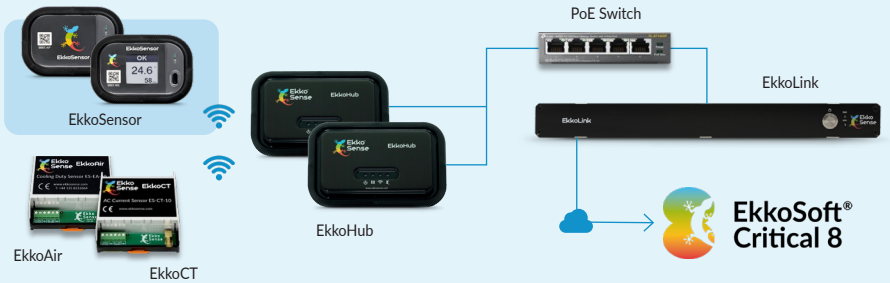
Approved countries
Australia, Brazil, Canada, Chile, China, Columbia, European Union, Hong Kong, India, Japan, New Zealand, Saudi Arabia, Singapore, South Africa, South Korea, UAE, UK, USA, Vietnam.

Standard deployment

Example EkkoSensor rack placements

Air Cooled | Heat Exchanger | Direct to Chip | Immersion Cooled

Position in EkkoLink architecture



Secure 128-bit AES encryption

EkkoSoft direct mode for Edge support

Integration with existing 3rd party systems

Modbus
BIX SNMP
Comprehensive integration capabilities for complete data center coverage

Bring the power of EkkoSense AI to your critical facilities

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