

# Nodegrid Environmental Sensors

**An ounce of prevention is worth a pound of cure. But what if you don't know about the problem?**

Nodegrid's sensors and alerting devices give you visibility into your IT assets. Quickly scale and collect crucial environmental data, whether monitoring for temperature changes or human errors. Respond in real time with the right information at your fingertips, and integrate with Nodegrid Data Lake to drive smart IT decisions using comprehensive analytics.



## Maintain Continuity

Install fast using zero touch provisioning, and immediately start protecting your IT assets from disruption.

## Prevent Catastrophe

Use remote monitoring and alerting to respond instantly. Fix issues and stop outages before catastrophe can strike.

## Optimize Efficiency

Integrate with Nodegrid Data Lake for complete KPI visibility, and see exactly how to get more out of your systems.

## Questions to Ask

- How will you know if there's a cooling failure in your large-scale environments?
- How long does it take to identify and respond to issues at your remote sites?
- How much downtime do you experience due to unplanned environmental changes?
- Can your IT infrastructure warn of serious issues, or leave you responding to catastrophe?

## Where to Deploy?

**Deploy Nodegrid's sensors and alerting devices at:**

- Data centers and colocation hubs
- Critical remote locations, like cellular base stations
- Large-scale locations with power and cooling concerns
- Distributed sites where there's limited staff presence



- Dry Contact
- Temperature and Humidity
- Smoke
- Airflow
- Beacon and Alarm
- Dust and Particulate
- GPIO
- Relay

## Don't Expose your Business to More Risk

- Environmental changes: Fires and floods might be obvious to identify. But what about power surges, temperature spikes, or humidity changes?
- Human error: As skilled as your staff are, mistakes happen. Will you know if they unknowingly configure the wrong settings or forget to lock the rack door?
- Security: Attacks can come from inside your organization. Do you have the tools in place to detect open ports or even physical attacks on your equipment?

## 8 Channel USB GPIO Module

IO8-U01



Seamlessly connect real-world devices via USB. This GPIO device hides the complexity of USB and integrates with Nodegrid USB port. Detect open rack doors or discover triggered sensors. Control and read status using CLI, Web, SNMP or Restful APIs.

- 8 TTL compatible GPIOs individually configured as input or output
- 6 Analog input channels (Multiplexed with GPIOs) with 10-Bit Resolution

## 4 Channel USB-Powered Relay Module

RL4-U01



Automate control of your equipment and sensors with this easy-to-use 4-port relay module. Connect to Nodegrid USB port, and relay simple commands to devices . Control and read relay status using CLI, Web, SNMP or Restful APIs.

- 4 onboard DPDT Relays
- 2A Maximum Switching Current
- 4 TTL (5V) Compatible GPIOs
- 4 Analog Input Channels (Multiplexed with GPIOs)
- 10 bits Analog Input Resolution

## Temperature and Relative Humidity Sensor

THS-U01

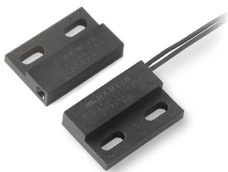


Acquire environmental temperature and relative humidity readings. Easily integrate the compact probe in space-constrained locations, and get precise measurements from the factory-calibrated, linearized, and temperature-compensated digital sensor chip. The built-in particle filter protects the components against dust, soot, and other particle contaminants. Control and read status using CLI, Web, SNMP or Restful APIs.

- Temperature:  $-40^{\circ}\text{C}$  to  $70^{\circ}\text{C}$ ,  $\pm 0.3^{\circ}\text{C}$
- Relative humidity: 0 %RH to 100 %RH,  $\pm 2.0$  %RH

## Flange Mount Proximity Sensor

DOOR-01



Ensure rack doors are in the proper position using this proximity sensor. You don't need standby power, and can simply install using adhesives or hardware. This hermetically sealed, magnetically operated sensor works through wood, plastic, and other non-ferrous materials, with contacts that function even after optical and other technologies fail due to contamination. Read door status using CLI, Web, SNMP or Restful APIs.

- Temperature Range  $-40$  to  $+105$
- Ships with both Sensor and Actuator



## USB Signal Beacon with Alarm

BCON-U01

Pinpoint rack and device problems using this USB Signal Beacon with Alarm. Get visual and audible feedback when your systems fall out of spec, and respond quickly to problem areas. This beacon integrates with Nodegrid USB port, and features a long-lasting lifetime with IP65 protection from water and dust. Control and read status using CLI, Web, SNMP or Restful APIs.

- 3 Meter cable length
- Blue LED
- Buzzer 80dBm @ 1 meter



## USB Signal Beacon (no alarm)

BCON-U05

See which systems need attention with this USB Signal Beacon (no alarm). Receive multi-color visual indication of problematic devices and systems. This beacon is controlled and powered fully via USB port. Control and read status using CLI, Web, SNMP or Restful APIs.

- 5 Meter cable length
- Solid or Blink
- Red, Green, Blue LED



## Airflow and Temperature Sensor

AIR-U01

Prevent lack of device airflow from causing downtime. This airflow and temperature sensor provides highly precise readings (up to 200fpm) via digital interface, so you can instantly know when a device's fan slows down or fails. Control and read status using CLI, Web, SNMP or Restful APIs.

- Velocity Range: 0.15 to 1.0 m/s [30 to 200 fpm]
- Operating Temperature: 0°C to 60°C (32°F to 140°F)
- Supply Power Requirements: 4.5 - 12 VDC, 35mA
- Cable Length 4 Meters



## Airflow and Temperature Sensor

AIR-U02

Stop downtime due to HVAC failure. This airflow and temperature sensor provides highly precise readings (up to 2,000fpm) via digital interface. Find out exactly when and where your HVAC systems have slowed or failed, and quickly respond to prevent downtime. Control and read status using CLI, Web, SNMP or Restful APIs.

- Velocity Range: 0.5 to 10.0 m/s [100 to 2,000 fpm]
- Operating Temperature: 0°C to 60°C (32°F to 140°F)
- Supply Power Requirements: 4.5 - 12 VDC, 35mA
- Cable Length 4 Meters

## Smoke Detector

SMK-U01



Detect smoke. Use in conjunction with the USB-GPIO's dry contact and USB Relay modules. Get notified if the detector becomes triggered, and remotely power on/off. Control and read status using CLI, Web, SNMP or Restful APIs.

- Smoke detection complies with EN 54-7:2000+ A1:2002
- IP30 ingress protection
- 3 Meter cable

## Particulate Sensor

DST-U01



Set up this compact sensor and respond quickly to airborne contamination. This Particulate Sensors features a high concentration range, and it offers 10 years of continuous use so you can set it and forget it. Monitor and respond to environmental particulates, and ensure optimal air quality for your operations. Control and read status using CLI, Web, SNMP or Restful APIs.

- Laser-based light scattering particle sensing with <6 s response time
- Fully calibrated with concentration range: 0  $\mu\text{g}/\text{m}^3$  to 1,000  $\mu\text{g}/\text{m}^3$
- EMC: Heavy industrial level IEC61000
- PM2.5, PM10 output (standard); PM1.0, PM2.5, PM4.0, PM10 output (compact)
- RoHS and REACH compliant
- 4 Meter cable

## 7-Port USB 3.0 Hub

HUB-U01



Connect more sensors and USB devices to your Nodegrid appliances using this 7-Port USB 3.0 Hub. Cover all possible environmental setbacks by connecting up to seven additional Nodegrid sensors.

- 1 Meter Cable, Swappable.

Product SKU	Description
THS-U01	Temperature and Humidity USB sensor, cable 2m (6.5ft)
AIR-U01	Air Flow and Temperature USB sensor, 0.15 to 1.0 m/s [30 to 200 fpm], cable 4m (13ft)
AIR-U02	Air Flow and Temperature USB sensor, 0.5 to 10.0 m/s [100 to 2,000 fpm], cable 4m (13ft)
DOOR-01	Proximity sensor, cable 4m (13ft) - Requires IO8-U01
RL4-U01	4-port Relay via USB, cable 3m (10ft)
IO8-U01	8-port GPIO via USB, cable 3m (10ft)
BCON-U01	Beacon with alarm USB, black base, blue light, cable 3m (10ft)
BCON-U05	Beacon, no alarm USB, black base, clear light, cable 5m (16ft)
SMK-U01	Smoke detector, cable 3m (10ft) - Requires IO8-U01 and RL4-U01
DST-U01	Particle USB sensor, cable 4m (13ft)
HUB-U01	7-Port USB 3.0 Hub, cable 1m (3.3ft)