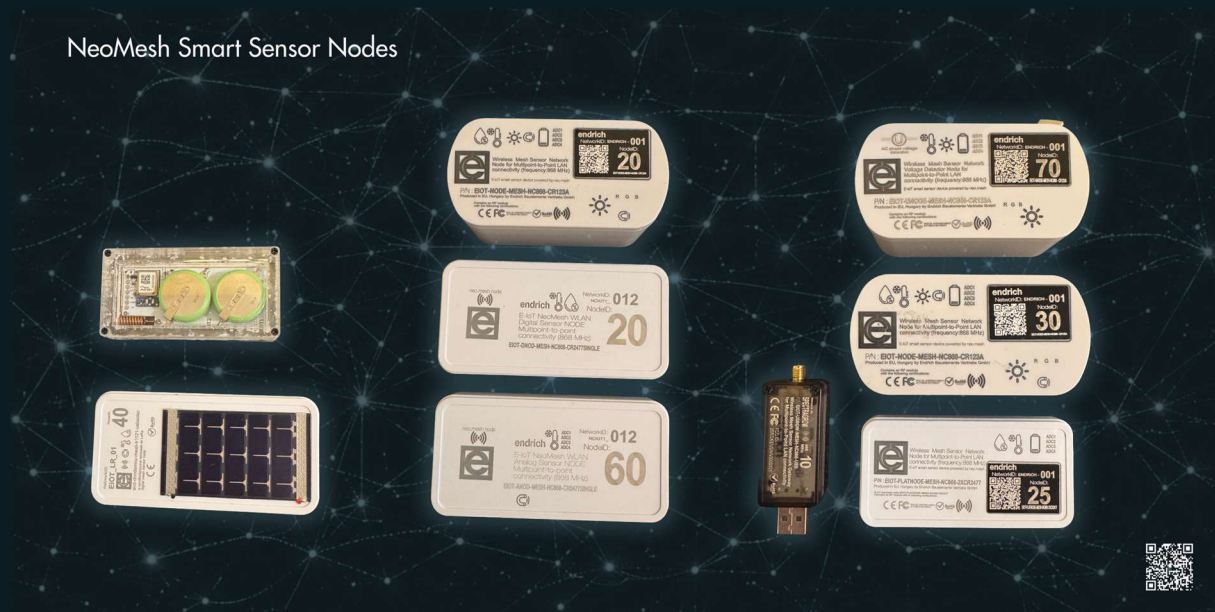




NeoMesh Smart Sensor Nodes

E-IOT NeoMesh smart sensor nodes combine sensing, local processing and low-power wireless communication in compact devices. Battery-powered and energy-harvesting variants support distributed monitoring, while a shared gateway connects the sensor network to a local application or the E-IOT Cloud.

Products shown

- Battery-powered multisensor nodes — Compact units with CR123A-labelled variants, supporting combinations of environmental sensing, light measurement, magnetic detection and analog inputs according to the fitted hardware.
- Digital sensor nodes — Devices labeled for digital sensing, including temperature and humidity monitoring configurations.
- Analog sensor nodes — Variants providing analog acquisition channels for compatible external signals and sensors.
- AC voltage-presence detector node — A dedicated variant labeled for AC phase-voltage detection, intended to report the presence or absence of the monitored supply.
- Flat battery-powered sensor node — A low-profile enclosure labeled for two CR2477 cells, providing an alternative mechanical format for installations with limited space.

- Transparent sensor-node assembly — An example showing the internal electronics, radio module and two coin-cell batteries.
- Light-powered sensor node — A photovoltaic-equipped variant demonstrating energy-harvesting operation within the E-ZeroBatteryZone concept.
- USB NeoMesh gateway — A compact interface connecting a compatible NeoMesh network to a computer or embedded host.

Product features and operation

Distributed sensing

Each node acquires measurements close to the monitored object or environment and transmits the results wirelessly. This reduces the need for dedicated signal cabling between measurement points and a central controller.

The product family supports different combinations of temperature, relative humidity, ambient light and magnetic sensing, together with analog inputs where provided. The actual functions depend on the selected node and its firmware.

Multiple node types can serve one application, allowing environmental measurements and equipment-status signals to be collected through a common system.

Digital and analog sensor interfaces

Digital sensor variants read measurements through the interfaces provided by the fitted sensors. Analog variants acquire electrical signals and convert them into digital values for processing and transmission.

Application-specific scaling can translate an analog reading into a physical quantity such as pressure, level or another process variable. Input range, signal conditioning and sensor power requirements must match the selected hardware; external industrial signals may require a suitable interface circuit.

Equipment-status monitoring

Dedicated nodes extend the system beyond environmental measurements. The illustrated AC voltage-presence detector can provide a wireless indication of whether a monitored supply is present.

Magnetic sensing can support applications such as door or cover status monitoring when used with a suitable magnet and installation arrangement. These status signals can be combined with environmental readings to provide context—for example, relating a temperature change to a door-opening event.

NeoMesh wireless communication

The nodes exchange data through a NeoMesh wireless network. Messages can pass through intermediate nodes to reach a gateway, extending coverage beyond a direct connection between every sensor and the collection point.

This distributed architecture supports monitoring across rooms, equipment areas and larger installations. Coverage depends on radio configuration, antenna placement, obstacles and the availability of neighboring nodes.

The picture includes NC868-labelled devices and an LR1121-labelled energy-harvesting variant. Devices must use compatible radio implementations and network settings to participate in the same mesh.

Battery and energy-harvesting options

Battery-powered versions provide installation flexibility where a wired supply is unavailable. The illustrated family includes CR123A and CR2477 configurations, allowing different enclosure formats and energy capacities.

The light-powered variant uses a photovoltaic element to collect energy from its surroundings. With suitable energy storage and sufficient illumination, this approach supports operation without routine battery replacement.

Operating time and reporting frequency depend on sensor consumption, radio activity, firmware settings, and the available energy. These parameters can be balanced for each application.

Gateway and E-IOT Cloud integration

The CE-RED and FCC-certified USB NeoMesh gateway provides a connection between the wireless network and a host such as a PC, industrial computer, or single-board computer. Host software receives sensor data and can forward it to the E-IOT Cloud using the host's Internet connection.

Alternatively, a compatible standalone E-IOT gateway can provide the uplink. Multiple nodes share this connection, allowing centralized visualization, historical logging and configured notifications.

Where supported by the application firmware, bidirectional communication also allows commands or configuration settings to be sent back to the nodes.

Identification and deployment

Network and node identifiers printed on the enclosures help associate each physical device with its configuration and measurement records. Clear identification simplifies commissioning, maintenance and comparison between installed devices and dashboard entries.

The range of sensor functions, power sources and enclosure formats allows the platform to be adapted from a small demonstration to a distributed monitoring installation.

Typical applications

- Temperature and humidity monitoring in buildings and warehouses.
- Refrigeration monitoring and door-status observation.
- Ambientlight monitoring in rooms, displays and equipment.
- Supply-presence and equipment-status reporting.
- Acquisition of compatible external analog sensor signals.
- Facility management and industrial monitoring.
- Distributed E-IOT demonstrations and customized proof-of-concept systems.