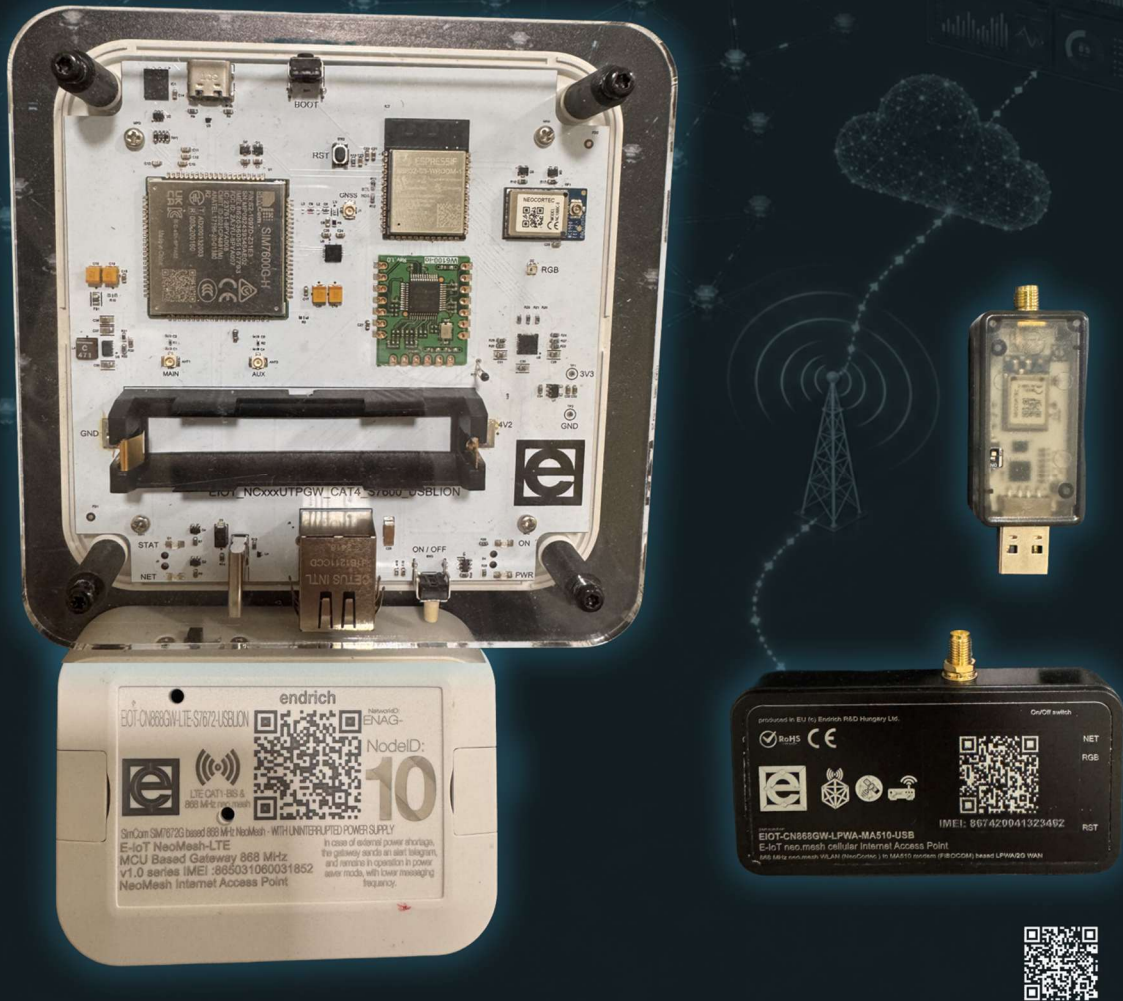


NeoMesh to Cloud Gateways



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E-IOT NeoMesh gateways connect local wireless sensor and actuator networks to cloud services and host applications. Standalone cellular, Ethernet-capable and USB-connected variants provide different routes from field devices to the E-IOT Cloud, supporting centralized monitoring, data logging and bidirectional communication.

Products shown

- **Multifunction gateway development platform** — The large open assembly combines a NeoCortec radio module, an ESP32 controller, a SIMCom SIM7600-series cellular modem and an Ethernet interface. A cylindrical battery holder supports the platform's battery-backed design.

- **Battery-backed NeoMesh-to-LTE gateway** — The white enclosed unit is labelled as an 868 MHz NeoMesh gateway using a SIMCom A7672G LTE Cat 1 bis modem. Its backup-power concept supports a power-loss notification and continued operation at a reduced reporting rate.
- **USB NeoMesh gateway** — The compact USB device connects a compatible mesh network to a PC, industrial computer or single-board computer. The host provides the application software and onward Internet connection.
- **NeoMesh-to-LPWA cellular gateway** — The black enclosed EIOT-CN868GW-LPWA-MA510-USB uses a Fibocom MA510 modem for NB-IoT or LTE-M connectivity, with optional 2G fallback. It combines an integrated NeoMesh PCB antenna with an external cellular antenna connection.

Product features and operation

Connecting the local network to the cloud

The gateway provides the link between the NeoMesh network and the wider E-IOT infrastructure. Sensor nodes collect measurements and send them through the mesh to the gateway, which prepares the received information for delivery to the configured server or application. Multiple nodes share one uplink, allowing distributed sensors to communicate without requiring a cellular modem or Internet subscription at every measurement point. This architecture is particularly useful where many low-power devices operate within the same site.

Standalone cellular connectivity

Cellular gateways provide Internet access independently of the installation's Wi-Fi or wired LAN. With a suitable SIM, antenna and network coverage, they can connect monitoring systems in remote locations, temporary installations or customer premises where access to existing IT infrastructure is restricted.

The gateway family includes different cellular technologies to suit the application. The illustrated MA510-based version supports NB-IoT and LTE-M with optional 2G fallback, while the other platforms demonstrate LTE Cat 1 bis and higher-throughput LTE connectivity. Available services depend on the selected modem, SIM and mobile network.

Ethernet and host-connected operation

The multifunction platform includes an Ethernet interface, providing a wired uplink option where a suitable network connection is available. The active interface and any switching between uplinks depend on the implemented firmware.

The USB gateway offers a different integration route: it transfers Neo/Mesh messages to a host computer that runs the gateway application. This makes it suitable for local dashboards, development tools and installations based on industrial PCs or single-board computers. The host can process data locally and forward it through its own Ethernet, Wi-Fi or cellular connection.

Bidirectional communication

The gateway architecture supports communication in both directions. Measurements and status messages travel from field devices to the application, while commands can travel back to addressed nodes.

Depending on node firmware, this enables functions such as adjusting lighting outputs, requesting measurements or changing operating parameters. The gateway connects the cloud-side command format with the message format used by the local mesh application.

Data handling and E-IOT Cloud integration

Gateway firmware or host software associates incoming messages with their originating nodes and translates application payloads into the format expected by the server. Within the E-IOT ecosystem, this can include JSON messages containing device identifiers, measurements and diagnostic information.

The cloud application can display current readings, retain historical data and generate configured notifications. Gateway and node status information can also help distinguish a sensor issue from a communication or power-supply problem.

Local buffering and retransmission after an uplink interruption depend on the selected gateway's storage and firmware.

Backup power and outage reporting

Battery-backed variants can maintain communication when external power is interrupted. The illustrated white gateway is designed to report the loss of its external supply and continue operating in a power-saving mode with less frequent messaging.

This allows the application to record the outage while preserving energy for essential communication. Backup duration depends on the installed battery, its condition, cellular signal quality and the gateway's operating schedule.

Network deployment

The gateway's Neo/Mesh radio must match the frequency band and configuration of the connected nodes. Its location should provide a reliable connection to the local mesh while also supporting the chosen uplink.

For cellular installations, antenna positioning must account for both local mesh coverage and mobile-network reception. Network and device identifiers on the enclosures help associate each physical gateway with its configuration and cloud records.

Typical applications

- Connecting distributed environmental sensors to the E-IOT Cloud.
- Refrigeration monitoring and equipment-status reporting.
- Smart lighting control and building automation.
- Agricultural and remote-site monitoring.
- Industrial data acquisition through a shared cellular uplink.
- Temporary demonstrations and installations without local Internet access.
- Battery-backed monitoring with power-outage notification.
- PC-based Neo/Mesh development, diagnostics and visualization.