



Asset Tracking

E-IOT asset-tracking devices combine cellular connectivity, positioning and sensor monitoring to provide remote visibility of mobile equipment, transport containers and other valuable assets. Battery-powered configurations communicate directly with the E-IOT Cloud, supporting location reporting, condition monitoring and historical data collection without a local gateway.

Products shown

- Compact cellular tracker — The upper-left device is labeled as a SIMCom SIM7080G-based tracker with NB-IoT and LTE-M connectivity. Its compact enclosure provides a platform for direct sensor-to-cloud reporting.

- **Battery-powered enclosed tracker** — The lower-left device presents the tracking platform in a larger IP housing labeled for a dual ER+SPC battery configuration, providing power also at very low (negative) temperatures.
- **Mini cellular sensor and tracking board** — The device on the right is a Fibocom MA510-based E-IOT sensor unit with mounting slots. It extends asset monitoring with sensor information and cellular communication through NB-IoT, LTE-M or supported 2G service.

Product features and operation

Direct cellular connectivity

Each cellular device communicates with the configured server through a mobile network. This allows assets to move between locations without depending on a fixed local gateway or access to the customer's Wi-Fi infrastructure.

NB-IoT and LTE-M support compact, periodic data exchanges suited to battery-powered monitoring. The MA510-based variant also provides a 2G fallback option where supported by the device configuration, SIM and network operator.

The appropriate connectivity mode depends on coverage, asset mobility, reporting frequency and the available energy budget.

Position reporting

Tracking configurations equipped with an enabled GNSS receiver and suitable antenna can determine their position from satellite signals. The device then sends the coordinates to the cloud over the cellular network, allowing the application to display reported locations and build a movement history.

GNSS reception depends on the installation environment. Metal containers, indoor locations and obstructed antenna placement can reduce positioning availability.

Where implemented, cellular network information can provide an approximate location when a satellite position is unavailable. This is a coarser location estimate and should be distinguished from a GNSS fix. Positioning capabilities depend on the selected hardware and firmware; they should not be assumed to be identical across all illustrated devices.

Asset-condition monitoring

Location information becomes more useful when combined with measurements describing the asset's surroundings or operating condition. Depending on the fitted sensors, E-IOT devices can report values such as temperature and relative humidity, together with magnetic contact status or other supported inputs.

These readings can help reveal conditions during storage and transport. A compatible magnetic sensor and installation arrangement can, for example, indicate whether a door or cover has opened.

The mini cellular sensor unit provides an option for applications where condition monitoring is the primary requirement, with location information added according to the capabilities of the selected configuration.

Reporting and power management

The firmware manages measurement, positioning and transmission cycles to balance visibility with battery consumption. Longer reporting intervals can conserve energy for assets that move infrequently, while more frequent updates provide greater detail during transport.

Where supported by the hardware and firmware, event-based reporting can send an update when a relevant condition changes. Position acquisition time, cellular signal quality, network registration and transmission retries all influence energy consumption.

Battery capacity and reporting settings must therefore be selected together. Battery-powered operation enables flexible installation, while actual service life depends on the complete operating profile.

E-IOT Cloud integration

Reports sent to the E-IOT Cloud can combine the device identifier, available position information, sensor measurements and operating status. The application can associate each device with a specific asset and present its latest received data.

Historical records support review of reported movements and environmental conditions. Configured application functions can also flag stale reports, threshold violations or movement outside a defined area when valid position data is available.

A last-reported location remains a historical observation until a new update arrives; the reporting interval determines how closely the display follows the asset's movement.

Identification and installation

Device labels, IMEI numbers and QR codes help associate physical units with their digital records. This simplifies commissioning and reduces confusion when managing multiple trackers.

Mounting should account for mechanical protection, cellular reception and, where used, GNSS antenna visibility. Enclosure selection must match the installation environment, particularly where equipment is exposed to moisture, dust or repeated handling.

■ Typical applications

- Tracking reusable transport containers and returnable packaging.
- Monitoring pallets and mobile logistics assets.
- Location reporting for trailers and transport equipment.
- Tracking portable industrial equipment and rental assets.
- Monitoring temperature and humidity during storage and transport.
- Door or cover-status monitoring with a compatible sensor arrangement.
- Remote monitoring at sites without a local gateway or Wi-Fi connection.