



Liquid-Level Monitoring

NeoMesh-enabled liquid-level monitoring connects submersible sensors to the E-IOT ecosystem, enabling remote observation of water levels in wells, tanks, reservoirs and open-water installations. A local wireless sensor node acquires the measurements and forwards them through the mesh network to a gateway for visualization, logging and application-specific alerts.

Products shown

- E-IOT NeoMesh sensor interface node — The electronic unit inside the transparent enclosure connects the external level sensor to the wireless network. It provides the interface between the sensor signal and NeoMesh communication.
- Submersible liquid-level probe — The cylindrical stainless-steel sensor measures hydrostatic pressure, allowing the height of the liquid above the sensing point to be determined.
- Enclosure and cable connection — The housing protects the node electronics, while the cable gland provides a secured cable entry. Environmental protection depends on the enclosure, gland and completed assembly.
- Illustrated monitoring applications — The background depicts surface-water and underground monitoring locations, showing how the same concept can serve different installation environments.

Product features and operation

The Hydrostatic level measurement

The submersible probe measures the pressure produced by the liquid column above its sensing element. After accounting for the pressure reference and liquid density, this measurement can be converted into liquid height.

The probe is installed at a known reference depth. The system can then report the height of water above the sensor or calculate the level relative to a defined installation reference. In a tank, the measured level can also be converted into estimated volume when the tank geometry is known.

Sensor range, liquid compatibility and the pressure-compensation arrangement must be selected for the application. For vented probes, the atmospheric reference path must remain unobstructed and protected against moisture.

Sensor acquisition and wireless transmission

The E-IOT interface node reads the connected probe through the interface supported by the selected sensor and board configuration. The firmware converts the acquired value into an engineering measurement and prepares it for transmission.

Measurements are sent over the NeoMesh network, allowing multiple monitoring points to share a common wireless infrastructure. Nodes within the network can relay messages, extending coverage beyond a direct radio link between each sensor location and the

gateway. Actual coverage depends on antenna placement, terrain, obstacles and the availability of suitable relay nodes.

The submerged probe remains connected by cable to the interface node. The node and its antenna should be positioned above the water and, for underground installations, outside locations that strongly attenuate radio signals.

Local control and gateway integration

A compatible E-IOT gateway connects the local mesh network to a host system or the E-IOT Cloud. A cellular gateway can provide the uplink where a local Internet connection is unavailable.

The application can display current readings, retain historical measurements and show trends over time. Configured thresholds can support notifications for high or low water levels, while changes in level can help identify conditions requiring attention, such as unexpected tank depletion or rising water.

The gateway serves multiple sensor nodes, allowing distributed monitoring points to use a shared uplink.

Measurement intervals and power management

The measurement and reporting intervals can be adapted to the application through the firmware configuration. Slowly changing groundwater levels may require less frequent reporting, while tank operation or rapidly changing surface-water conditions may benefit from shorter intervals. Where the hardware supports it, controlled sensor powering and sleep periods can reduce energy consumption. The achievable operating time depends on the probe's power requirements, measurement frequency, wireless configuration and selected power source.

Typical applications

- The Groundwater-level monitoring in wells and boreholes.
- Water-level observation in rivers, channels and drainage systems.
- Storage-tank and rainwater-cistern monitoring.
- Irrigation reservoir and agricultural water-supply monitoring.
- Sump and collection-pit level supervision.
- Distributed environmental monitoring through a shared NeoMesh network.