APLICACIONES TECNOLÓGICAS | SMART SOLUTIONS

Z-LOOP METERING REMOTE

Remote loop impedance meter

Z-LOOP METERING REMOTE
Remotely evaluates and monitors both the grounding resistance and the continuity of the grounding conductor in electrical network assets (transformers, overhead to underground passages, substations, etc.) showing the evolution of measurements.

Z-LOOP METERING REMOTE
Improves the reliability and safety of facilities' grounding, as well as optimizing costs and operations for maintenance and periodic testing.

Monitoring the state of the grounding is essential to ensure safety and continuity of service.

The system of grounding of assets of the electricity grid It is a fundamental element for security that should be reviewed periodically. Its full functionality must be guaranteed since the protections will not work properly if the grounding system is not in proper condition: in case of failure, the passage and contact voltages could be above the permissible safety thresholds, It could cause the dielectric breakage in underground cables, etc.

Z-LOOP METERING REMOTE monitors the RESISTANCE and CONTINUITY of a ground loop with a programmable periodicity, sending the measurement data remotely via M2M communication.

This information allows:

• Identify signs of degradation that may indicate the need for preventive or corrective maintenance.
• Identify potential dangerous situations or even possible acts of vandalism.

Advantage:

Autonomous, remote monitoring of the progressive or sudden degradation of earthing systems in electrical assets.
• Remote configuration and operation
• Local storage of the measurement history, for greater security.
• Configurable warning and alarm criteria.
• Allows the characterization of the resistance of the earthing system.
• It allows to determine the corrosion rate of the ground.

Intended uses:

• Grounding in transformation centers.
• Grounding conductors in cable screens in air-underground passages (PAS).
• Land of ironworks in substations.
• Earth in capacitor banks.

Easy to install, monitor and maintain:

Z-LOOP METERING REMOTE consists of two main elements: sensor and mainboard.

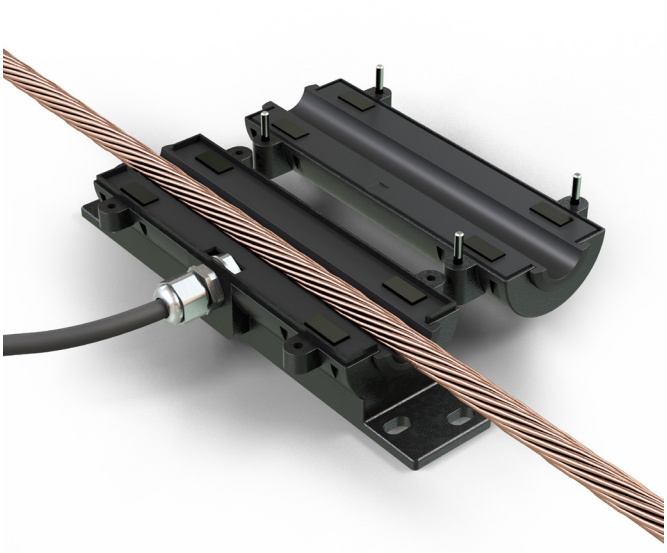
The sensor is a compact element through which the grounding conductor to be monitored is passed. On the other hand, the mainboard integrates the electronic parts, communications and backup power.

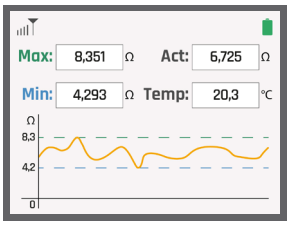
The installation of both elements can be done by fixing them to a flat surface.

The interruption of the grounding wire is not necessary.

In the event that communications are based on a GSM network, it must be ensured that the installation site has coverage. Otherwise, there are other communication options (LoRa, SIGFOX, Ethernet, ...).

Once installed, Z-LOOP METERING REMOTE is configurable and operable both locally, through its TFT interface screen, and remotely.





Maximum and minimum values calculated based on the last 100 measurements.

Equipment temperature value monitoring for seasonal studies.

Figure 1: Sensor and mainboard element.

Figure 2: Example of installation in a CT.

Technical data

Reference	AT-152G
Monitored parameters	Resistance and continuity
Measurement range	From 0 - 300 Ω
IP (type) **	IP 65
Comunication	2G-3G, RF, Ehernet/LAN Optional: LoRA, SigFOx, LAN, IEC 61850
power supply	230 VAC power grid Optional: Solar panel + Lithium Ion battery
Envelope material	ABS V0
Dimensions	Sensor: 195 x 50 x 60 mm Mainboard: 175 x 125 x 45 mm
Weight	1 kg
Visual display	TFT 1.5”
assembly	Sensor: wall anchor using M5 screws Mainboard: wall anchor using M3 screws
Cable length	0,5 m (optional up to 1 m)
Certifications **	CE, FCC, IC

**to be determined (pilot version)

Data transfer and cybersecurity:

Z-LOOP METERING REMOTE monitors the impedance of a ground loop at regular and programmable intervals. The data is transferred through the modem incorporated in the equipment, to the AT-CLOUD,a redundant and secure data center, where the algorithms that transform the data into useful information operate.

This information reaches the user through the portal at3w-connect.com or other means such as e-mail or APP. Likewise, other communication options or data provision services can be integrated into the user's own systems.

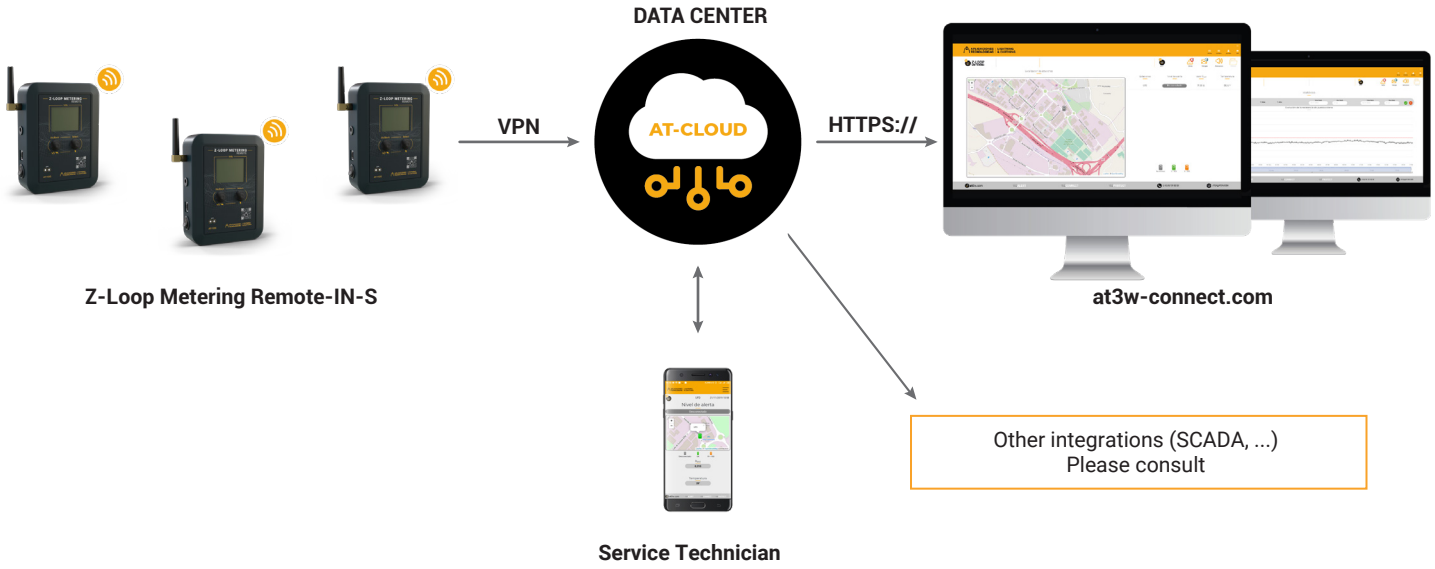


Figure 3: User portal for monitoring and control of the distributed sensor network.

Web Portal and APP

- Real-time display of resistance value and grounding status.
- Alarm notification by push notification when exceeding the established threshold.
- Historical values, warnings and alerts.

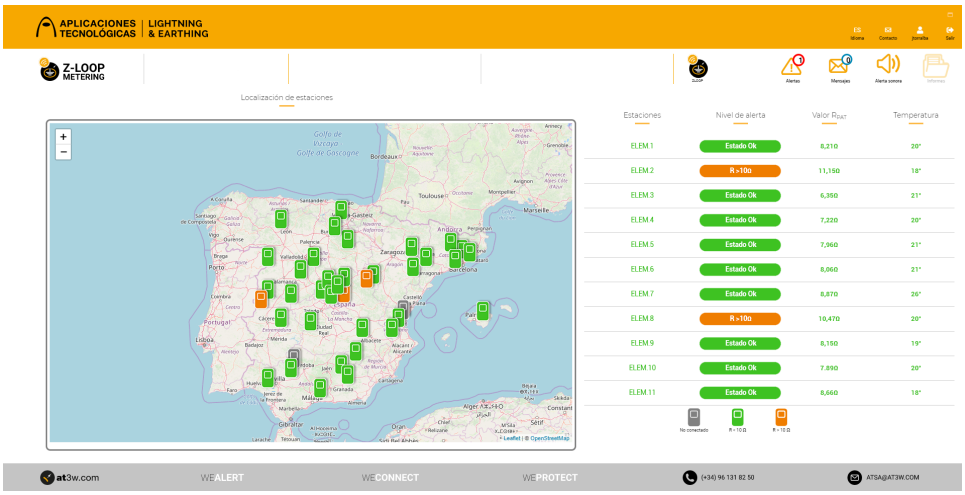


Figure 4: *Portal at3w-connect.com.*

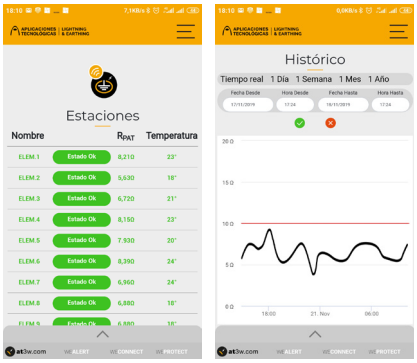


Figure 5: *APP.*

The road to the Smart Grids. Technological Applications, Smart Solutions division

One of the main objectives of the Smart Grids is to have connected network assets, which can be monitored remotely allowing for an improvement in the efficiency of the network, increasing the security of people and the reliability of supply , the reduction of maintenance costs, as well as the optimization of network management.

Smart Grids are the path to the electricity networks of the future. The Smart Solutions division of Technological Applications wants to facilitate the journey of this path by satisfying any need for monitoring, connectivity and integration required by our customers.

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