

# GODEL SMART SENSOR 69kV



## Sensor for Transmission Line Monitoring



Sensor for monitoring transmission lines up to 69 kV, reporting to SCADA the main network events such as temporary and permanent faults, current surges, and current unbalance due to neutral.



## DESCRIPTION

The equipment consists of a monitoring system for three-phase 69kV subtransmission lines. It uses a RTU (Remote Terminal Unit) and a set of up to 06 sensors.

The RTU (Remote Terminal Unit) receives real-time data from each sensor and sends it to the operation center.

In-field installation is carried out with a lightweight team, using a ladder and maneuvering pole, without the need to interrupt the power supply.

The system is based on the measurement of the current of each monitored phase where the sensor is installed in the 69kV transmission line. The values are transmitted to the concentrator unit via a radio transceiver, which processes the electrical quantities and reports the readings and events to the concessionaire's operation center using the open DNP3 protocol and to the management center using the proprietary protocol. The remote communication system allows data to be transmitted in the most appropriate way, taking into account factors such as the geographical location of the points where the sensors are installed, the frequency, the volume of data and the desired transmission speed.



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# TECHNICAL ESPECIFICATION

## GODEL Smart Sensor 69kV

### FEATURES

<b>Measured nominal current range</b>	Up to 400 A
<b>Supportability</b>	Withstands short-circuit current of up to 12 kA
	It registers up to 4 kA of event, but the reading saturates
<b>Current measurement</b>	By electromagnetic field
<b>Voltage detection</b>	By electrical field
<b>Sensor status information</b>	The status of the sensor is monitored by the concentrator unit. If the sensor malfunction, the failure is reported to the SCADA
<b>RTU power supply</b>	It has a full range 90 to 240 Vac power supply with +6Vdc@1A and +14Vdc@7.5A outputs
	Allows solar panel power supply
	Power backup through batteries or ultracapacitor modules
	The autonomy is dependent on the communication module that is applied to the RTU (Remote Terminal Unit).
<b>Sensor power supply</b>	The sensors are powered by a solar panel and the energy is stored in ultracapacitors for up to 50 hours of autonomy
<b>Accuracy of current measurement in the field</b>	Measure range – 4 A to 400 A: 10% for currents from 4 A to 10 A
	5% for currents from 10 A to 40 A; 2% for currents up to 40 A
<b>PC parametrization software</b>	A WEB server is utilized to parameterize the set. The connection is made via the Serial/USB adapter
<b>Maximum sensor grouping in a concentrator unit</b>	Up to 6 (six)
<b>Concentrator unit power supply</b>	Full range 90 to 240 Vac or by solar panel
<b>App for the visualization of events and logs</b>	Open protocol with configurable pre- and post-event cycle information available as analysis tools via Website
	Provides information on the Website in graphic and tabular formats
	Events are sent to the SCADA system as spontaneous message in DNP3 format at the moment they occur

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<b>Event detection</b>	Reports to SCADA with real-time calculation
	Transient shutdown by phase and group
	Permanent shutdown by phase and group
	Downstream shutdown
	Current surge
	Neutral overcurrent
	Flow inversion
	Inverted sensor
	Current (RMS by phase)
	Neutral module (resultant current)
	Neutral angle (resultant current degree)
	Module and phase angle A, B, and C
	Ultracapacitors low level of tension alarm
	Low voltage level alarm for ultracapacitors
	Communication failure among devices in the group
	Absence of voltage (by phase)
	Absence of current (by phase)
Current surge intensity (by phase)	
Solar panel voltage (by phase and concentrator)	
Battery voltage (by phase and concentrator)	
<b>Sensors groups</b>	Manual connection of 06 sensors carried out by the concentrator or via parameterization software
<b>Minimum and maximum cable diameter</b>	From 5 to 33 mm
<b>Protection level</b>	Case specially developed for power line applications, open-air operation, and exposure to harsh environments
	The sensors have IP 67, and the concentrator unit has IP 65
<b>Data export</b>	Web interface stores all data generated in the set, including operation log data

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## **FEATURES**

Configurable DNP V3.0 map and address

Dynamic adjustment of current deadband

Mass of memory of up to 100 events by sensor

Serial communication with specific module

Spontaneous messages (unsolicited) sent with time information to SCADA

## **BENEFITS**

Spontaneous event generation with DNP 3.0 protocol

Flexibility with the communication usage by the client

Easy to install equipment

Maintenance-free

Service life >10 years

Operation temperature: -5°C to 65°C

Operation frequency: 60 Hz

Able to be attached to cables with diameter of up to 33 mm

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OPERATION DIAGRAM

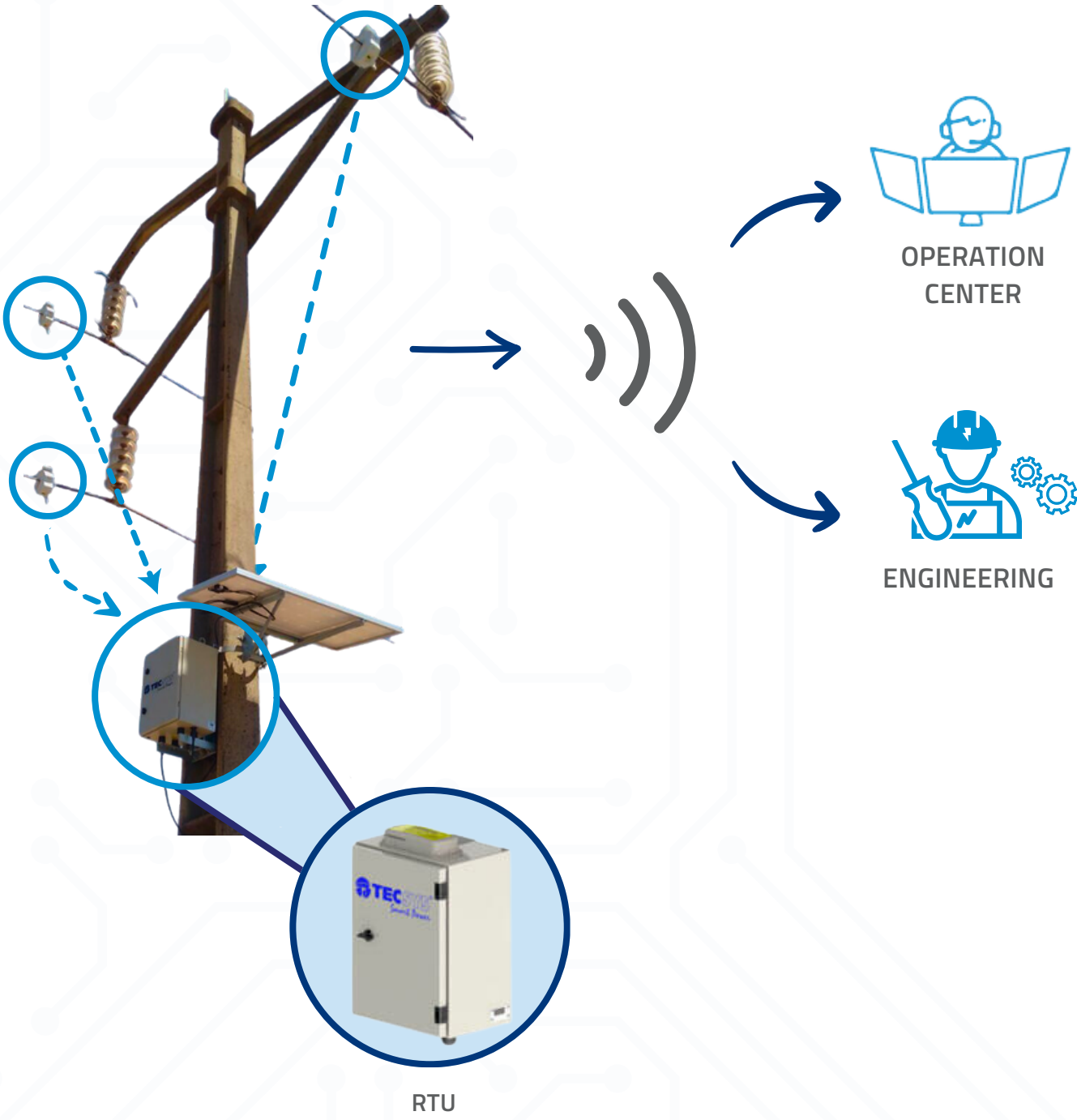


Diagram 1: Intelligent sensing system topology

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## INSTALLATION



Figure 1: Installation using a ladder and a maneuvering pole, without the need to interrupt the power supply.

UPDATED VERSIONS OF THIS MATERIAL CAN BE OBTAINED FOR DOWNLOAD ON OUR WEBSITE.