INCLIN'O

LoRaWAN®

The INCLIN'O sensor measures the inclination of an equipment compared to an original position (set at start-up). For example, INCLIN'O detects a change in position to warn about a falling pole or an open window via a LoRaWAN® network

APPLICATIONS

- Roof window monitoring
- Tilt detection
- Electricity, telecom or CCTV poles monitoring

BENEFITS & KEY FEATURES

- LoRaWAN®, Class A
- Easy to use and deploy
- Tilt range: 0...180° from vertical
- Measurements at regular intervals
- > 8 years autonomy
- IP67

QUALITY & RELIABILITY

- RED, RoHS

CONCEPTION ET FABRICATION
MADE IN FRANCE

INCLIN'O is an autonomous LoRaWAN® IoT device. It monitors the inclination of the equipment on which it is installed.

After a measurement if a tilt threshold is exceeded, it sends an alert immediately.

Battery powered, the sensor has a lifespan of over 8 years when configured with a position check every 10 seconds and one radio transmission per day.

INCLIN'O can be attached using:

- screws,
- magnets (option),
- a pole mounting bracket (option),
- an adhesive strip (default configuration).

INCLIN'O is suitable for outdoor installations thanks to its IP67 enclosure and its anti-UV treated material.

Installation and commissioning are quick and easy. **INCLIN'O** is equipped with:

- a magnetic switch for activation or deactivation;
- an NFC identification tag (product code, serial number, batch number).

INCLIN'O is delivered with a default configuration that can be reconfigured using the downlink, according to its ZCL application layer, for example:

- interval between two tilt checks;
- threshold of alert "opening", "re-closing";
- number of confirmations before alert;
- periodicity on life frame.

THE LARGEST IOT PRODUCTS RANGE FOR YOUR PROJECT

WATTECO is a European leader in the design and manufacture of smart IoT devices to suit all remote reading and data collection solutions.

WATTECO is a LoRa Alliance® member.

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INCLIN'O

TECHNICAL DATA

RADIOFREQUENCY	Frequency (MHz)	Transmit Power (dBm)	Receiver Sensitivity (dBm)
	EU: 863-870	+14	-140

FIRMWARE	
Protocol	LoRaWAN®, Class A
Activation method	Activation by Personalization (ABP) or Over-The-Air Activation (OTAA)
Data encryption	AES128
Application layer	ZCL (ZigBee Cluster Library) – to be interpreted by the remote server
Measurement cycles	From 1s to 59s in 1s steps Or from 1min to 59min in 1min steps Default : 10 seconds
Transmission cycles	Configurable from 10 minutes to 24 hours
Alarm thresholds	Opening: configurable in the range 10° … 180° in steps of 1° (default 40° with a 2.5° Hysteresis) Re-closing: configurable in the range 10° … 180° in steps of 1° (default 10° with a 2.5° Hysteresis). Battery voltage: range 0.1 to 3.6V in 0.1V steps (2.7V by default with a 100mV Hysteresis)

TILT MEASUREMENT	
Range	0 … 180°
Resolution	1°
Accuracy	2°

POWER SUPPLY	
Voltage	3.6V / 3600mAh – Non replaceable lithium battery
Autonomy in a range of +10°C to +25°C	> 8 years: 1 measurement every 10 seconds & 1 transmission per day

USER INTERFACES	
NFC Tag	Product code, serial number, batch number
Buzzer	Sensor status
Magnetic switch	Reset, On/Off

ENCLOSURE	Size (mm)	Fastenings	IP rating	Fire resistance
UV-resistant ASA plastic	100 x 75 x 35	Magnets (option), pole mounting bracket (option) or adhesive strip (default)	IP67	UL94-V0HB

ENVIRONMENT	Operating conditions	Storage conditions
	-20°C to +60°C +0%rH to +95%rH (non condensing)	+10°C to +30°C +20%rH to +60%rH

DIRECTIVES & STANDARD
Radio Equipment Directive 2014/53/EU, RoHS

CE 🗑 ☑ RoHS

PRODUCT NUMBER

REFERENCE	DESCRIPTION
50-70-201	LoRaWAN® INCLIN'O SENSOR