

LoRaWAN Tilt Sensor



Smart Agriculture, Smart Building, Smart City, Smart Facility, Smart Farm, Smart Factory



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LoRaWAN TILT SENSOR WSLRW-AG



WSLRW-AG-H1.JPG



Safe Zone



Hazardous Zones

WSLRW-AG is a LoRaWAN Tilt Sensor, inclinometer can be used to measure tilt angles X, and Y of any object such as a Tower, Building, Tree, Electricity Tower, Telecom Tower, Bridges... With Ultra-low Power design and smart firmware allow the sensor can last up to 10 years with 02 x AA-type battery (depends on configuration). The sensor will transmit data in kilo-meters distance to the LoRaWAN gateway, any brand on the market.

Applications

Facility Monitoring, Flood Monitoring, Infrastructure Monitoring, Level Monitoring, Machine Health Monitoring, Safety Monitoring, Tilt Monitoring

Notes For Applications

- This AG tilt sensor measures the static tilt angle of the static object vs. the Gravity direction. Please do not use it for other angle measurements.
- It measures the static tilt angle of stationary objects or slow-moving objects such as Tree, Bridge, Pole, Tower, Crane, and Building...
- It does not measure the tilt angle of a quick-moving object like construction equipment...



LoRaWAN communication

LoRaWAN communication standard to allow sensor connect to any LoRaWAN Gateway on the market.



10-Year battery

Ultra-low power sensing technology from Daviteq with Ultra-low power wireless technology allow the sensor can last up to 10 years with 02 x Type AA batteries.



High Precision Tilt Measurement

Advanced Accelerometer to deliver high accuracy and stable measurement of Tilt angles.



Solar Powered for Fast Sampling Rate

Optional version with Solar Power and Rechargeable Batteries for Fast-sampling-rate application

LoRaWAN NETWORK

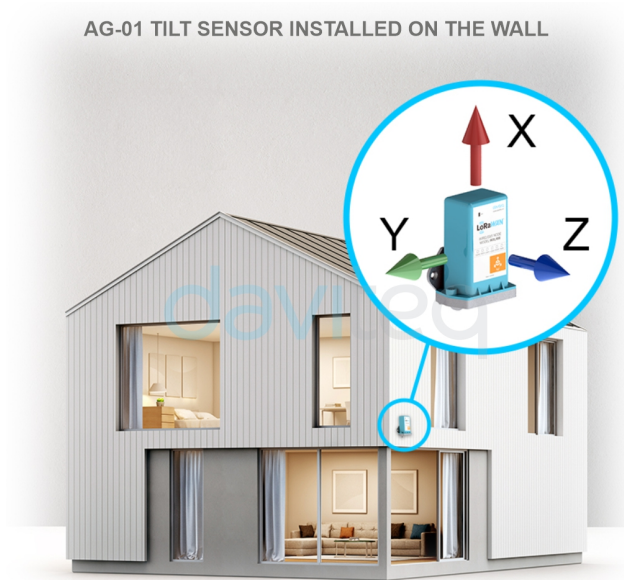


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Specification

Tilt Sensor	Built-in advanced accelerometer to deliver tilt angle measurement of XYZ for AG-01 version, XY for AG-03 version
Tilt Measurement range	±90° for AG-01 version ±30° for AG-03 version
Tilt Resolution	±0.01° for AG-01 version ±0.001° for AG-03 version
Tilt Repeatability	±0.075° for AG-01 version ±0.010° for AG-03 version
Tilt Temperature Drift	±0.2° per 10°C for AG-01 version (when installation X~0° and Y~0°)
Sensor sampling rate	1Hz max (recommend for Solar powered version)
Shock Detection	Yes, max 2G threshold (only available in some FW version, please consult us)
COMMUNICATION	
SF Factors	SF7~SF12
Antenna	Internal Antenna 2 dbi or external antenna
Power Supply	Primary batteries 02 x AA size 1.5VDC (battery not included) or Solar Panel with Rechargeable batteries 2 x AA Panasonic® Eneloop™ Standard (not included)
RF Frequency and Power	860~930MHz, 14~20 dBm, configurable for zones: EU868, IN865, RU864, KR920, AS923, AU915, US915
Protocol	LoRaWAN Class A V1.0.3
Data sending modes	interval time, alarm (from FW5) and manually triggering by magnetic key
Alarm function	from FW5, for X-axis only
RF Module complies to	ETSI EN 300 220, EN 303 204 (Europe) FCC CFR47 Part15 (US), ARIB STD-T108 (Japan)
Vietnam Type Approval	
Working temperature	-40~60°C (with AA L91 Energizer®)
Dimensions	H106xW73xD42
Net-weight	190g
Housing	Aluminum + Polycarbonate plastic, IP68 for Primary battery version and IP67 for Solar/External Power version.

AG-01 TILT SENSOR INSTALLED ON THE WALL



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AG-01 TILT SENSOR INSTALLED ON THE TREE



WSLRW-AG-H3.JPG

AG-03 TILT SENSOR INSTALLED ON THE WALL



WSLRW-AG-H4.JPG

AG-03 TILT SENSOR INSTALLED ON THE TREE



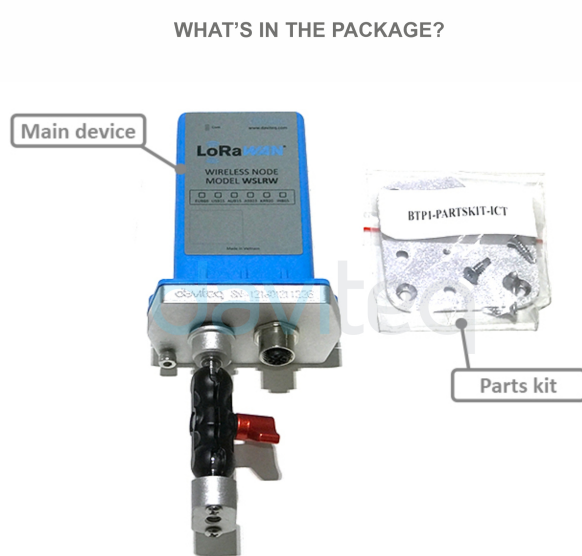
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WHAT'S IN THE PACKAGE?



WSLRW-AG-H6.JPG

WHAT'S IN THE PACKAGE?



WSLRW-AG-H9.JPG

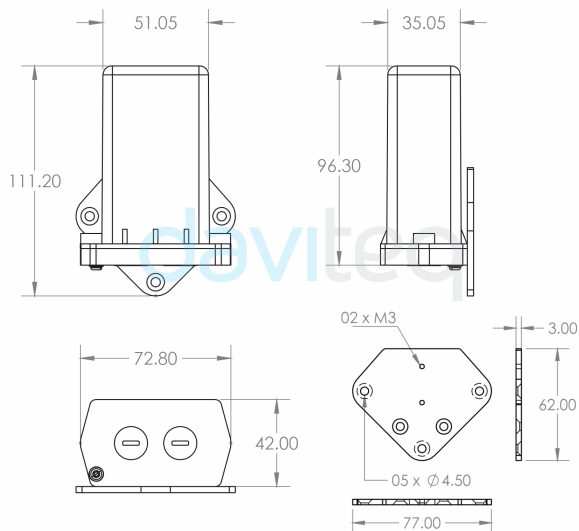


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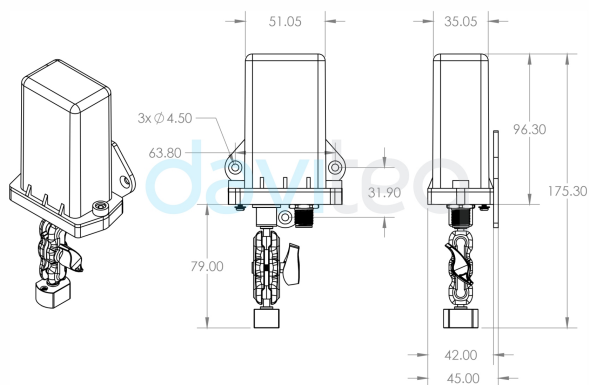
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DIMENSION DRAWING OF WIRELESS SENSOR



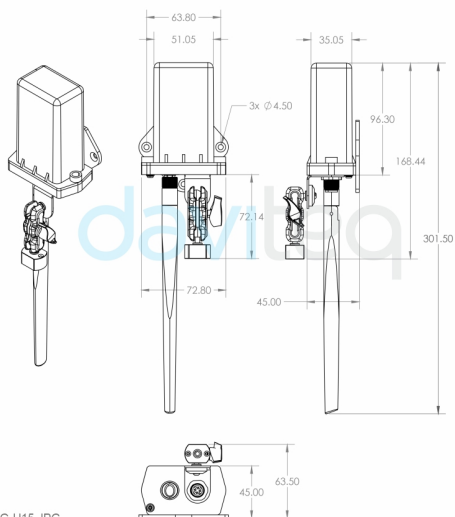
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DIMENSION DRAWINGS FOR WIRELESS SENSOR WITH SOLAR BRACKET



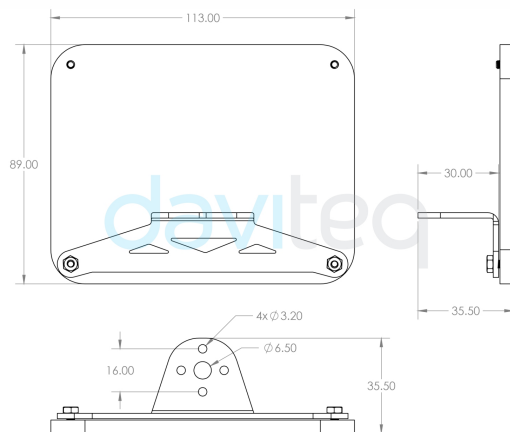
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DRAWING FOR TILT SENSOR WITH EXTERNAL ANTENNA AND SOLAR BRACKET



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DIMENSION DRAWINGS FOR SOLAR PANEL



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RECOMMENDED BATTERIES FOR LoRaWAN SENSOR POWERED BY PRIMARY BATTERY

E91 AA Alkaline battery



-18 .. + 60 oC working temperature
 10-year shelf life
 3000 mAh Capacity
 Price: 1X

L91 AA Lithium battery



-40 .. + 60 oC working temperature
 20-year shelf life
 3500 mAh Capacity
 Price: 3.5X

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RECOMMENDED BATTERIES FOR LoRaWAN SENSOR POWERED BY SOLAR PANEL

AA RH6 Rechargeable Battery



-20 .. +50°C working temperature
 2000 mAh Capacity

AA NIMH Rechargeable Battery



-20 .. +50°C working temperature
 2000 mAh Capacity

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Ordering Information

ITEM CODE	DESCRIPTIONS
WSLRW-AG-01	LoRaWAN General Tilt sensor, Internal antenna, XYZ, 0.075° Repeatability, Type AA battery 1.5VDC, IP68, 860-930MHz
WSLRW-AG-03	LoRaWAN Precision Tilt sensor, Internal antenna, XY, 0.01° Repeatability, Type AA battery 1.5VDC, IP68, 860-930MHz
WSLRW-AG-03S	LoRaWAN Precision Tilt sensor, Internal antenna, XY, 0.01° Repeatability, with 1W6V Solar Panel or External Power 6VDC, IP67, 860-930MHz
WSLRW-AG-03S-XA	LoRaWAN Precision Tilt sensor, External antenna, XY, 0.01° Repeatability, with 1W6V Solar Panel or External Power 6VDC, IP67, 860-930MHz
ACCESSORIES	
SOLAR-PN-1W6V-PU-M12F-20-1/4BRK	SOLAR PANEL FOR SENSOR OR DEVICE, 1W 6V, PU COATED, M12-F CONNECTOR, 20CM CABLE, DOUBLE BALL BRACKET 1/4"



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