

# Wireless Soil Moisture Sensor



Smart Agriculture, Smart Building, Smart City, Smart Farm

SKU: WS433-SMT

## WIRELESS SOIL MOISTURE SENSOR WS433-SMT



EMC COMPLIANCE  
QCVN 73:2013/BTTTT  
QCVN 96:2015/BTTTT



WS433-SMT-H1.PNG



WS433-SMT is a Sub-GHz wireless soil moisture, soil temperature and soil EC. The sensor can be used for up to 5 years with just 1 AA battery. Utilize advanced technology, Frequency Domain Reflectometry to deliver high accuracy and stable measurement of Soil Moisture, not affected by Fertilizer contents and Temperature like the simple Capacitance Moisture Sensor on the market. The sensor will connect wirelessly to the Wireless Coordinator WS433-R then export the data to RS485/ ModbusRTU and from there easily connect to any monitoring and control system. LOS distance from sensor to receiver is 500m and can be extended by Extender. Sensors can be used for applications such as intelligent irrigation systems, greenhouses, pastures for cows, soil testing...

### Applications

Flood Monitoring, Infrastructure Monitoring, Smart Irrigation, Oil & Gas Pipeline Monitor

### Notes For Applications

- FDR sensors need to have good contact with the medium they measure with no air gaps;
- Water content in soil must be higher than 20% for proper measurement;
- Prevent direct sunlight on sensor housing for temperature not increase more than 50°C.

- Reliable & Secured Wireless Connection**  
Sub-GHz technology from Texas Instruments allows reliable wireless connection and secured data by AES-128

- 5-Year Battery Operated**  
Easy to configure the time intervals of Data logging, Data sending and with Event processor allows the battery life up to 5 years!

- Pre-calibrated**  
Sensors are pre-calibrated at factory to deliver high accuracy and quick installation

- High Accuracy**  
Utilize advanced technology, Frequency Domain Reflectometry to deliver high accuracy and stable measurement of Soil Moisture, not affected by Fertilizer contents and Temperature like the simple Capacitance Moisture Sensor on the market

## SOIL MOISTURE SENSOR INSTALLATION



WS433-SMT-H2.PNG

## DAVITEQ TECHNOLOGIES INC

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Created date: Dec-21-2022

Updated date: Aug-28-2024

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Specification

Sensors	Advanced technology - Frequency Domain Reflectometry, Pre-calibrated at factory
Moisture range/ accuracy/ resolution	0~100%, acc ±3.0% , res 0.01%
Temperature range/ accuracy/ resolution	-30~70°C, acc ±0.3°C, res 0.1°C
EC range/ accuracy/ resolution	0~20 mS/cm, acc ±2.0% span, res 0.1 mS/cm
Measurement Volume	Dia. 70mm x Height 70mm
Wetted materials	316L SS & thermoplastic
Sensor Dimensions	71x45x16mm with probes 70mm and signal cable 2m

COMMUNICATION

Data speed	Up to 50kbps
Tranmission distance	LOS 500m
Antenna	Internal Antenna, 3 dbi
Battery	01 x AA 1.5, working time up to 10 years (depends on configuration)
Frequency Band	ISM 433MHz, Sub-GHz technology from Texas Instrument, USA
International Compliance	ETSI EN 300 220, EN 303 204 (Europe) FCC CFR47 Part15 (US), ARIB STD-T108 (Japan)
Vietnam Type Approval Certification	QCVN 73:2013/BTTTT, QCVN 96:2015/BTTT (EMC Compliance)
Security Standard	AES-128
Operating temperature	-40~60°C (with AA L91 Energizer® battery)
Housing	Poly-carbonate, IP68
Installation method	Plugs directly into the ground with a 500mm long plastic rod
Dimensions/ Net weight	125x30x30mm (Wireless part only), < 60g
Box dimension/ Gross weight	190x50x50mm, 100g

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## INSTALLATION FOR MULTI-LAYER MEASUREMENT



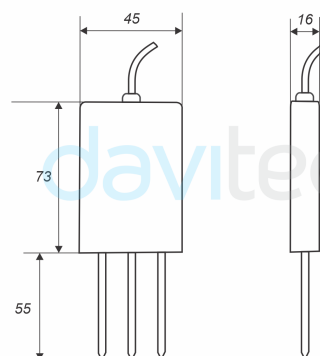
## 40 WIRELESS SENSORS CONNECT TO ONE CO-ORDINATOR



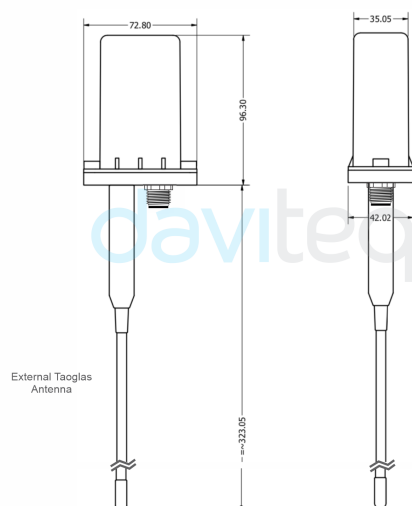
## CONNECT WIRELESS SENSORS TO GLOBIOTS Platform



## DIMENSION DRAWINGS OF SENSOR (Unit: mm)



## DIMENSION DRAWINGS OF WIRELESS SENSOR (Unit: mm)



## RECOMMENDED BATTERIES FOR WIRELESS SENSOR

## 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

WS433-SMT-H8.PNG

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Ordering Information

ITEM CODE	DESCRIPTIONS
**SOIL MOISTURE & TEMPERATURE SENSORS**	undefined
WS433-SMT-01	Wireless Soil moisture and Temperature sensor 433MHz, pre-calibarted, AA 1.5VDC battery, IP67/IP68, sensor cable 2m
**SOIL MOISTURE & SOIL EC SENSORS**	undefined
WS433-SMT-02	Wireless Soil moisture and EC sensor 433MHz, pre-calibarted, AA 1.5VDC battery, IP67/IP68, sensor cable 2m