

WTS Series

# IoT LoRaWAN<sup>®</sup> Weather Station



## ◆ Introduction

IoT Weather Station (WTS Series) is an all-in-one LoRaWAN<sup>®</sup> weather monitoring system for various atmospheric conditions, such as temperature, humidity, wind speed, wind direction, barometric pressure and rainfall. Consisting of 3 main parts, WTS Sensors, WTS Hub and solar panel, IoT Weather Station is designed to withstand the most challenging weather conditions and is easy to install in different scenarios to be widely used in meteorology, smart agriculture, smart building, etc.

Sensor data is transmitted using LoRaWAN<sup>®</sup> technology. Compliant with Milesight LoRaWAN<sup>®</sup> gateway and Milesight IoT Cloud solution, users can manage all sensor data and trigger other sensors or appliances easily via webpage or mobile App remotely.



WTS305



WTS50x

## ◆ Features

- Integrated with multiple sensors like humidity, temperature, barometric pressure, wind speed, wind direction, rainfall, etc.
- Waterproof, UV-proof and salt spray resistant enclosure for outdoor harsh environment applications
- High power solar powered with chargeable batteries backup
- Store locally more than 19,000 historical records and support retransmission to ensure no data miss
- Easy to carry and install
- Ultra-wide-distance wireless transmission up to the line of sight of 15 km in rural areas
- Equipped with NFC for easy and quick configuration
- Compliant with standard LoRaWAN® gateways and network servers
- Quick and easy management with Milesight IoT Cloud

## ◆ Specifications

### WTS Sensors

Model	WTS305	WTS505/WTS506
<b>Temperature</b>		
Operating Principle	Thermistor	
Range	-40°C - 85°C	
Accuracy	± 0.3°C	
Resolution	0.1°C	
<b>Humidity</b>		
Operating Principle	Capacitive humidity sensor	
Range	0% - 100% RH	0% - 100% RH
Accuracy	± 5% RH	± 3% RH
Resolution	0.5% RH	0.5% RH
<b>Wind Direction</b>		
Operating Principle	Ultrasonic	
Range	0° - 360°	0° - 360°
Accuracy	± 3°	± 3°
Resolution	1°	0.1°
<b>Wind Speed</b>		

Operating Principle	Ultrasonic	
Range	0 -60 m/s	0 -60 m/s
Accuracy	$\pm (0.5 + 0.02 V) \text{ m/s}$ , V=Speed	$\pm 0.3 \text{ m/s}$ or $\pm 3\%$ (whichever is greater)
Resolution	0.1 m/s	0.1 m/s
<b>Barometric Pressure</b>		
Operating Principle	Piezoresistive absolute pressure sensor	
Range	500 - 1100 hPa	500 - 1100 hPa
Accuracy	$\pm 1 \text{ hPa}$	$\pm 0.5 \text{ hPa}$
Resolution	0.1 hPa	0.1 hPa
<b>Rainfall (WTS506 Only)</b>		
Operating Principle	—	Piezoelectric
Range	—	0 - 500 mm
Accuracy	—	$\pm 0.5 \text{ mm}$ (< 10 mm), $\pm 5\%$ (>10 mm)
Resolution	—	0.01 mm
<b>Physical Characteristics</b>		
Material	ABS	Aluminium Alloy
Weight	1 kg	WTS505: 2 kg WTS506: 2.15 kg
Dimension	$\phi 140 \times 248 \times \phi 50 \text{ mm}$	WS505: $\phi 160 \times 252 \times \phi 73 \text{ mm}$ WS506: $\phi 160 \times 263 \times \phi 73 \text{ mm}$
Operating Temperature	-40°C to +60°C	-40°C to +85°C
Relative Humidity	0% - 100% (non-condensing)	
Ingress Protection	IP65	
Installation	Pole Mounting	

## WTS Hub

<b>Wireless Transmission</b>	
Technology	LoRaWAN®
Frequency	CN470/RU864/IN865/EU868/US915/AU915/KR920/AS923-1&2&3&4
Max Tx Power	16dBm (868MHz)/22dBm (915MHz)/19dBm (470MHz)
Sensitivity	-137dBm @300bps
Work Mode	OTAA/ABP Class A
<b>Operation</b>	
Power On & Off	Mobile App (via NFC), PC Software (via USB Type-C),

	Power Button (Internal)
Configuration	Mobile App (via NFC) or PC software (via USB Type-C)
<b>Physical Characteristics</b>	
Power Supply	Solar powered (15 W, 1A) with 2 × 2550 mAh chargeable batteries backup
Operating Temperature	-20°C to +60°C
Relative Humidity	0% to 95% (non-condensing)
Ingress Protection	IP67
Dimension	116 × 116 × 45.5 mm
Installation	Screw Mounting

## Solar Panel

<b>Electrical Characteristics</b>	
Open-Circuit Voltage	18 V (± 0.3 V)
Rated Voltage	15 V (± 0.3 V)
Rated Current	1 A (± 5%)
Maximum Power	15 W (± 5%)
Minimal Power	14.5 W (± 5%)
<b>Physical Characteristics</b>	
Cell Type	Monocrystalline Silicon
Operating Temperature	-20°C to +80°C
Weight	1 kg (Without Bracket), 2.2 kg (With Bracket)
Dimension	343 × 283 × 16.5 mm

