

# Weather Station Kit

## OVERVIEW:

The Dragino Weather Station Kit is designed for measuring atmospheric conditions to provide information for weather forecasts and to study the weather and climate.

The Weather Station Kit includes a LoRaWAN, NB-IoT or CAT-M1 transmitter, a 9 in 1 Weather Station WSS-09 and a Rain Gauge WSS-08.

Please note that the WSC2 series only includes the transmitter, and the 9 in 1 Weather Station WSS-09 and Rain Gauge WSS-08 need to be purchased separately.

The 9 in 1 weather station kit can measure below values: Wind Speed, Wind Direction, Temperature, Humidity, Air Pressure, Illumination sensor, PM2.5, PM10, Noise & Rain Gauge.

The transmitter use RS485 interface to communicate with the 9 in 1 weather station. It can also connect 3rd party RS485 sensors to measure more environment data. It also has a pulse counting input which can be used to connect Rain Gauge.



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## Sensor Specification:

### Wind Speed:

- Range: 0 ~ 60m/s
- Accuracy:  $\pm(0.2\text{m/s} \pm 0.02 \cdot v)$  (v : the wind speed)
- Ultrasonic measurement, no start wind strength needed

### Wind Direction:

- Range: 0 ~ 359°
- Accuracy:  $\pm 3^\circ$
- Ultrasonic measurement, no start wind strength needed
- Built-in electronic compass. No need to consider installation direction

### Temperature:

- Range:  $-40^\circ\text{C} \sim +80^\circ\text{C}$
- Accuracy:  $\pm 0.5^\circ\text{C}$

### Humidity:

- Range: 0 ~ 99% RH
- Accuracy Tolerance : Typ  $\pm 3\%$  RH

### Air Pressure:

- Range: 0-120kPa
- Accuracy:  $\pm 0.15\text{kPa}@25^\circ\text{C}$  101kPa

### Noise:

- Range: 30dB~120dB
- Accuracy:  $\pm 0.5\text{dB}$

### PM2.5:

- Range: 0-1000 $\mu\text{g}/\text{m}^3$
- Accuracy:  $\pm 3\%$ FS
- Resolution: 1 $\mu\text{g}/\text{m}^3$

### PM10:

- Range: 0-1000 $\mu\text{g}/\text{m}^3$
- Accuracy:  $\pm 3\%$ FS
- Resolution: 1 $\mu\text{g}/\text{m}^3$

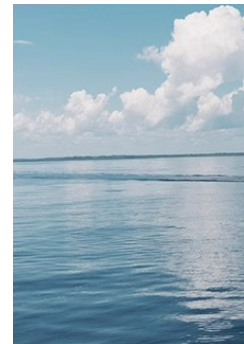
### Illumination:

- Range: 0-200k Lux
- Accuracy:  $\pm 7\%$ (25°C)

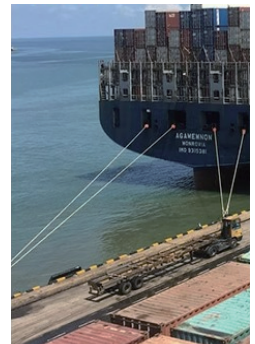
## Application Environment:



Airport



Ocean



Port



Meteorological









Laboratory



Industry and Agriculture

# Model Variants

Variants	WSC2-L	WSC2-N	WSC2-C
Connectivity			
Configure Method	TTL, BLE, LoRaWAN	TTL, BLE, NB-IoT	TTL, BLE, NB-IoT, LTE-M
Upgrade Method	TTL, BLE, LoRa	TTL, BLE	TTL, BLE
Features	<b>Sensor /Probe:</b> * Support external 9 in 1 weather sensor(WSS-09): Wind Speed, Wind Direction, Temperature, Humidity, Air Pressure, Illumination, PM2.5, PM10, Noise * Support tipping bucket Rain Gauge (WSS-08) * RS485 Interface for 3rd Sensors * IP66 Waterproof Enclosure * 1000mAh Rechargeable Li-ion battery * Input and Recharge power : 12v <b>General Features:</b> * Ultra-low power consumption * Support Bluetooth v5.1 remote configure and OTA update firmware * Uplink on periodically * GNSS for Location Report ( for -CB models only) * Downlink to change configure * Monitor Battery Level		
Battery & Power	 * 1000 mAh Li-ion Battery	 * 1000 mAh Li-ion Battery	 * 1000 mAh Li-ion Battery
Power Consumption	* Sleep Mode: 5uA @ 3.3v * LoRa Transmit Mode: 125mA @ 20dBm, 82mA @ 14dBm	* Sleep mode: 14uA@3.3V * Max Transmit power: 350mA@3.3V	* Sleep mode: 14uA@3.3V * Max Transmit power: 350mA@3.3V
Supply Voltage	2.5v ~ 3.6v	2.5v ~ 3.6v	2.6v ~ 3.6v
Operating Temperature	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C

## Wireless Option:



- LoRaWAN 1.0.3 Class A
- Bands: CN470/EU433/KR920/US915/EU868/AS923/AU915/IN865
- OTAA or ABP Mode.
- World Wide Unique LoRaWAN Key
- RX sensitivity: down to -139 dBm.
- Max +22 dBm - 100 mW RF output



- CAT NB2 Bands:
  - For -NB: B1/B2/B3/B4/B5/B8/B12/B13/B17/B18/B19/B20/B25/B28/B66/B70/B85
  - For -CB: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B28/B66/B71/B85
- Uplink via MQTT, MQTTs, TCP, UDP or CoAP
- Multiply Sampling and one uplink

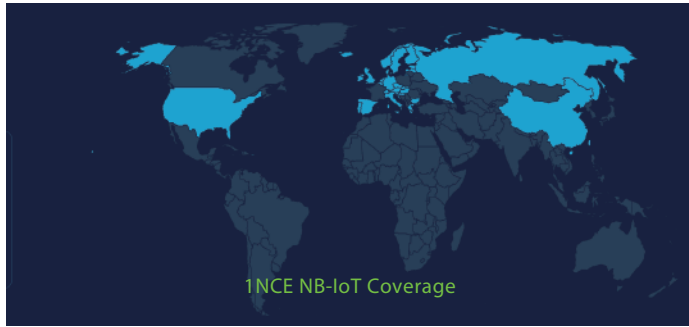


- CAT-M1 / LTE-M Bands: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B27/B28/B66/B85
- Uplink via MQTT, MQTTs, TCP, UDP or CoAP
- Multiply Sampling and one uplink

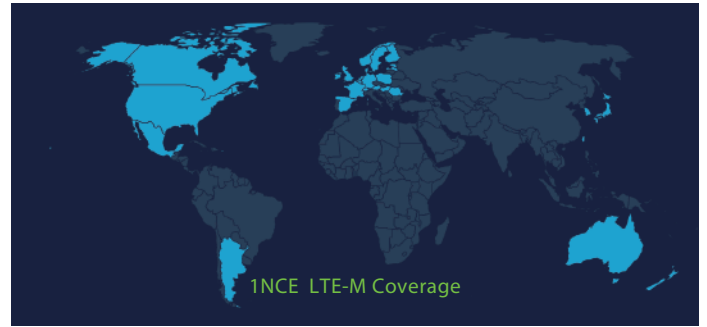
# What is 1T version for NB-IoT version?

The 1T version of NB-IoT Weather Station Kit is with 1) 1NCE SIM Card & 2) ThingsEye Pre-configured.

1NCE SIM Card (10 Years Cellular service with 500MB Data Traffic, Enough for devices to uplink 10 years at 1hour interval).



**NB-IoT Network :** Austria, Belgium, Bulgaria, China, Croatia, Czech Republic, Denmark, Estonia, Finland, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Latvia, Malta, Netherlands, Norway, Portugal, Puerto Rico, Russia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Taiwan, USA, US Virgin Islands.



**LTE-M Network :** Argentina, Austria, Australia, Belgium, Canada, Denmark, Estonia, Finland, France, Germany, Great Britain, Hungary, Ireland, Japan, Jersey, Korea, Republic of, Latvia, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Puerto Rico, Romania, Spain, Sweden, Switzerland, Taiwan, USA, US Virgin Islands.

## ThingsEye.io platform:

1T version with ThingsEye IoT service pre-installed. This save a lot of work from user side to configure IoT server.

Below is Dash Board is the demo in ThingsEye.io.



## Order Info:



### Part Number: WSC2-L-XX

XX: The default frequency band

- XX: Frequency Bands, options: EU433, CN470, EU868, IN865, KR920, AS923, AU915, US915

Please note that the WSC2 series only includes the transmitter, and the 9 in 1 Weather Station WSS-09 and Rain Gauge WSS-08 need to be purchased separately.



### Part Number: WSC2-N-XX

XX:

- **GE:** General version (Exclude SIM card)
- **1T:** with 1NCE\* 10 years 500MB SIM card Pre-configure to ThingsEye server

Please note that the WSC2 series only includes the transmitter, and the 9 in 1 Weather Station WSS-09 and Rain Gauge WSS-08 need to be purchased separately.



### Part Number: WSC2-C-XX

XX:

- **GE:** General version (Exclude SIM card)
- **1T:** with 1NCE\* 10 years 500MB SIM card Pre-configure to ThingsEye server

Please note that the WSC2 series only includes the transmitter, and the 9 in 1 Weather Station WSS-09 and Rain Gauge WSS-08 need to be purchased separately.

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