

WSC2 Photos

WSC2 Series:



WSC2-Compact Series:



Overview and Applications

OVERVIEW:

The Dragino Weather Station Solution is tailored for agricultural monitoring and environmental research. It enables accurate measurement of atmospheric conditions to support weather forecasting, climate studies, and precision farming.

The system utilizes various environmental sensors to collect data such as temperature, humidity, rainfall, wind speed, and more. This data is transmitted to an IoT platform using LoRaWAN, NB-IoT, or LTE-M wireless protocols.

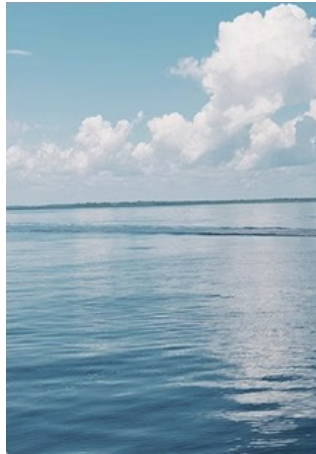
Two versions of the WSC2 series are available:

- **WSC2 Series:** A high-performance model designed for comprehensive environmental monitoring. It supports a wide range of sensors and is powered by an external solar panel, MPPT controller, and storage battery—ideal for demanding, long-term outdoor deployments in agriculture and field research.
- **WSC2-Compact Series:** A lightweight, self-powered version that includes a built-in solar panel and battery. It is optimized for measuring key weather parameters and is ideal for quick and easy deployment in farms, greenhouses, and remote research sites.

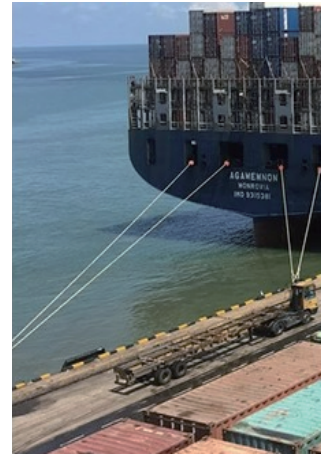
Applications:



Airport



Ocean



Port



Meteorological



Laboratory



Industry and Agriculture

WSC2 Series Sensor Specification

Optical Range Guage -- WSS-08

- Input Power: 9~30V DC
- Sense diameter: 6cm
- Pulse Output, each pulse , 0.1mm
- Max rain: 24mm/min
- Operation Temperature: -40 ~ 60 °C
- Operation Humidity: 0 ~ 99%RH(no dew)



9 in 1 Weather Sensors -- WSS-09

- Input Power: 10 ~ 30V DC
- Max Power Consumption: 1.2W

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 ~ 3599
- Accuracy: $\pm 3^\circ$
- Ultrasonic measurement, no start wind strength needed
- Built-in electronic compass. No need to consider installation direction

Temperature:

- Range: -40°C~+80°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: $\pm 3\%\text{FS}$
- Resolution: 1 $\mu\text{g}/\text{m}^3$

PM10:

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

Illumination:

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



WSC2 Series Sensor Specification

Rain Gauge – WSS-21

- Range: 0 ~ 100mm (range is limited to analog signal, RS485 signal is not measured)
- Resolution: 0.2mm
- Accuracy: $\pm 3\%$
- Rainfall strength: 0mm ~ 4mm/min (max 8mm/min)
- Input Power: DC 5~24v
- Interface: RS485
- Working Temperature: 0 ~ 70°C (incorrect below 0 degree, because water become ICE)
- Working Humidity: <100% (no dewing)
- Power Consumption: 4mA @ 12v



Wind Speed/Direction – WSS-22

- Wind speed range: 0 ~ 60m/s
- Wind direction range: 0 ~ 360°
- Start wind speed: ≤ 0.3 m/s
- Interface: RS485
- Accuracy: $\pm(0.3 + 0.03V)$ m/s , $\pm 1^\circ$
- Input Power: DC 5~24v
- Working Temperature: -30°C ~ 70°C
- Working Humidity: <100% (no dewing)
- Power Consumption: 13mA @ 12v.
- Cable Length: 2 meters



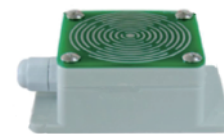
CO2/PM2.5/PM10 – WSS-23

- CO2 Range: 0 ~ 5000ppm, accuracy: $\pm 3\%F \cdot S$ (25°C)
- CO2 resolution: 1ppm
- PM2.5/PM10 Range: 0 ~ 1000 μ g/m³ , accuracy $\pm 3\%F \cdot S$ (25°C)
- PM2.5/PM10 resolution: 1 μ g/m³
- Input Power: DC 7 ~ 24 v
- Preheat time: 3min
- Interface: RS485
- Working Temperature: CO2: 0 ~ 50°C; PM2.5/PM10: -30 ~ 50°C
- Working Humidity: CO2: 0 ~ 95%RH; PM2.5/PM10: 15 ~ 80%RH (no dewing)
- Power Consumption: 50mA@ 12v.



Rain/Snow Detect – WSS-24

- Detect if there is rain or snow
- Input Power: DC 12 ~ 24v
- Interface: RS485
- Working Temperature: -30 ~ 70°C
- Working Humidity: 10 ~ 90%RH
- Power Consumption: No heating: 12mA @ 12v; heating: 94ma @ 12v.



WSC2 Series Sensor Specification

Temperature, Humidity, Illuminance, Pressure – WSS-25

Temperature:

- Range: $-30^{\circ}\text{C} \sim 70^{\circ}\text{C}$
- Resolution: 0.1°C
- Accuracy: $\pm 0.5^{\circ}\text{C}$

Humidity:

- Range: $0 \sim 100\% \text{ RH}$
- Resolution: $0.1\% \text{ RH}$
- Accuracy: $\pm 3\% \text{ RH}$

Pressure:

- Range: $10 \sim 1100 \text{ hPa}$
- Resolution: 0.1 hPa
- Accuracy: $\pm 0.1 \text{ hPa}$

Illumination:

- Range: $0 \sim 2/20/200 \text{ k Lux}$
- Resolution: 10 Lux
- Accuracy: $\pm 3\% \text{ FS}$
- Input Power: DC $12 \sim 24 \text{ v}$
- Interface: RS485
- Working Temperature: $-30^{\circ}\text{C} \sim 70^{\circ}\text{C}$
- Working Humidity: $10 \sim 90\% \text{ RH}$
- Power Consumption: $4 \text{ mA @ } 12 \text{ v}$



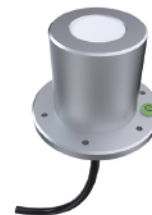
Total Solar Radiation sensor – WSS-26

- Input Power: DC $5 \sim 24 \text{ v}$
- Interface: RS485
- Detect spectrum: $0.3 \sim 3 \mu\text{m} (300 \sim 3000 \text{ nm})$
- Measure strength range: $0 \sim 2000 \text{ W/m}^2$
- Resolution: 0.1 W/m^2
- Accuracy: $\pm 3\%$
- Yearly Stability: $\leq \pm 2\%$
- Cosine response: $\leq 7\%$ (@Sun angle 10°)
- Temperature Effect: $\pm 2\%$ ($-10^{\circ}\text{C} \sim 40^{\circ}\text{C}$)
- Working Temperature: $-40^{\circ}\text{C} \sim 70^{\circ}\text{C}$
- Working Humidity: $10 \sim 90\% \text{ RH}$
- Power Consumption: $4 \text{ mA @ } 12 \text{ v}$



PAR (Photosynthetically Available Radiation) – WSS-27

- Input Power: DC $5 \sim 24 \text{ v}$
- Interface: RS485
- Response Spectrum: $400 \sim 700 \text{ nm}$
- Measure range: $0 \sim 2500 \mu\text{mol/m}^2 \cdot \text{s}$
- Resolution: $1 \mu\text{mol/m}^2 \cdot \text{s}$
- Accuracy: $\pm 2\%$
- Yearly Stability: $\leq \pm 2\%$
- Working Temperature: $-30^{\circ}\text{C} \sim 75^{\circ}\text{C}$
- Working Humidity: $10 \sim 90\% \text{ RH}$
- Power Consumption: $3 \text{ mA @ } 12 \text{ v}$



WSC2-Compact Series Sensor Specification

Rain Gauge: DR-RG-6P

- Rain-bearing diameter: 200mm; sharp angle of blade: 40° ~ 45°
- Range: default 0~100mm/day
- Resolution: 0.1mm
- Rain intensity range: 0.01~4mm/min
- Output signal: pulse signal
- Cable specification: 2 meters 2 wire system (pulse signal)



3 in 1 Sensor: DR-THP-6P

Temperature:

- Range: -40 ~ 80 °C
- Accuracy: ± 0.2 @ 0-90 °C
- Resolution: 0.1 °C
- Long Term Shift: <0.03 °C/yr

Humidity:

- Range: 0 ~ 99.9% RH
- Accuracy: $\pm 2\%$ RH (0 ~ 100%RH)
- Resolution: 0.01% RH
- Long Term Shift: < 0.25 %RH/yr

Air Pressure:

- Range: 300 ~ 1100hPa
- Accuracy: ± 0.1 kPa@25 °C 101kPa









Illumination Sensor: DR-IL-6P

- Base on BH1750 Illumination Sensor
- Range: 0 ~ 65535 lx
- Resolution: 1 lx
- Operating Range: -40 °C ~ 85 °C
- Cable Length : 50cm



WSC2 Series 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	<p>Sensor /Probe:</p> <ul style="list-style-type: none"> * Support reading the Rain Gauge, Wind Speed/Direction, CO2/PM2.5/PM10, Rain/Snow Detect, Temperature, Humidity, Illuminance, Pressure, Total Solar Radiation, PAR * 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 <p>General Features:</p> <ul style="list-style-type: none"> * 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	7 ~ 60V	7 ~ 60V	7 ~ 60V
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

Dragino Technology Co., Limited

Room 202, Block B, BCT Incubation Bases (BaoChengTai), No.8 CaiYunRoad
LongCheng Street, LongGang District ; Shenzhen 518116,China
Direct: +86 755 86610829 | Fax: +86 755 86647123

WWW.DRAGINO.COM
sales@dragino.com

WSC2-Compact Series Model Variants

Variants	WSC2-Compact-LS	WSC2-Compact-NS	WSC2-Compact-CS
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	Sensor /Probe: * Support external 3 in 1 weather sensor (DR-THP-6P): Temperature, Humidity, Air Pressure * Support interrupt Rain Gauge (DR-RG-6P) and Illuminance Sensor (DR-IL-6P) * Easy to install, no need for additional MPTT or solar panels * IP66 Waterproof Enclosure * 3000mAh Rechargeable Li-ion battery General Features: * 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	 * Solar + 3000 mAh Li-ion Battery	 * Solar + 3000 mAh Li-ion Battery	 * Solar + 3000 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 -NS: B1/B2/B3/B4/B5/B8/B12/B13/B17/B18/B19/B20/B25/B28/B66/B70/B85
 - For -CS: 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.

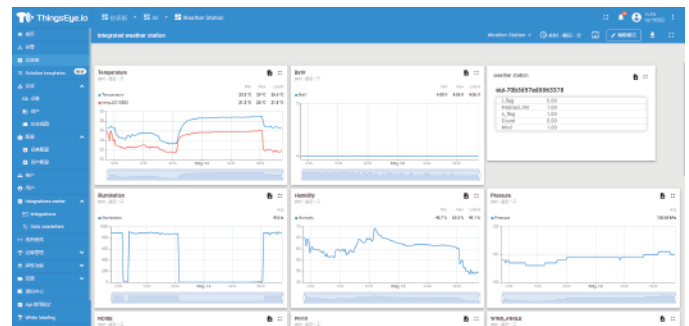


LTE-M Network : Argentina, Austria, Australia, Belgium, Canada, Denmark, Estonia, Finland, France, Germany, Great Britain, Hungary, Ireland, Japan, Jersey, Korea, Republic of, Latvia, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Puerto Rico, Romania, Spain, Sweden, Switzerland, Taiwan,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

Please note that the WSC2 series / WSC2-Compact series only includes the wireless transmitter, and the WSS-08, WSS-09, WSS-21, WSS-22, WSS-23, WSS-24, WSS-25, WSS-26, WSS-27, DR-THP-6P, DR-IL-6P, DR-RG-6P sensor need to be purchased separately. If you need to connect more than 3 sensors, please purchase an additional WSC2 series one to four adapter cable (DR-F6C-4M).



Part Number:

WSC2 Series Wireless Transmitter : WSC2-L-XX

WSC2-Compact Series Wireless Transmitter : WSC2-Compact-LS-XX

XX: The default frequency band

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

WSC2 series supports sensor models: WSS-08, WSS-09, WSS-21, WSS-22, WSS-23, WSS-24, WSS-25, WSS-26, WSS-27

WSC2-Compact series supports sensor models: DR-THP-6P, DR-IL-6P, DR-RG-6P



Part Number:

WSC2 Series Wireless Transmitter : WSC2-N-XX

WSC2-Compact Series Wireless Transmitter : WSC2-Compact-NS-XX

XX:

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

WSC2 series supports sensor models: WSS-08, WSS-09, WSS-21, WSS-22, WSS-23, WSS-24, WSS-25, WSS-26, WSS-27

WSC2-Compact series supports sensor models: DR-THP-6P, DR-IL-6P, DR-RG-6P



Part Number:

WSC2 Series Wireless Transmitter : WSC2-C-XX

WSC2-Compact Series Wireless Transmitter : WSC2-Compact-CS-XX

XX:

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

WSC2 series supports sensor models: WSS-08, WSS-09, WSS-21, WSS-22, WSS-23, WSS-24, WSS-25, WSS-26, WSS-27

WSC2-Compact series supports sensor models: DR-THP-6P, DR-IL-6P, DR-RG-6P

Dragino Technology Co., Limited

Room 202, Block B, BCT Incubation Bases (BaoChengTai), No.8 CaiYunRoad
LongCheng Street, LongGang District ; Shenzhen 518116, China
Direct: +86 755 86610829 | Fax: +86 755 86647123

WWW.DRAGINO.COM
sales@dragino.com