WSC2 Photos

WSC2 Series:

WSS-21 -- Rain Gauge

WSS-09 -- Wind Speed/Wind Direction/Temperature/Humidity/Air Pressure/Illumination/PM2.5/PM10/Noise

WSS-23 -- CO_2/PM2.5/PM10

WSS-25 -- Temperature/Humidity/Illuminance/Pressure

WSS-22 -- Wind Speed/Direction

WSC2-L -- Main Process Unit

WSS-24 -- Rain/Snow Detect

DR-F6C-4M -- One to four adapter cable

WSS-27 -- Photosynthetically Available Radiation

WSS-08 -- Optical Range Guage

WSS-26 -- Total Solar Radiation

WSC2-Compact Series:

DR-RG-6P -- Rain Gauge

DR-THP-6P -- Temperature/Humidity/Pressure Sensor

DR-IL-6P-- Illumination Sensor

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.
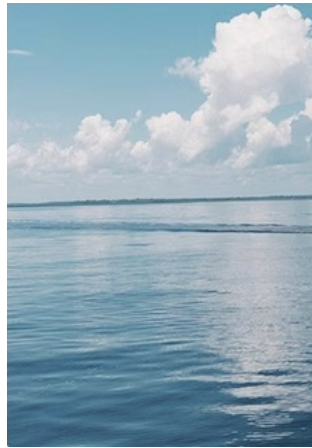
Two versions of the WSC2 series are available:
- WSC2 Series: A high-performance model designed for comprehensive environmental monitoring. It supports a wide range of sensors and is powered by an external solar panel, MPPT controller, and storage battery—ideal for demanding, long-term outdoor deployments 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.
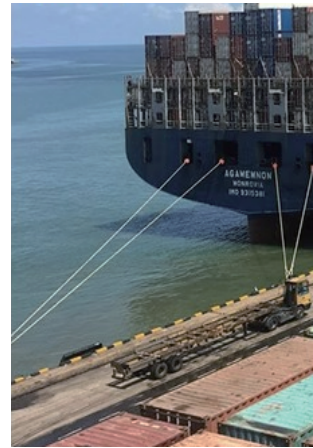
Applications:

Airport

Ocean

Port

Meteorological

Laboratory

Agriculture

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 Humidify: 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: ±(0.2m/s±0.02*v)(v : the wind speed)
- Ultrasonic measurement, no start wind strength needed

Wind Direction:
- Range: 0 ~ 3599
- Accuracy: ±3°
- Ultrasonic measurement, no start wind strength needed
- Built-in electronic compass. No need to consider installation direction

Temperature:
- Range: -40°C~+80°C
- Accuracy: ±0.5°C

Humidity:
- Range: 0 ~ 99% RH
- Accuracy Tolerance : Typ ±3% RH

Air Pressure:
- Range: 0-120kPa
- Accuracy: ±0.15kPa@25°C 101kPa

Noise:
- Range: 30dB~120dB
- Accuracy: ±0.5dB

PM2.5:
- Range: 0-1000μg/m3
- Accuracy: ±3%FS
- Resolution: 1ug/m3

PM10:
- Range: 0-1000μg/m3
- Accuracy: ±3%FS
- Resolution: 1ug/m3

Illumination:
- Range: 0-200k Lux
- Accuracy: ±7%(25°C)

Rain Gauge -- WSS-21

- Range: 0 ~ 100mm (range is limited to analog signal, RS485 signal is not measured)
- Resolution: 0.2mm
- Accuracy: ±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: ≤0.3m/s
- Interface: RS485
- Accuracy: ±(0.3＋0.03V)m/s , ±1°
- 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: ±3%F•S (25°C)
- CO2 resolution: 1ppm
- PM2.5/PM10 Range: 0 ~ 1000μg/m3 , accuracy ±3%F•S (25°C)
- PM2.5/PM10 resolution: 1μg/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.

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Temperature, Humidity, Illuminance, Pressure -- WSS-25

Temperature:
- Range: -30°C ~ 70°C
- Resolution: 0.1°C
- Accuracy: ±0.5°C

Humidity:
- Range: 0 ~ 100% RH
- Resolution: 0.1 %RH
- Accuracy : ±3% RH

Pressure:
- Range: 10 ~ 1100hPa
- Resolution: 0.1hPa
- Accuracy: ±0.1hPa

Illumination:
- Range: 0 ~ 2/20/200k Lux
- Resolution: 10 Lux
- Accuracy: ±3%FS

- Input Power: DC 12 ~ 24v
- Interface: RS485
- Working Temperature: -30°C ~ 70°C
- Working Humidity: 10 ~ 90%RH
- Power Consumption: 4mA @ 12v

Total Solar Radiation sensor -- WSS-26

- Input Power: DC 5 ~ 24v
- Interface: RS485
- Detect spectrum: 0.3 ~ 3μm（300 ~ 3000nm）
- Measure strength range: 0 ~ 2000W/m2
- Resolution: 0.1W/m2
- Accuracy: ±3%
- Yearly Stability: ≤±2%
- Cosine response: ≤7% (@Sun angle 10°)
- Temperature Effect: ±2%(-10°C ~ 40°C)
- Working Temperature: -40°C ~ 70°C
- Working Humidity: 10 ~ 90%RH
- Power Consumption: 4mA @ 12v

PAR (Photosynthetically Available Radiation) -- WSS-27

- Input Power: DC 5 ~ 24v
- Interface: RS485
- Response Spectrum: 400 ~ 700nm
- Measure range: 0 ~ 2500μmol/m2·s
- Resolution: 1μmol/m2·s
- Accuracy: ±2%
- Yearly Stability: ≤±2%
- Working Temperature: -30°C ~ 75°C
- Working Humidity: 10 ~ 90%RH
- Power Consumption: 3mA @ 12v

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)

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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: ± 2%RH (0 ~ 100%RH)
- Resolution: 0.01% RH
- Long Term Shift: < 0.25 %RH/yr

Air Pressure:

- Range: 300 ~ 1100hPa
- Accuracy: ±0.1kPa@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

Variants	WSC2-L	WSC2-N	WSC2-C
Connectivity	LoRaWAN	NB-IoT	NB-IoT / LTE-M / GNSS
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 reading the Rain Gauge, Wind Speed/Direction, CO2/PM2.5/PM10, Rain/Snow Detect, Temperature, Humidiity, Iillumiance, 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 **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	* 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
- 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

NB-IoT
- 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

LTE-M
- 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

WSC2-Compact Series Model Variants

Variants	WSC2-Compact-LS	WSC2-Compact-NS	WSC2-Compact-CS
Connectivity	LoRaWAN	NB-IoT	NB-IoT / LTE-M / GNSS
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
- 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

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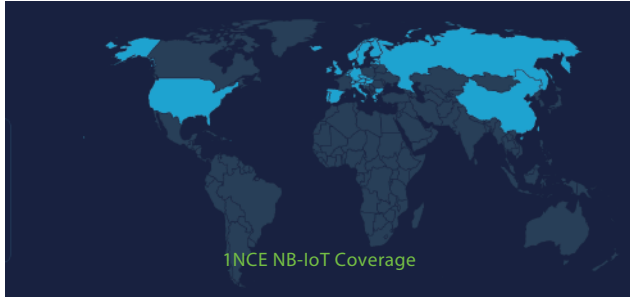 - For -NS: B1/B2/B3/B4/B5/B8/B12/B13/B17/B18/B19/B20/B25/B28/B66/B70/B85
  - For -CS: B1/B2/B3/B4/B5/B8/B12/B13//B18/B19/B20/B25/B28/B66/B71/B85
- Uplink via MQTT, MQTTs, TCP, UDP or CoAP
- Multiply Sampling and one uplink

LTE-M
- 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).

1NCE NB-IoT Coverage

1NCE LTE-M Coverage

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, Repiblic 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 confgure 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