WSC2 Photos

WSC2 Series:

WSC2-Compact Series:

DR-RG-6P -- Rain Gauge

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

DR-IL-6P-- Illumination Sensor

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Overview, Features & 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, LTE-M, or LTE CAT-1 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 feld 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.

Features:

WSC2 Series:

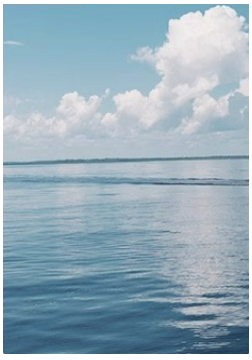
- Support reading the Rain Gauge, Wind Speed/Direction, CO2/PM2.5/PM10, Rain/Snow Detect,Temperature, Humidiity, Iillumiance, Pressure, Total Solar Radiation, PAR
- Support external 9 in 1 weather sensor(WSS-09): Wind Speed, Wind Direction, Temperature, Humidity, Air Pressure, Illumination, PM2.5, PM10, Noise
- Support tipping bucket Rain Gauge (WSS-08)
- RS485 Interface for 3rd Sensors
- 1000mAh Rechargeable Li-ion battery
- Input and Recharge power : 12v

WSC2-Compact Series:

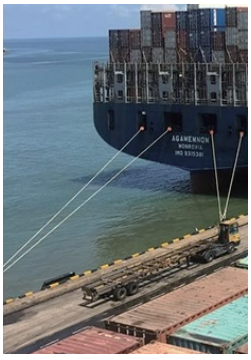
- Support external 3 in 1 weather sensor (DR-THP-6P): Temperature, Humidity, Air Pressure
- Support interrupt Rain Gauge (DR-RG-6P) and Illuminance Sensor(DR-IL-6P)
- Easy to install, no need for additional MPTT or solar panels
- Solar + 3000 mAh Li-ion battery

Applications:

Airport



Ocean



Port

Meteorological

Laboratory

Industry and Agriculture

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WSC2 Series -- Probe Option

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)

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WSC2 Series -- Probe Option

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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WSC2 Series -- Probe Option

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:

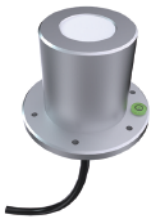
- Range: 10 ~ 1100hPa
- Resolution: 0.1hPa
- Accuracy: ±0.1hPa

Illumination:

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

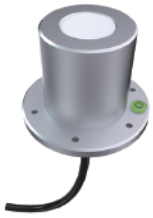
- Input Power: DC 12 ~ 24v
- Interface: RS485
- Working Temperature: -30°C ~ 70°C
- Working Humidity: 10 ~ 90%RH
- Power Consumption: 4mA @ 12v

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

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WSC2-Compact Series -- Probe Option

Rain Gauge: DR-RG-6P

- Rain-bearing diameter: 200mm; sharp angle of blade: 40° ~ 45°
- Range: default 0~100mm/day
- Resolution: 0.2mm
- 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: ± 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

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Wireless & Battery Selection

	L	LS	N	NS	C	CS	KS	K
Wireless	LoRaWAN	LoRaWAN	NB-IoT	NB-IoT	NB-IoT & LTE-M	NB-IoT & LTE-M	LTE CAT-1	LTE CAT-1
Module	LA66	LA66	BC660K-GL	BC660K-GL	BG95-M2	BG95-M2	EG800xx	EG800xx
Frequency Band	EU433, CN470, EU868, IN865, KR920, MA869, AU915, US915, AS923-1, AS923-2, AS923-3, AS923-4	EU433, CN470, EU868, IN865, KR920, MA869, AU915, US915, AS923-1, AS923-2, AS923-3, AS923-4	**CAT-NB2:** B1/B2/B3/B4/B5/B8/B12/B13/B17/B18/B19/B20/B25/B28/B66/B70/B85	**CAT-NB2:** B1/B2/B3/B4/B5/B8/B12/B13/B1/B18/B19/B20/B25/B28/B66/B70/B85	**CAT-NB2:** B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B28/B66/B71/B85 **LTE-M:** B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B27/B28/B66/B85	**CAT-NB2:** B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B28/B66/B71/B85 **LTE-M:** B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B27/B28/B66/B85	**EU:** For European, Asia, Australia, LTE-FDD: B1/3/5/7/8/20/28 **LA:** For Latin America, LTE-FDD: B2/3/4/5/7/8/28/66 **NA:** For North America, LTE-FDD: B2/4/5/12/13/66	**EU:** For European, Asia, Australia, LTE-FDD: B1/3/5/7/8/20/28 **LA:** For Latin America, LTE-FDD: B2/3/4/5/7/8/28/66 **NA:** For North America, LTE-FDD: B2/4/5/12/13/66
Uplink Method	LoRaWAN, OTAA, ABP	LoRaWAN, OTAA, ABP	MQTT, MQTTs, TCP, UDP or CoAP	MQTT, MQTTs, TCP, UDP or CoAP	MQTT, MQTTs, TCP, UDP or CoAP	MQTT, MQTTs, TCP, UDP or CoAP	MQTT, MQTTs, TCP or UDP	MQTT, MQTTs, TCP or UDP
Enclosure	For WSC2-X	For WSC2-Compact	For WSC2-X	For WSC2-Compact	For WSC2-X	For WSC2-Compact	For WSC2-Compact	For WSC2-X
Battery	1000mAh	3000mAh	1000mAh	3000mAh	1000mAh	3000mAh	3000mAh	1000mAh
Battery Type	Li-ion	Li-ion	Li-ion	Li-ion	Li-ion	Li-ion	Li-ion	Li-ion
Rechargeable	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Solar Panel	--	Yes	--	Yes	--	Yes	Yes	--
Solar Panel Power	--	0.9W	--	0.9W	--	0.9W	0.9W	--
DC Connector	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
GNSS	--	--	--	--	Yes	Yes	--	--
BLE Config	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IP Rate	IP66	IP66	IP66	IP66	IP66	IP66	IP66	IP54

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Enclosure Type

For WSC2-X

- Battery: 1000 mAh
- Rechargeable
- Dimension: 118 x 57 x 47 mm

For WSC2-Compact

- Battery: 3000 mAh
- Rechargeable
- 0.9w Solar Panel
- Dimension: 108 x 102 x 40 mm

What is 1T version for Cellular version?

The 1T version of NB-IoT/LTE-M/LTE CAT-1 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).

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.

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Ordering Information

Example: WSC2-L-EU868

Model Name:

WSC2 (One to four wiring, high-performance model designed for comprehensive environmental monitoring with 1000 mAh Li-ion Battery.)
WSC2-Compact (One to three wiring, a lightweight, self powered version that includes built-in Solar Panel +3000mAh Li-ion Battery.)

Wirless Tech:

L: LoRaWAN
N: NB-IoT
C: NB-IoT & LTE-M
K: LTE CAT-1

Frequency Band or Cellular SIM:

Frequency Band:

For LoRaWAN version: EU433, CN470, EU868, IN865, KR920, MA869, AU915, US915, AS923-1, AS923-2, AS923-3, AS923-4
For CAT-1 version: **EU:** For European, Asia, Australia
LA: For Latin America
NA: For North America

Cellular SIM option (For NB-IoT, LTE-M, CAT-1):

GE -- General version (Exclude SIM card)
1T -- With 1NCE & ThingsEye Pre-configured

For WSC2 Series Probe Option (Order Seperately):

WSS-08, WSS-09, WSS-21, WSS-22, WSS-23, WSS-24, WSS-25, WSS-26, WSS-27

For WSC2-Compact Series Probe Option (Order Seperately):

DR-THP-6P, DR-IL-6P, DR-RG-6P

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