WEATHER MONITORING / DATA SHEET

SS1000U-04-4G

Compact Ultrasonic Weather Station



Integrated environmental monitoring with ultrasonic wind measurement and 4G cloud upload. Select the required sensing elements, housing and optional electronic compass.

Overview

- 360° ultrasonic wind speed and direction measurement.
- Multiple environmental sensing options in one unit.
- 4G cloud upload every 20 s; Bluetooth configuration.

Wind Speed	Wind Direction	Power Supply	Output
0–40 m/s	0–359°	DC 10–30 V	4G

Key Advantages

- 360° wind sensing without moving cups or vanes.
- Selectable temperature, humidity, pressure and more.
- Optional optical or optical plus pulse rainfall sensing.
- Optional compass for mobile installations.
- IP54 enclosure; maximum power consumption 1.5 W.

Application Scenarios

- Environmental and weather monitoring.
- Air-quality and noise monitoring.
- Marine and vehicle applications with compass option.
- Sites with compatible 4G network coverage.

SYSTEM DATA

Technical Specifications

Item	Specification
Model	SS1000U-04-4G
Supply / maximum power	DC 10–30 V / 1.5 W
Communication	4G mobile network; cloud upload every 20 s
Network compatibility	Source lists China Mobile, China Unicom and China Telecom; confirm deployment network compatibility
Ingress protection	IP54
Configuration	Android app via Bluetooth; default password 12345678
Available sensing elements	Wind speed/direction, temperature/humidity, pressure, noise, PM2.5/PM10, CO2, illuminance, solar radiation and optional rainfall; specify configuration
Element operating temperatures	Wind, temperature/humidity, pressure, noise, illuminance and solar radiation: −40 to +80 °C; PM2.5: −20 to +60 °C; CO2: −10 to +60 °C

MEASUREMENT DATA

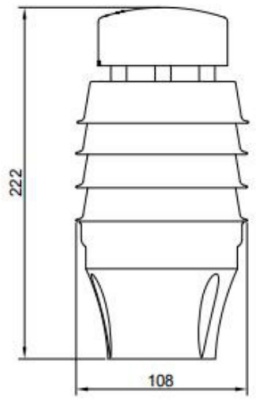
Measurement Ranges and Performance

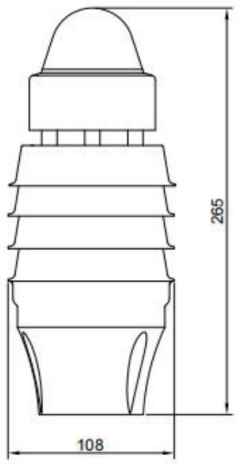
Parameter	Range / accuracy / response
Wind speed	0–40 m/s; starting speed 0.5 m/s; accuracy ±(0.5 m/s + 2% FS), specified over 0–30 m/s at 25 °C / 60% RH; response 1 s
Wind direction	0–359°; ±3° at 25 °C / 60% RH; response 1 s
Temperature	−40 to +80 °C; ±0.5 °C at 25 °C; response ≤25 s
Humidity	0–99% RH; ±3% RH at 25 °C / 60% RH; response ≤8 s
Atmospheric pressure	0–120 kPa; ±0.15 kPa at 25 °C / 101 kPa; response ≤2 s
Noise	30–120 dB; ±0.5 dB at 94 dB / 1 kHz reference; response ≤3 s
PM2.5 / PM10	0–1000 µg/m^3; PM2.5 accuracy ±3% FS at 100 µg/m^3, 25 °C / 50% RH; response ≤90 s. Counting efficiency: 50% at 0.3 µm; 98% at ≥0.5 µm
CO2	0–5000 ppm; effective range 400–5000 ppm; ±(50 ppm + 3% FS) at 25 °C; response ≤90 s
Illuminance	0–200000 lx; ±7% at 25 °C; response ≤2 s
Solar radiation	0–1800 W/m^2; accuracy <±3% at 150 W/m^2; response ≤10 s
Optical rainfall option	Typical accuracy ±5%; resolution 0.1 mm; maximum instantaneous rainfall 24 mm/min; sensing diameter 6 cm
Optical plus pulse rainfall option	Typical accuracy ±4%; resolution 0.1 mm; measurement range ≤4 mm/min

Specify housing, required sensing elements, rainfall option and electronic compass when ordering SS1000U-04-4G. Performance applies to fitted elements. Rainfall accuracy is based on laboratory tests. Response times are τ 63; temperature/humidity response is specified at 1 m/s internal sensing-element airflow.

MECHANICAL DATA

Dimensions and Installation





Housing dimensions in millimetres: advanced housing Ø108 × 222; advanced housing with optical rainfall Ø108 × 265; optical plus tipping-bucket rainfall housing Ø108 × 343. Standard housing Ø108.4 × 204.76; standard housing with optical rainfall Ø108.4 × 230.68.

Install securely and horizontally. Without the electronic compass, align the N arrow to true north. With the compass option, no azimuth alignment is required, but level installation is essential. Keep metal, motors and magnets away; recalibrate the compass on site if necessary. Optical plus tipping-bucket rainfall installations must be level.

ELECTRICAL CONNECTION

Power Wiring and Commissioning

Connection	Instruction
Brown wire	DC 10–30 V positive
Black wire	Power negative
Before commissioning	Confirm supply polarity, secure mounting and compatible 4G coverage

COMMUNICATION DATA

4G Cloud Monitoring and Bluetooth Setup

Power the station and open the Android configuration app. Enable Bluetooth, scan for the station and connect using default password 12345678. Read real-time data and selected parameters. After editing, send parameters and read them back to verify. The app also supports restart and clock synchronization. The internal Modbus slave baud-rate setting defaults to 4800 bit/s.

Cloud channel mapping: node 1 channel 2 wind speed ×10, channel 1 wind force; node 2 channel 2 direction in degrees (north 0°, east 90°), channel 1 direction index 0–7 (east 2); node 3 channel 2 humidity ×10, channel 1 temperature ×10; node 4 channel 2 noise ×10; node 5 channels 2 / 1 PM2.5 / PM10 or CO2 according to configuration; node 6 channel 2 pressure ×10 kPa; node 7 unsigned 32-bit illuminance in lx; node 10 channel 2 rainfall ×10 mm; node 11 channel 2 solar radiation.

Data is uploaded to the monitoring cloud every 20 s. If readings are unavailable, check supply, mobile data allowance, signal coverage and platform settings. The source package includes a data SIM; confirm service arrangements for the intended deployment.

MAINTENANCE & RELIABILITY

Cleaning Stability and Warranty

Clean the lower surface of the measurement zone regularly and remove dust or foreign material. Avoid volatile organic compounds around the capacitive humidity sensor. Do not use the station as a safety or emergency-stop device, or where failure could cause personal injury. Read the operating instructions before installation or servicing.

Long-term stability: temperature ≤0.1 °C/year; humidity ≤1%/year; pressure −0.1 kPa/year as listed in the source; noise ≤3 dB/year; PM2.5/PM10 and CO2 ≤1%/year; illuminance ≤5%/year; solar radiation ≤±3% at 150 W/m².

Package: station, certificate, warranty card and 70 cm waterproof mating cable. Standard housing accessories: two white support plates, two M4 × 10 screws/nuts and three M5 × 14 hex-head screws. Advanced and optical plus tipping-bucket housings include a hex key.

Warranty under normal use and maintenance: circuit section 24 months; PM / CO2 sensing section 12 months. Damage from incorrect installation, unauthorized modifications, liquid ingress, accidents or operation outside specified limits is excluded. Repair service is available after warranty.

CONTACT / SUPPORT

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