



Ultrasonic weather station

Model SEM7000



Main features

- Integrated structural design with a compact footprint
- High measurement accuracy and stable performance
- Resistant to electromagnetic interference, high temperatures, and oxidation; sealed against lightning, rain, and dust
- Low-power consumption design for energy efficiency
- Dual AC/DC power supply options, including high-efficiency solar-plus-battery configurations
- Supports wired communication (Ethernet, RS485, RS232) and wireless communication (ZigBee, Wi-Fi, GSM, CDMA, GPRS, SMS, 4G, etc.)
- Supports the standard Modbus protocol and custom protocol development
- Features intelligent data analysis and alarm notification capabilities

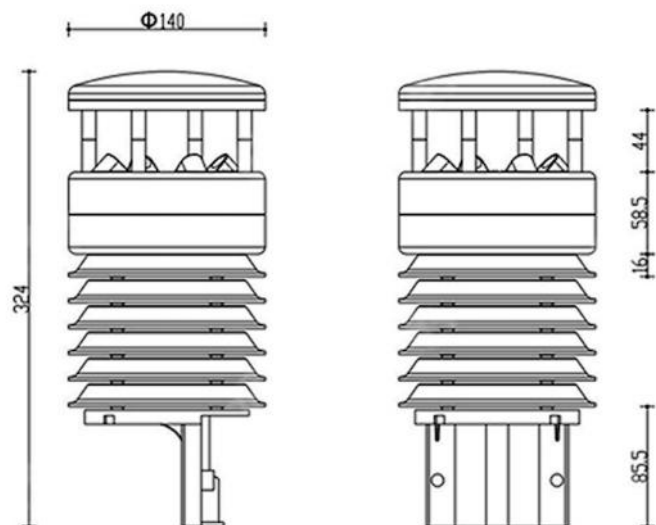
Introduction

The SEM7000 is a compact, next-generation meteorological station that utilizes ultrasonic sensors to measure wind speed and direction. Featuring an integrated design with no moving parts, it offers high precision, immunity to mechanical wear, and a low failure rate. Capable of 2D wind measurement and featuring a compact footprint, it serves as a complete replacement for traditional weather stations.

The SEM7000 multi-parameter micro-meteorological monitor integrates data acquisition, storage, transmission, and management. It captures real-time meteorological data—including ambient temperature, humidity, wind speed, wind direction, atmospheric pressure, rainfall, and solar radiation—and transmits this information to a remote monitoring center or video surveillance equipment (for secondary integration) via RS485, Wi-Fi, GPRS, or 4G networks. In the event of an anomaly, the system issues alerts through multiple channels, prompting management personnel to address the issue or take necessary corrective actions.

Typical Dimension

Unit: mm

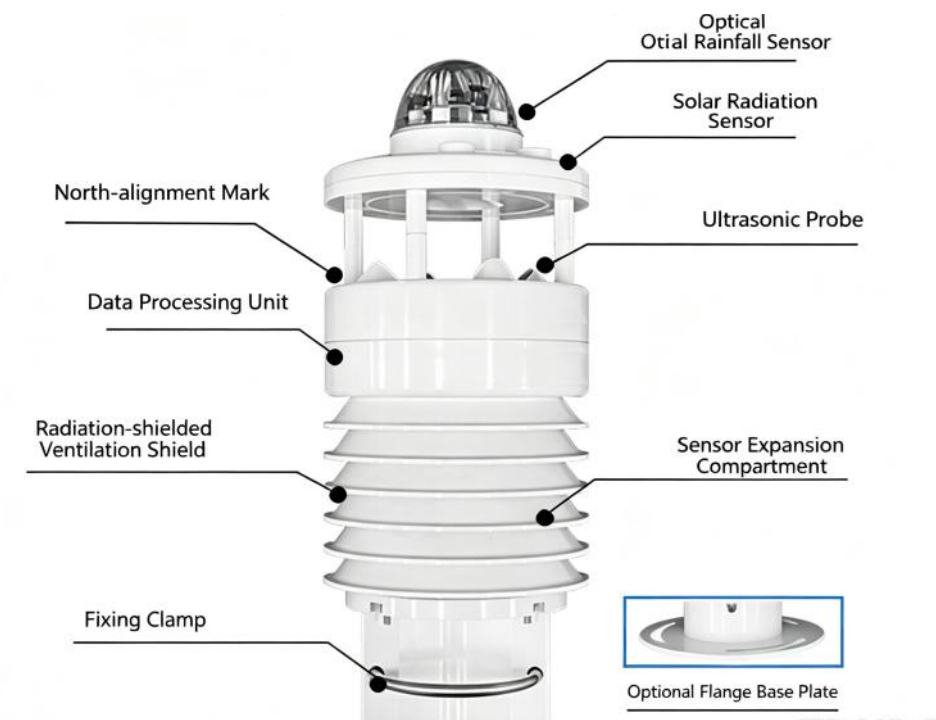


Specification

ITEMS	Range	Resolution	Accuracy
Ambient temperature	-40 ~ 80°C	0.1°C	±0.2°C
Ambient humidity	0 ~ 100%RH	0.1%RH	±2% (≤80%), ±5% (280%)
Dew point temperature	-40-50°C	0.01°C	±0.2°C
Wind speed	0 ~ 70m/s	0.1m/s	±(0.3+0.30V) m/s
Wind direction	0-359°	1°	±3°
Atmospheric pressure	300~1100hpa	0.1hpa	±0.3hpa
Total radiation	0-2000W/m2	1W/m2	≤5%
Ultraviolet radiation	0~500W/m2	1W/m²	≤5%
Rainfall (optical)	0~999.9mm	0.01/0.2mm	±10% (Indoor static shot)
Illuminance	0~200000Lux	1Lux	±5%
Noise	35~100dB	0.1dB	±0.5db
PM2.5/PM0	0~1000ug/m3	1ug/m3	±10%
CO2	0 ~ 2000ppm	0.1dB	±40 ppm + 3% of reading
CO	0-4000 ppb	0.1ppm	±10% FS
SO2	0-500 ppb	1 ppb	±10% FS
NO2	0-500 ppb	1 ppb	±10% FS
O3	0-500 ppb	1 ppb	±10% FS
TVOC	0 ~2ppm	1 ppb	±10% FS
Power Supply	AC 220V / DC 12V / Solar power		
Power Consumption	25mA @ DC 12V		
Communication Method	RS232/RS485/GPRS/Wi-Fi/Fiber optic, etc.		
Communication Protocol	Modbus protocol		
Software	PC, mobile, and cloud platform		
Operating Environment	Temperature: -40°C to 80°C; Humidity: 0-100% RH		
Material	Anti-aging ABS composite material		
Weight	1.3 kg		
Dimensions	7324 mm × 140 mm		
Protection Rating	IP66		

* More parameters support customized according to customers special application.

Typical structure



Order guide

SEM7000	Professional ultrasonic weather station		
	CODE	Function type	
	XXXXX	W1= wind speed W2 = wind direction R = rainfall V=Ultraviolet radiation *More customized according to specification functions	T= temperature H = humidity L =Luminance N=Noise A= atmospheric pressure S1 = Total Solar radiation P=PM1.0/PM2.5/PM10 CO2=CO2
		CODE	Signal output
		1	RS232
		2	RS485
		3	GPRS
		4	WIFI
		5	Optical fiber
SEM7000	W1W2THA	2	Order example