RK900-10 Ultrasonic Automatic Weather Instrument

Overview

RK900-10 Ultrasonic Automatic Weather Instrument is simultaneously measure the atmospheric temperature, atmospheric humidity, air pressure, wind speed, wind direction, solar radiation, Illuminance, dust concentration and precipitation. Temperature, humidity and air pressure sensor is placed within the radiation shield,wind speed and direction of ultrasonic principle. 24G radar detection on rainfall, which can quickly detect rainfall and rainfall intensity. Internal GPS global positioning module and electronic compass give a good indication of latitude and longitude and relative speed, which can calculate the real and virtual wind speed and direction, and is especially suitable for installation on motion vector, such as special vehicles or vessels, etc. Different functional modules and measurement parameters can be combined according to user needs.

Features

- High accuracy, fast response
- All in one measurement parameters
- Can identify rain, snow, and hail
- Can identify snowfall intensity (heavy, moderate, light)
- No moving parts, maintenance free
- Ultrasonic probe automatically heating
- Electronic compass,BDS /GPS optional
- Durable overall design, all-weather measurement

Applications

- Unattended meteorological monitoring system
- Traffic meteorological
- Mobile meteorological monitoring system
- Electric power safety monitoring
- Solar or wind power generation
- Port and navigation of the ship
- Scenic regionMeteorological science research

Technical Parameter

Item	Principle	Range	Resolution	Accuracy
Wind speed	Ultrasonic	0-60m/s	0.01m/s	±2%FS
Wind direction	Ultrasonic	0-360°	1°	＜3°
Atmospheric temperature	MEMS	-40-+80℃	0.01℃	±0.5℃
Atmospheric humidity	MEMS	0-100%RH	0.1%RH	±3%RH
Atmospheric pressure	MEMS	300-1100hPa	0.1hpa	±1hPa
Precipitation	Radar	0-200mm/hr.	0.1mm	±5%(@ wind speed ≤ 5m/s)
Solar radiation	Silicon-cell	0-2000W/m^2	0.1W/m^2	±5%(@ vertical irradiation)
Illuminance	Silicon-cell	0-200000lux	0.1lux	±5%(@ vertical irradiation)
Dust concentration (PM2.5/PM10)	Photoelectric scattering	0-2000μg/m^3	1μg/m^3	±5%(PM2.5) ±8%(PM10)
Noise	MEMS	30-130dB	0.1dB	±3dB
Visibility	Forward scattering	20-10000m	1m	15%
GPS①	Longitude, Latitude, Speed,Heading, Real wind speed			
Electronic compass②	Real wind direction			

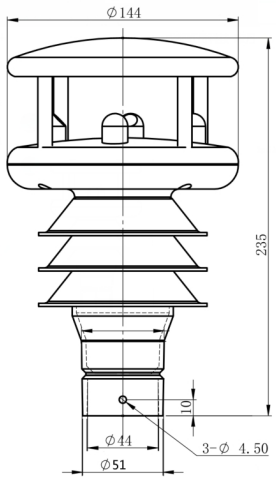
Item	Principle	Range	Resolution	Accuracy
Inclination measurement	Horizontal X-axis direction,Horizontal Y-axis direction,Vertical Z-axis direction -90°-+90°(optional)			
Supply	12-24VDC			
Output	RS485,RS232,SDI-12			
Communication protocol	Modbus-rtu(default),NMEA-0183,SDI-12			
Data update cycle	1s(default),other optional			
Power consumption	<3W,auto-heating power:6W			
Operating temperature	-40-+80℃			
EMC	EN61000-6-3, EN61000-3-3 EN61000-3-2, EN61000-6-1			
IP rating	IP66			
Main material	ASA, Aluminum alloy base(optional)			

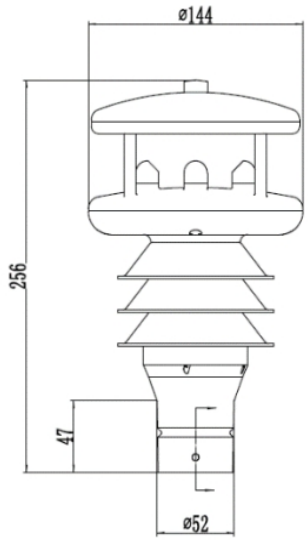
①, ② Optional when installed on moving objects

Dimension

Unit:mm

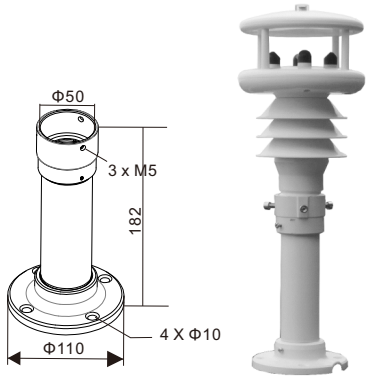
The sensor has a rotatable installation hole at the bottom,when installing the sensor, ensure that the indicator arrow on the sensor is facing towards the geographic north.
With electronic compass function:
Fixed installation method: The sensor can be installed in any orientation, it does not need toface north.
Mobile installation method (for vehicles, ships, etc.): When installed on moving objects likevehicles or ships, the sensor's north indicator must be aligned with the direction of travel.





With Irradiance measurement

Mounting



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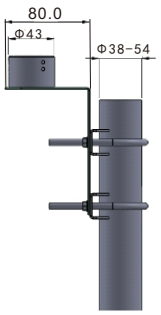

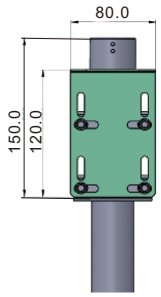

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Parameter Selection Table

Remark	Series	Type	Supply	Output	Communication protocol	Measure parameters	
RK							
	900						
		10					
			A				12-24VDC
			X				Other
				A			RS232
				B			RS485
				C			SDI-12
					A		Modbus-rtu(default)
					B		NMEA-0183
					C		SDI-12
					X		Other
						M5	Wind speed，wind direction temperature & humidity air pressure
						M6	Wind speed，wind direction temperature & humidity air pressure, precipitation
						M9	Wind speed，wind direction temperature & humidity air pressure , precipitation， solar radiation, Illuminance, dust concentration
						X	Customized①

①Wind speed and direction are necessary, and other parameters can be combined freely, GPS/BDS and electronic compass are optional configurations.Please confirm with us before order.

Revision time	Reviser	Current Version	Remarks
20250407	Lee	V5. 0	