



MARINE WEATHER STATION

Introduction

Zhice Yunlian marine meteorological monitoring station comprehensively and systematically solves the adaptability to harsh marine environments (high salinity, high humidity, strong wind) and the automation of marine-specific parameter observation. It can continuously monitor meteorological elements including air temperature, sea surface temperature, air pressure, humidity, wind, precipitation, solar radiation and visibility.

Fully considering the special long-term offshore working environment, this marine automatic weather station adopts targeted measures in sensor selection, three-proofing design, installation and wind resistance, which greatly improves equipment reliability.

Equipment

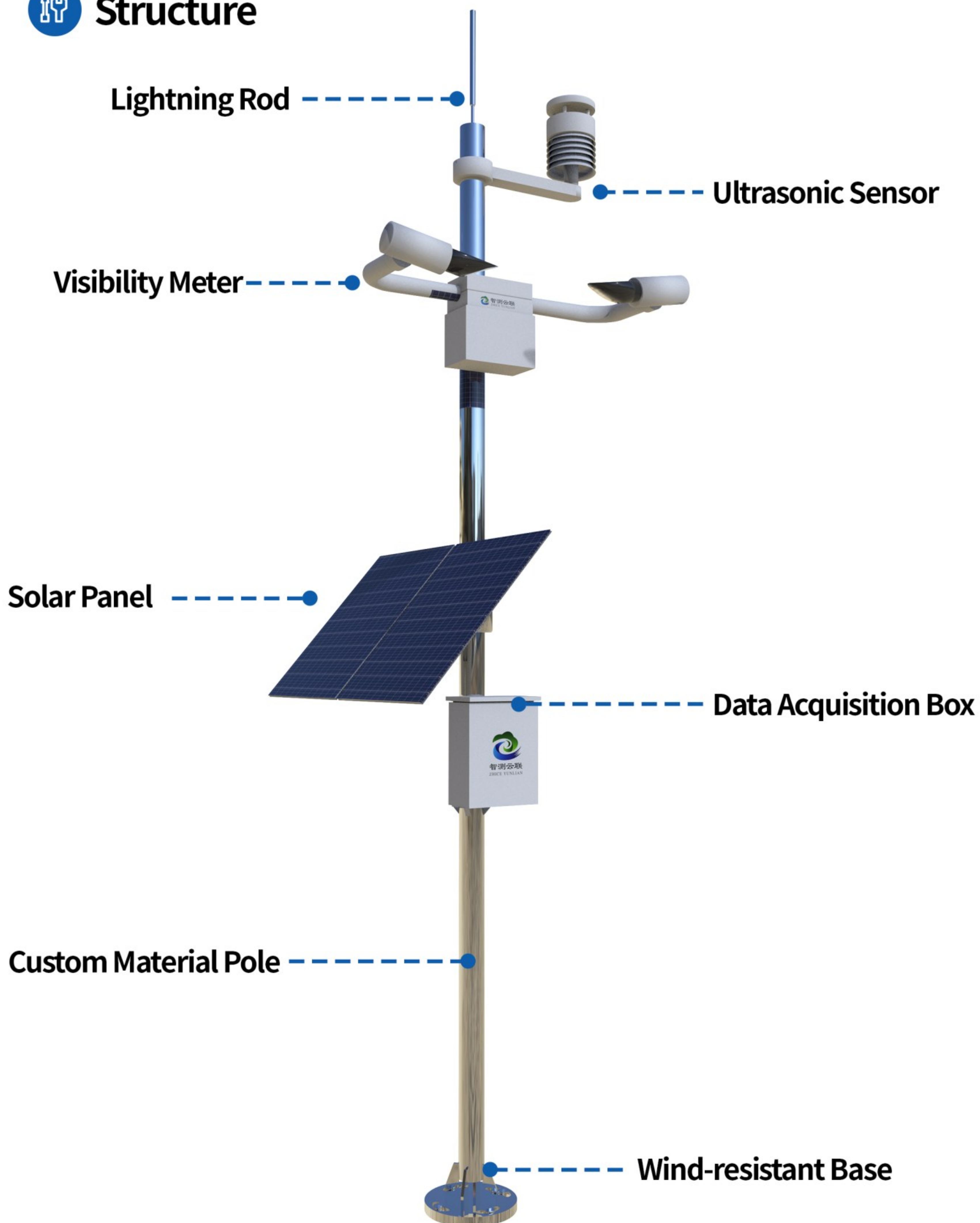
1. Meteorological sensors,
2. Data collector,
3. Automatic weather station bracket,
4. Communication system
5. Power supply system,
6. Professional supporting software and communication protocols.

Scenarios

Coastal area monitoring; island and offshore observation; marine fishery and aquaculture; marine ecology and scientific research monitoring; maritime emergency and navigation support.



Structure





Installation

I. Sensor Installation

1. Wind Direction & Speed Sensor

- A) The installation height above the mean high tide level shall be no less than 10m, preferably close to 10m and no more than 60m.
- B) When installed at an observation site with wind flow distortion, it shall be placed in the center of the site, 6m above the observation ground.
- C) The 0° reference of the wind direction sensor shall be aligned with true north, with an error $\leq 5^\circ$.

2. Temperature, Humidity & Air Pressure Sensor

- A) Shall be installed inside a radiation shield.
- B) The center of the sensing element shall be no less than 1.5m above the observation ground.

3. Rainfall Sensor

- A) Install on a fixed base and keep the instrument horizontally level.
- B) The horizontal distance between the sensor and obstacles shall be greater than the height difference between the obstacles and the sensor.
- C) The water-receiving orifice of the sensor shall be no less than 0.7m above the observation ground.

4. Visibility Sensor

- A) There shall be no obstructions or reflective objects within the working baseline range.
- B) The center of the sampling area shall be preferably 2.8m above the observation ground.
- C) The receiver shall be placed on the south side and the transmitter on the north side.

II. Chassis Unit

The chassis houses the collector, power supply module, communication module and battery, and shall meet the following requirements:

- A) Comply with the explosion protection requirements of the corresponding area.
- B) With excellent sealing performance, housing protection rating up to IP65.
- C) Mounted on the bracket via clamps; all connecting fittings are made of stainless steel.

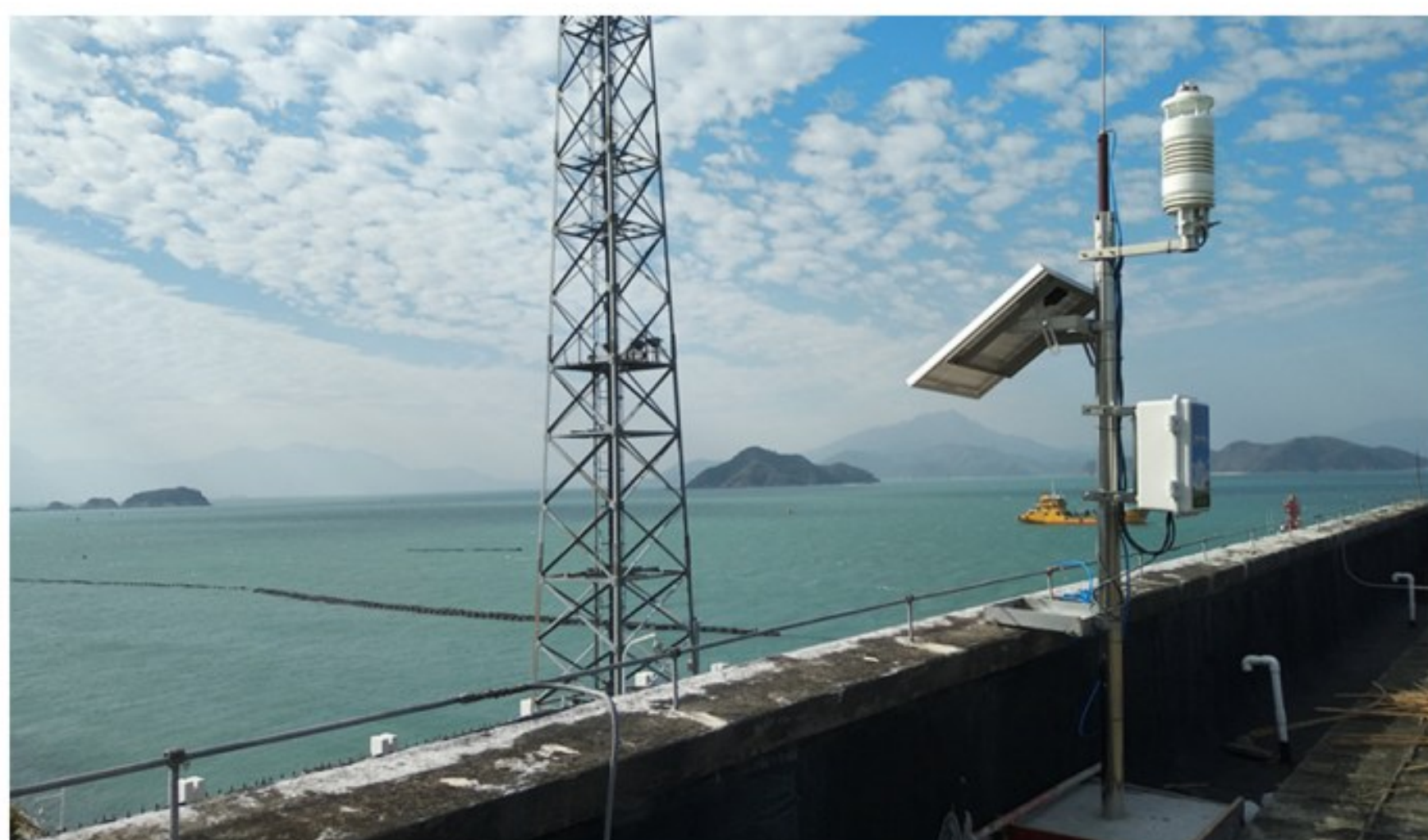
III. Bracket and Cabling

The system bracket, power supply and communication cables shall meet the following requirements:

- A) The base is welded to the platform and treated with anti-corrosion coating.
- B) Conduits of appropriate diameter shall be adopted, with draw strings pre-installed inside.
- C) Cables are routed through steel pipes or stainless steel wire troughs, bracket metal tubes and inside the chassis. All connectors and interfaces shall be properly insulated and moisture-proof treated.



On-site Installation Cases





Introduction to the upper computer software

Function Category	Specific Description
Core Functions	Realize integrated management of data reception, storage, viewing and analysis in the PC standalone environment
Data Reception and Processing	1. Support data reception via serial port, as well as data processing and visual display 2. Compatible with communication methods such as JSON string and MODBUS485
Parameter Configuration	1. Allow independent setting of data storage time 2. Support custom collection time in MODBUS485 collection mode
Monitoring Parameter Management	Support users to independently add, delete and modify monitoring parameters, including information such as parameter protocols, names and icons
Data Processing Expansion	1. Equipped with data post-processing function 2. Support external running of JAVASCRIPT scripts



Introduction to Cloud Platform

Function Category	Specific Description
Architecture & Access Method	Adopts a CS architecture software platform, supporting direct access and observation via mobile phones and PC browsers without additional software installation
Account & Device Management	Supports multi-account and multi-device login, meeting the collaborative management needs of multiple users and terminals
Data Display Function	1. Provides dashboards for real-time data display and historical data display 2. Supports data curve analysis 3. Supports map display and device information viewing
Data Storage & Stability	Implements cloud data storage based on cloud servers, featuring stability, reliability, easy scalability and load balancing
Alarm & Threshold Management	Supports SMS alarm function, allowing custom alarm threshold settings to respond to abnormal data in a timely manner
Data Processing & Output	1. Supports data export in table format 2. Has data post-processing function 3. Supports external running of JAVASCRIPT scripts to enhance customization capabilities
Data Forwarding Function	Supports data forwarding via multiple protocols, including HJ-212 protocol, TCP forwarding, HTTP protocol, etc.

