

Buoy-Based Water Quality Monitor

ATE6100

Features

- The system includes hardware, transmission, control, and cloud platform.
- Hardware: Buoy, solar panel, sensors (e.g., water level, pH, dissolved oxygen).
- Transmission: 4G, Beidou satellite.
- Control: Automates device control based on sensor data.
- Cloud Platform: Mobile/web-based management, server platform.
- Warning Module: Alarms if data exceeds thresholds.

Application

- Aquaculture: Dissolved oxygen, pH, ORP, ammonia nitrogen, nitrite.
- Industry: Five parameters, SS, COD, ammonia nitrogen.
- Water Conservancy: SS, five parameters.
- Agriculture: Five parameters, ammonia nitrogen, COD.
- Lakes/Reservoirs: Five parameters, ammonia nitrogen, COD, chlorophyll, phosphorus, nitrogen.

Description

The ATE6100 Buoy-based water quality monitoring system is an innovative solution for real-time water quality monitoring in lakes, rivers, and coastal areas. It integrates buoy technology with sensors to collect key data such as dissolved oxygen, pH, and turbidity. The system is widely used in aquaculture, environmental monitoring, and water resource management.

In aquaculture, it ensures optimal conditions for aquatic life. For environmental monitoring, it tracks pollution levels, and in water resource management, it ensures safe drinking water through real-time monitoring.

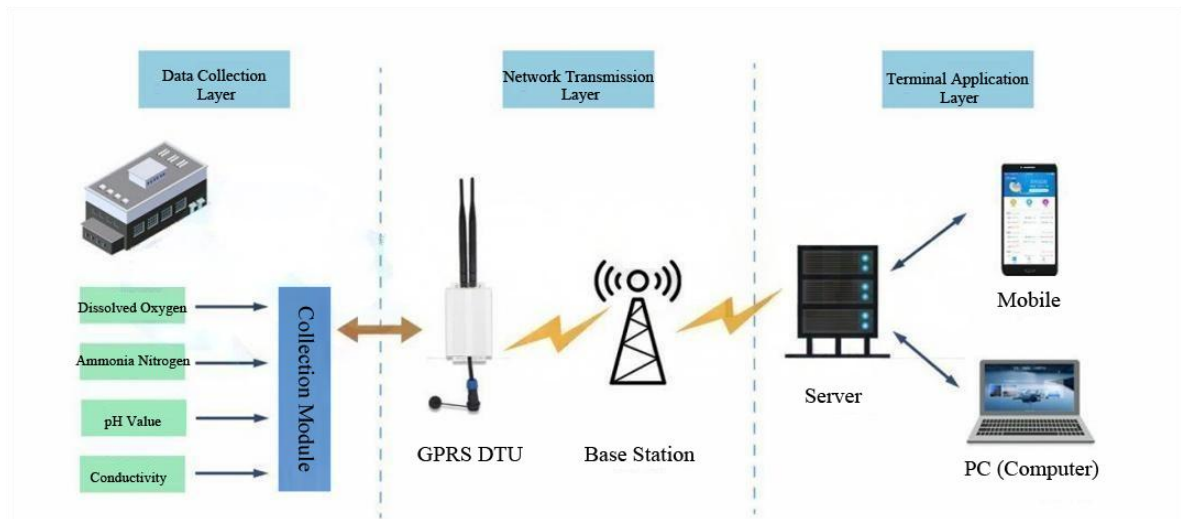
With the rise of IoT and cloud platforms, the system enables remote monitoring, data analysis, and automated alerts, becoming essential for smart water management and sustainable practices.



1 Appearance



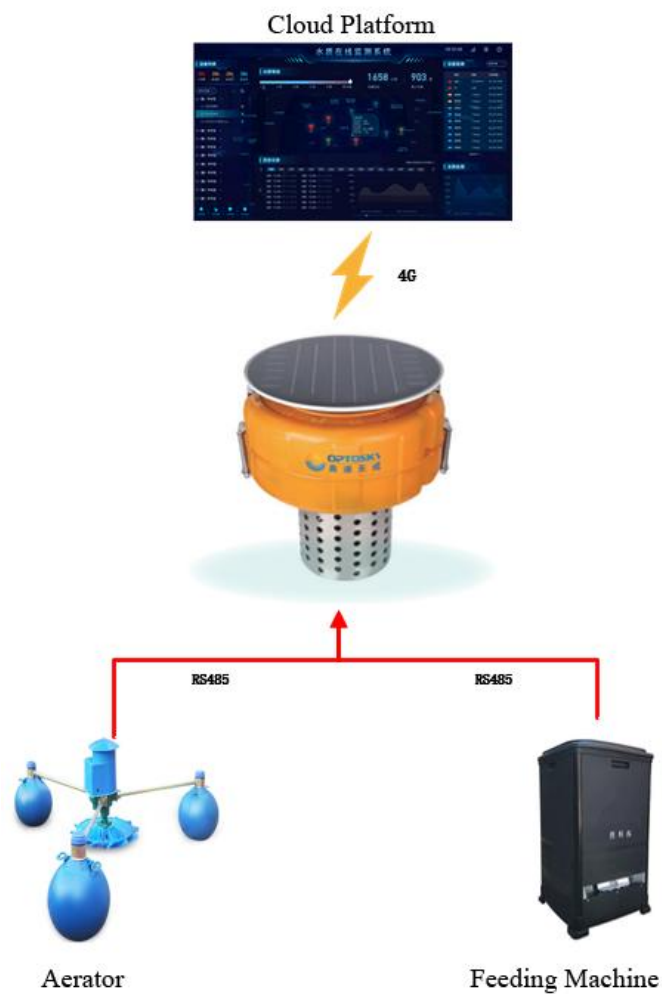
2 Software



The monitoring indicators are transmitted through the data collection layer and network transmission layer to Optosky's cloud server. Users can access the platform system via a PC Web login to view real-time water quality data. Additionally, for user convenience, mobile software platforms for Android/iOS systems are developed, allowing users to monitor water quality parameters anytime, anywhere, and through multiple channels. Users can also manually control field equipment, such as aerators and feeders, on the client side, based on the processing results of predictive control algorithms.



Control devices support two connection methods. For example, in aquaculture, aerators and other control devices can be directly connected to the ATE6100 device via 485 control lines, 232 control lines, etc.; or the control devices can be directly connected to the cloud platform.



3 Parameter

Name	Model	Configuration	Standard/ Optional
Host System	ATE6100	1. Includes buoy, control unit, power supply, and data transmission unit. 2. Operating temperature: -10°C to 45°C; humidity: 0-95% RH, no condensation. 3. Monitoring interval: 30 min, customizable frequency, real-time data collection and upload. 4. Data storage: Local query, export, and backup with no data loss during power failure. 5. Data retransmission: Automatically retransmit data if communication is restored. 6. Electrical housing: IP67 protection; sensor housing: IP68. 7. Positioning: Supports GPS. 8. Optional remote automatic cleaning; maintenance every month without self-cleaning. 9. Supports parameter expansion. 10. Transmission: 4G wireless. 11. Optional sound and light alarm. 12. Solar power: 13W, battery: 12V 18Ah. 13. Dimensions: Diameter 420mm, Height 500mm.	Standard Configuration
Spectral Analysis Unit	ATE2000	1. UV-Visible light 190~800nm continuous spectrum 2. Measurement parameters: TSS, COD, ammonia nitrogen, turbidity, temperature, total phosphorus, total nitrogen, BOD, TOC, nitrate, etc.	Optional
Water Level	ATE6100-SW	Range: 0.05-10m Resolution: 0.01m Accuracy: ±1% FS	Optional

Temperature	ATE6100-WD	Range: 0-60°C Accuracy: $\pm 0.5^{\circ}\text{C}$	Optional
PH	ATE6100-PH	Range: 0-14 Accuracy: ± 0.05 pH Resolution: ± 0.01 pH Glass electrode method	Optional
ORP	ATE6100-ORP	Range: -1500 to 1500 mV Accuracy: ± 3 mV Glass electrode method	Optional
Dissolved Oxygen (Fluorescence Method)	ATE6100-DOY	Range: 0-20 mg/L Accuracy: ± 0.3 mg/L Resolution: 0.01 mg/L	Optional
Dissolved Oxygen (Membrane Method)	ATE6100-DOM	Range: 0-20 mg/L Accuracy: ± 0.3 mg/L Resolution: 0.01 mg/L	Optional
Ammonia Nitrogen	ATE6100-AD	Range: 0-100 mg/L Accuracy: ± 0.3 mg/L Ion-selective electrode method	Optional
Conductivity	ATE6100-DDL	Range: 0-5000 $\mu\text{S}/\text{cm}$ Accuracy: $\pm 1.5\%$ F.S. Resolution: 1 μS Graphite Electrode Method	Optional
Residual Chlorine	ATE6100-YL	Range: 0-10ppm Accuracy: $\pm 1\%$ Electrochemical method	Optional
Turbidity	ATE6100-ZD	Range: 0-1000 NTU Accuracy: $\pm 5\%$ FS Infrared Scattering Method	Optional
Chlorophyll	ATE6100-YLS	Range: 0-400 $\mu\text{g}/\text{L}$ Accuracy: $\pm 3\%$ FS Resolution: 0.1 $\mu\text{g}/\text{L}$ Fluorescence Method	Optional
Blue-Green Algae	ATE6100-LLZ	Range: 100-300,000 cells/ml Accuracy: 100 cells/ml Fluorescence method	Optional
Chemical Oxygen Demand (COD)	ATE6100-COD	Range: 0-400mg/L Accuracy: $\pm 5\%$ FS UV Spectrophotometry	Optional
Salinity	ATE6100-YD	Range: 0-70 PSU Accuracy: $\pm 1.5\%$ F.S.	Optional

		Electromagnetic Electrode	
Suspended Solids	ATE6100-SS	Range: 0.01-120,000 mg/L Accuracy: $\pm 5\%$ Optical method	Optional
Cloud Platform	Water Quality Monitoring Cloud Platform	1. Users can access the software monitoring platform via PCs, mobile phones, and other devices to view real-time water quality data, receive alarms, and automatically adjust control equipment based on monitoring results. This helps industries like aquaculture achieve energy savings, environmental sustainability, and increased production. 2. Control modes include manual and automatic. 3. Intelligent auto-control with a unified, flexible PC interface for easy operation. 4. Real-time data curves and trend graphs for easy monitoring of significant changes in detection values. 5. In automatic mode, equipment adjusts control based on set limits.	Optional