AQUAS
Simple. Reliable. Intelligent.

MAX

Multiparameter Water Quality Sonde

- pH
- ORP
- Conductivity
- Dissolved Oxygen
- Turbidity
- SS
- Chlorophy II a
- BGA
- CDOM
- Nitrate
- Ammonium
- Chloride
- Potassium
- Oil in Water
- BOD
- Tryptophan
- Depth
- Pressure
- Temperature

RS485 Communication. All-in-One Solution.

ISO9001 Certification RoHS CE FC

With the headquarter based in Neihu Technology Park, Taipei, Taiwan, AQUAS Inc provides core technology and international marketing strategies. Supported by our own R&D department, we specialize in manufacturing advanced water quality analyzers, open channel flow meters, multiparameter loggers and controllers, etc. We support various kinds of applications such as flood precaution, sewer, drinking water, effluent, wastewater plant monitoring, surface water, ground water, water use in construction, and more intelligent water management and solution. Most of the AQUAS's products have received patents, and the related technologies are in the leading position in the world. Our products are famous as accurate, reliable, and easy to use. After more than 20 years of research and development, tens of thousands of AQUAS Online water monitoring systems have been successfully installed in cities around the world. AQUAS has been the market leader in the world in technologies such as optical water quality analyzer, radar ow meter and level meter, mobile communication, battery power supply and solid technics on robust SGS IP68 submersible enclosure. AQUAS has distributors in more than 60 countries around the world. Each of our employees will provide customers with the most effecient and high-quality services with their continuous efforts and strong faith.

Product Description

AQUAS
Simple. Reliable. Intelligent.

The MAX series are compact-sized, simple and cost-effective multiparameter water quality sonde. It is easy to be deployed in groundwater, sewer and surface water to monitor multiple water quality parameters such as pH, ORP, conductivity, salinity, total dissolved solids (TDS), resistivity, density, dissolved oxygen, turbidity, suspended solids, chlorophyll a, blue-green algae, CDOM/fDOM, nitrate, ammonium, chlorine, potassium, oil in water, BOD, Tryptophan, depth, pressure, temperature....etc. With robust IP68 water submersible enclosure, the product is perfectly used in many applications such as groundwater quifer characterization,sewer system, construction and mine, drilling and well, coastal estuaries and wetlands, lake and reservoir.

Advantages

- Plug and Play Sensors Ports, Auto Detects Multiple Water Quality Analyzers Connected
- Ruged sub-2" Design Make it Perfect for Groundwater, Well, Mining and Sewer Monitoring
- Direct In-Situ, Online Real-time Measurement, No Sampling and Pre-Treatment Device
- Auti-fouling Auto Cleaning Wiper, Less Maintenance
- Ultra Low Power Consumption, Ideal for Outdoor Applications
- A ll-in-One Compact Enclosure, Built-in Transmitter and Sensors
- Robust IP68 Submersible Anti-Corrosive Enclosure
- 1500 N Tensile Strength Kevlar Reinforced Cable
- Surge Protection for Power and RS485 Communication
- RS485 Digital Communication, Minimize Cabling and Engineering Cost
- Standard Modbus RTU Protocol, Direct Connected with PLC, HMI
- Onboard Memory Allowing Users Easily Calibrate and Configure Sensor at Lab and Distribute to Various Fields Sites
- Software Tool for Data Monitoring, Calibration, Configuration and Diagnosi

Benefits

Borderless deployment without standard cabin, signal transmitter, communication module, power supply, surge isolation and lighting arrester	Eliminate power/ networking/sensor/IO cabling, software configuration, engineering and infrastructure cost	Seamless connection to public or private network and software solutions	Easy to install, no need for calibration and quick connect within seconds. It is Ideal for mobile operation	Low maintenance and troubleshooting. Minimizes running and operating cost

Applications

Water Treament

Industrial Process

Wastewater Effluent

Drinking Water

Agriculture

Fishery

Features

AQUAS
Simple. Reliable. Intelligent.

All-in-One, Autonomous Operation

- Compact enclosure, built-in sensors and transmitter
- Plug & Play, on-line realtime measurement
- Ultra low power consumption, ideal for outdoor applications
- Very stable electrodes, without the need of frequent calibration
- Auto cleaning wiper, less maintenance
- Surge protection for power and RS485 communication

Robust Outdoor Construction

- IP68 robust water submersible housing
- Anti-corrosive IP68 connectors, ideal for harsh environment
- 1500 N tensible strength kevlar reinforced cable

Multiparameter Monitoring and Communication

- Built-in level (depth) or pressure sensor
- Sensors port: connects up to 7 SMR digital sensors

Easy Setup and Installation

- Setup a monitor and calibrate sensor via AQCFG configuration software
- Onboard memory allowing users easily calibrate and configure sensor and distribute to various fields and sites

Auto Data Collection

- RS485 digital communication, minimize cabling and engineering cost
- Standard Modbus RTU protocol
- Central communication application programming library for field data collection and database integration

Port 0 : Power and System Communication

- ▶External Power
  5~12 V DC, 1 A
- ▶RS485 Port
  Data collection
  Calibration

Sensor ports

4 SMR sensor ports

Automatic wiper

Port 0 : Power and System Communication

- ▶External Power
  5~12 V DC, 1 A
- ▶RS485 Port
  Data collection
  Calibration

Sensors ports

7 SMR sensor ports

Automatic wiper

System Architecture

AQUAS
Simple. Reliable. Intelligent.

The MAX Series is built-in RS485 communication, providing seamless connections from sensors to public or private network.

AQWEB/AQOPC Station

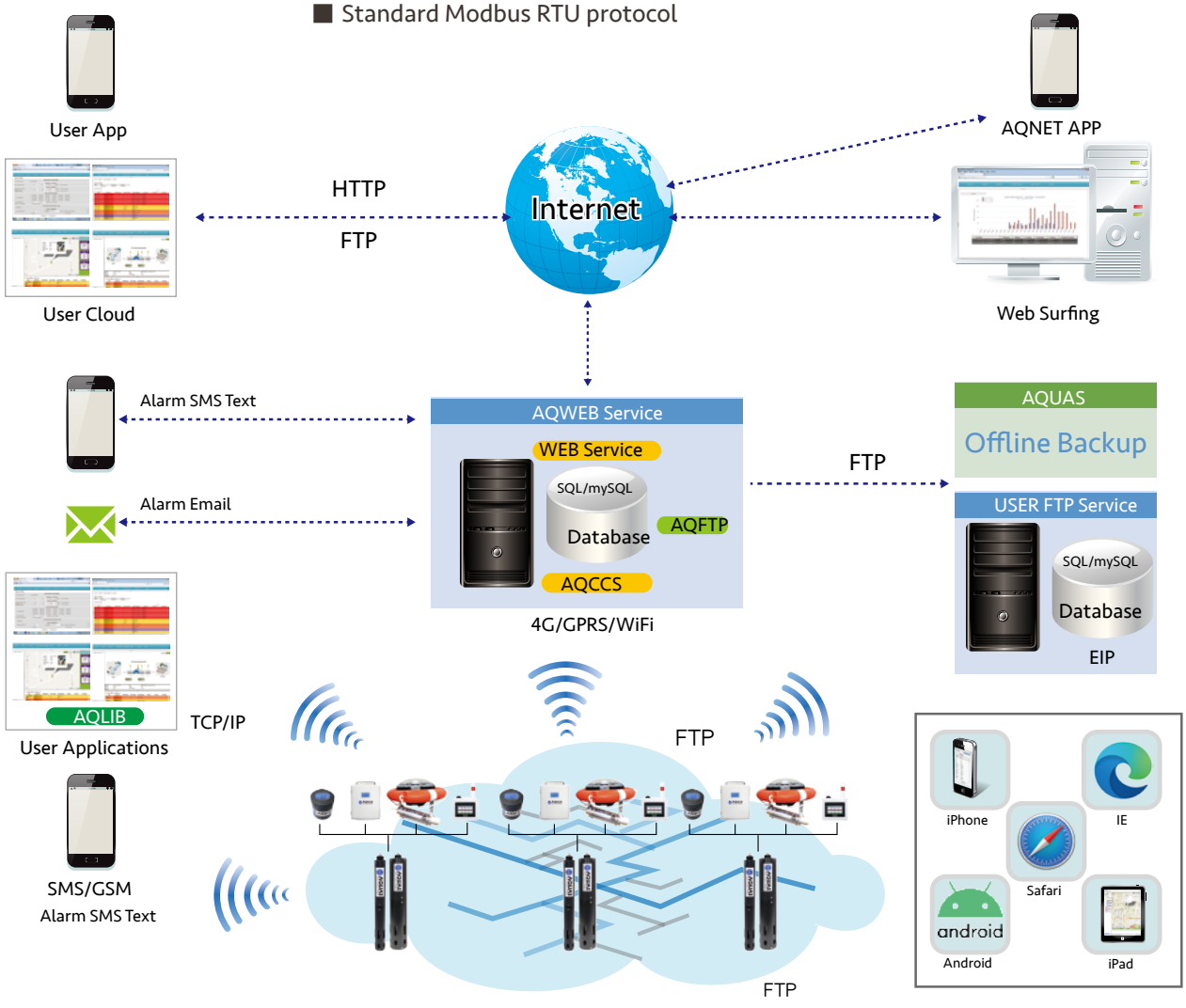
- Notebook with AQCFG software for configuration
- AQWEB WEB Server software for configuration, automatic data acquisition and storage, remote monitoring, alarming, control, Google Earth fusion display, data analysis, transient pressure analysis, time series trend graph and tabular report functions
- Seamless SCADA software and database connectivity via AQOPC OPC server
- Application interface library for developing user customized software
- Seamless SCADA software and database connectivity via AQOPC OPC server
- Application interface library for developing usercustomized software

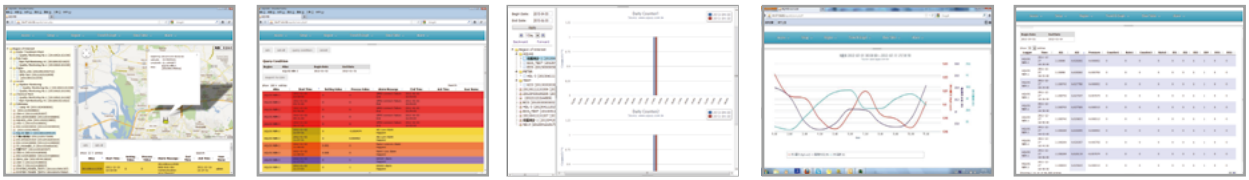
ECO/FLO/ARK/HMI Logger

- Periodically sample sensors and logged with time stamp
- Borderless cellular communication
- Peer to peer communication

MAX Multiparameter Water Quality Sonde and SMR Digital Sensors

- RS485 serial communication
- Standard Modbus RTU protocol





Monitoring & Operation | Alarm | Flow Chart | Trend | Data Analysis

Specifications

AQUAS
Simple. Reliable. Intelligent.

▶ Main Unit	
General	
Operating temperature	-5~50 °C
Protection	IP68
Flow rate	max.3 m/s
Safety	CE, FCC
System Communication Port	
Function	Data collection, sensor calibration
Data Collection	Data format: RS485, 19,200 bps, 8 bits, no parity, 1 stop bit
Surge protection	4,000 VDC
Protocol	Modbus RTU
Housing	
Material	POM
Dimensions	IP68 M12 connectors, ideal for harsh environment
Connection	5-pin M16 plug
Cable	1500N tensile strength Kelvar reinforced cable
Dimensions	MAX1: Φ49x328 (H) mm; MAX2: Φ75x365 (H) mm
Weight	MAX1: 1.5 Kg ; MAX2: 2.5 Kg
Data Collection	
Specification	Configuration and calibration via AQCFG software
Protocol	Standard Modbus RTU protocol
Power	
Power Supply	5~12 VDC, 1A
Surge protection	4,000 VDC
Input protection	polarity, overload, short circuit

Sensor	Measurement range	Accuracy	Response	Resolution	Signal
Level (Depth)	0 ~ 10/50/100 m	±0.1 % FS	T63<1 sec	0.01 % FS	Analog
Pressure	0 ~ 20 Kgf/cm^2	±0.1 % FS	T63<1 sec	0.01 % FS	Analog
pH	0 ~ 14 pH	±0.1 pH	T63<1 sec	0.01 pH	Analog
ORP	±1,500 mV	±5 mV	T63<3 secs	0.1 mV	Analog
Conductivity	0 ~ 50/500 mS/cm	±2 % measured value ±5 µS/cm	T63<1 sec	0.1 µS/cm	Analog
Dissolved Oxygen	0 ~ 20 mg/L (0~200 %)	±0.2 mg/L (0~8 mg/L); ±0.3 mg/L (8~20 mg/L)	T63<1 sec	0.01 mg/L	Digital
Turbidity	0 ~ 10/100/1,000/4,000 NTU	±2 % measured value (0~1,000 NTU); ±5 % measured value (1,000~4,000 NTU)	T63<3 secs	0.001 NTU	Digital
Suspended Solids (SS)	0 ~ 20/200/2,000/20,000 mg/L (dependent on sample)	±3 % measured value ±1 mg/L (0~2,000 mg/L); ±5 % measured value (2,000~20,000 mg/L)	T63<3 secs	0.01 mg/L	Digital
Temperature	0 ~ 60 °C	±0.1 °C	T63<3 secs	0.01 °C	Digital
Chlorophyll a	0 ~ 500 µg/L (0~100 RFU)	R2 ≥ 0.999 for serial dilution of Rhodamine WT solution	T63<3 secs	0.01 µg/L	Digital
Blue Green Algae (Phycocyanin, PC)	0 ~ 500 µg/L (0~200,000 cells/ml)	R2 ≥ 0.999 for serial dilution of Rhodamine WT solution	T63<3 secs	0.01 µg/L	Digital
Blue-Green Algae (Phycoerythrin, PE)	0 ~ 300 µg/L (0~600,000 cells/ml)	R2 ≥ 0.999 for serial dilution of Rhodamine WT solution	T63<3 secs	0.01 µg/L	Digital
CDOM/fDOM	0 ~ 3,000 µg/L	R2 ≥ 0.999 for serial dilution of Quinine Sulfate solution	T63<2 secs	0.01 µg/L	Digital
Nitrate (NO3-N)	0 ~ 1,000 mg/L	±5 % measured value ±0.5 mg/L	T63<1 sec	0.01 mg/L	Analog
Ammonium (NH4-N)	0 ~ 1,000 mg/L	±5 % measured value ±0.5 mg/L	T63<1 sec	0.01 mg/L	Analog
Chloride (CL^-)	0 ~ 1,000 mg/L	±5 % measured value ±0.5 mg/L	T63<1 sec	0.01 mg/L	Analog
Potassium (K^+)	0 ~ 1,000 mg/L	±5 % measured value ±0.5 mg/L	T63<1 sec	0.01 mg/L	Analog
Refined Oil	0 ~ 100 mg/L	±5 % measured value	T63<3 secs	0.01 mg/L	Digital
Crude Oil	0 ~ 1,500 µg/L	±5 % measured value	T63<3 secs	0.01 mg/L	Digital
BOD	0 ~ 35 mg/L	±5 % measured value	T63<3 secs	0.01 mg/L	Digital
Tryptophan	0 ~ 5,000 µg/L	±5 % measured value	T63<3 secs	0.1 µg/L	Digital

Sensor	Measurement range	Accuracy	Response	Resolution
Salinity (Calculated from Conductivity)	0 ~ 350 PSU, ppt, g/kg	±2 % measured value	T63<1 sec	0.1 PSU
Total Dissolved Solids (TDS) (Calculated from Conductivity)	0 ~ 300 ppt	±2 % measured value	T63<1 sec	1 ppm
Specific Conductivity (Calculated from Conductivity)	0 ~ 300 mS/cm	±2 % measured value	T63<1 sec	0.001 mS/cm
Resistivity (Calculated from Conductivity)	10 ~ 200,000 ohms-cm	±2 % measured value	T63<1 sec	1 ohm-cm
Density (Calculated from Conductivity)	0.98 ~ 1.14 g/cm^3	±2 % measured value	T63<1 sec	0~0.001 g/cm^3

Ordering

AQUAS
Simple. Reliable. Intelligent.

Optionals:	Sensors: Type A	Sensors: Type B	
Order No.	Description	Order No.	Description
SMR03-3C	Free chlorine electrode	SMR10-2	Turbidity analyzer
SMR04-3C	pH electrode	SMR12-2	Suspended solides analyzer
SMR04-4C	pH electrode	SMR35	Chlorophyll a analyzer
SMR04-9C	pH and ORP electrode	SMR36-1	Blue green algae analyzer (PC)
SMR05-1C	ORP electrode	SMR36-2	Blue green algae analyzer (PE)
SMR07-1C	Conductivity analyzer	SMR37-4	Refined oil analyzer
SMR09-4	Optical dissolved oxygen analyzer	SMR37-5	Crude oil analyzer
SMR21-2C	Nitrate (NO_3-N) electrode	SMR38	Colored dissolved organic matter (CDOM/fDOM) analyzer
SMR23-2C	Ammonium (NH_4-N) electrode	SMR46-7	BOD analyzer
SMR27-1C	Chloride (CL^-) electrode	SMR83-1	Tryptophan analyzer
SMR39-1C	Potassium (K^+) electrode		
SMR2X-1R	Reference electrode		

Ordering Codes:

MAX □ — □ — □□□ — 3 — 0 — 1 — □

Sensor Ports
- 4 → 1
- 7 → 2

Sensor
- Depth → 1
- Pressure → 2

Cable Length (m)
- 5 → 005
- Custom → 001~999

Cable Type
- PUR → 3

Housing
- POM → 0

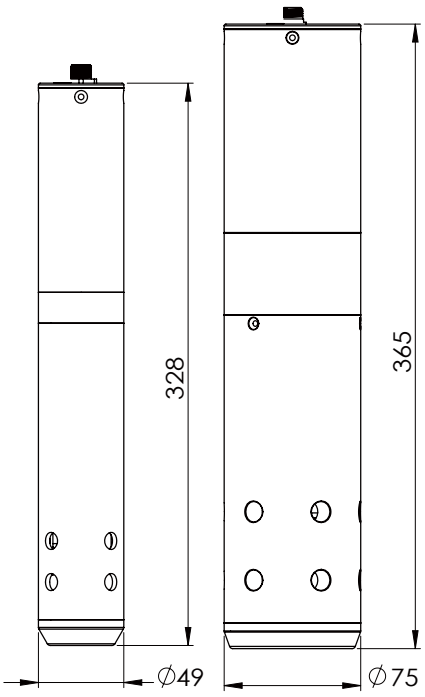
Wiper
- Built-in → 1

Wire Connection
- Bare Wire → 0
- M12 Connector → 1

MAX1 is able to install 4 sensors (up to 4 type A, 1 type B)
MAX2 is able to install 7 sensors (up to 6 type A, 4 type B)

▶Dimensions (unit: mm)

MAX1: MAX2:



All performances are subject to the actual performance of the products sold by the company in the market, and are only applicable to the products of the company's brand sold by the company or its designated distributors. All the above data are from the internal test of Kaifa Water Resources, and the data may be biased due to different test environments. The manufacturer reserves the right to make changes to product performance, specifications, samples or designs without notice. All information has been carefully checked for accuracy. If there is any printing omission or there may be errors in translation, the company will not be responsible for the consequences.

AQUAS Inc.
Taipei Office
Add：4F.-2, No. 56, Ln. 321, Yangguang St., Neihu Dist., Taipei City 11491, Taiwan. R.O.C.
T : +886-2-8797-5358#240
F : +886-2-2657-8926
service@aquas.com.tw