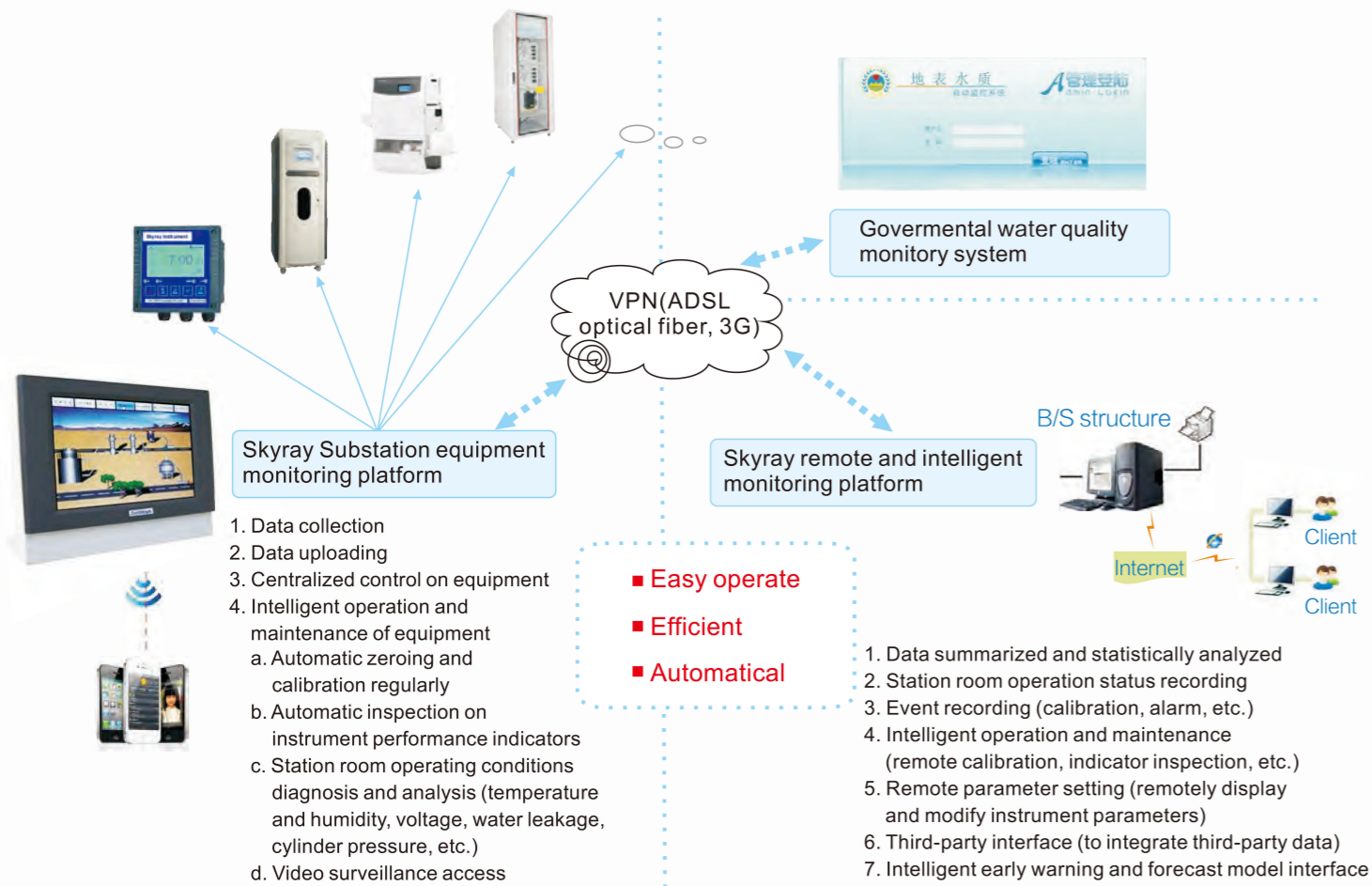
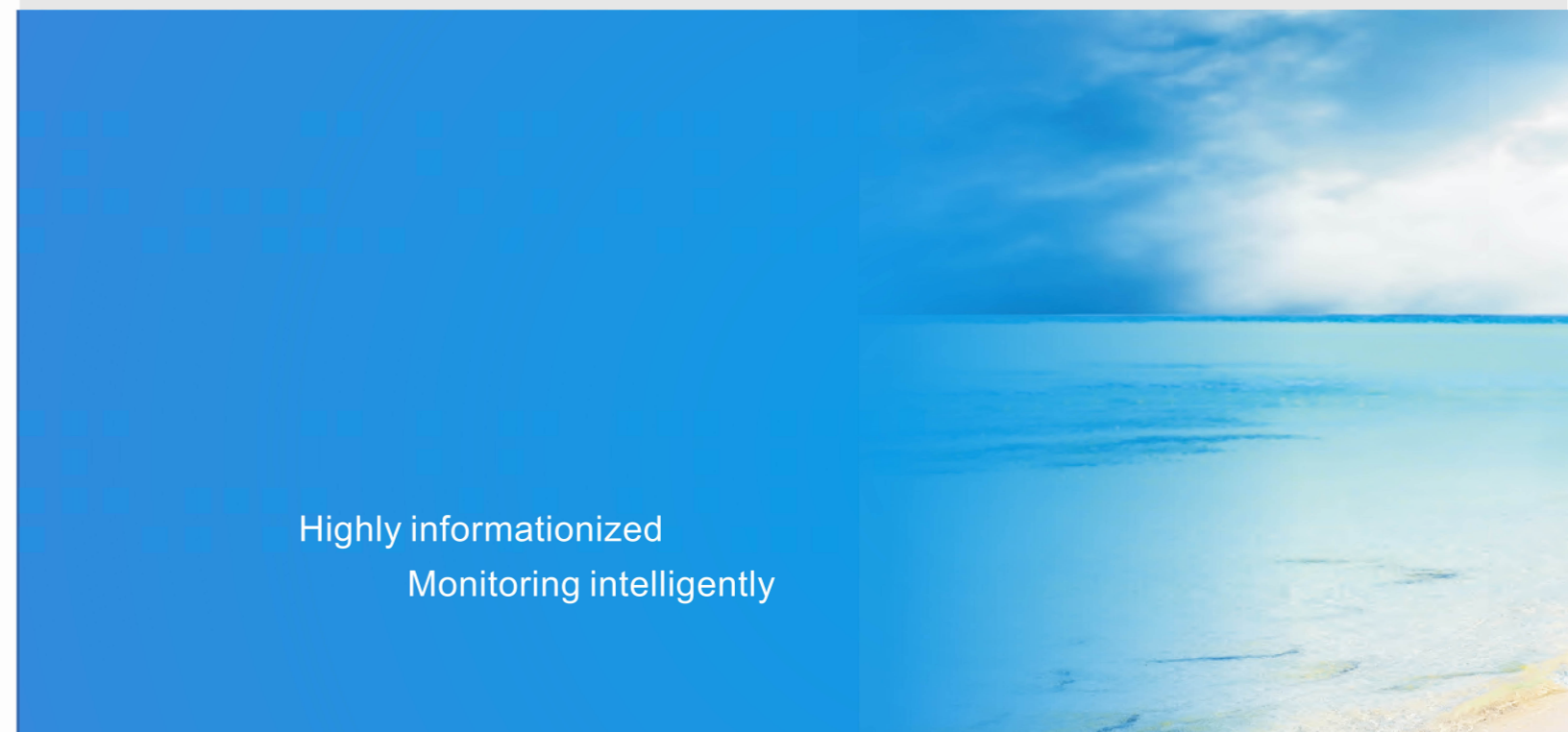


Intelligent monitoring platform for surface water



Total solutions for automatic water quality monitoring



Highly informationized
Monitoring intelligently

Automatic Water Quality Monitoring System



Hotline: 800-9993-800
400-7102-888

Jiangsu Skyray Instrument Co., Ltd.
Add: 1888 West Zhonghuayuan Rd., Yushan,
Kunshan, Jiangsu, China

Note: Unless otherwise noted, the experimental data of the samples are the experimental data of our company. All information about the sample is for reference only and is subject to change without notice.

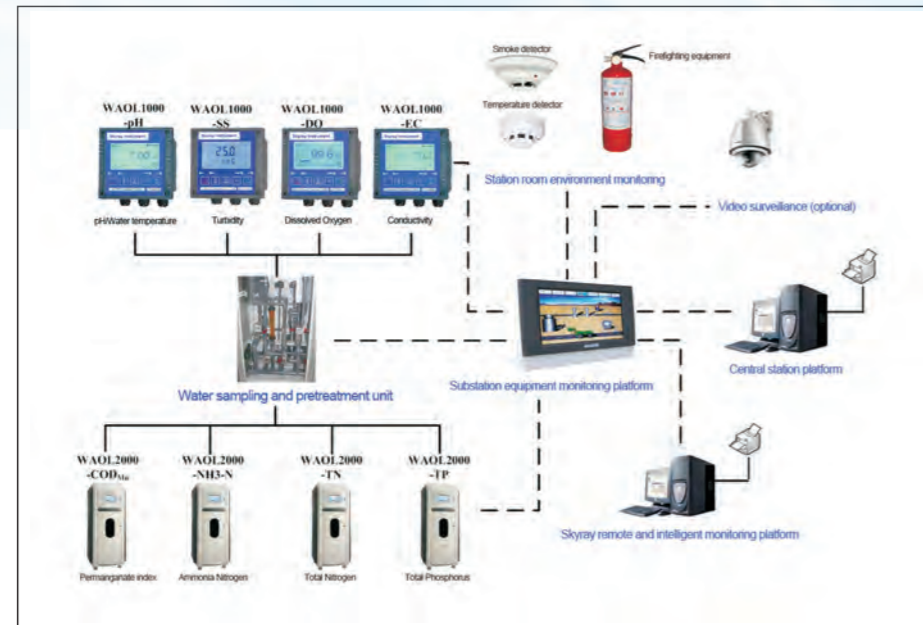
Version: TRSW 170717 B06

So far, Skyray instruments have been chosen in over 140 countries and regions in the world.

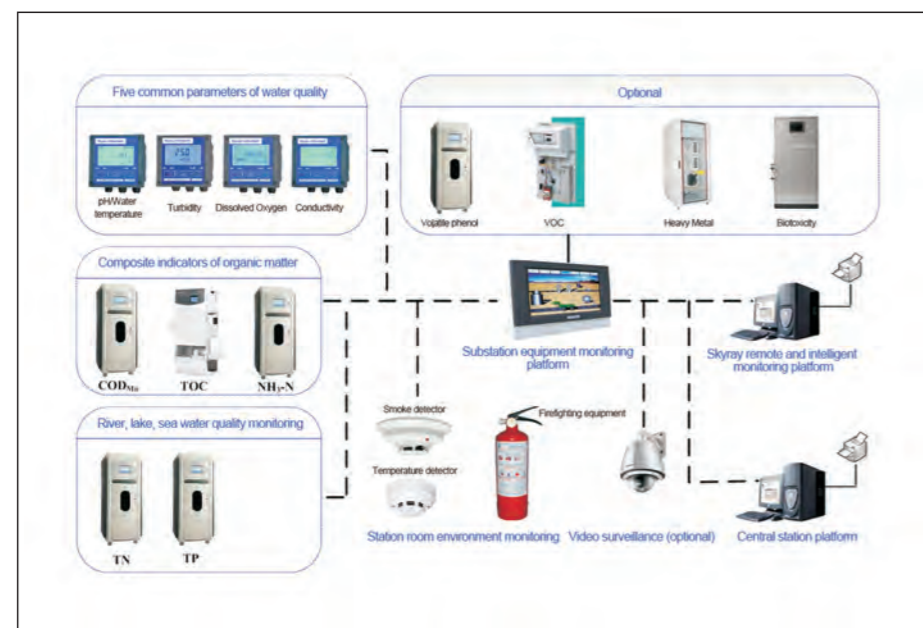
www.skyray-instrument.com

For surface water quality monitoring, indicators usually include common parameters (pH/water temperature, dissolved oxygen, conductivity and turbidity), composite indicators of organic matter (permanganate index, total organic carbon or other methods) and ammonia nitrogen; for rivers and lakes into the sea or reservoir, total nitrogen, total phosphorus and chlorophyll a may be added for water quality monitoring. Nitrate nitrogen, nitrite nitrogen, volatile phenol, fluoride, biological toxicity, volatile organic pollutants, heavy metals and other items can also be chosen according to the local pollution characteristics.

Conventional Automatic Water Quality Monitoring Station Diagram



Super Air Monitoring Station Diagram



pH/Water temperature (WAOL1000-pH)



Measurement Range
pH: -2.00~16.00pH

- Power Input: 100~240VAC wide supply, 50/60Hz
- Mounting: Panel mounting, Wall mounting, Tube mounting
- Large display with inductive backlight setting
- Clear display of graphic and symbols, with process guide for easy operation
- Contacts for automatic electrode-cleaning device, programmed for output
- Solution grounding to eliminate sample charge interference
- Automatic calibration; manual/automatic temperature compensation, last correction information provided
- RS-485 output interface, Modbus standard communication protocol
- Two circuits of 0/4 ~ 20mA output corresponding to pH and temperature

Dissolved Oxygen (WAOL1000-DO)



Dissolved Oxygen (WAOL1000-DO)
Measurement Range
O₂: 0.00~50.00mg/L

- Saturability: 0~500%
- Temperature compensation: automatic 0~50/140°C (depending on the electrode)
- Pressure compensation: 500~1100mbar automatic compensation
- Salinity compensation: 0.0~70.0ppt manual compensation
- Working temperature: 0°C~50°C
- Storage temperature: -20~70°C
- Power input: 88~265VAC wide supply, 50/60Hz
- Mounting: Panel mounting, Wall mounting, Tube mounting
- Large display with inductive backlight setting
- Clear display of graphic and symbols, with process guide for easy operation
- Contacts for automatic electrode-cleaning device, programmed for output
- Match to MT, WTW, and many other models of dissolved oxygen electrode
- Automatic calibration, automatic temperature, pressure, salinity compensation, last correction information provided
- Two circuits of 0/4 ~ 20mA output corresponding to dissolved oxygen and temperature

电导率 (WAOL1000-EC)



Conductivity (WAOL1000-EC)
Measurement Range
Conductivity: 0.00μS/cm~200.0 mS/cm
Manual or automatic range selection

- Temperature coefficient: Linear (0.00~40.00%) and non-linear compensation
- Working temperature: 0~50°C
- Storage temperature: -20~70°C
- Power input: 100~240VAC, 50/60Hz
- Mounting: Panel mounting, Wall mounting, Pipe string mounting
- Large display with inductive backlight setting
- Clear display of graphic and symbols, with process guide for easy operation
- Electrode constant: 0.008~19.99 cm⁻¹ adjustable
- Manual/automatic calibration, automatic temperature compensation, last correction information provided
- RS-485 output interface, Modbus standard communication protocol
- Two circuits of 0/4 ~ 20mA output corresponding to conductivity and temperature

浊度 (WAOL1000-SS)



Turbidity (WAOL1000-SS)
Measurement Range
Turbidity: 0.00~100.00/500.0/3000NTU

- Suspending turbid matter: 0.0~1000.0mg/L
- Correcting mode: 1~5 point correction, offset correction
- Working temperature: 0°C~50°C
- Storage temperature: -20~70°C
- Power input: 100~240VAC wide supply, 50/60Hz
- Mounting: Panel mounting, Wall mounting, Tube mounting
- Large LCD display, with operating status and special symbols displayed
- Backlight sensor, automatic and manual backlight setting
- Match to many different range of Turb/SS electrode
- Contacts for automatic electrode-cleaning device, programmed for output
- Two-point or three-point correction, offset correction
- RS-485 output interface, Modbus standard communication protocol
- Two circuits of 0/4 ~ 20mA output corresponding to turbidity and temperature

Water Quality Online Analyzer (WAOL2000-CODMn)



- Principle: Under certain conditions, add a certain amount of potassium permanganate and sulfuric acid to the sample, heat to 97 °C and keep the temperature constant for 30 minutes. Some organic and inorganic reducing substances in the sample will be oxidized by potassium permanganate; after the reaction, add excess sodium oxalate to reduce the remaining potassium permanganate; then drip back standard sodium permanganate solution to excess sodium oxalate. Calculate the permanganate index.
- Reference standard: GB11892-1989 and HJT100-2003. Automatic restore after power failure recovery. Standby mode after automatic clean of the equipment if necessary.
- Parameters configurable: Sampling time, digestion time, temperature and other parameters can be set as required.
- Automatic operation without staff on duty, automatic calibration and check, automatic measurement, automatic cleaning and other functions
- Multifunctional touch screen, displaying the flow path, operating status of the equipment. Alarm in case of no reagent, no water sample, hardware failure, data exceeding etc.
- Data transmission: 4-20mA, RS485, RS232

Water Quality Online Analyzer-Total Phosphorus (WAOL2000-TP)



- Principle: Under high temperature, high pressure and acidic conditions, polyphosphates and other phosphorus-compounds in the water will be hydrolyzed and form phosphate radical; other phosphorus compounds difficult to be oxidized will be oxidized to phosphate radical by sodium persulfate, a strong oxidizer. In the acidic medium, orthophosphate will react with ammonium molybdate and antimony potassium tartrate to form a phosphomolybdic heteropoly acid compound which would be reduced to blue phosphomolybdate by ascorbic acid. Total phosphorus content of water samples will be obtained through spectrophotometry.
- Water sample pretreatment device is designed maintenance-free to ensure at least six-month maintenance interval
- Chemical digestion time can be adjusted, and both the determination process and results meet the national standard GB11893-89 and GB/T 6913-2008
- Innovative flow path analysis design and reagent formulation ensure extremely high measurement reproducibility
- Automatic operation without staff on duty; automatic zeroing, automatic calibration, automatic measurement, automatic cleaning, self-maintenance, self-protection, automatic recovery and other intelligent functions
- Diversified on-line monitoring modes to achieve randomly manual measurement, automatic timing measurement, automatic periodic measurement, etc
- Data storage: Data valid for one year

Water Quality Online Analyzer(WAOL2000-NH3N)



- Principle: Under certain conditions, add strong alkali solution to the water sample under test to raise the pH value to 11 and above, and the ammonium salt in the sample will be converted into ammonia which will penetrate the semipermeable membrane (which cannot be penetrated by water and other ions) due to the diffusion, changing concentration of hydrogen ion of electrode, and detecting the changes if there is any electrode. With a constant ionic strength, the measured electromotive force has a linear relationship with the logarithm of the ammonia nitrogen concentration in the water sample. Thereby the ammonia nitrogen content of the water sample will be determined.
- Automatic restore after power failure recovery. Standby mode after automatic clean of the equipment if necessary.
- Parameters configurable: Sampling time, digestion time, temperature and other parameters can be set as required.
- Automatic operation without staff on duty, automatic calibration and check, automatic measurement, automatic cleaning and other functions
- Multifunctional touch screen, displaying the flow path, operating status of the equipment. Alarm in case of no reagent, no water sample, hardware failure, data exceeding etc.
- Data transmission: 4-20mA, RS485, RS232

Water Quality Online Analyzer-Total Nitrogen (WAOL2000-TN)



- Principle: Under certain conditions, add strong alkali solution to the water sample under test to raise the pH value to 11 and above, and the ammonium salt in the sample will be converted into ammonia which will penetrate the semipermeable membrane (which cannot be penetrated by water and other ions) due to the diffusion, changing concentration of Hydrogen ion of electrode, and detecting the changes if there is any electrode. With a constant ionic strength, the measured electromotive force has a linear relationship with the logarithm of the ammonia nitrogen concentration in the water sample. Thereby the ammonia nitrogen content of the water sample will be determined.
- Automatic restore after power failure recovery. Standby mode after automatic clean of the equipment if necessary.
- Parameters configurable: Sampling time, digestion time, temperature and other parameters can be set as required.
- Automatic operation without staff on duty, automatic calibration and check, automatic measurement, automatic cleaning and other functions
- Multifunctional touch screen, displaying the flow path, operating status of the equipment. Alarm in case of no reagent, no water sample, hardware failure, data exceeding etc.
- Data transmission: 4-20mA, RS485, RS232

Total solutions for automatic water quality monitoring

Total Organic Carbon Online Analyzer (TOC-4200)



- Data storage, power-off and lack-water protection and automatic recovery;
- Automatic alarm in case of instrument failure or abnormal value
- Regularly automatic cleaning and automatic calibration
- Sealed protective casing
- Bidirectional data transmission
- 4-20mA and digital output signal, digital interface meets the 232/RS422/RS485 interface standard, interface protocol provided
- Easily maintained, lower consumption of reagents and consumables, lower operating costs
- Ambient temperature: 0~40 °C
- Relative humidity: 10~95%
- Certificated China Ecolabelling Product

Heavy Metal Online Analyzer(WAOL3000-HM)



- Principle: Two analytical methods in one analyzer - Stripping voltammetry and Photometric colorimetry
- Innovative liquid flow path design and modular design, ensuring system reliability
- Multi-module cooperative IPC work independently, reducing measurement time, and easy to maintain, lower costs
- Fast and efficient high temperature and high pressure digestion module, effectively eliminating the interference of organic matter in water samples; efficient circulating water cooling to lower the temperature, reducing water pretreatment time
- Real-time monitoring equipment on fluid leakage, ensuring stable operation
- Friendly human-machine interface, convenient operation control, test data trends of any time period, statistical and other information can be provided.
- Detection objectives: Seven heavy metal ions detected simultaneously, including copper, cadmium, lead, nickel, arsenic, mercury, hexavalent chromium, extensible to a dozen of other heavy metal ions such as zinc, manganese, thallium, etc.
- Low detection limit: the minimum detection limit of 0.1 μg (Stripping voltammetry); 1 μg/L when detecting Cr6+ with photometric colorimetry
- Repeatability: RSD ≤ 5%

Chlorophyll A Online Analyzer (WAOL1000-OSA ChLA)



- Principle: Based on the fluorescence principle, when the light emitted at a specific wavelength through certain chemical substances, a type of fluorescence with longer wavelength will be reflected by these substances. Use the high-precision photoelectric detector to detect the energy of the fluorescent, and the concentration of the substance will be obtained.
- High-performance LED as laser light source with steady luminous efficiency and long service life
- Unique optical filter technology, eliminating the impact of ambient light and other fluorescence on the measurement
- Digital sensor, RS485 signal output, strong anti-interference ability, farther transmission distance
- Open communication protocol, enabling integration and networking with other devices
- Auto-cleaning brush, greatly reducing the maintenance workload
- Easily-operating probe, online software upgrade, easily maintained
- Accuracy: 10%
- Data storage: one month historical data
- Power: 220-240VAC 50-60HZ

Biotoxicity Online Analyzer (WAOL3000-BIO)



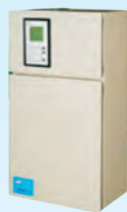
- International-standard *Vibrio fischeri* (NRRL B-11177) adopted, able to detect more than 5,000 toxic chemical substances
- Automatic control, on-line monitoring, easy maintenance, lower operating costs
- Accurately manage the detection process, automatically generate reports, drawing, analyzing, storing and other functions; relative luminous intensity, relative luminous rate, inhibition rate, toxicity level, and others can be directly read
- Quick response (can be set in the range of 5-30min)
- Light intensity measurement range: 0-120,000,000 photons
- High sensitivity with ability to detect content of less than ppm
- No need to restart the machine in the event of high pollution; automatically restore to work after power failure recovery
- Lower maintaining frequency of once a week; replacement reagents every time of maintenance

Volatile Organic Compounds(1020A+E)



- Principle: Detection principle of flame ionization method: When the organic compounds enter the hydrogen and oxygen combustion flame, chemical ionization will be generated at high temperature, and the ionization generates ions several orders of magnitude higher than the base flow which form ion current under the direction effect of the high-voltage electric field. The weak ion current (10-12~10-8A) will be amplified by high resistance (106~1011), and becomes an electrical signal proportional to the amount of organic compounds entering the flame. Therefore, organic matters can be quantitatively analyzed according to the size of the signal.
- Minimum detection limit: 0.1 mgC/m³
- Working room in testing room up to 300 °C
- No need to heat the pipeline
- No foam generated
- The particulate matter and salt in water have no impact on the measurement
- Can monitor aromatic hydrocarbons even if there is a high concentration of soluble hydrocarbons (such as alcohols) in samples.

Nitrate Nitrogen/Nitrite Nitrogen Online Analyzer μMAC C MP4(NO₃-N/NO₂-N)



- A microcomputer-controlled automatic online analyzer, can be applied to various water samples such as river water, surface water and industrial wastewater
- Principle: the samples are filtered and pumped into LFA reactor. First, add R1 copper sulfate as the catalyst, then add hydrazine sulfate to reduce nitrate nitrogen to nitrite nitrogen, and then add sulfonamide (SAA) and naphthalene ethylenediamine dihydrochloride (NED). After complete mixing and reaction, the analyzer measures the OD value of the red reacted substance at 525 nm, and calculates the concentration of the sample based on the calibration data stored in the analyzer
- Stable, reliable, easy to install
- Automatic calibration, automatic dilution, measurement interval can be set according to actual conditions and as required
- Long time auto-control, lower maintenance, low operation costs
- Up to 400 sets of data stored
- Electrical part and hydraulic part are completely isolated
- Microcomputer-controlled processing unit, fully automatic operation
- Self-diagnosis function enabling identification of lack of water samples or reagents
- Self-starting after power failure recovery
- Allow connection to local or remote PC for remote control

Total solutions for automatic water quality monitoring

Instrument Model	Measured Components	Measurement Range	Detecting Method	Detection Limit
WAOL1000-pH	pH/Water temperature	pH:0.00~14.00 T:-30.0~130.0°C	Glass electrode method / Temperature sensor method	\
WAOL1000-DO	Dissolved Oxygen	0.00~20.00mg/L	Membrane electrode method	\
WAOL1000-EC	Conductivity	10.00~200.0 mS/cm	Electrode method	\
WAOL1000-SS	Turbidity	0.0 ~ 100/500/3000NTU	Light scattering method	\
WAOL2000-COD _{Mn}	Permanganate index	0-1/5/10/50/10/300 mg/L	Permanganate oxidation- reduction method	0.2mg/L
TOC-4200	Total Organic Carbon	0-5 ppm至0-20000 ppm	Non-dispersive infrared absorption method	\
WAOL2000-NH ₃ N	Ammonia Nitrogen	0-10/50/100/300/500/1000/2000mg/L	Ammonia gas sensing electrode	\
WAOL2000-TN	Total Nitrogen	0.01-10 mg/L或0-50mg/L	UV method	0.2mg/L
WAOL2000-TP	Total Phosphorus	0.01-10 mg/L或0-100mg/L	Ammonium molybdate spectrophotometry	0.2mg/L
WAOL1000-OSA	Chlorophylla	0-5/50/500μg/L	Fluorescence method	\
WAOL1000-BIO	Biotoxicity	0-120000000 RLU	Luminous bacteria fluorescence method	\
WAOL3000-HM	Heavy Metal	0-50μg/L或0-100μg/L	Stripping voltammetry, Photometric colorimetry	0.1μg/L
1020A+E	Volatile Organic Compounds	0-10 mgC/m ³ 或0-100000mgC/m ³	Flame ionization method	0.1 mgC/m ³
μMAC C MP ₄ (NO ₃ -N/NO ₂ -N)	Nitrate Nitrogen/Nitrite Nitrogen	0-5/10/20/50 mg/L	Hydrazine reduction, NED+SAA colorimetry	3%FS
PowerMon	Volatile Phenol	0~0.1/0.5/2/200mg/L	4-Amino antipyrine S pectrophotometry	0.001mg/L
WAOL1000-IF	Fluorine Ion	0.1~10mg/L	Ion-selective electrode method	0.001mg/L

Volatile Phenol Online Analyzer(PowerMon)



- Principle: 4-Amino antipyrine Spectrophotometry, HJ503-2009
- Remote quality control, identify accidental pollution
- Automatic analysis, with the cycle set as required
- Automatic calibration and cleaning, with the cycle set as required
- Ultra-high precision spectrophotometer unit
- Full touch screen for operation and display
- Equipped with high performance and high efficiency on-line distilling device
- No extraction process and no worries about poisonous organic solvents hurting operators
- Low drift, excellent stability, low failure rate

Fluorine Ion Online Analyzer(WAOL1000-IF)



- The ion-selective electrode for the detection of fluoride ions is a simple, quick and non-destructive analytical tool which can be applied to colored and turbid solutions. The instrument is simple in structure and can distinguish the existence forms of different ions. The content of the analysis object will be determined after testing only a small amount of samples. It applies to automatic and continuous on-site monitoring
- Measurement Range: 0.1~10mg/L fluoride
- Minimum detection limit: 0.01mg/L
- Mainly used for monitoring the fluoride concentration of drinking water and surface water
- Ion-selective electrode method adopted, the electrode tip is patented and replaceable
- Automatic calibration
- Constant temperature controlled flow cell
- Very little reagent consumption, very simple maintenance, lower maintenance frequency and costs
- Accurate fluoride readings without being affected by changes of ionic strength, pH or temperature in water samples

