

Micromac 2000

Water Quality Monitoring System

Product catalogue

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SH-WMC2000 Multi-Parameter Water Quality Controller

● Overview

SH-WMC2000 multi-parameter water quality controller can be connected up to four sensors, with real-time display of measured values and sensors status. The controller can calibrate each sensor and it includes data storage and local serial transmission functions; its interface is simple and easy to operate, it can also be used quickly by non-professionals. Connectable water quality sensors include: pH, conductivity, dissolved oxygen, turbidity, ammonia nitrogen, COD (UV) and so on.



● Product features

- Plug and play sensors with automatic recognition
- Large touch screen for easy operation
- IP65 protection class, impact resistant, flame retardant
- Up to six 4-20 mA analog outputs and up to 14 digital relay outputs available on request.

● Technical specifications

Product name	Multi-parameter water quality controller
Display screen	7-inch touch screen
Display size	(154 x 86) mm
Display resolution	800 x 480 pixels
Digital communications	2-way RS485 communication, standard Modbus protocol
Optional digital outputs	For each device (up to four): error, calibration in progress, threshold concentration overlap Sensors cleaning by compressed air
Data storage	4 Gb, 10 years of measurement data
Working environment	(-10~60) °C, (0~95) %RH
Protection class	IP65
Dimensions	(235*185*117) mm
Operating voltage	110-220 Vac, 50-60 Hz

SH-WMC200 Monoparametric Water Quality Controller

● Overview

SH-WMC200 water quality controller with automatic recognition of the sensor and real-time display of measured values and sensor status. The controller can calibrate the sensor and it includes data storage and remote transmission function; its interface is simple, simple operation, non-professionals can also use it quickly.



● Product features

- Plug and play sensors with automatic recognition
- Switching, analogue and digital communication interfaces
- IP 65 protection class, impact resistant, flame retardant.

● Technical specifications

Product name	Water Quality Controller		
Display screen	4.3-inch color touch screen		
Display size	(154*86) mm		
Display resolution	480*272 pixels		
Digital communications	switching mode	analogue	digital communications
	3-way communication	2-channel 4-20mA	2-way RS485 communication, standard Modbus protocol
Digital outputs	n.3 switches relays		
Data storage	4 Mb, 3 months of measurement data		
Working environment	(-10~60) °C, (0~95) %RH		
Protection class	IP65		
Dimensions	(144*144*115) mm		
Operating voltage	110-220 Vac, 50-60 Hz		

SH-HC200 Handheld Controller

● Overview

The handheld controller can be connected to pH, dissolved oxygen, conductivity, turbidity, COD, ammonia nitrogen sensors and read the sensor data in real time. Sensor parameters can be set and calibrated. Data transfer function and data export via USB port. Ergonomic design, suitable for handheld, beautiful interface design, simple and convenient operation.



● Product features

- Multi-sensor adaptive, battery and USB powered
- Supports hot-swapping of sensors
- Support Micro USB data export
- Supports locking of the current measurement interface

● Technical specifications

Display type	3.3-inch monochrome LCD
Protection class	IP67
Comm. interface	Modbus 485
Dimensions	(200*101*36) mm
Material	ABS
Weight	420 g
Connection type	M12 connector
Display	IP67
Power supply	4 x AA batteries
Working environment	-10 to 60°C 10 to 85% RH (no condensation)

● Product applications

- Surface water, municipal and industrial wastewater, industrial process water, drinking water

SH-pH200 pH digital sensor

● Overview

The SH-pH200 pH digital sensor uses the glass electrode method, a corrosion-resistant housing, a built-in NTC temperature sensor and a compensation algorithm. The sensor has an RS485 interface and standard Modbus protocol.

● Product features

- Industrial-grade composite pH electrode for harsh operating environments
- NTC temperature compensation, accuracy up to $\pm 0.1^{\circ}\text{C}$
- Internal storage of calibration data
- Corrosion-resistant housing, waterproof grade IP68 for long-term underwater work
- RS485 communication interface, standard Modbus protocol for easy integration.



● Technical specifications

Working principle	Glass electrode method
Measurement range	pH (0~14); Temperature (0~50) °C
Accuracy	± 0.1 pH; ± 0.5 °C
Repeatability	<0.1 pH
Drift (24h)	<0.1 pH
Resolution	0.01 pH, 0.01 °C
Response time	<10 s
Protection class	IP68
Comm. interface	RS485, standard Modbus protocol, baud rate 9600
Dimensions	($\phi 33 \times 224$) mm/($\phi 16 \times 180$) mm, cable 10 m (customizable)
Materials	316 Stainless-steel/PVC/POM/Titanium alloy available
Weight	0.5 kg
Mounting threads	NPT3/4 thread on top, NPT3/4 male thread on bottom available
Operating voltage	9~36 Vdc
Power absorption	0.2 W
Calibration period	1-3 months
Max. depth	30 meters
Operating temp.	(0~50) °C

● Product applications

- Surface water, municipal and industrial wastewater, industrial process water, drinking water

SH-ORP200 ORP digital sensor

● Overview

The SH-ORP200 Oxidation Reduction Potential digital sensor adopts industrial on-line electrodes, built-in NTC temperature sensor and corrosion-resistant shell. The sensor adopts RS485 interface and standard Modbus protocol, digital and intelligent design.

● Product features

- Industrial grade composite electrodes for harsh environments
- NTC temperature compensation, accuracy up to $\pm 0.1^{\circ}\text{C}$
- Internal storage of calibration data
- Corrosion-resistant housing, waterproof grade IP68 for long-term underwater work
- RS485 communication interface, standard Modbus protocol for easy integration.



● Technical specifications

Working principle	Glass electrode method
Measurement range	(-2000~2000) mV
Accuracy	± 5 mV
Repeatability	± 1 mV
Drift (24h)	± 1 mV
Resolution	0.1 mV
Response time	<10 s
Protection class	IP68
Comm. interface	RS485, standard Modbus protocol, baud rate 9600
Dimensions	($\phi 33 \times 224$) mm, cable 10 m (customizable)
Materials	316 Stainless-steel/PVC/POM/Titanium alloy available
Mounting threads	NPT3/4 thread on top, NPT3/4 male thread on bottom available
Operating voltage	9~36 Vdc
Power absorption	0.2 W
Max. depth	30 meters
Operating temp.	(0~50) $^{\circ}\text{C}$

● Product Applications

- Surface water, municipal and industrial wastewater, industrial process water, drinking water

SH-EC200 Conductivity digital sensor

● Overview

The SH-EC200 conductivity digital sensor has a built-in NTC temperature sensor and a compensation algorithm that automatically compensates for the effect of temperature on the measurement. The sensor uses RS485 interface and standard Modbus protocol.

● Product features

- Electrode constants are stable and unaffected by polarization
- Temperature compensation function, applicable to a wide range of environments
- Internal storage of calibration data
- Corrosion-resistant housing, waterproof grade IP68, to work underwater for a long time
- RS485 communication interface, standard Modbus protocol for easy integration.



● Technical specifications

Working principle	Two electrodes/four electrodes
Measurement range	(0~2000/5000/100.000) $\mu\text{S}/\text{cm}$, other ranges can be customized; Temperature: (0~50) $^{\circ}\text{C}$
Repeatability	<1 %
Accuracy	$\pm 1 \%$
Zero drift	$\pm 0.5 \%$ F.S.
Drift (24h)	$\pm 1\%$
Resolution	1 $\mu\text{S}/\text{cm}$
Response time	10 s
Protection class	IP68
Comm. interface	RS485, standard Modbus protocol, baud rate 9600
Dimensions	($\phi 33 \times 224$) mm/($\phi 16 \times 180$) mm, cable 10m (customizable)
Weight	0.5 kg
Materials	316 Stainless-steel/PVC/POM/Titanium alloy available
Mounting threads	NPT3/4 thread on top, NPT3/4 male thread on bottom available
Operating voltage	9~36 Vdc
Power absorption	0.4 W
Calibration period	2-3 months
Max. depth	30 meters
Operating temp.	(0~50) $^{\circ}\text{C}$

● Product Applications

- Surface water, municipal and industrial wastewater, industrial process water, drinking water

SH-EC200S Conductivity and salinity digital sensor

● Overview

The SH-EC200 conductivity and salinity digital sensor has a built-in NTC temperature sensor and a compensation algorithm that automatically compensates for the effect of temperature on the measurement. Salinity data are automatically calculated from the measured conductivity and temperature. The sensor uses RS485 interface and standard Modbus protocol.

● Product features

- Electrode constants are stable and unaffected by polarization
- Temperature compensation function, applicable to a wide range of environments
- Additional calculated salinity data
- Internal storage of calibration data
- Corrosion-resistant housing, waterproof grade IP68, to work underwater for a long time
- RS485 communication interface, standard Modbus protocol for easy integration.



● Technical specifications

Working principle	Two electrodes/four electrodes		
Measurement value	Conductivity	Salinity	Temp.
Measurement range	(0~2000/5000/100.000) $\mu\text{s/cm}$	(0~3000/70.000) mg/L	(0~50) °C
Accuracy	$\pm 1 \%$	$\pm 1 \%$	0.1 °C
Resolution	1 $\mu\text{s/cm}$	1 mg/L	0.01 °C
Repeatability	<1 %		
Accuracy	$\pm 1 \%$		
Zero drift	$\pm 0.5 \%$ F.S.		
Drift (24h)	$\pm 1 \%$		
Response time	10 s		
Protection class	IP68		
Comm. interface	RS485, standard Modbus protocol, baud rate 9600		
Dimensions	($\phi 33 \times 224$) mm/($\phi 16 \times 180$) mm, cable 10m (customizable)		
Weight	0.5 kg		
Materials	316 Stainless-steel/PVC/POM/Titanium alloy available		
Mounting threads	NPT3/4 thread on top, NPT3/4 male thread on bottom available		
Operating voltage	9~36 Vdc		
Power absorption	0.4 W		
Calibration period	2-3 months		
Max. depth	30 meters		
Operating temp.	(0~50) °C		



- **Product Applications**

- Surface water, municipal and industrial wastewater, industrial process water, drinking water

SH-TDS200 TDS digital sensor

● Overview

The SH-TDS200 Total Dissolved Solids digital sensor has a built-in NTC temperature sensor and a compensation algorithm that automatically compensates for the effect of temperature on the measured value. The sensor uses RS485 interface and standard Modbus protocol.

● Product features

- Electrode constants are stable and unaffected by polarization
- With automatic temperature compensation function
- Internal storage of calibration data
- Corrosion-resistant housing, waterproof grade IP68, can work underwater for a long time
- RS485 communication interface, standard Modbus protocol for easy integration.



● Technical specifications

Working principle	Two electrodes/four electrodes
Measurement range	(0~2500/150000) mg/L, other ranges can be customized; Temp.: (0~50) °C
Repeatability	<1 %
Accuracy	± 1 %
Drift (24h)	<1% F.S.
Resolution	0.01 mg/L
Response time	10 s
Protection class	IP68
Comm. interface	RS485, standard Modbus protocol baud, rate 9600
Dimensions	(φ33*224) mm/(φ16*180) mm, cable 10m (customizable)
Weight	0.5 kg
Materials	316 Stainless-steel/PVC/POM/Titanium alloy available
Mounting threads	NPT3/4 thread on top, NPT3/4 male thread on bottom available
Operating voltage	9~36 Vdc
Power absorption	0.4 W
Calibration period	1-3 months
Max. depth	30 meters
Operating temp.	(0~50) °C

● Product applications

- Surface water, municipal and industrial wastewater, industrial process water, drinking water

SH-DO200 Dissolved oxygen digital sensor

● Overview

The SH-DO200 Dissolved Oxygen digital sensor uses the fluorescence method to detect dissolved oxygen in the water column, with a built-in temperature sensor that automatically compensates for the effect of temperature on the measurement. The sensor uses RS485 interface and standard Modbus protocol.



● Product features

- No need to replace the dissolved oxygen film and electrolyte, low maintenance
- Fast response time with fluorescence detection technology
- Internal storage of calibration data
- Corrosion-resistant housing, waterproof grade IP68, can work underwater for a long time
- RS485 communication interface, standard Modbus protocol for easy integration.

● Technical specifications

Working principle	Fluorescence
Measurement range	(0~20) mg/L Other ranges can be customized; Temp.: (0~50) °C
Repeatability	±0.15 mg/L
Accuracy	±0.2 mg/L
Precision	±0.3 mg/L
Drift (24h)	±0.2mg/L
Resolution	0.01 mg/L
Response time	<1 min
Protection class	IP68
Comm. Interface	RS485, standard Modbus protocol, baud rate 9600
Dimensions	(φ33*224) mm/(φ12*105) mm, cable 10m (customizable)
Materials	316 Stainless-steel/PVC/POM/Titanium alloy available
Weight	0.5 kg
Mounting threads	Upper NPT3/4 thread
Operating voltage	9~36 Vdc
Power absorption	0.4 W
Calibration period	3-6 months
Max. depth	30 meters
Operating temp.	(0~50) °C

● Product applications

- Surface water, municipal and industrial wastewater, aquaculture plants

SH-TUR200 Turbidity digital sensor

● Overview

The SH-TUR200 turbidity digital sensor uses the infrared 90° nephelometric method with its own cleaning brush and has calibration, recording, analysis and diagnostic functions. The sensor adopts RS485 interface and standard Modbus protocol.

● Product features

- 90° infrared light scattering method, independent of chromaticity
- Self-cleaning function, remove water samples of adherents and air bubbles, maintenance-free
- Optical and digital filtering technology to eliminate the effects of stray light
- Internal storage of calibration data
- Corrosion-resistant housing, waterproof grade IP68, can work underwater for a long time
- RS485 communication interface, standard Modbus protocol for easy integration.



● Technical specifications

Working principle	90° infrared light scattering method
Meas. Wavelength	850 nm
Measurement range	(0~400/1000/4000) NTU, other ranges can be customized
Repeatability	≤1 %
Accuracy	±5 %
Zero drift (24h)	1% F.S.
Range drift (24h)	3 % F.S.
Detection limit	0.1 NTU
Resolution	0.01 NTU
Protection class	IP68
Comm. Interface	RS485, standard Modbus protocol, baud rate 9600
Dimensions	(φ33*178) mm/(φ16*180) mm, cable 10m (customizable)
Materials	316 Stainless-steel/PVC/POM/Titanium alloy available
Weight	0.5 kg
Mounting threads	Upper NPT3/4 thread
Operating voltage	9~36 Vdc
Power absorption	1 W (motor brushes rotating), 0.4 W (motor brushes not working)
Cleaning method	Mechanical brush
Calibration period	3-6 months
Max. depth	30 meters
Operating temp.	(0~50) °C

● Product Applications

- Environmental surface water, municipal **and** industrial wastewater, industrial process water

SH-FT200 Ultra Low Turbidity measurement device

● Overview

SH-FT200 ultra-low turbidity on-line measurement device adopts 90° light scattering color method, unique photoelectric receiving structure, as well as temperature and light compensation, which greatly improves the precision and accuracy of turbidity detection, RS485 interface and standard Modbus protocol.



● Product features

- 90° light scattering method, optical and digital filtering to eliminate the effects of stray light
- Miniaturized design, small size, low water consumption, low daily running costs
- Automatic recognition of missing water sample, fault self-diagnosis
- RS485 communication interface, standard Modbus protocol for easy integration.

● Technical specifications

Working principle	90° light scattering color method
Mode of operation	Continuous
Meas. wavelength	660 nm
Measurement range	(0~1/2/20/100) NTU
Accuracy	$\leq \pm 2\%$ or $\pm 0.015\text{NTU}$, whichever is greater
Repeatability	$\leq 1\%$
Zero drift (24h)	$\pm 0.015\text{ NTU}$
Resolution	0.001 NTU
Comm. Interface	RS485, standard Modbus protocol, baud rate 9600
Dimensions	(233*180*123) mm
Materials	Composite material
Operating voltage	24 Vdc (19~30 voltage range)
Power absorption	1.5~12 W
Calibration period	3 months
Operating environment	Temperature: (0~50) °C; Inlet pressure: < 3 bar (0.3 MPa) Flow rate: < 300 mL/min.

● Product applications

- Tap water, secondary water supply, membrane filtered water

SH-SS200 Total Suspended Solids digital sensor

● Overview

SH-SS200 Total Suspended Solids digital sensor is an intelligent device to measure the concentration of suspended matter in the water body. The sensor adopts infrared light scattering method, i.e. light scattering occurs on the surface of suspended particles after the incident light enters into the water body, the intensity of the scattered light is detected on the light path which is in a certain angle direction with the incident light, and the concentration of suspended matter in the water body is obtained through the proportional relationship between the intensity of the scattered light and the concentration of suspended matter.

● Product features

- Monochromatic infrared light source, unaffected by sample chromaticity
- Self-cleaning function removes light window stains and air bubbles, maintenance-free
- Sampling optics and digital filtering technology to eliminate the effects of stray light
- Corrosion-resistant housing, waterproof grade IP68, can work underwater for a long time
- RS485 communication interface, standard Modbus protocol for easy integration.

● Technical specifications

Working principle	Infrared light scattering
Meas. Wavelength	860nm
Meas. Range	(0~1.000/3.000/10.000) mg/L (other ranges available on request)
Repeatability	±2 %
Accuracy	±5 % of the measured value
Zero drift (24h)	± 1 %
Range drift (24h)	±5 %
Linearity error	±5 %
Detection limit	1 mg/L
Resolution	0.1 mg/L
Protection class	IP68
Comm. Interface	RS485, standard Modbus protocol, baud rate 9600
Dimensions	(φ33*178) mm, cable 10 m (customizable)
Materials	316 Stainless-steel
Mounting threads	Upper NPT3/4 thread
Operating voltage	9~36 Vdc
Power absorption	1 W (motor brushes rotating), 0.4 W (motor brushes not working)
Cleaning method	Mechanical brush
Calibration period	2-3 months
Operating temp.	(0~50) °C





- **Product applications**

- Water quality monitoring of treatment processes and outfalls of wastewater treatment plants, other industrial wastewater treatment processes and outfalls

SH-MLSS200 Mixed Liquor Suspended Solids digital sensor

● Overview

SH-MLSS200 Mixed Liquor Suspended Solids digital sensor is an intelligent device for measuring the concentration of suspended solids in aeration tanks during the activated sludge process. The sensor adopts infrared light scattering method, i.e. light scattering occurs on the sludge surface after the incident light enters into the water body, and the intensity of the scattered light is detected on the light path which is in a certain angular direction with the incident light, so that the concentration of suspended solids in the water body can be obtained through the proportionality relationship between the intensity of the scattered light and the concentration of suspended solids.



● Product features

- Monochromatic infrared light source, unaffected by sample chromaticity
- Self-cleaning function removes light window stains and air bubbles, maintenance-free
- Sampling optics and digital filtering technology to eliminate the effects of stray light
- Corrosion-resistant housing, waterproof grade IP68, can work underwater for a long time
- RS485 communication interface, standard Modbus protocol for easy integration.

● Technical parameters

Working Principle	Infrared light scattering
Meas. Wavelength	860nm
Meas. Range	(0-10/40) g/L (other ranges available on request)
Repeatability	±2 %
Accuracy	±5 %
Zero drift (24h)	±1 %
Range drift (24h)	±5 %
Linearity error	±5 %
Detection limit	1 mg/L
Resolution	0.1 mg/L
Protection class	IP68
Comm. Interface	RS485, standard Modbus protocol, baud rate 9600
Dimensions	($\phi 33 \times 178$) mm, cable 10 m (customizable)
Materials	316 Stainless-steel
Mounting threads	Upper NPT3/4 thread
Operating voltage	9~36 Vdc
Power absorption	1 W (motor brushes rotating), 0.4 W (motor brushes not working)
Cleaning method	Mechanical brush
Calibration period	2-3 months
Operating temp.	(0~50) °C



- **Product applications**

- Wastewater treatment plant treatment process, outfall water quality monitoring, sludge tank monitoring water quality monitoring

SH-CHL200 Chlorophyll A digital sensor

● Overview

SH-CHL200 Chlorophyll A digital sensor adopts specific wavelength and high brightness monochrome light to excite chlorophyll A to emit fluorescence, and receives its fluorescence signal through the highly sensitive photoelectric sensor, and obtains the chlorophyll a concentration in the water body according to the proportionality relationship between the fluorescence intensity and chlorophyll a concentration. The digital intelligent design of the device adopts RS485 interface and standard Modbus protocol, comes with cleaning brush and temperature compensation, with functions of calibration, recording, analysis and diagnosis.

● Product features

- Self-cleaning function to remove adherents and air bubbles, maintenance-free
- Optical and digital filtering technology to eliminate the effects of stray light
- Corrosion-resistant housing, waterproof grade IP68, can work underwater for a long time
- RS485 communication interface, standard Modbus protocol for easy integration.

● Technical specifications

Working Principle	Fluorescence
Measurement range	Chlorophyll: (0-50/500) µg/L, other ranges can be customized Temperature: (0~50) °C
Repeatability	≤1 %
Accuracy	≤5 %
Zero drift (24h)	±1 % F.S.
Range drift (24h)	±3 % F.S.
Detection limit	0.1 µg/L
Resolution	0.01 µg/L
Protection class	IP68
Comm. Interface	RS485, standard Modbus protocol, baud rate 9600
Dimensions	(φ33*178) mm, cable 10 m (customizable)
Materials	316 Stainless-steel/PVC/POM/Titanium alloy available
Weight	0.5 kg
Mounting threads	Upper NPT3/4 thread
Operating voltage	9~36 Vdc
Power absorption	1 W (motor brushes rotating), 0.4 W (motor brushes not working)
Cleaning method	Mechanical brush
Calibration period	3-6 months
Max. depth	30 meters
Operating temp.	(0~50) °C





- **Product applications**

- Environmental surface water, aquaculture plants

SH-BGA200 Blue-Green Algae digital sensor

● Overview

SH-BGA200 Blue-Green Algae digital sensor adopts specific wavelength and high brightness monochromatic light to stimulate algal blue protein to emit fluorescence, and receives its fluorescence signal through highly sensitive photoelectric sensor, and obtains the density of blue-green algae in the water body according to the proportionality relationship between fluorescence intensity and algal density. The device has digital intelligent design, adopts RS485 interface and standard Modbus protocol, comes with cleaning brush and temperature compensation, and has the functions of calibration, recording, analysis and diagnosis.



● Product features

- Self-cleaning function removes light window stains and air bubbles, maintenance-free
- Optical and digital filtering technology to eliminate the influence of stray light
- Corrosion-resistant housing, waterproof grade IP68, can work underwater for a long time
- RS485 communication interface, standard Modbus protocol for easy integration.

● Technical specifications

Working Principle	Fluorescence
Measurement range	Blue-green algae: (200~300,000) Cells/mL; Temperature: (0~50) °C
Repeatability	≤1 %
Zero drift (24h)	±1 % F.S.
Range drift (24h)	±3 % F.S.
Detection limit	200 Cells/mL
Resolution	30 Cells/mL
Protection class	IP68
Comm. Interface	RS485, standard Modbus protocol, baud rate 9600
Dimensions	(φ33*178) mm, cable 10 m (customizable)
Materials	316 Stainless-steel/PVC/POM/Titanium alloy available
Weight	0.5 kg
Mounting threads	Upper NPT3/4 thread
Operating voltage	9~36 Vdc
Power absorption	1 W (motor brushes rotating), 0.4 W (motor brushes not working)
Cleaning method	Mechanical brush
Calibration period	3 months
Max. depth	30 meters
Operating temp.	(0~50) °C

- **Product applications**

- Environmental surface water, aquaculture water bodies

SH-OIL200 Oil in Water digital sensor

● Overview

SH-OIL200 Oil in Water digital sensor adopts specific UV monochromatic light to stimulate aromatic hydrocarbon compounds and compounds containing conjugated double bonds in petroleum to emit fluorescence, receiving its fluorescence signal through highly sensitive photoelectric sensor, and obtains the density of oil in the water body according to the proportionality relationship between fluorescence intensity and algal density. The device has digital intelligent design, adopts RS485 interface and standard Modbus protocol, comes with cleaning brush and temperature compensation, and has the functions of calibration, recording, analysis and diagnosis.



● Product features

- Measurement without reagents, no pollution, more economical and environmentally friendly
- Self-cleaning function removes influence of oil and air bubbles, maintenance-free
- Optical and digital filtering technology to eliminate the influence of stray light
- Corrosion-resistant housing, waterproof grade IP68, can work underwater for a long time
- RS485 communication interface, standard Modbus protocol for easy integration.

● Technical specifications

Working Principle	Ultraviolet fluorescence
Measurement range	0-5mg/L NDSA, equivalent to 0-1.1 mg/L BTEX
Linearity	$R^2 > 0.999$
Detection limit	Determined by the actual oil sample
Resolution	0.01 mg/L
Protection class	IP68
Comm. Interface	RS485, standard Modbus protocol, baud rate 9600
Dimensions	($\phi 50 \times 176$) mm, cable 10 m (customizable)
Materials	316 Stainless-steel/Titanium alloy available
Weight	0.5 kg
Mounting threads	Upper NPT3/4 thread
Operating voltage	5~12 Vdc
Power absorption	1 W (motor brushes rotating), 0.4 W (motor brushes not working)
Cleaning method	Mechanical brush
Calibration period	1-3 months
Max. depth	30 meters
Operating temp.	(0~50) °C



- **Product applications**

Environmental surface water, municipal sewage, industrial wastewater

SH-UVCOD200 COD digital probe

● Overview

SH-UVCOD200 is a dual-beam COD intelligent digital probe, which effectively reduces turbidity interference through compensation; it comes with a cleaning brush to avoid the influence of adherents and air bubbles on the measurement. The probe adopts RS485 interface and standard Modbus protocol, the measurement data can be converted into COD, BOD, TOC, etc., rapid response to the water body changes. Differential optical detection, with temperature compensation, high signal accuracy and good stability.



● Product features

- Self-cleaning function removes light window stains and air bubbles, maintenance-free
- Dual optical path detection, automatic deduction of turbidity interference on COD detection
- Corrosion-resistant housing, waterproof grade IP68, can work underwater for a long time
- RS485 communication interface, standard Modbus protocol for easy integration.

● Technical specifications

Working principle	Dual-wavelength ultraviolet absorption		
Meas. Wavelength	254nm, 365nm		
Measurement range	COD: (0~100/200/500) mg/L Other ranges can be customized		Turbidity: 100 NTU (0~100 mg/L) 400 NTU (0~200 mg/L) 600 NTU (0~500 mg/L)
Turb. Comp. range	50 NTU (0~100 mg/L)	100 NTU (0~200 mg/L)	200 NTU (0~500 mg/L)
Repeatability	<1 %		
Accuracy	≤5 % of the measured value		
Precision	±5 %		
Zero drift (24h)	±2 % F.S. (100 mg/L) ±1 % F.S. (500 mg/L)		
Range drift (24h)	±3 % F.S.		
Detection limit	1 mg/L		
Resolution	0.1 mg/L		
Response time T90	< 30 sec		
Protection class	IP68		
Comm. interface	RS485, standard Modbus protocol, baud rate 9600		
Dimensions	(0-100) mg/L: (φ33*236) mm, cable 10 m (customizable) (0-500) mg/L: (φ33*221) mm, cable 10 m (customizable)		
Materials	316 Stainless-steel/Titanium alloy available		
Weight	1 kg		
Mounting threads	Upper NPT3/4 thread		
Operating voltage	12/24 Vdc		
Power absorption	0.9 W (motor brushes rotating), 0.4 W (motor brushes not working)		

Cleaning method	Mechanical brush
Calibration period	1~3 months
Operating temp.	(0~50) °C

● Product applications

- Environmental surface water, municipal sewage, industrial wastewater

SH-UVFS200 UV full spectrum absorption probe

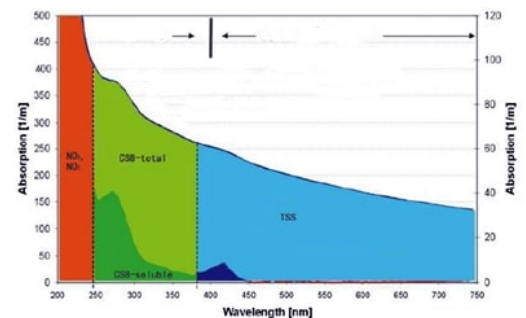
● Overview

The Full Spectrum UV absorption probe uses UV-Vis absorption technology to obtain the corresponding pollutant levels in water samples through dual-beam compensation combined with chemometric algorithmic analysis. The complete measurement system is composed by the measurement probe, the controller, the connecting cable (standard 10 meters), the mechanical brush and PC SW license.



● Measurement technique

Different pollutants in the water body have certain characteristics of light absorption at different wavelengths (water absorption spectral fingerprint), as shown in the following figure. Full-spectrum water quality probe detects the pollutants in the water body using 190nm ~ 750nm band absorption spectrum and chemometric mapping relationship, so as to obtain the analysis of water samples COD, TOC, BOD5, turbidity, color, TSS, nitrate, nitrite pollutant content.



● Product features

- Full-spectrum detection technology, no reagents, no secondary pollution
- Modular design of cleaning brushes, easy to replace, low maintenance costs
- Dual beam detection, automatic compensation for light source attenuation
- High measurement accuracy
- 4 kinds of variable optical range block, fast response time, 10 seconds fast response.

● Probe technical specifications

Measured wavelength	190~750 nm
Path length	35 / 15 / 5 / 1 mm, to be selected
Detection indicators	COD, TOC, BOD, Nitrate, Nitrite, Turbidity, TSS, Color, SAC254
Response time	≤10 seconds
Measurement range (35 mm path length)	COD: (0~70) mg/L; TOC: (0~30) mg/L; Nitrate: (0~5) mg/L; Nitrite: (0~20) mg/L; Turbidity: (0~200) NTU; TSS: (0~100) mg/L; Color: (0~300) Hazen; SAC254: (0 to 70) Abs/m.
Measurement range (15mm path length)	COD: (0 to 165) mg/L TOC: (0 to 70) mg/L; Nitrate: (0~15) mg/L; Nitrite: (0~50) mg/L; Turbidity: (0~465) NTU; TSS: (0~230) mg/L; Color: (0~700) Hazen; SAC254: (0 to 165) Abs/m.
Measurement range (5mm path length)	COD: (0-500) mg/L; TOC: (0-210) mg/L; Nitrate: (0~50) mg/L; Nitrite: (0~140) mg/L; Turbidity: (0~1400) NTU; TSS: (0~700) mg/L; Color: (0~2100) Hazen; SAC254: (0 to 500) Abs/m.
Measurement range (1mm path length)	COD: (0~2500) mg/L; TOC: (0~1050) mg/L; Nitrate: (0~250) mg/L; Nitrite: (0~700) mg/L; Turbidity: (0~7000) NTU; TSS: (0~3500) mg/L; Color: (0~10500) Hazen SAC254: (0~2500) Abs/m.
Performance indicators	Accuracy: not more than ±5.0% F.S.; Repeatability: ≤2.0%; Zero drift: not more than ±2% F.S.;
Automatic cleaning	Mechanical brush can be set to clean the optical window at regular intervals
Serial connection	RS485
Power supply	24 Vdc / 10 W
Operating temperature	0~50 °C
Body material	AISI 316 stainless steel
Protection class	IP68
Dimensions	44 (Φ) * 533 (L) mm
Weight	about 2.5 Kg.

● Controller technical specifications

User interface	7-inch color touch screen
Power supply	220VAC or 24VDC
Communication method	4G, HJ-212 compliant
Protection class	IP65
Operating temperature	-20~60°C
Dimensions	223 (L) * 199 (W) * 116 (H) mm

- **External mechanical brush technical specifications (not applicable for 1 mm pathlength model)**

Cleaning method	Automatic cleaning/manual cleaning
Control method	Switching signals
Operating temperature	(0~50) °C
Power supply	12VDC/1W
Protection class	IP68
Dimensions	184 (L) x 85 (W) x 63 (H) mm

- **Flow-cell technical specifications**

Internal volume	Around 100 mL
Inlet/Outlet Pipe diameter	Outer diameter 8 mm, inner diameter 5mm
Materials	Main body: polyurethane; viewing window: plexiglass
Dimensions	184 (L) x 85 (W) x 63 (H) mm

- **Product applications**

- Surface water, sewage plant process sections, storm sewerage network, river outfalls

SH-FCI200 Residual chlorine digital measurement device

● Overview

SH-FCI200 is an on-line constant voltage digital residual chlorine measurement device. The flow cell design of the product ensures constant measurement flow rate, effectively eliminating the influence of flow rate on the performance of the product; temperature and pH automatic compensation, RS485 interface and standard Modbus protocol.

● Product features

- pH and temperature automatic compensation, applicable to a wide range of environments
- Unique flow cell design guarantees a constant flow rate during measurement
- Electrodes can be replaced independently, no reagents, simple operation and low maintenance
- Fast response time, real-time detection of residual chlorine in water
- RS485 communication interface, standard Modbus protocol for easy integration.



● Technical parameters

Working Principle	Constant voltage glass electrode method		
Measurement value	Residual chlorine	pH	Temp
Measurement range	(0-2/20) mg/L	0~14	(0~50) °C
Accuracy	±10%; ±0.05mg/L at concentrations below 0.5mg/L	<0.1 pH	0.1 °C
pH comp. range	5~8.5		
Detection limit	0.02 mg/L		
Resolution	0.01 mg/L		
Response time	≤10 s		
Comm. interface	RS485, standard Modbus protocol		
Dimensions	(250*203*165) mm		
Materials	Electrode: gold ring glass; Detection cell: acrylic		
Weight	2 Kg.		
Operating voltage	24 Vdc		
Power absorption	0.3 W		
Minimum flow rate	0.5L/min		
Calibration period	1-3 months		
Operating temp.	(0~50) °C		

- **Product applications**

- Tap water, water from waterworks and end-of-network water, secondary water supply.

SH-ISECI200 Chloride digital probe

● Overview

The SH-ISECI200 Chloride digital probe includes pH measurement and temperature compensation function; it adopts RS485 interface and standard Modbus protocol, which has the advantages of in-situ measurement, no reagent, no pre-treatment and low maintenance.

● Product features

- Fast response time, real-time detection of chloride ions in water bodies
- Additional pH measurement
- Corrosion-resistant housing, waterproof grade IP68, can work underwater for a long time
- RS485 communication interface, standard Modbus protocol for easy integration.



● Technical parameters

Working Principle	Ion Selective Electrode method		
Measured parameter	Chloride ion	pH	Temp
Measurement range	(3-30.000) mg/L	0~14	(0~50) °C
Repeatability	≤2 %	<0.1 pH	≤0.3 °C
Accuracy	±10% or ±0.5 mg/L	<0.1 pH	<0.3 °C
Zero drift (24h)	±1% F.S.		
Range drift (24h)	±3% F.S.		
Detection limit	3 mg/L		
Resolution	0.01 mg/L		
Protection class	IP68		
Comm. interface	RS485, standard Modbus protocol Baud rate 9600		
Dimensions	(φ50*251) mm, cable 10 m (customizable)		
Material	316 Stainless-steel		
Weight	2 kg		
Operating voltage	9~36 Vdc		
Power absorption	0.5 W		
Calibration period	1~3 months (depending on site water quality environment)		
Operating temp.	(0~50) °C		

● Product Applications

- Environmental surface water, municipal sewage, industrial wastewater

SH-ISEF200 Fluoride digital probe

● Overview

The SH-ISEF200 Fluoride digital probe includes temperature compensation function and it adopts RS485 interface and standard Modbus protocol, which has the advantages of in-situ measurement, no reagent, no pre-treatment and low maintenance.

● Product features

- Industrial composite pH electrodes, electrodes for a wide range of sites
- Each electrode can be replaced independently, simple operation and low maintenance
- Fast response time, real-time detection of sodium ions in the water column
- Corrosion-resistant housing, waterproof grade IP68, can work underwater for a long time
- RS485 communication interface, standard Modbus protocol for easy integration.



● Technical parameters

Working Principle	Ion Selective Electrode method		
Measuring factor	Fluoride ion	pH	Temp
Measurement range	(0.1-1000) mg/L	0~14	(0~50) °C
Repeatability	≤2 %	< 0.1 pH	≤ 0.3°C
Accuracy	±10 % or ±0.5 mg/L	< 0.1 pH	< 0.3°C
Zero drift (24h)	±1% F.S.		
Range drift (24h)	±3% F.S.		
Detection limit	0.1 mg/L		
Resolution	0.01 mg/L		
Protection class	IP68		
Comm. interface	RS485, standard Modbus protocol Baud rate 9600		
Dimensions	(φ50*251) mm, cable 10 m (customizable)		
Material	316 Stainless-steel		
Weight	2 kg		
Operating voltage	9~36 Vdc		
Power absorption	0.5 W		
Calibration period	1~3 months (depending on site water quality environment)		
Operating temp.	(0~50) °C		

● Product applications

- Water to be potabilized, environmental surface water, municipal sewage, industrial wastewater

SH-ISENH₄200 Ammonia digital probe

● Overview

The SH-ISENH₄200 Ammonia Nitrogen digital probe includes temperature and pH compensation, RS485 interface and standard Modbus protocol, in-situ measurement, no reagents, no pre-treatment and low maintenance.

● Product features

- pH and temperature-compensated electrodes for a wide range of sites
- Each electrode can be replaced independently, simple operation and low maintenance
- Fast response time, real-time detection of ammonia nitrogen in water bodies
- Corrosion-resistant housing, waterproof grade IP68, can work underwater for a long time
- RS485 communication interface, standard Modbus protocol for easy integration.

● Technical parameters

Working Principle	Ion Selective Electrode method		
Measuring parameter	Ammonia	pH	Temp
Meas. range	(0.05~1000) mg/L	0~14	(0~50) °C
Repeatability	≤1 %	<0.1 pH	0.1 °C
Accuracy	±5% or ±0.1mg/L	<0.1 pH	0.1 °C
pH comp. range	4~10		
Zero drift (24h)	±1% F.S.		
Range drift (24h)	±3% F.S.		
Precision	Ammonia: 1-1000 mg/L: ±5% 0.1-1 mg/L: ±0.1 mg/L		
Detection limit	0.05 mg/L		
Resolution	0.01 mg/L		
Response time	< 30 seconds in a 180 mg/L standard solution		
Protection class	IP68		
Comm interface	RS485, standard Modbus protocol Baud rate 9600		
Dimensions	(φ50*251) mm, cable 10 m (customizable)		
Materials	316 Stainless-steel/titanium alloy available		
Weight	2 kg		
Operating voltage	9~36 Vdc		
Power absorption	0.5 W		
Calibration period	1~3 months (depending on site water quality environment)		
Operating temp.	(0~50) °C		

● Product applications

- Environmental surface water, municipal and industrial wastewater, industrial process water



SH-ISENO₃200 Nitrate digital probe

● Overview

The SH-ISENO3200 Nitrate digital probe includes temperature compensation, RS485 interface and standard Modbus protocol, in-situ measurement, no reagents, no pre-treatment and low maintenance.

● Product features

- Fast response time, real-time detection of nitrate in water bodies
- Corrosion-resistant housing, waterproof grade IP68, can work underwater for a long time
- RS485 communication interface, standard Modbus protocol for easy integration.

● Technical parameters

Working Principle	Ion Selective Electrode method	
Measurement parameters	Nitrate	Temperature
Meas. range	(0.5~1000) mg/L	(0~50) °C
Repeatability	≤2 %	0.1 °C
Precision	0.5-1000 mg/L: ±10% 0.5-1 mg/L: 0.5 mg/L	0.1 °C
Zero drift (24h)	±1% F.S.	
Range drift (24h)	±3% F.S.	
Response time	T ₉₀ ≤ 60 sec	
Protection class	IP68	
Comm interface	RS485, standard Modbus protocol Baud rate 9600	
Dimensions	(φ50*251) mm, cable 10 m (customizable)	
Materials	316 Stainless-steel/titanium alloy available	
Weight	2 kg	
Operating voltage	9~36 Vdc	
Power absorption	0.5 W	
Calibration period	1~3 months (depending on site water quality environment)	
Operating temp.	(0~50) °C	



● Product applications

- Environmental surface water, municipal and industrial wastewater, industrial process water.

SH-WMP700 Self-cleaning digital multiparametric probe

● Overview

The self-cleaning multiparametric probe is a water quality monitoring instrument applicable for treated waste water effluents, surface and sea water control. It adopts an innovative “all-in-one” modular design, which can be freely matched with a variety of sensors including dissolved oxygen, pH, conductivity, turbidity, ORP, liquid level, chlorophyll, blue-green algae, etc.; up to six sensors can be connected in the same probe’s body.

It supports reading and writing digital sensor parameters, which can be calibrated without disassembly.

Each sensor can be easily removed/substituted using fast plugin connectors.

It includes a central mechanical wiper for the periodic automatic cleaning of each sensor.



● Product features

- Built-in temperature and humidity sensor, automatic alarm for water leakage or voltage abnormality
- Removable cleaning brush for easy maintenance and replacement
- Automatic recognition of sensor type, plug and play, easy to use
- Storage of configuration parameters and calibration data inside each sensor
- Internal waterproof structure design, the sensor into the water does not affect the main body
- RS485 communication interface, standard Modbus protocol for easy integration.

Number of connectors	Up to 6 sensors
Cleaning method	With cleaning brush, cleaning cycle can be set, default 30min
Data communication	RS485, standard MODBUS protocol
Protection class	IP68
Cable Length	Standard 10 meters (customizable)
Power supply	24 Vdc
Power consumption	2.1 W
Probe dimension	($\phi 70 \times 280$) mm
Sensors dimension	($\phi 16 \times 146$) mm
Weight	1.5 Kg
Body material	AISI 316 / Titanium alloy (probe and sensors)
Operating temperature	0-50°C
Operating depth	10 meters max.

● Available sensors

Parameter	Model	Measurement range	Accuracy
Depth	SH-DPT220	(0~10) meters	± 0.02 m
pH	SH-pH220	pH (0~14); Temperature (0~50) °C	± 0.1 pH ± 0.5 °C
ORP	SH-ORP220	(-1500~1500) mV	±10 mV
Conductivity / Salinity / TDS	SH-EC220	(0~5000/100.000) µS/cm Salinity: (0~3/100) PPT TDS: (0~2500/50000) mg/L	±1 %
Dissolved oxygen (optical)	SH-DO220	(0~20) mg/L; Temperature: (0~50) °C	±0.3 mg/L ± 0.5 °C
Turbidity / TSS	SH-TUR220	(0~1000) NTU (0~1.000/3.000/10.000) mg/L	≤5 % of the measured value
Chlorophyll A	SH-CHL220	(0-50/500) µg/L; Temperature: (0~50) °C	≤5 % ± 0.5 °C
Algae	SH-BGA220	Red Algae: 0-750 µg/L Blue Algae: (200~300.000) Cells/mL Temperature: (0~50) °C	≤5 % ± 0.5 °C

● Product applications

- Environmental surface water, municipal and industrial wastewater, sea water.

SH-AIRGEN Compressed air generator

● Overview

SH-AIRGEN is specifically designed to manage local compressed air generation to be used for series 200 sensors and probes periodic cleaning.

It has to be used in conjunction with SH-WMC200 or SH-WMC2000 controllers, which periodically generate the digital activation signal to activate first the compressor air charge and then the air cleaning blast to clean the sensors and probes and SH-SKIT air cleaning sensor kits.



● Product features

- It can manage automatic air cleaning of up to four sensors in the same place
- Required low power supply ensures product safety
- IP56 protection class.

● Technical specifications

Product name	Compressed air generator
Air recharge time	Around one minute
Generated air pressure	0.6-0.7 bar
Air tank volume	1 Liter
Activation power supply	Through external powered relay
Working environment	(-10~60) °C, (0~95) %RH
Protection class	IP56
Dimensions	(240*190*90) mm
Operating voltage	5-30 Vdc
Power absorption	8W (during air recharge time)