Online Water Quality Sensor

ECO::WATCH Sensor Series



Solutions

ECO WATCH Sensor Series





Product Features

Hardware Advantages

◈ Glue-filled power supply module to enhance stability.

◈ High quality MCU, analog IC, and interface IC components

◈ High-resolution, wide-temperature industrial-grade color LCD screen equipped

◈ Industrial-grade ARM Cortex M series core MCU with a main frequency up to 0.5GHz

Functional Advantages

◈ Easy-to-use GUI system for simple operation without complex key combinations

◈ Real-time system for smooth and stable multitasking (graphics, data, and communication)

◈ Remote online software upgrade via the RS485 interface

◈High-speed system response for stable 24/7 operation

Name	ECO::WATCHER - S	ECO::WATCHER - M
Display	3 inch color TFT display	4 inch color TFT display
Resolution	800 × 480	800 × 480
Size	96mm × 96mm × 132mm	144mm × 144mm × 115mm
Power Supply	85 ~ 265 VAC	
Power consumption	<2W	2.5W
Storage temperature	-20 ~ 70°C	
Operating temperature	-10 ~ 60°C	
Material	ABS	
Protection Level	IP55	
Analog Output	1 CHannel 4-20mA analog output	2 Channel 4-20mA analog output
Relay	3 CH SPDT Relay (250VAC,30VDC / MAX5A)	3 CH SPDT Relay (120VAC,24VDC / MAX1A)
Digital Output	1 CH RS485	1 CH RS485

ECO WATCH Sensor Series



Product Features

Advantages

- ◈ Automatic recognition of digital online water quality meter
- ◈ Large color touch screen can display up to 16 parameters
- ◈ RS485/232 interface for remote network monitoring
- ◈ Support online software update for easy maintenance

Application

Power plants, Chemical, Fertilizer, Printing and Dyeing, Water treatment (Desulfurization, Denitrification, Surface treatment), Metallurgy, Environmental protection, Pharmaceuticals, Food, Biochemistry and Tap water

Name	ECO::WATCHER-Pro-S	ECO::WATCHER-Pro-M
Support Type	All digital sensors	
Display	4.3 inch touch screen (color)	5 inch touch screen (color)
Resolution	480 × 272	800 × 480
Size	188mm × 160mm × 126mm	236mm × 185mm × 111mm
Power Supply	220VAC	
Power consumption	<4W	<6W
Storage temperature	-20 ~ 70°C	
Operating temperature	-10 ~ 60°C	
Material	PC, ABS	
Protection Level	IP55	
analyzer interface	1 digital sensor	4 digital sensors
Analog Output	2 CH 4-20mA analog output	6 CH 4-20mA analog output
Relay	3 CH SPDT Relay(250VAC,30VDC / MAX5A)	6 CH Relay(120VAC, 24VDC / 1A)
Digital Output	1 CH RS485	

ECO WATCH Sensor Series



Product Features

Introduction

ECO::WATCH-S-pH is an integrated online pH meter designed with durable industrial electrodes and smart digital sensors. The instrument performs electrode signal detection, real-time temperature monitoring with automatic compensation, and digital signal conversion. Its RS485 output supports easy integration into network systems and ensures reliable data transfer over long transmission distances.

Advantages

◈ Industrial-grade glass bulb with a double salt bridge for high resistance against pollution and interference.

◈ The aviation plug easily connects the meter to the controller, which is convenient for on-site operation and maintenance.

Name	ECO::WATCH-S-pH
Measurement parameters	pH, temperature
Measurement method	Glass electrode method
Range	pH: 0 ~ 14 Temperature: 0 ~ 60 °C
Accuracy	≤±0.1 pH
Repeatability	≤±0.1 pH
Resolution	0.01 pH
Response time	≤10 s
Drift	≤±0.1 pH
Temperature range	0 ~ 60 °C
Protection level	IP68
Material	Titanium alloy, stainless steel, POM
Size	162mm × Φ28mm

ECO WATCH Sensor Series



Product Features

Introduction

ECO::WATCH-S-ORP is an integrated online meter designed with durable industrial electrodes and smart digital sensors. The instrument performs key functions including electrode signal detection, real-time temperature monitoring with automatic compensation, and digital signal conversion. Its RS485 output allows for easy networking and seamless system integration, providing reliable data communication for various industrial applications.

Advantages

- ◈ Integrated design with strong protection against electromagnetic interference.
- ◈ Industrial-grade composite electrode for stable and reliable long-term operation.
- ◈ Built-in temperature sensor for precise, real-time temperature compensation.

Name	ECO::WATCH-S-ORP
Measurement parameters	ORP, Temperature
Measurement method	Glass electrode method
Range	ORP: −2,000 ~ +2,000 mV Temperature: 0 ~ 60 °C
Accuracy	≤±20 mV
Repeatability	≤±1 mV
Resolution	0.1 mV
Response time	≤10 s
Drift	≤±1 mV
Calibration cycle	6 months
Protection level	IP68
Material	Titanium alloy, stainless steel, POM
Temperature range	0 ~ 60 °C

ECO WATCH Sensor Series



Product Features

Introduction

ECO::WATCH-S-EC is an integrated online meter designed for conductivity/ salinity/ TDS monitoring using smart digital sensors . A specialized circuit design enhances the conductivity signal strength, ensuring exceptional measurement accuracy and stability even in low-range conditions. The system can measure ranges as low as 0~5 µS/cm while maintaining a high precision level with an error of less than 1%.

Advantages

◈ Four-wire graphite electrode design supporting a wide range of measurements.

◈ Removable front glass component for easy replacement and lower maintenance costs.

◈ The aviation plug easily connects the meter to the controller, which is convenient for on-site operation and maintenance.

Name	ECO::WATCH-S-EC
Measurement parameters	Conductivity, temperature
Measurement method	Four-wire graphite electrode method
Range	Conductivity: 0 ~ 200 mS/cm
Accuracy	≤±1%
Repeatability	≤1%
Resolution	Conductivity: 0.01 µS/cm
Response time	≤20 s
Drift	≤±1%F.S.
Temperature range	0 ~ 60 °C
Protection level	IP68
Material	Titanium alloy, stainless steel, POM
Temp compensation accuracy	≤±1%F.S

ECO WATCH Sensor Series



Product Features

Introduction

ECO::WATCH-S-EC is an integrated online meter designed for conductivity/ salinity/ TDS monitoring using smart digital sensors . A specialized circuit design enhances the conductivity signal strength, ensuring exceptional measurement accuracy and stability even in low-range conditions. The system can measure ranges as low as 0~5 µS/cm while maintaining a high precision level with an error of less than 1%.

Advantages

◈ Graphite electrode design supporting a wide range of measurements.

◈ Removable front glass component for easy replacement and lower maintenance costs.

◈ The aviation plug easily connects the meter to the controller, which is convenient for on-site operation and maintenance.

Name	ECO::WATCH-S-EC
Measurement parameters	Conductivity, temperature
Measurement method	graphite electrode method
Range	Conductivity: 0 ~ 50 / 500 / 5,000 µS/cm
Accuracy	≤±1%
Repeatability	≤1%
Resolution	Conductivity: 0.01 µS/cm
Response time	≤20 s
Drift	≤±1%F.S.
Temperature range	0 ~ 130 °C
Protection level	IP68
Material	Titanium alloy, stainless steel, POM
Temp compensation accuracy	≤±1%F.S

ECO WATCH Sensor Series



Product Features

Introduction

ECO::WATCH-S-DO is an integrated online dissolved oxygen meter featuring automatic temperature compensation and digital signal conversion. It utilizes durable fluorescent sensors and membrane cap components to ensure high stability and measurement accuracy. The replaceable membrane cap and electrolyte make the instrument highly economical and easy to maintain.

Advantages

◈ High-quality, replaceable dissolved oxygen membrane cap for an extended service life.

◈ Hardware and algorithms supporting multiple compensations for salinity, air pressure, and temperature.

◈ Durable housing options (Stainless steel, Titanium, Plastic) to adapt to harsh working conditions.

Name	ECO::WATCH-S-DO
Measurement parameters	Dissolved oxygen, temperature
Measurement method	Fluorescence quenching method
Range	Dissolved oxygen: 0 ~ 20 mg/L or 0 ~ 200% Temperature: 0 ~ 60 °C
Accuracy	±0.3 mg/L
Repeatability	±0.3 mg/L
Resolution	0.01 mg/L
Response time	≤20 s
Drift	±0.3 mg/L.
Temperature range	0 ~ 60 °C
Protection level	IP68
Material	Titanium alloy, stainless steel, POM
Size	144mm × Φ28mm

ECO WATCH Sensor Series



Product Features

Introduction

The ECO::WATCH-S-MLSS is an online water quality meter developed on an optical analysis platform using smart digital sensor. The meter automatically compensates for the impact of voltage fluctuations, device aging, and temperature changes on the measured values to ensure long-term stability.

Advantages

- ◈ High-brightness infrared LED light source to eliminate sample color interference.
- ◈ Optical and electronic filtering technology to remove ambient light influence.
- ◈ Automatic cleaning brush to remove deposits and bubbles for maintenance-free use.

Name	ECO::WATCH-S-MLSS
Measurement parameters	Sludge concentration, Temp
Measurement method	Infrared scattering method
Range	0 ~ 25,000 / 50,000 mg/L
Accuracy	≤±5%
Repeatability	≤3%
Resolution	1 mg/L
Response time	≤5 s
Detection Limits	5 mg/L
Temperature range	0 ~ 60 °C
Protection level	IP68
Material	Titanium alloy, stainless steel, POM
Size	160mm × Φ40mm

ECO WATCH Sensor Series



Product Features

Introduction

The ECO::WATCH-S-TURB is an online water quality meter developed on a 90-degree scattering optical analysis platform. Its integrated design uses smart digital sensor following the ISO7027 standard. The meter automatically compensates for the impact of voltage fluctuations, device aging, and temperature changes to ensure the accuracy of the measured values.

Advantages

◈ Optical and electronic filtering ensures stable signal and superior performance in low-range measurements.

◈ Specialized 45° anti-bubble design to effectively reduce data interference caused by bubbles.

◈ Built-in temperature sensor for real-time compensation of monitoring results.

Name	ECO::WATCH-S-Turb
Measurement parameters	Turbidity, temperature
Measurement method	90° infrared scattering method
Range	Turbidity: 0 ~ 4,000 NTU Temperature: 0 ~ 60 °C
Accuracy	≤±2%
Repeatability	≤1%
Resolution	0.01 NTU
Response time	≤5 s
Drift	≤±3%F.S.
Temperature range	0 ~ 60 °C
Protection level	IP68
Material	Titanium alloy, stainless steel, POM
Size	127mm × Φ28mm

ECO WATCH Sensor Series



Product Features

Introduction

The ECO::WATCH-S-TSS/SS is an online water quality analyzer built on a 90-degree scattering optical platform. Its integrated design adopts the ISO7027 standard method and incorporates smart digital sensor technology. The instrument automatically compensates for the impact of voltage fluctuations, device aging, and temperature changes to maintain the accuracy of the measured values.

Advantages

◈ Advanced optical and electronic filtering ensures stable signals and high precision in low-range measurements.

◈ Optimized 45° anti-bubble design to effectively reduce data interference.

◈ Built-in temperature sensor for real-time compensation of monitoring results.

Name	ECO::WATCH-S-TSS/SS
Measurement parameters	Suspended, temperature
Measurement method	90° infrared scattering method
Range	Suspended: 0 ~ 20,000 mg/L Temperature: 0 ~ 60 °C
Accuracy	≤±5%
Repeatability	≤3%
Resolution	0.1 mg/L
Response time	≤5 s
Drift	≤±3%F.S.
Temperature range	0 ~ 60 °C
Protection level	IP68
Material	Titanium alloy, stainless steel, POM
Size	127mm × Φ28mm

ECO WATCH Sensor Series



Product Features

Introduction

The ECO::WATCH-S-Ammo is an online water quality meter developed on a digital analysis platform. Its integrated design uses industrial ion-selective electrodes and smart digital sensor technology. The meter implements electrode signal detection, digital signal conversion, and automatic compensation for pH and temperature to ensure the accuracy of the measured values.

Advantages

◈ High-performance ion-selective electrodes ensure stable long-term operation.

◈ Advanced multi-parameter compensation algorithms for pH, temperature, and potassium ions (K^+) to ensure measurement accuracy.

◈ IP68 waterproof rating for reliable performance in harsh environments.

Name	ECO::WATCH-S-Ammo
Measurement parameters	Ammonia nitrogen, pH, potassium ion, temperature
Measurement method	Ion selective Electrode Method
Range	Ammonia nitrogen: 0.1 ~ 1,000 mg/L Nitrate nitrogen: 0.1 ~ 1,000 mg/L pH: 0 ~ 14 Temperature: 0 ~ 60 °C
Accuracy	≤±3%
Repeatability	≤2%
Resolution	0.01 ppm
Response time	≤60 s
Calibration cycle	3 Months
Temperature range	0 ~ 60 °C
Protection level	IP68
Material	stainless steel, POM
Size	205mm × Φ45mm

ECO WATCH Sensor Series



Product Features

Introduction

The ECO::WATCH-S-Ammo Pro is an online water quality meter developed on a digital analysis platform. Its integrated design uses industrial ion-selective electrodes and smart digital sensor technology. The meter implements electrode signal detection, digital signal conversion, and automatic compensation for pH and temperature to ensure the accuracy of the measured values.

Advantages

◈ High-performance ion-selective electrodes ensure stable long-term operation.

◈ Advanced multi-parameter compensation algorithms for pH, temperature, and chloride ions (Cl^-) to ensure measurement accuracy.

◈ IP68 waterproof rating for reliable performance in harsh environments.

Name	ECO::WATCH-S-Ammo Pro
Measurement parameters	Ammonia nitrogen, nitrate nitrogen, pH, temperature
Measurement method	Ion Selective Electrode Method
Range	Ammonia nitrogen: 0.1 ~ 1,000 mg/L Nitrate nitrogen: 0.1 ~ 1,000 mg/L pH: 0 ~ 14 Temperature: 0 ~ 60 °C
Accuracy	±≤3%
Repeatability	≤2%
Resolution	Ammonia nitrogen: 0.01 mg/L Nitrate nitrogen: 0.01 mg/L pH: 0.01
Response time	≤60 s
Drift	±≤3%F.S.
Temperature range	0 ~ 60 °C
Protection level	IP68
Material	Stainless steel, POM
Size	0.6kg / 205mm×Φ45mm

ECO WATCH Sensor Series



Product Features

Introduction

The ECO::WATCH-S-Nitra is an online water quality meter developed on a digital analysis platform. Its integrated design uses industrial ion-selective electrodes and smart digital sensor technology. The meter implements electrode signal detection, digital signal conversion, and automatic compensation for pH and temperature to ensure the accuracy of the measured values.

Advantages

◈ High-performance ion-selective electrodes ensure stable long-term operation.

◈ Advanced multi-parameter compensation algorithms for pH, temperature, and potassium ions (K^+) to ensure measurement accuracy.

◈ IP68 waterproof rating for reliable performance in harsh environments.

Name	ECO::WATCH-S-Nitra
Measurement parameters	Nitrate, pH, chloride ion, temperature
Measurement method	Ion Selective Electrode Method
Range	Nitrate nitrogen: 0.1 ~ 1,000 mg/L Chloride ion: 0.1 ~ 1,000 mg/L pH: 0 ~ 14 Temperature: 0 ~ 60 °C
Accuracy	±≤3%
Repeatability	≤2%
Resolution	Nitrate nitrogen: 0.01 mg/L Chloride ion: 0.01 mg/L pH: 0.01
Detection Limit	0.1 mg/L
Response time	≤60 s
Calibration cycle	3 months
Protection level	IP68
Temperature range	0 ~ 60 °C
Size	0.6kg / 205mm×Φ45mm

ECO WATCH Sensor Series



Product Features

Introduction

The ECO::WATCH-S-ChlA / Cyano is an online water quality meter developed on a highly sensitive optical analysis platform. Its smart digital sensor technology captures weak fluorescence signals to accurately measure chlorophyll-a and blue-green algae density. The meter automatically compensates for environmental variables to ensure the accuracy and stability of the measured values.

Advantages

- ◈ High-brightness LED light source ensures stable performance during long-term operation.
- ◈ Advanced optical and electronic filtering technology to eliminate the influence of ambient light.
- ◈ Integrated automatic cleaning brush significantly reduces maintenance requirements and workload.

Name	ECO::WATCH-S-ChlA	ECO::WATCH-S-Cyano
Measurement parameters	Chlorophyll a, temperature	Algae density (blue-green algae), temperature
Measurement method	Fluorescence method	
Range	Chlorophyll a: 0 ~ 50/500 µg/L Algae density: 0 ~ 200,000 / 2,000,000 Cells/mL Temperature: 0 ~ 60 °C	
Accuracy	±≤3%	
Repeatability	≤2%	
Resolution	0.01 µg/L	1 Cells/mL
Detection Limit	0.05 µg/L	200 Cells/mL
Drift	±≤1%F.S.	
Temperature range	0 ~ 60 °C	
Protection level	IP68	
Material	Titanium alloy, stainless steel, POM	
Size	0.6kg / 205mm×Φ45mm	

ECO WATCH Sensor Series



Product Features

Introduction

The ECO::WATCH-S-Series is an online water quality meter developed on a digital analysis platform for monitoring various ion parameters. Its integrated design uses industrial ion-selective electrodes and smart digital sensor technology. The meter implements electrode signal detection along with automatic pH and temperature compensation to ensure the accuracy of the measured values.

Advantages

◈ High-performance ion-sensitive membrane elements ensure stable long-term operation.

◈ Standard pH and temperature compensation to meet high precision requirements and provide accurate readings.

◈ Detachable design allows independent replacement of consumables for extended service life and easy maintenance.

Name	ECO::WATCH-S-Chloride	ECO::WATCH-S-Fluoride	ECO::WATCH-S-Potassium	ECO::WATCH-S-Calcium	ECO::WATCH-S-Bromide
Measurement parameters	Chloride ion, pH, Temp	Fluoride ion, pH, Temp	Potassium ions, pH, Temp	Calcium ions, pH, Temp	Bromide ion, pH, Temp
Measurement method	Ion Selective Electrode Method				
Range	Ion concentration: 0.1 ~ 1,000 mg/L pH: 0 ~ 14 Temperature: 0 ~ 60 °C				
Accuracy	±≤3%				
Repeatability	≤2%				
Resolution	Ion concentration: 0.01mg/L pH: 0.01				
Detection Limit	0.1mg/L				
Response time	≤60 s				
Calibration cycle	3 months				
Protection level	IP68				
Temperature range	0 ~ 60 °C				
Size	0.6kg / 205mm×Φ45mm				

ECO WATCH Sensor Series



Product Features

Introduction

The ECO::WATCH-S-COD is an online water quality meter developed on an advanced transmission optical analysis platform. Its integrated design utilizes a high-stability UV-Visible LED light source combined with multi-wavelength coaxial optics. The meter features multi-reference channel compensation technology to ensure long-term stability and accuracy of the measured values.

Advantages

◈ Deep ultraviolet (UVC) LED light source with an extended lifespan of over 50,000 hours for long-term operation.
◈ Advanced multi-wavelength absorption technology for real-time compensation of multiple parameters.
◈ Coaxial optical path design to eliminate measurement errors typically introduced by multi-axis systems.

Name	ECO::WATCH-S-COD Ⅰ	ECO::WATCH-S-COD Ⅱ	ECO::WATCH-S-COD Ⅲ
Measurement parameters	COD, UV254, turbidity, Temp	COD, UV254, turbidity, Temp, transparency	COD, UV254, turbidity, Temp, chromaticity
Measurement method	UV Vis. Absorption		
Optical Path Range	2 mm	10 mm	50 mm
COD Range	0 ~ 1,500 mg/L	0 ~ 300 mg/L	0 ~ 60 mg/L
UV254 Range (Abs/m)	0 ~ 800	0 ~ 200	0 ~ 50
Turbidity Range (NTU)	0 ~ 10,000	0 ~ 1,000	0 ~ 200
Chromaticity Range (470nm)	0 ~ 25,000	0 ~ 5,000	0 ~ 1,000
Transparency range (mm)	0 ~ 40	0 ~ 200	0 ~ 1,000
Accuracy	±≤5%		
Repeatability	±≤3%		
Resolution	0.01 mg/L		
Response Time	≤10 s		

ECO::WATCH On-Line Water Quality Analyzer







ECO::WATCH Sensor Series



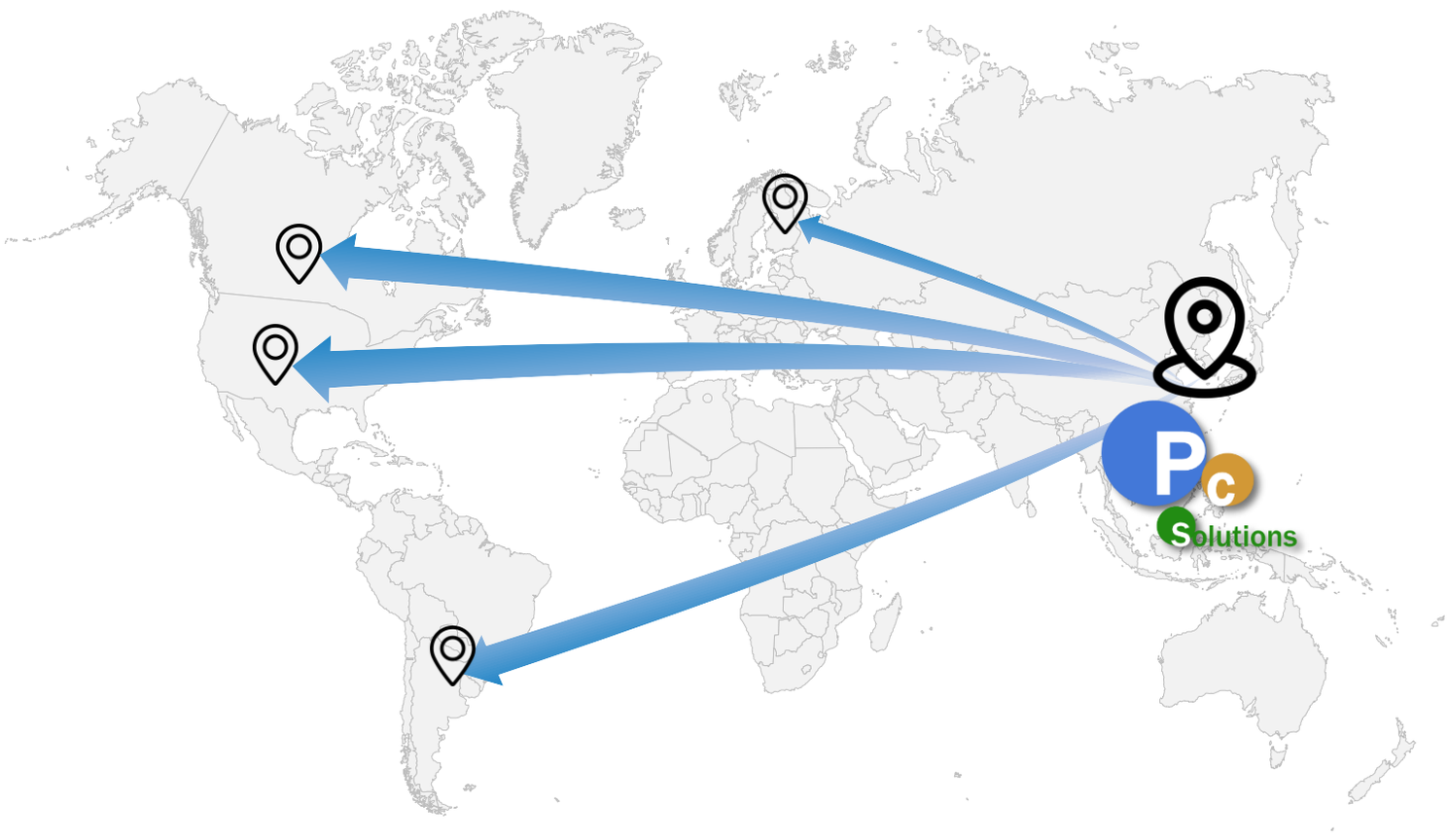
ECO::WATCH Controller Series







We are Continuously Embracing New Challenges.



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