

**HORIBA**  
Process & Environmental

Water Quality Monitoring System

# W-20XD Series



1 month continuous monitoring

13 simultaneous parameters

Depth up to 100 meters

**CALRIGHT**  
**INSTRUMENTS**

*The Right Source For Your Test & Measurement Needs*

2222 Verus Street Suite C San Diego CA 92154 USA  
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# Measurement data is stored in the sensor probe offering the convenience to deploy the sensor probe without cable and control unit for continuous monitoring.

Selection of a cable and ion sensors are necessary to complete a multi-probe system.

Up to one month

Data logging

Simultaneous measurement of

13 parameters

Measurement at depths as low as

100 meters

This system is optimal for assessment and testing of the water quality of sea water, river water, dams, well water, ground water, city water, storm water run-off, lakes, ponds, and fish farms. Horiba's sensor design, which has been developed over the course of many years, is housed in a 47mm diameter sensor probe. Horiba's sensor advances broaden application options in pressurized conditions and continuous monitoring while offering high precision and simultaneous measurement of as many as 13 parameters.

The system is compatible with GPS and data retrieval options to process and manage data on a personal computer. Continuous monitoring is possible for one month deploying the sensor probe at the site to collect data at 15 minute intervals.

### ● W-22XD sensor



- Dissolved oxygen sensor (replaceable)
- Depth sensor
- pH/ORP sensor (replaceable)
- Conductivity/temperature/turbidity sensors

### ● W-23XD sensor



- Depth sensor
- Dissolved oxygen sensor (replaceable)
- pH/ORP sensor (replaceable)
- Conductivity/temperature/turbidity sensors

Option Ion sensors (replaceable)

#### Control Unit



W-2000S  
Control Unit, Grip holder, Battery

#### Cables



- W-002CS 2m
- W-010CS 10m
- W-030CS 30m
- W-060CS 60m
- W-100CS 100m

#### Multi-Probe



Sensor probe with built-in sensors (depth, conductivity, temperature, turbidity)

#### W-22XD

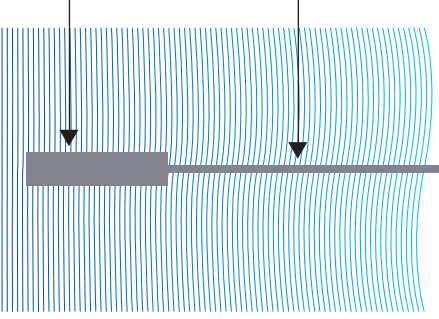
#### Packing List

- pH4 standard solution,
- Reference solution,
- Calibration beaker,
- Batteries,
- Instruction manual,
- Consumables

#### W-23XD

#### Packing List

- pH4 standard solution,
- Reference solution,
- Ion auto-cal solution,
- Calibration beaker,
- Batteries,
- Instruction manual,
- Consumables



W-20XD series measurement parameters	W-22XD	W-23XD
Maximum probe size	47mm	97mm
pH	●	●
Dissolved oxygen	●	●
Conductivity	●	●
Salinity	●	●
Total dissolved solids (TDS)	●	●
Seawater specific gravity	●	●
Temperature	●	●
Turbidity	●	●
Depth	●	●
Oxidation reduction potential (ORP)	●	●
Data logging	●	●
100m depth mess.		●
Nitrate Ion*		●
Calcium ion*		●
Chloride ion*		●
Fluoride ion*		●
Potassium ion*		●
Ammonia*		●

\*Optional sensor (replacement with other ion sensors is possible), 6 ion options for the 3 available ports

●option

## W-20XD series

Item	Model	Code
<b>Sensor Probe</b>		
Standard Accessories: DO-Temperature-Conductivity-Water depth sensors, pH4 Standard solution Option sensor:pH or pH/ORP-DO sensor-Standard Accessories:DO-Temperature-Conductivity-Water depth sensors, pH4 Standard solution, Ion one-point Standard solution Option sensor:pH or pH/ORP-DO each ion sensor	W-22XD	3014020376
	W-23XD	3014020378
<b>Cable</b>		
2m	W-002CS	3014007910
10m	W-010CS	3014007912
30m	W-030CS	3014007914
60m	W-060CS*	3014022058
100m	W-100CS*	3014007916
<b>Control Unit</b>		
	W-2000S	3014007930
<b>Sensor</b>		
pH sensor *	6230	3014050849 (9037005600)
pH/ORP sensor *	6280	3014050850 (9037005700)
DO sensor *	5460	3014001152 (9037005800)
Nitrate ion sensor *	6531	3014050863 (9037005900)*
Chloride ion sensor *	6522	3014050860 (9037006000)*
Calcium ion sensor *	6533	3014050861 (9037006100)*
Fluoride ion sensor *	6530	3014050859 (9037006300)*
Potassium ion sensor *	6532	3014050862 (9037006400)*
Ammonia sensor *	5012	3014050864 (9037006200)

\* A cartridge for ion sensor replacement and reference internal solution are also included in the ion sensor.  
\* Please inquire separately about the delivery date about the production on orders.  
\* Includes replacement chips for the ion sensors

## Option

Item	Model	Code
<b>Replacement chips for the ion sensors</b> *not include the ion sensors		
Nitrate ion cartridge	7881	3014068364 (9003015200)
Chloride ion cartridge	8660	3014093436 (9003015000)
Calcium ion cartridge	7883	3014068795 (9003015400)
Potassium ion cartridge	7882	3014069795 (9003015300)
Fluoride ion cartridge	7861	3014093438 (9003015100)
Ammonia membrane	NH <sub>3</sub> membrane	3014001155 (9037007000)
DO membrane replacement kit	DO membrane	3014050853 (9037007400)
<b>Extension adaptor</b>	U-2001	3014001085
<b>Carrying case</b>	W-2030	3014007945
<b>Flow cell</b>	W-2100	3014007978
<b>Probe guard</b>	W-2200*	3014007980
<b>Communication cable</b>	RS-232C	32000043675 (9037007500)
<b>AC adaptor</b>	AC-10	3200044196
<b>Inner fluid</b>		
Ion one-point standard solution, 250mL	130	3014001154 (9037006500)
Nitrate ion sensor reference internal solution, 50mL	302	3014001273 (9037006600)
Chloride ion sensor reference internal solution, 50mL	301	3014001271 (9037006700)
Calcium and fluoride ion sensor reference internal solution, 250mL	300	32000043640 (9003003200)
Potassium ion sensor reference internal solution, 50mL	303	3014001272 (9037006900)
Ammonia sensor reference internal solution, 50mL	370	3014067184 (9012000900)

\* Please inquire separately about the delivery date about the production on orders.

## Standard solution

Item	Model	Code
<b>Standard Solution</b>		
pH4(for automatic calibration), 500mL	100-4	32000043638 (9003001600)
pH4 (for automatic calibration), 4 L	140-4	3200174430
pH7 500 mL	100-7	32000043637 (9003001700)
pH9 500 mL	100-9	32000043636 (9003001800)
ORP standard solution powder For 250 mLx10	160-51	32000043618 (90030003100)
ORP standard solution powder For 250 mLx10	160-22	32000043617 (90030003900)

Internal fluid Internal fluid for pH reference 250 mL 330  
32000043641 (9037005200)



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## W-20XD series specifications

Control Unit	Water proof construction	IP-67	
<b>Multi-Probe</b> *1	Measurement temperature	0-55°C	●
	Storage temperature	-5-60°C	
	Measurement depth *2	to 100 m	
	Maximum probe size	95 mm	
	Probe length	430 mm	●
	Continuous use *3	300days	
	Data logging	○	
	Manual data memory (2880 items)	○	
	Automatic calibration	○	
<b>pH</b>	Measurement Principle	Glass electrode method	
	Range	pH 0-14	
	Resolution	0.01 pH	●
	Repeatability	±0.05 pH	●
	Accuracy	±0.1 pH	
<b>Dissolved oxygen</b>	Measurement Principle	Diaphragm galvanic battery method	
	Range	0-19.99 mg/L	
	Resolution	0.01 mg/L	●
	Repeatability	±0.1 mg/L	●
	Accuracy	±0.2 mg/L	
<b>Conductivity</b>	Measurement Principle	4 AC electrode method	
	Range	0-9.99 S/m	
	Resolution	0.1%F.S.	●
	Repeatability	±1%	●
	Accuracy	±3%	
<b>Salinity</b>	Measurement Principle	Conductivity conversion	
	Range	0-4%	
	Resolution	0.01%	●
	Repeatability	±0.1%	●
	Accuracy	±0.3%	
<b>Total Dissolved Solids (TDS)</b>	Measurement Principle	Conductivity conversion	
	Range	0-100 g/L	
	Resolution	0.1%F.S.	●
	Repeatability	±2 g/L	●
	Accuracy	±5 g/L	
<b>Seawater specific gravity</b>	Measurement Principle	Conductivity conversion	
	Range	0-50 g/l	
	Resolution	0.1 g/l	●
	Repeatability	±2 g/l	●
	Accuracy	±5 g/l	
<b>Temperature</b>	Measurement Principle	Thermistor method	
	Range	0-55°C	
	Resolution	0.01°C	●
	Repeatability	±0.3°C	●
	Accuracy	±1.0°C	
<b>Turbidity</b>	Measurement Principle	Penetration and scattering method	
	Range	0-800 NTU	
	Resolution	0.1 NTU	●
	Repeatability	±3%	●
	Accuracy	±5%	
<b>Water depth</b>	Measurement Principle	Pressure method	
	Range(NTU or mg/L)	0-100m	●
	Resolution	0.1 m	●
	Repeatability	±3%	
	Accuracy	±5%	
<b>Oxidation reduction potential(ORP)</b>	Measurement Principle	Platinum electrode method	
	Range	1999 mV	
	Resolution	1 mV	●
	Repeatability	±5 mV	●
	Accuracy	±15 mV	
<b>Ion</b>	Measurement Principle	Ion electrode method	
	Repeatability	0.1%F.S.	
	Accuracy	±5%	
<b>Simultaneously measurable parameters</b>			10
			13

● Option

Note:The accuracy rating value is obtained from measurements at an intermediate point of the standard solution after two-point calibration (at room temperature and pressure).  
The repeatability and accuracy rating percentages are based on the full scale (except for salinity).  
\* 1: Organic solvents, strong acids, and strong alkaline solvents cannot be measured.  
\* 2: The maximum depth for ion measurements are 100 m for nitric acid ion, chloride ion, fluoride ion, 15 m for calcium ion, ammonia, and 3 m for potassium ion.  
\* 3: Based on the data measured automatically at 15 minutes intervals. The battery life taken into account. Periodical maintenance and calibration is necessary when a lot of shellfishes and seaweeds exist at the measurement point.

### Influence of Hindering Ions. The values show permissible coexistence limits

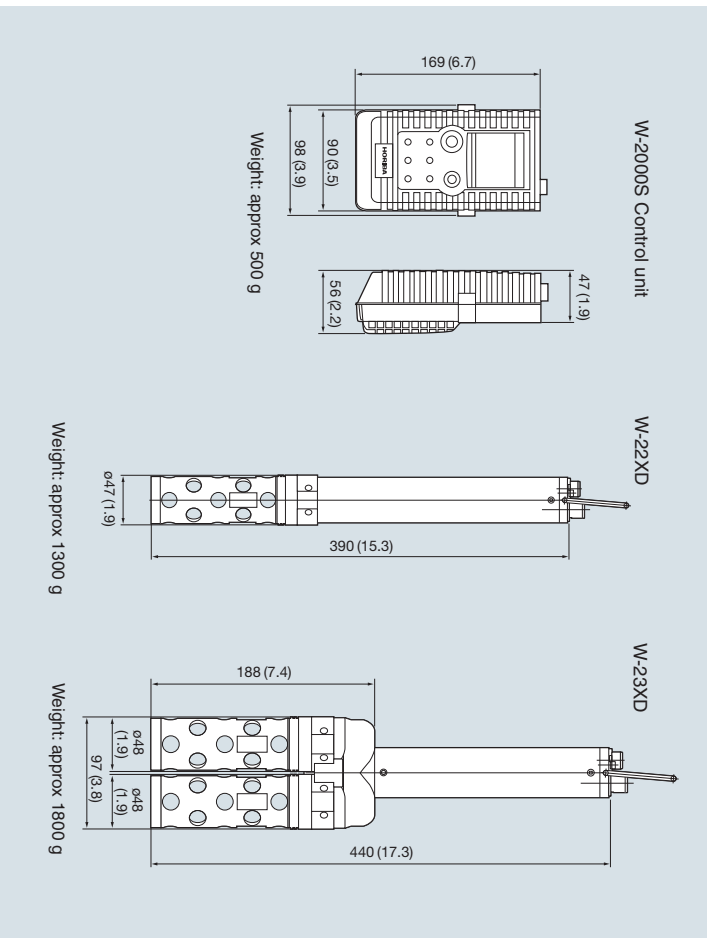
Nitrate ion  $[NO_3^-] = 0.1$ ,  $Br^- = 2$ ,  $NO_2^- = 3$ ,  $Cl^- = 40$ ,  $CH_3COO^- = 300$ ,  $SO_4^{2-} =$  more than 1000  
Chloride ion  $[SO_4^{2-}] = 1$ ,  $Ag^+$ ,  $Hg^{2+}$ ,  $Ni^{2+}$ ,  $Co^{2+}$ ,  $Fe^{2+}$ ,  $Fe^{3+}$ ,  $Zn^{2+}$ ,  $Ca^{2+}$ ,  $Mg^{2+}$ ,  $Na^+$ ,  $K^+$   
Calcium ion  $[Ba^{2+}] = 0.1$ ,  $Fe^{2+}$ ,  $Zn^{2+}$ ,  $Ca^{2+}$ ,  $Mg^{2+}$ ,  $Na^+$ ,  $K^+$   
Fluoride ion  $[OH^-] = 10$ . All negative ions except for  $OH^-$  is permissible  
Potassium ion  $[Rb^+] = 0.4$ ,  $Cs^+ = 3$ ,  $NH_4^+ = 70$ ,  $Li^+$ ,  $Na^+$ ,  $Mg^{2+}$ ,  $Ca^{2+}$ ,  $Sr^{2+}$ ,  $Ba^{2+}$  = more than 1000  
Ammonia

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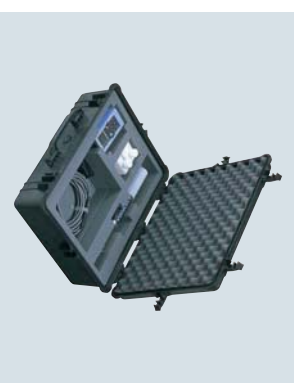
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■ External dimensions unit: mm (in)



■ Option



**Carrying Case**

W-2030

\*Multi-probe guard or Flow Through Cell can only be stored in W-2030



**Multi-probe Guard**

Model W-2200

\*Multi-Probe not included



**Flow Through Cell**

Model W-2100

Applicable only for W-22XD.

**User Registration**

Upon online registration, you will have an advantage to download data collection software, technical reports, also sending technical inquiries and more.

Visit <http://www.horiba-water.com> for online registration.



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