

# Water Quality Profiler with Fast Optical DO Sensor

## AAQ-RINKO



### Overview

The AAQ-RINKO is a direct-reading multiparameter water quality meter equipped with a high-speed response DO sensor (RINKO®) with a typical response time of 0.4 seconds. For DO measurements, previous sensors required the device to be held at the measurement depth for a certain period due to slow response times. However, with the AAQ-RINKO, vertical measurements can be conducted at a descent rate of 0.5 m/second, similar to CTD observations, significantly reducing work time and allowing for more detailed vertical profiles of dissolved oxygen. In addition to the existing seven parameters—water temperature, depth, salinity, chlorophyll, turbidity, DO, and pH—the meter can also be equipped with PAR and ORP sensors simultaneously. Three types of processing units are available to suit different observation needs. \*DO measurements comply with JIS K 0102 standards.

### Sensor Specifications

Parameter	Sensor Type	Range	Resolution	Accuracy	Response Time (typ)
Pressure	Semiconductor Pressure	0 to 1 MPa	0.00002 MPa	Non-linearity ±0.1% FS, Repeatability ±0.3% FS	0.2 sec
Temperature	Thermistor	-3 to 45°C	0.001°C	±0.01°C (0 to 35°C)	0.2 sec
Seawater Conductivity <sup>*2</sup> (Salinity)	7-Electrode (Practical Salinity Scale)	0.5 to 70 mS cm <sup>-1</sup> (2 to 42)	0.001 mS cm <sup>-1</sup> (0.001)	±0.01 mS cm <sup>-1</sup>	0.2 sec
Freshwater Conductivity <sup>*2</sup>	7-Electrode	0 to 2,000 µS cm <sup>-1</sup>	0.1 µS cm <sup>-1</sup>	±5 µS/cm (0 to 200 µS cm <sup>-1</sup> ), ±10 µS/cm (200 to 2,000 µS cm <sup>-1</sup> )	0.2 sec
Chlorophyll	Fluorescence Measurement	0 to 400 ppb (Urine reference)	0.01 ppb	Non-linearity ±1% FS (0 to 200 ppb)	0.2 sec
Turbidity	Infrared Backscatter	0 to 1,000 FTU (Formazin reference)	0.03 FTU	±0.3 FTU or ±2%	0.2 sec
DO	Optical	0 to 200% (0 to 20 mg L <sup>-1</sup> )	0.01% <sup>*3</sup> (0.001 mg L <sup>-1</sup> )	Non-linearity ±2% FS (±0.4 mg L <sup>-1</sup> )	0.4 sec <sup>*4</sup>
pH <sup>*5</sup>	Glass Electrode (Composite Electrode)	0 to 14	0.01	±0.2	10 sec
Photosynthetically Active Radiation (PAR)	Photodiode	0 to 5,000 µmol m <sup>-2</sup> S <sup>-1</sup>	0.1 µmol m <sup>-2</sup> S <sup>-1</sup>	±4% FS (0 to 2,000 µmol m <sup>-2</sup> S <sup>-1</sup> )	0.2 sec
ORP	Platinum Electrode (Composite Electrode)	0 to ±1,000 mV	0.1 mV	—	10 sec

\*1 Calibration is performed using seawater (range of 28 to 65 mS cm<sup>-1</sup>). \*2 Either seawater conductivity or freshwater conductivity can be selected. \*3 Standard value near 100% saturation. \*4 Standard 63% response value in a gaseous atmosphere (1 atm, 25°C).

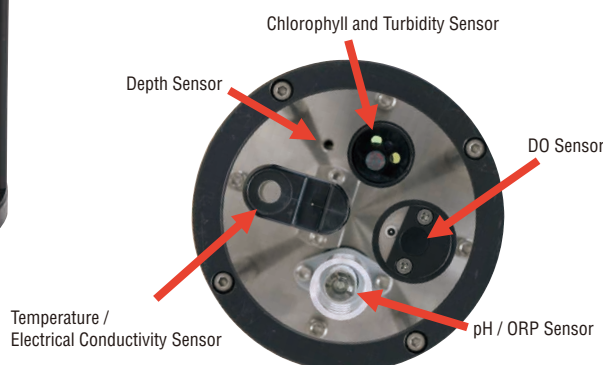
### Model and Observation Items

	Depth	Temperature	Electrical Conductivity	Chlorophyll	Turbidity	DO	pH	(PAR)	ORP
AAQ170	●	●	●	●	●	●			
AAQ171	●	●	●	●	●	●	●		
AAQ172	●	●	●	●	●	●	●	●	●
AAQ175	●	●	●	●	●	●	●	●	
AAQ176	●	●	●	●	●	●	●	●	●
AAQ177	●	●	●	●	●	●	●	●	●

Please select either seawater or freshwater for electrical conductivity.

### Probe specifications

Communication	RS-485
A / D conversion	16 bit digitia conversion
Dimensions	φ108 x 293 mm
Weight	Approx.2.4 kg in air,1.1 kg in water
Housing material	Titanium (grade 2)
Cable	50 m or 100 m





### ■ Portable Interface Unit (AIF-CAD)

This compact interface unit allows for real-time monitoring and data recording on a PC. Communication is possible via a USB cable (Type C).

### ■ Splash-Proof interface (AAQ-IF)

This splash-proof interface unit connects to a user's computer, allowing for real-time monitoring and data recording on the computer.

### ■ Handheld Terminal (D-10)

This compact, high-performance model is easy to carry and records measurement data in its internal memory while displaying it. It can also generate vertical profiles and time series graphs on the spot. Equipped with GPS as a standard feature, it simultaneously acquires location information. Its excellent dust and water resistance make it ideal for field observations.

## ■ Specifications

Model Name	Portable Interface Unit (AIF-CAD)	Splash-Proof interface (AAQ-IF)	Handheld Terminal (D-10)
Screen	None	3 LEDs	5-inch color LCD
Operation Method	None	None	Touch panel and touch buttons on screen
Display Content	None	Voltage level	Time information, GPS information, measurement data, vertical graphs, time series graphs
Memory Type	None	None	512MB internal memory (15 million data points)
Method	Data recording on PC, measurement at selected intervals via application software	Data recording on PC, measurement at selected intervals via application software	1. Continuous measurement (selectable intervals of 0.1, 0.2, 0.5, 1, 2, 5, 10 sec) 2. Automatic vertical measurement by selected depth pitch (selectable at 0.1, 0.2, 0.5, 1 m) 3. Spot recording of measurement data at arbitrary depths
Printing Function	None	None	None (connectable to external printer)
Calendar Information	None	None	Built-in (auto-corrected by GPS)
Power Supply	4 AA batteries 1.5 V (alkaline, lithium) / USB power supply (5 V) *Sensor performance is not guaranteed when powered via USB due to dependency on power quality from the source	8 AA alkaline batteries / AC 100 V / DC 12 V	Built-in rechargeable lithium-ion battery
Dimensions	W112 mm × H110 mm × D30 mm	W83 mm × H199 mm × D46 mm	W126 mm × H191 mm × D33 mm
Weight	Approx. 275 g (excluding batteries)	Approx. 0.5 kg (excluding batteries)	Approx. 725 g (including built-in battery)
Dust and Water Resistance	None	Simple splash-proof	Protection rating IP67 (when connector cap is tightened)
Other	None	None	Equipped with GPS

## ■ Drawing

