

Fast Optical DO Sensor for Integration **RINKO FT** ARO-FT / AROD-FT



ARO-FT Pressure Resistance: Equivalent to 2,000 m depth



Overview

The ARO-FT/AROD-FT is a sensor developed for use with Argo floats, which are employed in oceanographic observations worldwide. Once deployed, Argo floats can automatically perform regular vertical observations for up to approximately five years. The ARO-FT/AROD-FT maintains high-speed response while offering excellent long-term stability. It supports RS-232C/UART communication, making it compatible with various observation equipment, including AUVs, in addition to Argo floats.

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Specifications

Parameter / Sensor Typ	DO	Optical		
	Temperature	Thermistor		
Range	DO	0 to 425 µmol L ⁻¹⁺¹ (0 to 200% saturation)		
	Temperature	-3 to 45°C		
Resolution	DO	0.02 µmol L ⁻¹ (0.01%) ^{*2}		
	Temperature	0.001°C		
Initial Accuracy	DO	$\pm 2\%$ of reading or $\pm 2.0 \ \mu$ mol L ⁻¹ (1 to 30°C, 0 to 120%)		
	Temperature	±0.01°C (0 to 35°C)		
Repeatability		Drift: ±5% of reading or ±5.0 µmol L ⁻¹ within 4,000,000 samples ⁻³		
	DO	Temperature Dependency: ±2% of reading or ±2.0 µmol L ⁻¹		
		Pressure Dependency: $\pm 2\%$ of reading or $\pm 2.0 \ \mu mol \ L^{-1}4^{*4}$		
63% Response Time	DO	≤1 sec (in water)		
(25°C, standard value)	Temperature	≤1 sec (in water)		
External Output Conter	ht DO (μmol L ⁻¹), Temperature (°C), AD Value, LED Accumulated Time			
Communication Interva	al 1 sec			
Preheat Time	5 sec			
Communication Type	RS-232C or UART (3.3 V logic) ⁵			
Communication Speed	ed 38,400 bps			
Power Supply	DC 6 to 26 V, standard DC 12 V			
Current Consumption	During Measurement: ≤30 mA, Standby: ≤0.1 mA			
Model	ARO-FT		AROD-FT	
Material	Titanium Grade 2		Titanium Alloy (Ti-6Al-4V)	
Connector	8-pin LEMO Connector		SubConn MCBH-8-MP	
Dimensions	Refer to the diagram below		Refer to the diagram below	
Weight	Approx. 265 g in air (with locknut communication cable)		Approx. 265 g in air	
	Approx. 162 g in water (with locknut communication cable)		Approx. 175 g in water*6	
Pressure Resistance	Equivalent to 2 000 m denth		Equivalent to 6 700 m denth	

*1 When measuring air-saturated water at 25°C and 34 PSU salinity

*2 Standard value near 100% at 25°C

*3 Based on accelerated testing

*4 Pressure hysteresis is not considered

*5 UART output is limited to ARO-FT with standard attachment

*6 Underwater weight is a design value

Drawing



Temperature sensor