

# Fast optical DO sensor for integration

# RINKO FT

ARO-FT  
AROD-FT



Fast Response, High Accuracy, and Long-Term Stability.



- Fast response (63%: less than 1s in water)
- Multipoint factory calibration
- High accuracy
- Long-term stability
- Easy installation to various platforms



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■ Description

The **RINKO** series is based on the optical (phosphorescence) principle which is now widely known as a remarkably fast response oxygen sensor with a high accuracy. As a new member of the **RINKO** family, the **RINKO FT** (model name: **ARO-FT**, **AROD-FT**) had overcome a well-known tradeoff between fast responsivity and stability of oxygen sensing foils. The **RINKO FT** not only **retains the fast response time** identical to that of conventional **RINKO** series but also has **greater accuracy and stability** by incorporating **high-quality multipoint calibration and improved sensing method**. The **RINKO FT** is primarily designed to target Argo float operations. However, its compact, lightweight, and commonly used communication protocol widens the choice of platforms for installation. The **RINKO FT** enables DO measurements with a high spatial resolution, which will contribute to the understanding of new aspects of physical/biochemical processes.

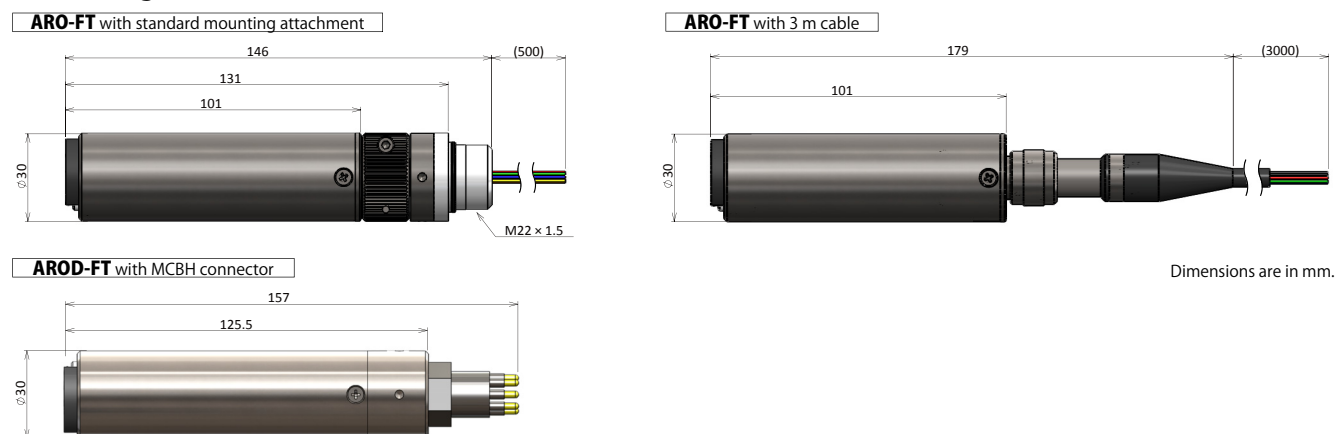
■ Specifications

Measurement principle	DO	Phosphorescence
	Temperature	Thermistor
Range	DO	Concentration: 0 to 425 $\mu\text{mol L}^{-1}$ <sup>(1)</sup> , Air saturation: 0 to 200% (calibration range: 0 to 120%)
	Temperature	-3 to 45 °C (calibration range: 0 to 35 °C)
Resolution	DO	0.01 $\mu\text{mol L}^{-1}$
	Temperature	0.001 °C
Initial accuracy	DO	$\pm 2\%$ of measured value or $\pm 2.0 \mu\text{mol L}^{-1}$ (calibration range: 3 to 30 °C)
	Temperature	$\pm 0.01$ °C
Repeatability	DO	Sample-based drift: $\pm 5\%$ of measured value or $\pm 5.0 \mu\text{mol L}^{-1}$ / 4,000,000 samples <sup>(2)</sup> Pressure effect: $\pm 2\%$ of measured value or $\pm 2.0 \mu\text{mol L}^{-1}$ <sup>(3)</sup> Temperature effect: $\pm 2\%$ of measured value or $\pm 2.0 \mu\text{mol L}^{-1}$
	DO	< 1 s (in water)
	Temperature	< 1 s (in water)
Response time (63% (at 25 °C, typical)	DO	< 1 s (in water)
Representative output parameters	DO in $\mu\text{mol L}^{-1}$ , Temperature in °C, Engineering values of DO and temperature, Number of LED emission times, etc.	
Sampling interval	1 s (shorter interval at request)	
Pre-heat time	5 s (shorter time at request)	
Communication	RS-232C or UART (3.3 V logic) <sup>(4)</sup>	
Communication protocol	Baud rate: 38400 bps, No parity, Handshake	
AD Converter	16 bit digital conversion	
Power	6 to 26 VDC, 12 VDC recommended	
Current drain (at 12 VDC, typical)	Operation mode: < 30 mA, Sleep mode: < 0.1 mA	

Model name	<b>ARO-FT</b>	<b>AROD-FT</b>
Material	Housing: Titanium (grade 2), Insulating attachment: POM	Housing: Titanium (Ti-6Al-4V)
Connector	8-pin LEMO	Impulse MCBH-8-MP <sup>(5)</sup>
Dimensions	See below	See below
Weight	In air: approx. 183 g (without attachment or cable) In water: approx. 110 g (without attachment or cable)	In air: approx. 265 g In water: approx. 175 g
Depth rating	2,000 m depth equivalent	6,700 m depth equivalent

<sup>(1)</sup> Calculated from air saturation at 25 °C and 34 PSU <sup>(2)</sup> Accelerated degradation test <sup>(3)</sup> Pressure hysteresis not considered <sup>(4)</sup> UART communication available only for ARO-FT with standard mounting attachment <sup>(5)</sup> SubConn MCBH8M also available

■ Drawing



※ All specifications on this leaflet are subject to change without notice.



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