

TEMPERATURE AND OPTICAL DISSOLVED OXYGEN



LOW POWER,
HIGH STABILITY

The RBRduet³ T.ODO is an optode with high stability and low power consumption, with three time constant options available: 1s, 8s, and 30s. The |fast (1s time constant) variant is well suited for profiling applications. The |slow (30s time constant) version has a protective layer to facilitate automated cleaning by a wiper to keep it biofouling free during long-term moored deployments.

FEATURES



The following configurations are available:

- ▶ RBRduet³ T.ODO temperature and optical dissolved oxygen, 8s time constant
- ▶ RBRduet³ T.ODO|slow temperature and optical dissolved oxygen, 30s time constant, used with wiper
- ▶ RBRduet³ T.ODO|fast temperature and optical dissolved oxygen, 1s time constant

Deep variant:

- ▶ RBRduet³ T.ODO|deep temperature and optical dissolved oxygen, depths up to 6000m

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The RBRduet³ T.ODO instrument has two channels: temperature and optical dissolved oxygen. Its large data storage capacity and reliable battery power facilitate long deployments with higher sampling rates. Downloads are quick with USB-C. A dedicated holder makes it simple to replace desiccant before each deployment. The calibration coefficients are stored with the instrument, and only one software tool, Ruskin, is required to operate it. Datasets can be read directly in Matlab, or exported to Excel, OceanDataView®, or text files.

Specifications

Physical

Storage	~165 thousand samples*
Power	An AA cell (alkaline or lithium iron)
Communication	USB-C
Clock drift	±60 seconds per year
Depth rating	1000m (plastic), 6000m (Ti)
Diameter	~25mm (housing), ~30mm (at sensor)
Length	~310mm
Weight (air)	200g (plastic), 400g (Ti)
Weight (water)	40g (plastic), 235g (Ti)

*A sample may include multiple readings.

Output Values

- Temperature (°C)
- Dissolved O₂ concentration (µmol/L)
- Dissolved O₂ concentration (salinity compensated, µmol/L)
- Dissolved O₂ saturation (%)
- Dissolved O₂ phase (°)

Temperature

Range	-5°C to 35°C
Initial accuracy	±0.002°C
Resolution	<0.00005°C
Typical stability	±0.002°C / year
Time constant	<1s

Dissolved oxygen

Measurement range	0-1000µmol/L
Calibrated range	0-500µmol/L concentration 0 – 120% saturation 1.5°C to 30°C temperature
Initial accuracy	Max of ±8µmol/L or ±5% fast Max of ±2µmol/L or ±1.5% standard Max of ±2µmol/L or ±1.5% slow
Resolution	<1µmol/L (saturation 0.4%) fast <0.5µmol/L (saturation 0.2%) standard <0.1µmol/L (saturation 0.04%) slow
Time constant	<1s fast, <8s standard, or <30s slow
Sampling rates	24hr to 1Hz



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