RBR*solo*^{3}
RBR*duet*^{3}
INSTRUMENT GUIDE

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1 Compact instruments

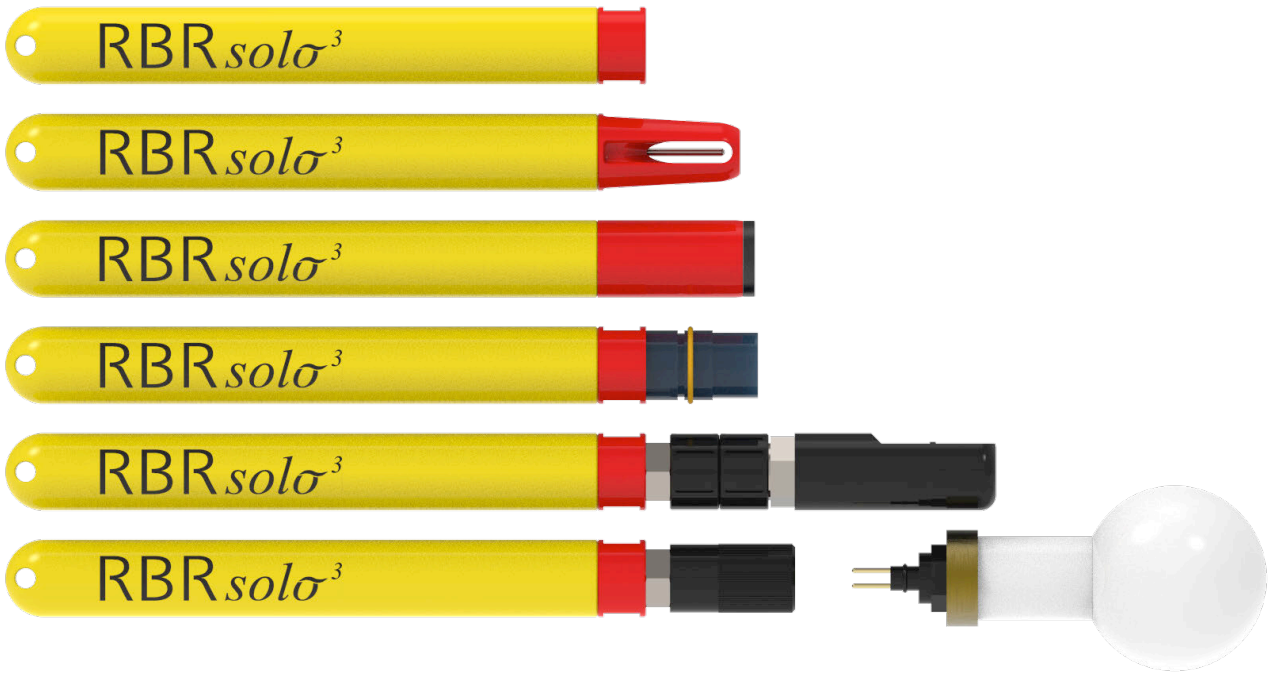
RBR manufactures two types of compact instruments, the RBR*solo*^{3} and RBR*duet*^{3} families. They are small, lightweight, stable, and provide highly accurate measurements during long deployments. Low power consumption, large memory, and ability to endure harsh conditions make them a perfect choice for many oceanographic applications. The RBR*solo*^{3} is a family of single-channel instruments, whereas the RBR*duet*^{3} instruments are dual-channel. Both types offer flexible configurations, large memory, and USB-C download. Some compact instruments are also available in titanium housings for deep applications.

See Ruskin User Guide: Compact Loggers^3 for more information.

1.1 RBR*solo*^{3}

The RBR*solo*^{3} is a family of small single-channel, long-autonomy instruments which come in several variants:

- RBR*solo*^{3} D - depth
- RBR*solo*^{3} T - temperature
- RBR*solo*^{3} PAR - photosynthetically active radiation
- RBR*solo*^{3} rad - narrow-band light radiation
- RBR*solo*^{3} DO - dissolved oxygen
- RBR*solo*^{3} Tu - turbidity
- RBR*solo*^{3} PAR (LI-COR) - photosynthetically active radiation



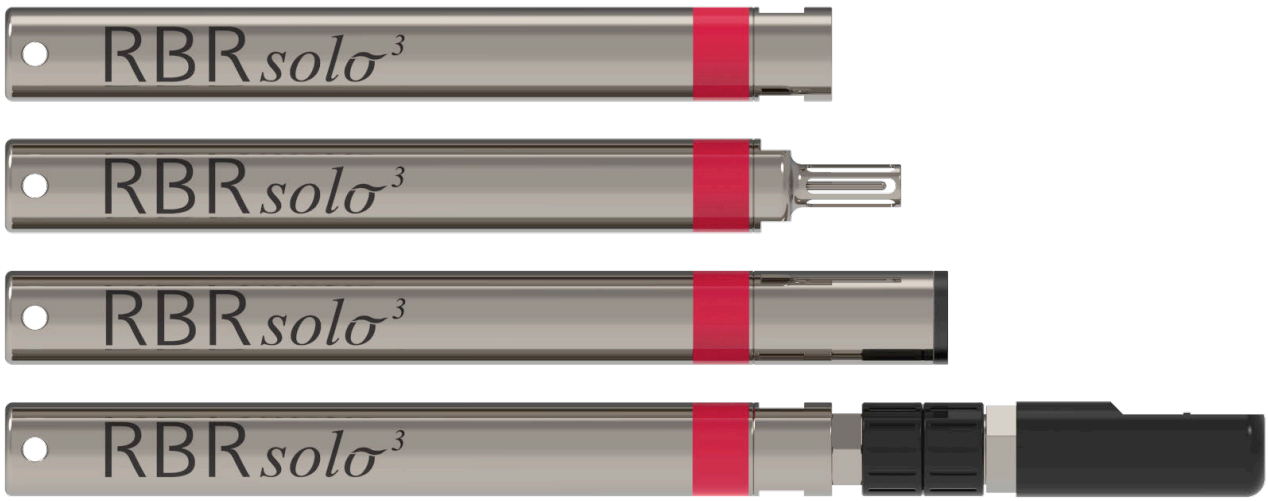
RBR*solo*^{3} family*

* The RBR*solo*^{3} PAR and RBR*solo*^{3} rad look identical, third instrument from top.

Several configurations are also available in titanium housing for deepwater applications (| deep), designed to endure harsh conditions:

- RBR*solo*^{3} D | deep - depth
- RBR*solo*^{3} T | deep - temperature
- RBR*solo*^{3} PAR | deep - photosynthetically active radiation
- RBR*solo*^{3} rad | deep - narrow-band light radiation
- RBR*solo*^{3} Tu | deep - turbidity

The two-part titanium alloy resists all forms of marine corrosion. Some configurations deployable to the bottom of the Marianas Trench, all RBR instruments within the | deep family provide accurate and stable measurements in the most challenging environments.



RBR*solo*^{3} | deep family*

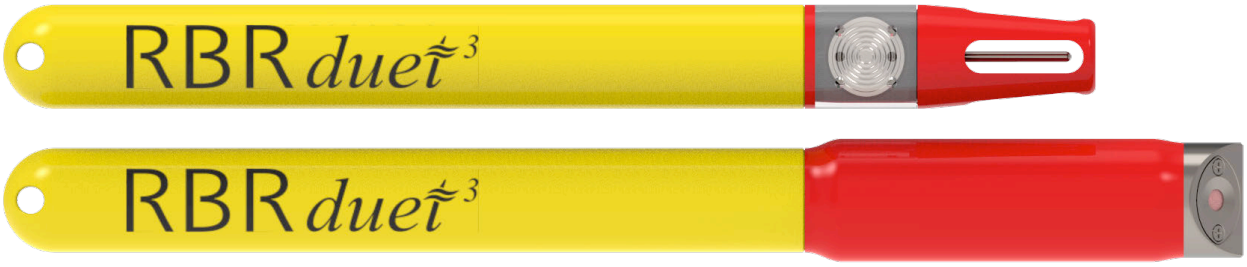
* The RBR*solo*^{3} PAR | deep and RBR*solo*^{3} rad | deep look identical, third instrument from top.

RBR offers cabled versions of the RBR*solo*^{3} D, T, PAR, rad, DO, and PAR (LI-COR) under the brand name of "RBR*coda*^{3}". Sensor specifications are the same between the two lines of instruments.

1.2 RBR*duet*^{3}

The RBR*duet*^{3} is a family of small dual-channel, long-autonomy instruments which can be configured with either of the two options:

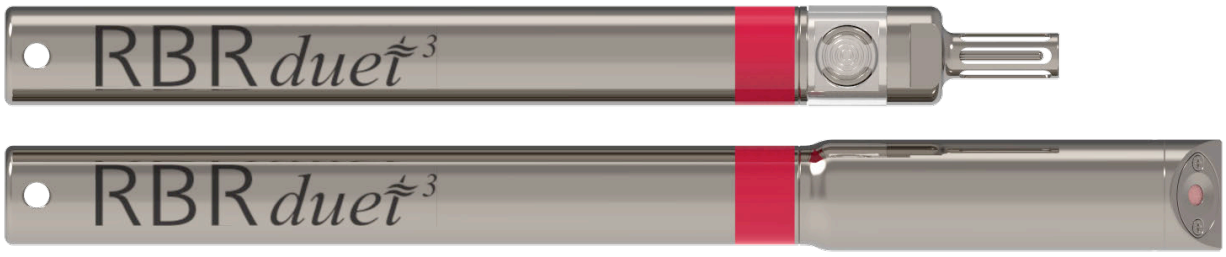
- RBR*duet*^{3} T.D - temperature and depth
- RBR*duet*^{3} T.ODO - temperature and optical dissolved oxygen



RBR*duet*^{3} family

Both variants are also available in titanium housing for deepwater applications (| deep):

- RBR*duet*^{3} T.D | deep - temperature and depth
- RBR*duet*^{3} T.ODO | deep - temperature and optical dissolved oxygen



RBR*duet*^{3} | deep family

RBR offers cabled versions of the RBR*duet*^{3} T.D and T.ODO under the brand name of "RBR*coda*^{3}". Sensor specifications are the same between the two lines of instruments.

2 Specifications

Some physical specifications are the same for the RBR*solo*^{3} and RBR*duet*^{3} instruments. Pressure and temperature sensors are also used by both families.

2.1 Physical specifications

RBR*solo*^{3} and RBR*duet*^{3} common specifications

Parameter	Value
Storage	~130 million readings
Power	One AA-type cell
Communications	USB-C
Clock drift*	±60 seconds per year
Diameter	25.4mm (plastic), 25mm (Ti)
Length**	195.7mm (plastic), 200mm (Ti)

*The realtime clock is not maintained when there is no power.

**Housing length without the sensor end-cap. The total length depends on the variant and can be found in RBR datasheets available for each instrument.

RBR*solo*^{3} weight and depth rating

Instrument	Weight	Maximum depth rating
RBR*solo*^{3} D RBR*solo*^{3} D | deep	130g in air, 30g in water 330g in air, 230g in water	1000m 10000m
RBR*solo*^{3} T RBR*solo*^{3} T | deep	120g in air, 20g in water 320g in air, 220g in water	1700m 10000m
RBR*solo*^{3} DO	150g in air, 30g in water	1700m
RBR*solo*^{3} PAR, RBR*solo*^{3} rad RBR*solo*^{3} PAR | deep, RBR*solo*^{3} rad | deep	140g in air, 15g in water 320g in air, 195g in water	1000m 2000m
RBR*solo*^{3} Tu RBR*solo*^{3} Tu | deep	220g in air, 70g in water 420 in air, 270g in water	1700m 6000m
RBR*solo*^{3} PAR (LI-COR), cosine RBR*solo*^{3} PAR (LI-COR), spherical	420g in air, 200g in water 200g in air, 60g in water	560m 350m

RBR*duet*^{3} weight and depth rating

Instrument	Weight	Maximum depth rating
RBR*duet*^{3} T.D RBR*duet*^{3} T.D | deep	150g in air, 30g in water 350g in air, 240g in water	1000m 10000m
RBR*duet*^{3} T.ODO RBR*duet*^{3} T.ODO | deep	200g in air, 20g in water 400g in air, 240g in water	1000m 6000m

2.2 Sensor specifications

Pressure

The RBR*solo*^{3} D, RBR*solo*^{3} D | deep, RBR*duet*^{3} T.D, and RBR*duet*^{3} T.D | deep use piezoresistive pressure sensors. The sensor is protected by a clear plastic guard. During deployments, always orient it downwards to reduce debris collecting on the membrane of the pressure sensor.

Parameter	Value
Range*	20 / 50 / 100 / 200 / 500 / 1000dbar (plastic) 1000 / 2000 / 4000 / 6000 / 10000dbar (Ti)
Initial accuracy	±0.05% full scale
Resolution	<0.001% full scale
Typical stability	±0.05% full scale / year
Time constant	<10ms

*Recommended depth for wave measurements is less than 50m.

Temperature

The RBR*solo*^{3} T, RBR*solo*^{3} T | deep, RBR*duet*^{3} T.D, RBR*duet*^{3} T.D | deep, RBR*duet*^{3} T.ODO, and RBR*duet*^{3} T.ODO | deep use the same thermistor-type temperature sensor.

Parameter	Value
Range*	-5°C to 35°C
Initial accuracy	±0.002°C
Resolution	<0.00005°C
Typical stability	±0.002°C / year
Time constant	~0.1s |fast, ~1s standard, ~15s | slow

*A wider temperature range is available upon request. Contact RBR for more information.

PAR and narrow-band radiometers

The RBR *solo*^{3} PAR and RBR *solo*^{3} rad instruments look identical and share several specifications.
The RBR *solo*^{3} PAR and RBR *solo*^{3} PAR | deep use the cosine photosynthetically active radiation sensors.
The RBR *solo*^{3} rad and RBR *solo*^{3} rad | deep radiometers measuring narrow-band light with a fixed channel width, available in various 10nm- and 25nm-wide channels. Both centre wavelength and channel width are factory-configured.

Optical radiometry

Parameter	Value
Initial offset error*	±0.0025% full scale
Resolution**	±0.0002% full scale
Dynamic range	>5.5 decades (nominal)
Absolute calibration***	±5%
Linearity	±1%
Time constant	<5ms
Operating temperature range	-5°C to 35°C
Gain temperature dependence	0.15% / °C
Cosine response error (water)	±5% at 0-60°, ±10% at 61-82°
Azimuth error (water)	±1.5% at 45°
Out-of-band rejection**	>25dB (typical), OD 2.5

* Dark offset is internally temperature-compensated.
** Out-of-band rejection and resolution are wavelength dependent for narrow-band radiometers.
*** RBR calibrates radiometers with NIST traceable references.

PAR

Parameter	Value
Wavelength range	400 to 700nm
Full scale range	0 to 5000µmol/m^2/s (minimum)
Initial offset error*	±0.125umol/m^2/s
Resolution	±0.010umol/m^2/s

Narrow-band channels

Parameter	Value
Centre wavelengths (CWL)	413 / 445 / 475 / 488 / 508 / 532 / 560nm
Accuracy (for CWL)	±3nm (for all CWLs except 475nm) ±5nm (for CWL 475nm only)
Full width at half-maximum (FWHM)	10nm (for all CWLs except 475nm) 25nm (for CWL 475nm only)
Accuracy (for FWHM)	±3nm
Full scale range	0 to 400µW/cm^2/nm (minimum)
Initial offset error*	±0.010µW/cm^2/nm
Resolution**	±0.001µW/cm^2/nm

Dissolved oxygen (OxyGuard)

The RBR*solo*^{3} DO uses the OxyGuard® galvanic dissolved oxygen sensor. The sensor consumes oxygen from the environment and thus produces most accurate measurements when in a stirred environment. During deployments, always orient the sensor downwards to reduce debris collecting at the membrane. Store the sensor in the dedicated storage cap, included with the instrument.

Parameter	Value
Range	0 to 600%
Initial accuracy	±2% oxygen saturation
Resolution	1% of saturation
Response time	~10s, 90% step change at 20°C

Optical dissolved oxygen

The RBR*duet*^{3} T.ODO, and RBR*duet*^{3} T.ODO | deep use the optical dissolved oxygen sensor. During deployments, always orient the sensor downwards to reduce debris collecting on the sensing foil and minimise direct sunlight. Store the sensor in the dedicated storage cap, included with the instrument.

Parameter	Value
Calibrated range (concentration)	0-500µM
Calibrated range (saturation)	0-120%
Calibrated range (temperature)	1.5°C to 30°C
Initial accuracy	Maximum of ±8µM or ±5%
Resolution	<1µM (saturation 0.4%)
Time constant	~1s (|fast), ~8s (standard), ~30s (|slow)

Turbidity

The RBR*solo*^{3} Tu and RBR *solo*^{3} Tu | deep use the Seapoint® turbidity sensor which detects light scattered by solid particles suspended in water. During deployments, minimise direct sunlight.

Parameter	Value
Light source wavelength	880nm
Sensing distance	<5cm from windows
Time constant	0.1s
Linearity	<2% deviation for 0-1250FTU range*
Temperature coefficient	<0.05%/°C

* Response becomes non-linear above 1250FTU (Formazin Turbidity Units)

PAR (LI-COR)

The RBR*solo*^{3} PAR (LI-COR®) instruments use cabled cosine (one hemisphere, LI-192) or spherical (omnidirectional, LI-193) PAR sensors.

Parameter	Value
Wavelength range	400 to 700nm
Calibrated range	0 to 10000µmol/m^2/s
Initial accuracy	±2%

2.3 Deployment estimates

RBR*solo*³

Instrument	Speed	Time	Number of samples
RBR*solo*³ D , RBR*solo*³ T, RBR*solo*³ DO , RBR*solo*³ PAR (LI-COR)	32Hz	~50 days	130 million
	2Hz	~5 months	25 million
RBR*solo*³ PAR, RBR*solo*³ rad	2Hz	~ 17 days	2.9 million
	1Hz	~45 days	4 million
RBR*solo*³ Tu	10s	~9 days	80 thousand
	30s	~1 month	75 thousand

RBR*duet*^{3}

Instrument	Speed	Time	Number of samples
RBR*duet*^{3} T.D	32Hz	~16 days	45 million
	2Hz	~2 months	10 million
RBR*duet*^{3} T.ODO	2Hz	1.9 days	330 thousand
	30s	~26 days	75 thousand

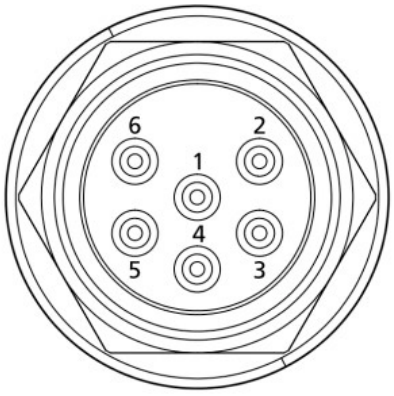
Deployment times above are estimated for instruments with the highest capacity battery available for each variant.
For deployment estimates specific for your instrument's configuration and sampling options:

- Go to Ruskin and click the "Instruments" tab
- Select "Simulate an instrument...", find your logger under "Compact Instruments", and click "OK"
- Adjust variable parameters under "Configuration" to match your needs

Note that deployment estimates are the same for shallow and deep variants.

2.4 MCBH connector

External MCBH-6-MP connector pinout



Pin No.	USB	RS-232	RS-485
1	Ground		
2	Power +4.5 to +30 V		
3	N/C	Data output from the instrument (Tx)	Data output from the instrument (Tx-)
4	VUSB +5V	Data input into the instrument (Rx)	Data input into the instrument (Rx+)
5	D-	N/C	Data input into the instrument (Rx-)
6	D+	N/C	Data output from the instrument (Tx+)

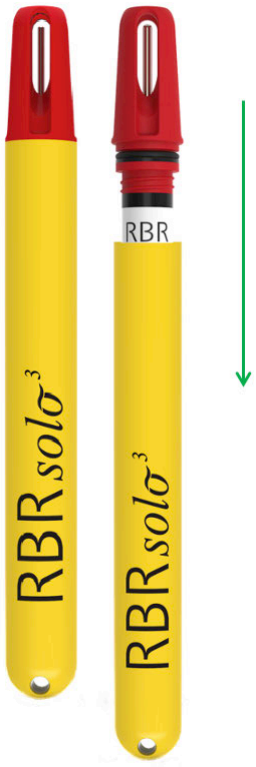
3 Hardware

3.1 Opening and closing a compact instrument

> ⚠ RBR compact instruments have two O-rings. Remember to keep the O-rings clean and avoid scratching the O-ring mating surfaces. Carefully inspect the O-rings before deploying the instrument.

Opening the instrument

1. Hold the instrument with the sensor end-cap up.
2. Unscrew the sensor end-cap, counterclockwise.
3. Once fully unscrewed, slide the housing away from the sensor end-cap to reveal the sensor carriage. The sensor carriage contains the battery compartment, desiccant holder, and USB-C port.



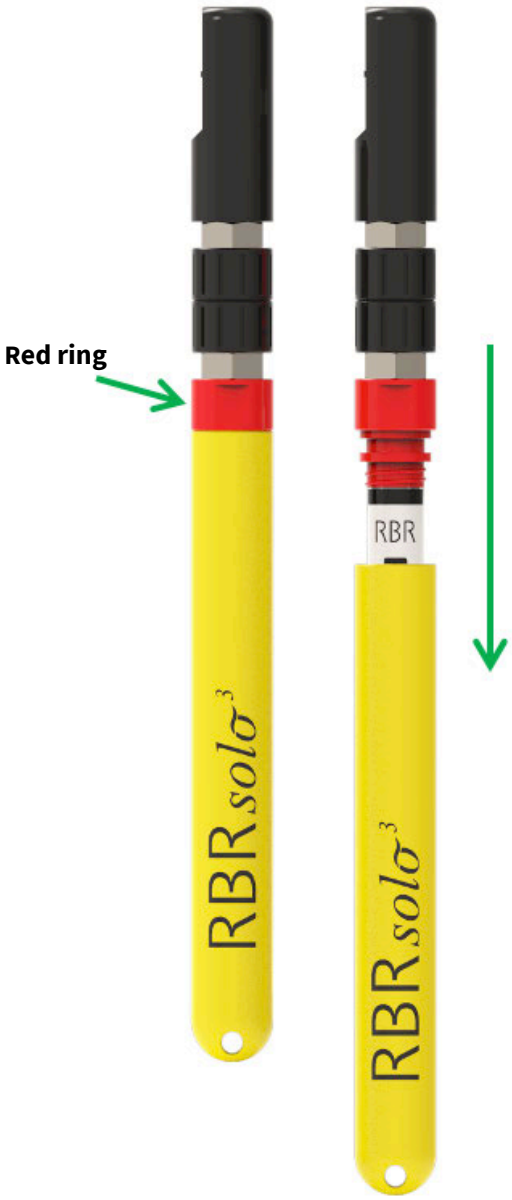
Opening a compact instrument

Sensor carriage

Closing the instrument

1. Insert the sensor carriage into the housing.
2. Screw the sensor end-cap back on, clockwise.

⚠ When opening the RBR*solo*^{3} Tu, make sure to unscrew the end-cap at the red ring. The black coupler is part of the turbidity sensor end-cap and should stay intact. See Coupling of the turbidity sensor.



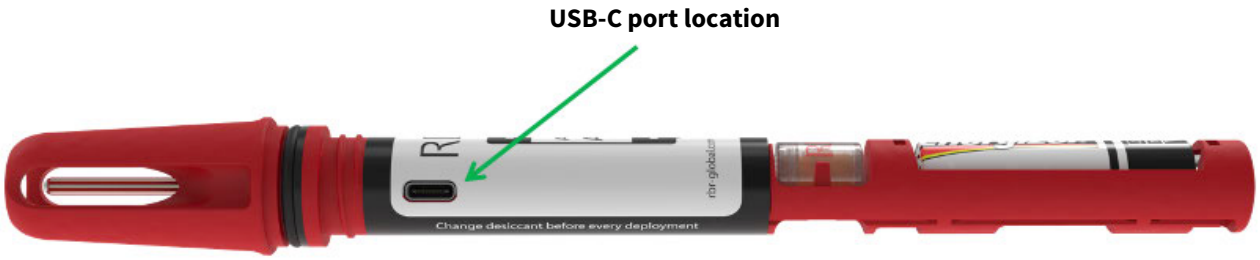
Opening RBR*solo*^{3} Tu

3.2 Instrument interface

Refer to Opening and closing a compact instrument for details on accessing connection ports.

USB-C port

RBR compact instruments provide an internal USB-C port.



The RBR support kit includes a USB-C data cable, which will connect the instrument to your computer.

Deployment

- Connect the instrument to your computer using the USB-C cable
- Find the instrument on Ruskin
- Review the settings and click "Enable"

Data download

- Connect the instrument to your computer using the USB-C cable
- Find the instrument on Ruskin
- Click "Download..." and select a location to save the measurements

3.3 Coupling the turbidity sensor

The turbidity sensor in the RBR*solo*^{3} Tu is connected to the instrument via a coupler. The instrument has a custom-made female connector, which fits the male connector of the sensor. The coupler has two flanges with opposing threads. New instruments are shipped with the coupler securely tightened, making this connection watertight up to the depths of 6km.

Typically, you will never need to disconnect the sensor from the instrument. However, before deploying the RBR*solo*^{3} Tu, it is important to verify that the coupler has not become loose. If that happens, you will see a small gap between the sensor and the coupler, or between the coupler and the base of the connector. Gently tighten the flanges to protect your instrument during deployment.

Coupler on the RBR*solo*^{3} Tu

In rare instances, it may becomes necessary to disconnect and reconnect the turbidity sensor. Follow the steps below.

RBR*solo*^{3} Tu, with the sensor disconnected

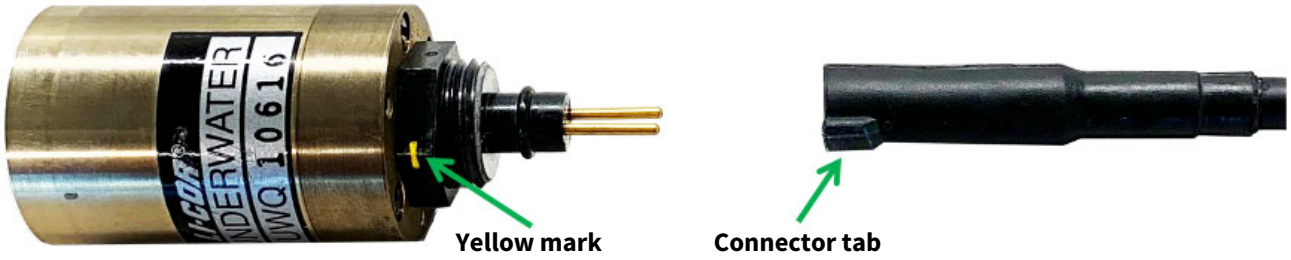
Step	Description
1	Disconnect the sensor 1. Take the instrument in your left hand and hold it horizontally, with the sensor oriented to the right. 2. With your left index finger and thumb, prevent the left flange from moving. 3. With your right hand, hold the sensor tightly. 4. With your right index finger and thumb, twist the right flange clockwise until loose. 5. The sensor will drop into your hand.
2	Access the female connector 1. Twist the left flange counterclockwise. 2. Remove the coupler.
3	Lubricate the female connector (see Cables and connectors)
4	Reconnect the sensor 1. Place the coupler back on the instrument. 2. Twist clockwise until tight. 3. Very carefully mate the sensor to the instrument (the pins on the sensor must be aligned with the corresponding holes). 4. Press the sensor into the instrument to make sure the pins are inserted. 5. Continue to hold the instrument with your left hand. 6. With your right hand, hold the sensor tightly. 7. With your right index finger and thumb, twist the right flange counterclockwise while slightly pushing the sensor in with your palm. 8. Verify the tightness of both flanges. ⚠ Occasionally, the left flange may begin to loosen while you are tightening the right one. It usually means that the pins did not mate properly. Carefully align the pins again and press harder. Wiggle the sensor gently to make sure the pins are inserted.

3.4 Connecting the cabled PAR sensor (LI-COR)

Proper connection between the PAR sensors (LI-COR) and their cable is crucial for deployment success.

Both LI-192 and LI-193 have a two-pin connector with a small yellow mark on the side.

Always align this yellow mark with the tab on the side of the cable connector when connecting the sensor to its cable.



After connecting the cable to the PAR sensor, confirm that the yellow mark and the connector tab are aligned, and then put the white locking sleeve in place. The sensor is ready for deployment.

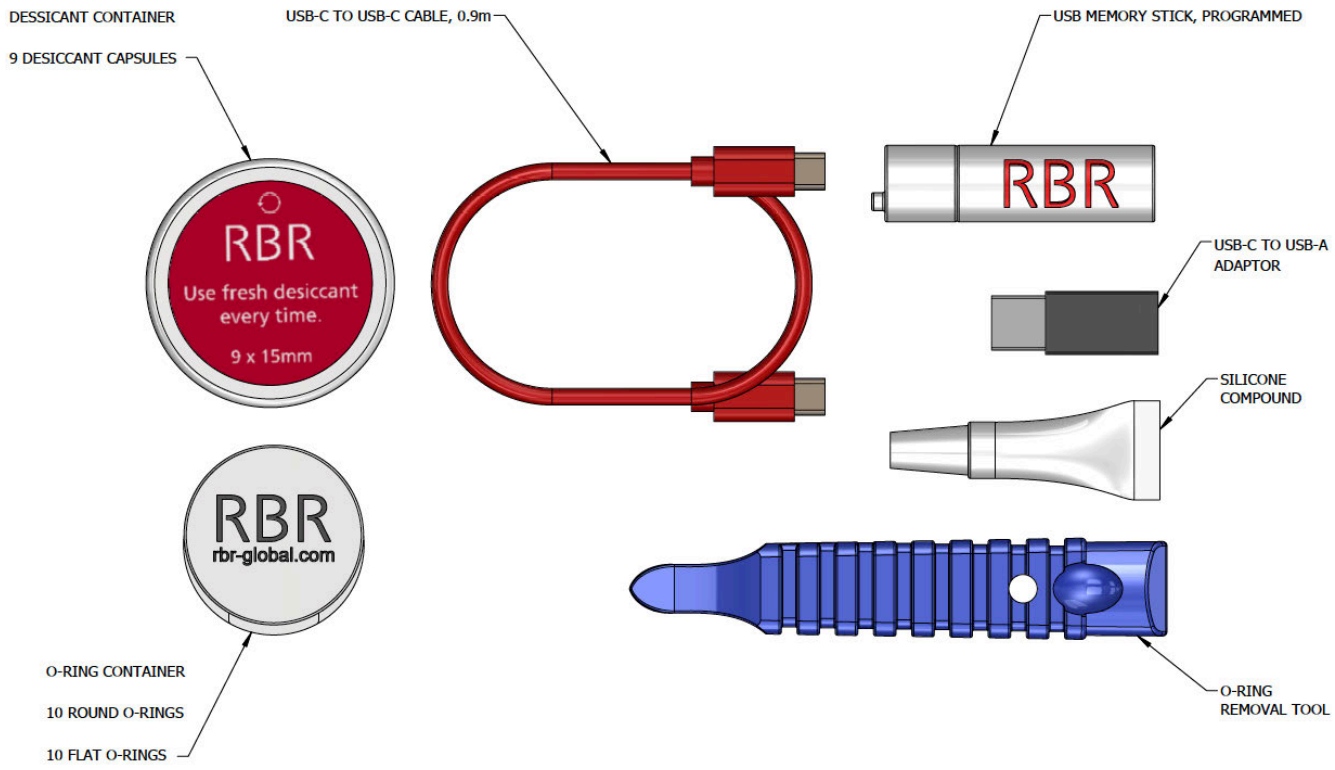
Ensure proper orientation of the yellow mark and the tab before each deployment. Inverted connection of your PAR sensor will result in incorrect or lost data.

4 Maintenance

4.1 Support kit for compact instruments

RBR provides one support kit per every three instruments ordered. If you need more units, contact RBR .

The RBR support kit for compact instruments contains an assortment of basic accessories and spare parts.



RBR support kit for compact instruments

The RBR support kit for compact instruments includes the USB-C desktop cable. This cable is used to download data from the instrument's internal port to a computer.

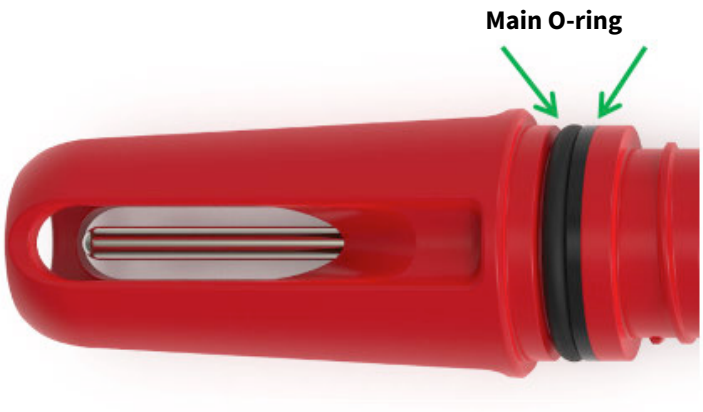
4.2 Replacing the O-rings

Refer to Opening and closing a compact instrument for details on accessing the O-rings.
The O-ring removal tool and silicone compound are available in the support kit.

Care for the O-rings is the single most important item of maintenance on any submersible RBR instrument. A water leak can damage the circuit board beyond repair and cause complete data loss. Every instrument's seal depends upon its O-rings, and proper O-ring maintenance is crucial.

The O-rings may lose elasticity over time, even when the instrument is not deployed. RBR strongly recommends replacing the O-rings regularly.

RBR compact instruments use two O-rings. One is the main O-ring, and the other is the backup. Both are required to protect the instrument from flooding.



Location of the O-rings

To access the O-rings, open the instrument.

Inspecting the O-rings and mating surfaces

Visually inspect the O-rings, paying attention to the following areas:

- The surface of the O-ring itself should be smooth and free of nicks or damage
- The mating surface on the inside of the case between the threads and the open end
- The groove in the end-cap where the O-ring sits

⚠ When handling the O-rings:

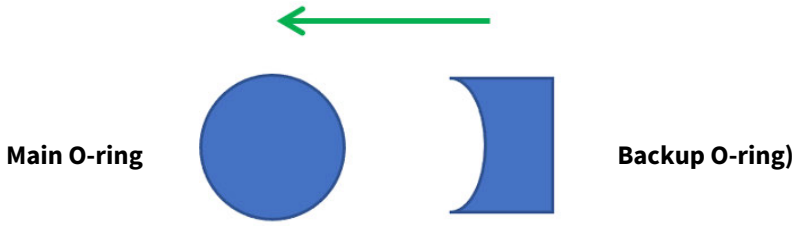
- Avoid using any object that could scratch the O-ring or any of its mating surfaces.
- If dirt is present in the O-ring groove, remove the O-ring as described below and thoroughly clean the groove.
- Do not return this old O-ring to the instrument! If you remove the O-ring from the instrument for any reason, always replace it with a new one.
- If the surfaces of the O-ring groove are scratched, pitted, or damaged, contact RBR for advice.

Replacing the O-rings

Correct placement and orientation of the two O-rings are critical to maintaining depth rating integrity.

The main O-ring has a round profile. It must be installed first.

The backup O-ring is flat on one side, and concave on the other. When installed, the concave side must face the main O-ring.



Orientation of the O-rings

1. Use the plastic O-ring tool (included with the support kit) to remove the O-rings from the groove. The O-ring may need to stretch quite a bit as it is pushed off; this requires some effort but can be done by hand.
2. Clean the groove thoroughly using a soft, lint-free cloth and compressed air if necessary.
3. Select the proper O-rings and inspect them for damage.
4. Lubricate with a very light film of silicone grease (included in the support kit).
5. Install the main O-ring by sliding it over the electronic housings and popping it into its groove.
6. Install the backup O-ring, ensuring that the concave side is facing toward the main O-ring.
7. Once in place, inspect the O-rings once more for scratches and debris, and wipe away any silicone compound deposited on the carriage.
8. Once the inspection is complete, close the instrument.

4.3 Replacing the battery

Refer to Opening and closing a compact instrument for details on accessing the battery.

RBR ships new instruments with lithium thionyl chloride batteries included, but the instrument is compatible with any AA-type batteries. Replace the batteries before each deployment to maximise the operational time, and prevent data loss.

Ruskin software allows users to estimate the remaining battery life during deployment (assuming fresh batteries) by tracking power consumption in mAh. See Ruskin User Guide: Compact Loggers[3] for more information on predicting battery life.

Replacing the battery

1. Open the instrument and pull out the sensor carriage.
2. Push the battery out of its holder using your finger or a blunt tool.
3. Insert a new AA-type battery into the holder.
4. Check for correct battery polarity.
5. Insert the sensor carriage into the housing and close the instrument .

Push the old battery out here

Insert a new battery, ensuring correct polarity

4.4 Replacing the desiccant capsule

Refer to Opening and closing a compact instrument for details on accessing the desiccant.

Replace the desiccant capsule before each deployment.

Fresh desiccant will keep the instrument compartment dry and prevent malfunction. Water damage may occur if condensation forms inside the instrument.

As a preventative measure, RBR recommends servicing the instrument in a cool, dry place (when possible).

Replacing the desiccant capsule

1. Open the instrument and pull out the sensor carriage.
2. Push the desiccant capsule out of its holder using your finger or a blunt tool.
3. Insert a new desiccant capsule into the holder.
4. Insert the sensor carriage into the housing and close the instrument.

Push the desiccant capsule out here

All instruments ship with fresh reusable desiccant capsules. They use a cobalt-free colour changing indicator dye. Orange indicates fresh desiccant, while green indicates it is saturated (about 17% water by weight). Once exhausted, the capsules can be replaced with new ones (available from RBR), or refreshed.

Refreshing the desiccant

To refresh the desiccant, saturated silica beads must be removed from their capsule and heated to 120°C for about two hours. Once cool, refreshed beads can be returned to the capsule and reused.

Always remove the beads from their capsule before refreshing! The plastic capsule will deform if heated to 120°C.

4.5 OxyGuard DO sensor care and maintenance

Storage

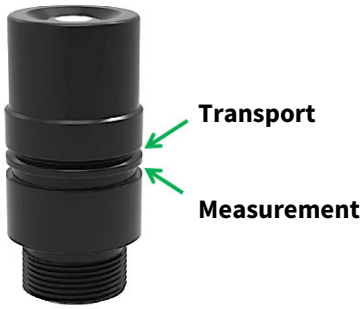
Store the OxyGuard dissolved oxygen sensor in the dedicated storage cap to minimize fluid loss. Storage caps are provided with the instrument. Contact RBR if a replacement is needed.

O-ring

The red O-ring of the OxyGuard sensor serves two purposes:

- To retain the electrolyte during storage
- To balance pressure during deployments

There are two positions for O-ring on the OxyGuard sensor, "Transport" and "Measurement".



During transportation or storage, move the red O-ring of the Oxyguard sensor to the "Transport" position, closing off the port on the side of the cell.

Before deployment, move the O-ring to the "Measurement" position to maintain the pressure balance.

After deployment, return the O-ring to the "Transport" position.

Support kit

RBR offers an OxyGuard sensor support kit that includes:

- Membrane tool
- Electrolyte solution (250ml)
- Fast response membranes
- Replacement O-rings
- Oxyguard Support Kit and Refurbishment Guide

Check the state of your DO sensor before deployment. Look for any damage to the membrane, cloudiness of the electrode, and buildup on the anode. If you find any damage, refurbish and re-calibrate the sensor.

Refer to Oxyguard Support Kit and Refurbishment Guide, included with the support kit, for instructions on refurbishing your sensor. See Ruskin User Guide for instructions on calibration.

4.6 Cables and connectors

The RBR*solo*^{3} PAR with a spherical sensor (LI-193) includes a customised cable, which connects the PAR sensor to the instrument. This cable has two connectors, which need to be lubricated any time when they are disconnected and reconnected. Similarly, the female connector in the RBR*solo*^{3} Tu needs to be lubricated whenever the turbidity sensor is disconnected and reconnected.

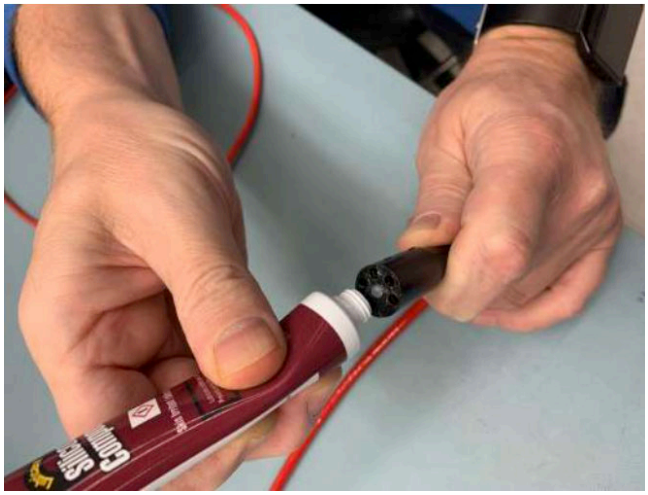
Cable bend radius

The smallest bend radius for RBR supplied cables is 15cm.

Lubricating the connectors

Lubrication improves watertight sealing, prevents corrosion, and reduces the force required to de-mate the connector. Use the silicone compound provided with your instrument.

- Apply the silicone compound to all female connectors before every mating
- Ensure each connector hole is filled with approximately 30% lubricant



Lubricating a connector

Reducing mechanical stress

- Do not pull on the cable
- Hold onto the connector to pull out the cable
- Disconnect by pulling straight out, not at an angle
- Avoid sharp bends at the point where the cable enters the connector
- Avoid angular loads on the connector

4.7 Cleaning the instrument

Clean the instrument after each extended deployment to remove deposits that may have accumulated.

Type	Procedure	Notes
General/biofouling	To clean the exterior, soak in a mild detergent, then scrub the instrument with a soft brush.	Avoid scratching the plastic (scratches make future cleaning more difficult).
Calcification	Soak in vinegar for six hours, then scrub the surface using a soft brush.	Soaking in vinegar for more than 24 hours may damage the O-ring and increase the chances of a leak.
Encrustation	Ultrasound bath	Do not use ultrasound on pressure transducers <50dbar.

Cleaning the pressure sensor

> Avoid touching the diaphragm when cleaning the sensor! Any deformation will permanently affect performance.

1. Unscrew the sensor guard using a coin or a large flat head screwdriver. Do not apply excessive force, especially when using the screwdriver.
2. Rinse the area under running water. If this fails to remove the deposits, contact RBR.

4.8 Calibrating the instrument

Factory calibration coefficients are calculated for each sensor, and the coefficients are stored on the instrument.

RBR calibration certificates contain calibration equations, coefficients, and residuals for each sensor. Hard copies are provided with each shipment. RBR can replace lost or misplaced calibration certificates upon request.

RBR recommends calibrating your instrument before any critical deployment, periodically once a year, or if you suspect the readings to be out of specifications.

Discuss your calibration requirements with RBR. In some cases, the instrument will need to be returned to RBR to have it checked and re-calibrated.

Please contact RBR for our current calibration fees.

5 Repairs

RBR supports all our products. Contact us immediately at support@rbr-global.com or via the RBR website if there are any issues with your instrument. Please have the model and the serial number of the unit ready. Our support team will work to resolve the issue remotely. In some cases, you may have to return your instrument to RBR for further servicing.

There are no user-repairable parts of the instrument. Any attempt to repair without prior authorisation from RBR will void the warranty. Refer to the RBR warranty statement.

To return a product to RBR for an upgrade, repair, or calibration, please contact our support team to obtain a return merchandise authorisation code (RMA) and review the detailed shipping information on the RBR website.

6 Revision history

Revision No.	Release date	Notes
A	30-November-2021	Original
B	28-February-2022	Updated storage capacity to 130 million readings. Added MCBH pinout to Specifications, description of the PAR sensor (LI-COR) connector to Hardware, care instructions for the DO sensor (OxyGuard) to Maintenance.

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