Rugged Buoy

Operator's Manual

2023-11-21 | 1014442

Technical Support

If you have questions or experience problems with your equipment, contact our skilled Technical Support team in your area by chat, email, or phone by going to www.in-situ.com/support.

Be sure to have the following information available:

- Product model
- Serial number
- Description of the problem, including how the product was used and the conditions noted at the time of the malfunction

Unpacking and Inspecting

Your equipment was carefully inspected before shipping. Check the equipment for any physical damage sustained during shipment. Notify In-Situ and file a claim with the carrier if there is any such damage. Do not attempt to deploy or operate the equipment.

Save packing materials for future storage and shipping of your equipment.

Document Conventions

Throughout this document, you will see the following symbols:

A checkmark highlights a tip or feature.

The exclamation point calls your attention to a requirement, safety issue, or important action that should not be overlooked.

Contents

Safety

Read the safety information on this page before deploying or configuring the Rugged Buoy. If you have questions, contact In-Situ Technical Support for assistance.

- When deploying or retrieving the Rugged Buoy, always follow safe and legal marine practices in your area.
- The Rugged Buoy system requires corollary equipment. Be sure to maintain an organized and uncluttered boat environment throughout the process.
- Be sure to follow local regulations when choosing the Rugged Buoy deployment site and when installing the marine light (if applicable).
- Always properly anchor the buoy in the deployment location.
- Do not submerge the Twist-Lock connector ends of the cable or instrument when they are not connected.
- Always use only the provided aluminum bolts. Never use steel bolts because they can lead to galvanic corrosion.
- When closing the lid or adjusting the instrument well, take care to clear your fingers from the area to avoid injury. The well cap must be securely closed with a lock or wire.
- Use the lift strap and proper lifting technique when lifting and moving the Rugged Buoy.
- The well is made of anodized aluminum. Use only aluminum-safe antifouling paint if needed for deployment. Paints containing copper or other metals may lead to galvanic corrosion.

Intended Use

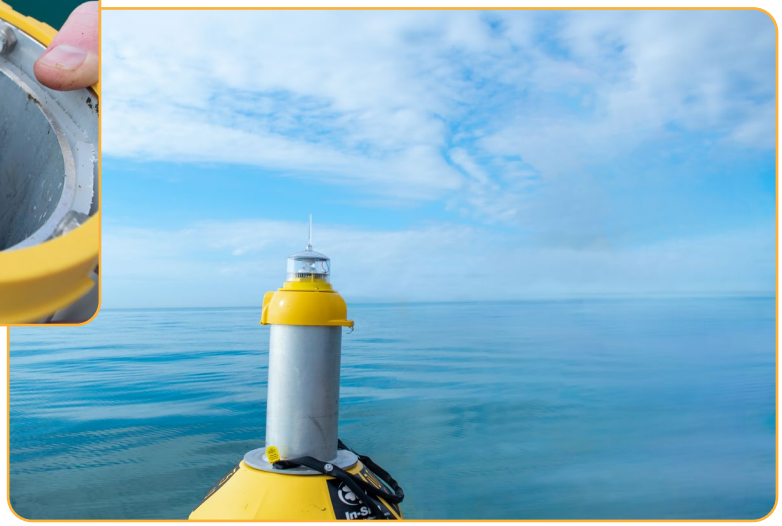
The Rugged Buoy is designed to be safe in these conditions:

- Indoor and outdoor use at a minimum depth of 0.30 m (11.80 in)
- In freshwater or saltwater environments
- In non-freezing water at temperatures above -5° C (23° F). Freezing can damage instruments and equipment.

About the Rugged Buoy

The Rugged Buoy is a monitoring buoy for coastal applications and surface water. At less than 35 pounds, the buoy has an adjustable well that compresses to 0.30 m (11.80 in) and is easily transportable by a single person using the shoulder strap. For deployment, the Rugged Buoy's well extends up to 3.0 m (9.84 ft). Setup is intuitive, and the faceted float ensures stability during transport and deployment.

The Rugged Buoy works seamlessly with any In-Situ or third-party instrument of your choice. Use VuLink telemetry to transmit data from an In-Situ instrument for remote monitoring through HydroVu, or deploy logging instruments with a backshell hanger and download data at each field visit.



System Components

Well Cap

Protects the instrument in the well while acting as a mount for the VuLink telemetry device.

Lift Strap

Ensures user safety when lowering or removing the buoy from water. Designed to float alongside buoy during deployment.

Durable Plastic Float

Damage-resistant, faceted float that's filled with closed cell foam. Ensures stability in deployment and transport.

Adjustable Instrument Well

Houses the instrument during deployment. Plastic lanyards secure well lock bolts during adjustment.

Instrument Ledge

Separates mooring hardware from the well and protects instruments inside it.

Mooring Hardware

Connects the buoy to anchor or mooring line.

Rugged Buoy Quickstart Guide

Box Contents

- Preassembled Rugged Buoy (with Lift Strap, Mooring Hardware, Well Lock Bolts, Well, Float, & Well Cap)
- 2 zip ties

Tools, Supplies, & Accessories (Not Included)

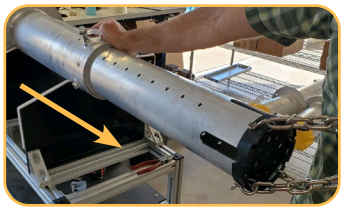
- 3/4" wrench
- Pliers
- Anchor
- Mooring line
- Sealite SL-15 marine light, small flathead screwdriver, Phillips head screwdriver (optional)
- VuSitu mobile app
- In-Situ instrument
- Twist-Lock cable & VuLink (optional) or backshell hanger

Getting Started

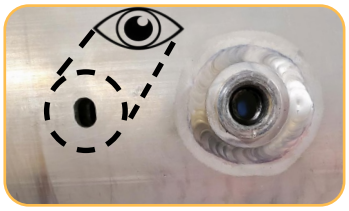
Use lift strap and handle when lifting the buoy.

1 Adjust depth.

Use wrench to remove adjustment bolts. Plastic lanyards will hold bolts on well while you do so.



Slide instrument well to desired depth.



Use sight holes to align bolt holes.

Install bolts to secure the well's depth.

Take care not to lose the adjustment bolts. Replacement bolts must be ordered from In-Situ. Never use steel bolts as they can lead to galvanic corrosion.

Set up your optional VuLink, HydroVu account, and In-Situ instrument on land before deploying the buoy. If you need assistance, go to www.in-situ.com.

2 Set up and secure instruments in the well.

Keep the ends of the cable and instrument connectors clean and dry.

Connect cable to instrument and VuLink. Place instrument in bottom of well.

Hang VuLink or backshell hanger from hook on cap. Stick VuLink antenna inside top of cap.

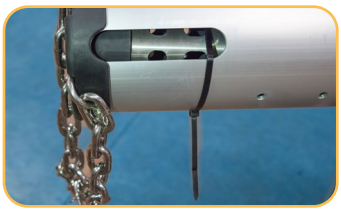
Program instrument and VuLink with VuSitu. Confirm signal and cloud connection.

Insert zip tie through upper well hole. Thread zip tie around VuLink inside the well.

Push zip tie out the other well hole. Fasten zip tie tightly to secure VuLink inside the well.

Close well cap. Secure it with wire tie or lock.

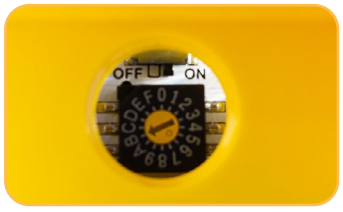
To secure instrument in lower well, insert zip tie upwards through side slot. (Optional)



Thread zip tie around instrument and through adjacent slot. Close zip tie securely. (Optional)

Do not thread zip tie through restrictor holes. This could damage the instrument.

3 Install marine light (optional).



Follow manufacturer's instructions to program light. Observe local light flash regulations.

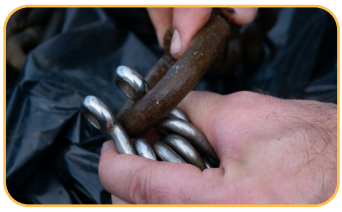
Remove the four Phillips screws from the top of the cap.

Screw light to top of cap.

Install bird spike according to manufacturer's instructions.

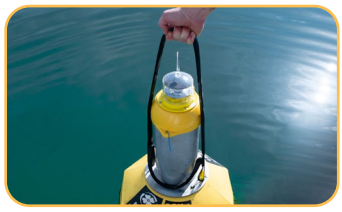
4 Anchor and deploy.

Remove cotter pin and unscrew bolt from anchor shackle.



Secure to mooring point and reinstall bolt.

Install cotter pin to secure bolt in place.



Lower buoy into water. Allow lift strap to float alongside buoy.

The well is made of anodized aluminum. Use only aluminum-safe antifouling paint if needed for deployment. Other paints may lead to galvanic corrosion.

View your uploaded telemetry data at www.hydrovu.com, In-Situ's browser-based, data-management application. Use it to manage data, view graphs, and configure telemetry devices for remote monitoring.

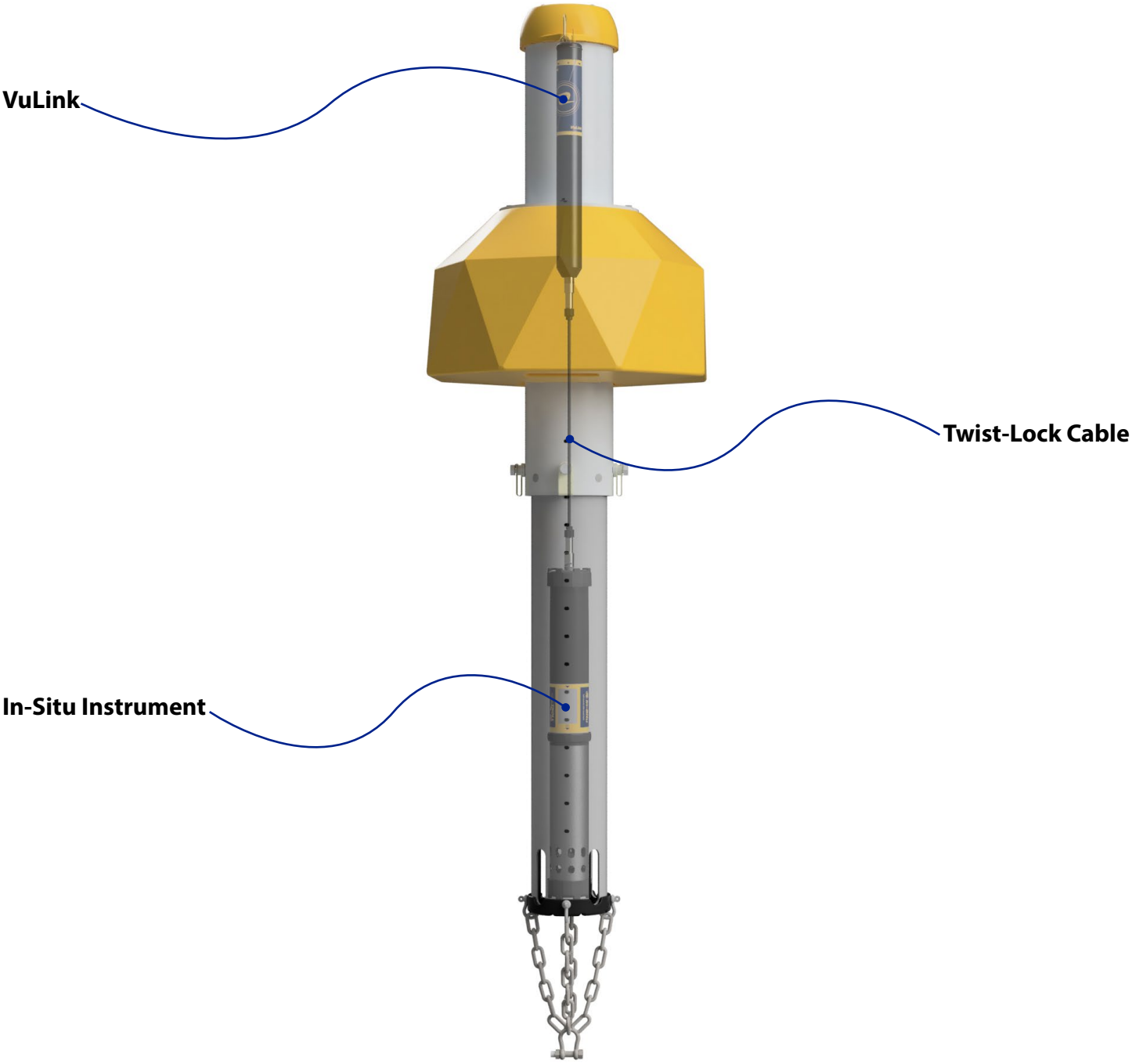
Learn More

View additional specifications, compliance information, and detailed instructions at www.in-situ.com.

Common Deployment Types

Protected Deployment

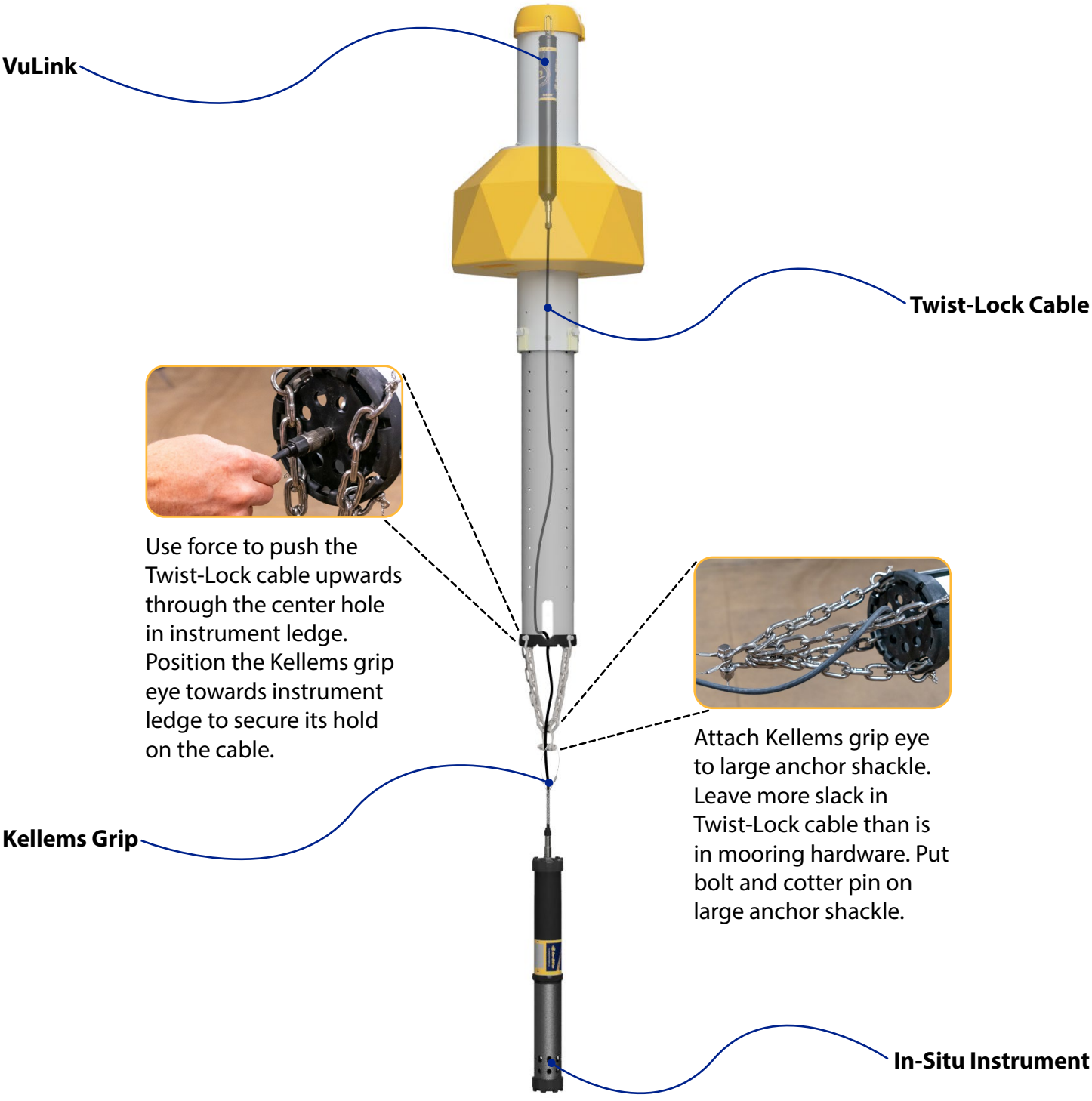
In this near-surface water, standard deployment, all instruments are protected inside the Rugged Buoy's well. The VuLink telemetry device, the Twist-Lock cable, and the In-Situ instrument hang within the well and above the instrument ledge.



Protected deployment protects all instruments in the buoy's well.

Suspended Deployment

In this deep-water, alternative deployment, the VuLink telemetry device is protected inside the Rugged Buoy's well while the Twist-Lock cable extends from the VuLink and through a hole in the instrument ledge. Outside the instrument ledge, the eye of the Kellems grip is attached to the large anchor shackle, and the cable loosely hangs alongside the mooring chains. The In-Situ instrument is suspended in open water at the end of the cable. To deploy multiple instruments, use cable splitters within or outside the buoy's well.



In suspended deployment, the instrument is suspended in open water.

The Twist-Lock cable must have more slack between the VuLink and Kellems grip than the mooring hardware has. Too little slack may result in damage to the cable, VuLink, or instrument.

Technical Specifications

Operating temperature (Non-freezing)	-5° to 60° C (23° to 140° F)
Storage temperature	< 60° C (140° F)
Dimensions	Float outer diameter: 53.3 cm (21.0 in) Inner diameter of well: 13.0 cm (5.1 in) Total height, collapsed (without beacon): 100.6 cm (39.6 in) Total height, fully extended (without beacon): 166.6 cm (65.6 in) Height above water line: 61.0 cm (24.0 in) Depth below water line: 39.6 cm to 105.7 cm (15.6 in to 41.6 in) Large shackle jaw opening: 1.6 cm (.63 in)
Weight	15.4 kg (34.0 lbs)
Materials	Anodized Aluminum, Polyethylene, Polyurethane Foam, Nylon, 316 Stainless Steel, Polycarbonate Film, Tubular Nylon Webbing
Net buoyancy	32.2 kg (71.0 lbs)

Monitoring Equipment

VuLink

Power instruments in remote monitoring applications.

Connect to the VuSitu mobile app to calibrate, configure, and deploy instruments.

Send data to HydroVu or an external FTP Server.

Rugged Twist-Lock Cable

Connect the Rugged Buoy to a Wireless TROLL Com, USB TROLL Com, or VuLink.

Available as vented or non-vented.

VuSitu Mobile App

Calibrate, configure, and deploy your instrument from a bluetooth-enabled iOS or Android device.

Wireless TROLL Com

Provide power to instruments during setup when not using VuLink.

Connect to the VuSitu mobile app to calibrate, configure, and deploy instruments.

Rugged Cable Splitter

Chain up to 8 instruments together to measure multiple water quality parameters with only one connector needed at the top.

Available as vented or non-vented.

Sealite SL-15 Solar Marine Light

Use with the Sealite SL-15 Solar Marine Light for additional functionality.

Recommended Instruments

Use the Rugged Buoy with any In-Situ instrument. Contact your In-Situ sales representative to determine which instrument best suits your applications.

Aqua TROLL 800

Logging and internal power with up to 6 interchangeable sensors.

Aqua TROLL 700

Power and logging supplied externally with up to 6 interchangeable sensors.

Aqua TROLL 600

Logging and internal power with up to 4 interchangeable sensors.

Aqua TROLL 500

Power and logging supplied externally with up to 4 interchangeable sensors.

Aqua TROLL 400

Power and logging supplied externally with conductivity, RDO, temperature, and pH/ORP sensors.

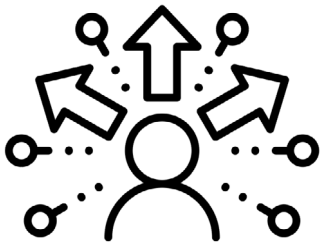
Aqua TROLL 100

Logging and internal power with conductivity and temperature sensors.

RDO Instrument

Uses optical technology to provide reliable, accurate measurement of dissolved oxygen.

Third-Party Device



The Rugged Buoy is compatible with the third-party device of your choice.

Spare Parts

User-Serviceable Parts

Lift Strap
1012730

Well Lock Bolts
1014410

Well Cap
1012750

Mooring Hardware
1012740

Use only the hardware provided when replacing parts. Never use steel bolts because they can cause galvanic corrosion.

Replacing Lift Strap

1 Replace lift strap.

Remove the 2 bolts from the base of the well.

Lift the old strap and bolts away from the base of the buoy.

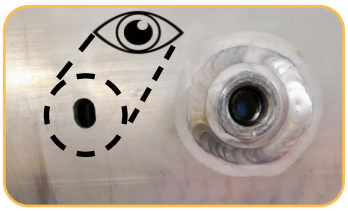
Hold the new strap in place and install bolts.

Test that the strap is secure.

Replacing Well Lock Bolts

1 Replace well lock bolts.

Remove the 4 bolts and lanyards from the adjustment well.



Use sight holes to align bolt holes.

Hold the lanyard in place and install the new bolts.

Tighten new bolts in place.

Replacing Well Cap

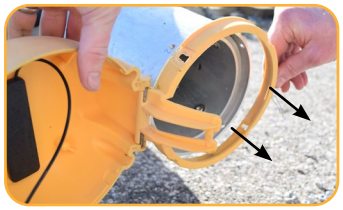
If a VuLink antenna is attached to your well cap, you may need to buy a replacement antenna.

1 Remove instruments and cap.

Remove instruments from the well.

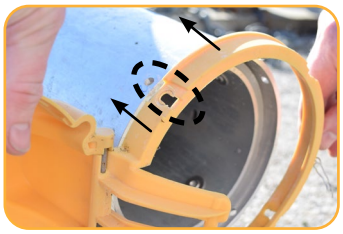
Unscrew marine light from cap (if installed).

Remove the 4 bolts from the sides of the cap.



Remove cap from instrument well.

2 Install new cap.



Slide on new cap. Align bolt holes with well holes.

Secure the 4 bolts around the sides of the cap.

Reinstall marine light (if using).

Hang VuLink or backshell inside cap.

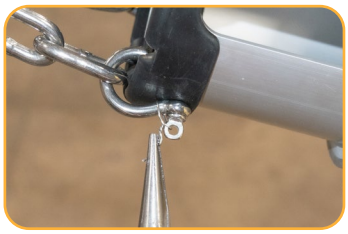
Replacing Mooring Hardware

1 Replace mooring hardware.

Remove cotter pin from anchor shackle. Unscrew bolt. Remove anchor or mooring point.

Cut wires on the 4 small shackles. Remove bolts. Release old hardware from well.

Align new mooring hardware with bolt holes. Bolt new hardware into place.



Use seizing wire to secure small shackle bolts. Attach anchor or mooring point. Put cotter pin in anchor shackle.

Only use the hardware provided. Never use steel bolts because they can cause galvanic corrosion.