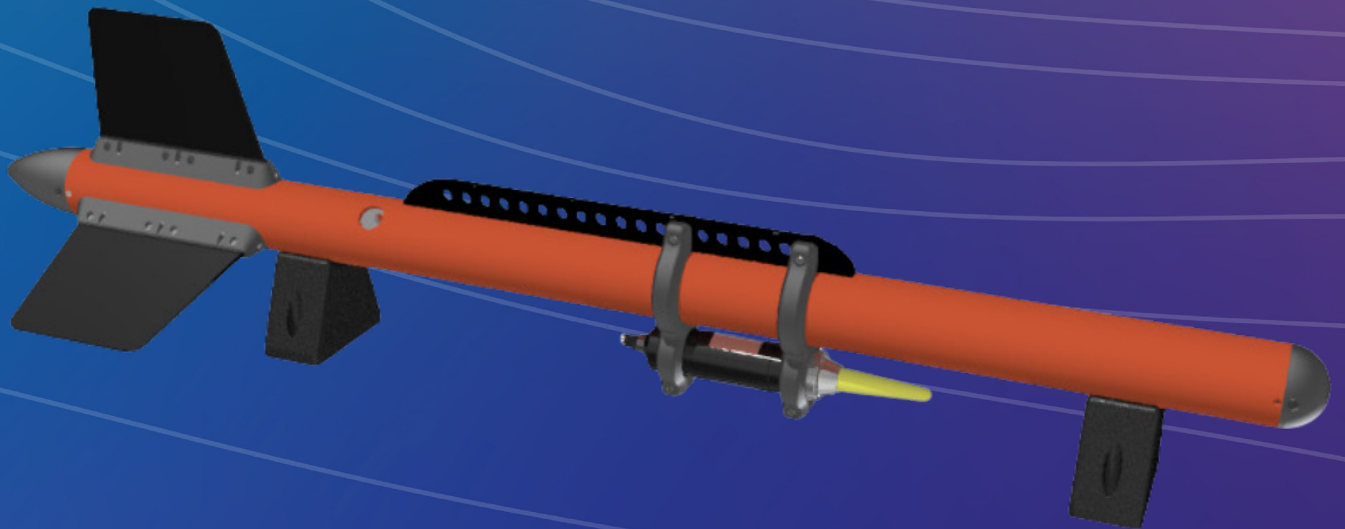


110 Parkway Drive, Truro Heights
Nova Scotia, Canada, B6L 1NB
support@oceansonics.com
www.OceanSonics.com

Towfish User Guide

Version 1



OCEAN SONICS

Giving Our Oceans A Voice

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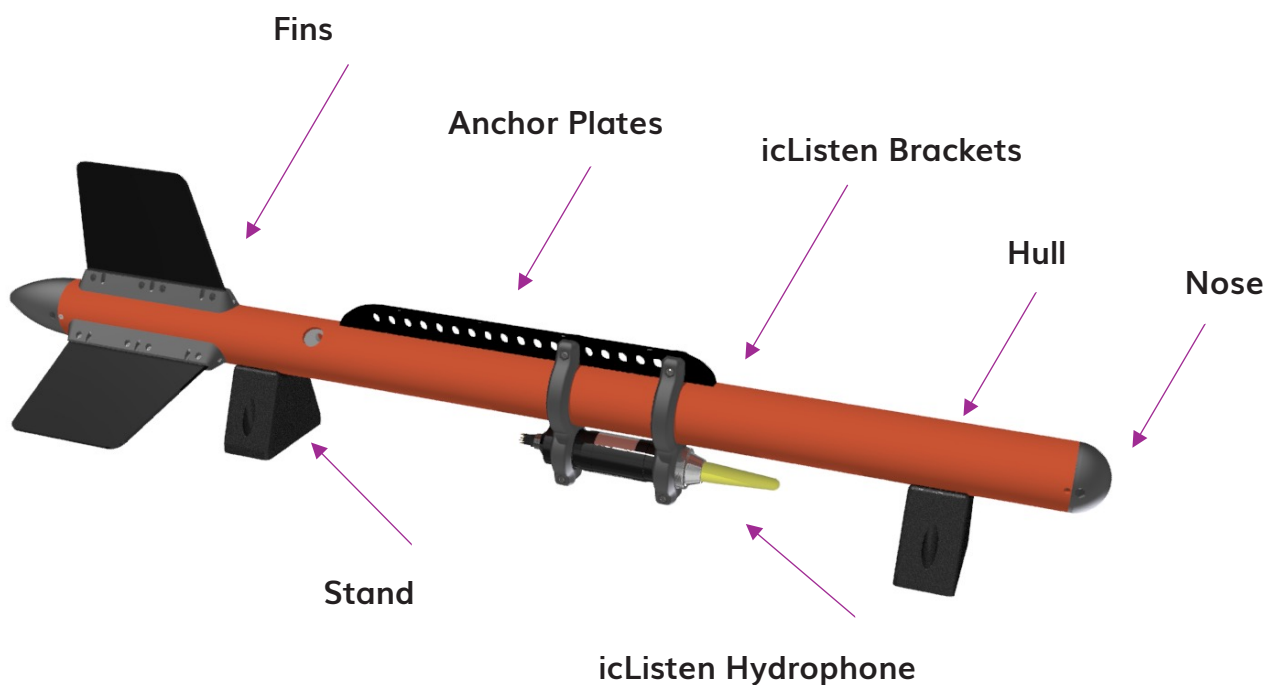
Introductions

The TF1 is a small Towfish system that will allow you to deploy your icListen hydrophone far enough behind a moving vessel that the data will not be saturated with vessel noise. The TF100 is single-person portable and can be towed directly with Ocean Sonics extension cables with the addition of cable grips.

Important Notes:

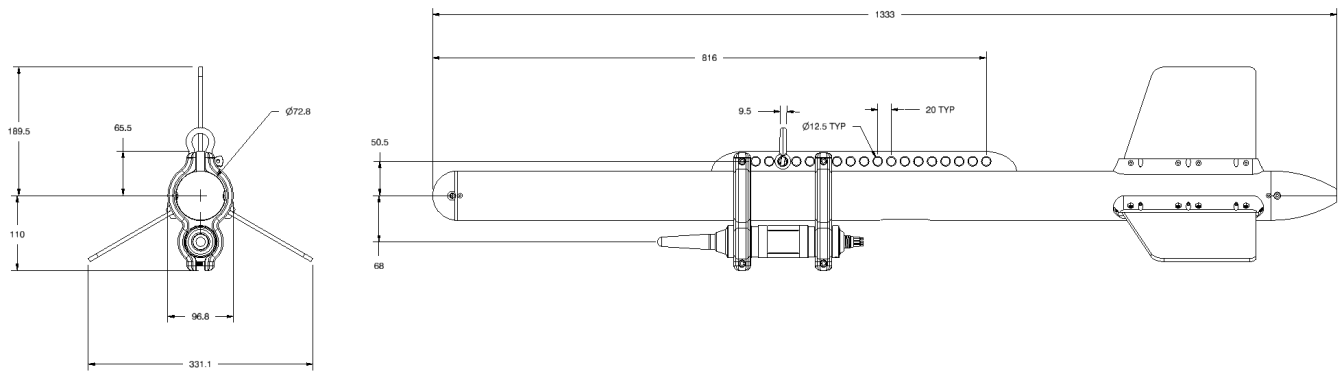
1. This device should only be deployed by experienced personnel
2. When deploying, let the cable out gradually

Terminology

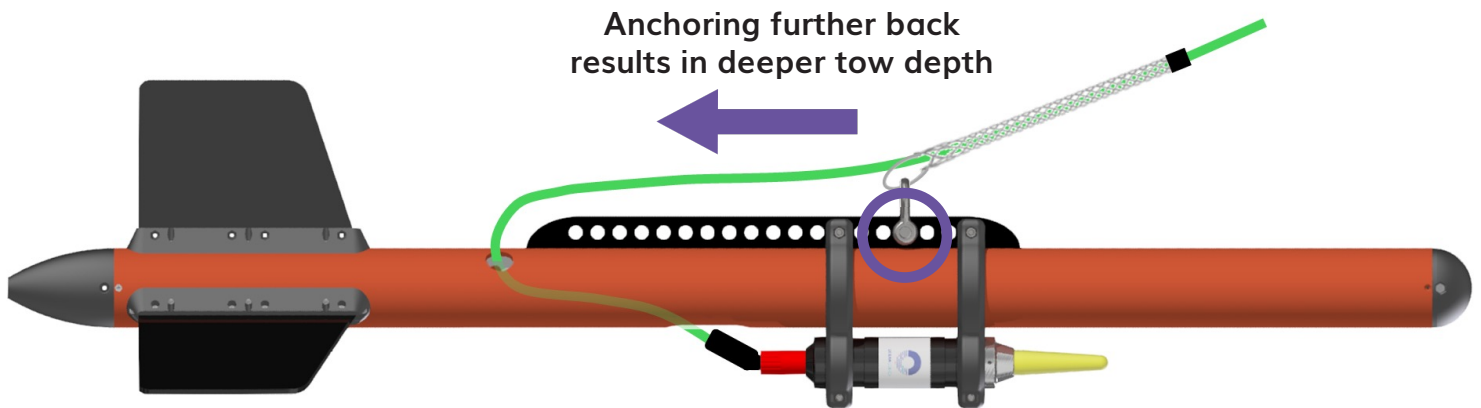


Specifications

Spec	Value	Notes
Maximum Towing Speed	6 knots	
Weight in Air	9.6 kg	Towfish with icListen
Cable tow length	Tested with 50m, 115m	



Running Depth



The towfish tow depth may be varied based on which hole the cable is attached to. The actual tow depth of the towfish depends on a multitude of factors including:

- Attachment Point
- Hydrophone Position
- Cable length, diameter, and accessories
- Tow speed

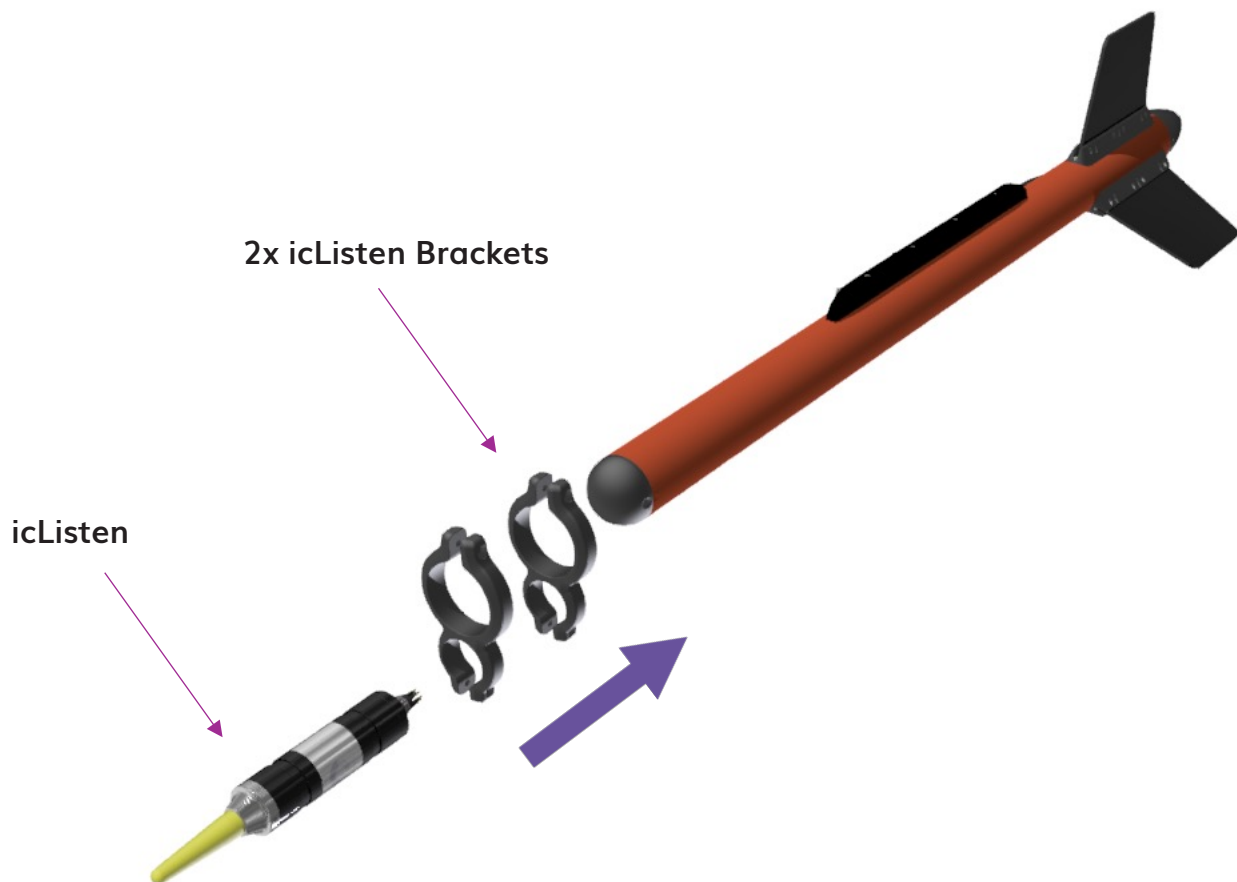
It is recommended that these parameters be varied at the user's convenience to achieve the desired tow depth.

The below image shows the relation of tow speed and mounting position on the towfish tow depth using a 50m cable and 115m cable. Using a 115m cable with ~110m over the side, depths ranged from 9m down to 18m with speeds varying from 2 knots to 6.5 knots.

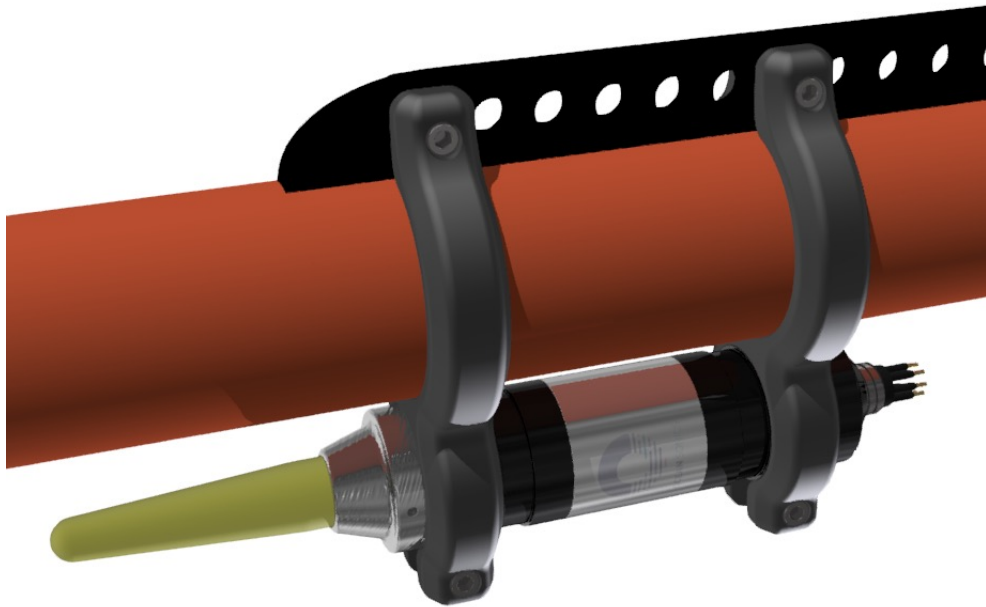


Installing the icListen

- Slide the two provided icListen brackets over the body of the towfish
- Insert the icListen in the brackets

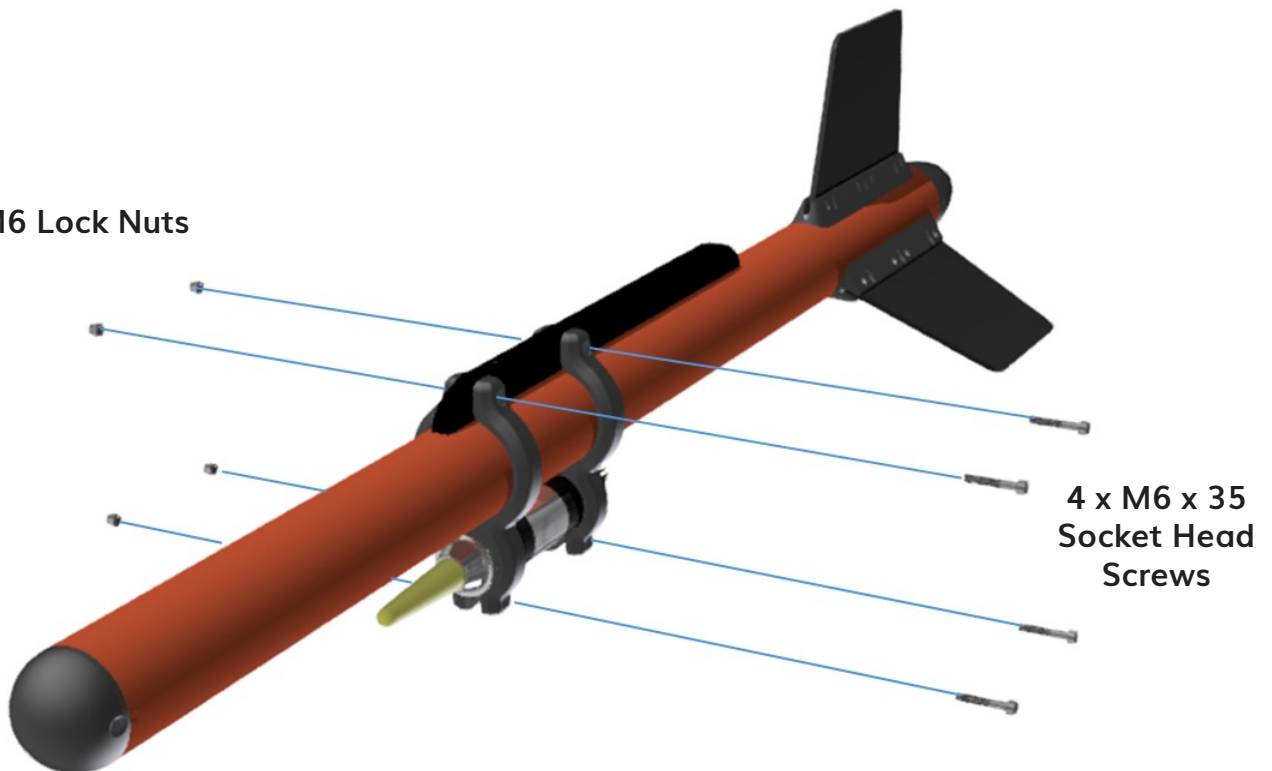


- The brackets fit around the anchor plate
- The icListen and brackets can be moved up and down the body depending on the towing parameters, however we recommend the positioning below as a starting point.



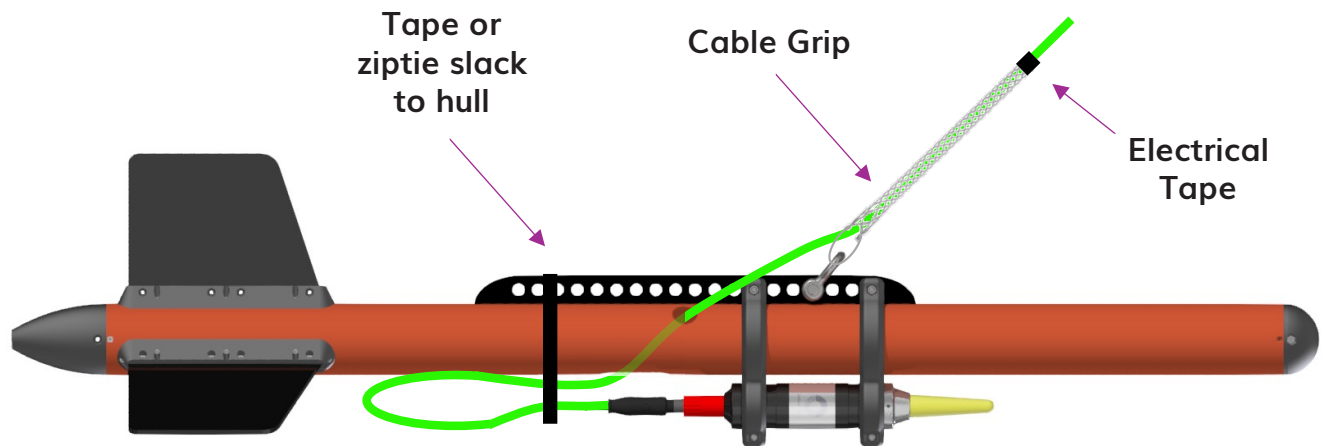
- With the hydrophone positioned in the desired place, insert the provided M6 screws and lock nuts and tighten until snug with a 5mm hex key.

4 x M6 Lock Nuts



Cable Configuration

- The towfish can be pulled using the included extension cable when used in conjunction with cable grips
- The cable grip should be positioned so that it takes all the tension during the tow. Push the ends of the cable grip together to expand it and allow it to move along the cable. When it is in the desired position, wrap the end of the cable grip in electrical tape to maintain its position while it constricts.
- The cable grip should then be anchored in the desired position in the anchor plate with the included shackle.

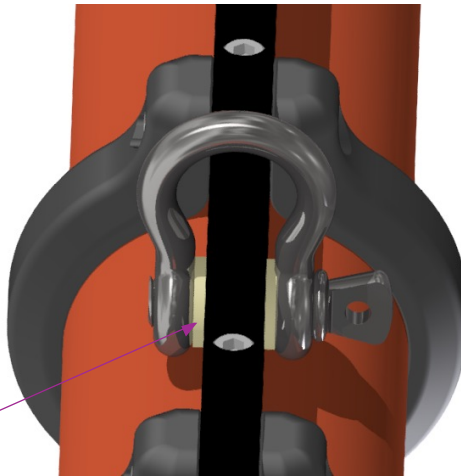


Important Notes

1. It is important that the cable termination is not bent too aggressively. The icListen position shown above has been verified in testing which showed the bending to be acceptable. If a different position is used for the icListen, ensure the cable is routed in a way that protects cable termination!
2. Verify that there is slack below the cable grip when the cable has tension on it. The cable grip should support all the tension. The slack in the cable below the cable grip can be an-chored to the hull using cable ties tape.

See Note 1

Use included plastic washers to prevent rattling



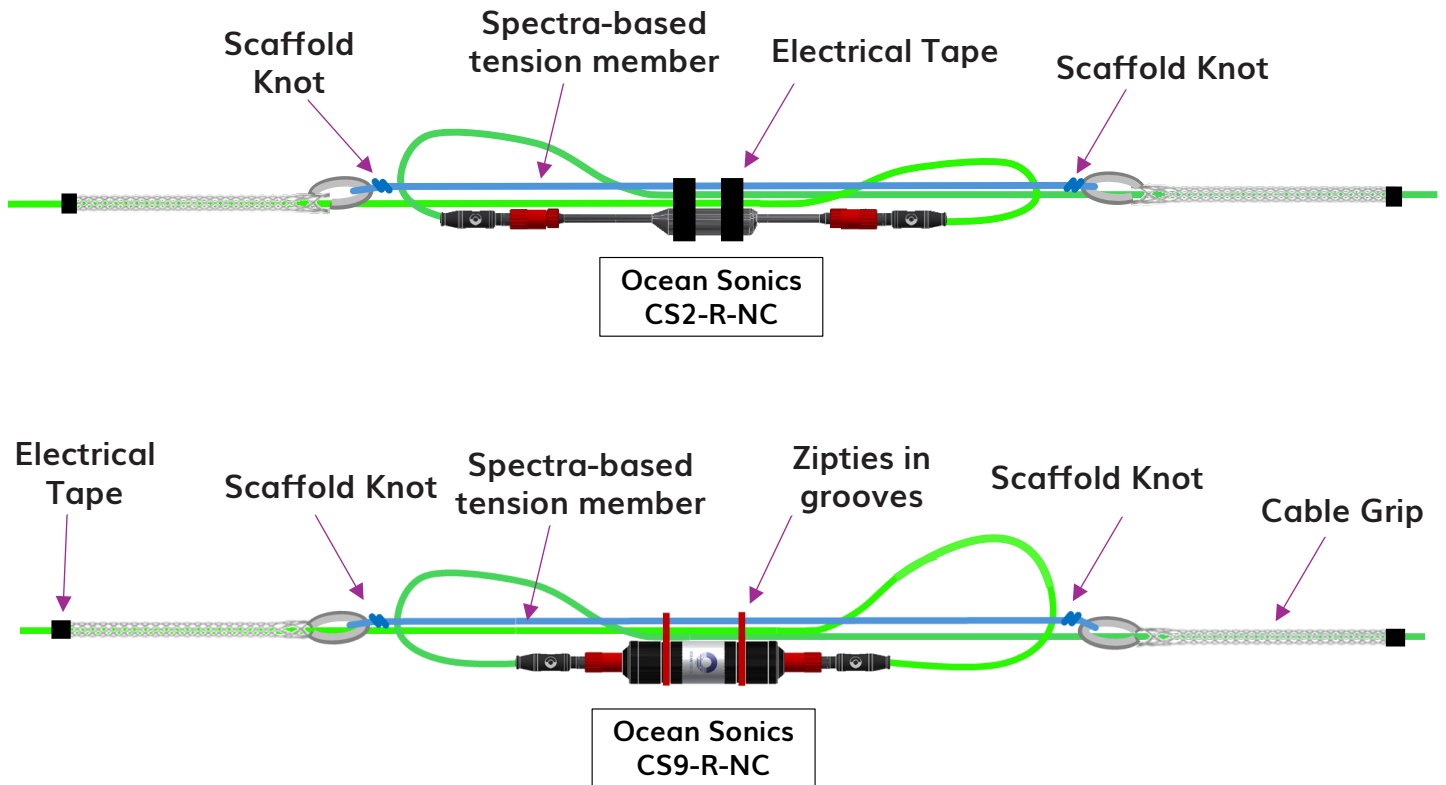
- If the icListen is mounted further back, the cable can be routed outside the hull, however the cable should be routed along the hull and anchored to prevent strumming while towing.

Using a Towfish with Repeater

If a repeater is used to extend the cable length, cable grips must be used to transmit the load around the repeater itself. This can be accomplished using a short length of rope. This is necessary because the connectors and the repeater body are not intended or designed to take the cable tension. When using the cable grips it is important to tape down the tail of the grips as shown in the below image. This provides a small amount of tail tension which will inhibit any slippage.

Preferred Mounting Configuration

- This configuration is less streamlined but has more redundancy



Low Profile Mounting Configuration

- This configuration is more streamlined but extra attention must be paid to ensuring all the tension is taken by the tension member.
- Ensure that when the line is held tight that the repeater and untensioned cable sags about 15-20cm from the tension member
- The repeater and connector section may then be taped to the rope at intervals, allowing the extra length to be distributed between the taped locations.

