Ashored Innovations

Rope-On-Command (ROC) User Manual

Product Manual:
MOBI R4.0 – Deck Box HUB-R4

Prepared:
005.2023

First Revision:
011.2023

1 Table of Contents

2 Glossary of Terms

ROC – Rope-On-Command. This refers to all major components of the system together.
MOBI – Modular Ocean-Based Instrument. This is the unit that is being communicated with, which is attached inside the cage.
Deck Box – On-board command hub for using rope-on-command system. This connects via Bluetooth to the provided tablet. The transducer plugs into the side, allowing for acoustic transmissions.
Release Key – Made of powder coated steel, which is used to hold the lid in place until released.
Key Float - Flotation tied to the key to decrease mechanical interference when releasing.
Mesh – Used to communicate with the MOBI's from the Deck Box, allowing active communication for all connected devices.
Provision – Provisioning is a method of giving unique passwords to each device. This assigns the MOBI's to the specific Deck Box being used.
ATLAS+ Application – Software used for communication with and use of the ROC system (*see ATLAS+ User Manual for more information*).

3 List of Figures

4 Safety Instructions

- Do not activate the transducer in the water if there are people present (within 200 meters).
- Check the cage and netting for damage before and after each use.
- Do not deploy the system if MOBI, cage or netting is damaged.
- Never open or remove the Deck Box internal panel.
- Always use an AC 110V power source to charge both the MOBI and the Deck Box.
- Use caution when using electrical devices in the presence of water.
    - Charge the Deck Box and MOBI units in a safe and dry environment.
    - Never allow the outlet to get wet.
- Do not charge the unit if its temperature is below 0°C (32°F).
- When deploying the unit into water, be cognizant of the surrounding environment to ensure that there is no risk to people, animals, or other equipment
- Do not hold the receiving hydrophone on the MOBI's, nor the over-the-side transducer by its black casing.
- Inspect the transducer cable for breaks.
- When placing the Key on the MOBI, ensure your fingers are not between the plate magnets and the key.

5 Checklist of Inventory

For a complete ROC system, you will require the following components:

- A MOBI,
- A rope containment cage,
- A Release Key and Key Float,
- A Deck Box,
- A Transducing Hydrophone,
- A tablet with ATLAS+ Software.
- An AC/DC wall adapter/charger.
- A MOBI charger.
- Two (2) 11in hard buoys*†,
- Vertical line*.

**These components are not included but are required for use of the ROC system.*

†*Rated for at least 600m depth.*

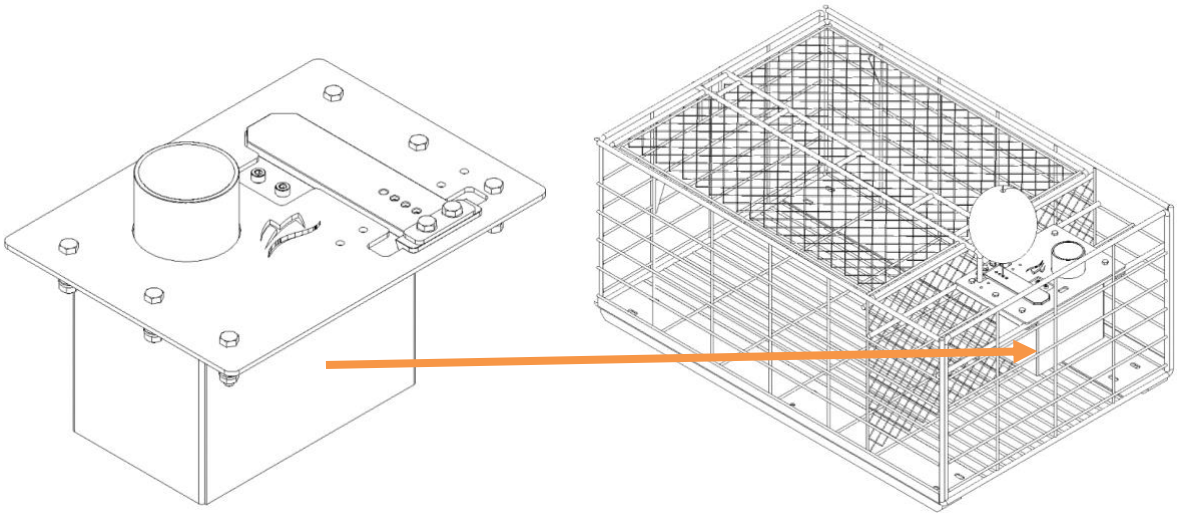


Figure 1. A Modular Ocean-Based Instrument (MOBI) and how it is configured inside the rope containment cage.

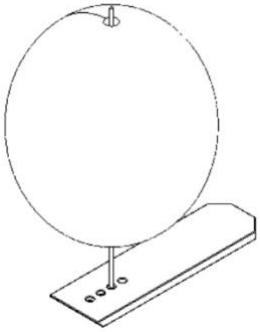


Figure 2. Release Key and Key Float.

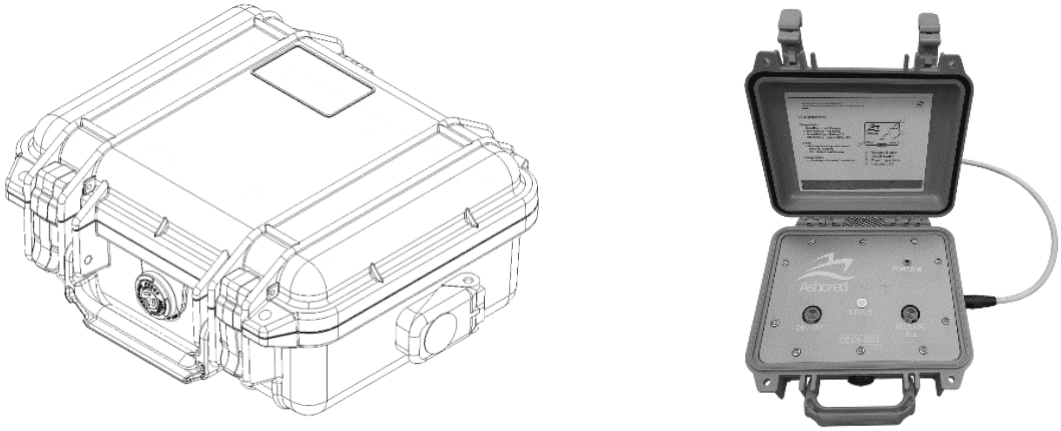


Figure 3. On-board command hub, referred to as the Deck Box.

Figure 4. Transducer.

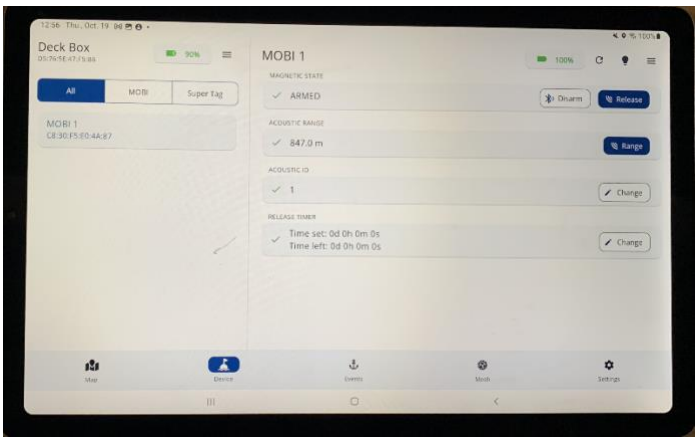


Figure 5. Tablet with ATLAS+ Software.

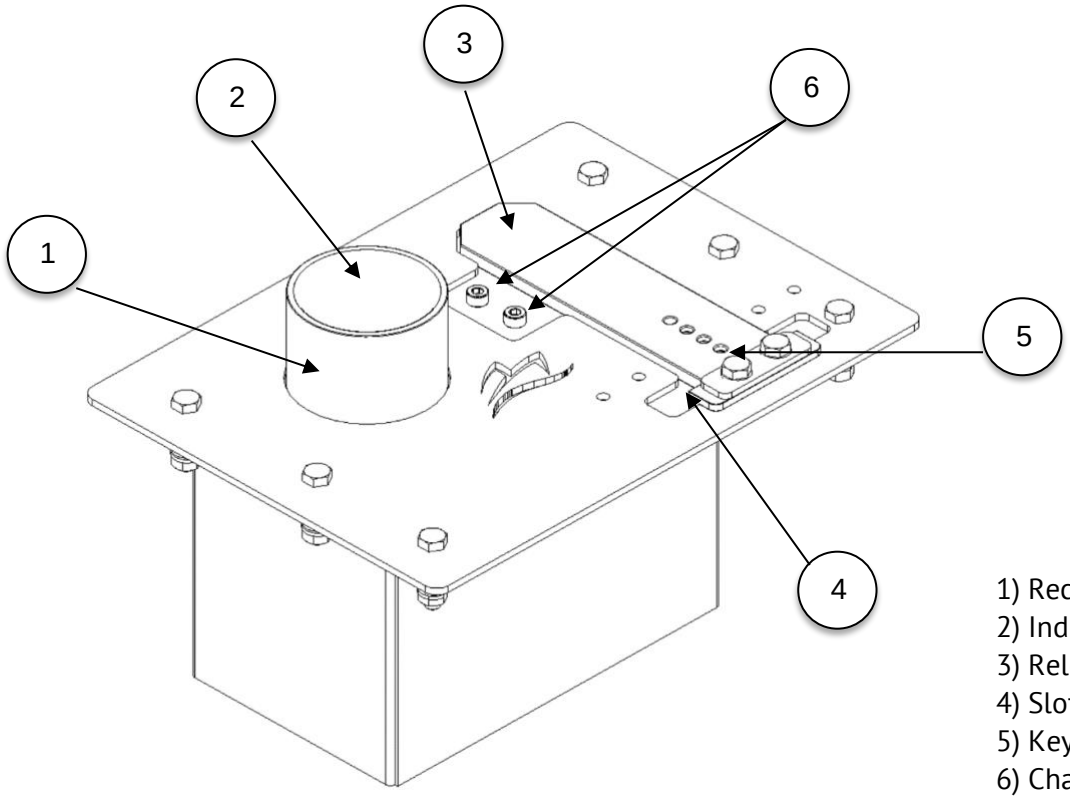
Figure 6. AC/DC wall adapter/charger and MOBI Charger.

6 Hardware Overview

This section outlines the components and functions of the ROC system. In summary, the MOBI, Rope Containment Unit, Deck Box, and ATLAS+ Software and Tablet all work together to transmit and receive signals to release rope when it is necessary.

6.1 MOBI

The **MOBI** (*Figure 7*) is the main component to the ROC system. It is responsible for communicating with the **Deck Box** and **ATLAS+ Software** via acoustic signaling or Bluetooth functions. It is housed in the **Rope Containment Unit** (*Figure 8, Item 1*) that is attached to fishing gear by a groundline.



1) Receiving Hydrophone
2) Indicator LED
3) Release Key
4) Slot for Lid Buckle
5) Key Float Tie Down
6) Charge Lugs

Figure 7. The MOBI and its components.

6.2 Rope Containment Unit

The **Rope Containment Unit** (*Figure 8*) is a stainless-steel cage that is used to hold the **MOBI** and keep the rope contained from deployment to retrieval of your fishing gear. The **lid** is held in place by the **buckle** and a **Release Key** (*Figure 7*).

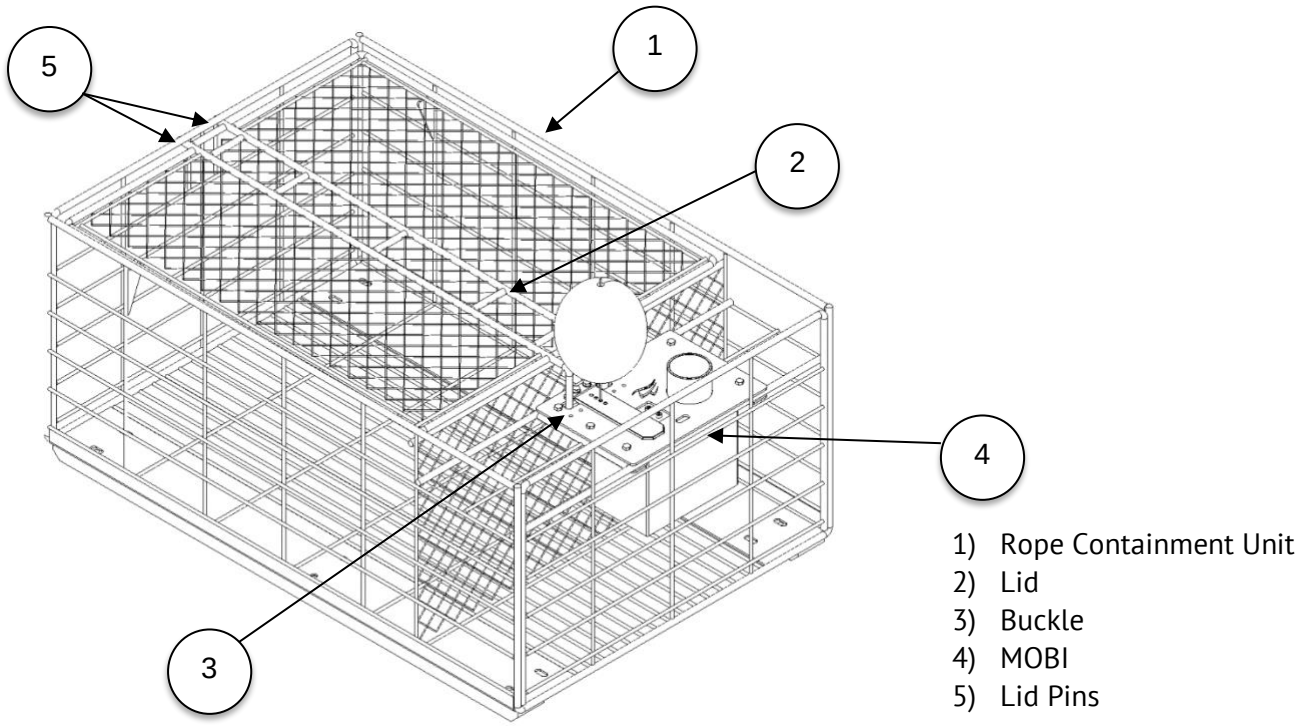
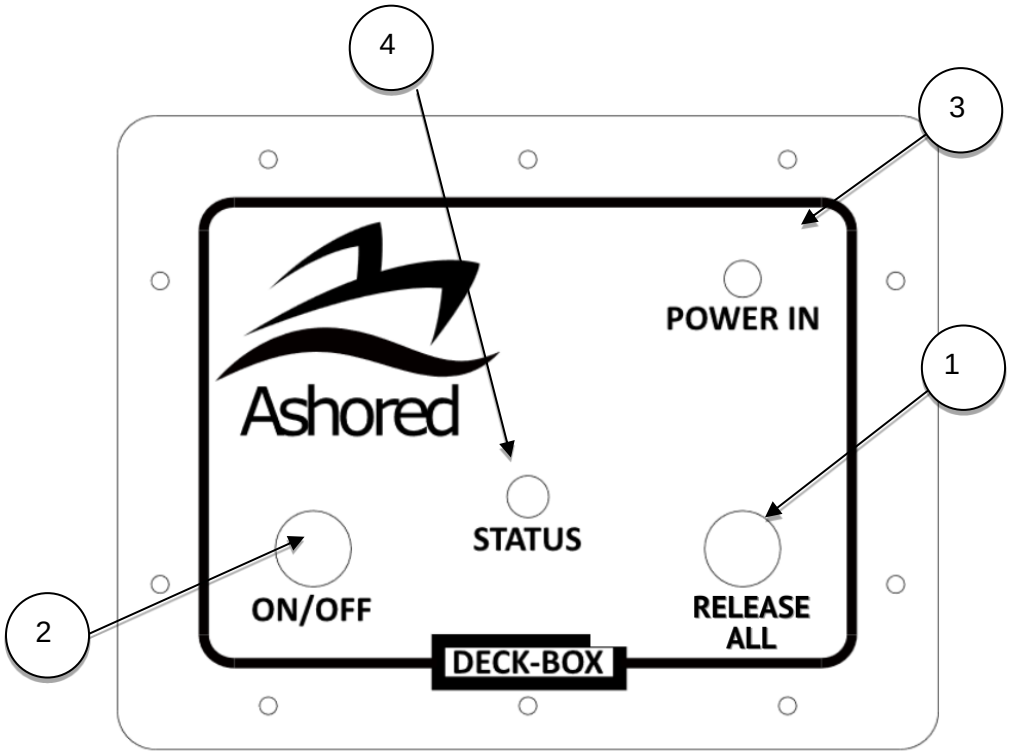


Figure 8. The Rope Containment Unit (cage) and its components.

6.3 Deck Box

The **Deck Box** (*Figure 9*) acts as the on-board command center for the **MOBI** and **ATLAS+ Software**. The **Transducing Hydrophone** (*Figure 4*) is connected to the Deck Box by a cable. It connects to the ATLAS+ Software via Bluetooth, and together they communicate to send and receive acoustic signals from the MOBI's **Receiver Hydrophone** (*Figure 7*).



1) Release All Button
2) On/Off Button
3) Power Input Jack
4) Status LED

Figure 9. The Deck Box control panel and its components.

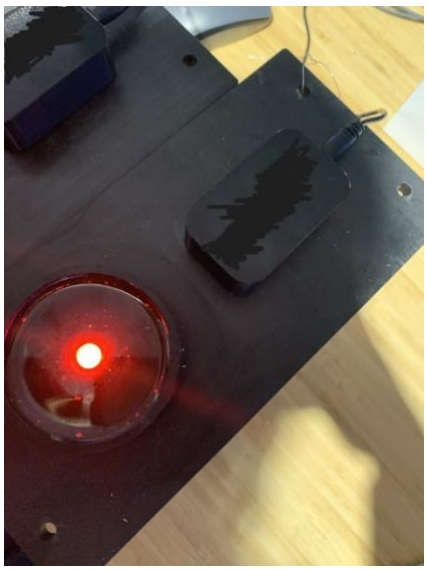
The display of the **Status LED** will vary depending on the state of the Deck Box, such as:

- Charge Status:
  - Solid Blue → Charged.
  - Blue Blinking → Charging
  - Green Blinking → Battery okay
  - Red Blinking → Battery below 20%
- Release Button:
  - Blinks green during release event. It will repeat up to five times before MOBI acknowledges the signal.

6.4 ATLAS+ Software and Tablet

The **ATLAS+ Software and Tablet** are used to control the Deck Box and Transducing Hydrophone to release gear, track gear deployments, configure the backup release timer and monitor gear status/battery levels. *For more in-depth description and instructions, please see our **ATLAS+ Software and Tablet User Manual.***

6.5 Charging the MOBI and Deck Box



To charge battery of the MOBI:

- Use the ATLAS+ application status menu to verify when the unit needs to be charged and to determine charging status.
- Connect the AC/DC adapter to the MOBI charger. Ensure proper connections by lightly pressing down on the charger.
    - When charging, the Indicator LED will flash red.
    - The unit is fully charged when the Indicator LED is solid red.
- The MOBI takes approximately 8 hours to charge.

To charge the battery of the Deck Box:

- Plug the AC/DC adapter into the Power Input Jack (Figure 8, Item 3).
    - The status LED will allow you the check the charging state (Figure 8, Item 4).

7 Rope Configuration

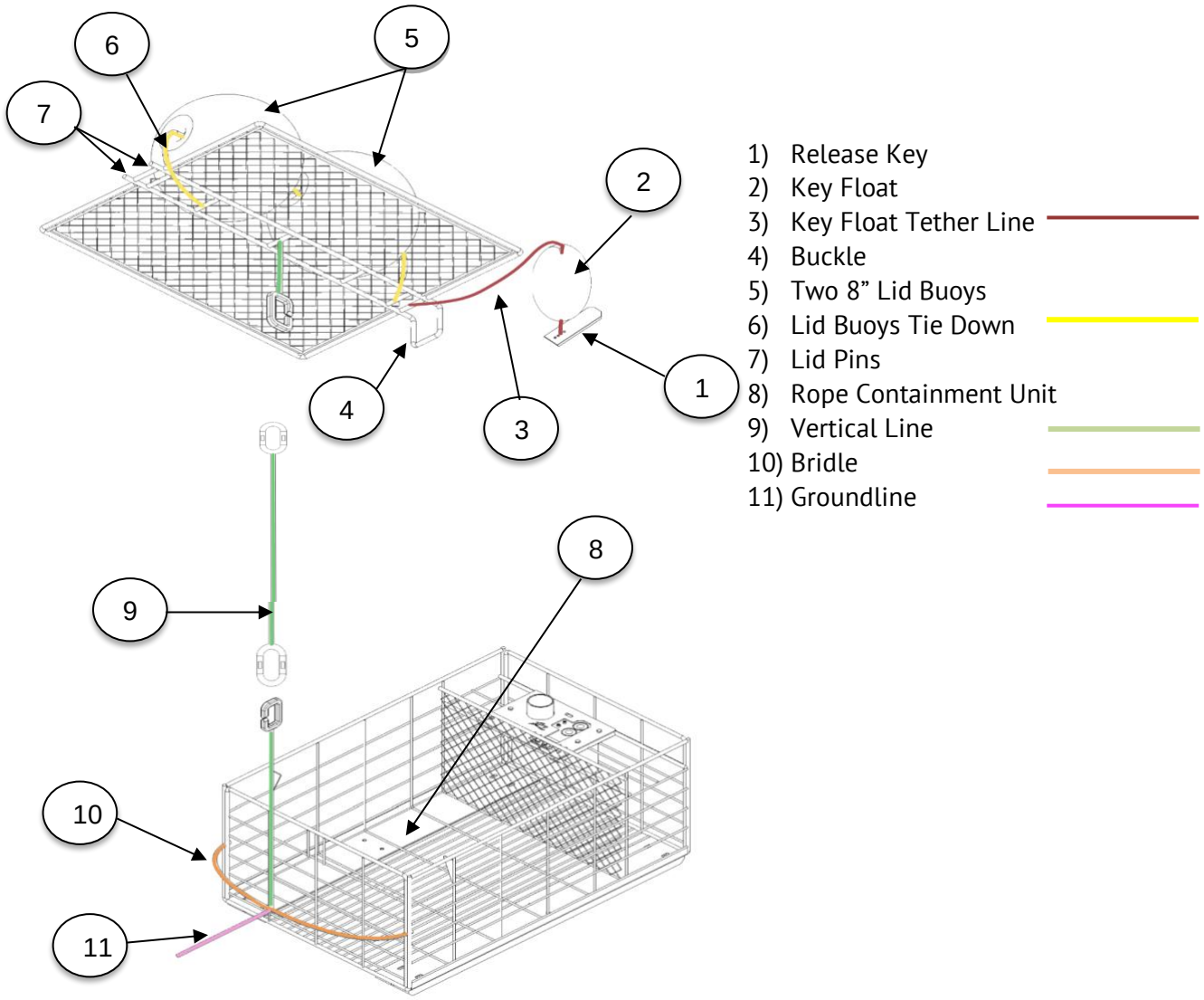
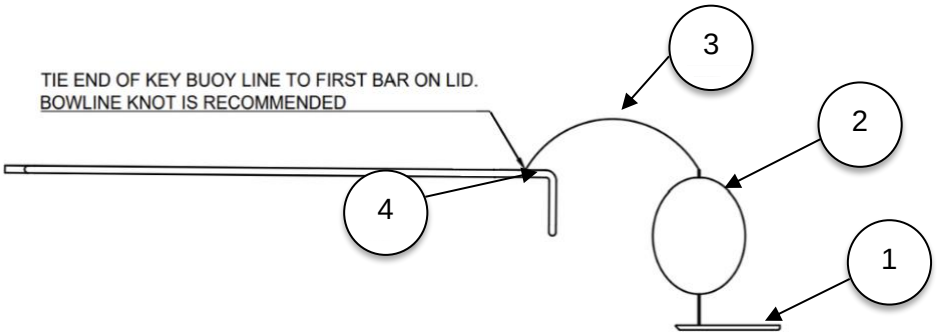


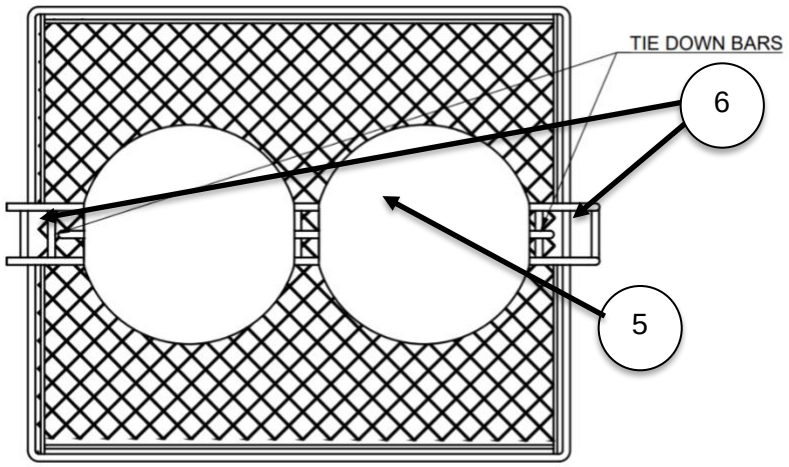
Figure 10. Rope and Buoy setup and configuration.

7.1 Step-By- Step Guide to Rope Setup

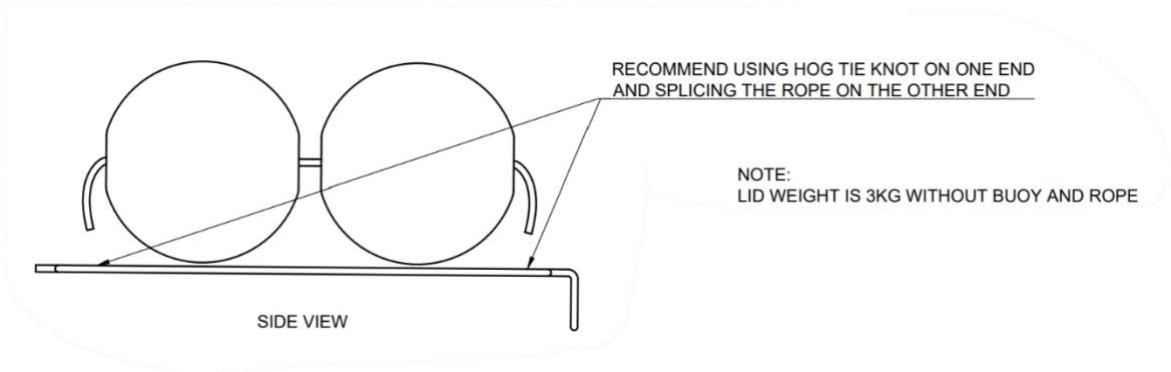
1. Ensure the Release Key [1] & Key Float [2] with tether line [3] is attached to the lid near the buckle [4].



2. Tie the two (2) 11in hard buoys [5] to the lid tie down bars [6].

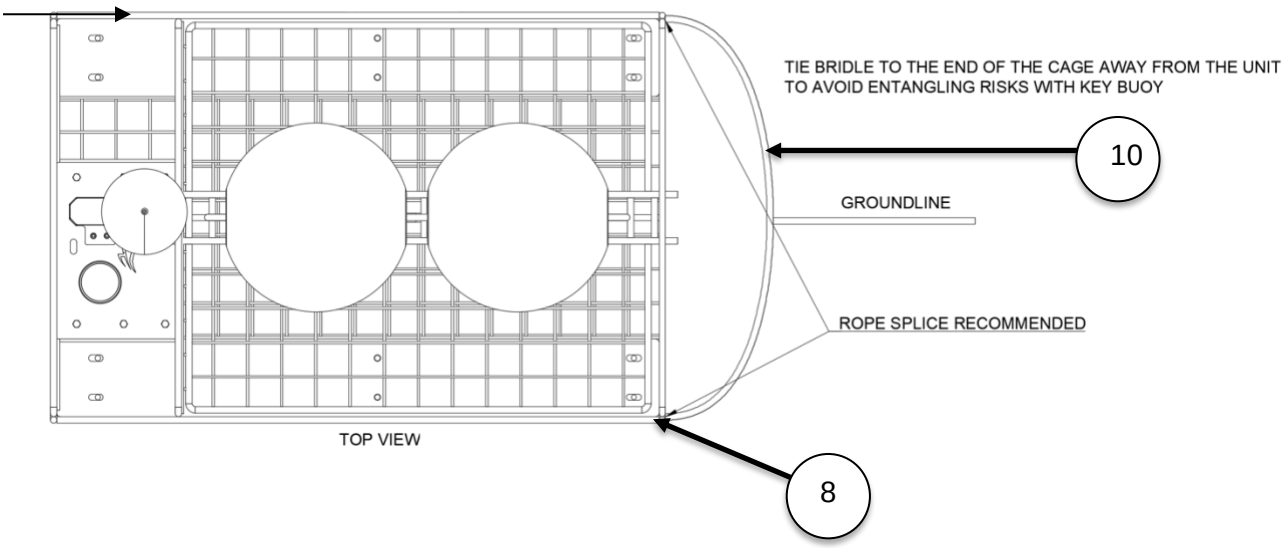


TOP VIEW



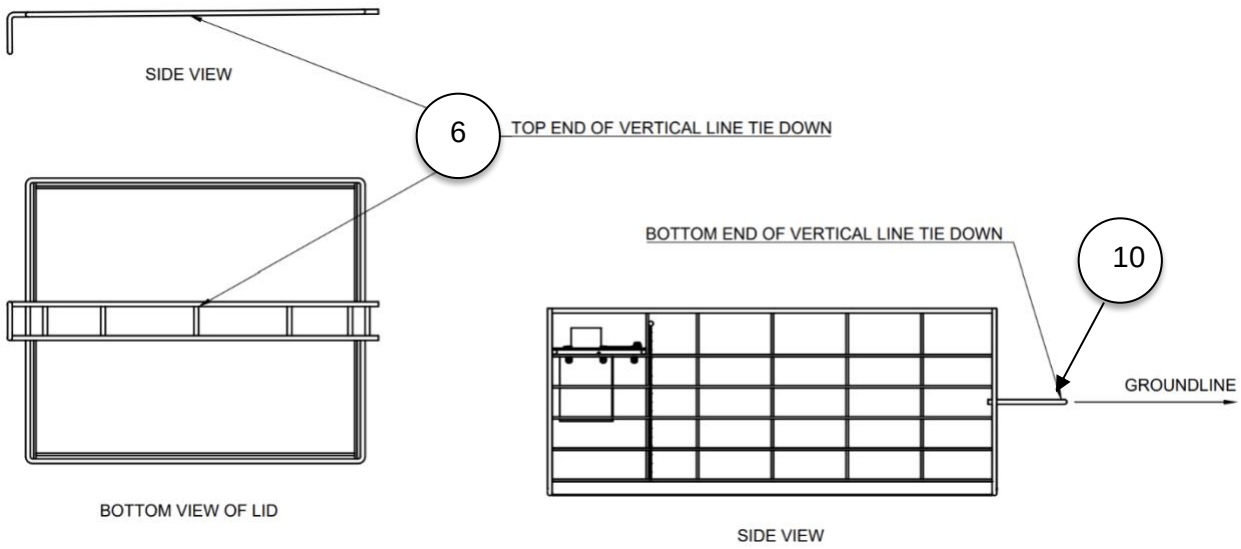
SIDE VIEW

3. Tie a bridle [10] on the rope containment unit [8].

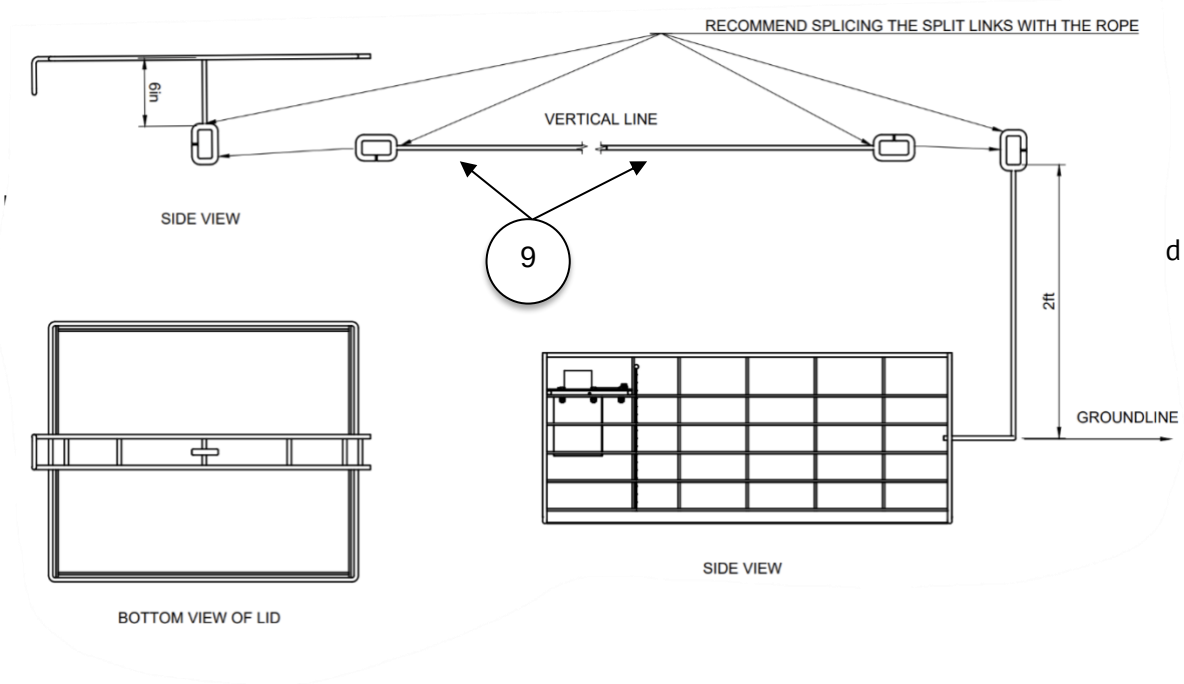


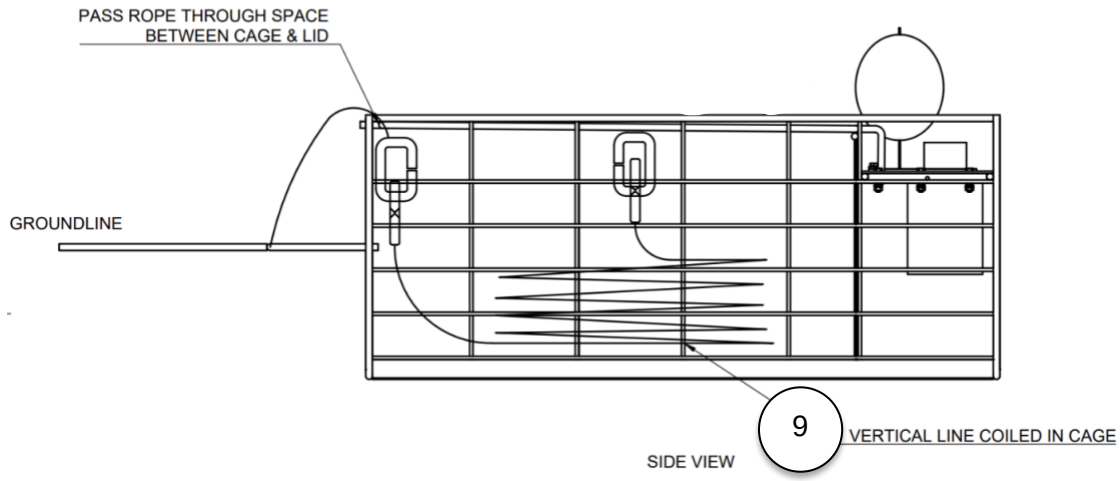
4. Tie Vertical Line

   Option A - Tie the bottom of the vertical line [9] to the bridle [10] and the top to the Lid [6].

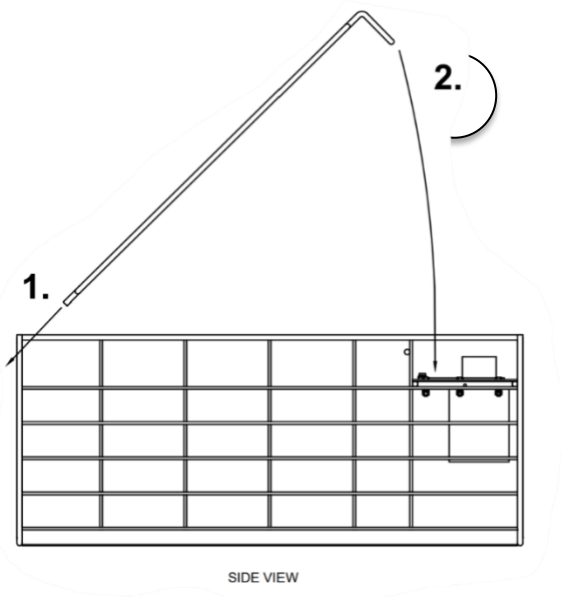


Option B – Split Links for Quick Switching – Using split links allows for easier repacking of the rope by coiling the Vertical Line into a second cage directly off the hauler. Take the top of the Vertical Line once the Lid comes to the surface and connect it to the split link on the second cage on deck.

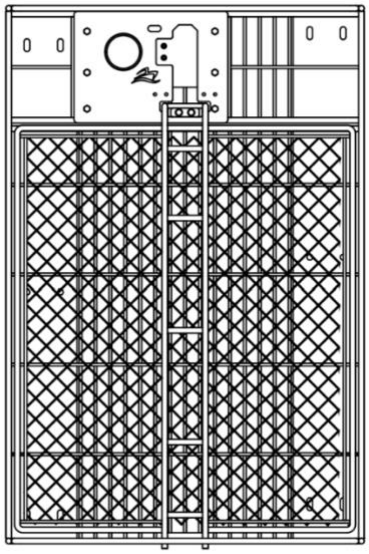




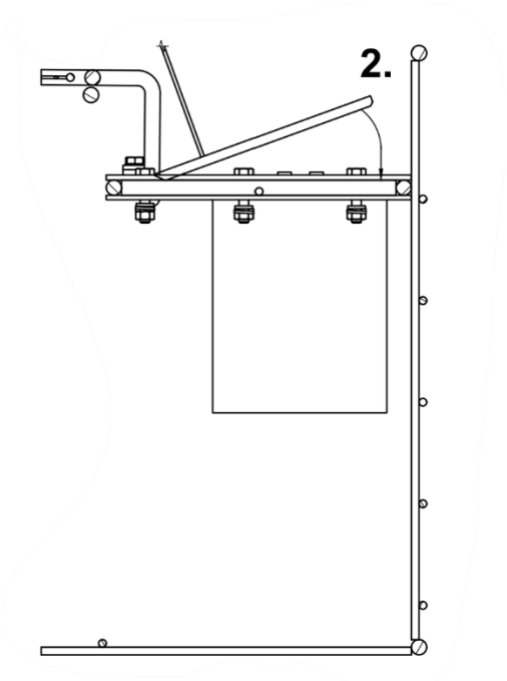
8. Push Lid Pins [1] in the back of the cage.
9. Lower the Lid, push Lid Buckle [2] into the matching slot in the MOBI . See Below.



SIDE VIEW


TOP VIEW

10. Slide the back of Release Key [1] into the Key Slot on the MOBI,
11. Lower the tip of the Release Key into the cutout, keep fingers off the bottom of the Key, as magnet will snap it downwards. If a timer was set it will start when the plate is latched on the magnet,
12. Pull upward on the Lid to verify that it will remain in place,
13. Tie the Ground Line [11] to the Bridle [12],
14. Your Cage and Equipment is now ready to be deployed.
15. Deploy the Cage along with the rest of the equipment on the Ground Line.
16. Set the location of gear deployed in the ATLAS+ application.



8 Deployment Procedures

Prior to deployment, the vertical line should be loaded into the rope containment unit. The lid (*Figure 8, Item 2*) must be secured by fitting the lid pins (*Figure 8, Item 5*) into the back of the cage and the lid buckle (*Figure 8, Item 3*) into the slot of the release mechanism (*Figure 7, Item 4*). The Release Key is then secured over the lid buckle and secured to the magnets.

8.1 To Arm or Disarm:

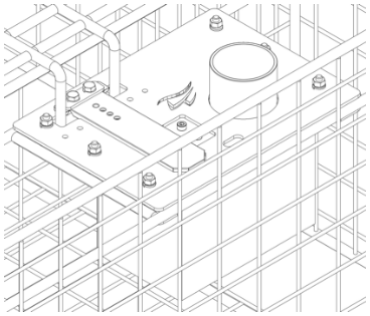


Figure 11. Armed State of MOBI Release Mechanism.

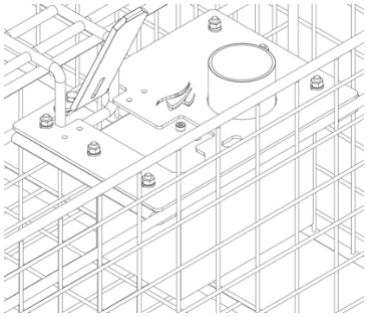


Figure 12. Disarmed State of MOBI Release Mechanism.

ARMING:

1. Start by sliding the lid pins at the back firmly into the back of the rope containment unit.
2. Insert the lid buckle in the slot on the release unit.
3. Slide the Release Key into position and lay flat on the magnet carefully (it will snap into place).
4. **Pull up on the Lid to confirm it is locked.**

DISARMING:

- Manually, by pulling on the float attached to the tip of the Key.
- Using ATLAS+ Bluetooth functions while pulling on the Release Key or Lid (if unit is on-deck).
    - Next to the "Armed" line on the selected MOBI's page, press the Bluetooth button to disarm.
- Using ATLAS+ acoustic functions while the transducer and MOBI are in the water or close together on-deck.
    - Press the release button on the application. This will send an acoustic command to disarm the device.

9 Retrieval Procedures

9.1 Signal to Release MOBI Cage and Equipment.

9.1.1 ATLAS+ Software Release

For retrieval of the rope containment unit and fishing gear, a Deck Box and over-the-side transducer are used, along with the ATLAS+ Software and tablet. The transducer must be submerged in the water. The release command may be activated by turning on the Deck Box, waiting 30 seconds for the system to startup, selecting the MOBI, then pressing the 'release' command button on the provided tablet. The tablet is used to transmit release commands to individual MOBI's via acoustics or Bluetooth [*See section X of the **ATLAS+ User Guide***].

9.1.2 Timed Release Function

If a Timed Release Function [*See Section 4.4 of the **ATLAS+ User Guide***] has been set in the ATLAS+ app, the MOBI will release the Key at the appropriate time and the Lid will return to the surface with all equipment attached.

9.1.3 Deck Box Release ALL Function

On the Deck Box, there is a button labelled RELEASE ALL, which can be used to override the tablet and be used to release all deployed MOBI's at once. If MOBI's aren't responding using the ATLAS+ App, a backup release function – "RELEASE ALL" - is available to release all provisioned MOBI's. Before using the RELEASE ALL function, attempt to retrieve all responding MOBI's using the ATLAS+ application to ensure ease of retrieval of gear.

9.1.4 Battery Critical Level Release

The backup feature to ensure the retrieval of MOBI's and Equipment is called a Battery Critical Level Release. When the battery reaches a set level of 5%, the Key is released, and the Cage Lid will return to the surface with all equipment attached.

9.2 Physical Retrieval of MOBI Cage and Equipment

1) After signaling the MOBI to release, wait for the Buoys to surface.
2) Gaff the Buoys and the Lid and haul the rest of the line.
3) Let the rope coil naturally from the hauler.
4) Once the Cage is on board, carefully grab the rope coil and flip it into the release Cage's rope compartment.
5) The end of the rope attached to the Lid should be on the top and the end attached to the Bridle should be at the bottom of the coil.

If the MOBI does not release on the initial attempt, try again after approaching from a different direction. During the trial phase, it is recommended that a safety buoy is used to aid in the retrieval of gear in the event of user error.

10 General Recommendations for MOBI Setup

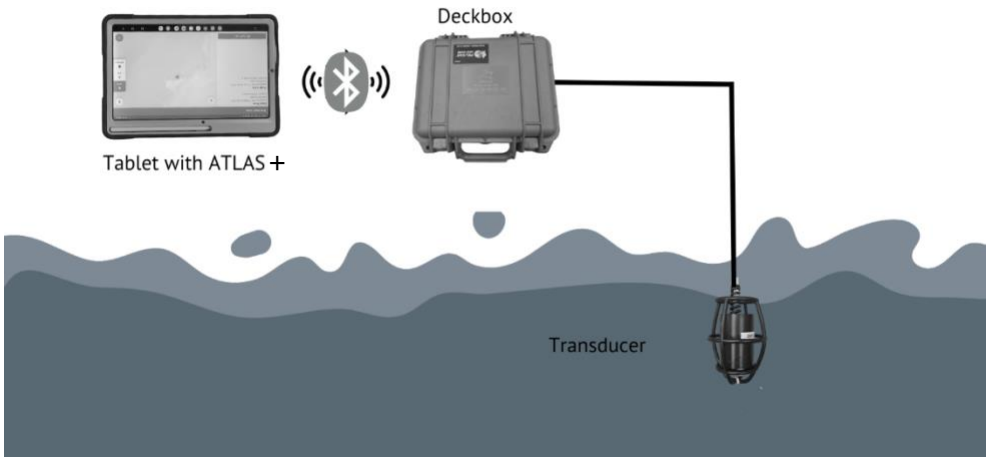
10.1 MOBI Setup Prior to use:

- Ensure that the Release Key slot & magnet surface are dry and clear of debris.
- Make sure the Release Key is flush within the Key Slot.
- Ensure that the Lid is buckled in with the Release Key inserted, and that the rope & buoys are correctly attached to the Lid (Section 7.1).
- The Lid must be secured with the Lid Pins at the back of the Cage while the Lid Buckle is secured by the Release Key. The MOBI is Armed and Ready when a blue LED flashing light can be seen on the receiving hydrophone located on the MOBI.
- Ensure that the Key Float is tied to the Release Key and secured to the Lid (see below).
- Ensure that the unit is charged (see Section 6.5).
- Avoid excessive kinks and twists in the rope coil, as this can cause the rope to knot and hinder the proper deployment and retrieval of the system.

10.2 Storage Recommendations:

- Do not store the MOBI with the Release Key installed, as this will arm the MOBI and degrade battery life.
- Rinse equipment with fresh water after use in salt water.

11 Transducer Set-Up



11.1.1 Figure: Transducer setup diagram

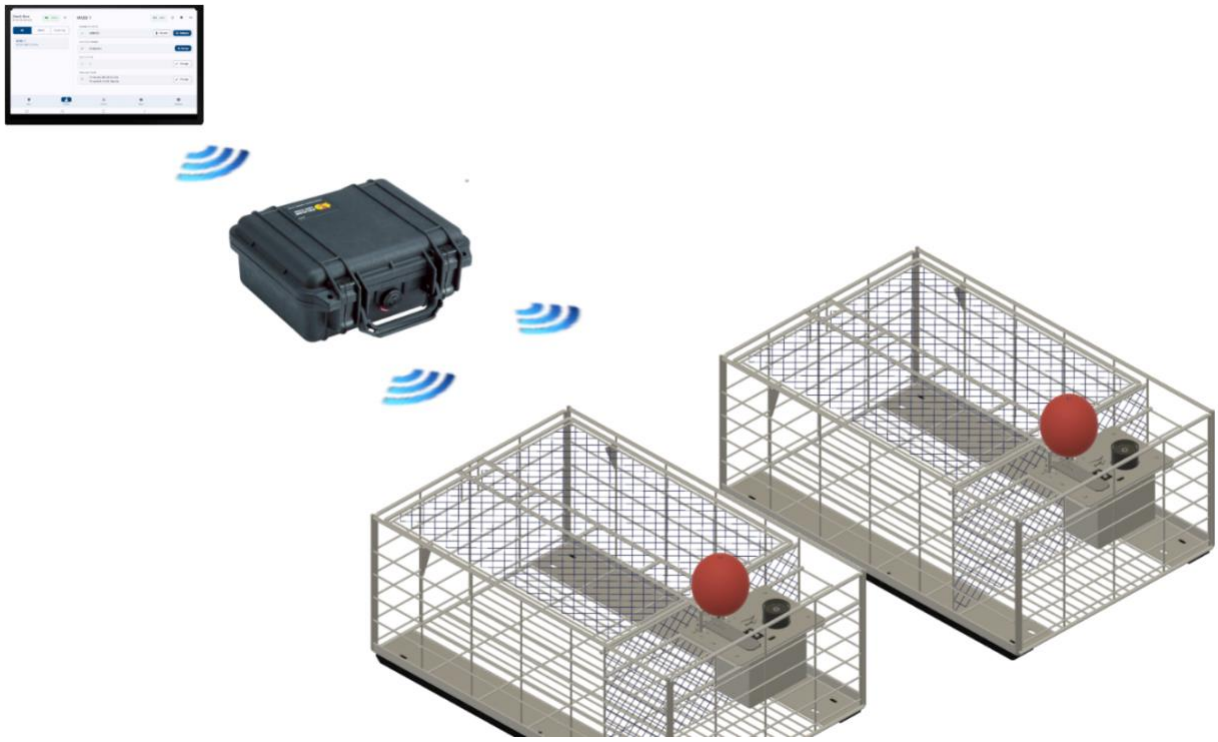
INSTRUCTIONS:

Ensure the Deck Box is charged and powered on, before deploying the system. Connect the Transducer to the side of the Deck Box with the Cable Port [12]. An audible click can be heard when it is connected. To Remove, press the tab while pulling the cord out. Turn on the tablet and open the ATLAS+ Application. ***See ATLAS+ User Guide to Continue Set-Up.***

12 ROC Set Up (MOBI, Cages, Deck Box and ATLAS+ App)

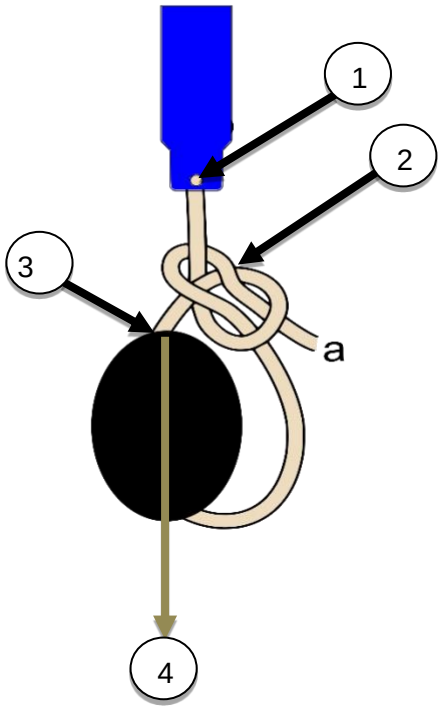
To establish communication between the topside Deck Box unit to the MOBIs, a connection with the provided tablet is required. Currently, each Deck Box can support up to 28 MOBIs at a time.

For more information and to continue set-up, see the ATLAS+ User Guide.



13 Appendix

13.1 Key Float Set-Up Diagram



1) Use a bowline knot around Key
2) Fit bowline knot tightly around float twice
3) Fit rope end (a) through float
4) Tie to Lid front tie-down using a clove hitch; secure with additional half hitches as needed.