UNDERWATER PAR SENSOR MOUNT

INSTALLATION INSTRUCTIONS

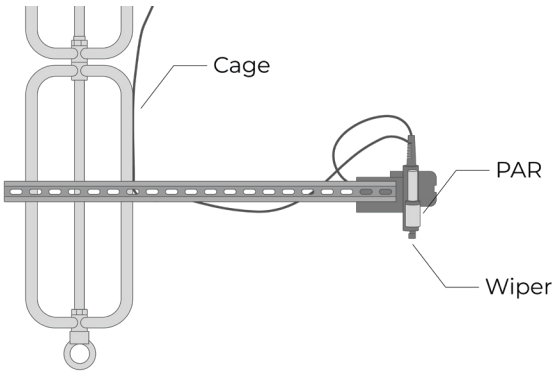

Figure 1: NexSens Underwater PAR Sensor Mount

Overview

The M-ARM-P mounting extension is used to mount a Li-COR Li-192 PAR sensor and Zebra-Tech Hydro-wiper to a subsurface instrument cage. The Hydro-wiper prevents biofouling of the sensor allowing for long-term deployments.

What's Included?

Unistrut Arm and Accessories
- (1) Installation guide
- (1) 6ft. Stainless steel mounting arm
- (2) U-Bolt w/ mounting plate (1" ID) (instrument cage)
- (4) 1/4-20 Nylon insert locknuts (instrument cage)
- (2) 3/8-16 1-1/4" Hex head cap screws (XL instrument cage)
- (2) 3/8" Fender washer
- (2) 3/8" Flat washer
- (2) 3/8-16 Nylon insert locknuts

Mounting Block to Unistrut Arm
- (1) PAR/Wiper Mounting block
- (2) 3/8-16 x 1-5/8" Hex head cap screws
- (2) 3/8" Fender washer
- (2) 3/8" Flat washer
- (2) 3/8-16 Nylon insert locknuts

Hydro Wiper and PAR Sensor to Mounting Block
- (1) Zebra-tech Li-COR mount
- (7) 10-32 x 1/2" Pan head screws
- (7) 10-32 Nylon insert locknuts
- (7) #10 flat washers

Battery Pack Mounting

1. Use a 2.5 metric allen wrench to remove the two screws from the battery pack mount.
   a. Note: Remember the orientation of the battery mount, as this item will be reinstalled in step #3.

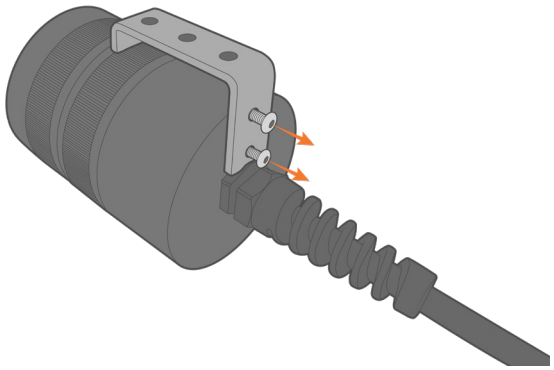

Figure 2: Remove the battery mount screws.

2. Insert (3) 10-32 x 1-1/2" pan head screws into the mounting block and through the battery mount.
   a. Place a #10 flat washer and 10-32 nylon locknut on each screw, and tighten using a Philips screwdriver and a 3/8" wrench or socket.

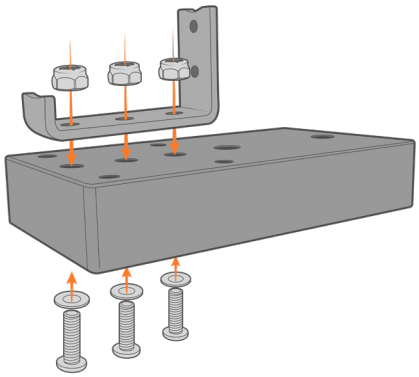

Figure 3: Connect the battery mount to the mounting block.

3. Reinstall the battery pack onto the battery mount using the (2) screws removed in step #1.

4. Use the (2) 3/8 x 1-5/8” Hex head cap screws and a 9/16” socket wrench to attach the mounting block to the Unistrut arm.
   a. Insert (2) 3/8” flat washers, (2) 3/8” fender washers, and (2) 3/8-16 nylon locknuts onto the bolt.
   b. Slide the fender washers into the Unistrut arm and align them with the (2) large holes on the mounting block.

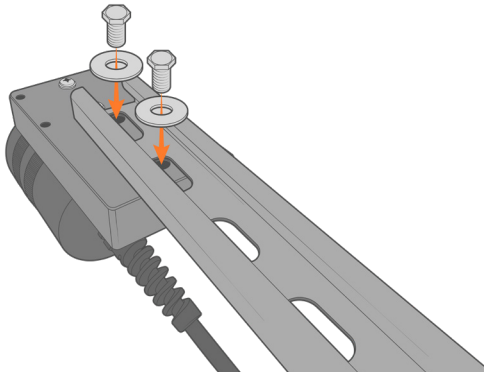

Figure 4: Attach the mounting block to the Unistrut arm.

Sensor and Wiper Installation

1. Use a 2.5 metric allen wrench to remove the sensor holder from the Hydro wiper.

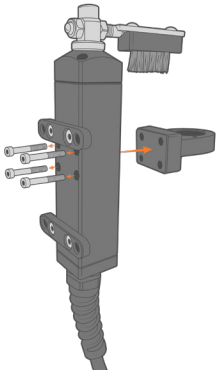

Figure 5: Remove the sensor holder.

2. Locate the yellow marking on the edge of the Li-192’s black collar.
   a. Note this location relative to the sensor label prior to placing the sensor into the holder. This will be necessary for proper cable orientation later.

3. Remove the protective red polymer cap from the face of the Li-COR 192, insert the sensor into the holder, and reattach the holder to the Hydro wiper.
   a. Align the screw holes of the PAR sensor with those on the sensor holder and place the included gasket on the sensor base.
   b. Use a flat head screwdriver to insert the (3) 6-32 x 3/4” mounting screws provided by Li-COR into the bottom of the sensor holder.

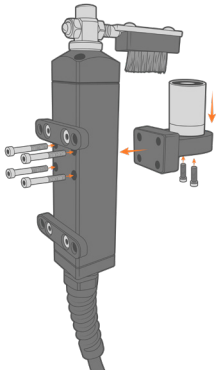

Figure 6: Insert the sensor and reinstall the holder.

4. Use a 3/8” wrench and Philips head screwdriver to attach the Hydro wiper to the mounting block with the (4) remaining 10-32 x 1/2” Pan head screws, (4) #10 flat washers, and (4) 10-32 nylon locknuts.

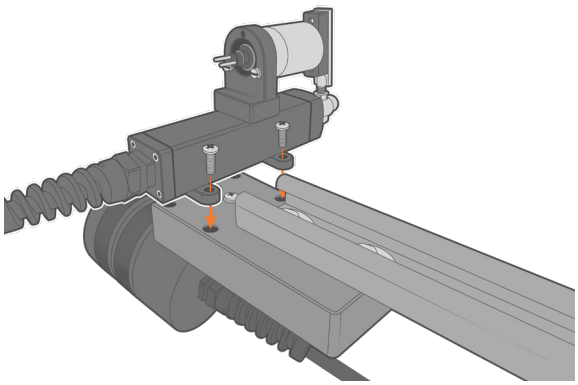

Figure 7: Insert the sensor and reinstall the holder.

5. Connect the Li-COR 192 (2222UWB) cable to the sensor by aligning the exterior dimple on the connector with the yellow mark identified earlier.
   a. Caution: Use care when connecting and disconnecting the sensor cable. Refer to the manufacturer’s manual for proper handling.
   b. Push the cable in gently until a click occurs, indicating the cable is fully locked into place. Twist the white cap until hand tight.

Unistrut Attachment to Small Instrument Cage

1. For small instrument cages (with CB-450 or smaller buoy models), place the U-bolts on the cage and align one of the U-bolt ends with a circular cutout on the interior of the Unistrut arm.
   a. Use a 7/16” socket wrench to secure the arm to the cage using the (4) 1/4-20 nylon locknuts.
   b. Evenly tighten each side of the U-bolts.

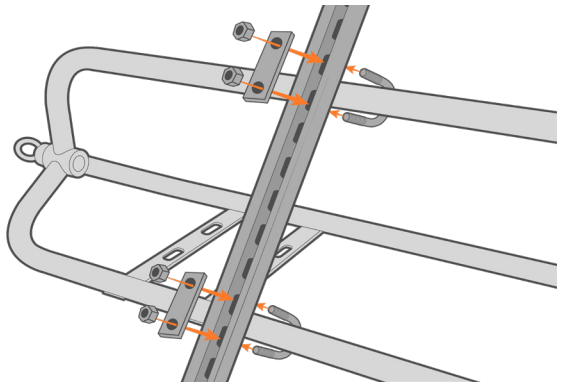

Figure 8: Unistrut attachment to small cage.

Unistrut Attachment to XL Instrument Cage

1. For large instrument cages (with CB-650 or larger buoy models), slide the remaining fender washers into the groove of the Unistrut arm.
   a. Align them with the slots of the arm and the large cage.
   b. Use a 3/8” socket wrench to secure the arm to the cage using the remaining hex head cap bolts, fender washers, and nylon locknuts.

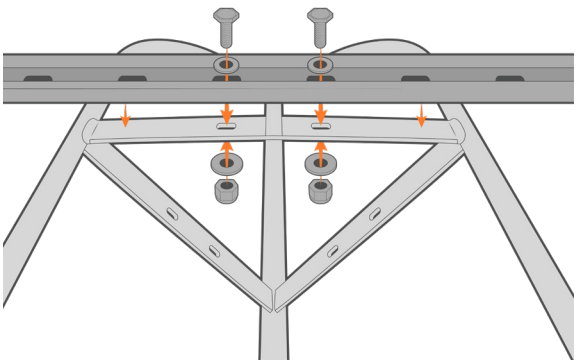

Figure 9: Unistrut attachment to large cage.

Pre-deployment Preparation

- Secure the sensor and wiper cable to the mounting arm using zip ties. Friction between the Unistrut arm and loose cables over time can damage or cut the cables entirely.
- Ensure to follow the included Zebra-Tech Hydro-Wiper guide for installing the included batteries and setting the wiper timer.
- Note: Proper application of counterweight in buoyant deployment configurations may be required to safely balance the PAR arm. Consult a marine engineer for mooring suggestions.
- During deployment, be sure that the PAR assembly is not being stressed by any additional mooring equipment for the system. NexSens is not responsible for any damages incurred during deployment.
- For further information, review the following manuals:
  1. Zebra-Tech Hydro-Wiper

     https://www.fondriest.com/pdf/zebra_hydro-wiper-h_manual.pdf
  2. Li-COR PAR Sensor

     https://licor.app.boxenterprise.net/s/285ymmolackqjidu9wao