



SEA-BIRD  
SCIENTIFIC

BPA50180625

**BPA50**

user manual

06/2018, Edition 1



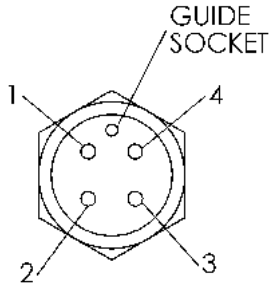
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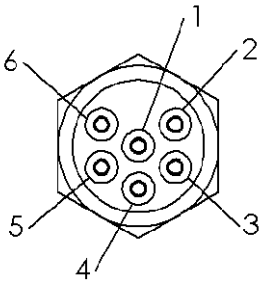


# Section 1 Specifications

Dimensions	56.4 x 11.4 cm
Weight in air, water	8.6, 2.9 kg
Depth rating	200 m
Voltage output	15 VDC nominal (16 V peak)
Battery type	Alkaline
Number of cells	40
Total capacity	50 Ah
Circuit protection	3 Amp polyswitch
Pressure housing	PVC with acetal end flange

## 1.1 Battery pack bulkhead connectors

Contact	Function	MCBH4FS
1	Ground	
2	Voltage in	
3	RS232 RX	
4	RS232 TX	

Contact	Function	MCBH6MP
1	Ground	
2	RS232 RX	
3	No connect	
4	No connect	
5	RS232 TX	
6	No connect	



## Section 2 Operation and maintenance

### 2.1 Overview

The Battery Pack 50B (BPA50B) uses non-rechargeable alkaline batteries to supply a maximum of 50 amp hours (Ah) to a connected sensor. The unit also enables communication between a connected sensor and an external PC.

#### NOTICE

Make sure to limit the current draw to 2.5 amps.

The units have a self-resetting polyswitch circuit breaker to protect the batteries and the connected sensor. The circuit opens when the current draw is 3 amps or there is a short circuit condition. The circuit stays open until the fault condition is removed. The circuit breaker then closes the circuit.

### 2.2 Set up and verify operation

#### WARNING

Make sure that the pressure relief plug and dummy plugs and lock collars are fully attached before deployment.

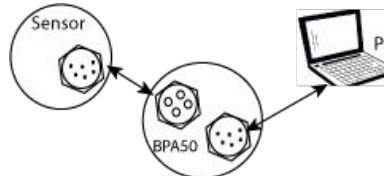
Make sure that the battery pack supplies power to the connected sensor before a deployment. The operational time changes with temperature.

- 4–6 °C = 28–30 amp hours
- 10–14 °C = 44–48 amp hours
- 16+ °C = 50 or more amp hours

#### NOTICE

Sensors that have a higher current draw (1 amp or more) decrease the battery life by as much as half.

1. Make sure that the output of the battery pack is sufficient for a deployment.
  - If the output is less than 12V, replace the battery core.
  - If the output is 0V, remove the end flange and verify the wiring. 1 = Ground, 2 = Voltage in
2. Make sure that the output voltage of the battery pack is correct for the sensor to which it is connected.
3. Connect the BPA50:
  - a. Use a serial cable to connect the BPA50 to the sensor.
  - b. Use the supplied test cable to connect the BPA50 to a PC.



4. Make sure that the sensor connected to the BPA50 operates correctly.

### 2.3 Remove end flange and replace batteries

#### **⚠ WARNING**

The unit may be pressurized. Point the unit away from the body and face and pull up on the pressure relief valve to release any residual pressure from deployment. Point the unit away from the body and face to remove the end flange.

Replace the batteries when the output of the battery pack is less than 12V.

1. Make sure that the unit is not pressurized.
2. Disconnect any cables from the unit.
3. Remove and save the two 6-32 screws that attach the end flange to the pressure housing.
4. Hold the pressure housing pointed away from the body and face and carefully pull the orange handle on the end flange to remove it from the pressure housing.
5. Remove the foam padding ring on top of the battery core.
6. Disconnect the bulkhead connector wiring from the battery core. It may be necessary to pull the connector out of the end of the core.
7. Remove the battery core package from the pressure housing.
8. Unwrap the padding from the core and save the padding.
9. Follow local regulations to recycle the batteries.
10. Wrap the new battery core with the saved padding.  
The batteries will not move around in the pressure housing.
11. Put the battery core into the pressure housing. The fit is snug.

### 2.4 Remove and replace O-rings and end flange

#### **⚠ CAUTION**

Use only soapy water or isopropyl alcohol (IPA) on clean cloths to clean the unit and the O-ring grooves. Use only new or perfectly clean used O-rings.

The end flange has two O-rings, a primary and a backup. If there is any doubt about the quality of the O-rings or seal, return the battery pack to the manufacturer for any necessary repair and a pressure test.

1. Remove the O-rings:
  - a. Hold the large diameter of the end flange firmly with one hand.
  - b. Hold the small diameter of the end flange with the other hand and push the O-ring up out of the groove with the thumb and fingers approximately 180 degrees apart. If necessary, use a paper towel for extra traction. If necessary, use a toothpick or swab to very gently pry the O-ring out of the groove and off of the end flange.





- c. Pull the O-ring off of the end flange.
- d. Do the steps above for the second O-ring.
2. Use a clean lint-free cloth and water or IPA to clean the O-ring grooves.
3. Examine the O-rings in good light to make sure they are like new. Any scratch, hair, lint or other debris can cause the O-rings to fail.  
If the O-rings are in good condition they can be used again. If there is any doubt, use new O-rings.
4. Remove one size 238 O-ring from the sealed bag in the manufacturer-supplied replacement kit and lubricate it with a small quantity of grease from the replacement kit.
5. Carefully stretch the O-ring over the end flange and roll it into the nearest O-ring groove.
6. Lubricate and install the second O-ring into the second groove in the end flange.
7. Make sure that the inner sealing surface inside the battery pressure housing is clean.
8. Replace the foam padding ring on the top of the battery core.
9. Connect the battery wiring again. Wind the extra length into the center of the battery core.
10. Make sure that the voltage on the four-contact connector is approximately 15V.  
(1 = ground, 2 = V in).
11. Carefully push the end flange into the pressure housing.  
The fit is very snug. It requires increased force to push the end flange into the pressure housing as each O-ring is compressed by the sealing surface.
12. Use the handle on the end flange to twist it so that the 6-32 screw holes in the end flange align with the screw holes in the pressure housing.
13. Install the two 6-32 x 3/8" screws to attach the end flange to the pressure housing.  
**DO NOT** overtighten the screws. This will strip the threads from the screws.





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