

# QUICK START GUIDE

## CB-50 DATA BUOY PLATFORM



**Figure 1:** CB-50 Data Buoy

### Overview

The NexSens CB-50 data buoy platform is constructed with a closed cell, cross-linked polyethylene foam hull with polyurea coating that provides 50 lb buoyancy. The buoy has a corrosion resistant, stainless steel internal frame with topside lifting eyes and a subsurface mooring eye for connection of single-point mooring systems.

A 5.5" ID center hole is designed to house an SDL500 data logger or is available to accommodate user-supplied electronics. A removable topside foam tower supports solar marine lights and protects electronics installed in the buoy tower.

### What's Included

- (1) CB-50 buoy hull, 50 lb. buoyancy

### Common Accessories

- SDL500 R/C/I data logger
- M550-F-Y LED beacon
- CAGE Instrument cage
- CM600 instrument mount

### Assembly

The main components of the CB-50 data buoy platform are assembled at the time of shipment. Installation of accessories may be required. Quick instructions are provided in this guide. Visit the online Knowledge Base for more information (see *Additional Information* section).

### Instrument Cage (Optional Accessory)

Use the provided  $\frac{3}{4}$ " bolt, lock washer and castle nut to attach the cage to the buoy frame. Tighten *very firmly* with a pair of 1-1/8" or crescent wrenches.



**Figure 2:** Instrument Cage Installation

Ensure that the lock washer is flattened and the hole in the bolt lines up with the notches in the castle nut. A large amount of force may be necessary to properly align the nut.



**Figure 3:** Castle Nut Alignment

# QUICK START GUIDE

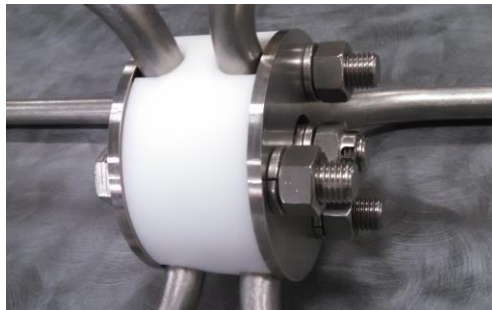
## CB-50 DATA BUOY PLATFORM

Place the cotter pin through the hole in the bolt, and bend the long leg of the pin to prevent the cage from loosening.



**Figure 4:** Castle Nut Installation

Welding the cage and/or installing additional security straps is also recommended for use in rough water. If using a *CB-CCA* cage clamp accessory to prevent rotation and loosening, follow the instructions provided with the clamp for installation.



**Figure 5:** Cage with CB-CCA Clamp

### Ballast Weight and Stability

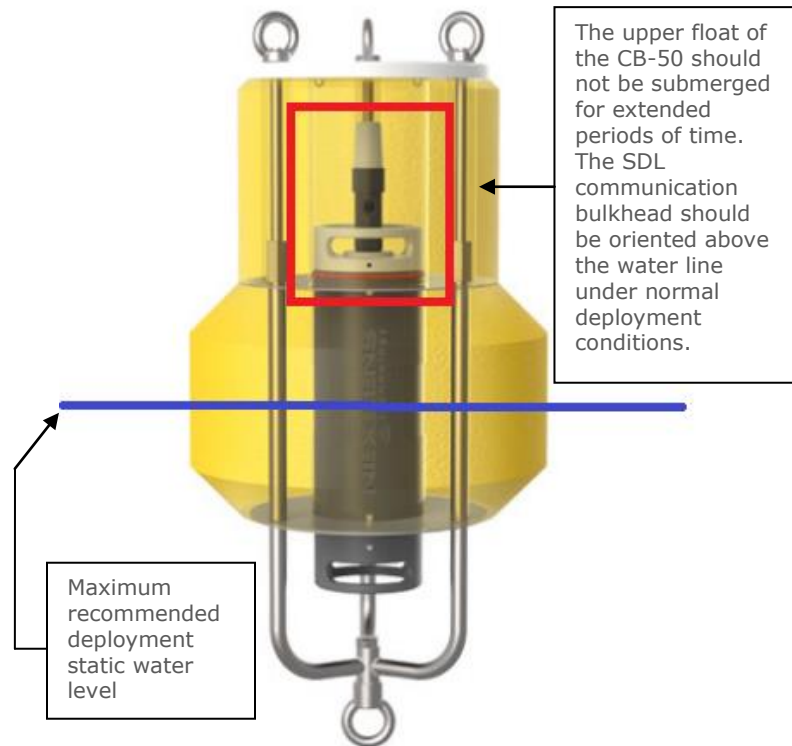
To ensure the stability of a CB-50 buoy system, considerations to mooring strategies, sensor locations, and ballast weight must be made.

An optional instrument cage mounted to the buoy frame can help stabilize the buoy and provides a deeper location for mounting additional weight. For single-point mooring configurations, mooring chain and lines connected to the bottom of the cage may provide adequate ballast.

Before deployment of a CB-50 system, some experimentation may be required to properly balance the buoy. If needed, a 1/2" chain

(~2.3lb/ft) or other weight may be added to the bottom of the cage.

Figure 6 depicts the proper level of submersion for a moored CB-50 buoy equipped with an SDL500. Excess ballast weight may result in the submersion of the SDL500 bulkhead and a subsequent decline in both remote communication performance and life of the data logger.



**Figure 6:** CB-50 recommended deployment orientation.

### Saltwater Deployment

Sacrificial zinc anodes should be used whenever a buoy is deployed in a saltwater environment to prevent corrosion. These zinc anodes must be inspected and replaced as needed.

# QUICK START GUIDE

## CB-50 DATA BUOY PLATFORM

### Mooring Configurations

*This section contains only general information on the available mooring options for CB-50 data buoy. To develop an effective mooring strategy, a variety of application-specific criteria (water level fluctuations, currents and wave action, debris loads, etc.) must be thoroughly reviewed prior to deployment. NexSens does not endorse any particular mooring strategy for any specific application.*

#### Single-Point Mooring

Single-point moorings are used in calm waters when monitoring sensors are attached to the instrument cage or housed in deployment pipes. The sensors are thus protected and less vulnerable to damage caused by subsurface debris, high currents, and entanglement from anchor lines.

In a single-point configuration, a stainless steel mooring line connects the buoy directly to a bottom chain and anchor. At normal pool/stage, the mooring line should be taut, with most of the bottom chain resting on the floor of the water body. As the water level increases and the buoy rises, the bottom chain is lifted from the floor.

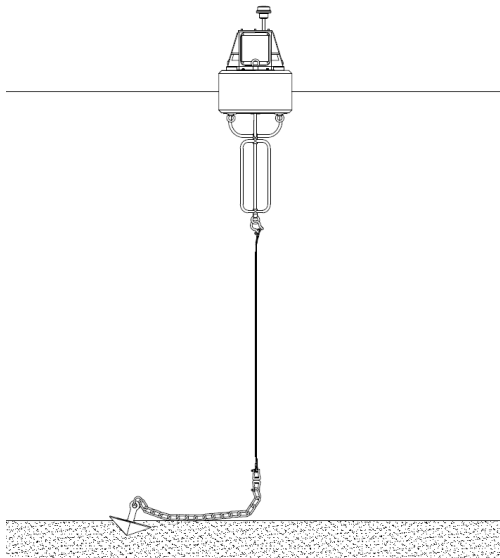


Figure 15: Typical Single-Point Mooring Configuration

### Safe Deployment

*Personnel safety is the number one priority when deploying a data buoy. Use of proper equipment (work boat, lifting rig, gloves, safety footwear, etc.) is essential to safely deploy any buoy system. Buoy systems are heavy and personnel can quickly become entangled with mooring lines and anchors. Safety and flotation gear should be worn at all times when working on or near the water.*

*Remember to perform a complete system test on shore prior to deployment. Learning the nuances of the system is much better handled on shore or in a lab rather than in the field.*

### Specifications

- **Hull Dimensions:** 18" (45.72cm) outside diameter; 12" (30.48cm) tall
- **Tower Dimensions:** 13" (33.02cm) outside diameter, 10" (25.40cm) tall
- **Center Hole Dimension:** 5.5" (13.97cm) inside diameter
- **Weight:** 35 lbs. (15.87 kg) no payload; 50 lbs (22.68 kg) with SDL500 and solar marine light
- **Buoyancy:** 50 lbs. (22.68 kg)
- **Hull Material:** Cross-linked polyethylene foam with polyurea coating & stainless steel deck
- **Hardware Material:** 304 stainless steel
- **Mooring Attachments:** 1 point, 3/4" eye nut

### Additional Information

Additional information and complete instructions for the CB-series data buoy platforms are available in the NexSens online Knowledge Base:

<http://www.nexsens.com/knowledge-base>