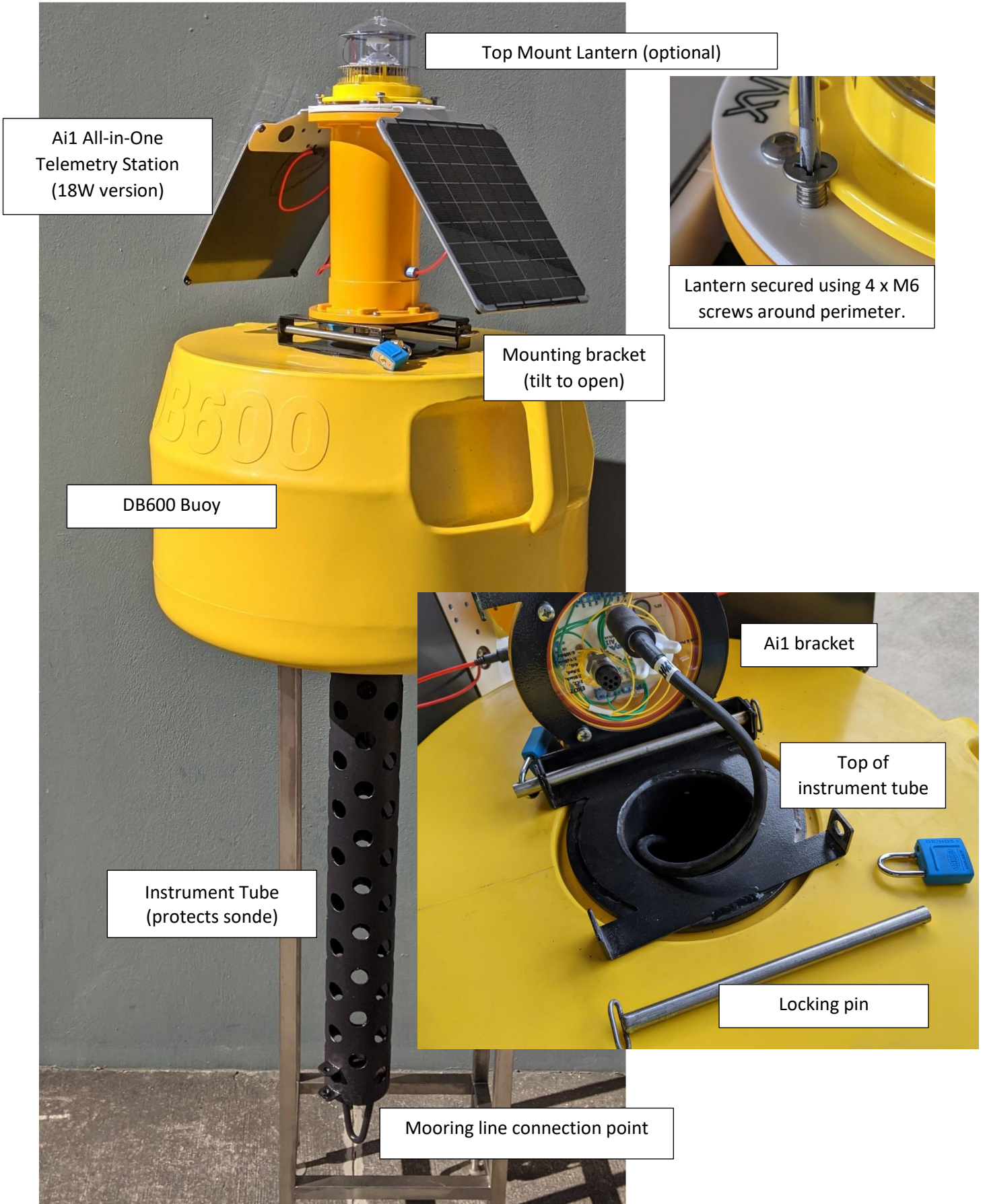


xylem

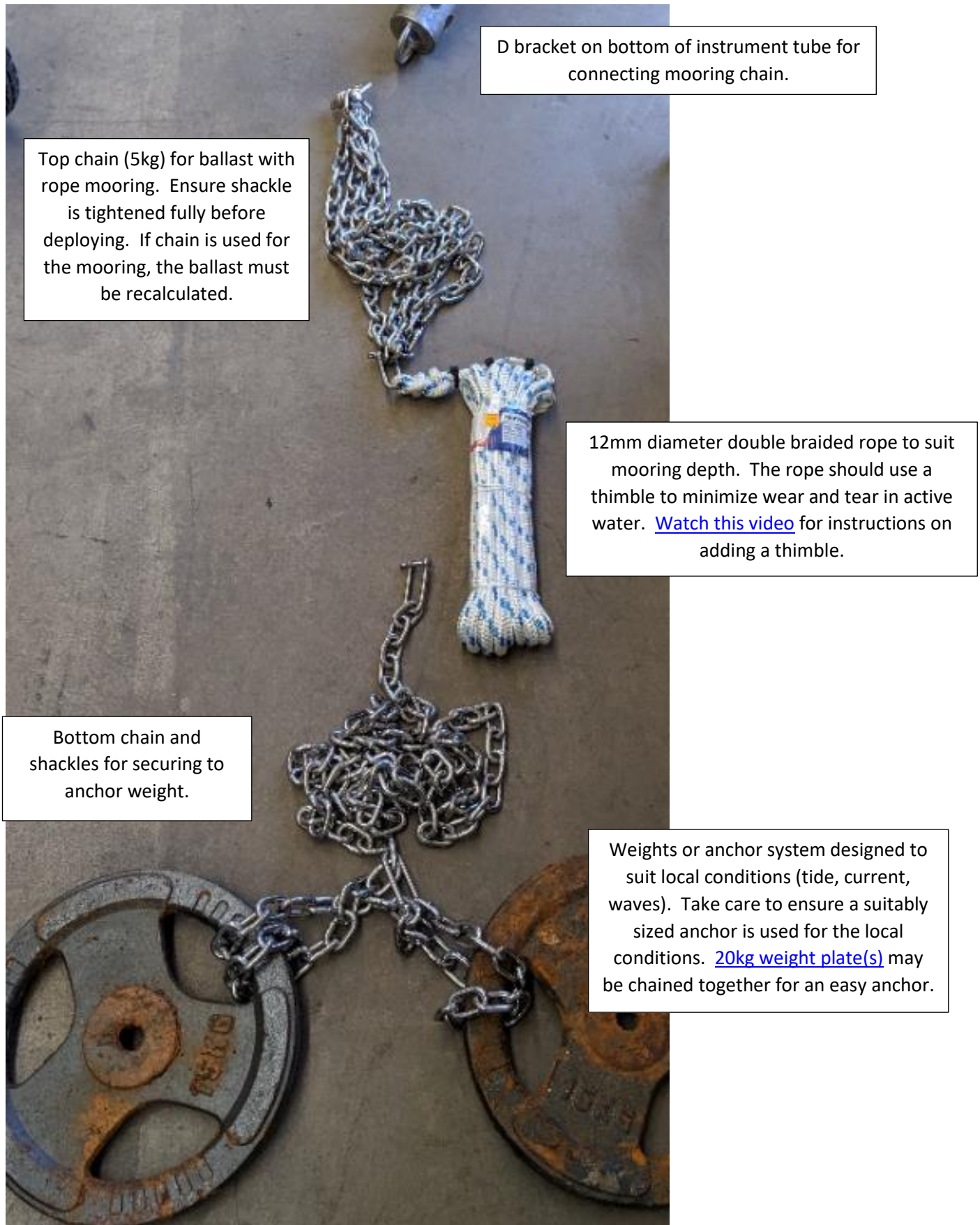
DB600 Quickstart Guide

The DB600 is supplied for quick assembly before deployment. Detailed instructions are in the [Ai1 manual](#).



Part 1 – Mooring Recommendations

The mooring system required is site specific and depends on the site conditions and exposure. The example provided here is for a relatively sheltered location with minimal waves and current. While the mooring includes the top shackle and ballast chain, the rope, anchor (or weight) is locally supplied, specific to the site.



D bracket on bottom of instrument tube for connecting mooring chain.

Top chain (5kg) for ballast with rope mooring. Ensure shackle is tightened fully before deploying. If chain is used for the mooring, the ballast must be recalculated.

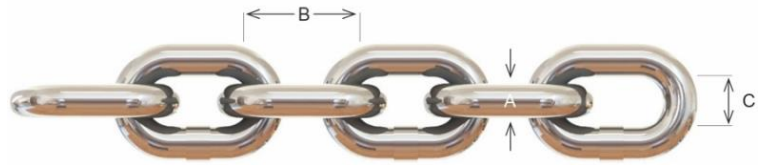
12mm diameter double braided rope to suit mooring depth. The rope should use a thimble to minimize wear and tear in active water. [Watch this video](#) for instructions on adding a thimble.

Bottom chain and shackles for securing to anchor weight.

Weights or anchor system designed to suit local conditions (tide, current, waves). Take care to ensure a suitably sized anchor is used for the local conditions. [20kg weight plate\(s\)](#) may be chained together for an easy anchor.

Chain Selection

The top chain provides ballast to ensure the DB600 remains stable. The DB600 is supplied with 1m of 16mm SS316 chain which provides 5kg ballast. An M12 SS316 Bow Shackle is included to fix to the D-bracket on the bottom of the instrument tube. Ensure that the shackle is tightened securely.

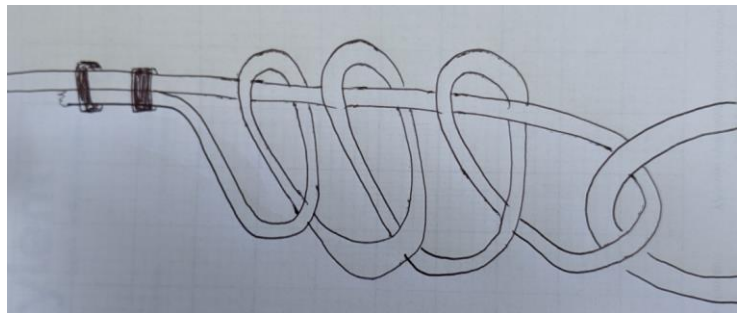


Rope

Depending on the mooring depth, braided rope may be required to provide the link to the anchor system without adding excess weight. To fix the rope to the shackle (or chain if tied directly), use a series of hitches with the loose end cable tied to the main length to prevent the knot unravelling or slipping. The recommended sequence to tie the knot is shown here.



In locations with active movement, the rope may fray over time. To minimize this, the rope should be looped around a thimble before fixing to the shackle, on both ends of the rope mooring. [Watch this video](#) for instructions on adding a thimble.



Anchor System

The anchor system is generally locally supplied to avoid shipping charges. The anchor system may be a sand anchor, or a weighted sinker made from either cast iron or concrete. Concrete weighted sinkers need to be calculated to allow for the reduced weight when submerged, whereas cast iron weighted sinkers have an effective density of 90% of its dry weight.



Sand anchors or scrap metal solutions may be utilized for suitable locations. 20kg barbell weights with grip holes are a low-cost solution and can be added together to build the required weight.

Recommended Materials

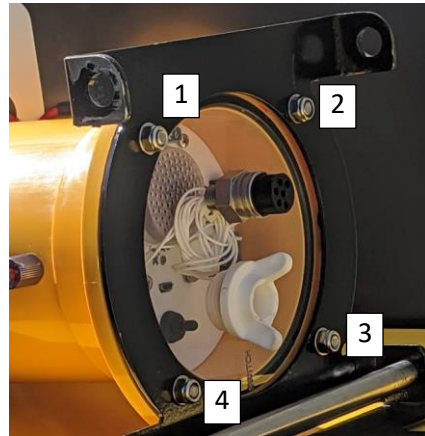
For chain supply a specialist such as [Serafini Chains is highly recommended](#). A ship chandler such as Whitworths Marine can supply most of the materials recommended with links below:

- 12mm rope: <https://www.whitworths.com.au/6mm-d-braid-white>
- Chain: <https://www.whitworths.com.au/chain-316ss-gen-2mm>
- Ronstan Dee Shackle: <https://www.whitworths.com.au/ronstan-standard-dee-shackle>

Part 2 - Assembly

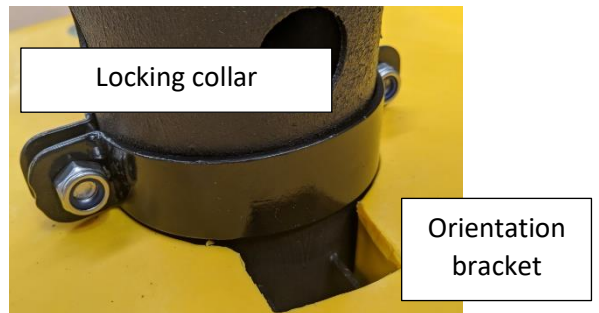
1. Fix top bracket to bottom of Ai1 (18W)

- 4 x M6 screws (supplied pre-fitted on the Ai1), with:
 - Flat washer,
 - Nylock Nut.
- Align 4 holes in top bracket with 4 holes in Ai1.
- Fasten screws with the button head on top of the Ai1 and the washers and nut on the DB600 bracket.



2. Install Instrument tube in DB600.

- The instrument tube fits down through the top of the buoy. Note the orientation of the side bracket that prevents rotation of the tube in the DB600.
- Fit the locking collar to prevent the instrument tube lifting out the top of the DB600. The locking collar is fixed in position with the 2 x M8 bolt sets with nylock nuts to prevent undoing due to vibration.



3. Mount the Ai1 on the DB600 buoy

Use the two security pins supplied to connect the bracket on the bottom of the Ai1 to the matching bracket on the top of the DB600. The pins may be held in position with either:

- The included split pins
- User supplied padlocks for extra security.



4. Connect and deploy Sonde.

- Use grease (supplied with sonde) to lubricate and protect pins and connect sensor cable to the sonde and the connector on the bottom of the Ai1.
- Install the sonde in the instrument tube, ensuring the sonde is configured for SDI12 output.
- Record the parameter names and units for naming in Eagle.io (see Part 3 - Sensors)



5. Mount any additional sensors.

- If any other sensors are used (current profiler, thermistor chain, weather sensor, etc) refer to the Ai1 manual for further instructions.



6. Connect mooring system

The mooring is typically supplied separately as it must be designed to suit the site conditions. When designing the mooring, consider if the site is exposed to salt water and if so, a sacrificial anode is recommended, or pitting of the stainless-steel instrument tube may occur. A local chandlery may be able to supply [something suitable](#). The side instrument mount can act as a location to hold the anode.

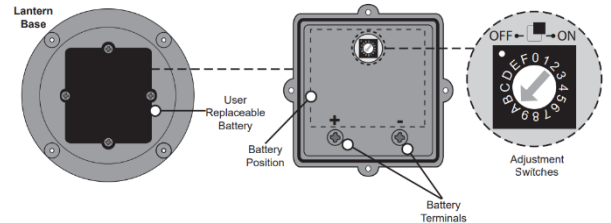
7. Mount Solar Panels (for 18W model)

- Thread the red cable through the hole in the solar panel bracket and use the two nylon nuts to secure the solar panel in the bracket at the top. A large flat blade screwdriver may be used to tighten (do not overtighten)
- Apply grease around the black body of the solar panel and push into the socket. Repeat for second panel.



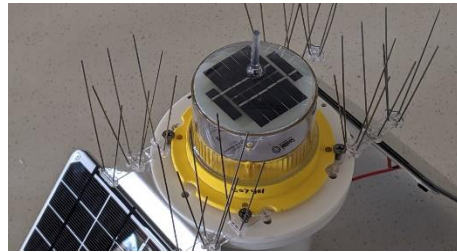
8. Turn on Lantern (if used)

- The lantern is shipped OFF so it does not fully discharge before use. Open the waterproof cover on the underside of the lantern. The ON/OFF switch is accessible below the battery, next to the flash code rotary switch.
- Turn the lantern ON and replace the cover.



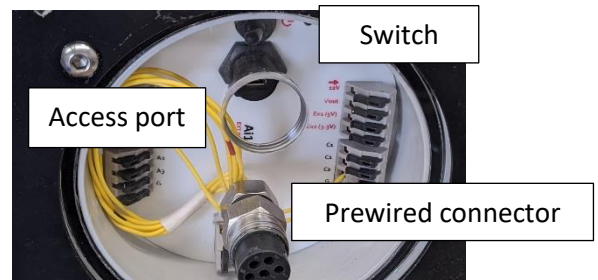
9. Mount Bird Spike Kit (if used)

- The bird spike kit mounts on top of the Ai1 using the 4 x M6 countersunk screws pre-fitted into the top.
- If a lantern is used, remove all spikes from the middle of the kit and use the M6 screws to hold down the lantern around the outside rim.



10. Turn on the Ai1.

Remove the bung from the access port and turn on the switch. The power LED will flash to indicate the program is operating. The USB port is used to communicate directly with the Ai1, but not required for quick deployment. If connecting via USB, refer to Part 2. If only using via Eagle.io, return the bung and hand tighten closed, proceed to step 6.



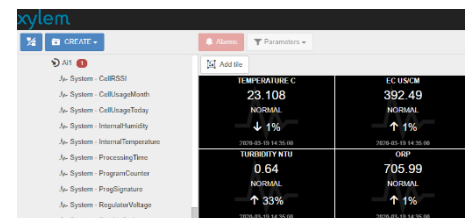
11. Access Online

If using Hydrosphere (<https://cloud.xylem.com/hydrosphere/>): Contact your support representative for help on creating the site within your account (see Ai1 manual under “Setting Up Hydrosphere”)



If using Eagle.io:

A site has been created for you. For existing users, the station is under your existing folder structure. For new users, request access at: <https://xylem.eagle.io/auth/requestaccess>



Allow 10min to ensure that the station is online. For any problems refer to the **Fault-Finding** section of the [Ai1 manual](#).

12. Secure with padlocks

It is recommended to use padlocks to lock the pins holding the Ai1 to the DB600. It is the responsibility of the customer to supply suitable padlocks. Alternatively, split pins or small bolts may be used.



Part 3 – Software Operation

A waterproof bung provides access to the USB port, power switch and fuse without needing to remove the clear plate. Use finger strength only to tighten and remove.



Figure 1 – A USB Micro-B cable is required for plugging in to the USB port. Use a **data** cable, not a charge-only cable the connection will fail.



Use finger strength only to open or close the port bung



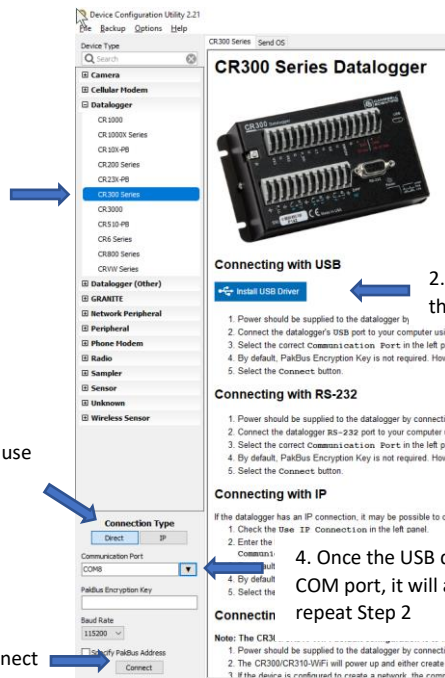
Push the USB cable into the port through the entry

1. Software Overview

The free application “Device Configuration Utility” (**DevConfig**) is used for configuring the station and is available for download from here: <http://measci.com/devconfig.exe>

Refer to DevConfig help for connection instructions, following the steps shown below to establish a connection.

1. The Ai1 is compatible with the CR300 series. Select this datalogger.



3. When plugging in a USB cable use the Direct type

5. Use the connect button to connect



Connecting with USB

Install USB Driver

1. Power should be supplied to the datalogger by
2. Connect the datalogger's USB port to your computer using
3. Select the correct Communication Port in the left panel
4. By default, PakBus Encryption Key is not required. How
5. Select the Connect button.

Connecting with RS-232

1. Power should be supplied to the datalogger by connecting
2. Connect the datalogger RS-232 port to your computer us
3. Select the correct Communication Port in the left panel
4. By default, PakBus Encryption Key is not required. How
5. Select the Connect button.

Connecting with IP

If the datalogger has an IP connection it may be possible to co

1. Check the 'Use IP Connection' in the left panel.
2. Enter the Communication Port
3. Select the correct Communication Port in the left panel
4. By default, PakBus Encryption Key is not required. How
5. Select the Connect button.

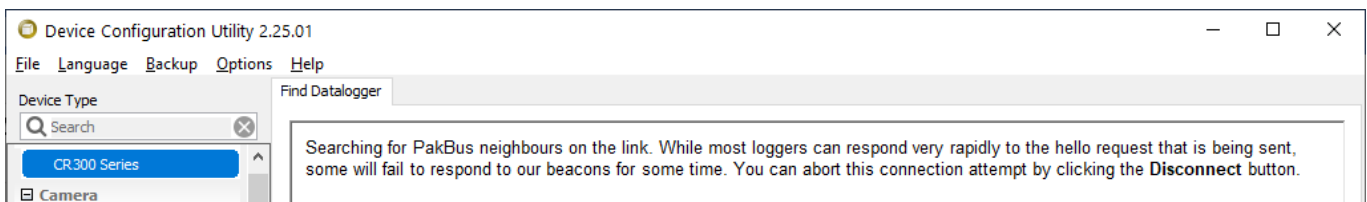
Connect

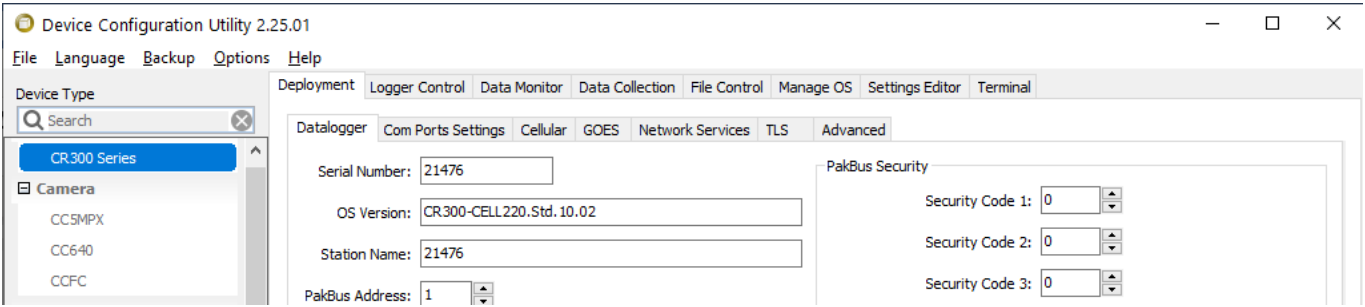
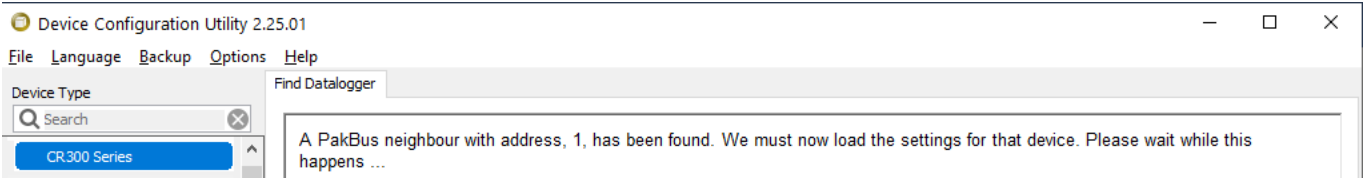
Note: The CR300 Series Datalogger will power up and either create a new PakBus address or use the default address if the device is configured to create a new PakBus address.

2. On first use, you may need to install a USB driver. Click this button and follow these steps

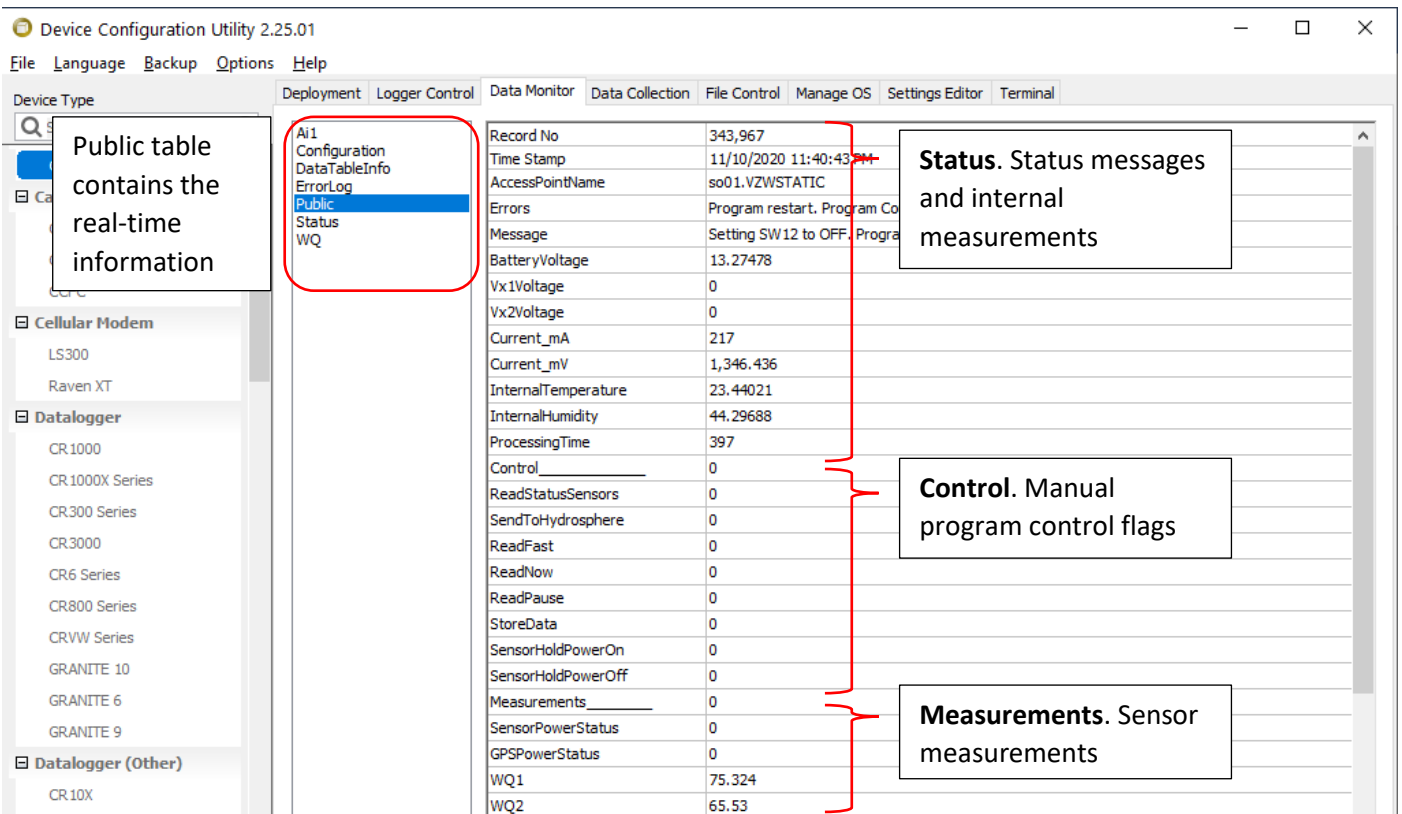
4. Once the USB driver is installed, use the pull-down option to find the right COM port, it will appear as the CR300 datalogger type. If it does not appear, repeat Step 2

You will most likely need to **install USB drivers** on the first connection to the station. See Step 2 in the image above for more instructions. Once the connect button is clicked, DevConfig will search for a connected logger and load the configuration information, as per the sequence below.





The main tab to use is **Data Monitor** which shows both the real-time and logged measurements. The table list depends on the program which is supplied to suit the sensors ordered. The tables always include Ai1 (logged status and diagnostic information), Configuration (parameters used to configure the program operation), DataTableInfo (how much data is stored in each table), ErrorLog (stored messages recording program errors and when they occurred, for fault analysis), **Public** (real-time information and program control) and the Status table (real-time status and diagnostic information). Public is the most common starting point. Highlight the Public table and use the scroll bar to review all the information, which is divided into three sections – Status (at the top), Control and Measurements. To see the latest sensor measurements, double click on **ReadNow**, set it to non-zero (i.e. -1) and the program will measure the connected sensors. Scroll down to view the Measurements section.



Part 3 - Sensors

The Ai1 is commonly used with water quality sondes that report a wide variety of data with various measurement units, using SDI12. The Ai1 passes values through to Eagle.io based on their SDI12 sequence, with the measurements being named only once they arrive at the web portal.



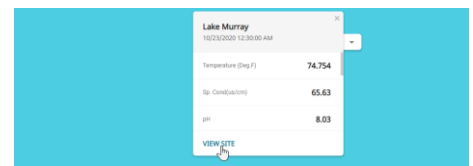
Ai1 reads via SDI12, saves to generic WQReadings() and sends to web portal

Sonde software KOR used to configure parameter sequence and measurement units.

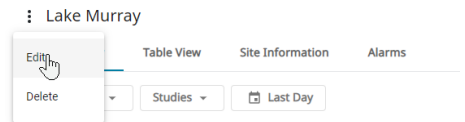
Ai1	
WQ - Temperature	Specific names provided in web portal
WQ - Conductivity	
WQ - Salinity	
WQ - Dissolved Oxygen mg/L	
WQ - Dissolved Oxygen %Sat	
WQ - pH	
WQ - Turbidity	
WQ - Chlorophyll (micrograms per L)	
WQ - Phycocyanin	

Hydrosphere Configuration

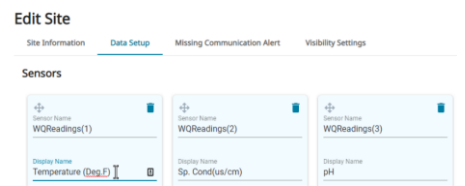
From the map overview, select the site and VIEW SITE from the pulldown menu



Click the menu icon and select Edit from the pulldown menu

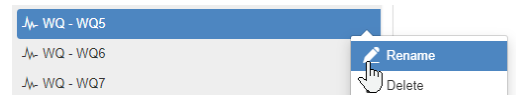


Select the Data Setup tab and in the sensor list enter the Display Name to include the name and measurement units

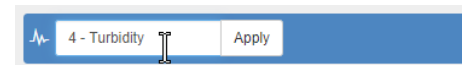


Eagle.io Configuration

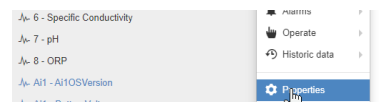
Navigate to the Water Quality parameters (WQ1 through to WQ10), right click and select **Rename**. For any that are not used (i.e. if the sonde reports seven parameters, WQ8 through to WQ10) select Delete and these parameters will be removed.



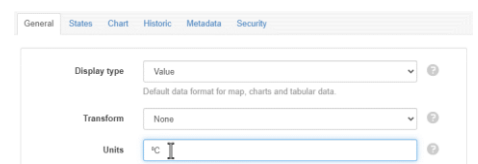
Rename each point to describe the parameter, such as Turbidity. It is also useful to add a number so that these parameters appear in sequence, and at the top of the navigation tree under the Ai1.



Once all parameters are renamed, right click each parameter and select Properties.



Update the Units field on the General tab to describe the measurement units used, i.e., °C. Click Save and repeat for other parameters



Highlight the Ai1, select Parameters from the views and review that the names and units are correct

Parameter	Value	State	Latest data
WQ - 1 - Water Temperature	21.376 °C	NORMAL	2020-10-12 14:45:00
WQ - 2 - DO saturation	0.42 % saturation	NORMAL	2020-10-12 14:45:00
WQ - 3 - DO	0.45 mg/L	NORMAL	2020-10-12 14:45:00
WQ - 4 - Turbidity	0 FNU	NORMAL	2020-10-12 14:45:00

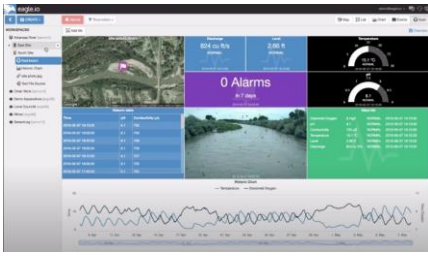
Additional Information

Eagle.io:

It is common to add dashboards and charts in Eagle.io to display the measured information. Click for video tutorials:

[Dashboards](#)

[Chart Customization](#)

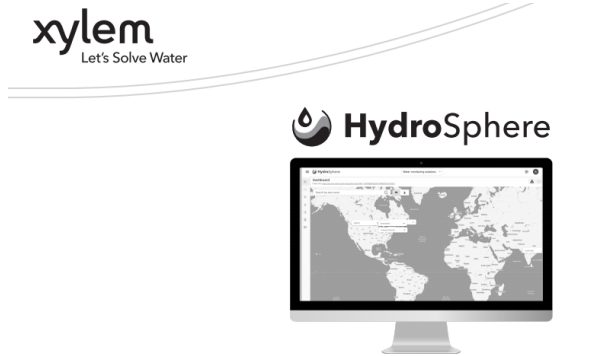


Hydrosphere:

Hydrosphere has two online resources for further learning:

[Manual](#)

[Online Videos](#)



HydroSphere™

FOR ACCOUNT ADMINISTRATORS, TECHNICIANS, AND DATA REVIEWERS

A screenshot of the YSI Video Hub website. The page features a navigation bar with links for 'Webinars', 'On Demand Recordings', 'Support', 'Tutorials', 'How-To', 'Water Quality Continuous Monitoring', 'Water Quality Sampling', 'IQ SensorNet Water Quality Monitoring System', and 'Wastewater Municipal Water'. Below the navigation bar is a search bar and a grid of training videos. The videos are titled 'HydroSphere Training' and include titles like 'How to Backfill Data in HydroSphere', '2020 HydroSphere Features', 'HydroSphere Training Video 1 | Logging In', 'HydroSphere Training Video 2 |', 'HydroSphere Training Video 3 | Accounts', and 'HydroSphere Training Video 4 | Sites and'. Each video thumbnail includes a duration and a play button icon.

Appendix A

It is possible to use the DB600 in standalone mode where a sonde such as the YSI EXO may be battery powered, with the DB600 providing the secure mooring and protection. In this instance, the lantern is mounted directly to the bracket as shown in the photos below, with the lantern battery compartment accessible from the underside. Remember that the lantern must still be turned on before use.

