

DB600 Quick Start Guide

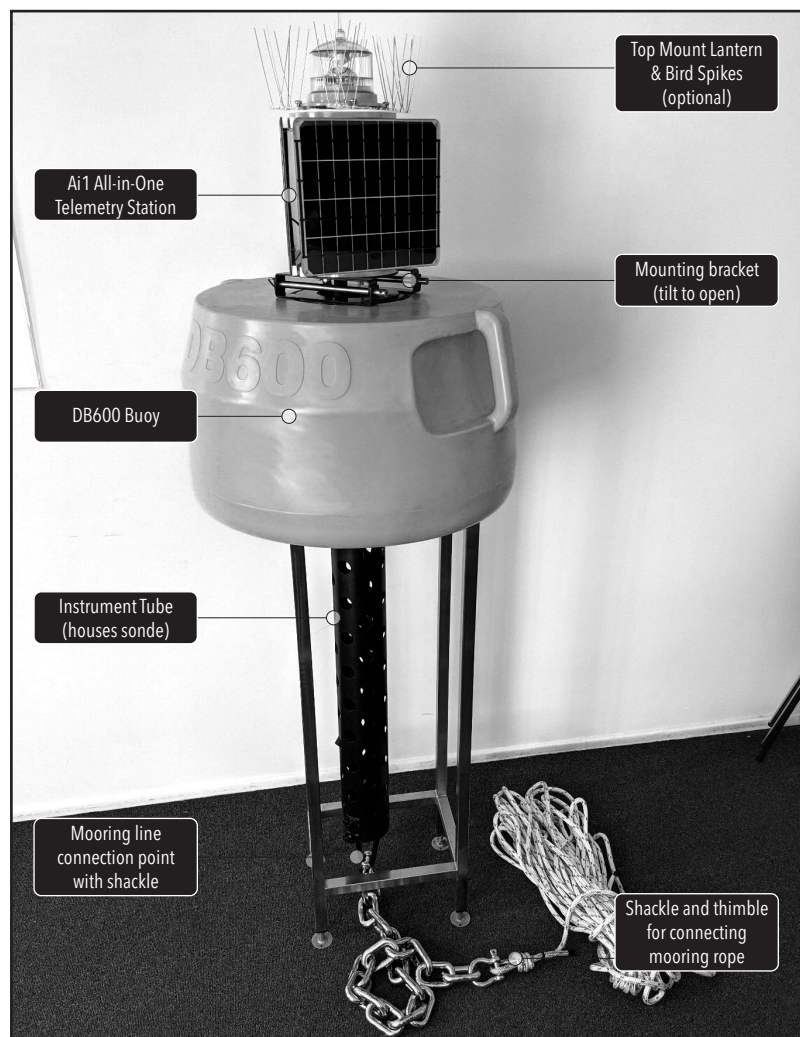
The DB600 is supplied for quick assembly prior to deployment.
Detailed instructions are in the [Ai1 manual](#).



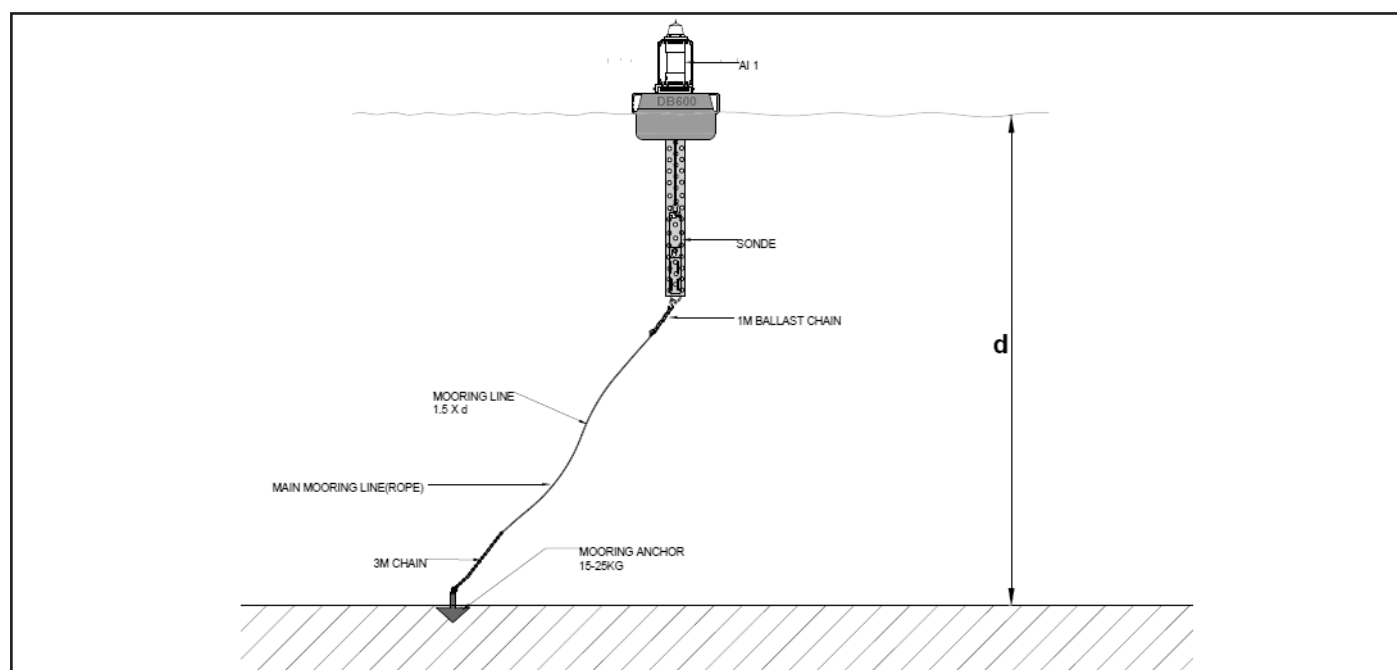
a xylem brand

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. The mooring includes the top shackle and ballast chain. The rope and anchor system are user supplied, specific to the site conditions.

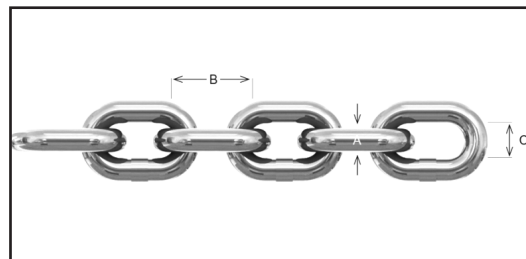


Typical Single-Point DB600 Mooring Configuration.



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 tighten securely.



Rope

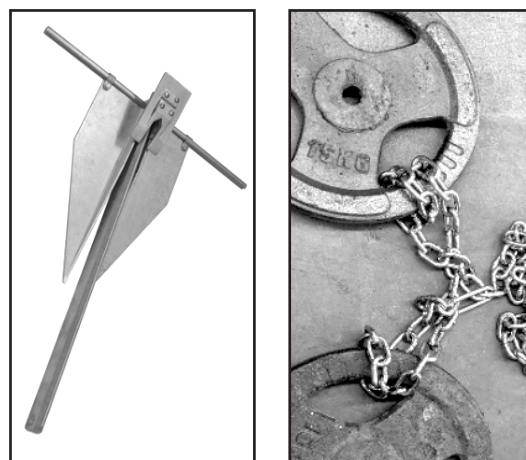
The rope is user supplied to suit mooring depth. 12mm diameter double braided rope is recommended. It is recommended to use a thimble for attaching the rope to the mooring chain with another shackle. [Watch this video](#) for instructions on tying a suitable knot when adding a thimble.



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. A short length of chain is often used to fix rope to the anchor system.

Sand anchors or scrap metal solutions may be utilized for suitable locations. [20kg weight plate\(s\)](#) with grip holes are a low-cost solution and can be added together to build the required weight.



Recommended Materials

A chandlery 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>
- Mooring Weight Chain (3m): <https://www.whitworths.com.au/cmp-galvanised-l-grade-short-link-chain>
- Ronstan Dee Shackle: <https://www.whitworths.com.au/ronstan-standard-dee-shackle>

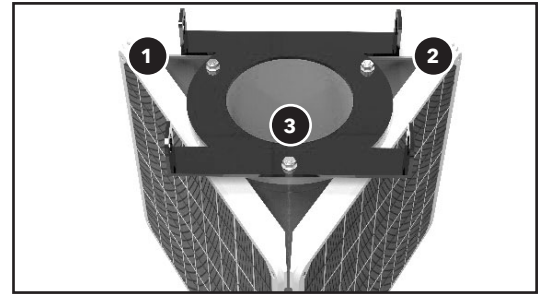
Caution:

Buoys systems and moorings can be heavy. Appropriate safety measures should be taken during deployment to ensure the risk of entanglement with the mooring line and anchors is eliminated. Personal flotation equipment should be worn at all times when working on or around water.

Part 2 - Assembly

1. Fix instrument tube top-bracket to bottom of Ai1

The stainless-steel bracket is secured to the bottom of the Ai1 using 3 x M6 screws arranged as shown here. The screws are supplied fitted loose in position in the Ai1. To tighten, use the long-shafted Allen-key (included in spares and tools) to hold screw head from the rear.



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 nyloc 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 waterproof 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.

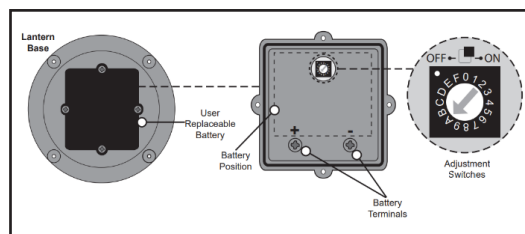
6. Connect mooring system

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.



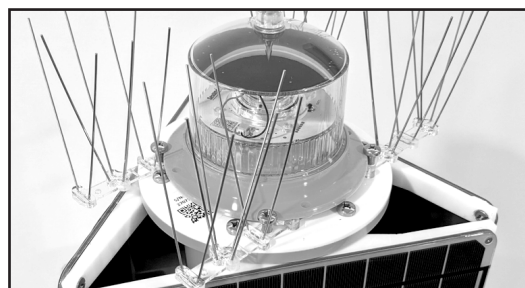
7. Turn on Lantern (if used)

- 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.



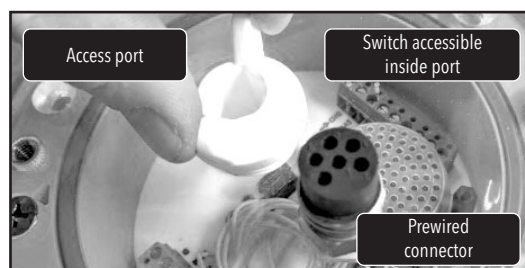
8. Mount Bird Spike Kit (if used)

- 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.



9. Turn on the Ai1

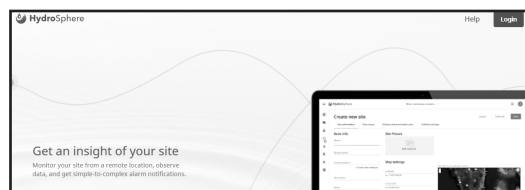
Remove the bung from the access port and turn on the switch. The power LED will flash to indicate the program is operating. The USB port is used to communicate directly with the Ai1, but not required for quick deployment. If connecting via USB, refer to Part 2. If only using via Eagle.io, return the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



10. 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](#).

11. 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.

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

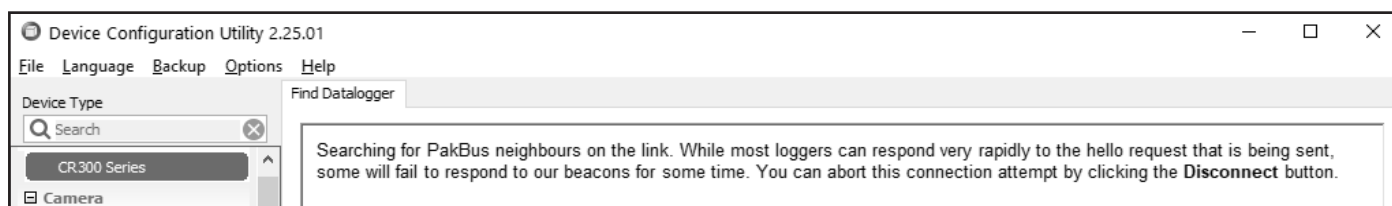
3 When plugging in a USB cable use the **Direct** type.

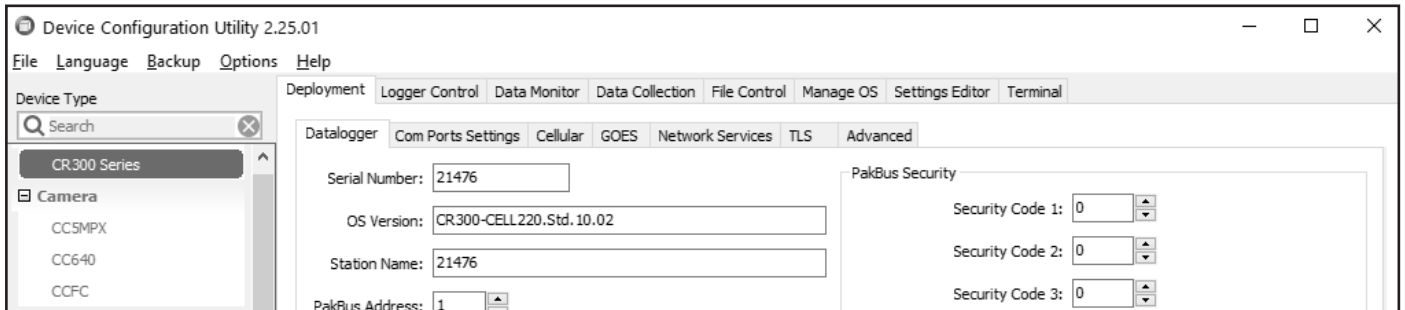
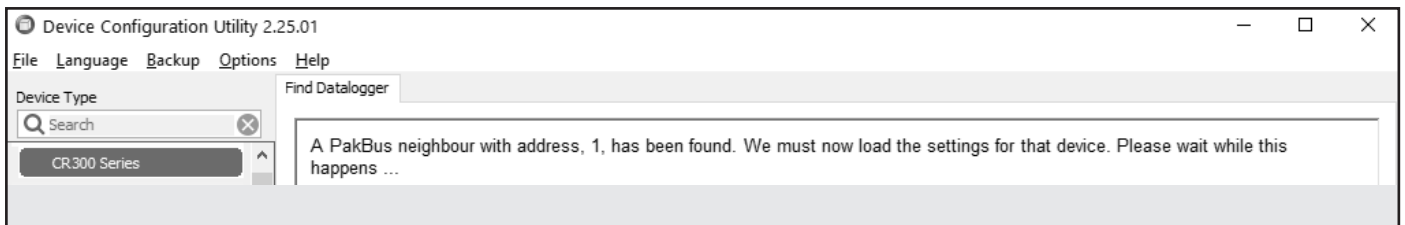
4 Once the USB driver is installed, use the pull-down option to find the right COM port, it will appear as the CR300 datalogger type. If it does not appear, repeat Step 2.

5 Use the connect button to connect.

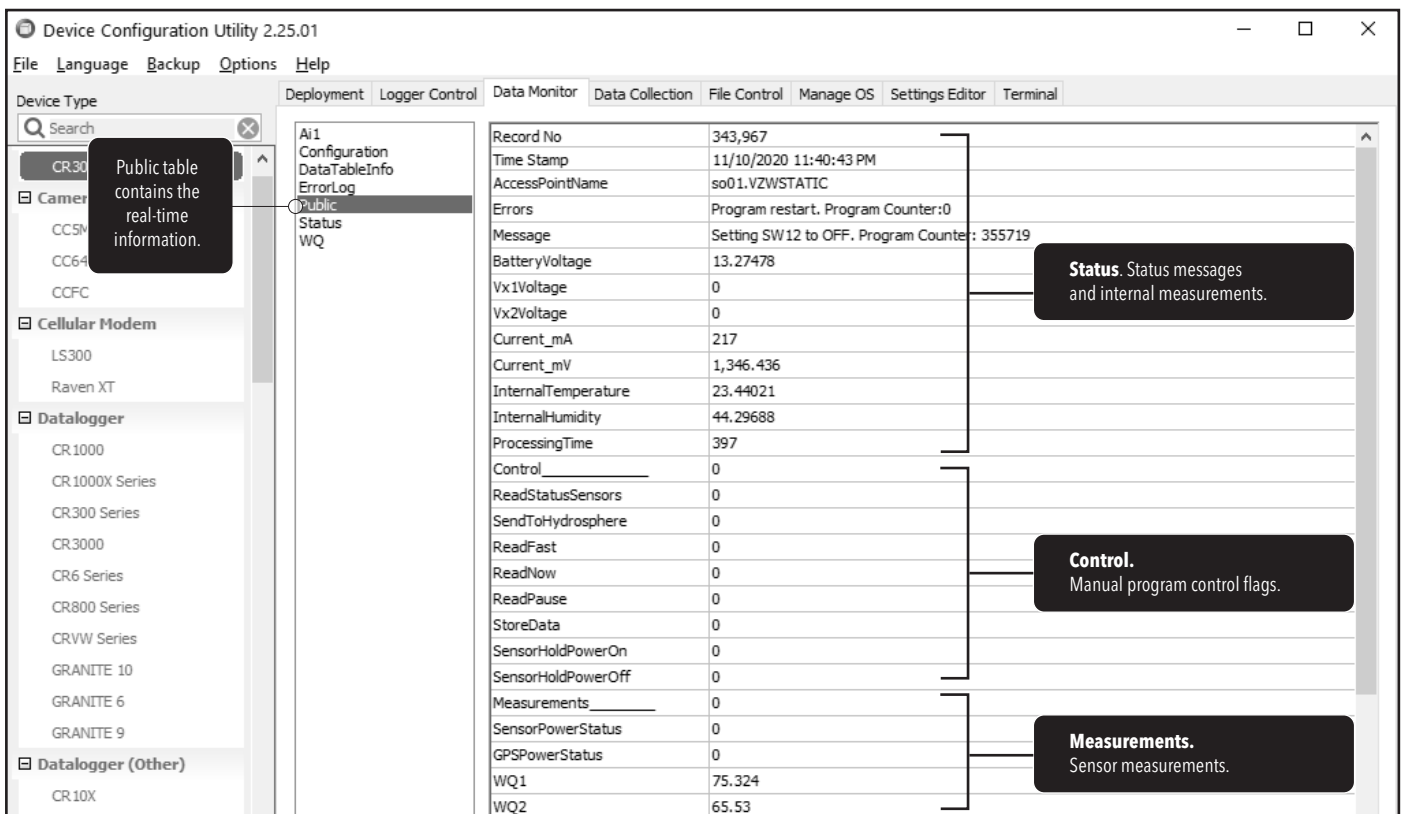
The screenshot shows the DevConfig 2.21 interface. The 'Device Type' list on the left includes 'CR300 Series'. The 'Connection Type' is set to 'Direct'. The 'Communication Port' is set to 'COM8'. The 'PakBus Encryption Key' is set to '115200'. The 'Connect' button is highlighted. The right panel shows 'CR300 Series Datalogger' with a list of models and a 'Connecting with USB' section with instructions.

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.



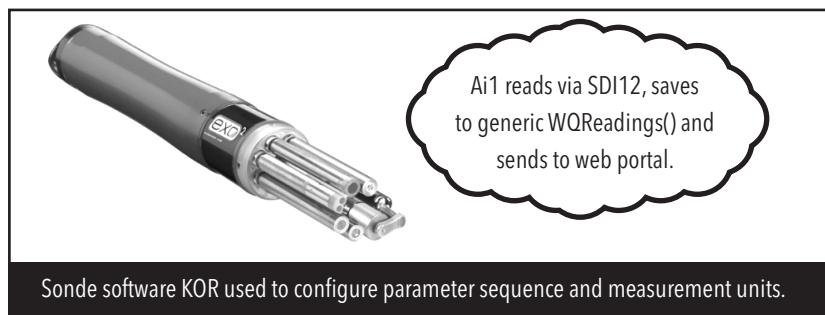


The main tab to use is **Data Monitor** which shows both the real-time and logged measurements. The table list depends on the program which is supplied to suit the sensors ordered. The tables always include Ai1 (logged status and diagnostic information), Configuration (parameters used to configure the 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.



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.

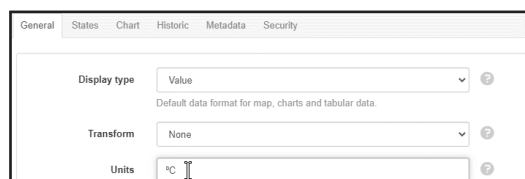
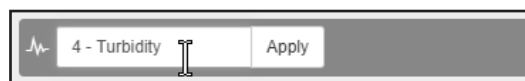
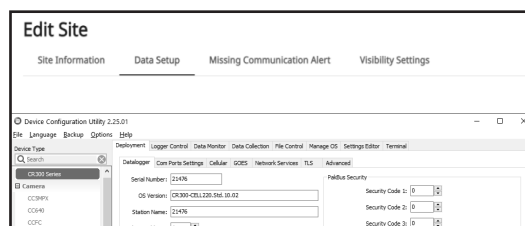
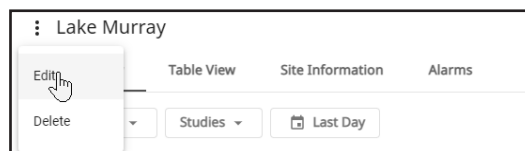
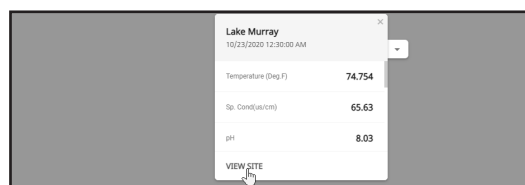
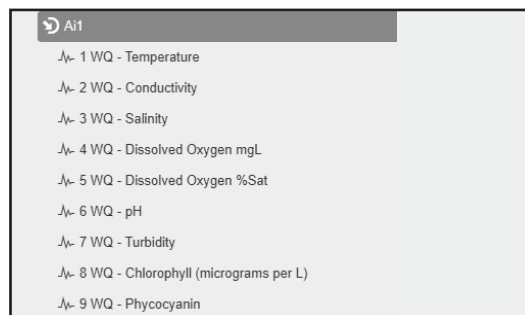
Eagle.io Configuration

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.



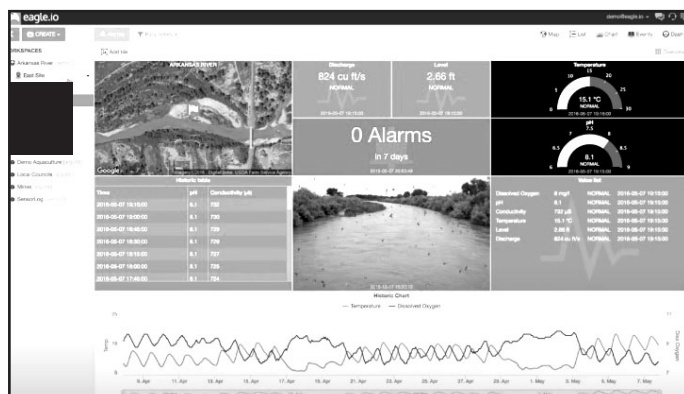
Parameter	Value	State	Latest data
Ai1 - 1 - Water Temperature	21.376 °C	NORMAL	2020-10-12 14:45:00
Ai1 - 2 - DO saturation	0.42 % saturation	NORMAL	2020-10-12 14:45:00
Ai1 - 3 - DO	0.45 mg/L	NORMAL	2020-10-12 14:45:00
Ai1 - 4 - Turbidity	0 FNU	NORMAL	2020-10-12 14:45:00

Additional Information

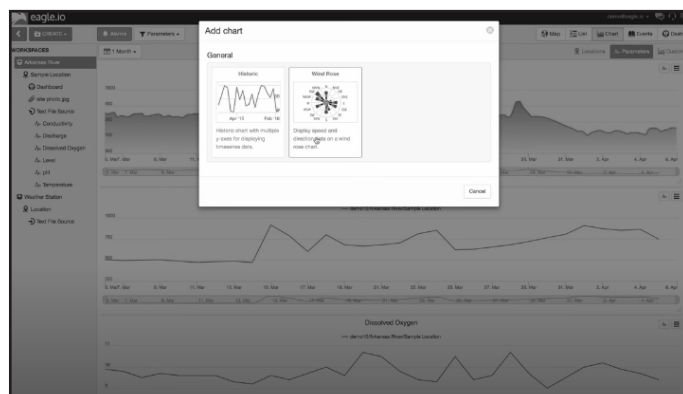
Eagle.io:

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

[Dashboards](#)



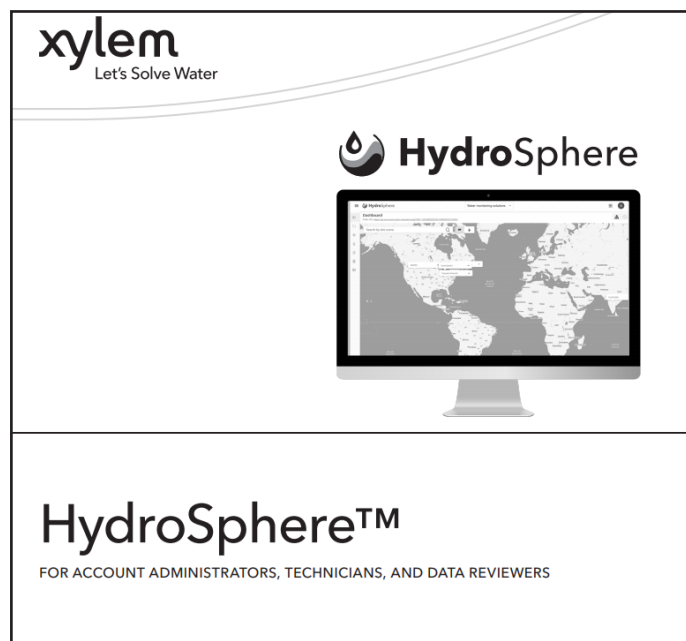
[Chart Customization](#)



Hydrosphere

Hydrosphere has two online resources for further learning:

[Manual](#)



[Online Videos](#)

