



A2tsatt.dll for 2010

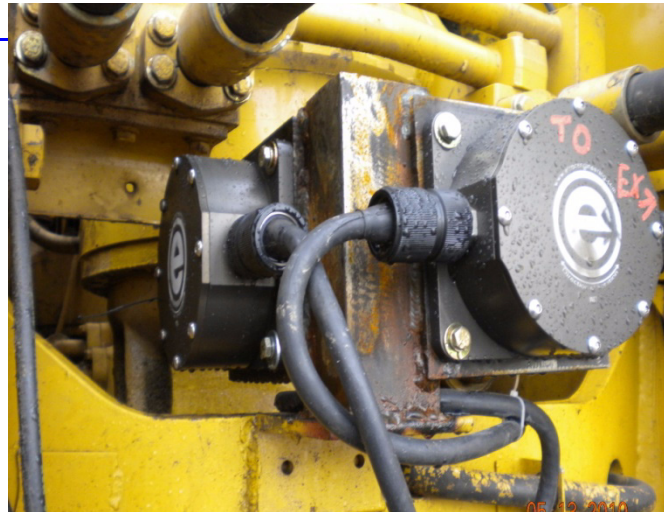
By Bob Glover

The a2tsatt.dll device driver for 2010 will allow you to use two inclinometers to calculate pitch and roll for more accurate positioning. The application is used most commonly for dredging; however it can also be used for barge monitoring and single beam data collection. It is not a usable alternative to a motion reference unit in multibeam collection, as it is not fast enough to match with the data stream of these systems. For this article we will be using the a2tsatt.dll for pitch and roll corrections with two Etrac inclinometers installed on an excavator dredge.

FIGURE 1. Etrac Inclinometers

The inclinometers should be positioned as close to the reference point of the excavator, which will be the trunnion point--that point where the boom pin joins with the body.

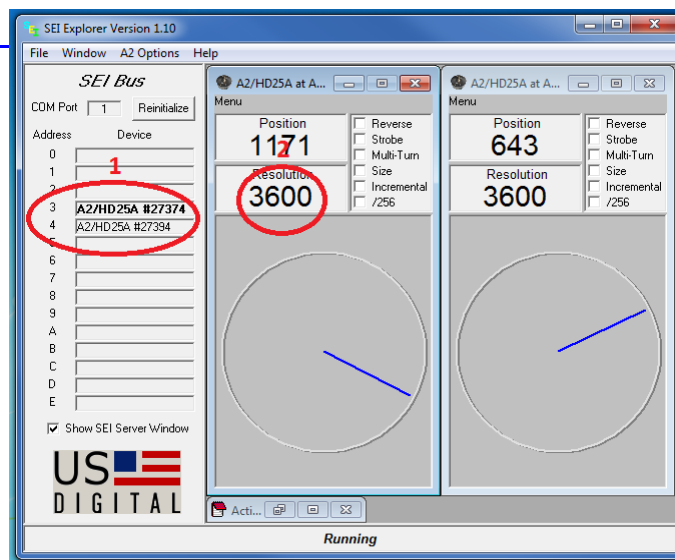
If the inclinometers are not mounted exactly at the required point, offsets can then be added in HYPACK® HARDWARE to compensate.



1. **Make sure that the inclinometers can be seen by the computer that will be running DREDGEPACK®.** This is all outside of HYPACK®, you must be able to communicate with the inclinometers before you can do any hardware configurations or work in DREDGEPACK®. This requires the SEI explorer software by US Digital (<http://usdigital.com/support/software/sei>.) SEI explorer will search your COM ports to find the inclinometers, and read their information to display in the user interface.

FIGURE 2. SEI Explorer Display

2. **With SEI Explorer running, make note of the device serial number and the address that it is assigned** (see 1 in Figure 2) also check to make sure that the resolution is set to 3600 (see 2 in Figure 2). You can change the device address and resolution can be changed in the SEI Explorer interface.

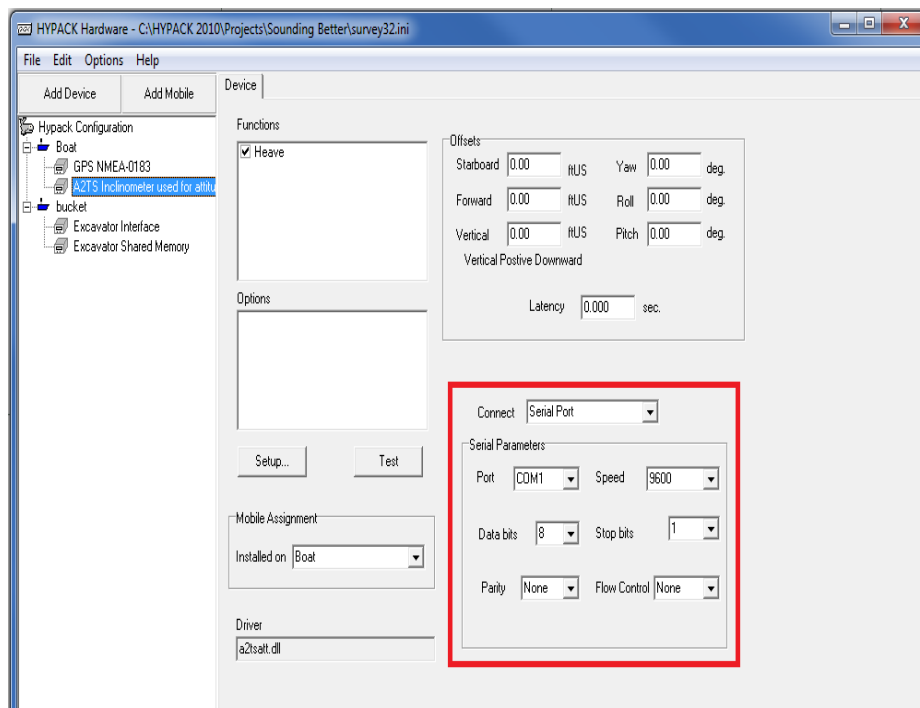


3. **Check which device will be used for pitch and which is for roll.** Pitch up will be a positive direction, roll starboard will also be positive. Should this not be the case, a sensor

can be reversed in the interface. With both inclinometers configured and the address noted, you can now move on to the hardware setup in HYPACK®.

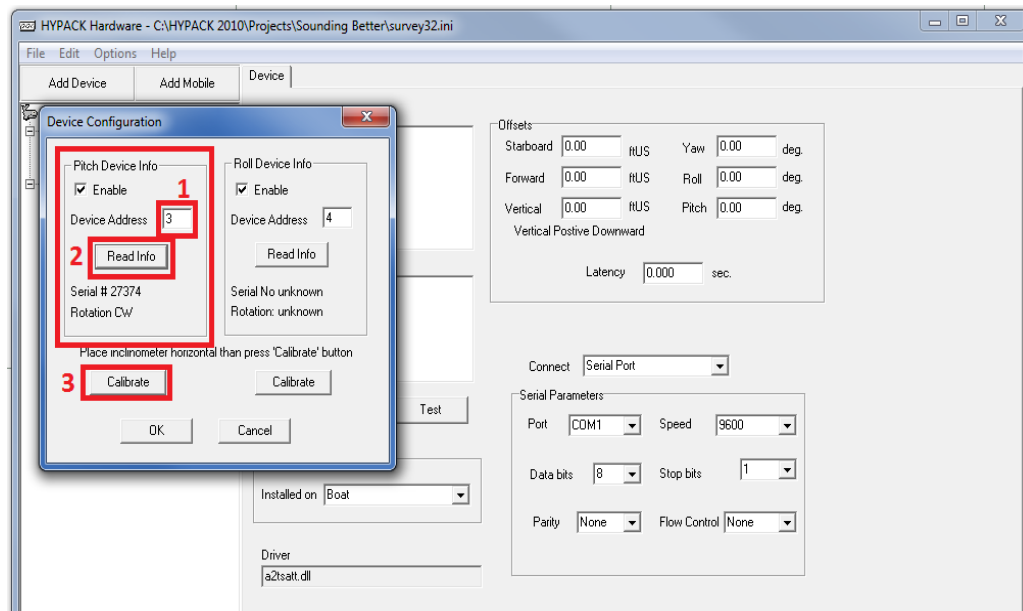
4. **Configure the A2TSATT driver in HYPACK® HARDWARE.** The a2tsatt.dll set up is accessed the same as all device drivers: click [Add Device] and select the a2tsatt.dll. This will be added to the boat mobile in our example due to the fact that the excavator will sit on the barge and both will pitch and roll together.
 - a. **Device Setup:** (Figure 3) Configure the connection settings and add any offsets that you may have from your installation of the sensors on the excavator. Use the com port that is connected to the inclinometers, and a speed of 9600 baud. The default settings of 8 none and 1 will not need to be changed.

FIGURE 3. Device Setup in HYPACK® HARDWARE



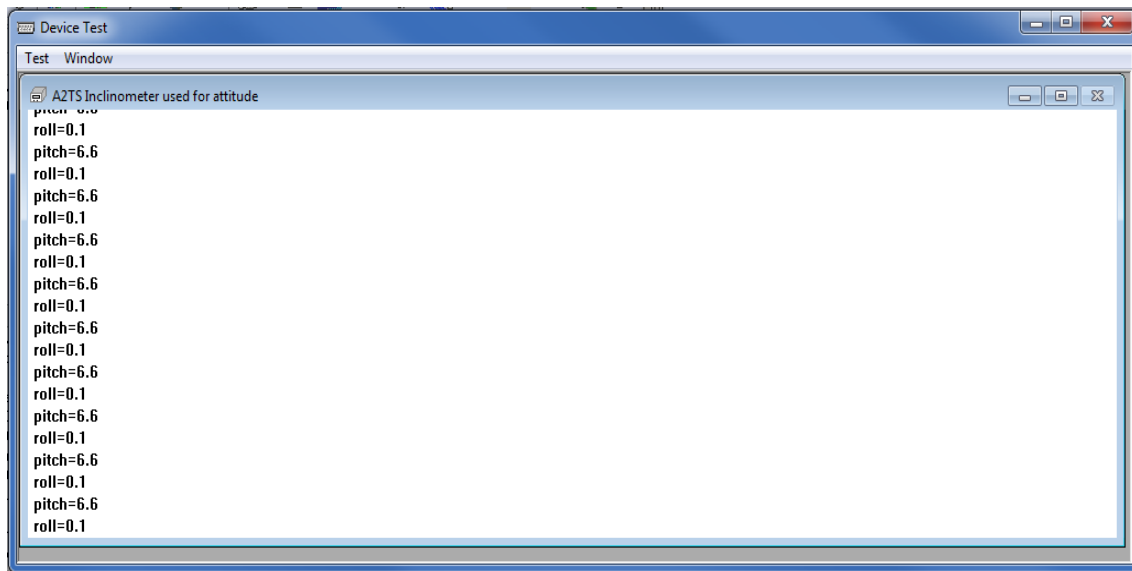
- b. **Driver setup:** (Figure 4) Access the device configuration box by clicking on the setup button.
 - i. **For each device, enter the address** which was displayed in SEI Explorer.
 - ii. **Click the Read Info box.** This will query the device and return the serial number and the direction of rotation.
 - iii. **Important! Check that the serial number and address for each inclinometer in the dialog corresponds to the correct inclinometer being used for Pitch and the one for Roll.**
 - iv. **Position the sensors as level as possible** as this will be the baseline reading from which the sensors will calculate the pitch and roll.
 - v. **Calibrate both inclinometers by clicking [Calibrate] under each device.**
 - vi. **Click [OK]** to close the setup dialog box. We are now finished with our setup.

FIGURE 4. Driver Setup for the A2TSATT.dll in HYPACK® HARDWARE



- c. **Test the device** by clicking [Test]. The a2tsatt.dll device window will open. If data is coming in our window, it will have information streaming up the screen. In Figure 5, there is small amount of Pitch and the slightest amount of roll.

FIGURE 5. Testing the Device



With satisfactory test results we can now close out of the Test box and continue on setting up other devices for our project.