

Alice loggers...

Before the logger can be used, it must first be connected to the comm's board and configured with the Alice App. You will require a **USB 3.0 port** for this (typically has a blue edging inside the socket).

Do not connect a non-rechargeable battery to an Alice logger as the comm's board will attempt to recharge it, which may result in an explosion.

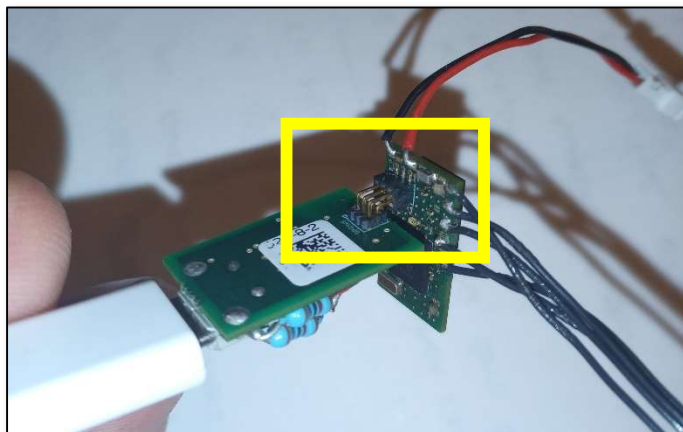
Steps are:

1. When a battery is first connected to Alice, a yellow LED will flash every 2-3 seconds. This is *sleep mode*
2. Connect the USB cable to the comm's board, and then connect this to the PC / laptop. A COM port should be generated

You can verify this by right-clicking on the Windows Start button and selecting **Computer Management**, and then **Device Manager**. Under **Ports**, you should see a **USB Serial Port (COMx)**:



3. You can now connect the comm's board to Alice. Please note the orientation in the photo below



When the connector (6-pins) is pushed into place, the logger will sense its presence and switch to a rapid flashing of the green and yellow LEDs, indicating it is listening for instructions

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4. **Battery charging:** If it's a small battery (40-100 mAh), please give it a good hour to fully charge. The current draw on these devices is so low, the comm's board finds it difficult to sense it charging. I've found that larger capacity batteries, such as a 100 mAh/3.7 V cell makes the red LED on the comm's show brightly while charging, otherwise it is just dim. Checking the battery voltage at the battery connection mid-way to the logger with a multi-meter, while the logger is in sleep mode, is a good time/place to check. Expect around 4.18-4.20 V when fully charged. Don't bother checking when the comm's board is connected as you'll simply see the charging voltage, ~ 4.20 V

5. **Communicating with Alice:** Run the Alice app and click the **Connect** button, top left (this must be the first button clicked when you connect a comm's board, else the other buttons will do nothing. It opens the communication port in the Alice app):

6. The app shows the current time on the PC / laptop. To set the time on Alice, click **Send current Date / Time to logger**
To verify the time on the logger at any time from this point on, as long as the battery does not become disconnected, click **Connect** and then **Request current logger time value** and it will be displayed there. Note that the logger time is only updated at the time of the request button
7. Before first use, click **Erase memory**, and a popup will provide you with a random value between 1 and 99. Click **Ok** and enter this value into the text box beside the **Erase memory** button and click **Set**. If you entered the correct value, a red LED will illuminate on the logger while it erases the logger's memory. This random value helps to prevent accidental erasure of the logger. The user must purposely enter the correct number, verifying they want to erase it.
8. Once the erasure is complete (30-50 seconds), the red LED will switch off, and a popup will indicate this process is complete
9. Select the g-range for the up-coming deployment; default +/- 16 g
10. Select the sampling frequency for the accelerometer (10, 20, 40, or 80 Hz); default 40 Hz
11. Click **Prepare device for deployment**. This imprints the g-range, and sampling frequency in the first page of its memory
12. A green LED will illuminate on the logger for 2 seconds, and then it will return to rapid flashing of the yellow and green LEDs
13. You can now disconnect the comm's board from the logger. Please ensure you use a firm grip and pull directly normal to the board, not at an angle, else you might pull the connector off of the logger. (This did not happen to me in over 100 connect/disconnects)
14. The logger, once the comm's board is disconnected, will return to sleep mode; yellow LED flashing every 2-3 seconds
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15. **To start the logger logging data**, swipe a magnet near it, and it will flash briefly yellow, a brief flash of the red LED (I will likely remove that red flash as I would prefer to only show that for errors or erasure), followed by a green LED for about a second
16. Logging is indicated by a very brief green LED (as usual) for every ~ 30 data points, so at 40 Hz, this will be > 1 Hz
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17. **To terminate logging**, bring a magnet to the logger so that the yellow LED illuminates, and hold for about 5+ seconds, until the green LED illuminates. Remove the magnet
18. The logger is now in sleep mode
19. Connect the comm's board to the logger
20. Click **Connect**
21. Verify the time on the logger by clicking **Request current logger time value** (assuming that the battery connected to the logger is still good. If not, the returned time/date will likely be incorrect)
22. To extract the data from the logger, you must first instruct it to count the data (pages used in memory). Click **Count data in logger** and wait. This could be a minute or more if the deployment is over several days. When it has counted, it will display the number of data points and pages used (a page = 30 data points), and the % of the memory used (of 256 MB)

Count data in logger

Memory usage: 4.567 %

2011380 Data points

47890 Pages

Export data to filename:

Filename

Set data export directory

Export directory

Transfer data to file on PC

Progress

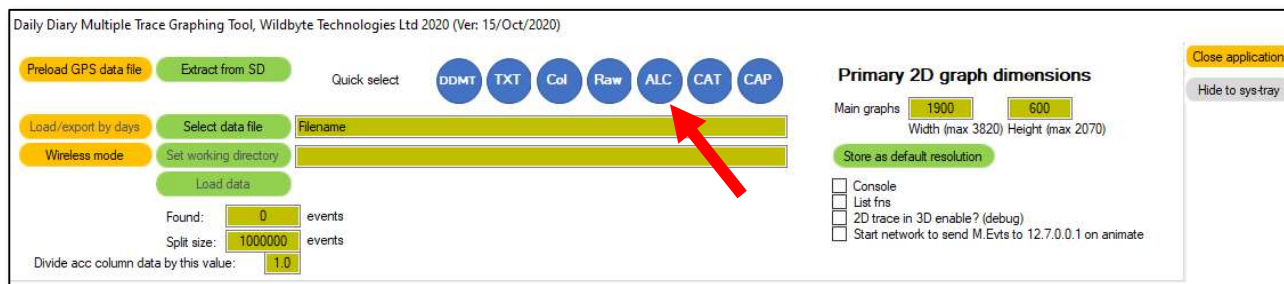
23. Set a working directory for the exported data
24. Click **Transfer data to file on PC**. If nothing happens after a few seconds, please click it again as the logger missed the command, else, you'll see the transfer begin. Note that the transfer is in blocks of 64 pages, so if the logger only used 61 pages, it would transfer 64 pages to file, or if 100 pages were used, it would transfer 128 pages to file
25. That's it!

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26. To reuse the logger:

- you can either request current time to ensure it is correct, or just set the time (I always verify the logger time after)
 - erase its memory
 - click the prepare for deployment button
- ❖ *Any attempt to start the logger logging data, i.e., not comm's board, and bringing it out of sleep with a magnet, without erasing previous data, will result in a rapid flashing of the red/yellow LEDs.*
- ❖ *To rectify this situation, simply bring a magnet to the device to put it back to sleep, and follow from step #26 above*

To load the data into DDMT, click the ALC button on the front panel:



The short version

For deployment:

- Connect comm's board to USB, and plug into PC
- Power up the logger with a battery and connect to the comm's board
- Run the Alice app and click connect
- Erase the memory, and click prepare for deployment

To get to the data:

- connect to the comm's board and click connect
- request the logger time to check for drift (compare the laptop time)
- count data in logger
- set export directory
- transfer data to file on PC

Realtime data

After connecting the logger to the comm's board, running the app, and then having the rapid green/yellow flashing LEDs, click connect to ensure comm's enabled on the PC side and click **"Enable real time plot"** (to tell the logger to enable the sensor), and then **"Start real time plot"**. Data will then be constantly requested from the logger and graphed in real time. To stop, click **"Stop real time plot"**.

There is a minor bug in the software such that if the plot is showing real time data and you disconnect the logger from the comm's board and reconnect, or another logger, the app will need to be restarted to show real time data as the control button will be out of sync – will sort soon / minor.

Note the "Acceleration range" is not of the sensor itself, but merely the acceleration graph Y limits.

