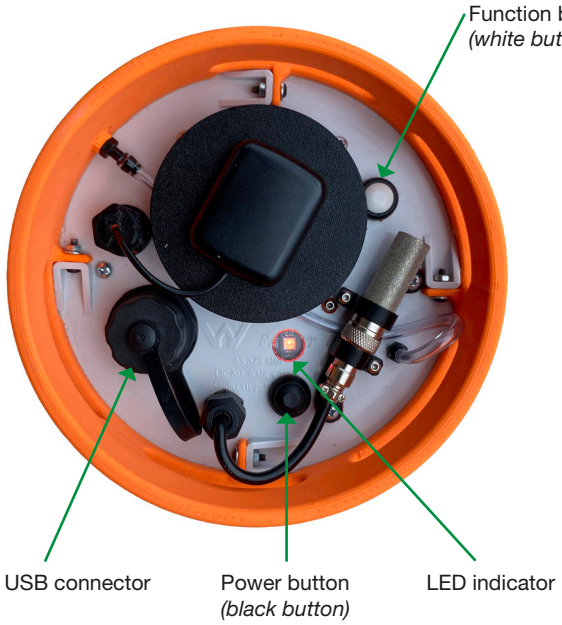
VEHICLE & GROUND STATION INSTRUCTIONS

VEHICLE INTERFACE



GROUND STATION INTERFACE

- The GPS icon is white if the vehicle GPS has a valid 2D or 3D fix at the time at which the vehicle sent the LoRa packet.
- The latitude and longitude is only updated on the display if the fix type is valid such that the last shown latitude and longitude is always valid if the LoRa connection is lost.
- A new data file is created on start-up such that any received LoRa packets are logged to the SD card so long as the device is powered on.
- The connection status is shown in the top left corner. The vehicle is considered disconnected if a new LoRa packet is not received 10 seconds after the previous packet . If the vehicle becomes disconnected, the data on the display show that of the last received packet. The ground station constantly checks for new packets regardless of the connection status.

LOGGING DATA

1. Press the black power button to power on the vehicle - the LED indicator will illuminate **PURPLE** indicating that the vehicle is initializing.
2. Wait until the LED indicator turns **BLUE** and is solid or blinks once every 2.5 seconds.
3. To begin data logging, double click the white function button. The LED indicator will illuminate **GREEN** once data is being logged to the SD card successfully.
4. The LED indicator will blink **BLUE** once every 10 seconds if the GPS doesn't have a valid fix.
5. The LED indicator will blink **BLUE** once every second when a valid fix is acquired (the LED indicator remains green as long as data is successfully being written to the SD card).
6. Once a valid fix is acquired, a blue blink observed every second and the LED indicator remains green, the vehicle is ready to be deployed.
7. To stop data logging, the black power button must be held for longer than 6 seconds, the LED indicator will briefly illuminate white after 6 seconds indicating the data logging file was successfully closed before the electronics power off.
   Note: The data file is synced every time new data is written, closing the file is just for good measure and not 100% necessary to not lose data.
8. If at any point the LED indicator is illuminated **RED**, this indicates an error occurred. See the system block diagram for further troubleshooting for the cause of the error. The vehicle must be power cycled. To power down the electronics, the black power button may need to be held down for longer than 13 seconds or until the LED indicator goes out.

EXTRACTING DATA

FROM THE VEHICLE

1. Plug the USB connector into your computer.
2. Press the white function button.
3. While pressing the white function button, connect the RJ45 connector into the RJ45 USB connector socket on the vehicle.
4. The LED indicator illuminates light blue indicating it is in USB transfer mode.
5. The vehicle mounts as a USB thumb drive on your computer, this can sometimes take a few moments.
6. To power off the vehicle; eject the "Vehicle SD" from your computer, unplug the USB connector from either end and hold the black power button down until the LED indicator goes out (approximately 13 seconds).
7. If the USB drive fails to mount, try unplugging and re-plugging the cable into the vehicle's RJ45 USB connector.

FROM THE GROUND STATION

1. Plug the USB-A connector into your computer.
2. With the ground station powered off, plug the USB-C end into the receptacle on the right hand side.
3. While pressing the up button on the front of the ground station, flip the power switch to power it on. The screen will display a graphic indicating it is in USB transfer mode.
4. The ground station mounts as a USB thumb drive on your computer, this can sometimes take a few moments.
5. To power off the ground station - eject the "GS SD" from your computer, unplug the USB connector from either end and flip the power switch.
6. If the USB drive fails to mount, try unplugging and re-plugging the USB cable.

VEHICLE SYSTEM BLOCK DIAGRAM