



MAVLink Driver

Connor MacDonald

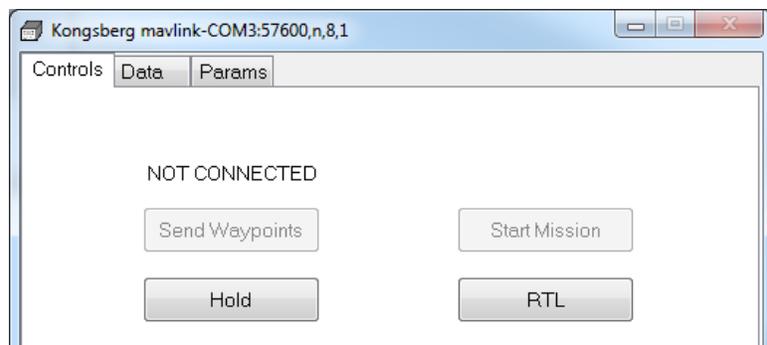
As autonomous underwater vehicles grow in popularity, HYPACK is beginning to focus on integrating these new systems with the current software package.

HYPACK® already outputs planned line files (LNW) to MAVLink waypoint files, but now it can directly interface with devices that support the MAVLink protocol.

As of now, the MAVLink driver allows you to load a line file in SURVEY and send that line file to the device as an autonomous mission.

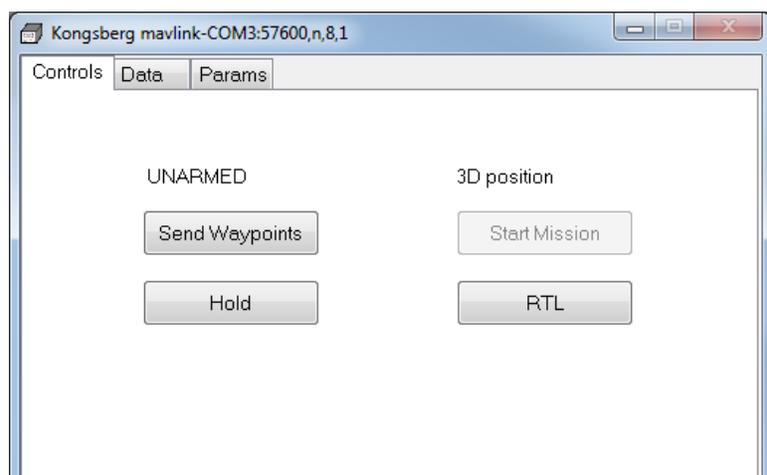
1. **Load the line file in SURVEY.**

FIGURE 1. MAVLink Device Window Before it is Connected to the Survey Computer



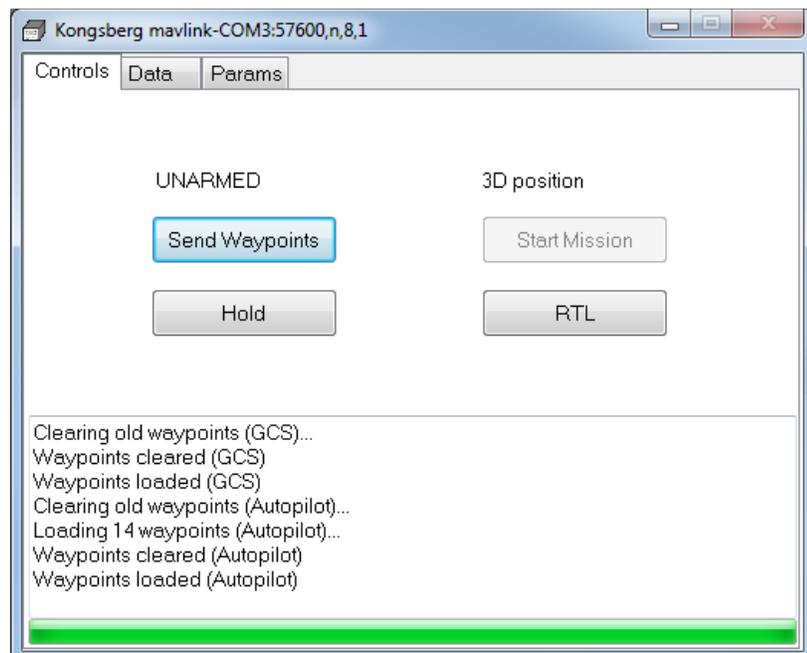
The driver recognizes when a MAVLink device is present (“Not Connected” changes to “Unarmed”), and displays its connection (“No position information changes to “3D position”), GPS, and arm status. A GPS lock ensures the home location for the MAVLink device is set to its current location.

FIGURE 2. MAVLink Driver Shows Armed Status and Lock on GPS Position



2. **Send the waypoints of the line file to the MAVLink** by pressing the Send Waypoints button.

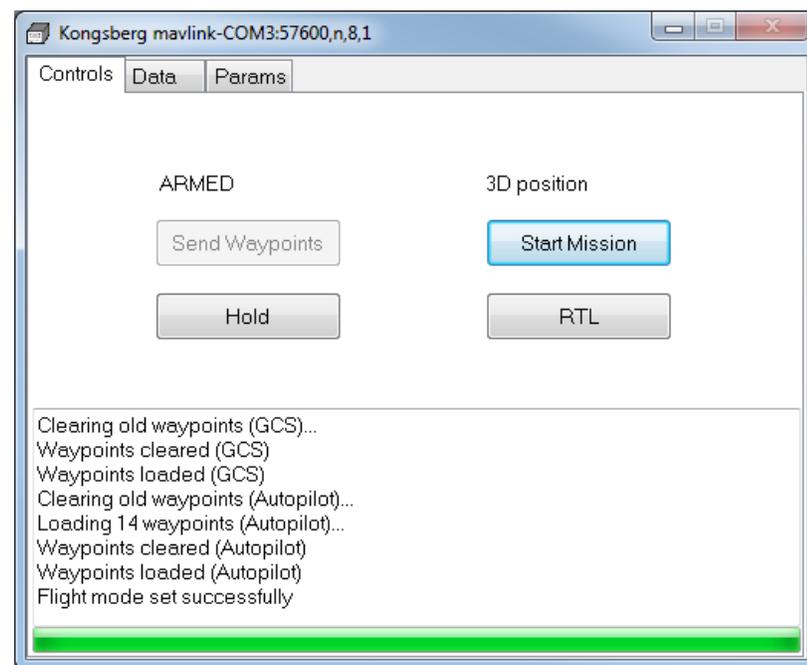
FIGURE 3. *Sending the Waypoints From the Line File to the MAVLink*



3. **Arm the device and click [Start Mission].**

If you need to put the MAVLink device on hold or return it to its launching point (RTL), there are appropriate buttons for those purposes as well.

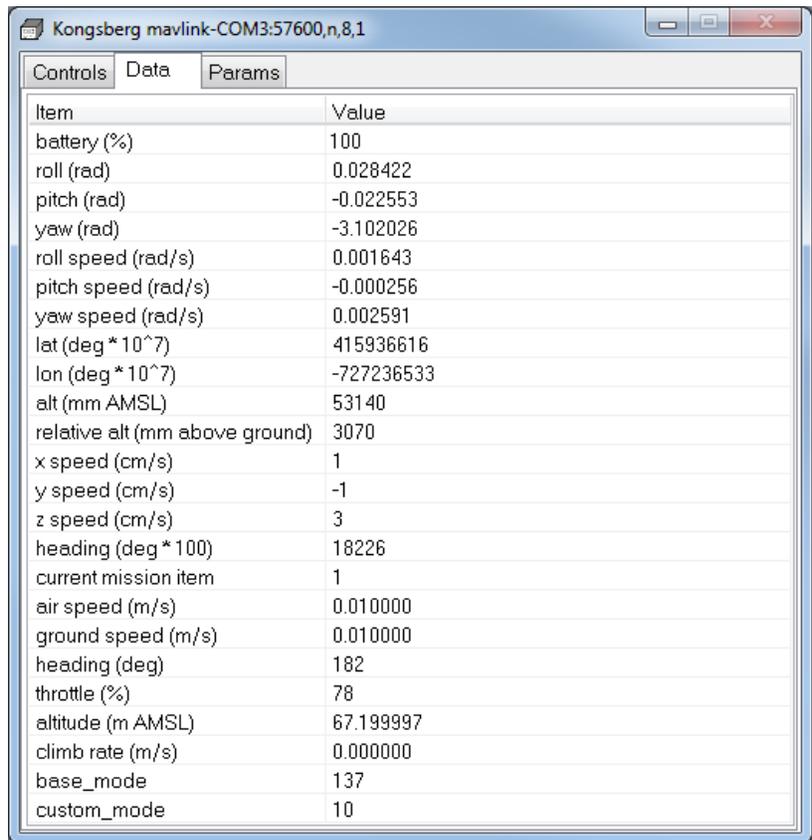
FIGURE 4. *Starting the Mission*



There are also Data and Params (Parameters) tabs:

The **Data tab** displays real-time information being sent from the MAVLink device.

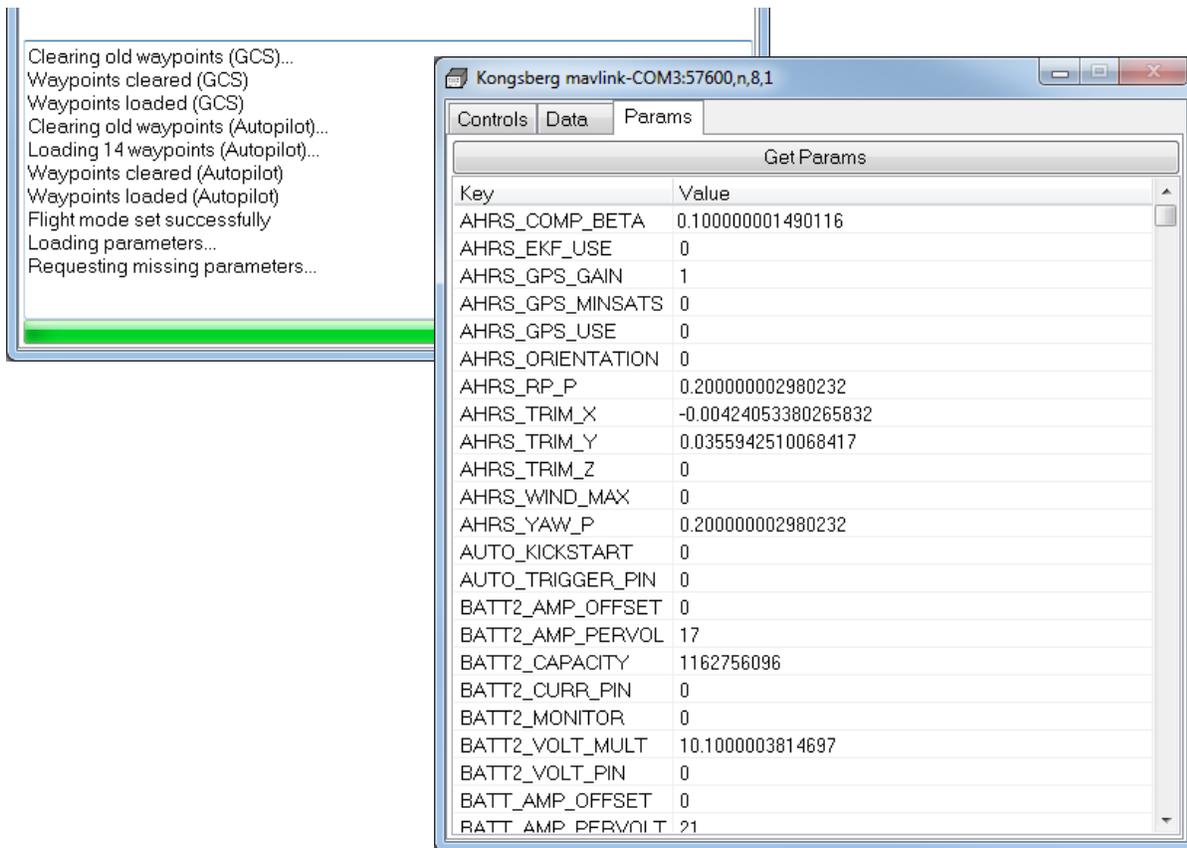
FIGURE 5. Data Tab



| Item | Value |
|--------------------------------|------------|
| battery (%) | 100 |
| roll (rad) | 0.028422 |
| pitch (rad) | -0.022553 |
| yaw (rad) | -3.102026 |
| roll speed (rad/s) | 0.001643 |
| pitch speed (rad/s) | -0.000256 |
| yaw speed (rad/s) | 0.002591 |
| lat (deg * 10 ⁷) | 415936616 |
| lon (deg * 10 ⁷) | -727236533 |
| alt (mm AMSL) | 53140 |
| relative alt (mm above ground) | 3070 |
| x speed (cm/s) | 1 |
| y speed (cm/s) | -1 |
| z speed (cm/s) | 3 |
| heading (deg * 100) | 18226 |
| current mission item | 1 |
| air speed (m/s) | 0.010000 |
| ground speed (m/s) | 0.010000 |
| heading (deg) | 182 |
| throttle (%) | 78 |
| altitude (m AMSL) | 67.199997 |
| climb rate (m/s) | 0.000000 |
| base_mode | 137 |
| custom_mode | 10 |

The **Params tab** allows you to browse the MAVLink device's parameters: Press [Get Params] to populate the display. It may take up to a minute for all parameters to load. Progress for parameter loading can be monitored on the Controls tab.

FIGURE 6. Parameter Load Progress in the Controls Tab (left), Parameters Tab (right)



The parameters cannot be changed yet, but that is currently in development.

Other upcoming features to look forward to include real-time waypoint editing and automatic surveying based on received data.