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Configuring the Klein 5000 V2 in HYSWEEP

By Dave Maddock

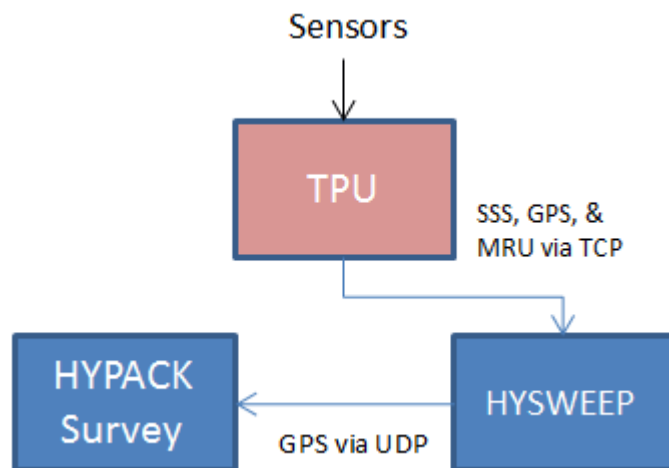
HYPACK® has supported the Klein 5000 as a pure side scan sonar through many versions of the software. Several years ago, Klein re-engineered the product to support an optional swath bathymetry option similar to the Klein HydroChart 3500. HYSWEEP® has supported this bathymetric capability since HYPACK® 2017. This article will discuss how to configure and collect bathy data from this system.

COMMUNICATIONS

FIGURE 1. Network Communications Diagram

As with all Klein sonars, HYPACK® communicates with the sonar topside box through a proprietary Klein interface. This allows us to receive, not only the sonar data, but auxiliary sensors as well such as position fixes and inertial data. Simply enter the system IP address in HYPACK® HARDWARE to establish network communications. (The network port field is ignored as this driver has a hard-coded port.)

HYPACK® SURVEY prefers to receive data directly from any GNSS system in order to insure the best quality navigation data during operations. However, you may choose to read the GPS data through the same data pipe that HYSWEEP® uses. In this configuration, HYSWEEP® re-transmits the GPS packets on a user-specified UDP port which gps.dll can be configured to read.



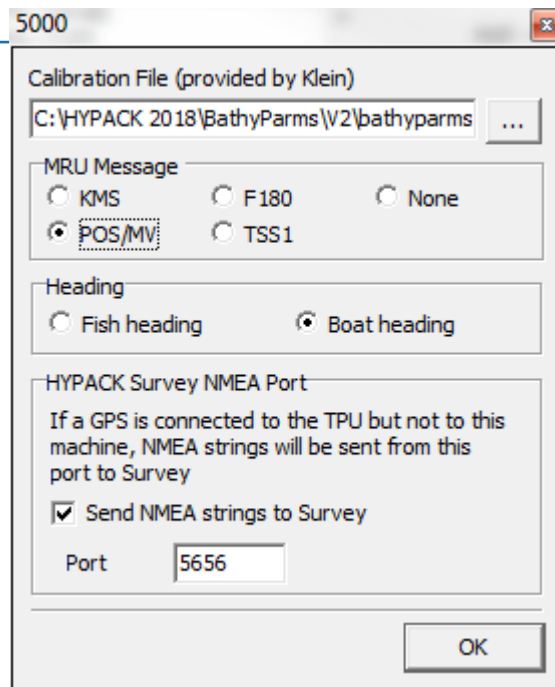
DRIVER SETUP OPTIONS

FIGURE 2. HYSWEEP® Driver Setup for the 5000

The Klein bathymetric sonars require a calibration file provided by the manufacturer. Default files are distributed with HYPACK® in the “BathyParms” sub-folder; however, it is strongly recommended that these be replaced with the calibration file that came with your sonar. *Failure to do this may result in collecting bad data.*

In HYPACK® HARDWARE, in the Driver Setup dialog, do the following:

1. **Select your calibration file.**
2. **Select which MRU is being used and the source for heading.** In bathymetric mode, it is critical that the MRU data be sent through the TPU in order for the beamforming to be filtered accurately.
3. **If you wish to read GPS data into HYPACK® via the Klein TPU, enable the “Send NMEA strings to Survey” option** so that gps.dll can acquire the data.

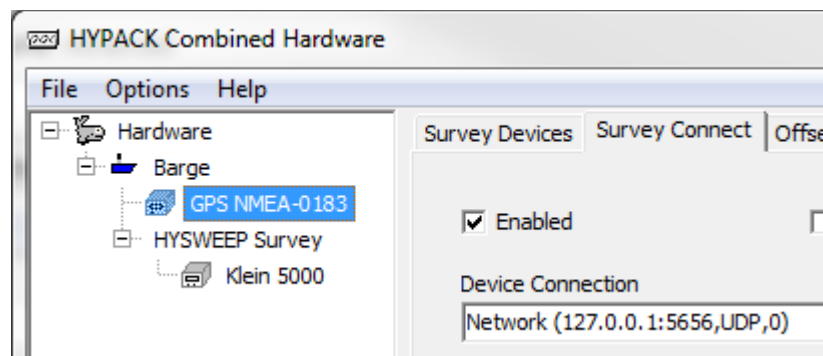


CONFIGURING THE NAVIGATION SOURCE

If the positioning device is connected directly to HYPACK®, the device will be configured as usual. Otherwise, HYPACK® SURVEY must be configured to listen to the NMEA data stream passing through HYSWEEP® from the TPU as discussed above.

To do so, add gps.dll to your primary vessel in HYPACK® HARDWARE and configure the device connection to be a UDP network connection listening on port 5656.

FIGURE 3. Gps.dll Connection Settings



ACQUIRING DATA IN HYSWEEP

Bathymetric data from swath side scan sonars can be further processed in real time in HYSWEEP® with the “Interferometry” toolkit. This feature allows you to filter, bin, or downsample the data as needed. The resulting “cleaned” data will be displayed and logged in HYSWEEP® just like any other MBES system.

For more information about the available filtering and beamforming options for interferometric-style data, consult the HYPACK® manual.

FIGURE 4. *Acquiring Data in HYSWEEP®*

