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Sonardyne Sprint INS Implementation in HYPACK®/ HYSWEEP®

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The Sonardyne.dll driver has been modified to read in the PSONNAV data string from the Sonardyne Sprint INS system. The PSONNAV string format is as follows:

FIGURE 1. *PSONNAV String Format*

Description

The purpose of this proprietary message provides output navigation which consists of a UTC timestamp, position, depth, attitude and heading with associated accuracy estimates.

Format

$PSONNAV,hhmmss.sss,llll.llllll,a,yyyyy.yyyyyy,a,x.xxx,x.xxx,x.xxx,a,d.ddd,x.xxx,r.rrr,p.ppp,h.hhh,x.xxx,a,aaaaaaa,,,,,,*hh<cr><lf>

Table C–17 Digiquartz Formatting

Field	Description
&	Start character
PSONNAV	Address
hhmmss.sss	UTC Timestamp
llll.llllll,a	Latitude
yyyyy.yyyyyy,a	Longitude
x.xxx	Major Axis position error ellipse
x.xxx	Minor Axis position error ellipse
x.xxx	Direction of major Axis position error ellipse
a	Position Status
d.ddd	Depth
x.xxx	Depth standard deviation
r.rrr	Roll
p.ppp	Pitch
h.hhh	heading
x.xxx	Heading standard deviation
a	Orientation status
aaaaaaa	Sensor status
,,,,,,,	Null fields for future use
<cr><lf>	return plus linefeed

Supported Input Format

$PSONNAV,153239.443,5119.838453,N,00050.141452,W,0.155,0.155,1.861,A,-0.040,0.218,0.798,0.079,279.846,0.133,A,AI,,,,,,*46<cr><lf>

SETTING UP THE SONARDYNE DRIVER IN HYPACK HARDWARE

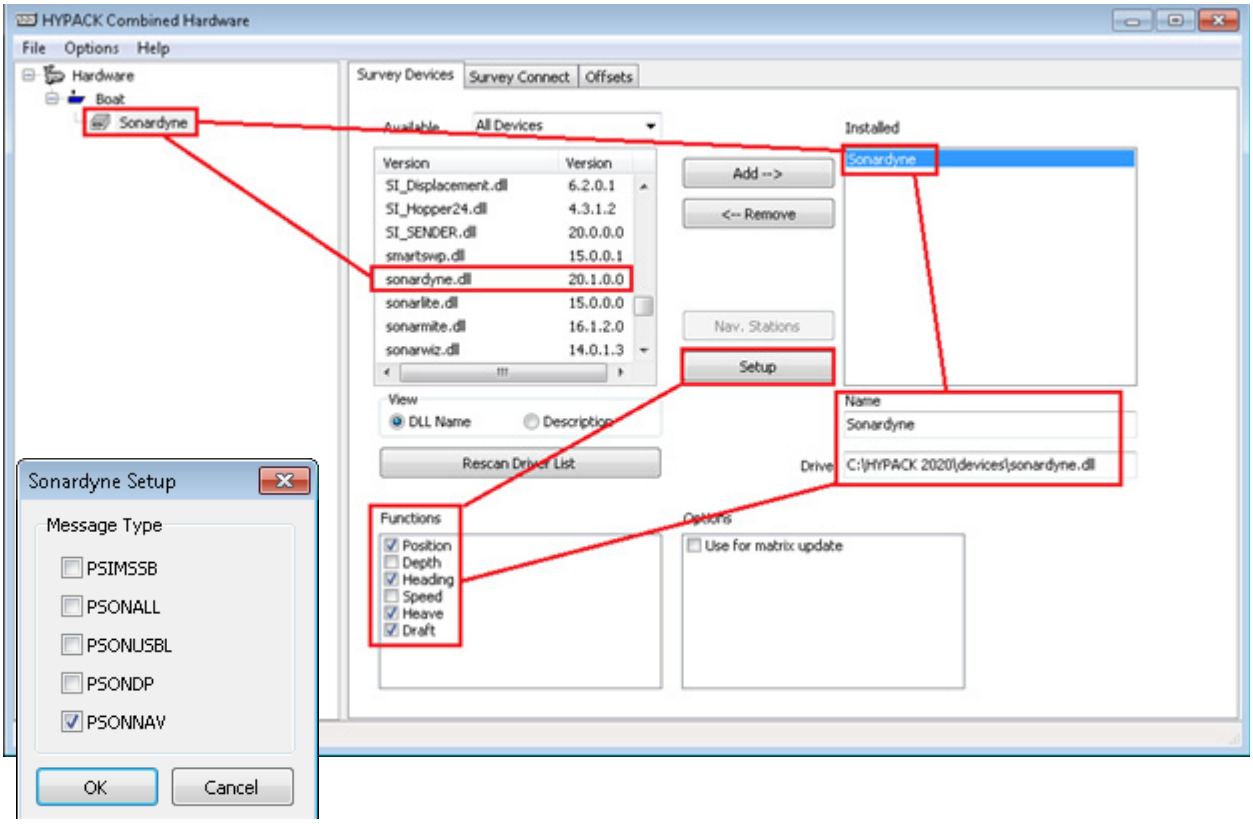
1. **Locate the Sonardyne.dll in the list and click [Add]** (or double-click the driver name).
2. **Modify the Name to Sprint INS.** (Optional)
3. **Select the Functions for the driver.**
   - > **Position** reads the Latitude (Fields 3 & 4) and Longitude (Fields 5 & 6) from the data string.
   - > **Depth** is not applicable for this data string.
   - > **Heading** reads the Heading value (Field 15).
   - > **Speed** is not applicable for this data string.
   - > **Heave** reads the Roll value (Field 13) and the Pitch value (Field 14).
   - > **Draft** reads the Depth value (Field 11) and records it as a Draft (DFT) in the RAW file.

NOTE: This is done to accommodate the Depth of the ROV as a Draft value for the sonars that are on board the ROV.

4. **Click [Setup].**
5. **Select the PSONNAV string and click [OK].**

NOTE: The driver also uses the embedded timing in the string for the data time stamp.

FIGURE 2. *Configuring the Sonardyne.dll—Functions and Driver Setup*



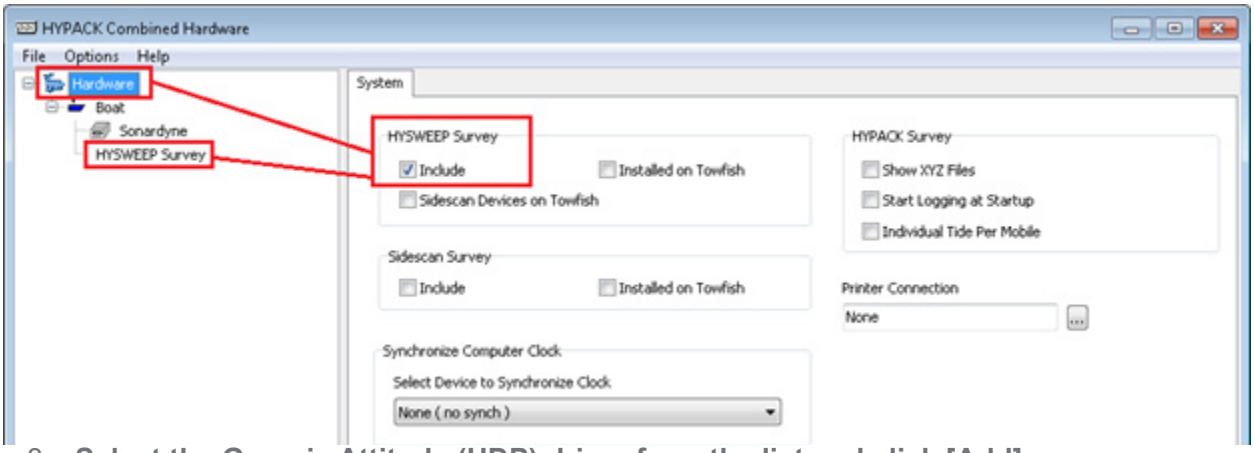
6. **In the 'Survey Connect' Tab, set up as a 'Network' device and click [OK].**
   > **Protocol**: UDP
   > **Role**: Server (if Sonardyne software is installed on same computer)
   > **Client** (if Sonardyne software is installed on a different computer, or, if installed on same computer, you can use 127.0.0.1)
   > **Host**: Enter IP Address
   > **Port**: Enter Port Number of Sprint INS (See Sprint INS Manual for setting up Port Number)
7. **In the Offsets tab, enter necessary offsets**.

CONFIGURING THE PSONNAV STRING IN HYSWEEP® SURVEY

Continuing your work in the HARDWARE program, do the following:

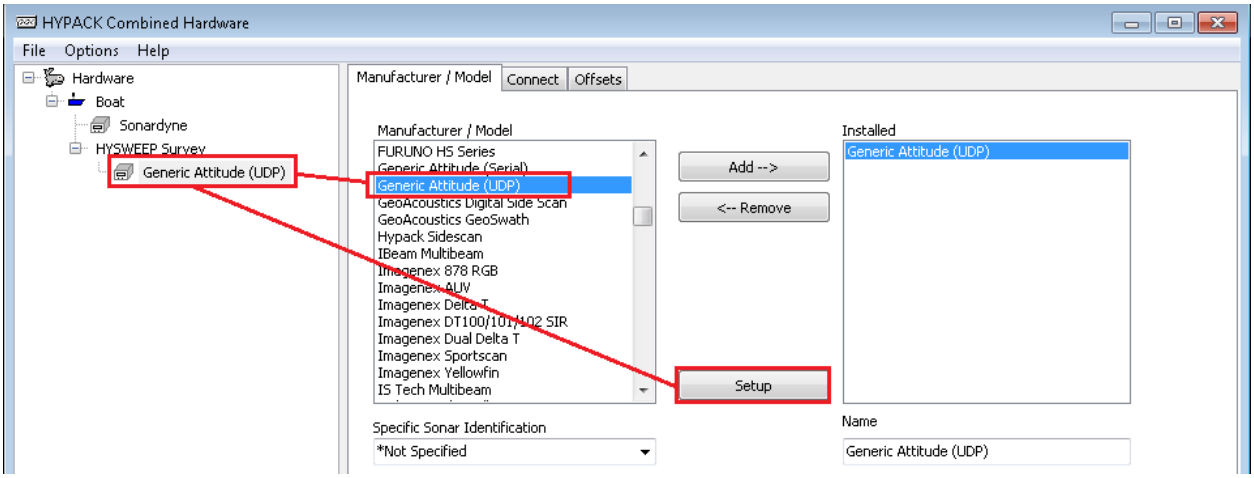
1. **Select Hardware in the device tree and enable the Include option for HYSWEEP® SURVEY.**
2. **Select HYSWEEP® SURVEY in the device tree.**

FIGURE 3. *Configuring the PSONNAV String for HYSWEEP® SURVEY*



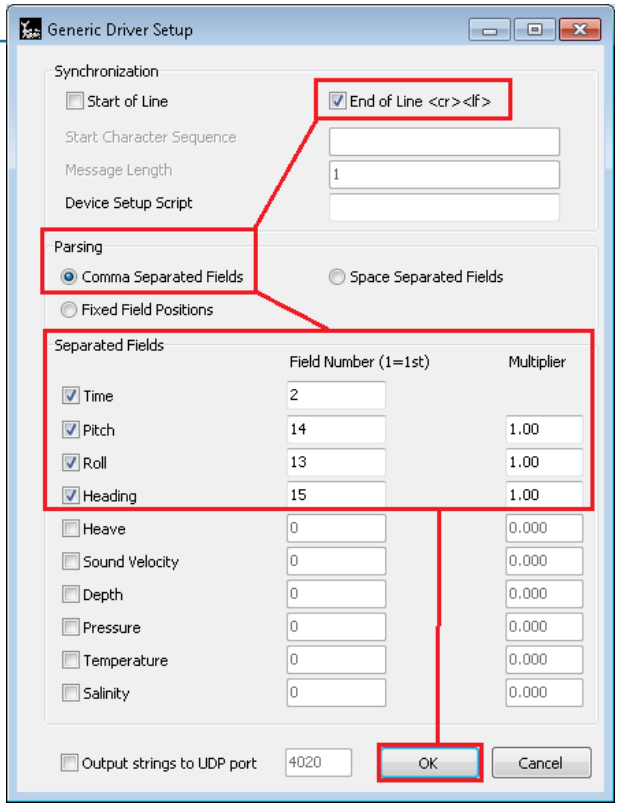
3. **Select the Generic Attitude (UDP) driver from the list and click [Add].**

FIGURE 4. *Generic Attitude*



4. **Click [Setup] and configure the driver options:**

FIGURE 5. Generic Attitude Driver Setup



> Select End of Line <cr><lf>.
> Select Comma Separated Fields.
> Enable the following:

Data	Field	Multiplier
Time	2	1
Pitch	14	1
Roll	13	1
Heading	15	1

5. **Click [OK].**
6. **In the Connect tab, configure the connection parameters.** (The Connect Tab already sets this driver up as a UDP Network device.)
   > **Port**: Enter Port Number of Sprint INS (See Sprint INS Manual for setting up Port Number)
   > **IP Address**: Enter IP Address
7. **Click [OK].**
8. **Click on 'Offsets' Tab.**
9. **Enter necessary offsets.**