WinFrog Device Group:	OUTPUT
Device Name/Model:	ROLAND DPX4600
Device Manufacturer:	Roland Digital Group Corporation 1-6-4 Shinmiyakoda, Hamamatsu-shi Shizuoka-ken, 431-2103 Japan Tel: 81-(53) 484-1201 Fax: 81-(53) 484-1216 E-mail: support@rolanddga.com
Device Data String(s) Output to WinFrog:	N/A
WinFrog Data String(s) Output to Device:	N/A
WinFrog .raw Data Record Type(s):	N/A

DEVICE DESCRIPTION:

The Roland DPX-4600 is a microprocessor-based Roland Pen Plotter that produces high quality; multi-color graphic plots on any size chart up to 1189 X 841 mm (ISO A0). The DPX-4600 offers exceptional line and character quality with addressable moves as small as 0.025 mm (0.001 inch). 98 different instructions are built-in to equip the plotter with such capabilities as point, labeling, character-sizing, and window plotting. The DPX-4600 is interfaced through the Parallel Interface Connection (in compliance with the specifications of Centronics) and Serial Interface Connection (in compliance with the specifications of RS-232C). With parallel and serial interface, the plotter can be connected to the computer or other controller using a standard interface cable. Short, easily understood commands and the Roland Graphic Language II (RD-GLII) enable you to create a plotting program with Basic or C/C++ languages.

RD-GLII is systematically organized in order to operate Roland DG corp.'s plotters efficiently. It consists of 80 commands, each of which are designed with great freedom to establish detailed settings to individual operations of the plotters.

DEVICE CONFIGURATION INSTRUCTIONS:

SETUP:

Configure the RS-232C cable following the Roland DPX-4600 Drafting Plotter Technical Guide – 3.2 Connect RS-232C Interface – Stand-alone Connection – Fig. 3-4. Connect plotter to computer following the Roland DPX-4600 Drafting Plotter User's Manual – 2.1 Connecting Cable – 2.1.2 Serial Interface Connection – Fig. 2-2. If using a Fugro Pelagos I/O Data Switch Box, connect the 25 pin plotter cable with I/O box as follows: Pin 2 to TXD Pin 3 to RXD Pin 4 to RTS Pin 5, 6, 8 and 20 to CTS Pin 7 to GND Use water based fibre tipped plotter pens with 4 color pens that include one each of black, red, blue and green, the suggested product is Roland Plotter Pens 4 Color Pens Package XD-4SPB with 0.3 mm Line Width. Hold down the PEN CAP RELEASE button and insert pens into the groove of the pen stock as below: Red pen attach to pen stock No.1, used to draw vessel track. Black pen attach to pen stock No.2, used to draw border and geographic grid. Green pen attach to pen stock No.3, used to draw survey lines.

Blue pen attach to pen stock No.4, used to draw projection grid and waypoints. Switch on the plotter before launching WinFrog.

Prior to producing real time plots, a base map must be registered. See the section WINFROG UTILITIES BASE MAP WIZARD CONFIGURATION at the end of this document and the section Plotter Base Map Wizard in chapter 11 of the WinFrog User's Guide.

WINFROG I/O DEVICES > EDIT I/O:

Serial Configurable Parameters

WINFROG I/O DEVICES > CONFIGURE DEVICE:

This device must be configured at the I/O Device window level. In the I/O Devices window, click the device name to select it, then right-click and select Configure Device. The Roland DPX-4600 Configuration dialog box appears, as seen below.

Roland DPX-4600 Configuration	×
Real-Time Plotting	
Enable Real-Time Plotting	
Plot Trigger	٦
Trigger Vehicle None	
• Time	
© Distance	
Plot Depths	
Plot Depths	
Max age of data to plot 5 sec	
Plot depths every 1 vessel positions	
Plot Text	
☑ On/Off	
2.0 mm × 2.0 mm	
Plot Time Label	
30 min Time Interval	
Head Move Distance 20 cm 💌	
☐ Test plot	
OK Cancel	

Enable Real-Time Plotting

This checkbox can be used to switch the stream of data going to the plotter on or off. Leave it unchecked when creating or registering the base map.

Plot Trigger

There are two methods for triggering each plotted position – by time elapsed since the last plotted point, or by distance traveled. Selection is via the radio buttons and the increment can be entered in the Trigger Interval edit box with the unit of seconds or meters.

Trigger Vehicle

The distance trigger is for one vehicle only, but all vehicles that have the ROLAND PLOTTER data item attached will have their position plotted. All the vehicles that the ROLAND PLOTTER data item have been added to will appear in the drop down list box. Select the vehicle to generate the distance trigger.

Plot Depths

Select this checkbox if you want depths from the trigger vehicle plotted. The interval at which depths are plotted is governed by the "Plot depths every x vessel positions" entry field, and so will be a multiple of the Plot Trigger interval. There is also an entry field for the maximum age of a depth to be plotted – if for some reason the latest sounding is older than this threshold it will not be plotted.

Plot Text

You are able to insert text onto the WinFrog screen and have it plotted on the paper chart in the same geographic location as the text occupies on the WinFrog screen. There are two ways for inserting text on the Graphics window. The first way is using the Add Text menu item on the Graphics window popup (right-click) menu. The operation for inserting text on the Graphics window is as below:

- 1. Move the mouse cursor to the desired position on the Graphics window.
- 2. Click the left button of mouse to pick up the position data.
- 3. Click the right button of mouse to launch the popup menu, seen as below.



4. Select the Add Text menu item to configure the text.

Configure Text	
Please enter text for dra	awing
ОЫ1	
Text Color	Edit
ОК	Cancel

- 5. Use the default text string or enter a new text string in the text edit box. Note: this text string is limited to 24 characters. Additional text can be added by repeating these steps to create a second line.
- 6. Use the default color or select a new color with the Edit button.
- 7. Click the OK button to submit or click the cancel button for cancellation.

The second way that text can be inserted on the Graphics window is to use the User Drawing function. Access the Configure Graphics dialog box, Background tab and select the User Draw checkbox to turn on the user drawing mode. Click the Text button on the User Drawing tool bar to insert and edit the text. Text added with this method is also limited to 24 characters per line. Add a second line for additional characters. Refer to the User Drawing Support section in Chapter 8: Operator Display Windows in the WinFrog User's Guide for the details of text drawing and editing.

There are two controllers in this configuration group. The On/Off checkbox is for turning the plot text option on or off. A selection of predefined text sizes is available in the dropdown list. The plotter head will move away after plotting the vehicle position by the chosen distance.

Plot Time Label

The driver is able to plot the date/time next to the corresponding real time marker at a selectable interval in the format YY/MM/DD HH:MM.

There are two controllers in this configuration group. The On/Off checkbox is for turning the plot time label option on or off, and the increment can be entered in the Time Interval field with the unit of minutes.

Head Move Distance

When doing real time plotting, the plotter head needs to move away after plotting the vehicle position to permit hand annotation of the point as desired by the operator. A selection of predefined moving distances is available in this dropdown list. The plotter head will move away after plotting the vehicle position by the chosen distance.

Test Plot

This can be used for diagnostic purposes – simple shapes are drawn on the plotter and this can help detect communication problems between the computer and plotter.

WINFROG VEHICLE > CONFIGURE VEHICLE DEVICES > DEVICE DATA ITEM > EDIT:

Adding the Roland DPX4600 device creates the ROLAND PLOTTER data item.

Data item: OUTPUT, Roland DPX4600, ROLAND PLOTTER

Configure Vehicle-Devices	×
Position N32 00.0284 W117 00.0728 Elevation (Ellipsoid) 0.00m Heading (LBL calcs) 0 0 00.00T Data Source O Simulated Network Calculations Calculations	Kalman Filter
Heading Max Time Variance (s) 60s Streamer	✓ Off 100.00m
Devices GPS,SimGps,POSITION GYRO,SimGyro,HEADING OUTPUT,Roland DPX4600,ROL	AND PLOTTER
Add Edit	Delete
OK Cancel	Help

Attach this data item to the vehicle for which the position is to be plot on the Roland Plotter DPX4600 paper chart. There is a dialog to edit this device as seen below.

	×
Please select a symbol for plot the position: X Cancel Point Box X F Star Diamond Triangle Image	

Vehicle Position Symbol

A selection of predefined symbols is available. The vehicle position will be marked by the chosen symbol.

DISPLAY:

The status of the plotter and the real time plot data will be displayed in the I/O Devices window.

The display, before enabling the real time plot, is as below.

🖃 🖂 WinFrog	
📄 🗄 🚎 COM0 SimGps1	
庄 🚎 COM0 SimGyro1	
📄 🗄 🚎 COM0 SimGps2	
📄 🗄 🚎 COM0 SimGyro2	
🗄 🚎 COM2 Roland DPX4600	
Decoded Data Plotter Name: Roland DPX4600 Register Map reference points: Bottom Left Corner Lat/Lon: N31 59.8667 Bottom Left Corner Lat/Lon: N31 59.8667 Bottom Left Corner Plotter P1: X:-23862 Y Top Right Corner Lat/Lon: N32 00.1333E1 Top Right Corner Plotter P2: X:15102 Y:16 Current Time: 127-16:23:50.25 Vehicle Position Symbols: Ship - X ROV - Triangle Real time plot is disabled	□□VV117 00.1902 116420 JVV116 59.8189 3441

The position data for multiple vehicles at the real time plot will be displayed as below.

Plotter Name: Roland DPX4600 Paper Size: A0 Scale: 5000.00000 Rotation: 0.000000 Base Map reference point: Center Lat/Lon: N32 00.0000□□WV117 00.0113 Current Time: 188-11:31:12.26 Vehicle Postion Symbols: Ship - X ROV - Triangle Real time plot is enabled Plotter Data: Ship Time: 188-11:31:03.00 East: 499999.920053 North: 3540497.461236 Lat: 32.00057 Lon: -117.00001 X Steps: 141 Y Steps: 494 Plotter Data: ROV Time:188-11:31:03.00 East: 500000.047340 North: 3540435.663722 Lat: 32.00000 Lott: 116.999999 X Steps: 142 Y Steps: 0	🐣 I/O Devices-1	
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WINFROG UTILITIES BASE MAP WIZARD CONFIGURATION:

This configuration is for plotting the base map/chart, and for registering the plotted map/chart for the real time plotting of the vehicle position.

Under the Utilities menu, there is a Plotter Base Map Wizard item. Whether it is desired to register and plot on an existing map, or to plot on a new sheet, the setup is done through this wizard. When the wizard is launched, the following dialog will appear, and the appropriate option should be chosen. Note the advisory notice stating that the base map or blank sheet should already be properly mounted on the plotter, and to configure each vehicle with the desired position symbol for the Roland Plotter data item before proceeding with the map wizard.

Base Map Wizard - Step 1	×
Base Map Wizard will guide you through the steps required to generate a base map or register an existing base map. The base map can then be used for real-time plotting via the Roland DPX-4600 plotter output device. Before proceeding, ensure that the plotter has the existing base map or a blank sheet of paper properly mounted on it. Important Notice: Please configure each vehicle with the desired position symbol by editing the Roland Plotter data item before proceeding with the map wizard. Select the desired option and click 'Next' to proceed.	 Generate a new base map Register an existing base map
	< Back Next > Cancel

Please refer to the Plotter Base Map Wizard section in Chapter 11: Utilities in the WinFrog User's Guide for details.