

ZMax PDL Radio configuration for GMSK

Configure the Rover Radio

Confirm that Evaluate and PDLCONF software have been installed on the computer.

The current version of Evaluate is available from the software folder on the ftp server at

<ftp://ftp.thalesnavigation.com>

The current version of PDLCONF can be downloaded from the web page at

<http://www.paccrst.com>

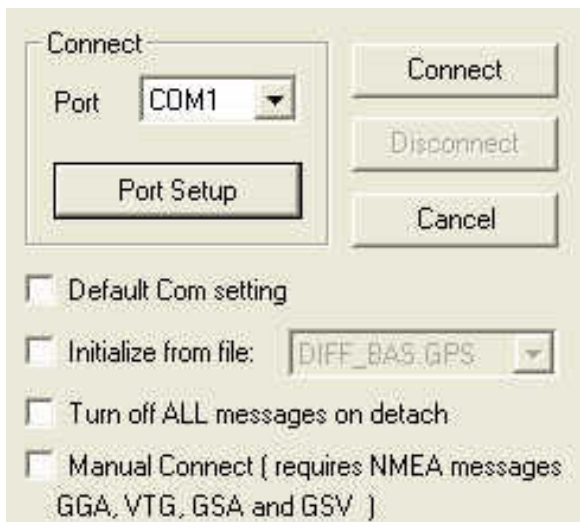
Connect the correct serial interface cable to port B on the ZMax and a COM port on the PC.

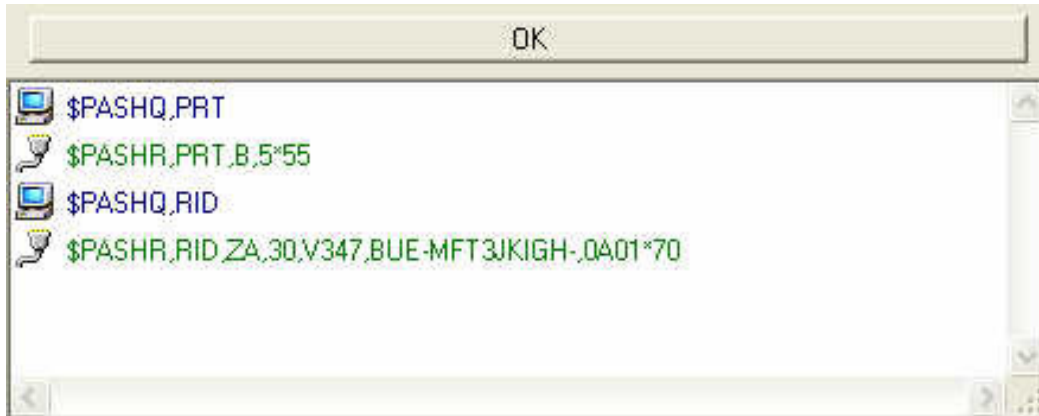
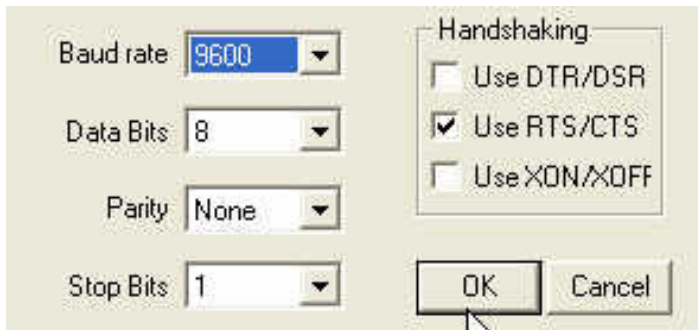


Power on the ZMax and open Evaluate.

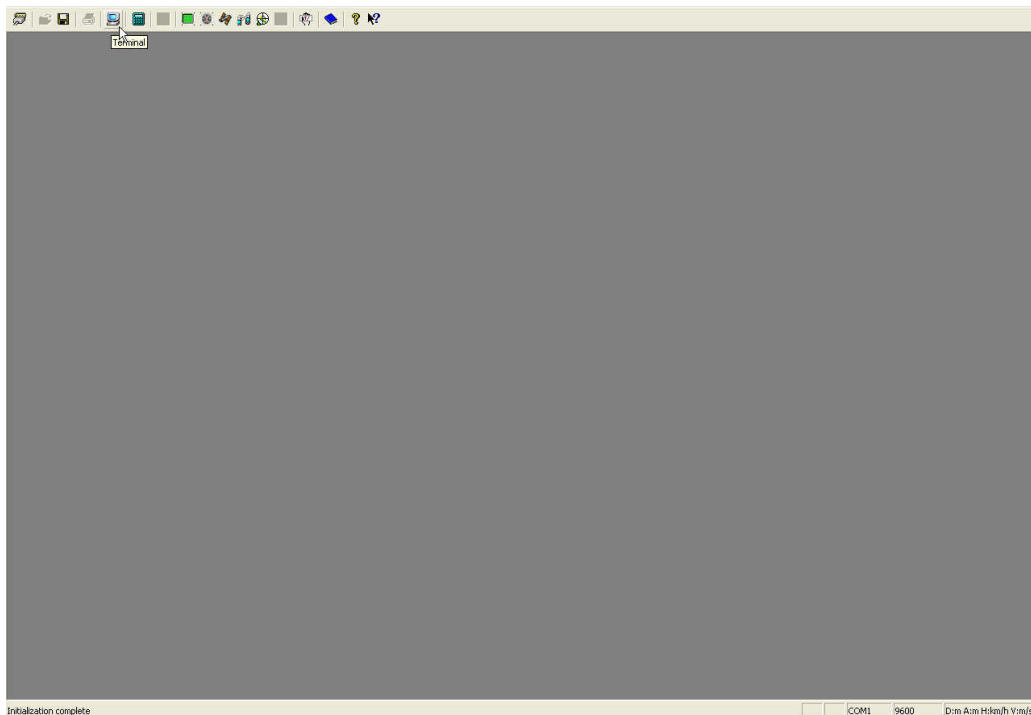


Connect Evaluate to the ZMax.

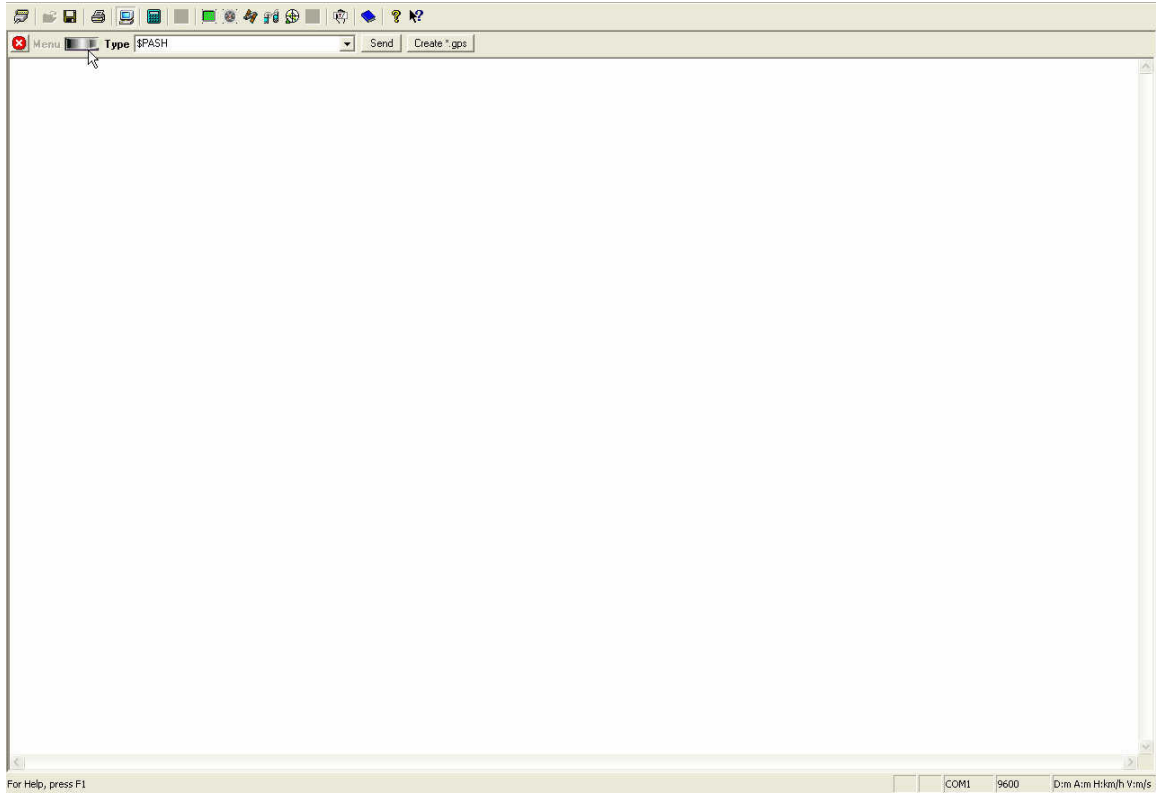




Open the Evaluate terminal window.



Toggle the terminal window switch from Menu to Type by clicking on the switch.



Enter the following \$PASH queries and commands:

\$PASHQ,RID and click on SEND

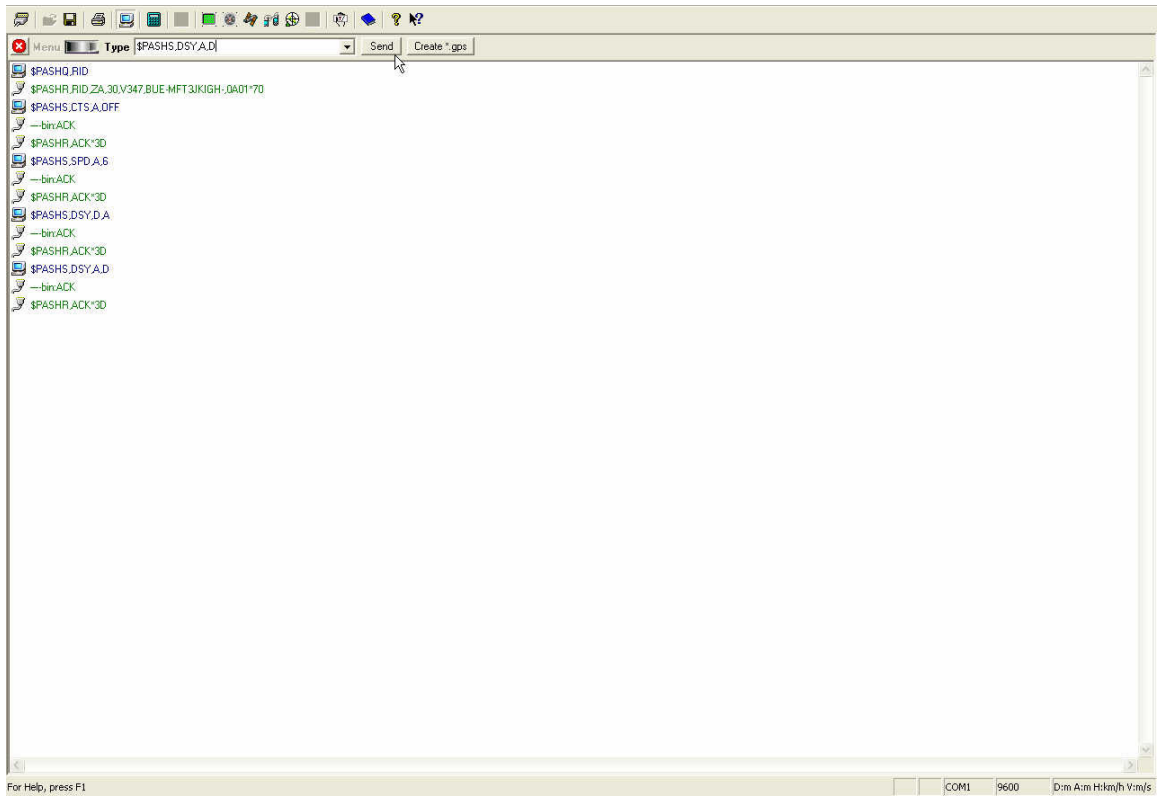
Verify that the receiver responds with the RID string and not a NAK.

\$PASHS,CTS,A,OFF and click on SEND. Observe ACK.

\$PASHS,SPD,A,6 and click on SEND. Observe ACK.

\$PASHS,DSY,D,A and click on SEND. Observe ACK.

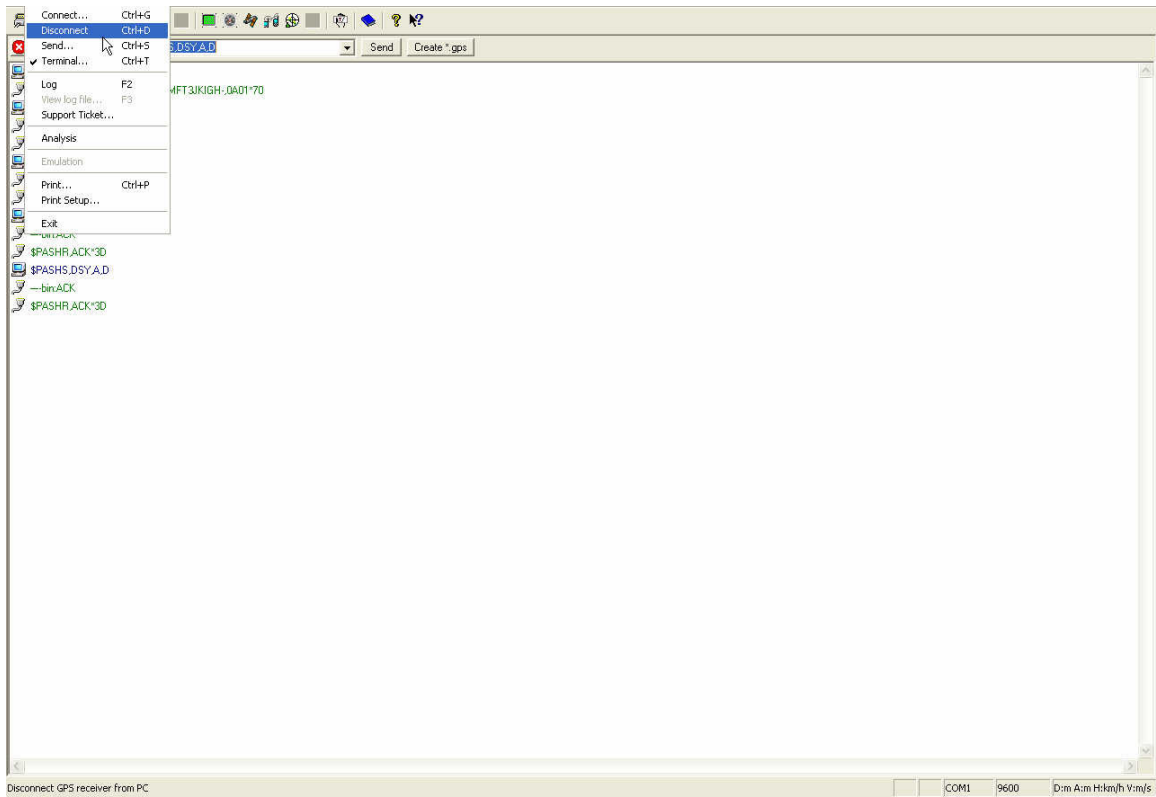
\$PASHS,DSY,A,D and click on SEND. Observe ACK.



For more information look up these commands in the Z Family manual that is available in the reference manuals folder on the ftp server at

<ftp://ftp.thalesnavigation.com>

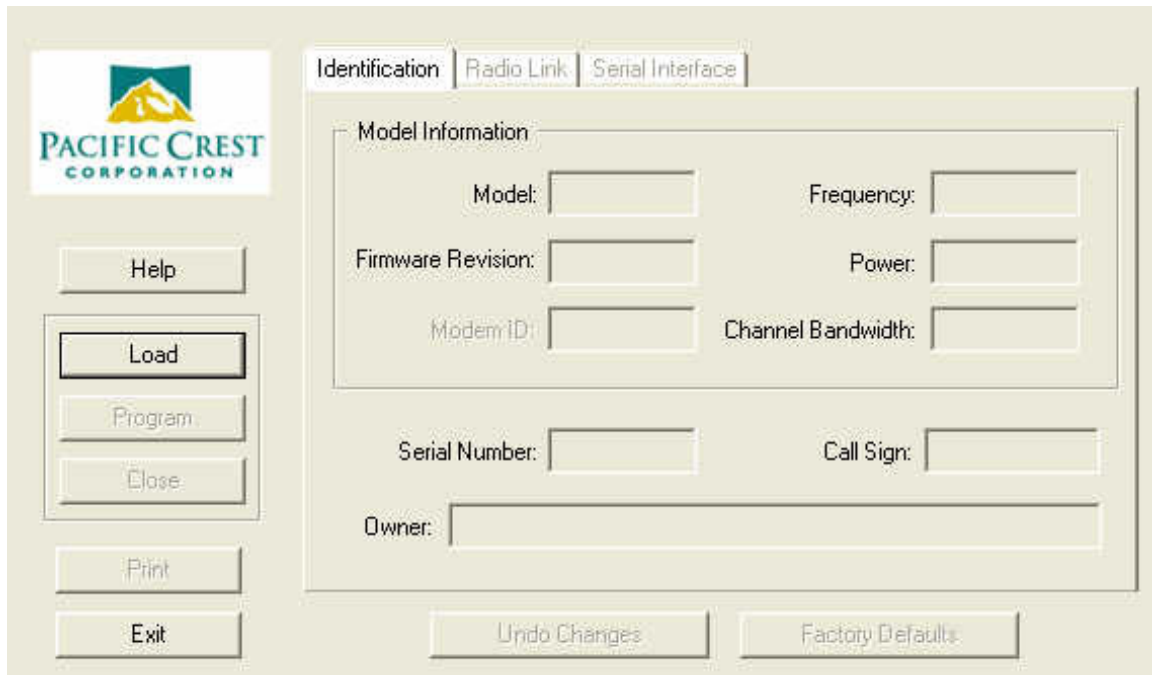
Go to the GPS pull down menu, disconnect, and exit Evaluate.



While the ZMax remains powered on move the ZMax serial cable from Port B to Port A.



Open the PDLCONF software.

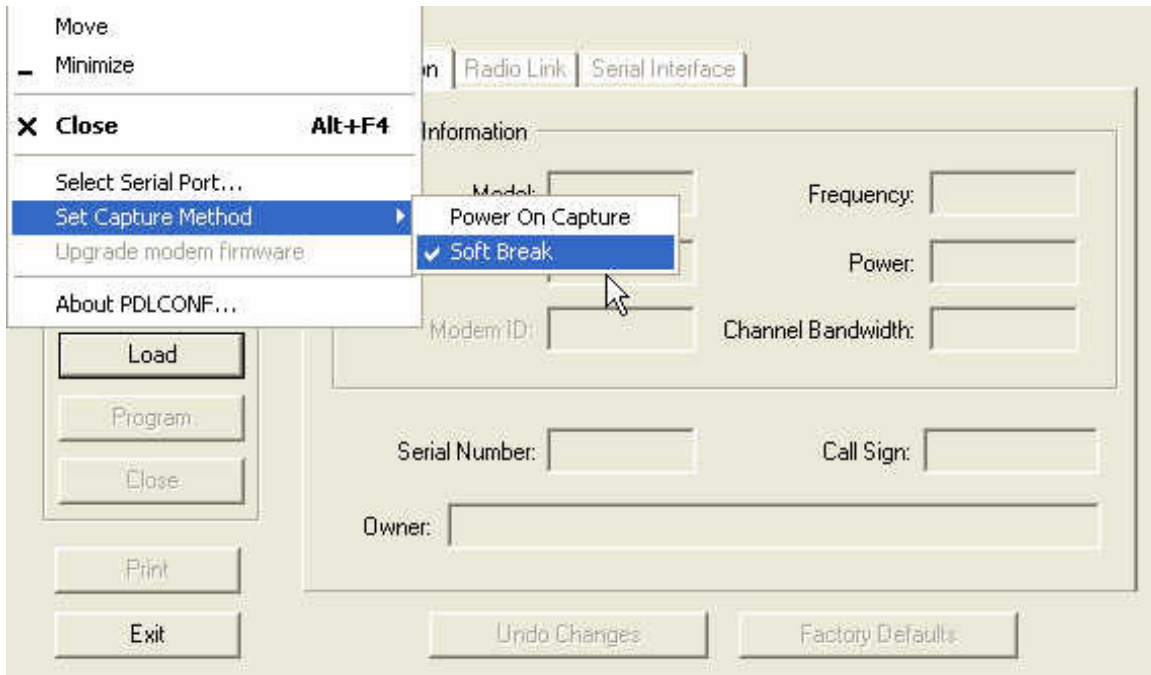


The screenshot displays the PDLCONF software window. On the left is a vertical toolbar with buttons: Help, Load, Program, Close, Print, and Exit. The main area has three tabs: Identification (selected), Radio Link, and Serial Interface. The Identification tab contains a 'Model Information' section with input fields for Model, Frequency, Firmware Revision, Power, Modem ID, and Channel Bandwidth. Below this are fields for Serial Number, Call Sign, and Owner. At the bottom right are 'Undo Changes' and 'Factory Defaults' buttons. The Pacific Crest Corporation logo is in the top left corner.

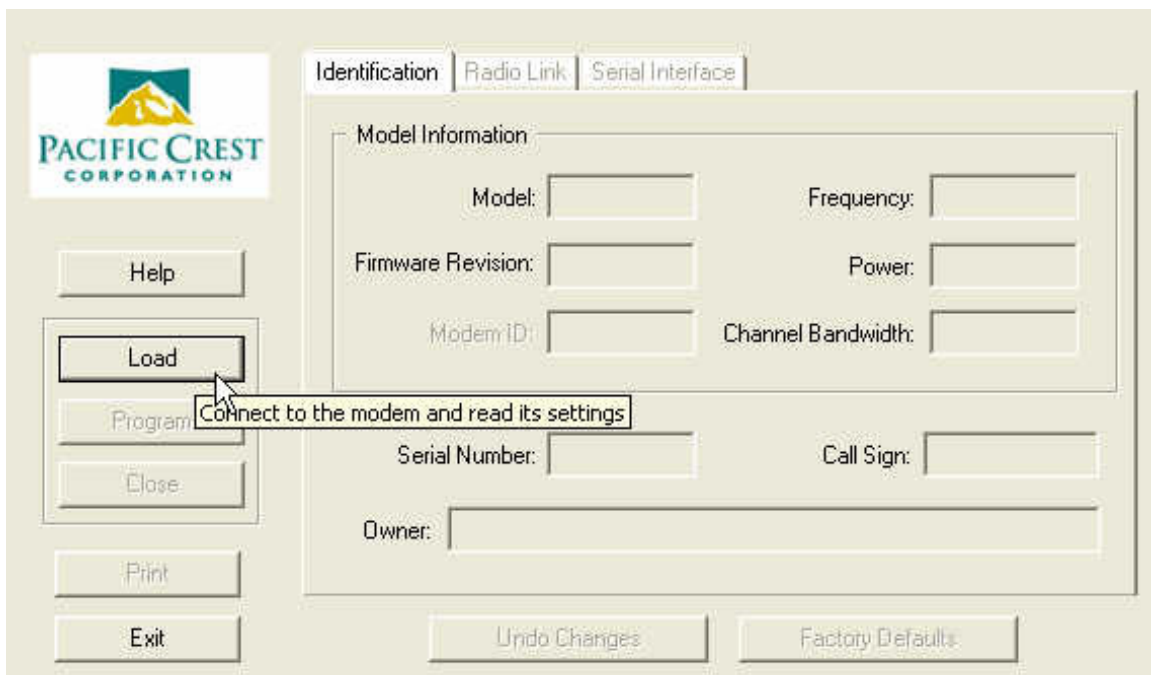
Click on the small icon at the top left corner of the PDLCONF window.



Click on Set Capture Method and then select Soft Break



Click on Load to connect to the radio and check the current settings.



On the Identification tab screen modify the Owner name as appropriate.

The screenshot shows the 'Identification' tab of the Pacific Crest Corporation software. The interface includes a sidebar with buttons: Help, Load, Program, Close, Print, and Exit. The main area has three tabs: Identification, Radio Link, and Serial Interface. Under the Identification tab, there is a 'Model Information' section with fields for Model (PDL RX0), Frequency (450-470 MHz), Firmware Revision (2.31), Power (0 Watts), Modem ID (974-0), and Channel Bandwidth (25 K). Below this is a 'Serial Number' field (03206064) and a 'Call Sign' field. The 'Owner' field contains 'Your company' and is highlighted by a mouse cursor. At the bottom are 'Undo Changes' and 'Factory Defaults' buttons.

Model Information	
Model:	PDL RX0
Frequency:	450-470 MHz
Firmware Revision:	2.31
Power:	0 Watts
Modem ID:	974-0
Channel Bandwidth:	25 K

Serial Number: 03206064 Call Sign:

Owner: Your company

Undo Changes Factory Defaults

On the Radio Link tab make the settings match the ones shown. Your RX frequency may not match. That will depend on your radio license.

The screenshot shows the 'Radio Link' tab of the Pacific Crest Corporation software. The interface includes a sidebar with buttons: Help, Load, Program, Close, Print, and Exit. The main area has three tabs: Identification, Radio Link, and Serial Interface. Under the Radio Link tab, there is a 'Channel Select' section with radio buttons for Manual (selected), AutoBase, and AutoRover. A table shows Channel 01 with TX and RX frequencies. Below this is an 'Import Channel Table' button. Further down are fields for Link Rate (9600), Modulation Type (GMSK), Digisquelch (High), Transmit Retries, TX ACK Timeout, Forward Error Correction (checked), Scrambling (checked), CSMA Monitor (unchecked), Rover Auto-Off (unchecked), Local Address (0), and Remote Address. At the bottom are 'Undo Changes' and 'Factory Defaults' buttons.

Channel Select		
	Channel	RX
Manual: <input checked="" type="radio"/>	01	461.0750
AutoBase: <input type="radio"/>		
AutoRover: <input type="radio"/>		

Import Channel Table

Link Rate: 9600 Forward Error Correction: ☒

Modulation Type: GMSK Scrambling: ☒

Digisquelch: High CSMA Monitor: ☐

Transmit Retries: Rover Auto-Off: ☐

TX ACK Timeout: Local Address: 0

Remote Address:

Undo Changes Factory Defaults

On the Serial Interface tab make the settings match the ones shown.

The screenshot shows the 'Serial Interface' tab of the Pacific Crest Corporation software. The interface includes a sidebar with buttons: Help, Load, Program, Close, Print, and Exit. The main panel has three tabs: Identification, Radio Link, and Serial Interface. The Serial Interface tab is active, showing settings for Port, Protocol, and Modem. The Port section has Baud Rate set to 19200, Parity set to None, and Modem Enabled checked. The Protocol section has Mode set to Transparent w/EOT Timeout, BREAK to Command unchecked, Repeater unchecked, EOT Count empty, and Digipeater Delay empty. At the bottom are buttons for Undo Changes and Factory Defaults.

PACIFIC CREST CORPORATION

Help

Load

Program

Close

Print

Exit

Identification Radio Link Serial Interface

Port

Baud Rate: 19200

Parity: None

Modem Enabled: ☒

Protocol

Mode: Transparent w/EOT Timeout

BREAK to Command: ☐

Repeater: ☐

EOT Count:

Digipeater Delay:

Undo Changes Factory Defaults

Click on Program to send your settings to the PDL.

This screenshot is similar to the previous one but shows the 'Channel Select' section in the Serial Interface tab. The Channel Select section has radio buttons for Manual (selected), AutoBase, and AutoRover. It includes a table with Channel, TX, and RX columns. The Channel column has '01' selected. The RX column has '461.0750' selected. There is an 'Import Channel Table' button. Below this are settings for Link Rate (9600), Modulation Type (GMSK), and Digisquelch (High). To the right are checkboxes for Forward Error Correction (checked), Scrambling (checked), CSMA Monitor (unchecked), and Rover Auto-Off (unchecked). At the bottom are fields for Local Address (0) and Remote Address (empty). A callout box with an arrow points to the 'Program' button in the sidebar, containing the text 'Program the modem with the current settings'. The sidebar buttons are Help, Load, Program, Close, Print, and Exit. The main panel tabs are Identification, Radio Link, and Serial Interface. The bottom buttons are Undo Changes and Factory Defaults.

PACIFIC CREST CORPORATION

Help

Load

Program

Close

Print

Exit

Identification Radio Link Serial Interface

Channel Select

Manual: ☒ AutoBase: ☐ AutoRover: ☐

Channel	TX	RX
01		461.0750

Import Channel Table

Link Rate: 9600

Modulation Type: GMSK

Digisquelch: High

Forward Error Correction: ☒

Scrambling: ☒

CSMA Monitor: ☐

Rover Auto-Off: ☐

Local Address: 0

Remote Address:

Program the modem with the current settings

Undo Changes Factory Defaults

Confirm that is really what is intended by clicking on Yes.



Click on load again if you want to confirm that your settings were sent to the PDL module.

When finished exit the PDLCONF software and power off the ZMax. Disconnect the cable from the ZMax and perform a re-init on the ZMax by holding in the power button until the display shows re-init. Look up the topic called Reset the Unit in the ZMax Operations and Applications manual that is available in the reference manuals folder on the ftp server at

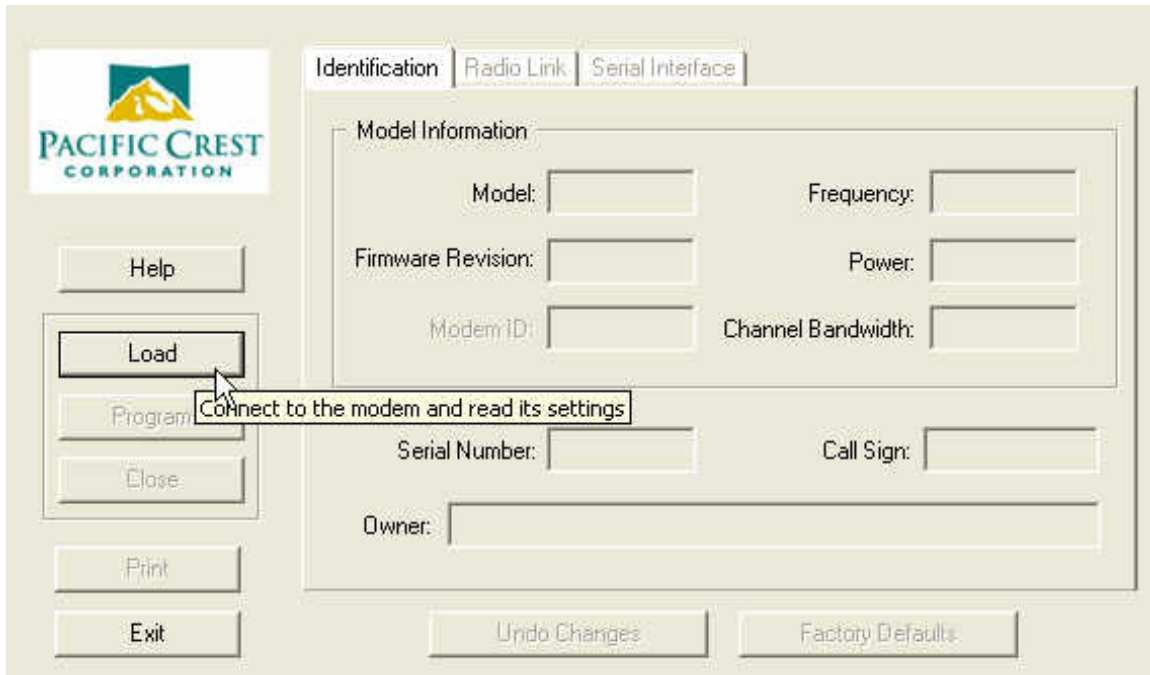
<ftp://ftp.thalesnavigation.com>



Configure the Base Radio

The connection to the PDL base radio can be made without going through the ZMax receiver. Use the Pacific Crest radio cable that will connect the PDL base directly to the COM port on the PC. Before connecting the PDL to a power source it should be connected to an antenna.

In the PDLCONF software click on Load to load and read the current settings in the radio.



The screenshot displays the PDLCONF software interface. On the left is a vertical toolbar with buttons for Help, Load, Program, Close, Print, and Exit. The Load button is highlighted with a mouse cursor, and a tooltip message reads "Connect to the modem and read its settings". The main window has three tabs: Identification, Radio Link, and Serial Interface. The Identification tab is active, showing a "Model Information" section with fields for Model, Frequency, Firmware Revision, Power, Modem ID, and Channel Bandwidth. Below this are fields for Serial Number, Call Sign, and Owner. At the bottom of the main window are buttons for "Undo Changes" and "Factory Defaults". The Pacific Crest Corporation logo is located in the top-left corner of the software window.

On the Identification tab the Call Sign field should show your radio license identification. The Owner field should have the owner's name.

The screenshot shows the 'Identification' tab of the Pacific Crest Corporation software. The interface includes a sidebar with buttons: Help, Load, Program, Close, Print, and Exit. The main area has three tabs: Identification, Radio Link, and Serial Interface. The Identification tab is active, displaying the following fields:

- Model Information:**
 - Model: PDL HP Base
 - Frequency: 450-470 MHz
 - Firmware Revision: 2.20
 - Power: 35 Watts
 - Modem ID: 938-7
 - Channel Bandwidth: 25 K
- Serial Number: 03134258
- Call Sign: LICENSE
- Owner: Your company name

At the bottom of the main area are two buttons: Undo Changes and Factory Defaults.

The Radio Link tab should be completed as shown. Your TX and RX settings may not match. This will depend on your radio license.

The screenshot shows the 'Radio Link' tab of the Pacific Crest Corporation software. The interface is similar to the previous one, with the same sidebar and tabs. The Radio Link tab is active, displaying the following settings:

- Channel Select:**
 - Manual: ☒ (selected)
 - AutoBase: ☐
 - AutoRover: ☐
 - Channel: .01
 - TX: 461.0750
 - RX: 461.0750
 - Import Channel Table button
- Link Rate: 9600
- Modulation Type: GMSK
- Digisquelch: Low
- Transmit Retries: 3
- TX ACK Timeout: 0.1
- Forward Error Correction: ☒
- Scrambling: ☒
- CSMA Monitor: ☒
- Rover Auto-Off: ☐
- Local Address: 0
- Remote Address: 255

At the bottom of the main area are two buttons: Undo Changes and Factory Defaults.

The Serial Interface tab should be completed as shown.

The screenshot shows the 'Serial Interface' tab of the Pacific Crest Corporation software. The window has a sidebar with buttons: Help, Load, Program, Close, Print, and Exit. The main area contains the following settings:

- Port:** Baud Rate: 19200, Parity: None, Modem Enabled: ☒
- Protocol:** Mode: Transparent w/EOT Timeout, BREAK to Command: ☐, Repeater: ☐
- EOT Count:** 10
- Digipeater Delay:** 0.00

At the bottom are buttons for 'Undo Changes' and 'Factory Defaults'.

Click on Program to send any changes you have made to the PDL base radio.

This screenshot shows the same 'Serial Interface' tab, but with additional settings and a callout. The 'Channel Select' section is expanded, showing:

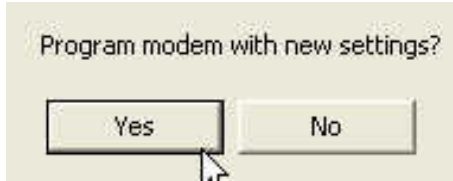
- Manual: ☒ (selected), AutoBase: ☐, AutoRover: ☐
- Channel: .01, TX: 461.0750, RX: 461.0750
- Import Channel Table button

Other settings include:

- Link Rate: 9600
- Modulation Type: GMSK
- Digisquelch: High
- Forward Error Correction: ☒
- Scrambling: ☒
- CSMA Monitor: ☐
- Rover Auto-Off: ☐
- Local Address: 0
- Remote Address: (empty)

A callout box points to the 'Program' button in the sidebar, containing the text: 'Program the modem with the current settings'.

Confirm your desire to Program the radio using the new settings.



Load the settings again to confirm that the radio was programmed with the desired settings.

Close the connection to the PDL and exit from the PDLCONF software.

The ZMax rover and base radios are now ready for field work using the GMSK modulation.

By Phil Stevenson
May 13, 2004