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KODEN RADARpc Option Instructions

Revised: Sept. 2005

Koden RADAR-pc
 Color View Tracking

FTC:Off EXP:Off
 Rng:6.0Nm Trails:off IR:Off

Target RB
 #1 - 9.4Nm 248.6°
 #2 - 8.1Nm 256.2°
 #3 - 3.7Nm 240.6°
 #4 - 6.3Nm 256.4°
 #5 - 4.0Nm 280.4°

Present Position
35°23.320'N
120°51.130'W

Range: **18.Nm** Current chart: 18700 (BSB Ras)

Track name/duratoin: No Track Name NL range: 0.33Nm
 Halt:NONE

Speed and heading: 0kts 0t

Waypoint: A-B line Temp/Depth

Plotter info box

P-Sea WindPlot II 6.78© 1993-2002
 Data Marks Tracks Options Adjustments Window Backup Help *

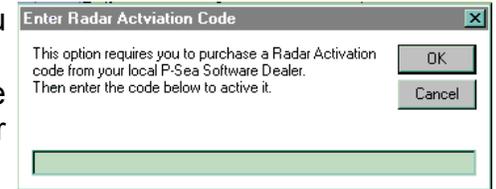
Target Data from Map:

Target #	Bearing	CPA
#1	C180°	CPA: 7(Aq) CPA: 0.0Min
#2	C270°	CPA: 8.0Nm CPA: (Safe)
#3	C76°	CPA: 0.7Nm CPA: 64.9Min
#4	C270°	CPA: 6.3Nm CPA: (Safe)
#5	C140°	CPA: 2.1Nm CPA: 55.5Min

The KODENpc option requires the purchase of a code number. This code number can be purchased from your local P-Sea Software dealer.

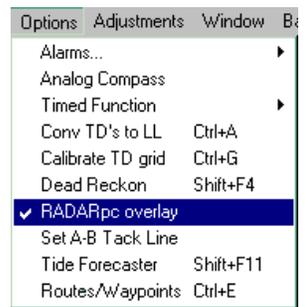
First Time Activating the Radar Option

- 1) When you have the proper radar activation code number, start WindPlot II and select “RADARpc” from the “OPTIONS” menu
- 2) Enter in the code number in the box that appears then click on “OK”.
- 3) If the code number is accepted the radar interface will be activated and you will be asked if you want to scan the serial ports or the Ethernet for the radar. Otherwise retry entering in the number and contact your dealer if it does not accept it to verify that you have the number you were given.
- 4) If you have the radar connected and turned on, go ahead follow the procedures below for starting the radar depending on if you have a 422 or Ethernet connection, otherwise click on “Cancel”.



RS422 or Ethernet

No special program is needed to run the Ethernet radar as opposed to the one with the USB/RS422 SeaLevel radar system. The same program can run either system. Just follow the procedure below when running for the first time on a PC. You can choose what system to look for at that time. Then use the “Factory Reset” to reset to factory defaults when you need to switch from one system to another.



Starting the Ethernet radar the first time

For PC to RADARpc direct connection

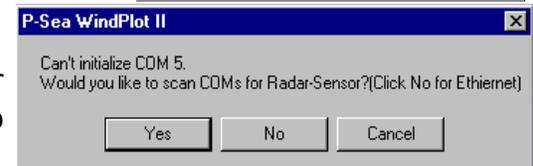
- 1) Setup a local LAN connection on the computer using an IP address of **192.168.0.100** and restart the computer even if it does not require you to do so (see appendix A).

2) Plug the RADARpc box LAN connections in and apply power to the radar box and start WindPlot II without the radar option selected. (The RADARpc needs to be on for at least 1 minute **BEFORE** the radar program and not more than 1 ½ minutes.) You should get a green light next to the cable connection on the radar box when it is setup right. Make sure to use a CROSS OVER cable (a regular patch cable will not work for a direct connection.) If you are not sure what kind of cable you have, take a hold the ends side by side together facing the same direction. Looking through at the wires, a patch cable will look the same and a cross over will not be in the same order. Click on “Options” then select “RADARpc Overlay” to start the radar program.



- 3) First time users will get a message box asking if the radar is on, click on “Ignore”.

4) Now the box shown to the right here will appear as it is searching for a COM port. Click on “No” so it knows it is an Ethernet connection to look for.



5) If all is set correctly in your LAN settings, you should now get a message that it is “Initializing Radar” within a few seconds. From here on you will not have to wait the 1 minute but it will not show “Initializing Radar” until the RADARpc has been on for one minute. Then after the 1 minute you should get a DHCP error message (this is ok also) and the “Initializing Radar” should appear followed by a count down for the warmup of the radar.

6) If it doesn't pick up the Ethernet and start initializing when you start WindPlot II again and open up the radar window then select “Adjust” on the radar window and choose either “Comports” or “Radar Status” to open up the Ethernet connection window. Make sure the remote IP says **192.168.0.1** (default IP for RADARpc box). Change it if it isn't and click the SET button. If the local LAN does not say **192.168.0.100**

then go back into the local LAN settings and check it again. Cycle the power the radar and computer as the LAN settings do not always take without restarting the hardware. Make sure you get a green status light on both the RADARpc box and the computer. No light means a connection or TCP/IP is not set up for the port.

DHCP SERVER CONNECTION (using a Router and Hub)

1) Setup a local LAN connection on the computer using "Obtain an IP address automatically" and restart the computer.

Connect the RADARpc box to the server or hub. Make sure to use a patch cable (a cross over cable will not work for a DHCP connection.)

2) The first time the radar program is started, you must turn on the RADARpc box at the same time you start the WindPlot II Radar option by clicking on WindPlot II "Options menu" and select "RADARpc Overlay", so turn both on now at the same time.

3) Follow steps 3-5 on the previous procedure.

To get the REAL RADAR MODE, click on "Adjust" in the radar menu bar and select "Radar Status". Put a check in the "Real mode" check box to see the real mode operation. There is a slight delay the first time you open the radar before it establishes a connection and starts to initialize so wait at least a couple of minutes before doing any changes to the radar settings.

Starting the SeaLevel RS422 radar system the first time

1) Install the SeaLevel Software from the CD that came with the SeaLevel box (see install instructions on box).

2) Connect the 9 pin plug from the blue radar box to the back of the SeaLevel device.

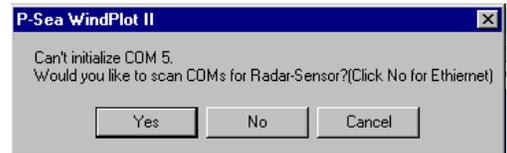
3) Make sure the computer is on and plug the USB cable into it. A "New Hardware" message should appear. Place the SeaLevel installation CD in the computer and instruct the wizard to look on the CD for drivers.

4) Start P-Sea WindPlot II, click on "Options" then select "RADARpc Overlay" to start the radar program and then power up the radar.



5) Now the box should appear as shown to the right here, click on "Ignore".

6) The default COM port for the radar is 5, if it is other than 5 then you will get another message box shown here on the right. Click "Yes" to begin scanning for the COM port that has the radar on it.



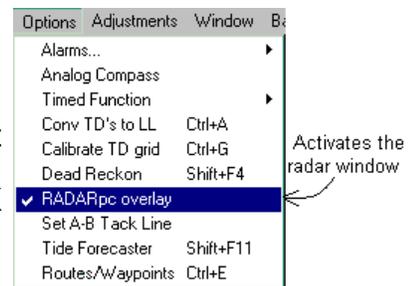
You will get a message box stating that it found the radar on COMx, you can now start using the radar after clicking on "ok". In the event it can't find the radar it will give a complete detail list of the ports it did find and their status. Check you connections and make sure the radar has power and the power switch is turned on.

Turning RADARpc ON

1) Flip the radar power switch on if not already on.

2) Select "RADARpc overlay" from then "OPTIONS" menu if radar screen is not already on as (or click the Radar icons on the left side of the window).

3) When hour glass disappears and the screen says "Standby" then click the TX button either on the bottom of the radar tool bar or control panel.



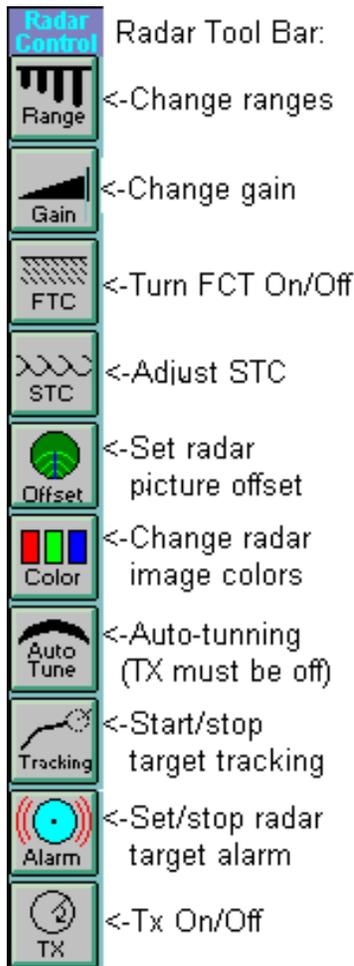
Turning RADARpc OFF

1) Click the TX button if radar is TX is on and flip the radar switch off.

2) Select "RADARpc" from then "OPTIONS" menu or click the "X" in the upper-right of the radar window.



The Radar Toolbar



Radar Tool Bar:

<-Change ranges

<-Change gain

<-Turn FCT On/Off

<-Adjust STC

<-Set radar picture offset

<-Change radar image colors

<-Auto-tuning (TX must be off)

<-Start/stop target tracking

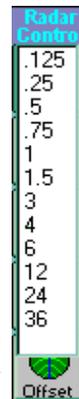
<-Set/stop radar target alarm

<-Tx On/Off

The radar tool bar show on the right here appears when the mouse touches the left side of the plotter screen or left side of radar screen when in TX mode (does not appear in full-screen with side bar display mode).

Changing Ranges

While in the *Linked overlay mode* both radar and plotter ranges are “TIED” together. That is, if you change either plotter or radar range the other will automatically adjust accordingly. The radar must be taken out of the linked overlay mode if you wish one or the other to stay on a range. Changing overlay mode is described later. There are two ways to change radar ranges. If you click on the current radar range in the upper-left of the radar screen a list will appear with all the current available ranges. If you touch the left side of the screen the radar toolbar will appear. Click the top button of the toolbar labeled “Range” and the same list of ranges will appear. Just click on the range you desire and the radar will change to that range.



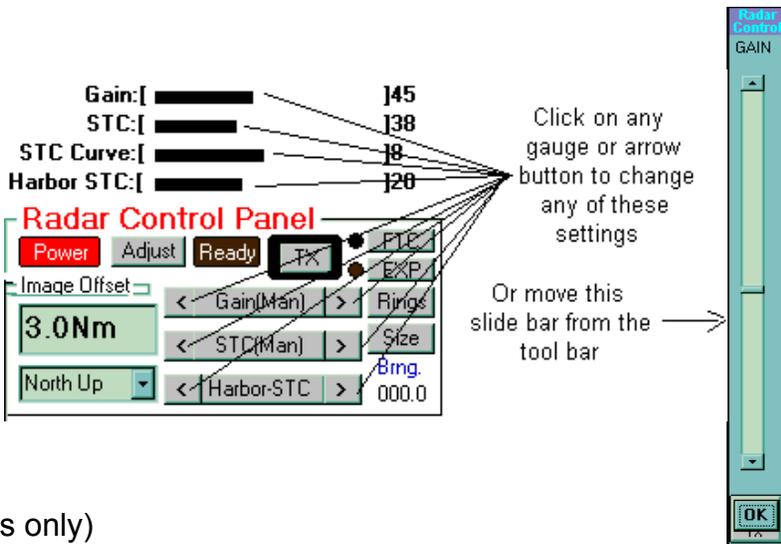
The next time the radar is started it will come up on the last range used when turned off if you have the “Overlay” function turned off.

Adjusting Gain

- 1) Set the radar to a range of 8 to 12 miles with TX on.
- 2) Click the second button on the toolbar or the arrow buttons on the right and left of “GAIN” on the “Radar Control Panel” to adjust the gain. The amount of gain is indicated on just above the “Radar Control Panel” by a progressive gauge and an numerical value to the right of the gauge. You can also click the gain gauge to adjust the gain. You usually want just a few speckles of snow so adjust the gain accordingly.

Adjusting STC

- 1) Set the radar between .5 and 3 miles with TX on.
- 2) Click the fourth button labeled “STC” on the radar toolbar or click the buttons on either side of “STC(MAN)” button on the “Radar Control Panel” to change the STC level. The amount of STC is displayed on the gauge below the gain level gauge. The numerical value for the STC is located on the right of the STC gauge. (See figure above) You want the STC level high enough to get rid of the clutter caused by waves and low enough to still see the boats and other targets.



Click on any gauge or arrow button to change any of these settings

Or move this slide bar from the tool bar

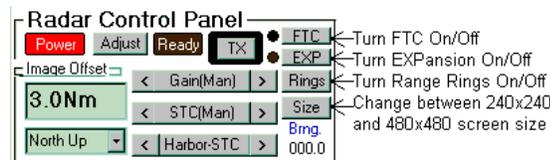
Adjusting Harbor STC (radars with ranges > 16 miles only)

- 1) Click the arrow buttons on either side of the “Harbor-STC” button on “Radar Control Panel” to adjust the harbor STC. The amount of Harbor STC is displayed in the gauge at the bottom of the radar screen and the numerical value is to the right of the gauge. You can click on this gauge to change the STC also. (See figure above)

FTC (Rain/Fog)



Click the FTC button on the “Radar Control Panel” or the radar toolbar to toggle the FTC on and off. FTC is on when the yellow light next to the button is on or the label located on the top of the radar display says ON (you can click this display to change the FTC status also).



Turn FTC On/Off
Turn EXPansion On/Off
Turn Range Rings On/Off
Change between 240x240 and 480x480 screen size

Note: Ethernet systems will have a choice of level of STC



The **Expansion** control is located just below the FTC button. It makes targets appear larger. Click the EXP button on the “Radar Control Panel” or the radar tool bar to toggle the target expansion on and off. Expansion is on when the yellow light next to the button is on or the label located on the top of the radar display says ON (you can click this display to change the expansion status also).



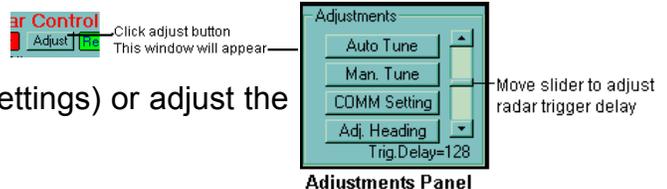
Range rings can be turned on or off by clicking the “Rings” button just under the “Exp” button described above.

Size (or “Big” on 16 mile radars and not available in REAL mode - real mode is 480x480 only)

On radars models with ranges greater than 16 miles you can run the radar in either 240x240 or 480x480 pixel sizes. The “Size” button on the Radar Control panel will switch between the two pixel settings. The 16 mile models have only 240x240 but there is a “Big” button to expand the radar screen to look like 480x480. The size of the screen can also be changed from the “View” menu by selecting either 240 or 480 mode.

Adjust

The radar control panel contains a button for adjustments. You can adjust the radar trigger delay, start the auto-tune, set the manual tune, manually change COMM settings (or Ethernet settings) or adjust the radar heading.



Adjust - Setting Trigger Delay (Scroll bar on right of figure above)

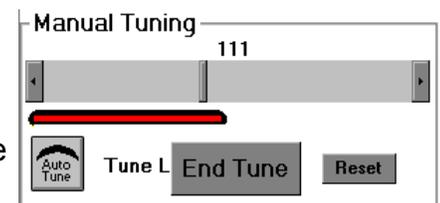
- 1) With the radar running on a low range of .25 Nm (Tx is on), click the “Adjust” button located on the “Radar Control Panel” between the “Power” and “Ready” lights to bring up the “Adjustments” panel.
- 2) Locate the slide slide-bar on the right side of the panel (on figure shown above) and use the mouse to move the slider up or down, start at about 150 the first time. If there is a “Hole” in the center of the radar screen you want to move it up otherwise move it down until you get a “Pin hole” in the center. Move it in small increments, waiting for at least two sweeps of the radar before moving it again.
- 3) At this point your close to correct, when you get close to a bank you will want to repeat the trigger adjustment if the land pulls in or away from the ship until the land appears straight.

Adjust - Auto Tune (You must perform the manual tune at least once before using this)

- 1) Set the radar to the 6 or 8 mile range.
- 2) Turn the radar TX on.
- 3) Click the “Adjust” button located on the “Radar Control Panel” between the “Power” and “Ready” lights to call the “Adjustments” panel.
- 4) Click the top button “Auto Tune”. This may take several minutes, you will see the targets fade in and out as it tunes.

Adjust - Manual Tune

- 1) Set the radar to the 6 or 8 mile range.
- 2) Turn the radar TX on if not already on.
- 3) Click the “Adjust” button located on the “Radar Control Panel” between the “Power” and “Ready” lights to call the “Adjustments” panel.
- 4) Click the second button down, “Man. Tune”.
- 5) Adjust the tuning for largest targets and biggest tuning bar by clicking the top scroll bar (see figure above).
- 6) Click the RESET button when the tuning bar gets too large. Click the AUTO-TUNE button when finished to have the radar automatically keep in tune.



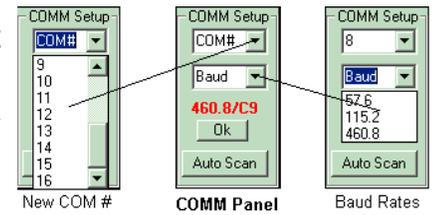
Adjust **COMM Settings** (for RS422 RADARpc's)

The radar controls most COMM settings pretty good by it self but you can adjust the baud rate and/or COMM number.

Just click the COM# drop box to select any of the 16 COMM ports and/or click the baud drop box to select 57.6, 115.2 and 460.8kbs if you like.

Then click on "OK" to complete your settings. You will get an error message if the COMM number you selected is not available or the radar is not detected.

The "Auto Scan" button will search for the radar sensor on all ports and select it automatically. Just be sure to reset the radar so it is on the default baud rate and be sure it is properly connected and that it is turned on.



Adjust **Radar Status or COMM Settings** (for Ethernet RADARpc's)

Selecting the "Radar Status" button on the Adjust window will display the window show to the right here. This allows you to change certain aspects that are related just to the Ethernet RADARpc. Note: This may appear as "COMM Settings" the first time the RADARpc is activated as a Ethernet radar.



Setting the Remote IP (if not communicating with radar sensor)

If the remote IP appears blank, you can manually enter a remote IP for the radar. Make sure to follow the IP number structure of four groups of numbers separated by periods. You should always leave the first set as "192". A "Set" button will appear as soon as you start entering a number in this box and click the SET to change it. (Note: this function was not working at time of this printing so it may not work for you.)

Local IP

This is just a readout, you can not change it. If there is a LAN that is operational, it's number will appear here. If it is blank, then there is something wrong with our LAN setup.

Real Radar Mode

The real radar mode provides for a LIVE radar scan. Turn up the gain and you will see the radar scan line unlike the radar picture dump of the standard mode. The display in the overlay mode is brighter in this mode but it will not work "Course Up" mode. It also takes a much faster computer to run. If you get broken scan lines then you need a faster computer. Try not to do both radar and overlay, just do one or the other.

Fast Sweep

The antenna sweeps twice as fast in this mode. Good for tracking fast moving targets.

Broadcast

Check this ONLY when you are using more than one computer on a RADARpc antenna. It allows the radar commands to be seen by several computers at once. It should be done in conjunction with the Slave Radar check box. Actually, you do not need to worry about it as it is taken care of when you activate the SLAVE mode.

Slave Mode

If your going to use more than one PC per RADARpc then you need to assign one master and the rest must be set to be slaves. The master computer is the first computer that is start up. Each computer after that is started up after that is considered a slave to the master and there "Slave Mode" check box must be checked.

Check Sum

Some computers may be too slow even for the FULL display mode and never draw a radar picture even though the data lights blink like it is getting picture data. If this is the case you can uncheck the "Check Sum" check box and the program will be forced to display the radar data it is getting. Most all cases though, this should BE LEFT CHECKED AT ALL TIMES.

Advanced Setup

This is mostly for debugging purposes. It lists all different modes the new Ethernet can do. It does allow you to change the IP of the radar sensor.

Advanced Setup > **Change the RADARpc Sensor IP Address**

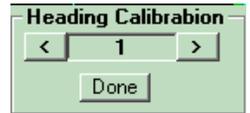
If your connecting multiple radars within a local LAN you will need to change the IP address of the radar sensor so that they will able to be identified by each P-Sea WindPlot software programs on the system.

Please note that It is not enough to change last set of numbers, to make them unique, you must change either the 2nd or 3rd groups of numbers or both.

To burn a new IP into the flash memory of the RADARpc sensor box just click on the “Adjust” menu then select “Radar Status”. Now click the “Advanced Setup” button. You will a “New Remote IP” box to the right of the Local IP display. Enter in a new IP starting with “192.” and separate each of the four groups of 3 digits by period (example: 192.123.123.001). Click the “Set” button to complete the number change.

Adjust Heading

- 1) With TX on, Head your vessel straight at some object like a buoy for reference.
- 2) Click the “Adjust” button located on the “Radar Control Panel” between the “Power” and “Ready” lights to call the “Adjustments” panel.
- 3) Click the 4th button down, “Adj. Heading” then click the arrow buttons until the target is dead ahead.
- 4) Click the “Done” button when satisfied that the heading is correct.



Interference Rejection (IR)

Interference rejection has 3 levels and off, #3 being the highest level of rejection.

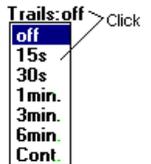
- 1) Click the label “IR:” at the top of the radar screen.
- 2) A list will appear with “OFF, IR1, IR2 and IR3”, click on the desired IR level.



Click on any of these to change there values.

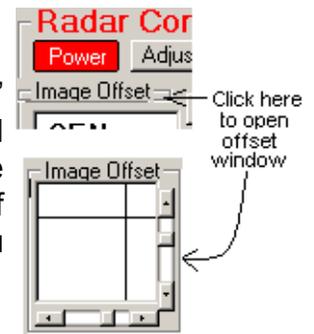
Trails (Not available in Real Radar mode)

Located to the right of the “IR:” label at the top of the radar screen is the “Trails” setting. Default is always off. Click this label and a drop-down box will appear with “off, 15s, 30fss, 1min, 6min and Cont.” as your choices. Time is in seconds (s) and minutes(m). When time is selected the radar will memorize the target at the interval you selected. I will memorize every sweep when continuous “Cont.” is selected. Select “off” when you do not want any trails at all.



Picture Offset (Not available in Real Radar mode)

There are two places you can offset the radar picture. From the “Radar Control Panel” move the mouse over the “Image Offset” and a small facsimile of the radar screen will appear. Just click on the place where you want the center of the radar to move too. The radar toolbar also has an offset button. Clicking this button brings up another facsimile of the radar screen and offset is done the same way. The tool bar offset has a button that you can click to remove all offsets.



Radar Colors (Not available in Real Radar mode)

You can adjust the radar target color to 4 different settings, Red, Green, Yellow and Vector color. Vector color should be used if you are using vector charts. You can also select a background to be displayed on the overlay so. You can see the area covered by the radar on the overlay with this background turned on.

To change colors simply click on “Color” in the radar menu bar and click on the desired colors or click on the “Color” button on the Radar Toolbar and select the desired color from there.



Auto Tune

All but the 16 mile radar sensor has the capability to tune automatically. You must first complete a MANUAL TUNE if it has never been done before.

To start the auto-tune:

- 1) Click the TX button to turn off the transmitter if it is in the TX mode.
 - 2) Click the ADJUST button in the radar control panel and click the first button labeled AUTO TUNE.
- The tuning process usually takes just a few seconds.

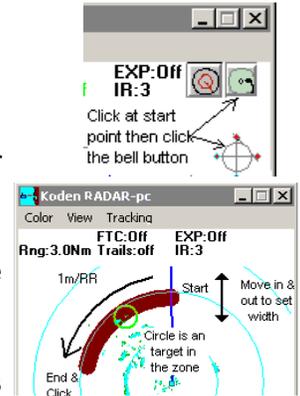
Setting the Target Alarm From the Radar Screen

You will be moving the mouse in a counter-clockwise direction to set the alarm.

- 1) To activate the radar alarm place the mouse arrow where you want the alarm to start then click.
- 2) You will see a yellow cursor in the position of the mouse arrow and two buttons appear at the top of the radar screen. Click the blue alarm bell to activate setting the alarm.
- 3) Now move the mouse in a counter-clockwise direction. A red band will appear and update after each sweep of the radar. Movement in and out will change the width of the band.
- 4) Click again when the alarm band is where you want it to finish setting the alarm.

Repeat steps 1-4 again to set another band if needed. You can have as many alarm zones as you want.

To deactivate the alarm, click the radar screen and the bell button again.



Target Alarm From the Plotter Screen

You will be moving the mouse in a counter-clockwise direction to set the alarm.

- 1) To activate the radar alarm touch the left side of the plotter screen with the mouse pointer and select the "Alarm" button near the bottom of the radar toolbar.
 - 2) Now place the mouse arrow where you want the alarm to start and click.
 - 3) Now place the mouse arrow where you want the alarm to end and click again. Notice that the width of the alarm can be set by moving the mouse in and out from the center of the radar targeting area.
 - 4) Click the "RED Alarm" button on the radar toolbar again to turn the radar alarm off.
- Note: Unlike the alarm button the radar screen, if you set multiple guard zones you can turn one off at a time by clicking the alarm button on the tool bar (Multi-alarms works only in radar FULL display mode).



Views menu description (some menus will not show when real-mode is selected)

Center Vessel w/Radar - applies radar offset to plotter screen when re-centering.

1 Data/Setup Window - Changes to radar control panel and plot data window.

2 Data Window - Plotter data window only

3 Debug/Setup Window - Radar control panel w/debug window.

Chart Overlay - Radar image overlay sub menu.

Range Rings - Radar range rings are turned on when checked.

Small 240 x 240 - Switches to small radar window of 240 x 240 pixels.

Big 480 x 480 - Switches to Biggest radar window of 480 x 480 pixels.

Orient Alarm to True North - Switches from relative to North alarm orientation.

Negate Picture - Captures permanent objects for 3 sweeps and nulls them out.

Sectoring - Turns off Tx for a portion of the radar sweep.

Two Monitors - Selects two monitor mode if two monitors are available.

Scan Lights on - Radar scan line simulation using lights around radar screen.

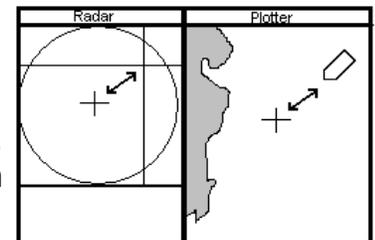
(Un)Reload Alarmzone.bmp - Traceable alarm zone loading and unloading.

Auto-Start Alarm - Starts custom alarm zone automatically when checked.



Views menu > **Center vessel with radar** (Not available in Real Radar Mode)

As mentioned earlier you can offset the radar picture using the radar picture offset. When offset has been applied, the plotter screens' offset will match the radar screen offset when this menu is checked.

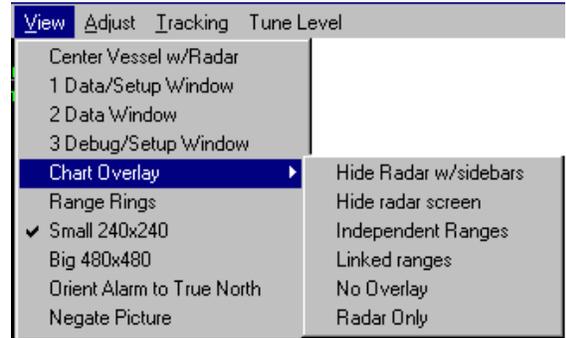


Views menu > **Data/Setup Window**

This will vary with screen resolution property settings. If resolution is high enough the Radar Control panel and the plotter data window will be displayed. This mode clears the plotter screen from all labels like present position, speed & heading.

Views menu > **Data Window**

This will vary with screen resolution property settings. This window will only appear when running the larger size of radar window (See **Size** described earlier). It will display only the plotter data clearing the plotter screen of labels. The Radar Control panel is turned off.



Views menu > **Debug/Setup Window**

This will vary with screen resolution property settings. This displays the Radar Control and the Debug panels. The debug panel is handy when attempting to get the radar working for the first time or when the radar is not acting right. The debug panel shows the current radar resolution, baud rate, output, input and radar serial number. Red dots indicate input and output as well as a description of the output when the “Output” button is clicked.

Views menu > **Chart Overlay** sub menu

Hide Radar (w/Sidebars)

Click this menu to “HIDE” the radar screen. The plotter screen will return to the full-screen mode but the radar overlay will continue if you have radar in TX mode. You can continue to control the radar with the radar toolbar or change to Full-Screen W/Sidebar. Select “RadarPC overlay from the WindPlot “Options menu” to bring the radar screen back. In the **w/Sidebars** mode you get a range button bar along the right side and a radar control bar along the left side. Buttons are large to accommodate touch screens that are becoming popular.

Independent Ranges (Not available in Real Radar Mode) or **Linked ranges**

Click this menu item to turn the radar overlay on and off. Select either “Independent Ranges” or “Linked Ranges” for chart overlay modes depending on whether you want the radar and plotter ranges to change the same (Linked) or be independent of each other.

No Overlay

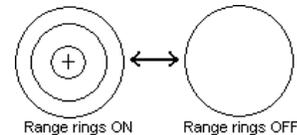
Select “No Overlay” to turn off. When it is off or “Independent” you can change the plotter screen to any range and leave the radar on the current range.

Radar Only

This will close (reduce to minimum) the Plotter screen.

Views menu > **Range Rings**

Click this menu item to turn the range rings on or off.



Views menu > **240x240** (Not available in Real Radar mode)

Changes to smaller radar screen.

Views menu > **480x480** (This mode is not available on some early 16 mile radars)

Changes to larger radar screen. It is recommended that you use this mode if you can as it gives the clearest radar picture.

Views menu > **Orient Alarm to True North** (Not available in Real Radar mode)

This menu item will check or uncheck when clicked. When unchecked the alarm zone will orient itself with the ship like most other radars do. When checked the alarm zone will stay oriented to land. Use this when you are traveling close to land and do not want land to trigger the alarm.

Views menu > **Negate Picture**

This function should only be used if radar is stationary and not going to move. When this is checked, any targets that appears on the first three sweeps are stored and basically those areas are turned off. So, there after so only moving targets not in these areas are displayed. Very handy when following vessels close to land or buoys.

Views menu > **Sectoring** (Can not be set in Real Radar mode)

When checked, a green and red line will appear on the radar screen. Tx will be on only between these lines, the green is the start and the red is the stop of Tx. Just drag the ends of the green and red lines to set up your sectoring. This is handy if you have a large metal object nearby that is causing reflections/false targets on the radar screen. This works in Real Mode but must be set using FULL radar mode first.

Views menu > **Two Monitors** sub menu

Windows can be setup to drive two monitors. When two monitors is set up in windows, you will basically have two monitors side by side to make up one wide monitor.



Then select either "Span-Left" or "Span-Right" to have the radar in full screen mode on one screen and the plotter in the other screen. The program remembers this mode and automatically sets up the span the next time you start the radar program.

Views menu > **Scan Lights On** (Not available in Real Radar mode)

After each sweep in the antenna, the radar downloads in one complete picture and thus no sweep line is not seen on the display like analog radars. The P-Sea Radar program attempts to simulate the sweep turning on a series of 8 lights place in the corners and sides of the radar display that turn on one after another during the sweep.

Views menu> **Un/Reload Alarmzone.bmp**

You can build your own custom alarm zone using a bitmap file to build the zone. Radar will add this BMP file to the background of the radar display. Use a sheet of plastic and outline the gaud zone you want with a felt pen. Set up paint brush attributes to either 240x240 or 480x480 depending on what radar resolution you are using. Use Windows Paintbrush to draw in the guard zone with the reddish/brown color (third color from left on top row in the color toolbox). Save the bmp file as 16bit color with a file name of "AlarmZone.bmp" in the plotter main directory (usually "PC-PLOTT"). The radar will automatically pick this up when it see's it is in the main directory. Click this menu item to turn it off and on.

Views menu> **Auto-Start Alarm**

If you use the custom guard zone, this will start the alarm automatically when the is running.

Adjust Menu

Most of these are a repeat of the Radar Control Panel described at the beginning of the radar operation. See procedures described earlier in this manual for details.

Auto Gain - Adjust gain atomically after doing a preset.

Auto STC - Adjust STC automatically after doing a preset.

Auto Tune - Tunes radar picture automatically.

Backup Radar.INI - Save and recall radar settings.

Comport - Select COM port number and Baud rate or

(Radar Status) This shows in place of COMPORT for Ethernet settings

Cursor Bearing Relative - Cursor's bearing is relative to ship when checked.

Display Mode - Course Up - Waypoint's course up

- **Heads Up** - Ship's course up

- **North Up** - North up-preferred mode

- **Real Sweep** -Selects Real Radar mode

FTC - Rain and fog anti-clutter

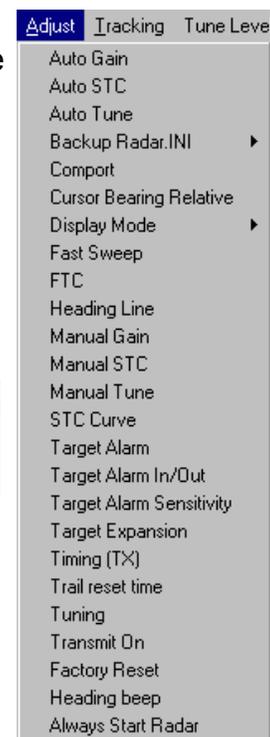
Heading Line - Adjust radar heading value until heading line is correct

Heart Beat - If checked, WindPlot must communicate w/radar or TX is turned off.

Manual Gain - For entering a manual gain setting.

Manual STC - For entering a manual STC setting.

Manual Tune - Adjust slider to tune for maximum targets



STC Curve - Adjust time constant curve of STC.

Target Alarm - Sets radar alarm - See TARGET ALARM FROM RADAR SCREEN.

Target Alarm In/Out - Sets if an alarm is set for vessels going in and/or out of guard zone.

Target Alarm Sensitivity - Sets number of sweeps before alarm is activated.

Target Expansion - Makes targets larger when checked.

Timing (TX) - Adjust TX timing to get rid of target distortion near center of radar.

Trail Reset time - Sets trails behind targets on RADAR screen.

Tuning - Radar tuning

Transmit On - Turns radar TX on and off.

Factory Reset - Resets all values to factory settings.

Heading Beep - Computer will beep each valid sweep when checked.

Always Start Radar - When checked, radar will launch automatically when P-Sea WindPlot II is started up.

Target Tracking Menu

The radar can track as many vessels as your computer and radar can handle. You can manually start the tracking process or use the guard zones to automatically start the tracking. Each target has a number, you can leave a trail, save it as a track, get the vessels speed and heading, range, bearing, Lat./Long., CPA and set a CPA alarm. A small dotted circle will appear over every target that is tracked. The size of the circle depends on the "Sensitivity" that you have chosen for the radar targeting. A heading line (stinger) will appear for each target after a period of time from setting the target. You can set labels to appear next to each target on the plotter screen with the data on it you selected from the ARPA menu. Please note that outputting TTM sentences will slow things down further limiting the number of targets you can track.

Auto Acquire - Hands off automatic vessel tracking.

Auto Save Tracks - Automatically saves tracks when checked

Track Vessel - Use to manually acquire vessel tracking.

Name Tacked Vessel - Give targets a name for identifying saved tracks.

Adjustments - Sub menu for adjusting tracking settings.

Clear ALL Tracking - Clears all targets that are currently being tracked.

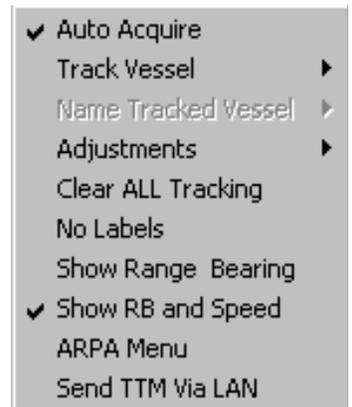
No Labels - Turns ARPA target labels off of Plotter screen.

Show Range Bearing - Target Range & Bearing display in upper-left when checked.

Show RB and Speed - Target Range, Bearing and speed display when checked.

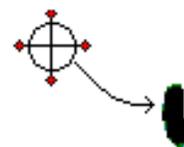
ARPA Menu - Display WindPlot ARPA menu listing all targets being tracked.

Send TTM Via LAN - Sends TTM sentences via a Local Network if one is connected.



Manually setting a target

- 1) Click on either the "Target" button on the Radar Toolbar or select "Track Vessel" from the radar windows' "Tracking" menu or drag the small yellow "T" in the lower-left of the radar screen over the target.
- 2) Choose one of the numbers that is not checked (T) or have a "T" by it.
- 3) The yellow cursor will be on at this point on both the plotter and radar windows. Simply place the yellow cursor over a target you want tracked and click to start the tracking process.



Be sure no other target is near by or it might move to the wrong target. A dotted line will appear around the target being tracked. It will be white if the target is strong enough and purple if not. You may see it white on every other sweep and this is ok. You can set the number of sweeps it is purple before the target is considered lost under tracking of the radar menu ("Lost Targets").

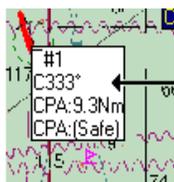


The target will have a dotted circle and line pointing it's course

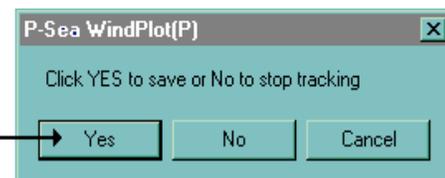
Automatic target acquire Click on TRACKING then click on AUTO ACQUIRE if not already checked to activate automatic target acquisition. The any target passing through your guard zones will be set as a target and the computer will start tracking it.

Stop tracking a target using the target labels

1) If the data label is turned on, click on the target label and choose “No” to turn the tracking off. You can also repeat the way you turned it on, just click on the tracking number from the list and it will turn off.



Click on target label & save or stop tracking



The label and dotted ring will disappear when tracking is turned off.

Saving a Tracked Target

First, you have to have the track function turned on in the ARPA menu so a trail behind the tracked targets will be left. See the WindPlot II manual section on “Window” menu in the “Long Menus” section for details on the ARPA menu. If you have “Save Lost Targets” checked the track will automatically be saved when a target is lost.

Tracking Adjustments menu

Use this menu to fine tune your target tracking. It also provides some options like saving tracks, lost tracks and so on.

Tracking >Adjustments >Bearing relative

Changes target heading calculation to be relative to ship.

Tracking >Adjustments > Default Line Color

Click this to select a default track line color. This is the color of the track the target makes. You can change this color later from the ARPA menu

Tracking >Adjustments > Drop Stationary Target

When this menu item is checked the ARPA target will drop out if it does not move for over 6 minutes. Use this to avoid locking onto buoys for example.

Tracking >Adjustments > Point Duration

Track are saved as a series of Lat/Long points. You can set of often these points are created in seconds. Remember it takes approximately 2.5 seconds between radar scans so be sure not to set it lower than this. The lower the number though the faster you will get a speed and heading. It is recommended to set this at about 10 seconds.

Tracking >Adjustments > Target Width

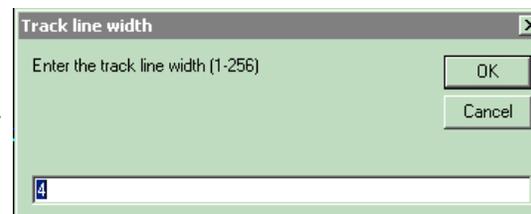
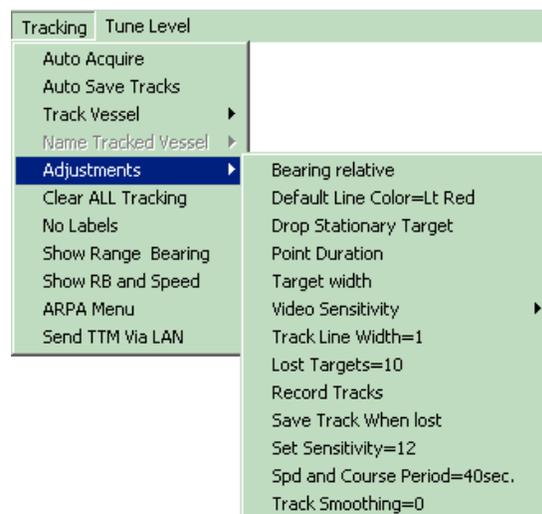
As mentioned earlier in this guide, a dotted circle represents a target that is being tracked. This does not show up very well on a chart overlay since it is so thin. You can loose the dotted line and make the target bolder if you change the Target Width greater than 1 (the default). Just select this menu and enter a number between 1 and 15. Usually you do not want this over 4.

Tracking >Adjustments > Video Sensitivity

Set to your preference. There are 3 levels of video that represent return target strength High, Medium and Low. Use LOW when you have the TRAILS function turned on. HIGH sensitivity will track anything on the screen so do not use when any snow or clutter is present.

Tracking >Adjustments > Track Line Width

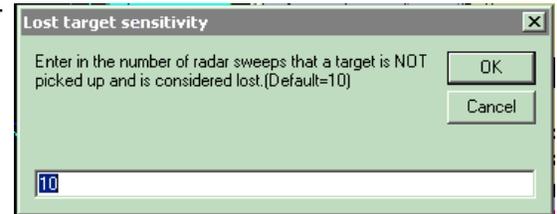
Click this to set a default tracking line width from 1 to 15 where 2 is usually most desirable.



Tracking >Adjustments >Lost Target

This sets the number of consecutive sweeps that the target is NOT detected before the target is considered lost.

The default is 10, just enter the number you want and click on "OK".

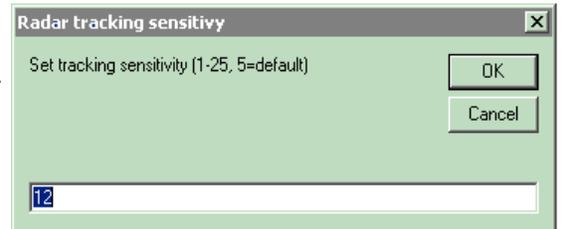


Tracking >Adjustments >Record tracks

This must be checked if you want to leave a trail (track) of ARPA targets.

Tracking >Adjustments >Save Track when lost

Click this menu item to check or uncheck it. When it is checked and the target is determined lost the program will automatically save its track to a file. Also, if this menu item is checked and the maximum number of points as set up in the ARPA menu is met then the track will be save as well.

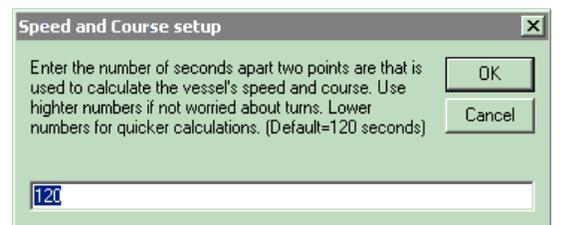


Tracking >Adjustments >Set sensitivity

Tracking sensitivity is actually the number of pixels away from the center of the target that the radar looks for the target. If too large it may GRAB another target nearby. If set too low you may loose the target as the vessel swings around. Try a setting of 10 to start with.

Tracking >Adjustments >Speed and Course period

This setting is in seconds (120 is default) and is the length of time between target track points that are used to determine speed and heading. Too small a number usually leads to wild swings of speed and course. Too long and you may never get a speed and course as it has to wait for the period of time you set before it can do any calculations.



Tracking >Adjustments >Track Smoothing

Takes out some of the zig-zags in a targets track. (From 1 to 10.)

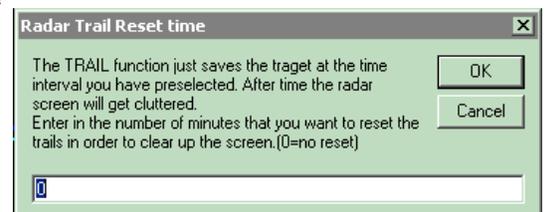
Tracking >Adjustments >Trail reset time

This does not have an effect on Tacked targets. It pertains to the radar "Trail" function. If you have the Trail set it will continue to plot its trail until you turn it off or change ranges. Select this menu item and enter in a number of minutes to reset the trail. Set it to 0 for no resetting.



Tracking > Clear ALL Tracking

Just clears out any targets currently being tracked.



Tracking >No Labels

You have the choice of having labels appear next to each target displaying any data about the target you want as set up in the ARPA menu. Click this menu item to turn the labels on or off. These labels may cause the plotter screen to flicker as the boat moves. This flickering will be more apparent on slower computers.

Tracking >Show Range/Bearing (Not available in Real Radar mode)

Click this item to have each tracked targets range and bearing appear in blue in the upper-left of the radar window.



Tracking > **Show RB and Speed** (Not available in Real Radar mode)

Click this item to have each tracked targets speed, range and bearing appear in blue in the upper-left of the radar window.

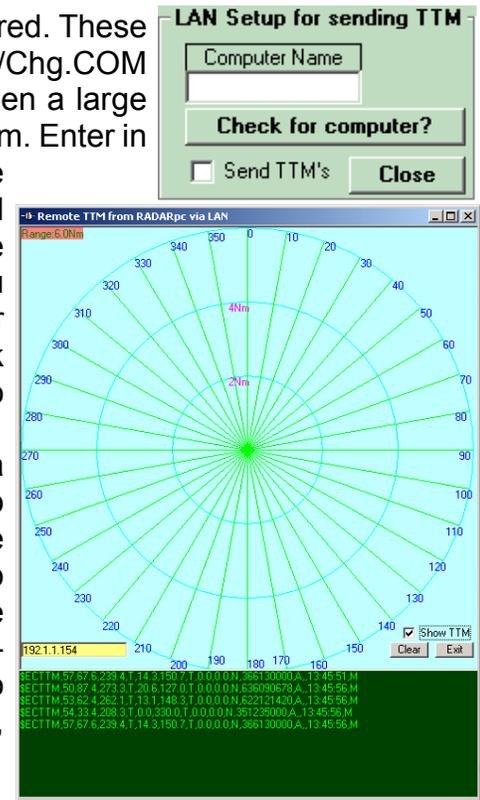
Tracking > **ARPA menu**

Calls the ARPA menu that lists all of the targets currently being tracks and allows you to change various things regarding the tracking and display of targets. See the “Window Menu” part of the manuals section on “Long Menus” for details of the ARPA menu.

Tracking > **Send TTM Via LAN**

TTM sentences contains the tracking info for all targets that have been acquired. These sentences can be sent via the serial port in the Plotter “Adjustments/Chg.COM Ports/Time” menu. However, the serial port can be too slow, especially when a large number of targets are acquired. However, with the LAN speed is not a problem. Enter in the name of the computer you want to send TTM sentences to in the “Computer Name”. Click the “Check for computer button” The program will check to see if it can communicate with this computer. If it can't, click on the “My Network Places” and make sure you can log onto the computer. You should see the name of the computer you entered in the “Computers Near Me”. If you do not see the destination computer listed then you need to check your LAN settings and security options. Make sure you have shared access to the destination computer.

Once the computer is found the Local Network will send these sentences via the LAN. Be sure to turn the serial port output off if you use this to free up computer resources and make it go faster. There is a program included on the CD that you can place on the destination computer to verify if it is picking up the TTMs or not. Put the install CD on the destination CD and copy the “RecvLanTTM.exe” file to the WindPlot II directory (you will need to install P-Sea WindPlot II on the destination computer even if your not going to use it to make this program work.) Now double-click the icon and if the TTMs are there, they will display in the radar simulated screen as shown here.

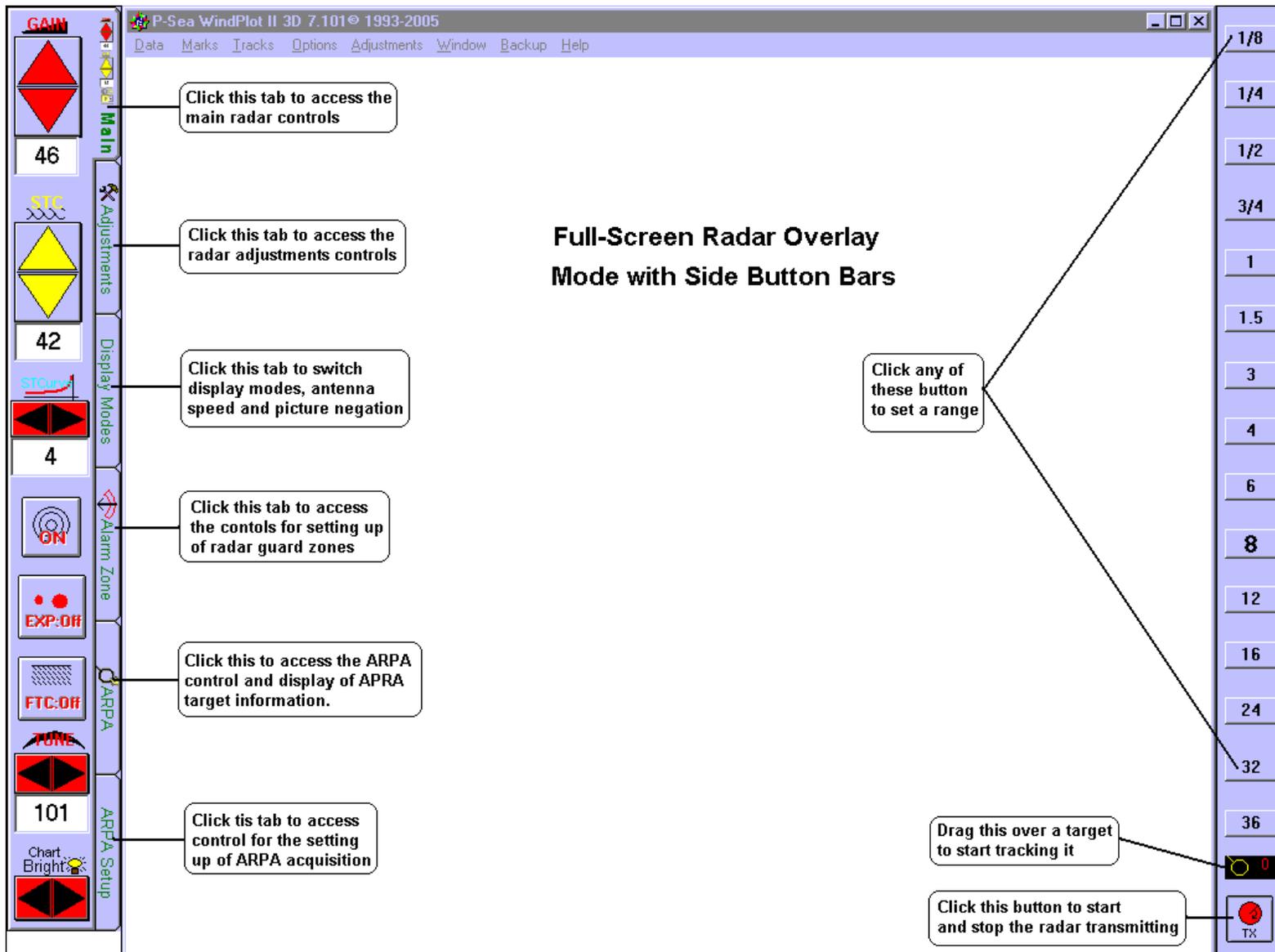


Full Screen Mode with Side Button Bars

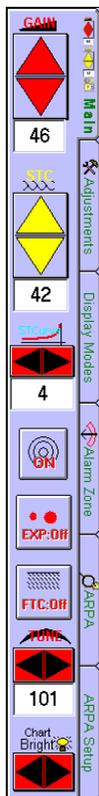
A simplified and improved Full-Screen mode is available in P-Sea WindPlot II versions 7.10 and greater. The menu selection is **View>Chart Overlay>Hide Radar w/Sidebars** or you can click then full screen radar button on the left of the plotter screen. Click it one for side buttons and again to hide the side buttons. The buttons are purposely made large to accommodate touch screens.

Along the right side you will find the radar range and TX button. The number of range buttons will depend on the type of RADARpc scanner you have. The transmit (TX) button is located at the bottom, just click to start and stop the radar. A drag and drop ARPA button will appear above this if you have ARPA option and the radar is in the transmit mode.

The buttons on the left of the screen are the control and adjustment buttons. It has six different groups of buttons that is selected by clicking on the vertical tabs. The tab selection are: **Main** for most common used radar controls, **Adjustments** so you can adjust heading line, trigger pulse delay and radar interference rejection, **Display modes** to select display orientation, sweep speed, full or real mode, negative picture and target trails, **Alarm Zone** for setting up a guard zone, **ARPA** for monitoring ARPA targets and **ARPA Setup** for setting up ARPA acquisition.



Main Tab



GAIN: The main control button tab is shown here. Use the top button to adjust the gain. Gain should be set with the radar set to the largest range and set it so there is just a seckel of noise on the radar screen.

STC: The next control sets the level of STC. Adust this on the lower ranges AFTER you have properly set the gain control. Set the STC down as low as you can and still not see the sea clutter. This needs to be continuously adjusts as sea conditions changes.

STC Curve: The next control down sets the STC curve. This is set a 4 by default, you need to set this by experimenting with the STC on each range. The STC curve is best set when you can scale through all ranges will little or no further STC adjustment needed.

Rings: Click this button to turn the range rings on and off

EXP: Click this to turn on target expansion. Targets will appear bigger when it is on.

FTC: Sets the FTC or rain clutter. Turn this on when rain or fog causes clutter on the radar screen.

Tune: Adjust this for the largest amount of targets on the screen.

Chart Bright: Changes the brightness of the charts as compared to the radar images. This should be dimmed down on Ethernet and brightened up on serial RADARpc's.

Adjustments tab

Pic Offset (Full mode only): Use this to shift the center of the radar. Just click anywhere in the square between the "Pic Offset" and the "Reset" button shown on the left here to set a new radar center.

Heading: Adjust this control so that a target is exactly on the heading line when your heading for it. Point the boat at a buoy for example. It should be on the radar heading line if this is properly set.

Timing: This adjust the radar main bang trigger delay timing. Go to the smallest radar range while going down a narrow channel. Now adjust this control first to eliminate a "Whole" in the center of the screen. Then look at the bank of the channel and adjust the timing so that there is no distortion, it should be a straight line. Be careful not to set too high a level or you may miss seeing boats that are close to you.

Background: (Full mode only): When checked, a shadow will appear on the plotter screen to outline where the radar is looking.

Long Pulse: Normally, the pulse length of the radar is automatically determined by the radar by the range it is on. When check or un-checking this, the automatic pulse length is disabled and the pulse length will be long when this is checked and short when it isn't no matter what range your on.

IR: The first control in this tab is the Interference rejection control. It is used to eliminate random radar noise caused by other radars. It has OFF, 1, 2 and 3 for choices where 3 is the most rejection.

Split Screen: Click this button to switch the radar back to split-screen mode.

Display Modes Tab

Mode: The first set of 3 buttons are related to each other and only one can be selected at a time. Click **NU** to have the radar display in North Up mode. In this mode north is always at the top. Click **HU** for Heads Up mode, This mode the radar heading line is always up. Charts will rotate. Click **CU** for Course Up mode. In this mode a waypoint is always at the top of the screen. It also requires a waypoint to be set.

Real Mode: (Ethernet models only) Click this to switch between real and full radar display mode.

Fast Sweep: (Ethernet models only) Click to set the antenna to rotate twice as fast. Be sure your radar power supply can handle the extra current draw.

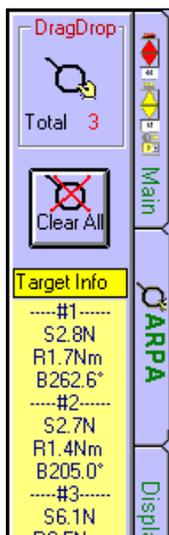
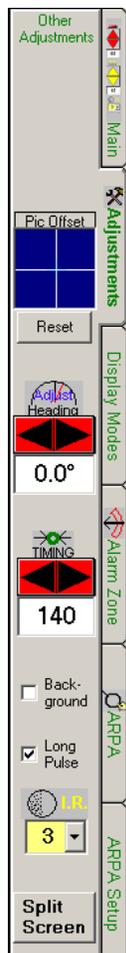
Negate Picture: (For use only when vessel is stationary) When checked, this will eliminate all targets on the first few sweeps of TX causing only moving targets to appear on screen.

ARPA Tab (tab position was move up for reference)

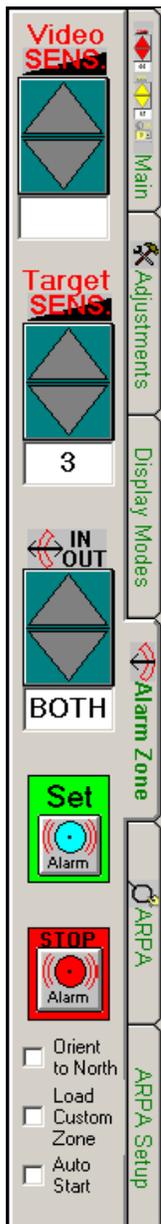
Drag/Drop: Place your mouse on this button and hold down on the left button and continue holding while moving it over a target and let go of the mouse button. This sets a target for tracking.

Clear All: Clears all targets from the tracking.

Target Info: Lists target information for all targets that are currently being tracked. Information displayed here is controlled via the ARPA menu in the plotter "Window" menu.



Alarm Zone Tab



Video SENS: Adjust this for the level of video Hi, Med or Low. Low means only the strongest targets and Hi means the weakest.

Target SENS: This is the number of sweeps it takes before a blip is considered a target. Setting this too low will cause random noise to be considered a radar target causing false alarms to go off. Setting too high will cause an extra delay in picking up real targets that are in the alarm zone.

IN/OUT: You can set the alarm to go off only when a target is approaching you and entering the alarm zone (IN) or set it to go off when the target leaves the zone (OUT) and away from you or either (BOTH). You will need to set a value when setting in or out mode. This is a distance of change require for the target to be considered going in or out. Do not set this too high or no targets will be detected.

Set: Click this to set an alarm zone. You will be moving the mouse in a counter-clockwise direction to set the alarm. Place the mouse arrow where you want the alarm to start and click. Now place the mouse arrow where you want the alarm to end and click again. Notice that the width of the alarm can be set by moving the mouse in and out from the center of the radar targeting area.

STOP: Click this to cancel the alarm zone.

Orient to North: Sets the alarm to stay fixed with land instead of the vessel.

Load Custom Zone: You can build your own custom alarm zone using a bitmap file to build the zone. Radar will add this BMP file to the background of the radar display. Use a sheet of plastic and outline the guard zone you want with a felt pen. Set up paint brush attributes to either 240x240 or 480x480 depending on what radar resolution you are using. Use Windows Paintbrush to draw in the guard zone with the reddish/brown color (third color from left on top row in the color toolbox). 'Save the bmp file as 16bit color with a file name of "AlarmZone.bmp" in the plotter main directory (usually "PC-PLOTT"). The radar will automatically pick this up when it see's it is in the main directory. Click this menu item to turn it off and on.

Auto Start: The radar program will automatically launch itself when the plotter program is started with this item checked.

ARPA Setup Tab

Tracking Average: This averages the computed Lat./Long. position of a target making a smoother recorded track line. Setting this too high will cause some position errors and setting too low will make a zagged track line.

Duration: This is how often a track point is saved. Too high and take longer to calculate speed and headings too low waste track storage memory.

Speed Avg.: Smooths out the speed and heading readouts. Too much will cause delays in target course changes.

Lost Target: The number of sweeps that a target can be off screen before the target is considered lost or no longer in range.

Line Width: Sets the width of the track line left behind when a target is being tracked

Sensitivity: Tracking sensitivity is actually the number of pixels away from the center of the target that the radar looks for the target. If too large it may GRAB another target nearby. If set too low you may lose the target as the vessel swings around. Try a setting of 10 to start with. Enter a negative number to have the sensitivity adjust with range so it maintains itself in proportion to the target.

ARPA Menu: Click this to call the ARPA menu where you can set the items to display for a target.

Change Target track color: Choose a color for the target tracks.

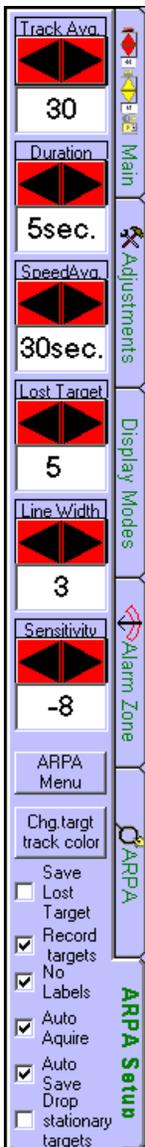
Save Lost: Saves tracked targets when they are considered lost automatically.

Record Targets: Records targets when checked.

No Labels: Turns off target information from plotter screen. Labels can cause the plotter screen to blink and/or hide other targets.

Auto Acquire: Target in an alarm zone will be automatically tracked when checked.

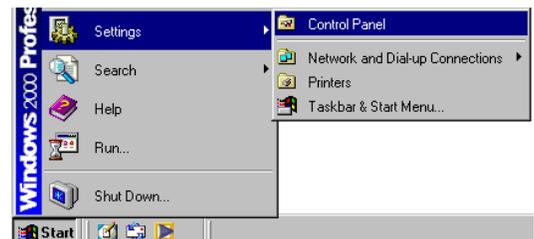
Drop stationary targets: Drops targets that the computer determines are not moving (like buoys).



APPENDIX A

Setting up a LAN on your computer; This differs from one windows platform to another and the setup may be best left up to a specialist. What you need to do first is locate the LAN or Local Network properties.

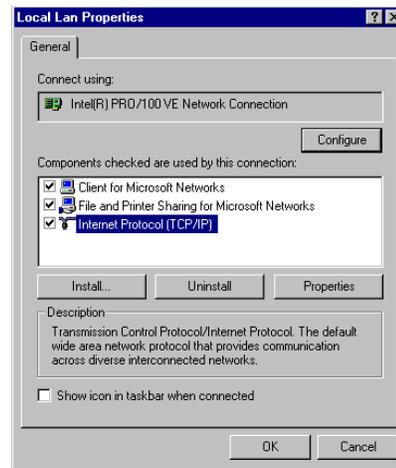
In windows 2000, you will find this in the "Start">"Settings">"Control Panel">"**Network and Dial-up connections**". In Windows XP it may look like this or you may find the "Control Panel" right in the start menu when you click it but in any case you need to locate and open the "Control Panel" before you proceed to the next step.



If you find the LAN here then right-click on it and select properties.



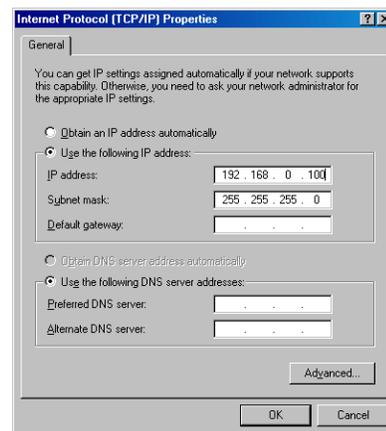
Then from the Local LAN Properties box, locate the “Internet Protocol (TCP/IP)” and click on it then click the “Properties” button.



Now if your using a thing call a **router** then all you need to do here is select “**Obtain IP address automatically**”, click on OK and restart the computer.

If your setting up **direct PC to Radar** or HUB connection then you must select “Use the following IP address:” and enter in “**192.168.0.100**” in the “IP address” boxes and enter “**255.255.255.0**” in the “Subnet mask” boxes, then click on OK and restart the computer.

After all this you should be ready to connect the radar to the computer and start it up as described in the begging page of this manual.



You can test the connection to the radar by sending a ping. Just click on START then select RUN. In the OPEN box type in the following: **PING 192.168.0.1** and press enter. If it is working you will get a message that it was successful and a time will be given of how long it took.

NOTE: Make sure either your firewall is setup to accept these IP address or turn it off completely.

Subject: Radar Custom Guard zone instructions

- 1) Find a fairly stiff piece of clear plastic like for overhead projector and place it over the computer screen. Get the WindPlot P-Sea Radar showing targets they way you want and place the plastic over the computer screen so it covers the two radar screens. Now outline the alarm zone with a felt pin and fill in the area where you want the guard zone to look at. Be sure not to include any stationary targets in the zone. The edge of the radar screen is right where the scan lights show up so turn on the green scan lights so you can see them and box in by drawing a line from one light to the next.
- 2) Stop the radar and open up Windows Paintbrush program. Select the paint brush menu “**Image**” and then select “**Attributes**”. Set BOTH the Width and Height to the same as the pixel size of the radar screen (240 or 480) and click on OK.
- 3) Use the fill function to set the **background to solid black**. Place one of the mylar radar outlines over the paintbrush drawing area. It should match up with the outline of the radar. Now use the drawing functions to fill in the alarm zone area you outlined with the **dark red** color. Any target that gets in the red area will trigger the alarm.
- 4) Now save this file as a **16 color** bitmap image with a name of **ALARMZONE.BMP** in the P-Sea Radar **program’s main directory** usually “PC-PLOTT”. You may have to repaint the red in again after saving it as 16 color since sometimes it changes. If it isn’t the right red, the targets going into the red will not be detected.
- 5) To load the alarm zone, click on VIEW in the radar menu bar and select (Un)LOAD ALARM ZONE then get the WindPlot P-Sea radar running again. Don’t worry if you do not see the outline right away, as you should see the full outline in the radar screen **AFTER** the first sweep.
- 6) Click the blue alarm bell icon at the top of the radar display to activate the alarm. It will turn red while the alarm is active. Just click the bell again to turn the alarm off.
- 7) Click on “Adjustments” then “Chg.COM Ports” on the plotter window side and set the “MASTER OUTPUT” to the proper COM number and click the check box so it is on. Connect a transistor relay to the COM port you selected. Pin 5 is ground and pin 4 is the DTR signal we use to trigger the alarm on a 9 pin connector. The relay will stay on so long as there is a target in the guard zone.

8) You can clear the alarm zone via the RADAR “VIEW” menu. You will find the (un)Load radar zone at the bottom of the view menu. You can also set the **target alarm sensitivity** in the Radar “Adjust” menu. This is the number of sweeps that a target has to appear before it is considered a target. It also effects how fast it drops out.

Radar Remote Control (ver.7.24 or better only)

There is a NMEA 0183 sentence you can use to control some aspects of the radar like range and gain over a RS323 serial port. You can use the COM Port Tester program that is installed with WindPlot to control the radar. It will use the first available COM that isn't disabled to communicate with the radar.

\$PCRCC, Update, TX, Gain, STC, FTC, Alarm, Auto Acquire, Disp Mode, Reset Targets, Full mode, XX, Total ARPA targets, Video Level

<u>Radar Control</u>	<u>Values from radar to PC</u>	<u>Values sent to radar from PC</u>
UPDATE	0	1= request for updated radar data
TX	-1=TX on and 0 = TX off.	1=Tx is on and -1 is Tx is off
Range	Current range	-1=up & -2=down in range or actual Range #
Gain	Gain value	Gain value or 0 for no change
STC	STC value	STC value or 0 for no change
FTC	FTC Value	FtC value or 0 for no change
Alarm mode	1=on 0=off	-1=turn off, 1=turn on 0 = no change (for Auto zone only)
Clear Tracking	0	-1=clear all targets, 0= no action
Auto Acquire	-1=0n, 0=off	Not implemented yet
Display mode	1=NU, 2=CU, HU=3	Not implemented yet
???	Not decided yet	
Full mode	-1=full mode, 0=real mode	Not implemented yet
Total targets	Total acquired targes	0
Video Level	Total pixels on	0

Auto-Start radar add **RR** to the main EXE file. It bypasses entering SR# and launches radar in TX mode in about 3 minutes. If you make it **RRTX#** were # is a whole range then the radar will start in that range.

