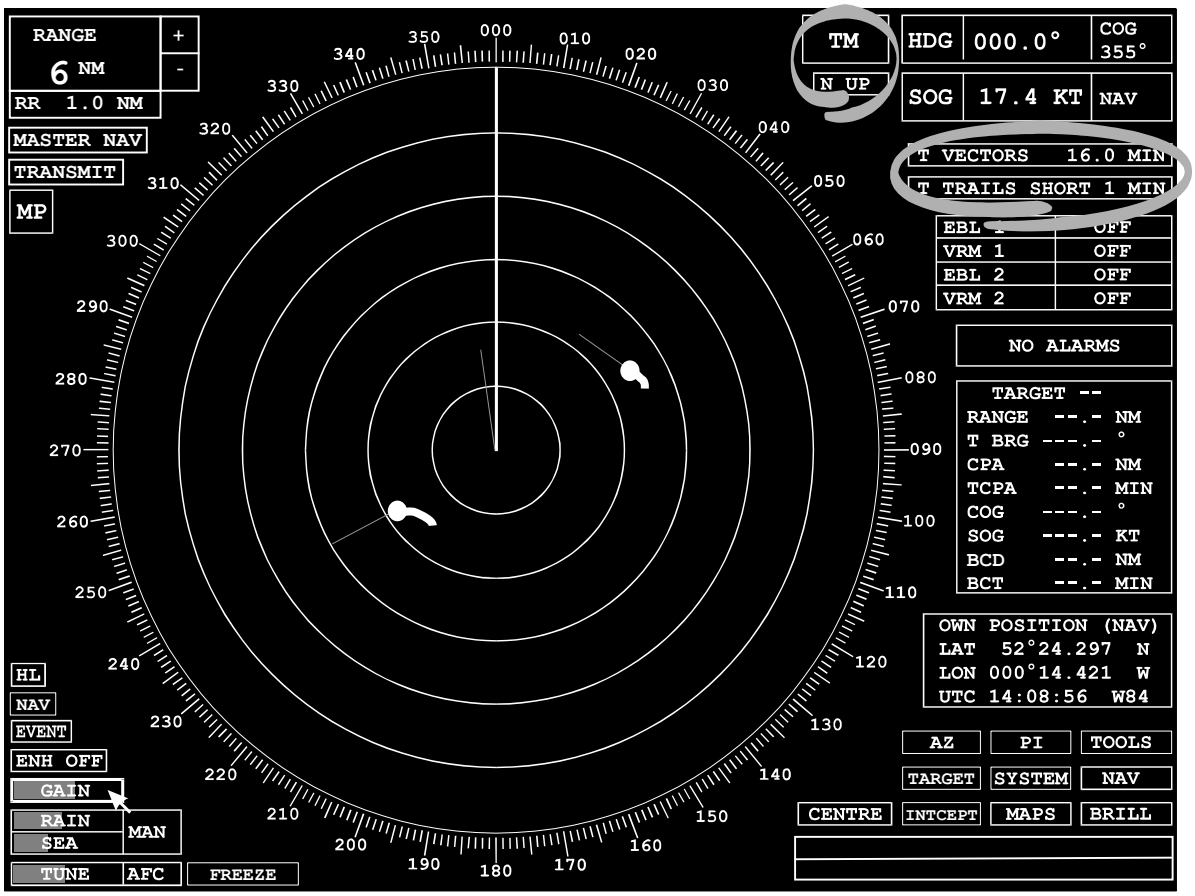
CHAPTER 5

Presentation, Motion Vector & Trail Modes



Covered in this chapter:

- Selecting a presentation mode and how this affects the video display.
- Selecting a motion mode and how this affects the display of own ship and other targets on the video display.
- Displaying the velocity of own ship and other targets as vectors on the video display.
- Displaying the history of a target's movements as a trail on the video display.

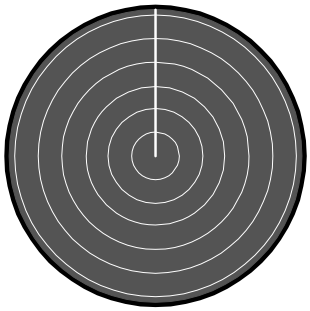
Introduction

The **Motion Mode** and **Presentation Mode** selection fields are located in the top right corner of the display, immediately to the left of the Heading and Speed displays, and are available in both Standby and Transmit modes.

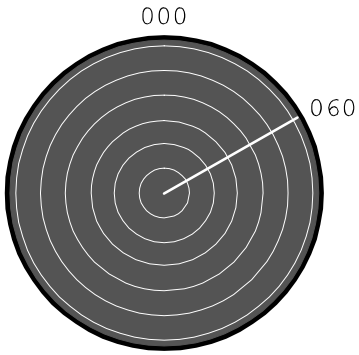
The **Vector Mode** and **Trail Mode** selection fields, located beneath the Heading and Speed displays, are only available in Transmit mode.

Presentation Modes

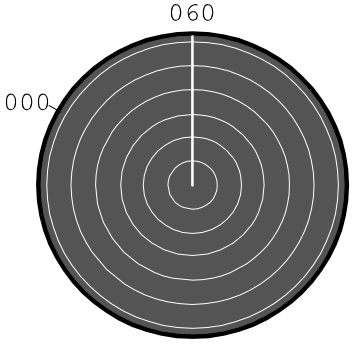
Data from the compass can be processed to produce a correct 'stabilised' display. There are two types of stabilised display available, **North-Up** and **Course-Up**. Without a compass input, the display is 'unstabilised' and is shown with the ship's heading marker vertically upwards indicating straight ahead movement (**Head-Up** mode).



Head-Up Unstabilised display - The ship's heading marker is always shown vertically upwards indicating straight ahead movement.



North-Up Stabilised display - The bearing scale shows 000° at the top of the video circle (assumed to be true north). The ship's heading marker is shown at the appropriate bearing.

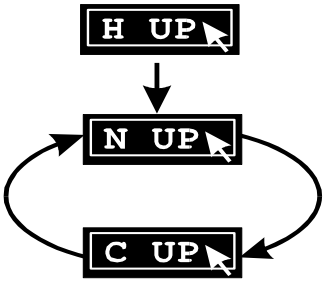


Course-Up Stabilised display - On selection of Course-Up mode, the ship's bearing is shown at the top of the video circle with 000° elsewhere on the circle, still representing true north.

The currently selected Presentation Mode is displayed. The modes available for selection are,

- **H UP** Head-UP
- **N UP** North-UP
- **C UP** Course-UP

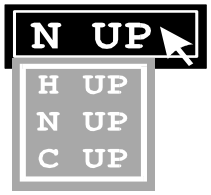
Selecting a Presentation Mode
Either



1. Position the screen cursor over the Presentation Mode field.
2. Left click consecutively to toggle through the available options.

Note - If H UP is the currently selected mode, the first left click will select the N UP mode. Subsequent left clicks will then toggle between the C UP and N UP options only. This prevents the accidental selection of an unstabilised mode while in a stabilised mode. To select the H UP mode use the method described below.

OR



1. Position the screen cursor over the Presentation Mode field.
2. Right click to reveal a drop down menu.
3. Position the screen cursor over the required mode.
4. Left click to select.

Course-UP Reset
When the **C UP** mode is in operation, if the ship alters course, a Course-Up reset should be performed by reselecting the mode. This realigns the bearing scale to bring the new course to the top of the video circle, i.e. it doesn't happen automatically as the ship changes course.

Motion Modes

The motion mode determines whether own ship moves across the radar picture or remains at a selected point, and how the trails of moving targets are displayed.

The currently selected Motion Mode is displayed. The modes available for selection are:

- **RM(R)** Relative Motion - Relative Trails
- **RM(T)** Relative Motion - True Trails
- **TM** True Motion

In **Relative Motion - Relative Trails**, own ship is displayed at a fixed point in the video circle (normally the centre) and all target trails are shown relative to own ship's movement. This means that stationary targets will have trails if own ship is moving.

In **True Motion**, own ship moves across the video circle. Stationary targets, therefore, don't produce any trails.

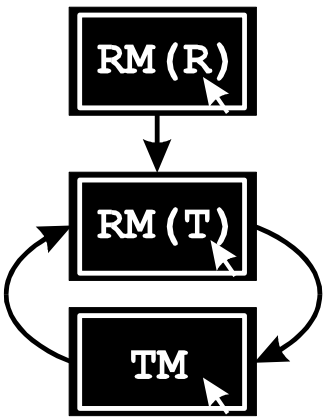
True Motion is only available on range scales 0.5NM to 48NM. If the range scale is outside these limits, it will temporarily revert to relative motion – relative trails on a lower range scale and relative motion – true trails on the 96NM range. On selecting a valid range scale it will revert to **True Motion**.

In **Relative Motion - True Trails** mode, own ship is displayed at a selected point in the video circle (normally the centre). However, as with true motion, the target trails show their true direction. Therefore, stationary targets do not generate trails. The advantage of this mode over true motion is that a constant range ahead of own ship is always displayed, so there is no need to reset the display.

Relative Motion – True Trails is not available below 0.5NM range scale. If the range scale goes below 0.5NM the display will temporarily revert to relative motion – relative trails. On selecting a valid range scale it will revert to **Relative Motion – True Trails**.

Selecting a Motion Mode

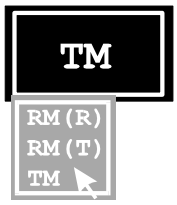
Note - If the radar is in unstabilised (Head-Up) mode, only relative motion will be available.



Either

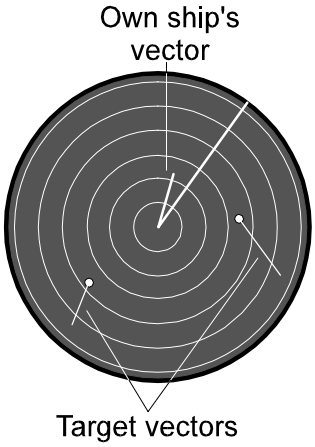
1. Position the screen cursor over the Motion Mode field.
2. Left click consecutively to toggle through the available options.

Note - If RM(R) is the currently selected mode, the first left click will select the RM(T) mode. Subsequent left clicks will then toggle between the TM and RM(T) options only. To select the RM(R) mode use the method described below.



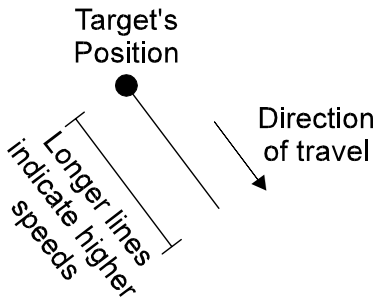
Or

1. Position the screen cursor over the Motion Mode field.
2. Right click to reveal a drop down menu.
3. Within the menu the current selection is highlighted, position the screen cursor over the required mode.
4. Left click to select.



Vector Modes

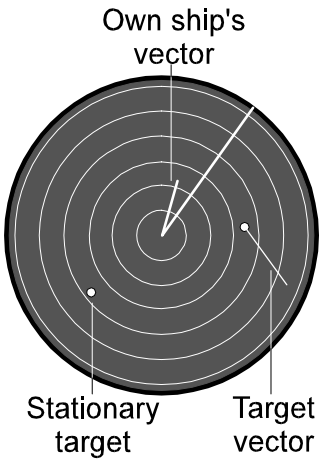
Vectors are shown on the radar display to indicate the velocity (speed and direction) of own ship and moving targets. The length of the vector indicates speed and its bearing indicates direction.



This function is only available in Transmit mode and is **not** displayed in Standby.

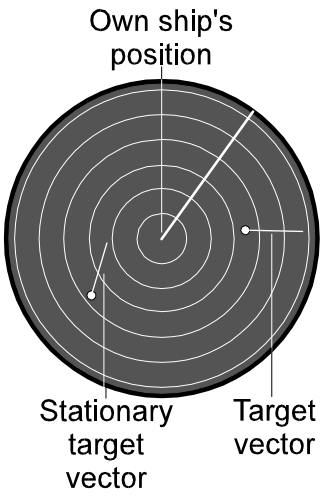
The Vector selection box is divided into two fields as illustrated below. The currently selected mode is displayed.

The vector mode determines whether the vectors represent the true velocity of targets of their velocity relative to own ship.



True Vectors All moving targets and own ship have a vector representing their movement (speed and direction) over the water/ground.

Note – There is an option for the user to display an arrowhead on own ship's vector, see Chapter 8. A single arrowhead represents course and speed through the water, and a double arrowhead represents course and speed over the ground.



Relative Vectors If own ship is moving, all targets, moving and stationary, have a vector representing their movement (speed and direction) relative to own ship. Own ship will not have a vector in this mode.

Selecting a Vector Mode

A TRUE or REL (Relative) Vector mode can be selected as follows,

1. Position the screen cursor over the Vector mode selection field.
2. Consecutive left clicks will toggle the mode between TRUE (**T**) and RELATIVE (**R**) vectors.

Note - If the selected vector mode is not the same as the current motion mode, the data will be shown in orange. If Vector Timeout has been selected (see Chapter 8) then the vector mode will revert to the same as the motion mode after 30 seconds.

Selecting a Vector Time

The ‘vector time’ selected will determine the length of the vectors shown on the radar display. The length of a vector represents the distance the ship/target will travel in the ‘vector time’, for example;

Vector Time = 5 min
Speed (of ship/target) = 12 kt
Length of Vector = 1 nm

The optimum vector time will depend on the range scale in use.

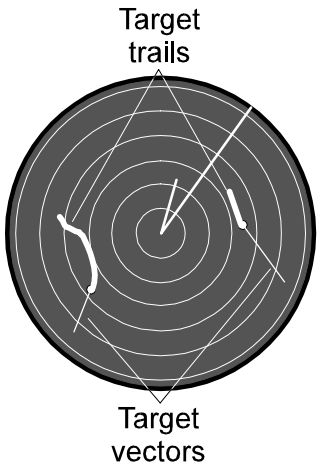
The Vector Time can be adjusted between 1 and 60 minutes as follows,

1. Position the screen cursor over the vector time field.
2. Left click to access.
3. Move the cursor control left or right to change the time.
4. Left click to accept.

Alternatively a right click will reveal a drop down numeric keypad from which the vector time can be entered. See Chapter 15.

Extending the vector time lets you check on CPAs of targets by projecting their movements further into the future.

Trails Modes



Decaying video trails, showing the history of a target's movements, can be displayed in addition to the target vectors. The manner in which the trails are displayed depends on the motion mode in use. In Relative Motion - Relative Trails (**RM(R)**) the trails indicate the movement of the targets **relative** to own ship. In True Motion and Relative Motion - True Trails (**TM** and **RM(T)**), the trails have own ship's speed applied, and show movement over the ground if selected speed is ground locked, or through the water if the speed is water locked.

The Trail function is only available in Transmit Mode and will **not** be displayed in Standby.

When True Motion or Relative Motion - True Trails (TM or RM(T)) is selected the letter '**T**' (True Trails) is displayed at the LH side of the text in the Trails display field, otherwise '**R**' (Relative Trails) is displayed, see below.

Trail Time

This shows the length of the trails. If the trails have not yet built up to their maximum length, a count-up time is shown indicating how long they have been building up.

Selecting a Trails Mode

A left click reveals a drop down menu containing the trail modes available. The currently selected mode is highlighted. The options available for selection are as follows,

SHORT High rate of decay giving a short trail. Actual trail length will depend on the range in use, see table below.

LONG Low rate of decay giving a long trail. Actual trail length will depend on the range in use, see table below.

PERM Permanent trail which does not decay. When the trail length becomes greater than 99 minutes it is indicated as 'PERM'.

OFF Trails removed from display.

RESET Keeps the currently selected mode, but resets counter and clears the video.

1. Within the menu, position the screen cursor over the required mode.
2. Left click to select.

The selection of SHORT or LONG alters the trail time, and is dependent on the range scale in use. Immediately after selection, the maximum trail time is displayed for a few seconds before being replaced by the count-up time. The table below indicates the maximum length of the trail time. The trail time defaults to SHORT after power up.

Range Scale (nm)	SHORT Time	LONG Time
0.125	10 s	30 s
0.25	10 s	30 s
0.5	15 s	45 s
0.75	15 s	45 s
1.5	30 s	90 s
3.0	30 s	90 s
6.0 and above	60 s	3 min

Warning Prompts

Presentation Mode Warnings

In an attempt is made to enter a stabilised presentation mode when the compass is on alarm, the following prompt is displayed.

Motion Mode Warnings

If an attempt is made to enter True Motion mode or Relative Motion – True Trails (TM or RM(T)) while conflicting parameters are in force, a prompt is display as indicated below.

Invalid Range

Compass Error

Speed Reference (either Log or Nav Speed) Error