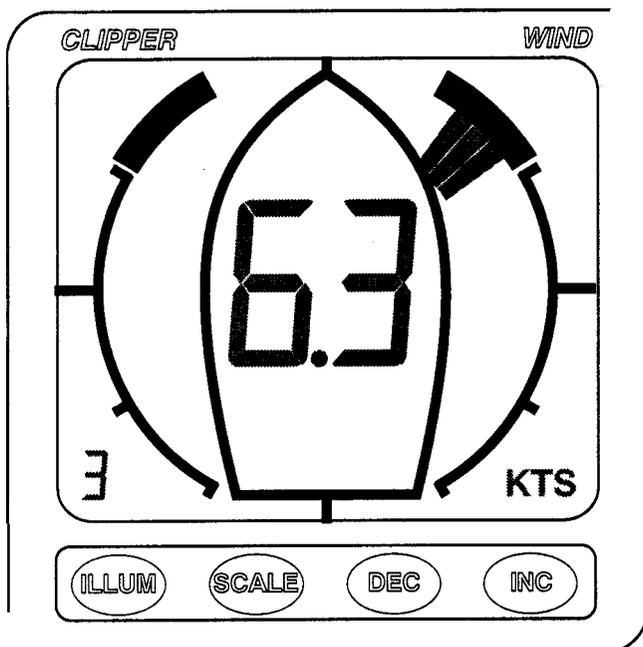


DESIGNED AND  
MANUFACTURED  
IN ENGLAND



**CLIPPER**

**WIND  
SYSTEM**

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## **INTRODUCTION**

The Clipper Wind System is supplied complete with display unit, mast head sensor unit, and mounting kit. It is designed to operate from the vessel's 12v battery supply.

## **PRE-TEST OF INSTRUMENT**

Before mounting the units, check that the instrument is complete and undamaged. Plug the masthead sensor unit into the display unit and apply 12 volts. Gently spin the wind cups and the wind vane and confirm the operation of the display.

## **INSTALLING THE MASTHEAD SENSOR UNIT**

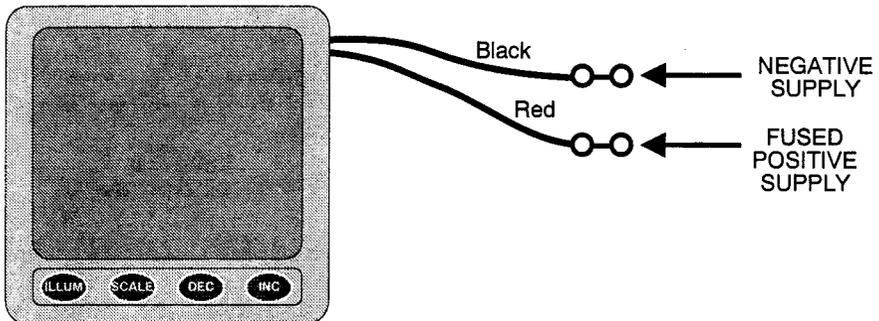
The masthead sensor unit is designed for mast mounting and is supplied with 15 metres of cable. Choose a position where the masthead unit can receive an unobstructed flow of air from all directions. The masthead unit must be substantially horizontal, however the orientation with respect to the vessel is unimportant. Four mounting blocks together with four stainless steel self tapping screws are supplied to screw the masthead unit to a metal mast. If the masthead unit is to be fitted to a wooden mast, suitable screws should be used.

After the masthead unit is securely fitted, run the cable to the display unit and plug into the socket on the display. Do not reduce any excess length of cable by cutting off the plug, but stow the excess neatly. If the cable is not long enough, 5 metre and 15 metre extension cables are available.

## **INSTALLING THE DISPLAY**

Select a convenient position for the display on a panel or bulk-head. The site must be flat and the cavity behind the panel must remain dry at all times. (The cable entry is deliberately not sealed to ensure adequate ventilation. This prevents misting of the display).

Cut a hole in the panel 67mm high and 87mm wide. Bring the wiring through the hole in the panel and connect the black wire to negative and red to positive. (See Figure 1). It is wise to use a fused supply to provide protection should a fault occur. The current consumption is very small, so any supply with at least a/amp fuse is more than adequate.



**Figure 1 - Wiring Installation**

Unscrew and remove the two wing nuts from the rear of the instrument and remove the stainless steel clamping bracket. Fit the “O”ring seal into the groove in the panel mounting face of the instrument. Ensure that it is correctly lying in its groove before fitting the instrument to the panel, which provides the watertight seal for the display.

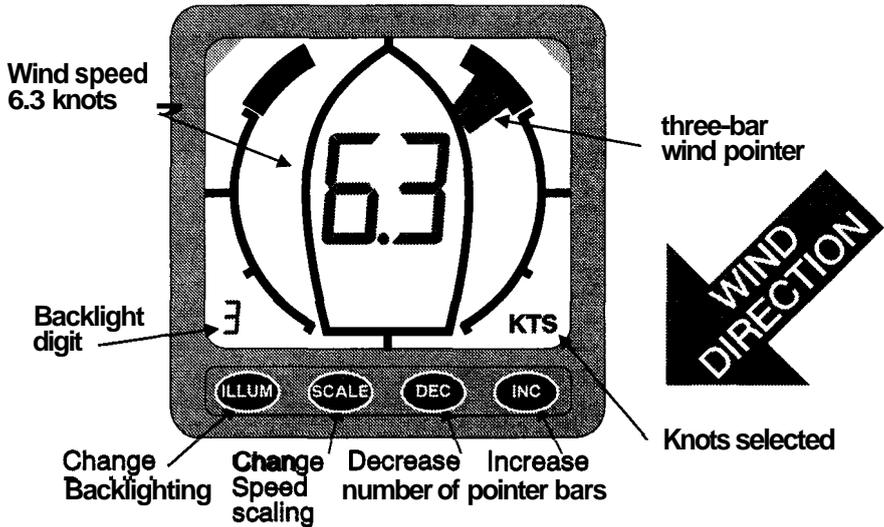
Fit the instrument into the panel, fit the stainless clamp over the studs, fit and tighten the two wing nuts finger tight only.

It is important that the O-ring rubber seal makes good contact with the panel to prevent water getting behind the unit and entering the cavity behind the panel.

It is good practice to run the cables vertically downwards from the unit, even if they later have to rise to connect to the vessel's supplies. Doing so prevents any water that might get onto the cables from running back along the cables and into the unit.

## NORMAL OPERATION

When power is applied to the Clipper Wind system, it executes a comprehensive internal test routine. It then displays the relative wind direction and the wind speed. On a new unit, the relative wind direction will not be correct until the dead-ahead setting is done. A typical display is shown on Figure 2.



*Figure 2 - Normal operation display.*

## CHANGING THE BACKLIGHT SETTING

Backlighting is provided to allow the unit to be seen at night. The backlit area is restricted in the top corners of the display to concentrate the lighting in the areas of interest (see Figure 2). The brightness of the backlighting is adjusted by pressing the ILLUM button at any time during normal operation. Each press of the button increases the brightness by one in the range 0 to 7, shown by the backlight indicator in the bottom left of the display (see Figures).

A setting of zero switches the backlighting off, and a setting of 7 is maximum. In common with all the other settings in the unit, the backlight setting is stored even when the unit is off, so that it returns to the chosen setting whenever the unit is powered up again.

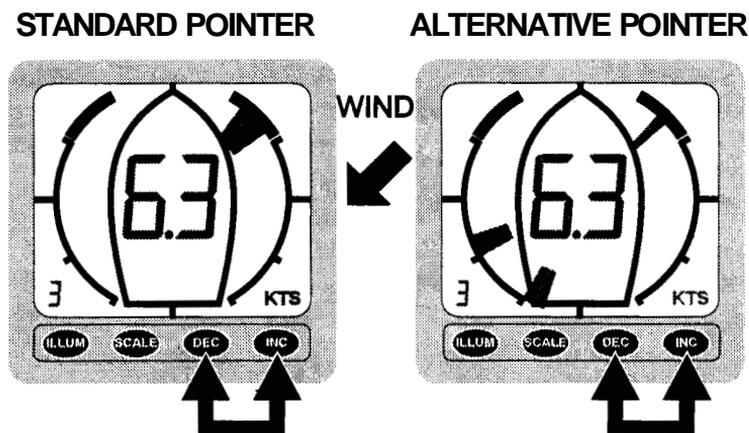
## CHANGING THE POINTER SIZE

The width of the wind direction pointer can be selected by the user. Press the INC button to increase the pointer width. Press the DEC button to reduce the pointer width.

## CHANGING THE POINTER STYLE

An alternative pointer is available which resembles a mast head indicator. Press the DEC and INC buttons simultaneously to change to the alternative pointer style at any time. Press the DEC and INC buttons again to change back to the standard pointer, as shown on Figure 3.

Note that no width adjustment of the standard pointer is available when the alternative pointer is selected.



**FIGURE 3 - Setting the Arrow pointer style**

## **CHANGING THE SPEED SETTING**

The Clipper Wind system can display wind speed measurements in miles per hour (MPH), nautical miles per hour (knots, shown as KTS), and metres per second (m/s). Pressing SCALE switches between knots, miles per hour, and metres per second. The choice is always saved so the unit operates as set whenever it is powered up again.

## **ENGINEERING**

Engineering settings means those adjustments which seldom need changing, but which affect how the unit operates. The settings (as are all those which can be selected in normal operation too) are stored even when the power is disconnected. There are two features which are set in Engineering - Fast or Averaged display of the measured speed, and resetting the dead-ahead position so that the display reads dead ahead when the wind vane is aligned fore-and-aft along the vessel.

## **FAST AND AVERAGED SPEED DISPLAY**

Fast display updates the speed reading during normal operation at a rate dependent on wind speed: more quickly at high speed, and slower at low speeds. Averaged readings are shown at a constant update rate, and represent the average wind speed over approximately three-second intervals. Averaged readings are appropriate if speed changes during gusts are tiresome to observe, but the accuracy of readings is the same in either mode.

## **CHANGING BETWEEN FAST AND AVERAGED SPEED DISPLAY**

Hold down the ILLUM button while turning on the power to put the unit into the Engineering mode. The Engineering mode displays "En" (for Engineering). The present vane reading is continuously

displayed. The wind speed is not displayed in Engineering mode, but the speed display mode is shown on the backlight digit as "A" for Averaged or "F" for fast .

Press the SCALE button to switch between Fast ("F" on the backlight digit) and Averaged ("A") speed display. The new setting is stored for future operation. Pressing SCALE again switches alternately between the two speed display modes.

Exit from Engineering by pressing the ILLUM button.

## **WIND VANE DEAD-AHEAD ALIGNMENT**

It is always necessary to set the dead-ahead position of the vane when it is first installed on the vessel so the display shows the relative wind direction correctly. Setting the dead-ahead alignment is very easy on the Clipper unit, and two methods are available. The first requires access to the wind vane to physically align it with the vessel's fore-and-aft axis while setting the dead-ahead, but the second can be done without access to the mast-head unit during tacking.

In both methods, dead-ahead is realigned whenever the INC and DEC buttons are pressed in turn when the unit is in Engineering mode. It does not matter which button is pressed first: the alignment is completed when the second of the two is pressed. The new dead-ahead position is stored and the unit reverts to normal Engineering mode.

The system automatically calculates the correct dead-ahead value if it is set during tacking. The dead-ahead value is half-way between equal angles to port and starboard. Equal angles to port and starboard can be achieved by tacking as close as possible into the wind on opposite tacks.

Both methods are described separately below, and an example of doing the setting by tacking is also given.

## **SETTING DEAD-AHEAD WITH THE VANE ALIGNED WITH THE VESSEL**

Hold down the ILLUM button while applying the power to put the unit into the Engineering mode. The Engineering mode displays “En” (for Engineering). The present vane position is displayed, and is unlikely to be correct on first installation.

Make sure the wind vane is correctly aligned with the vessel and does not move during the setting process. Press the INC button, whereupon the “En” display changes to “St” to show that the Starboard button press has been logged. Now press the DEC button to log the dead-ahead position and store the setting permanently. The display will revert to showing “En” and the pointer will move to indicate dead-ahead to show that the unit has correctly stored the new value.

The same process can be done by pressing the DEC button first, whereupon the display changes to “Po” to show that the Port button press has been logged. Now press the INC button to log the dead-ahead position and store the setting permanently. The display will revert to showing “En” and the pointer will move to indicate dead-ahead to show that the unit has correctly stored the new value.

Exit from Engineering by pressing the ILLUM button.

## **SETTING DEAD-AHEAD BY TACKING THE VESSEL**

Hold down the ILLUM button while applying power to put the unit into the Engineering mode. The Engineering mode displays “En” (for Engineering). The present vane position is continuously displayed, although its direction is unlikely to be correct on first installation, and its position can be ignored during alignment.

Sail as close to the wind as possible on Port tack. (On this tack, the masthead vane points to Port.) At a moment when you are satisfied

that the vessel is pointing predictably on that tack, press the DEC button. The display changes to “Po” to show that the Port button press has been logged. If you wish, the DEC button can be pressed again to revise the stored vane angle on this tack. The word “Po” continues to be displayed.

Now go about onto starboard tack, and again sail as close to the wind as possible. The masthead vane will now be pointing to starboard. When you are satisfied that the vessel is on its highest point of sail on this tack, press the INC button to log the starboard vane angle. The display will revert to showing “En” and the display will immediately display the new and correct relative wind on the starboard tack. The new dead-ahead setting is permanently stored.

The whole process can be done beginning on starboard tack, pressing INC, and then tacking to port and pressing the DEC button to log the dead-ahead value. When “En” is displayed again, the display will show the correct relative wind direction on the port tack. As before, the new setting is permanently stored.

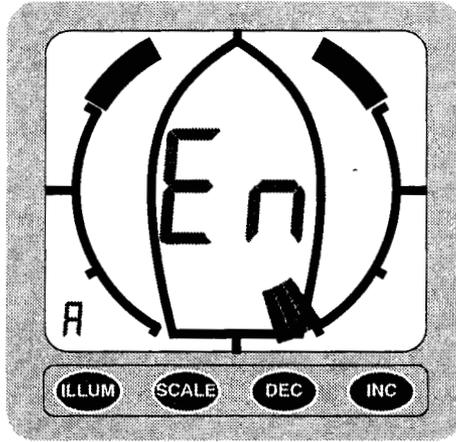
In either case, the completion of the dead-ahead setting is shown by “En” being displayed again. If the same key is pressed again while either “Po” or “St” is shown, the new position of the vane is logged for the calculation when the other is finally pressed to log the readings, and to set and store the new dead-ahead value.

Exit from Engineering by pressing the ILLUM button.

## **EXAMPLE OF SETTING DEAD-AHEAD BY TACKING**

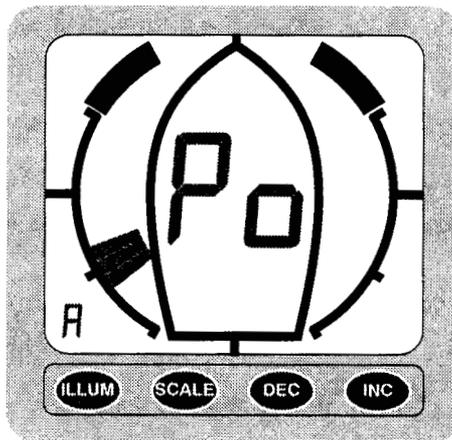
This example shows the sequence of operations and expected displays during setting dead-ahead by the process described above.

Hold down the ILLUM button while applying the power to put the unit into the Engineering mode, as shown on Figure 4. The position of the pointer at this stage is not important.



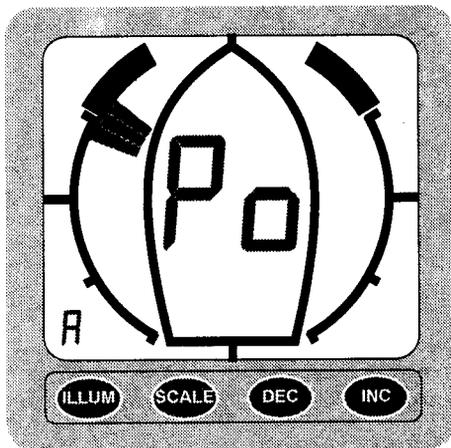
**Figure 4 - Engineering mode**

Now sail as close to the wind as possible on Port tack. At a moment when you are satisfied that the vessel is pointing predictably on that tack, press the DEC button. The display changes to “Po” to show that the Port button press has been logged, as shown on Figure 5. If you wish, the DEC button can be pressed again to revise the stored vane angle on this tack. The word “Po” continues to be displayed.



**Figure 5 Engineering mode, Port tack vane position logged**

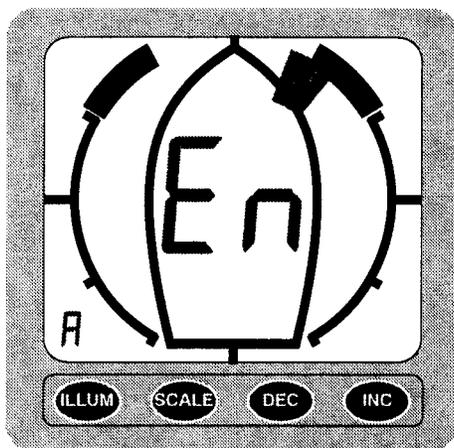
Now go about onto starboard tack, and again sail as close to the wind as possible. The masthead vane will now be pointing to starboard, but the display may not, as shown on Figure 6.



**Figure 6 Engineering mode, Port tack vane position logged, Starboard tack vane angle ready for logging**

When you are satisfied that the vessel is on its highest point of sail on this tack, press the INC button to log the starboard vane angle. The display will revert to showing “En” and the display will immediately display the new and correct relative wind on the starboard tack, as shown on Figure 7 .The dead-ahead setting is permanently stored.

Exit from Engineering by pressing the ILLUM button.



***Figure 7- Engineering mode, Dead-ahead logged, and correctly showing starboard wind direction***

## **REMOTE REPEATER FACILITY**

A Repeating display unit and a Close-hauled & Running Display unit are available for use with the Clipper Wind System. The repeater cable is plugged into the rear of the master instrument. The repeater socket on the master is exposed by pulling off the round cover on the rear of the instrument. If no repeater is to be connected, leave the cover in place.

If it is desired to use both a Repeating Display and a Close-hauled & Running Display with a Clipper Wind System, the two additional displays are connected one to the other in series. That is, one is connected to the Master unit as a "slave" unit, and the other is connected to the first "slave" unit as a further "slave". All Clipper Wind system units have this daisy-chain facility whereby as many repeaters as desired may be connected to one master.