Interfacing an inexpensive electronic compass to the JRC 1000 radar

Many of us with an inexpensive radar system like the JRC 1000 do not want to have to afford an expensive Compass/Autohelm to provide the radar with correct heading information. This article gives a simple and inexpensive solution.

Why interface with a compass anyway? There are three reasons: 1) for taking electronic bearings; 2) projecting waypoints from the GPS onto the radar screen; 3) if you have a Yeoman Plotter, projecting the Yeoman mouse position from your chart as a waypoint or 'lollipop' on the radar screen. (This is very useful for identifying and/or tracking radar objects onto your chart, eg is it a buoy or stationary vessel or is it a moving vessel?). Simply interfacing the radar to the GPS will provide useful information but it will be your *track* rather than your *heading*. This will be in error importantly in a tideway and especially if your vessel is stationary, when the GPS track will differ from the ship's heading. In the latter case, the track will be typically around zero irrespective of the ship's heading (See Fig. 1, middle and compare with left).
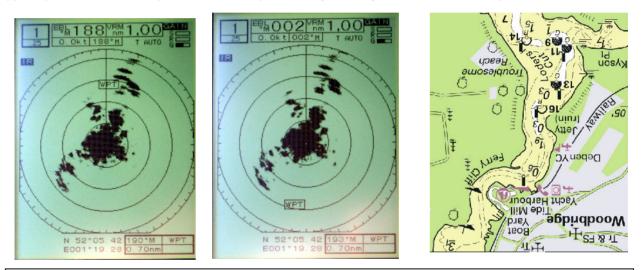

Fig. 1. Radar screen from *Ragged Robin* in Tidemill YH looking south towards Loder's Cut. Left: Compass input. Waypoint marking Loder's Cut shown in correct place ahead (S) of vessel. Middle: GPS input only. Loder's waypoint incorrectly located behind (N) of vessel because the radar has interpreted the GPS track (002 deg) as the ship's heading (see top of screen). Right: inverted chart showing upper part of radar picture location.

I have used the cheapest fluxgate Compass available, the NASA NMEA Compass Sensor. Unfortunately, the NMEA data sentences this produces are not compatible with the JRC 1000. (This for recognition requires all data fields are to be filled in even if they are zero!). I have therefore commissioned an inexpensive interface from an electronic genius, Spencer John, who can provide identical units to mine ("Compass-radar (NMEA) interface") at a cost of £49 including post and package, via e-mail (spencer1565@hotmail.com). This interface, measuring only 100 mm X 50 mm X 25 mm (Fig. 2), receives its input from the NASA Compass and translates it into the format required by the JRC 1000. Connect the unit to the "COMPASS" input of the JRC. Leave your GPS connected to the JRC "NAV-AIDs" input in order to receive waypoint information. The compass information is given priority over the GPS, so that the radar will always show the ship's heading correctly.

Fig. 2. Compass-radar (NMEA) interface in *Ragged Robin*.

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