

TUNING THE FAR2137S/12 RADAR FOR BIRD DETECTION

While the larger, 60KW FAR2167DS radar is designed specifically as a “bird radar”, the 30KW FAR2137S absolutely detects birds. On large tuna super seiners (250-300 foot vessels) from Spain, South America and Asia, most use a couple of 60kW S-band radars for long range bird detection and in addition some use one 30kW S for short range bird detection.

The 60kW S-Band normally are installed on top of the mast and approximate detection range is around 12-14nm. The max detection range is around 18nm. Because large seiners usually use the 60KW radars with high gain to get even small target (flock) detection, they have a lot of sea clutter and the screen is very noisy, especially on short range, so they use 30kW S for short range bird detection. The 30KW normally is installed at the very front end of the top deck or on top of the wheelhouse (a lower location than 60kW S). This location is almost the same height as the mast location on smaller fishing vessels of 80-100 feet or so. The detection range of FAR2137S is usually up to around 8nm. The max detection range normally seen is 12nm. The following are the recommended settings to get started with detection on the Furuno FAR2137S:

1. Turn the radar on while away from pier walls, buildings and other sources of physical blockage of the radar beam. Transmit the radar for 10-15 minutes before making adjustments so that the magnetron comes to a stable working voltage and temperature. For best results, do NOT make these adjustments in port!
2. Set the range at 8nm and off-center (The Off-Center button puts the vessel in the bottom of the screen). 8nm range setting is optimal to get the best effect of the echo zoom. If you set range longer than 8nm, bird echoes get small and are not easily visible.
3. Turn Auto A/C “Off”
4. Set pulse length to the maximum (“LONG”).
5. Set interference rejection to “1” or lower.
6. Set echo stretch to “2”.
7. Set echo average to “2”.

8. Installation menu--->select “Cable attenuation”--->select “Manual”--->set this number lower (default setting is “30”). This is to add gain.
 - a. To access the installation settings, hold down the “HL Off” button and press the “Menu” button 5 times in rapid succession.
 - b. **NOTE:** be sure you know what your total cable length is and plan accordingly. While 30M is the standard Furuno cable length, individual radars may have been delivered with 50M cable on large boats, or custom-cut shorter lengths.
9. Set auto rain to “OFF”.

For bird detection, the gain setting is normally very high and therefore the screen gets very noisy and will show a lot of echoes that a navigating Captain may not want to see. However, by doing so, a very experienced skipper can discriminate the bird echoes. This just requires a lot of screen time and experience.

From a long-time Furuno USA tech who is very familiar with these radars – thousands of hours of screen time:

“The Japanese and Spanish have different ideas on several of the settings for bird detection. If anyone is not happy with bird detection it is more likely a setup issue than a radar performance issue.

First thing I would have them do is make sure AUTO A/C is off and look at the Video Contrast setting by right clicking on the “picture” menu. Normally we set the Video Contrast to 2B for navigation/general purpose but for birds I would probably set it for 3C or 4C to bring the color curve to a higher level that will paint birds better.

They also need to ensure that the install settings are good – Cable ATT, antenna height, STC curve settings will all have a major effect on bird detection.

Unfortunately there is no “one size fits all” settings list, each vessel is a new canvas and needs to be figured out. The key to it is having users that are informed on what all the controls and functions in the “bazillion” menus do and

how they really affect the target detection. There is way more to setting up a bird radar than can be typed in an email – they need some hands on experience with it.

*I still feel like the 2137S is a better choice for these boats than a 2167DS when it comes down to performance. I don't want to be "that guy" who says don't buy the big boy but in the end we have to consider the customer's outcome. At the antenna height they have there is no real advantage as far as range goes and they will see much more noise/clutter etc. with the 60KW – I really don't feel like they will get the value out of the extra cost and may actually be more pi**ed off if it doesn't meet their expectations. "*

This information isn't a 100% cure, but it should get you on the path to better bird detection. As always, certain settings will need to be adjusted depending on sea and atmospheric conditions and time of day. Also, radars with a lot of magnetron transmit time will go "dim" over time. Be sure to keep track of transmit hours, which are shown at startup and when the radar is in stand-by mode. A radar with many thousands of hours transmitting on an old magnetron will lose target sensitivity over time. When targets go dim, Furuno stocks replacement magnetrons and MIC (Microwave Integrated Circuit) that are normally replaced as a set. We can make a lot of old radars like new or pretty close to it.

We hope this information will be of help.

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The above e-mail is our commercial & deep sea support group of about 10 people. We try to return e-mails within 24 hours, usually less.