



This month I want to review some installation thoughts that may come in handy when you graduate from a handheld to a fixed mount “rig.” This will probably be a 12v powered transceiver. I have included the chart in Figure 1 to help determine the **proper conductor sizing** to provide the power to your rig. Remember, it’s when you

are transmitting that the big hit happens, so look at your radio specs and determine how many amps it will draw on transmit. If it is 5 amps and a 20’ cable is needed, then a #14 wire is recommended.

Total Amps	20’	30’	40’	50’
5	14	12	12	10
10	12	10	8	8
15	10	8	6	6
20	8	6	6	5
25	8	6	5	4

(Figure 1 – Wire size for length of conductor in feet from source of current at a 3% voltage drop)

Because you may be using your radio under fading battery conditions, that extra power may be of some importance (8-Ball avoidance?).

Ventilation is the second important installation factor. When mounted on the bridge with the heat sink fins exposed, there will be little problems. When the rig is enclosed in a cabinet, make sure there is adequate air circulation to prevent any over-temp problems.

Antennas and their associated rf grounding techniques are a topic that is beyond the scope of this page. There are a couple of important things to keep in mind though when choosing an antenna and the associated coax cable. Height is one of the most important factors in “getting out” with your rig. Remember that the antenna gain is rated in “db.” The rule of thumb here is that every 3 db of gain you can somehow acquire will double your distance transmitted. The difference between a 3 db and 6 db antenna will do just that.

If a sailboat has it mounted as a masthead antenna, there is another seldom-mentioned condition that will offset some of the height advantage. That is the power losses associated with the length of the coax cable used between the transmitter and the antenna. There are two primary cable types used. One is called RG-58A/U and the second is RG-8U. The loss in the RG-58 cable is 4.9 db per 100’ at 100 MHz. The loss in the RG-8U is 1.9 db per 100’ at 100 MHz. That will rise to 7.0 db (RG-58) and 4.1 db (RG-8) at 400 MHz. You can see

that 3 db’s of your antenna gain can be eaten up pretty fast. There may also be up to 1 db loss in the coax connectors as well. This isn’t a forum to explain why this happens - just be aware that it does occur.

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W7SYC – For more information about the Seattle Yacht Club Amateur Radio Committee: send an email to Dan Withers, dwithers@rodaxwireless.com or call (206) 947-2303.



Demystifying DSC and MMSI

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