



Article Number - 00054-2014

Date - 24<sup>th</sup> February 2014

Article applies to - GPS150 and AIT2000

## ISSUE: Connecting GPS data to Icom DSC VHF Radios

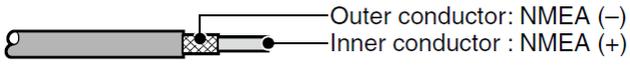
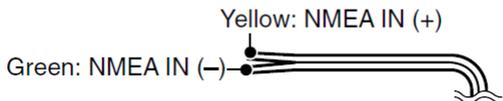
For the last 10 years, VHF radios have supported Digital Selective Calling (DSC). In order for DSC to operate you need your MMSI number entered in to the radio and an NMEA connection to a GPS system.

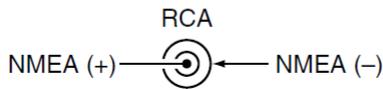
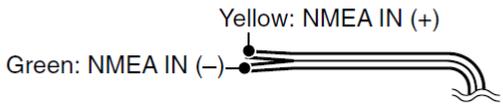
Most of the ICOM DSC VHF Radios, have an NMEA0183 GPS connection, although the very latest M506 model now features an NMEA2000 interface. All of these NMEA0183 interfaces require a two wire connection to the GPS and for the data to be output at a data speed of 4800 baud – which means you cannot connect them directly to an AIS transponder at the higher 38400 baud speed that AIS uses.

This Tech Note explains how to connect a Digital Yacht GPS150 Dualnav GPS sensor or one of our AIT2000 Class B transponders to an Icom DSC VHF radio in order to get the GPS data on the radio. We have tried to cover all of the popular DSC Icom radios that have ever been sold but if you find an anomaly or your radio is not listed please let us know.

## SOLUTION:

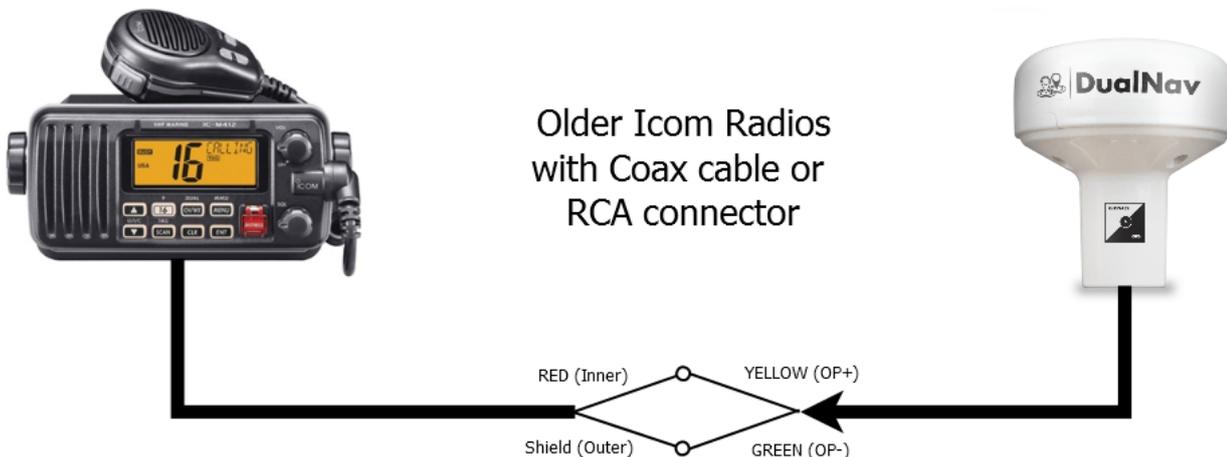
There have been a number of Icom DSC radios sold over the last 10 years and below is a summary of the most popular models and the type of NMEA0183 connections they have. Some of the early non-DSC radios could be upgraded to DSC by adding a DSC Command Mic or a DSC Switch Box but we have not included these models in the summary, assuming that anyone buying one of these units will have already connected them to a GPS.

Radio Model	Type of Connections	Diagram
M411, M412, M422 M504, M505	Black Coax Cable with RED inner wire and outer braid/shield	<p><b>GPS RECEIVER JACK</b> Connects to a GPS receiver for position indication.</p> <ul style="list-style-type: none"> <li>• A NMEA0183 ver. 2.0 or 3.01 (sentence formatters RMC, GGA, GNS, GLL) compatible GPS receiver is required. Ask your dealer about suitable GPS receivers.</li> </ul> 
M302, M304	Two wire NMEA lead	<p><b>GPS RECEIVER LEAD</b> Connects to a GPS receiver for position indication.</p> <ul style="list-style-type: none"> <li>• An NMEA0183 ver. 2.0 or 3.01 (sentence formatters RMC, GGA, GNS, GLL) compatible GPS receiver is required. Ask your dealer about suitable GPS receivers.</li> </ul> 

Models	Type of Connections	Diagram
M402, M421 M502	RCA Connector	<p><b>GPS RECEIVER JACK</b> Connects to a GPS receiver for position indication.</p> <ul style="list-style-type: none"> <li>• A NMEA0183 ver. 2.0 or 3.01 (sentence formatters RMC, GGA, GNS, GLL) compatible GPS receiver is required. Ask your dealer about suitable GPS receivers.</li> </ul> 
M603, M604	Special NMEA cable that connects to socket on rear of unit  <i>NOTE – not covered in this Tech Note contact your local dealer for more information</i>	<p><b>GPS RECEIVER/EXTERNAL SPEAKER CONNECTOR</b> Connects a GPS receiver for position and time indications.</p> <ul style="list-style-type: none"> <li>• An NMEA0183 ver. 2.0 or 3.01 (sentence formats RMC, GGA, GNS, GLL) compatible GPS receiver is required. Ask your dealer about suitable GPS receivers.</li> </ul>  <p style="text-align: center;"><b>Transceiver's rear panel view</b></p>
Latest Models M323, M423 M400BB, M506	New 4way connector  Remove connector for most installations	<p><b>GPS RECEIVER LEAD</b> Connects to a GPS receiver for position indication.</p> <ul style="list-style-type: none"> <li>• A NMEA0183 ver. 2.0 or 3.01 RMC, GGA, GNS, GLL and VTG sentence format compatible GPS receiver is required. Ask your dealer about suitable GPS receivers.</li> </ul> 

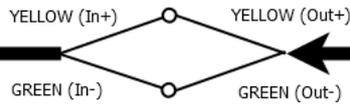
More recently Icom have fitted an RCA (phono) type connector to the NMEA Input coax cable and a white plastic 4 way connector to the NMEA Input/Output wires. Unless you have access to suitable mating connectors, it is recommended that you remove these connectors and join the wires to GPS150 or AIT2000 using crimp or terminal block connectors.

## GPS150 to Icom Radios





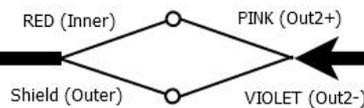
Newer Icom Radios  
with 2 Wire NMEA lead  
or 4 Wire connector



## AIT2000 to Icom Radios



Older Icom Radios  
with Coax cable or  
RCA connector



Newer Icom Radios  
with 2 Wire NMEA lead  
or 4 Wire connector

