

## GEDC-6/DC-4/AHRS-8 -- Application Note 1004

Recommended circuit for field update of firmware and World Magnetic Model for the Sparton GEDC-6/DC-4/AHRS-8 navigation sensors.

### Introduction

This application note describes a sample circuit, connector and connector layout to allow the GEDC-6/DC-4/AHRS-8 to be able to accept a field firmware upgrade. This circuit also allows the navigation sensor to accept an update of the World Magnetic Model used to compute True North heading. It is recommended that the end user design this circuit into the product if the GEDC-6/DC-4/AHRS-8 will be soldered in to the user's end application.

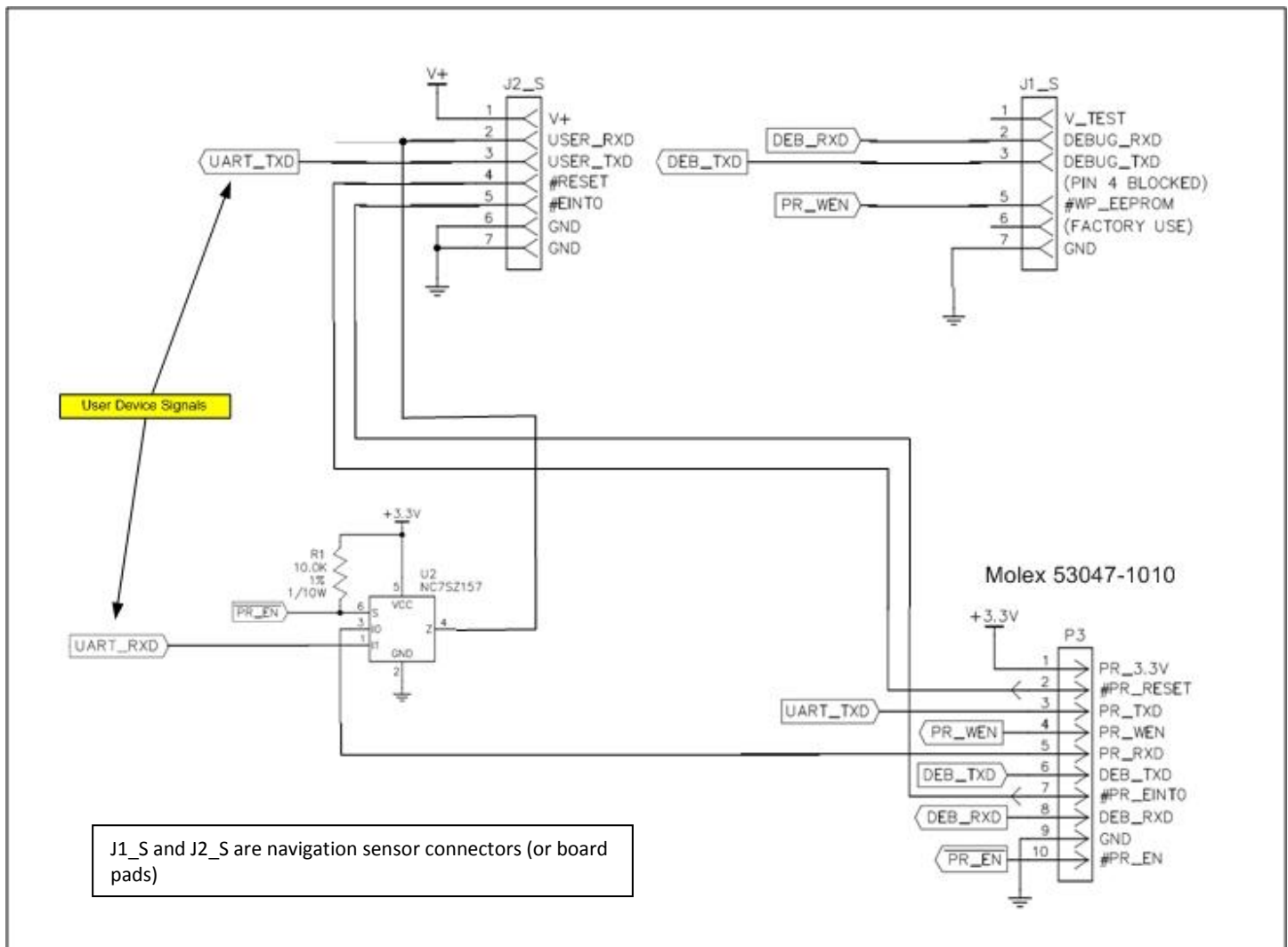
### Background

The GEDC-6/DC-4/AHRS-8 navigation sensors have a default World Magnetic Model when shipped from the factory. This magnetic model is easily updated with a new more current model provided the correct signal connections are made. Additionally, if the correct signals are available to a host PC, the firmware in the navigation sensor may be updated to take advantage of any future product or feature enhancements.

### Recommended Circuit

The circuit and connector shown below are recommended to insure that the navigation sensor firmware is upgradable. The serial connections are shown on the left hand side of the drawing. Any power and ground signals are not shown and should be connected according to the respective data sheet. Note that the USER\_TXD signal goes to both the user equipment and the upgrade connector. The USER\_RXD signal is multiplexed. When the upgrade cable is not connected, a pull-up selects the user's signal for routing to the navigation sensor. When the upgrade cable is connected, the USER\_RXD signal is routed to the upgrade connector. The other signals should be connected as shown. No additional signal conditioning is required on the upgrade connector signals as they are properly terminated within the navigation sensor itself. Sparton recommends the Molex 53047-1010 connector, but the user is welcomed to design in any interface or interconnect methodology of their choosing.

The World Magnetic Model update is described in a separate application note. The field firmware update application will be available from Sparton Technical Support when new software releases become available.



**Figure 1-- Recommended Circuit and Connector**

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