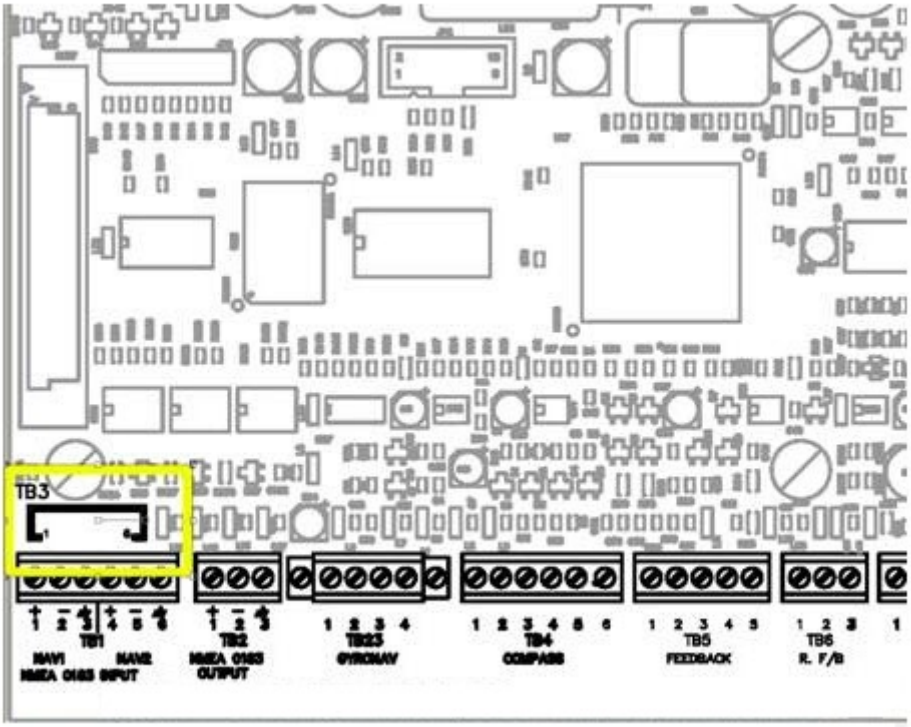
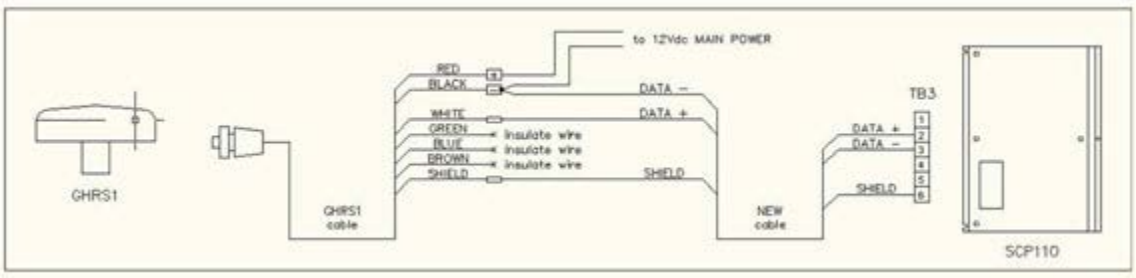
Interfacing an NMEA0183 Compass (HRS1) to the Humminbird SCP110 Auto Pilot Computer

The following document describes a methodology that can be used for interfacing the HRS1 sensor or a compatible 4800 baud NMEA0183 heading sensor to the NMEA0183 heading input located at connector TB 3 in the SCP 110 autopilot.



The above figure shows the connector location, TB3 located on the SCP110 Autopilot Processor main board. This connection is used to input 4800 baud NMEA 0183 data from the HRS1 sensor (RS232) or an equivalent NMEA0183 heading sensor supplying; HDG @ 10Hz, HDM @ 10 Hz, HDT @ 1 Hz.

The mating connector and pins for the TB3 connection are;
AMP P/N 280360 (1 each) and P/N 181271-1 (6 each)



When interfacing the HRS1 to a NMEA 0183 device, use the White Data A+ wire and the Black Data - ground wire of the HRS1 interface cable as shown in the above diagram to provide a single ended output to the TB3 NMEA 0183 interface. Use the NMEA 0183 output at TB 2 to interface the heading data to the

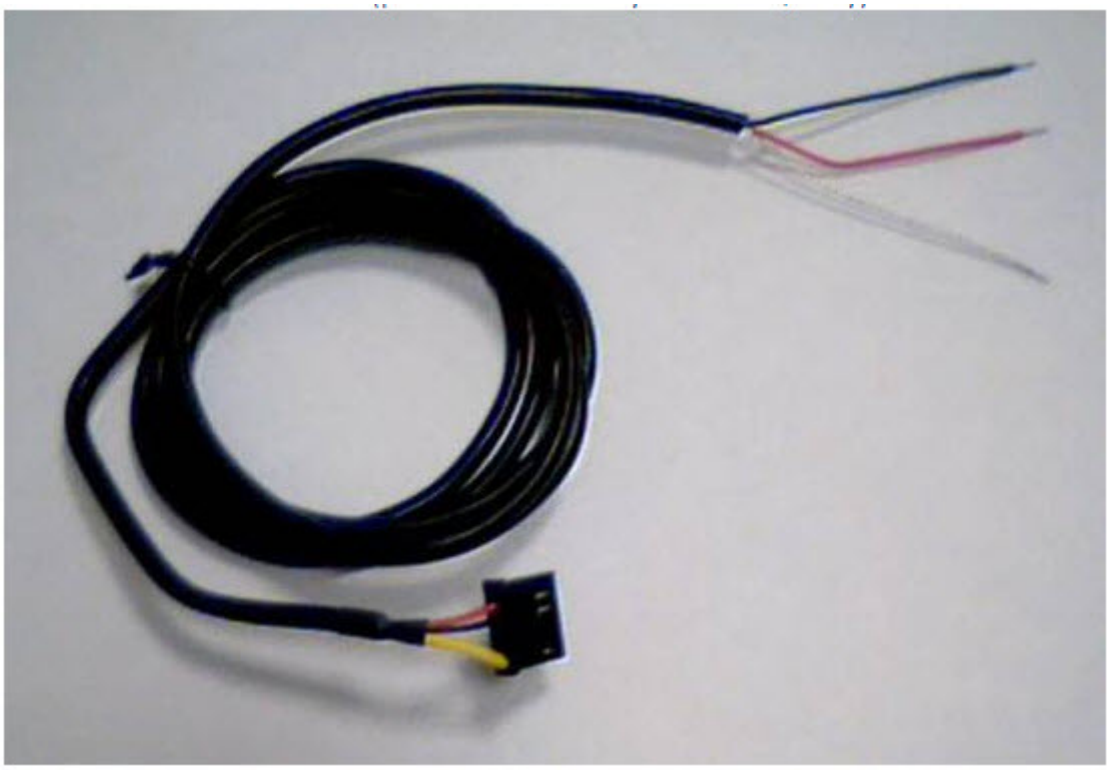
navigation device or other data receivers using a standard RS232 or RS422 interface cable for the receiving device.

Important -

When performing the autopilot system setup and calibrating the autopilot in the SC 110 display control, change the setting for the compass data source from FCX 110 to HRS1. If this step is not completed, the HRS1 or other compatible NMEA0183 4800 baud heading device will not be used as a heading source.

Caution -

The SCP110 can be used in either 12 or 24 VDC systems. When wiring the HRS1 power, always wire its power to the same power source as used by the SCP110 computer. It is preferred to use a power source dedicated for the vessel electronics only. Avoid using the engine start battery as this may induce voltage spikes which may cause damage to the system electronics. When properly configured cabling is used, the HRS1 can also be used in NMEA 2000 networks. In this case the input voltage must not exceed 15 VDC per the NMEA 2000 network design limitation.



The picture above shows a sample TB3 connection cable.

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Suggestion;

Use of the following wire colors is recommended to avoid confusion with any system DC power cabling.

White for Data TX + (Pin 2)
Black for Data TX – (Pin 3)
Shield (Pin 6)

References;

SCP 110 Installation Manual and Owner Manual PN 531913-2B

Pg. 3	SCP 110 System Computer Processor Connector Layout
Pg. 19 & 20	TB 1, NAV 1 / NAV 2, NMEA 0183 Input
Pg. 21	TB 2, NMEA 0183 Output
Pg. 25 & 26	NMEA 0183 Port Specifications

HRS 1 Installation and Operations Manual PN 532006-2 A

Pg. 14	Fig. 1 Cable Wire Colors and Functions (Sensor Cable Wire Colors)