PRODUCT: A/D CONVERTER (FOR SA-10)	Date: JULY/2008
P/NO.: SI-10	Dept: Engineering
	Name:

SI-90 A/D CONVERTER (Serial Interface for SA-10 A/Pilot)

SI-10 is a serial interface which takes heading signal from Saura auto pilot SA-10 or NMEA-HDT sentence, and converts it into a type of output known as Furuno AD-10.
With this interface, the heading signal from auto pilot or a magnetic compass (fluxgate compass) can be connected to Radar and/or Current-Tide meter from Furuno. Inner dip switch settings will allow selection of various functions and features.
SI-10 provides two lines of output.

1. WIRING
   Refer to the wiring diagram for the details of cable connection.

2. INNER DIP SWITCH SETTINGS

   NMEA-HDT or HDM input
   Dip switch No.1 offers a choice of input signal; NMEA-HDT (true north) or NMEA-HDM (magnetic north)

   Dip Sw. No.1: ON = HDT only
   Dip Sw. No.1: OFF = HDM or HDT, either one is accepted

   SMOOTHING FILTER
   A choice can be made with Dip Sw. No.2 if the output should be processed by smoothing filter for little variation in the data.

   Dip Sw. No.2: ON = No smoothing is processed
   Dip Sw. No.2: OFF = Smoothing filter is active

   FIRST PLACE OF DECIMALS
   Dip Sw. No.3 must be set to “OFF” position at all times.

   DENOMINATOR FOR THE FRACTIONAL PROPORTION
   Dip Sw. No.4 is to decide how the fractional proportion of the data should be expressed, either in decimal numeration or sexagesimal system. In other words, Dip Sw. No.4 is to select which denominator; 100 or 60 is used for the decimal fraction.

   Dip Sw. No.4: ON = the decimal place changes from 0.0 to 0.9 increment
   Dip Sw. No.4: OFF = the decimal place changes from 0.0 to 0.5 increment

   N.B. With the denominator being 60, the fractional proportion will increase from 0.0 to 0.5, then becomes 1.0 deg. On the other hand, when the denominator is 100, the fractional proportion will change from 0.0 to 0.9, then becomes 1.0 deg.

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3. PRELIMINARY CHECK-OUTS

Supply power source for SI-10 A/D Converter, but not NMEA output at this stage. When the power is supplied, SI-10 starts sending the AD-10 format output of 180.0 deg. Check if the figure 180.0 is displayed on the screen of the instruments (radar, current/tide meter) to which SI-10 is connected. This ascertains the correct operation of SI-10 as well as the connections.
Cable connections to these instruments need to be checked unless “180.0” is displayed.

After that, start sending the NMEA heading signal to SI-10. “Signal” lamp flashes as SI-10 receives the incoming data. If the lamp does not flash, check the NMEA signal input and the cable connections.

4. REGULAR OPERATION

SI-10 continues to provide the heading signal for input to other navigation instrument(s) while converting the NMEA signal into AD-10 format. There is no need of special maintenance.

5. NOTES:

When used for radars having ARPA capability, the data output rate should be set for 100m sec or as fast as possible (preferably 50m sec) with the navigational instrument. Also, omit any sentences other than HDT, to attain the shortest output rate. In the event that output rate is too slow, lock to other vessels may be slipped out.

Slower output rates will be acceptable for ordinary radars having no ARPA capability as well as current/tide meters.