

# DH-200

## Digital Electronic Heading Sensor

### INTRODUCTION:

The Ritchie DH-200 is a digital electronic heading sensor that will provide highly accurate heading information to navigational electronics. The DH-200 outputs heading data in NMEA-0183 format making it compatible with most marine radars and navigation instruments.

### INSTALLATION:



**CAUTION**

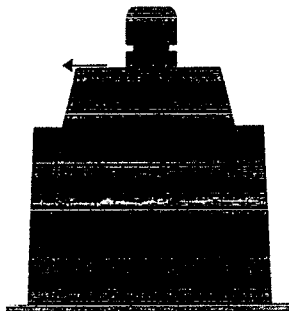
All heading sensors are vulnerable to magnetic interference which will produce errors (deviation). All heading sensors should be compensated for permanent deviation present in the installed location then checked for accuracy prior to their use for navigation. It is the responsibility of the Owner/Helmsman to keep the environment of the sensor clear of objects that cause temporary magnetic interference such as: Tools, Portable Radios and Navigational Instruments, Beverage Cans, Fishing Tackle and any other metal objects.

The sensor must be mounted on a flat level surface with the arrow located on the top of the sensor pointing in the direction of travel.

(Top View)



(Side View)



Care should be taken in choosing a location for your sensor. The sensor should be located as far away from magnetic influences as possible.

#### Things to avoid:

LOUDSPEAKERS  
VHF Radios  
Movable Metal Objects

Electronic Equipment  
Appliances  
Current Carrying Wires

Horns  
Magnetic Compasses  
Battery Banks

It is a good idea to test the operation of the sensor in the intended location prior to permanent mounting. Locations with heading errors greater than 25° before compensation are less desirable.

### CONNECTIONS:

White	NMEA-0183 Data Out
Green	NMEA Data Return
Brown	Compensate (Ground this wire to initiate the automatic compensation feature).
Black	Ground
Orange	Compensation Indicator Drive (Connected to Cathode of Green LED)
Red	+12 Volt Power (Connect to 12 volts and to the Anode of the two LED's)
Blue	Compensation Error Indicator Drive (Connected to Cathode of RED LED)

**Caution:** The LED indicators supplied with the system contain an internal resistor. This allows the LED's to run at 12 volts. Do not substitute these LED's with standard LED devices as damage will result.

## COMPENSATION:

Compensation is the procedure of adjusting a compass to compensate for errors in the indicated magnetic heading. These errors, commonly called deviations, are due to magnetic disturbances on the vessel. The DH-0200 sensor is equipped with automatic compensation software that will remove these deviations with the execution of the following simple procedure:

- 1) Perform the compensation procedure in calm water.
- 2) Make sure power to the compass is "ON".
- 3) Connect the BROWN wire to Ground. (This connection must remain intact for the duration of the procedure.
- 4) The Green LED will illuminate to indicate that the compensation is in process.
- 5) Rotate the vessel through two turns in either direction. The turn rate for optimum performance is approximately 1-2 minutes per turn.
- 6) Upon completion the Green LED will extinguish. This indicates that the compensation was successful.
- 7) Errors in the compensation procedure are indicated when the RED LED illuminates for approximately 7 seconds then resumes normal operation. If RED LED lights during the compensation, the procedure must be repeated.

Sources of compensation errors:

Rotating too fast  
Sensor Location

Changing the direction of rotation  
Rough Sea Conditions

- 8) After completing the procedure remove the BROWN wire from the ground stud and insulate it so that it is not accidentally grounded during normal use.

*Note: The compensation only needs to be performed once when the compass is installed. The compensation data is retained in memory even when power is removed from the unit.*

## TECHNICAL DATA:

Output:	NMEA-0183	\$HCHDM Sentence (5Hz)
Accuracy:	± 1° RMS.	
Gimball Limits:	± 45° Pitch and Roll	
Compensation:	Fully Automatic (Permanent and Soft Magnetism)	
Power:	12 Volts DC [50mA ]	
Weight:	1 lb. 8 oz.	
Dimensions:	4 1/8" (10.5 cm) Height 3 3/16" (8.1 cm) X 2 15/16" (7.5 cm) Base	

## GUARANTEE:

We guarantee all Ritchie products to be free of defects in workmanship or materials. If within two years of the purchase date the unit fails to give satisfactory service, it will be repaired or replaced without charge. This guarantee does not cover breakage through accident or misuse. Replacement or repair will be made if the instrument is returned to an authorized Ritchie electronics dealer or directly to E.S. Ritchie & Sons Inc., 243 Oak Street, Pembroke, MA 02359, prepaid.