Honda NMEA 2000®

Digital Tachometer & Speedometer

Operating Instructions
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Introduction

Thank you for your selection and purchase of the Honda NMEA 2000® Digital Gauge.

We are certain you will be pleased with your purchase of this equipment which will provide you with detailed engine management data using NMEA 2000® CAN bus network technology.

We want you to get the best results from your new gauge and operate it safely. This document contains information on how to do that, so please read carefully.

As most of the engine data is factory pre set for your convenience, this publication will provide you with information on basic operation and custom view possibilities.

The Honda Digital Tachometer & Speedometer are designed to be used exclusively with NMEA 2000® equipped Honda Outboards; other uses could result in damage to the gauge or the equipment it is connected to.

Overview

The Honda NMEA 2000® Digital tachometer and speedometer gauges have been designed to operate together in a complimentary fashion displaying different data received from up to five engines on the same CAN bus network.

Both gauges connect directly to the CAN bus network. Both gauges feature a 128 x 32 pixel, two color graphic LCD display, and three push buttons.

Systems Set Up

Both Tachometer and Speedometer can be setup to display data in either English (US) or Metric (EU) values:

- US will display Fahrenheit, gallons and MPH
- EU will display Celsius, liters and Knots
User Interface

Each gauge features user interface capability via three pushbuttons located on the front of the gauge, below the LCD display. The buttons indicate Up - Enter - Down (from left to right).

These push buttons provide the means by which the various displays and gauge capabilities are navigated and affected. The boat operator may select particular data to display and choose available system parameters. Changes by the operator are stored in nonvolatile memory and will be restored at each subsequent power on cycle.
### Tachometer & Speedometer Default Menu Display & Units

<table>
<thead>
<tr>
<th>PGN</th>
<th>Data</th>
<th>Tacho</th>
<th>Speedo</th>
<th>US</th>
<th>EU</th>
</tr>
</thead>
<tbody>
<tr>
<td># 127245</td>
<td>Steering angle (rudder angle)</td>
<td>off</td>
<td>on</td>
<td>deg</td>
<td>deg</td>
</tr>
<tr>
<td>127488</td>
<td>Engine RPM (Speed)</td>
<td>on</td>
<td>off</td>
<td>rpm</td>
<td>rpm</td>
</tr>
<tr>
<td></td>
<td>Engine tilt / trim</td>
<td>on</td>
<td>off</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>(Displayed as pop on LCD screen)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>127489</td>
<td>Fuel Burn rate</td>
<td>on</td>
<td>on</td>
<td>g/h</td>
<td>l/h</td>
</tr>
<tr>
<td></td>
<td>total engine hours</td>
<td>on</td>
<td>off</td>
<td>hr</td>
<td>hr</td>
</tr>
<tr>
<td></td>
<td>engine coolant temperature</td>
<td>on</td>
<td>on</td>
<td>°F</td>
<td>°C</td>
</tr>
<tr>
<td></td>
<td>Alternator potential</td>
<td>on</td>
<td>off</td>
<td>Vdc</td>
<td>Vdc</td>
</tr>
<tr>
<td># 127505</td>
<td>Fuel Tank level (1-4 tanks)</td>
<td>on</td>
<td>on</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>Water tank level</td>
<td>off</td>
<td>on</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td># 128259</td>
<td>Speed Over Water</td>
<td>off</td>
<td>on</td>
<td>mph</td>
<td>knots</td>
</tr>
<tr>
<td>Speed Over Ground</td>
<td>SOG (GPS)</td>
<td>off</td>
<td>on</td>
<td>mph</td>
<td>knots</td>
</tr>
<tr>
<td># 129026</td>
<td>Water depth</td>
<td>off</td>
<td>on</td>
<td>ft</td>
<td>m</td>
</tr>
<tr>
<td># 128267</td>
<td>Sea water temperature</td>
<td>off</td>
<td>on</td>
<td>°F</td>
<td>°C</td>
</tr>
<tr>
<td>Environmental</td>
<td>Calculated</td>
<td>off</td>
<td>on</td>
<td>US gal</td>
<td>litre</td>
</tr>
<tr>
<td>65280</td>
<td>ECOmo status indicator - Lean Burn Control</td>
<td>on</td>
<td>on</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

# NMEA 2000® sensors commercially available
Alarm & Warning Pictographs

There are four (4) system warnings & alarms which can be detected by both gauges. These are displayed on the LCD display as pictographs. These pictographs are set “ON” in the Tachometer and “OFF” in the Speedometer from the factory, but can be changed if desired to display simultaneously on both gauges.

Each pictograph is displayed one at a time in the order in which the associated warning or alarm is detected. Each shall blink until acknowledged by pressing the Enter key. After all alarms and warnings are acknowledged, the previous display will be restored.

As long as the alarm or warning is active, it will be displayed in the alarms screen (see the alarm screen depicted below).

<table>
<thead>
<tr>
<th>PGN</th>
<th>Data</th>
<th>Type</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>127489</td>
<td>Check engine (PGM-FI)</td>
<td>Alarm</td>
<td>Icon LED Color Audible Alert</td>
</tr>
<tr>
<td></td>
<td>Over heat</td>
<td>Alarm</td>
<td>Icon LED Color Audible Alert</td>
</tr>
<tr>
<td></td>
<td>Low oil pressure</td>
<td>Alarm</td>
<td>Icon LED Color Audible Alert</td>
</tr>
<tr>
<td></td>
<td>Charge indicator</td>
<td>Alarm</td>
<td>Icon LED Color Audible Alert</td>
</tr>
<tr>
<td></td>
<td>Water in fuel</td>
<td>Warning</td>
<td>Icon LED Color Audible Alert</td>
</tr>
<tr>
<td></td>
<td>Emergency stop</td>
<td>Warning</td>
<td>Icon LED Color Audible Alert</td>
</tr>
<tr>
<td>65280</td>
<td>ECOmo Mode indicator</td>
<td></td>
<td>Icon LED Color Audible Alert</td>
</tr>
</tbody>
</table>

A buzzer positioned in the Honda ignition switch panel will make the boat operator aware of operational changes by providing an audible alert and simultaneously illuminating the gauge Red LED in the event of an alarm situation.
Honda ECO mode (ECOmo – Lean Burn Control)

Honda's Lean Burn Control technology (ECOmo) provides for further improvement of fuel consumption in cruising mode by operation on a leaner air/fuel mixture.

The Honda Digital NMEA 2000® gauges include a unique ECO light, where illumination of the Green LED informs the boat operator that the engine has now entered the “Lean Burn Control mode” therefore contributing to reduced running costs.

Trim Angle Operation & Fuel Burn Rate.

Both Tachometer and Speedometer are capable of providing engine fuel burn rate data. However, only the Tachometer (upon selection of trim control button), will display the fuel burn rate & trim pop up automatically.

The indication of trim appears on the LCD screen as a graduated bar graph. The trim and fuel burn rate pop up temporarily displaces all previously selected data, except alarm displays. The pop up will remain active as long as any change in trim is detected within 5 seconds of the last change. The Trim display is displayed in the form of a graduated bar graph and numeric display 0% ~ 100%.

Example: Trim & Fuel Burn Rate Pop up Display.
Speedometer

The Speedometer can acquire speed data from two sources which are both selectable in the setup menu.

SOW (Speed over Water)

The default source is non GPS, indicated by “SOW” in the menu. This data source is usually from a through hull or transom mounted NMEA 2000® speed sensor.

SOG (Speed over Ground)

The alternate is a GPS source, indicated by “SOG” in the menu. This can be selected with network connection to an NMEA 2000® GPS Antennae or an NMEA2000® device with integrated GPS antennae.

Speed Units Display (Dial Face / LCD)

European Version - Metric Settings:
The units of display for speed are in Knots on the dial face and always in kilometres per hour (km/h) on the LCD display.

U.S. Version (English Settings):
The units of display for speed are in Miles per Hour (MPH) on the dial face and always in kilometres on the LCD display.

The numeric indication on the Speedometer dial face is selectable between knots and miles per hour (mph) depending on the unit’s regional setting, EU or US type.

The numeric indication on the Speedometer dial face is selectable between knots and miles per hour (mph) depending on the unit’s regional setting, EU or American type.
Appendix A. Tachometer Default Menu Structure

1. **Power On**
   - Displays Honda logo & software version for 3 seconds

2. **ENG DATA**
   - **Eng Speed** 3150 rpm
   - **Enter** button

3. **ALARMS**
   - Any number of the indicated icons in the order they are received may be displayed. Priority is given to alarms.

4. **Battery 13. Vdc**

5. **TRIM FUEL RATE**
   - 5 % 6.2 l/h

6. **System Setup**
   - **Enter** button
   - **See Appendix C** button

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**Key**

▼ = down arrow key
▲ = up arrow key
Enter = enter key

Use up and down arrow keys to cycle through the following screens:
- Eng Speed
- Coolant Temp
- Fuel Burn Rate
- Fuel Tank Level (1-4)
- Trim (if ON in setup)
- Battery (split screen only and if on in setup)
- Eng Hrs (single screen only)

Then enter again to save.
Appendix B. Speedometer Default Menu Structure

Power On

Displays Honda logo & software version for 3 seconds

ENG DATA

SOW
44 kph

Key
▼ = down arrow key
▲ = up arrow key
Enter = enter key

WTR
FUEL
25 %
1.2 l/h

“SOW” if non GPS
“SOG” if from GPS
Units are always kph

System Setup

Enter

SETU
Spd Src
No GPS

“Enter” again to save.

Use up & down arrow keys to cycle through the following screens:

SOW
Coolant Temp
Fuel Burn Rate
Fuel Used
Water Temp
Water Tank
Trim (if ON in setup)
Water Depth
Rudder Angle
Battery (split screen only and if ON in setup)

See Appendix C

ENG DATA

SOW
44 kph

SETU
Spd Src

GPS

set

No GPS

GPS

No GPS

HONDA

WTR TANK
FUEL

25 %
1.2 l/h

HONDA

E
nt

E
nt

E
nt

E
nt
Appendix C. Common Set up Menu Structure

#Note:
Engine position 0 to 4, relates to the number of outboards which are installed on the boat and connected to the CAN bus network.

**Position 0** > 1st Engine  
**Position 1** > 2nd Engine  
In total, up to 5 engines can be supported by the Honda NMEA 2000® gauges.

This function should be set by your Honda Dealer during engine installation, set up and PDI. The number of on board fuel tanks should also be matched to the total number of engines.
Appendix D. Customizing View

Use up and down arrow keys to adjust parameters then "Enter" to set.

- **SETUP Alarms On**
- **SETUP Battery On**
- **SETUP Trim On**
- **SETUP Trim Adjust**
  - Will not appear if Trim is off
- **SETUP Press Enter to Clear Fuel Used**
- **SETUP Press Enter to Reset Trim Center**
- **SETUP Alarms On**
- **SETUP Battery On**
- **SETUP Trim On**
  - Screen will reverse video for an instant to acknowledge setting

Press Enter to Clear Fuel Used

Press Enter to Reset Trim Center

Enter to Exit

Set On/Off

Screen will reverse video for an instant to acknowledge setting

Use up and down arrow keys to adjust parameters then "Enter" to set.
Trim Center Adjust.

The setup menu “Trim Adjust” (see Appendix D) allows resetting the factory 50% point to any other arbitrary point between 0% and 100%. This feature is for convenience only and may result in asymmetry between 0-50% and 50-100% actual distances.

The factory setting may also be restored in the setup menu.