



Owner's Manual

DIGITAL HANDLEBAR GUAGE
EA1640, EA1641



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MANUAL P/N EI1640
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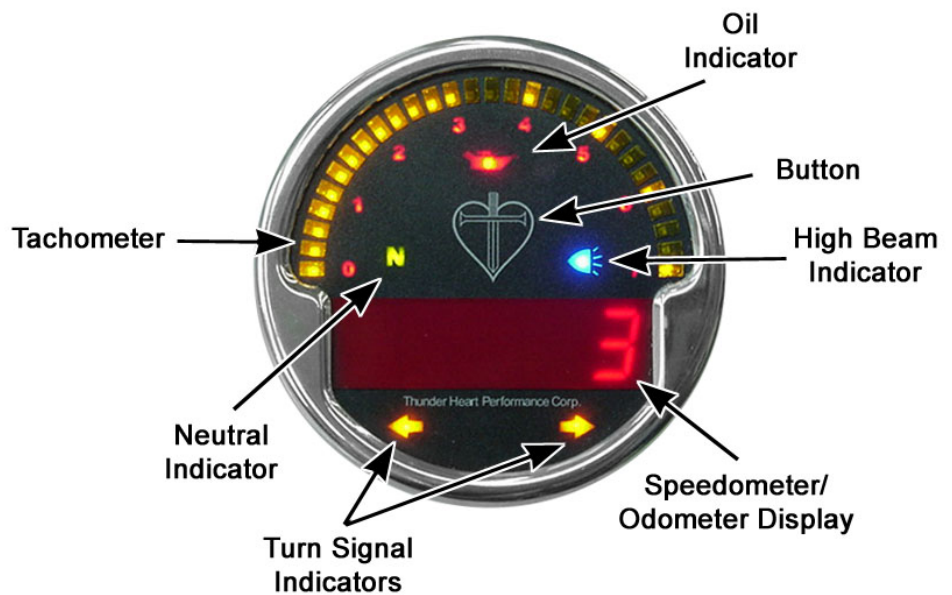
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CHAPTER 1 INTRODUCTION

Thunder Heart's Digital Handlebar Gauge is a simple, stylish way to add complete instrumentation to your custom bike. Each gauge includes a programmable electronic speedometer that plugs directly into a Thunder Heart EA4100BD Speed Sensor. The 7,000-RPM tachometer sweeps across the top of the gauge—you can't miss it! Indicators for turn signals, odometer/trip, neutral, high beam, and oil are integrated into the gauge face. Indicators are activated by a 12V+ signal, making it compatible with Thunder Heart's Micro Harness Controller (P/N EA4260).

Each gauge housing is machined from solid 6061-T6 billet aluminum and polished to a mirror shine. Chrome plating is available as well. Models for 1", 1-1/4" handlebars are available.



CHAPTER 2 GAUGE INSTALLATION NOTES

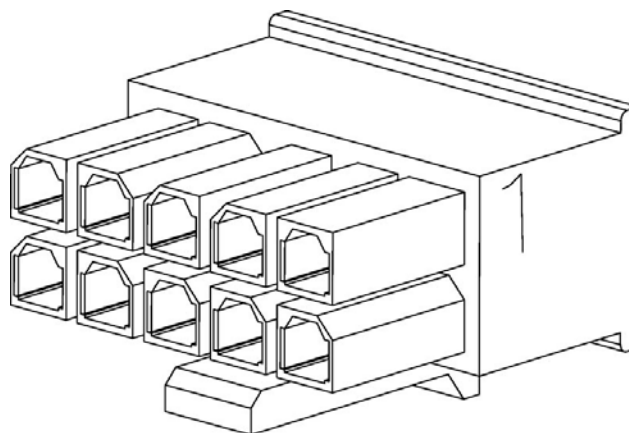
Installation of your Thunder Heart Digital Handlebar Gauge is simple and straightforward. Please note the following:

- V-twin motorcycles vibrate when running, so be sure to use a thread locker (such as Loctite®) on all fasteners to reduce the chance of them working loose.
- When routing the 10-conductor electrical cable, be sure to avoid sharp edges that could cut and damage the wires (such as holes in handlebars). Use rubber grommets wherever possible.

CHAPTER 3 GAUGE ELECTRICAL CONNECTIONS

Table 1—Harness Wire Colors and Functions

PIN	FUNCTION	COLOR	AWG
1	+12V SWITCHED POWER	RED	22
2	GROUND	BLACK	22
3	OIL INPUT (GROUND)	GREY	22
4	NEUTRAL INPUT (GROUND)	GREEN	22
5	LEFT SIGNAL (12V+)	PURPLE	22
6	RIGHT SIGNAL (12V+)	BROWN	22
7	HIGH BEAM (12V+)	BLUE	22
8	VEHICLE SPEED	ORANGE	22
9	TACH INPUT	YELLOW	22
10	NOT USED	WHITE	22



3.1 Speed Sensor Hookup

In order for the Digital Handlebar Gauge to display speed, it needs to receive a signal from a speed sensor, such as Thunder Heart P/N EA4100 transmission sensor. You will need to terminate the Digital Handlebar Gauge harness with the provided AMP or Deutsch connectors to connect to the

speed sensor (some speed sensors have an "AMP" connector, and others utilize a "Deutsch" connector).

Use a proper "W" crimping tool to crimp the appropriate terminals onto each wire. Insert the wires into its respective connector into the proper positions using the information below:

Table 2 Wiring Info if using AMP Connector

Function	Harness Gauge Side	AMP Position	Harness Sensor Side
POWER	to 12V+	1	RED
SIGNAL	ORANGE	2	GREEN
GROUND	to Ground	3	BLACK

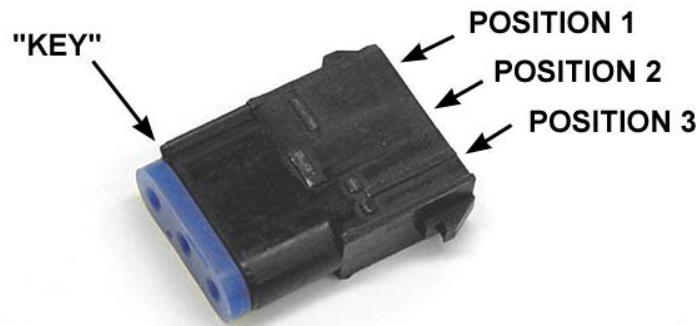
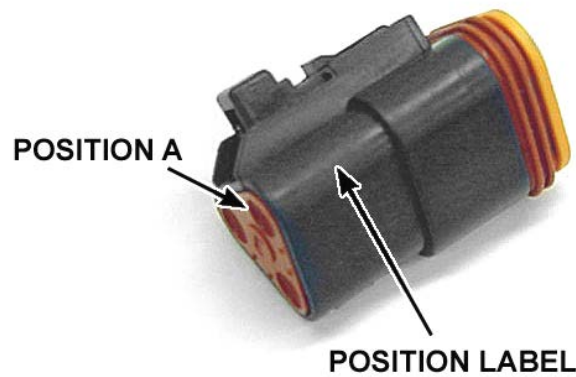


Table 3 Wiring Info if using Deutsch Connector

Function	Harness Gauge Side	Deutsch Position	Harness Sensor Side
POWER	to 12V+	A	RED
SIGNAL	ORANGE	B	GREEN
GROUND	to Ground	C	BLACK



CHAPTER 4 GAUGE SETUP

4.1 Odometer Start Value

The odometer start value allows the user to program the desired mileage from which the speedometer will begin accumulating.

1. Make sure the motorcycle key switch is OFF and the kill switch is in the "OFF" position.
2. Press and hold the button in the center of the face of the speedometer.
3. Turn the motorcycle key switch ON.
4. Repeatedly press the button to cycle between Odo and CAL options.



Note: If you pause for more than three seconds before pressing the button again, the displayed option is selected.

5. When Odo is displayed on the speedometer/odometer display, pause three seconds. The display will switch to display the odometer, with the right-most digit flashing
6. Repeatedly press the button until the desired digit is displayed.



7. Pause three seconds. The display will flash the next digit.
8. Repeat steps 6 and 7 until the desired odometer start value is programmed into the speedometer.
9. When the last digit is complete, the speedometer will switch to "run" mode.

4.2 Automatic Speed Calibration

1. Make sure the motorcycle key switch is OFF and the kill switch is in the "OFF" position.
2. Press and hold the button in the center of the face of the speedometer.
3. Turn the motorcycle key switch ON.
4. Repeatedly press the button to cycle between Odo and CAL options.





Note: If you pause for more than three seconds before pressing the button again, the displayed option is selected.

5. When CAL is displayed on the speedometer/odometer display, pause three seconds. The display will switch to CAL 1.
6. Repeatedly press the button to cycle between CAL 1 and CAL 2.



Note: If you pause for more than three seconds before pressing the button again, the displayed option is selected.

CAL 2 is used to calculate the pulses at 60 units per hour (60 MPH or 60 km/h)

7. When CAL 2 is displayed on the speedometer/odometer display, pause three seconds. The speedometer/odometer display will read the current vehicle speed (before calibration).
8. Ride the motorcycle at a constant speed of 60 (MPH or km/h, depending upon the desired unit of measure). This is best done on a motorcycle dynamometer, but can also be done traveling behind another vehicle with an accurate speedometer.
9. When you know you are traveling at 60, press the button. The speedometer will make the required calculations and restart. If you are maintaining the same speed, your speedometer will now read 60. Calibration is complete.



4.3 Manual Speed Calibration

1. Make sure the motorcycle key switch is OFF and the kill switch is in the "OFF" position.
2. Press and hold the button in the center of the face of the speedometer.
3. Turn the motorcycle key switch ON.
4. Repeatedly press the button to cycle between Odo and CAL options.





Note: If you pause for more than three seconds before pressing the button again, the displayed option is selected.

5. When CAL is displayed on the speedometer/odometer display, pause three seconds. The display will switch to CAL 1.
6. Repeatedly press the button to cycle between CAL 1 and CAL 2.



Note: If you pause for more than three seconds before pressing the button again, the displayed option is selected.

PH is used to enter the pulses per unit of distance (mile or kilometer)

7. When CAL 1 is displayed on the speedometer/odometer display, pause three seconds. The speedometer/odometer display will switch to a five-digit display.
8. Adjust each digit using the same method used to enter the Odometer Start Value.

4.4 MPH and KPH Mode

1. Make sure the motorcycle key switch is OFF and the kill switch is in the "OFF" position.
2. Press and hold the button in the center of the face of the speedometer.
3. Turn the motorcycle key switch ON.
4. Repeatedly press the button to cycle between Odo, CAL, and _PH options.





Note: If you pause for more than three seconds before pressing the button again, the displayed option is selected.

5. When _PH is displayed on the speedometer/odometer display, pause three seconds. The display will switch to an arrow.
6. Immediately hold the button down and arrow will repeatedly cycle left and right. At the same time the KPH icon will cycle on and off. When the KPH icon is on, and the button is released the unit will function in KPH mode. When the KPH icon is off, and the button is released the unit will function in MPH mode.

CHAPTER 5 GAUGE OPERATION

1. Turn the motorcycle key switch ON.
2. Press the button to cycle between speed, odometer, and trip displays.
3. When the trip display is visible, press and hold the button to reset the trip value.

CHAPTER 6 CARING FOR YOUR GAUGE

To keep your speedometer looking and working great for years to come, follow these simple guidelines:

- Only wash your speedometer face with mild detergent.

WARNING DO NOT USE ANY STRONG SOLVENTS TO CLEAN THE FACE. DAMAGE TO THE SPEEDOMETER FACE MAY RESULT!

- Do not use a pressure washer directly on the face of the speedometer.

WARRANTY

Thunder Heart Performance Corp. will repair or replace any parts that have manufacturing defects only under the following conditions:

- The customer must return the product to the original place of purchase.
- The product must be returned within one year of the original distribution sale date.
- All returns must be accompanied with a copy of the receipt.

- The product must be individually tagged with a completed description of the problem or defect.
- All returned items must be packaged and shipped in the same manner as Thunder Heart originally shipped them to the dealer.

Thunder Heart Performance Corp. reserves the right to repair or replace the product at Thunder Heart's discretion. We do not offer refunds or credit for the returned product. In addition, any product that is misused or otherwise damaged by the end customer will be billed for any repair or replacement costs associated with the damage.