



**MODEL MLX-9X04 series**  
**HARLEY J1850 SPEEDOMETER/TACHOMETER**

*Please read this before beginning installation or wiring.*



**IMPORTANT NOTE!** This gauge has an odometer preset option that is only available one time within the first 100 miles (160 km) of operation. See ODOMETER PRESET MENU for instructions.

## MOUNTING

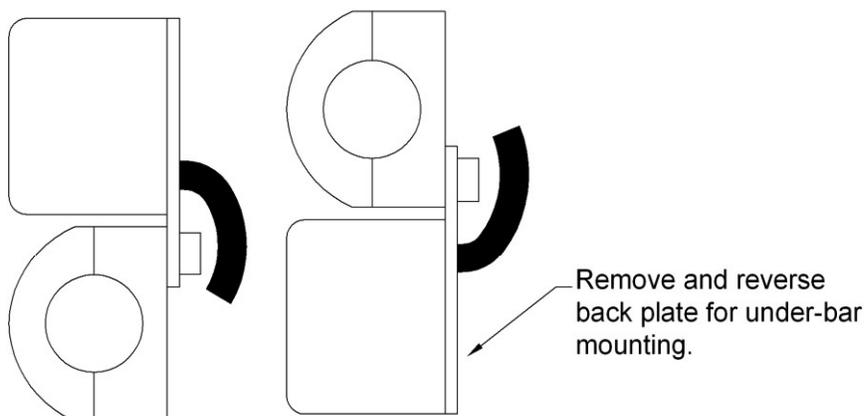
A mounting bracket must be purchased for your application. Any BKT-50xx series bracket may be used. The bar mount brackets can be used for above-the-bar mounting or below-the-bar mounting. The 35° triple-tree mounts are only available for above-the-bar mounting. The triple-tree mounting bracket replaces the original handle bar mount. The gauge attaches to the back side of the bracket with the supplied screws.

The bar mount brackets have a curved front bracket and two rear brackets. The longer screws attach the gauge to the back side of the bracket and the shorter screws go into the recessed openings on the rear brackets. The mount fits tight and will need to be pulled together by the screws.

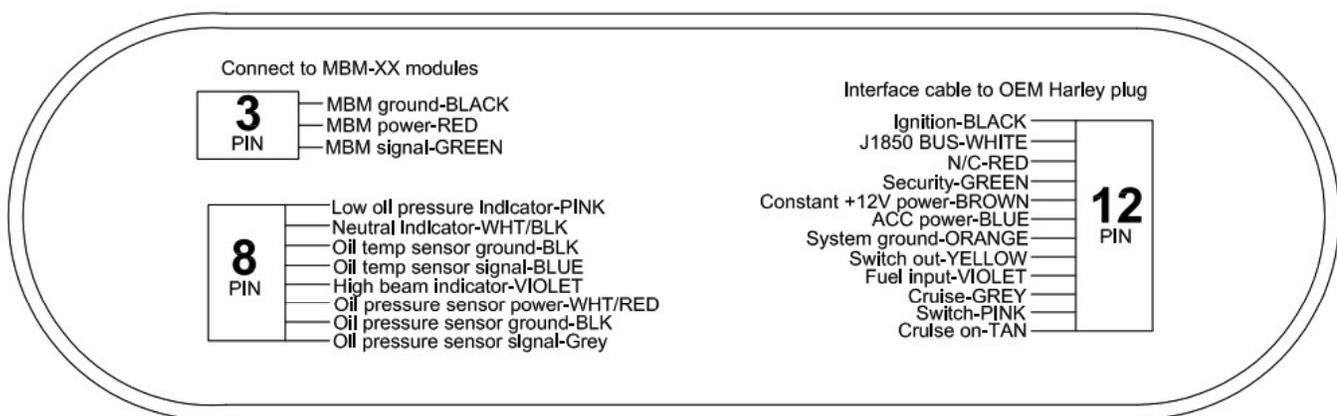
To mount the gauge under the bar:

1. Remove the rear plate by unscrewing the four screws.
2. Rotate the rear plate so the mounting tab is on the top.
3. Reattach the rear plate using the four screws.
4. Place bar mount bracket on the handle bars so that the recessed screw holes are on the top.
5. Using the long screws, secure the gauge to the bottom side of the bar mount bracket.

Drawings for using bar mount brackets above the bar and below the bar.



## Wiring Diagram



## Interface cable to OEM Harley plug

Connect the interface cable from the back of the gauge to the OEM Harley plug.

## INDICATORS

Several indicators are supplied on the stock wiring harness, including turn signals, security (red key symbol), check engine (red 'E'), ABS (red 'ABS'), low fuel (amber fuel pump symbol), and cruise control (arrow and circle symbol, green/red). Cruise will be red when the cruise switch is on and change to green when the cruise is engaged.

An 8 pin indicator harness is supplied for the indicators not found in the stock harness connector.

The high beam indicator (purple wire) activates with a +12V signal.

The neutral (white/green) and low oil (requires stock switch, brown) indicators are activated by ground at their respective hook-up wires. These can be connected to the same wires that the stock indicator lights would be connected to.

## OPTIONAL OIL TEMPERATURE

Dakota Digital part number SEN-1043 or SEN-1044 must be used. The SEN-1043 is a one-wire sender with 1/8" NPT threads. Connect the terminal on the end of the sender to the indicator harness blue wire. Because this sensor grounds through its body, ensure sure the sender threads are able to make a metal-to-metal connection to complete the ground. The SEN-1044 is a two-wire sender with 3/8" NPT threads. Connect the sender red wire to the gauge gray wire and connect the sender black wire to the indicator harness black wire.

<b>MLX-9X04</b>	<b>Sender</b>
BLUE	SEN-1043 terminal <b>or</b> SEN-1044 sensor RED wire
BLACK	SEN-1044 sensor BLACK wire

## OPTIONAL OIL PRESSURE

Dakota Digital part number SEN-1039 must be used. The sensor red wire connects to the indicator harness white/red wire, the sensor white wire connects to the gauge gray wire, and the sensor black and bare shield wires connect to the indicator harness black wire.

<b>MLX-9X04</b>	<b>Sender</b>
WHITE/RED	SEN-1039 sensor RED wire
GRAY	SEN-1039 sensor WHITE wire
BLACK	SEN-1039 sensor BLACK wire

Adding the SEN-1039 typically replaces the stock low oil pressure switch, eliminating the brown wire. The digital message center will alert the rider of a low oil pressure condition, which is user adjustable (10psi default).

## CLOCK

The clock is set by pressing and holding the left switch while the selection arrow is next to the clock. The minutes will begin flashing. Every time the left switch is momentarily pressed the minutes will increase by one. Press and hold the left switch to change to the hours adjust. The hours will begin flashing and every time the left or right switch is momentarily pressed the hours will increase by one. Press and hold the left or right switch to exit the clock setting.

## NIGHT DIMMING

Your display system has a dimming feature that dims the display intensity automatically at night. Normally the system is at full brightness for daytime viewing. To have the system at full brightness all of the time, go into the DIM setup menu and select OFF instead of AUTO. The gauge also offers a sunlight mode which will turn the background white, and text black for maximum contrast in direct sunlight.

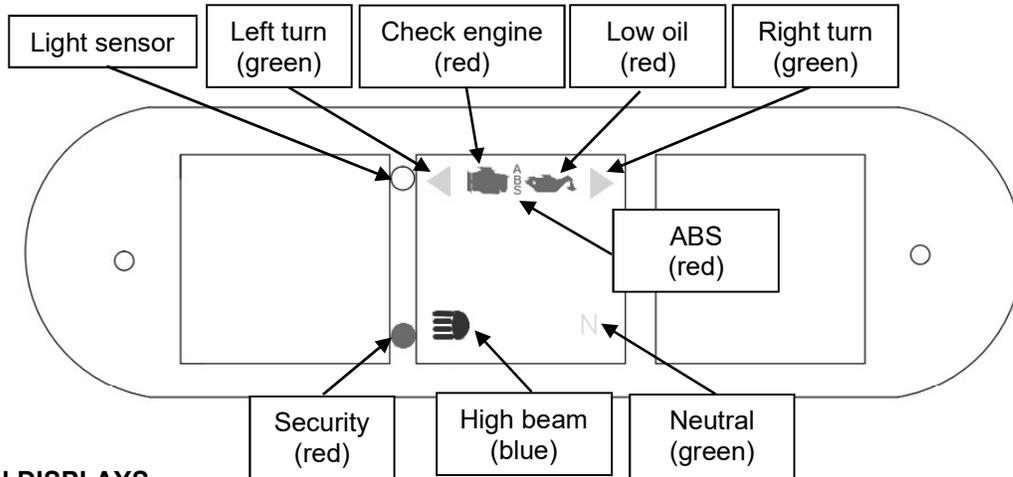
## WIRING COLOR CODE FOR GAUGE:

<b>MLX-9X04 8-wire</b>	<b>Stock HD® harness color</b>	<b>Function</b>
PINK	GREEN/YELLOW	Low oil pressure indicator
WHT/BLK	TAN	Neutral indicator
BLK		Oil temp sensor ground
BLUE		Oil temp sensor signal
VIOLET	WHITE	High beam indicator
WHT/RED	SEN-1039 RED	Oil pressure sensor power
BLK	SEN-1039 BLACK	Oil pressure sensor ground
GREY	SEN-1039 WHITE	Oil pressure sensor signal

**\*\*\*The HD® wire colors provide are for reference, please consult service manual for verification**

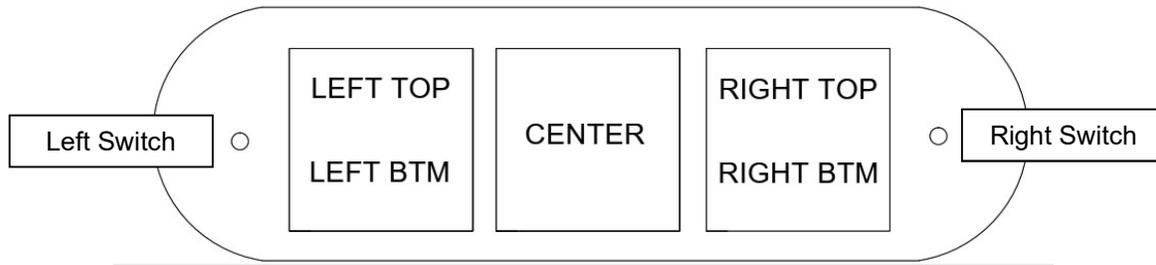
# System features

## INDICATORS



## INFORMATION DISPLAYS

There are 5 reading locations available to display information. They are labeled LEFT TOP, LEFT BTM, CENTER, RIGHT TOP, RIGHT BTM, respectively. The center location has 3 selectable readings that can be displayed, speed, tach or gear. The other locations can show any of the information readings listed below. See switch operation on page 6.



### Right or Left side display readings

	Description
ODOMETER	Odometer reading (0-999,999)
TRIP A	Trip A odometer reading (0-9999.9)
TRIP B	Trip B odometer reading (0-9999.9)
SERVICE (when enabled)	Distance to next service (0-7500.0 or ---- when "SERVICE DUE")
TRIP HR	Hours gauge has been on with engine running HH:MM (00:00 to 99:59)
SPEED km/h	Alternate speed unit conversion
RPM	Digital or Bar RPM reading (0-15,990)
OIL TEMP (with optional sender present)	Engine oil temperature
OIL PSI (with optional sender present)	Engine oil pressure
VOLTS	System voltage
GEAR/CLOCK	Gear position and 12-hour clock display
FUEL	Digital or bar displayed when using sender

### Performance readings

HIGH MPH	High speed recall
0-60 TIME	0-60 mph time in seconds
Quarter mile speed/time	Speed at end of ¼ mile (trap speed) and ¼ mile time from standing start
HIGH RPM	High RPM recall

### Center display readings

MPH/km/h	Speed
RPM	Digital or Bar RPM reading (0-15,990)
GEAR	Gear position

### MBM (Motorcycle Bus interface Module)

MBM displays (optional)	Readings for connected modules
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# Operation, Clock Set, Service Reset

## FUNCTION SWITCHES

The two switches built into the face of the gauge allow you to make adjustments to the gauge. During normal operation, the function switch allows access to information including mileage, RPM, and performance data located within the 4 outer display locations. The left switch controls the left display, the right switch controls the right display. An arrow is shown on the display indicating which message location is currently selected, or in focus. Tap the switch to scroll through information available in each location.

If you would like to change focus to another location, press and hold the function switch; you'll see a status bar labeled "MOVE LINE" filling. Once the status bar is filled, "RELEASE TO MOVE" will be displayed below; if the data in the selected location can be reset, such as a tripmeter, the bar will be emptying with "HOLD TO CLEAR" displayed above. Release the switch before the bar empties and the next line of information will be in focus, illustrated by arrows on each side. Focus alternates top and bottom.

To clear or reset information such as Trip A, Trip B or performance readings, press and hold the function switch until you see the status bar filling. Continue to hold the switch as the bar empties and then displays "HOLD TO CLEAR". Hold until you see "RELEASE" displayed above the status bar. The information will now be reset.

If the function switch is pressed while the key is in the off position, the clock and odometer will be displayed.

## SETTING THE CLOCK

The clock uses a 12 hour format and can be set with the key on by holding the function switch while the focus arrow is next to the clock. If the clock is not shown, tap the function switch until it appears; keep in mind you may need to move to another message location.

Hold the switch until "RELEASE" is displayed; the hours will begin flashing. Tap switch to change the hours, hold the switch to move to the minute set and the minutes will begin flashing. Tap the switch to change the minutes; hold the switch to save and exit the clock set mode.

## SERVICE RESET

"SERVICE DUE" may appear at start up, indicating your preselected service time is due. The screen will go back to the last display shown.

- To clear the service odometer, after your service was completed, press and release the function switch until the highlighted "SERVICE DUE" appears in either message location.
- When "SERVICE DUE" is displayed, hold the function switch until "RELEASE" is displayed.

# Programming

## SETUP MENU

**\*To simplify the setup procedure, please download our IOS or Android app ‘Dakota Digital Motorcycle’\***

The function switch is used to enter setup mode. To get into setup, press and hold either switch while turning the key on. Another option to enter SETUP is to press and hold both switches while the system is powered. Press and release the switch to advance through the menus below, press and hold to enter each menu. The left switch goes down, the right switch goes up through the menu.

<b>Main Menu</b>	<b>Sub Menu</b>	<b>Description</b>	
BLUETOOTH	STATUS CHECK	Bluetooth ID and current connection status	
	OFF	Disable Bluetooth connections	
	SETUP ONLY	Allow Bluetooth connections only while in setup	
	ALWAYS ON	Allow Bluetooth connections when key is on	
	BACK		
DIAGNOSTICS	ENGINE	Read diagnostic codes from engine module	
	SECURITY	Read diagnostic codes from security module	
	ABS	Read diagnostic codes from ABS module	
	BACK		
LIGHTING	COLOR THEMES	Set factory defined color themes	
	SET ALL COLOR	Set all areas to one color	
	LABEL COLOR	Set colors for all labels	
	MESSAGE COLOR	Set message location colors	
	BAR COLOR	Set tach/fuel bar color	
	DIMMING	Set dimming method	
		OFF	
		AUTOMATIC	Uses built in sunlight sensor to increase or decrease Backlight
	SUNLIGHT	Set sunlight brightness method	
		OFF	
		NORMAL	Increases backlight intensity when in direct sunlight
		INVERT	Increases backlight intensity and changes background white and text black for highest contrast.
	RESET	Returns all colors and settings to factory default	
	YES		
	NO		
	BACK		
SPEED	ADJUST	Adjust speed reading up or down while riding	
	UNIT	Select MPH or km/h unit	
	SERVICE RESET	Set miles to service reset value or turn off	
	PRESET ODO	Odometer preset (Can only be set within the first 100 miles)	
	BACK		
TACH	HIGH WARNING	Set high RPM warning point	
	DISPLAY	Set tach display to digital or bar reading	
		DIGITAL	Tach will be displayed in a digital number format
		BAR	Tach will be displayed in a fill bar format
		8,000 RPM	Maximum RPM bar size
	16,000 RPM	Maximum RPM bar size	
	BACK		
	BACK		
OIL TEMP	UNIT		
	ON		
		SENDER	Select sender being used or turn off
		SEN-1043	
		SEN-1044	
		HIGH WARNING	Set high warning point
	TEST	Display sender resistance for troubleshooting	
	BACK		
	OFF		
	BACK		
OIL PSI	ON	Enable/Disable option oil pressure reading	
		LOW WARNING	Set low warning point
		TEST	Display sender resistance for troubleshooting
		BACK	
	OFF		
	BACK		

FUEL	ON	SENDER	Enable/Disable option fuel level reading
		OFF	
		HD 2004	
		HD 2008	
		DYNA 04	
		DYNA 08	
		CUSTOM	Program custom fuel curve
		FAT BAGGER	
		SPORTSTER	
		RANGE TO EMPTY	
		ON	
		OFF	
		LEARN RESET	
		DISPLAY	
		BAR	Display will show a fill bar for fuel reading
		DIGITAL	Display will show a percentage reading for fuel
		TEST	Display sender resistance for troubleshooting
		BACK	
	OFF		
	BACK		
VOLT	LOW WARNING		Set low warning point
	BACK		
DISPLAYS	LEFT TOP	Show/hide performance readings in left top screen location	
	LEFT BTM	Show/hide performance readings in left top screen location	
	CENTER	Select speed, tach or gear to be displayed in center screen	
	RIGHT TOP	Show/hide performance readings in left top screen location	
	RIGHT BTM	Show/hide performance readings in left top screen location	
	MBMS	Show connected MBM's and set warning points	
	BACK		
GEAR	PRESET	Set gears based on factory setup	
	TRIKE		
	P-1200		
	P-883		
	LEARN	Learn gears based on speed and RPM	
	BACK		
FACTORY RESET	NO	Resets all settings except odometer to factory defaults	
	YES		
VERSION		Displays software codes of each controller	
EXIT SETUP			

## Setup

**PRESS AND HOLD BOTH FUNCTION SWITCHES ONCE THE BIKE IS RUNNING.** Release the switches.

For speed calibration:

- Press and **release** either switch to move through the different setup menus.
- Press and **hold** either switch to enter a setup menu.
- Press and **hold** either switch to save an option, also.

Current selections within a sub menu are denoted with an asterisk (\*)

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## Exiting Setup

At the end of every setup section, steps must be taken to properly exit the setup and return to normal operation.

When a section in this manual says “**Exit setup**”, please refer to these steps.

- Press and release the function switch until you see “>BACK”.
- Press and hold the switch until you see “RELEASE”, and release the switch.
- Press and release the function switch until you see “>EXIT MENU”.
- Press and hold the function switch until you see “RELEASE”, then release the switch.

## BLUETOOTH Bluetooth menu

- ✓ Reference this In diagnostic section when using the app for your smartphone or tablet.
- ✓ The app can aid in setup and also read real time data on your device.
- When “>BLUETOOTH” is displayed, hold until “RELEASE” is displayed, and release the switch.
  - Under the word SETUP the Bluetooth ID will be shown.
  - For Android users, this is the ID that you pair to, in Settings/Bluetooth, prior to opening the app.
- The Bluetooth menu options are: “STATUS CHECK”, “OFF”, “SETUP ONLY”, “ALWAYS ON”, “BACK, and “EXIT”.
- STATUS CHECK: Shows the unit is either “WAITING” for connection or “CONNECTED” or “OFF” with the app.
- OFF: turns off the Bluetooth.
- SETUP ONLY: Bluetooth is only active in setup.
- ALWAYS ON: default mode, works for setup and for real time readings on your smartphone or tablet.

## **LIGHTING** Lighting menu for color changes

- When ">LIGHTING" is displayed hold until "RELEASE" is displayed, and release the switch.
- The color menu options are: "COLOR THEMES", "SET ALL COLOR", "DISPLAY COLOR", "LABEL COLOR", "MESSAGE COLOR", "BAR COLOR", "DIMMING", "SUNLIGHT", "RESET" or "BACK".
- Since the color options are so expansive the selection process is the same in all sections.
  - Press and release the switch to change the selection.
  - Hold the function switch to enter the selected setup menu, until "RELEASE", and release the switch.
  - The display will show the available options. Press and release the switch to move through the available options.
    - An asterisk\* will appear next to the option indicating it's set as the current setting.
  - Press and hold to select an option, until "RELEASE" is displayed.
  - Exit setup.
- COLOR THEMES: offers preset colors for the LCD color, label colors, message colors, tach bar, and tach warning.
- SET ALL COLOR: can set the entire gauge to one of 31 color choices.
- DISPLAY COLOR: independently sets the speed color to one of 31 color choices.
- LABEL COLOR: independently sets the MPH or km/h label color to one of 31 color choices.
- MESSAGE COLOR: independently sets the message area, color to one of 31 color choices.
- BAR COLOR: independently sets the color of the tach bar, up to the warning point, to one of 31 color choices.
- DIMMING: offers two options, AUTOMATIC night dimming, or "OFF".
- SUNLIGHT: special feature to enhance viewing of the TFT LCD in *bright daylight* with a high contrast display.

### ***This works independently from the night dimming***

If enabled, this will temporarily override the color choices made, to offer a visible display during the day.

The color will revert back when the sunlight is less intense, (light overcast days can trigger this mode).

- NORMAL: in daylight the background will stay black as the speed and messages will turn white.
  - INVERT: in daylight the background will turn white as the speed and messages will turn black.
  - OFF: your color choices will not change.
- RESET: This will reset all color choices and options back to original factory colors.

## **SPEED** Speed setup menu

- >> **Speed calibration requires hold both function switches after the engine is running <<**
- The selectable options are: "ADJUST", "UNIT", "SERVICE RESET", "PRESET ODO", or "BACK".
- Press and release the switch to change the selection. Press and hold either switch to select it.

### **ADJUST** Speed Calibration

The speedometer is calibrated by the engine computer, but the speedometer reading can be adjusted through the gauge. The adjustment is set a value from 75% – 125% with 100% being no change.

- When ">ADJUST" is displayed, then press and hold the switch until "RELEASE", then release the switch
- The display will show the current calibration value, default is "\*\*100".
- Press and release the switch to increase the value.
- The percentage will increase up to 125%. Once it reaches 125 it will roll back over to 75.
  - If you calculate that you need to reduce speed by 10%, click the switch until 90% is shown.
- Press and hold the switch until "RELEASE", to save the currently displayed value.

### **UNIT** MPH / km/h Selection

- **It is very important to set the speed unit PRIOR to setting the odometer!**
- When ">UNIT" is displayed, press and hold the switch until "RELEASE" is displayed, release the switch.
- The display will show UNIT and ">\*MPH" for miles and "km/h" for kilometers.
- MPH is default. Press and release the switch to choose between MPH or km/h.
- Hold the switch until you see "RELEASE" and release the switch.

### **SERVICE RESET** miles or km to next service setup

Service is a countdown odometer. The service odometer display can be disabled or can be set to count down from 500 – 7500 miles, (800 to 12,000 kilometers). If the service odometer is enabled and display reaches 0 miles/km, it will display "SERVICE DUE" each time the key is turned on.

- When ">SERVICE RESET" is displayed, press and hold the switch until "RELEASE" is displayed and release the switch.
- The current setting will be displayed. The default is ">\*OFF", but it could be a value in miles or kilometers.
- The miles begin at 500 and go up to 7,500 miles in 500 mile increments.
- The kilometers begin at 800 and go up to 12,000 KM in 800km increments.
- To change the service odometer, press and release the switch until the desired setting is displayed.
- Hold the switch until you see "RELEASE", and release the switch.
- Exit setup.

### **PRESET ODO** Odometer preset

- ✓ The odometer starts at zero, but can be preset by the customer within the first 100 miles (161 km) of riding.
- ✓ After riding more than 100 miles (161 km), the menu option will no longer be displayed.
- ✓ Correctly select the units to be either MPH or km/h **FIRST**, as the odometer will be set in the selected units.
- ✓ The preset is in full miles or kilometers only, **no** tenths.
- ✓ The odometer preset can be reset multiple times within the first 100 miles (161 km) of riding.
- When ">PRESET ODO" is displayed, press and hold the switch until "RELEASE" is displayed and release the switch.
- The current miles will be displayed with the left most digit flashing.

- To change the flashing number, press and release the switch to the desired number.
- Press and hold the switch until "RELEASE" is displayed, then release the switch.
- Repeat the process of until the right most digit has been set.
- With the far right number flashing, press and hold the switch and the display will show ">SAVE ODO? NO".
- Verify the small odometer at the bottom is what you want set.
  - If incorrect hold the button until "RELEASE" is displayed, then release the switch.
  - You can now step through the process again and correct your readings.
  - Turning the key off at any time will discard any attempted odometer settings.
- If the odometer is correct at the ">SAVE ODO? NO" screen, press and release the switch to change the display to "SAVE ODO? YES".
- When ">SAVE ODO? YES" is displayed, press and hold the switch until "RELEASE" is displayed and release the switch.
- Exit setup.

### **TACH Tachometer warning setup**

- When ">TACH" is displayed, press and hold either switch until "RELEASE", then release the switch.
- When ">HIGH WARNING" is displayed, press and hold the switch until "RELEASE", then release the switch.
- The default high warning of "\*5500" is shown with a range of 2200 – 8400 RPMs.
- Press and release the switch to increase the value by 100 RPMs.
- Once reaching 8400 RPMs the next number will roll back to 2200 RPMs.
- Once you choose a valid warning, press and hold the switch until "RELEASE", then release the switch.
- Exit menu.

### **High warning (shift light) setup**

- When ">HIGH WARNING" is displayed, press and hold the switch until "RELEASE" is displayed, and release.
- The display will show the current high RPM warning with a \*.
- The default is 5,500 RPMs but is selectable from 2,200 to 8,200 RPMs.
- Press and release the switch to change the RPM warning point.
- Press and hold the switch until "RELEASE" is displayed, and release.

### **DISPLAY setup**

- When ">DISPLAY" is displayed, press and hold the switch until "RELEASE" is displayed, and release.
- The display will show "DIGITAL", "BAR" AND "BACK" as selectable options.
- Press and release the switch to change the how the tach reading is displayed.
- Press and hold the switch until "RELEASE" is displayed, and release.
- Exit setup.

### **OIL TEMP Engine oil temperature setup menu**

- **Only valid to use when optional SEN-1043 or SEN-1044 is used.**
- When ">OIL TEMP" is displayed, press and hold either switch until "RELEASE" is displayed.
- The options are "UNIT", "ON", "OFF" and "BACK". **Factory default is "OFF" (no temp displayed)**
- Press and release to choose an option, then press and hold to select option.
  - When ">UNIT" is displayed, press and hold the switch until "RELEASE" is displayed, and release.
  - Press and release the switch to select "F", "C" or "BACK".
  - Press and hold the switch on the selection, until "RELEASE" is displayed, and release.
- The options are "UNIT", "ON", "OFF" and "BACK, again.
- To enable oil temp, when ">ON" is displayed, press and hold the switch until "RELEASE" is displayed, and release.
- The selections will be "SENDER", "HIGH WARNING", "TEST", or "BACK".
- Press and release the switch to change the selection, press and hold the switch to select it.

#### **SENDER Temperature sender selection**

- When ">SENDER" is displayed, press and hold the switch until "RELEASE" is displayed, and release.
- The display options are "SEN-1043", "SEN-1044" and "BACK".
- Press and release the switch to match to the optional sender you purchased from Dakota Digital.
- Press and hold the switch on the selection, until "RELEASE" is displayed, and release.

#### **HIGH WARNING High oil temperature warning setup**

- When ">HIGH warning" is displayed, press and hold the switch until "RELEASE" is displayed, and release.
- The display will show the default high temp warning of ">\*300".
- The high temperature warning points range from 225 to 375F, (107 to 190C).
- Press and release the switch to change the change the high temp warning point.
- Press and hold the switch until "RELEASE" is displayed, and release.

#### **TEST Resistance test**

- When ">TEST" is displayed, press and hold the switch until "RELEASE" is displayed, and release.
- The display will give a resistance (ohm) reading of the sender. An open will read "OPEN"..
- Press and release the switch to change the gauge. Press and hold the switch to exit.
- Exit setup.

## **OIL PSI Engine oil temperature setup menu**

- **Only valid when optional SEN-1039 pressure sender is purchased from Dakota Digital.**
- When ">OIL PSI" is displayed, press and hold either switch until "RELEASE" is displayed, and release.
- The options are "ON", "OFF", and "BACK".
- To enable oil PSI, move focus to ">ON", press and hold the switch until "RELEASE" is displayed, and release.
- The selections will be "LOW WARNING", "TEST" and "BACK".
- Press and release the switch to change the selection, press and hold the switch to select it.

### **Low warning Low oil pressure warning setup**

- When ">LOW warning" is displayed, press and hold the switch until "RELEASE" is displayed, and release.
- The low pressure options will range from 0 to 30 PSI.
- Press and release the switch to change the change the low oil pressure warning point.
- To exit, press and hold the switch until "RELEASE" is displayed, and release.

### **TEST Voltage test**

- When ">TEST" is displayed, press and hold the switch until "RELEASE" is displayed, and release.
- The display will give a voltage return from the sender with 0.5 volts at zero PSI.
- 0.0 volts means the sensor is not connected.
- To exit, press and hold the switch until "RELEASE" is displayed, and release.
- Exit setup.

## **FUEL Fuel level setup menu**

*A low warning pump will be displayed above the Speed and the fuel bar will flash when 10% or lower is reached*

- When ">FUEL" is displayed, then press and hold the switch until "RELEASE", then release the switch.
- The options to select between are "SENDER", "RANGE TO EMPTY", "TEST", and "BACK".
- Press and release the switch to change the selection; press and hold the switch to select it.

### **SENDER Fuel sender selection**

- When ">SENDER" is displayed, press and hold the switch until "RELEASE", then release the switch.
- The options to select between are "OFF", "HD 2004", "HD 2008", "DYNA 04", "DYNA 08", "CUSTOM", "FAT BAGGER" and "SPORTSTER".
- Press and release the switch to change to the proper sender.
- Press and hold the switch until "RELEASE", then release the switch
- **Exit fuel setup to confirm fuel selection**
  - **CUSTOM is only for rare occasions if a stock sender is not being used!**
  - If CUSTOM is selected, you will be prompted to Program.
  - When ">PROGRAM" is displayed, press and hold until "RELEASE", then release the switch
  - The display will show "SET EMPTY"
  - With an empty tank, press and hold until "RELEASE", then release the switch
  - The display will show "SET 1/3"
  - Add fuel to 1/3 of a tank
  - Press and hold until "RELEASE", then release the switch
  - The display will show "SET 2/3"
  - Add fuel to 2/3 of a tank
  - Press and hold until "RELEASE", then release the switch
  - The display will show "SET FULL"
  - Top off the tank
  - Press and hold until "RELEASE", then release the switch.
  - **Exit setup to confirm fuel selection.**

### **RANGE TO EMPTY Distance to empty (fuel) setup**

- ✓ The range to empty option will calculate an estimate of miles until empty.
- ✓ This will vary on riding conditions and will change as it continually monitors fuel usage and speeds.
- ✓ The process will begin with a full tank, and then enter into the FUEL menu, RANGE TO EMPTY, and LEARN RESET.
- ✓ Once the reset has been done, you may ride until the tank is below ¼.
- ✓ This can be done over multiple trips as long as no fuel is added until the level is less than 25%, then it must be filled.
- ✓ When the system is working, the DIST TO E screen will have a countdown odometer.
- ✓ When the DIST TO E odometer reaches 35 miles or 56km, it shows a "RANGE LOW" warning.
- ✓ Once the RANGE TO EMPTY is working, you may fill your tank normally, when needed.
- When ">RANGE TO EMPTY" is displayed, then press and hold the switch until "RELEASE", and release the switch.
- The options to select are "ON", "OFF", and "BACK".
- Press and release the switch to select an option.
- Press and hold the switch until "RELEASE", then release the switch.
- If ON is selected, the next option is "LEARN RESET" and "BACK".
- "LEARN RESET" will tell the gauge to learn fuel usage while riding. It can be reset again if the process failed.
  - Once the fuel tank is full, you may select "LEARN PRESET".
  - Press and hold the switch until "RELEASE", then release the switch.
  - **Exit setup**
  - Cycle the ignition then you may ride until fuel is less than 25%.
  - Only then, you may refill the tank. Once full, the process will complete itself.

- Filling and refilling must be done the same way, either both on kick stand or both upright.

### **TEST Gauge reading test**

- Press and release the switch until “TEST” is displayed, then press and hold the switch until “RELEASE” is displayed.
- The display will show “FUEL”, “TEST”, and “xxx OHMS”.
  - The “xxx” should be a value in numbers.
  - If not connected “OPEN” will appear.

- Exit setup.

### **DISPLAYS Message display option menu**

Refer to graphic on **page 7** for indicator and message locations.

- When “>DISPLAYS” is displayed, press and hold either switch until “RELEASE” is displayed, and release.
- The display will show “LEFT TOP”, “LEFT BTM”, “CENTER”, “RIGHT TOP”, “RIGHT BTM”, “MBMs”, or “BACK”.
- Press and release the switch to change the selection, press and hold the switch until “RELEASE” is displayed, and release.

#### **LEFT TOP message screen information**

- When “>LEFT TOP” is displayed, press and hold the switch until “RELEASE” is displayed, and release.
- The selectable options are “PERFORM HIDE”, “PERFORM SHOW”, and “BACK”.
- Push and release the switch to select the option, press and hold the switch until “RELEASE” is displayed, and release.
- PERFORM HIDE: does not allow any performance option displays to be show while riding.
- PERFORM SHOW: turns on the following options, which can toggled through while riding.
  - HIGH Speed (MPH – km/h), 0-60 time, ¼ mile speed with ¼ mile time, and HIGH RPM.
- Press and release the switch to change the change the option.
- Press and hold the switch until “RELEASE” is displayed, and release.

#### **LEFT BTM message screen information**

- When “>LEFT BTM” is displayed, press and hold the switch until “RELEASE” is displayed, and release.
- The selectable options are “PERFORM HIDE”, “PERFORM SHOW”, and “BACK”.
- Push and release the switch to select the option, press and hold the switch until “RELEASE” is displayed, and release.
- PERFORM HIDE: does not allow any performance option displays to be show while riding.
- PERFORM SHOW: turns on the following options, which can be toggled through while riding.
  - HIGH Speed (MPH – km/h), 0-60 time, ¼ mile speed with ¼ mile time, and HIGH RPM.
- Press and release the switch to change the change the option.
- Press and hold the switch until “RELEASE” is displayed, and release.

#### **CENTER message screen information**

- When “>CENTER” is displayed, press and hold the switch until “RELEASE” is displayed, and release.
- The selectable options are “SPEED”, “TACH”, “GEAR” and “BACK”.
- Press and release the switch to change the change the option.
- Press and hold the switch until “RELEASE” is displayed, and release.

#### **RIGHT TOP message screen information**

- When “>RIGHT TOP” is displayed, press and hold the switch until “RELEASE” is displayed, and release.
- The selectable options are “PERFORM HIDE”, “PERFORM SHOW”, and “BACK”.
- Push and release the switch to select the option, press and hold the switch until “RELEASE” is displayed, and release.
- PERFORM HIDE: does not allow any performance option displays to be show while riding.
- PERFORM SHOW: turns on the following options, which can toggled through while riding.
  - HIGH Speed (MPH – km/h), 0-60 time, ¼ mile speed with ¼ mile time, and HIGH RPM.
- Press and release the switch to change the change the option.
- Press and hold the switch until “RELEASE” is displayed, and release.

#### **RIGHT BTM message screen information**

- When “>RIGHT BTM” is displayed, press and hold the switch until “RELEASE” is displayed, and release.
- The selectable options are “PERFORM HIDE”, “PERFORM SHOW”, and “BACK”.
- Push and release the switch to select the option, press and hold the switch until “RELEASE” is displayed, and release.
- PERFORM HIDE: does not allow any performance option displays to be show while riding.
- PERFORM SHOW: turns on the following options, which can be toggled through while riding.
  - HIGH Speed (MPH – km/h), 0-60 time, ¼ mile speed with ¼ mile time, and HIGH RPM.
- Press and release the switch to change the change the option.
- Press and hold the switch until “RELEASE” is displayed, and release.

#### **MBMS Display which MBMs are connected and adjust warnings**

If a pressure or boost sensor is not connected or failed, the display will show “FAIL”, “TOO LOW”.

If no MBM is attached but the display shows a blank value, click through the displays to remove it.

- When “>MBMs” is displayed, press and hold the switch until “RELEASE” is displayed, and release.
- The screen will display what MBM modules are attached and more than one input if it exists.
- The screen will show “NONE” if there are no MBMs present.
- Press and release the switch to move through the MBMs attached.
- Press and hold the switch until “RELEASE” is displayed on the MBM setting to modify.
  - See the separate MBM manual for additional details.
- Exit Setup.

## **VOLT Low voltage warning setup**

- When ">VOLT" is displayed, press and hold either switch until "RELEASE" is displayed, and release.
- The low voltage warning points will range from 9.0 to 12.1 volts.
- Press and release the switch to change the low voltage warning point.
- Press and hold the switch until "RELEASE" is displayed, and release.
- Exit setup.

## **GEAR Gear indicator setup**

No programming is required with stock gearing and tire size.

The gauge can 'learn' the gear ratios based on speed and RPM, no additional sensors are needed.

This feature will work with various transmissions up to seven speed models.

The factory preset option will preset the indicator to work with a stock 5 or 6 speed drive train.

With a stock 6 speed, there will be a slight delay the first time you shift to sixth gear as the system verifies the gear.

When "learning" the gear positions, you will need a stretch of road to gradually reach highway speeds with no interruptions.

Each gear will need the speed to be held steady, until instructed to speed up and shift up.

- **>> Gear "LEARNING" requires holding the function switch, THEN starting the engine to enter setup <<**
- Once the engine is running, release the switch.
- Press and release the switch until "GEAR" is displayed.
- Press and hold the switch until "RELEASE" is displayed, then release the switch.
- The display will show "PRESET", "TRIKE", "P-1200", "P-883", "LEARN", or "BACK".
  - "PRESET" set the gear reading to factory gearing and tire size
  - "TRIKE" set the gear reading to factory gearing and tire size for a trike application
  - "P-1200" set the gear reading to factory gearing and tire size for a 1200cc Sportster/Dyna application
  - "P-883" set the gear reading to factory gearing and tire size for a 883cc Sportster/Dyna application
  - "LEARN" starts the learning process of speed and RPMs to calculate your gear reading.
- To reset the gear to not be displayed select ">PRESET".
  - Press and hold the switch until "RELEASE" is displayed, then release the switch.
  - Press and hold again to return to Gear menu.
- To start learning gears, press and release the switch until ">LEARN" is displayed, then press and hold the switch.
  - The message will show "NO RPM" if the engine RPM is below 1500.
  - The message could also say "LOW SPEED" if the vehicle speed is below 5 MPH.
- Begin riding in 1st gear. The display should show "WAIT 1".
- Ride at a steady speed and steady RPM until the message changes to "SHIFT TO 2".
- It should only take about 20 seconds if the speed and RPMs are steady.
  - *Optional: If the message continues to say "WAIT 2", you can manually override and jump to the next gear by pressing and releasing the switch to store the gear position quicker.*
- Upshift to 2nd gear and ride at a steady speed. The display should change to "WAIT 2".
- Ride until the message changes to "SHIFT TO 3". Shift to 3rd gear.
  - *Optional: If the message continues to say "WAIT 3", you can manually override and jump to the next gear by pressing and releasing the switch to store the gear position quicker.*
- Repeat this through each gear.
- When you are done, come to a complete stop.
  - You may also press and hold the switch, while riding, until the display shows "MOVE LINE" and then release it.
- The gears will now show up to the left of the clock display only.

**\*When downshifting, the gear position may jump up momentarily as the RPM is higher than expected.**

**Also, the gear position reading may drop to "N" or a "0" when you pull the clutch in coming to a stop.**

**The position will begin reading as the bike begins to move in gear.**

## **FACTORY RESET**

- In the event you would like to start over with your settings, preferences and display locations, this will reset all settings back to the out-of-the-box configuration.
- This includes message locations, color selections and speedometer calibration but **DOES NOT** include the odometer.
- When you see ">FACTORY RESET", press and hold the switch until "RELEASE" then release the switch.
- The options will be "NO" and "YES".
- By pressing and holding on ">NO" it will exit the reset menu.
- When you select ">YES", press and hold the switch until "RELEASE" is displayed, then release the switch.
- The screen will "YES" and "RESET". Tap the switch once to return to the main menu.

## **VERSION**

- For technical support assistance, this screen can display the model number, and the software versions loaded for the two processors.

## **EXIT SETUP**

Exits the setup menu and returns to normal gauge operation.

# Troubleshooting guide

Problem	Possible cause	Solution
Gauge will not light up.	Brown/Gray wire does not have power. Orange/White wire does not have power. Orange wire does not have power. Black wire is not getting a good ground. Ignition switch not connected or damaged. Gauge is damaged.	Inspect and repair stock harness. Inspect and repair stock harness. Inspect and repair stock harness. Inspect and repair stock harness. Inspect and repair stock switch or harness. Return gauge for repair (see instructions).
Gauge lights up, but speed will only show zero.	No data from ECM. Sensor is not sending a speed signal.	Check engine trouble codes. Check wiring and test sensor.
Speed reading is incorrect.	Gauge is not calibrated correctly.	Gauge must be calibrated (see instructions).
Gauge lights up, but tach will only show zero.	No data from ECM.	Check engine trouble codes.
Engine indicator does not work.	No data from ECM.	Check engine trouble codes.
Pressure reading does not show up.	Pressure sender is not enabled in setup menu.	Select "ON" under OIL PSI menu.
Oil Temperature reading does not show up.	Oil Temp sender is not enabled in setup menu.	Select "ON" under OIL TEMP menu.
Pressure or temperature reading shows 'SHORT' 'LO'	Sender is shorted to ground. Pressure power wire is not connected.	Inspect wire for bare insulation or pinching. Connect sensor RED wire to gauge WHITE/RED wire.
Pressure or temperature reading shows 'OPEN' or 'HI'	Sender wire is open or broken. Sender is not grounded.	Inspect for breaks in wire connection. Check sender ground connection.
Gauge display has white background in sunlight	Sunlight setting is set to "Invert"	This is a default setting on this gauge to increase visibility in direct sunlight. This can be modified in the "Sunlight" menu if desired.

**Speed sensor voltage check:** All checks should be made with the sensor connected to the gauge and the key on. Checks should be done with a volt meter and not a test light.

**3-wire sensor:** Red wire should have 9-11 volts dc, slightly less than battery voltage.  
Black wire should show ground, 0 volts dc at all times.  
White wire should vary between 0 and 5 volts dc as the gear teeth pass by the sensor.

**2-wire sensor:** Measure the voltage between the two sensor wires. With the wheel spinning the voltage should be about 1-10 volts ac (make sure the meter is set to AC volts and not DC volts for this check).

### **SERVICE AND REPAIR**

DAKOTA DIGITAL offers complete service and repair of its product line. In addition, technical support is available to help you work through any questions or problems you may be having installing one of our products. Please read through the Troubleshooting Guide. There, you will find the solution to most problems.

For additional support, please visit [www.dakotadigital.com](http://www.dakotadigital.com). A “**Product Support**” link will be found at the bottom of the home page.

**Should you ever need to send the unit back for repairs, please call our technical support line, (605) 332-6513, to request a Return Merchandise Authorization number.**

- Package the product in a good quality box along with plenty of packing material.
- Ship the product by a common carrier with tracking abilities.
- Be sure to include the RMA number on the package.
- Include a complete description of the problem, with RMA number, your full name and address (street address preferred), and a telephone number where you can be reached during the day.
- Any returns for warranty work must include a copy of the dated sales receipt from your place of purchase.
- Send no money. We will contact you for payment.

### **Dakota Digital 24 Month Warranty**

DAKOTA DIGITAL warrants to the ORIGINAL PURCHASER of this product that should it, under normal use and condition, be proven defective in material or workmanship within 24 MONTHS FROM THE DATE OF PURCHASE, such defect(s) will be repaired or replaced at Dakota Digital’s option. This warranty does not cover nor extend to damage to the vehicle’s systems and does not cover removal or reinstallation of the product. This Warranty does not apply to any product or part thereof which in the opinion of the Company has been damaged through alteration, improper installation, mishandling, misuse, neglect, or accident. This Warranty is in lieu of all other expressed warranties or liabilities. Any implied warranties, including any implied warranty of merchantability, shall be limited to the duration of this written warranty. Any action for breach of any warranty hereunder, including any implied warranty of merchantability, must be brought within a period of 24 months from date of original purchase. No person or representative is authorized to assume, for Dakota Digital, any liability other than expressed herein in connection with the sale of this product.

**⚠WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)



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