



### MODEL MCL-3212

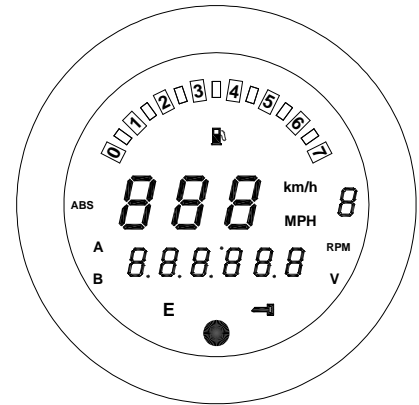
SPEEDOMETER/TACHOMETER for 2012 – up Dyna and Softail with 4” gauge

**IMPORTANT NOTE!** This gauge has an odometer preset option that is only available one time in the first 100 miles (160km) of operation. See “Odometer preset” for instructions.

#### GAUGE SETUP AND CALIBRATION

The setup menus are entered by holding the switch in while turning the key on. The menus are as follows:

Menu	Description
dIAG (EnG InE, SEcUrE, AbS, dOnE)	read diagnostic codes
AdJUSt (FRStEr, SLdUeR) (75 - 125)	adjust calibrate speed
UnIt (MPH, km/h)	select speed unit
SSEt (OFF, 500 - 7500)	miles to service setting
PERF (On, OFF)	turn on/off performance displays
nIghT (On, OFF)	turn on/off automatic night dimming
UPdAtE (1, 2, 3)	set digital rpm update rate
LUARn <sup>RPM</sup> (shown on bar graph)	set rpm shift warning point
LUARn <sup>V</sup> (9.0- 12.1)	set low volt warning point
SEt FC (HEAd F, HEAd C)	select temperature unit
HI F-C (200F - 420F or 93C - 215C)	set temperature warning point
GEAR (dOnE, PrESEt, LEARn)	transmission gear display selection
FUEL (OFF, SPd, cSEt, Hd)	select fuel sender type
(dOnE, tESEt, rESEt, AdJUSt)	low fuel light setup
rAnGE (On, OFF)	Enable distance to empty reading
(donE, rESEt)	Reset initial range learn
InFD	display gauge revision code on speedometer
odOm <sup>7</sup>	one-time odometer preset



#### POWER & GROUND

The gauge is a direct plug in. Constant battery power and key switched power are supplied by the stock harness along with ground.

#### STATUS AND WARNING INDICATORS

Several indicators are supplied on the stock wiring harness. Some of these may not be active on your motorcycle. These include the security, engine, ABS, and low fuel.

#### LOW VOLTAGE WARNING

When the voltage drops below the warning limit with the engine running, LO and your current voltage will be displayed. (default warning limit is 11.0V)

#### SPEEDOMETER & TACHOMETER

The speedometer and tachometer signals are read from the engine control module (ECM) over a data bus. The speed can be calibrated to allow for differences in tires or gearing; calibration is discussed later. The tach bar displays rpm x1000 with a range of 7000 rpm. The rpm can also optionally be shown on the message display.

#### CLOCK

The clock uses a 12 hour format and can be set by pressing and holding the switch while the clock is displayed. After the switch is held for a few seconds the hours will begin flashing. Momentarily pressing the switch will change the hours, holding the switch will move to the minute set, and the minutes will begin flashing. Momentarily pressing the switch will now change the minutes. Holding the switch will exit the clock set mode.

## MOUNTING

The gauge will mount using the original housing, grommet, and screws. Unbolt the two screws from the back plate at the back of the gauge housing, then unplug the factory gauge, noting the position of the grommets. There is one grommet on the front between the gauge and housing and one on the back between the housing and the back plate. Install the Dakota Digital gauge in reverse order installing grommets and then plugging into the factory plug and securing with the two screws.



## FUNCTION SWITCH

The function switch on the side of the dash panel allows access to all of the mileage, rpm, and performance information. Pressing and releasing the function switch toggles through the different displays. Press and holding the switch will reset the current display. The display sequence is as follows:

CLOCK	>	12:00	12 hour clock
ODOMTR	>	000000	odometer mileage
TRIP A	>	<sup>A</sup> 000.0	trip meter mileage A
TRIP B	>	<sub>B</sub> 000.0	trip meter mileage B
SERVIC	>	5 0000	miles since last service (if programmed)
KPH	>	=====	metric speed conversion (to mph if metric unit is selected)
* HI SPD	>	H1 00	high speed recall
* 0-60 T	>	60 00.0	0-60mph time (0-100kph)
* QUARTR	>	25 00.0	quarter mile time
* QT MPH	>	25 00	quarter mile speed
RPM	>	0000 <sup>RPM</sup>	rpm reading in alpha display
* HI RPM	>	H 0000	high rpm recall
VOLTS	>	00.0 <sup>V</sup>	displays voltage to gauge
TEMP	>	000 F	temperature reading, "C" if metric (only show if sender is connected)
* HOURS	>	Hr 0.0	re-settable hour meter
RANGE	>	r 250.0 or rRNGE	distance to empty (if turned on)

The 0-60 and ¼ mile timers are zeroed by pressing and holding the switch while that timer is displayed. The timer will not restart until the speed reaches zero and you start driving again.

Display functions with a '\*' in front of them are only shown with performance readings turned on.

## SPEEDOMETER SETUP

Press and hold the switch while turning the key on and starting the engine. Once the engine is running, release the switch. Press and release the switch to change the menu selection.

### d I99 Diagnostics mode for checking/clearing trouble codes

- Press and release the switch until "d I99" is displayed, then press and hold the switch until "-" is displayed.
- Release the switch. The display will show "En9 InE", "SEcURE", "Ab5", or "donE".
- Press and release the switch to change the selection, press and hold the switch until "-" is displayed to begin reading the stored codes for the particular system. Release the switch. The display will show the current codes, "nonE", or "no r5P".
- Press and release the switch to move to the next stored code. After all codes are displayed the module part number will be scrolled across the screen. To clear codes, press and hold the switch when "end" is displayed. Consult a service manual for trouble code descriptions.

## SPEED CALIBRATION

The speed calibration is not required unless you have changed out the stock transmission, pulley, or tires.

### **Adjust Adjust**

- Press and release the switch until "Adjust" is displayed, then press and hold the switch until "-" is displayed.
- Release the switch. The display will show "FAST" or "SLOW". Fast will allow you to increase the speedometer reading, slow will allow you to decrease the speedometer reading.
- Press and release the switch to change, press and hold the switch to continue. The display will change to "CL" and a number from 0.75 to 1.25. This is the calibration ratio that is applied to the reading that the ECM is providing. 1.10 will be 10% faster, 0.90 will be 10% slower.

$$\frac{\text{Actual speed}}{\text{-----}} \times \text{current cal ratio (1.00 by default)} = \text{new cal ratio speedometer reading}$$

- Press and release the switch to change the cal ratio. When the desired cal ratio is shown, press and hold the switch to save it.

### **Unit Speed unit**

- Press and release the switch until "Unit" is displayed, then press and hold the switch until "-" is displayed.
- Release the switch. The display will light up the current speed unit (MPH or km/h).
- Press and hold the switch to keep the current unit or press and release the switch to change the unit.
- Press and hold the switch until "-" is displayed to save the setting.

### **5 SEt Miles to Next Service setup**

The service mileage is a countdown mile meter. The service mile display can be disabled or can be set to count down from 500 – 7500 miles. If the service mileage is enabled and it gets to 0 miles it will display "S - duE" each time the key is turned on. If the push button switch is pressed and held while "S - duE" or "S" and a mileage is displayed, the service miles will be reset to your preset value.

- Press and release the switch until "5 SEt" is displayed, then press and hold the switch until "-" is displayed.
- Release the switch. The current setting will be displayed, "OFF" or a mileage from 500 - 7500.
- Press and release the switch until the desired setting is displayed.
- Press and hold the switch until "-" is displayed to save the setting.

### **PERF Performance menu setup**

The performance readings can be turned on or off. When they are turned off the odometer display will only toggle through the mileage readings.

- Press and release the switch until "PERF" is displayed, then press and hold the switch until "-" is displayed.
- Release the switch. The current setting will be displayed (on or off).
- Press and release the switch until the desired setting is displayed.
- Press and hold the switch until "-" is displayed to save the setting.

### **n 9Ht 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 setup menu as described above and select "n9t" (night). Press and release the function switch to select "OFF" instead of "on". Press and hold the function switch to save the new setting.

- Press and release the switch until "n 9Ht" is displayed, then press and hold the switch until "-" is displayed.
- Release the switch. The current setting will be displayed. (On, OFF).
- Press and release the switch until the desired setting is displayed.
- Press and hold the switch until "-" is displayed to save the setting.

### **LDARN<sup>RPM</sup> Rpm warning setup**

The rpm warning/shift point can be adjusted from 2000 – 7500.

- Press and release the switch until "LDARN<sup>RPM</sup>" is displayed, then press and hold the switch until "-" is displayed.
- Release the switch. The current warning point will be displayed on the bar graph.
- Press and release the switch until the desired setting is displayed.
- Press and hold the switch until "-" is displayed to save the setting.

### **LDARN<sup>V</sup> Voltage warning setup**

- Press and release the switch until "LDARN<sup>V</sup>" is displayed, then press and hold the switch until "-" is displayed.
- Release the switch. The current warning point will be displayed (9.0 – 12.1).
- Press and release the switch until the desired setting is displayed.
- Press and hold the switch until "-" is displayed to save the setting.

### **5E E F C Temperature sender setup**

The temperature gauge can read the stock head temperature sensor from the ECM.

- Press and release the switch until "5E E F C" is displayed, then press and hold the switch until " - " is displayed.
- Release the switch. The current sender type will be shown with its unit. (HEAD F, HEAD C).
- Press and release the switch until the desired setting is displayed.
- Press and hold the switch until " - " is displayed to save the setting.

### **H I F- C Temperature warning setup**

- Press and release the switch until "H I F- C" is displayed, then press and hold the switch until " - " is displayed.
- Release the switch. H and number from 200F – 420F or 93C – 215C will be displayed.
- Press and release the switch until the desired value is displayed.
- Press and hold the switch until " - " is displayed to save the setting.

### **9E A- Gear Indicator setup**

This gauge has a single digit display for gear position. The gauge can learn the gear ratios based on speed and rpm so no sensors are needed, just what you've already connected. It will work with 4, 5, 6, or 7 speed transmissions. 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. Subsequent shifts to sixth gear will not have the delay. You can also program each gear position for aftermarket transmissions or if you've changed wheel size or sprocket size. To program the gear positions, begin at a section of road where you can gradually shift through all of the gears. Press and hold the switch while turning the key on and starting the engine. Once the engine is running, release the switch.

- Press and release the switch until "9E A-" is displayed, press and hold the switch until " - " is displayed.
- The display will show "OFF", "P-R-E-S-E-T", "P-883-", or "L-E-A-R-N". "OFF" will disable the indicator. "P-R-E-S-E-T" will set the indicator for an original factory transmission. "P-883-" will set the indicator for a Sportster 883 transmission. "L-E-A-R-N" allows it to work with virtually any transmission option.
- To program each gear individually, press and release the switch until "L-E-A-R-N" is displayed, then press and hold the switch.
- The message will show "L O E C H" if the engine rpm is below 1500, or "L O S P D" if the vehicle speed is below 5 MPH.
- Begin driving in 1<sup>st</sup> gear. The display should show 9E A- 1 and the "1" should be flashing. Drive at a steady speed until the "1" goes steady and then changes to a flashing "2", it should only take about 20 seconds if the speed and RPMs are steady.
  - *Optional: If the gear does not stop flashing you can manually override and jump to the next gear by pressing and releasing the switch to store the gear position quicker.*
- Shift to 2<sup>nd</sup> gear and drive at a steady speed.
- Wait until the "2" goes steady and then changes to a flashing "3". Shift to 3rd gear.
  - *Optional: If the gears do not stop flashing 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 or press and hold the switch until the display shows "D O N E" and then release it.
- Press and release the switch to restart the gauges in normal operation, verify the gear position by riding through each gear and seeing if positions agree.

## **FUEL Low fuel light and distance to empty setup**

If the range feature is turned on, the range reading will initially show the word *r-RNGE* until a tank of gas has been driven to allow the gauge to complete its setup based on your driving. Begin with a full tank of gas and do not refill it until it gets below ¼ tank of gas. This can be done on multiple trips as long as no fuel is added before it gets low enough. After the initial setup the display will show *r* followed by the calculated distance to empty. This will count down, making adjustments as necessary, until the range is 35 miles (56km) or less and then it will show *r L0*. The gauge will continue to make adjustments to match your driving habits with each fill up. After the initial setup you are not required to wait for the fuel to get below ¼ tank before refilling.

- Press and release the switch until "FUEL" is displayed, then press and hold the switch until "-" is displayed.
- The display will show "OFF", "SP0"(Sportster), "C5t"(custom), or "Hd" (2012-up Dyna or Softail).
- If "C5t" is chosen, then the following menu options are shown "FUL5Et 00", "FUL5Et 99", or "d0nE".
  - To program a custom fuel curve, with an empty tank press and release the switch until "FUL5Et 00" is shown.
  - Press and hold the switch until "-" is displayed to save the setting.
  - Fill the tank and then press and release the switch until "FUL5Et 99" is shown.
  - Press and hold the switch until "-" is displayed to save the setting.
  - Press and hold the switch when "d0nE" is displayed to finish the custom setup.
- If "C5t" or "Hd" are chosen, then additional setup options are available. "5Et L0" and "r-RNGE".
- "5Et L0" allows adjustment of the low fuel warning point. Press and hold the switch while "5Et L0" is displayed.
  - Release the switch. The speed display will initially show the current setting in percent. The menu options will be "d0nE", "tE5t", "rE5Et", and "AdJUSt".
  - "d0nE" will exit the low fuel setup.
  - "tE5t" will show the currently measured fuel percent.
  - "rE5Et" will store the factory default of 25%.
  - "AdJUSt" will allow the current fuel level to be stored as the low fuel level.
- "r-RNGE" allows the miles to empty feature to be setup. Press and hold the switch while "r-RNGE" is displayed.
  - Release the switch. The display will show whether the range feature is currently "0n" or "OFF". Press and release the switch to change this. Press and hold the switch to save it and continue.
  - If "0n" is selected, the next setup options are "d0nE" or "rE5Et".
  - "d0nE" will exit the range setup.
  - "rE5Et" will reset the gauge to the beginning of the initial range learning.

## **oD0m0r Odometer preset**

The odometer can be preset by the customer within the first 100 miles. Once the odometer has more than 100 miles, the menu option will no longer be displayed. Make sure you have correctly selected the units to be either MPH or km/h first. The odometer will be set in the selected units. Once you have preset the miles you cannot change it again.

**WARNING!!: This only allows setting odometer to the nearest mile. Do not use tenths! For example a mileage of 65432.1 should be set to "065432" using this method. If the tenths digit is used, the odometer will read 10 times too high.**

- Press and release the switch until "oD0m0r" is displayed, then press and hold the switch until "-" is displayed.
- The current ECM odometer reading will be displayed with the left most digit flashing.
- Press and release the switch to increment the digit. Press and hold the switch to move to the next digit to the right.
- Continue until the right most digit has been set. Press and hold the switch and the speed display will show "no".
- Press and hold the switch while "no" is displayed to go back and continue changing the odometer display. Turn the key off to cancel any changes.
- Press and release the switch to change to speed display to "5E5". Press and hold the switch while "5E5" is displayed to save the current odometer reading.

## Troubleshooting guide

<b>Problem</b>	<b>Possible cause</b>	<b>Solution</b>
Gauge will not light up.	Red/Orange wire does not have power. Black/Green wire is not getting a good ground. CAN bus wiring open or short. 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 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.
Gauge will not dim.	Auto dimming is disabled.	Check setting under "night" menu.
Gauge remains dim at all times.	Light sensor is covered.	Make sure the bottom center of the gauge lens is clean and not obstructed.
Temperature reading does not show up.	'Run' switch is not on. Sender wire is loose or broken. Aftermarket ECM does not support transmitting the head temperature data.	'Run' switch must be on to get temperature data from ECM. Check all wire connections and inspect wire for breaks. Contact ECM manufacturer.
Low Fuel Light not turning on.	Incorrect setting or turned off.	Verify function is "ON" in FUEL setup menu and that the set up is correct or adjust value.
Low Fuel Light turning on too early/late.	Incorrect setting.	Verify setting or adjust the value following FUEL menu adjust feature in setup.
Low Fuel Light always on.	Sensor damaged.	Check resistances following procedure in service manual.
Low Fuel Light flashing.	Wiring short or open.	Check gauge and fuel sender connections.

### **SERVICE AND REPAIR**

DAKOTA DIGITAL offers complete service and repair of its product line. In addition, technical consultation 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.

**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 UPS or insured Parcel Post. Be sure to include the RMA number on the package, and 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 bill you after repair.

### **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.



4510 W. 61st St. North  
Sioux Falls, SD 57107  
www.dakotadigital.com  
dakotasupport@dakotadigital.com

Phone (605) 332-6513  
Fax (605) 339-4106

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