Dakota Digital

MLX

MODEL MLX-9X00 series
HARDWIRE 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.
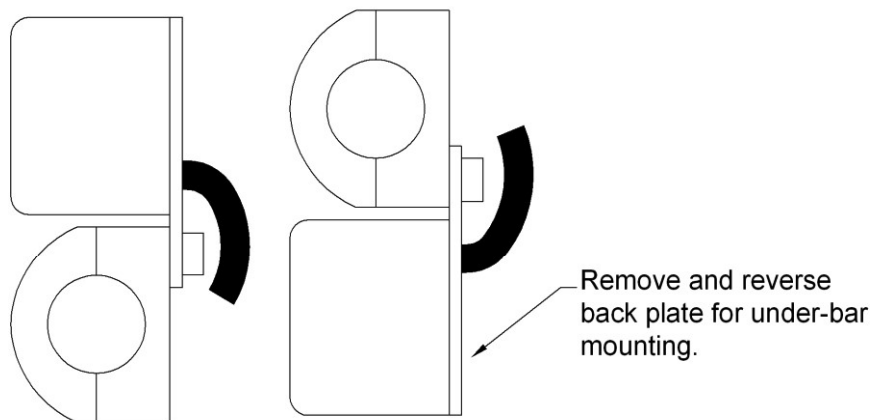
MOUNTING

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.
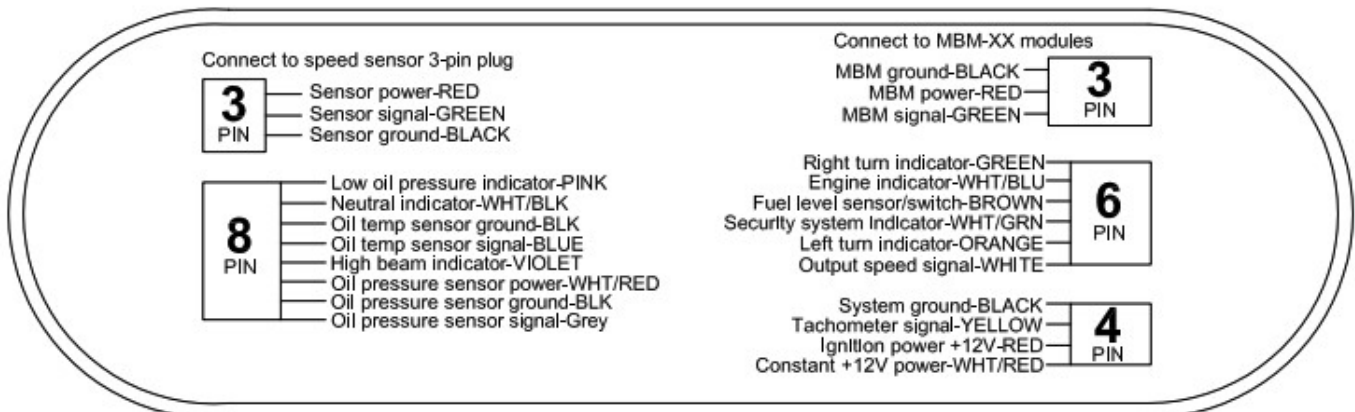
To mount the gauge under the bar:
1. Remove the rear plate by unscrewing the four screws.
2. Rotate the rear plate so the mounting tab is on the top.
3. Reattach the rear plate using the four screws.
4. Place bar mount bracket on the handle bars so that the recessed screw holes are on the top.
5. Using 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.

Remove and reverse back plate for under-bar mounting.

Wiring Diagram

Connect to speed sensor 3-pin plug

3 PIN
— Sensor power-RED
— Sensor signal-GREEN
— Sensor ground-BLACK

8 PIN
— Low oil pressure indicator-PINK
— Neutral indicator-WHT/BLK
— Oil temp sensor ground-BLK
— Oil temp sensor signal-BLUE
— High beam indicator-VIOLET
— Oil pressure sensor power-WHT/RED
— Oil pressure sensor ground-BLK
— Oil pressure sensor signal-Grey

Connect to MBM-XX modules

MBM ground-BLACK —
MBM power-RED —
MBM signal-GREEN —
3 PIN

Right turn indicator-GREEN —
Engine indicator-WHT/BLU —
Fuel level sensor/switch-BROWN —
Security system Indicator-WHT/GRN —
Left turn indicator-ORANGE —
Output speed signal-WHITE —
6 PIN

System ground-BLACK —
Tachometer signal-YELLOW —
Ignition power +12V-RED —
Constant +12V power-WHT/RED —
4 PIN

POWER

Connect the red wire from the 4-wire main harness to accessory power from the ignition switch. Connect the WHITE/RED wire from the 4-wire main harness to constant battery power. The WHITE/RED wire keeps the clock time and the RED wire lights up the gauge.

Never connect this to a battery charger alone. It needs to have a 12 volt battery connected to it. Battery chargers have an unregulated voltage output that will cause the system to not operate properly.

GROUND

The BLACK wire from the 4-wire harness is the main ground for display system. A poor ground connection can cause improper or erratic operation.

SPEEDOMETER

Failure to calibrate the speedometer may cause your odometer mileage to increase very rapidly.

The speed input connector plugs into the speed sensor to tell how fast you are traveling. On cable driven applications, the SEN-6011 (sold separately) connects to the speedometer cable and provides the electric signal. This sensor has a 5/8" coarse thread fitting that accepts mid-80's and earlier cables directly. For newer cycles the speedometer cable will need to be replaced with a cable having the correct fitting. Custom cables can be made, or stock cables can be modified for many of the Metric applications.

With transmissions having the built-in electric sensor, the supplied three-wire harness adapter connects the transmission speed sensor to the speedometer. This system will also accept most after-market inductive, Hall-effect, or ground switch sensors.

For 3 wire Hall-effect sensors, refer to the installation instructions for the sensor to determine wire color code. Most 3 wire sensors use the following color code: RED – power, BLACK – ground, WHITE – speed signal. Connect the sensor signal wire to the GREEN wire from the 3-wire harness, connect the sensor power wire to the red wire from the 3-wire harness, and connect the sensor ground wire to the black wire from the 3-wire harness.

For speed sensor integrated into a vehicle wiring harness(most **Metric Cruisers** w/factory VSS utilize a 3-wire Hall-effect sensor), consult a service manual to determine the color code and location of the speedometer signal. **If the factory harness supplies +5V to the sensor, please utilize the factory connection in place of the red power wire.**

For **2004+ Harley and 2003 V-Rod** applications make sure to simply "Tee" into the green wire on the speed sensor to make certain the ECM will still receive its proper VSS signal from the sensor.

2006+ Sportsters utilize a black/blue wire for the VSS signal in place of the white wire on most big-twin models.

The speedometer is fully adjustable and calibration is described on page 5. VSS wires should be isolated from the ignition system. Coils, plug wires, or tachometer signal wires routed near or with the VSS wire can cause: erratic speedometer operation, speed reading at a standstill, incorrect or difficult calibration.

TACHOMETER

The tachometer is used by connecting the YELLOW wire from the main harness to the negative side of the coil or to an ignition module tach output. The tachometer is adjustable for 1 – 15 cylinder settings. The 1 cylinder setting is used for single-fire ignition systems without a buffered tach output.

For tach signals integrated into a vehicle wiring harness, consult a service manual to determine the color code and location of the tachometer signal.

For 2004+ Harley and 2003 V-Rod

The tachometer signal will come from the negative side of the ignition coil. Blue/Orange for the front cylinder, Yellow/Blue for the rear cylinder, connect the tachometer input to **only one** of these two wires, set the tachometer for a 1 cyl signal, see Tachometer Set-up for instructions.

INDICATORS

The right turn, left turn, and high beam indicators are activated by 12 volts at their respective hook-up wires. The right turn signal wire is GREEN, the left turn signal wire is ORANGE, and the high beam wire is PURPLE.

The neutral, low oil, and check engine indicators are activated by ground at their respective hook-up wires.

The check engine wire is PINK, the low oil wire is BROWN, and the neutral wire is WHITE/GREEN.

These can be connected to the signal wires for the original indicator lights.

The display system wire colors may not match the wire colors in your electrical wire harness; consult a service manual to determine the color code and location of any wires you cannot locate.

The WHITE output speed signal normally attaches to the GREEN/WHITE wire of a stock Harley turn cancelation module.

Aftermarket TCM modules, that do not use speed to self-cancel turn signals, will not need this wire.

LOW VOLTAGE WARNING

When the voltage drops below the warning limit with the engine running, the battery indicator will illuminate. (default warning limit is 11.0V)

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.

The BROWN "Low Oil Warning" wire will not be used with the SEN-1039, only with a stock low-pressure switch.

MLX-9000	Sender
WHITE/RED	SEN-1039 sensor RED wire
GRAY	SEN-1039 sensor WHITE wire
BLACK	SEN-1039 sensor BLACK wire

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 indicator harness BLUE wire and connect the sender BLACK wire to the indicator harness BLACK wire.

MLX-9000	Sender
BLUE	SEN-1043 terminal **or** SEN-1044 sensor RED wire
BLACK	SEN-1044 sensor BLACK wire

FUEL LEVEL GAUGE

An optional fuel level gauge is also available. It can be used with a fuel switch (default setting) or fuel sender. The fuel sender can be a 240-33 ohm sender, 73-10 ohm sender, or can be programmed for a custom sender range. The BROWN wire from the 8-wire harness connects to the fuel level sender. When connected to a fuel sender, the display will show the low fuel message. When it is used with a fuel switch, the fuel percentage reading will be off and the low fuel message will illuminate to indicate low fuel. If a low fuel switch is used it may be necessary to connect a load resistor or bulb in order for the switch to operate correctly. One lead from the bulb connects to accessory power and the other lead splices into the wire to the fuel switch.

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:

MLX-9000 4-wire	Stock HD® harness color	Function
BLACK	BLACK	ground (connect directly to battery negative)
YELLOW	PINK	tachometer signal
RED	ORANGE/WHITE	+12 volt with key on
WHITE/RED		Constant fused +12V battery power

MLX-9000 6-wire	Stock HD® harness color	Function
GREEN	BROWN	Right Turn indicator
WHT/BLU	BLACK/YELLOW	"ENGINE" indicator
BROWN		Fuel level sensor or switch
WHT/GRN	BROWN/VIOLET	Security system indicator
ORANGE	VIOLET	Left Turn indicator
WHITE	WHITE/GREEN	Output speed signal (to stock TCM)

MLX-9000 8-wire	Stock HD® harness color	Function
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*

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System features
INDICATORS

| Light sensor | Left turn (green) | Check engine (red) | Low oil (red) | Right turn (green) |

| Security (red) | High beam (blue) | Neutral (green) |
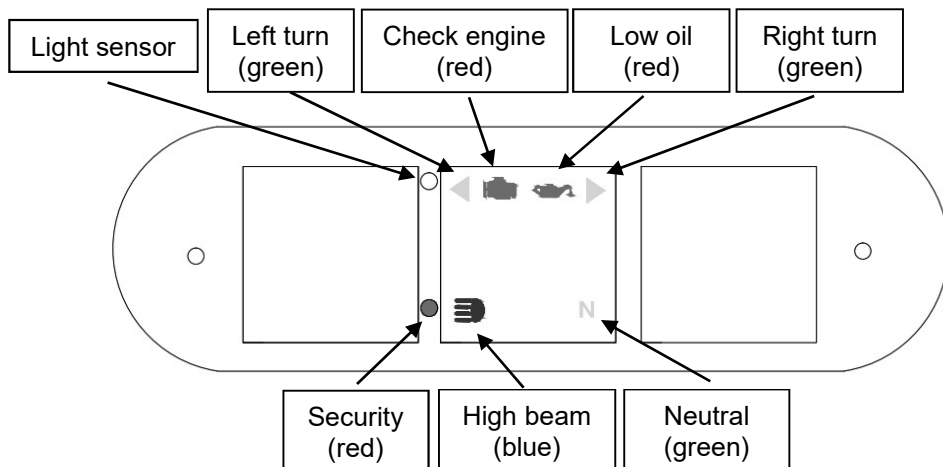
INFORMATION DISPLAYS

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.
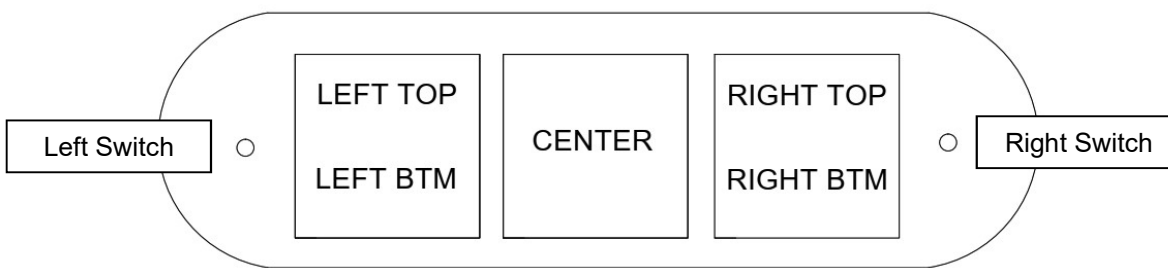
Right or Left side display readings	Description
ODOMETER	Odometer reading (0-999,999)
TRIP A	Trip A odometer reading (0-9999.9)
TRIP B	Trip B odometer reading (0-9999.9)
SERVICE (when enabled)	Distance to next service (0-7500.0 or ---- when "SERVICE DUE")
TRIP HR	Hours gauge has been on with engine running 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

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. When you press the switch, 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.

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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.

Main Menu	Sub Menu			Description
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			
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
	AUTO			Ride one mile (or km) to calibrate speed
	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	INPUT			Set cylinder count and input type
		CYLINDER		
		TYPE		Select RPM signal voltage level
			12V HIGH	
			5V LOW	
		BACK		
	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			Enable/Disable option fuel level reading
		SENDER		
			OFF	

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```
                              75-10
                              240-33
                              SWITCH
                              CUSTOM                    Program custom fuel curve
                      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              OFF
                  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 switch.

For speed calibration:

Press and release the switch to move through the different setup menus.

Press and hold the switch to enter a setup menu.

Press and hold to also save an option.

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

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.
  - o   Under the word SETUP the Bluetooth ID will be shown.
  - o   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.
  - o Press and release the switch to change the selection.
  - o Hold the function switch to enter the selected setup menu, until "RELEASE", and release the switch.
  - o 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.
  - o Press and hold to select an option, until "RELEASE" is displayed.
  - o 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.
- DIMMMING: 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).
  - o NORMAL: in daylight the background will stay black as the speed and messages will turn white.
  - o INVERT: in daylight the background will turn white as the speed and messages will turn black.
  - o OFF: your color choices will not change.
- RESET: This will reset all color choices and options back to original factory colors.

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

ADJUST Selection
- **This requires riding a known speed with a GPS, or following another vehicle at a known speed.**
- When ">ADJUST" is displayed, press and hold the switch until "RELEASE" is displayed - release the switch.
- The options will be "FASTER", and "SLOWER", to adjust the speed.
- Press and release the switch to choose "FASTER" to increase speed, or "SLOWER" to decrease speed.
- Press and hold the switch until "RELEASE" is displayed to begin adjusting.
- When riding a known speed, the speedometer will display a speed reading.
- Tap the left switch to adjust speed up. Tap the right switch to adjust the speed down.
- When your speed is correct, hold the switch until "RELEASE" is displayed, release the switch.
- If you go past your target speed, enter ">ADJUST" again and repeat the process until correct.
- Exit setup.

AUTO Selection
- **This requires riding a one mile (or kilometer) distance, which must be determined before starting.**
- When ">AUTO" is displayed, hold until "RELEASE" is displayed, and release the switch.
- The display will show ">BEGIN". You should be at the beginning of your measured distance to ride.
- When ready, hold the switch until "RELEASE" is displayed, and release the switch.
- When you see "PPM", you may ride the distance at any speed, and may stop and start.
  - The PPM numbers will increase while riding. If they remain at 000000 please check your speed sensor wiring.
- When you reach the end of the distance, press and release the switch.
- Exit setup.

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.

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TACH **Tachometer warning setup**
- When ">TACH" is displayed, press and hold the switch until "RELEASE" is displayed, and release.
- The selectable options are "INPUT", "HIGH WARNING", "DISPLAY" and "BACK".
- Press and release the switch to change the selection; press and hold the switch to select it.
   INPUT Signal input setup
   - This may be required to be changed for some low voltage ECM tach signals.
   - When ">INPUT" is displayed, press and hold the switch until "RELEASE" is displayed, release the switch.
   - The selections are "CYLINDER", "TYPE", and "BACK".
   - Press and release the switch to change the selection: press and hold the switch to select it.
      CYLINDER Cylinder count setup
      - When ">CYLINDER" is displayed, press and hold the switch until "RELEASE" is displayed, and release.
      - The cylinder options range from 1 to 16.
      - Press and release the switch to change the cylinder count.
      - Press and hold the switch until "RELEASE" is displayed, and release.
      - Exit setup.
      TYPE Signal type setup
      - When ">TYPE" is displayed, press and hold the switch until "RELEASE" is displayed, and release.
      - The options are ">*12V HIGH", "5V LOW" and "BACK".
      - Press and release the switch to change the voltage input range.
      - Press and hold the switch until "RELEASE" is displayed, and release.
      - Exit setup.
   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 the 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.

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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 the 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.

DISPLAYS **Message display option menu**
Refer to graphic on **page 7** for indicator and message locations.
- When ">DISPLAYS" is displayed, press and hold the 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.

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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 the 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
Nothing will show until programming is done.
The gear programming cannot take place until the speed is calibrated.
The gauge can 'learn' the gear ratios based on speed and RPM, no additional sensors are needed.
It will work with various transmissions up to seven speed models.
To program 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 programming requires holding the function switch, THEN starting the engine <<**
- 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 "OFF", "LEARN", or "BACK".
  - "OFF" will turn the indicator off.
  - "LEARN" starts the leaning process of speed and RPMs to calculate your gear reading.
- To reset the gear to not be displayed select ">OFF".
  - 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.

*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	White/Red wire does not have power.	Connect to a location that has constant, battery power.
	Red wire does not have power.	Connect to a location that has power with the key on.
	Black wire is not getting a good ground.	Connect ground to a different location.
	Gauge is damaged.	Return gauge for repair. (see instructions)
Gauge lights up, but speed will only show zero.	Speed sensor not grounded properly.	Move ground to different location, preferable close to the speedometer ground.
	Sensor is not sending a speed signal.	Check for a damaged or malfunctioning speed sensor.
PLEASE – SET – SPEED	Speedometer not calibrated	Gauge must be calibrated to your vehicle (see instructions)
Speed reading is erratic or jumps around.	Speed sensor wire is loose or broken.	Check all wire connections and inspect wire for breaks.
	Cable is loose or broken.	Check cable between sensor and transmission.
	Poor ground connection.	Check ground connection on speedometer and sensor.
	Ignition Interference	Check for tachometer wires routed with VSS signal wires.
		Check for VSS signal wires routed near ignition coils
		Check for poor ignition system ground
		Use suppression spark plug wires
Speed reading is incorrect.	Gauge is not calibrated correctly.	Gauge must be calibrated (see instructions).
Gauge lights up, but tach will only show zero.	Yellow wire is not connected properly.	Check connection from yellow wire to tach signal wire.
	Ignition system not grounded properly.	Check engine and ignition system grounds.
	Gauge is not grounded properly.	Check gauge and engine grounds.
	Tach signal type is not set correctly.	Change the tach signal type (see instructions).
	Gauge is not calibrated	Gauge must be recalibrated (see instructions).
Tach reading is erratic or jumps around.	Tach signal wire is loose or broken.	Check all wire connections and inspect wire for breaks.
	Poor ground connection.	Check ground connection on tachometer, engine, and ignition system.
Tach reading is incorrect.	Gauge is not calibrated correctly.	Check cylinder count in tach setup menu (see instructions).
Gear indicator isn't displayed	Gears not programmed.	Program gear indicator in setup. (see instructions).
High beam, turn signal, or Security indicator does not work.	Loose or incorrect connection to indicator wire.	Check that the appropriate indicator wire has about 0 volts when the indicator should be off and about 12 volts when the indicator should be on.
Neutral, Low Oil, or Engine indicator does not work.	Loose or incorrect connection to indicator wire.	Check that the appropriate indicator wire has about 12 volts when the indicator should be off and about 0 volts when the indicator should be on.
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" or "FAIL LO"	Sender is shorted to ground.	Inspect wire for bare insulation or pinching.
	Pressure power wire is not connected.	Connect sensor RED wire to gauge WHITE/RED wire.
Pressure or temperature reading shows "OPEN" or "FAIL HI"	Sender wire is open or broken.	Inspect for breaks in wire connection.
	Sender is not grounded.	Check sender ground connection.

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).

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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. 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

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