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INSTALLATION GUIDE

Mazda Miata Digital Dash Panel

Part Number: DP1301

Year Series: '90 - '98



*** Always disconnect the battery *before* attempting any electrical work on your vehicle.***

KIT COMPONENTS

One (1) Digital Circuit Board

One (1) Smoked Acrylic Lens

Peel off protective covering from both sides of each lens

One (1) Temperature Sending Unit (***S8013***) 1/8" NPT, 0-255 Deg., (*Brushing not included*)

One (1) Pressure Sending Unit (***S8868***) 1/8" NPT 0-100 PSI Oil Pressure (*Bushing not included*)

One (1) Universal Speedometer Sensor (***S9023***) 7/8" NPT Industry Standard thread

Hardware

Four (4) 1/2" Nylon Spacers

DASH PANEL INSTALLATION INSTRUCTIONS

1. Remove all gauges from the stock bezel and housing.
2. You may need to trim stock Housing to accommodate circuit board fitment.
3. Put the new speedo/tach digital dash panel into the stock gauge housing.
4. Place the four (4) nylon washers over the posts in the housing.
5. Peel the paper from the acrylic lens and place the panel into the housing.
6. Follow the wiring instructions in the next section and wire the board into the housing. At this point you may utilize wires from your existing harness or separate wires to the senders.
7. Place the black factory gauge bezel over the top of the new digital circuit boards.
8. Mount the back onto the housing, utilizing the existing stock screws and re-assembling the panel into the original mounting screw holes.
9. All wiring **MUST** be spliced or connected with proper wirer connector.

Standard Wiring Colors **ALL COLORS MAY NOT APPLY**

Color	Purpose	Color	Purpose
Red	12Volts Battery Constant	Black	Ground
Pink	Ignition 12 volts clock	Green/Yellow	Check Engine
White	Speedometer	Green	Tachometer
Yellow	Fuel	Black/Yellow	Fuel sender Ground
Orange	Oil pressure	Black/Orange	Oil sender Ground
Blue	Water Temperature	Black/Blue	Water Temperature Ground
Grey with White	Turn Signal (right)	Grey with Black	Turn Signal (left)
Red/White	12volt to speed sender	Black/White	Ground to speed sender
Brown	High Beam	Purple	Dimmer
Tan	Brake	Brown/Yellow	Boost or 4X4
Grey with push button	Speedometer/Tachometer		
Orange/White <u>Corvette</u> board only	Oil Temperature	Red/white <u>corvette</u> board only	Ground for oil temp

WIRING INSTRUCTIONS

Note: LS Engines or any other Computer based engine systems must use the provided sensors in conjunction with the factory sensors

Use 18 AWG or larger wire to ensure sufficient grounding and power feed.

Black – Ground This is the main ground for the display system. A wire should be run from this board to the vehicle **ENGINE BLOCK** for the best ground. Proper vehicle grounding is extremely important for any gauges (or electronics) to operate correctly..

Pink – 12V Accessory Connect the power terminal to accessory +12V power from the fuse panel or vehicle wiring harness. Using a 5-amp fuse or an inline 5-amp fuse holder. This terminal should have power when the key is on or in accessory position.

Blue – Water Temperature This gauge is incompatible with other sending units, so you must replace the existing water temperature sending unit with the included sender. Do not use Teflon tape or other sealer on the new sending unit's threads to avoid inaccurate readings. Connect the blue wire to the sending unit. For the best results we suggest running a new wire.

Orange – Oil Pressure Replace the existing oil pressure sending unit with the unit included with your gauge. The Orange wire will be wired to the S terminal on the sending unit. This gauge is incompatible with other sending units.

Oil Pressure Ground Run a ground wire from the G terminal on the sender to the engine block

Purple – Dimmer Connect to the parking lights to dim the LEDs 50% when the headlights are on. However, ***DO NOT *** connect to the headlight rheostat control wire, or the dimming feature will not work properly and may cause damage to Unit.

Programming/Recall Button – Grey There are two long grey wires connected to the push-button on the board. Mount the recall button in a convenient location such as under the steering column so that you may easily have access to your speedometer programming functions.

Yellow – Fuel The fuel gauge sending unit is not supplied because the display system can use the existing fuel level sending unit in the tank in most cases. If your wiring harness already has a single wire routed through the vehicle for the fuel sender, then it may be used. If using a wire from an external harness, make sure that the wire does not have power. Fuel senders reference their ground from the sender mounting plate. Connect the yellow wire to the factory sending unit.

We suggest *RUNNING Two new wires to ensure the best connection. GROUND the Fuel sender to ENGINE BLOCK with rest of Dash Grounds.*

This gauge is set up for the factory 110-3 Ω sending unit.

Green – Tachometer

If your vehicle has a **separate ignition coil**, connect the green wire to the **negative (-)** side of the coil – the wire that goes to the points or electronic ignition module.

To ensure that the ignition system does not interfere with any other dashboard functions, do not run the tachometer wire alongside any other sender or input wires. **Do not** use solid core spark plug wires with this dashboard system. Solid core ignition wires cause a large amount of electromagnetic and radio frequency interference which can disrupt the system's operation.

If your vehicle has a **GM HEI ignition**, connect to the terminal marked 'TACH', or, on some systems, a single white wire with a spade terminal.

If your vehicle has an **after-market ignition** – some systems will connect to the TACH output terminal.

If your vehicle has a **Computer controlled ignition** system, consult the service manual for the wire color and location.

If your vehicle has a **magneto** system, connect the tach signal wire to the negative side of the coil. **Do not** connect the tach terminal to the positive (+ or high voltage) side of the ignition coil. Many tachometers, shift lights or RPM-activated switches will not read directly from a Magneto, so your installation may need a Magneto Signal Converter to function properly.

The default setting for the tachometer is for an 8-cylinder engine.

DIP SWITCH SETTINGS

To set the tach, use the Tach Selector (DIP Switches), which is located below the tachometer display.

1. For an 8-cylinder engine, both switches should be

UP, as shown.

2. For a 4-cylinder engine, set the DIP switches as

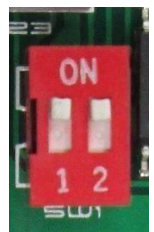
Switch 1: DOWN and

Switch 2: UP.

3. For a 6-cylinder engine, set the DIP switches as

Switch 1: UP and Switch

2: DOWN.



To recall the highest RPM achieved, simply press and release the button near the tach readout.

To reset the peak RPM value, press and hold the button until the RPM displayed value is zero.

White - SPEEDOMETER (you have three options for speedometer connection)

1.) Speedometer - White (Factory sender with Powertrain Control Module)

All Computer-based engines will need to use the PCM/ECM to run the speed signal for the Speedometer. (Consult your factory Pinout Chart)

- When using an LS engine swap, you will need to pick up the Speedometer signal wire from the PCM Pin 50 on the red connector. (This pin may Differ. Refer to your vehicles Pinout Chart for accuracy).

2.) Speedometer – White (Factory two wire sender no PCM) - Most vehicles built after 1984 have an electronic transmission sender. If your vehicle is already equipped with an electronic transmission that does not have a PCM/ECM, then the electronic vehicle sender will usually have Two wires attached to it. One connects to the Signal wire on dash (we prefer this to be high output). The other wire (Low output) Ground at the Engine block. To find High and Low output wire color or

pin location will need to be looked up by Vehicle vin or Model and year and Consult your factory Pinout Chart.

3.) Speedometer - White (Intellitronix Speed Sender to replace factory cable drive) - Disconnect the mechanical speedometer cable from the transmission and insert the new electronic sensor into the transmission. This panel comes with a 3-wire sensor. If you are using this sensor, the **white wire** is the speed signal; connect this to the speed signal wire on your gauge. The **red wire** will be switched power (12vDC) and **black wire** will be grounded to the **ENGINE BLOCK**

NOTE:(Twist all Three wires together and this will provide an additional level of interference protection.) The speed signal wire should not be routed alongside the tachometer, ignition, or any other high-current or high-voltage wires

Trip Distance

A single *tap* of the recall button will activate the trip meter in the odometer display. A decimal point will appear which will indicate that you are in trip meter mode. *Holding* the recall button will clear out the trip distance. To return to the default odometer display, *tap* the recall button again. The decimal point will disappear, indicating that you are back in the default odometer display.

Setting the Odometer

While scrolling through the functions you will see 'ODO' appear. This will allow you to enter the vehicle's actual mileage. (Note that this display only allows 5 digits and will 'roll over' at 99,999). Press the recall button again when 'ODO' is displayed, at this point and you will enter the odometer set up mode. Press quickly to change the number of the digit on the right. Press and hold to advance to the next digit. Do this for all 5 digits. **For Example:** To enter the mileage reading 23456 into the odometer, at the 'ODO' prompt, tap the small black button (quickly) two times, until the number **2** is displayed. Then press and hold the button until the numbers **2+0** are displayed. Tap the button 3 times until **23** is displayed. Press and hold the button until **230** is displayed and continue in this manner until **23456** is displayed. The speedometer will advance to the home screen, five seconds after the last number is entered.

Recording and Viewing Performance Data

Follow these steps to record and recall Performance Data (high speed, ¼ mile ET, and 0-60 time):

1. Before each run, your car must be at a complete stop at the starting position. *Press and hold* the recall button as it cycles through the performance data. At the end, the display will reset and all performance data will be cleared. This will not affect your stored calibration value or the odometer reading.
2. Press the recall button until 'HI-SP' is displayed. The gauge will automatically cycle through the performance data.
3. Start the run, pass, session, etc., as mentioned above.
4. When finished, repeat *Step 2* to view the data gathered from the run. While stopped, you can view this data as often as you wish. However, once it finishes scrolling one time, the memory is ready to record new data and will begin recording again once the vehicle starts to move. The highest speed measured over multiple runs will be retained in memory.

SPEEDOMETER CALIBRATION PROCEDURE

The Digital Performance Speedometer leaves the factory with a factory pre-set industry standard setting of 8,000 pulses per mile. It can be calibrated with the push-button to adjust the speedometer when you have ***different tire sizes, wheel sizes, and gear ratios***. You should ***not have to recalibrate your speedometer unless you have changed the original tire size or the rear end gear ratio***. You will have to calibrate your speedometer if you are using km/h. You will follow the procedure using a measure kilometer.

To enter calibration: When the display is scrolling through the function menu you will press the button briefly one time when 'CAL' is being displayed. '8000' will appear in the odometer, this indicates the factory settings, when the button is pressed, this will change to '0'. When the '0' is displayed the gauge is ready to be calibrated. It is very important that you drive to the end of the measured mile and tap the button again. At a minimum, drive some distance and you can always go back and start again if need be. If you miss stopping the display at 'CAL', simply repeat the steps.

Warning: If the microprocessor does not receive any data, the unit will display 'Err' and will revert to the factory settings. This can be the result of not moving the vehicle while in 'CAL' mode or the dash is not receiving a proper speed signal from the vehicle.

To calibrate:

- 1. Locate a measured mile or KM where you can safely start and stop your vehicle.** By running the vehicle over this measured distance, the speedometer will learn the number of pulses output by the speedometer sensor during a specific measured distance. It will then use this acquired data to calibrate itself for accurate reading. There is a small recall pushbutton in the center of the panel used to calibrate and read all the data stored in the speedometer. After installing your speedometer according to the wiring instructions, when the ignition is on it should immediately display the default screen of 0 MPH, if the vehicle is not moving.
NOTE: You will then need to drive your vehicle to the predetermined measured mile. During this trip, the speedometer should read something other than 0 MPH. If it does not change, return and locate the problem before continuing. Otherwise, proceed with the calibration.
- 2. Stop at the beginning of the measured mile with your vehicle running and in odometer mode (NOT trip mode), press and hold the push-button until the odometer displays 'HI- SP'. On its own, the gauge will then cycle through the recorded performance in the following order: '0 – 60', '1/4', 'ODO', and 'CAL'.**
- 3. While 'CAL' is displayed, quickly tap the push-button once. This will put the speedometer in Program Mode. If you do not tap while 'CAL' is displayed, the pulses per mile will be displayed on the odometer and the display will go back to MPH mode. Otherwise, you will now see 'CAL' displayed along with the number '0'. This indicates that the microprocessor is now ready for calibration.**
- 4. When you are ready, begin driving on the metered mile. You will notice that the reading will start counting. The odometer will begin to display the incoming pulse count. Drive the vehicle through the measured mile (speed is not important, only the distance traveled).**
- 5. At the end of the mile, stop and press the push button again. The odometer will now display the new number of speedometer pulses that were registered over the distance. The odometer will continue to display the pulse reading for a few seconds. Once it reverts to the default mode, you have successfully calibrated your speedometer.**