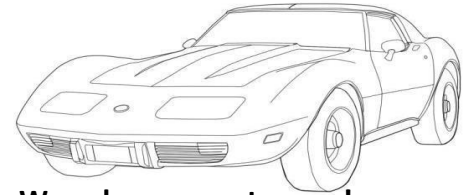


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INSTALLATION GUIDE

Corvette Digital Dash Panel

Part Number: DP2002

Year Series: 1978 - 1982



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

KIT COMPONENTS

Three (3) Digital Circuit Boards (speedometer, tachometer and 5-gauge cluster) Two

(2) Smoked Acrylic Lenses * ***Peel off protective covering from both sides****

Two (2) Temperature Sending Unit* (*S8013 1-wire*) - 1/8" NPT, 0-255 Deg., 1/2" NPT Bushing

One (1) Pressure Sending Unit (S8688) - 1/8" NPT, 0-100 PSI Oil Pressure

One (1) Universal Speedometer Sensor (S9013) - 7/8" NPT Industry Standard threads

**Some kits may have 2 S8013 or 2 S8023 depending on programming*

Mounting Kit

Speedometer Hardware:

(3) - 6-32 x 3/4" Flat head screws

(3) - #6 x 5/16" Nylon spacers

(3) #6 Flat washer

Tachometer Hardware:

(1) - C-Brackets (Horseshoe)

(3) #6 x 1/2" Flat head screws

(3) #4 x 1/2" Flat Head screws

(3) #4 Flat washers

(3) #4 Nylock nuts

INSTRUMENT INSTALLATION:

Summary:

You will be reusing the original factory (OEM) bezels and fasteners, so work carefully and keep track of the parts upon disassembly. There are 2 phases to this installation: the main instrument bezel (Speedo and Tach) and the center console ancillary gauges. In each phase you will remove the factory housings, pull out and set aside the current existing gauges (whether OEM or aftermarket) and replace them with your new Intellitronix digital gauge boards. Finally, you will reassemble the bezel/housing back into the dash/console. If you are not comfortable performing auto electric work, seek professional installation. If you have done this or a similar procedure previously, you may want to advance to the WIRING INSTRUCTIONS on page 4.

Be Advised: This process can take several hours the first time, depending upon your ability and experience.

Main Bezel

Removal:

1. Remove 5 Phillips screws from the Speedo panel to release the clear plastic lens. You may need nylon spuds for this. Repeat for Tach panel.
2. Remove 6 Allen head screws to release inner black frame.
3. Remove 3 Nut-head screws to unfasten the Speedo, and another 3 to unfasten the Tach.
4. Remove 3 Phillips screws to release the small kick panel beneath the steering column to ease under-dash access.
5. Remove the center section of the heater ducting by jiggling carefully, allowing for easier access. Reach up behind the dash and depress the retaining clip on the Speedo cable while pulling the cable away from the gauge to release the Speedo.
6. Reach up behind the dash and pinch the Tach coupler, then pull away from the gauge to release the Tach.
7. Reach up behind the dash and twist out the factory bulbs behind the Speedo and Tach, but leave the bulbs in the center column for the turn signals and other warning lights.

Console Removal:

1. Remove the car radio from the console. Procedure will vary depending on what unit has been installed.
2. Remove 4 Phillips screws from the black plastic console faceplate to release it.
3. Pull the entire vertical section out, jiggling around the upper dash edge, being careful not to damage the heater control switches.
4. Reach behind and pinch the ancillary gauge coupler to disconnect.
5. Disconnect the upper accent light coupler.
6. Remove this upper console from the car and take it to your workbench.

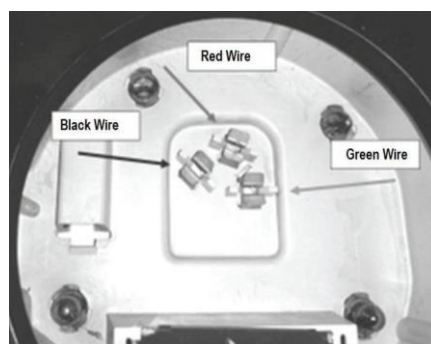
Gauge Removal:

You will be removing each of the gauges from the metal housing also called the “bucket”, and then reassembling the bucket with the new digital board and smoked acrylic cover inserted. You **WILL NOT** reuse the stock clear lens.

1. Remove the bulbs for the old OEM gauges, but not for the 4 warning lights.
2. Use a tiny jewelers flathead to unscrew the (eyeglasses size) retaining screw in the center of the clock knob, and put it somewhere safe like a magnetic parts tray or piece of tape.
3. Unscrew the plastic clock knob until it comes off.
4. Remove the nut-head screws from the back of the panel to release the metal bucket from the black plastic console.
5. Remove the 3 nuts from the back of each of the 5 gauges in turn, using deep sockets, nut drivers, or pliers. Set aside the OEM gauges.

Installation:

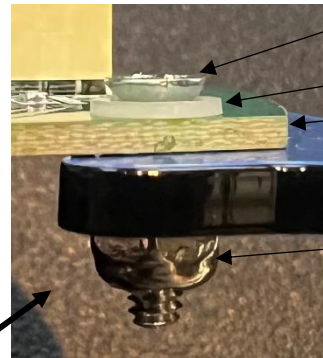
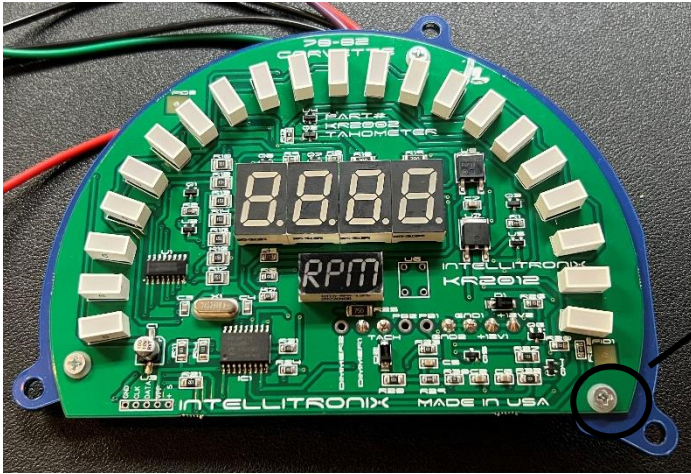
Install the Tach board by clipping the black, red, and green alligator clips to the left, top, and bottom terminals respectively, and pass the remaining leads through an empty bulb hole. Fasten the board with OEM nut head screws. Reach up behind the dash and re-attach the Tach coupler to the housing. It needs to be plugged in, to provide power to the Tach and the turn signal indicators and other warning lights.



Digital Panel Installation:

1. Center the new digital dash panel board into the bucket, and gently but firmly press it in.
2. Route the new panel wires out through a hole the back of the bucket.
3. Align the smoked acrylic over the digital board, and the OEM clear plastic over that.
4. Make sure the colored warning light covers are still in place in the black bezel.
5. Flip everything over and secure it to the back of the black plastic console bezel with the 4 OEM screws. Make sure the flexible circuit is still attached to the back of the bezel to power the 4 warning lights. Make sure the 4 warning light bulbs are still in place. The center console is now ready to re-install.

Step 1: Attach provided C-Bracket to the back side of the tachometer using provided hardware.



#4 1/2" Flat head

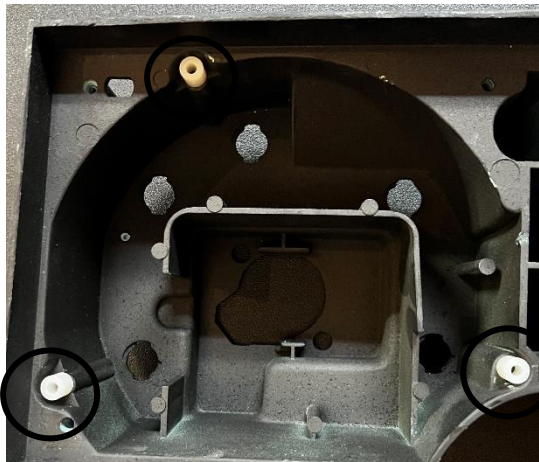
#4 Flat washer

Circuit Board

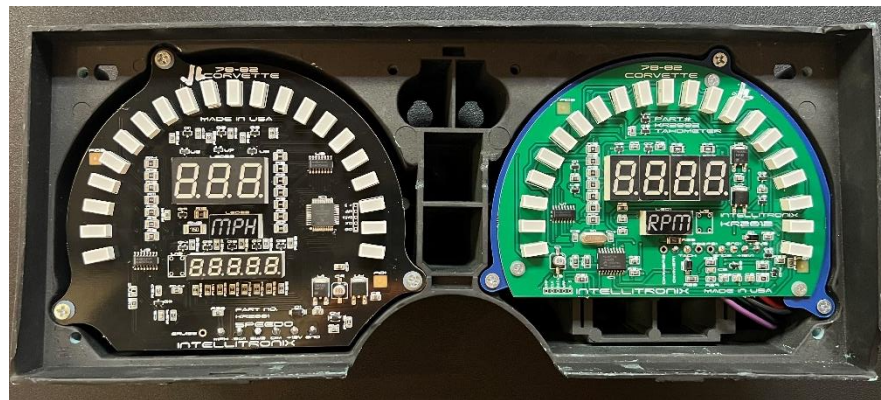
C-Bracket

#4 Nylock Nut

Step 2: Place the 5/16" spacers down on speedometer side of bezel



Step 3: Install the speedometer using the provided flat washers at #6 x 3/4" screws and install the tachometer using the #6 x 1/2" screws



Step 4: Place the smoked acrylic over the gauges into the housing **be sure to remove the protective film from the acrylic*



Step 5: Reinstall the factory bezel using the factory hardware and reinstall into the dash

Console Re-installation:

1. Plug in the upper accent light coupler.
 2. Plug in the ancillary gauge coupler to power the warning lights.
 3. Work the console back into its original position, being careful of the heater control switches.
 4. Secure the front bezel to the dash with the 4 OEM Phillips screws that came out.
- *Do not reinstall the car radio yet, until you have completed the wiring connections to the sensors.
Congratulations, you are done with this part!

Running wires

Wires need to be run between the digital dash panel boards and the supplied sensors, to send a signal to each gauge, plus power and ground. Power should be a good clean, switched 12V source, and ground should be solid bare metal such as engine block or unpainted frame members. How and where you run these wires will vary depending on your preferences, and how your car is set up. Secure the wires with zip ties at intervals. Make sure the new wiring doesn't interfere with gas or brake pedals. The rest is up to you.

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. The engine block should have heavy ground cables connected to the battery, frame, and firewall.

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.

Black/Blue – Water Temperature Ground This is a ground wire for the two terminal water temp senders. **If your dash kit came with the single terminal sender this wire will go to the engine block ground.** If using the two terminal sender this will go to the black/blue wire on the sender's

harness. If your kit contains a two-wire sender and your dash circuit board does not have the Black/Blue wire installed, then run this wire coming off the senders harness to the same ground that the dash board is grounded too

Orange/White – Oil Temp Replace the existing oil temperature sending unit with the unit included. Do not use Teflon tape or other sealer on the new sending unit's threads, to avoid inaccurate readings. Connect the orange/white wire to the sending unit.

Red/White – Oil Temp Ground If your kit includes a single post sender replace the existing oil temperature sending unit with the unit included. **Do not** use Teflon tape or other sealer on the new sending unit's threads, to avoid inaccurate readings. Connect the orange/white wire to the sending unit. If your kit included a two terminal sender connect the red and white wire to the blue and black wire on the oil temp sender harness.

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.

Orange/Black – Oil Pressure Ground Connect to the G terminal on sender

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.

Tan - Brake Connect to the parking brake wire from the dash to negative side of parking brake light switch. NOTE: If you are using a one wire switch you may need to switch to a two-wire switch. This wire is an optional wire some vehicles may not require.

Brown – High Beam Connect the brown wire on the Dash unit to your high beam headlight circuit. This wire is powered on when the high beam is turned on and receives 12 volts.

Grey with white stripe – Right turn Signal 18-gauge wire is the - RIGHT turn signal

Grey with black stripe – Left turn signal 18-gauge wire is the – Left turn signal.



Voltage Gauge This Gauge Requires no wire hookup. Volt Gauge is built into the dash panel and is powered by the main power and ground connection of the dash. It does have an Adjuster to fine tune the voltage. Note: you will need to adjust it before fully installing the dash

Green/Yellow – Check Engine Connect to the Negative side of the Check Engine Light circuit. The Check Engine light will come on when using with a PCM or ECM.



CABLE BUTTONS

Trip/Cal Button - Grey Cable Button - There are two grey wires connected to the push-button for the speedometer board. Mount the switch in a convenient location such as under the steering column so that you may easily reset your trip odometer or other speedometer functions.

Fuel – Yellow The fuel gauge sending unit is not normally 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.

Note: The gauge is preset for GM 0-90 Ohms

Fuel –Black/Yellow – Run a new ground wire and attach to your Fuel sending unit housing to ensure proper fuel gauge operation. If the sending unit does not have a sufficient ground, it will not work properly.

FUEL GAUGE TEST The most common problem with our Fuel Gauge not working is the circuit is not complete. The easiest way to test this is to use a voltmeter and test for continuity on wires going to fuel sender. With wire disconnected from Fuel Gauge check for continuity to ground. Without this the Gauge will not work.

Note: If doing a LS engine swap, pick up the tach signal wire from the ECM/ECU and then set the tach switch to 4-cylinders. You may also need to order the Intellitronix LS Engine Swap Adapter Kit – for Series 1, 2 and 3 engines. The part number is 8014LS. The resistor in the adapter kit will help pull a stronger signal for the tachometer.

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 for Tach signal output.

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.

Clock Setting: The two bottom cable buttons are hours and minutes for setting the clock. Mount the switch in a convenient location such as under the steering column so that you may easily reset your trip odometer or other speedometer functions.

PROGRAMBLE TACHOMETER SETTINGS

To change settings:

The display will stay in Settings Mode until it receives a signal from the ignition system. To program the unit after starting the engine, shut the engine off and turn on only to the accessory position.

When in accessory mode, the settings menu will scroll through the settings menu. A light tap on the button engages the menu system.

1. Sets # of digits in RPM display, using button, display shows: (hundreds) 8800, (tens) 8880, and (ones) 8888.
2. Sets # of cylinders using button, display shows: 1cy, 2cy, etc.
3. Sets first digit on max RPM on gauge bar display (in thousands) using button, display shows: 1000 to 9990.

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 to use the PCM/ECM to run the speed signal for the Speedometer. (Consult your factory Pinout Chart)

- When using a 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 did 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.