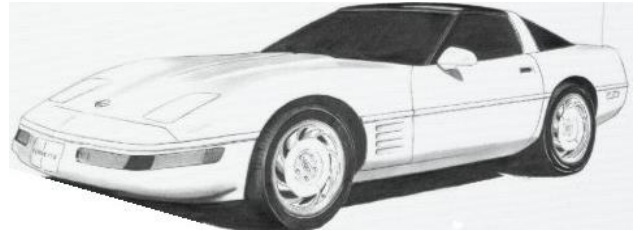


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**Thank you for purchasing this instrument from Intellitronix. We value our customers!**

**INSTALLATION GUIDE**  
**84-89 Corvette Analog Direct Replacement Dash**  
**Part # AP2003**

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

**KIT COMPONENTS**

- **One (1) Assembled Analog Circuit Board** (with Speedometer, Tachometer, Voltmeter, Water Temp., Fuel Level and Oil Pressure Gauges – with lens and mounting hardware).
- **One (1) Temperature Sending Unit (S8013)**  
*\* 1/8" NPT, 0-255 Deg., 1/2" NPT Bushing*



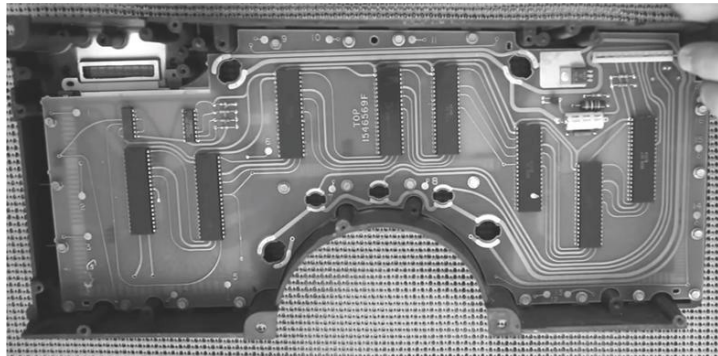
## REMOVAL INSTRUCTIONS

- Remove the headlight switch.
- Position the steering wheel tilt all the way down.
- Remove the tilt leveler arm.
- Remove and retain the *seven (7)* screws from the side and front of the steering and gauge bezel.
- Remove and retain the *five (5)* screws holding the information and radio bezel.
- Remove and retain the *four (4)* screws holding the gauge cluster.

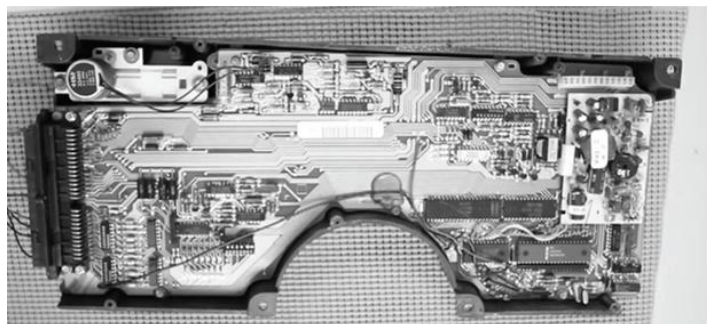
1. Remove the factory LED gauge unit from the dash panel.



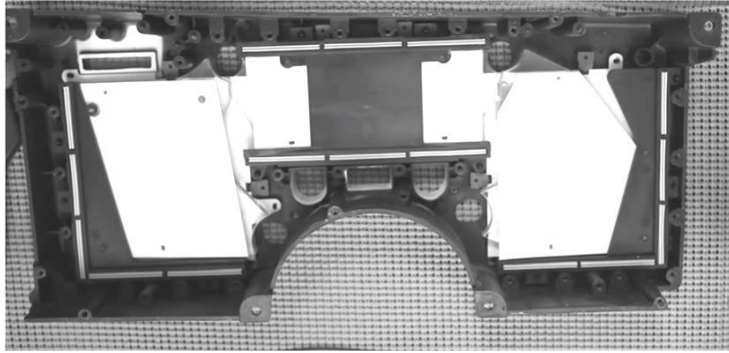
2. Remove the *six (6)* 7/32" screws securing the back panel.



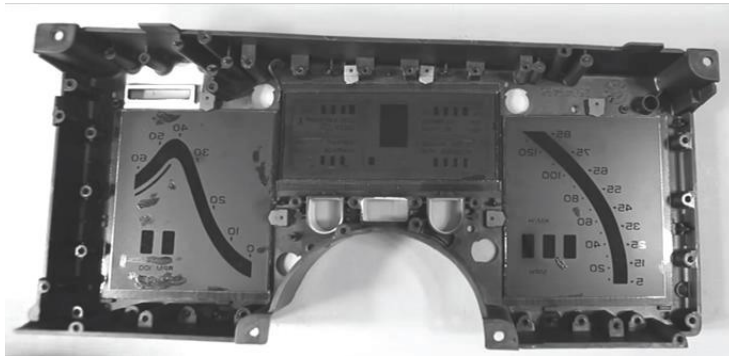
3. Remove the *seven (7)* 7/32" screws holding the Logic Board to the gauge unit.



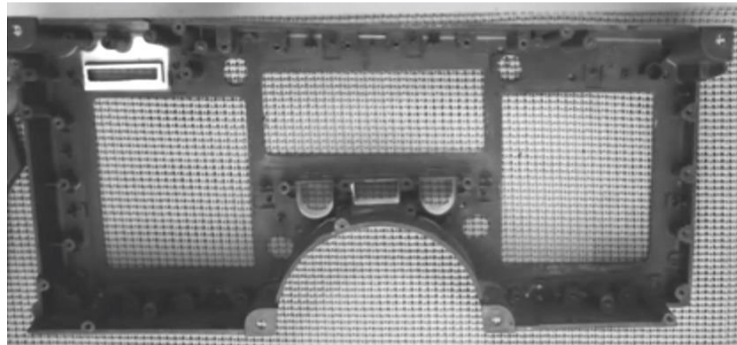
4. Remove the twenty-two (22) 7/32” screws securing the Display Driver Board of the gauge unit.



5. Remove the stencils and rubber blocks from the edges of the LED displays.



6. Remove the six (6) rubber clips securing the lenses.



## **MOUNTING INSTRUCTIONS**

1. Mount the Gauge Panel into the housing using the stock screws.
2. Feed the wires through the back of the housing through the now vacant odometer cutout and reattach the back of the housing.
3. Wire the gauges and sending units as instructed in the next section.

## WIRING INSTRUCTIONS

*(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. If you are getting the tach signal from the ECU, the resistor in the adapter kit will help pull a stronger signal for the tachometer. If your engine is a 4 cylinder, please call Tech Support at Intellitronix, as you may need to send the gauge back to us to be reconfigured. There is no charge for this additional service.)*

**Note: Automotive circuit connectors are the preferred method of connecting wires. However, you may solder if you prefer.**

84-89 Corvette Wire Setup - Intellitronix #DP2003

| DP2003 Wire Color                                     | Function         | Circuit #           | Plug Number               | OEM Wire Color           |
|---|------------------|---------------------|---------------------------|--------------------------|
| Black   | Ground           | Engine Block Ground |                           |                          |
| Red   | 12V DC Switched  | Ignition Switch     |                           |                          |
| Green   | Tachometer       | 121                 | D5                        | White                    |
| Orange  | Oil Pressure     | 135                 | D6                        | Dk Green w/ white stripe |
| Blue (works best if you run a new wire to the sender) | Water Temp       | 35                  | D4                        | Dark Green               |
| Gray (left turn)                                      | Left Turn Signal | 14                  | C2                        | Light Blue               |
| Gray (right turn)                                     | Right Turn       | 15                  | C4                        | Dark Blue                |
| White   | Speedometer      | 401                 | C15 (must loop D11 to D3) | Pink w/Black Stripe      |
| Yellow  | Fuel Sender      | 30                  | C8                        | Pink                     |
| Brown   | High Beam        | 11                  | C3                        | Light Green              |
| Purple  | Dimmer           | 9                   | C6                        | Brown                    |

**NOTE White wire you must be looped to get PCM to communicate. (example D11 Loop to D3) this may vary Year to Year**

**Please note: Each automotive manufacturer sets their own wiring color/diagrams. We have found the above chart to be mostly accurate as to this particular model / year Corvette. Your vehicle may differ, however, so to be certain, it might be best to check with the manufacturer with vehicle serial number at hand.**

## WIRING INSTRUCTIONS

*Note: Automotive circuit connectors are the preferred method of connecting wires. However, you may solder if you prefer.*

**Ground – Black**--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. Use 18 AWG or larger wire to ensure sufficient grounding. 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. Failure to properly ground the engine block, senders, or digital dash can cause incorrect or erratic operation.

**Battery - Red**--Connect the +12 Volt wire to constant +12V power from the battery power source from fuse panel. Using a 5-amp fuse or an inline 5-amp fuse holder Using 18 AWG wire.

**Power – Pink**--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. Use 18 AWG wire to ensure the system receives a sufficient power feed.

**Dimmer – Purple** 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 the Unit. This wire is looking for 12v power to turn on dimming feature.

**Right Turn Signals - Grey with White strip** 18-gauge wire is the - RIGHT turn signal

**Left Turn Signals - Grey with Black strip** 18-gauge wire is the – Left turn signal.

**High-Beam – Brown** - 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.

**Brake – Tan** - Connect to the parking brake or 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

**Oil Pressure – Orange** – You will reuse your factory oil sending unit. The Orange wire will be wired to the S terminal on the sending unit. This gauge is incompatible with other sending units.





**Water – Blue** - 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 best results we suggest running a new wire.

**Note: Before installing or Setting up you must know your Fuel sender OHMS Range to properly set Gauge up.**

**FUEL SET UP: Note set switches to correct setting and test before installing!**

**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. Be sure the toggle settings on the switch match those displayed on the panel, as illustrated. **NOTE: If the switch is on the back of the circuit board the position is UPSIDE DOWN!**

1. **Both** switches in the **ON** position for Ford/Chrysler
2. **For GM** - #1 toggle is **ON**
  - a. # 2 toggle is **OFF**.
3. **Both** switches in the **OFF** position for VDO
4. **For Universal/Stewart Warner**  
#1 toggle is **OFF**  
# 2 toggle is **ON**.

| Fuel Selector Switch Position   |  |                           |
|---------------------------------|--|---------------------------|
| Manufacturer                    | Switch Position  | Ohm Range (Empty to Full) |
| Ford/<br>Chrysler               |   | 73-10 OHM                 |
| GM                              |   | 0-90 OHM                  |
| VDO                             |   | 10-180 OHM                |
| Universal/<br>Stewart<br>Warner |  | 240-33 OHM                |

**FUEL GAUGE TEST**

The most common problem with our Fuel Gauge not working is the circuit is not complete. The easiest way to test for this is to use a voltmeter and test for continuity on wires going to fuel sender after disconnecting from gauge. If not disconnected it will give you a false reading. With wire disconnected from Fuel Gauge check for continuity to ground. Then test for OHMS to verify within range of fuel sender. If you don't have an accurate reading. Run a new ground wire to engine without this the Gauge will not work properly. **Note: Verify Ohm range of sender and match settings before cutting a wire or setting Dip switches for testing**

**Tachometer – Green**

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***

There are two recall buttons on this dash: one at the bottom of the speedometer, the other at the bottom of the tachometer. This tachometer is initially calibrated for use with 8-cylinder engines. If you are using it with a 4- or 6-cylinder engines, you must recalibrate it for your specific application by pushing the tach recall button in accordance with the programming modes shown below.

To set the cylinder selection: With the ignition off, hold in the right button and power the dash on. The tach will then enter a setup mode where the needle will move (between the zero and one on the face of the instrument) to indicate 400 (4 cylinder), 600 (6 cylinder) or 800 (8 Cylinder) continuously. When the needle gets to the desired setting, tap the right button once more. It is now set and will enter normal operating mode. To see the high RPM/tach setting, hold down the right button. It will reset after five seconds.

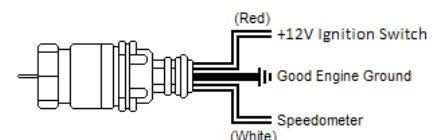
**SPEEDOMETER (you have three methods for speedometer connection)**

**1.) Speedometer – White - (Factory sender with Powertrain Control Module)** 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). Any other Computer based engine will need to use to use the PCM/ECM to run the speed signal for the Speedometer. (Consults Pinout Chart)

**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, 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 or (Consults Pinout Chart).

**3.) Speedometer - White (Intellitronix Speed Sender\*)** - Disconnect the mechanical speedometer cable from the transmission and thread the new electronic sensor onto 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** and **black** wires in the cable are switch power (12VDC) and ground, respectively.

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



\*not included in kit

The recall button on the speedometer operates as follows:  
Once – cycles between Trip Mode and Odometer Mode.

While in Odometer Mode:

1. Hold LEFT to enter Recall/Setting Mode
2. ¼ Mile Recall
3. 60 Second Time Recall
4. Odometer Setting
5. Calibration

Your Intellitronix dash panel is equipped with our Digital Performance Speedometer, which has factory settings that are ***pre-set with the industry standard setting of 8,000 pulses per mile to match your vehicles factory settings.*** This electronic speedometer displays speed and includes an odometer, trip meter, high speed recall, 0-60 time, and quarter-mile elapsed time. It can be calibrated with the push-button to adjust the speedometer when you have ***different tire sizes, wheel sizes, and gear ratios.***

The single push-button is used by a *quick tap* to toggle between odometer and trip meter. The microprocessor distinguishes between a *quick tap* and a *press and hold* which will reset the trip meter in trip mode or display performance data in odometer mode.

## **CALIBRATION**

The Digital Performance Speedometer leaves the factory with a factory pre-set industry standard setting of 8,000 pulses per mile. You should ***not have to recalibrate your speedometer, unless you have changed the original tire size or the rear end gear ratio.***

Also, if using the Intellitronix GPS Sending Unit, (S9021 – not included) the speedometer does not need to be calibrated.

***NOTE: DO NOT*** attempt to recalibrate your speedometer until after it is working properly, and you have determined that the speed is consistently incorrect. The calibration procedure will NOT correct a faulty installation or improper wiring.

***WARNING:*** If, while in 'CAL' mode, ***you do not move the vehicle but press the button again,*** the microprocessor will NOT have received any data and the unit will display 'Err' and will revert to the factory settings. At a minimum, drive some distance and return to the start if necessary. If you miss stopping the display at 'CAL', simply repeat the steps.



To calibrate:

1. **Locate a measured mile or KPM 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 outputted 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 3 speedometers. 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.

## Setting the Odometer

While scrolling through 'CAL' mode you will see 'ODO' appear. This will allow you to enter the vehicle's actual mileage. Press the trip button again 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 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 20 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,  $\frac{1}{4}$  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 push-button as it cycles through the performance data. At the end, the odometer will reset, and all performance data will be cleared. This will not affect your stored calibration value or the odometer reading.
2. Press the push-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.

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Technical Support

Monday – Friday

9am to 5 pm EST

(440) 359 7200

[support@intellitronix.com](mailto:support@intellitronix.com)

CHECK OUT THE **SUPPORT** PAGE AT

[www.intellitronix.com](http://www.intellitronix.com)

FOR QUICK ANSWERS (**Q&A**) TO YOUR QUESTIONS

#### **RETURN POLICY PROCEDURES**

##### **Return Policy Instructions**

1. Download the Intellitronix Return/Repair Form and fill in the information on the form about the product.
2. Place the product being returned in the original packaging that it came in and include a copy of the completed Intellitronix Return/Repair Form.
3. All packages must be accompanied with an RMA Number.  
Please call Technical Support at +1 440-359-7200 to receive an RMA Number.
4. Mail the product being returned with the completed Return/Repair Form and a copy of the original sales invoice.

##### **Request for Product Refund**

All returns for a refund must have a completed Intellitronix Return/Repair Form included in the package with the returned product.

1. If the return is for a product that is not defective a 20% restocking fee will be charged. The product must be in the same pristine condition that it was sent to you.
2. Proof of purchase is required. Please include a copy of the original sales order with the returned product.
3. All product must be returned undamaged and in working order in the original packaging including plexiglass, sending units, mounting hardware, or you will be subject to additional charges for product and accessories not returned.
4. All refunds will be reviewed by the Accounting Office.

**This product carries a limited Lifetime Warranty.**

**This warranty is limited to replacement or repair of the unit at the discretion of Intellitronix.**