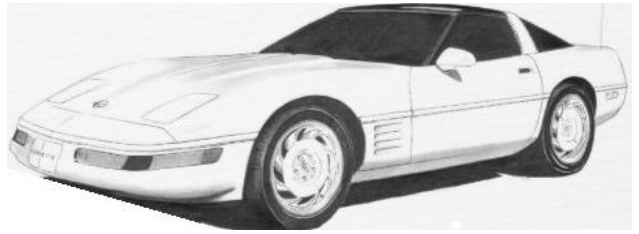


**Made in America**

**Lifetime Guarantee**



**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
- **One (1) Oil Pressure sending unit (S8868)**



### **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.

### **MOUNTING INSTRUCTIONS**

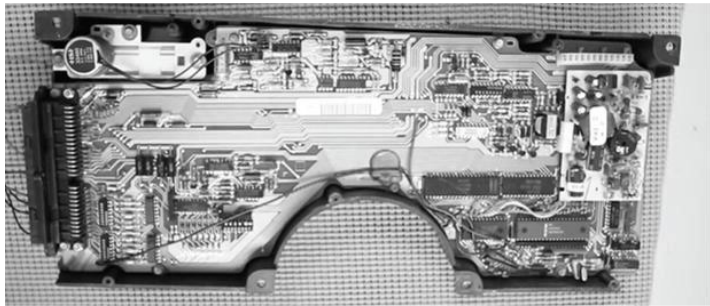
1. Mount the Gauge Panel into the housing using the stock screws.
2. Feed the wires through the back of the housing through the now vacant odometer cutout and reattach the back of the housing.
3. Wire the gauges and sending units as instructed in the next section.

### Step 1



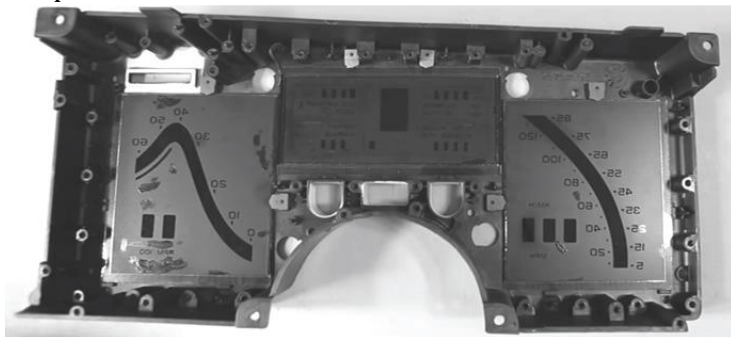
Remove the factory LED gauge unit from the dash panel.

### Step 3



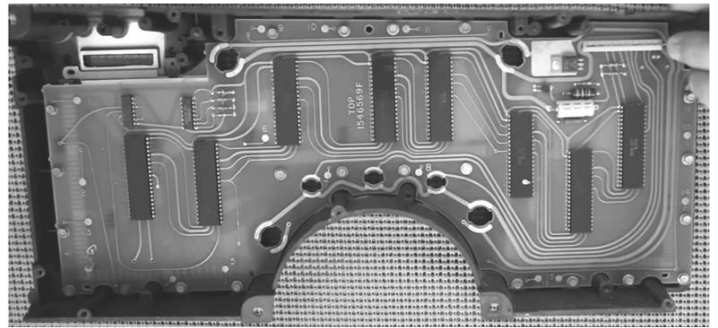
Remove the *seven (7)* 7/32" screws holding the Logic Board to the gauge unit.

### Step 5



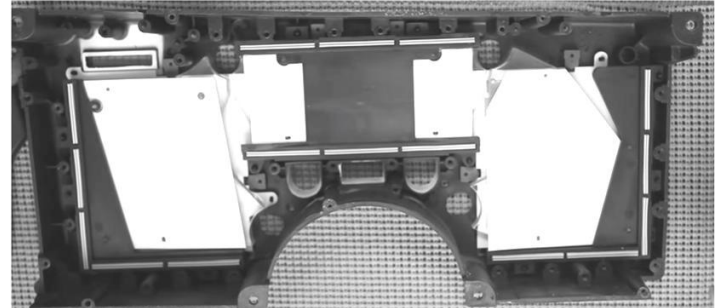
Remove the stencils and rubber blocks from the edges of the LED displays.

### Step 2



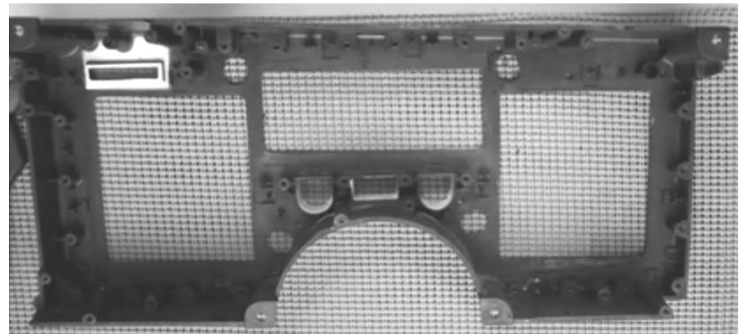
Remove the *six (6)* 7/32" screws securing the back panel.

### Step 4



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

### Step 6



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

## 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 provided sensors along with the factory senders to feed the computer

**NOTE: White wire 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.

### 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

## WIRING INSTRUCTIONS

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.

**Red – Constant 12V** 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

**Pink – Accessory 12V** 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.

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

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

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

**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.

**Tan - Brake** 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.

**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** from the G terminal on sender will be wired to ground on the engine block using 18 Ga wire to ensure proper ground!





**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.

**Blue/Black – 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.

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

**Yellow – Fuel** 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/ Chrysler		73-10 OHM
GM		0-90 OHM
VDO		10-180 OHM
Universal/ Stewart 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.

***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 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.

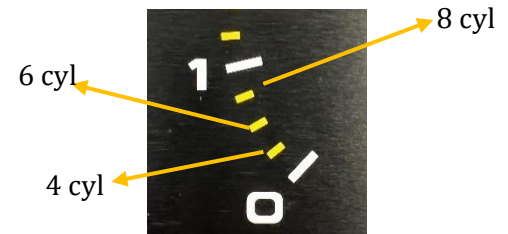
***The default setting for the tachometer is for an 8-cylinder engine***

### **Change Tachometer settings and Recall**

There are two recall buttons on this dash: one to the right of the speedometer, the other to the left 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:

1. With the ignition off, hold in the right button and power the dash on when the dash is powered up you will release the button.
2. 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.
3. 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 recall, hold down the right button, this will display in key on or engine on as long as the key has not been turned off completely. To Reset your high RPM, hold for five seconds

### **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 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

The recall button on the speedometer operates as follows:

Pushing the LEFT button once – cycles between Trip Mode and Odometer Mode.

While in Odometer Mode:

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

### **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 '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 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 **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, 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 pushbutton as it cycles through the performance data. At the end, the odometer will re-set 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.

## **SPEEDOMETER CALIBRATION PROCEDURE**

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 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.

**NOTE:** If you are not seeing speed on your speedometer, this is not a calibration issue but a speed signal issue. Calibration will not fix an erratic reading as this is electrical interference.

**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 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' (a 0 will display after each option unless data is stored, if data is stored it will display the recorded data. 8,000 will display after Cal as that is the factory setting).
- 3. After 'CAL' is displayed, 8,000 or stored calibration will display, you will quickly press the button when this number is displayed.** This will put the speedometer in Program Mode. If you do not tap the button while the pulses are showing the display will keep scrolling through your options. When the button is pressed, a '0' will be displayed indicating the microprocessor is ready to receive data.
- 4. When you are ready, begin driving the measured 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).

At the end of the mile, stop and press the button again. The odometer will now display 'CAP' indicating that it has captured the programming. Once it reverts to the default mode, you have successfully calibrated your speedometer.