PWM Alternator Harness
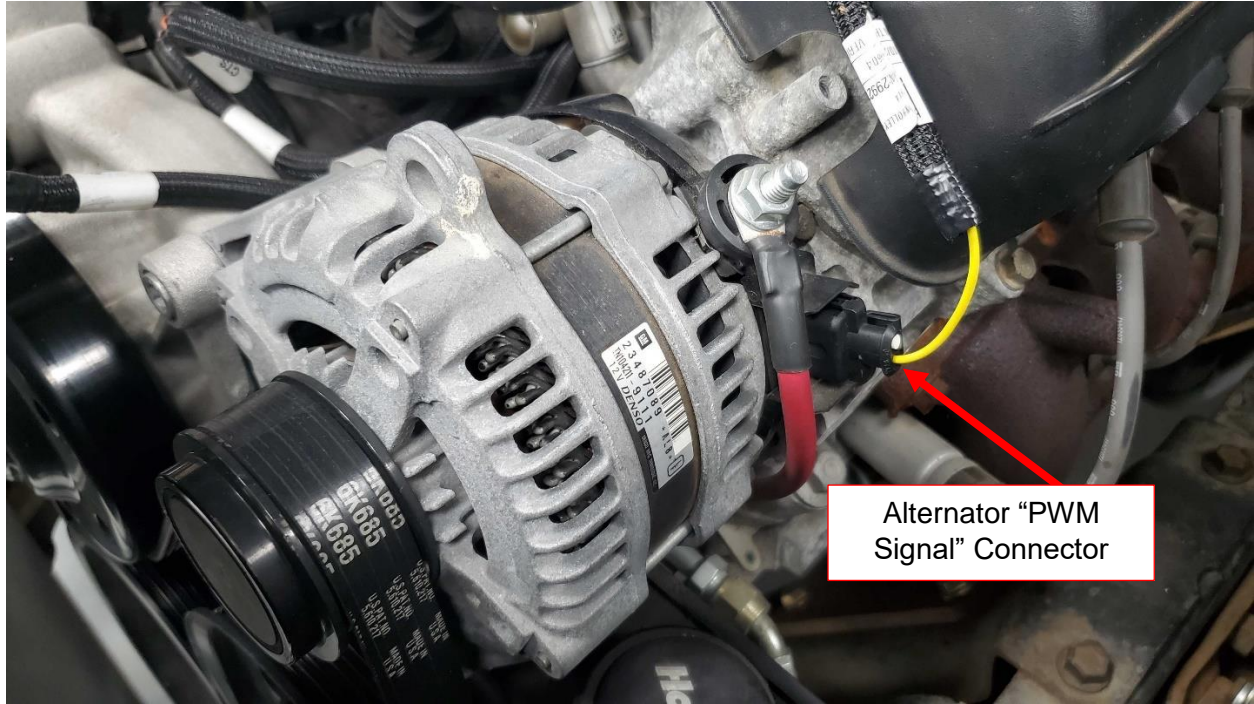
Part Numbers 558-475 & 558-476

This document explains how to control either a GM or Ford alternator that was factory ECU controlled with a PWM (*Pulse Width Modulation)* signal. This includes most 2007+ GM engines and most 2005+ Ford engines.


Alternator "PWM Signal" Connector

Wiring:

The PWM Alternator harnesses are designed to be used with a **(P-) "PWM –"** output from the I/O (8 Pin Connector), and "**5 Volt** (Pin C)" from the Power Tap (4 Pin Connector). Both located in most Holley/TerminatorX EFI harnesses.

(P-) "PWM – " – Used for ground Pulse Width Modulated Outputs
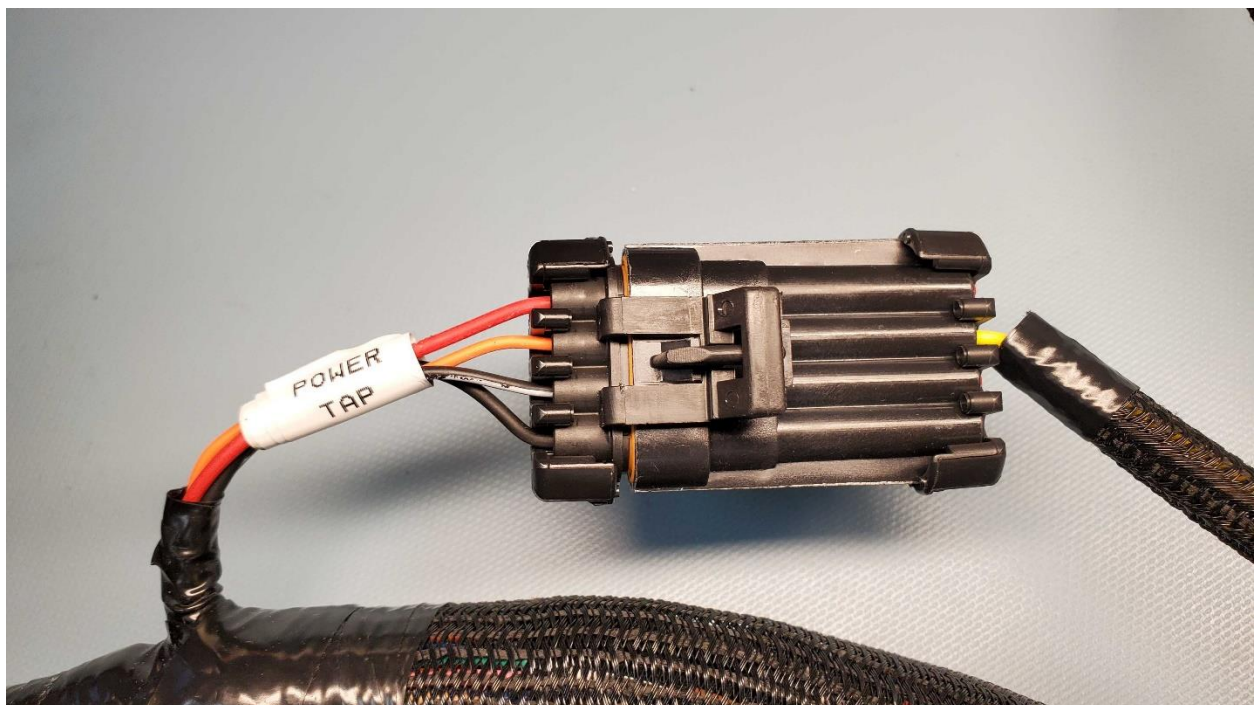
I/O (8 Pin Connector):

The I/O connector comes prepopulated to Pin G, (*ECU Pin J1-B10,* Output #3).

If this output Pin is already being used (*e.g., SRV actuator for Hemi*) the PWM Alternator pin can be moved to a different output pin that is configurable as a **(P-) "PWM –"** in the software Pin Map**.**
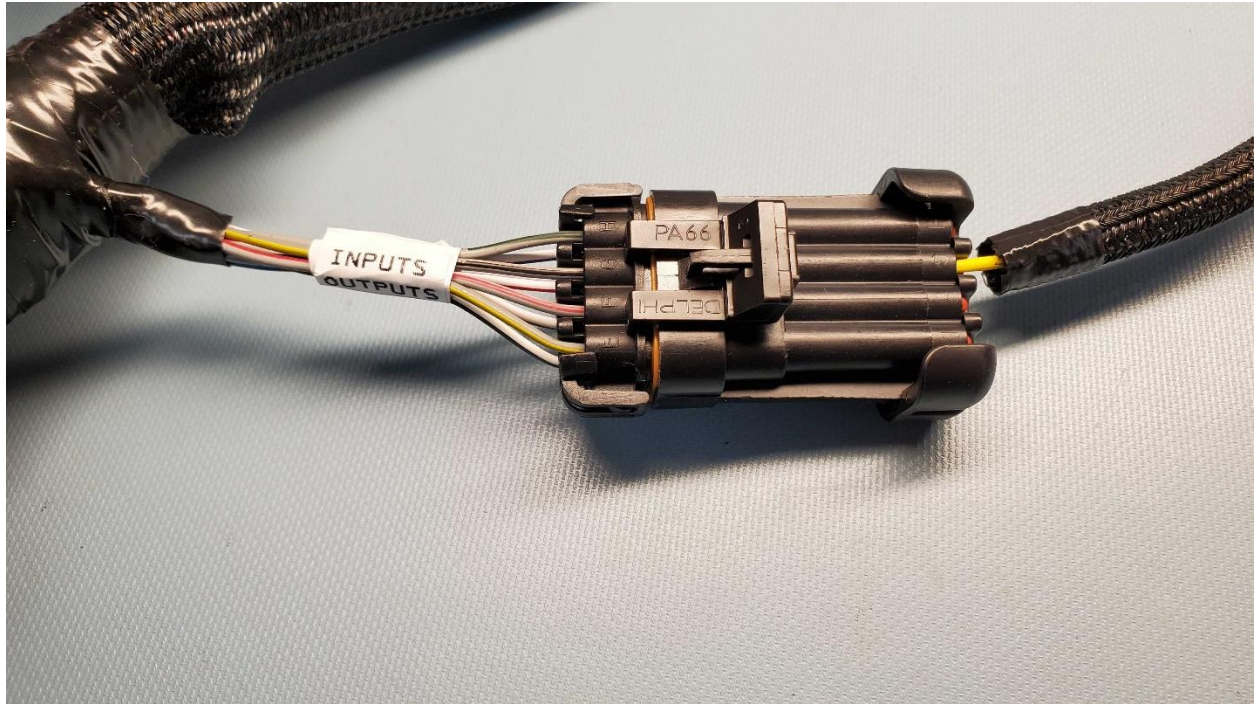
Power Tap (4 Pin Connector):

The Power Tap connector populated to (Pin C) **5 Volt**.

Alternator (2 Pin Connector):

GM PWM Alternator Harness (558-475, *271R1305a*) has Pin Location (1) populated in that alternator connector.

Ford PWM Alternator Harness (558-476, *271R1306a*) has Pin Location (2) populated in that alternator connector.

Software Setup:

If the I/O ICF ![I/O icon] icon is not shown in the tool bar:

1. Go to "Toolbox".
2. Select "Add Individual Config".
3. Select the "IO" folder.
4. Double-click "Default.io" to add the I/O ICF to the tool bar.

In the Laptop Software (Terminator X / Holley EFI), in the I/O ICF enable an Output. Name this Output "Alternator" and set Type to: **"PWM –"**

Select "Configure" and set "Sensor Input Triggers" to active when engine is running, as shown below:

Select "PWM Setup" and configure as shown below:

1. Type = Fixed

2. Frequency = 128

3. Table units = Duty Cycle (%)

4. The X and Y axis = RPM and MAP

Fill the table with duty cycle values as shown below, *or* values that correspond with the desired charging voltage. There is some variation but for the most part 100% duty cycle is 11 volts and 10% is 15.5volts with the charging voltage being roughly linear with duty cycle between those points. This means that 14.6volts is roughly 25-30% duty cycle.

NOTE: Anything under 10% duty cycle is not recognized by the alternator and will result in the alternator shutting off until a valid duty cycle is seen.

Note for De-Pinning METRI-PACK 150 Connectors:

The De-Pinning Tool for METRI-PACK 150 style connectors, like the I/O connector is available through Holley: Part Number (567-101)
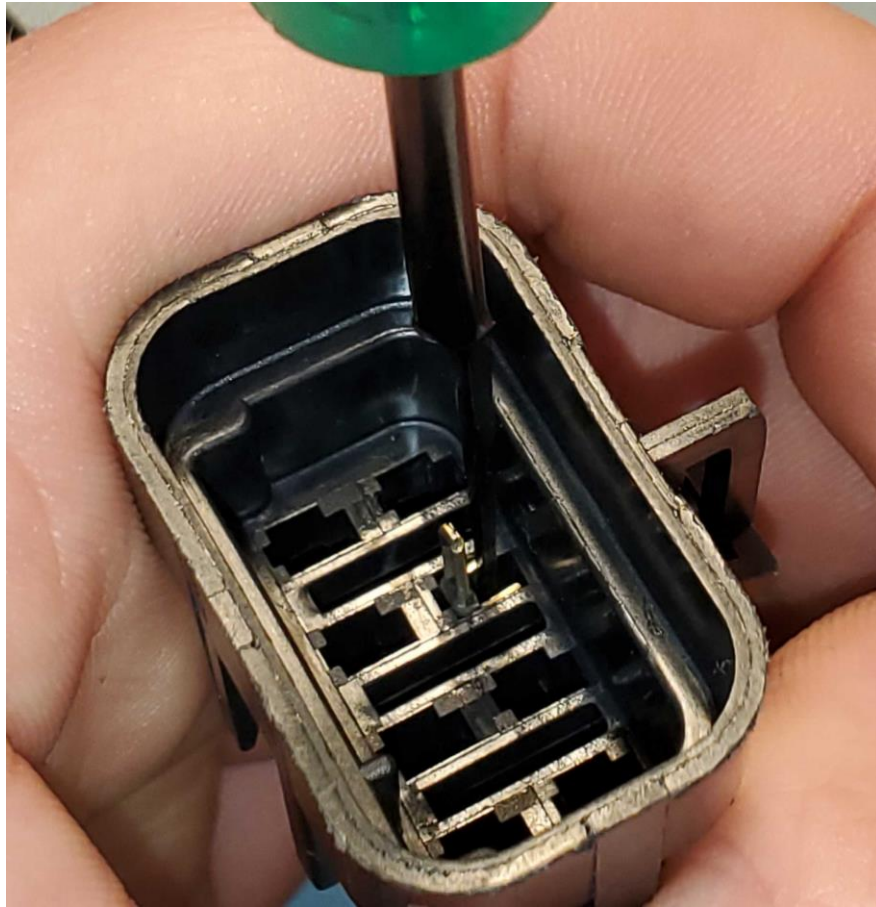
Instructional Video on De-Pinning and Crimping can be found here: "HOW TO IDENTIFY, CRIMP, AND DE-PIN CONNECTORS ON A FORD COYOTE WIRING HARNESS"

https://www.holley.com/blog/post/how_to_identify_crimp_and_de-pin_connectors_on_a_ford_coyote_wiring_harness/

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