



Gen V Supplemental Port Injection

Included Components:

ECU - Elite 950

Harness -BTR Harness Supplemental Main Harness

Wideband - Haltech Dual NTK Widebands

Sensor - GM ECT PN: 12551708

Overview:

The Gen V port injection kit is designed to enable added supplemental fueling to your Gen V DI engine combo. A base configuration is supplied but is not meant to be a permanent solution. Please consult a professional to have the system properly calibrated to your specific combination.

Main ECU Connections:

Connect the 34-pin main harness connection to the supplied ECU. The hose barb connection is for the optional onboard 3 bar MAP sensor and will most likely be unused. The USB Connection is for communication uses. ECU is water resistant, meeting IP67 standards, when the USB port is fitted with Haltech HT-070002 USB cable or USB cap.



Power Connection:

This connection will provide power to the supplemental fueling ECU. Take the supplied ring terminal labeled "Alternator Charge Point" and attach to the large power stud of the alternator.



Ground Connection:

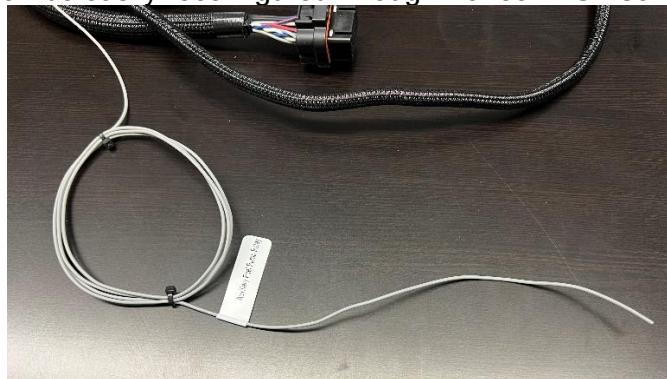
Take the ring terminal labeled “Cylinder Head Ground” and attach to the back of one of the cylinder heads. This will provide ground for the system.

**CAN Bus WB Connection:**

Take the supplied Haltech Wideband harness and plug directly into this power/CAN connection. The fuse box located on the supplemental port injection harness provides a power/ground source for the widebands and CAN connection for communication to the (supplemental) ECU.

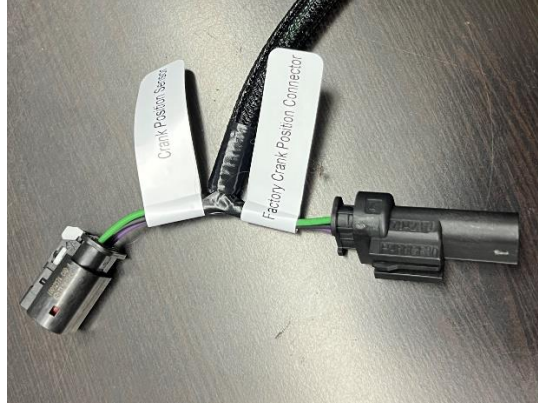
**Aux Fuel Pump Trigger Connection:**

This is an ECU output that is pre-configured to trigger an auxiliary fuel pump via a ground signal to the fuel pumps control relay. DO NOT wire this directly to a fuel pump. This is a low current trigger ONLY to trigger a relay. The supplied configuration is setup to trigger this wire anytime RPM is above 2000rpm and MAP is above -2psi. These settings can be easily reconfigured through Haltech NSP software.



Crank Position Sensor Intercept Connection:

These connections intercept the crank signal for use by the supplemental ECU for injection timing and engine position. Remove the factory plug from the crank position sensor and connect the factory harness to the port injection harness. Plug the port injection harness into the crank position sensor.



Cam Position Intercept Connection:

Unplug the factory plug containing the Cam Position, VVT Solenoid, and Oil Pressure Solenoid and plug it into the port injection harness. Plug the port injection harness back into the front cover harness. This plug is located on the bottom right side of the front cover and may be referred to as "LOMA".



Coolant Temperature Sensor (CTS) and Connection

The provided sensor has two outputs that will supply both the OE ECU and the Supplemental ECU with their own signals. Replace the OE coolant temperature sensor with the provided sensor. The three-wire connector will plug directly into the provided sensor while the two-wire connection will plug into the OE harness.



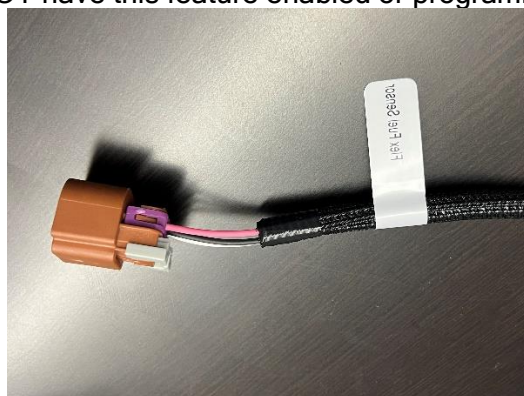
Intake Air Temperature (IAT) Connection:

Plug this into a GM style IAT sensor. This will help keep the fuel model accurate in varying conditions based on temperature. The kit is NOT supplied with a sensor but can be purchased separately.



Flex Fuel Sensor Connection:

This is an optional connection to help the ECU more consistently control fueling with varying ethanol content. The supplied configuration does NOT have this feature enabled or programmed.



Fuel Pressure Connection:

This is an optional connection for fuel pressure. This can be an important sensor to use for variable fuel pressure systems so that the Haltech can modify injection based on the differential pressure. The default MAP has the injectors characterized against injection pressure differential (Fuel Pressure - MAP). Fuel pressure sensor is NOT included in the base kit.



Manifold Absolute Pressure Sensor Connection:

This connection intercepts the signal from the OEM MAP sensor. If you have a boosted application, it is important that you have a MAP sensor that will read in the range of pressure you desire to run so that the fueling can be modeled for that pressure range. A plug-and-play option is an LSA/LS9 2.5bar sensor which reads up to ~26psi of boost. In LT4 applications where the TMAP is being retained, it may be necessary to use a second MAP sensor. Alternatively, you can use the built in (3 Bar) MAP sensor by connecting a small hose from the intake manifold to the barb fitting of the ECU and configuring the ECU to use its internal MAP sensor.



Connector A (34pin)	
Pin:	Description:
1	
2	AVI 1 - Fuel Pressure Signal
3	
4	
5	
6	
7	Injector 7
8	Injector 8
9	5v Sensor Power Supply
10	Battery Ground
11	Sensors, Crank, Cam Signal Ground
12	DPI 1 - Flex Fuel Signal
13	
14	
15	AVI 3 - MAP Signal
16	CAN High
17	CAN Low
18	
19	Injector 1
20	Injector 2
21	Injector 3
22	Injector 4
23	
24	DPO 5 - Aux Fuel Pump Trigger (Ground Trigger)
25	
26	Switched Batt/Pwr from Injector Power Circuit
27	Injector 5
28	Injector 6
29	AVI 4 - Air Temperature
30	AVI 5 - Coolant Temperature
31	Crank Signal Input
32	Cam Signal Input
33	
34	