



Holley EFI 16 Injector Setup (8 Cylinder Engines) Setup of 8 Injectors in 8:2 Amp Peak and Hold Mode

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16 Injector Setup (3 Options)

There are several ways to wire and run 16 injectors with Holley EFI HP and Dominator ECUs. It is extremely important to understand the differences, and how these work, as these can affect engine function.

NOTE: Injector Drivers will be defined as drivers 1-12. They may be noted alphabetically in wiring diagrams as A-L. 1=A, 2=B, 3=C, etc.

The following are the ECU pinouts:

Injector A/1	Pin J1B	B19
Injector B/2	Pin J1B	B26
Injector C/3	Pin J1B	B25
Injector D/4	Pin J1B	B13
Injector E/5	Pin J1B	B7
Injector F/6	Pin J1B	B4
Injector G/7	Pin J1B	B5
Injector H/8	Pin J1B	B6
Injector I/9	Pin J2B	B26
Injector J/10	Pin J2B	B7
Injector K/11	Pin J2B	B13
Injector L/12	Pin J2B	B19

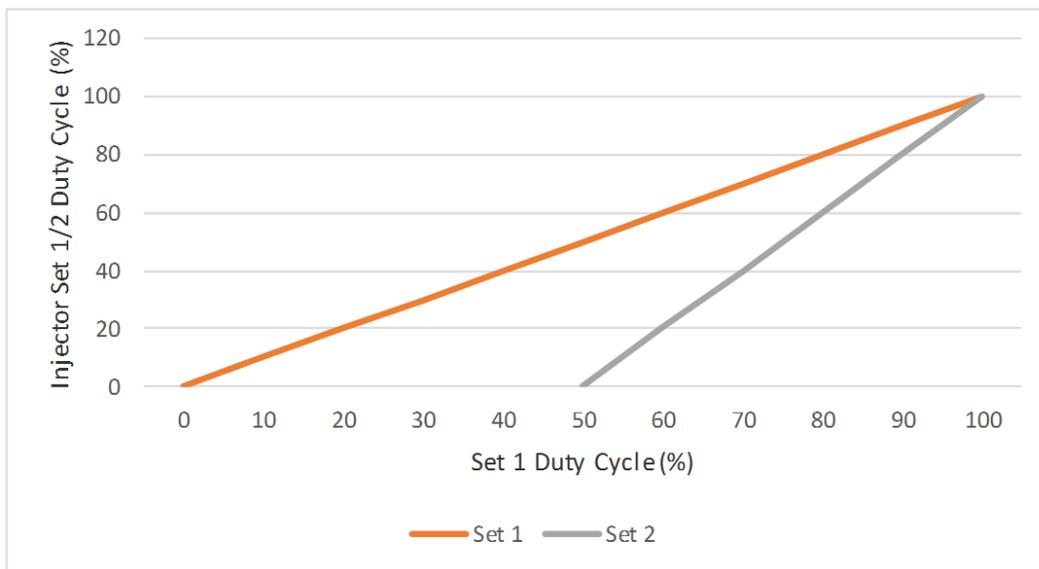
General Information

The following is useful information when using multiple injector sets:

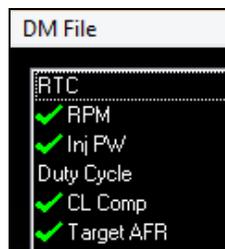
Duty Cycle Activation – Duty cycle of the first injector set, at which the second set ramps in. For example, if 50% is entered, the second set will not start until the flow of the first set reaches 50% duty cycle. At this point, the second set will turn on, and will linearly increase until both sets reach 100% duty cycle at the same time. See graph below.

INJECTOR SET 2

Injector Wiring	Paired	Rated Flow per Injector	160.0 lb/hr	Total Injector Flow	160.0 lb/hr
Injector Type	Low Impedance	Rated Injector Pressure	43.0 psi	Duty Cycle Activation	50.0 %
Injector Off Time					
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
8.0 V	8.8 V	9.6 V	10.4 V	11.2 V	12.0 V
12.8 V	13.6 V	14.4 V	15.2 V	16.0 V	16.8 V
17.6 V	18.4 V	19.2 V	20.0 V		



Duty Cycle Parameter – The “Duty Cycle” parameter indicates TOTAL fuel system duty cycle based on the sum of all of the injector set FLOWS combined.



Individual Injector Driver Output – To review individual injector driver/flow information, review the “Injector #1-12 PPH” (flow for each injector driver) and “Injector #1-12 PW” (pulsewidth for each injector driver). These are found in the data monitor and datalogger views. Individual injector set duty cycles would need to be mathematically calculated based on this data.

16 Injector Option 1 –

8 Injector Drivers – 4:1 Amp Drive – Non-Staged Injector Sets - HP or Dominator ECU:

When to use this: Required when running two sets of injectors on an HP ECU. Use with a Dominator ECU, if you want both sets of injectors to always be active at the same time in a 4:1A mode, as well as if you want individual cylinder trims to be split evenly (vs 16 Injector Option 2).

- Uses Injector Drivers 1-8
- Each driver output is connected to two injectors (wiring split to each).
- Driver 1 is connected to engine cylinder #1. Driver 2 is connected to engine cylinder #2. Driver 3 is connected to engine cylinder #3, etc.
- Individual cylinder fuel trims will modify injector pulse width from the associated individual drivers, which modifies both injectors connected. For example, removing 10% fuel flow from cylinder #5, will lower the injector pulse width of driver #5. The pulsewidth change is based upon the size/flow of both injectors. The ECU will calculate the reduction necessary based on the size of the injectors.
- This can be used for either a HP or Dominator ECU.
- Both sets of injectors need to be high impedance or low impedance. They can't be mixed. Low impedance injectors will be driven in a 4:1 Amp peak and hold mode.

The following is how the software should be set up. Note the following specifics:

- Number of Injector Sets – Enter 3 (even though using 2).
- Injector Type – Select Low Impedance or High Impedance, both sets must be same type.
- Enter the “Rated Flow per Injector” for each set individually as well as corresponding rated pressure for each.
- Injector Set 3 – Set the Rated flow to .1 lb/hr. Set the rated injector pressure to 43. Set the duty cycle activation to 100% (IMPORTANT TO DO). These settings effectively disable the 3rd injector set.

FUEL INJECTOR INFORMATION

Number of Injector Sets

Injection Strategy

Enable Injector End Angle Table

Injector End Angle

INJECTOR SET 1

Injector Wiring Dual Individual
 Injector Type Rated Flow per Injector
 Rated Injector Pressure Total Injector Flow **290.5 lb/hr**
 Injector Off Time

2.48	2.17	1.86	1.62	1.43	1.25	1.15	1.05	0.96	0.87	0.79	0.73	0.67	0.62	0.58	0.53
8.0 V	8.8 V	9.6 V	10.4 V	11.2 V	12.0 V	12.8 V	13.6 V	14.4 V	15.2 V	16.0 V	16.8 V	17.6 V	18.4 V	19.2 V	20.0 V

INJECTOR SET 2

Injector Wiring Dual Individual
 Injector Type Rated Flow per Injector
 Rated Injector Pressure Total Injector Flow **158.5 lb/hr**
 Injector Off Time

2.48	2.17	1.86	1.62	1.43	1.25	1.15	1.05	0.96	0.87	0.79	0.73	0.67	0.62	0.58	0.53
8.0 V	8.8 V	9.6 V	10.4 V	11.2 V	12.0 V	12.8 V	13.6 V	14.4 V	15.2 V	16.0 V	16.8 V	17.6 V	18.4 V	19.2 V	20.0 V

INJECTOR SET 3

Injector Wiring Dual Paired
 Injector Type Rated Flow per Injector
 Rated Injector Pressure Total Injector Flow **0.1 lb/hr**
 Duty Cycle Activation
 Injector Off Time

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8.0 V	8.8 V	9.6 V	10.4 V	11.2 V	12.0 V	12.8 V	13.6 V	14.4 V	15.2 V	16.0 V	16.8 V	17.6 V	18.4 V	19.2 V	20.0 V

16 Injector Option 2 –

12 Injector Drivers – 4:1 Amp Drive – Staged Injector Sets - Dominator ECU:

When to use this: Use when needing to stage in the second set of injectors. The first and second set can be high or low impedance, or one of each.

When **NOT** to use this: It is not recommended to use this strategy if both injector sets are **NOT** mounted in the individual cylinder intake runners, **AND** you are using individual cylinder trims. If you are using a set in the runner, and possibly as set above a blower, **AND** you are doing individual cylinder trims, it is recommended to use Option 1.

- Uses Injector Drivers 1-12
- The primary injector set of 8 injectors, is connected to drivers 1-8. Driver 1 is connected to engine cylinder #1. Driver 2 is connected to engine cylinder #2. Driver 3 is connected to engine cylinder #3. Etc.... (first 8 drivers)
- The secondary set of 8 injectors is connected to drivers 9-12. They **MUST** be wired in the following manner. If they are not, individual cylinder trims will not be adjust to each cylinder properly.

Example firing order: 1-8-4-3-6-5-7-2

Wire injector drivers 9-12 as follows:

Driver 9	Pin J2B-26	Cylinders 1 and 6 (1 st and 5 th in firing order)
Driver 10	Pin J2B-7	Cylinders 8 and 5 (2 nd and 6 th in firing order)
Driver 11	Pin J2B-13	Cylinders 4 and 7 (3 rd and 7 th in firing order)
Driver 12	Pin J2B-19	Cylinders 3 and 2 (4 th and 8 th in firing order)

IMPORTANT! The Individual cylinder fuel trims methodology in this mode is designed to account for the situation where the primary injectors are too small to deal with individual cylinder fuel trims (for example a primary set of 24 lb/hr and a secondary set of 160 lb/hr along with large cylinder trim percentages). Consequently, both the primary and secondary injector flows are modified (AFTER the secondary set is above the duty cycle activation point) by an equal flow percentage. Due to the fact that the second set of 8 injectors is driven by 4 drivers, and two cylinders are tied to one driver, when one cylinder is modified, the other cylinder on a common driver will have its flow modified as well. To offset this change, this primary injector of this “other cylinder” is modified to offset and rebalance the flow to that “other cylinder”. Due to this fact, it is **NOT** recommended to use this strategy if both injectors are **NOT** in the same intake manifold runner.

- This can be used **ONLY** for a Dominator ECU
- Both sets of injectors set can be either high or low impedance, or one of each. Low impedance injectors will be driven in a 4:1 Amp peak and hold mode.

The following is how the software should be set up. Note the following specifics:

- Number of Injector Sets – Enter 2.
- Injector Type – Select proper type for each set. Can be either or both.
- Enter the “Rated Flow per Injector” for each set individually as well as corresponding rated pressure for each.
- Enter the “Duty Cycle Activation”. Duty cycle of the first set, at which the second set is started to ramp in.

FUEL INJECTOR INFORMATION

Number of Injector Sets **Injection Strategy**

Enable Injector End Angle Table **Injector End Angle**

INJECTOR SET 1

Injector Wiring Individual **Rated Flow per Injector**

Injector Type **Rated Injector Pressure** **Total Injector Flow** 158.5 lb/hr

Injector Off Time

2.48	2.17	1.86	1.62	1.43	1.25	1.15	1.05	0.96	0.87	0.79	0.73	0.67	0.62	0.58	0.53
8.0 V	8.8 V	9.6 V	10.4 V	11.2 V	12.0 V	12.8 V	13.6 V	14.4 V	15.2 V	16.0 V	16.8 V	17.6 V	18.4 V	19.2 V	20.0 V

INJECTOR SET 2

Injector Wiring Paired **Rated Flow per Injector**

Injector Type **Rated Injector Pressure** **Total Injector Flow** 290.5 lb/hr

Duty Cycle Activation

Injector Off Time

2.48	2.17	1.86	1.62	1.43	1.25	1.15	1.05	0.96	0.87	0.79	0.73	0.67	0.62	0.58	0.53
8.0 V	8.8 V	9.6 V	10.4 V	11.2 V	12.0 V	12.8 V	13.6 V	14.4 V	15.2 V	16.0 V	16.8 V	17.6 V	18.4 V	19.2 V	20.0 V

16 Injector Option 3 –

12 Injector Drivers – 8:2 Amp Drive First set, 4:1 Amp Drive Second set (or high impedance) – Staged Injector Sets - Dominator ECU:

When to use this: Use when needing to stage in the second set of injectors and run the first set in a 8:2 Amp Peak and Hold and second set in 4:1 Amp peak and hold (or high impedance injectors). The first set of injectors is a design that can utilize an 8:2 Amp peak and hold mode, and the second set 4:1 Amp low impedance or high impedance.

When **NOT** to use this: It is not recommended to use this strategy if both injector sets are **NOT** mounted in the individual cylinder intake runners, **AND** you are using individual cylinder trims.

- Uses Injector Drivers 1-12
- The primary injector set of 8 injectors, is connected to drivers 1-8. Driver 1 is connected to engine cylinder #1. Driver 2 is connected to engine cylinder #2. Driver 3 is connected to engine cylinder #3, etc. – first 8 drivers). It is recommended to feed all 8 injectors with a 10-12 gauge feed wire (or twin 14 ga) due to the higher current drive.
- The secondary set of 8 injectors is connected to drivers 9-12. They **MUST** be wired in the following manner. If they are not, individual cylinder trims will not be adjust to each cylinder properly.

Example firing order 1-8-4-3-6-5-7-2

Wire injector drivers 9-12 as follows:

Driver 9	Cylinders 1 and 6 (1 st and 5 th in firing order)
Driver 10	Cylinders 8 and 5 (2 nd and 6 th in firing order)
Driver 11	Cylinders 4 and 7 (3 rd and 7 th in firing order)
Driver 12	Cylinders 3 and 2 (4 th and 8 th in firing order)

IMPORTANT! The Individual cylinder fuel trims methodology in this mode is designed to account for the situation where the primary injectors are too small to deal with individual cylinder fuel trims (for example a primary set of 24 lb/hr and a secondary set of 160 lb/hr along with large cylinder trim percentages). Consequently both the primary and secondary injector flows are modified (AFTER the secondary set is above the duty cycle activation point) by an equal flow percentage. Due to the fact that the second set of 8 injectors is driven by 4 drivers, and two cylinders are tied to one driver, when one cylinder is modified, the other cylinder on a common driver will have its flow modified as well. To offset this change, this primary injector of this “other cylinder” is modified to offset and rebalance the flow to that “other cylinder”. Due to this fact, it is **NOT** recommended to use this strategy if both injectors are **NOT** in the same intake manifold runner.

- This can be used **ONLY** for a Dominator ECU
- The primary set of injectors has to be a design that can be run in a 8:2 Amp drive mode. The second stage set can be a 4:1 Amp drive low impedance injector, or a high impedance.

The following is how the software should be set up. Note the following specifics:

- Number of Injector Sets – Enter 3 (even though there are only 2 sets)
- Injector Type – Select low impedance for injector set 1. Select high or low impedance for injector set 3.
- Enter the “Rated Flow per Injector” for sets 1 and 3 as well as corresponding rated pressure for each.
- Enter the “Duty Cycle Activation”. Duty cycle of the first set, at which the second set is started to ramp in.
- IMPORTANT – For Injector Set 2. Set the “Rated Flow Per Injector” to .1 lb/hr. Set the “Rated Injector Pressure” to 43 PSI.

FUEL INJECTOR INFORMATION

Number of Injector Sets Injection Strategy

Enable Injector End Angle Table Injector End Angle

INJECTOR SET 1

Injector Wiring Rated Flow per Injector

Injector Type Rated Injector Pressure Total Injector Flow **456.4 lb/hr**

Injector Off Time

2.48	2.17	1.86	1.62	1.43	1.25	1.15	1.05	0.96	0.87	0.79	0.73	0.67	0.62	0.58	0.53
8.0 V	8.8 V	9.6 V	10.4 V	11.2 V	12.0 V	12.8 V	13.6 V	14.4 V	15.2 V	16.0 V	16.8 V	17.6 V	18.4 V	19.2 V	20.0 V

INJECTOR SET 2

Injector Wiring Rated Flow per Injector Total Injector Flow **0.1 lb/hr**

Injector Type Rated Injector Pressure

Injector Off Time

2.48	2.17	1.86	1.62	1.43	1.25	1.15	1.05	0.96	0.87	0.79	0.73	0.67	0.62	0.58	0.53
8.0 V	8.8 V	9.6 V	10.4 V	11.2 V	12.0 V	12.8 V	13.6 V	14.4 V	15.2 V	16.0 V	16.8 V	17.6 V	18.4 V	19.2 V	20.0 V

INJECTOR SET 3

Injector Wiring Rated Flow per Injector Total Injector Flow **211.3 lb/hr**

Injector Type Rated Injector Pressure Duty Cycle Activation

Injector Off Time

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8.0 V	8.8 V	9.6 V	10.4 V	11.2 V	12.0 V	12.8 V	13.6 V	14.4 V	15.2 V	16.0 V	16.8 V	17.6 V	18.4 V	19.2 V	20.0 V

8 Injector Setup (Single Option)

8 Injectors – 8 Injector Drivers – 8:2 Amp Drive – Single Injector Set – HP or Dominator ECU:

When to use this: When running a single set of injectors with a HP or Dominator ECU, and needing a 8:2 Amp peak and hold drive.

- Wire injectors as normal, except make sure the main injector power feed wire is 10-12 Ga (or two 14 Ga wires). 20 gauge to each individual injector is acceptable, although larger does no harm.

The following is how the software should be set up. Note the following specifics:

- Number of Injector Sets – Enter 3 (even though there is only 1 set)
- Injector Type – Select low impedance for injector set 1. Select high or low impedance for injector set 3, doesn't matter.
- Enter the "Rated Flow per Injector" for sets 1 properly.
- For injector sets 2 and 3 enter .1 lb/hr for "Rated Flow per Injector" and 43 PSI for "Rated Injector Pressure".
- Enter 100% for the "Duty Cycle Activation".

FUEL INJECTOR INFORMATION

Number of Injector Sets Injection Strategy

Enable Injector End Angle Table Injector End Angle

INJECTOR SET 1

Injector Wiring Rated Flow per Injector

Injector Type Rated Injector Pressure Total Injector Flow **456.4 lb/hr**

Injector Off Time

2.48	2.17	1.86	1.62	1.43	1.25	1.15	1.05	0.96	0.87	0.79	0.73	0.67	0.62	0.58	0.53
8.0 V	8.8 V	9.6 V	10.4 V	11.2 V	12.0 V	12.8 V	13.6 V	14.4 V	15.2 V	16.0 V	16.8 V	17.6 V	18.4 V	19.2 V	20.0 V

INJECTOR SET 2

Injector Wiring Rated Flow per Injector

Injector Type Rated Injector Pressure Total Injector Flow **0.1 lb/hr**

Injector Off Time

2.48	2.17	1.86	1.62	1.43	1.25	1.15	1.05	0.96	0.87	0.79	0.73	0.67	0.62	0.58	0.53
8.0 V	8.8 V	9.6 V	10.4 V	11.2 V	12.0 V	12.8 V	13.6 V	14.4 V	15.2 V	16.0 V	16.8 V	17.6 V	18.4 V	19.2 V	20.0 V

INJECTOR SET 3

Injector Wiring Rated Flow per Injector

Injector Type Rated Injector Pressure Total Injector Flow **0.1 lb/hr**

Duty Cycle Activation

Injector Off Time

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8.0 V	8.8 V	9.6 V	10.4 V	11.2 V	12.0 V	12.8 V	13.6 V	14.4 V	15.2 V	16.0 V	16.8 V	17.6 V	18.4 V	19.2 V	20.0 V