

Using the PE-ECU-1 System with a Honda CBR F4 or F4I 600cc Engine

The PE-ECU-1 can be installed on virtually any 1,2,4,6 or 8 cylinder even-firing engine that requires fuel injection and/or ignition control. All of the functions of the ECU can be adjusted by using a laptop or PC running Windows®. The following describes the basic requirements for using the system with a Honda 600cc F4 or F4I motorcycle engine. Please refer to the User's Manual for a more in-depth description.

Input Sensors

The stock Honda F4 and F4I crank position sensors can be used with the PE-ECU-1 engine control system, provided the engine controller is configured for a 2-wire variable reluctance sensor. The configuration for the input is handled at the factory via a set of board jumpers. If the type of crank sensor should ever be changed, please contact PE for support on this issue.

The stock Honda crank sensor should be wired according to the following:

- Solid Yellow Wire – Pin 34 on ECU
- Yellow with White Stripe (GND) – Pin 25 on ECU

Failure to wire the sensor in this way may result in an engine that misfires and/or has incorrect ignition timing.

The stock Honda trigger wheel **cannot** be used with the PE-ECU-1 system due to the differences in the number and spacing of the teeth. The PE-ECU-1 must be provided with a 12-1 pulse-train, correctly phased with TDC #1 according to Figure 1.

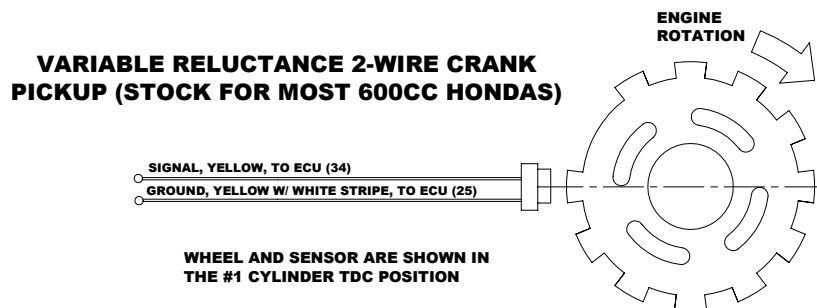


Figure 1 – Correct Trigger Wheel/Sensor Orientation

Performance Electronics, Ltd. (PE) can supply one of several different sized trigger wheels for different applications (a wheel is included with the system). For most Honda motorcycles, including the F4 and F4I, the 2.4" diameter wheel fits nicely under the side cover in place of the stock trigger wheel (Figure 2). The PE supplied trigger wheel installs in place of the stock wheel without any modifications. Drawings for the trigger wheels can be downloaded from the PE web site.

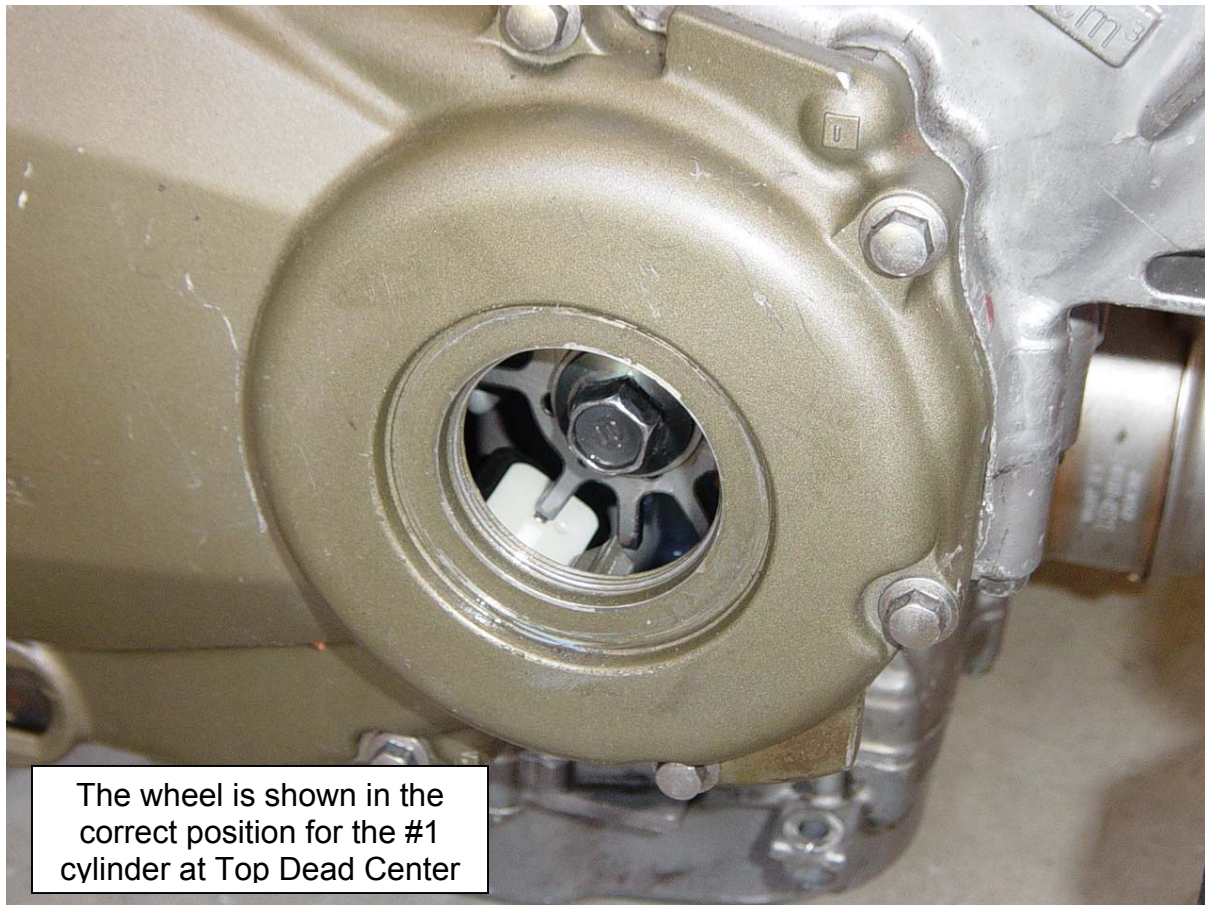


Figure 2 – Installation of PE-ECU-1 Trigger Wheel in F4/F4I Engine

Like the crank position sensor, the stock Throttle Position Sensor (TPS) can also be used with the PE-ECU-1 system. The only setup that is required for the TPS is that it must be calibrated using the Monitor software. This is a simple two-step process that requires the user to input the fully open and fully closed voltages for the sensor.

Because the PE-ECU-1 is used on many engines, it is not currently compatible with some of the stock Honda sensors including the Manifold Absolute Pressure (MAP), Inlet Air Temperature (IAT) or Coolant Temperature (CLT) sensors. GM sensors must be used to measure these parameters. These sensors can be purchased from PE for an additional charge. Check the PE web page for current price listings.

Ignition

The stock coil-on-plug ignition coils for both the F4 and F4I (Figure 3) are compatible with the PE-ECU-1 system provided that they are wired according to the User's Manual. Because the PE-ECU-1 system has only 2 ignition drivers, the coils must be wired in series and paired together to avoid damaging the coils or the ECU. The PE-ECU-1 **does not** require the use of any external igniters when used with the stock Honda coils. Verify that the resistance of the primary side of the coils is at least 0.8 ohms. Please see the User's Manual for specific wiring.



Figure 3 - Stock F4/F4I Ignition Coil

The amount of time that the coils charge each revolution can be configured in the "Setup" menu under the "Engine Tab" in the Monitor Program. The stock Honda coils require less than 3.0 ms to charge completely. Charging the coils for any longer has no positive effect and only heats the coils. Set the "Charge Time" parameter to be 3.0 ms for the stock coils.

Fuel Delivery

All of the stock fuel delivery hardware are compatible with the PE-ECU-1 system including the fuel injectors, fuel pump and pressure regulator. Follow the User's Manual for specific information regarding the wiring for the injectors and the fuel pump.