

Base Configuration

Settings

The base configuration window displays the trigger setup, as well as a trigger configuration wizard and text input box to help with setting up a new trigger. These settings are intended to be set once and not changed while running.

Please note there are other settings that affect the crank and cam sensors under the “Sensors” tab.



1. Sync Points (sync pattern)

Sync points are the trigger edges that are used to schedule the ignition and injection events.

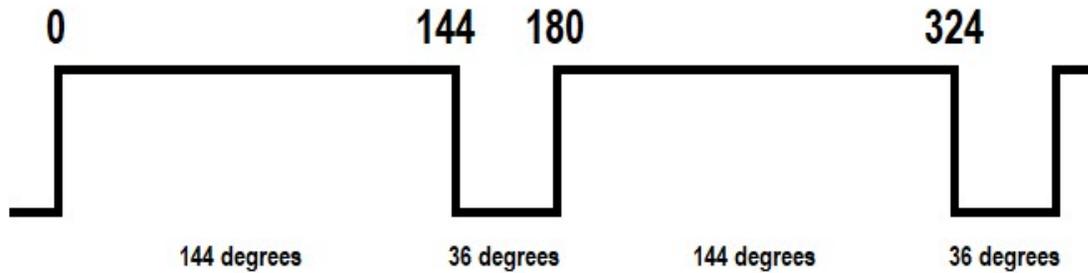
In this example setup, a Hall-Effect distributor is used that gives a rising edge at 5 BTDC and a falling edge at 41 BTDC. It is only required to input the sync points over 360 degrees of crankshaft rotation. To manually set up these points, enter “0, 144, 180, 324” and press “Input Sync Pattern” – these are the angles of rotation travelled relative to the first point. It is not required to input “5” or “-5” for the first point at 5 BTDC – this offset is taken care of in another setting (see 13).

2. Sync Edges (secondary pattern)

Sync edges are produced by the camshaft position sensor. They are used by a sequential system to synchronize engine position across 720 degrees. The sync edges are not used in this non-sequential example.

3. Crank Edges (primary pattern)

In this example, the crank trigger edges are all used a sync points and are the same. To manually set up these points, enter “0, 144, 180, 324” and press “Input Primary Pattern”.

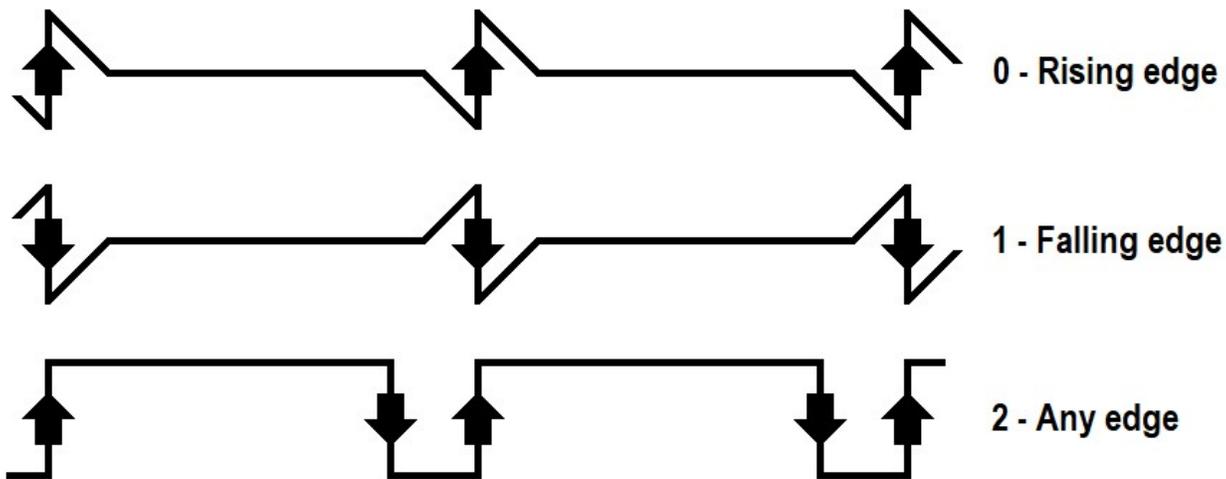


The minimum recommended crank edge pattern is an edge at around 60 BTDC. Note that in this case, both rising and falling edges are used as they are both reliable on a Hall-Effect sensor. For a magnetic reluctor sensor, only the steepest edge (ether rising or falling) should be used as a timing edge.

4. Primary Edge Setup

The primary edge setup controls which crank edges are processed. Three values are possible:

- 0 for rising edges
- 1 for falling edges
- 2 for any edge



For Hall-Effect crank trigger arrangements with greater than 8 edges per engine rotation, it is recommended to use **either** rising or falling edge to reduce the processing load.

5. Secondary Edge Setup

The secondary edge setup is the same as for primary edge setup.

6. Primary VR Enable

This setting controls the magnetic variable reluctance detection circuit crank (primary) input. There are two modes of operation:

- (1) VR on – the pull-up resistor is disabled on the crank (primary trigger) input and a variable reluctance sensor can be used, with the reference grounded.
- (0) VR off – the pull-up resistor is enabled and a Hall-Effect, optical or any square wave input can be used. The amplitude must be at least 3.3V, reference grounded.

7. Secondary VR Enable

This setting controls the magnetic variable reluctance detection circuit sync (secondary) input. The setting operates the same as the primary enable.

8. Primary First Edge Rising

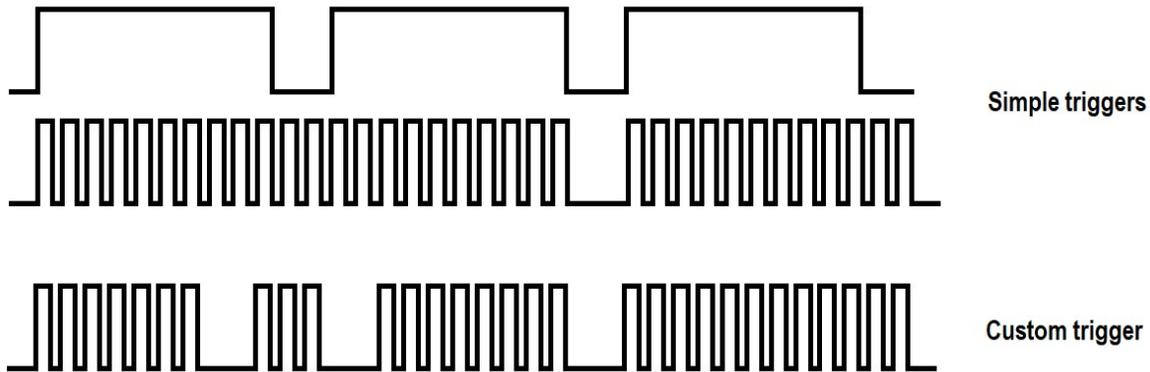
This setting is on (1) when the edge at the start of the crank (primary) pattern is a rising edge.

9. Secondary First Edge Rising

This setting is on (1) when the edge at the start of the sync (secondary) pattern is a rising edge.

10. Trigger type

This setting is zero for automatic triggers. An automatic trigger can be a simple pattern of edges or a simple series of close equal distance edges that have missing tooth/teeth. A non-zero value is a value that accompanies a custom trigger, added to the code-base for a complex trigger. Please contact Rabbit ECU Project for more information, or if you wish to request a custom trigger.



11. Sync type

This setting is zero for automatic triggers. Similar to Trigger Type, a non-zero value accompanies a custom trigger.

12. Sync phase repeats

This setting is 1 for a trigger that repeats every 360 crank degrees (a non-sequential system), or 2 for a trigger that repeats every 720 crank degrees (a sequential system). For sequential systems, a sync channel input must be used.

13. Timing Main Offset

This setting allows for an angle offset from TDC to the first edge of the crank trigger (primary) pattern. When the edge occurs before TDC, then the value is negative crank degrees. When the edge occurs after TDC, then the value is positive crank degrees. In the example, this setting is -5 degrees because the edge occurs at 5 BTDC.

Trigger Wizard

It is possible to load the trigger settings automatically by selecting a trigger from the Trigger Configuration menu.