

FIE, LLC 4-Channel / 8-Event Multi-Timer

This unit allows the user to specify two separate ON and OFF events per pass for any or all of 4 separate channels as desired. This is a perfect controller for multi-stage fuel systems utilizing electronic valves to lean or enrich fuel delivery according to a timed schedule of events. The FIE electronic lean-out or enrichment valves are ideal for this controller.

This unit counts up to 9.999 seconds upon activation and allows up to 8 on/off events (2 per channel) to a resolution of .001 second.

IMPORTANT NOTES

1. The color-coded wire lead for each channel is a GROUNDING output. Provide continuous 12VDC to your controlled devices and then use the leads from this unit to complete the circuit to ground for them to activate.
2. Each channel of this controller can switch up to 5 amps of continuous current. If the devices you wish to control consume more than **FIVE AMPS**, you must use a relay for that device or the controller will be damaged.

Activation options

Activation of the controller is accomplished by use of a throttle switch input and an optional trans-brake input. The throttle switch **MUST** be used for all installations and the trans-brake input is an optional control feature.

When the throttle switch is triggered (and supplies 12V to the orange wire), the unit is activated and counting begins **UNLESS** the trans-brake input (yellow wire) also sees 12V. While the throttle switch is triggered, removing 12V from the trans-brake input the unit is activated and counting begins.

Transmission utilizing a trans-brake: Arm the unit (power on), stage and set the trans-brake before bringing the RPM up for launch and triggering the throttle switch. As soon as the trans-brake is released, the unit activates and counts as long as the throttle switch is triggered.

Pedal Clutch: Trans-brake input can be used with a clutch switch so that engine RPM can be brought up and the throttle switch triggered before actual activation happens. Arm the unit (power on), bring engine RPM up with the clutch pedal depressed far enough to supply 12V to the 'trans-brake' input. Releasing the clutch with the throttle switch triggered activates the controller. Placement of clutch and throttle switch will be important!

Glide clutch: Since driver leaves from an idle, use only the throttle switch input. Arm the unit (power on), stage, leave. Position the throttle switch so that activation occurs when desired throttle position is achieved.

The activation mode or "ACT" parameter on the screen can be set to **RESET** or **HOLD** when activation is interrupted (throttle lifted):

RESET: The count time is reset and when the throttle switch is re-triggered, the count starts again from 0.000.

HOLD: The count time is suspended and continues where it left off when the throttle switch is re-triggered.

Note: When activation is suspended by lifting the throttle, all channels outputs are turned OFF and anything connected to the controller is turned OFF until the throttle switch is re-triggered – regardless of the ACT mode chosen.

Input Plug Wiring

RED: 12VDC power input (utilize a toggle for an “ARM” switch)
BLACK: Ground
YELLOW: Trans-brake input
ORANGE: Throttle switch
PINK: Channel 1 Grounding output
GREEN: Channel 2 Grounding output
WHITE: Channel 3 Grounding output
GRAY: Channel 4 Grounding output

The color-coded wire lead for each channel is a GROUNDING output. Provide 12VDC to your controlled devices and then use the leads from this unit to complete the circuit to ground for them to activate.

Each channel of this controller can switch up to 5 amps of continuous current. If the devices you wish to control consume more than **FIVE AMPS**, you must use a relay for that device or the controller will be damaged.

Interface

Each channel of this controller features an A and B event. Either, both or neither can be set and used as desired. Unused events can be disabled (OFF) and they are no longer shown in main screen. This keeps the interface tidy and straight forward by showing only the events you’re really using.

The main screen shows live readings. A dot next to “SW” or “T/B” indicates when the throttle switch or trans-brake input is triggered. The current status of each event is shown live as well. When not activated, the main screen will show all events to be OFF.

Programming

To enter programming mode, push the **M** button.

The dot ● indicates the current parameter for modification.

Once in programming mode, the **M** button advances the dot ● to the next parameter.

The arrow buttons ↑ ↓ toggle the available options for each parameter and also change the time settings for each event.

On the first “Stage Setup” screen, the ACT mode can be set (toggle Reset or Hold using the arrow buttons). Each channel has an A and B event. Each can be visited on this first screen and visibility turned to either ON or OFF. If disabled with an OFF setting, the event will not appear on the live main screen. If the event is left set to ON, but the ON and OFF times left at 0.000, it will still be visible, but simply ignored during activation.

Move to the next programming screen (time modification) by pushing the **E** button.

Push the **M** button for the dot ● to appear. Use **M** to advance the dot ● to the time parameter you wish to change. Use the arrow buttons ↑ ↓ to set the time for the event.

Push **E** to get to the second screen of events and set their times as above.

Once finished programming, press **E** until you’re returned to the live main screen.

Frequently Asked Questions

Q. Will an event programmed with an ON and OFF time of “0.000” be ON all the time?

A. No, it will be ignored and will be OFF during activation. An event programmed with an ON and OFF time of the minimum and maximum (0.000 and 9.999) will be on all the time (as long as the throttle switch is triggered).

Q. I want an event to be ON the instant I leave. Do I need to set it to .001?

A. No, you can set the ON time to 0.000 for the event and as long as the OFF time is larger, it will be ON until then. If the OFF time is equal/sooner/less than the ON time, the event is ignored.

Q. If I set an event with the highest OFF time allowed (9.999) what happens if I run a pass that takes longer than that? Will it close at 9.999?

A. No. When set to the max OFF time (9.999) an activated event stays ON as long as the throttle switch remains triggered or re-triggered on a pass.

Q. How can I make an event stay active ALL THE TIME. I want it OFF at the starting line but ON during an entire run, no matter how long it takes.

A. Program the ON time for the event to the minimum: 0.000 Then program the OFF time for the event to the maximum: 9.999. Now whenever the controller is activated, the event will always be ON.

Q. What is the safe voltage range for the controller?

A. The controller requires an input voltage (to the RED wire) of 10-18VDC. The channels are intended to switch ground for the same range of DC voltage

Q. During static/workbench testing on the car, how can I reset the unit to start another activation cycle?

A. An “ARM” switch that supplies power to the unit is the best bet. Just turn it OFF and ON again. Also, supplying power to just the trans-brake input (yellow wire) will also reset the unit back to 0.000 and ready for re-activation.

Q. What should I use for the throttle and/or clutch switch?

A. There are a million switches out there that will work great. Micro-switches with plungers, rollers, flippers, etc. are available from electronics suppliers. Take extra care that your switch does not limit movement or cause a stuck throttle situation! In some installations, you may want the throttle switch to only activate in the 100% wide-open position. In clutch situations, you’ll need the switch location to be somewhat adjustable so that the car can be staged without activation.

Q. Can I have the controller shift the car for me?

A. Certainly! If the shifter is electric and consumes more than 5 amps, be sure to use a relay. Depending on your shifter and arrangement, one channel can even shift the car twice for you. Use event A of a channel to send the first shift signal of about 1 second duration at the desired time. Then use event B of the same channel to create another ON signal to shift again to high-gear.

Q. What are some recommended ways to use my controller to enhance performance?

A. The options are endless. Normally OPEN and normally CLOSED combinations of valves can be used for even more scenarios. More fuel can be added at the launch to enhance torque and then fuel can be taken away as the car moves down track. Large amounts of fuel can be added to kill power for traction control. High-speed lean-out duties are easily handled as are high-speed enrichment for screw blown applications.

Events can be dedicated to manipulating ignition timing, boost controllers, shift-points, etc.