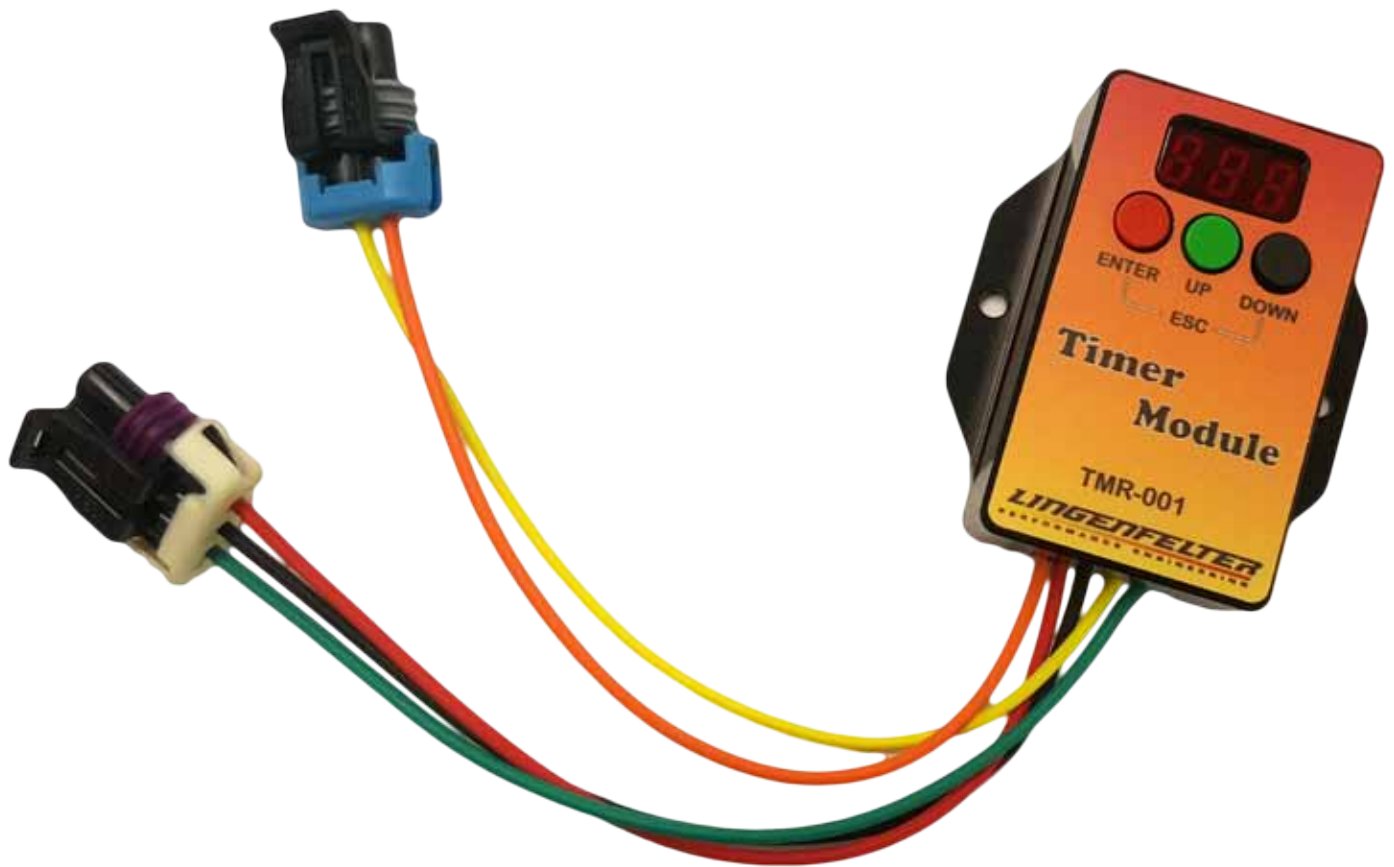


Lingenfelter TMR-001 Timer Delay Control Module



PN: L460290000

Parts List

Lingenfelter TMR-001 Timing Controller Module(PN: L460290000)

#	Description	Part number
1	Timer Delay Control Module	TMR-001
1	Wiring harness pigtails w/ connectors	
2	Hook & loop tape	
2	Self-tapping screw	AV16037
2	Diode, 3A MAX	RL851-B
1	Lingenfelter Performance Engineering decal	L920010000
1	Instructions	

Tools & Materials Required

- Phillips head screwdriver
- Flat head screwdriver
- Wire crimping tool

Optional Items

Description	Part number
TBRC-001 Temperature Based Relay Controller	L460220000
40 Amp sealed heavy duty relay kit	L450100000
Sealed fuse holder	L450130000

Description:

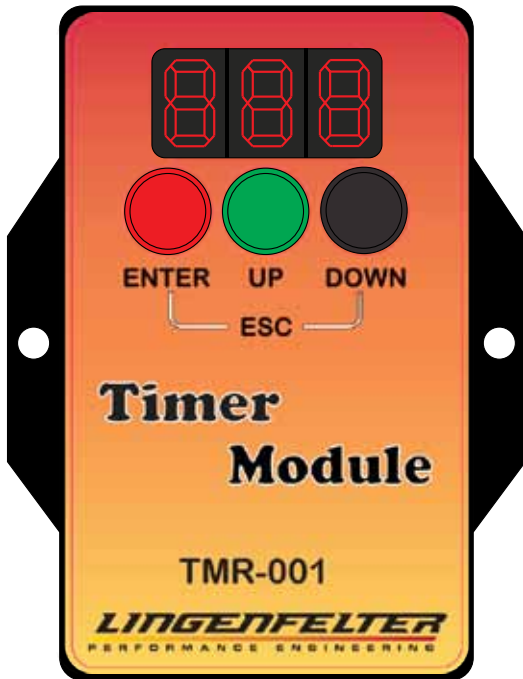
The Lingenfelter Performance Engineering TMR-001 is designed to activate or deactivate a device after a specific amount of time programmed into the device. If your device draws more than 10A, you will need to use a relay. The module has two outputs allowing it to activate two separate devices simultaneously. The TMR-001 can be adjusted in 0.01 second, 0.1 second, 1 seconds, or 1 minute increments. The TMR-001 delay can be adjusted from 0.01 seconds to 999 minutes. The TMR-001 allows pumps and fans to be turned off after a preset time while the vehicle is shutdown (e.g. at the track). The TMR-001 also can be used to improve reaction time consistency in drag racing applications.

This module can be paired with other devices such as the LNC-2000 in order to activate timing retard or a nitrous controller to activate nitrous after a preset time.

The TMR-001 can also be used for cycle testing and other interval type control while in Repeat mode.

Product Details:

- Voltage operating range: 9 -18 volts
- Max current: 10A
- (3) Seven segment displays
- Black anodized aluminum enclosure
- Fully potted internally



Programming button description:

ENTER - Accept and enter programming mode.

UP - Increment value up or change selection.

Down - Decrement value down or change selection.

ESC - Press "ENTER" + "Down" for ESC key.

Parameter list:

1. Delay
2. Timer control time
3. Timer resolution
4. Output function
5. Timing mode

Parameters:

1. Delay - Represents the amount of time that must pass before the timer begins.
2. Timer control time - Represents the amount of time the outputs remain activated.
3. Timer resolution - Represents the timer resolution
 - 1 = 0 - 9.99 seconds in 0.01 seconds increments
 - 2 = 0 - 99.9 seconds in 0.1 seconds increments
 - 3 = 0 - 999 seconds in 1 second increments
 - 4 = 0 - 999 minutes in 1 minute increments
4. Output function - Represents the output state of the TMR-001 on powerup.
 - 0 = Normally Off
 - 1 = Normally On
5. Timing mode
 - 0 = Single shot. The timer function is set to only count down once.
 - 1 = Repeat. The timer function is set to repeat until the TMR-001 is powered off.

Start Timer:

When the device is powered and ready for the timer to be activated, the display will read "rdy." The timer can then be started by pressing the green "UP" button or by applying +12V to the yellow "activation" wire.

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Example 1:

- Delay = 2 minutes
- Timer Control Time = 30 minutes
- Output function = Normally On
- Timing mode = Single Shot

P1 (Delay) = 002

P2 (Timer Control Time) = 030

P3 (Timer Resolution) = 4

P4 (Output Function) = 1

P5 (Timing Mode) = 0

	Powered Off	Prior to activation	Output state during delay	Output state during timer	Output state after timer
Output State	OPEN	ON (Ground)	ON (Ground)	OFF	ON (Ground)
Duration	-	-	2 minutes	30 minutes	-

Example 2:

- Delay = 0
- Timer Control Time = 9.99 seconds
- Output function = Normally Off
- Timing mode = Single Shot

P1 (Delay) = 0.00

P2 (Timer Control Time) = 9.99

P3 (Timer Resolution) = 1

P4 (Output Function) = 0

P5 (Timing Mode) = 0

	Powered Off	Prior to activation	Output state during delay	Output state during timer	Output state after timer
Output State	OPEN	OFF	OFF	ON (Ground)	OFF
Duration	-	-	0 seconds	30 minutes	-

Example 3:

- Delay = 60 seconds
- Timer Control Time = 30 seconds
- Output function = Normally On
- Timing mode = Repeat

P1 (Delay) = 60.0

P2 (Timer Control Time) = 30.0

P3 (Timer Resolution) = 2

P4 (Output Function) = 1

P5 (Timing Mode) = 1

	Powered Off	Prior to activation	Output state during delay	Output state during timer	Output state after timer
Output State	OPEN	ON (Ground)	ON (Ground)	OFF	Loops to Delay
Duration	-	-	60 seconds	30 seconds	N/A

Table 1: Wiring		
Wire Color	Description	Notes
Red	+12V switched power input	Connects to a switched and fused +12V source.
Black	Ground input	Connects to a vehicle ground.
Yellow	+12V Activation input	(Optional) Connect to a switched +12V source
Green	Ground output	Connects to the ground side of a relay.
Orange	Ground output	Connects to the ground side of a relay.

Installation:

- Make sure the ignition is off before beginning installation.
- You can mount the TMR-001 using the supplied hook and loop tape or the supplied self tapping screws.
- The TMR-001 is intended to be mounted in the driver compartment away from all major heat sources.
- Do NOT install within 6" of nitrous solenoids or other devices with strong magnetic fields.
- Connect both of the TMR-001 wire harness connectors into the pigtail harness's provided, if necessary.
- Connect the red wire to a switched and fused +12V source.
- Connect the black wire to a vehicle ground.
- (Optional) Connect the yellow wire to a switched +12V source for timer activation.
- Connect the output wires to the ground side of the relays which they will activate/deactivate.
- Program the TMR-001.

DO NOT place in direct exposure to exhaust manifolds, turbocharger turbine housings or other underhood items that are high temperature heat sources (radiated heat sources). The warranty does not cover damage due to melted enclosures or wiring due to improper installation.

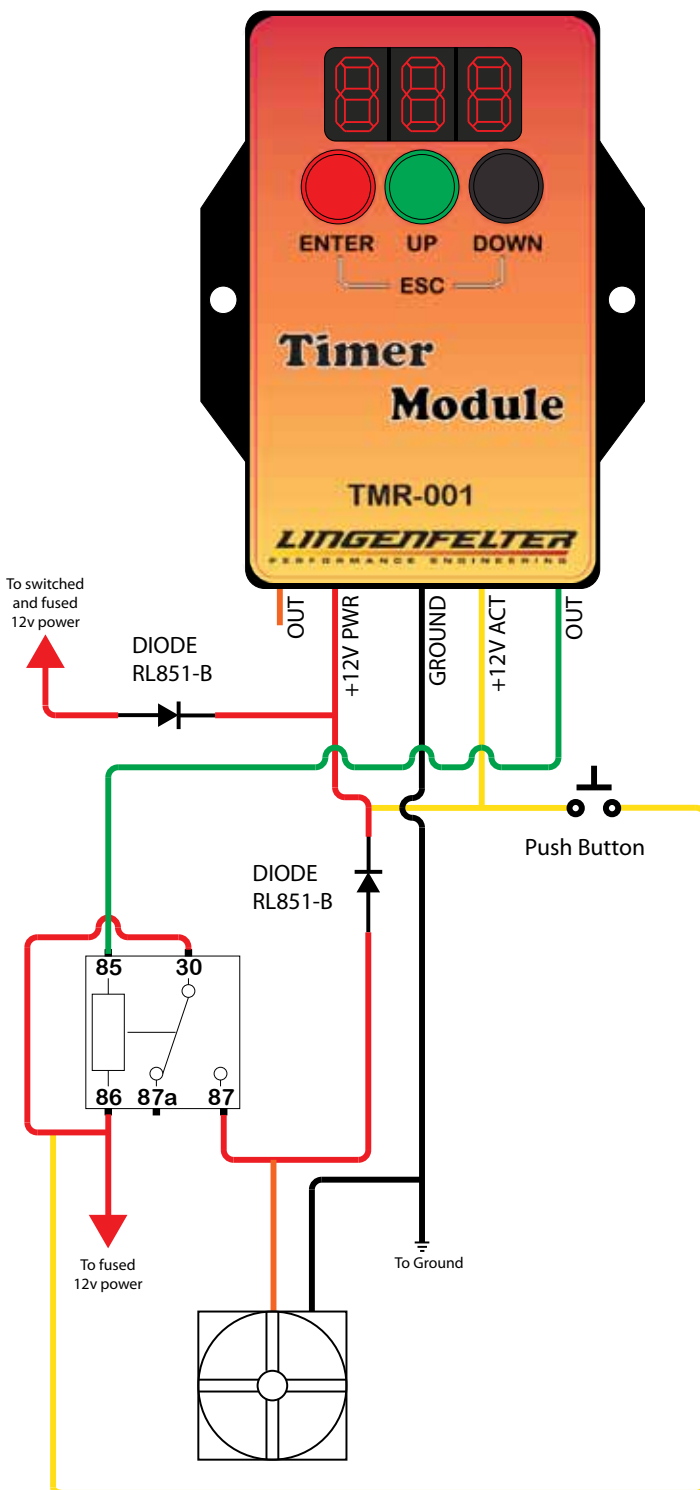
Do NOT submerge Controller in liquid or directly wash unit with liquid of any type! The switches on the TMR-001 are sealed but are NOT rated for high pressure wash.

Do NOT mount the TMR-001 in the engine compartment. The display is not rated for underhood temperatures.

TMR-001 wired to turn off with fan/pump when the with the timer counts down to zero

This wiring configuration is used to a power a fan or pump while the vehicle is off. When the timer on the TMR-001 counts down to 0 the fan/pump and the TMR-001 will power OFF. The Output Function on the TMR-001 must be set to Normally off and the Delay function must be set to 0 in order for this wiring configuration to function correctly. It is recommended that the switched power come from ignition voltage. While the ignition voltage is ON the TMR-001 can be programmed to the desired time settings. The timer can be started by pressing the GREEN UP button or by pressing the external switch. If you would like to press the GREEN UP button to start the timer on the TMR-001, ignition voltage must be ON. Once the timer has started ignition voltage can be turned OFF. The external push button switch allows the user to start the timer on the TMR-001 while ignition voltage is OFF. The diodes must be present, so battery voltage does not backfeed into the ECM if ignition voltage is used. The diodes also ensure that the ignition voltage will not power the fan/pump.

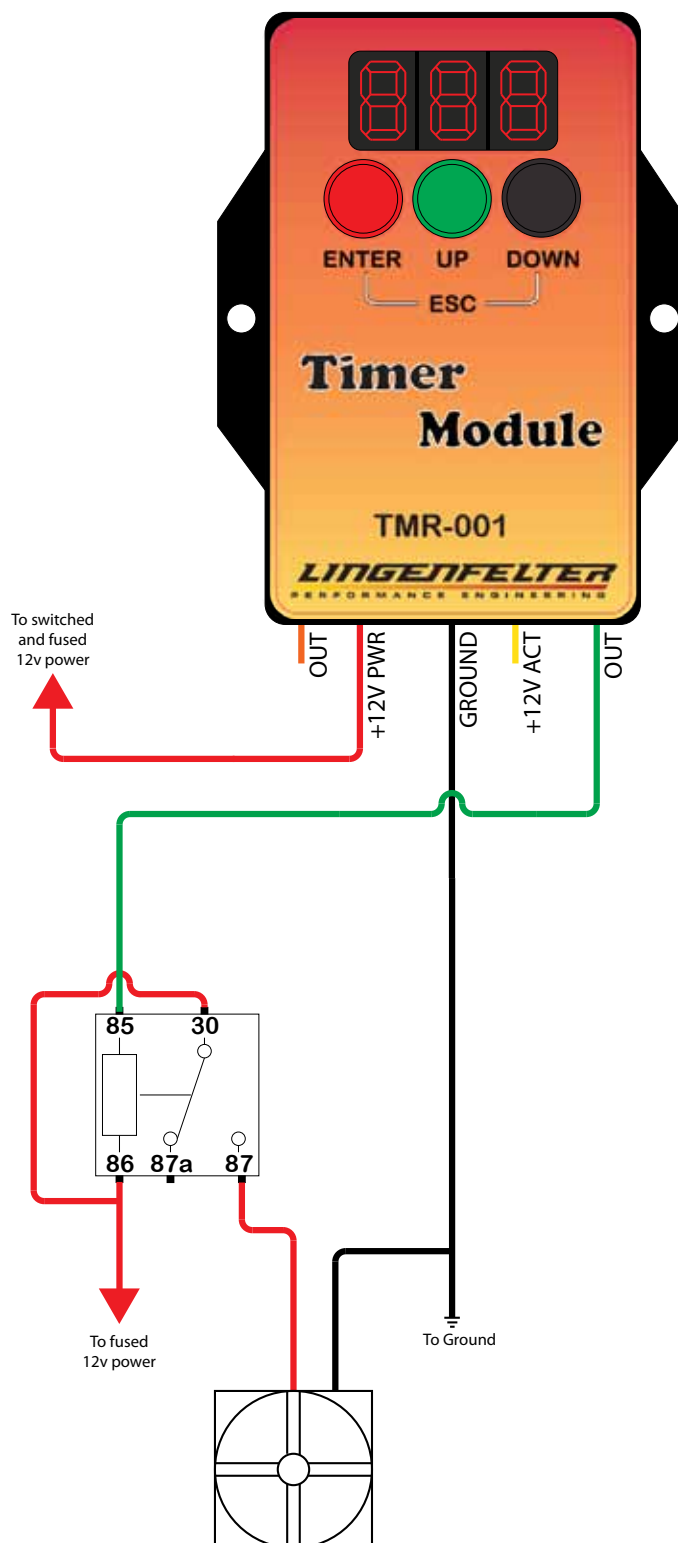
NOTE: The push button switch is optional.



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TMR-001 used for cycle testing

This wiring configuration is used to cycle test pumps, fans, or other electrical type wiring. Adjust the different programming settings accordingly. The on time and the off time can be adjusted. The Timing Mode function must be set to 1 (repeat). See example 3 on page 4.



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NOTICES:

It is the responsibility of the purchaser to follow all guidelines and safety procedures supplied with this product and any other manufacturer's product used with this product.

Lingenfelter Performance Engineering assumes no responsibility for damages resulting from accident, improper installation, misuse, abuse, improper operation, lack of reasonable care, or all previously stated reasons due to incompatibility with other manufacturer's products.

Lingenfelter Performance Engineering assumes no responsibility or liability for damages incurred from the use of products manufactured or sold by Lingenfelter Performance Engineering on vehicles used for competition racing.

It is the purchaser's responsibility to check the state and local laws and sanctioning body requirements pertaining to the use of this product for racing applications. Lingenfelter Performance Engineering does not recommend nor condone the use of its products for illegal street racing.

DISCLAIMER:

The information provided in this document is intended for informational purposes only and is subject to change without notice. Lingenfelter Performance Engineering also reserves the right to make improvements and/or changes to the product described at any time without notice.

For additional product installation information and technical support, contact Lingenfelter Performance Engineering or your Lingenfelter Performance Engineering products distributor. You can also find technical support and usage discussions regarding this product and many other Lingenfelter Performance Engineering products in our Internet forums:

http://www.lingenfelter.com/forum_lingenfelter/index.php

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Limited Warranty:

Lingenfelter Performance Engineering warrants the Lingenfelter TMR-001 Timing Controller Module be free from defects in material and workmanship under normal use and if properly installed for a period of one year from the date of purchase. If the module is found to be defective as mentioned above, it will be replaced or repaired if returned prepaid along with proof of date of purchase. This shall constitute the sole remedy of the purchaser and the sole liability of Lingenfelter Performance Engineering. To the extent permitted by law, the foregoing is exclusive and in lieu of all other warranties or representations whether expressed or implied, including any implied warranty of merchantability or fitness. In no event shall Lingenfelter Performance Engineering be liable for special or consequential damages.

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