Rat2 Motorsports Launch Control Detailed Manual

WARNING:
The Rat2 Motorsports Launch Control is designed for track use only.
The Launch Control is not water resistant. Always mount in a cool dry place.
Use of the Launch Controller for prolonged periods can create high heat and could result in deformation, melting, or fire to the vehicle or surrounding area. **ALWAYS USE EXTREME CAUTION WHEN USING THE LAUNCH CONTROLLER.**
Unburned fuel exhausted out of the combustion chamber can combust on hot surfaces in the exhaust and intake systems and **will cause extreme wear to catalytic converter systems**. Always make sure your vehicle is in good working order before using the Launch Controller.
High energy and snap starts put an extremely large amount of stress on the drivetrain. Make sure your system can handle these type of starts or damage to hubs, spindles, axles, transmission, clutch and engine and other components can occur.
Never allow the igniter and the Launch Control to drive the tachometer at the same time or damage to both devices may occur.
Tachometer signal can produce High Voltage. Never touch tachometer wire while engine is running or serious electrical shock may result.
Never allow the Tachometer signal wire from either the Launch Controller or Igniter to connect directly to ground.
Never improperly connect the plugs to the Launch Control or damage to the ECU, igniter and Launch Control may occur.
Do not plug anything else into the Launch Controller via the Ethernet cable other than the Launch Control Computation Module and Control Module.
Poor installation can result in short circuits, electrical arcing, stalling, or a vehicle fire. Serious injury or death can occur.
BE SAFE! If you are not comfortable with installing your Launch Control take it to a qualified professional for installation.

RAT2 MOTORSPORTS IS NOT RESPONSIBLE FOR DAMAGE TO YOUR OR OTHER PROPERTY WHILE USING THIS PRODUCT FOR ITS INTENDED PURPOSE OR OTHERWISE.

General Overview:
The Launch Controller is designed to interface *between* the ECU and the igniter using the IGT and IGF wires. (More specific information on hookup can be found in the installation manual). The Launch Controller is a fully active digital controller which regulates the engine speed precisely, with no need for signal gain control or other approximations.
Depending on your engine configuration and due to the nature of spark cut control, the Rat2 Launch Control may have a supplementary tachometer output to generate the most accurate tachometer reading possible.

The Rat2 Motorsports Launch Controller has three components.

1. The Computation Module. This module does the hard work of controlling the engine. It has a power connector, signal connector(s) and a control connector. The Control connector is a standard RJ45 Ethernet jack with two LEDs. This is used to operate the Launch Control and can also be used for diagnostics and testing.
2. Control Module. This module holds everything necessary to operate the Launch Control. It has a button, knob and two LEDs to indicate the mode it's in. On the back it has a standard RJ45 Ethernet Jack and it connects to the Computation Module using an Ethernet cable.
3. Clutch Module. This module is an optional extra depending on your vehicle and need. It adapts the clutch switch to both start the car and control the Launch Controller. If desired it can be set to disable the need to press the clutch to start the vehicle.

Launch Control Operation:

Mode 1: Off. The car is running and the Launch Control is Off, there are no lights on the Launch Control and the tachometer is displaying engine RPM.
Press and hold the button until Mode 2 is entered.

Mode 2: Standby. The car is running and the Launch Control is in Standby mode, the green Power LED is illuminated, and the tachometer is displaying engine RPM.
Press and hold the button until Mode 1 is entered.
or
Press and hold the button **while** holding the clutch down until Mode 3 Is entered.

Mode 3: Launch. The car is running and the Launch Control is in Launch Mode, the green Power LED is flashing in time with the engine RPM. Turning the knob Clockwise will raise the RPM set point, turning the knob counterclockwise will reduce the RPM set point. The RPM set point can be changed at any time and the engine will respond dynamically. Once the ideal RPM has been set with the knob and reached with the right foot, release the clutch. The Launch Controller will stop limiting the RPM of the engine and the vehicle will accelerate. Releasing the clutch returns the Launch Controller to Mode 1: Off.

Engine Control Methodology:
The Rat2 Motorsports Launch Control uses ignition control to manage engine RPM for the lowest drift engine speed control with the quickest response. Ignition control comes with its own specific drawbacks such as external combustion in the exhaust and intake systems and extreme wear to catalytic converter systems.
The Rat2 Motorsports Launch Control algorithm manages cylinder specific spark control through the single igniter while respecting the dwell time of the coil which prevents erroneous coil charge, discharge or overheating.

Launch Control Operation Methodology:
The Rat2 Motorsports Launch Controller has three modes of operation. Mode 1: Off, Mode 2: Standby, Mode 3: Launch. For driver comfort the Launch Controller defaults to Mode 1 in all circumstances. When the car is initially turned on the Launch Controller will have power but remains in an off state with no ability to control the engine. For models with a built in tachometer it's generated from the IGT signal in the same way the igniter does normally.
Pressing and holding the button to switch modes is insurance during race conditions that the Launch Controller is not accidentally engaged by objects or hands not intending to operate the Launch Controller.
After Mode 2 has been selected the Launch Controller is in standby mode. Operationally this is no different from Mode 1 except the green Power LED is solidly illuminated. This serves as a second chance warning to activating the Launch Control. the Launch Control can remain in Standby Mode 2 indefinitely if need be and will not affect the performance or behavior of the engine. Holding the button will return the Launch Control to its Off state in Mode 1. Holding the button **while also** holding the clutch down will put the Launch Control into Mode 3: Launch. This mode toggles the LED every time the spark plugs are fired. As a result, at low RPM this light will flash, but at high RPM it will appear to glow or smooth out its appearance. This is normal and allows the driver to know the Launch Controller is getting good data and is operating correctly. After the Launch Control is disengaged it will return to Mode 1: Off to remove distracting lights from the drivers' vision.

Using the Launch Controller without the Clutch Module:

The Rat2 Motorsports Launch Controller is designed to use the OEM clutch switch and the Clutch Module to manage the launch. Some vehicles and race cars will not have the OEM switch and as a result a custom setup may be required.
To interface with the Launch Control without a standard clutch switch simply connect automotive power +12v to one side of a switch or button, and connect the Launch Control clutch wire to the other side. When the Clutch wire has +12v the Launch Controller will consider the clutch is held down, and as soon as +12v is removed it will consider the clutch has been released.
The Launch Controller clutch wire draws very low current, less than 0.1 amps. Make sure the source of power is fused appropriately. We recommend between 18-22awg wire for this custom hookup as a good balance between wire strength and reducing weight where possible.

Circuit schematic:
+12v ----------Switch---------- Clutch wire

WARNING: Never apply more than 24v to this wire or damage to the Launch Controller can occur.
Less than 12v to the clutch wire may result in poor Launch Control performance as the clutch signal may not be accepted.

Using the Splice connectors:
A note on connections: You are not obligated to use the included splice connectors. They are provided for convenience of installation with minimal tools required. Using other methods for connections is acceptable, provided they are electrically secure and safe for operation in a vehicle.
Insert the wire into the splice connector, making sure the wire slides in the gap without being cut. Fold the second half of the yellow splice connector over the top and squeeze firmly until it snaps closed.
Crimp one spade connector over each wire of the Launch Control by placing the stripped end of the wire into the hole. Make sure the stripped end of the wire does not hang outside the spade connector shield or it may cause an electrical short or fire. Make sure the insulation does not extend too far into the hole or you will not achieve a solid electrical connection and the Launch Control will not function correctly.
Slide the spade connector into the base of the splice connector on the wire. Make sure the spade is well connected within the slot at the base of the splice connector.
A note on wires: There are many places to install the Launch Control in your car, routing the wires can be a challenge, please be careful not to damage the insulation on the wires as you are
installing, and take care to not route wires over sharp metal edges, as the vibration and movement of an automobile can cause sharp edges to slice into the wires over time causing electrical arcing and short circuits.
WARNING: Poor installation can result in short circuits, electrical arcing, blown fuses, stalling, or a vehicle fire. Serious injury or death can occur.

Serviceability:

The Launch Control can be installed in many locations in various cars, a 15 foot Ethernet cable has been included for your convenience. Because we know accidents happen both on the track and in the shop, to get you on the track quickly we do not use proprietary data cables. Any replacement Ethernet cable may be used. We recommend cat5e, cat6 or above. Cable lengths longer than 50 feet are not supported.

The Launch Control wiring connections use screw terminal connectors which allows for high reliability connections and immediate modifiability in the event the Launch Controller is needed on a second race vehicle or other purpose.

If spare parts are needed urgently please contact us at info@rat2motorsports.com
We can ship most items next day air if needed.

Warranty:

Warranty is valid for the original purchaser only. The Rat2 Motorsports Launch Controller comes with a warranty for any items damaged during shipping. It also comes with a 1 year warranty for defects in the Launch Controller. As installation is done by the end user, we cannot warranty the connectors or the quality of the connections made. Nor can we warranty damage by poor installation. Opening or modifying the Launch Controller voids any warranty implied or otherwise.

Please remember:
Poor installation can result in short circuits, electrical arcing, stalling, or a vehicle fire. Serious injury or death can occur. BE SAFE! If you are not comfortable with installing your Launch Control take it to a qualified professional for installation.

Rat2 Motorsports Launch Control
Installation Manual
Part No. RT2-LC-114001A

BE SAFE! If you are unsure how to properly install your product, take it to a qualified automotive electrician for installation.

WARNING: Poor installation can result in short circuits, electrical arcing, blown fuses, stalling, or a vehicle fire. Serious injury or death can occur.

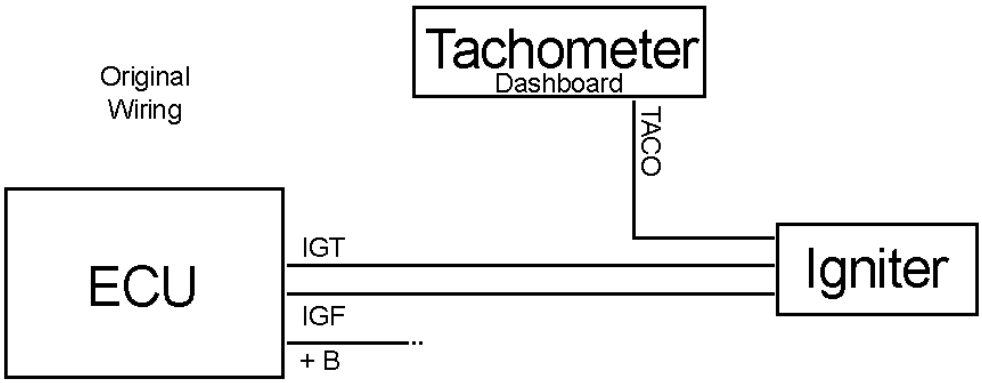
The Launch Control is not water resistant; always mount in a cool dry place.

Installation:

Do not modify the clutch wires in any way until after Verification Part 1 is completed

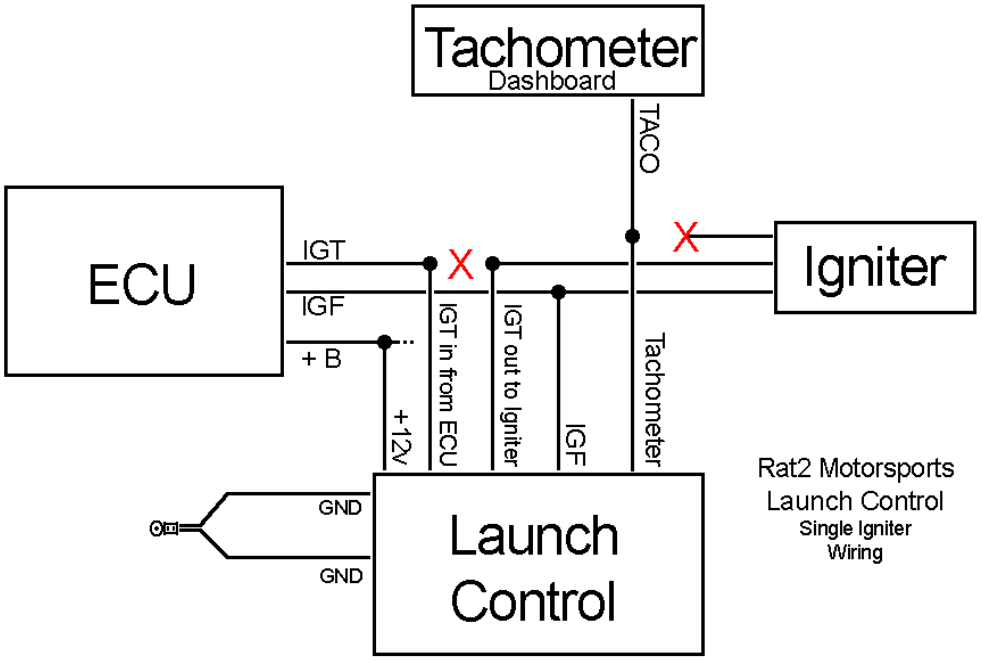
Follow the steps in order, one at a time.

Original wiring

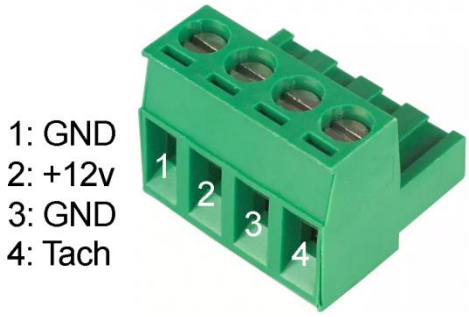


To complete the installation 2 wires will be cut and 5 splices made. At the end the wiring will look like this.

Completed installation wiring



Locate the 4 pin plug block



Left to Right: (Pin 1. Ground), (Pin 2. +12v), (Pin 3. Ground), (Pin 4. Out to Tachometer)

Ground

1. Connect wire (Ground) to Pin 1 on the 4 pin plug block.
2. Connect wire (Ground) to Pin 3 on the 4 pin plug block.
3. Connect both Ground wires together at the far end and crimp on the ring terminal.
4. Bolt the ring terminal to the chassis on a clean metal surface. We recommend the ECU mounting bolt if available

+12v

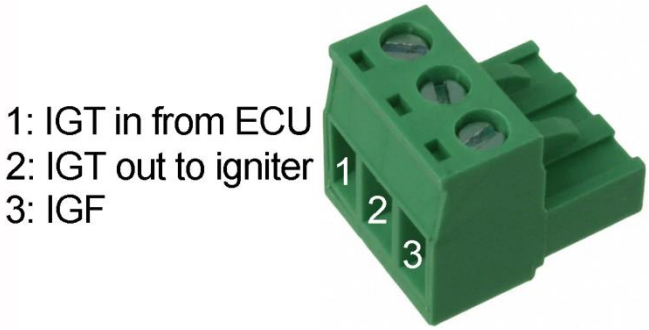
5. Connect wire (+12v) to Pin 2 on the 4 pin plug block
6. On the other end of wire (+12v), strip it and crimp a male spade connector to the end
7. Without cutting, gently strip a small amount of insulation away from wire (+B) on the ECU and connect the crimson splice connector to it
8. Connect wire (+12v) with the male spade connector to the crimson splice connector on (+B)

Tachometer

9. Connect the Tachometer wire to Pin 4 on the 4 pin plug block
10. Locate the tachometer wire from the igniter (solid black) and cut this wire at least four (4) inches from the factory connector on the igniter.
11. Attach a female spade connector to the loose harness side of the tachometer signal wire
12. Feed the Tachometer wire from the 4 pin plug block through to the loose harness tachometer wire with the female spade connector and cut to length
13. Attach a male spade connector to the Tachometer wire from the Launch Control and connect the two wires

Note: Never connect the tachometer output wire from the igniter or from the Launch Control directly to ground. If left unconnected insulate the end and repack wire into the harness loom. Adding an insulated male spade connector to the tachometer output wire from the igniter will aid in restoring the car to its previous configuration should the Launch Control be uninstalled in the future.

Locate the 3 pin plug block



Left to Right: (Pin 1. IGT in from ECU), (Pin 2. IGT out to Igniter), (Pin 3. IGF)

IGT in from ECU

14. Connect the (IGT in from ECU) wire to Pin 1 on the 3 pin plug block
15. On the other end of the (IGT in from ECU) wire gently strip then crimp a female spade connector onto the wire
16. Locate the (IGT) wire coming from the vehicles ECU and cut the wire no less than 4 inches from the ECU connector
17. On the (IGT) wire coming from the ECU without cutting, gently strip then crimp a male spade connector onto the wire
18. Connect the (IGT in from ECU) wire to the (IGT) wire coming from the ECU with the male spade connector on it

IGT out to Igniter

19. Connect the (IGT out to Igniter) wire to Pin 2 on the 3 pin plug block
20. On the other end of the (IGT out to Igniter) wire gently strip then crimp a male spade connector onto the wire
21. Locate the other end of the cut (IGT) wire headed to the igniter and gently strip then crimp a female spade connector onto the wire
22. Connect the (IGT) out to Igniter wire to the (IGT) wire going into the harness to the igniter

IGF

23. Connect the (IGF) wire to Pin 3 on the 3 pin plug block
24. On the other end of the (IGF) wire gently strip then crimp a male spade connector onto the wire
25. Locate the (IGF) wire coming from the ECU and no less than 4 inches from the ECU connector gently strip a small amount of insulation away from it and connect the splice connector to it
26. Connect the (IGF) wire from the Launch Control 3 pin plug block to the (IGF) splice connector

Verification:

Use this check list to verify the installation was done correctly to prevent damage to your ECU, Ignition system and Launch Controller.

Plug in both the 3 and 4 pin plug blocks to the Launch Control Computation Module

On the 4 pin plug block.

- Using an ohmmeter or multimeter verify conductivity between pin 1 and 3
  - If no conductivity check steps 1-3
- Verify conductivity between pin 1 and vehicle chassis.
  - If no conductivity check step 4
- Verify NO conductivity between pin 2 and vehicle chassis
  - If conductivity check steps 5-8
- Verify NO conductivity between pin 4 and vehicle chassis
  - If conductivity check steps 9-13

On the 3 pin plug block

- Verify NO conductivity between pin 1 and pin 3
  - If conductivity check steps 14-26
- Verify NO conductivity between pin 1 of the 3 pin plug block and pin 1 of the 4 pin plug block
  - If conductivity, remove all wires from both the 3 and 4 pin plug block and start at step 1
- Verify NO conductivity between pin 1 of the 3 pin plug block and pin 2 of the 4 pin plug block
  - If conductivity, remove all wires from both the 3 and 4 pin plug block and start at step 1

- Disconnect the 3 pin plug block from the Launch Control Computation Module
- Connect the 4 pin plug block to the Launch Control Computation Module if it isn't already
- Turn the key to the 'on' position without starting the car
- Verify with a voltmeter pin 1 on the 4 pin connector reads about 0v
  - Otherwise remove power and check steps 1-3
- Verify with a voltmeter pin 2 on the 4 pin connector reads about 12v
  - Otherwise remove power and check steps 5-8
- Verify with a voltmeter pin 4 on the 4 pin connector reads about 12v
  - Otherwise remove power and check steps 9-13
- Turn the key to the 'off' position

If any tests failed before here, resolve errors and do not continue or serious damage may occur.

- Reconnect the 3 pin plug block to the Computation Module
- Turn the key to the 'on' position
- Verify with a voltmeter pin 1 on the 3 pin connector reads about 0v
  - Otherwise remove power and check steps 14-18
- Verify with a voltmeter pin 2 on the 3 pin connector reads about 0v
  - Otherwise remove power and check steps 19-22
- Verify with a voltmeter pin 3 on the 3 pin connector reads about 0v
  - Otherwise remove power and check steps 23-26
- Verify the Launch Control has communication. Press and hold the button on the Control Module for about 2-4 seconds. A green Power LED should illuminate on the Control Module
  - Make sure the Ethernet cable is plugged in
- Press and hold the button on the Control Module again and the green LED should extinguish

If all verification steps pass, test-start your vehicle to verify all wires have a secure and good connection. Under normal operation your car will start exactly like it normally does. If it does not, or has other unusual behavior, check the connections.

- Verify car starts and runs normally
- Verify tachometer is working normally

Once the vehicle is running normally all the ECU and engine harness work is done. You can permanently mount the Control Module and re-wrap the wiring harness

- Route the Ethernet cable to the Computation Module and to the Control Module
  - For maximum reliability make sure to avoid routing the cable near ignition wires and other sources of interference such as electric motors, coils, and alternators.
- Install the Clutch Module (If you are not using the Clutch Module see 'Using the Launch Control without the Clutch Module' for alternate wiring instructions and ignore the last instruction)
- Connect the Clutch wire from the Control Module to the Clutch Module (Follow 'Clutch Module Installation')

Note: The most common cause of problems is loose connections caused by the splice connectors. Check the splice connections for good connections pre-strip the insulation on the wire the splice connector will be connected to.

Rat2 Motorsports Launch Control
Installation Manual
Part No. RT2-LC-144010A

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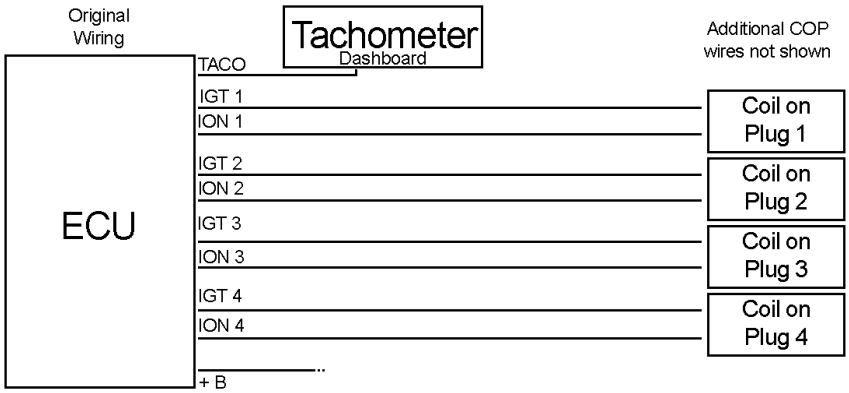
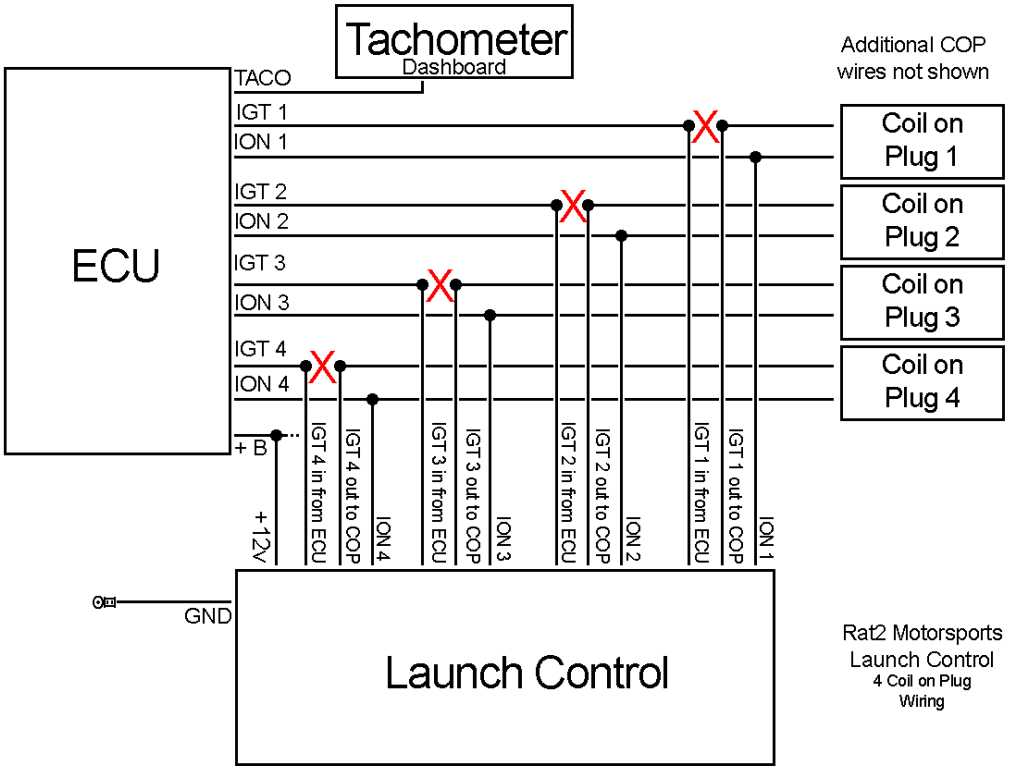
Original wiring



To complete the installation 4 wires will be cut and 13 splices made. At the end the wiring will look like this.

Completed installation wiring



Locate the 2 pin plug block

Left to Right: (Pin 1. +12v), (Pin 2. Ground)

+12v

1. Connect wire (+12v) to Pin 1 on the 4 pin plug block
2. On the other end of wire (+12v), strip it and crimp a male spade connector to the end
3. Without cutting, gently strip a small amount of insulation away from wire (+B) on the ECU and connect the crimson splice connector to it
4. Connect wire (+12v) with the male spade connector to the crimson splice connector on (+B)

Ground

5. Connect wire (Ground) to Pin 2 on the 4 pin plug block.
6. Connect both Ground wires together at the far end and crimp on the ring terminal.
7. Bolt the ring terminal to the chassis on a clean metal surface. We recommend the ECU mounting bolt if available

Locate the 3 pin plug block

Each plug is one (1) cylinder, IGT 1 in, IGT 1 out & ION 1 are all affixed to the same plug, repeat for IGT 2 & ION 2, IGT 3 & ION 3 etc…

Left to Right: (Pin 1. IGT in from ECU), (Pin 2. IGT out to Igniter), (Pin 3. ION)

Instructions for cylinder 1

IGT in from ECU

8. Connect the (IGT in from ECU) wire to Pin 1 on the 3 pin plug block
9. On the other end of the (IGT in from ECU) wire gently strip then crimp a female spade connector onto the wire
10. Locate the (IGT) wire coming from the vehicles ECU and cut the wire no less than 4 inches from the ECU connector
11. On the (IGT) wire coming from the ECU without cutting, gently strip then crimp a male spade connector onto the wire
12. Connect the (IGT in from ECU) wire to the (IGT) wire coming from the ECU with the male spade connector on it

IGT out to Igniter

13. Connect the (IGT out to Igniter) wire to Pin 2 on the 3 pin plug block
14. On the other end of the (IGT out to Igniter) wire gently strip then crimp a male spade connector onto the wire

15. Locate the other end of the cut (IGT) wire headed to the igniter and gently strip then crimp a female spade connector onto the wire
16. Connect the (IGT) out to Igniter wire to the (IGT) wire going into the harness to the igniter

IGF / ION

17. Connect the (ION) wire to Pin 3 on the 3 pin plug block
18. On the other end of the (ION) wire gently strip then crimp a male spade connector onto the wire
19. Locate the (ION) wire coming from the ECU and no less than 4 inches from the ECU connector gently strip a small amount of insulation away from it and connect the splice connector to it
20. Connect the (ION) wire from the Launch Control 3 pin plug block to the (ION) splice connector
21. Repeat steps 8-26 for cylinder 2
22. Repeat steps 8-26 for cylinder 3
23. Repeat steps 8-26 for cylinder 4

Verification:

Use this check list to verify the installation was done correctly to prevent damage to your ECU, Ignition system and Launch Controller.

Plug in both the 3 and 4 pin plug blocks to the Launch Control Computation Module

On the 2 pin plug block.

- ☐ Verify conductivity between pin 2 and vehicle chassis.
  - If no conductivity check steps 1-4
- ☐ Verify NO conductivity between pin 1 and vehicle chassis
  - If conductivity check steps 5-7

On the 3 pin plug block for each cylinder

- ☐ Verify NO conductivity between pin 1 and pin 3
  - If conductivity check steps 8-26
- ☐ Verify NO conductivity between pin 1 of the 3 pin plug block and pin 1 of the 4 pin plug block
  - If conductivity, remove all wires from both the 3 and 4 pin plug block and start at step 1
- ☐ Verify NO conductivity between pin 1 of the 3 pin plug block and pin 2 of the 4 pin plug block
  - If conductivity, remove all wires from both the 3 and 4 pin plug block and start at step 1

- ☐ Disconnect the 3 pin plug block from the Launch Control Computation Module
- ☐ Connect the 2 pin plug block to the Launch Control Computation Module if it isn't already
- ☐ Turn the key to the 'on' position without starting the car
- ☐ Verify with a voltmeter pin 2 on the 4 pin connector reads about 0v
  - Otherwise remove power and check steps 1-3
- ☐ Verify with a voltmeter pin 1 on the 4 pin connector reads about 12v
  - Otherwise remove power and check steps 5-8
- ☐ Turn the key to the 'off' position

If any tests failed before here, resolve errors and do not continue or serious damage may occur.

- ☐ Reconnect all 3 pin plug blocks to the Computation Module
- ☐ Turn the key to the 'on' position
- ☐ Verify with a voltmeter pin 1 on the 3 pin connector reads about 0v
  - Otherwise remove power and check steps 8-16
- ☐ Verify with a voltmeter pin 2 on the 3 pin connector reads about 0v
  - Otherwise remove power and check steps 8-16
- ☐ Verify with a voltmeter pin 3 on the 3 pin connector reads about 5v
  - Otherwise remove power and check steps 17-26
- ☐ Verify the Launch Control has communication. With it powered up and after connecting the Control Module to the Computation module with the Ethernet cable, Press and hold the button on the Control Module for about 2 seconds. A green Power LED should illuminate on the Control Module
  - Otherwise remove power and check steps 1-7

- Press and hold the button on the Control Module again and the green LED should extinguish

If all verification steps pass, test-start your vehicle to verify all wires have a secure and good connection. Under normal operation your car will start exactly like it normally does. If it does not or has other unusual behavior, check the connections.

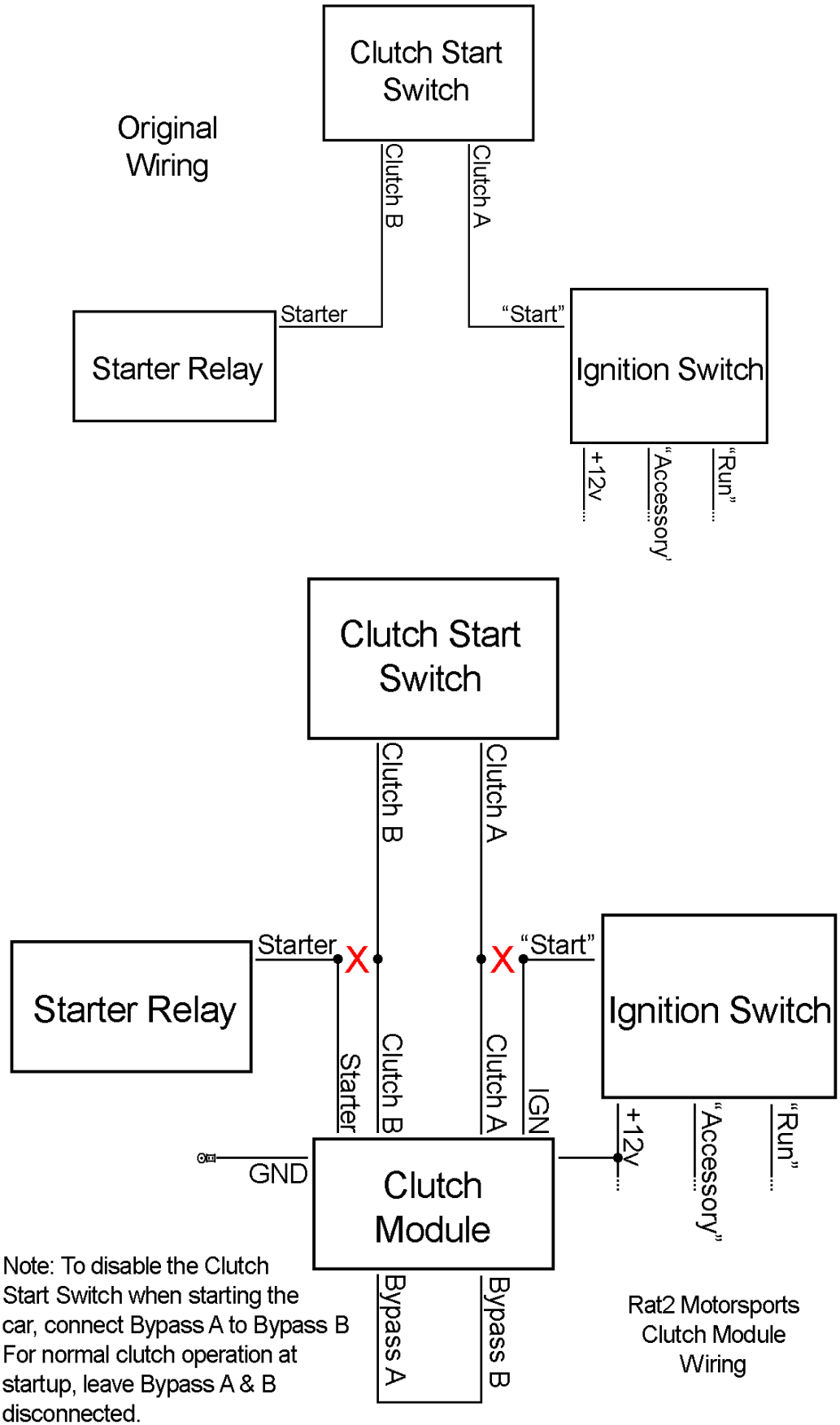
- Verify car starts and runs normally
- Verify tachometer is working normally

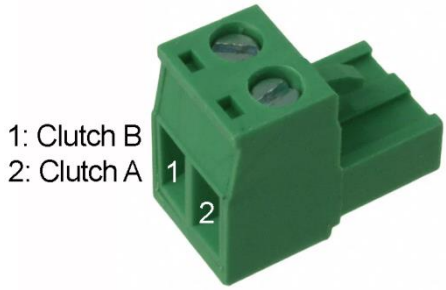
Once the vehicle is running normally all the ECU and engine harness work is done. You can permanently mount the Control Module and re-wrap the wiring harness

- Route the Ethernet cable to the Computation Module and to the Control Module
  - For maximum reliability make sure to avoid routing the cable near ignition wires and other sources of interference such as electric motors, coils, and alternators.
- Install the Clutch Module (If you are not using the Clutch Module see ‘Using the Launch Control without the Clutch Module’ for alternate wiring instructions and ignore the last instruction)
- Connect the Clutch wire from the Control Module to the Clutch Module (Follow ‘Clutch Module Installation’)

Note: The most common cause of problems is loose connections caused by the splice connectors. Check the splice connections for good connections and/or pre-strip the insulation in the area the splice connector is going to ensure a good connection.

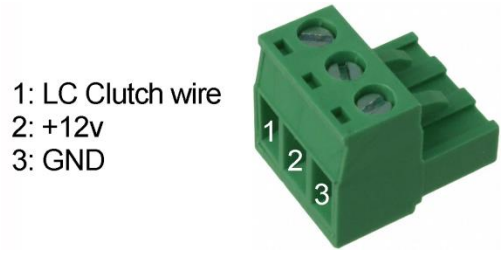
Rat2 Motorsports Clutch Module
Installation Manual





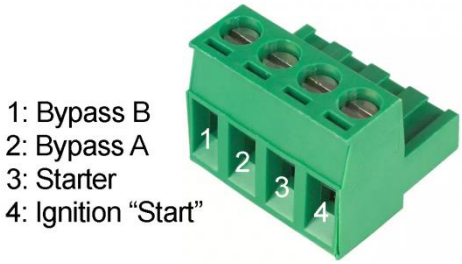
On the 2 Pin Connector:

1. Connect the Clutch Start Switch wires to the clutch module Clutch A & Clutch B. The clutch start switch is the switch located on the clutch pedal bracket under the dashboard. Some cars are equipped with more than one switch, always verify the correct switch by checking the wiring matches the diagram above.
    a. The order is not important as long as both wires from the Clutch Start Switch are connected



On the 3 Pin Connector:

2. Connect the clutch module to the ground wire (Black) (Pin 3) and crimp the ring terminal to the other end
3. Connect the clutch module to +12v (Red) (Pin 2)
4. Connect the Launch Control clutch wire to the LC Clutch (Wire is from the Launch Controller) (Pin 1)



On the 4 Pin Connector:

5. Connect the "Start" wire from the Ignition Switch (key) to the clutch module Ignition "Start" (Pin 4)
6. Connect the Starter Relay wire to the connector labeled Starter (Pin 3)
7. If you want the Clutch Start switch enabled leave the jumper wire out of the 2 connectors labeled Bypass A & B
8. If you want to start the car without the clutch being depressed (Clutch Start Switch disabled) use a jumper wire to connect Bypass A & B together

Part Numbering Guide:

RT2-LC-XXXXXXX

RT2-LC-(Series)(# of spark control devices)(# of cylinders)(IGT V state)(IGF V state)(Tach)(Generation Revision)

- Series:
  - 1: Series 1
  - 2: Series 2
- Number of Spark control devices
  - 1: single igniter
  - 2: two igniters
  - 4: four igniters (usually coil on plug)
  - 6: six igniters (usually coil on plug)
- Number of cylinders
  - 4: four cylinder
  - 6: six cylinder
- Spark control device normal voltage state IGT (typically)
  - 0: normally 0v
  - 1: normally 5v
  - Other number would be defined here in the future
- Spark control confirmation voltage state IGF (or ION) typically
  - 0: normally 0v
  - 1: normally 5v
  - Other number would be defined here in the future
- Tachometer Output
  - 0: No
  - 1: Yes, inductor impulse
  - 2: Yes, logic level
- Generation Revision
  - A: First revision
  - B: Second revision

Note: IGF and IGT are reference names. Actual labels may vary.

For additional information and the most up to date datasheet contact us at, info@rat2motorsports.com
To report corrections or changes contact us at, info@rat2motorsports.com
Detailed Manual Revision 1.1

ERRATA

Hardware

- On some pre-release Launch Controllers (RT2-LC-144010A only), the device was equipped with incorrect software. As a result the Launch Control would limit 3 of 4 cylinders resulting in a 'lawnmower' sound and limited acceleration of the engine. This is operation while not dangerous to the health of the engine, is not correct. All current owners of the affected Launch Controls can contact Rat2 Motorsports and a warranty repair will be conducted.

Detailed Manual

- Added diagnostic test step numbers where missing.
- Added clarification to clutch start switch instructions.