

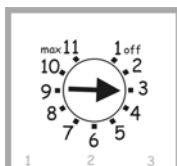


## R259 Installation Instructions Fuel Control For BMW Oilheads

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### #1 - General Instructions

- **Warranty:** Installation of Techlusion Performance Group/Battley Cycles R259 Fuel Controller may affect your BMW limited vehicle warranty. See your dealer for more information.
- **Caution:** BMW motorcycles modified with the Techlusion Performance Group / Battley Cycles R259 Fuel Injection Control are not certified US EPA legal and must not be used on public roads and in some cases may be restricted to closed-course competition. Alterations of emissions related components constitutes tampering under the US EPA guidelines and can lead to substantial fines and penalties
  - The R259 fuel injection module has been designed to work on all fuel injected BMW Boxers that utilize an oxygen sensor, regardless of model. The advantages of this design include a much lower cost to you, as well as ease of dealer stocking and supplying a product that can deal with any exhaust and air intake system you may choose. The R259 is designed as a stand alone fuel injection controller. It should not be used in conjunction with any other fuel control device. **You must have the OEM “Cat Code Plug” installed, and the Throttle Position Sensor must be set to BMW specification for this device to function properly.**
  - In the open loop mode the R259 looks at the fuel injection map and adds fuel to that map at the injector. In closed loop operation the product redefines the oxygen sensor input to the ECU, resulting in better fueling at cruise, and negates most of the surging problems associated with these bikes..
  - Before installing this product be sure you have a basic understanding of certain components and features of your motorcycle. If you are not aware of where the oxygen sensor or the fuel injector connectors are located, we seriously recommend that you have your dealership install this product. We have designed this product to be very consumer friendly, with easy connection and adjustment, but you are still working on very sophisticated equipment that requires at least basic mechanical knowledge. Instructions with photos are available, in PDF format, from the Techlusion website. [www.techlusion.com](http://www.techlusion.com)
  - The R259 wiring interrupts the oxygen sensor and fuel injector wiring using OEM connectors. You will disconnect these components, and install the R259 wiring harness in-between the stock wiring harness and these components. Take your time and ensure that you have made good, solid connections. Do not pull on any connectors by the wiring. The injector connectors have a locking wire bail that must be depressed before the connector will release. Early oxygen sensor connectors have a rotating lock that must be turned to release and secure. Late oxygen sensor connectors have two locking ears that may need to be gently spread to release.
  - The accompanying set up specifications apply to all models, but are designed to be only a GUIDELINE for ease of installation. The typical pot settings have been tested and approved by our technicians. REMEMBER, those are typical settings and may not be optimum for your bike. The wide range of aftermarket exhaust and air intake systems will affect your settings. If you are not happy with our typical settings, then follow our #4 Adjustment and Fine Tuning section. Because the R259 only adds fuel, we have incorporated a simple shutdown feature for diagnosis. **Turning the cruise pot clockwise past the 9:00 position will disable the R259, turning off all LEDs and returning the motorcycle to stock fuel.** (If you need to use this function, mark the current position of the cruise pot with a felt tip pen). With the R259 disabled, your bike should run exactly the same as without the product installed. If this is not the case, STOP, verify that you are connected properly, and that your ground connection is good. - When we discuss pot settings, the position of the arrow as it relates to the face of a clock determines its locataon. (Ignore any numbers actually on the face of the pot). 1:00 is the minimum setting , 11:00 is the maximum setting, 3:00 is the position shown.



## #2

### ***Installation R1200 C***

-Remove the chrome right air filter cover. Release the brake fluid reservoir from its mount. Follow the oxygen sensor lead from the exhaust to the connector. It is mounted to the back of the brake fluid reservoir mounting bracket with cable ties. Cut the cable ties to release the connector from the bracket. Gently pull the connector apart. Insert the male O2 connector from the R259 into the oxygen sensor lead. Connect the female side of the R259s O2 connector to the bike's wiring harness side. Make sure both sets of connectors are fully seated. Cable tie the sensor lead connector back to the bracket and tuck the other O2 connector under the front of the airhorn.

-Depress the retaining bail on the right fuel injector connector and gently pull off the connector. Install this connector on the male R259 injector lead. Install the remaining R259 connector on the right injector.

-Connect the ground lead by removing the allen screw (5mm hex) that secures the airbox to the frame. Place the screw through the lug on the ground lead and reinstall and tighten the screw. Go to section 3 and verify power-up. Tuck the wiring below and behind the airhorn and cable tie as necessary. Using the supplied velcro, attach the controller box to the top of the airhorn. Reinstall the brake fluid reservoir in its mount and reinstall the side-cover. See the Techclusion website for more detail.

### ***Installation R850,R1100,R1150,R1100S***

-Refer to the appropriate BMW service guides and remove the fuel tank. On some models it may be possible to have an assistant lift the tank up and to the left to expose the oxygen sensor connector, without fully disconnecting the tank. Locate the oxygen sensor connector by following the lead from the exhaust system. It will be cable tied to the right frame backbone. Cut the retaining cable ties and pull the connector away from the frame. Open the connector and insert the male R259 O2 connector into the oxygen sensor lead, and the female to the bike's wiring harness. Cable tie these back to the right frame backbone.

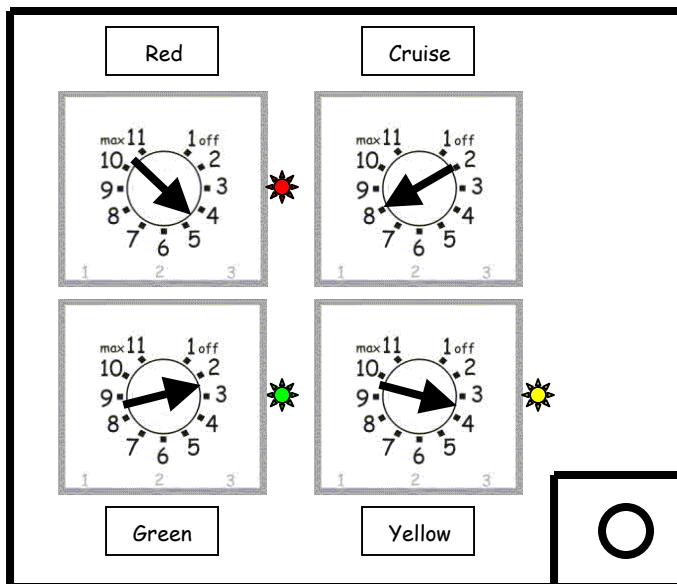
- Route the R259 wiring harness down the right frame, in-between the battery tray and the rear fuel tank mount. Using the supplied velcro attach the R259 to the airbox lid. Locate the lead on the right fuel injector, and while depressing the locking bail on the connector, gently pull the lead off. Install this lead on the R259 male injector connector; install the remaining connector on R259 harness to the right injector. Make sure all of the connectors are fully seated. Cable tie any excess wiring away from the fuel lines and throttle mechanism.

- Connect the ground lead to the battery negative terminal or an alternate good ground.

- Re-install the fuel tank. Make sure the fuel lines are connected and their routing is correct. Insure that both throttle cables are correctly seated in their adjusters on the throttle bodies, and that nothing interferes with the throttle mechanisms on either throttle body. Turn the key on and allow the fuel system to pressurize. CHECK FOR ANY FUEL LEAKS and repair as necessary. Go to section 3 to verify power-up. Re-install any other bodywork removed. See the Techclusion website for more detail.

## ***#3 – Verify Base Settings and Power-up***

- Remove the two Phillips head screws and remove the cover from the R259. **With the run-stop switch in the run position turn the key on. The fuel pump should cycle. If the fuel pump does not cycle, check that the fuel tank connector is plugged in, the bike is in neutral and the sidestand is up (if necessary). Once power-up is verified, check again for any fuel leaks and repair as necessary. Start the bike, the green fuel LED should now be lit with the engine running normally. At this point we recommend adjustment of the base settings with a voltmeter. (See Optional Voltmeter Setup) . Refer to page 3 and adjust the pots to the specified voltages.** Turn the key off and replace the 259s cover. Go back and pick up where you left off in section 2.



The **BASE SETTINGS** are shown in the drawing and printed below.

The **9:30 thru 11:00 setting on the CRUISE pot will turn the R259 OFF**, (see #1 General Instructions) and should be used any time the engine needs to be held at an R.P.M. above 1500 for extended periods i.e. synchronising throttle bodies etc. MoDiTec diagnostics of the lambda system may be misleading if the R259 is left on during testing.

The coldstart high idle should be set at, or slightly below 1500 R.P.M.

Green	2:30	0.6 v
Yellow	3:30	1.3 – 1.7v
Red	4:30	1.0 – 1.7v
Cruise	8:00	3.6v

## #4 - Adjustment and Fine Tuning

**GREEN FUEL POT-** Adjusts open loop cruise fuel and the transition between closed and open loop. This pot should need little if any deviation from the base setting. **This pot can be used to control some decel backfire. This backfire can be caused by either a rich or lean condition. First, try adding fuel in small increments (.1v) . If there is no improvement, turn the pot down in small increments until backfiring is minimized.**

**YELLOW FUEL POT- (Accelerator pump feature)** Adds fuel on top of the green fuel pot setting whenever the throttle is opened rapidly. This setting requires road test comparisons to optimize your acceleration. Tests ride your bike in 2nd or 3rd gear, rolling on the throttle briskly to 4500 R.P.M. noticing the rate of acceleration. Increase the yellow pot one clock position and repeat the roll-on test using the same gear and starting speed. If you notice an improvement, increase the pot setting again and re-try the test again. Stop as soon as you feel no improvement in performance and return to the last setting where you noticed an improvement.

**RED FUEL POT-** Adjusts top end fuel to maximize performance. This setting is the hardest to achieve by road testing. You can increase the setting one clock position and run the bike up to redline in 2nd or 3rd gear starting from an R.P.M. higher than 4500. If there is a noticeable improvement in power try an additional clock position and re-try your road test. Stop as soon as you feel no difference and return to the last setting where you noticed an improvement.

**CRUISE FUEL POT-** Adjusts fuel at cruise and light acceleration in closed loop mode. This pot should be set at 9:00 (4v) to start tuning. The green fuel LED should be lit, if not then turn the cruise pot down (ccw) just enough to turn on the green fuel LED. There should be little or no surging below 55 mph at this setting. Decrease the pot setting in one clock position increments until you notice a deterioration in cruise performance. Increase the pot setting in very small increments (.1v) until the cruise performance is *just* restored. This setting will yield the best gas mileage.

## Optional Voltmeter Setup

The R259 PC board has a small solder pad adjoining each pot. These are shown in the drawing as a small square with an X inside. The voltage of each pot may be read with a DC voltmeter. We prefer to use a digital multimeter, set on a 0-5v scale, but any DC voltmeter with .1v resolution will work fine. The meter should be properly configured to measure DC volts in a 0-5 volt range. Connect the meter negative lead to the same grounding point that you used for the R259 controller and with the engine running, probe the solder pad with the positive lead. **Adjust the pot until the specified voltage is attained.** Be very careful not to touch any other board components while probing the solder pads, as you may damage the device. This method allows very precise adjustments of the fuel pots, and can be beneficial to custom tuning applications.