



# PowerTRONIC, Quick shifter and Map switch Installation - Installer Checklist/Configuration/Troubleshooting

| Document Version | 1 | Release Date | 05 March 2019 |
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| Application information | Vehicle Specific   |
|-------------------------|--|
| Vehicle                 | Genric   |
| Model                   | Genric   |
| Year of manufacture     | Genric   |
| PowerTRONIC application | All PowerTRONIC ECUs, from firmware version F.3.x onward |

### Note:

- Read through all instructions before installation and use.
- PowerTRONIC is intended for motorsport use on a closed course, please check with your local laws before using this product. Race Dynamics / PowerTRONIC is not liable for consequences arising out of using the product.

| Call/Whatsapp:    | +919916229292 / +918040929292      |
|-------------------|------------------------------------|
| E-Mail:           | support@powertronicECU.com         |
| Official Website: | www.powertronicECU.com             |
| Social:           | www.facebook.com/PowertronicECU/   |
|                   | www.instagram.com/powertronic_ecu/ |





## **Connections**

- 1. Injector connector (INJ)
- 2. Ignition coil connectors (SPK)
- 3. TPS connector (TPS)
- 4. Ground terminal connector (GND)
- **5. CKP connector (CKP) -** For specified bikes only. CKP connector is provided with Single cylinder and Dual cylinder bikes only. All Royal Enfield bikes do not possess a CKP connector.
- 6. Quick shifter connection (QS) -The PowerTRONIC harness contains Quick shifter connector. If you have bought the Quickshifter please attach the connector to it. [Please refer to the Quick shifter installation and calibration manual]. If you have not bought the Quickshifter, you can leave it disconnected but make sure the harness is secured using zip ties provided.
- 7. Handlebar Map Switch Connection Every PowerTRONIC harness contains a built-in Map selection switch. If you have bought the Handlebar map switch, please connect the female connector of the HB Map switch to male connector of the PowerTRONIC Map switch. Refer to the Handlebar map switch installation manual.

# **Accessories** - for specified bikes only

- 1. Oxygen override cable RE Himalayan EFI Refer to the Bike specific PowerTRONIC installation manual.
- 2. Relays RE all
- 3. Ignition modulators -RE INT/C-GT 650 Refer to the Bike specific PowerTRONIC installation manual.
- 4. Tapping clips Wherever tapping is required

#### Software

- 1. TPS Calibration. Refer to the R-Tune installation and TPS Calibration document.
- 2. Quick shifter calibration (If applicable) Refer to the PowerTRONIC Quick shifter installation and Calibration manual.
- 3. Maps All PowerTRONIC ECUS are shipped with two pre tuned dyno tested maps. There is no need to download and load it to the ECU unless required. Refer Maps, Switching and Mixing procedure
- 4. Firmware Refer the upgrading the firmware document
- 5. Tuning Get in touch with the support team -support@powertronicecu.com





# **Important Notes:**

- Every powerTRONIC is shipped with two pre tuned dyno tested maps. There is no need to download and load it to the ECU unless required.
- Some parts of the bikes might be hot/sharp and may cause burns/cuts. Proceed with extreme caution or wait
  until the bike has cooled down. Always wear safety gloves.
- Ensure that the bike is **switched off** and the **key is out of the ignition** before proceeding with the installation. Also, **DO NOT** click **Burn** in R-Tune software while the bike is turned on. Before clicking Burn, turn off the bike and make sure the key is out of ignition.
- When the installation is complete, make sure to secure the wiring loom away from the movable parts or components which tends to heat up during the normal operation of the vehicle at any chance. It is advisable to cover the tapping with clean wrap or insulation tape wherever applicable.
- In case of a multi cylinder bike, connect the Injector connector and Ignition coil connector in the **same order** as they connected in the bike. ie. the number on the SPK harness of ignition coil connections for the spark plugs for the cylinders should match the number on the respectieve injector connector harness of the same cylinder.
- DO NOT proceed with PowerTRONIC ECU without verifying the connections with stock coupler. The colors of the
  wires which should be tapped may vary from country, model and year of manufacture. To ensure the connection
  is correct, make sure you do the Stock coupler test before connecting the PowerTRONIC. [Refer to the Stock
  Coupler test document].
- It is advisable to perform a **TPS calibration** after the installation of PowerTronic ECU. [Refer to the detailed <u>TPS Calibration</u> document].
- The PowerTRONIC harness contains a Quick shifter connector. If you have bought the Quickshifter please attach the connector to it. [Please refer to the detailed Quick Shifter Installation Manual]. If you have not bought the Quickshifter, you can leave it disconnected but make sure the harness is secured using zip ties provided. While securing the QS sensor wire, ensure that the QS sensor wire is not tightened and locked using zip ties completely as this may result in improper working of QS. Allow some freedom for QS sensor wire for the movement.
- For some of the models of KTMs, we have provided two sets of male and female CKP and TPS in the
  PowerTRONIC harness. Choose the appropriate set from the PowerTRONIC harness depends on your bike's
  stock connectors during the installation. You can leave the other set disconnected but make sure it is away from
  moving or hot parts of bikes and routed properly using the tags provided within the kit.

#### PowerTRONIC ECU Troubleshooting **IPACE** dynamics <del>Powe</del>rTRONIC Start Verify all the connectors of PowerTRONIC connections as per the bike-specific installation manual. Green line represent No fault condition 1) Fuel Injector Connector 2) Ignition coil connector 3) CKP connector (if applicable) Check the orientation of 4) TPS connector (if applicable) the connectors especially 5) Ground Connector the locking notches on the 6) O<sub>2</sub> Override cable (if applicable) male and female side. Check if 7) Relays (if applicable) the connectors are securely 8) Ignition modulator (if applicable) fastened and locked. Connections verified No Connections are correct Connect the stock Does the bike coupler provided within start with the Faulty wiring the kit. stock coupler harness. Get in Start the bike. connected? Fault fixed touch with us. **Terminals** Yes Problem is isolated to this Bike start damaged particular connector. Check and run On variants of stock coupler that Check the the orientation of the smoothly? have LEDs on it, start the vehicle and crimps/terminals particular connectors No fault with Stock coupler check if all the LEDs turn on as connections → on the harness for especially the locking test shows -> expected. notches on the male and any damage fault in (Refer the stock coupler test No female side. Check if bends connections **document**). If any of them are not as the connectors are securely Ground Ok expected, inspect the particular Terminals okay fastened and locked. Check ground connection. A loose ground or was connection. contact can cause jerking or refuse to start. faulty & fixed Faulty stock coupler. Stock coupler Test Ground Ok, but issue persists Get in touch with us., Okay Connect the ECU to R-Tune and load base Disconnect the Stock coupler and map. *Send* and *Burn* the map. (Refer Correct map Connect PowerTRONIC ECU Maps, switching and Mixing procedure loaded document) Turn off vehicle, Install the R-Tune Ground Ok, Correct map Yes software and (Refer R-Tune loaded, Turn the installation and Connecting to the but issue persists Does the bike Ignition ECU document) device drivers on a start with the key on. Do the windows computer, and connect PT Within the R-Tune software, Go to Config PowerTRONIC ECU LEDs on the with the USB cable. Do the lights on tab and set the Injector & Ignition noise connected? PowerTRONIC, Test for all the PT turn on, and does filter to 0 and start the engine. If not okay, turn on? possible the computer recognize the device increment the noise filter value by 0.4 ms values of as "Silabs cp210x "? up to a max 2.0 ms. After every change noise filter **Send,** turn the bike off and **Burn**. Yes Fault fixed Yes Ground Ok, Correct map loaded, Problem most likely with one or more of the Tested for all values of NF. Problem is isolated to this following. but issue persists particular connector, most 1) PT wiring loom ground to battery ground. likely due to bad connectivity. 2) Ignition coil connector wrong connection inverted polarity, etc. or inverted polarity. check crimps, terminals, Get in touch 3) Injector connector wrong connection or errors on polarity, etc. with us inverted polarity. Fix problems if any found and Faulty ECU. Get in try starting. touch with us. Is the bike Do TPS calibration. TPS Calibraton Turn off the vehicle. stalls/run roughly **Refer the TPS** Yesdone, Disconnect the PT Injector connector while calibration Bike starts Issue persists and connect back original socket/connector, accelerating/ document. and start the vehicle. TPS Calibration done Bike does not start Issue resolved Get in touch with us Turn off the vehicle. Disconnect the Ignition coil connectors 1&2 Cylinder -Bike starts and connect back original socket/connector, bikes and start the vehicle. Bike does not start Is the Rev Turn off the vehicle. Extension working? (Refer Rev extension setting sequence No-Disconnect Throttle position sensor Rev Ext is not for all document) -Bike startsconnector (where applicable, else ignore this Royal Enfields) step), and connect back original socket/connector, and start the vehicle. 3&4 cylinder Rev extension working Bike does not start bikes Yes **Rev Extension** not working Turn off the vehicle. Disconnect Crank position sensor connector Bike does Get in touch -Bike starts= (where applicable, else ignore this step),

not start

and connect back original socket/connector,

and start the vehicle.

with us

Get in touch

with us

You are good

to go