FuelX Autotune- All KTM

Document Version	3	Release Date	14 July 2023

Application information	FuelX
Vehicle	**KTM**
Model	**Duke/RC 125. 200, 250, 390**
Year of manufacture	**2012-2023**

Note:

- Read through all instructions before installation and use.
- Ensure that the bike is switched off and the key is out of the ignition before proceeding with the installation.
- 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.
- When the installation is complete, make sure to secure the wiring loom away from the movable parts or components which tend to heat up during the normal operation of the vehicle at any chance.
- FuelX is intended for motorsport use on a closed course, please check with your local laws before using this product. Race Dynamics is not liable for consequences arising out of using the product.

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for Indian specification vehicles, the FuelX module will have a sticker indicating it.

⚠ FOR INDIAN SPECIFICATION BIKES ONLY

The warranty/support will not be provided for international users with Indian specification FuelX purchased from unauthorized re-sellers.

1. FuelX

FuelX is an electronic, plug-in, fuel-injection optimizer for modern engines. It either enriches or decreases the AFR in all operating regions according to the rider requirement. It autotunes the engine to best operational parameters, constantly monitoring, learning, and adapting to the engine condition, wear and tear, riding style, add-ons (such as air filter and/or exhaust), etc as well as the environmental conditions such as temperature, humidity, altitude, etc. always ensuring the engine performs in the safest and most optimal zones.

FuelX kit contains the following items
- FuelX Module
- Wiring Harness
- Handlebar map switch (Pro version only)
- Zip ties
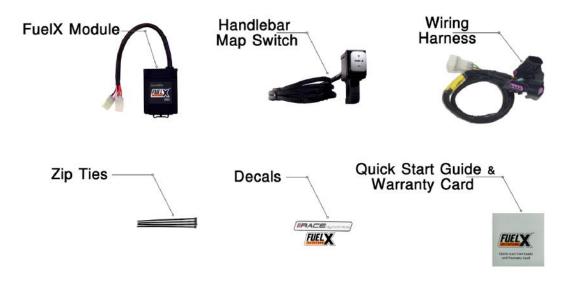- Decals
- Quick start guide and Warranty card

Image 1.1
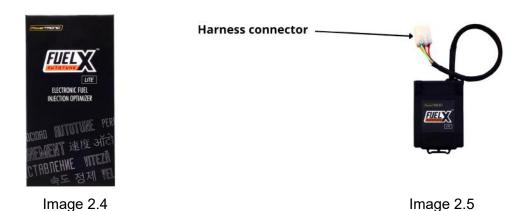
2. FuelX Variants:

FuelX Pro

The FuelX Pro variant has 10 maps that can be changed depending on the preference of the rider. For the Pro version, the Fuelx contains an additional connector (Refer to Image 2.3) for the Handlebar Map switch(Refer to Image 2.2)

| Image 2.1 | Image 2.2 | Image 2.3 |

FuelX Lite

The FuelX Lite variant has a single autotune map and only one connector for the harness.

| Image 2.4 | Image 2.5 |

3. FuelX Harness Connectors

The harness contains
- The Lambda connector (O$_2$)
- FuelX module connector
- Ground/battery negative connector.

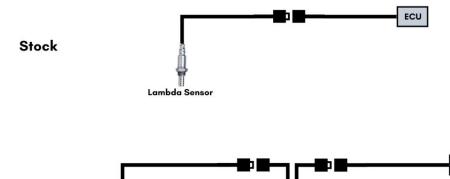**Examples of FuelX harnesses are given below. Refer to Image 5**

Image 5

The type and number of connectors may vary depending on the vehicle, year of manufacture, and the number of cylinders. Examples of different types of Lambda sensor connectors are shown below.

Image 6

The FuelX is connected between the Lambda sensor connector and the ECU. The male connector of FuelX is connected to the female of the Lambda sensor and vice versa.
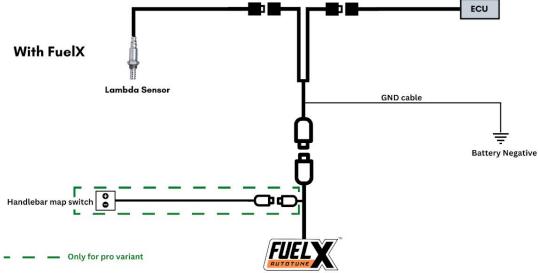

Image 7

4. Installation procedure

4.1.1 Begin at the left side of the bike. Park the bike using the center stand on a level surface (Or a paddock stand). Refer to **Image 1** and **Image 2** for the approximate position of the lambda sensor

Image 1

Note the position of the Lambda connector. Refer **Image 2**

Image 2

4.1.2 Detach the pillion seat by inserting the key into the keyhole shown in **Image 3** and unlock the pillion seat. **Image 4** shows the pillion seat detached.

Image 3

Image 4

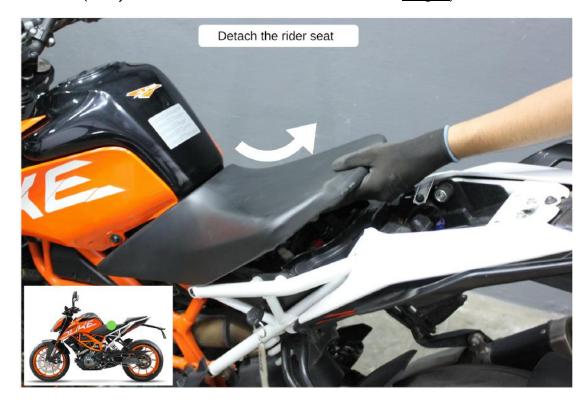**4.1.3** Detach the rider seat. (Gently lift and slide it towards the rear end - Refer to **Image 5**).

Detach the rider seat

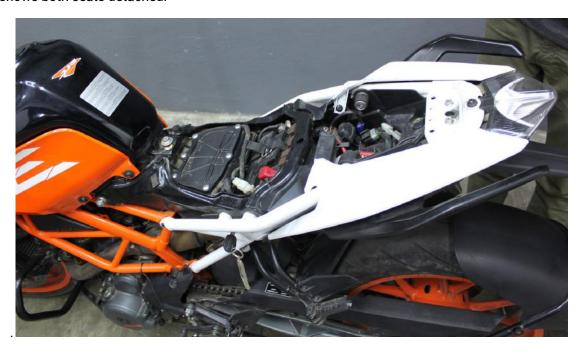Image 5

4.1.4 Image 6 shows both seats detached.

Image 6

4.1.5 Locate and unscrew tank bolt(middle) using M12 Hexagonal socket wrench. Refer to **Image 7** and **Image 8**
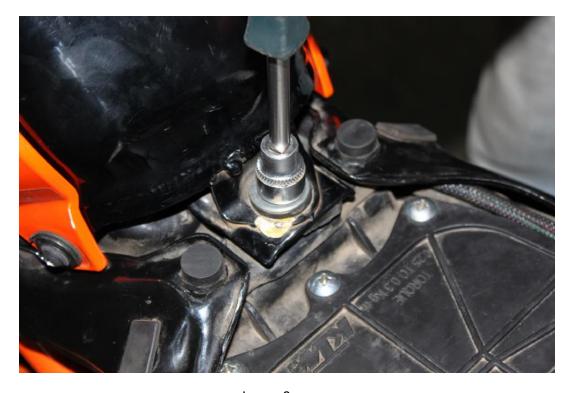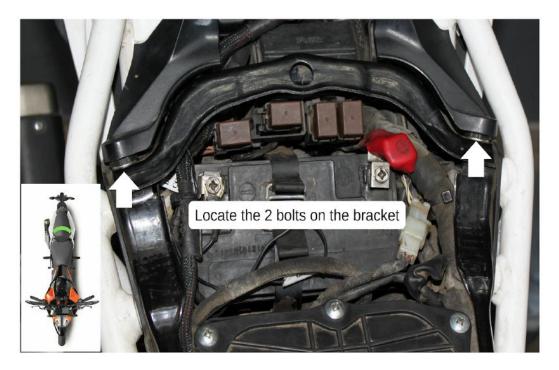

Image 7

Image 8

4.1.6 Locate and unscrew the bolts (side) using the M17 Hexagonal socket. Refer to **Image 9** and **Image 10**.

Image 9

Image 10

4.1.7 Locate the bolts on the brackets. Refer to **Image 11**.

Image 11

4.1.8 Lift the fairing gently and detach it from the bracket carefully. Refer to **Image 12**
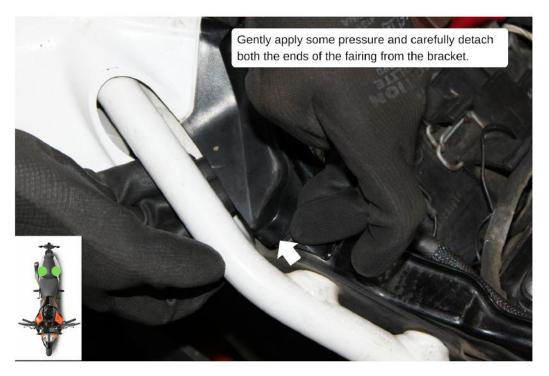

Image 12

4.1.9 Detach both ends of the fairing. Refer to **Image 13**.

Image 13

 4.1.10 Unscrew the bolts using the M5 Hex bit socket from the bracket. Refer to **Image 14**.

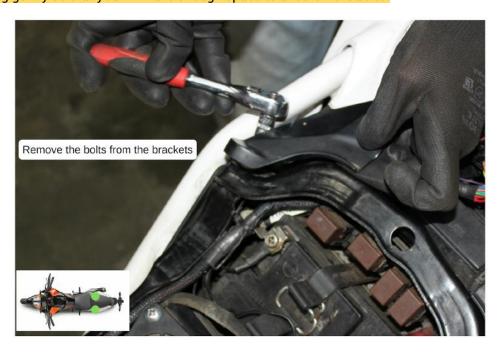Note: Lift the fairing gently so that you will have enough space to unscrew the bolts.

Remove the bolts from the brackets

Image 14

4.1.11 Remove the bracket. Refer to **Image 15**.

Image 15

4.1.12 Go to the left side of the bike. Locate the bolts from the ignition coil cover. Refer to **Image 16**

Image 16

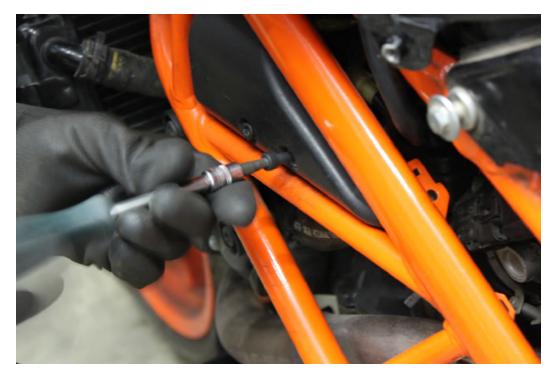**4.1.13** Unscrew the bolts using the M5 Hex bit socket from the ignition coil cover. Refer to **Image 17**

Image 17

4.1.14 Remove the ignition coil cover. Refer to **Image 18**

Image 18

4.1.15 Locate the stock Lambda connector of the vehicle. Refer to **Image 19**

Image 19

4.1.16 Disconnect the Lambda connector of the vehicle. Refer to **Image 20**

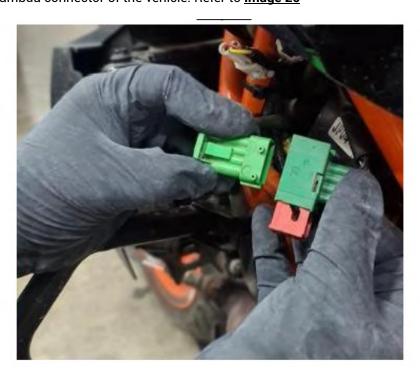Image 20

4.1.17 Connect the FuelX male Lambda connector to the stock female Lambda connector of the vehicle. Refer to **Image 21**

Image 21

4.1.18 Connect the FuelX female Lambda connector to the stock male Lambda connector of the vehicle. Refer to **Image 22**

Image 22

4.1.19 Route the FuelX harness to the rear end of the vehicle. Refer to **Image 23**

Route the FuelX harness to the rear end of the vehicle.

Image 23

4.1.20 Connect the ground terminal connector to the negative terminal of the battery. Refer to the **Image 24**.
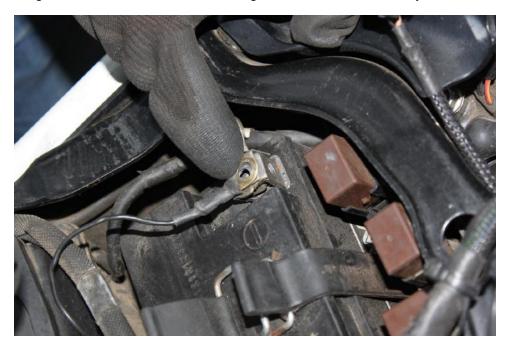

Image 24.

4.1.21 Using a 2.5 mm Allen key, tighten the bolts of the handlebar map switch. Refer to **Images 25 A and 25 B**

Image 25A, Image 25B

4.1.22 Route the handlebar map switch harness to the rear end of the vehicle. Refer to **Image 26**

Image 26

4.1.23 Keep the FuelX module in the glove box. Refer to **Image 27**

Image 27

4.1.24 Connect the FuelX 6-pin female connector to the harness 6-pin male connector. Refer to **Image 28**

Image 28

 4.1.25 Connect the FuelX 4-pin female connector to the handlebar map switch harness 4-pin male connector. Refer to **Image 29**

Image 29

4.1.26 Use zip ties to secure the harness wherever necessary. Attach the panels back. The installation is complete and you can use the FuelX.

5. FuelX Configurations and Settings

For Pro versions, maps on the FuelX can be changed according to the preference of the customer. By just pressing the +/- button on the Handlebar map switch. The **Green LED** on the FuelX Handlebar map switch will help the customer know which map is active. Ie the number of blinks on the handlebar switch indicates the number of maps.

Map No	Map Description
1	LEAN (Less Fuel)
2	
3	STOCK
4	
5	
6	
7	
8	
9	
10	RICH (More Fuel)

Image 5.1

The rider can choose the map according to the fuel enrichment he wants.

The first two maps are lean maps.

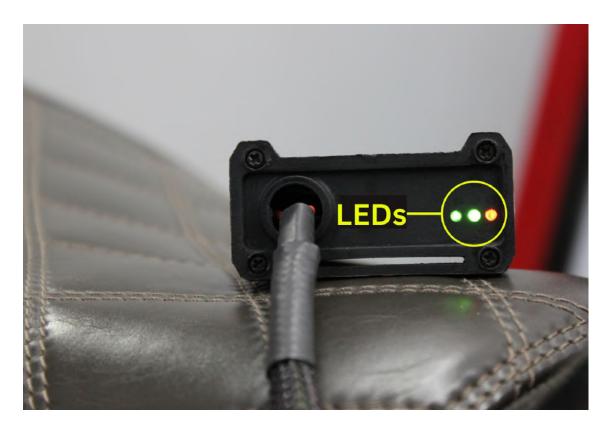**Map 3 runs with stock AFR set by the OEM manufacturer.**

Maps 4 from 10 make the AFR richer as the numbers go higher.

For Lite versions, a single autotune map is provided for adjusting the AFR for the best operational parameters.

6. FuelX LEDs

FuelX has LEDs on the module to indicate the operation.

The blinking of the **Red LED** indicates that the Map on the FuelX is being activated. The Red LED starts blinking after the key and the kill switch are on.

The blinking of the **Green LEDs** during the idling of the engine indicates that the FuelX is working in sync with the OEM ECU.

The working of both Green and Red LEDs indicates the FuelX Functioning as intended.