

<b>TECHNICAL DOCUMENTATION</b>	<b>26/07/2005</b>	<b>ADAPTER</b>	<b>RPM COIL - ECU adapter</b>
"RPM adapter": installation notes and technical details – Available RPM inputs: COIL / ECU – Version 1.01			

• **"RPM adapter" general description**



Figure 1: "RPM COIL-ECU" interface – Top side view

Sometimes the RPM signal, either sampled from the COIL or from the ECU can be not correctly sampled by our loggers. It can for instance happen that the RPM signal is very unstable or that displayed value does not correspond to the real one.

The main causes of this problem are undesired noise peaks (caused by electrical interferences) or non-perfect square waveform RPM ECU signal.

**The "RPM COIL-ECU" adapter is a double-function filter which allows the user to sample the RPM signal either from the COIL or from the ECU.**

- **The RPM COIL-ECU adapter cleans the "ECU RPM" signal from undesired noise peaks and squares the waveform of the RPM signal;**
- **The RPM COIL-ECU adapter squares the waveform of the "RPM COIL" signal.**

In the following pictures are shown 3 examples of RPM signals:

- Figure 2: RPM signal out-coming from the coil;
- Figure 3: noisy and no-square waveform RPM ECU signal;
- Figure 4: RPM signal (either sampled from ECU or COIL) out-coming from the RPM COIL – ECU adapter.

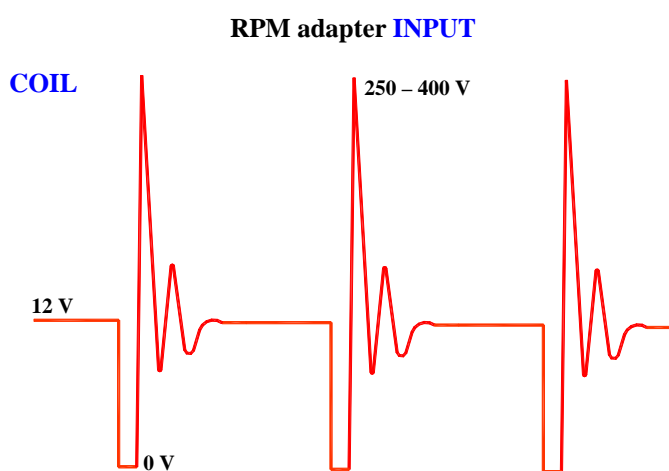


Figure 2: RPM signal out-coming from the COIL

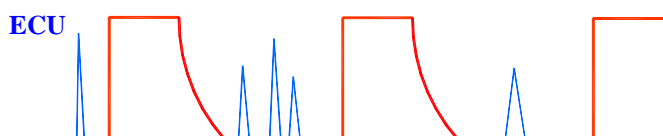
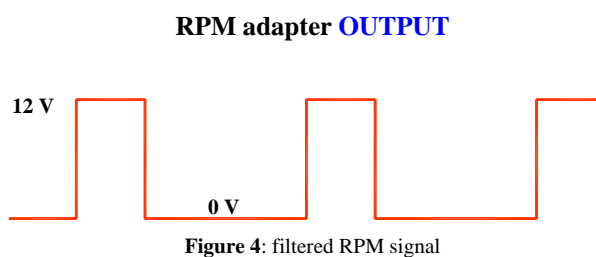


Figure 3: noisy (blue peaks) and no-square waveform RPM ECU signal



- **How to sample the RPM signal from the COIL**

The coil, shown in Figure 5, is usually a black cylinder with 3 wires:

- One of them is connected to the spark plug (labelled as “TO Sparks” in Figure 5);
- Another one is connected to the battery’s positive pole (labelled as “+12 Volt” in Figure 5);
- **The last one (labelled as RPM signal “Trigger” in Figure 5) represents the RPM signal.**

Moreover, the coil is usually put to ground with the chassis.

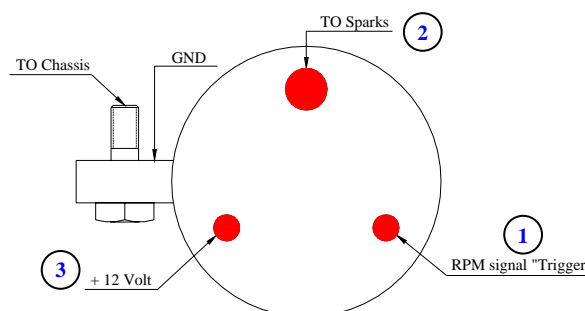


Figure 5: coil wirings

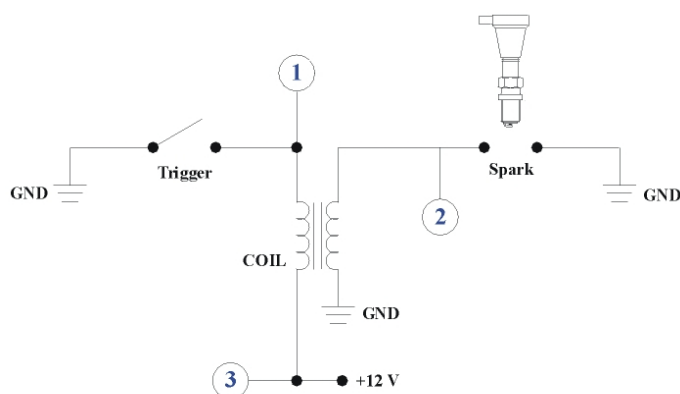


Figure 6: Coil layout

In Figure 6 is shown the COIL layout, while in Figure 7 is shown the voltage outputs measured in points 1, 2 and 3.

**Please remember that the adapter’s WHITE wire, labelled as “RPM COIL 150-400 V” has to be connected to wiring RPM signal “Trigger”, labelled as 1 in Figure 5.**

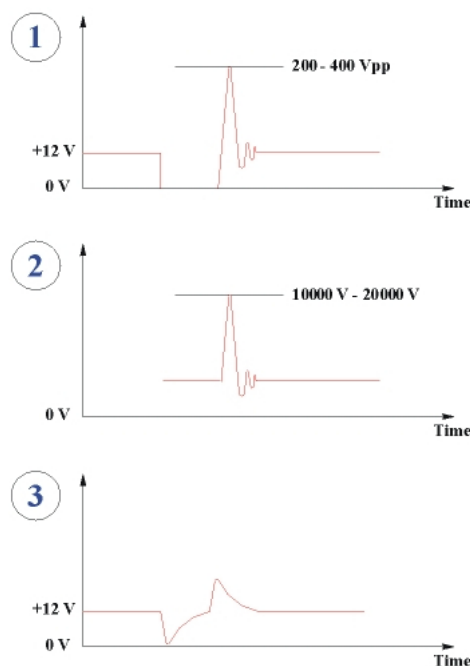


Figure 7: voltage outputs measured in 1 – 2 – 3

- **Installation notes**

In order to correctly sample the RPM signal from COIL, please read carefully the following instructions.

- Connect the interface’s white wire, labelled as “RPM COIL 150-400 V”, to the coil’s RPM output (labelled as RPM signal “Trigger” in Figure 5);
- Connect the interface’s blue wire, labelled as “RPM form”, to the gauge’s “RPM form 8-50 Volt square wave” input;
- Connect the interface’s red wire, labelled as “V battery”, to the battery’s positive pole. It is suggested to connect the red wire downstream the bike’s/car’s master switch;
- Connect the interface’s black wire, labelled as “GND”, to the gauge’s GND pin (please refer to the gauge’s pinout).

- *How to sample the RPM signal from the ECU*

In order to clean and square the ECU RPM signal, please proceed as follows:

- Connect the BLUE wire, labelled as **RPM ECU 4-50 V** to the ECU's RPM output.
- Connect the adapter's blue wire, labelled as "**RPM form**", to the gauge's "RPM form 8-50 Volt square wave" input.
- Connect the interface's red wire, labelled as "V battery", to the battery's positive pole. It is suggested to connect the red wire downstream the bike's/car's master switch;
- Connect the interface's black wire, labelled as "GND", to the gauge's GND pin (please refer to the gauge's pinout).

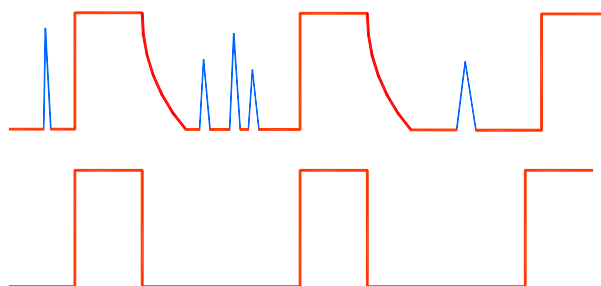


Figure 8: "No-filtered" (up) and "RC-filtered" (down) RPM ECU signal

- *TVS – Transient Voltage Suppressor*

If your RPM adapter is labelled as **TVS** it means that it is equipped with an internal "Transient Voltage Suppressor". The aim of this electronic component is to filter the input power signal (**RED** cable, labelled as "+ V battery") from undesired high voltage peaks (as shown in Figure 7) in order to preserve the integrity of the RPM filter.

This electronic component allows the user to power the RPM filter using the coil "12 V" cable (see Figure 5). Anyway, it is strongly suggested to connect the red wire downstream the bike's/car's master switch.