



IONIC NRG-K
QUICK SHIFT SYSTEM for KART and CAR
Installation and operation manual

NRG SENSOR OPERATING PRINCIPLE

The IONIC NRG-K operation is based on a sensor that can detect the energy produced by the driver's action on the gears lever.

INSTALLATION

1. Remove the original right threaded uniball from the lever rod and replace it with the one supplied in the kit.
2. Arrange the control unit near the driver's seat in order to allow the direct access to the ON/OFF switch supplied.



ATTENTION: TO SCREW THE UNIBALL ON THE ROD ALWAYS WORK ON THE BOLT AND NOT ON THE BLUE BODY OR ON THE WIRE PIPE OF THE SENSOR. DO NEVER TRY TO DISASSEMBLE THE SENSOR COMPONENTS.

ELECTRICAL CONNECTION

Carefully follow the diagram attached to the package to connect IONIC NRG-K unit, sensor, On/Off switch and battery case.

SETTING THE MINIMUM ENGINE SPEED ACTIVATION THRESHOLD

To avoid the engine stopping in maneuvers at idle RPM, IONIC NRG-K inhibits the cut below a factory set engine speed (typically 1500 RPM for 2 stroke engines). Meanwhile the engine runs in the inhibition range the LED blinks RED continuously. You can set the RPM threshold below which you wish to inhibit the intervention with the following procedure:

1. Move momentarily the circular selector to position "E".
2. Run the engine, in neutral, to the speed you want the system start cutting (eg. 4000RPM), and keep it at that speed.
3. Meanwhile the engine runs at the desired speed press the button for 2 seconds, the LED will start blinking.
4. If the RPM setting is completed, the LED will stop with a last GREEN flash, in case of errors or missing RPM signal the last flash will be RED.
5. The procedure is now complete, if you had already set the sensor sensitivity, remember to reposition the circular selector to the defined value.

SETTING THE CUT OFF THRESHOLD

The force at which you wish the system to cut off is set by the 16 steps selector on which the minimum value (high sensitivity) is indicated by "0", setting a higher value will result in a stiff behaviour of the lever till the maximum value reached on the "F" position.

SETTING THE LEVER SENSITIVITY

While the engine is off move by hand the gearshift lever, in upshift direction, till you feel the gear "sticking", the red LED must light on just while you are feeling the "stiffness", if the red LED keeps off move the selector anticlockwise, if it lights on before the gear is engaged move it in clockwise direction. The correct setting is reached when the red LED lights on at the moment of the gear engaging, the green LED lighting on means the cut off has happened.

NOTE: the value measured by the sensor depends upon the shift energy and not simply upon the force. As a consequence, a slow action on the lever may fail to be detected or it may produce a weaker signal compared to the driver's usual action. This aspect shall

be considered at the time of the setup (by means of a rapid and resolute movement of the lever as if you were driving) and by the driver who will resolutely shift the gears by releasing the gears lever after every single operation.

VERY IMPORTANT!

It's suggested to optimize the setting after a drive test; in order to avoid the intervention being influenced by possible dumps, vibrations or unwanted actions by the rider, THE OPTIMAL SETTING IS ALWAYS REACHED LOOKING FOR THE HIGHEST VALUE ON THE SELECTOR, set the selector to increasing values till the force on the lever during the ride is too high, then lower the selector value by 1 step. So its always necessary to opt for a higher threshold if you notice undesired cuts or possible gears coming out after a shifting.

Attention: If the engine is in the inhibition range with the RED LED blinking, the action on the sensor will be shown in GREEN even if the cut is not performed.

Direction of operation

IONIC NRG can be easily used without requiring any special setup. It can detect the signal in both directions of operation of the lever. When set up by default, IONIC will act at the time of engaging or shifting the gears (please remember that – when shifting the gears - the action of the electronic gears has no effect on the engagement thereof). However, you can limit the action to one of the two directions by carrying out the operations here below:

1. Power off IONIC NRG.
2. Press the button and hold it down while supplying. The LED will turn on for one second. Never release the button.
3. While holding the button down, the LED will turn on after about 10 seconds and assume one single colour (e.g. GREEN). This means that the system has been set up to act in one direction only. As soon as the LED turns off, release the button. If you repeat the same operation, the LED will assume another colour (e.g. RED) next time. In this case, the system will act in the opposite direction. If the operation is performed once again, the LED will turn on in a two-colour mode (ORANGE). This means that the system has been set to the bidirectional mode. The operation intended to set up the direction can be repeated at will, with no limit.
4. Once set the direction, at every action on the lever, the LED will display one of the following colors: **ORANGE**=Bidirectional, **GREEN**=Compression, **RED**=Traction. N.B. Within the RPM inhibition range the LED will always show the gear shift in green.

Please Note:For a easier setting and a smoother operating it is recommended to keep the system set to the bidirectional mode.

SETTING THE CUT OFF TIME

For the best combination between smoothness at low RPM and maximum performance at high RPM, IONIC NRG-K features the dynamic management of the Cut Off which increases at low RPM. The Cut Off time is preset at an optimal value for the most part of the engines at 5 hundredths of second (50 milliseconds) at high RPM, anyway it's possible to set it at will between 4 and 15 hundredths of second. Keeping the button pressed for at least 3 seconds you enter the Cut Off setting mode, release the button as soon as the LED lights on. The LED will blink as many times as the hundredths of second actually set, after a 1 second pause they repeat the same sequence.

During the blinking sequence push the button as many times as the desired hundredths to be set.

Ex: with the factory setting of 5 hundredths of second the LED executes 2 sequences of 5 blinks separated by a 1 second pause. In order to set the Cut Off time of 4 hundredths, during the blinking, press the button 4 times, the LED will execute two sequences of 4 blinks and the procedure will be completed.

INVERTING THE ELECTRIC CONTACT TYPE (normally opened-normally closed)

Note: In the case it should be necessary to invert the cut contact, follow the steps below:

(Attention: before making this operation verify the electrical connections because the contact inversion could damage the electronics, harness or some fuses).

1. Power on IONIC NRG.
2. Move the selector to the "F" position.
3. Press and keep pressed the button for 15 seconds, during this time the LED will light on, light off and in a while will light on (Green or Red depending on the contact type just set).
4. Release the button.
5. Position the selector on the previous value you found out for the correct threshold setting.

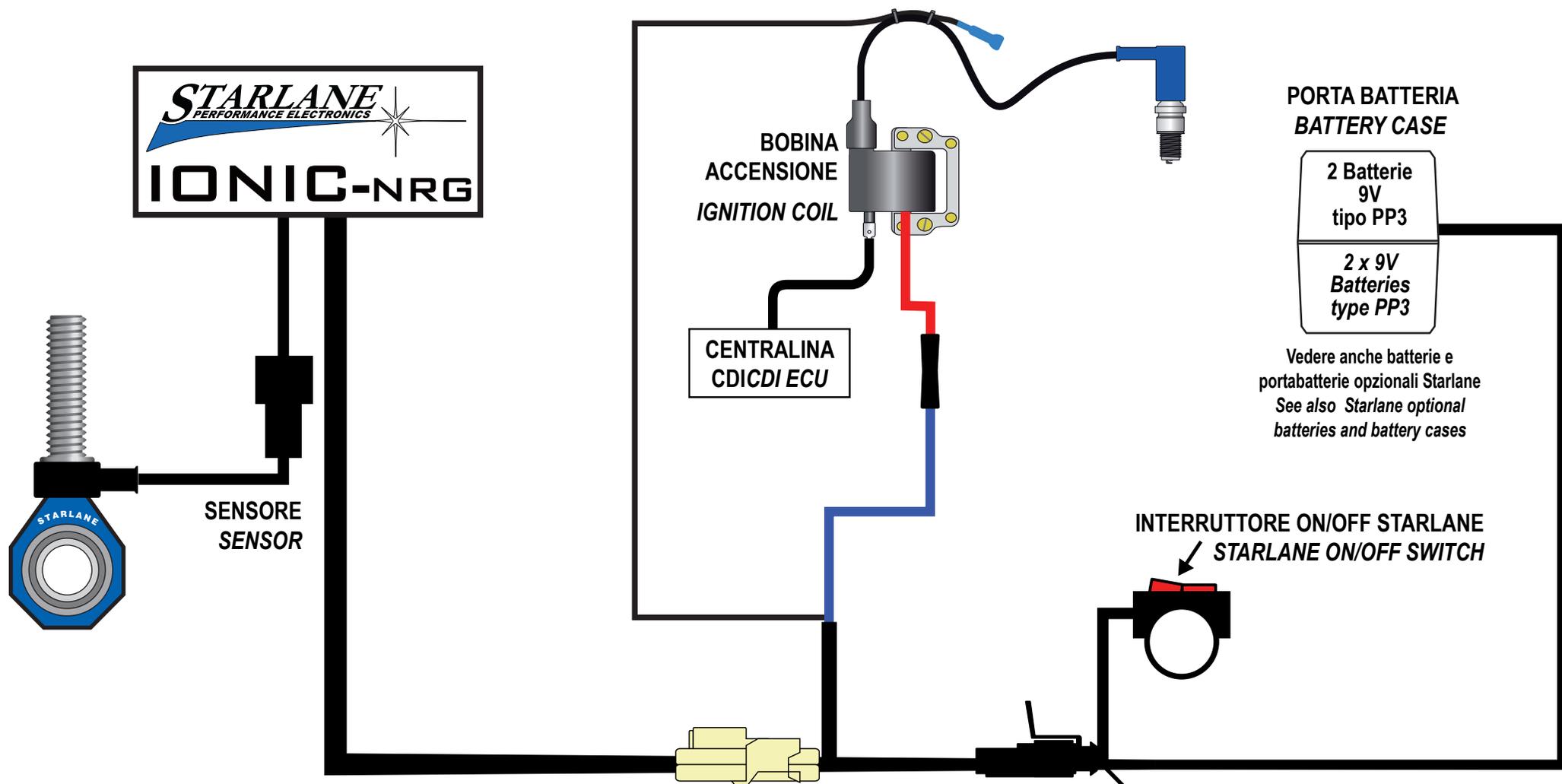
Please Note: If you reverse the operation contact when IONIC NRG-K is not supplied, the engine might fail to start. In this case, make sure that the IONIC NRG-K control unit is properly supplied.

RESET TO FACTORY DEFAULT SETTINGS

You can reset the system to factory defaults by moving the selector to position "0" and keeping the button pressed for 20 seconds, the complete reset is confirmed by 3 blinks of the RED LED.

IONIC NRG-K is covered by a 24 month warranty against manufacturing defects. - not homologated for public road use.

SCHEMA DI CONNESSIONE IONIC NRG-K IONIC NRG-K CONNECTION DIAGRAM



ATTENZIONE: il sistema può funzionare solo se il negativo dell'alimentazione viene messo in comune con l'impianto o il telaio del veicolo. L'accensione del veicolo con la mancata connessione del negativo a massa può danneggiare IONIC NRG-K.

ATTENTION: the system can work only if the negative on the power supply is connected to the original harness ground or to the vehicle frame. Starting the engine without ground connection can damage IONIC NRG-K.

OCCHIELLO A MASSA SUL TELAIO
RING TO FRAME GROUND