

Shift-I™

Installation Manual



V1.02

Ecliptech Innovations Pty. Ltd.

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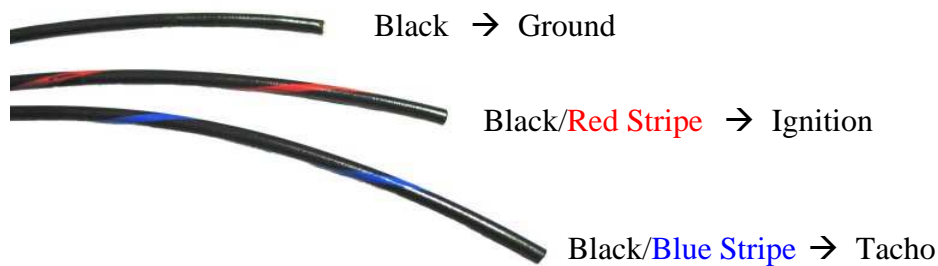
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INTRODUCTION

Installing the Shift-I™ unit is quite easy, and here's how...

INSTALLATION

Shift-I requires only three wires to be connected, which all have different colour patterns for identification...



In most cases, these three wires are to be connected to the bikes wiring at the back of the instrument cluster. The installation is quite straight forward, and a lot of information has been provided in this manual to ensure the installation is successful.

You cannot damage Shift-I™ by connecting the wires around the wrong way, however it is strongly recommended not to incorrectly make wire connections to avoid blowing fuses and/or damaging the bike. If you are not absolutely sure of how to install the unit or if you don't have the required skills and/or tools, obtain professional help from a recognized motorbike wiring specialist. Failure to install and mount the unit correctly could result in making the motorbike unsafe to use.

The easiest method for installation is to know what wire colours to look for and where to find them. This manual provides the typical wire colours used by different manufacturers, however it is recommended to check these wire colours on the bikes electrical schematic.

Connect one wire at a time! This avoids confusion and the possibility of accidentally shorting the bikes wires together. The wires must be correctly crimped or soldered to ensure proper and trouble free operation.

The three wires, ground, ignition and tacho, are usually always found at the back of the instrument. Typically you will need to remove the front fairing or windscreen to gain access. When testing the wires, if possible find the connector in the wiring harness and gently probe the connector terminals. Otherwise you will need to remove a small amount of insulation to test the wire.

If you feel inclined and can't wait to see it light up... put the black wire on the negative terminal of your battery, and the black/red wire on the positive. You won't damage it if you get them round the wrong way.

Finding & Verifying Ground

Typically different manufacturers use different wire colours for a signal. Therefore as a general guide only, the list below shows the wire colour used for several manufacturers. It is strongly recommended that you first verify this wire colour with the motorbikes schematic, and then verify it is ground before use.

Ducati	Black
Honda	Green
Kawasaki	Black/Yellow
Suzuki	Black/White
Yamaha	Black

To verify a wire is connected to ground, you need to measure its resistance with a multimeter to the negative terminal of the battery. Set the multimeter to resistance or ohms (Ω), put one lead on the negative battery terminal and the other on the wire. The reading should be less than 1Ω , even if ignition is turned on.

NOTE: Do not connect Shift-I's ground wire to the frame! Connect it through the wiring to ensure the unit gets a good ground signal, which is needed to accurately read the tacho signal.

Finding & Verifying Ignition

As with finding ground, as general guide only, the list below shows the wire colour for ignition used by several manufacturers.

Ducati	Violet or Light Blue
Honda	Black/Brown or White/Green
Kawasaki	Brown/White
Suzuki	Orange/Green or Red/Yellow
Yamaha	Light Brown or Red/Yellow

To verify a wire is connected to ignition, you need to measure the voltage with a multimeter. Set the multimeter to voltage (V), put the negative black lead on the negative battery terminal and the other on the Shift-I's black/red wire. With ignition off, the voltage should be less than 0.5V. With ignition on, it should read $\sim 12V$, or almost identical to that measured by placing the red multimeter lead on the positive battery terminal.

NOTE:

Do not connect this wire straight to battery, as it must be connected to the ignition to access the programming options.

TIP:

If you later intend on calibrating the voltage (refer to advanced feature section of user manual), then now is a good time to write down the measurements...

Battery voltage at battery (measure directly across battery terminals) =

Battery voltage at Shift-I (measure directly at Shift-I wires) =

NOTE:

Calibrating the voltage is not specifically required and this step can be skipped.

Finding & Verifying Tacho

As with the finding ground, as general guide only, the list below shows the wire colour for the tacho used by several manufacturers.

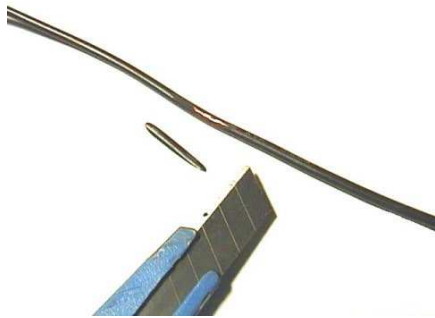
Ducati	Green/Yellow or Green/Grey
Honda	Yellow/Green
Kawasaki	Light Blue
Suzuki	Yellow/Blue, Yellow/Black or Black/Blue
Yamaha	Yellow/Black

To verify a wire is connected to the tacho signal, you need to measure the frequency (Hz) with a multimeter. Set the multimeter to frequency, put the multimeter's black lead on the negative battery terminal and multimeter's red lead on Shift-I's black/blue wire. With ignition on and the engine running, the frequency should vary with RPM.

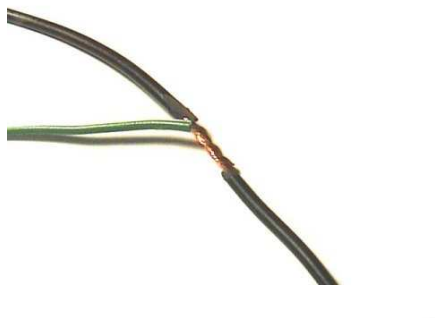
CONNECTING THE WIRES

CONNECTING THE WIRES

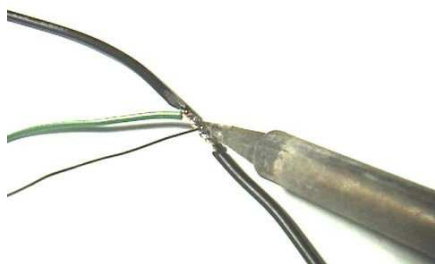
The best method to connect Shift-I™ is by soldering the wires together. You can also crimp the wires together if you have a crimping tool and suitable wire crimps.



Carefully remove ~1cm of the insulation from the wire you are joining to. Make sure not to cut any of the wire strands.



Wrap the wire you are joining around the wire.



Solder the wires together.



Wrap the joint tightly with electrical insulation tape.

NOTE: Join one wire at a time to reduce the risk of accidentally shorting the wires.

VERIFYING OPERATION

Step 1 – Verify power is connected

The lights should light up successively as soon as ignition is turned on, then shortly after you'll see a few lights turn on. If so, go to step 2.

Troubleshooting

1. Make sure you have plugged all connectors back together after wiring.
2. Does everything else on the bike work... if not, you may have accidentally shorted some wires during installation. Check all fuses. Some bikes also have a separate main fuse located next to the battery.
3. Turn ignition on, then press both buttons simultaneously. If they all light up, then the Shift-I™ was previously set to a different startup mode than the default setting, continue to step 2.
4. Check the ignition and ground wire to make sure you got the right ones. With ignition on, measure the voltage at the Shift-I to ensure power is there.

Step 2 – Verify Tacho is Connected

The tacho signal between different bikes can differ, therefore two settings have been provided... calibration & sensitivity. The default settings for these work for the majority of bikes.

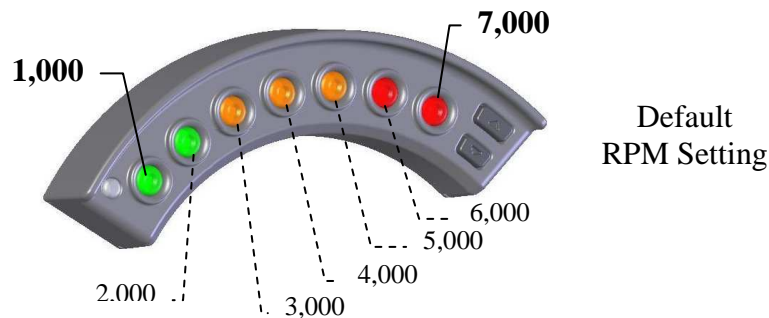
The calibration setting is used to match the signal, so 1,000rpm of the engine is equal to 1,000rpm on Shift-I™. To change the setting, turn ignition on while pressing both buttons. Refer to the user manual for more detail on setting the calibration.

The sensitivity can be adjusted to eliminate any flicker, usually required on some older bikes. Refer to the Advance Settings Manual to change the sensitivity.

The following assumes you haven't changed the lower and upper rpm set-points, whereby the default values of 1,000 and 8,000rpm are used, and the display mode is cumulative with flash at the shift point. Refer to the user guide if you want to reset to the factory default values.

When ignition is turned on, the display will first show the rpm display mode, then shortly after the battery voltage display. Press either button to exit battery mode (this makes things less confusing) and the display will go blank. Start your bike. The picture below shows the RPM values we want the lights to turn on at.

VERIFYING OPERATION



If the lights turn on before they should, then you need to increase the calibration value. If they turn on too late, then decrease the calibration value. If the lights flicker, then it is highly recommended to first reduce the sensitivity setting (refer to the advanced settings manual).

Troubleshooting

1. Nothing happens. Display remains blank...
 - a. Decrease the calibration value
 - b. Increase the sensitivity setting to maximum
 - c. Double check the wiring connections.
2. The display flickers. Refer to the advanced settings guide to reduce the sensitivity setting.
3. Regardless of the calibration value, the same thing happens. Make sure after setting the value, that you press both buttons simultaneously to save the setting. Double check by re-entering the calibration mode to make sure it has the new value.
4. Several of the lights turn on, but stay on. This is most likely battery display mode. If the tachometer is connected correctly, the display will automatically go to RPM display mode a couple of seconds after the bike is started. You may find with the battery display mode, that a couple of more lights will turn on as the bike is revved. You may initially suspect this to be the RPM, as the alternator may have a high voltage above idle RPM.

MOUNTING THE DISPLAY

Two high performance acrylic adhesive foam pads are included, which have excellent resistance to ageing, water, most solvents and UV light. They stick really well to plastic, but not to vinyl (particularly those with protective waxes applied). They can be safely removed, however if in doubt, first test an area with a small piece in an appropriate place.

Immediately after application, they can be removed or re-positioned without great effort. The pads take a couple of days to achieve the maximum bond strength, after which, they will most likely tear apart before coming off. Use a plastic safe solvent or tee tree oil to remove the residue.

The Shift-ITTM must be mounted behind a windscreen, where it is not subjected to the wind pressure or rain. Choose a place to mount the unit where the lights are clearly visible and it does not interfere or obstruct the view of the rider. Do not place it in a location where the lights from another vehicle are incident on the display, as the light sensor will assume it is daylight and automatically increase the brightness. Clean both surfaces before applying the adhesive pads.

CALIBRATION AND SENSITIVITY SETTINGS

The following table provides a list of settings for different bikes already recorded. If not listed here, it is easy to determine which setting is correct.

	Calibration	Sensitivity
Honda CBR250RR.....	2.....	4
Honda CBR250R	4.....	6
Honda VFR400	4.....	7
Honda CBR600F4i.....	2.....	6
Honda Blackbird	2.....	6
Suzuki GSXR600.....	1.....	6
Suzuki TLR1000.....	1.....	6
Ducati 748.....	2.....	6
Kawasaki ZZR250	1.....	6
Kawasaki ZX7R.....	2.....	6
Yamaha FZR250.....	1.....	2
Yamaha YZF-R6.....	2.5	6

To be continued....

SETTING SHIFT-I™ BEFORE THE FIRST RIDE

You must ensure that the display does not obscure your view and the brightness level is appropriately set before use. Test the brightness level is suitable in both light and dark conditions, and adjust as required. Refer to the User Manual to adjust the brightness.

As a general start, set the lower RPM set-point to 2,000rpm, and the upper threshold to about 2/3 of the maximum RPM. Go for a ride and get accustomed to viewing the display in your peripheral vision. The set-points can be easily adjusted, even with the engine running, as long as the RPM is below 2,200 and the bike is stationary. Use Shift-I™ as you would your existing instrument display, only when its safe to do so.

It is advised not to rev the engine when not in gear, particularly when cold, as it is usually not good for the engine.

Keep it rubber side down and enjoy the ride!