

GSX1400 Gear Position Indicator User Instructions

Congratulations on acquiring this gear position indicator (GPI) for your Suzuki GSX1400. This leaflet is provided to give an insight to how it works, how to install it, how to configure it and how to set the user settings.

1. How it works

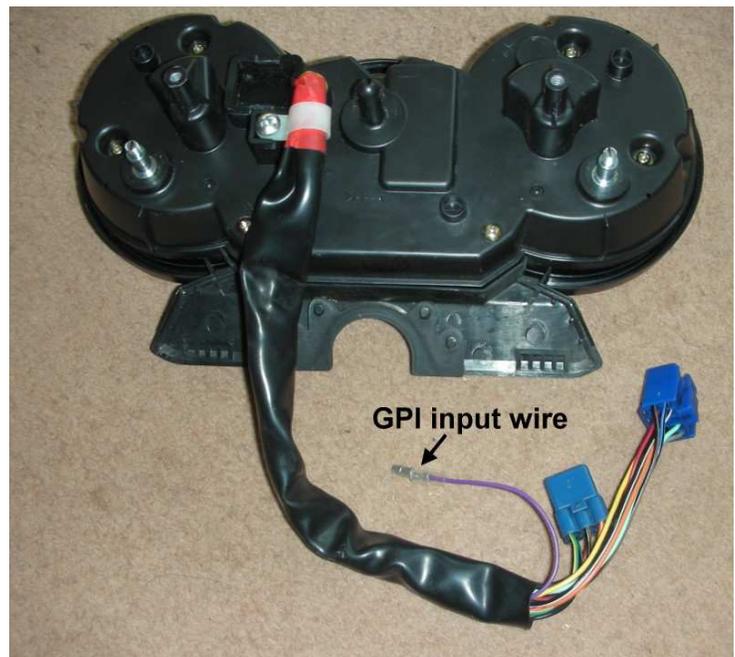
All GSX1400s have a sensor that informs the Engine Control Unit what gear is currently selected in order to limit the torque available in the lower gears. This information takes the form of a voltage that reflects the gear selected and it is this signal that I interrogate with the GPI. The circuit comprises a single-chip Microprocessor that constantly monitors this voltage and then displays relevant information on a series of LEDs that are mounted below the tachometer dial face.

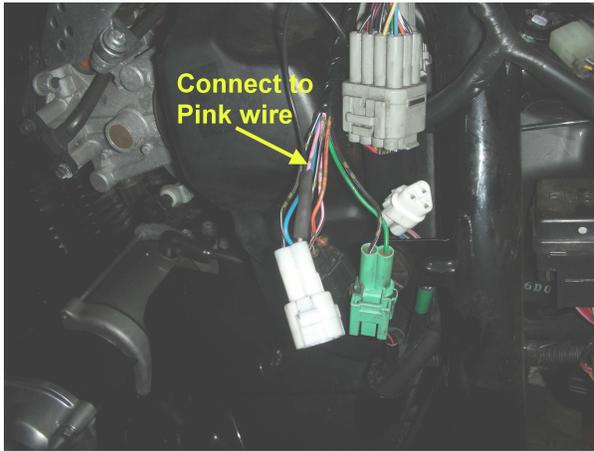
The stock dial faces have translucent marker positions so that the backlighting can effectively illuminate them at night. They also have 'scatter patterns' of black dots printed on the rear which Suzuki have designed to even out the illumination and give a better nighttime effect.

Depending on the voltage detected, the unit is able to display a corresponding LED for gears 1 to 6. In addition, it will also display an animated warning pattern for when the engine RUN/KILL switch is set to KILL or similarly if the side-stand is in the lowered position (whilst in gear). Finally, to aid nighttime operation, the LED brilliance of selected gear is dimmable to one of 5 user selected levels.

2. How to Install

If you have sent me your clocks with the front and rear plastics in place, fitment is very straight forward. The clocks will have been returned fully assembled, tested and ready to fit and there is only a single wire you need to connect. This wire, (extension included in package) must be connected to the gear position sensor output on your bike. To do this, remove the seat and nearside side panel/cover to reveal the loom connectors, the one you are looking for is the 3 pin item that comes up from the gear position sensor. Next run the supplied extension wire from the headlamp back under the tank to the sensor area, leaving the pre-terminated female bullet connector in the headlamp bowl and with enough slack to allow steering to move freely side-to-side.





This connector can be seen left and the wire you need to connect to is the Pink signal wire. I suggest after cutting the supplied extension wire to suit, that you connect it above the sensor connector and the best method would be to cut the sensor wire about 35mm back from white connector.

Bare about 5mm on each end and about 15mm on new link wire. Cutting the main wire will allow the supplied heatshrink sleeving to be passed over the the joint

BEFORE it has been soldered. Now use the end of the new link wire to join the cut wire, by wrapping it around one end then on to wrap around the other, so that the cut wire is effectively butt joined. Soldering it like this will keep the original wire the same length as it was, otherwise it will end up shorter than the others.

I would also then wrap 1 to 2 turns of insulating tape over the soldered joint, then slide the heatshrink sleeve over the completed joint, so that the sleeve extends beyond the joint, onto the wire insulation at least 5mm either side of the joint/tape.

The heatshrink sleeve can be shrunk with a heat gun, or naked flame (*be careful if using a flame – your tank is nearby!!*) and being adhesive lined will seal the joint too.

Please avoid the temptation to use 'Scotchlok' type connectors as I think they are hurtful devices at best and often end up introducing more problems than they ever solve, esp if open to the weather.

Once you have connected this wire to the sensor and refitted the side panel and seat, that's pretty much it. If you would like to confirm your gear sensor is working ok, connect a multimeter set to DC Volts between the other (female bullet) end of this new wire and an earth point, then with ignition on and engine in RUN position, cycle the gears. This will cause the voltage to vary between just short of 5v for neutral and then between about 0.6v to 4.5v for gears 1 to 6. (note – this is not a requirement of fitment, just a simple operation test and can be ignored if you prefer)

Next, refit the clocks with the two securing 6mm allen headed bolts to the top yoke and run the three cables and connectors into the headlamp bowl. Reconnect the original 2 Suzuki loom plugs and also the new additional single bullet to the freshly fitted wire.

3. Configuring your GPI

The unit is supplied tested and pre-programmed against my own K6 voltage signals but I have noticed that there are slight differences between sensor outputs, so now is the time to configure the unit to function with your own sensor – this should only need doing once..

When you first power the bike on, you should see the needles sweep and at the same time, the LEDs will illuminate behind positions 1-6 on the tacho. To program the unit, use the following sequence.

- a) Set bike on centre-stand if fitted and in NEUTRAL and RUN position.
- b) Power ignition on and press and hold the **Trip Reset Button (TRB)** whilst sweep is taking place.
- c) Release button once all LEDs begin to flash.
- d) Whilst still in neutral, start engine – all 6 LEDs should continue to flash.
- e) Now press the TRB to store the RUNNING NEUTRAL position
- f) LED 1 will now flash to prompt for 1st gear, so select 1st (hence why on centre-stand) and once selected press TRB to store the 1st Gear Position
- g) LED 2 will now flash to prompt for 2nd gear, so select 2nd and once selected press TRB to store the 2nd Gear Position
- h) REPEAT for gears 3,4,5 and 6 after which, the Lower 3 LEDs will be flashing, so stop the engine with the KILL switch, (leaving it in 6th) and press the TRB.
- i) It will now be flashing the upper 3 LEDs and you now need to select neutral (helps to turn rear wheel slightly) and once in Neutral with KILL still in KILL position, press the TRB once more

That's it, done – It will do a test sweep and then return to the flashing pattern as your kill switch is still on. Setting it to RUN should now give a clear display. It sounds a lot more complicated than it actually is and there is a demo video on YouTube – just search on '*GSX1400 GPI update*' and you'll find it.

4. User settings

When showing the 'KILL SWITCH' or 'Side Stand Down Whilst in gear' warnings, there are 4 user selectable patterns to choose from. To switch between them, whilst one is active, repeatedly press the TRB to cycle through the 4 available. This does not clear your trip mileage as the press is brief and once set, the selected pattern will remain the default until next changed.

If you think the indicated gear LED is too bright for night-time use, the brilliance can be user selected to one of 5 preset levels. To do this, whilst in a gear, repeatedly press the TRB to cycle through the 5 levels and leave it at the desired setting. The warning pattern brilliance is not user adjustable, remaining bright always and all the user settings are stored even if battery is flat or removed.

Finally, beware some 'lesser' aftermarket dial faces when considering this conversion or a change of backlighting colour (eg blue), as they are often just inkjet printed onto paper stuck on clear plastic. These will look ok in daylight but will definitely not look as good at night and will NOT work with the GPi conversion at all.

Replacement **Lockwood** and **Clockworx** both seem to be well designed quality items from what I have seen although they may require a little modification to the underside coating whereby some of the coating is removed to allow the RED GPi LEDs to show through more brightly.

I have kept the standard black dial faces on my K6 but with Blue backlighting.

If you should have any problems at all with your unit, or perhaps have an idea that you think you improve its function or operation, do please let me know.

I can be reached at paul.thompson@smart-tech-services.co.uk or on my mobile when not at home (07771 868890)

GPi Instructions Revision History:

Revised - 29th April 2010

Now includes more detailed instruction of how to connect / insulate the link wire and ALL the configuration instructions appear on a single page.

Initial Issue – March 2010

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