

Geartronics GPI4P

Programmable Gear Position Indicator

Wiring & Programming Instructions

The Geartronics gear position indicator is a universal display unit that can be used with any sequential gearbox that is fitted with a 3-wire barrel potentiometer or gear position switch. Any gear order can be accommodated with up to 7 forward speeds plus neutral & reverse. The potentiometer can be mounted in any angular position relative to the selector barrel, particularly useful for Sadev potentiometers. The display is also fully compatible with linear sensors used on some Hewland gearboxes and the Suzuki OEM gear position switch, as fitted to most fuel injected Suzuki sport bikes. Programming the unit is achieved by the use of a single button and a user-friendly programming routine. Additionally, the unit features a counter to log the total number of gear-shifts made – useful for tracking the life of critical gearbox components.

Wiring

Power loom:	Red:	+12v ignition supply
	Black:	Chassis earth
	Orange:	Reverse input – forces the display to show 'R' when connected to earth.
	Yellow:	Switches to +12v when reverse or neutral selected - can be used for reverse safety interlock on bike engined cars fitted with electric reverse systems.
Sensor loom (potentiometer)	Red:	+5v sensor reference
	Black:	Signal earth
	White:	Signal – connects to potentiometer 'wiper'
Sensor loom (Suzuki)	Blue:	Neutral signals
	Black:	Signal earths
	Red:	GPS signal (in)
	Brown:	GPS signal (out) – if fitted

If using a Geartronics supplied potentiometer, the sensor loom and potentiometer will be terminated with miniature Sureseal connectors. On Suzuki versions, the loom is fitted with OEM connectors to mate to your existing wiring.

Jumper configuration

The Geartronics GPI4P is a universal gear display unit that can be fitted to almost any sequential gearbox. It can be configured to work with both potentiometer type sensors (used by most aftermarket gearbox constructors), or with the Suzuki OEM gear position switch, fitted to most fuel injected Suzuki sport bikes. It will also work with proprietary gear position switches fitted to Holinger and OSgiken gearboxes. Please refer to the pictures below for jumper settings:



Settings for potentiometer type sensor:

JP1 – off
JP4 – on

JP2 – irrelevant



Settings for Suzuki GPS switch type sensor

JP1 – on
JP4 – off

JP2 – TRE function (Suzuki OEM engine management only)
Refer to print on board – shown in 'on' position.

Programming

In order for the display to show the selected gear, the position of the selector barrel and hence the sensor position must be learned for each gear. This is achieved by entering programme mode by use of the button on the main printed circuit board.

Press and hold the button for 3 seconds. The display will show 'P', followed by the numbers 4,5,6, & 7. This sequence will repeat until the button is pressed on the appropriate number to indicate the number of *forward* gears, **not** including neutral & reverse.

The display will now show 'R'. Select reverse gear and press the button momentarily - this applies even if you have to move a separate lever to engage reverse or your vehicle is fitted with an electric reverse system (Suzuki gearboxes must be in neutral). The display will then show 'N'. Select neutral and press the button again. The display will then show '1'. Select first gear and press the button. Continue in this fashion until all gears have been selected. The display will then briefly show a flashing '-' while the on-board microcontroller calculates the gear positions. The display is now programmed and will show that top gear is selected. Go back through the gears and check that all gear positions are indicated correctly. The programming routine only has to be done once and the settings are retained at power off.

Notes:

1. On gearboxes using a potentiometer type sensor; if the potentiometer is moved or replaced, it may be necessary to repeat the programming routine so that the new gear positions can be learned.
2. Most rotary gearbox potentiometers are only capable of providing an electrical output for 350° of rotation. The remaining 10° is referred to as the 'dead spot'. The dead spot is when the identification mark on the flat shaft is pointing *away* from the cable. If possible, the potentiometer should be mounted such that the rotation of the selector barrel does not cause the potentiometer wiper to travel through the dead spot of the conductor track. In most instances the shaft can be turned through 180° to achieve this. The programming algorithm will work with the shaft in any position, but potentiometer wear can be an issue if the wiper repeatedly crosses the dead spot.
3. If your gearbox is a motorcycle type design, having a gear order of 1N23456 or similar, reverse gear can only be displayed by using the orange reverse input wire connected to earth via a suitable switch. This is because reverse gear does not have a unique position on the selector barrel and cannot be identified by the sensor position.

Gear counter

The display unit logs the total number of gear-shifts made since the gear positions were programmed, or since the counter was last reset. The counter is maintained even after the ignition is turned off. To access the log, press the button 3 times within a 2 second period. The number of shifts will be indicated on the display in a 4 digit sequence (maximum count 9999). The sequence will repeat until the button is momentarily pressed, upon which the display will revert to its normal function. To reset the counter, press and hold the button for 2 seconds during the count re-call sequence.