

Geartronics GPI32

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 potentiometer barrel sensor. Any gear order can be accommodated with up to 7 forward speeds. The potentiometer can be mounted in any position, particularly useful for Sadev gearboxes. The display is also fully compatible with linear sensors used on some Hewland gearboxes. 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
	Yellow:	Reverse input – forces the display to show 'R' when connected to earth.
Sensor loom:	Red:	+5v sensor reference
	Black:	Signal earth
	White:	Signal – connects to potentiometer 'wiper'

If using a Geartronics supplied potentiometer, the sensor loom and potentiometer will be terminated with miniature Sureseal connectors.

Programming

In order for the display to show the selected gear, the position of the selector barrel and hence the potentiometer position must be learned for each gear. This is achieved by entering programme mode by use of the button on the rear of the unit.

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. 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. 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 similar to a motorcycle design, having a gear order of 1N23456 or similar, reverse gear can only be displayed by using the yellow 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 potentiometer 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.

Display Self Test

To check the function of the LED display, press and hold the button during power up. The display will show the characters 'G E A R T R O N I C S' in a repeating sequence until either the power is removed or the button is pressed.