USING THE YELLOW BOX

Introduction
The Yellow Box is a sophisticated high-tech computing device. Please read the entire instructions before installing and using your new Yellow Box.

Background Information

The Yellow Box corrects the speedo and odometer of vehicles with an electronic speedometer.

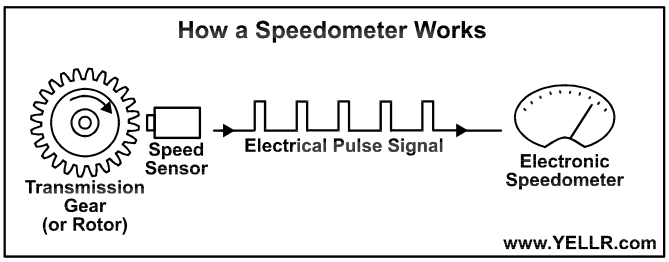
Almost every modern vehicle has an electronic speedo with either an electronic-controlled analog rotary dial, or a digital display to show the vehicle speed.

Older pre-1990s vehicles and small capacity motorcycles have a bowden cable driven (mechanical) speedometer that is not electronic.

How Speed Sensors work
A speed sensor outputs/emits an electrical pulse whenever a metal or magnetic object goes past the sensor. For example; the rotation of a motorcycle sprocket, or the rotation of a driveshaft or gears inside the gearbox/ transmission of a vehicle.

There are 2-50 signal pulses are generated for every vehicle wheel rotation. The resulting series of pulses looks like a square wave--bottom at zero volts (off), top at 5 or 12 volts (on) when a signal is sent.

How Speedometers work
Electronic speedometers use the speed sensor pulse signal to determine the vehicle speed, and to increment the odometer.



Other electronic vehicle systems
Other electronic vehicle systems may also use the speed sensor signal to calculate various perfomance parameters. Including;

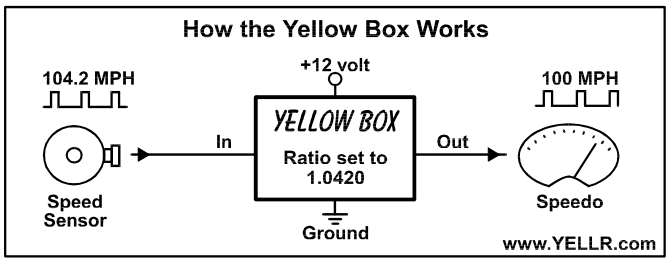
- ECM/ECU (Engine Control Module)**,**
- PCM (Powertrain Module),
- ABS (Antilock Braking System), traction control, electronic stabilisation, cruise control, etc.

Systems that may underperform if the speed signal is inaccurate.

Stock speedometer error
Most modern vehicles have a 2 to 10% fast reading speedo as stock, ie. direct from the manufacturer. Vehicles with a fast reading speedo often have a fast reading odometer and increment milage faster.

Additional causes of speedo error
Aftermarket gearing (differential or sprocket changes), tyre or wheel size changes, instrument panel or speedo faceplate swapping, engine transplants, new tyre to worn tyre. These all affect the overall speedometer accuracy.

How the Yellow Box Speedo Recalibrator works
The Yellow Box receives the electrical pulses from the vehicle speed sensor. The high-speed microprocessor (tiny computer) inside the Yellow Box uses our proprietary digital software to precisely correct the signal pulses, then outputs the corrected speed signal pulses to the speedo and odometer, and/or other vehicle control systems.



Yellow Box Speedo Recalibrator Models			
Yellow Box Model No.	**Speed Sensor Compatibility**	**Version No.**	**Connection Method**
For 3-wire Hall-effect Speed Sensors			
YB4 + Univ	Hall-effect speed sensor - (have 3 wires)	v 4.0	Universal Splice wiring
YB4 + PnP	Hall-effect speed sensor - (have 3 wires)	v 4.0	Plug-n-Play wiring
For 2-wire Inductive Coil speed sensors			
YB3 2-wire	Inductive coil speed sensor - (have 2 wires) (grounded)	v 3.0	Universal Splice wiring

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Features of the Yellow Box Speedo Recalibrator - version 4.0	
• Corrects both the speedo and odometer at the same time by same percentage/ratio. • Correction Range: -50% to +100% (1:2 to 2:1 ratio) • KPH to MPH or MPH to KPH conversion • Fine ratio adjustment: 0.5% and 1% steps • Fully digital, high accuracy operation • Exact, instant adjustment • Real time speedometer correction • Instant correction, no speedo lag • **World famous 10 year replacement guarantee!**	• Compatible with all 3-wire Hall-effect speed sensors • Suits motorcyles, sportscars, trucks, cars, 2WD, 4WD, etc. • Conveniently powered from the speed sensor power • Recommended supply voltage: 5 volt to 16 volt • Very low power consumption (20mA) • Multi stage power regulation • Contains high performance, quality components • Special hi-brightness light, flashes settings and data • Rugged water and vibration proof encapsulation • Gold plated switches, corrosion and weather resistant

Key Points to Using the Yellow Box

The Jumper Plug
The jumper plug simply connects the IN and OUT wires together of the YB wiring harness, by using in place of the Yellow Box. This is handy to return the wiring to original uncorrected speedo; to check the original total speedo error, or other testing, or if you need to return your YB, or for using one Yellow Box between two vehicles.

What the switches do
The 8 on/off switches enable you to tell the Yellow Box computer what to do. You simply set the switches to your required speedo correction, or set to run a special test. Refer to the Yellow Box "operating modes" below and the "**Correction Ratio Table"** pages.

The **switches are checked each time the Yellow Box powers up**. If you change the switch settings, turn the Yellow Box off, and allow 5 seconds before turning the ignition back on.

Where is the LED flashing light?
Under the plastic. When the Yellow Box is powered up the LED (Light Emitting Diode) shines through the plastic.

How to read the LED flashes
Each time the Yellow Box powers up the LED shows;
- One long flash = power-up and internal testing,
- 3 very fast flashes = passed internal tests,
- 8 flashes in a continuous loop = shows what each of the 8 switches are set to: ON or OFF.

Switch position ON = 1 = LED long flash
Switch position OFF = 0 = LED short flash

The LED only flashes while the vehicle is stationary. Flashing the correction setting or special test result accordingly.

Yellow Box Modes
The Yellow Box has two main operational modes;
1. Correction modes
2. Special test modes

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	Correction	Correction Modes	Switches	LED Response
Correction Modes	**Speedo Correction**	Everyday speedo and odometer correction. **How to use:** Use the "**Correction Ratio Table**". Look-up your total speedo error ratio/percentage. Set the YB switches as shown to correct your speedo error.	Your required speedo correction	Flashes switch setting in a continuous loop when vehicle stationary
	KPH to MPH Conversion	Displays MPH on a KPH-Speedo, with speedo correction. **How to use:** Find KPH-MPH 1:1 Conversion ratio **(61%)** highlighted in the "**Correction Ratio Table**". Then add/subtract your speedo error ratio/percentage.	Your required speedo correction nearest the KPH-MPH 1:1 conversion	As above
	MPH to KPH Conversion	Displays KPH on a MPH-Speedo, with speedo correction. **How to use:** Find MPH-KPH 1:1 Conversion ratio **(-38%)** highlighted in "**Correction Ratio Table**". Then add/subtract your speedo error ratio/percentage.	Your required speedo correction nearest the MPH-KPH 1:1 conversion	As above

	Special Test	Test Modes	Switches	Test Result
Special Test Modes	Test all ON	Test switches. Speedo and odometer work as original (uncorrected).	1111 1111	8 Long LED flashes
	Test all OFF	As above. Test can also be used to check the original total speedo error.	0000 0000	8 Short LED flashes
	INPUT Test to Yellow Box	Test speed sensor and YB input wire connection. Bad connection causes LED flashes when wiring connection is jiggled (wheel not turned).	1000 0000	LED flashes faster as vehicle wheel rotated (2 to 50 flashes/ wheel rotation)
	OUTPUT Test 100Hz from YB	Test speedo and YB output wire connection. Bad connection causes speed changes when wiring connection is jiggled. Speed shown varies across vehicles, 0-100+ mph.	0111 1110	Speedo Response = must have constant, steady speed display
	*OUTPUT Test 400Hz from YB	As above. ***ONLY use 400 Hz if 100 Hz Test reads low on the speedo (ie. 0 to 40 mph, or 0 to 65 kph).**	0111 1111	Speedo = higher speed constant and steady
	Manufacture Date Year, Month	eg. Year 2008, March will be flashed as 08, 03 or 1000 0011 in binary (8 4 2 1 , 8 4 2 1).	1111 1110	LED flashes Year, Month as two 4 bit binary numbers