



Thank you for purchasing a Smiths VW replacement Instrument, please read through the installation instructions thoroughly. The Speedometer is designed to be used with **negative earth 12v systems only.**

Please follow the wiring instructions and use good quality connectors. Secure and clean connections with the vehicles wiring loom are essential for reliable service.

To begin installing your Smiths instrument ensure a 3 amp fused supply is made to the unit.

During setup, the black push button lead spliced to the loom terminal plug is referred to by the abbreviation "BPB".

This switch may be used as it is or, according to user preference, replaced with any compatible momentary contact switch like a dashboard mounted horn button.












After setup the BPB function also enables switching between "odo" and "trip" during normal speedo operation. The total mileage (or km) ODO reading cannot be cleared.

The "trip" function may be reset repeatedly. With the "trip" reading displayed the BPB may be pressed and held to clear the trip reading and return the reading to zero.

CAUTION! Disconnect the battery before installation

1 **Wiring for Speedometer installation, negative earth systems only.**
To begin installing your Smiths digital instrument it is suggested a fused (3A) supply is made to the unit.

Please connect to your vehicles loom in accordance with this wiring colour key

	Black	Connect to 12v neg (-) or chassis ground
	Green	Connect to 12v pos switched supply (+)
	White/Red	Connect to 12v illumination pos (+)
	Yellow	8v speed sensor/sender supply *
	Red/Blue	Connect to speed sender, inductive type, two wire
	White/Black	Connect to hall-effect/reed-switch/proximity senders
	Blue	Connect to indicator warning signal
	Brown/Grey-trace	Connect to charging/battery warning light output
	Red	Used only if speed sender/sensor requires load resistance
	Light green/Purple	Connect to oil pressure warning light output
	Green/Blue	Connect to main beam warning light 12v supply

* If your sender requires an 8v supply connect here, not used otherwise

With the speedometer correctly installed, and the ignition on, switch between "odo" and "trip" modes by using the BPB supplied or user preferred, compatible momentary switch/button

2 **Speedometer setup using the short speedo cable supplied**
The Smiths VW digital speedometer should be correctly wired into the vehicle loom and powered through a 3A fused supply.

The Smiths digital speedometer is supplied with a harness prepared for use with the supplied sender unit. The sender connects directly to the speedometer loom via the harness plug. If an alternative sender is used please refer to the wiring key in section 1.

The original mechanical speedometer cable should be removed from the driving wheel and pulled through the bulk-head in the vehicle
The short mechanical cable supplied should be fitted in place and secured to the bulk-head in the passenger compartment.

To verify the speedo is receiving a signal the driving wheel needs to be rotated. Using the vehicle jack or similar, raise the vehicle so the speedo sender driving wheel is off the ground. **Use secure axle stands or similar to make the vehicle safe and secure in this position.**

Rotating the drive wheel will confirm the correct fit of the supplied short cable as the internal cable will be seen to rotate. The sender unit (supplied) is a direct fit to the end of the short cable, connect the sender unit to the end of the short cable.

3 **Speedometer setup**
The Smiths VW replacement digital speedometer has two means of setup, the first uses the units onboard facility to "drive to set" (DTS) or the manual method of inputting the necessary data using wheel circumference, this data is then manually entered into the speedo processor by use of the BPB switch/button.

Speedometer setup using DTS (drive-to-set)
The Smiths VW digital speedometer should be correctly wired into the vehicle loom and powered through a 3A fused supply.

Rotate the wheel and verify speedo reaction, any reaction by the speedo pointer to rotation is sufficient to enable DTS to be used.
DTS allows the unit's CPU to count the number of pulses sent to it whilst the vehicle is driven over a given distance, there is no requirement for wheel dimensions to be calculated etc.

Find a route you know to be exactly one mile (or Km). GPS, online mapping (see website DTS help page) may be used to establish this distance or use of another vehicle to establish the 1 mile or 1km.

Hold the BPB switch in the depressed position (closed) and switch on the ignition, the speedo needle will sweep across its range and return to zero, now release the BPB switch.

DTS setup continued.....

The display will initially read "SETPPU", press the BPB switch again until the display reads "DTS PPU", now depress the BPB switch and hold for approx 3 secs and release, the display will show "00000".

Drive the vehicle over the measured mile (or KM), the display panel will show an accumulating total, at the designated measured distance bring the vehicle to a halt but leave the engine and ignition on. Depress the BPB switch for approx 3 secs and release.

The display will read "DONE" and then momentarily revert to "SET/CTS PPU". You should now turn off your ignition to complete the set-up.

The Smiths VW digital speedometer is now calibrated for either MPH or KMH, depending on the measured distance covered.

If the display returns to "SETPPU" when the engine is started then repeat the process above until the display reads "DTSPPU" and then "00000".

4 **Speedometer setup manual mode (PPU)**
Mark the rear wheel where it touches the ground. Make a similar mark on the ground (fig1). Move the vehicle forward for a complete wheel revolution. Measure the distance covered, call this figure "A".
Figure A is used to calculate the "calibration" figure that will be entered into the speedometer using the BPB switch

Wheel revs per mile = 63360 divided by A (in inches) result = B (mile:)
Wheel revs per km = 1000 divided by A (in metres) result = B (km)

Using the Smiths sender supplied the sender will be turned exactly once for every revolution of the wheel by the short mechanical cable supplied, but the sender produces 6 pulses per revolution, so "6" will be used as figure C.
Calibration number = B x C

If an alternate sensor is used triggered by magnets or bolt heads moving past the alternate sensor then calibrate as follows;
Calibration number = B x (number of magnets or bolts).

Enter this calibration number into the speedometer.
Hold the BPB switch in the depressed position and switch on the ignition, the speedo needle will sweep across its range and return to zero, now release the BPB switch.

With the display reading "SETPPU" depress the BPB switch for 3 secs and release, a default number will be displayed with each digit flashing for approx 2 sec. Each press of the BPB will increase the value of the flashing digit, when the correct figure is obtained wait 2 sec for the digit to change and repeat the process until the correct calibration number is displayed, all the digits should now flash, press the BPB once and the display should read "DONE", after 3 secs the display will revert to "SETPPU". Switch off ignition to complete setup.

More information, FAQ and technical help www.smithsspeedos.co.uk

SMITHS

MOTOR ACCESSORIES

**** Wiring Amendment ****

Please follow these instructions for connection of the indicator warning lights on your Smiths digital VW speedo.

**Connect the YELLOW wire to indicator negative (-)
Connect the BLUE wire to indicator 12v positive (+)**

More information and updated wiring diagram showing this amendment on the website.

www.smithsspeedos.co.uk