SMITHS
DIGITAL INSTRUMENTS

Instructions for
Electronic
VW T2 Bay Window
Programmable Tachometer

Independently tested and approved to 95/54/EC

Designed and manufactured under ISO9001:2008 quality standard.

Technical help
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Caution
Disconnect the negative battery cable
prior to any installation

Application Notes

- For fitment to **negative earth** vehicles *only.*
- Operating voltage: 11 – 17volts DC
- Input signal:
 Petrol Engines
 - Contact breaker ignition (coil)
 - ECU tachometer output

General

Remove the dashboard instrument pod to allow access to wiring and mounting points. The blanking plate covering is fixed to the rear of the dash-pod via two screws. Removing the fixing screws releases the plate and the glass. You will need the glass and screws later to install the tacho into the pod

1 Fixing The Tacho In Position

- To fit the tacho, offer the window into it's location in the pod.
- Ensure the silver/grey mask (supplied with the tacho) is placed onto the front face of the tacho.
- Position the tacho and mask behind the window.
- Now slide the fixing ring over the tacho, aligning the two small fixing apertures with the dash-pod fixing holes.
- Screw the tacho fixing ring to the dash-pod using the screws that previously fixed the blanking plate.
- Before the screws are fully tight, check the alignment of the tacho.
- Once you are satisfied with the tacho position, tighten the fixing screws.

2 Electrical Connection

The tacho is fitted with a multi-pin plug and supplied with a mating connector with trailing, colour coded wires.
Connections should be made as described in the following table.

Harness connections		
Wire Colour	**Pin No.**	**Connect to**
Brown/slate	1	Pull up for open collector ECU output (normally unused)
Red/white	2	Illumination 12volt supply (side light feed)
Red/blue	3	Tacho output from ECU or contact breaker or alternator 'W' terminal
White/black	4	If your tacho fails to operate smoothly, the signal may be of a high sensitivity. Use the white/black wire ***instead*** of red/blue wire (above).
Black	5	Ground/Chassis or battery negative
Green	6	Switched ignition positive 12volt supply (via 3A fuse)

Note: Due to the length of the signal wire and the potential for electrical interference we recommend using a screened cable – Minimum 85% optical coverage.

The tacho is factory preset to operate on most ignition systems, in most cases no adjustment is necessary. If a non-standard or unusual engine/ignition configuration is used it may be convenient to verify the tacho reads correctly by completing electric wiring correctly before refitting dash-pod to the dashboard.

Section 3 "calibration" covers instances where the unit is obviously displaying inaccurate readings, ie 2000 rpm at tick-over and adjustment is required.

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The tacho is programmable, If alternate fitments are required or the unit reports incorrect readings and can be adjusted to suit a variety of petrol engines.

3 Calibration

The tachometer is calibrated/programmed by setting a combination of seven switches located under the grommet on the back case. Remove the grommet to access the switches. Notes:

- The switch setting *must* be completed with the power off.
- Set the switches prior to installing the tachometer.

The table overleaf shows the switch settings relative to the number of pulses per engine revolution.

To assist with the switch setting, the table below shows the number of pulses per engine revolution versus the number of cylinders for both single spark and 'wasted' spark ignitions.

Petrol Engines Only

	PPR - Pulses per Revolution	
Number of Cylinders	*Single Spark Ignition*	*Wasted Spark Ignition*
1	0.5	1
2	1	2
3	1.5	3
4	2	4
6	3	6
8	4	8
10	5	10
12	6	12

Switch Settings

Once you have established the PPR number, the switches should be set as shown in the table below

Switch settings							PPR No.
sw1	sw2	sw3	sw4	sw5	sw6	sw7	
0	0	0	0	0	0	0	0.5
1	0	0	0	0	0	0	1
0	1	0	0	0	0	0	1.5
1	1	0	0	0	0	0	2
0	0	1	0	0	0	0	3
1	0	1	0	0	0	0	4
0	1	1	0	0	0	0	5
1	1	1	0	0	0	0	6
0	0	0	1	0	0	0	8
0	0	1	1	1	0	0	10
0	0	0	0	1	1	0	12

Switch setting '1' signifies on
Switch setting '0' signifies off

Setting example:

Four cylinder, single spark engine
PPR is 2
From table, switch setting is:

Sw1	sw2	sw3	sw4	sw5	sw6	sw7
1	1	0	0	0	0	0
on	on	off	off	off	off	on

Note: Switch number 8 should always be in the 'on' position.