



WIRING SCHEMATIC  
FOR S40PRO

LAST UPDATED  
18/11/2014

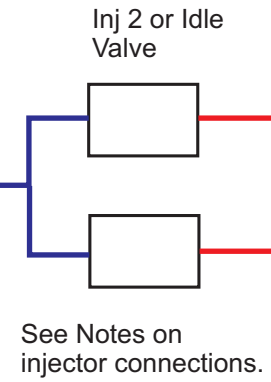
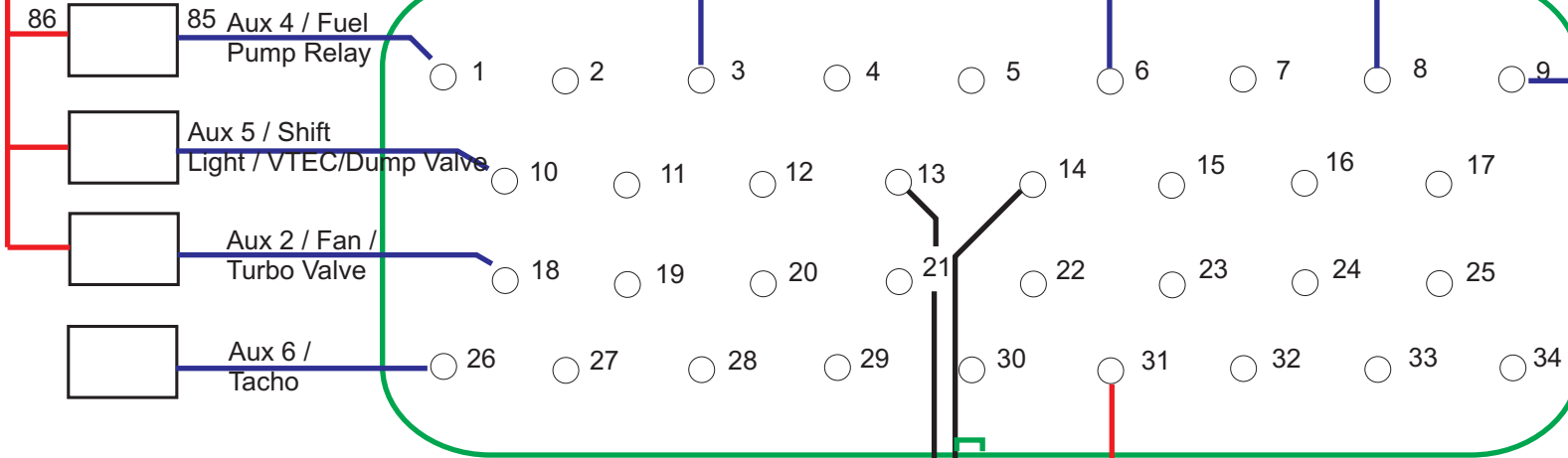
Tel +44 (0)161 877 1419  
Fax +44 (0)161 877 7086  
Email office@dtafast.co.uk

**NEEDS FIRMWARE  
V77.00 AND HIGHER**

**S40PRO Power Connections**  
Drawn from pin insertion side

Fused 12V

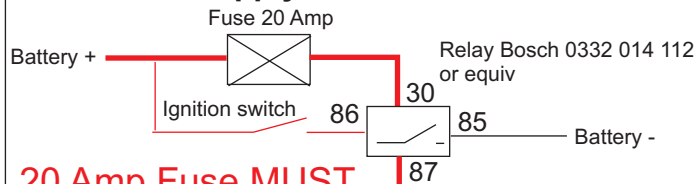
Fused 12V



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**12v supply circuit**



**20 Amp Fuse MUST  
be Fitted**

**Why The Fuse?**

The fuse protects the ECU in the case of severe errors in the wiring (12V to Sensor GND for instance). With it you cannot damage the ECU, without it you can. The choice is yours.

# S40PRO Sensor Connections

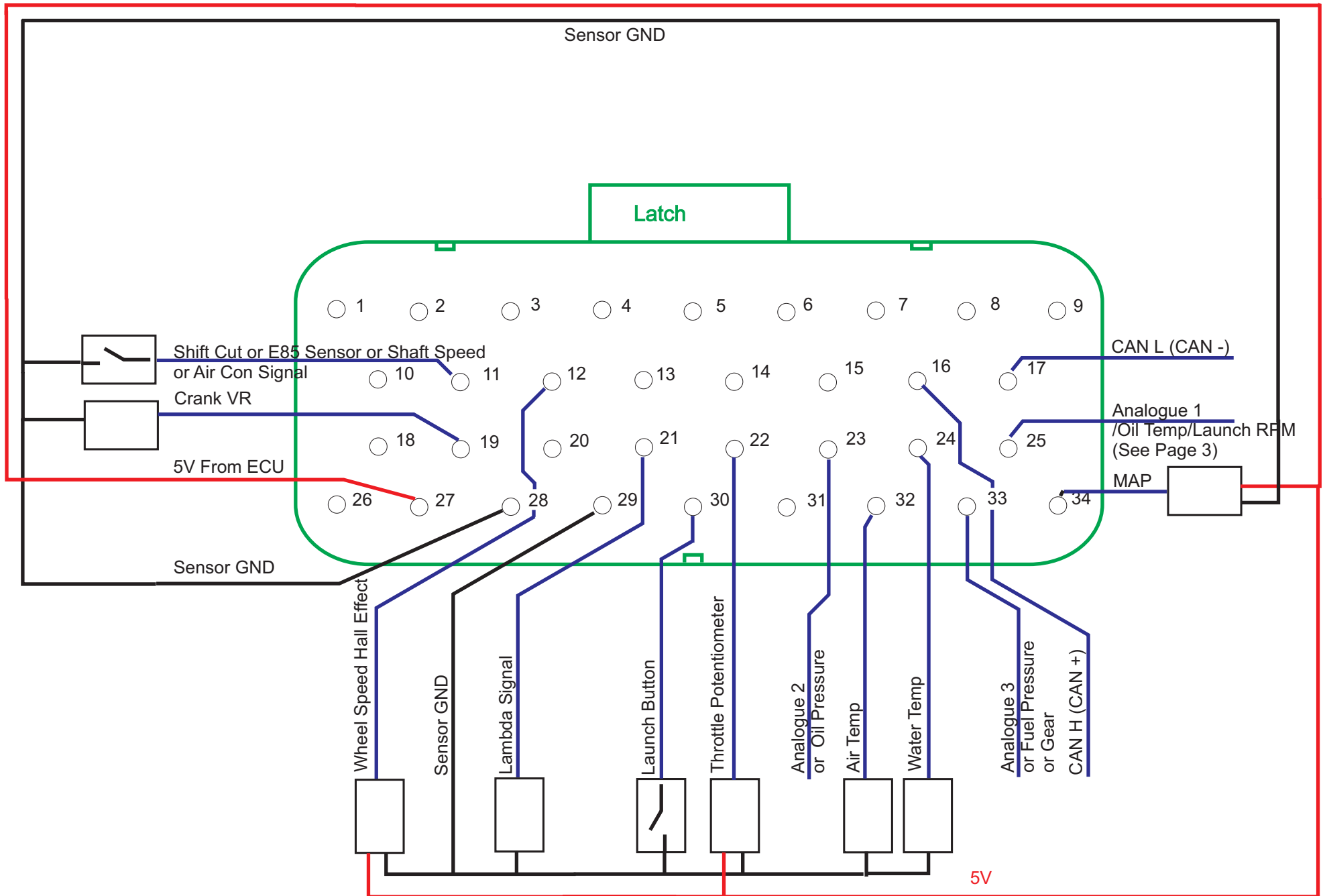
Drawn from pin insertion side

5V

Sensor GND

Latch

5V



## Sensor Connections

### Crank sensor connections

Use twisted pair wire with overall screen for crank sensor

#### VR sensor pin outs (magnetic)

##### Ford inc Duratec

Pin 1 to pin 19

Pin 2 to Sensor GND

Shield to Sensor GND at ECU

##### Vauxhall/Opel/BMW/Volvo/Saab/ etc. (Bosch & Siemens)

Pin 1 to pin 19

Pin 2 to pin Sensor GND

Pin 3 to shield to Sensor GND at ECU

##### Marelli

Pin 2 to pin 19

Pin 1 to Sensor GND

Shield to Sensor GND at ECU

### Manifold Pressure Sensors

GM Map

A = Sensor GND

B = Signal

C = 5 Volt

Bosch Map 0261 230 004

1 = 5 Volt

2 = GND

3 = Signal

Marrelli Map

A = 5V

B = Sensor GND

C = Signal

### Throttle pot

Connect 5 v to side to which throttle wiper goes at full open

any value 500 Ohm to 20 K Ohm

Colvern (Jenvey) pot

Red = Wiper

Green or Blue = 5v

Yellow or Black = Sensor GND

All 5 volt and Sensor Gnd connections are equivalent. Use the ones which are most suitable for the sensors connected. If not using twisted pair wire, twist together separate wires a pitch of approx. 2.5 cm

## Coil Wiring

### Wasted Spark

For a 4 cylinder engine with a firing order of 1/3/4/2 wire as below.

Cyl	1	3
Cyl	4	2
O/P	1	2

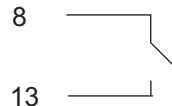
### Distributor

Use Coil output 1..

### Serial Port Connections

1 -> 1	
2 -> 2	
3 -> 3	9 - 15 pin (Dyno Control Box uses the rest)
4 -> 4	
5 -> 5	

### Flash Programming Switch

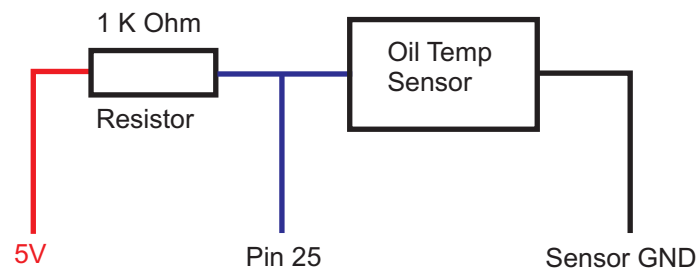


## Output Driver Limitations

All Auxiliaries Unless otherwise stated	1 Amp
Injector Drivers	5 Amp
Coil Drivers	9 amp

## Analogue 1 as Oil Temp

Connect pull up resistor as shown



## Injector Wiring

**Note all injectors must be high impedance types or use a ballast resistor.**

### Single Injector

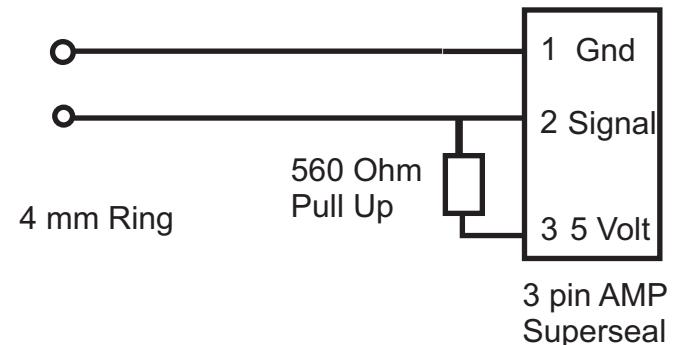
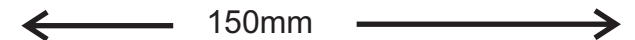
The S40 has semi-sequential injection, for a firing order of 1/3/4/2 wire as below

Cyl	1	3	4	2
O/P	1	2	1	2

### Twin Injectors

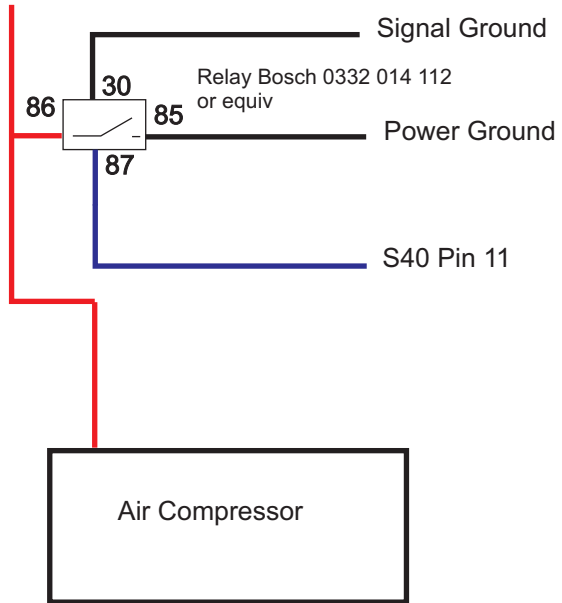
Wire the lower set of injectors in parallel on o/p 1  
The upper set on o/p 2

## VDO Pressure Adapter Connections



## Air Conditioner Connections

12V Control  
To Compressor

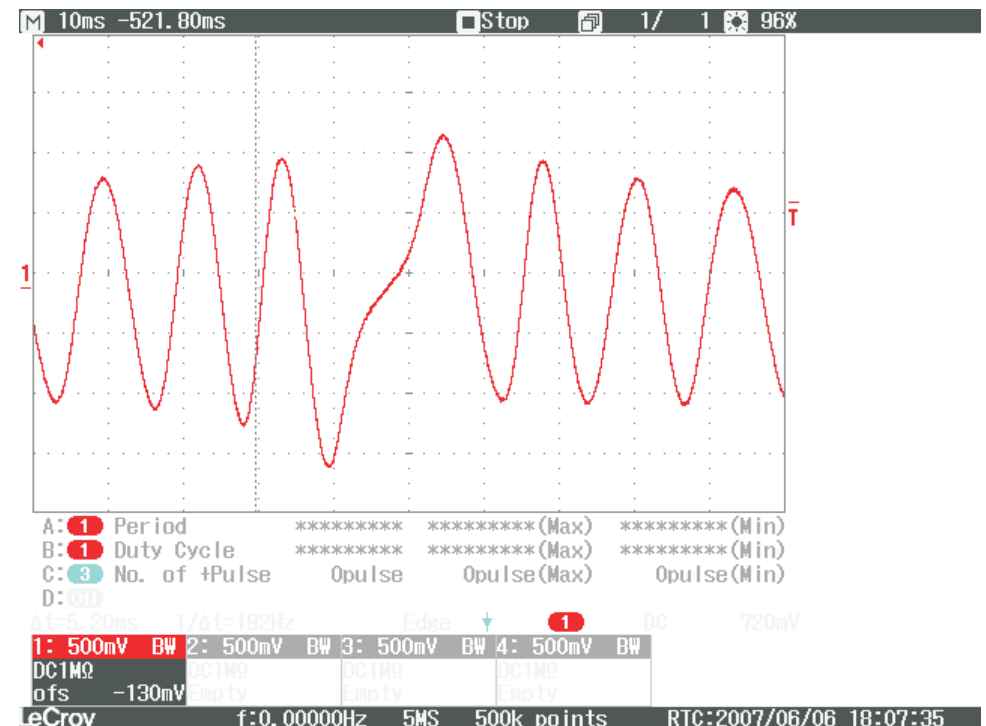
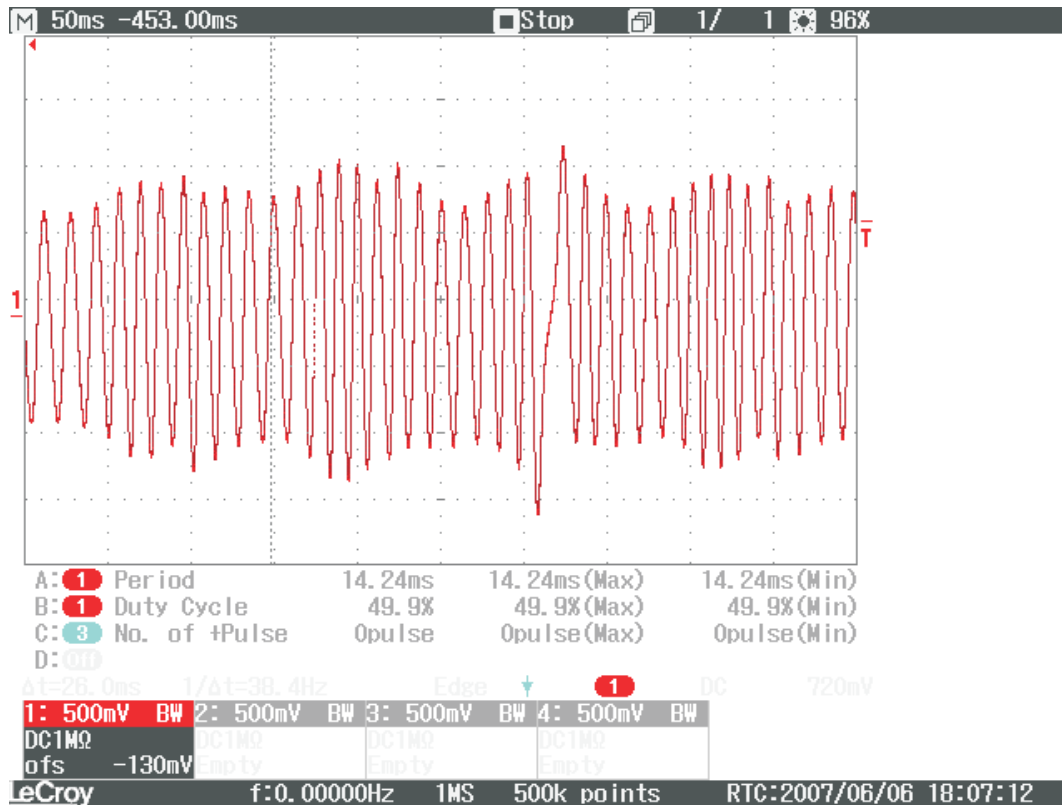


# Crank Sensor

On the left is an oscilloscope trace of a good clean signal from a magnetic crank sensor on a 36 - 1 wheel. Note the voltage rising through the gap. This is the correct polarity.

If the voltage falls through the gap then the engine may start but at a certain RPM will begin to give crank shaft errors and re-synchronisations.

The voltage variation is caused by successive compression strokes slowing the rotation speed during cranking.



On the right is a more detailed view of the gap itself. Note the voltage rising as the gap traverses the sensor.

You can also see that this signal is free of high frequency noise. The correct screened twisted pair wire has been used for this sensor. Both cam and crank traces are from the same vehicle.