



Syvecs LTD

V1.2

VAG TFSI/TSI

This document is intended for use by a technical audience and describes a number of procedures that are potentially hazardous. Installations should be carried out by competent persons only.

Syvecs and the author accept no liability for any damage caused by the incorrect installation or configuration of the equipment.

Please Note that due to frequent firmware changes certain windows might not be the same as the manual illustrates. If so please contact the Syvecs Tech Team for Assistance.

Support@Syvecs.com



TSI / TFSI Kit

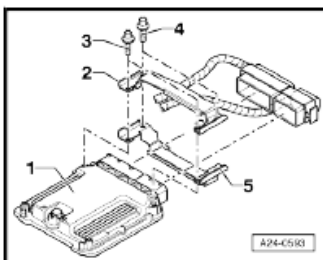
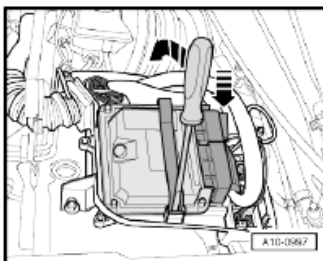
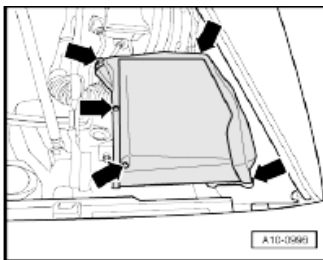
Thank you for choosing the Syvecs TSI /TFSI Kit

The kit includes the following:

- 1 x Syvecs GDI4 Ecu
- 1 x Can Bridge
- 1 x Direct Fit box
- 1 x Wiring Loom

Installation

- 1.) Remove the Negative Terminal from the battery on the Vehicle
- 2.) Remove the OEM Engine control modules found under the front window compartment of the engine bay or under the Electronics Box.



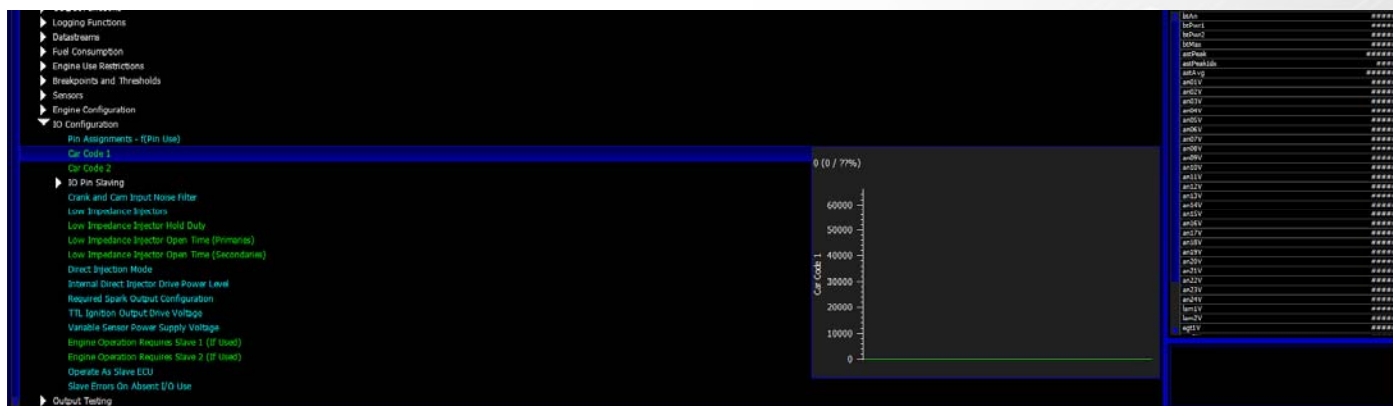
- 3.) If wanting to control additional injectors these can be wired into the 12way DTM break out connector found coming out of the Syvecs TFSI wiring loom or through the 6 way DTM connector on the TSI Wiring loom. See page 7 for this information.

- 4.) Replace the battery terminal and engine covers and proceed to the Syvecs Manual

TFSI Specific Software Options

Due to the huge number of Cars that the TFSI Engine is fitted to, an ECU Coding setup needs adjusting in Scal to suit the model of your VAG Group Car.

This is found at the bottom under I/O Configuration



Car Coding1 Values

Audi - 0
Golf Mk5 - 84
Seat Leon - 168
Golf R - 248
Seat Leon DSG - 330
Skoda TSI Manual - 415
Audi TT DSG 2WD - 500
Golf R UK MK6 - 580
Skoda DSG - 690
Golf R MK6 China - 760
Polo WRC - 850
Golf 6 GTI - 940
Audi 8P S3 - 1024
Scirocco - 1100
CCTA TSI - 1184
KTM DSG - 1268

Car Coding2 Values

Audi - 0
Golf Mk5 - 84
Seat Leon - 168
Golf R - 248
Seat Leon DSG - 330
Skoda TSI Manual - 415
Audi TT DSG 2WD - 500
Golf R UK MK6 - 580
Skoda DSG - 690
Golf R MK6 China - 760
Polo WRC - 850
Golf 6 GTI - 940
Audi 8P S3 - 1024
Scirocco - 1100
CCTA TSI - 1184
KTM DSG - 1268

CarCode 5 = MDNorm Value - Maximum Torque

Enter the max Torque, generally 416nm on TFSI kits unless the TCM is Flashed

Sensors - LoadCell3 - Default Value - is Gearbox

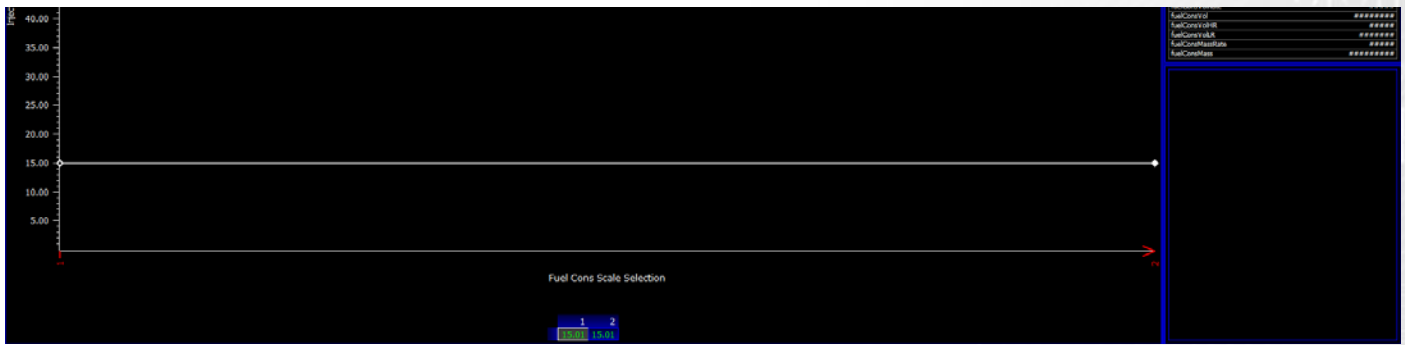
Manual - 0
DSG - 1

Injector Size is set in Fuel Consumption – Injector Consumption Scaling

This value is important. Must be set correct for Torque Estimation on DSG Cars

Injector Size / 60 = ml/s value

OEM DI Injectors are set in the Base map @ 15ml/s



TFSI Kit FAQ and Help

Q) Does the TFSI kit come with 4 External injector loom?

A) The Kit comes with breakout DTM connectors that have spare outputs and 12v present for allowing wiring for the additional injectors - See page 7

Q) Can I install different in tank pump?

A) Yes, the Syvecs communicates with the OEM Fuel Pump Ecu to allow PWM Control of the Pump so it can be adjusted to suit your new pump.

Q) What of the original features will no longer work?

A) All original features will function properly

Q) Can we use the OBD port still to Log, Read Codes and Clear them on other ecus on the car like ABS?

A) Yes via the Use on VagCom - <https://www.ross-tech.com/vag-com/>

Q) How is the Fuel Mapping done in Scal

A) On the Secondary injection map – The base map is 4D tuned as MAP1 is before the TPS as default on engine. Uses Secondary Multiplier Under Run-Mode Fueling and Simple Manifold Pressure under Run-Mode Fueling – Corrections

Q) How do I setup Additional Port Injectors

A) You first need to assign them in the I/O Config Pin assignment and Program ecu.

After you need to set the Secondary multiplier difference between the DI and Port under Run mode fueling – Correction – Secondary Multiplier

OEM DI Injectors flow around 650cc.. So do $650 / (\text{Port Injectors cc})$ to give a good starting point on Secondary multiplier

Ensure that the Secondary Injection Opening Time values are correct from your manufacture.

After Start the engine up and monitor the Lambda1 Value and FuelMltCll1 Value. Now go to Injector Split1 and increase the values up to 50% in the area and around that the tracer is showing the engine is current at.

As the Ports start to blend in and you have the Split at 50% you need to be monitoring the Lambda1 and FuelMltCll1. If the values are different compared to before when split was at 0% then adjust the Secondary multiplier live until they are the same with the split present.. Once that is good, set the Split back to 0%,

When the OEM DI Injectors now reach their limit the Syvecs ecu will automatically bring the ports in to maintain the desired fuel requirements, If you wish to bring the port injectors in sooner then set the split table as required.

Email Support@syvecs.co.uk for a base map to suit your setup.

Syvecs Pin Number	Function	TFSI Pin	Function
1	POWER GROUND	T94 - 1	POWER GROUND
2	IGNITION #08	T60 - 56	IGN 4
3	IGNITION #07	T60 - 43	IGN 3
4	IGNITION #06	T60 - 41	IGN 2
5	IGNITION #05	T60 - 58	IGN 1
6	FUEL #10	T94 -28	Rad Fans
7	KNOCK #02	T60 - 9	KNK
8	INPUT #16 (5V/TH/BI/FREQ)	T60 - 44	CAM INPUT
9	INPUT #14 (5V/TH/BI/FREQ)	T60 - 51	CRANK INPUT
10	INPUT #12 (5V/TH/BI/FREQ)		CAL SWITCH
11	INPUT #10 (5V/TH/BI/FREQ)	T94 - 38	Map Sensor
12	THERMO - #02	EGT2-	
13	THERMO + #02	EGT2+	
14	INPUT #07 (5V/TH/BI/FREQ)	T94 - 57	PEDEL POS
15	INPUT #05 (5V/TH/BI/FREQ)		
16	INPUT #03 (5V/TH/BI/FREQ)	T60 - 25	FUEL PRESSURE RAIL DI
17	INPUT #01 (5V/TH/BI/FREQ)	T60 - 7	FUEL PRESSURE LIFT PUMP
18	LAMBDA V #01	T94 - 82	Black on Pin6
19	INPUT #21 (TH)		
20	FUEL #15	DTM-4	
21	RS232#1TX	RJ25-2	
48	RS232#1RX	RJ25-1	
78	COMGND	RJ25-3	
81	CAN#1LO	CAN Yellow+Green/White	
82	CAN#1HI	CAN white+ White/Blue	
22	FUEL #07	DTM3	Exhaust Flap
23	FUEL #05	T60-20	Cam VVT1
24	IGN4	T60 -16	GDI 4 +
25	IGN3	t60- 17	GDI 3 +
26	IGN2	t60 - 1	GDI 2 +
27	IGN1	t60 -2	GDI 1 +
28	POWER GROUND	T94 - 2	POWER GROUND
29	POWER GROUND	Canbridge Ground	Can Bridge Ground
30	FUEL #14	DTM-2	
31	FUEL #13	T94 - 27	Fuel Pump
32	FUEL #12 / GDI PUMP -	T60-19	DI Pump
33	FUEL #11	DTM-1	
34	FUEL #09	T94 - 51	Lambda HTR - Pin 3
35	KNOCK #01	T60 -39	KNK
36	INPUT #15 (5V/TH/BI/FREQ)		
37	INPUT #13	T94 - 37	Brake Light

	(5V/TH/BI/FREQ)		
38	INPUT #11 (5V/TH/BI/FREQ)	T94 - 41	Clutch Pos
39	INPUT #09 (5V/TH/BI/FREQ)		
40	THERMO - #01	EGT1	
70	Therm1+	EGT1+	
41	INPUT #08 (5V/TH/BI/FREQ)		
42	INPUT #06 (5V/TH/BI/FREQ)	T94 - 79	PEDEL POS
43	INPUT #04 (5V/TH/BI/FREQ)		
44	INPUT #02 (5V/TH/BI/FREQ)		
45	CAN LO #03		
46	INPUT #22 (TH)		
47	FUEL #16	T94-86	Tacho for dsg
48	RS232 RX		
49	FUEL #08	T60 -21	WG ANTIPHASE
50	FUEL #06	T60-4	Charge pressure valve
51	FUEL #04	T60 -48	GDI 4 -
52	FUEL #03	T60 - 32	GDI 3-
53	FUEL #02	T60 - 47	GDI 2 -
54	FUEL #01	T60 -33	GDI 1 -
55	POWER GROUND		POWER GROUND
56	BATTERY SUPPLY	T94-3 + CAN Power	BAT
57	BATTERY SUPPLY	T94-5 + DTM-5	BAT
58	H-BRIDGE #01	T60 - 34	Intake Flap+
59	H-BRIDGE #02	T60 - 49	Intake Flap-
60	H-BRIDGE #03 / DBW MOTOR +	T60-15	THROTTLE MOTOR +
61	H-BRIDGE #04 / DBW MOTOR -	T60 - 30	THROTTLE MOTOR -
62	10V OUT		
63	5V OUT #02	T94 - 19, 58, 80	
64	5V OUT #01	T60 - 26, 37, 28	
65	KNOCK GROUND	T60 - 54 & 24	KNK GND
66	INPUT #20 (5V/KNOCK #04)	T60 - 12	TPS2
67	SENSOR GROUND #02		
68	INPUT #19 (5V/KNOCK #03)	T60 - 27	TPS
69	SENSOR GROUND #01	T60- 29, 36	SENSOR GND TPS and Crank
70	THERMO + #01	EGT1+	
71	INPUT #18 (5V)	T60 - 22	Intake Flap
72	SENSOR GROUND #02	T60 - 14	
73	INPUT #17 (5V)		
74	SENSOR GROUND #01	T94 - 53, 56, 78	
75	CAN HI #03		
76	LAMBDA I #01	T94 - 60	LamI - Red - Pin1
77	LAMBDA GROUND	T94 - 61	Lam Gnd - Yellow on pin2
78	COMMS GROUND	COMMS GROUND	
79	CAN LO #02		
80	CAN HI #02		
81	CAN LO #01	Can L	Can L
82	CAN HI #01	Can H	Can H
83	INPUT #24 (TH)	T60 - 10	Coolant temp
84	INPUT #23 (TH)	T60 - 13	Air temp
85	LANRX+	white/orange	

86	LANRX-	ORANGE/white	
87	LANTX+	White/Green	
88	LANTX-	GREEN/white	

TFSI 12Way DTM Pinout

DTM-12	S8	Function
1	S8-33	Fuel11
2	S8-63	5v
3	S8-30	Fuel14
4	S8-36	AN15
5	S8-22	Fuel7
6	S8-29	Ground
7	S8-20	Fuel15
8		
9	S8-57	12V
10		
11		
12		

TSI 6Way DTM Pinout

DTM-6	S8	Function
1	S8-20	Fuel15
2	S8-30	Fuel14
3	S8-22	Fuel7
4	S8-47	Fuel16
5	S8-57	12V
6		