Syvecs LTD

V1.1

Ford Fiesta ST Mk7

Designed to work with the 2013-2018 Ford Fiesta ST.

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

Contents

1x S-GDI4
1x Fiesta ST Loom > SyvecsECU Patch Harness
1 x Syvecs CAN Bridge

Installation

1.) Before carrying out installation, remove the negative terminal from the battery to ensure no damage is caused to the vehicles electronic components.

2.) In order to gain access to the OEM ECU, this can be found in the engine bay close to the passenger side headlight.

3.) The OE ECU is contained in a security cage with tamper proof bolts. Remove the ECU tray which is mounted to the battery. Remove the positive battery terminal, then remove the battery.

4.) With the battery removed this will give better access to the OE ECU tray. Either carefully cut the OE ECU from the mount, or cut grooves into the tamper bolts so they can be removed with a flat head screwdriver.

5.) Once all OE hardware is removed, connect the Syvecs patch harness to the Ford engine loom to enable connection between the factory wiring and the new Syvecs ECU.

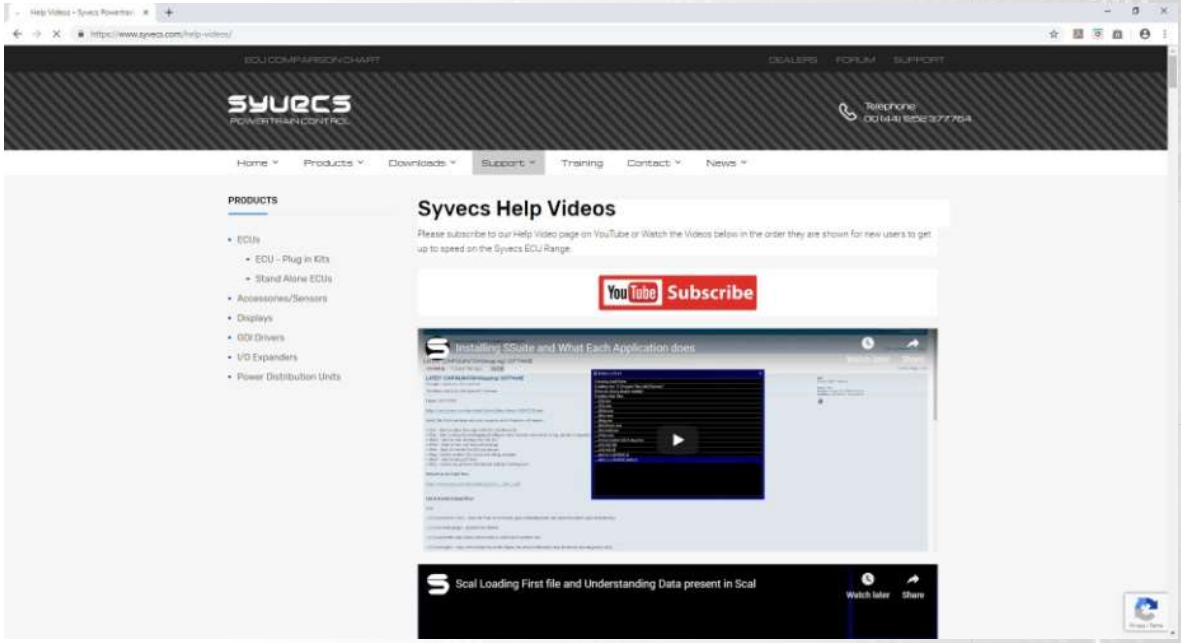
6.) Mount the ECU with the mounting hardware provided. (if applicable)

7.) Run the Ethernet cable into the vehicle interior to allow easy connection to the S-GDI4 via laptop.

8.) Refit the battery and battery both negative and positive terminals.

9.) Email Support@Syvecs.com or your dealer for a suitable base calibration.

10.) Proceed to Syvecs Help videos and Syvecs Manual on Website


ECU COMPARISON CHART
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PRODUCTS
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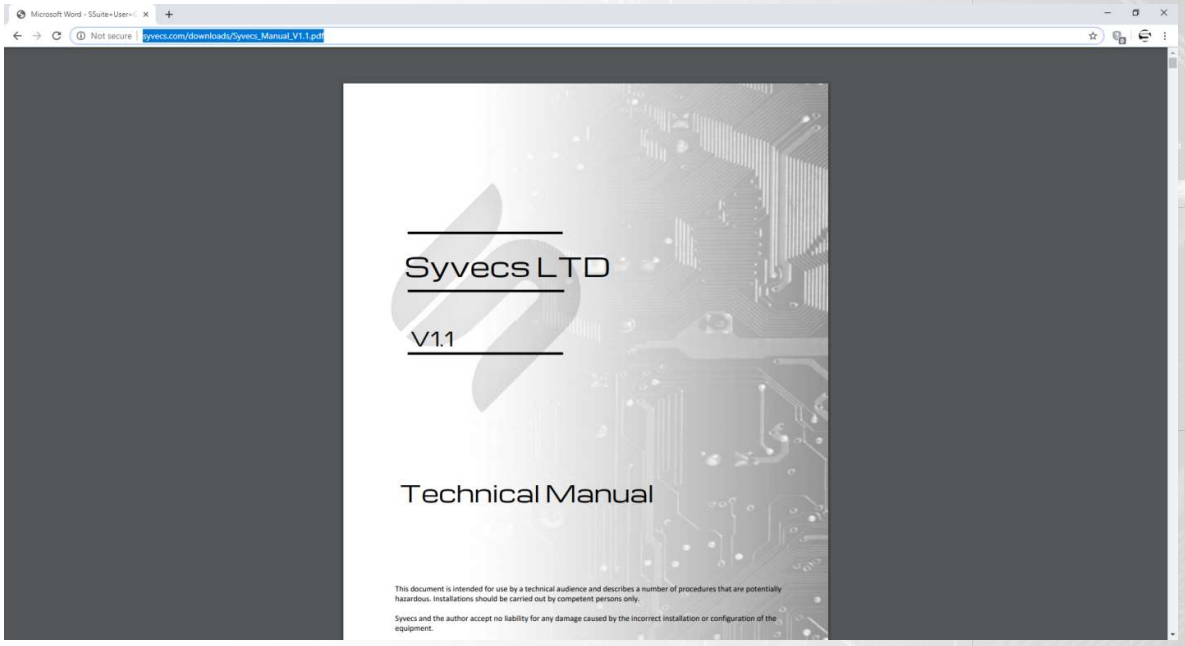
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Technical Manual
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Feature Control

ESC Button
The OE ESC button allows the user to vary the intrusion of the Syvecs TC (Traction Control) system. As per stock functionality, there are 3 modes available.

1. 'Sport' = 50%
2. ON = 100%
3. OFF

The button operates as stock to cycle through the various modes. For example, if TC is On, press once to move to Sport mode and so on.

Cruise Control Button (Steering Wheel)

Calibration Switching
The Cruise Control 'SET+' & 'SET-' allows the user to change the Syvecs calibration 'switch' position. The user can program various different calibration settings in the ECU such as boost levels, launch limits, ALS and more. When the driver changes CAL position, the rev counter will display the current selected calibration. For example CAL1 shows as 1000 RPM, CAL2 shows as 2000 RPM and so on.

Launch Control
The Cruise 'CAN RES' button is configured for Launch Control activation in the basemap. This is assigned on XCAN B04.

Rolling ALS & 'Pops and Bangs'
Cruise control 'OFF' button enables the user to control the Rolling Anti-Lag and Pops and Bangs functionality in the Syvecs ECU. The button is assigned as 'CAL Override' and functions as below:

CAL Override = ON, whilst off throttle, Pops and Bangs will be activated. Whilst on full throttle Rolling ALS will become active. The RPM at which the ALS activates is definable in the ECU.

CAL Override = OFF, no Rolling ALS or Pops and Bangs.

Throttle 'Blip'
If vehicle speed is above 5kph and the ECU is in 'Sport Mode' a throttle blip function is available to the driver. This will be automatically enabled if the clutch and brake are pressed at the same time.

FAQ's

Does the OE dash (Tacho, Speedo etc) still work like stock?
Yes the kit retains all OE functionality of the dashboard, including warning lights.

Can I add additional port injectors?
Yes, you can add 4 port injectors to compliment the GDI injectors as secondary injection.

The below pins can be used and assigned as the secondary injectors. Some reconfiguration is required as explained below.

- Fuel #09 Pin34 – currently free.
- Fuel #10 Pin6 – Remove 'Bypass Solenoid' and connect this to ground.
- Fuel #11 Pin33 – Remove 'Turbo Bypass (BOV) and connect the vacuum source directly to the engine.
- Fuel #15 Pin20 – Remove 'Canister Purge' – vent canister purge to atmosphere.

Please be aware you must not plug in the injectors until the calibration in the ECU has been updated for 8 injectors.

Do I lose cruise control?
No you will still retain cruise control functionality inc. up and down functionality as per stock.

Can I run Flex-Fuel?
Yes, you can add a flex fuel sensor so varying ethanol fuel blends can be used.

o The sensor requires 12v switched power (Pin 56,57) and good ground (Pin 1,28,29,55) at the ECU preferably.
o Signal can be wired to Pin8 AN#16
o Assign to Fuel Composition Sensor (fuelComp)
o Enable the FlexFuel strategy and calibrate accordingly.

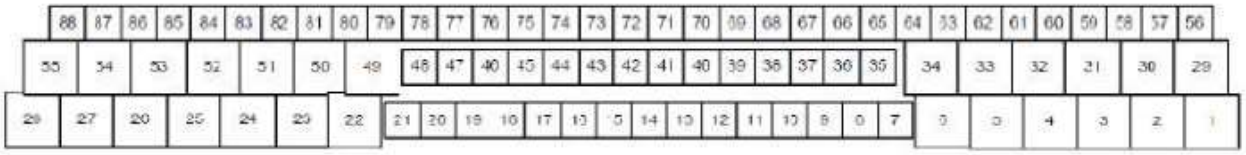
I've run out of inputs, can I expand the system?
Yes, you can fit the Syvecs I/O Expander; you will then gain 10 LSD/HSD outputs, 4 Half-Bridge (combinable to 2 Full-Bridge) and 10 Analogue inputs (5V, Thermistor or Switch)

Wire the expander to CAN 2 on the S-GDI.

- CAN2H Pin80
- CAN2L Pin79

Wiring Pinouts

S8 Connector (Looking from the back of connector or ECU Header)



Syvecs Pin Number	Function	Fiesta Function
1	POWER GROUND	Power Ground
2	IGNITION #08	IGN 4
3	IGNITION #07	IGN 3
4	IGNITION #06	IGN 2
5	IGNITION #05	IGN 1
6	FUEL #10	Bypass Solenoid
7	KNOCK #02	Knock 2
8	INPUT #16 (5V/TH/BI/FREQ)	
9	INPUT #14 (5V/TH/BI/FREQ)	
10	INPUT #12 (5V/TH/BI/FREQ)	
11	INPUT #10 (5V/TH/BI/FREQ)	Intake CAM
12	THERMO - #02	
13	THERMO + #02	
14	INPUT #07 (5V/TH/BI/FREQ)	MAF
15	INPUT #05 (5V/TH/BI/FREQ)	
16	INPUT #03 (5V/TH/BI/FREQ)	
17	INPUT #01 (5V/TH/BI/FREQ)	MAP
18	LAMBDA V #01	Lambda V
19	INPUT #21 (TH)	ECT
20	FUEL #15	Canister Purge
21	RS232#1TX	
22	FUEL #07	Lambda Heater
23	FUEL #05	Cooling Fan
24	IGN4	GDI 4+
25	IGN3	GDI 3+
26	IGN2	GDI 2+
27	IGN1	GDI 1+
28	POWER GROUND	Ground
29	POWER GROUND	Ground
30	FUEL #14	VVT Exhaust
31	FUEL #13	VVT Intake
32	FUEL #12 / GDI PUMP -	Fuel Vol Contrl -ve
33	FUEL #11	Turbo Bypass
34	FUEL #09	
35	KNOCK #01	
36	INPUT #15 (5V/TH/BI/FREQ)	Oil Pressure Sw
37	INPUT #13 (5V/TH/BI/FREQ)	PPS (PWM)
38	INPUT #11 (5V/TH/BI/FREQ)	Exhaust CAM
39	INPUT #09 (5V/TH/BI/FREQ)	Crank
40	THERMO - #01	

44	INPUT #02 (5V/TH/BI/FREQ)	FP
45	CAN LO #03	
46	INPUT #22 (TH)	
47	FUEL #16	Boost Solenoid
48	RS232 RX	
49	FUEL #08	A/C Clutch
50	FUEL #06	Start Relay Gnd
51	FUEL #04	GDI 4-
52	FUEL #03	GDI 3-
53	FUEL #02	GDI 2-
54	FUEL #01	GDI 1-
55	POWER GROUND	
56	BATTERY SUPPLY	VBATT
57	BATTERY SUPPLY	VBATT
58	H-BRIDGE #01	DBW+
59	H-BRIDGE #02	DBW-
60	H-BRIDGE #03	Fuel Pump ECU
61	H-BRIDGE #04	Fuel Vol Cntrl +ve
62	10V OUT	
63	5V OUT #02	
64	5V OUT #01	A/C, MAP, Brake VAC, crank, TPS
65	KNOCK GROUND	
66	INPUT #20 (5V/KNOCK #04)	Low Fuel Pressure
67	SENSOR GROUND #02	A/C, Clutch sw, MAF
68	INPUT #19 (5V/KNOCK #03)	
69	SENSOR GROUND #01	
70	THERMO + #01	
71	INPUT #18 (5V)	TPS2
72	SENSOR GROUND #02	
73	INPUT #17 (5V)	TPS1
74	SENSOR GROUND #01	TPS, MAP, VVT, FP
75	CAN HI #03	
76	LAMBDA I #01	
77	LAMBDA GROUND	
78	COMMS GROUND	
79	CAN LO #02	
80	CAN HI #02	
81	CAN LO #01	
82	CAN HI #01	
83	INPUT #24 (TH)	IAT
84	INPUT #23 (TH)	ACT
85	LANRX+	Ethernet Socket, 0.3m
86	LANRX-	
87	LANTX+	
88	LANTX-	

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