Syvecs LTD

V1.2

Lamborghini LP520

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

Gallardo LP520 Kit

Thank you for choosing the Syvecs LP520 Gallardo kit

The kit comes with the following:

1 x Syvecs S12 Ecu

1 x Gallardo LP520 Wiring Loom

1 x 12way DTM Connector

1 x Syvecs GFA Module Adaptor and Can Bridge

Installation

1.) Remove the Negative Terminal from the battery on the Vehicle

2.) Remove the Carpet/Panel behind the driver/passenger seats

3.) Remove the OEM Engine control modules. Look like below.

Mark the Module on the right hand side of the vehicle when looking from behind the vehicle as 29R

4.) Next plug in each end of the Syvecs loom as labelled on the connectors to the correct side of the car.
29R – Right hand side of the car looking from the Rear of Vehicle
29L – Left hand side of the car looking from the Rear of Vehicle

5.) Mount the S12 Ecu in the Location shown below by removing the inside noise panel and trimming to the shape of the S12 Ecu so it fit neatly behind the passenger seat and secure using the Double sided velcro tape

6.) After securing the ecu and associated wires head down to the passenger area footwell. Remove the carpet piece and loosen the 4 screws shown below to expose the GFA Unit

7.) Unplug the 4 connectors into the GFA and fit the Syvecs GFA Module in-between the loom and the GFA Module as shown below

8.) Now remove the Terminator plug as shown below next to the GFA Module

9.) If wanting to control/monitor external device these can be wired into the 12way DTM break out connector found coming out of the S12 Looms. We suggest wiring in the Throttle bodies direct on the 2008 models which use the Bosch Throttle body units – Pinouts found on last pages.

10.) Refit all carpets and panels

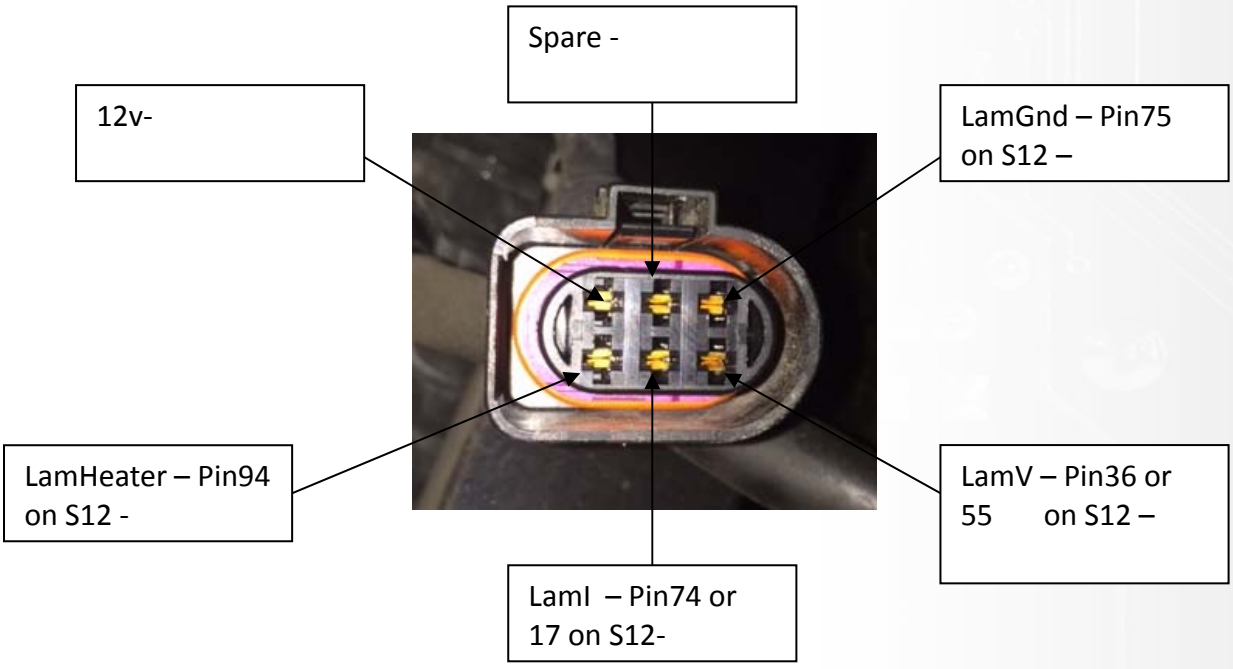
11.) Re-Connect the Negative terminal of the Battery

Gallardo 2004 – 2006 Wideband Connection

The 2004 – 2006 Gallardo's do not come as standard with Wideband Lambda sensors but do have wiring in place for them to be fitted.

The 2006 – 2008 models have an NTK Wideband Lambdas fitted from the factory, the part number of this sensor is NGK LAMBDA SENSOR LZA11-V4. You are able to use this sensor on the early models and the connectors are found either side of the engine as shown below in the image. We recommend to use a NTK Sensor but if you wish to use an LSU4.9 then see wiring at the bottom of this page.

If you are wanting to hook up a Bosch LSU4 sensor then the pinouts for this connector are shown below and where they link to on the Syvecs S12.



NTK L2h2 Wiring

Yellow Heater +12V +12v supply
Blue Heater Drive
Black Signal Ground to LAMGND
Grey Nernst Cell Voltage to LAMV
White Ion Pump Current to LAMI

Bosch LSU4 Wiring

Yellow – LamGND -
White – Lambda Heater
Red – Lami
Black – LamV
Grey – 12v

Gallardo Throttle Body Connection

The 2004 – 2007 Gallardo's come with internal can bus based throttles made by magneti marelli which only have power, ground and a canbus connection. We used to support these units via canbus but found them to be unreliable. We now suggest that users wire in Bosch Throttles for added control and safety.

The Bosch throttle - Part Number 07D 133 062 bolts directly onto the original intake of the Gallardo

These units will need to be wired directly back to the ECU, so a new Loom is required to be made and linked into the 12way DTM Connector supplied next to the S12 Ecu. Wiring Below

The later models LP520 (08-09) did come with Bosch Throttles from the factory and these can be used no problem.

Wiring

DBW Bank1

TB Pin1 – Pin1 on 12way Dtm

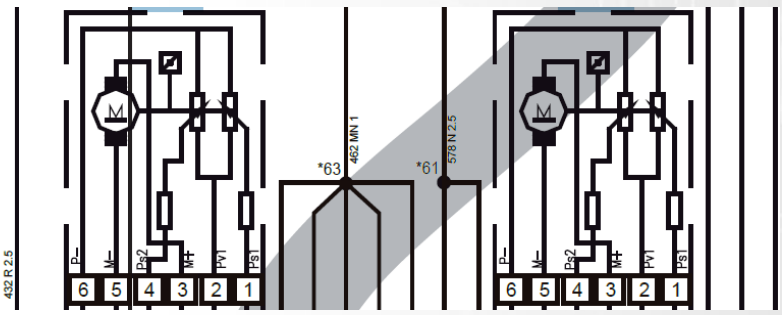
TB Pin2 – Pin4 on 12way Dtm

TB Pin3 – Pin7 on 12way Dtm

TB Pin4 – Pin2 on 12way Dtm

TB Pin5 – Pin8 on 12way Dtm

TB Pin6 – Pin5 on 12way Dtm



DBW Bank2

TB Pin1 – Pin3 on 12way Dtm

TB Pin2 – Pin4 on 12way Dtm

TB Pin3 – Pin9 on 12way Dtm

TB Pin4 – Pin6 on 12way Dtm

TB Pin5 – Pin10 on 12way Dtm

TB Pin6 – Pin5 on 12way Dtm

External 10way GT Pinouts - Older Kit

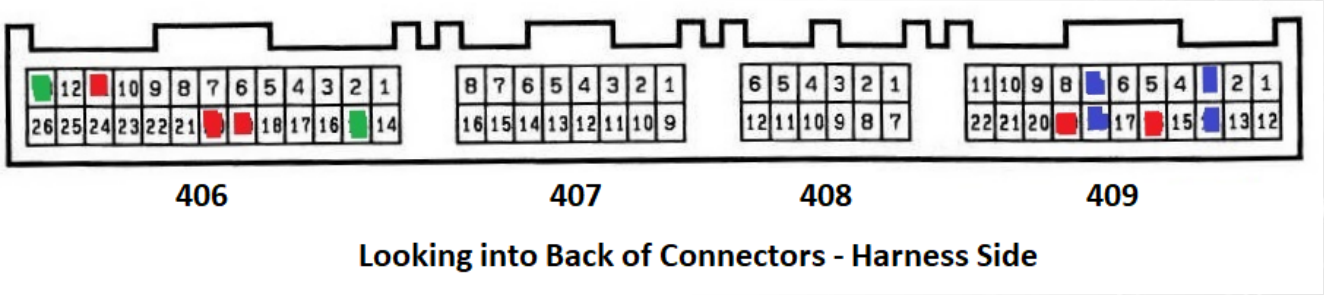
A - IN25 - Spare 0-5v Input
B - IN26 - Spare 0-5v Input
C - IN27 - Spare 0-5v Input
D - 5V - 5v Supply
E - AN GROUND - Sensor Ground
F - IN28 - Spare 0-5v Input
G - H BRIDGE 1 - Spare Output, can be Lowside PWM or Joined with H Bridge 2 for full motor control
H - H BRIDGE 2 - Spare Output, can be Lowside PWM or Joined with H Bridge 1 for full motor control
J - H BRIDGE 3 - Spare Output, can be Lowside PWM or Joined with H Bridge 4 for full motor control
K - H BRIDGE 4 - Spare Output, can be Lowside PWM or Joined with H Bridge 3 for full motor control

External 12Way DTM Pinouts - New Kits

1 - AN25 - Spare 0-5v Input
2 - AN26 - Spare 0-5v Input
3 - AN27 - Spare 0-5v Input
4 - 5v Supply
5 - ANGround - Sensor Ground
6 - AN28 - Spare 0-5v Input
7 - H-Bridge 1 - Spare Output, can be Lowside PWM or Joined with H Bridge 2 for full motor control
8 - H-Bridge 2 - Spare Output, can be Lowside PWM or Joined with H Bridge 1 for full motor control
9 - H-Bridge 3 - Spare Output, can be Lowside PWM or Joined with H Bridge 4 for full motor control
10 - H-Bridge 4 - Spare Output, can be Lowside PWM or Joined with H Bridge 3 for full motor control

Gallardo 2008 Lift Wiring

The Gallardo LP520 came with an option for Front lift control in certain models. When fitting the Syvecs kit this will no longer work as certain functions are bypassed during the installation on the GFA unit. To make it work it needs to be wired back from the GFA Patch harness to the S12 as shown below.



Looking into Back of Connectors - Harness Side

Cut GFA 406 - Pin25 and Connector Harness side of wire to S12 Pin 62 (Solenoid Down)
Cut GFA 406 - Pin12 and Connector Harness side of wire to S12 Pin 81 (Solenoid Up)

T Into GFA 406 - Pin16 and connect to S12 Pin 14 (Lift Switch)
T Into GFA 407 - Pin12 and connect to S12 Pin 12 (Lift Positon)

Frequently Asked Questions

Question : Where is the OEM Map sensor and what does it read to?

Answer: The OEM Map sensor is found in the middle of the intake manifold and it only reads to 4 psi so if going turbo you can directly replace this part with a 3bar Map sensor - Part number 0281002977

Question : Does the kit support 20 Injectors? i can only find 7 outputs that is available.

Answer: The Kit as standard only supports 10 Injectors, if you want to do 20
Injectors you will need to move some of the Pins to different outputs

Suggestions for this:

Move Tacho Output - Pin 121 (Fuel7) to Pin 91 (Pwm3)
Move Lambda Heater - Pin 94 (Fuel15) to Pin 108 (Pwm5)
Move OILT PWM - Pin 101 (Fuel10) to Pin 81 (H Bridge 6)

This will Free up 3 Injector outputs

Question : Boost solenoid... Can i use any existing wires for that? Variable intake is am not using, can i use this connector in engine bay

Answer: yes you can use the Variable Intake connections if you have a turbo installation - Goes to PWM 2

Question : Can i use any existing button on the car for changing Calibrations ?

Answer: On Egear models the Sport Button goes to the ECU on AN10, Manual will need a external cal switch

Question : I have lost the spare pins which come in the kit, can i order some more

Answer: You can order extra pins if the Dealer has lost these quickly from local electronics supplies like Farnell, Digikey

Small MQS = 968220-1
JPT Large = 964286-1

Syvecs S12 Gallardo wiring

S12 ECU Pinout	S12 Pin Function	SCAL name	Connection
1	PWRGND	Ecu Ground	Ground
2	IGN1	Ignition (20A Open Collector)	Ignition1
3	IGN2	Ignition (20A Open Collector)	Ignition2
4	IGN3	Ignition (20A Open Collector)	Ignition3
5	IGN4	Ignition (20A Open Collector)	Ignition4
6	IN25		SPARE 0-5v Input
7	KNOCK4	Knock Sensor 2	Knock Sensor 2
8	KNOCKGND		Knock Grounds
9	THERMO2 +		SPARE EGT
10	IN21	Thermistor Input	Spare Thermistor Input
11	IN18	5V Analogue Input	Spare 0-5v Input
12	IN14	Configurable Analogue Input	Spare Programmable Input
13	IN11	Configurable Analogue Input	Exhaust Cam1
14	IN7	Configurable Analogue Input	Spare Programmable Input
15	IN4	Configurable Analogue Input	Map Sensor
16	IN1	Configurable Analogue Input	Engine Oil Pressure
17	LAMI 1		Lam1 ion
18	CAN LO 2		Spare CanBus
19	RS232 TX		RS232 Transmit
20	LAN RX-		Orange/White Cat5
21	FUEL 7	Fuel Injector (10A Open Collector)	Tacho Output
22	FUEL 3	Fuel Injector (10A Open Collector)	Injector 3
23	VBAT		12v Supply
24	PWRGND		Spare Ground
25	IN26	5V Analogue Input	Spare 0-5v Input
26	5V OUT	5V OUT	5v Ref
27	KNK1	KNOCK1	Knock Sensor 1
28	THERMO 1 -	THERMO 1 -	Spare EGT
29	IN22	Thermistor Input	Spare Thermistor Input
30	IN19	5V Input	Pedal Position 2
31	IN15	Configurable Analogue Input	Cam vvt1 in
32	IN12	Configurable Analogue Input	Spare Programmable Input
33	IN08	Configurable Analogue Input	A/C Switch
34	ANGND	SENSOR GROUND	Sensor Ground
35	IN02	Configurable Analogue Input	Air Charge Temp
36	LAMV 1		Lam1V
37	CAN HI 3		Spare CanBus
38	RS232 RX		Rs232 Receive
39	LAN RX+		White/Orange Cat5
40	FUEL8		VVT1 Intake
41	FUEL4		Injector 4
42	VBAT		12v Supply
43	PWRGND		Ground
44	IN27	5V	Spare 0-5v Input
45	5V OUT		5v Ref
46	KNOCK2		Knock Sensor2
47	THERMO1+		Spare EGT
48	IN23	Thermistor Input	Engine Coolant Temp
49	IN20	5V	Pedal Position 1

50	IN16	Configurable Analogue Input	Spare Programmable Input
51	ANGND		Sensor Grounds
52	IN09	Configurable Analogue Input	Exhaust Cam 2
53	IN05	Configurable Analogue Input	Crank Sensor
54	ANGND		Sensor Ground
55	LAMV2		Lam2 V
56	CAN LO 3		Spare CanBus
57	COMGND		Comms Ground
58	CAN HI 1		Connected Can Bus
59	LAN TX-		Green/White Cat5
60	FUEL5		VVT Exhaust 1
61	FUEL1		Injector 1
62	HBRIDGE5		Spare Half Bridge Output
63	IN28	5V	Spare 0-5v Input
64	10VOUT		Configurable sensor voltage output
65	KNOCK 3		Knock 3
66	THEMO 02 -		Spare EGT
67	IN24	Thermistor Input	Oil Temp
68	ANGND		Sensor Ground
69	IN17	5V	Spare 0-5v Input
70	IN13		VVT2 Intake
71	IN10	Configurable Analogue Input	Sport Switch
72	IN6	Configurable Analogue Input	Brake Pressure
73	IN3	Configurable Analogue Input	Spare Programmable Input
74	LAMI 2		Lam2 I
75	LamGND		Lambda Sensor Grounds
76	CAN HI 02		Spare Can Bus
77	CAN LO 1		Connected Can bus
78	LAN TX+		White/Green Cat5
79	FUEL6		Injector 5
80	FUEL2		Injector 2
81	H BRIDGE 6		Spare Half bridge
82	H BRIDGE 1		Spare Half Bridge
83	PWM4		Fuel Pump Relays
84	PWM8		Rad Fans
85	FUEL12		Injector 8
86	FUEL16		Injector 6
87	FUEL20		VVT Ex 2
88	FUEL24		VVT Intake 2
89	VBAT		12v Supply
90	H BRIDGE 2		Spare Half Bridge
91	PWM3		Throttle Relay
92	PWM7		Main Relay
93	FUEL11		Injector 7
94	FUEL15		Lambda Heaters
95	FUEL19		Spare Output
96	FUEL23		Spare Output
97	PWRGND		Ground
98	H BRIDGE 3		Spare Half Bridge
99	PWM2		Intake manifold Flap - Ideal for Boost solenoid
100	PWM6		Oil Pressure Gauge (Pin Write Enable on GFA)
101	FUEL10		Oil Temp gauge (Pin Crank waveform on GFA)
102	FUEL14		Injector 10
103	FUEL18		Spare Output
104	FUEL22		Spare Output

105	PWRGND		Ground
106	HBRIDGE4		Spare Half Bridge Output
107	PWM1		Spare Output
108	PWM5		Spare Output
109	FUEL9		Spare Output
110	FUEL13		Injector 9
111	FUEL17		Spare Output
112	FUEL21		Spare Output
113	PWRGND		Ground
114	IGN5		Ignition 5
115	IGN6		Ignition 6
116	IGN7		Ignition 7
117	IGN8		Ignition 8
118	IGN9		Ignition 9
119	IGN10		Ignition 10
120	IGN11		Ignition 11
121	IGN12		Ignition 12

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