Syvecs LTD

V1.2

Mercedes M156 / 9

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

1 x Syvecs S7Plus

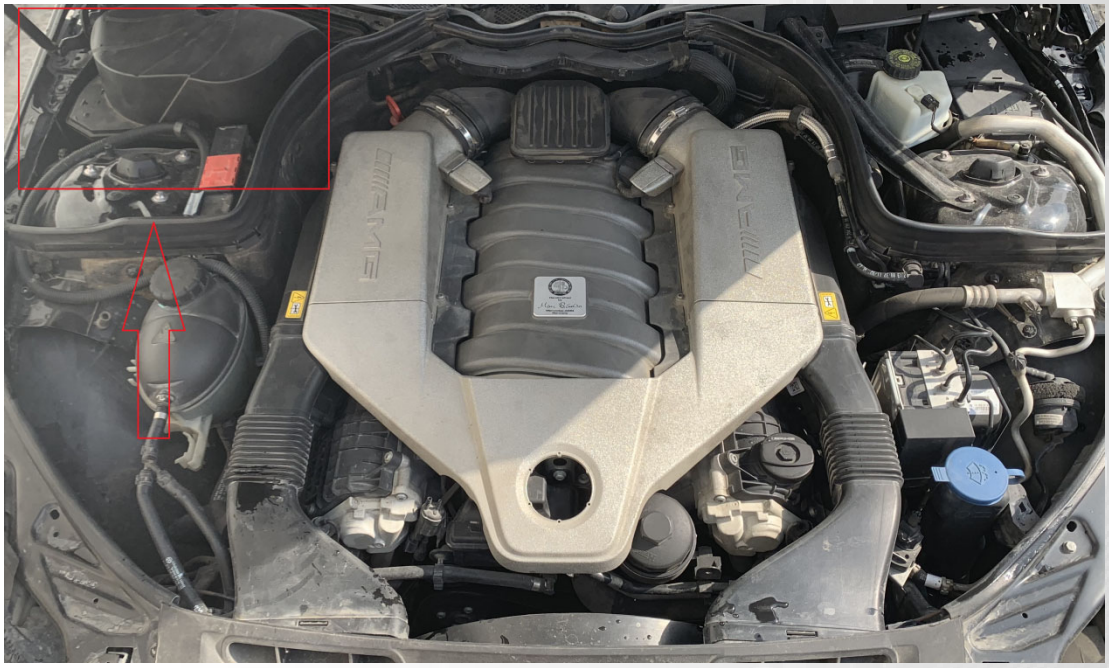
1 x Syvecs Can Bridge (only provided on the Gen2 versions

1 x M156 Loom adaptor

Installation

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

2.) Unplug the OEM Engine control module which is found behind the airbox on the left of the Engine Bay



3.) Remove the OEM Ecu from the holder by removing the 4 x M6 Bolts found at top and bottom

4.) Carefully Fit the S7Plus ECU in the same orientation as the OEM Ecu was fitted and secure

5.) Next plug the Syvecs M156 loom adaptor into the OEM connectors and into the S7Plus

6.) Contact Support@Syvecs.com for a Base Calibration. Mention the Spec of the Car… Injectors, Map Sensor Etc

7.) Watch the Syvecs Help Videos and Read the Syvecs Manual for uploading the calibration and getting started with the Kit

Mercedes M156 Software Options

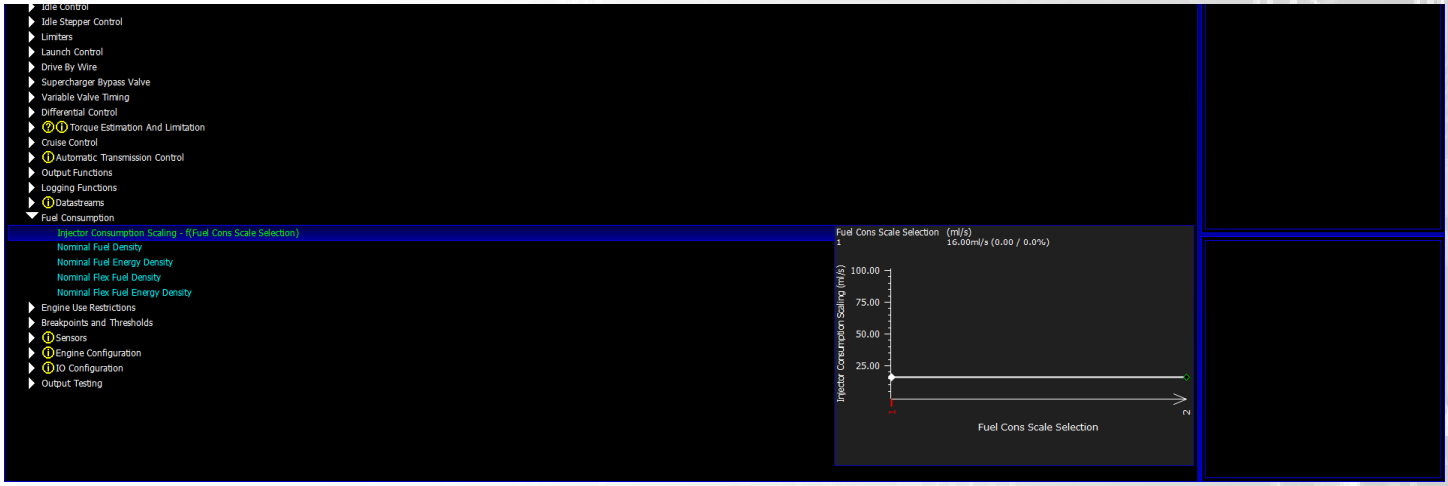
Car Type

Depending on the car the kit is fitted on, users need to set the car type in the Scal Software. This is done in I/O Config – Car Code 1

CarCode1 = 0 ---- Mercedes SLS
CarCode1 = 1 ---- Mercedes C63

Gearbox – Torque Control

The Torque Calculation for the Gearbox Torque Control are done using a Fuel flow torque model, In order for this strategy to work accurately a user needs to input a Fuel Consumption amount in the map below.



This map is set in ml/s

Generally a good calculation for this is Injector Size in CC / 60 but base fuel pressure has a large effect also so ask you injector manufacture for Torque Control Flow Values if not below.

OEM Injectors are set at 6.5 ml/s

680cc Injectors are set at 12 ml/s

Aim for engTrqEstOutputTrans of 100-120 nm at Idle, if off the pedal slightly and car is slowing down make sure the engTrqEstOutputTrans is around 60-70nm

---

MPG Scaling on Dash

Injector Scaling is set in Pin Assignments – Car Code 2 (Injector Scaling)

Stock Injector = 10

Map Switching

Adjusting the Calibration Switch position via the OEM Controls is available if cruise control is fitted on the car. If not dealers can fit a external Syvecs 12Way Calibration Switch

Calibration Select changing is done via the Cruise Control Stalk, Half Pushing position on the Cruise Stalks

+ = Cal Up
- = Cal Down
Cancel (Pull Back) = Cal Overide -- Used for Rolling Antilag
Cruise On (Push Forward)

ESP OFF - Turns the traction control Off which Makes TC Switch Jump to TC12

FAQ and Help

Q) Do you control the OEM VVT
A) Yes, this is adjustable via Variable Valve timing calibrations, Can Change Intake and Exhaust Cam Targets

Q) Can we use this Kit when the engine is fitted in another car which doesn't need canbus
A) Yes, the dealer would need to do the car side of the wiring for the kit though like 12v, pedal signal, fuel pump control etc

Q) Can you adjust the launch?
A) Yes, its fully adjustable in stage and after also where a limiter can be set based on Time or Speed

Q) Can you alter the clutch pressures?
A) Yes, by adjusting the torque values sent to the Trans ECU we can change the amount of applied pressure

Q) Do you supply a base map for the kit?
A) Yes, as with all our kits we supply a very good base calibration to get everything working for you. This will be supplied via your Syvecs dealer.

Q) How do we change calibrations?
A) This is done via the OEM Steering wheel Cruise buttons, Up is Cal Up, Down is Cal Down, Pulling back is Cal Overide for rolling antilag OR via a external 12way switch

Q) What of the original OEM features will now not work?
A) All original features will function properly

Q) Does the Ecu Support Forced Induction if i Turbo Charge the engine
A) Yes it does, although would need to change the OEM Map sensor for a larger scaled sensor like one of our 5bar sensors and a Boost solenoid to control the boost pressure

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

A	DESCRIPTION	
	PART NUMBER	
	NOTES:	
Syvecs Description	***Syvecs Pinout***	***Notes***
PWR CTR OUT	A1	Main Relay
H-Bridge1 / SlaveOut1	A2	DBW+
H-Bridge2 / SlaveOut2	A3	DBW-
H-Bridge3 / SlaveOut3	A4	DBW+
H-Bridge4 / SlaveOut4	A5	DBW-
H-Bridge5 / SlaveOut5	A6	Starter
H-Bridge6 / SlaveOut6	A7	Intake Manifold Switch Valve
H-Bridge7 / SlaveOut7	A8	Oil Cooler Fan
H-Bridge8 / SlaveOut8	A9	Water Injection
FUEL1	A10	CYL 1 INJECTOR
FUEL2	A11	CYL 2 INJECTOR
FUEL3	A12	CYL 3 INJECTOR
FUEL4	A13	CYL 4 INJECTOR
FUEL5	A14	CYL 5 INJECTOR
FUEL6	A15	CYL 6 INJECTOR
FUEL7	A16	CYL 7 INJECTOR
FUEL8	A17	CYL 8 INJECTOR
PWM1 /*FUEL9	A18	Heating System Shut off
PWM2 / *FUEL10	A19	Engine and AC Fan
PWM3 / *FUEL11	A20	Fuel Pump Relay
PWM4 / *FUEL12	A21	Coolant Thermostate heating element
PWM5 / *FUEL13	A22	Vvti 1EX -Flyback Solder Bridge Set
PWM6 / *FUEL14	A23	Vvti 2Ex -Flyback Solder Bridge Set
PWM7 / *FUEL15	A24	Vvti 1 -Flyback Solder Bridge Set
PWM8 / *FUEL16	A25	Vvti 2 -Flyback Solder Bridge Set
IGN1	A26	Ign 1 & 6
IGN2	A27	Ign 2 & 8
IGN3	A28	Ign 4 & 7
IGN4	A29	Ign 5 & 3
IGN5	A30	Fuel Pump Speed
IGN6	A31	
PWRGND	A32	Black Wire
PWRGND	A33	ECU GND
PWRGND	A34	ECU GND

B	DESCRIPTION	
	PART NUMBER	
	NOTES:	
PWRGND	B1	PWR GND
CAN2L	B2	
CAN2H	B3	
KNOCK	B4	KNOCK SENSOR INPUT
KNOCK 2	B5	Knock 2
PVBAT	B6	Constant 12v
IVBAT	B7	12v from ECM
LAM1A	B8	Pin6 on LSU4.9 Connector
LAM1B	B9	Pin1 on LSU4.9 Connector
LAM1C	B10	Pin5 on LSU4.9 Connector
LAM1D	B11	Pin2 on LSU4.9 Connector
LAM1HEATER	B12	Pin3 on LSU4.9 Connector
IVBAT	B13	12v from ECM
LAM2A	B14	Pin6 on LSU4.9 Connector
LAM2B	B15	Pin1 on LSU4.9 Connector
LAM2C	B16	Pin5 on LSU4.9 Connector
LAM2D	B17	Pin2 on LSU4.9 Connector
LAM2HEATER	B18	Pin3 on LSU4.9 Connector
IVBAT	B19	Red Wire
KLINE	B20	Alternator Lin
RS232RX / Can L	B21	
RS232TX / Can H	B22	
LANRX-	B23	
LANRX+	B24	
LANTX-	B25	
LANTX+	B26	

C	DESCRIPTION	
	PART NUMBER	
	NOTES:	
KNOCK GROUND	C1	Knock Ground
ANGND	C2	SENSOR GND
ANGND	C3	Cam and Crank Ground
ANGND	C4	SENSOR GND
5V OUT	C5	5V OUTPUT FOR SENSORS
5V OUT	C6	5V OUTPUT FOR SENSORS
5V OUT	C7	5V OUTPUT FOR SENSORS
CAN L	C8	Merc Can
CAN H	C9	Merc Can
AN01	C10	Cam1 Ex
AN02	C11	Cam2 Ex
AN03	C12	Cam 1
AN04	C13	Cam2
AN05	C14	Crank
AN06	C15	Tps2A
AN07	C16	Tps2B
AN08	C17	Map
AN09	C18	Tps1A
AN10	C19	Tps1B
AN11	C20	PPSA
AN12	C21	PPsB
AN13	C22	COOLANT TEMP INPUT
AN14	C23	AIR TEMP INPUT
AN15	C24	
AN16	C25	
EGT1-	C26	
EGT1+	C27	
PWR CTR IN	C28	Ignition Sw
AN S1 / Slave An01	C29	Fuel Pressure
AN S2 / Slave An02	C30	Fuel Tank Pressure
AN S3 / Slave An03	C31	
AN S4 / Slave An04	C32	Oil Temp/Level on SLS
AN S5 / Slave An05	C33	Engine Oil Pressure 2
AN S6 / Slave An06	C34	Oil Temp