

Porsche 991.1 Turbo

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 S7Plus 1 x GDI12 1 x Porsche 991.1 Loom

Installation

- 1.) Remove the Negative Terminal from the battery on the Vehicle which is found in the Front under hood compartment.
- 2.) In order to gain access to the OEM Ecu the Rear Spoiler needs to be removed from the car, open the rear engine bay and start by removing the OEM Air Intake Grate and Small Fans as shown below



3.) Next remove the Spoiler leg covers to access the Torque fitting which hold the top spoiler on





4.) Lift the top Spoiler of the legs and then slide the bottom part of the spoiler up and over the legs also



5.) Unbolt the items marked in Red and unplug the 2 electrical connectors for the spoiler assembly. Then lift the frame out and the OEM Ecu can be accessed easily under the area marked below with a red circle.



3.) Remove the Factory Ecu by removing the 2x 10mm nuts holding it in place



4.) Remove the 6 x Hex bolts to remove the Oem ECU from its cradle

5.) Fit the Syvecs ecu in its place with 2 x M6 bolts



6.) Mount the cradle then back where the OEM Ecu came from



- 7.) Plug in the Loom and secure carefully
- 8.) Connect the Battery back, connect the ethernet cable to your laptop and load the supplied base calibration.
- 9.) Set the Car Type In Scal Software i/o Configuration Car Coding Car Code4
- 0 Turbo S
- 1- Turbo
- 2 Cayman S
- 3 Cayman
- 4 Boxster
- 5 Turbo S with ACC (991.1 Kit)

You may find you have Diff errors on the dash after the installation if the Car Code 4 was incorrect at first key on, if you have these errors you can clear them in

Scal by going down to i/o Configuration - Car Coding Set Car Code1 = 0

After Set CarCode 2 = 1 , Wait 2 seconds then set at 5, then back to 1 and Finally 0

You can also clear the DTC at Key on by holding down the Brake and Accelerator pedal for 5

seconds After Set Car Code = 1 to get TCM Logging working

Supercharger Bypass Valve		
Variable Valve Timing		
Differential Control		
Torque Estimation And Limitation		
Cruise Control		
Automatic Transmission Control		
Output Functions		
Logging Functions		
Datastreams		
Fuel Consumption		
Breakpoints and Thresholds		
Sensors	0 (0 / ??%)	
Engine Configuration		
Configurable Purpose Maps		
V IO Configuration		
Pin Assignments - f(Pin Use)	ត្រ ₅₀₀₀₀	
Car Coding		
Car Code 01 [Tcm Logging Enable = 1] [TCMLogging]	ළ 40000 -	
Car Code 02 [Car DTC Clean = 1 + 5] [CarDTC]	lea	
Car Code 03 (Mpg Scaler) (MPGScale)	ŭ 30000 -	
Car Code 04	0	
Output Testing	<u>2</u> 20000 -	
	8	
	8 10000 -	
	· ·	

- Calibration Switch changing is done via the OEM Cruise Lever, Push up to enable Cal Up Request and Down to enable Cal Down Request.. Users need to turn on

the Cruise Stalk by pressing the end button to active these mode changes.

The Oil pressure Gauge will show the Active Cal Position number when changing Cals

- Pushing the Cruise Lever forward activates Cruise Control

- Pulling the Cruise Lever Back towards the Driver activates the Cal Overide which is assigned to Rolling Antilag on the Kit currently



- Injector Scaling for MPG Counter is done via Car Code 3 under Pin Assignments - Car Code1 Activates the Clutch A and B Pressure Logging

 Breakpoints and Thresholds ③ Sensors ④ Engine Configuration ④ Configurable Purpose Maps ④ Ito Configuration ④ Pin Assignments - f(Pin Use) ✓ Car Coding Car Code 01 [Tcm Logging Enable = 1] [TCMLogging] Car Code 02 [Car DTC Clean = 1 + 5] [CarDTC] 	75 (0 / 0.0%) [0 00000 1 [0 0000 2 40000 1 1 10 000 1 1 10 000 1 10
Car Code 03 [Mpg Scaler] [MPGScale] Car Code 04 Output Testing	월 20000 - 명 20000 - 형 10000 - g 10000 -

The Sport mode settings from the TCM also come into the Syvecs which can be used for altering DBW Limit, Wastegate Targets etc. The Base map already has a DBW Limit of 60% when in Normal Mode but uses can set up other Comp maps for the Input SportPlus_U11

Normal = 0% Sport = 50% Sport plus = 100%

Datasti Fuel C	y rencons enne ysumption		
 Breakp Set Control 	onta and Intraholds Sostof Jine Configuration (filourable Purpose Mass		
₹@	20 CH201 X Axis Dimension CH201 X Axis [SportPlus_U11] Breakpoints CH201 (TBM* Target Limit] [dimutmiCH201] - ((SportPlus_U11)	SportPlus_U11 (%)	
	CH202 X Ax8 Dimension CH202 X Ax8 Dimension CH203 X Ax8 Dimension CH203 X Ax8 Dimension CH204 X Ax8 Dimension CH204 X Ax8 Dimension CH204 X X Ax8 Dimension CH204 X Xx8 Dimension CH204 X Xx8 Dimension CH204 X Xx8 Dimension CH204 X Xx8 Dimension CH204 X Xx8 Dimension CH205 X Xx8 Dimension CH204 X Xx8 Dimension	12 21% 65.00% (0.00 / 0.0%) 100.00 1	
	Unces / A was (unit presequence) (OC25) (NOT NUSE] (unseedCN205) - (frpm) (OC206 X Ass [pm] Selepants (OC206 [NOT NU SEE] (unseedCN206) - (frpm)	ದ್ದಾರೆ ಕೆ.ಕೆ.ಕೆ.ಕೆ.ಕೆ.ಕೆ.ಕೆ.ಕೆ.ಕೆ.ಕೆ.ಕೆ.ಕೆ.ಕೆ.ಕ	
	CH207 X Ass Dimension CH207 X Ass Dimension CH207 X Ass Dimension CH208 Ass Dimension		
	CH2209 [INCT IN USE] [unusedCH2209] - {(rpm) CH2210 X Ass Dimension CH2210 KAss [pmg] Breakpoints CH2210 [INCT IN USE] [unusedCH2210] - {(rpm)		

Frequently Asked Questions

Q) Do you control the OEM VTG Turbos

A) Yes, This is done via a Custom Base map to suit the PWM based VTG control

Q) Where do you adjust the High pressure pump settings A) Output Functions - Closed Loop PWM(991 High Pressure)

Q) Do you control the OEM Engine fan

A) Yes, This is adjustable in Output Function - Fan4

Q) How is the OEM Thermostat controlled

A) This is found in Output Functions - Fan5(thermostat)

Q) The Oil pressure is higher with Syvecs compared to OEM ecu, Can we control the pressure?

A) The pump control is available on slave out 4 (H-bridge4)

You can setup a custom table to control and send duty to lower the pressure but just so you are aware Porsche do this for emission purposes and care is needed if the car is launching with sticky tyres with the bypass solenoid controlled because the oil pressure will surge and trip oil pressure cut on ecu.

Q) How is the Electronic Blow of Valve controlled A) This is found in Output Functions – EGR Control

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. This is found in Output Function – Fuel Pump

Q) What of the original features will now now work?

A) Only AutoStart Function

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 Piwis

Q) Where do you adjust the Intake Lift cam solenoids? A) Output Functions - Variable intake control

Q) Does Cruise control work?

A) Yes, even adjustable speed control if on Firmware 1.674 and above

Q) Where do you adjust the fuel evap solenoid duty?

A) Output Functions - Fan6(Evap)

Q) Can you Log clutch pressure and clear TCM DTC from Syvecs Software? A) Yes,

IO Configuration - Car Code 1 Needs to be = 1 in order for TCM Logging to be ON -- BUT SET TO 0 IF WANTING TO

GEARBOX RELEARN, DTC CLEAR via OEM Diagnostic TOOLS

- Car Code 2 is for DTC Clearing With IGNITION ON Only - Set to 1 to first enable the Clearing mode and then change to 5 for Clearing of all Modules, When finished put back to 1 for 2 seconds and then 0.

You can also Clear DTC without the Laptop by pressure Brake and Accelerator pedal fully down for 5 seconds with just ignition on

Q) If running additional 6 port injections how do you setup the fueling?A) First set the Secondary Injector Opening times in RunMode Fueling – Corrections

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 750cc.. So do 750 / (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.



Α	DESCRIPTION	CONNECTOR A	
	PART NUMBER	4-1437290-0	
NOTES		34 Way - Key1	
Syvecs Description	Syvecs Pinout	Function	
PWR CTR OUT	A1	MAIN RELAY OUTPUT	
H-Bridge1 / SlaveOut1	A2	H-Bridge1	DBW
H-Bridge2 / SlaveOut2	A3	H-Bridge2	DBW
H-Bridge3 / SlaveOut3	A4	H-Bridge3	ThermoStat
H-Bridge4 / SlaveOut4	A5	H-Bridge4	Oil Pump Control
H-Bridge5 / SlaveOut5	A6	H-Bridge5	Di Pump
H-Bridge6 / SlaveOut6	A7	H-Bridge6	Rad Fans
H-Bridge7 / SlaveOut7	A8	H-Bridge7	Valve Lift
H-Bridge8 / SlaveOut8	A9	H-Bridge8	Starter Motor Relay
FUEL1	A10	INJECTOR or PWM OUTPUT	Primary Injector 1
FUEL2	A11	INJECTOR or PWM OUTPUT	Primary Injector 2
FUEL3	A12	INJECTOR or PWM OUTPUT	Primary Injector 3
FUEL4	A13	INJECTOR or PWM OUTPUT	Primary Injector 4
FUEL5	A14	INJECTOR or PWM OUTPUT	Primary Injector 5
FUEL6	A15	INJECTOR or PWM OUTPUT	Primary Injector 6
FUEL7	A16	INJECTOR or PWM OUTPUT	Secondary Injector 1 / Boost Pressure Adjuster 1
FUEL8	A17	INJECTOR or PWM OUTPUT	Secondary Injector 2 / Boost Pressure Adjuster 2
FUEL9	A18	INJECTOR or PWM OUTPUT	Secondary Injector 3 / Fuel Pump2 on 997.2
FUEL10	A19	INJECTOR or PWM OUTPUT	Secondary Injector 4 / Fuel pump1 on 997.2
FUEL11	A20	INJECTOR or PWM OUTPUT	Secondary Injector 5 / Tank Vent
FUEL12	A21	INIECTOR or PWM OUTPUT	Secondary Injector 6 / Engine Bay Fan
FUEL13	A22	INJECTOR or PWM OUTPUT	Divertor Valve
FUEL14	A23	INJECTOR or PWM OUTPUT	Fuel Pump Low pressure on 991
FUEL15	A24	INJECTOR or PWM OUTPUT	VVT1
FUEL16	A25	INJECTOR or PWM OUTPUT	VVT2
IGN1	A26	CYL 1 IGNITION OUTPUT	
IGN2	A27	CYL 2 IGNITION OUTPUT	
IGN3	A28	CYL 3 IGNITION OUTPUT	3
IGN4	A29	CYL 4 IGNITION OUTPUT	
IGN5	A30	CYL 5 IGNITION OUTPUT	10
IGN6	A31	CYL 6 IGNITION OUTPUT	
PWRGND	A32	POWER GROUND	
PWRGND	A33	POWER GROUND	Ground
PWRGND	A34	POWER GROUND	

В	DESCRIPTION	CONNECTOR B	
		2 1/27200 7	
	NOTES	26 Way Kay1	
PWRGND	B1	POWER GROUND	
CAN2L	B2		
CAN2H	B3		
КNОСК	B4	KNOCK	
KNOCK 2	B5	KNOCK 2	
PVBAT	B6	CONSTANT 12V	
IVBAT	B7	12v	
LAM1A	B8	Lamv / LamD1+/ LamLun1	Pin6 on LSU4.9 Connector
LAM1B	B9	Lami / LamD1- /LamIP1	Pin1 on LSU4.9 Connector
LAM1C	B10	LamLIA1	Pin5 on LSU4.9 Connector
LAM1D	B11	LamGND / LamLVM1	Pin2 on LSU4.9 Connector
LAM1HEATER	B12	LAMBDA HEATER	Pin3 on LSU4.9 Connector
IVBAT	B13	12V	
LAM2A	B14	Lamv / LamD1+/ LamLun1	Pin6 on LSU4.9 Connector
LAM2B	B15	Lami / LamD1- /LamIP1	Pin1 on LSU4.9 Connector
LAM2C	B16	LamLIA1	Pin5 on LSU4.9 Connector
LAM2D	B17	LamGND / LamLVM1	Pin2 on LSU4.9 Connector
LAM2HEATER	B18	LAMBDA HEATER	Pin3 on LSU4.9 Connector
IVBAT	B19	12V	Oil Pressure 12v
KLINE	B20	Kline	
PS232PX	B21	DCJ3JDY	SET AS CAN LEOP TR with CAN RDIDGE
RS232TX	B21	R5232TX	SET AS CAN E FOR TR with CAN BRIDGE
	B22	Cat5 Din2	
LANRX-	B24	Cat5 Din1	
LANRX+	B24	Cat5 Pin6	
LANTX-	B25	Cat5 Tino	
LANTX+	B20		
C	DESCRIPTION	CONNECTOR C	
	NUMBER	4-1437290-1	
	NOTES:	34 Way - Key2	
KNOCKGND	C1	KNOCKGND	
ANGND	C2	SENSOR GND	
ANGND	C3	SENSOR GND	
ANGND	C4	SENSOR GND	
5V OUT	C5	5V OUT	
5V OUT	C6	5V OUT	
5V OUT	C7	5V OUT	3
CAN L	C8	Can Low	
CAN H	С9	Can High	
AN01	C10	BI-POLAR INPUTS	Crank Sensor
AN02	C11	BI-POLAR INPUTS	VVt1IN
AN03	C12	BI-POLAR INPUTS	VVT2IN
AN04	C13	BI-POLAR INPUTS	

AN05	C14	UNI-POLAR INPUTS	Pre Throttle Pressure
AN06	C15	UNI-POLAR INPUTS	Map Sensor
AN07	C16	UNI-POLAR INPUTS	Oil Temp
AN08	C17	UNI-POLAR INPUTS	PPS1
AN09	C18	VOLT-INPUTS	DI Pressure
AN10	C19	VOLT-INPUTS	Engine Oil Pressure
AN11	C20	VOLT-INPUTS	TPS1A
AN12	C21	VOLT-INPUTS	TPS1B
AN13	C22	RESISTIVE INPUTS	Air temp
AN14	C23	RESISTIVE INPUTS	Coolant temp
AN15	C24	RESISTIVE INPUTS	Brake
AN16	C25	RESISTIVE INPUTS	Clutch
EGT1-	C26	EGT1 -	
EGT1+	C27	EGT1 +	
PWR CTR IN	C28	MAIN RELAY INPUT SW	12v Ignition
AN S1 / Slave An01	C29	UNI-POLAR INPUTS	EGT1
AN S2 / Slave An02	C30	UNI-POLAR INPUTS	EGT2
AN S3 / Slave An03	C31	UNI-POLAR INPUTS	Boost Feedback1
AN S4 / Slave An04	C32	UNI-POLAR INPUTS	Boost Feedback2
AN S5 / Slave An05	C33	UNI-POLAR INPUTS	PPS2
AN S6 / Slave An06	C34	UNI-POLAR INPUTS	Oil Level

Email <u>Support@syvecs.co.uk</u> for a base map to suit your setup.