Syvecs LTD

V1.2

Nissan R35GTR

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

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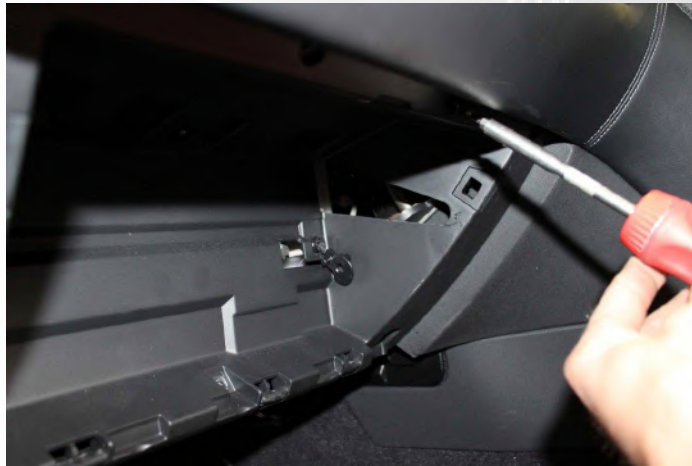The kit comes with the following:

1 x Syvecs S7Plus

1 x SGTR Loom

Installation

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

2.) Remove the Glove box from inside the car as shown below

3.) Remove the Glove box Support

4.) The Stock R35GTR ECU can then be unplugged by removing the 3 plugs. After doing this loosen the 4 M6 nuts to remove the ecu completely from the vehicle

9.) Connect back the 3 ECU loom plugs into the Syvecs loom

10.) Refit the Glove box support and fit the Syvecs Ethernet Cable via the side holes

11.) Refit glovebox

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

13.) Contact Support@Syvecs.co.uk for a base map and Software basic Manual

R35GTR – Torque Control Notes & Tips

Depending on the Software version (firmware version) of the base map or current map present in the ecu, you will find that the torque control is done is different manners.
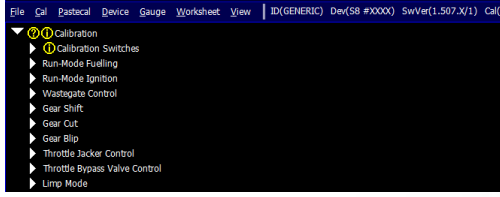
Firmware which is pre 1.43 uses just one table for adjusting the torque values sent to the Transmission ecu for handling clutch control. This table is called the MBT Torque Estimate table and is based on Primary Load vs RPM. The table can be adjusted live to cater for shifting smoothness and clutch clamping. The Values in the MBT Torque Estimate table are not the final values sent to the TCM as friction loses and other multipliers for airtemp etc are applied so to view the actual value sent, Open up a Gauge for engTrqEstOutputTrans.

Firmware versions which are 1.43 and above now have the ability to automatically calculate torque which from in-house testing significantly improves the drivability of the kit.Before where the torque table was set manually against RPM vs Manifold pressure in certain situations manifold pressure has a filling/usage delay which we have found effects shifting in transient states.

In order for this strategy to work accurately a user needs to input a Fuel Consumption amount in the map below.
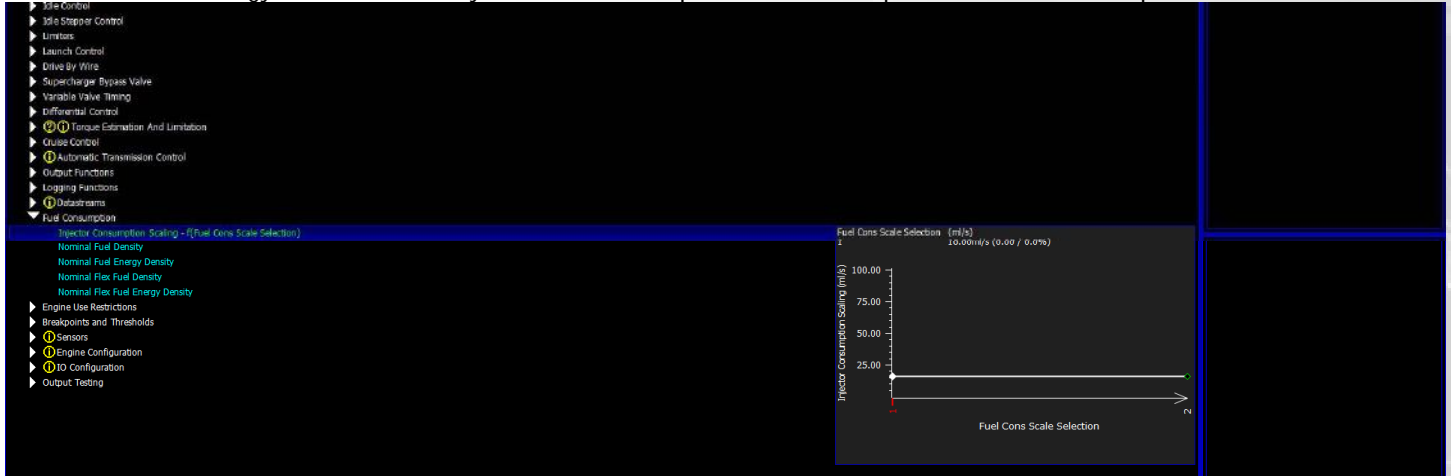
This map is set in ml/s

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.

Some Values already received at the OEM Nissan Base Fuel Pressure

ID2000 @ 3.5bar = 35
ID1300 @ 3.5bar = 21
Ansu 1100cc @ 3.5bar = 17
Ansu 1650 @ 3.5bar = 25

Tip:

With Either Torque Control estimation method its best to make sure the **engTrqEstOutputTrans** values at idle at around 2-8 Nm. If using firmware 1.43 and above then adjust the thermal efficiency table to achieve this.... If below 1.43 then set this manually in the Estimated MBT Torque table.

R35GTR – Map/Calibration Switching

Map/Calibration Switching on the SGTR Syvecs kit is done via the OEM Cruise control Switches, when the ignition is switched on it will always default to CalSwitch = 1 in Scal which is found in the parameters list on the right hand side when connected to the Ecu.

By Pressing the Res/Accel button on the steering wheel you will find that the calibration switch goes up by one value each time its pressed. As default there are 8 calibration switch options and the user can then assign many tasks to each calibration switch under the Calibration switches section of Scal.

The Engine Coolant temp display will show the current Calibration switch in the first digit upon map changing. Ie 10c will be Cal1 and 20c will be Cal2

The Coast/Set button is used to go back down the Calibration switch positions

During Calibration Switch changes the Oil Temp Display will also show the Flex Fuel %

The Cancel Button activates the Calibration Override Switch in Scal which as default in the base maps jumps to Calibration Switch 9 for activating Rolling Antilag. By Holding down the button and going full throttle in manual mode a Antilag strategy will be activated which holds the car back from accelerating but builds boost. Upon releasing the switch the Antilag is disabled and the engine will gain torque instantly to accelerate.

Launch Control

In order for Launch control to activate and allow the Throttles to open with the Syvecs Kit a Launch control mode must be installed inside the Transmission ecu. Ecutek or Cobb caters for this on the early cars but on models My11 onwards it is enabled as default.
(The OEM Ecu is required to be fitted for flashing the TCM)

Selecting R Mode on the Transmission and VDC Off is the normal procedure followed by selecting First gear, applying the brake and going full throttle on the Accelerator pedal. While doing this the Launch control strategy of the SGTR will become active and a desired RPM and Manifold pressure can be set in the Launch control strategy as shown below.

Automatic Up Shift using Syvecs S7 R35GTR Kit

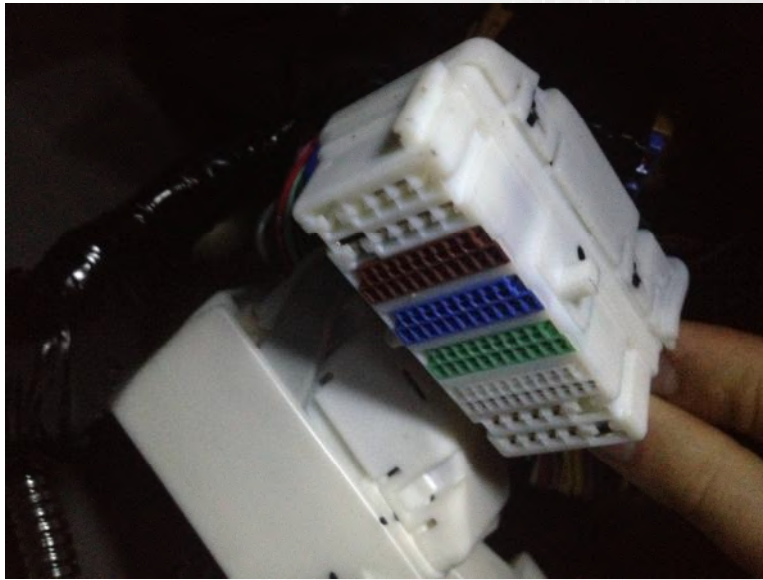First find the connector M7 which is found on the drivers side of the R35Gtr

ON RIGHT HAND DRIVE CARS THIS IS FOUND ON THE SAME SIDE BY THE ECU
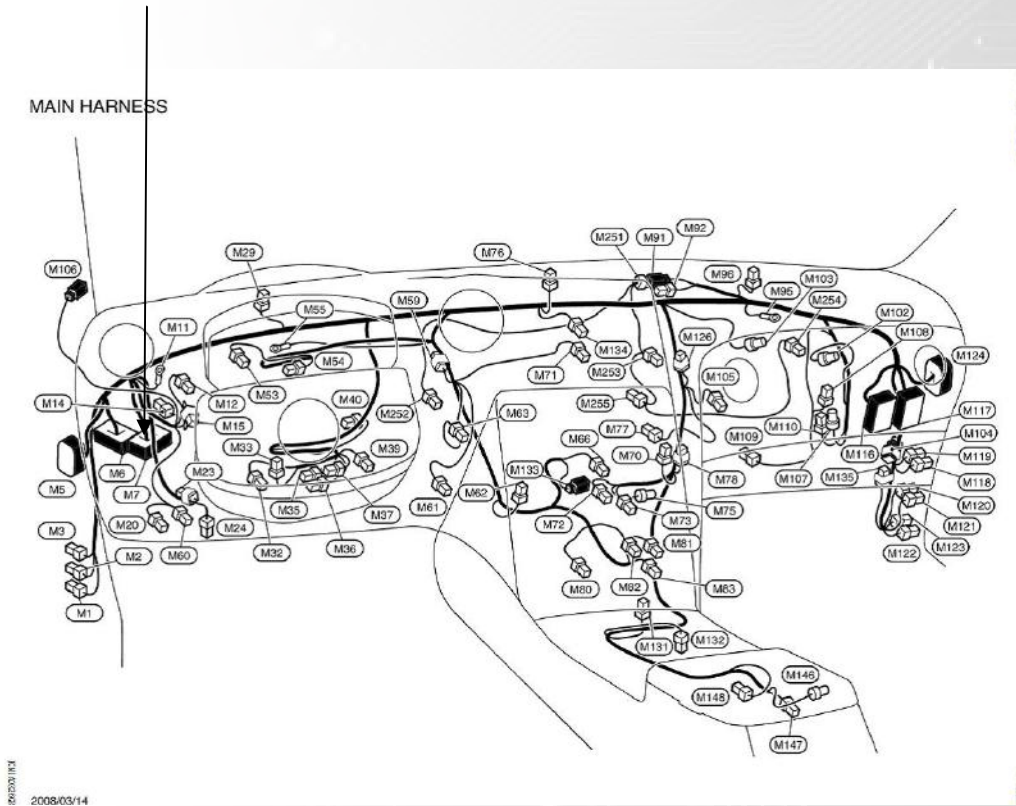
The M7 connector is the one which has the thinner gauge wires going to the plug

Unplug by lifting over the Grey locking arm and then pull the plug from the housing

Now take off the back cover of the connector by lifting the 4 tags and lifting off the cover.

The wire which you are looking for is a white wire which is the one that has the insulation shaved back in the below picture. T a wire into this wire and then direct it over to the S7 Ecu.
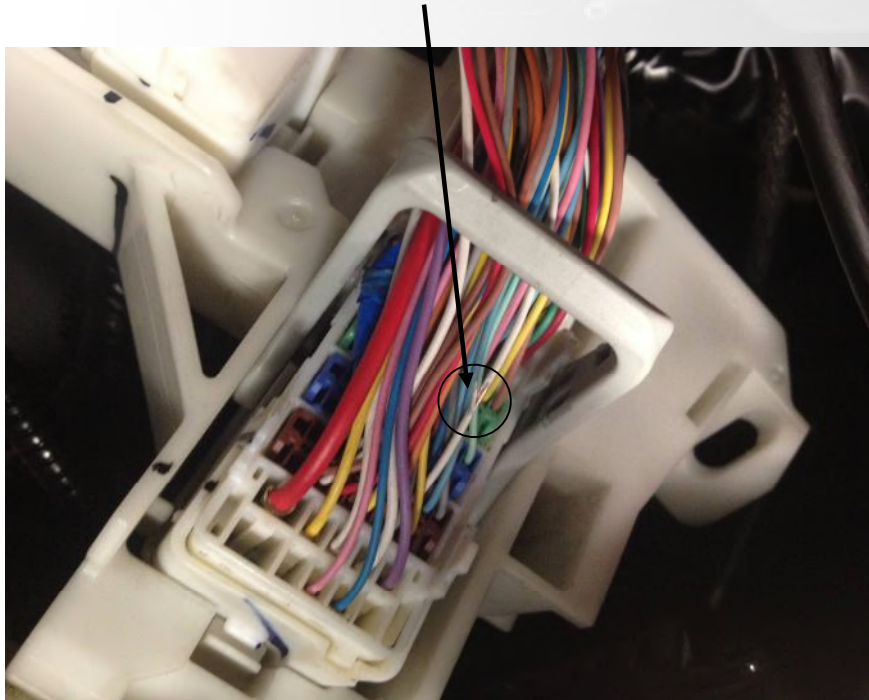
This White wire is pin 22 of the below pinout to help if the colour is different on your model.

We recommend you always check it is the connector wire first before pinning into a spare output on the S7. By using a multimeter and check when you pull the Up shift lever this wire goes to Ground
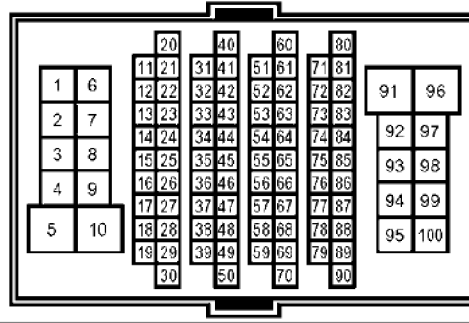
Once wired into the S7, make a note of the output chosen and then assign this to the Change Light in the I/O Config of Scal.

Then you can define the set Vehicle speed which first must be met to stop early shifting if the driven wheels spin... then set the engine speed you wish to shift at per gear.

Limp Modes

The Syvecs SGTR kit is geared around safety and many Limp become present if certain parameters are not within a set value. The Ecu Light and Gauges present the level of Limp. Levels below:

Warnings :

Limp Level 1 (no key on -off) is Solid CEL
Limp Level 2 (Key on-Off) is Flashing CEL
Limp Level 3 (Imminent Engine Damage) is Flahsing Oil and Coolant Temp Gauges

--Level1 Activations--
Limp Switch
Engine Oil Cold Temperature Limp
Engine Coolant Cold Temperature Limp
Sensor Warning Level 1
Limp Switch Actuve
ABS FAULT (Disables Vehcile Speeds and Traction Control)
Sensor Warning
Air Charge
Vbat Too low

--Level2 Activations--
Fuel Pressure Limp
Time Limit
Engine Oil Hot Temperature Limp
Engine Coolant Hot Temperature Limp
Fuel Pressure Limp
Time On Load Limp
Torque Limit Limp
VVT Faliture
Lambda Lean Trip
Sensor Warning Level 2

--Level3 Activations--
Engine Oil Pressure Limp
Crank Case Pressure Limp
Knock Limp
Knock Preignition Limit

Ecu Pin Assignments

A			
	DESCRIPTION	CONNECTOR A	
	PART NUMBER	4-1437290-0	
	NOTES:	34 Way - Key1	

Syvecs Description	Syvecs Pinout	Function	R35GTR Notes
PWR CTR OUT	A1	MAIN RELAY OUTPUT	Throttle and Main Relay
H-Bridge1 / SlaveOut1	A2	H-Bridge1	DBW
H-Bridge2 / SlaveOut2	A3	H-Bridge2	DBW
H-Bridge3 / SlaveOut3	A4	H-Bridge3	DBW
H-Bridge4 / SlaveOut4	A5	H-Bridge4	DBW
H-Bridge5 / SlaveOut5	A6	H-Bridge5	Boost Solenoid
H-Bridge6 / SlaveOut6	A7	H-Bridge6	Fuel Pump2
H-Bridge7 / SlaveOut7	A8	H-Bridge7	Evap
H-Bridge8 / SlaveOut8	A9	H-Bridge8	
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 Or Spare Ouput
FUEL8	A17	INJECTOR or PWM OUTPUT	Secondary Injector 2 Or Spare Ouput
PWM1 /*FUEL9	A18	PWM OUTPUT	Secondary Injector 3 Or Spare Ouput
PWM2 / *FUEL10	A19	PWM OUTPUT	Secondary Injector 4 Or Spare Ouput
PWM3 / *FUEL11	A20	PWM OUTPUT	Fuel Pump Controller - 5v Pull up
PWM4 / *FUEL12	A21	PWM OUTPUT	Secondary Injector 5 Or Spare Ouput
PWM5	A22	PWM OUTPUT	Secondary Injector 6 Or Spare Ouput
PWM6	A23	PWM OUTPUT	Tacho
PWM7	A24	PWM OUTPUT	VVT1
PWM8	A25	PWM OUTPUT	VVT2
IGN1	A26	CYL 1 IGNITION OUTPUT	Ignition 1
IGN2	A27	CYL 2 IGNITION OUTPUT	Ignition 2
IGN3	A28	CYL 3 IGNITION OUTPUT	Ignition 3
IGN4	A29	CYL 4 IGNITION OUTPUT	Ignition 4
IGN5	A30	CYL 5 IGNITION OUTPUT	Ignition 5
IGN6	A31	CYL 6 IGNITION OUTPUT	Ignition 6
PWRGND	A32	POWER GROUND	
PWRGND	A33	POWER GROUND	
PWRGND	A34	POWER GROUND	

	B		DESCRIPTION	CONNECTOR B	
			PART NUMBER	3-1437290-7	
			NOTES:	26 Way - Key1	
PWRGND	B1	POWER GROUND		
CAN2L	B2			
CAN2H	B3			
KNOCK	B4	KNOCK		
KNOCK 2	B5	KNOCK 2		
PVBAT	B6	CONSTANT 12V		
IVBAT	B7	12v		
LAM1A	B8	Lamv / LamD1+/ LamLun1	2.2v
LAM1B	B9	Lami / LamD1- /LamIP1	
LAM1C	B10	LamLIA1	
LAM1D	B11	LamGND / LamLVM1	
LAM1HEATER	B12	LAMBDA HEATER	
IVBAT	B13	12V	
LAM2A	B14	Lamv / LamD1+/ LamLun1	2.2v
LAM2B	B15	Lami / LamD1- /LamIP1	1.8v
LAM2C	B16	LamLIA1	
LAM2D	B17	LamGND / LamLVM1	
LAM2HEATER	B18	LAMBDA HEATER	
IVBAT	B19	12V	
KLINE	B20	Kline	
RS232RX	B21	RS232RX	
RS232TX	B22	RS232TX	
LANRX-	B23	Cat5 Pin2	
LANRX+	B24	Cat5 Pin1	
LANTX-	B25	Cat5 Pin6	
LANTX+	B26	Cat5 Pin3	

	C		DESCRIPTION	CONNECTOR C	
			PART 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	
CAN L	C8	Can Low	Can Low
CAN H	C9	Can High	Can High
AN01	C10	BI-POLAR INPUTS	TPS 1A
AN02	C11	BI-POLAR INPUTS	TPS 1B
AN03	C12	BI-POLAR INPUTS	TPS 2A

AN04	C13	BI-POLAR INPUTS	TPS2B
AN05	C14	UNI-POLAR INPUTS	Cam Position Sensor
AN06	C15	UNI-POLAR INPUTS	Crank Position Sensor
AN07	C16	UNI-POLAR INPUTS	Cam2 Position Sensor
AN08	C17	UNI-POLAR INPUTS	Oil Temp
AN09	C18	VOLT-INPUTS	MAP Absolute Sensor
AN10	C19	VOLT-INPUTS	PPS1
AN11	C20	VOLT-INPUTS	PPS2
AN12	C21	VOLT-INPUTS	Brake Switch
AN13	C22	RESISTIVE INPUTS	Fuel Temp
AN14	C23	RESISTIVE INPUTS	Air Charge Temp
AN15	C24	RESISTIVE INPUTS	Coolant Temp
AN16	C25	RESISTIVE INPUTS	Cruise Control SW
EGT1-	C26	EGT1 -	
EGT1+	C27	EGT1 +	
PWR CTR IN	C28	MAIN RELAY INPUT SW	Ignition Switch
AN S1 / Slave An01	C29	UNI-POLAR INPUTS	Secondary Air Injection (Flex Fuel)
AN S2 / Slave An02	C30	UNI-POLAR INPUTS	Maf 1 / Spare Input
AN S3 / Slave An03	C31	UNI-POLAR INPUTS	Maf2 / Spare Input
AN S4 / Slave An04	C32	UNI-POLAR INPUTS	AC Pressure
AN S5 / Slave An05	C33	UNI-POLAR INPUTS	Pre Throttle Map 1 / Spare Input
AN S6 / Slave An06	C34	UNI-POLAR INPUTS	Pre Throttle Map 2 / Spare Input

External Wiring Tips:

Replacing the OEM Map Sensor on the Intake manifold can be done easily by following the wiring notes below

Blue - 5v
Purple – Sensor Gnd
Green – Map Sensor Sig (AN09)

Pre Throttle body Map Sensors are not required for part of the load calculations on the ecu so can be used for spare inputs for items like Fuel pressure or Temperature

Blue – Spare Signals (Slave An05, Slave An06)
Red - 5v
Pink – Sensor Ground

Mass Air Flow Sensors are not required for part of the load calculations on the ecu so can be used for spare inputs for items like Fuel pressure or Temperatures

Either White - Sensor Ground
Pink - Air Charge Temp Signal (AN14)

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