SYVECS LTD

V1.1

Kawasaki SXR 1500 / 160 Plug in ECU

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.
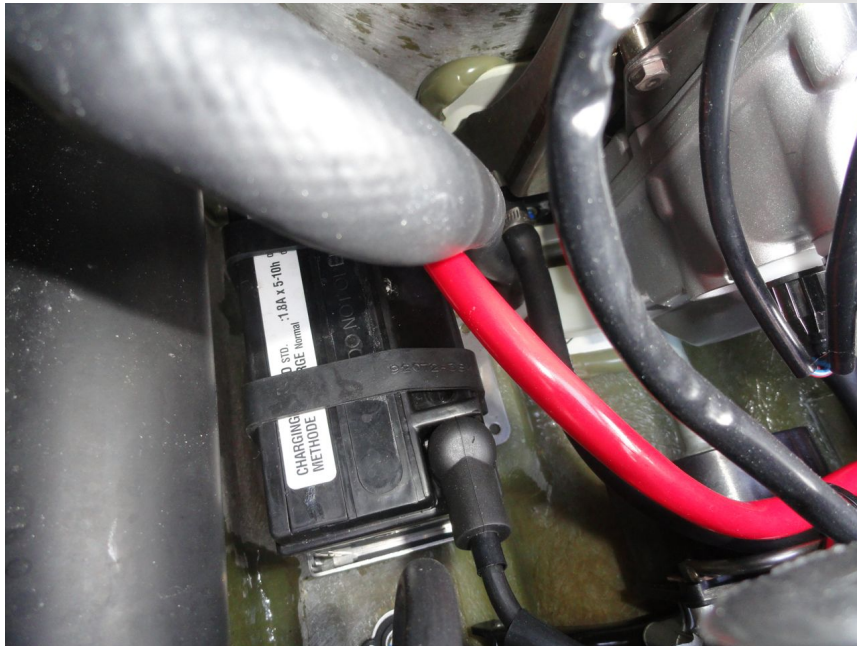
Support@Syvecs.com

Parts Supplied:

-Syvecs SXR Plug in ECU

-External Connector and Pins

-RJ45 Cable

Installation

1 Remove the Negative Terminal from the battery

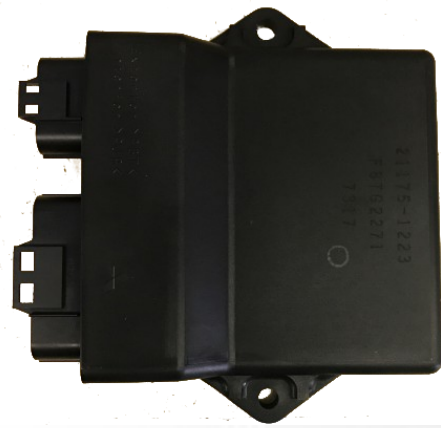**2** Unplug the 2 connectors on the OEM ECU

3 Remove the OEM Ecu bracket under the steering and unbolt all the accessories including the tilt Sensor and power module.

4 Refit all the accessories and Syvecs Plug in ECU to the supplied Syvecs adapter bracket. There is optional space for our 100hz GPS module also.

Bolt back into the hull of the SXR

5 Reconnect the battery

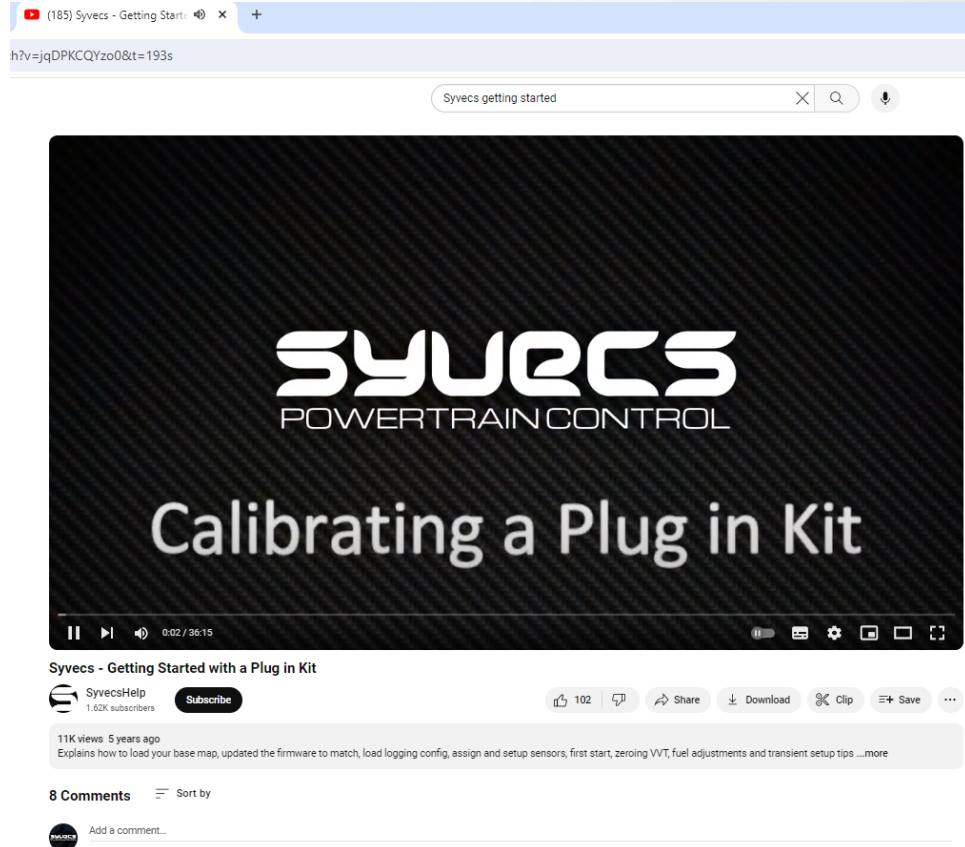6 Fix the Ethernet Cable into the hull or secure in the engine bay
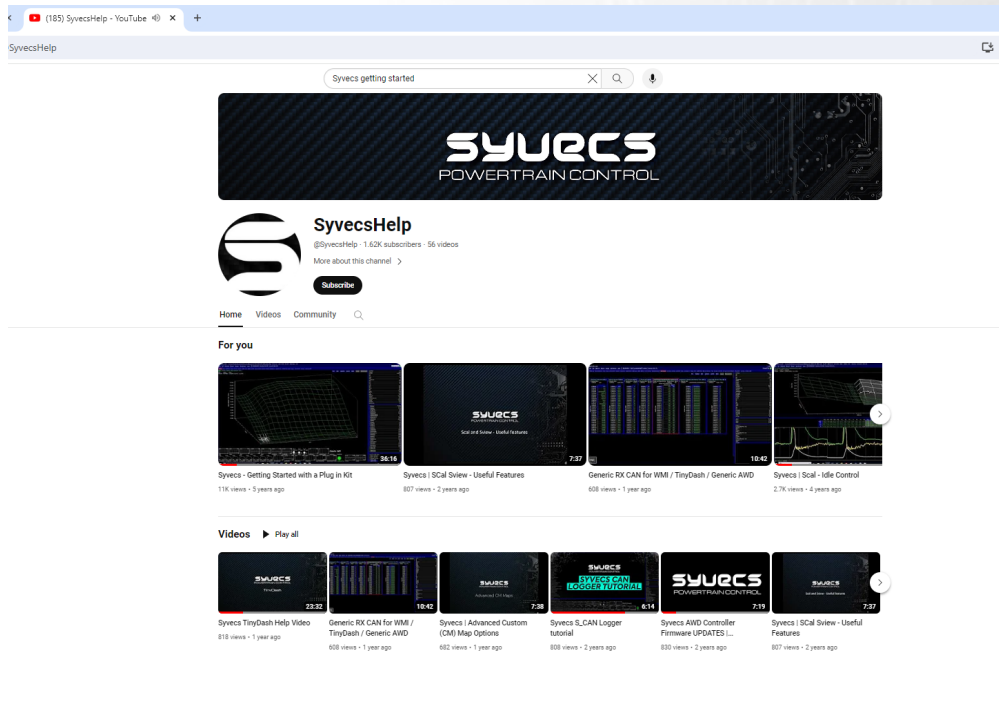

7 Contact Support@Syvecs.com for base calibration

Support / Training

Dealer Support can be obtained from Support@Syvecs.com
End Users Support from Syvecs Forum

A getting started help video is found here for plug in kits
https://www.youtube.com/watch?v=jqDPKCQYzo0&t=1498s

More Syvecs Help videos can be found on our YouTube Page

www.youtube.com/SyvecsHelp

Custom Features

The Syvecs SXR plug in ECU offers a selection of unique features which make the product very powerful.

Launch Control - With the use of a push to make launch button on the handle bars owners can now set a RPM Limit and Boost Target (if Forced Induction) based on GPS Speed or Prop Speed Target to be maintained when stationary and launching to increase acceleration and stop cavitation.
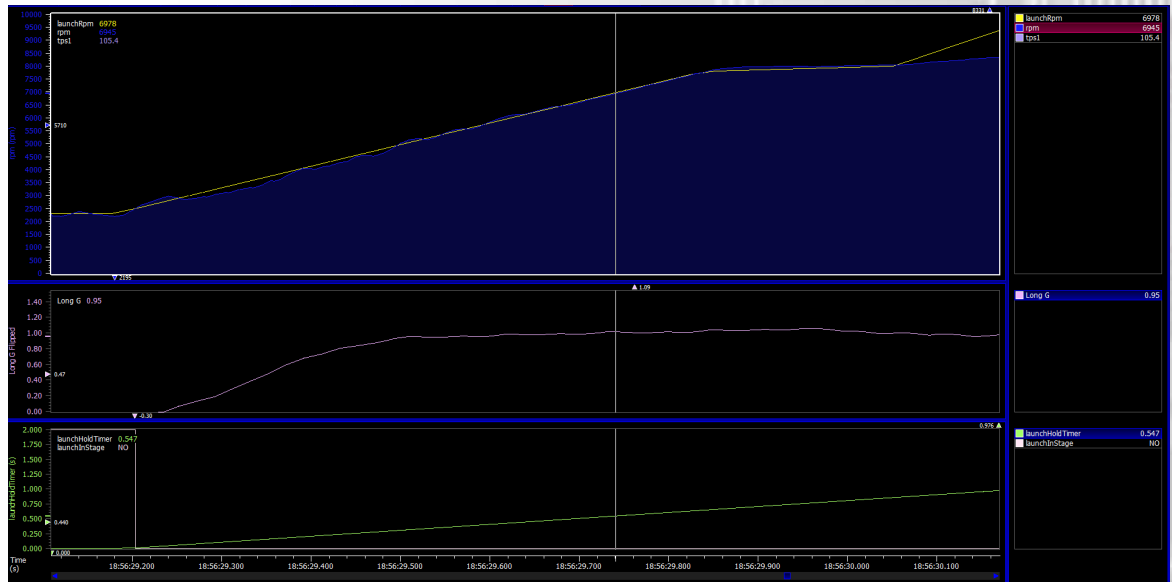
Knock Control - Detonations is a big killer of engines and having a ECU able to detect Knock and control Knock on each cylinder is key when running increased cylinder pressures.
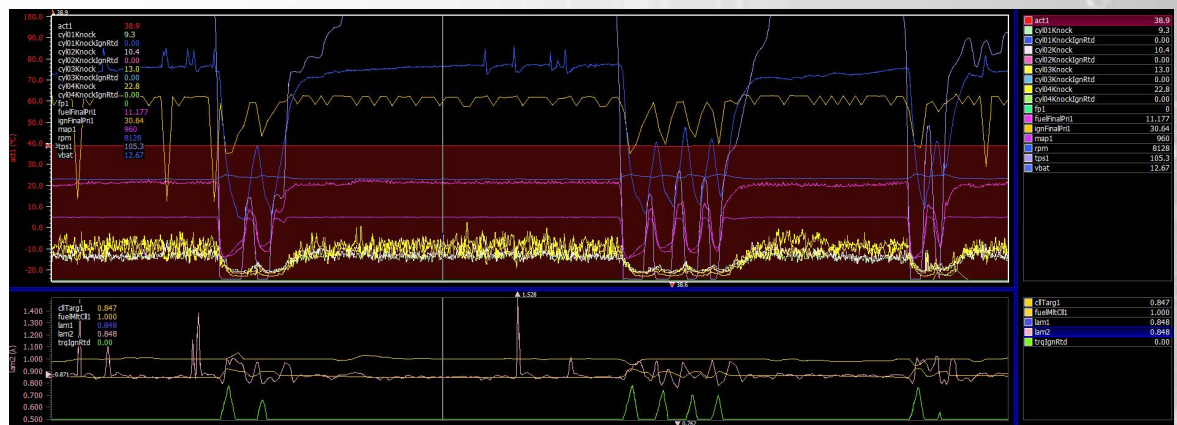
**Flex Fuel** - Users can wire in a Ethanol Content Sensor to ECU and allow the S7 to adjust the fuel tables based on the alcohol amount in the fuel system.

Closed Loop Lambda - The Sxr Ecu has the ability to wire in a NTK or LSU Wideband Sensor via the Aux connector. This allows the ecu to monitor and adjust the fuel mixture continuously as well as enable limps in the event of a lean event from fuel system failures.

Fuel Pressure / Oil Pressure Protection - Users can wire in additional fuel pressure and oil pressure sensors to monitor and protect the engine.

GPS Support - Our Syvecs 100hz GPS/IMU Module can also be connected to the Aux connector on the SXR Plug in ECU allowing users to track map the ski usage and monitor acceleration data from the IMU. This is really useless as it allows the calibrators/owners the ability to adjust launch and torque maps to peak efficiency maximizing g force acceleration in straight and corners.
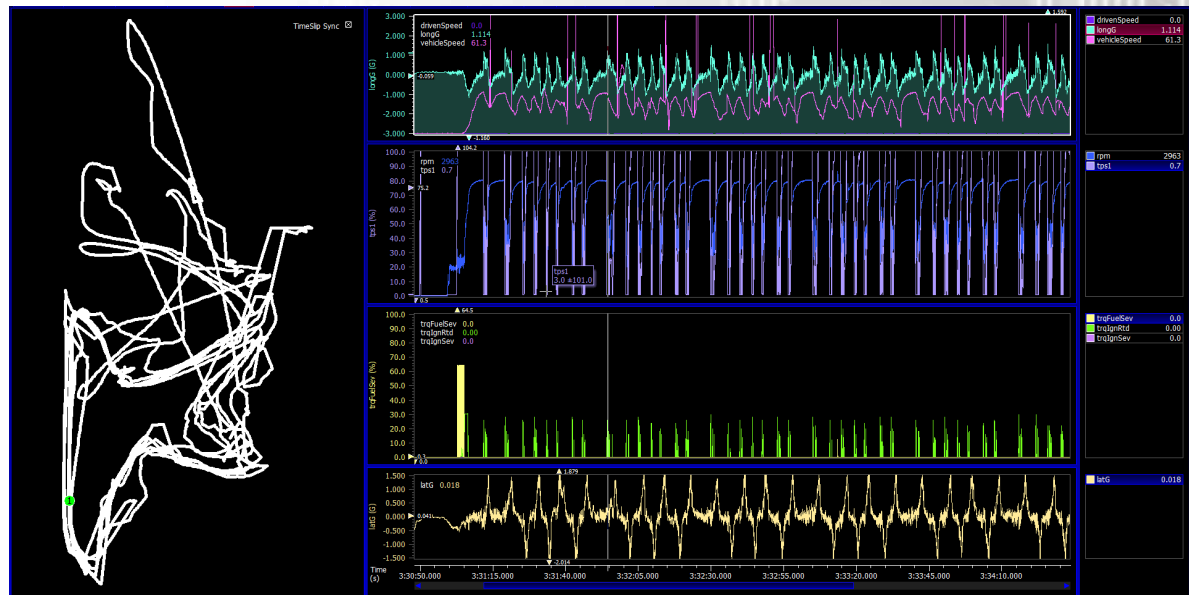
Individual Coils packs - The SXR Plug in has 4 ignition outputs spare which are driven in a 0-5v TTL format. These are designed to be used with smart coils like the R35GTR coil packs which offer increased spark power per cylinder compared to the OEM wasted spark configuration.

Expansion Connector
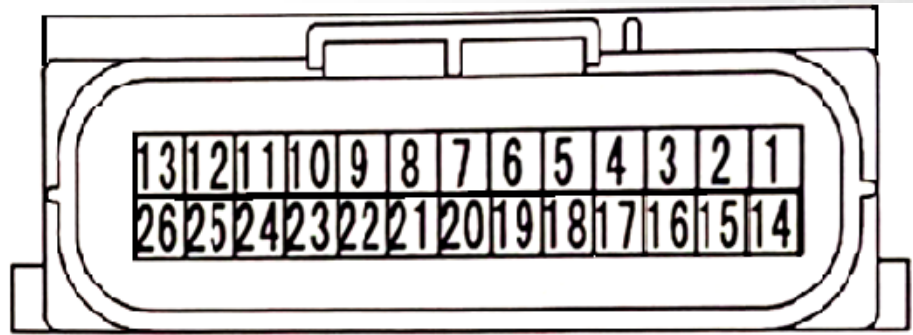
1 - Ground

2 - AN01

3 - AN02 - Launch Switch (pull to ground)

4 - AN11

5 - Knock Ground

6 - Knock Signal

7 - 5v Output (Sensor Supply)

8 - LamV (Grey NTK)

9 - LamI (White NTK)

10 - LamGnd (Black NTK)

11 - Fuel Output 9 (Blue NTK)

12 - Fuel Output 11

13 - 12v (Yellow NTK)

14 - IGN3 (TTL/Smart Coils)

15 - IGN4 (TTL/Smart Coils)

16 - IGN5 (TTL/Smart Coils)

17 - IGN6 (TTL/Smart Coils)

18 - K-TYPE -

19 - K-Type +

20 - ANGnd (Sensor Ground)

21 - CAN2L

22 - CAN2H

23 - LANRX- (Orange/White)

24 - LANRX+ (White/Orange)

25 - LANTX- (Green/White)

26 - LANTX+ (White/Green)

OEM Pinout Connections

A		DESCRIPTION	CONNECTOR A		
		PART NUMBER	4-1437290-0		
		NOTES:	34 Way - Key1		
Syvecs Description	**Syvecs Pinout**	**Function**		**SXR Pin**	**Notes**
PWR CTR OUT	A1	MAIN RELAY OUTPUT		40	Main Relay
H-Bridge1 / SlaveOut1	A2	H-Bridge1			
H-Bridge2 / SlaveOut2	A3	H-Bridge2			
H-Bridge3 / SlaveOut3	A4	H-Bridge3			
H-Bridge4 / SlaveOut4	A5	H-Bridge4			
H-Bridge5 / SlaveOut5	A6	H-Bridge5			
H-Bridge6 / SlaveOut6	A7	H-Bridge6			
H-Bridge7 / SlaveOut7	A8	H-Bridge7			
H-Bridge8 / SlaveOut8	A9	H-Bridge8			
FUEL1	A10	INJECTOR or PWM OUTPUT		42	Primary Injector 1
FUEL2	A11	INJECTOR or PWM OUTPUT		51	Primary Injector 2
FUEL3	A12	INJECTOR or PWM OUTPUT		38	Primary Injector 3
FUEL4	A13	INJECTOR or PWM OUTPUT		47	Primary Injector 4
FUEL5	A14	INJECTOR or PWM OUTPUT		1	Idle Stepper 1
FUEL6	A15	INJECTOR or PWM OUTPUT		2	Idle Stepper 2
FUEL7	A16	INJECTOR or PWM OUTPUT		18	Idle Stepper 3
FUEL8	A17	INJECTOR or PWM OUTPUT		19	Idle Stepper 4
PWM1 / *FUEL9	A18	PWM OUTPUT		Custom	Lambda Heater
PWM2 / *FUEL10	A19	PWM OUTPUT		49	Fuel Pump
PWM3 / *FUEL11	A20	PWM OUTPUT		35	Red LED
PWM4 / *FUEL12	A21	PWM OUTPUT		37	Amber Fuel level
PWM5	A22	PWM OUTPUT			
PWM6	A23	PWM OUTPUT			
PWM7	A24	PWM OUTPUT			
PWM8	A25	PWM OUTPUT			
IGN1	A26	CYL 1 IGNITION OUTPUT		43	Ignition 1 & 4
IGN2	A27	CYL 2 IGNITION OUTPUT		50	Ignition 2 & 3
IGN3	A28	CYL 3 IGNITION OUTPUT		Suggest to Split in Custom loom	Ignition 3
IGN4	A29	CYL 4 IGNITION OUTPUT		Suggest to Split in Custom loom	Ignition 4
IGN5	A30	CYL 5 IGNITION OUTPUT			
IGN6	A31	CYL 6 IGNITION OUTPUT			
PWRGND	A32	POWER GROUND		15	
PWRGND	A33	POWER GROUND		39	
PWRGND	A34	POWER GROUND			

B		DESCRIPTION	CONNECTOR B		
		PART NUMBER	3-1437290-7		
		NOTES:	26 Way - Key1		
PWRGND	B1	POWER GROUND		48	
EGT2 +	B2	K - TYPE THERMO			
EGT2 -	B3	K - TYPE THERMO			
KNOCK	B4	KNOCK			
KNOCK 2	B5	KNOCK 2			
PVBAT	B6	CONSTANT 12V			
IVBAT	B7	12v		17	
LAM1A	B8	Lamv / LamD1+/ LamLun1			Grey NTK
LAM1B	B9	Lami / LamD1- /LamIP1			White NTK
LAM1C	B10	LamLIA1			
LAM1D	B11	LamGND / LamLVM1			Black NTK
LAM1HEATER	B12	LAMBDA HEATER			Blue NTK
IVBAT	B13	12V			Yellow NTK
LAM2A	B14	Lamv / LamD1+/ LamLun1			
LAM2B	B15	Lami / LamD1- /LamIP1			
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			Orange/White
LANRX+	B24	Cat5 Pin1			White/Orange
LANTX-	B25	Cat5 Pin6			Green/White
LANTX+	B26	Cat5 Pin3			White/Green

C		DESCRIPTION	CONNECTOR C		
		PART NUMBER	4-1437290-1		
		NOTES:	34 Way - Key2		
KNOCKGND	C1	KNOCKGND			
ANGND	C2	SENSOR GND		22	Crank Ground
ANGND	C3	SENSOR GND		32	Sensor Grounds
ANGND	C4	NC			
5V OUT	C5	5V OUT		9	Sensor Power
5V OUT	C6	5V OUT			
5V OUT	C7	NC			
CAN L	C8	Can Low		16	
CAN H	C9	Can High		33	
AN01	C10	BI-POLAR INPUTS			
AN02	C11	BI-POLAR INPUTS			
AN03	C12	BI-POLAR INPUTS		5	Crank Position Sensor
AN04	C13	BI-POLAR INPUTS		7	Cam Position Sensor
AN05	C14	UNI-POLAR INPUTS		30	TPS
AN06	C15	UNI-POLAR INPUTS		46	Start Switch
AN07	C16	UNI-POLAR INPUTS		20	Engine Stop Switch
AN08	C17	UNI-POLAR INPUTS		3	Oil Pressure Sw
AN09	C18	VOLT-INPUTS		23	MAP Absolute Sensor
AN10	C19	VOLT-INPUTS		26	Vehicle Down Sensor
AN11	C20	VOLT-INPUTS			
AN12	C21	VOLT-INPUTS		34	Battery Monitor
AN13	C22	RESISTIVE INPUTS		28	Intake Temp
AN14	C23	RESISTIVE INPUTS		11	Water Temp
	C24	RESISTIVE INPUTS		27	Fuel Gauge
AN16	C25	RESISTIVE INPUTS		13	Oil Temp
EGT1-	C26	EGT1 -			
EGT1+	C27	EGT1 +			
PWR CTR IN	C28	MAIN RELAY INPUT SW		44	Ignition Sw
AN S1 / Slave An01	C29	UNI-POLAR INPUTS			
AN S2 / Slave An02	C30	UNI-POLAR INPUTS			
AN S3 / Slave An03	C31	UNI-POLAR INPUTS			
AN S4 / Slave An04	C32	UNI-POLAR INPUTS			
AN S5 / Slave An05	C33	UNI-POLAR INPUTS			
AN S6 / Slave An06	C34	UNI-POLAR INPUTS			

SYVECS
POWERTRAIN CONTROL