# Syuecs

Syvecs Limited

Syvecs S6 GP

Pinouts and Wiring Info

Ryan Griffiths 24-10-2011

This document 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.

# **Syvecs S6GP Pinouts**

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Syvecs Description	Syvecs Pinout	Function	Notes
INJ1 (#1)	1	CYL 1 INJECTOR	
AUX1 (#5)	2	FUEL PUMP	OUTPUT CAN BE USED FOR ANYTHING I.E WATER
AUX2 (#6)	3	SPARE OUTPUT	INJECTION, KNOCK WARNING LIGHT, SHIFT LIGHT ETC SEE OUTPUT FUNCTIONS IN SCAL
AUX3 (#7)	4	BOOST SOLENOID	
AUX4 (#8)	5	TACHO OUTPUT	
ANGND1	6	TRIGGER GROUND	CRANK AND CAM SENSOR GROUNDS
ANGND1	7	SENSOR GND	TPS, MAP, TEMP SENSORS ETC GROUNDS
ANGND2	8	ABS GROUNDS	
ANGND2	9	CAL SWITCH GROUNDS	
5VOUT1	10	<b>5V OUTPUT FOR SENSORS</b>	5V REFERENCE OUT FOR LIKE MAP SENSOR, TPS ETC
5VOUT2	11	SPARE 5V OUTPUT	
12VOUT	12	SPARE 12V OUTPUT	
AUX5 (#9)	13	IDLE STEPPER	IF NO STEPPER MOTOR IS USED, OUTPUT CAN BE
AUX6 (#10)	14	IDLE STEPPER	USED FOR ANYTHING I.E WATER INJECTION, KNOCK WARNING LIGHT, SHIFT LIGHT ETC SEE OUTPUT
AUX7 (#11)	15	IDLE STEPPER	FUNCTIONS IN SCAL
AUX8 (#12)	16	IDLE STEPPER	
KNOCK	17	KNOCK SENSOR INPUT	
KNKGND	18	KNOCK SENSOR GROUND	
VBAT	19	12V IGNITION SUPPLY FOR ECU	ALL JOINED ON BOARD SO ONLY ONE INPUT
VBAT	20	12V IGNITION SUPPLY FOR ECU	REQUIRED
VBAT	21	12V IGNITION SUPPLY FOR ECU	
INJ6 (#14)	22	CYL 6 INJECTOR	CAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL
INJ8 (#16)	23	CYL 8 INJECTOR	ENGINE
INJ2 (#2)	24	CYL 2 INJECTOR	
INJ3 (#3)	25	CYL 3 INJECTOR	
IGN1 (#1)	26	CYL 1 IGNITION OUTPUT	
IGN2 (#2)	27	CYL 2 IGNITION OUTPUT	
IGN3 (#3)	28	CYL 3 IGNITION OUTPUT	
IGN4 (#4)	29	CYL 4 IGNITION OUTPUT	
IGN5 (#5)	30	CYL 5 IGNITION OUTPUT	CAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE
IGN6 (#6)	31	CYL 6 IGNITION OUTPUT	CAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE
COMGND	32	COMMUNICATION GND	
LAMV	33	LAMV	NTK WIDEBAND SENSOR - RED WIRE
LAMGND	34	LAM GND	NTK WIDEBAND SENSOR - BLACK WIRE
AB1 (#1)	35	CAM SENSOR INPUT	OR SPARE BIPOLAR INPUT
AB2 (#2)	36	CRANK SENSOR INPUT	OR SPARE BIPOLAR INPUT
AB3 (#3)	37	FL SPEED INPUT	OR SPARE BIPOLAR INPUT

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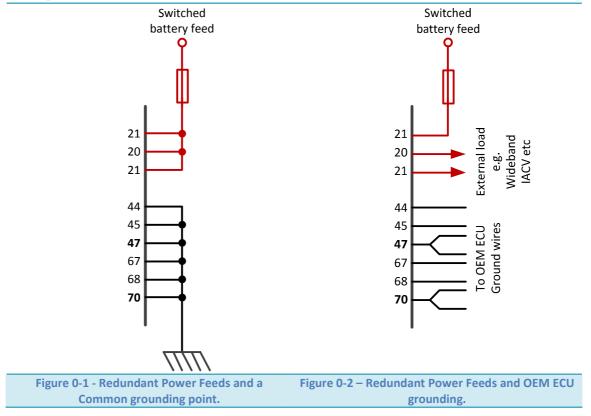
AU2 (#6)59SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU3 (#7)60SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUT	3			
AV1 (#9)       40       TPS INPUT       IDEAL FOR OIL PRESSURE, FUEL PRESSURE ETC         AV2 (#10)       41       MAP INPUT       IDEAL FOR OIL PRESSURE, FUEL PRESSURE ETC         AV3 (#11)       42       SPARE INPUT       IDEAL FOR OIL PRESSURE, FUEL PRESSURE ETC         AV4 (#12)       43       SPARE INPUT       IDEAL FOR OIL PRESSURE, FUEL PRESSURE ETC         AV4 (#12)       43       SPARE INPUT       IDEAL FOR OIL PRESSURE, FUEL PRESSURE ETC         AV4 (#12)       43       SPARE INPUT       IDEAL FOR OIL PRESSURE, FUEL PRESSURE ETC         AV4 (#12)       43       SPARE INPUT       IDEAL FOR OIL PRESSURE, FUEL PRESSURE ETC         AV4 (#12)       43       SPARE INPUT       IDEAL FOR OIL PRESSURE, FUEL PRESSURE ETC         AV4 (#12)       43       SPARE INPUT       IDEAL FOR OIL PRESSURE, FUEL PRESSURE ETC         AV4 (#12)       44       ECU GND       ADVISE HOOKING UP ABOUT 3 OF THE PWRGNDS         FWRGND       47       ECU GND       ENGINE         INJ17 (#15)       46       CYL 1 NIJECTOR       CAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE         LANTX+       50       Cat5 Pin3       White/Green       ENGINE         LANTX+       50       Cat5 Pin3       White/Orange       CANH         CANL       54       <	AB4 (#4)	38	RL SPEED INPUT	OR SPARE BIPOLAR INPUT
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AV3 (#11)42SPARE INPUTIDEAL FOR OIL PRESSURE, FUEL PRESSURE ETCAV4 (#12)43SPARE INPUTIDEAL FOR OIL PRESSURE, FUEL PRESSURE ETCPWRGND44ECU GNDADVISE HOOKING UP ABOUT 3 OF THE PWRGNDSPWRGND45ECU GNDINIJ7 (#15)46CYL 7 INJECTORCAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINEPWRGND47ECU GNDINJ7 (#15)46CYL 4 INJECTORLANTX-49Cat5 Pin6Green/WhiteGreen/WhiteLANTX+50Cat5 Pin3UANRX+51Cat5 Pin1White/GreenLANTX+LANRX+52Cat5 Pin1White/OrangeCANHCANL54CANLRS232RX55RS232RXRS232RX56RS232RXLANI57LAMIAU1 (#5)58VEHICLE SPEED INPUTAU2 (#6)59SPARE INPUTAU3 (#7)60SPARE INPUTAU3 (#7)60SPARE INPUTAU3 (#7)60SPARE INPUTAU3 (#7)60SPARE INPUTAU4 (#8)61SPARE INPUTAU4 (#8)61SPARE INPUTAU4 (#8)61SPARE INPUTAU4 (#8)61SPARE INPUTAU4 (#8)61SPARE INPUTAU4 (#8)64AIR TEMP INPUTAU4 (#8)65COLANT TEMP INPUTAU4 (#8)66SPARE INPUTAR2 (#14)64AIR TEMP INPUTAR3	AV1 (#9)	40	TPS INPUT	IDEAL FOR OIL PRESSURE, FUEL PRESSURE ETC
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PWRGND47ECU GNDENGINEINJ4 (#4)48CYL 4 INJECTORINJ4 (#4)48CYL 4 INJECTORLANTX-49CatS Pin6Green/WhiteLANTX+50CatS Pin3White/GreenLANRX+51CatS Pin1White/GrangeLANRX+52CatS Pin1White/OrangeCANH53CANHCANL54CANLRS232RX55RS232RXRS232TX56RS232TXLAMI57LAMINTK WIDEBAND SENSOR - WHITE WIREAU1 (#5)58VEHICLE SPEED INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-SV INPUTAU2 (#6)59SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-SV INPUTAU3 (#7)60SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-SV INPUTAU4 (#8)61SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-SV INPUTAU4 (#8)63COOLANT TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR1 (#13)63COOLANT TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR3 (#15)65CALIBRATION SWITCH INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR3 (#15)66SPARE INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR3 (#15)6667PWR GNDPWRGND68PWR GND68PWR GND69CYL 5 INJECTORCAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE	PWRGND	45	ECU GND	
INJ4 (#4)Image: Cyl 4 INJECTORINJ4 (#4)48CYL 4 INJECTORLANTX-49Cat5 Pin6Green/WhiteLANTX+50Cat5 Pin3White/GreenLANRX+51Cat5 Pin1UANRX+52Cat5 Pin1White/OrangeCANHCANH53CANHCANL54CANLRS232RX55RS232RXRS232RX56RS232TXLAMI57LAMIAU1 (#5)58VEHICLE SPEED INPUTAU2 (#6)59SPARE INPUTAU3 (#7)60SPARE INPUTAU4 (#8)61SPARE INPUTAU4 (#8)61SPARE INPUTTHER-62EGT -AR1 (#13)63COOLANT TEMP INPUTAU2 (#14)64AIR TEMP INPUTAR2 (#14)66SPARE INPUTAR3 (#15)65CALIBRATION SWITCH INPUTAR3 (#15)66SPARE INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR3 (#15)66AR3 (#16)66PWRGND67PWRGND68PWR GNDINJ5 (#13)69CYL 5 INJECTORCAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE	INJ7 (#15)	46	CYL 7 INJECTOR	
LANTX-49CatS Pin6Green/WhiteLANTX+50CatS Pin3White/GreenLANRX-51CatS Pin2Orange/WhiteLANRX+52CatS Pin1White/OrangeCANH53CANHCANL54CANLRS232RX55RS232RXLAMI57LAMINTK WIDEBAND SENSOR - WHITE WIREAUI (#5)58VEHICLE SPEED INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-SV INPUTAU2 (#6)59SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-SV INPUTAU3 (#7)60SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-SV INPUTAU4 (#8)61SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-SV INPUTAU4 (#8)61SPARE INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR1 (#13)63COOLANT TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR2 (#14)64AIR TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR3 (#15)65CALIBRATION SWITCH INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR4 (#16)66SPARE INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR4 (#16)66SPARE INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCPWRGND67PWR GNDFWR GNDINJ5 (#13)69CYL 5 INJECTORCAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE	PWRGND	47	ECU GND	
LANTX+       50       Cats Pin3       White/Green         LANTX+       51       Cats Pin2       Orange/White         LANRX+       51       Cats Pin2       Orange/White         LANRX+       52       Cats Pin1       White/Orange         CANH       53       CANH       CANH         CANL       54       CANL       Fin3         CANL       54       CANL       Fin3         RS232RX       55       RS232RX       Fin3         RS232TX       56       RS232TX       Fin3         LAMI       57       LAMI       NTK WIDEBAND SENSOR - WHITE WIRE         AU1 (#5)       58       VEHICLE SPEED INPUT       IDEAL FOR A/C REQUEST OR ANY OTHER 0-SV INPUT         AU2 (#6)       59       SPARE INPUT       IDEAL FOR A/C REQUEST OR ANY OTHER 0-SV INPUT         AU3 (#7)       60       SPARE INPUT       IDEAL FOR A/C REQUEST OR ANY OTHER 0-SV INPUT         AU4 (#8)       61       SPARE INPUT       IDEAL FOR OIL TEMP, FUEL TEMP ETC         AR1 (#13)       63       COOLANT TEMP INPUT       IDEAL FOR OIL TEMP, FUEL TEMP ETC         AR2 (#14)       64       AIR TEMP INPUT       IDEAL FOR OIL TEMP, FUEL TEMP ETC         AR3 (#15)       65       CALIBRATION SWITCH INPUT<	INJ4 (#4)	48	CYL 4 INJECTOR	
LANTX1ColorCat's Fin'sOrange/WhiteLANRX+51Cat's Pin 2Orange/WhiteLANRX+52Cat's Pin 1White/OrangeCANH53CANHCANL54CANLRS232RX55RS232RXRS232TX56RS232TXLAMI57LAMINTK WIDEBAND SENSOR - WHITE WIREAU1 (#5)58VEHICLE SPEED INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU2 (#6)59SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU3 (#7)60SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU4 (#8)61SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU4 (#8)61SPARE INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR1 (#13)63COOLANT TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR2 (#14)64AIR TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR3 (#15)65CALIBRATION SWITCH INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR4 (#16)66SPARE INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCPWRGND67PWR GNDPWR GNDPWRGND68PWR GNDINJ5 (#13)69CYL 5 INJECTORCAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE	LANTX-	49	Cat5 Pin6	Green/White
LANRX+52CatS Pin1White/OrangeCANH53CANHCANL54CANLRS232RX55RS232RXRS232RX56RS232TXLAMI57LAMINTK WIDEBAND SENSOR - WHITE WIREAU1 (#5)58VEHICLE SPEED INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU2 (#6)59SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU3 (#7)60SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU4 (#8)61SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU4 (#8)61SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU4 (#8)61SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU4 (#8)61COOLANT TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR1 (#13)63COOLANT TEMP INPUTAR2 (#14)64AIR TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR3 (#15)65CALIBRATION SWITCH INPUTAR4 (#16)66SPARE INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR4 (#16)68PWR GND68PWR GNDCYL 5 INJECTORCAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE	LANTX+	50	Cat5 Pin3	White/Green
CANH       53       CANH         CANL       54       CANL         RS232RX       55       RS232RX         RS232TX       56       RS232TX         LAMI       57       LAMI         NTK WIDEBAND SENSOR - WHITE WIRE       AU1 (#5)         AU1 (#5)       58       VEHICLE SPEED INPUT         AU2 (#6)       59       SPARE INPUT         AU3 (#7)       60       SPARE INPUT         AU4 (#8)       61       SPARE INPUT         AU4 (#8)       61       SPARE INPUT         THER-       62       EGT -         AR1 (#13)       63       COOLANT TEMP INPUT         AR2 (#14)       64       AIR TEMP INPUT         AR3 (#15)       65       CALIBRATION SWITCH INPUT         AR4 (#16)       66       SPARE INPUT         PWRGND       67       PWR GND         PWRGND       68       PWR GND         PWR GND       68       PWR GND         INJ5 (#13)       69       CYL 5 INJECTOR       CAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE	LANRX-	51	Cat5 Pin2	Orange/White
CANL54CANLRS232RX55RS232RXRS232TX56RS232TXLAMI57LAMINTK WIDEBAND SENSOR - WHITE WIREAU1 (#5)58VEHICLE SPEED INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU2 (#6)59SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU3 (#7)60SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU3 (#7)60SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU4 (#8)61SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU4 (#8)61G1SPARE INPUTTHER-62EGT -K - TYPE THERMOCOUPLER -AR1 (#13)63COOLANT TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR3 (#15)65CALIBRATION SWITCH INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR4 (#16)66SPARE INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCPWRGND67PWR GND68PWR GND68PWR GNDCYL 5 INJECTORCAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE	LANRX+	52	Cat5 Pin1	White/Orange
RS232RX55RS232RXRS232TX56RS232TXLAMI57LAMINTK WIDEBAND SENSOR - WHITE WIREAU1 (#5)58VEHICLE SPEED INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU2 (#6)59SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU3 (#7)60SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU4 (#8)61SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU4 (#8)61SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU4 (#8)63COOLANT TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR1 (#13)63COOLANT TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR2 (#14)64AIR TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR3 (#15)65CALIBRATION SWITCH INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR4 (#16)66SPARE INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCPWRGND67PWR GNDPWR GNDPWRGND68PWR GNDINJ5 (#13)69CYL 5 INJECTORCAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE	CANH	53	CANH	
RS232TX56RS232TXLAMI57LAMINTK WIDEBAND SENSOR - WHITE WIREAU1 (#5)58VEHICLE SPEED INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-SV INPUTAU2 (#6)59SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-SV INPUTAU3 (#7)60SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-SV INPUTAU4 (#8)61SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-SV INPUTAU4 (#8)61SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-SV INPUTAU4 (#8)61SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-SV INPUTAU4 (#8)61SPARE INPUTIDEAL FOR OIL TEMP, FUEL TEMP 0-SV INPUTAU4 (#8)63COOLANT TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP 0-SV INPUTAR1 (#13)63COOLANT TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP 0-SV 0-SV 0-SV 0-SV 0-SV 0-SV 0-SV 0-SV	CANL	54	CANL	
LAMI57LAMINTK WIDEBAND SENSOR - WHITE WIREAU1 (#5)58VEHICLE SPEED INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU2 (#6)59SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU3 (#7)60SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU4 (#8)61SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTTHER-62EGT -K - TYPE THERMOCOUPLER -AR1 (#13)63COOLANT TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR2 (#14)64AIR TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR3 (#15)65CALIBRATION SWITCH INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR4 (#16)66SPARE INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCPWRGND67PWR GNDIDEAL FOR OIL TEMP, FUEL TEMP ETCPWRGND68PWR GNDINJ5 (#13)69CYL 5 INJECTORCAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE	RS232RX	55	RS232RX	
AU1 (#5)58VEHICLE SPEED INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU2 (#6)59SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU3 (#7)60SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU4 (#8)61SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU4 (#8)61SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU4 (#13)63COOLANT TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR1 (#13)63COOLANT TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR2 (#14)64AIR TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR3 (#15)65CALIBRATION SWITCH INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR4 (#16)66SPARE INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCPWRGND67PWR GNDPWR GNDPWRGND68PWR GNDINJ5 (#13)69CYL 5 INJECTORCAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE	RS232TX	56	RS232TX	
AU2 (#6)59SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU3 (#7)60SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU4 (#8)61SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTTHER-62EGT -K - TYPE THERMOCOUPLER -AR1 (#13)63COOLANT TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR2 (#14)64AIR TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR3 (#15)65CALIBRATION SWITCH INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR4 (#16)66SPARE INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCPWRGND67PWR GNDPWR GNDINJ5 (#13)69CYL 5 INJECTORCAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE	LAMI	57	LAMI	NTK WIDEBAND SENSOR - WHITE WIRE
AU3 (#7)60SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTAU4 (#8)61SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTTHER-62EGT -K - TYPE THERMOCOUPLER -AR1 (#13)63COOLANT TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR2 (#14)64AIR TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR3 (#15)65CALIBRATION SWITCH INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR4 (#16)66SPARE INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCPWRGND67PWR GNDFUR GNDINJ5 (#13)69CYL 5 INJECTORCAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE	AU1 (#5)	58	VEHICLE SPEED INPUT	IDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUT
AU3 (#7)CCCF (#10)AU4 (#8)61SPARE INPUTIDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUTTHER-62EGT -K - TYPE THERMOCOUPLER -AR1 (#13)63COOLANT TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR2 (#14)64AIR TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR3 (#15)65CALIBRATION SWITCH INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR4 (#16)66SPARE INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCPWRGND67PWR GNDPWRGND68PWR GNDINJ5 (#13)69CYL 5 INJECTORCAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE	AU2 (#6)	59	SPARE INPUT	IDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUT
THER-62EGT -K - TYPE THERMOCOUPLER -AR1 (#13)63COOLANT TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR2 (#14)64AIR TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR3 (#15)65CALIBRATION SWITCH INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR4 (#16)66SPARE INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCPWRGND67PWR GNDPWRGND68PWR GNDINJ5 (#13)69CYL 5 INJECTORCAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE	AU3 (#7)	60	SPARE INPUT	IDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUT
AR1 (#13)63COOLANT TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR2 (#14)64AIR TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR3 (#15)65CALIBRATION SWITCH INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR4 (#16)66SPARE INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCPWRGND67PWR GNDPWRGND68PWR GNDINJ5 (#13)69CYL 5 INJECTORCAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE	AU4 (#8)	61	SPARE INPUT	IDEAL FOR A/C REQUEST OR ANY OTHER 0-5V INPUT
AR2 (#14)64AIR TEMP INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR3 (#15)65CALIBRATION SWITCH INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR4 (#16)66SPARE INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCPWRGND67PWR GNDPWRGND68PWR GNDINJ5 (#13)69CYL 5 INJECTORCAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE	THER-	62	EGT -	K - TYPE THERMOCOUPLER -
AR2 (#17)65CALIBRATION SWITCH INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCAR4 (#16)66SPARE INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCPWRGND67PWR GNDPWRGND68PWR GNDINJ5 (#13)69CYL 5 INJECTORCAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE	AR1 (#13)	63	COOLANT TEMP INPUT	IDEAL FOR OIL TEMP, FUEL TEMP ETC
AR4 (#16)66SPARE INPUTIDEAL FOR OIL TEMP, FUEL TEMP ETCPWRGND67PWR GNDPWRGND68PWR GNDINJ5 (#13)69CYL 5 INJECTORCAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE	AR2 (#14)	64	AIR TEMP INPUT	IDEAL FOR OIL TEMP, FUEL TEMP ETC
PWRGND     67     PWR GND       PWRGND     68     PWR GND       INJ5 (#13)     69     CYL 5 INJECTOR     CAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE	AR3 (#15)	65	CALIBRATION SWITCH INPUT	IDEAL FOR OIL TEMP, FUEL TEMP ETC
PWRGND     68     PWR GND       INJ5 (#13)     69     CYL 5 INJECTOR     CAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE	AR4 (#16)	66	SPARE INPUT	IDEAL FOR OIL TEMP, FUEL TEMP ETC
INJ5 (#13) 69 CYL 5 INJECTOR CAN BE SPARE OUTPUT IF NOT REQUIRED IE 4 CYL ENGINE	PWRGND	67	PWR GND	
ENGINE	PWRGND	68	PWR GND	
PWRGND 70 PWR GND	INJ5 (#13)	69	CYL 5 INJECTOR	•
	PWRGND	70	PWR GND	

# **General Connections**

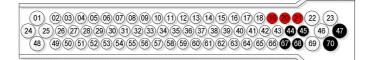
#### **Connecting Power**

The ECU has three power feeds, which can either be used to provide a redundant multiple feeds, or as a way of providing switched power to additional loads through the loom.

#### **Example Schematic**



# **Pin Schedule**



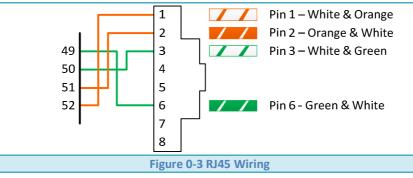
Pin Number	Function	Notes
19	VBAT	Use a fused feed.
20	VBAT	Use a fused feed.
21	VBAT	Use a fused feed.
44	Power Ground	Up to 2 ground wires can be paired to this pin.
45	Power Ground	Up to 2 ground wires can be paired to this pin.
47 (High Current Pin)	Power Ground	Up to 4 ground wires can be connected to this pin.
67	Power Ground	Up to 2 ground wires can be paired to this pin.
68	Power Ground	Up to 2 ground wires can be paired to this pin.
70 (High Current Pin)	Power Ground	Up to 4 ground wires can be connected to this pin.

**NOTE!** Power Grounds are designed to conduct High Current loads – Do not mix Power Grounds with Analogue (AN) Grounds.

#### LAN Connection

Connection from the S6 to a Laptop/PC uses a Male RJ45 plug, wired in cross over configuration.

# **Example Schematic**



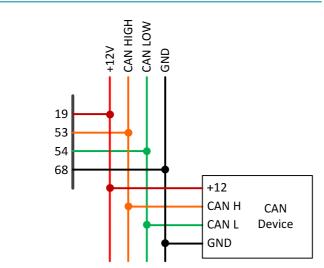
24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47
48 49 <b>59 51 52</b> 53 54 55 56 57 58 59 60 61 62 63 64 65 66 <b>67</b> 68 69 70

Pin Number	Function	Notes
49	LAN Transmit -	RJ45 Pin 6 – Green & White wire
50	LAN Transmit +	RJ45 Pin 3 – White & Green wire
51	LAN Receive -	RJ45 Pin 2 – Orange & White wire
52	LAN Receive +	RJ45 Pin 1 – White & Orange wire

# **CAN Bus**

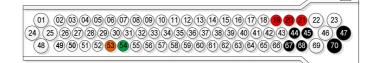
**C**ommon **A**rea **N**etwork Bus (CAN Bus) is a widely used data interface common used in many cars and aftermarket accessories (such as Stack Data loggers and Dashes). Data is sent using the High and Low wires, which are maintained as a twisted pair.





**NOTE:** CAN Wires must be kept as a twisted pair.

Figure 0-4 CAN Bus connection



Pin Number	Function	Notes
53	CAN HIGH	Check OEM Colour pairing.
54	CAN LOW	Ensure wires are twisted pair.

#### **RS232**

Telemetry can data can be provided via RS232.

# Example Schematic

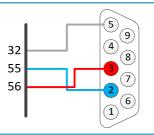


Figure 0-5 RS232 Connection

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 22 23
(24)(25)(26)(27)(28)(29)(30)(31)(32)(33)(34)(35)(36)(37)(38)(39)(40)(41)(42)(43)(44)(45)(46)(47)
(48) (49)(5)(52)(53)(54)(55)(55)(55)(55)(55)(55)(55)(55)(55

Pin Number	Function	Notes
32	Comm GND	DB-9 pin 5
55	Rx	DB-9 pin 2
56	Тх	DB-9 pin 3

# Input Connections

#### Sensor/ Analogue Grounds (AN Grounds)

Sensors and miscellaneous analogue inputs have their own Ground pins; these grounds must be kept separate from the Power grounds shown in the first section. As there are four ground pins you may have to connect multiple grounds to some of the pins if you have more than four sensors.

#### **Pin Schedule**

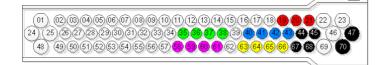
(01)         (02)         (03)         (04)         (05)         (05)         (07)         (02)         (03)         (04) <td< th=""></td<>
---

Pin Number	Function	Notes
6	ANGND1	
7	ANGND1	
8	ANGND2	
9	ANGND2	

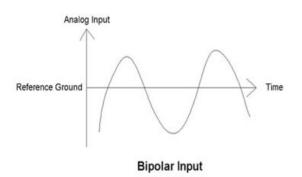
# **Assigning Inputs**

The Syvecs S6GP has 16 programmable inputs available and although they are fully configurable in Scal, they are not all the same type of input which means sensors that for example require a pull up, have to assigned to different types.... Listed below are the 4 types which are available.

Bipolar Inputs – The Bipolar inputs are found on Pins 35,36,37 and 38 as shown below in Green.



These Inputs are able to swing above and below the reference ground meaning they can see Positive Voltage as well as Negative.



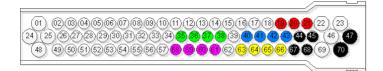
Example of sensors normally used on these Inputs are:

- Reluctor Crank and Cam Sensors
- ABS Sensors for wheel speed

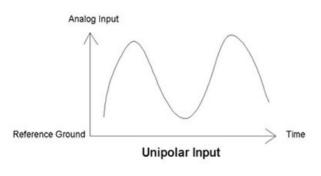
Bipolar inputs are not just limited to the above they can also be used for any sensor that outputs 0-5volts. They are also able to provide a Pull-up through Scal

8

Unipolar Inputs - The Unipolar inputs are found on Pins 58, 59, 60 and 61 as shown below in Purple.



These Inputs are only able to swing above the reference ground meaning they can only see Positive Voltage

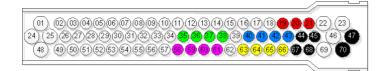


Example of sensors normally used on these Inputs are:

- Hall Effect Crank and Cam Sensors
- Gearbox speed sensors

Unipolar inputs are not just limited to the above they can also be used for any sensors which outputs 0-5volts. They are also able to provide a Pull-up through Scal.

Voltage Inputs – The Voltage inputs are found on Pins 40, 41, 42 and 43 as shown below in Blue.



These Inputs are able to sense a Voltage level which is linear and does not swing

Example of sensors normally used on these Inputs are:

- Manifold Pressure sensors
- Throttle Positions
- Oil Pressures

Voltage Inputs are not just limited to the above then can also be used for any sensor which outputs a 0-5volt signal but NOT able to provide a pull up. Resistive Inputs - The Resistive inputs are found on Pins 63, 64, 65 and 66 as shown below in Yellow

. .

(48) (49)(50)(51)(52)(53)(54)(55)(56)(57) (53)(59)(60)(61)(52)(53)(54)(55)(66)(67)(68)(69)(70)

These Inputs are the same as voltage inputs in which they can accept a 0-5v but they also allow you to provide a Pullup on the input.

.Example of Sensors normally used on these Inputs are:

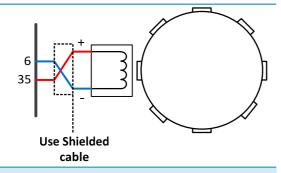
- Temperature sensors
- Calibration switches

Resistive inputs are not just limited to the above then can also be used for any type of 0-5v sensor.

# **Sensor Schematics - Examples**

# Crank Sensor – Magnetic Type

**Example Schematic** 

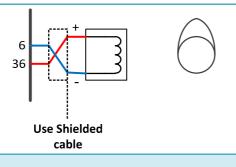


# **Pin Schedule**

Pin Number	Function	Notes
6	ANGND1	Crank Sensor – (Shared with Cam Sensor)
35, 36, 37, 38	Bipolar Input	Crank Sensor+

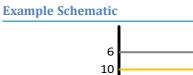
# **Cam Sensors – Magnetic Type**

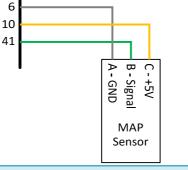
**Example Schematic** 



Pin Number	Function	Notes
6	ANGND1	Cam Sensor – (Shared with Crank Sensor)
35, 36, 37, 38	Bipolar input	Cam Sensor +

# 12 Manifold Pressure Sensor (MAP)

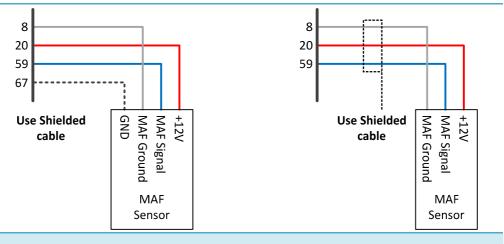




Pin Number	Function	Notes
6	ANGND1	May be shared with multiple sensors
10	5VOUT1	Regulated sensor power supply
41	Voltage Input	Can use Bipolar, Unipolar or Voltage inputs

# Mass Airflow Sensor (MAF)

# **Example Schematic**

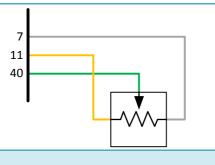


# **Pin Schedule**

Pin Number	Function	Notes
8	ANGND2	May be shared with multiple sensors
20	VBAT	
59	AU2 Unipolar Input #2	Can use Bipolar, Unipolar or Voltage inputs
67	PWRGND	May be shared with multiple grounding points

# **Throttle Position Sensor (TPS)**

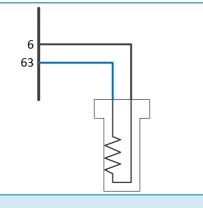
**Example Schematic** 



Pin Number	Function	Notes
7	ANGND1	May be shared with multiple sensors
11	5VOUT1	Regulated sensor power supply
40	AV1 (#9)	Can use Bipolar, Unipolar or Voltage inputs

# **Coolant Temperature Sensor (CTS)**

**Example Schematic** 

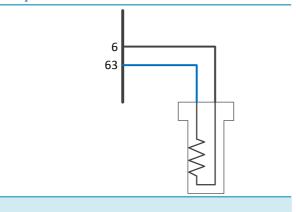


# **Pin Schedule**

Pin Number	Function	Notes
6	ANGND1	May be shared with multiple sensors
63	AR1 Resistive Input #1	Can use Resistive inputs #1 to #4 (pins 63 to 66)

# Inlet Air Temperature Sensor (IAT)

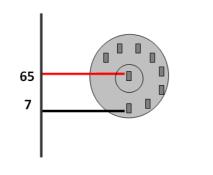
# **Example Schematic**



Pin Number	Function	Notes
6	ANGND1	May be shared with multiple sensors
64	AR2 Resistive Input #2	Can use Resistive inputs #1 to #4 (pins 63 to 66)

# 15 Calibration Switches

**Example Schematic** 

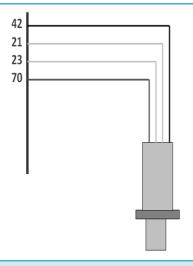


# Pin Schedule

Pin Number	Function	Notes
7	ANGND1	May be shared with multiple sensors
64	AR3 Resistive Input #3	Can use Resistive inputs #1 to #4 (pins 63 to 66) Cal Switches Require Pull Up to be On

# Narrowband Lambda Sensor

# **Example Schematic**



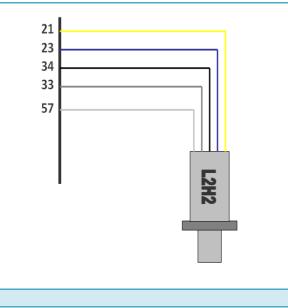
Wire Colour	Function	Pins Usable on S6GP
White	Heater	19, 20, 21 or External 12v Supply
White	Heater Drive	Any Pwm Output or Spare Injector Output – Needs to be assigned in Scal on I/O Configuration
Black	Signal Ground	Power Ground
Grey	Lambda Signal	Can use Bipolar, Unipolar or Voltage inputs

#### Wideband Lambda Sensor

The Syvecs S6GP has the ability to drive a NTK Wideband sensor directly without the use of external units.

Please note: If you have purchased a Syvecs NTK Sensor it will be an L2H2

# **Example Schematic**



#### **NTK L1H1 Sensor**

Wire Colour	Function	Pins Usable on S6GP
Yellow	Heater	19, 20, 21 or External 12v Supply
Orange	Heater Drive	Any Pwm Output or Spare Injector Output – Needs to be assigned in Scal on I/O Configuration
Black	Signal Ground	Has to be 34
Red	Nernst Cell Voltage	Has to be 33
White	Ion Pump Current	Has to be 57

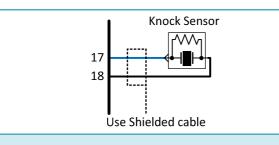
# NTK L2H2 Sensor

Wire Colour	Function	Pins Usable on S6GP
Yellow	Heater	19, 20, 21 or External 12v Supply
Blue	Heater Drive	Any Pwm Output or Spare Injector Output – Needs to be assigned in Scal on I/O Configuration
Black	Signal Ground	Has to be 34
Grey	Nernst Cell Voltage	Has to be 33
White	Ion Pump Current	Has to be 57

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# **Knock Sensor**

SyvecsS6GP has one input for a piezoelectric Example Schematic



#### Pin Schedule

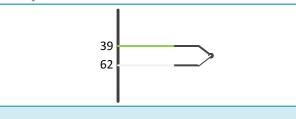
Pin Number	Function	Notes
17	KNOCK	
18	KNKGND	

**NOTE:** Shield wires should be connected only at one end, common practice is to join shielding wires at the ECU end of the loom and connect them to a Power Ground wire.

# **EGT/Thermocouple**

Syvecs has one K-type thermocouple input.

# **Example Schematic**



Pin Number	Function	Notes
39	THER+	Green wire (K-type)
62	THER-	White wire (K-type)

# 18 Driven/Output Connections

# Ignition

The ignition channels are logic level outputs designed to control ignition coils via an additional igniter (Power transistor). These as standard output a 5V Signal but can be raised to 12v with a Jumper change on board. Speak to Syvecs more about this directly if required.

#### **Pin Schedule**

Pin Number	Function	Notes
26	IGN1	Logic Level (5V) output
27	IGN2	Logic Level (5V) output
28	IGN3	Logic Level (5V) output
29	IGN4	Logic Level (5V) output
30	IGN5	Logic Level (5V) output
31	IGN6	Logic Level (5V) output

**NOTE:** Do not connect IGN pins directly to a coil; the low coil resistance will draw a current that will damage the ECU.

#### **Fuel Outputs**

The Injection channels are only able to drive high impendence injectors. The use of Low Impendence injectors with the S6 requires a Ballast pack/resistor pack. For more information on this e-mail ryan@syvecs.co.uk

#### **Pin Schedule**

Pin Number	Function	Notes
1	INJ1	High Current (10A)
24	INJ2	High Current (10A)
25	INJ3	High Current (10A)
48	INJ4	High Current (10A)
69	INJ5	High Current (10A)
22	INJ6	High Current (10A)
46	INJ7	High Current (10A)
23	INJ8	High Current (10A)

#### **PWM Auxiliary Outputs**

The S6GP has 8 Auxiliary outputs which have full pulse width modulation available. These outputs can be used to drive up to 5A and can only pull to ground.

Spare Injection and Ignition outputs also have full PWM support and can support up to 10A.

PhilSchedule			
Pin Number	Function	Notes	
2	PWM1	High Current (10A)	
3	PWM2	High Current (10A)	
4	PWM3	High Current (10A)	
5	PWM4	High Current (10A)	
13	PWM5	High Current (10A)	
14	PWM6	High Current (10A)	
15	PWM7	High Current (10A)	
16	PWM8	High Current (10A)	