WMI Controller

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

Table of Contents

Introduction

The Syvecs WMI controller is a compact and powerful unit for controlling advanced Water/Meth Injection systems.

Designed to integrate into any car via the use of CANbus communications. The WMI controller receives real-time engine data from OEM or aftermarket engine management. This data is then used for operational and monitoring strategies resulting in a precise and accurate control of water/meth injection with safety in mind.

Additional sensors can also be connected to the controller to provide further functionality and to further add safety into the system such as water/meth Level Sensor, Flow sensor and Pressure sensor. If CANbus is not supported on the installed vehicle then the WMI unit will also allow RPM and Injector Duty to be picked up from wires in the original engine loom.

Advanced users can also setup custom can transmit option with the powerful CANbus section to allow bits or bytes to be sent on the OEM CANbus to invoke ECU Lights, Torque Limits and more.

The WMI controller is fitted with four Half Bridges drivers which are capable of being driven Low or High and able to handle a maximum of 15amps peak/8amp continuously per output. Pin Sharing is also available for the WMI Pump and Solenoid to double the current capabilities of an output.

Each of the four H-Bridge Outputs include current monitoring and can be used as part of the protection strategy to ensure solenoids are connected and operating correctly. For example if the WMI Solenoid or Pump is driven and no current flow is detected it will immediately invoke a Limp flag which can warn the users via LED Output, CAN message to a dash or torque limit to an engine ecu. Short circuits are also monitored, and if detected will trigger a over-current situation which will set a limp flag as well and shutdown the output for safety.

The four 0-5v analogue inputs fitted on the controller can be used for external switches, sensors or trim pots via the Scal – Pin assignment setup which is fully flexible.

Four PWM inputs are also fitted on the controller that can be used for Flow sensors, Rpm Signals and Injector Duty pickup.

Two customisable CANbus interfaces are fitted on the WMI Controller which are able to transmit any of the WMI parameters to other devices on the CANbus. Receiving data is also possible from a Syvecs Ecu, OBD2 Protocol or a selection of supported OEM DataStream's. These are listed on page 11.

Specifications

Outputs
- 4 Half Bridge Outputs
- 15Amp Peak (100ms) 8Amp Continuous
- Current Monitoring on each pin

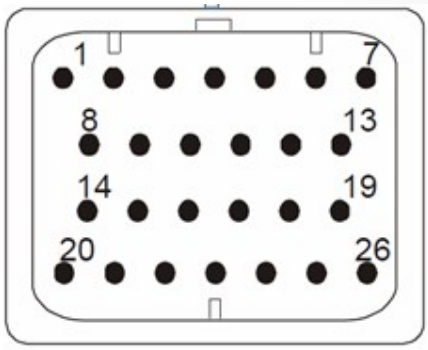
Inputs
- 4 Analogue or switch inputs (0-5V)
- 4 Hall Effect / PWM inputs (0-5V)

Interfaces
- USB For Updates and Config
- 2 x CAN 2.0B interface for communication with other controllers or logging systems
- 1 x Kline Interface

Power Supply
- 6 to 26V input voltage range
- Ignition Switch Logic with high current supply

Physical
- IP67 Sealed in Automotive Spec -40c to 125c
- 34 way Superseal 1.0
- 85mm x 70m

Pin Connections



Mating connector part number: TE 3-1437290-7

Pin Schedule

Description	Pin Number	Function	Notes
PWRGND	A1	Ground	
PWRGND	A2	Ground	
H-Bridge1	A3	H Bridge with Current Sense	
H-Bridge2	A4	H Bridge with Current Sense	
H-Bridge3	A5	H Bridge with Current Sense	
H-Bridge4	A6	H Bridge with Current Sense	
12V HC	A7	12v Supply-High Current	
Kline/LinBus	A8	Kline/LinBus	
Hall1	A9	Hall Effect / PWM	LowSide Trigger
Hall2	A10	Hall Effect / PWM	HighSide Trigger
Hall3	A11	Hall Effect / PWM	HighSide Trigger
Hall4	A12	Hall Effect / PWM	LowSide Trigger
12V HC	A13	12v Supply - High Current	
Can0 H	A14		
Can0 L	A15		
12v IGSW	A16	12v-Ignition Switch	Wakes up Unit
Can1 H	A17	Car CANbus	
Can1 L	A18	Car CANbus	
12V HC	A19	12v Supply - High Current	
5v Out	A20	5v Output Supply	
AN1	A21	0-5v Analogue Input	Internal 3k pull up
AN2	A22	0-5v Analogue Input	Internal 3k pull up
AN3	A23	0-5v Analogue Input	Internal 3k pull up
AN4	A24	0-5v Analogue Input	Internal 3k pull up
PWRGND	A25	Ground	
PWRGND	A26	Ground	

General Connections

Connecting Power/Ground

The WMI Controller has four power connection points, three of these are high current and can be connected to a fused battery power or high current switched power source, the fourth is Ignition input and used wake up the WMI unit.

The three high current pins are linked internally, as are the power ground pins. If driving motors or solenoids which pull a lot of current then ensure the correct amount of pins are connected. Each pin on the WMI Controller is able to sink around 14 amps of current continuously, so if driving a selection of solenoids that pulls 20 amps+, ensure at least two high current 12v pins and two power ground pins are used.

Example Schematic

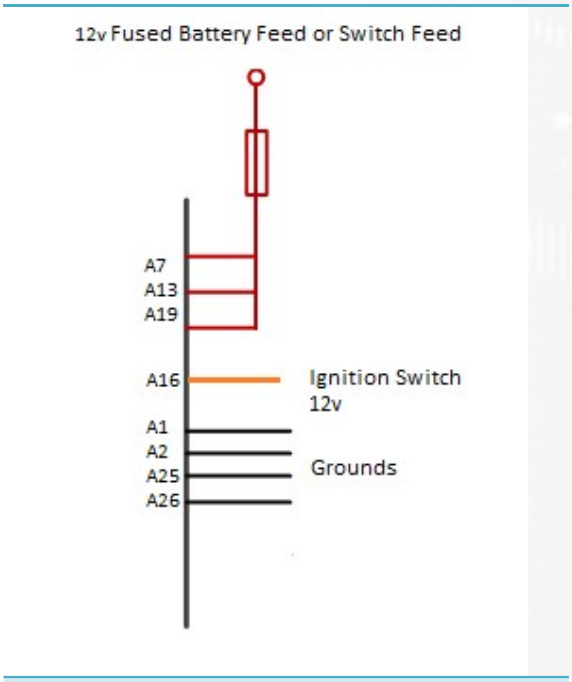


Figure 0-1 – Power and Ground Feeds

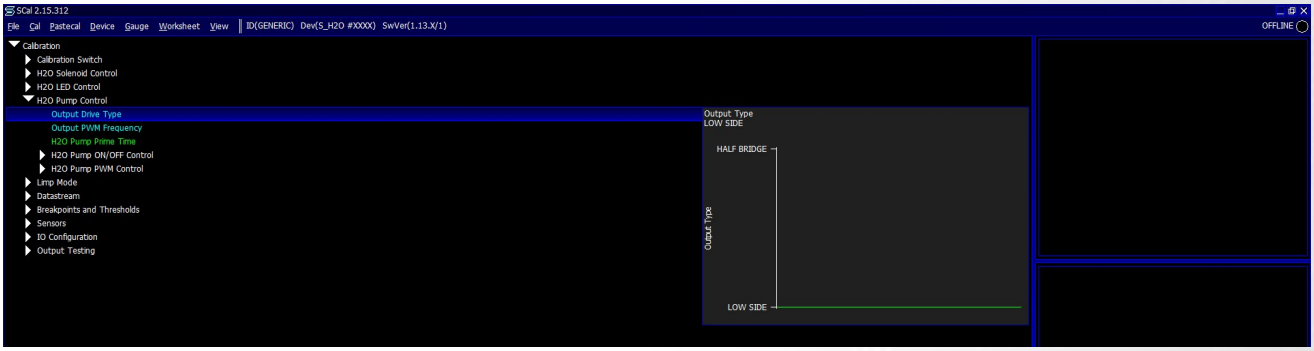
Pin Schedule

Pin Number	Function	Notes
A7	VBAT	Use a fused Switched feed.
A13	VBAT	Use a fused Switched feed.
A19	VBAT	Use a fused Switched feed.
A16	IGBAT	Ignition Switched 12v
A1	Power Ground	Ground for Power and Sensor Signal
A2	Power Ground	Ground for Power and Sensor Signal
A25	Power Ground	Ground for Power and Sensor Signal
A26	Power Ground	Ground for Power and Sensor Signal

Output Connections

Half Bridge Outputs

A Half bridge driver is an electronic output that can either switched High (Vbat) or Low (Ground). The WMI H-Bridge Outputs also have full pulse width modulation available.



Output Drive Type:

Half Bridge – HALF BRIDGE will pull to PWRGND when off and pull to VBAT when on
High Side – HIGH SIDE the output will pull to VBAT when on
Low Side – LOW SIDE the output will pull to PWRGND when on

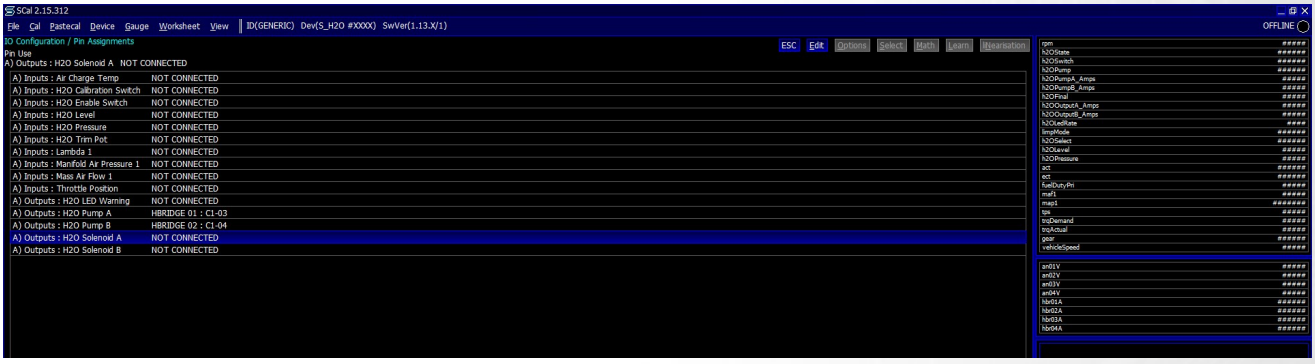
These outputs can be used to drive up to 15A Peak / 8A Continuous each or paired up for up to 25A Peak /16A Continuous. If you are driving the outputs for high current devices it's extremely important to ensure the 12v and Ground wire gauge is capable to handle the current demand.

The minimum drive frequency that a H-Bridge output can support is 20hz

Pin Schedule

Pin Number	Function	Scal Assignment
A3	H-Bridge1	H-Bridge1
A4	H-Bridge2	H-Bridge2
A5	H-Bridge3	H-Bridge3
A6	H-Bridge4	H-Bridge4

The H-Bridge outputs can also be paired for high current assignments like the WMI pump and WMI Solenoid. This MUST be done in correct pairing, Either HBR1/HBR2 outputs used together or HBR3/HBR4. You cannot use HBR1 and HBR4 as a pair for example as driven from different PWM generators.



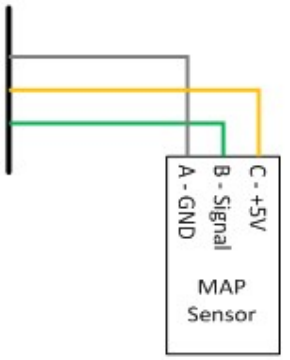
Input Connections

Voltage Inputs - AV Inputs

Four Analogue Inputs are available on the WMI Controller. These are just 0-5v analogue inputs and cannot support frequency waveforms. They are designed for sensors like pressure transducers or position sensors.

All of the inputs have a 3k Pull up active which allows them to be used for thermistor sensors also.

Example Schematic



MAP sensor wiring

Pin Schedule

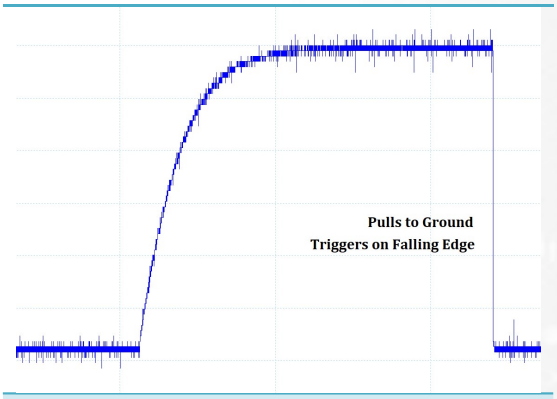
Pin Number	Function	Notes
A25	Ground	May be shared with multiple sensors
A20	5VOUT	Regulated sensor power supply
A21	An1 Input	Any AV Input can be used

The Inputs get assigned in I/O Configuration – Pin assignments, any changes here require a **D**evice >**P**rogram to be carried out in Scal.

Hall Effect / PWM Inputs – Flow Sensor / Injector Duty

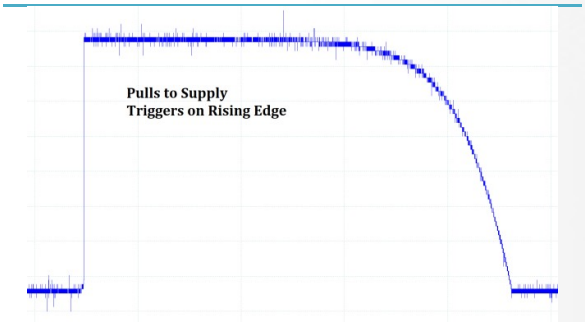
Four Hall Effect / PWM Inputs are available on the WMI Controller that can support a PWM signal which pulls to supply or ground. The difference in the signal is important as different hall inputs support different types of signals.

Sensor signals which rest high and pull to ground need to use HALL1 and HALL4.



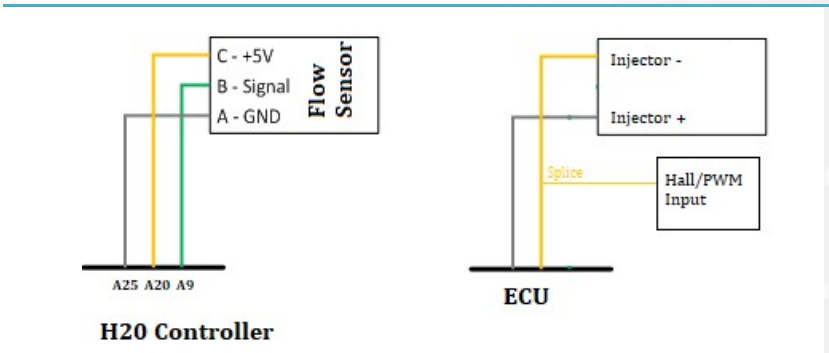
Pull to ground waveform example. Must connect to HALL 1 and HALL4

Sensor Signals which rest low and pull to supply voltage need to use HALL2 and HALL3



Pull to +V waveform example. Must connect to HALL2 and HALL3

Example Schematics



Pin Schedule

Pin Number	Function	Notes
A25	Ground	May be shared with multiple sensors
A20	5VOUT	Regulated sensor power supply
A9	HALL1	Flow Sensor Signal

The Hall inputs are generally used for just flow sensors but if a setup does not have CANbus injector duty available or a calibrator wishes to monitor the engine Injector Duty direct then the negative drive of the injector can be spliced into and the signal ran to Inputs A9 and A12.

Then Inputs get assigned in I/O Configuration – Pin assignments. Any changes here require a **D**evice – **P**rogram to be carried out in Scal.

When the flow sensor has been assigned and programmed, users need to head to the sensor section to setup the input type based on the type of signal the sensor produces as explained above in **Fig 5 & 6**

Set the Minimum and Maximum frequencies based on the datasheet and then users can monitor WMIFlowV to see if the input is picking up a frequency signal.

Sensor Supply and Grounds

Sensor Grounds

Sensors and miscellaneous analogue inputs share the power ground on the WMI Controller

Pin Schedule

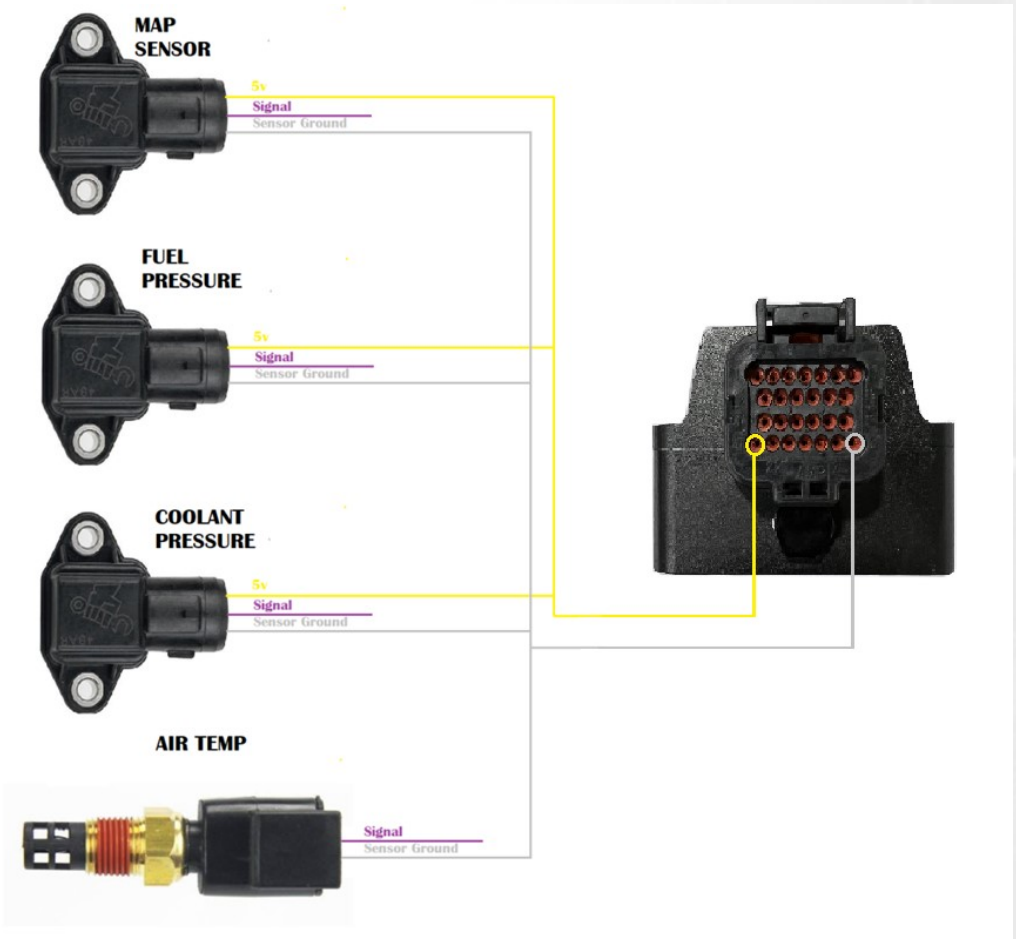
Pin Number	Function	Scal Assignment
A1	Power Ground	Shared Power Ground
A2	Power Ground	Shared Power Ground
A25	Power Ground	Shared Power Ground
A26	Power Ground	Shared Power Ground

5V Regulated Supply

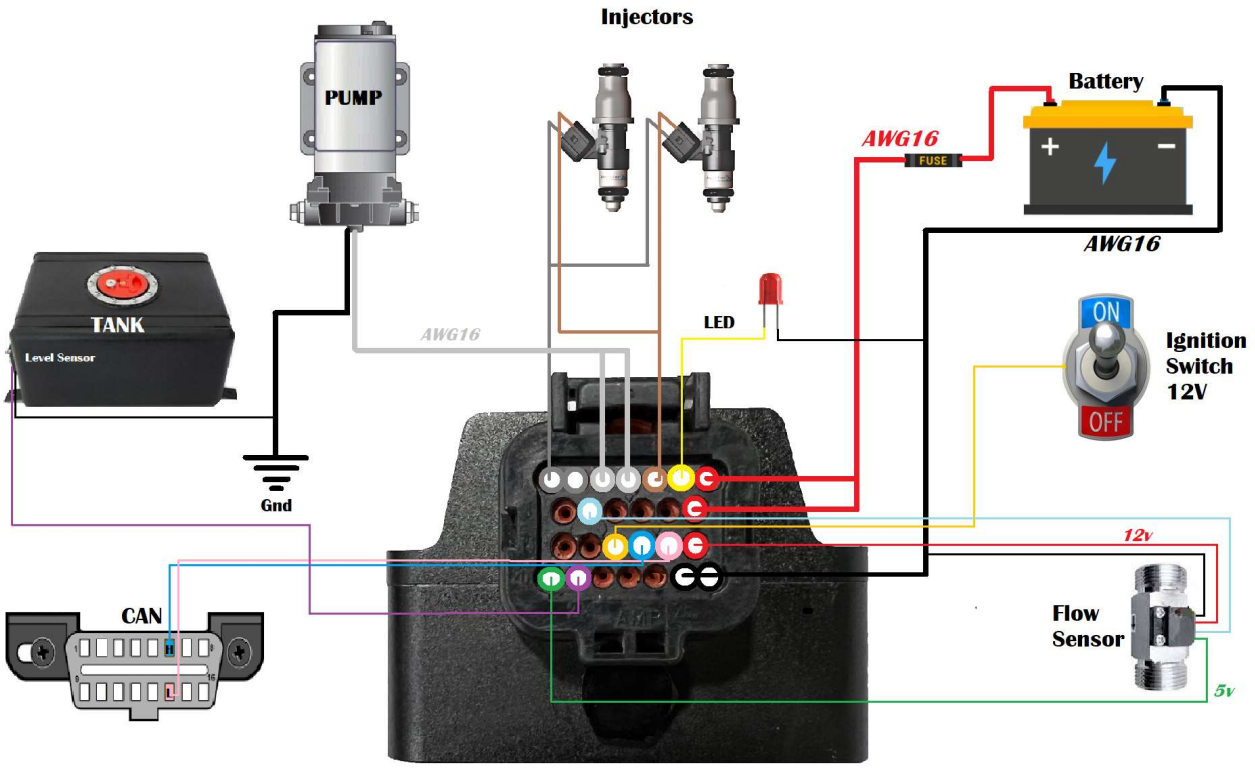
Sensors and miscellaneous analogue inputs have their own power pins which need a stable power supply. The 5v Regulated outputs are protected and provide a stable/clean reference 5v which can handle 500mA maximum. Multiple sensors can be connected as show below.

Pin Schedule

Pin Number	Function	Notes
A20	5VOUT	5V sensor supply 500mA Maximum load



Example Wiring



Pin 1 = Ground
Pin 2 = Ground
Pin 3 = Pump +
Pin 4 = Pump +
Pin 5 = Injector1 +
Pin 6 = Injector2 + Or LED
Pin 7 = 12v Bat (High Current)
Pin 10 - Flow Sensor Signal (Optional)
Pin 13 = 12v Bat (High Current)
Pin 16 = Ignition 12v
Pin 17 = CAN H
Pin 18 = CAN L
Pin 19 = 12v Bat (High Current)
Pin 20 = 5v
Pin 21 = Level Sensor Signal (Optional)
Pin 22 = Pressure Signal (Optional)
Pin 25 = Ground
Pin 26 = Ground

PC Connection - SCAL

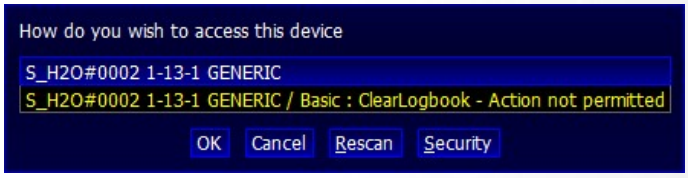
The WMI has a calibration stored onboard to maintain settings of the WMI hardware. In order for the WMI to work it must have a valid calibration present in the device and when shipping from the factory no calibration is loaded to ensure calibrator's setup the configuration to suit the installation.

A USB port is found at the front of the WMI which is behind a hex plug. Use a USB-Micro to USB-A male/male cable to connect the WMI to the computer.

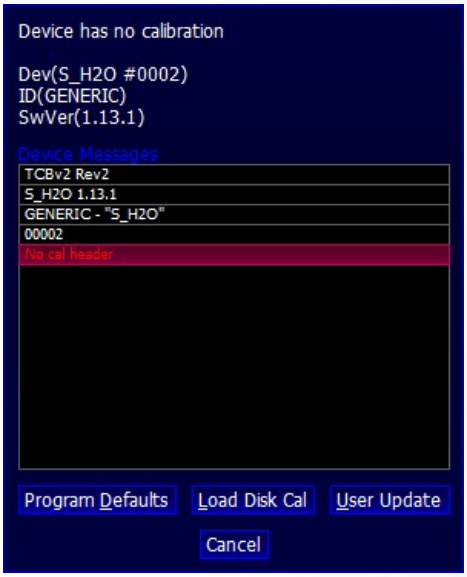
The S-Suite software can be downloaded from below.
https://www.syvecs.com/software/

After running the SSuite installer, open the program called SCal and click **D**evice >**C**onnect

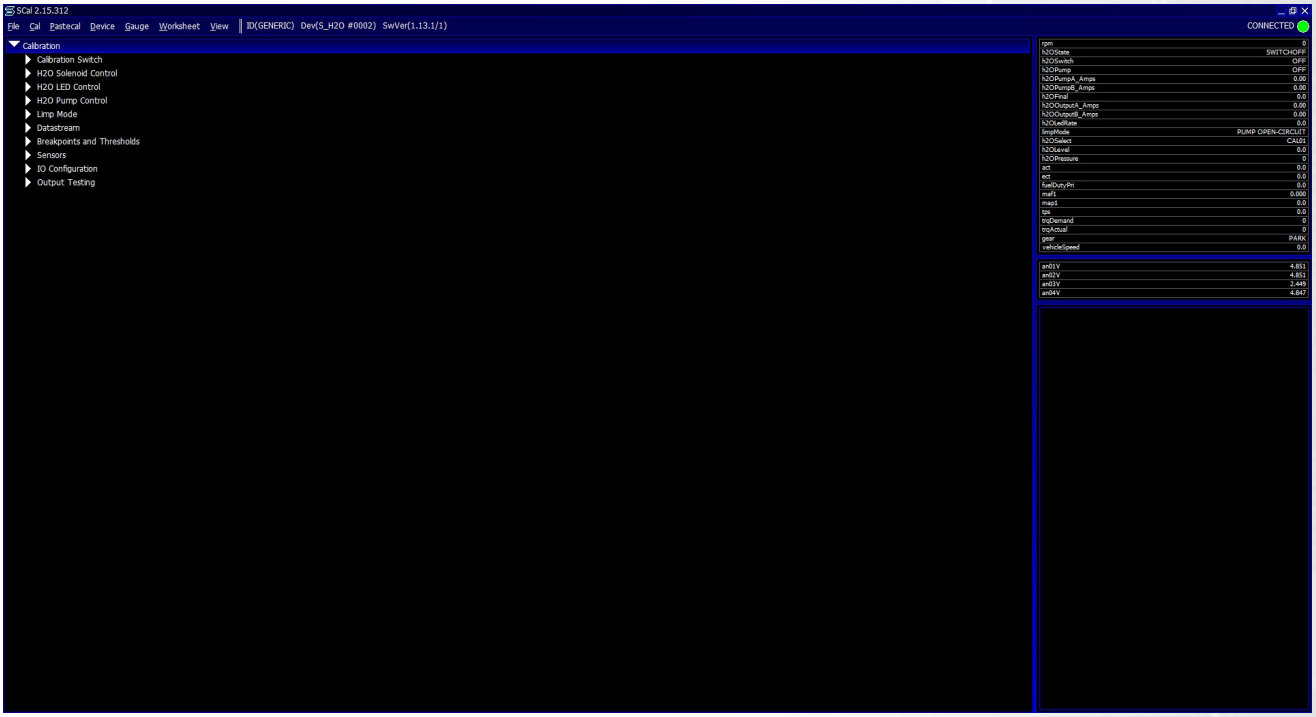
A WMI device will be found as shown below, press Ok to proceed



Next you can load a calibration if you have one saved from a previous installed or program defaults if new.



The connected green icon should now be present in the top right and all the states/voltages/temps from onboard the WMI are listed on the right hand side.



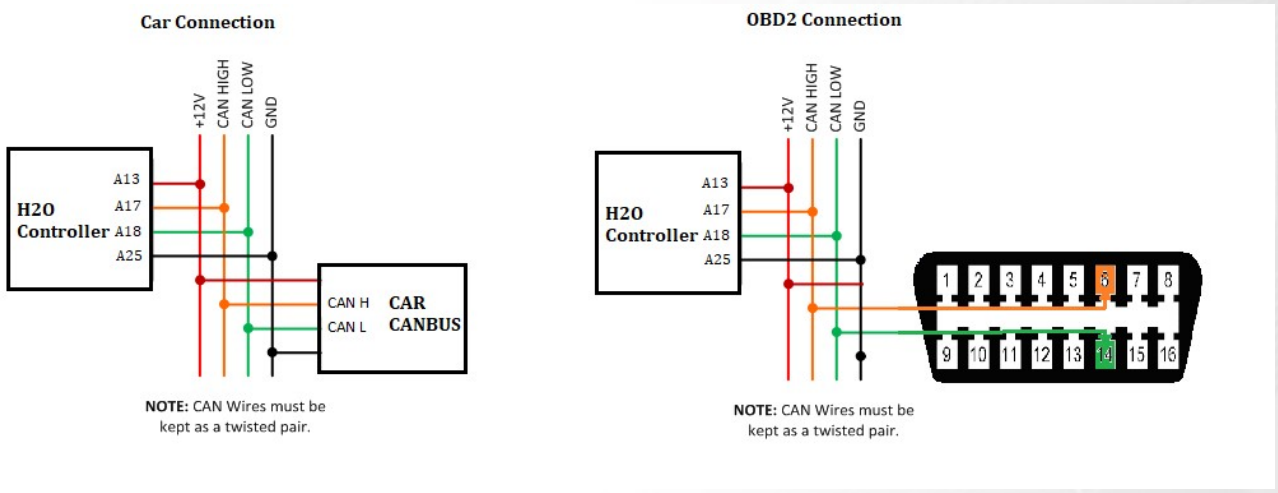
Calibrators now have the ability to setup the WMI controller live

Press F1 for help on any map and remember that Calibration names highlights in Green are adjustable Live and changes are immediate. Blue Maps require programming (Device > Program) to take effect.

CanBus Connections

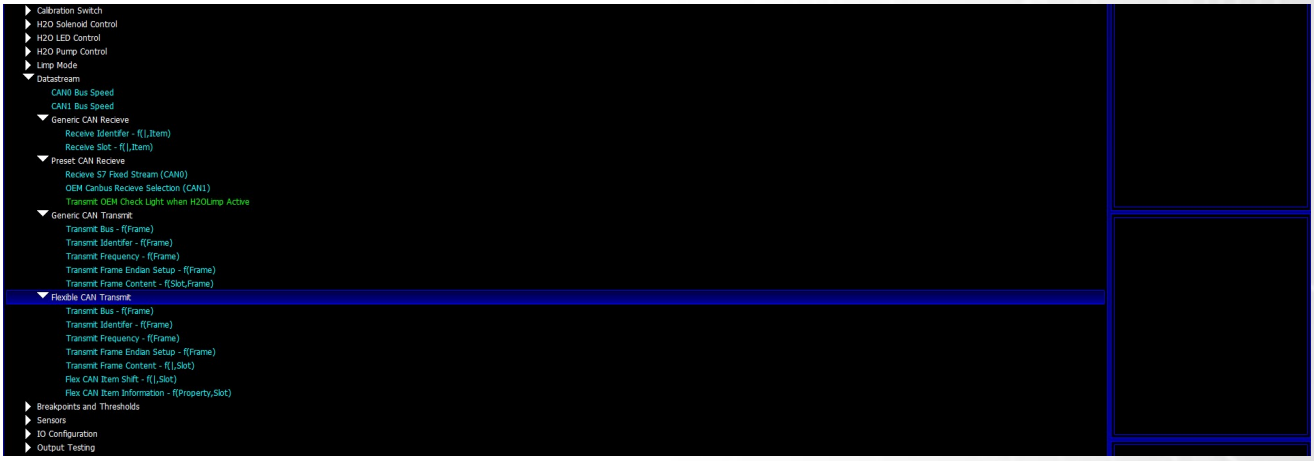
Common **A**rea **N**etwork Bus (CAN Bus) is a widely used data interface common used in many cars and aftermarket accessories, such as Data loggers and Dashes. The WMI as default has 2 x CAN bus interfaces:
CAN0 is for communications with the Syvecs / Aftermarket Engine control unit direct. (120ohm Termination active)
CAN1 is to be used for OEM Car CAN connections or OBD2 connections. (No Termination enabled)

Example Schematics



The WMI controller supports multiple OEM CAN setups as well as a flexible generic receive setup on CAN0. This is useful for custom CAN setups from a range of engine ecu's, including the Syvecs S7 fixed stream which is available as a preset can receive. All these settings can all be enabled in the datastream section of SCAL.

OEM Car CANbus connections should be connected to CAN1 of the WMI unit. Users can select the car model type in the DataStream – Preset CAN Receive.



OEM CAN buses don't always have every item available so see the next page for supported cars and items which are available to the calibrator.

There is also an option to transmit the OEM Check light when a WMILimp is active. This will cause the WMI unit to replicate an OEM Ecu frame with the Check light Active. Generally this will cause the check light on the dash to flash as the OEM ECU will be also sending at the same time a can message with the check light off.

IMPORTANT: If wanting to pickup OEM Can data and light the OEM check light during a limp, you must wire the CAN1 into the Powertrain/ECU CANbus, not at the OBD2 port

The following along with the following can frames are supported, but check the Syvecs Forum for WMI firmware updates as more cars will be added.

Audi Mk2 TTRS / RS3 Rpm, Tps, Pps, Torque Actual, Torque Demand, ECT, EOT, Gear, BrakeP, Speeds, LatG, LongG
Audi Mk3 TTRS / RS3 / S3 Rpm, Map, Tps, Pps, Cal Selection (Drive Mode), Torque Actual, Torque Demand, ACT, ECT, EOT, Gear, BrakeP, Speed, LatG, LongG
Audi R8 Gen1 Rpm, Tps, Pps, Torque Actual, Torque Demand, ECT, EOT, Gear, BrakeP, Speed, LatG, LongG
Audi R8 Gen2 Rpm, Map, Tps, Pps, Cal Selection (DriveMode), Torque Actual, Torque Demand, ACT, ECT, EOT, Gear, BrakeP, Speed, LatG, LongG
BMW E46 Rpm, Tps, Pps, Torque Actual, Torque Demand, ECT, EOT, BrakeP, Speed
BMW E92 Rpm, Tps, Pps, Torque Actual, Torque Demand, ECT, EOT, Gear, BrakeP, Speed
Corvette Z06 Rpm, Tps, Pps, Torque Actual, Torque Demand, ECT, BrakeP, Speed
Evo X Rpm, Map, Tps, Pps, Cal Selection (SportMode), Torque Actual, Torque Demand, ACT, ECT, EOT, Gear, BrakeP, Speed, LongG
GT86 Rpm, Tps, Pps, Torque Actual, Torque Demand, ECT, EOT, Map1, BrakeP, Speed
Honda FD2/FN2 Rpm, Map, Tps, Pps, Torque Actual, Torque Demand, ECT, BrakeP, Speed
Honda FK2/FK8 Rpm, Tps, Pps, Torque Actual, Torque Demand, ECT, EOT, Map1, BrakeP, Speeds, LatG, LongG
Infiniti Q60 Rpm, Tps, Pps, Cal Selection(SportMode),, Torque Actual, Torque Demand, ECT, Gear, BrakeP, Speeds, LatG, LongG
Lamborghini LP520 Rpm, Tps, Pps, Torque Actual, Torque Demand, ECT, EOT, Gear, BrakeP, Speeds, LatG, LongG
Lamborghini LP560 Rpm, Tps, Pps, Torque Actual, Torque Demand, ECT, EOT, Gear, BrakeP, Speeds, LatG, LongG
Lamborghini Huracan Rpm, Map, Tps, Pps, Cal Selection(SportMode), Torque Actual, Torque Demand, ACT, ECT, EOT, Gear, BrakeP, Speed, LatG, LongG
Lamborghini Aventador Rpm, Map, Tps, Pps, Cal Selection(SportMode), Torque Actual, Torque Demand, ACT, ECT, EOT, Gear, BrakeP, Speed, LatG, LongG
Mclaren 12c, 650, 675, 570, 600, 720, 765, P1 Rpm, Map, Tps, Pps, Cal Selection(ACTIVE SYSTEM),Torque Actual, Torque Demand, ECT, Gear, BrakeP, Speed
Mercedes Gen1 E55, C63 Rpm, Map, Tps, Pps, Torque Actual, Torque Demand, ECT, Gear, BrakeP, Speed
Mercedes Gen2C63, SLS Rpm, Tps, Pps, Cal Selection(SportMode), Torque Actual, Torque Demand, ACT, ECT, EOT, Gear, BrakeP, Speed
Nissan 370Z Rpm, Map, Tps, Pps, Cal Selection(SportMode), Torque Actual, Torque Demand, ECT, EOT, Gear, BrakeP, Speed, LatG, LongG
Nissan Patrol Y61 Rpm, Tps, Pps, Torque Actual, Torque Demand, ECT, Gear, BrakeP, Speed, LatG, LongG
Nissan Patrol Y62 - Rpm, Map, Tps, Pps, Torque Actual, Torque Demand, ECT, EOT, Gear, BrakeP, Speed, LatG, LongG
Nissan R35GTR - Rpm, Map, Tps, Pps, Cal Selection (RMode), Torque Actual, Torque Demand, ECT, EOT, Gear, BrakeP, Speed, LatG, LongG
Porsche 991 / 981 / GTS / GT2RS / GT3 Rpm, Map, Tps, Pps, Cal Selection(SportMode), Torque Actual, Torque Demand, ACT, ECT, EOT, Gear, BrakeP, Speed, LatG, LongG
Porsche 996 Rpm, Map, Tps, Pps, Cal Selection(SportButton), Torque Actual, Torque Demand, ECT, EOT, Gear, BrakeP, Speed
Porsche 997/987 Rpm, Map, Tps, Pps, Cal Selection(SportButton), Torque Actual, Torque Demand, ECT, EOT, Gear, BrakeP, Speed, LatG, LongG
Simos 18 Rpm, Map, Tps, Pps, Cal Selection(DriveMode), Torque Actual, Torque Demand, ACT, ECT, EOT, Gear, BrakeP, Speed, LatG, LongG
Syvecs S7 Fixed Stream Rpm, Map, Lam1, FuelDuty, Tps, Pps, Cal Selection(CalSelect), Torque Actual, Torque Demand, ACT, ECT, EOT, Gear, BrakeP, Speed
Subura Impreza My15+ Rpm, Map, Tps, Pps, Cal Selection (SiMode), Torque Actual, Torque Demand, ECT, BrakeP, Speed,
Suzuki 2013+ Rpm, Map, Tps, Pps, Torque Actual, Torque Demand, ECT, BrakeP, Speed,
Toyota Yaris Gr Rpm, Map, Tps, Pps, Cal Selection (AWDMode), Torque Actual, Torque Demand, ECT, EOT, BrakeP, Speed, LatG, LongG
Toyota LandCruiser/Lexus LX570 Rpm, Map, Tps, Pps, Torque Actual, Torque Demand, ACT, ECT, BrakeP, Speed
VAG Me7 Rpm, Tps, Pps, Torque Actual, Torque Demand, ECT, EOT, Gear, BrakeP, Speed, LatG, LongG
VAG Me9 Rpm, Tps, Pps, Torque Actual, Torque Demand, ECT, EOT, Gear, BrakeP, Speed, LatG, LongG
VAG MED17 Rpm, Map, Tps, Pps, Cal Selection(DriveMode), Torque Actual, Torque Demand, ACT, ECT, EOT, Gear, BrakeP, Speed, LatG, LongG
VW Golf Mk5/6 Seat TFSI/TSI, Aud TSI/TFSI Rpm, Tps, Pps, Torque Actual, Torque Demand, ECT, EOT, Gear, BrakeP, Speed, LatG, LongG
VW Golf Mk7 MQB, Seat MQB, Audi MQB Rpm, Map, Tps, Pps, Cal Selection(DriveMode), Torque Actual, Torque Demand, ACT, ECT, EOT, Gear, BrakeP, Speed, LatG, LongG

OBD2 Support Rpm, Tps, Torque Actual, Torque Demand, Maf1, Map1, ACT , Lam1, Speed

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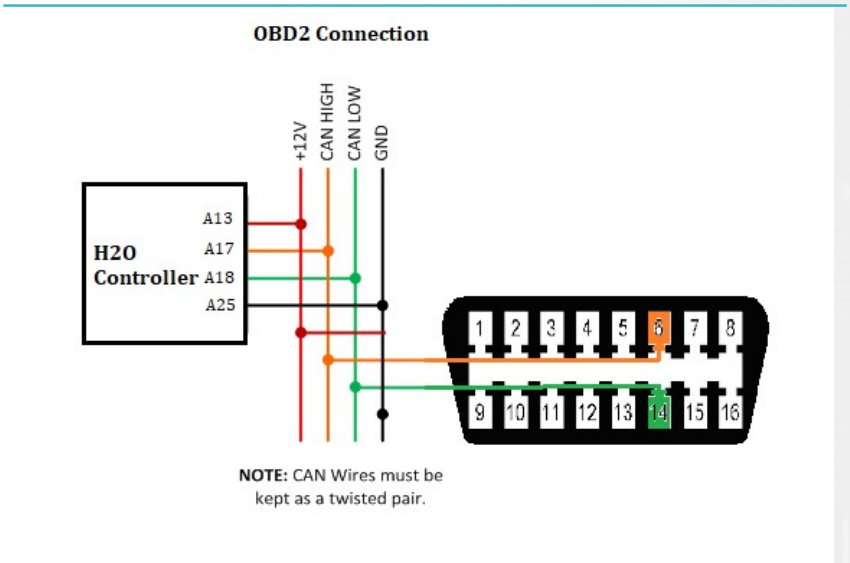
OBD2 Support

The WMI controller supports the OBD2 Data receive protocol allowing users to grab item data if it's present on the OEM ECU OBD2 protocol making installation even simpler.

OBD2 Supports: Rpm, Tps, Torque Actual, Torque Demand, Maf1, Map1, ACT , Lam1, Speed

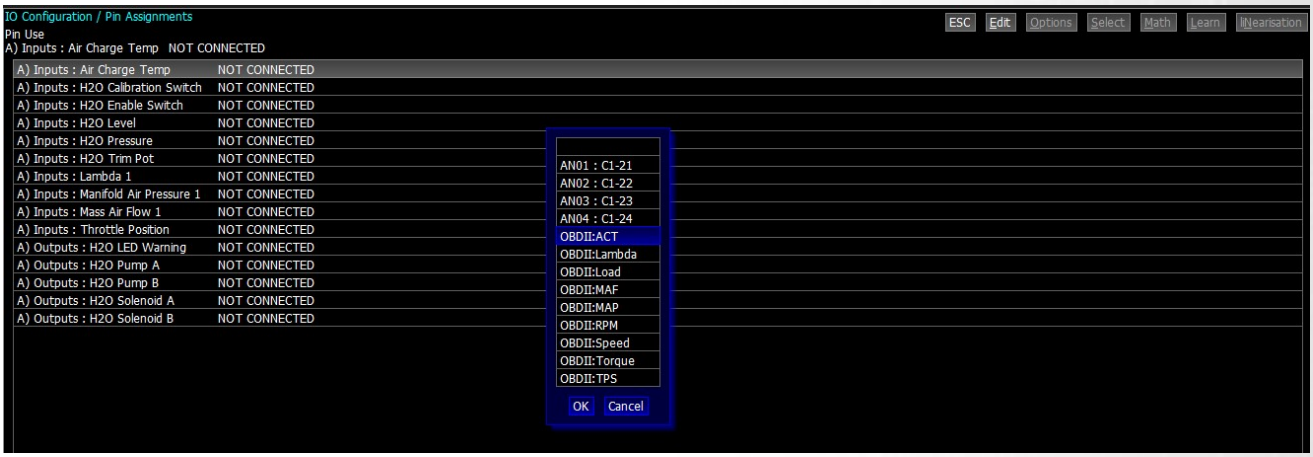
Example Schematic



The OBD2 CAN wires need to be T'd into as shown above and connected to CAN1 on the WMI module. After users need to scroll down to IO Configuration – Pin Assignments.

Select the input they wish to assign OBD2 data on and then select the OBDII: Item best suited.
Example: Air Charge Temp – OBDII ACT

Users need to Device – Program the controller after for the setting to be applied



Output Testing

The WMI outputs can be tested live with our Syvecs - Scal program and information on connecting to the unit can be found in the PC Connection section of the manual. After connecting to the expander via USB, users will see an area at the bottom of the calibration tree called output testing.

Here users are able to test the functions of each output by itself without the need for any master/slave CAN communication.

NOTE: ***H-Bridge Output Mode / H-Bridge Output Frequency / Low Side Output Frequency*** *maps must be set and programmed onto the device for the output testing logic of these outputs to apply. You cannot change these maps when* ***Output Test Mode Enable*** *is enabled.*

Remember that Calibration names highlights in Green are adjustable Live and changes are immediate. Blue Maps require programming (Device > Program) to take effect.

Set a frequency you wish the outputs to be driven at in **H-Bridge Output Frequency.** Next set the **H-Bridge Output Mode** and Device - program the WMI.

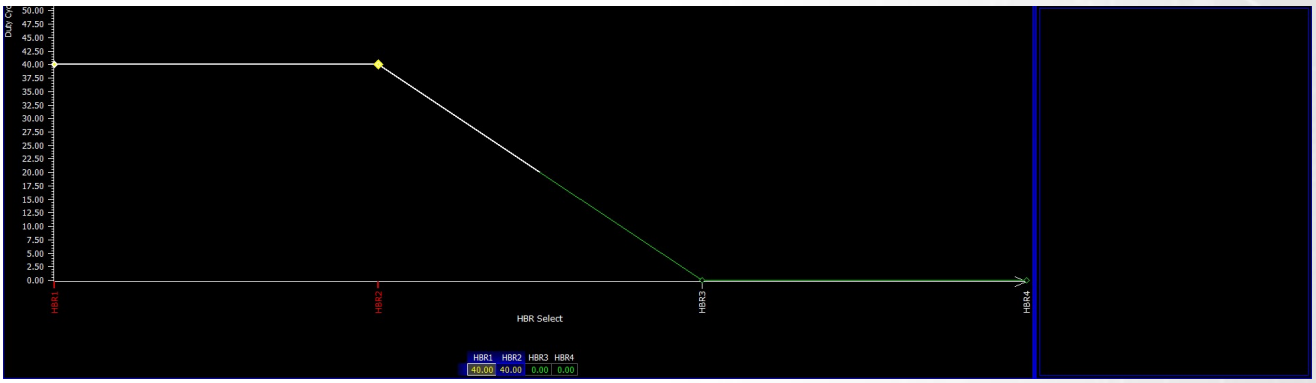
Output Test Mode Enable can then be enabled.

Now you can then set a duty for each output to be driven in **H-Bridge Output Test Duty**, these maps can be adjusted live.

IMPORTANT:

If a WMI Solenoid or Pump is shared across 2 outputs you must make sure that the **H-Bridge Output Mode** is set to the Pair option on the first pin so that duty is applied to both outputs at the same time.

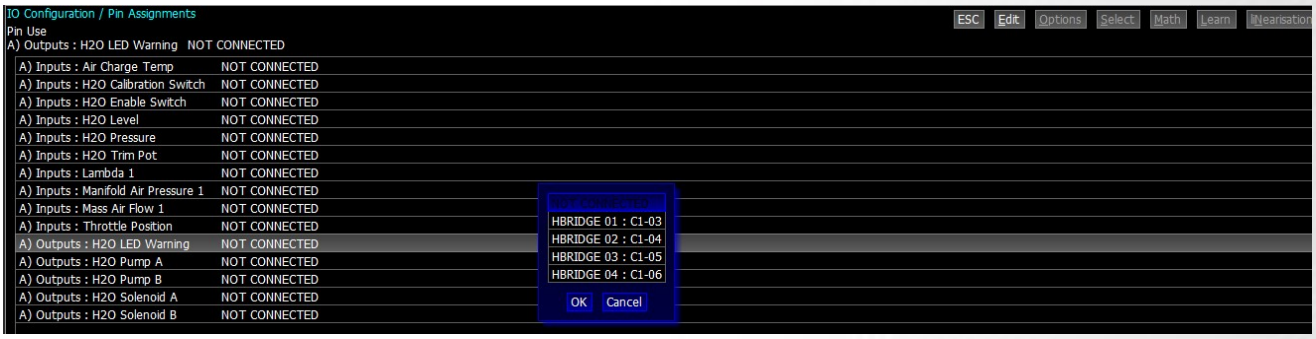
Example: HIGH SIDE PAIR drives two outputs to VBAT. NB: HBR1 pairs with HBR2 and HBR3 pairs with HBR4. When HBR1 and/or HBR3 are set to a PAIRed mode, HBR2 and HBR4 mode / duty is ignored



Limp Modes / LED Warning

The WMI controller has lots of safety limps to ensure that the system is well monitored and controlled. When a WMILimp is present users are able to set either a CAN message to the OEM dash as a warning of a issue or connect up an LED/Alarm/Warning output to warn the driver and an engine controller that a error is present.

The limp output is done via the WMI LED Warning strategy found in the Pin Assignments. Users need to select an output they wish to use.



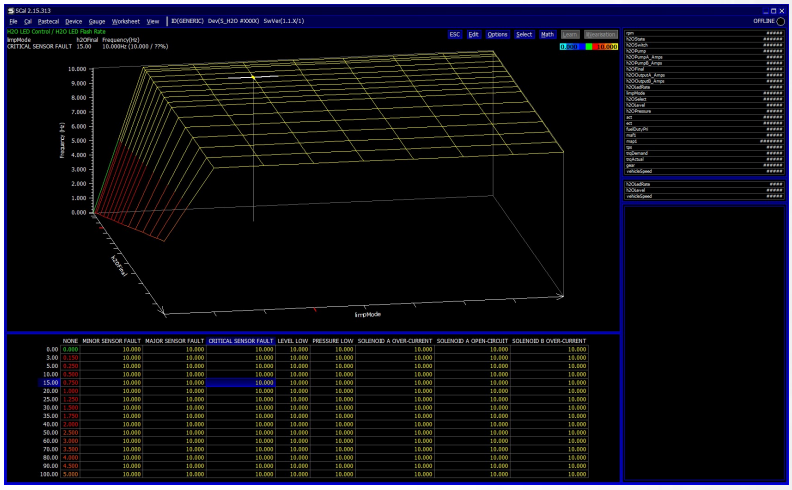
Then head to the WMI LED Control selection

Output Drive Type:

Half Bridge – HALF BRIDGE will pull to PWRGND when off and pull to VBAT when on
High Side – HIGH SIDE the output will pull to VBAT when on
Low Side – LOW SIDE the output will pull to PWRGND when on

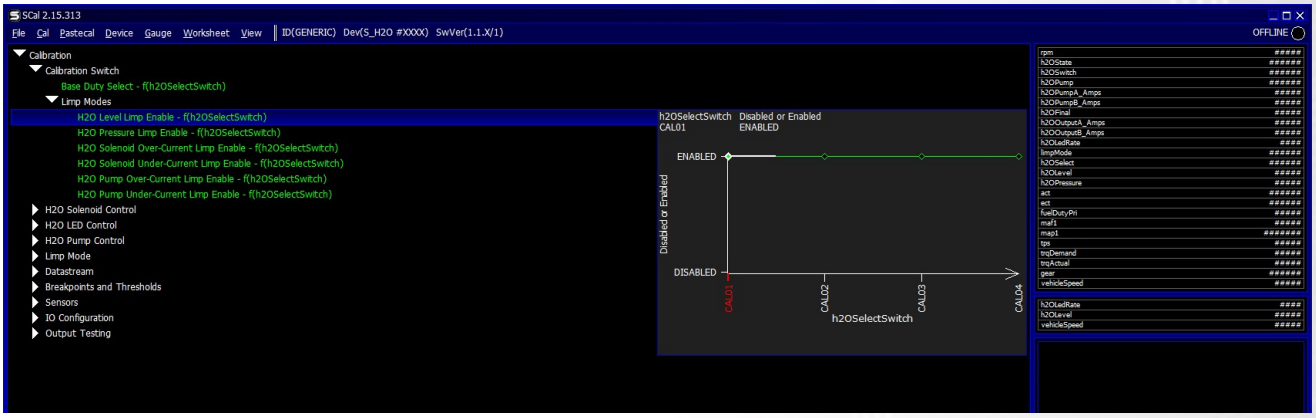
The WMI LED flash rate map then has the Limp Modes listed on the bottom Axis vs the WMIFinal amount so users can adjust the flash rate vs the WMIFinal being applied. This is useful as in the NONE limp mode slot can be set to flash faster based on the duty being applied to the WMI Solenoids. See below:

A flash Rate >9.5Hz will cause the output to turn on permanently so can be used to trigger Limp Modes on Engine ecu's



Limp modes can also be enabled/disabled based on calibration switch position.

As default they are all enabled but if a Level sensor is not fitted for example then the limp checking will be disabled for that strategy.



The Limp mode logic checks are listed below and will activate a Limp Flag if any of the below is out of range.

WMI Level Limp - The WMILimpMode will become active when the WMILevel is less than the value set in *Level Limp Limit* and turn off when WMILevel is greater than *Level Limp Recovery*

WMI Solenoid Over-Current – The WMILimpMode will become active when the WMICurrentA or WMICurrentB is greater than the value set in *WMIOutputAmps Limp Limit* for the time set in *WMIOutputAmps Limp Limit Validation Time*, When this occurs the WMIFinal will go to 0% until the WMI Controller is reset for safety.

WMI Solenoid Under-Current - When the WMI Solenoid final duty WMIFinal is greater than 5%, the WMICurrentA & WMICurrentB is monitored and if its not greater than *WMIOutputAmps Min Threshold* for *WMIOutputAmpsLow Limp Limit Validation Time* then WMILimpMode will be set.

WMI Pump Over-Current – When the WMIPump is active the WMIPumpCurrentA and WMIPumpCurrentB is monitored and if the values becomes greater than set in *WMIPumpAmps Limp Limit* for the time set in *WMIPumpAmps Limp Limit Validation Time* then a WMILimpMode will be set.

WMI Pump Under-Current – When the WMIPump is Active the WMIPumpCurrentA and WMIPumpCurrentB is monitored and if it is less than WMIPumpAmpsLimpLowThreshold for WMIPumpAmpsLimpLowTime then WMILimpMode will be set.

WMI Pressure Limp - When the WMIPump is Active, the WMIPressure is monitored and if it is less than WMIPressureLimpLowThreshold for WMIPressureLimpLowTime then WMILimpMode will be set.

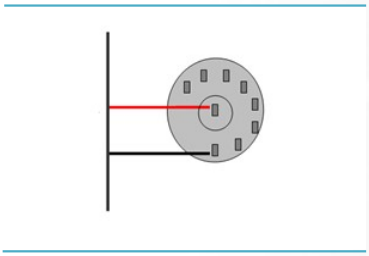
WMI Flow Limp - When the WMIFinal is > 2% the WMIFlow is monitored and if it is less than WMIFlowLimpLowThreshold for WMIFlowLimpLowTime then WMILimpMode will be set.

Calibration Switch / WMISelect Switch

The WMI controller can allow users to have different base duty maps and limp modes in use depending on the WMISelect position. The Calibration Switch section looks up the WMISelect switch which can be feed in from CANbus on generic receive or if the OEM Can receives supports it (see page 11). Users can also wire in a dedicated rotary switch to a spare AV input.
https://www.syvecs.com/product/calibration-switch/

Select the Switch source in SCAL - Sensors – WMI Select Switch – WMISelect Switch Source

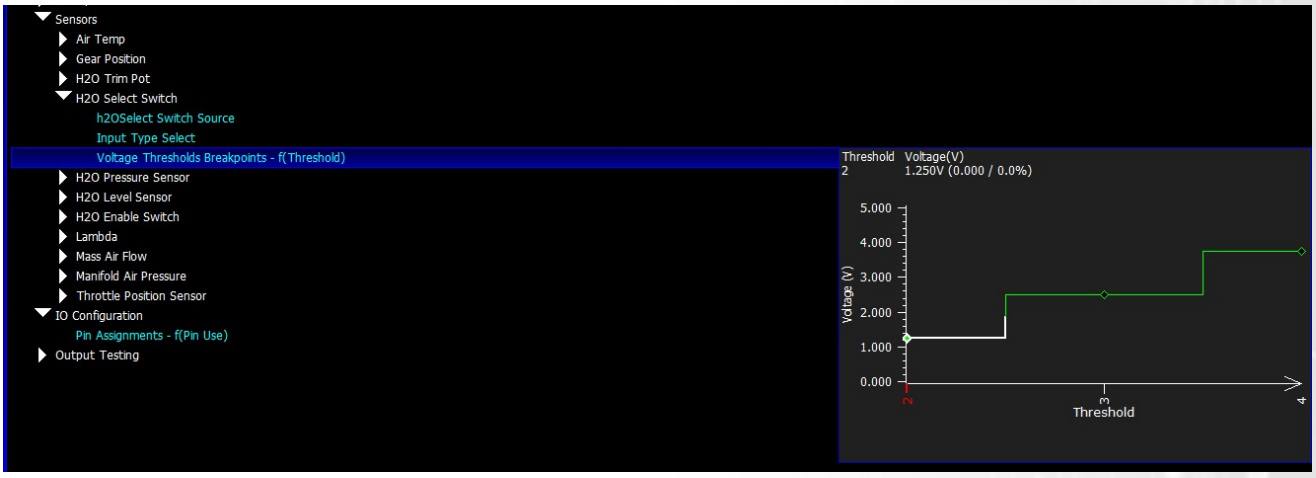
Example Schematic



Pin Schedule

Pin Number	Function	Notes
A25	Ground	May be shared with multiple sensors
A21	AN1	Any AV input is supported

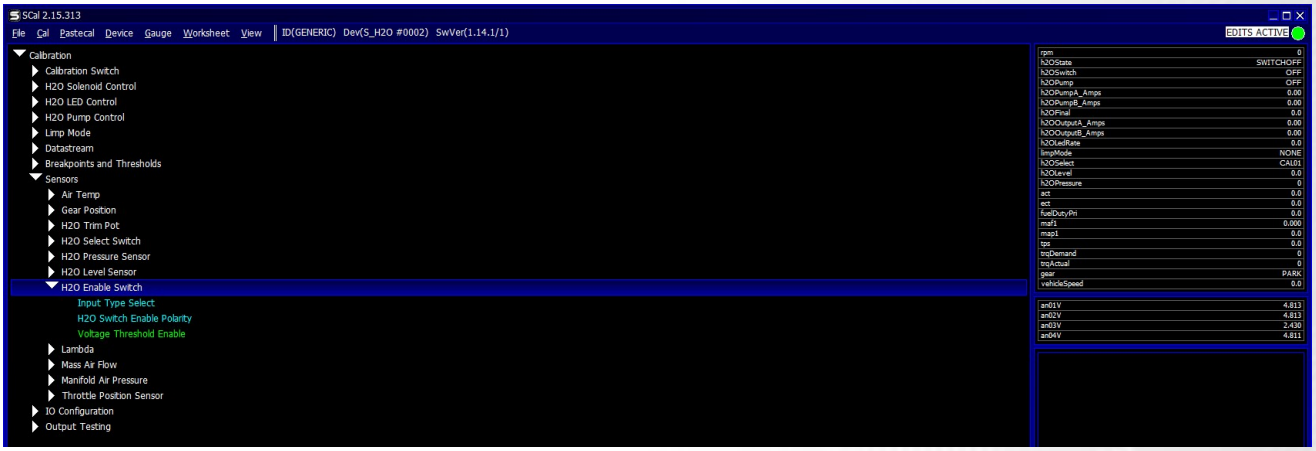
Set the voltage thresholds for each position in the below map. WMISelect will then update when the voltage is greater then set



WMI Enable Switch

The WMI controller has an enable switch input available to stop strategies being active unless the switch is ON.

When the switch is OFF it will cause the WMIState to present SWITCHOFF as below



After assigning the input the strategy will become active and users need to setup the Enable polarity and Voltage Threshold for enable in Sensors – WMI Enable Switch.

Strategy Help

All the strategies/maps on the WMI controller have help text available for them. This is shown by pressing F1 on the keyboard when in Scal when a calibration is open.