Syvecs Cal Switch

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 accepts no liability whatsoever for any damage caused by the incorrect installation or configuration of this equipment.

Note: Due to regular firmware development, images shown might not be the same as more recent firmware versions, please check our forums for updated manuals and changes. Support can be obtained by contacting your Syvecs dealer.

Syvecs Cal Switch
Manual Version v0.1
SCal Software Version 2.15.332
Hardware Version 2
Software Version All
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Table of Contents

Introduction

The Syvecs Calibration Switch is a simple universal multi-position switch used for map switching on almost any after-market ECU.

The Syvecs Calibration Switch has the following hardware features:

- Simple 2 wire connection.
- Up to 11 positions from a 5v external pull up.
- Adjustable detent lockout ring adjustable from 2 to 11 positions.
- Comes fitted with Deutsch 2 pin connector and supplied with mating pins and connector.

Specifications / Maximum Ratings

Outputs

11 positions via one signal wire.

Power Supply

5v – 3k Ohm Pull up required if no internal pull up is available. (Syvecs Unipolar and Thermistors inputs has 3k Pull up already)

Physical

Panel mount via 10mm hole.
Max panel thickness 4mm
Max external diameter 30mm
Max shaft length 42mm
Max overall length 75mm
Mating fly-lead length 80mm

Pinout - Connector A

Syvecs Abbreviations	Pinout	Colour	Description
Signal	1	White	Signal out to ECU analogue input
Ground	2	Grey	Sensor Ground

Connections

The Syvecs Cal switch has two wires. White, and Grey.

Connection is as simple as connecting Grey to Sensor Ground, and White to a spare analogue in pin, ideally with 5v input pull up available.

Strategy Help

Setting the calibration threshold is carried out as follows:

Measure the voltage of all cal positions. The example below were measured from a random sample, however all units should be similar.

Next add two consecutive voltages and divide by two, the remaining value is added to the first (lower) value, to give the threshold value.

For example, Cal position 1 and 2 are added together and divided by 2, the result is then added to 1 giving the first threshold value as 0.33v. This means that if the voltage is read as below 0.33V the ECU will calculate that as Cal Position one, and if above 0.33V will be calculated as position two.

This is repeated and gives the chart values below:

Cal Position	Typical Voltage	Scal Threshold
1	0.02	0.33
2	0.63	0.94
3	1.24	1.56
4	1.88	2.14
5	2.40	2.68
6	2.95	3.20
7	3.46	3.69
8	3.92	4.11
9	4.30	4.45
10	4.59	4.68
11	4.76	4.68

You will note that thresholds 10 and 11 have the same values. This is because the CAL switch can only show 11 positions from a 5V pull up which require 10 threshold positions.

This data is then populated into the cal position threshold values, as shown in this Syvecs example below from within Sensors > Calibration Switch > Multi Position Switch > Threshold Voltages.

Additionally make sure input pull-up enabled is set to ON. You may need to refer to the respective ECU manual to enable this and/or make sure you connect to a suitable input that does.
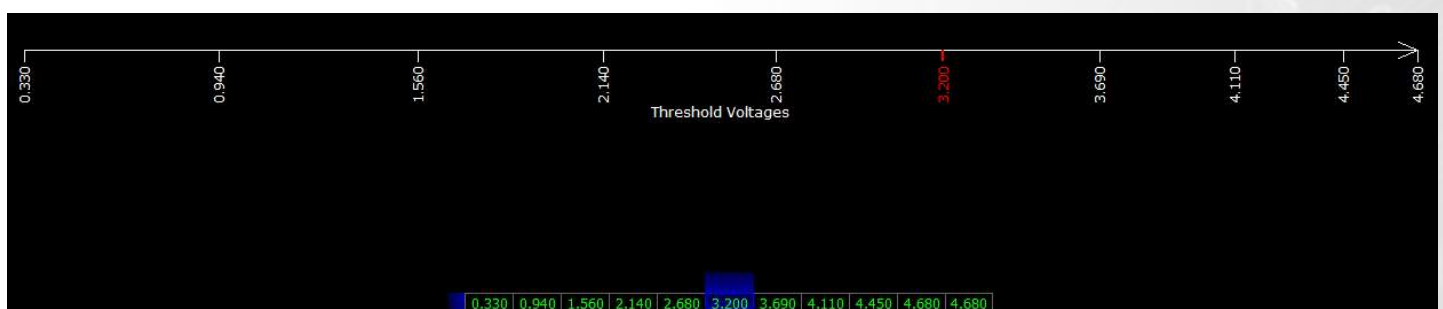
The ECU will need to be Device > Programmed after this has been changed, and the cal position switch will now be configured and ready to be assigned to respective maps/tables.