

MoviChip

Cam Switch 3

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Thank you for choosing MoviChip

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CAM SWITCH 3

1. Overview

The CAM SWITCH 3 allows the user to trigger two camshafts (which require a 12 volt, on/off signal) independently using up to three sensor signals.

An example.

Intake camshaft is triggered when the MAP signal is above 50% **AND** RPM is above 5000 **AND** MAF signal is above 40%.

MAP and MAF sensors can be changed to any sensor you wish as long as their signal range is 0-5 volts.

The CAM SWITCH 3 is designed to work with Nissan VVL engines and any engine which uses dual profiles on a signal camshaft and where the second profile is engaged with the use of a 12 volt power signal. Cam Switch 3 can be used with engines which trigger intake/exhaust independently, trigger together or engines which only have dual profiles on one camshaft.

2. Wiring

2.1. The separate connector with the purple slider is **numbered across the top with letters down the side** which are indented into the plastic. The white labels mirror the indented characters See *image*.



The table below mirrors the layout of the connector.

2.2. Bare Connector

If you have purchased a bare connector, populate the connector with your wires (minimum 20AWG/0.8mm diameter) as shown in the table below. Colour of wire used for each terminal is entirely up to you.

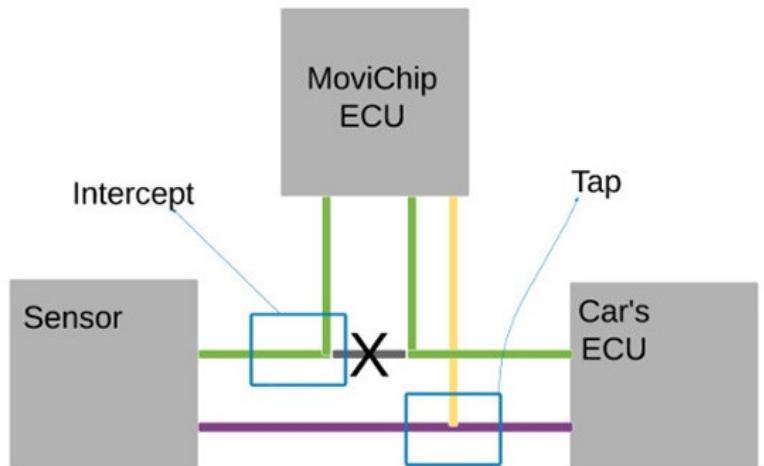
2.3. Pre Populated Connector

If you have purchased a pre-made loom, trace the wires back to their connector location to determine their purpose. The colour of the wires is irrelevant. The colour of the wires does not identify the purpose of that specific wire.

2.4. CAM SWITCH 3 Pinout

CAM MANAGER	8	7	6	5	4	3	2	1
A	To CAM1 Neg	To CAM2 Neg	MAP SIGNAL IN (5 Volt)	MAF SIGNAL IN (5 Volt)		RPM SIGNAL IN (5 Volt)	SENSOR1 POWER + 5V	SENSOR 1 GROUND
B			TO CAM1 + (12 Volt)	SENSOR2 POWER + 5V				IGNITION 12V + (1 AMP)
C	To BATT Neg (Relay Ground)	To BATT + (Relay Power 5 AMP)	TO CAM2 + (12 Volt)	SENSOR 2 GROUND	CAM1 TRIG SIGN 5 Volt Out (To ECU)	CAM2 TRIG SIGN 5 Volt Out (To ECU)		BATT Neg 12V -

COLOUR KEY (NOTE: WIRE COLOURS IRRELEVANT)	
Red	INTERCEPT
Yellow	TAP. IF USING MAF AS LOAD SIGNAL TAP BEFORE INTERCEPT
Green	TAP TO SENSOR GROUND EVEN IF +POWER SUPPLY NOT USED
Blue	ADD INLINE FUSE
Orange	OPTIONAL, USE IF REQUIRED. 0.5AMP CURRENT DRAW MAX
Purple	OPTIONAL



3. Set Up

3.1. Bluetooth

IMPORTANT: When Bluetooth (BT) is connected it will delay the response time of the CAM SWITCH 3.

Only connect to BT for setup or diagnostic purposes.

Connecting the Cam Switch 3 unit to your Android device.

With the CAM SWITCH 3 turned on i.e. with the vehicle in the ignition "On" position, open the "Settings" menu on your *Android* device (*not* the CAM SWITCH 3), go to Bluetooth, turn Bluetooth on, when CAM SWITCH 3 appears, pair your device. Password 1234.

Only then open the CAM SWITCH 3 app, press the Bluetooth image and connect your Android device with the CAM SWITCH 3.

Check that the wiring is correct by pressing the "Read Sensors" button and opening each sensor menu to see that the sensors are sending data to the app.

3.1.1. Reading Sensors

To start communication between the Cam Switch 3 unit and the Cam Switch 3 app click the "Read Sensors" button after completing the Bluetooth Connection.

3.2. Settings - Basic

Cam Switch 3 triggers up to 2 camshafts independently and sequentially.

The order of cam activation thresholds.

Sensor 1 > RPM > Sensor 2.

When the Sensor 1 threshold is exceeded by the Sensor 1 signal, Cam Switch 3 will then look at the RPM threshold.

When the RPM threshold is met the unit will then look at the Sensor 2 threshold.

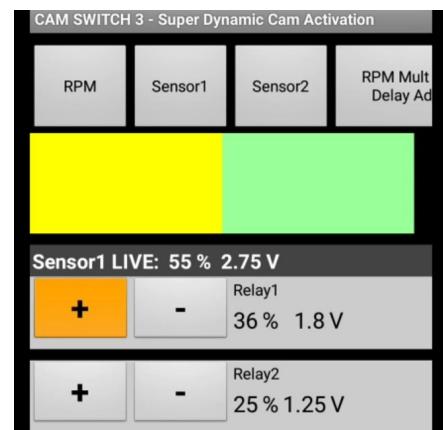
When Sensor 2 threshold is met the relay will be activated.

Terminology - When the sensor value exceeds the load point, the threshold will be "met"

3.2.1. Thresholds

The first step in setting up the CAM SWITCH 3 is to set your threshold points.

Open the RPM, Sensor 1 and Sensor 2 menus individually.





Press the "Adjust Switch Point" button in the top right.

This will bring up the current threshold settings for each of the sensors.

Press the "+" and "-" to adjust the threshold to your requirements.

If you **only** need to use Sensor 1 and RPM to trigger your camshafts, set Sensor 2 threshold to 0.

The cams activate sequentially & individually. Relay/Camshaft 1 first and then Relay/Camshaft 2.

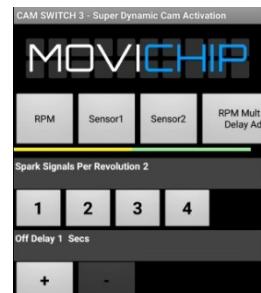
The cams deactivate **together** when the threshold **RPM** value for **Relay 1** is no longer met **or** when the **Sensor 1** threshold value for **Relay 1** is not longer met.

3.3. RPM Multiplier & Delays

"RPM Mult & Off Delay Adjust" menu.

3.3.1. RPM Calibration - Spark Signals Per Revolution

In this menu we calibrate the RPM by choosing how many trigger events (**0-5 volt input signal ONLY**) we have per engine revolution.



3.3.2. Off Delay

Here we can choose how long the cams will remain activated **after** the threshold values are no longer met.

3.4. External Signal

The Cam Switch 3 will output a 5 volt signal to an external ECU for **each** relay. When Relay 1 is activated it will output a +5volt signal and likewise for Relay 2.

See the wiring diagram above to identify which pins output the signal.

4. CAM SWITCH 3 – "Options"

Click the "Options" button to open the Options menu.

4.1. Names

The names of Sensor 1, Sensor 2, Relay 1 and Relay 2 can be changed to suit your application. Type in the new name and click "Update"



4.2. Colours

Below the top menu are two indicator bars. These bars expand downwards when the relevant relay is activated. The left bar indicates Relay 1, the right bar Relay 2

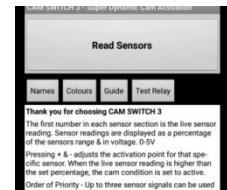
The colour of these bars can be changed. In the "Options" menu, click "Colours". Use the slider to choose the colour and press Relay 1 to assign that colour to that indicator.

4.3. Guide

Clicking the "Guide" button brings up a very *brief* break down of this instruction manual.

4.4. Test Relay

You can test each relay individually. Click "Test Relay" to open the menu. When the Cam Switch 3 is in this menu ***the normal operation of the unit is bypassed***. Only use the Test Relay function when the vehicle is stationary. If the colour of the button is not updating, click the "Read Sensors" button.



5. Alternate Uses

The Cam Switch 3 triggers camshafts sequentially. Camshafts whose profiles are switched with a 12v on/off signal.

The Cam Switch can be used to trigger other switches/motors/pumps (not PWM) if they require a:

- 12volt signal to switch on **and**
- their current draw is less than 3 amps **and**
- as long as the sequential type of activation is compatible **and**
- the method of deactivation** is compatible ie both relays being **deactivated together** when the RPM threshold or the Sensor 1 threshold for Relay 1 is no longer met.

