# Syvecs LTD

V1.1

Yaris GR
AWD 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
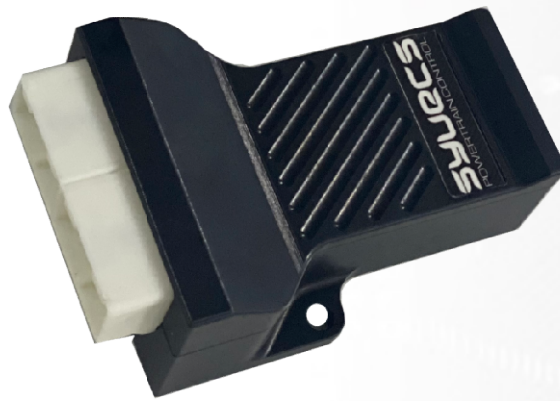
Contents

1 x Syvecs Yaris AWD Ecu
1 x BurnOut Switch **(Optional Extra)**
1 x 20k Rotary Potentiometer **(Optional Extra)**

Installation

First you need to locate the OEM AWD Ecu on the Yaris, this is found in rear right section of the car

To access, you need to remove the rear seats by pulling upwards on the front edge of the seat cushion as show below

Once removed, you will find the OEM AWD Ecu behind the panel highlighted below, unplug it and remove

Unplug and remove OEM Controller, bolt the Syvecs Yaris AWD Unit in its place

When mounting the Syvecs AWD Ecu it's best to plug in the USB Cable at the same time and route the cable into the front if you are planning to do live communication with the Unit. The USB port is found by removing the Hex plug on the front of the unit.

The AWD Unit will come pre loaded with a base calibration that has default values which simulate an OEM AWD unit. Use Syvecs - Scal software to adjust. See last Page

Controls

FWD Drive Mode / Burn-Out

1 .) First method is via activating the Hazards
This will bring on a 4wd test mode light on the dash to illustrate that FWD Drive mode is
Active. To switch it back to AWD just turn off the hazards.

2.) Second Option is via wiring in a Burnout Switch to AN01 Input on the Syvecs
Awd controller. AN01 has a internal 5v pull-up set so the input will sit at 5v, the
other side of the Switch needs to be connected to Ground on the chassis or via
Ground Pins on the Syvecs AWD Controller.

When AN01 is less than 3v it will activate 2WD Mode / Burnout Mode.

**4WD light warning in Burnout Mode is optional and can be turned ON or OFF in
Scal software. SCAL - Two Wheel Drive Control - Awd Light Active in Burnout**

Live Adjustment Potentiometer

Users can have the ability to adjust the AWD Duty live via a laptop or with a
external potentiometer with the Syvecs AWD Unit. A 20K Rotary Potentiometer
can be wired to the AN2 input of the Syvecs Controller and it will apply a multiplier
to the Duty. Wiring for the Pot is here --- >
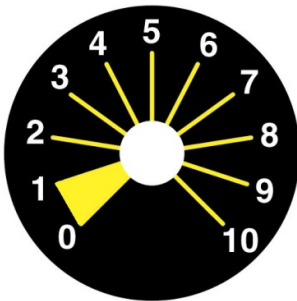
0 -1 = No Adjustment (Logic Off)
1 -2 = 0.6 Multiplier (Less Duty)
2 -3 = 0.7 Multiplier
3 -4 = 0.8 Multiplier
4 -5 = 0.9 Multiplier
5 -6 = 1.0 Multiplier (No Adjustment)
6 -7 = 1.1 Multiplier
7 -8 = 1.2 Multiplier
8 -9 = 1.3 Multiplier
9-10 = 1.4 Multiplier (More Duty)

External DTM4 Pinout

DTM4:

Pin 1 – Ground (Black)
Pin 2 - AN2 (Blue) – AWD 20k Pot
Pin 3 – 5v Out (Red)
Pin 4 - AN01 (Yellow) - Burnout Switch

Burnout Switch – ON = AWD / OFF = 2WD
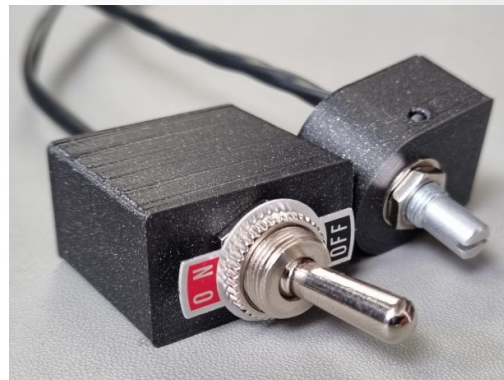
Calibrations of the AWD ECU

Users have the ability to adjust all the controls of the Syvecs AWD Unit via our Scal program that's part of SSuite. This can be downloaded from https://www.syvecs.com/software/

The USB port for communication is found under the main connector which is protected with a Allen key plug. Remove the plug and connect a Micro USB Cable to the AWD Unit and the other side to a Windows Laptop or PC.

Open the Scal software and select **Device - Connect** Tab at the top. This will connect to the device and grab the calibration from it. If the unit has just been updated then no Cal will be present and Users need to program defaults or load a base map.

IMPORTANT:
The AWD Ecu can be connected to and programmed outside of the car as it will power up of the USB cable alone. PLEASE NOTE: If you are connecting the Usb to an Awd Ecu before the Unit is powered up from the car power systems it will enter a bootloader state until a **Device –Connect** is preformed. If wanting to connect to the unit in the car then connect the USB after the Ignition is **ON** or perform a **Device –Connect** first to bring the unit into main code.

Green Maps can be changed live, Blue maps require a **Device – Program** for the calibration change to be flashed into the device.

When all calibration work is done, users must do a **Device – Program** so the green maps which have been changed get flashed and stored in memory.

Main Code Updates

Please watch the help video here - https://www.youtube.com/watch?v=RuXkm_9gBRU

Youtube – SyvecsHelp – Syvecs AWD Firmware Update Guide

Calibration Switching on the AWD ECU

The Syvecs AWD Unit allows for users to be able to adjust many aspects of the control strategies inside the AWD Ecu via either an external switch or via OEM controls / buttons with plug in AWD units.

At the top of the Scal AWD Calibration tree you will find the Calibration Switch section which list all the maps that can be adjusted based on awdSelect position. There is 4 positions available which can be used to adjust multiple duty maps or if limp modes are active.

Users are able to see the active awdSelect position by viewing it via the right item list. Double clicking on the item will bring up a larger gauge.
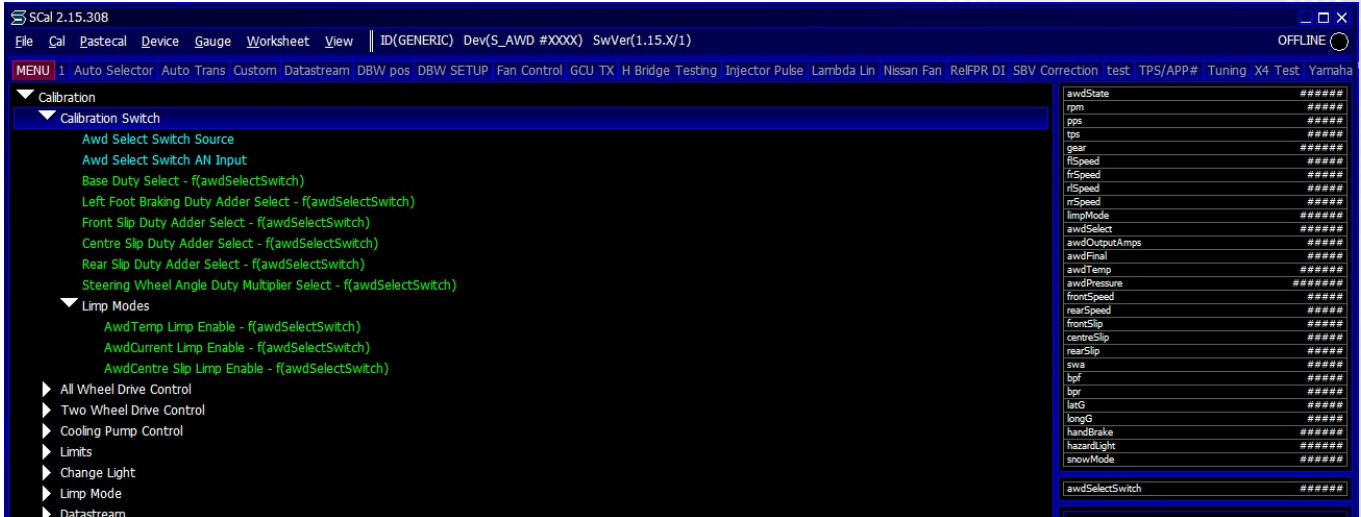
The Yaris AWD unit sets the awdSelect position based on the follow OEM Modes:

Normal Mode – awdSelect = 1
Sport Mode   - awdSelect = 2
Track Mode   - awdSelect = 3

Base Duty 1 is setup for Normal Mode
Base Duty 2 is setup for Sport Mode
Base Duty 3 is setup for Track Mode