Axis Radar for Traffic Signal Detection

- Why Axis?
- System Architecture (how do I connect it?)
- Practical Example (what does it look like?)
- Pros & Cons (the good, the bad, and the ugly)

Green Signal

I'm not here to say that the Axis radar is the best. I was asked to assess it by a council I work for, and they are happy for me to share my findings.

Why Axis?

- Familiar (for installers, and operators)
- Easy to mount (straight on a pole like a camera)
- Easy to cable (CAT5, no special cables or power supplies)
- No Special Configuration tools (ie Axis discovery tool, web browser)
- Can be added to Video Management System

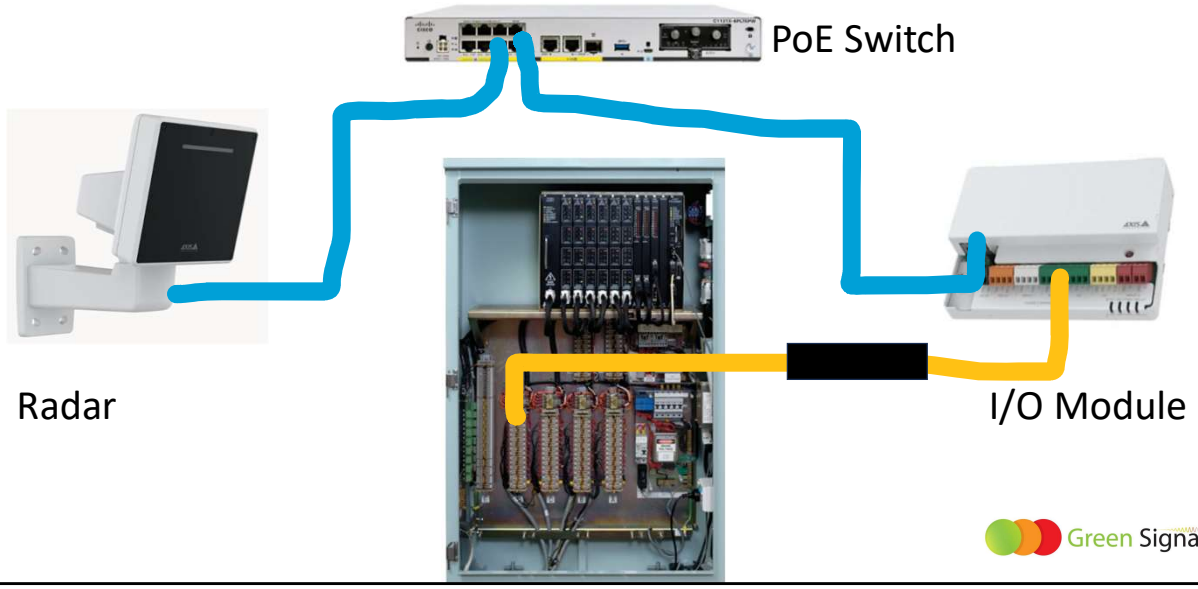
Green Signal

Almost all of us have experience with Axis cameras. Whether we are installers, configurators, or users, the Axis radar is familiar. The brackets are the same, the configuration tool is the same, and the setup is the same. And if you have network monitoring tools with the Axis MIB, the points you monitor are the same.
It can be set up or tweaked the same way you currently work with your Axis cameras.

You can install it across a wide range of heights, and it detects with a 90 degree field-of-view. So you don't need to as fussy with the installation location.

And if you are having some strange activity at your intersection, you can view or record the output into your video management system, including movement trails and speeds.

System Architecture



The radar installs the same as a camera. You put it on a pole, point it, and connect it to the network by PoE.
You then configure it, by setting the mounting height, importing an aerial photo or CAD drawing, and creating an Axis event.

Physically, you have the radar and an Axis I/O module. The I/O module can act as the outputs for multiple radars on site. And both the radar and the I/O module connect by CAT5, and power by PoE.

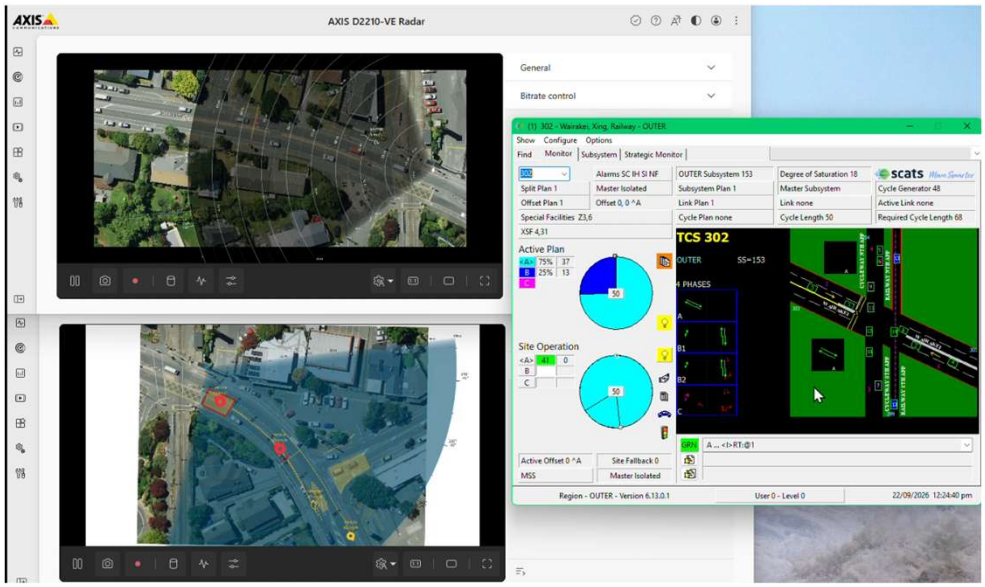
You also need a relay to connect the I/O module to the EXT input on the controller.

Practical Example



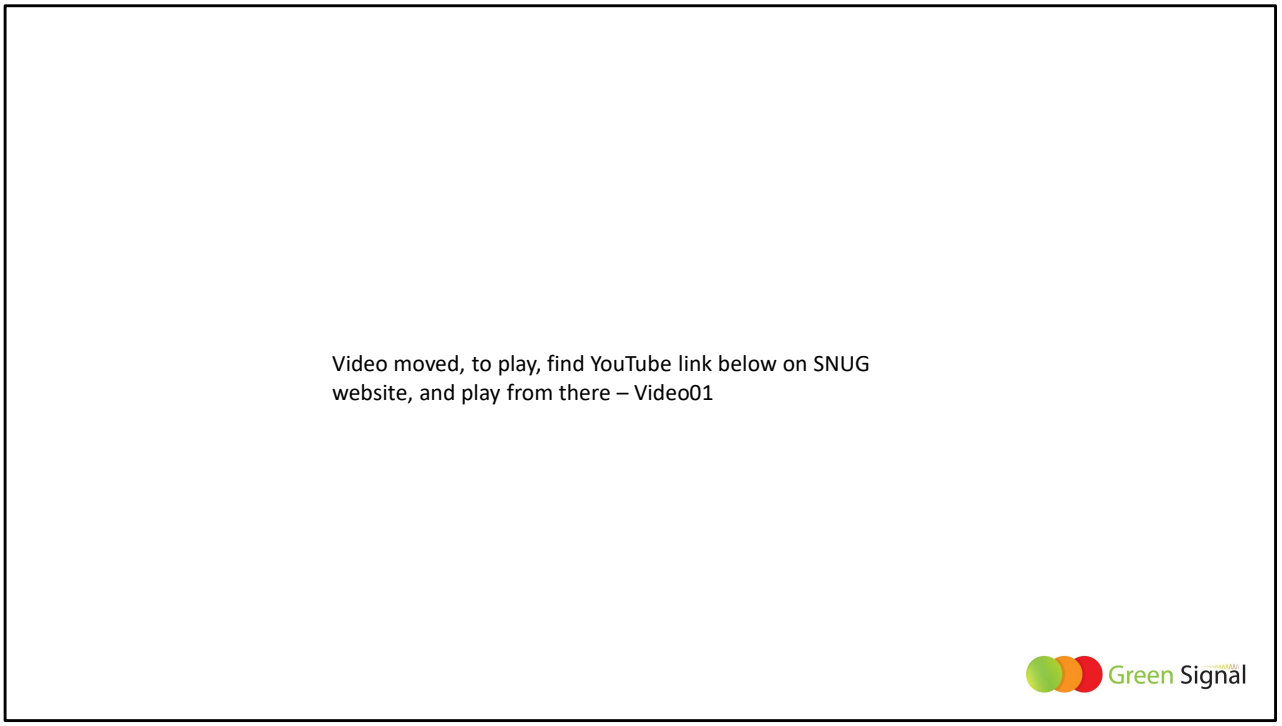
On the left pole we have 2x radars, the right pole has 1, and the centre shows the I/O module installed in the controller cabinet.

Practical Example

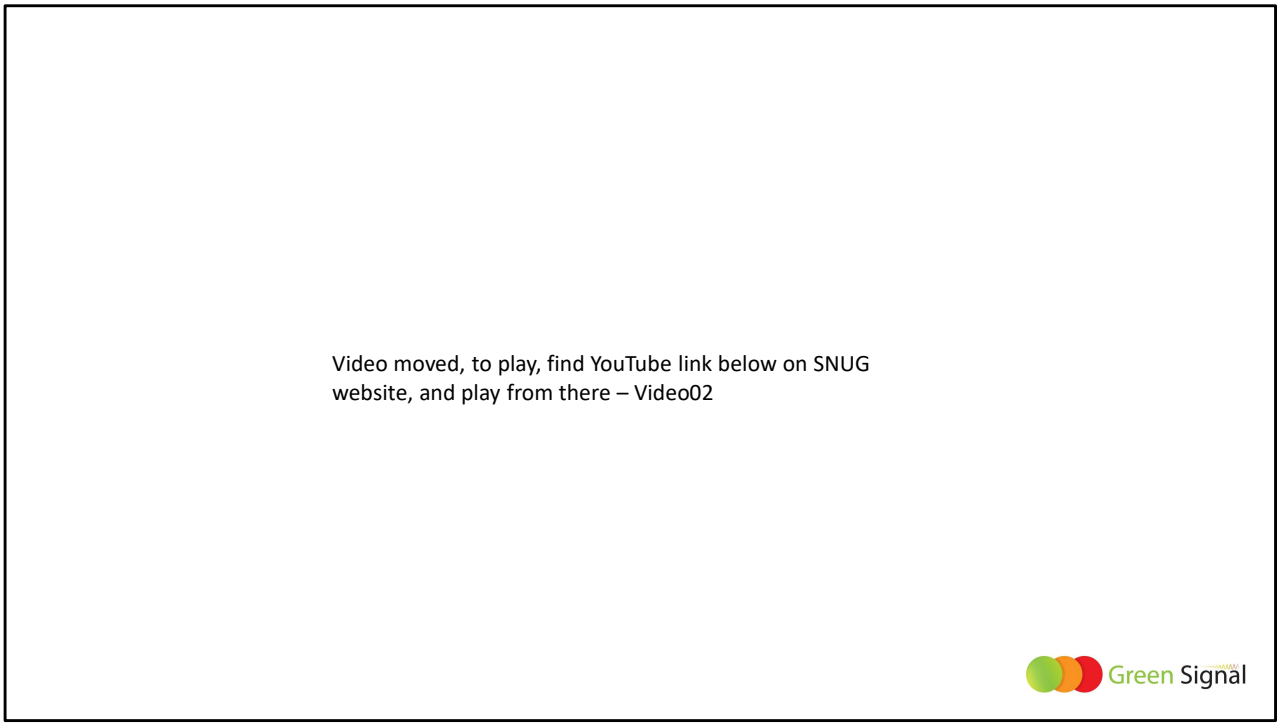


Green Signal

Now some videos to show how it looks operating.



Talk to the video. Link the radars to the SCATS inputs etc. 2 min 33 sec.



This video covers the general setup steps. 2 min 19 sec.

Video moved, to play, find YouTube link below on SNUG website, and play from there – Video03

Green Signal

This video covers off setting up the scenarios and base map etc. 2 min 16 sec.

Practical Example

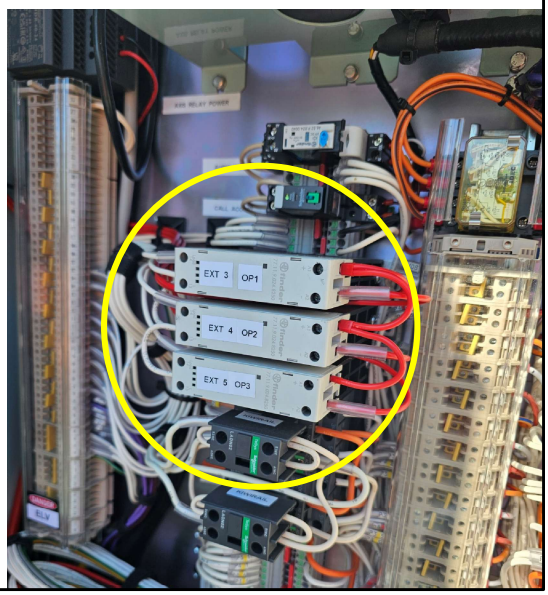
Solid State Relays

The relay operates for every vehicle. AADT counts for this section of road are 17,300 vehicles per day.

An Omron LY2 relay is rated for 200k – 50 million operations.

So somewhere between 12 days to 7.5 years for a mechanical relay.

A solid state relay with billions of operations will be a much more robust solution.



In this installation we needed to use Solid State relays? Why?

Explain why we need to use a relay, and can't just use the open-collector output.

Also explain about the fact that the relay triggers for every car.

Pros & Cons

Pros

- Easy to configure (incl remote tweaks)
- Easy to cable
- Easy to use
- Can be set to trigger by class, and at minimum speeds, so a slow cyclist or vehicle doesn't trigger if not wanted
- Can do additional tasks by MQTT or with Axis cameras.

Cons

- Requires a network connection
- Network Delays can cause slow detections at the controller
- Requires a relay interface to a TCS4 logic rack
- Can't do occupancy / detect stopped objects.

Green Signal

The biggest disadvantage is that we can't use this to replace a loop, as it won't continue to detect