

ADVANCED RADAR VEHICLE ACTUATION >>

What is ARVA?

ARVA is an advanced form of radar based Vehicle Actuation (VA) for portable and temporary traffic signals. ARVA is the abbreviation for Advanced Radar Vehicle Actuation.

Traditional VA systems for portable signals use simple Doppler radars as the detection input for the signals. Owing to the lack of high quality detection data, these detectors give rise to a host of known inefficiencies in the system and hence whilst providing an effective VA system it is one that is less than optimised.

The radars used on the ARVA system are specially designed, low-power, FMCW radars which are capable of separately tracking each approaching vehicle with their associated range and speed. This data rich detection can be used to reduce false detection rates, increase detection reliability and further optimise the green signal timings for better traffic flow.



What are the Benefits of ARVA?

Some of the functional differences to be seen by the user of a system running ARVA:

Complete weather invariability

No false alarms owing to driving rain

Correct operation under or near high tension power lines

Invariability of detection range owing to target type (traditional Doppler radars can have possibly 90m for an HGV)

Closing of a green phase faster after the last vehicle has passed

Closing of a green phase much faster if only a few cars have made a phase call

When a queue begins to lengthen on one end the max Green time will be extended to help clear the queue

The max green time will continue to be increased (up to a pre-set max) should the queue not be readily cleared

The green phases will dynamically adjust allowing for 'tidal flow' conditions at different parts of the day.

Near elimination of green extension 'gap out'

The optimum phase rotation based on 40m platoon gaps

For a standard 2-phase system on a 50m length of roadworks which is equally congested using ARVA, up to a 24% increase in cars per hour is possible over traditional VA based systems based on 'Pink Book' recommendations.

This can reduce driver frustration and remove the need for Manual Control on those sites where traffic density is such that ARVA can manage.

Future Developments

This initial implementation of ARVA is a first step of improving traffic control at portable/temporary traffic installations. A second wave of ARVA functions are currently under development to handle even more congested sites as well as introducing new safety features using the available radar data to make next generation intelligent portable/temporary systems.

