

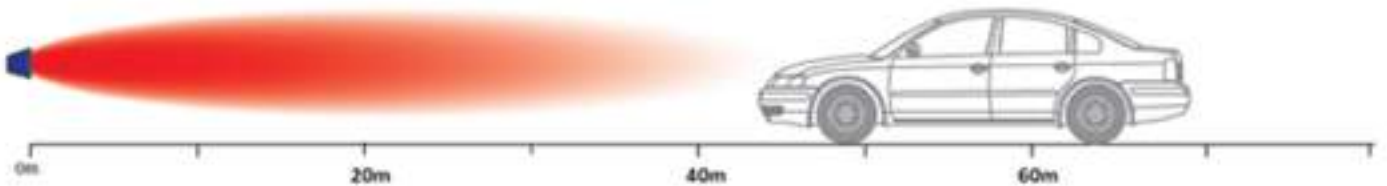


SRL Adaptive Detection System (ADS) with Advanced Radar Detection

SETUP GUIDE



SRL's ADS system is incredibly easy to set up for rapid deployment. Once the system is set up, it begins to optimise max set timings, adding time to each approach when it has reached its saturation point. The system also allows for HGV start lag (HGVs are slow off the mark) allowing extra time for them to get moving and clear the site. Once the system has seen morning peak and evening peak, the system is fully optimised, however, it still has the ability to make dynamic changes when required.



The system uses SRL's advanced FMCW (Frequency Shift Keying) Radar. This has the ability to determine the range and speed of the vehicles approaching. It is also configured to ignore vehicles going away from the signals, so there is no false detects from vehicles on the opposite carriageway.

The system relies on the detectors high accuracy to detect vehicles and cyclists at the farthest point of 60m and track them to the stop line (the point where vehicles and cyclists must stop when red light shows). This will track multiple vehicles at any one time in this zone, allowing the system to identify platoons of vehicles and any gaps in traffic. In turn, this allows the signals to 'gap off' (go to red) and the vehicles to 'green on' another phase as efficiently as possible.

Key Benefits

- Rapid installation (only basic timings required)
- No site visits to make timing alterations
- 50% more efficient than standard signals
- False start rectification (no stuck reds from vehicles failing to move first time)
- Adapts to present traffic conditions
- Can be used up to 4-way control

Note: This can **only** be used on EM signals and **cannot** be used with Peds.

Detection

The radar has three detection zones

Det 1 RAG head – 20m demand only (SL) 4 kmph

Det 2 RAG head – 40m demand and extend 8 kmph

Det 3 RAG head – 60m extend only 8 kmph

Falling relay 500ms

Radar GAP time is 2s

Controller Logic

- 1 Logic allows the maximum green time available to increase incrementally once the maximum green time has been met.
- 2 There is an absolute **max** which is configurable with 100s limit.
- 3 The default absolute **max** is 60.
- 4 The starting **max** is 20.
- 5 The increment counter is a fixed value once configured i.e. it is static set to 3 but can be configured (no upper or lower).
- 6 The decrement counter is a fixed value once configured i.e. it is static set to 1 but can be configured (no upper or lower).
- 7 On changing the max value both the running increment and decrement counters need to re-zero.
- 8 Each approach operates independently.

In a working example:

The controller runs to its max of 20 seconds for one cycle. If the max is met, the max will increase by 3 seconds making the new max 23 seconds.

The controller runs to its new max of 23 seconds for one cycle again. If the max is met again, it will increase by 3 seconds making 26 seconds.

This would then continue extending the green time up to the absolute max if the approach keeps extending i.e. it adds 3 seconds for every max cycle.

OR

In the event that the max is not met, the max will decrement by 1 second and so on.

Faults Start Correction

If a phase has a demand and det 1 isn't activated on **green**, there will be a latched demand for the next cycle.

- 1 Ensure batteries are fully charged and all connections are secure. Turn on the EM controller via the **'On/Off'** button.
 - Using **'Signal/Layout'** for Signal and any **+** or **-** button to set to **Signal 1**, also known as the Master.
 - Press **'Enter'** to save.
 - Using **'Signal/Layout'** button, for **'SET PROGRAM TYPE'** then any **+** or **-** button to set to **'Adaptive Detection System.'**
 - Press **'Enter'** to save.



2 In this example we will be setting up for a 4-way. Achieve this by pressing the **'Signal/Layout'** for **'Input number of phases.'**

- Using the **+** and **-** buttons select the number of phases you require. In this example, we will select **4**.
- Press **'Enter'** to save.



3 Using the **Signal/Layout** button again for **'In Phases Number of Signals'**. This will default to 1 signal per phase, unless you have multiple signals in each phase then input accordingly.

- Press **'Enter'** to save.



- 4 Using the **'Times/VA'** button, leave **Green Times** at **60** and change **Red Times** to your desired site specifics.

- Press **'Enter'** to save.



- 5 Using the **'Times/VA'** button, check that all phases are set to **VA2**. This is the default setting for ADS to work correctly and this shouldn't be changed.

- Press **'Enter'** to save.



6 Press the **'Display'** button to display **'COMMUNICATION FAULT.'**



- Press **'START.'** All the signal numbers will disappear, and the signals will begin to run, initially running through all phases.
- The following screen will now be displayed, explaining which state each signal is in; this also includes whether a phase has a demand or is demanding.
- A third line is provided to show the ADS systems current MAX green timer.

The system will always start on 30s **max green** and increase by 4 seconds every time the approach reaches its **max** (which is set to **60**). If the traffic then reduces, the system will then drop 1 second every time the approach does not reach its max.



One asterisk means there is a demand for that phase and the signals will service this phase.



Two asterisks means there is a current demand, and the VA detector is seeing traffic.

For further assistance, please contact your nearest SRL depot.

