Multiphase ADS

Available to hire or purchase

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Multiphase ADS

Introduction

Multiphase ADS (Adaptive Detection System) is an advanced model of vehicle actuation, that uses advanced deep learning algorithms and a high-precision radar detector to automatically adjust green times, accurately interpreting traffic volume and speed for optimal flow management.

Multiphase ADS is the only solution capable of 2, 3 and 4-way control.

Key benefits

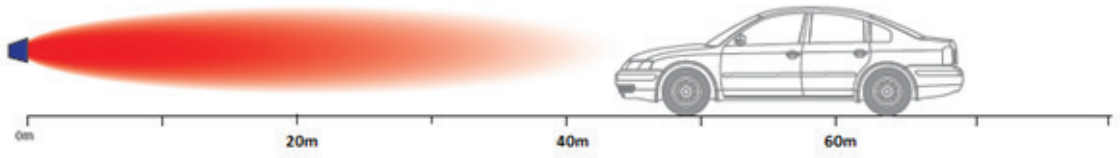
- **Adapts to present traffic conditions**
- **Can be used up to 4-way control**
- **Rapid installation**
  (only basic timings required)
- **No site visits to make timing alterations**
- **50% more efficient than standard portable signals**
- **False start rectification**
  (no stuck reds from vehicles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

How does it work?

Once **Multiphase ADS** 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 slow off the mark) allowing extra time to get moving and clear the site. Once the system has seen morning peak and evening peak the system is fully optimised, however still can make dynamic changes when required.

The system uses SRLs advanced FMCW (Frequency Shift Keying) Radar to determine range and speed of the vehicles. It is configured to ignore vehicles going away from the signals, so there are no more false detects from vehicles on the opposite carriageway.

The system relies on the detector's 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 identify any gaps in traffic to allow for the signals to gap off (go to red) and allow vehicles green on another phase as efficiently as possible.



Detection:

The radar has three detection zones:

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

Det 2 RAG head
40m demand and extend 8 kph

Det 3 RAG head
60m extend only 8 kph

- Falling relay 500ms
- Radar GAP time is 2s

Important Notes:

- Multiphase ADS cannot be used with Pedestrian set ups
- Multiphase ADS can only used on EuroLight, SolarLight and UltraLight signals.
- Multiphase ADS is autoconfigured in UltraLight but must be set up in EuroLight.
- Multiphase ADS is the default mode of operation in REMOS.
- Multiphase ADS must be used with other Multiphase ADS configured signals. If it is installed alongside RadioLight signals, or any other products which are not configured, Multiphase ADS will not work.

Controller Logic

1. Logic allowing 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.

Working Example

The controller runs to its max of 20 seconds for 1 cycle, if the max is met the max will increase by 3 making the new max 23 seconds.

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

This would then continue extending the green up to the absolute max (if the approach keeps extending i.e. add 3 seconds for every max cycle).

OR

If the max is not met the max will decrement by 1 second and so on.

Faults start correction

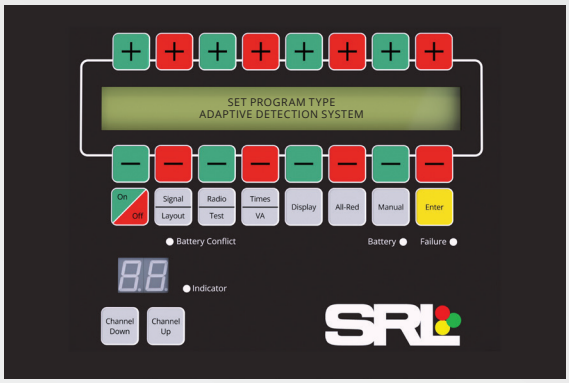
If a phase has a demand and det 1 isn't activated on green, there will be a latched demand for the next cycle.

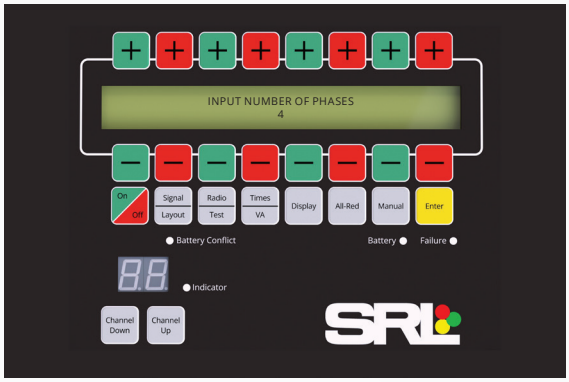
Multiphase ADS Set Up

Step 1

Ensure the batteries are fully charged and all connections are secure, turn on the 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, followed by Enter to save.
- Using Signal/Layout button, for set program type then any + or - button to set to ‘Adaptive Detection System’
- Press the Enter to save.





Step 2

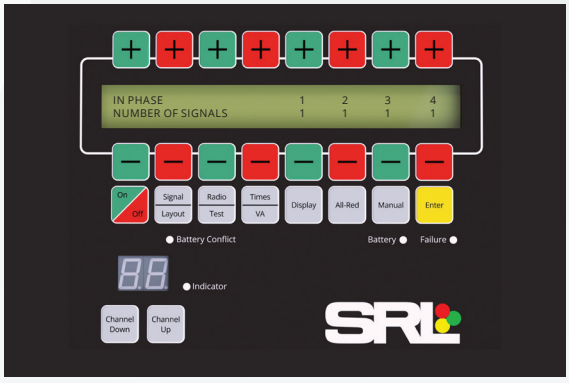
In this example we will be setting up for 4-way. Achieve this by pressing the Signal/Layout for ‘Input number of phases’.

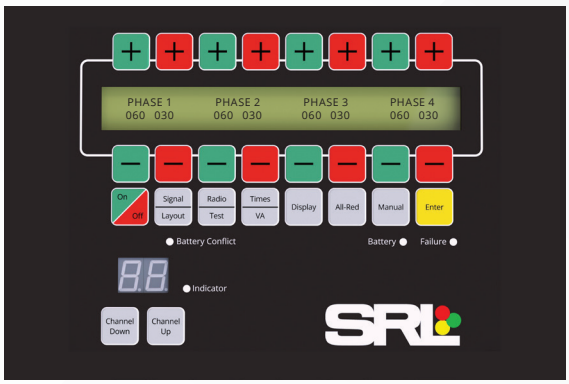
- Using the + and – buttons select the number of phases you require. For this example we will select 4.
- Press the Enter to save.

Step 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.





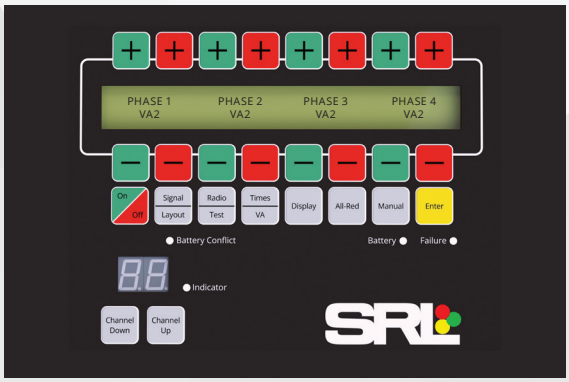
Step 4

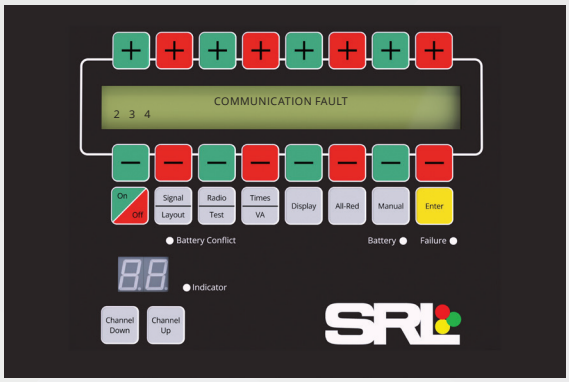
Using the Times/VA button, leave green times at 60 and change red times to your desired site specifics.

- Press Enter to save. changes.

Step 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 need be changed.





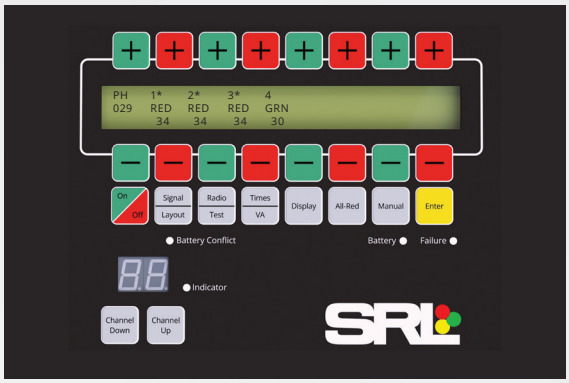
Step 6

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 (**) mean there is a current demand, and the VA detector is seeing traffic.

For further assistance, please contact your nearest SRL depot.

You can find your nearest depot by scanning the QR code