Heimdall traffic detector family

Heimdall above-ground detectors offer a complete range of detection systems for use in many modern traffic and pedestrian control applications.

Using the latest 24GHz radar technology, these detectors offer high performance, simple installation and low ongoing maintenance, while their small size ensures that unnecessary street clutter is minimised.

Patented technology
At the heart of each detector is a technologically advanced planar radar antenna system and a sophisticated digital signal processing engine. Developed by Siemens, these incorporate patented features that enable Heimdall to offer a wide range of detection solutions, including:

- Dual lane vehicle approach
- Single lane vehicle approach
- Stop line
- Selectable speed activation
- SCOOT
- MOVA

To deliver these solutions effectively, the Heimdall family incorporates many unique benefits, including:

Simple installation
Heimdall detectors are supplied pre-configured with standard settings, which are suitable for the majority of installations. When on-site customisation is required, this can be achieved using simple configuration switch settings, which eliminates the need to use expensive and vulnerable PC or PDA-based configuration tools. Only when access to advanced settings or detailed fault log information is required will it be necessary to use a PC or a PDA. If required, Heimdall can be supplied with Bluetooth functionality, allowing these functions to be accessed from ground level.

PC and PDA access can utilise a simple terminal program, so it is not necessary to purchase expensive propriety software to access Heimdall detectors using these tools.

High performance
Unlike some vision-based systems, Heimdall’s radar technology eliminates false detection due to light level changes and the effect of shadows and will continue to work equally well in both bright and totally dark locations. Similarly, the effects of fog and rain, which can severely affect the performance of vision-based systems, go largely unnoticed when Heimdall is deployed, ensuring the best possible performance of the road network, whatever the conditions.

Reduced maintenance
Ongoing maintenance costs are sometimes a concern, particularly with camera-based detection systems, where frequent lens cleaning may be necessary to maintain performance. Heimdall’s radar-based technology means such maintenance is not required, offering considerable cost savings.

Each detector in the Heimdall family offers unique features and performance characteristics, providing a complete range of solutions for all your detection needs.

Dual lane vehicle approach
The CW Doppler-based dual lane vehicle detector is typically used to detect and monitor vehicles at signalled junctions, or wherever the detection of moving targets is required in a long detection zone, for example, to provide demand and extension requests to an associated traffic controller.

The zone is broad enough to cover two approach lanes simultaneously, and the detector is able to discriminate between approaching and receding traffic.
’Heimdall is the Watchman of the Gods in Norse mythology. He requires less sleep than a bird and can see a hundred miles around him, by night as well as by day’

- Full family of detector solutions
- Simple installation
- Low maintenance
- Immune to changing light conditions
- Easy replacement of previously installed units
- Advanced 24GHz radar technology

A set of user-selectable switches is provided to enable the unit’s performance to be adapted for a given installation, for example, allowing adjustment of the low speed threshold parameter for optimum detection performance.

**Single lane vehicle approach**

The single lane vehicle approach detector has all the attributes of the dual lane approach version, but provides a very narrow radar beam and is able to resolve targets within a single approach lane. This feature makes it ideal for the specific detection of vehicles in separately signalled right or left turn filter lanes.

**Stop line**

A unique combination of both CW Doppler and FMCW techniques allows this radar-based detector to provide effective detection and monitoring of vehicles at signalised junctions and in other applications where the detection of stationary vehicles is specifically required.

Simple configuration of presence time is achieved via user-selectable switches and may be defined in set durations of between five and 30 minutes. As well as standard stop line deployments, other typical applications include call/cancel and general queue detection.
Selectable speed activation
Speed threshold setup is achieved via simple configuration switches, with other parameters such as hold and delay times being configurable using a PC or PDA.

SCOOT and MOVA
Designed to operate in a ‘side fire’ configuration, this single lane FMCW radar detector, with advanced signal processing, offers excellent count and occupancy performance as well as good ‘gap’ detection capabilities and is ideal for SCOOT and MOVA applications.

For optimum performance, the detector is mounted at a height of 4m, but they may be mounted at a range of heights from 4m to 8m. Where dual lane detection is needed, a second Heimdal unit may be mounted above the first to cover the second lane.
In keeping with other Heim dall detectors, set-up is simple and can usually be done without the need for a PC or PDA. The Heim dall family of traffic detectors incorporates the following additional features:

**Terminal access**

Although most set-up and simple diagnostic tasks can be undertaken without the need to use PC or PDA tools, access to advanced settings and performance data is provided via a simple handset interface.

![Image of traffic detectors](image)

Identical in operation to similar facilities provided on Siemens controllers and many other Siemens products, this interface can be accessed at the detector via a PC or PDA, using widely available terminal software, without the need to purchase propriety software tools.

**Bluetooth**

Where terminal access is required for configuration and maintenance purposes at ground level, all Heim dall detectors can be fitted with a Siecom Bluetooth option.

PCs or PDAs utilising Siemens’ Siecom software, offer highly secure wireless communication with these detectors, and the Siecom features allow the configuration of many detectors within a region to be easily managed.

**Additional outputs**

Typically, each Heim dall detector offers a single isolated ‘solid state’ output to indicate target detection. An additional output may also be specified to provide further detector output data or a dedicated detector fault output as required.

**Serial data**

For advanced applications, Heim dall detectors can be equipped with a serial communications facility to enable the detector status, configuration parameters and vehicle data – such as speed occupancy and class (where these are provided) – to be accessed remotely.

Utilising industry standard RS485 two-wire serial communications, a number of detectors can be attached to a common pair of lines which can be interrogated on an individual basis via Siemens’ widely used SiTos communication protocol.

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### Basic Description

**Heim dall Radar Detector…**

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Technical specification

General for all detectors

• Approval:
  - UK Highways Agency specifications: TR2505
  - EMC: EN50293
  - Radio approval: EN 300 440

• Supply voltage: 24V AC ± 20% (48 to 63 Hz), or 24V DC ± 20%

• Typical supply current:
  - 143mA (AC)
  - 113mA (DC)
  - 186mA (AC) – with wireless or serial data options
  - 147mA (AC) – with wireless or serial data options

• Dimensions:
  - 150mm (h) x 135mm (w) x 90mm (d) (to the bottom of mounting bracket)

• Weight: Less than 1.6kg

• Standard connection: Defined Bulgin Buccaneer connector and pin-out or internal screw connector for connection of customer defined termination

Specific detectors

Dual lane vehicle approach

• Operating range: At least 10m to 35m from the Stop Line. Typically up to 70m for saloon car
• Lane width: Typically 7.0m
• Vehicle approach speed: 8km/hr (5mph) to greater than 112km/hr (70mph). Configurable detection direction: Approaching, receding or both
• Detector location: Can be located on either the ‘nearside’ primary signal pole or the ‘off side’ primary signal pole
• Detector mounting height: Various heights (above the ground) can be accommodated from 3.3m to 4.0m

Single lane vehicle approach

• Operating range: At least 10m to 35m from the Stop Line. Typically up to 70m for saloon car
• Lane width: Typically 3.5m
• Vehicle approach speed: 8km/hr (5mph) to greater than 112km/hr (70mph). Configurable detection direction: Approaching, receding or both
• Detector location: Can be located on either the ‘nearside’ primary signal pole or the ‘off side’ primary signal pole
• Detector mounting height: Various heights (above the ground) can be accommodated from 3.3m to 4.0m

Stop line

• Operating range: At least 3m from the Stop Line
• Lane width: Typically 3.5m
• Vehicle approach speed: Not applicable (stationary vehicle detection system)
• Detection presence time: At least 30 minutes. Configurable by dip switch settings and terminal
• Detector location: Can be located on either the ‘nearside’ primary signal pole or the ‘off side’ primary signal pole
• Detector mounting height: Various heights (above the ground) can be accommodated from 3.3m to 4.0m

Selectable speed activation

• Operating range: At least 10m to 35m from the Stop Line. Typically up to 70m for saloon car
• Lane width: Typically 7.0m
• Vehicle approach speed: 8km/hr (5mph) to greater than 112km/hr (70mph)
• Speed threshold settings: 8km/hr (5mph) to 112km/hr (70mph) by simple Dip switch settings. Can be configured from 8km/hr to 150km/hr in 1km/hr increments via the terminal facility
• Detector location: Can be located on either the ‘nearside’ primary signal pole or the ‘off side’ primary signal pole
• Detector mounting height: Various heights (above the ground) can be accommodated from 3.3m to 4.0m

SCOOT/MOVA

• Operating range: Single lane adjacent to mounting pole
• Lane width: Replicates the function of a normal SCOOT/MOVA loop
• Vehicle approach speed: 0km/hr (0mph) to greater than 112 km/hr (70mph)
• Detection presence time: At least 30 minutes. Configurable by terminal
• Data accuracy:
  - Count: better than 98%
  - Occupancy: better than 98%
  (Data available serially if SiTos serial link fitted)
• Detector location: Can be located on either the ‘nearside’ primary signal pole or the ‘off side’ primary signal pole
• Detector mounting height: Various heights (above the ground) can be accommodated from 3.3m to 8.0m. Actual SCOOT ‘footprint’ will depend on the mounting height
• Detector Mounting Height: Various heights (above the ground) can be accommodated from 5.0m to 7.0m - mounting heights of 6.0m minimum recommended for detection in second lane

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