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Heimdall

Traffic detector family

'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 radar technology

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

Advanced technology

At the heart of each detector is a 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
- Pedestrian On-Crossing
- Pedestrian Kebside
- 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 based configuration tools. Only when access to advanced settings or detailed fault log information is required is it necessary to use a PC. If required, Heimdall can be supplied with Bluetooth functionality, allowing these functions to be accessed from ground level.

PC access is achieved using a simple terminal program, so it is not necessary to purchase expensive propriety software to access Heimdall in this way.

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 vehicles at signalled junctions, 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.

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

This detector operates in a similar way to the single lane vehicle approach version, that only provides an output when target vehicles exceed a defined speed. Speed threshold setup is achieved via simple configuration switches, with other parameters such as hold and delay times being configurable using a PC.

On-Crossing

Designed to be used in pairs, this CW Doppler solution provides reliable detection of pedestrians when crossing at Puffin and similar type crossings. The use of on-crossing detectors enables the pedestrian green 'invitation to cross' period to be kept to a minimum whilst ensuring conflicting vehicle green signals are delayed until the pedestrians have safely crossed the road, significantly enhancing the efficiency of the crossing compared to older fixed crossing period solutions.

Kerbside

Using an advanced 'dual antenna' design the Heimdall kerbside detector provides dependable sensing of pedestrians waiting to cross at Puffin and similar crossing types. The unique use of two integrated antennas allows the detector to provide excellent performance at a wide range of crossings without the need to use complex and expensive set-up software.

By using advanced radar for this application the problems inherent in other solutions, which rely on video techniques, are eliminated and Heimdall kerbside units will operated as well in the dark as in fully lit conditions and are completely immune to the effects of shadows.

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 Heimdall unit may be mounted above the first to cover the second lane.

In keeping with other Heimdall detectors, set-up is simple and can usually be done without the need for a PC. The Heimdall 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 a PC, access to advanced settings and performance data is provided via a simple handset interface.

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, 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 Heimdall detectors can be fitted with a Siecom Bluetooth option.

PCs 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 Heimdall 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, Heimdall detectors can be equipped with a serial communications facility to enable the detector status, configuration parameters and vehicle data – such as speed and occupancy 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.

Technical specification

General for all detectors

- Approval:
  UK Highways Agency specifications as appropriate for the detector type.
  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 (DC) – with wireless or serial data options
- Operating frequencies
  24.05 GHz to 24.25 GHz
  13.4 GHz to 14.0 GHz (kerbside and On-crossing)
- Dimensions:
  150mm (h) x 135mm (w) x 90mm (d) (to the bottom of mounting bracket)
- Weight: Less than 1.6Kg (including bracket)
- 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 (70 mph). 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: Stationary detection system but can also be configured to detect vehicles moving through the detection zone.
- 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

On-crossing

- Operating range: Up to12m.
- Crossing width: Typically up to at least 4m when used as a pair
- Pedestrian minimum threshold speed < 0.5m/s
- Detector location: Either side of crossing – no special adjustment needed to avoid interference between units.
- Detector mounting height: Various heights (above the ground) can be accommodated from 3.0m to 4.5m

Kerbside

- Operating range: Wait areas up to 4.5m wide (DIP switch setting for short and long wait areas)
- Wait area width – typically 1.0m (typical 2.0m adjacent to pedestrian demand unit)
- Fully static detection of pedestrians
- Detector location: On pole with associated Pedestrian demand unit.
- 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%
- Detector location: Can be located on either the 'nearside' primary signal pole or the 'off side' primary signal pole, towards traffic flow or 'side fire' across lane being monitored
- Detector mounting height: Various heights (above the ground) can be accommodated from 3.3m to 8.0m. Actual SCOOT 'footprint' will be dependant on the mounting height

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