



# WiMag

## Vehicle Detection System

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WiMag offers a cost effective vehicle detection system, particularly where extensive ducts would otherwise be required and complements the loop and radar detection solutions already offered by Siemens.

- Reliable vehicle detection without the need for extensive ducts
- Suitable for VA, SCOOT and MOVA applications
- Close integration with Siemens controllers
- Loop detector replacement interface for all controllers

### Detection options

WiMag is an alternative detection system which uses small battery powered magnetometers, embedded in the road surface, to detect vehicles and communicate detection events to a host controller, without the need for extensive cabling or duct works.

The magnetometer sensor is a loop equivalent device that utilises disturbances in the earth's magnetic field to detect passing and/or stationary vehicles. It is suitable for VA, SCOOT and MOVA applications and is simply installed by 'coring' an appropriate diameter hole in the carriageway and fixing in place with a dedicated epoxy resin compound.

The sensors have an inbuilt low-power wireless transmitter/ receiver and a dedicated long-life battery to transmit detection data to an associated access point or repeater.

The access point is a wireless gateway that maintains two-way wireless links to sensors and repeaters within the system. The Siemens access point has a wired ethernet connection to transmit the magnetometer sensor detection data to a roadside traffic controller via an

interface card. Multiple access points may be used if necessary to provide connectivity to many magnetometers.

Typically sensors must be located within about 40m of an access point to ensure that reliable wireless communication is maintained at all times. For applications where greater distances are needed a repeater may be used. The repeater may be used to extend the distance that a magnetometer may be installed from an access point, up to approximately 300m.

Two repeaters operating in tandem can be installed between a sensor and access point to further extend the range to approximately 600m if required.

### Flexible system interfaces

Siemens WiMag offers cost effective and flexible means to connect many magnetometers to a wide variety of controller types.

- For large sites using ST900 and ST950 controllers a dedicated WiMag equipment rack is available. This neatly accommodates all controller mounted parts of the system to provide support for up to 60 magnetometers and up to 7 Access Points and interfaces directly to the controller through its internal serial data bus.
- For smaller sites, or other controller types, WiMag offers a 4 channel interface card which replicates a stand-alone loop detector card and provides support for 4 magnetometers and a single Access Point. Cards can be linked together to extend the number of magnetometers and Access Points that can be supported. This solution is also ideal for use where magnetometers are to be retrofitted to existing sites which already have loop cards installed.

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## Technical specification

### WiMag Vehicle Detection

- Detection: 3-axis magnetic field sensing
- Dimensions: 74mm x 74mm x 49mm
- Power supply: non-replaceable primary Li-SOCI2 3.6V battery pack
- Range: typically up to 30m to Repeater/Access Point
- Operating temperature: -40°C + 85°C
- Weight: 0.3kg
- Frequency band: 2400 to 2483.5 MHz
- Installation core size: Ø100mm x 57mm deep
- Installation compound: two-part silicone polyurea sealant
- Ingress protection rating: IP68

### Infrastructure Equipment

#### Basic system capacity (WiMag 19" Rack Assembly)

- Up to 60 detectors and 7 Access Points
- Typically up to two racks can be fitted in a standard ST900 or ST950 cabinet

#### WiMag Loop Detector Replacement Card

- Capacity of up to 4 detectors and 1 Access Point
- Cards may be connected together to increase capacity
- Standard 3U single Eurocard
- Dimensions: 160mm x 100mm x 25mm
- Number of channels: 4 optically isolated
- Master Fault: Isolated output (n/c and n/o)
- Configuration: With software via Ethernet
- Access Point Connection: Via connection on front panel
- Input voltage: Via traffic controller backplane
- DC - 19 - 29V DC 550mA or AC - 21 - 28V AC 800mA
- Output voltage: 48V DC 6W max (Access Point power)
- Operating temperature: -25°C to +70°C

#### Access Point

- Range: typically up to 300m to Access Point (standard) or up to 600m to Access Point (Repeater Relay)
- Cards may be connected together to increase capacity
- Interfaces:
  - To/from detectors or repeater units via 802.15.4 PHY radio
  - To/from configuration device (PC) via TCP/IP over 10Base T Ethernet
  - To ST950 traffic controller via WiMag Standard Interface card (up to 20 detectors per card)

- To controllers via WiMag Loop Detector replacement card (up to 4 detectors per card)

- Frequency band: 2400 to 2483.5 MHz
- Power supply: 36 – 58V DC (48V DC nominal) form WiMag Rack or WiMag Loop Detector Replacement card
- Power Consumption: 2W
- Dimensions: 159mm x 159mm x 89mm
- Weight (including mounting kit): 1.4 kg
- Ingress protection rating: IP67
- Operating temperature: -40°C to +80°C

#### Repeater

- Range: Typically up to 300m to Access Point (standard) or up to 600m to Access Point (Repeater Relay)
- Cards may be connected together to increase capacity
- Interfaces: to/from detectors, Access Point and other repeater units
- Frequency band: 2400 to 2483.5 MHz
- Frequency channels: 16
- Power supply: user replaceable primary Li-SOCI2 3.6v battery pack
- Battery life: approximately 2 years (standard), 8 year (extended) model available
- Dimensions: 197mm x 166mm x 137mm
- Weight (inc. mounting kit): 2.25 kg
- Ingress protection rating: IP65
- Operating temperature: -40°C to +80°C

## Part numbers

Item	Part Number
WiMag Vehicle Detection	640/4/90028/000
19" Rack Assembly	667/1/47260/100
Loop Detector Replacement Card	667/1/47280/000
Access Point	640/4/90030/001
Repeater (Standard – 2 years)	640/4/90029/001
Repeater (Extended – 8 years)	640/4/90029/000

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