Sicore
Automatic Number Plate Recognition

Traffic Solutions

SIEMENS

- High speed number plate recognition
- Wide capture zone with single and dual lane operation
- Journey time monitoring solutions
- Optional colour overview camera
- Easy to install, operate and integrate
- Road user charging systems
- Average speed enforcement
- Bi-directional operation

Sicore is a fully integrated automatic number plate recognition camera designed for traffic management and control applications. With camera, illuminator, processor and modem integrated in a single rugged enclosure, Sicore automatically captures any number plate from vehicles travelling in both directions.

The integrated image processing software scans the stream of incoming images for any vehicle and number plate before transmitting the data to the central system using industry standard, secure communications. An intelligent, infrared illumination unit enables continuous 24/7 operation of the camera on any suitable roadside installation such as traffic signals, bridge railings, gantries and lamp columns.

Sicore benefits

Sicore has a whole range of outstanding features providing a new benchmark in accuracy, efficiency, reliability, usability and cost-effectiveness.

Fewer cameras require less infrastructure

Sicore monitors up to two lanes in both directions simultaneously, reading both front and rear number plates. The ability to use a single camera for traffic in both directions on a single carriageway road reduces the number of cameras required for accurate number plate capture. Alternatively a single camera is now able to capture vehicles across multiple lanes of one carriageway, removing the need for one camera in each lane to provide complete coverage for journey time monitoring.

High speed number plate recognition

Using technology originally developed for character recognition in postal sorting machines, the integrated ANPR engine from Siemens attains maximum read rates at vehicle speeds of up to 200 km/h. Special algorithms enable the system to accurately recognise number plates from many different countries without manual review, reducing the need for post-processing in enforcementapplications to provide an efficient solution. This high performance level is available throughout the day and overnight with the intelligent infrared illuminator providing optimum illumination of the detection zone.

Extended service life

The robust Sicore system components are designed for 24/7 operation in a roadside environment. Siemens extensive experience in designing and manufacturing solutions for the roadside has been applied to the design of Sicore, resulting in virtually no maintenance requirements except for periodic cleaning and inspections. The fanless design provides reliable operation of the cameras at temperatures between -30° C and +65°C. The infra-red illumination unit, often critical in maintenance of ANPR camera systems utilises an intelligent control mechanism to provide an extended service life of up to double current camera systems.

Easy to install, operate and integrate

Sicore is designed for ease of operation and to minimise the installation and configuration requirements on street. The advanced character recognition technology within Sicore removes the need for detailed camera alignment that is sometimes required for ANPR systems. Capable of reading number plates from the side of the road without mechanical adjustment for skew angles, with power and communications available Sicore is quickly installed and reading number plates. With the wide detection zone of Sicore, fewer cameras are required, removing or reducing the need for mechanical alignment of multi-camera installations in enforcement applications.

Using a single cable for both power and data transmission, Sicore is easy to install and once mounted, accessible for service engineers from ground level using a browser based user interface. The user interface – which can also be accessed remotely - makes system operation very straightforward without the need for knowledge of complex scripts or dedicated configuration tools. Via remote access the user can monitor the cameras' operational status and update any parameters which may be required. Supporting a range of different interfaces, Sicore can be smoothly integrated into any traffic management system.

Sicore applications

Journey time monitoring and traffic management

The calculation and display of real-time journey information is invaluable to the operator in a modern traffic control centre to ensure that the network operates in the most efficient manner. Sicore ANPR cameras linked to a UTMC traffic management system allow live journey time information to be displayed to the operator and also to the public via the Internet. This information provides details of the current traffic situation and can also be used in the selection of strategic control measures to ensure the network operates efficiently.

As well as providing real-time information on network performance through the calculation of journey times, the data collected by the camera network is invaluable to the user, removing the need for expensive, infrequent manpower intensive surveys to determine traffic flows. The flexible communications architecture available with Sicore allows easy integration into Siemens' Comet JTMS module, alongside existing ANPR and other devices using the most appropriate method of communication for each element of the system.

Road user charging

Sicore is the ideal enforcement ANPR camera for Congestion Charging applications. The high level of evidential security allows Sicore to give complete confidence in the performance and security of the Congestion Charging application. Its wide lane coverage ability and bi-directional capture functionality enable the fewest number of cameras to be deployed in a city's Congestion Charging scheme, giving a cost effective and visually unobtrusive solution.

Sicore can be used for a number of similar applications to Congestion Charging, including Low Emission Zones, the monitoring and control of borders and when integrated with additional outstation equipment, the enforcement of national road user charging schemes.

Average speed enforcement

SafeZone is Siemens' average speed enforcement solution using Sicore, designed to increase the number of deployment options currently available while reducing the number of cameras and infrastructure required to provide effective casualty reduction programs.

SafeZone operates by identifying all vehicles as they enter an enforcement zone, calculating average speed against the exact distance travelled within the zone. With Sicore cameras only requiring a minimum of seventy metres between out-stations, SafeZone enables customers to enforce 20mph zones or safety critical areas, such as schools. SafeZone also supports multi-lane and multiple entry and exit points, ensuring effective use of the system for all types of urban, rural, highway or motorway average speed enforcement.

Technical Specification

General

Lane width

- 3.5m (single lane version)
- 7m (dual lane version)

Detection range
- 5m – 30m (single lane, version)
- 10m – 35m (dual lane version)

Vehicle detection speed
- Up to 125mph / 200kph

Vehicle triggering
- Internal video-based vehicle triggering

Illuminator
- Integral infrared illuminator – 850nm wavelength
- 150 focussed LEDs with intelligent controller for maximum service life

Images
- Monochrome – up to three per vehicle including plate patch
- Colour overview (optional) – up to three frames per vehicle

Search lists
- 2 search lists of up to 1,000,000 plates supporting multiple actions for registered vehicles including transmission of evidential records to back office systems

Communications and Interfacing

Ethernet
- 10,100,1000 Base-T, Cat5 connection

Wireless
- Integral GPRS modem and antenna (Optional)

Security
- Secure SSL-encryption for data transmission
- Optional hash coding of number plates for JTMS applications

Relay output
- 24V/20mA output

Trigger input
- Opto-isolated input >10mA

System

Infrared sensor
- CMOS 752 x 480 pixels (single lane version)
- CCD 1620 x 480 pixels (dual lane version)

Colour sensor
- CMOS 752 x 480 pixels

Optical system
- 2/3" lenses with integral infrared bandpass filter
- F = 9mm, 12.5mm, 16mm, 25mm, 30mm, 35mm
- Factory set for optimum reliability

Clock
- Internal clock synchronised via SNTP server

Configuration
- Web-based user interface or configuration files

Environmental

Protection
- IP65

Temperature range
- -30 deg C to + 65 deg C
- Fanless design

Voltage
- 20 – 26VDC, 2.5A

Power consumption
- Typically 25W

Weight
- Approximately 5.7kg

Dimensions
- 188mm x 210mm x 386mm (W x D x H) including anti-glare sun shield