



**PC SCOOT**  
urban traffic control system

Traffic Solutions

**SIEMENS**



## PC SCOOT

**The successful management of traffic in the 21st century places many demands upon the service provider. As the volume of traffic using the highways continues to grow at a greater rate than the capacity of the road network, the effect of traffic congestion is an ever-increasing problem in towns and cities around the world. The operator in a modern traffic control centre is continually working to maximise the efficiency of the highway networks whilst minimising any disruptions caused by incidents and events.**

Many benefits are obtained from the implementation of an effective urban traffic control (UTC) system, not only for traffic in the town or city, but also for the local economy and environment. Utilising the latest version of the SCOOT adaptive control software, Siemens' UTC has been proven in over 100 towns and cities around the world as effective in reducing congestion and maximising the efficiency of the road network.

The latest release of the Siemens UTC system combines the proven SCOOT adaptive traffic control system with the enhanced functionality of Siemens' advanced user interface, all operating on a PC. The combination of Siemens' proven UTC SCOOT software with the Microsoft Windows operating system offers a solution which is flexible to meet the needs of any service provider, from small towns to the largest urban metropolis. Implementation of PC SCOOT from Siemens allows more cost-effective systems integration and commonality of hardware across the range of traffic management and control systems. This in turn reduces maintenance requirements and provides more opportunities for implementing a wider range of traffic control solutions.

### Urban traffic control

Siemens' UTC is the keystone of urban traffic management and the Company offers a variety of solutions ranging from a single processor to a comprehensive integrated package including on-street equipment and complementary sub-systems networked together. The UTC system may operate as a stand-alone system or as part of a larger UTMC system, interfaced to Comet and other traffic control and information systems. The system's flexibility allows engineers to control and monitor traffic over a wide area, combining traditional traffic control with a host of additional functions to best achieve maximum efficiency. Siemens' UTC offers the following range of features to the traffic engineer to make maximum use of any installed technology:

- SCOOT adaptive control
- Public transport priority
- UTMC compliant to outstations and other systems
- Emergency vehicle green waves
- Car park management and guidance
- Fixed time signal control with automatic plan selection
- Traffic flow monitoring
- Queue and congestion detection
- Tidal flow control
- Pollution monitoring

Public transport priority is increasingly seen as crucial in maintaining the effectiveness of buses and light rail systems as viable alternatives to the private car. Siemens' UTC provides effective priority through SCOOT, allowing public transport vehicles to adhere to their schedule whilst minimising the disruption to other vehicles. Recent developments in SCOOT have enhanced the provision of public transport priority, reducing delay to buses whilst minimising the effects on normal traffic.

- World leading adaptive control system
- Increased standardisation with traffic control centres
- Microsoft Windows operating system
- Customised congestion management tool kit
- Reduced equipment and maintenance costs
- Maximises network efficiency
- Improved access to management data
- Reductions in delay of over 20%
- Ease of use for new users
- Simple installation and migration



## SCOOT MC3

**As part of Urban Traffic Control systems, the world renowned adaptive signal control algorithm, SCOOT, monitors traffic flow in real-time to optimise traffic signal operation, and adjusts signal timings to match prevailing conditions.**

Following the introduction of SCOOT-based systems, 'before and after' studies have shown substantial reductions, both in journey times and delays. Vehicles are detected on all approaches to each junction under SCOOT control with occupancy being measured every quarter second. This creates a profile for each link, which the SCOOT model uses to predict queue behaviour at each stop line, which is then used in the optimisation calculation. The model also predicts delays and the build-up of congestion as part of the efficiency index.

SCOOT models traffic detected on-street to adapt three key traffic control parameters continuously – the amount of green for each approach (Split), the time between adjacent signals (Offset) and the time allowed for all approaches to a signalled intersection (Cycle time). As a result, the signal timings evolve with the changing traffic situation without any of the traditional disruption caused by changing fixed time plans on other urban traffic control systems. Modern communications technology offers a range of flexible options, which until now have not truly been available for traffic control. In addition, the implementation within SCOOT MC3 of a new communications interface will allow current and future outstations to make much better use of modern communications systems.

SCOOT MC3 introduces a number of new key features which provide invaluable assistance to the traffic manager in maximising the efficiency of the road network. A new congestion supervisor provides more early warning of congestion, as well as providing recommendations for action to reduce congestion as a result of repeatable, predictable conditions which occur within the network.

### Congestion supervisor

The congestion supervisor within SCOOT MC3 continuously monitors the SCOOT network, evaluating overall performance levels and identifying congestion and wasted capacity. Where congestion levels exceed a defined threshold, the system automatically investigates the likely cause. It looks for the critical link and follows the congested route through the network, analysing reasons for the degradation in performance and suggesting changes to system configuration to improve efficiency.

The congestion supervisor uses information already available within the SCOOT system and does not require any additional equipment or detection. Having diagnosed a congestion problem, the recommended action to take will then be reported to the user either directly from SCOOT or through a UTMC traffic management system. Overall, the SCOOT MC3 congestion supervisor aims to target regularly recurring congestion rather than congestion caused as a result of incidents.

### Communications flexibility

SCOOT MC3 has been enhanced to enable the use of modern communications technology within the urban traffic control system and, in turn, allow for inconsistencies and delays in data delivery. This reduces the dependency of SCOOT upon traditional leased line communications techniques and opens up the potential to utilise a wide range of modern communications technologies, which previously were unavailable to SCOOT systems. This allows for a more cost-effective communications infrastructure to be utilised, which can be optimised to individual system constraints and available infrastructure.



### Enhanced control

SCOOT MC3 introduces several enhancements in the control of traffic signals, to improve public transport priority and increase efficiencies in dealing with pedestrian movements. Enhanced bus priority in the form of stage skipping is now included in SCOOT MC3, which reduces delays to the bus waiting at the signals by skipping intermediate side road stages where appropriate in order to return to the bus stage. The system includes comprehensive guidance on when stage skipping is appropriate and when it may be inadvisable - for instance, skipping a pedestrian stage is not recommended and the system provides complete flexibility to configure the most appropriate solution for each situation.

The approach of a bus can be indicated by on-vehicle transponders activating special detectors, or the location can be provided by a bus management system using any automatic vehicle location system. Subsequent tests on-street have shown benefits of up to four seconds' reduced delay per bus.

SCOOT MC3 provides improved control of intelligent pedestrian facilities, using the traffic signal controller to monitor pedestrians crossing the road and feeding this information back into the SCOOT model, optimising the vehicle greens. This reduces wasted time where pedestrian crossings have long requirements for green times due to design constraints by providing the appropriate amount of green time to pedestrians based upon detection.

**For further information, please contact:**  
Siemens Mobility, Traffic Solutions, Sopers Lane,  
Poole, Dorset BH17 7ER UK

Telephone: +44 (0) 1202 782000  
E-mail: [sales.stc@siemens.com](mailto:sales.stc@siemens.com)

[www.siemens.co.uk/traffic](http://www.siemens.co.uk/traffic)

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