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Moving Traffic

Aldridge Traffic Controllers Pty Ltd

SYDNEY COORDINATED ADAPTIVE TRAFFIC SYSTEM

Improves traffic safety outcomes

Maximises road network efficiency

Reduces congestion

Flexible and dynamic

Provides useful data

The Sydney Coordinated Adaptive Traffic Systems (SCATS®) is a computer based area wide traffic management system. It is a complete system that includes hardware, software, and a unique control philosophy.

The system operates in real-time, adjusting signal timing, splits, cycle lengths and offsets in response to variations in traffic demand and system capacity as they occur. SCATS® measures traffic volumes and flows at intersections mainly using inductive loop detectors buried in the road surface. This data is then used to automatically adapt operation of the traffic signals on an area-wide basis.

SCATS® can run without any manual intervention, it is self-calibrating and requires no ongoing traffic surveys and manual plan generation, therefore reducing operational costs.

SCATS® takes a 'helicopter' view of a city traffic network managing the entire traffic network, consistently looking at the overall traffic conditions and not just single intersections.

Rather than changing individual intersections in isolation, SCATS® manages groups of intersections called 'subsystems'. Each subsystem consists of a grouping of intersections relatively close to each other and will consist just one 'critical' intersection.

SCATS® aims to divide the traffic on major roads into 'platoons' (groups of vehicles), and to allow sufficient time for each platoon of vehicles to gain maximum utilisation of the available green time relative to the need to manage competing needs of cross traffic flows.

SCATS® urban traffic management software is owned, developed and used by the New South Wales Government, Australia.

Benefits

- **Reduced costs:** SCATS® maximises road network use with real-time adaptive control. Its self-calibration system minimises manual intervention, which can reduce your traffic management operational costs. SCATS® requires no ongoing traffic surveys and site visits to update traffic plans.

- **Proven performance:** SCATS® has proven itself in cities and towns across the globe, providing real and measurable reductions in road travel times and delays under various road network, traffic and driving conditions. Read more about Proven performance.

- **A global traffic solution:** SCATS® has been in use for over 40 years and is sold in 27 countries around the world.

- **Highly configurable:** SCATS® features a wide range of configuration parameters. It is an 'Engineers toolbox' with the power to allow engineers to reconfigure the system to meet changing traffic needs.

- **Flexible integration:** SCATS® is designed to be modular and can be integrated with a wide variety of Intelligent Transport Systems (ITS).

- **Ongoing software improvements:** Software improvements are made regularly to meet the needs of customers, the demands of increasing traffic and the evolution of traffic systems.

On average SCATS®:

- Reduces delays by 20%

- Reduces stops by 20%

- Reduced fuel consumption by 212%

- Reduces emissions by 7%

Key Features

Central Management

• The SCATS® Central Manager provides a global view of the system operation. It can manage up to 64 SCATS® regions, each of which can control up to 250 traffic signal sites.

• The SCATS® database contains common information that can be used by any SCATS® application and can be viewed by any SCATS® workstation. This includes graphics, data, site details, various traffic management plans, schedules, action lists and alarms.

Communications

• SCATS® regions can connect to traffic signal sites via permanently connected series links (point-to-point or multi-drop), dial-up connections (dial-in or dial-out) or TCP/IP.

• Each regional allows up to 30 simultaneous workstation connections and each workstation can monitor up to 10 sites at a time.

Traffic Management

• Each traffic signal can be run in isolation or can be coordinated with other sites using one of several operating models, including fixed-time and adaptive modes.

• The adaptive mode allows the cycle times, phase splits and offsets to be determined dynamically to suit prevailing traffic conditions. Adaptive operation is self-calibrating.

Manual Overrides

• SCATS® supports manual overrides including trims, locals and dwells. It also has support for green light runs and incident response plans. Plan changes can be done manually or scheduled. The scheduler includes public holiday support.

Monitoring

• SCATS® provides extensive facilities for monitoring traffic, traffic signal operation, communications, traffic signal hardware and alarms. It also has extensive error detection and reporting.

Data Collection

• SCATS® has automated collection of operational and performance data. Traffic counts are collected on a lan-by-lane basis wherever appropriate detectors are installed. Any collected data can be sent to the SCATS® Central Manager for backup.

Intelligent Transport System Support (ITS)

SCATS® has an ITS interface that can support up to 100 connections for the exchange of data with third party ITS applications. This can be used for:

• Data collection and analysis

• Traffic control

• Public transport priority

• Dynamically updated map-based displays

• Traffic Modelling and simulation.

System Configuration

• Master Link: Adaptive Traffic Control

• Fixed Time: Uses preset plans to provide time of day traffic plans

• Flexilink: SCATS® fallback system

• Dial Up: Sites not on SCATS® can be dialled up

• Isolated: Sites can be monitored buy SCATS® with no coordination

• 250 intersections managed by each regional computer

• 64 regional computers in one system

• 100 users can connect to a SCATS® system at the same time

• SCATS® is scalable and can be easily expanded.

Access

• Intersection and regional graphics can be displayed

• Site and regional data all displayed on one screen

• Setting up priority routes for emergency and VIP vehicles

• Alarm management

• Faulty lamps status at each site in the network

• Faulty detectors are readily identified and alarms displayed

• Time distance diagrams can be displayed, in real time

• View site data, splits, offsets, cycle length

• View link plans, system plans, dwells, trims and DS

• Interrogate local controller data and view fault log

Functionality

- **Incident Manager:** Operator introduction of preset plans for managing the additional traffic generated by special event finishes such as sporting events

- **Route Pre-emption:** Provides a 'green wave' for emergency and VIP vehicles. Can be operator installed to pre-planned routes or in conjunction with emergency services

- **Time Distance Displays:** SCATS® provides time distance information graphically in real time

- **Unusual Congestion Monitor:** A control room application with reviews current congestion levels, compares these levels with a historical database and provides alarm indicators to control room staff that congestion is 'unusual' and should be reviewed.

- **SMS Server:** This application allows operators to set up a system of SMS alerts for the immediate reporting of alarms of faults to maintenance staff

- **Traffic Reporter:** For detection data at any site either live or historical. The program can provide traffic volume counts for every lane at each intersection in the system.

- **Event Reporter:** For recording all events that occur in the system including staff log in data, dwells, trims etc.

- **SCATS® Alerts:** Provides alarms for users, visually and audibly when a nominated event is detected.

- **Alarm Analyser:** Report on a specific fault over an extended period. It produces a detailed tabulated summary that includes alarms by duration, site and time.

- **Communications Monitor:** Used to evaluate the communications between intersection and their SCATS® regions. A detailed summary is produced that includes communications and adaptive uptime.

- **History Reader:** Allows a user to view the phase sequence and phase time at any intersection after the event.

- **Event Generators:** Allows alarms to be raised from non-SCTATS® devices.

- **Fallback systems:** In the event of a power, communications or regional computer failure SCATS® has inbuilt historical data that is automatically activated to provide coordination.

- **Dial On Dial Out (DIDO) Feature:** Used to monitor remove sites. For major alarms the intersection will immediately communicate with the SCATS® central manager requesting on site support. Sites can be remotely monitored.

- **Access Security:** SCATS® has a key level system which allows for authorised users to access the system at user defined levels.

- **ITS Port Activation:** The ITS port allows operational data to be exchanged with other third party applications.

www.scats.com.au
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Quality
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SAI GLOBAL

Environment
ISO 14001
SAI GLOBAL

Health & Safety
AS/NZS 4801
SAI GLOBAL

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