

Eclipse Traffic Controller



Keeping the world moving

tyco
Traffic & Transportation

Eclipse Traffic Controller

Safety for Pedestrians & Drivers

Tyco Traffic & Transportation manufactures the Eclipse Traffic Controller, a generation designed to take advantage of the latest developments in electronics, communications and intelligent Transport Systems (ITS)

As an advancement of the highly successful Tyco PSC Controller, customers can be assured of the same high quality, advanced design and unsurpassed reliability from the ISO9001 accredited Tyco Design Team and Production Facilities.



Quality
ISO 9001
SAI GLOBAL



Health &
Safety
AS 4801
SAI GLOBAL



Environment
ISO 14001
SAI GLOBAL

Overview

- **Capacity:** While the Eclipse is fully compatible with the existing SCATS™ 6 Urban Traffic Control System, the hardware design is prepared for the expanded capacity of the planned enhanced SCATS™ system. Upgrading only requires the installation of the new controller software.
- Currently, the Eclipse controller can control up to 24 Signal groups, however, that hardware is designed for a capacity of 32 Signal Groups.
- **Standards:** Approved by the Roads and Traffic Authority (RTA) of NSW, to be compliant with their specification TSC/4 and relevant Australian and international standards.
- **Multiple Processors** provide distributed task handling for enhanced safety and performance.
- **Housing Sizes:**
Two housing sizes are provided to suit the scale of the intersection.
Standard housing: up to 32 signal groups (phases)
Compact housing: up to 16 signal groups – depends on cable terminal block type
- **Logic Module Sizes:**
Four sizes in Logic Module rack: 32, 24, 16, 8 signal groups (phases)
Module rack: 64, 48, 32, 16 loop detector inputs



Traffic Control – SCATS™

The Eclipse hardware is designed to be compatible with all SCATS™ 6 (and later) generations. As future facilities become available, the Eclipse software can be upgraded onsite.

Modes of Operation:

- Manual, Fixed Time, Vehicle Actuated, Pelican Fixed Time, or Vehicle Actuated.
- Cable less Linking, Flexi Link (with limited vehicle actuation)
- UTC-Link. Upgradeable to SCATS™ when available
- V-P link, Sister-link for hardwire linking to adjacent intersection
- Hurry Call, public/emergency, transport priority, flashing yellow, part-time standby.





UTC Master

Communications

- In-Built modem for communications to the Urban Traffic Control (UTC) central computer
- Serial RS232 Port available for fiber
- Ethernet connection (optional)
- GPRS using Tyco Cellcom

ITS Communications

- RS232 and 485 ports provide interfacing to other devices house within or external to the controller, e.g. variable message signs, video detection, weather station
- Software support for GPS clock and video detectors

Controller Features

Lamp Driving

- Maximum number of signal groups: 32
- Signal groups may be allocated as vehicle, arrow, public transport, pedestrian, etc.
- Pedestrian WAIT outputs may be driven from the un-used yellow output of a pedestrian signal group

Lamp Load

- Rating of each output: 5 amps
- Lamp Types: Tungsten mains voltage (incandescent); Quartz halogen transformer driven; LED lanterns at 230Vac or extra low voltage (typically 42Vac)
- Protection by front panel accessible fuses – one per color (R, Y & G) of each signal group.

Lamp Dimming

- Dimming of outputs by voltage reduction using AC phase control or using auto transformer with relay tap selection.
- Dimming may be implemented by time of day and verified by a light sensor (located in the cabinet) detecting day/night
- Individual signal group outputs may be designated for non-dimming, e.g. solenoids, changeable message signs or motors, when AC phase control is used.

Flashing Fall-back

- An independent hardware flasher is provided for Flashing Yellow fall-back in the event that the Logic Module is removed
- Flashing red fall-back can be selected on any signal group by a simple wiring change
- Dual output flasher provides options alternating “wig wag” to selected signal groups

Conflict Monitoring

- Multiple conflict monitors are provided to perform full range of conflict situations including monitoring of critical time periods (e.g. Green duration, intergreen times)
- Independence of circuits is provided. Primary conflict monitoring is carried out within the main processor on the central processor module. Secondary conflict monitoring is carried out on each lamp control module
- Loss-of-Red is provided for enhanced safety if required.

Lamp Monitoring

- Lamp monitoring algorithms are intended to handle the tungsten characteristics as well as most LED lanterns

Special Purpose I/O

- 12 special outputs for driving external devices (moveable signs, motors, etc.)
- 12 special inputs for monitoring external devices

Detector Inputs

- Maximum number of detector inputs: 96
- Detector inputs consist of vehicle detector loop inputs and contact inputs
- The LDM16 Detector module provides 16 vehicle loop detector inputs and 16 contact inputs. Up to three LDM16 modules may be used. (Total 96 inputs)

Intersection Configuration Data

- Two PCMCIA slots are provided on the central processing module to insert flash memory cards containing the intersection configuration data.
- To ensure that the configuration is installed in the correct intersection, an electronically readable site identification number, located as part of the housing must match the same number in the configuration data before the intersection will operate.



Operator Terminal

- The operator terminal port provides access to extensive real time controller status information and permits authorized operators to adjust many operation parameters. As a plug in device, it may be supplied one per controller, or per service technician.
- The terminal may take the form of:
 - A pocket computer (PDA) with cable or Bluetooth connection
 - A Tyco Traffic & Transportation supplied terminal using 4x20 LCD display and keypad
 - A PC/laptop computer
- A Controller Status report which includes the fault log may be loaded into an external terminal for extensive diagnostics of the controller operation.

Electronic Serial Numbers

Each module in the logic sub-rack contains a unique module part number, revision and serial number which are all software readable for display on the operator terminal and also readable via the communications system. This permits remote inventory control and identification of modules to assist with maintenance and upgrades. Also all software versions may be remotely identified.

Installation Aids

- Brackets are provided on the sides of the cabinet to allow a webbing sling to be threaded through. A truck mounted lifting crane can lift the cabinet using the sling during installation.
- In-built software checks the external lamp wiring for electrical faults and assists in verifying that the lamps are wired to the correct signal group outputs

Options

- Internal light is available which illuminates when the door is open during night-time servicing
- Door-open switch is available to monitor and report an open door to SCATS™
- Gas detector monitors and reports flammable gas in the cabinet
- An option cabinet top extension, which includes it's own lockable door, provides mounting for extra equipment.

Enhanced Features

- Built-in Ethernet Port option for direct IP comms (to SCATS)
- Technician GUI on laptop
- Remote technician GUI available at Control Centre with IP comms
- Serial detector data input facility (from video or other above ground detectors). No need for contact closure units.
- GPS clock synchronization option
- Software updates available via PCMCIA card or serial link to PC
- Two housing sizes available
- 3 point locking mechanism option
- Cellular (GPRS) comms option

Specifications

Electrical

Mains Voltages:	230Vac, 120Vac (+10%/-20%)
Mains Frequency:	50/60 Hz
Mains Interruptions:	<100 msec, continue operation, otherwise restart

Environmental

Simultaneous Conditions:	
External Temperature:	-10°C to +50°C;
Internal:	+70°C
Relative humidity:	95%
Solar Radiation:	1kW/m ²
EMC:	AS4251.1 (Emission) AS2451.1 (Immunity)
Safety:	AS60950 Part 1
Mechanical:	IP45, Vibration 60068-2-6 Fc, Bump 60068-2-29 Eb
Cabinet Dimensions:	1443mm High x 785mm Wide x 400 mm Deep
Special Cabinet Dimensions:	1152mm High x 539mm Wide x 363 mm Deep
Cabinet Material	Aluminium grade A5251 (Marine)

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