

ST750 ELV Small Intersection Controller

The ST750 ELV is closely related to the acclaimed ST900 range of Siemens high performance traffic controllers. It is optimised for use as a small intersection controller whilst still providing many of the facilities of the larger ST900.

In common with the ST900 controllers, the ST750 ELV is compatible with the whole range of Siemens street furniture, including Helios LED signals, LED nearside signals and LED wait indicators, all offering significant power cost savings over conventional solutions.

Integrated ELV 48V lamp switching

Intended for use in totally ELV installations, the ST750 ELV provides a highly innovative 48V system based on the successful ST900 ELV intersection controller.

The use of ELV, as implemented in the ST750 ELV controller, offers a wide range of benefits, including:

- Increased electrical safety for members of the public in the event of damage to the signal installation
- Increased electrical safety for personnel working on or around the intersection
- Reduced power costs
- Reduced cabling costs
- Improved lamp monitoring of very low power LED traffic and pedestrian signals.

Variety of construction options

Recognising the need for installation flexibility, the ST750 ELV controller offers three housing solutions:

Small cabinet: Utilising the popular T400S cabinet, this implementation offers ample space for mounting additional equipment such as outstation monitoring units or detectors, whilst minimising the impact of the controller footprint in locations where space is at a premium.

Large cabinet: This controller version utilises the standard ST900 cabinet and provides extensive additional space for large equipment such as rack-based outstation transmission units or other equipment that requires the provision of 19-inch rack mounting space.

Rack module: Containing all essential controller electronics within a self-contained unit, this option allows the controller to be installed in a wide range of third party cabinets.



- Fully integrated ELV 48V lamp drive systems
- Optimised for small intersections
- Range of cabinet options
- Easy configuration using Windows-based data generation package (IC4) with optional emulator
- Integrated lamp monitoring
- Extensive self-test facility for rapid system validation
- Dual processor safety system
- Approved to TR2500

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Traffic Solutions

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Advanced architecture

To ensure maximum reliability and to reduce maintenance impact the ST750 ELV makes extensive use of proven ST900 ELV components.

Additionally, this controller incorporates a high-speed serial bus architecture, allowing greater freedom in the location of a range of dedicated components, including ST900 I/O cards and intelligent detector backplanes.

Where required, integral TC12 OTU cards may be used to expand the controller, which is also fully compatible with the Siemens semi-integral OMU and UTMC OTU.

User configurable

ST750 ELV configuration data sets are prepared using the highly acclaimed and easy to use IC4 configurator. The configuration process may be further simplified by the use of user prepared default files which may be modified to adjust all site-dependent variables prior to downloading, minimising the need for on-street changes. However, where required, specific settings such as timings and other parameters, including detector allocations and SDE parameters, may be adjusted on-site using a standard controller handset.

The optional emulator is a feature-rich tool which links seamlessly with IC4 to provide an advanced environment for debugging and proving ST750 ELV configurations. Using the same software source files as the controller firmware, it ensures a highly accurate representation of the controller operation on a PC.

Enhanced safety features

Two independent microprocessors and comprehensive hardware 'self-check' features provide exceptional levels of controller safety. This is further improved by full equivalence monitoring on all aspect drives (red, amber, green), ensuring that the incorrect display of any signal colour is prevented. Lamp monitoring is provided and is fully compatible with Siemens' LED signals. Additionally, the ST750 ELV also provides full lamp monitoring of compatible pedestrian nearside signals.

Technical specification

Inbuilt modes of operation

- Manual
- Fixed-Time
- Vehicle Actuated
- Urban Traffic Control
- Pedestrian Fixed Vehicle Period
- Pedestrian Vehicle Actuated
- Bus/Light Rail Transit
- Part-Time
- Cableless Linking
- Hurry Call
- Emergency Priority

Phases and stages

- Number of hardware outputs: 32 freely allocatable to phases (phase sequences programmable)
- Number of independent streams: 8
- Number of stages: 32
- Number of max. green periods per phase: 8
- Number of phase delays: 120
- Number of call and cancel timers: 8
- Number of all red extension units: 7
- Number of hurry calls: 8
- Number of emergency/priority units: 8

High-speed vehicle detection

- Integral speed discrimination, double/triple speed assessment
- Number of assessors: 16

Cableless linking facilities

- Number of plans: 16
- Number of groups per plan: 32
- Number of time switch settings: 64
- Number of group influences: 10
- Timing sources 50/60Hz mains, Internal crystal or optional GPS clock

Inputs and outputs

- Number of digital inputs: 24
- Number of isolated digital outputs: 4 (Expandable by addition of I/O Modules)

Other facilities

- Standby mode: Signals off or software flash
- Failure mode: Signals off Software flash on a per-stream basis
- High-speed handset port 1200, 9600 and 19200 baud. Port is auto-bauding to match incoming data
- Direct load of configuration into controller without need for configuration PROM

Environmental

- Designed to meet: UK TR2500, EN12675, EN50278
- Supply interruption: Continuous operation up to 50ms break
- Supply failure: Automatic restart without operator intervention
- Operating temperature range: -25°C to +70°C

Compatibility

Able to drive and lamp monitor:

- Standard incandescent signal heads and standard regulatory signs
- Siemens Helios standard LED and CLS signal heads
- Siemens Helios ELV signal heads
- Siemens Helios ELV low power regulatory signs
- Siemens ELV nearside indicators
- Siemens ELV LED wait indicators
- Other signals may be compatible – consult Siemens for details

Housings

- Small T400S cabinet: 1210mm (h) x 470mm (w) x 370mm (d)
- Standard ST800 cabinet: 1160mm (h) x 725mm (w) x 420mm (d)
- Basic controller module: ST750 ELV 350mm (h) x 410mm (w) x 270mm (d)

Electrical

- Power supply: 110V, 120V, 220V, 230V, 240V, 250V +/-15%
- Supply frequency: 50/60Hz +/- 4%

Lamp switch

- Lamp-switching technology: Solid state
- Maximum load per output: 2A
- Maximum controller lamp load: 400W
- Lamp supply voltage 48V RMS (rectified and negative w.r.t. protective earth)
- Signal dimming: 27.5V RMS (rectified and negative w.r.t. protective earth)

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