



heighten safety

reduce costs

protect the environment

save energy

office

industry

traffic

shopping

public

sports

sITeco

Siteco Control. Intelligent outdoor lighting control.

Modern Exterior Lighting Management: Added Value For Towns And Cities.

Light creates safety on roads and streets and serves to enhance the attractiveness of a townscape, but in times of strained public budgets and pressing environmental issues, urban lighting is being put to the test.

Reductions in energy consumption, light pollution and operational costs coupled with better traffic safety must have top priority. These aims can be achieved with the use of intelligent lighting management. The installation of a technologically advanced lighting control system is

in consequence not a luxury but an investment in the interests of the commune, its residents and the environment. Getting started with the technology really starts to pay when the system is compatible with conventional control technologies and when it allows a successive modernisation of municipal lighting installations. Siteco Control is such a system. We'll be explaining its advantages to you step by step.



Energy In Focus.



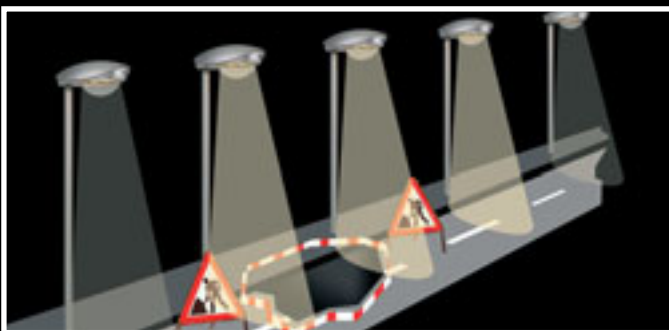
- Intelligent lighting control with Siteco Control allows the individual management of light points and the programming of lighting scenes according to specific needs. With the intentional avoidance of over-lighting, it has been proven that Siteco Control contributes up to a 35% reduction in energy requirements per annum and a reduction of CO₂ output and light emissions that are damaging to the environment.

Cost Factor Under Control.



- Intelligent lighting control with Siteco Control also makes possible the central surveillance and analysis of a lighting installation's individual components. Consequently, maintenance is optimised and operational costs are reduced by up to 20% per year.

Safety With Flexibility.



- Intelligent lighting control with Siteco Control increases traffic safety with the possibility of individually adapting illuminance levels to actual requirements. That means for example: more light at accident locations or with unfavourable weather conditions.



One-Way Control:

- Systems for the controlling of street lighting are already often in use today. Audio frequency ripple control is the technology most commonly deployed. This involves a modulating signal superimposed onto the 230 volt power feed that switches the lighting installation. Control of individual light points is however not possible with this energy-thirsty technology. And control only operates in one direction, meaning: information feedback (for example as to the state of individual luminaires) is not possible.

Inflexible Light:

- The control of the lighting installation confines itself at the present time mostly to switching on during twilight hours and switching off again the next morning. In particular cases, power reduction via a timer or via ripple control takes place during the night. A flexible increasing or decreasing of lighting levels according to actual conditions or in order to avoid voltage peaks is not possible. The potential for avoidance of excess light emissions and CO² output is not used. Unnecessary energy consumption is taken for granted.

Planned Over-Lighting:

- Because light yield from street luminaire lamping reduces over the course of time, lighting consultants must budget in a maintenance factor: newly installed lamps emit more light than is necessary, ensuring that lighting levels at the next relamping cycle do not fall below the required minimal level. The fact that lamps are only available in graduated wattages is an additional factor leading to a permanent over-engineering of installations. Usually an exact lamp wattage for an optically calculated ideal value (e.g. 124 watt) is not available; lamps are therefore used having the next available higher wattage (e.g. 150 watt).





→ Intelligent Control:

- The Powerline technology, tried and tested in countless deployments since 1990, is significantly more efficient than ripple control. This process also uses the normal 230 volt power feed as a transmission medium. But with the help of a sophisticated modulation technology, large volumes of data can be transmitted with a low level of energy. In this way Powerline allows the upgrading of the lighting installation to a data network with bidirectional communication – this being the condition for active control of individual light points and for the central monitoring of all connected luminaires, i.e. in short for an intelligent lighting management with Siteco Control.

→ Flexible Light:

- With Siteco Control, a simple switching on and off belongs to the past. Lighting scenes tailored to individual needs can not only be planned but can also be created spontaneously – for example where accidents have occurred or with bad weather conditions where more light than usual is needed. However, a flexible regulation of lighting levels according to actual requirements more often than not means less light – for example with a reduction of traffic, during moonlit nights or for the cushioning of voltage peaks. The potential for energy savings is enormous and can be fully exploited with intelligent lighting control.

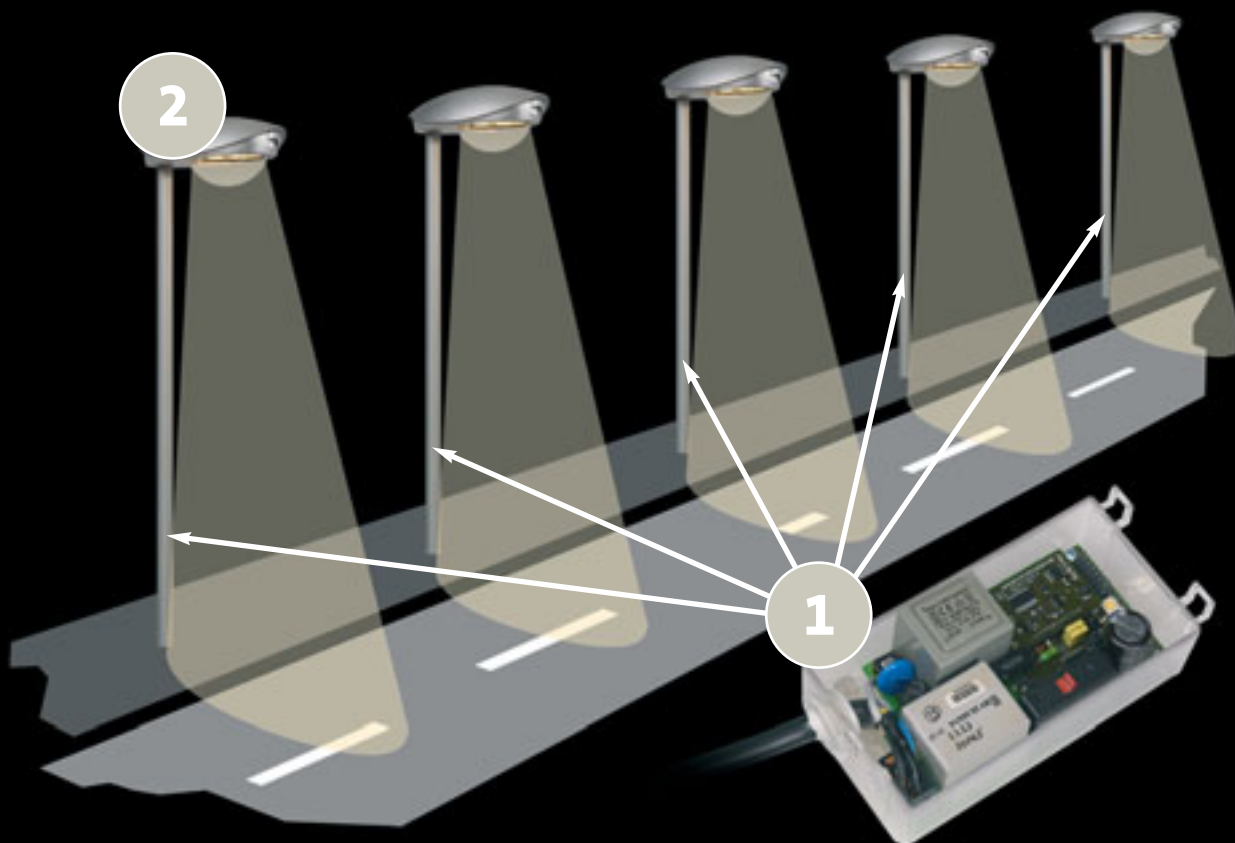


Exact Power Regulation:

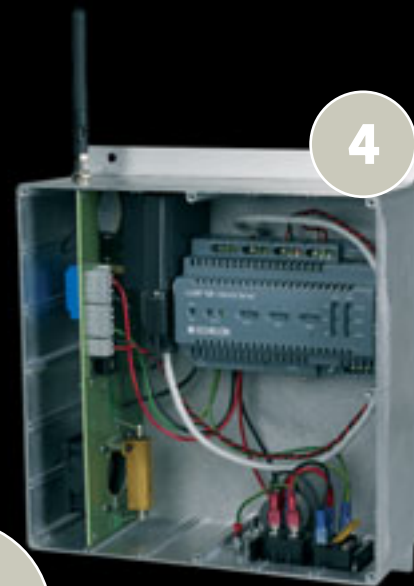
- Siteco Control allows the dimming of individual light points and consequently the dynamic regulation of wattages and light levels. The ageing of lamps is compensated with a dimming down to the required lighting level. The process of dimming also allows for the setting of arbitrary wattages. A compensation for planned over-lighting serves to reduce energy consumption without having to accept a compromise in safety.

Optimising Maintenance Processes:

- Siteco Control is not only superior to standard systems due to its active regulation mechanisms, but also due to its control functions. Via remote control the condition of every luminaire can be ascertained at any time of the day or night. Luminaire failures can be exactly located. As soon as maintenance has occurred, a response is sent. Information delivered by the system allows for a detailed budgeting and planning of energy consumption and maintenance.



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Luminaire Controller

The luminaire controller mounted within the mast is a modularly constructed control component. The flow of information occurs via the normal power cable without additional control wires.

- In the basic configuration, the controller as a normal ripple control device can switch the luminaire.
- With the upgrading of a circuit board, the controller can be enhanced to a PowerLine control device without significant additional costs. This then switches and dims the luminaire. It also registers arc voltage, energy consumption and length of burning period of the lamps.

Ballasts

The integration of luminaires with magnetic ballasts commonly used today is problem-free. Equally, luminaires with electronic ballast or dimmable electronic ballasts can be integrated into the luminaire installation with the luminaire controller. The latter are necessary in order to benefit from the wide spectrum of functionality and advantages of an intelligent outdoor lighting management system.



6

Central Server and User Software

The central server saves information and makes the data available for further use. User software is used for programming and monitoring of the lighting installation.

5

Transfer To Server

Transfer from the communication module to server and back occurs on the IP level via GMS/GPRS modem. Other transfer methods such as use of the telephone infrastructure are also possible.

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Bidirectional Communication

Intelligent lighting control with Siteco Control offers the advantage of a two-way communication:

- The controlling of individual lighting points or any portion of the whole lighting installation
- Monitoring of the condition of luminaires

Protocols

For the transfer of data, Siteco Control uses wherever possible open and standardised gateways and protocols, beginning with the 1-10V gateway or DALI between luminaire controller and control gear (ballast), LONWorks® between luminaire controller and communications module and XML/SOAP between communications module and the central server and PC.

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Powerline

PowerLine uses the power supply line between luminaire controller and communications module as the transfer medium. Additional cable connections are not necessary.

4

Communication Module

The communications module integrated within the switch cabinet

- controls the luminaire controller
- collects information from the luminaires and
- directs them onwards to the central server

Successive Upgrades Or The Whole System.

The arguments for the use of intelligent lighting control with Siteco Control sound convincing? In that case you can already lay the foundation for starting with the new technology. According to

investment capacity or concrete budget planning, various models are possible for the future-proof replacement or upgrading of your outdoor lighting installation.



First Model: Successively Creating The Basis.

1

- With the breakdown of defect ripple control receivers you must invest anyway. The best solution is to go with an intelligent product. With the exchanging of defect devices with Siteco Control luminaire controllers you will be successively creating the basis for the system change.

Until the upgrading of the system, the luminaire controllers function as normal ripple control receivers. The upgrade to PowerLine control devices can follow immediately or later.

Second Model: Correct Switching With A New Installation.

2

- With the planning and design of new lighting installations you are confronted with a decision: with which control components should the installation be fitted? With the decision for Siteco Control luminaire controllers and communi-

cation modules you will be taking the right choice. With this local network you will be creating the conditions for the upgrading to an intelligent lighting control with Siteco Control.

Third Model: Immediately Benefit From All Advantages.

3

- In order to immediately make use of all advantages that the intelligent lighting control can offer, install the complete system. The following procedures are required:

1. Equipping of the light points with PowerLine compatible luminaire controllers and dimmable electronic ballasts.
2. Deploying an infrastructure with communication modules.

3. Establishing an IT structure within the administration (software, central server, training etc.) The investment will definitely pay. Only with the fully implemented system is it possible to achieve targets such as less energy consumption, less light emission, less CO₂ output and lower operating costs.

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In Short: The Integration Of Additional Services

Until now only the use of intelligent lighting management has been discussed. But because it uses open standard protocols, Siteco Control can integrate a range of further applications.

For example:

- the monitoring of traffic lights
- automatic counting of traffic
- the control of parking ticket machines

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