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CHENG HONG E-TECH.CO.,LTD

INTELLIGENT LIGHTING CONTROL SYSTEM

INNOVATIVE
LIGHTING
SOLUTIONS

www.stsystemplc.com

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INTELLIGENT LIGHTING CONTROL SYSTEM

Lighting control and monitoring based on data exchange via electric wires without additional wiring for data transfer, preserving all functional features of lightning system.

INTELLIGENT LIGHTING CONTROL APPLICATIONS:

- Public city lighting (highways, roads, parks, sidewalks, etc)
- Airports, railway stations, parking lots, etc)
- Industrial sector (factories, plants, industrial area)
- Tunnels, bridges and transportation infrastructures
- Railway and other facilities requiring high-quality lighting.

SOLUTION RELEVANCE

Rapid development of metropolises comes along with a large-scale expansion of urban infrastructures; consequently, the need for innovative solutions in the field of lighting is on the significant rise.

This system allows to dramatically reduce the energy costs and service personnel, and minimize the influence of human factor as well.

KEY FEATURES OF THE SYSTEM

Automatic lighting control (without operator, according to the preinstalled software). Automatic lighting switching on and off according to astronomical calendar (sunrise / sunset)

Lighting switching on and off according to the light sensor, and according to weather conditions (fog, smog, thunderstorm, strong wind)

Precise dimming based on the pre-set schedule, depending on the time of the day. Precise dimming of each lamp separately, in a group or in the entire line.

Isolated operation of the system (OFFLINE mode), in cases when communication with the control center is absent.

Malfunctioned lamps information displayed at control center

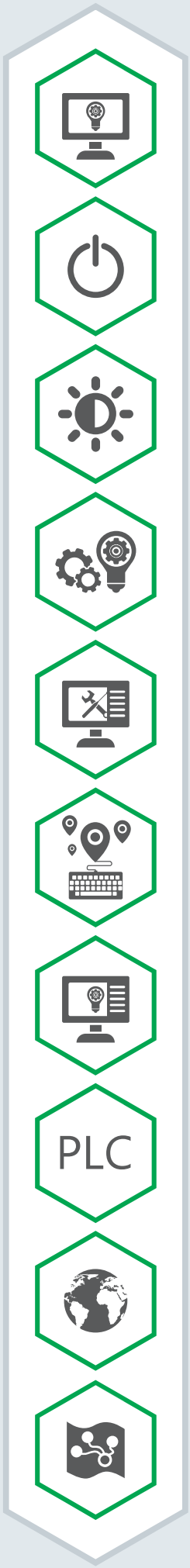
Control of all lamps condition in a single control center (street, district, city, country)

Gathering of energy consumed information for any period in a single control center

Flexible integration into other systems. Due to the use of PLC (Power line communication) protocol, it is possible to integrate into existing lighting system, without modifying and upgrading wiring systems.

Operator station is able connect to the control center from anywhere in the world via internet, to receive information and control local lighting system of each district separately..

One control center can control the lighting system of the entire country.



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HOW DOES IT WORK?

Power Line Communication (PLC) technology operates as follows:

The input side of lighting system shall be equipped with a PLC transmitter-controller, and its output side, i.e. the lamps themselves – shall be equipped with appropriate receivers. Normally, luminaires are equipped with traditional dimmable devices with a 1-10 V interface. PLC allows establishing communication between control element and dimmable lamp without installation of additional network for data exchange. Each luminaire has its own ID number.

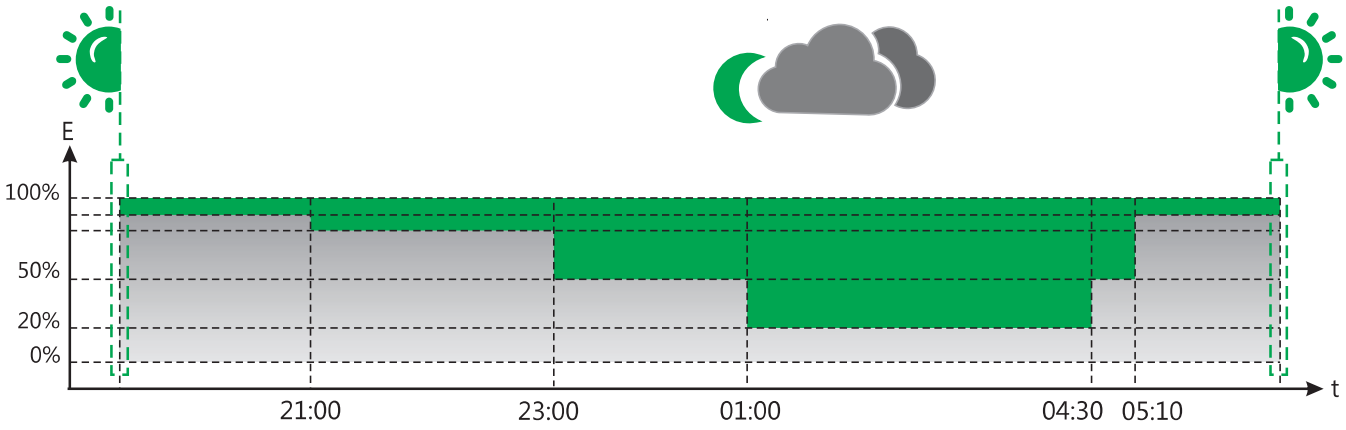
The system maintains its operability, while the operator can regulate lighting intensity of separate group of luminaires, as well as of one single lamp within certain interval ranges.

For example, the system may increase lighting intensity during cultural events performed in a separate part of a city or town during nighttime.As an example, provide additional local lighting for cultural events in a separate part of a city or town in the evening.

INDIVIDUAL PATTERN OF THE PEDESTRIAN FOOTPATHS LIGHTING

PATTERN OPERATION CONCEPT:

- The diagram demonstrates example pattern of lighting system operation from 21:00 p.m. to 05:10 a.m. on March 21st in Moscow city Another pattern of system operation can be set depending on seasons and regions, and daylight length.
- The red zone indicates the level of energy saving.
- The red dotted line indicates twilight, when drivers experience the greatest discomfort while driving. During this period, the lighting operates at a maximum level.
- Period from 21:00 to 23:00 – lighting brightness decreases, energy savings - 20%.
- Period from 23:00 to 01:00 – lighting brightness decreases, energy savings - 50%.
- Period from 01:00 to 04:30 – maximum energy savings - 80%.
- Period from 04:30 to 05:10 – beginning of the astronomical dawn. The dimming system gradually increases lighting brightness up to 5:10 am; at twilight, the lighting operates at maximum brightness to prevent road traffic accidents



Pattern of operation and lighting level adjustment by using of intelligent lighting system.

Green zone indicates level of energy saving by using of intelligent lighting system (correlation 60% , 40%)

Time of astronomical sunset/sunrise based on 21st of March – the spring equinox. This is an average indicator for the calendar year. Consequently, data is prepared for Almaty city.
In case if system operates in another city, the system will automatically reset according to geographical coordinates of operation region.

Thus, the system not merely allows to efficiently save the electricity, but also factors in the specificity of lighting depending on the time of the day, weather conditions or features of the illuminated space.

LIGHTING SYSTEM CONTROL

CONTROL CENTER:

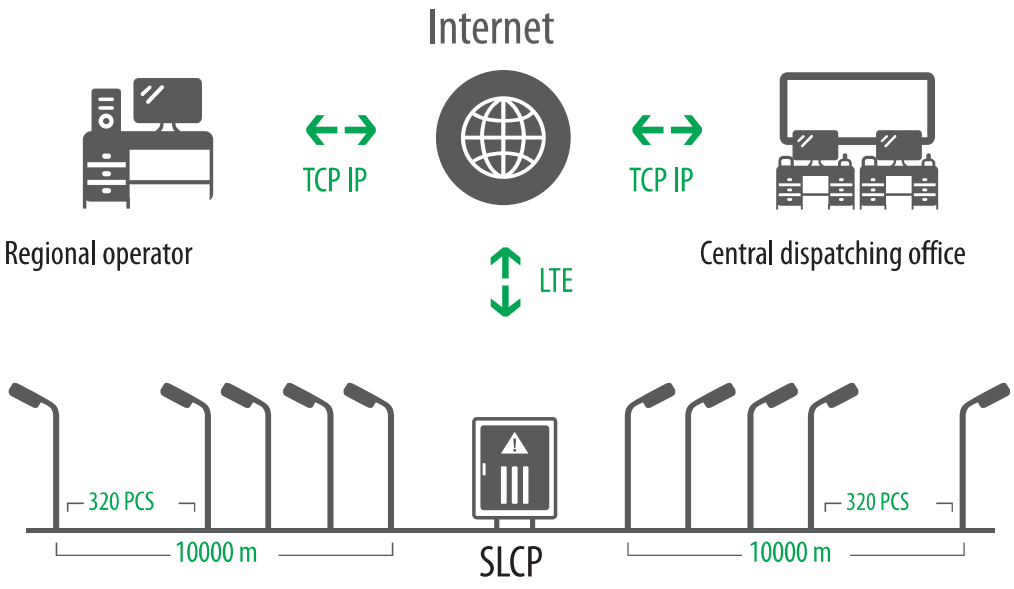
Online map with plotting of all installed luminaries.

Schematic representation of geographical location of all control boxes within the system.

SLCP-O (Smart lighting control panel) operation parameters.

Power consumption data control monitoring for any period (on-line).

Change of patterns and schedules of system operation (on-line).



Control and communication with Smart lighting control panel performed via GPRS channel, supporting 4G..

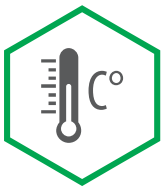
THE SYSTEM TRACKS AND ALERTS TO THE CONTROL CENTER:

Tracks the status of each luminaire

Unauthorized control box opening

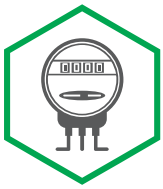
Problems with feed or output lines.

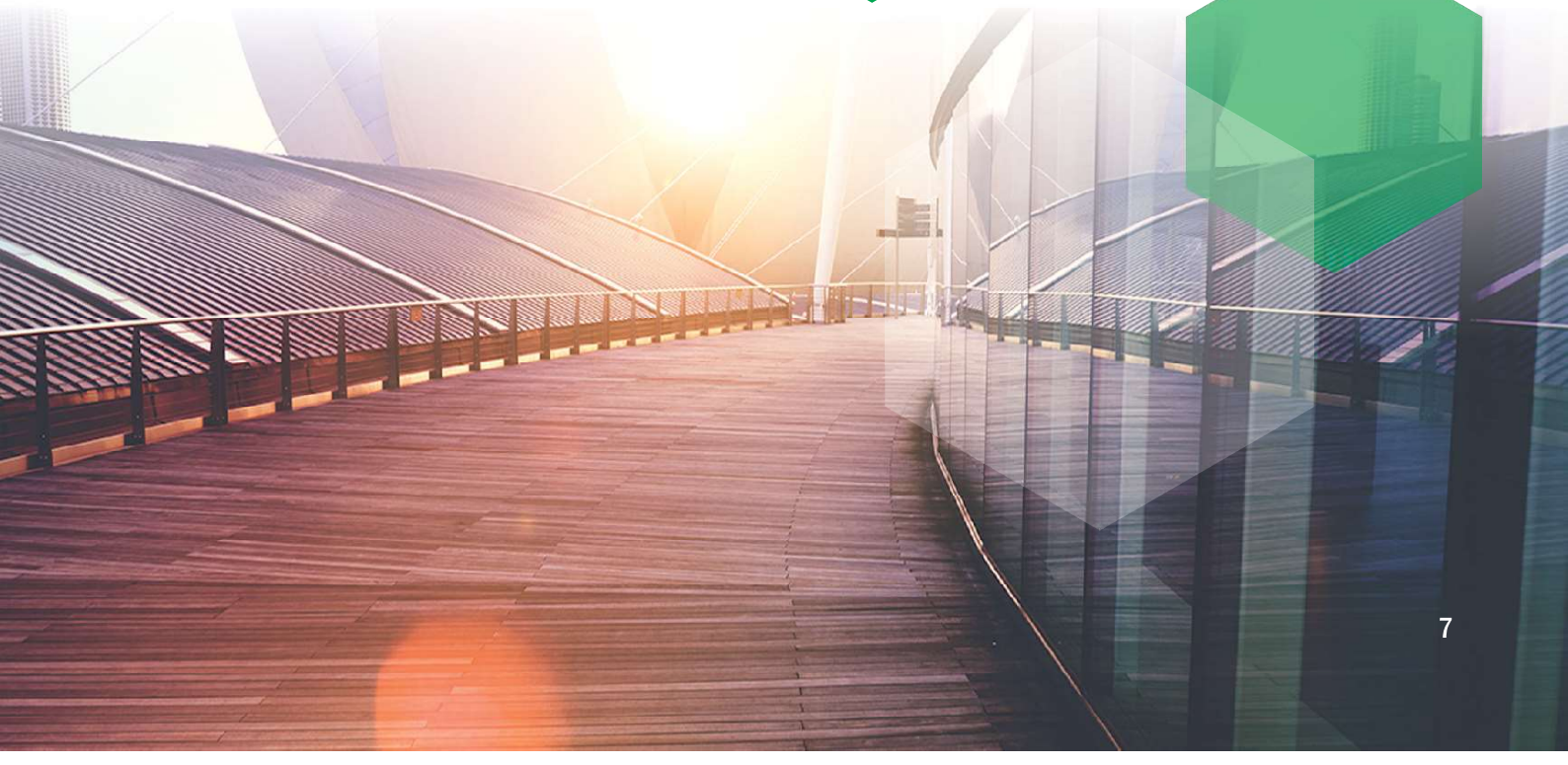
Temperature control.



Unauthorized tapping to output line

Power consumption monitoring.





LIGHT EMITTING DIODES (LED)

ADVANTAGES OF LED LIGHTING SOURCES

New level of color rendering in lighting - the light is brighter while the eyes are less irritated.
Lower power consumption. Diode light sources are able to operate 10-20 times longer than conventional ones.
Caring for the environment. Modern light sources, due to their operational economy, help to significantly save natural resources spent on power supply of lighting systems.

BENEFITS FOR BUSINESS.

Intelligent lighting system optimizes expenditures in electrical power consumption, and thus can be useful for:

Agricultural sector- in green houses, hotbeds;

Construction companies- road construction, highways and other facilities.

Industrial and storage enterprises;

IMPROVEMENT OF LIFE QUALITY

Dark or poorly lighted streets, flashing, dim or non-operating lights – the situation is very familiar for citizens. The "brighter" future of our streets is inseparably associated with their quality lighting.

Sufficient lighting of roads, pedestrian footpaths and sidewalks, squares and parks, creates not only a comfortable and attractive atmosphere of evening cities, towns and villages, but contributes to improving of road traffic accidents prevention and reducing of crimes.

As a result, citizens and tourists walking down the streets in the night city will become a natural component of city life.

ADVANTAGES OF THE SOWIN INTELLIGENT LIGHTING CONTROL SYSTEM

- High reliability of the equipment
- Innovative technologies application
- Compliance with the industry standards
- Operation at excessive temperature ranges from -40 to +70
- Certificate
- 5-years warranty

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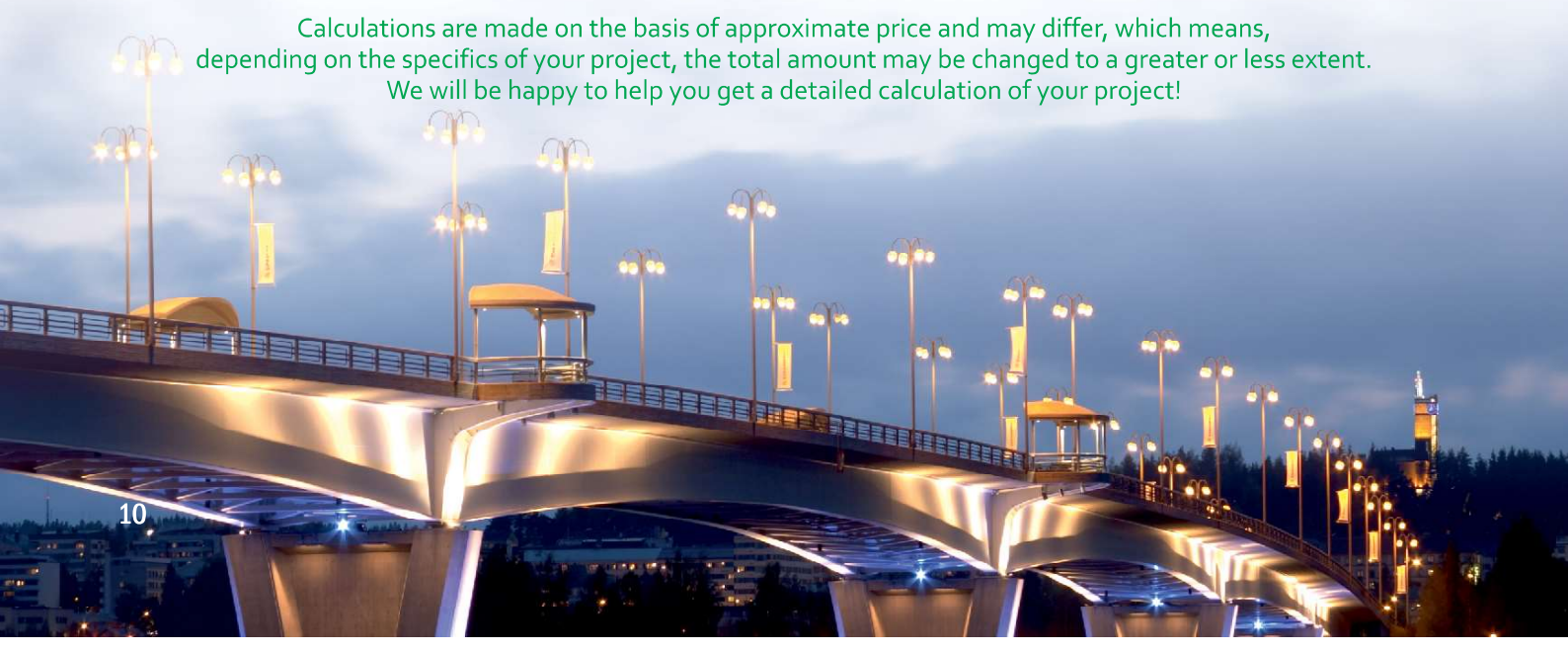
COMPARATIVE CHARACTERISTICS OF OUTDATED LIGHTING SOURCES VS LED.

DESCRIPTION	UNITS	LAMPS		
		MERCURY OR SODIUM-VAPOR LAMP	LED (UNCONTROLLED)	LED (SMART MANAGED)
Luminaire wattage	W	400 W	120W	120W
Number of lamps	PCS	1000	1000	1000
Luminaire cost	USD	89	250	320
Installation cost	USD	50	50	50
Total luminaires cost	USD	137 000	300 000	370 000
Earthwork cost	USD	7	7	7
Cable pulling M	USD	2.5	2.5	2.5
Cables cost	USD	15.5	8	4.8
Cable type	COPPER	NYY-0 4*50	NYY-0 4*25	NYY-0 4*10
Plastic pipe cost	USD	1	0.8	0.8
Plastic pipe type	Plastic	P-D35	P-D25	P-D25
Total cable cost	USD	1 040 000	732 000	604 000
Electricity cost	USD	0.08	0.08	0.08
Avg. luminaire consumption	W	450	120	72
Work hours per year cost	/HOUR	4000	4000	4000
Total operational expenses	USD	144 000	38 400	23 040
Energy saving, %	%	–	73.3	84.0
Total: project cost	USD	1 177 000	1 032 000	974 000

Calculations are made on the basis of approximate price and may differ, which means, depending on the specifics of your project, the total amount may be changed to a greater or less extent. We will be happy to help you get a detailed calculation of your project!



AUTHOR CERTIFICATE

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Our Projects :

程鴻科技
SCWIN

CONTACTS

Address : F6, No.65, Shuinan Dadao Xi,
Nanpu Cun, Xin Tang, Zeng Cheng,
Guang Zhou, China 511340

Tel : +86 20 8278 0427
Mobile : +86 137 6337 0443
E-mail : info@stsystemplc.com
Website : www.stsystemplc.com

CHENG HONG DESIGN AND RESEARCH INSTITUDE