



# **SMART LED BALKAN DOO**

Street Light & Smart Light Management System

Part 1. Introduction

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Part 2. Solution

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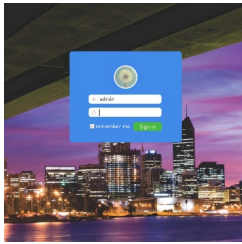
Part 3. Products

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Part 4. Successful Cases

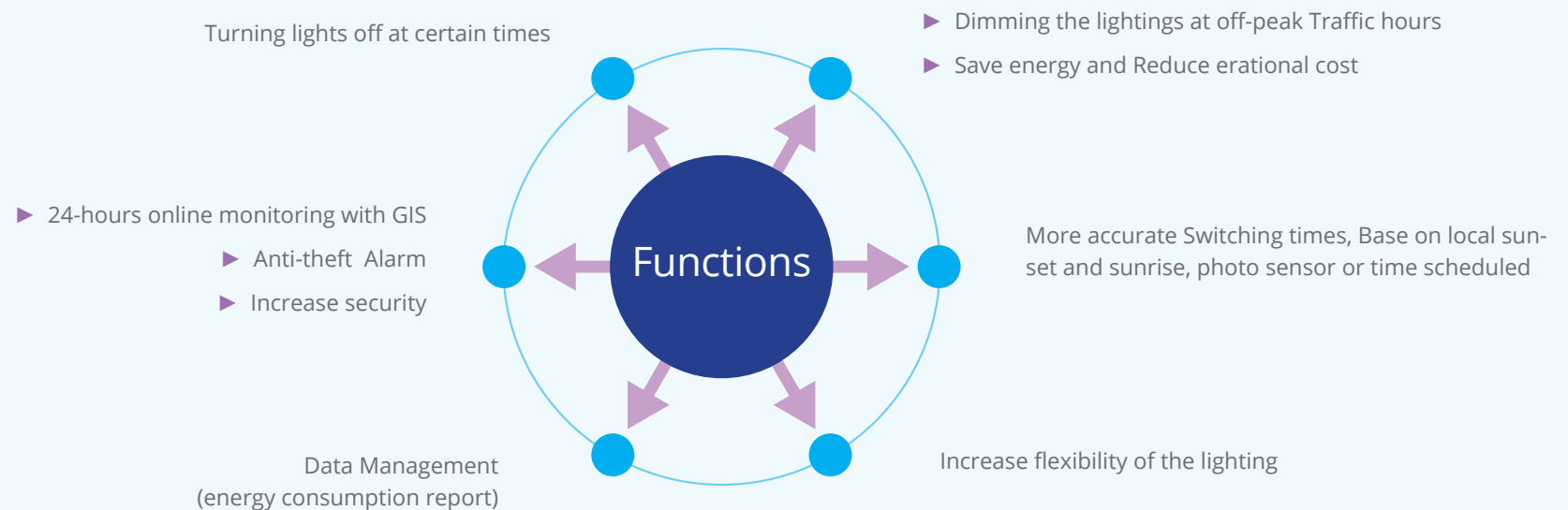


# Street light cloud control system (SCCS)

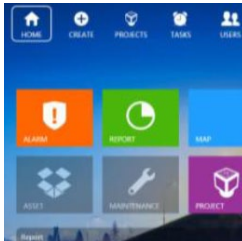


Street light cloud control system (SCCS), for demand-oriented control and monitoring of individual luminaries up to thousands of points of light. Street Light Control facilitates particularly reduction in power consumption, CO2 emission and light pollution and moreover an optimized maintenance planning

**Central element:** the SCCS software which the user can use to keep the entire street lighting system in view.



# The SCCS system and its components



## SCCS software

- ▶ Central interface between user and the SCCS system
- ▶ Administration, programming and analysis of the lighting system
- ▶ Local installation or in the Cloud
- ▶ Only allocated function areas visible for each user



## SCCS Concentrator Installation in the switchgear cabinet

- ▶ Saves, processes and translates the control commands and queries initiated by the software
- ▶ Incorporation of additional components such as light sensors, Digital input output modules and Cable anti-theft modules into the entire system

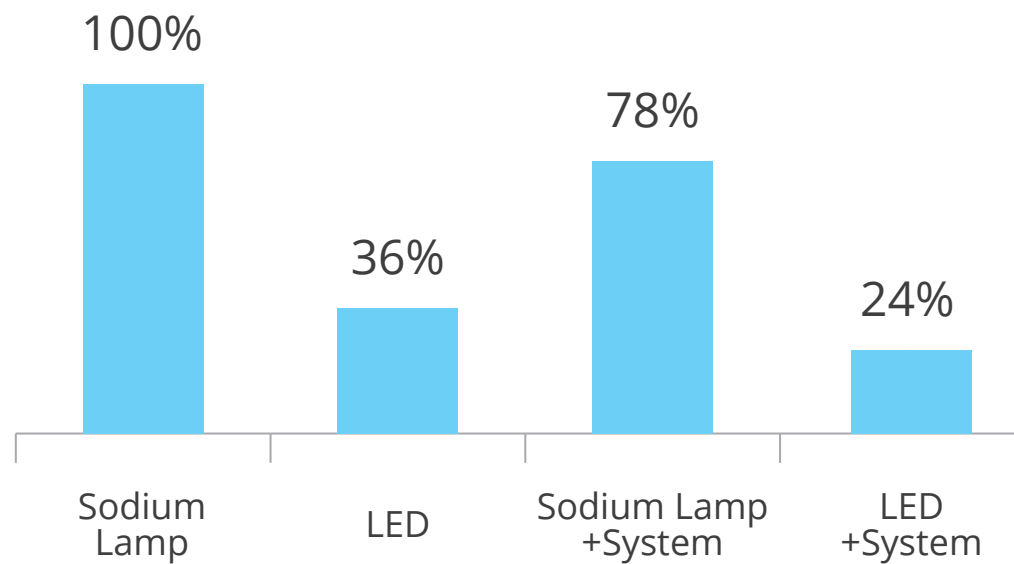


## SCCS lamp Controller/SCCS Luminaries Controller

- ▶ The controllers in the SCCS system allow individual control and monitoring of each individual luminaries
- ▶ Components can be supplied as mast mounting or luminaries mounting
- ▶ Individual switching of all luminaries is possible
- ▶ Individual dimming (via 0 ... 10 V interface or PWM) of all luminaries is possible
- ▶ Use of each controller as a signal amplifier/repeater is possible for optimum communication

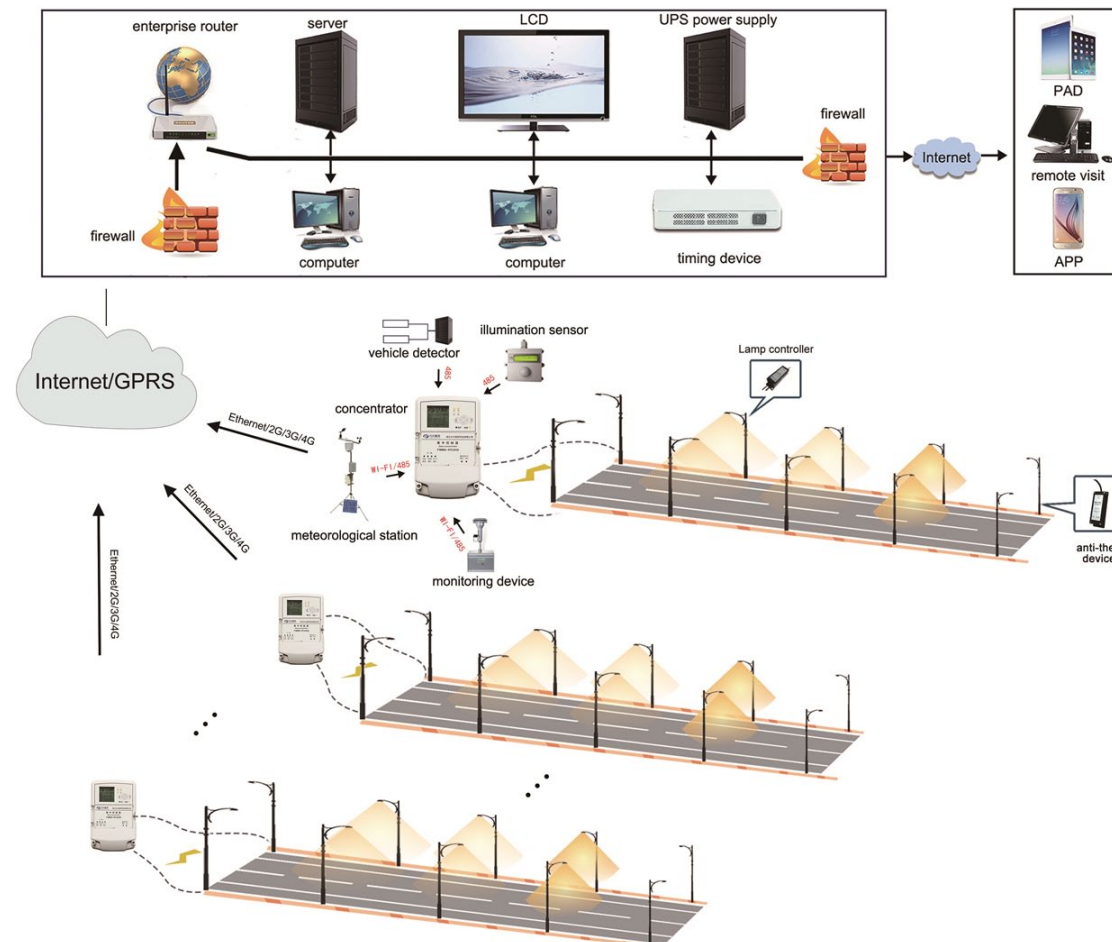
# Energy Saving Analysis

Power Consumption Comparison Table



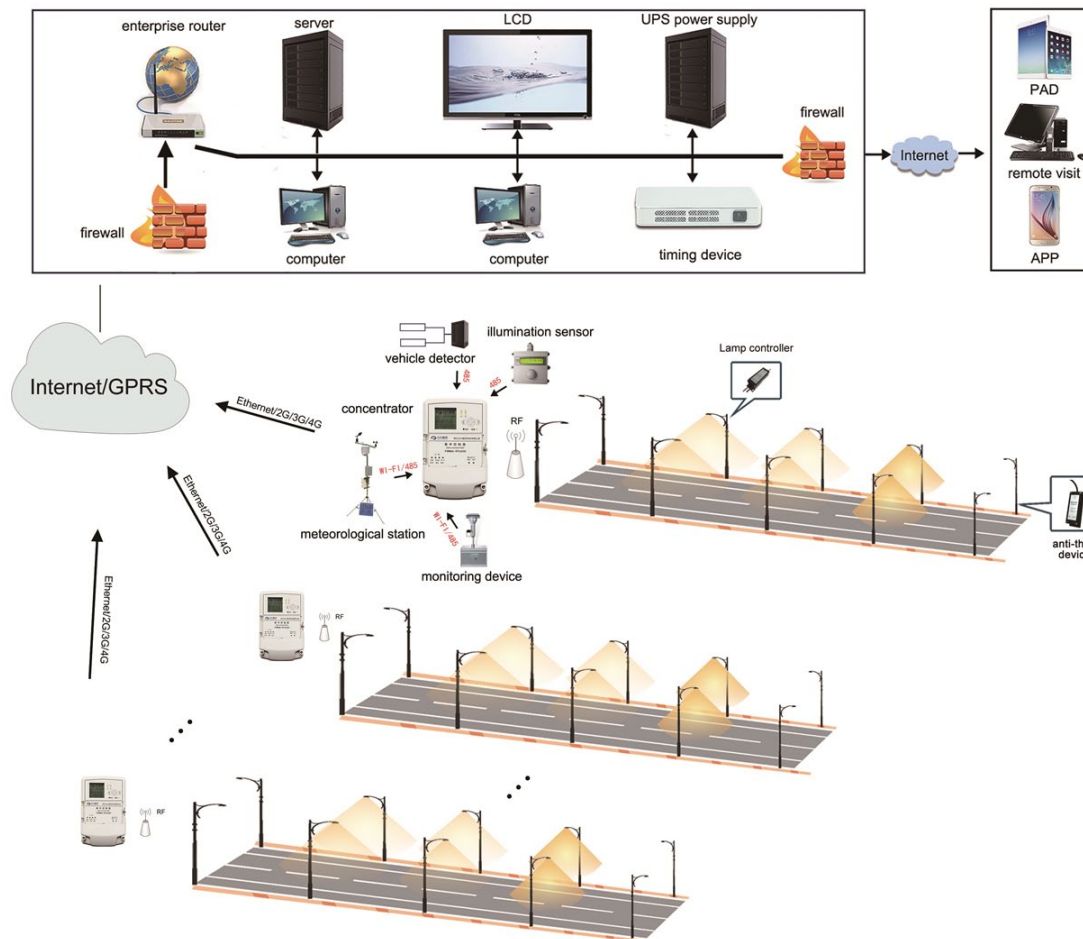
Note: Percentages in the chart as the highest rate of energy saving

# PLC Solution (For street lighting)

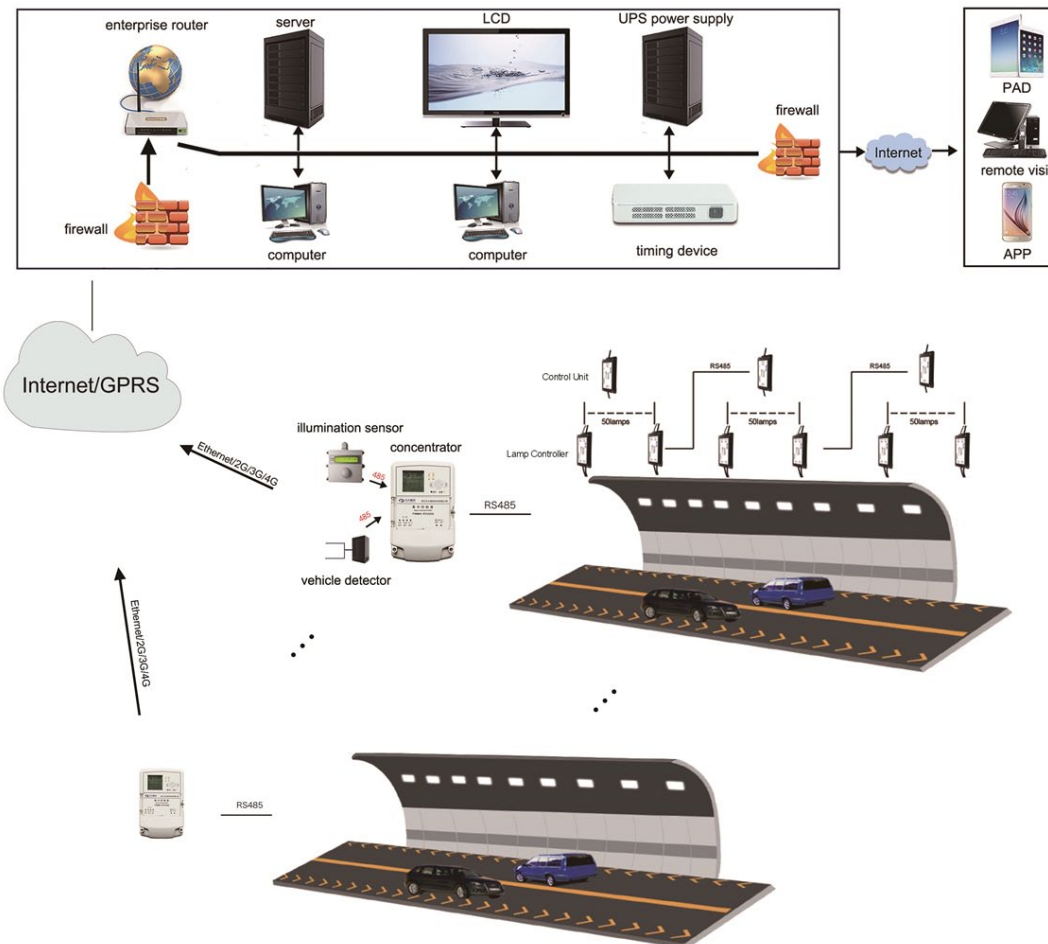




# Zigbee Solution (For street lighting)



## RS485 Solution (For Tunnel lighting)





# SCCS Software



Cloud platform



Programme Management



Project Management



Real image map

## Street Lamps-HL Series

LED type: Philips / Samsung  
Driver: Inventronics / Meanwell / Moso  
Watt: 30W~240W  
PF: >0.9  
Frequency: 50-60HZ  
Input voltage: 100~277VAC



## Street Lamps-HL Series

Beam Angle: 80-140DEG  
LM/W: 110LM/W  
CRI: >70  
Certification: CE, ROHS  
Working Environment: -35~45°C





## Street Lamps-CL Series

LED type: Samsung  
Driver: Moso  
PF: >0.9  
Frequency: 50-60HZ  
Input voltage: 100~240VAC  
LM/W: 100LM/W  
CRI: >70  
IP: IP65  
Certification: CE, ROHS  
Working Environment: -35~45°C



## Street Lamps-CL Series



## Concentrators & Lamp Controller

Name		PLC series	Zigbee series	RS485 series
Data concentrator (RTU)		RTU100	RTU100Z	RTU200R
		RTU200	RTU200Z	
Lam controller (LCU)	AC power	LCU12	LCU12Z	LCU12R
		LCU22	LCU12M	
	DC power	LCU31	LCU31Z	LCU31R
			LCU31M	
			LCU51Z	



# Concentrator RTU100 / RTU100Z / RTU100R



Flame resistant material, integrated housing

4 DO, 4 DI

Ethernet/GPRS/CDMA/ZIGBEE/PLC

32-bit ARM9 CPU, up to 180MHz

Auto alarm report

Remotely power consumption reading

Size: 290\*180\*100mm

# Concentrator RTU100 / RTU100Z / RTU100R

## Features:

- ▶ Remotely monitoring: by longitude/latitude, light or time
- ▶ Alarm: Lighting by accident, Lighting-off by accident, Over current, Over voltage, Over voltage, Cabinet door open, Cabinet tilt, Water in cabinet, Lightning on cabinet, Power outage, Power on, Leakage, Cable theft alarm, AC contactor status detection, Circuit breaker failure, Missed ABC phase detection, Auto/Manual status detection, etc
- ▶ Built-in power meter
- ▶ Upgrading local/remotely, or by USB disk
- ▶ Communication with server: 2G/3G/4G/CDMA
- ▶ Communication with lamp controller: PLC, ZigBee, RS485
- ▶ Backup battery: 8 hours after the electricity power off

## Parameters:

- ▶ Operating voltage: 100VA ~ 500VAC
- ▶ Power consumption:  $\leq 3W/5VA$
- ▶ Operating Temperature:  $-45^{\circ}C \sim +85^{\circ}C$
- ▶ Warranty: 3 years

## Lamp Controller (Zigbee)

### Parameters:

- ▶ Operation Temperature: -40°C~+85°C
- ▶ IP Degree: IP67
- ▶ Communication rate: 256bps
- ▶ Relative Humidity:  $\leq 95\%$
- ▶ Frequency: 2.4G/433/915
- ▶ Protocol mode: IEEE802.15.4 standard
- ▶ Communication: Zigbee



LCU12



LCU22



LCU31



## Lamp Controller (PLC)

### For AC ( LCU11, LCU12, LCU22 )

- ▶ Communication by PLC
- ▶ 96V~264V AC
- ▶ With current, voltage, power, power factor, power remote reading functions
- ▶ Remote switching on/off, dimming
- ▶ Lighting time statistics, fault time statistics, energy accumulation remote reading
- ▶ Alarms: Compensation capacitor failure, Power failure, Manhole detection, Light pole tilt, Light pole leakage, Lamp in high temperature, Lamp under voltage, Lamp over voltage, Lamp over current, Relay fault, Node missing, Lamp life-time warning, Lamp failure
- ▶ PWM or 0-10V dimming

### For DC ( LCU31 )

- ▶ Communication by PLC
- ▶ 12-24V/500mA DC
- ▶ Remote reading function of Current, Voltage, Power
- ▶ Remote dimming
- ▶ Lighting time statistics, fault time statistics, energy accumulation remote reading
- ▶ Alarms: Power failure, Lamp under voltage, Lamp over voltage, Lamp over current, Node missing, Lamp life-time warning, Lamp failure
- ▶ PWM or 0-10V dimming

## Lamp Controller (Zigbee)

### Parameters:

- ▶ Operation Temperature: -40°C~+85°C
- ▶ IP Degree: IP67
- ▶ Communication rate: 256bps
- ▶ Relative Humidity:  $\leq 95\%$
- ▶ Frequency: 2.4G/433/915
- ▶ Protocol mode: IEEE802.15.4 standard
- ▶ Communication: Zigbee



LCU12Z



LCU31Z

## Lamp Controller (Zigbee)

### For AC ( LCU12Z )

- ▶ Communication by PLC
- ▶ 96V~264V AC
- ▶ With current, voltage, power, power factor, power remote reading functions
- ▶ Remote switching on/off, dimming
- ▶ Lighting time statistics, fault time statistics, energy accumulation remote reading
- ▶ Alarms: Compensation capacitor failure, Power failure, Manhole detection, Light pole tilt, Light pole leakage, Lamp in high temperature, Lamp under voltage, Lamp over voltage, Lamp over current, Relay fault, Node missing, Lamp life-time warning, Lamp failure
- ▶ PWM or 0-10V dimming

### For DC ( LCU31Z, LCU51Z )

- ▶ Communication: Zigbee, 2.4G/433/915
- ▶ DC 12-24V/100mA
- ▶ Remote reading function of Current, Voltage, Power
- ▶ Remote dimming
- ▶ Lighting time statistics, fault time statistics, energy accumulation remote reading
- ▶ Alarms: Power failure , Lamp under voltage, Lamp over voltage, Lamp over current, Node missing, Lamp life-time warning, Lamp failure
- ▶ PWM or 0-10V dimming



# Lamp Controller (RS485, usually for Tunnels lighting)

## Parameters:

- ▶ Operation Temperature:  $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
- ▶ IP Degree: IP67
- ▶ Communication rate: 9600bps
- ▶ Relative Humidity:  $\leq 95\%$
- ▶ Communication: RS485
- ▶ Communication mode: Master-Slave
- ▶ Communication format: 8 data bits, 1 stop bit, EVEN



LCU31R

# Lamp Controller (RS485, usually for Tunnels lighting)

## For AC ( LCU12R )

- Communication: RS485
- AC 176V-242V
- With current, voltage, power, power factor, power remote reading functions
- Remote switching on/off, dimming
- Alarms: Compensation capacitor failure, Power failure, Light pole leakage, Lamp in high temperature, Lamp under voltage, Lamp over voltage, Lamp over current, Relay fault, Node missing, Lamp life-time warning, Lamp failure
- PWM or 0-10V dimming

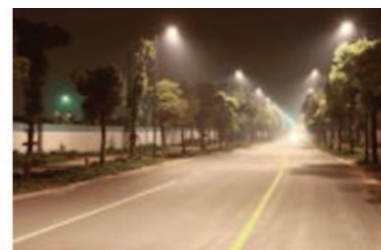
## For DC ( LCU31R )

- Communication: RS485
- DC: 12-24V/100mA
- With current, voltage, power, power factor, power remote reading functions
- Remote dimming
- Lighting time statistics, fault time statistics, energy accumulation remote reading
- Alarms: Power failure , Lamp under voltage, Lamp over voltage, Lamp over current, Node missing, Lamp life-time warning, Lamp failure
- PWM or 0~10V

# Application



Tunnel Lighting



Street Lighting



Bridge Lighting



Landscape Lighting



Solar Lighting Control





## Beit Arye - Israel

1200pcs LED street lamp control project



## Project used Smart Led PLC technology

300 concentrators & 15,000 lamp controllers





## BIRIA – north of Israel





## CONTACTS

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