

Smart Control System

SMART Control system is a new technology which enables convenient control of the installed lights in buildings, for example, turning off the unnecessary lights and tuning the illumination automatically, while reducing energy consumption.

- **Various control function for luminaires**

Manual/automatic customized color & brightness control (when used in conjunction with SAMJIN SMART LED luminaires)

- **Significant energy savings**

Prevents unnecessary electricity use for lighting, and enables significant energy savings through automatic control with occupancy sensors and daylight sensors.

- **Integrated control of luminaires through multiple interfaces**

There are three options for controlling luminaires -- PC Program for integrated control, Wall Controllers for local zone control, and individual control portal (smart phone or tablet).

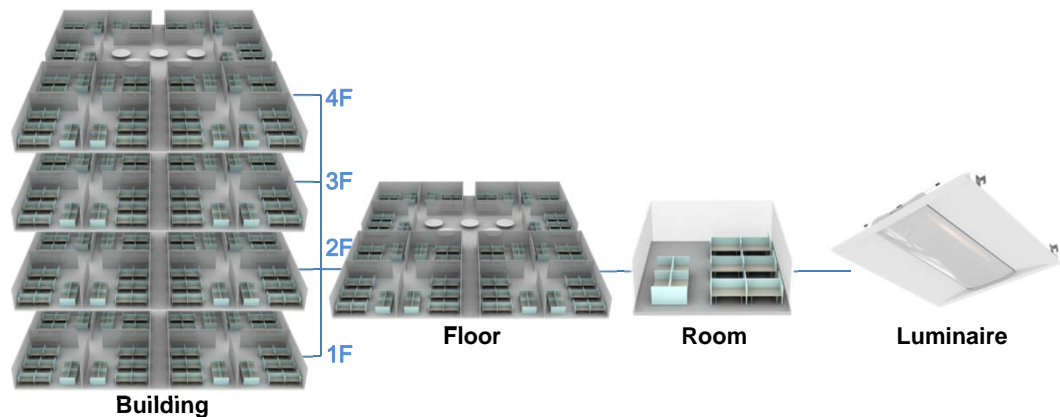
- **Easy installation by adopting RF communication protocol**

Luminaires, sensors, and wall switches are controlled through wireless RF communication. No additional cost for wire installation is required.

- **Automatic control through sensors**

Controls interior brightness automatically and seamlessly through daylight sensors, by integrating brightness of natural light from windows

- **Local control**



- Exclusive PC program allows control and adjustment of luminaires of whole building / a floor / a room / a luminaire (single or group) respectively.
- Various add-ons such as CCT change and dimming, scheduling, sensor modes are available according to the luminaire options.
- In addition to controlling by PC program, in each room, there are wall controllers which control CCT, brightness, sensor modes individually.
- Group control by ID granted from the intranet is available for individual control of own lamp.
- Turning on/off traditional lights optionally by using SAMJIN Power Bridge.

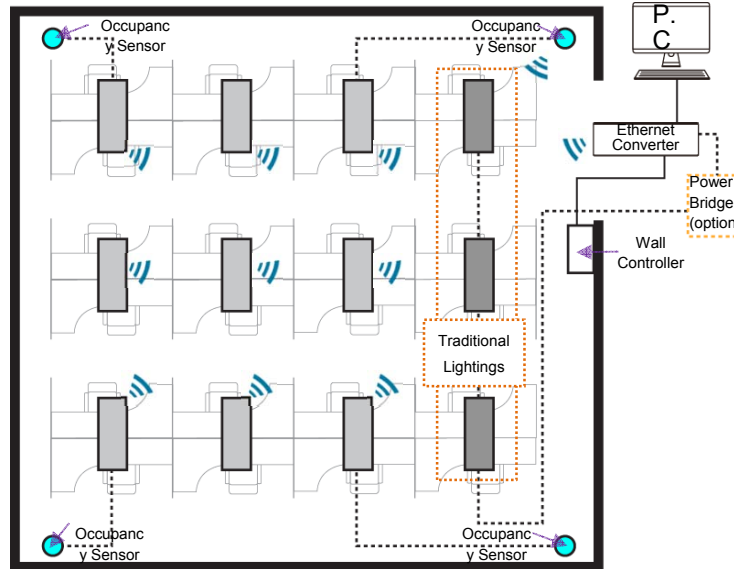
SMART system equipment

Item	Function
PC Program	A program for detailed control of luminaires in the entire building/enterprise
Ethernet Converter	Communication Interface between PC and Wall controllers
Wall Controller	A device which controls luminaires by receiving signals from sensors and transmitting signals to the luminaires in the room
Occupancy Sensor	A device enabling on/off of luminaires by detecting motion
Daylight Sensor	A light detecting device which modulates the brightness of luminaires
Power Bridge(option)	A device enabling traditional luminaires with no control functions to be turned on/off by PC Program

SMART system

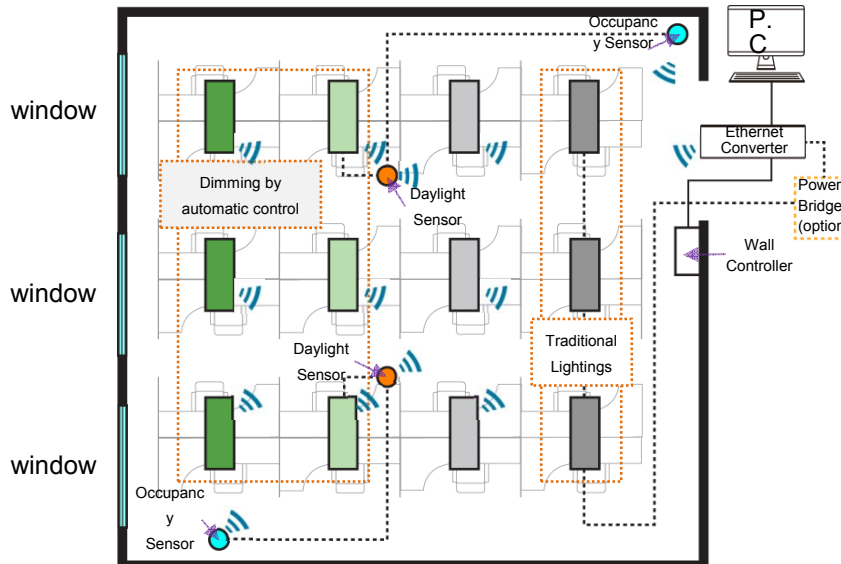
The proportion of electricity cost paid for lighting is 32-36% for most office buildings. SMART luminaire control solution saves energy cost by efficiently controlling luminaires of a building, and provides a pleasant working condition by properly using natural light during daytime. Additionally, in rooms without windows, it helps human biorhythm by setting the correlated color temperature according to the natural light cycle which makes occupants feel as if they are in natural light. Through the scheduling function of PC program, luminaires can also be used as visual alarms.

SMART System application using sensors



Offices without windows – Occupancy Sensor application example

Depending on the presence of occupants, through occupancy sensor, luminaires can be turned on/off, and also through multiple interface(PC, Wall Control, Smart Phone), luminaires can be controlled selectively, which decreases energy cost significantly.



Offices with windows– Occupancy Sensor + Daylight Sensor application example

In addition to energy saving by using occupancy sensor, additional energy savings can be achieved by adopting daylight control system using natural light from windows. Once reference brightness of the room is set on the Wall Controller, brightness is continuously regulated automatically, that is, if the room is darker than preset reference brightness, luminaires increase brightness until the brightness is reached, and if the room is sensed to be brighter than set point, then the luminaires decrease accordingly. In combination with occupancy sensor, so called multi-sensing control can be set up. Even when the room is darker than the set point, the luminaires are not turned on until motion is detected, which leads to even better energy efficiency.

Special feature of Occupancy Sensor

Occupancy sensor is a device for detecting presence of interior occupants, and an energy saving method by controlling local luminaires. If movement of a person or an animal is not detected for a preset length of time, luminaires are automatically turned off, which decreases unnecessary use of luminaires and increase energy savings.

PIR Sensor

- Motion detection sensor – makes luminaires turned on automatically.
- Installed at rooms, porch, corridors, passages (detecting within 3m radius)



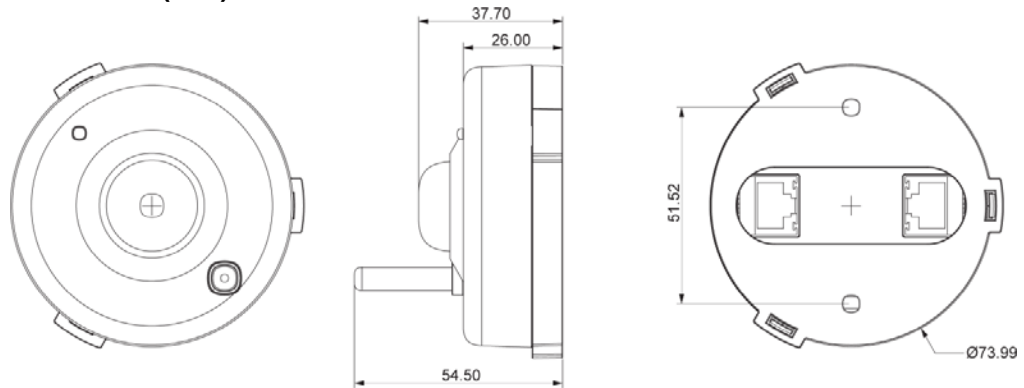
Wireless

- easy installation by wireless communication protocol
- additional wiring cost is unnecessary

Specification

Name	Detail(Function)
Antenna	916MHz Helical Antenna
Fresnel lens	PIR Fresnel Lens(detecting motion within 3m radius)
LED(Indicator)	Detecting motion turns on the green indication LED No motion turns off the green indication LED
RJ45 C/N for power supply	Power supplied from luminaire (CAT5e LAN Cable) Daisy Chain support(CAT5e LAN Cable)
Contents	Sensor body, Rear Case for ceiling mount, fixing screw 2ea

Dimensions(mm)



Energy savings

- Occupancy Sensors can be installed in various locations, resulting in high energy savings

Space type	Energy Savings
Individual office	45%
Open space	35%
Conference room	22~65%
Rest room	30~90%
Class room	25%
Warehouse	45~80%

Source: The U.S. Environmental Protection Agency, U.S. Construction Association

Special feature of Daylight Sensor

Daylight sensor is a device which measures the light coming in through windows, and automatically modulates the brightness of luminaires to save energy. It analyzes the interior brightness contribution from exterior (sun) light, controls individual luminaires by dimming or turning off, and decreases unnecessary usage of electricity for lighting.

Photocell

- Controlling dimming and off of luminaires by measuring interior illuminance.
- Installed at rooms, porch, corridors, passages

Wireless

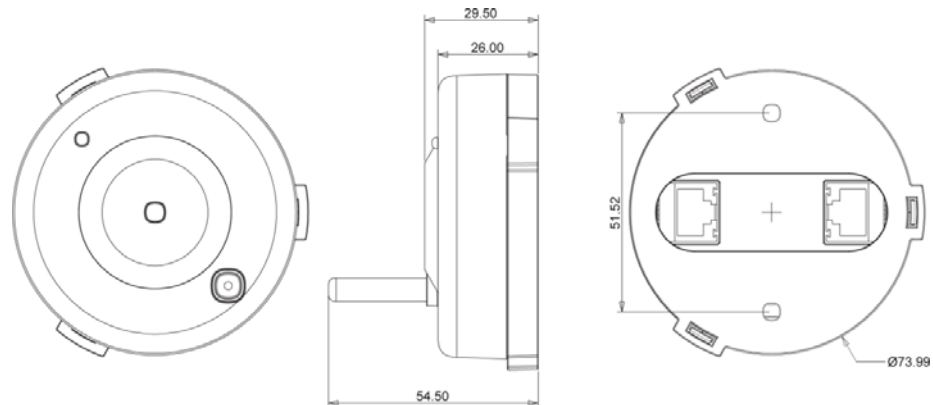
- easy installation by wireless communication protocol
- additional wiring cost is unnecessary



Specification

Name	Detail(Function)
Antenna	916MHz Helical Antenna
Sensor	Photo Sensor
LED(Indicator)	Detecting light turns on green LED No light turns off green LED
RJ45 C/N for power supply	Power supplied from luminaire (CAT5e LAN Cable) Daisy Chain support(CAT5e LAN Cable)
Contents	Sensor body, Rear Case for ceiling mount, fixing screw 2ea

Dimensions(mm)



Energy savings

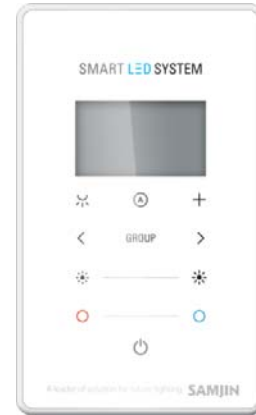
- Daylight Sensors can be installed in various types of spaces, and drastic energy savings are possible.

Space type	Energy Savings
Individual office	45%
Open space	35%
Conference room	22~65%
Rest room	25%
Class room	30~80%
Warehouse	45~80%

Source: The U.S. Environmental Protection Agency, U.S. Construction Association

Special feature of Wall Controller

Easy to operate with simple design and graphical function buttons with constant voltage touch system.
 Controls sensors, dimming level (0-100%) and correlated color temperature (2,700K - 6,500K)
 Group control is possible by group settings of luminaires.



LCD Display

- Accurate control is possible, since various setting status is reported on the LCD screen visually.
- Easy control in the dark with backlight function.

Wireless

- Wireless communication with luminaires enables easy installation.
- No additional cost for wiring is necessary for communication.
 (□ Power and connection to ethernet converter are CAT5e connections)



Power button backlighting

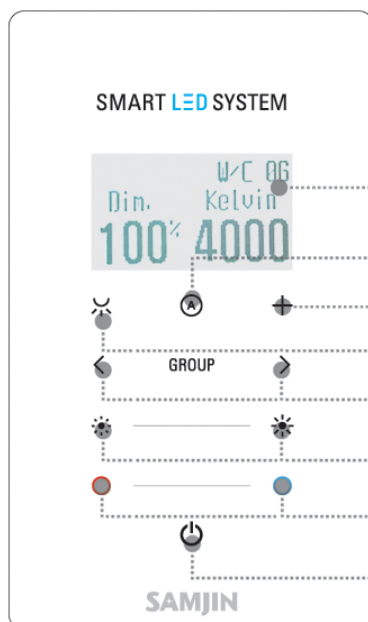
- Backlit power button makes it easy to find the wall controller in the dark.



Wall Controller (WCRF - SKUS)

Controls sensors, dimming level (0-100%) and correlated color temperature (in 50K increments) of SMART luminaires.

Parts name of Wall Controller



<LCD Display Info>

Wall Controller ID Info

Luminaire brightness Info

LCD Window

AUTOPILOT mode

PRESET mode

SENSOR mode

ID(Group) No, Up/Down

Dimming control: manual brightness control

Color temperature(K) control:

Bulb color(Warm: 2,700K) ~ Daylight color(Cool: 6,500K)

Power: On/Off of luminaires

Luminaire CCT Info

Special feature of Power Bridge

It has a switchboard function, and enables luminaires with no control function to be turned on/off through PC program.
(This is an optional device for traditional or general luminaires with no control module)



Specification

Name	Detail(Function)
CASE	Power Bridge Case
AC Power	AC Input power(100-277V / 16A)
Load	CH1 ~ CH4 (4A / CH)
Network	PC connection (CAT5e LAN Cable)

E.C. (Ethernet Converter)

A communication interface between PC and Wall Controller (or Power Bridge).
RS485 protocol is used between E.C. and Wall Controller (or Power Bridge)
TCP/IP is used for communication with PC.



Specification

Name	Detail(Function)
CASE	Power Bridge Case
DC Power	Adaptor for power supply
Luminaire	Wall Controller and Power Bridge connection (CAT5e LAN Cable)
Network	PC connection (CAT5e LAN Cable)