DeLight Power

User Guide

SmartControl

Model： sC24

DeLight Power Products Limited

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1. Getting Started

1.1 Package contents

The package contents are listed as follows:

- ☑ 1 unit of sC24
- ☑ 1 copy of operation manual

NOTES:
If any of the items are damaged or missing, contact DPPL for technical inquiries and support, please refer to the DPPL Support Hotline number, which is listed at the back of this user manual. [SEP]

The original packaging material should keep it in a safe place, in case you would need future warranty services such as repair or replacement. [SEP]

1.2 The sC24 dimensions, ports and terminals

<u>Dimensions in mm</u>
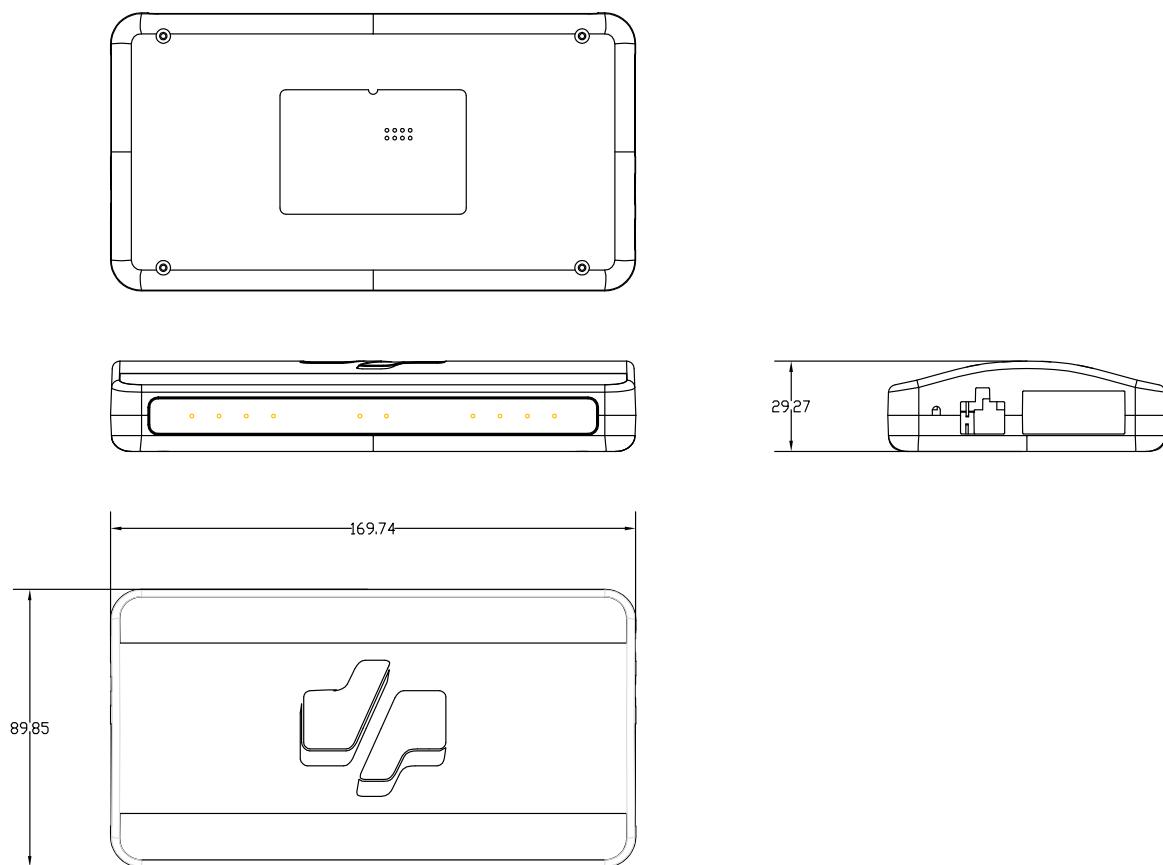
Ports and Terminals

1. Reset
Reset of the sC24 to factory setup, long pressing with a pin or paper clip to activate the reset

2. PWR
Power input terminal, connects to via the dedicated cable of the DDPL power supply unit. The power on/off is controlled by the DDPL power unit.

3. C1-C4
Data Communication Port (RJ45), it is a non-typical wiring connection, please see the below wiring assignment:
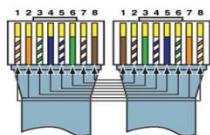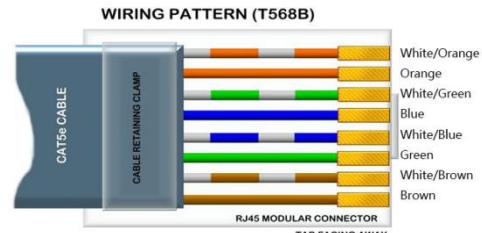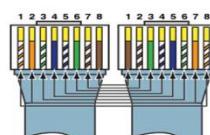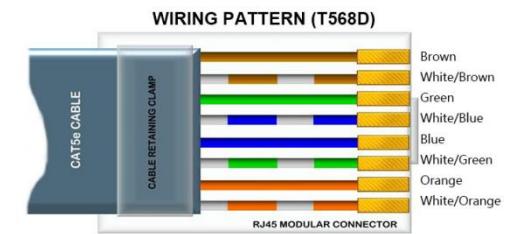
Multiple sC units can be connected vis the sC cable to form a straight, loop or combined network.

4. T1-T2

Communication Port for connection with the DPPL TermiDrive, via a dedicated T-cable, to provide power and data communication capability. The connection uses dedicated cable and cable plug that are available separately from DPPL

Note:

Use only DDPL approved cables, plugs and connectors for the operation of the sC to avoid mal-function or damage to the device.

Specification:

| DC Power input	48Vdc
Operating Temperature	$0\sim40^{o}$C ($0\sim70^{o}$C for storage)
Operation Humidity	$0\sim70^{o}$C ($20\sim90\%$ for storage)
Operation Frequency	433.3MHz
Type of Modulation	GFSK

Antenna Gain	-19.6953dB

1.3 Positioning of the sC24

For the best wireless signal transmission between the sC24 and other DPPL wireless network devices connected in the network, ensure that you:

- Place the sC24 in an area that has a maximum wireless coverage for the network devices.
- Keep the device away from metal obstructions and away from direct sunlight.
- Keep the device away from RF 433 MHz source such as radio-controlled model/toys, walky-talky, cordless phones, transformers, heavy-duty motors, fluorescent lights, microwave ovens, refrigerators, and other industrial equipment to prevent signal interference or loss.

1.4 Setup requirements

To setup the sC24, you need:

- An Android device running on at least version 4 with IEEE802.11b/g/n wireless capability
- DDPL Android App for Lighting Control
- A DDPL Wireless Bridge (e.g. model WB14)
- A wifi router with EthernetRJ-45(LAN)port(10Base-T/100Base-TX/ 1000BaseTX) and IEEE802.11b/g/n wireless capability

1.5 Sc24 Network setup

Network topology
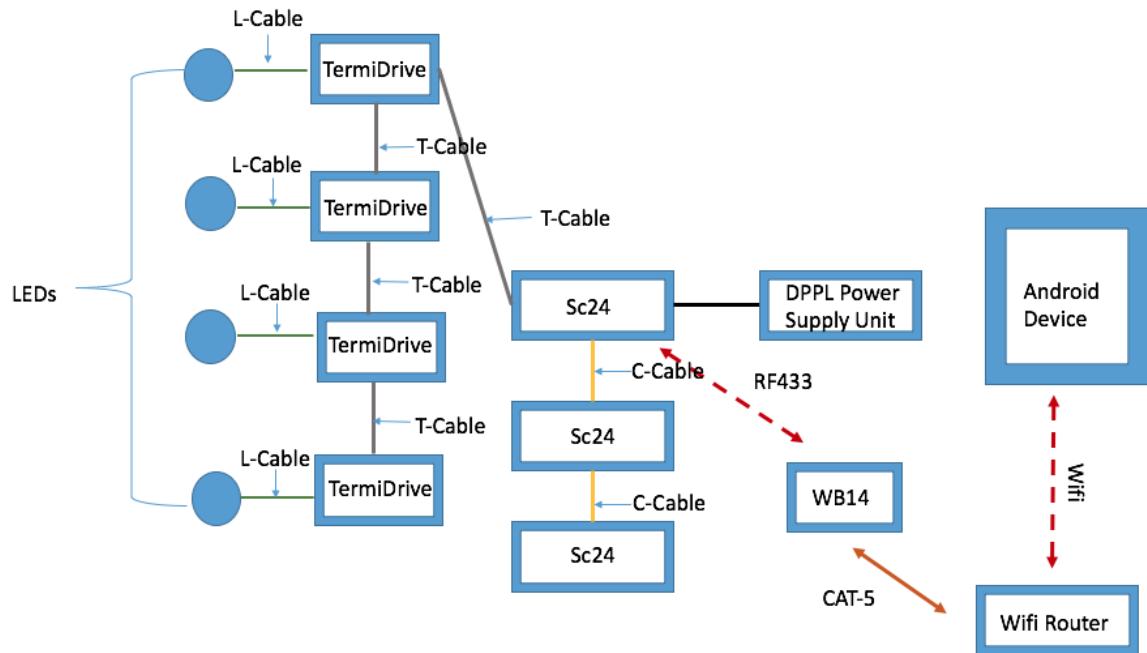
Note:
The wireless bridge only needs to connect wirelessly to anyone, who are connected sC24 to bridge the complete sC24 network using the Android device.

For setup and configuration of other device e.g. TerminDrive, Power Supply unit and WB14, please refer to the respective operation manual.

2. Configuration and Android App setup

2.1 Topology
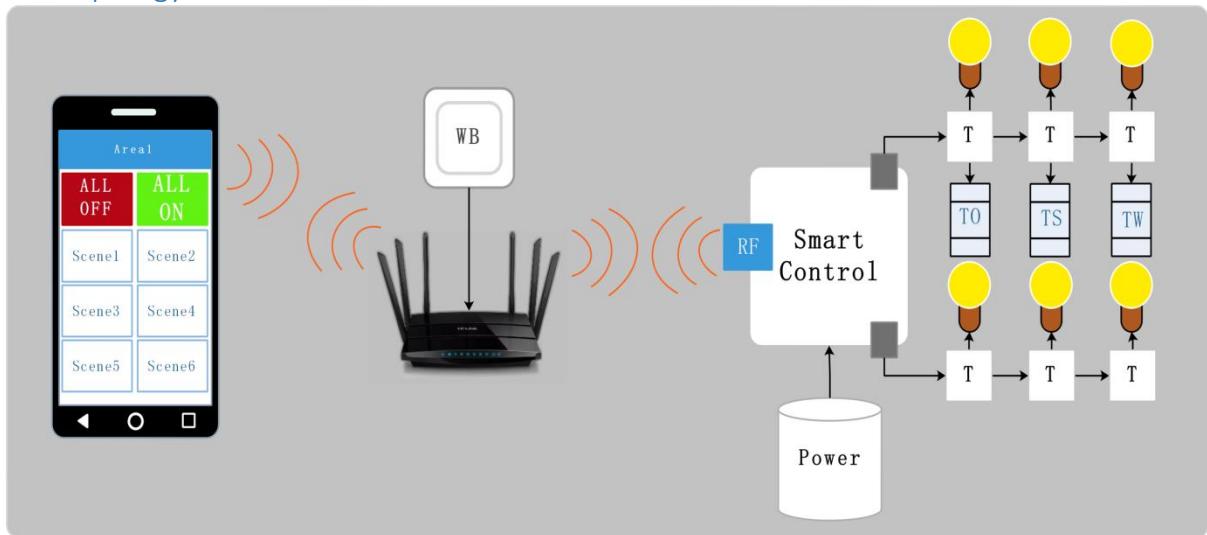
Figure-1 PCT Net system operation diagram

2.2 Introduction

Mobile APP is operated by sending control signal via wifi to the Wifi-router, and the LAN connected with the wireless bridge (WB). The WB relays the control signal from Wifi to RF (433Mhz), while the RF antenna inside the sC24 (C) will pick-up the control instruction to control the TermiDrive (T) for driving LED. TermiDrive has a terminal for connection to other functional device, such as light sensor (TS) to control the LED light intensity, infra-red sensor (TO) to sense present of occupants for automatic lighting on/off control, or wall switch (TS) for manual on/off control

2.3 Terminology

Figure-1 is a *sub-net* (physically connected network), *sub-net* cannot be interfered by software. Literally, LED under a sub-net can be grouped arbitrarily, but only for easier management and operation, the APP manages LED by levels. The WB connecting WiFi router may scan many *sub-nets*, sub-net dividing *Zones*, zones dividing *Scenes*, where *TW*, *TO* and *TS* are set as the same level as *Scenes*. Simply speaking:
Sub-net > Zone > Scenes or TW, TO and TS > LED

Note: when grouping LEDs, it is not possible to group across levels or across *Zone*, and the LED in a *Zone* cannot be party in one *Sub-net* and party in another *Sub-net*. Also, LED in one *Zone* cannot be included in another *Zone*, but this is possible to include same LEDs in different *Scenes*. The same TW, TO and TS can be included in multiple *Scense*, or be tied up to multiple LED in multiple *Zone*.

2.3 Sub-net
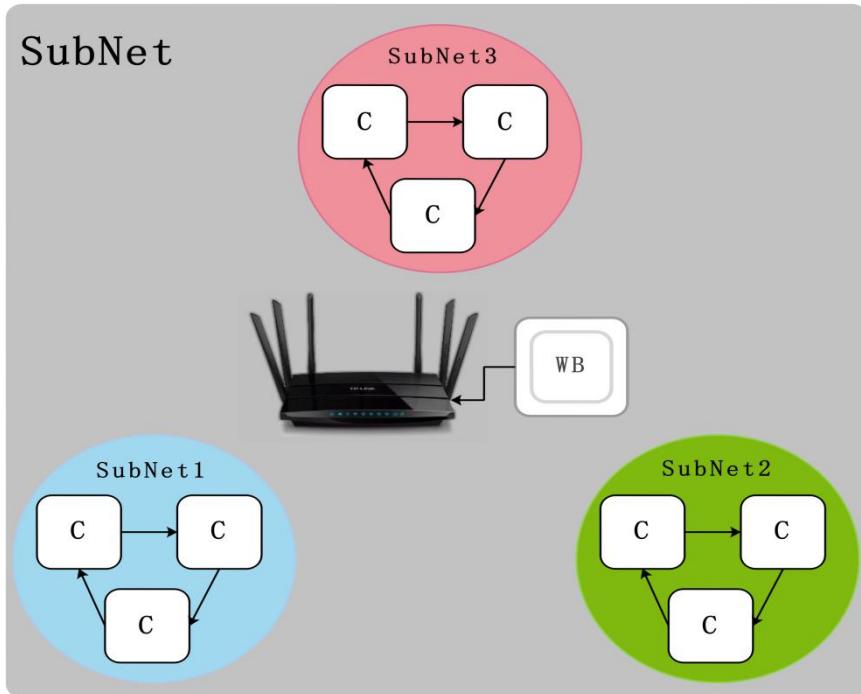
Figure-2 A sub-net

A sub-net is a physical network formed by one or more sC24 clusters, it enhances the sustainability of the sub-net, since the sub-net can still operate normally, even though there are few sC24 are having a bad contact. Sub-nets can be scanned and identified by the WB, which is connected to the WiFi router. The WB can communicate with anyone of the sC24, which is under a sub-net via RF. The data which is received by anyone of the sC24, it can synchronize with other sC24 via the physical LAN.

2.4 Zone
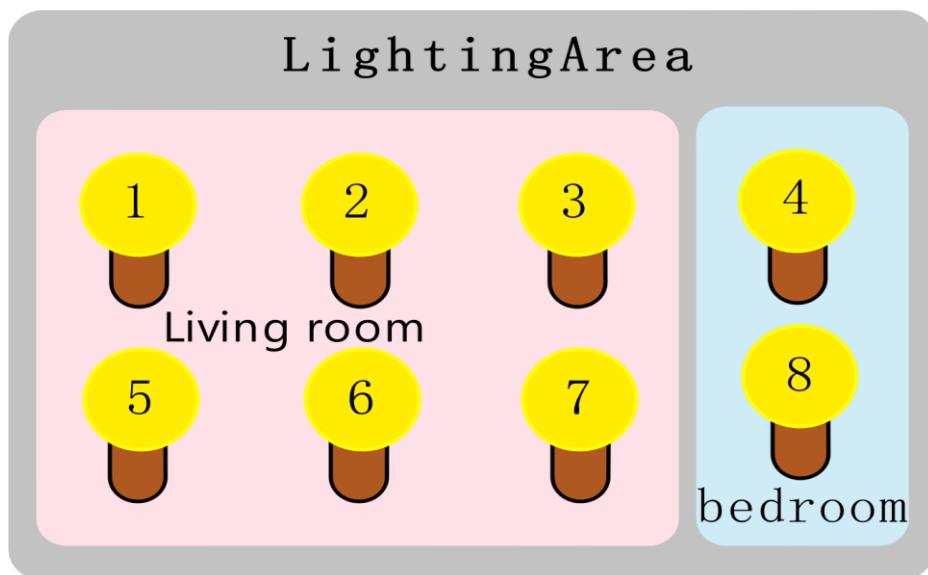
Figure-3 A Zone

The APP does not allow LED grouping across Zone, i.e. a Zone cannot be set across sub-nets, scenes cannot be set across zones. Taking Figure-3 as the example, there are 8 LEDs in a sub-net and is divided into two zones, living room and bedroom.

2.5 Scenes
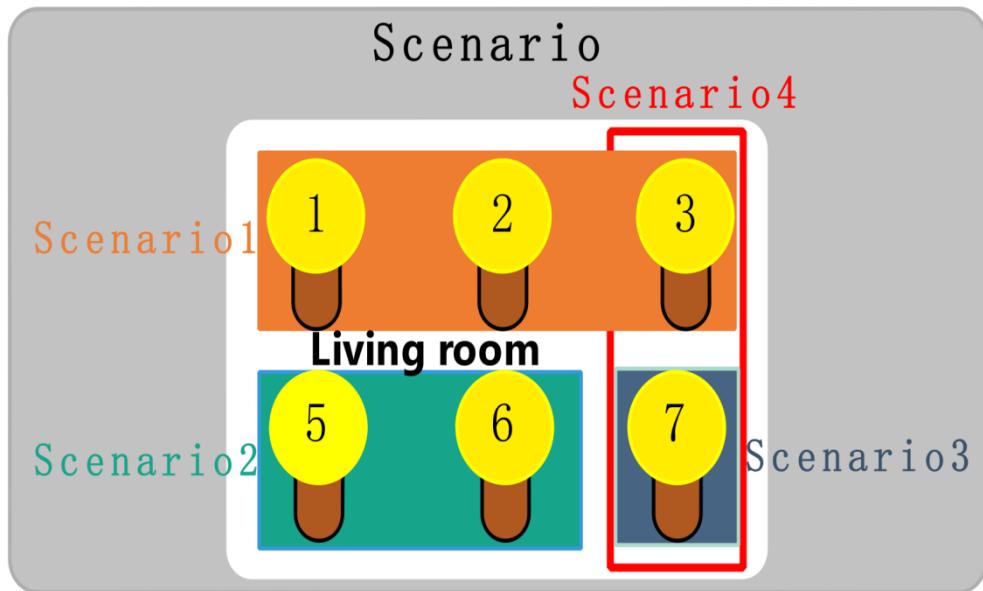
Figure-4 A Scene

LED group is not allowed to set scene across zones, therefore all scenes must be set within a zone. In Figure-4, assuming scense-1 is "entertainment", scense-2 is "dinning", scense-3 is "washroom", it is possible to include the same LED across different scenes. For example, LED 3 and 7 are covered by Scense-1 and Scense-3.

2.6 LED numbering
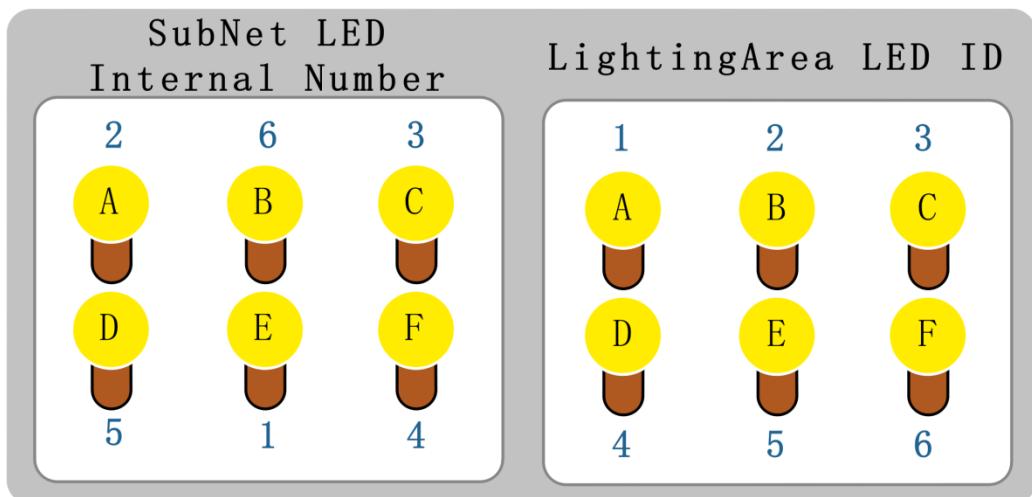
Figure-5 Sub-net and zone numbering

The network has automatically assigned an internal ID number to each of the LED, which is random be

assigned by the network and not user-friendly, therefore it is possible to manually be assigned an internal ID to every LED. This will help to match LED under a zone with the physical network for controlling of LEDs.

2.7 sC24 peripherals
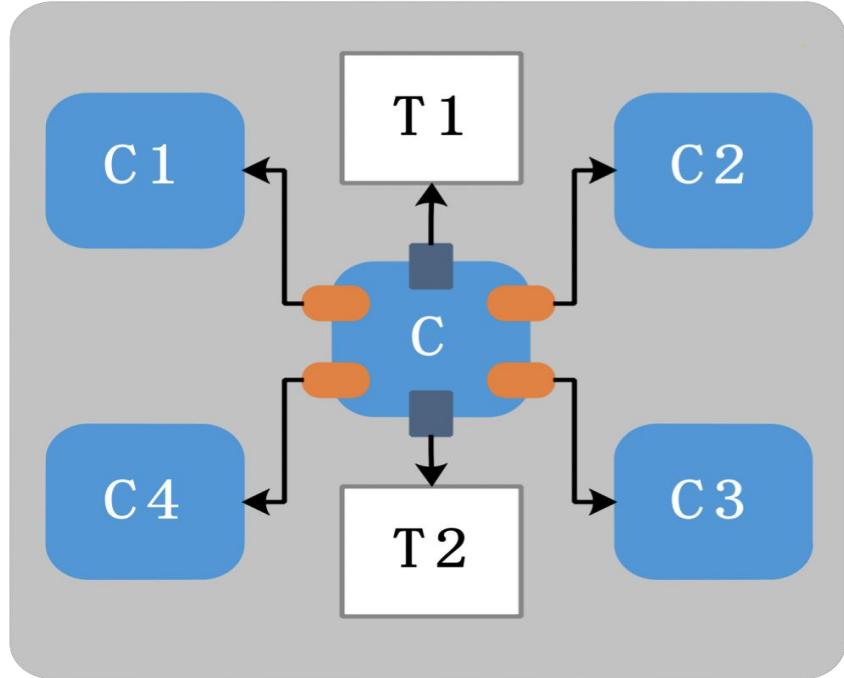
Figure-6 sC24 peripherals

Each sC24 has 6 terminals, 4 of them are for connecting other sC24, and 2of them are for connection with TermiDrive.

2.8 Tie-status
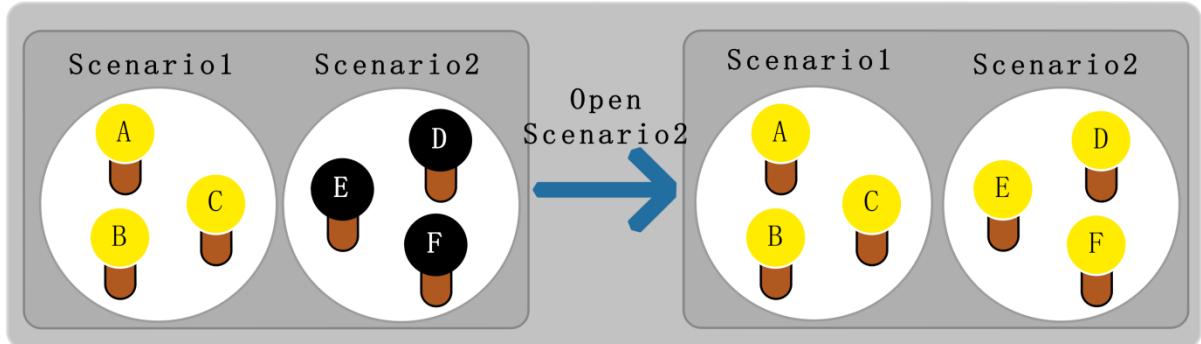
Figure-7 Illustration of non-tied scenes

In Figure-7, scense-1 has A, B and C LEDs and scense-2 has D, E and F LED. Scense-1 was pre-activated, and scense-2 was activated afterward. Under scense-2, LED D, E and F get switched on.
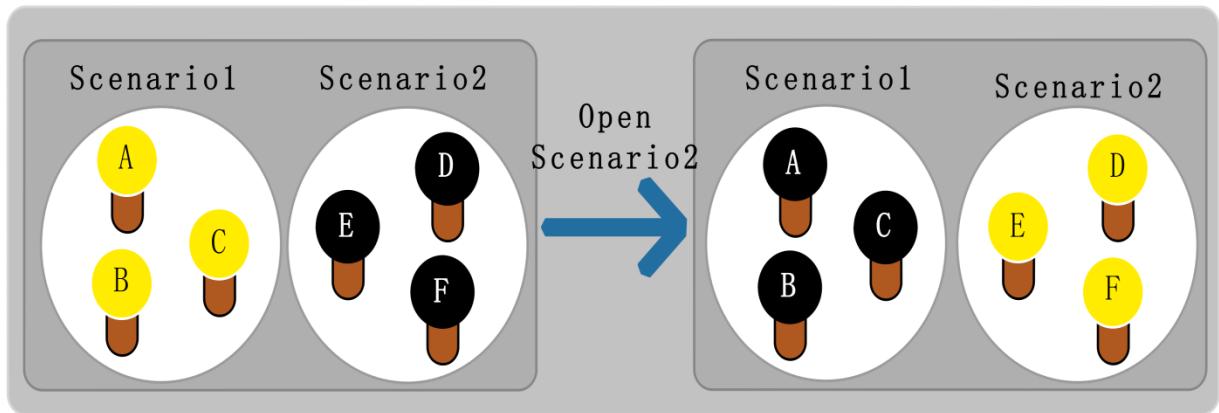
Figure-8 Illustration of tied-up scense

Figure-8 shows that scense-1 has A, B and C LEDs, scense-2 has D, E and F LED. Scense-1 was pre-activated, and scense-2 was activated afterward. Under scense-2, LED D, E and F get switched on while LED A, B and C get switched off.

2.9 Mobile App

The DeLight mobile app is required to configure and control the DDPL lighting system. This is to allow lighting designer to configure sub-nets, zones and scenes. After the setting is finished, the normal user can control the lighting in real-time via the APP's main page.
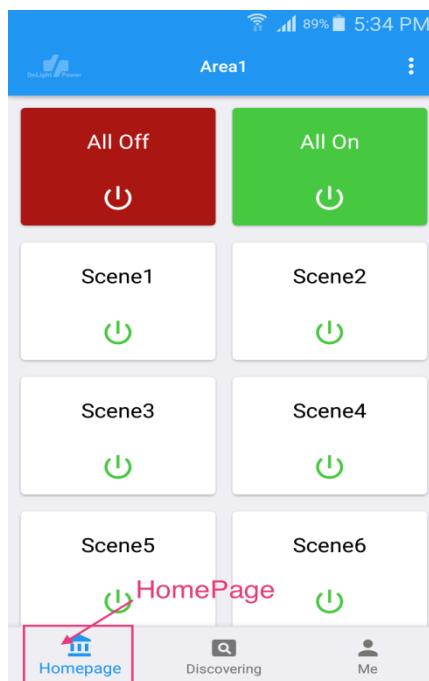
Figure-9 Main-page of the Delight Mobile App

The mobile APP is only available with the purchase of the DeLight system, it requires to Android version 5.0 or above. Please refer to the operation manual of the mobile APP for more details.

3. Appendices
3.1 DPPL contact information

- Factory: Unit 10-11, 7/F Wah Lai Industrial Centre, 10-14 Kwei Tei Street, Fo Tan, Hong Kong
- Tel: +852 2780 0277
- Email: info@delightintl.com

Administrative Regulations on Low Power Radio Waves Radiated Devices warning:
Article 12

Without permission granted by the NCC, any company, enterprise, or user is not allowed to change frequency, enhance transmitting power or alter original characteristic as well as performance to a approved low power radio-frequency devices.

Article 14

The low power radio-frequency devices shall not influence aircraft security and interfere legal communications; If found, the user shall cease operating immediately until no interference is achieved.

The said legal communications means radio communications is operated in compliance with the Telecommunications Act.

The low power radio-frequency devices must be susceptible with the interference from legal communications or ISM radio wave radiated devices.

§15.21
Any changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

§15.105
Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.