



LEDiM

PLC-IoT Smart Lighting System

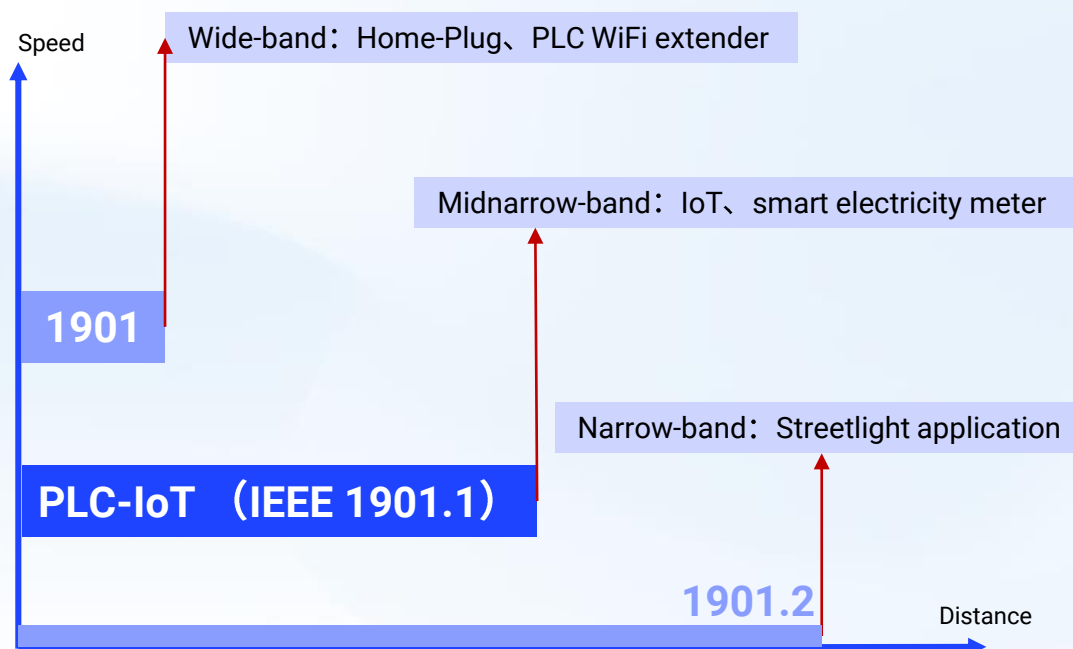
永林电子(上海)有限公司
LITEPUTER TECHNOLOGY CO., LTD.

PLC-IoT ,the best solution for Lighting System

What Is PLC-IoT?

PLC (Power Line Communication) is a communication method that uses power lines to transmit data and media signals, and loads signals on AC (such as AC 10KV, 220/380V) or DC (DC 12V/24V) lines.

Advantages of PLC communication technology



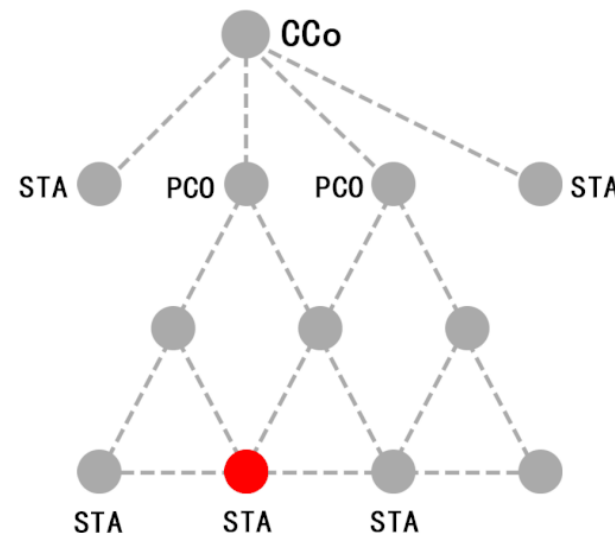
Longer transmission distance and higher transmission rate

More convenient construction, operation and maintenance, usable as long as electricity available

The signal interference among different systems can be blocked/filtered by signal isolater

Features of PLC-IoT Chip

- 01 Anti-noise and anti-attenuation
- 02 Dynamic Router : Optimize communication route. No repeating node needed.
- 03 Rapid automatic mesh: Network distributing time is 10 seconds for a 500-nodes system.
- 04 Maximum point-to-point transmission distance: 2km
- 05 Maximum point-to-point transmission bandwidth: 200kbps
- 06 Communication is achievable as long as power available



Tree network topology

CCo: master node, to create and maintain power communication network;
STA: child node;
PCO: relay node.

PLC High Reliability



设备型号	物理地址	发送次数	接收次数	成功率	通信延时	信道质量
SWP01-M-S6(JK)	71.17.E0.97.4E.94	6238	6238	100%	10ms	15
PLH-LB1X40-20-XL1	D0.07.55.FC.DC.FC	6238	6195	99%	200ms	23
PLH-LB1X40-20-XL1	D0.07.23.83.DF.D2	6238	6238	100%	30ms	16
PLH-LB1X40-20-XL1	D0.07.51.04.EF.77	6238	6236	100%	0ms	22
PLH-LB1X40-20-XL1	D0.07.B1.D4.2F.60	6238	6200	99%	0ms	14
PLH-LB1X40-20-XL1	D0.07.00.58.0C.D6	6238	6238	100%	5ms	20
PLH-LB1X40-20-XL1	D0.07.30.5B.2D.28	6238	6230	100%	0ms	19
PLH-LB1X40-20-XL1	D0.07.13.C6.A5.F5	6238	6158	99%	30ms	24
PLH-LB1X40-20-XL1	D0.07.15.D7.23.E3	6238	6201	99%	100ms	19
PLH-LB1X40-20-XL1	D0.07.D5.8C.8E.EF	6238	6167	99%	110ms	17
PLH-LB1X40-20-XL1	D0.07.D9.BE.AF.B5	6238	6238	100%	5ms	25
PLH-LB1X40-20-XL1	D0.07.00.E5.2B.82	6238	6238	100%	0ms	23
PLH-LB1X40-20-XL1	D0.07.E1.8B.8E.BA	6238	6238	100%	15ms	15
PLH-LB1X40-20-XL1	D0.07.C3.EC.C1.96	6238	6185	99%	0ms	19
PLH-LB1X40-20-XL1	D0.07.0A.C7.89.02	6238	6238	100%	0ms	8
PLH-LA4X24-100-AL2	D4.07.A5.22.F6.0B	6238	6238	100%	0ms	15
SWP01-QL-9W-22	A5.0F.E5.99.47.97	6238	6238	100%	20ms	13
PLH-LB1X40-20-XL1	D0.07.8F.32.3D.A7	6238	6183	99%	116.67ms	9
PLH-LB1X40-20-XL1	D0.07.BD.70.B8.11	6238	6238	100%	5.56ms	12

Fixture×103、Master Panel× 1、Control Panel× 3

Receiving 667,459 times, Sending 666,284 times

Successful Rate **99.8%**

PLC Smart Lighting System



| LEDiM

01

Easy Wiring

- Single powerline carries both power and data
- Deliver smart lighting quickly

02

Flexible Scene Setting

- Easy-to-use app
- Quick configuration

03

Perfect Dimming

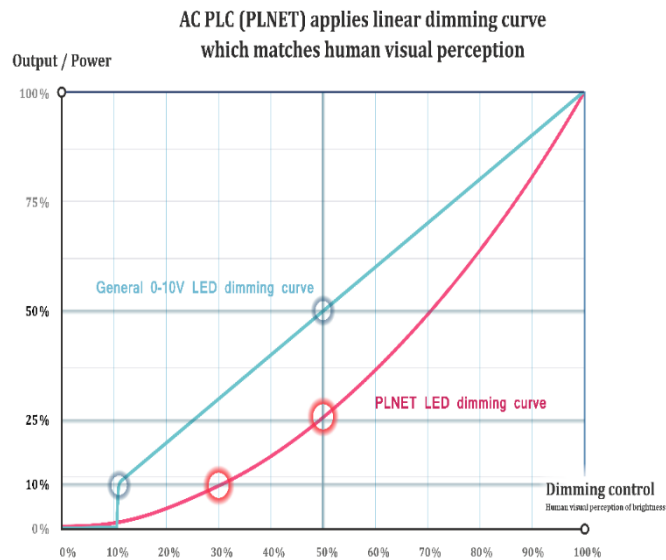
- 37500 steps PWM dimming

04

Easy Maintenance

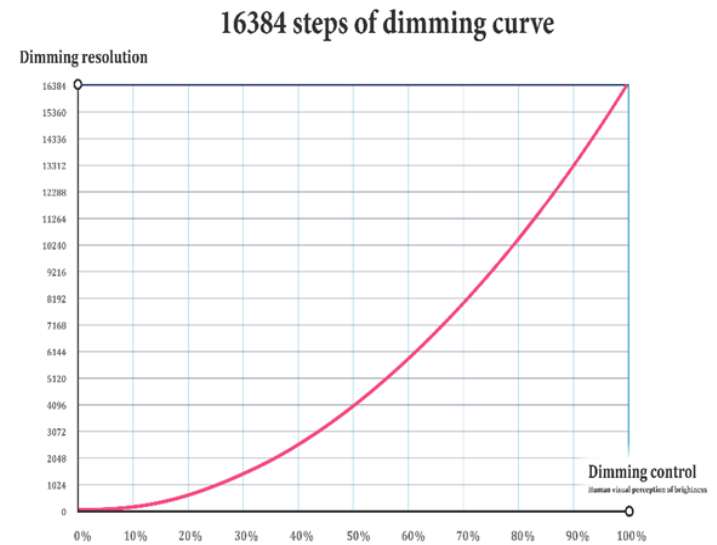
- Ready to use
- Automatically search for new fixtures

LEDiM Dimming Effect



Regular LED Dimming Curve

A regular LED dimmable driver would cut off the output at 10% to avoid flickering.



LEDiM C3 Dimming Curve

LEDiM embedded C3 dimming curve that fits human's sense of brightness and has 16384 resolution. LEDiM can avoid LED from flickering even at a dimming level as low as 0.01%.

Software

SMART 精灵

A quick system for
less than 200 fixtures

PRO 专业版

Large system solution

MUSEUM 博物馆

Museum cabinet lighting system

RCU

Solution for hotel room



Hardware

10+

**Channel
Control Units**

1/4/8/10 CH switch pack
4 CH dimmer pack
0-10V interface
Triac interface

30+

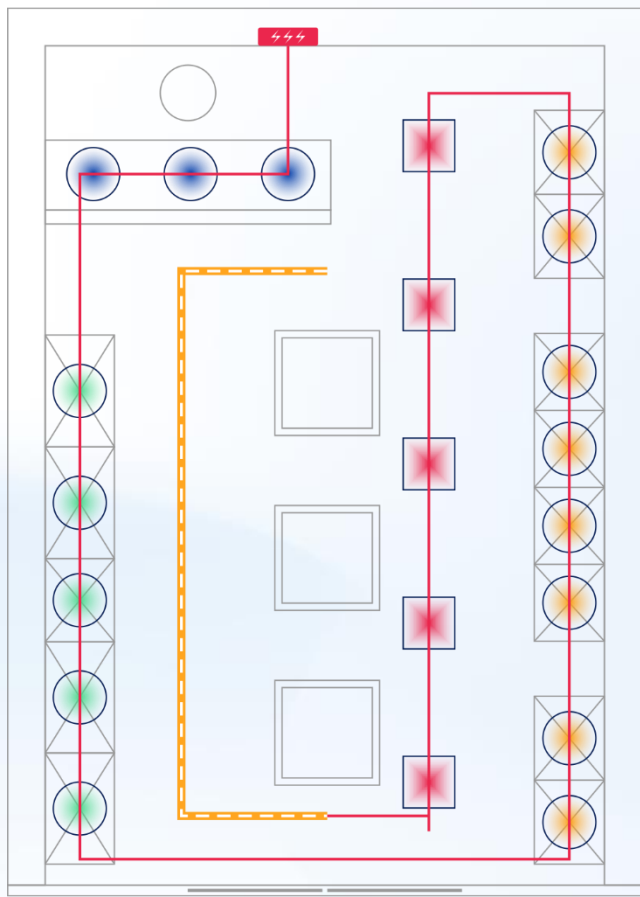
**LED
Drivers**

CC dimmable
20/45/50/100/200W
CC color dimmable
10/15/25/45/50W
CV dimmable 100W
CV color dimmable 100W
CV RGBW 100W
DC to DC driver module for
magnetic lamp / T8

Eco System

Panel
Curtain
Sensor
AI speaker
Smart home
appliance

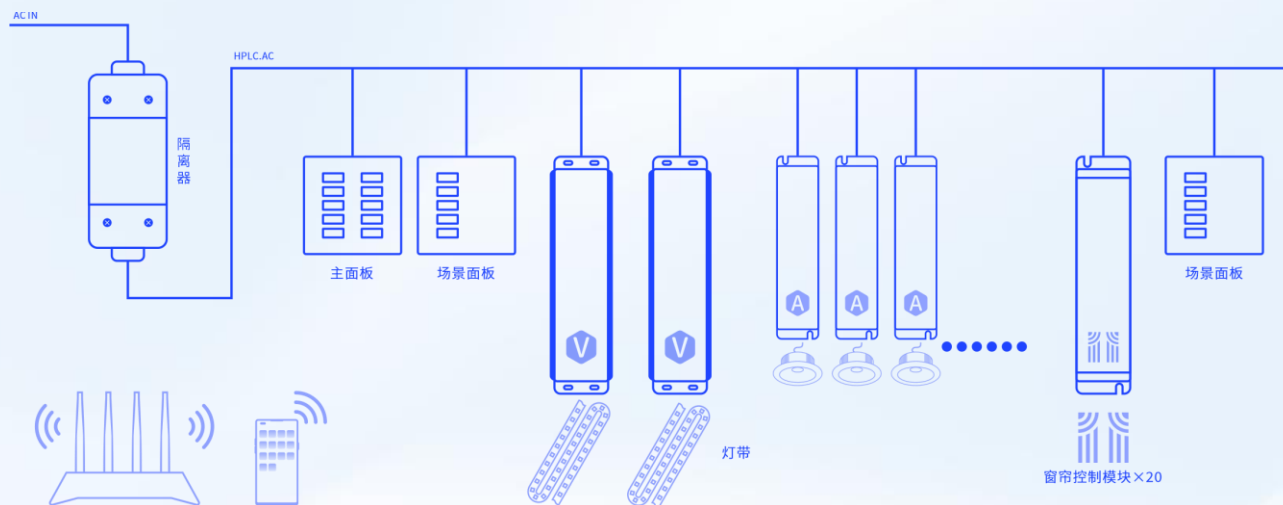
AC PLC system wiring



- Unlike conventional bus system, PLC network is highly intelligent and self-organizing. All devices in the network will automatically interact among each other to optimize the routing, reducing the wiring issue and improving the stabilities of the system .
- Uploading 100 devices to APP for only 2 minutes.

The system include:

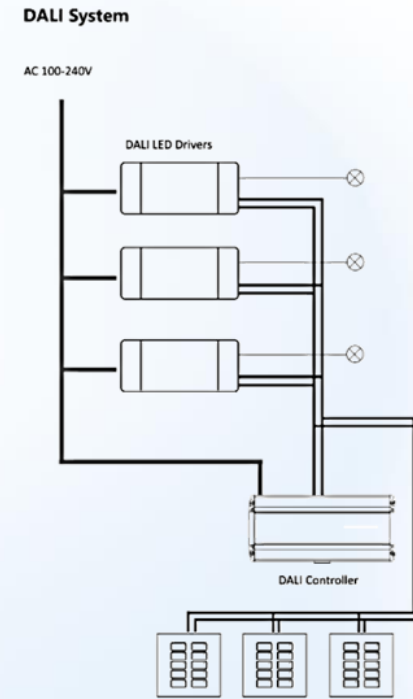
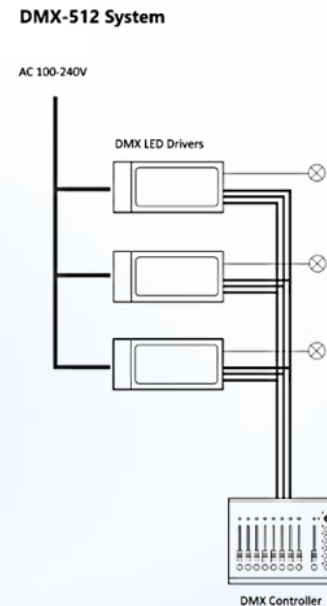
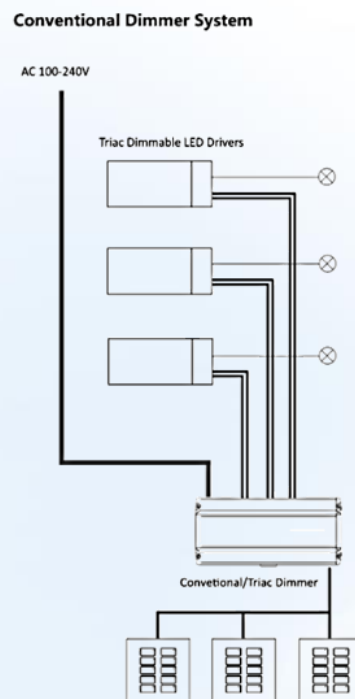
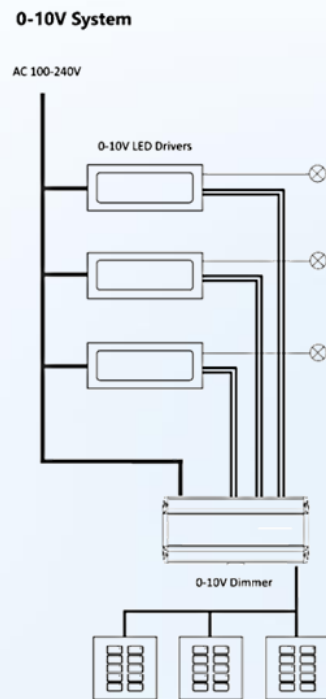
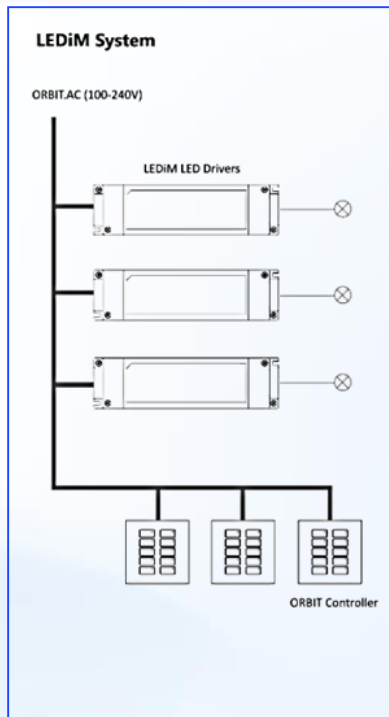
- Master Panel
- Scene Panel
- Lighting Fixture
- Curtain/Shade
- Sensors



PLC System V.S. DALI

Item	PLC	DALI
System Loading	1024 devices	64 devices
Number of Group/Scene	200/200	16/16
Transmitting Speed	100k bps	1.2k bps
Transmitting Distance	2000 m	1200 m
Repeating	15 levels	Non
Signal Wiring	Non	Yes

Dimmable Driver Wiring



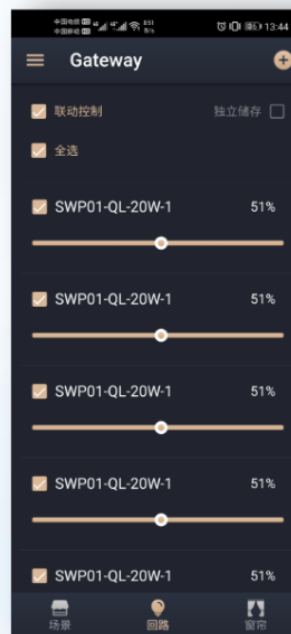
	LEDiM	0-10V	Triac	DMX-512	DALI
Dimming Level	0%-100%	10%-100%	20%-100%	0%-100%	0%-100%
Dimming Step	16384	Low resolution	Low resolution	256	255
Communication	Two-way	One-way	non	One-way / Two-way (RDM)	Two-way
Wiring	Easy	Complicated	Complicated	Complicated	Complicated
单灯控制	V	X	X	X	V

SMART 精灵

A ready-to-use individual addressing smart lighting system



Smart Master
(PLH-DPE101-WM)

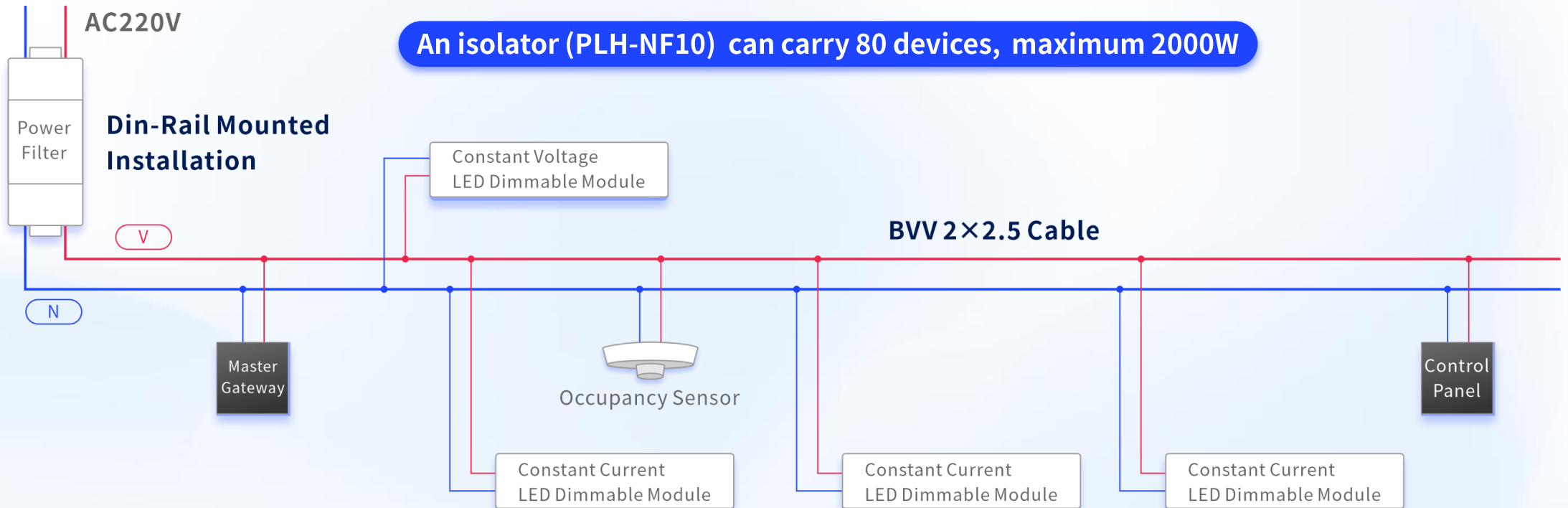




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LEDIM

SMART Minimized System

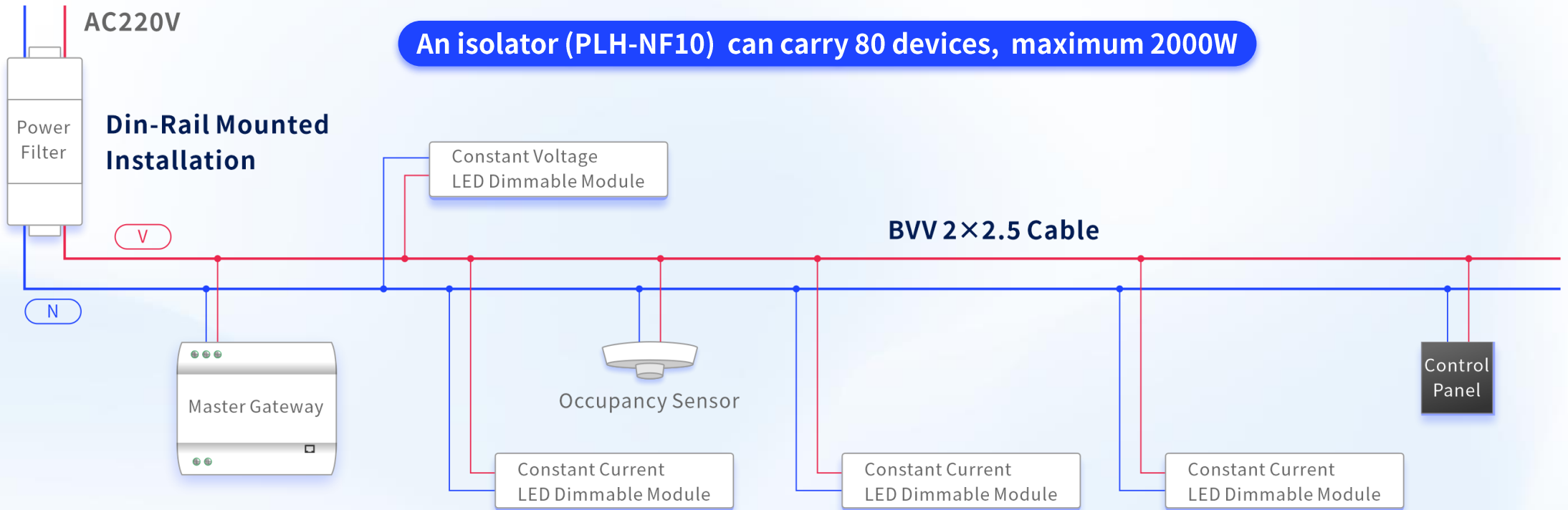




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LEDIM

PRO Minimized System

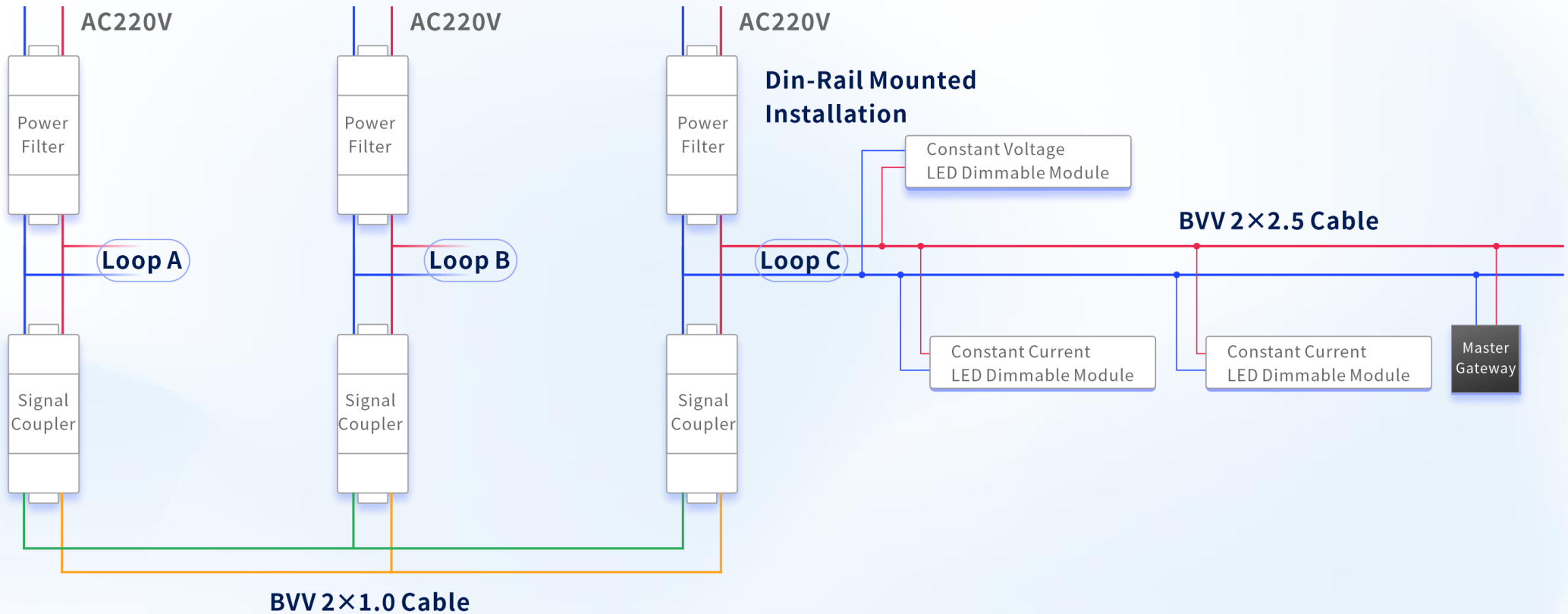




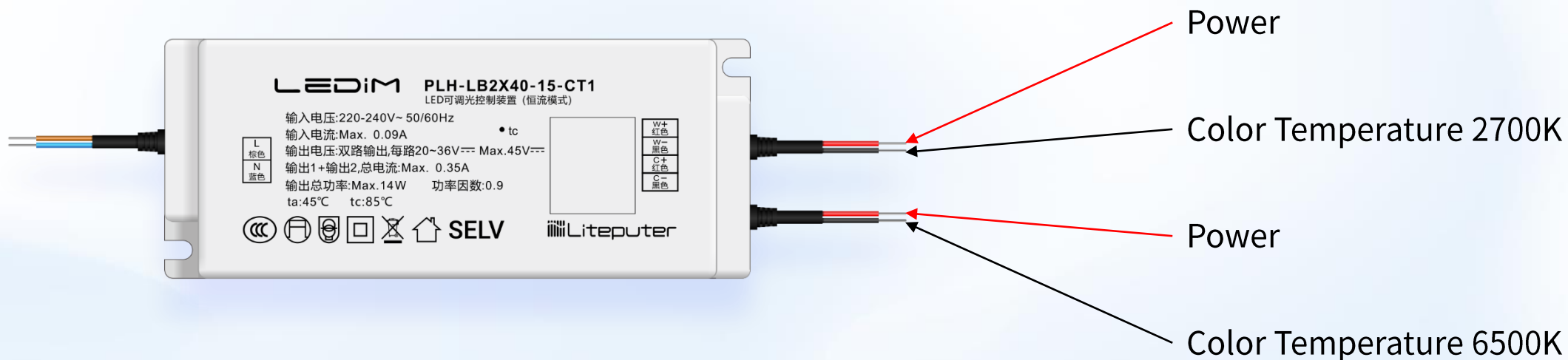
Liteputer

LEDIM

One Master with multi-isolators

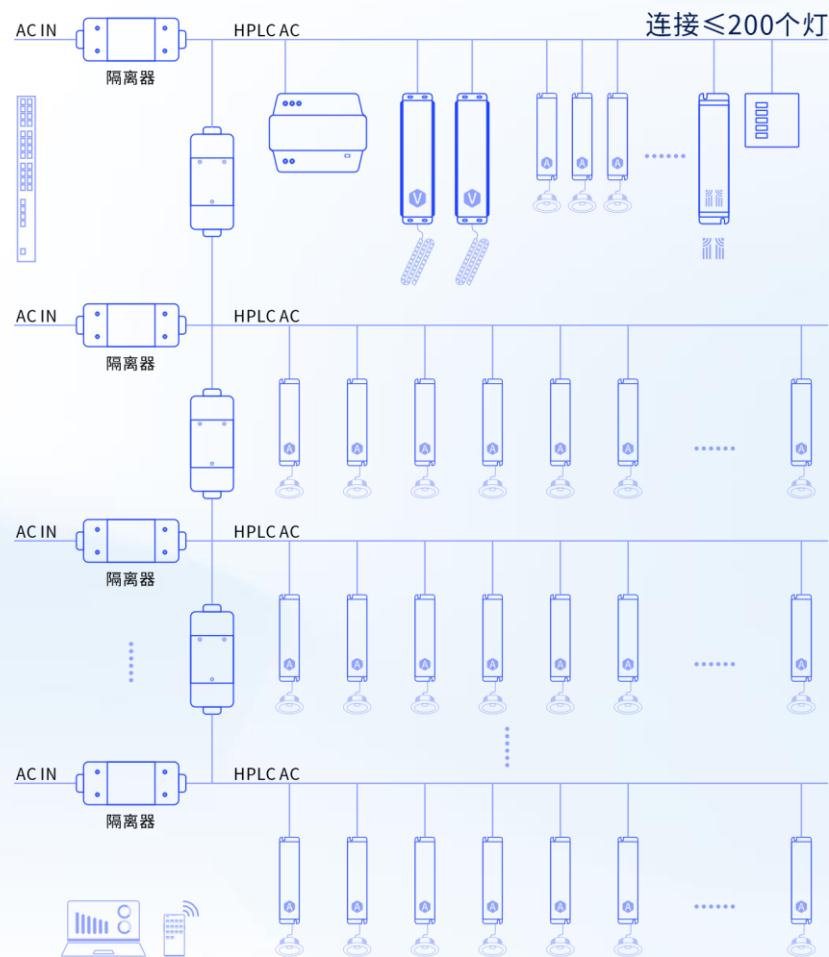


An isolator (PLH-NF10) can carry 80 devices, maximum 2000W



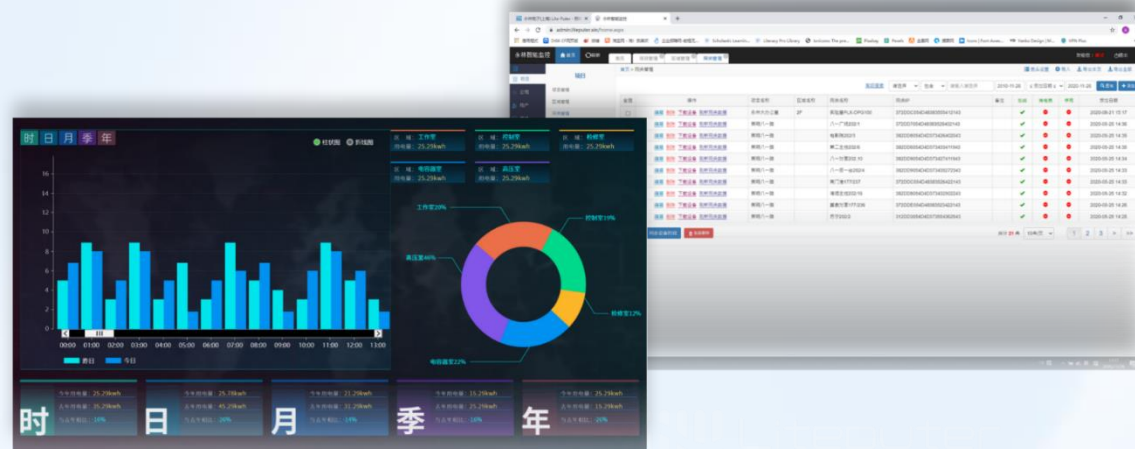
PRO 专业版

System Scale: 255 masters
A master can control 200 channels or 500 devices



Master (PLH-DPE100)

Power Input: AC 220-240V, 50/60Hz
Working Temperature: -20°C~+45°C
Dimension: 108.0(W)× 90.0(H) ×61.0 (D) mm
Weight: 460g
Installation: 35mm din-rail mounted
Protocol: HPLC, RS485, TCP/IP



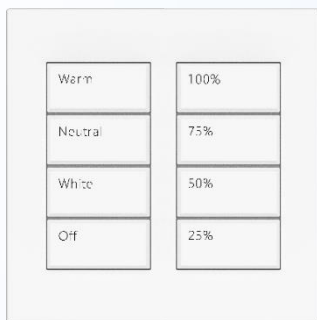
Scene panel

Customizable; Scene Programmable



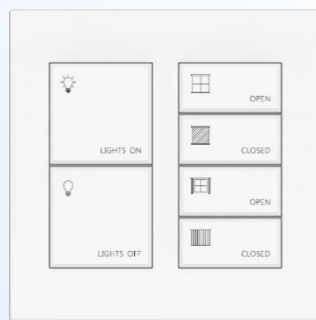
Wireless scene pan

Customizable; Scene Programmable



Series 6: 8-button wireless panel
(PLH-CP608F-RF01)

- 8-button panel scene adjustable
- Wireless wall-mounted installation, no cable power required



Series 6: 6-button wireless panel
(PLH-CP606F-RF01)

- 6-button panel, scene adjustable
- Wireless wall-mounted installation, no cable power required



433 wireless receiving module
(PLH-DPRF01)

- Input : AC 100-240V 50-60Hz
- Dimension: 104(L)*43(W)*30(H)mm
- Receiving wireless panel signal

CC Drivers



121.5(L)×34.0(W)×26.0(H)mm

	CC Dimmable PLH-LB1X42-12-XL1	CC Color Dimmable PLH-LB2X42-12-CT1
Input Volt.	AC 220-240V 50-60Hz	
Input Current	Max. 90mA	Max. 90mA
Output Volt.	DC 20V-40V	DC 20V-40V
Output Current	Max. 300mA	300mA
Output Watts	12W	12W
Channel Occupied	1	2
Installation	External	
Working Temp.	-20°C~+45°C	



151.4(L)×40.0(W)×30.2(H)mm

	CC Dimmable PLH-LB1X42-24-XL1	CC Color Dimmable PLH-LB2X42-24-CT1
Input Volt.	AC 220-240V 50-60Hz	
Input Current	Max. 150mA	Max. 150mA
Output Volt.	DC 20-40V	DC 20-40V
Output Current	Max. 600mA	Max. 600mA
Output Watts	24W	24W
Channel Occupied	1	2
Installation	External	
Working Temp.	-20°C~+45°C	

High Power CC Drivers



	CC Dimmable Driver PLH-LB1X90-200-AL1	CC Dimmable Driver PLH-LB1X60-100-AL1	CC Dimmable Driver PLH-LB1X108-200-AL1
Input Volt.	AC 220-240V 50-60Hz		
Input Current	Max. 1.1 A	Max. 540mA	Max. 1.1A
Output Volt.	DC 60-100V	DC 36-60V	DC 80-100V
Output Current	Max. 2.5A	Max. 2.6A	Max. 1.8A
Output Watts	Max. 200W	Max. 100W	Max. 200W
Channel Occupied	1	1	1
Installation	195.0(L)×68.0(W)×36.0(H)mm	154.0(L)×68.0(W)×36.0(H)mm	195.0(L)×68.0(W)×36.0(H)mm
Working Temp.	External		
Input Volt.	-20°C~+45°C		

CV Driver



	4 CH CV Dimmable Driver PLH-LA4X24-100-AL3	CV Color Dimmable Driver PLH-LA2X24-100-CT3	CV Dimmable Driver PLH-LA1X24-100-AL3
Input Volt.	AC 220-240V 50-60Hz		
Input Current	Max. 550mA	Max. 550mA	Max. 550mA
Output Volt.	DC 24V	DC 24V	DC 24V
Output Current	100W	100W	100W
Output Watts	4	2	1
Channel Occupied	258.0(L)×60.7(W)×25.0(H)mm	258.0(L)×60.7(W)×25.0(H)mm	258.0(L)×60.7(W)×25.0(H)mm
Installation	External		
Working Temp.	-20°C~+45°C		

CV Driver



	4 CH CV Dimmable Driver PLH-LA4X24-150-AL3	CV Dual Color Temperature Power PLH-LA2X24-150-CT3	CV Dimmable Driver PLH-LA1X24-150-AL3
Input Volt.	AC 220-240V 50-60Hz		
Input Current	Max. 820mA	Max. 820mA	Max. 820mA
Output Volt.	DC 24V	DC 24V	DC 24V
Output Current	150W	150W	150W
Output Watts	4	2	1
Channel Occupied	258.0(L)×60.7(W)×25.0(H) mm	258.0(L)×60.7(W)×25.0(H)mm	258.0(L)×60.7(W)×25.0(H)mm
Installation	External		
Working Temp.	-20°C~+45°C		



10A Filter (PLH-NF10)

Input Voltage: AC 220-240V 50-60Hz
Output Voltage: AC 220-240V
Watts: Max. 10A
Installation: Din-rail
Dimension: 36.5(W)×84.3(H)×66.7(D)mm
Working Temperature: -20°C~+45°C



2A Filter (PLH-NF02)

Input Voltage: AC 220-240V 50-60Hz
Output Voltage: AC 220-240V
Watts: Max. 2A
Installation: Din-rail
Dimension: 20.1(L)×36.0(W)×64.0(H)mm
Working Temperature: -20°C~+45°C



16A Filter (PLH-NF16)

Input Voltage: AC 220-240V 50-60Hz
Output Voltage: AC 220-240V
Watts: Max. 16A
Installation: Din-rail
Dimension: 36.5(W)×84.3(H)×66.7(D)mm
Working Temperature: -20°C~+45°C



Coupler (PLH-ISO1)

Installation: Din-rail
Dimension: 36.5(W)×84.3(H)×66.7(D)
Working Temperature: -20°C~+45°C



Curtain Control Unit (PLH-CC01)

Input Voltage : AC 220-240V 50-60Hz
Output Voltage : AC 220-240V
Output: 1 Control Channel
Protocol : HPLC.AC
Installation : Free-standing Installation
Dimension : 184.0(L)×50(W)×36.0(H)mm
Working Temperature : -20°C~+45°C



433 Reciver (PLH-DPRF01)

Input Voltage : AC 220-240V 50-60Hz
Protocol : HPLC
Installation : Free-standing Installation
Dimension : 104.6(L)×42.6(W)×29.0(H) mm
Working Temperature : -20°C~+45°C



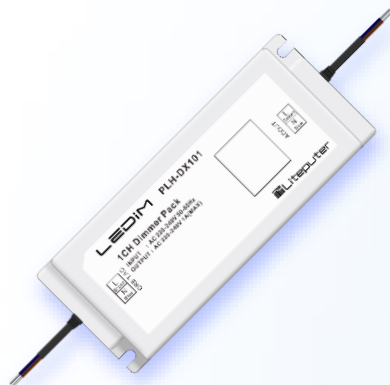
IO Control Unit (PLH-DPS1)

Input Voltage : AC 220-240V 50-60Hz
Protocol : HPLC.AC
Installation : Free-standing Installation
Dimension : 104.6(L)×42.6(W)×29.0(H)mm
Working Temperature : -20°C~+45°C



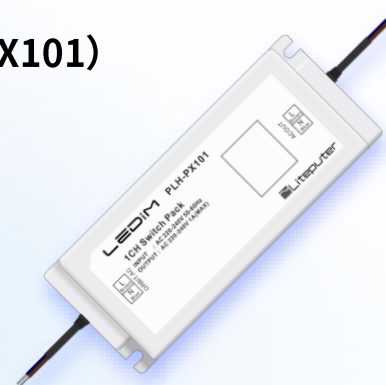
PIR Sensor (PLH-PIR03)

Input Voltage : AC 220-240V 50-60Hz
Installation : Ceiling Installation
Dimension : $\phi 90 \times 40$ (H) mm
Protocol : HPLC.AC
Weight: 91g
Colour: White



Triac Dimmer Control Unit (PLH-DX101)

Input Voltage : AC 220-240V 50-60Hz
Output Voltage : AC 220-240V 50-60Hz
Output Current: Max. 1A
Output: 1 Control Channel
Communication Mod : HPLC.AC
Installation : Free-standing Installation
Dimension : 104.6(L)×42.6(W)×29.0(H)mm
Working Temperature : -20°C~+45°C



Switch Control Unit (PLH-PX101)

Input Voltage : AC 220-240V 50-60Hz
Output Voltage : AC 220-240V
Output Current : Max. 1A
Output: 1 Control Channel
Communication Mod : HPLC.AC
Installation : Free-standing Installation
Dimension : 104.6(L)×42.6(W)×29.0(H)mm
Working Temperature : -20°C~+45°C
Maximum Case Temperature: 85°C



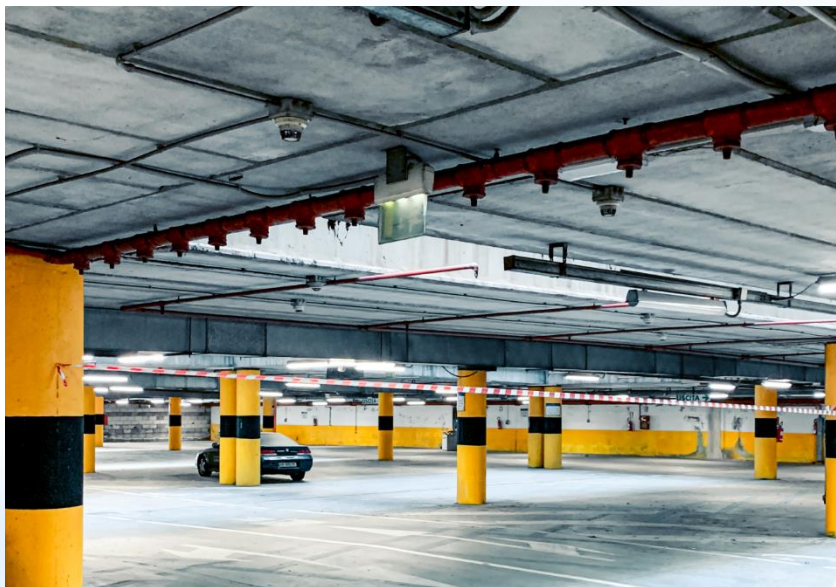
0-10V Dimmer Control Unit (PLH-DXF01-150)

Input Voltage : AC 220-240V 50-60Hz
Output Voltage : AC 220-240V 50-60Hz
Output Current : Max. 1A
Output: 1 Control Channel
Communication Mod : HPLC.AC
Installation : Free-standing Installation
Dimension : 104.6(L)×42.6(W)×29.0(H)mm
Working Temperature : -20°C~+45°C



RS-485 Interface (PLH-DP102)

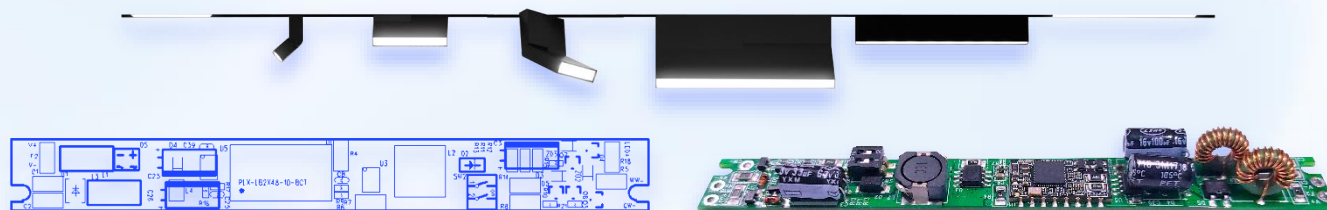
Input Voltage : AC 220-240V 50-60Hz
Communication Mod : HPLC.AC
Installation : Free-standing Installation
Dimension : 104.6(L)×42.6(W)×29.0(H)mm
Working Temperature : -20°C~+45°C



Non-isolated Power for T8



DC-DC Power for Magnetic Lamp



DC PLC Channel Control Units



Different to AC PLC which is a individual-addressing system,

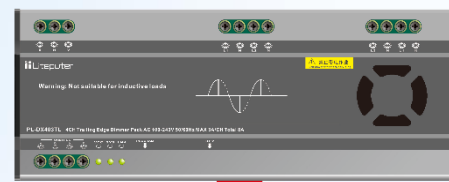
DC PLC is a two-wire, polarity-free bus system for channel control. Use powerline to communicate.

The system includes:

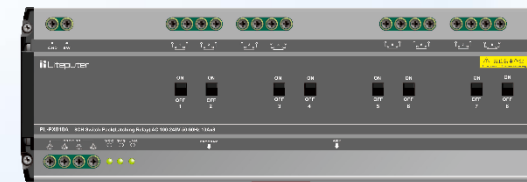
- Master
- Smart Panel
- I/O Pack
- Switch Channel Pack
- Leading Edge Dimmer Pack
- Trialing Edge Dimmer Pack



PL-DPE100
Master



PL-DX403TL
4 CH Trailing Dimmer Pack



PL-PX820
8 CH Switch Pack



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RCU

Hotel Room Control

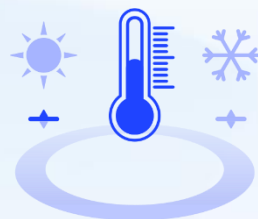
LEDIM-RCU



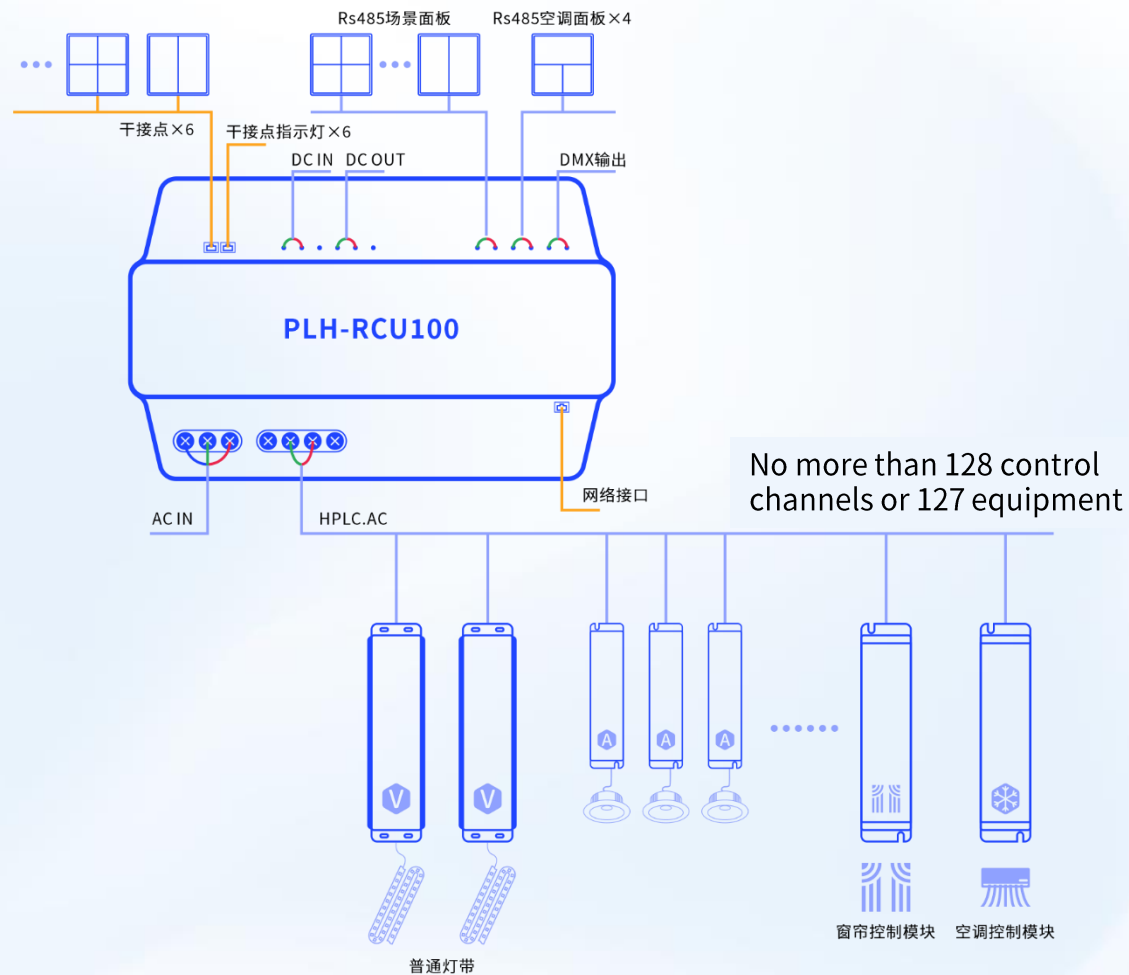
Curtain

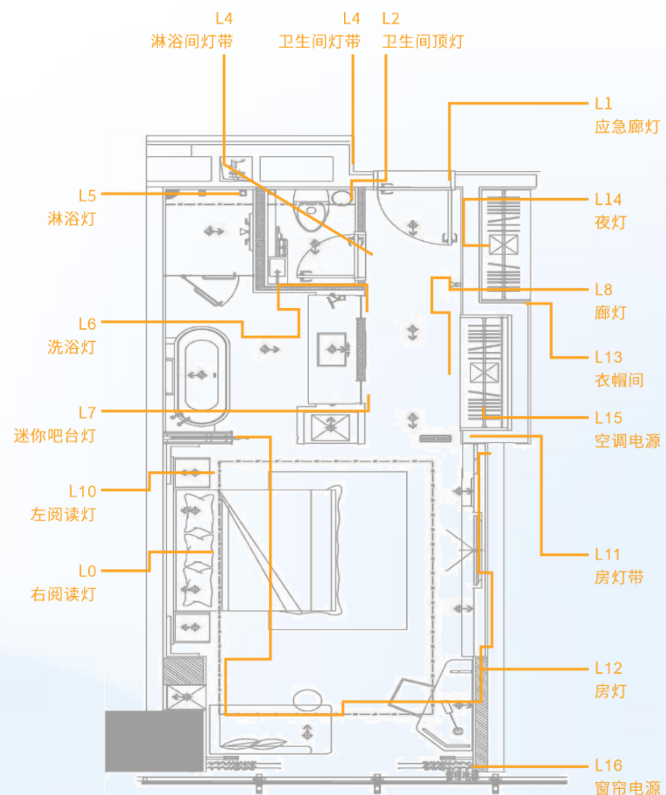


Lighting



Room Temperature Central Monitor

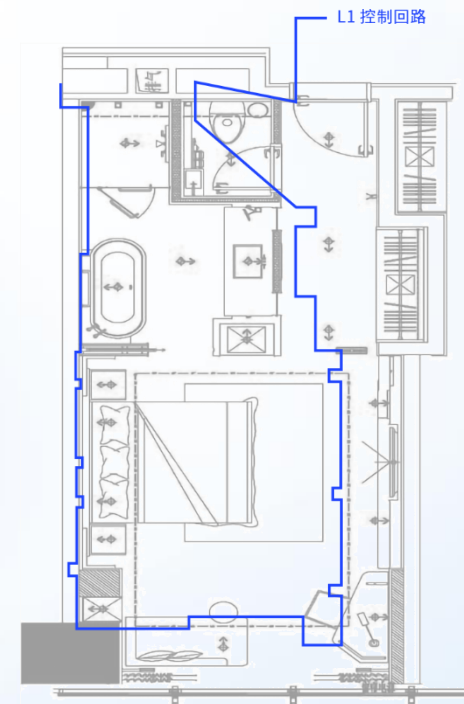




Traditional RCU Wiring

Wire length: 265 m
Piping length: 88 m
Labor cost: 2 days

LEDiM-RCU



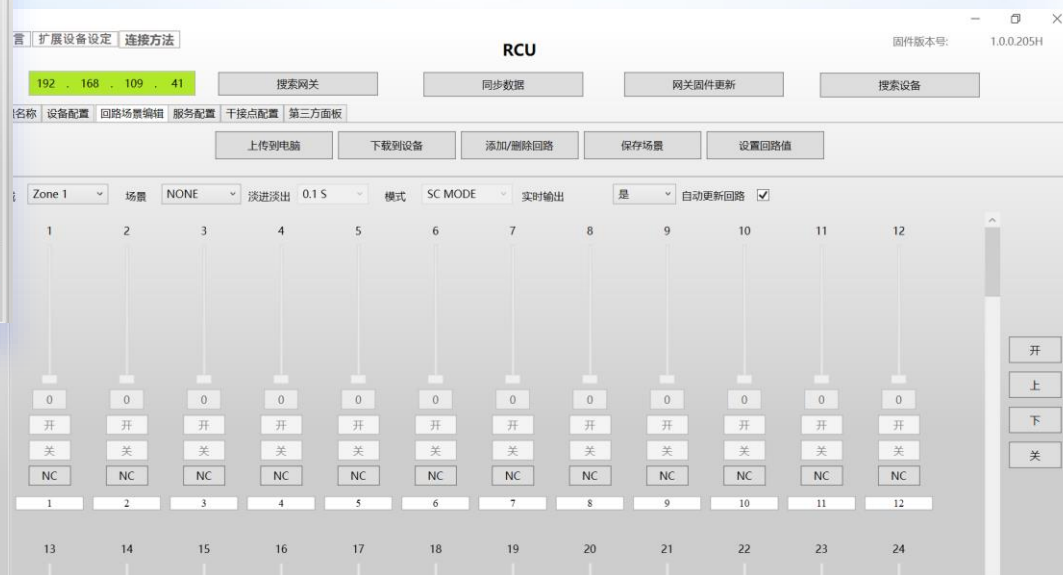
LEDiM RCU Wiring

Wire length: 108 m
Piping Length: 36 m
Labor cost: 1 day

LEDIM-RCU

Smart Control Panel







Liteputer

LEDIM

RCU Monitor

MONITOR

儀表板

客房狀態

ADMIN

使用者管理

房間管理

樓層

房型

房間

進階

RCU Monitor

admin

樓層

全選

RCU在線

在線: 50%

服務需求

請打掃

請洗衣

緊急

請打掃

請洗衣

名稱

樓層

名稱

樓層

127.0.0.1:8088/floors

Apps

Bmks

程式

設計

R-Desktop

Udemy

G-Map

RNE

GitHub-vigorox

VPN

Free Dict

劍橋

Other Bookmarks

MONITOR

儀表板

客房狀態

ADMIN

使用者管理

房間管理

樓層

房型

房間

進階

RCU Monitor

admin

樓層

樓層

樓層號

編輯

刪除

B1 Floor

-1

1F

1

+ 新增



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| LEDiM

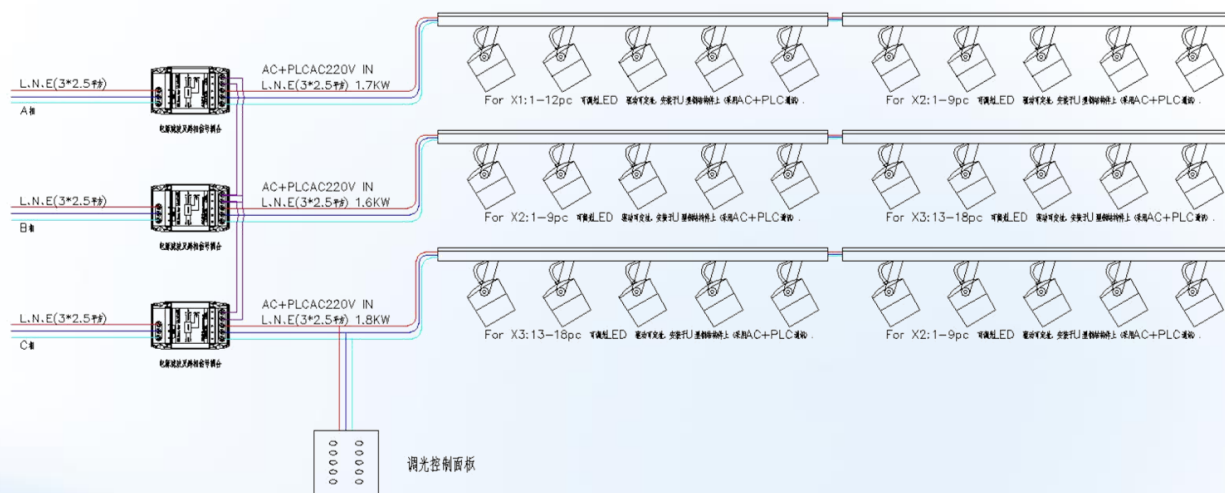
Case Study



Liteputer

LEDiM

Project—Nanshan Museum, Shenzhen



Fixture	LEDiM Driver
Track Light	CV 24V/40W × 27
Track Light	CC 5V/3W × 127
Track Light	CC 12V/8W × 59

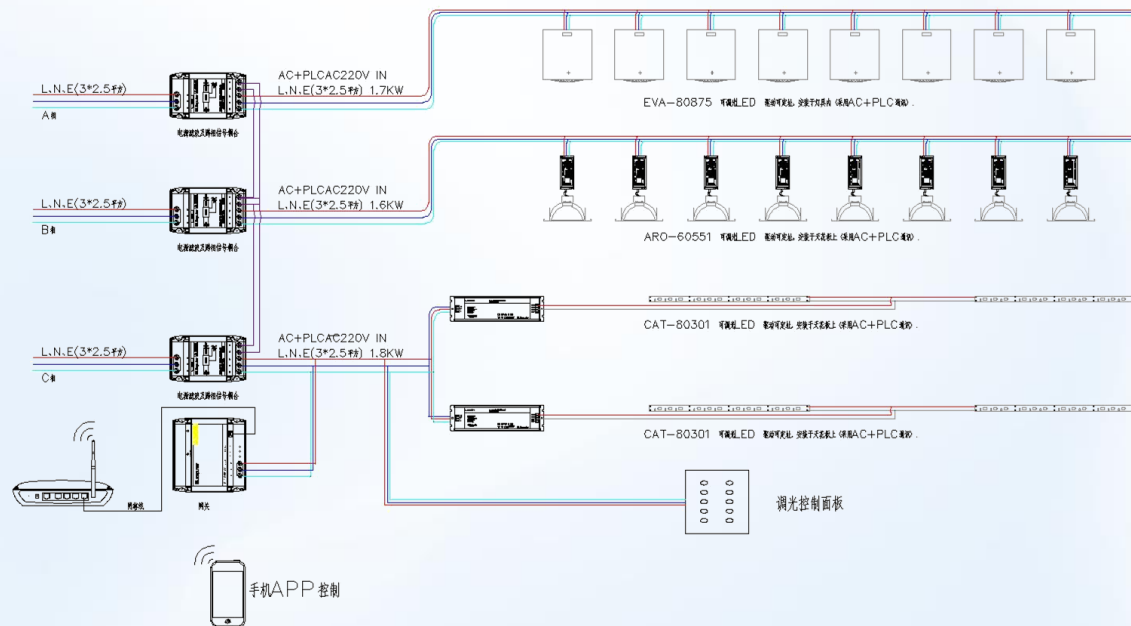




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Project—Starbucks, Suzhou



Fixture	LEDiM Driver
EVA-80875	CC 24V/40W × 198
ARO-60551	CC 40V/20W × 178
CAT-80301	CV 12V/200W × 35

Museum



深圳南山博物馆
浙大艺术及考古博物馆

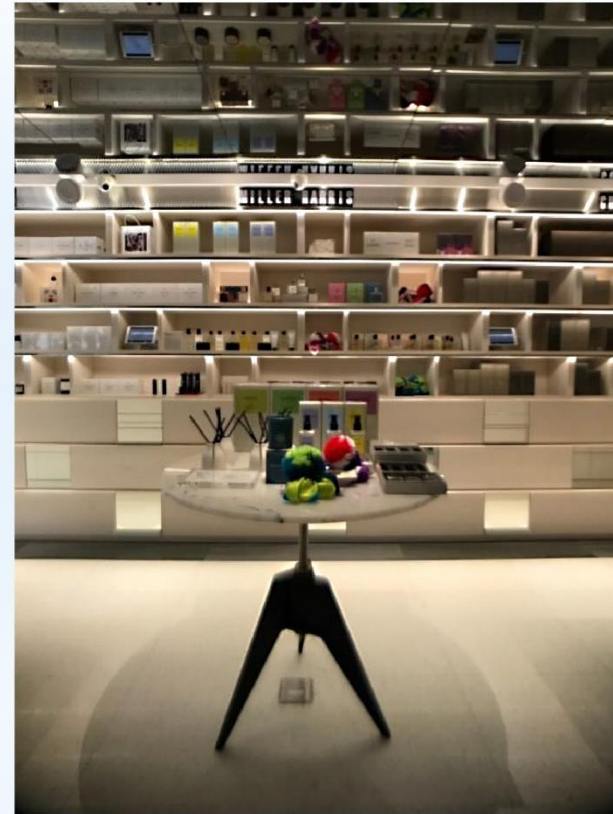
北京故宫
无锡博物馆

贵州古风博物馆
汝州青瓷博物馆

台湾故宫南院
台南奇美博物馆

中台世界博物馆
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