# LEONDARX® PLC

(Broadband Power Line Carrier Communication)
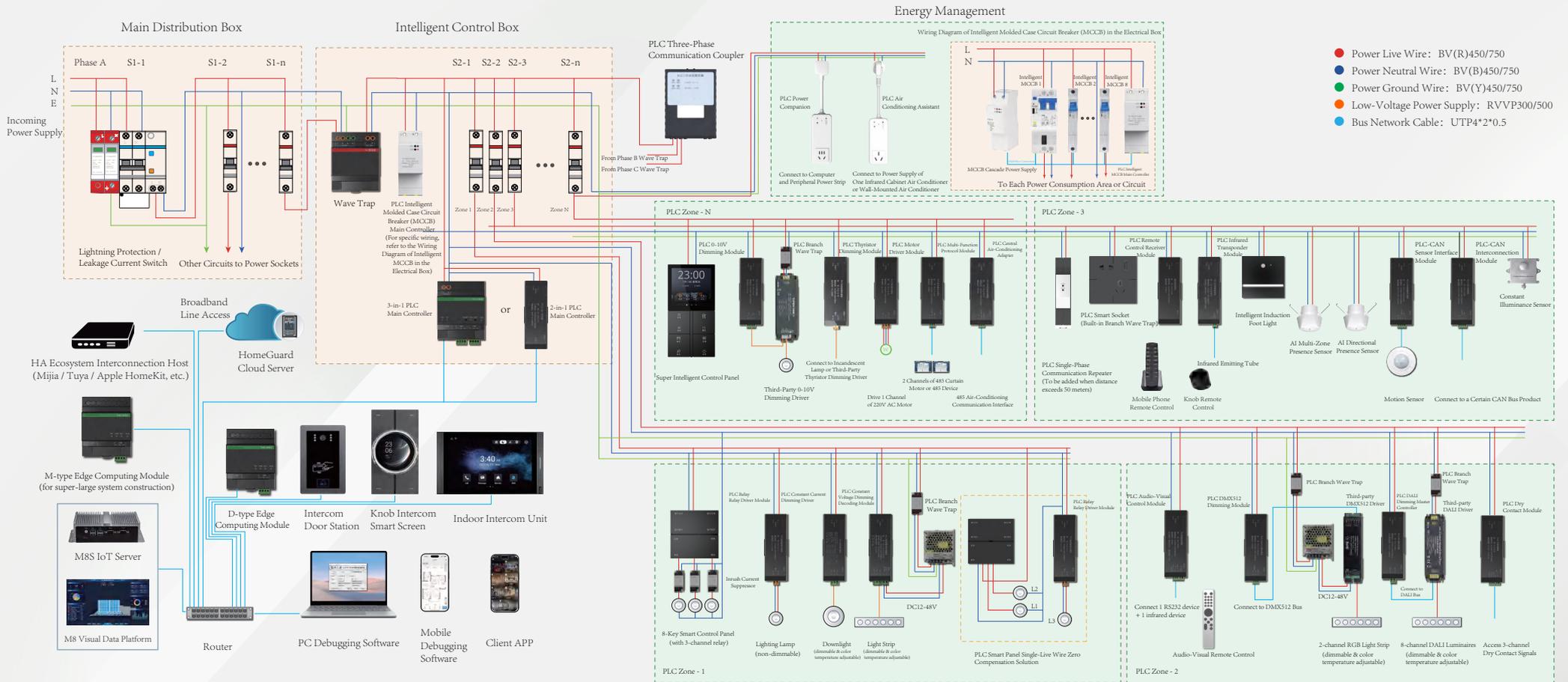
## Introduction to the Intelligent System



Mobile APP Software

3-in-1 PLC Main Controller

PLC Lighting Control Module

PLC Curtain Control Module

PLC Remote Control Module

PLC Dry Contact Module

PLC Intelligent Induction Skirting Light

AC220V

PLC Wave Trap

PLC Smart Panel and Socket

PLC Sensor Interface Module

PLC-CAN Interconnection Module

PLC Audio-Visual Control

PLC Central Air Conditioning Module

# LEONDARX "Five-installation" Intelligent System:1+2+5+N

**1**

**2**

**5**

**N**

**1 Decentralized System Architecture**

Doesn't rely on the cloud

Doesn't rely on WIFI

Doesn't rely on a host

Decentralization

**2 Wired Communication Technologies**

PLC Power Line System

**+**

CAN Bus System

Stable Connection

**"5 Installations" Application Scope**

Pre-installation

Home Decoration

Post-installation

Industrial Installation

Renovation

Stable Connection

**N Sub-systems**

Infinite Imagination

Lighting

Audio - Visual

Sensing

Sunshade

Security

Voice

Home Appliances

HVAC

Remote Control

Energy

Environment

Panel

# Connection Diagram of LEONDARX PLC Power Line Smart System

**Main Distribution Box**

Phase A   S1-1   S1-2   S1-n

L
N
E

Incoming Power Supply

Lightning Protection / Leakage Current Switch

Other Circuits to Power Sockets

**Intelligent Control Box**

S2-1  S2-2  S2-3   S2-n

Wave Trap

PLC Intelligent Molded Case Circuit Breaker (MCCB) Main Controller (For specific wiring, refer to the Wiring Diagram of Intelligent MCCB in the Electrical Box)

Zone 1 Zone 2 Zone 3   Zone N

3-in-1 PLC Main Controller   or   2-in-1 PLC Main Controller

**PLC Three-Phase Communication Coupler**

From Phase B Wave Trap
From Phase C Wave Trap

**Energy Management**

Wiring Diagram of Intelligent Molded Case Circuit Breaker (MCCB) in the Electrical Box

L
N

Intelligent MCCB 1   Intelligent MCCB 2   Intelligent MCCB 8

MCCB Cascade Power Supply

PLC Intelligent MCCB Main Controller

To Each Power Consumption Area or Circuit

PLC Power Companion

PLC Air Conditioning Assistant

Connect to Computer and Peripheral Power Strip

Connect to Power Supply of One Infrared Cabinet Air Conditioner or Wall-Mounted Air Conditioner

Broadband Line Access

HomeGuard Cloud Server

HA Ecosystem Interconnection Host (Mijia / Tuya / Apple HomeKit, etc.)

M-type Edge Computing Module (for super-large system construction)

M8S IoT Server

M8 Visual Data Platform

Router

D-type Edge Computing Module

Intercom Door Station

Knob Intercom Smart Screen

Indoor Intercom Unit

PC Debugging Software

Mobile Debugging Software

Client APP

**Power Live Wire:** BV(R)450/750
**Power Neutral Wire:** BV(B)450/750
**Power Ground Wire:** BV(Y)450/750
**Low-Voltage Power Supply:** RVVP300/500
**Bus Network Cable:** UTP4*2*0.5

**PLC Zone - N**

PLC 0-10V Dimming Module
PLC Branch Wave Trap
PLC Thyristor Dimming Module
PLC Motor Driver Module
PLC Multi-Function Protocol Module
PLC Central Air-Conditioning Adapter

Super Intelligent Control Panel

Third-Party 0-10V Dimming Driver

Connect to Incandescent Lamp or Third-Party Thyristor Dimming Driver

2 Channels of 485 Curtain Motor or 485 Device

Drive 1 Channel of 220V AC Motor

485 Air-Conditioning Communication Interface

**PLC Zone - 3**

PLC Remote Control Receiver Module
PLC Infrared Transponder Module
PLC-CAN Sensor Interface Module
PLC-CAN Interconnection Module

PLC Smart Socket (Built-in Branch Wave Trap)

Intelligent Induction Foot Light

Constant Illuminance Sensor

PLC Single-Phase Communication Repeater (To be added when distance exceeds 50 meters)

Mobile Phone Remote Control

Knob Remote Control

Infrared Emitting Tube

AI Multi-Zone Presence Sensor

AI Directional Presence Sensor

Motion Sensor

Connect to a Certain CAN Bus Product

**PLC Zone - 1**

PLC Relay Relay Driver Module
PLC Constant Current Dimming Driver
PLC Constant Voltage Dimming Decoding Module
PLC Branch Wave Trap
PLC Relay Relay Driver Module

Inrush Current Suppressor

8-Key Smart Control Panel (with 3-channel relay)

Lighting Lamp (non-dimmable)

Downlight (dimmable & color temperature adjustable)

Light Strip (dimmable & color temperature adjustable)

DC12-48V

L2
L1
L3

PLC Smart Panel Single-Live Wire Zero Compensation Solution

**PLC Zone - 2**

PLC Audio-Visual Control Module
PLC DMX512 Dimming Module
PLC Branch Wave Trap
Third-party DMX512 Driver
PLC DALI Dimming Master Controller
Third-party DALI Driver
PLC Branch Wave Trap
PLC Dry Contact Module

Connect 1 RS232 device + 1 infrared device

Connect to DMX512 Bus

DC12-48V

Connect to DALI Bus

Audio-Visual Remote Control

2-channel RGB Light Strip (dimmable & color temperature adjustable)

8-channel DALI Luminaires (dimmable & color temperature adjustable)

Access 3-channel Dry Contact Signals

# Solution for Integrating a Single Detached Building into a Super-Large Intelligent Control System

## Take the intelligent control system of a 30-story building as an example

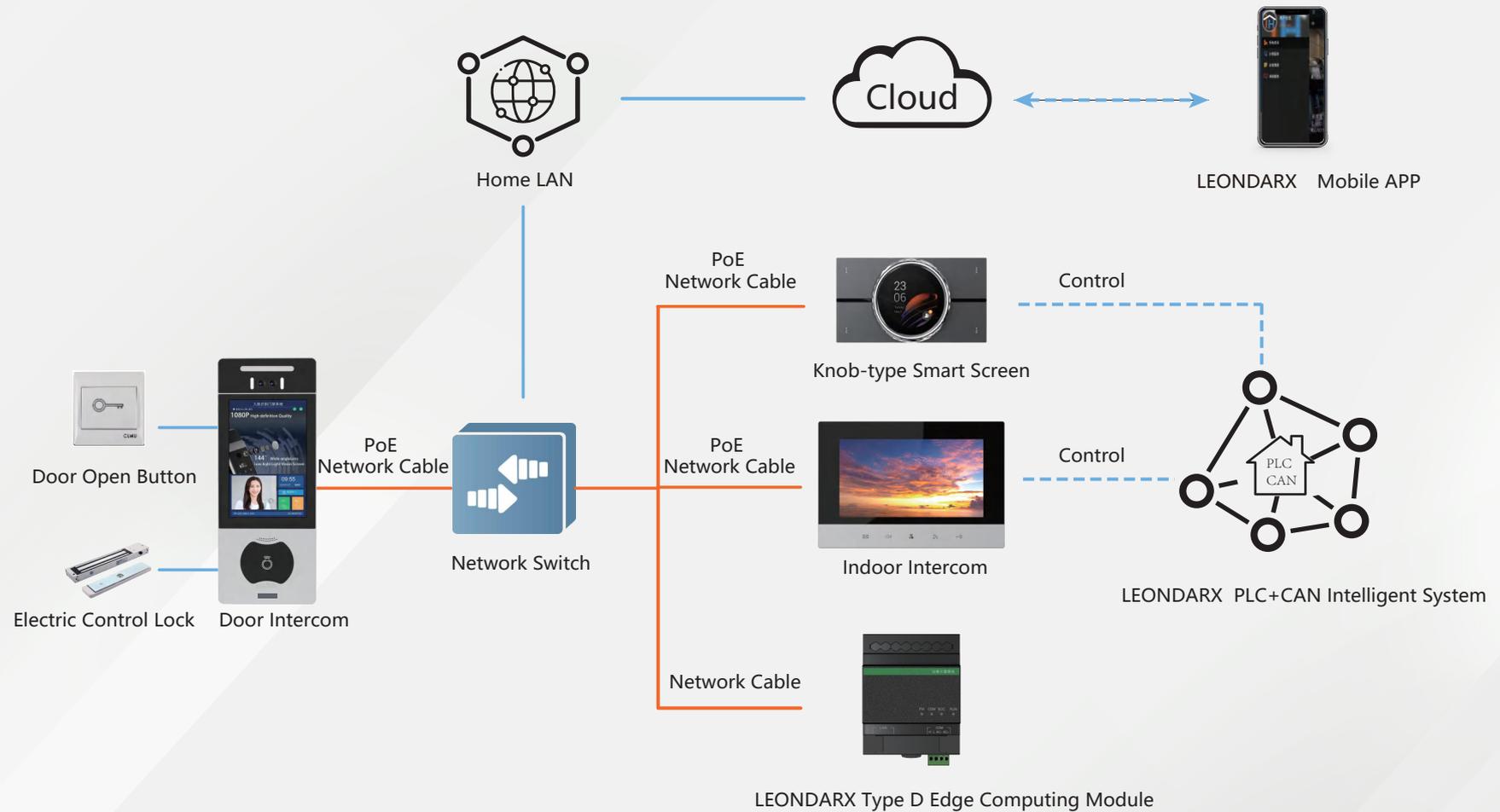The gateway of each independent system is connected to the local area network (LAN)

LAN
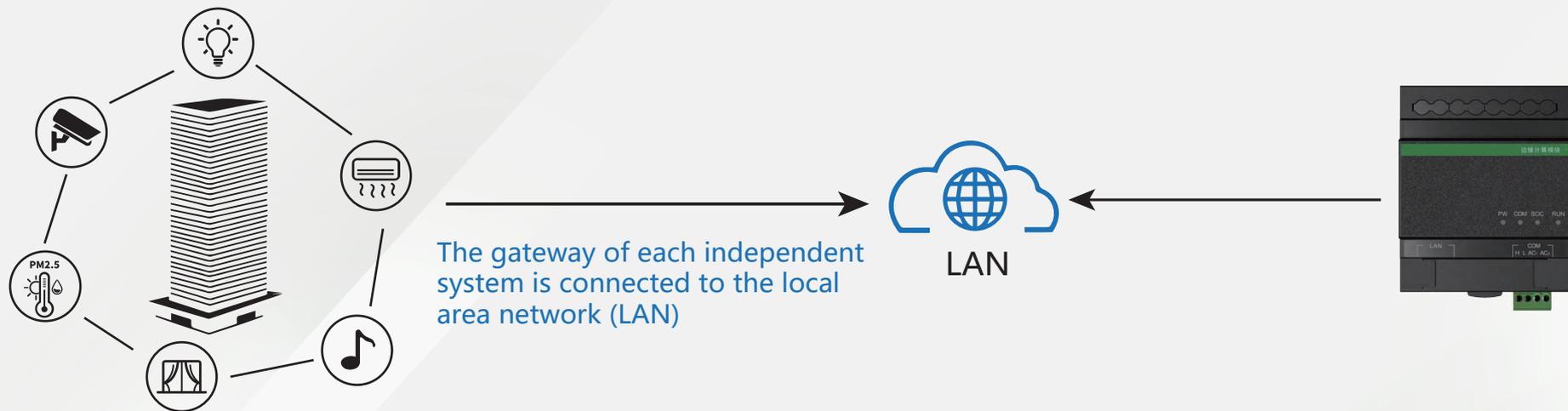
Every 1 or 2 floors are built into an independent LEONDARX PLC/CAN system, and the gateway of each system is integrated into a large system through the M1/M2 edge computing module

➤The M1 edge computing module can integrate 2-10 physically independent LEONDARX systems into a super-large system.

➤ The M2 edge computing module can integrate 2-30 physically indepen- dent LEONDARX systems into a super-large system.

The greatest advantage of this system architecture: If any product in any independent system is damaged, the system will not crash, nor will it affect the normal operation of other independent systems.

# Topology Diagram of the Perfect Integration of LEONDARX CAN+PLC System & Intelligent Intercom System

Cloud

Home LAN

LEONDARX Mobile APP

PoE Network Cable

Control

Knob-type Smart Screen

PoE Network Cable

PoE Network Cable

Control

Door Open Button

Network Switch

Indoor Intercom

LEONDARX PLC+CAN Intelligent System

PLC CAN

Electric Control Lock   Door Intercom

Network Cable

LEONDARX Type D Edge Computing Module

## Free Control via Mobile APP

The LEONDARX Smart Home APP supports calling indoor/outdoor stations, remotely answering calls from the Door Station, remotely unlocking the door for visitors, and remote monitoring, etc.

## The Indoor Station and Knob-type Smart Screen are multi-functional devices

The Indoor Station and Knob-type Smart Screen serve as both intercom indoor screens and smart home control screens.

Point-to-point calls and one-to-many broadcasting are supported between Indoor Stations and Knob-type Smart Screens.

# Main Technical Features of  LEONDARX  PLC Intelligent System

### Avoid the "Cloud Pitfalls"    01

It is independent of the cloud. When the external network is disconnected, the system can still be controlled via a mobile phone locally, and all local functions (such as panels, scenes, and sensors) remain unaffected.

### Avoid the "WiFi Pitfalls"    02

The system is independent of WiFi, and at the same time, it is not dependent on the home router or switch. Even if there is no WiFi, the WiFi signal is poor, or the router is broken, all control functions except mobile phone control remain unaffected.

### Wave Traps Are Not Mandatory    03

There is no need for wave traps to block signals from different PLC systems, and the control function remains unaffected.

### Avoid the "Host Pitfalls"    04

The system is independent of a host and operates as a hostless system. When the LEONDARX PLC main controller is damaged, all functions except mobile phone control (such as individual control, group control, scenes, voice control, and sensor automatic control) remain completely unaffected.

### Full Coverage of Post-installation, Pre-installation, and Retrofit    05

LEONDARX PLC products come in a wide range and can control lighting (including on-off modules, constant current modules, constant voltage modules, 0-10V modules, thyristor modules, PLC-DMX512 modules, PLC-DALI modules, etc.), curtains, HVAC equipment, home theaters, background music systems, fingerprint locks, and video intercom systems. They achieve full coverage of post-installation, pre-installation, and retrofit fields for intelligent systems.

### Single-Phase Signal Repeating    06

It is equipped with a single-phase signal repeating function, enabling intelligentization in some scenarios that require long-distance signal transmission.

### No Node Quantity Limitation    07

A single PLC system has no node quantity limitation; any device can access the network as long as the signal reaches it.

### Rapid Automatic Networking    08

Regardless of the system scale, as long as the signal reaches, all PLC products can achieve automatic networking within 30 seconds.

### Worry-Free Branch Wave Trapping    09

It is equipped with PLC branch wave traps, PLC surge current suppressors, and PLC smart sockets, which isolate lamps or devices with significant signal attenuation and interference.

### Single-Live Wire Panel Power Taking    10

It is equipped with a single-live wire power taking module and an independent PLC relay drive module, which can upgrade traditional panels without a neutral wire.

### Surge Protection    11

The PLC relay drive module (i.e., on-off module) has a surge protection function (≥TV-12 level); in addition, there is a dedicated PLC surge current suppressor. When used with the panel's built-in relay to drive lamps with large surge currents, the service life of the relay is more than doubled.

### Efficient Offline Simulation and Debugging via Mobile Phone    12

The mobile debugging software can create projects offline, perform system simulation and debugging, and then import the simulated settings on-site. This significantly shortens on-site debugging time and lowers the technical threshold for practitioners.

### Wave Traps Are Not Mandatory    13

There is no need for wave traps to block signals from different PLC systems, and the control function remains unaffected.

### Scene Lighting Self-Learning    14

The self-learning of all scene lighting in the current room can be automatically completed with one click via the panel only. This not only greatly improves debugging efficiency but also makes it easier for users to modify the scene lighting effects according to their personal preferences at any time after moving in.

### Easily Build Large-Scale Systems    15

It is possible to integrate 2 to 30 physically independent LEONDARX PLC systems into a single large-scale system with mutual linkage.

### Ecosystem Sharing and Win-Win Cooperation    16

Third-party devices or systems can connect and integrate into the LEONDARX  PLC system via protocol docking, achieving ecosystem sharing and win-win cooperation.

# PLC smart panel



AI Position Presence Super Panel



Super Intelligent Control Panel



AI Position Presence Presence 6-Key Panel



Pure Screen Screen Intelligent Control Panel

LEONDARX has independently developed a full range of PLC smart panels, each integrated with 3-channel relays, facilitating the transformation of traditional lighting control wiring into PLC intelligent control.

LEONDARX's AI Position Presence Smart Panel is the first in the industry to integrate millimeter-wave presence sensing. It pioneers the disruptive design concept of " [millimeter-wave presence sensor + nightlight] hidden in the smart panel". In addition to the inherent functions of smart panels (buttons, touch screen, voice control, temperature, humidity and brightness detection, etc.), it can also realize sensorless intelligent control based on human presence detection. There is no need to drill separate holes or route wires for exposed human sensors, making the space more concise and aesthetically pleasing. The unique nightlight on the panel automatically adjusts its brightness according to sensing at different times, caring for family members when they get up at night, which is warm and full of ambiance.

# Rich touch interfaces



4-Object Screen



6-Object Screen



9-Object Screen



12-Object Screen
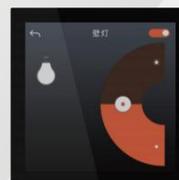


Dimming



Zone-Synchronized Dimming



Dimming & Color Temperature Adjustment



Zone-Synchronized Dimming & Color Temperature Adjustment



Curtain Control



Venetian Blind Control
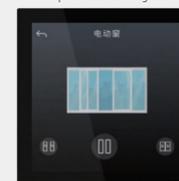


Electric Window Control



Clothes Dryer Control



6-Scene Screen



Background Music Control
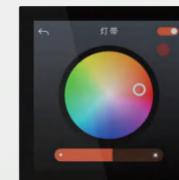


Dimming & Color Adjustment



Environmental Parameter Monitoring

- Cloud-Independent — Adopts offline local voice control, no network connection required
- Full-Screen Touch Control — Supports multi-page sliding and page-turning operations, simple and stylish
- Intelligent Sensing — Integrates multiple detection functions: temperature, humidity, illuminance, and human presence detection
- Rich Interfaces — Integrates a variety of dedicated control interfaces, enabling intelligent linkage between buttons and screen
- Flexible Customization — Any device, scene, or security operation can be freely customized

# PLC Socket



5-Port Socket

5-Port Socket (with USB + Type-C)

5-Port Socket

5-Port Socket (with USB)

5-Port Socket (with USB + Type-C)

# PLC Smart Panel

Super Smart Control Panel



Pure Screen Smart Control Panel



4-Key Large Panel Smart Control Panel



6-Key Voice Smart Control Panel



AI Directional Presence 6-Key Panel



6-Key Large Panel Smart Control Panel



8-Key Smart Control Panel



10-Key Smart Control Panel



3-in-1 Temperature Control Panel

# Client APP

- Multi-user support with hierarchical function and permission management

- Custom room/local live map display

- Remote control with a single device, what you see is what you get

- No external network access will never affect the APP's local control functionality

# PLC Intelligent Sensing

## AI Directional Presence Sensor

24G millimeter-wave technology enables detection of human movement and micro-movement directions, realizing active and seamless intelligent control in home spaces.

Two operating modes are provided: Normal Presence Mode and Direction Recognition Mode.

The rotating probe allows adjustment of the sensing angle and range (the small arrow on the sensor cover indicates the direction of millimeter-wave sensing).

The sensing distance can be set via software.

The sensor automatically identifies different states such as disarming, arming, sleeping, night waking, getting up, manual/automatic mode, and time periods, and adapts to different AI sensing algorithms.

It integrates ambient light intensity detection.

Compact size with embedded installation; it can operate by directly connecting to the CAN bus (if the CAN bus is not laid to the sensor, it can be connected to the HPLC system via the PLC-CAN sensor interface module).

## AI Multi-Zone Presence Sensor

Industry-leading Configuration: Dual millimeter-wave probes, supporting custom configuration of 8 sensing zones (1 total zone + 5 sub-zones + 2 fixed shielded zones).

One Replaces Multiple: The total zone and each sub-zone enable detection of human movement and micro-movement presence, realizing ultimate seamless intelligent control for multiple zones in the sensing space—fully outperforming human sensors that can only detect a single zone.

Bed Entry/Exit Detection: For the bed zone, it automatically identifies bed entry and exit movements.

Sleep Behavior Detection: It detects when the human body in the bed zone enters a static state, automatically activates sleep mode with a delay, and automatically filters out movements such as turning over, shaking the quilt, and lifting hands.

Night Wake-up Detection: In sleep mode, it automatically identifies getting-up movements and triggers night wake-up mode.

Interference Shielding: Demarcating "shielded zones" can eliminate interference from fans, curtains, air conditioners, etc.

Pet-trigger Prevention: The dynamic height mechanism can eliminate interference from small pets, robot vacuums, air conditioner air outlets, etc.

## Microwave Motion Sensor

5.8G microwave technology, applied to microwave motion detection in public areas, replaces third-party human sensors. It can work independently or be defined as an auxiliary sensor for AI directional presence sensors to collaborate with them.

The rotating probe allows adjustment of the sensing angle and range (the small arrow on the sensor cover indicates the direction of microwave sensing).

The sensing distance can be set via software (not exceeding 11 meters).

The sensor automatically identifies different states such as disarming, arming, sleeping, night waking, getting up, manual/automatic mode, and time periods, and adapts to different sensing algorithms accordingly.

It integrates ambient light intensity detection.

Compact size with embedded installation; it can operate by directly connecting to the CAN bus (if the CAN bus is not laid to the sensor, it can be connected to the HPLC system via the FLC-CAN sensor interface module).

# LEONDARX PLC System Modules

| Three-in-One PLC Main Controller | PLC Wave Trap | PLC Three-Phase Communication Coupler | PLC Single-Phase Communication Repeater |
|---|---|---|---|



**Three-in-One PLC Main Controller**

• The PLC main controller is responsible for providing network access credentials to other PLC devices and also serves as a communication bridge between the gateway and other PLC devices.

• Gateway Functions (APP Control, System Debugging, WeChat Alerts)

• Logical Function (Provides 87 Customizable Intelligent Logical Events)

• Provides system time

• Only one PLC main controller needs to be configured per system

• Provides a CAN bus interface to connect to the LEONDARX CAN bus system

**PLC Wave Trap**

• PLC wave traps are used to filter out power line interference and improve the communication stability of PLC systems.

• It is recommended to configure an independent PLC wave trap at the rear end of each phase of the incoming power line.

• For villa projects, wave traps may not be installed; for flat projects, if adjacent households all have LEONDARX PLC systems installed, it is recommended that each household install a wave trap.

**PLC Three-Phase Communication Coupler**

• Installed in a three-phase distribution box, it only needs to be connected to the three-phase live wires (A-Yellow/B-Green/C-Red) and neutral wire (N-Black) correspondingly to realize cross-phase transmission of PLC signals between different phases.

• It is recommended to configure one unit per floor in a villa.

**PLC Single-Phase Communication Repeater**

• It provides a technical solution for extending the single-phase transmission distance of PLC power line carriers.

• Generally installed downstream of the PLC main controller, it only needs to be connected to the neutral and live wires to realize the relay transmission of PLC signals in the same phase.

• Communication distance: up to 200 meters under general conditions, with a maximum communication distance of 500 meters.

• To ensure the strength of the communication signal, it is recommended to configure one unit when the PLC single-phase communication distance exceeds 50 meters.

# LEONDARX PLC Distributed Module



PLC Multi-Function Protocol Module

Remote Control Receiver Module

PLC-CAN Sensor Interface Module

PLC Infrared Transceiver Module

PLC Constant Current Dimming Driver

PLC Constant Voltage Dimming Decoding Module

PLC Thyristor Dimming Module

PLC Dry Contact Module

PLC-DMX512 Dimming Module

PLC Relay Driver Module

PLC-DALI Dimming Master Controller

PLC-CAN Sensor Interface Module

PLC Motor Driver Module

PLC-CAN Interconnection Module

PLC0-10V Dimming Module

PLC Audio-Visual Control Module

# LEONDARX®

## Thin Space
## Big Grace

# T25 serise

**1.5°**
Ultra small swing angle
**2.5mm**
Ultra-short key travel
**6.0mm**
The overall thickness

Provide the global home with great idea and create a beautiful home, its electrical accessories not only excellent in function, but also add unlimited fun and personalized features for your living space, we brought together singularity with inspiration, will create a unique household environment for you.

White    Gold    Grey    Black

# T25 serise   Gold series    Ultra thin    SWITCH & SOCKET

| | | | | |
|---|---|---|---|---|
| T3-01<br>1 Gang 1 Way Switch<br>1 Gang 2 Way Switch | T3-02<br>2 Gang 1 Way Switch<br>2 Gang 2 Way Switch | T3-03<br>3 Gang 1 Way Switch<br>3 Gang 2 Way Switch | T3-04<br>4 Gang 1 Way Switch<br>4 Gang 2 Way Switch | T3-05<br>Doorbell Switch |
| T3-26<br>TEL Socket<br>T3-27<br>Computer Socket | T3-28<br>TV+TEL Socket | T3-29<br>TV+ Computer Socket | T3-30<br>Double Computer Socket | T3-31<br>Satellite+TV Socket<br>T3-32<br>Satellite+Computer Socket |
| T3-06<br>MF Switched Socket<br>With Neon | T3-07<br>MF Switched Socket<br>With Neon+2USB | T3-08<br>MF Switched Socket<br>With Neon+USB+ Type-C | T3-09<br>15A Switched Socket<br>With Neon | T3-10<br>5 pin MF Switched Socket<br>With Neon |
| T3-33<br>Dimmer Switch<br>T3-34<br>Speed Control Switch | T3-35<br>Voice control swith<br>T3-36<br>Touch Delay Swith | T3-37<br>Human Body Sensor<br>Switch | T3-38<br>Human-induced Foot Lamp | T3-39<br>86 Blank Plate |
| T3-11<br>13A Switched Socket<br>With Neon | T3-12<br>13A Switched Socket<br>With Neon+2USB | T3-13<br>13A Switched Socket<br>With Neon+USB+ Type-C | T3-14<br>MF Socket | T3-15<br>13A Socket |
| T3-40<br>Double 13A Switched Socket<br>With Neon | T3-41<br>Double 13A Switched Socket<br>With Neon+2USB | T3-42<br>Double 13A Switched Socket<br>With Neon+USB+ Type-C | T3-43<br>Double 13A Socket | |
| T3-16<br>Four Pole Socket | T3-17<br>5 pin MF Socket | T3-18<br>5 pin MF Socket+2USB | T3-19<br>25A switch with neon | T3-20<br>45A switch with neon |
| T3-44<br>Double MF Switched Socket<br>With Neon | T3-45<br>Double MF Switched Socket<br>With Neon+2USB | T3-46<br>Double MF Switched Socket<br>With Neon+USB+ Type-C | T3-47<br>Cooker Unit | |
| T3-21<br>Germany socket | T3-22<br>French socket | T3-23<br>Europe socket | T3-24<br>Satellite Socket | T3-25<br>TV Socket |
| T3-48<br>Double 5 pin MF Switched Socket<br>With Neon | T3-49<br>Double 5 pin MF Switched Socket<br>With Neon+2USB | T3-50<br>Double 5 pin MF Switched Socket<br>With Neon+USB+ Type-C | T3-51<br>146 Blank Plate | |

# A1 SKY
# SWITCH

Brilliant, marvelous by nature

Plating strip decoration, acrylic night light lamp, large board widescreen,four kinds of color selection, exquisite and frosted texture,subversive material upgrade.
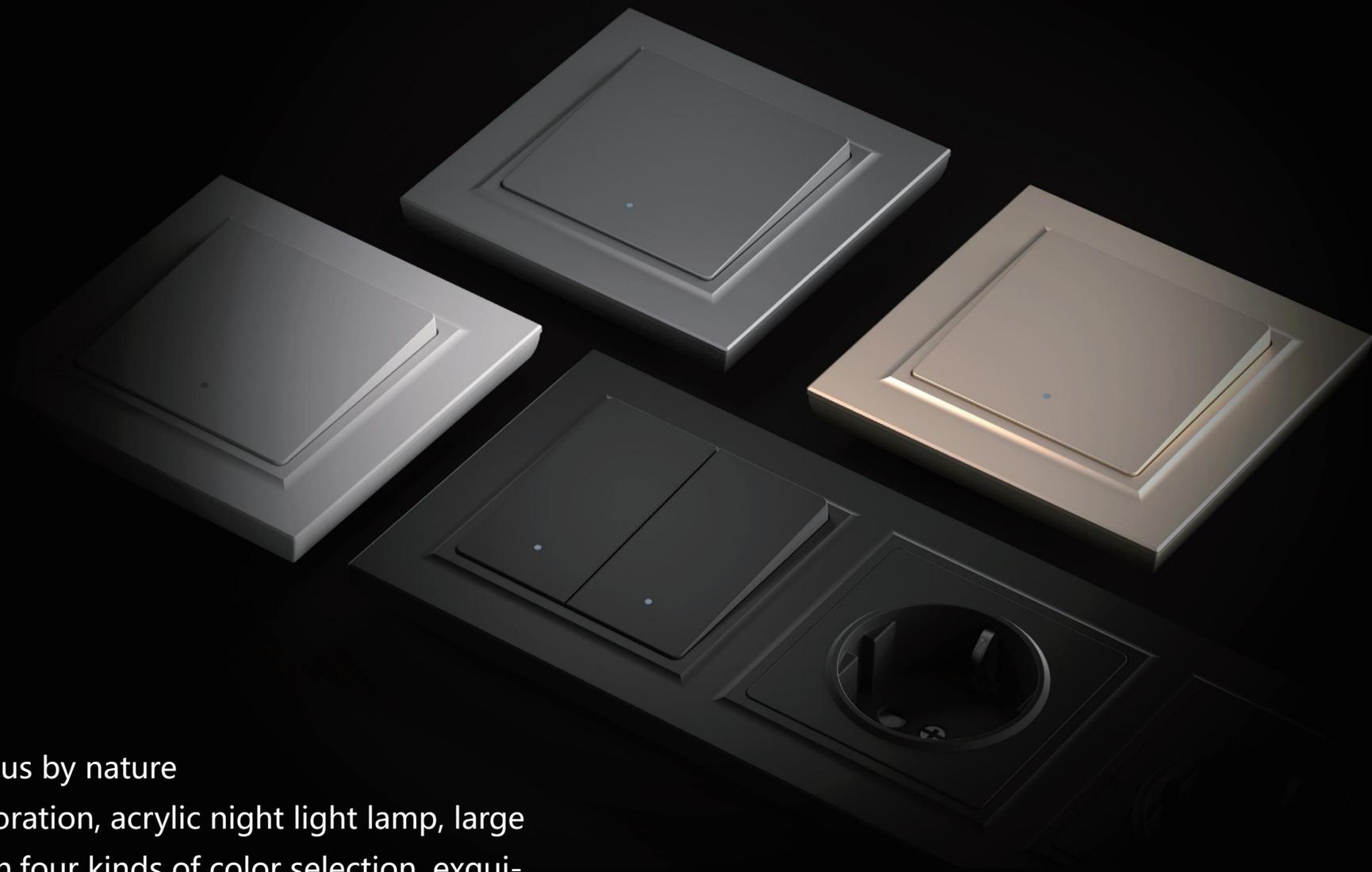
## A timeless trend

Irresistible look, surprising feel. The well-establishedp50design line has been expanded to now include a new surface:black matt. Accentuate exclusive trends and show contrasts -with its clear lines and elegant design. Ideal for sophisticatedinteriors, both at home or in business premises.P50in black matt is the perfect match for stylish, versatile and future-proof electrical installation.

White

Gold

Gary

Black

# Switch Class

A1-001
10A 1 gang 1 way switch
A1-002
10A 1 gang 2 way switch
A1-003
10A 1 gang intermediate switch

A1-004
10A 2 gang 1 way switch
A1-005
10A 2 gang 2 way switch

A1-006
10A 3 gang 1 way switch

A1-007
10A control switch–bell

A1-008
10A control switch–bell

A1-009
10A control switch–door

A1-010
10A 1 gang 1 way switch with LED

A1-011
10A 1 gang 2 way switch with LED

A1-012
10A 2 gang 1 way switch with LED

A1-013
10A 2 gang 2 way switch with LED

# Electronics Class

A1-021
TV socket

A1-022
Telephone socket

A1-023
Data socket Rj45
（CAT5E&CAT6）

A1-024
TV socket +telephone socket

A1-025
TV socket + Data socket Rj45
（CAT5E&CAT6）
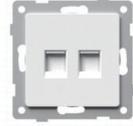
A1-026
Double telephone socket

A1-027
Double Data socket Rj45
（CAT5E&CAT6）

A1-028
Double TV socket

A1-029
Blank panel

# Socket Class

A1-014
16A socket outlet without earth

A1-015
16A socket outlet earthed

A1-016
16A socket outlet earthed
with cover

A1-017
16A socket outlet earthed
with USB+Type C

A1-018
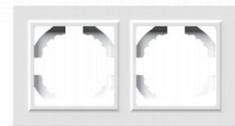20W USB+Type C

A1-019
16A double socket outlet without earth

A1-020
16A double socket outlet earthed
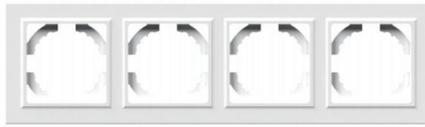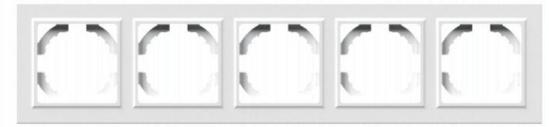
# Panel Class

A1-030
1 gang fram

A1-031
2 gang fram

A1-032
3 gang fram

A1-033
4 gang fram

A1-034
5 gang fram

# LEONDARX ®

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