EDV25P 系列规格书

EDV25P Series Specification

深圳市易探科技有限公司
Shenzhen EasyDetek Technology Co., Ltd.

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深圳市易探科技有限公司
Shenzhen EasyDetek Technology Co., Ltd.

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第一部分 / Chapter 1
产品介绍 / Product Introduction

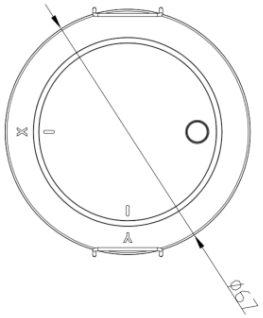


图 1.1: 正面视图
Fig1.1: Front View

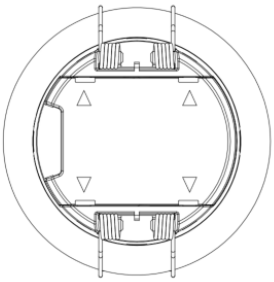


图 1.2: 背面视图
Fig1.2: Back View

1.1 产品概述 / Overview

EDV25P 系列产品，工作频段为 57.5-61.3GHz，主要面向跌倒检测与人体存在监测应用。单台设备可实现最大 3 米半径的人体存在检测与 3 米半径的跌倒检测，推荐安装高度 2.5-3.5 米。产品使用毫米波 FMCW 探测技术，实时识别有人/无人状态与跌倒事件（正常/疑似/确认三级），并内置数字光照传感器，支持光照联动控制。产品无图像采集，从根源保护用户隐私，适用于卧室、卫生间、医院病房、养老院等隐私敏感场景。

The EDV25P series products operate in the 57.5-61.3 GHz frequency band, primarily designed for fall detection and human presence monitoring. A single device supports human presence detection within a 3-meter radius and fall detection within a 3-meter radius, with a recommended installation height of 2.5 to 3.5 meters. Using millimeter-wave FMCW detection technology, the products identify presence status and fall events (normal/suspected/confirmed) in real time, and integrate a digital illuminance sensor for lighting linkage control. Free from image acquisition, the devices fundamentally protect user privacy, and are suitable for privacy-sensitive scenarios including bedrooms, bathrooms, hospital wards and nursing homes.

1.2 产品特点 / Features

- 跌倒检测：检测区域内人员跌倒事件实时识别，区分正常/疑似/确认三级状态，可联动告警与灯光。
  Fall Detection: Real-time identification of fall events in the detection area, distinguishing normal / suspected / confirmed three-level states, with alarm and lighting linkage support.
- 存在检测：静止人体亦可检测，存在检测半径最大 3 米，人员离开后按设定延时自动上报无人。
  Presence Detection: Stationary human bodies can also be detected, with a presence detection radius of up to 3 meters. No-person status is reported automatically after the preset delay when people leave.
- 光照联动：内置数字光照传感器，检测范围 0-65535 Lux，支持照度高/低场景联动控制灯光。

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Illuminance Linkage: Built-in digital illuminance sensor with a detection range of 0-65535 Lux, supporting high/low illuminance scene linkage for lighting control.

- 通讯方式丰富：支持 RS485 总线、KNX 总线及涂鸦 Zigbee 接入，可通过蓝牙小程序进行参数配置与调试。
  Multiple Communication: Supports RS485 bus, KNX bus and Tuya Zigbee access, and parameters can be configured and debugged via Bluetooth mini-program.
- 易安装部署：嵌入式吸顶安装，标准开孔 Φ55mm，施工便捷。
  Easy Installation: Embedded ceiling-mount installation with a standard opening diameter of Φ55mm, making construction very convenient.

1.3 应用场景 / Applications

- 智慧养老：常安装于卧室、卫生间等区域，实时监测跌倒事件并联动告警，守护独居老人安全。
  Smart Eldercare: Usually installed in bedrooms and bathrooms for real-time fall monitoring with alarm linkage, safeguarding the safety of elderly people living alone.
- 智能家居：与照明灯具联动，实现有人灯亮、无人灯灭及光照联动控制，节能省心。
  Smart Home: Linkage with lighting fixtures, lights on when occupied and off when vacant, with illuminance-based linkage for energy saving.
- 医院病房：安装于病房及卫生间区域，病患跌倒即时告警，减轻护理压力。
  Hospital Ward: Installed in wards and restrooms for immediate fall alerts, reducing nursing burden.

1.4 外形结构 / Appearance Structure

1.4.1 外形尺寸 / Dimension

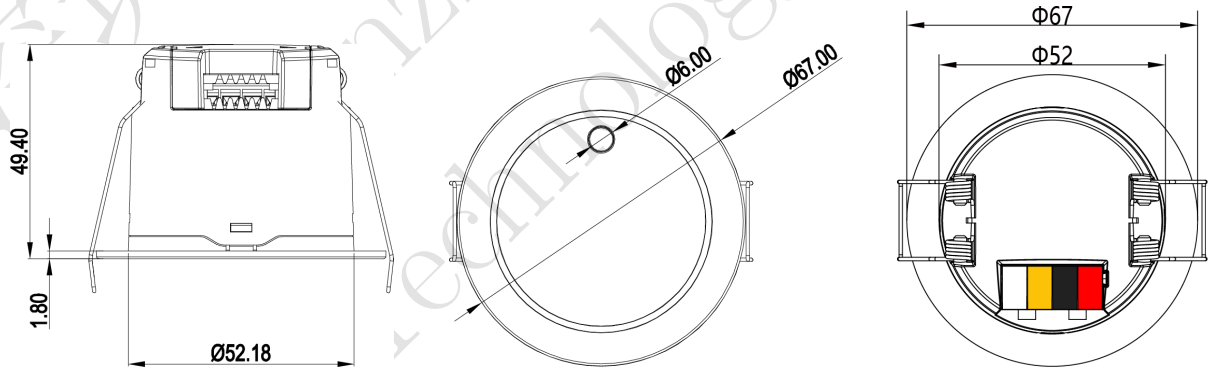


图 1.3: 单位（mm）
Fig1.3: Unit (mm)

*注： 整机尺寸公差 ±0.2mm，详细尺寸以三视图标注为准。
*Note: The overall dimension tolerance is ±0.2mm, and the detailed dimensions are subject to the three-view drawings.

1.4.2 接口说明 / Electrical Interface

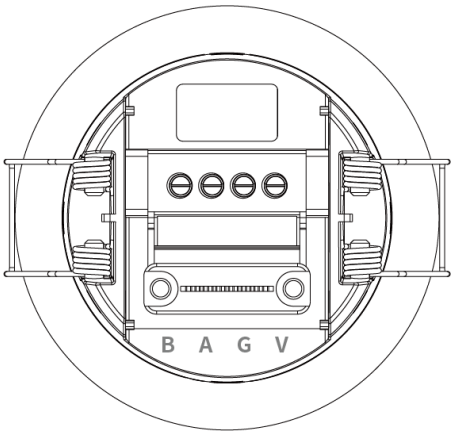


图 1.4: EDV25P-4 接口分布图
Fig1.4: EDV25P-4 Interface Distribution Diagram

表 1.1: EDV25P-4 接口功能表
Tab1.1: EDV25P-4 Interface Function Table

接口序号 Number	名称 Name	功能 Function
1	V	DC 12-30V 电源输入正极 DC 12-30V Power Input
2	G	电源负极/GND Power Negative / GND
3	A	RS485-A RS485-A
4	B	RS485-B RS485-B

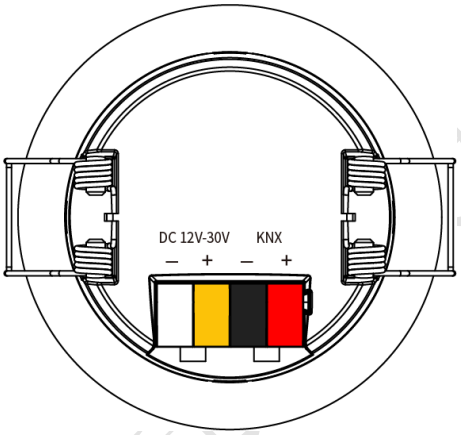


图 1.5: EDV25P-K 接口分布图
Fig1.5: EDV25P-K Interface Distribution Diagram

表 1.2: EDV25P-K 接口功能表
Tab1.2: EDV25P-K Interface Function Table

接口序号 Number	名称 Name	功能 Function
1	VCC	DC 12-30V 电源输入正极 DC 12-30V Power Input
2	GND	电源负极/GND Power Negative / GND
3	KNX+(红)	KNX 总线正极 KNX Bus Positive
4	KNX-(黑)	KNX 总线负极 KNX Bus Negative

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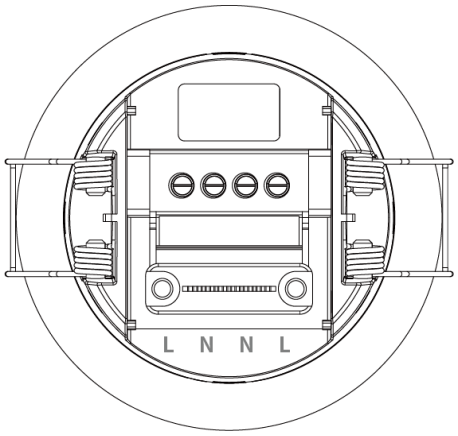


图 1.6: EDV25P-T 接口分布图
Fig1.6: EDV25P-T Interface Distribution Diagram

表 1.3: EDV25P-T 接口功能表
Tab1.3: EDV25P-T Interface Function Table

接口序号 Number	名称 Name	功能 Function
1	L	火线端口（AC 90-277V） Live Wire Port (AC 90-277V)
2	N	零线端口 Neutral Wire Port

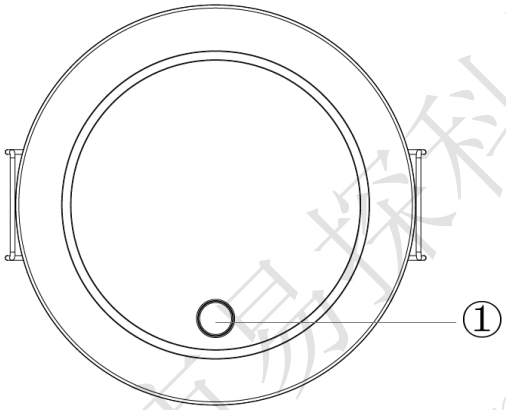


图 1.7: 按键分布图
Fig1.7: Button Distribution Diagram

表 1.4: 按键功能表
Tab1.4: Button Function Table

接口序号 Number	名称 Name	功能 Function
1	Set/Reset	配网/复位共用按钮 Pairing/Reset

1.5 性能参数 / Parameters & Performances

1.5.1 参数列表 / Parameters

表 1.5: 参数表
Tab1.5: Parameter Table

类别 Category	参数 Number	可配置? Configurable?	数值 Value	单位 Unit	说明 Remarks
雷达参数 RF Parameters	工作频段 Frequency	N	57.5-61.3	GHz	中值 60GHz Center 60 GHz
	发射功率 TX Power	Y	12/14/15/16	dBm	可配置 Configurable
	调制方式 Modulation	N	FMCW	-	调频连续波 FMCW
	3dB波束角 3dB Beam Angle	N	60	°	波束宽度 Beam width

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表 1.5: 参数表(续)
Tab1.5: Parameter Table(continued)

类别 Category	参数 Number	可配置? Configurable?	数值 Value	单位 Unit	说明 Remarks
性能参数 Specifications	存在检测半径 Presence Radius	Y	3 Max	m	最大存在检测半径 Max presence radius
	跌倒检测半径 Fall Radius	Y	3 Max	m	最大跌倒检测半径 Max fall radius
	推荐安装高度 Install Height	Y	2.5-3.5	m	默认 3.0m，可配置 Default 3.0m
	运动灵敏度 Move Sensitivity	Y	1-10	-	默认 10 Default 10
	存在灵敏度 Exist Sensitivity	Y	1-10	-	默认 10 Default 10
	延时时间 Delay Time	Y	1-65535	s	默认 30s Default 30s
	检测区域 Detect Area	Y	可配置	mm	X/Y：±3000 Z：0-3500
	光照检测范围 Illuminance	Y	0-65535	Lux	数字光照传感器 Digital sensor
	状态上报周期 Report Period	Y	500-65535	ms	雷达上报周期 Radar report period
电气参数 Electrical	工作电压 Operating Voltage	N	4/K：DC 12-30V T：AC 90-277V	V	4/K 直流供电 T 交流供电
	峰值电流 Peak Current	N	317	mA	12V 供电 At 12V supply
	平均电流 Average Current	N	124	mA	12V 供电 At 12V supply
	整机功耗 Power Consumption	N	<5	W	AC 220V（KNX <2W） AC 220V (KNX <2W)
	输出格式 Output Format	Y	可配置	-	协议输出格式可配置 Configurable output
物理参数 Physical Parameters	外形尺寸 Dimension	N	-	mm	详见三视图标注 See drawings
	重量 Weight	N	-	g	- -
	外壳材质 Housing Material	N	PC	-	聚碳酸酯 Polycarbonate
	安装方式 Installation	N	吸顶	-	嵌入式安装 Ceiling mount
	安装孔径 Mounting Hole	N	55	mm	标准开孔直径 Opening dia.
环境适应性 Environmental Adaptability	工作温度 Operating Temp.	N	-20-+85	℃	正常工作环境温度 Normal operating temp.
	储存温度 Storage Temp.	N	-20-+85	℃	存储环境温度 Storage temp.

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***注：** “可配置？”指的是是否提供接口供用户根据需要对该参数在允许范围内进行配置。
***Note:** ”Configurable?” means whether an interface is provided for users to set the parameter within the permissible range as required.

***注：** 以下情况不定义为跌倒事件：
***Note:** The following situations are not defined as fall events:

1. 坐倒（指坐在地上跌倒）不定义为跌倒。
   Sitting down (falling into a seated position on the ground) is not defined as a fall.
2. 靠坐（人没有完全倒下去）不定义为跌倒。
   Leaning back (without the body fully falling down) is not defined as a fall.
3. 蹲姿跌倒不定义为跌倒。
   Falling from a squatting position is not defined as a fall.

1.5.2 性能曲线 / Performances

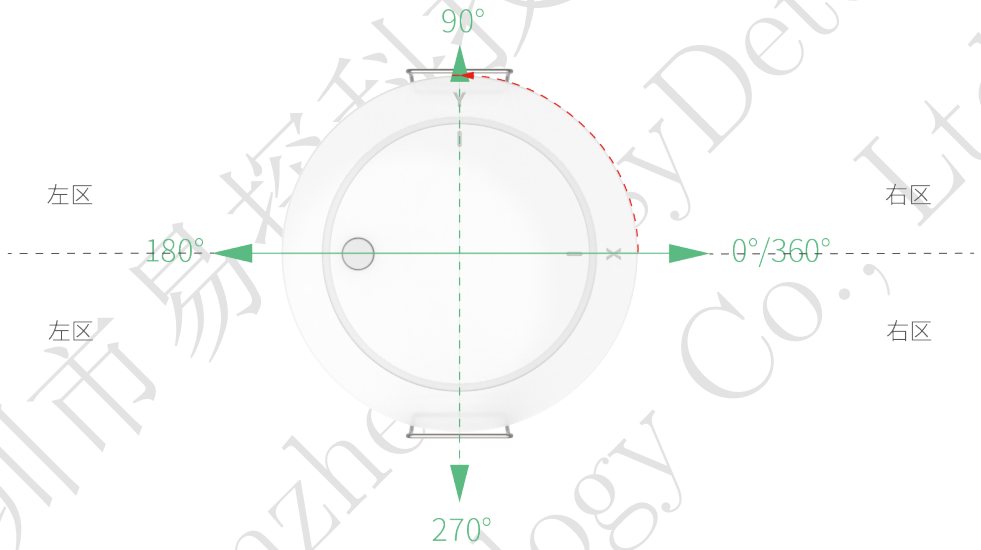


图 1.8: 安装方向与检测分区示意
Fig1.8: Mounting Orientation and Detection Zones

***注：** 在室内环境（5m×5m），安装高度 3m，X/Y 坐标范围 ±300cm 条件下测得感应性能曲线。
***Note:** The sensing performance curve is measured in an indoor environment (5m×5m) with an installation height of 3m and X/Y coordinate range of ±300cm.

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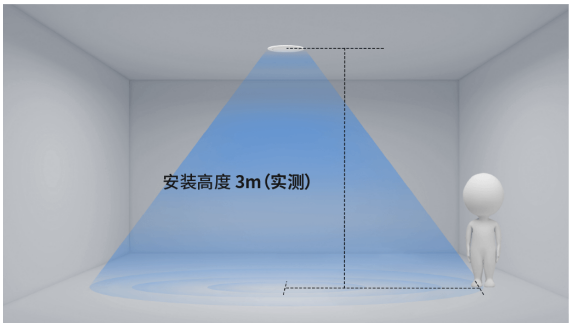


图 1.9: 挂高角度性能
Fig1.9: Installation Height Angle Performance

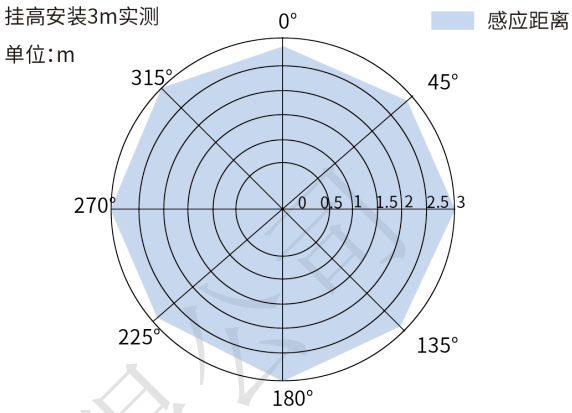


图 1.10: 感应性能
Fig1.10: Sensing Performance

***注：** 以上性能曲线仅供参考，具体以实际产品实测为准。
***Note:** The performance curves above are for reference only, subject to actual product measurement.

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第二部分 / Chapter 2
命名规范 / Naming Rules

制造商 Manufactur	频段 Frequency	大类别 Parent	子类别 Child	编号 Part No		扩展功能 Extended Functions		流水号 Serial No.
ED	V	2	5	-	-	-	-	-
易探 EasyDetek	**C** 5.8GHz	**1** 雷达模组 RD Module	**0** 超低功耗 low power consumption	0 ~ 9 A ~ Z	**Y** 有光敏 With Photosensitive	**A** Matter	**1** Cat-1	
	X 10.5GHz	**2** 独立传感器 Independent Sensor	**1** 旗舰 flagship		**N** 无光敏 Without Photosensitive	**C** Casambi	**2** 2.4G	
	Q 24GHz	**3** 天线&器件 Antennas & Devices	**2** 侧装 Side-mounted		**G** 干接点 Dry node	**D** Dali	**4** RS485	
	V 60GHz	**4** MCU	**3** 外置可调 External Adjustable		**S** AC开关 AC Switch	**K** KNX	**B** BLE	
	S 生态产品 Eco-products	**5** 配件 Accessories	**5** 通用 General			**M** Mi	**P** PLC	
		6 IC	**6** 户外 Outdoor			**T** Tuya	**R** RF433	
		7 AI传感 AI Sensor	**7** 保留 Reserved				**W** Wifi	
		8 组网 Networking	**8** 基础 Basic				**Z** Zigbee	
			9 高空 High Altitude					

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第三部分 / Chapter 3
售后服务 / Aftersale service

3.1 安全合规 / Safety Compliance

- 本产品符合室内智能传感设备安规标准，仅适用于室内环境使用。
  This product complies with the safety standards for indoor intelligent sensing devices and is only suitable for use in indoor environments.
- 电气接线严格遵循国标电气规范，非专业人员禁止拆机、改线。
  Electrical wiring strictly follows the national standard electrical specifications. Non-professionals are prohibited from disassembling the machine or modifying the wiring.
- 设备防护等级 IP67，仅适用于常规室内防潮环境，禁止长期浸泡、户外淋雨使用。
  The equipment has a protection grade of IP67 and is only suitable for regular indoor moisture-proof environments. Long-term immersion and outdoor rain exposure are strictly prohibited.

3.2 免责声明 / Disclaimers

- 因用户私自拆机、改装接线、违规供电造成的设备损坏、安全事故，本公司不承担保修及相关责任。
  Our company will not be held responsible for the warranty and related liabilities of equipment damage and safety accidents caused by users' private disassembly of the machine, modification of wiring, or illegal power supply.
- 未按照安装规范（间距、远离干扰源、避开金属区域）安装，导致设备误触发、检测异常，不在免费维保范围内。
  Failure to install the equipment in accordance with the installation specifications (spacing, distance from interference sources, and avoidance of metal areas), resulting in false triggering or abnormal detection of the equipment, is not covered by the free maintenance.
- 自然灾害、人为磕碰、外力损坏、进水进尘造成的故障，不予免费保修。
  Faults caused by natural disasters, human bumps, external force damage, water or dust ingress are not covered by free warranty.
- 产品固件、规格会持续迭代优化，更新版本不再单独通知，如需最新资料请联系销售人员。
  The product firmware and specifications will be continuously iterated and optimized. Updated versions will not be notified separately. If you need the latest information, please contact the salesperson.
- 测试参数为实验室标准环境数据，实际使用效果因现场环境、安装方式存在差异，不属于产品质量问题。
  The test parameters are standard environmental data from the laboratory. The actual usage effect may vary due to differences in on-site environment and installation methods, and does not fall under product quality issues.

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3.3 售后服务 / After-Sales Service

- 质保服务：产品按照行业标准提供质保，质保期内非人为质量问题可享受维修、更换服务。
  Warranty service: The product is covered by warranty in accordance with industry standards. During the warranty period, non-human-caused quality issues can be repaired or replaced.
- 技术支持：安装调试、参数配置、协议对接问题，可联系我司销售或 FAE 工程师提供技术支持。
  Technical support: For installation and commissioning, parameter configuration, and protocol integration issues, please contact our sales or FAE engineers for technical support.
- 定制服务：个性化功能、参数、接口定制，可对接商务团队评估方案与工期。
  Customized services: Personalized functions, parameters, and interface customization, which can be integrated with business teams to evaluate plans and project schedules.
- 资料获取：最新版规格书、协议文档、固件程序，请联系官方工作人员索取。
  For information acquisition: The latest version of the instruction manual, protocol documents, and firmware programs, please contact the official staff for them.

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附录 A　系列清单 / Series Family

EDV25P 系列共三个版本，硬件平台相同（57.5-61.3GHz 毫米波雷达、内置数字光照传感器），区别在于供电方式与通讯协议，详见下表。
The EDV25P series consists of three versions sharing the same hardware platform (57.5-61.3 GHz mmWave radar with built-in digital illuminance sensor), differing in power supply and communication protocol, as listed below.

表 A.1: EDV25P 系列型号清单
TabA.1: EDV25P Series Model List

型号 Model	供电方式 Power Supply	通讯协议 Communication Protocol	说明 Remarks
EDV25P-4	DC 12-30V	RS485 总线（标准 Modbus 类协议） RS485 Bus (Modbus-type protocol)	工业/楼宇总线组网 Industrial/building networking
EDV25P-K	DC 12-30V	KNX 总线（标准 KNX 楼宇协议） KNX Bus (standard KNX protocol)	KNX 智能家居/楼宇自动化 KNX smart home/building automation
EDV25P-T	AC 90-277V	涂鸦 Zigbee 协议 Tuya Zigbee Protocol	涂鸦 APP 联动 Tuya APP linkage

- 三版本共同特性：存在检测与跌倒检测半径最大 3m，推荐安装高度 2.5-3.5m（默认 3m）。
  Common features: maximum presence and fall detection radius of 3 m; recommended installation height of 2.5-3.5 m (default 3 m).
- 蓝牙 BLE 与 UART 串口为三版本通用接口，支持小程序调试/参数配置、本地调试/数据透传。
  Bluetooth BLE and UART are common interfaces for all three versions, supporting mini-program debugging / parameter configuration and local debugging / data passthrough.
- 内置数字光照传感器，支持光照联动控制。
  Built-in digital illuminance sensor supports lighting linkage control.

***注：** 型号命名规则详见第 2 章命名规范。
***Note:** Refer to Chapter 2 Naming Rules for model naming rules.

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附录 B 应用案例 / Application Cases

B.1 案例1 / CASE 1

B.2 案例2 / CASE 2

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