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PHOTOVOLTAIC

BIPV
市场前景及应用

BIPV Market prospects and applications

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01

什么是BIPV?

What is BIPV?

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BIPV即Building Integrated PV，PV即Photovoltaic。BIPV（光伏建筑一体化）是将太阳能发电(光伏)产品集成到建筑上的技术。光伏建筑一体化(BIPV)不同于光伏系统附着在建筑上(BAPV：Building Attached PV)的形式。

BIPV即光伏建筑一体化，是与建筑物同时设计、同时施工和安装并与建筑物形成完美结合的太阳能光伏发电系统，也称为“构建型”和“建材型”太阳能光伏建筑。它作为建筑物外部结构的一部分，既具有发电功能，又具有建筑构件和建筑材料的功能，甚至还可以提升建筑物的美感，与建筑物形成完美的统一体。

BIPV stands for Building Integrated Photovoltaic, Photovoltaic stands for Photovoltaic. BIPV is a technology that integrates solar power generation (Photovoltaic) products into buildings. Photovoltaic building integration (BIPV) is different from the form of Photovoltaic systems attached to buildings (BAPV: Building Attached Photovoltaic).

BIPV, also known as "structured" and "building materials", is a solar photovoltaic building that is designed, constructed, and installed simultaneously with the building and forms a perfect combination with the building as an external structural component. It not only has the function of generating electricity, but also performs the function of building components and construction materials, and even enhances the aesthetic appearance of the building, forming a perfect unity with the building.

BIPV vs BAPV?

1. BAPV是指附着在建筑物上的太阳能光伏发电系统，也称为“安装型”太阳能光伏建筑。它的主要功能是发电，与建筑物功能不发生冲突，不破坏或削弱原有建筑物的功能。
2. 两者不同点在于：BIPV已经作为建筑物必不可少的一部分发挥着建筑材料的作用，而BAPV建筑中的组件只是通过简单的支撑结构附着在建筑上，拿开光伏组件后，建筑功能仍然完整。
3. 发展实践对光伏建筑的定义做了扩展和更准确的界定。
4. 光伏建筑定义为安装在建筑物上的光伏发电系统。Bulding Mounted Photovoltaic，可以简称BMPV及“建筑光伏”。BMPV包括BIPV和BAPV。

1. BAPV refers to a solar photovoltaic power generation system attached to a building, also known as "installed" solar photovoltaic buildings. Its main function is to generate electricity, without conflicting with or damaging or weakening the functions of the original building.
2. The difference between the two is that BIPV has already played the role of building materials as an essential part of the building, while the components in BAPV buildings are simply attached to the building through simple supporting structures. After removing the photovoltaic modules, the building's functions remain intact.
3. The definition of photovoltaic buildings has been extended and more accurately defined through development practices.
4. Photovoltaic buildings are defined as photovoltaic power generation systems installed on buildings. Bulding Mounted Photovoltaic (BMPV) can be referred to as BMPV and "building photovoltaic". BMPV includes both BIPV and BAPV.

BIPV的产品特点：

BIPV Product Features

应用领域及场景多样化

Diversified application areas and scenarios

产品规格及尺寸多样化

Diversified product specifications and sizes

产品性能要求多样化

Diversified product performance requirements

02

BIPV产品的分类：

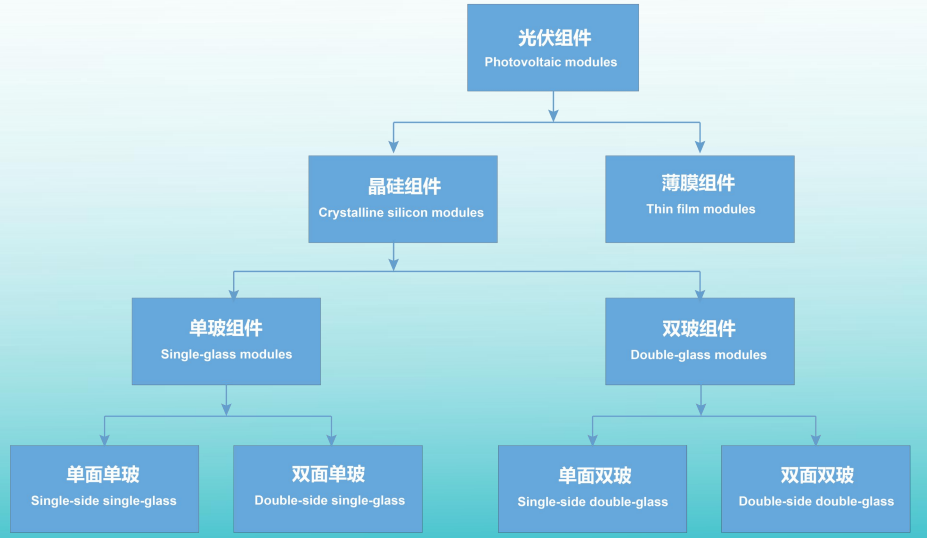
Classification of BIPV products

一、晶体硅光伏发电

Crystalline silicon photovoltaic power generation

二、薄膜光伏发电

Thin-film photovoltaic power generation

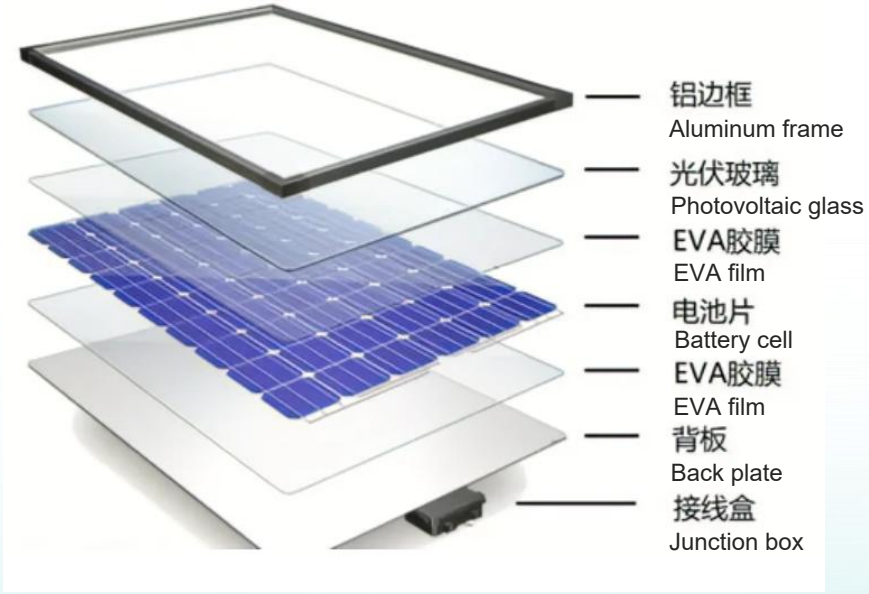


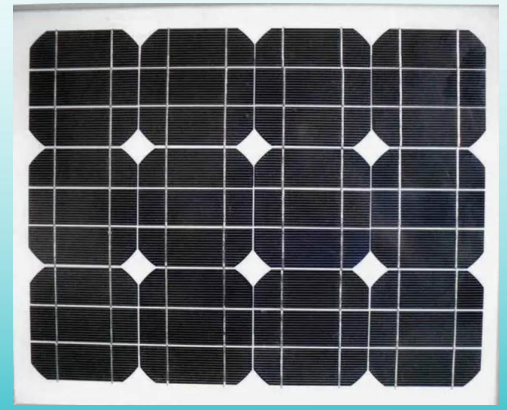
晶硅标准组件的结构

Structure of crystalline silicon standard components

标准光伏组件由：前板玻璃、太阳能电池片、胶片、背板、铝边框、特殊金属导线等组成。

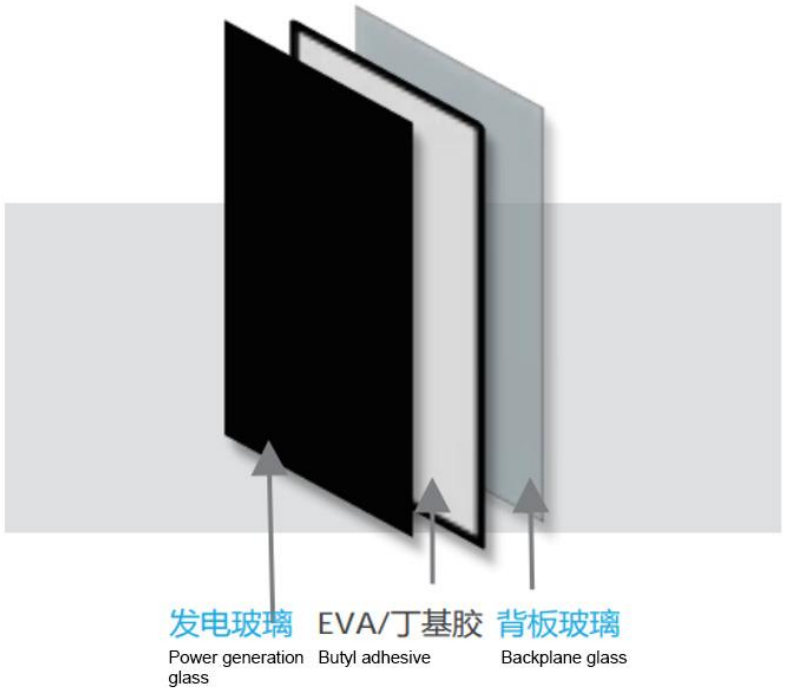
Standard photovoltaic modules are composed of front glass, solar cells, film, back plate, aluminum frame, special metal wires, etc.





CdTe标准组件示意图

Schematic diagram of CdTe standard components

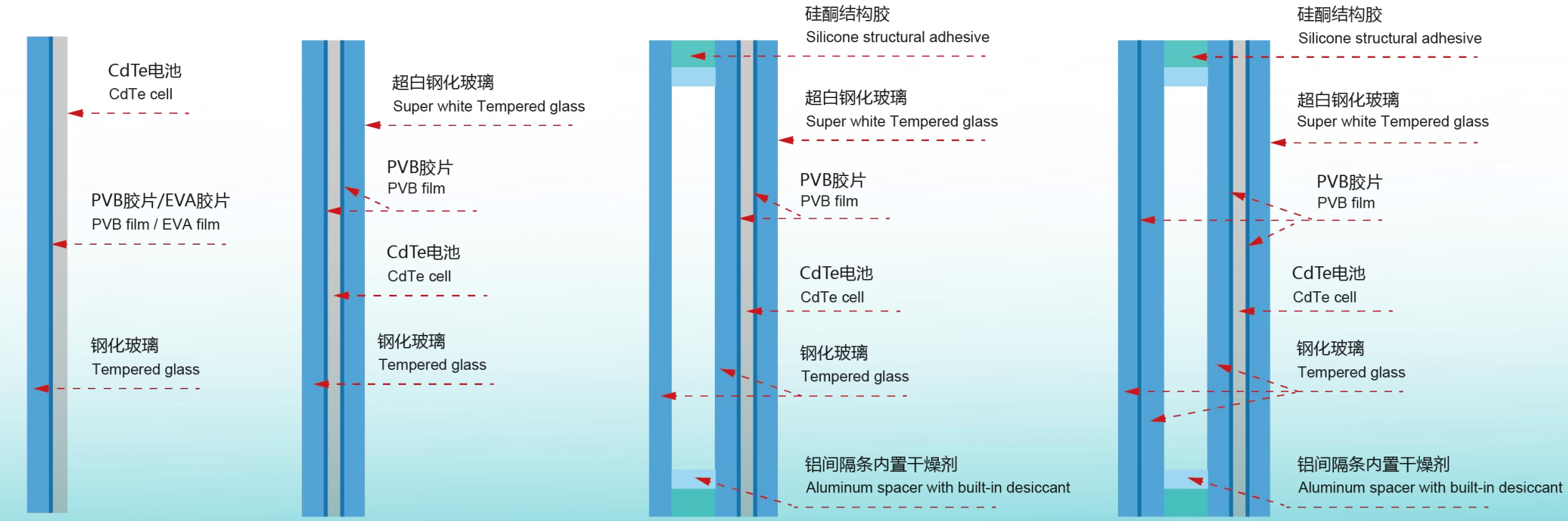


CdTe弱光发电

CdTe weak light power generation

CdTe组件的结构

Structure of CdTe components



双玻夹胶
Double-glass laminated

三玻夹胶
Triple-glass laminated

夹胶中空
Laminated hollow

双夹胶中空
Double-laminated hollow

CdTe组件的结构

Structure of CdTe components

中空透光系列
Hollow transparent series

中空透光系列
Hollow transparent series

适用于建筑幕墙、平开窗、采光顶等,透光度0-60%可调,保温隔热,隔声降噪。

Suitable for building curtain walls, casement windows, skylights, etc. with adjustable light transmission from 0-60%, thermal insulation, sound insulation and noise reduction.

彩色透光系列
Color transparent series

彩色透光系列
Color transparent series

适用于采光顶、建筑立面、光伏农业大棚、女儿墙、阳光房等,采光通透。

Suitable for skylights, building facades, photovoltaic agricultural greenhouses, parapets, sunshine rooms, etc., with transparent lighting.

CdTe组件的结构

Structure of CdTe components

彩釉系列
Color glaze series

彩色不透光系列
Color opaque series

适用于建筑立面、廊道、观景台等，色彩丰富。

Suitable for building facades, corridors, observation decks, etc., rich in color.

仿石材系列
Imitation stone series

仿石材系列
Imitation stone series

适用于艺术馆，博物馆，展览中心，科技馆，景观建筑等公用建筑。

Suitable for public buildings such as art galleries, museums, exhibition centers, science and technology museums, landscape architecture, etc.

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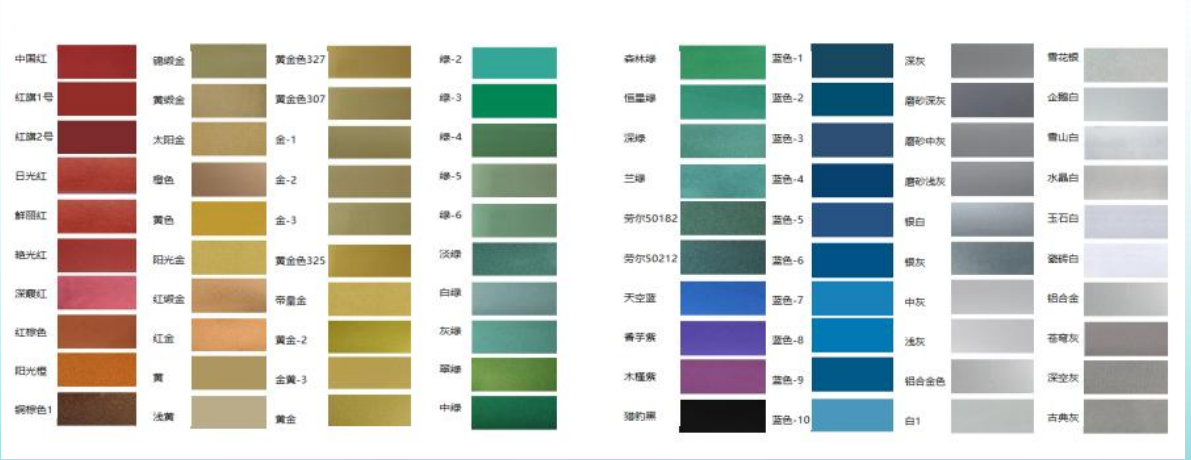
丰富的外观颜色

Rich appearance colors

300+色彩可选

300+ colors to choose from



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图案可自由定制

Free customization of patterns

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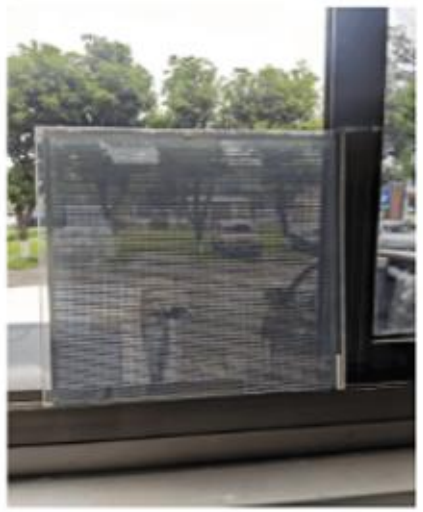
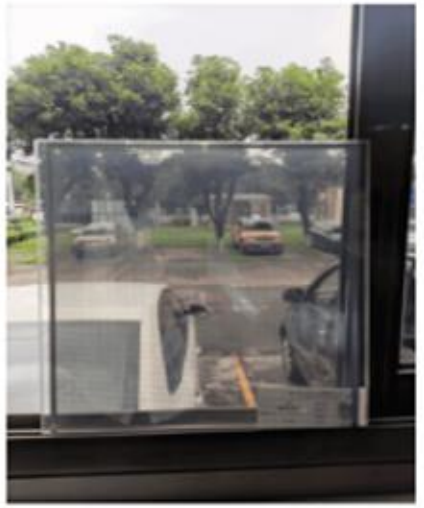
透光度10%-50%可选

10%-50% transmittance options

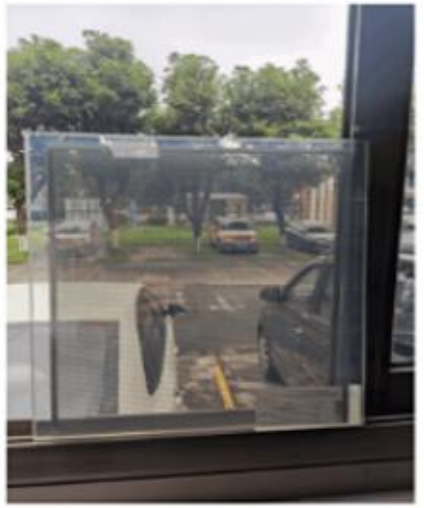
10%透光
10% transmittance



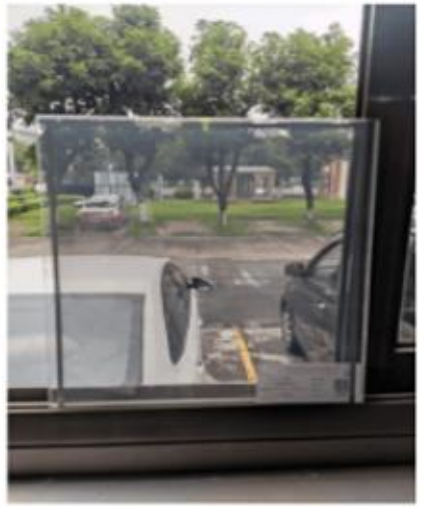
20%透光
20% transmittance



30%透光
30% transmittance



40%透光
40% transmittance



50%透光
50% transmittance

02

BIPV项目应用

BIPV project application

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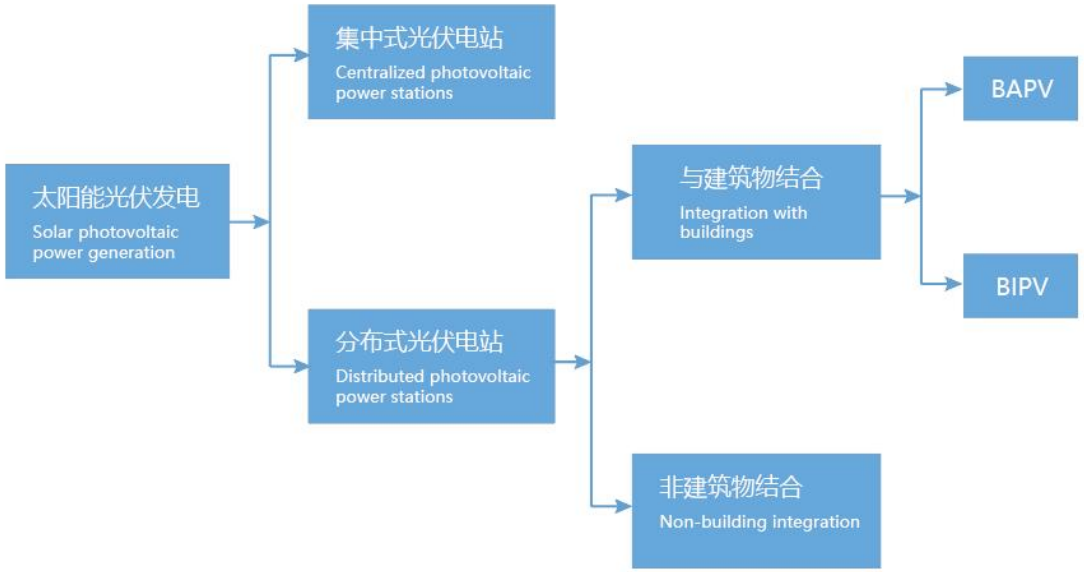
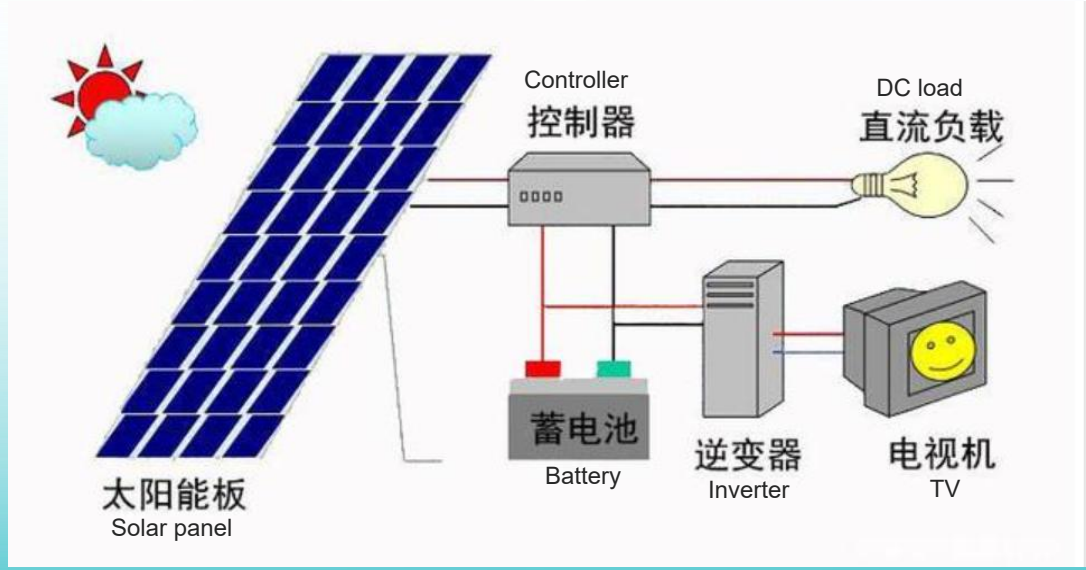
一、光伏发电系统的应用形式

Application forms of photovoltaic power generation systems



二、离网光伏发电示意图

Off-grid photovoltaic power generation schematic diagram



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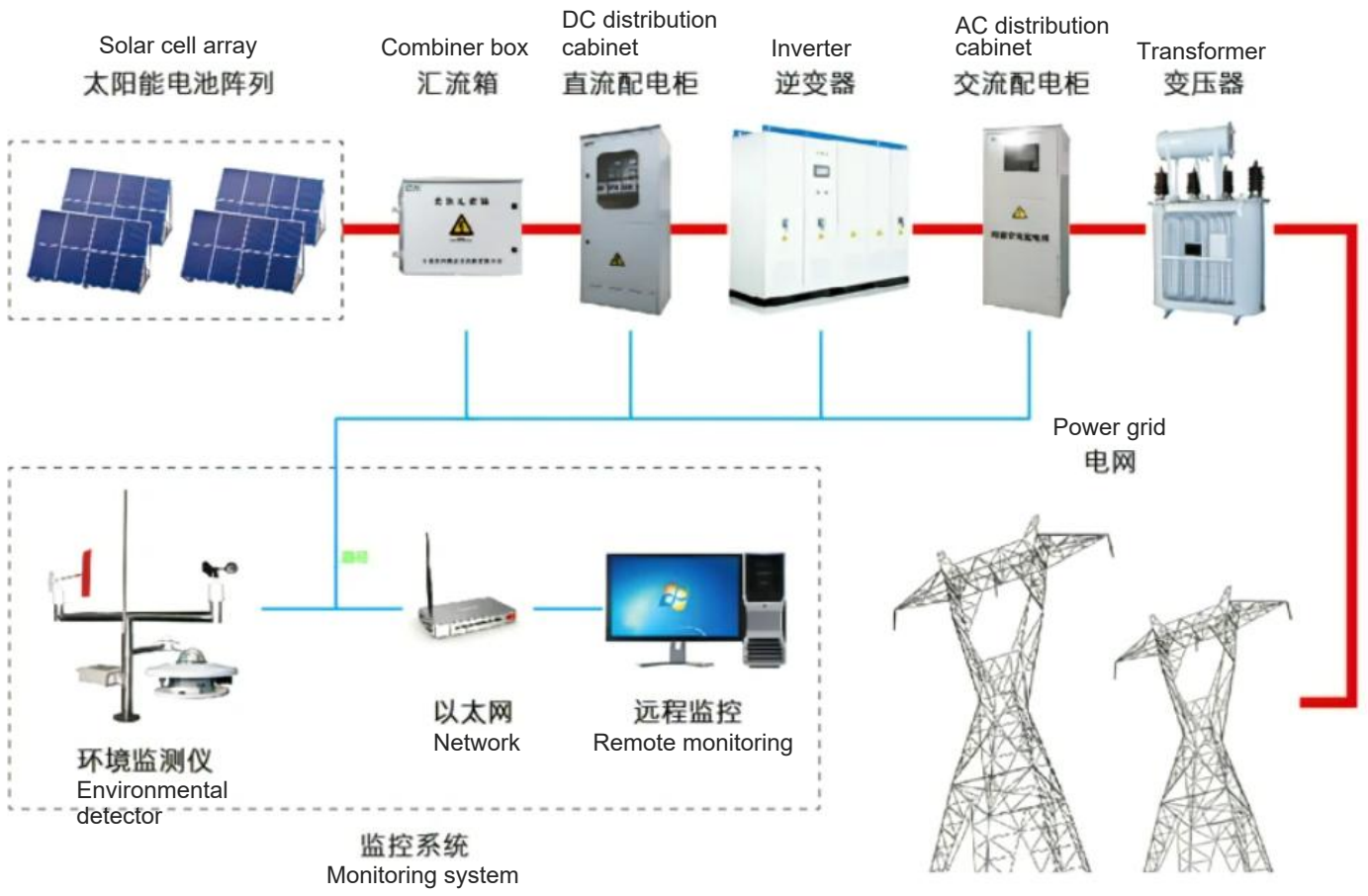
三、并网光伏发电示意图

Grid-connected photovoltaic power generation schematic diagram

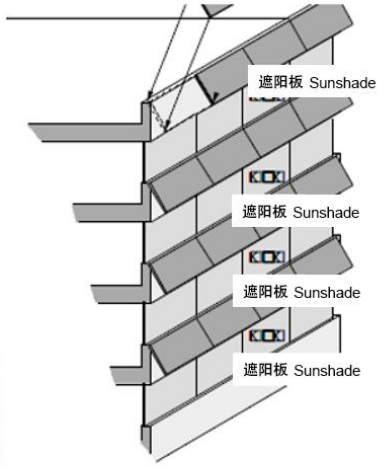


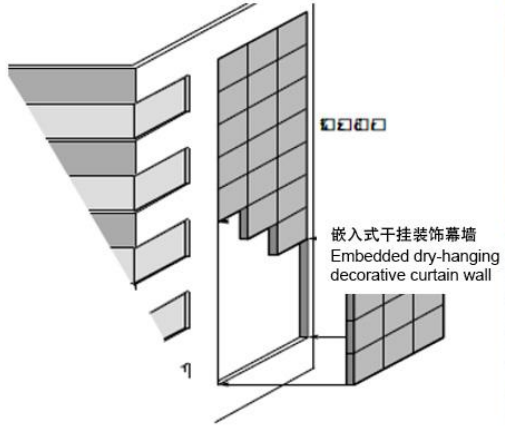
工业建筑 Industrial buildings

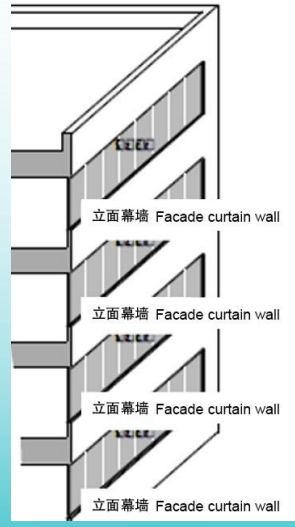
地标建筑 Landmark buildings

住宅 Residential buildings

公共建筑 Public buildings


遮阳板 Sunshade
遮阳板 Sunshade
遮阳板 Sunshade
遮阳板 Sunshade

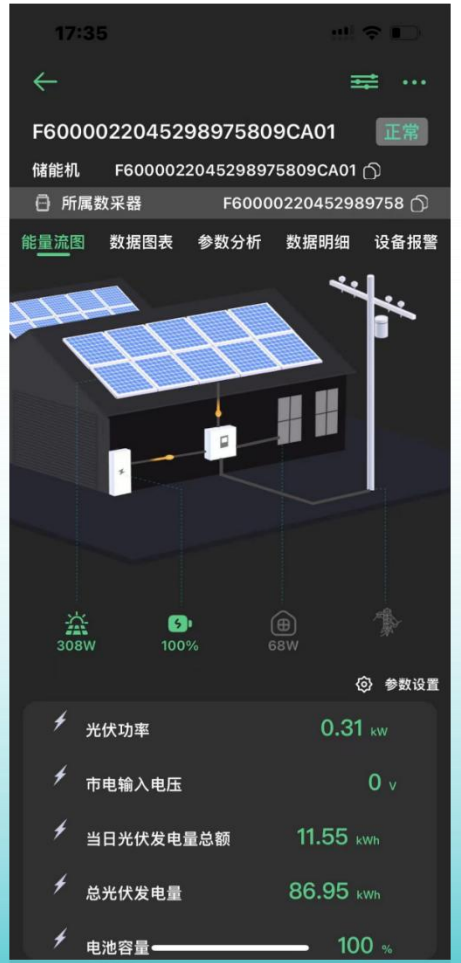

嵌入式干挂装饰幕墙
Embedded dry-hanging
decorative curtain wall


立面幕墙 Facade curtain wall
立面幕墙 Facade curtain wall
立面幕墙 Facade curtain wall
立面幕墙 Facade curtain wall

广东中融办公大楼屋顶BIPV示范项目

Guangdong Zhongrong Office Building
Rooftop BIPV Demonstration Project


有电危险


17:35
F6000022045298975809CA01
正常
储能机 F6000022045298975809CA01
所属数采器 F60000220452989758
能量流图 数据图表 参数分析 数据明细 设备报警
308W
100%
68W
参数设置
光伏功率 0.31 kW
市电输入电压 0 V
当日光伏发电量总额 11.55 kWh
总光伏发电量 86.95 kWh
电池容量 100 %


21:10
F6000022045298975809CA01
正常
储能机 F6000022045298975809CA01
所属数采器 F60000220452989758
能量流图 数据图表 参数分析 数据明细 设备报警
日 月 年 总
2023-06-28
当日功率图
发电功率 负载功率
kW
3.1
2.5
1.9
1.2
0.6
0.0
2 4 6 8 10 12 14 16 18 20 22 24
H
0
24


21:33
F6000022045298975809CA01
正常
储能机 F6000022045298975809CA01
所属数采器 F60000220452989758
能量流图 数据图表 参数分析 数据明细 设备报警
2023-06-28
时间戳 数据名称 数据
21:29:11 输出电压 229.6V
输出电流百分比 0%
21:24:22 输入频率 0.0Hz
21:19:33 额定电压 230.0V
21:14:43 额定电流 21A
21:09:54 频率 50.0Hz
21:05:05 工作模式 电池模式
21:00:15 市电输入电压 0.0V
20:55:26 市电频率 0.00Hz
20:50:37 市电丢失电压高点 264.0V
20:45:48 市电丢失电压低点 154.0V
20:40:59 市电丢失电压高回复点 255.0V
20:36:09 市电丢失电压低回复点 163.0V
20:31:20 市电丢失频率高点 70.00Hz
20:26:32 市电丢失频率低点 40.00Hz
20:21:43 当日市电用电量总额 0.00kWh
20:16:53 总市电用电量 7.44kWh
20:12:04 电池电压 53.1V
电池放电截止电压 44.5V
电池放电告警电压 47.5V
充电电压 0.0V
电池节数 4
0.0A

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感谢欣赏

THANK YOU