Payload SDK

Development Kit
开发套件

User Guide
使用说明

V1.0 2018.03

Contents

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Warning

1. Go to https://developer.dji.com/payload-sdk/ and download the relevant manuals before use. Read and understand the manuals, and then strictly follow the instructions in the manuals when using the Payload SDK Development Kit.
2. Connect the cables correctly by following the instructions in this *Payload SDK Development Kit User Guide* otherwise the connectors may get burned and the Payload SDK Development Board may get seriously damaged.
3. Make sure there are no short-circuits and all the cables are in good condition. DO NOT use cables that have been damaged in any way.
4. Be sure to use the product in strict accordance with the Specifications (including those for voltage, current, and temperature) listed in this document. Failure to do so may reduce the product service life or even lead to permanent damage.
5. Take measures to protect the Payload SDK Development Board from static electricity and physical damage.
6. Always keep the Payload SDK Development Board clean otherwise a short-circuit may occur and the Payload SDK Development Board's performance may be negatively affected.
7. DO NOT use your hand to touch the chips on the Payload SDK Development Board as doing so may damage the Payload SDK Development Board and its performance may be negatively affected due to static electricity.
8. If you detect any flames, smoke, strange smells, or other abnormality disconnect the Payload SDK Development Board from the power source immediately.

Product Profile

Introduction

The Payload SDK is designed to enable third-party payload developers and manufacturers to use the DJI flight platform with their own specialized payloads. The Payload SDK provides programming access to DJI flight platform resources including power systems, communication links, and aircraft status parameters such as GPS data, flight attitude data, and app date/time. The Payload SDK can be used in conjunction with other DJI software such as the Mobile SDK, the DJI Pilot app, and the DJI ASSISTANT™ 2 desktop application.

Compatible Flight Platforms

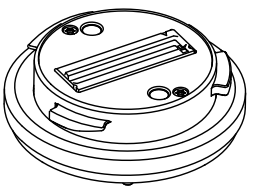
MATRICE™ 200, Matrice 210, and Matrice 210 RTK.

Intended Users

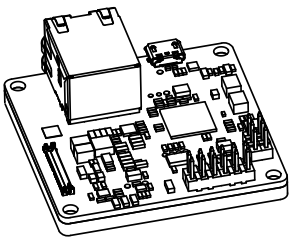
Customized payload development companies.
Research institutions.

In the Box

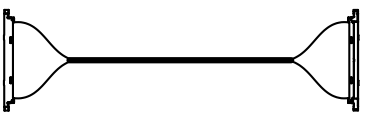
DJI SKYPORT Adapter ×1



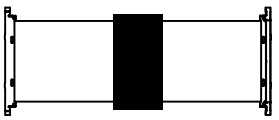
Payload SDK Development Board ×1



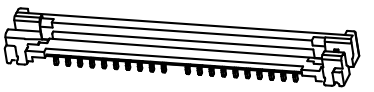
Round Ribbon Cable 250 mm* ×1



Flat Ribbon Cable 30 mm* ×1



Ribbon Cable Connector* ×3

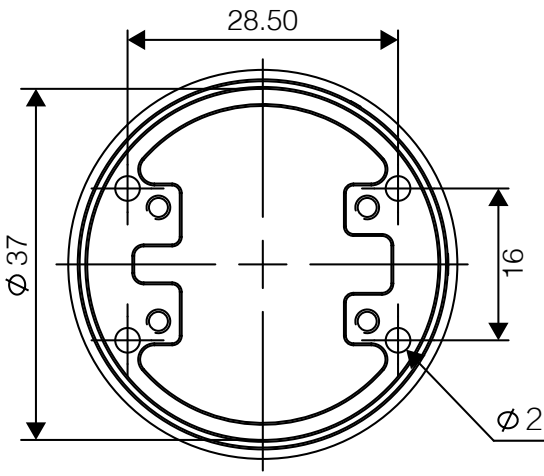


* Accessories are not cover under warranty.

Overview

DJI SKYPORT Adapter

Dimensions



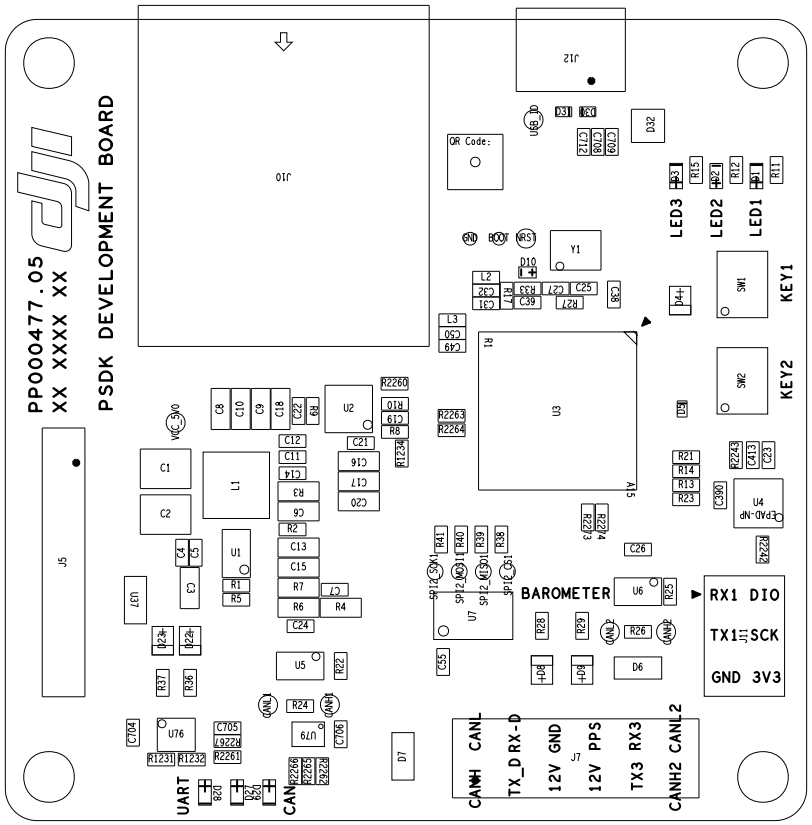
unit: mm

Interfaces

Interface Type	Parameters	Remarks
Power supply	12 V / 4 A	Maximum working current is 4 A.
Command communication	UART TTL (3.3 V), CAN	Used to communicate with the SKYPORT adapter.

Data transfer	MDI Ethernet Port	Used to transmit the code streams and user-defined downlink data.

Payload SDK Development Board



Ports

Port Code	Port Name	Remarks
J5	SKYPORT Connector	Connect to the SKYPORT adapter using the Round Ribbon Cable 250 mm.

J7	External Test Port	Transfers the UART/CAN signal from the SKYPORT adapter into a pinned connector to facilitate connection to other platforms.
J10	Ethernet Port	Used to transmit the code streams and downlink data.
J11	MCU Debug Port	Debug programs and download microcontroller programs with a debugger via this port.
J12	USB Debug Port	Print log files and update firmware using a PC connected to this port.

Usage

Feature Overview

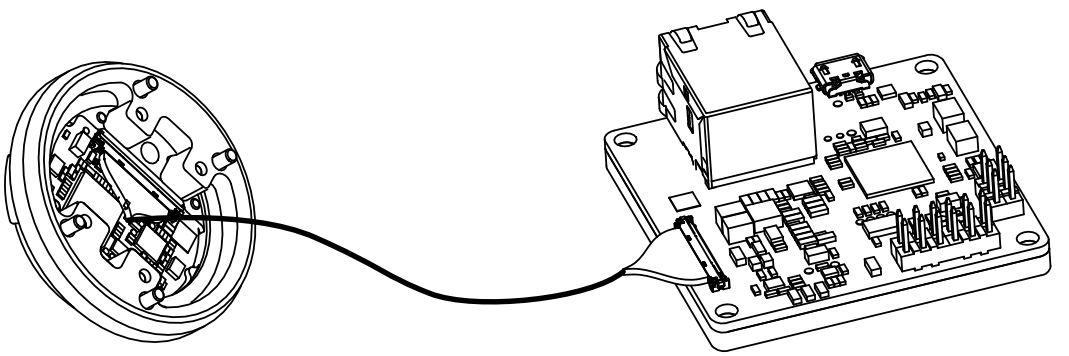
Features	Description
Direct data transmission	Transmit data directly between the Mobile SDK and SKYPORT adapter via a UART/CAN port.
Ethernet port features	UDP protocol is used when transmitting a large quantity of downlink data via the Ethernet port. Mobile SDK provides stream analysis when transmitting code streams in the specified format.
Data push	Push aircraft data to the payload including GPS data, flight attitude data, and app date/time.

Gimbal and camera interface support	The Payload SDK provides a standard camera and gimbal payload interface to enable rapid development.
DJI Assistant 2 compatibility	DJI Assistant 2 provides SKYPORT adapter binding and unbinding and parameter configuration functionality.
Mobile SDK compatibility	The Mobile SDK provides related interface functionality.
DJI Pilot compatibility	DJI Pilot provides custom control options and support for third-party camera/gimbal payloads.

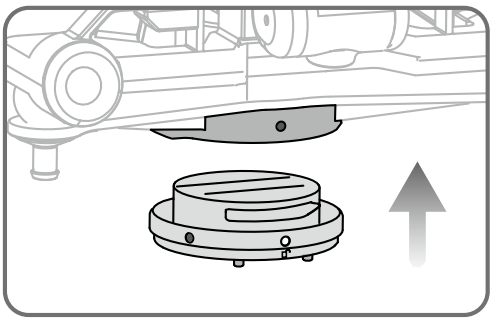
Installation and Connection

Follow the steps below to install and connect the Payload SDK.

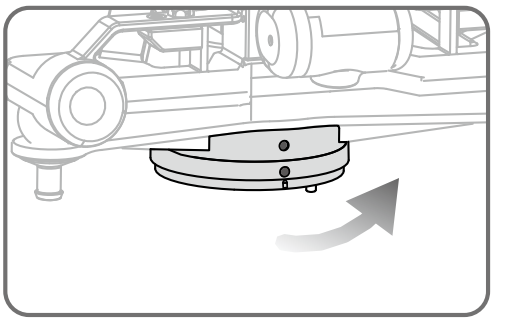
1. Use the Round Ribbon Cable 250 mm to connect the SKYPORT adapter to the Payload SDK Development Board.



2. Attach the SKYPORT adapter to the aircraft's gimbal connector.



Align the white and red dots and insert the SKYPORT adapter.



Rotate the SKYPORT adapter to the locked position.

Learn More

Go to https://developer.dji.com/payload-sdk/ and download the relevant manuals before use. Read and understand the manuals, and then strictly follow the instructions in the manuals when using the Payload SDK Development Kit.

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产品使用注意事项

1. 使用前，请前往 https://developer.dji.com/payload-sdk/ 获取详细的使用说明，仔细阅读里面的注意事项并了解具体使用方法，然后再使用该产品。
2. 请按照说明书正确连接线材，以免烧坏接口以及 Payload SDK 开发板。

3. 使用前请检查线材有无老化、短路。老化或短路的线材不适合继续使用。
4. 请按照本文规定的工作环境（如电压、电流、温度等参数）使用，否则将会影响产品寿命或造成永久性损坏。
5. 安装时注意做好保护，防止静电、物理损坏。
6. 请保持 Payload SDK 开发板的干净整洁，避免由于异物造成短路或性能下降。
7. 请不要用手直接接触 Payload SDK 开发板上的芯片，避免由于静电放电造成开发板损坏或性能下降。
8. Payload SDK 开发板上电后如发现有火花、冒烟、焦糊味或其它异常，请立即关掉电源。

产品简介

概 述

Payload SDK（PSDK）主要用于让第三方厂家基于 DJI 飞行平台进行负载设备开发。第三方厂家可以使用飞行平台的资源，如电源、通讯链路、状态信息（GPS 信息、姿态信息、时间日期）等。同时，Payload SDK 将提供配套的软件支持，如 Payload SDK，Mobile SDK，DJI Pilot，DJI ASSISTANT™ 2 等。

适配机型

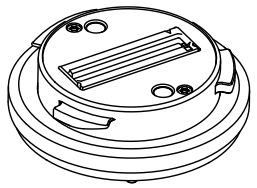
MATRICE™ 200，Matrice 210，Matrice 210 RTK

面向用户

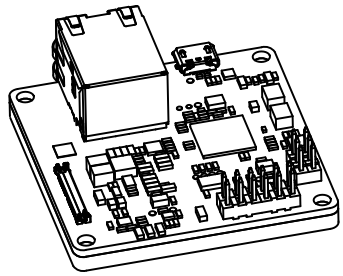
二次开发定制化开发负载的公司。
科研院校。

物品清单

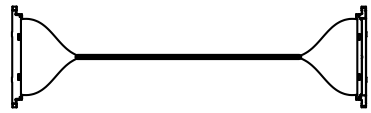
DJI SKYPORT 连接器 × 1



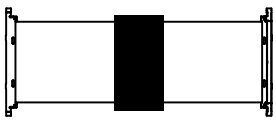
Payload SDK 开发板 × 1



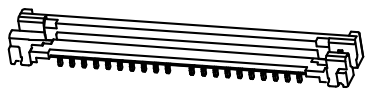
同轴线 250mm* × 1



同轴线 30mm* × 1



同轴线端座 * × 3

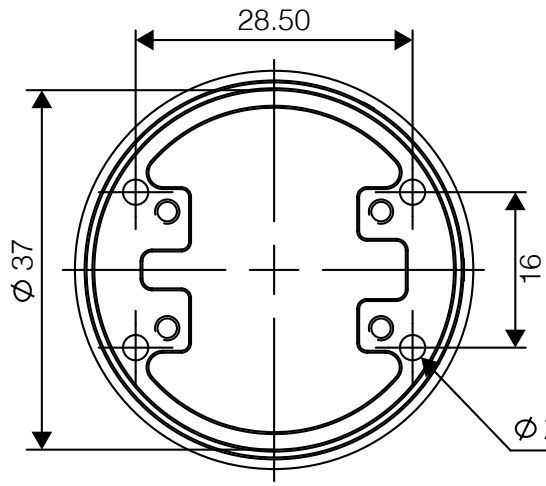


* 物品均不在保修范围以内。

部件说明

DJI SKYPORT 连接器

尺寸

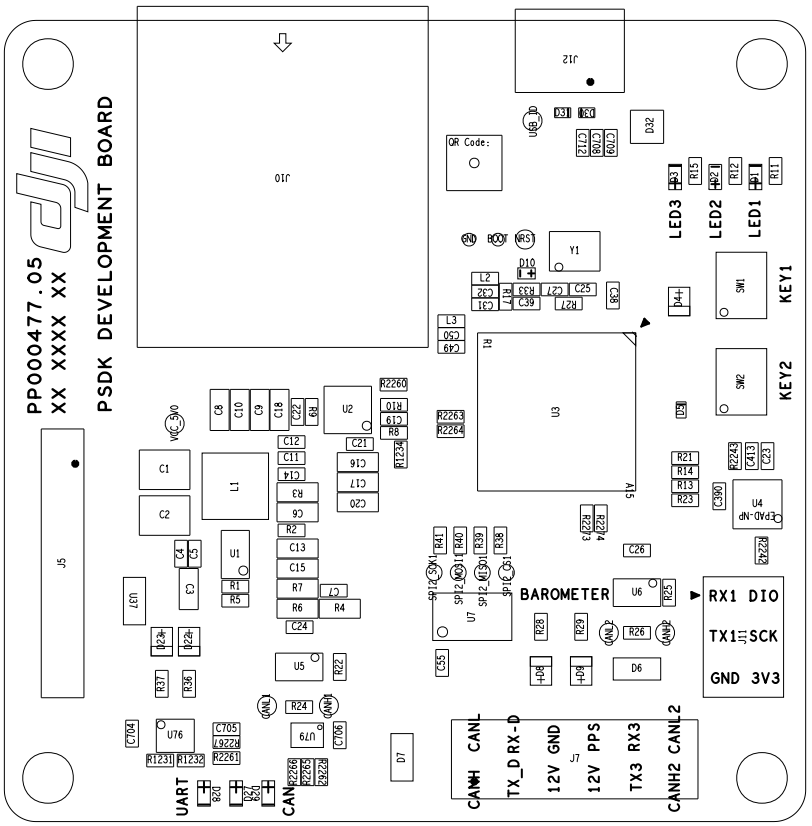


单位：mm

接口参数

接口类型	参数	说明
供电电源	12V/4A	工作峰值电流最大为 4A。
指令通信方式	UART TTL(3.3V)、CAN	用于和 SKYPORT 连接器进行指令通讯。
大数据传输	MDI 网口	可以通过网口传输码流以及用户自定义的下行数据。

Payload SDK 开发板



接口说明

接口编号	接口名称	接口说明
J5	SKYPORT	可通过同轴线连接 SKYPORT 连接器。
J7	对外测试接口	将连接 SKYPORT 接口的 UART/CAN 转成排针形式，方便用户连接通讯接口到自己的负载平台中。
J10	网口	可通过该网口传输码流和下行数据。
J11	MCU 调试接口	MCU 调试接口，可以通过调试器调试和下载单片机程序。
J12	USB 调试口	USB 调试接口，接入 PC 后可打印 LOG 以及升级固件。

使 用

功能概览

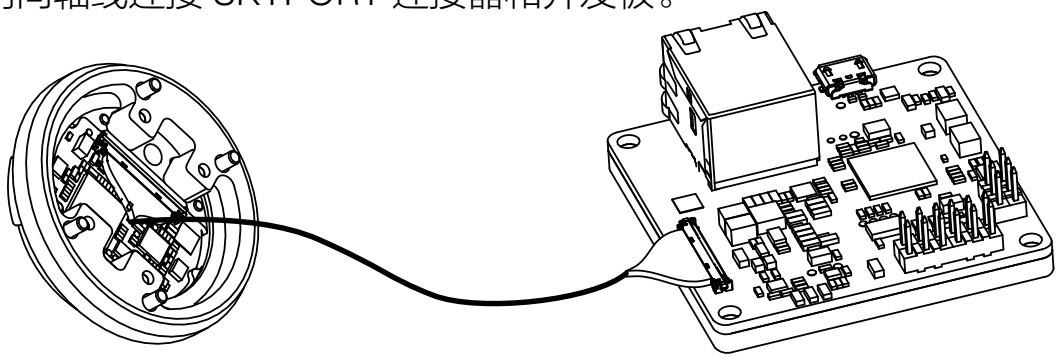
功能	说明
数据透传	通过 SKYPORT 的 UART/CAN 接口可与 Mobile SDK 透传数据。
网口功能	通过网口采用 UDP 协议透传大量下行数据。当传输指定格式的码流时，Mobile SDK 提供码流解析功能。
状态推送	推送 UAV 状态数据供负载使用，包括 GPS 信息、姿态信息、APP 时间等。
相机云台类负载接口支持	当负载为相机云台类负载时，Payload SDK 定义了一套标准的相机云台类负载接口，方便用户快速开发。
DJI Assistant 2 支持	DJI Assistant 2 提供了 SKYPORT 连接器绑定、解绑以及参数配置功能。

Mobile SDK 支持	Mobile SDK 提供与 Payload SDK 配套的接口支持
DJI Pilot 支持	DJI Pilot 提供自定义控件功能并可支持第三方开发的相机云台类负载

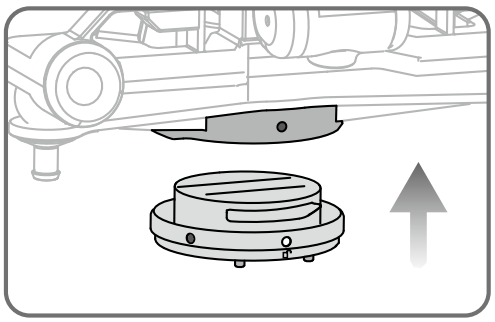
安装连线

请根据以下步骤进行安装。

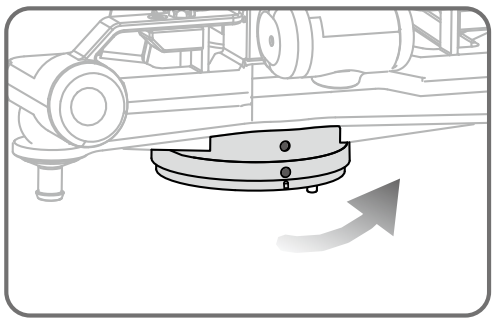
1. 使用同轴线连接 SKYPORT 连接器和开发板。



2. 安装 SKYPORT 连接器到飞行器的云台接口。



对齐 SKYPORT 连接器上的白点与飞行器云台接口红点，并嵌入安装位置。



旋转 SKYPORT 连接器至锁定位置（红点对齐），以固定 SKYPORT 连接器。

更多使用

请至网页 https://developer.dji.com/payload-sdk/ 获取详细的使用说明和更多研发支持。

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DJI 技术支持

http://www.dji.com/support

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