FS-iBTA01

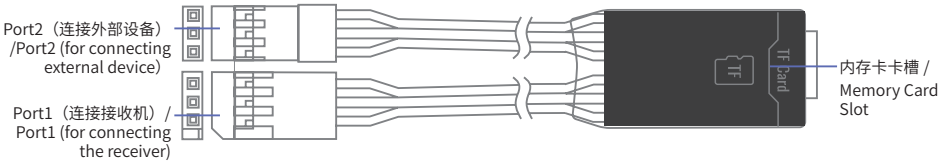
遥测适配器
Telemetry Adapter

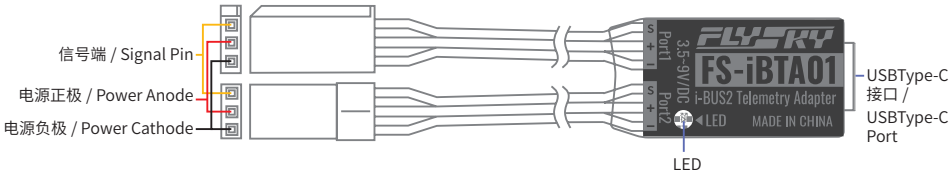
产品介绍 Introduction

FS-iBTA01 是一款基于 i-BUS2 协议的遥测适配器，可将所支持的外部设备遥测信息转换为 i-BUS2 协议信息回传到发射机端。此外遥测适配器安装内存卡后，还可以把收到的信息存储在内存卡中，实现黑匣子功能。

FS-iBTA01 is a telemetry adapter based on i-BUS2 protocol, which can convert the telemetry information of supported external devices into i-BUS2 protocol information and transmit it back to the transmitter. In addition, after the telemetry adapter is installed with a memory card, the telemetry adapter can store received information on the memory card, functioning as a black box.

概览 Overview





USB Type-C 接口用于与电脑建立连接，读取内存卡数据或更新固件。

The USB Type-C port is used to connect to a computer, read memory card data, or update firmware.

产品规格 Product Specifications

- 产品型号：FS-iBTA01
- 适配接收机：支持 i-BUS2 协议系列接收机
- 适配设备：
  好盈电调：支持具有编程接口和实时数据记录功能的电调，例如 XR8Pro、XR8plus、XR10 PRO、MAX10 G2、Platinum V4 60A、80A、120A、Platinum V5 260A 等
- 协议类型：i-BUS2
- 支持的内存卡：512M~8G
- 工作电压：3.5-9V/DC
- 外形尺寸：28*15*6mm
- 机身重量：6.8g
- 温度范围：-10° C~+60° C
- 湿度范围： 20%~95%
- 固件更新：支持

- Product Model: FS-iBTA01
- Compatible Receivers: i-BUS2 protocol series receivers
- Compatible Devices:
  HobbyWing ESCs: ESCs with real-time data recording capabilities and program port, such as XR8Pro, XR8plus, XR10 PRO, MAX10 G2, Platinum V4 60A, 80A, 120A, Platinum V5 260A, etc.
- Protocol: i-BUS2
- Supported Memory Cards: 512M~ 8G
- Operating Voltage: 3.5-9V/DC
- Dimensions: 28*15*6mm
- Weight: 6.8g
- Temperature Range: -10° C~+60° C
- Humidity Range: 20%~95%
- Firmware Update: Yes

安装说明 Installation

遥测适配器安装

FS-iBTA01 遥测适配器安装步骤如下：

1. 使用 3M 贴将遥测适配器固定在模型的合适位置，注意固定面需平整。也可使用扎带将其捆绑在模型上，但要注意力度，避免扎带过紧损坏产品；
2. 如图所示，将遥测适配器的 Port2 与电调的编程接口连接；
3. 将 Port1 连接至接收机 Newport 接口。在与此接收机已对码的发射机端，将接收机对应的 Newport 接口协议设置为 i-BUS2，即可在发射机端查看相关信息。

注：不同应用对线材长度的要求各不相同，如需添加延长线，请留意 FS-iBTA01 的接口类型和针脚定义，具体可参考前文的 [概览] 部分描述。

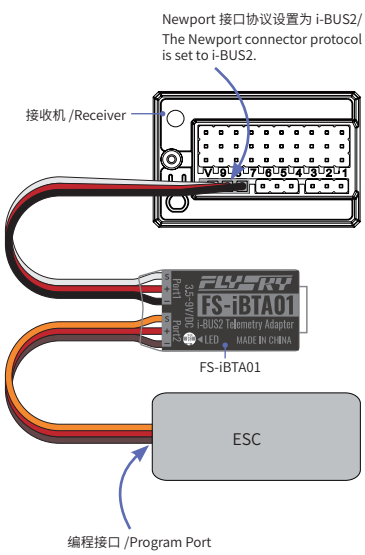
Telemetry Adapter Installation

Follow the steps below to install the FS-iBTA01:

1. Use 3M stickers to affix the telemetry adapter to the appropriate location on the model, ensuring that the surface is flat. Alternatively, you can secure it with a cable tie, but be mindful to control the tightness to avoid damage.
2. As shown in the figure, connect Port2 of the telemetry adapter to the Program Port of the ESC.
3. Connect Port1 to the Newport connector of the receiver. On the transmitter that has been bound with this receiver, set the protocol of the Newport connetor corresponding to the receiver to i-BUS2, and you can view the relevant information on the transmitter.

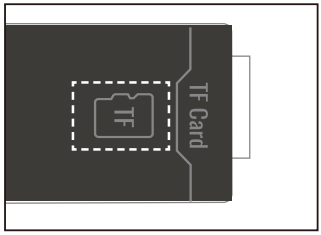
Note: Different applications have varying requirements for cable length. If you need to add an extension cable, please pay attention to the connector type of the FS-iBTA01, and refer to the pin definitions described in the previous Overview section.

连接示意图 /Connection Diagram



内存卡安装

若需要记录数据，则可自行购买内存卡，并安装到遥测适配器上。一旦安装好内存卡，遥测适配器在通电后将会自动开始记录数据。



安装内存卡

步骤如下：

如右图，依照遥测适配器上的示意图所示方向，将内存卡插入即可。

内存卡安装后，可通过 USBType-C 接口读取数据，无需拔出内存卡。

❶ 注意内存卡安装好后，用热缩套管包住内存卡，以防止振动等导致内存卡脱落。

取出内存卡

本遥测适配器不支持弹出的卡槽，取出内存卡步骤如下：

需先剪开热缩套管，然后借助镊子等工具取出内存卡。

Memory Card Installation

If you need to record data, you can purchase a memory card and install it into the telemetry adapter. Once the memory card is installed, the telemetry adapter will automatically start recording data upon power-up.

Memory Card Installation

The steps are as follows:

As shown in the diagram on the top right, insert the memory card into the telemetry adapter in the direction indicated.

After the memory card is installed, data can be read via the USB Type-C conncetor without removing the memory card.

❶ Note that after the memory card is installed, it should be covered with a heat shrink tube to prevent detachment due to vibrations or other impacts.

Removing the Memory Card

This telemetry adapter does not support an ejectable card slot. The step to remove the memory card is as follows:

First, cut open the heat shrink tube, then use tools such as tweezers to remove the memory card.

功能说明 Function Description

遥测适配器功能

FS-iBTA01 能够回传接入设备的相关信息。如果接入了电调设备，可以在发射机端查看回传的电调参数，包括电压、电流、转速、油门、已用电量、电调温度、电机温度以及电调状态。连接参考 [遥测适配器安装] 部分描述。

黑匣子功能

内存卡安装后，内存卡可以记录发射机通电后的通道数据和设备回传的实时数据等信息。每次发射机通电并连接正常后，遥测适配器会自动在内存卡中写入数据，当记录满后会自动删除较早的记录数据。

下载数据记录文件

1. 先将遥测适配器通过 Type-C 接口与电脑连接；
2. 须先将存于内存卡的资料拷贝到电脑里，然后在电脑端查看相关信息（打开“此电脑 > 设备和驱动器 >U 盘”）；
3. 数据记录文件存放在 BB-DATA 目录里。

数据记录文件说明

请选择合适的数据分析工具分析这些数据（文档中使用逗号隔开字段，使用分段隔开记录行）。记录文件为 TXT 文档，其中以 BC 命名的 TXT 文件表示控制数据，BD 表示回传数据。

以“BC001-1”为例：

“BC”表示控制数据，文件中记录通道数据信息；

“001”表示通电次数，数字顺次递增，到达记录极限后自动删除最早记录，并重新开始。

“-1”表示遥测适配器通电后记录的第一个文件，如记录多个文件则会有“-2”、“-3”等 (文件记录已满或接口通信断开会产生新文件)。

后续三位数字相同的文件属于同一次通电记录的数据，如“BC001-1”和“BD001-3”。

记录文件内容说明

打开记录的 TXT 文件：

- 对于控制数据文件（BC 类），遥测适配器通电后接收机与发射机建立通信后每 20ms 记录一次通道数据，失控 3s 后停止记录，再次通信继续记录。

“BC001-1”记录的信息如下表格所示：

Time	Connect	CH1	CH2	CH3...
6.14	OK	1500us	1500us	2000us
6.16	OK	1500us	1500us	2000us
6.18	OK	1500us	1500us	2000us

Time：表示记录此组数据的时间 (s)；
Connect：表示接收机与发射机是否通信正常；
CH1-CH32：表示通道 1 至通道 32。

- 对于回传数据文件（BD 类），在通信正常的情况下，收到电调等设备回传数据时即记录一次。

Telemetry Adapter Functionality

The FS-iBTA01 is capable of transmitting information from the connected device. If an electronic speed controller (ESC) device is connected, the telemetry parameters of the ESC can be viewed on the transmitter end, including voltage, current, speed, throttle, used power, ESC temperature, motor temperature, and ESC status. For connection details, refer to the Telemetry Adapter Installation section.

Black Box Functionality

The memory card, once installed, can record channel data after the transmitter is powered on and real-time data returned by the device. Each time the transmitter is powered on and connected normally, the telemetry adapter will automatically write data to the memory card, and when the recording is full, it will automatically delete the older recorded data.

To Download Data Records

1. Connect the telemetry adapter to the computer via the Type-C connector.
2. You must first copy the data stored in the memory card to the computer, and then view the relevant information on the computer (open "This Computer> Devices and Drives> USB Drive").
3. The data records are stored in the BB-DATA directory.

Data Record File Description

Use the appropriate data analysis tools to analyze these data (the document uses commas to separate fields and use segments to separate record lines). The record files are in TXT format, in which the TXT file named BC represents control data, and BD represents return data.

Taking "BC001-1" as an example:

"BC" represents control data, and the file records channel data information;

"001" indicates the number of times the power is turned on, with the number increasing sequentially. When the recording limit is reached, the earliest record is automatically deleted, and the count restarts.

"-1" represents the first file recorded after the telemetry adapter is powered on. If multiple files are recorded, there will be "-2", "-3", etc(New files are generated when the file recording is full or the connector communication is disconnected).

The files with the same three subsequent digits belong to the data recorded at the same power-on, such as "BC001-1" and "BD001-3".

Description of the Record File Content

When opening the recorded TXT file:

- For the control data file (BC type), after the telemetry adapter is powered on, the receiver and the transmitter establish communication and record the channel data every 20ms. Recording stops after 3 seconds of out-of-control and resumes when communication is re-established.

The information recorded in "BC001-1" is shown in the following table:

Time	Connect	CH1	CH2	CH3...
6.14	OK	1500us	1500us	2000us
6.16	OK	1500us	1500us	2000us
6.18	OK	1500us	1500us	2000us

Time: Indicates the time (in seconds) at which this set of data was recorded; Connect: Indicates whether the communication between the receiver and the transmitter is normal; CH1-CH32: Represents channels 1 through 32.

FS-iBTA01

遥测适配器
Telemetry Adapter

功能说明 Function Description

“BD001-1”记录的信息如下表格所示（连接电调）：

Time	Voltage(电压)	Current(电流)	Revolution(转速)	Power(功率)	Cons. Capacity(消耗容量)	Run Time(运行时间)	Condition(工作状态)	Temperature(温度)	Throttle(油门)	Motor Temperature(电机温度)
6.14	16.3V	0.0A	0rpm	0W	0mAh	0h0m0s	0	26°	0%	26°
6.54	16.3V	0.0A	0rpm	0W	0mAh	0h0m0s	0	26°	0%	26°
6.94	16.3V	0.0A	0rpm	0W	0mAh	0h0m0s	0	26°	0%	26°

Time：表示记录此组数据的时间 (s)；不同电调支持回传的参数项可能略有差异。

- For the feedback data file (BD type), under normal communication conditions, it is recorded once when the feedback data is received from the ESC and other equipment.

"BD001-1" records the information as shown in the following table (connected to the ESC):

Time	Voltage	Current	Revolution	Power	Cons. Capacity	Run Time	Condition	Temperature	Throttle	Motor Temperature
6.14	16.3V	0.0A	0rpm	0W	0mAh	0h0m0s	0	26°	0%	26°
6.54	16.3V	0.0A	0rpm	0W	0mAh	0h0m0s	0	26°	0%	26°
6.94	16.3V	0.0A	0rpm	0W	0mAh	0h0m0s	0	26°	0%	26°

Time: Indicates the time (in seconds) at which this set of data was recorded; The supported return parameter items may vary slightly among different ESCs.

LED 灯 LED Indicator

LED 灯用于指示遥测适配器的状态，具体如下：

- 遥测适配器正常工作时，LED 灯常亮；
- 当遥测适配器已连接电源但未检测到 i-BUS2 信号时，LED 灯会慢闪；
- 如果遥测适配器已连接电源并检测到 i-BUS2 信号，但未检测到接入设备，此时 LED 灯 1 亮 1 灭 1 亮 1 长灭；
- 当遥测适配器等待固件更新（USB Type-C 接口已与电脑连接）时，LED 灯 1 长亮 1 灭；
- 遥测适配器固件更新中，此时 LED 灯快闪。

The LED indicates the status of the telemetry adapter, as follows:

- When the telemetry adapter is working normally, the LED is soild on.
- When the telemetry adapter is connected to power but has not detected an i-BUS2 signal, the LED will flash slowly.
- If the telemetry adapter is connected to power and has detected an i-BUS2 signal, but has not detected a connected device, the LED will work in a 1-on-1-off-1-on-1-long off state repeatedly.
- When the telemetry adapter is waiting for firmware update (USB Type-C connector is connected to a computer), the LED will work in a 1-long on-1-off state repeatedly.
- During the firmware update of the telemetry adapter, the LED will flash rapidly.

固件更新 Firmware Update

本遥测适配器支持固件更新。具体步骤如下：

1. 在电脑端下载最新的官方固件程序并打开它；
2. 使用 USB Type-C 线将电脑与遥测适配器连接起来，此时 LED 灯 1 长亮 1 灭；
3. 点击 [Update] 后开始更新，此时 LED 灯快闪；
4. LED 灯由快闪变为 1 长亮 1 灭，固件更新完成。

注：在更新遥测适配器的固件时，必须先在电脑端打开固件程序，然后再将遥测适配器与电脑连接。若顺序相反，固件程序将无法识别遥测适配器，这将导致固件无法正常更新。

This telemetry adapter supports firmware updates. The specific steps are as follows:

1. Download the latest official firmware program on your computer and open it.
2. Connect your computer to the telemetry adapter using a USB Type-C cable. At this time, the LED will work in a 1-long on-1-off state repeatedly.
3. Click Update to start the update process. At this time, the LED will flash quickly.
4. The LED state will change from flashing quickly to 1-long on-1-off, indicating that the firmware update is complete.

Note: When updating the firmware of the telemetry adapter, you must first open the firmware program on the computer and then connect the telemetry adapter to the computer. If the order is reversed, the firmware program will not be able to recognize the telemetry adapter, which will result in the inability to update the firmware properly.

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