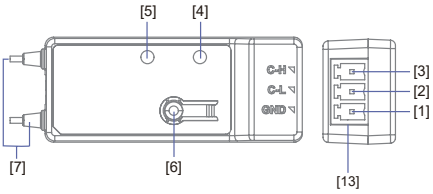
# FLYSKY FS-CAN01 接收机 Receiver

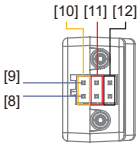
## 产品介绍 Introduction

FS-CAN01 是一款基于 ANT 协议的 CAN 总线接收机，兼具信号转换功能。其 CAN 总线协议具备抗干扰强、可靠性高、扩展性好及即插即用等特点。该产品支持与 ANT 发射机进行单向或双向对码，并通过 CAN 总线接口输出控制信号；亦可作为 CAN 信号转换器，可将其它接收机输出的 PPM/S.BUS 信号转换成 CAN 总线协议信号输出。它采用外置双天线设计，小巧易安装，可适配多种模型。

FS-CAN01 is a CAN bus receiver based on the ANT protocol, featuring signal conversion capability. Its CAN bus protocol offers strong anti-interference, high reliability, excellent scalability, and plug-and-play functionality. The product supports one-way or two-way binding with ANT transmitters and outputs control signals via the CAN bus interface. Additionally, it acts as a CAN signal converter, translating PPM/S.BUS signal from other receiver into CAN bus protocol signal for output. With a compact design and dual external antennas, it is easy to install and compatible with various RC models.

## 接收机概览 Overview




[1] GND
[2] C-L
[3] C-H
[4] Signal 灯
[5] LED 灯
[6] BIND（对码按键）
[7] 天线
[8] BIND 接口
[9] PPM/S.BUS in/VCC
[10] S ( 信号端)
[11] +（电源正极）
[12] -（电源负极）
[13] CAN 总线接口

[1] GND
[2] C-L
[3] C-H
[4] Signal Indicator
[5] LED Indicator
[6] BIND (Binding Button)
[7] Antenna
[8] BIND Interface
[9] PPM/S.BUS in/VCC
[10] S (Signal Pin)
[11] + (Power Anode)
[12] - (Power Cathode)
[13] CAN Bus Interface

注：CAN 总线接口为 3.81mm*3Pin 排针，其额定电压 / 电流为 300V/8A，其速率范围：125Kbit/s ~1Mbit/s，默认速率为 500Kbit/s；BIND 接口和 PPM/S.BUS in/VCC 为 2.54mm*3Pin 排针。

Note:

- CAN Bus Interface: Uses a 3-pin connector with a 3.81 mm pitch. Rated at 300V / 8A. Supports data rates from 125 kbit/s to 1 Mbit/s (default: 500 kbit/s).
- BIND/PPM/S.BUS in/VCC Interface: Uses a 3-pin connector with a 2.54 mm pitch.

## 产品规格 Product Specifications

- 产品型号：FS-CAN01
- 适配发射机：ANT 协议发射机（如 FS-ST8）
- 适配模型：多轴、工程车、机器人
- 通道个数：
  CAN：1~18（同发射机输出通道个数）
- 波段个数：133
- 无线频率：2.4GHz ISM
- 发射功率：小于 20dBm
- 无线协议：ANT
- 通道分辨率：4096 级
- 天线类型：双天线
- 遥控距离：> 300 米（空旷无干扰地面距离）
- 工作电压：4.5~12V/DC
- 数据输出：CAN
- 固件更新：支持
- 温度范围：-10°C ～ +60°C
- 湿度范围：20% ～ 95%
- 防水等级：PPX4
- 外形尺寸：49*20*13.8mm
- 机身重量：11g
- 认证：CE，FCC ID: 2A2UNCAN0100

- Product Model: FS-CAN01
- Compatible Transmitters: Transmitters with ANT protocol, such as FS-ST8
- Compatible RC Models: Multicopters, engineering vehicles, robots
- Number of Channels:
  CAN Bus Interface output: 1-18 (Equals the transmitter's output Ch. count)
- Number of Bands：133
- RF: 2.4GHz ISM
- Maximum Power: < 20dBm (e.i.r.p.) （EU）
- RF Protocol: ANT
- Resolution: 4096
- Antenna: Two antennas
- Distance: More than 300m (Ground distance without interference)
- Operating Voltage: 4.5~12V/DC
- Data Output: CAN
- Firmware Update: Supported
- Temperature Range: -10°C ~ +60°C
- Humidity Range: 20% ~ 95%
- Waterproof: PPX4
- Dimensions: 49*20*13.8mm
- Weight: 11g
- Certifications: CE, FCC ID: 2A2UNCAN0100

## 指示灯 LED Indicator

FS-CAN01 配备 Signal 灯和 LED 灯两个指示灯。

**LED 灯（红色）**

用于指示与发射机通讯状态。具体如下所述：

- LED 灯常亮：表示与发射机通信正常。
- LED 灯 3 闪 1 灭：表示进入强制更新状态或固件更新中。
- LED 灯快闪：表示正在对码。

The FS-CAN01 is equipped with two indicator lights: a Signal Indicator and an LED Indicator.

**LED Indicator (Red)**

This LED indicates the communication status with the transmitter, as detailed below:

- Solid On: Normal communication with the transmitter is established.
- Three-flash-one-off: FS-CAN01 is in forced-update mode, or a firmware update is in progress.
- Rapid Flashing: Binding is in progress.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## 指示灯 LED Indicator

- LED 灯慢闪：表示未与发射机通信或掉码。

**Signal 灯**

用于指示 FS-CAN01 是否输入信号及具体信号等信息。具体如下所述：

| Signal 灯状态 | 表示信息 |
|---|---|
| 蓝色，闪 2 次后熄灭 | 输入 S.BUS 信号 |
| 黄色，闪 2 次后熄灭 | 输入 PPM 信号 |
| 熄灭 | 无信号输入 |
| 绿色，闪 3 次后熄灭 | CAN 信号转换器模式 |
| 红色，闪 3 次后熄灭 | 接收机模式 |

- Slow Flashing: No communication with the transmitter, or the signal is lost.

**Signal Indicator**

It indicates the presence and details of the input signal to the FS-CAN01, as described below.

| Signal Indicator Status | Presentation Information |
|---|---|
| Blue, flashes twice then off | S.BUS signal input |
| Yellow, flashes twice then off | PPM signal input |
| Off | No signal input |
| Green, flashes three times then off | CAN signal converter mode |
| Red, flashes three times then off | Receiver mode |

## 功能介绍 Function Description

FS-CAN01 支持接收机模式和 CAN 信号转换器模式两种工作模式。出厂默认接收机模式。

**模式切换**

接收机模式切换为 CAN 信号转换器模式：

在通电状态下，长按 BIND（持续时间介于 5 至 10 秒之间），随后松开，此时 Signal 灯将亮起绿色并闪烁 3 次后熄灭，表示系统已成功切换至 CAN 信号转换器模式。**注意与发射机对码 / 通信过程中无法切换。**

CAN 信号转换器模式切换为接收机模式：

在通电状态下，长按 BIND （持续时间介于 5 至 10 秒之间），松随后开，此时 Signal 灯将亮起红色并闪烁 3 次后熄灭，表示系统已成功切换至接收机模式。**注意 CAN 信号转换器模式正在进行数据输入 / 输出时，禁止切换。**

注：

1. CAN 信号转换器模式下，不能进行对码；
2. CAN 信号转换器模式切换成接收机模式后，无需与原对码发射机重新对码；
3. 关机时，系统会保存当前模式设置。

**功能相关**

接收机模式下，与 ANT 协议的发射机完成对码通信后，可接收发射机输出的 PPM/S.BUS 信号，转为 CAN 总线协议信号输出。

当作为 CAN 信号转换器使用时，只需将 FS-CAN01 的 PPM/S.BUS in/VCC 接口，连接至其他接收机的 PPM/S.BUS 输出接口，即可将接收到的 PPM/S.BUS 信号，转为 CAN 总线协议信号输出。

FS-CAN01 features two operating modes: Receiver Mode and CAN Signal Converter Mode. The factory default is Receiver Mode.

**Mode Switching**

Receiver → CAN Signal Converter

With FS-CAN01 powered, press and hold BIND for 5–10 s, then release. The signal indicator will light green, flash three times then off; the device is now in CAN Signal Converter Mode. **Note: Mode switching is disabled during the binding process or while communicating with a transmitter.**

CAN Signal Converter → Receiver

With FS-CAN01 powered, press and hold BIND for 5–10 s, then release. The signal indicator will light red, flash three times then off; the device is now in Receiver Mode. **Note: Mode switching is prohibited while CAN data is being transmitted.**

Notes:

1. Binding is not possible while in CAN Signal Converter Mode.
2. No re-binding is required when switching back to Receiver Mode; the device will reconnect to the previously bound transmitter automatically.
3. The current operating mode is retained after power-off.

**Function Overview**

In receiver mode, after completing the binding and communication with an ANT protocol transmitter, it can receive the PPM/S.BUS signal output from the transmitter and convert it into a CAN bus protocol signal for output.

When used as a CAN signal converter, simply connect the PPM/S.BUS in/VCC interface of the FS-CAN01 to the PPM/S.BUS output interface of other receiver. The received PPM/S.BUS signal will then be converted and output as a CAN bus protocol signal.

## 对码 Binding

FS-CAN01 支持双向对码和单向对码，双向对码完成后发射机将显示接收机回传的信息。

**双向对码步骤：**

1. 发射机选择双向通信，然后进入对码状态；
2. FS-CAN01 支持三种方式进入对码状态：按键对码、对码线对码和通电后按键对码
   - 按键对码：按住 BIND（对码按键）同时通电，LED 灯快闪表示进入对码状态，松开对码键；
   - 对码线对码：BIND 接口连接对码线后上电，LED 灯快闪，进入对码状态。注意对码成功后需取下对码线；
   - 通电后按键对码：通电后未与发射机通信过，长按 BIND 3 秒，LED 灯快闪表

FS-CAN01 supports two-way binding and one-way binding. The transmitter will display the information returned from the receiver after the two-way binding is completed.

Follow the steps below to bind in two-way binding:

1. Set 2WAY for RF standard of the transmitter, then put the transmitter into binding mode.
2. FS-CAN01 supports three ways to enter bind mode: BIND button binding, bind cable binding and BIND button binding after power-on.
   - BIND button binding: Power on the FS-CAN01 while holding down the BIND button; the LED indicator will start flashing rapidly to show it has entered binding mode. Then release BIND.
   - Binding cable binding: Insert the binding cable to the BIND interface, then power on the FS-CAN01. The LED indicator will start flashing rapidly to show it has entered binding mode. Note that you need to remove the binding cable from the receiver after the binding process is completed.


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## 对码 Binding

示进入对码状态，松开对码键。

3. LED 灯常亮，即对码成功（发射机对码成功后自动退出对码状态）；
4. 检查发射机、FS-CAN01 是否正常工作。如需重新对码，请重复以上步骤。

单向对码步骤：

1. 发射机选择单向通信，然后进入对码状态；
2. FS-CAN01 进入对码状态（进入对码状态的方式请参考双向对码时描述）；
3. LED 灯变为慢闪后将发射机退出对码状态，此时 LED 灯常亮，表示对码成功；
4. 检查发射机、FS-CAN01 是否正常工作。如需重新对码，请重复以上步骤。

注：对码时先将发射机进入对码状态，再将 FS-CAN01 进入对码状态。

- Binding after power-on (BIND button): FS-CAN01 has not been connected to the transmitter when it is powered on. Press and hold the BIND button for 3 seconds, the LED indicator will start flashing rapidly to show it has entered binding mode.

3. When the LED indicator is solid on, the binding process is completed. The transmitter will exit the binding mode automatically.
4. Confirm that the transmitter and the FS-CAN01 are operating correctly; if not, repeat the steps above.

Follow the steps below to bind in one-way binding:

1. Set 1WAY for RF standard of the transmitter, then put the transmitter into binding mode.
2. Put the FS-CAN01 into binding mode (Refer to the description above).
3. After the LED indicator becomes slow flashing, then put the transmitter to exit the binding state. At this time, the LED indicator is solid on, indicating the binding is successful.
4. Confirm that the transmitter and the FS-CAN01 are operating correctly; if not, repeat the steps above.

Note: First set the transmitter to binding mode, then set the FS-CAN01 to binding mode.

## 固件更新 Firmware Update

FS-CAN01 可通过富斯遥控管家（FlySkyAssistant）完成（仅 3.0 及以后版本支持，富斯遥控管家固件可从官网 www.flyskytech.com 获取）。可以通过以下两种方式进入更新：

方式一：先将发射机与 FS-CAN01 对码后（LED 灯常亮），再将发射机与电脑连接，然后在电脑端打开富斯遥控管家，通过富斯遥控管家完成固件更新。

方式二：首先将发射机连接到电脑，然后按照以下两种方式使 FS-CAN01 进入强制更新状态（LED 灯状态为 3 闪 1 灭）：

- 按下 BIND，上电 10 秒钟后 LED 灯状态 3 闪 1 灭，松开 BIND。
- 先给 FS-CAN01 上电，长按 BIND 10 秒后 LED 灯状态 3 闪 1 灭，松开 BIND。

完成上述步骤后，在电脑端打开富斯遥控管家软件，通过该软件完成固件的强制更新。强制更新完成后，其 LED 灯将由 3 闪 1 灭状态变为慢闪状态。

The firmware update for FS-CAN01 must be completed through FlySkyAssistant. Please note that only versions 3.0 and later of FlySkyAssistant support this operation, and the relevant firmware can be downloaded from the official website www.flysky-cn.com. The update process can be carried out in two ways:

Method Ⅰ: First, complete the binding between the transmitter and FS-CAN01 (the LED indicator is solid on), then connect the transmitter to the computer. Open FlySkyAssistant on the computer and perform the firmware update through the software.

Method Ⅱ: First, connect the transmitter to the computer, then follow these steps to put FS-CAN01 into forced update mode (the LED indicator will operate in a three-flash-one-off mode repeatedly):

- While holding BIND, power on the FS-CAN01. Keep holding for about 10 seconds until the LED enters in a three-flash-one-off mode repeatedly, then release the BIND button.
- Power on the FS-CAN01 first. Then press and hold the BIND button for about 10 seconds until the LED operates in a three-flash-one-off mode repeatedly, then release.

After completing the above steps, open FlySkyAssistant on your computer and complete the forced firmware update through the software. Once the forced update is completed, the LED indicator will change from the three-flash-one-off state to a slow flashing state.

**作为接收机模式时注意事项：**

- 使用前必须确保本产品与模型安装正确，否则可能导致模型发生严重损坏。
- 为了一切正常，请养成先开发射机再接收机通电以及先接收机断电再关闭发射机的习惯。
- 确保接收机安装在远离电机，电子调速器或电子噪声过多的区域。
- 接收机天线需远离导电材料，例如金属棒和碳物质。为了避免影响正常工作，请确保接收机天线和导电材料之间至少有 1 厘米以上的距离。
- 准备过程中，请勿连接接收机电源，避免造成不必要的损失。

**Attention:**

- Make sure the product is installed and calibrated correctly, failure to do so may result in serious injury.
- Normally, you must power on the transmitter and then receiver, and power off the receiver and then the transmitter.
- Make sure the receiver is mounted away from motors, electronic speed controllers or any device that emits excessive electrical noise.
- Keep the receiver's antenna at least 1cm away from conductive materials such as carbon or metal.
- Do not power on the receiver during the setup process to prevent loss of control.


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## 认证相关 Certification

**FCC Compliance Statement**
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Warning: changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-- Reorient or relocate the receiving antenna.
-- Increase the separation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.

**EU DoC Declaration**
Hereby, [ShenZhen FLYSKY Technology Co., Ltd.] declares that the Radio Equipment [FS-CAN01] is in compliance with RED 2014/53/EU.
The full text of the EU DoC is available at the following internet address: www.flyskytech.com/info_detail/10.html

**RF Exposure Compliance**
This equipment complies with FCC/ISED RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

**Environmentally friendly disposal**
Old electrical appliances must not be disposed of together with the residual waste, but have to be disposed of separately. The disposal at the communal collecting point via private persons is for free. The owner of old appliances is responsible to bring the appliances to these collecting points or to similar collection points. With this little personal effort, you contribute to recycle valuable raw materials and the treatment of toxic substances.

FCC ID: 2A2UNCAN0100

微信公众号 Bilibili Website Facebook

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