

Shenzhen Launston Technology Co., Ltd.

PRODUCT MANUAL

GNC-FPV

FPV Video & Data Fiber-Optic Transmission Module

FPV 视频数据光纤传输模块

1 fiber = 1 video + 1 TTL | Up to 100 km range | PAL/NTSC/SECAM | DC 5–25 V wide input | Plug & play | 49×29×12 mm

Product Model: GNC-FPV | Version: V1.0 | Date: 2026.06

© 2026 All Rights Reserved.

1. Overview

The GNC-FPV series drone fiber-optic module adopts an advanced design for more reliable, better transmission performance. A single optical fiber simultaneously transmits one video channel and one TTL data channel, making it a highly reliable, cost-effective long-distance optical transmission device. It is available in sky-end (transmit, T) and ground-end (receive, R) units.

2. Product Features

- Plug and play — no configuration required.
- Customizable per customer needs: video, CRSF, SBUS and other signals transmitted over fiber.
- Video interface: SH1.0 connector.
- Video input/output impedance 75 Ω (unbalanced); video bandwidth 6.25 MHz; compatible with PAL, NTSC, SECAM.
- Video level: 1 Vp-p; video SNR 70 dB; suitable for analog and CVBS cameras.
- Control-signal data bandwidth: 0–500 kbps.
- Optical interface: standard FC connector.
- Voltage: default DC 5–25 V wide input; customizable on request.

3. Technical Specifications

Category	Parameter	Specification
Video	Interface	SH1.0 ribbon
Video	Channels	1
Video	Format	CVBS, PAL, NTSC
Video	Sampling / encoding	8 bit
Video	Input/output level	1 Vp-p
Video	Input bandwidth	5 Hz – 6.25 MHz
Video	Differential gain	$\leq 1.5\%$
Video	Differential phase	$\leq 1.5^\circ$
Video	SNR	> 67 dB
TTL	Interface	MX-SH1.0 ribbon
TTL	Bandwidth	0–500 kbps, supports SBUS / CRSF
TTL	Input/output level	0–3.3 V
TTL	Channels	1 bidirectional
Optical	Connector type	FC
Optical	Wavelength	1310 / 1550 nm
Optical	Tx power (20 km)	-7 ~ -1 dBm
Optical	Tx power (40 km)	-6 ~ 0 dBm
Optical	Tx power (60 km)	-3 ~ +3 dBm
Optical	Tx power (80 km)	0 ~ +5 dBm
Optical	Tx power (100 km)	+5 ~ +8 dBm
Optical	Receiver sensitivity	-33 dBm
Optical	Transmission distance	Single-mode 20/40/60/80/100 km
Power	Input voltage	DC 5–25 V
Environment	Operating temperature	-25 ~ +75 $^\circ\text{C}$
Environment	Storage temperature	-40 ~ +80 $^\circ\text{C}$
Environment	Humidity (non-condensing)	0–95% RH
Mechanical	Dimensions (L×W×H)	49 × 29 × 12 mm

Mechanical	Weight	Sky end: 16 g; Ground end: 16 g
------------	--------	---------------------------------

4. Interface Definition

Figure 2 shows the fiber module connection diagram.

Signal	Description
GND	Power ground
VCC	Power + (DC 5–25 V)
Video In/Out	Video signal input / output
TTL In/Out	TTL data signal input / output (bidirectional)

5. LED Indicators

Indicator	Status description
Optical-link LED	Off when fiber link is broken; on when link is established
Power LED	On when powered; off when unpowered
Video LED	On when a normal video signal is present
TTL LED	Steady on or blinking when a normal TTL signal is present

Figures / Illustrations

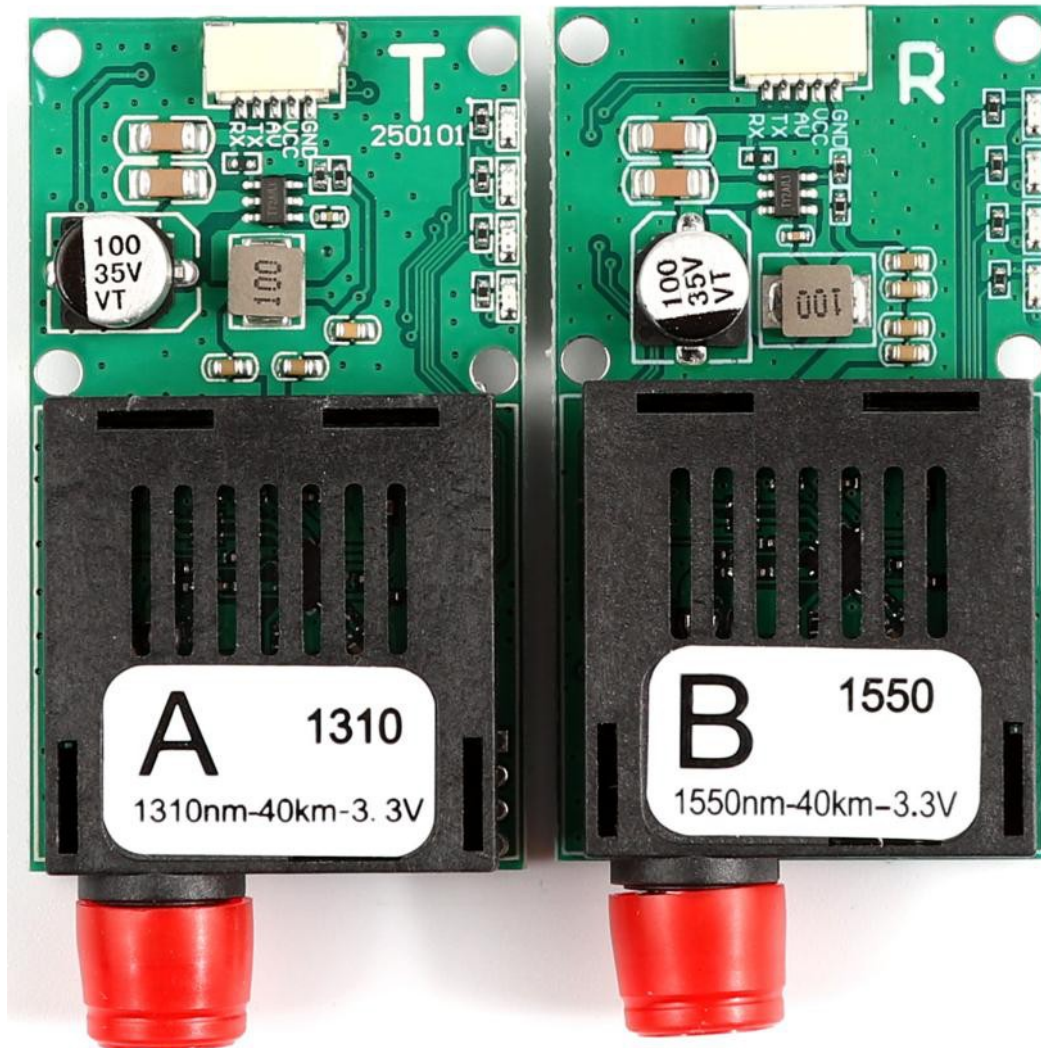


Figure 1 — original illustration from the Chinese manual (replace/remove as needed)

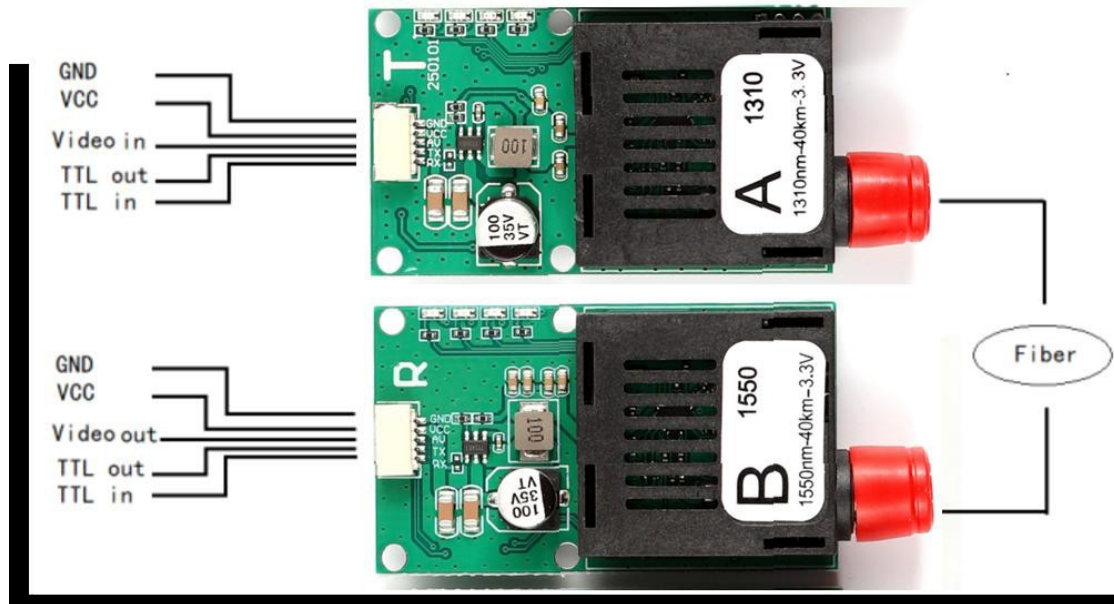


Figure 2 — original illustration from the Chinese manual (replace/remove as needed)

Contact

Shenzhen Launston Technology Co., Ltd. — mmWave radar modules since 2012.

Email: launston@launstontech.com

Note: Figures are reproduced from the original Chinese manual. Replace or remove as needed before publication.

FPV 视频数据光纤传输模块

产品规格书 / Product Specification

型号: GNC-FPV

深圳朗斯顿科技有限公司

2026 年 6 月

► 概述 Overview

该系列无人机光纤模块采用先进的设计方案，传输性能更可靠、效果更好。可使用一根光芯同时传输 1 路视频信号和 1 路 TTL 信号，是一种可靠性高、性价比好的远距离光传输设备。

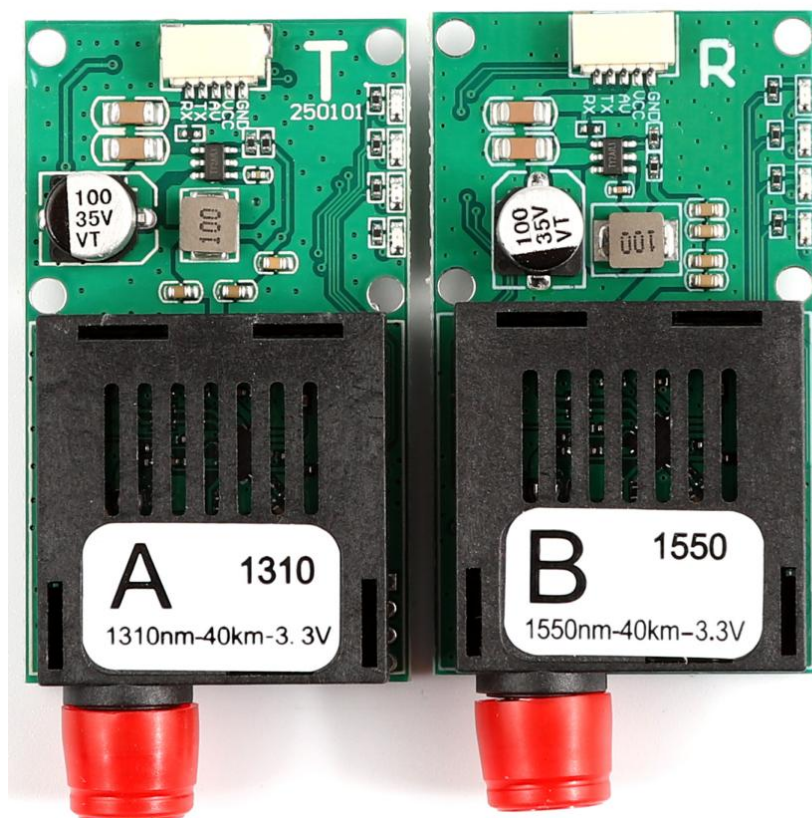


图 1: 光纤模块产品实物图 (天空端发射端 T / 地面端接收端 R)

► 产品特点 Product Features

- 即插即用，无需设置
- 可根据用户需求定制，视频、CRSF、SBUS 等信号通过光纤传输
- 视频接口：SH1.0 端子
- 视频输入/输出阻抗 75Ω （非平衡），视频带宽 6.25MHz，兼容 PAL、NTSC、SECAM 视频格式
- 视频电压：1VP-P，视频信号信噪比 70dB，适用摄像头：模拟摄像头、CVBS 摄像头

- 控制信号数据带宽：0-500Kbps
- 光纤接口：FC 标准接口
- 电压：默认支持 DC 5V-25V 宽电压输入，可根据要求定制

► 产品参数 Technical Specifications

类别	参数	规格
视频	视频接口	排线 SH1.0
	视频通道数	1 路
	视频制式	CVBS、PAL、NTSC 视频
	采样编码	8bit
	输入输出信号电压	1Vp-p
	输入带宽	5Hz-6.25MHz
	微分增益	≤1.5%
	微分相位	≤1.5°
	信噪比	>67dB
TTL	TTL 接口	排线 MX-SH1.0
	带宽	0-500kbps, 支持 SBUS/CRSF
	输入输出电压	0 ~ 3.3V
	通道数	1 路双向
光接口	类型	FC
	波长	1310/1550nm
	发射功率	20KM: -7dBm ~ -1dBm
	发射功率	40KM: -6dBm ~ 0dBm
	发射功率	60KM: -3dBm ~ +3dBm
	发射功率	80KM: 0dBm ~ +5dBm
	发射功率	100KM: +5dBm ~ +8dBm
	接收灵敏度	-33dBm
	传输距离	单模 20KM/40KM/60KM/80KM/100KM
电源	电压输入范围	DC 5-25V
环境	工作温度	-25℃ ~ +75℃
	存储温度	-40℃ ~ +80℃
	湿度（无凝结）	0 ~ 95%RH
尺寸	尺寸（长×宽×高）	49mm × 29mm × 12mm
重量	重量	天空端：16g，地面端：16g

► 接口定义 Interface Definition

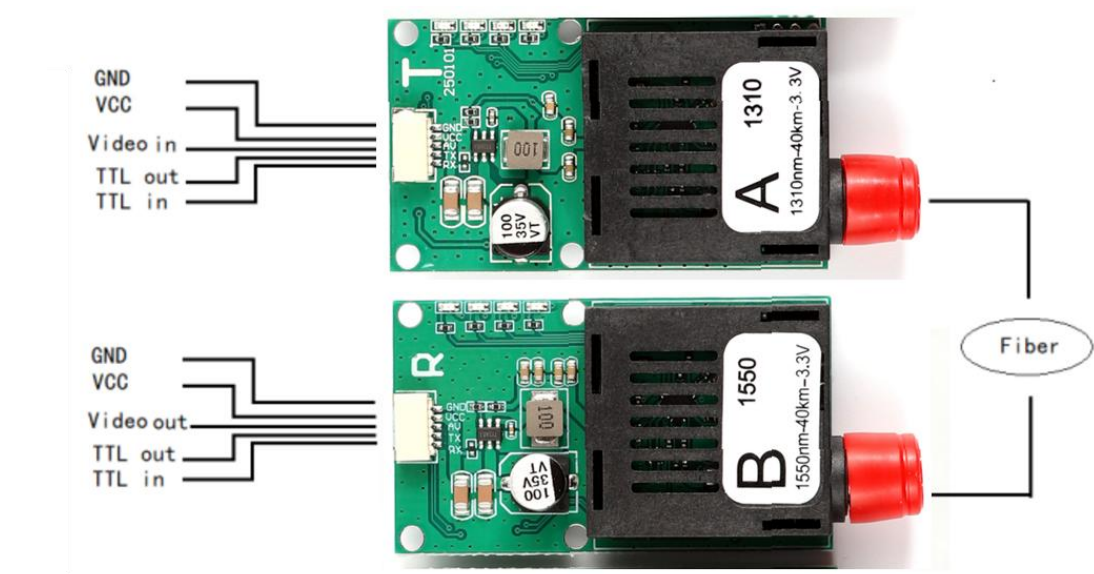


图 2: 光纤模块连接示意图

接口引脚定义:

信号名称		功能说明
GND		电源地
VCC		电源正极 (DC 5-25V)
Video In/Out		视频信号输入/输出
TTL In/Out		TTL 数据信号输入/输出 (双向)

► 指示灯工作状态 LED Indicators

指示灯	状态说明
光链路指示灯	光纤链路断开时 LED 灯灭, 光纤链路连上时 LED 灯亮
电源指示灯	通电时为亮, 不通电时为灭
视频指示灯	接入视频信号正常时, 指示灯亮
TTL 指示灯	接入 TTL 信号正常时, 常亮或闪烁