ELRS DUAL 分集接收机

使用说明书

V1.4

产品简介

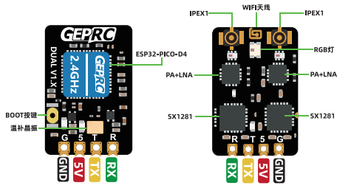
GEPRC ELRS DUAL 分集接收机是基于ExpressLRS开源项目所研发的新一代真双天线分集接收机系统。ExpressLRS具有长距离操控，低延时，最高1000Hz刷新率，价格便宜等特点。

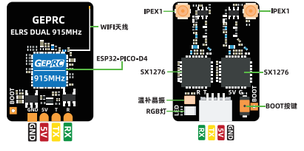
GEPRC ELRS DUAL 分集接收机相比普通的单天线接收机系统，其双天线的合理摆放可使信号的接收面更广，连接更稳定；使用TCXO温度补偿晶体振荡器，无惧温度变化造成的频率偏移；回传功率最高可达100mW。

基本参数

产品名称	ELRS DUAL 2.4G 分集接收机	ELRS DUAL 915M 分集接收机
尺寸	20x14x3.2mm	18x25x5.5mm
重量	1.2g	1.7g
芯片	ESP32-PICO-D4, SX1281	ESP32-PICO-D4, SX1276
晶振	温补晶振	温补晶振
工作频段	2.4GHz ISM	915MHz FCC/868MHz EU
刷新率	25Hz-1000Hz	25Hz-200Hz
工作电压	5V	5V
天线接口	ipex1	ipex1
指示灯	彩色RGB灯	彩色RGB灯
TLM功率	100mW	50mW
固件	GEPRC True Diversity 2.4GHz RX	GEPRC True Diversity 900MHz RX

接收机示意图





状态灯含义

指示灯颜色	LED灯状态	含义
彩虹	渐变	启动中
绿色	快闪	WIFI模式
红色	快闪	未检测到射频芯片
橙色	双闪	对频状态
橙色	三闪	已对上频，但与模型匹配中的设置不一样
橙色	慢闪	无发射机信号
	常亮	已连接，颜色代表不同的刷新率

2.4G刷新率对应的RGB颜色

其中F1000和F500是工作在FLRC模式下的刷新率，相比LoRa模式，它可以提供更快的信号调制和更低的延时，但相比普通的LoRa模式接收距离会缩短，适合用于竞速飞行的场景；

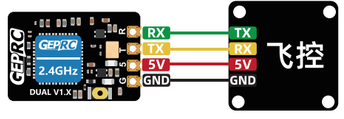
D500和D250是工作在DVDA (Déjà Vu Diversity Aid)模式下的刷新率，DVDA模式是在FLRC模式1000Hz刷新率的基础上，通过多次发送相同的数据包，使得在环境干扰复杂的场景下也能提供更可靠的连接；D500和D250分别代表将相同的数据包发送两次和四次。

915M刷新率对应的RGB颜色

D50是ELRS Team900的特有模式，在Lora模式的200Hz刷新率下，将相同的数据包重复发送四次；100Hz Full是在Lora模式的200Hz刷新率下实现16通道全分辨率输出的模式，接收距离与200Hz相当。

使用方法

ELRS DUAL 分集接收机和飞控连接示意图：



打开Betaflight 地面站，转到端口界面，根据焊接情况，开启对应端口的“串行数字接收机”开关(以端口2为例)，然后保存重启。

标识符	设置/MSP	串行数字接收机
USB VCP	115200	
UART1	115200	
UART2	115200	●

设置接收机模式为“串行数字接收机”，并把串行数字接收机协议设置为“CRSF”。

对频操作

ELRS DUAL 分集接收机出厂固件版本为3.x以上，3.x和2.x固件不兼容，所以对频前需要将高频头固件升级到3.x以上；

1. 接收机连续通断电三次 (间隔1秒内)；
2. 观察接收机RGB灯，由彩虹渐变启动后变为橙色双闪状态，表示接收机已进入对频状态；
3. 使用ELRS遥控器或高频头和接收机对频，待接收机RGB灯由双闪变为常亮，即对频成功。

关于ELRS

由于ExpressLRS项目更新的速度比较快，说明书中许多内容没法及时更新，更多内容欢迎访问ELRS项目库。项目库github地址：
https://github.com/ExpressLRS/ExpressLRS

产品清单

1 x ELRS DUAL 分集接收机
2 x 天线
1 x 热缩管
1 x 4pin 硅胶连接线
1 x 使用说明书

联系我们

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ELRS DUAL Diversity Receiver

User Manual

V1.4

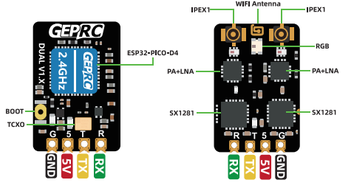
Product Introduction

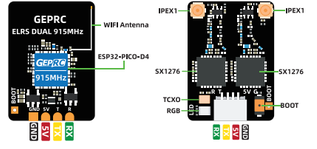
GEPRC ELRS DUAL Diversity Receiver is a new generation of true dual-antenna diversity receiver system based on the ExpressLRS open source project. ExpressLRS features long range operation, low latency, maximum 1000Hz refresh rate, and low price.
The ELRS DUAL Diversity Receiver has a reasonable placement of dual antennas for wider signal reception and more stable connection than ordinary single antenna receiver systems. It uses a TCXO temperature compensated crystal oscillator to avoid frequency shifts caused by temperature changes and the telemetry power is up to 100mW.

Specifications

Model	ELRS DUAL 2.4G Diversity Receiver	ELRS DUAL 915M Diversity Receiver
Size	20x14x3.2mm	18x25x5.5mm
Weight	1.2g	1.7g
Chips	ESP32-PICO-D4,SX1281	ESP32-PICO-D4,SX1276
Crystal oscillator	TCXO	TCXO
Frequency band	2.4GHz ISM	915MHz FCC/868MHz EU
Refresh rate	25Hz-1000Hz	25Hz-200Hz
Input voltage	5V	5V
Antenna connector	ipex1	ipex1
Indicator light	RGB light	RGB light
TLM Power	100mW	50mW
Firmware	GEPRC True Diversity 2.4GHz RX	GEPRC True Diversity 900MHz RX

Receiver diagram





LED Status indication

RGB Color	Status	Description
Rainbow	Fade effect	Power on
Green	Quick flash	WIFI upgrading mode
Red	Quick flash	No RF chip detectde
Orange	Double flash	Binding mode
Orange	Triple flash	Connected,but mismatched model-match configuration
Orange	Slow flash	Waiting for connection
	Solid on	Connected and color indicates packet rate

RGB color corresponding to 2.4G refresh rate

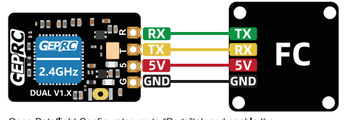
F1000 and F500 are packet rates in FLRC mode, providing faster modulation and lower latency, but at the same time having shorter reception distance than normal Lora mode. This mode is great for racers.
D500 and D250 are packet rates in DVDA (Deja Vu Diversity Aid) mode. This mode works at the F1000 data packet rate of FLRC mode, providing better link connection in the case of complex interference by sending the same data packet multiple times. D500 and D250 indicate that the same data packet is sent twice and four times respectively.

RGB color corresponding to 915M refresh rate

D50 is a unique mode of ELRS Team900. Under the 200Hz refresh rate of Lora mode, the same data packet is sent four times repeatedly. 100Hz Full achieves 16-channel full resolution output under the 200Hz refresh rate of Lora mode.

Instructions

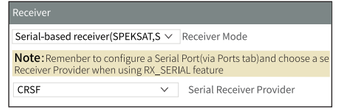
GEPRC ELRS DUAL Diversity Receiver and FC connection diagram:



Open Betaflight Configurator, go to "Ports"tab and enable the corresponding UART as a Serial Rx (e.g. UART2 as shown below). Save and restart.

Identifier	Configuration/MSP	Serial RX
USB VCP	115200	
UART1	115200	
UART2	115200	

On the"Configuration"tab, click on"Serial-based receiver"on the"Receiver"panel, and select "CRSF".



Binding

The factory firmware version of ELRS DUAL Diversity Receiver is above 3.x , 3.x and 2.x firmware are not compatible, so the TX module firmware needs to be upgraded to above 3.x before binding.
1. Power on and off the diversity receiver three times with 1 second between each interval continuously to enter the Binding Mode.;
2. RGB indicator flashes twice quickly on the diversity receiver, indicating that the receiver is now in Binding Mode.;
3. Configure remote control or transmitter module to bind with the receiver; If the receiver RGB indicator is solid on, this indicates that the receiver has successfully bound.

About ELRS

ExpressLRS project is being constantly updated - the contents of this manual cannot be kept up-to-date in time. For more information, please visit the ELRS Project official, github page:
https://github.com/ExpressLRS/ExpressLRS

Product list

1 x ELRS DUAL Diversity Receiver
2 x Antenna
1 x Heat shrink tube
1 x 4pin silicone cable
1 x Instruction manual

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