Makerfire®
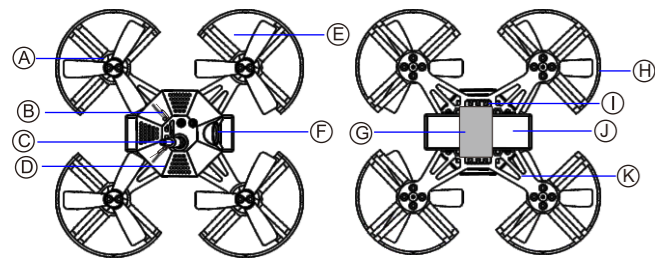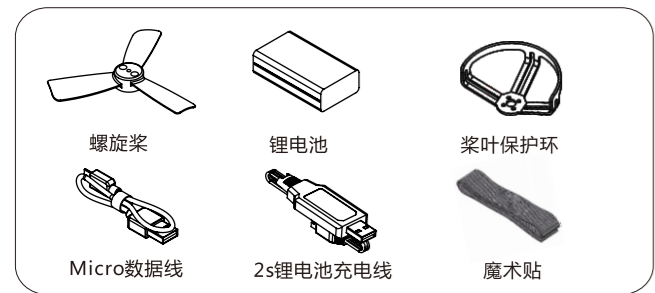
Armor 90 说明书

产品配件示意图

BNF套餐配置如下:

Ⓐ 1104电机　Ⓑ 2.4G天线　Ⓒ 5.8G天线　Ⓓ 坦克保护壳

Ⓔ 2040螺旋桨　Ⓕ 摄像头　Ⓖ 魔术贴　Ⓗ 螺旋桨保护环

Ⓘ FC+ESC　Ⓙ LiPo　Ⓚ 3K碳纤维机架

螺旋桨　锂电池　桨叶保护环

Micro数据线　2s锂电池充电线　魔术贴

产品参数

轴距:90mm
主控:F4+OSD
电调:4IN1-BLS15A
螺旋桨:2040(三叶桨)
摄像头:120度广角PAL/NTSCAUTO

图传:5.8G/40CH/25mW
图传天线:3DBi
电池:2S/45C/500mAhLIPO
有效飞行时间:5分钟

产品特点

● Armor 90是一款室内无刷竞速穿越机,是一款为室内FPV竞赛、特技飞行、现场活动竞演多用途的飞行器。
● Armor 90采用碳纤维轻型材料,重量轻硬度高;新颖坦式外形设计,结构紧凑、风阻小;坦式外壳有效保护图传摄像头,避免在飞行中遇到损害。
● 高速旋转的螺旋桨配置PC塑料保护环,在室内行尽可能将伤害降到最低。
● 全新的设计理念,高性能飞控F4飞控系统集成OSD功能,默认刷写Bateflight固件。
● 全新的mini版四合一电调支持Oneshot/Dshot信号,与飞控完美组合塔式结构。
● 配置25mW摄像头图传传输系统,宽动态高清广角摄像头,逆光效果好,40CH频段供选择。
● 无刷动力系统提供足够的动力,入手即可体验第一视角飞行。

接收机对码指引

Frsky XM版本对码方法:
请详见XM接收机说明书;
1.打开接收机同时按住模块上的F/S绑定。松开开关,红色LED闪烁,指示接收器进入对频状态。
2.打开遥控器,配置D16模式,在此模式进入对频模式,接收机上面的LED闪亮表示对频成功。
3.重启遥控器和接收机。接收机绿色LED亮起,指示接收机正在从发射机接收命令。接收机/发射机模块绑定将不必重复,除非两者之一被替换。
4.在Betaflight Configurator正确配置通信模式,检查通道映射。

AC900版本对频方法:
对码操作详见AC900 三模RSSI接收机说明书。对频前需要检查上电后指示灯第一次闪烁的颜色,红色:S-FHSS;绿色:D16 non-EU;黄色:D16EU-LBT;

对频成功后在Betaflight Configurator正确配置通信模式,检查通道映射。
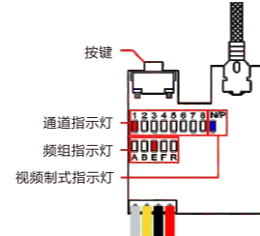
MKF-6A 6通道版本对频方法:

默认已经完成对频操作,如需再次对对频可以参考如下步骤:
1.打开接收机的同时按住模块上对频开关,绿色LED快速闪烁(慢闪未进入对频状态),指示模块进入对频状态。
2.打开遥控器,打开对频模式,绿色LED指示灯常亮表示对频成功。
3.重启遥控器和接收机。接收机/遥控器绑定将不必重复,除非两者之一被替换。

一体摄像头图传

　　Armor90配置25mW/40通道一体摄像头图传,具有宽动态、高清、广角;无延时的特点,一体式设计重量轻、体积小,支持按键选频和频率组选择,支持NTSC/PAL制式切换功能。图传频率通过LED状态指示,8LEDS显示信道,5LEDS显示频率组信息,具体对应频率值请参考图传对应频段表。

参考产品示意图:

长按2秒按键可切换图传信息频率组,短按1秒按键调节当前频率组对应的信道。
完成调频操作将自动当前配置频点和频组,带断电记忆功能。

按键
通道指示灯
频组指示灯
视频制式指示灯

图传频段对应表

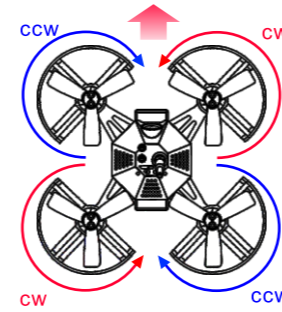|	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
A	5865MHz	5845MHz	5825MHz	5805MHz	5785MHz	5765MHz	5745MHz	5725MHz
B	5733MHz	5752MHz	5771MHz	5790MHz	5809MHz	5828MHz	5847MHz	5866MHz
E	5705MHz	5685MHz	5665MHz	5645MHz	5885MHz	5905MHz	5925MHz	5945MHz
F	5740MHz	5760MHz	5780MHz	5800MHz	5820MHz	5840MHz	5860MHz	5880MHz
R	5658MHz	5695MHz	5732MHz	5769MHz	5806MHz	5843MHz	5880MHz	5917MHz

充电说明

电池接线说明:

2PIN(两根线)为动力电源输出线。3PIN(三根线)为动力电源充电平衡端子。使用时请将动力电源输出线与飞行器电源接头连接,在使用充电器充电时将充电平衡端子与充电器连接。
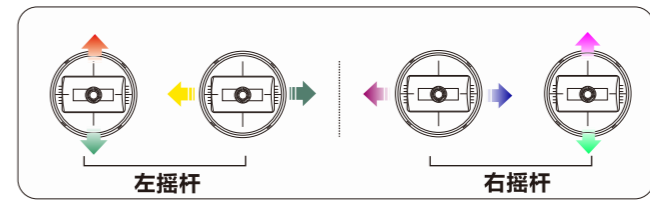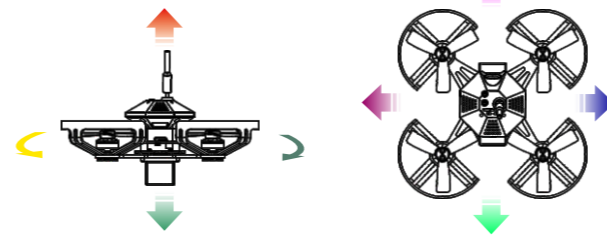
充电操作指引:

Armor 90配置一根USB锂电池专用平衡充电线,USB端可连接手机充电器或电脑USB端口,另外一段连接lipo平衡头端子。红灯为电源的指示灯,绿灯为充电状态指示灯。红灯常亮表示电源插头接触正常,绿灯慢闪表示正在充电,绿灯常亮表示充电完成。

桨叶安装及电机转向示意图

姿态操控示意图

以mode2为例

左摇杆　右摇杆

遥控器示意图

上锁
解锁
上锁
油门
航向
油门微调
航向微调
模式设置

D档
R档
自动
手动
俯仰微调
横滚微调
通道反向设置

行程开关D:D档,通道输出值1150-1850(新手操作推荐);
　　　　　R档,通道输出值1000-2000;
通道微调开关:调节微调按键可调整通道中止点位置;
通道反向设置:默认CH1.CH2.CH3.CH4在NOR位置;
遥控器模式设置:开关默认中间位置;
V-TAIL:混控.俯仰与航向联动,V型尾翼模式;
NOR:常规模式;
ELEVON:混控.俯仰与副翼联动,一般用于固定翼。

免责声明

　　本产品是一款多旋翼飞行器,建议16岁以上的青少年使用。未满16岁青少年须在专业人士陪同和监督下使用本产品,在有儿童出现的场景操作请务必特别小心注意。

　　使用本产品之前,请仔细阅读本文档。本声明对安全使用本产品以及您的合法权益有着重要指导作用。在电源正常工作及各部件未损坏的情况下将提供轻松自如的飞行体验。务必在使用产品之前仔细阅读该本文档,了解您的合法权益、责任和安全说明并清楚使用本产品可能带来财产损失、安全事故和人身安全隐患。一旦使用本产品,即视为您已理解、认可和接受本声明全部条款和内容。使用者承诺对自己的未按规定操作行为及因此而产生的所有后果负责。使用者承诺仅出于正当目的使用本产品,并且同意本条款及我司可能制定的任何相关政策或者准则。我司不承担因不按照本安全指引使用本产品所造成的任何直接或间接的人身伤害及财产损失的相关赔偿责任。

产品使用注意事项

　　高速旋转的螺旋桨会给人和物带来不同程度的伤害和破坏,请时刻铭记安全意识于心。

● 新手初飞请在教练陪同下进行。
● 本产品属于穿越竞速类产品,使用前请时请远离不安全因素,如障碍物、人群、高压线等。
● 切勿贴近或接触旋转的电机或螺旋桨,避免被旋转螺旋桨割伤。
● 飞行前请检查整机性能,确保无开路、无短路。
● 使用前请检查螺旋桨和电机是否安装正确及旋紧。
● 产品软件升级等维护请拆除桨叶,避免误操作带来严重的后果及损失。
● PNP套餐需要外接遥控器接收机,请注意参考飞控功能设置。
● 使用前请检查各零部件是否完好,如有部件老化或损坏,请及时更换部件。
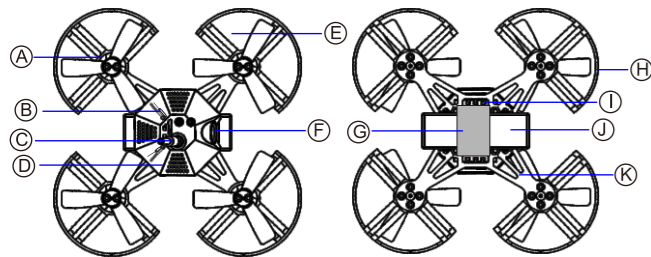● 请尽量使用本公司的提供的零配件。
● 飞行请在遥控可控范围操控,避免造成不必要的损失。

售后服务与支持

制造商:深圳市创客火科技有限公司
电话:400-830-2598
网址:shop.makerfire.com
Email:orders@makerfire.com
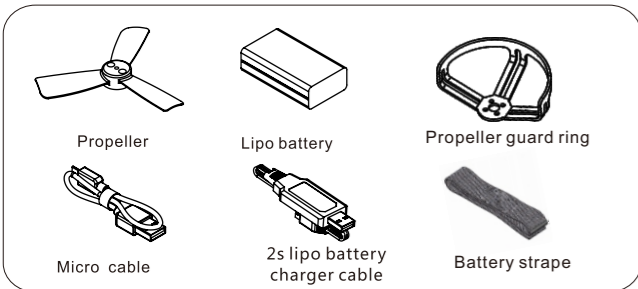地址:深圳市南山区西丽街道留仙大道创智云城A7栋25楼

Makerfire

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The specification for ARMOR 90

Diagram

BNF packed configuration as follow:

- (A) 1104 motor
- (B) 2.4G antenna
- (C) 5.8 G antenna
- (D) Tank-shape canopy
- (E) 2040 propeller
- (F) Camera
- (G) Battery strape
- (H) Propeller guard ring
- (I) FC+ESC
- (J) LiPo
- (K) 3K carbon fiber Frame

- Propeller
- Lipo battery
- Propeller guard ring
- Micro cable
- 2s lipo battery charger cable
- Battery strape

Parameter

Wheelbase:90mm
Flight controller:F4+OSD
ESC:4IN1-BLS15A
Motor:1104-7500KV
Propeller:2040(three blades)
Camera:120PAL/NTSCAUTO
Video transmitter:5.8G/40CH/25mW
Antenna:3DBi

Battery:2S/45C/500mAhLiPo
Flying time:5mins

Introduction

- Armor 90 is the indoor FPV racing drone, which is also the multi-function quadcopter by using in the racing competition, aerobatic flight, and competitive activity alive.
- Tank-shape appearance combined with the carbon fiber material, also the aesthetic design combined with Engineering design make the compact-stucture, low-resistantce; light and high-hardness Armor90. The tank-shape canopy can protect the video transmitter and camera very well in flight.
- Brand-new design concept and high-performance F4 Flight controller system intergrated with OSD function, by default, flash the Betaflight firmware.
- Brand-new design concept and high-performance F4 Flight controller systerm integrated: with OSD function, which support original Betaflight OMINIBUS firmware.
- The brand-new mini version 4 in 1 ESC supports Oneshot/Dshot signal and forms a tank-shape structure perfectly combined with the flight controller.
- The 25mw camera and video transmitter transmission system, wide dynamic high-definition camera with wide angle,40CH frequency for your choice.
- The brushless power systerm provides the sufficient powers which can experience the first persion view as soon as you get the quadcopter.

Receiver Bind

Frsky XM Receiver Binding Process
1. Turn on the receiver while holding the F/S button on the module and then release the switch button. The flashed red LED indicates the the receiver is on the binding process.
2. Turn on the remote controller and enter into the D16 mode for binding, the flash LED on the receiver indicates the binding has finished successfully.
3. Restart the remote controller and receiver.The light-up green LED indicates that the receiver is receiving the signals from the remote controller. It is unnecessary to repeat the binding steps unless one of them was replaced.
4.Configurate the communication mode correctly in Betaflight Configurator, and check the channel mapping.

AC900 Receiver Binding Process:
1.The detail can be found in the instruction of AC900 tri-mode RSSI receiver. To check the color of the indicator at its first flash before binding, in red: S-FHSS, in green: D16 non-EU, in yellow: D16EU-LBT
2.After Binding, configurate the communication mode correctly in Betaflight Configurator, and check the channel mapping

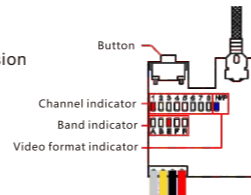### MKF-6A Receiver Binding Process:
By default,it has been binded already, please follow these steps if re-bind is needed:
1.Press the module's power switch while turn on the receiver, and the green LED flash slowly, which means it is in biding mode.
2.Power on the controller and switch to the binding mode, the green LED indicator will on if bind successfully.
3.After the first binding, when restart the transmitter and receiver, they will bind automatically. It is unnecessary to repeat the binding steps unless one of them was replaced.

AIO FPV Camera

The 25mW/40CH AIO camera in Armor 90 is characterized by wide dynamic high-definition, wide angle and no delay. The light and mini AIO camera supports button and frequency choice as well as NTSC/PAL TV system.
The LED will show video transmitter frequency,8 LEDS indicates the signal channel,5 LEDs indicates the frequencey, the specific frequency will base on the video trasnmitter frequency chart.

Reference schematic:
Long press 2 seconds to switch image transmission frequency group.
Short press 1 second to adjust the channel corresponding to the current frequency group.
Complete the selection it will automatically configure the current frequency and frequency groups.

Video Transmitter frequency Table

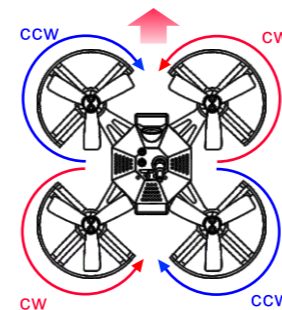|	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
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F	5740MHz	5760MHz	5780MHz	5800MHz	5820MHz	5840MHz	5860MHz	5880MHz
R	5658MHz	5695MHz	5732MHz	5769MHz	5806MHz	5843MHz	5880MHz	5917MHz

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Charging introduction

Introduction of battery wire
2PIN (two wires) are output wire of dynamical power.3PIN(three wires) are balance terminals for charging of dynamical power. Please connect the dynamical power output wire to connector of aircraft power supply when use and please connect charging balance terminal to charger when charging by charger.
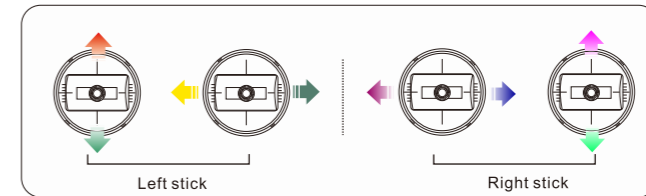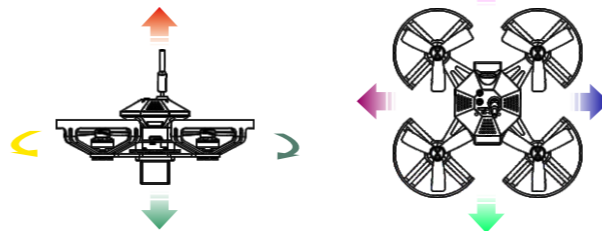
Guidance of charging operation:
Armor 90 is equipped with a USB specialized balance charger with lithium battery. The USB terminal can connect phone charger or compute USB interface, the other connects terminal of lipo balancing head. The red light is the indicator light of the power and the green one is the indicator light for charging state. The power plug has a normal contact if the red light is always on, the slow flash of the green refers to charging. If the green is always on, which means completion of charging.

How to install propellers and Motors

Altitude Operation

Regarding mode 2 as an example

Left stick   Right stick

About the controller

- Lock / Unlock / Lock
- D / R
- Level Mode / Acro Mode
- Throttle
- Pitch
- Yaw
- Roll
- Accelerator for throttle
- Accelerator for pitch
- Accelerator for yaw
- Accelerator for roll
- Mode switch
- Positive and negative
- Button
- Channel indicator
- Band indicator
- Video format indicator

Output switch: D: the channel output value: 1150-1850(recommend for beginner) .
R: the channel output value: 1000-2000.
Accelerator switch: Adjust the middle point of the channel.
Positive and Negative: By default, CH1, CH2, CH3, CH4 are at the NOR.
Mode switch: By default, the switch at the middle point.
V-TAIL: Mixed-control, pitch associate with yaw, in V-tail mode.
NOR: Normal.
ELEVON: Pitch associate with aileron, in general, for fixed-wing only.

Disclaimer

This product is an aircraft with multiple rotors. Teenagers above 16 years old are suggested to play. This product can be used by those under 16 years old with accompany and supervision of professionals. Please make sure that the operation is conducted in the scene where has children.

Please read this document before using this product. This disclaimer has guidance functions on using this product safely and your legitimate interest. The easy and free flight experience can be offered under the condition that the power works normally and any parts are not damaged. Be sure to read this document before using this product, to know your legal interest, responsibility and safety instruction, as well as explanation of property loss, security accident and personal hidden danger for using this product. Once this product is used, you shall be deemed that you have already known, approved and accepted all articles and contents of this disclaimer. The users promise to be responsible for their own acts don't follow regulations or the relevant results. The users promise to use this product only for proper purpose and agree this article and any relevant policies or rules stipulated by our company. Our company will not bear any direct or indirect personal injury or relevant liability for damage for using this product caused by failure to following this safety instruction.

Precaution of using product

The high-speed rotation screw propellers will bring the bring injury and damages, iplease use the quadcopter carefully.

- The green hand should be companied with the coach in first flight.
- This product is belong to the racing dorne series, please keep away from the barries; crowd people and high-tension cable before using this product.
- Please don't close or touch the rotary motors or screw propellers to avoid any inquiry or hurt.
- Please check the quadcopter performance and make sure there is no open circuit or short circuit before flight.
- Please check whether the screw propellers and motor install correctly or firmly.
- Please unassemble the propeller when updating the software to avoid the serious result and loss caused by misoperation.
- PNP Combo needs to connect the external receiver and remote controller, take the reference to the schematic diagram of flight controller connector.
- Please check whether all parts are good before use the quadcopter.
- Please change the old and damaged parts on time.
- Please use the parts offered by our Makerfire company possiblly Using the product within the remote range to avoid the unnecessary losses.

After-sales service and support

Manufacturer:
Shenzhen Makerfire Technology Co., Ltd.
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Email:orders@makerfire.com
Address:25F, Bldg A7, Chuangzhi yuncheng Liuxian Blvd, Xili Str, Nanshan District, Shenzhen Guangdong,518000, China