RADIOMASTER

MT12

Quick start guide

Introduction

Thank you for purchasing the RadioMaster MT12 radio system. Advanced and highly-versatile, the MT12 is adaptable for drivers of any skill level. To ensure safe and reliable operations, please read this manual carefully prior to use.

As the software and hardware are constantly improved, the information contained in this manual is subject to change without prior notice. Please visit our website for up-to-date information and radio firmware.

MT12 is an open-sourced, ergonomic surface radio with powerful multi-protocol or ExpressLRS capability. Able to bind to most contemporary protocols on the market, this is one radio to rule them all! MT12 runs EdgeTX, an open-sourced operating system; for more information, please visit the EdgeTX link below.

-The RadioMaster team

Safety Information

Radio-controlled vehicles commonly contain rotating parts such as gears and wheels able to rotate at high RPMs; when operating or maintaining your model, always use common sense and proceed with caution.

Always disconnect power to the model during the assembly or maintenance process.

Never operate the MT12 radio system in the following conditions:
• In severe weather or strong windy conditions, such as rain, hail, snow, storms or electromagnetic environments.
• In limited visibility.
• In the proximity of other people, property, public roads, vehicles or animals.
• When feeling unwell, or under the influence of drugs or alcohol.
• If the MT12 radio system/model is damaged or showing signs of interference.
• In areas with high 2.4GHz interference or where 2.4GHz radios are prohibited.
• When the TX/RX battery is low.
• In areas where local regulations prohibit the use of transmitters

Manual and firmware download

MT12 is pre-installed with factory approved EdgeTX firmware. To download the latest manual or stock factory firmware, please visit the RadioMaster website: https://www.radiomasterrc.com
To download the latest EdgeTX firmware for your MT12 radio system, please visit the EdgeTX website: https://www.edgetx.org

Important!

MT12 is pre-installed with the most stable firmware at the factory at time of release. please only attempt to update the firmware if you are confident in the process. Incorrect firmware updates may cause the remote control to become inoperable. Damage as a result of improper firmware update may not be covered under warranty.
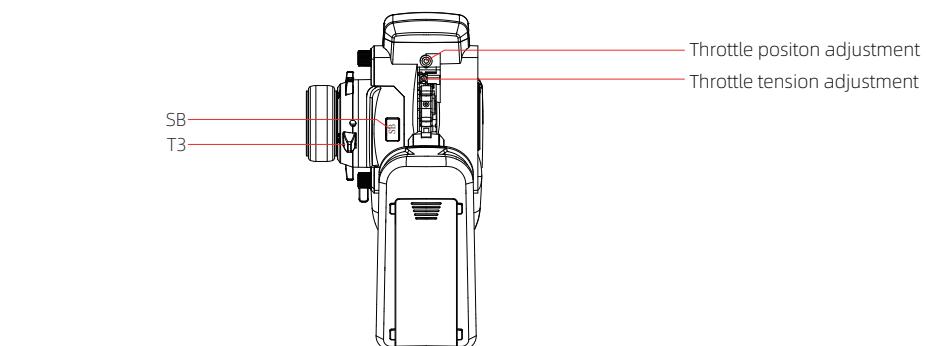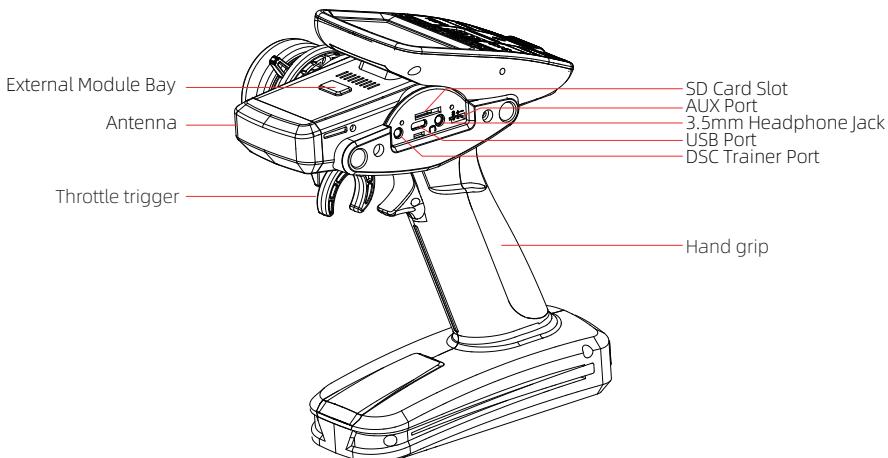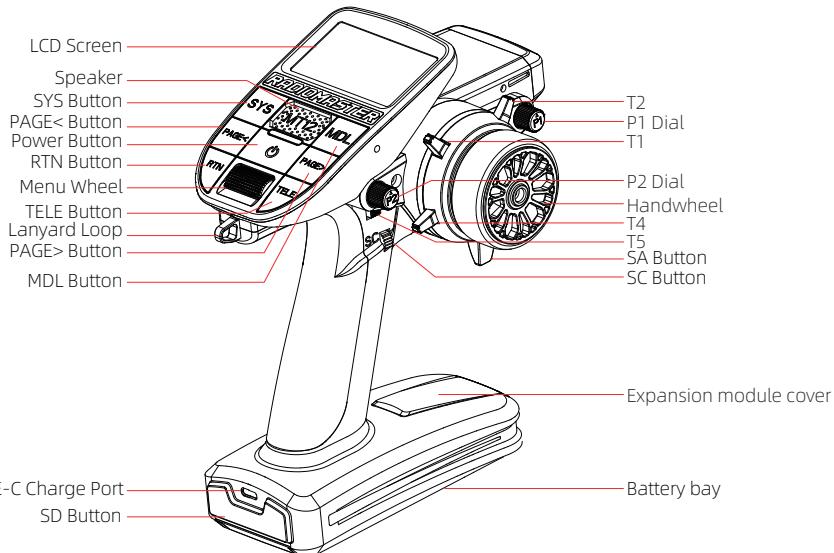
Power Requirements.

MT12 is powered by 2x 3.7V 18650 Lithium Ion cells or a suitable 2s Lipo battery and is charged using the built-in USB-C port. The charging circuitry is designed for charging 2x 3.7V Lithium Ion or 2s lipo batteries only. The nominal voltage per cell is 3.7V and the maximum charging voltage per cell is 4.2V.

Never charge 3.6V LiFe and 3.6V 18650 Lithium Ion cells or packs with the onboard charger. Charging or using the wrong battery chemistry/polarity may cause permanent damage to the PCB and in certain situations cause fires.

Check the voltage and condition of the battery regularly and never charge the device unattended. Only charge in safe areas away from combustible materials. Refrain from charging the radio unit if it was exposed to water or was damaged in any way. RadioMaster does not assume any responsibility for any adverse consequences caused by the use or misuse of this product.

Remote control overview

LCD Screen
Speaker
SYS Button
PAGE< Button
Power Button
RTN Button
Menu Wheel
TELE Button
Lanyard Loop
PAGE> Button
MDL Button

T2
P1 Dial
T1
P2 Dial
Handwheel
T4
T5
SA Button
SC Button

Expansion module cover

TYPE-C Charge Port
SD Button

Battery bay

External Module Bay
Antenna
Throttle trigger

SD Card Slot
AUX Port
3.5mm Headphone Jack
USB Port
DSC Trainer Port

Hand grip

Throttle positon adjustment
Throttle tension adjustment

SB
T3

⚒ Model selection and protocol selection

Depending on the package purchased, MT12 has a 4-in-1 quad-chip multi-protocol module or ExpressLRS module built in. To view the latest list of all compatible protocols, please visit https://www.-multi-module.org/ or https://www.expresslrs.org/ Please note that new protocols will be constantly updated and added to the latest firmware. Some new protocols may require firmware upgrades.

```
SETUP                    2/11
Internal RF
 Mode          MULTI
 Type          FrSky X
 Subtype       D16
 Status        V1.3.3.7 AETR
 Ch. Range     CH1-16
 Receiver      00[Bnd][Rng]
```

Long press the MDL button to enter the model settings, select MULTI in the SETUP page, and select the desired protocol in the sub-options. The system will automatically turn on the corresponding RF module according to the RF protocol you selected.
• Bind [BND] is used to start the binding process.
• Range [RNG] button can reduce the power to 1/30 to facilitate testing of remote-control distance.

⚒ Model selection and protocol selection (ExpressLRS version)

MT12 ELRS units equipped with an internal ELRS module are capable of providing 10mW-250mW RF output (limited to 100mw for EU LBT versions). In non-extreme circumstances, 100mW output at 500Hz update rate is recommended, as higher RF output and update rates may significantly reduce battery life and generate excessive heat.

Bind instructions
1: Turn off the transmitter.
2: Cycle power to the receiver 3 times, the receiver LED will flash twice- indicating bind mode.
3: Turn on the transmitter, long press the SYS button and choose the ExpressLRS LUA under the TOOLS menu. Scroll down to [Bind] and press enter.
4: The LED on the receiver should now be solid, indicating successful bind.

```
TOOLS                    1/7
01 DSM FwdPrg
02 ExpressLRS
03 FrSky GaSuite
04 FrSky RB30_RB40
05 FrSky SBEC
06 FrSky SxR
07 Graupner HoTT
```

```
RadioMstr        0/500 -
> VTX Administrator
> WiFi Connectivity
> Backpack
 [BLE Joystick]
 [Bind]
3.0.0 ISM2G4
```

⚠ Notes

EdgeTX software is highly versatile, and has a large number of programming and mixing functions. Please A comprehensive software installation guide is available from the link below for more detailed instructions: https://www.edgetx.org

Specifications

Physical dimensions： 177.8*118.4*207.8mm
Weight： 480 grams
Operating frequency： 2.400GHz-2.480GHz
Internal RF Options： 4-in-1 multi-protocol / ELRS 2.4GHz
Supported protocols ： Module dependent
Operational current: 160mA for 4 in 1. 400mA for ELRS 250mW .
Operational voltage： 6.6-8.4V DC
Operating system： EdgeTX
Control channels： Maximum 16 (Rx dependent)
Display ： 128*64 Monochrome LCD
Battery ： 2 x 18650 cells or a 2s 7.4v 5000mah battery pack (Batteries not included)
Charging ： Built in USB-C Charging
Firmware Upgrade method： Via USB or SD card
Gimbal： Hall-effect
Module bay ： Nano size (RadioMaster Ranger Nano Module / RadioMaster RM 4in1 module /
TBS Crossfire Nano module)

Warranty and repair

Should any issues arise with your radio system's hardware, please keep the proof of purchase and contact the retailer where you made the MT12 purchase. You may also visit our warranty support page https://www.radiomasterrc.com/contact The limited warranty covers defects in workmanship for one year from the date of purchase

EU Simple Declaration of Conformity

RadioMaster declares the radio equipment MT12 is in compliance with EU directives Directive 2014/53/EU. Full text of the declaration of conformity is available at the following website www.radiomasterrc.com

Manufacturer by Radiomaster

4F Yang Tian Building, Area 72 Xing Dong community, Xin An Street, Bao An district, Shen Zhen city, Guangdong Province, China

FCC ID: 2BBP3-MT12-ELRS
FCC ID: 2BBP3-MT12-4IN1

FCC Information

This equipment has been tested and found to comply with the limits for Part 15 of the FCC rules. 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. Full text of the declaration of conformity is available at the following website www.radiomasterrc.com

CAUTION:

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This product contains a radio transmitter with wireless technology which has been tested and found to be compliant with the applicable regulations governing a radio transmitter in the 2.400GHz to 2.4835GHz frequency range.

Antenna Separation Distance

When operating your RadioMaster transmitter, please be sure to maintain a separation distance of at least 20 cm between your body (excluding fingers, hands, wrists, ankles and feet) and the antenna to meet RF exposure safety requirements as determined by FCC regulations.

简介

感谢您购买RadioMaster MT12枪控遥控器。该遥控器功能强大且稳定，适用于任何阶段的用户，包括初学者和专业人士。为确保安全可靠的操作，请在使用前仔细阅读本说明书。

随着软件和硬件的不断升级，本手册中的信息也可能发生改变。请访问我们的网站获取最新信息和遥控器固件，恕不另行通知。

MT12是首款EdgeTX开源枪控遥控器，符合人体工程学设计，提供4in1多协议和ExpressLRS两种配置，可匹配市场上绝大多数协议！MT12枪控遥控器采用EdgeTX开源操作系统；更多信息，请访问下方的EdgeTX链接。

-RadioMaster团队敬上

安全须知

无线遥控设备通常都包含齿轮和轮胎等部件，以达到高转速旋转。在操作或维护模型时，请始终保持谨慎。
在组装或维护过程中，务必断开模型的电源。
请勿在以下情况下使用MT12枪控遥控器：
• 恶劣天气或强风条件下，例如雨，冰雹，下雪，暴风雨或电磁环境中。
• 能见度较差的情况下。
• 可能存在人员、财产、电力高压线、公共道路、有车辆或动物的区域。
• 在您感到疲倦或不适，或在药物或酒精的影响下。
• 在遥控器或模型损坏或无法正常工作的情况下。
• 在2.4GHz干扰较大的区域或禁止使用2.4GHz无线电的地方。
• 在遥控器电池电压低的情况下。
• 在当地法规禁止使用模型的区域。

说明书和固件下载

MT12枪控遥控器出厂默认安装EdgeTX固件。若需下载最新手册或原厂固件，请访问RadioMaster官方网站：https://www.radiomasterrc.com 若需为您的MT12枪控遥控器下载最新的EdgeTX固件，请访问EdgeTX官网：https://www.edgetx.org

警告！

MT12出厂时预装最稳定的固件，如果您需要更新到最新版本的系统固件，请自行到EdgeTX官网下载安装。错误的更新方式可能会导致遥控器无法操作。

电源和充电注意事项
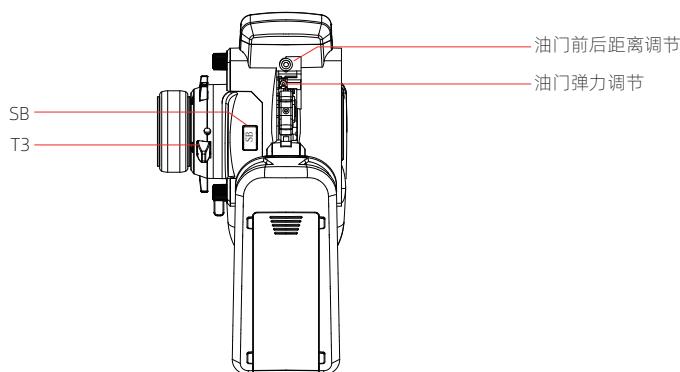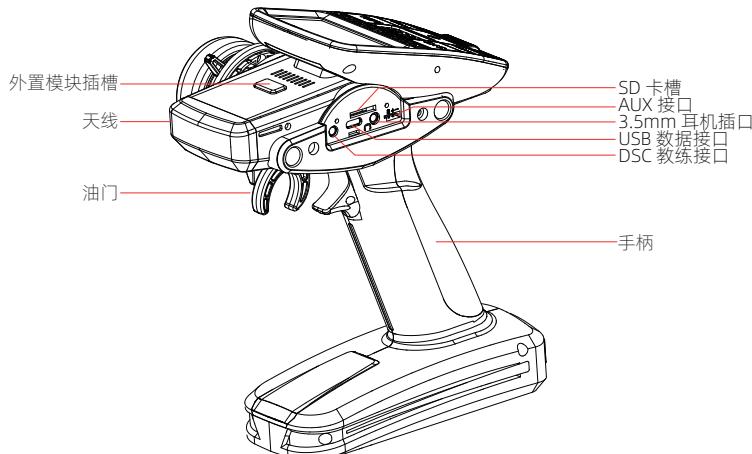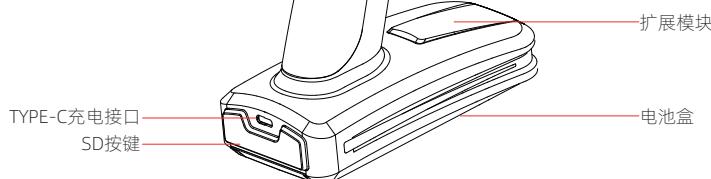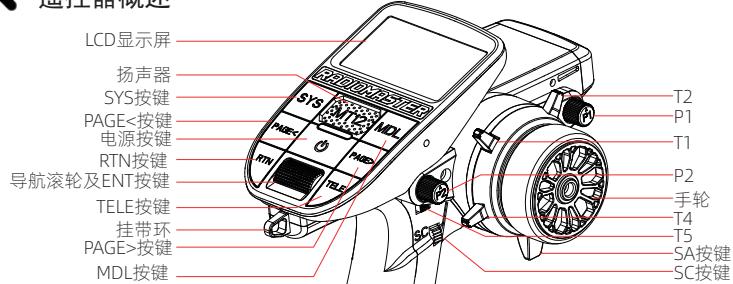
MT12枪控遥控器使用2个3.7V 18650电池或2S Lipo电池，并可通过内置的USB-C端口进行充电。充电电路仅适用于充电2个3.7V 18650电池或2S Lipo电池。每个电池的电压为3.7V，最大充电电压为4.2V。
请勿使用内置充电器为3.6V锂铁电池和3.6V 18650锂离子电池或电池组充电。充电或使用错误的电池类型/极性可能导致PCB永久性损坏，并在严重情况下引发火灾。
请定期检查电池的电压和状态，并务必在有人监管的情况下进行充电。请避免在易燃材料附近进行充电。如果遥控器被水润湿或出现任何损坏，请勿充电。对于使用或误用本产品而导致的任何不良后果，RadioMaster不承担任何责任。

遥控器概述

LCD显示屏
扬声器
SYS按键
PAGE<按键
电源按键
RTN按键
导航滚轮及ENT按键
TELE按键
挂带环
PAGE>按键
MDL按键

T2
P1
T1
P2
手轮
T4
T5
SA按键
SC按键

扩展模块

TYPE-C充电接口
SD按键

电池盒

外置模块插槽
天线

SD 卡槽
AUX 接口
3.5mm 耳机插口
USB 数据接口
DSC 教练接口

油门

手柄

油门前后距离调节

油门弹力调节

SB
T3

⚒ 模型选择及协议选择

MT12枪控遥控器提供两种选择：4合1多协议内置模块和Express LRS内置模块，根据您购买的版本，支持不同的协议。如需了解可兼容协议的最新列表，请访问以下网站：https://www.-multi-module.org
或https://www.expresslrs.org/。

请注意，新的协议将不断更新并添加到最新固件中。有些新的协议可能需要固件升级。

```
SETUP                    2/11
Internal RF
 Mode        MULTI
 Type        FrSky X
 Subtype     D16
 Status      V1.3.3.7 AETR
 Ch.Range    CH1-16
 Receiver    00[Bnd][Rng]
```

· 请长按MDL按钮进入模型设置，在SETUP页面中选择MULTI，并在子选项中选择需要使用的协议。系统根据您选择的射频协议，会自动开启对应的射频模块，同时关闭其它三个射频模块。系统在同一时间只会开启一个射频模块，以确保没有多余的无线电信号相互干扰。
· [Bnd]选项用于启动对频过程。
· [Rng]选项可将功率降低至1/30，以方便测试遥控距离。

⚒ 模型选择及协议选择（内置ELRS高频模块）

MT12 内置ELRS具有10mW-250mW可调范围，最大功率为250mW，在非极限条件使用时，推荐将功率限制为100mW，并使用500Hz速率，更高的速率会降低控制距离，更高的功率会带来较大的发热和耗电，请您根据自身需求，合理调整功率及速率，以便达到性能和耗电的平衡。

```
TOOLS                1/7      RadioMstr    0/500  -
01 DSM FwdPrg                 > VTX Administrator
02 ExpressLRS                 > WiFi Connectivity
03 FrSky GaSuite              > Backpack
04 FrSky RB30_RB40              [BLE Joystick]
05 FrSky SBEC                   [Bind]
06 FrSky SxR                  3.0.0 ISM2G4
07 Graupner HoTT
```

对频流程：

1：关闭遥控器

2：重复上电接收机3次，接收器LED会进入双闪模式，表示进入对频模式。

3：打开遥控器，长按SYS按钮，在"TOOLS"菜单中选择"ExpressLRS "LUA。向下滚动至[Bind]并按确定键。

4：接收机上的LED常亮后，表示对频成功

⚠ 注意

EdgeTX软件非常强大，并且具有大量的编程和混控功能。

要获取EdgeTX最新详细的开源资料，请访问EdgeTX官方网站：https://www.edgetx.org

技术参数

尺寸: 177.8*118.4*207.8mm
重量: 480 g
工作频率: 2.400GHz-2.480GHz
内部射频选项: 4-in-1 多协议/ ELRS 2.4GHz
支持的协议: 取决于内部射频模块
工作电流: 4-in-1: 160mA/8V，ELRS：320mA/8V
工作电压: 6.6-8.4V DC
操作系统：EdgeTX
控制通道: 最多支持16 通道（取决于接收机）
显示屏：128*64 LCD显示屏
电池：2 x 18650或21700 5000mAh 7.4V电池组（电池不包含）
充电：支持USB-C直充
固件升级方式：通过USB或SD卡
油门和方向: 霍尔传感器
模块：Nano尺寸（兼容RadioMaster Rangere Nano 高频头/ RadioMaster RM 4in1 高频头 / TBS Crossfire Nano 高频头）

保修及维修

如果您的遥控器硬件出现任何问题，请保留购买证明并与您购买MT12的零售商联系。

用户手册

有关MT12 EdgeTX系统固件的详细用户手册，请访问Radiomaster官方网站：
https://www.radiomasterrc.com

欧盟认证合格声明

RadioMaster无线电设备MT12符合欧盟指令2014/53/EU。符合性认证声明的全文可在以下网站上找到：www.radiomasterrc.com

制造商

深圳RadioMaster有限公司
广东省深圳市宝安区新安街道72区杨田路扬田大厦4楼

FCC ID: 2BBP3-MT12-ELRS
FCC ID: 2BBP3-MT12-4IN1

FCC 认证信息

T该设备已经过测试，符合FCC规则第15章的规定。操作必须符合以下两个条件：
（1）此设备不会造成有害干扰
（2）此设备必须接受收到的任何干扰，包括可能导致意外操作的干扰。
符合性声明的全文可在以下网站上找到：www.radiomasterrc.com

警告：

未经负责合规方明确批准的更改或修改可能会使用户丧失操作设备的权限。
本产品包含具有天线技术的无线电发射器，该无线电发射器已经过测试，符合适用于2.400GHz至2.4835GHz频率范围内的无线电发射器的适用法规。

安全的天线距离

操作RadioMaster发射器时，请确保您的身体（不包括手指，手，腕，脚踝和脚）与天线之间保持至少20cm的距离，以符合FCC法规确定的RF暴露安全要求。

WWW.RADIOMASTERRC.COM