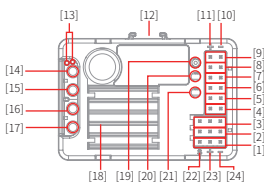


产品介绍 Introduction

FS-R4D-ESC 采用 ANT 协议，是一款电调和 LED 灯组控制的二合一接收机。外置单天线，可输出 PWM 信号和车灯控制信号，能够实现双向传输，采用自动对码，设计小巧紧凑，可在发射机端设置电调的相关参数，可适配多种车型使用。

FS-R4D-ESC is a 2-in-1 receiver which is compliant with the ANT protocol, featuring the compact design, external single antenna, automatic binding, a combination of the Electronic Speed Control (ESC) and LED light set control board. It outputs PWM signals and car light control signals, featuring two-way transmission, ESC parameters configurable at the transmitter side, and adaptation to a variety of vehicle models.

接收机概览 Receiver overview



- | | | | | |
|--------------|-----------------|-----------------|--------------|---------------|
| [1] CH1 通道接口 | [6] 前大灯接口 | [11] 车灯接口 "+" 极 | [16] 电源线 "-" | [21] 电调指示灯 |
| [2] CH3 通道接口 | [7] 后尾灯接口 | [12] 电源开关挂耳 | [17] 马达线 "-" | [22] 通道接口信号端 |
| [3] CH4 通道接口 | [8] 氛围灯接口 | [13] 电源开关线 | [18] 散热片 | [23] 通道接口 "+" |
| [4] 左车灯接口 | [9] 车顶灯接口 | [14] 马达线 "+" | [19] 天线 | [24] 通道接口 "-" |
| [5] 右车灯接口 | [10] 车灯接口 "-" 极 | [15] 电源线 "+" | [20] 接收机指示灯 | |

- | | | | |
|---------------------------|-----------------------------------|-------------------------|------------------------------|
| [1] CH1 Interface | [7] Tail Light Interface | [13] Power Switch Cable | [19] Antenna |
| [2] CH3 Interface | [8] Ambient Light Interface | [14] Motor Cable "+" | [20] Receiver LED |
| [3] CH4 Interface | [9] Roof Light Interface | [15] Power Cable "+" | [21] ESC LED |
| [4] Left Light Interface | [10] Car Light Interface "-" | [16] Power Cable "-" | [22] CH Interface Signal Pin |
| [5] Right Light Interface | [11] Car Light Interface "+" | [17] Motor Cable "-" | [23] CH Interface "+" |
| [6] Headlight Interface | [12] Tab for Hanging Power Switch | [18] Heatsink | [24] CH Interface "-" |

车灯接口为标准 2.54mm*2Pin 排针 / The car light interface is a standard 2.54mm*2 Pins.

产品规格 Product specification

- 产品型号: FS-R4D-ESC
- 适配发射机: FS-HW-G4P、FS-MG41、FS-G7P 或 FS-MG7 等 (具体参见官网“发射接收对应表”)
- 适用机种: 1: 10 攀爬车、平路、越野短卡 and 卡车
- 通道个数: 4
- 车灯接口数: 6
- 无线频率: 2.4GHz ISM
- 发射功率: < 20dBm
- 无线协议: ANT (蚂蚁版自动跳频数字系统)
- 天线类型: 外置单天线 (同轴天线)
- 输入电源: Lipo (2~3S) / NiMH(5~9Cell)
- BEC 输出: 6V/3A
- 持续 / 峰值电流: 40A/200A
- 支持电机类型: 有刷电机
- 适用电机: 390、370 或 280 有刷电机
- 数据输出: PWM
- 通道分辨率: 4096
- 温度范围: -10°C ~ +60°C
- 湿度范围: 20% ~ 95%
- 遥控距离: >150 米 (空旷无干扰地面距离)
- 防水等级: PPX7
- 在线更新: 无
- 外形尺寸: 44mm*30mm*16.7mm
- 机身重量: 43g
- 认证: CE, FCC ID: 2A2UNR4DESC

- Product Name: FS-R4D-ESC
- Adaptive Transmitters: FS-HW-G4P, FS-MG41, FS-G7P or FS-MG7, etc. (Refer to TX-RX FORM on the official website for details.)
- Model Type: 1:10 crawler cars, short-course trucks or trucks
- Number of Channels: 4
- Numbers of Light Interfaces: 6
- RF: 2.4GHz ISM
- Maximum Power: < 20dBm (e.i.r.p.) (EU)
- 2.4G Protocol: ANT
- Antenna: Single external antenna
- Input Power: Lipo (2~3S)/NiMH(5~9Cell)
- BEC Output: 6V/3A
- Continuous / Peak Current: 40A/200A
- Motor Type: Brush motors
- Applicable Motors: 390, 370 or 280 brush motor
- Data Output: PWM
- Resolution: 4096
- Temperature Range: -10°C ~ +60°C
- Humidity Range: 20% ~ 95%
- Distance: >150 M (ground distance without Interference)
- Waterproof: PPX7
- Online Update: NO
- Dimensions: 44mm*30mm*16.7mm
- Weight: 43g
- Certifications: CE, FCC ID: 2A2UNR4DESC

对码 Binding

1. 本款接收机上电即自动进入对码状态。

1. 将发射机进入对码状态 (发射机进入对码状态的方式可能不同, 请根据发射机的使用说明书进行操作) ;
2. 接收机上电等待 1 秒没有连接将自动进入对码;
3. 对码成功后, 接收机 LED 指示灯常亮。

注:

1. 对码时请先将发射机进入对码状态, 再将接收机进入对码状态, 若 10S 内对码没有完成, 接收机指示灯进入慢闪状态;
2. 如果重新对码成功, 车灯的所有设置将恢复默认值。

The receiver automatically enters the binding state once it is powered on.

1. First put the transmitter into bind mode. (See the transmitter's user manual for instructions on how to activate bind mode.)
2. When the receiver is powered on and waits for 1 second, it will automatically enter the binding state if it is not connected;
3. After the binding is successful, the LED indicator of the receiver is solid on.

Notes:

1. Set the transmitter to its binding state first, and then set the receiver to its binding state. If the binding is not finished within 10S, the LED of the receiver will enter its slow flashing state.
2. If re-binding is successful, all the settings of the car lights will be restored to their default values.

保护功能 Protection

1. 本接收机具有电池电压过低和过高保护功能。

- 电压过低保护: 当检测到电池电压过低时, CH2 马达无输出, CH1、CH3 和 CH4 正常输出, 所有车灯慢闪提示。
- 电压过高保护: 当电池电压过高时, 所有通道无输出, 所有车灯快闪提示。

注: 处于保护状态时, 电调 LED 持续慢闪提示; 待电压正常后, 退出保护状态。

2. 本接收机电调具有过热保护和堵转保护功能。

- 过热保护: 当检测到电调内部温度过高时, CH2 马达无输出, CH1、CH3 和 CH4 正常输出, 所有车灯快闪提示; 当温度正常后, 通道恢复输出。
- 堵转保护: 当外部马达堵转时, 进入堵转保护状态, 接收机切断动力输出, 用于保护电调和马达。

1. This receiver has low/high voltage protection function.

- Low voltage protection: When the receiver enters the low voltage protection state in case of detecting low voltage, CH2 motor has no output. CH1, CH3 and CH4 output normally, and all the lights flash slowly for prompt.
- High voltage protection: When the receiver enters the high voltage protection state, all channels have no output. All car lights flash quickly for prompt.

Note: The ESC LED flashes slowly and continuously; When the voltage is normal, then the receiver will exit the protection state.

2. The ESC has overheating protection function and locked rotor protection function.

- Overheating protection: When the receiver enters the overheating protection state in case of the high internal temperature of the ESC, CH2 motor has no output. CH1, CH3 and CH4 output normally, and all the lights flash fast for prompt. All channel output normally when the temperature is back to normal.
- Locked rotor protection: In case of the external motor is blocked, it enters the locked rotor protection state, and the receiver cuts off the power output to protect the ESC and the motor.

车灯控制 Car light control

车灯控制主要是通过发射机端设置，以实现车灯亮灯状态及亮灯模式的转换，以下内容以 FS-HW-G4P 发射机端控制为例介绍。

1. 车灯开启与关闭的控制方式：

- 车灯控制分为四通通道控制和两通道控制两种方式，打开发射机，手轮顺时针打到最大行程，打开接收机电源，可以实现两种控制方式的切换；
- 当切换为四通通道控制时，CH3 最右为打开车灯，最左为关闭车灯；
- 当切换为两通道控制时，手轮快速顺时针打到最大行程两次，打开应急灯，重复动作则关闭；手轮逆时针打到最大行程打开示宽灯或者呼吸/爆闪灯，重复动作则关闭。

注：应急灯由左转向灯和右转向灯组成；爆闪灯由左转向灯、右转向灯、前大灯和后尾灯组成。

2. 车灯工作的四种模式状态：

- 正常模式：向左打转向，左转向灯慢闪，向右打转向，右转向灯慢闪；CH3 最右，前大灯高亮，后尾灯低亮；刹车/后退，后尾灯高亮；按下 CH4，应急灯慢闪；
- 运动模式：向左打转向，左转向灯慢闪，向右打转向，右转向灯慢闪；前进，前大灯高亮，刹车/后退，后尾灯高亮；按下 CH4，应急灯慢闪；
- 呼吸模式：所有车灯（含车顶灯、氛围灯）呼吸闪烁，CH3 最右打开所有车灯，CH3 最左关闭所有车灯；
- 爆闪模式：所有车灯（含车顶灯、氛围灯）爆闪，CH3 最右打开所有车灯，CH3 最左关闭所有车灯；
- 各工作模式切换方法：快速短按 CH4 两下切换模式，可循环切换，默认正常模式；

3. 氛围灯和车顶灯的工作模式：

- 氛围灯和车顶灯包含单独模式和组合模式两种工作模式，在正常模式和运动模式下可以调节使用，在呼吸模式和爆闪模式中无法使用；单独模式下氛围灯和车顶灯各自单独控制，互不干扰；组合模式下氛围灯和车顶灯共同工作，可以统一控制。手轮快速顺时针打到最大行程 4 次可以切换两种工作模式，可循环切换，默认单独模式。
- 组合模式下包含快闪、呼吸、关闭三种工作模式；手轮快速顺时针打到最大行程 3 次可以切换不同的闪烁方式，可循环切换，默认快闪模式。
- 单独模式下氛围灯有呼吸、爆闪、三快闪一长灭和关闭四种工作模式，手轮快速顺时针打到最大行程 3 次可以切换不同的模式，可循环切换，默认呼吸模式；车顶灯有常亮、慢闪、关闭三种工作模式，手轮快速逆时针打到最大行程 3 次可以切换不同的工作模式，可循环切换，默认常亮模式。

注：

1. 若前后灯与实际控制相反时，需将前后灯控制方式进行反向，发射机开机状态下手轮保持逆时针打到最大行程，然后给接收机上电可以实现切换；若左右转向灯与实际控制相反时，则仅需在车灯接口处对调一下左右灯线；
2. 若 CH1 设置了通道反向，则以上手轮操作均进行反方向操作（顺时针变为逆时针，逆时针变为顺时针）；
3. 车灯控制的方向 CH1 和油门 CH2 具有自动识别中位的功能，当调过微调后，需重新给接收机上电以完成中位自动识别；
4. 车灯接口空载输出电压 6V，内部已串接 100Ω 的保护电阻，如一个接口需并联多个 LED 灯，建议每个 LED 灯单独串接一个分压电阻；
5. 所有设置掉电保存。

The car light control is mainly to implement the change over of lighting states and lighting modes by setting the transmitter. The following content takes FS-HW-G4P transmits as an example to describe.

1. Control mode of the car light ON/OFF

- The car light control features four-channel control mode and two-channel control mode. Switching between the two control modes can be implemented by turning on the transmitter, turning the steering wheel clockwise to the maximum travel, and turning on the power supply of the receiver at the same time.
- When switching to four-channel control mode, the rightmost position of CH3 button is for turning on the car lights, and the leftmost position is for turning off the car lights.
- When switching to two-channel control mode, turn the steering wheel clockwise quickly to its maximum travel twice to turn on the emergency light, and turn off by repeating the action; Turn the steering wheel counterclockwise to its maximum travel to turn on the width indicator light or gradual/flashing light, and turn it off by repeating the action.

Note: The emergency lights consist of a left-turn signal light and a right-turn signal light; Flash lights consist of a left-turn light, right-turn light, headlights and taillights.

2. Four modes/states of car light operation

- Normal mode: Turn the steering wheel to the left, left-turn signal light flashes slowly; Turn the steering wheel to the right, right-turn signal light flashes slowly; Set CH3 to its rightmost position, the headlights enter into their high-luminance state and the tail lights enter into their low-luminance state; When brake is applied/gearbox is shifted to reverse gear, tail lights enter into their high-luminance state; Press CH4 button, the emergency lights flash slowly.
 - Sports mode: Turn the steering wheel to the left, left-turn signal light flashes slowly; Turn the steering wheel to the right, right-turn signal light flashes slowly; When gearbox is shifted to forward gear, the headlights enter into their high-luminance state; When brake is applied/gearbox is shifted to reverse gear, the tail lights enter into their low-luminance state; Press CH4 button, the emergency lights flash slowly.
 - Gradual mode: All lights (including roof lights and ambient lights) are in gradual state; Set CH3 button to its rightmost position to turn on all car lights, and set CH3 button to its leftmost position to turn off all car lights.
 - Flash mode: All lights (including roof lights and ambient lights) flash; Set CH3 button to its rightmost position to turn on all car lights, and set CH3 button to its leftmost position to turn off all car lights.
 - Switch Method: Quickly press CH4 button twice to switch the modes. It can switch cyclically, and the Normal mode is the default.
3. Working modes of ambient light and roof light
- Ambient light and roof light include two working modes: Single mode and combined mode, which can be adjusted and used in normal mode and sports mode, but can not be used in gradual mode and flash mode; In the Single mode, the ambient light and the roof light are independently controlled and do not interfere with each other; In the Combined mode, the ambient light and the roof light work together and can be controlled uniformly. The two working modes can be switched when the steering wheel is turned clockwise to its maximum travel four times. It can switch cyclically, and the Single mode is the default.
 - The combined mode includes three working modes: Quick flashing, gradual and OFF. Different flashing modes can be switched when the steering wheel is turned clockwise to its maximum travel three times. It can switch cyclically, and the Quick flashing mode is the default.
 - In the Single mode, the ambient light has four working modes: Gradual, flashing, three-flash-one-off and OFF. Different modes can be switched when the steering wheel is turned clockwise to its maximum travel three times. It can switch cyclically, and the Gradual mode is the default; The roof light has three working modes: Solid on, slowly flashing and OFF, and it can be switched to different modes when the steering wheel is turned counterclockwise to its maximum travel three times. It can switch cyclically, and the Solid on mode is the default.

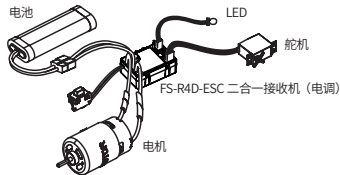
Notes:

1. If the headlight and tail lights are contrary to the actual control, the control mode of the headlight and tail lights should be reversed. When the transmitter is turned on, turn and keep the steering wheel counterclockwise to its maximum travel and power on the receiver to switch; if the left and right turn signals are contrary to the actual control, it is only necessary to exchange the left and right light wires at the car light interface.
2. If CH1 is set with channel reversal, all the above steering wheel operations should be operated in the reverse direction (change clock wise for counterclockwise, and change counterclockwise for clockwise).
3. The steering CH1 and throttle CH2 for car light control are capable of automatic neutral position identifying, after the trim is turned, the receiver should be powered to recognize the neutral positions of these two channels automatically.
4. The no-load output voltage of the car light interface is 6V, and the internal 100 Ω protection resistor has been connected in series. If an interface needs to connect multiple LEDs in parallel, it is recommended to connect a Resistor Voltage Divider in series for each LED.
5. All settings are saved when the receiver is turned off.

电调功能使用说明 ESC function instructions

1. 连接相关设备：

- 连接前请确认接收机电源开关处于关闭 (OFF) 状态，将电机与马达线 "+"、"-" 接口相连接，舵机接到 3Pin 排针接口上 ("+"、"-"、"S" 相对应)，电池与电源线 "+"、"-" 相接，注意对应极性。



2. 校准油门中位：

- 上面第一步相关设备连接好后，先打开发射机，并将发射机油门扳机置于中点位置（自然状态）。若中位校准通过，电调 LED 长闪 1 次，马达长响一声提示；若中位校准不通过，电调 LED 持续快闪，同时马达持续快响提示，此时马达无动力输出。
- 最后一步打开接收机开关，当电调电池类型为锂电池时，如使用 2S 锂电，则电调 LED 快闪 2 次（3 次代表 3S 锂电），马达快响两声（3 次代表 3S 锂电）；若为镍氢，则电调 LED 快闪一次，马达快响一声。

注：

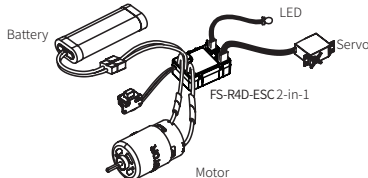
- 电调功能必须等到开机自检完成后方可运行（大约 3 秒），否则可能无法正常工作；
- 若开机后无动力输出，且电调红色 LED 快闪，说明发射机实际油门不在中点位置。请查看发射机油门微调是否置于 "0" 位置，微调油门中点直到电调红色 LED 不闪即可；
- 若运行时发现电机转向不对，将电调接电机的两根线互换位置即可；
- 为了一切正常，请养成先开发射机再接收机通电以及先接接收机断电再关闭发射机的习惯；
- 关于电调的电池类型设置、拖刹力度 (0%、50%、75% 或 100%) 设置和运行模式 (正转 / 反转、正转 / 反转 / 刹车) 的设置详见发射机 (FS-HW-G4P、FS-MG41、FS-G7P 或 FS-MG7) 说明书相关章节。

3. 电调处于正常工作状态：

- 油门扳机处于中位时无操作，电调 LED 常灭，马达无动力输出；
- 前进时，电调 LED 快闪；当油门处于正向最大 (100% 油门) 时，电调 LED 变成常亮；
- 油门处于反向最大 (100% 刹车) 时，电调 LED 变成常亮；
- 电调处于倒车状态或处于失控保护状态时，电调 LED 快闪提示。

1. Connect related equipment.

- Make sure the receiver is off before connection. Connect the motor to motor cable "+" and "-" interfaces of the receiver. Connect the servo to the 3Pin interface marked with "ST" ("+", "-" and "S" are connected correspondingly). Connect the battery to the power cable "+" and "-" of the receiver correspondingly.



2. Calibrate the throttle neutral position.

- After connecting related equipment as step 1, turn on the transmitter first, move the throttle trigger to the neutral position. After the calibration is successful, the ESC LED flashes once long and the motor gives a long beep for prompt. When the calibration has failed, the ESC LED quickly flashes continuously and at the same time the motor gives continous fast beep for prompt. And the motor has no output.
- Turn on the receiver. When the battery of ESC is LiPo, the ESC LED flashes twice (three times for 3S LiPo), and the motor gives fast twice beeps (three times for 3S LiPo); When the battery of ESC is NiMH cells, then the ESC LED flashes quickly once, and the motor gives a fast beep.

Notes:

- The ESC can be run after completing self-inspection (about 3 seconds) if power on, otherwise it cannot be operated normally.
- If there is no power output and the red LED of ESC flashes quickly after power on, it means that the actual throttle trigger of the transmitter is not at the neutral position, move the throttle trigger to the neutral position until the red LED of ESC does not flash.
- If the rotation direction is not correct during running, exchange the two wires connecting the motor and the receiver.
- To make sure everything is ok, please turn on the transmitter first and then the receiver, turn off the receiver first and then the transmitter.
- Refer to the relevant sections of the FS-HW-G4P, FS-MG41, FS-G7P or FS-MG7 user manuals for details about battery type, drag brake force and running mode of the ESC.

3. Description of LED status during normal operation

- The ESC LED is off when the throttle trigger is at the neutral position without any operation, and the motor has no output.
- The ESC LED quickly flashes when the vechel moves forward, and is solid on when the trigger is at the end position of forward (100% or -100% throttle).
- The ESC LED quickly flashes when reversing or in failsafe state.

失控保护 Failsafe

此功能用于当接收机无法正常收到发射机的信号不受控制时，保护模型和操作人员的安全。

- 接收机 CH1、CH3 和 CH4，可在发射机端进行相关设置，默认未设置；
- 接收机 CH2 通道（电调），失控后进入刹车模式；
- 若处于应急灯状态，则失控后保持最后状态；若处于其他车灯模式，则失控后车灯全部关闭。

The failsafe function is used to output the channel value according to the out-of-control protection value set by the user after the receiver loses its signal and is out-of-control to protect the model and personnel.

- The failsafe setting on CH1, CH3 and CH4 of the receiver can be set at the transmitter side. "Not set" is the default setting.
- The CH2 (ESC), enters the braking state in case of out-of-control.
- If in emergency state, emergency lights keep last state in case of out-of-control. For other car light mode, all lights turn off in case of out-of-control.

⚠ 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。
- 请查看各动力设备以及车架说明书,确保动力搭配合理,避免因错误的搭配导致动力系统损坏。
- 勿使系统的外部温度超过 90°C /194 °F,高温将会损坏动力系统。
- 关闭时,请务必先关闭接收机电源,然后关闭发射机。如果关闭发射机电源时接收机仍然在工作,将导致遥控设备失控。失控保护设置不合理可能引起事故。
- 使用完毕后,若长时间不玩车,切记断开电池与电调的连接。如电池未断开,即使电调开关处于关闭状态,电调也会一直消耗电能(只是非常小),长时间连接电池最终会被过放,进而导致电池或电调出现故障。我们不对因此而造成的任何损害负责!
- 确保接收机安装在远离电机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.
- Please carefully check each power device and car frame instructions to ensure the power matching is reasonable before use. Avoid damaging power system due to incorrect matching.
- Do not let the external temperature of the system exceed 90°C /194 °F, because high temperature will damage the power system.
- Make sure the receiver's battery is disconnected before turning off the transmitter, failure to do so can result out of control. Unreasonable setting of the Failsafe may cause accidents.
- After use, remember to disconnect the battery and the ESC. If the battery isn't disconnected, the ESC will consume electric energy all the time even if it is off. It will discharge completely if connect the battery for a long time, thus resulting in the failure of the battery or the ESC. We are not responsible for any damage caused by this!
- Make sure the receiver is mounted away from motors 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.

认证相关 Certifications

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, [Flysky Technology co., Ltd] declares that the Radio Equipment [FS-R4D-ESC] 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

The distance between user and products should be no less than 20cm.

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.



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Figures and illustrations in this manual are provided for reference only and may differ from actual product appearance. Product design and specifications may be changed without notice.

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