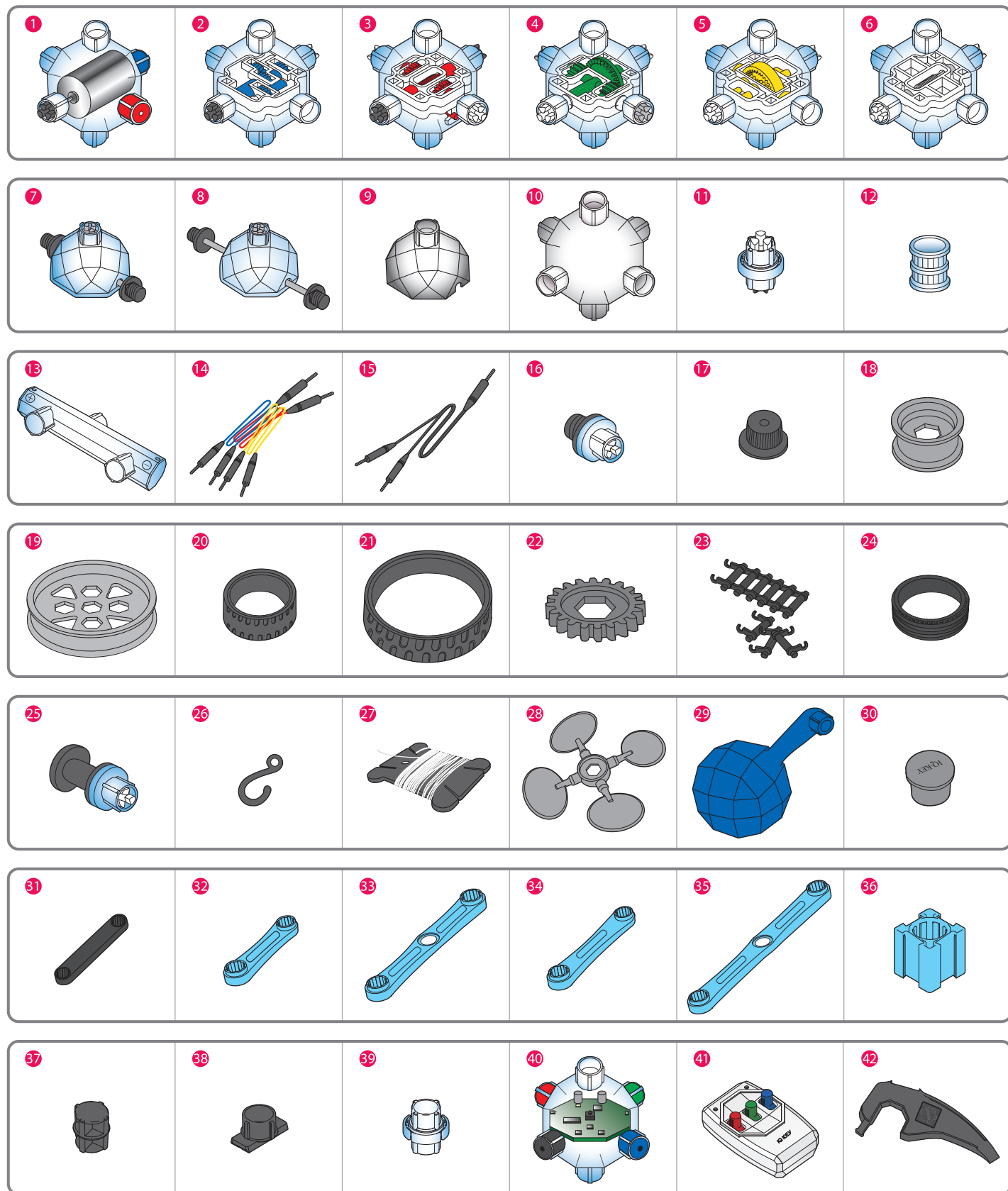




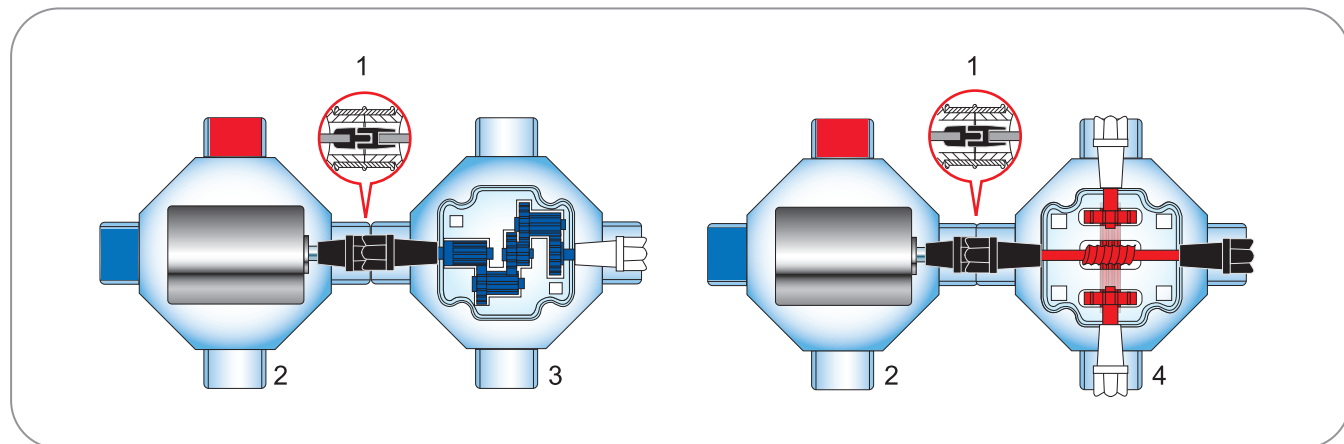
APPENDIX H : USER'S MANUAL



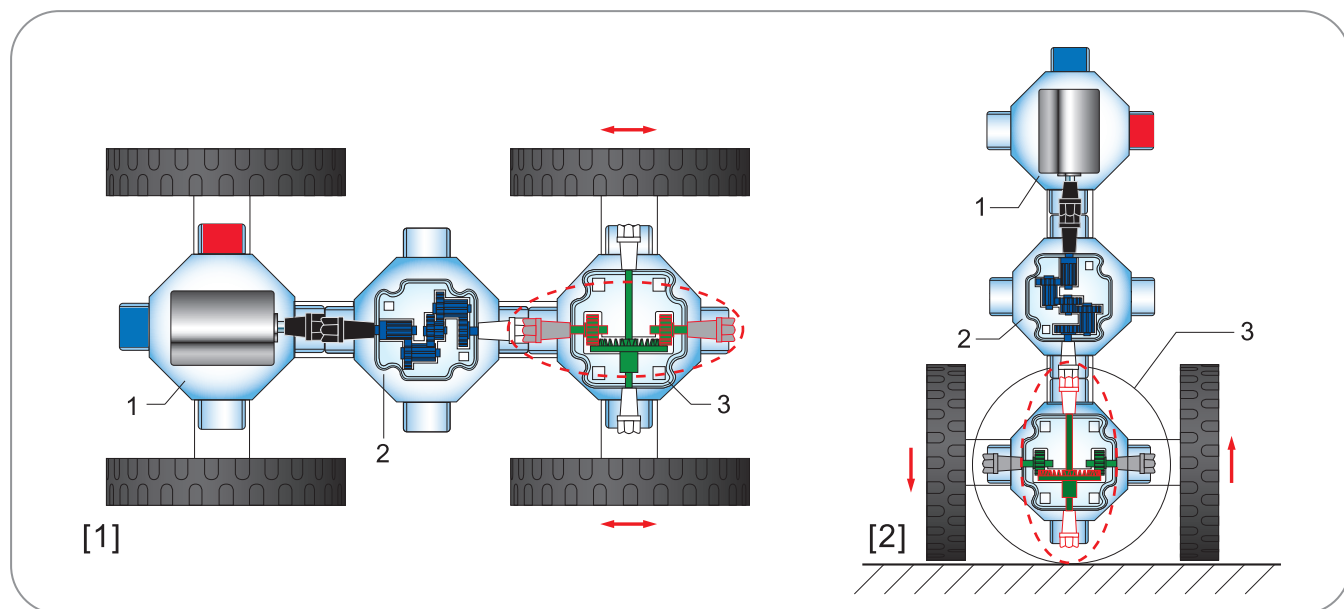
ADVANCE

A New Discovery in Science Education, an enjoyable scientific toy system with an easy modular assembly and powered by electric motors.
 "Today's clever children are tomorrow's clever adults."

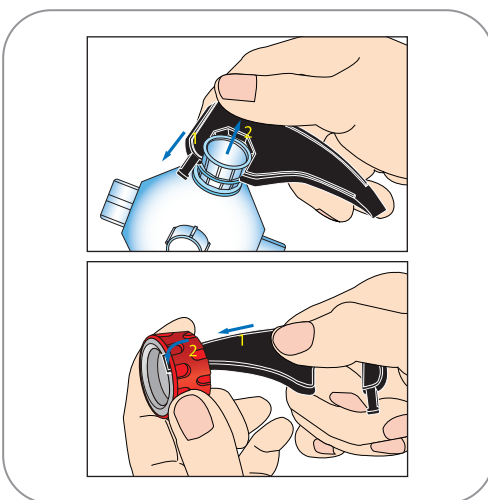
I A



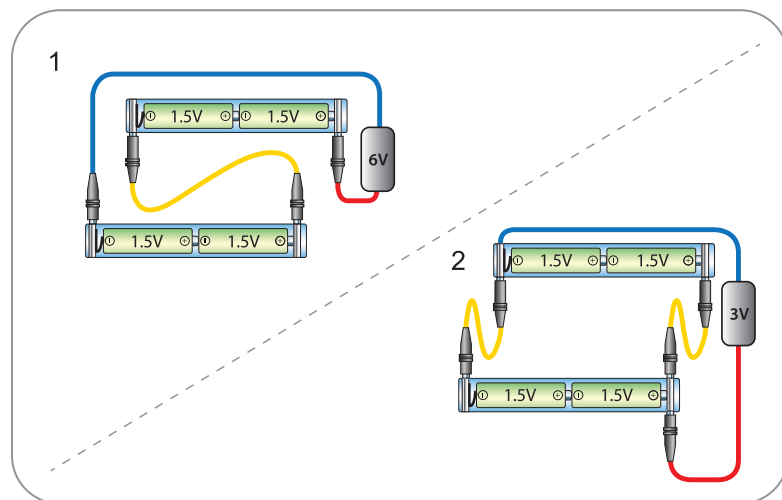
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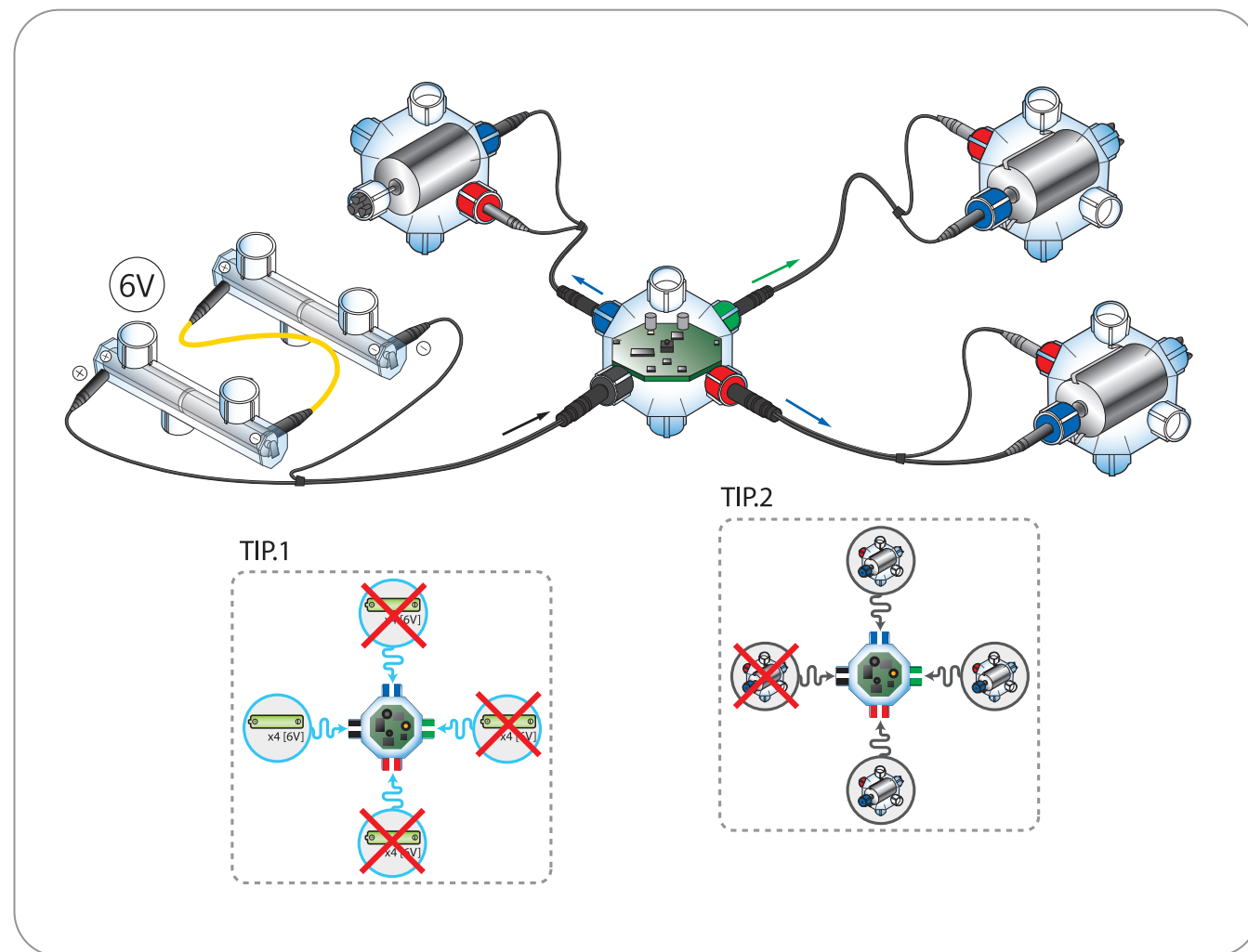
I C



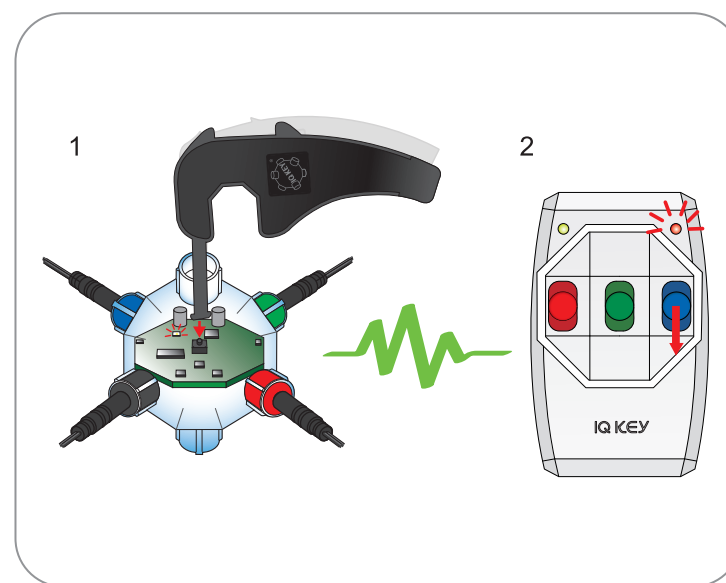
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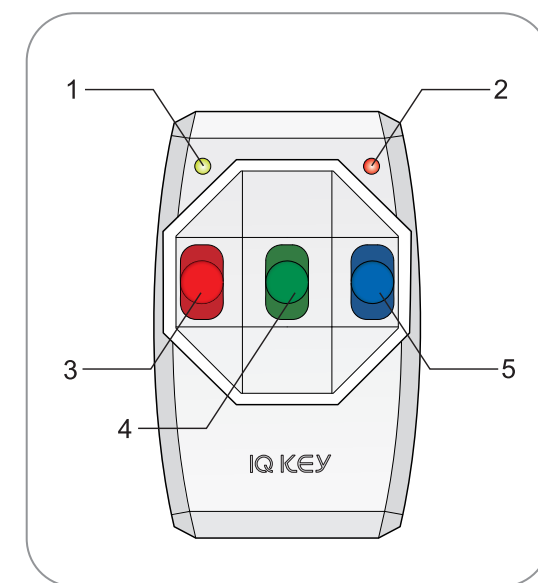
I E



I F



I G



Page 2,3 [Connection Method]
■ A. Cautions on Connecting Motor

To increase rotation force, when connecting the motor capsule to the speed reduction capsule or worm gear capsule, be sure to make black gears engaged with each other, or the motor and gear will not work correctly.

a-1. Black Connectors a-2. Motor Capsule a-3. Speed Reduction Capsule a-4. Worm Gear Capsule

■ B. How to Connect the Crown Gear Capsule

b-[1]. (top view) The left wheel and the right wheel rotate in the same direction. Engage the small gear to the speed reduction capsule for forward and backward movements.

b-[2]. (side view) The left wheel and the right wheel rotate in the different direction. The left wheel and the right wheel rotate in the different direction for rotation. Engage the big gear to the speed reduction for spinning.

b-1. Motor Capsule b-2. Speed Reduction Capsule b-3. Crown Gear Capsule

■ C. Connector Opener

When it's difficult to remove the octagonal connector or tire from the capsule or wheel, please use the connector opener like the picture C. Then you can remove them with ease.

■ D. Connecting Cells in series and parallel

d-1. a series connection d-2. a parallel connection

It can be 6 voltage if you connect batteries in series such as '1' and it is 3 voltage if you connect batteries in parallel such as '2'.

(Connecting cells in series make high voltage but the battery has a short life. And the battery has a long life if it's connected in parallel, but the electric power is not strong than connecting in series.)

■ E. Connecting method of the Receiver Capsule

Connect 6 voltage of batteries to the IN terminal of the Receiver Capsule and the Motor Capsule to the OUT terminal of the Receiver Capsule.

Tip.1 Please make sure IN terminal for battery is Black connector.

Tip.2 Please make sure OUT terminal for motor is Blue, Green and Red connector.

■ F. Manual paring

f-1. After connect the batteries to the Receiver Capsule, please push the paring button inside of the Receiver Capsule by using the Connector Opener. Then the Red light on the Receiver Capsule blinks.

f-2. Pull down the Blue lever on the Remote Controller and hold it around 30 seconds, then the Red light on the Remote Controller blinks. If the Red light on the Receiver Capsule blinks while pulling down the Blue lever, the paring is done.

■ G. Function of Remote Controller

g-1. Green light; it's turned on when the Remote Controller is working.

g-2. Red light; it's turned on when the paring is on progress.

g-3,4,5. Lever; connected motor on each color of the connector can be controlled by pulling down or up the same color of lever.

Page 4 [Parts Number, Parts Name]

1. Motor Capsule	12. Connector	23. Chain	34. Diagonal Bar Connector (S)
2. Speed Reduction Capsule	13. Battery Case (L)	24. Cable tire	35. Diagonal Bar Connector (L)
3. Worm Gear Capsule	14. Lead Line	25. Winding Drum	36. Cube Block
4. Crown Gear Capsule	15. Lead Line (2 in 1)	26. Hook	37. Connecting Pin(A)
5. Internal Gear Capsule	16. Coupler	27. Cable	38. Connecting Pin(B)
6. Transmission Capsule	17. Cap Nut	28. Impelle	39. Angle Pin (A)
7. Axle Capsule (S)	18. Wheel (S)	29. Floater	40. Receiver Capsule
8. Axle Capsule (L)	19. Wheel (L)	30. Cap	41. Remote Control
9. IQ Capsule (S)	20. Tire (S)	31. Bar Connector	42. Connector Opener
10. Q Capsule (L)	21. Tire (L)	32. Straight Bar Connector (S)	
11. Free Coupler	22. Gear Wheel	33. Straight Bar Connector (L)	

Standard Capsule

- Motor Capsule** : Receiving power from batteries, the motor capsule creates rotating force. According to the polarity of power, the motor capsule can rotate in both ways.
- Speed Reduction Capsule** : The speed reduction capsule slows rotation speed but increases rotation force. Be sure to engage the motor capsule's black gear (output) with the speed reduction capsule's black gear (input) for correct operation.
- Worm Gear Capsule** : Functions of the speed reduction capsule and crown gear capsule are combined into one part worm gear capsule. The black gear delivers the rotation speed to the opposite side while the other gear decreases the rotation speed and converts the rotation direction to 90 degrees. Be sure to engage the motor capsule's black gear (output) with the speed gear capsule's black gear (input) for correct operation.
- Crown Gear Capsule** : The crown gear capsule converts received rotation force into a forward or 90 degrees direction. According to chain connection, the gears rotate in the same direction or opposite directions.
- Internal Gear Capsule** : The internal gear capsule increases or decreases rotation speed in a forward direction. When a big gear is engaged, the rotation speed is up, and when a small gear is engaged, the rotation speed is down.
- Transmission Capsule** : With the transmission capsule, all kinds of gear capsules can be extended and rotation force is delivered between gears without variation.

[Specification]

1. Remote Control

- Height: 80 mm
- Width: 50 mm
- Depth: 32 mm
- Weight: 44 g
- Power rating: DC 2.2-3.6 V
- Operation Temperature: - 10 °C ~ 60 °C
- Hardware Version: V1.0
- Software Version: V1.0
- Frequency Range: 2405 ~ 2475 MHz
- RF Output Power: 1 dBm
- Technology: 2.4G wireless remote control module
- Modulation: GFSK
- Channel: 71

2. Receiver Capsule

- Height: 67 mm
- Width: 67 mm
- Depth: 67 mm
- Weight: 36.6 g
- Power rating: DC 6 V
- Operation Temperature: - 10 °C ~ 60 °C
- Hardware Version: V1.0
- Software Version: V1.0
- Frequency Range: 2405 ~ 2475 MHz
- RF Output Power: - 28 dBm
- Technology: 2.4G wireless remote control module
- Modulation: GFSK
- Channel: 71

[Label]

Product Name	IQ KEY Receiver capsule	IQ KEY remote control
Model Name	IQKEY-RC001	IQKEY-RC002
FCC ID	2ARG4IQKEYRC001	2ARG4IQKEYRC002

age : 7+

Material : pc, abs, pp, pe, tpe

Conforms to product safety standard ASTM F963-11

Manufacturer : unitrust development co.,ltd.

21,Yongsugongdan 2-gil,Jeongwan-eup,Gijang-gun,Busan,Korea

Importer : unitrust development USA INC.

bwtech@UMBC Research and Technology Park 1450 S Rolling Road

#2044 Halethorpe, MD 21227, USA

Website: www.iq-key.com e-mai: info@iq-key.com

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®Riq key is a registered trademark of unitrust development co.,ltd.

protected by law

Designed and manufactured by unitrust development co.,ltd. in south korea

Made in Korea



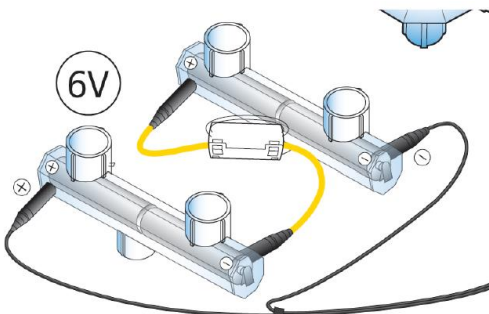
[Ferrite core]

How to use the ferrite core

- Use the ferrite core to reduce the electromagnetic interference in the power cord. Wind the power cord on the ferrite core once.

[Battery case side]

[Battery case side]



FCC 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.

FCC Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment and For indoor use only, use outdoors or in other modes not covered by this manual may violate the FCC regulation and violate the user authority to use the product.

FCC RF Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. End users must follow the specific operating instructions for satisfying RF exposure compliance.