



Code-Play Block & Code-Bot

User Manual

MODEL Name : CR-CCBOT-v001 & CR-CBP-v001



What are Code-Play blocks?

Code-Play blocks are awesome blocks that can move robots in the way that they are assembled.

Each block has a command to move the robot. So if you put the blocks together correctly, you can make the robot do many different things.

Try making "Choco" the robot do some things by assembling the blocks as shown below.



How to Play with the Blocks

This is a brain block. Brain blocks are the heads or brains of the blocks.

The brain block collects the commands of the blocks and sends them to the robot.



--- This is the power button. The green light comes on.

If the green light is on, it means that the brain block is ready to work.

When playing with the blocks, do not press this button.

① When the green light is blinking, it means that the robot is disconnected.

② If the red light is blinking, it means that the battery is low.

... This is the RUN button. Pressing this button makes the robot move.

When the green light is on, it means that the brain block is ready to work.



How to Pair the Robot with the Blocks

When the power of the brain block is turned on, the first LED light blinks green. If the light is blinking green, it means that it is not connected to the robot.

After turning on the robot's power, put it to the brain block closely and wait until the light no longer blinks but stays on.

Once the green light no longer blinks and stays on, it means that it is connected to the robot.

What is Pairing?

Pairing is the process of connecting the brain block to the robot.



How to Connect with the Robot



Now that the brain block is on, what shall we make the robot do?

I want to make the robot move~

Use the 'MOVE' block to make the robot move.

This is one rule, however.

Rule

To make the robot move using the blocks, you have to put the "START" block at the very beginning.

After putting the "START" block at the beginning, add the "MOVE" block.

Now let's connect these two connected blocks to the brain block. Has the "START" block light come on? That means that it's ready.

Now try pushing the button. Did the robot move?

Example



How did the robot move? Forward?

Press it again. Did the robot move forward?

So what if we want to move the robot backward?

Try using a direction block.

Direction blocks let you move the robot in the direction shown.

Direction Block
How to Use



Connect the direction blocks as you wish and see how the robot moves.

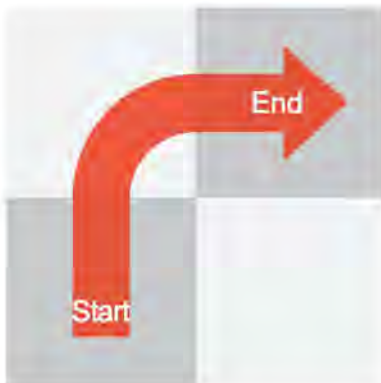


The directions in which the robot moves are determined by the direction blocks.

Rotate the direction and connect it. The robot will move in that direction.



Try it 1) Move the robot in the direction of the arrow.



How do you command the robot to move in the direction of the arrow?

Try moving the robot using the "START", "MOVE" and "ARROW" blocks.

Example



* All command blocks have default values.

* The default value of "MOVE" is "FORWARD".
You don't have to use direction blocks when moving forward.

Try it 2) Turn on the light on the robot



How do we go about turning the light on the robot on?

Let's try using the "LED ON" block.

Did the light come on?

Now, what block do we have to use to turn the light off?

Example



What happens if we connect a number block to the "LED ON" block?



[The color changes depending on the number.]

0 : Off	4 : Yellow
1 : Blue	5 : Purple
2 : Red	6 : Light blue
3 : Green	7 : White

* What if there are no numeric blocks? **Blue!**



What happens if we connect a direction block to the "LED ON" block?

* Try it yourself and observe what happens, then write down the results.





What happens if a direction block and dial block are connected together with the "LED ON" block?



Tip.3

By connecting a direction block and a dial block together in the "LED ON" block, you can change the position and color of the LED at the same time.



Learn how to use the "dial block"



You can turn the dial to get the number you want.
Press the button once to enter a decimal point.



Learn How to Use "FUNCTION" Block.

Let us learn how to use "FUNCTION" block.

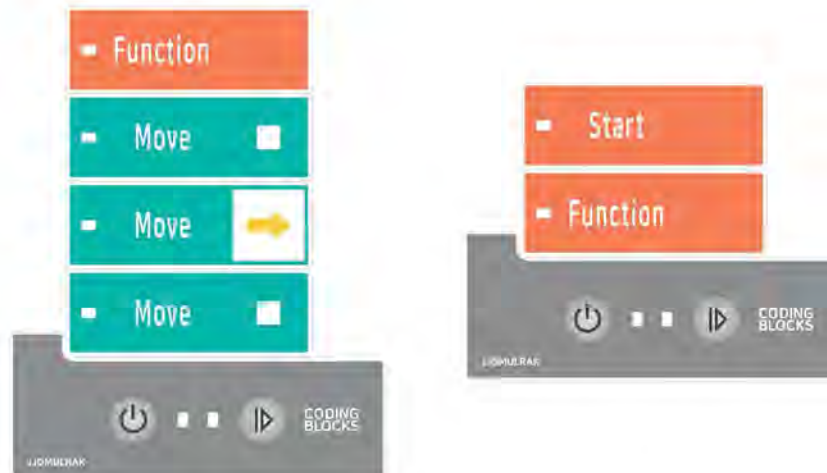
- Function

By using "FUNCTION" block, you can make a robot do a lot of things with a small number of blocks.

"FUNCTION" block does a role of memorizing the group of command blocks.

Let us find out the way to store the group of command blocks to "FUNCTION" block.

How To Use FUNCTION Block



Arrange the command blocks as shown on the left, attach the "FUNCTION" block at the top instead of "START" block, and press RUN button.

You may see the light flickering three times on the left side of the "FUNCTION" block.

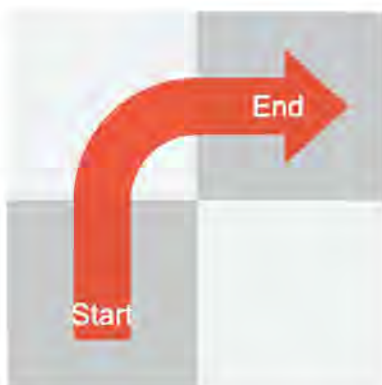
If the flickering stops, the storage is completed.

After saving is completed, place the "FUNCTION" block under the "START" block as shown on the right and press the RUN button.

Then commands that were initially placed under the "FUNCTION" block are executed.

Now let us use the "FUNCTION" block to move it back to its destination, and then back it up.

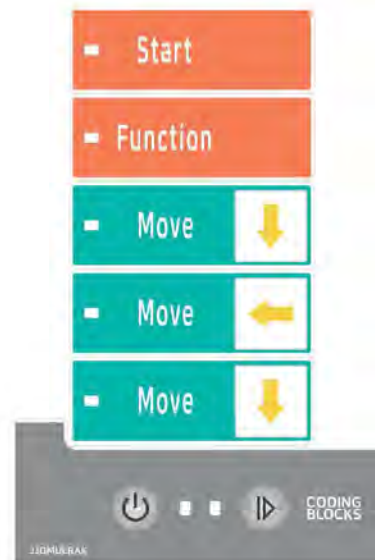
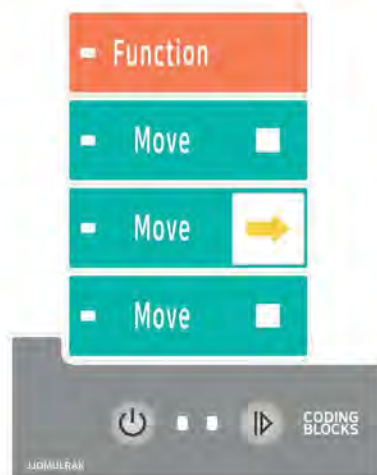
Try it 3) To make a movement using "FUNCTION" block



How do you do to get the robot to move in the direction of the arrow and then back into place?

Let us store the group of blocks that goes to the destination in the "FUNCTION" block, and use them again to get the robot back in place.

Try it 3)
Example)



How to Use "REPEAT" Block

Let us learn how to use "REPEAT" block.

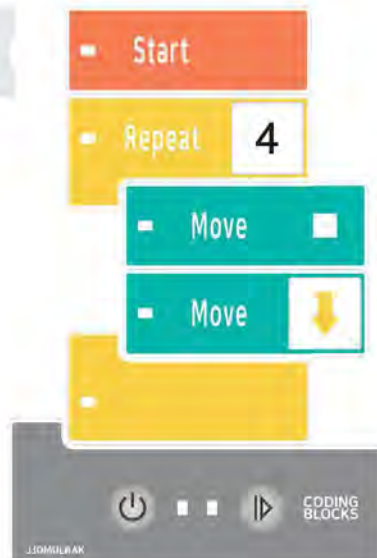


You may simply order to do the repeated tasks

The "REPEAT" block repeats the command group of the command blocks.

When using "REPEAT" block, you must use the "CLOSE" block together.

REPEAT Block
Usage Example)



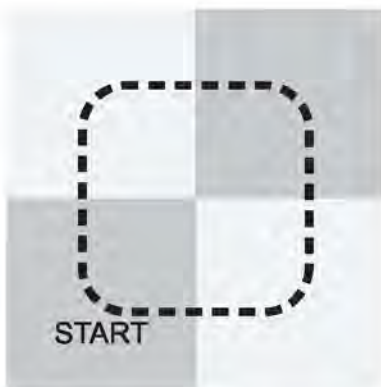
How do the left and right behave differently?

Left side connects the number "4" block to the "REPEAT" block, and repeat the "FORWARD" and "BACKWARD" movements four times.

Right side, unless you stop, will repeat indefinitely.

Let us use the "REPEAT" block to draw a rectangle and make a move?

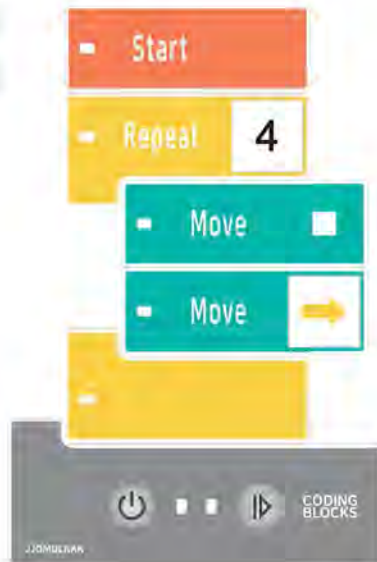
Try it 4)



How do you command a robot to move in a square shape along a dotted line?

You may move the robot using the "START", "MOVE", "ARROW", and "REPEAT".

Try it 4)
Example)



* The "REPEAT" block is used with the "CLOSE" block.

* "REPEAT" blocks can be connected to the "NUMBER"



To Move to Coordinates

“Choco” has the ability to move to the coordinates.

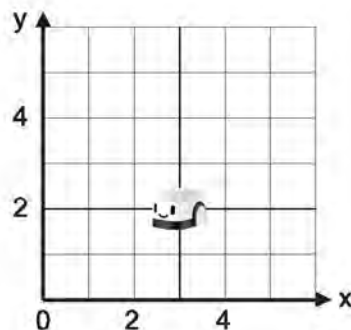
What is coordinates? It is a method of marking a position in a straight



A method of making a position in a straight line, plane, or space with a number or symbol.

Quiz 1)

Math Quiz

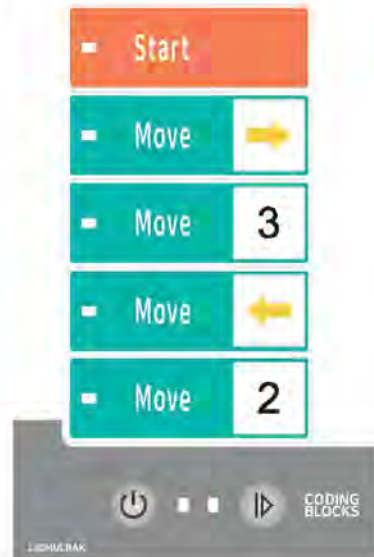


In the picture on the left, tell where “Choco” is using coordinates.

- ✎ The current position of “Choco” is located at $x=3$, $y=2$. It is represented as $(3, 2)$

How do you command “Choco” to go from $(0, 0)$ to $(3, 2)$ in the figure above?

Coordinate Movement Example)



The figure on the left is a group of commands that use the “MOVE” block to move to the position $(3, 2)$.

The figure on the right is an example of using the “Coordinate Movement” function.

When the two number are simultaneously connected to the “MOVE” block, “Choco” assumes each number as the coordinates that it shall move to.

It will assume the number in front as the position of the x-axis, and the number in the back as the position of the y-axis.

According to this command, “Choco” will move by itself to the $(3, 2)$ position as shown in the left.



To Use "IF" Block

Let us learn how to use "IF" block.



You may use forward sensors, floor sensors and light sensors.

The "IF" block can behave differently depending on external circumstances or conditions.

When using the "IF" block, you must use "CLOSE" block together.

The "IF" block is mainly connected to the "SENSOR" block, which can cause different actions depending on the state of the sensor.

You may say it "If~ then...".

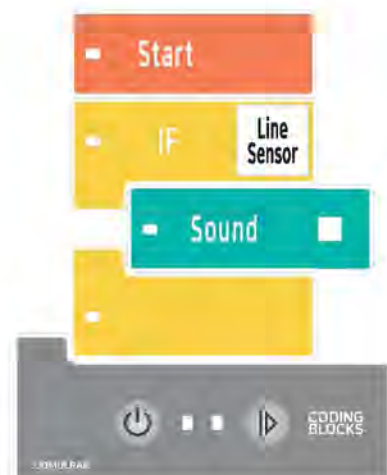
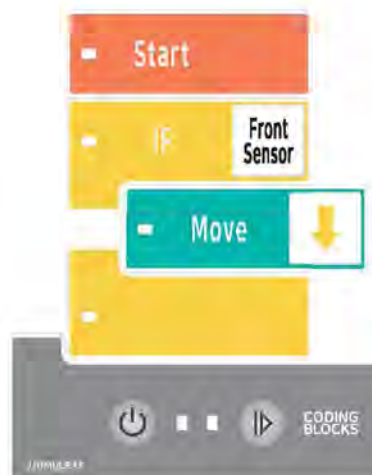
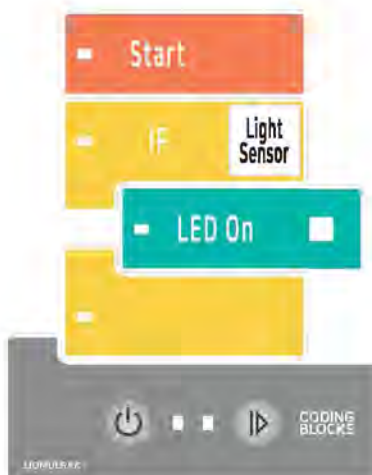
"IF" Block Sensor Combination

Example 1) To make the light turn on itself when it gets dark? -> Light sensor

Example 2) To stop by itself when an obstacle is present -> Front sensor

Example 3) To respond to black lines -> Bottom sensor

"IF" Block Usage Example)

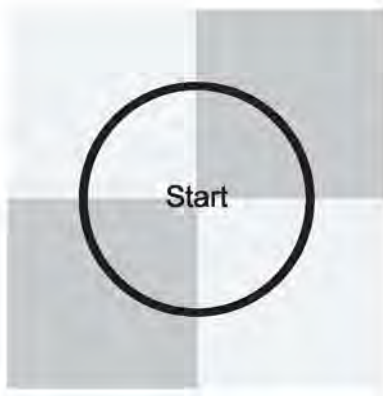


- 1) If the light sensor detects darkness -> Run "TURN ON LED"
- 2) If there is an obstacle ahead -> Run "BACK" + "MOVE"
- 3) If a black line is detected in the floor sensor -> Run "MAKE SOUND"

Using "IF" blocks can make "Choco" to recognize obstacles by itself and avoid them.

Let us use the "IF" block to make "Choco" move by itself.

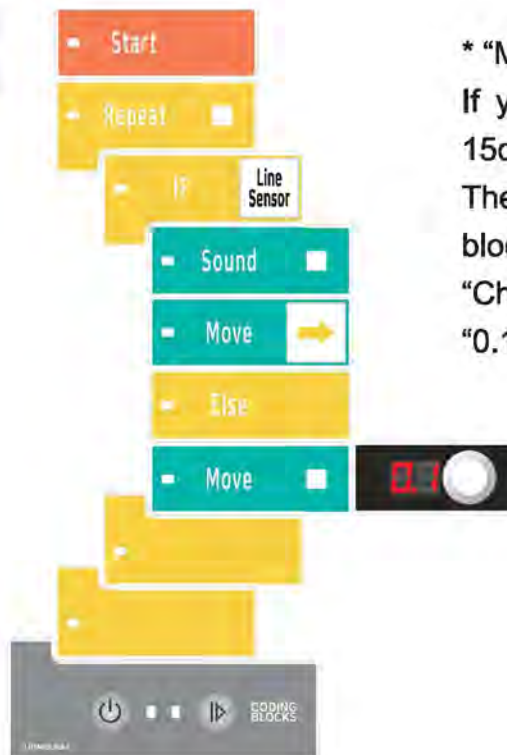
Try it 5)



How do you command to draw a black circle and make robot not to get out of that circle.

Use the "IF" and "SENSOR" blocks to move the robot.

Try it 5)
Example)



* "MOVE" block moves 15cm at a time.

If you encounter "MOVE" block, it moves 15cm at a time and detects the sensor. Therefore you will attach the "NUMBER" block to the "MOVE" block to prevent "Choco" from leaving the circle and set it to "0.1", you will only move 1.5cm at a time.

1 → Move 15cm

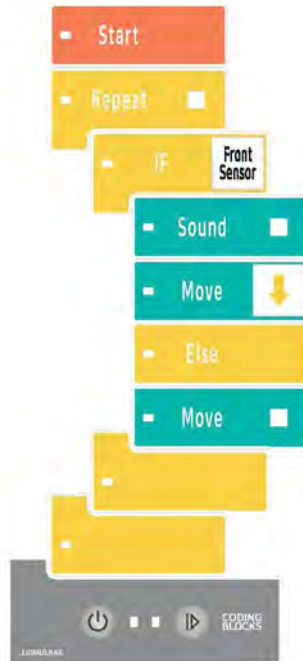
2 → Move 30cm



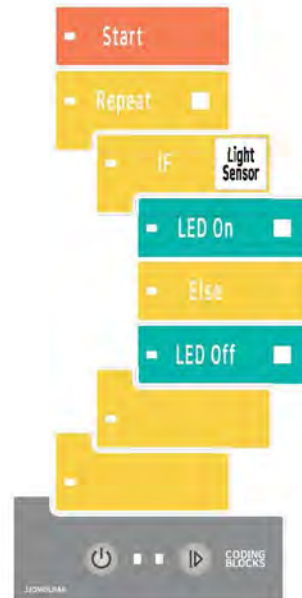
Utilizing Sensor

Use “IF” block to utilize “SENSOR” block.

Application 1)



If there is an obstacle,
Say “Honk Honk” and go back



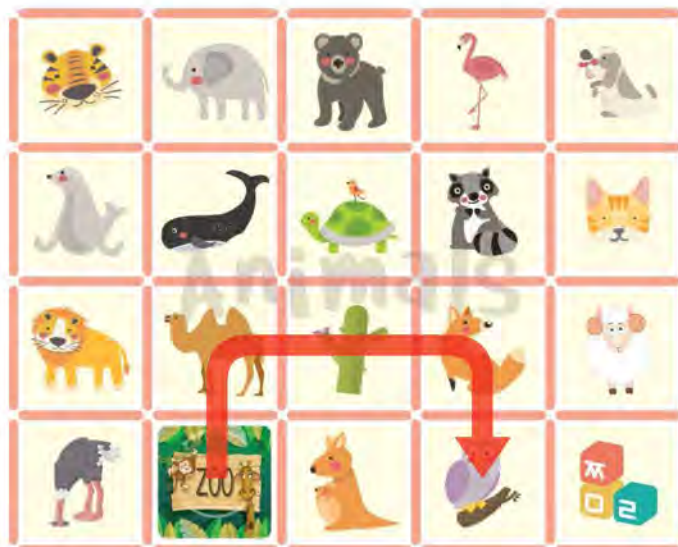
When it gets dark
Turn on lights by itself



Do It Yourself

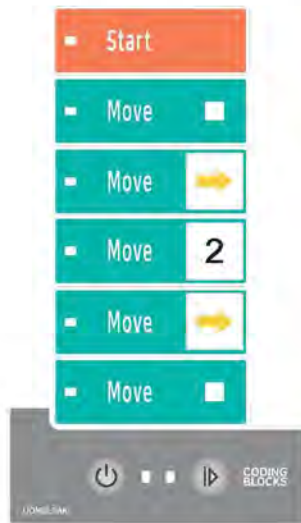
From the entrance to the zoo, try to get to the owl passing by camels and foxes.

Do It Yourself)



Explanation)

Normal method for destination arrival



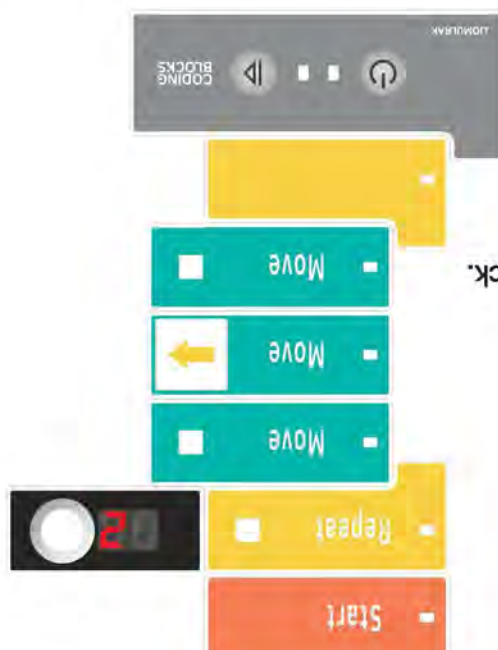
- * It is possible to reach at the destination.
You will just need five "MOVE" blocks.
- * You should use "REPEAT" block.
Then how do you get it to repeat?

You may see the pattern that repeats when you draw like this?

You just have to cut into two parts and repeat one part twice.

Solution)

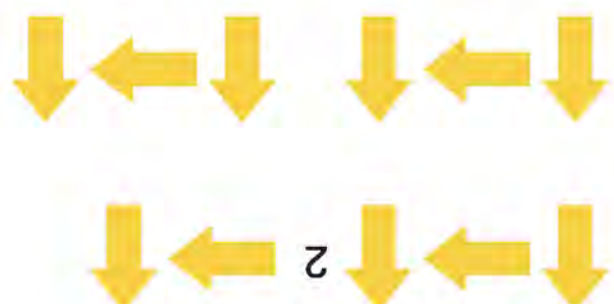
Find a pattern that repeats and use "REPEAT" block. You are able to minimize the number of blocks used by repeating for the number of repetitions.



This block can be solved with 2 "MOVE" blocks.



* To find the pattern
Express it in pictures after solving every single block.





Now we'll see the names and roles of all the blocks.

Name	Block	Role of the Block
Start		It means that all commands are started. The "START" block should always be on top.
Move		It's a command to move the robot. You can adjust the direction using direction blocks.
Turn on LED		Turn on the robot's lamp. You can adjust the position of the lamp using the direction block, and you can adjust the color using the number block.
Turn off LED		Turn off the lamp on the robot.
Make Sound		The robot makes a sound. When you connect a number block, you can make the robot make the sound of cars, robot, puppy, cat, chicken, tiger or and lion, depending on the number.
Wait		The robot waits without performing any action. You can set the time to wait by connecting the number block or the dial block.
IF		It can be connected to the sensor block. If "□□" is detected by the "□□" sensor...
Repeat		From here, the command blocks up until the 'CLOSE' block are repeated.
Else		Number of repetitions when connecting a number block.
Close block		Mark the ends of the "IF" and "REPEAT" blocks.
Function		It remembers the combined command blocks at once.
Number block		2, 3, 4, 5, 6, 7
Direction Block		It controls the direction of the robot according to the direction inserted.
Sensor block		It is used together with the "FRONT SENSOR", "BOTTOM SENSOR", "LIGHT SENSOR" and "IF" blocks.
Dial block		It acts like a number block. You can change the number by turning the dial. (Possible to choose from 0.1 to 99.)
Brain block		It must always be at the bottom. It collects all the commands under the "START" block and sends them to the robot.



FCC Manual Required Notations

1. 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.
2. 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.

NOTE: THE GRANTEE IS NOT RESPONSIBLE FOR ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

3. 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, including interference that may cause undesired operation of the device.
4. The user manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
5. RF Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines as this equipment has very low levels of RF energy. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.



Precautions

Caution 1

You must use two fingers when pulling out the "number block", "direction block", and "sensor block" and you must apply equal force to the two fingers to pull.

Applying force to only one side or more to one side than the other side when attempting to pull it out could cause it to break.



Correct Example (O)



Wrong Example (X)

Caution 2



If you briefly press the power button during use, the red light on the left blinks. If you press the orange button at this time, each time you press the orange button will run a single command.

If you want to see it run all the commands at once, make sure that the red light is blinking.

Caution 3



If you want to disconnect the connected robot, quickly press the power button twice.

Once it has been disconnected, the green light on the left will blink.



All text and images in this document are copyrighted by CnR Tech. Co., Ltd. Unauthorized copying or use of this product is prohibited. If you use this product without permission, you may be punished according to related laws and regulations.