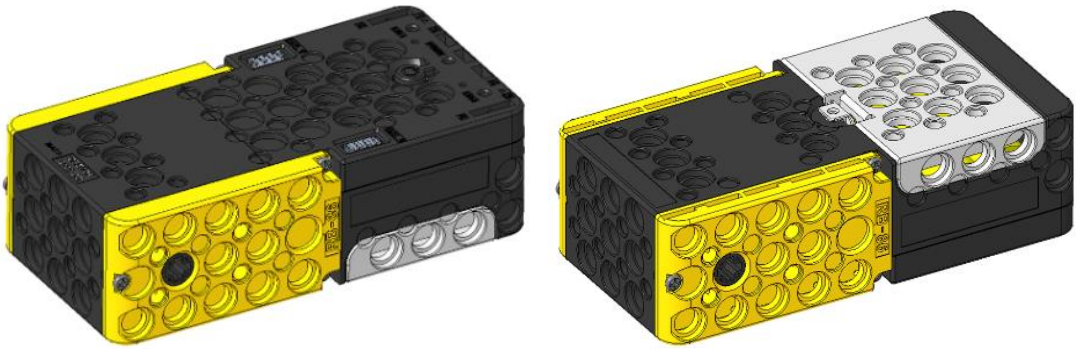
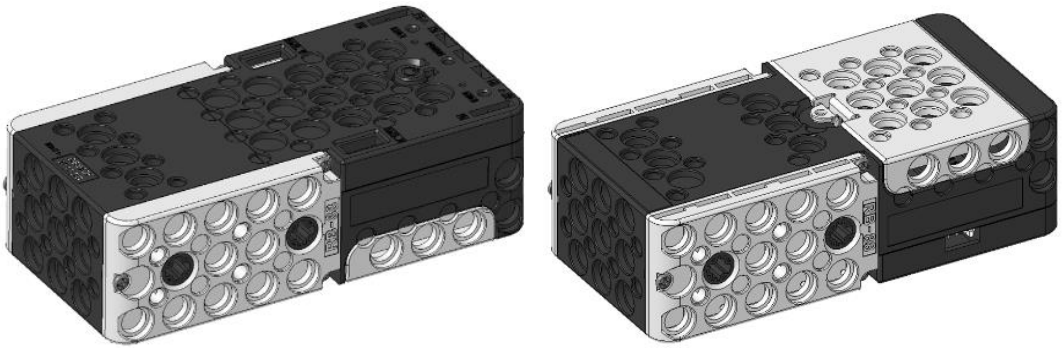
Introduction



RB-86



RB-88

- RB-86 is the controller for OLLO K+ robot kit and RB-88 is the controller for OLLO AI robot kit.
- Please see the following table for functions and differences of RB-86 and RB-88.

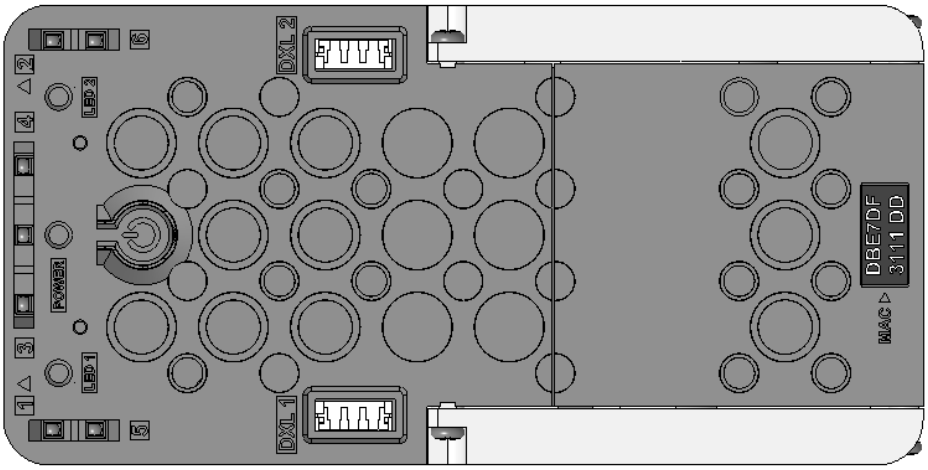
Functions	RB-86	RB-88
Power	AA x 3	
BLE	O	
IR	6	
DYNAMIXEL Port	2	
Button	1	
MIC	1	
Buzzer	1	
High Speed Axis	-	2
Low Speed Axis	2	2

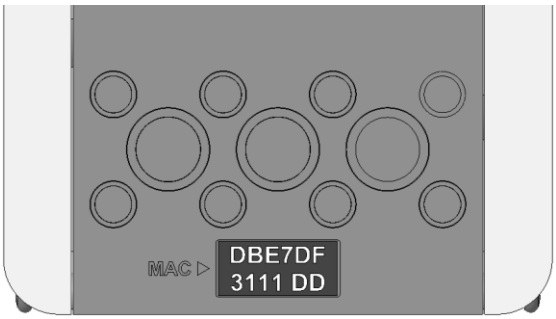
- Recover controller firmware with STEAMCUP App.
- Write an R Block code and control robot's components in https://rblock.steamcup.org/

Specifications

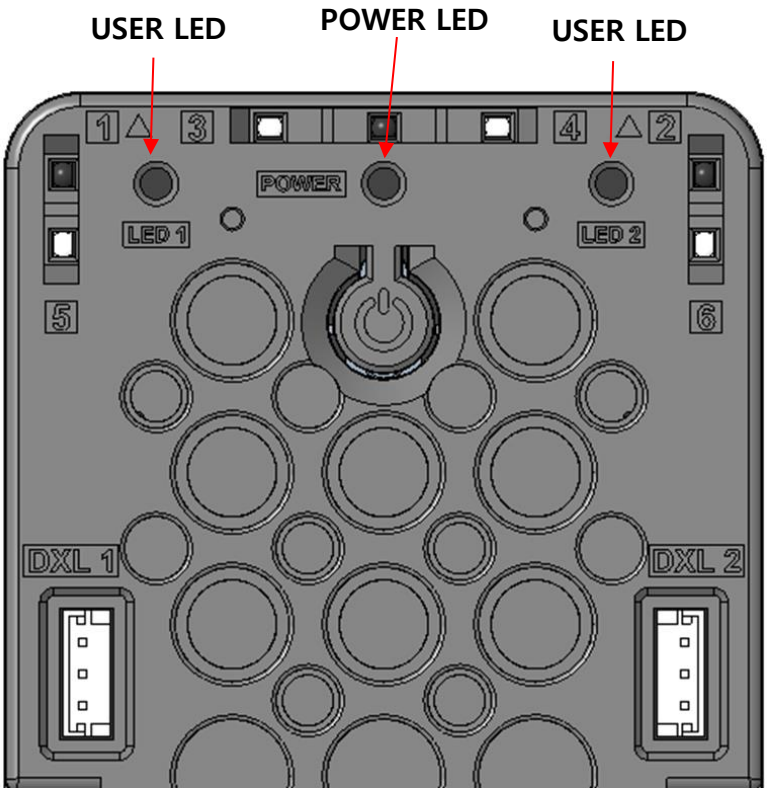
Item	Description
Weight	RB-86 / RB-88 : 158.5g
Size	120 mm x 61 mm x 36 mm
Voltage Supply	Range : 3.2V ~ 4.8V (AA battery x 3)
Current Consumption	Standby: 50mA Max: 2000mA
Operation Temperature	-5°C ~ 70°C
Wireless Communication	Bluetooth 5.1 compliant single-mode Bluetooth Low Energy
Internal I/O components	IR sensor x 6 Mic (Sound sensor) x 1 Buzzer x 1 AUX LED x 2 (ORANGE, GREEN)
External I/O components	DYNAMIXEL ports (for XL330) x 2

Layout

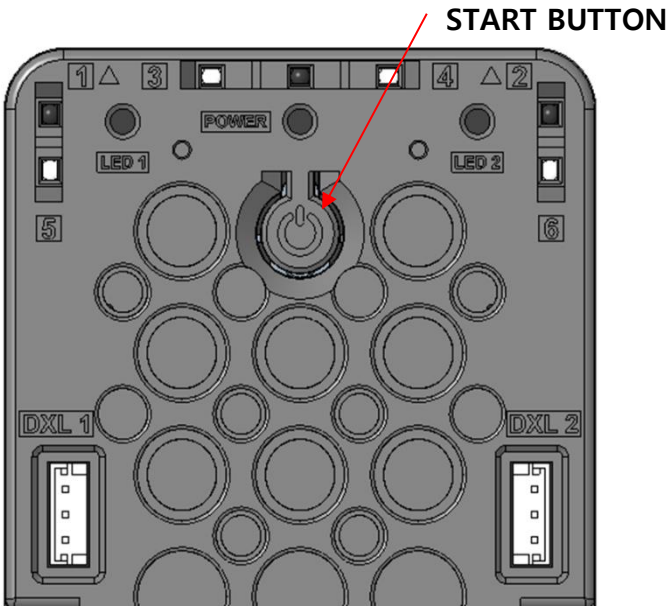


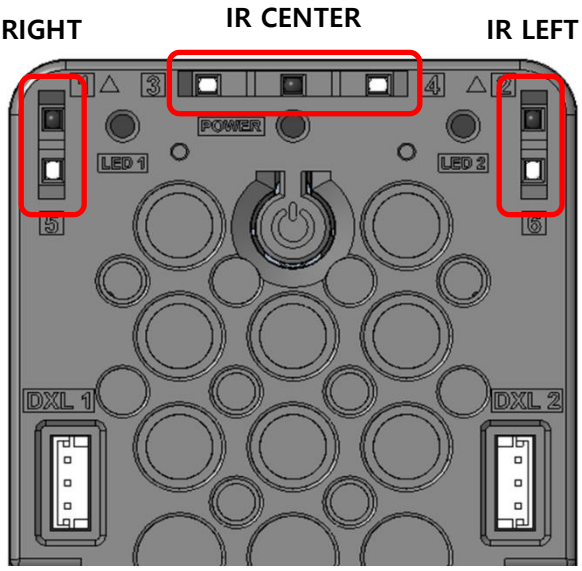


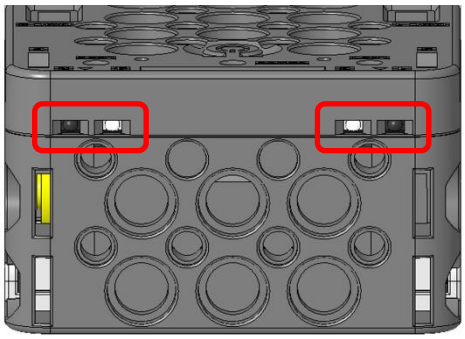
- **BLE MAC Address**: Unique BLE MAC address of RB-86/RB-88.



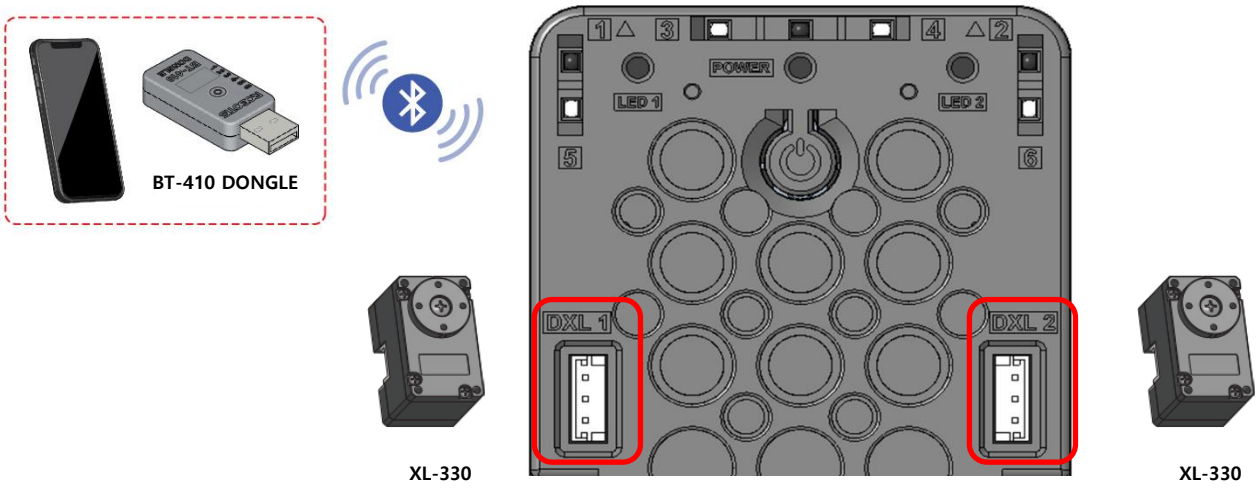
- **POWER/BLE LED**: BLUE LED indicates if powered on. If BLUE LED is blinking, BLE is not connected. If BLUE LED turns on without blinking, BLE is connected to a central device.
- **USER LED**: ORANGE LED and GREEN LED can be controlled by user's program.







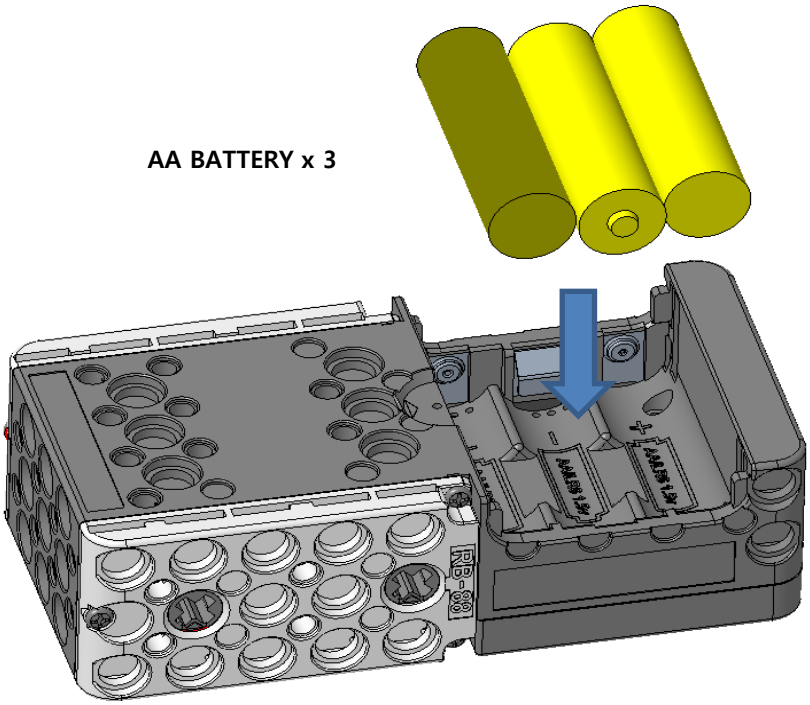
- **Start button**: After a short press the POWER LED(BLUE) will turn on and the loaded program runs
- **IR sensors**: measure each of the integrated 6 IR sensors



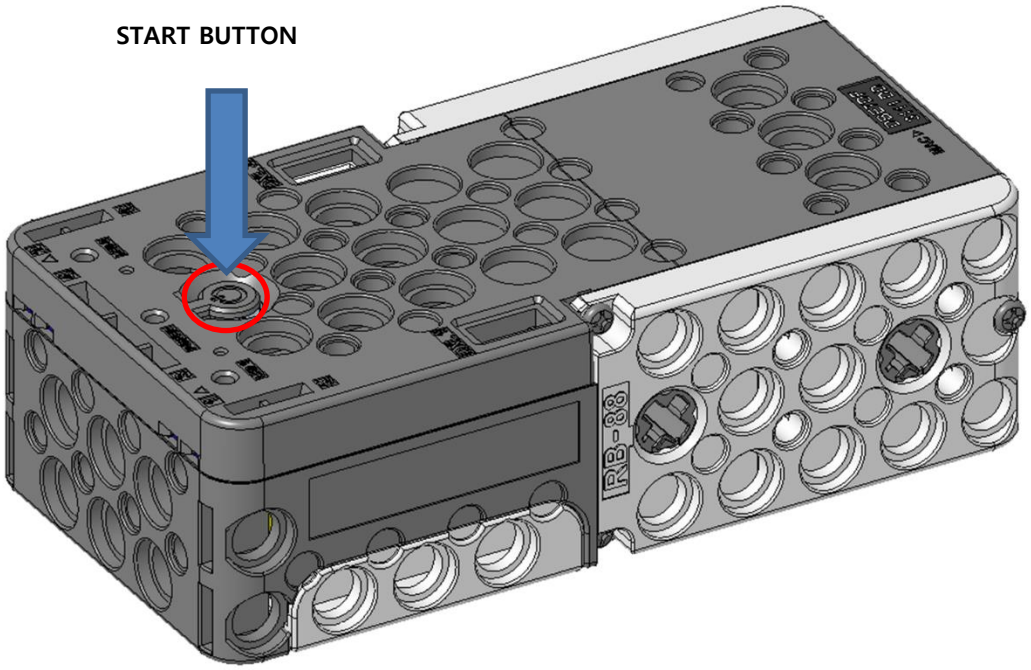
- **Bluetooth LE** : built-in BLE, possible to connect to BT-410 dongle or Smart Devices.
- **Port 1 ~ 2** : Connect to XL330 DYNAMIXEL.

Connecting Power

- Remove the battery cover and insert 3 AA batteries into the battery bay, then close the battery cover.
- Pay attention to battery polarity.



How to Operate

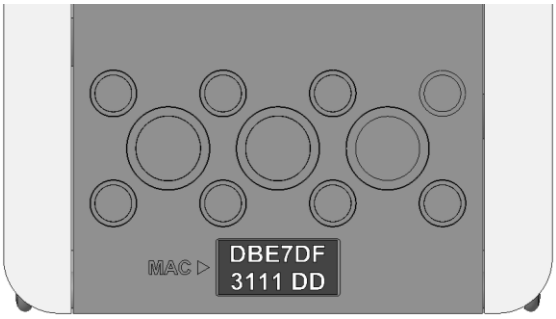


- Press the Start button once shortly, the POWER LED turns on and the controller runs one downloaded program
- Press the Start button N times to turn on the controller. The controller can run a specific part of a program given said N number of presses.
- Hold the Start button for more than 1 second and it will emit 2 beep sounds, LED turns on, and the controller is under management mode (Downloaded R Block program will not run under this mode).
- To turn off the controller press the Start button once shortly.
- The controller's automatic turn-off time is 5 seconds by default Reference Automatic Turn-off

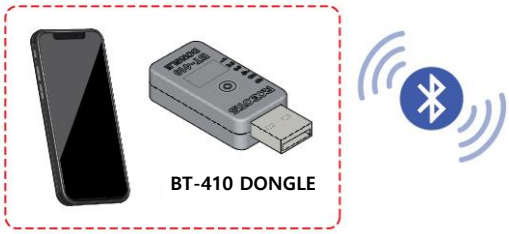
-
- Hold the Start button for more than 5 seconds and it will emit 3 beep sounds. The controller is in BLE firmware update mode. User can update firmware with STEAMCUP App.

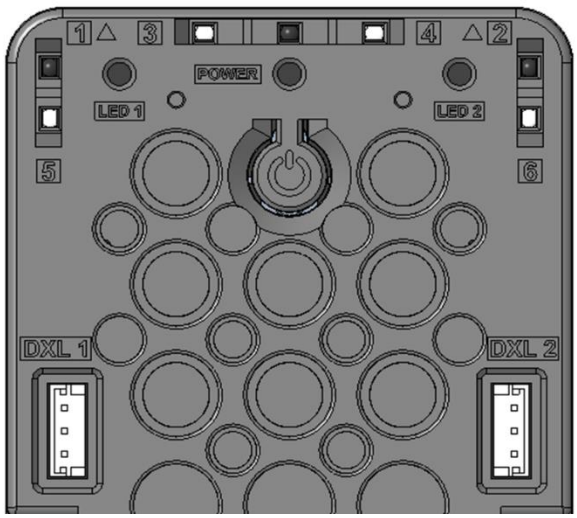
Wireless Communication

- RB-86/RB-88 is capable of BLE communication, therefore is compatible with BT-410 Dongle or Smart Devices.
- Connect RB-86/RB-88 to BT-410 Dongle by placing them within 5cm.
- Connect Smart Devices to specific RB-86/RB-88 with unique MAC address of each RB-86/RB-88.



- When RB-86/RB-88 is NOT paired with a BLE Central Device (BT-410 Dongle or Smart Phone, etc.), the BLUE LED of RB-86/RB-88 will blink.
- Once RB-86/RB-88 paired to a BLE Central Device, the BLUE LED of RB-86/RB-88 will turn on without blinking.





FCC Information

- This device complies with part 15 of the FCC Results. Operation is subject to the following two conditions :
  (1) This Device may not cause harmful interface, and
  (2) This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for CLASS B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment 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 correct the interference by one or more of the following measures:

1.1. Reorient or relocate the receiving antenna.
1.2. Increase the separation between the equipment and receiver.
1.3. Connect the equipment into an outlet on a circuit different from that to which receiver is connected.
1.4. Consult the dealer or experienced radio/TV technician for help.

- WARNING
  Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

- "CAUTION : Exposure to Radio Frequency Radiation.
  Antenna shall be mounted in such a manner to minimize the potential for human contact during normal operation. The antenna should not be contacted during operation to avoid the possibility of exceeding the FCC radio frequency exposure limit.