MBC Master Series - EV3 Version

Labview

- mode 1~3
- channel 1~4

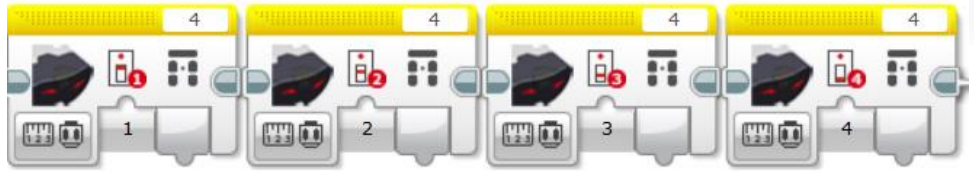
mode 1



mode 2

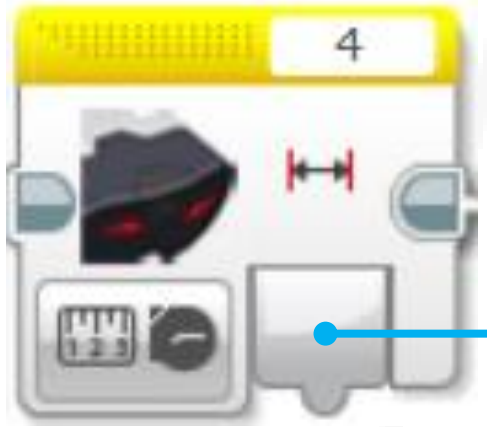


mode 3





mode 1

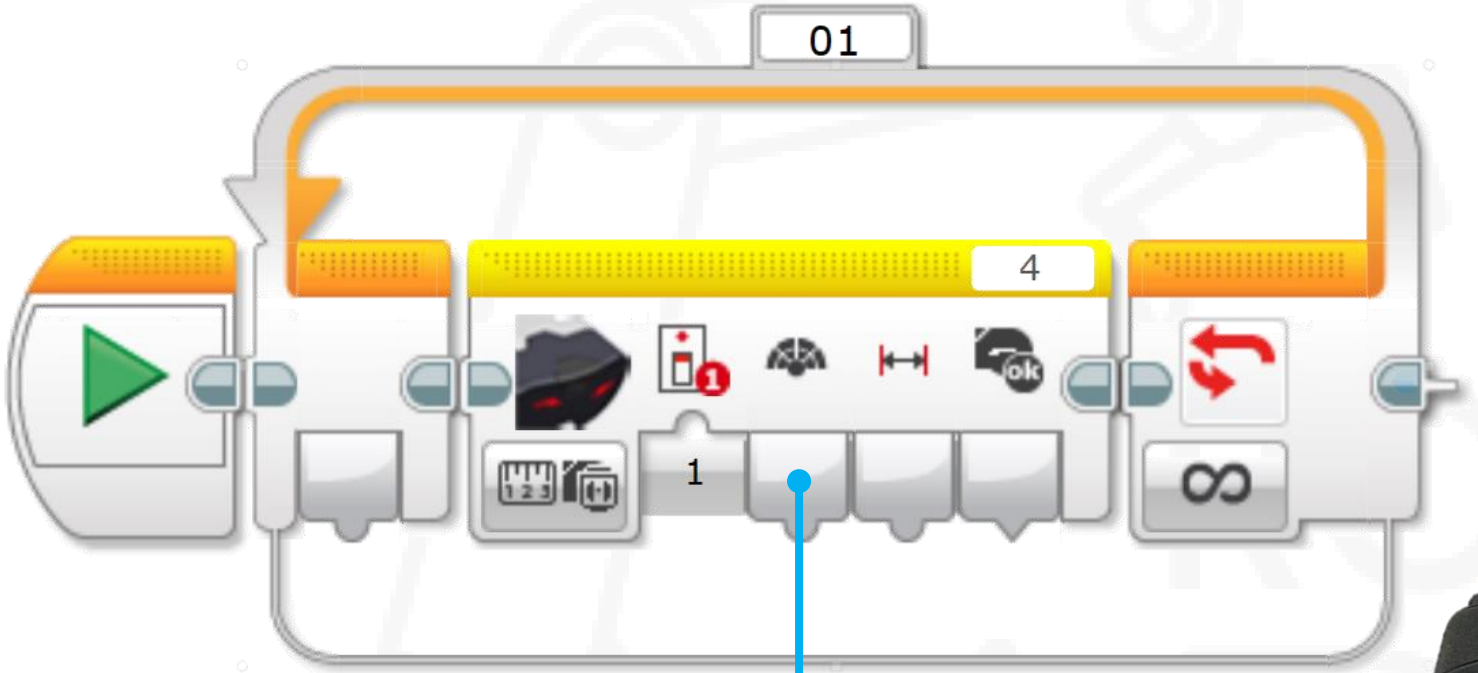




Data Range 0 ~ 15

Button	Value	Button	Value	Button	Value	Button	Value
Up	1	Up + Left	3	Up+Left	9	Up+Down+Left	13
Left	2	Up +Down	5	Right+Left	10	Right+Down+Left	14
Down	4	Right+Down	6	Up+Right+Left	11	Up + Left + Down + Right	15
Right	8	Up+Right+Down	7	Down+Left	12	None	0

mode 2-channel 1



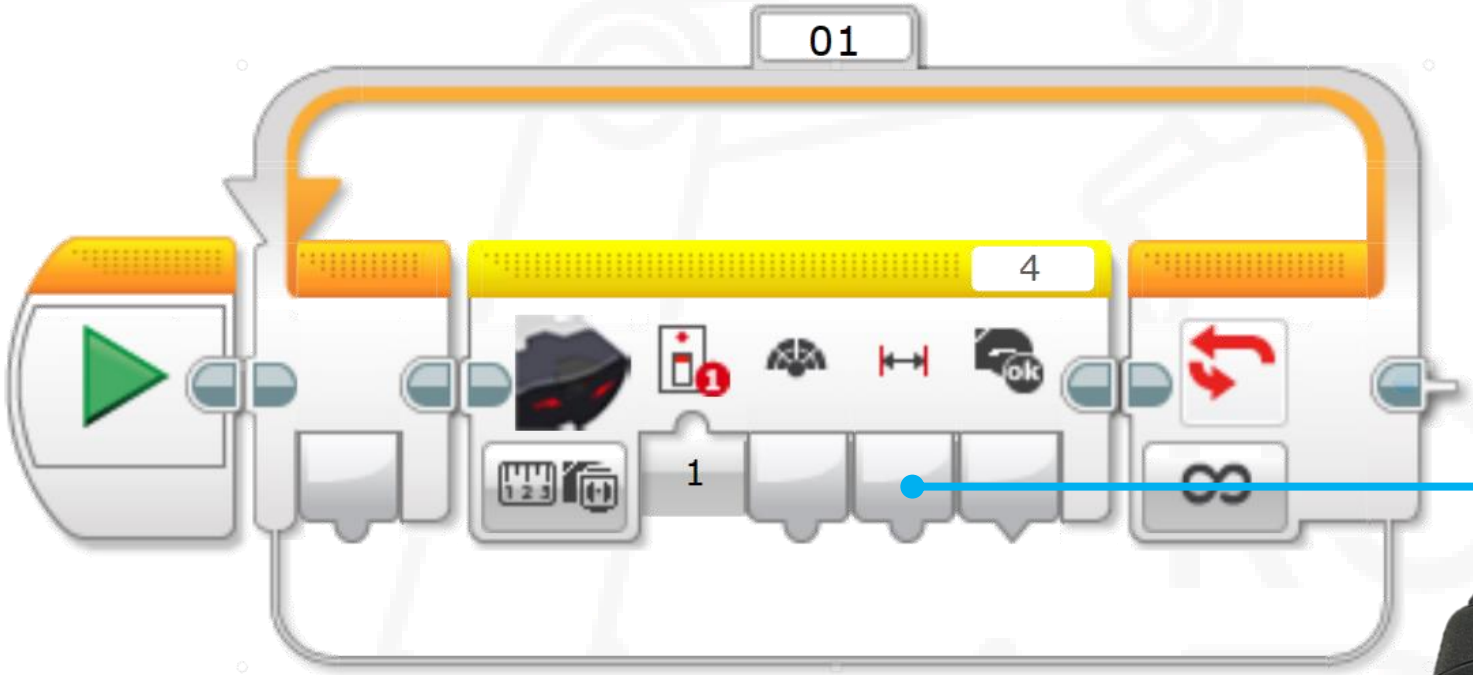
Button	Value
Up	1
Left	2
Down	4
Right	8
Up + Left	3
Up + Left + Down + Right	15



Instruction Description (—)

Up, Right, Down, Left Binary Output.
Data Range ： 0 ~ 15

mode 2-channel 1

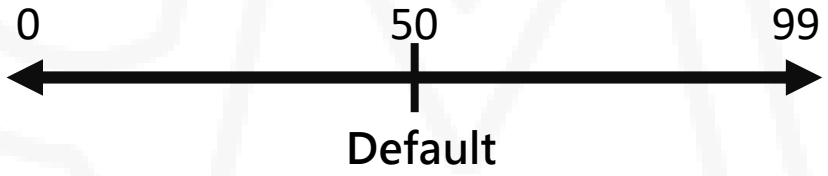




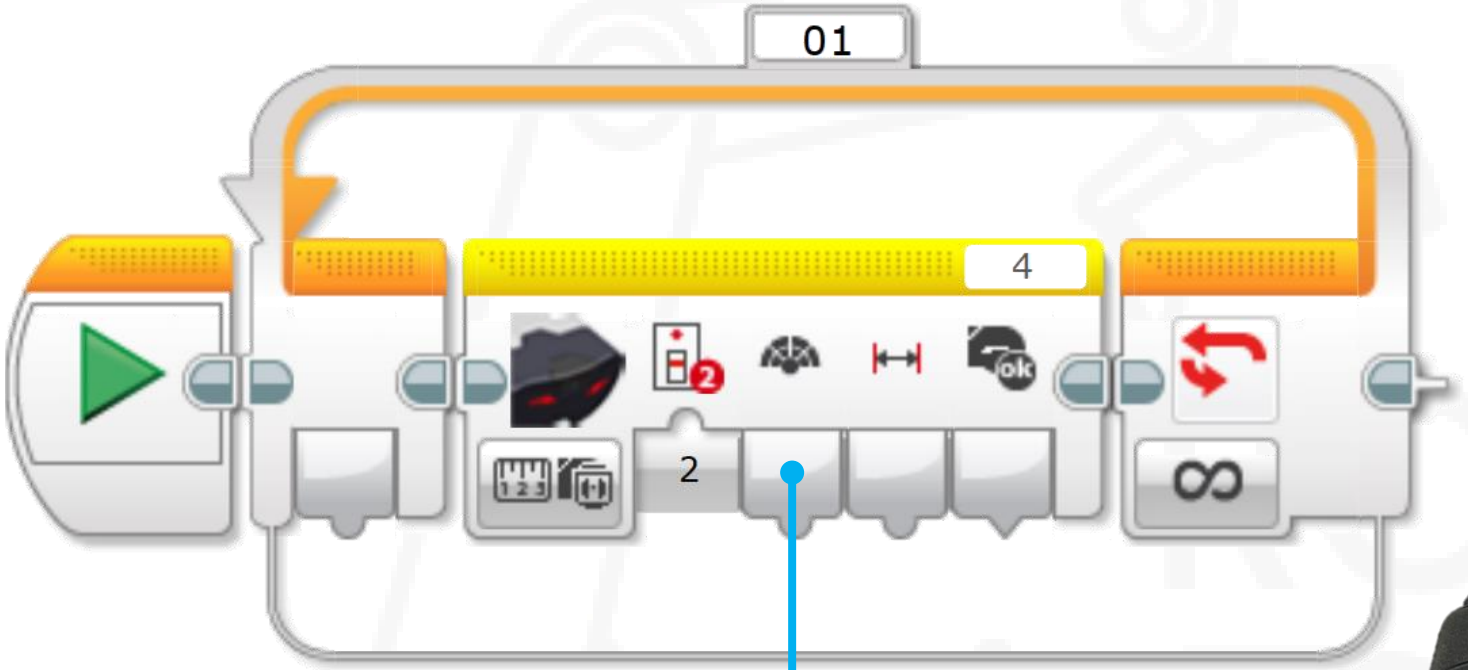
Instruction Description (二)

Left Analog Stick X-Axis Value Output.

Data Range ：0~50~99



mode 2-channel 2



Button	Value
▲	1
●	2
X	4
■	8
▲+●	3
▲+●+X+■	15

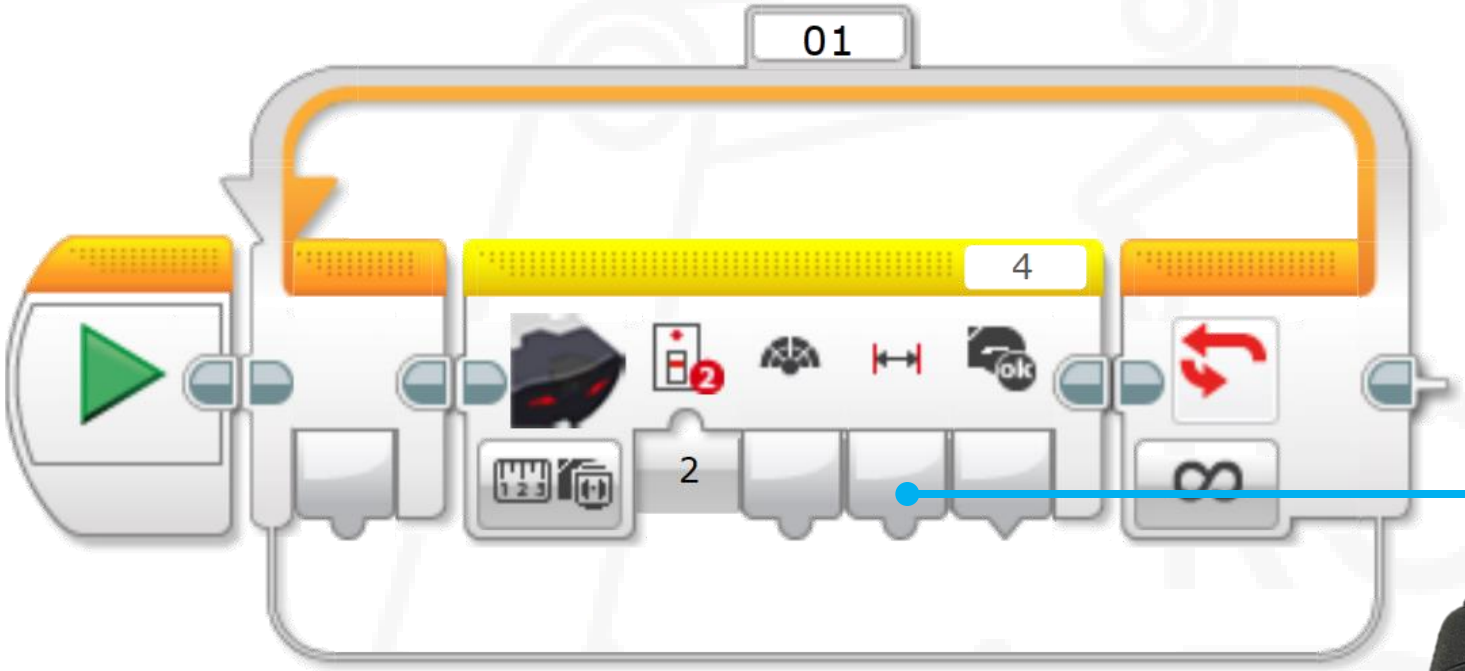


Instruction Description(一)

▲、●、X、 ■Binary Output.

Data Range ： 0 ~ 15

mode 2-channel 2



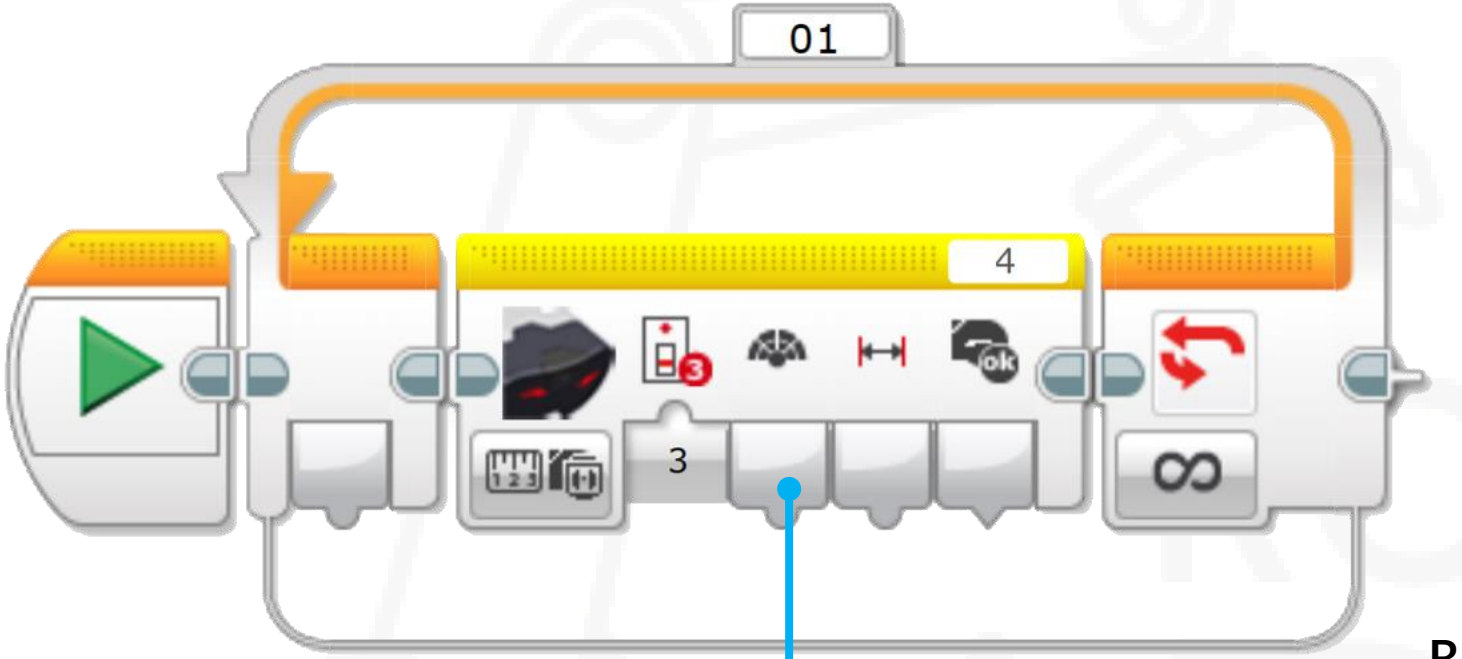
Instruction Description(二)

Left Analog Stick Y-Axis Value Output.
Data Range ：0~50~99





mode 2-channel 3



Button	Value
L2	1
R2	2
L1	4
R1	8
L2+R2	3
L2+R2+L1+R1	15

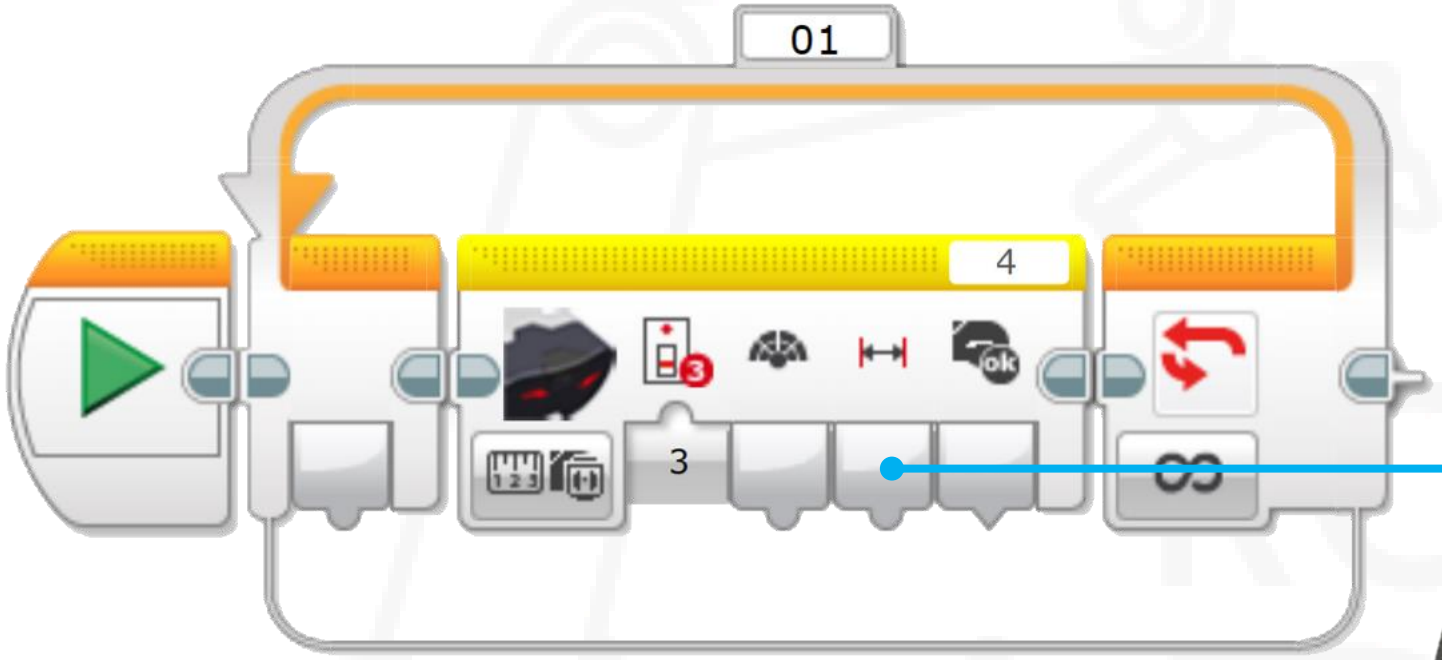


Instruction Description (—)

L1、L2、R1、 R2 Binary Output.
Data Range ： 0 ~ 15

Note: The illustration is mirrored due to the camera angle.

mode 2-channel 3

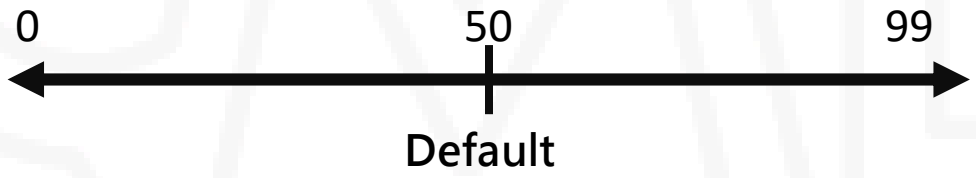




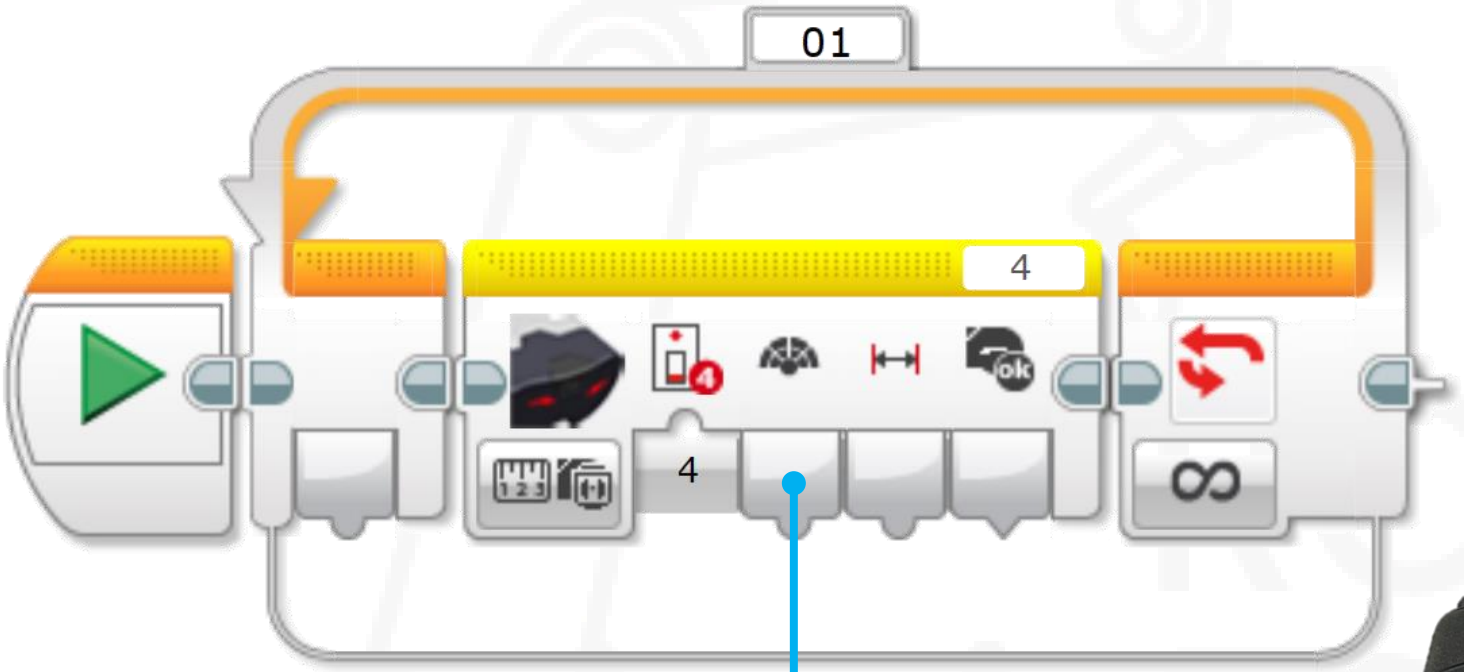
Instruction Description(二)

Right Analog Stick X-Axis Value Output.

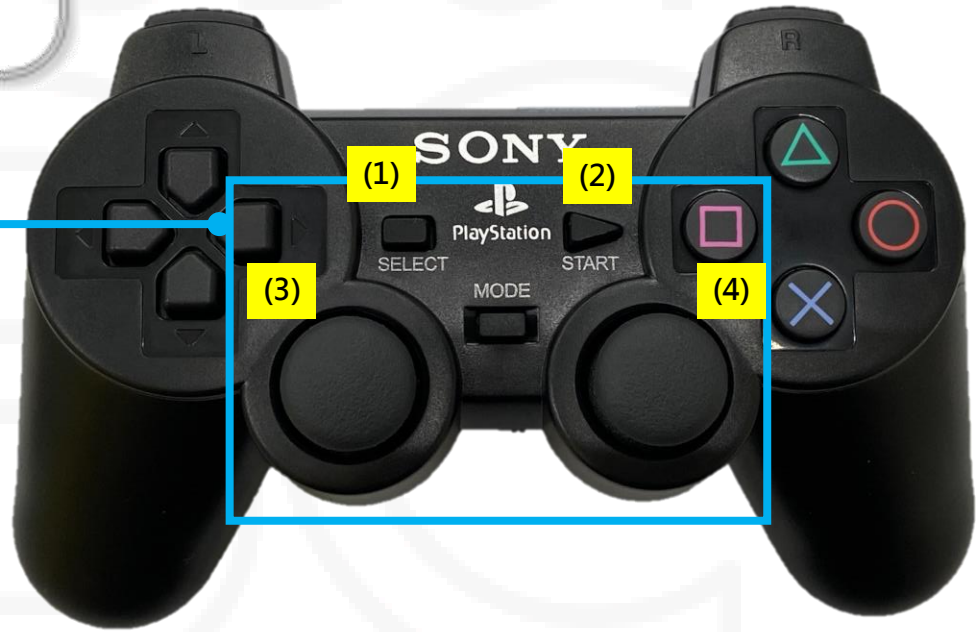
Data Range ：0~50~99



mode 2-channel 4



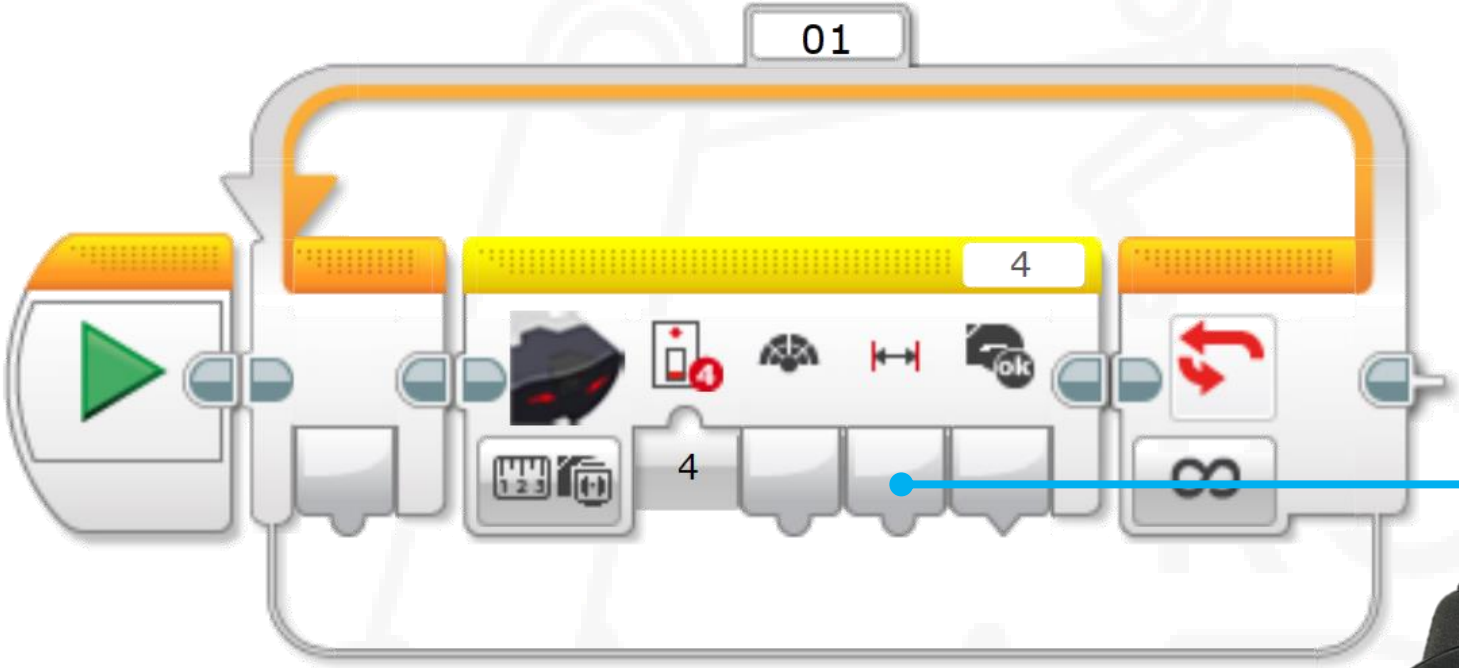
Button	Value
SELECT	1
L3(Left Analog Stick Press)	2
R3(Right Analog Stick Press)	4
START	8
SELECT+START	9
SEL+L3+R3+STR	15



Instruction Description(一)

SELECT(1)、 START(2)、Left Analog Stick(3)、
Right Analog Stick(4) Binary Output.
Data Range ：0~15

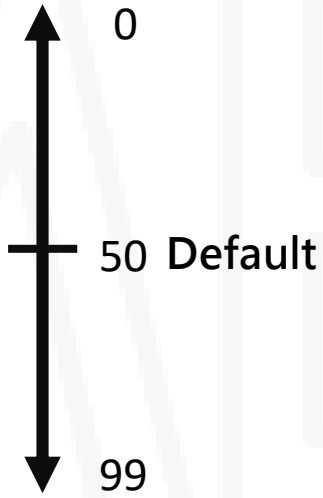
mode 2-channel 4



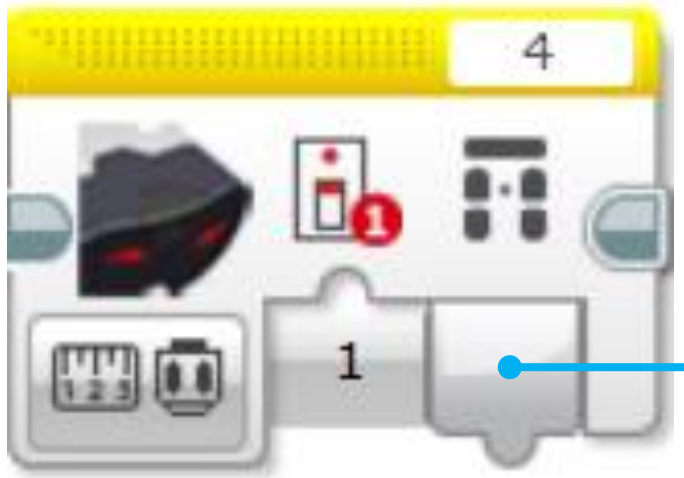


Instruction Description(二)

Right Analog Stick Y-Axis Value Output.
Data Range ：0~50~99



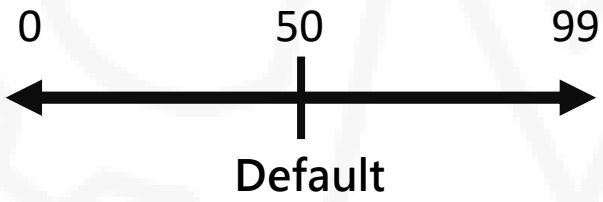
mode 3-channel 1



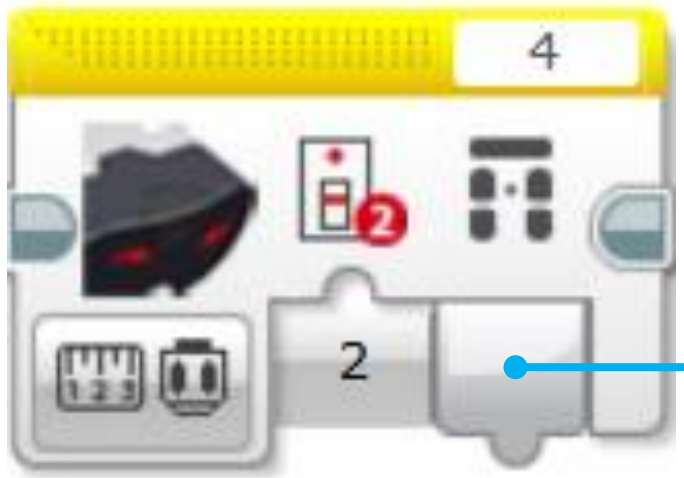


Instruction Description

Left Analog Stick X-Axis Value Output.
Data Range ：0~50~99



mode 3-channel 2

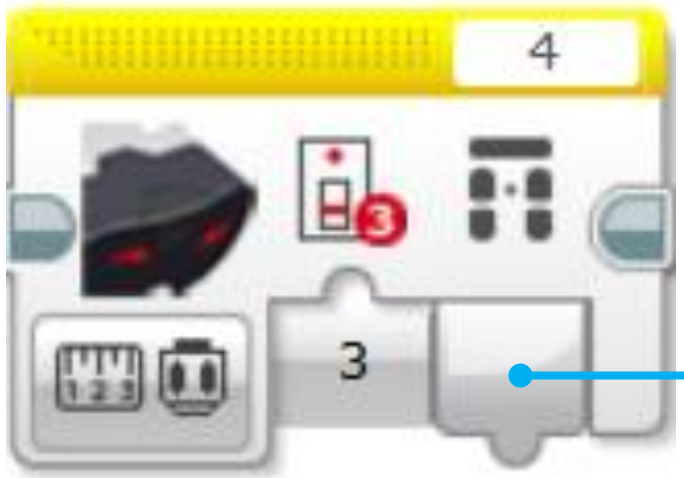


Instruction Description

Left Analog Stick Y-Axis Value Output.
Data Range ：0~50~99

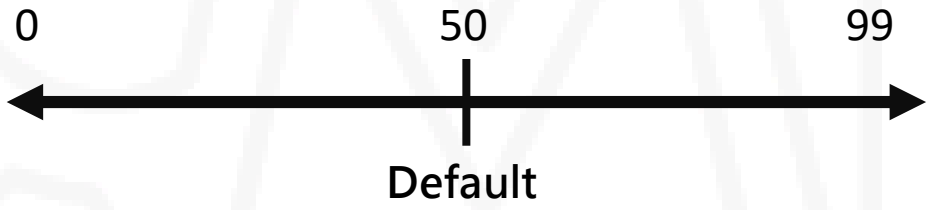


mode 3-channel 3



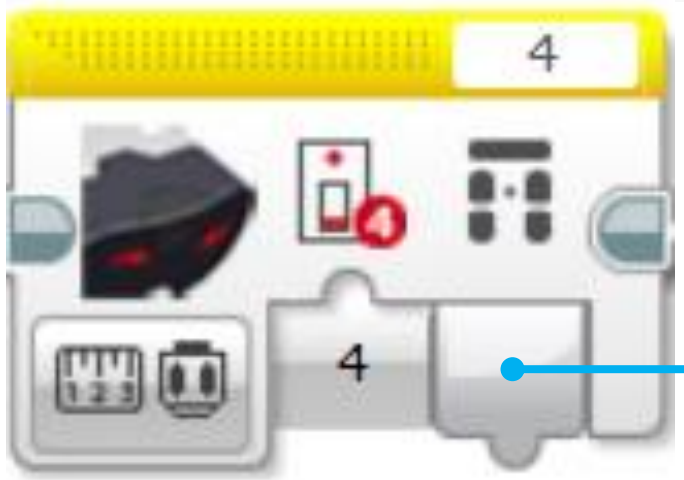
Instruction Description

Right Analog StickX-Axis Value Output.
Data Range ：0~50~99





mode 3-channel 4



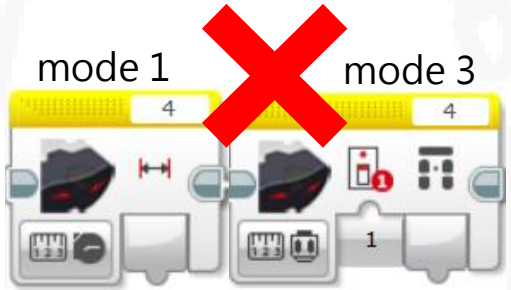
Instruction Description

Right Analog Stick Y-Axis Value Output.
Data Range ：0~50~99



Note：

- When running the program, it is recommended to use the same mode. Switching modes during program execution will cause delays, which is a characteristic of the LEGO-EV3 original software.



Example：

- When using mode 1 to read button values while also using mode 3 to read analog stick values, delays will occur. However, using mode 2 to read both button values and analog stick values simultaneously will not cause delays.



MBC Master Series - EV3 Version

LegoClassroom

- mode 1~3
- channel 1~4

mode 1



mode 2



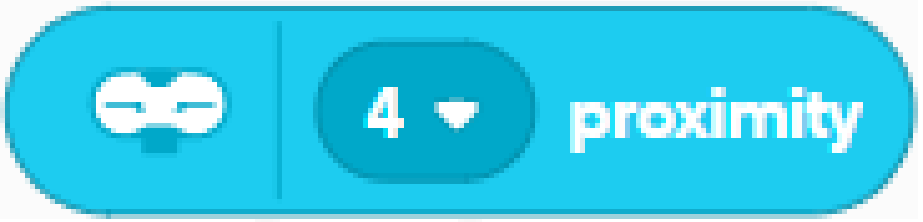


mode 3





mode 1





Data Range 0 ~ 15

Button	Value	Button	Value	Button	Value	Button	Value
Up	1	Up + Left	3	Up+Left	9	Up+Down+Left	13
Left	2	Up +Down	5	Right+Left	10	Right+Down+Left	14
Down	4	Right+Down	6	Up+Right+Left	11	Up + Left + Down + Right	15
Right	8	Up+Right+Down	7	Down+Left	12	None	0

mode 2 - channel 1



Button	Value
Up	1
Right	2
Down	4
Left	8
Up+Right	3
Up+Right+Down+Left	15



Instruction Description(一)

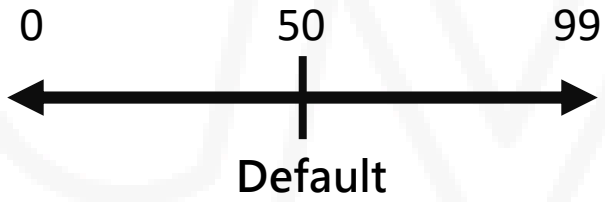
Up、Right、Down、Left Binary Output
Data Range ： 0 ~ 15

mode 2 - channel 1



Instruction Description(二)

Left Analog StickX-Axis Value Output
Data Range ：0~50~99





mode 2 - channel 2



Button	Value
▲	1
●	2
X	4
■	8
▲+●	3
▲+●+X+■	15



Instruction Description(一)

▲、●、X、 ■ Binary Output

Data Range ： 0 ~ 15

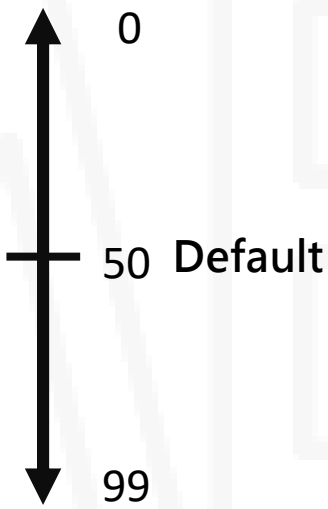
mode 2 - channel 2



Instruction Description(二)

Left Analog Stick Y-Axis Value Output

Data Range ：0~50~99





mode 2 - channel 3



Button	Value
L2	1
R2	2
L1	4
R1	8
L2+R2	3
L2+R2+L1+R1	15

Instruction Description (一)

L1、L2、R1、 R2Binary Output
Data Range ： 0 ~ 15



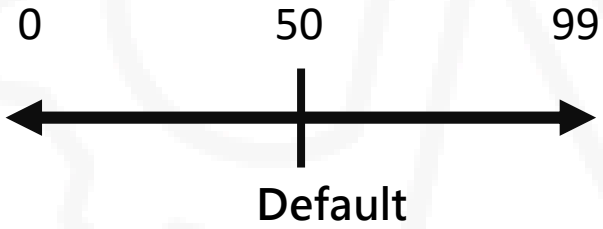
Note: The illustration is mirrored due to th

mode 2 - channel 3



Instruction Description(二)

Right Analog Stick X-Axis Value Output
Data Range ：0~50~99





mode 2 - channel 4

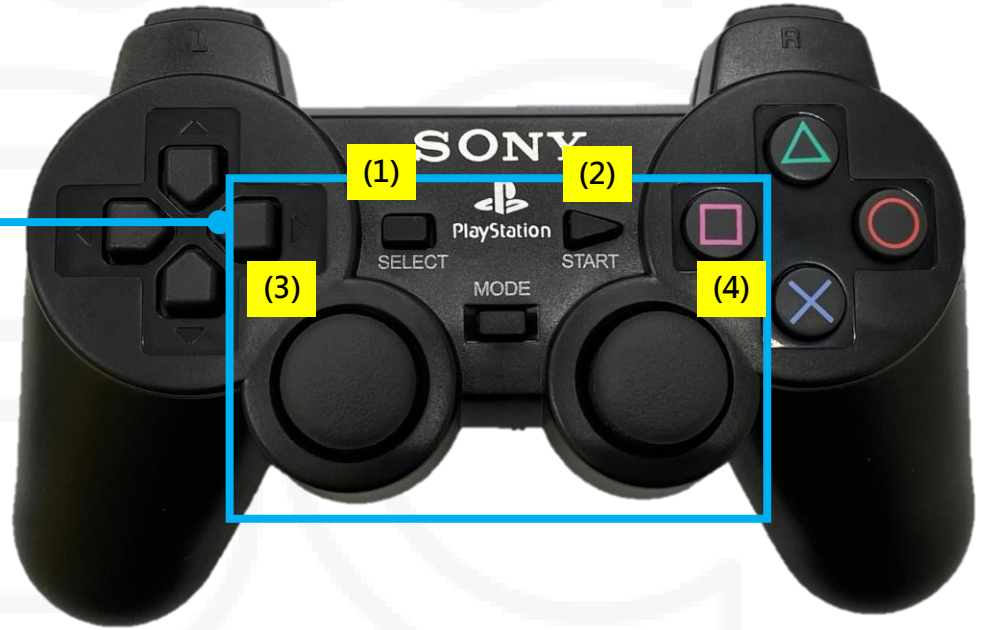


Button	Value
SELECT	1
L3(Left Analog Stick Press)	2
R3(Right Analog Stick Press)	4
START	8
SELECT+START	9
SEL+L3+R3+STR	15

Instruction Description(一)

SELECT(1)、 START(2) 、 Left Analog Stick(3) 、Right Analog Stick(4) Binary Output

Data Range ：0~15



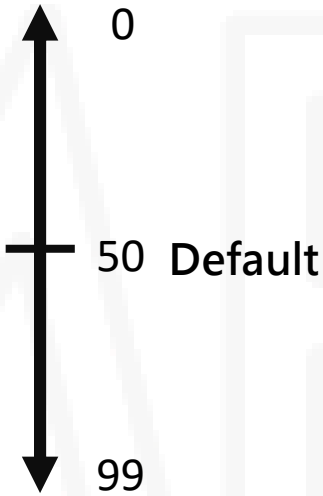
mode 2 - channel 4



Instruction Description(二)

Right Analog Stick Y-Axis Value Output

Data Range ：0~50~99





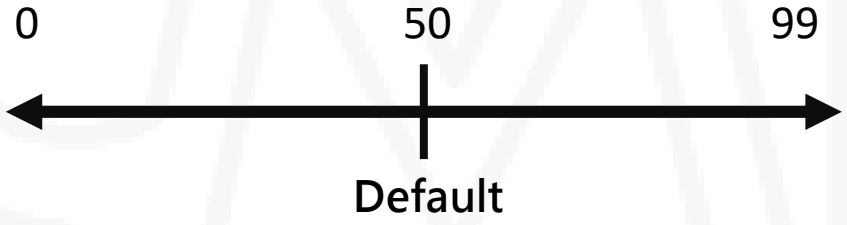
mode 3 - channel 1



Instruction Description

Left Analog StickX-Axis Value Output

Data Range ：0~50~99





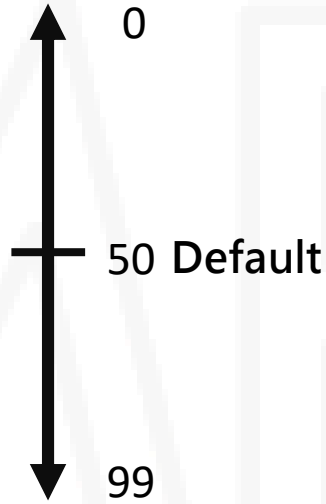
mode 3 - channel 2



Instruction Description

Left Analog Stick Y-Axis Value Output

Data Range ：0~50~99





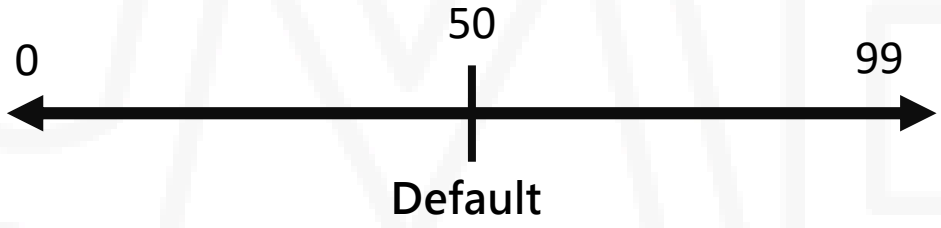
mode 3 - channel 3



Instruction Description

Right Analog Stick X-Axis Value Output

Data Range ：0~50~99





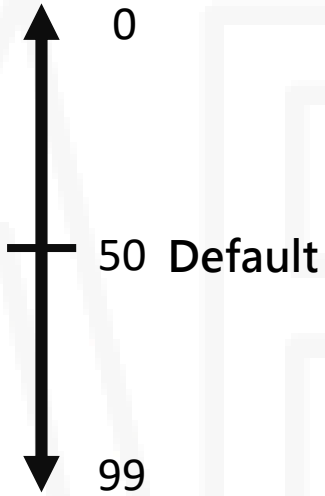
mode 3 - channel 4



Instruction Description(二)

Right Analog Stick Y-Axis
Value Output

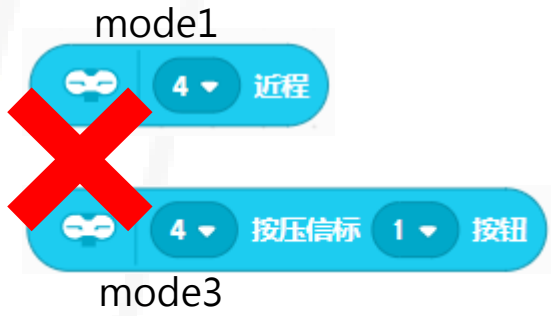
Data Range ：0~50~99





Note：

- When running the program, it is recommended to use the same mode. Switching modes during program execution will cause delays, which is a characteristic of the LEGO-EV3 original software.



Example：

- When using mode 1 to read button values while also using mode 3 to read joystick values, delays will occur. However, using mode 2 to read both button values and joystick values simultaneously will not cause delays.



MBC Master Series - SPIKE Version

LEGO Education SPIKE













Command 1



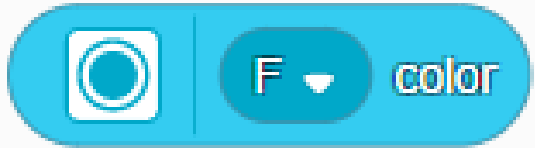
Button	Value
Up	1
Right	2
Down	4
Left	8
▲	16
●	32
X	64
■	128
Up + ▲	17
Up+Right+Down+Left+▲+●+X+■	255

Instruction Description

Up、Right、Down、Left、 ▲、●、X、 ■ Binary Output

Data Range ： 0 ~ 255

Command 2



Instruction Description

L1、L2、R1、 R2、 SELECT(1)、 START(2)、
Left Analog Stick(3)、Right Analog Stick(4)
Binary Output

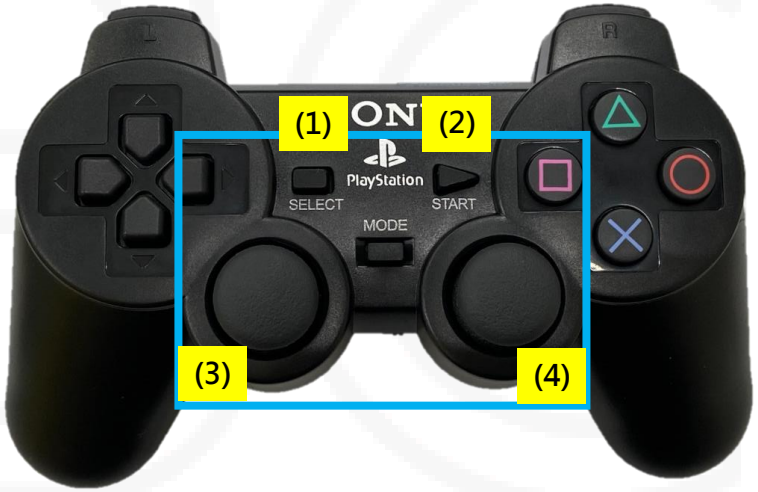
Data Range ： -128~0~127

Button	Value
L2	1
R2	2
L1	4
R1	8
SELECT	16
L3(Left Analog Stick Press)	32
R3(Right Analog Stick Press)	64
START	-128
L2 + SELECT	17
L2+R2+L1+R1+SEL+L3+R3+STR	-1



R L

Note: The illustration is mirrored due to the camera angle.



Command 3

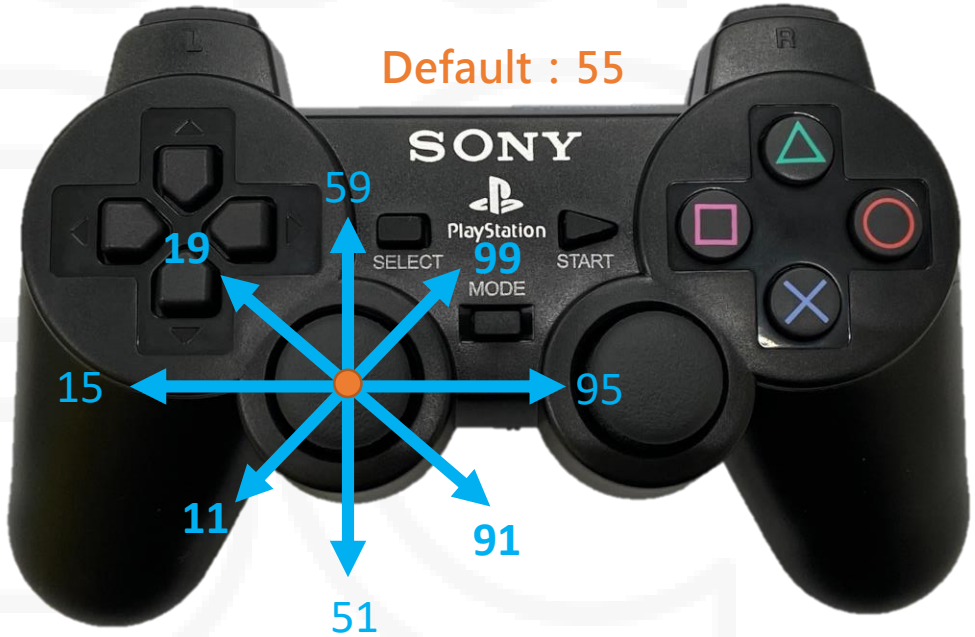


Left Analog Stick ‧ X-axis *100+Y-axis	Value ‧ 11 ~ 99
X-axis	1~5~9
Y-axis	1~5~9

Obtain the X-axis Value through calculation：Value/100 ➡ Get Integer



Obtain the Y-axis Value through calculation ：
Value/100 ➡ Get the Remainder



Command 4

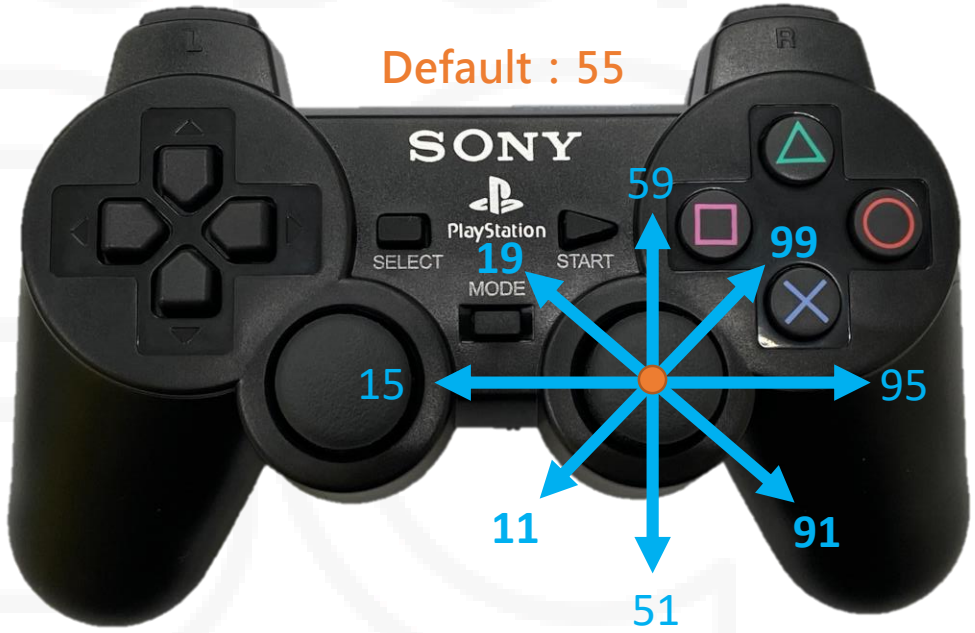


Right Analog Stick，X-axis *100+Y-axis	Value，11 ~ 99
X-axis	1~5~9
Y-axis	1~5~9

Obtain the X-axis Value through calculation：Value/100 ➡ Get Integer



Obtain the Y-axis Value through calculation ：
Value/100 ➡ Get the Remainder



Command 5



Instruction Description

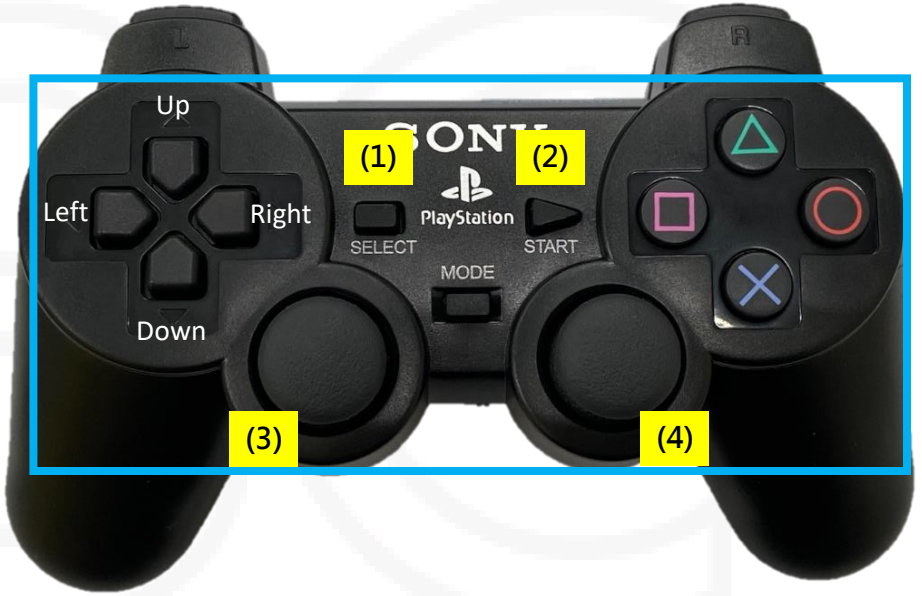
SELECT(1)、 START(2) 、 Left Analog Stick(3)、Right Analog Stick(4)、 Up、Right、Down、Left、 L1、 L2、 R1、 R2、 ▲、●、X、 ■Binary Output

Data Range ： 0~65535

Button	Value	Button	Value
SELECT	1	L2	256
L3(Left Analog Stick Press)	2	R2	512
R3(Right Analog Stick Press)	4	L1	1024
START	8	R1	2048
Up	16	▲	4096
Right	32	●	8192
Down	64	X	16384
Left	128	■	32768



Note: The illustration is mirrored due to the camera angle.



MBC Master Series - SPIKE Version

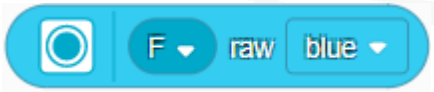
LEGO Mindstorms SPIKE













Command 1



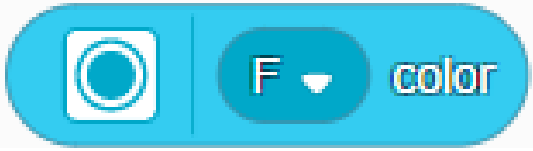
Button	Value
Up	1
Right	2
Down	4
Left	8
▲	16
●	32
X	64
■	-128
Up + ▲	17
Up+Right+Down+Left+▲+●+X+■	-1

Instruction Description

Up、Right、Down、Left、 ▲、●、X、 ■ Binary Output

Data Range ：-128~ 126

Command 2



Instruction Description

L1、L2、R1、 R2、 SELECT(1)、 START(2)、
Left Analog Stick(3)、Right Analog Stick(4)
Independent Key Output (0-8, No Key Combinations)"

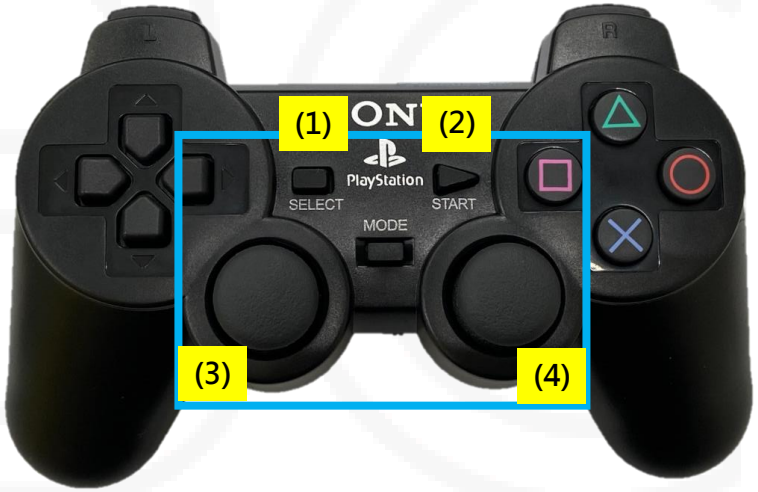
Data Range ： 0~8

Button	Value
L2	1
R2	2
L1	3
R1	4
SELECT	5
L3(Left Analog Stick Press)	6
R3(Right Analog Stick Press)	7
START	8
L2 + SELECT	1(The smaller number takes precedence)
L1 +R1	3(The smaller number takes precedence)



R L

Note: The illustration is mirrored due to the camera angle.



Command 3

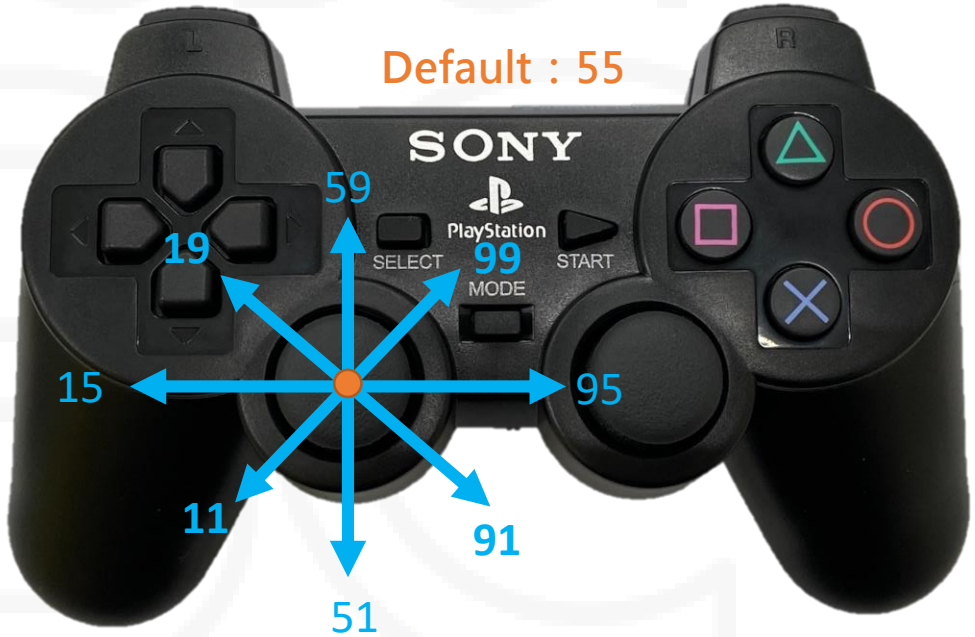


Left Analog Stick，X-axis *10+Y-axis	Value，11 ~ 99
X-axis	1~5~9
Y-axis	1~5~9

Obtain the X-axis Value through calculation：Value/10 ➡ Get Integer



Obtain the Y-axis Value through calculation ：
Value/10 ➡ Get the Remainder



Command 4

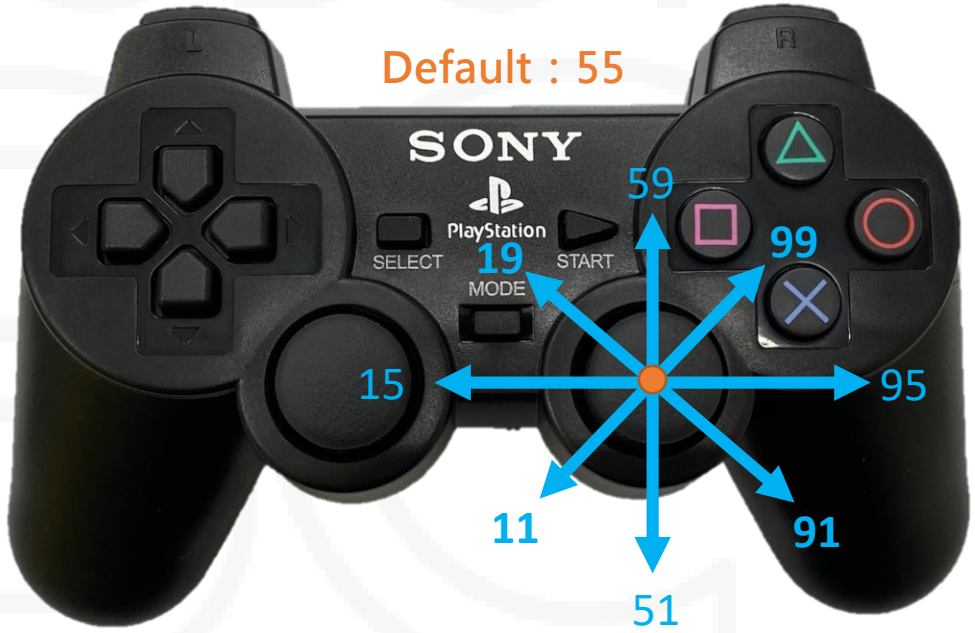


Right Analog Stick，X-axis *10+Y-axis	Value，11 ~ 99
X-axis	1~5~9
Y-axis	1~5~9

Obtain the X-axis Value through calculation：Value/10 ➡ Get Integer



Obtain the Y-axis Value through calculation ：
Value/10 ➡ Get the Remainder



Command 5



Instruction Description

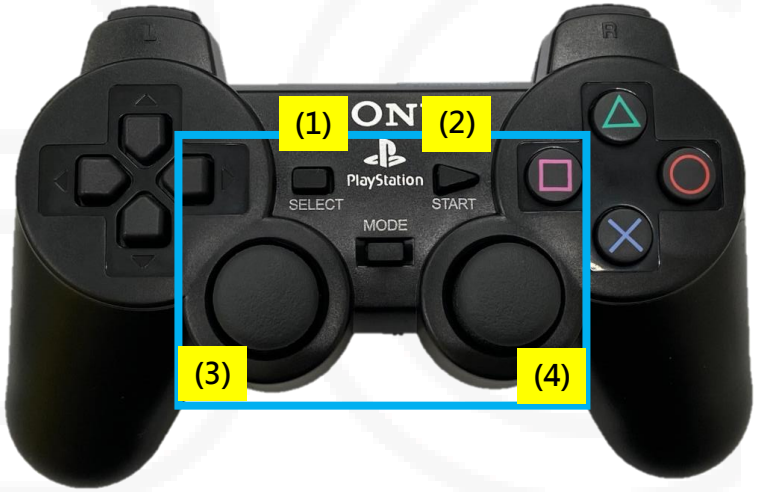
L1、L2、R1、R2、SELECT(1)、START(2)、Left Analog Stick(3)、Right Analog Stick(4) Binary Output

Data Range ： 0~255

Button	Value
L2	1
R2	2
L1	4
R1	8
SELECT	16
L3(Left Analog Stick Press)	32
R3(Right Analog Stick Press)	64
START	128
L2 + SELECT	17
L1 +R1	12



Note: The illustration is mirrored due to the camera angle.



MBC Master Series - SPIKE Version

pyBricks

- Graphical Interface Mode 1~2
- Text Interface Mode

mode 1



mode 2





Graphical Interface Mode 1



Instruction Description

Up、Right、Down、Left、▲、●、X、■、L1、R1、SELECT Binary Output

Data Range ： 0~2047

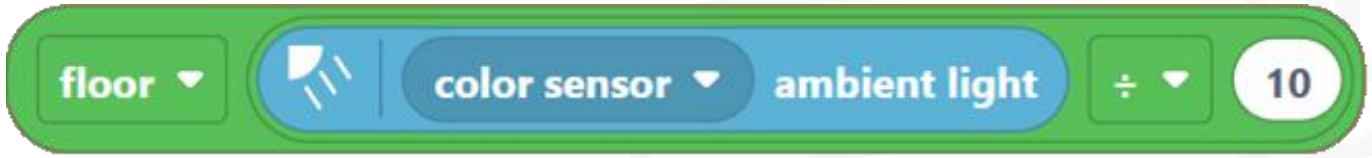
Button	Value	Button	Value
Up	1	L1	256
Right	2	R1	512
Down	4	SELECT	1024
Left	8	SELECT + Up	1025
▲	16	SELECT + Right	1026
●	32		
X	64		
■	128		



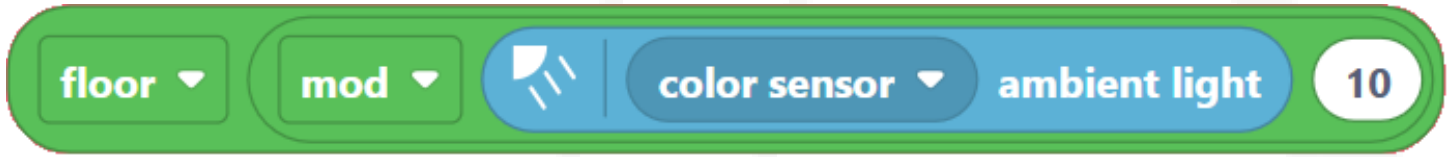


Note: The illustration is mirrored due to the camera angle.

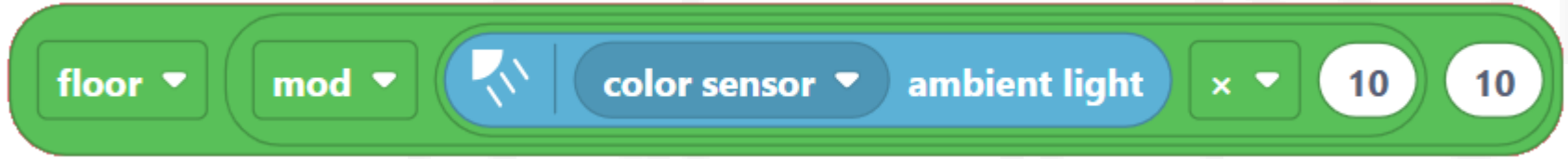
Graphical Interface Mode 2



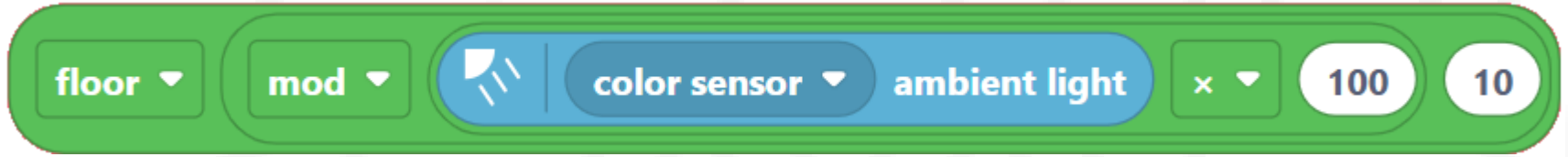
Obtain through calculation Left Analog Stick X-axis Value： floor((sensor/10))



Obtain through calculation Left Analog Stick Y-axis Value： floor((sensor%10))



Obtain through calculation Right Analog Stick X-axis Value： floor(((sensor*10)%10))



Obtain through calculation Right Analog Stick Y-axis Value： floor(((sensor*100)%10))

Left Analog Stick & Right Analog Stick	Value： 11.11 ~ 55.55 ~ 99.99
Left Analog Stick X-axis x5.55	1 ~ 5 ~ 9
Left Analog Stick Y-axis 5x.55	1 ~ 5 ~ 9
Right Analog Stick X-axis 55.x5	1 ~ 5 ~ 9
Right Analog Stick Y-axis 55.5x	1 ~ 5 ~ 9



Text Interface Mode

pyBricks-python type-colorSensormode9

```
from pybricks.iodevices import PUPDevice
from pybricks.parameters import Port

color_sensor_device = PUPDevice(Port.F)
while True:

    sensorData = color_sensor_device.read(9)
    buttons1 = sensorData[0]
    buttons2 = sensorData[1]
    leftStickX = sensorData[2]
    leftStickY = sensorData[3]
    rightStickX = sensorData[4]
    rightStickY = sensorData[5]
    buttonsAll = sensorData[6]
    print(buttons1,buttons2,leftStickX,leftStickY,rightStickX,rightStickY,buttonsAll)
```

sensorData[0]



Button	Value
Up	1
Right	2
Down	4
Left	8
▲	16
●	32
X	64
■	128
Up + ▲	17
Up+Right+Down+Left+▲+●+X+■	255

Instruction Description

Up、Right、Down、Left、 ▲、●、X、 ■

Binary Output

Data Range ： 0 ~ 255

sensorData[1]

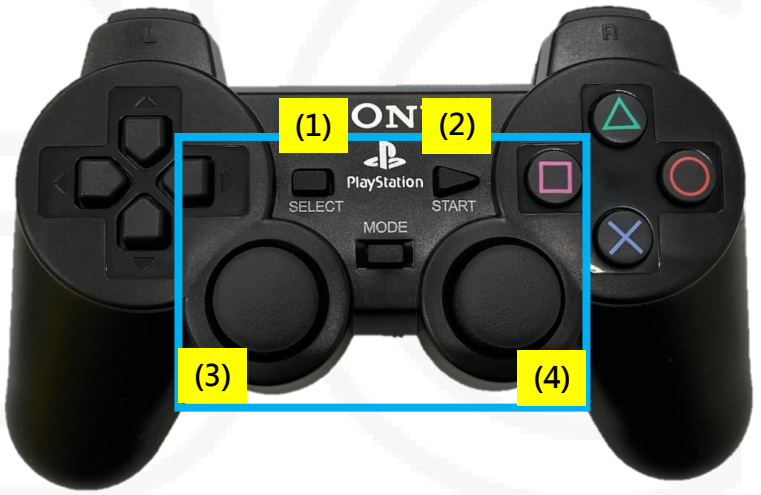
Instruction Description

L1、L2、R1、 R2、 SELECT(1)、 START(2)、
Left Analog Stick(3)、Right Analog Stick(4)
Binary Output

Data Range ： 0~255

Button	Value
L2	1
R2	2
L1	4
R1	8
SELECT	16
L3(Left Analog Stick Press)	32
R3(Right Analog Stick Press)	64
START	128
L2 + SELECT	17
L2+R2+L1+R1+SEL+L3+R3+STR	255



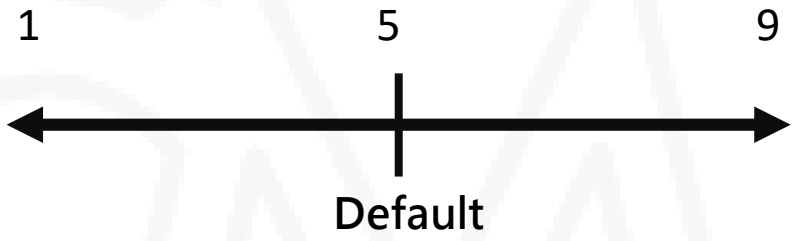


Note: The illustration is mirrored due to the camera angle.

sensorData[2]

Instruction Description

Left Analog StickX-Axis Value Output
Data Range ：1~5~9



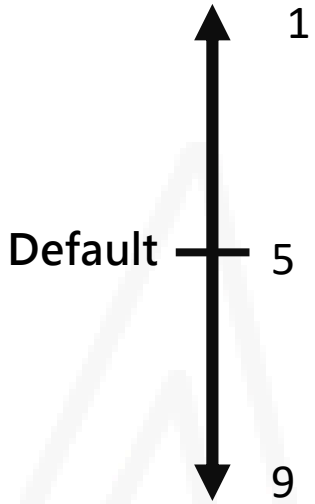


sensorData[3]

Instruction Description

Left Analog Stick Y-Axis Value Output

Data Range ：1~5~9

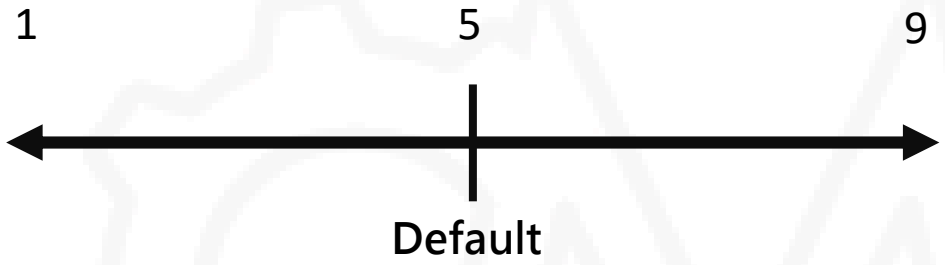




sensorData[4]

Instruction Description

Right Analog StickX-Axis Value Output
Data Range ：1~5~9



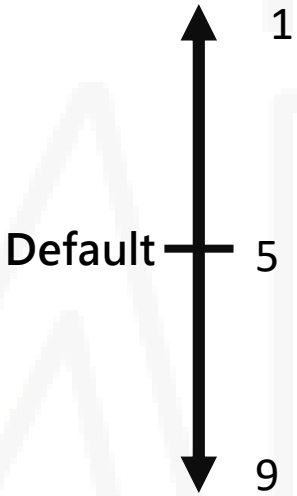


sensorData[5]

Instruction Description

Right Analog Stick Y-Axis Value Output

Data Range ：1~5~9





sensorData[6]

Instruction Description

SELECT(1)、 START(2) 、 Left Analog Stick(3)、Right Analog Stick(4)、 Up、Right、Down、Left、 L1、L2、R1、 R2、 ▲、●、X、 ■Binary Output

Data Range ： -32768 ~ 32767

Button	Value	Button	Value
SELECT	1	L2	256
L3(Left Analog Stick Press)	2	R2	512
R3(Right Analog Stick Press)	4	L1	1024
START	8	R1	2048
Up	16	▲	4096
Right	32	●	8192
Down	64	X	16384
Left	128	■	-32768



Note: The illustration is mirrored due to the camera angle.

