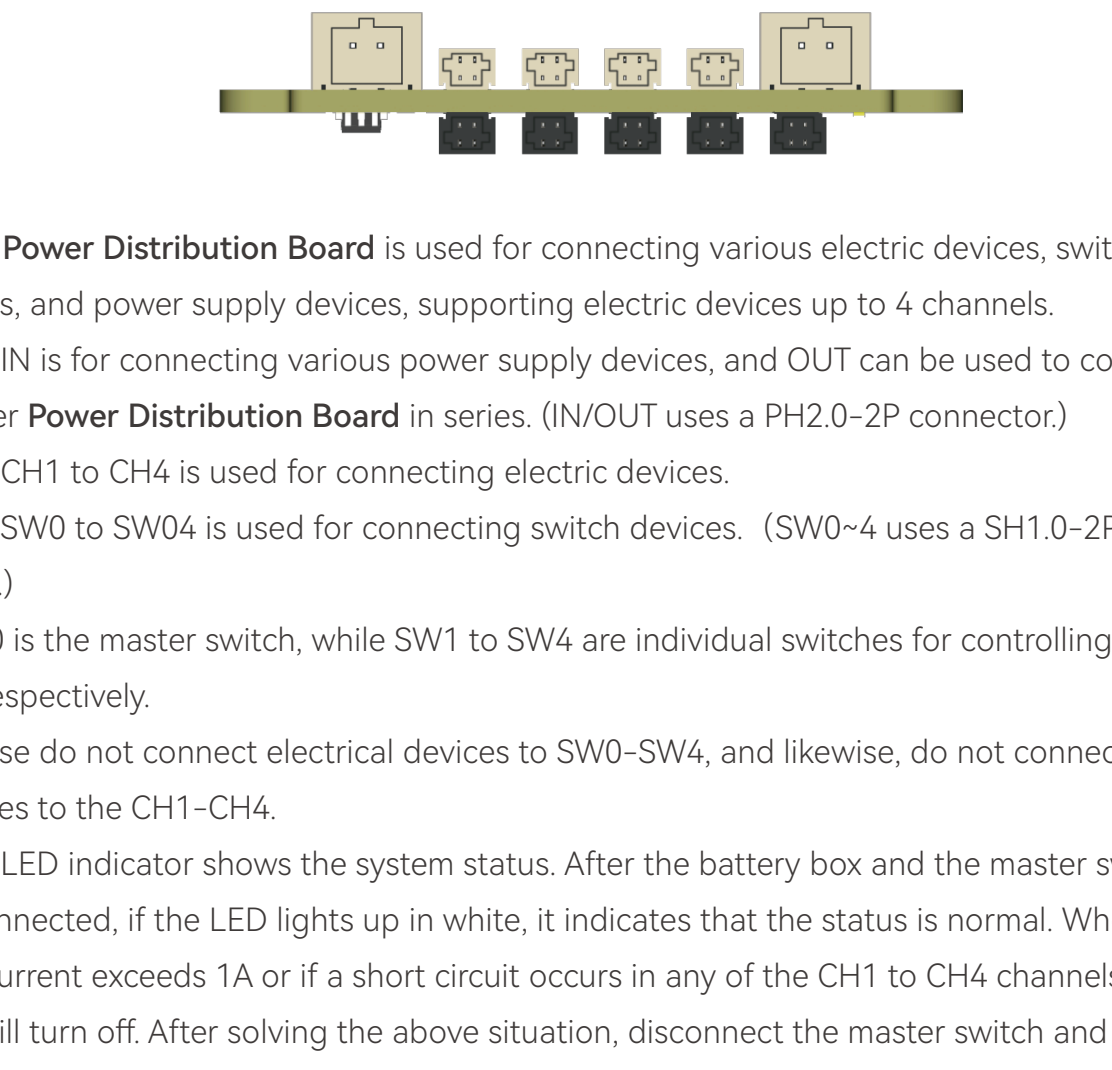


Maker's Supply Electronics Instructions

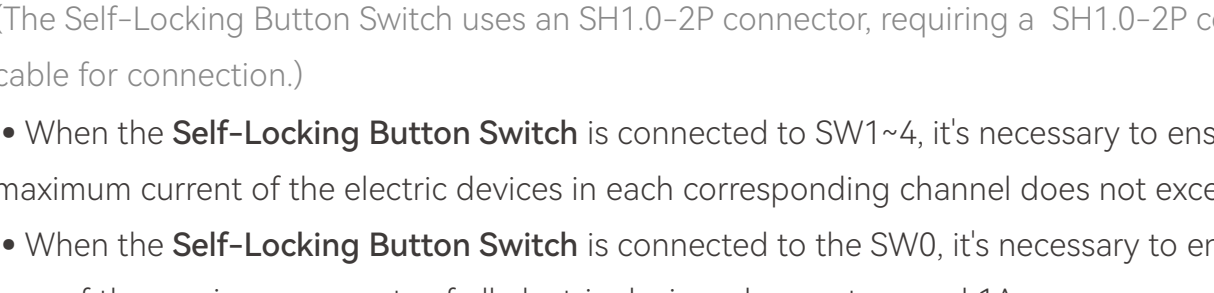
Introduction to Electronics

1. Power Distribution Board (PDB) – 4 Channels



- The **Power Distribution Board** is used for connecting various electric devices, switch devices, and power supply devices, supporting electric devices up to 4 channels.
 - The IN is for connecting various power supply devices, and OUT can be used to connect to another **Power Distribution Board** in series. (IN/OUT uses a PH2.0-2P connector.)
 - The CH1 to CH4 is used for connecting electric devices.
 - The SW0 to SW04 is used for connecting switch devices. (SW0~4 uses a SH1.0-2P connector.)
 - SW0 is the master switch, while SW1 to SW4 are individual switches for controlling CH1 to CH4 respectively.
 - Please do not connect electrical devices to SW0~SW4, and likewise, do not connect switches to the CH1~CH4.
 - The LED indicator shows the system status. After the battery box and the master switch are connected, if the LED lights up in white, it indicates that the status is normal. When the total current exceeds 1A or if a short circuit occurs in any of the CH1 to CH4 channels, the LED will turn off. After solving the above situation, disconnect the master switch and reconnect it, and the LED will light up again.
- The **Potentiometer Board with SH1.0 Connector** is a switch device that can be connected to SW0~4 on the **Power Distribution Board(PDB)** for voltage regulation. Turn the knob counterclockwise to reduce the output voltage of the corresponding channel, turn the knob clockwise to increase the output voltage of the corresponding channel.
- (The channels use SH1.0~2P connector, which needs to be connected using SH1.0~2P connector cable.)
- When the **Potentiometer Board** is connected to any of SW1~4 channels, it is necessary to ensure that the maximum current of the corresponding channel's device does not exceed 0.4A.
 - When the **Potentiometer Board** is connected to the SW0, it is necessary to ensure that the sum of the maximum current of all electrical devices does not exceed 0.4A.
- It is normal for the triode on the **potentiometer board** to heat up.

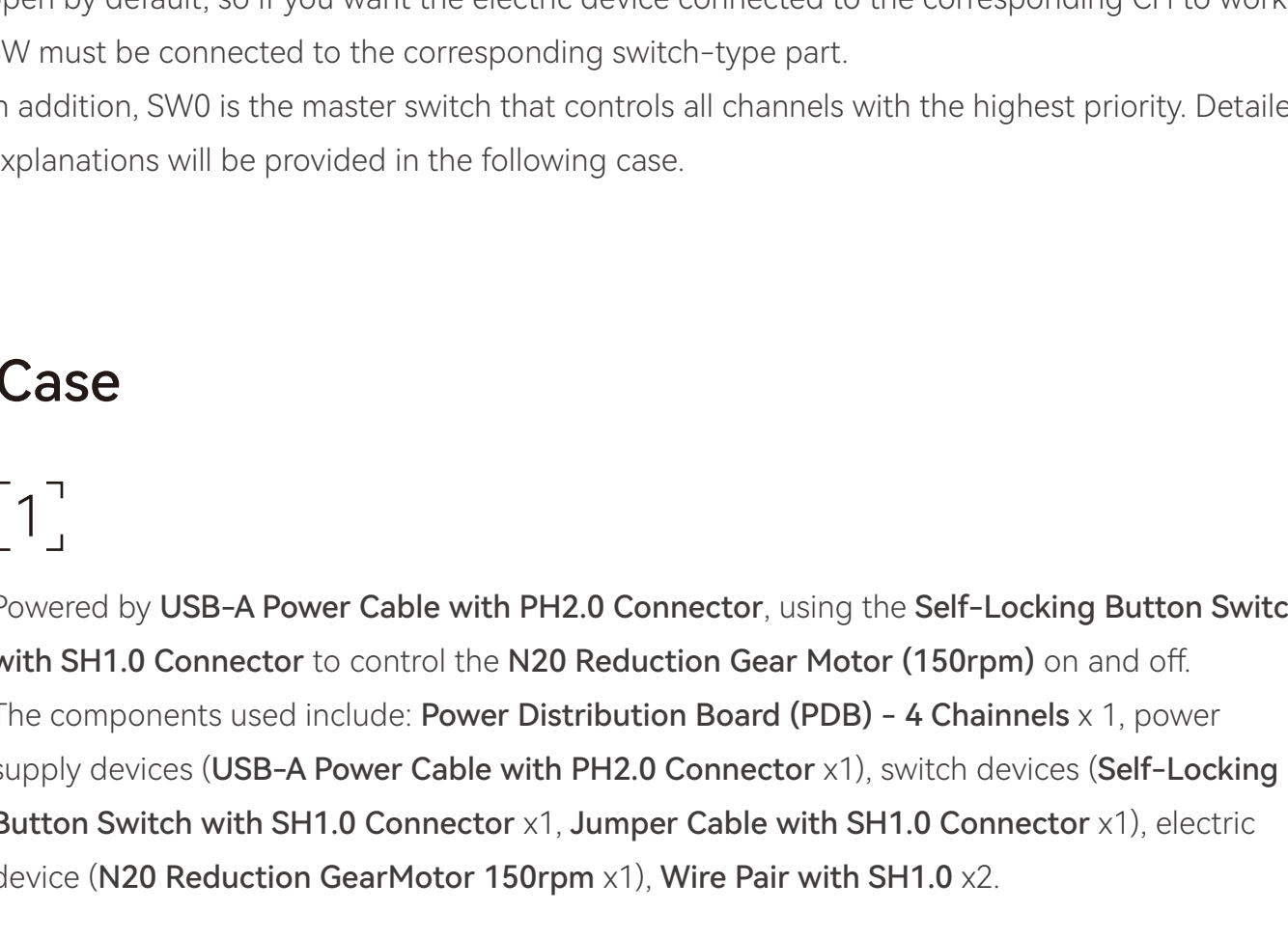
3.Self-Locking Button Switch with SH1.0 Connector



- The **Self-Locking Button Switch with SH1.0 Connector** is a switch device that can be connected to SW0~4 on the **Power Distribution Board (PDB) – 4 Channels** to control the switch of electric devices. Pressing the button down connects the circuit; pressing it again pops it up and disconnects the circuit.
- (The Self-Locking Button Switch uses an SH1.0~2P connector, requiring a SH1.0~2P connector cable for connection.)
- When the **Self-Locking Button Switch** is connected to SW1~4, it's necessary to ensure that the maximum current of the electric devices in each corresponding channel does not exceed 1A.
 - When the **Self-Locking Button Switch** is connected to the SW0, it's necessary to ensure that the sum of the maximum currents of all electric devices does not exceed 1A.

Electronics System

The components of this circuit set can be divided into five categories: **Power Distribution Board (PDB) – 4 Channels**, power-type devices, power supply devices, switch devices, and wires. The **Power Distribution Board** has channels for connecting power supply devices, switch devices, and electric devices. Please refer to the figure below for the devices supported by each connector. The IN is used to connect various power supply devices, such as **AA Battery Case** and **USB-A power cable**; the CH1~4 are used to connect various electric devices, such as **N20 Reduction Gear Motor (150rpm)** and **4 White 3030-LED Board**, and supports up to 4 connections; the SW0~4 is used to connect various switch devices, such as **Self-locking Button Switch**, **Potentiometer Board**, and **Jumper Cable**. Please do not connect electric devices to the SW0~4, and likewise, do not connect switches to the CH1~4. The OUT is used to connect to the next **Power Distribution Board** to achieve connector expansion.



Each SW corresponds to a CH, and different switches can be connected to the SW to achieve different control methods for the corresponding CH.

For example, if a **Self-Locking Button Switch** is connected to SW1, the corresponding CH1 electrical device can be operated through the **Self-Locking Button Switch** of SW1;

If the **Potentiometer Board** is connected to SW2, the corresponding CH2 electric device can be operated through the **Potentiometer Board** of SW2 to achieve voltage regulation;

If the **Jumper Cable** is connected to SW3, the corresponding CH3 electric device will be powered on by default after the **power distribution board** is powered on. Please note that SW is open by default, so if you want the electric device connected to the corresponding CH to work, SW must be connected to the corresponding switch-type part.

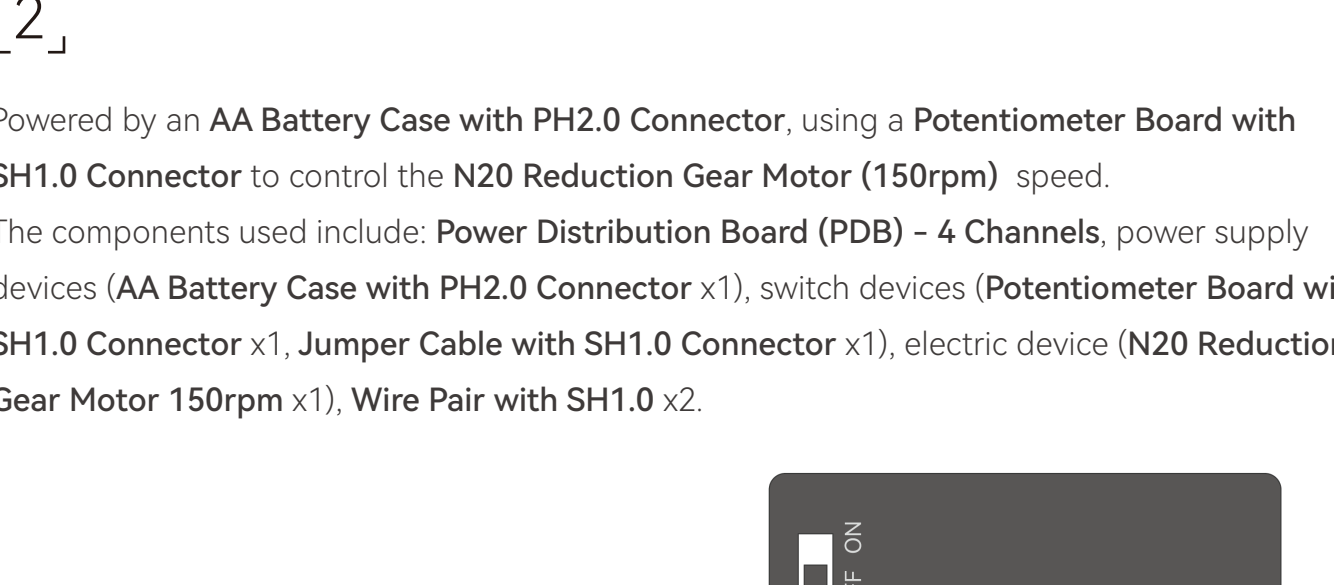
In addition, SW0 is the master switch that controls all channels with the highest priority. Detailed explanations will be provided in the following case.

Case

[1]

Powered by **USB-A Power Cable with PH2.0 Connector**, using the **Self-Locking Button Switch with SH1.0 Connector** to control the **N20 Reduction Gear Motor (150rpm)** on and off.

The components used include: **Power Distribution Board (PDB) – 4 Channels** x 1, power supply devices (**USB-A Power Cable with PH2.0 Connector** x1), switch devices (**Self-Locking Button Switch with SH1.0 Connector** x1, **Jumper Cable with SH1.0 Connector** x1), electric device (**N20 Reduction GearMotor 150rpm** x1), **Wire Pair with SH1.0** x2.

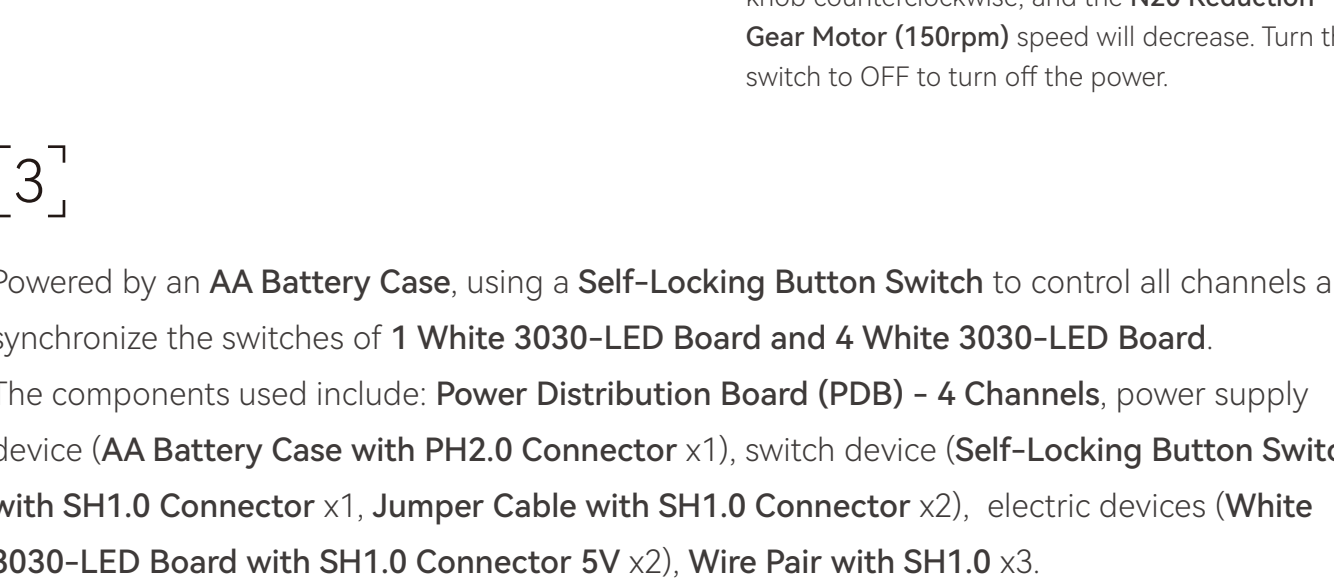


Working process: Connect the **USB-A Power Cable** to the power bank or adapter, press the **Self-Locking Button Switch** to make the **N20 Reduction Gear Motor (150rpm)** rotate. Press the **Self-Locking Button Switch** again to stop the **N20 Reduction Gear Motor (150rpm)**.

[2]

Powered by an **AA Battery Case with PH2.0 Connector**, using a **Potentiometer Board with SH1.0 Connector** to control the **N20 Reduction Gear Motor (150rpm)** speed.

The components used include: **Power Distribution Board (PDB) – 4 Channels**, power supply devices (**AA Battery Case with PH2.0 Connector** x1), switch devices (**Potentiometer Board with SH1.0 Connector** x1, **Jumper Cable with SH1.0 Connector** x1), electric device (**N20 Reduction Gear Motor 150rpm** x1), **Wire Pair with SH1.0** x2.

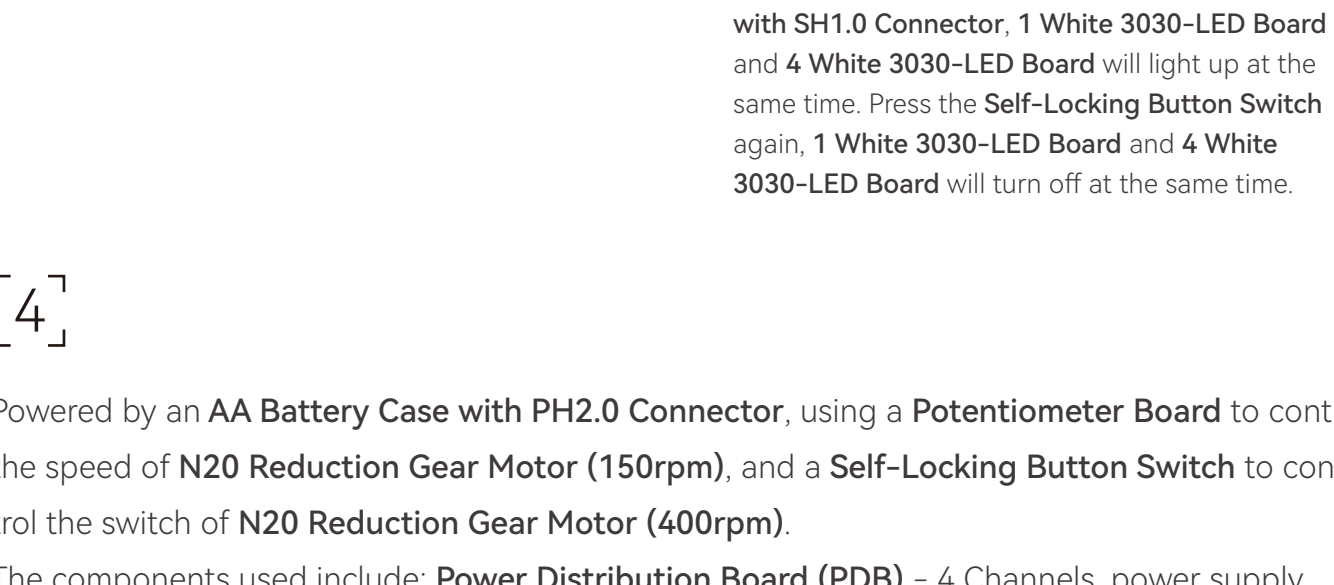


Working process: Put four AA batteries into the **AA Battery Case with PH2.0 Connector** in series, and turn the switch on the **AA Battery Case** to ON. Turn the knob clockwise, and the **N20 Reduction Gear Motor (150rpm)** speed will increase. Rotate the knob counterclockwise, and the **N20 Reduction Gear Motor (150rpm)** speed will decrease. Turn the switch to OFF to turn off the power.

[3]

Powered by an **AA Battery Case**, using a **Self-Locking Button Switch** to control all channels and synchronize the switches of **1 White 3030-LED Board** and **4 White 3030-LED Board**.

The components used include: **Power Distribution Board (PDB) – 4 Channels**, power supply device (**AA Battery Case with PH2.0 Connector** x1), switch device (**Self-Locking Button Switch with SH1.0 Connector** x1, **Jumper Cable with SH1.0 Connector** x2), electric devices (**White 3030-LED Board with SH1.0 Connector 5V** x2), **Wire Pair with SH1.0** x3.

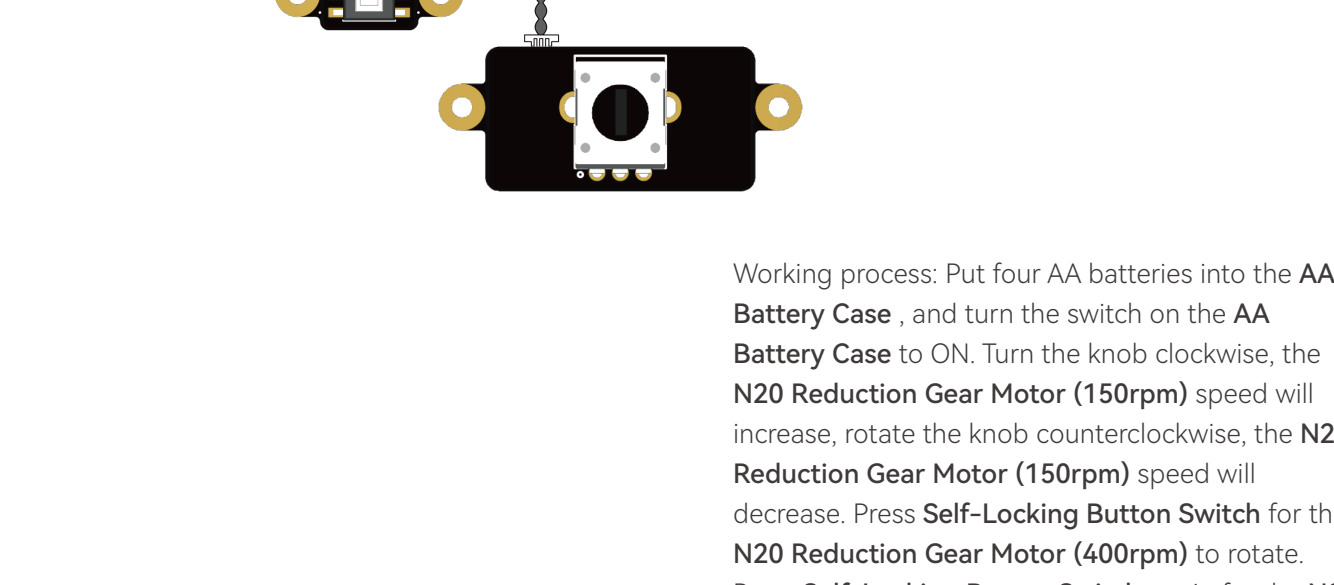


Working process: Put four AA batteries into the **AA Battery Case**, and turn the switch on the **AA Battery Case** to ON. Press the **Self-Locking Button Switch with SH1.0 Connector**, **1 White 3030-LED Board** and **4 White 3030-LED Board** will light up at the same time. Press the **Self-Locking Button Switch** again, **1 White 3030-LED Board** and **4 White 3030-LED Board** will turn off at the same time.

[4]

Powered by an **AA Battery Case with PH2.0 Connector**, using a **Potentiometer Board** to control the speed of **N20 Reduction Gear Motor (150rpm)**, and a **Self-Locking Button Switch** to control the switch of **4 White 3030-LED Board (400rpm)**.

The components used include: **Power Distribution Board (PDB) – 4 Channels**, power supply devices (**AA Battery Case with PH2.0 Connector** x1), switch devices (**Potentiometer Board with SH1.0 Connector** x1, **Self-Locking Button Switch with SH1.0 Connector** x1, **Jumper Cable with SH1.0 Connector** x1), electric devices (**N20 Reduction Gear Motor** x2), **Wire Pair with SH1.0** x4.

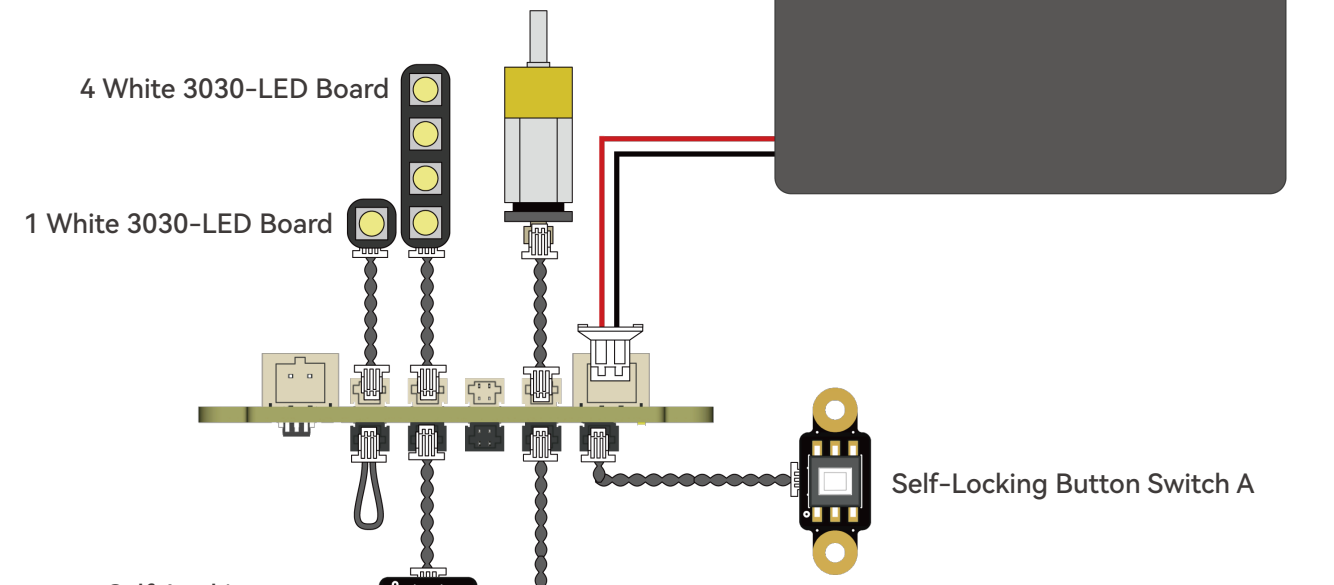


Working process: Put four AA batteries into the **AA Battery Case**, and turn the switch on the **AA Battery Case** to ON. Turn the knob clockwise, the **N20 Reduction Gear Motor (150rpm)** speed will increase, rotate the knob counterclockwise, the **N20 Reduction Gear Motor (150rpm)** speed will decrease. Press **Self-Locking Button Switch** for the **N20 Reduction Gear Motor (400rpm)** to rotate. Press **Self-Locking Button Switch** again for the **N20 Reduction Gear Motor (400rpm)** to stop.

[5]

Powered by an **AA Battery Case with PH2.0 Connector**, using a **Self-Locking Button Switch with SH1.0 Connector A** to control all channels, **1 White 3030-LED Board** stays on after power-up, using a **Potentiometer Board** to control the speed of the **N20 Reduction Gear Motor (150rpm)**, and using a **Self-Locking Button Switch with SH1.0 Connector B** to control the switch of **4 White 3030-LED Boards**.

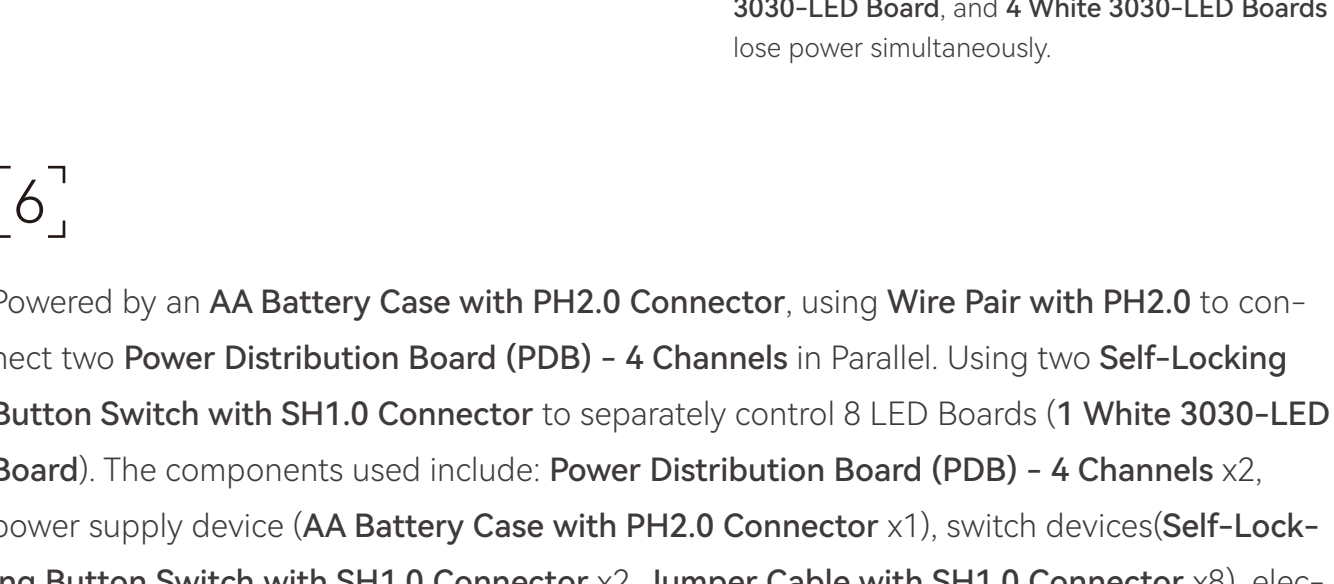
The components used include: **Power Distribution Board (PDB) – 4 Channels**, power supply device (**AA Battery Case with PH2.0 Connector** x1), switch devices (**Potentiometer Board with SH1.0 Connector** x1, **Self-Locking Button Switch with SH1.0 Connector** x2, **Jumper Cable with SH1.0 Connector** x1), electric devices (**N20 Reduction Gear Motor (150rpm)** x1, **White 3030-LED Board with SH1.0 Connector 5V** x2), **Wire Pair with SH1.0** x6.



Working process: By default, all switches are in the off position. Insert four AA batteries into the **AA Battery Case** and turn the switch on the **AA Battery Case** to ON. Press the **Self-Locking Button Switch A** and the **1 White 3030-LED Board** lights up. Turn the knob clockwise to increase the speed of the **N20 Reduction Gear Motor (150rpm)**, and turn the knob counterclockwise to decrease the speed of the **N20 Reduction Gear Motor (150rpm)**. Press the **Self-Locking Button Switch B** again, and the **4 White 3030-LED Boards** light up. Press the **Self-Locking Button Switch B** again, and the **4 White 3030-LED Boards** turn off. Press the **Self-Locking Button Switch A** again, and the **N20 Reduction Gear Motor (150rpm)**, **1 White 3030-LED Board**, and **4 White 3030-LED Boards** all lose power simultaneously.

[6]

Powered by an **AA Battery Case with PH2.0 Connector**, using **Wire Pair with PH2.0** to connect two **Power Distribution Board (PDB) – 4 Channels** in Parallel. Using two **Self-Locking Button Switch with SH1.0 Connector** to separately control 8 LED Boards (**1 White 3030-LED Board**). The components used include: **Power Distribution Board (PDB) – 4 Channels** x2, power supply device (**AA Battery Case with PH2.0 Connector** x1), switch devices(**Self-Locking Button Switch with SH1.0 Connector** x2, **Jumper Cable with SH1.0 Connector** x8), electric devices(**1 White 3030-LED Board with SH1.0 Connector 5V** x8), **Wire Pair with SH1.0** x8, **Wire Pair with PH2.0** x1.



Working process: Put four AA batteries into the **AA Battery Case**, and turn the switch of the **AA Battery Case** to ON. Press the **Self-Locking Button Switch** on the left side, the left 4 LEDs (**1 White 3030-LED Board**) light up, and go out when pressed again. Press the right **Self-Locking Button Switch**, the right 4 LEDs (**1 White 3030-LED Board**) light up and go out when pressed again. Press both switches (**Self-Locking Button Switch**) at the same time, all 8 LEDs (**1 White 3030-LED Board**) light up.