

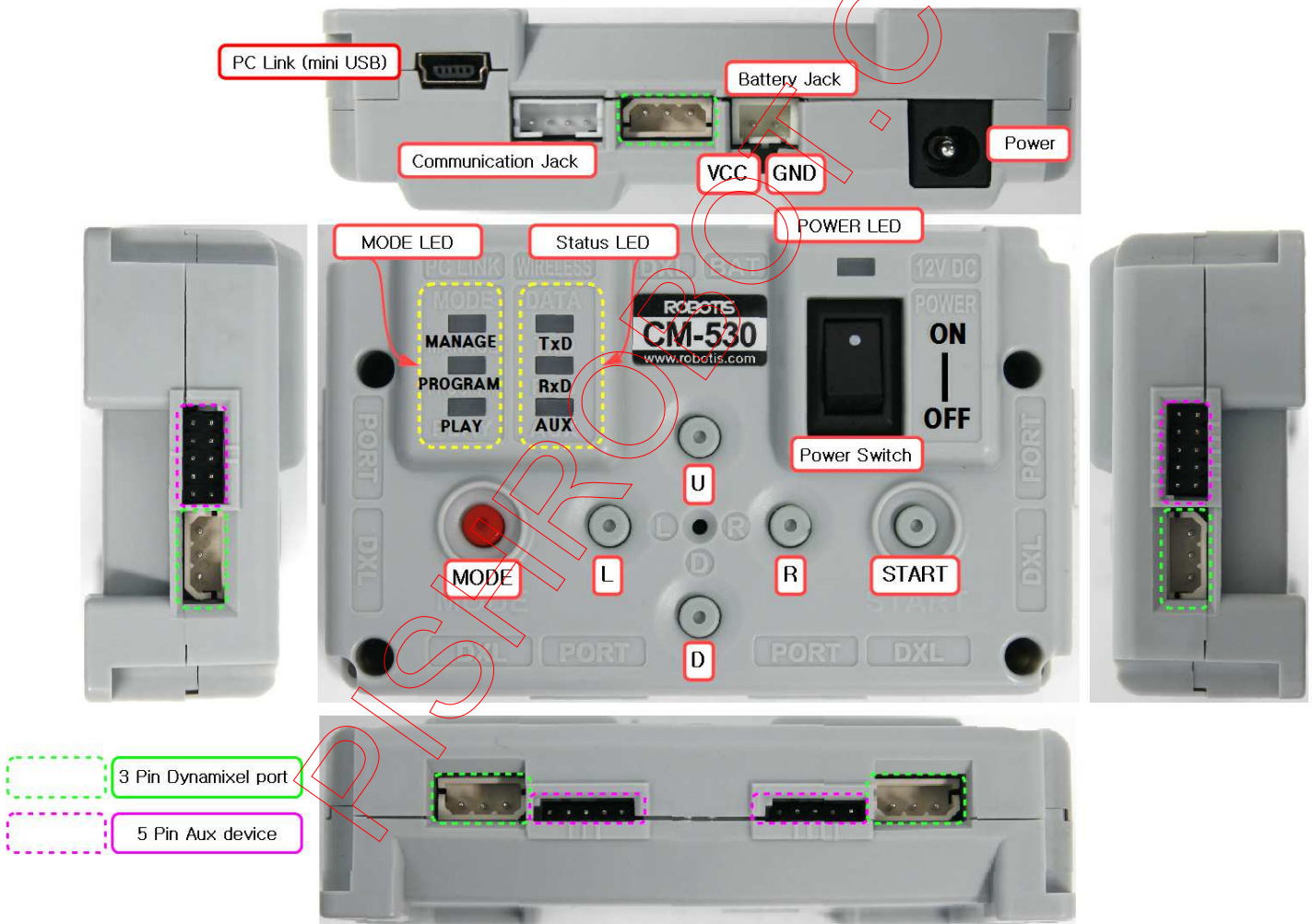
CM-530

Part Photo



[CM-530]

Name of Each Part



[Name of Each Part : CM-530]

- **PC Link (mini USB)** : Used to connect the serial cable to the CM-530 and PC via USB. Used for communication with other PC or downloading task code.
- **Communication Device Connection Jack** : Used for wireless communicate with ZIG-110A, BT-110A, IR receiver modules or other boards
- **Battery Jack** : Used to connect with the battery.
- **Power Jack** : Used to connect the SMPS power supply
- **Power LED** : ON and OFF LED status for the power
- **Power Switch** : Used to turn the robot ON / OFF.
- **MODE Button** : Used to change the operation mode of CM-530. Please read below for more information.
- **START Button** : Used to START selected mode. Please read below for more information.
- **U / L / D / R Button** : Used for input purposes when a program is playing. These buttons can be used to send commands to the robot.
- **AX/MX Serise Bus Port** : Used to connect the AX/MX Dynamixel in a daisy chain method.

- **Peripheral Devices Connection Port** : Used to connect Distance Measurement Sensor, Touch Sensor, IR Sensor, and peripheral devices. The port numbers for each port are represented in bars such as I , II , III , IIII , IIIII , and IIIIII.

- **Mode Display LED** : LED to display current operation mode of CM-530; Detailed descriptions are provided as below.

[MANAGE]

- It displays Dynamixel management mode is in progress.
- It is used to set or test the operations of CM-530 and AX-12A using RoboPlus Manager.
- It is automatically executed when [RoboPlus Manager](#) and CM-530 are connected.

[PROGRAM]

- It displays the motion edit mode is in progress.
- It is used when the motions are edited with RoboPlus Motion.
- It is automatically executed when [RoboPlus Motion](#) and CM-530 are connected.

[PLAY]

- It displays the task code mode is in progress.
- It is used after downloading the written code to CM-530 with [RoboPlus Task](#).
- The Start button must be pressed directly by the user to execute When PLAY LED flickers.

- **Status Display LED** : The LED represents the current status of CM-530. Detailed descriptions are provided as below.

- **TxD** : Turned on while CM-530 is transmitting the data to the outside.
- **RxD** : Turned on while CM-530 is receiving the data from the outside.
- **AUX** : Assigned LED to be used by the user in the program. It can be turned on or off using task code.

Connecting Power

- The power is applied if the battery is connected to battery socket of CM-530 or if the power switch is set to ON after connecting SMPS to power jack socket. If the power is impressed, Power LED is turned on and one of the Mode Display LEDs flickers.



How to Operate

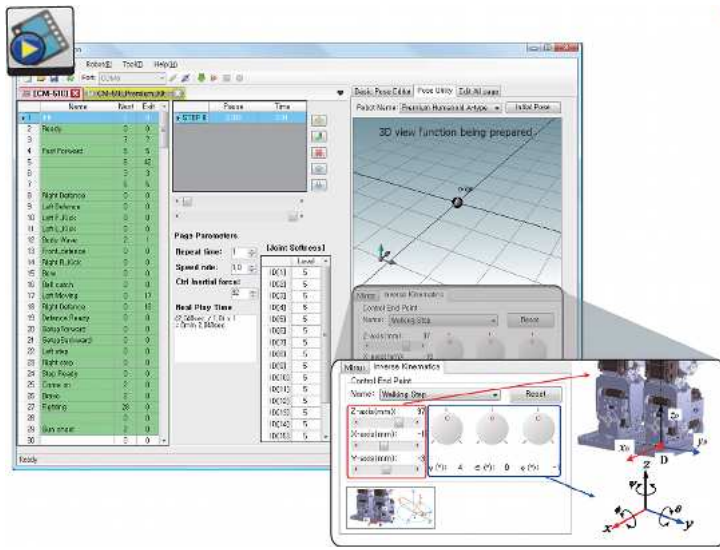
- **[Turning the power on]** : The power is turned on by moving the switch from **OFF to ON**.
 - ※ If the power is not turned on in spite of moving the switch to ON, the batteries may have been discharged. Pleaser refer to [Charging](#) to recharge, or connect the power using SMPS.
- **[Start]** : Move to **PLAY** using **Mode Button** to operate robots. Press **START Button** to execute when the LED on **PLAY flickers**.
 - ※ If START button is pressed, the LED on **PLAY** is not supposed to be **flickering** any more; that is the normal status of the execution.
- **[End]** : If you want to stop the executed operations, press **MODE Button** to get back to waiting mode stauts, or turn **OFF the power using Power Switch**.

Usage

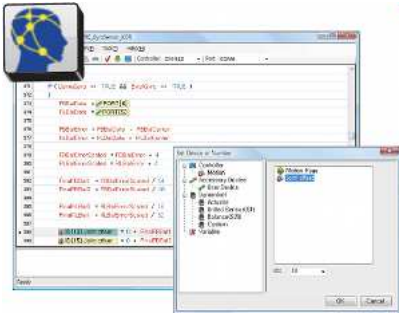
RoboPlus

- It is used to control Dynamixel and the peripherals, and it can connect Dynamixel(AX/MX Dynamixel... etc.) and various parts of OLLO(Servo Motor, [Touch Sensor](#), [LED Module](#), [IR Sensor](#) etc.).
- Specific motions can be edited and saved through [RoboPlus Motion](#). The saved motion (mtn file) can be always executed by [RoboPlus Task](#), and also the motions of each part can be controlled by writing the task codes for control.

- ※ [RoboPlus Motion](#)



※ RoboPlus Task



※ RoboPlus Manager



Embedded C

- The controller of CM-530 can be controlled in C language. Please refer to [Embedded C](#) for more information.

Connecting to a PC

Mini USB port of CM-530 and USB port of PC must be connected using a USB-mini USB cable to communicate with PC.



Connecting Wireless Communication Module

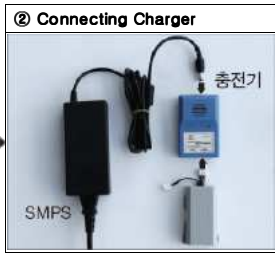
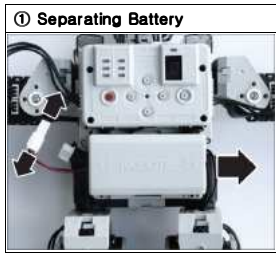
- ZIG-110/BT-110 wireless communication module can be connected to CM-530.



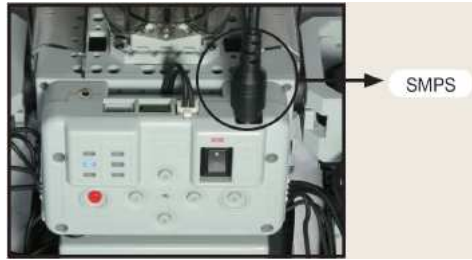
Charging

If the alarm rings during the robot operation, the battery must be charged.

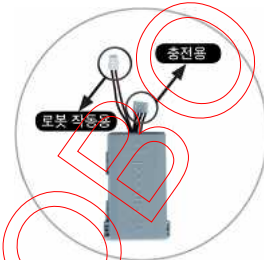
If the charging is started, the red LED on the charger starts flickering. If the charging is completed, the green light is turned on.



Charging in Progress (Red LED) Charging Completed (Green LED)



⇒ The robot may be operated using external power if SMPS is directly connected to robots.



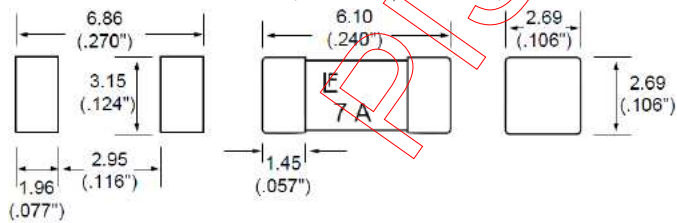
⇒ Two connectors are connected to the battery: the connector for charging and the connector for operating robots.

Replacing the Fuse

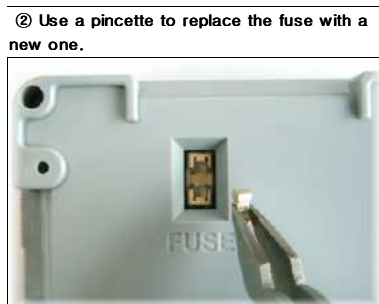
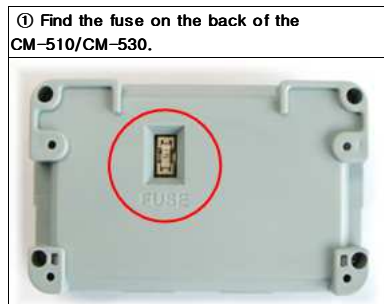
The fuse in the CM-510/CM-530 prevents it from overloading, which can damage the circuit.

If the CM-510/CM-530 does not turn on with the battery but turns on when connected to the SMPS, replace your fuse.

* The size of the fuse is shown below. Use a 125V/5A~10A fuse.



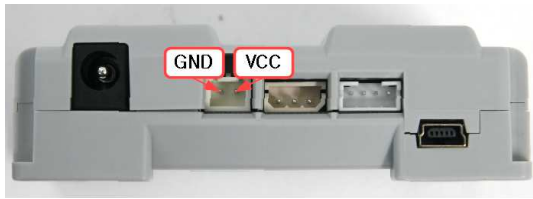
* How to replace the fuse



Pin Information to Build User Application Device

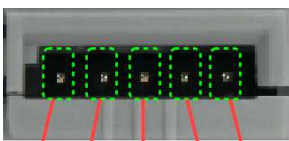
Power

The pin composition of CM-530 Power is as below.



External 5-Pin Port

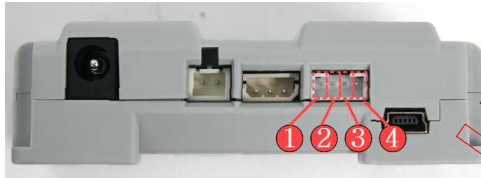
The pin composition of CM-530 external port is as below.



1. OUT : 3.3V- Torque Possible (Maximum Allowed Current 0.3A)
2. VCC (5V)
3. ADC : The analog signals from the sensor made by the user can be read.
4. GND
5. OUT2 : 3.3V- Torque Possible (Maximum Allowed Current 0.3A)

Communication Device Connection Port

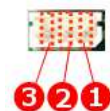
The functions on the pins of communication device connection port are as below.



1. GND : Ground Level (0v)
2. VDD : Supply Voltage (2.7~3.6V)
3. RXD : Receive Signal Terminal
4. TXD : Transmit Signal Terminal

3-Pin Connector Port

The functions of pins on the 3-pin connector port are as follows. Please refer to [AX-Series Pin Assignment](#) for more information. Please be careful not to change the direction considering the angular part.



1. GND : Ground Level (0v)
2. VDD : Supply Voltage (It is equal to the voltage of battery)
3. DATA : Data Transmission Pin

H/W Specification

- Weight : 54g
- Controller : STM32F103RE
- Working Voltage
 - Allowed Range : 6V ~ 15V
 - Recommended Voltage : 11.1V (Li-PO 3cell)

- Consumed Current
 - When IDLE : 50mA
 - External I/O Maximum Current : 300mA
 - Total Maximum Current : 10A (Fuse)
- Working Temperature : -5℃~70℃
- Internal I/O Device
 - Button : 5 (Reset 1, Port 5)
 - Mic (For Sound Detection) : 1
 - Voltage Sensor : 1
- External I/O Device
 - OLLO Compatible 5 pin I/O Port : 6
 - AX/MX Series Dynamixel Connector : 5

Videos

Using RoboPlus Manager (for CM-530)

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