v1.0

Closer to Real, **ROBOTIS**

Bioloid Tip

ROBOTIS CO., LTD. www.robotis.com
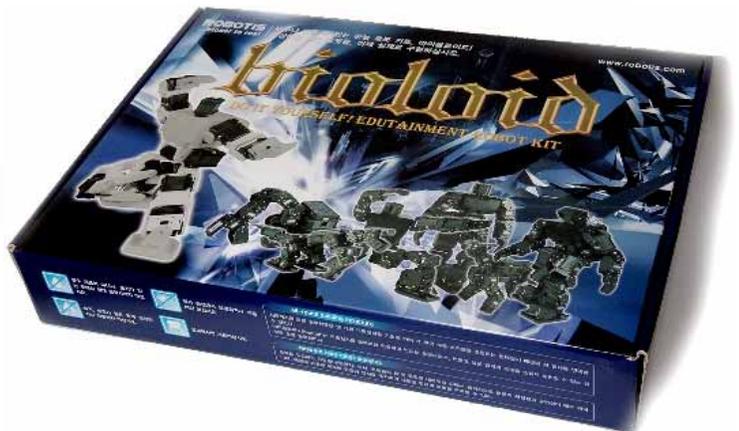
<u>Contents</u>

1 . Bioloid Operation and Maintenance.

1 – 1. Finding the Serial COM Port Number of the PC

To use the software of Bioloid, the users must know the CM-5 corresponding communication port number. To find out the port number, follow the next steps.

Right click the "My Computer" icon of Window desktop, and then select "Properties."
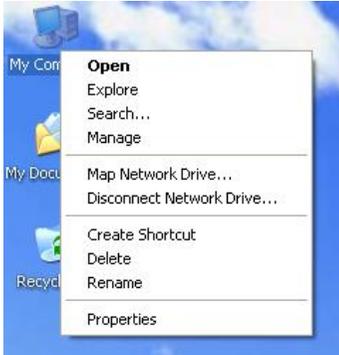
Select "Hardware" tab and select the "Device Manager"
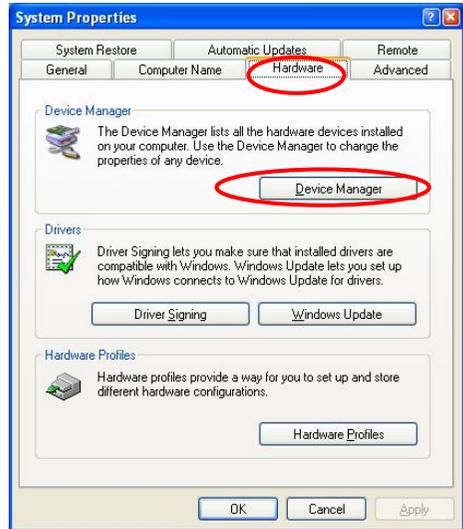
Select Port (Com & LPT) from the list
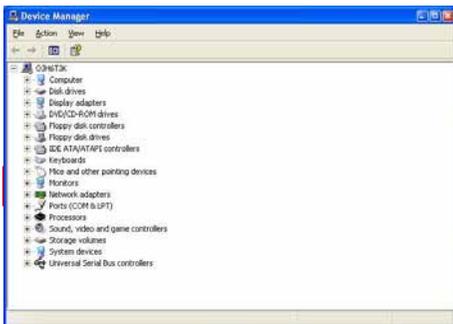
Serial COM Ports that can be connected to CM-5

※ If your PC does not have Serial COM Port, install USB2Serial converter. USB2Serial converter is a device that converts USB port to Serial COM Port and can be easily found in PC accessory corners.

1-2. Charging CM-5

Connect SMPS to CM-5.
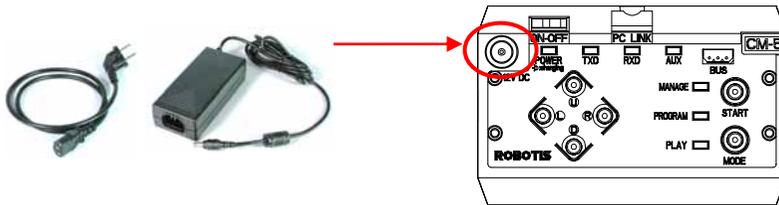
Turn on POWER of CM-5
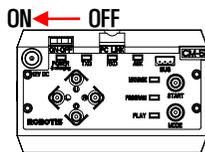
Click U button of CM-5.
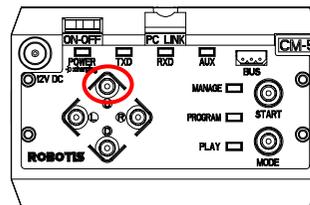

LED light will blink when CM-5 is charging. The speed of LED blink indicates the charging level. The faster blinks signify the closer to full charge. When it is fully charged, it will blink every two seconds

※ Refer to "Help Files\Charging CM-5. wmv" on the CD.

1-3. Changing Dynamixel's ID

▷ Connect only one Dynamixel that will change the ID to CM-5..
▷ Download behavior control program that can change Dynamixel's ID.
(Use the ==Examples\ID changing .bpg== file)
▷ After download, execute the program via online activation mode.
▷ Using CM-5 button, insert new ID.

```
[CM-5 Version 1.11]
<->PC:57142 BPS, <->Dynamixel:1000000 BPS
ID:001                              Current Dynamixel ID
001(0X01) Dynamixels Found.   1
   1                                  New Dynamixel ID
```

```
1
2
3      When U button of CM-5 is clicked, newly set ID is increased by the unit of 1
4
5
4
3      When D button of CM-5 is clicked, newly set ID is decreased by the unit of 1.
2
12
22     When L button of CM-5 is clicked, newly set ID is increased by the unit of 10.
32
22
12     When R button of CM-5 is clicked, newly set ID is decreased by the unit of 10.
2
2      When the users click Start button, new Dynamixel ID will be set.
```

▷ Close the program after you change the ID.

※ Caution: Check the chart below to make sure that the motor and sensor setup configuration is not out of ID's ranges.

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Dynamixel type	Available ID
AX-12	0~30
AX-S1	100~109

※ Refer to video clip of "==Help Files\ID changing. wmv==" " on the CD.

1-4. Exchanging Fuse

Inside the CM-5, there is a fuse that protects circuits from over-current. If CM-5 does not recharge or it does not power on with the battery only but the SMPS is powered on, it indicates the shorted fuse and thus should be replaced.

※ Fuse inside CM-5 can be easily purchased in local electric stores. (220V/5A)

Separate the CM-5 and battery.

Separate the CM-5's case.

Replace with new fuse.
(Direction of fuse does not matter)
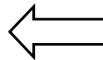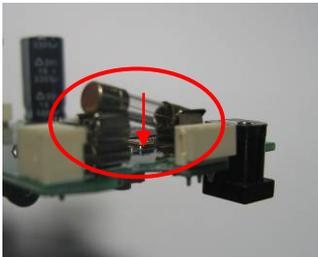
Take out the fuse from the circuit board.

Put back the CM-5 to original condition.

※ Refer to video clips of "Help Files \Exchanging Fuse. wmv" on the CD.

2 . Instruction of Video Clip.

2 – 1. Instruction of Video Clip for Beginner/Comprehensive/Expert kit.

Video Clip is supplied to provided CD to confirm function and action of applied robots of Bioloid kit. Use Windows media player and other Video Clip replaying program to see these Video Clips

<Examples of Beginner Level. >

Applied Robots\Beginner\Walking Droid \DemoExample(Walking Droid).wmv
Applied Robots\Beginner\Obstacle Detection Car\DemoExample (Obstacle Detection Car).wmv
Applied Robots\Beginner\Clapping Penguin\DemoExample(Clapping Penguin).wmv
Applied Robots\Beginner\Greeting Penguin\DemoExample(Greeting Penguin).wmv
Applied Robots\Beginner\Melody Car\DemoExample(Melody Car).wmv
Applied Robots\Beginner\Cliff Detection Car\DemoExample(Cliff Detection Car).wmv
Applied Robots\Beginner\Robot Arm\DemoExample(Robot Arm).wmv
Applied Robots\Beginner\Attacking Duck\DemoExample(Attacking Duck).wmv
Applied Robots\Beginner\Pan tilt\DemoExample(Pan Tilt).wmv
Applied Robots\Beginner\Parking Gate\DemoExample(Parking Gate).wmv
Applied Robots\Beginner\Sounds–Level Meter\DemoExample(Sounds–Level Meter).wmv
Applied Robots\Beginner\Crocodile Mouth\DemoExample(Crocodile Mouth).wmv
Applied Robots\Beginner\Universal Gage \DemoExample(Universal Gage).wmv

<Examples of intermediate level >

Applied Robots\Intermediate\Probing Robot\DemoExample(Probing Robot).wmv
Applied Robots\Intermediate\Excavator\DemoExample(Excavator).wmv
Applied Robots\Intermediate\Fawn\DemoExample(Fawn).wmv
Applied Robots\Intermediate\Turtle\DemoExample(Turtle).wmv
Applied Robots\Intermediate\Spider\DemoExample(Spider).wmv
Applied Robots\Intermediate\Battle Droid\DemoExample(Battle Droid).wmv
Applied Robots\Intermediate\Gerwalk\DemoExample(Gerwalk).wmv
Applied Robots\Intermediate\Robot Flower\DemoExample(Robot Flower).wmv

<Examples of Advanced Level >
Applied Robots\Advanced\Dinosaur\DemoExample(Dinosaur).wmv
Applied Robots\Advanced\Puppy\DemoExample(Puppy).wmv
Applied Robots\Advanced\King Spider\DemoExample(King Spider).wmv
Applied Robots\Advanced\Humanoid\DemoExample(Humanoid).wmv

2-2. Instruction of Video Clip for Beginners.

Video clip in CD is provided for beginners who manage a Bioloid kit for the first time.
Use Windows media player and other Video Clip replaying program to see these Video clips.

〈How to recharging the battery 〉
Help Files\Recharging.wmv

〈Changing Dynamixel's ID 〉
Help Files\Changing Dynamixel's ID.wmv

〈Fuse exchanging of CM-5 〉
Help Files\Exchanging Fuse.wmv

〈Inserting nuts for AX-12 〉
Help Files\Inserting nuts for AX-12.wmv