BIOLOID GP
Quick Start

Attention

Exercise safety when using this product,
Robotis is not responsible for any accidents due to user negligence.

- Please read the instructions carefully before getting started.
- This product may not be suitable for children aged below 15.
- Do not use any other tools other than the ones provided with the kit.
- Face the robot away from you during operations.
- Do not place your fingers at the robot's joints.
- Do not operate robot near water or direct sunlight.
- Do not take apart nor customize the parts.
- Use only the battery and battery charger included in the kit.
- Replace gears after long or excessive use.

Bioloid GP features

① Implementation of Dynamixel AX-18F for superior performance

② Application of high-strength and lightweight aluminum frames

③ Change of direction while walking at high speeds

④ Preloaded humanoid combat, soccer, and a variety of motions

⑤ Posture correction with gyroscope sensor

⑥ Gripper set with sensors for missions

⑦ Remote control included (with Zigbee built-in)

⑧ Includes upgradeability with software programming (RoboPlus)

⑨ Digital packet control and daisy chain for simplified wiring

Table of Contents

For more information or tutorials go to http://support.robotis.com

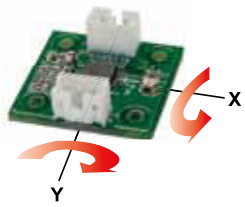
1. Bioloid GP Components and Features

1 

AX-12+ : 8 units
- Networked, robot-dedicated servos
- Versatile, expandable structure
- Torque : 15kgf·cm(at 12V)
- Motion range : 300 degrees
- 360-degree rotation (for wheels)

2 

AX-18F : 10 units
- Networked, robot-dedicated servos
- Versatile, expandable structure
- Torque : 18kgf·cm(at 12V)
- Motion range : 300 degrees
- 360-degree rotation (for wheels)

3 

Gyroscope sensor
- Angular velocity detection(2-axis)
- Posture correction during walk

4 

CM-510
- Dedicated robot controller
- Sensor ports : 6
- Dynamixel ports: 5
- Sound sensor, buzzer, and protective fuse installed.

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Remote control (RC-100)
- Dedicated remote control
- Upgradeable with Zigbee

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ZIG-110 set
- Non-interference signal control Multiple-robot simultaneous control (well-suited for robot competition)

7 

SMPS and charger
- Input voltage : 100~240V

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Battery pack
- Li polymer(11.1V,1000mAh)

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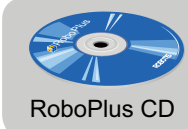
Aluminum frames
- Optimized for humanoids

10 

RoboPlus CD

11 ● USB2Dynamixel
-RS-232, TTL, RS-485 standards

12 

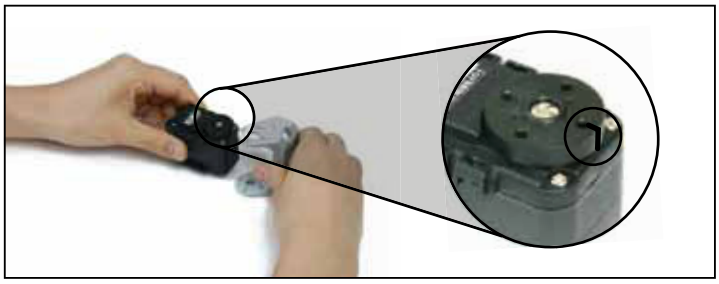
● RoboPlus
-robot programming software

● Serial cable
-robot program downloads

2. Assembly

Precautions (For more information refer to the website or video in the manual)

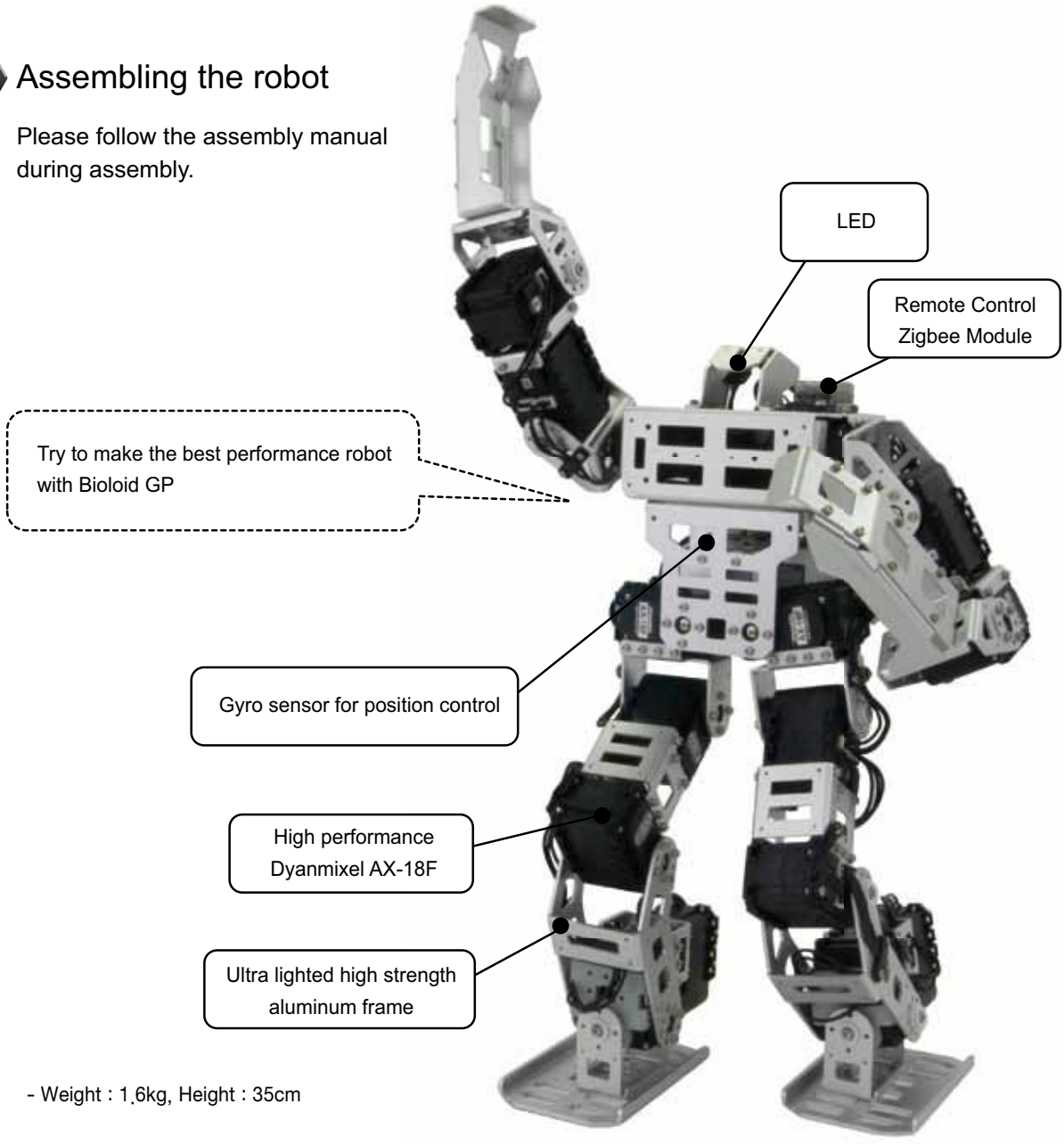
(1) Convenient AX-12+/AX-18F nut insertion method



(2) Align horn position before assembling

Assembling the robot

Please follow the assembly manual during assembly.



- Weight : 1.6kg, Height : 35cm

3. Robot Action

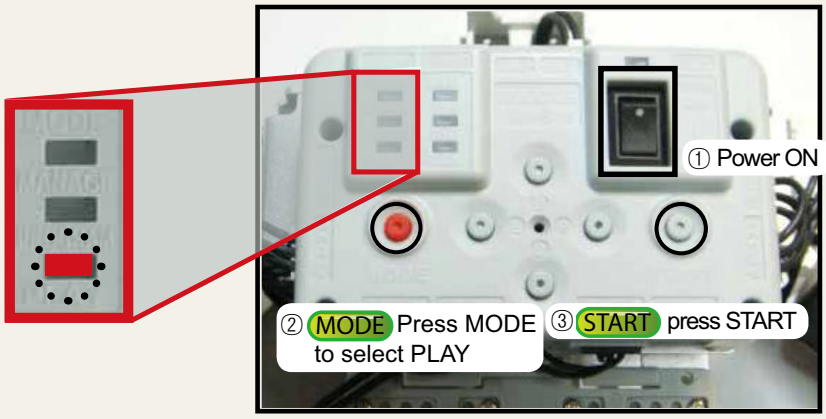
(1) Turning the robot on

① Turn the power switch on and the LED will start blinking.

② MODE Press MODE until the PLAY LED starts blinking.

③ START Press START (ensure PLAY's LED is blinking).

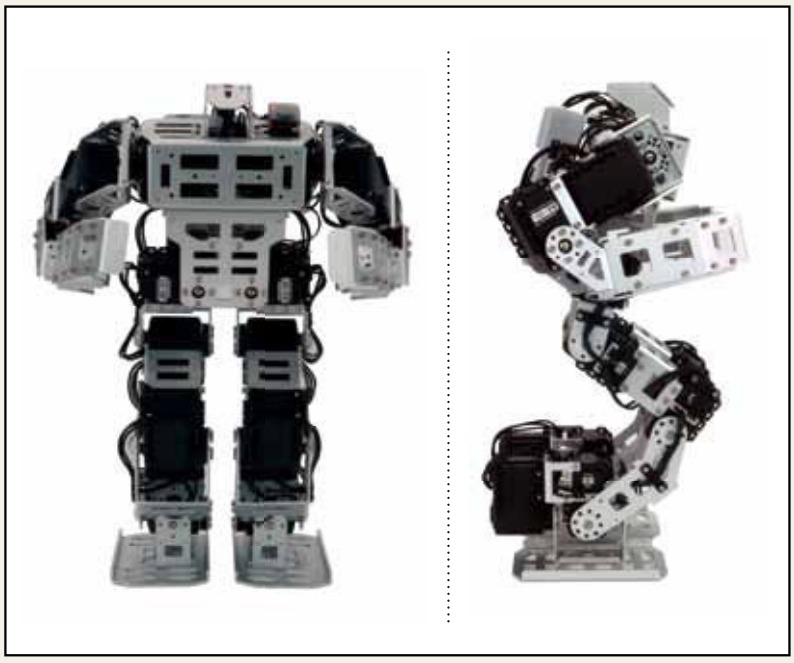
➡ If the LED does not turn on check the power cable or connection.
Ensure the battery pack is properly charged (refer to p.8 (4) fo9r more information)



(2) Check the robot's basic posture (this check verifies proper assembly)

The robot assumes the position illustrated in the picture below when turned on.

➡ If the robot does not assume the posture below please refer to page 10.



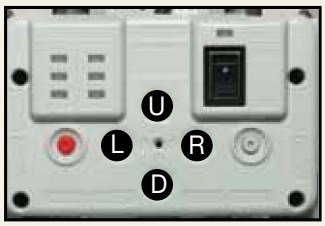
✓ Check the angles the arms and legs.
If different from the illustration go to page 8.

✓ Check if the cables are connected on the robot's outer legs.

If the robot has been assembled in a way that can be damaged the system activates a warning sound.
The LED of motor(s) with problems will also blink.
When it happens the releases its torque to zero to prevent further damage.

(3) Robot Action

- U D buttons are as follows.



U Soccer Mode

D Combat Mode

- The remote control (RC-100) controls the robot.

RC-100 Operations

① POWER/MODE Hold the button for 2 seconds to power on.

② The following buttons control the robot.

③ Walking(soccer/combat)

- U : Forward
  U + 6 : Fast Forward
  U + L : Forward left
  U + R : Forward right
- D : Backwards
- L : Left turn
  L + 5 : Left sidestep
  L + 5 + 6 : Fast left sidestep
  L + U + 5 : Left frontal diagonal step
  L + D + 5 : Left dorsal diagonal step
- R : Right turn
  R + 5 : Right sidestep
  R + 5 + 6 : Fast right sidestep
  R + U + 5 : Right frontal diagonal step
  R + D + 5 : Right dorsal diagonal step

➡ For more information and tutorials refer to the homepage.

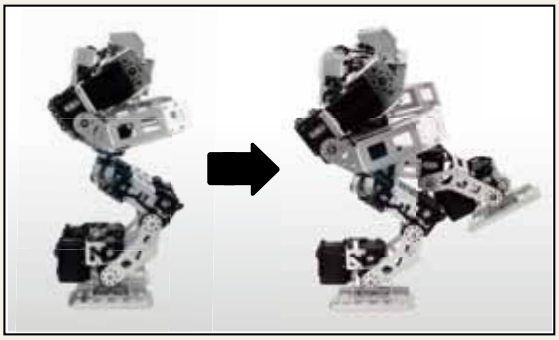
➡ If the robot does not respond to remote commands please refer to page 10.

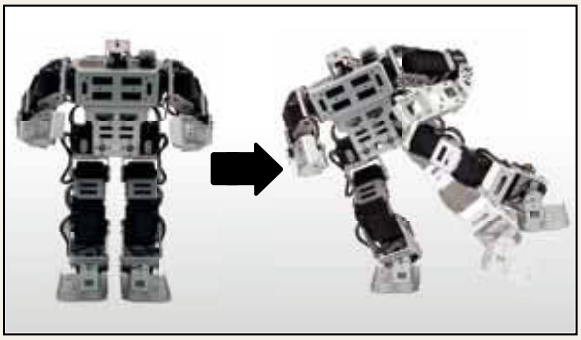
U Soccer mode

Walks by default and follows the buttons illustrated below.

2 L leg + U : forward kick, D : backwards kick, L : left kick, R : right kick

4 R leg + U : forward kick, D : backwards kick, L : left kick, R : right kick

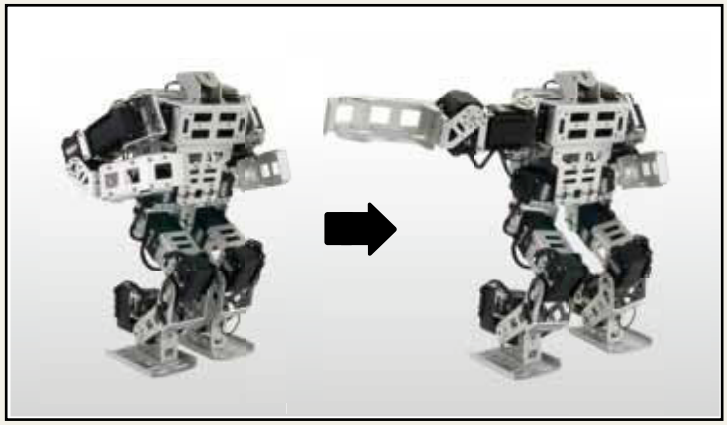




D Combat Mode

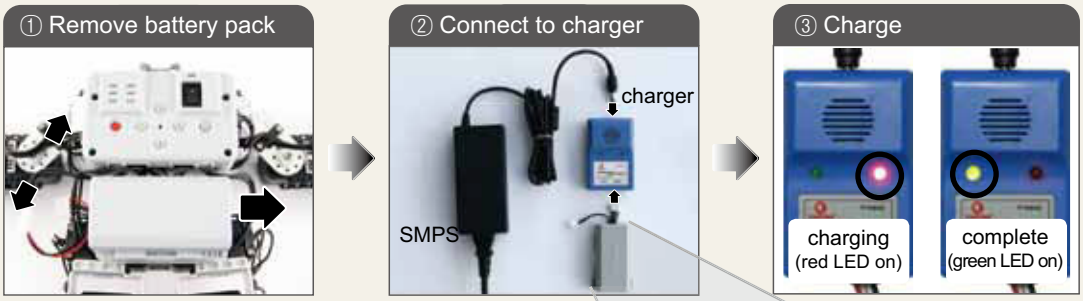
Walks by default and follows the buttons illustrated below.

2 knock + U : forward attack
L : left attack
R : right attack

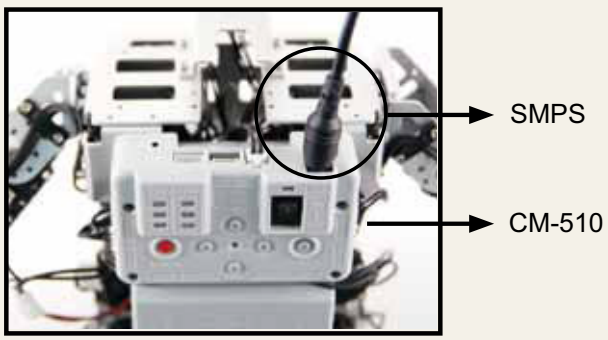


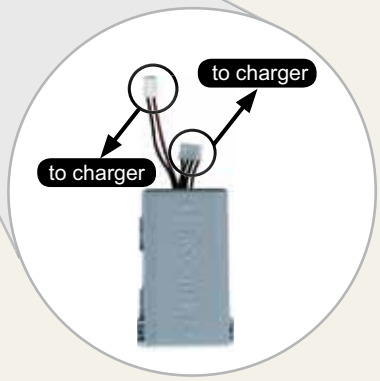
(4) Charging

- During robot operation when the battery beeps charge the battery pack immediately.
  The LED turns on red during charging; switches to green after completion.



- Connecting the SMPS directly provides
  External power to the robot.





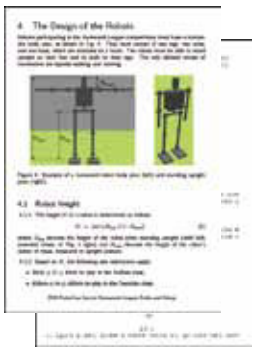
➡ The charger and robot cables are connected.

4. Participation in robot competition

(for more information and tutorials visit the homepage)

Competitions

Already existing interests, contest participation and registration



Rules

Contest rules and tuning compliance

Conference exhibitions

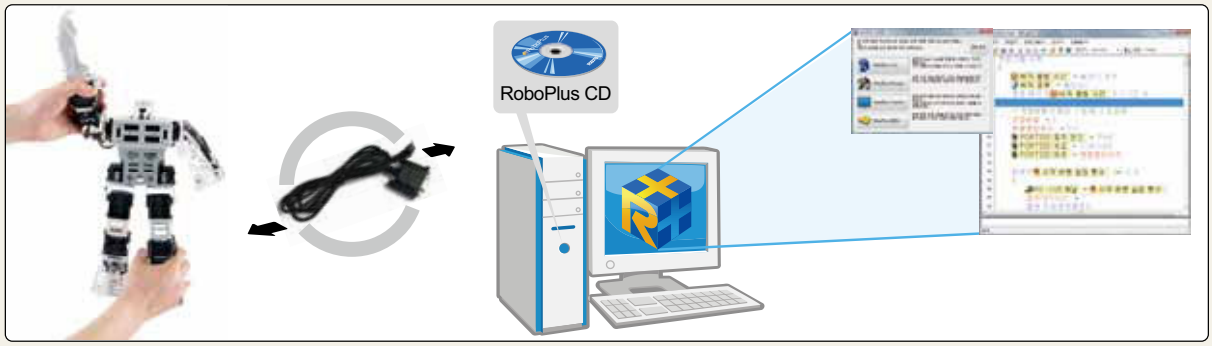
Conference exhibitions

Motion and algorith generation

Competition-related configurations and algorithm updates.

Programming

RoboPlus robot programming software for motion creation and robot control. (CD included)



➡ For programming guidelines refer to the included tutorials.