EZ-Robot Kit

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Kit Contents

Please ensure the following parts are accounted for on return:

Case 1: Revolution JD x 2

- ✓ 14 X individual HD Lever servos
- ✓ 2 X JD heads
- ✓ 4 X JD Feet
- ✓ 4 X JD gripper hands
- ✓ 2 X JD torso
- ✓ 2 X EZ-BV4/2 Wi-Fi robot controller
- ✓ 2 X Battery charger
- ✓ 2X battery charger power supply
- ✓ Kit Overview sheet (This document)
- ✓ Resources USB thumb drive

Case 2: Revolution Six x 1

- ✓ 12 X individual HD Lever servos
- ✓ 1 X dodecagon body
- ✓ 1 X EZ-BV4/2 Wi-Fi robot controller
- ✓ 6 x Hexapod 'feet'
- ✓ 1 X Hexapod Dome
- ✓ 1 X EZ-B v4 Camera
- ✓ 1 X Wire Spiral Wrap pack

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EZ-Robot Kit

Overview

EZ-Robots are modular self-assembly kit robots bringing access to quite sophisticated robots to users of all levels. They are comprised of EZ-Bits, heavy duty servo motors which clip easily together to form the limbs of the robot. EZ-bit servo's connect to a EZ-BV4/2 Wi-Fi robot controller, the 'brain' of the robot, enabling direct control via tablet/PC and high level programming options via the PC based EZ-Builder software. Your kit comprises 2 X EZ **Revolution JD** Humanoid robots and 1 X **EZ Revolution Six** Hexapod robot.

(This document is not a full manual but serves to get you started through links to further resources and full online tutorials. To access these resources via links, please type the link into your browser or see the digital version of this document contained on the USB drive contained in your Kit. Should any links become inactive, please advise PLD staff via contacts below)

When using the EZ-Robot kit, please observe the following specifics:

- *Please refer to all links indicated below for full usage and assembly instructions.*
- **Never attempt to use the EZ-Robot without performing a servo fine-tune.** (see linked instructions below)
- Always charge battery fully before use with supplied battery charger. (see referenced instructions below)
- Always allow a 30min cool down period after use, prior to re-charging the battery.
- Never leave the EZ-Robot switched on after it starts emitting the verbal 'my battery is low' alert. Failing to switch off the unit at this alert can over-drain the battery leading to permanent damage.
- Disconnect the charger ASAP after charge is completed to avoid damage to the battery.
- Never power up and use the robot whilst battery charger is connected. This can cause the battery to overheat and explode.
- In the course of use, the EZ-Robots can move quite a distance from their original starting position. Try to use EZ-robot on the floor, or if on a desktop, allow a clear radius of at least 60cm around it to avoid potentially damaging falls. Watch closely whilst the EZ-Robots are in motion to keep them away from the edge of desktops and out of contact with other objects.
- Prior to connection to Wi-Fi, the EZ-Robot's servos (eg knees, elbows, neck) will be 'loose'. After connection to Wi-Fi, the servo's will become 'rigid'. Never attempt to force or otherwise move the servo's manually when they are in the 'rigid' state.
- Never attempt to open the casing of any servo's or of the Wi-Fi robot controller. If any part fails to respond or the battery fails to power, please note the problem part and contact PLD staff.

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Getting started

1. Charge the battery of your robot prior to use:
   https://www.ez-robot.com/Tutorials/Lesson/26?courseId=1

2. Download the EZ-Builder software to your windows PC('s):
   https://www.ez-robot.com/EZ-Builder/

3. Assemble **'Revolution JD' Humanoid** Robot as per assembly process: *(Take special care that wires are inserted into correct indicated port, as per instructions.)*
   https://www.ez-robot.com/Tutorials/Lesson/61?courseId=1

4. Assemble **'Revolution Six' Hexapod** Robot as per assembly process: *(Take special care that wires are inserted into correct indicated port, as per instructions.)*
   https://www.ez-robot.com/Tutorials/Lesson/62?courseId=2

5. Open EZ-Builder and connect the robot via Wi-Fi:
   JD: https://www.ez-robot.com/Tutorials/Lesson/32?courseId=1
   Six: https://www.ez-robot.com/Tutorials/Lesson/35?courseId=2

6. The robot's limbs should spring into the calibration position (basically the body of all servo's should be fairly straight in line with their brackets, but may be a little crooked. However none should be severely bent and/or buzzing) With limbs in the calibration position, perform the servo fine-tune process:
   https://www.ez-robot.com/Tutorials/Lesson/33?courseId=1

7. Should any servo be severely bent, buzzing or require more than 10 degrees of fine tune, a full manual calibration will be required:
   JD: https://www.ez-robot.com/Tutorials/Lesson/25?courseId=1
   https://www.ez-robot.com/Tutorials/Lesson/31?courseId=1
   https://www.ez-robot.com/Tutorials/Lesson/30?courseId=1
   https://www.ez-robot.com/Tutorials/Lesson/29?courseId=1
   https://www.ez-robot.com/Tutorials/Lesson/28?courseId=1

   Six: https://www.ez-robot.com/Tutorials/Lesson/25?courseId=2

8. With the example project for the relevant robot still open in EZ-Builder from step 5 above, you may start with the basics of moving the robot via manual control:
   JD: https://www.ez-robot.com/Tutorials/Lesson/36?courseId=1
   Six: https://www.ez-robot.com/Tutorials/Lesson/37?courseId=2

9. From here, you may move on to more advanced activities including introducing basic programming via Blockly and Roboscratch and utilising more complex controls in your project in EZ-Builder such as Auto-positioner (Gait), with which you can create original custom moves for your robot frame by frame:

Activities in EZ-Builder: https://www.ez-robot.com/Tutorials/Course/6
(View the course for your robot and refer to Programming and Activities links at left of screen)

Auto-positioner (Gait) control: https://www.ez-robot.com/Tutorials/Help.aspx?id=180

PLEASE VISIT www.ez-robot.com FOR FULL MANUALS AND TUTORIALS

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