



NX-25Q Plus Humanoid Robot

First AI Deep Learning Human Robot

1. Specifications :

- *. Dimension : 252 mm X 150 mm X 85mm.
- *. Weight : ~ 1000 g (include battery).
- *. Degrees of freedom : 17 (head : 1, hands : 6, feet : 10).
- *. Servo torque : typical 5.5 Kgf·cm@6.0 V.
- *. Servo speed : 0.11 sec/60° @6.0 V.
- *. PC connection : with USB-C port.
- *. Mobile device connection : with WiFi, bluetooth, and Zigbee.

*. Operation environments :

Computer system :

CPU : Intel CORE i5 grade or above.

RAM : 4 GB or above.

HDD : 1000 GB or above.

OS : Windows 10, macOS catalina, Linux ubuntu 18.04 and Linux Debian 10 or above.

Mobile system :

Android 11.0, iOS 13.0 or above.

2. Hardware advantages :

- *. Compact sized for convenience storage and carry about.

Smart Servo equipped :

- *. Special designed servos for robot field, with position feedback functions and optional interfaces : PWM / TTL / RS-485 / MODBUS-TCP/CANBUS.
- *. Excellent servo control boards for high definition position control with 32 bits MCU and 12 bits ADC resolution.

Multi-functions Main Control Board :

- *. The main control board with a 4-cores 64bit CPU (may include a 128 cores GPU or NN processor by optional).
- *. The main board build in a 6-DOF Inertial measurement unit (include 3-axis gyroscopes, 3-direction accelerometers).
- *. The main control board also build in a 3-axis electric magnetic compass sensor, and a tilt sensor.

- *. The main control board also reserve many GPIO ports for extension applications, and with over voltage/current and reverse protection.
- *. High strength fully aircraft-class aluminum alloy structure for violent motions and provide interchangeable strengthen kits for robot-fighting games.
- *. Easily and quickly assemble and maintainable, designed special padlock for rapid to equip the add-on parts and sensors.
- *. The main body of the robot setup with a vision module for image/pattern recognition and a multi-microphone array for voice recognition, and with a high-quality speaker for play sounds.
- *. Light weight body, high efficiency servos, and low power consumption circuits, collocation a High-capacity rechargeable Li-polymer cell, provide super mobility on this intelligent robot.

3. Versatile software :

*. **Official software provides the standard functions:**

- . TrimAdjust APP using for synchronizing the robot with computer / mobile device.
- . The NX-mini APP, GUI program to control the data stream and data reserve between the robot and controller.
- . Save postures parameters from the shapes of robot.
- . Upload / download postures setting between the robot and computer / mobile device.
- . 4 user's scenarios and 1 official demo scenario save on the main control board, each scenario can be assembled by 200 motions.
- . 40 motions will memory on main control board, a motion can be assembled by 100 postures.
- . 8 levels motion-speed can be setting in the scenarios.

- *. **Official software connects to AI / AIoT functions:**
- *. With the capability to stream the sensor's data to the cloud computers.
- *. With the edge computing ability to extract image/pattern features.
- *. Provide C++ API for control robot in C language, or to realize the IOT and AIOT applications on Arduino IDE.
- *. Provide Python API for control robot by Python program, and come with the TensorFlow lite, Keras and Pytorch models for doing the MLP, CNN, RNN deep machine learning on robot.
- *. Provide the API for user to run the opensource Robot Operation System (ROS).
- *. Provide mobile system control APP, compatible with Android and iOS.

4. Package contents :

- *. Servo (Zeta-HMR V2) : 15 pcs.
- *. Servo (Zeta-HMR/MT V2) : 2 pcs.
- *. Aluminum metal parts : 43 pcs.
(Body : 37 pcs. , Face mask : 2 pcs., Chest : 2 pcs., back : 2pcs.)
- *. Servo control board : 1 pc. (with PWM interface).
- *. Main control board : 1 pc. (only CPU version, none of GPU, TPU, or other NN processor).
- *. Servo central point adjuster (NX-102) : 1 pc.
- *. Battery pack (7.4 V Li-polymer cell, 960 mAH) : 1 pack.
- *. AC to DC battery charger : input : 100 ~ 240V, output : 8.4 V.
- *. Accessories pack : 1 pack.
- *. Spare parts : 1 pack.
- *. Assembly tools : 1 pack.
- *. Software CD-ROM : 1 pc.
- *. Hardware assembly manual : 1 pc.
- *. Software manual : 1 pc.
- *. Quick start guide : 1 pc.