ROBOTERA

XHAND1

Fully Actuated
True Freedom

Designed for AI research

Scan the QR Code

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Introduction

XHAND1 is the first product–level dexterous hand launched by Robot Era, featuring high degrees of freedom, high performance, and high intelligence.

Features

- **Fully Self-driven Five-Finger Joints:** Each finger joint is driven by gears and motors, achieving independent motion control for each joint.
- **High Degrees of Freedom:** With 12 active degrees of freedom (DoF), the thumb and index finger each have 3 DoF, and the other three fingers each have 2 DoF. Supports lateral movement of the index finger, and the thumb has a wide range of motion capabilities, capable of replicating various high-precision grasping operations of the human hand.
- **High-Resolution Tactile Sensors:** Each finger can be equipped with a high-resolution (>100 points) tactile sensor providing precise 3D force tactile and temperature information. In addition to traditional pressure sensing, it can perceive tangential forces, and the high array resolution enables accurate perception of object edges and shapes.
- **Powerful Gripping Force:** Single hand max grip: 80 N, max load: 25 Kg
- **High Intelligence:** Paired with humanoid robots and robotics arms, it undergoes full route verification through reinforcement learning and imitation learning.
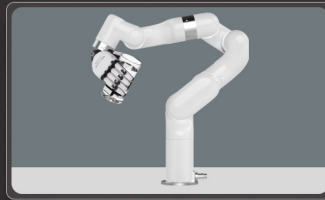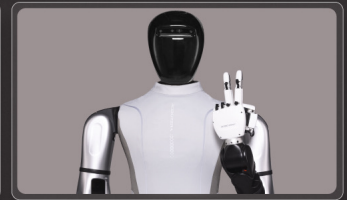
Compatibility

| Virtual Reality VR | Motion Capture Glove | Supports Robotics Arms | Supports Humanoid Robots |

Specifications

Human-like appearance and size support dexterous movements
Fingers can load objects with precision>5Kg

Dexterity Hand XHAND1

Product Model	XHAND 1
Self-Degrees of Freedom	12
Weight	1.1 Kg
Size	190.36*94*47 mm
Max Force	15 N (fingertip) ; 80 N (entire hand)
Max Payload	5 Kg (fingertip) ; 25 Kg (entire hand)
Lateral Movement of Index Finger	±15 degrees
Thumb Movement Angle	Less than110˚
Minimum Grasp Diameter	16 mm

Applications

- **Development Toolkit (SDK):** XHAND1 provides standard Linux system SDK and ROS-compatible applications for easy algorithm development.
- **Remote Teleoperation:** Offers VisionPro remote operation support, compatible with gloves and visual mapping, facilitating customer operation testing and training data collection.
- **Embedded System Development:** Equipped with standard PC evaluation applications, supporting customer debugging and embedded system R&D.

| Object Sorting | Industrial Assembly | Domestic Services |