

LimX TRON 2

Technical Features & Specifications

Professional Overview of the TRON 2 Multi-Form Embodied Robotics Platform

Advanced Multi-Form Mobility

- Bipedal Speed: 2–3 m/s (4.5–6.7 mph)
- Wheel-Leg Speed: 3–5 m/s (6.7–11.2 mph)
- Maximum Incline: Bipedal 15° / Wheel-Leg 30°
- Maximum Step Height: 20 cm (7.9 inches)
- Payload Capacity: 30 kg (66 lbs) on level ground; 20 kg (44 lbs) on stairs

Dual-Arm Manipulation System

- 7 Degrees of Freedom per Arm
- Maximum Extended Payload: 5 kg (11 lbs) per arm
- Rated Payload: 3 kg (6.6 lbs)
- Maximum End-Effector Speed: 5 m/s
- Maximum End-Effector Acceleration: 36 m/s²
- Repeatability Accuracy: ±0.5 mm (0.02 inches)
- Teleoperation Latency: 100 ms
- End-Effector Options: Gripper or Dexterous Hand
- Gripping Force: 20 N (4.5 lbf)
- Maximum Gripper Stroke: 85 mm (3.35 inches)

VR Teleoperation & Remote Control

- Meta Quest 3 VR teleoperation support
- 4-way movement and steering control
- Static standing stabilization
- Adjustable robot height (crouch/stand)
- Automatic fall recovery and lift-off detection
- Dual-arm safety boundary protection
- Data logging support
- Secondary development support

Mechanical Design

- Materials: Aluminum alloy and high-strength plastic
- Leg Degrees of Freedom: 5 per leg
- Arm Degrees of Freedom: 7 per arm
- Head Degrees of Freedom: 2

Battery & Electrical System

- Battery Voltage: 46.8 V
- Maximum Battery Power: 2800 W
- Battery Type: Swappable ternary lithium battery
- Battery Capacity: 9 Ah
- Charging Power: 542 W
- Fast Charging: 20–80% in 30 minutes; 20–100% in 54 minutes

Integrated Sensor Suite

- RGBD camera at the waist
- RGBD camera on the head
- RGBD camera on the wrist
- Integrated IMU (Inertial Measurement Unit)

Connectivity & Expansion Interfaces

- 1× Ethernet
- 1× USB 3.0
- 1× RS485
- 2× EtherCAT
- 12V / 24V / 48V power outputs

High-Performance Computing Module

- 11th Gen Intel® Core™ i7-1165G7 @ 2.80 GHz
- 2 TB storage
- 4× Ethernet ports
- 4× USB 3.0 ports

Software & Developer Ecosystem

- Python SDK support
- C++ SDK support
- Robot Management Platform
- Data Platform
- Simulation Platform
- ROS1 / ROS2 compatibility