sharpa

Wave SE

Accessible Advanced Tactile Dexterity





Human-Like Dexterity

- **1:1 Human-Hand Size & Form Factor**
  Golden-ratio proportions (~0.618), closely matching a human hand.
- **22 Active Degrees Of Freedom**
  22 actively driven DoFs enable a wide range of natural and dexterous hand movements

Rich Tactile Sensing

- **2 mm** Spatial Resolution
- **50 mN** Force Sensitivity
- **30 fps** Tactile Sensing Frame Rate





Robust & Reliable

- Designed for a service life of over **1 million grasping cycles**.
- Built-in force sensing and algorithm-enabled self-protection mechanisms.
- Back-drivable joints enhance safety during physical interaction.

Hardware	
Weight	1.3 kg
Dimensions	208 mm x 90 mm x 50 mm
Active Degrees of Freedom	22
Actuation System	22 Proprietary Actuation Modules
Four-Finger MCP Abduction-Adduction Range	±20°
Minimum Grasp Diameter	10 mm
Payload	24 kg
Grip Force	90 N
Maximum Active Fingertip Force	12 N
Operating Speed	2 Hz
Operating Voltage	18–28 V
Static Current	0.75 A @ 20 V
Operating Temperature	0°C to 45°C
Fingertip Position Repeatability	±1 mm
Nominal Lifetime	Over 1,000,000 cycles

Tactile Sensor	
Tactile Resolution	60*60
Force Resolution	0.05 N
Maximum Load	50 N
Measurement Range	0 - 30 N
Spatial Resolution	2 mm
Sampling Rate	30 fps
Sensing Dimensions	6-Dimensional Force/Torque: Fx, Fy, Fz, Mx, My, Mz
Latency	20 ms

Software	
Host Software	Sharpa Pilot
Development Toolkit	Sharpa Wave SDK
Control Frequency	500 Hz
Communication Interface	1000 BASE - T Ethernet

Contact Us

Website: www.sharpa.com

Contact Sales: sales@sharpa.com

Connect with PR: pr@sharpa.com

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