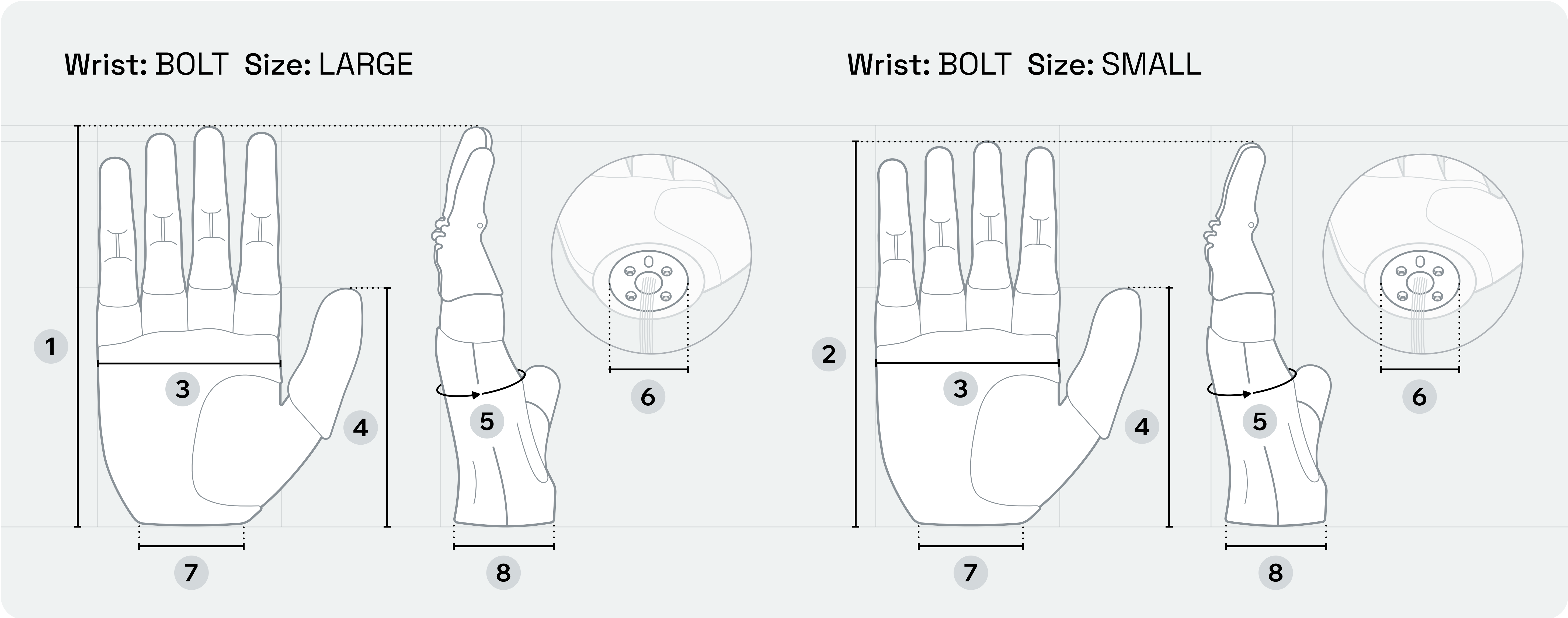


# Ability Hand™ Specifications

Robotics

June 2026

|            |                                  |                            |
|------------|----------------------------------|----------------------------|
| Dimensions | Large                            | 186 mm (L) 1 × 85 mm (W) 3 |
|            | Small                            | 180 mm (L) 2 × 85 mm (W) 3 |
|            | Thumb Tip Length (in Relax Grip) | 110 mm 4                   |
|            | Palm Circumference               | 200 mm 5                   |
|            | Wrist Diameter                   | 34.9 mm 6                  |
|            | Wrist Dimensions                 | 54 mm (L) 7 × 47 mm (W) 8  |



|        |       |                 |
|--------|-------|-----------------|
| Weight | Large | 470 g / 1.04 lb |
|        | Small | 440 g / 0.97 lb |

|            |                              |                                     |
|------------|------------------------------|-------------------------------------|
| Mechanical | Mounting Configuration       | (4X) M5 × 0.8*                      |
|            | Max Grip Force (Power Grasp) | 78 N (17.5 lbf)                     |
|            | Max Grip Force (Pinch Grasp) | 8 N (1.8 lbf)                       |
|            | Max Grip Force (Key Grasp)   | 17 N (3.8 lbf)                      |
|            | Finger Closing Speed         | 0.2 s                               |
|            | Max Speed                    | 462 °/s (Fingers), 1848 °/s (Thumb) |
|            | Axial Load Capacity          | 45.4 kg (100 lb)                    |
|            | Thumb Load Capacity          | 27.2 kg (60 lb)                     |

|            |                              |                                                                            |
|------------|------------------------------|----------------------------------------------------------------------------|
| Mechanical | Touch-Screen Compatibility   | Full finger surface compatible                                             |
|            | Digits: Non-Back-Drivability | Index, middle, ring and pinky                                              |
|            | Digits: Back-Drivability     | Thumb rotator is manually back-drivable                                    |
|            | Degrees of Freedom (DoF)     | 6-DoF (1 per finger, 2 for the thumb)                                      |
|            | Available Control Modes      | Position, Current, Velocity, and Duty (via adapter encoders on each motor) |

|            |                                                                                                         |                                  |
|------------|---------------------------------------------------------------------------------------------------------|----------------------------------|
| Electrical | Operating Voltage      | 6-12 V                           |
|            | Current                                                                                                 | 14 A (Max), 74 mA (Quiescent)    |
|            | Analog Input Voltage                                                                                    | 0-5 V                            |
|            | Communication Interfaces                                                                                | I²C, BLE, UART, 5V RS485         |
|            | Max Control Frequency                                                                                   | 1 kHz                            |
|            | Battery Capacity     | 2200 mAh                         |
|            | Battery Dimensions   | 95 mm (L) × 32 mm (W) × 7 mm (H) |
|            | Charge               | 30 W, 12 V, 2.5 A                |
|            | Time to Full Charge  | 1 hour                           |

|               |                 |                                          |
|---------------|-----------------|------------------------------------------|
| Touch Sensing | Touch Sensing   | 30 force-sensing resistors (6 per digit) |
|               | Force Measuring | Normal forces                            |

|                       |                                                                                                   |                                                             |
|-----------------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| Operating Environment | Water Ingress  | IP64 (Protected against water splashes from all directions) |
|                       | Dust Ingress                                                                                      | IP64 (Full protection against dust and other particulates)  |
|                       | Temperature (Max Internal)                                                                        | 80 °C (176 °F)                                              |
|                       | Operating & Storage Temperature                                                                   | −20 °C to 45 °C (−4 °F to 113 °F)                           |

The Ability Hand uses the PSYONIC Ability Hand mobile app (Android and iOS) for setup and customization.

**Software Integrations:** Python, C++, ROS 2.

**Software Simulations:** Isaac Sim, Isaac Lab, URDF with Visual, Inertias & Collisions.

**Third-Party Integrations:** Manus Metaglove Pro support, Universal Robots (e-Series).



The wrist must not be exposed to water at any time, as this can damage the batteries or internal components.



Battery specifications for the PSYONIC Battery Power System. For best performance, use power supplies rated at or above 8.4 V and 10 A. Recommended power sources include: Unisource (Model: PSP-3010) and Teledyne LeCroy (Model: T3PS30721P). Any programmable DC power supply rated up to 30 V / 10 A (preferably 300 W) is suitable.

\* Mounting bolts are not included. Refer to the GitHub Documentation for detailed drawings of the Bolt Wrist.