Kinarm End-Point Lab™
A versatile research facility to study sensory, motor and cognitive function

Quick Facts
- Simple, cost-effective graspable robot
- Creates highly complex mechanical environments
- Expandability guaranteed through its modular design
- 2-dimensional paradigm provides balance between behavioural complexity and measurement simplicity
- Integrated VR-AR aligns visual and mechanical environments

Complete Research Lab
Designed by neuroscientists for neuroscientists, the human Kinarm End-Point Lab lets you start collecting data right out of the box. A standard system includes:
- One or two Kinarm End-Point robots for the upper limbs
- 2D virtual/augmented reality display (optional Desktop display)
- Dexterit-E™ experimental control software and hardware
- Optional Kinarm Gaze-Tracker™

High Performance Robot
The Kinarm End-Point robot is a stiff, graspable robot that can create highly complex mechanical environments. High-resolution secondary encoders and force/torque sensors provide outstanding feedback signals.
Task Programming in Simulink®

Graphical programming language ensures easy task programming

Study Both Arms Simultaneously
Two Kinarm End-Point robots can be controlled simultaneously to enable comparison of inter-arm performance as well as the study of bimanual coordination.

2D Virtual/Augmented Reality
Optional 2D virtual reality display for natural, intuitive presentation of visual stimuli.

Modular Design
Kinarm End-Point Labs are modular in design, providing a cost-effective way to build a lab over time as needs and funds expand. Typical solutions range from a single, stand-alone robot to a complete lab with two robots, integrated virtual/augmented reality and data acquisition systems. Upgradeability subject to component availability.

Easy To Use and Powerful
System includes Dexterit-E™ behavioural control and data acquisition software, which combines the power of a real-time operating system with the ease of a Windows® -based interface. Kinarm Standard Tests™ optionally available.

Components of Human Kinarm End-Point Lab
One motorized Kinarm End-Point robot with Dexterit-E™ experimental control software and computer systems and TDK with library of Simulink® blocks, and following options:
- Second Kinarm End-Point robot for simultaneous right and left-handed investigation
- 6 degree-of-freedom force/torque sensors
- Workstation to support Kinarm End-Point robots and subject display
- Desktop display or integrated virtual reality/augmented reality presentation of 2D virtual targets in the workspace plane
- 120 Hz monitor for CRT-like presentation of visual stimuli
- Integrated Gaze-Tracking in the workspace with Kinarm Gaze-Tracker™
- Data acquisition hardware, including up to 32 channels of analog input
- Kinarm Standard Tests™
- Unlimited Dexterit-E Explorer™ downloads for data visualization
- (MATLAB® and Simulink® must be purchased separately)

System Specifications
- Real-time control and data acquisition at 1kHz
- Peak force pulse of 58 N
- Feedback resolution of 2 microns
- End-point stiffness of ~40,000 N/m
- 76 x 44cm elliptical workspace/robot
- Effective inertia of 0.8/1.1 kg (minor/major axes)
- Minimum suggested lab size 10’x10’

Controlling Kinarm Lab with Dexterit-E™
Dexterit-E provides a friendly, easy-to-use user interface for controlling a Kinarm Lab.

Custom Tasks can be created and implemented with a Kinarm Lab to probe a broad range of sensory, motor and cognitive functions. To create a custom task, users program their task using Simulink® and Stateflow® high level graphical programming tools.

Kinarm Standard Tests™ is a battery of automated standardized sensory, motor and cognitive tasks that allow you to start assessing subjects “right out of the box”.