

ADROIT[®] MK4

Modular Drive Robotic Arm System



The Adroit MK4 arm system uses HDT's next generation of high power density, modular actuators and accessories for human-scale robots.

Completely scaleable, Adroit MK4 arm systems can be configured from single arms with three degrees of freedom (DOF) to 25 DOF dual arm systems. Link lengths and arm configurations are modular and can be customized to each application. Arm systems are water-tight and can include mounting rails for accessories.

MK4 actuators have a power density several times greater than competing drives. Three levels of drive torque from 180 Nm to 500

Nm allow for lightweight efficient assemblies. All variants have integral control electronics, position sensing, torque sensing and continuous rotations. Swapping out drives or links requires only a single open-end wrench.

Several end effectors are available, including force-sensing single DOF pincers.

Mounting kits for many robot chassis are available now. Please talk to your HDT representative about kit availability for your particular application.



The MK4 arm system is completely modular, and when assembled, is sealed to IP67 environmental and MIL-STD-461 EMC requirements. The arm can be disassembled and reassembled in minutes.



MK4 dual arm system, capable of lifting over 180 pounds (80 kg).

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KEY FEATURES

- Superior control and near-human dexterity
- High load-to-mass ratio
- Camera or sensor payload can be mounted anywhere along arm and make use of auxiliary conductors within arm.
- 3 to 25 actuated degrees of freedom
- Modular construction with through-joint wiring
- 50 to 220 lb (23 to 100 kg) load capacity
- Rated to IP67 environmental requirements (ask about 100 m submersible option)
- Rated to MIL-STD-461 EMC
- Operates -40°C to 72°C (-40°F to 162°F)
- Optional fail-safe brakes

SPECIFICATIONS

Actuator Specifications	A180	A500
Torque	180 Nm, 133 ft-lbs	500 Nm, 367 ft-lbs
Maximum Range	Continuous	Continuous
Sensors	Position, Temperature, Amperage, Torque	Position, Temperature, Amperage, Torque
Maximum Speed*	45°/sec	30°/sec
Operating Voltage	24 – 56 VDC	24 – 56 VDC
Aux Power Conductors†	2 lines rated for power	2 lines rated for power
Aux Data Conductors‡	Up to gigabit Ethernet, or analog video, etc.	Up to gigabit Ethernet, analog video, etc.
Through-Actuator Wiring	Yes, slip ring	Yes, slip ring
Dimensions (D x L)	3.31" x 4.49" 84 x 114 mm	3.31" x 4.88" 84 x 124 mm
Weight	3.2 lbs / 1442 g	5.3 lbs / 2421 g



* At 48 VDC†

† Up to 30 V at 5 A continuous

‡ 8 customer assigned lines

Sample Arm Configurations		Arms Mass*	Max. Reach**	Lift at Max. Reach	Lift at 1/3 Max. Reach
4 DOF Arm and Pincer 	Standard Duty	24 lbs / 11 kg	52" / 1.3 m	21 lbs / 10 kg	61 lbs / 28 kg
	Heavy Duty	33 lbs / 15 kg	52" / 1.3 m	74 lbs / 34 kg	177 lbs / 80 kg
8 DOF Arm and Pincer 	Standard Duty	43 lbs / 20 kg	52" / 1.3 m	28 lbs / 13 kg	80 lbs / 36 kg
	Heavy Duty	49 lbs / 22 kg	82" / 2.1 m	34 lbs / 15 kg	139 lbs / 63 kg

* Includes pincer, control electronics and harnessing, camera/sensor affordances, brakes at shoulder and elbow

** To midpoint of pincer blades

Products, product specifications and data are subject to change without notice to improve reliability, function, and/or design. Please contact Customer Service at 800.969.8527 for the most up-to-date product information.



The pincer weighs 2600 g (5.7 lbs), and can provide a pinch force of 800 N (180 lbf).

HDT Expeditionary Systems, Inc.

30500 Aurora Road, Suite 100, Solon, OH 44139 USA

P 800.969.8527 / 216.HDT.6111 / sales@hdtglobal.com

NON-EXPORT CONTROLLED INFORMATION

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