

HEBI ROBOTICS

X-Series Smart Actuator

This series of powerful robot actuators allows engineers, researchers, and industrial integrators to quickly and easily create world-class custom robots of any configuration. These actuators are packed with sensors that enable controllable position, velocity, and sensitive torque control as well as three axis inertial measurement.

Each actuator is a series-elastic actuator that integrates a brushless motor, geartrain, spring, encoders, and control electronics into a compact package that runs on anything from 18V-48V DC and communicates using standard 10/100Mbps Ethernet.



The X-Series actuator is designed to function as a full-featured robotic component as opposed to a simple servo motor. The output rotates continuously, requires no calibration or homing on boot-up, and contains a thru-bore for easy daisy-chaining and wiring. This enables these actuators to be used in everything from wheeled robots to multi degree of freedom collaborative robotic arms.

HEBI Robotics provides cross-platform software tools that make configuring and controlling the X-Series a breeze, with features such as live plotting, APIs for MATLAB, ROS, and C/C++.



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X-Series Actuators - Technical Specifications

Configuration	X5-1	X5-4	X5-9	X8-3	X8-9	X8-16
Dimensions	43mm x 110mm x 73mm 15mm hollow bore			45mm x 110mm x 73mm 15mm hollow bore		
Mass	315 g	335 g	360 g	460 g	480 g	500 g
Actuation	Peak Torque: 2.5 N-m Cont. Torque: 1.3 N-m Max Speed: 90 RPM	Peak Torque: 7 N-m Cont. Torque: 4 N-m Max Speed: 32 RPM	Peak Torque: 13 N-m Cont. Torque: 9 N-m Max Speed: 14 RPM	Peak Torque: 7 N-m Cont. Torque: 3 N-m Max Speed: 84 RPM	Peak Torque: 20 N-m Cont. Torque: 8 N-m Max Speed: 30 RPM	Peak Torque: 38 N-m Cont. Torque: 16 N-m Max Speed: 15 RPM
Power	18-48V DC (24V Nominal) Cont. Current: 0.8 A @ 24V Peak Current: 2.4 A @ 24V			18-48V DC (24V Nominal) Cont. Current: 2.0 A @ 24V Peak Current: 4.5 A @ 24V		
Temperature	-10°C to 50°C Ambient					
Communication	100 Mbps Ethernet (dual port)					
Angular Resolution	0.005°					
Torque Resolution	0.01 Nm					
Backlash	+/- 0.25°					
Sensing	Angular Position (multi-turn absolute, +/- 4 turns) Angular Velocity Output Torque 3-axis Accelerometer 3-axis Gyro Temperature Voltage Current					
API Support (*Beta release)	Matlab (Windows / Linux / OS X) C/C++ (Windows / Linux / OS X) *C# (Windows) *ROS (Linux) *Python (Windows / Linux / OS X)					
Additional technical documentation at docs.hebi.us Each individually purchased actuator includes a standard connection kit: 3' Ethernet cable, 12" power cable, 12" power pigtail and power splitter board						

Updated on November 7, 2017
 Specifications subject to change without notice.

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