



Description

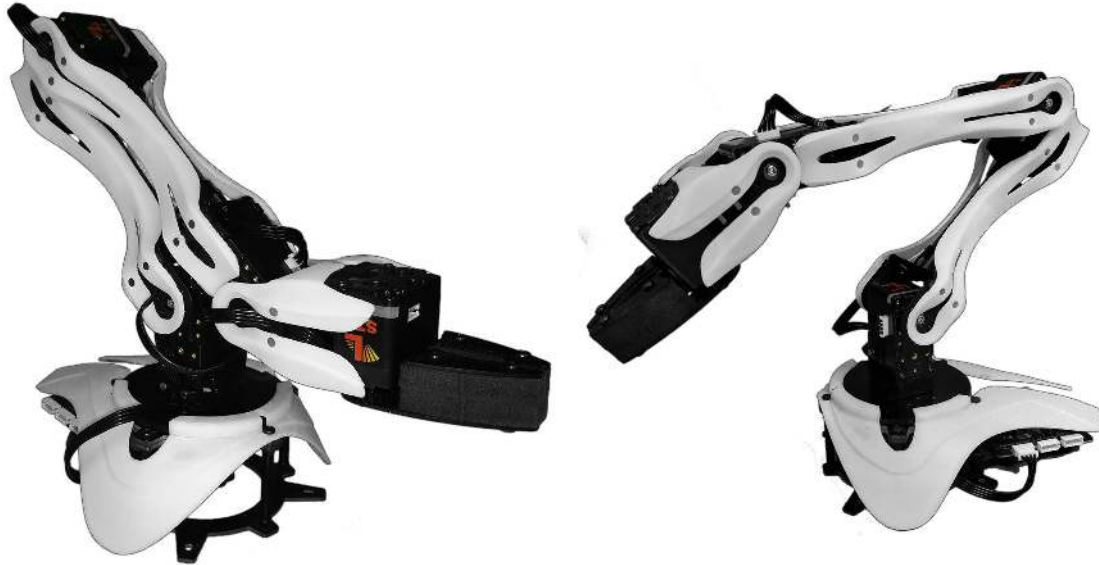
- 4+1 Degree of freedom (DoF) articulated robotic arm
- Designed for STEM education and hobby robotics
- Modular design with aluminum, carbon fiber and G10 parts
- Uses Lynxmotion Smart Servo (LSS) motors
- [Graphical UI: LSS FlowArm software](#)
- Kit version (needs assembly); assembled version available [here](#)

Aesthetic shells will be shipped separately (free of charge)

The Lynxmotion Smart Servo (LSS) - 4 DoF Robotic Arm (kit) is Lynxmotion's 6th generation articulated robotic arm. This unassembled version is intended as a hobby / scale version of an industrial robotic arm and is designed around the fully configurable Lynxmotion Smart Servo motors and Lynxmotion Servo Erector Set (SES v2) modular construction system.



Given that the structure of the arm is comprised of modular brackets and servos, purpose-built and ultralight aesthetic plastic shells give a futuristic look to the arm without impeding any motion. The shells are held in place using neodymium magnets, and vinyl stickers allow for personalisation.



LSS Articulated Arm

This versatile setup facilitates customization and expansion for applications through the use of additional brackets, electronics, sensors and more, and adding additional degrees of freedom or changing the gripper is straightforward.



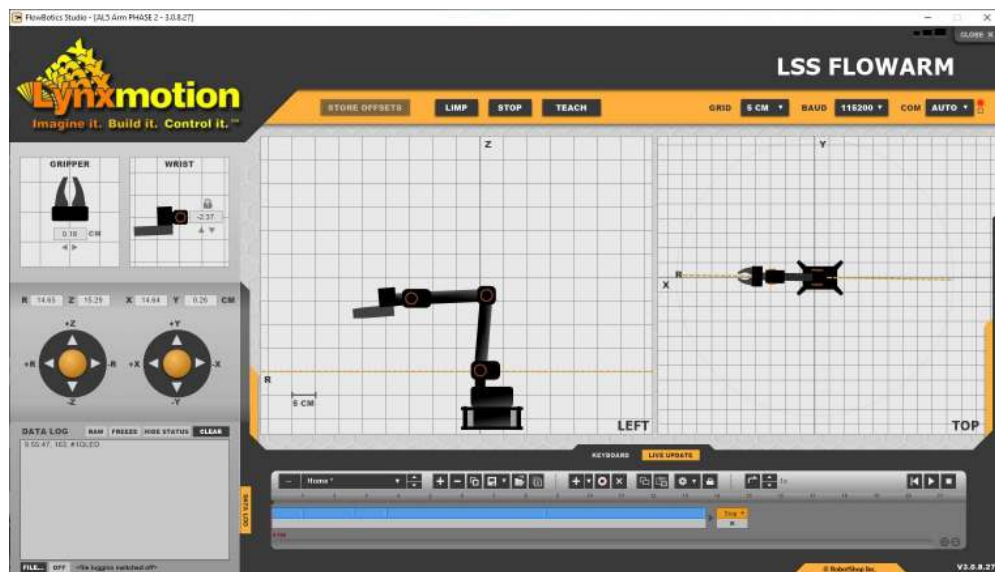
LSS Articulated Arm with and without shells

Although well suited for use on a desk for development and experimentation, the arm can be easily fitted on a mobile robot and powered using a 3S (11.1V) LiPo battery (sold separately) with XT60 connector. The included LSS Adapter electronics board makes connecting to an Arduino shield compatible board, Raspberry Pi, XBee or other serial device easy.



LSS Articulated Arm on a Lynxmotion mobile platform

CAD design files, as well as examples using Arduino and Python are available so that students and hobbyists can integrate the arm into their projects. The graphical user interface, LSS FlowArm (created using FlowBotics Studio) makes recording and playing back sequences effortless



LSS FlowArm graphical user interface

The Lynxmotion Smart Servo motors were designed and optimized for articulated robotic joints and ease of use. The custom LSS communication protocol is human readable, uses full duplex (dedicated Tx and Rx lines) and selectable baud rates. Optimize the motion by changing the properties of each servo; anything from setting a maximum speed or angular range to the angular acceleration, holding stiffness and more. Each servo can be queried for a wide variety of real-time values or configured settings, including sensor feedback from the absolute encoder (position, speed and more), current, voltage and temperature.



Features

- 5 x fully configurable modular smart servo motors
- Modular aluminum brackets, carbon fiber tubing and more
- V-style gripper opens from 0 to 180 degrees
- Compatible with Lynxmotion Servo Erector Set electronics
- Create sequences using handheld teach mode, coordinates, virtual arm
- Built-in safety features (over current, temperature, voltage)
- Easy to understand and human readable LSS communication protocol

Specifications

- Axes: 4 degrees of freedom + 1 (gripper)
- Max Horizontal Reach: 15.75" / 400mm
- Max Vertical Reach: 19.68" / 500mm
- Payload: 100g (max reach)
- Power Supply In: 110V to 240V AC 50/60Hz AC (US type A plug)
- Power Supply Out: 12V, 6A DC with XT60 connector
- Weight: 1.43 pounds / 0.650 Kg

Actuators

Location	Type	Static Torque	Max Speed
Base	ST1	14Kg-cm	360° /s
Shoulder	HT1	29Kg-cm	360° /s
Elbow	HT1	29Kg-cm	360° /s
Wrist	ST1	14Kg-cm	360° /s
Gripper	ST1	14Kg-cm	360° /s

Note that when operated at lower voltages, the torque and speed are reduced.

Other Lynxmotion Products

- [Lynxmotion \(LSS\) - LSS FlowArm App \(download\)](#)
- [Smart Servos](#)
- [Lynxmotion SES V2 Parts](#)
- [Lynxmotion \(LSS\) - Adapter Board](#)
- [FlowBotics Studio \(Download\)](#)



What's Included

- 3 x LSS ST1 actuators
- 2 x LSS HT1 actuator
- LSS Adapter (electronics interface)
- 12 V Wall adapter with on/off switch
- USB cable (mini B connector)
- All necessary brackets, frame components and hardware
- Screwdriver (Phillips PH1, PH2)
- Aesthetic plastic shells with vinyl stickers

Useful Links

Website

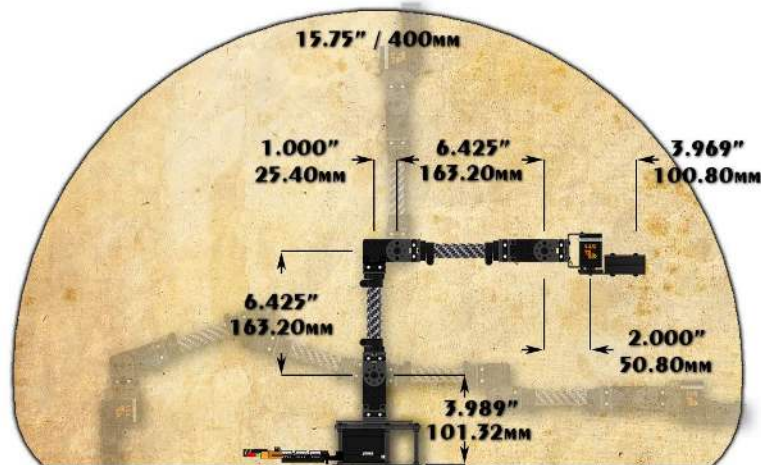
- [Lynxmotion Website - Home](#)

Wiki

- [Lynxmotion Wiki - LSS 4 DoF Robotic Arm](#)
- [Lynxmotion Wiki - LSS 4 DoF Robotic Arm Quickstart](#)

Dimensions

- Reach: 15.75" / 400mm
- Rotation: 360° / Limited by the cable



Multimedia

https://www.youtube.com/watch?v=_ZmqH72b4RU

<https://www.youtube.com/watch?v=ir3X1RGKHPk>