

JFUDJKLI 12V 100N 60mm/s Linear Actuator, 50mm Stroke (B0F9S94MMT)

JFUDJKLI 12V 100N 60mm/s Linear Actuator with 50mm Stroke User Manual

Model: 12V 100N 60mm/s, 50mm Stroke (ASIN: B0F9S94MMT)

1. INTRODUCTION

This manual provides essential information for the safe and effective installation, operation, and maintenance of your JFUDJKLI 12V 100N 60mm/s Linear Actuator with 50mm Stroke. Please read this manual thoroughly before using the product to ensure proper function and to prevent damage or injury.

A linear actuator is an electromechanical device that converts rotational motion into linear motion. This specific model is designed for applications requiring a push or pull force of 100 Newtons (N) at a speed of 60 millimeters per second (mm/s) over a 50mm stroke length, operating on a 12V DC power supply.

2. SAFETY INSTRUCTIONS

- Always disconnect power before performing any installation, maintenance, or troubleshooting.
- Ensure the power supply voltage matches the actuator's rated voltage (12V DC). Using an incorrect voltage can damage the unit.
- Do not exceed the maximum rated load of 100N. Overloading can lead to premature failure.
- Avoid operating the actuator in environments outside the specified ambient temperature range (-20°C to +75°C).
- Protect the actuator from excessive moisture or direct water exposure, as its protection level is IP54 (splash resistant, not submersible).
- Keep hands and loose clothing clear of moving parts during operation.
- Ensure proper mounting to a stable surface to prevent accidental movement or detachment.
- Do not attempt to disassemble the actuator unless specifically instructed for maintenance. Internal components are not user-serviceable.

3. PRODUCT OVERVIEW

The JFUDJKLI linear actuator consists of a DC motor, a gearbox, and a lead screw mechanism enclosed in an aluminum alloy housing. It is designed for reliable linear motion in various applications.



Figure 3.1: General view of the JFUDJKLI linear actuator. This image shows the compact design with the motor and lead screw housing.



Figure 3.2: Comparison of two linear actuators, demonstrating the fully retracted and fully extended positions. The stroke length is the difference between these two positions.



Figure 3.3: Close-up view of the internal gear mechanism. This shows the reduction gears that convert the motor's high-speed, low-torque rotation into the necessary force and speed for linear motion.

4. SPECIFICATIONS

Parameter	Value
Rated Power	20W (Maximum 30W)
Motor Type	Permanent Magnet DC Motor
Voltage	12V DC
Standard Protection Level	IP54
Material	Aluminum Alloy
Ambient Temperature	-20°C to +75°C
Noise Level	Less than 42dB

Parameter	Value
Self-locking Force	Approximately 80% of rated load
Stroke Length	50mm
Retracted Length (50mm stroke)	155mm
Extended Length (50mm stroke)	205mm
Package Dimensions	4.33 x 4.33 x 4.33 inches
Item Weight	3.95 ounces

For example:(500mm)

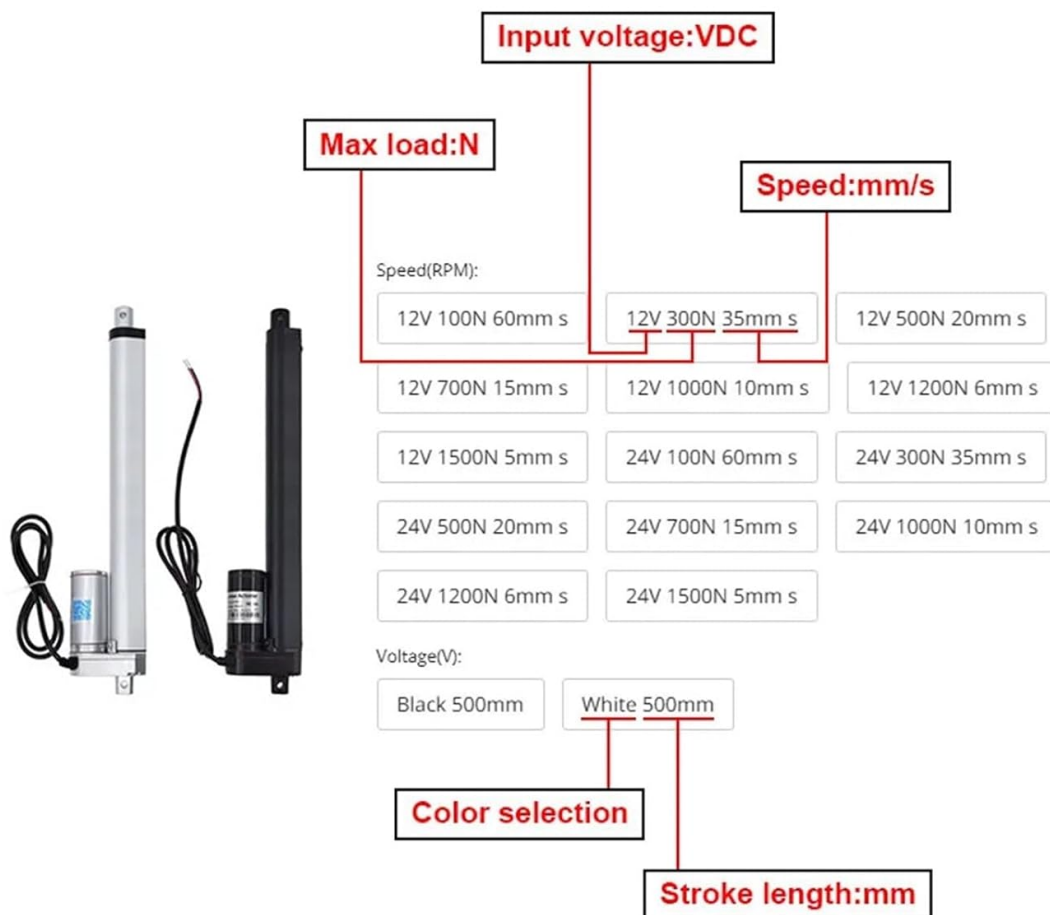


Figure 4.1: Example selection chart illustrating various linear actuator configurations based on input voltage, maximum load, and speed. This manual pertains to the 12V 100N 60mm/s model with a 50mm stroke.

5. SETUP AND INSTALLATION

5.1 Mounting

The linear actuator can be mounted using the pre-drilled holes on its ends. Ensure the mounting surface is rigid and capable of supporting the actuator's weight and the applied load during operation.

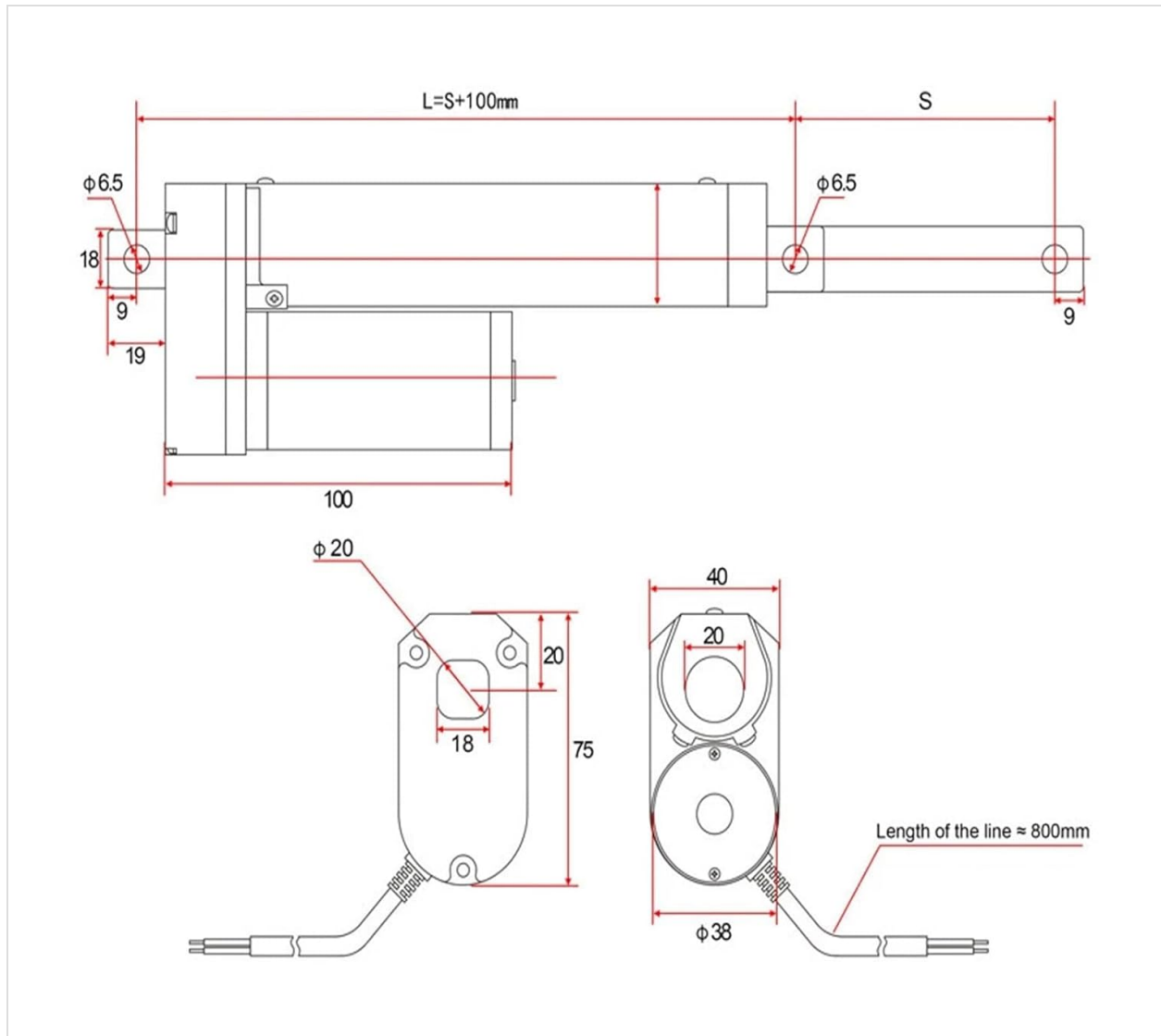


Figure 5.1: Dimensional drawing of the linear actuator, showing key measurements for mounting and integration. The retracted length (L) for a 50mm stroke is 155mm, and the extended length is 205mm.

- Use appropriate fasteners (bolts, screws) that are strong enough for your application.
- Ensure the actuator is aligned correctly with the direction of the intended linear motion to prevent binding or excessive side loads.
- Allow sufficient clearance for the actuator to fully extend and retract without obstruction.

5.2 Wiring

The actuator operates on 12V DC. It typically has two wires for power connection. Reversing the polarity of the DC voltage will reverse the direction of the actuator's movement.

- Connect the actuator's wires to a stable 12V DC power source.
- Ensure all connections are secure and insulated to prevent short circuits.
- Consider adding a fuse or circuit breaker in line with the power supply for protection.
- For controlled movement, integrate a suitable switch (e.g., DPDT switch) to easily reverse polarity and thus the direction of motion.

6. OPERATING INSTRUCTIONS

Once properly installed and wired, operating the linear actuator is straightforward:

- **Extension:** Apply 12V DC power with one polarity (e.g., positive to red wire, negative to black wire) to extend the actuator rod.
- **Retraction:** Reverse the polarity of the 12V DC power supply (e.g., positive to black wire, negative to red wire) to retract the actuator rod.
- The actuator has built-in limit switches that automatically stop the rod at its fully extended and fully retracted positions. Do not attempt to force the actuator beyond these limits.
- Monitor the actuator during its initial operations to ensure smooth movement and proper function.

7. MAINTENANCE

The JFUDJKLI linear actuator is designed for low maintenance. However, periodic checks can help ensure its longevity and reliable operation.

- **Cleaning:** Keep the actuator rod and housing clean from dust, dirt, and debris. Use a soft, dry cloth. Avoid harsh chemicals or abrasive cleaners.
- **Lubrication:** The internal components are pre-lubricated and generally do not require additional lubrication during their service life. If the rod appears dry or movement becomes stiff, a light application of silicone-based lubricant to the rod may be considered, but avoid over-lubrication.
- **Inspection:** Periodically inspect the mounting points, wiring, and the actuator rod for any signs of wear, damage, or corrosion. Ensure all connections remain secure.
- **Environmental Protection:** Ensure the actuator remains within its specified IP54 protection limits. Avoid exposing it to conditions that could compromise its seals.

8. TROUBLESHOOTING

Problem	Possible Cause	Solution
Actuator does not move	No power or incorrect voltage Loose wiring connection Actuator overloaded Internal damage	Check power supply (12V DC) and connections Secure all wiring Reduce load to within 100N limit Contact customer support if internal damage is suspected
Actuator moves slowly or with difficulty	Excessive load Friction or obstruction Low voltage supply	Reduce load Check for obstructions and ensure proper alignment Verify power supply provides stable 12V DC
Actuator stops before full stroke	Obstruction Limit switch malfunction Overload protection triggered	Check for physical obstructions Contact customer support Reduce load and allow actuator to cool if it was operating under heavy load

Problem	Possible Cause	Solution
Unusual noise during operation	Misalignment Internal wear or damage Lack of lubrication	Check mounting and alignment Contact customer support Lightly lubricate the rod if dry (see Maintenance section)