



## Standard Information

A DC motor is an electric motor that runs on direct current (DC) and converts electrical energy into mechanical energy. When paired with a relay, the motor can be controlled more efficiently and safely in various applications.

## Electrical Safety

- **Voltage and Current Ratings:** Ensure the DC motor and relay are rated for the supply voltage and current. Operating outside these limits can lead to overheating or equipment failure.
- **Short Circuit Protection:** Install a fuse or circuit breaker appropriate for the motor's current rating to protect against short circuits and overcurrent.
- **Reverse Voltage Protection:** Use a flyback diode across the relay coil and motor terminals to handle voltage spikes caused by the inductive load.
- **Insulation:** Verify that all wiring is properly insulated to prevent accidental contact and short circuits.
- **Grounding:** Ensure the motor casing and relay control circuit are properly grounded to avoid electric shock hazards.

## Safety Considerations

### 1. Electrical Protection

- **Fuse or Circuit Breaker:** Install an appropriately rated fuse or circuit breaker in the motor's power line to protect against overcurrent.

### 2. Thermal Protection

- Install a thermal overload relay or temperature sensor to shut down the motor in case of overheating.

### 3. Grounding

- Ensure proper grounding for the motor and control circuit to avoid electric shock and improve safety against short circuits.

### 4. Emergency Shutdown

- Provide an accessible emergency stop button or kill switch to instantly disconnect the motor.

## Wiring the circuit



### 1. Power Supply:

- Connect the positive terminal of the power supply to the relay's Common (COM) terminal.
- Connect the Normally Open (NO) terminal to the positive terminal of the motor.

### 2. Motor Connection:

- Connect the motor's negative terminal directly to the power supply's ground.

### 3. Relay Control Circuit:

- Connect one side of the relay coil to the control circuit or switch.
- Connect the other side of the coil to the ground.

### 4. Flyback Diode:

- Install a flyback diode across the relay coil terminals to prevent back EMF damage when the relay switches off. The cathode (stripe) should face the positive side of the coil.

### 5. Optional Control Circuit:

- Use a microcontroller, transistor, or manual switch to control the relay's activation.

## Testing and Verification

- Continuity Test: Check the wiring connections with a multimeter before powering the circuit.
- Load Test: Power the circuit and verify the relay switches the motor on/off properly.
- Functionality Check: Test emergency stop and protection devices (e.g., fuse blows under fault conditions).



### Important Notes:

- Adhere to all local regulations and safety standards when installing and using these products
- Contact us for technical support or if additional guidance is needed.