Nilight 50219A

Nilight 200A Starter Relay 4 Pin 12V SPST Instruction Manual

Model: 50219A | Brand: Nilight

1. Product Overview

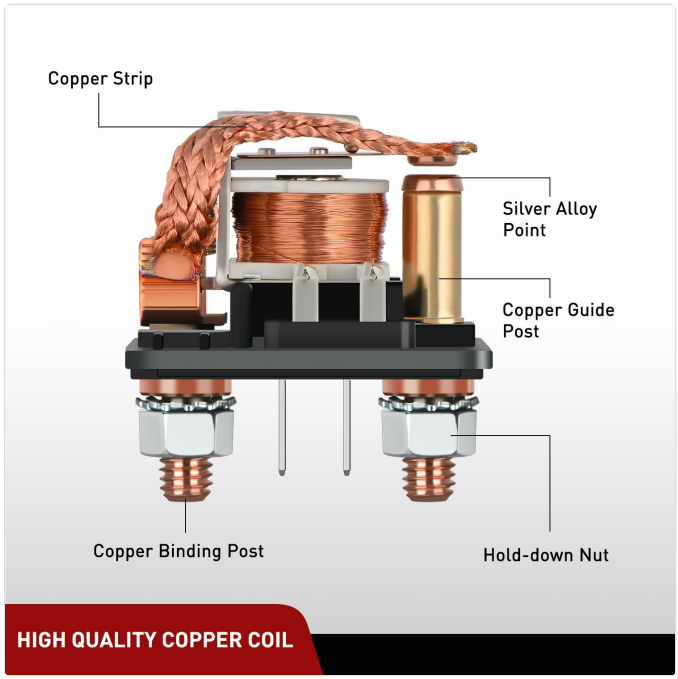
The Nilight 200A Starter Relay is a 4-pin, 12V DC (14V Max), Single Pole Single Throw (SPST) relay designed for high switching capability. It is suitable for split charging systems and various automotive applications, including cars, trucks, RVs, boats, and campers, where high current control is required.

A clear view of the Nilight 200A Starter Relay, highlighting its compact design and terminal connections.

Key Features:

- **High Switching Capability:** 4-pin, 12VDC (14V Max), SPST relay with 200A capacity, ideal for split charging and high-power automotive needs.
- **Superior Quality Construction:** Features a nylon flame-retardant shell and a pure copper inner core, ensuring durability, heat resistance, corrosion resistance, and strong electrical conductivity.

- **Pure Copper Coil:** Internal pure copper coil provides strong conductive performance and low loss rate. AgSnO2 composite silver contacts offer effective resistance to contact bonding and extended service life.
- **Functionality:** Acts as a current switch, converting a small control current into a large output current, thereby extending the life of other automotive components.



An exploded view of the relay's internal structure, detailing the copper strip, silver alloy point, copper guide post, copper binding post, and hold-down nut, emphasizing the high-quality copper coil.

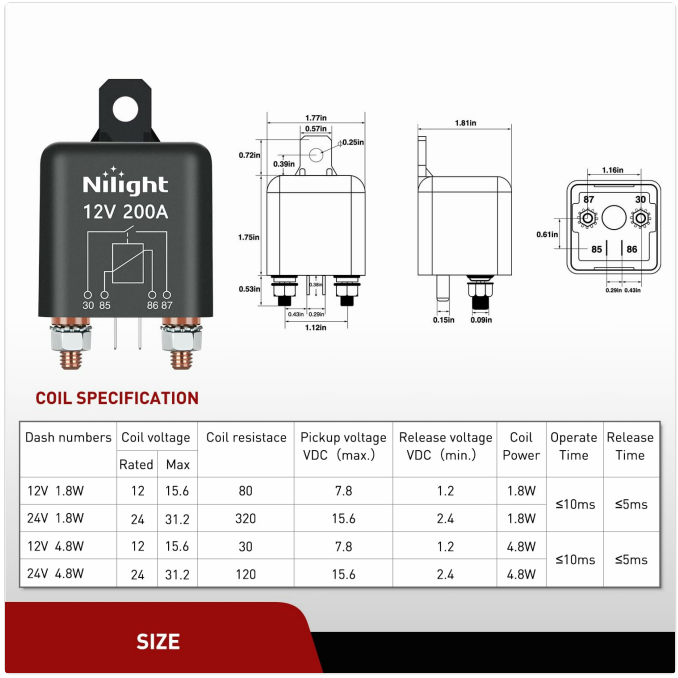
Applications:

This relay is widely used in various vehicles and equipment requiring high-power switching:

This image displays various applications for the relay, such as garden tractors, snowmobiles, ATVs, lawn mowers, and multi-function vehicles, demonstrating its versatility.

2. Specifications

Detailed technical specifications for the Nilight 200A Starter Relay are provided below:



Dash numbers	Coil voltage		Coil resistace	Pickup voltage VDC (max.)	Release voltage VDC (min.)	Coil Power	Operate Time	Release Time
	Rated	Max						
12V 1.8W	12	15.6	80	7.8	1.2	1.8W	≤10ms	≤5ms
24V 1.8W	24	31.2	320	15.6	2.4	1.8W		
12V 4.8W	12	15.6	30	7.8	1.2	4.8W	≤10ms	≤5ms
24V 4.8W	24	31.2	120	15.6	2.4	4.8W		

This image provides detailed dimensions of the relay in inches and a table outlining coil specifications including coil voltage, resistance, pickup voltage, release voltage, coil power, operate time, and release time.

A comprehensive table detailing contact material, contact form, contact ratings, resistance, max switching current, max switching voltage, max switching power, life expectancy, insulation, vibration resistance, shock resistance, terminal strength, solderability, ambient temperature, dielectric strength, and weight.

General Specifications

Feature	Detail
Model Number	50219A
Connector Type	Quick Connect
Contact Material	Brass (AgSnO for contacts)
Contact Type	Normally Open (SPST)
Current Rating	200 Amps
Mounting Type	Surface Mount
Coil Voltage	12 Volts (DC)

Feature	Detail
Minimum Switching Voltage	12 Volts (DC)
Wattage	420 watts
Product Dimensions	1.97 x 1.97 x 1.97 inches
Item Weight	3.52 ounces (94g)
Specification Met	CE
Ambient Temperature	-40°C to 85°C

3. Setup and Installation

This section provides guidance for installing the Nilight 200A Starter Relay. Proper wiring is crucial for safe and effective operation. Always ensure the vehicle's battery is disconnected before beginning any electrical work.

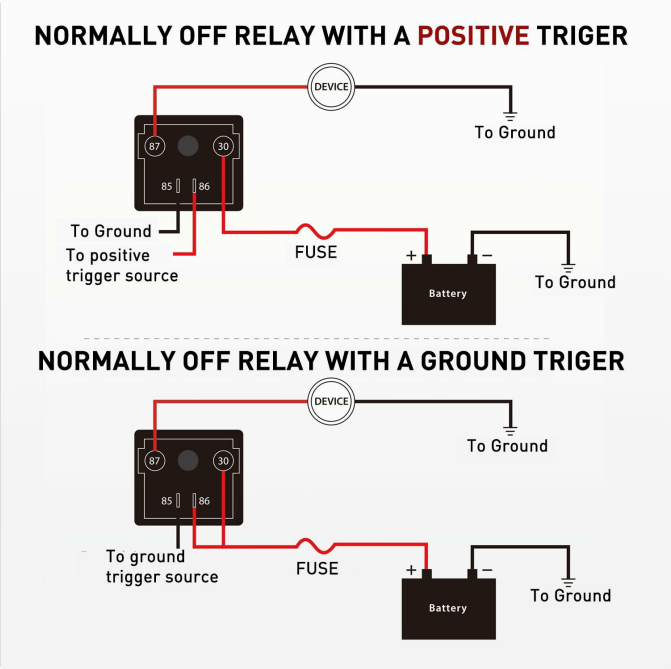
3.1 Pin Configuration

This image illustrates the pin configuration of the Nilight 12V 200A relay, showing pins 30, 85, 86, and 87, along with the main power terminals.

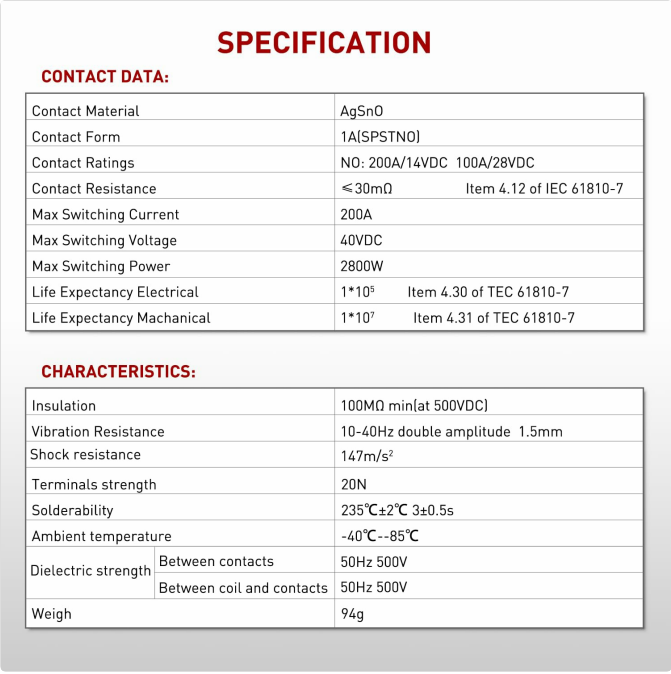
- **85 PIN:** This pin is typically connected to the ground chassis. It serves as one side of the control coil, completing the circuit to activate the relay.
- **86 PIN:** This pin is connected to a positive 12V DC input, usually through a switch. When power is supplied to pin 86 and pin 85 is grounded, the internal coil is energized.
- **87 PIN:** This is the Normally Open (NO) contact. This terminal connects to the device or load that requires power. When the relay is activated, pin 30 connects to pin 87.
- **30 PIN:** This is the Common contact. This terminal is typically connected directly to the 12V DC power source (e.g., battery positive), often with an inline fuse for protection. When the relay coil is energized, pin 30 provides power to pin 87.

3.2 Wiring Diagrams

Refer to the following diagrams for common wiring configurations. Always use appropriate wire gauges and inline fuses for all power connections to prevent damage and ensure safety.



This diagram illustrates the wiring for a normally off relay using a positive trigger. Ensure all connections are secure and fused appropriately.



SPECIFICATION

CONTACT DATA:

Contact Material	AgSnO
Contact Form	1A(SPSTNO)
Contact Ratings	NO: 200A/14VDC 100A/28VDC
Contact Resistance	≤30mΩ Item 4.12 of IEC 61810-7
Max Switching Current	200A
Max Switching Voltage	40VDC
Max Switching Power	2800W
Life Expectancy Electrical	$1*10^5$ Item 4.30 of TEC 61810-7
Life Expectancy Machanical	$1*10^7$ Item 4.31 of TEC 61810-7

CHARACTERISTICS:

Insulation		100MΩ min(at 500VDC)
Vibration Resistance		10-40Hz double amplitude 1.5mm
Shock resistance		147m/s²
Terminals strength		20N
Solderability		235℃±2℃ 3±0.5s
Ambient temperature		-40℃--85℃
Dielectric strength	Between contacts	50Hz 500V
	Between coil and contacts	50Hz 500V
Weigh		94g

This diagram shows the wiring for a normally off relay using a ground trigger. Verify correct polarity and fuse placement for safety.

4. Operating Instructions

The Nilight 200A Starter Relay functions as an electrical switch, allowing a low-current control signal to manage a high-current circuit. This is particularly useful for protecting sensitive switches and controlling high-power accessories.

Typical Operation:

1. **Initial State:** When the relay coil is not energized (no current flowing through pins 85 and 86), the internal contacts between pins 30 and 87 are open. This means no current flows from the power source (pin 30) to the connected device (pin 87).
2. **Activation:** When a 12V DC control signal is applied to the coil (e.g., by closing a switch connected to pin 86, with pin 85 grounded), an electromagnetic field is generated within the relay.
3. **Contact Closure:** This electromagnetic field pulls the internal contacts together, closing the circuit between pin 30 and pin 87. Power then flows from the main power source to the connected device. A faint click may be audible during this action.
4. **Deactivation:** When the control signal to the coil is removed (e.g., by opening the switch), the electromagnetic field collapses, and a spring mechanism separates the contacts between pins 30 and 87, opening the circuit and cutting power to the device.

5. Maintenance

The Nilight 200A Starter Relay is designed for durability and requires minimal maintenance. Adhering to these guidelines will help ensure its long-term performance.

- **Regular Inspection:** Periodically check all wiring connections to the relay for tightness, signs of corrosion, or wear. Loose connections can cause resistance, heat buildup, and intermittent operation.
- **Environmental Protection:** While the relay features a durable nylon flame-retardant shell, avoid exposing it to extreme moisture, direct water spray, or highly corrosive environments beyond its rated specifications. Ensure it is mounted in a location protected from excessive elements.
- **Cleaning:** If necessary, gently clean the exterior of the relay with a dry, soft cloth. Do not use harsh chemicals, solvents, or abrasive materials, as these can damage the housing.
- **Fuse Check:** Always ensure that appropriate fuses are installed in both the control circuit and the main power circuit (connected to pin 30) to protect the relay and connected components from overcurrent. Replace blown fuses with ones of the correct rating.

6. Troubleshooting

If the Nilight 200A Starter Relay is not functioning as expected, consider the following common issues and their potential solutions:

- **Relay Not Activating (No Click Sound):**
  - **Check Control Power:** Verify that 12V DC power is correctly supplied to pin 86 when the control switch is activated.
  - **Check Ground:** Ensure pin 85 has a solid ground connection.
  - **Inspect Control Circuit:** Look for any breaks in the wiring, loose connections, or a faulty control switch in the circuit connected to pins 85 and 86.
- **Device Not Receiving Power (Relay Clicks but No Power):**
  - **Check Main Power:** Ensure the main 12V DC power source is connected to pin 30 and the device to pin 87.
  - **Inspect Main Circuit Fuse:** Check for a blown fuse in the main power line connected to pin 30. Replace if necessary.
  - **Verify Connections:** Confirm that all high-current connections (pins 30 and 87) are tight and free from corrosion.

- **Load Issue:** Ensure the connected device is not drawing excessive current beyond the relay's 200A rating, which could cause internal damage or trigger protection.

- **Overheating:**
  - **Current Draw:** Confirm that the current draw of the connected device does not exceed the relay's 200A continuous rating.
  - **Wire Gauge:** Ensure that the wire gauges used for the high-current connections (pins 30 and 87) are appropriate for the load to prevent excessive resistance and heat generation.
- **Intermittent Operation:**
  - **Loose Connections:** Re-check all terminals for tightness and ensure they are free from corrosion.
  - **Vibration:** Ensure the relay is securely mounted and not subject to excessive vibration that could cause contacts to momentarily open or close.

7. What's in the Box

The Nilight 200A Starter Relay package includes the following item:

- 1x 200 Amp Split Charge Relay

8. Warranty and Support

This Nilight product is covered by the manufacturer's standard warranty. For specific warranty details, including coverage period and terms, please refer to the product packaging or the official Nilight website.

For technical assistance, installation questions, or any other inquiries regarding your Nilight 200A Starter Relay, please visit the official Nilight website or contact their customer service department directly. You may also refer to the retailer's return policy for information on returns and replacements.

Return Policy: This product is eligible for a 30-day return period for refund or replacement, fulfilled by Amazon.