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Emerson 586-317111

Emerson 586-317111 DC Power Solenoid Instruction Manual

MODEL: 586-317111

1. Product Overview

The Emerson 586-317111 is a robust DC power solenoid designed for switching high current electrical circuits. This specific model features a Single Pole Double Throw (SPDT) configuration with a 36 VDC isolated coil. It is engineered for continuous contact operation, handling 200 Amps continuously and an inrush current of 600 Amps. Its primary function is to provide reliable electrical switching in various applications requiring high current control.

- **Continuous Duty Cycle:** Designed for sustained operation.
- **Coil Voltage:** 36 VDC.
- **Coil Resistance:** 120 ohms.
- **Contact Configuration:** Isolated coil, SPDT (Single Pole Double Throw).
- **Current Rating:** 200 Amps continuous, 600 Amps inrush.

2. Important Safety Information

WARNING: Electrical components can cause serious injury or death. Installation and maintenance should only be performed by qualified personnel. Always disconnect power before working on electrical systems.

- Ensure the power source is completely disconnected before attempting any installation, wiring, or maintenance.
- Verify that the voltage and current ratings of the solenoid match the application requirements.
- Use appropriate personal protective equipment (PPE), including insulated gloves and eye protection.
- All wiring must comply with local and national electrical codes.
- **Proposition 65 Warning:** This product may contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

3. Product Components

The Emerson 586-317111 DC Power Solenoid consists of a robust housing, electrical terminals, and a mounting bracket. Understanding these components is crucial for proper installation and operation.



Image 1: The Emerson 586-317111 DC Power Solenoid. This image displays the solenoid's main body, which is black with a metallic silver band around the center. On one end, two large copper terminals are visible, designed for high current connections. A smaller terminal is also present, typically for the coil control circuit. A sturdy metal mounting bracket is attached to the underside of the solenoid, secured by a bolt, allowing for stable installation.

- **High Current Terminals:** Two large threaded copper posts for connecting the main power circuit.
- **Coil Terminals:** Smaller terminals for connecting the 36V DC control voltage to energize the coil.
- **Mounting Bracket:** A metal bracket for securing the solenoid to a stable surface.
- **Solenoid Body:** Encloses the internal electromagnetic coil and contact mechanism.

4. Technical Specifications

Specification	Value
Manufacturer	Emerson Climate Technologies
Part Number	586-317111
Item Weight	1.84 pounds
Product Dimensions	4.5 x 4.5 x 4.5 inches
Coil Voltage	36 VDC

Specification	Value
Coil Resistance	120 ohms
Continuous Contact Current	200 Amps
Inrush Contact Current	600 Amps
Contact Type	SPDT (Single Pole Double Throw)
Duty Cycle	Continuous

5. Installation Guide

Proper installation is critical for the safe and effective operation of the solenoid. Follow these steps carefully.

1. **Mounting:** Securely attach the solenoid to a stable, vibration-free surface using the integrated mounting bracket. Ensure the mounting location is free from excessive heat, moisture, and corrosive elements.
2. **Wiring the Coil:** Connect the 36 VDC control voltage to the smaller coil terminals. Observe correct polarity if specified by your system design. The coil is isolated, providing flexibility in control circuit grounding.
3. **Wiring the Main Contacts:** Connect the high current power circuit to the two large copper terminals. Ensure all connections are tight and secure to prevent arcing and overheating. Use appropriately sized cables for 200 Amps continuous current.
4. **Verification:** After all connections are made, double-check all wiring against your system's schematic. Ensure no loose connections or exposed wires are present.
5. **Testing:** With power restored, carefully test the solenoid's operation to confirm it switches the main circuit as intended.

6. Operation Principles

The Emerson 586-317111 solenoid operates on the principle of electromagnetism. When 36 VDC is applied to the coil terminals, an electromagnetic field is generated. This field pulls an armature, causing the internal contacts to switch position. As an SPDT (Single Pole Double Throw) solenoid, it has one common terminal and two other terminals, allowing it to switch a single input between two output paths. When the coil is energized, the common terminal connects to one path; when de-energized, it connects to the other (or disconnects, depending on the specific contact configuration, typically Normally Open (N.O.) or Normally Closed (N.C.) for continuous contact applications).

7. Maintenance and Care

The Emerson 586-317111 solenoid is designed for durability and requires minimal maintenance. However, periodic inspection can help ensure long-term reliability.

- **Visual Inspection:** Regularly check for any signs of physical damage, corrosion, or discoloration on the terminals and housing.
- **Connection Integrity:** Periodically verify that all electrical connections are tight and free from oxidation. Loose connections can lead to resistance, heat buildup, and premature failure.
- **Cleanliness:** Keep the solenoid free from dust, dirt, and debris, which can impede heat dissipation or interfere with moving parts. Use a dry, soft cloth for cleaning.
- **Environmental Conditions:** Ensure the operating environment remains within suitable temperature and humidity ranges to prevent stress on the component.

8. Troubleshooting Common Issues

If the solenoid is not functioning as expected, consider the following troubleshooting steps:

- **Solenoid Does Not Engage:**
  - Check if 36 VDC is present at the coil terminals when the control signal is active.
  - Verify the coil resistance (should be approximately 120 ohms). An open circuit indicates a faulty coil.
  - Inspect coil terminals for loose connections or corrosion.
- **Solenoid Engages but Main Circuit Does Not Switch:**
  - Check continuity across the main power terminals when the solenoid is engaged.
  - Inspect the main power terminals for loose connections, corrosion, or signs of arcing.
  - Ensure the main power cables are correctly sized and not damaged.
- **Solenoid Overheats:**
  - Verify that the coil voltage is not exceeding 36 VDC.
  - Ensure the solenoid is not continuously energized if it's not rated for continuous duty (this model is, but excessive ambient temperature or current could still cause issues).
  - Check for excessive current draw in the main circuit, which could indicate a fault in the load.

If issues persist after troubleshooting, contact a qualified technician or the manufacturer for further assistance.

9. Warranty and Support

For specific warranty information regarding the Emerson 586-317111 DC Power Solenoid, please refer to the documentation provided at the point of purchase or contact Emerson Climate Technologies directly. Support for this product can be obtained through authorized distributors or the manufacturer's customer service channels.

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