shihlin S-P16

Shihlin S-P16 Magnetic AC Contactor 16A, 220V User Manual

1. Introduction

This manual provides essential information for the safe and effective installation, operation, and maintenance of the Shihlin S-P16 Magnetic AC Contactor. The S-P16 is a robust electrical device designed for controlling power circuits, typically used in applications involving motors, heating elements, lighting, or other high-power loads. It operates by using an electromagnet to open or close contacts, thereby controlling the flow of electricity to a connected device.

Please read this manual thoroughly before attempting any installation or operation to ensure proper usage and prevent potential hazards.

2. Safety Information

WARNING: Electrical shock hazard. Installation and maintenance should only be performed by qualified and authorized personnel.

- Always disconnect all power sources before installing, wiring, or performing any maintenance on the contactor. Failure to do so can result in serious injury or death.
- Ensure that the supply voltage and current ratings match the specifications of the S-P16 contactor.
- Use appropriate personal protective equipment (PPE) such as insulated gloves and safety glasses.
- Verify all connections are secure and properly insulated to prevent short circuits.
- Do not operate the contactor if it appears damaged or has been exposed to moisture.
- Adhere to all local and national electrical codes and regulations.

3. Specifications

The Shihlin S-P16 Magnetic AC Contactor is designed and manufactured to meet various international standards, ensuring reliability and compatibility.

Technical Specifications

Feature	Detail
Model	S-P16
Rated Current	16A
Rated Voltage	220V AC
Contactor Type	Magnetic AC Contactor (Non-reversing)
Auxiliary Contacts	1 Normally Open (NO), 1 Normally Closed (NC)
Material	Metal
Manufacturer	Shihlin
Part Number	S-P16 220V

Compliance Standards:

- GB 14048.4
- IEC 60947-4-1
- EN 60947-4-1
- DIN VDE 0660
- UL 508
- CSA-C22.2
- JIS C8201
- JEM 1038

4. Setup and Installation

Proper installation is critical for the safe and reliable operation of the contactor. Always ensure power is disconnected before beginning installation.

4.1 Mounting

The S-P16 contactor is designed for panel mounting. Secure the contactor firmly to a stable surface using appropriate fasteners through the designated mounting holes. Ensure adequate clearance for ventilation and wiring.

Image 4.1: Rear view of the S-P16 Contactor, highlighting the mounting points for secure installation.

4.2 Wiring Connections

Refer to the wiring diagram provided with your equipment or consult a qualified electrician for specific connection details. General wiring principles for the S-P16 contactor are as follows:

1. **Power Circuit (Main Contacts):** Connect the incoming power supply to the L1, L2, L3 terminals and the load (e.g., motor) to the T1, T2, T3 terminals. Ensure correct phase sequence if applicable.
2. **Control Circuit (Coil Terminals):** Connect the 220V AC control voltage to the A1 and A2 coil terminals. When voltage is applied to these terminals, the contactor coil energizes, closing the main power contacts.
3. **Auxiliary Contacts:** The S-P16 includes 1 Normally Open (NO) and 1 Normally Closed (NC) auxiliary contact. These can be used for interlocking, signaling, or control circuit feedback. Refer to the contactor's labeling for specific terminal designations.

Image 4.2: Front-side view of the S-P16 Contactor, illustrating the main power terminals (L1, L2, L3, T1, T2, T3) and auxiliary contact terminals.

Ensure all wire connections are tight and secure to prevent overheating and arcing. Use appropriately sized conductors for the rated current.

5. Operating Instructions

The Shihlin S-P16 contactor operates based on the principle of electromagnetic control.

1. **Energizing the Coil:** When the rated control voltage (220V AC) is applied across the A1 and A2 coil terminals, the electromagnet within the contactor becomes energized.
2. **Main Contact Closure:** The energized electromagnet pulls the movable contacts, causing them to close against the stationary contacts. This establishes a conductive path, allowing power to flow from the L1, L2, L3 terminals to the T1, T2, T3 terminals, thereby supplying power to the connected load.
3. **Auxiliary Contact Operation:** Simultaneously, the auxiliary contacts change state. The Normally Open (NO) auxiliary contact will close, and the Normally Closed (NC) auxiliary contact will open. These can be used for feedback or control logic in the overall system.
4. **De-energizing the Coil:** When the control voltage is removed from the A1 and A2 terminals, the electromagnet de-energizes. Spring pressure then returns the movable contacts to their original position, opening the main power contacts and disconnecting power to the load. The auxiliary contacts also return to their normal state.

Image 5.1: Side view of the S-P16 Contactor, showing its compact design and general appearance.

6. Maintenance

Regular inspection and maintenance can extend the lifespan of your S-P16 contactor and ensure continued safe operation. Always disconnect power before performing any maintenance.

- **Visual Inspection:** Periodically inspect the contactor for any signs of physical damage, discoloration, or overheating. Check for loose connections, frayed wires, or foreign objects.
- **Contact Inspection:** If accessible, inspect the main contacts for excessive wear, pitting, or carbon buildup. Severely worn contacts should be replaced by a qualified technician.
- **Cleaning:** Keep the contactor free from dust, dirt, and moisture. Use a dry, lint-free cloth or compressed air to clean the exterior. Do not use solvents or abrasive cleaners.

- **Tightness of Connections:** Re-check the tightness of all terminal screws periodically, especially after initial installation and during routine maintenance.
- **Coil Check:** Ensure the coil is free from damage and operating within its specified voltage range.

7. Troubleshooting

If you encounter issues with your S-P16 contactor, refer to the following common troubleshooting steps. For complex issues, consult a qualified electrician.

7.1 Contactor Does Not Engage (Main Contacts Do Not Close)

- **No Control Voltage:** Check if the 220V AC control voltage is present at the A1 and A2 coil terminals. Verify control circuit wiring, fuses, and switches.
- **Incorrect Control Voltage:** Ensure the control voltage matches the contactor's coil rating (220V AC).
- **Damaged Coil:** The coil may be open-circuited or short-circuited. A damaged coil will prevent the electromagnet from energizing.
- **Mechanical Obstruction:** Check for any foreign objects or debris preventing the movable contacts from closing.

7.2 Contactor Does Not Disengage (Main Contacts Remain Closed)

- **Welded Contacts:** Excessive current or arcing can cause the main contacts to weld together. The contactor will need replacement.
- **Control Voltage Still Present:** Verify that the control voltage is completely removed from the A1 and A2 coil terminals when the contactor should be off.
- **Mechanical Binding:** Internal mechanical parts may be jammed, preventing the contacts from opening.

7.3 Contactor Overheats

- **Overload:** The load connected to the contactor may be drawing more current than its rated capacity (16A).
- **Poor Connections:** Loose or corroded terminal connections can cause resistance and heat buildup.
- **Incorrect Voltage:** Operating the coil at a voltage significantly different from its rated voltage can cause overheating.
- **Insufficient Ventilation:** Ensure the contactor is installed in an environment with adequate airflow.

8. Warranty and Support

For warranty information, technical support, or service inquiries regarding your Shihlin S-P16 Magnetic AC Contactor, please contact your point of purchase or the official Shihlin Electric & Engineering Corp. customer service. Keep your purchase receipt and product details handy when contacting support.
For further information, you may visit the Shihlin Electric & Engineering Corp. website.