

SIEMENS 3RT20151BB41

Siemens 3RT20151BB41 Contactor User Manual

Model: 3RT20151BB41

1. INTRODUCTION

This manual provides essential information for the safe and efficient installation, operation, and maintenance of the Siemens 3RT20151BB41 Contactor. This device is designed for controlling electric motors and other resistive loads in industrial applications. Please read this manual thoroughly before proceeding with any work on or with the contactor.

2. SAFETY INFORMATION

WARNING: Electrical shock hazard. Only qualified personnel should install, operate, or service this equipment.

- Always disconnect power before installing, wiring, or performing maintenance on the contactor.
- Ensure all local and national electrical codes are followed.
- Use appropriate personal protective equipment (PPE).
- Verify correct voltage and current ratings before connection.
- Do not operate the contactor if it appears damaged.

3. PRODUCT DESCRIPTION AND FEATURES

The Siemens 3RT20151BB41 is a 3-pole IEC magnetic contactor, specifically designed for non-reversing applications. It features a 24V DC coil for control and includes one normally open (1NO) auxiliary contact. This contactor is rated for AC-3 applications, suitable for switching squirrel-cage motors during operation.



Figure 1: Front view of the Siemens 3RT20151BB41 Contactor, showing main power terminals (1/L1, 3/L2, 5/L3, 2/T1, 4/T2, 6/T3), auxiliary contact (13NO, 14NO), and coil terminals (A1+, A2-).

Key features include:

- IEC Magnetic Contactor - Non-reversing type.
- 24V DC coil voltage for control circuit.
- 7 full load amps (inductive) rating.
- One Normally Open (1NO) auxiliary contact for signaling or interlocking.
- Size S00 with screw terminals for secure connections.



Figure 2: Side view of the Siemens 3RT20151BB41 Contactor, illustrating the compact design and terminal block arrangement.

4. SETUP AND INSTALLATION

Proper installation is crucial for the safe and reliable operation of the contactor.

4.1 Mounting

The contactor is designed for DIN rail mounting or screw mounting. Ensure a stable and vibration-free surface. Allow adequate clearance for ventilation and wiring.

4.2 Wiring

All connections should be made using appropriate wire gauges and insulated terminals. The 3RT20151BB41 uses screw terminals for all connections.

- **Main Circuit Connections:** Connect the incoming power supply to terminals 1/L1, 3/L2, 5/L3. Connect the load (e.g., motor) to terminals 2/T1, 4/T2, 6/T3. Ensure phase sequence is correct if applicable.
- **Control Circuit Connections:** Connect the 24V DC control voltage to coil terminals A1+ and A2-. Observe polarity.
- **Auxiliary Contact Connections:** The 1NO auxiliary contact terminals are 13NO and 14NO. These can be used for feedback, interlocking, or other control functions.

Tighten all screw terminals to the specified torque to prevent loose connections and potential overheating.

5. OPERATING INSTRUCTIONS

The Siemens 3RT20151BB41 Contactor operates by energizing its 24V DC coil.

- **Energizing the Coil:** When 24V DC is applied across terminals A1+ and A2-, the coil energizes, causing the main power contacts to close. This connects the load to the power supply. The 1NO auxiliary contact will also close.
- **De-energizing the Coil:** When the 24V DC supply to the coil is removed, the coil de-energizes, and the main power contacts open, disconnecting the load from the power supply. The 1NO auxiliary contact will also open.

The contactor is rated for AC-3 duty, meaning it is suitable for switching squirrel-cage motors: starting, switching off during running, and occasional inching.

6. MAINTENANCE

Regular maintenance helps ensure the longevity and reliable operation of the contactor.

- **Visual Inspection:** Periodically inspect the contactor for signs of physical damage, discoloration

(indicating overheating), or excessive dust accumulation.

- **Terminal Tightness:** Check and re-tighten all screw terminals as necessary, especially after initial installation and during routine maintenance. Loose connections can cause overheating and arcing.
- **Contact Wear:** While contacts are designed for long life, excessive arcing or frequent switching of high inductive loads can cause wear. If contacts show significant pitting or erosion, the contactor may need replacement.
- **Cleaning:** Keep the contactor free from dust and debris. Use a dry, non-conductive brush or compressed air for cleaning.

7. TROUBLESHOOTING

This section addresses common issues that may arise during the operation of the contactor.

Problem	Possible Cause	Solution
Contactor does not energize when control voltage is applied.	No control voltage; incorrect voltage; open control circuit; faulty coil.	Verify 24V DC at A1+ and A2-; check control circuit wiring and fuses; test coil resistance.
Contactor hums loudly.	Loose shading coil; foreign object in magnet system; incorrect voltage.	Inspect magnet system for debris; verify correct control voltage.
Contactor overheats.	Loose power connections; excessive load current; poor ventilation.	Tighten power terminals; verify load current is within rating; ensure adequate airflow.
Main contacts do not close fully or weld.	Overload; short circuit; worn contacts.	Check for overcurrent conditions; replace contactor if contacts are severely worn or welded.

8. SPECIFICATIONS

Specification	Value
Manufacturer	Siemens
Part Number	3RT20151BB41
Item Model Number	3RT20151BB41
Contactor Type	IEC Magnetic Contactor, Non-reversing
Poles	3-Pole
Coil Voltage	24V DC
AC-3 Rating (400V)	3 kW
Full Load Amps (Inductive)	7 A
Auxiliary Contacts	1 Normally Open (1NO)

Specification	Value
Size	S00
Terminals	Screw TERMINAL
Material	Copper (contacts)
Product Dimensions	2.45 x 1.97 x 3.08 inches
Item Weight	7 ounces
Certification	IEC

9. WARRANTY AND SUPPORT

For detailed warranty information and technical support, please refer to the official Siemens website or contact your authorized Siemens distributor. Warranty terms and conditions may vary by region and purchase date. For further assistance, visit the official Siemens support portal: [Siemens Industry Online Support](#)