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> [ABB ESB40-40N-06 Contactor Instruction Manual](#)

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ABB ESB40-40N-06 Contactor Instruction Manual

Model: ESB40-40N-06 | Brand: ABB

INTRODUCTION

The ABB ESB40-40N-06 installation contactor is designed for controlling single-phase and three-phase electrical loads up to 40 Amperes. This device can be operated with either AC or DC control voltages. It is suitable for both domestic and industrial applications, offering reliable performance with features such as hum-free operation, low power consumption, and integrated surge protection. This manual provides essential information for the safe and effective installation, operation, and maintenance of your ESB40-40N-06 contactor.

SAFETY INFORMATION

WARNING: Electrical installation and maintenance should only be performed by qualified and authorized personnel. Failure to follow these instructions can result in serious injury, death, or equipment damage.

- Always disconnect power before installing, servicing, or removing the contactor.
- Ensure all wiring complies with local and national electrical codes.
- Verify the voltage and current ratings of the contactor match the application requirements.
- Use appropriate personal protective equipment (PPE) when working with electrical systems.
- Do not operate the contactor if it appears damaged.

PRODUCT OVERVIEW

The ABB ESB40-40N-06 is a robust installation contactor featuring four normally open (4NA) main contacts. It is designed for efficient switching of various loads. Key features include:

- **Coil Voltage:** 230V AC/DC operation.
- **Rated Current:** Up to 40 Amperes for AC-1/AC-7a loads.
- **Contact Configuration:** 4 Normally Open (4NA) main contacts.
- **Mounting:** Standard DIN rail mounting for easy integration into electrical panels.
- **Advanced Features:** Hum-free operation, low power consumption, and built-in surge protection for enhanced reliability and longevity.



Figure 1: Front view of the ABB ESB40-40N-06 Contactor, showing terminal markings (A1, A2, 1, 3, 5, 7(13), 2, 4, 6, 8(14)) and product label.

SETUP AND INSTALLATION

Follow these steps for proper installation of the ESB40-40N-06 contactor:

1. **Mounting:** The contactor is designed for DIN rail mounting. Securely clip the contactor onto a standard 35mm DIN rail within an electrical enclosure.
2. **Wiring the Control Circuit:**
 - Connect the control voltage (230V AC/DC) to terminals **A1** and **A2**. Ensure the control voltage matches the coil rating specified on the device.
 - Tighten terminal screws to the recommended torque (refer to device markings or specifications).
3. **Wiring the Power Circuit:**
 - Connect the incoming power supply to the upper main terminals: **1, 3, 5, 7(13)**.
 - Connect the load to the lower main terminals: **2, 4, 6, 8(14)**.
 - Ensure proper phase sequence for three-phase loads.
 - Use appropriate wire gauges for the 40A current rating to prevent overheating. Main wiring should be AWG 16-4 (20 lb-in / 2.5 Nm) and coil wiring AWG 16-10 (7 lb-in / 0.9 Nm).
 - Tighten all power circuit terminal screws securely.
4. **Verification:** Before applying power, double-check all connections for correctness and tightness. Ensure no loose strands of wire are present.



Figure 2: Back view of the contactor, illustrating the integrated DIN rail mounting mechanism.



Figure 3: Side view of the contactor, displaying technical specifications and certifications, including wiring torque requirements.

OPERATING INSTRUCTIONS

The ESB40-40N-06 contactor operates by energizing its control coil. When the control voltage is applied to terminals A1

and A2, the coil creates a magnetic field that pulls the main contacts closed, allowing power to flow from the input terminals (1, 3, 5, 7(13)) to the output terminals (2, 4, 6, 8(14)), thereby energizing the connected load. When the control voltage is removed, the coil de-energizes, and the contacts open, disconnecting power to the load.

- Ensure the control circuit is properly connected to a switch, relay, or control system.
- Apply the rated control voltage (230V AC/DC) to terminals A1 and A2 to close the main contacts.
- Remove the control voltage from A1 and A2 to open the main contacts.

MAINTENANCE

The ABB ESB40-40N-06 contactor is designed for long-term, reliable operation with minimal maintenance. However, periodic inspection is recommended to ensure optimal performance and safety.

- **Visual Inspection:** Regularly inspect the contactor for any signs of physical damage, discoloration, or loose connections.
- **Terminal Tightness:** Periodically check the tightness of all terminal screws, especially in environments with vibration or significant temperature fluctuations.
- **Cleaning:** If necessary, gently clean the exterior of the contactor with a dry, lint-free cloth. Do not use solvents or abrasive cleaners.
- **Operating Environment:** Ensure the operating environment remains within the specified temperature and humidity ranges to prevent premature wear.

TROUBLESHOOTING

If you encounter issues with your ESB40-40N-06 contactor, consider the following common troubleshooting steps:

- **Contactor Does Not Engage (No Click Sound):**
 - Check if the control voltage (230V AC/DC) is present at terminals A1 and A2.
 - Verify that the control circuit wiring is correct and secure.
 - Ensure the control voltage matches the coil rating.
 - Inspect the coil for any visible damage.
- **Contactor Engages But Load Does Not Receive Power:**
 - Check for power at the incoming main terminals (1, 3, 5, 7(13)).
 - Verify that the load wiring from terminals (2, 4, 6, 8(14)) is correct and secure.
 - Inspect the main contacts for signs of burning or pitting (only by qualified personnel with power disconnected).
- **Contactor Makes Humming Noise:**
 - While the ESB40-40N-06 is designed for hum-free operation, excessive humming might indicate an issue with the control voltage (e.g., voltage drop) or mechanical obstruction.
 - Ensure the mounting is secure and there are no loose parts.

If problems persist, contact a qualified electrician or ABB technical support.

SPECIFICATIONS

Attribute	Value
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Brand	ABB
Model Number	ESB40-40N-06
Part Number (Reference)	1SAE34111R0640
Contact Configuration	4 Normally Open (4NA)
Coil Voltage	230V AC/DC
Frequency	40-450 Hz
Rated Operational Current (AC-1/AC-7a)	40 A (at 3~400 V)
Rated Operational Power (AC-3/AC-7b)	11 kW (at 3~400 V)
Product Dimensions (L x W x H)	2.56" x 2.13" x 3.35" (6.5 cm x 5.4 cm x 8.5 cm)
Item Weight	14.3 ounces (approx. 405 grams)
Material	Stainless Steel (internal components, housing is typically plastic)
Mounting Type	DIN Rail Mount
Main Wiring Torque	20 lb-in / 2.5 Nm (AWG 16-4)
Coil Wiring Torque	7 lb-in / 0.9 Nm (AWG 16-10)
Usage	Commercial and personal use

WARRANTY AND SUPPORT

ABB products are manufactured to high-quality standards and typically come with a manufacturer's warranty. For specific warranty terms and conditions, please refer to the documentation provided with your purchase or visit the official ABB website. For technical support, service, or inquiries regarding your ESB40-40N-06 contactor, please contact ABB customer service or your local ABB distributor. Ensure you have the model number (ESB40-40N-06) and part number (1SAE34111R0640) available when seeking support.

You can find more information and contact details on the official ABB website: www.abb.com