

## Schmersal SRB 301AN-24V

# Schmersal SRB 301AN-24V Safety Relay Instruction Manual

## 1. INTRODUCTION

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This manual provides essential information for the safe and effective installation, operation, and maintenance of the Schmersal SRB 301AN-24V Safety Relay. Please read this manual thoroughly before attempting any procedures with the device. Retain this manual for future reference.

## 2. SAFETY INFORMATION

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**WARNING:** Improper installation or operation of this safety device can result in serious injury or death. Only qualified personnel familiar with industrial electrical systems, safety regulations, and this product should install, operate, or service this device.

- Always disconnect power before performing any installation, wiring, or maintenance.
- Adhere to all local, national, and international safety standards and regulations.
- Ensure proper grounding and overcurrent protection as required by applicable codes.
- Do not bypass or modify safety functions.
- Regularly inspect the device for damage or wear.

## 3. PRODUCT DESCRIPTION

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The Schmersal SRB 301AN-24V is a safety relay designed for monitoring safety functions in industrial applications. It features a compact design and is intended for use in control circuits with insulation leakage monitoring or in grounded circuits only, as per EN 60204 Safety-Relay-Modules. The device operates on a 24VDC supply and provides safety outputs for machine control.

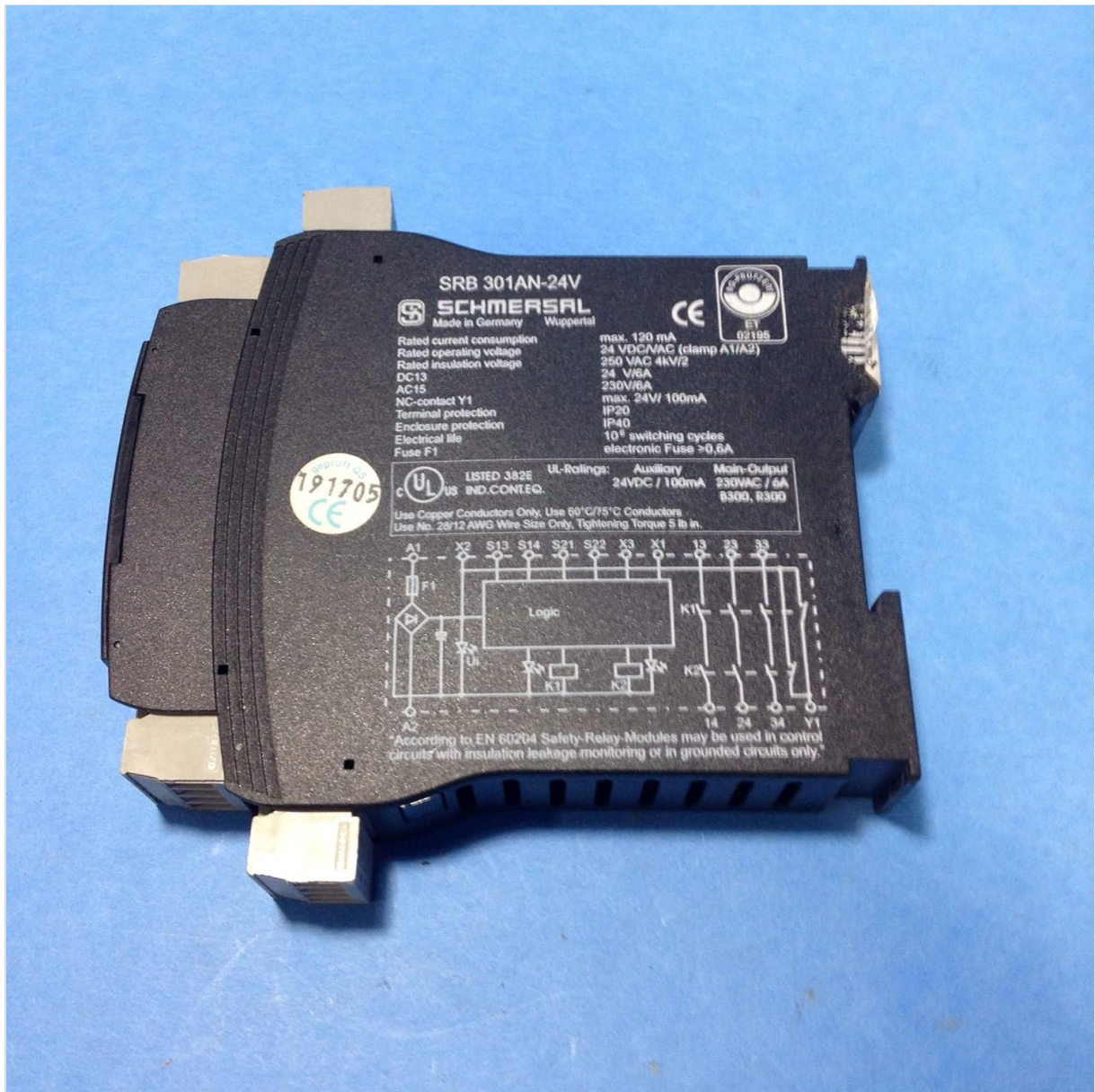


Figure 1: Front view of the Schmersal SRB 301AN-24V Safety Relay, showing terminal connections, internal logic diagram, and key electrical specifications.



Figure 2: Side view of the Schmersal SRB 301AN-24V Safety Relay, illustrating its compact form factor suitable for DIN rail mounting.

## 4. SETUP AND INSTALLATION

Installation must be performed by qualified personnel in accordance with all relevant electrical codes and safety standards. Refer to Figure 1 for terminal designations and wiring diagrams.

1. **Mounting:** Mount the safety relay on a standard DIN rail in an appropriate enclosure, ensuring adequate ventilation and protection from environmental factors.
2. **Power Supply Connection:** Connect the 24 VDC power supply to the designated terminals (e.g., A1/A2). Ensure the power source meets the specified voltage and current requirements. The relay has a maximum current consumption of 120 mA.
3. **Input Wiring:** Connect safety input devices (e.g., emergency stop buttons, safety gates) to the input terminals (e.g., S12, S22, S33). Follow the wiring diagram provided on the device label for correct configuration.
4. **Output Wiring:** Connect the safety outputs (e.g., 13/14, 23/24, 33/34) to the controlled equipment. The main outputs are rated for 24VDC 4A/0. Auxiliary outputs (e.g., 41/42) are rated for max. 24V / 100mA.
5. **Conductor Requirements:** Use copper conductors only. Conductors must be rated for 60°C/75°C.

6. **Functional Test:** After installation, perform a thorough functional test of the safety circuit to ensure correct operation and compliance with safety standards.

## 5. OPERATING INSTRUCTIONS

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The Schmersal SRB 301AN-24V Safety Relay operates by monitoring the status of connected safety input devices. When all safety inputs are in a safe state, the relay's internal logic permits the activation of its safety outputs, allowing the controlled machine to operate. If any safety input detects an unsafe condition, the relay will de-energize its safety outputs, bringing the machine to a safe stop.

- **Power On:** Apply 24 VDC power to the relay. The status indicators (if present) should illuminate to indicate power.
- **Safety Input Monitoring:** Ensure all connected safety devices are in their safe, closed, or active state as required by the safety circuit design.
- **Reset:** If the safety circuit has been interrupted, a manual or automatic reset may be required depending on the configuration. Refer to your system's specific safety circuit design for reset procedures.
- **Output Activation:** Once the safety inputs are satisfied and the relay is reset, the safety outputs will activate, enabling the connected machinery.

## 6. MAINTENANCE

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Regular maintenance helps ensure the continued reliable operation of the safety relay. Always disconnect power before performing any maintenance.

- **Visual Inspection:** Periodically inspect the relay for any signs of physical damage, discoloration, or loose connections.
- **Cleaning:** Keep the device clean and free from dust, dirt, and moisture. Use a soft, dry cloth for cleaning. Do not use abrasive cleaners or solvents.
- **Connection Check:** Verify that all terminal connections are secure and free from corrosion.
- **Functional Testing:** Conduct periodic functional tests of the entire safety circuit, including the safety relay, as specified by relevant safety standards and your facility's maintenance schedule.

## 7. TROUBLESHOOTING

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If the safety relay or the connected safety circuit is not functioning as expected, consider the following troubleshooting steps. Always ensure power is disconnected before inspecting wiring.

- **No Power Indication:**
  - Check the 24 VDC power supply connection and voltage.
  - Verify that the power source is active.
- **Outputs Not Activating:**
  - Ensure all safety input devices are in their safe state.
  - Check wiring for continuity and correct connections according to the diagram.
  - Verify that a reset (if required) has been performed.
  - Inspect for any fault indicators on the relay or associated control panel.
- **Intermittent Operation:**

- Check for loose wiring connections or damaged cables.
- Ensure the operating environment is within specified limits (temperature, humidity).
- **Persistent Fault:** If troubleshooting steps do not resolve the issue, contact a qualified technician or Schmersal technical support for assistance. Do not attempt unauthorized repairs.

## 8. SPECIFICATIONS

<b>Brand</b>	Schmersal
<b>Model</b>	SRB 301AN-24V
<b>ASIN</b>	B07LBBGPZC
<b>Operating Voltage</b>	24 VDC
<b>Current Consumption</b>	max. 120 mA
<b>Main Output Rating</b>	24 VDC, 4A/0 (e.g., 13/14, 23/24, 33/34)
<b>Auxiliary Output Rating</b>	max. 24V / 100mA (e.g., 41/42)
<b>Enclosure Protection</b>	IP40
<b>Electrical Life</b>	>10 <sup>6</sup> switching cycles
<b>Fuse Protection</b>	Electronic fuse >0.6A
<b>Conductor Type</b>	Copper Conductors Only, 60°C/75°C rated

## 9. WARRANTY AND SUPPORT

For warranty information, please refer to the documentation provided with your purchase or contact your authorized Schmersal distributor or the manufacturer directly. Technical support can be obtained through the official Schmersal website or by contacting their customer service department.

*Note: This manual is for informational purposes only. Schmersal reserves the right to make changes to product specifications without prior notice.*