Functional Devices RIB01BDC

RIB01BDC Dry Contact Relay User Manual

Model: RIB01BDC

1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of the Functional Devices RIB01BDC Dry Contact Relay. Please read this manual thoroughly before installation and operation to ensure safe and proper use of the device.

The RIB01BDC is an enclosed relay featuring a 20 Amp SPDT (Single Pole Double Throw) contact, a Class 2 dry contact input, and a 120 VAC power input. It is designed for various control applications where a dry contact input is used to switch a higher voltage or current load.

2. Safety Information

WARNING: Risk of Electric Shock. Disconnect power before installation or servicing.

- Installation and servicing must be performed by qualified personnel only.
- Ensure all local and national electrical codes are followed.
- Do not exceed the specified electrical ratings of the device.
- Verify proper wiring connections before applying power.
- The device is designed for indoor use in a NEMA 1 housing. Protect from moisture and extreme temperatures.

3. Product Features

- 20 Amp SPDT (Single Pole Double Throw) contact for versatile switching.
- Class 2 dry contact input for control signal.
- 120 VAC power input for relay coil.
- NEMA 1 housing for general purpose indoor applications.
- Integrated LED indicator for relay activation status.

4. Specifications

Technical Specifications

Parameter	Value
Model Number	RIB01BDC
Contact Type	SPDT (Single Pole Double Throw)
Current Rating	20 Amps
Power Input Voltage	120 Vac
Power Input Current	52mA @ 120Vac
Control Input	Class 2 Dry Contact
Housing	NEMA 1 Enclosed
Product Dimensions	8 x 4 x 3 inches
Mounting Type	Screw Mount
Contact Material	Copper

Contact Ratings:

- 20 A Resistive, 277 Vac
- 20 A Ballast NO, 120/277 Vac
- 10 A Ballast NC, 120/277 Vac
- 10 A Tungsten NO, 120 Vac
- 1 HP, 120 Vac
- 2 HP, 277 Vac
- 770VA Pilot Duty, 120Vac
- 1110VA Pilot Duty, 277Vac

5. Installation and Wiring

Refer to the product label and the diagram below for proper wiring connections. Ensure power is disconnected before beginning installation.

Figure 1: Functional Devices RIB01BDC Dry Contact Relay showing the product label with wiring instructions and contact ratings. The relay is a gray enclosed unit with a red LED indicator and a conduit connection at the bottom from which colored wires emerge.

5.1. Mounting

The RIB01BDC relay is designed for screw mounting. Secure the device to a stable surface using appropriate fasteners through the mounting tabs on the enclosure.

5.2. Wiring Instructions

The relay features pre-wired leads for power input, low-voltage dry contact input, and relay contacts. Follow the color codes carefully.

Power Input Wires (120 Vac):

- **BLACK:** Connect to 120 Vac Line.
- **WHITE:** Connect to Neutral.

These wires supply power to the relay coil. The relay consumes approximately 52mA at 120Vac when activated.

Low-Voltage Dry-Contact Input Wires (Class 2 Wiring):

- **WHITE/BLUE:** One side of the dry contact input.
- **WHITE/RED:** Other side of the dry contact input.

These wires are for the control signal. When a dry contact closure is made across these two wires, the relay will activate.

Relay Contact Wires (SPDT):

- **YELLOW (COM):** Common terminal for the relay contacts.
- **ORANGE (N/O):** Normally Open contact. This contact closes when the relay is activated.
- **BLUE (N/C):** Normally Closed contact. This contact opens when the relay is activated.

Connect your load to the appropriate relay contacts (COM and N/O for normally open operation, or COM and N/C for normally closed operation) based on your application requirements and the specified contact ratings.

6. Operation

Once properly installed and wired, the RIB01BDC relay operates as follows:

- When the 120 Vac power input is connected, the relay is ready for operation.
- The relay activates when a dry contact closure is detected across the WHITE/BLUE and WHITE/RED input wires.
- Upon activation, the integrated red LED indicator on the relay enclosure will illuminate.
- When activated, the Normally Open (N/O) contact (Orange wire) will close to the Common (COM) contact (Yellow wire).
- Simultaneously, the Normally Closed (N/C) contact (Blue wire) will open from the Common (COM) contact (Yellow wire).
- When the dry contact input opens, the relay deactivates, the LED turns off, and the contacts return to their normal state (N/O opens, N/C closes).

7. Maintenance

The Functional Devices RIB01BDC Dry Contact Relay is designed for long-term, reliable operation with minimal maintenance. However, periodic checks are recommended:

- **Visual Inspection:** Periodically inspect the relay and its wiring for any signs of damage, loose connections, or overheating.
- **Cleaning:** Keep the enclosure clean and free of dust and debris. Use a dry, soft cloth for cleaning. Do not use liquid cleaners.
- **Environmental Conditions:** Ensure the operating environment remains within specified temperature and humidity ranges to prevent premature failure.
- **Power Disconnection:** Always disconnect power to the relay before performing any inspection or maintenance.

8. Troubleshooting

If the RIB01BDC relay is not functioning as expected, consider the following common issues and solutions:

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
Relay does not activate (LED off)	No 120 Vac power to relay coil. Dry contact input not closed. Incorrect wiring.	Verify 120 Vac supply to Black and White wires. Check continuity of dry contact input (White/Blue and White/Red). Review Section 5.2 for correct wiring.
Relay activates but load does not switch	Load not properly connected to relay contacts. Load circuit open or faulty. Load exceeds contact ratings.	Ensure load is connected to COM (Yellow) and N/O (Orange) or N/C (Blue) wires. Test the load circuit independently. Refer to Section 4 (Contact Ratings) to ensure load is within limits.
LED is on, but relay contacts are not switching	Internal relay failure.	If all wiring and load checks are correct, the relay may be faulty and require replacement.
Intermittent operation	Loose wiring connections. Unstable dry contact input.	Tighten all wire connections. Check the stability and reliability of the dry contact switch or sensor.

9. Warranty and Support

For warranty information and technical support, please contact Functional Devices, Inc. directly. Refer to their official website or the product packaging for the most current contact details.
Note: Specific warranty terms and conditions may vary. Please retain your proof of purchase.

For more information, visit functionaldevices.com