Idec RJ1S-C-D12

IDEC RJ1S-C-D12 Slim Power Relay User Manual

Model: RJ1S-C-D12

1. PRODUCT OVERVIEW

The IDEC RJ1S-C-D12 is a compact and efficient RJ Series Slim Power Relay designed for various industrial control applications. This single-pole double-throw (SPDT) relay operates on a 12 VDC coil voltage and features blade terminals for plug-in mounting, typically used with SJ sockets. It is engineered for reliable switching of electrical circuits, handling currents up to 12 Amps at 250 VAC or 30 VDC.

Figure 1: Perspective view of the IDEC RJ1S-C-D12 Slim Power Relay, showing its compact design and transparent casing.
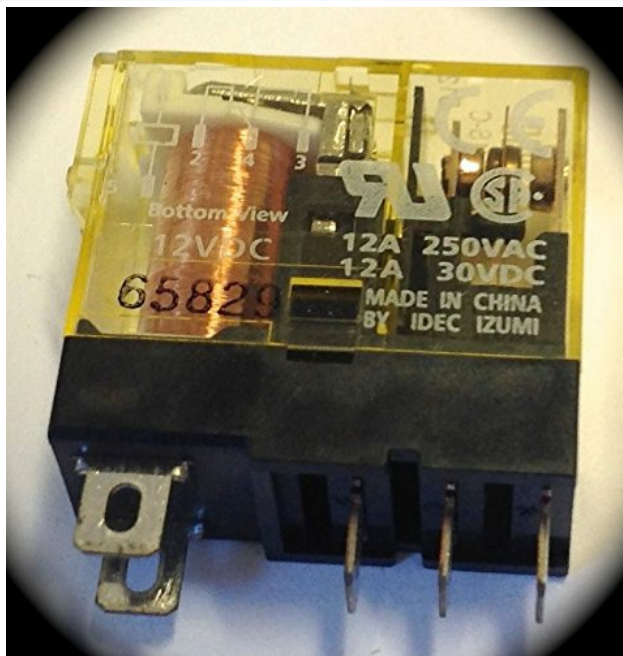
Figure 2: Bottom view of the IDEC RJ1S-C-D12 relay, illustrating the blade terminals and coil voltage marking (12VDC).

2. SAFETY INFORMATION

Always observe the following safety precautions to prevent injury or damage to the product and associated equipment:

- Ensure power is disconnected before installation, wiring, or maintenance.
- Verify that the relay's voltage and current ratings match the application requirements.
- Do not exceed the specified contact ratings (12 Amps, 250 VAC, 30 VDC).
- Install the relay in an appropriate enclosure to protect it from environmental factors and accidental contact.
- Only qualified personnel should perform installation and wiring.
- Avoid touching terminals when power is applied.

3. SETUP AND INSTALLATION

The RJ1S-C-D12 relay is designed for plug-in mounting, typically into compatible SJ sockets (sold separately). Follow these steps for proper installation:

1. **Power Disconnection:** Before beginning, ensure all power to the circuit is turned off and locked out to prevent accidental energization.
2. **Socket Preparation:** If not already installed, mount the appropriate SJ socket securely in your control panel or enclosure. Ensure wiring to the socket terminals is correct according to your circuit diagram.
3. **Relay Insertion:** Align the blade terminals of the RJ1S-C-D12 relay with the corresponding slots in the SJ socket. Gently but firmly push the relay into the socket until it is fully seated. The relay should click into place if the socket has a locking mechanism.
4. **Verification:** Double-check that the relay is securely seated and that all terminals are properly engaged.
5. **Power Restoration:** Once installation is complete and verified, power can be safely restored to the circuit.

Note: The relay's coil is rated for 12 VDC. Ensure the control voltage applied to the coil terminals matches this specification to prevent damage or improper operation.

4. OPERATING PRINCIPLES

The IDEC RJ1S-C-D12 is a Single-Pole Double-Throw (SPDT) relay. This means it has one common contact that can switch between two other contacts (normally open and normally closed).

- **De-energized State:** When no voltage is applied to the 12 VDC coil, the common contact is connected to the Normally Closed (NC) contact.
- **Energized State:** When 12 VDC is applied to the coil, an electromagnetic field is generated, which pulls the common contact away from the NC contact and connects it to the Normally Open (NO) contact.
- **Contact Ratings:** The relay contacts are rated for switching loads up to 12 Amps. The maximum voltage for AC loads is 250 VAC, and for DC loads, it is 30 VDC. Adhering to these ratings is crucial for the longevity and safe operation of the relay.

5. MAINTENANCE

The RJ1S-C-D12 relay is designed for long-term reliability with minimal maintenance. However, periodic inspection can help ensure optimal performance:

- **Visual Inspection:** Periodically inspect the relay and its socket for any signs of physical damage, discoloration, or loose connections. Ensure the transparent casing is intact.
- **Terminal Integrity:** Check that the blade terminals are clean and free from corrosion. If necessary, gently clean them with a non-abrasive, electrical contact cleaner (with power off).
- **Environmental Conditions:** Ensure the operating environment remains within the specified temperature and humidity ranges to prevent premature wear.
- **Replacement:** Relays have a finite mechanical and electrical life. If the relay exhibits inconsistent operation, excessive heat, or visible contact pitting, it should be replaced.

6. TROUBLESHOOTING

If the RJ1S-C-D12 relay is not functioning as expected, consider the following common issues and solutions:

Problem	Possible Cause	Solution
Relay coil does not energize.	No 12 VDC power to coil; incorrect voltage; faulty coil.	Verify 12 VDC supply to coil terminals. Check wiring. Replace relay if coil is faulty.
Contacts do not switch or are intermittent.	Overload condition; worn contacts; insufficient coil voltage; dirty terminals.	Check load current against relay rating. Replace relay if contacts are worn. Verify stable 12 VDC coil voltage. Clean terminals.
Relay makes buzzing noise.	AC voltage applied to DC coil; loose connection; mechanical issue.	Ensure only 12 VDC is applied to the coil. Check for secure seating in socket. Replace relay if mechanical issue persists.
Relay overheats.	Overcurrent on contacts; excessive coil voltage; poor ventilation.	Reduce load current to within specifications. Verify coil voltage is 12 VDC. Ensure adequate airflow around the relay.

7. SPECIFICATIONS

Attribute	Value
Brand	Idec
Model Number	RJ1S-C-D12
Coil Voltage	12 VDC
Contact Type	SPDT (Single-Pole Double-Throw)
Current Rating	12 Amps
Max AC Voltage	250 VAC
Max DC Voltage	30 VDC
Mounting Type	Plug In Mount
Connector Type	Plug-In (Blade Terminals)
Item Weight	3.2 ounces
Manufacturer	IDEC Corp.
Date First Available	March 16, 2014

8. WARRANTY AND SUPPORT

For information regarding warranty, technical support, or service for your IDEC RJ1S-C-D12 Slim Power Relay, please contact IDEC Corp. directly through their official website or customer service channels. Keep your purchase receipt and product model number (RJ1S-C-D12) available when seeking support.