

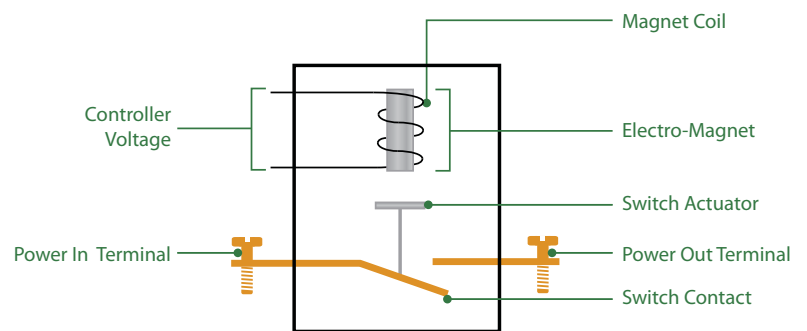
## Troubleshooting Dry Contacts

Dry contact relays are generally reliable when they are used in accordance with the load limitations. Overloading a relay will shorten its life and can cause the relay to fail. Overloading causes excess heat and arcing on the relay contacts which can either burn them so that they no longer connect, or can permanently weld the contacts closed so that the relay can never be turned off.

### How “Dry-Contact” Relays Work

A relay consists of a mechanical switch and an electro-magnet to turn-on (close) a switch contact. A spring opens the switch when the electromagnet is no longer powered.

The microprocessor controls power to the magnet coil to open or close the switch contact as required by the controller program.



Dry-contact relays can be thought of like a wall-switch:

- Each relay “contact” has a pair of screw terminals just like a wall-switch does.
- A wall-switch (or relay contact) does not supply power, it only allows it through.
- Each switch is independent and can operate different circuits or voltages.



A dry-contact relay is exactly the same as a wall switch, however, instead of operating the switch manually with your finger, an electromagnet operates the switch.



# Troubleshooting

## Relays are not activating, none of the output LED's turn on.

Ensure the relay input power has 24Vdc and are correctly wired for polarity. To check a RJ-45 cable, meter between pins 7&8. One or more dimly lit LED's should illuminate on the pcb when the circuit board has power.

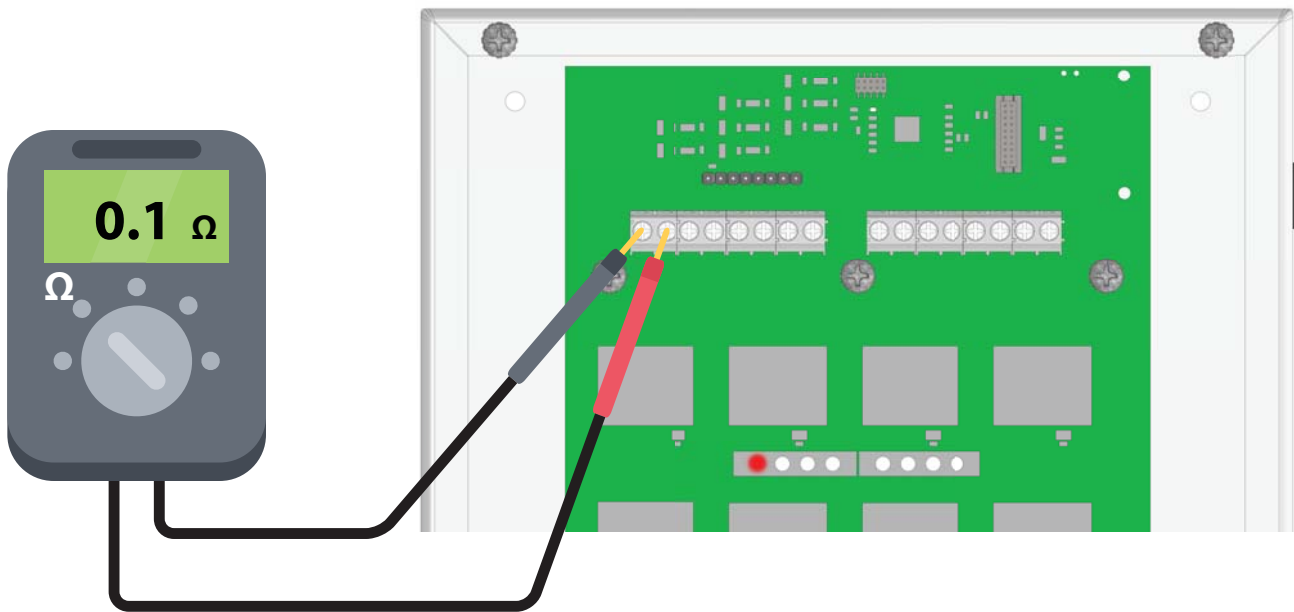
## Relays are clicking & output LED's are ON but the connected device is not operating.

Check for continuity between the relay terminals when the relay is turned on. If the relay is conducting when energized, the problem lies with the device or power source that is connected to the relay output terminals, not with the relay.

### Checking continuity of a relay:

A multimeter that can measure resistance (ohms  $\Omega$ ) is required to check continuity of a relay.

1. Set your volt meter to resistance (ohms  $\Omega$ ) mode.
2. Verify that the meter reading changes to 0  $\Omega$  when the red and black leads are connected together.
3. With the relay output turned off, check that the resistance reads greater than 1  $\Omega$ .
  - a. If the resistance is less than 1  $\Omega$ , remove the wires from the terminals and check resistance again.
  - b. If resistance is still less than 1  $\Omega$ , the contact may be physically stuck together.
4. With the relay turned on, check that the resistance is less than 1  $\Omega$ .
  - a. If the resistance is greater than 1  $\Omega$ , ensure the screws are tight on the terminals and check again.
  - b. If resistance is still greater than 1  $\Omega$ , the relay may not be closing due to failed coil or burned contacts.



It is possible for the relay to be working correctly, however, the device that is connected to the relay may have a problem that is the cause of the complaint. If the operation of the relay can be verified, the next step is troubleshooting of the circuit and equipment that is connected to the relay contact. This should be done by the installer of the equipment or a qualified electrician/technician.

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