ELTIME CONTROLS RN Series Earth Leakage Relay Instruction Manual

Contents

ELTIME CONTROLS RN Series Earth Leakage Relay

Product Information

The EARTH LEAKAGE RELAY – RN SERIES is a device designed to detect and protect against electrical leakage and faults. It is commonly used in electrical systems to prevent electric shock hazards and damage to equipment caused by ground faults.

Connections

The relay has the following wiring connections for general MCB (Miniature Circuit Breaker) with shunt trip coil:

- EARTH
- S
- U
- L1
- P
- L2
- P
- L3
- LN
- Y

It also has wiring connections for general MCB with under voltage opening coil. The relay requires auxiliary power

and can be connected to a Core Balance Transformer. It has inputs and outputs labeled as 56, 78, S1, S2, NO (Normally Open), NC (Normally Closed), and C (Common).

RN-R Switch Settings

The RN-R Switch Settings allow you to configure the trip point and time delay of the relay:

Trip Point, In (Amps)	Time Delay (seconds)
0.03 (30mA)	0.02 (20ms)
0.1 (100mA)	0.1 (100ms)
0.3 (300mA)	0.3 (300ms)
0.5 (500mA)	0.5 (500ms)
1	1
3	3
5	5

The trip point, In, represents the current at which the relay will trip and activate its protection mechanism. The time delay determines how long the relay will wait before tripping after detecting a fault.

Specification (Relay)

- **Trip Point, In:** 30mA (RN-0.03), 300mA (RN-0.3), and customizable from 30mA to 5A (RN-R)
- **Reset value:** < 50%In
- **Accuracy:** < 2%
- **Time Delay:** RN-0.03 & RN-0.3 Instant

Product Usage Instructions

To use the EARTH LEAKAGE RELAY – RN SERIES, follow these steps:

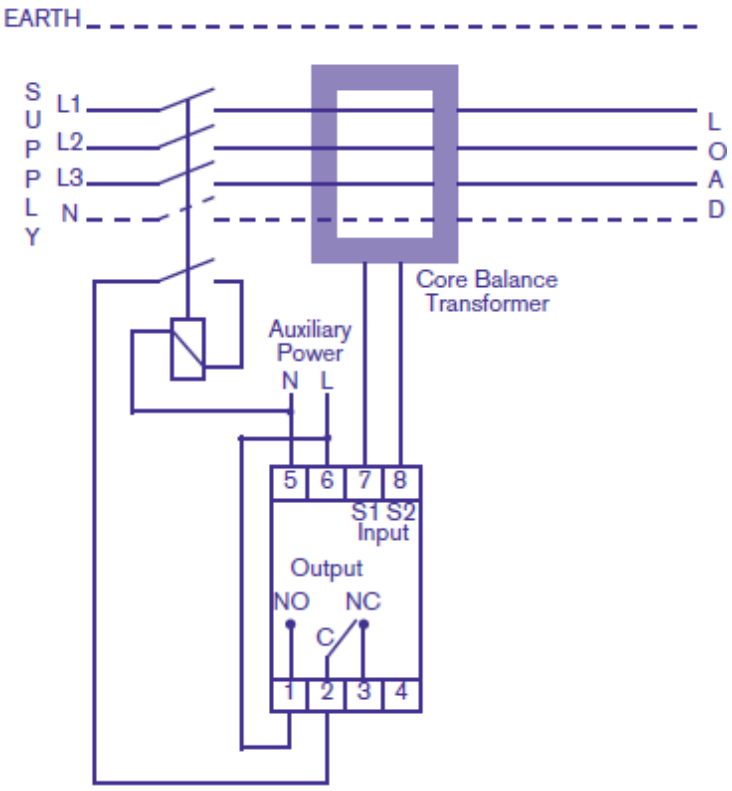
1. Ensure the relay is properly wired according to the provided connections for your specific setup. Refer to the user manual for detailed wiring instructions.
2. Connect the relay to an auxiliary power source and, if required, to a Core Balance Transformer.
3. Set the desired trip point and time delay using the RN-R Switch Settings. Refer to the table provided in the user manual for available options.
4. Once the relay is properly configured, it will continuously monitor the electrical system for ground faults and leakage.
5. If a fault is detected and the current exceeds the trip point, the relay will activate its protection mechanism.
6. The relay will initiate a trip signal and may open the circuit, disconnecting power to the affected area or equipment.
7. After the fault is resolved, the relay will automatically reset once the current drops below the reset value.

It is important to regularly inspect and test the EARTH LEAKAGE RELAY – RN SERIES to ensure proper

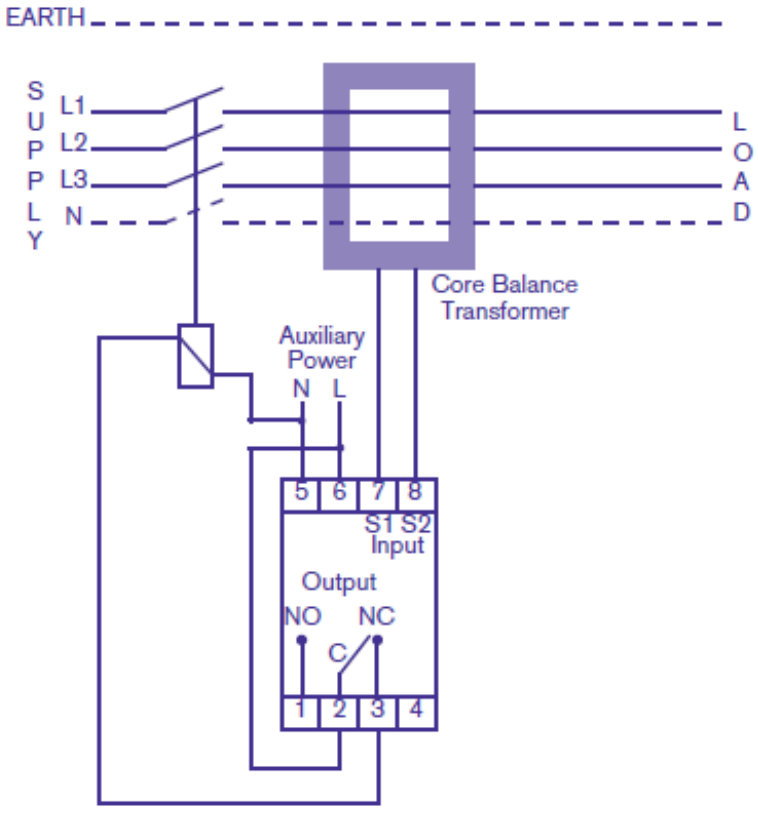
functionality and reliability. Consult the user manual for maintenance guidelines and recommended testing procedures.

Connections

Wiring connections for general MCB with shunt trip coil



Wiring connections for general MCB with undervoltage opening coil



More Information

RN-R Switch Settings

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1	1
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5	5

LED Indication

Power LED	Trip LED	Indication
On	Off	System OK
Blinking	On	Transformer continuity failure
On	On	Relay tripped – earth fault
On	Blinking every 2 sec	Current 25-50% of trip level (RN-R only)
On	Blinking every 1 sec	Current 50-75% of trip level (RN-R only)
On	Blinking every 0.5 sec	Current 75-100% of trip level (RN-R only)

Specifications

Specification (Relay)

- Trip Point, In:
  - 30mA (RN-0.03), 300mA (RN-0.3)
  - 30mA to 5A (RN-R) – see table
  - Reset value < 50%In
- Accuracy:
  - < 2%

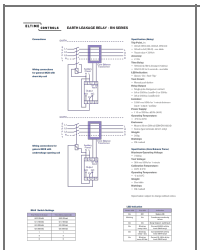
- Time Delay:
  - RN-0.03 & RN-0.3 Instant (<40ms)
  - RN-R 0.02 to 5 seconds – see table
- LED Indication:
  - Green: ‘On’, Red: ‘Trip’
- Test Circuit:
  - Manual push button
- Relay Output:
  - Single pole changeover contact
  - 5A at 250Vac (cosØ=1) or 30Vdc
  - 3A at 250Vac (cosØ=0.4)
- Isolation:
  - 2.5kV rms 50Hz for 1 minute between input / output / auxiliary
- Power Supply:
  - 110 or 230Vac ±20% (4VA)
- Operating Temperature:
  - -5ºC to 50ºC
- Enclosure:
  - Mount: 35mm DIN rail (DIN-EN 50022)
  - Screw type terminals (4mm² entry)
- Weight:
  - 200g
- Markings:
  - CE marked

Specification (Core Balance Trans.)

- Maximum Operating Voltage:
  - 720Vac
- Test Voltage:
  - 3kV rms 50Hz for 1 minute
- Calibration Temperature:
  - 20ºC ± 5ºC
- Operating Temperature:
  - -5 to 50ºC
- Weight:
  - See table
- Markings:
  - CE marked

Specification subject to change without notice.

Documents / Resources

	ELTIME CONTROLS RN Series Earth Leakage Relay [pdf] Instruction Manual RN Series, RN Series Earth Leakage Relay, Earth Leakage Relay, Leakage Relay, Relay