



ORION RESISTOR



Transformer Neutral Grounding Resistor User Guide



Orion Resistors

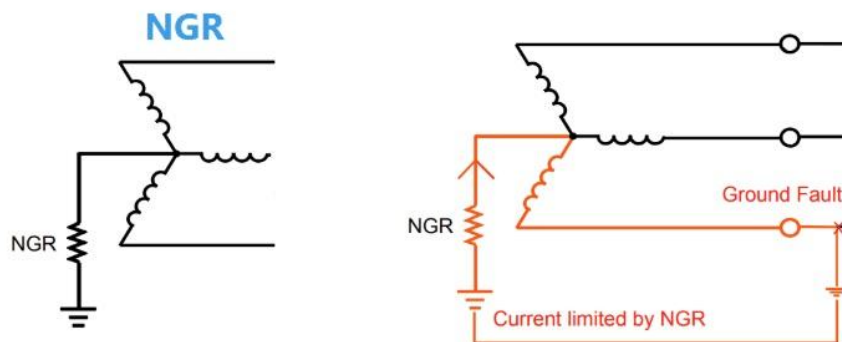
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Overview

Transformer Neutral Point Grounding refers to the practice of connecting the neutral point of the transformer's primary or secondary winding to the ground through a grounding device, ensuring protection and stability of the system. The main purpose of neutral point grounding is to limit the rise in system voltage during a ground fault and to provide a path for fault current, reducing the risk of damage to electrical equipment.

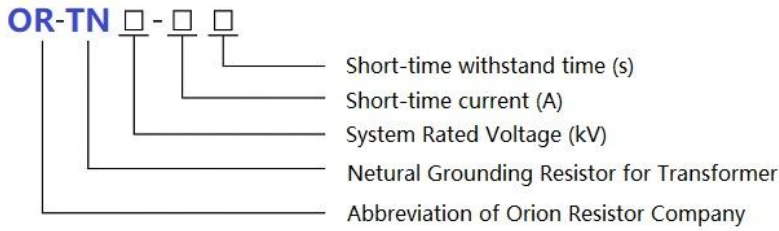
Principle: When a ground fault occurs in the system, the fault current flows through the grounding system to the ground. The grounded neutral point allows the fault current to flow quickly, thus limiting the voltage rise at the fault point and preventing excessive voltage to ground at the equipment. The fault current is routed through protective devices (such as grounding protection relays) that quickly disconnect the faulty circuit, preventing more severe damage.



Application: Transformer neutral point grounding is widely used in distribution systems, especially in medium- and low-voltage distribution networks. Common grounding methods include direct grounding, grounding via arc suppression coils, and grounding through resistors. Direct grounding is commonly used in low-voltage systems for its quick fault clearance advantage. Grounding through arc suppression coils is suitable for high-voltage systems, effectively reducing fault current peaks during ground faults and protecting equipment from excessive currents.

The OR-TN Transformer Neutral Point Grounding Resistance Cabinet is a specialized complete set of equipment developed by our company for resistor grounding in neutral points, tailored to the current grid situation. It effectively reduces overvoltage in the grid and enhances the safety and reliability of the system. This device can be installed in power plants (6–66kV), substation power supply systems, and industrial distribution networks, ensuring the reliable operation of the system with neutral point resistor grounding.

1. Model Naming Convention:



2. Features and Specifications

2.1 The internal resistors are made of high-quality non-metallic special materials or stainless steel nickel-chromium alloys, offering stable resistance, high conductivity, strong current-carrying capacity, high-temperature resistance, and protection against fire and explosion.

2.2 The resistor cabinet can be installed indoors or outdoors. The cabinet body is made from powder-coated cold-rolled steel plates or stainless steel plates, providing excellent corrosion resistance and a high protection rating.

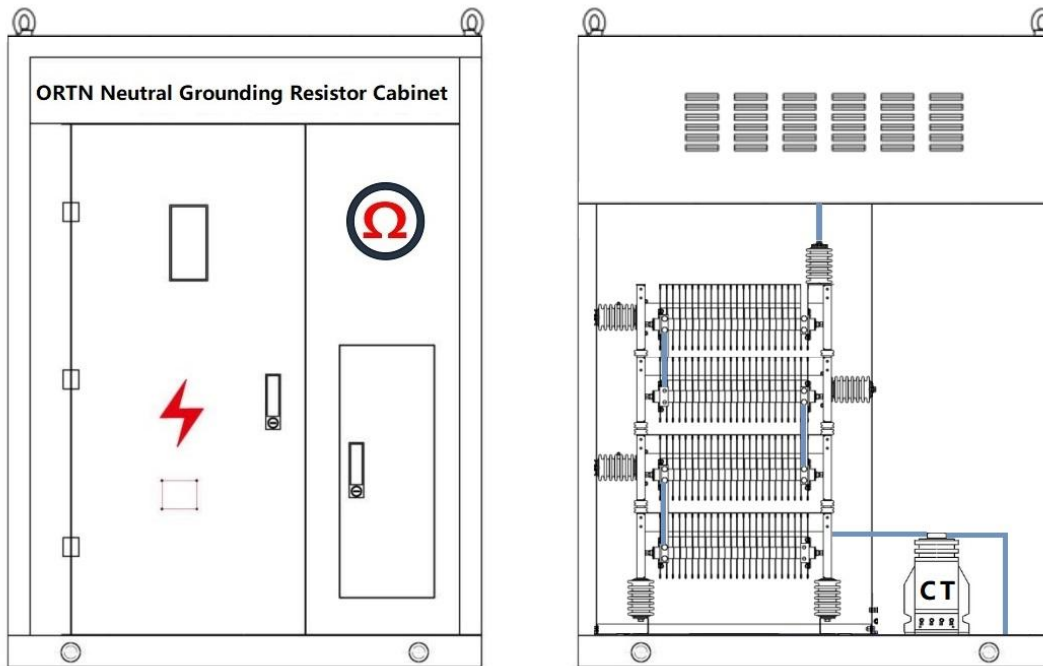
2.3 The intelligent controller of the resistor cabinet can monitor and record the system's zero-sequence current value under normal conditions, single-phase ground current during ground faults, grounding time, system zero-sequence voltage, resistor temperature, environmental temperature and humidity inside the cabinet, and the number of grounding actions. It also features alarm outputs for various conditions, including system grounding alarms, environment over-temperature alarms, resistor over-temperature alarms, resistor disconnection monitoring alarms, and resistor grounding timeout protection alarms. The device is equipped with a communication interface, enabling the transmission of monitoring data to the main control room for communication with the upper-level computer system.

3. Technical Parameters:

3.1 Recommended Technical Parameter Table (OR-TN Series)

Voltage Class	Model	System Rated Voltage(V)	Rated Voltage L-N (V)	Current Ratings (A)	Rated Time (s)	Resistance at 25°C(Ω, ±5%)
LV	OR-TN0.38-100-10	380	220	100	10	2.2
	OR-TN0.40-100-10	400	230	100	10	2.3
	OR-TN0.415-100-10	415	240	100	10	2.4
	OR-TN0.48-100-10	480	280	100	10	2.8
	OR-TN0.6-100-10	600	350	100	10	3.5
	OR-TN0.69-100-10	690	400	100	10	4.0
	OR-TN1.2-100-10	1200	690	100	10	6.9
MV	OR-TN2.4-100-10	2400	1400	100	10	13.9
	OR-TN3.3-200-10	3300	1900	200	10	9.5
	OR-TN3.6-200-10	3600	2080	200	10	10.4
	OR-TN4.16-200-10	4160	2400	200	10	12.0
	OR-TN6.3-200-10	6300	3640	200	10	18.2
	OR-TN6.6-200-10	6600	3800	200	10	19.1
	OR-TN7.2-400-10	7200	4150	400	10	10.4
	OR-TN10-400-10	10000	5770	400	10	14.4
	OR-TN11-400-10	11000	6350	400	10	15.9
	OR-TN13.8-400-10	13800	7970	400	10	19.9
	OR-TN14.4-400-10	14400	8300	400	10	20.8
	OR-TN14.76-600-10	14760	8530	600	10	14.2
	OR-TN15-600-10	15000	8660	600	10	14.4
	OR-TN20-600-10	20000	11550	600	10	19.2
OR-TN22-600-10	22000	12700	600	10	21.2	
HV	OR-TN27.6-600-10	27600	15950	600	10	26.6
	OR-TN34.5-600-10	34500	20000	600	10	33.2
	OR-TN44-600-10	44000	25400	600	10	42.3
	OR-TN66-1000-10	66000	38100	1000	10	38.1
	OR-TN69-1000-10	69000	39800	1000	10	39.8

OR-TN transformer NGR cabinet outline drawing



OR-TN transformer NGR cabinet outline drawing

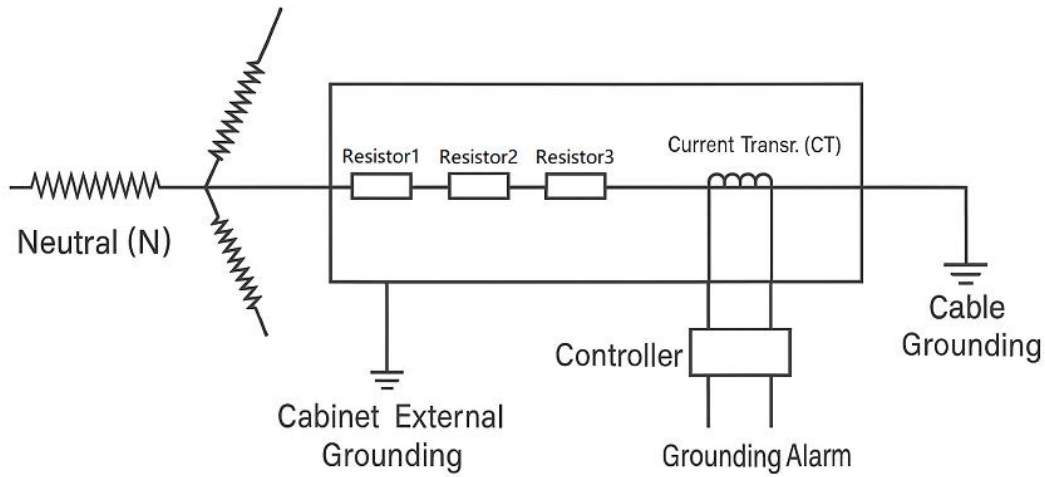
OR - TN - 10 kV recommended size: 1200 * 1200 * 2000 mm (w * d* h)

OR - TN - 35 kv recommended size: 2800 * 1700 * 2200 mm(w * d* h)

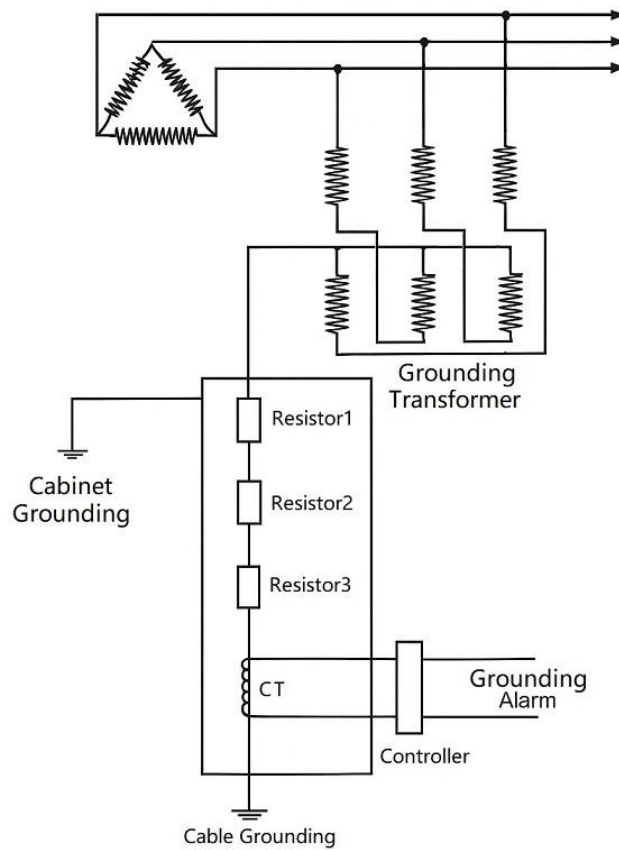
As with earth changes, should consider to increase the size of cabinet put oneself in another's position.

Indicate: the shape, size of resistance ark, cabinet put oneself in another's material and color mark can be designed and manufactured according to customer's specific requirements.

4. Principle diagram of NGR :



Principle diagram of NGR for Transformer



Principle diagram of NGR for Transformer (with grounding transformer)

5. Usage Conditions:

- A. the altitude does not exceed 3000 m;
- B. air relative humidity is not more than 95%, no conductive dust exists;
- C. environmental temperature: - 40 °C ~ + 40 °C;
- D. seismic intensity is not more than 8 degrees;
- E. no fire, explosives, chemical corrosion product and violent vibration.

6. The important information before ordering:

When placing order, please let us know the following parameters:

- A. the system of rated voltage (kV); Short: (A) allow current;
- B. nominal resistance (Ω); Short flow time allow (S);
- C. Outlet and inlet line of 3, cabinet put oneself in another's position of ways: top posts or, into out;
- D. the material of cabinet put oneself in another's position, color (or provide color code), protection grade (IP) and the installation location (indoor or outdoor);
- E. whether to need to add current transformer (CT ratio and capacity), intelligent controller, isolating switch, etc.

7. Packing Details:

Orion Resistor has designed a special vacuum packaging suitable for long-distance maritime transportation. Both the resistor cabinet and its outer packaging are double vacuum-sealed, with high-density, fumigation-free boards used for packaging. This ensures moisture and corrosion resistance, guaranteeing that the electrical performance of the resistor cabinet remains perfectly preserved during extended sealed transportation.



