

NEUTRAL GROUNDING

Also known as Neutral Earthing



The purpose of a **NEUTRAL GROUNDING RESISTOR** is to limit the ground fault current to a safe level so that all the electrical equipment in the power system is protected. The resistor should be the only current path between the neutral of power transformers or power generators and ground.

When the neutral of a system is not grounded it is possible for destructive transient overvoltages to appear from line to ground during normal switching of a circuit having a line-to-ground fault. Experience has proved that these overvoltages cause aging and failure of insulation at locations on the system other than at the point of fault. In this way, a relatively unimportant line-to-ground fault on one circuit may result in considerable damage to equipment and interruption of service on other circuits, not to mention the increased difficulty in finding the original location of the problem.

A neutral grounding resistor is designed to limit the ground fault current to a safe value while at the same time letting enough current to flow to operate the protective relays that will alarm or clear the fault. While the disturbance lasts the resistor must be capable of absorbing and dissipating the energy generated without exceeding the temperature limits established by international standards. In this way the fault is safely limited, isolated, and the power system is protected against overvoltages.

Advantages

- ✓ Reduced operation and maintenance expenses.
- ✓ Fast isolation of the original fault.
- ✓ Reduced transient overvoltages.
- ✓ Reduced physical damage on the equipment at fault.
- ✓ Simplification of ground fault location.
- ✓ Increased life and protection of transformers, generators and related equipment.
- ✓ Reduced frequency of faults.
- ✓ Improved service reliability.
- ✓ Increased protection in the use of lightning arresters.
- ✓ Increased safety for personnel.

CUSTOMIZABLE

EFFICIENT

HIGH QUALITY



HIGH RESISTANCE

NEUTRAL GROUNDING



Advantages

- ✓ Continuous operation even with a phase to ground fault
- ✓ Reduced transient overvoltages
- ✓ Reduced physical damage on the equipment at fault
- ✓ Increased life and protection of transformers, generators and related equipment
- ✓ Reduced occurrence of faults
- ✓ Improved service reliability
- ✓ Increased safety for personnel

HIGH RESISTANCE GROUNDING RESISTORS are recommended for installations that require continuous service even after a phase ground fault occurs.

A phase to ground fault will not cause a large current to flow and will not trip the breakers because the neutral grounding resistor will limit the current to a very low value, typically 5 Amps.

For added security it is required that a suitable ground detection device, or ground fault relay, be used to indicate the presence of a ground fault.

Pulsing devices can be used with high resistance systems to reduce the time required to find and remove the ground fault.

Second ground fault protection will only trip the low priority feeders in the case of a second ground fault allowing the rest of the installation to continue uninterrupted.

This type of Neutral Grounding Resistor should limit the fault to a value greater than the capacitive charging current of the system to avoid overvoltages caused by intermittent faults. While the disturbance lasts the resistor must be capable of absorbing and dissipating the energy generated without exceeding the temperature limits established by national and international standards.

Optional Features

- ✓ Pulsing
- ✓ Zig-zag transformer
- ✓ Resistor monitoring
- ✓ Second ground fault protection
- ✓ Network communications
- ✓ Touchscreen operator panel
- ✓ Buzzer
- ✓ Meters and indicating lights
- ✓ Events Storage

Accessories

Flexible Current Probes



LOW RESISTANCE



Features

- Up to 5,000 amperes and up to 115,000 volts line to neutral.
- Stainless steel nuts and bolts.
- Stainless steel and tin plated copper connectors and internal connections for positive contact and reduced oxidation.
- Indoor or indoor-outdoor service with ventilated or non-ventilated top and sides.
- Removable top or side covers and optional side or front doors.
- Solid or perforated bottom for protection against the entrance of rodents, birds or accidental contact by personnel.
- High-temperature mica, porcelain and synthetic insulators.
- Optional entrance and exit bushings located according to customer's needs.
- Optional current transformers, voltage transformers and relays for fault detection, mounted inside the enclosure with optional external terminal box.
- Optional enclosure heaters, thermostats and temperature relays.
- Manual, test report and optional CSA code special inspection and blue label.
- Optional aluminum, stainless steel and lamacoid nameplates and tags.
- 24 month guarantee.

Optional Features

Resistive Elements Wirewound Edgewound Stamped Grid	Enclosures NEMA 1 NEMA 3R** NEMA 4 NEMA 4X	Enclosure Materials Galvanized Steel** Stainless Steel Anodized Aluminum	Enclosure Mounting Floor-mounting** Wall-mounting ** Standard Models
Enclosure Features Door with Lock Tamperproofing Seismic Zone Special Bracing Tower or Trailer Mounting	Transformers Current Transformer Voltage Transformer Zigzag Transformer Step/Down Transformer	Bushings Top Neutral Side Neutral Top Ground Side Ground	Other Features Special Colors High Altitude Forced Cooling Multiple Taps
Protection Relays Used to alarm or trip in the case of a ground fault.	Sensor resistor Allows the protective relay to determine if the resistor has failed.	Heater Used in humid environments to prevent condensation of water into the system.	Disconnect Turn off the resistive circuit at any time.

