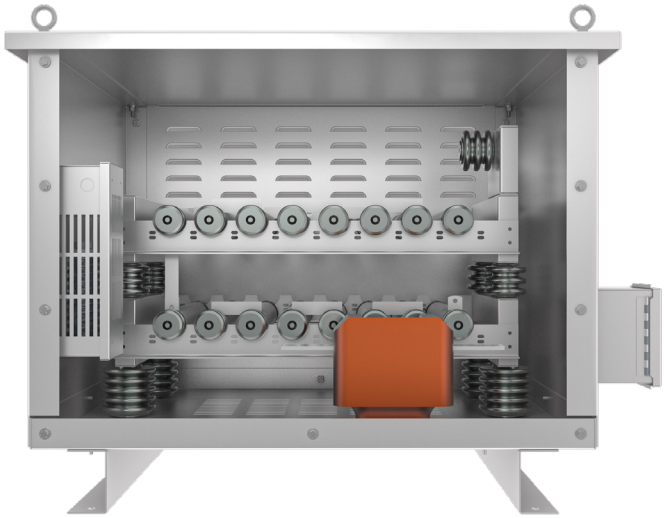
POWEROHM®

Neutral Grounding Resistors

Type NR

Powerohm Type NR Neutral Grounding Resistors are used in industrial power systems for resistance grounding of WYE connected generators and transformers. A neutral grounding resistor limits the fault current to a value which is sufficient to operate protective relays, yet prevent unwanted fault damage.



Design Requirements

Neutral grounding resistors are rated based on line-to-neutral voltage (system voltage divided by 1.732), initial fault current and maximum time on. Powerohm neutral grounding resistors are designed to dissipate the required fault energy and not exceed the temperature limitations established by IEEE Standard C57.32a-2020.

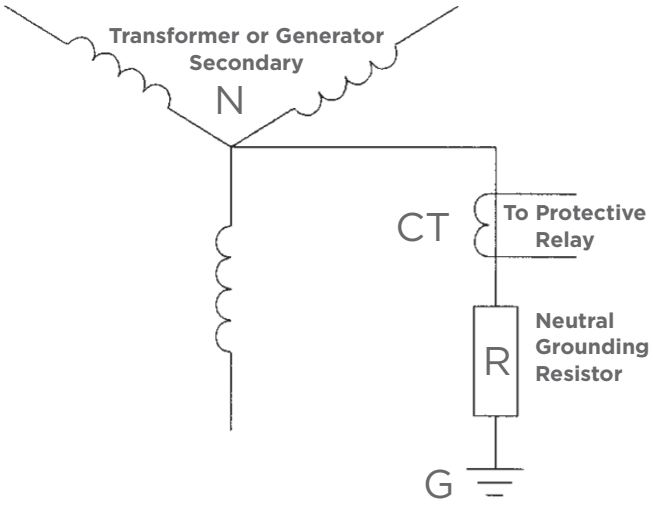
As defined in this publication, the time and temperature ratings for neutral grounding resistors are as follows:

Short time: Short time ratings are 10 and 60 seconds. Since short time rated resistors can only withstand rated current for short periods of time, they are usually used with fault clearing relays. The short time temperature rise for the resistive element is 760°C.

Extended time: A time on rating greater than ten minutes which permits temperature rise of resistive elements to become constant, but limited to an average not more than 90 days per year. The extended temperature rise for the resistive element is 610°C.

Continuous: Capable of withstanding rated current for an indefinite period of time. The continuous temperature rise for the resistive element is 385°C.

Neutral Grounding Resistor Schematic



Basic Construction

Resistor Assembly: The resistor coils consist of a stainless steel edgewound element, wound around a ceramic core supported on a through-rod. Glazed insulators are attached to each end of the coils and fastened to a heavy gage, corrosion resistant frame. The unit is designed to permit the expansion of supporting rods when submitted to high operating temperatures. Resistor elements are connected by stainless steel bus bar, which is welded in place, to form a positive electrical path.

Safety Enclosure: Our resistor assemblies are available with grounded safety enclosures to protect personnel and wildlife from harm. Screened and louvered enclosures are available in a variety of finishes including painted, powder coated, mill galvanized, hot-dipped galvanized, aluminum and stainless steel.

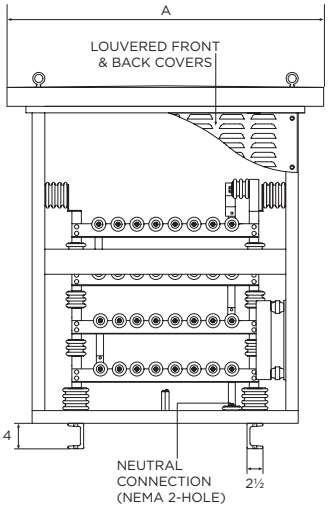
Options: A number of additional options are available including entrance bushings, current transformers, elevating stands and disconnect switches.

UL Listed and CSA Designs available
Special Design for High Altitude
Harsh and hazardous locations Class 1 DIV 2
Seismic designs available

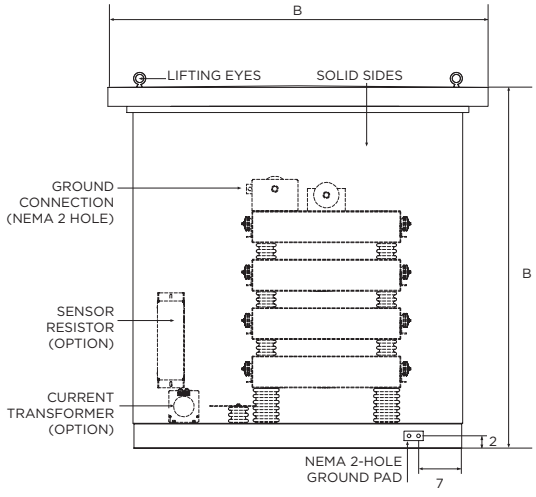
Electrical Tests

All units are factory tested in accordance with IEEE Standard C57.32a-2020. The procedure includes a resistance measurement test to verify that the tolerance is within ± 10%, and an applied potential test. A copy of the test report is included with each shipped unit.

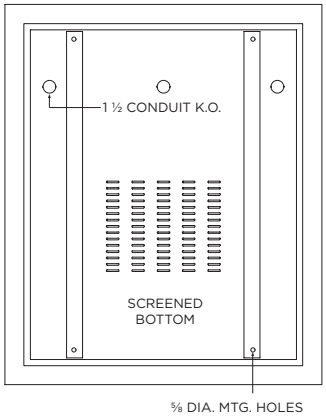
FRONT VIEW



RIGHT SIDE VIEW



BOTTOM VIEW



THIS UNIT IS SHOWN
WITH RAISED HOOD

Above drawings detail a typical neutral grounding resistor with enclosure. Units are available with screened or louvered covers on front and back. All units normally have solid tops and sides and a perforated bottom.

Ratings The following table contains information on the most common size units, other variations are available

Catalog Number	Fault Current	Resistance	A	B	C	Weight
10 Second Time Ratings						
2400 Volts Line-To-Neutral (4160 Volt System)						
NR2400-100-10	100	24	38	38	30	380
NR2400-200-10	200	12	38	38	30	390
NR2400-400-10	400	6	38	38	30	410
NR2400-800-10	800	3	38	38	36	490
NR2400-1000-10	1000	2.4	38	38	36	500
8000 VOLTS LINE-TO-NEUTRAL (13800 VOLT SYSTEM)						
NR8000-100-10	100	80	44	54	54	820
NR8000-200-10	200	40	44	54	54	830
NR8000-400-10	400	20	44	54	54	850
NR8000-800-10	800	10	44	54	72	950
R8000-1000-10	1000	8	44	54	72	990
14400 VOLTS LINE-TO-NEUTRAL (25000 VOLT SYSTEM						
NR14400-100-10	100	144	72	72	90	2300
NR14400-200-10	200	72	72	72	90	2500
NR14400-400-10	400	36	72	60	90	1800
NR14400-800-10	800	18	72	60	90	2200
20000 VOLTS LINE-TO-NEUTRAL (34500 VOLT SYSTEM)						
NR20000-200-10	200	100	72	60	90	1800
NR20000-400-10	400	50	72	60	90	3400
NR20000-1000-10	1000	20	154	90	114	4200
Extended Time Ratings						
1390 VOLTS LINE-TO-NEUTRAL (2400 VOLT SYSTEM)						
NR1390-15-E	15	92.6	38	38	30	370
NR1390-25-E	25	55.6	38	38	36	420
2400 VOLTS LINE-TO-NEUTRAL (4160 VOLT SYSTEM)						
NR2400-15-E	15	160	38	38	36	550
NR2400-25-E	25	96	38	44	36	650
4160 VOLTS LINE-TO-NEUTRAL (7200 VOLT SYSTEM)						
NR4160-15-E	15	227.3	44	54	54	900
NR4160-25-E	25	166.4	44	54	54	950
Continuous Rating						
1390 VOLTS LINE-TO-NEUTRAL (2400 VOLT SYSTEM)						
NR1390-10-C	10	139	44	50	57	830
NR1390-15-C	15	92.6	50	60	57	850
NR1390-25-C	25	55.6	50	60	57	875
2400 VOLTS LINE-TO-NEUTRAL (4160 VOLT SYSTEM) *These dimensions include a raised hood*						
NR2400-10-C	10	240	50	60	57	900
NR2400-15-C	15	160	50	60	57	925
NR2400-25-C	25	96	50	60	87	950

To order a neutral grounding resistor not listed in the above table, specify the following:

1. Line-to-neutral voltage.

2. Initial fault current.

3. Maximum time on.

4. Special requirements or options.

Learn More

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