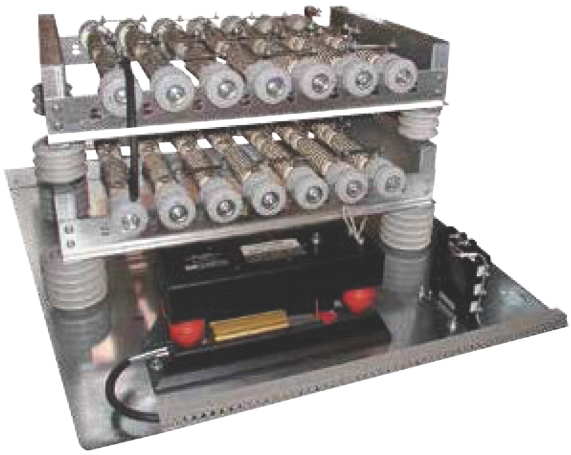
NGR SERIES

Neutral-Grounding-Resistor System



For information about the NGRM-ENC NGR Monitor Control Panel, see Accessories.

Ordering Information

For information regarding a tailored NGR package, please fill out and submit the form at www.littelfuse.com/NGR-Quote

Description

Neutral-Grounding Resistors (NGRs) are used to ground power systems by inserting a resistor between the system neutral and ground. This reduces the prospective ground-fault current to a predetermined value.

A properly designed resistance-grounded system provides benefits over both ungrounded and solidly grounded systems. Because the system is grounded, transient overvoltages do not occur and ground-fault current can flow allowing it to be detected and measured. They also significantly reduce damage caused by ground faults on solidly grounded systems. Limiting ground-fault current eliminates the arc-flash hazards associated with the first ground fault. The hazards associated with phase-to-phase electrical faults must still be mitigated by using arc-flash relays, feeder-protection relays, current-limiting fuses, and other methods. Ground-fault relays (such as the SE-701) can be used on feeders to provide selective coordination and the ability to quickly locate or isolate the fault. Pulsing systems are also available as they are another popular fault-location method.

Applications

Resistance grounding is typically applied on transformers and generators where safety and continuity of service are paramount. A faulted feeder may remain in operation until it is safe to repair the fault, where allowed by the local electrical code.

Benefits

- Eliminate phase-to-ground arc-flash incidents
- Eliminate transient overvoltages
- Reduced point-of-fault damage
- Can provide continuity of service during a ground fault
- Optional pulsing ground-fault current to aid in fault location

Features

- ER-series Sensing Resistor and Current Transformer required for NGR monitoring come pre-installed inside the enclosure
- Can be packaged with a zigzag transformer to resistance ground an ungrounded delta system, a system bus fed by generators, or a system with an inaccessible neutral
- SE-325 or SE-330 NGR Monitor can provide continuous NGR monitoring and ground-fault protection; NGR failure will render all downstream current-sensing ground-fault protection inoperative
- Stainless steel resistor elements prevent corrosion
- Short-time and continuous-rated duty resistors are available

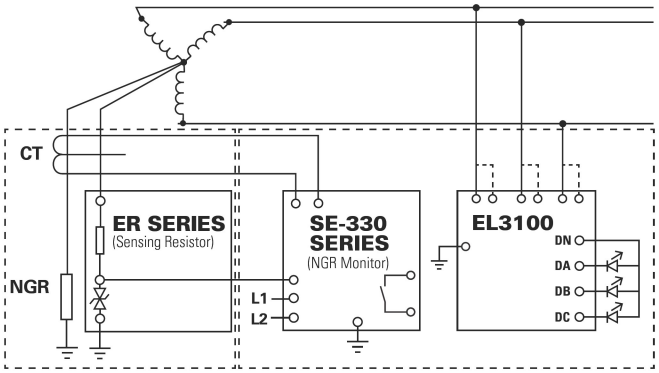
NGRM-ENC SERIES

NGRM-ENC

Description

The NGRM-ENC Enclosed Neutral-Grounding-Resistor (NGR) Monitor series is a Type 4X enclosure housing a Littelfuse Startco SE-325 or SE-330 Neutral-Grounding-Resistor Monitor and optional accessories that include a 480/600-V control power transformer (CPT), faulted-phase indication (FPI; implemented with an EL3100 Ground-Fault & Phase-Voltage Indicator), earth-leakage panel meter, pulse-enable control, and mounting options. Appropriate fusing is included and field wiring is to terminal blocks.

Simplified Circuit Diagram



NGR Assembly
(ordered separately)

NGRM-ENC
(SE-330 with voltage indication shown)

Options

SE-325 Neutral-Grounding-Resistor Monitor
Measures current and voltage in a transformer or generator neutral-to-ground connection and continuity of the neutral-grounding resistor.

SE-330 Neutral-Grounding-Resistor Monitor
Advanced ground-fault and neutral-grounding resistor monitoring relay that measures neutral current, neutral-to-ground voltage, and neutral-to-ground resistance.

EL3100 Ground-Fault & Phase-Voltage Indicator
Three panel-mounted LEDs indicate the ground-faulted phase.

Panel Meter
Panel-mounted meter displays earth leakage current as a percentage of the ground-fault-CT-primary rating.

RK-332/RK-302 Remote Indication and Reset
Panel-mounted remote indication and reset assemblies are included with SE-325 and surface-mounted SE-330 configurations.

Ordering Information

The following options are available with a faster shipping time:

ORDERING NUMBER	PROTECTION RELAY OPTION	NGR MONITOR MOUNTING OPTION	AMMETER & PULSE CONTROL OPTION	COMMS	CONTROL-POWER TRANSFORMER OPTION
NGRM-ENC-000-01	SE-325	Surface mounted	None	None	CPT
NGRM-ENC-200-01	SE-330 (K4=NO)	Surface mounted	None	None	CPT
NGRM-ENC-201-01	SE-330 (K4=NO)	Panel mounted	None	None	CPT
NGRM-ENC-201-11	SE-330 (K4=NO)	Panel mounted	Ammeter	None	CPT
NGRM-ENC-230-01	SE-330 (K4=NO)	Surface mounted	None	Ethernet/2 RJ45 ports	CPT
NGRM-ENC-231-01	SE-330 (K4=NO)	Panel mounted	None	Ethernet/2 RJ45 ports	CPT

NGRM-ENC SERIES

Ordering Information

	PROTECTION RELAY OPTION	NETWORK COMMUNICATIONS OPTION	NGR MONITOR MOUNTING OPTION		AMMETER & PULSE CONTROL OPTION	CONTROL-POWER TRANSFORMER OPTION
NGRM-ENC-	X	X	X	–	X	X
	0=SE-325 1=SE-325 & voltage indication(1) 2=SE-330 (N.O. K4) 3=SE-330 (N.O. K4) & voltage indication(1) 4=SE-330 (N.C. K4) 5=SE-330 (N.C. K4) & voltage indication(1) 6=SE-330HV (N.O. K4) 7=SE-330HV (N.O. K4) & voltage indication(1) 8=SE-330HV (N.C. K4) 9=SE-330HV (N.C. K4) & voltage indication(1)	0=No network communications 1=DeviceNet(2) 3=Ethernet, dual RJ45(2) 4=Ethernet, 1 RJ45 & 1 fiber(2) 5=Ethernet, dual fiber(2) 6=IEC 61850, dual RJ45(2) 7=IEC 61850, 1 RJ45 & 1 fiber(2) 8=IEC 61850, dual fiber(2)	0=Surface-mounted NGR monitor(4) 1=Panel-mounted NGR monitor(5)		0=No ammeter 1=Earth-leakage panel meter(2) 2=Earth-leakage panel meter & pulse-enable switch(3)	0=No CPT 1=480/600-V CPT(1)

Note (1) - Includes fuses, (2) - SE-330 models only, (3) - SE-330 models only, excluding SE-330HV models, (4) - Includes panel-mounted indication & reset, and USB connector for SE-330 models, (5) - SE-330 models only; includes IP65 hinged transparent cover

Specifications

Enclosure Polyester, Lockable. SE-330 panel-mount options are rated to IP65. All other options are rated to Type 4X.

Dimensions **H** 454 mm (17.9"); **W** 406 mm (16"); **D** 264 mm (10.4")
Clearance required to open SE-IP65CVR-G 112 mm (4.4")

Approvals cCSAus

Warranty 1 year