



Neutral Grounding Resistor Solutions

for Generators and Transformers

Bender HRG & LRG

In industrial and commercial power systems, as many as 95% of electrical faults begin as a single phase-to-ground fault. **Bender High-Resistance Grounding (HRG)** systems reduce the damage and hazards caused by ground faults.

Bender's advanced HRG packages automatically and safely indicate the location of a ground fault. LRG solutions, often used on medium voltage systems, help prevent damage to generators and transformers.

Features

- **NGR monitoring** for LRG and HRG packages
- **Advanced Ground-fault protection** that provides harmonic information for troubleshooting
- Wall mount and free standing packages
- AC/DC ground-fault detection
- Integrated web server, Modbus TCP/IP, and Modbus RTU
- **HMI (Human-Machine Interface)** that displays measured values and provides easy programming in selectable languages

Benefits

- **Protect generators** by limiting ground-fault current flow and damage, even when the generator breaker is open.
- **Improve safety** by monitoring the grounding connection.
- **Increase generator reliability** using HRG as mentioned in IEEE Std 3005.4.
- **Preventative maintenance** with sensitive ground-fault detection levels to allow early warning of insulation degradation.

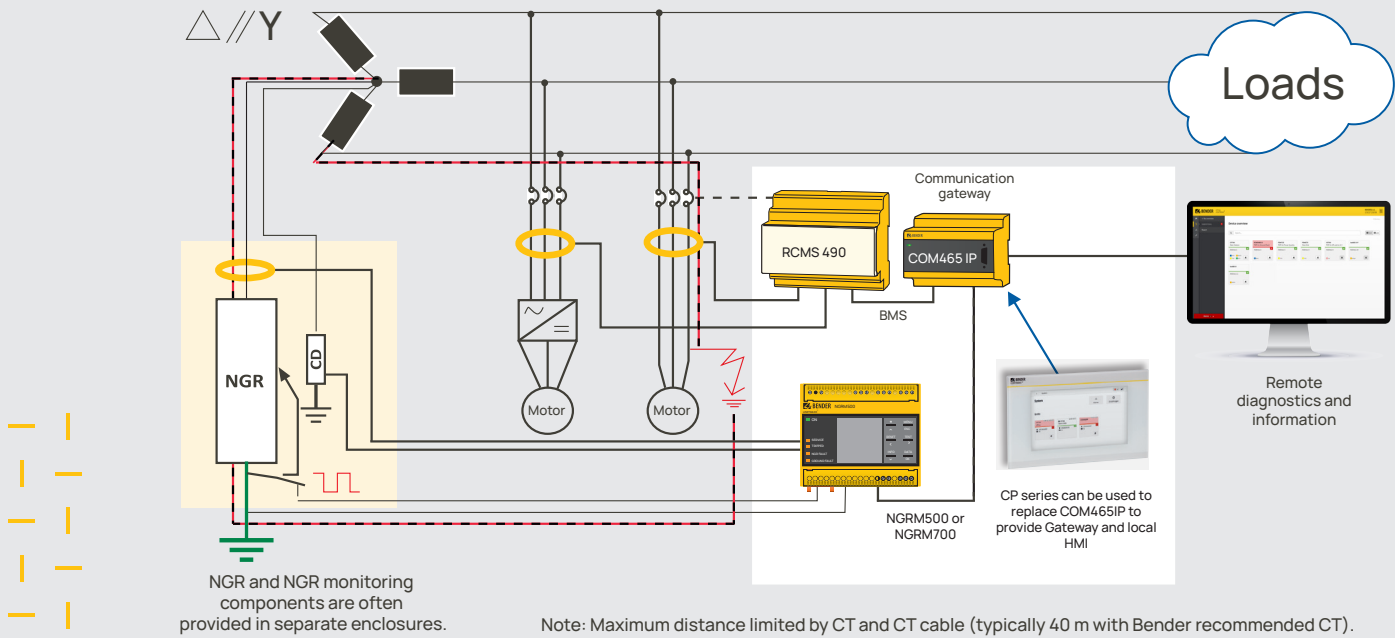
Neutral-Grounding Resistor Monitors



The **NGRM500** detects NGR failure and ground faults in high-resistance-grounded power systems. The **NGRM550** is used for low-resistance-grounded power systems.



The **NGRM700** and **NGRM750** offer unique packaging that allows easy installation of the base unit and a removable HMI for panel mounting.



Bender's HRG and LRG Solutions



Series 1

- Limits ground-fault current
- Pulsing ground-fault function
- Visual indicators
- Certifications - cULus listed to IEEE 57.32 and CSA 295
- Up to 12 feeders
- Compact wall-mount design



Series 2 - Intermediate

- Features of Series 1 +
- Multi-channel fault detection
 - Feeder Level AC/DC fault detection
 - NGR connection monitoring
 - Digital display
 - Integrated web server
 - Fieldbus communication
 - Wall-mount or floor mount
 - Up to 60 feeders
 - Harmonic filtering



Series 3 - Advanced

- Features of Series 2 +
- Multi-fault prioritization
 - Ground-fault location annunciation
 - Simplified user interface
 - Up to 120 feeders
 - AC/DC ground-fault protection
 - Touch screen HMI
 - Available with Bender Parallel Neutral System PLC for proper monitoring on Main-Tie-Main or multiple source systems



LRG

- Current range is 100s to 1,000s of amps
- Available for medium-voltage applications
- Optional NGRM for open detection and sensitive ground-fault detection
- Available with separate control enclosure for remote or local mounting

Bender Inc.

800.356.4266 / info@bender-us.com
www.benderinc.com

Bender Canada

905.602.9990 / info@bender-ca.com
www.benderinc.com

