

Bender NGRM500 Guideform Specification

Neutral grounding resistor (NGR) monitoring shall be provided by a Bender NGRM500 Neutral Grounding Resistor Monitor.

Protection and Monitoring Functions

Grounding-resistor failure detection:

- Active and passive measurement methods; user-selectable as automatic or passive
- Open NGR detection
- Shorted NGR detection per CE code Section 10-302
- Calibrates to monitored system
- Continuous monitoring of NGR and grounding-connection resistance with a 10 to 200% resistance-tolerance setting range
- Continuous monitoring of the resistance of the NGR even when the power system is de-energized (active)

Ground-fault detection:

- Measures NGR current
- Detects neutral overvoltage
- Detection of AC and/or DC faults
- Choice of filters to detect ground faults; broadband, fundamental frequency, or band pass with definable limits of 0 to 1.9 kHz
- Safe physical connection to the power system using a CD-series coupling device
- Neutral current and voltage harmonics measured and displayed
- Fast Fourier Transform analysis of measured signals

Communications:

- Integrated web server over Ethernet to manage settings, display measured values, and provide alarm notifications
- Modbus TCP (over Ethernet) and Modbus RTU (over RS-485) fieldbus protocols
- Password and external write protection

Datalogging:

- Up to 1,000 events

Operating temperature:

- -40 to 140° F (-40 to 60° C)

Inputs:

- Current input: One type W, WAB, CTUB100 Series, or standard 5 – or 0.05-A secondary current transformer
- Test button (HMI and external digital input)
- Reset button (HMI and external digital input)
- Pulser activation digital input
- Coupling device input for ground-path and neutral-voltage monitoring

HMI:

- Digital display to show information and manage settings
- Selectable languages – US English, UK English, French, German, Spanish
- LEDs for power and alarm indication
- Push buttons for menu control, reset, test, set point selection, and metering-screen selection
- Chassis mounted

Outputs:

- 3 x Form-C relay outputs activated on ground-fault and NGR-fault selectable fail-safe or non-fail-safe
- Selectable analog output – 4 to 20 mA, 0 to 10 V, 0 to 20 mA, and 2 to 10 V
- Analog output configurable for 0 to 100% of NGR current or 0 to 200% of NGR resistance
- Audible alarm, selectable
- 2 x digital outputs: pulser control and unit health

Supply voltage and power consumption:

- AC/DC 48 to 240 V, maximum 6.5 W/13 VA at 50/60 Hz

Terminal rating:

- IP20/NEMA 1

Enclosure ratings:

- NEMA 1 (IP30)

Altitude:

- 2,000 m AMSL