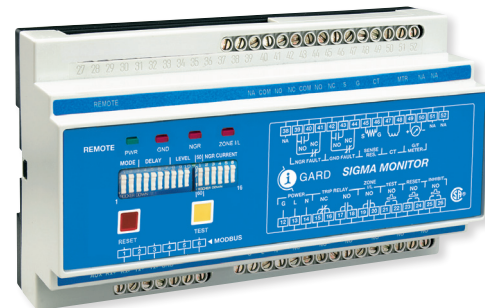


SIGMA 3

i-Gard's **SIGMA 3** relay is a combination ground fault and monitoring relay with pulsing capability, that fully complies with the requirements of the *Canadian Electrical Code 2018* section 10.302 *without exception* or rating restrictions.

The SIGMA 3 is designed for application in High Resistance Grounding systems (systems typically below 5kV where the fault current is limited to 10 amps or less) and the complete range of Low Resistance Grounding systems (systems between 5kV and 69kV where the NGR is time rated).



CEC 2018 REQUIREMENTS: The integrity of an impedance grounded system shall be monitored, and the system shall have an audible or visual alarm that corresponds to the occurrence of:

CEC 2018 Requirements

- a) A ground fault on current-carrying conductors, including the neutral conductor where line-to-neutral loads are served
- b) A ground fault on the conductor connecting the impedance grounding device to the source; and
- c) A loss of continuity of the impedance grounding circuit from the system source through the impedance grounding device to the grounded non-current-carrying conductive parts of the electrical system



SIGMA 3

The SIGMA 3 relay is also a ground fault relay, therefore any ground fault on any current-carrying conductors will be detected and alarmed.

The SIGMA 3 measures the impedance value of the ground path from the source neutral to ground. During a short condition, the equivalent impedance of the parallel circuit formed by the NGR and the short, will be very low. The SIGMA 3 will detect this abnormal condition and alarm.

During an open circuit, the SIGMA 3 will automatically switch to *injection mode*, injecting a high frequency signal to the NGRS (sensing resistor) circuit. There will be no return of the signal due to the open circuit. This condition will be alarmed.

SIGMA 3

Unlike our competitors ...

Unlike other products on the market, the SIGMA 3 has been specially designed to ensure **effective monitoring** of the NGR circuit, even when de-energized. The SIGMA 3 is also **uniquely immune** to moisture and as a result, it will not false trip as other products do when subject to this condition. In addition to its reliable performance under trying conditions, the SIGMA 3 relay includes a **watchdog circuit** and **built-in test circuitry**, making it the most reliable relay on the market.

Finally, the SIGMA 3 is **fully compatible** with all power-circuit elements, including those that intentionally connect the power system to the ground (single-phase grounding transformers, grounded-wye-primary potential transformers, and grounded-wye-primary power transformers).



While the SIGMA 3 meets the requirements of CEC 10.302 a), i-Gard strongly recommends against employing a 3 phase 4 wire HRG system where neutral loads can be served due to the inherent safety risk of this system. I-Gard strongly recommends that all HRG systems be 3 phase 3 wire only.

