

# Generator Field De-Excitation Module/SCR Assembly & Current Limiting Inductor/Resistor

These packages consists of (1) – A sensing module/SCR assembly, and (2) – A resistor or inductor, which together provide generator field de-excitation protection. These packages functions to limit the maximum voltage impressed across the generator field during de-excitation or with a 3-phase short on the generator. This also serves to limit the voltage seen across the field breaker or contactor.

These packages can be applied for field protection up to 3500 volts dc with current discharge levels up to 20,000 amps. These packages provide the

high voltage isolation for the field discharge current sensing circuit.

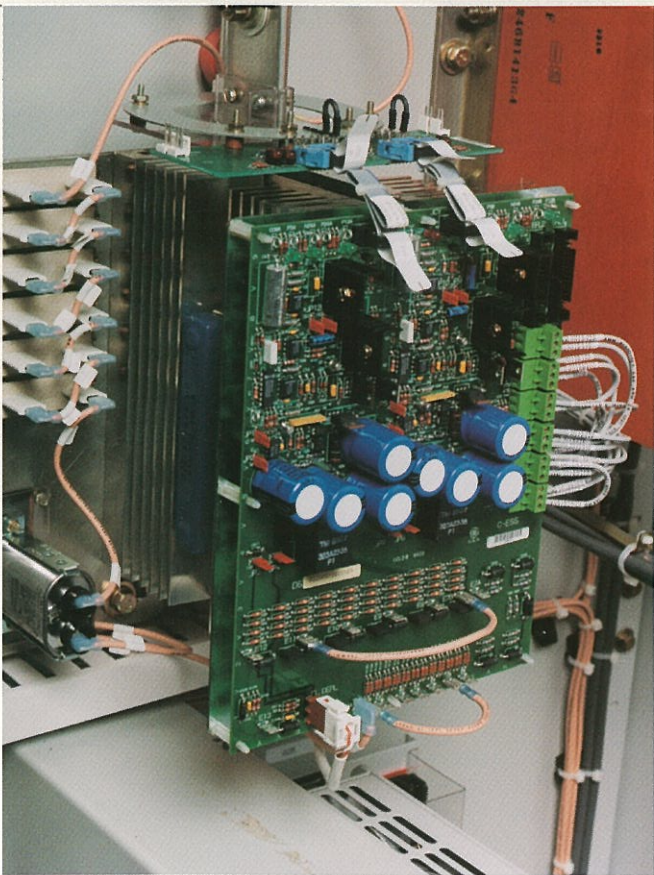
The sensing module triggers the SCR in response to either a contact closure from a remote source (primary tripping mode) or from the built-in voltage sensing circuit. The SCR package functions as a switch to allow the generator field current to flow into the inductor or resistor. The voltage tripping levels are set on the module based on the rated field voltage: 700V trip -125V field, 1400V- 250V field, 2100V - 375V field, 2800V- 500V field, 3500V - 600V field. The package's unique circuit allows the SCR to be fired from a remote contact closure, even if control power disappears within 1 second.

The sensing module provides the following:

- SCR firing from remote input (contact closure)
- SCR firing from overvoltage sensing (700 volt to 3500 volt range)
- SCR current sensing and contact closure for remote indication of operation
- Function indicating lights (green - control power on; red- SCR has fired)

Two different sizes of SCRs are used in the modules, based on the magnitude of the discharge current level. The different packages are designated as group 3 (g03) and group 4 (g04). See back page for complete catalog numbers.

The inductor or resistor package is sized to handle the projected current flow when the field circuit is interrupted. The inductor is used for standard discharge time constant of 1 second. The resistor is used for fast field discharge time constant of less than one-half second, with resistance based on 1 to 2 times the generator field resistance.



872-3-6

### ***The package configurations are:***

- 1 – For discharge currents levels up to 5000 amps, field breakover voltage up to 3500 volts, and for a field discharge (short circuit) time constant of less than one second, specify:

Sensor/SCR cat. no.= 246b2357bag03

Inductor cat. no.= 246b1413g4 (65 microhenrys)

- 2 – For discharge currents levels up to 5000 amps, field breakover voltage up to 3500 volts, and for a field fast discharge (short circuit) time constant of less than one-half second, gen. field ohms approx. .12 -.25 ohms, specify:

Sensor/SCR cat. no.= 246b2357bag03.

Resistor cat. no.= 173c8434dag01 (0.25 ohm)

- 3 – For discharge currents levels of 5000 to 9000 amps, field breakover up to 3500 volts, and for a field discharge time constant of less than one second, specify;

Sensor/SCR cat. no.= 246b2357bag04

Inductor cat. no.= 246b1413g4 (65 microhenrys)

- 4 – For discharge currents levels of 5000 to 9000 amps, field breakover to up to 3500 volts, and for a fast field discharge time constant of less than one-half second, gen. field ohms approx. .12 to .25 ohms, specify;

Sensor/SCR cat. no.= 246b2357bag04

Resistor cat. no.=173c8434dag01 (0.25 ohm)

- 5 – For discharge currents levels of 10,000 to 20,000 amps, use parallel combinations of 1 or 2 above, specify;

Sensing and firing logic can be slaved together for single operation of 2 or 3 package.

### ***Dimensions of the modules are:***

Sensor/SCR package 246b2357bag04 = 17.15" tall by 10" wide by 10" deep

Inductor module 246b1413g4 = 15.75" tall by 11" wide by 4" deep

***Generator field ground detector modules (DS3820NGBD) type are also available. Request GEZ-8079. For Field Contactors/Breaker, refer to GEP-345D, pgs. 5-14.***



***GE Motors &  
Industrial Systems***

**Industrial Systems –  
Drive Systems & Turbine Controls**

General Electric Company, 1501 Roanoke Boulevard, Salem, Virginia 24153