SGC-250 Synchronous Generator Controller

Overview

The SGC-250 Synchronous Generator Controller is a prepackaged solution for applications that require single or dual DECS-250 Digital Excitation Control Systems. With the DECS-250's enhanced capabilities, precise generator voltage control can be obtained. An optional integrated BE1-11*g* Generator Protection System provides generator current differential protection, monitoring, and metering with multiple protection schemes to assist with generator protection.

Features

- 15-amp pulse-width-modulated (PWM) insulated-gate bipolar transistor (IGBT) power stage
- Single and dual redundant DECS-250 option
- Dual control power provisions
- BESTCOMS*Plus*® PC software
- Preprogrammed logic
- Autotracking between modes of operation
- Autotracking between DECS-250 units for dual controller systems
- Real time monitoring
- Sequence of events recording
- Automatic tuning
- Extensive communication available
  - USB
  - CAN bus communication
  - Modbus® RS-485 RTU
  - Ethernet 100Base-T (Modbus TCP)
  - Profibus (optional)
- Reactive load sharing
- Field flashing provisions
- Provisions for sync check
- Optional automatic synchronizer
- Optional integrated power system stabilizer (PSS)
- Optional BE1-11*g* Generator Protection System available on pan chassis/mounting plate

Benefits

- The DECS-250 and optional BE1-11*g* used on the SGC-250 are programmed using BESTlogic™*Plus* within BESTCOMS*Plus* software. With its intuitive interface, BESTlogic*Plus* provides the flexibility to create custom logic schemes to meet specific requirements.
- An automatic tuning feature is integrated into the DECS-250 to reduce commissioning time and provide excellent system performance.
- Real time monitoring and event recording capture occurrences within the system for live data analysis.
- Prewired for easy installation into new or existing enclosures.
- Dual control power provides redundancy to prevent undesired shutdown.
- Current transformer (CT) shorting provision for added safety.
- The SGC-250 is designed, built, and completely tested to optimize performance and reliability.

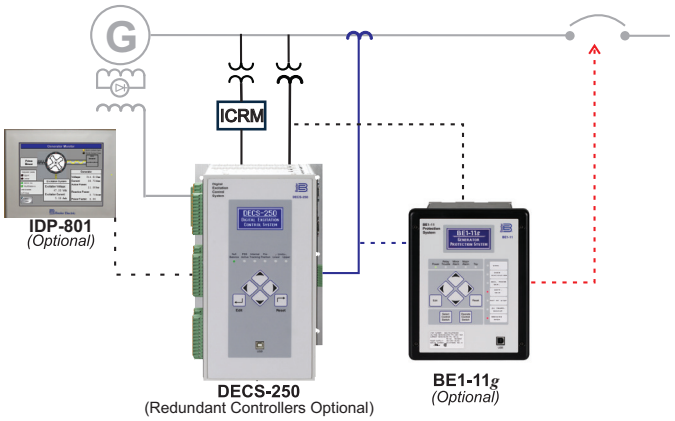


Figure 1 - Typical SGC-250 Connection Diagram featuring the Optional IDP-801 Interactive Display Panel

SGC-250 Synchronous Generator Controller

Specifications

Excitation Current
Up to 20 Adc

Operating Power (Excitation Power)
DECS-250 (Can be either 1-phase or 3-phase)
Full load continuous field voltage:

32 Vdc:	56 to 70 Vac
63 Vdc:	100 to 139 Vac or 125 Vdc
125 Vdc:	190 to 277 Vac or 250 Vdc
Frequency range:	50 to 420 Hz

Sensing Voltage Input (1-phase or 3-phase)

50 Hz:	100 Vac, 90 to 110 Vac
60 Hz:	120 Vac, 108 to 132 Vac

Sensing Current Input (1-phase or 3-phase)

Nominal:	1 Aac or 5 Aac

Minimum Residual Voltage for Buildup
6 Vac

Contact Outputs
Make and Break Ratings (Resistive):

24 Vdc:	7.0 Adc
120 Vdc:	7.0 Adc

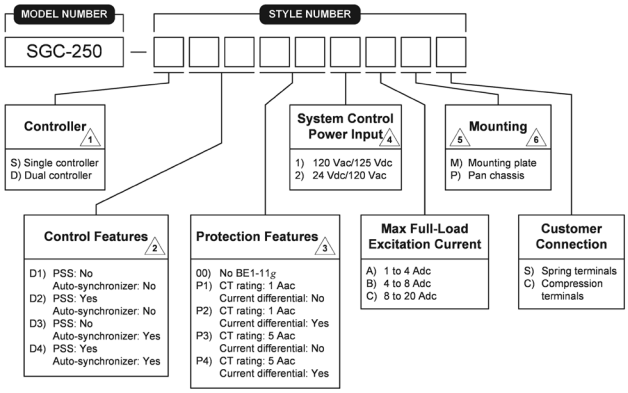
Carry Ratings (Resistive):

24 Vdc:	7.0 Adc
120 Vdc:	7.0 Adc

Dual Control Power Input

AC:	82 to 132 Vac, 50/60 Hz
DC:	90 to 132 Vdc
or	
DC:	16 to 26 Vdc
AC:	82 to 132 Vac, 50/60 Hz

Please read and utilize all of the notes below the chart to ensure the appropriate control and protection features are specified in the main SGC-250 style chart.



1 Autotracking is determined by selection of a single or dual DECS-250 model.

2 Control features:

Control Features	Power Supply	Power System Stabilizer 7	Autotracking	DECS-250 Terminals	Synchronizer	1st Communication Protocol	2nd Communication Protocol
D1	4	Not included	1	Spring terminals	None	100Base-T (Modbus® TCP)	None
D2		PSS					
D3		Not included			Auto synchronizer		
D4		PSS					

P0099-74

3 Protection features:

Protection Features	Phase & Ground Current 8	Power Supply	RS-485 Protocol	Ethernet Protocol	Case	Alarm Contact	Option 1	Network Connection	Language	Option 2	Firmware
P1	1 Aac	4	Modbus®	Modbus® with BESTnet™*Plus*	Vertical case	Normally closed	None	Copper Ethernet	English	None	Latest Release
P2							Current Differential				
P3	5 Aac						None				
P4							Current Differential				

4 Power supply for DECS-250 is determined by option chosen in the SGC-250 style number.

5 The pan chassis consists of a rigid metal panel to hold the SGC-250 components. It is designed with additional structural supports to prevent it from bending or flexing. The mounting plate consists of a 1/16" thick sheet of galvanized steel to which the SGC-250 components are mounted. Typically, the mounting plate is installed in a specially-sized enclosure.

6 Pan chassis mounting option must be selected if dual controller and BE1-11*g* options are specified.

7 Coordinating agency guidelines (Western Electricity Coordinating Council (WECC) or other grid codes) may require "negative field forcing" included with the voltage regulator system where a power system stabilizer is required. Negative forcing improves the effective response at the generator output due to dynamic load changes, particularly for plants that have rotating exciters.

8 Protection features selections P2 and P4 provide current differential protection which equips the BE1-11*g* with dual phase and ground current sensing inputs.

Environmental

Operating Temp:	0°C to 50°C (32°F to 122°F)
Storage Temp:	-20°C to 60°C (-4°F to 140°F)

Physical

SGC-250-SXX001XXX

Controller:	Single
BE1-11*g*:	No
Control Power:	125 Vdc/120 Vac
Dimensions (WxHxD) (in):	21.65 x 37.40 x 10.12
Dimensions (WxHxD) (mm):	550 x 950 x 257.1

SGC-250-SXX002XXX

Controller:	Single
BE1-11*g*:	No
Control Power:	24 Vdc/120 Vac
Dimensions (WxHxD) (in):	21.65 x 29.53 x 10.12
Dimensions (WxHxD) (mm):	550 x 750 x 257.1

SGC-250-DXX001XXX

Controller:	Dual
BE1-11*g*:	No
Control Power:	125 Vdc/120 Vac
Dimensions (WxHxD) (in):	29.53 x 37.40 x 10.12
Dimensions (WxHxD) (mm):	750 x 950 x 257.1

SGC-250-DXX002XXX

Controller:	Dual
BE1-11*g*:	No
Control Power:	24 Vdc/120 Vac
Dimensions (WxHxD) (in):	29.53 x 37.40 x 10.12
Dimensions (WxHxD) (mm):	750 x 950 x 257.1

SGC-250-SXXP11XXX

Controller:	Single
BE1-11*g*:	Yes
Control Power:	125 Vdc/120 Vac
Dimensions (WxHxD) (in):	29.53 x 37.40 x 10.12
Dimensions (WxHxD) (mm):	750 x 950 x 257.1

SGC-250-SXXP12XXX

Controller:	Single
BE1-11*g*:	Yes
Control Power:	24 Vdc/120 Vac
Dimensions (WxHxD) (in):	29.53 x 37.40 x 10.12
Dimensions (WxHxD) (mm):	750 x 950 x 257.1

SGC-250-DXXP11XXX

Controller:	Dual
BE1-11*g*:	Yes
Control Power:	125 Vdc/120 Vac
Dimensions:	Contact Basler Electric

SGC-250-DXXP12XXX

Controller:	Dual
BE1-11*g*:	Yes
Control Power:	24 Vdc/120 Vac
Dimensions:	Contact Basler Electric

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