

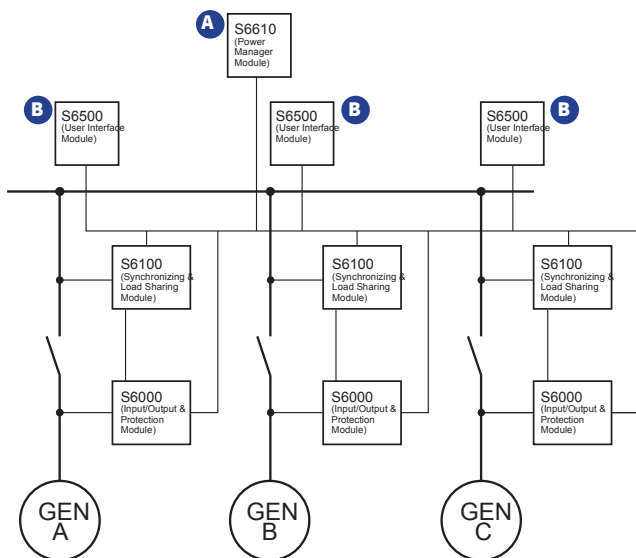
Generator Control

SIGMA SERIES

Generator Control and Protection System



Simplified Circuit Diagram



Ordering Information

ORDERING NUMBER	DESCRIPTION
S6000.0010	Input/ Output and Protection Module– 5 A C/T
S6000.0020	Input/ Output and Protection Module– 1 A C/T
S6100.0010	Synchronization and Load Sharing Module

ACCESSORIES	REQUIREMENT	PAGE
S6500.0010	Optional	See above
S6610.0010	Optional	See above

Description

The SIGMA Generator Control and Protection System is a range of integrated modules for protection and control of marine and land based generators. The modules are marine approved and include all relevant functions, such as protection of generators, synchronizing and active/ reactive load sharing and Power Management.

IO/P Module S6000

Input/ Output and Protection Module

The SIGMA S6000 performs all measurements on the generator side (voltages, currents, frequency), does the generator protection, includes a non-essential load trip in two steps and includes three measurement transducers.

S/LS Module S6100

Synchronizing and Load-Sharing Module

This module performs the control functions like synchronizing and active and reactive load sharing. It performs the measurements on the busbar side.

Accessories



S6610 Power Manager Module

Controls the number of generators that are supplying to the bus. It will issue start and stop signals to the generators depending on power requirement. There are 10 inputs for large consumer requests.



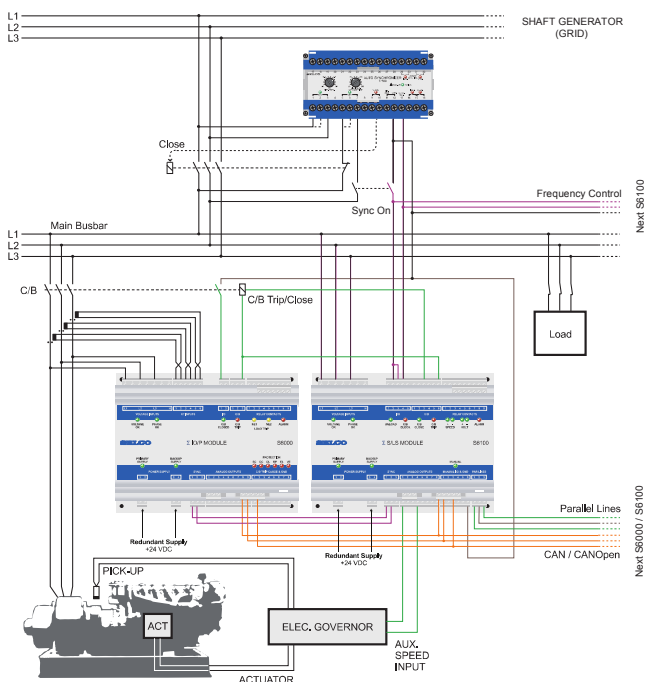
S6500 User Interface Module

This unit is optional, as the S6000/ S6100 also can be programmed from a PC. It is possible to use one or more units per installation.

SIGMA Technical Data

FEATURES	SIGMA S6000	S/LS MODULE S6100	PM MODULE S6610	UI MODULE S6500
Reverse power protection	X			
Overcurrent trip	X			
Short-circuit trip	X			
Power trip	X			
Excitation loss relay trip	X			
Over/ Undervoltage trip	X			
Nonessential load trip in 2 steps	X			
RS485/ Modbus RTU (RS485)	X			
Synchronizer		X		
Load sharer		X		
VAR load sharer		X		
Indication of measurements			X	X
Programming of the S6000 and S6100 modules			X	X
Load depending start and stop of generators			X	
Large consumer request			X	
Large consumer inhibit			X	

Wiring Diagram



Features & Benefits

FEATURES	BENEFITS
3-phase true RMS measurement	Reliable measurement, high noise immunity
Analog outputs for speed and voltage control	Fits most electronic governors and ECUs
PWM outputs for speed and voltage control	Compatible with e.g. CAT and Woodward
Pulse outputs for speed and voltage control	Compatible with conventional governors, motorized potentiometers and some ECUs
Large consumer request inputs with load feed back	Optimizes quantity of running generators and saves fuel
Type-approved by marine classification societies	Pre-configured Marine Power Management System

Specifications (S6000)

Primary Supply	+24 Vdc (-30%/+30 %) Isolated, 500 mA
Backup Supply	+24 Vdc (-30%/+30 %) Isolated, 500 mA
Environmental Temp Range	-15°C to +70°C
Gen. Phase-Phase Voltage (GPPV)	63.0-690.0 Vac (-2 % /+2 %) 3-phased
Gen. Indicated Voltage (GIV)	63-32 kV AC
CT Secondary Current (CTSC)	1 A or 5 A (consumption 25 mW or 125 mW) 3-phased
Gen. Rated Frequency (GRF)	40.0-500.0 Hz
Gen. Maximum Current (GMC)	0.5-3,000.0 A / 500-30,000 A

Protection Functions

C/B Trip Relay	Contact rating:	AC: 8 A, 250 Vac; DC: 8 A, 35 Vdc
NE1 Trip Relay	Contact rating:	AC: 8 A, 250 Vac; DC: 8 A, 35 Vdc
NE2 Trip Relay	Contact rating:	AC: 8 A, 250 Vac; DC: 8 A, 35 Vdc
Alarm Relay	Contact rating:	AC: 8 A, 250 Vac; DC: 8 A, 35 Vdc
CAN Bus	Connection:	Screw terminals, 2-wire with COM (limp back function)
	Protocol:	CANopen derivative
RS232	Connection:	Customized plug, 4-wire (non-isolated)
	Function:	Configuration, Debugging or firmware update
	Protocol:	ANSI terminal
RS485	Connection:	Screw terminals, 2-wire (isolated)
	Protocol:	MODBUS-RTU

EMC EN 50081-2:1993, EN 50263: 1999

Marine Tests EN 60945:1997, IACS E10:1997

Connections Plug-in screw terminals (spring terminals available as option)

Mounting Screw mounting (4 pcs. 4.2 x 12 mm)

Weight 1,150 g

Dimensions H 145 mm (5.7")

W 190 mm (7.5")

D 64.5 mm (2.5")