



**THERMO KING**

# SGUM-5000™

Undermount Two Speed Generator Set  
With SG+ Controller

TRANE  
TECHNOLOGIES

# Table of Contents

General description	3	Radiator	7
Engine	5	Battery	7
Engine lubrication system	5	SG+ microprocessor controller	8
Fuel system	5	SG+ controller interface	8
Generator	6	SG+ controller inputs/outputs/menus	9
Hoses	6	SG+ alarms/messages/operating instructions	9
Electrical power receptacle	6	Installation diagram	10
Doc	6	Revisions	11



# Product specifications

## GENERAL DESCRIPTION

MANUFACTURER	THERMO KING CORPORATION
Construction	<ol style="list-style-type: none"> <li>1. The Genset is designed for mounting to the container chassis between the two main I-beams (center-mount)</li> <li>2. It is a completely welded steel structural assembly</li> <li>3. Genset components (filters, hoses, wire harness, etc...) are installed and securely fastened to ensure dependable, long-term operation and ease of serviceability</li> <li>4. All wires/hoses/tubes are fastened properly to protect integrity and prevent wire chafing</li> <li>5. Ring terminals or crimps / set screws are used on all high voltage connections</li> </ol>
Structural Design	<ol style="list-style-type: none"> <li>1. The Genset is designed to withstand &amp; operate satisfactorily in over-the-road trucking, railway operations &amp; aboard ships</li> <li>2. The Genset is rated to withstand all shock and vibrations experienced over the life of the Genset. The Genset is designed to have no harmful resonance frequencies below 30Hz</li> </ol>
Structural Frame	<ol style="list-style-type: none"> <li>1. Structural steel frame is cleaned through a 3-stage solvent pre-treatment and a 4-stage chemical pre-treatment with a multi-metal iron phosphate passivation, and coated with black polyester TGIC powder (2.5 – 4.0) mils</li> <li>2. All steel is commercial quality hot or cold rolled</li> </ol>
Panels and Doors	<ol style="list-style-type: none"> <li>1. Panels and doors are chemically cleaned through a 3-stage solvent pre-treatment and a 4-stage chemical pre-treatment with a multi-metal iron phosphate passivation, and coated with black polyester TGIC powder (2.5 – 4.0) mils</li> <li>2. Door material: aluminum, 0.100" (2.5mm) thick</li> <li>3. Panel material: aluminum, 0.063" (1.60 mm) thick</li> </ol>
Hardware	<ol style="list-style-type: none"> <li>1. All hardware (screws, washers, nuts &amp; clamps) are stainless steel for maximum protection from salt-water corrosion</li> <li>2. This excludes hardware supplied by original equipment manufacturer suppliers</li> </ol>
Nameplate Instructions	English and Spanish language operating instructions
Ambient Temperature Range	Structure: -40°C to 50°C (-40°F to 122°F) Operation and starting: -29°C to 50°C (-20°F to 122°F) Running: -40°C to 50°C (-40°F to 122°F)
Maximum Power Output	15kW/18.75kVA (PF 0.8) at 45°C
Sound Pressure Level	70 dBA. 3 point average at 1m, 45 degrees from the exhaust
CARB Compliance	<ol style="list-style-type: none"> <li>1. Lifetime compliant with ULETRU requirements for over 25 horsepower engines under section 2477 of California Code of Regulations (Title 13, Division 3, Chapter 9, and Article 8) published on 16th October 2012 by the California Air Resource Board (CARB)</li> <li>2. CARB certification issued under Executive Order U-R-028-0900† (for 2020 model year engines)</li> </ol> <p>† The term 'Useful life (5000hrs)' as defined in Executive Order U-R-062-0006 refers to the minimum required life of the engine's emissions components. This useful life has no correlation to the actual product lifespan or operable hours, and presents no obligation to remove the engine from service after 5000 hours, allowing it to remain in the market indefinitely according to current regulation.</p>
Dimensions	Width: 1568 mm (61.7 in) Height: 810 mm (31.9 in) Depth: 1311 mm (51.6 in) (not including side mount brackets or keener arms)

# Product specifications

## GENERAL DESCRIPTION

MANUFACTURER	THERMO KING CORPORATION
Weight	835kg (1,840 lbs.) – Total weight with 50 gallon tank, including Genset oil, coolant and battery 971kg (2,140lbs.) – Total weight with 80 gallon tank, including Genset oil, coolant and battery

## ENGINE

Type	Compression ignition
Cylinders	4 cylinders
Fuel injection	Common rail direct injection
Displacement	2.2 liter
Horsepower	29.4HP (21.9kW) @ 1800rpm
Emissions after treatment	DOC not DPF
Torque	116Nm @ 1800rpm
Protection	Oil temperature, Oil pressure, Coolant level
Serviceability	Fuel pump, Oil filter, Fuel filters, Starter motor, Air Cyclonic Filter mounted on front side of engine
Oil Capacity	Dry fill: 13.2 liters (14 quart) Wet fill: 12 liters (12.7 quart)
Coolant Capacity	6.7 liters (7.08 quarts)
Emission	Compliant with EPA and CARB Final Tier IV regulations

## ENGINE LUBRICATION SYSTEM

Oil Type	API CK4 grade or better Use straight or multi-weight oils appropriate for the ambient temperature (delivered with 10W30 oil)
Oil Change Interval	Consult applicable service manual
Oil Filter	Thermo King Part # 132072

## FUEL SYSTEM

Fuel	Diesel fuel Ultra Low Sulfur (ULSD) CFR 1065.703; max. 15ppm sulfur; ASTM D 975 No 2 diesel.  B1 – B20 with standard maintenance interval
Fuel Cap	Held with 200 lb. tension chain.
Fuel Filters	Dual fuel filtration system Primary filter including integrated water separator fuel filter Thermo King Part # 119964 Secondary filter including fine media to comply with worldwide fuel charter ThermoKing Part #119967
Fuel Tank	50 gallon STANDARD fuel tank. 80 gallon OPTIONAL fuel tank
Fuel Tank Mounting	Side-mounted, integral to Genset chassis and fork pockets.
Anti-Siphon	Rated at 30GPM
Fuel Tank Drainage	Supplied with a drain plug in the bottom of the tank for purging contaminants

# Product specifications

## GENERATOR

Type	Synchronous type generator consisting of a 4-pole alternator wound field design with brushless exciter
Maximum Temperature Rise	105°C in accordance with NEMA Standard MG 1-22.40
Varnish Treatment – Generator Stator & Exciter Stator	Double Vacuum Pressure Impregnated with polyester resin, top coated with EG43 grey varnish. Exposed windings brushed with black poly-butylene
Rear Bearing	Single bearing, 6307 Double contact sealed, including a medium fill of Mobil 28 grease
Insulation	Class H per NEMA Standard MG-1-1.65
Method of Cooling	Drive disc radial fan
Varnish Treatment - Rotor	Double Vacuum Pressure Impregnated with polyester resin, top coated with EG43 grey varnish
Engine Flywheel Housing	Cast steel housing. Cast surfaces are machined for the mounting bolts
<b>Nominal Generator Rating</b>	
Output Power	15kW/18.75 kVA at 60Hz ISO
Power Factor	0.8
RPM	1800
Voltage	460 VAC
Phases	3
Frequency	60 Hz

## HOSES

Intake Air Hose	High temperature structural EPDM
Coolant Hoses	High temperature structural EPDM

## ELECTRICAL POWER RECEPTACLE

Type	IEC 60309
Current Limit	32 Amps
Voltage	3ph 460V
Protection	Spring loaded protection cover

## DOC

Type	Diesel Oxidation Catalyst Exhaust System
Max Exhaust gas flow	80CFM at 1800rpm
Muffler	Catalyst acting as muffler, stainless steel #304

## RADIATOR

Protection	E-coat coating for corrosion resistance or equivalent
Structure	Round fin tube
Core Surface Area	0,206m <sup>2</sup> (2.22ft <sup>2</sup> )
Core Dimensions	580.4 mm x 355.6 mm x 66 mm 22.85 in x 14 in x 2.598 in
Tube Material	Copper
Fin Material	Aluminum
Configuration	Counter flow
Coolant	COOLANT-EXTENDED LIFE

## BATTERY

Type	Maintenance free 12 VDC
Recharging	Solid-state battery charging 26A output integrated into SG+ controller
Cold Cranking Amps	925A at -18°C (0°F)
Terminal Posts	Post terminals and standard battery cable connections are provided
Dimensions	330 x 173 x 238 mm (13 x 6.8 x 9.4 in)

# Product specifications

## SG+ MICROPROCESSOR CONTROLLER

The SG+ Microprocessor Controller is a one-piece self-contained microprocessor for diesel generator sets. This system automatically controls the generator set operation by providing:

- CAN bus communication
- Ability to operate at variable speeds for enhanced fuel consumption
- Automatic unit pre-heat and engine start-up during initial start-up or unattended restart
- Variable glow plug preheat time
- Automatic pre-trip capability
- Provides unit shutdown protection due to high engine coolant temperature, low engine oil pressure, low engine oil level, fuel relay feedback failure or 230/460V alternator overload
- Automatic unit restart attempt 20 minutes after:
  - High engine water temperature
  - Engine failure to start
  - Check fuel alarm
  - 230/460V alternator overload
  - Fuel relay feedback failure
  - Low engine oil pressure
- Exterior Deutsch downloading port with protective cap provided
- Delayed alternator excitation for 2 minutes
- Internal self-checking and diagnostic capability
- Hour meter
- Multi language menu capability

## SG+ CONTROLLER INTERFACE

The SG+ controller interface contains the following features and components:

### A. LCD Digital Display

### B. Alarm LED

### C. Power LED

### D. Six keypad keys

1. "Escape" use escape to move back to previous selection, or exit from current menu
2. "Up" use to scroll up through the menu display, or increase the value of a setting
3. "Down" use to scroll down through the menu display, or decrease the value of a setting
4. "Enter" use to enter or execute controller menu tasks or commands
5. "Alarm" use to go directly to the alarm list menu and view the alarm information in the display
6. "Language" use to change the display language. English and Spanish are currently available

### E. Unit On/Off switch

### F. Download port

### G. Flash Drive USB port

## SG+ CONTROLLER INPUTS/OUTPUTS/MENUS

### Data Inputs/Outputs

ENGINE	WATER TEMP.	Water temperature
	LOAD	Engine load at current speed
	RPM	Current engine RPM
	RPM REQUESTED	Requested engine RPM
	FUEL RATE	Current fuel consumption
	IGNITION RELAY	Ignition signal to ECU
	RUN RELAY	Run signal to ECU
ENGINE LAMPS	AMBER LAMP	On for defects that may lead to speed limitation mode (1500 RPM only)
	STOP LAMP	On for defects that may lead to engine stop
	WAIT TO START	On when air heater is on, so don't start the engine
GENERATOR	VOLTAGE MEAS	Current output voltage
	RUNNING FREQ	Current output frequency (50Hz / 60Hz)
	QUARD CLOSED	On when generator controller (DSR) is turned on
	BAT. VOLTAGE	Main battery voltage
	BAT. CHARGER	Main battery charger enabled or disabled
UNIT	FUEL LEV. MEAN	Fuel level average
	LOW COOLANT LEVEL	Coolant level switch
	FUEL PUMP	Fuel pump on or off

### Display Menus

1. Data Menu
  - Engine
  - Engine lamps
  - Generator
  - Unit
  - Engine states
2. Alarm list Menu
3. Message list Menu
4. Commands Menu
  - PTI
  - Manual function test
  - Speed control
  - ECU Service Menu
  - Oil priming
  - Fuel priming
  - Clear P-Codes
5. Misc. Functions Menu
6. Configuration Menu
7. Event log Menu

# Product specifications

## SG+ ALARMS/MESSAGES/OPERATING INSTRUCTIONS

<b>Alarms/Messages/Operating instructions</b>
See Thermo King SG5000 Maintenance Manual

## INSTALLATION DIAGRAM

<b>Installation diagram</b>
See INSTALLATION/OUTLINE SGCM 5000, ref: 3E78406

## EXTRA OPTIONS

80 gallon fuel tank
Center mount arms
Customer nameplates



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