



THERMO KING

SGCO-5000™

Clip-On Two Speed Generator Set

With SG+ Controller

TRANE
TECHNOLOGIES

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Product specifications

GENERAL DESCRIPTION

MANUFACTURER	THERMO KING CORPORATION
Construction	<ol style="list-style-type: none"> The generator set is designed for mounting to the upper front structure of an ISO container The design incorporates a quick connection to the upper container corner castings and/or steel pin-mounting clamps for mounting to container top Additional attaching points on the container vertical structural members provide a secure mounting arrangement These lower mounting bolts are retained by a steel plate, stainless steel hinge, and positive ¼ turn latch A bolt storage tube is welded to the frame to secure the bolt between trips. The rotor washer clip to prevent spinning off during normal use positively retains the lower mounting bolt/plate washer assembly. Provision tube for mounting bolt when not in use The Genset envelope considered the need to access the refrigeration unit control box while mounted on all common refrigeration units from Thermo King, Carrier, StarCool, Daikin, Klinge for either standard or high-cube containers Genset components (filters, hoses, wire harness, etc.) are installed and securely fastened to ensure dependable, long-term operation and ease of serviceability All wires, hoses, tubes etc. are fastened properly to protect integrity and prevent wire chafing Ring terminals or crimps / set screws are used on all high voltage connections
Structural Design	<ol style="list-style-type: none"> The Genset is designed to withstand & operate satisfactorily in over-the-road trucking, railway operations & aboard ships The Genset is rated to withstand all shock and vibrations experienced over the life of the Genset
Structural Frame	<ol style="list-style-type: none"> Structural steel frame is cleaned through a 3-stage solvent pretreatment and a 4-stage chemical pretreatment with a multi-metal iron phosphate passivation, and coated with black polyester TGIC powder (2.5 – 4.0) mils All steel is commercial quality hot or cold rolled
Panels and Doors	<ol style="list-style-type: none"> Panels and doors are chemically cleaned through a 3-stage solvent pretreatment and a 4-stage chemical pretreatment with a multi-metal iron phosphate passivation, and coated with black polyester TGIC powder (2.5 – 4.0) mils Door material: aluminum, 0.100" (2.5mm) thick Panel material: aluminum, 0.063" (1.60 mm) thick
Hardware	<ol style="list-style-type: none"> All hardware (screws, washers, nuts & clamps) are stainless steel for maximum protection from salt-water corrosion This excludes hardware supplied by original equipment manufacturer suppliers
Nameplate Instructions	English and Spanish language operating instructions
Ambient Temperature Range	Structure: -40°C to 50°C (-40°F to 122°F) 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 as per ISO1496
Sound Pressure Level	70 dBA. 3 point average at 1m 45 degrees from the exhaust

Product specifications

GENERAL DESCRIPTION

MANUFACTURER	THERMO KING CORPORATION
CARB Compliance	<p>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, Article 8) published on 16th October 2012 by the California Air Resource Board (CARB)</p> <p>2. CARB certification issued under Executive Order U-R-028-0900† (for 2020 model year engines)</p> <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	<p>Width: 2321 mm (91.3 in)</p> <p>Height: 1181 mm (46.5 in)</p> <p>Depth: 763 mm (30 in)</p>
Weight	<p>871kg (1,920 lbs) – Total Weight with 125 gallon tank, including Genset oil, coolant and battery</p> <p>1,306kg (2,880 lbs) – Total Weight with 125 gallon tank filled with fuel, including Genset oil, coolant and battery</p>

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	125 gallon STANDARD fuel tank
Fuel Tank Mounting	Bottom-integrated, 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
Nominal Generator Rating	
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 ² (2.22ft ²)
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 2030732
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

Alarms/Messages/Operating instructions
See Thermo King SG5000 Maintenance Manual

INSTALLATION DIAGRAM

Installation diagram
See INSTALLATION/OUTLINE SGC05000 DUAL MOUNT, ref: 3E74360

EXTRA OPTIONS

SGCO 5000 PIN MOUNT OPTION
SGCO 5000 CLAMP MOUNT OPTION
SGCO 5000 DUAL MOUNT OPTION
Customer nameplates
Ultrasonic fuel sensor



europe.thermoking.com

Trane Technologies Alma Court Building - Lenneke Marelaan 6, B-1932 Sint-Stevens-Woluwe, Belgium.

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