

### 60Hz POWER RATINGS kW (kVA)



VOLTAGE VAC	120/240V	120/208V	139/240V	277/480V	347/600V**
RATING	Standby	Standby	Standby	Standby	Standby
PHASE	1	3	3	3	3
PF	1.0	0.8	0.8	0.8	0.8
HZ	60	60	60	60	60
KW	20	20	20	20	20
KVA	20	25	25	25	25
AMPS	83	69	60	30	24
SKVA @ 30% VOLTAGE DIP	N/A	N/A	N/A	N/A	N/A
MLCB (AMPS)	90	70	70	35	25

\*\* 600 Volt configuration not available as UL2200 certified generator set.

## Overview of the SafeGuard series of Industrial Generator Sets

Simmax generators are factory-built in facilities that utilize the latest technology in sheet metal fabrication, mechanical and electrical component assembly, production and testing. Each model is the result of computer aided design and modeling backed up by exhaustive prototype-testing. Our development technology results in a unique range of innovative designs for highly reliable generator sets backed-up by a limited warranty covering all components.

### Standard Configuration of Industrial Sets

**YANMAR Diesel Engine:** Long-life, heavy-duty, 4-cycle, direct injection engine for economy of operation and maximum reliability and durability. Capable of full rated load acceptance in one step.

- Cooling. Radiator with belt driven pusher fan.
- Filtration. Heavy duty replaceable element air-cleaner
- Alternator. Single bearing, 4-pole, rotating field, self-excited, self-ventilated, 12-wire re-connectable, 60Hz brushless alternator with Class H insulation. Automatic voltage regulator (AVR) providing close voltage regulation and skVA starting capability for electric motor loads.
- Certification: ISO 8528-5.
- Exhaust: Low noise, steel residential-type exhaust silencer.
- Fuel Filtration: Standard and secondary water separator with visible level on fuel filters.

- Enclosure: Fabricated in 11-gauge steel, powder coated with finish that exceeds 1000-hr salt spray test, minimum outside fasteners and four points lift. Vertical air discharge for quiet operation. Wide steel lockable access doors with seals, easy access for maintenance and service activities, lift off stainless steel hinges, corrosion resistant hardware and fasteners.
- Controls: Digital control panel with manual and automatic start and stop features. Many programmable automatic functions for local and remote controls with LED lights, tamper proof engine hour recorder. Load Connections: Covered distribution panel for easy access to cable power outlets, receptacles, lugs and Camlocks.

### ENGINE SPECIFICATION

Manufacturer	YANMAR
Model	4TNV84T BGGEH
EPA certified	Tier 4 i
Crankshaft speed	1,800 rpm
Type	Diesel, 4-stroke
Injection	Direct
Aspiration	Natural
Number of Cylinders	4
Cylinder arrangement	In-line
Displacement CID (liters)	121.7 (1.995)
Bore and Stroke ins (mm)	3.3 X 3.54 (84 X 90)
Nominal power	35.9 hp
Cooling	Liquid
Governor	Electronic
Governor Regulation Class	ISO 8528 Part 1 Class G3
Frequency Regulation	Isochronous
Starting motor & alternator	12 volt
Compression ratio	19.0:1
Air cleaner type	Dry - light duty, single stage
Exhaust gas flow cu. ft./minute (cu.m. /minute)	265.5 (7.52)
Max. Exhaust temp at full load degrees °F (°C)	1040 (560)
Max. permissible back pressure - ins H2O (kPA )	47.24 (11.75)

### COOLING SYSTEM

Engine cooling air flow - cu. ft./min (cu. m/min)	34.8 (1.0)
Alternator cooling flow - cu. ft./min (cu. m/min)	4.18 (0.122)
Total cooling air flow (engine + alternator + combustion) - cu. ft./min (cu. m/min)	41.86 (1.203)
Total cooling capacity - US gallons (liters)	1.5 (5.8)
Max. Operating Temperature °F (°C)	131 (55)

### LUBRICATION SYSTEM

Oil pan capacity - US gallons (liters)	1.9 (7.2)
Oil pan capacity with filter - US gallons (liters)	1.95 (7.4)
Oil cooler	Water - cooled
Recommended lubricating oil grade	SAE 10W30 - API (CF, CF-4, CI-4) - refer to owners manual
Oil consumption at full load	0.14% of fuel
Oil pressure - psi (kPA)	49.74 (342.9)

### ENGINE ELECTRICAL SYSTEM

Starting motor voltage	12 volt
Cold Cranking Amps - minimum	66 Amp
Battery charging Alternator	
Battery capacity	740 Amps

FUEL SYSTEM	
Recommended fuel	# 2 - ULSD
Fuel supply line, min. ID mm(in.)	0.19 ( 9 )
Fuel return line, min. ID, mm (in.)	0.19 ( 9 )
Max. lift, fuel pump, type, m (ft)	1.85 ( 6 )
Fuel filter	Replaceable Element
FUEL CONSUMPTION	Standby Power Rating
100% load – US gallons/hour	1.97
75% load - US gallons/hour	1.47
50% load - US gallons/hour	1.02
25% load - US gallons/hour (liters)	0.83
ALTERNATOR SPECIFICATION	
Manufacturer	STAMFORD
Model	S0L2-M1 - PI144D(600V)
Voltages	120/208V - 277/480 - 120/240V - 347/600V
Alternator Type	Four pole, rotating field
Excitation System	Brushless
Power factor	0.8 / 1.0
Number of leads	12 leads, reconnectable (Three phase version)
Stator Pitch	2/3
Insulation	Class H
Windings – Temperature Rise	125/40° C
Enclosure (IEC-34-S)	IP23
Bearing	Single, sealed
Coupling	Flexible disc
Amortisseur windings	Full
Voltage regulation – no load to full load with AS480 AVR	± 1%
TIF	<50
Radio Frequency Emissions compliance	Meets requirements of most industrial and commercial applications
Line harmonics	5% maximum
STANDARD ACCESSORIES	
<ul style="list-style-type: none"> <li>Radiator with pusher fan</li> <li>Control Panel CEM7 (See over for details)</li> </ul>	<ul style="list-style-type: none"> <li>Main line ABB UL listed circuit breaker for overload protection</li> <li>Heated Control Panel</li> </ul>

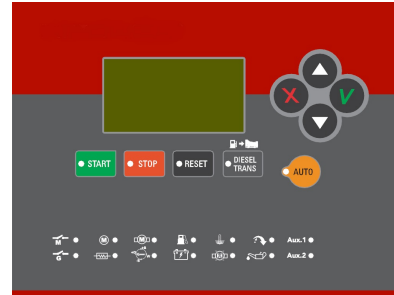
OPTIONAL ACCESSORIES	
<ul style="list-style-type: none"> <li>Battery with Cables</li> <li>Battery Blanket</li> <li>6 Amp Battery charger, 12VDC</li> <li>Fuel Tank raiser</li> </ul>	<ul style="list-style-type: none"> <li>Anti-Condensation Heater</li> <li>Water Jacket heater</li> <li>24h - ULC142 fuel tank</li> </ul>

### CONTROL SYSTEMS STANDARD FEATURES - Generator Digital Control Panel

Control Panel: Digital controller with auto and manual start capability.

Digital readout for: volts between each phase & neutral, volts between phases, amps per phase, frequency, kW and kVA power, power factor, KW hour with accumulation by day, month and year, fuel reserve, oil pressure, coolant temperature, battery volts and charging alternator volts, engine speed, hours running. Engine alarms for high coolant temperature, low oil pressure, emergency stop activated, battery charging failure, low coolant level, low fuel level, over-speed, under-speed and low battery volts.

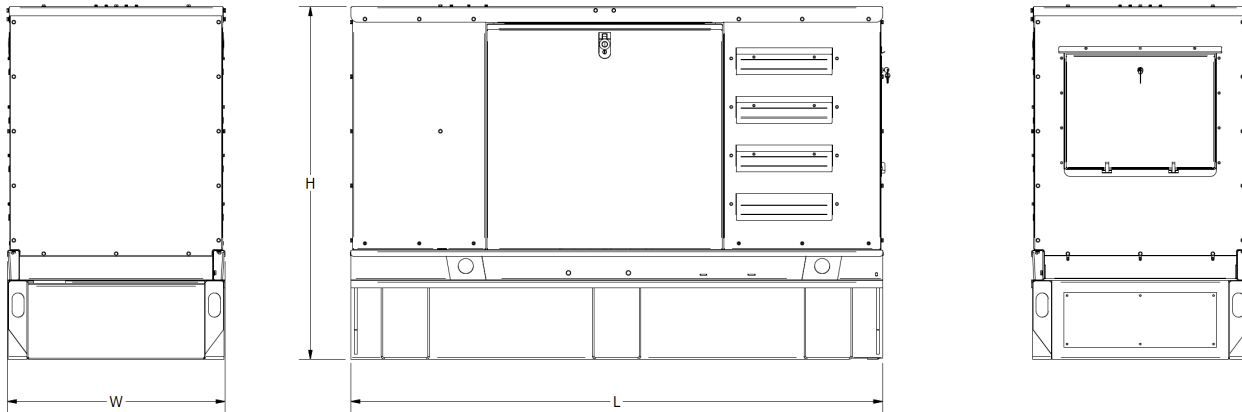
Engine alarms included: High coolant temperature, low oil pressure, low coolant level, unexpected shutdown, low fuel level, stop failure, low battery voltage, battery charging alternator failure, over-speed, under-speed, start failure and emergency stop. Support of engines with ECU (J1939, Modbus and other proprietary interfaces); alarm codes displayed in text form.



Alternator alarms included: Overload, unbalanced voltage, over voltage, under voltage, over frequency, under frequency, short circuit and reverse power.

### DIMENSIONS, WEIGHTS & SOUND LEVELS

#### ENCLOSED SET



CONFIGURATION	Fuel Tank Data (Standard)		Generator Data *				
	Run Time Hours	Capacity (Gals)	L = Length	W = Width	H = Height	Weight lbs	dBA
Enclosed Set	24*	50*	78"	30"	37" - (49"*)	1510 - (2110*)	66

\* Optional 24h ULC142 fuel tank

