

## LIQUID COOLED NAT. GAS ENGINE GENERATOR SET

**PRIME Model** 105°C RISE HΖ NATURAL GAS PR-1000-60 HERTZ 100 60



All generator sets are USA prototype built and thoroughly tested. Production models are USA factory built and 100% load tested.



UL1446, UL508, UL142, UL498



NFPA 110, 99, 70, 37

All generator sets meet NFPA-110 Level 1, when equipped with the necessary accessories and installed per NFPA standards.



NEC 700, 701, 702, 708



NEMA ICS10, MG1, ICS6, AB1



ANSI C62.41, 27, 59, 32, 480, 40Q, 81U, 360-05



All generator sets meet 180 MPH rating.

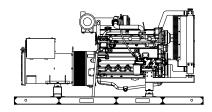


**EPA 40CFR Part 60, 1048, 1065, 1068** 

PRIME MODEL

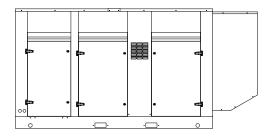
PR-1000

60 HERTZ



#### "OPEN" GEN-SET

There is no enclosure, so gen-set must be placed within a weather protected area, un-inhabited by humans or animals, with proper ventilation. Silencer not supplied, as installation requirements are not known. However, this item is available as optional equipment.



#### "LEVEL 2" HOUSED GEN-SET

Full aluminum weather protection and superior sound attenuation for specific low noise applications. Critical grade muffler is standard.

GENERATOR RATINGS			NATURAL GAS FUEL		POWER LEAD CONNECTIONS		
GENERATOR MODEL VOLTAGE PH HZ		105°C RISE PRIME RATING					
	L-N	L-L			KW/KVA	AMP	
PR-1000-1-1	120	240	1	60	100/100	417	4 LEAD DEDICATED 1 PH.
PR-1000-3-2	120	208	3	60	100/125	347	12 LEAD LOW WYE
PR-1000-3-3	120	240	3	60	100/125	301	12 LEAD HIGH DELTA
PR-1000-3-4	277	480	3	60	100/125	151	12 LEAD HIGH WYE
PR-1000-3-5	127	220	3	60	100/125	328	12 LEAD LOW WYE
PR-1000-3-16	346	600	3	60	100/125	120	4 LEAD DEDICATED 3 PH.

RATINGS: All single phase gen-sets are dedicated 4 lead windings, rated at unity (1.0) power factor. All three phase gen-sets are 12 lead windings, rated at (.8) power factor. 105°C "PRIME RATINGS" are strictly for gen-sets provide the prime source of electric power, where normal utility power is unavailable or unreliable. A 10% overload is allowed for a total of 1 hour, within every 12 hours of operation of PRIME RATED systems. All gen-set power ratings are based on temperature rise measured by resistance method as defined by MIL-STD 705C and IEEE STD 115, METHOD 6.4.4. All generators have class H (180°C) insulation system on both rotor and stator windings. All factory tests and KW/KVA charts shown above are based on 105°C (prime) R/R winding temperature, within a maximum 40°C ambient condition. Specifications & ratings are subject to change without prior notice.

# APPLICATION AND ENGINEERING DATA FOR MODEL PR-1000-60 HZ

## **GENERATOR SPECIFICATIONS**

ManufacturerStamford Electric Generators
Model & Type UCI274E-06, 4 Pole, 4 Lead, Single Phase
UCI274E-17, 4 Pole, 12 Lead, 600V, Three Phase
Exciter Brushless, shunt excited
Voltage RegulatorSolid State, HZ/Volts
Voltage Regulation
FrequencyField convertible, 60 HZ to 50 HZ
Frequency Regulation
Unbalanced Load Capability100% of prime amps
Total Stator and Load InsulationClass H, 180°C
Temperature Rise105°C R/R, prime rating @ 40°C amb.
1 Ø Motor Starting @ 30% Voltage Dip (240V)450 kVA
3 Ø Motor Starting @ 30% Voltage Dip (208-240V)450 kVA
3 Ø Motor Starting @ 30% Voltage Dip (480V)580 kVA
Bearing
CouplingDirect flexible disc
Total Harmonic Distortion
Telephone Interference Factor Max 50 (NEMA MG1-22)
Deviation Factor Max 5% (MIL-STD 405B)
Ltd. Warranty Period24 Months from date of start-up or

#### **GENERATOR FEATURES**

- World Renown Stamford Electric Generator having UL-1446 certification.
- Full generator protection with Deep Sea 7420 controller, having UL-508 certification.
- Automatic voltage regulator with over-excitation, underfrequency compensation, under-speed protection, and EMI filtering. Entire solid-state board is encapsulated for moisture protection.
- Generator power ratings are based on temperature rise, measured by resistance method, as defined in MIL-STD 705C and IEEE STD 115, Method 6.4.4.
- Power ratings will not exceed temperature rise limitation for class H insulation as per NEMA MG1-22.40.
- Insulation resistance to ground, exceeds 1.5 meg-ohm.
- Stator receives 2000 V. hi-potential test on main windings, and rotor windings receive a 1500 V. hi-potential test, as per MIL-STD 705B.
- Full amortisseur windings with UL-1446 certification.
- Complete engine-generator torsional acceptance, confirmed during initial prototype testing.
- Full load testing on all engine-generator sets, before shipping.
- Self ventilating and drip-proof & revolving field design

# ENGINE SPECIFICATIONS AND APPLICATIONS DATA

#### **ENGINE**

ManufacturerPower Solutions Inc. (PSI)
Model and TypeHeavy Duty 8.1LTCAC, 4 cycle
AspirationTurbocharged & Charge Air Cooled
Cylinder Arrangement
Displacement Cu. In. (Liters)492 (8.1)
Bore & Stroke In. (Cm.)4.37 x 5.9 (11.1 x 13.9)
Compression Ratio
Main Bearings & Style
Cylinder HeadCast Iron
Pistons
Crankshaft Forged Steel
Exhaust ValveInconel, A193
Governor Electronic
Frequency Reg. (no load-full load)Isochronous
Frequency Reg. (steady state)± 1/4%
Air Cleaner
Engine Speed
Piston Speed, ft/min (m./min)1641 (500)
Max Power, bhp (kwm) Prime/NG199 (149)
Ltd. Warranty Period12 Months or 2000 hrs., first to occur

# FUEL SYSTEM

Type	NAT. GAS, Vapor Withdrawal
Fuel Pressure (kpa), in. H <sub>2</sub> O	(1.74), 7"
Secondary Fuel Regulator	NG Vapor System
Auto Fuel Lock-Off Solenoid	Standard on all sets
Fuel Supply Inlet Line	2" NPTF

## FUEL CONSUMPTION

NAT. GAS: FT <sup>3</sup> /HR (M <sup>3</sup> /HR)	PRIME	
100% LOAD	1330 (37.6)	
75% LOAD	1030 (29.1)	
50% LOAD	730 (20.6)	
NG = 1000 BTU X FT <sup>3</sup> /HR = Total BTU/HR		

#### **OIL SYSTEM**

Type	Full Pressure
Oil Pan Capacity qt. (L)	
Oil Pan Cap. W/ filter qt. (L)	
Oil Filter	

#### ELECTRICAL SYSTEM

Ignition System ...... Electronic Eng. Alternator/Starter: 24 VDC, negative ground, 45 amp/hr.

Recommended battery to -18°C (0° F): ....(2) 12 VDC, BCI# 27, Max. Dimensions: 12"lg x 6 3/4" wi x 9" hi, with standard round posts. Min output 700 CCA. Battery tray (max. dim. at 12"lg x 7"wi). This model has (2) battery trays, (2) hold down straps, (2) sets of battery cables, and (1) battery charger. Installation of (2) 12VDC starting batteries connected in series for 24VDC output is required, with possible higher AMP/HR rating, as described above, if the normal environment temperature averages -13° F (-25°C) or cooler.

# APPLICATION AND ENGINEERING DATA FOR MODEL PR-1000-60 HZ

## **COOLING SYSTEM**

Type of SystemPressurized, clos	sed recovery
Coolant PumpPre-lubricated,	, self-sealing
Cooling Fan Type (no. of blades)	. Pusher (12)
Fan Diameter inches (mm)	38" (965)
Ambient Capacity of Radiator °F (°C)	125 (51.6)
Engine Jacket Coolant Capacity Gal (L)	5.5 (21.0)
Radiator Coolant Capacity Gal. (L)	30.6 (116)
Maximum Restriction of Cooling Air Intake	
and discharge side of radiator in. H <sub>2</sub> 0 (kpa)	0.5 (.125)
Water Pump Capacity gpm (L/min)	75 (284)
Heat Reject Coolant: Btu/min (kw)	8100 (142)
Low Radiator Coolant Level Shutdown	Standard
Note: Coolant temp. shut-down switch setting at 230°F (110°C) w (water/antifreeze) mix.	rith 50/50

## **AIR REQUIREMENTS**

Combustion Air, cfm (m <sup>3</sup> /min)	448 (12.7)
Radiator Air Flow cfm (m³/min)	18,000 (510)
Heat Rejected to Ambient:	
Engine: kw (btu/min)	60.3 (3430)
Alternator: kw (btu/min)	16 (910)

#### **EXHAUST SYSTEM**

EIIIII COI SIGIEII	
Exhaust Outlet Size	5"
Max. Back Pressure, in. hg (KPA)	3.0 (10.2)
Exhaust Flow, at rated kw: cfm (m³/min)	1425 (40.3)
Exhaust Temp., at rated kw: °F (°C)	1382 (750)
Engines are EPA certified for Natural Gas.	

#### SOUND LEVELS MEASURED IN dB(A)

	Open	Level 2
	Set	Encl.
Level 2, Critical Silencer	90	75

Note: Open sets (no enclosure) has (2) optional silencer system choices due to unknown job-site applications. Level 2 enclosure has installed critical silencer with upgrade to hospital silencer. Sound tests are averaged from several test points and taken at 23 ft. (7 m) from source of noise at normal operation.

## DERATE GENERATOR FOR ALTITUDE

3% per 1000 ft.(305m) above 3000 ft. (914m) from sea level

#### DERATE GENERATOR FOR TEMPERATURE

2% per 10°F(5.6°C) above 85°F (29.4°C)

#### **DIMENSIONS AND WEIGHTS**

	Open	Level 2
_	Set	Enclosure
Length in (cm)	132 (335)	174 (442)
Width in (cm)	52 (132)	52 (132)
Height in (cm)	65 (165)	80 (203)
1 Ø Net Weight lbs (kg)	5300 (2404)	6570 (2980)
1 Ø Ship Weight lbs (kg).	5575 (2529)	6915 (3137)
3 Ø Net Weight lbs (kg)	5175 (2347)	6445 (2923)
3 Ø Ship Weight lbs (kg).	5450 (2472)	6790 (3080)

# DEEP SEA 7420 DIGITAL MICROPROCESSOR CONTROLLER



#### Deep Sea 7420

The "7420" controller is an auto start mains (utility) failure module for single gen-set applications. This controller includes a backlit LCD display which continuously displays the status of the engine and generator at all times.

The "7420" controller will also monitor speed, frequency, voltage, current, oil pressure, coolant temp., and fuel levels. These modules have been designed to display warning and shut down status. It also includes: (11) configurable inputs • (8) configurable outputs • voltage monitoring • mains (utility) failure detection • (250) event logs • configurable timers • automatic shutdown or warning during fault detection • remote start (on load) • engine preheat • advanced metering capability • hour meter • text LCD displays • protected solid state outputs • test buttons for: stop/reset • manual mode • auto mode • lamp test • start button • power monitoring (kWh, kVAr, kVAh, kVArh)

This controller includes expansion features including RS232, RS484 (using MODBUS-RTU/TCP), direct USB connection with PC, expansion optioned using DSENet for remote annunciation and remote relay interfacing for a distance of up to 3300FT. The controller software is freely downloadable from the internet and allows monitoring with direct USB cable, LAN, or by internet via the built in web interface.



Further expansion is available by adding the optional "WebNet" gateway interface module. This device will allow comprehensive monitoring of the generator via the cloud including identification, location, and status. Some advantages of this module include: reduced site visits and maintenance costs • remote fuel management • fault analysis • asset tracking • automatic system alerts • maximized system up-time.

# STANDARD FEATURES FOR MODEL PR-1000-60 HZ

## **STANDARD FEATURES**

#### **CONTROL PANEL:**

Deep sea 7420 digital microprocessor with logic allows programming in the field. Controller has:

- STOP-MANUAL-AUTO modes and automatic engine shutdowns, signaled by full text LCD indicators:
- Low oil pressure
- Engine fail to start
- High engine temp
- Engine over speed
- Low Radiator Level
- Engine under speed
- Three auxiliary alarms
- Over & under voltage
- Battery fail alarm

Also included is tamper-proof engine hour meter

#### **ENGINE:**

Full flow oil filter • Air filter • Oil pump • Solenoid type starter motor • Hi-temp radiator • Jacket water pump

- Thermostat Pusher fan and guard Exhaust manifold
- 24 VDC battery charging alternator Flexible exhaust connector "Isochronous" duty, electronic governor Secondary dry fuel regulator Dry fuel lock-off solenoid Vibration isolators Closed coolant recovery system with 50/50 water to anti-freeze mixture flexible oil & radiator drain hose.

Design & specifications subject to change without prior notice. Dimensions shown are approximate. Contact Gillette for certified drawings. DO NOT USE DIMENSIONS FOR INSTALLATION PURPOSES.

#### **AC GENERATOR SYSTEM:**

AC generator • Shunt excited • Brushless design • Circuit Breaker installed and wired to gen-set • Direct connection to engine with flex disc • Class H, 180°C insulation • Self ventilated • Drip proof construction • UL Certified

#### **VOLTAGE REGULATOR:**

1/2% Voltage regulation • EMI filter • Under-speed protection • Over-excitation protection • total encapsulation

#### DC ELECTRICAL SYSTEM:

Battery tray • Battery cables • Battery hold down straps • 2-stage battery float charger with maintaining & recharging automatic charge stages

# WEATHER/SOUND PROOF ALUMINUM HOUSING CORROSION RESISTANT PROTECTION CONSISTING OF:

- 9 Heated And Agitated Wash Stages
- Zinc Phosphate Etching-coating Stage
- Final Baked On Enamel Powder Coat
- 18/8 Stainless Steel Hardware

