

MODULE DATA SHEET



powered exclusively by 

BENEFITS

Caterpillar Engine

- proven reliable and durable for long life
- worldwide product support
- multiple fuel options including natural gas, biogas and LPG

Marathon Generator

- single-bearing, PMG excited, DVR controlled

Compliance

- meets or exceeds industry standards including UL, Rule 21, IEEE and SCAQMD

Utility Interconnection

- integrated, fault protection switchgear for simplified interconnection
- stored energy breaker for quick transition

GenView™ Control System

- Internet based remote system monitoring
- onboard data capture, storage, and communication capable of 24/7 narrowband and wireless connection
- trend analysis to anticipate wear
- early alerts to system problems to minimize downtime

Exhaust Emissions

- NSCR system with A/F Ratio Control
- complies with SCAQMD Rule 1110.2

Integrated Design

- primary containment protects the environment from fluid leaks
- removable door and roof panels for maximum serviceability
- rain-tight construction provides protection from weather
- sound attenuated cabinet and air ducts for noise reduction
- integrated battery charger for reliable operation

100 kWe Cogeneration Module

Caterpillar® SI Engine
Marathon Synchronous Generator

E3NV designs, develops and manufactures cogeneration modules unmatched in reliability and cost-effectiveness.

EQUIPMENT

In addition to the standard module features and equipment (see module configuration document), the following equipment is specific to this module only:

Engine

G3306NA manufactured by Caterpillar
in-line 6 cylinder, 4-stroke cycle, naturally aspirated
121 mm bore x 152 mm stroke, 10.5 liters displacement
10.3:1 compression ratio

Generator

Marathon model 431RSL4005 - 12 lead reconnectable synchronous
Class B insulation – thermal protection each phase

Air Intake System

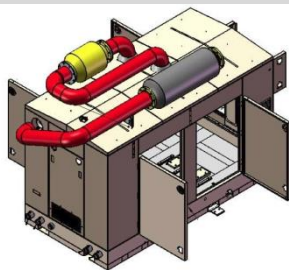
outside combustion air ducted to a standard Caterpillar two-stage air cleaner
inlet temperature up to 110°F (43°C) before derate

Complete System Heat Recovery

stainless steel, brazed plate engine jacket water loop isolation heat exchanger
stainless steel, water jacketed, exhaust heat exchanger

TECHNICAL DATA

Frequency	Hz		60 ^(a)	
Continuous Electric Output @ 1.0 pf	kWe		100	
Mechanical Power	bhp	kWb	145	108
RPM			1,800	
Heat Rate	Btu/kWe-hr	MJ/kWe-hr ^(b)	11,260	11.8
Combined Efficiency	%		84.4	
electrical efficiency	%		30.3	
thermal efficiency	%		54.1	
Fuel Consumption @ 905 Btu/scf – LHV	scfh	nm³/h	1,244	35.2
Fuel Consumption	therms per hour	kW	11.3	330
Total Thermal Energy Output	Btu/hour	kW	609,670	179
heat from water jacket	Btu/hour	kW	428,280	125
heat from exhaust	Btu/hour	kW	181,390	53
cooling (absorption chilling) ^(c)	tons	kW	36 - 40	125 - 140
engine out exhaust temperature	°F	°C	1,101	594
module out exhaust temperature	°F	°C	305	152
exhaust flow	lbm/hour	kg/hour	978	444
minimum cogeneration loop water flow	gpm	m³/hour	42	9.5
maximum cogeneration loop water pressure	psig	bar	100	6.8
maximum module out water temperature	°F	°C	207	97
nominal cogeneration return temperature	°F	°C	176	80
Environmental				
NOx	grams/bhp-hour	ppmv@15% O₂	0.15	10
CO	grams/bhp-hour	ppmv@15% O₂	0.6	100
noise	dBA @ meters		< 65 ^(d)	
Generator Electrical Output	3 phase AC voltage		120/208, 120/240, or 277/480	
^(a) 50 Hz values available on request				
^(b) heat rate assumes maximum exhaust back pressure of 2 inches Hg (6.7 kPa)				
^(c) depending on site conditions and application parameters				
^(d) 600 V available on request				

DIMENSIONS

Length	93"	2.36m
Height	74"	1.88m
Width	45"	1.14m
Weight	6,000lb	2,730kg

For more information please contact:

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