MODULE DATA SHEET

E3 NV LLC

powered exclusively by CAT

307 kWe Cogeneration Module

Caterpillar® SI Engine
Marathon Synchronous Generator

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

BENEFITS

Caterpillar Engine
- proven reliable and durable for long life
- worldwide product support
- for operation on low energy fuels

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
- low emissions lean burn Lambda 1.64
- air/fuel ratio control

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

EQUIPMENT

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

Engine
G3412C LE manufactured by Caterpillar
60° V-12 cylinder, 4-stroke cycle,
137 mm bore x 152.4 mm stroke
11.4:1 compression ratio
Generator
Marathon model 433RSS4266 – dedicated voltage synchronous
PMG brushless excitation
Air Intake System
outside combustion air ducted to a standard Caterpillar two-stage air cleaner
turbocharged, aftercooled
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		307	
Mechanical Power	bhp	kWb	425	317
RPM			1,800	
Heat Rate	Btu/kWe-hr	MJ/kWe-hr [b]	9,762	10.3
Combined Efficiency	%		83.4	
electrical efficiency	%		34.9	
thermal efficiency	%		48.5	
Fuel Consumption @ 22.1 MJ/Nm³ – LHV	scfh	Nm³/h	5,049	143
Fuel Consumption	therms per hour	kW	29.9	877
Total Thermal Energy Output	Btu/hour	kW	1,303,380	382
heat from water jacket	Btu/hour	kW	1,033,830	303
heat from exhaust	Btu/hour	kW	269,550	79
cooling (absorption chilling) [c]	tons	kW	89 - 102	
engine out exhaust temperature	°F	°C	682	361
module out exhaust temperature	°F	°C	305	152
exhaust flow	lbm/hour	kg/hour	3,893	1,766
minimum cogeneration loop water flow	gpm	m³/hour	100	22.7
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	mg/Nm³	1.0	445
CO	grams/bhp-hour	mg/Nm³	2.2	979
noise	dBA @ 3 meters		< 65 [d]	
Generator Electrical Output	3 phase AC voltage		600	

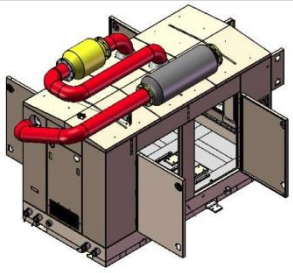
[a] 50 Hz values available on request

[b] heat rate assumes maximum exhaust back pressure of 2 inches Hg (6.7 kPa)

[c] depending on site conditions and application parameters

[d] alternate attenuations available

DIMENSIONS



Length	134”	3.40m
Height	84”	2.13m
Width	67”	1.70m
Weight	12,460lb	5,650kg

For more information please contact:
E3 NV, LLC
1-775-246-8111 main
1-775-246-8116 fax

info@e3nv.com