## **DIESEL GENERATOR SET**





Image shown may not reflect actual package.

# **STANDBY 400 ekW 500 kVA**60 Hz 1800 rpm 480 Volts

Caterpillar is leading the power generation marketplace with Power Solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness.

## **FEATURES**

#### **FUEL/EMISSIONS STRATEGY**

 EPA Certified for Stationary Emergency Application (EPA Tier 3 emissions levels)

#### **DESIGN CRITERIA**

 The generator set accepts 100% rated load in one step per NFPA 110 and meets ISO 8528-5 transient response

# UL 2200 / CSA - Optional

- UL 2200 Listed packages
- CSA Certified

Certain restrictions may apply. Consult with your Cat® Dealer.

#### **FULL RANGE OF ATTACHMENTS**

- Wide range of bolt-on system expansion attachments, factory designed and tested
- Flexible packaging options for easy and cost effective installation

#### SINGLE-SOURCE SUPPLIER

Fully prototype tested with certified torsional vibration analysis available

#### WORLDWIDE PRODUCT SUPPORT

- Cat dealers provide extensive post sale support including maintenance and repair agreements
- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- The Cat S◆O◆S<sup>SM</sup> program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

#### **CAT C15 ATAAC DIESEL ENGINE**

- Utilizes ACERT™ Technology
- Reliable, rugged, durable design
- Field-proven in thousands of applications worldwide
- Four-stroke-cycle diesel engine combines consistent performance and excellent fuel economy with minimum weight
- Electronic controlled governor

#### **CAT GENERATOR**

- Matched to the performance and output characteristics of Cat engines
- UL 1446 Recognized Class H insulation
- CSA Certified

# **CAT EMCP 4 CONTROL PANELS**

- Simple user friendly interface and navigation
- Scalable system to meet a wide range of customer needs
- Integrated Control System and Communications Gateway
- Integrated Voltage Regulation

# **SEISMIC CERTIFICATION**

- Seismic Certification available
- Anchoring details are site specific, and are dependent on many factors such as generator set size, weight, and concrete strength.
- IBC Certification requires that the anchoring system used is reviewed and approved by a Professional Engineer
- Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, IBC 2012, CBC 2007, CBC 2010

LEHE0475-00

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# **FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT**

System	Standard	Optional	
Air Inlet	Disposable air filter	[] Canister type, dual element [] Heavy duty air cleaner	
Cooling	Package mounted radiator		
Exhaust	Exhaust flange outlet	[] Industrial [] Residential / Critical	
Fuel	<ul><li>Primary fuel filter with integral water separator</li><li>Secondary fuel filters</li><li>Fuel priming pump</li></ul>		
Generator	<ul> <li>Matched to the performance and output characteristics of Cat engines</li> <li>IP23 Protection</li> </ul>	[ ] Permanent magnet excitation (PMG) [ ] Anti-condensation space heater [ ] Internal excitation (IE) [ ] Coastal insulation protection	
Power Termination	Power terminal strips	[ ] Circuit breakers – 100% rated assembly, UL Listed [ ] SUSE (Suitable for use as service equipment)	
Control Panels	• EMCP 4.2	[] EMCP 4.3 [] EMCP 4.4 [] Local and remote annuniciator modules [] Remote monitoring software	
Mounting	Rubber vibration isolators		
Starting/Charging	<ul><li>24 volt starting motor &amp; charging alternator</li><li>Batteries</li></ul>	[] Battery chargers [] Oversize batteries [] Jacket water heater	
General	Paint - Caterpillar Yellow except rails and radiators gloss black     Narrow skid base	The following options are based on regional and product configuration:  [] Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, IBC 2012, CBC 2007, CBC 2010  [] UL 2200 Listed package  [] CSA Certified  [] Wide skid base  [] Sound attenuated enclosure  [] Weather protective enclosure  [] Integral dual wall UL Listed 8 hr fuel tank  [] Sub-base dual wall UL Listed 48 hr fuel tank	

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# **SPECIFICATIONS**

STANDARD CAT GENERATOR					
Frame size	LC6114B				
Excitation	Self Excitation				
Pitch	0.6667				
Number of poles	4				
Number of bearings	Single bearing				
Number of leads	12				
Insulation	UL 1446 Recognized Class H with tropicalization and antiabrasion				
IP Rating	IP23				
Alignment	Pilot shaft				
Overspeed capability (%)	125				
Wave form deviation (%)	2				
Voltage regulator	Three phase sensing				
Voltage regulation	+ /- 0.25% (steady state)				
- Consult your Cat dealer for other	er available voltages				
CAT DIESEL ENGINE					
C15 ATAAC, I-6, 4-Stroke Water-cooled Diesel					
Bore	137.20 mm (5.4 in)				
Stroke	171.40 mm (6.75 in)				
Displacement	15.20 L (927.56 in³)				
Compression ratio	16.1:1				
Aspiration	Air-to-air aftercooled				
Fuel system	MEUI				
Governor type	Caterpillar ADEM control system				

#### **CAT EMCP 4 SERIES CONTROLS**

## EMCP 4 controls including:

- Run / Auto / Stop Control
- Speed and Voltage Adjust
- Engine Cycle Crank
- 24-volt DC operation
- Environmental sealed front face
- Text alarm/event descriptions

#### Digital indication for:

- RPM
- DC volts
- Operating hours
- Oil pressure (psi, kPa or bar)
- Coolant temperature
- Volts (L-L & L-N), frequency (Hz)
- Amps (per phase & average)
- ekW, kVA, kVAR, kW-hr, %kW, PF (4.2 only)

#### Warning/shutdown with common LED indication of:

- Low oil pressure
- High coolant temperature
- Overspeed
- Emergency stop
- Failure to start (overcrank)
- Low coolant temperature
- Low coolant level

#### Programmable protective relaying functions:

- Generator phase sequence
- Over/Under voltage (27/59)
- Over/Under Frequency (81 o/u)
- Reverse Power (kW) (32) (4.2 only)
- Reverse reactive power (kVAr) (32RV)
- Overcurrent (50/51)

#### Communications:

- Four digital inputs (4.1)
- Six digital inputs (4.2 only)
- Four relay outputs (Form A)
- Two relay outputs (Form C)
- Two digital outputs
- Customer data link (Modbus RTU) (4.2 only)
- Accessory module data link (4.2 only)
- Serial annunciator module data link (4.2 only)
- Emergency stop pushbutton

#### Compatible with the following:

- Digital I/O module
- Local Annunciator
- Remote CAN annunciator
- Remote serial annunciator

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# **TECHNICAL DATA**

Open Generator Set 1800 rpm/60 Hz/480 Volts		DM8151	
EPA Certified for Stationary Emergency Application (EPA Tier 3 emissions levels)			
Generator Set Package Performance Genset power rating @ 0.8 pf Genset power rating with fan		500 kVA 400 ekW	
Fuel Consumption 100% load with fan 75% load with fan 50% load with fan	120.6 L/hr 97.5 L/hr 72.0 L/hr	31.9 gal/hr 25.8 gal/hr 19.0 gal/hr	
Cooling System¹ Air flow restriction (system) Air flow (max @ rated speed for radiator arrangement) Engine Coolant capacity with radiator/exp. tank Engine coolant capacity Radiator coolant capacity	0.12 kPa 639 m³/min 50.3L 20.8 L 29.5 L	0.48 in. water 22566 cfm 13.3 gal 5.5 gal 7.8 gal	
Inlet Air Combustion air inlet flow rate	38.8 m³/min	1370.2 cfm	
Exhaust System  Exhaust stack gas temperature  Exhaust gas flow rate  Exhaust flange size (internal diameter)  Exhaust system backpressure (maximum allowable)	487.7°C 103.5 m³/min 152.4 mm 10.0 kPa	909.9°F 3655.1 cfm 6.0 in 40.2 in. water	
Heat Rejection  Heat rejection to coolant (total)  Heat rejection to exhaust (total)  Heat rejection to aftercooler  Heat rejection to atmosphere from engine  Heat rejection to atmosphere from generator	165 kW 463 kW 111 kW 81.0 kW 29.2 kW	9384 Btu/min 26331 Btu/min 6312 Btu/min 4606 Btu/min 1660.6 Btu/min	
Alternator <sup>2</sup> Motor starting capability @ 30% voltage dip Frame Temperature rise	880 skVA LC6114B 150°C	270°F	
Lubrication System Sump refill with filter	60.0 L	15.9 gal	
Emissions (Nominal) <sup>3</sup> NOx g/hp-hr CO g/hp-hr HC g/hp-hr PM g/hp-hr	3.49 g/hp-hr 0.35 g/hp-hr 0.04 g/hp-hr 0.034 g/hp-hr		

<sup>&</sup>lt;sup>1</sup> For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

<sup>&</sup>lt;sup>2</sup> Generator temperature rise is based on a 40° C (104° F) ambient per NEMA MG1-32. Some packages may have oversized generators with a different temperature rise and motor starting characteristics.

<sup>&</sup>lt;sup>3</sup> Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77°F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 btu/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

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## RATING DEFINITIONS AND CONDITIONS

## **Applicable Codes and Standards:**

AS1359, CSA C22.2 No100-04, UL142,UL489, UL869, UL2200, NFPA37, NFPA70, NFPA99, NFPA110, IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG1-22,NEMA MG1-33, 72/23/EEC, 98/37/EC, 2004/108/EC.

**Standby** – Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

**Ratings** are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.

**Fuel Rate**s are based on fuel oil of 35° API (16°C or 60°F) gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29°C (85°F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.).

Additional Ratings may be available for specific customer requirements. Consult your Cat representative for details.

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# **DIMENSIONS**

Package Dimensions				
Length	3361 mm	132.3 in		
Width	1502 mm	59.1 in		
Height	2127 mm	83.7 in		

**NOTE**: For reference only – do not use for installation design. Please contact your local dealer for exact weight and dimensions.

Performance No.: DM8151

Feature Code: C15DECD

Gen. Arr. Number: 4183863

Source: U.S. Sourced

LEHE0475 (12/13)

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