



## STANDBY 440 ekW 550 kVA 50 Hz 1500 rpm 400 Volts

Caterpillar is leading the power generation market place with power solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness.

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### FEATURES

#### FUEL/EMISSIONS STRATEGY

- Low Fuel consumption

#### 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 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 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
- Load adjustment module provides engine relief upon load impact and improves load acceptance and recovery time
- UL 1446 Recognized Class H insulation

#### CAT EMCP4 SERIES CONTROL PANELS

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

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## FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
<b>Air Inlet</b>	<ul style="list-style-type: none"> <li>• Disposable Air filter</li> <li>• Service indicator</li> </ul>	Canister type Air Filter: <input type="checkbox"/> Single element <input type="checkbox"/> Dual element
<b>Cooling</b>	<ul style="list-style-type: none"> <li>• Radiator package mounted</li> <li>• Coolant level sight gauge</li> <li>• Low coolant level sensor</li> <li>• Coolant drain line with valve</li> <li>• Fan and belt guards</li> <li>• Cat® Extended Life Coolant</li> </ul>	<input type="checkbox"/> Radiator duct flange <input type="checkbox"/> Stone Guard <input type="checkbox"/> Low coolant temperature alarm
<b>Exhaust</b>	<ul style="list-style-type: none"> <li>• Dry exhaust manifold</li> <li>• Stainless steel flex fittings</li> <li>• Exhaust flange outlet</li> </ul>	<input type="checkbox"/> Industrial <input type="checkbox"/> Residential <input type="checkbox"/> Critical Mufflers <input type="checkbox"/> Manifold and turbocharger guards <input type="checkbox"/> Elbows and flange kits
<b>Fuel</b>	<ul style="list-style-type: none"> <li>• Integral narrow single wall fuel tank base</li> <li>• Primary fuel filter with integral water separator</li> <li>• Secondary fuel filters</li> <li>• Fuel priming pump</li> <li>• Engine fuel transfer pump</li> <li>• Fuel cooler integral with cooling system</li> <li>• Flexible fuel lines</li> </ul>	<input type="checkbox"/> Fuel level switch <input type="checkbox"/> Manual fuel transfer pump
<b>Generator</b>	<ul style="list-style-type: none"> <li>• Class H insulation</li> <li>• Self excited (SE)</li> <li>• Class H temperature rise</li> <li>• IP23 protection</li> <li>• R450 voltage regulator with single phase sensing and load adjustment module</li> </ul>	<input type="checkbox"/> Oversize generators <input type="checkbox"/> Permanent magnet excitation (PMG) <input type="checkbox"/> Internal excited (IE) <input type="checkbox"/> Cat digital voltage regulator (CDVR) with kVAR/PF <input type="checkbox"/> Anti-condensation space heaters <input type="checkbox"/> Coastal Insulation Protection (CIP) <input type="checkbox"/> Reactive droop <input type="checkbox"/> Three phase sensing
<b>Power Termination</b>	<ul style="list-style-type: none"> <li>• Power Center houses EMCP controller and power/control terminations (rear mounted)</li> <li>• Circuit breaker, IEC compliant, 3-4 pole (100% Rated)</li> <li>• Segregated low voltage wiring termination panel</li> <li>• IP22 protection</li> <li>• Bottom cable entry</li> </ul>	<input type="checkbox"/> C.B. Shunt trips <input type="checkbox"/> C.B. Auxiliary contacts
<b>Governor</b>	<ul style="list-style-type: none"> <li>• ADEM™A4</li> </ul>	
<b>Control Panel</b>	<ul style="list-style-type: none"> <li>• EMCP 4.1 (Rear-mounted in Power Center)</li> <li>• Emergency stop pushbutton</li> <li>• AC Voltmeter, Ammeter &amp; Frequency</li> <li>• Engine Speed (rev/min)</li> <li>• Lube Oil pressure</li> </ul>	<input type="checkbox"/> EMCP 4.2 <input type="checkbox"/> Local annunciator module (NFPA 99/110) <input type="checkbox"/> Remote annunciator module (NFPA 99/110) <input type="checkbox"/> Digital I/O module <input type="checkbox"/> Speed adjustment <input type="checkbox"/> Voltage adjustment
<b>Lube</b>	<ul style="list-style-type: none"> <li>• Lubricating oil</li> <li>• Oil drain line with valves</li> <li>• Oil filter and dipstick</li> <li>• Fumes disposal</li> <li>• Oil cooler</li> </ul>	<input type="checkbox"/> Oil temperature sensor <input type="checkbox"/> Manual sump pump
<b>Mounting</b>	<ul style="list-style-type: none"> <li>• Integral Narrow 8hr tank base</li> <li>• Linear vibration isolation</li> </ul>	<input type="checkbox"/> Narrow skid base <input type="checkbox"/> Integral Dual Wall 8hr tank base* *Available only with enclosed units
<b>Starting/Charging</b>	<ul style="list-style-type: none"> <li>• 24 volt starting motor</li> <li>• 24 volt, 45 amp charging alternator</li> <li>• Batteries with rack and cables</li> </ul>	<input type="checkbox"/> Jacket water heater <input type="checkbox"/> Battery disconnect switch <input type="checkbox"/> Battery charger - 5 amp <input type="checkbox"/> Battery removal (does not remove rack and cables)
<b>General</b>	<ul style="list-style-type: none"> <li>• Paint - Caterpillar Yellow except rails and radiators gloss black (Powder Coated)</li> <li>• Flywheel housing - SAE No.1/2</li> </ul>	<input type="checkbox"/> EU Certificate of Conformance <input type="checkbox"/> Sound attenuated protective enclosure with integral lifting frame <input type="checkbox"/> High Ambient enclosure with integral lifting frame

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## SPECIFICATIONS

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### CAT GENERATOR

Frame .....	LC6114F
Excitation .....	SE
Pitch.....	0.6667
Number of poles.....	4
Number of bearings .....	Single Bearing
Number of Leads.....	12
Insulation.....	Class H with tropicalization and anti-abrasion
IP rating .....	Drip proof IP23
Alignment.....	Pilot Shaft
Over speed capability - % of rated.....	125%
Wave form deviation.....	2%
Voltage regulator.....	Single phase sensing with volts/Hz
Voltage regulation .....	Less than $\pm 1/2\%$ (steady state)
Telephone Influence Factor .....	Less than 50
Harmonic Distortion .....	Less than 5%

### CAT DIESEL ENGINE

C15 ATAAC, I-6, 4-stroke watercooled diesel	
Bore .....	137.20 mm (5.4 in)
Stroke .....	171.40 mm (6.75 in)
Displacement .....	15.20 L (927.56 in <sup>3</sup> )
Compression ratio.....	16.1:1
Aspiration.....	Air-to-Air Aftercooled
Fuel system.....	MEUI
Governor Type.....	ADEM™ A4

### CAT EMCP 4 SERIES CONTROL PANELS

EMCP 4 controls including:

- Run / Auto / Stop Control
- Speed Adjust
- Voltage Adjust
- Engine Cycle Crank
- Emergency stop pushbutton

EMCP 4.2 controller features:

- 24-volt DC operation
- Environmental sealed front face
- Text alarm/event descriptions
- True RMS AC metering, 3-phase,  $\pm 1\%$  accuracy.

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)
- Power Factor (per phase & average)
- kW (per phase, average & percent)
- kVA (per phase, average & percent)
- kVA<sub>r</sub> (per phase, average & percent)
- kW-hr (total)
- kVA<sub>r</sub>-hr (total)

Warning/shutdown with common LED indication of shutdowns for:

- 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)
- Reverse Reactive Power (kVA<sub>r</sub>) (32RV)
- Overcurrent (50/51)

Communications

- Customer data link (Modbus RTU)
- Accessory module data link
- Serial annunciator module data link
- 6 programmable digital inputs
- 4 programmable relay outputs (Form A)
- 2 programmable relay outputs (Form C)
- 2 programmable digital outputs

Compatible with the following optional modules:

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

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## TECHNICAL DATA

Open Generator Set - 1500 rpm/50 Hz/400 Volts	STANDBY DM8495	
<b>Package Performance</b>		
Power rating	440 ekW	
Power rating @ 0.8 pf	550 kVA	
<b>Fuel Consumption</b>		
100% load with fan	111.8 L/hr	29.5 Gal/hr
75% load with fan	83.6 L/hr	22.1 Gal/hr
50% load with fan	58.7 L/hr	15.5 Gal/hr
<b>Cooling System*</b>		
Air flow restriction (system)	0.12 kPa	0.48 in. water
Engine coolant capacity	20.8 L	5.5 US Gal
Radiator coolant capacity	37.3 L	9.8 US Gal
Engine Coolant capacity with radiator	58.1 L	15.3 US Gal
<b>Inlet Air</b>		
Combustion air inlet flow rate	30.7 m <sup>3</sup> /min	1084.2 cfm
<b>Exhaust System</b>		
Exhaust stack gas temperature	528.4 °C	983.1 °F
Exhaust gas flow rate	87.2 m <sup>3</sup> /min	3079.4 cfm
Exhaust flange size (internal diameter)	152.4 mm	6 in
Exhaust system backpressure (maximum allowable)	10.0 kPa	40.2 in. water
<b>Heat Rejection</b>		
Heat rejection to coolant (total)	166 kW	9440 Btu/min
Heat rejection to exhaust (total)	398 kW	22634 Btu/min
Heat rejection to aftercooler	83 kW	4550 Btu/min
Heat rejection to atmosphere from engine	70 kW	3981 Btu/min
Heat rejection to atmosphere from generator	26.6 kW	1512.7 Btu/min
<b>Alternator**</b>		
Motor starting capability @ 30% voltage dip	1213 SKVA	
Frame	LC6114F	
Temperature Rise	163 °C	293 °F
<b>Lube System</b>		
Lube oil refill volume with filter change for standard sump	60.0 L	15.9 US Gal
<b>Emissions (Nominal)***</b>		
NO <sub>x</sub> mg/nm <sup>3</sup>	3689.4 mg/nm <sup>3</sup>	
CO mg/nm <sup>3</sup>	168.2 mg/nm <sup>3</sup>	
HC mg/nm <sup>3</sup>	5.8 mg/nm <sup>3</sup>	
PM mg/nm <sup>3</sup>	7 mg/nm <sup>3</sup>	

\* For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

\*\* UL 2200 Listed packages may have oversized generators with a different temperature rise and motor starting characteristics. Generator temperature rise is based on a 40 degree C ambient per NEMA MG1-32.

\*\*\* 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, NO<sub>x</sub>. 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

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**Meets or Exceeds International Specifications:**

AS1359, CSA, IEC60034-1, ISO3046, ISO8528, NEMA MG 1-22, NEMA MG 1-33, UL508A, 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. Standby power in accordance with ISO8528. Fuel stop power in accordance with ISO3046. Standby ambients shown indicate ambient temperature at 100% load which results in a coolant top tank temperature just below the shutdown temperature.

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

**Fuel Rates** are based on fuel oil of 35° API [16° C (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, contact your Cat representative for details. For information regarding Low Sulfur fuel and Biodiesel capability, please consult your Cat dealer.

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## DIMENSIONS

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Package Dimensions		
Length	3800 mm	149.6 in
Width	1130 mm	44.5 in
Height	2215 mm	87.2 in

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

[www.Cat-ElectricPower.com](http://www.Cat-ElectricPower.com)

Performance No.: DM8495

Feature Code: C15DF1W  
Based on Data from: C15DEM4

Gen. Arr. Number: 3921379

Sourced: European Sourced (03/12)

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