



Image shown may not reflect actual package.

## STANDBY 1100 ekW 1375 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

- 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

#### 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® 3512 TA DIESEL ENGINE

- 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

#### CAT SR5 GENERATOR

- Matched to the performance and output characteristics of Cat engines
- Industry leading mechanical and electrical design
- Industry leading motor starting capabilities
- High Efficiency

#### 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

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## FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Air Inlet	<ul style="list-style-type: none"> <li>• Single element canister type air cleaner</li> <li>• Service indicator</li> </ul>	<input type="checkbox"/> Dual element & heavy duty air cleaners <input type="checkbox"/> Air inlet adapters & shut-off
Cooling	<ul style="list-style-type: none"> <li>• Radiator with guard</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"/> Jacket water heater
Exhaust	<ul style="list-style-type: none"> <li>• Dry exhaust manifold</li> <li>• Flanged faced outlets</li> </ul>	<input type="checkbox"/> Mufflers and Silencers <input type="checkbox"/> Stainless steel exhaust flex fittings <input type="checkbox"/> Elbows, flanges, expanders & Y adapters
Fuel	<ul style="list-style-type: none"> <li>• Secondary fuel filters</li> <li>• Fuel priming pump</li> <li>• Flexible fuel lines</li> <li>• Fuel cooler*</li> </ul>	<input type="checkbox"/> Water separator <input type="checkbox"/> Duplex fuel filter
Generator	<ul style="list-style-type: none"> <li>• Class H insulation</li> <li>• Cat digital voltage regulator (CDVR) with kVAR/PF control, 3-phase sensing</li> <li>• Reactive droop</li> </ul>	<input type="checkbox"/> Oversize & premium generators <input type="checkbox"/> Winding temperature detectors <input type="checkbox"/> Bearing temperature detectors <input type="checkbox"/> Anti-condensation heaters
Power Termination	<ul style="list-style-type: none"> <li>• Bus bar (NEMA or IEC mechanical lug holes)</li> <li>• Top cable entry</li> </ul>	<input type="checkbox"/> Circuit breakers, UL listed, 3 pole with shunt trip, 100% rated, manual or electrically operated <input type="checkbox"/> Circuit breakers, IEC compliant, 3 or 4 pole with shunt trip, manual or electrically operated <input type="checkbox"/> Bottom cable entry <input type="checkbox"/> Power terminations can be located on the right, left and/or rear as an option.
Governor	<ul style="list-style-type: none"> <li>• Woodward 2301A isochronous</li> </ul>	<input type="checkbox"/> Electronic load sharing governor
Control Panels	<ul style="list-style-type: none"> <li>• EMCP 4.2</li> <li>• User Interface panel (UIP) - wall mounted</li> <li>• AC &amp; DC customer wiring area (right side)</li> <li>• Emergency stop pushbutton</li> </ul>	<input type="checkbox"/> Option for right or left mount UIP <input type="checkbox"/> Local & remote annunciator modules <input type="checkbox"/> Digital I/O Module <input type="checkbox"/> Generator temperature monitoring & protection <input type="checkbox"/> Remote monitoring software
Lube	<ul style="list-style-type: none"> <li>• Lubricating oil and filter</li> <li>• Oil drain line with valves</li> <li>• Fumes disposal</li> <li>• Gear type lube oil pump</li> </ul>	<input type="checkbox"/> Oil level regulator <input type="checkbox"/> Deep sump oil pan <input type="checkbox"/> Electric & air prelube pumps <input type="checkbox"/> Manual prelube with sump pump <input type="checkbox"/> Duplex oil filter
Mounting	<ul style="list-style-type: none"> <li>• Rails - Engine / generator / radiator mounting</li> <li>• Rubber anti-vibration mounts (shipped loose)</li> </ul>	<input type="checkbox"/> Isolator removal <input type="checkbox"/> Spring-type vibration isolator (shipped loose) <input type="checkbox"/> IBC Isolators
Starting/Charging	<ul style="list-style-type: none"> <li>• 24 volt starting motor(s)</li> <li>• Batteries with rack and cables</li> <li>• Battery disconnect switch</li> </ul>	<input type="checkbox"/> Battery chargers (5 or 10 amp) <input type="checkbox"/> 45 amp charging alternator <input type="checkbox"/> Oversize batteries <input type="checkbox"/> Ether starting aid <input type="checkbox"/> Heavy duty starting motors <input type="checkbox"/> Barring device (manual)
General	<ul style="list-style-type: none"> <li>• Right-hand service</li> <li>• Paint - Caterpillar Yellow except rails and radiators are gloss black</li> <li>• SAE standard rotation</li> <li>• Flywheel and flywheel housing - SAE No. 00</li> </ul>	<input type="checkbox"/> CSA certification <input type="checkbox"/> CE Certificate of Conformance <input type="checkbox"/> Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007 * Not included with packages without radiators
Note	Standard and optional equipment may vary for UL 2200 Listed Packages. UL 2200 Listed packages may have oversized generators with a different temperature rise and motor starting characteristics.	

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## SPECIFICATIONS

### CAT GENERATOR

Cat Generator  
Frame size..... 1402  
Excitation..... Internal Excitation  
Pitch..... 0.6667  
Number of poles..... 4  
Number of bearings..... Single bearing  
Number of Leads..... 006  
Insulation..... UL 1446 Recognized Class H with tropicalization and antiabrasion  
Insulation..... Class F with tropicalization and antiabrasion  
- Consult your Caterpillar dealer for available voltages  
IP Rating..... IP23  
Alignment..... Pilot Shaft  
Overspeed capability..... 125  
Wave form Deviation (Line to Line)..... 002.00  
Voltage regulator..... 3 Phase sensing with selectable volts/Hz  
Voltage regulation..... Less than +/- 1/2% (steady state)  
Less than +/- 1% (no load to full load)  
Telephone influence factor..... Less than 50  
Harmonic Distortion..... Less than 5%

### CAT DIESEL ENGINE

3512 TA, V-12, 4-Stroke Water-cooled Diesel  
Bore..... 170.00 mm (6.69 in)  
Stroke..... 190.00 mm (7.48 in)  
Displacement..... 51.80 L (3161.03 in<sup>3</sup>)  
Compression Ratio..... 13.5:1  
Aspiration..... TA  
Fuel System..... Direct unit injection  
Governor Type..... Woodward

### 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)
- kW, kVA, kVAR, kW-hr, %kW, PF

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)
- Reverse reactive power (kVA) (32RV)
- Overcurrent (50/51)

Communications:

- Six digital inputs (4.2 only)
- Four relay outputs (Form A)
- Two relay outputs (Form C)
- Two digital outputs
- Customer data link (Modbus RTU)
- Accessory module data link
- Serial annunciator module data link
- 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	DM8224	
<b>Low Fuel Consumption</b>		
<b>Generator Set Package Performance</b> Genset Power rating @ 0.8 pf Genset Power rating with fan	1375 kVA 1100 ekW	
<b>Coolant to aftercooler</b> Coolant to aftercooler temp max	82 ° C	180 ° F
<b>Fuel Consumption</b> 100% load with fan 75% load with fan 50% load with fan	305.4 L/hr 232.6 L/hr 167.0 L/hr	80.7 Gal/hr 61.4 Gal/hr 44.1 Gal/hr
<b>Cooling System<sup>1</sup></b> 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 1331 m <sup>3</sup> /min 286.8 L 156.8 L 130.0 L	0.48 in. water 47004 cfm 75.8 gal 41.4 gal 34.3 gal
<b>Inlet Air</b> Combustion air inlet flow rate	92.3 m <sup>3</sup> /min	3259.5 cfm
<b>Exhaust System</b> Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	524.0 ° C 258.9 m <sup>3</sup> /min 203.2 mm 6.7 kPa	975.2 ° F 9143.0 cfm 8.0 in 26.9 in. water
<b>Heat Rejection</b> 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	729 kW 1202 kW 134 kW 122 kW 62.8 kW	41458 Btu/min 68358 Btu/min 7621 Btu/min 6938 Btu/min 3571.4 Btu/min
<b>Alternator<sup>2</sup></b> Motor starting capability @ 30% voltage dip Frame Temperature Rise	2734 skVA 1402 150 ° C	270 ° F
<b>Lube System</b> Sump refill with filter	310.4 L	82.0 gal
<b>Emissions (Nominal)<sup>3</sup></b> NOx g/hp-hr CO g/hp-hr HC g/hp-hr PM g/hp-hr	8.92 g/hp-hr 1.3 g/hp-hr .16 g/hp-hr .236 g/hp-hr	

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

<sup>2</sup> 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°C ambient per NEMA MG1-32.

<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

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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	5137.1 mm	202.25 in
Width	1974.9 mm	77.75 in
Height	2367.2 mm	93.2 in
Weight	10 983 kg	24,213 lb

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #2858788).

Performance No.: DM8224

Feature Code: 512DE6L

Gen. Arr. Number: 2523756

Source: U.S. Sourced

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