



Image shown may not reflect actual package.

## **PRIME** **480 kW 600 kVA** **50 Hz 1500 rpm 400 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

#### **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® C18 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
- Load adjustment module provides engine relief upon load impact and improves load acceptance and recovery time
- UL 1446 Recognized Class H insulation

#### **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>• Light Duty Air Filter</li> <li>• Service indicator</li> </ul>	<input type="checkbox"/> Single element air filter <input type="checkbox"/> Dual element air filter <input type="checkbox"/> Heavy-duty dual element air filter with precleaner <input type="checkbox"/> Air inlet shut-off
Cooling	<ul style="list-style-type: none"> <li>• Radiator package mounted</li> <li>• Coolant level sight gauge</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"/> Low coolant level sensor
Exhaust	<ul style="list-style-type: none"> <li>• Dry exhaust manifold</li> <li>• Stainless steel exhaust flex fittings with split-cuff</li> <li>• Exhaust flange outlets</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 through-wall kits
Fuel	<ul style="list-style-type: none"> <li>• Primary fuel filter with integral water separator</li> <li>• Secondary fuel filters</li> <li>• Fuel priming pump</li> <li>• Flexible fuel lines</li> <li>• Fuel cooler*</li> <li>*Not included with packages without radiators</li> </ul>	<input type="checkbox"/> Integral single wall fuel tank base <input type="checkbox"/> Integral dual wall UL fuel tankbase <input type="checkbox"/> Sub-base dual wall UL listed fuel tank base <input type="checkbox"/> Manual transfer pump <input type="checkbox"/> Fuel level switch
Generator	<ul style="list-style-type: none"> <li>• Class H insulation</li> <li>• Class H temperature rise</li> <li>• VR6 voltage regulator with 3-phase sensing with load adjustment</li> <li>• IP23 Protection</li> </ul>	<input type="checkbox"/> Oversize generators <input type="checkbox"/> Internal excited (IE) <input type="checkbox"/> Permanent magnet excitation(PMG) <input type="checkbox"/> Cat digital voltage regulator (CDVR) with kVAR/PF control <input type="checkbox"/> Anti-condensation space heaters <input type="checkbox"/> Coastal Insulation Protection (CIP) <input type="checkbox"/> Reactive droop
Power Termination	<ul style="list-style-type: none"> <li>• Power Center houses EMCP controller and power/control terminations (rear mounted)</li> <li>• Circuit breaker, UL listed, 3 pole (80% &amp; 100% Rated)</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"/> Power Center mounting option (right side) <input type="checkbox"/> Multiple circuit breaker options <input type="checkbox"/> C.B. Shunt trips <input type="checkbox"/> C.B. Auxiliary contacts
Governor	<ul style="list-style-type: none"> <li>• ADEM™ A4</li> </ul>	<input type="checkbox"/> Load Share Module
Control Panels	<ul style="list-style-type: none"> <li>• EMCP 4.1 (mounted in Power Center)</li> <li>• Speed adjustment</li> <li>• Voltage adjustment</li> <li>• Emergency stop pushbutton</li> </ul>	<input type="checkbox"/> EMCP 4.2 <input type="checkbox"/> Right-hand mounted Power Center <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
Lube	<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>• Lube oil level indicator</li> <li>• Oil cooler</li> </ul>	<input type="checkbox"/> Oil temperature sensor <input type="checkbox"/> Manual sump pump
Mounting	<ul style="list-style-type: none"> <li>• Formed steel narrow base frame</li> <li>• Linear vibration isolation-seismic zone 4</li> </ul>	<input type="checkbox"/> Oil skid base <input type="checkbox"/> Formed steel wide base frame
Starting/Charging	<ul style="list-style-type: none"> <li>• 24 volt starting motor</li> <li>• 24 volt, 45 amp charging alternator</li> </ul>	<input type="checkbox"/> Jacket water heater with shut-off valves <input type="checkbox"/> Engine block heater <input type="checkbox"/> Ether starting aid <input type="checkbox"/> Battery disconnect switch <input type="checkbox"/> Battery chargers (5 or 10 amp) <input type="checkbox"/> Oversize batteries <input type="checkbox"/> Batteries with rack and cables

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## SPECIFICATIONS

### CAT GENERATOR

Frame size.....LC7024F  
Excitation..... Internal Excitation  
Pitch..... 0.6667  
Number of poles..... 4  
Number of bearings..... Single bearing  
Number of Leads..... 012  
Insulation..... UL 1446 Recognized Class H with tropicalization and antiabrasion  
- Consult your Caterpillar dealer for available voltages  
IP Rating..... Drip Proof IP23  
Alignment..... Pilot Shaft  
Overspeed capability..... 150  
Wave form Deviation (Line to Line)..... 2%  
Voltage regulator..... Three phase sensing  
Voltage regulation..... Less than +/- 1/2% (steady state)  
Less than +/- 1/2% (w/ 3% speed change)

### CAT DIESEL ENGINE

C18 ATAAC, I-6, 4-Stroke Water-cooled Diesel  
Bore..... 145.00 mm (5.71 in)  
Stroke..... 183.00 mm (7.2 in)  
Displacement..... 18.13 L (1106.36 in<sup>3</sup>)  
Compression Ratio..... 14.5:1  
Aspiration..... Air-to-Air Aftercooled  
Fuel System..... Electronic unit injection  
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)
- kW, 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 - - 1500 rpm/50 Hz/400 Volts	DM9821	
<b>Low Fuel Consumption</b>		
<b>Generator Set Package Performance</b>		
Genset Power rating @ 0.8 pf	600 kVA	
Genset Power rating with fan	480 ekW	
<b>Fuel Consumption</b>		
100% load with fan	122.7 L/hr	32.4 Gal/hr
75% load with fan	91.9 L/hr	24.3 Gal/hr
50% load with fan	63.9 L/hr	16.9 Gal/hr
<b>Cooling System<sup>1</sup></b>		
Air flow restriction (system)	0.12 kPa	0.48 in. water
Air flow (max @ rated speed for radiator arrangement)	373 m <sup>3</sup> /min	13172 cfm
Engine Coolant capacity with radiator/exp. tank	54.8 L	14.5 gal
Engine coolant capacity	20.8 L	5.5 gal
Radiator coolant capacity	34.0 L	9.0 gal
<b>Inlet Air</b>		
Combustion air inlet flow rate	32.3 m <sup>3</sup> /min	1140.7 cfm
<b>Exhaust System</b>		
Exhaust stack gas temperature	555.6 °C	1032.1 °F
Exhaust gas flow rate	94.3 m <sup>3</sup> /min	3330.2 cfm
Exhaust flange size (internal diameter)	203 mm	8 in
Exhaust system backpressure (maximum allowable)	10.0 kPa	40.2 in. water
<b>Heat Rejection</b>		
Heat rejection to coolant (total)	157 kW	8929 Btu/min
Heat rejection to exhaust (total)	458 kW	26046 Btu/min
Heat rejection to aftercooler	79 kW	4493 Btu/min
Heat rejection to atmosphere from engine	79 kW	4493 Btu/min
Heat rejection to atmosphere from generator	33.9 kW	1927.9 Btu/min
<b>Alternator<sup>2</sup></b>		
Motor starting capability @ 30% voltage dip	1376 skVA	
Frame	LC7024F	
Temperature Rise	125 °C	225 °F
<b>Lube System</b>		
Sump refill with filter	38.0 L	10.0 gal
<b>Emissions (Nominal)<sup>3</sup></b>		
NOx mg/nm <sup>3</sup>	3490.3 mg/nm <sup>3</sup>	
CO mg/nm <sup>3</sup>	506.5 mg/nm <sup>3</sup>	
HC mg/nm <sup>3</sup>	2.6 mg/nm <sup>3</sup>	
PM mg/nm <sup>3</sup>	4.7 mg/nm <sup>3</sup>	

<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> 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>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

**Prime** - Output available with varying load for an unlimited time. Average power output is 70% of the prime power rating. Typical peak demand is 100% of prime rated kW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year. Prime power in accordance with ISO3046. Prime ambients shown indicate ambient temperature at 100% load which results in a coolant top tank temperature just below the alarm 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	Information not available at this time.
Width	
Height	

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #3619111).

Performance No.: DM9821

Feature Code: C18DF1Y

Gen. Arr. Number: 3921383

Source: Brazil

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