Continuous Power Module
Cat® CPM600

Reliable Power protection for critical applications

The Cat® CONTINUOUS POWER MODULE (Cat CPM) provides constant power protection against surges, sags, and power interruptions that can disrupt operations or cause loss of valuable data or system capacity. Caterpillar engineers have designed the CPM for best reliability and space utilization, and optimized all critical components such as the Generator Set, a high efficient Uninterruptible Power Supply (UPS) and an Automatic Transfer Switch (ATS) as a complete Cat product.
In the event of a utility power failure, the Flywheel will maintain the UPS output until the generator has started and the ATS has transferred to the generator supply.

CPM600 Specifications		
Continuous Power Output	600 kVA (480 kW @ PF 0.8)	
Voltage	480 VAC 3-Phase, 3 wire plus ground	
Frequency	60 Hz +/- 10% max (programmable)	
Operating Temperature	0 to 40°C	32 to 104°F
Storage Temperature	-25 to 70°C	-13 to 158°F
Dimensions (ISO 40 ft high Cube)	12192 x 2,438 x 2,896 mm	480 x 96 x 114 in
Weight	21400 kg	47180 lbs
Operating Altitude	Up to 1000 meters	Up to 3,281 feet
Noise level (Utility online)	65 dBA @ 1m	
Generator Output	600 ekW (750 kVA)	
Additional Non-critical Power Output available from Generator Set*	40 kW*	
Noise level (Generator online)	85 dBA@1m	
Fuel tank size (approx. 6.5 hours autonomy)	1071 liters	235 gallons /282 US gallons

*Based on a minimum Flywheel recharge rate, a minimum of 40kW is required to recharge each UPS Flywheel.

Features

- Constant Power Protection system – UPS / Generator / GenStart Module
- Increased reliability – GenStart module provides battery redundancy when starting the generator set
- High system efficiency – Optimized systems integration and flywheel energy storage technology
- Easy transport and quick deployment to site – Standard ISO container designs (Typically one day crane hire)
- Easy installation on site – Simple load cable connections points
- Reduced commissioning times - Factory tested
- Scalable Investment – Expandable systems as needed
- Maximize usable space in building – CPM is an outside weatherproof solution
- Remote Monitoring available – Via Modbus
- One safe source of supply / responsibility – Engineered and factory tested by Caterpillar and fully supported by the Worldwide Cat Dealer Network.
- Cat CPM fulfills the functionalities of a Diesel Rotary UPS system.

UPS Specifications	
Flywheel Type	600Z Series Multiple Module System (MMS)
Number of Flywheels	2
AC Input	
Maximum kVA / (kW)	600 (480)
Input Voltage	480 VAC 3-Phase, 3 wire plus ground
Input Voltage Range	+10% / -15% (programmable)
Frequency	60 Hz +/- 10% max (programmable)
Input Power Factor	0.99 at rated load and nominal voltage
Input Current at 480 VAC (amps)	599
Maximum Continuous Input Current (amps)	800
Maximum Non-Continuous Input Current (amps)	840
Walk-in	1 to 15 seconds (programmable)
Harmonic Current Distortion	
Linear load	<3% at 100% resistive load
Non-linear load	<8% with 100% load
AC Output	
Output Voltage	480 VAC 3-Phase, 3 wire plus ground
Output Current at 480 VAC (amps)	723
Voltage Regulation (Steady-state)	+/- 1% of nominal for +/- 10% input
Voltage Regulation (Transient)	+/- 1% within 50 milliseconds for 100% load step
Frequency	60 Hz (mains synchronized) normal operation +/- 2% free running
Voltage Distortion (THD)	<3% linear loads and <5% 100% non-linear loads
Flywheel Mode	+/- 1% steady state
Slew Rate	Adjustable from 0.2 Hz/second to 3.0 Hz/second
Overall Efficiency	
Efficiency	98%
Standards and Approvals	
Certifications	UL 1778 listed, EN5009-1-1, CUL CAN/CSA 22.2 No. 107.1 listed, CE Mark
Surge Withstand	Meets IEEE 578 / ANSI C62.41

Generator set Specifications		
Model	Cat C18	
Electrical Power Output	600 ekW Standby Power Rated [1]	
Engine		
Engine Model	C18 ATAAC, I-6 4-stroke water-cooled diesel	
Displacement	18.13 L	1106.36 in^3
Governor Type	Caterpillar ADEM™ Control System	
Fuel System	Electronic Unit Injection	
Generator		
Frame Size	LC7024F	
Excitation	Internal Excitation	
Pitch	0.6667	
Insulation	UL 1446 Recognized Class H with tropicalization and anti-abrasion	
Overspeed Capability (%)	125	
Wave form deviation (%)	2	
Voltage regulator	Single phase sensing (Optional 3 Phase sensing)	
Voltage Regulation	+/- 0.5% (steady state)	

UPS Generator Set Integration

By cancelling harmonic distortion, the UPS operates seamlessly with the generator set to provide a higher total electrical load capacity without oversizing the generator set. Cat UPS effectively insulates the generator set from block loads and transient, and can improve its fault clearing capabilities. The CPM is factory tested and all programmable integration parameters adjusted at factory that assures greater system reliability and improves the total system operation.

UPS Lower Operating Cost

Caterpillar's high operating efficiency (>97%) means yearly savings versus many other UPS products. In addition, lower Cat UPS heat rejection reduces up front HVAC costs and electrical consumption over the life of the product.

UPS Superior Design

Superior system design and the use of robust digital components throughout the system yield the most reliable and trouble-free UPS system on the market. Protection is delivered in the industry's smallest package with the highest efficiency and superior performance.

Automatic Transfer Switch

A 4-pole, Open Transition Automatic Transfer Switch will switch the load between the utility source and the generator. It is fully rated to the generator output and incorporates convenient customer connections for Continuous and Non-critical load. Connection points are also available for load bank testing or a rental generator set.

Standard Factory Installed & Tested Equipment

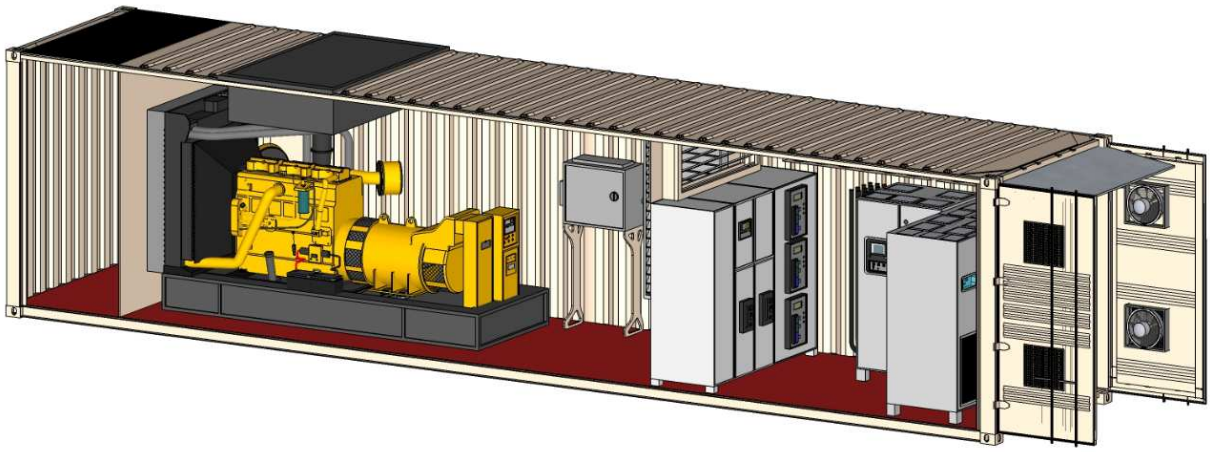
Features	Description
Flywheel Energy Storage	Compact, battery free, low cost maintenance / operation Generator friendly Harmonic Cancellation, Voltage regulation and power factor improvement
Starting System	GenStart module provides up to 1725 cold cranking amps @ 24 VDC and is redundant to the generator set starting batteries for highest system reliability. Battery charger integrated.
Control system	LCD monitor/control HMI panel installed on UPS/ATS/Generator set. Monitoring and alarms for critical components with self-diagnostics. Two (2) warning tower lights installed on exterior of container.
Communication with Integrated System	Integral modem for remote communication. MODBUS (RTU or TCP/IP). Remote notification and monitoring via Ethernet and e-mail. RS232 or RS485 serial connection. Real-time monitoring software available (UPS View / EMCP Monitoring Software).
Cooling System	Louvers installed on input and output of the container. Redundant cooling fans on UPS with speed regulation by temperature control unit.
Engine Coolant System	Jacket water heater. Coolant level sight gauge.
Heat Recovery System	UPS heat discharged to engine compartment to enhance generator starting capability.
Switchgear Integration	Automatic Transfer Switch (ATS) – controlled by microprocessor-based unit. Integrated maintenance bypass. Convenient customer connection for continuous load and non-critical load output.
Fuel System	Integrated fuel system with fuel tank, primary fuel filter with integral water separator, secondary fuel filters and fuel priming pump.
Lube oil	Fumes disposal. Gear lube oil pump.
Service	Coolant drain line with valve terminated at edge of base. Oil drain line. Weather hood at rear doors for UPS maintenance. Container doors location designed for easy access. Connection points for load bank testing or rental generator connection.
Container Packaging	Entire system is packaged in industrial type ISO container prepared for quick handling, transport and installation on site.
Emergency Power Off (EPO)	Local Emergency Power Off button installed on UPS and generator control panel. Two (2) installed on the exterior of the container at each access door.
Certifications and Standards	• EU Certificate of Conformance • 2006/42/EC Machinery Directive (MD) • 2006/95/EC Low Voltage Directive (LV) • 89/336/EEC EMC Directive • EN 12601 Reciprocating internal combustion engine driven generating sets • EN 61439 Low voltage switchgear and control gear assemblies • EN 62040-1 Uninterruptible Power Systems (UPS) – General and safety requirements for UPS • EN 60204 Safety of machinery – Electrical equipment of machines • 2000/14/EC Noise emission by outdoor equipment • CSC plated via Lloyd's register of shipping

Optional Equipment & Service

- Non-critical load power output breakers
- Switchgear for customized projects
- Integrated Load Bank circuit breaker for generator load testing
- Fire-fighting system
- Automatic fuel transfer pumps
- Lower noise level
- Arctic (-30 ^{O}C) and tropical (+50 ^{O}C) ambient temperature conditions
- Factory witness test

World Wide Product Support

- Cat Dealers provide extensive post sale support including maintenance and repair agreements.
- One single service contract for the complete Cat CPM
- Cat dealers have over 1,800 dealer branch stores operating in 200 countries.
- The Cat S•O•S^{SM} program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products.



[1] Standby Generator Set Rating definition

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.