

# MD500

## For Generac Modular Power System (MPS)

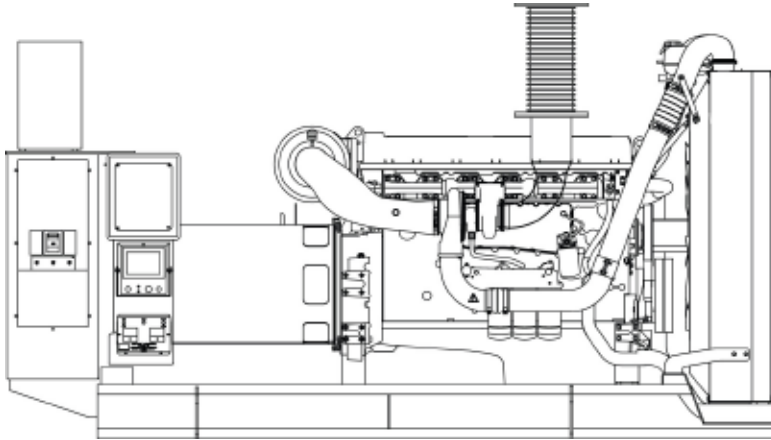
Standby Power Rating  
500KW 60 Hz

Prime Power Rating <sup>(1)</sup>  
440KW 60 Hz

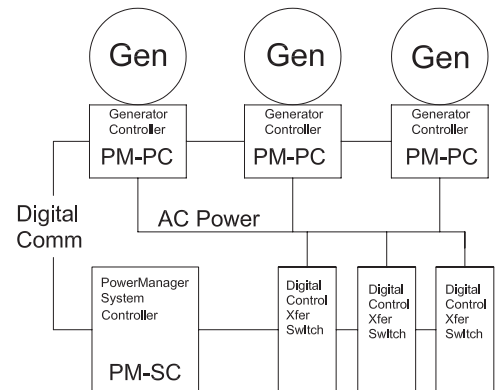
Power Matched

**VOLVO 16.0DTA ENGINE**

Turbocharged / Aftercooled  
Tier II Compliant



### PowerManager® Digital Control Platform



## FEATURES

(1) Prime power unit not available at this time

- **INNOVATIVE DESIGN & PROTOTYPE TESTING** are key components of GENERAC'S success in "IMPROVING POWER BY DESIGN." But it doesn't stop there. Total commitment to component testing, reliability testing, environmental testing, destruction and life testing, plus testing to applicable CSA, NEMA, EGSA, and other standards, allows you to choose GENERAC POWER SYSTEMS with the confidence that these systems will provide superior performance.
- **PARALLELING SYSTEM FEATURES:**
  - ✓ AUTO SYNCHRONIZATION
  - ✓ ISOCHRONOUS LOAD SHARING
  - ✓ REVERSE POWER PROTECTION
  - ✓ MAXIMUM POWER PROTECTION
  - ✓ ELECTRICALLY OPERATED MECHANICALLY HELD TRANSFER SYSTEM
  - ✓ REDUNDANT OPERATION AND INCREASED RELIABILITY
  - ✓ UL2200 LISTED
- **POWERMANAGER DIGITAL CONTROL PLATFORM™.** The PowerManager Digital Control Platform (PM-DCP) is a powerful control system built around a 32-bit, industrial microprocessor. Standard factory programming controls the entire engine/generator

system, while allowing the PM-DCP, with its onboard PLC, to be customized to meet any application requirement. The system is available on single unit gas, diesel or bi-fuel installations as well as Modular Paralleling Systems (MPS) from 350 kW - 3000 kW.

- **SINGLE SOURCE SERVICE RESPONSE** from Generac's dealer network provides parts and service know-how for the entire unit, from the engine to the smallest electronic component. You are never on your own when you own a GENERAC POWER SYSTEM.
- **ECONOMICAL DIESEL POWER.** Low cost operation due to modern diesel engine technology. Better fuel utilization plus lower cost per gallon provide real savings.
- **LONGER ENGINE LIFE.** Generac heavy-duty diesels provide long and reliable operating life.
- **GENERAC TRANSFER SWITCHES, POWERMANAGER® AND ACCESSORIES.** Long life and reliability is synonymous with GENERAC POWER SYSTEMS. One reason for this confidence is that the GENERAC product line includes its own transfer systems, accessories, and PowerManager® controls for total system compatibility.

# GENERAC®

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## POWER SYSTEMS, INC.

# APPLICATION & ENGINEERING DATA

MD500 MPS

## GENERATOR SPECIFICATIONS

TYPE .....	(480V) Four-pole, revolving field Marathon (572RSL4024) Maganamax (208/240 Volts)
ROTOR INSULATION .....	Class H
STATOR INSULATION .....	Class H
LINE-TO-LINE HARMONIC FACTOR .....	5%
BALANCED TELEPHONE INFLUENCE FACTOR (TIF) .....	<50
ALTERNATOR .....	Self-ventilated and drip-proof
BEARINGS (PRE-LUBED & SEALED) .....	1
COUPLING .....	Direct, Flexible Disc
LOAD CAPACITY (STANDBY) .....	100%
LOAD CAPACITY (PRIME) .....	110%

**NOTE: Emergency loading in compliance with NFPA 99, NFPA 110. Generator rating and performance in accordance with ISO8528-5, BS5514, SAE J1349, ISO3046 and DIN6271 standards.**

### EXCITATION SYSTEM

<input type="checkbox"/> PERMANENT MAGNET PILOT EXCITER .....	Eighteen-pole exciter ✓
	Magnetically coupled DC current ✓
	Mounted outboard of main bearing ✓
REGULATION .....	H100 Controller Digital ✓
	3 Phase Sensing, $\pm 1\%$ regulation ✓

## GENERATOR FEATURES

- ☐ Revolving field heavy duty generator
- ☐ Directly connected to the engine
- ☐ Operating temperature rise 120 °C above a 40 °C ambient
- ☐ Insulation is Class H rated at 150 °C rise
- ☐ All prototype models have passed three phase short circuit testing

## CONTROL PANEL FEATURES

### ☐ TOUCH SCREEN DISPLAY PANEL READS:

- |   |                                     |
|---|-------------------------------------|
| • Voltage (all phases)                  | • Current (all phases)              |
| • Power factor                          | • kW                                |
| • kVAR                                  | • Transfer switch status            |
| • Engine speed                          | • Low fuel pressure                 |
| • Run hours                             | • Service reminders                 |
| • Fault history                         | • Oil pressure                      |
| • Coolant temperature                   | • Time and date                     |
| • Low oil pressure shutdown             | • High coolant temperature shutdown |
| • Overvoltage                           | • Overspeed                         |
| • Low coolant level                     | • Low coolant level                 |
| • Not in auto position (flashing light) | • Exercise speed                    |
| • ATS selection                         |                                     |

### ☐ INTERNAL FUNCTIONS:

- |  |   |
|--|---|
| • I <sup>2</sup> T function for alternator protection from line to neutral and line to line short circuits | • Adjustable engine speed at exerciser  |
| • Emergency stop   | • RS232 port for GenLink® control   |
| • Programmable auto crank function   | • RS485 port remote communication   |
| • 2 wire start for any transfer switch   | • Canbus addressable  |
| • Communicates with the Generac HTS transfer switch  | • Governor controller and voltage regulator are built into the master control board |
| • Built-in 7 day exerciser   | • Temperature range -40 °C to 70 °C   |

## ENGINE SPECIFICATIONS

MAKE .....	VOLVO
MODEL .....	TAD1641GE
CYLINDERS .....	6-Inline
DISPLACEMENT - liter/(cu. in.) .....	16.12 (983.7)
BORE - mm/(in.) .....	144 (5.67)
STROKE - mm/(in.) .....	165 (6.5)
COMPRESSION RATIO .....	16.5:1
INTAKE AIR .....	Turbocharged/Aftercooled (Air to air)
NUMBER OF MAIN BEARINGS .....	7 with one thrust
CONNECTING RODS .....	I-Beam Section
CYLINDER HEAD .....	One piece cast iron
PISTONS .....	Aluminum w/ cooling cavity, oil cooled
CRANKSHAFT .....	Drop forged, counter weighted type

### VALVE TRAIN

NUMBER OF VALVES .....	24-2 EX & 2 In./Cylinder
VALVES .....	Chrome over steel
VALVE SENT .....	Steel-replaceable

### ENGINE GOVERNOR

<input type="checkbox"/> ELECTRONIC .....	Standard
FREQUENCY REGULATION, NO LOAD TO FULL LOAD .....	Isocronous
STEADY STATE REGULATION .....	$\pm 0.25\%$

### LUBRICATION SYSTEM

TYPE OF OIL PUMP .....	Gear
OIL FILTER .....	Bypass and Full Flow Cartridge
CRANKCASE CAPACITY - liter/(gal.) .....	48 (12.7)

### COOLING SYSTEM

TYPE OF SYSTEM .....	Pressurized, Closed Recovery
WATER PUMP .....	Centrigugal Type/Belt Driven
TYPE OF FAN .....	Pusher
NUMBER OF FAN BLADES .....	9
DIAMETER OF FAN - mm/(in.) .....	889 (35.0)
COOLANT HEATER .....	240V (4000W)

### FUEL SYSTEM

FUEL .....	No. 2 Diesel Fuel (Fuel should conform to ASTM D975)
FUEL FILTER .....	Full Flow Cartridge
FUEL INJECTION PUMP .....	Delphi/E1
FUEL PUMP .....	Mechanical
INJECTORS .....	Bosch, Multi-hole
FUEL LINE (Supply) .....	1/2" FNPT
FUEL RETURN LINE .....	1/2" FNPT

### ELECTRICAL SYSTEM

BATTERY CHARGE ALTERNATOR .....	80 Amps at 24V
STARTER MOTOR .....	7.0 kW at 24V
RECOMMENDED BATTERY .....	(2) - 12V, 31
GROUND POLARITY .....	Negative

Rating definitions - Standby: Applicable for supplying emergency power for the duration of the utility power outage. No overload capability is available for this rating. (All ratings in accordance with BS5514, ISO3046 and DIN6271). Prime (Unlimited Running Time): Applicable for supplying electric power in lieu of commercially purchased power. Prime power is the maximum power available at variable load. A 10% overload capacity is available for 1 hour in 12 hours. (All ratings in accordance with BS5514, ISO3046, ISO8528 and DIN6271). Prime power is not available at this time for MPS units.

## MD500 MPS

### OPERATING DATA

	STANDBY			
	MD500			
<b>GENERATOR OUTPUT VOLTAGE/KW—60Hz</b> 277/480V, 3-phase, 0.8 pf 600V, 3-phase, 0.8 pf <small>NOTE: Consult your Generac dealer for additional voltages.</small>	<b>KW</b>		<b>Rated AMP</b>	
	500		752	
	500		601	
<b>MOTOR STARTING KVA</b> Locked rotor kVA at 35% instantaneous voltage dip with standard alternator; 60 Hz-kVA * see note 1			<b>480V</b>	
			1325	
<b>FUEL</b> Fuel consumption—60 Hz * see note 3 Fuel pump lift	Load gal./hr. in.	<b>125 kW</b>	<b>250 kW</b>	<b>375 kW</b>
		8.7	15.3	22.7
			40	31.3
<b>COOLING</b> Coolant capacity System - lit./gal. Engine - lit./gal. Radiator - lit./gal. Coolant flow/min. 60 Hz - lit./gal. Heat rejection to coolant 60 Hz - BTU/hr. Radiator air flow 60 Hz - m <sup>3</sup> /min. (cfm) Max. operating air temp to radiator °C (°F) Max. operating ambient temp °C (°F) Max. external pressure drop after radiator in. H <sub>2</sub> O			60 (15.85) 33 (8.72) 27 (7.13) 462 (122.4) 778,220 660 (23,308) 60 (140) * see note #5 50 (122) * see note #5 4.0	
<b>COMBUSTION AIR REQUIREMENTS</b> Flow at rated power 60 Hz - m <sup>3</sup> /min. (cfm)			45.8 (1617)	
<b>EXHAUST</b> Exhaust flow at rated output 60 Hz - m <sup>3</sup> /min. (cfm) Maximum recommended back pressure kPa (in. Hg) [in. H <sub>2</sub> O] Exhaust temperature at rated output °C (°F) Exhaust outlet size inches ANSI			110.4 (3899) 10 (3) [40] 479 (893) 8	
<b>ENGINE</b> Rated RPM 60 Hz HP at rated kW <sub>e</sub> (gross) 60 Hz - BHP Piston speed 60 Hz - m/sec. (ft./min) BMEP 60 Hz - psi			1800 757 594 (1956) 339	
<b>POWER ADJUSTMENTS FOR AMBIENT CONDITIONS</b> Temperature -4.5% for every 10° C above - C° -2.5% for every 10°F above - F° Altitude -0.8% for every 100 m above - m -2.5% for every 1000 ft. above - ft.			40 104 1630 5000	

#### Notes:

- Motor starting kVA adds directly for each generator on the bus. With Generac's PowerManager<sup>®</sup> Digital Control Platform, the load is shared proportionally.
- Maximum distance between generator sets is determined by the voltage drop of the power conductors and the maximum distance allowed for the RS485 connection. If the distance between units exceeds 500 feet, consult your Generac representative for wire and communication recommendations.
- Fuel consumption like motor starting kVA is additive. Each generator will proportionally share the load and the fuel consumption will be based on the percentage of load shared.
- A complete MPS system requires a PowerManager Paralleling Controller (PM-PC), a PowerManager System Controller (PM-SC), and switch(es) from Generac Power System's GTS line of digitally controlled transfer switches. In addition, Generac Power Systems' Genlink<sup>®</sup> Communications Software provides remote monitoring and user interface with the Power Manager Digital Control Platform.
- Values given are maximum temperatures to which power adjustment factors can be applied. Consult your Generac representative if operating conditions exceed these maximums.

- High Coolant Temperature Automatic Shutdown
- Low Coolant Level Automatic Shutdown
- Low Oil Pressure Automatic Shutdown
- Overspeed Automatic Shutdown (Solid-state)
- Crank Limiter (Solid-state)
- Oil Drain Extension
- Radiator Drain
- Factory-Installed Cool Flow Radiator
- Radiator Duct Adapter On Open Genset
- Closed Coolant System
- UV/Ozone Resistant Hoses
- Rubber-Booted Engine Electrical Connections
- Stainless Steel Flexible Exhaust Connection
- Battery Charge Alternator
- Battery Cables

- Battery Tray
- 24 Volt, Solenoid-activated Starter Motor
- Air Cleaner
- Fan Guard
- Control Console
- Isochronous Governor
- Jacket water heater
- Autosynchronizer
- Isochronous Load Sharing Module
- Reverse Power Protection Relay
- Dead Bus Sensing
- Sync Check Relay
- Main Line Circuit Breaker
- 2 Year Warranty

## POWERMANAGER® DIGITAL CONTROL PLATFORM

The PowerManager Paralleling Controller (PM-PC) is a fully programmable, integrated digital generator control console using a 32-bit industrial microprocessor to handle all control, monitoring, input/output genset functions. The open architecture used allows customizing the controls to meet any customer requirement, yet maintaining the simplicity of operating 'as is' with the factory default programming. (see Generac bulletin #0168840SBY)

## GENERATOR CONNECTIONS

1. 4 Wire load connections from Paralleling Switch to optional connection box bus or transfer switch bus. Paralleling Switch has 4 lugs per phase – each lug will accept 4/0 to 350MCM aluminum or copper conductor.
2. 2 wire shielded cable (RS485) to PowerManager System Control or PowerManager Integral Control
3. 2 wire twisted pair from transfer switch (when multiple transfer switches are used). Can also go to the PowerManager System Controller
4. 120Volt 15 amp input circuit for battery charger.
5. 240Volt 20 amp input for coolant heater.

## OPTIONS

### ■ OPTIONAL FUEL ACCESSORIES

- Base Tank Low Fuel Alarms
- Secondary Fuel Filters, Heaters and Water Alarms
- UL Listed Fuel Tanks / Daytanks
- Electric Fuel Transfer Pump System

### ■ OPTIONAL ELECTRICAL ACCESSORIES

- 10A Dual Rate Battery Charger
- Battery, 24 Volt
- Battery Warmer
- 500MCM Lugs on Paralleling Switch (4 lugs per phase)

### ■ OPTIONAL ALTERNATOR ACCESSORIES

- Alternator Heater

### ■ OPTIONAL EXHAUST ACCESSORIES

- Critical Residential or Industrial Exhaust Silencers
- Installed Low-Profile Critical Muffler (available on sound attenuated enclosure)
- Single Exhaust System (available on open genset)

### ■ GENERAC POWERMANAGER® SYSTEM CONTROLLER FOR COORDINATION OF GENERATOR(S) AND TRANSFER SWITCHE(S)

- See Spec 0169060SBY For Additional Information

### ■ ADDITIONAL OPTIONAL EQUIPMENT

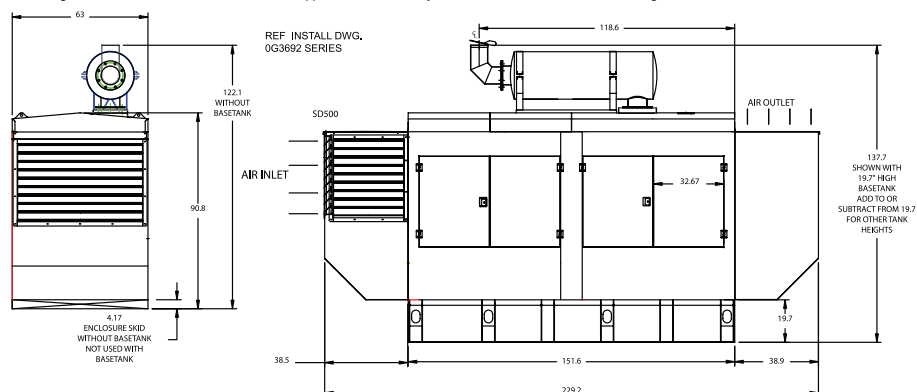
- 20 Light Remote Annunciator
- Remote Relay Panels
- Oil Heater
- 5 Year Warranties
- GenLink® Communications Software

### ■ OPTIONAL ENCLOSURES

- Weather Protective
- Sound Attenuated
- Aluminum

Distributed by:

Design and specifications subject to change without notice. Dimensions shown are approximate. Contact your Generac dealer for certified drawings. DO NOT USE THESE DIMENSIONS FOR INSTALLATION PURPOSES.



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