

## Protector™ Series

### Standby Generators Diesel Engine

#### INCLUDES:

- Two Line LCD Multilingual Digital Evolution™ Controller (English/Spanish/French/Portuguese) with external viewing window for easy indication of generator status and breaker position.
- Isochronous Electronic Governor
- Sound Attenuated Enclosure
- Smart Battery Charger
- UV/Ozone Resistant Hoses
- ±1% Voltage Regulation
- Integrated Base Tank Provides 24 Hour Run Time Minimum at 1/2 Load
- 5 Year Limited Warranty
- UL/CUL2200/UL 142 Listed
- Meets code requirements for External Vent and Fill

#### Not for sale outside of US/CA

##### Standby Power Rating

Model RD015 (Gray) - 15 kW 60 Hz

Model RD020 (Gray) - 20 kW 60 Hz

Model RD030 (Gray) - 30 kW 60 Hz

Model RD048 (Gray) - 48 kW 60 Hz (single phase only)

Model RD050 (Gray) - 50 kW 60 Hz (three phase only)



QUIET-TEST™

Meets EPA Emission Regulations  
CA/MA Emissions Compliant

## FEATURES

- **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.
- **TEST CRITERIA:**
  - ✓ PROTOTYPE TESTED
  - ✓ SYSTEM TORSIONAL TESTED
  - ✓ NEMA MG1-22 EVALUATION
  - ✓ MOTOR STARTING ABILITY
- **SOLID-STATE, FREQUENCY COMPENSATED VOLTAGE REGULATION.** This state-of-the-art power maximizing regulation system is standard on all Generac models. It provides optimized FAST RESPONSE to changing load conditions and MAXIMUM MOTOR STARTING CAPABILITY by electronically torque-matching the surge loads to the engine. Digital voltage regulation at ±1%.
- **SINGLE SOURCE SERVICE RESPONSE** from Generac's extensive dealer network provides parts and service know-how for the entire unit, from the engine to the smallest electronic component.
- **GENERAC TRANSFER SWITCHES.** Long life and reliability are synonymous with GENERAC POWER SYSTEMS. One reason for this confidence is that the GENERAC product line includes its own transfer systems and controls for total system compatibility.

**15 • 20 • 30 • 48 • 50 kW****application & engineering data****GENERATOR SPECIFICATIONS**

Type	Synchronous
Rotor Insulation Class	H (15 & 20 kW) or F (30 & 50 kW)
Stator Insulation Class	H
Telephone Interference Factor (TIF)	< 50
Alternator Output Leads 1-Phase	3 wire
Alternator Output Leads 3-Phase	6 wire
Bearings	Single Sealed Cartridge
Coupling	Direct, Flexible Disc
Excitation System	Direct

**VOLTAGE REGULATION**

Type	Electronic
Sensing	Single Phase
Regulation	± 1%
Features	Adjustable Voltage & Gain

**GOVERNOR SPECIFICATIONS**

Type	Electronic Isochronous
Steady State Regulation	± 0.25%

**ELECTRICAL SYSTEM**

Battery Charge Alternator	50 Amp (15 & 20 kW) or 70 Amp (30, & 50 kW)
Smart Battery Charger	2 Amp
Recommended Battery	Group 27F, 700 CCA
System Voltage	12 Volts

**GENERATOR FEATURES**

Revolving field heavy duty generator  
 Directly connected to the engine  
 Operating temperature rise 120°C above a 40°C ambient  
 Class H insulation is rated at 150°C rise at 25°C ambient  
 Class F insulation is rated at 145°C rise at 25°C ambient  
 All models fully prototype tested

**ENCLOSURE FEATURES**

Steel weather protective enclosure with aluminum roof	Ensures protection against mother nature. Electrostatically applied textured epoxy paint for added durability.
Enclosed critical grade muffler	Quiet, critical grade muffler is mounted inside the unit to prevent injuries and maximize sound dampening.
Small, compact, attractive	Makes for an easy, eye appealing installation.
SAE	Sound attenuated enclosure ensures quiet operation.

(All ratings in accordance with BS5514, ISO3046, ISO8528, SAE J1349 and DIN6271)

## 15 • 20 • 30 • 48 • 50 kW

## application & engineering data

### ENGINE SPECIFICATIONS: 15 & 20 kW

Make	Generac
Model	In-line
Cylinders	4
Displacement (Liters)	2.28
Bore (in./mm)	3.46/88
Stroke (in./mm)	3.70/94
Compression Ratio	21.3:1
Intake Air System	Naturally Aspirated
Cylinder Head Type	Cast Iron OHV
Piston Type	Aluminum
EPA Emissions Compliance	Emergency Stationary

### ENGINE SPECIFICATIONS: 30 kW

Make	Generac
Model	In-line
Cylinders	4
Displacement (Liters)	2.4
Bore (in/mm)	3.54/90
Stroke (in/mm)	3.70/94
Compression Ratio	21.3:1
Intake Air System	Turbocharged
Cylinder Head Type	Cast Iron OHV
Piston Type	Aluminum
EPA Emissions Compliance	Emergency Stationary

### ENGINE SPECIFICATIONS: 48/50 kW

Make	Generac
Model	In-Line
Cylinders	4
Displacement (Liters)	3.4
Bore in/mm	3.86/98
Stroke in/mm	4.45/113
Compression Ratio	18.5:1
Intake Air System	Turbocharged/Aftercooled
Cylinder Head Type	Cast Iron OHV
Piston Type	Aluminum
EPA Emissions Compliance	Emergency Stationary

### ENGINE LUBRICATION SYSTEM

Oil Pump Type	Gear
Oil Filter Type	Full flow spin-on canister
Crankcase Capacity (quarts/liters)	6.87/6.5 - 15 & 20 kW
	6.8/6.4 - 30 kW
	7.4/7 - 48 & 50 kW

### ENGINE COOLING SYSTEM

Type	Pressurized radiator - 15 & 20 kW Closed recovery - 30, 48 & 50 kW
Water Pump	Pre-lubed, self-seating
Fan Speed (rpm)	1800 - 15 & 20 kW
	2061 - 30 kW
	2029 - 48 & 50 kW
Fan Diameter (in/mm)	18.11/460 (15 & 20 kW) or 22/559 (30, 48 & 50 kW)
Fan Mode	Pusher

### FUEL SYSTEM

Fuel Type	Ultra Low Sulfur Diesel Fuel
Fuel Pump Type	Mechanical Engine Driven Gear
Injector Type	Mechanical
Fuel Supply Line (mm/in)	7.94/0.31 (ID)
Fuel Return Line (mm/in)	7.94/0.31(ID)
Fuel Specification	ASTM
Fuel Filtering (microns)	5 (15, 20 & 30 kW) or 10 (48 & 50 kW)

### TANK SPECIFICATIONS

Total Size (gallons/liters)	34/128.7 - 15 & 20 kW
	62/234.7 - 30, 48 & 50 kW
Usable Size (gallons/liters)	32/121.1 - 15 & 20 kW
	57/215.8 - 30, 48 & 50 kW
Run Time @ 1/2 Load (hrs)	38 - 15 kW
	28.6 - 20 kW
	36.7 - 30 kW
	24 - 48 & 50 kW
Listings	UL142

**15 • 20 • 30 • 48 • 50 kW**

**GENERATOR OUTPUT VOLTAGE/kW - 60 Hz**

		<b>kW (Standby)</b>	<b>Amp (Standby)</b>	<b>CB Size</b>
RD015	120/240 V, 1Ø, 1.0 pf	15	62	70
	120/208 V, 3Ø, 0.8 pf	15	52	60
	120/240 V, 3Ø, 0.8 pf	15	45	50
RD020	120/240 V, 1Ø, 1.0 pf	20	83	100
	120/208 V, 3Ø, 0.8 pf	20	69	80
	120/240 V, 3Ø, 0.8 pf	20	60	70
RD030	120/240 V, 1Ø, 1.0 pf	30	125	150
	120/208 V, 3Ø, 0.8 pf	30	104	125
	120/240 V, 3Ø, 0.8 pf	30	90	100
	277/480 V, 3Ø, 0.8 pf	30	45	50
RD048/RD050	120/240 V, 1Ø, 1.0 pf	48	200	200
	120/208 V, 3Ø, 0.8 pf	50	173	200
	120/240 V, 3Ø, 0.8 pf	50	150	175
	277/480 V, 3Ø, 0.8 pf	50	75	90

**SURGE CAPACITY IN AMPS**

		<b>Voltage Dip @ &lt; .4 pf</b>	
		15%	30%
RD015	120/240 V, 1Ø	53	129
	120/208 V, 3Ø	37	90
	120/240 V, 3Ø	32	78
RD020	120/240 V, 1Ø	87	211
	120/208 V, 3Ø	59	143
	120/240 V, 3Ø	51	124
RD030	120/240 V, 1Ø	66	168
	120/208 V, 3Ø	59	144
	120/240 V, 3Ø	51	125
	277/480 V, 3Ø	26	64
RD048/RD050	120/240 V, 1Ø	69	189
	120/208 V, 3Ø	90	218
	120/240 V, 3Ø	78	189
	277/480 V, 3Ø	36	87

**ENGINE FUEL CONSUMPTION**

		gal/hr	L/hr
RD015	25% of rated load	0.51	1.93
	50% of rated load	0.79	2.99
	75% of rated load	1.14	4.31
	100% of rated load	1.48	5.58
RD020	25% of rated load	0.67	2.6
	50% of rated load	1.05	3.97
	75% of rated load	1.52	5.32
	100% of rated load	1.98	7.48
RD030	25% of rated load	0.92	3.5
	50% of rated load	1.45	5.5
	75% of rated load	1.96	7.4
	100% of rated load	2.74	10.4
RD048/RD050	25% of rated load	1.35	4.92
	50% of rated load	2.15	8.71
	75% of rated load	3.06	12.5
	100% of rated load	3.98	16.36

STANDBY RATING: Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Ratings are in accordance with ISO-3046-1. Design and specifications are subject to change without notice.

**15 • 20 • 30 • 48 • 50 kW**

**operating data**

**ENGINE COOLING**

	15 kW	20 kW	30 kW	48/50 kW
Air flow (inlet air including alternator and combustion air in cfm/cmm)	2824/80	2824/80	3038/86	2824/80
System coolant capacity (gal/liters)	2.8/10.6	2.8/10.6	2.8/10.6	2.8/10.6
Heat rejection to coolant (BTU per hr/MJ per hr)	63,535/67	63,535/67	111,000/117.1	135,900/143.4
Maximum operation air temperature on radiator (°C/°F)	50/122			
Maximum ambient temperature (°C/°F)	50/122			

**COMBUSTION REQUIREMENTS**

	15 kW	20 kW	30 kW	48/50 kW
Flow at rated power (cfm/cmm)	190/5.38	190/5.38	190/2.55	190/5.38

**SOUND EMISSIONS**

Exercising at 7 meters/23 feet (dB(A))	65
Normal operation at 7 meters/23 feet (dB(A))	70

\*Sound levels are taken from the front of the generator. Sound levels taken from other sides of the generator may be higher depending on installation parameters.

**EXHAUST**

Exhaust flow at rated output (cfm/cmm)	448/12.7	448/12.7	230/6.51	448/12.7
Exhaust temperature at rated output (°C/°F)	604.4/1120	604.4/1120	454.4/850	604.4/1120

**ENGINE PARAMETERS**

Rated Synchronous RPM	1800			
HP at rated kW	26.4	33.5	49	85

**POWER ADJUSTMENT FOR AMBIENT CONDITIONS**

Temperature Deration .....3% for every 5 °C above 25 °C or 1.7% for every 5 °F above 77 °F  
 Altitude Deration (15, 30, 48 & 50 kW) .....1% for every 100 m above 915 m or 3% for every 1000 ft above 3000 ft  
 Altitude Deration (20 kW) .....1% for every 100 m above 305 m or 3% for every 1000 ft above 1000 ft

**CONTROLLER FEATURES**

2-Line Plain Text Multilingual LCD Display.....Simple user interface for ease of operation.  
 Mode Buttons: Auto.....Automatic Start on Utility failure. 7 day exerciser.  
                   Manual.....Start with starter control, unit stays on. If utility fails, transfer to load takes place.  
                   Off.....Stops unit. Power is removed. Control and charger still operate.  
 Ready to Run/Maintenance Messages ..... Standard  
 Engine Run Hours Indication ..... Standard  
 Programmable start delay between 2-1500 seconds .....Standard (programmable by dealer only)  
 Utility Voltage Loss/Return to Utility Adjustable ..... From 140-171 V/190-216 V  
 Future Set Capable Exerciser/Exercise Set Error Warning ..... Standard  
 Run/Alarm/Maintenance Logs ..... 50 Events Each  
 Engine Start Sequence .....Cyclic cranking: 16 sec on, 7 rest (90 sec maximum duration).  
 Starter Lock-out .....Starter cannot re-engage until 5 sec after engine has stopped.  
 Smart Battery Charger ..... Standard  
 Charger Fault/Missing AC Warning..... Standard  
 Low Battery/Battery Problem Protection and Battery Condition Indication ..... Standard  
 Automatic Voltage Regulation with Over and Under Voltage Protection ..... Standard  
 Under-Frequency/Overload/Stepper Overcurrent Protection ..... Standard  
 Safety Fused/Fuse Problem Protection ..... Standard  
 Automatic Low Oil Pressure/High Oil Temperature Shutdown ..... Standard  
 Overcrank/Overspeed (@ 72 Hz)/RPM Sense Loss Shutdown ..... Standard  
 High Engine Temperature Shutdown ..... Standard  
 Internal Fault/Incorrect Wiring Protection ..... Standard  
 Common External Fault Capability ..... Standard  
 Field Upgradable Firmware ..... Standard

**15 • 20 • 30 • 48 • 50 kW****available accessories**

Model #	Product	Description
006502-0	Spill Box	The 5-gallon spill box screws into the existing fuel fill port of the base tank. It captures and contains fuel if over fueling or spilling occurs during the fill process.
006504-0	90% Fuel Level Alarm	The 90% fuel level alarm alerts the fuel fill operator when the tank reaches a 90% fill level by sounding an audible alarm and triggering an LED warning light.
006505-0 - 15 & 20 kW 006506-0 - 30 & 50 kW	Tank Risers	Tank risers are required in some municipalities to help avoid potential base tank corrosion caused by mounting on rough surfaces.
006507-0	Fuel Fill Drop Tube	A powder coat painted, steel fuel fill drop tube is required in some municipalities to prevent sparking due to static electricity buildup, which can be caused by the fuel dropping into the tank from the fill area. Using a drop tube also results in submerged filling, which increases the fuel delivery flow rate and reduces vapors, foam and potential tank evaporation.
006513-0 - 15 & 20 kW 006517-0 - 30 kW 006516-0 - 50 kW	Stainless Steel Fuel Lines	Some municipalities require the use of stainless steel fuel lines instead of the standard hoses provided with the diesel generator products. These stainless steel lines are fire resistant for additional safety.
006510-0	E-Stop	E-stop allows for immediate fuel shutoff and generator shutdown in the event of an emergency.
006511-0	Spill Box Drainback Kit	The spill box drainback kit allows fuel that was captured in the 5-gallon spill box to be drained directly back into the fuel tank to avoid vapors.
006512-0	Lockable Fuel Cap	The cast iron, lockable fuel cap provides the ability to lock the fuel system to prevent unwanted fuel tampering or fuel siphoning.
006572-0 - 15 & 20 kW 006571-0 - 30 kW 006570-0 - 50 kW	Maintenance Kits	The Protector Maintenance Kits offer all the hardware necessary to perform complete maintenance on Generac Protector generators.
006560-0 - 15 & 20 kW 006559-0 - 30 kW 006558-0 - 50 kW	Cold Weather Kits	Recommended for generators installed in regions where the temperature regularly falls below 32 °F (0 °C). The Cold Weather Kits consist of a block heater with all necessary mounting hardware and a battery warmer with a thermostat built into the battery wrap.
006576-0	Fuel Maintenance Kit	The Fuel Maintenance Kit contains everything needed to maintain and clean a diesel fuel system
005704-0	Paint Kit	If the generator enclosure is scratched or damaged, it is important to touch-up the paint to protect from future corrosion. The paint kit includes the necessary paint to properly maintain or touch-up a generator enclosure.
005928-0	Basic Wireless Remote	Completely wireless and battery powered, Generac's wireless remote monitor provides you with instant status information without ever leaving the house.
005951-0	Advanced Wireless Remote	Remotely control generator functions with the advanced model's LCD display. In addition to remote testing of the generator, set the exercise cycle and maintenance interval reminders.
006199-0	PMM Starter Kit	The PMM Starter Kit consists of a 24 VAC, field installed transformer that enables the use of the 24 VAC Power Management Modules (PMMs) and one PMM. The standard controller (without starter kit) can control two HVAC loads with no additional hardware. Not compatible with pre-wired switches.
006186-0	Power Management Module (50 Amps)	Power Management Modules are used in conjunction with the Smart Switch to increase its power management capabilities. It gives the Smart Switch additional power management flexibility not found in any other transfer switch. Not compatible with pre-wired switches. Note: PMM Starter Kit required.
006463-0	Mobile Link™	Generac's Mobile Link allows you to check the status of your generator from anywhere that you have access to an Internet connection from a PC or with any smart device. You will even be notified when a change in the generator's status occurs via e-mail or text message. Note: Harness Adapter Kit required.
006478-0	Harness Adapter Kit	The Harness Adapter Kit is required to make liquid-cooled units compatible with Mobile Link™.

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