





GILLETTE GENERATORS

LIQUID COOLED DIESEL ENGINE GENERATOR SET

Model	HZ	STANDBY 130°C RISE
SPVD-3000-60 HERTZ	60	300



All generator sets are USA prototype built and thoroughly tested. Production models are USA factory built and 100% load tested.



UL2200, UL1446, UL508, UL142, UL498



NFPA 110, 99, 70, 37

All generator sets meet NFPA-110 Level 1, when equipped with the necessary accessories and installed per NFPA standards.



NEC 700, 701, 702, 708



NEMA ICS10, MG1, ICS6, AB1



ANSI C62.41, 27, 59, 32, 480, 40Q, 81U, 360-05



ASCE 7-05 & 7-10

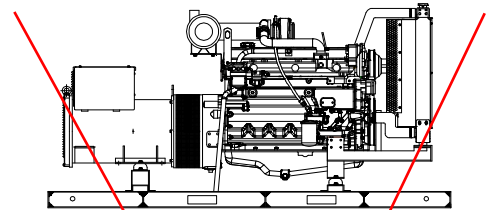
All generator sets meet 180 MPH rating.



EPA 40CFR Part 60, 1048, 1054, 1065, 1068

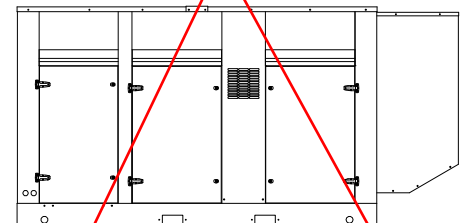
60 HZ MODEL

SPVD-3000



"OPEN" GEN-SET

There is no enclosure, so gen-set must be placed within a weather protected area, uninhabited by humans or animals, with proper ventilation. Silencer not supplied, as installation requirements are not known. However, this item is available as optional equipment.



"LEVEL 2" HOUSED GEN-SET

Full aluminum weather protection and superior sound attenuation for specific low noise applications. Critical grade muffler is standard.

GENERATOR RATINGS

GENERATOR MODEL	VOLTAGE		PH	HZ	130°C RISE STANDBY RATING		POWER LEAD CONNECTIONS
	L-N	L-L			KW/KVA	AMP	
SPVD-3000-3-2	120	208	3	60	300/375	1042	12 LEAD LOW WYE
SPVD-3000-3-3	120	240	3	60	300/375	903	12 LEAD HIGH DELTA
SPVD-3000-3-4	277	480	3	60	300/375	452	12 LEAD HIGH WYE
SPVD-3000-3-5	127	220	3	60	300/375	985	12 LEAD LOW WYE
SPVD-3000-3-16	346	600	3	60	300/375	361	4 LEAD DEDICATED 3 PH

RATINGS: All single phase gen-sets are dedicated 4 lead windings, rated at unity (1.0) power factor. All three phase gen-sets are 12 lead windings, rated at .8 power factor. 130° C "STANDBY RATINGS" are strictly for gen-sets that are used for back-up emergency power to a failed normal utility power source. This standby rating allows varying loads, with no overload capability, for the entire duration of utility power outage. All gen-set power ratings are based on temperature rise measured by resistance method as defined by MIL-STD 705C and IEEE STD 115, METHOD 6.4.4. All generators have class H (180°C) insulation system on both rotor and stator windings. All factory tests and KW/KVA charts shown above are based 130°C (standby) R/R winding temperature, within a maximum 40°C ambient condition. Generators operated at standby power ratings must not exceed the temperature rise limitation for class H insulation system, as specified in NEMA MG1-22.40. Specifications & ratings are subject to change without prior notice.

APPLICATION & ENGINEERING DATA FOR MODEL SPVD-3000-60 HZ

GENERATOR SPECIFICATIONS

Manufacturer..... Marathon Electric Generators
Model & Type..... **433CSL6216 4 Pole, 12 Lead, Three Phase**
..... 432PSL6246 4 Pole, 4 Lead, 600V, Three Phase
Exciter..... Brushless, shunt excited
Voltage Regulator..... Solid State, HZ/Volts
Voltage Regulation..... %, No load to full load
Frequency..... Field convertible, 60 HZ to 50 HZ
Frequency Regulation..... \pm % (1/2 cycle, no load to full load)
Unbalanced Load Capability..... 100% of standby amps
One Step Load Acceptance..... 100% of nameplate rating
Total Stator and Load Insulation..... Class H, 180°C
Temperature Rise..... 130°C R/R, standby rating @ 40°C amb.
3 Ø Motor Starting @ 30% Voltage Dip (208-240V)..... 760 kVA
3 Ø Motor Starting @ 30% Voltage Dip (480V-600V) 1000 kVA
Bearing..... 1, Pre-lubed and sealed
Coupling..... Direct flexible disc.
Total Harmonic Distortion..... Max 3½% (MIL-STD705B)
Telephone Interference Factor..... Max 50 (NEMA MG1-22)
Deviation Factor..... Max 5% (MIL-STD 405B)
Alternator..... Self ventilating and drip-proof
Ltd. Warranty Period..... 24 Months from start-up date or
..... 1000 hours use, first to occur.

GENERATOR FEATURES

- World Renown Marathon Electric Generator having UL-1446 certification.
- Full generator protection with **Deep Sea 7420** controller, having UL-508 certification.
- Automatic voltage regulator with over-excitation, under-frequency compensation, under-speed protection, and EMI filtering. Entire solid-state board is encapsulated for moisture protection.
- Generator power ratings are based on temperature rise, measured by resistance method, as defined in MIL-STD 705C and IEEE STD 115, Method 6.4.4.
- Power ratings will not exceed temperature rise limitation for class H insulation as per NEMA MG1-22.40.
- Insulation resistance to ground, exceeds 1.5 meg-ohm.
- Stator receives 2000 V. hi-potential test on main windings, and rotor windings receive a 1500 V. hi-potential test, as per MIL-STD 705B.
- Full amortisseur windings with UL-1446 certification.
- Complete engine-generator torsional acceptance, confirmed during initial prototype testing.
- Full load testing on all engine-generator sets, before shipping.

ENGINE SPECIFICATIONS AND APPLICATIONS DATA

ENGINE

Manufacturer..... VOLVO-PENTA
Model and Type..... TAD1351GE, 4 cycle, liquid Cooled
Aspiration..... Turbo After Cooler, Air to Air
Charged Air Cooled System..... Air to Air
Cylinder Arrangement..... 6 Cylinders, In-Line
Displacement Cu. In. (Liters)..... 780(12.8)
Bore & Stroke in (Cm)..... 5.16 x 6.22 (13.1 x 15.8)
Compression Ratio..... 18:1
Main Bearings..... Tin Overlay with Babbitt Backing
Cylinder Head..... Cast Iron with overhead Cam
Pistons..... Aluminum Alloy with Graphite Coating
Crankshaft..... Induction Hardened, Heat Treated Forged
Valves..... Heat Treated and Hardened Exhaust Valve
Governor..... Electronic, EMS 2.2
Frequency Regulation..... \pm 1/4%
Air Cleaner..... Dry, Replaceable Cartridge
Engine Speed..... 1800 rpm
Max Power, bhp (kwm) Standby..... 456 (335)
BMEP: psi (MPa) Standby..... 254 (1.7)
Ltd. Warranty Period..... 2 Year or 1000 hrs, first to occur

FUEL SYSTEM

Type..... Diesel Fuel Oil (ASTM No. 2-D)
Combustion System..... Direct Injection
Fuel Injection Pump..... Electronic, Delphi E3
24 VDC Coolant heaters..... Optional Equipment
Fuel Filter..... Yes with Water Separator

FUEL CONSUMPTION

GAL/HR (LITER/HR)	STANDBY
100% LOAD	21.8 (82.7)
75% LOAD	16.6 (62.7)
50% LOAD	11.5 (43.5)

OIL SYSTEM

Type..... Full Pressure
Oil Pan Capacity qt. (L)..... 31.6 (29.9)
Oil Pan Cap. W/ filter qt. (L)..... 38 (35.9)
Oil Filter..... 3, Replaceable Cartridge type

ELECTRICAL SYSTEM

Ignition System..... Electronic
Eng. Alternator/Starter: 24 VDC, negative ground, 80 amp/hr.
Recommended battery to -18°C (0° F):(2) 12 VDC, BCI# 27,
Max. Dimensions: 12"lg x 6 3/4" wi x 9" hi, with standard round
posts. Min output 700 CCA. Battery tray (max. dim. at 12"lg x
7"wi). This model has (2) battery trays, (2) hold down straps,
(2) sets of battery cables, and (1) battery charger. Installation of
(2) 12VDC starting batteries connected in series for 24VDC
output is required, with possible higher AMP/HR rating, as
described above, if the normal environment temperature
averages -13° F (-25°C) or cooler.

CERTIFICATIONS

All engines are EPA emissions certified. All stationary diesel
engines are Tier III compliant.

APPLICATION & ENGINEERING DATA FOR MODEL SPVD-3000-60 HZ

COOLING SYSTEM

Type of System Air to Air, Charged Air Cooler
Coolant PumpPre-lubricated, self-sealing
Cooling Fan Type Pusher (16)
Fan Diameter inches (cm).....35.1 (89)
Fan drive ratio..... 0.84:1
Ambient Capacity of Radiator °F (°C)..... 131 (55)
Engine Jacket Coolant Capacity gal. (L).....5.28 (20)
Radiator Coolant Capacity gal. (L)..... 11.6 (44)
Water Pump Capacity gpm (L/min)..... 87.0 (329)
Heat Reject Coolant: Btu/min8,872
Air to Air Heat Reject, BTU/min.4,663
Heat Radiated to Ambient, BTU/min2,668
Low Radiator Coolant Level Shutdown.....Standard
Note: Coolant temp. shut-down switch setting at 228°F (109°C) with 50/50 (water/antifreeze) mix.

COOLING AIR REQUIREMENTS

Combustion Air cfm (m³/min)908 (25.7)
Max Air Intake Restrictions:
Clean Air Cleaner, KPA (psi) 5 (1.5)
Radiator Cooling Air, SCFM (m³/min).....12,085 (342)

EXHAUST SYSTEM

Exhaust Outlet Size.....6"
Max. Back Pressure in KPA (in. H₂O)..... 15 (60.2)
Exhaust Flow, at rated KW, CFM (m³/min)..... 2,129 (61)
Exhaust Temp, (Stack) °F (°C)869 (465)

SOUND LEVELS MEASURED IN dB(A)

	Open Set	Level 2 Encl.
Level 2, Critical Silencer	87	75
Level 3, Hospital Silencer		70

Note: Open sets (no enclosure) have optional silencer system choices due to unknown job-site applications. Level 2 enclosure has installed critical silencer with upgrade to Level 3 hospital silencer. Sound tests are averaged from several test points and taken at 23 ft. (7 m) from source of noise at normal operation.

DERATE GENERATOR FOR ALTITUDE

3% per 1000 ft.(305 meters) above 3000 ft. (914 meters) from sea level.

DERATE GENERATOR FOR TEMPERATURE

2% per 10°F (12°C) above 104°F (40°C)

DIMENSIONS AND WEIGHTS

	Open Set	Level 2 Enclosure
Length in (cm).....	132 (335)	174 (442)
Width in (cm).....	52 (132)	52 (132)
Height in (cm).....	65 (165)	80 (203)
Net Weight lbs (kg).....	6327 (2870)	7597 (3446)
Ship Weight lbs (kg).....	6602 (2995)	7962 (3612)

DEEP SEA 7420 DIGITAL MICROPROCESSOR CONTROLLER



Deep Sea 7420

The “7420” controller is an auto start mains (utility) failure module for single gen-set applications. This controller includes a backlit LCD display which continuously displays the status of the engine and generator at all times.

The “7420” controller will also monitor speed, frequency, voltage, current, oil pressure, coolant temp., and fuel levels. These modules have been designed to display warning and shut down status. It also includes: (11) configurable inputs • (8) configurable outputs • voltage monitoring • mains (utility) failure detection • (250) event logs • configurable timers • automatic shutdown or warning during fault detection • remote start (on load) • engine preheat • advanced metering capability • hour meter • text LCD displays • protected solid state outputs • test buttons for: stop/reset • manual mode • auto mode • lamp test • start button • power monitoring (kWh, kVAr, kVAh, kVArh)

This controller includes expansion features including RS232, RS484 (using MODBUS-RTU/TCP), direct USB connection with PC, expansion optioned using DSENet for remote annunciation and remote relay interfacing for a distance of up to 3300FT. The controller software is freely downloadable from the internet and allows monitoring with direct USB cable, LAN, or by internet via the built in web interface.



Further expansion is available by adding the optional “WebNet” gateway interface module. This device will allow comprehensive monitoring of the generator via the cloud including identification, location, and status. Some advantages of this module include: reduced site visits and maintenance costs • remote fuel management • fault analysis • asset tracking • automatic system alerts • maximized system up-time.

STANDARD FEATURES FOR MODEL SPVD-3000-60 HZ

STANDARD FEATURES

CONTROL PANEL:

Deep Sea 7420 digital microprocessor with logic allows programming in the field. Controller has:

- STOP-MANUAL-AUTO modes and automatic engine shutdowns, signaled by full text LCD indicators:
- Low oil pressure
- High engine temp
- Low Radiator Level
- Three auxiliary alarms
- Battery fail alarm
- Engine fail to start
- Engine over speed
- Engine under speed
- Over & under voltage

Also included is tamper-proof engine hour meter

ENGINE:

Fuel filter • Full flow Oil filter • Air filter • Fuel pump • Oil pump • Solenoid type starter motor • Hi-temp radiator • Jacket water pump • Thermostat • Pusher fan and guard • Exhaust manifold • Electronic Governor • 24 VDC battery charging alternator • Flexible fuel and exhaust connectors • Vibration isolators • Open coolant recovery system with 50/50 water to anti-freeze mixture • flexible oil & radiator hose • Shut-down sensors for low oil pressure, high coolant temp., low coolant level, high ambient temp.

Design & specifications subject to change without prior notice. Dimensions shown are approximate. Contact Gillette for certified drawings.

DO NOT USE DIMENSIONS FOR INSTALLATION PURPOSES.

AC GENERATOR SYSTEM:

AC generator • Shunt excited • Brushless design • Circuit Breaker installed and wired to gen-set • Direct connection to engine with flex disc • Class H, 180°C insulation • Self ventilated • Drip proof construction • UL Certified

VOLTAGE REGULATOR:

1% Voltage regulation • EMI filter • Under-speed protection • Over-excitation protection • total encapsulation

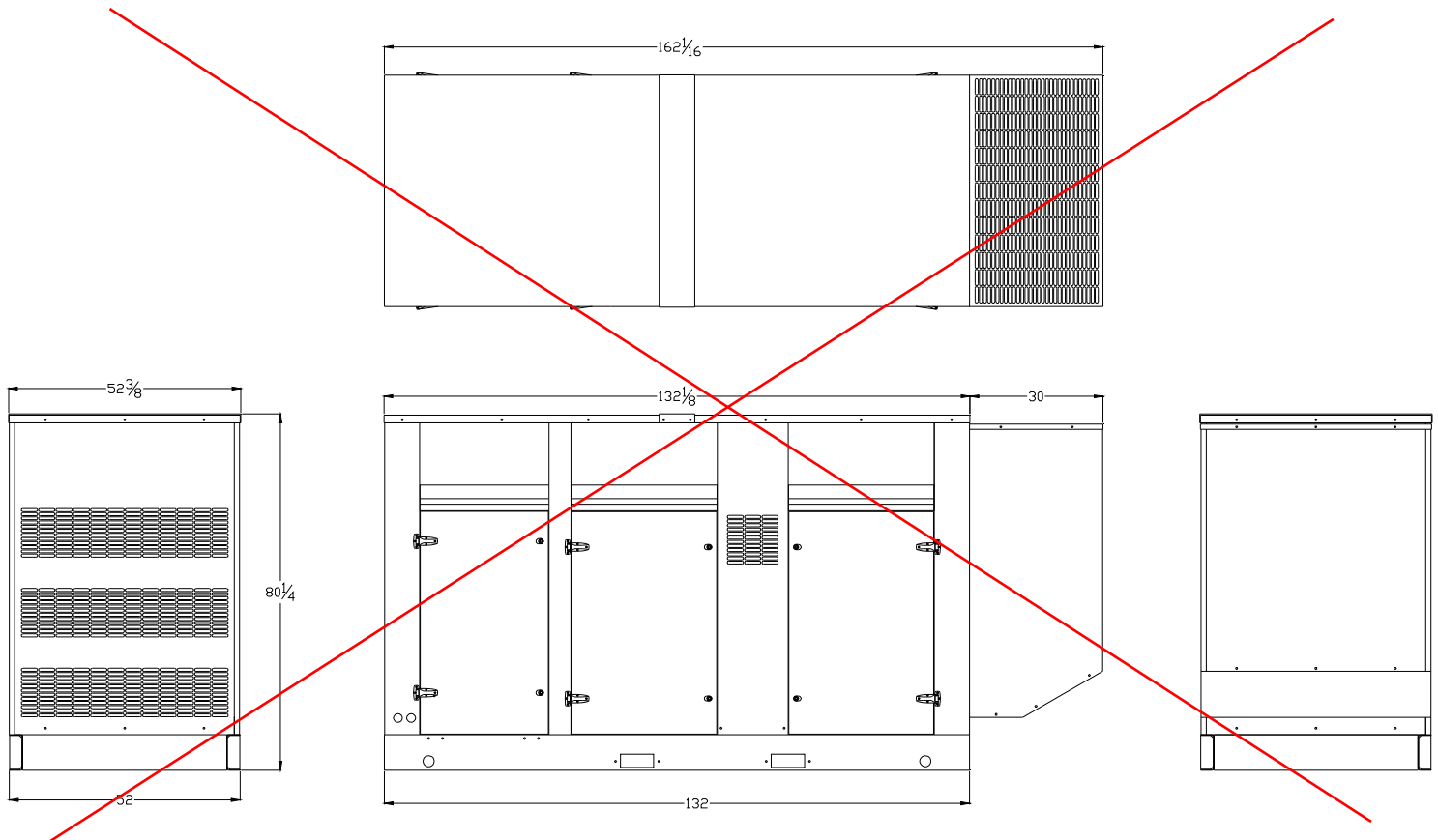
DC ELECTRICAL SYSTEM:

Battery trays • Battery cables • Battery hold down straps • 3-stage battery charger with float, absorption, & bulk automatic charge stages

WEATHER / SOUNDPROOF ALUMINUM HOUSING:

Corrosion Resistant Protection consisting of:

- (9) Heated and Agitated Wash Stages
- Zinc Phosphate Etching-Coating Stage
- Final Baked on Enamel Powder Coat
- 18/8 Stainless Steel Hardware



VOLVO PENTA GENSET ENGINE

TAD1351GE

313 kW (426 hp) at 1500 rpm, 335 kW (456 hp) at 1800 rpm

A powerful, reliable and economical Generating Set Diesel Engine built on the dependable Volvo in-line six concept.

Energy efficiency and Economy

Through careful management of the combustion process, involving precise control of air movement and injection spray Volvo Penta has been able to achieve higher levels of efficiency than ever before. This has resulted in improved fuel economy and reduced exhaust emission levels that comply with current requirements and which will enable the engines to satisfy future legislation.

Volvo Penta engines offer the highest kWh/Liter fuel, resulting in superior economy and performance.

Durability & low noise

Designed for easy, fast and economical installation. Field tested to ensure highest standard of durability and long life. Well-balanced to produce smooth and vibration-free operation with low noise level.

To maintain a controlled working temperature in cylinders and combustion chambers, the engine is equipped with piston cooling. The engine is also fitted with replaceable cylinder liners and valve seats/guides to ensure maximum durability and service life of the engine.

Low exhaust emission

The state of the art, high-tech injection and highly efficient charge air system with low internal losses contributes to excellent combustion and low fuel consumption. The engine is EPA/CARB Tier 3 & EU Stage 3A emission certified. These regulations are met by using V-ACT™ (Volvo Advanced Combustion technology). V-ACT includes a flexible high pressure fuel injection system, an air management system including an internal exhaust gas recirculation device and an enhanced electronic controller.

Easy service & maintenance

Easily accessible service and maintenance points contribute to the ease of service of the engine.



Features

- Volvo Penta Electronic management system
- Certified for US/EPA Tier 3 and EU Stage 3A
- High efficient cooling system
- Compact design
- Base engines as well as Gen Pac configurations
- Switchable between 1500/1800 rpm
- Excellent step load performance acc. to ISO 8528-5 G3 governing class
- Low operating cost

50 Hz/1500 rpm

Prime power			Standby			Generator efficiency (%)
kWm	kWe	kVa	kWm	kWe	kVa	
274	254	318	301	280	350	93%

60 Hz/1800 rpm

Prime power			Standby			Generator efficiency (%)
kWm	kWe	kVa	kWm	kWe	kVa	
294	273	341	323	300	375	93%

**VOLVO
PENTA**

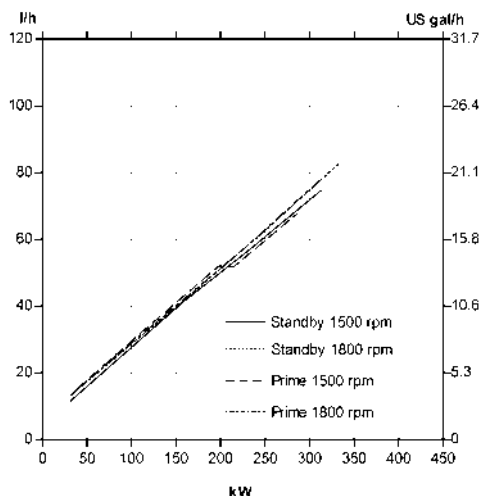
TAD1351GE

Technical Data

General

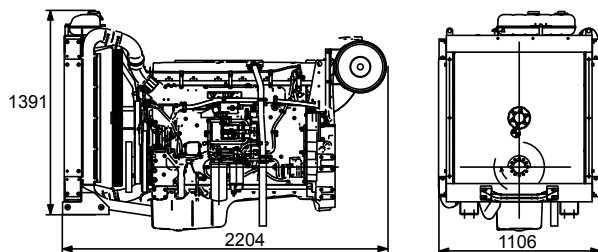
Engine designation	TAD1351GE
No. of cylinders and configuration	in-line 6
Method of operation	4-stroke
Bore, mm (in.)	131 (5.16)
Stroke, mm (in.)	158 (6.22)
Displacement, l (in ³)	12.78 (780)
Compression ratio	18.1:1
Dry weight, engine only, kg (lb)	1295 (2855)
Dry weight with Gen Pac, kg (lb)	1715 (3781)

Performance	1500 rpm	1800 rpm
with fan, kW (hp) at:		
Prime Power	274 (373)	294 (400)
Max Standby Power	301 (409)	323 (439)
Fan power consumption, kW (hp)	6 (8)	12 (16)



Dimensions TAD1351GE

Not for installation



Note! Not all models, standard equipment and accessories are available in all countries. All specifications are subject to change without notice. The engine illustrated may not be entirely identical to production standard engines.

Power Standards

The engine performance corresponds to ISO 3046, BS 5514 and DIN 6271. The technical data applies to an engine without cooling fan and operating on a fuel with calorific value of 42.7 MJ/kg (18360 BTU/lb) and a density of 0.84 kg/liter (7.01 lb/US gal), also where this involves a deviation from the standards. Power output guaranteed within 0 to +2% at rated ambient conditions at delivery. Ratings are based on ISO 8528. Engine speed governing in accordance with ISO 3046/IV, class A1 and ISO 8528-5 class G3

Exhaust emissions

The engine complies with US/EPA Tier 3 and EU stage 3 A emission legislation according to the Non Road Directive EU 97/68/EEC. The engine also complies with TA-luft -50% exhaust emission regulations.

Rating Guidelines

PRIME POWER rating corresponds to ISO Standard Power for continuous operation. It is applicable for supplying electrical power at variable load for an unlimited number of hours instead of commercially purchased power. A10 % overload capability for governing purpose is available for this rating. STANDBY POWER rating corresponds to ISO Standard Fuel Stop Power. It is applicable for supplying standby electrical power at variable load in areas with well established electrical networks in the event of normal utility power failure. No overload capability is available for this rating. 1 hp = 1 kW x 1.36

Information

For more technical data and information, please look in the Generating Set Engines Sales Guide.

Technical description

Engine and block

- Cast iron cylinder block with optimum distribution of forces without the block being unnecessarily heavy.
- Wet, replaceable cylinder liners
- Piston cooling for low piston temperature and reduced ring temperature
- Tapered connecting rods for increased piston lifetime
- Crankshaft induction hardened bearing surfaces and fillets with seven bearings for moderate load on main and high-end bearings
- Case hardened and Nitrocarburized transmission gears for heavy duty operation
- Keystone top compression rings for long service life
- Viscous type crankshaft vibration dampers to withstand single bearing alternator torsional vibrations
- Replaceable valve guides and valve seats
- Over head camshaft and 4 valves per cylinder

Lubrication system

- Full flow oil cooler
- Full flow disposable spin-on oil filter, for extra high filtration
- The lubricating oil level can be measured at start-up
- Gear type lubricating oil pump, gear driven by the transmission

Fuel system

- Electronic high pressure unit injectors
- Fuel prefilter with water separator and water-in-fuel indicator / alarm
- Gear driven low-pressure fuel pump
- Fine fuel filter with manual feed pump and fuel pressure switch

Cooling system

- Efficient cooling with accurate coolant control through a water distribution duct in the cylinder block. Reliable sleeve thermostat with minimum pressure drop
- Belt driven coolant pump with high degree of efficiency

Turbo charger

- Efficient and reliable turbo charger
- Electronically controlled Waste-gate
- Extra oil filter for the turbo charger

Electrical system

- Engine Management System 2 (EMS 2), an electronically controlled processing system which optimizes engine performance. It also includes advanced facilities for diagnostics and fault tracing
- The instruments and controls connect to the engine via the CAN SAE J1939 interface, either through the Control Interface Unit (CIU) or the Digital Control Unit (DCU). The CIU converts the digital CAN bus signal to an analog signal, making it possible to connect a variety of instruments. The DCU is a control panel with display, engine control, monitoring, alarm, parameter setting and diagnostic functions. The DCU also presents error codes in clear text.
- Sensors for oil pressure, oil temp, boost pressure, boost temp, coolant temp, fuel temp, water in fuel, fuel pressure and two speed sensors.

**VOLVO
PENTA**

AB Volvo Penta

SE-405 08 Göteborg, Sweden
www.volvopenta.com



**MARATHON ELECTRIC
SYNCHRONOUS AC GENERATOR
TYPICAL DYNAMIC CHARACTERISTICS**

Basic Model: **433CSL6216/433PSL6216**

Date: **6/15/17**

Kilowatt ratings at		1800 RPM		60 Hertz		12 Leads			
kW (kVA)		3 Phase		0.8 Power Factor		Dripproof or Open Enclosure			
	Class B			Class F		Class H			
Voltage*	80° C ① Continuous	90° C ① Lloyds	95° C ① ABS	105° C ② British Standard	105° C ① Continuous	130° C ① Standby	125° C ② British Standard	125° C ① Continuous	150° C ① Standby
240/480	280 (350)	307 (384)	321 (401)	342 (428)	342 (428)	380 (475)	357 (446)	370 (463)	400 (500)
230/460	285 (356)	312 (390)	325 (406)	346 (433)	346 (433)	380 (475)	359 (449)	372 (465)	395 (494)
220/440	290 (363)	316 (395)	327 (409)	348 (435)	348 (435)	280 (350)	359 (449)	372 (465)	395 (494)
208/416	290 (363)	313 (391)	325 (406)	343 (429)	343 (429)	375 (469)	352 (440)	366 (458)	387 (484)
190/380	281 (351)	302 (378)	311 (389)	330 (413)	330 (413)	357 (446)	336 (420)	350 (438)	370 (463)

① Rise by resistance method, Mil-Std-705, Method 680.1b.

② Rating per BS 5000.

Submittal Data: 240/480 Volts*, 475 kVA, 1800 RPM, 60 Hz, 3 Phase					
Mil-Std-705B			Mil-Std-705B		
Method	Description	Value	Method	Description	Value
301.1b	Insulation Resistance	> 1.5 Meg	505.3b	Overspeed	2250 RPM
302.1a	High Potential Test		507.1c	Phase Sequence CCW-ODE	ABC
	Main Stator	2000 Volts	508.1c	Voltage Balance, L-L or L-N	0.2%
	Main Rotor	1500 Volts	601.4a	L-L Harmonic Maximum - Total	5.0%
	Exciter Stator	1500 Volts		(Distortion Factor)	
	Exciter Rotor	1500 Volts	601.4a	L-L Harmonic Maximum - Single	3.0%
	PMG Stator	1500 Volts**	601.1c	Deviation Factor	5.0%
401.1a	Stator Resistance, Line to Line		---	TIF (1960 Weightings)	<50
	High Wye Connection	0.0124 Ohms	652.1a	Shaft Current	< 0.1 ma
	Rotor Resistance	1.079 Ohms	652.1a	Main Stator Capacitance to	
	Exciter Stator	18.5 Ohms		Ground	0.028 mfd
	Exciter Rotor	0.116 Ohms	Additional Prototype Mil-Std Methods are Available on Request.		
	PMG Stator	2.1 Ohms**			
410.1a	No Load Exciter Field Amps at 480 Volts Line to Line	0.78 A DC	--	Generator Frame	433
420.1a	Short Circuit Ratio	0.552	--	Type	Ext. Voltage Regulated, Brushless
421.1a	Xd Synchronous Reactance	2.174 pu	--	Insulation	Class H
422.1a	X2 Negative Sequence Reactance	0.195 pu	--	Coupling - Single Bearing	Flexible
423.1a	X0 Zero Sequence Reactance	0.038 pu	--	Amortisseur Windings	Full
425.1a	X'd Transient Reactance	0.113 pu	--	Cooling Air Volume	880 CFM
426.1a	X"d Subtransient Reactance	0.108 pu	--	Exciter	Rotating
--	Xq Quadrature Synchronous Reactance	1.124 pu	--	Voltage Regulator	SE350***
427.1a	T'd Transient Short Circuit Time Constant	0.067 sec.	--	Voltage Regulation	1%***
428.1a	T"d Subtransient Short Circuit Time Constant	0.015 sec.	--	Sensing	1 Phase***
430.1a	T'do Transient Open Circuit Time Constant	2.06 sec.			
432.1a	Ta Short Circuit Time Constant of Armature Winding	0.013 sec.			

* Voltage refers to wye (star) connection, unless otherwise specified.

**Not supplied as standard equipment.

***DVR®2000E+ voltage regulator supplied with PMG option. DVR®2000E+ voltage regulation 1/4%, 1 or 3 Phase sensing.

www.marathonelectric.com

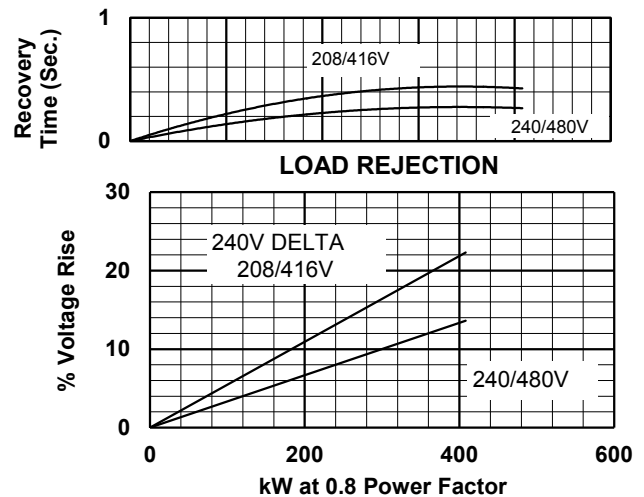
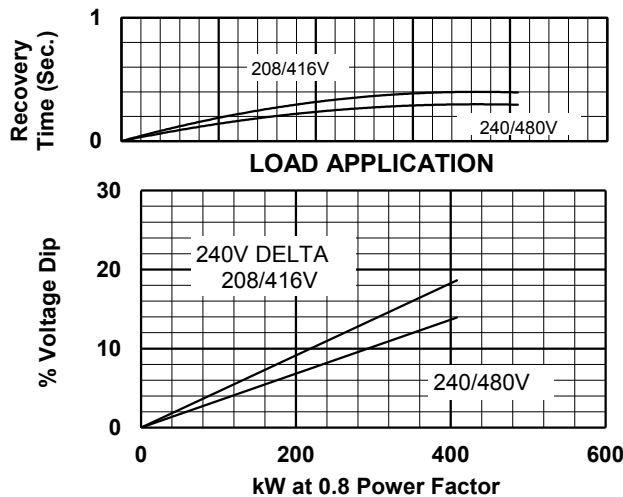


**MARATHON ELECTRIC
SYNCHRONOUS AC GENERATOR
TYPICAL DYNAMIC CHARACTERISTICS**

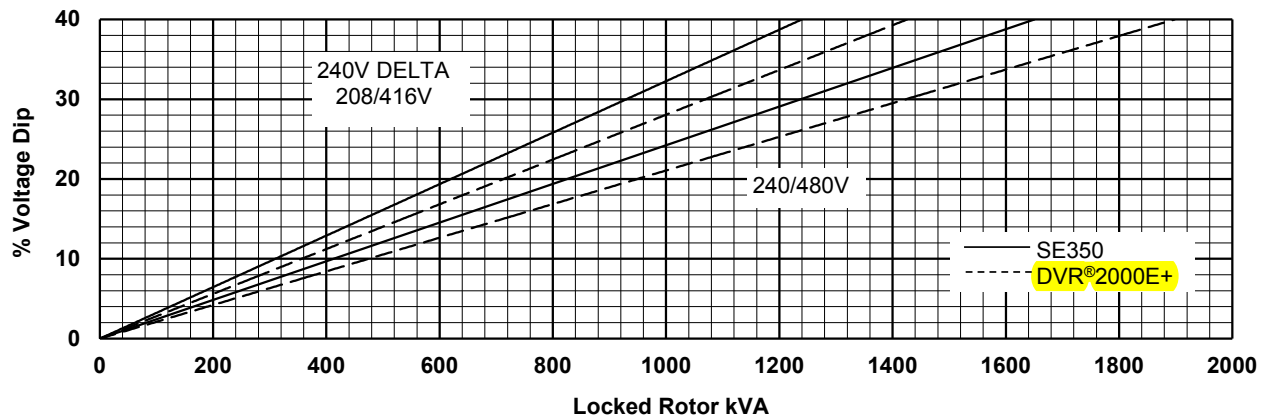
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Date: 6/27/17

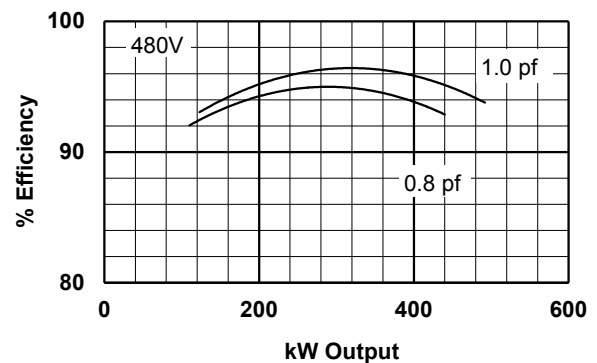
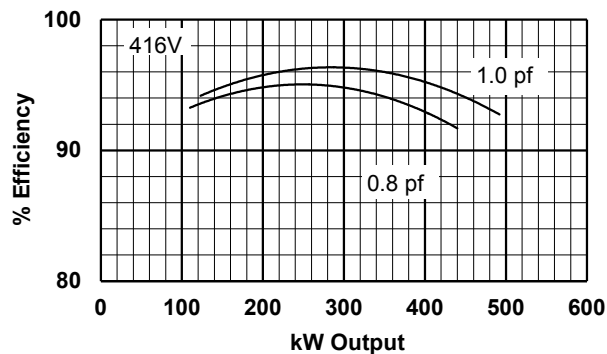
60 HERTZ



TYPICAL MOTOR STARTING CHARACTERISTICS



TYPICAL GENERATOR EFFICIENCY



Voltage refers to wye (star) connection, unless otherwise specified.

www.marathonelectric.com

DSE7410/20

AUTO START & AUTO MAINS FAILURE MODULES

FEATURES

The DSE7410 is an Auto Start Control Module and the **DSE7420** is an Auto Mains (Utility) Failure Control Module suitable for a wide variety of single, diesel or gas, gen-set applications.

A sophisticated module monitoring an extensive number of engine parameters, the DSE74xx will annunciate warnings, shutdown and engine status information on the back-lit LCD screen, illuminated LED, remote PC, audible alarm and via SMS text alerts. The module includes RS232, RS485 & Ethernet ports as well as dedicated terminals for system expansion.

The DSE7400 Series modules are compatible with electronic (CAN) and non-electronic (magnetic pick-up/alternator sensing) engines and offer a comprehensive number of flexible inputs, outputs and extensive engine protections so the system can be easily adapted to meet the most demanding industry paralleling requirements.

The modules can be easily configured using the DSE Configuration Suite Software. Selected front panel editing is also available.

ENVIRONMENTAL TESTING STANDARDS

ELECTRO-MAGNETIC COMPATIBILITY

BS EN 61000-6-2
EMC Generic Immunity Standard for the Industrial Environment
BS EN 61000-6-4
EMC Generic Emission Standard for the Industrial Environment

ELECTRICAL SAFETY

BS EN 60950
Safety of Information Technology Equipment, including Electrical Business Equipment

TEMPERATURE

BS EN 60068-2-1
Ab/Ae Cold Test -30 °C
BS EN 60068-2-2
Bb/Be Dry Heat +70 °C

VIBRATION

BS EN 60068-2-6
Ten sweeps in each of three major axes
5 Hz to 8 Hz @ +/-7.5 mm,
8 Hz to 500 Hz @ 2 gn

HUMIDITY

BS EN 60068-2-30
Db Damp Heat Cyclic 20/55 °C @ 95% RH 48 Hours
BS EN 60068-2-78
Cab Damp Heat Static 40 °C @ 93% RH 48 Hours

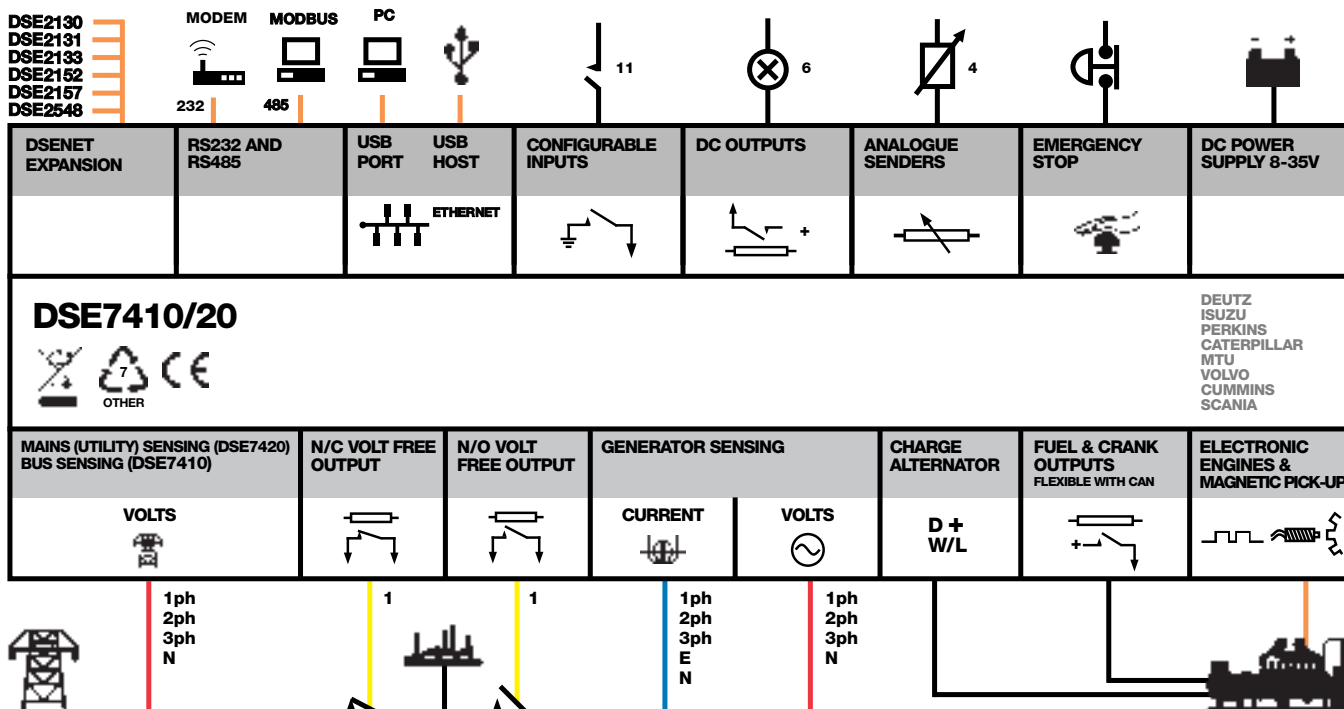
SHOCK

BS EN 60068-2-27
Three shocks in each of three major axes
15 gn in 11 ms

DEGREES OF PROTECTION PROVIDED BY ENCLOSURES

BS EN 60529
IP65 - Front of module when installed into the control panel with the supplied sealing gasket.

COMPREHENSIVE FEATURE LIST TO SUIT A WIDE VARIETY OF GEN-SET APPLICATIONS



DSE7410/20

AUTO START & AUTO MAINS FAILURE MODULES

FEATURES



DSE7420

DSE7410



KEY FEATURES

- Configurable inputs (11)
- Configurable outputs (8)
- Voltage measurement
- Mains (utility) failure detection
- Dedicated load test button
- kW overload alarms
- Comprehensive electrical protection
- RS232, RS485 & Ethernet remote communications
- Modbus RTU/TCP
- PLC functionality
- Multi event exercise timer
- Back-lit LCD 4-line text display
- Multiple display languages
- Automatic start/Manual start
- Audible alarm
- Fixed and flexible LED indicators
- Event log (250)
- Engine protection
- Fault condition notification to a designated PC
- Front panel mounting
- Protected front panel programming
- Configurable alarms and timers
- Configurable start and stop timers

- Five key menu navigation
- Front panel editing with PIN protection
- 3 configurable maintenance alarms
- CAN and magnetic pick-up/Alt. sensing
- Fuel usage monitor and low fuel alarms
- Charge alternator failure alarm
- Manual speed control (on compatible CAN engines)
- Manual fuel pump control
- "Protections disabled" feature
- Reverse power protection
- Power monitoring (kW h, kV Ar, kV A h, kV Ar h)
- Load switching (load shedding and dummy load outputs)
- Automatic load transfer (DSE7420)
- Unbalanced load protection
- Independent earth fault trip
- Fully configurable via DSE Configuration Suite PC software
- Configurable display languages
- Remote SCADA monitoring via DSE Configuration Suite PC software

- Advanced SMS messaging (additional external modem required)
- Start & stop capability via SMS messaging
- Additional display screens to help with modem diagnostics
- DSENet® expansion
- Integral PLC editor

KEY BENEFITS

- RS232, RS485 & Ethernet can be used at the same time
- DSENet® connection for system expansion
- PLC functionality
- Five step dummy load support
- Five step load shedding support
- High number of inputs and outputs
- Worldwide language support
- Direct USB connection to PC
- Ethernet monitoring
- USB host
- Data logging & trending

RELATED MATERIALS

TITLE

DSE7410 Installation Instructions
DSE7420 Installation Instructions
 DSE74xx Quick Start Guide
 DSE74xx Operator Manual
 DSE74xx PC Configuration Suite Manual

PART NO'S

053-085
 053-088
 057-162
 057-161
 057-160

SPECIFICATION

DC SUPPLY

CONTINUOUS VOLTAGE RATING
 8 V to 35 V Continuous

CRANKING DROPOUTS

Able to survive 0 V for 50 mS, providing supply was at least 10 V before dropout and supply recovers to 5 V. This is achieved without the need for internal batteries

MAXIMUM OPERATING CURRENT

260 mA at 12 V, 130 mA at 24 V

MAXIMUM STANDBY CURRENT

120 mA at 12 V, 65 mA at 24 V

CHARGE FAIL/EXCITATION RANGE

0 V to 35 V

OUTPUTS

OUTPUT A (FUEL)

15 A DC at supply voltage

OUTPUT B (START)

15 A DC at supply voltage

OUTPUTS C & D

8 A AC at 250 V AC (Volt free)

AUXILIARY OUTPUTS E, F, G, H, I & J

2 A DC at supply voltage

GENERATOR

VOLTAGE RANGE

15 V to 333 V AC (L-N)

FREQUENCY RANGE

3.5 Hz to 75 Hz

MAINS (UTILITY) (DSE7420)

VOLTAGE RANGE

15 V to 333 V AC (L-N)

FREQUENCY RANGE

3.5 Hz to 75 Hz

BUS (DSE7410)

VOLTAGE RANGE

15 V to 333 V AC (L-N)

FREQUENCY RANGE

3.5 Hz to 75 Hz

MAGNETIC PICK UP

VOLTAGE RANGE

+/- 0.5 V to 70 V

FREQUENCY RANGE

10,000 Hz (max)

DIMENSIONS

OVERALL

240 mm x 172 mm x 57 mm
 9.4" x 6.8" x 2.2"

PANEL CUTOUT

220 mm x 160 mm
 8.7" x 6.3"

MAXIMUM PANEL THICKNESS

8 mm
 0.3"

STORAGE TEMPERATURE RANGE

-40 °C to +85 °C

DEEP SEA ELECTRONICS PLC UK

Highfield House, Hunmanby Industrial Estate, Hunmanby YO14 0PH
TELEPHONE +44 (0) 1723 890099 **FACSIMILE** +44 (0) 1723 893303
EMAIL sales@deepseapl.com **WEBSITE** www.deepseapl.com

DEEP SEA ELECTRONICS INC USA

3230 Williams Avenue, Rockford, IL 61101-2668 USA
TELEPHONE +1 (815) 316 8706 **FACSIMILE** +1 (815) 316 8708
EMAIL sales@deepseausa.com **WEBSITE** www.deepseausa.com

Tmax-Molded Case Circuit Breakers

T5 400A and 600A Frame

AC Circuit Breakers and Switches

DC Circuit Breakers and Switches (400A Only)

3 and 4 Pole

Motor Circuit Protectors

Higher Performances in Less Space

Field Installable Accessories and Trip Units



Dimensions 3P Fixed Version 8.07H x 5.51W x 4.07D

Compliance with Standards

UL 489

CSA C22.2 No.5.1

IEC 60947-2

Standards

EC directive:

– “Low Voltage Directives” (LVD) no. 73/23 EEC

– “Electromagnetic Compatibility Directive” (EMC) no.89/336 EEC

The ABB Quality System complies with the international ISO 9001 - 2000 Standard (model for quality assurance in design, development, construction, and installation and service) and with the equivalent European EN ISO 9001 and Italian UNI EN ISO 9001 Standards

Interrupting ratings (RMS sym. kAmps)

		T5				
Continuous Current Rating		400-600A				
Number of Poles		3-4				
		N	S	H	L	V
AC						
	240V	65	100	150	200	200
	480V	25	35	65	100	150
	600V	18	25	35	65	100
DC* (400 A only)						
500V	2 poles in series	25	35	50	65	100
600V	3 poles in series	16	25	35	50	65

*Thermo Magnetic Trip Only

ABB

Company Quality Systems and Environmental Systems

The new Tmax series has a hologram on the front, obtained using special anti-imitation techniques, which guarantees the quality and that the circuit breaker is an original ABB product.

Attention to protection of the environment and to health and safety in the work place is another priority commitment for ABB and, as confirmation of this, the company environmental management system has been certified by RINA in 1997, in conformity with the international ISO 14001 Standard. This certification has been integrated in 1999 with the Management System for Health and Safety in the workplace, according to OHSAS 18001 (British Standards), obtaining one of the first certification of integrated management System, QES (Quality, Environment,

Safety) issued by RINA. ABB - the first industry in the electro-mechanical section in Italy to obtain this recognition - thanks to a revision of the production process with an eye to ecology has been able to reduce the consumption of raw materials and waste from processing by 20%. ABB's commitment to safeguarding the environment is also shown in a concrete way by the Life Cycle Assessments of its products carried out directly by the ABB Research and Development in collaboration with the ABB Research Center. Selection of materials, processes and packing materials is made optimizing the true environmental impact of the product, also foreseeing the possibility of its being recycled.

Mounting

Fixed
Plug-in
Drawout

Connections

Busbar connection or compression lugs
Pressure-type terminals for bare cables
Rear connections

Trip Unit

TMA thermo magnetic trip units, with adjustable thermal threshold ($I_1 = 0.7 \dots 1 \times I_n$) and adjustable magnetic threshold ($I_3 = 5 \dots 10 \times I_n$).

PR221DS, PR222DS/P and PR222DS/PD-A electronic trip unit

Weight (lbs)	8.55
---------------------	------

Auxiliary Devices for Indication and Control

- Auxiliary contacts - AUX
- Undervoltage release - UVR
- Shunt trip - SOR
- Terminal covers
- Front for lever operating mechanism - FLD
- Direct rotary handle - RHD
- Stored energy motor operator - MOE
- Key lock - KLF
- Early auxiliary contact - AUE
- Transmitted rotary handle - RHE
- Front terminal for copper cable - FC Cu
- Front extended terminal - EF
- Front terminal for copper-aluminum - FC CuAl
- Front extended spread terminal - ES
- Distribution lugs
- Rear orientated terminal - R
- Phase separators
- Residual current release (IEC Only)



ABB Inc.

1206 Hatton Road
Wichita Falls, TX 76302
For more information and
the location of your local
field office please go to
www.abb-control.com

Digital Linear Chargers

Specifications

- Waterproof, shock-and vibration-resistant aluminum construction
- Saltwater tested and fully corrosion-resistant
- Short circuit, reverse polarity, and ignition protected
- For use with 12V/6 cell batteries that are flooded/wet cell, maintenance free or starved electrolyte (AGM) only
- FCC compliant
- UL listed to marine standard 1236
- 3 year warranty
- Replaces all existing current on-board chargers (excluding portables)
- No Price Increase
- Availability: November 2010



DIGITAL LINEAR ON-BOARD CHARGERS

PRODUCT CODE	PRODUCT DESCRIPTION
1821065	MK 106D (1 bank x 6 amps)
1821105	MK-110D (1 bank x 10 amps)
1822105	MK-210D (2 bank x 5 amps)
1823155	MK-315D (3 bank x 5 amps)
1822205	MK-220D (2 bank x 10 amps)
1823305	MK-330D (3 bank x 10 amps)
1824405	MK-440D (4 bank x 10 amps)
1822305	MK-230D (2 bank x 15 amps)
1823455	MK-345D (3 bank x 15 amps)
1824605	MK-460D (4 bank x 15 amps)

Digital Linear Chargers

Specifications (cont.)

- New 4-color package design



minnkotamotors.com

minn KOTA

ON-BOARD MARINE BATTERY CHARGER

DIGITALLY CONTROLLED 2X FASTER CHARGING PROTECTS BATTERIES

Digital[±] CONTROL

MK210D

FC 10AMPS

MK 210D
2 CHARGING BANKS
5 AMPS PER BANK
10 AMPS TOTAL OUTPUT



CHARGING TECHNOLOGY

CHARGING TECHNOLOGY

DIGITALLY CONTROLLED.
Microprocessor design protects your batteries so you can stay on the water longer. It monitors temperature and state of charge to create a faster, regulated, more precise charge. Also includes automatic shut-off when charging is complete to extend battery life.

DIGITALLY CONTROLLED.
Microprocessor design protects your batteries so you can stay on the water longer. It monitors temperature and state of charge to create a faster, regulated, more precise charge. Also includes automatic shut-off when charging is complete to extend battery life.

ENHANCED STATUS CODES.
Provides comprehensive feedback on charge stage, maintenance mode status, error notification and full charge.

ENHANCED STATUS CODES.
Provides comprehensive feedback on charge stage, maintenance mode status, error notification and full charge.

Digital[±] CONTROL

MULTI-STAGE CHARGING.
Delivers a fast, precise charge profile by automatically controlling current and voltage without overcharging your batteries.

MULTI-STAGE CHARGING.
Delivers a fast, precise charge profile by automatically controlling current and voltage without overcharging your batteries.

AUTOMATIC TEMPERATURE COMPENSATION.
Adjusts output voltage based on ambient temperature to ensure a full charge and protect your batteries.

AUTOMATIC TEMPERATURE COMPENSATION.
Adjusts output voltage based on ambient temperature to ensure a full charge and protect your batteries.

TIME (THREE STAGE CHARGE)

BATTERY CHARGER TEMPERATURE COMPENSATION

BATTERY TEMPERATURE (degrees F)

2010

minn KOTA

HUMMINBIRD

CANNON

Accessories Electrical T4 - T5

Tmax
MCCBs

Shunt trips (Standard)

Voltage	Factory installation		Field installation	
	Catalog number suffix ①	List price adder	Catalog number T4 – T5	List price
480 – 500VAC	S1	\$ 535	KT5S1	\$ 490
220/250VAC/DC	S2		KT5S2	
380 – 440VAC	S3		KT5S3	
110 – 125VAC/DC	S4		KT5S4	
48 – 60VAC/DC	S7		KT5S7	
24 VAC/DC	S8		KT5S8	
12VDC	S9		KT5S9	

Shunt trip (Permanent supply)

Voltage	Factory installation		Field installation	
	Catalog number suffix ①	List price adder	Catalog number T4 – T5	List price
110 – 120 VAC	SP4	\$ 535	KT5SP4	\$ 490
24 – 30 VAC/DC	SP8		KT5SP8	

Undervoltage release

Voltage	Factory installation		Field installation	
	Catalog number suffix ①	List price adder	Catalog number T4 – T5	List Price
480 – 500 VAC	U1	\$ 535	KT5U1	\$ 490
220 – 250 VAC/DC	U2		KT5U2	
380 – 440 VAC	U3		KT5U3	
110 – 125 VAC/DC	U4		KT5U4	
60 VAC/DC	U5		KT5U5	
48 VAC/DC	U7		KT5U7	
24 VAC/DC	U8		KT5U8	

Auxiliary contacts

Contacts	Factory installation		Field installation	
	Catalog number suffix	List price adder	Catalog number	List Price
1 Form C + 1 BA, 250 VAC/VDC	A	\$ 433	KT5AS	\$ 380
3 Form C + 1 BA, 250 VAC/VDC	A3	770	KT5AS3	725
3 Form C + 1 BA, 24 VDC	A3AU	770	KT5AS3-AU	725

Stored energy motor operator

Voltage	Field installation	
	Catalog number	List Price
220 – 250 VAC/DC	KT5M2	\$ 2385
110 – 125 VAC/DC	KT5M4	
48 – 60 VDC	KT5M7	
24 VDC	KT5M8	

Stored energy motor operator – Contact remote/manual operation

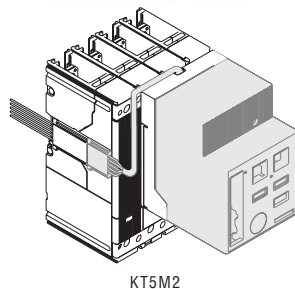
Contacts	Factory installation		Field installation	
	Catalog number suffix	List price adder	Catalog number	List Price
1 Form C	MA	\$ 265	KT5MA	\$ 220

Adapters ②

Item	6 Way	10 Way	12 Way	Catalog number	List price
1 Form C + 1BA	■			KT5ADP-6	\$ 24
Shunt trip / UVR	■			KT5ADP-6	24
Stored energy motor operator		■		KT5ADP-10	30
Stored energy motor operator plus shunt trip/UVR		■		KT5ADP-10	30
3 Form C + 1BA			■	KT5ADP-12	35

① For factory installation add suffix given to end of circuit breaker catalog number per accessory format.

② Required when mounting accessories on plug-in/drawout breakers



KT5M2

Hospital grade silencers are best suitable for applications where a high level of sound attenuation is required. Typical sound attenuation for this grade is in the range of 33 to 40 dB(A) on diesel and gaseous fueled reciprocating industrial engines.

Standard Features

- Continuously welded heavy duty steel construction
- Dual chamber design
- Dual wall outer shell to reduce break out noise
- NPT connections up to 4" sizes
- ANSI 125/150# flanges 4" and larger
- High Temperature black finish – rated to 1000F

Optional Features & Configurations

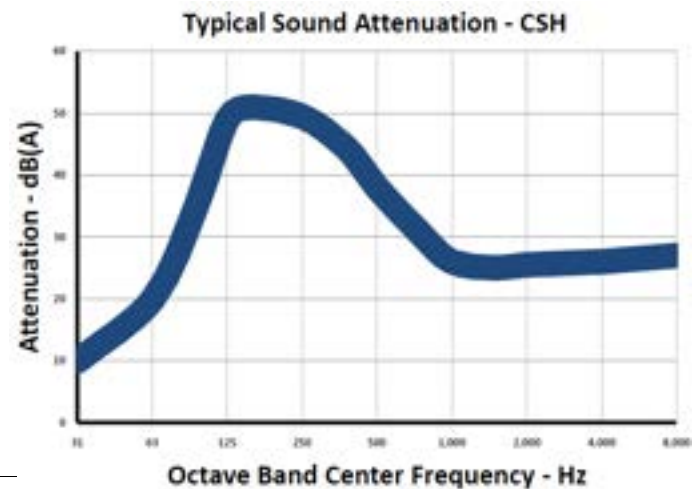
- Dual inlets
- Spark Arresting
- Special Flanges / Port Connections
- Mounting Brackets
- Support Structures

Material & Finishing options available

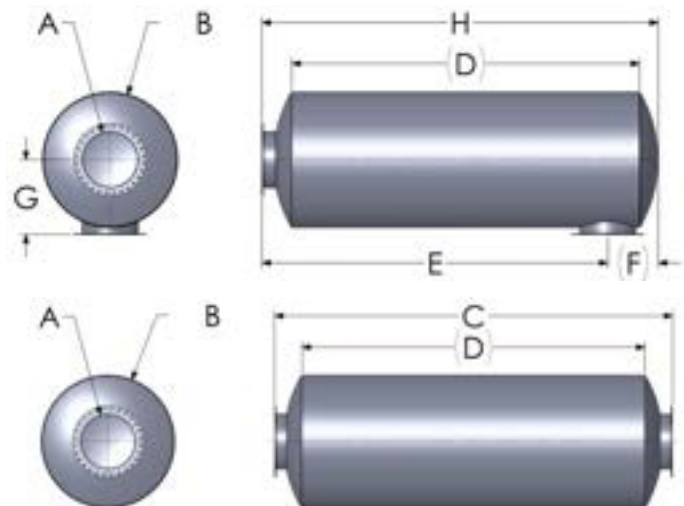
- Aluminized outer shell and external heads
- Metallized Aluminum Spray Coat Finish with 100% protected outer surfaces
- High performance paint options
- Custom Aluminum Lagging
- Stainless steel – 304, 316, 321



CSH-16 in 304 stainless



DIMENSIONS (Inches)									
Model	A	B	C	D	E	F	G	H	Lbs.
CSH-15	1.50	8	36	22	26	6	8	32	26
CSH-02	2.00	10	40	30	30	6	9	36	35
CSH-25	2.50	12	46	24	36	6	10	42	47
CSH-03	3.00	14	58	48	50	6	11	56	78
CSH-35	3.50	16	60	48	48	8	12	56	96
CSH-04	4.00	18	66	54	56	8	13	64	126
CSH-05	5.00	22	72	60	62	8	15	70	169
CSH-06	6.00	26	84	72	72	10	17	82	306
CSH-08	8.00	30	108	92	96	10	19	106	489
CSH-10	10.00	36	120	102	104	12	22	116	712
CSH-12	12.00	36	132	114	114	14	22	128	778
CSH-14	14.00	42	144	126	124	16	25	140	1418
CSH-16	16.00	42	156	138	134	18	25	152	1789
CSH-18	18.00	48	174	156	150	20	28	170	2652
CSH-20	20.00	54	186	162	160	22	31	182	3021
CSH-22	22.00	60	204	180	176	24	34	200	3649
CSH-24	24.00	64	216	192	186	26	36	212	4228
CSH-26	26.00	68	240	216	208	28	38	236	5031
CSH-28	28.00	72	270	246	236	30	40	266	5943
CSH-30	30.00	78	288	258	252	32	43	284	8163



Small Tank Heaters

TPS Model
Single Phase
500-2000 Watts
120V & 240V

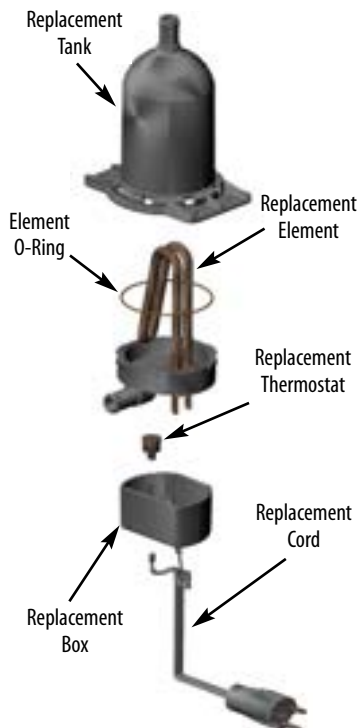


Ambient Above -20° F	Ambient Below -20° F	Kim Hotstart Model Number	Volts	Watts	Phase	Amps	Thermostat Range	
							On	Off
150 Cubic Inch or Less	150 Cubic Inch or Less	TPS051GT8-000	120	500	1	4.2	80°F	100°F
		TPS051GT10-000	120	500	1	4.2	100°F	120°F
		TPS051GT12-000	120	500	1	4.2	120°F	140°F
		TPS052GT8-000	240	500	1	2.1	80°F	100°F
		TPS052GT10-000	240	500	1	2.1	100°F	120°F
		TPS052GT12-000	240	500	1	2.1	120°F	140°F
350 Cubic Inch or Less	200 Cubic Inch or Less	TPS101GT8-000	120	1000	1	8.4	80°F	100°F
		TPS101GT10-000	120	1000	1	8.4	100°F	120°F
		TPS101GT12-000	120	1000	1	8.4	120°F	140°F
		TPS102GT8-000	240	1000	1	4.2	80°F	100°F
		TPS102GT10-000	240	1000	1	4.2	100°F	120°F
		TPS102GT12-000	240	1000	1	4.2	120°F	140°F
350 — 500 Cubic Inch or Less	200 — 300 Cubic Inch or Less	TPS151GT8-000	120	1500	1	12.5	80°F	100°F
		TPS151GT10-000	120	1500	1	12.5	100°F	120°F
		TPS151GT12-000	120	1500	1	12.5	120°F	140°F
		TPS152GT8-000	240	1500	1	6.3	80°F	100°F
		TPS152GT10-000	240	1500	1	6.3	100°F	120°F
		TPS152GT12-000	240	1500	1	6.3	120°F	140°F
500 — 700 Cubic Inch or Less	300 — 400 Cubic Inch or Less	TPS181GT8-000	120	1800	1	15	80°F	100°F
		TPS181GT10-000	120	1800	1	15	100°F	120°F
		TPS181GT12-000	120	1800	1	15	120°F	140°F
		TPS202GT8-000	240	2000	1	8.3	80°F	100°F
		TPS202GT10-000	240	2000	1	8.3	100°F	120°F
		TPS202GT12-000	240	2000	1	8.3	120°F	140°F

Kim Hotstart TPS tank heaters are constructed from a durable, high-impact plastic. Every heater is assembled with a built-in thermostat and 4-foot power cord.

Replacement Parts

For small tank-style heaters



Model Number	Volts	Watts	Thermostat Range		Replaceable Parts					
			On	Off	T-Stat	Element	Tank	Box	Power Cord	Element O-ring
TPS051GT8-000	120	500	80°F	100°F	LSU-8	REPS051T8	TPS-T	CPS-1	11P48UU	TPS-BOR
TPS051GT10-000	120	500	100°F	120°F	LSU-10	REPS051T10	TPS-T	CPS-1	11P48UU	TPS-BOR
TPS051GT12-000	120	500	120°F	140°F	LSU-12	REPS051T12	TPS-T	CPS-1	11P48UU	TPS-BOR
TPS052GT8-000	240	500	80°F	100°F	LSU-8	REPS052T8	TPS-T	CPS-1	21P48UU	TPS-BOR
TPS052GT10-000	240	500	100°F	120°F	LSU-10	REPS052T10	TPS-T	CPS-1	21P48UU	TPS-BOR
TPS052GT12-000	240	500	120°F	140°F	LSU-12	REPS052T12	TPS-T	CPS-1	21P48UU	TPS-BOR
TPS101GT8-000	120	1000	80°F	100°F	LSU-8	REPS101T8	TPS-T	CPS-1	11P48UU	TPS-BOR
TPS101GT10-000	120	1000	100°F	120°F	LSU-10	REPS101T10	TPS-T	CPS-1	11P48UU	TPS-BOR
TPS101GT12-000	120	1000	120°F	140°F	LSU-12	REPS101T12	TPS-T	CPS-1	11P48UU	TPS-BOR
TPS102GT8-000	240	1000	80°F	100°F	LSU-8	REPS102T8	TPS-T	CPS-1	21P48UU	TPS-BOR
TPS102GT10-000	240	1000	100°F	120°F	LSU-10	REPS102T10	TPS-T	CPS-1	21P48UU	TPS-BOR
TPS102GT12-000	240	1000	120°F	140°F	LSU-12	REPS102T12	TPS-T	CPS-1	21P48UU	TPS-BOR
TPS151GT8-000	120	1500	80°F	100°F	LSU-8	REPS151T8	TPS-T	CPS-1	11P48UU	TPS-BOR
TPS151GT10-000	120	1500	100°F	120°F	LSU-10	REPS151T10	TPS-T	CPS-1	11P48UU	TPS-BOR
TPS151GT12-000	120	1500	120°F	140°F	LSU-12	REPS151T12	TPS-T	CPS-1	11P48UU	TPS-BOR
TPS152GT8-000	240	1500	80°F	100°F	LSU-8	REPS152T8	TPS-T	CPS-1	21P48UU	TPS-BOR
TPS152GT10-000	240	1500	100°F	120°F	LSU-10	REPS152T10	TPS-T	CPS-1	21P48UU	TPS-BOR
TPS152GT12-000	240	1500	120°F	140°F	LSU-12	REPS152T12	TPS-T	CPS-1	21P48UU	TPS-BOR
TPS181GT8-000	120	1800	80°F	100°F	LSU-8	REPS181T8	TPS-T	CPS-1	12P48UU	TPS-BOR
TPS181GT10-000	120	1800	100°F	120°F	LSU-10	REPS181T10	TPS-T	CPS-1	12P48UU	TPS-BOR
TPS181GT12-000	120	1800	120°F	140°F	LSU-12	REPS181T12	TPS-T	CPS-1	12P48UU	TPS-BOR
TPS202GT8-000	240	2000	80°F	100°F	LSU-8	REPS202T8	TPS-T	CPS-1	21P48UU	TPS-BOR
TPS202GT10-000	240	2000	100°F	120°F	LSU-10	REPS202T10	TPS-T	CPS-1	21P48UU	TPS-BOR
TPS202GT12-000	240	2000	120°F	140°F	LSU-12	REPS202T12	TPS-T	CPS-1	21P48UU	TPS-BOR

Small Tank Heaters

TPS Model w/in-line adjustable and remote thread-in fixed thermostat

**Single Phase
500-2000 Watts
120V & 240V**

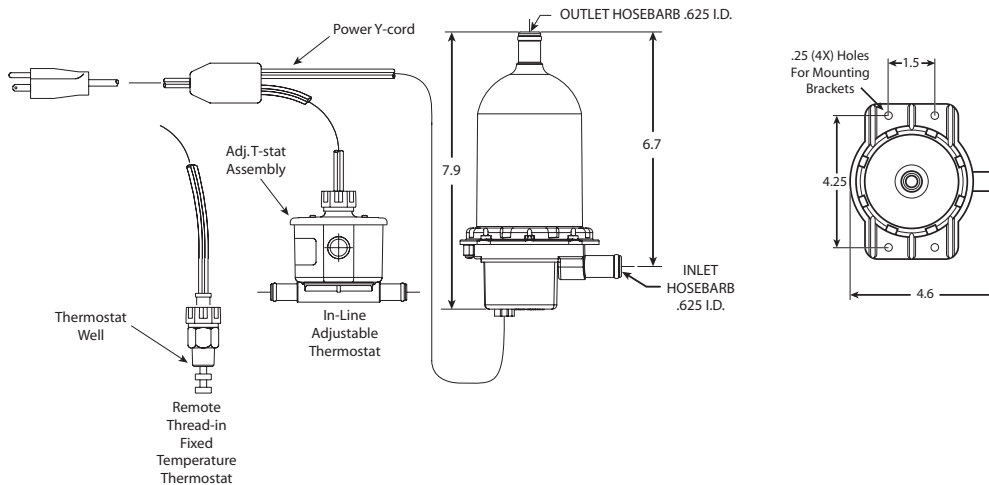


Ambient Above -20° F	Ambient Below -20° F	Kim Hotstart Model Number	Volts	Watts	Phase	Amps	Thermostat Range On Off
150 Cubic Inch or Less	150 Cubic Inch or Less	TPS051GT12-001*	120	500	1	4.2	100°F 120°F
		TPS051GT12-A00	120	500	1	4.2	ADJUSTABLE
		TPS052GT12-001*	240	500	1	2.1	100°F 120°F
		TPS052GT12-A00	240	500	1	2.1	ADJUSTABLE
350 Cubic Inch or Less	200 Cubic Inch or Less	TPS101GT12-001*	120	1000	1	8.4	100°F 120°F
		TPS101GT12-A00	120	1000	1	8.4	ADJUSTABLE
		TPS102GT12-001*	240	1000	1	4.2	100°F 120°F
		TPS102GT12-A00	240	1000	1	4.2	ADJUSTABLE
350 — 500 Cubic Inch or Less	200 — 300 Cubic Inch or Less	TPS151GT12-001*	120	1500	1	12.5	100°F 120°F
		TPS151GT12-A00	120	1500	1	12.5	ADJUSTABLE
		TPS152GT12-001*	240	1500	1	6.3	100°F 120°F
		TPS152GT12-A00	240	1500	1	6.3	ADJUSTABLE
500 — 700 Cubic Inch or Less	300 — 400 Cubic Inch or Less	TPS181GT12-001*	120	1800	1	15	100°F 120°F
		TPS181GT12-A00	120	1800	1	15	ADJUSTABLE
		TPS202GT12-001*	240	2000	1	8.3	100°F 120°F
		TPS202GT12-A00	240	2000	1	8.3	ADJUSTABLE

* Remote thread-in fixed temperature thermostat

**ADJUSTABLE 90-130°F
(On differential - 20° F)**

In-line thermostat options:



Model Number	Volts	Watts	Thermostat Range On Off	Replaceable Parts			
				Sensing Unit	Element	Power Y-cord	Thermostat Well
TPS051GT12-001*	120	500	100°F 120°F	LSU-10	REPS051T12	TPS-YC1	TW2374-1
TPS051GT12-A00	120	500	ADJUSTABLE	RSU90-130	REPS051T12	#	#
TPS052GT12-001*	240	500	100°F 120°F	LSU-10	REPS052T12	TPS-YC1	TW2374-1
TPS052GT12-A00	240	500	ADJUSTABLE	RSU90-130	REPS052T12	#	#
TPS101GT12-001*	120	1000	100°F 120°F	LSU-10	REPS101T12	TPS-YC1	TW2374-1
TPS101GT12-A00	120	1000	ADJUSTABLE	RSU90-130	REPS101T12	#	#
TPS102GT12-001*	240	1000	100°F 120°F	LSU-10	REPS102T12	TPS-YC1	TW2374-1
TPS102GT12-A00	240	1000	ADJUSTABLE	RSU90-130	REPS102T12	#	#
TPS151GT12-001*	120	1500	100°F 120°F	LSU-10	REPS151T12	TPS-YC1	TW2374-1
TPS151GT12-A00	120	1500	ADJUSTABLE	RSU90-130	REPS151T12	#	#
TPS152GT12-001*	240	1500	100°F 120°F	LSU-10	REPS152T12	TPS-YC1	TW2374-1
TPS152GT12-A00	240	1500	ADJUSTABLE	RSU90-130	REPS152T12	#	#
TPS181GT12-001*	120	1800	100°F 120°F	LSU-10	REPS181T12	TPS-YC1	TW2374-1
TPS181GT12-A00	120	1800	ADJUSTABLE	RSU90-130	REPS181T12	#	#
TPS202GT12-001*	240	2000	100°F 120°F	LSU-10	REPS202T12	TPS-YC1	TW2374-1
TPS202GT12-A00	240	2000	ADJUSTABLE	RSU90-130	REPS202T12	#	#

* Remote thread-in fixed temperature thermostat

Call Factory

Common Replacement Parts For TPS Model Heaters:

- Tank
- Box
- Element O-ring

See table on p. 6



DVR[®]2000E+ / EC+ Digital Voltage Regulator

Four Digit HMI Display

From initial setup to monitoring regulator status, this display provides innovative, world class, fast and easy setup.

Advanced Regulation Modes

Single and Three phase Automatic Voltage Regulation. Manual Field Current Regulation mode. All modes compatible with control by external devices.

VAR / PF Control – DVR2000EC+ Only

Reactive power regulation (VAR) and Power Factor regulation (PF) modes enables paralleling with utility power.

Generator Soft Start

Controlled increase to rated voltage limits overshoot during voltage build-up in AVR modes.

True RMS Voltage Sensing - Single or Three Phase

Connect in the sensing mode you prefer. Directly sense 100 to 600 Volts $\pm 10\%$ at 50/60 Hz. Circuitry senses true RMS voltage rather than average voltage for superior load regulation.

True Three Phase Power Monitoring

Additional CT inputs enable you to sense current on all three phases.

Frame Specific PID Selection

Tuning your regulator for your Marathon Electric generator has never been easier. Simply select the appropriate frame size and your gains are set.

Robust Generator Protection Features

14 different Alarm and Shutdown protection features, many customizable for your application including –

- Generator Startup Fault – DVR2000EC+ Only
- Field Over & Under Excitation
- Instantaneous Field Over Current
- Generator Over & Under Voltage

A Regal Brand



DVR[®] 2000E+ / EC+ Specifications

Voltage Regulation – 0.25% over load range at rated power factor and constant generator frequency.

Output Power – 75 Vdc, 3.0 Adc continuous rating and 150 Vdc, 7.5 Adc forcing capability for one minute.

Exciter Field DC Resistance – 18 to 25Ω range

Voltage Adjustment – Minimum if ±10% of nominal voltage range. Remote adjustment can be made up to 150 feet from voltage regulator.

Input Power – 180 to 240 Vac, 250 to 300 Hz PMG power supply

Operating Temperature – From -40°C to +70°C (-40°F to +158°F)

Storage Temperature – From -40°C to +85°C (-40°F to +185°F)

Ingress Protection – IP52 (front side mounted in conduit box); IP10 (rear side with protective cover)

Shock – 20 Gs in 3 perpendicular planes

Vibration – 2.5 G at 5 to 26 Hz; 0.050" double amplitude (27 to 52 Hz); 7 Gs at 53 to 500 Hz

Weight – 3.5 lb. (1361 g)



Marathon Electric Manufacturing Corp.
P.O. Box 8003
Wausau, WI 54402-8003 USA
www.marathonelectric.com

Humidity Testing – Per MIL-STD-705B, Method 711-D

Salt Fog Testing – Per MIL-STD-810E

CAN Protocol – SAE J1939

Regulator Sensing – 100 to 600 Vac, 50/60 Hz, 1-phase/3-phase

EMI Compatibility

Immunity

Meets EN 61000-6-2: 2005 Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments.

Emission

Meets EN 61000-6-4: 2007 Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for industrial environments

EMI Compatibility Tests

Immunity

Electrostatic Discharge (ESD):

IEC 61000-4-2

Radiated RF: IEC 61000-4-3

Electrical Fast Transient (EFT) / Burst:

IEC 61000-4-4

Conducted RF: IEC 61000-4-6

Power Frequency and Magnetic Field:

IEC 61000-4-8

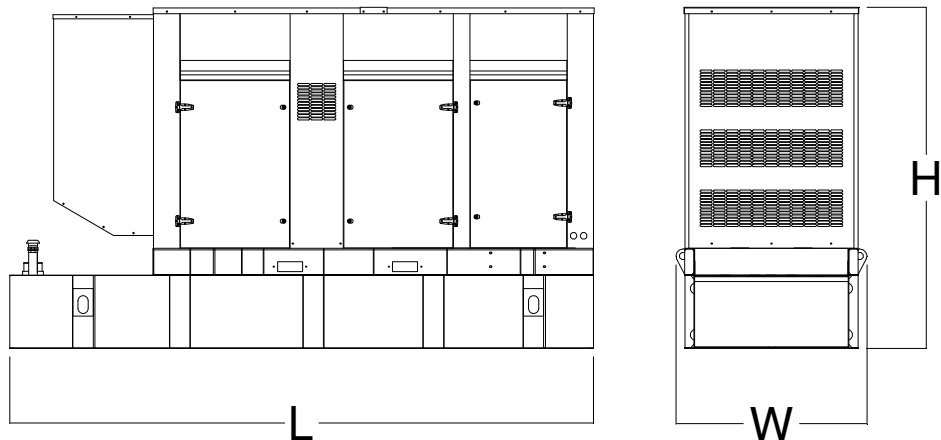
Emission

Radiated RF: EN 61000-6-4: 2007, 30 MHz to 1000 MHz

SPVD-2500-4000-L3-GENERATOR-SET-HINGES-HOSPITAL-GRADE-SILENCER-OVERVIEW-201802224

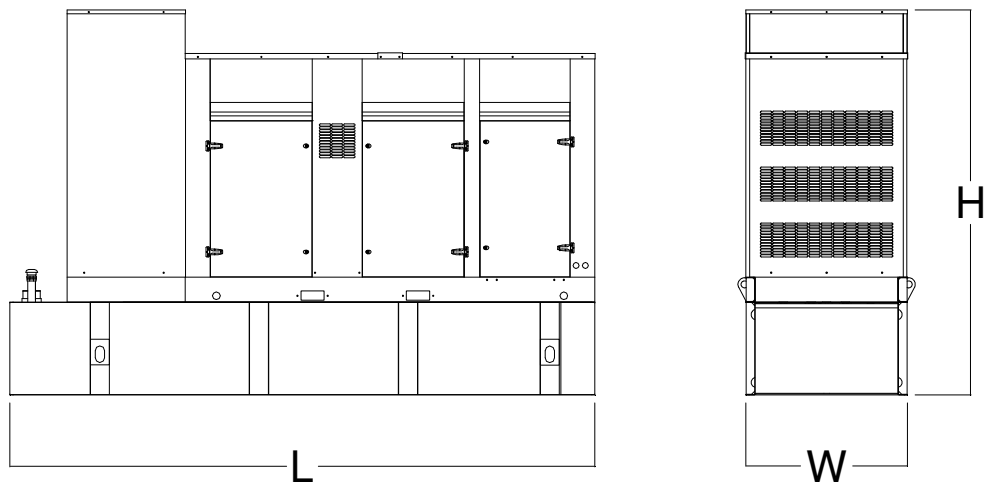
SPVD-3000 GEN-SET MOUNTED ON DOUBLE WALL SUB-BASE TANK

SPVD-3000 LEVEL 2 ENCLOSURE



RUN TIME HOURS	USABLE CAPACITY		L	W	H	WT.
	GAL.	LTR.				
NO TANK	-	-	162	58	80	7597
24	524	1984	188	58	103	12591
48	1047	3963	218	58	116	14259
72	1570	5943	302	58	116	15958
96	2093	7923	388	58	116	18722

SPVD-3000 LEVEL 3 ENCLOSURE



RUN TIME HOURS	USABLE CAPACITY		L	W	H	WT.
	GAL.	LTR.				
NO TANK	-	-	172	58	94	8342
24	524	1984	188	58	117	13336
48	1047	3963	218	58	130	15004
72	1570	5943	302	58	130	16703
96	2093	7923	388	58	130	19467

GILLETTE 5YR EXT LIMITED WARRANTY

FOR STATIONARY STANDBY EMERGENCY POWER SYSTEMS

The Gillette Generator is designed around the latest technology, manufactured and quality inspected by carefully trained and experienced craftspeople. Gillette warrants to the original end user, for the time periods as shown below, that each generator finished product is free from defects in materials and workmanship. Gillette, at its option, will repair, replace, or offer appropriate adjustments, for any generator part that, upon examination and testing by Gillette's factory engineers or by a Gillette authorized service dealer, is found to be defective, when generator set is properly installed, operated and maintained, according to Gillette's instructions. All transportation costs for parts returned to the factory, and new parts sent back to end user, are to be borne and paid by the end user. This warranty is not transferable and does not apply to malfunctions caused by damages, unreasonable use, misuse, unauthorized repair persons, or normal wear and tear. All warranty cost allowances must be within limits as shown in "Gillette Warranty Policies", procedures and flat rate manual.

GILLETTE PRODUCT

WARRANTY TIME PERIOD

Standby Gen-Sets..... (5) Years or 2500 hours (whichever occurs first), from date of manufacture.

(Warranty is void in prime power applications)

Standby: First year covers parts and labor.

Second, third, fourth, & fifth year covers parts only.

THIS WARRANTY SHALL NOT APPLY TO (AND NOT LIMITED TO) THE FOLLOWING:

- Normal engine wear, tune-ups, service parts, including batteries, fuses, and engine fluids.
- Generators in trailer mounted use.
- Original installation or start-up costs.
- Damage due to insect or rodent infestation.
- Gen-sets that are altered from original design.
- Radiators replaced rather than repaired.
- Failures beyond manufacturers control: Riots, wars, theft, fire, freezing, lightening, earthquake, windstorm, hail, flood, hurricane, and all other external causes and Acts of God.
- Any incidental, consequential, or indirect damages, caused by manufacturers defects, or any delay in repair or replacement of defect.
- Costs due to trouble shooting with jobsite repair person, where no defect is found.
- Costs for equipment (cranes, hoist, trucks) for removal or re-installation of gen-set.
- Adjustments to fuel systems or governor systems at time of start-up, or anytime thereafter.
- Excess mileage costs are not permitted. Authorized service provider is limited to 200 mile round trip.
- Diesel engine damage due to constant light loads (wet stacking).
- Travel expense on any portable generators.
- Any labor time that is deemed excessive, by factory.
- Overtime labor and overnight freight costs.
- Steel enclosures, and all other deterioration of parts, installed within 25 miles of saltwater contaminants.
- Failures due, but not limited to, normal wear, misuse, negligence, or faulty installations, such as in-adequate fuel lines or gas pressures.
- Travel or labor expenses and all other costs, incurred while investigating performance complaints, unless problem is caused by defective materials or workmanship by Gillette.
- Warranties of associated equipment, not of Gillette manufacture (auto transfer switches, engines, generators) are subject to the individual manufacturers assigned warranties.
- Failure to use and exercise gen-set for long periods of time.
- Parts installed from sources other than engine or generator manufacturer.
- Manufacturer is not responsible for loose connections caused by vibrations during shipment to jobsite. All connections must be checked during start-up.
- All shipments are F.O.B. factory, consigned to the transit carrier.
- All shipping damage repairs, are between carrier and receiver.
- Any associated costs for replacing components, found to be defective.
- Rental costs of equipment during any warranty procedures.
- Room and board expense due to overnight service conditions.

Any implied or statutory warranty, including any other warranty as to the merchant ability or fitness for a particular purpose or use, is expressly limited to the duration of this warranty. Some states do not allow limitations on how long an implied warranty may last, or the exclusion or limitation of incidental or consequential damages, so the above listing of limitations or exclusions, may not apply to you.

This is our written limited warranty and we make no other expressed warranty. No other identity is authorized to make any different or additional warranties on Gillette's behalf. This Gillette warranty gives you specific rights. You may have additional rights that may vary from state to state.

GILLETTE GENERATORS, INC.
2921 THORNE DRIVE • ELKHART, IN 46514

WARRANTY SERVICE PH: 866-537-4388
WARRANTY SERVICE FAX: 574-262-1840
WEBSITE: www.gillettegenerators.com



Turnkey Industries is an expert in the field of purchasing and selling pre-owned industrial generators. We offer many different brands, sizes, and capacities of generators. We fulfill orders across the country and beyond, and our elaborate preparatory processes ensure that our equipment is ready for immediate usage on arrival.

[See All Inventory](#)



**Immediate
Availability**



**Worldwide
Delivery**



**Low Hour
Generator Sets**

Contact Us



sales@turnkey-industries.com



713-823-0890



Turnkey Industries, LLC
P.O. Box 3876 Humble, TX 77347

