

Ratings Range

		60 Hz	50 Hz
Standby:	kW	200-205	188-192
	kVA	250-256	235-240
Prime:	kW	180-185	168-172
	kVA	225-231	210-215

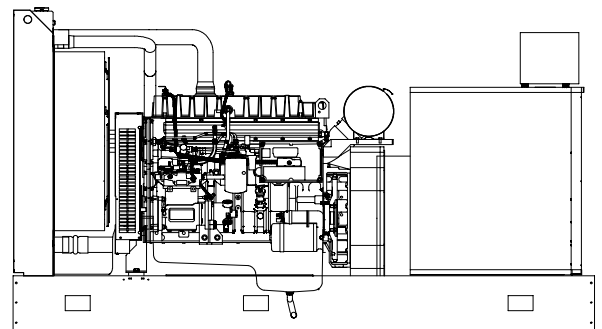
Generator Ratings

Alternator	Voltage	Ph	Hz	130° C Rise		105° C Rise	
				Standby Rating	Prime Rating	Standby Rating	Prime Rating
4UA9	120/208	3	60	200/250	694	180/225	625
	120/240	3	60	200/250	601	180/225	541
	127/220	3	60	200/250	656	180/225	590
	139/240	3	60	200/250	601	180/225	541
	220/380	3	60	200/250	380	180/225	342
	240/416	3	60	200/250	347	180/225	312
	277/480	3	60	200/250	301	180/225	271
	347/600	3	60	200/250	241	180/225	217
	110/190	3	50	188/235	714	168/210	638
	110/220	3	50	188/235	617	168/210	551
	115/200	3	50	188/235	678	168/210	606
	120/208	3	50	188/235	652	168/210	583
	220/380	3	50	188/235	357	168/210	319
	230/400	3	50	188/235	339	168/210	303
	240/416	3	50	188/235	326	168/210	291
	4UA13	120/208	3	60	205/256	711	185/231
120/240		3	60	205/256	616	185/231	556
127/220		3	60	205/256	672	185/231	607
139/240		3	60	205/256	616	185/231	556
220/380		3	60	205/256	389	185/231	351
240/416		3	60	205/256	356	185/231	321
277/480		3	60	205/256	308	185/231	278
347/600		3	60	205/256	247	185/231	223
110/190		3	50	192/240	729	172/215	653
110/220		3	50	192/240	630	172/215	564
115/200		3	50	192/240	693	172/215	621
120/208		3	50	192/240	666	172/215	597
220/380		3	50	192/240	365	172/215	327
230/400		3	50	192/240	346	172/215	310
240/416		3	50	192/240	333	172/215	298

RATINGS: All three-phase units are rated at 0.8 power factor. **Standby Ratings:** 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, BS 5514, AS 2789, and DIN 6271. **Prime Power Ratings:** Prime power ratings apply to installations where utility power is unavailable or unreliable. At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528/1, overload power in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271. For limited running time and base load ratings, consult the factory. Obtain the technical information bulletin (TIS-101) on ratings guidelines for the complete ratings definitions. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. GENERAL GUIDELINES FOR DERATION: **Altitude:** Derate 1.0% per 305 m (1000 ft.) elevation above 305 m (1000 ft.) up to a maximum elevation of 3050 m (10000 ft.). **Temperature:** Derate 1.0% per 5.5°C (10°F) temperature above 25°C (77°F).

Standard Features

- Your DDC/MTU Power Generation product distributor provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a UL 2200 listing.
- At 60 Hz the generator set accepts rated load in one step.
- The generator set complies with ISO 8528-5 requirements for transient performance.
- The 60 Hz generator set engine is certified by the Environmental Protection Agency (EPA) to conform to Tier 2 nonroad emissions regulations.
- A one-year limited warranty covers all systems and components. Two-, five-, and ten-year extended warranties are also available.
- Generator features:
 - The brushless, rotating-field generator has broadrange reconnectability.
 - The permanent magnet-excited generator (PMG) provides superior short-circuit capability.
- Other features:
 - Controllers are available for all applications. See controller features inside.
 - The low coolant level shutdown prevents overheating (standard on radiator models only).
 - Integral vibration isolation eliminates the need for under-unit vibration spring isolators.
 - An electronic, isochronous governor delivers precise frequency regulation.



Alternator Specifications

Specifications	Generator
Type	4-Pole, Rotating Field
Exciter type	Brushless, Permanent-Magnet
Leads: quantity, type	12, Reconnectable
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1
Material	Class H
Temperature rise	130°C, Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Voltage regulation, no-load to full-load	
Standard	±2%
Digital 550 controller (with 0.5% drift due to temp. variation)	3-Phase, ±0.25%
One-step load acceptance at 60 Hz	100% of Rating
Unbalanced load capability	100% of Rated Standby Current
Peak motor starting kVA:	(35% dip for voltages below)
4UA9	700 (60 Hz), 420 (50 Hz)
4UA13	980 (60 Hz), 600 (50 Hz)

- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustained short-circuit current enabling downstream circuit breakers to trip without collapsing the generator field.
- Self-ventilated and dripproof construction.
- Vacuum-impregnated windings with fungus-resistant epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.
- Solid-state, volts-per-hertz voltage regulator with ±2% no-load to full-load regulation.
- Brushless alternator with brushless exciter for excellent load response.

Application Data

Engine

Engine Specifications	60 Hz	50 Hz
Manufacturer	Detroit Diesel	
Engine: model, type	Series 40E 8.7LTA Turbocharged, Aftercooled	
Cylinder arrangement	6 Inline	
Displacement, L (cu. in.)	8.7 (530)	
Bore and stroke, mm (in.)	117 (4.59) x 136 (5.35)	
Compression ratio	16.9:1	
Piston speed, m/min. (ft./min.)	489 (1605)	408 (1338)
Main bearings: quantity, type	7, Replaceable Insert	
Rated rpm	1800	1500
Max. power at rated rpm, kWm (BHP)	242 (325)	224 (300)
Cylinder head material	Cast Iron	
Crankshaft material	Forged Steel	
Valve (exhaust) material	Inconel	
Governor: type, make/model	Electronic, HEUI	
Frequency regulation, no-load to full-load	Isochronous	
Frequency regulation, steady state	±0.25%	
Frequency	Field-Convertible	
Air cleaner type, all models	Dry	

Exhaust

Exhaust System	60 Hz	50 Hz
Exhaust flow at rated kW, m ³ /min. (cfm)	53.5 (1890)	47.6 (1680)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	463 (865)	518 (965)
Maximum allowable back pressure, kPa (in. Hg)	10.8 (3.2)	
Exhaust outlet size at engine hookup, mm (in.)	See ADV Drawing	

Engine Electrical

Engine Electrical System	60 Hz	50 Hz
Battery charging alternator:		
Ground (negative/positive)		Negative
Volts (DC)		24
Ampere rating		70
Starter motor rated voltage (DC)		24
Battery, recommended cold cranking amps (CCA):		
Qty., CCA rating above 0°C (32°F)		2, 1000
Qty., CCA rating below 0°C (32°F)		2, 1000
Battery voltage (DC)		12

Fuel

Fuel System	60 Hz	50 Hz
Fuel supply line, min. ID, mm (in.)	16 (0.63)	
Fuel return line, min. ID, mm (in.)	10 (0.38)	
Max. lift, engine-driven fuel pump, m (ft.)	1.0 (3.3)	
Max. fuel flow, Lph (gph)	177.9 (47)	151.4 (40)
Fuel filter: quantity, type	2, Pre-Screen/Secondary	
Recommended fuel	#2 Diesel	

Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity, L (qt.)	22.7 (24)	
Oil pan capacity with filter, L (qt.)	26.4 (28)	
Oil filter: quantity, type	1, Cartridge	
Oil cooler	Water-Cooled	

Application Data

Cooling (Standard Radiator)

Cooling System	60 Hz	50 Hz
Ambient temperature, °C (°F)	50 (122)*	
Engine jacket water capacity, L (gal.)	12.8 (3.4)	
Radiator system capacity, including engine, L (gal.)	34 (8.8)	
Engine jacket water flow, Lpm (gpm)	351 (93)	295 (78)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	120 (6842)	106 (6006)
Heat rejected to air charge cooler at rated kW, dry exhaust, kW (Btu/min.)	62 (3547)	40 (2282)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	787 (31)	
Fan, kWm (HP)	16.4 (22)	9.5 (13)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.037 (0.5)	

* A weather housing on a 50 Hz model reduces ambient temperature capability by 6°C (10°F).

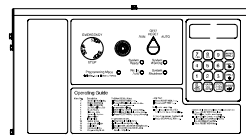
Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m ³ /min. (scfm)†	380 (13418)	320 (11299)
Combustion air, m ³ /min. (cfm)	20.1 (710)	15.9 (561)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	202 (11525)	166 (9432)
Generator, kW (Btu/min.)	18.6 (1060)	18.8 (1070)

† Air density = 1.20 kg/m³ (0.075 lbf/ft³)

Fuel Consumption	60 Hz	50 Hz
Diesel, Lph (gph) at % load	Standby Rating	
100%	60.7(16.03)	52.7(13.92)
75%	44.3 (11.7)	41.6 (11.0)
50%	30.1 (8.0)	28.4 (7.5)
25%	17.0 (4.5)	15.1 (4.0)
Diesel, Lph (gph) at % load	Prime Rating	
100%	52.8(13.94)	49.8(13.16)
75%	41.2(10.89)	38.7(10.22)
50%	29.8 (7.89)	27.6 (7.29)
25%	18.5 (4.88)	16.5 (4.36)

Controllers



Available Controllers

Digital 550 Controller

Audiovisual annunciation with NFPA 110 Level 1 capability. Programmable microprocessor logic and digital display features. Safeguard circuit protection standard. 12- or 24-volt engine electrical system capability. Remote start, remote annunciation, and remote communication options. Refer to M6-46 for additional controller features and accessories.

Microprocessor-Plus, 16-Light Controller

Audiovisual annunciation with NFPA 110 Level 1 capability. Microprocessor logic, AC meters, and engine gauge features. 12- or 24-volt engine electrical system capability. Remote start, prime power, and remote annunciation options. Refer to M6-30 for additional controller features and accessories.

Standard Features and Accessories

Standard Features

- Battery Rack and Cables
- Oil Drain Extension
- Operation and Installation Literature

Accessories

Enclosed Unit

- Exhaust Silencer, Critical (kit: PA-324544-SD)
- Exhaust Silencer, Residential (kit: PA-324542-SD)
- Silencer Mounting Kit for Housing
- Tail Pipe and Rain Cap Kit
- Weather Housing

Open Unit

- Exhaust Silencer, Hospital (kits: PA-365349-SD, PA-365354-SD)
- Exhaust Silencer, Critical (kits: PA-343618-SD, PA-354809-SD)
- Exhaust Silencer, Residential (kits: PA-354878-SD, PA-354879-SD)
- Exhaust Silencer, Industrial (kits: PA-343617-SD, PA-354902-SD)
- Flexible Exhaust Connector, Stainless Steel

Cooling System

- Block Heater
- Radiator Duct Flange

Fuel System

- Auxiliary Fuel Pump
- Day Tanks
- Flexible Fuel Lines
- Fuel Pressure Gauge
- Subbase Fuel Tanks

Electrical System

- Battery
- Battery Charger, Equalize/Float Type
- Battery Heater

Engine and Generator

- Air Cleaner, Heavy Duty
- Air Cleaner Restriction Indicator
- Bus Bar Kits
- CSA Certification
- Generator Strip Heater
- Line Circuit Breaker (NEMA type 1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA type 1 enclosure)
- NFPA 110 Literature
- Optional Generators
- Rated Power Factor Testing
- Safeguard Breaker (not available with Digital 550)
- Voltage Regulation, 1%
- Voltage Regulator Sensing, Three-Phase

Paralleling System

- Reactive Droop Compensator
- Voltage Adjust Potentiometer
- Voltage Regulator Relocation Kit

Maintenance

- General Maintenance Literature Kit
- Maintenance Kit (includes air, oil, and fuel filters)
- Overhaul Literature Kit
- Production Literature Kit

Controller (Digital 550 and Microprocessor-Plus)

- Common Failure Relay Kit
- Communication Products and PC Software (Digital 550 controller only)
- Controller Cable, 12 m (40 ft.)
- Customer Connection Kit
- Dry Contact Kit (isolated alarm)
- Engine Prealarm Sender Kit
- Prime Power Switch (Digital 550 controller only)
- Remote Annunciator Panel
- Remote Audiovisual Alarm Panel
- Remote Emergency Stop Kit
- Run Relay Kit

Miscellaneous Accessories

- _____
- _____
- _____
- _____
- _____
- _____
- _____

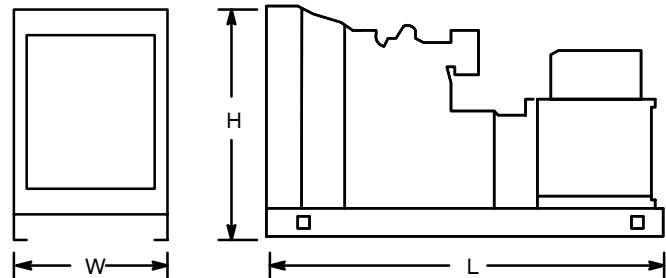
Dimensions and Weights

Overall Size, L x W x H, mm (in.):

3000 x 1150 x 1611
(118.11 x 45.28 x 63.41)

Weight (radiator model), wet, kg (lb.):

2000 (4398)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

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