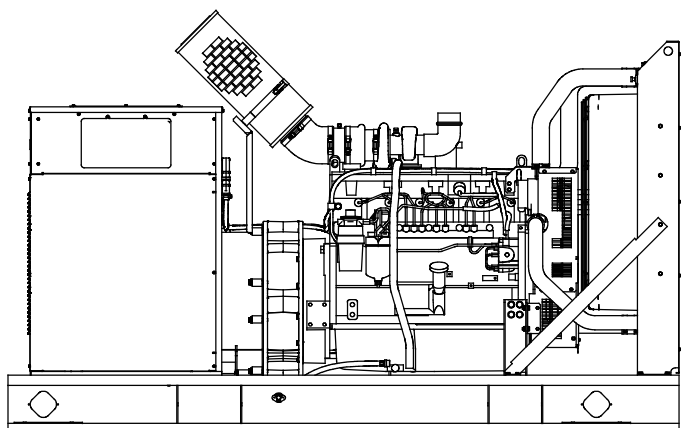




Tier 3 EPA-Certified for Stationary Emergency Applications

Ratings Range

		60 Hz
Standby:	kW	230- 255
	kVA	230- 319
Prime:	kW	210- 230
	kVA	210- 288



Standard Features

- Kohler Co. 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.
- The generator set accepts rated load in one step.
- The 60 Hz generator set meets NFPA 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- A one-year limited warranty covers all generator set systems and components. Two- and five-year extended limited warranties are also available.
- Alternator features:
 - The unique Fast-Response® II excitation system delivers excellent voltage response and short-circuit capability using a permanent magnet (PM)-excited alternator.
 - The brushless, rotating-field alternator has broadrange reconnectability.
- Other features:
 - Kohler designed controllers for one-source system integration and remote communication. See Controllers on page 3.
 - The low coolant level shutdown prevents overheating (standard on radiator models only).
 - Integral vibration isolation eliminates the need for under-unit vibration spring isolators.
 - Mount up to three circuit breakers to allow circuit protection of selected priority loads.

Generator Set Ratings

Alternator	Voltage	Ph	Hz	130° C Rise Standby Rating		105° C Rise Prime Rating	
				kW/kVA	Amps	kW/kVA	Amps
4UA10	120/208	3	60	250/313	867	225/281	781
	127/220	3	60	250/313	820	225/281	738
	120/240	3	60	250/313	752	225/281	677
	139/240	3	60	250/313	752	225/281	677
	220/380	3	60	250/313	475	225/281	427
	240/416	3	60	250/313	434	225/281	390
	277/480	3	60	250/313	376	225/281	338
	347/600	3	60	250/313	301	225/281	271
4UA13	120/208	3	60	255/319	885	230/288	798
	127/220	3	60	255/319	837	230/288	754
	120/240	3	60	255/319	767	230/288	692
	120/240	1	60	230/230	958	210/210	875
	139/240	3	60	255/319	767	230/288	692
	220/380	3	60	255/319	484	230/288	437
	240/416	3	60	255/319	442	230/288	399
	277/480	3	60	255/319	383	230/288	346
	347/600	3	60	255/319	307	230/288	277

RATINGS: All three-phase units are rated at 0.8 power factor. All single-phase units are rated at 1.0 power factor. Standby Ratings: The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Prime Power Ratings: 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 and ISO-3046-1. For limited running time and continuous ratings, consult the factory. Obtain technical information bulletin (TIB-101) for ratings guidelines, complete ratings definitions, and site condition derates. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.

Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
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	Controller Dependent
One-step load acceptance	100% of Rating
Unbalanced load capability	100% of Rated Standby Current
Peak motor starting kVA:	(35% dip for voltages below)
480 V 4UA10 (12 lead)	785
480 V 4UA13 (12 lead)	960

- 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 alternator field.
- Self-ventilated and dripproof construction.
- Windings are vacuum-impregnated with epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.
- Fast-Response® II brushless alternator with brushless exciter for excellent load response.

Application Data

Engine

Engine Specifications	
Manufacturer	John Deere
Engine model	6090HF484B
Engine type	4-Cycle, Turbocharged, Charge Air-Cooled
Cylinder arrangement	6 Inline
Displacement, L (cu. in.)	9.0 (548)
Bore and stroke, mm (in.)	118.4 x 136 (4.66 x 5.35)
Compression ratio	16.0:1
Piston speed, m/min. (ft./min.)	457 (1500)
Main bearings: quantity, type	7, Replaceable Insert
Rated rpm	1800
Max. power at rated rpm, kWm (BHP)	287 (385)
Cylinder head material	Cast Iron
Crankshaft material	Forged Steel
Valve material:	
Intake	Chromium-Silicon Steel
Exhaust	Stainless Steel
Governor: type, make/model	JDEC Electronic L14 Denso HP4
Frequency regulation, no-load to full-load	Isochronous
Frequency regulation, steady state	±0.25%
Frequency	Fixed
Air cleaner type, all models	Dry

Exhaust

Exhaust System	
Exhaust manifold type	Dry
Exhaust flow at rated kW, m ³ /min. (cfm)	54.1 (1911)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	625 (1157)
Maximum allowable back pressure, kPa (in. Hg)	Min. 0 (0) Max. 7.5 (2.2)
Engine exhaust outlet size, mm (in.)	98 (3.86)

Engine Electrical

Engine Electrical System	
Battery charging alternator:	24 Volt
Ground (negative/positive)	Negative
Volts (DC)	24
Ampere rating	60
Starter motor rated voltage (DC)	24
Battery, recommended cold cranking amps (CCA):	
Quantity, CCA rating each	Two, 950
Battery voltage (DC)	12

Fuel

Fuel System	
Fuel supply line, min. ID, mm (in.)	11.0 (0.44)
Fuel return line, min. ID, mm (in.)	6.0 (0.25)
Max. lift, fuel pump: type, m (ft.)	Electronic, 3 (10)
Max. fuel flow, Lph (gph)	240.0 (63.4)
Max. return line restriction, kPa (in. Hg)	20 (5.9)
Fuel prime pump	Electronic
Fuel filter	
Secondary	2 Microns @ 98% Efficiency
Primary	10 Microns
Water Separator	Yes
Recommended fuel	#2 Diesel

Lubrication

Lubricating System	
Type	Full Pressure
Oil pan capacity, L (qt.) §	32.5 (34.4)
Oil pan capacity with filter, L (qt.) §	33.4 (35.3)
Oil filter: quantity, type §	1, Cartridge
Oil cooler	Water-Cooled
§ Kohler recommends the use of Kohler Genuine oil and filters.	

Application Data

Cooling

Radiator System

Ambient temperature, °C (°F) *	50 (122)
Engine jacket water capacity, L (gal.)	16 (4.25)
Radiator system capacity, including engine, L (gal.)	36 (9.5)
Engine jacket water flow, Lpm (gpm)	265 (70)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	97 (5521)
Heat rejected to air charge cooler at rated kW, dry exhaust, kW (Btu/min.)	70.5 (4013)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	863.6 (34.0)
Fan, kWm (HP)	9.0 (12.1)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)

* Enclosure with enclosed silencer reduces ambient temperature capability by 5°C (9°F).

Operation Requirements

Air Requirements

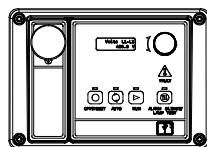
Radiator-cooled cooling air, m ³ /min. (scfm) ‡	368.1 (13000)
Combustion air, m ³ /min. (cfm)	21.8 (770)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	53.8 (3060)
Alternator, kW (Btu/min.)	20.6 (1170)

‡ Air density = 1.20 kg/m³ (0.075 lbm/ft³)

Fuel Consumption

Diesel, Lph (gph) at % load	Standby Rating	
100%	66.5	(17.6)
75%	50.4	(13.3)
50%	35.0	(9.2)
25%	20.5	(5.4)
Diesel, Lph (gph) at % load	Prime Rating	
100%	59.1	(15.6)
75%	45.3	(12.0)
50%	31.6	(8.3)
25%	18.4	(4.9)

Controllers

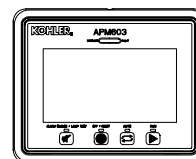


APM402 Controller

Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- Digital display and menu control provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or serial configuration
- Controller supports Modbus® protocol
- Integrated hybrid voltage regulator with ±0.5% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-161 for additional controller features and accessories.

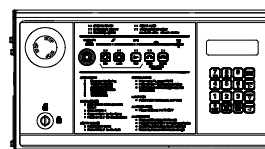


APM603 Controller

Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- 7-inch graphic display with touch screen and menu control provides easy local data access
- Measurements are selectable in metric or English units
- Paralleling capability to control up to 8 generators on an isolated bus with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays
- Note: Parallel with other APM603 controllers only
- Generator management to turn paralleled generators off and on as required by load demand
- Load management to connect and disconnect loads as required
- Controller supports Modbus® RTU, Modbus® TCP, SNMP and BACnet®
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- UL-listed overcurrent protective device
- NFPA 110 Level 1 capability

Refer to G6-162 for additional controller features and accessories.



Decision-Maker® 6000 Paralleling Controller

Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities for paralleling multiple generator sets.

- Paralleling capability to control up to 8 generators on an isolated bus with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays
- Note: Parallel with other Decision-Maker® 6000 controllers only
- Digital display and keypad provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or modem configuration
- Controller supports Modbus® protocol
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-107 for additional controller features and accessories.

Modbus® is a registered trademark of Schneider Electric.

BACnet® is a registered trademark of ASHRAE.

Standard Features

- Alternator Protection
- Battery Rack and Cables
- Customer Connection
(standard with Decision-Maker® 6000 controller only)
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature

Available Options

Circuit Breakers

- | Type | Rating | Operation |
|---|-------------------------------|---|
| <input type="checkbox"/> Magnetic Trip | <input type="checkbox"/> 80% | <input type="checkbox"/> Manual
<input type="checkbox"/> Electrically Operated (for paralleling) |
| <input type="checkbox"/> Thermal Magnetic Trip | <input type="checkbox"/> 100% | |
| <input type="checkbox"/> Electronic Trip (LI) | | |
| <input type="checkbox"/> Electronic Trip with Short Time (LSI) | | |
| <input type="checkbox"/> Electronic Trip with Ground Fault (LSIG) | | |

Circuit Breaker Mounting

- Generator Mounted
- Remote Mounted
- Bus Bar (for remote mounted breakers)

Enclosures for Remote Mounted Circuit Breakers

- NEMA 1
- NEMA 3R

Approvals and Listings

- California OSHPD Approval
- CSA Certified
- IBC Seismic Certification
- UL 2200 Listing
- Hurricane Rated Enclosure

Enclosed Unit

- Sound Enclosure and Subbase Fuel Tank Packages
- Weather Enclosure and Subbase Fuel Tank Packages

Open Unit

- Exhaust Silencer, Critical (kit: PA-354809)
- Flexible Exhaust Connector, Stainless Steel

Fuel System

- Flexible Fuel Lines
- Fuel Pressure Gauge
- Subbase Fuel Tanks

Controller

- Common Failure Relay
(Decision-Maker® 6000 and APM603 controllers only)
- Decision-Maker® Paralleling System (DPS)
(Decision-Maker® 6000 controller only)
- Dry Contact (isolated alarm)
(Decision-Maker® 6000 controller only)
- Two Input/Five Output Module (APM402 controller only)
- Four Input/Fifteen Output Module (APM603 controller only)
- Lockable Emergency Stop Switch
- Remote Emergency Stop Switch
- Remote Serial Annunciator Panel
- Run Relay (standard with APM603, optional with others)
- Manual Key Switch (APM603 controller only)
- Manual Speed Adjust (APM402 controller only)

Cooling System

- Block Heater, 2500 W, 90-120 V
- Block Heater, 2500 W, 190-208 V
- Block Heater, 2500 W, 208-240 V
- Block Heater, 2500 W, 380-480 V
Required for ambient temperatures below 0°C [32°F]
- Radiator Duct Flange

Electrical System

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

Paralleling System

- Voltage Sensing

Miscellaneous

- Air Cleaner, Heavy Duty
- Air Cleaner Restriction Indicator
- Crankcase Emissions Canister
- Engine Fluids (oil and coolant) Added
- Rated Power Factor Testing
- Rodent Guards

Literature

- General Maintenance
- NFPA 110
- Overhaul
- Production

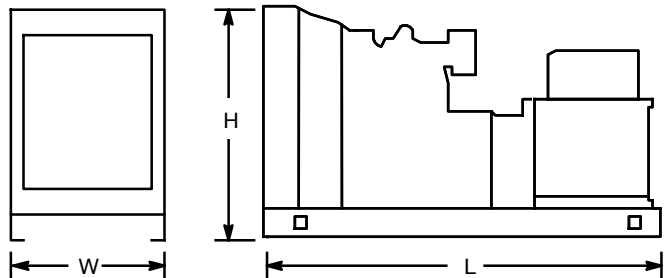
Warranty

- 2-Year Basic Limited Warranty
- 5-Year Basic Limited Warranty
- 5-Year Comprehensive Limited Warranty

Dimensions and Weights

Overall Size, L x W x H, mm (in.): 3000 x 1300 x 1891
 (118.1 x 51.2 x 74.4)

Weight (radiator model), wet, kg (lb.): 2313-2449 (5100-5400)



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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