

Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Rare-Earth Permanent- Magnet
Leads: quantity, type	
4SX	12, Reconnectable
4TX	4, 120/240
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	± 0.5%
Unbalanced load capability	100% of Rated Standby Current
One-step load acceptance	100% of Rating
Peak motor starting kVA:	(35% dip for voltages below)
480 V 4S12X (12 lead)	480 (60 Hz)
480 V 4S13X (12 lead)	570 (60 Hz)
240 V 4T13X (4 lead)	440 (60 Hz)

- The unique Fast- Response® X excitation system delivers excellent voltage response and short-circuit capability using a rare-earth, permanent magnet (PM)-excited alternator.
- Brushless, rotating-field alternator.
- 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 drip-proof 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.
- Total harmonic distortion (THD) from no load to full load with a linear load is less than 4%.

Application Data

Engine

Engine Specifications	
Manufacturer	PSI
Engine: model, type	Industrial 8.8 L, 4-Cycle, Turbocharged and Charge Cooled
Cylinder arrangement	V-8
Displacement, L (cu. in.)	8.8 (537)
Bore and stroke, mm (in.)	110 x 114 (4.35 x 4.5)
Compression ratio	10.1:1
Piston speed, m/min. (ft./min.)	411 (1350)
Main bearings: quantity, type	5, Bi-Metal Steel and Aluminum
Rated rpm	1800
Max. power at rated rpm, NG, kW (HP)	193 (259)
Max. power at rated rpm, LP, kW (HP)	169 (226)
Cylinder head material	Cast Iron
Piston type and material	Flat Top, Hypereutectic Cast Alum.
Crankshaft material	Forged Steel, Induction Hardened, Tangential Fillet
Valve (exhaust) material	Int.-A193 Exh. Inconel
Governor type	Electronic
Frequency regulation, no-load to full-load	Isochronous
Frequency regulation, steady state	±0.5%
Frequency	Fixed
Air cleaner type, all models	Dry

Exhaust

Exhaust System	
Exhaust manifold type	Dry
Exhaust flow at rated kW, m ³ /min. (cfm)	27.5 (971)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	649 (1200)
Maximum allowable back pressure, kPa (in. Hg)	10.2 (3.0)
Exhaust outlet size at engine hookup	See ADV drawing

Engine Electrical

Engine Electrical System	
Ignition system	Individual Coil Near Plug Ignition
Battery charging alternator:	
Ground (negative/positive)	Negative
Volts (DC)	12
Ampere rating	70
Starter motor rated voltage (DC)	12
Battery, recommended cold cranking amps (CCA):	
Qty., rating for -18°C (0°F)	One, 630
Battery voltage (DC)	12

Fuel

Fuel System	
Fuel type	Natural Gas, LPG, or Dual Fuel
Fuel supply line inlet	1.5 NPTF
Natural gas fuel supply pressure, kPa (in. H ₂ O)	1.74-2.74 (7-11)
LPG vapor withdrawal fuel supply pressure, kPa (in. H ₂ O)	1.24-2.74 (5-11)
Dual fuel engine, LP vapor withdrawal fuel supply pressure, kPa (in. H ₂ O)	1.24 (5)

Fuel Composition Limits *	Nat. Gas	LPG
Methane, % by volume	90 min.	1.2 max.
Ethane, % by volume	4.0 max.	10 max.
Propane, % by volume	1.0 max.	96 max.
Propene, % by volume	0.1 max.	3 max.
C ₄ and higher, % by volume	0.3 max.	3 max.
Sulfur, ppm mass	25 max.	25 max.
Lower heating value, MJ/m ³ (Btu/ft ³), min.	33.2 (890)	78.8 (2116)

* Fuels with other compositions may be acceptable. If your fuel is outside the listed specifications, contact your local distributor for further analysis and advice.

Application Data

Lubrication

Lubricating System

Type	Full Pressure
Oil pan capacity, L (qt.) ‡	8.0 (8.5)
Oil pan capacity with filter, L (qt.) ‡	8.5 (9.0)
Oil filter: quantity, type ‡	1, Cartridge
‡ Kohler recommends the use of Kohler Genuine oil and filters.	

Cooling

Radiator System

Ambient temperature, °C (°F)	45 (113)
Engine jacket water capacity, L (gal.)	13.4 (3.54)
Radiator system capacity, including engine, L (gal.)	25.5 (5.6)
Engine jacket water flow, Lpm (gpm)	125 (33)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	88.2 (5021)
Heat rejected to charge cooling air at rated kW, dry exhaust, kW (Btu/min.)	11.3 (642)
Heat rejected to engine oil at rated kW, dry exhaust, kW (Btu/min.)	1.4 (81)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	711 (28.0)
Fan, kWm (HP)	18.7 (25)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)

Operation Requirements

Air Requirements

Radiator-cooled cooling air, m ³ /min. (scfm) †	340 (12000)
Combustion air, m ³ /min. (cfm)	8.9 (314)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	24.9 (1476)
Alternator, kW (Btu/min.)	15.7 (893)
† Air density = 1.20 kg/m ³ (0.075 lbm/ft ³)	

Fuel Consumption‡

Standby Rating

Natural Gas, m³/hr. (cfh) at % load

100%	55.7 (1965)
75%	43.3 (1529)
50%	31.2 (1102)
25%	19.5 (688)
0%	8.1 (286)

LPG, m³/hr. (cfh) at % load

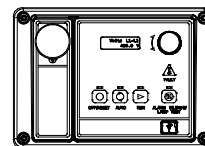
100%	20.2 (713)
75%	15.5 (547)
50%	11.3 (399)
25%	7.2 (254)
0%	4.6 (164)

‡ Nominal fuel rating: Natural gas, 37 MJ/m³ (1000 Btu/ft³)
LPG, 93 MJ/m³ (2500 Btu/ft³)

LPG conversion factors:

- 8.58 ft.³ = 1 lb.
- 0.535 m³ = 1 kg.
- 36.39 ft.³ = 1 gal.

Controller



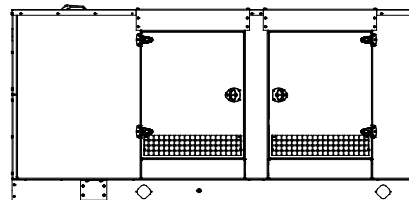
APM402 Controller

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

Modbus® is a registered trademark of Schneider Electric.

Sound Enclosure



- Model 150ERESC sound levels are 70 dB(A) during normal operation*.
- All sound levels are measured at a distance of 23 ft. (7 m) from the generator set.
- Sound attenuating enclosure uses acoustic insulation that meets UL 94 HF1 flammability classification and repels moisture absorption.
- Vertical air inlet and outlet discharge with 90 degree bends to redirect air and reduce noise.
- Internal-mounted critical silencer and flexible exhaust connector.
- Skid-mounted, steel (standard) or aluminum (optional) construction with hinged doors.
- Fade-, scratch-, and corrosion-resistant Kohler® Cashmere Power Armor™ textured e-coat paint.
- Lockable, flush-mounted door latches.
- Certified to withstand 241 kph (150 mph) wind load rating (aluminum enclosures only).

* Lowest of 8 points measured around the generator. Sound levels at other points around generator may be higher depending on installation parameters.

Additional Standard Features

- Air Cleaner Restriction Indicator
- Alternator Protection
- Battery Rack and Cables
- Battery Charger, 12 V, 6 A
- Block Heater, 1800 W
- cUL/UL 2200 Listed, CSA Certified
- Electronic, Isochronous Governor
- Engine Fluids Added(Oil & Coolant)
- Flexible Fuel Line (for fuel supply connection)
- Gas Fuel System (includes fuel mixer, electronic secondary gas regulator, gas solenoid valve, and flexible fuel line between the engine and the skid-mounted fuel system components)
- Integral Vibration Isolation
- Line Circuit Breaker, 80% Rated, 3 Pole
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature
- Rodent Guards
- Run Relay*
- Secondary Gas Solenoid Valve
- Steel Sound Enclosure
- Three-Way Exhaust Catalyst
- Two Input/Five Output Module*
- 5 year/2000 Hour Basic Warranty

* Standard on 600 V 150ERESC models.

Miscellaneous

- Crankcase Ventilation (CCV) Heater
[recommended for ambient temperatures below 0°C (32°F)]

Literature

- General Maintenance
- Overhaul
- Production

Warranty

- 5-Year Premium Limited Warranty

Other Options

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

Available Options

Enclosure

- Aluminum Sound Enclosure

Automatic Transfer Switches and Accessories

- KEP Service Entrance Rated Automatic Transfer Switch option is available.
- KSS Standard Automatic Transfer Switch option is available.

Controller

- Remote Emergency Stop
- Run Relay
- Two Input/Five Output Module
- Remote Annunciator Panel

Electrical System

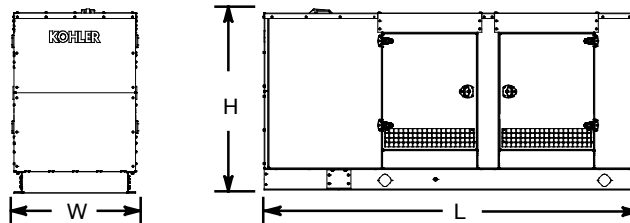
- Alternator Strip Heater
- Battery
- Battery Heater

Dimensions and Weights

Overall Size, L x W x H, mm (in.) : 3526 x 1153 x 1696
(139 x 45.4 x 66.8)

Weight, wet, kg (lb.):
 With steel sound enclosure 1897 (4183)
 With aluminum sound enclosure 1730 (3813)

Weight includes generator set with the 4S alternator, engine fluids, sound enclosure, and silencer.



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

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