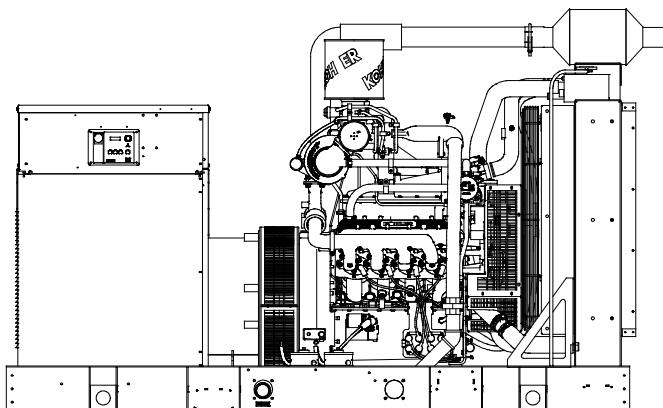




**EPA-Certified for Stationary  
Emergency Applications**

### Ratings Range

| Standby: | kW<br>kVA | 50Hz                 | 60 Hz                |
|----------|-----------|----------------------|----------------------|
|          |           | 116- 120<br>145- 150 | 105- 150<br>105- 188 |



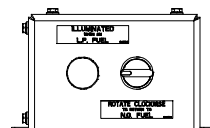
### Generator Set Ratings

| Alternator                             | Voltage | Ph | Hz      | Natural Gas<br>130°C Rise<br>Standby Rating |         | LP Gas<br>130°C Rise<br>Standby Rating |      |
|--|---------|----|---------|---|---------|--|------|
|  |         |    |         | kW/kVA                                      | Amps    | kW/kVA                                 | Amps |
| 4R13X                                  | 120/208 | 3  | 60      | 135/169                                     | 470     | 135/169                                | 470  |
|  | 127/220 | 3  | 60      | 140/175                                     | 460     | 140/175                                | 460  |
|  | 120/240 | 1  | 60      | 105/105                                     | 438     | 105/105                                | 438  |
|  | 120/240 | 3  | 60      | 135/169                                     | 407     | 135/169                                | 407  |
|  | 220/380 | 3  | 60      | 120/150                                     | 225     | 120/150                                | 228  |
|  | 254/440 | 3  | 60      | 140/175                                     | 230     | 140/175                                | 230  |
|  | 277/480 | 3  | 60      | 150/188                                     | 227     | 150/188                                | 227  |
|  | 115/200 | 3  | 50      | 120/150                                     | 434     | 116/145                                | 419  |
|  | 220/380 | 3  | 50      | 120/150                                     | 228     | 116/145                                | 221  |
|  | 230/400 | 3  | 50      | 120/150                                     | 217     | 116/145                                | 210  |
| 240/416                                | 3       | 50 | 120/150 | 209   | 116/145 | 202                                    |      |
| 4S12X/<br>4S13X<br>(Common<br>Ratings) | 120/208 | 3  | 60      | 150/188                                     | 522     | 150/188                                | 522  |
|  | 127/220 | 3  | 60      | 150/188                                     | 494     | 150/188                                | 494  |
|  | 120/240 | 3  | 60      | 150/188                                     | 453     | 150/188                                | 453  |
|  | 254/440 | 3  | 60      | 150/188                                     | 247     | 150/188                                | 247  |
|  | 277/480 | 3  | 60      | 150/188                                     | 227     | 150/188                                | 227  |
|  | 347/600 | 3  | 60      | 150/188                                     | 181     | 150/188                                | 181  |
|  | 115/200 | 3  | 50      | 120/150                                     | 434     | 120/150                                | 434  |
|  | 110/220 | 3  | 50      | 120/150                                     | 394     | 120/150                                | 394  |
|  | 220/380 | 3  | 50      | 120/150                                     | 228     | 120/150                                | 228  |
|  | 230/400 | 3  | 50      | 120/150                                     | 217     | 120/150                                | 217  |
| 240/416                                | 3       | 50 | 120/150 | 209   | 120/150 | 209                                    |      |
| 4S12X                                  | 120/240 | 1  | 60      | 105/105                                     | 438     | 105/105                                | 438  |
|  | 220/380 | 3  | 60      | 140/175                                     | 266     | 140/175                                | 266  |
| 4S13X                                  | 120/240 | 1  | 60      | 110/110                                     | 459     | 110/110                                | 459  |
|  | 220/380 | 3  | 60      | 150/188                                     | 286     | 150/188                                | 286  |
| 4T13X                                  | 120/240 | 1  | 60      | 140/140                                     | 584     | 140/140                                | 584  |

**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. Ratings are in accordance with ISO-8528-1 and ISO-3046-1. 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.

### 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® X excitation system delivers excellent voltage response and short-circuit capability using a rare-earth, 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 electronic, isochronous governor incorporates an integrated drive-by-wire throttle body actuator delivering precise frequency regulation.
- Natural gas, LP gas, and dual fuel models are available.
- Dual fuel model features:
  - Natural gas is the primary fuel. Automatically transfers back to primary fuel when LPG fuel becomes low or generator stops and restarts.
  - The patent pending reset box on the generator provides the ability to manually transfer back to natural gas.
  - The natural gas rating is available when running on natural gas.
  - APM603 controller provides load shed for automatic derate to LPG ratings to prevent an overload condition.



# Alternator Specifications

| Specifications                           | Alternator                             |
|--|--|
| Manufacturer                             | Kohler                                 |
| Type                                     | 4-Pole, Rotating-Field                 |
| Exciter type                             | Brushless, Rare-Earth Permanent Magnet |
| Leads: quantity, type                    |  |
| 4RX, 4SX                                 | 12, Reconnectable                      |
| 4TX                                      | 4, 120/240 V                           |
| 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      4R13X (12 lead)               | 540 (60 Hz)                            |
| 480 V      4S12X (12 lead)               | 480 (60 Hz)                            |
| 480 V      4S13X (12 lead)               | 570 (60 Hz)                            |
| 240 V      4T13X (4 lead)                | 440 (60 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 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.

## Application Data

### Engine

| Engine Specifications                      | 60Hz  | 50Hz      |
|--|---|-----------|
| Manufacturer                               | Kohler  |           |
| Engine: model, type                        | KG10V08T-6CGS (NG)<br>10.3L,4-Cycle, Turbocharged<br>KG10V08T-6DGS (LPG)<br>10.3 L, 4-Cycle,<br>Turbocharged and<br>Aftercooled |           |
| Cylinder arrangement                       | V-8   |           |
| Displacement, L (cu. in.)                  | 10.3 (632)  |           |
| Bore and stroke, mm (in.)                  | 116.8 x 120.6 (4.6 x 4.7)   |           |
| Compression ratio                          | 9.3:1   |           |
| Piston speed, m/min. (ft./min.)            | 434.3 (1425)  |           |
| Main bearings: quantity, type              | 5, Tri-Metal  |           |
| Rated rpm                                  | 1800  | 1500      |
| Max. power at rated rpm (NG), kW (HP)      |   |           |
| NG :                                       | 178 (239)   | 142 (190) |
| Dual fuel:                                 | 245 (329)   | 196 (263) |
| Max. power at rated rpm (LPG), kW (HP)     |   |           |
| Dual fuel:                                 | 195 (262)   | 156 (209) |
| Cylinder head material                     | Cast Iron   |           |
| Piston type and material                   | NG: Dished Top Cast Aluminum<br>LPG: Dished Top Forged Aluminum   |           |
| Crankshaft material                        | Forged Steel  |           |
| Valve (exhaust) material                   | Inconel   |           |
| Governor type                              | Electronic  |           |
| Frequency regulation, no-load to full-load | Isochronous   |           |
| Frequency regulation, steady state         | ±0.75%  |           |
| Frequency                                  | Fixed   |           |
| Air cleaner type, all models               | Dry   |           |

### Exhaust

| Exhaust System   | 60Hz                                       | 50Hz        |
|--|--|-------------|
| Exhaust manifold type  | Dry  |             |
| Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)         | 30.6 (1081)                                | 23.6 (834)  |
| Exhaust temperature at rated kW, dry exhaust, °C (°F)        | 697 (1287)                                 | 662 (1224)  |
| Maximum allowable overall back pressure, kPa (in. Hg)        | 19.8 (5.87)                                | 5.85 (1.74) |
| Maximum allowable back pressure after catalyst, kPa (in. Hg) | 14.3 (4.24)                                | 4.2 (1.25)  |
| Exhaust outlet size at engine hookup, mm (in.)               | Flanged Outlet at Catalyst see ADV drawing |             |

### Engine Electrical

| Engine Electrical System                       | 60Hz      | 50Hz |
|--|-----------|------|
| Ignition system                                | Coil Pack |      |
| Battery charging alternator:                   |           |      |
| Ground (negative/positive)                     | Negative  |      |
| Volts (DC)                                     | 12        |      |
| Ampere rating                                  | 130       |      |
| Starter motor rated voltage (DC)               | 12        |      |
| Battery, recommended cold cranking amps (CCA): |           |      |
| Qty., rating for - 18°C (0°F)                  | one, 925  |      |
| Battery voltage (DC)                           | 12        |      |

### Lubrication

| Lubricating System   | 60Hz          | 50Hz |
|--|---------------|------|
| Type   | Full Pressure |      |
| Oil pan capacity, L (qt.) §                                    | 11.3 (12)     |      |
| Oil pan capacity with filter, L (qt.) §                        | 15.1 (16)     |      |
| Oil filter: quantity, type §                                   | 1, Cartridge  |      |
| § Kohler recommends the use of Kohler Genuine oil and filters. |               |      |

# Application Data

## Fuel

| Fuel System   | 60Hz                              | 50Hz        |
|---|-----------------------------------|-------------|
| Fuel type   | Natural Gas, LP Gas, or Dual Fuel |             |
| Fuel supply line inlet  | 1.5 NPT                           |             |
| Natural gas, LPG, and Dual fuel supply pressure, kPa (in. H <sub>2</sub> O) | 1.74- 2.74 (7-11)                 |             |
| Fuel Composition Limits *   | Nat. Gas                          | LP Gas      |
| Methane, % by volume  | 90 min.                           | -           |
| Ethane, % by volume   | 4.0 max.                          | -           |
| Propane, % by volume  | 1.0 max.                          | 85 min.     |
| Propene, % by volume  | 0.1 max.                          | 5.0 max.    |
| C <sub>4</sub> and higher, % by volume                                      | 0.3 max.                          | 2.5 max.    |
| Sulfur, ppm mass  | 25 max.                           |             |
| Lower heating value, MJ/m <sup>3</sup> (Btu/ft. <sup>3</sup> ), min.        | 33.2 (890)                        | 84.2 (2260) |

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

## Cooling

| Radiator System  | 60Hz        | 50Hz      |
|--|-------------|-----------|
| Ambient temperature, °C (°F) *   | 50 (122)    |           |
| Engine jacket water capacity, L (gal.)   | 11 (2.9)    |           |
| Radiator system capacity, including engine, L (gal.)   | 34 (9)      |           |
| Engine jacket water flow, Lpm (gpm)  | 219 (58)    | 182 (48)  |
| Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)                             | 99 (5630)   | 86 (4891) |
| Heat rejected to engine oil at rated kW, dry exhaust, kW (Btu/min.)                                | 18.3 (1041) | 15 (853)  |
| Water pump type  | Centrifugal |           |
| Fan diameter, including blades, mm (in.)   | 750 (29.5)  |           |
| Natural Gas  | 850 (33.4)  |           |
| LP Gas or Dual Fuel  |             |           |
| Fan, kWm (HP)  |             |           |
| Natural Gas  | 9 (12)      | 5 (6.7)   |
| LP Gas or Dual Fuel  | 15 (20.1)   | 5 (6.7)   |
| Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H <sub>2</sub> O) | 0.125 (0.5) |           |

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

## Operation Requirements

| Air Requirements   | 60Hz        | 50Hz        |
|--|-------------|-------------|
| Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm) † | 269 (9500)  | 224 (7900)  |
| Combustion air, m <sup>3</sup> /min. (cfm)                 | 12.74 (450) | 9.77 (345)  |
| Heat rejected to ambient air:                              |             |             |
| Engine, kW (Btu/min.)                                      | 45.8 (2604) | 31.3 (1780) |
| Alternator, kW (Btu/min.)                                  | 15.7 (893)  | 13.4 (762)  |

† Air density = 1.20 kg/m<sup>3</sup> (0.075 lbm/ft<sup>3</sup>)

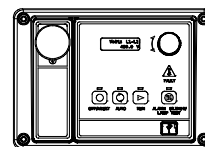
| Fuel Consumption ‡                               | 60Hz            | 50Hz        |
|--|-----------------|-------------|
| Natural Gas, m <sup>3</sup> /hr. (cfh) at % load | Standby Ratings |             |
| 100%   | 53.1 (1873.5)   | 40.7 (1436) |
| 75%  | 41.9 (1480.5)   | 32.3 (1139) |
| 50%  | 30.8 (1087.5)   | 23.8 (842)  |
| 25%  | 19.7 (694.5)    | 15.4 (545)  |
| 0%   | 8.5 (301.5)     | 7.0 (247.8) |
| LP Gas, m <sup>3</sup> /hr. (cfh) at % load      | Standby Ratings |             |
| 100%   | 23.5 (829)      | 18.9 (669)  |
| 75%  | 18.5 (654)      | 12.6 (443)  |
| 50%  | 13.6 (479)      | 9.3 (327)   |
| 25%  | 8.6 (304)       | 6.8 (239)   |
| 0%   | 3.7 (129)       | 2.8 (100)   |

‡ Nominal fuel rating: Natural gas, 37 MJ/m<sup>3</sup> (1000 Btu/ft.<sup>3</sup>)  
LP vapor, 93 MJ/m<sup>3</sup> (2500 Btu/ft.<sup>3</sup>)

LP vapor conversion factors:

8.58 ft.<sup>3</sup> = 1 lb.  
0.535 m<sup>3</sup> = 1 kg.  
36.39 ft.<sup>3</sup> = 1 gal.

## Controllers

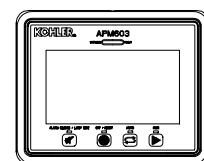


### APM402 Controller

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
- 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.

Modbus® is a registered trademark of Schneider Electric.

## Standard Features

- Air Restriction indicator
- Alternator Protection
- Battery Rack and Cables
- Closed Crankcase Ventilation (CCV) Filters
- Dual Fuel Reset Box (standard on dual fuel models)
- 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
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature
- Open Unit Accessory Kit (Duct Flange, Stone Guard, and Three-Way Exhaust Catalyst)

## Available Options

### Circuit Breakers

#### Type

- Magnetic Trip
- Thermal Magnetic Trip
- Electronic Trip (LI)
- Electronic Trip with Short Time (LSI)
- Electronic Trip with Ground Fault (LSIG)

#### Rating

- 80%
- 100%

#### Operation

- Manual
- Electrically Operated (for paralleling)

### 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

- CSA Approval
- IBC Seismic Certification
- UL 2200 Listing / cUL Genset Listing
- Hurricane Rated Enclosure (Available with Premium Aluminum Sound Enclosure Only)

### Enclosure

- Sound Enclosure (with enclosed critical silencer)
- Weather Enclosure (with enclosed critical silencer)

### Open Unit

- Exhaust Silencer, Critical

### Fuel System

- Dual Fuel NG/LPG (automatic changeover)
- Flexible Fuel Line
- Fuel Filter Kit
- Secondary Gas Solenoid Valve (UL Fuel System)

### Controller

- Failure Relay w/Harness, 1 Fault (APM603 controller only)
- Four Input/Fifteen Output Module
- Lockable Emergency Stop
- Manual Key Switch (APM603 controller only)
- Manual Speed Adjust (APM402 controller only)
- Paralleling, Gen Mounted EOB (APM603 controller only)
- Paralleling, Remote Mounted EOB (APM603 controller only)
- Remote Emergency Stop Switch
- Remote Annunciator Panel
- Run Relay, 12 V
- Two Input/Five Output Module (APM402 controller only)

### Cooling System

- Block Heater, 1500 W, 120 V
- Block Heater, 1500 W, 240 V  
Required for ambient temperatures below 10°C (50°F)

### Electrical System

- Battery
- Battery Charger (6A or 10A)
- Battery Charger Temperature Compensation
- Battery Heater, 120V
- Alternator Strip Heater
- Basic Electrical package (Includes 30 A terminal strip, DC light switch, 20 A, 240 VAC receptacle, and 20 A, 120 VAC GFCI receptacles.)

### Miscellaneous

- Certified Test Report
- Engine Fluids (oil and coolant) Added
- Rodent Guards
- Skid End Caps

### Literature

- General Maintenance
- NFPA 110
- Overhaul
- Production

### Warranty

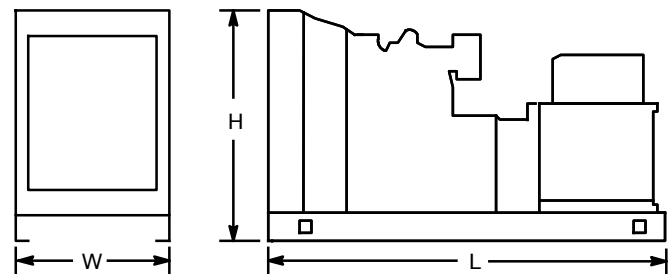
- 2-Year Basic Limited Warranty
- 5-Year Basic Limited Warranty
- 5-Year Comprehensive Limited Warranty
- 10-Year Extended Warranty

### Other Options

- \_\_\_\_\_
- \_\_\_\_\_

## Dimensions and Weights

Overall Size, L x W x H, mm (in.): 2800 x 1340 x 1800  
 (110.2 x 52.8 x 71.2)  
 Weight (radiator model), wet, kg (lb.): 1500 (3310)



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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