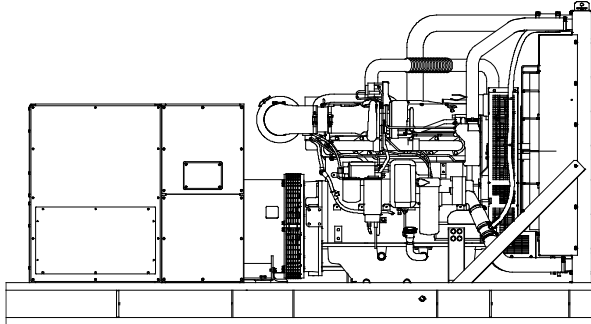


**Tier 3 EPA-Certified for Stationary  
Emergency Applications**
**Ratings Range**

		<b>60 Hz</b>
Standby:	kW	140-180
	kVA	175-225
Prime	kW	130-165
	kVA	165-206


**Standard Features**

- Rehlko provides one-source responsibility for the generating system and accessories.
- Approved for use with certified renewable Hydrotreated Vegetable Oil (HVO)/Renewable Diesel (RD) fuels compliant with EN15940/ASTM D975.
- 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:
  - Rehlko designed controllers for one-source system integration and remote communication. See Controllers on page 3.
  - The low coolant level shutdown prevents overheating.
  - 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
4S12X	120/208	3	60	155/190	538	140/195	486
	127/220	3	60	160/200	525	150/188	492
	120/240	3	60	155/190	466	140/195	421
	139/240	3	60	180/225	541	165/206	496
	220/380	3	60	140/175	266	130/165	247
	277/480	3	60	180/225	271	165/206	248
4S13X	120/208	3	60	180/225	625	165/206	573
	127/220	3	60	180/225	590	165/206	541
	120/240	3	60	180/225	541	165/206	496
	139/240	3	60	180/225	541	165/206	496
	220/380	3	60	164/205	313	155/194	294
	277/480	3	60	180/225	271	165/206	248
	347/600	3	60	180/225	217	160/200	192

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
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Rare-Earth Permanent-Magnet
Leads: quantity, type	12, Reconnectable
4SX	Solid State, Volts/Hz
Voltage regulator	NEMA MG1
Insulation:	Class H
Material	130°C, Standby
Temperature rise	1, Sealed
Bearing: quantity, type	Flexible Disc
Coupling	Full
Amortisseur windings	Controller Dependent
Voltage regulation, no-load to full-load	100% of Rating
One-step load acceptance	100% of Rated Standby Current
Unbalanced load capability	(35% dip for voltages below)
Peak motor starting kVA:	480 (60 Hz)
480 V, 380 V 4S12X (12 lead)	570 (60 Hz)
480 V, 380 V 4S13X (12 lead)	

- 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	60 Hz
Manufacturer	John Deere
Engine model	6068HFG82E
Engine type	4-Cycle, Turbocharged, Charge Air-Cooled
Cylinder arrangement	6 Inline
Displacement, L (cu. in.)	6.8 (415)
Bore and stroke, mm (in.)	106 x 127 (4.19 x 5.00)
Compression ratio	17.0:1
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)	212 (284)
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 HP3
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
Exhaust manifold type	Dry
Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)	29.9 (1056)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	483 (901)
Maximum allowable back pressure, kPa (in. Hg)	Min. 3 (1.13) Max. 7.5 (2.2)
Exhaust outlet size at engine hookup, mm (in.)	98 (3.86)

#### Engine Electrical

Engine Electrical System (12/24 Volt*)	60 Hz
Battery charging alternator:	24 Volt
Ground (negative/positive)	Negative
Volts (DC)	24
Ampere rating	45
Starter motor rated voltage (DC)	24
Battery, recommended cold cranking amps (CCA):	
Quantity, CCA rating each	Two, 925
Battery voltage (DC)	12

#### Fuel

Fuel System	60 Hz
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, 1.8 (6.0)
Max. fuel flow, Lph (gph)	92.7 (24.5)
Max. return line restriction, kPa (in. Hg)	20 (5.9)
Fuel prime pump	Manual
Fuel filter	
Primary	30 Microns
Secondary	2 Microns @ 98% Efficiency
Water Separator	Yes
Recommended fuel	#2 Diesel/HVO/RD

#### Lubrication

Lubricating System	60 Hz
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
§ Rehiko recommends the use of Rehiko Genuine oil and filters.	

## Application Data

### Cooling

Radiator System	60 Hz
Ambient temperature, °C (°F)*	50 (122)
Engine jacket water capacity, L (gal.)	11.9 (3.2)
Radiator system capacity, including engine, L (gal.)	27.6 (7.3)
Engine jacket water flow, Lpm (gpm)	180 (48)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	85.2 (4850)
Heat rejected to air charge cooler at rated kW, dry exhaust, kW (Btu/min.)	47.3 (2692)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	787 (31)
Fan, kWm (HP)	10.1 (13.5)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H <sub>2</sub> O)	0.125 (0.5)

### Operation Requirements

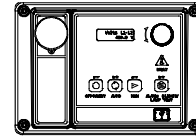
Air Requirements	60 Hz
Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm)†	368.1 (13000)
Combustion air, m <sup>3</sup> /min. (cfm)	16.4 (579)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	37.7 (2152)
Alternator, kW (Btu/min.)	14.4 (820)
• Air density = 1.20 kg/m <sup>3</sup> (0.075 lbm/ft <sup>3</sup> )	

### Fuel Consumption\*\*

Diesel, Lph (gph) at % load	60 Hz	
	Standby Rating	
100%	51.8	(13.7)
75%	42.7	(11.3)
50%	28.9	(7.6)
25%	16.6	(4.4)
Diesel, Lph (gph) at % load	Prime Rating	
	Prime Rating	
100%	48.4	(12.8)
75%	39.9	(10.6)
50%	26.7	(7.0)
25%	15.3	(4.1)

\*\* Volumetric Fuel consumption is up to 4% higher when using HVO/RD than #2 ULSD.

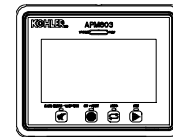
## Controllers



### 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<sup>®</sup> protocol
- Integrated hybrid voltage regulator with ±0.5% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability



### 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<sup>®</sup> RTU, Modbus<sup>®</sup> TCP, SNMP and BACnet<sup>®</sup>
  - 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<sup>®</sup> is a registered trademark of Schneider Electric.  
BACnet<sup>®</sup> is a registered trademark of ASHRAE.

### Standard Features

- Alternator Protection
- Battery Rack and Cables
- Customer Connection
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature

### 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

- HCAI Pre-Approval
- CSA Certified
- IBC Seismic Certification
- UL 2200 Listing
- Hurricane Rated Enclosure

#### Enclosed Unit

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

#### 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 (APM603 controllers 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, 1800 W, 90-120 V, 1 Ph
- Block Heater, 2000 W, 190-240 V, 1 Ph  
Required for ambient temperatures below 0°C (32°F)
- Radiator Duct Flange

### Electrical System

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

### Miscellaneous

- Air Cleaner, Heavy Duty
- Air Cleaner Restriction Indicator
- Certified Test Report
- Crankcase Emissions Canister
- Engine Fluids Added
- Rated Power Factor Testing
- Rodent Guards

### Literature

- General Maintenance
- NFPA 110
- Overhaul
- Production

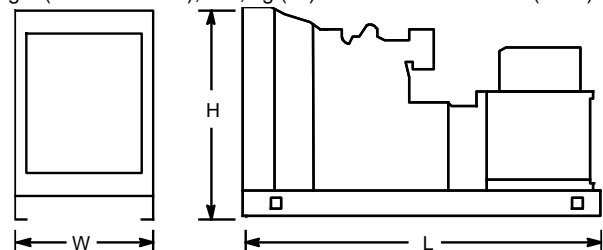
### Warranty

- 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 1668  
(118.1 x 51.2 x 65.7)

Weight (radiator model), wet, kg (lb.): 1495 (3295)



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