

# GAS ENGINE-GENERATOR SET

## AIR CHARGE-AIR COOLING

150 kWe / 60 Hz / Standby  
208 - 600V



### SYSTEM RATINGS

| Standby (NG)<br>(LP) | GS 150N6SGA<br>GS 150L6SGA | GS 150N6SDA<br>GS 150L6SDA | GS 150N6SPA<br>GS 150L6SPA | GS 150N6SJA<br>GS 150L6SJA | GS 150N6SRA<br>GS 150L6SRA | GS 150N6SNA<br>GS 150L6SNA |
|----------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| <b>Voltage (L-L)</b> | <b>240V**</b>              | <b>240V**</b>              | <b>208V**</b>              | <b>240V**</b>              | <b>480V**</b>              | <b>600V**</b>              |
| Phase                | 1                          | 1                          | 3                          | 3                          | 3                          | 3                          |
| PF                   | 1.0                        | 1.0                        | 0.8                        | 0.8                        | 0.8                        | 0.8                        |
| Hz                   | 60                         | 60                         | 60                         | 60                         | 60                         | 60                         |
| Natural Gas          |                            |                            |                            |                            |                            |                            |
| Ratings: Amps        | 625                        | 625                        | 520                        | 451                        | 225                        | 180                        |
| Natural Gas          |                            |                            |                            |                            |                            |                            |
| Ratings: kW/kVA      | 150/150                    | 150/150                    | 150/187                    | 150/187                    | 150/187                    | 150/187                    |
| LP Gas               |                            |                            |                            |                            |                            |                            |
| Ratings: Amps        | 416                        | 416                        | 346                        | 300                        | 150                        | 120                        |
| LP Gas               |                            |                            |                            |                            |                            |                            |
| Ratings: kW/kVA      | 100/100                    | 100/100                    | 100/125                    | 100/125                    | 100/125                    | 100/125                    |
| skVA@30%             |                            |                            |                            |                            |                            |                            |
| Voltage Dip          | 265                        | 305                        | 280                        | 280                        | 315                        | 315                        |
| Generator Model*     | 432PSL6210                 | 431PSL6226                 | 431PSL6204                 | 431PSL6204                 | 431PSL6202                 | 431PSL6240                 |
| Temp Rise            | 130°C/27°C                 | 125°C/40°C                 | 130°C/27°C                 | 130°C/27°C                 | 130°C/27°C                 | 125°C/40°C                 |
| Connection           | 12 LEAD ZIG-ZAG            | 4 LEAD                     | 12 LEAD LOW WYE            | 12 LEAD HI DELTA           | 12 LEAD HI WYE             | 4 LEAD WYE                 |

\*\* UL2200 Offered

### STANDARD FEATURES

- // Engine-Generator Set Tested to ISO 8528-5 for Transient Response
- // UL2200 Listed, CSA Certified - Offered
- // Accepts Rated Load in One Step Per NFPA 110
- // All engine-generator sets are prototype and factory tested
- // MTU Onsite Energy is a single source supplier
- // Global Product Support
- // 2 Year Standard Warranty
- // 8.1 L Turbo Engine Charge Air Cooling
  - 8.1 Liter Displacement
  - 4-Cycle
- // 3-Way Catalyst
- // Complete Range of Accessories
- // Engine-generator resilient mounted
- // Generator
  - Brushless, Rotating Field
  - PMG (Permanent Magnet Generator) supply to regulator
  - 300% Short Circuit Capability
  - 2/3 Pitch Windings
  - Standard for 570 frame and larger
  - Optional for 430 frame and smaller
- // Digital Control Panel(s)
  - UL Recognized, CSA Certified, NFPA 110
  - Complete System Metering
  - LCD Display
- // Cooling System
  - Integral Set-Mounted
  - Engine Driven Fan

## STANDARD EQUIPMENT

### // Engine

Air Cleaner  
 Oil Pump  
 Full Flow Oil Filter  
 Jacket Water Pump  
 Thermostats  
 Exhaust Manifold – wet  
 Blower Fan & Fan Drive  
 Radiator – Unit Mounted  
 Electric Starting Motor – 24V  
 Governor – Electronic Isochronous  
 Base – Formed Steel  
 SAE Flywheel & Bell Housing  
 Charging Alternator – 24V  
 Battery Box & Cables  
 Flexible Fuel Connectors  
 Flexible Exhaust Connection  
 EPA Certified Engine

### // Generator

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  
 Self Ventilated and Drip-proof  
 Superior Voltage Waveform  
 Digital, Solid State, Volts-per-hertz Regulator  
 No load to full load regulation  
 Brushless Alternator with Brushless Pilot Exciter  
 4 pole, Rotating Field  
 105°C Maximum Prime Temperature Rise  
 1 Bearing, Sealed  
 Flexible Coupling  
 Full Amortisseur Windings  
 125% Rotor Balancing  
 3-phase Voltage Sensing  
 ±1% Voltage Regulation  
 100% of Rated Load – One Step  
 3% Maximum Harmonic Content

### // Digital Control Panel(s)

Digital Metering  
 Engine Parameters  
 Generator Protection Functions  
 Engine Protection  
 SAE J1939 Engine ECU Communications  
 Windows-based Software  
 Multilingual Capability  
 Remote Communications to our RDP-110 Remote Annunciator  
 16 Programmable Contact Inputs  
 Up to 11 Contact Outputs  
 UL Recognized, CSA Certified, CE Approved  
 Event Recording  
 IP 54 Front Panel Rating with Integrated Gasket  
 NFPA110 Level Compatible

### // Additional Features

Oil Drain Extension & S/O Valve  
 Vibration Isolation Pads  
 Steel Sub-base  
 Radiator Duct Flange (OPU)  
 Lube Oil & Antifreeze  
 Operator's and Owner's Manual  
 2 year/3000 hour Warranty  
 Factory Tested at 0.8 PF (3 ph)

### // Optional Features

Battery Charger 6 amp or 10 amp  
 Battery: 24 volt w/ rack  
 Circuit Breaker: 80% or 100%  
 Muffler – Roof Mounted  
 Optional Fuels: LP Liquid and Dual Fuel  
 Sound Attenuation  
 – Level 1: Standard  
 – Level 2: Basic Sound Attenuation (85dB max.)  
 – Level 3: Maximum Sound Attenuation inc. Scoops (75 dB max.)  
 Remote Annunciator  
 Jacket Water Heater: -20° F  
 UL2200 Listed

## APPLICATION DATA

### // Engine

|                                       |             |
|---------------------------------------|-------------|
| Manufacturer                          | Doosan      |
| Model                                 | 8.1L CAC    |
| Type                                  | 4-Cycle     |
| Arrangement                           | 6 Inline    |
| Displacement: L (in <sup>3</sup> )    | 8.1 (492)   |
| Bore: cm (in)                         | 11.1 (4.37) |
| Stroke: cm (in)                       | 13.9 (5.97) |
| Compression Ratio                     | 10.5:1      |
| Rated RPM                             | 1,800       |
| Engine Governor                       | Bosch       |
| Maximum Power Standby (NG): kWm (bhp) | 177 (237)   |
| Maximum Power Standby (LP): kWm (bhp) | 122 (164)   |
| Speed Regulation                      | ±0.5%       |
| Air Cleaner                           | Dry         |

### // Liquid Capacity (Lubrication)

|                                       |            |
|---------------------------------------|------------|
| Total Oil System: L (gal)             | 27.5 (7.2) |
| Engine Jacket Water Capacity: L (gal) | 22.7 (5)   |
| System Coolant Capacity: L (gal)      | 240 (63)   |

### // Electrical

|  |     |
|--|-----|
| Electric Volts DC                      | 24  |
| Cold Cranking Amps Under -17.8°C (0°F) | 900 |

### // Fuel Inlet

|  |                |
|--|----------------|
| Fuel Supply Connection Size                                      | 1 1/2" NPT     |
| Fuel Supply Pressure: mm H <sub>2</sub> O (in. H <sub>2</sub> O) | 178-279 (7-11) |

### // Fuel Consumption (NG-1000 BTU/ft<sup>3</sup> / LP-2500 BTU/ft<sup>3</sup>)

|   | NG           | LPG        |
|---|--------------|------------|
| At 100% of Power Rating: m <sup>3</sup> /hr (ft <sup>3</sup> /hr) | 43.6 (1,539) | 14.7 (517) |
| At 75% of Power Rating: m <sup>3</sup> /hr (ft <sup>3</sup> /hr)  | 33.7 (1,191) | 11.1 (390) |
| At 50% of Power Rating: m <sup>3</sup> /hr (ft <sup>3</sup> /hr)  | 23.9 (845)   | 8 (283)    |

### // Cooling - Radiator System

|  |               |
|--|---------------|
| Ambient Capacity of Radiator: °C (°F)  | 50 (122)      |
| Maximum Restriction of Cooling Air, Intake, and Discharge Side of Rad.: kPa (in. H <sub>2</sub> O) | 0.12 (0.5)    |
| Water Pump Capacity: L/min (gpm)   | 240 (63)      |
| Heat Rejection to Coolant: kW (BTUM)   | 164.4 (9,357) |
| Heat Radiated to Ambient: kW (BTUM)  | 25.1 (1,425)  |

### // Air Requirements

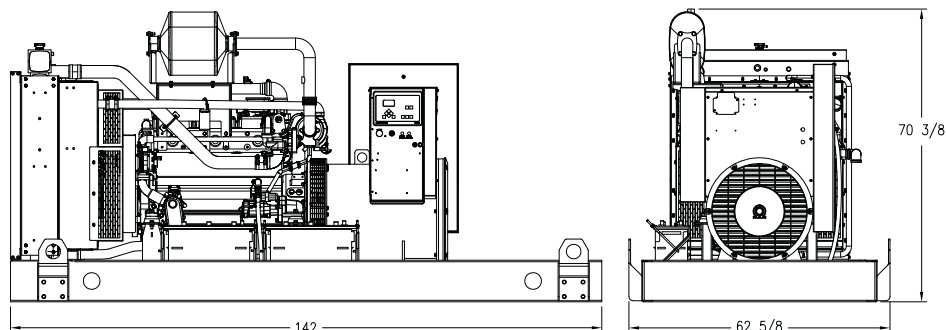
|  |              |
|--|--------------|
| Aspirating: *m <sup>3</sup> /min (SCFM)  | 9.3 (317)    |
| Air Flow Required for Rad. Cooled Unit: *m <sup>3</sup> /min (SCFM)                              | 428 (15,100) |
| Air Flow Required for Heat Exchanger/Remote Rad. based on 25°F Rise: *m <sup>3</sup> /min (SCFM) | 92 (3,213)   |

\* Air density = 1.184 kg/m<sup>3</sup> (0.0739 lbm/ft<sup>3</sup>)

### // Exhaust System

|   |              |
|---|--------------|
| Gas Temp. (Stack): °C (°F)                                  | 732 (1,350)  |
| Gas Volume at Stack Temp: m <sup>3</sup> /min (CFM)         | 31.9 (1,129) |
| Maximum Allowable Back Pressure: kPa (in. H <sub>2</sub> O) | 5.1 (20.5)   |

## WEIGHTS AND DIMENSIONS



Drawing above for illustration purposes only, based on standard open power 480 volt engine-generator set. Lengths may vary with other voltages. Do not use for installation design. See website for unit specific template drawings.

### System

Open Power Unit (OPU)

### Dimensions (L x W x H)

3,607 x 1,591 x 1,788 mm (142 x 62.63 x 70.38 in)

### Weight (dry/less tank)

2,562 kg (5,647 lb)

Weights and dimensions are based on open power units and are estimates only. Consult the factory for accurate weights and dimensions for your specific engine-generator set.

## SOUND DATA

### Unit Type

Level 0: Open Power Unit (dBA)

### Standby Full Load

C/F

Sound data is provided at 7 m (23 ft). Engine-generator set tested in accordance with ISO 8528-10 and with infinite exhaust.

## EMISSIONS DATA

| Fuel Type      | NO <sub>x</sub> | HC  | CO  | PM  |
|----------------|-----------------|-----|-----|-----|
| Natural Gas    | C/F             | C/F | C/F | C/F |
| Liquid Propane | C/F             | C/F | C/F | C/F |

All units are in g/hp-hr and are EPA D2 cycle values.

## RATING DEFINITIONS AND CONDITIONS

- // Ambient capability factor at 984 ft (300 m). Consult your local MTU Onsite Energy Power Generation Distributor for other altitudes.
- // 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. No overload capability for this rating. Ratings are in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271.
- // Deration Factor:  
Production tolerances in engines and installed components can account for power variations. Altitude, temperature and excessive exhaust and intake restrictions should be applied to power calculations. Consult your local MTU Onsite Energy Power Generation Distributor for derations.

Materials and specifications subject to change without notice.

C/F = Consult Factory/MTU Onsite Energy Distributor