



Gas Generator Set

mtu 12V0265 GS650

650 kWe/60 Hz/Standby/208 - 4,160V

System ratings

Voltage (L-L)	208V † ‡	240V † ‡	380V † ‡	480V † ‡	600V ‡	4,160V
Phase	3	3	3	3	3	3
PF	0.8	0.8	0.8	0.8	0.8	0.8
Hz	60	60	60	60	60	60
Amps	2,255	1,955	1,234	977	782	113
kW	650	650	650	650	650	650
kVA	813	813	813	813	813	813
skVA@30% voltage dip	2,050	2,050	2,430	2,630	2,745	2,028
Generator model *	LSA 49.1 M7	LSA 49.1 M7	LSA 49.1 M75	LSA 49.1 M6	LSA 49.1 M6	LS 50.2 L5
Temp rise	130 °C/40 °C	130 °C/40 °C	130 °C/40 °C	130 °C/40 °C	130 °C/40 °C	130 °C/40 °C
Connection	12 LEAD WYE	12 LEAD DELTA	6 LEAD WYE	6 LEAD WYE	6 LEAD WYE	6 LEAD WYE

* Consult the factory for alternate configuration.

† UL 2200 offered

‡ CSA offered

Certifications and standards

- Generator set is designed and manufactured in facilities certified to standards ISO 9001:2008 and ISO 14001:2004
- UL 2200 - optional (refer to *System ratings* for availability)
- CSA - optional (refer to *System ratings* for availability)
 - CSA C22.2 No. 100
 - CSA C22.2 No. 14
- Performance Assurance Certification (PAC)
 - Generator set tested to ISO 8528-5 for transient response
 - Verified product design, quality and performance integrity
 - All engine systems are prototype and factory tested
- Power rating
 - Accepts rated load in one step per NFPA 110

Standard features*

- Single source supplier
- Global product support
- Two (2) Year/3,000 Hour Basic Limited Warranty
- 31.8L turbo charge-air cooled gas engine
 - 31.8 liter displacement
 - 4-cycle
 - 3-way catalyst
- Complete range of accessories
- Engine-generator resilient marked
- Cooling system
 - Integral set-mounted
 - Engine driven fan
- Generator
 - Brushless, rotating field generator
 - 2/3 pitch windings
 - AREP supply to regulator
 - 300% short circuit capability
- Digital control panel(s)
 - UL recognized, CSA certified, NFPA 110
 - Complete system metering
 - LCD display

Standard equipment*

Engine

- Air cleaners
- Oil pump
- Oil drain extension and shut-off valve
- Full flow oil filter
- Closed crankcase ventilation
- Jacket water pump
- Inter cooler water pump
- Thermostats
- Blower fan and fan drive
- Radiator - unit mounted
- Electric starting motor - 24V
- Governor - electronic isochronous
- Base - structural steel
- SAE flywheel and bell housing
- Charging alternator - 24V
- Battery rack and 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
- $\pm 0.25\%$ voltage regulation no load to full load
- Brushless alternator with brushless pilot exciter
- 4 pole, rotating field
- 130 °C maximum standby temperature rise
- 1-bearing, sealed
- Flexible coupling
- Full amortisseur windings
- 125% rotor balancing
- 3-phase voltage sensing
- 5% maximum total harmonic distortion

Digital control panel(s)

- Digital metering
- Engine parameters
- Generator protection functions
- Engine protection
- SAE J1939 ECU communications
- Windows®-based software
- Multilingual capability
- Communications to remote annunciator
- Programmable input and output contacts
- UL recognized, CSA certified, CE approved
- Event recording
- IP 54 front panel rating with integrated gasket
- NFPA 110 compatible

Application data

Engine

Manufacturer	PSI
Model	31.8L CAC
Type	4-cycle
Arrangement	12-V
Displacement: L (in ³)	31.8 (1,941)
Bore: cm (in)	15 (5.9)
Stroke: cm (in)	15 (5.9)
Compression ratio	10.5:1
Rated RPM	1,800
Engine governor	Bosch
Maximum power (NG): kWm (bhp)	720 (966)
Steady state frequency band	± 0.5%
Air cleaner	dry

Liquid capacity

Total oil system: L (gal)	122 (32.2)
Engine jacket water capacity: L (gal)	88.1 (23.3)
System coolant capacity: L (gal)	236 (62.3)

Electrical

Electric volts DC	24
Cold cranking amps under -17.8 °C (0 °F)	2,800
Batteries: group size	8D
Batteries: quantity	4

Fuel system

Fuel supply connection size	3" NPT
Fuel supply pressure: mm H ₂ O (in. H ₂ O)	178–279 (7–11)

Fuel consumption (NG-1000 BTU/ft³)

At 100% of power rating: m ³ /hr (ft ³ /hr)	209 (7,404)
At 75% of power rating: m ³ /hr (ft ³ /hr)	171 (6,053)
At 50% of power rating: m ³ /hr (ft ³ /hr)	127 (4,491)

Cooling - radiator system

Ambient capacity of radiator: °C (°F)	50 (122)
Maximum restriction of cooling air, intake, and discharge side of radiator: kPa (in. H ₂ O)	0.12 (0.5)
Water pump capacity: L/min (gpm)	1,368 (361)
Heat rejection to coolant: kW (BTUM)	599 (34,095)
Heat rejection to after cooler: kW (BTUM)	73 (4,155)
Heat radiated to ambient: kW (BTUM)	297 (16,905)
Fan power: kW (hp)	24 (32)

Air requirements

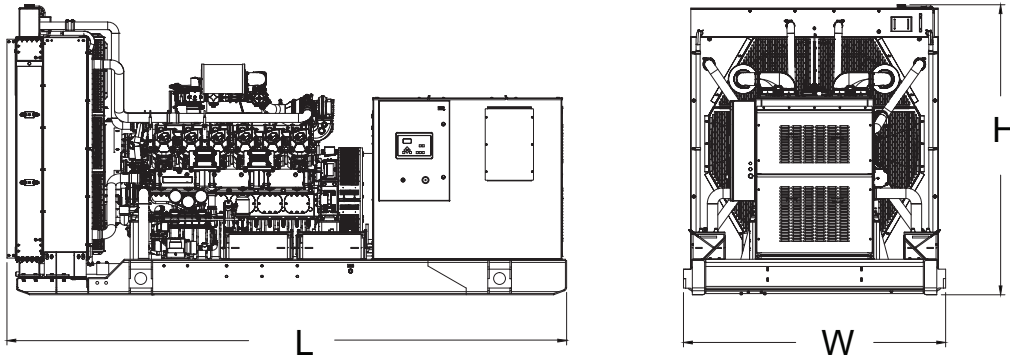
Aspirating: *m ³ /min (SCFM)	37 (1,320)
Air flow required for radiator cooled unit: *m ³ /min (SCFM)	1,167 (41,200)
Remote cooled applications; air flow required for dissipation of radiated generator set heat for a maximum of 25 °F rise: *m ³ /min (SCFM)	1,236 (43,906)

* Air density = 1.184 kg/m³ (0.0739 lbm/ft³)

Exhaust system

Gas temperature (stack): °C (°F)	639 (1,183)
Gas volume at stack temperature: m ³ /min (CFM)	115 (4,079)
Maximum allowable back pressure at outlet of engine, before piping: kPa (in. H ₂ O)	10.2 (41)

Weights and dimensions



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

System	Dimensions (L x W x H)	Weight
Open Power Unit (OPU)	4,742 x 2,222 x 2,457 mm (186.8 x 87.5 x 96.8 in)	8,500 kg (18,740 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 generator set.

Sound data

Unit type	Standby full load (NG)
Level 0 (OPU): dB(A)	94.3

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

Emissions data

Fuel type	THC + NO _x	CO
Natural gas	0.05	0.54

- All units are in g/hp-hr and are EPA weighted cycle values. Emission levels of the engine may vary with ambient temperature, barometric pressure, humidity, fuel type and quality, installation parameters, measuring instrumentation, etc. The data was obtained in compliance with US EPA regulations.

Rating definitions and conditions

- Ambient capability factor at 984 ft (300 m). Consult your local **mtu** 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, and AS 2789. Average load factor: ≤ 85%.
- Nominal ratings at standard conditions: 25 °C and 300 meters (77 °F and 1,000 feet).
- Deration factor:
 - Consult your local **mtu** Distributor for altitude derations.
 - Consult your local **mtu** Distributor for temperature derations.