MITSUBISHI GENERATOR SERIES

MGS-CN
for Data Center Power Systems

RELIABILITY AND QUALITY IN POWER GENERATION
The market environment in recent years surrounding the data center has been rapidly changing from the form that enterprises and individuals have managed and possessed hardware, software, data, etc. to the form that various information systems of enterprises and individuals are installed in the data center. Amid these changes in the times, data centers are increasing their presence in modern business scenes, and along with this situation the facility standards that the market seeks at the data center are also changing to severe.

The MHIET Group will develop many power generation systems that require exclusive specs for the data center to fully support such changes in the business environment. We will bring together the technologies that the MHIET Group has cultivated over many years and contribute to the stable operation of the data center.

**3 Categories of Data Center**

- **Co-locator**
  - Build data center facility to provide server space for third party company

- **Enterprise**
  - Build data center facility to manage their data that is related to their main business for own company (Ex. Financial Institution)

- **Digitals**
  - Build and manage many large-scale data center facilities to provide their cloud servicing (Ex. Google, Microsoft)

**Concept of Diesel Engine Generator Set for Data Centers**

- Data centers are operating in 24 hours / 7 days.
- Thus the electric power supply facility is most important for them.
- The demands of diesel engine generator sets from the data centers are mainly 3 points in below.

- **Startability**
  - Quick start
  - High reliability
- **Size**
  - Power ratio
  - Footprint
- **Global Standard**
  - Apply ISO standard
  - Meet requirement of Uptime Institute

**MGS Total Sales Record**

Since the launch of the MGS series, there are over 10,000 units worldwide.

MGS series are our core product which has gained great reliability from customers all over the world.

**Delivery Example for Data Center**

- **Company Name**
  MC Digital Realty, Inc.
  (Co-locator)

- **Location**
  Mitaka, Tokyo

- **Diesel Generator Sets**
  2,500kVA (Engine: S16R2-PTAW)
  Diesel Generator Sets
  N+1 Redundancy

MHET group Engines and Generator sets are installed in data center facilities around the world including in MC Digital Realty, Inc.
Data Center is Core of Every Society

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Sales Record & Delivery Example

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Advanced Features

**Mitsubishi Engines and Turbochargers**

*Make Best Performance of Mitsubishi Gensets*

MHIET group has continually introduced upgraded its engine products since the inception of business in 1917, and now the MGS provides a higher generating power rating and more advanced control systems than ever before, with proven reliability based on the continued research and development. The best performance-matched engine system configured with Mitsubishi diesel engines and Mitsubishi turbochargers, which are engineered and manufactured in the same facility, is certain to result in the high productivity and improved fuel economy in the MGS power generation.

MGS - All Mitsubishi assembled, tested and supported.

**Advanced Solution in 7310 and 7320 Control System**

"Full-sized" safety and automatic functions in the series of digital control systems.

Easy human interface in the sophisticated control system makes for an operator-friendly Gen Set.

**Remote Monitoring System (RMS)**

- MGS operating condition
- MGS total operating hour
- Warning & Shutdown alarm

*In some countries or regions, it is not able to be possible to install a remote monitoring system because of their laws, regulations or other reasons.

*Some devices are needed to install RMS.

**Main Features**

**High Reliability and Quality in MGS**

It takes no more than 10 seconds from receiving the signal to start reaching the rated voltage and frequency, which minimizes the impact of power outages.

Our compact MGS series makes more space to have servers or other devices in your facilities.

Our ultimate goal is 99.999% availability. MHIET group provides total engineering and service support to accomplish 99.999% availability of your power systems.

Mitsubishi’s fuel injector and high-pressure fuel pump make it possible to burn the fuel completely and achieve clean emission gas.

**Quick Start**

Green Technology

Five Nines Engineering

Space Saving

Wireless router Gateway unit

SIM RMS module in a box

Mobile phone Laptop PC

Cloud server

3G signal

RMS operating condition

MGS operating condition

MGS total operating hour

Warning & Shutdown alarm

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Remote Monitoring System (RMS)

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Remote Monitoring System (RMS) offers high reliability and quality in MGS.

- RMS module in a box
- Mobile phone
- Laptop PC
- Wireless router
- Gateway unit

- MGS

*In some countries or regions, it is not able to be possible to install a remote monitoring system because of their laws, regulations or other reasons.

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### Service Network

The preferred worldwide equipment
MITSUBISHI GENERATOR SERIES (MGS) - the way to serve customers
- Best available products with the best possible value
- Best quality service support with the sense of urgency
- Beyond the customer’s expectation

Your local MGS genset dealer can advise you on the right selection of MGS genset for your application, deliver and install the units properly, and provide daily maintenance on demand, to support higher productivity in economical way. Well trained and experienced professionals strive for excellence in all they do.

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### MHIET Group Network

**Strategic Partners**

- **Uptime Institute**: Mitsubishi Generator Series comply with the requirement of a Tier III and Tier IV data center facility which shall not have a limitation on consecutive hours of operation when loaded to 'N' demand.

**MHIET Group Network**

#### Asia
- Mitsubishi Heavy Industries (Shanghai) Co., Ltd. (MHISH)
- Shanghai MHI Engine Co., Ltd. (SMIE)

#### Europe & Middle East
- Mitsubishi Turbocharger and Engine Europe B.V. (MTEE)
- Mitsubishi Turbocharger and Engine America, Inc. (MTEA)
- MHIET Group Distributor

#### North America
- Mitsubishi Engine System America, Inc. (MESA)
- MHIET Group Distributor

#### South America
- Mitsubishi Engine System America, Inc. (MESA)
- MHIET Group Distributor

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### Rating Table

#### Low Voltage

<table>
<thead>
<tr>
<th>Data Center Power Code: DCP (kVA)</th>
<th>Generator set</th>
<th>Engine Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>400 V/230 V 50 Hz</td>
<td>MGS-CN2800</td>
<td>S16R2-PTAW2-E</td>
</tr>
<tr>
<td></td>
<td>MGS-CN2700</td>
<td>S16R2-PTAW</td>
</tr>
<tr>
<td></td>
<td>MGS-CN2250</td>
<td>S16R-PTAA3</td>
</tr>
<tr>
<td></td>
<td>MGS-CN2050</td>
<td>S16R-PTA2</td>
</tr>
<tr>
<td></td>
<td>MGS-CN1900</td>
<td>S16R-PTA</td>
</tr>
<tr>
<td></td>
<td>MGS-CN1650</td>
<td>S16R-PTA2</td>
</tr>
<tr>
<td></td>
<td>MGS-CN1500</td>
<td>S16R-PTA2</td>
</tr>
<tr>
<td></td>
<td>MGS-CN1400</td>
<td>S16R-PTA</td>
</tr>
<tr>
<td></td>
<td>MGS-CN0850</td>
<td>S16R-PTAA2</td>
</tr>
<tr>
<td></td>
<td>MGS-CN0750</td>
<td>S16R-PTA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>400 V/230 V</td>
</tr>
</tbody>
</table>

#### High Voltage

<table>
<thead>
<tr>
<th>Data Center Power Code: DCP (kW)</th>
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<tbody>
<tr>
<td>10.5 kV/6.3 kV 50Hz</td>
<td>MGS-CN2800HV</td>
<td>S16R2-PTAW2-E</td>
</tr>
<tr>
<td></td>
<td>MGS-CN2700HV</td>
<td>S16R2-PTAW</td>
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*Data Center Power (DCP)*

Data center power is defined as being the maximum power which a generating set is capable of delivering while supplying a variable or continuous electrical load and during unlimited run hours. Depending on the site to supply and the availability of reliable utility, the generating set manufacturer is responsible to define what power level he is able to supply to fulfill that requirement including hardware or software or maintenance plan adaptation. (ISO 8528-1:2018)

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*If you need to have more information about our group company, please check MHIET website.
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<td>S16R-PTAA2</td>
<td>2000</td>
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<tr>
<td>MGS-CN2050</td>
<td>S16R-PTA2</td>
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<td>MGS-CN1900</td>
<td>S16R-PTA</td>
<td>1700</td>
</tr>
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<td>MGS-CN1650</td>
<td>S12R-PTAA2</td>
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<td>1250</td>
</tr>
<tr>
<td>MGS-CN0850</td>
<td>S6R2-PTAA2</td>
<td>750</td>
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<tr>
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