

## MITSUBISHI MARINE GENSET

# MAS 650-S (IMO 2)

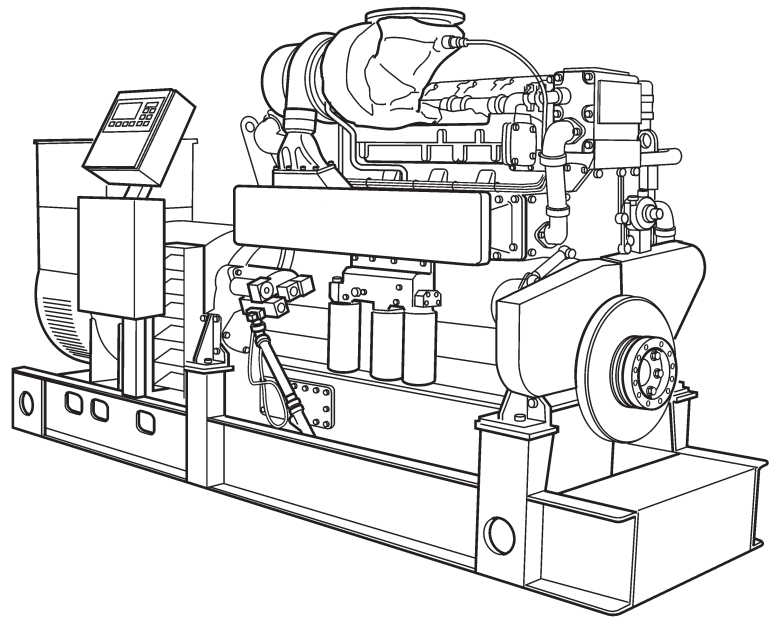
647 kVA (518kWe) / 1500 rpm 50 Hz. 753 kVA (603 kWe) / 1800 rpm 60 Hz

### Technical Data

Engine designation . . . . . S6R-Z3MPTAW  
No. of cylinders and configuration in-line 6  
Method of operation . . . . . 4-stroke,  
. . . . . direct-injected, turbocharged  
. . . . . diesel engine with aftercooler  
Bore, mm . . . . . 170  
Stroke, mm . . . . . 180  
Displacement, l . . . . . 24.51  
Compression ratio . . . . . 14:1  
Crankshaft Power HE Cooling  
at 1500 rpm, kW (hp) . . . . . 545 (741)  
at 1800 rpm, kW (hp) . . . . . 635 (864)  
Crankshaft Power KC Cooling  
at 1500 rpm, kW (hp) . . . . . 515 (700)  
at 1800 rpm, kW (hp) . . . . . 595 (809)  
Recommended fuel to conform to . . . . .  
. . . . . ASTM No. 2-D  
Specific fuel consumption best point,  
g/kWh at 1500 rpm . . . . . 204 (100%)  
g/kWh at 1800 rpm . . . . . 208 (100%)

All data represent net performance with standard accessories such as fuel injection pump, water pump, L.O. pump and charging alternator under the conditions of 100kPa (750mm Hg), barometric pressure 300K (27°C) ambient temperature and 60% relative humidity.

The engine is certified acc. to IMO NOx, stage 2.



### Mitsubishi Auxiliary Sets (MAS)

The Mitsubishi Auxiliary Sets are the complete solution for a ship's on-board power requirements. You will not only get reliable marine diesels, well-matched generators and a monitoring system, but also a wide range of products and services to optimize your investment.

Each MAS is built in the factory fully adapted to the customer's requirements and comes complete and tested, ready for installation onboard. The basis for the MAS is the smooth running and reliable marine diesel engines. Compact in design, they occupy less space in the engine room, and their good accessibility makes service and maintenance easy.

All the MAS sets are type approved by the major classification societies, and can be delivered under complete certification.

### Engine

The Mitsubishi engines are well balanced and have excellent emission performance, meeting all present and coming emission regulations, including IMO stage 2 and CCNR.

Mitsubishi's basic design in combination with Woodward governor and a modern electronic control system gives superior load acceptance and synchronizing capabilities, meeting all standards with good margin.

### Generator

All the standard Gensets are equipped with a generator built by Newage Stamford. Stamford is the market leader in this power range and provides for worldwide service coverage. These generators are of a long proven design, based on years of experience of power generation for land-based and marine applications.

### Warranty and service

Power House in Sweden is a global distributor for Mitsubishi Auxiliary Sets. Qualified Power House dealers stand by for service and support, including installation support and commissioning. A complete set of documentation will be delivered with the set according to the demand from operator and shipyard. Power House offers 24h service as well as a web-based parts ordering system, which secures around-the-clock parts availability.

Taylor-made service agreements can be established, which secures total cost control for the operator.

# MAS 650-S (IMO 2)

## Technical description

### Complete Genset

- High system efficiency as a result of system optimization of the complete Genset
- All used components of highest quality from well reputed suppliers
- Reinforced set dimensioned for high output and low sound level
- Mono-block engine/generator rigidly mounted on a common bed frame
- Engine directly coupled to generator via a flexible coupling
- Flexible mountings including welding plates mounted under the frame
- Full protection of rotating parts will be provided

### Engine

- Flywheel housing with connection acc. to SAE 0
- Flywheel (18")
- Engine brackets

### Lubrication system

- Freshwater-cooled oil cooler
- Spin-on type oil filters with change over valve
- Spin-on type oil by-pass filter

### Fuel system

- Woodward electronic or hydraulic governing systems
- Jacketed fuel pipes
- Spin-on type fuel filters of change over type
- 24V fuel shut-off valve, electrically operated

### Inlet air and exhaust system

- Non-cooled turbocharger
- Air inlet filter/silencer
- Fresh water cooled charge air cooler. (on MPTA models)

### Other equipment

- Front P.T.O. pulley (2x B groove)
- Front safety cover

### Generator

- Temperature rise class H, ambient temp. 50 degr. C
- Generator equipped with spacious terminal box

- Stator winding as standard with short 2/3 pitch winding, ideal for non-linear load (thyristor load)
- 4-pole, brushless, AC marine generator
- Dynamically balanced rotor
- Automatic Voltage Regulator (AVR) for accurate Voltage regulation
- Permanent magnet mounted on generator for independent power supply to AVR
- Permanent magnet system to obtain hard performance on motor start and to deliver stationary short circuit current
- Heavy damper cage for parallel operation and very low subtransient reactance values
- Double bearing generator as standard
- Windings are 12 wire reconnectable
- Voltage available range up to 690V
- IP23 enclosure as standard
- Anti condensation heating
- Droop kit

## Optional equipment

### Engine

- Twin fuel filters/water separator with change over valve
- Flexible exhaust compensator, dry
- Raw/sea water circulation pump
- Cooling water connection bellows
- Electrical or air starting systems
- Engine cooling water heater 230V or 400 V
- Pre-lube oilpump combined with heater

### Heat Exchanger cooled system (HE)

- For seawater- and central-cooled Gensets
- Plate heat exchanger with integrated expansion tank

### Radiator cooled system (RC)

- For air-cooled Gensets
- V-belt-driven radiator fan

### Keel cooled system (KC)

- 1-circuit keel cooling system for keel- or box coolers

### Control and Monitoring system

- Classifiable control and monitoring system DMS-2

## Generator

- Air inlet louvres/filters according to IP44
- Thermistors (1 or 2 per phase) mounted in generator for temperature measurement of windings in generator
- PT100 elements (1 or 2 per phase) mounted in generator for temperature measurement of windings in generator
- Single bearing generator
- PT100 elements mounted in generator bearings for temperature measurement
- Water cooled generator

## Miscellaneous

- Flexible exhaust compensator
- Dry exhaust silencer with or without spark arrestor
- Synchronizer unit
- Load sharing unit
- Toolkit
- Spare parts according to classification recommendations

Contact your local dealer for further information.

Not all models, standard equipment and accessories are available in all countries. All specifications are subject to change without notice.

The Genset illustrated may not be entirely identical to production standard Gensets.

# Digital Monitoring System 2

## DMS2 SYSTEM

With the new DMS2 system, MEE is bringing a brand new engine controller on the marine market, which is able to monitor and control propulsion and auxiliary diesel engines by the rules of the major classification societies.

This new system is ready to be integrated in most ship management systems, by use of onboard Modbus communication or external connected profibus converter.



Touch screen panel

## INSTALLATION

The DMS2 system consists of an interface module mounted in a steel enclosure which is flexible fixed on the engine. From this module communication finds his way to the panel(s), relay module(s), and profibus converter.

## FEATURES

- Touch screen panel(s)
- Monitoring and control
- Backup system
- Configuration via touch screen panel or PC
- Multiple language support
- Integration in ships management by modbus or profibus
- Prelube function
- Starting lock options
- Separated horn and alarm acceptance
- Event driven history record, simply retracing alarms and events
- Support for propulsion, auxiliary, and emergency/harbour sets
- Load control
- Standby pump steering
- Ready2start signal output
- Reduce power output.

## BENEFITS

- Battery pole reversal protection
- No hardwired safety functions- less wiring and components
- Onboard Modbus RTU communication with RS232/485 connection
- Master and slave panels
- Integrated clutch control
- price/quality performance.



## FLEXIBLE

Parameters are easily set by the use Of the DMS2 configuration software or if no PC is available by programming on the master touch screen panel. The log buffer can also be viewed on this screen.

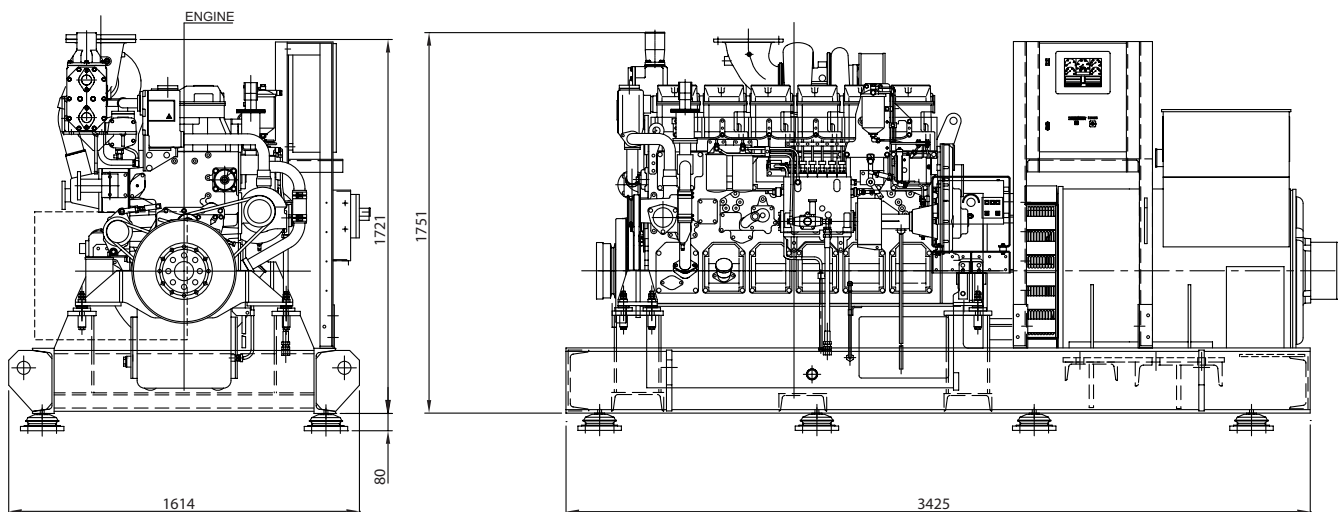


Interface box



Relay module

# MAS 650-S (IMO 2)



## Technical data HE-KC Genset

647 kVA (518kWe) / 1500 rpm 50 Hz

753 kVA (603 kWe) / 1800 rpm 60 Hz

Dimensions L x W x H, mm, not for installation

S6R-Z3MPTAW . . . . . 3474 x 1231 x 1850

Dry weight, complete set. . . . . 5300 kg

Generator . . . . . HCM 634 G2

All data represent net performance with standard accessories such as fuel injection pump, water pump, L.O. pump and charging alternator under the conditions of 100kPa (750 mm Hg), barometric pressure 300K (27°C) ambient temperature and 60% relative humidity.

This drawing is not for installation.

All data are subject to change without prior notice.

Dealer



Lammholmsvägen 4  
SE-475 31 Öckerö, Sweden  
[www.powerholding.se](http://www.powerholding.se)