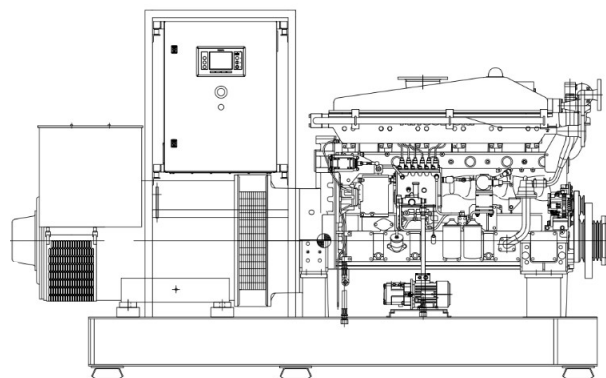


MAS-540-1500

# MITSUBISHI AUXILIARY SET

Quality, reliability, performance, and partnership  
- Mitsubishi Heavy Industries Group.



## RATING

Generating set model	MAS-540-1500
Generator voltage	400 V
Frequency	50 Hz
Generator output PRP	428 kWe
Duty	Auxiliary/DEP
Rating	PRP – Prime Power
Average load factor for 24h	"80% or lower >90% for max 3h/24h"
Overload	110% for 1h/12h
Installation location	Indoors

## DESIGN CONDITIONS

Ambient temp - max	45 °C
Ambient temp – min	0°C
Altitude (maxi)	1000m a.s.l
Relative humidity (maxi)	85 %
Fuel oil LHV	42700kl/kg
Fuel oil	Diesel
Fuel oil gravity at 15°C	0.83 to 0.87
Fuel oil sulfur content max	0.2% by weight
Fuel oil viscosity min(60°C)/max(50°C)	2.0/8.0 cSt
Fuel oil cetane number – min	45
Lube oil capacity – max (incl. filters)	110 l
Emissions	IMO II

## ALTERNATOR DATA

Alternator Make	Stamford
Alternator Type	HCM534F2
Alternator output @ Cos Φ=0.8	478 kVA
Bearing configuration	double
Insulation class	H
Temperature rise class	F
Cooling method	Air
Protection	IP23
Excitation system	Digital
PT100 for bearing and stator winding	Included
AVR for single and parallel operation	Included
Space heater	Included

## ENGINE DATA

Engine model	S6A3-MPTAW-20
Engine speed	1500 rpm
Engine brake output	450 kW
Cylinder configuration	6l
Total displacement	18.56 l
Bore x Stroke	150x175 mm
Compression ratio	14.5:1
Turbocharged	Turbo-Charged, After Cooler
Governor	Electric
Cooling method (engine driven pump)	Water
Starting method	Battery

## CE COMPLIANCE

2006/42/EC : machinery

## LANGUAGE - UNITS

Drawings, documents, nameplates in English

SI metric system

### PERFORMANCES @ PRIME

Generator output	428 kWe
Specific consumption – ISO3046/1 : 0/+5%	209 g/kWh
Fuel oil consumption @ 100%	111 l/hr
Fuel oil consumption @ 75%	83 l/hr
Exhaust gas temperature	425 °C
Exhaust gas flow rate	103 m³/min
Air intake flow rate	39 m³/min
Noise level@ 1m (open skid)	-

### HEAT BALANCE

Heat rejection (HT / LT)	239 / 125 kW
Heat rejection (exhaust)	306 kW
Thermal radiation (engine block)	17 kW
Thermal radiation (generator)	- kW
Coolant temperature at HT outlet - max	95 °C
Coolant temperature at LT inlet - max	32 °C
Coolant temperature at LT inlet - derating 5.2%	-
Flow rate of coolant radiator circuit – HT/LT	475 / 150 l/min
Coolant capacity (engine only)	40l

### TOLERANCES AND CONDITIONS

Efficiency data for average conditions (avg) – derating above 1000 m asl or 40°C intake air temperature or 32°C LT coolant inlet temperature

Fuel input: 0/+5% (ISO3046/1). Submitted to fuel oil specification confirmation

Heat rejection data: +/- 12%. Add 17% margin for remote dry air cooler design

Exhaust gas flow / temperature: +/- 6% - +/- 8%

Pictures are not contractual and may include optional accessories

These data are not contractual. They can be modified by MTEE without prior notice

### STANDARDS

I.S.O. : International Standard Organization

C.E.N. : European Standard Committee

I.E.C. : International Electric Commission

J.I.S. : Japanese Industrial Standards (for engine)

J.E.C. : Japan. Electrotechnical committee (engine)

J.E.M. : Japan Elec. Manufacturers Association (Eng.)

Manufacturers standards

### GENERATOR SET EMBEDDED CONTROL PANEL

Automatic start and shutdown DCU410 system mounted in door of interface box with the following functions

LCD displaying engine rpm, control voltage, lube oil pressure and temperature, cooling water temperature, charge air pressure, exhaust temperature after turbo

3 automatic start attempts acc. to class requirements.

Automatic shutdown for low oil pressure, high water temperature HT and overspeed

Control of pre lube pump

Start and Stop switch

Hour meter

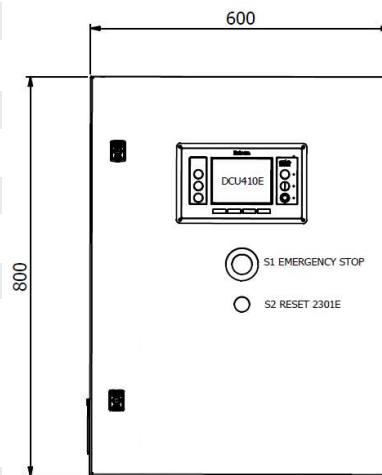
RS-485/TCP IP converter for serial communication with IAS, Modbus protocol

Common alarm

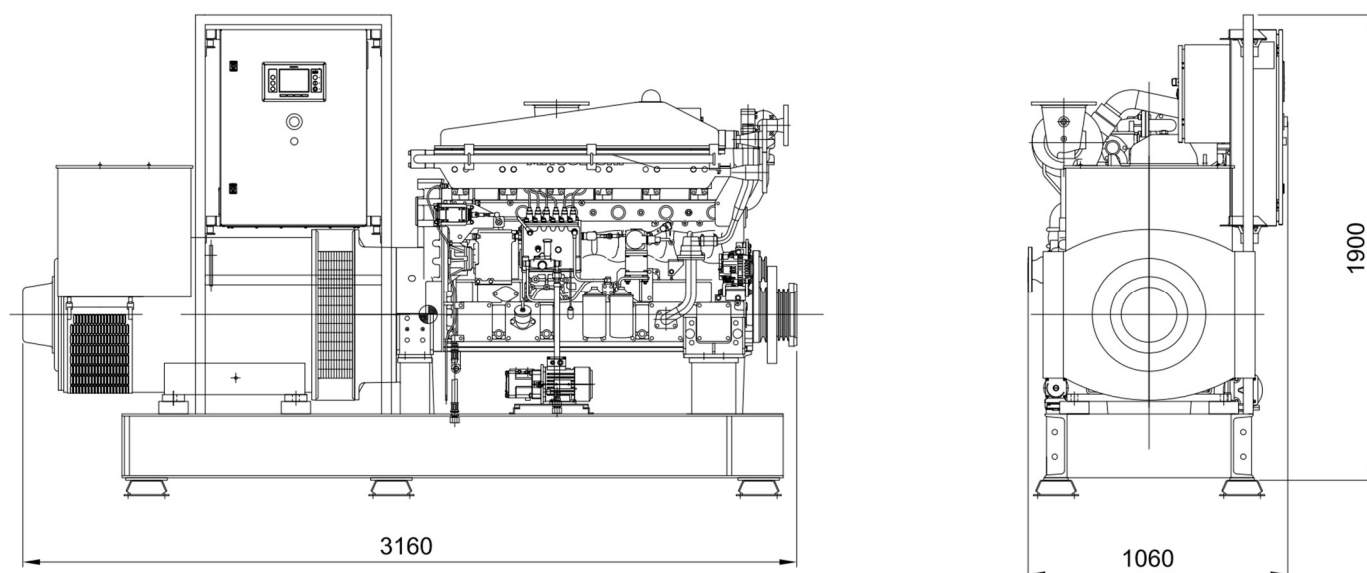
Stop System; 24V stop solenoid

Automatic control of engine auxiliaries and power supply:

- Intercooler water (LT) pump
- Jacket water heater and pump
- Alternator space heater



MAS-540-1500 - S6A3-MPTAW-20 - LAYOUT



Dry Weight = 4100 kg

## SCOPE OF SUPPLY

		● Standard item ○ Option
Engine	Mitsubishi engine	●
	SOLAS compliant exhaust insulation and protection for fuel and oil connections	●
	Heavy duty frame with vibration absorbers	●
	Electrical Pre-lube pump with oil drain/filling	●
	Cooling heater with internal circulation pump and flexible below connections	●
	Alarm switch for fuel leakage	●
	Woodward Pro Act digital + Governor system	●
	Woodward speed controller 2301E (built into control cabinet)	●
	Protect guard for moving parts	●
	LT/HT interface flexible bellows	●
	Electrical LT pump and Thermostat (delivered loose supply for optimal installation in vessel)	●
Generator	Air-cooled Generator IP 23 with Digital AVR	●
	PT-100 bearing and windings	●
	Anti-condensation heater	●
	Flexible coupling with TVC calculation	●
	Droop CT	●
Control system	Type approved Control system (cabinet) including package aux class including sensors and mounting	●
	Based on Auto-Maskin	●
	Electrical starter cabinet: for heater, lubrication oil primer pump and LT pump	●
Documentation	IMO2 certificate	●
	Drawing and design engineering (GAD, P&ID, Electrical Drawings)	●
	Test running of complete sets at Spikkestad, Norway before shipment / Test Report	●
	Mitsubishi Warranty	●
Options (mounted)	Water cooled Generator	○
	Drip tray oil filter	○
	Mechanical LT cooling water pump v-belt driven and Thermostat	○
	Drip trays fuel filter	○
	Lifting lugs	○
Options (loose)	Silencer (35dB)	○
	Exhaust compensator	○
	Plate Heat exchanger	○
	Expansions tanks LT (4ol) / HT (6ol)	○
	Remote Genset Control Panel	○
	Start battery and battery box	○
	Battery isolation switch cabinet	○
	Battery charger	○
	Class certification (Genset incl. control system)	○

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### More information

Contact your local Mitsubishi Engine & Energy dealer for more information regarding Mitsubishi Generator Sets and optional equipment.  
Or visit [www.mtree.eu](http://www.mtree.eu)