

# KOHLER®



## DESCRIPTIVE

- Kohler Co. Provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- A one-year limited warranty covers all systems and components
- 12 V charge alternator and starter
- Single-bearing alternator with insulation class H.
- Radiator for core temperature of 48/50°C max with mechanical fan
- Skid and vibration isolators.
- Dry type air filter.
- Main line circuit breaker.
- Microprocessor controller.
- 9 dB(A) silencer supplied separately
- Operation and installation literature.

## POWER DEFINITION

PRP : Prime Power is available for an unlimited number of annual operating hours in variable load applications, in accordance with ISO 8528-1. ESP : The standby power rating is applicable for supplying emergency power in variable load applications in accordance with ISO 8528-1. Overload is not allowed.

## TERMS OF USE

According to the standard, the nominal power assigned by the genset is given for 25°C Air Inlet Temperature, of a barometric pressure of 100 kPa (100 m A.S.L), and 30 % relative humidity. For particular conditions in your installation, refer to the derating table.

## ASSOCIATED UNCERTAINTY

For the generating sets used indoor, where the acoustic pressure levels depends on the installation conditions, it is not possible to specify the ambient noise level in the exploitation and maintenance instructions . You will also find in our exploitation and maintenance instructions a warning concerning the air noise dangers and the need to implement appropriated preventive measures.

## KM12M

Engine ref.	S4L2-SD
Alternator ref.	KH00404T
Performance class	G2

## GENERAL CHARACTERISTICS

Frequency (Hz)	50 Hz
Voltage (V)	230 single phase
Standard Control Panel	APM303
Optional control panel	DEC 4000
Optional control panel	M80
Optional control panel	APM403

## POWER

Voltage	ESP		PRP		Standby Amps
	kWe	kVA	kWe	kVA	
240 MONO	12	12	10.9	10.9	50
230 MONO	12	12	10.9	10.9	52
220 MONO	12	12	10.9	10.9	55

## DIMENSIONS COMPACT VERSION

Length (mm)	1405
Width (mm)	715
Height (mm)	1053
Dry weight (kg)	406
Tank capacity (L)	50

## DIMENSIONS SOUNDPROOFED VERSION

Type soundproofing	M126
Length (mm)	1750
Width (mm)	775
Height (mm)	1230
Dry weight (kg)	630
Tank capacity (L)	50
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	72
Sound power level guaranteed (Lwa) 50Hz (75% PRP)	88
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	59

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#### GENERAL ENGINE DATA

Engine brand	MITSUBISHI
Engine ref.	S4L2-SD
Air inlet system	Athmo
Cylinders configuration	L
Number of cylinders	4
Displacement (L)	1.76
Charge Air coolant	
Bore (mm) x Stroke (mm)	78 x 92
Compression ratio	22 : 1
Speed (RPM)	1500
Pistons speed (m/s)	4.6
Maximum stand-by power at rated RPM (kW)	15.8
Frequency regulation, steady state (%) +/-	2.5%
BMEP @ PRP 50 Hz (bar)	6.6
Governor type	Mechanical

#### COOLING SYSTEM

Radiator & Engine capacity (L)	4.9
Fan power (kW)	0.7
Fan air flow w/o restriction (m3/s)	0.8
Available restriction on air flow (mm H2O)	10
Type of coolant	Glycol-Ethylene

#### EMISSIONS

Emission PM (mg/Nm3) 5% O2	100
Emission CO (mg/Nm3) 5% O2	120
Emission HC+NOx (g/kWh)	0
Emission HC (mg/Nm3) 5% O2	40

#### EXHAUST

Exhaust gas temperature @ ESP 50Hz (°C)	410
Exhaust gas flow @ ESP 50Hz (L/s)	48.7
Max. exhaust back pressure (mm H2O)	700

#### FUEL

Consumption @ 100% load ESP (L/h)	4.7
Consumption @ 100% PRP load (L/h)	4.4
Consumption @ 75% PRP load (L/h)	3.4
Consumption @ 50% PRP load (L/h)	2.6
Maximum fuel pump flow (L/h)	18

#### OIL

Oil system capacity including filters (L)	5.9
Min. oil pressure (bar)	1
Max. oil pressure (bar)	4
Oil consumption 100% ESP 50Hz (L/h)	0.03
Oil sump capacity (L)	5.4

#### HEAT BALANCE

Heat rejection to exhaust (kW)	14
Radiated heat to ambient (kW)	2
Heat rejection to coolant HT (kW)	14

#### AIR INTAKE

Max. intake restriction (mm H2O)	200
Intake air flow (L/s)	18.2

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#### GENERAL DATA

Alternator ref.	KH00404T
Number of Phase	Single phase
Power factor (Cos Phi)	1
Altitude (m)	0 à 1000
Overspeed (rpm)	2250
Number of pole	4
Capacity for maintaining short circuit at 3 In for 10 s	Yes
Insulation class	H
T° class (H/125°), continuous 40°C	H / 125°K
T° class (H/163°C), standby 27°C	H / 163°K
AVR Regulation	Yes
Total Harmonic Distortion in no-load DHT (%)	36
Total Harmonic Distortion, on linear load DHT (%)	20
Wave form : NEMA=TIF	<45
Wave form : CEI=FHT	<2
Number of bearing	Single Bearing
Coupling	Direct
Voltage regulation at established rating (+/- %)	1
Recovery time (Delta U = 20% transient) (ms)	200
Indication of protection	IP 23
Technology	Brushless

#### OTHER DATA

Continuous Nominal Rating 40°C (kVA)	13.5
Standby Rating 27°C (kVA)	14.5
Efficiencies 100% of load (%)	81.4
Air flow (m3/s)	0.088
Short circuit ratio (Kcc)	0.94
Direct axis synchro reactance unsaturated (Xd) (%)	124.5
Quadra axis synchro reactance unsaturated (Xq) (%)	54
Open circuit time constant (T'do) (ms)	850
Direct axis transient reactance saturated (X'd) (%)	19.7
Short circuit transient time constant (T'd) (ms)	44
Direct axis subtransient reactance saturated (X''d) (%)	11.3
Subtransient time constant (T''d) (ms)	14
Quadra axis subtransient reactance saturated (X''q) (%)	25.9
Subtransient time constant (T''q) (ms)	10
Zero sequence reactance unsaturated (Xo) (%)	2.3
Negative sequence reactance saturated (X2) (%)	17
Armature time constant (Ta) (ms)	12
No load excitation current (io) (A)	0.5
Full load excitation current (ic) (A)	2.2
Full load excitation voltage (uc) (V)	23.1
Engine start (Delta U = 20% perm. or 30% trans.) (kVA)	43.2
Transient dip (4/4 load) - PF : 0,8 AR (%)	12.6
No load losses (W)	550
Heat rejection (W)	3085
Unbalanced load acceptance ratio (%)	100

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#### Dimensions soundproofed version

Type soundproofing	M126
Length (mm)	1750
Width (mm)	775
Height (mm)	1230
Dry weight (kg)	630
Tank capacity (L)	50
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	72
Sound power level guaranteed (Lwa) 50Hz (75% PRP)	88
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	59

#### Dimensions DW soundproofed version

Type soundproofing	M126 DW
Length (mm)	1797
Width (mm)	775
Height (mm)	1391
Dry weight (kg)	668
Tank capacity (L)	93
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	71
Sound power level guaranteed (Lwa) 50Hz (75% PRP)	88
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	59

#### Dimensions DW compact version

Type soundproofing	
Length (mm)	1797
Width (mm)	775
Height (mm)	1214
Dry weight (kg)	470
Tank capacity (L)	93
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	
Sound power level guaranteed (Lwa) 50Hz (75% PRP)	
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	

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# KOHLER®

## KM12M

### CONTROL PANEL

APM303, comprehensive and simple



The APM303 is a versatile unit which can be operated in manual or automatic mode. It offers the following features:

Measurements:

phase-to-neutral and phase-to-phase voltages, fuel level (In option : active power currents, effective power, power factors, Kw/h energy meter, oil pressure and coolant temperature levels)

Supervision:

Modbus RTU communication on RS485

Reports:

(In option : 2 configurable reports)

Safety features:

Overspeed, oil pressure, coolant temperatures, minimum and maximum voltage, minimum and maximum frequency (Maximum active power P<66kVA)

Traceability:

Stack of 12 stored events

For further information, please refer to the data sheet for the APM303.

DEC4000, ergonomic and user-friendly



The highly versatile DEC4000 control unit is complex yet accessible, thanks to the particular attention paid to optimising its ergonomics and ease of use. With its large display screen, buttons and scroll wheel, it places the accent on simplicity and communication.

It offers the following functions:

Electrical measurements: voltmeter, frequency meter, ammeter.

Engine parameters: working hours counter, oil pressure, coolant temperature, fuel level, engine speed, battery voltage.

Alarms and faults: oil pressure, coolant temperature, failure to start, overspeed, alternator min./max., battery voltage min./max., emergency stop, fuel level.

Ergonomics: wheel for navigating around the various menus.

Communication: remote control and operation software, USB connections, PC connection.

Automatic control: automatic start.

For more information on the product and its options, please refer to the sales documentation.

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## M80, transfer of information



The M80 is a dual-function control unit. It can be used as a basic terminal block for connecting a control box and as an instrument panel with a direct read facility, with displays giving a global view of your generating set's basic parameters.

Offers the following functions:

Engine parameters: tachometer, working hours counter, coolant temperature indicator, oil pressure indicator, emergency stop button, customer connection terminal block, CE.

## APM403, basic generating set and power plant control



The APM403 is a versatile control unit which allows operation in manual or automatic mode  
Measurements : voltage and current  
kW/kWh/kVA power meters  
Standard specifications: Voltmeter, Frequency meter.  
Optional : Battery ammeter.  
J1939 CAN ECU engine control  
Alarms and faults: Oil pressure, Coolant temperature, Overspeed, Start-up failure, alternator min/max, Emergency stop button.  
Engine parameters: Fuel level, hour counter, battery voltage.  
Optional (standard at 24V): Oil pressure, water temperature.  
Event log/ Management of the last 300 genset events.  
Mains and genset protection  
Clock management  
USB connections, USB Host and PC,  
Communications : RS485 INTERFACE  
ModBUS protocol /SNMP  
Optional : Ethernet, GPRS, remote control, 3G, 4G,  
Websupervisor, SMS, E-mails

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