KOHLER
Power Systems

KM1400

Engine type	S12R-PTA
Alternator type	LSA 50.2 L7
Performance class	G3

GENERAL CHARACTERISTICS

Frequency (Hz)	50
Voltage (V)	400/230
Standard control panel	Basic terminal block
Optional control panel	M80
Optional control panel	DEC4000
Optional control panel	APM802

POWER

Voltage	ESP		PRP		DCC (*)		Standby Amps
	kWe	kVA	kWe	kVA	kWe	kVA	
415/240	1122	1403	1020	1275	1020	1275	1952
400/230	1122	1403	1020	1275	1020	1275	2025
380/220	1104	1380	1004	1255	1004	1255	2097

DIMENSIONS COMPACT VERSION

Length (mm)	4327
Width (mm)	2000
Height (mm)	2365
Dry weight (kg)	10076
Tank capacity (L)	0

DIMENSIONS SOUNDPROOFED VERSION

Commercial reference of the enclosure	N/A
Length (mm)	0
Width (mm)	0
Height (mm)	0
Dry weight (kg)	0
Tank capacity (L)	0
Acoustic pressure level @1m in dB(A)	0
Sound power level guaranteed (Lwa)	0
Acoustic pressure level @7m in dB(A)	0

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
- Electronic governor
- Mechanically welded chassis with antivibration suspension
- Radiator for core temperature of 48/50°C max with mechanical fan
- Protective grille for fan and rotating parts (CE option)
- Exhaust compensators with flanges
- 24 V charge alternator and starter
- Delivered with oil and coolant -30°C
- Manual for use and installation

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.
DCC : Data Center Continuous Power ratings apply to Data Center installations where a reliable utility power is available and comply with Uptime institute Tier III and IV requirements. At constant or varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Average load factor : ≤ 100%.

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

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ENGINE CHARACTERISTICS

GENERAL ENGINE DATA

Engine model	MITSUBISHI
Engine type	S12R-PTA
Air inlet	Turbo
Cylinders arrangement	V
Number of cylinders	12
Displacement (L)	49.03
Charge Air coolant	Air/Water DC
Bore (mm) x Stroke (mm)	170 x 180
Compression ratio	14 : 1
Speed (RPM)	1500
Pistons speed (m/s)	9
Maximum stand-by power at rated RPM (kW)	1220
Frequency regulation, steady state (%)	+/- 0.5%
BMEP (bar)	18.11
Governor type	Electronic

COOLING SYSTEM

Radiator & Engine capacity (L)	300
Max water temperature (°C)	98
Outlet water temperature (°C)	95
Fan power (kW)	30
Fan air flow w/o restriction (m3/s)	25.9
Available restriction on air flow (mm H2O)	20
Type of coolant	Glycol-Ethylene
Thermostat modulating range HT (°C)	82-94

EMISSIONS

Emission PM (mg/Nm3) 5% O2	120
Emission CO (mg/Nm3) 5% O2	590
Emission HC+NOx (g/kWh)	N/A
Emission HC (mg/Nm3) 5% O2	110

EXHAUST

Exhaust gas temperature @ ESP 50Hz (°C)	492
Exhaust gas flow @ ESP 50Hz (L/s)	3916
Max. exhaust back pressure (mm H2O)	600

FUEL

Consumption @ 110% load (L/h)	300
Consumption @ 100% load (L/h)	271
Consumption @ 75% load (L/h)	208
Consumption @ 50% load (L/h)	151
Maximum fuel pump flow (L/h)	588

OIL

Oil capacity (L)	180
Min. oil pressure (bar)	2.5
Max. oil pressure (bar)	5.8
Oil consumption 100% load (L/h)	1
Oil sump capacity (L)	150

HEAT BALANCE

Heat rejection to exhaust (kW)	758
Radiated heat to ambient (kW)	78
Heat rejection to coolant (kW)	649

AIR INTAKE

Max. intake restriction (mm H2O)	400
Intake air flow (L/s)	1483

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ALTERNATOR CHARACTERISTICS

GENERAL DATA

Alternator type	LSA 50.2 L7
Number of Phase	Three phase
Power factor (Cos Phi)	0.8
Altitude (m)	0 to 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, standby 27°C	H / 163°K
AVR Regulation	Yes
Total Harmonic Distortion in no-load DHT (%)	<3.5
Total Harmonic Distortion, on load DHT (%)	<3.5
Wave form : NEMA=TIF	<50
Wave form : CEI=FHT	<2
Number of bearing	1
Coupling	Direct
Voltage regulation at established rating (+/- %)	0.5
Recovery time (Delta U = 20% transient) (ms)	500
Protection class	IP 23
Technology	Without collar or brush

OTHER DATA

Continuous Nominal Rating 40°C (kVA)	1350
Standby Rating 27°C (kVA)	1485
Efficiencies 100% of load (%)	95.2
Air flow (m3/s)	1.8
Short circuit ratio (Kcc)	0.344
Direct axis synchro reactance unsaturated (Xd) (%)	364
Quadrature-axis synchro reactance unsaturated (Xq) (%)	N/A
Open circuit time constant (T'do) (ms)	3750
Direct axis transient reactance saturated (X'd) (%)	17.4
Short circuit transient time constant (T'd) (ms)	180
Direct axis subtransient reactance saturated (X"d) (%)	14.8
Subtransient time constant (T"d) (ms)	18
Quadrature-axis subtransient reactance saturated (X"q) (%)	15.5
Subtransient time constant (T"q) (ms)	18
Zero sequence reactance unsaturated (Xo) (%)	N/A
Negative sequence reactance saturated (X2) (%)	15.21
Armature time constant (Ta) (ms)	27
No load excitation current (io) (A)	0.85
Full load excitation current (ic) (A)	3.49
Full load excitation voltage (uc) (V)	43.8
Engine start (Delta U = 20% perm. or 50% trans.) (kVA)	2766.72
Transient dip (4/4 load) - PF : 0,8 AR (%)	12
No load losses (W)	15287.43
Heat rejection (W)	53655.89
Unbalanced load acceptance ratio (%)	50

DIMENSIONS

CONTAINER ISO 20

Commercial reference of the enclosure	ISO20 Si
Length (mm)	6058
Width (mm)	2438
Height (mm)	2896
Dry weight (kg)	14932
Tank capacity (L)	500
Acoustic pressure level @1m in dB(A)	89
Sound power level guaranteed (Lwa)	110
Acoustic pressure level @7m in dB(A)	80

CONTAINER CIR 20 Ssi

Commercial reference of the enclosure	N/A
Length (mm)	6058
Width (mm)	2438
Height (mm)	2896
Dry weight (kg)	16250
Tank capacity (L)	500
Acoustic pressure level @1m in dB(A)	85
Sound power level guaranteed (Lwa)	106
Acoustic pressure level @7m in dB(A)	76

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CONTROL PANEL

Basic terminal block

The control unit can be used as a basic terminal block for connecting a control box.

Offers the following functions:

emergency stop button, customer connection terminal block, CE.

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.

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CONTROL PANEL

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.

The DEC4000 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.

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

APM802 dedicated to power plant management

The new APM802 command/control system is specifically designed for operating and monitoring power plants for markets including hospitals, data centres, banks, the oil and gas sector, industries, IPP, rental and mining.

The Human Machine Interface, designed in collaboration with a company specialising in interface design, facilitates operations with a large 100% touch screen. The pre-configured system for power plant applications features a brand new customisation function which complies with the international standard IEC 61131-3. New communication functions (PLC and regulation), improve the high level of equipment availability in the installation.

Advantages:
Dedicated to power plant management.
Specially researched ergonomics.
High level of equipment availability.
Modularity and long service life guaranteed.
Making it easy to extend the installation

For more information, please refer to the sales documentation.

GBD5-02018 (KM1400) 02/16