



# Specification of generator set

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Power Your Imagination

Shandong Superwatt Power Equipment Co.,Ltd



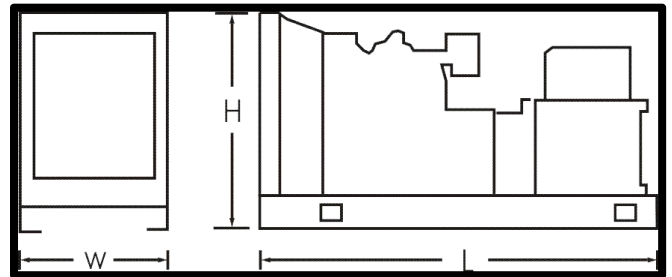
## Specification of genset

Model: SKM22X

### Main parameters

- Prime power: 16kW/20VA
- Standby power: 17.6kW/22kVA
- Frequency: 60Hz
- Rated speed: 1800r/min
- Rated Voltage: 380/400/415V
- Factor: 0.8
- Start mode: DC12V/electrical start

### Size and Weight



	Size L×W×H (mm)	Weight (Kg)
● Open type:	1650×730×1170	720
● Silent type:	1915×900×1235	750
● Super Silent:	2150×920×1280	941

### Operation conditions

- Operation temp:  $\leq 40^{\circ}\text{C}$
- altitude:  $\leq 1000$ 米
- Humidity:  $\leq 60\%$

Note:

1. When the ambient temperature is higher than  $40^{\circ}\text{C}$  or the altitude is higher than 1000 meters, the power decreases, which needs to be corrected.
2. Excessive humidity requires corresponding measures.

### Remark

- Prime Power (PRP) : Refers to the unit can run continuously for 24 hours under variable load, allowing 10% overload every 12 hours for 1 hour.
- Standby power (ESP) : at an average load rate of 80%, for no more than 500 hours a year. No overload is allowed.
- Each unit has passed the load test of 0%, 25%, 50%, 75%, 100%, 110% and static, transient response capacity, all protection devices and control systems have passed strict inspection before the factory qualified
- Warranty: one year or 1000 hours from the first startup after commissioning or 18 months from shipment date (whichever comes first).

**2****Specification of engine****Model: V2203-BG****Engine parameters**

- Manufacturer: KUBOTA
- Aspiration: Naturally aspirated
- Cooling: Water-cooling
- No. of cylinder/arrangement: 4/in-line
- Displacement: 2.197L
- Bore: 87mm
- Stroke: 92.4mm
- Compression Ratio: 23:1
- Rated speed: 1800r/min
- Prime/standby power: 20.2kW/24.2kW
- Dry weight: 180Kg
- Governor: mechanical

**Lubrication system**

- Capacity: 7.6L

**Cooling system**

- Coolant capacity Engine: 9L

**Fuel consumption**

- Injection Pump: Bosch Type
- Fuel Injection Pressure: 13.73MPa
- Fuel Injection Timing: 17.5 Before T.D.C(P)

**Exhaust system**

- Max allowable back pressure: 7.07kPa

**Air Induction system**

- Maximum Allowable Intake Air Restriction: 1.96kPa

**Starting System**

- Starter Output: 12V-1.4kW
- Alternator Output: 12V-40A

## 3

## Specification of alternator

Model: ECP28 M4C

## Alternator parameters

- Manufacturer: mecc alte
- Rated voltage: 380/400/415V
- Rated frequency: 60Hz
- Power factor: 0.8
- Rated power: 18.4kW/23kVA
- Insulation class: H
- Temp. Rise class: H
- Protection: IP23
- Ambient temperature: 40°C
- Altitude: ≤1000m
- Overspeed: ≤2250rpm

## Features

- Phases: 3
- Winding pitch: 2/3
- No. of Bearing: 1
- Connection type: Star
- Poles: 4
- Waveform Distors. (THD): <5%
- Telephone Interference (THF): <2%

## 4

## SWT control system—standard for single unit



## Features

- LCD Screen, keys operation
- Multilingual display
- Control and protection functions
- Engine and alternator parameter detection
- Local and remote start
- Reasonable keys layout, friendly interface
- Multiple communication interfaces available
- Event logs
- IP65 overall

Note: the picture is for reference only. The specific model is subject to the formal quotation

Please refer to "SWT parallel system" if synchronising units are required.

## Control box (Templet)



## Features

- User ID display function
- Parameters can be fully configured through PC software
- LED and LCD alarm lamps
- Magnetic sensor speed detection
- Work mode selectors (switchable)
- Preset auto start/stop cycle
- Fuel quantity detection, low oil level alarm
- Voltage measurement
- Current measurement
- Generator /mains circuit breaker control
- Plug terminal type wiring design
- Power saving mode
- Switch between generator /mains load
- Upgradeable Firmware

## Operation brief

- It is controlled by start, stop, auto and manual buttons on the panel
- The user can set the data of the module through the panel button, or the setting data can be uploaded through the configuration operation software via USB interface

## Advantage

- The real-time clock provides accurate event logging
- Provide free PC software license
- Advanced PCB layout ensures high quality of modules
- Modular design, excellent stability
- Various communication interfaces available

## 5 ATS (Auto transfer system) optional



### Function

Particular ATS controller, which combines measurement, display, control for the automatic control on mains/mains or mains/ generator system.

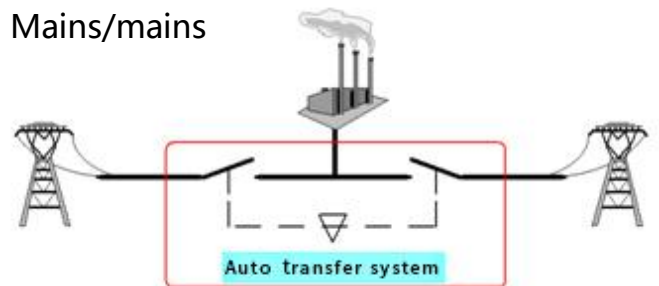
Note: communication function requires extra communication module. The picture is for reference only. The specific model is subject to the quotation

### Features

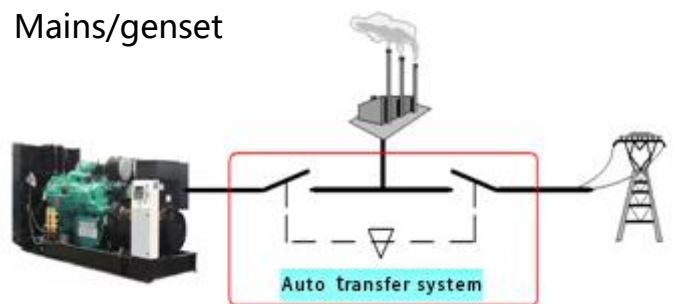
- Microcomputer control, all digital technology
- Display the operating state of ATS and the operation mode of controller directly through the LCD screen
- Operating parameters can be input via the LCD screen and the keys of controller
- Measuring data (including voltage/frequency) through LCD screen
- PC-level switch and electromagnetic driven structure can realize fast on-load switching of two power sources (switching time  $\leq 80\text{ms}$ )
- Electrical and mechanical double interlock mechanism, the main loop contact for the two static structure, the moving contact using a "V" design, from the design to ensure that the two power supply will not be shortcircuit.
- Coil control power supply can be provided by the main and standby AC or DC power supply, without additional control power supply

### Case

#### Mains/mains



#### Mains/genset



## 6 SWT paralleling system (Optional)

### Function

SWT paralleling system is specially designed for gensets & grid system paralleling (set to set or set to grid), up to 32 units synchronise automatically, realize the automatic starting unit automatic parallel operation, and according to the load size the number of units in operation or exit the operation. When mains return to normal, the unit will automatically discharge and cooling down, the system can start paralleling mains grid, automatic transfer and PLC control load can also be customized upon customer requirements, the control of multiple load and multiplex mains SWT paralleling system can also be used with ATS.

### Features

- SWT paralleling system comprises international famous brand controller. PLC system, touch screen etc are available upon customer requests
- Integrated with advanced control technology, perfect function, safe, durability and reliability.
- Smart and flexible, one machine one screen, the unit can be used independently or parallelly
- Easy to operate, fully automatic, Chinese and English operating system, built-in fault detection
- The system can automatically input the appropriate number of units according to the load size to avoid the operation of high-power units with small load and realize the off-peak control
- Easy to expand capacity, just install the required power units, convenient to add units for the expansion in the future.

### Case

#### Genset to Genset



#### Gensets to grid



#### Paralleling with ATS





## Accessories list



### Standard accessories



- |                                  |                          |
|----------------------------------|--------------------------|
| ■ Engine                         | ■ Test report            |
| ■ Alternator                     | ■ Certificate of quality |
| ■ Chassis                        | ■ Schematic diagram      |
| ■ Control box                    | ■ Installation manual    |
| ■ Controller for single unit     | ■ Operation manual       |
| ■ Circuit breaker (up to 1200kW) |                          |
| ■ Industrial muffler             |                          |
| ■ Flange of muffler              |                          |
| ■ Bellow joint                   |                          |
| ■ Shock absorber                 |                          |
| ■ Base tank (up to 200kW)        |                          |



### Optional accessories



- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Daily fuel tank/bulk fuel tank        | <input checked="" type="radio"/> Exhaust pipe              | ComAp controller                         |
| <input type="checkbox"/> Residential silencer                  | <input checked="" type="radio"/> Hot air discharge duct    | <input checked="" type="radio"/> MRS16   |
| <input type="checkbox"/> Power cable                           | <input checked="" type="radio"/> RS485 extension module    | <input checked="" type="radio"/> AMF25   |
| <input type="checkbox"/> Anti condensation heater (alternator) | <input checked="" type="radio"/> Ethernet communication    | <input checked="" type="radio"/> IG200   |
| <input type="checkbox"/> battery charger                       | <input checked="" type="radio"/> Cloud monitor             | <input checked="" type="radio"/> IG-NTC  |
| <input type="checkbox"/> Water jacket heater                   | <input checked="" type="radio"/> ATS panel                 | <input checked="" type="radio"/> IM-NT   |
| <input type="checkbox"/> Oil heater                            | <input checked="" type="radio"/> Motorized circuit breaker | Smartgen controller                      |
| <input type="checkbox"/> Fuel level sensor                     | <input checked="" type="radio"/> Synchronizing system      | <input checked="" type="radio"/> HGM4010 |
| <input type="checkbox"/> Auto oil make-up device               | <input checked="" type="radio"/> Spare parts               | <input checked="" type="radio"/> HGM4020 |
| <input type="checkbox"/> Auto fuel filling device              | Deepsea controller   | <input checked="" type="radio"/> HGM6110 |
| <input type="checkbox"/> Soundproof enclosure                  | <input checked="" type="radio"/> DSE6020                   | <input checked="" type="radio"/> HGM6120 |
| <input type="checkbox"/> Containerized enclosure               | <input checked="" type="radio"/> DSE7320                   | <input checked="" type="radio"/> HGM9510 |
| <input type="checkbox"/> Trailer                               | <input checked="" type="radio"/> DSE8610                   | <input checked="" type="radio"/> HGM9520 |
|  | <input checked="" type="radio"/> DSE8620                   |  |
|  | <input checked="" type="radio"/> DSE8660                   |  |