

# POWERTEC Generator Set

## Powered by Perkins 1103A-33T Engine

Model: PPE70 Prime Power: 48KW/60KVA Standby Power: 53KW/70KVA

### Genset Fundamental Characteristics

- ◆ 230/400VAC, 50HZ 0.8PF 3 Phases, 4 wires output
- ◆ Frequency drop  $\leq 3\%$
- ◆ Voltage modulation  $\leq 0.3\%$
- ◆ The steady state frequency  $\leq 0.5\%$
- ◆ The steady state voltage deviation  $\leq \pm 1\%$
- ◆ The transient frequency deviation  $\leq +10\% \leq -15\%$
- ◆ The transient voltage deviation  $\leq +20\% \leq -15\%$
- ◆ Frequency recovery time  $\leq 3S$
- ◆ Voltage recovery time  $\leq 1S(\text{Voltage} \pm 3\%)$
- ◆ THF (Telephone Harmonic Factor)  $< 3$
- ◆ TIF (Telephone Influence Factor)  $< 50$
- ◆ Comply to Standard NEMA MG1-22.43
- ◆ Standard equipped with ambient temperature 40°C  
Connecting radiator
- ◆ Inbuilt shock absorber has high performance on shock absorption.  
It's easy to be transported and installed without embedding and  
Fixing rubber shock pad between the genset and ground

### Genset Standard Configuration

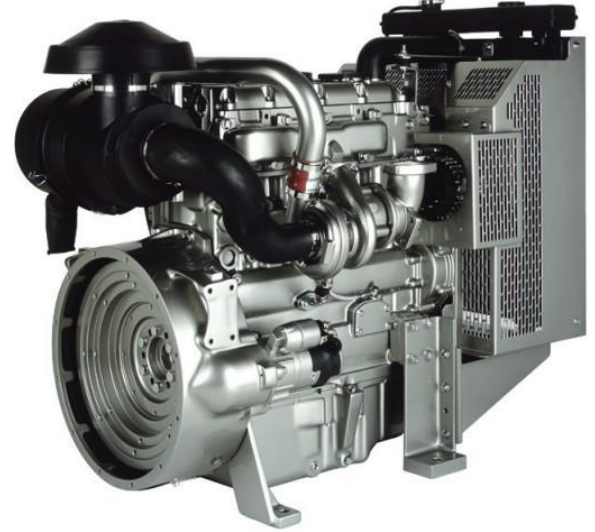
- ◆ Perkins Engine
- ◆ Brushless synchronous alternator
- ◆ POWERTEC intelligent controller
- ◆ 40°C standard ambient temperature  
Water radiator
- ◆ Modularized case circuit breaker (3P)
- ◆ Float Battery Charger
- ◆ Battery connect wire
- ◆ Steel base frame(include shock absorbers )
- ◆ Bottom oil tank
- ◆ Bellows、exhaust bend
- ◆ Manual book and files

### Genset Optional Configuration

- ◆ 24V Starter Batteries
- ◆ Daily Fuel Tank
- ◆ Oil-water separator
- ◆ Warning function of low water level, low fuel oil
- ◆ Automatically monitoring & controlling system of city power
- ◆ Coolant heater
- ◆ Oil heater
- ◆ Heat exchanger--Water cooling Tower System
- ◆ Soundproof Canopy/ Trailer
- ◆ ISO container
- ◆ Design and construction of environmental protection  
Engineering for the Genset room

## Performance Description of Diesel Engine

- ◆ Model: **Perkins 1103A-33T**
- ◆ Construction: New designment of 3.3L/4.4L cylinder ensures that inner hole roundness will be maintained under different pressure working condition and decrease combustion & mechanical noise. New designment of cylinder head establish Perkins' leading position in gas control technology
- ◆ Intake: Turbocharged
- ◆ Fuel system: Rotary fuel injection pump
- ◆ Lubrication system: Wet steel sump oil injector and dip stick
- ◆ Cooling system: Constant temperature control system, with gear driven circulating pump and belt driven pusher fan; radiator and catheter are embedded
- ◆ Filtration system: Embedded air cleaner, new generation fuel filter, Rotary oil filter
- ◆ Electrical equipment: 12V starter and 12V, 15A alternator (DC output); 12V shutdown solenoid, activated; Glow plug Cold start assist device and heater/starter switch;
- ◆ Lower operating cost: The standard maintenance interval is set to 500 hours. high durability and reliability, extended warranty and easy installation procedures
- ◆ Engine Operating Environment Description:  
The engine can work under the following conditions without modulating power:  
1800r/min engine--altitude less than 1000 m, ambient temperature less than 40 °C  
1500r/min engine--altitude less than 1000 m, ambient temperature less than 40 °C



## Performance Description Alternator

- ◆ Optional Alternator: **Stamford / Marathon/ Faraday/Engga/Mecc Alt**
- ◆ Brushless, 4 pole rotating magnetic field, single bearing with protective cove
- ◆ Insulation: H Class.
- ◆ Standard IP23 grade
- ◆ Cooling system
- ◆ AC exciter, rotate rectifying unit
- ◆ Surface of stator winding is covered with damp-proof epoxy Insulation varnish after impregnation proceeding
- ◆ Rotor and exciter is proceeded with high temperature insulating resin, Will be more applicable for harsh environment.
- ◆ Rotor dynamic balancing comply to standard BS5625, class 2.5
- ◆ Sealed with advanced lubricating grease prolongs life of bearing.



**Notes: Above data of alternator comes from Stamford. Proper specification is subject to the practice alternator if customers choose other alternator**

## Standard Detection Function

- ◆ 3 phases voltage  $U_a, U_b, U_c$
- ◆ Frequency  $F_1$
- ◆ Apparent power  $PR$
- ◆ Coolant temperature  $WT$
- ◆ Oil pressure  $OP$
- ◆ Speed  $RPM$
- ◆ HC timer 99999 hours records
- ◆ Maximum cumulative times of starting can reach 999999
- ◆ 3 phases current  $I_a, I_b, I_c$
- ◆ Active power  $PA$
- ◆ Power factor  $PF$
- ◆ Temperature  $^{\circ}C$  display
- ◆  $KPa/Psi/Bar$  display
- ◆ Battery voltage  $V$



## Standard Protection Function

### Genset Protection

- ◆ Programmable alarm and status input
- ◆ Emergency stop

### Engine Protection

- ◆ Stop for over speed
- ◆ Alarm/Stop for low oil pressure
- ◆ Alarm/Stop for coolant high temperature
- ◆ Stop for failure to start/jigger
- ◆ Indication of sensor fault
- ◆ Alarm for low/high battery voltage
- ◆ Alarm for shortage of battery

### Alternator Protection

- ◆ Stop for over high/low voltage
- ◆ Alarm/stop for over current
- ◆ Stop for loss of voltage detection signal
- ◆ Stop for over frequency
- ◆ Stop for low frequency

### Control System Components

- ◆ Control switch—manual/auto/stop/start
- ◆ Screen menu selection button
- ◆ Setting button
- ◆ Fault status indicators
- ◆ Emergency stop button
- ◆ Digital display



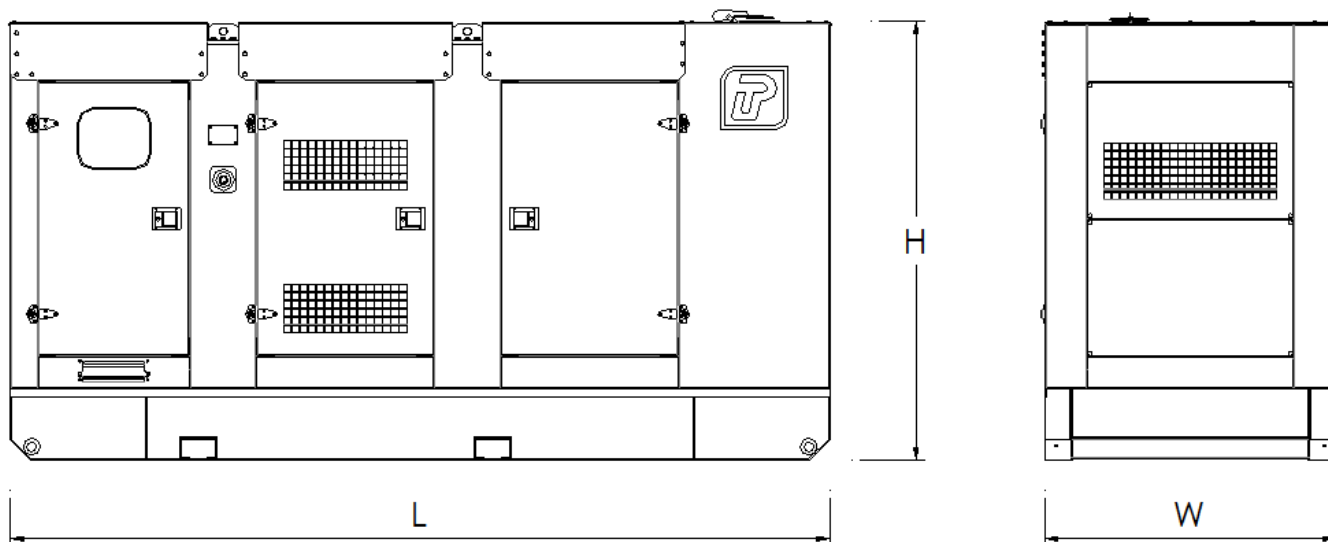
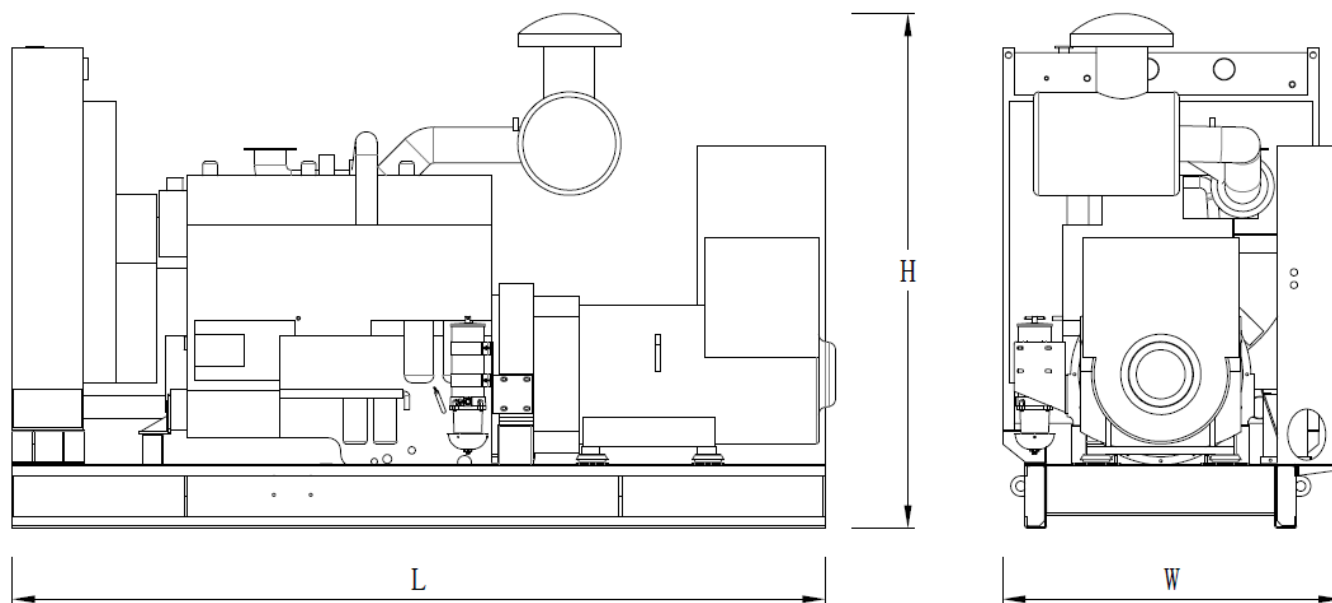
## Communication Interface

(optional function)

- ◆ International standard MODBUS communication protocol with error detection as well as RS232/ RS485 (RS485 is opto-isolated type) has functions of remote control, telemetry and telesignalling, which are facilitate to monitor genset.

**Notes:** Above data of controller comes from POWERTEC GC6110. Proper specification is subject to customers' practice controller if other controller is selected.

| Genset                 | Model                               | PPE70  |
|------------------------|-------------------------------------|--|
|                        | Prime Rating (kw)                   | 48   |
|                        | Standby Rating (kw)                 | 53   |
|                        | Prime current(A)                    | 87   |
|                        | Frequency(hz)                       | 50   |
| Engine & Alternator    | Engine Model                        | 1103A-33T  |
|                        | Gross Engine output-Prime (kw)      | 53.8   |
|                        | Gross Engine output-Standby (kw)    | 59.3   |
|                        | Bore * stroke (mm)                  | 105*127  |
|                        | Cylinders and structure             | 3 In line  |
|                        | Displacement(Liter)                 | 3.3  |
|                        | Compression Ratio                   | 17.25:1  |
|                        | Intake way                          | Turbocharged   |
|                        | Max intake resistance (KPa)         | 8  |
|                        | Air intake (m3/h)                   | 228  |
|                        | Max exhaust back pressure (KPa)     | 10   |
|                        | Exhaust gas flow (m3/h)             | 606  |
|                        | Exhaust temp (°C)                   | 557  |
|                        | Cooling way                         | Water Radiator & Fan   |
|                        | Fan exhaust flow (m3/min)           | 89   |
|                        | Coolant capacity (L)                | 10.2   |
|                        | Highest water temperature(°C)       | 112  |
|                        | Minimum air opening to room (m2)    | 1.1/0.75   |
|                        | Thermostat range (°C)               | 82-93  |
|                        | Max oil temperature (°C)            | 125  |
|                        | Lubrication system oil capacity (L) | 8.3  |
|                        | Fuel consumption(L/H)               | 14.6   |
|                        | Standard Governor/Class             | Electronic   |
|                        | Optional Alternator Model           | Marathon--- MP-50-4<br>Engga----- EG225-50N<br>Stamford---- S1L2-Y1<br>Faraday----- FD2CL1-4 |
|                        | Rated Voltage(V)                    | 400/230  |
|                        | Output Way                          | 3 Phases, 4 wires  |
|                        | Rated power factor                  | 0.8  |
|                        | Exciter                             | Brushless, Self-exciter  |
| Max voltage regulation | ±1%                                 |  |
| Phase                  | 3                                   |  |
| Protection class       | IP21-23                             |  |
| Insulation class       | H                                   |  |
| Controller             | Brand and Model                     | POWERTEC GC6110  |



| Type        | Dimension mm (L*W*H) | Weight KG | Fuel Tank Capacity L |
|-------------|----------------------|-----------|----------------------|
| Open Type   | 1900*850*1320        | 969       | 110                  |
| Silent Type | 2300*900*1550        | 1519      | 250                  |

Notes: Above data are for reference only. Specific size is subjected to actual measurement.

## Contact Way

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