

# POWERTEC Generator Set

## Powered by Perkins 403A-11 Engine

Model: PPE10 Prime Power: 7KW/9KVA Standby Power: 8KW/10KVA

### 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  $40^{\circ}\text{C}$   
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 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

### Genset Standard Configuration

- ◆ Perkins Engine
- ◆ Brushless synchronous alternator
- ◆ POWERTEC intelligent controller
- ◆  $40^{\circ}\text{C}$  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



## Performance Description of Diesel Engine

- ◆ Model: **Perkins 403A-11**
- ◆ Construction: Forged steel crankshaft, cast iron steel body and Replaceable wet cylinder liner, two/four valves per cylinder
- ◆ Intake: Naturally aspirated;
- ◆ Fuel system: Mechanically regulated embedded fuel injection pump, non-direct injection
- ◆ Lubrication system: Wet steel sump oil injector and dip stick
- ◆ Cooling system: Thermostatically-controlled system with belt driven coolant pump and pusher fan; mounted radiator, piping and guards
- ◆ Filtration system: Embedded air filter split fuel filter spin-on full-flow Oil filter
- ◆ Electrical equipment: 12V starter and 12V, 15A alternator (DC output); Oil pressure switch and water temperature control switch; 12V shutdown solenoid, activated; Glow plug Cold start assist device and heater/starter switch;
- ◆ Lower operating cost: certified, bio-diesel with a concentration of up to 20% can be used; the standard interval for Changing the oil and the core is set to 500 hours (depending on the load system); 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 cover
- ◆ 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



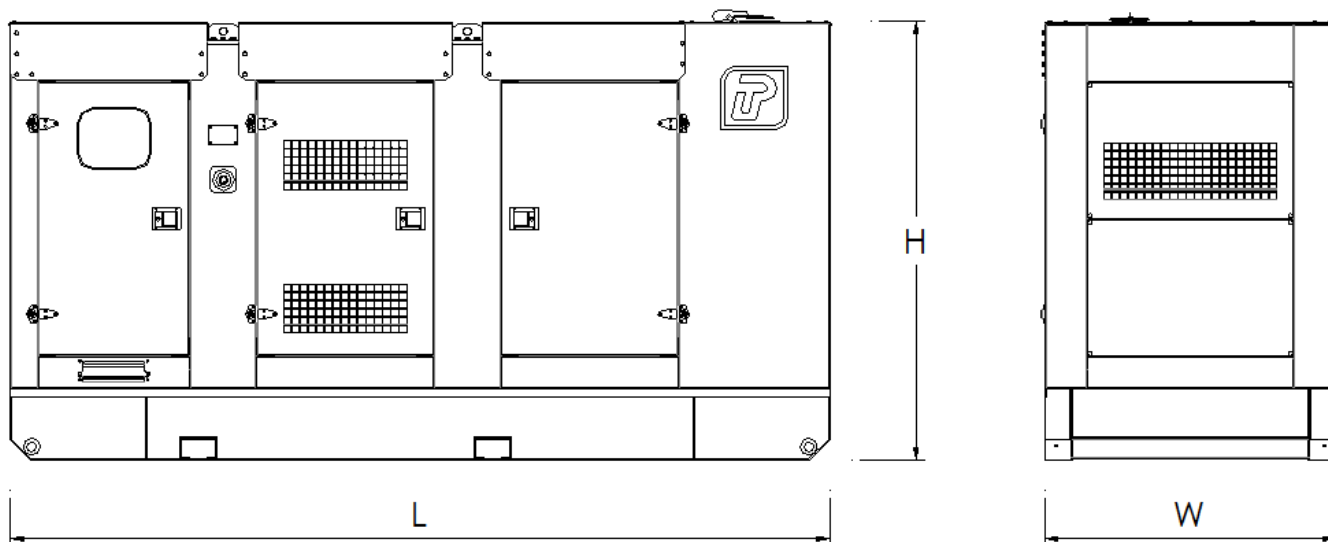
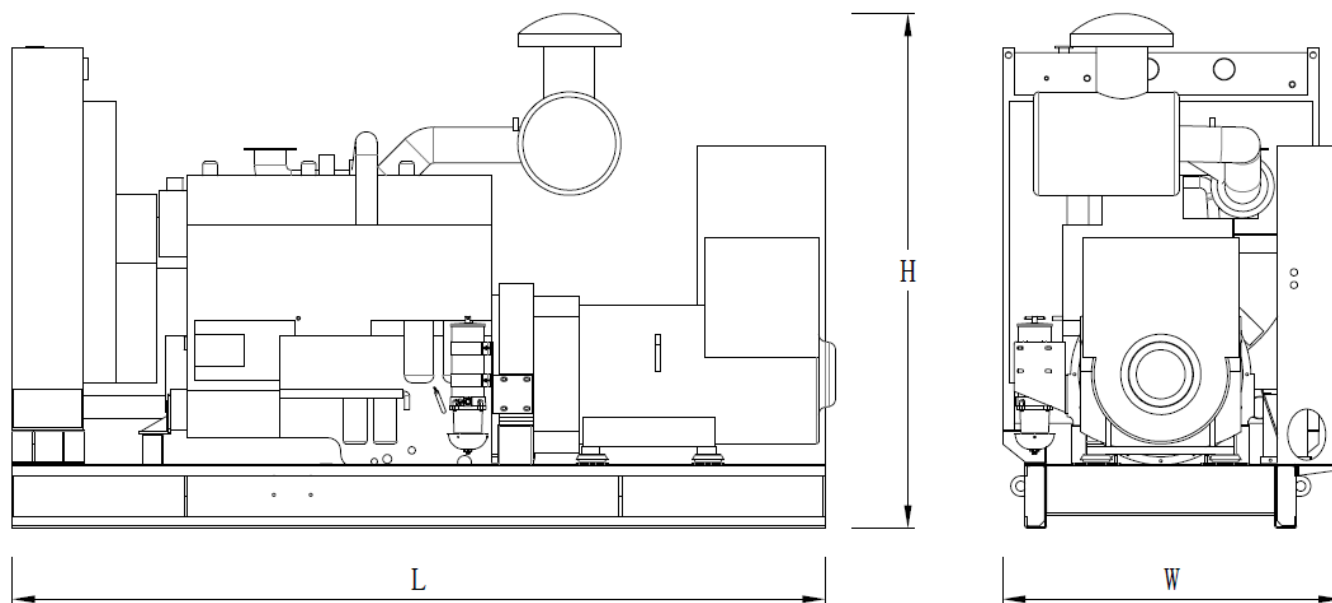
## Communication Interface

(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	PPE10
	Prime Rating (kw)	7
	Standby Rating (kw)	8
	Prime current(A)	12.6
Frequency(hz)	50	
Engine & Alternator	Engine Model	403A-11
	Gross Engine output-Prime (kw)	8.4
	Gross Engine output-Standby (kw)	9.3
	Bore * stroke (mm)	77*81
	Cylinders and structure	3 In line
	Displacement(Liter)	1.131
	Compression Ratio	23:1
	Intake way	Naturally aspirated
	Max intake resistance (KPa)	6.4
	Air intake (m3/h)	42
	Max exhaust back pressure (KPa)	10.2
	Exhaust gas flow (m3/h)	99.6
	Exhaust temp (°C)	368
	Cooling way	Water Radiator & Fan
	Fan exhaust flow (m3/min)	40.2
	Coolant capacity (L)	5.2
	Highest water temperature(°C)	112
	Minimum air opening to room (m2)	1.0/0.75
	Thermostat range (°C)	75-87
	Max oil temperature (°C)	125
	Lubrication system oil capacity (L)	4.9
	Fuel consumption(L/H)	3
	Standard Governor/Class	Mechanical
	Optional Alternator Model	Marathon--- GM-8.6-4 Engga----- EG180-40N Stamford---- S0L1-H1 Faraday----- FD1B1-4
	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	1650*760*923	397	50
Silent Type	2300*900*1550	947	250

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

## Contact Way

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