



# POWERTEC Generator Set

## Powered by Dongfeng Cummins QSZ13-G7 Engine

Model: PDC450B Prime Power: 320/400KVA Standby Power: 360KW/450KVA

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

- ◆ Cummins Engine
- ◆ Brushless synchronous alternator
- ◆ POWERTEC intelligent controller
- ◆  $40^{\circ}C$  standard ambient temperature Water radiator
- ◆ Modularized case circuit breaker (3P)
- ◆ Float Battery Charger
- ◆ Battery connect wire
- ◆ Steel base frame(include shock absorbers )
- ◆ Silencer、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: **Dongfeng Cummins QSZ13-G7**
- ◆ Construction: Adopt forged steel camshaft and crankshaft, High strength Cylinder block design, plenty parts cast on the Cylinders, stiffness strong, high pressure resistant capacity is high, longer service life.
- ◆ Starting system: 24VDC starting motor
- ◆ Integrated design: Cylinders、cylinder head together, decreased connection, reduced 40% parts than other same kind engine, failure rate bring down a lot.
- ◆ Advanced design and superior manufacture: Adapt to harsh severe work condition, high strength and has heavy loading work capacity.
- ◆ Fuel system: Rotator high pressure fuel pump, lower fuel consumption, and reduce noise effectively.
- ◆ Lubrication system: The cylinder sleeve designed by honing on the platform can effectively prevent oil leakage with perfect geometry.
- ◆ Engine Operating Environment Description:

The engine can work under the following conditions without modulating power:

A. 1800r/min engine--altitude less than 1000m, ambient temperature less than 40 °C

B. 1500r/min engine--altitude less than 1000m, ambient temperature less than 40 °C

If engine operating environment exceed above condition, when altitude is higher than 1500m ,engine power will drop 4% as altitude increase each 300m. When ambient temperature is higher than 40°C (104° F) ,engine power will drop 3% -5% as temperature increase each 11°C (1% dropping ,when temperature increase each 10° F ) The engine allows continuous operation with a maximum altitude of 4,500m.



## 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



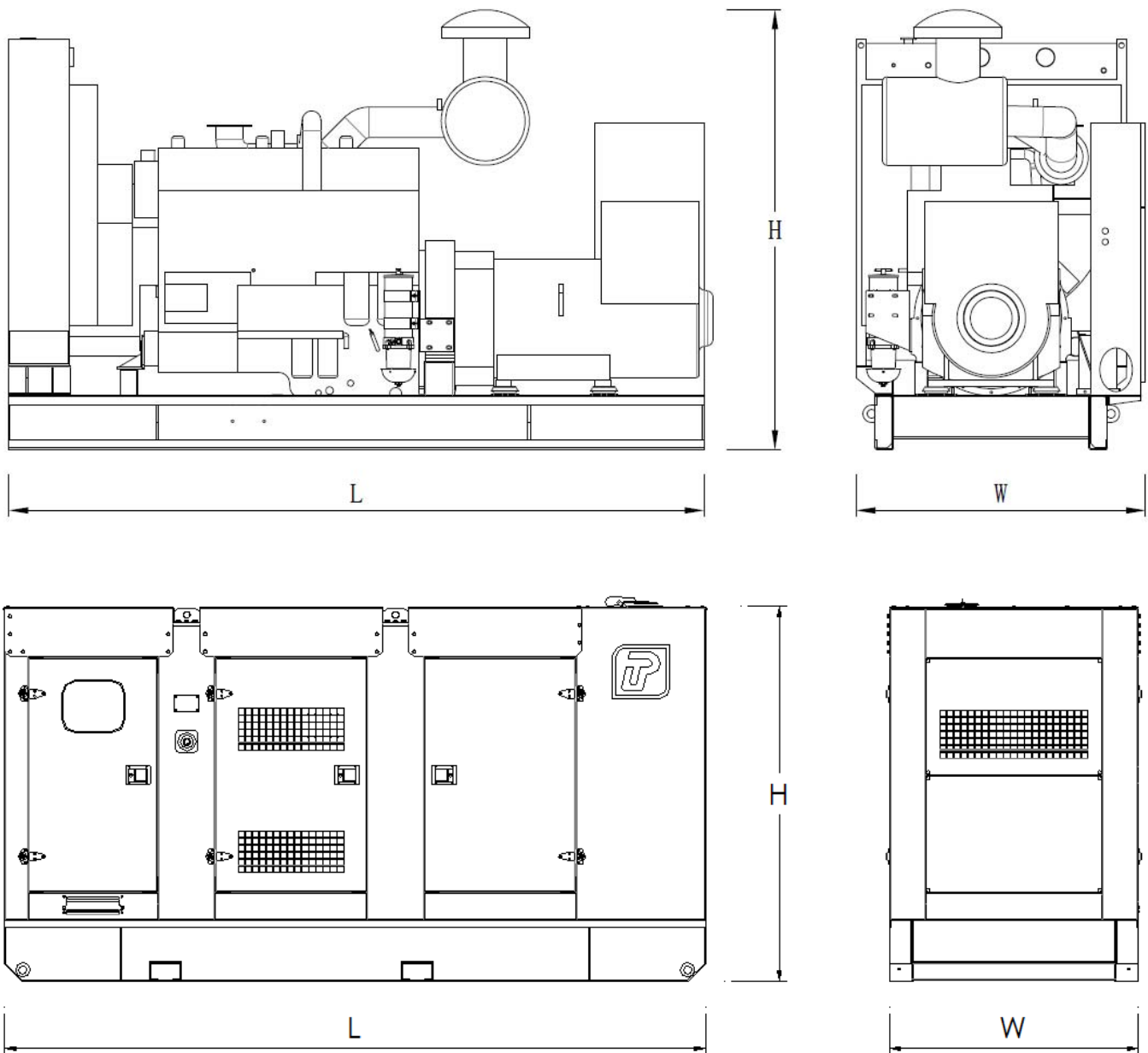
## Communication Interface

(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	PDC450B
	Prime Rating (kw)	320
	Standby Rating (kw)	360
	Prime current(A)	596
	Frequency(hz)	50
Engine & Alternator	Engine Model	QSZ13-G7
	Gross Engine output-Prime (kw)	366
	Gross Engine output-Standby (kw)	419
	Bore * stroke (mm)	130*163
	Cylinders and structure	6 in line
	Displacement(Liter)	13
	Compression Ratio	17:1
	Intake way	Turbocharged/ Air-Air intercooler
	Max intake resistance (KPa)	6.2
	Air intake (m3/h)	1716
	Max exhaust back pressure (KPa)	13
	Exhaust gas flow (m3/h)	1633
	Exhaust temp (°C)	491
	Cooling way	Water Radiator & Fan
	Fan exhaust flow (m3/min)	1057
	Coolant capacity (L)	23.1
	Highest water temperature(°C)	102
	Minimum air opening to room (m2)	2.8/2.5
	Thermostat range (°C)	82-94
	Max oil temperature (°C)	121
	Lubrication system oil capacity (L)	75.33
	Fuel consumption(L/H)	88.9
	Standard Governor/Class	Electronic injection
	Optional Alternator Model	Marathon--- MP-360-4 Engga----- EG315-360N Stamford----S4L1D-F41 Faraday-----FD5S1-4
	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	3094*1443*1911	3385	-
Silent Type	4700*1700*2450	5335	1000

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

## Contact Way

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