



# POWERTEC Generator Set

## Powered by Yuchai YC4D60-D21 Engine

Model: PYC40A Prime Power: 30KW/38KVA Standby Power: 32KW/40KVA

### 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 Standard Configuration

- ◆ Guangxi Yuchai 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

### 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: **Yuchai YC4D60-D21**
- ◆ Construction: High strength cylinder block, reinforced crankshaft and alloy steel connecting rod make the engine more durable and have lighter and more compact structure in similar products.
- ◆ Intake: Naturally aspirated
- ◆ The engine body and other main structures have been long tested to ensure the high reliability of the whole machine.
- ◆ Integrated cylinder head and water outlet main pipe design, reduce sealing cover and improve sealing reliability.
- ◆ The main performance such as reliability and fuel consumption reached the advanced level in China.
- ◆ Large capacity oil pan and high precision paper filter element
- ◆ Adopting German FEV technology platform
- ◆ YC4D series engine is a classic power product developed by Yuchai. Which has high reputation and acceptance in the market, market maintenance of this engine exceed more than 500,000 sets. Genset engine developed base on this engine has the advantages of reliability, durability, energy saving, environmental protection, compact structure, strong transient loading capacity and good maintainability.
- ◆ 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



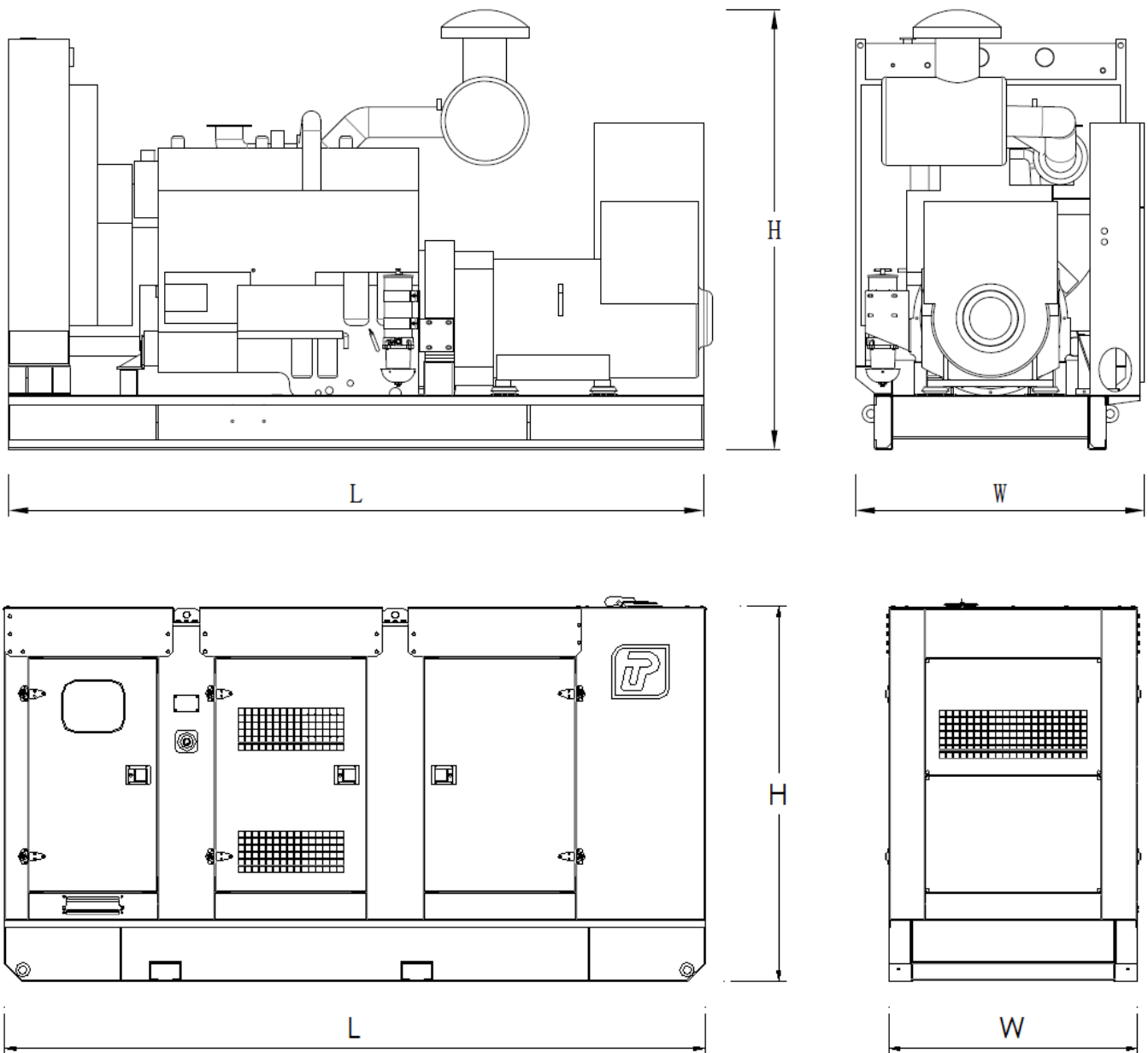
## Communication Interface

(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.

	<b>Model</b>	<b>PYC40A</b>
Genset	Prime Rating (kw)	30
	Standby Rating (kw)	32
	Prime current(A)	54
	Frequency(hz)	50
Engine & Alternator	Engine Model	YC4D60-D21
	Gross Engine output-Prime (kw)	40
	Gross Engine output-Standby (kw)	44
	Bore * stroke (mm)	108×115
	Cylinders and structure	4 In line
	Displacement(Liter)	4.214
	Compression Ratio	17:1
	Intake way	Naturally aspirated
	Max intake resistance (KPa)	6
	Air intake (m3/h)	180
	Max exhaust back pressure (KPa)	10
	Exhaust gas flow (m3/h)	520
	Exhaust temp (°C)	550
	Cooling way	Water Radiator & Fan
	Fan exhaust flow (m3/min)	178
	Coolant capacity (L)	16
	Highest water temperature(°C)	95
	Minimum air opening to room (m2)	1.2/1.1
	Thermostat range (°C)	70-78
	Max oil temperature (°C)	115
	Lubrication system oil capacity (L)	9~11
	Fuel consumption(L/H)	9.4
	Standard Governor/Class	Mechanical/ Electronic
	Optional Alternator Model	Marathon--- GM-30-4 Engga----- EG180-40N Stamford---- PI 144J Faraday----- FD1J1-4
	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	2100*810*1242	835	110
Silent Type	2920*1100*1750	1585	400

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

**Contact Way**

**Powertec Generator System Co., Ltd**

Add: Danshui Yanna Industry Zone, Huiyang, Huizhou, Guangdong, China

Tel: 0752-3911119 / 0752-3911118

FAX: 0752-3911110

Web: [www.powertec.com.cn](http://www.powertec.com.cn) Email: [sales@powertecgs.com](mailto:sales@powertecgs.com)