

Model: P110D5

Powered by PERKINS

Output Rating

MODEL		Power rating		Voltage available		
		PRIME(1)	STANDBY(2)			
P110D5	400V/50HZ	80KW	88KW	380/220V	400/230V	415/240V
	PF:0.8	100KVA	110KVA			

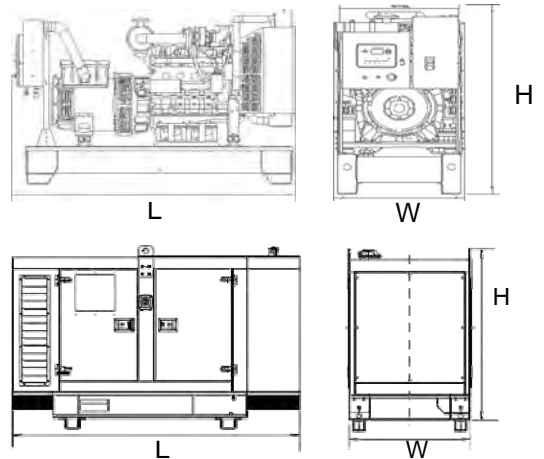
General Information

Model	P110D5	
Engine	1104C-44TAG2	
Speed control type	Mechanical	
Phase	3	
Control System	Digital	
System voltage	12V	
Frequency	50HZ	
Engine Speed(RPM)	1500	
Fuel Consumption (L/H)	Standby power(2)	24.9
	Prime Power(1)	22.6
	75% prime power	17.1
	50% prime power	11.2



Dimension and Weight

Dimension	Open	Silent
Length (L)	2220mm	2670mm
Width (W)	750mm	1080mm
Height (H)	1530mm	1865mm
Net Weight	1090KG	1790KG



AGG POWER gensets are compliant with EC mark which include the following directives:

- * 2006/42/EC Machinery safety.
- * 2006/95/EC Low voltage
- * EN 60204-1: 2006+A1:2009, EN ISO 12100:2010, EN ISO 13849-1: 2008, EN 12601: 2010

(1) Prime Power (PRP):

According to ISO 8528-1:2005, Prime power is the maximum power which a generating set is capable of delivering continuously whilst supplying a variable electrical load when operated for an unlimited number of hours per year under the agreed operation conditions with the maintenance intervals and procedures being carried out as prescribed by the manufacturer. The permissible average power output (Ppp) over 24h of operation shall not exceed 70% of the PRP.

(2) Standby Power (ESP):

According to ISO 8528-1:2005, standby power is the maximum power available during a variable electrical power sequence, under the stated operation conditions, for which a generating set is capable of delivering in the event of a utility power outage or under test conditions for up to 200h of operation per year with the maintenance intervals and procedures being carried out as prescribed by the manufacturers. The permissible average power output over 24h of operation shall not exceed 70% of the ESP.



Engine Specification

Basic technical data

Number of cylinders .. 4
 Cylinder arrangement .. In-line
 Cycle .. Four stroke
 Induction system .. Turbocharged, air-to-air charge cooled
 Compression ratio .. 18:23 : 1
 Bore .. 105 mm
 Stroke .. 127 mm
 Cubic capacity .. 4,4 litres
 Direction of rotation .. Anticlockwise viewed on flywheel
 Firing order .. 1, 3, 4, 2

Exhaust system

Maximum back pressure @ 1500 rev/min .. 18 kPa
 Maximum back pressure @ 1800 rev/min .. 15 kPa
 Exhaust outlet size .. 64 mm

Fuel system

Type of injection .. direct
 Fuel injection pump .. rotary
 Fuel atomiser .. multi-hole
 Nozzle opening pressure .. 29,0 MPa

Lubrication system

Lubricating oil capacity
 Total system .. 8,0 litres
 Sump capacity
 -maximum .. 7 litres
 -minimum .. 5,5 litres

Cooling system

Radiator

-face area .. 0,25 m²
 -rows and materials .. 38 aluminium
 -matrix density and material .. 9.4 aluminium fins per inch
 -width of matrix .. 439 mm
 -height of matrix .. 570 mm
 -pressure cap setting .. 100 kPa

Fan

-diameter .. 559 mm
 -drive ratio .. 1:1
 -number of blades .. 10
 -material .. composite
 -type .. pusher

Coolant

Total system capacity
 -with radiator .. 12,6 litres
 -without radiator .. 7,0 litres
 Maximum top tank temperature .. 110 °C
 Thermostat operation range .. 82 - 93 °C
 Recommended coolant:
 50% ethylene glycol with a corrosion inhibitor (BS 658 :1992 or MOD AL39) and 50% clean fresh water.

Electrical System

-type .. Negative ground
 -alternator .. 12V/24V options
 -starter motor .. 12V/24V options

General installation

Designation	Units	Type of operation and application			
		Prime	Stand-by	Prime	Stand-by
		50 Hz	50 Hz	60 Hz	60 Hz
Gross engine power	kWb	93,6	103	106,8	117,5
Brake mean effective pressure	kPa	1702	1873	1618	1780
Engine coolant flow 35 kPa system restriction	l/min	142		170	
Combustion air flow	m ³ /min	6,01	6,27	7,75	7,80
Exhaust gas flow (max)	m ³ /min	15,2	16,3	18,4	20,4
Exhaust gas temperature (max)	°C	514	543	517	574
Cooling fan air flow (200kPa External Restriction)	m ³ /min	165,6	165,6	225,6	225,6
Overall thermal efficiency (net)	%	39,5	39,6	36,9	36,9
Typical GenSet electrical output (0,8pf)	kWe	81,4	89,6	91,5	101,2
	kVA	101,4	111,9	114,4	126,5
Assumed alternator efficiency	%	90		90	
Energy balance					
Energy in fuel (Fuel heat of combustion)	kWt	228,1	251	275,2	304,4
Energy to power output (gross)	kWb	93,6	103,0	106,8	117,5
Energy to cooling fan	kWm	3,5		5,1	
Energy to power output (nett)	kWm	90,1	99,5	101,7	112,4
Energy to coolant and lubricating oil	kWt	46,1	50,7	57,7	64,0
Energy to exhaust	kWt	71,7	78,9	89,8	99,7
Energy to radiation	kWt	6,8	7,5	8,5	9,4
Energy to charge cooler	kWt	9,9	10,9	12,4	13,8



▪ Alternator

Alternator		
Poles	Num	4
Winding Connections (standard)		Star-serie
Insulation	Class	H class
Enclosure (according IEC-34-5)		IP23
Exciter System		Brushless
Voltage Regulator		A.V.R. (Electronic)
Bearing		Single bearing
Coupling		Flexible disc
Coating type		Standard (Vacuum impregnation)

▪ Options

Engine	Alternator	Generator Sets	Fuel System	Canopy
<ul style="list-style-type: none"> •Water Jacket Preheater •Oil Preheater 	<ul style="list-style-type: none"> •Winding Temperature measuring Instrument •Alternator Preheater •PMG •Anti-damp and anti-corrosion treatment •Anti-condensation heater 	<ul style="list-style-type: none"> •Tools with the machine 	<ul style="list-style-type: none"> • Low fuel level alarm •Automatic fuel feeding system •Fuel T-valves 	<ul style="list-style-type: none"> •Rental Type Canopy •Trailer
Lubricating System	Exhaust System	Cooling System	Control Panel	Voltages
<ul style="list-style-type: none"> •Oil with the machine 	<ul style="list-style-type: none"> •Protection board from hotness 	<ul style="list-style-type: none"> • Front heat protection • Coolant (-30°C) 	<ul style="list-style-type: none"> •Remote control panel • ATS • Remote controller • Synchronizing controller 	<ul style="list-style-type: none"> • 415/240V • 380/220V • 220/127V • 220/127V • 200-115V



Control Panel



Product description

- Single gen-set controller for Stand-by and Prime-power applications
- Direct communication with EFI engines
- Total remote monitoring and control

Key features

- Easy to install, configure and use
- Wide range of communication capabilities including:
 - connection via RS232, RS485, CAN and on board USB
 - internet access using Ethernet or GPRS
 - support for Modbus and SNMP protocols
- Cloud-based monitoring and control
- Active SMS and emails in different languages
- 2x 5 A binary outputs for cranking and fuel solenoid
- Option for up to 16 additional binary inputs/outputs
- Flexible event based history with up to 350 events
- Load shedding, dummy load capability
- Automatic temperature based cooling/heating
- Comprehensive gen-set protections
- Multipurpose flexible timers
- True RMS measurement

Available extension modules

Product	Description	Order code
CM-Ethernet	Ethernet interface	CM2ETHERXBX
CM-GPRS	GSM modem / wireless internet	CM2GPRSXXBX
CM-RS232-485	Dual port interface	CM223248XBX
EM-BIO8-EFCP	8 additional binary inputs/outputs	EM2BIO8EXBX

Functions and protections

Description	ANSI code	Description	ANSI code
Over voltage	59	Load shedding	32P
Under voltage	27	Overload	32
Voltage asymmetry and Phase rotation**	47	Power factor	55
Over frequency	81H	Temperature	49T
Under frequency	81L	Gas (fuel) level	71
Over current*	50 + 51	Earth fault current	50N + 64
Current unbalance	46		

* Short current only

** Fixed setting

