

Diesel Generator set 1100 series Engine P110-3 100 KVA – 110 kVA 50 Hz



Description

This FG Wilson commercial generator set is a fully integrated power generation system, providing optimum performance, reliability, and versatility for stationary Standby, Prime Power, and Continuous duty applications.

Features

FG Wilson engine - Rugged 4- cycle industrial diesel delivers reliable power, fuel optimized and fast response to load changes.

Permanent Magnet Generator (PMG) - Offers enhanced motor starting and fault clearing short circuit capability.

Alternator - Several alternator sizes offer selectable motor starting capability with low reactance 2/3 pitch windings, low waveform distortion with non-linear loads and fault clearing short-circuit capability.

Cooling system – Standard integral set-mounted radiator system, designed and tested for rated ambient temperatures, simplifies facility design requirements for rejected heat.

Control system - Standard DSE7410 electronic control provides total system integration including remote start/stop, precise frequency and voltage regulation, alarm and status message display, protection, output metering, auto-shutdown.

Enclosures - Optional weather-protective and sound-attenuated enclosures are available.

Warranty and service - Backed by a comprehensive warranty and worldwide distributor network.

circuit breaker - Optional 3 or 4 pole motorized circuit breaker available.

ISO 8528-5 – Refer to factory for site and configuration specific transient performance classification

Generator set specifications

Output Ratings

	Prime	Standby
400/230V, 50Hz	100KVA	110 KVA
	80 KW	88 KW

Performance class	Genset models have been tested in accordance with ISO 8528-5.
Voltage regulation, no load to full load	± 0.5 %
Electromagnetic Compatibility Performance	Fuel optimized

Engine specifications

Ratings and Performance Data

Engine Make	Perkins
Engine Model	1104C-44TAG2
Alternator Make	FG Wilson
Alternator Model	FGL30040
Control Panel	DSE7410
Base Frame	Heavy Duty Fabricated Steel
Circuit Breaker Type	160A, 3P MCCB
Frequency	50 Hz
Engine Speed: RPMrpm	1500
Fuel Tank Capacity:liters (US gal)	218 (57.59)

Engine Technical Data

No. of Cylinders		4
Alignment		IN LINE
Cycle		4
Bore	mm (in)	105 (4.1)
Stroke	mm (in)	127 (5)
Induction		TURBOCHARGED AIR TO AIR CHARGE COOLED
Cooling Method		WATER
Governing Type		ELECTRONIC
Governing Class		ISO 8528 G2
Compression Ratio		18.3:1
Displacement	L (cu. in)	4.4 (201.4)
Moment of Inertia:	kg m ² (lb/in ²)	1.51 (5160)
Voltage		12
Ground		Negative
Battery Charger		65
Engine Weight Dry	kg (lb)	401 (884))
Engine Weight Wet	kg (lb)	414 (912)

Engine Performance Data

Engine Speed	rpm	1500
Gross Engine Power Prime	kW (hp)	93.6 (126)
Gross Engine Power Standby	kW (hp)	103 (138)
BMEP Prime	kPa (psi)	1702 (246.9)
BMEP Standby	kPa (psi)	1873 (271.7)

Fuel system

Type of injection Direct
 Fuel injection pump Rotary
 Fuel atomiser. Multi-hole
 Nozzle opening pressure 29 MPa (290 bar)

Fuel lift pump

-flow/hour. 120-150 l/h (211-264 pt/m)
 -pressure 30-75 kPa (4.4-10.9 psi)
 Maximum suction head 17 kPa (1.7m)
 Maximum static pressure head 10 kPa (1.0m)

Governor type. Perkins LCS Electronic Governor

Speed control to ISO 8528, G3

Fuel Filter	Replaceable Element			
Recommendation fuel	Class A2 Diesel			
Ful Consumption at	110%	100%	75%	50%
50 Hz Prime l/hr.	23.9	21.7	16.5	11.6
50 Hz standby l/hr.	-	23.9	18	12.6

Cooling system

Radiator-face area 0,25m² (2.69ft²)

-rows and materials. 38 Aluminium

-matrix density and material 9.4 Aluminium Fins Per Inch

width of matrix. 439mm (17.3")

-height of matrix 570mm (22.4")

-pressure cap setting 100kPa

Estimated cooling air flow reserve ??

Fan

-diameter 559mm (22")

-drive ratio 1:1

-number of blades 10

-material Composite

-type Pusher

Coolant

Total system capacity-with radiator 12,6l (22.2 pt)

-without radiator 7,0l (12.3 pt)

Maximum top tank temperature 110°C

Thermostat operation range. 82-93°C (180-199°F)

Recommended coolant:

50% ethylene glycol with a corrosion inhibitor (BS 658 :1992 or MOD AL39) and 50% clean fresh water.

		50
Cooling System Capacity	L (US gal)	17.5 (4.6)
Water Pump Type:		Centrifugal
Heat Rejected to Water & Lube Oil: Prime	kW (Btu/min)	46.1 (2622)
Heat Rejected to Water & Lube Oil: Standby	kW (Btu/min)	50.7 (2883)
Heat Radiation to Room*: Prime	kW (Btu/min)	14.7 (836)
Heat Radiation to Room*: Standby	kW (Btu/min)	16.2 (921)
Radiator Fan Load:	kW (hp)	2.8 (3.8)
Radiator Cooling Airflow:	m³/min (cfm)	187.8 (6632)
External Restriction to Cooling Airflow:	Pa (in H2O)	125 (0.5)

*: Heat radiated from engine and Alternator

Designed to operate in ambient conditions up to 50°C (122°F).

Air System (at 50 Hz)

Air Filter Type		Replaceable Element
Combustion Air flow Prime	m³/min	6 (212)
Combustion Air Flow Standby	m³/min	6.3 (221)
Max. Combustion Air Intake Restriction	kPa	8 (32.1)

Lubricating System

Oil Filter Type:		Spin-On, Full Flow
Total Oil Capacity:	l (US gal)	8 (2.1)
Oil Pan Capacity:	l (US gal)	7 (1.8)
Oil Type:		API CC/SE
Oil Cooling Method:		WATER

Exhaust system		
Maximum Allowable Back Pressure:	kPa (in Hg)	18 (5.3)
Exhaust Gas Flow: Prime	m³/min (cfm)	15.2 (537)
Exhaust Gas Flow: Standby	m³/min (cfm)	16.3 (576)
Exhaust Gas Temperature: Prime	°C (°F)	514 (957)
Exhaust Gas Temperature: Standby	°C (°F)	543 (1009)

Alternator Physical Data

No. Of bearings		1
Insulation Class		H
Winding Pitch		2/3
Winding Code		6P/6S
Wiers		4
IP		IP23
Excitation System		Shunt
AVR Model		R120

Alternator Operating Data

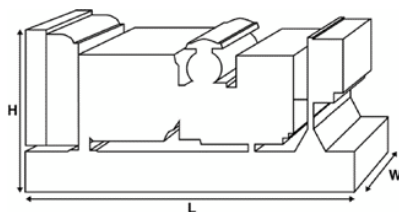
Overseed	rpm	2250
Voltage Regulation (steady State)	%	± 1.0
Wave Form NEMA= TIF	%	50
Wave form=THF	%	2
Total Harmonic content LL/LN	%	2
Radio Interference		EN61000-6
Radiant Heat	KW	8.7

Alternator Performance Data

Voltage Code		415/240V	400/230V	380/220V
Motor Starting capability*	KVA	150	140	128
Short Circuit capacity**	%	270	270	270
Reactances	Xd	3.17	3.42	3.784
	X'd	0.137	0.148	0.164
	X''d	0.089	0.089	0.098

*Based on 30% voltage dip at 0.4 power factor

** With optional independent excitation system (PMG / AUX winding)

Dimensions (Open Set)

Length mm	1980
Width mm	890
Height mm	1374

Control Panel Specification Data

DSE 7410



Key Features

- Configurable power-up mode
- MPU fail delay
- Enhanced graphical user interface
- Drag & drop advanced PLC editor
- MSC ID within PLC GenComm override
- 4-Line back-lit LCD text display
- Five key menu navigation
- Front panel editing with PIN protection
- 11 configurable inputs
- 8 configurable outputs
- Flexible sensor inputs
- 3 Configurable timers and alarms
- Configurable event log (250)
- Integral PLC editor
- CAN and Magnetic Pick-up/Alt. sensing
- Fuel usage monitor and low fuel alarms
- kW protection
- Reverse power (kW) protection
- Power monitoring (kW.h, kV Ar, kV A h, kV Ar h)
- Fully configurable via DSE Configuration Suite PC software

Key Benefits

- 132 x 64-pixel ratio display for clarity
- Real-time clock provides accurate event logging
- Set maintenance periods can be configured to maintain optimum engine performance
- Built-in-in-ethernet communications provides advanced remote monitoring
- Modules can be integrated into building management systems (BMS) using MODBUS
- increased input and output expansion capability via DSENet
- IP65 rating (with supplied gasket) offers increased resistance to water ingress
- Data logging to assist with fault finding
- PLC editor allows user configurable functions to meet specific application requirements
- License-free PC software

Specifications

- continuous voltage rating 8V to 35V continuous
- Able to survive 0 V for 50 mS, providing supply was at least 10 V before dropout and supply recovers to 5 V. This is achieved without the need for internal batteries
- Maximum operating current 260 mA at 12 V, 130 mA at 24
- charge fail 0 V to 35 V
- output A (fuel) 15A DC at supply voltage
- output B (start) 15A DC at supply voltage
- output C&D 8A DC at supply voltage
- Output E to J 2 A DC at supply voltage
- BUS 15V to 333V AC L-N
- MPU ± 0.5 to 70V

Codes or

standards compliance may not be available with all model configurations – consult factory for availability.

ISO 8528	This generator set has been designed to comply with ISO 8528 standards.
ISO 3046	This generator set performance and test methods comply with ISO 3046
BS 5000	This generator set comply with the British standards used for engine and generators
IEC 60034	This generator performance complies with the international standard for rotating electrical machines