



POWER PARAMETERS



Generating Rates

STANDBY / PRIME POWER				COP POWER			
2750	kva	2200	kW	2500	kva	2000	kW
		3969	A			3608	A
Voltage		400/230 VAC					
Rated at power factor		Cos Ø	0,8				



1500



50



Three phase



Water cooled



Soundproof



Gas

Standby Rating (ESP)

According to ISO 8528-1:2018, Emergency standby power is the maximum power available during a variable electrical power sequence, under the stated operating 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. Overload is not allowed.

Standby power: According to the standard, the nominal power assigned by the genset is given for 25°C Air Inlet Temperature, of a barometric pressure of 100kPA (100 m A.S.L.), and 30% relative humidity.

Prime Rating (PRP)

According to ISO 8528-1:2018, 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 operating conditions with the maintenance intervals and procedures being carried out as prescribed by the manufacturer. The permissible average power output over 24h of operation shall not exceed 70% of the PRP. 10% overload capability is available for a period of 1 hour within 12-hour period of operation.



Dimensions / Weight / Fuel tank



Dimensions W x L x H (mm)

Weight (kg)

Tank Capacity (lit)

Canopy

2340 x 13556 x 3000

35,000

n/a

Open Type

-

-

n/a



note:

Dimensions and weight are for reference only, do not use for installation design. Please contact your dealer for exact weight and dimensions.

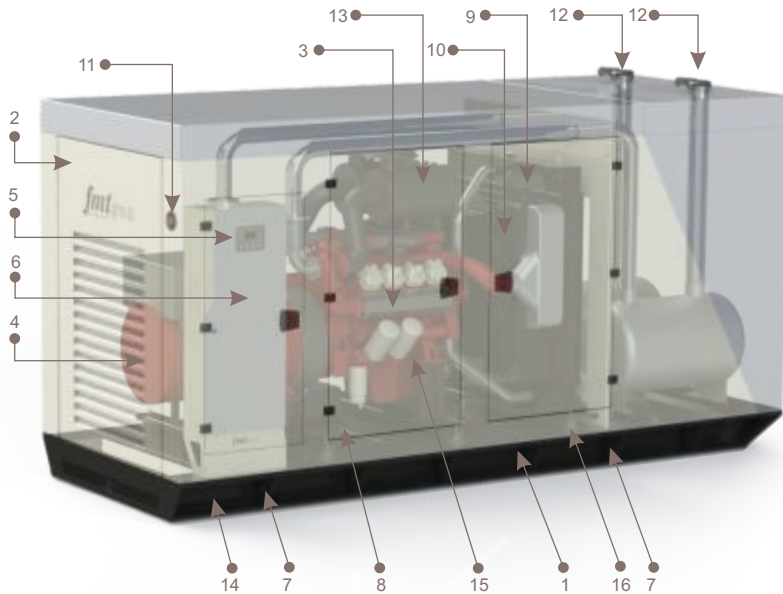


NOISE LEVEL db(A)

7mt@80-85 db(A)

TBA: To be asked, N/A: Not applicable

Technical data correspond to the available information at the moment of printing.



Low fuel consumption



High efficiency



Easy lift



Low noise

1	Base Frame	9	Radiator
2	Canopy	10	Cooling fan
3	Engine	11	Emergency stop button
4	Alternator	12	Exhaust Outlet
5	Control Panel	13	Air Filter
6	Connection Box	14	Earthing Point
7	Lifting Lug	15	Oil Filter
8	Battery	16	Vibration Isolators

**Image for guidance purposes*



FEATURES

- Galvanized steel that provides extra strength, durability and protection
- Tightly structure, excellent design
- Easy access to serviceable parts
- Double swinging doors for ease of service
- Doors have high quality gaskets to avoid leakage of sound
- LCD display shows system status and setup information
- Adequate ventilation to meet air requirement for combustion and heat removal



GENSET STANDARD SPECIFICATION

- Gas engine
- Water cooled
- Radiator with mechanical fan
- ATS automatic transfer switch 4P
- Protective grille for rotating and hot parts
- Electric starter and charge alternator
- Engine coolant heater
- Base frame with integrated fuel tank
- Engine oil filled
- Output circuit breaker 4P
- Anti-vibration shock absorbers
- Rubber fuel connection hoses
- Single bearing, class H alternator
- Industrial exhaust silencer and steel bellows supplied separately
- Static battery charger
- Starting battery (with lead acid) including rack and cables
- Battery isolator
- Manual for application and installation
- Jacket water heater

SAFETY FEATURES



HIGH WATER TEMPERATURE



PROTECTIVE EARTH POINT



LOW LUBE OIL PRESSURE



EMERGENCY STOP PUSH-BUTTON

TY...! 1 YEAR WARRANTY...! 1 YEAR WARRANTY...! 1 YE

1. Engine technical parameter list

ITEM	UNIT	VALUE
Model		RH5-20V100-GAS
Rated power	kW	2100
Heat loss	MJ/kWh	9.003
Quantity of Cylinders	PCS	20
Cylinder bore	mm	170
Stroke	mm	215
Displacement	L	97.6
Speed	rpm	1500
Compression ratio		12:1
Mean effective pressure	MPa	1.72
Mean speed of piston	m/s	10.75
Oil quantity	m ³ (kg)	0.33 (280)
Cooling water quantity	m ³ (kg)	0.22 (220)
Dimension(L*W*H)	mm	3860×1600×2400
Dry weight	kg	8800
Weight with oil	kg	9300
Moment of inertia of an area (flywheel)	kgm ²	11.35
Direction of rotation		CCW (Look at the flywheel)
Fly wheel		SAE21
EMC		N
Starter	kW	2×13 @DC24V

2. Heat balance list of generator set

ITEM	UNIT	VALUE					
Gas energy	kW	2947	3423	4175	4406	4837	5252
Electrical power	kW	1000	1200	1500	1600	1800	2000
Electrical efficiency	%	33.93%	35.06%	35.93%	36.31%	37.21%	38.08%
Water thermal of cylinder liner	kW	886	1018	1209	1251	1357	1470
Thermal efficiency of waterliner	%	30.07%	29.76%	28.97%	28.39%	28.06%	27.98%
Exhaust thermal	kW	534	645	817	869	996	1097
Thermal efficiency of exhaust	/	18.11%	18.85%	19.56%	19.72%	20.58%	20.89%
Thermal efficiency	/	48.18%	48.61%	48.53%	48.11%	48.64%	48.87%
Total efficiency	/	82.11%	83.7%	84.46%	84.42%	85.85%	86.95%

3. Combustion air and exhaust data sheet for engine

ITEM	UNIT	VALUE
Exhaust temperature	°C	≤580
Max Exhaust temperature	°C	620
Exhaust flow (including H ₂ O)	kg/h	10782
Exhaust quantity (including H ₂ O)	Nm ³ /h	8579
Max Exhaust back pressure	kPa	2.5
Diameter of exhaust flange	mm	400
Combustion air flow	kg/h	10387
Combustion air quantity	Nm ³ /h	8052
Max air pressure before air filter	kPa	2.5

4. Gas consumption data sheet

ITEM	UNIT	VALUE
Output electrical power	kW	2000
Permissible gas pressure range	kPa	≥3
Gas type		Natural gas
CH ₄	%	≥80
Min pressure of gas with air after turbocharger	kPa	30-50
Permissible range of gas pressure fluctuation	±%	5
Maximum fluctuation of gas pressure	kPa/sec	1/60
Gas consumption	MJ/kWh	9.454
Gas consumption 1000 kW	Nm ³ /h	309.6
Gas consumption 1200 kW	Nm ³ /h	358.9
Gas consumption 1400 kW	Nm ³ /h	414.7
Gas consumption 1600 kW	Nm ³ /h	454.1
Gas consumption 1800 kW	Nm ³ /h	498.8
Gas consumption 2000 kW	Nm ³ /h	555.5
Gas intake pipe	mm	125

5. Technical parameters of engine cooling system

ITEM	UNIT	VALUE
Water flow of engine cylinder liner	m ³ /h	85
Water flow of Intercooler	m ³ /h	80
Water TD of I/O cylinder liner	°C	12-15
Water TD of I/O Intercooler	°C	3-5
Max water TEMP of cylinder liner	°C	90
Water I/O pipe of cylinder liner	DN/PN	DN80/PN16
Water I/O pipe of Intercooler	DN/PN	DN65/PN16
High temperature water pressure	MPa	0.3
Low temperature water pressure	MPa	0.2

6. Technical parameters of engine lubricating oil system

ITEM	UNIT	VALUE
Lubricating oil system volume	Nm ³	0.33
Max oil temperature	°C	95
Oil consumption rate	g/kWh	≤0.35
Diameter of lubricating oil refill pipe	mm	25
Diameter of lubricating oil drain pipe	mm	15

7. Computation data for remote radiator and water pump

ITEM	UNIT	VALUE
High temperature part heat dissipation	kw	1470
Low temperature part heat dissipation	kw	195
Ambient temperature	°C	40
High temperature water	°C	83 to 68
Low temperature water I/O	°C	45 to 43
Flow rate of high temperature pump	m ³ /h	85
Flow rate of low temperature pump	m ³ /h	80

8. Engine emission data

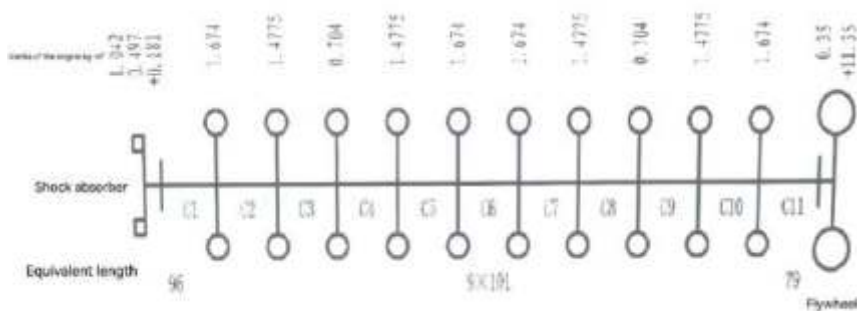
ITEM	UNIT	VALUE
NO _x (5%O ₂)	mg/Nm ³	≤500
CO (5%O ₂)	mg/Nm ³	≤1006
HC (5%O ₂)	mg/Nm ³	≤132.7
O ₂	%	8
Excess air ratio	λ	1.5

9. Gas Quality requirements for engines

ITEM	UNIT	VALUE
CH ₄	≥	80%
Rate of concentration change	≤	2%/30s
Gas pressure	≥	5kPa
Gas mass range	≤	2%/min
H ₂ s	≤	20mg/Nm ³
All of the sulfur	≤	20mg/Nm ³
Solid particle	≤	5μm and 30mg/m ³

10. Torsional vibration calculation parameters

Power	Rotate Speed		Connecting Rod Length	Main Journal	Journal Crank pin	Crankshaft Tensile Strength
2105 kW	1500 rpm		360 mm	170 mm	130 mm	55 MPa
Cylinder Diameter(d)	Length of Stroke(s)	Length of Stroke	Torque Efficiency	Single Cylinder Reciprocating Mass(m)	Crank Connecting Rod Ratio(λ)	Angle of Cylinder Arrangement(v)
170 mm	215 mm	4	89%	15.24 kg	0.2986	90°
Firing Order	A1-B7-A2-B5-A4-B3-A6-B1-A8-B2-A10-B4-A9-B6-A7-B8-A5-B10-A3-B9					



11. Engine coolant

When choosing water as cooling medium, the following requirements should be met:

- Use clean water that is slightly alkaline and does not contain corrosive compounds
- The hardness is 0.7-5.3 mol/L, the content of chloride ion is less than 150mg/ L, and the PH value is 6.0-8.5
- If the water quality does not meet the above requirements, the corresponding softening water equipment or descaling equipment should be added according to the coefficient of 1.2 times of the consumption of cooling water.

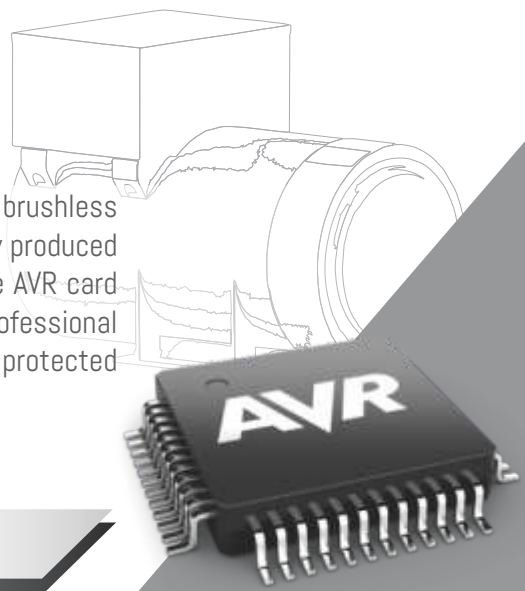
Other cooling medium

When the ambient temperature is below 5°C, antifreeze should be selected as the cooling medium. When selecting antifreeze, the freezing point should be 5°C lower than the lowest temperature in the use area.

SELF EXCITED STRONG ROTOR

Isolated Stator

Alternator has been designed for three phase and mono phase. They are brushless type and are controlled by AVR card. The windings have been industrially produced to give maximum efficiency in the production of energy. Throughout the AVR card system the output voltage is always stable. The smart AVR is a professional controller than enables the whole operation of excitement. Alternator is protected by a special cabin that enables the electrical connections.



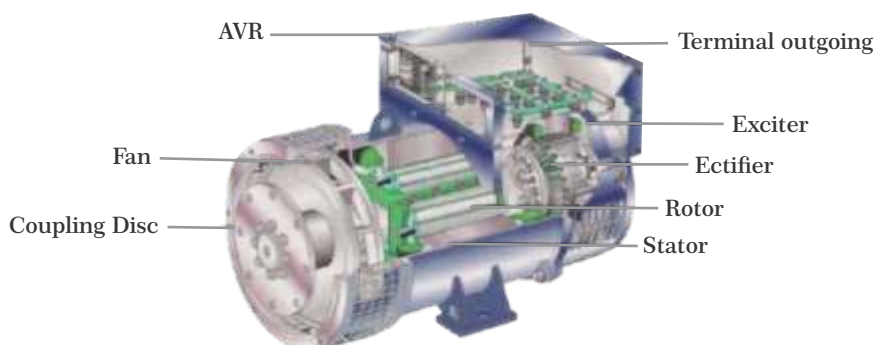
ALTERNATOR SPECIFICATION



GENERAL DATA

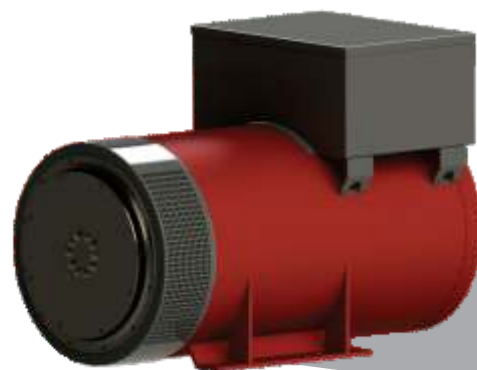
Model	PO2750
No. of Phase	3
Power Factor	0.8
No of Bearing	SINGLE
No of Poles	4
No of Leads	12
Insulations Class	H
Voltage Regulation (Steady State)	± 1%
Degree of Protection	IP 23
Excitation System	Self excited, AVR, Brushless
Connection System	STAR
Frequency	50 Hz
Voltage Output	400/230 VAC

Alternator Structure



Application and Standard

The 4-pole generator is suitable for matching with a reciprocating internal combustion engine (commonly called a diesel engine) to form a generator set, which can be used as a fixed power supply or backup power supply for national defense, post and telecommunications, airports, hospitals, buildings, oil exploration, industrial and mining enterprises and other departments. Potenza Alternators are in compliance to the main domestic and international standards and regulations.



Electrical features

Automatic voltage regulators: Potenza 4 Pole Alternators are fitted with reliable and performant AVR, adapted to excitation systems, powered by transistors and fulfilling perfect regulation.

Short circuit capacity: Potenza propose two choices of excitation systems to meet different customer requirements:

- A) Self-Excitation system, without short-circuit capacity.
- B) PMG, with a short-circuit capacity of 3 times of the nominal current for 10 seconds.

Transient features: Transient voltage dip for 60% rated current at 0.4 power factor is less than 15%. Recovery time for a 15% transient voltage dip is less than 1.5s.

Parallel operation: All 4 pole alternators can operate in parallel with other alternators or with the mains, when they are equipped with the appropriate devices (AVR, current transformer...).

Overload acceptance: 4 pole alternators can be overloaded according to NEMA.

Waveform: Total harmonic distortion (THD), at no load or linear load is less than 5% according to IEC. Telephone influence factor(TIF) according to NEMA is less than 50.

Frequency: 4 pole alternators may operate either 50Hz or 60Hz. The standard winding (B31, B32) is suitable both for 50Hz and 60Hz.

Power factor: 4 pole alternators are designed to operate between 0.8 and 1.0 power factor. A derating is necessary below 0.8 power factor (see derating table).

Mechanical features

Forms: 4 pole alternators can be provided in single bearing or double bearing configurations according to customer's requirements, as well as Engine adaptors and coupling discs which are fit for the major engines.

Balancing: All the rotors are dynamically balanced according to ISO1940. Double bearing rotors are balanced with a half key.

Insulation and protection: 4 pole alternators are class H insulated. The standard winding protection can accept up to 95% relative humidity and is suitable in the cabins. Specific added coatings can be proposed for harsh environments.

Enclosure: Standard enclosure is IP23.

Direction of rotation: F8-2750 series can operate in both directions.

Terminal box and connectors: 4 pole alternators have a terminal box which allows easy access for connection of AVR or reconnection. Current transformers or other optional modules can be fitted within the box.

Bearings: Sealed for life bearings up to all Potenza 4 pole alternator.

Overspeed: The maximum overspeed is 2250 RPM for the 4 pole alternator (1.25 times the 60Hz rated speed).

Mechanical structure: Steel frame. Cast iron or steel housing and flanges depending on models.

General Parameters

Ambient temperature	40°C	Temperature rise	125K	Short circuit current multiple	/
Altitude	1000m	Voltage Regulation	±1%	Cooling method	IC01
Insulation class	Class H	Exciter method	Brushless self-excitation	Direction of rotation	Clockwise
Duty type	S1	Winding pitch	2/3	Maximum speed	2250 rpm
Phases	3	Power factor	0.8	Protection grade	IP23
Number of poles	4	TIF	<50	Frequency	50/60Hz
AVR model	KR440	THF	<2%	THD	1.2%~2.5%

Electrical parameters

50Hz/1500RPM		Standard winding / Power factor 0.8							
Duty type / temp rise / ambient temp		Cont. / 125K / 40°C				Standby / 163K / 27°C			
Phase		3 Phases				3 Phases			
Voltage	Y	380V	400V	415V	440V	380V	400V	415V	440V
	Δ	220V	230V	240V		220V	230V	240V	
PO1700	KVA	1563	1563	1563	1484	1750	1750	1750	1633
	KW	1250	1250	1250	1188	1400	1400	1400	1306
PO1875	KVA	1688	1688	1688	1603	1890	1890	1890	1763
	KW	1350	1350	1350	1283	1512	1512	1512	1411
PO2100	KVA	1900	1900	1900	1805	2128	2128	2128	1986
	KW	1520	1520	1520	1444	1702	1702	1702	1588
PO2250	KVA	2063	2063	2063	1959	2310	2310	2310	2155
	KW	1650	1650	1650	1568	1848	1848	1848	1724
PO2500	KVA	2250	2250	2250	2138	2520	2520	2520	2351
	KW	1800	1800	1800	1710	2016	2016	2016	1881
PO2750	KVA	2500	2500	2500	2375	2800	2800	2800	2613
	KW	2000	2000	2000	1900	2240	2240	2240	2090

* Consult factory for other voltages

Electrical Parameters

60Hz/1800RPM		Standard winding / Power factor 0.8							
Duty type / temp rise / ambient temp		Cont. / 125K / 40°C				Standby / 163K / 27°C			
Phase		3 Phases				3 Phases			
Voltage	Y	416V	440V	460V	480V	416V	440V	460V	480V
	Δ	240V				240V			
PO1700	KVA	1680	1797	1953	1953	1848	1977	2148	2148
	KW	1344	1438	1563	1563	1478	1581	1719	1719
PO1875	KVA	1814	1941	2109	2109	1995	2135	2320	2320
	KW	1451	1553	1688	1688	1596	1708	1856	1856
PO2100	KVA	2043	2185	2375	2375	2247	2404	2613	2613
	KW	1634	1748	1900	1900	1797	1923	2090	2090
PO2250	KVA	2217	2372	2578	2578	2439	2609	2836	2836
	KW	1774	1898	2063	2063	1951	2087	2269	2269
PO2500	KVA	2419	2588	2813	2813	2661	2846	3094	3094
	KW	1935	2070	2250	2250	2129	2277	2475	2475
PO2750	KVA	2688	2875	3125	3125	2956	3163	3438	3438
	KW	2150	2300	2500	2500	2365	2530	2750	2750

Moment of Inertia & Efficiency

Model	F8-2750	PO1700	PO1875	PO2100	PO2250	PO2500	PO2750
Moment of Inertia (single-bearing).J	kgm^2	37.189	42.451	45.689	50.505	57.478	62.689
50Hz 400V Efficiency (100% Load)	%	96.1	96.2	96.2	96.3	96.3	96.4
60Hz 440V Efficiency (100% Load)	%	96.2	96.3	95.3	96.4	96.4	96.4

* Consult factory for other voltages

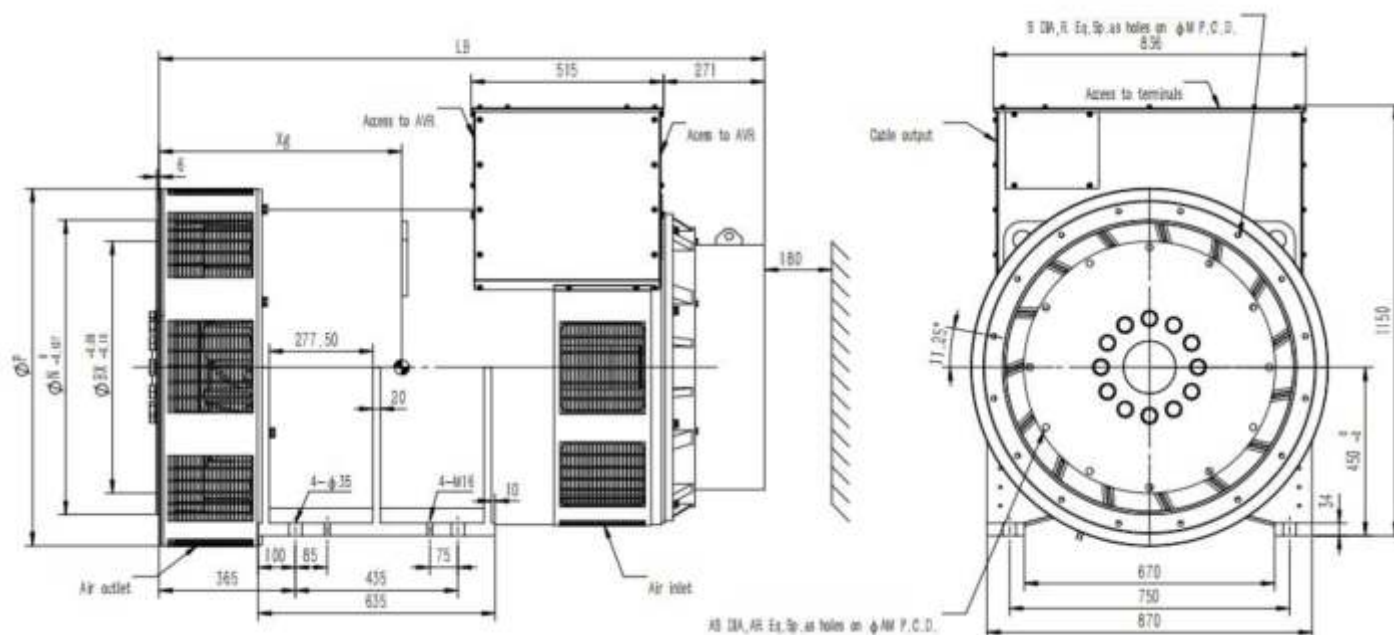
Reactance (%) - Time Constant (ms)

F8-2750	50Hz @ 400V	PO1700	PO1875	PO2100	PO2250	PO2500	PO2750
Kcc	Short circuit ratio	0.25	0.29	0.25	0.27	0.22	0.24
Xd	Direct axis synchronous unsaturated reactance	403	346	394	375	457	424
X'd	Direct Axis Transient Saturation Reactance	26.6	22.8	23.7	22.4	26.9	25.0
X''d	Direct Axis Subtransient Saturation Reactance	19.5	16.7	16.9	15.9	18.9	17.5
Xq	Quadrature axis synchronous unsaturated reactance	246	211	240	228	277	257
X''q	Quadrature Subtransient Saturation Reactance	26.6	22.5	23.9	22.4	26.8	24.7
X2	Negative sequence saturation reactance	2.31	1.96	2.04	1.91	2.29	2.11
X0	Zero sequence unsaturated reactance	1.84	1.56	1.28	1.23	1.43	1.41
T'd	Short-circuit transient time constant	52	39	40	35	39	33
T''d	Subtransient time constant	7	5	5	4	5	4
T'do	Open circuit time constant	2204	1665	1840	1609	1815	1547
Ta	Armature time constant	488	487	535	600	745	946

Reactance (%) - Time Constant (ms)

F8-2750	60Hz @ 440V	PO1700	PO1875	PO2100	PO2250	PO2500	PO2750
Kcc	Short circuit ratio	0.22	0.26	0.23	0.24	0.20	0.21
Xd	Direct axis synchronous unsaturated reactance	447	386	437	413	503	471
X'd	Direct Axis Transient Saturation Reactance	29.5	25.4	25.7	24.7	29.7	27.7
X''d	Direct Axis Subtransient Saturation Reactance	21.7	18.6	18.1	17.5	20.8	19.4
Xq	Quadrature axis synchronous unsaturated reactance	273	235	265	251	306	286
X''q	Quadrature Subtransient Saturation Reactance	29.5	25.2	25.9	24.7	29.6	27.4
X2	Negative sequence saturation reactance	2.56	2.19	2.20	2.11	2.52	2.34
X0	Zero sequence unsaturated reactance	2.04	1.75	1.44	1.35	1.57	1.55
T'd	Short-circuit transient time constant	48	37	36	32	35	30
T''d	Subtransient time constant	6	5	5	4	4	4
T'do	Open circuit time constant	2447	1859	2041	1770	2000	1718
Ta	Armature time constant	452	475	480	571	708	851

Outline Drawing (Single Bearing)



DIMENSION (MM)

Model	LB	*Xg	Weight	Package
	mm	mm	kg	L x W x H (mm)
PO1700	1497	645	2854	1730*1050*1370
PO1875	1607	683	3085	1800*1050*1370
PO2100	1607	700	3140	1800*1050*1370
PO2250	1687	740	3471	1950*1050*1370
PO2500	1767	780	3804	2030*1050*1370
PO2750	1862	828	4566	2150*1050*1370

FRONT COVER (MM)

S.A.E	P	N	M	R-øS	W	a°
#00	954	787.3	850.9	16 - ø14	6	11.25°
#0	954	647.7	679.45	16 - ø14	6	11.25°

COUPLING (MM)

S.A.E	BX	AM	AR-øAS	AH
#18	571.5	542.9	6 - ø17	15.7
#21	673.1	641.35	12 - ø17	0
#24	733.3	692	12 - ø21	0

SYNCHRONIZE SYSTEM

SYNCHRONIZE CONTROL UNIT

control panel

SMART LOGIC / FULL PROTECTION

STANDARD

The AGC 150 Hybrid is a variant of the well-known and easy-to-use controller, AGC 150. The AGC 150 Hybrid comes with all the necessary functions for protection and control of a hybrid installation with PV and genset. It can be used as a single unit for PV and up to 2 gensets for synchronising projects, in island or parallel to the mains modes. The AGC 150 Hybrid handles the power production from PV and genset to give the highest PV penetration and the lowest CO2 emission, and to ensure safe power production to support the load. The AGC 150 Hybrid can be used as: • Hybrid controller mounted directly on the genset with full control of PV, genset and mains • PV integration controller with power measurement and breaker feedback from existing controller. The AGC 150 contains all necessary 3-phase measuring circuits. All values and alarms are presented on the sun proof LCD display.

DEIF150
3P5-V400-DEIF150

DOWNLOAD
datasheet



OPTIONAL



IntelliGen4 200
3P5-V400-CI200

DOWNLOAD
datasheet

IntelliGen4 200 is a diesel gen-set control unit for common paralleling applications supporting both single and multiple gen-sets running in grid-tied or island operations.



General description

The AGC 150 Hybrid is a variant of the well-known and easy-to-use controller, AGC 150. All technical information on this variant is found in the AGC 150 documentation on deif.com.

The AGC 150 Hybrid comes with all the necessary functions for protection and control of a hybrid installation with PV and genset. It can be used as a single unit for PV and up to 2 gensets for synchronising projects, in island or parallel to the mains modes.

The AGC 150 Hybrid handles the power production from PV and genset to give the highest PV penetration and the lowest CO emission, and to ensure safe power production to support the load.

The AGC 150 Hybrid can be used as:

- Hybrid controller mounted directly on the genset with full control of PV, genset and mains
- PV integration controller with power measurement and breaker feedback from existing controller.

The AGC 150 contains all necessary 3-phase measuring circuits. All values and alarms are presented on the sun proof LCD display.

Applications

The AGC 150 is a compact all-in-one unit designed for the following hybrid PV and genset applications:

Plant mode	Application
Island mode	Plant with PV inverters and synchronizing generators or a stand-alone generator.
Automatic Mains Failure	Plant with PV inverters, genset(s) and mains. Black start generator
Fixed power	Plant with fixed kW set point for PV inverters.
Peak shaving	Plant with PV inverters, where a generator supplies peak load demand paralleled to the mains.
Load take-over	Plant with PV inverters, where the rest load is moved from mains to generator.
Mains power export	Plant with fixed kW set points for PV inverters and mains.

Main hybrid features

Minimum genset load

- Eliminate the risk of reverse power caused by low load

Perfect for Rooftop installations

- Rebuild your genset with AGC 150 benefits and get PV for free

Load calculation in terms of solar power

Automatic genset start/stop

- Based on threshold set points for PV production and mains import/export

PV included in modes

- MPE (Mains power export/import), AMF (Automatic mains failure), LTO (Load take-over), Fixed power, and Peak shaving

PV inverter communication support

- Support of more PV inverter communication protocols, including Sunspec

Mains voltage and current measurement

- One CT/Phase for balanced load

PV Power emulation

- Try and test the Hybrid functions without a PV plant

Other PV features:

- Energy Counters, Curtailment
- Inverter monitoring
- POA and BOM for calculating P max
- Weather data presentation

Other features

Easy and user-friendly interface

- Adaptive mimic with easy switching between applications
- Only buttons relevant for a function are visible to the user

New design - Easy to mount

- Compact design making it suitable for all applications

Three user levels

- With configurable passwords for each parameter, only relevant parameters are shown

Shortcut menu

- Easy access to frequently used functions (configurable)

PLC functions

- Programmable and user-friendly functions (M-Logic)

Alarm and Event logging

- Up to 500 alarms and 500 events

Graphical Display

- Important information is shown on the easy-to-read display

Built-in analogue AVR and GOV control

- Eliminates the need for external equipment (voltage and PWM)

CIO support

- Support of CANbus based I/Os, increases the number of I/Os

Stage V and Tier 4 Final

- AGC 150 can be used with the latest electrical Tier 4 Final engines and show values requested by Stage V.

Function and features

Key functions and features

- PV power control
- PV active/reactive power counters
- Inverter monitoring
- Weather station support
- Engine start sequences
- Engine and generator protections
- Engine communication via CANbus
- Run coil and crank configurable when using electric engine
- Tier 4 Final support with clear alarm indications
- Diesel and gas genset support
- 3-phase generator and busbar sensing
- Phase compensation for D/Y transformer
- Four current sensing inputs
- Integrated governor and AVR outputs for control
- State-of-the-art synchronisation and load sharing
- Synchroscope and sync check
- Digital voltage regulation support for different DVR
- Voltage and frequency matching
- Three synchronisation methods: Dynamic, Static and Close before excitation
- 12 digital outputs (configurable)
- 12 digital inputs (configurable)
- Two analogue outputs (-10 to 10 V)
- Four multi-inputs:
 - Resistor, 0 to 4000
 - Voltage, 0 to 10 V
 - Current, 4 to 20 mA
 - Digital input
- Deadbus sensing
- Ground relay
- Mains support for stand-alone system (AMF)
- Analogue load sharing with external box
- ROCOF and Vector jump protection
- Fuel usage monitoring
- Maintenance alarms
- Grid support
- Ethernet interface as standard
- PV inverter communication (Modbus Master) on RS-485 port 2

Easy overview

- Remote monitoring support with Insight
- Weekly scheduler
- Emulation for testing and frontload commissioning
- Built-in Guided experience to help the user
- PV and engine alarms in clear text on the display
- Graphical display:
 - LCD, back-lit
 - High resolution, 240 x 120 pixels
 - Six lines
 - Operating temperature from -40 to +70 °C (-40 to +158 °F)
- Five-key navigation menu
- Event log with 500 entries (can be exported to a CSV file)
- Alarm log with 500 entries (can be exported to a CSV file)

Highly configurable

- Controller configuration from the front panel (PIN code protected) or with free PC tool via USB, Ethernet & RS485
- PC tool with trending and wizards helping the user with configuration
- 20 configurable display views
- Four fully configurable PID controllers
- CAN flags between controllers
- CANbus based extension module for Inputs/Outputs
- Real time clock
- User configurable logic (lite PLC)
- Ethernet communication for PLC, SCADA or BMS
- Multi-language support (incl. Chinese, Russian and other languages)

Four software packages

The AGC 150 can be equipped with four different software packages:

- **Stand-alone:** Non-sync application
- **Core:** Simple paralleling, like rental and contructions
- **Extended:** Standby power, like simple backup power stations
- **Premium:** Small CHP or similar medium complex sites

Note: The Hybrid functions are only supported by **Stand-alone Core** and **Extended** software packages.

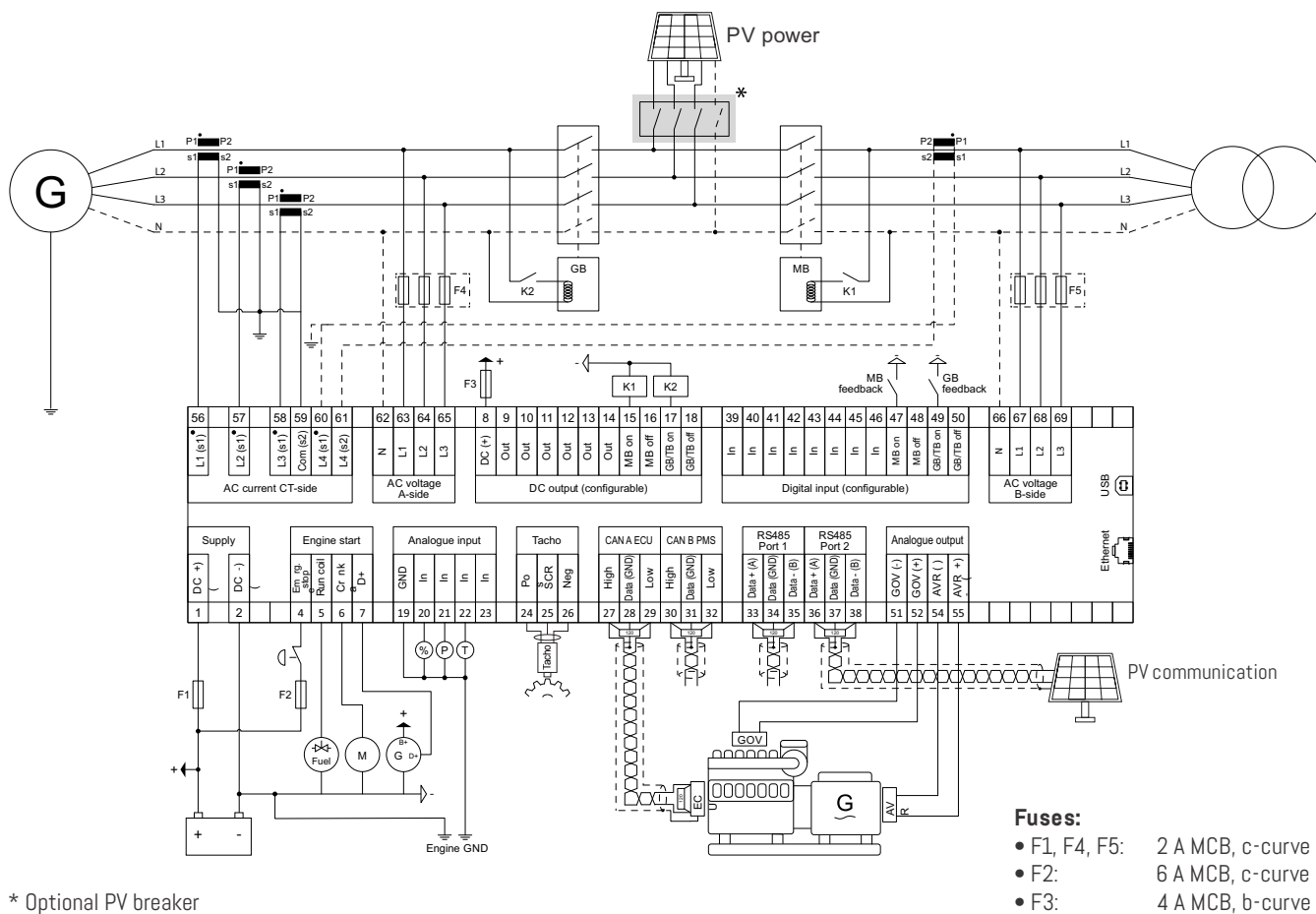
See the data sheet for a more detailed description of each package.

Digital AVR support

Together with DEIF's DVC 310 or DVC 550 digital voltage controllers, the AGC 150 supports features such as Engine AID (for the rental market) and fast and secure CBE critical power start-up (run-up syncing).

Wiring and dimensions

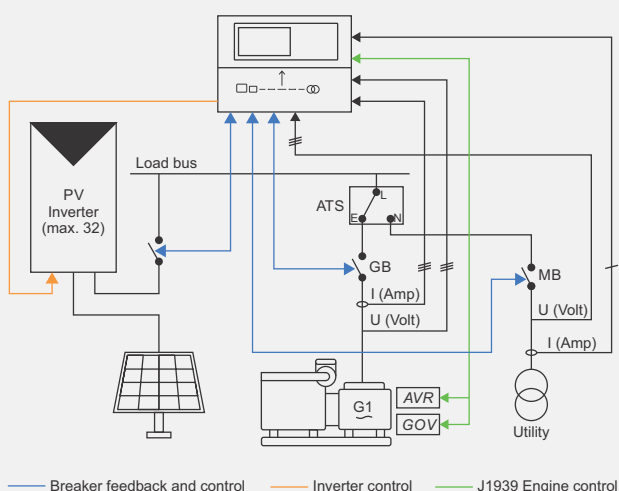
Typical wiring



* Optional PV breaker

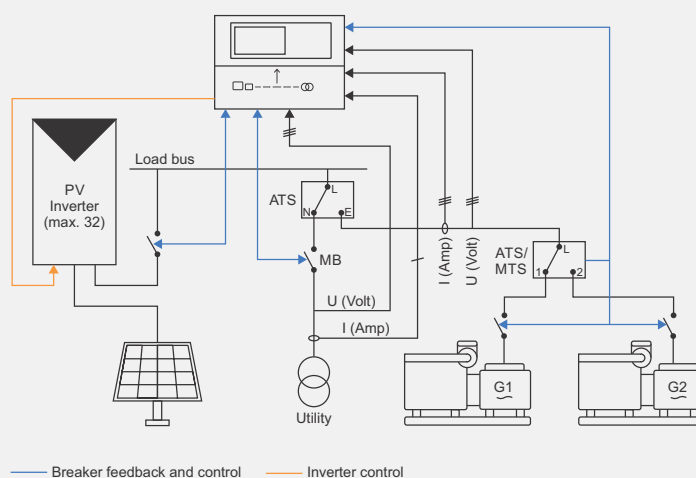
Application examples

Application with PV inverters and a single generator



Full hybrid controller functions

Application with PV inverters and non-synchronising gensets



Full hybrid controller functions

Technical specifications

Power supply

- Nominal voltage: 12/24 V DC
- Operating range: 6.5 to 35 V DC
- Load dump protection (ISO16750-2)
- Measuring range: 0 to 50 V DC (35 V DC continuously)

Operating conditions

- Operating temperature: -40 to +70 °C (-40 to +158 °F)
- Storage temperature: -40 to +85 °C (-40 to +185 °F)

Environment

- Altitude: 0 to 4000 m
- Humidity: 20/55 °C at 95 % RH
- Protection degree: IP65 in panel, IP20 on terminals
- Pollution degree 2
- Self-extinguishing plastic

Measuring

- Voltage range: 100 to 690 V, phase-to-phase
- Max. measured voltage: 10 to 135 % of nominal
- Voltage accuracy: ± 1 % of nominal
- Current range: 1 A and 5 A, 2 to 300 %
- Max. measured current: 3/15 A overload
- Current accuracy: ± 1 % of nominal
- Frequency range: 3.5 to 75 Hz
- Power accuracy: ± 1 % of nominal

Inputs/Outputs

- Digital inputs: 12 (max. +50 V, min. -24 V)
- Digital outputs: 2 (15 A inrush / 3 A continuously)
10 (2 A inrush / 0.5 A continuously)
- Digital common: 12/24 V DC
- Analogue inputs: 4
- Analogue outputs: 2
- CANbus 1 and 2
- RS-485 1 and 2 (PV inverter communication on 2)
- RJ-45 Ethernet
- USB (service-port)

Approvals

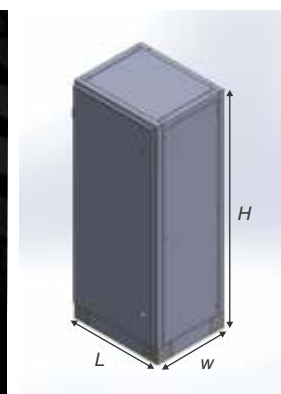
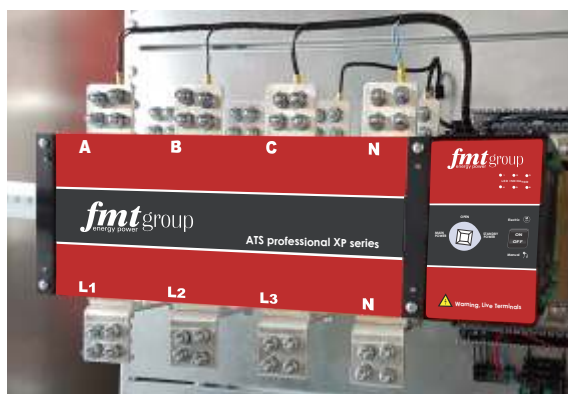
- CE
- cULus recognized to UL6200:2019, 1. ed. controls for stationary engine gensets

Protections

2 x Reverse power	ANSI 32R
2 x Short circuit	ANSI 50P
4 x Over-current	ANSI 51
1 x Voltage-dependent over-current	ANSI 51V
2 x Over-voltage	ANSI 59P
3 x Under-voltage	ANSI 27P
3 x Over-frequency	ANSI 81O
3 x Under-frequency	ANSI 81U
1 x Unbalanced voltage	ANSI 47
1 x Unbalanced current	ANSI 46
1 x Under-excitation or var import	ANSI 32RV
1 x Over-excitation or var import	ANSI 32FV
5 x Overload	ANSI 32F
1 x Earth current	ANSI 51G
1 x Neutral current	ANSI 51N
3 x Busbar/mains over-voltage	ANSI 59P
4 x Busbar/mains under-voltage	ANSI 27P
3 x Busbar/mains over-frequency	ANSI 81O
3 x Busbar/mains under-frequency	ANSI 81U
1 x Emergency stop	ANSI 1
2 x Overspeed	ANSI 12
1 x Low auxiliary supply	ANSI 27DC
1 x High auxiliary supply	ANSI 59DC
1 x Generator breaker external trip	ANSI 5
1 x Tie/mains breaker external trip	ANSI 5
Synchronisation failure alarms	ANSI 25
Breaker open failure	ANSI 52BF
Breaker close failure	ANSI 52BF
Breaker position failure	ANSI 52BF
1 x Close before excitation failure	ANSI 48
1 x Phase sequence error	ANSI 47
1 x De-load error	ANSI 34
1 x Crank failure	ANSI 48
1 x Running feedback error	ANSI 34
1 x MPU wire break	
1 x Start failure	ANSI 48
1 x Hz/V failure	ANSI 53
1 x Stop failure	ANSI 48
1 x Stop coil, wire break alarm	ANSI 5
1 x Engine heater	ANSI 26
2 x Max. ventilation/radiator fan	
1 x Not in Auto	ANSI 34
1 x Fuel fill check	
1 x Vector jump	ANSI 78
1 x df/dt (ROCOF)	ANSI 81R
2 x Under-voltage and reactive power, U and Q	
1 x Positive sequence (mains) voltage low	ANSI 27
2 x Directional over-current	ANSI 67
1 x Negative sequence voltage high	ANSI 47
1 x Negative sequence current high	ANSI 46
1 x Zero sequence voltage high	ANSI 59G
1 x Zero sequence current high	ANSI 50G
1 x Power-dependent reactive power	ANSI 40
1 x IEC/IEEE inverse time over-current	ANSI 51

AUTOMATIC TRANSFER SWITCHES

An ATS is a device that interfaces with a generator and the electrical system. It monitors the utility power and signals of generator to start if the utility power goes out of specifications or drops out entirely. Backup power is now fed to the main utility panel or an emergency panel via the ATS. Are sized based on the power requirements of the connected devices and the type of power sources involved. Some ATS units include monitoring features, allowing users to track power status, load levels and other relevant data. All FMT Group generators has the ATS system.



VOLTAGE	MODEL CONFIGURATION*	ATS PANEL MODEL	CAPACITY AMPS	Dimension (mm) W x L x H
400/230 VAC	3P5-V400-DEIF150E	SA-ACB4000-4P-DEIF150E	4000A 4P	TBA

*model configuration explanation

3P5-V400-DEIF420

Voltage

AMF/Synchronize Control Unit

5-50Hz / 6-60Hz

no. of phase 3P-threephase / IP-monophase

PRO-ACB Series

AIR CIRCUIT BREAKER

FMT PRO-ACB Series intelligent type universal circuit breaker is suitable for AC50HZ, rated voltage up to 660V(690) and below, rated current 400A-6300A of the distribution network used to distribute power and protect circuits and power supply equipment against overload, under-voltage, short circuit, single-phase ground fault. Circuit breaker protection with intelligent, selective protection of precision, improve the reliability of power supply, avoid unnecessary power outages. At the same time with an open communication interface for four remote, meet the requirements of the system centers and automation systems. The circuit breaker at an altitude of 2000 meters pulse pressure 8000V (different altitude correction according to the standard, no more than 12000V). The circuit breaker without in Intelligent Release and sensor can be used for isolation, mask as Circuit Breaker meets the requirement specified in GB14048.2 "low-voltage switchgear and control equipment low-voltage circuit breakers" and IEC947-2 "low-voltage switchgear and control equipment circuit breaker".



i note:

- Producing with ISO9001, ISO14001, ISO45001, CE standards
- FMT Group reserves the right to make change in any details without prior notice
- All information given in this data sheet is intended for guidance only
- The present documents will not be part of any sales contract



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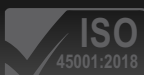
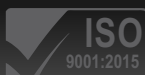
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WE HAVE THE POWER



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