

## Model No: SGR 110



## Features / Benefits

- CE compliant for stationary application
- Model available in openskid and soundproofed with galvanized rustproofed canopy.
- Designed, engineered and manufactured for an optimal performance
- External access to control and power panel
- Easy operation, maintenance and service.
- Wide range of options.

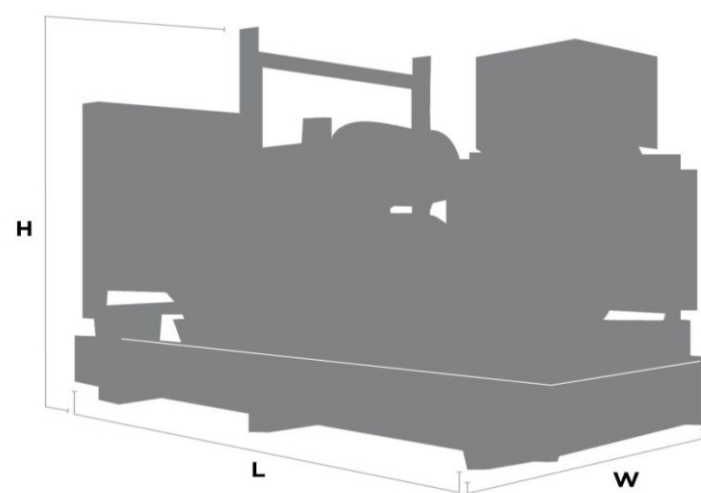
Technical data	50 Hz	60 Hz
Engine	R4105IZLD-1 R4105IZLD-1	
Exhaust emission Level	EU2	N/A
Performance class	G3	

■ Performance class in accordance with ISO 8528/5 (2005) taking into account the behaviour of the generator set in a permanent mode of operation with different load levels, as well as in a temporary mode of operation due to step loads.

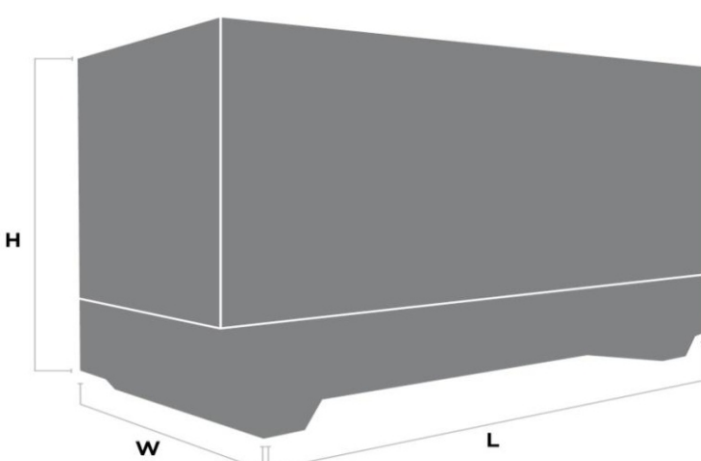
Mechanical structure	Openskid	canopy
Length (L) mm	1970	2800
Width (A) mm	880	1100
Height (H) mm	1735	1585
Weight (kg)	1195	1745
Fuel tank capacity (l)	153	178
Acoustic pressure [LpA] (dBA @7m)	-	68
Acoustic power (dB(A))	-	94

### Dimensions (mm)

#### Openskid



#### canopy



Note: These drawings are provided for illustration purposes only.

## Ratings

Soundproofed genset Image for illustration purposes only

Power according to the dedicated alternator

50 Hz	Prime Power	Prime Power	Standby Power	Standby Power
	kVA	kW	kVA	kW
380/220 V	101	81	112	89
<b>400/230 V</b>	<b>101</b>	<b>81</b>	<b>112</b>	<b>89</b>
415/240 V	101	81	112	89
60 Hz	Prime Power	Prime Power	Standby Power	Standby Power
	kVA	kW	kVA	kW
208/120 V	114	91	125	100
220/127 V	114	91	127	102
380/220 V	109	87	117	94
400/230 V	113	90	121	97
440/277 V	114	91	127	102
480/277 V	114	91	127	102

### Single-phase

50 Hz	Prime Power	Prime Power	Standby Power	Standby Power
	kVA	kW	kVA	kW
220 V	-	-	-	-
<b>230 V</b>	-	-	-	-
240 V	-	-	-	-
60 Hz	Prime Power	Prime Power	Standby Power	Standby Power
	kVA	kW	kVA	kW
220/110 V	-	-	-	-
230/115 V	-	-	-	-
<b>240/120 V</b>	<b>91</b>	<b>91</b>	<b>102</b>	<b>102</b>

### Prime Rating

PRIME POWER: Electrical power data available at a variable load without limits of hours per year. An overload of 10 % is allowed for 1 hour of every 12. In accordance with ISO 8528/1 (2005) – PRP

### Standby Power

STANDBY POWER: Electrical power data at variable load in an emergency in accordance with standard ISO 8528/1 (2005) – ESP. Overloads of emergency power are not allowed.

### Standard reference conditions

25 °C, 100 kPa and 30% relative humidity

## Engine

General	50 Hz	60 Hz
Engine Brand	RICARDO	
Model	R4105IZLD-1 R4105IZLD-1	
R.P.M.	1500	1800
Net power (kWm)	98	112
Fuel	Diesel	
No. of cylinders	4	
Engine Capacity (c.c)	4400	
Bore (mm)	105	
Stroke (mm)	127	
Compression ratio	18,3:1	
Regulation class	ELECTRONIC	
Exhaust emission Level	EU2	N/A
TA-Luft compliant	TA-Luft 1	
50/60 Hz Switchable engine	*	

Cooling System	50 Hz	60 Hz
Fan air flow (m3/min)	165,6	225,6
Loss of radiator admissible load (Pa)	-	-
Cooling type	WATER	
Coolant capacity (l)	12,6	
Design temperature radiator	46°C	46°C
Maximum working Temp.	-	-

Engine heating system	
Coolant heater power (W)	1 x 750W

Lubrication System	
Oil capacity (l)	8
Maximum oil consumption (% fuel consumption)	0,15

Air intake system	50 Hz	60 Hz
Combustion air flow (m3/min)	6,27	7,8
Air filter	Medium	

	Exhaust System			
	Openskid		canopy	
	50 Hz	60 Hz	50 Hz	60 Hz
T exhaust gas (°C)	543	574	543	574
Gas flow (m3/min)	16,3	20,4	16,3	20,4
Maxi. exhaust back pressure (kPa)	15,2	11,4	14,5	10,2
Number of exhaust	1		1	
Input diameter (")	3	3	3	3
Output diameter (")	3	3	4,5	4,5
Atenuation (dB(A))	11		26	

Start system	
Voltage (V)	12
Battery type	1 x 12V 60Ah - 680A

## Fuel consumption table

Load level	PRIME 50 Hz			STAND-BY 50 Hz			PRIME 60 Hz			STAND-BY 60 Hz		
	(L/h)	Aut. (h) Openskid	Aut. (h) canopy	(L/h)	Aut. (h) Openskid	Aut. (h) canopy	(L/h)	Aut. (h) Openskid	Aut. (h) canopy	(L/h)	Aut. (h) Openskid	Aut. (h) canopy
25%	-	-	-	-	-	-	-	-	-	-	-	-
50%	11,8	13,0	15,1	-	-	-	14,1	10,9	12,6	-	-	-
75%	17,1	8,9	10,4	18,6	8,2	9,6	20,2	7,6	8,8	21,8	7,0	8,2
100%	22,6	6,8	7,9	24,9	6,1	7,1	26,9	5,7	6,6	29,7	5,2	6,0
110%	24,9	6,1	7,1	-	-	-	29,7	5,2	6,0	-	-	-

NOTE: range according to the standard configuration.

## Electric Panel

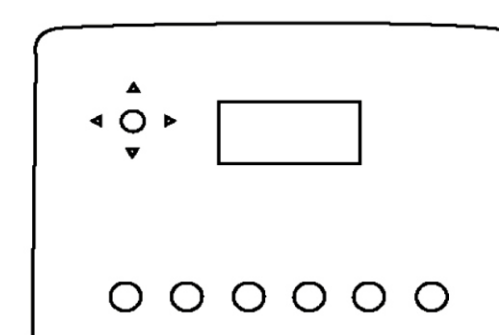
- Grounding system TN quick change and emergency shutdown pushbutton.

Voltage (V)	400/230V	480/277V	208/120V	220/127V	240/120V
Frequency	50 Hz	60 Hz	60 Hz	60 Hz	60Hz
Genset Circuit breaker	3P 160A R	3P 160A R	3P 400A R	3P 400A R	3P 630A R

Battery electronic charger DK309 - 12V 2A

## Control Panel

- Grid monitor
- Independent operational mode buttons
- Alarms and status indicating LEDs
- Communications via USB, RS232, RS485, as well as DSEnet® for system upgrade
- Completely configurable using a PC in Windows environment and free Scada type software in real time
- Operating modes: START-UP, SHUTDOWN, AUTO, MANUAL AND TEST.
- Events history log up to 250 events and programming of alarms, events, start-ups and shutdowns.
- Possibility of Ethernet connection (requires a separate module)
- Reading and displaying of parameters with RMS values, real time clock
- MODBUS protocol available for client software
- 32bit microprocessor.
- 132x64 pixel LCD lighting
- 5 navigation menubuttons



## Alternator

- 4 pole alternator
- Lifetime lasting greased bearing
- H class insulation
- Brushless
- 2/3 pitch
- AVR
- Incorporates electromagnetic emissions suppressor in accordance with CE legislation
- Joining of engine and alternator through flexible disc coupling.

### Regulations:


- IEC 60034
- ISO 8528/3

### Low wave distortion:



- THD < 4%
- THF (IEC) < 2%
- TIF (NEMA) < 50

For models with AREP or MAUX excitation system

- Excitation system with auxiliary winding
- Overload capacity 3 times the nominal current for at least 10 s

Model	SGR	SGR	SGR	SGR	SGR	SGR
Manufacturer						
Voltage (V)	400/230	400/230	480/277	208/120	220/127	240/120
Frequency	50Hz	50Hz	60Hz	60Hz	60Hz	60Hz
Alternator power (kVA)	116	116	138	125	131	110
Power ratings	(SB 27)	(SB 27)	(SB 40)	(SB 40)	(SB 40)	(SB 40)
Number of wires	12	12	12	12	12	12
Winding	6		6	6	6	6
IP alternator	IP 23	IP 21	IP 23	IP 23	IP 23	IP 23
Excitation system	SHUNT	MAUX	SHUNT	SHUNT	SHUNT	SHUNT
AVR model	R 250	DSR	R 250	R 250	R 250	R 250
Voltage Regulation	±0,5%	±1%	±0,5%	±0,5%	±0,5%	±0,5%
Performance at 75% p.f. 0.8 (%)	92	93	92	92	92	95
Performance at 100% p.f. 0.8 (%)	91	92	91	91	91	95
Direct sub. reactance X"d (p.u.)	8,5	5,7	8,8			
Subt. time constant (T"d) (ms)	10	5,5	10			
Zero sequence reactance (Xo) (ms)	0,5	3,5	0,9			
Short-circuit ratio (Kcc)	0,35	0,47	0,33			

## Commercial references and ratings

Family:	SGR110	50 Hz			60 Hz				
	Alternator model	Voltage	SGR	SGR	Voltage	SGR	SGR	SGR	SGR
Prime/Standby Power rating (kVA) for alternative voltage configuration					480/277 V	114/127	114/127	114/127	
		415/240 V	101/112	101/112	440/254 V	114/127	114/127	114/127	
		400/230 V	101/112	101/112	400/230 V	113/121	113/121	113/121	
		380/220 V	101/112		380/220 V	109/117	109/117	109/117	
					208/120 V	114/125	114/125	114/125	
					220/127 V	114/127	114/127	114/127	
		230 V			240/120 V				91/102
									

## Regulations:

The generator set has a CE Marking that includes the following directives:

- 2006/42/CE Machine Safety.
- 2006/95/CEE Low Voltage.
- 2004/108/CE Electromagnetic compatibility.
- 97/68/CE Gases and contaminating particles emissions.
- 2005/88/CE Noise emissions of machines outdoors in soundproof generator sets.

Applicable international regulations:

- ISO 8528
- ISO 3046
- BS 5000
- IEC 60034

## Options

### Mechanical

- o Galvanised Retention Bund (For soundproofed Units)
- o Integrated Retention Bund in baseframe
- o Fuel tank 24H
- o Fuel tank 48H
- o Auxiliary Double Walled Fuel Tanks
- o Connection to external fuel tank
- o Automatic Fuel Systems
- o Standard or different color (for gensets soundproofed)
- o Mounts-Shock Absorbers
- o Earth Leakage Protection

### Control panel

- o DK309 - Remote display
- o DK309 - Volt free signal
- o DK309 - Inputs module
- o DK309 - LED module
- o GSM modem (RS232 port required)
- o DK309 - TCP/IP module
- o DK309 Webnet Gateway (Ethernet, GPRS and GPS)
- o DK309 Ethernet Gateway
- o DK309 SNMP Gateway
- o DK309 Battery charger 12V, 5A
- o Earth Leakage Protection
- o Analogue meters
- o Insulation protection

### ATS panel

ATS panel with integrated mechanical and electrical interlocking device.  
High number of operations

	400/230	480/277	208/120	220/127	240/120
	50Hz	60Hz	60Hz	60Hz	60 Hz
<b>ATS panel</b>	3P 160A	3P 330A	3P 400A	3P 330A	3P 630A

### ATS optional

- o DK309 installed in ATS panel
- o DK309 installed in ATS panel

### Engine

- o Electronic Governor
- o High Performance Fuel filter water Separator
- o Residential Exhaust -35 dB(A) (Open-Skid Gensets)
- o Oil Sump Pump

### Alternator

- o Alternator excitation type: AREP, PMI or PMG
- o Anti condensation heaters
- o Protection System 2 or 4
- o Special AVR

### AMF Synchronizing control panel

- o IG-NT (SPtM)
- o IG-NT (MINT)
- o DK309
- o DK309

### Island Synchronizing control panel

- o DK309
- o IG-NT (MINT)

### Maintenance kits (\*)

- o Pak 500h
- o Pak 1000h
- o Pak 2000h
- o Start-up kit

\* Please consult our After-sales department for description

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