

60Hz/1800 r.p.m-P.F.0.8				Prime Power	Standby Power	Rated Current	
PGPLS45	1103A-33TG1	LSA 44.3 S3 UCI224F	240 (220-240)	1	40/50	45/56	208.3
		TPA224M4 LSA42.3M8 PI144K	380/220	3	40/50	45/56	76
		TPA224S1 LSA42.3M7 PI144K	208/120	3	40/50	45/56	138.8
		TPA224S1 LSA42.3M7 PI144K	220/127	3	40/50	45/56	131.2
		TPA224S1 LSA42.3M7 PI144K	230/132	3	40/50	45/56	125.5
		TPA224S1 LSA42.3S5 PI144J	480/277	3	40/50	45/56	60.1

TPA184L11

**Ratings:** All three Phase generator sets are rated at 0.8 power factor. All single-phase generator sets are rated at 0.8 or 1.0 power factor. POWERGEN reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.

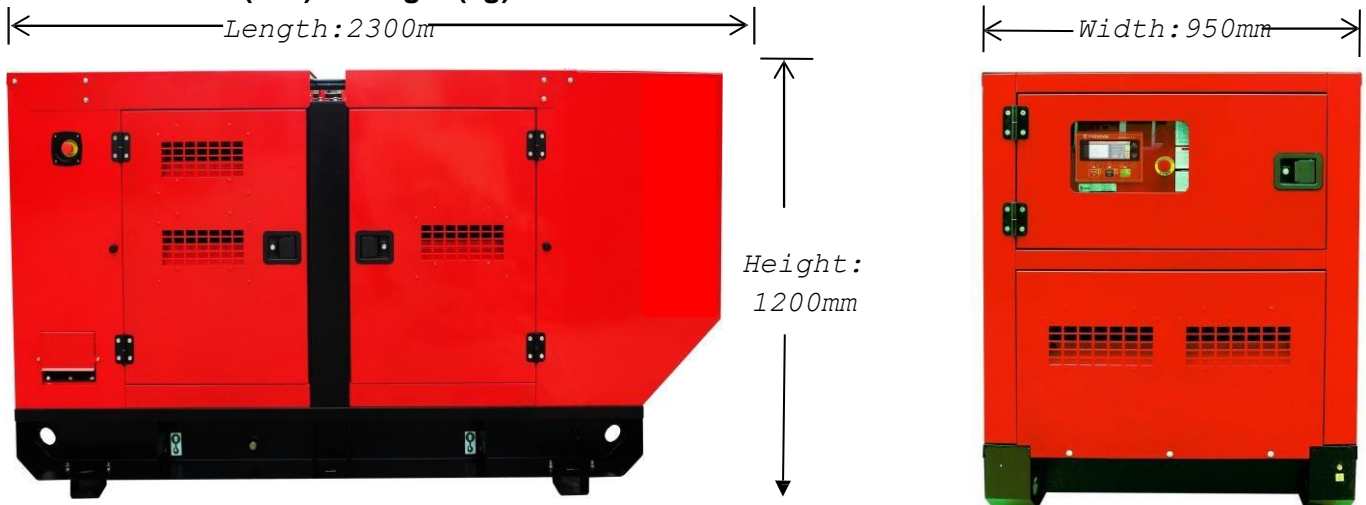
**Prime Power:**

Available continuously at variable load in lieu of commercially purchased power for an unlimited number of hours per year in accordance with ISO8528-1, and an overload of 10% permitted for one hour in every twelve hours of operation in accordance with ISO 3046-1.

**Standby Power:**

Emergency Standby Power in variable load applications in accordance with ISO8528-1 in the event of a utility power failure. No overload available for this service as relevant alternators are peak continuous rated at 27°C.

**Overall Dimensions (mm) & Weight (kg)**



**Weight (kg): 1150**



## Standard and Optional Accessories

System	Standard ●	Optional ○
<b>Air Intake System</b>	<ul style="list-style-type: none"> <li>● Standard air filter</li> <li>● Air filter overload alarm</li> </ul>	<ul style="list-style-type: none"> <li>○ Air prefilter</li> <li>○ Heavy air filter</li> </ul>
<b>Cooling System</b>	<ul style="list-style-type: none"> <li>● 50°C radiator</li> <li>● Low water level alarm ①</li> <li>● Fan and belt guard</li> </ul>	<ul style="list-style-type: none"> <li>○ Antifreeze</li> <li>○ Water jacket heater</li> </ul>
<b>Exhaust System</b>	<ul style="list-style-type: none"> <li>● Discharge valve</li> <li>● Stainless steel bellow</li> <li>● Residential silencer</li> <li>● Complete exhaust pipe</li> <li>● Rain cap</li> </ul>	<ul style="list-style-type: none"> <li>○ Stainless steel silencer</li> <li>○ Stainless steel exhaust pipe</li> </ul>
<b>Fuel System</b>	<ul style="list-style-type: none"> <li>● 8 Hours integrated base fuel tank</li> <li>● Standard fuel filter</li> <li>● Fuel level gauge</li> <li>● Fuel filling cap</li> </ul>	<ul style="list-style-type: none"> <li>○ 6 Hours double wall base fuel tank</li> <li>○ Fuel-water separator</li> <li>○ Oil level sensor ② ③</li> <li>○ Automatic fuel top up system ②</li> </ul>
<b>Lubrication System</b>	<ul style="list-style-type: none"> <li>● Fuel hose</li> <li>● Standard oil filter</li> <li>● Manual oil pump and drain</li> </ul>	<ul style="list-style-type: none"> <li>○ Oil heater</li> <li>○ Lube oil level indicator</li> </ul>
<b>Alternator and Electric Switch</b>	<ul style="list-style-type: none"> <li>● Shunt or self excited</li> <li>● Class H insulation</li> <li>● H class temperature rise</li> <li>● DELIXI MCCB</li> <li>● Terminal connection lugs (L1, L2, L3, LN)</li> </ul>	<ul style="list-style-type: none"> <li>○ Oil temperature indicator ②</li> <li>○ PMG or AREP (Leroy-somer only)</li> <li>○ Alternator space heaters</li> <li>○ PT100 winding temperature sensors</li> <li>○ Weaver AVR</li> <li>○ Weaver prolapse transformer <ul style="list-style-type: none"> <li>○ F class temperature rise</li> </ul> </li> <li>○ 4 Pole circuit breaker with leakage protection</li> <li>○ Circuit breaker - 4 pole <ul style="list-style-type: none"> <li>○ ABB MCCB</li> <li>○ MCCB auxiliary contact and shunt tripping device</li> </ul> </li> </ul>
<b>Control System</b>	<ul style="list-style-type: none"> <li>● Intelligent 1.0 for 4 cylinders engine</li> <li>● Intelligent 3.0 for 6 cylinders engine</li> </ul>	<ul style="list-style-type: none"> <li>○ Panel lighting</li> </ul>
<b>Silent / Base</b>	<ul style="list-style-type: none"> <li>● Intelligent 5.0 for ECU engine</li> <li>● 67-72 db(A) @ 3 meters</li> <li>● 4mm -6mm Steel base</li> <li>● Transportation support leg</li> <li>● Single hook</li> <li>● Power coating enclosure</li> <li>● Anti-vibration mounting between engine /alternator and baseframe</li> <li>● Emergency stop mounted outside the</li> </ul>	<ul style="list-style-type: none"> <li>○ Forklift holes</li> <li>○ Enclosure color:</li> <li>○ Trailer for off road or on road</li> </ul>
<b>Start / Charge</b>	<ul style="list-style-type: none"> <li>● canopy</li> <li>● Standard color: Ral 3020</li> <li>● Battery with bracket and cables</li> <li>● Engine battery charger</li> <li>● 3A Mains charger</li> </ul>	<ul style="list-style-type: none"> <li>○ Low temperature starting batteries</li> <li>○ Battery switch</li> <li>○ High current charger (10A, 20A)</li> </ul>

**Remark:** ① Not available for Perkins 400 series engines

- ② When you need the automatic oil top up system, you have to use the electrical oil level sensor.
- ③ You can choose either electrical oil level sensor or oil temperature sensor.

## Engine

Engine specifications		Lubrication system	
Manufacture	Perkins	Total Lubrication system capacity	8.3 Litre
Engine model	1103A-33TG1	Minimum sump capacity	6.2 Litre
Engine type	4 stroke, Vertical in-line, 3-cylinder	Maximum sump capacity	7.8 Litre
Engine speed	1800 r.p.m	Max continuous oil temperature	125°C
Prime power	49 kW	Fuel system	
Standby power	54 kW	Type of injection	Direct injection
Governor type	Mechanical	Fuel lift pump-flow/hour	120 - 150 Litres/hour
Air intake way	Turbocharged	Fuel consumption at 100% standby power	14.3 Litres/hour
Displacement	3.3 L	Fuel consumption at 100% prime power	12.9 Litres/hour
Cylinder bore * stroke	105mm x 127mm	Fuel consumption at 75% prime power	9.9 Litres/hour
NO. of cylinders	3	Fuel consumption at 50% prime power	7.1 Litres/hour
Compression ratio	17.25:1	Fuel tank capacity	8-12 hours
Brake mean effective pressure	1020-1124 kPa	Cooling system	
Mean piston speed	7.62 m/s	Total system capacity	
Combustion air flow	3.7 m <sup>3</sup> /min	- With radiator	10.2 Litres
Engine coolant flow	151 Litres/min	- Without radiator	4.4 Litre
Exhaust system		Thermostat operation range	82-93 °C
Exhaust gas flow	8.8 m <sup>3</sup> /min	Maximum top tank temperature	110°C
Exhaust gas temperature	510-551°C	Electric system	
Maximum back pressure	15 kPa	Electrical system voltage	12V
Exhaust outlet size	56 mm	Battery	Maintenance-free
Air intake system		Connecting cables	Available
Maximum air intake restriction		Energy balance	
- Clean filter	5 kPa	Energy to coolant and lubricating oil	31-34 kW
- Dirty filter	8 kPa	Energy to exhaust	39-43 kW
- Air filter type	Dry	Energy to radiation	8-9 kW

## Alternator

60Hz/1800R.P.M

General data		Insulation class	
Power factor	Cos φ = 0.8	Bearing	Single
Excitation	Shunt / Brushless	Altitude	≤ 1000 m

## Ratings

Brand	Alternator	Number of wires	AVR Model	PH	Voltage (V)	Prime Power	Standby Power
						kW/kVA	kW/kVA
Leroy-somer	LSA 44.3 S3	12	R250	1	240 (220-240)	42/52	46/57
Stamford	UCI224F		AS440			44.8/56	N/A
Tide	TPA224M4		SX460			40.8/51	44/55
Leroy-somer	LSA42.3M8	12	R220	3	380/220	41.2/51.5	45.3/56.7
Stamford	PI144K		AS480			44/55	48/60
Tide	TPA224S1		SX460			38/47.5	42/52.5
Leroy-somer	LSA42.3M7	12	R220	3	208/120	40/50	44/55
Stamford	PI144K		AS480			40/50	44/55
Tide	TPA224S1		SX460			40/50	43/54
Leroy-somer	LSA42.3M7	12	R220	3	220/127	42.8/53.5	47.1/58.9
Stamford	PI144K		AS480			42/52.5	45/56.3
Tide	TPA224S1		SX460			42/52.5	45/56
Leroy-somer	Stamford				Tide		LSA42.3M7

PI144K	R220			42.8/53.5		4	
12	AS480		3	42.5/2.5		7.	
TPA224S1	SX460		230/13	42/52.5		1/	
			2			5	
						8.	
						9	
						45/56.3	
						4	
						5	
						/	
						5	
						6	
Leroy-somer	LSA42.3S5		R220			40/50	44/55
Stamford	PI144J	12	AS480	3	480/277	40/50	45/56.3
Tide	TPA184L11		SX460			40/50	44/55



Intelligent  
1.0



Intelligent  
3.0



Intelligent  
5.0

Viewable parameters	Phase voltage	3	3	3
	Wire voltage	3	3	3
	Current	Instrument	3	3
	Frequency	●	●	●
	Active power	×	●	●
	Reactive power	×	●	●
	Apparent power	×	●	●
	Power factor	×	●	●
	Electric energy metering	×	×	●
Generator protection	Abnormal voltage	●	●	●
	Over-current warning	×	●	● Over
	current protection	×	●	● Over
	Frequency protection	●	●	● Short
	circuit protection	MCCB	MCCB+○	MCCB+○
Engine figure	Oil pressure	●	●	●
	Water temperature	●	●	●
	Fuel level	○	○	○
	Speed	●	●	●
	Battery voltage	●	●	●
	Elapsed time	●	●	● Low
Engine protection	oil pressure warning	●	●	● Low oil
	pressure protection	●	●	● High
	temperature warning	●	●	●
	High temperature protection	●	●	●
	Overspeed warning	●	●	●
	Overspeed protection	●	●	●
	Charge fault	●	●	●
Function	Remote start-stop	●	●	●
	AMF	●	●	●
	Programmable input	3	7	7
	Programmable output	6	7	7
	Port extension	USB	○	○
	Remote monitoring	×	○	○
	Communication port	×	○	○ CAN
	● ○ ● Start/Stop time control			×
	× ● Maintenance tips		×	×
	● Fault record	×	×	●
	Multi-language function	×	●	●
<b>Remark:</b>	● Standard	○ Optional	×	

# Automatic Transfer Switch

## (Safety Installation: Detect - Control – Switch System)

POWERGEN offers not only a changeover switch but also an integrated mains detection and switch system for your 24 Hour Power Protection. The system enables automatic start-up and operation of the generating set in the event of a mains power failure, overvoltage or loss of phase; and also mains automatic re-transfer once it come back. The system has a wide application such as hospital, bank, telecom, airport, broadcasting station and hotels.

### System Advantages

- Automatically transfer and re-transfer load from main power to gen-power without operator intervention operation. (Both automatic and manual)
- ATS Controller (AMF function), seamless integration with Intelligent 5.0
- Available from 32 – 3200A, better protection for 4 pole switch.
- Available in standard, bypass isolation and service-entrance configurations.
- Configurable in open, closed and programmed transition operating modes.
- Designed to interface seamlessly with POWERGEN generators and switchgear.
- Drip Proof IP23 Enclosure.
- Easy Installation: Wall-mounted & Floor standing
- Comes fully loaded with the technology to do the job.



Rated Current	Breaker Type			
	A	Chinese	ABB	Socomec
32	x		B	x
63	A		B	B
80	x		x	B
100	A		B	B
125	x		B	B
160	B		B	B
200	x		B	x
250	C		B	B
300	x		x	x
315	x		C	x
400	C		C	C
630	C		D	D
800	D		D	D
1000	D		D	D
1250	D		D	D
1600	D		D	E
2000	E		E	E
2500	E		E	E
3200	E		x	E

### Dimensions : mm

A : 400x200x500                      B : 500x300x650  
 C : 600x400x1200                    D : 800x600x1400  
 E : 1000x800x1600



## **Controller**

### **StandardParameters**

- Gen phase voltage
- Generator frequency
- Engine speed
- Battery voltage
- Engine running hours counter
- Engine temperature
- Oil pressure



### **WarningandShutdownAlarms**

- Low oil pressure
- High engine temperature
- Over speed
- Under speed
- Start failure
- Stop failure
- Emergency stop
- High/low battery voltage
- Aux. shutdown alarm
- Aux. Warning