

60Hz/1800 r.p.m-P.F.0.8					Prime Power	Standby Power	Rated Current
Genset	Engine	Alternator	Voltage (V)	PH	kW/kVA	kW/kVA	Amps
FC160X-C	6BTAA5.9-G12	LSA46.2L6 UCDI274J FPA27-20011	<b>240</b> (220-240)	1	128/160	140/175	666.7
		LSA44.2L12 UCI274E FPA27-1205	<b>380/220</b>	3	128/160	140/175	243.1
		LSA44.3L10 UCI274E FPA27-1124	<b>208/120</b>	3	128/160	140/175	444.1
		LSA44.3L10 UCI274E FPA27-1124	<b>220/127</b>	3	128/160	140/175	419.9
		LSA44.3M8 UCI274E FPA27-1124	<b>230/132</b>	3	128/160	140/175	401.6
		LSA44.3M8 UCI274E FPA27-1124	<b>480/277</b>	3	128/160	140/175	192.5

**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.

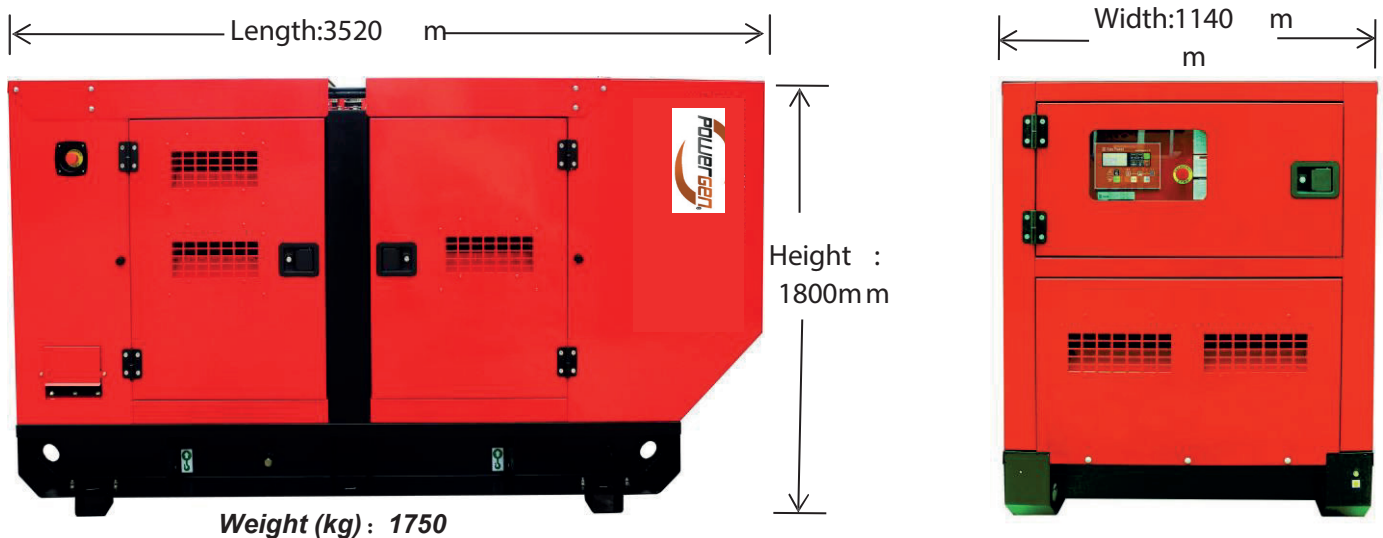
**Prime Power:**

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)**



## 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</li> <li>● Fan and belt guard</li> <li>● Discharge valve</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>● 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> <li>● Fuel hose</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 ① ②</li> <li>○ Automatic fuel top up system ①</li> </ul>
<b>Lubrication System</b>	<ul style="list-style-type: none"> <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> <li>○ Oil temperature indicator ①</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>○ 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</li> <li>○ F class temperature rise</li> <li>○ 4 Pole circuit breaker with leakage protection</li> <li>○ Circuit breaker - 4 pole</li> <li>○ ABB MCCB</li> <li>○ MCCB auxiliary contact and shunt tripping device</li> </ul>
<b>Control System</b>	<ul style="list-style-type: none"> <li>● Comap Nano Plus for 4 cylinders engine</li> <li>● Comap IntelliLite AMF20 for 6 cylinders or ECU 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>● 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 canopy</li> <li>● Standard color: Ral 3020</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>● 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 When you need the automatic oil top up system, you have to use the electrical oil level sensor.

② You can choose either electrical oil level sensor or oil temperature sensor.

## Engine

Engine specifications	
Manufacture	DCEC Cummins
Engine model	6BTAA5.9-G12
Engine type	4 cycle, in-line
Engine speed	1800 r.p.m
Prime power	150kW/200hp
Standby power	165kW/220hp
Governor type	Electronic
Governor make / model	BYC P7100
Aspiration:	Turbocharged and Charge Air Cooled
Displacement	5.9 L
Bore * Stroke	102mm x 120mm
NO. of cylinders	6
Compression ratio	17.3:1
Engine idle speed	750-850 rpm
Piston speed	7.2 m/s
Noise level @7m	71 dBA
Exhaust System	
Maximum back pressure	10 kPa
Exhaust pipe size normally acceptable	75 mm
Exhaust gas temperature	445-458 °C
Exhaust gas flow	398 Litres/sec.
Air Intake System	
Maximum intake air restriction with heavy duty air cleaner	
- Dirty element	6.2 kPa
- Clean element	3.7 kPa
Recommended intake piping size	76 mm
Intake air flow	182 Litres/sec.

Lubrication System	
Oil capacity (high - low)	14.2-12.3 Litres
Maximum oil temperature	121°C
Minimum required lube system capacity	
- Sump plus filters	16.4 Litres
Fuel System	
Type injection system	BYC PB direct injection
Total drain flow (constant for all loads)	30 Litres/hour
Fuel consumption at 100% standby power	42 Litres/hour
Fuel consumption at 100% prime power	38 Litres/hour
Fuel consumption at 75% prime power	28 Litres/hour
Fuel consumption at 50% prime power	19 Litres/hour
Fuel consumption at 25% prime power	11 Litres/hour
Fuel tank capacity	10 hours
Cooling System	
Coolant capacity - engine only	10 Litres
Standard thermostat (modulating) range	82 - 95°C
Maximum top tank temperature	
- Standby power	104 °C
- Prime power	100 °C
Electric System	
Electrical system voltage	24V
Battery	Maintenance-free
Connecting cables	Available
Thermal Data	
Radiated heat to ambient	19-21 kW
Heat rejection to coolant	58-62 kW
Heat rejection to exhaust	125-140 kW

## Alternator

General Data	
Power factor	Cos $\phi$ = 0.8
Excitation	Shunt / Brushless

**60Hz/1800R.P.M**

Insulation class	H
Bearing	Single
Altitude	≤ 1000 m

## Ratings

**Prime Power Standby Power**

Brand	Alternator	Number of wires	AVR Model	PH	Voltage (V)	kW/kVA	kW/kVA
Leroy-Somer Stamford Tide	LSA46.2L6 UCDI274J FPA27-20011	12	R250 AS440 SX460	1	240 (220-240)	138/173 128.8/161 132/165	154/192 N/A 145/181
Leroy-Somer Stamford Tide	LSA44.2L12 UCI274E FPA27-1205	12	R250 AS440 SX460	3	380/220	135/169 128/160 132/165	150/187 140/175 145/181
Leroy-Somer Stamford Tide	<b>LSA44.3L10</b> UCI274E FPA27-1124	12	R250 AS440 SX460	3	208/120	130/163 128/160 134/167.5	143/179 140/175 147/184
Leroy-Somer Stamford Tide	LSA44.3L10 UCI274E FPA27-1124	12	R250 AS440 SX460	3	220/127	138/172 134/167.5 134/167.5	151/189 145/181.3 147/184
Leroy-Somer Stamford Tide	LSA44.3M8 UCI274E FPA27-1124	12	R250 AS440 SX460	3	230/132	130/162 134/167.5 134/167.5	143/178 145/181.3 147/184
Leroy-Somer Stamford Tide	LSA44.3M8 UCI274E FPA27-1124	12	R250 AS440 SX460	3	480/277	135/169 143/178.8 134/167.5	149/186 155/193.8 147/184

# ControlSystem



Comap Nano Plus

Comap IntelliLite

Comap IntelliLite AMF25

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	●	●	●
Engine protection	Low 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	×	●	●	

Remark: ● Standard

○ Optional

× NA

## (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, air port, 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 TIDE POWER 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

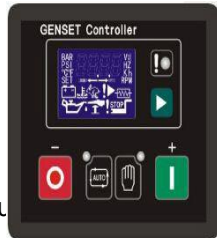
E: 1000x800x1600



## **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