



SIGMA Series LLS Water-Cooled Gensets

LLS 20(A), LLS 25(A), LLS 30(A)

50 Hz; 1500 r/min; power outputs: 20.0–33.0 kVA

60 Hz; 1800 r/min; power outputs: 22.5–38.5 kVA

Water-cooled generating sets with electronic control module

Choice of:

- ✓ 50 Hz, 1500 r/min or 60 Hz, 1800 r/min
- ✓ Lister Petter SIGMA-Series water-cooled, direct injection, naturally aspirated diesel engine
- ✓ open set (LLS) or acoustic set (LLSA)
- ✓ manual/remote start and automatic mains failure operating modes
- ✓ Lister Petter or Stamford alternator

Standard Features

- Continuous operation in ambient temperatures up to 50°C (122°F)
- control system with electronic digital control module (for features see page 2)
- 66-litre fuel tank with contents gauge
- galvanised steel base-plate with forklift pockets
- anti-vibration mountings
- 12 V starter battery and leads
- mechanical governing
- emergency stop button (lock-down type)
- pusher fan
- Operators' Handbook
- electrical diagrams



Acoustic Set (LLSA)

Open Sets Only:

- engine-mounted exhaust silencer

Acoustic Sets Only:

- acoustic canopy
- residential exhaust silencer
- central point lifting eye
- external emergency stop button

SIGMA Series: LLS Water-Cooled Genset Technical Data Sheet

Engine Accessories

- air cleaner
- oil and fuel filters
- fuel-lift pump
- 12 V electric starting system

Alternator Specification

- single-bearing 4-pole brushless alternator
- solid state AVR with $\pm 1.5\%$ as standard
- class H insulation on the rotor and stator, with ingress protection rating 23

Optional Items

- acoustic canopy kit (including residential silencer kit) for retro-fitting to electric-start open sets only

Control Cubicle

- electronic digital control module with monitoring/control facility and warning indicators
- automatic shutdown protection
- emergency stop button (lock-down type)
- AC output circuit breaker with over-current protection
- DC circuit control switch and overload circuit breaker

The control module gives digital readouts of:

- generator voltage (phase-to-phase and phase-to-neutral)
- generator current (each phase displayed separately)
- output frequency
- engine speed
- engine coolant temperature
- battery voltage
- engine hours run

The control module has indicators for:

- overspeed/underspeed
- emergency stop
- low engine oil pressure
- high engine temperature

- failure to start
- battery charger failure

Automatic shutdown occurs under:

- low engine oil pressure
- high engine temperature
- overspeed/underspeed
- failure to start after three attempts

Manual/Remote Start Sets

These sets have the flexibility of either manual or remote automatic operation:

- manual operation is by **START** and **STOP** push-buttons on the control module
- remote operation is achieved by connecting a 2-wire circuit to the relevant terminals on the control module and is activated by setting the control module to **AUTO**

Automatic Mains Failure Sets (AMF)

In the event of a mains failure, the generating set will automatically operate to supply the electrical load. In addition to the standard features, automatic mains failure sets have:

- wall-mounted cubicle governing automatic mains failure operation
- control module timer circuits set to delay start, delay transfer back to mains and delay stop to allow for engine cooldown
- solid-state automatic battery charger that maintains charge when set is not running

The wall-mounted cubicle features:

- mains monitoring unit to control set operation
- load-transfer contactors, mechanically and electrically interlocked (rated for set output)
- indicator for mains-on-load or plant-on-load

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Power Outputs to ISO 8528-1						
Mod	Engine	Rating	50 Hz, 1500 r/min		60 Hz, 1800 r/min ²	
			Three Phase		Three Phase	
			380/220 V 400/230 V 415/240 V		220/127 V 230/133 V	
			kVA	kWe	kVA	kWe
LLS 20(A)	SIGMA 20	Prime	20.0	16.0	22.5	18.0
		Standby	22.0	17.6	24.8	19.8
LLS 25(A)	SIGMA 25	Prime	25.0	20.0	30.0	24.0
		Standby	27.5	22.0	33.0	26.4
LLS 30(A)	SIGMA 30	Prime	30.0	24.0	35.0	28.0
		Standby	33.0	26.4	38.5	30.8

Sound Pressure			
Acoustic sets, 75% load at 7m		50 Hz	60 Hz
Genset	Engine	1500 r/min	1800 r/min
LLS 20A	SIGMA 20	63 dBA	65
LLS 25A	SIGMA 25	65 dBA	69
LLS 30A	SIGMA 30	65 dBA	69

Approximate Fuel Consumption				
Values refer to litres/hour			50 Hz	60 Hz ²
Genset	Engine	Load	1500 r/min	1800 r/min
LLS 20(A)	SIGMA 20	100%	6.0	7.7
		75%	4.9	6.3
LLS 25(A)	SIGMA 25	100%	6.6	9.1
		75%	5.4	7.4
LLS 30(A)	SIGMA 30	100%	8.2	10.7
		75%	6.7	8.7

2. 60 Hz models available from late 2009 onwards.

Rating Definitions to ISO 8528-1

Ratings are in accordance with ISO 8528-1. Power Factor: Single phase, 1.0 pf; three-phase, 0.8 pf. Other voltages may be available on request.

Rating Conditions

A standard generating set is designed to operate in environmental reference conditions of 25 °C, 100 kPa and 30% humidity.

Prime Power

This rating is for the supply of continuous electrical power (at variable load). There is no limit on the annual hours of operation and 10% overload power can be supplied for 1 hour in 12.

Standby Power

This rating is for the supply of continuous electrical power (at variable load) in the event of a utility power failure. No overload is permitted.

