MODELO : AY - 1400 INVERT



Generating Set Specifications

Specification	AY-1400 INVERT
Model	AY-1400 INVERT
AYERBE part number	5430415
Equipment type	Portable petrol inverter generator, sound-insulated housing
Maximum output	1,200 W (S2 duty, 2.5 min)
Rated output (COP)	1,100 W
Voltage / Frequency	230 V - 50 Hz, single phase
Power factor	Cos phi 1
Rated current	4.8 A
System earthing	Floating neutral
Engine speed	Variable with load (ECO mode)
Engine	KIOTSU KT-172, 60 cm^3, 4-stroke OHV
Alternator	AYERBE 1400, inverter technology
Voltage regulation	Inverter, ± 1 %, pure sine wave
Outlets	1 x Schuko 230 V (IP 44) with cover, USB 5 V and parallel operation connector
Protections	Overload with warning light and automatic low-oil shutdown
Starting	Manual recoil
Maximum ambient temperature	40 °C in continuous duty
Guaranteed sound power level	83 dB(A) LwA
Sound pressure level	59 dB(A) LpA at 7 m (1/4 load)
Dry weight	12 kg.

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Engine Specifications

KIOTSU engine	
Manufacturer	KIOTSU
Model	KT-172
Type	4-stroke, single cylinder, OHV
Displacement	60 cm^3
Engine output	1.4 kW at 4,800 min^{-1}
Working speed	Variable with load (ECO mode)
Cooling system	Air
Aspiration	Natural
Speed governor	Mechanical
Starting system	Manual, recoil starter
Fuel	Unleaded petrol
Tank capacity	2.0 L.
Consumption at 75 % load	0.65 L/h.
Engine oil type	SAE 10W-40
Oil capacity	0.35 L.
Spark plug	A5RTC or equivalent
Spark plug gap	0.7 – 0.8 mm
Valve clearance (intake and exhaust)	0.05 – 0.08 mm
Air filter	Foam element, washable
Oil monitoring	Automatic low-oil shutdown

About speed and output

- In an inverter generator the engine is not tied to 3,000 rpm. The current is generated, rectified and rebuilt by the electronics at 230 V and 50 Hz, whatever the engine speed.
- That is why the engine can slow down when the load is small (ECO mode) and speed up when full output is demanded.
- The 1,100 W rated output is what the set delivers continuously. The 1,200 W maximum is available for up to 2.5 minutes (S2 duty).
- Available output falls with altitude and with high ambient temperature (see page 4).

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Alternator Specifications

AYERBE alternator	
Make	AYERBE
Model	1400
Type	Inverter, electronic output
Excitation system	Inverter, electronic regulation
Voltage tolerance	± 1 %
Voltage / Frequency	230 V - 50 Hz
Waveform	Pure sine wave
Insulation class	Class H
IP protection	IP 23M
Coating type	Standard, vacuum impregnated
Performance class	G2 (ISO 8528-1)
Quality class	A
Standards	ISO 8528-13:2016, CE, RoHS 2
Rated output	1,100 W / 4.8 A

What inverter technology adds

- The inverter converts the alternator output to direct current and then rebuilds it as 230 V, 50 Hz alternating current with a pure sine wave.
- Voltage is held within ± 1 % (between 227.7 and 232.3 V) even as the load changes, which makes the set suitable for chargers, computers, LED lighting or instrumentation.
- Because frequency does not depend on engine speed, the set can run slower at light load: lower consumption, less noise and less wear.
- Class H insulation withstands winding temperatures of up to 180 °C, which gives thermal margin in continuous duty and inside a closed housing.
- IP 23M protects against solid bodies over 12.5 mm and against rain falling at up to 60°. It is not watertight: the set must not be operated or stored outdoors.
- The neutral is floating: it is not bonded to earth within the set. This must be taken into account when connecting RCDs, site panels or changeover switches, which may need a specific earthing arrangement.

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Dimensions and Weight

Dimensions	
Length (L)	390 mm.
Height (H)	295 mm.
Width (W)	250 mm.
Packing volume	0.03 m³
Dry weight	12 kg.
Output per kg	92 W/kg
Transport	Built-in top handle



Fuel and running time

Fuel	
Tank capacity	2.0 L.
Fuel type	Unleaded petrol, 95 or 98 octane
Consumption at 75 % load	0.65 L/h.
Running time at 75 % load	3 hours
Estimated running time at 50 %	≈ 4 h 30 min
Estimated running time at 25 % (ECO mode)	≈ 6 h 30 min

Altitude and operating temperature

- The set is rated for continuous duty up to 40 °C ambient temperature, and may be operated between −15 °C and 50 °C for short periods.
- Output falls by roughly 3.5 % for every 300 m of altitude above sea level, and by 1 % for every 6 °C above 16 °C.
- Example: at 1,000 m altitude and 32 °C, available output drops by around 14 %, leaving about 950 W rated.
- Above 1,500 m, AYERBE can supply a high-altitude carburettor jet; it must not be used at lower altitudes.
- With a 2-litre tank the set runs for about 3 hours at 75 % load. At light load with ECO mode on, running time increases.

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Control panel



1	Fuel and choke control	**6**	Schuko socket 230 V, IP 44, with cover
2	Main switch (ON / OFF)	**7**	Earth terminal
3	Idle control switch, ECO mode (ON / OFF)	**8**	Output ready light (green)
4	USB 5 V socket	**9**	Overload light (red)
5	Parallel operation connector	**10**	Low-oil warning light (red)

The socket has a cover, but the set as a whole is rated IP 23M: it must not be operated or stored outdoors. Keep the cover closed when not in use.

ECO mode and indicator lights

- With the idle control switch ON, the engine adjusts its speed to the connected load: lower consumption, less noise and less wear.
- For loads with a starting surge it is better to switch it OFF, so that the engine has an immediate torque reserve.
- Green light: comes on when the generator is running normally and the socket is live.
- Overload light: when capacity is exceeded, the green light goes out and the output is cut, although the engine keeps running. Remove the loads, stop the engine and reconnect appliances one at a time.
- Oil light: if the level falls below the safe limit, the engine stops automatically and will not restart until oil is added.
- Parallel operation: only with another identical set (same model) and the AYERBE parallel cable. Connect the cable with both sets stopped, ECO mode OFF and at least 50 cm between them.

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Starting and use

- Place the set outdoors, on a firm level surface, at least 1 metre from walls and objects, so that cooling works and exhaust gases do not build up.
- Check the oil level before every use or every 8 hours of running. The set is supplied with a bottle of oil for the first fill, up to the H mark on the dipstick (0.35 L).
- Turn the fuel control to ON and, if the engine is cold, to the choke position (START). Set the main switch to ON (I).
- Leave ECO mode OFF. Pull the starter handle slowly until resistance is felt and then with a firm pull. On choke, give one pull only and move to RUN for the next ones.
- Once the engine is running, move the control to RUN and let the set run for a few minutes with no load. Switch ECO mode on only when the green light is on.
- Connect loads one at a time, starting with the largest. At light load, switch ECO mode on.
- To stop, disconnect the load first, let the engine idle for two minutes, set the main switch to OFF (O) and turn the fuel control to OFF. Never stop the engine with the choke.

Before every start

Check	What to look at
Engine oil	Correct level with the set level. SAE 10W-40 oil, 0.35 L capacity.
Fuel	Tank with fresh unleaded petrol. 2.0 L capacity.
Air filter	Foam element clean and properly seated. In dusty conditions, clean it more often.
Siting	Level surface, outdoors, away from flammable materials and at least 1 metre from walls and objects.
Cables and sockets	Leads in good condition, no temporary joints, cross-section suited to the length. Cover closed when not in use.
Earthing	Floating neutral: check the installation requirements before connecting site panels or RCD-protected equipment.

Indicative procedure. The instructions in the operator's manual of the set always take precedence.

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Performance: permissible loads

Indicative guide to what the set can power with 1,100 W rated and 1,200 W peak.

Application	Typical consumption	Suitability
LED, halogen or site lighting	up to 1,000 W	YES
Laptop, router, television	50 – 250 W	YES
Power tool battery chargers	100 – 300 W	YES
Drill, screwdriver, sander	500 – 700 W	YES
Camping compressor fridge	60 – 120 W	YES
Coffee maker or resistive hotplate	800 – 1,000 W	AT THE LIMIT
Angle grinder	800 – 900 W	AT THE LIMIT
Microwave oven	800 – 1,000 W	AT THE LIMIT
Small submersible pump	250 – 300 W	AT THE LIMIT
Pressure washer or compressor	1,400 – 2,000 W	NO
Caravan air conditioner	1,500 – 2,500 W	NO

The starting surge

- Induction motor loads (compressors, pumps, pressure washers, air conditioners) draw between three and four times their rated power when starting. With 1,200 W of peak available, the practical limit is motors of around 250 to 300 W.
- Resistive and electronic loads (lighting, heating, chargers, computers) show no appreciable starting surge and can use the full rated output.
- To start fridges, pumps or tools, switch ECO mode off and connect them before the other loads.
- Inverter technology holds the voltage within ± 1 % with a pure sine wave, so this set is suitable for powering sensitive electronics.

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Use, maintenance and storage

- Starting is manual recoil, with no battery and no electronics involved. That is why the set starts after months standing.
- At 12 kg with a top handle, one person can carry it easily: in a car boot, to a caravan, a small job or a campsite.
- Cooling depends on the grilles being clean and on at least 1 metre of clear space around the set. Never cover the set while it is running.
- The sound level is 83 dB(A) LwA and 59 dB(A) LpA at 7 metres at 1/4 load, with a sound-insulated housing. At light load with ECO mode on, the engine turns more slowly and noise drops.
- Petrol left standing crystallises and blocks the carburettor. In occasional use, adding stabiliser and draining the float bowl prevents most faults.

Maintenance Schedule

Interval	Operation
Before every use	Check the oil level. Visual inspection: fuel, leaks, bolts and clamps, fuel line, wiring and accumulated debris.
Running in	During the first 5 hours, do not exceed 50 % of rated output. Change the oil at 5 hours and again at 25 hours or after the first month.
Every 100 hours or 6 months	Change the oil. Clean the air filter. Inspect, adjust or replace the spark plug and clean the spark arrester.
Every 200 hours or 12 months	Replace the air filter and the spark plug. Inspect and adjust the valve clearance (*).
Severe conditions	Change the oil monthly under heavy load or high temperature. Clean the air filter more often in dusty conditions.
Long-term storage	Add fuel stabiliser and drain the carburettor float bowl. Store in a dry, frost-free place.

(*) Operation reserved for the authorised service centre. Indicative schedule: the exact intervals are those of the operator's manual.

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Safety Instructions

- Never use indoors, in garages, basements, caravans, tents or enclosed spaces. Exhaust gases contain carbon monoxide, odourless and lethal.
- Keep at least 1 metre from walls and objects, keep the set away from flammable materials and never cover it while it is running.
- Refuel with the engine stopped and cold, outdoors and away from any source of ignition.
- The set has a floating neutral. Check the earthing requirements of the installation before connecting it to site panels or RCD-protected installations.
- Connection to the fixed installation of a building must always be through a suitable changeover panel, never by plugging the generator into a household socket.
- Do not use or store the set in rain, snow or damp conditions. IP 23 protection is not watertightness.
- Connect loads one at a time, starting with the largest, and let the engine settle between each one.
- After an overload, remove the loads and stop the engine before reconnecting appliances.
- Do not tamper with the governor spring or any part that increases engine speed: it voids the warranty and may damage the set and the connected loads.

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