The 123-STG-72D62 in the Field: Published Specifications, Measured

Every rating on the 123-STG-72D62 is calculated. So we put one to work at a remote monitoring site in the southern Nevada desert and let its inverter keep score, every five minutes for 75 days. Wherever the site put a specification to the test, the system met it or beat it.

System	123-STG-72D62 **Tri-Brid™, 7.36 kW solar, 31.8 kWh LFP, 10.8 kW diesel**
Site	**Remote monitoring site, southern Nevada desert**
Record	**July 1 to September 13, 2026, logged every five minutes**
Solar produced	**1,863 kWh**
Diesel supplied	**50 kWh, less than 3% of the energy used**
Engine hours, September 1 to 13	**About 4 of 312**

Published Specifications, Checked Against the Logs

A calculated rating is only as good as its assumptions. The table sets five of the 123-STG-72D62's published figures beside what its inverter actually recorded, and says what each difference means.

Specification	Case study	The difference
Solar harvest 31.6 kWh a day	34.7 to 38.1 kWh a day, September 8 to 13; up to 38.7 kWh in August	10% to 22% more than rated. The rating assumes a 4.3 sun-hour day; this site averages 7.1 sun-hours in August and 6.2 in September, and the array was still throttled once the battery filled.
Engine-off break-even 1.32 kW	Daily loads up to a 1.51 kW average with no diesel energy, August 20 to 31	14% more load than the break-even with the engine off, because the site had more sun than the rating assumes.
Array output 7.36 kW nameplate	7.1 kW peak	Within 4% of nameplate. Solar panels give up some output as they heat, and this was late-summer desert heat.
Battery runtimes planned on 15.9 kWh, half of the 31.8 kWh bank	17.1 to 18.8 kWh delivered each night, September 8 to 13; lowest charge 34%	8% to 18% more energy than planned each night, with a third of the bank still in reserve.
Diesel runtime a generator alone runs 24 hours a day, 312 hours over September 1 to 13	About 4 engine hours, in three runs	About 99% fewer engine hours than a generator alone.

Measured by the system's inverter every five minutes, July 1 to September 13, 2026. Specifications as published on the123-STG-72D62 product page.

Why the Solar Beat Its Rating

The published 31.6 kWh is set on a 4.3 sun-hour day, a conservative average. NASA's long-term record for this part of Nevada is 7.1 sun-hours in August and 6.2 in September, so the array had more to work with than the rating assumes.

It also had more than the site could use. On loaded days the battery reached full charge in the early to mid-afternoon, and the controller throttled the array back to the load. The 34.7 to 38.1 kWh recorded is what the site needed, not everything the panels could make.

That surplus is margin: capacity held in reserve for shorter winter days, a dusty array or a heavier load.

Above Break-Even, Engine Off

The product page says that below 1.32 kW, the sun covers the whole load and the system runs with the engine off. At this site, the load regularly ran above that line.

From August 20 through August 31, daily load reached as much as 36.3 kWh, a 1.51 kW average, and the diesel engine supplied no energy at all.

From September 1 through 13, a generator-only system would have run 312 hours. The 123-STG-72D62's engine ran three times, for about four hours in total.

The Diesel, Doing Its Job

A Tri-Brid™ system does not eliminate the diesel. It keeps the engine in reserve for the days solar cannot cover.

On September 6, the array produced 12.2 kWh while the load used 22.1 kWh. By 5:14 the next morning, the battery was at 31%. The engine ran from 5:14 to 8:04 AM and stopped with the battery at 56%. By 12:29 PM, the sun had the battery full again.

That is the design working as specified: solar and storage carry the load, and the engine runs only to make up the difference.

What It Means for Your Site

Engine hours drive fuel deliveries, oil changes and service visits. A system that holds its generator in reserve reduces all three, and the benefit grows the more remote the site.

Sun, load and season set every result. That is why our ratings are calculated on conservative assumptions, and why the **123-STG-72D62**'s field record came in above them. Start with your load and location in the sizing tool.

123-STG-72D62

Solar Tri-Brid™ Generator

123esolar.com/123-STG-72D62

10.8 kW Tri-Brid™ with a 31.8 kWh bank and 9.4 days on a tank at 6 kW.

The Tri-Brid™ stowed: solar, lithium storage and a 10.8 kW diesel on one trailer.

OVERVIEW

A new cell site is often ready to go on air before utility power reaches it, and until it does, a temporary diesel generator runs it around the clock. 123-STG-72D62 is a Tri-Brid™ built for that job: sixteen panels, a 31.8 kWh lithium iron phosphate bank and a 10.8 kW diesel generator on one trailer. Sun first, battery second, and the engine only when both run short.

The 7.36 kW array harvests 31.6 kWh on an average day, and below 1.32 kW the site runs on sun and battery alone with the engine off. The generator sets the 10.8 kW continuous rating; the battery carries peaks to 12 kW and surges to 24 kW for 10 seconds, so motor starts never lean on the engine.

When the load is above the break-even, the controller runs the generator to carry the load and recharge the bank together, then shuts it down. At a steady 6 kW that is 10.77 engine hours a day where the 40 kW generator telecom sites use for temporary power would run all 24, and 9.38 days between refuels of the 120-gallon tank against 7.92 for the 40 kW alone — 12.15 gallons a day instead of 16.8. At 4 kW the tank lasts 16.14 days. Both engines are read by the same fuel rule: their own published figures, held at the lowest one below it. At a remote site every refuel is a truck, a driver and a day on the road, so the days between refuels are what make this the cost-effective way to keep the site on air. The bank alone carries 6 kW for 2.56 hours, with 15.9 kWh usable at the standard 50% reserve and 22.26 kWh at the 30% setting. The engine is certified to EPA Tier 4 Final.

Output is 120/240 V or 120/208 V at 50/60 Hz with a 5 ms transfer, rated for operation from +14 to +131 °F (-10 to +55 °C). Size a continuous load at or under 10.8 kW; the table below shows what happens at every step.

Every 123eSolar system is SMART enabled: cloud IoT monitoring and control from your phone or desktop, so the site is watched and managed without a trip to it.

FEATURES AND BENEFITS

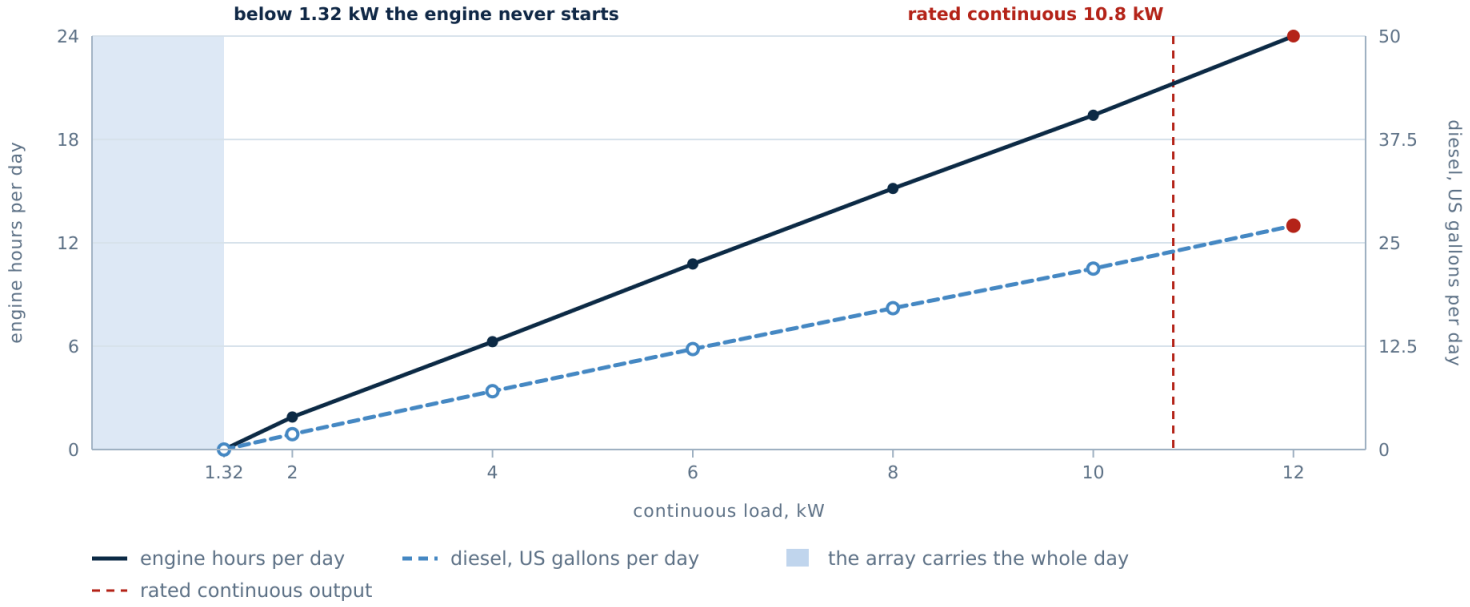
- **Sixteen 460 W panels, 7.36 kW** — Around a kilowatt, the site runs on sun and battery alone.
- **31.8 kWh lithium iron phosphate bank** — Fewer engine starts and longer silent periods.
- **10.8 kWe EPA Tier 4 Final diesel, 120-gallon tank** — 9.4 days between refuels at 6 kW, and 16.14 days at 4 kW.
- **24 kW surge for 10 seconds, 5 ms transfer** — Sensitive equipment rides through without a reboot.
- **SMART cloud IoT monitoring and control** — The site is watched and managed without a trip to it.

KEY SPECIFICATIONS

POWER	
Rated continuous output	**10.8 kW**
Peak output	**12 kW**
Surge	**24 kW**
Surge, 30 minutes	**13 kW**
Output voltage and phase	**120/240 V or 120/208 V**
Output frequency	**50 / 60 Hz**
Transfer time	**5 ms**
ENERGY STORAGE	
Battery technology	**Lithium iron phosphate (LFP)**
Arrays installed	**6**
Total stored energy	**31.8 kWh**
Usable stored energy at 50%	**15.9 kWh**
Silent runtime at 6 kW	**2.6 hours**
SOLAR	
Array rated power	**7.36 kW**
Solar panels	**16 x 460 W**
Daily solar production	**31.6 kWh/day**
Load covered by solar alone	**1.32 kW**
DIESEL BACKUP	
Generator output	**10.8 kWe**
Fuel capacity	**120 US gallons**
Days between refuels at 6 kW	**9.4 days**
Engine starts and stops at	**30% and 80% state of charge**
Engine runs at 6 kW	**3 a day, 3.6 h each**
Emissions	**EPA Tier 4 Final**
MECHANICAL AND SITE	
Ambient operating range	**+14 to +131 °F (-10 to +55 °C)**

PERFORMANCE ACROSS THE LOAD RANGE

What the engine does at each load. Below 1.32 kW the array carries the whole day and the engine never starts. Above it, the engine runs only to put back what the sun did not: at 10 kW, 19.4 hours a day on 21.9 US gallons.



LOAD, CONTINUOUS	BATTERY ONLY	DAILY DRAW	AFTER SOLAR	GENERATOR	ENGINE RUNS	DIESEL	DAYS ON A TANK
1.32 kW · solar break-even	**11.64 h**	**31.6 kWh**	**covered**	**0 h/day**	**none**	**0 gal/day**	**—**
2 kW	7.67 h	48 kWh	16.4 kWh	1.89 h/day	0.8 × 2.4 h	1.9 gal/day	61 days
4 kW	3.84 h	96 kWh	64.4 kWh	6.26 h/day	2.5 × 2.5 h	7.1 gal/day	16.1 days
6 kW	2.56 h	144 kWh	112.4 kWh	10.77 h/day	3 × 3.6 h	12.2 gal/day	9.4 days
8 kW	1.92 h	192 kWh	160.4 kWh	15.15 h/day	2.5 × 6.2 h	17.1 gal/day	6.7 days
10 kW	1.53 h	240 kWh	208.4 kWh	19.4 h/day	0.9 × 21.5 h	21.9 gal/day	5.2 days
12 kW	1.28 h	288 kWh	256.4 kWh	24 h/day	—	27.1 gal/day	4.2 days

Every load runs continuously and the day is 24 hours: daily draw is the load × 24 h. Solar is a daily energy offset, not an instantaneous power match. The engine starts at 30% state of charge (a 70% depth of discharge) and stops at 80%, putting 15.9 kWh back into the bank on each run while it carries the load.

AGAINST THE 40 KW GENERATOR RUNNING ALONE

LOAD, CONTINUOUS	40 KW ALONE	DAYS ON A TANK	THIS SYSTEM, ENGINE	THIS SYSTEM, DIESEL	DAYS ON A TANK	ENGINE HOURS SAVED	DIESEL SAVED
2 kW	16.8 gal/day	7.9 days	1.9 h/day	1.9 gal/day	61 days	**92%**	**89%**
4 kW	16.8 gal/day	7.9 days	6.3 h/day	7.1 gal/day	16.1 days	**74%**	**58%**
6 kW	16.8 gal/day	7.9 days	10.8 h/day	12.2 gal/day	9.4 days	**55%**	**28%**
8 kW	16.8 gal/day	7.9 days	15.1 h/day	17.1 gal/day	6.7 days	**37%**	2% more
10 kW	16.8 gal/day	7.9 days	19.4 h/day	21.9 gal/day	5.2 days	**19%**	30% more

The 40 kW generator telecom sites use for temporary power carries the load alone, 24 h a day with no sun and no battery, on its own 140-gallon tank (133 usable). Both engines are read by the same rule: their own published fuel figures, a straight line between them, and below the lowest published point that point's burn.