

Knowledge Base Article

How to Determine the Appropriate Breaker Size?

Installer to correctly assess the intended installation and select the appropriate breaker size.

AC Input/Output Data	
Rated AC Active Power (W)	7600
Max. AC Apparent Power (VA)	8360
Rated AC Current (A)	31.7
Max. AC Current (A)	34.8
Max. Continuous AC Passthrough (grid to load) (A)	50
Peak Power (off-grid) (W)	2 times of rated power, 10s

The **50A pass-through** applies only when the inverter is connected to the grid. This refers to the inverter's ability to pass up to 50A from the grid to the load output when needed—typically when the battery has reached its SOC discharge state and solar power is unavailable. In this case, the inverter would rely on grid power to supply the loads.

The **7600W AC active power (31.7A)** represents the continuous power the inverter can provide to the load output solely from the battery until depletion or reaching the SOC discharge state. This is independent of grid pass-through functionality.

The **34.8A max apparent power (VA)** accounts for inductive loads like a well pump or AC compressors. Since homes utilize a combination of apparent and active power, engineers express all loads in VA when performing load calculations.

Regarding **breaker sizing**, the latest install manual specifies **63A breakers** for the grid input, load output, and generator input. However, supply houses are more commonly stocked with **60A breakers**, and **DIN-mounted 63A breakers** are not compatible with residential panels.

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Recommended breaker sizes:

- **Grid input:** 60A (The inverter can pass through 50A continuously, but not all loads in the backup load panel will be active simultaneously. #6 AWG THHN/THWN-2 wire meets NEC requirements and fits the inverter's screw terminals.)
 - **"GEN" input:** 50A instead of 60A (The max generator capacity is $7600W \times 1.1 = 8360W$, which equates to $34.83A \times 1.25 = 43.53A \rightarrow 50A$ breaker. This applies to both AC-coupled solar and generators.)
 - **Load output:** 60A (Since 63A breakers are difficult to source, and potential pass-through could reach 50A depending on load conditions.)
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Please note that the 60A grid breaker for the NV7600 is the max breaker allowed. This does not mean the NV7600 can back feed 60A to the grid.

The max AC solar grid back feed for DC connected solar at the NV7600 is 7600 Watt, 31.7A

The max AC coupled solar grid back feed is 8360 Watt, 34.83A
