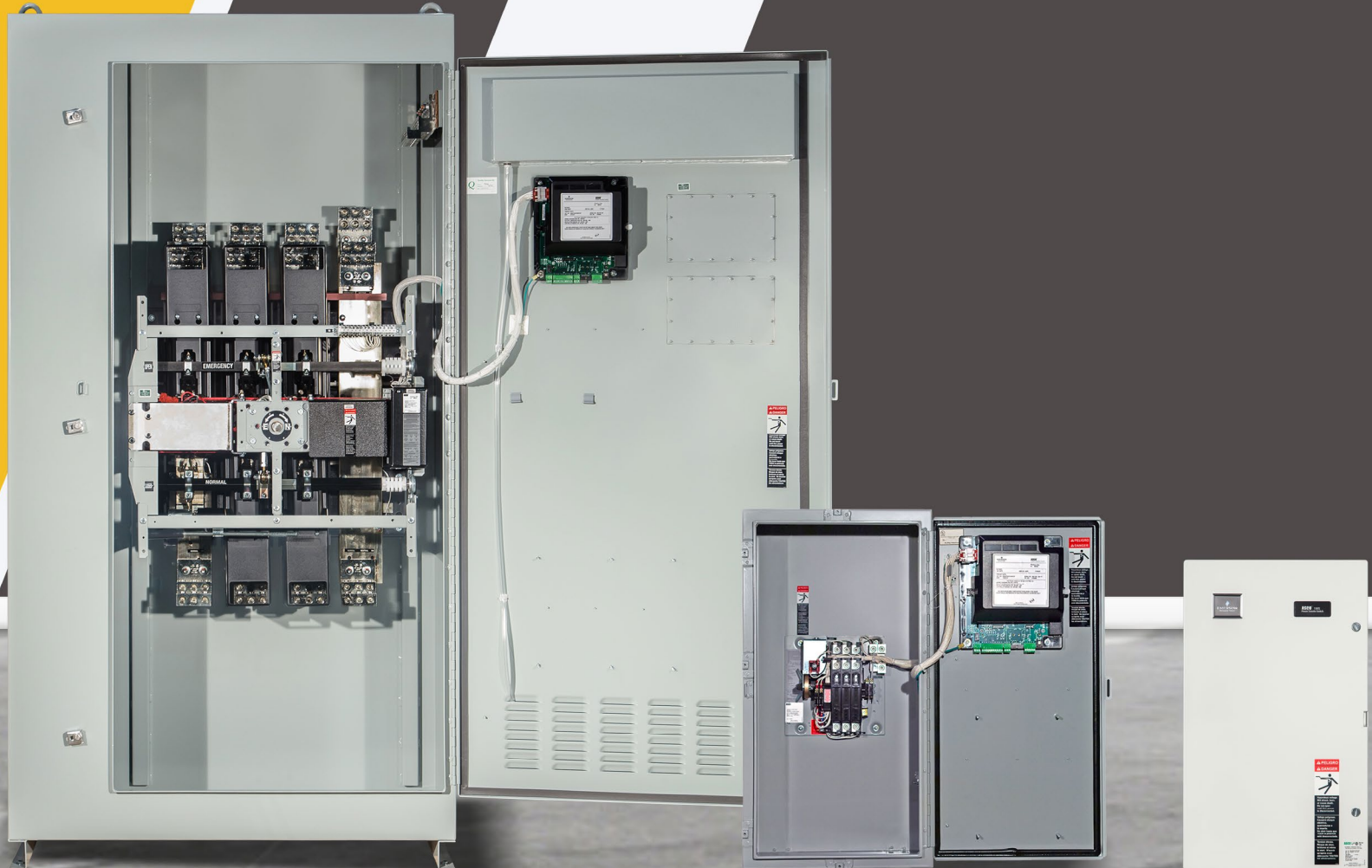




GENERAL POWER[™]
THE GENERATOR COMPANY

A Guide to Selecting The Right Automatic Transfer Switch





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A GUIDE TO SELECTING THE RIGHT AUTOMATIC TRANSFER SWITCH

When Benjamin Franklin said, “An ounce of prevention is worth a pound of cure,” he wasn’t referring to health. Franklin was addressing Philadelphians about the dangers of fire and its potential to devastate their town. He felt so strongly about averting disaster, he started Philadelphia’s first volunteer fire department when he was 30 years old and joined the team.

Franklin’s quote about prevention remains more relevant than ever. Preparing in advance for a power outage is wise, whether you are protecting your home or business. Most people learn how devastating a blackout can be the hard way, only after it’s too late and the damage is done.

Homeowners and business owners can breathe easier with a backup power source, such as a generator, standing by. It helps to have the right automatic transfer switch in place, too.

In this book, you’ll learn about how an automatic transfer switch works, why you need one, the types of switches available and how to select the right automatic transfer switch for your needs.





CHAPTER 1: How an Automatic Transfer Switch Works

An automatic transfer switch (ATS) for a generator does exactly what its name implies. Designed to maintain a continuous supply of power in residential, commercial and industrial settings, an automatic transfer switch detects any anomalies in power flowing from a primary power source.

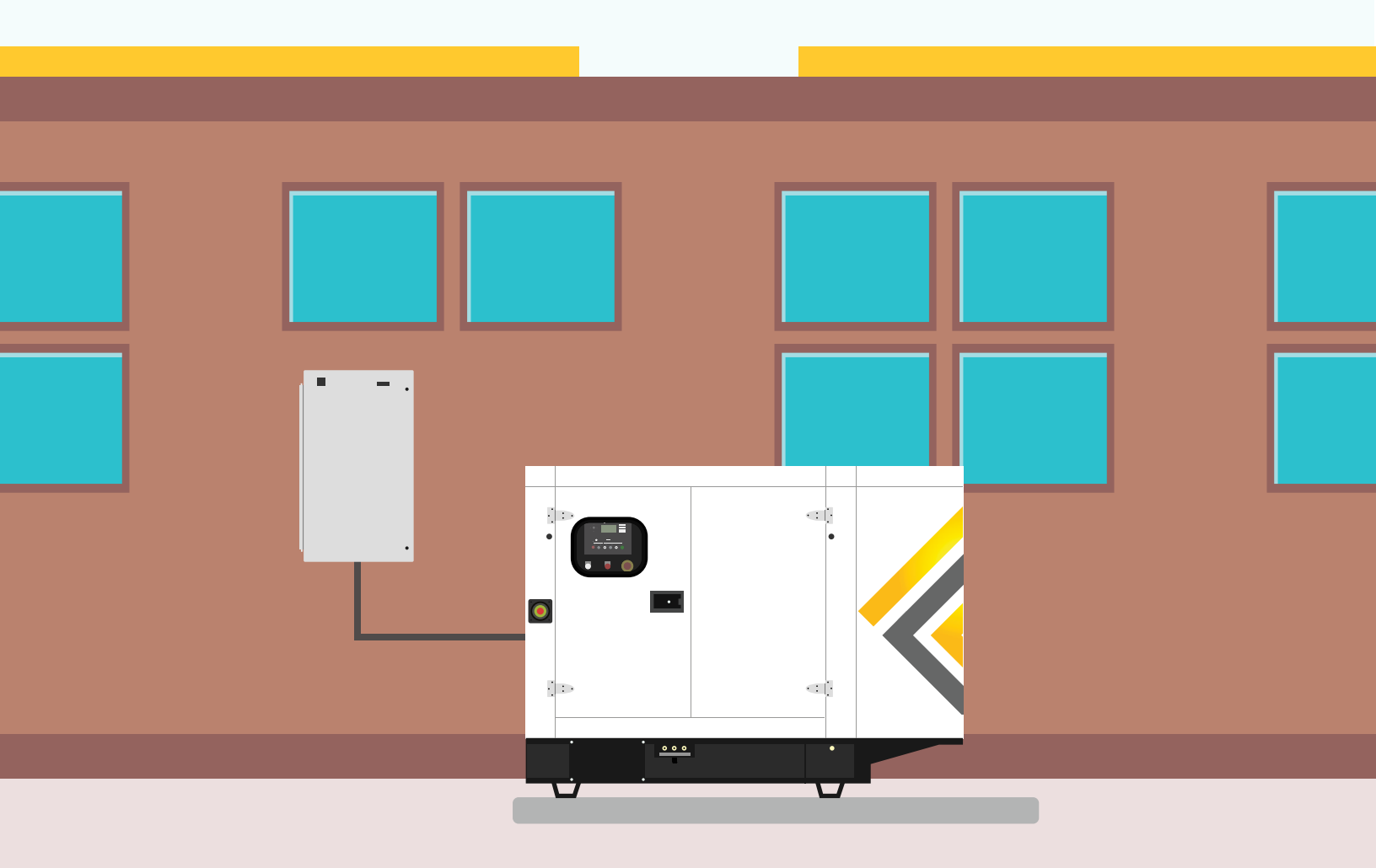
When the ATS senses failure or a power outage in the normal power source, it tells the control panel to switch to an emergency power source. The transfer of power from the primary source to the backup source happens automatically and is virtually seamless. The backup power source remains active until the primary power source is restored.

By using a backup power source and a properly installed automatic transfer switch for generators, people who experience a blackout at home will be spared many of the usual inconveniences of being without electricity. These include the loss of heating

or air conditioning, and the potential loss of food stored in refrigerators and freezers. When a backup power source is switched by the ATS, residents are able to maintain their comfort and safety levels during blackouts or other emergencies.

Businesses of all sizes and in all industries, from restaurants to hospitals and from data centers to manufacturers, as well as civic and government facilities, also benefit from the convenience of switching to a backup power source. Critical operations are able to continue with minimal interruption. Costs associated with downtime are decreased.





Automatic Transfer Switch, Step By Step

The automatic transfer switch, connected to both the normal and backup power source, serves as an intermediary between the two and acts as an electrical connection. Here's how an ATS works.

- 1 Power coming from the normal power source is constantly monitored, 24/7/365, by the automatic transfer switch.
- 2 The automatic transfer switch detects any interruptions in energy flow and immediately signals the emergency power source to start up when there is one.
- 3 When the emergency power source is up and running, the automatic transfer switch seamlessly transfers the power flow from the normal source and signals the generator to start.
- 4 This transfer happens automatically and can be programmed.
- 5 The automatic transfer switch continues to monitor the power supply and waits for recovery of the normal power source.
- 6 Upon recovery of a steady flow from the normal power source, the automatic transfer switch reverts to the normal power source and, as usual, monitors the flow from the normal power source.
- 7 Meanwhile, the generator will enter a cool-down period for a few minutes before shutting down.

CHAPTER 2:

Why You Need an Automatic Transfer Switch

Having a backup power source for your home or business offers several advantages. Some are more obvious than others, so here's a look at a range of features and benefits you can expect to receive when you choose to protect your home or business from power outages.

Codes

As dictated by the [National Fire Protection Association](#) and the [National Electrical Code](#) (NFPA and NEC), which govern the installation of power generators, all homes using a backup power source must install an ATS. The official code does not specify if a manual or automatic switch is required.

Consulting with a licensed professional and skilled technician is always recommended. They will assess your overall backup system needs, determine the appropriate generator size for your purposes and ensure it is properly installed to meet all NFPA and NEC requirements.

Ease

Many potential problems can be avoided by using a generator automatic transfer switch to monitor and control the power in your home or business.

Imagine this scenario when an automatic transfer switch isn't used and a power outage occurs. Equipment and appliances are powered using extension cords that run through heavily trafficked areas, including doors and windows, which causes potential fire and tripping hazards. By using an automatic transfer switch, you won't have extension cords in open windows, which would otherwise allow carbon monoxide to enter your home or business.

A generator automatic transfer switch provides a continuous supply of power to your home and/or business while eliminating other major concerns, including:

- ▶ Interrupted security systems
- ▶ The expense and financial burden of paying for an extended hotel stay
- ▶ Burst frozen pipes caused by not having power to a hot water heater
- ▶ The cost of replacing spoiled food when your refrigerator or freezer isn't powered
- ▶ Having to vacate your home or business and being unable to protect your property

Expenses, time, hassle and inconvenience can all be avoided with an automatic transfer switch.



Business Savings

Work stoppage is a business owner's worst nightmare. Unexpected downtime (especially during normal business hours) can negatively impact operations, productivity and profit.

It doesn't take much downtime to compound adverse effects and swiftly create a crisis situation. According to the [Ponemon Institute](#) "Cost of Data Center Outages" study, the average cost of power outage downtime is \$9,000 per minute.

Without power, all operations come to a halt. Employees are unable to work without lights, phones and computers. Revenue will be lost because it will be much more difficult to follow up on leads or close sales. Businesses producing any kind of digital or physical product will experience instant production stoppage beyond their control.

If your business does not have a continuity plan, make it a priority to create one and include a backup power source with a properly installed automatic transfer switch. The system will ensure your business continues to function and your personnel and assets are protected in the event of an emergency.

Be sure to test your continuity plan and backup system. Review them regularly to ensure they remain up to date and operate optimally.

Your business will be saved from any ill effects of an outage when you have an automatic transfer switch properly installed to your primary and secondary power sources. Most important, you'll have peace of mind, which allows you to focus all your energy on building your business, not rescuing it.





CHAPTER 3: 2 Types of Transfer Switches

You can choose from the following styles of automatic transfer switches.

Open Transition Transfer Switch

An open transition switch makes a connection with the generator before the utility is shut off, and then switches over quickly - sometimes called a “break before make” connection. Open transition switches are considered the most cost-effective and widely used systems. They are compatible and viable for most business operations and needs.

ADVANTAGES

- ▶ If the system is properly adjusted, the transfer occurs without an appreciable interruption to the power load.

DISADVANTAGES

- ▶ This transition must be made by an automatic controller.
- ▶ The flow of power might be momentarily stopped as the switch is made.
- ▶ If synchronization criteria is not pre-set, and the transfer switch does not default to a delayed transition, it will not reconnect.

Closed Transition Transfer Switch

A closed transition automatic transfer switch briefly overlaps the two power sources - utility and generator or backup. This virtually eliminates the momentary stutter in power that open systems can occasionally create. This is also called a “make before break” system. Some industries prefer this system due to their need for continual, critical power. These include medical facilities, data centers and industries with sensitive equipment.

ADVANTAGES

- ▶ Critical loads can continue to operate, without an interruption in power
- ▶ This transfer switch can accommodate “peak shaving,” which can control utility usage to reduce energy costs

DISADVANTAGES

- ▶ Closed transition transfer switches tend to cost more
- ▶ These operations must be executed by an automatic controller



CHAPTER 4: Selecting The Right Automatic Transfer Switch

When selecting the right ATS for your purposes, you want to consider price and technical factors, including the kind of load, size, style, continuous current rating and voltage rating that work best with your backup power source.

While selecting the right automatic transfer switch might sound complicated, it can be simple. Keep in mind you want an ATS that is reliable, safe and capable of meeting your home and/or business/industrial needs.

Amperage: The Size of Your Switch

You'll find switches come in a range of amps, starting at 50 amps and increasing up to 2,000 amps. Keeping it simple, the transfer switch should match the electrical panel's main breaker.

For instance, a 200-amp main breaker needs a 200-amp automatic transfer switch. To ensure the system operates efficiently and safely, the size of your generator dictates the amperage required of your automatic transfer switch.

Consulting with a licensed professional and skilled technician is always recommended. They will assess your overall backup system needs, determine the appropriate generator size for your purposes and ensure it is properly installed to meet all NFPA and NEC requirements.

Ratings

The National Electrical Manufacturers Association (NEMA) developed ratings for industrial environment enclosures. These ratings, more commonly known as UL enclosure TYPE ratings, specify standards of protecting equipment against light, dust, water and weather. The guidelines are as follows.

NEMA 1—GENERAL PURPOSE

- ▶ Used under normal conditions indoors
- ▶ Protects against indirect splashing of water, light and dust
- ▶ Prevents contact with live electrical parts

NEMA 3R—WEATHER-RESISTANT

- ▶ Used outdoors or indoors
- ▶ Protects against rain and ice
- ▶ Meets design tests for:
 - ▶ External icing
 - ▶ Rust resistance
 - ▶ Inadvertent access

The NEMA-rated enclosure you select depends on whether the ATS is installed indoors or outdoors.

Voltage

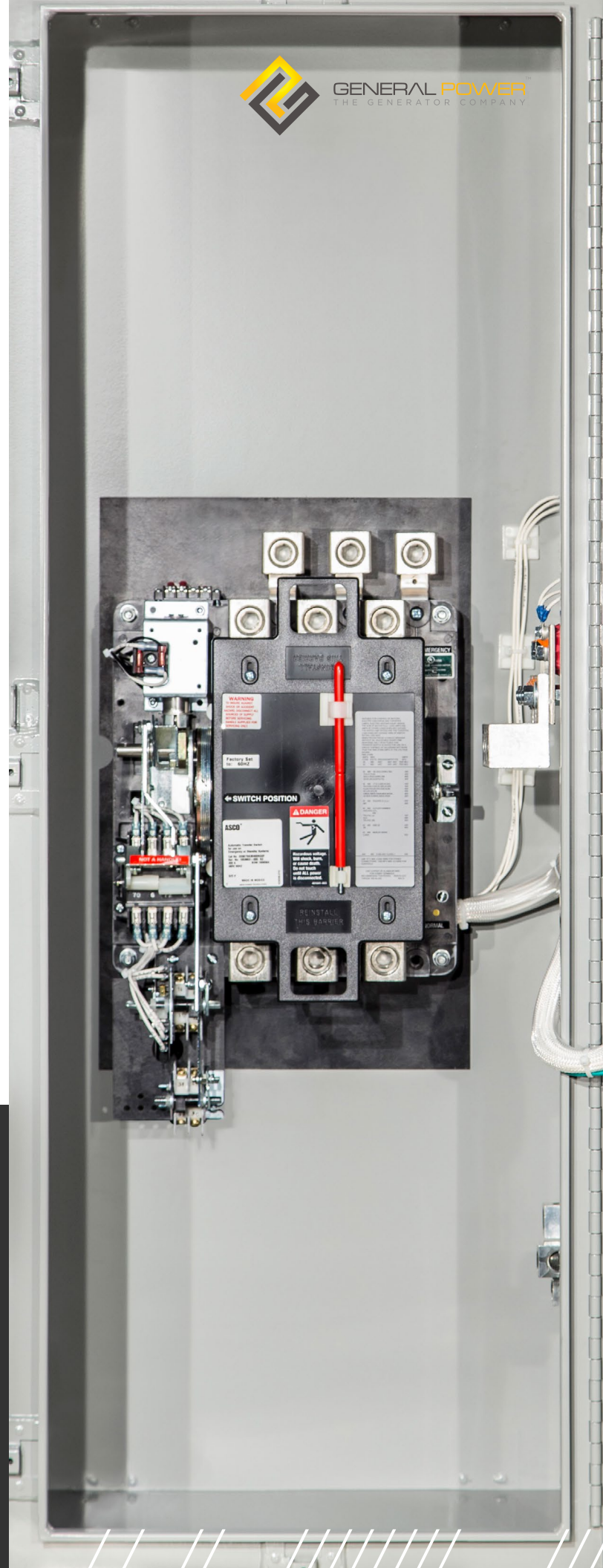
Since automatic transfer switch can be connected to two unsynchronized power sources, it must be able to handle the increased voltage stress. These are typical AC system voltage ratings and standard frequencies. Other frequencies and voltages can be accommodated as needed.

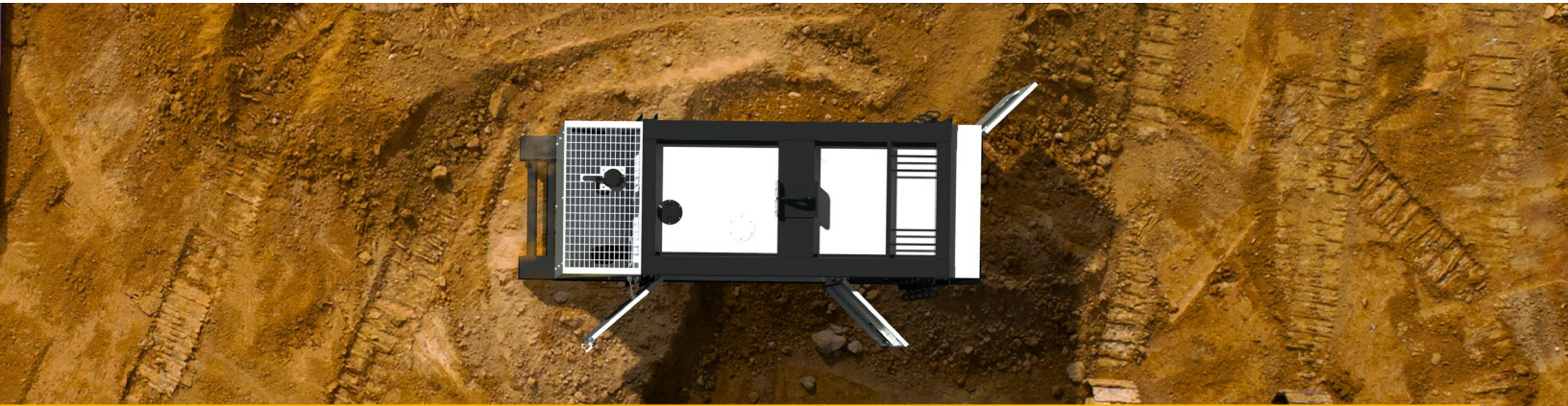
- ▶ 120 V
- ▶ 208 V
- ▶ 240 V
- ▶ 480 V
- ▶ 600 V
- ▶ 50 Hz
- ▶ 60 Hz

Load availability is determined by voltage and frequency information provided by the sensors in a control panel. The minimal voltage and frequency must be attained before transfer of the load.

Selection

Even though you must consider several factors, as well as understand the practical applications when selecting the best automatic transfer switch for your situation, it can be a relatively easy choice to make. If you find the process complicated in any way, don't forget you can always reach out to a professional technician at [General Power Limited, Inc.](#), who can assist you in choosing the best automatic transfer switch for your home or business needs.





Protect Your Home or Business with an Automatic Transfer Switch

A quality, reliable automatic transfer switch can mean the difference between experiencing continuous power or multiple losses (revenue, productivity, comfort, safety, etc.) when a power outage occurs.

Schneider Electric offers ASCO automatic transfer switches, considered state-of-the-art technology for dependable power transfer. In fact, ASCO Power Technologies started in Baltimore in 1888 and introduced the first automatic transfer switch in 1925. Early on, they set the standard for power management and continued to lead the industry through its migration from electromechanical methods to software applications.

ASCO automatic transfer switches are durable and designed for robust performance in industrial and commercial applications.

General Power Limited, Inc., an ASCO distributor, proudly carries a huge inventory of series 185 and series 300 transfer switches, including:

- ▶ From 100-amp to 2,000-amp
- ▶ In 2 and 3 poles
- ▶ From 208V to 480V

Take a cue from Benjamin Franklin. Focus on prevention by making sure your home or business is ready for emergency power outages.

Starting today, document your home emergency plan and/or business continuity plan. Use the information in this e-book to purchase the right generator automatic transfer switch. Make sure it is properly installed for maximum effectiveness.

Please [contact us](#) today. We're happy to start the process of selecting and delivering the generator automatic transfer switch best suited to protecting your home, family, business and assets.





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About General Power Limited

General Power Limited, Inc., offers a comprehensive line of products and accessories for the power generation industry, including Transfer Switches, Diesel Generators, AC Alternators, Custom Fabrication, Engine and Alternator Parts, and Automatic Voltage Regulators.

For customer convenience, General Power Limited ensures generators are stocked around the world, including in the United States, France, Spain, the United Kingdom, Mexico, Colombia and China. General Power Limited, in business for 20+ years, has a Better Business Bureau A+ rating.

Read more about General Power Limited [on our website](#).

