

3 things to think about when selecting an automatic transfer switch



The automatic transfer switch has moved from a relatively mundane role in power distribution and control systems to being a major player. Read about three traits to consider to ensure you select the right ATS for your application.

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The automatic transfer switch (ATS) was once a relatively mundane player in the world of power control and distribution devices. They provided the simple, seamless transfer of power between the primary (typically the electric utility) and backup power source (typically a diesel generator).

Advances in ATS technology have been driven both from the supply (generation) and demand (industrial and commercial user) sides. On the supply side, the growing number of renewable energy providers has created a far more diverse and complex range of electric-power sources.

On the demand side, many power consumers are eager – or compelled – to expand their power-source portfolio. Many of them also face increasingly high expectations for power reliability. In some cases, notably data centers, they aim for five-nines reliability (99.999% availability), and require technology up to the task.

These increased expectations have driven switch OEMs to develop more capable, reliable, and sophisticated technology. But the new technology

increased the challenge of selecting the right ATS for your project. Most OEMs offer different levels of ATS. What should you look for in selecting the right device for your project? There are a few key traits to consider.

Flexibility – Rating type

Depending on your project or application, the rating type could be a critical first consideration.

Less-capable switches have a coordinated circuit breaker rating, which is similar to circuit breaker series rating. With a coordinated rating, you know the switch will achieve the specified short-circuit withstand closing rating. As long you find a breaker able to clear a fault in the required time frame, it's a good choice.

The problem with this approach is that some projects can be a bit “dynamic.” The ATS you specify at the start of the project may not meet the requirements of the final design. In situations where that's a possibility, it makes sense to level-up your ATS selection to one that carries a time-based rating, formerly known as an Any Breaker rating.

In the ABB TruONE ATS line, for example, the Level 2 and 3 switches carry a coordinated rating. You need to step up to the Level 4 to gain the benefits of time-based ratings.

Measurement – Gathering more data

Industrial and commercial power distribution and control devices are smarter than ever, with sensors that a wealth of data. This data not only enhances operational control, but also enables far-more effective maintenance and higher reliability, and supports energy-management strategies.

Most switches can be externally sensed. That provides the needed data but requires additional, external meter hardware and wiring, with the resulting complexity. Devices that incorporate sensors within the enclosure provide greater simplicity and typically a smaller physical envelope.

You can find an ATS with sensors that monitor current, voltage, harmonics, and other aspects of power quality. With some switches, you also get temperature sensing. The ABB TruONE, for example, measures external temperature, as well as at the switching contact points. High temperature is one of the first and most important indicators of power problems, making this data especially valuable in identifying potential issues.

Higher-performing switches include the ability to set thresholds for all of these measured values. When that threshold is crossed, the switch can sound an alarm, alerting maintenance techs to investigate the situation. The TruONE goes a step further, with analytics that look at operational statistics (e.g. number of opens closes, voltage, etc.) to calculate contact wear.

Communication – Sharing the data

The final key differentiator between ATS options is communication. The benefit of the available device data is greatly amplified when it can be shared widely, whether throughout the plant or via the cloud to managers and operators wherever they are.

Most ATS suppliers' baseline ATS offerings rely on Modbus TRU (serial) communication. If you need more flexible communication options, that will require a higher-level switch. Some OEMs offer switches with the capability to communicate via multiple protocols, ethernet IP Modbus TCP, PROFINET, DeviceNet, Profibus. Some of these protocols enable your ATS to connect to the cloud, making it possible for operators and maintenance managers to receive alarms and alerts to their mobile device.

The right ATS for the job

The long list of ATS specs can leave you with crossed eyes and a headache. Fortunately, many of these specs are straightforward based on the application. There are few specs, however, where you need to look beyond the technical requirements and consider whether the selected device will meet your more strategic needs and organizational initiatives.

Consider the flexibility, and the measurement and communication capabilities of your ATS options to ensure you make a smart choice.