



Results-Driven Automation



Best-in-Class Products

Arc Guard System Saves Lives and Millions of Dollars, Decreases Pain, Increases Uptime

The ABB Arc Guard System enables you to safely minimize the duration of arc flash incidents by detecting the light from the arc within 1-2 milliseconds. A tripping signal is sent directly to a breaker – for the shortest possible arcing time. This system can be combined with a current sensing unit to avoid “nuisance tripping.”

Arc flash is a BIG deal, because when you talk about arc flash, you’re talking about the safety of your number one asset – people.

The Safety Issues

It’s been estimated that there are five to ten arc flash accidents daily. Many of these go unreported, for lack of a formal reporting system. An electric arc can produce temperatures four times that of the sun! I don’t think we need to be told that anything going into the sun doesn’t come back out. One hundred milliseconds into an incident, cables start to burn. Copper burns at one hundred fifty milliseconds, and steel will start to burn at 200 milliseconds. The air pressure can be greater than 2000 pounds per square foot. Imagine sitting three feet in front of the amplifiers at a WHO concert - that’s the level of sound that can be generated by an arc flash. For those of us who’ve forgotten, or perhaps never knew, that’s approximately 140 decibels.

The Costs

What are the associated costs? First: human lives. Second: if the victim lives, it can cost over a million dollars for skin grafts and related rehabilitation. Be sure, there will be legal fees. Least important is the loss of production, but that loss can cost thousands of dollars per minute.



The Solution

How to avoid arc flashes? We must first avoid the causes: human error, mechanical failure and animals. Equipment must be of a safe design. We can mandate that no one, including contractors, be allowed to work on live equipment. We can ensure that only authorized, trained and competent personnel are allowed to work on the equipment. We must give them the appropriate tools for the task, including protective clothing when necessary. Second, should an incident occur, we must limit its duration. The damage resulting from an arcing accident depends on the arcing current and the time. Of the two parameters, only the time can be influenced.

The ABB Arc Guard System enables you to safely minimize the duration of arc flash incidents. The system detects the light from the arc within 1-2 milliseconds and sends a tripping signal directly to a breaker. The result is the shortest possible arc-



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Success Stories

ing time. The total tripping time is less than five cycles. The system uses fiber optic sensors, which are noise immune. In addition, the sensors have a detection range of almost 360 degrees within a ten-foot radius. The detectors can also be sensitive to other forms of intense light, such as camera flashes, lightning, strong direct sunlight, switching arcs in circuit breakers and other large apparatus. In order to avoid power loss due to nuisance tripping, a current sensing unit can be installed. When combining the arc monitor with a current sensing unit, the trip or release level can be adjusted just above the normal operation current of the installation. In other words, it is possible to set the current tripping level very close to the operational current. This is the biggest difference compared to other protection relays or systems.

ABB's Arc Guard System is an investment for your future that increases the safety level for personnel and equipment. It also enables reliable production for the future.

