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## ENERGY EFFICIENCY TIPS FOR Powering Access Control Door Upgrades

By Kerby Lecka

**L**earn tips for increasing power efficiency and sustainability when designing or retrofitting for door access control for your worship facility.

There are many elements to consider in discussing doors and sustainability: door materials/construction, manufacturing process, thresholds, weather stripping, gasketing, sealing, glass and glazing, trim and accessories. When considering an electrified controlled access and egress door, energy efficiency becomes a prime consideration, too.

### LOW-POWERED LOCKS

Start by using low-powered locks that require a smaller percentage of electricity to perform their function when compared to an older electric lock. A low-powered lock – whether 12 or 24 VDC – has holding power that requires less electricity than its activation power.

Most electric locks today are low-powered, whether used in new construction, retrofit or replacement applications. It stands to reason that the more low-powered locks that are used per installation, the fewer power supplies are required, saving equipment, installation costs and power.

### POWER SUPPLIES

Other factors increase power efficiency and sustainability, such as the power supply. Advanced features and electronics have made today's power supplies very energy efficient. Except for new construction, retrofitting any installation with low-power locks means backing into an existing system that may or may not have documentation and may be many years old. To avoid power efficiency and reliability issues at the outset, determine if the available power supply is “dirty” or “clean” and how old is the power supply.

Power supply issues are often overlooked, even though addressing them can reduce system failures, liability, multiple service calls, and increase efficiency. There is always

a risk to using an old power supply because, like any product, they too have a shelf life. Typically, a power supply 10 years or older is a prime candidate for replacement.

### POE VS. HARD WIRED COMPONENTS

Smart building design and existing buildings are wired with internet cable to connect to an information technology network. Low-power PoE (Power over Ethernet)-capable locking hardware and access controls can be installed and connected to a door access control system using ordinary Ethernet network cables, which facilitate power.

Sustainability using Ethernet cable versus traditional hard-wired systems eliminates days of pulling power lines when electric power is not within reach of the door and installing power supplies and controllers for powering access control devices. In addition, you can use existing Ethernet cables to make powering and connecting even easier, less costly and more power efficient. In a PoE-enabled network, direct electrical current (DC) flows over the network cable together with normal Ethernet data traffic.

Because data also flows through the cable, PoE-capable locking hardware and access controls can be controlled through IP-based systems in the network or in the cloud. Either way, PoE-based door access control can be a more sustainable solution than traditional, hard-wired systems.

### MOTORS VS. SOLENOIDS

Many electrified door access control systems were dominated by solenoid-operated locks that would control the latchbolt of a device or the locking of operating trim. However, solenoids typically required a heavy current inrush – as much as 16 amps at 24VDC with 300 mA continuous current.

The sound generated by the action of the solenoid also was quite noticeable. Advances in motor technology and reliability have led to the replacement of solenoids with more efficient motors that require far less current



A range of low-powered and PoE-enabled devices exist for use in door and hardware applications.



This PoE door controller can be installed and connected to a door access control system using ordinary Ethernet network cables, which facilitate power.

inrush (as little as 700 mA) and are far quieter.

When choosing electrified lock solutions, consider how much inrush current is required to retract the latch and how much continuous current is drawn when not activated. Lower current draws will enable longer wire runs with smaller gauge wire, and of course, contribute to energy efficiency and sustainability – especially when using a motor instead of a solenoid.

These practical tips should increase energy efficiency and sustainability in a door access control door design or retrofitting. As always, facility managers and those licensed professionals engaged to do the actual work should consult the local Authority Having Jurisdiction (AHJ) for compliance and sustainability requirements governing your door project. Be aware that building codes are always progressing and impacting the application of powered access and egress solutions to doorways. **RPN**

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