# PoE and the ISONAS Reader-Controller

## PoE

What is PoE?  PoE stands for <u>P</u>ower <u>o</u>ver <u>E</u>thernet and it means almost exactly as the name implies, you can now send electrical power over standard Ethernet cabling (CAT5 cable).  This means that IF you have an Ethernet device, then the same CAT5 cable that supplies the data transmissions to the device can also supply electrical power.  The obvious savings here is that you only need to run a single cable to the device.  The not so obvious savings is that anybody can run CAT5 cable, which means that anybody can get power to these devices; you do not need an electrician.

PoE is a standard network technology. It is commonly used to power VoIP phones, wireless access points, IP cameras, and similar devices.  About 20% of the network switches sold in 2007 are PoE equipped. Many companies are supplying network equipment that can support PoE.  Companies like Cisco, Hewlett-Packard, 3Com, Dell, and others.

Before delving further, let's set the stage here. All Access Control System readers require power and all electronic locks require power. In a typical set up prior to PoE, a single access control reader-controller with a single electronic lock would look like this:
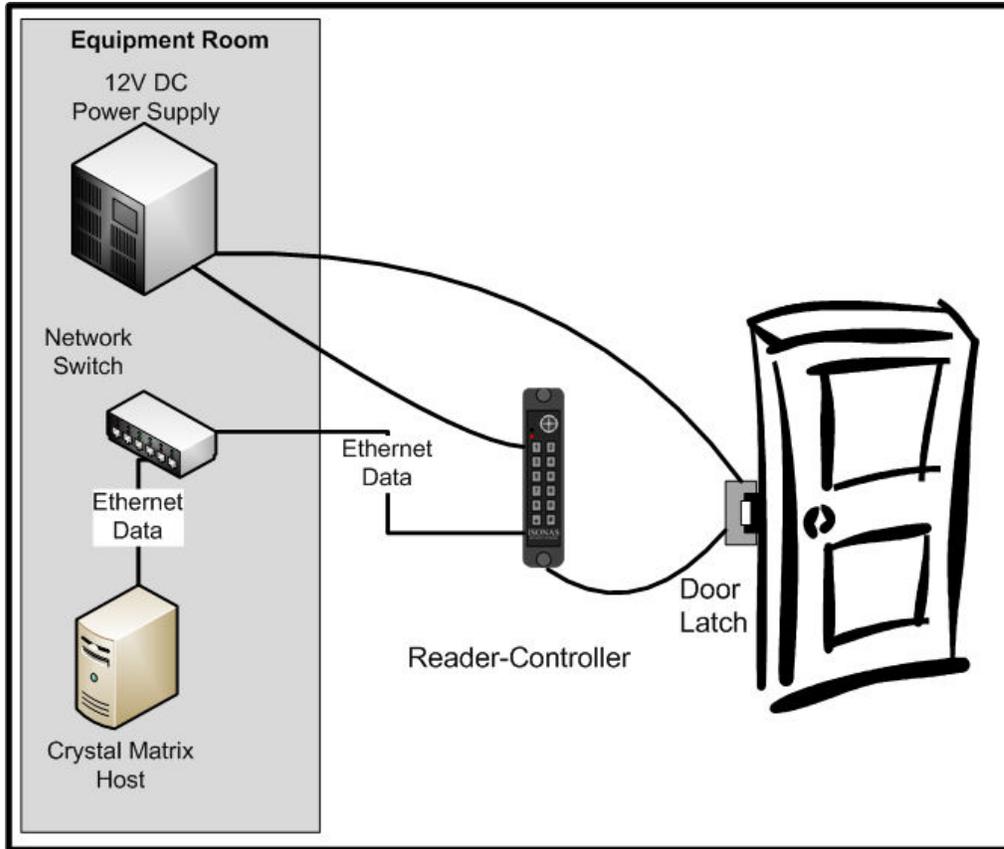


In the above picture, the 12v DC power supply is almost always a special box mounted someplace in the building. Inside this special box would be a 12v battery backup, a circuit board to control the recharging of the 12v battery, another small circuit to control the outbound power to the reader-controllers and locks. In most installations, the power to the locking mechanisms would be isolated from the reader-controllers, and so in fact you would have two of these 12v DC boxes mounted in your building. In addition to running power to the doors, you also have needed to get your reader-controller connected to the Ethernet so that you could configure and control the reader-controller from a PC; thus for each and every door you have needed to run multiple sets of wires for power and data.

Now let's look at the picture with PoE.
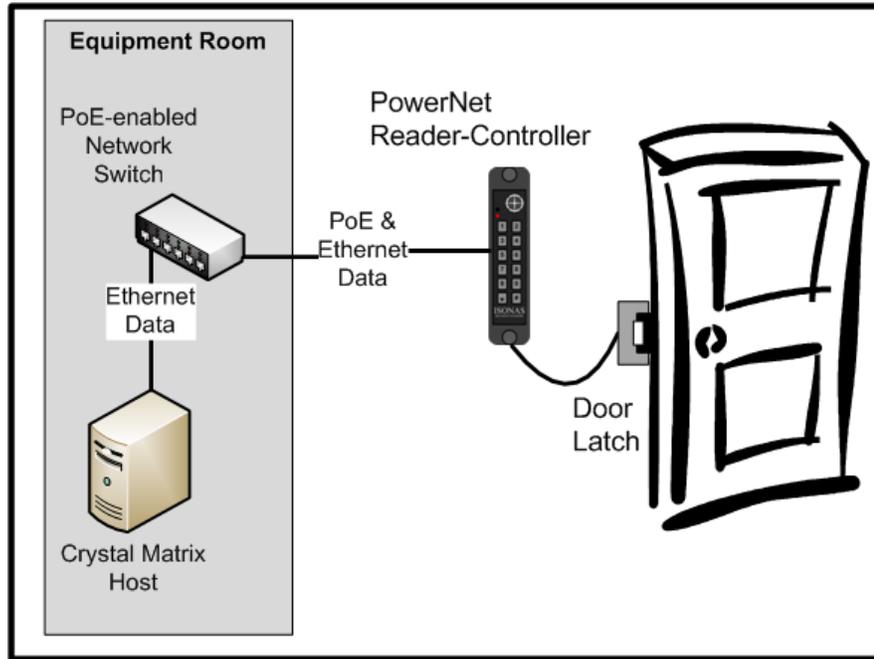


With <u>one cable</u>, you have now not only provided the required network connection, but you have also provided power for the lock and other components located at the door site.

What makes this whole PoE concept so simple is the fact that the ISONAS PowerNet reader-controllers are true native PoE devices. The ISONAS IP reader- controllers come with a female RJ45 connector which supports both the Ethernet data and the PoE power, allowing you to plug your PoE+Data Ethernet cable directly into the PowerNet reader-controller.

A large number of network switches sold today support PoE directly (PoE-Enabled Switch). If your site is using a PoE-enabled network switch, then a PoE Injector is not required. If a PoE Injector is required, the Injector is normally located right next to your existing network switch.   The PoE-Injector/PoE-Switch itself is plugged directly into a standard AC outlet, or for extra security, a battery backup.  A standard CAT5 cable is then run between the PoE Injector and the ISONAS PowerNet reader-controller which will be located at the door location.

# Additional Resources

In the Access Control industry, ISONAS is the first adapter of the PoE technology.

Since PoE is such a widely used way of powering customer's network devices, there are many excellent papers written regarding PoE.  Here are a couple links to web sites, where you can find additional  information on PoE.

http://www.microsemi.com/PowerDsine/Documentation/WhitePapers/WhitePapers.asp

http://www.poweroverethernet.com

## For more information:

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