Power over Ethernet Recommendations for ProDVX Devices

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ProDVX devices & Power over Ethernet

Many ProDVX devices are capable of being powered through Power over Ethernet. More specifically, IEEE 802.3at (PoE+) or IEEE 802.3bt (PoE++). To enhance the usability of ProDVX equipment, careful management of the PoE+ budget is crucial. This article explains why PoE is significant for ProDVX equipment users, the importance of PoE budget management and provides recommended guidelines for using PoE with ProDVX devices.

What is Power over Ethernet?

Power over Ethernet (PoE) is a technology that allows both data and electrical power to be transmitted over Ethernet cables. Ethernet cables are typically used to connect devices to a network. PoE simplifies the installation and maintenance of these devices by eliminating the need for separate power cables and outlets.

Here are the key features and components of PoE:

1. **Power and Data Together:** PoE enables the simultaneous transmission of data and electrical power over the same Ethernet cable, typically using twisted-pair wiring like Cat 5e or Cat 6.

2. **Power Sourcing Equipment (PSE):** PSE devices are responsible for injecting power into the Ethernet cable. These devices can be PoE switches, PoE injectors, or even some routers and network switches with built-in PoE support.

3. **Powered Devices (PD):** PDs are the devices that receive power and data over the Ethernet cable. Common examples include IP cameras, VoIP phones, wireless access points, but also many ProDVX devices.

4. **Power Levels:** PoE standards define different power levels. The most common standards are IEEE 802.3af (PoE), IEEE 802.3at (PoE+), and IEEE 802.3bt (PoE++). These standards specify the maximum power a PSE can deliver to a PD, with PoE+ providing more power than standard PoE.

5. **Compatibility:** PoE is backward compatible, meaning a PoE+ (802.3at) PSE can power both PoE and PoE+ PDs, but a standard PoE (802.3af) PSE can only power PoE devices.

6. **Applications:** PoE is widely used in various applications, including IP surveillance systems, VoIP telephony, smart lighting, access control systems, meeting room solutions and Internet of Things (IoT) devices. It's particularly useful in scenarios where power outlets are scarce or difficult to install, e.g. with the use of glass mounts.

7. **Safety:** PoE standards include safety features like overcurrent protection and voltage regulation to ensure that the power delivered over Ethernet cables does not damage the connected devices.

8. **Managed PoE**: Some PoE switches offer management capabilities, allowing administrators to monitor and control the power usage of connected devices. This can be useful for optimizing network performance and power distribution.

Overall, Power over Ethernet simplifies network deployments, reduces cable clutter, and provides a cost-effective solution for powering and connecting various networked devices. It has become an essential technology in modern networking environments.

ProDVX devices and IEEE 802.3at (PoE+)

IEEE 802.3at, also known as PoE+, represents the evolution of the Power over Ethernet (PoE) standard, delivering more power to connected devices. While PoE provides up to 15.4 watts of power, PoE+ amplifies this capacity to a robust 30 watts. Depending on the type and length of the used cables this will result in a minimum of 12.95W or 25.4W available for the device. This enhanced capability unlocks a multitude of possibilities for users of ProDVX equipment.

Benefits of using PoE+ for ProDVX customers include:

1. **Streamlined Deployments:** PoE+ eliminates the need for separate power cables, simplifying installation processes and reducing deployment costs.

2. **Optimal Device Placement:** With PoE+, ProDVX devices can be positioned strategically, regardless of power outlet availability. This flexibility enhances the usability of digital signage, kiosks, and displays in commercial settings.

3. **Reliability and Uptime:** ProDVX equipment often serves functions that are critical for business continuity. PoE+ ensures consistent power delivery, minimizing the risk of downtime due to power-related issues. Customers can rely on their ProDVX displays and kiosks for uninterrupted service.

4. **Remote Management:** ProDVX devices are often used in configurations designed for remote monitoring and management. PoE+ guarantees a continuous power source, enabling remote updates, troubleshooting, and maintenance, saving time and resources.

5. **Cost Efficiency:** Managing the total PoE+ budget efficiently leads to cost savings. By optimizing power allocation, businesses can reduce energy consumption and cut down on electricity bills, making ProDVX solutions more cost-effective.

6. **Environmental Responsibility:** PoE+ promotes eco-friendliness by minimizing energy waste. ProDVX equipment powered by PoE+ aligns with sustainability goals and contributes to reducing the carbon footprint of businesses.

7. **Future-Ready Investments**: ProDVX's commitment to innovation means new, more advanced equipment may emerge in the future. PoE+ compatibility future-proofs customers' investments, ensuring they can adapt to ProDVX solutions with evolving power requirements.

Understanding the total PoE+ budget

Understanding the total PoE+ budget is crucial when using ProDVX equipment. Here's why:

1. **Optimizing Device Placement:** By knowing the available PoE+ budget, businesses can strategically place ProDVX devices without overloading switch ports, ensuring efficient power distribution.

2. **Scaling Up Deployments:** Businesses often expand their ProDVX installations. Knowing the PoE+ budget helps plan for growth without concerns about power constraints or costly infrastructure upgrades.

3. **Troubleshooting:** In case of issues with ProDVX devices, understanding the PoE+ budget helps to diagnose whether power-related problems are causing disruptions, facilitating faster problem resolution.

4. **Safety and Compliance:** Staying within the PoE+ budget is essential for compliance with PoE standards, which include safety features to protect devices and personnel from electrical hazards.

In conclusion, IEEE 802.3at (PoE+) is a transformative technology for ProDVX equipment users, offering streamlined deployments, cost efficiency, and future-proofing capabilities. However, managing the total PoE+ budget is equally crucial, ensuring reliable device operation, efficient power distribution, and compliance with safety standards. The synergy of PoE+ and prudent

budget management empowers ProDVX users to harness the full potential of their equipment, enhancing efficiency and customer experiences across industries.

Recommendations for the proper use of PoE standards on ProDVX devices

At ProDVX we want to ensure that our partners can create a power provisioning environment for ProDVX branded products to work properly. Hence why we have created the following guidelines on powering our devices via third party PoE equipment.

Although some of our devices can work with the PoE standard known as IEEE 802.3af (PoE), we advise the use of the IEEE 802.3at (PoE+) standard on ProDVX devices **that are equal to or smaller than 15 inch in size**. For our devices **larger than 15 inches** we advise the use of the IEEE 802.3bt standard (PoE++). This also means that the settings on intelligently managed devices should push for these standards.

For example, on HPE Aruba (and similar equipment) the "high power" setting should be used. Furthermore, ProDVX advises the use of the "user settings", instead of "class determination" for the power provision. These settings ensure a static power provision of up to 25W for the IEEE 802.3at standard, and 55W for the IEEE 802.3bt standard. (reserved power)

Please be aware that the total available PoE budget on the switch should not exceed the amount of power that the connected devices require from the switch. For example, 10 devices that use the IEEE 802.3at standard (up to 25W) require a powered switch with (at least) 250W of available PoE budget. This is excluding the expected power loss due to cable type and length.

In order to verify whether the above stated power provisioning guidelines are met, we ask you to always check the following points:

1. What brand/type of PoE switch is used:

    a. IEEE802.3af/at/bt.

    b. LLDP/CDP support.

c. Amount of ports and total power budget.

2. How many displays and other equipment are powered via the same switch:

    a. Type of display/expected power consumption.

    b. Power consumption of third party equipment.

    c. Power distribution over VLAN('s).

3. Power distribution settings:

    a. Static (user settings) power configuration on the ports where the displays are connected to.