July 2016

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Thermal Imaging

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Smarter power solutions?

Dantech – SecurePoE

When looking at any security-specific power supply equipment, there will inevitably be someone who asks whether dedicated PSUs are really necessary. After all, they will tell you, a power supply is a power supply. The only real difference between a generic unit and a security one is a need for tamper. As long as the output is correct there's nothing more to worry about, they will suggest. It's a debate that did once instigate a test by Benchmark to see whether high quality power supplies were vital or not.

The team at Benchmark has been active in testing security equipment since 1992, and to be honest in the early the days the only issues ever encountered with power supplies were either inappropriate or faulty units. In general, if the output was correct (or as near as it could be) the devices would work.

As technology became more complex and advanced ICs and more intensive processing came to the fore, we noticed many devices were more 'sniffy' about the power supplies being used. Even many correctly rated PSUs would not power up the devices consistently. Because most of the Benchmark test PSUs are quality items, we noticed this more when out in the field, especially when using PSUs already in situ or belonging to other people.

The result was a test with a number of cutting-edge devices. These were tested with security-centric branded PSUs, PSUs from trade-based manufacturers and low cost unbranded or unknown PSUs sourced from 'catalogue' suppliers and auction websites.

The results showed more variance in performance than expected. The security-based PSUs saw all the devices operating as expected. Only 40 per cent of the generic trade PSUs saw consistent performance from devices, and that figure fell to just over 10 per cent with regard to low cost PSUs.

As security systems become increasingly more complex, the first rule is to ensure PSUs are designed and manufactured for security applications by companies committed to quality. There are other considerations too, such as consistent delivery, status monitoring and back-up protection, but quality manufacturing is pivotal to the right level of performance.

For many years, power supplies weren't a significant consideration for those designing and installing security systems. Devices were basic and power needs were largely formulaic. PSUs were generally inefficient and often the deciding factor when selecting one was price. Today things are different. End users demand greener power solutions, newer technologies are more sensitive to power requirements and many modern systems can be seriously affected by random power outages. Dantech believes it offers a smart solution in the form of its SecurePoE offering.

Dantech offers power supplies designed and built for security applications, and the company's SecurePoE range is designed for 'always-on' systems.

Specification

SecurePoE is, as its name suggests, a PoE power solution range aimed very much as the security systems sector. The PSUs are available in Midspan and Multispan variations. The Midspan units are designed for use with legacy or external switches, while the Multispan models include integral Cisco switches. The PSUs are available in a range of configurations for internal or external use and are available with 1, 2 or 4 ports. There are also 8 port variants in rack-mounted format.

Our specific unit was the DA1110-IN-4-G. This is an indoor 4 channel Multispan unit with UPS functionality, deploying a 10Ah VRLA battery back-up.

The unit's injectors provide up to 30W per channel, simultaneously across all four outputs. Mounted in a secure and tamper-protected metal enclosure, the connections include status monitoring. Transfer throughput manages Gigabit and 10/100Mbps bit-rates. The

PSU is suitable for IEEE 802.3:2012 (IEEE 802.3at & 802.3af) devices. The PSU offers a variety of monitoring options. Each port indicates if a PoE device is attached and if it is drawing power, and the PSU's PCB also indicates that the PSU is powered; any loss can be signalled to another system. The UPS variants (including our test unit) include monitoring of mains power status and low battery voltage. In the case of a prolonged power outage, the battery pack connections are broken once voltage levels are excessively low to prevent damage. An alarm condition is created if and when this happens. The battery pack is automatically reconnected when power supply is resumed.

The PSU housing is also tamper-protected.

The Multispan UPS models are supplied with customised battery packs. This ensures that PoE delivery can be continued when mains power is off. The battery packs use Yuasa batteries. Stand-by times vary according to load, but by way of an example, Dantech quote the 10Ah pack as delivering 100 hours for a 5W load, 20 hours for a 25W load and 4 hours for a 100W load.

The Multispan units include Cisco unmanaged switches. Our unit included a five-way switch to allow connectivity of up to four devices. The switches do not require any configuration and are supported by the battery back-up in case of power outages. The switch is pre-mounted, with connections in place. A single standard RJ45 connection is required to link to a network.

Build quality is good, and there are no reasons to suspect that there will be issues with regard to longevity.

The SecurePoE unit is supplied with a selection of fixings and grommets, plus a blanking plate to cover unused knockouts. With regard to these, the housing has many including some which are pre-prepared and covered with simple-to-remove plates.

There is also an installation manual, a general guide to the SecurePoE range and a manual for the Cisco unmanaged switch. In truth you don't need the latter; it only provides information on mounting options (which aren't relevant as the unit is pre-

mounted in the housing) plus a guide to operating temperatures.

Installation

Installing the SecurePoE unit is about as straightforward as a PSU should be. Despite the higher level of functionality and secure monitoring, any competent installer or integrator will find the process simple and quick.

With the housing mounted, the connections for status monitoring and power failure notifications need to be made. These are via simple screw terminals.

The network connections are made using RJ45-terminated cables. The devices are simply connected to the PoE injector board, and a single LAN connection is made to the spare output on the Cisco switch.

With the batteries connected via spade connectors, mains power connections are made, and that's pretty much it.

Connections such as those from the PoE injector to the switch, and linking of batteries are all complete when the product is delivered. The switch power is pre-wired and the unit itself doesn't require any software or configuration.

Performance

On initial power-up, everything works as expected. Power delivery is consistent and as specified, even with all channels delivering a full load. Over time this remained the case,

showing the stability and linear power performance that many of today's more complex and power-sensitive systems require.

The SecurePoE set-up was tested with a wide range of cameras, all which performed as per their specifications. It was also tested with a number of leading access control devices, along with some telephony and other non-security PoE-equipped peripherals. All behaved as expected and raised no cause for concern.

As the security industry increasingly delivers smart solutions, so a degree of integration will require non-security elements to share system infrastructure. With this in mind, the Dantech solution does what is expected.

There was little doubt that the switch would throw up any concerns. Cisco devices are good quality and some will argue that they're often over-engineered. There are some (and among that number you can include a fair amount of IT managers and network professionals) who aren't keen on Cisco devices because at times they can be overly complex. However, as this is an unmanaged switch it is literally a plug-and-play item.

The monitoring and status signalling works well, and the ability to include notification via another system, such as a VMS, does increase benefits for both installers and end users. All monitoring and signalling behaved as specified, and integration with out systems was very straightforward. When all is said and done, you're dealing with basic relays.

The back-up performance is also good, and even under heavier loads there is still sufficient time to react to notifications. Whether the solution is an alternative power source, a repair or reset, or the implementation of additional temporary security, the battery back-up ensures a higher degree of protection.

The SecurePoE Multispan UPS delivers a good degree of performance, and deserves the 'Secure' part of its name!

Verdict

Increasingly with modern security systems, a consistent power delivery – and a degree of resilience to keep systems running – is essential.

Increasingly Benchmark is meeting installers and integrators who are reporting that more end users are not simply demanding a degree of resilience from their systems, but are also seeking evidence that proper steps are being taken. The implementation of secure and monitored power serves that purpose, and as such the SecurePoE Multispan UPS from Dantech has to be recommended.