



Power Extender Allows Schools to Deploy Cameras on Intermittently Powered Light Poles

Executive Summary

Client:

Texas School System with five campuses

Client Challenge:

Install surveillance cameras on intermittently powered light poles

Product Solution:

Multi-Port Power Extender for Intermittently Powered Light Poles

Ventev's Multi-Port Power Extender enables continuous operation of Wi-Fi access points, wireless surveillance cameras or other PoE+ devices that are installed on light poles with intermittent AC power.

- Designed for light poles that are controlled by timers or photocells that interrupt the availability of AC power to conserve energy
- Powers devices up to 18 hours during daylight hours and recharges batteries within 6 hours at night when AC power is available
- Provides PoE+ for Wi-Fi AP and additional 35W of POE power for one to two other devices



Recently, a school system in Texas needed to deploy surveillance systems at all five of their campuses. The schools planned to deploy outdoor wireless mesh networks rather than installing data cables because it was a less expensive and quicker method of deploying the surveillance systems, and it would be less disruptive to school operations. The school system's goal was to install the camera network on existing campus light poles, where possible. Campus light poles are ideal for deploying security cameras because they are in close proximity to the students, faculty, their cars, and other areas of the school that require monitoring. The network designer planned to install four cameras on each light pole to sectorize the environment and obtain optimum picture quality.

Challenge

There was one major obstacle with the deployment; the campus light poles were intermittently powered. The light poles were tied to a master photocell so that during daylight hours when the lights were not needed there was no power to the light poles. This allowed the schools to conserve energy, but it made deploying a surveillance network on the light poles very difficult.

The network designer considered rewiring the intermittently powered light poles. That would solve the problem, but increase the budget and the amount of time it would take to get the system up and running. Another alternative was to avoid the issue altogether and deploy the cameras on the closest buildings instead of the light poles. This solution would require the use of more expensive cameras that might compensate for greater distances, but would still provide less detailed images of the surveillance areas.

Solution

Fortunately, the school's network engineer had recently learned about a new product from Ventev that would provide a much better solution. Ventev's Power Extender for Intermittently Powered Light Poles is an outdoor pole-mounted enclosure containing a battery bank and a proprietary charging system that extends PoE power to all active equipment during the daytime, then quickly recharges at night when the AC power is available.

The network engineer ordered a sample Power Extender from Ventev and tried the new solution. He determined that the Power Extender would allow the surveillance cameras to be deployed on the intermittently powered light poles and would cost less than the alternatives. The Power Extender charging system generated reliable power for active devices from the battery bank (200AHrs) during the daytime and then recharged the battery for the next day's operation in less than 6 hours at night when AC power was available.

Ventev's power system engineer performed some enhancements to the Power Extender to accommodate the specific requirements for the school system:

- Modified the standard 120VAC input to accommodate for 480VAC input
- To keep weight, size and cost to a minimum used a transformer-less power



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Multi-Port Power Extender for Light Poles

Manuf.# PWR-XTDR-VNV235
TESSCO No. 586690

Compatible with most POE+ devices and access points: Cisco 1572EAC & IW3700, Aruba 270, Meraki MR72, and others

system design

- Increased the number of PoE outputs from one to five to accommodate four PoE cameras and one PoE+ wireless access point
- Increased the size of the battery reserve to accommodate the total load of active equipment

The schools were very satisfied with the effectiveness of the surveillance system and the timeliness of the installation. They were especially impressed that the network engineer had found a state-of-the-art solution for deploying the cameras on the existing, intermittently powered light poles.

Power Extender 120VAC Input SKU 586690	
Output power	From Power Injector One PoE+ (802.3at) output port, 35W From Unmanaged Switch Two PoE ports (max output from both ports is 35W)
Gigabit PoE	10/100/1000 Mbps PWR+DATA OUT (Data + Power)
Input Power	90 to 264VAC, 60 Hz
Battery Backup System	Built-in charger w/sealed lead acid batteries, automatic switchover to battery Low Voltage Disconnect included (disconnect voltage 10VDC, reconnect voltage 12.5VDC)
Battery	100 Ahr Partial State Of Charge sealed lead acid battery Estimated usable life is 2-3 years
System Protections	Low Voltage Disconnect, DC input fuse protection, short circuit protection (auto-reset)
Terminal blocks	AC with 3 phase, 3PST, 2 position switch, DC for 12V and ground
Environmental Operating Temperature range	-25C to +50C (-13F to + 122F) Includes temperature consideration for the battery(s)
Dimensions	26"H x 16"W x 12"D
Enclosure	NEMA 4X white aluminum enclosure Includes pad lockable latches & mounting flanges
Enclosure Ports	One port for AC-input, four ports for RJ45 I/O
Weight w/ batteries	100 lbs
Included but not installed with each system	Battery harness, 1 hole plugs, 3 RJ45 glands