

Remote Maintenance through an Ethernet Power Controller (Pro Switch)



By Utah Department of Transportation

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Benefits Statement

Utah DOT's (UDOT) implementation of Ethernet Power Controllers (EPCs) enhances traffic monitoring by allowing remote reboots, saving time and travel costs for maintenance staff. This increases device reliability, minimizing downtime and ensuring continuous data collection, which improves road safety. The cost-effective EPCs provide immediate ROI, reduce work orders, and are rugged enough to withstand harsh conditions, leading to long-term savings. Overall, this initiative boosts productivity and efficiency, ultimately helping to save lives, time, and money in traffic management.

In this case study you will learn:

1. How UDOT addressed growing demand with a static maintenance staff.
2. How UDOT's implementation of Ethernet Power Controllers (EPCs) enabled remote reboots of malfunctioning devices, significantly reducing the need for physical maintenance trips.
3. How the use of EPCs has improved team productivity and provided more reliable traffic data, aiding in better decision-making for construction and project prioritization.

BACKGROUND

UDOT has a growing number of traffic monitoring station (TMS) devices and continuous count stations (CCS) that require traveling long distances to maintain them. UDOT uses TMS data primarily to identify construction time schedules to maximize the working hours while minimizing user delay and inconvenience to the public, calculating AADT, and providing a ranking criteria for our project prioritization. Our team's staff has stayed the same while the number of TMS devices we maintain has grown by 45% in the past 5 years. The maintenance staff has found ways to more effectively maintain remote devices for common fixes.

TSMO PLANNING, STRATEGIES AND DEPLOYMENT

An EPC was identified by the maintenance team to provide the needed functionality of rebooting devices experiencing power problems remotely rather than having to drive to the devices to perform a simple power reboot. EPCs also allow for scripts to be written to ping the IP address of specified devices and if conditions are not met, then it will reboot the power again without any intervention by a person which reduces the work orders received. A cost-effective EPC was selected so to have an instant ROI after the first need to recycle power and also to have the EPC rugged enough to last several years in a cabinet environment with severe cold and heat conditions. In managing the workload of our employees, the EPCs were deployed strategically during preventative maintenance visits or during the time visits were needed to fix problems.

COMMUNICATIONS PLANNING AND EXECUTION

UDOT has a quarterly maintenance meeting with in house and partner agency ITS staff to go over several topics. We trained all field employees (including consultants and municipalities) how to properly setup, troubleshoot and maintain the EPC devices. To have these EPC devices available to all municipalities, employees and contractors, we have procured these devices and have them readily available in our UDOT warehouse for deployment as needed.

OUTCOME, BENEFITS AND LEARNINGS

The EPCs have been very beneficial increasing the productivity of our team, minimizing the time that devices in remote areas are down, decreasing the work orders created, reducing wear and tear on our vehicles by reducing unnecessary maintenance trips, and providing greater expanses of quality data to make informed decisions. In addition to UDOT employees, other municipalities are installing EPCs in helping to better maintain our vastly growing ITS infrastructure.