

TECHNICAL CASE STUDY



EXTENDING DIESEL FUEL LEVELS FOR 300 SITES IN A MIDDLE EAST PUBLIC SAFETY NETWORK

Extending Diesel Fuel Levels for 300 Sites in a Middle East Public Safety Network

Public safety telecom networks have different priorities than other networks. Network resiliency for a public safety network is a paramount concern. It is a given that the network needs to operate during even widespread catastrophes that can impact the function of the network itself. First responders such as police and fire departments rely on these networks for instant communication while responding to a crisis. When the remote radio sites of these networks are spread across an entire state or even a country, the challenges of working with extremely remote locations raises the need for telecom site automation to reduce network outages due to power, security, or environmental failures at a site.

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Customer Challenge

Asentria began working with a global public safety network integrator simply to handle what we consider to be “legacy alarms.” Telecom sites have traditionally considered “alarming” as a core function. Many critical systems within a standard telecom site have traditionally indicated when they are not operating properly through the use of a simple contact closure alarm. As discussions evolved and the integrator began to better understand the capabilities of the SiteBoss, it became clear that other issues related to making sites more robust were possible.

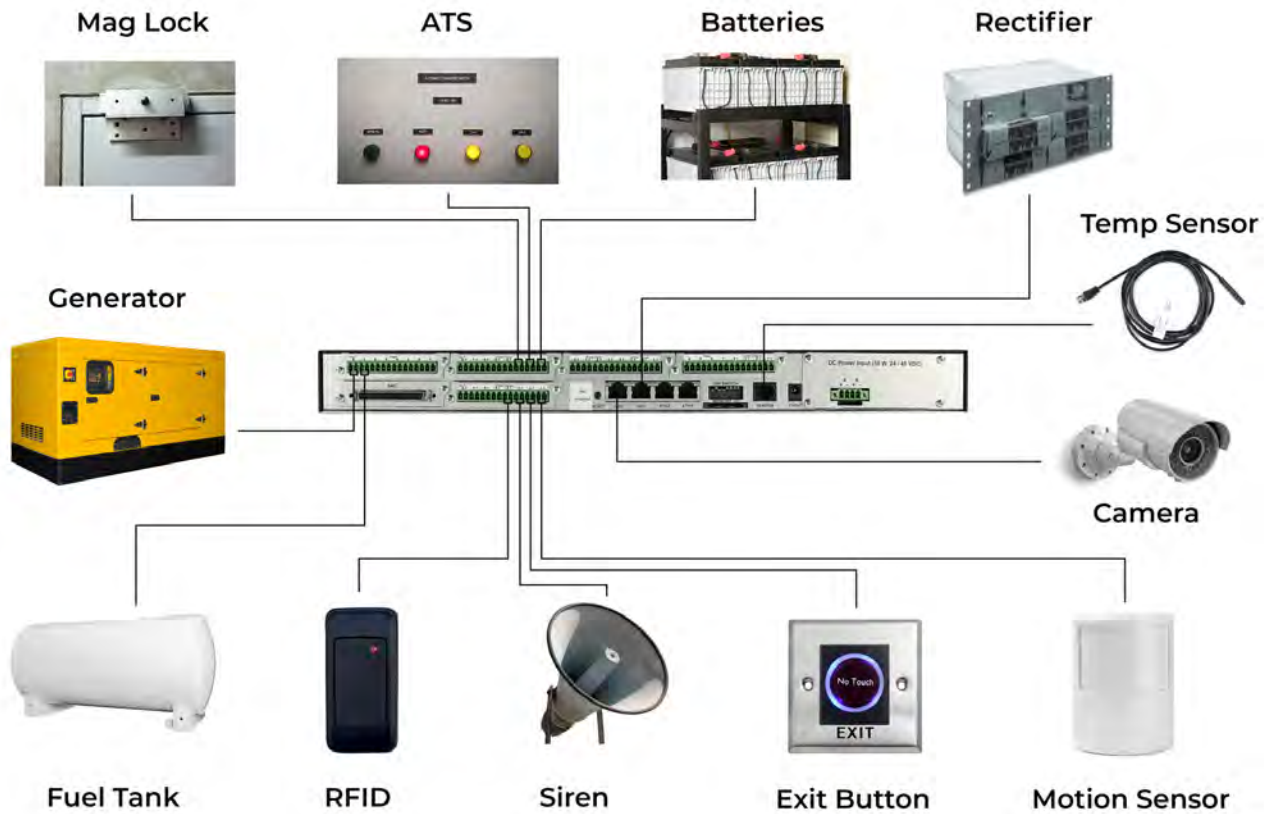
Objective

- ➔ Improve resilience of sites that were up to 50 miles from nearest service personnel, and located in difficult to reach locations.
- ➔ Sites were located in remote places, where physical security of the site from theft or other mischief was needed.
- ➔ Grid power to some sites was not fully reliable, necessitating the frequent use of diesel generators for site power back-up.



Solution – Telecom Site Automation

As the technical personnel at the public safety integrator became more familiar with the use of the SiteBoss, and had further discussions with Asentria engineers, other site resilience benefits were undertaken. The SiteBoss unit was used to act as a remote access device to other site equipment. The SiteBoss was integrated to the HVAC system, the diesel generator, and the DC rectifier at the site. The SiteBoss was also integrated to door access control systems, cameras, and temperature/humidity sensors.



Three telecom site automation programs at each site were outlined and deployed.

Program #1 – Generator Automation

Increasing Site Life per Liter of Diesel Fuel - Some sites in this country-wide deployment were in extremely remote and distant locations. In the event of power loss it was of primary importance that the site operate as long as possible on the diesel fuel at the site until a fix could be implemented. An automation was created so that the SiteBoss would watch site temperature, as well as battery discharge levels from the DC rectifier.

When AC grid power to the site failed, the SiteBoss unit took control of the back-up power in the site. When the site was running on the generator, the SiteBoss had the site operate similarly to when it was on grid power, with all equipment in operation. When running on batteries, the AC powered HVAC system would not operate. The SiteBoss had the site operate on batteries as long as state of charge of the batteries was above 50% and temperature was below 30C. If either condition wasn't met, the SiteBoss would have the generator start and run until batteries hit a high state of charge and the site was sufficiently cool. This cycling enabled diesel fuel at a site to be considerably extended.

Program #2 – Security Camera Automation

Automation was created related to the onsite IP security camera. When the camera detected motion, a still photo was sent to and stored within the SiteBoss, and a polled value within the SiteBoss was changed so that a network management software (NMS) that was polling the SiteBoss units could see that some event had occurred on site. When the camera alarm was active in the NMS, the operator could click on the event and pass through directly to either the stored images in the SiteBoss of what generated the alarm, or pass through directly to the camera itself to see a live video stream.

Program #3 – Door Access Control Automation

The SiteBoss unit was integrated to existing door access control hardware at the site. The SiteBoss controlled entry and various logic regarding alarming if incorrect codes were entered, resetting motion detection after service personnel had left the site, turning on/off sirens based on different events, and managing an "exit" button for someone within the shelter to activate the door strike to open the door to leave the site.

Conclusion

The role of the SiteBoss in this project was initially viewed as being simple “alarming”. It is very typical that once engineering staff begin to understand the role of telecom site automation and understand the support that can be given by Asentria engineering staff, the scope of what is being done by the Asentria SiteBoss products begins to increase. After this first project was completed in partnership with the public safety integrator, a 2nd project with a different customer was defined where even more of these telecom site automation capabilities were built into the initial network design. The expansion of the use of telecom site automation becomes a competitive edge to users who understand its benefits.

Asentria helps create more resilient and cost-effective networks vial telecom site automation.



