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Use  
case 01

**SecuriConnect**®

**Cybersecure remote  
management  
of water pumps**



Today, water supply facilities are starting to utilise information technology (IT) in greater degree for remote management, surveillance and control. The facilities are no longer physically separated from other communication networks, they are often connected to remote office networks. This type of connection, however, exposes the water pump station to new kinds of threats – cyberattacks. Most reported attacks on critical infrastructure are made possible by network connections to administrative systems, or directly from the Internet. How can owners of water supply facilities utilise cost efficient remote management without compromising on cybersecurity?

# Cybersecure remote management of water pumps

Traditionally, cybersecurity refers to preventative methods used to protect the cyber environment, organisation and user's assets against unauthorised access or attack. According to the International Telecommunication Union (ITU), organisation and user's assets include connected computing devices, personnel, infrastructure, applications, services, telecommunications systems, and the totality of transmitted or stored information in the cyber environment. In the context of critical infrastructure, the definition of cybersecurity can be redefined to mean measures taken to protect the reliability, integrity and availability of power and automation technologies against unauthorised access or attack.

## The solution – an encrypted, secure tunnel

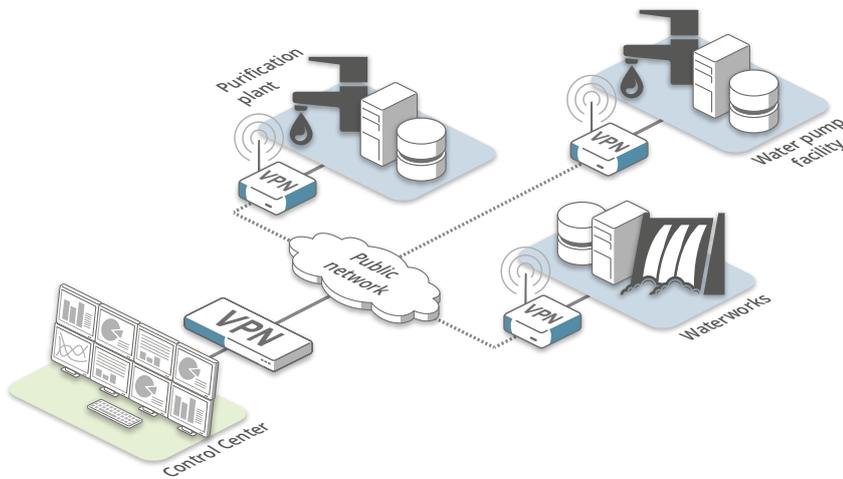
The figure on the following page depicts a generic solution for enhancing a water pump infrastructure with remote monitoring and maintenance using a combination of mobile broadband and wired Ethernet as IP based communication networks. In the Control Center, an industrial control system, such as CitectSCADA, is used to monitor and control the pumping process. The control system is connecting to the IP based communication network via wired Ethernet. Advenica's SecuriConnect ED140 network encryptor protects all information flow between the control system and the water pump stations. Advanced cyberattacks such as manipulation of information, replay attacks and eavesdropping are eliminated by SecuriConnect as it creates an encrypted, secure tunnel through the Internet, effectively forging a Virtual Private Network through the Internet. The technology used to create VPN tunnels guarantees sustainable future-proof communications privacy meanwhile eliminating insider threats from both potential malicious system users or system administrators.

## Swedish Technology

SecuriConnect utilises technology inherited from Advenica's network encryptors developed for the Swedish Armed Forces to protect state secrets at information classification level Top Secret. SecuriConnect is designed and developed in Sweden.

## Connectivity freedom

Each pumping station is equipped with SecuriConnect ED120M, connected to the water pumps via Ethernet. The SecuriConnect ED120M provides the same type of protection against cyberattacks as the ED140 model. Moreover, the ED120M is capable to utilise both wired Ethernet and mobile broadband (3G, 4G and LTE) for Internet connectivity. In this particular scenario, mobile broadband is used. All communication between the water pumps and the Control Center is protected by the SecuriConnect system (ED140 at the Control Center and ED120M at the water pump stations). At the water pump station, it is quite possible to connect other types of machines and control units to the SecuriConnect ED120M for remote



## Benefits

- Increased productivity with high-end security in user friendly solution
- Superior communication privacy – based on military grade technology
- Integrated network security functionalities
- Connectivity freedom - embraces traditional as well as mobile broadband such as 3G and 4G
- Provides multiple High Availability options
- Multiple product models for optimal deployment versatility
- Long product lifetime and low maintenance cost
- Low Total Cost of Ownership (TCO)
- Made in Sweden

monitoring, operation, and maintenance. In fact, ED120M can maintain secure VPN connections to multiple Control Centers effectively, enabling high availability of Control Centers.

## Result – cost efficient and cybersecure remote management

The SecuriConnect network encryptor solution embodies the objective required for cost efficient and cybersecure remote management of water supply facilities. It ensures long-term sustainable digital communication privacy and eliminates insider threats from both potential malicious system users or system administrators. In SecuriConnect, these objectives are guaranteed by the technology inherited from Advenica's military grade network encryptors; quantum secure algorithms for encryption key management and the patented Three Domain Separation for device management.

## User friendly plug and play system

The solution depicted in the figure above is an enhanced water infrastructure solution to monitor, operate and maintain remote pump stations in real time using mobile broadband connections at the water pump facilities. Naturally, the solution can be expanded progressively to cover several hundreds of geographically scattered water pump facilities. Because SecuriConnect is a user friendly plug and play system without the need for day-to-day management, adding a new water pump facility is a simple plug and play task that can be performed by employees without any special IT knowledge. The newly added facility will be operational within minutes.

## Superior communication privacy

Whether in water pump stations, wind parks for energy production, or pumping stations for oil, or gas, building services systems or production plants with a limited local network; the SecuriConnect network encryptor enables you to generate a cutting edge Virtual Private Network through the Internet to your machines and control devices via the Internet for remote monitoring, operation, and maintenance.



Advenica provides expertise and world-class high assurance cybersecurity solutions for critical data in motion up to Top Secret classification. We enable countries, authorities and companies to raise information security and digitalise responsibly. Founded in 1993, we are EU approved to the highest level of security. Our unique products are designed, developed and manufactured in Sweden.

**Read more at [advenica.com](https://advenica.com)**



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