

4IR, IOT & CLOUD SOLUTIONS

FOR TELECOMMUNICATIONS

WE PROTECT LIVES AND ASSETS THROUGH TECHNOLOGY



Without visibility and accountability across all aspects of operations, the risk of theft and downtime on site increases.



**DETER THEFT
& VANDALISM**



**REDUCE
ANONYMITY**



**PREVENT DAMAGE
TO EQUIPMENT**

Telecommunication organisations need to protect infrastructure such as tower sites and critical equipment from theft and vandalism; whilst improving operational efficiency in challenging and sometimes remote environments.

The FS Group understands that having visibility across all sites is challenging, and that theft and downtime on site costs significantly in time and money. That's why we custom design and install 4IR and Cloud solutions that provide transparency on site and improve operational efficiency, whilst saving on time and costs.



**REAL TIME
VISIBILITY**



**DIGITAL
AUDIT TRAILS**



**PROTECT
VALUABLE ASSETS**

Robust Lock Controller that seamlessly integrates with **existing shelters, cabinets and equipment enclosures**

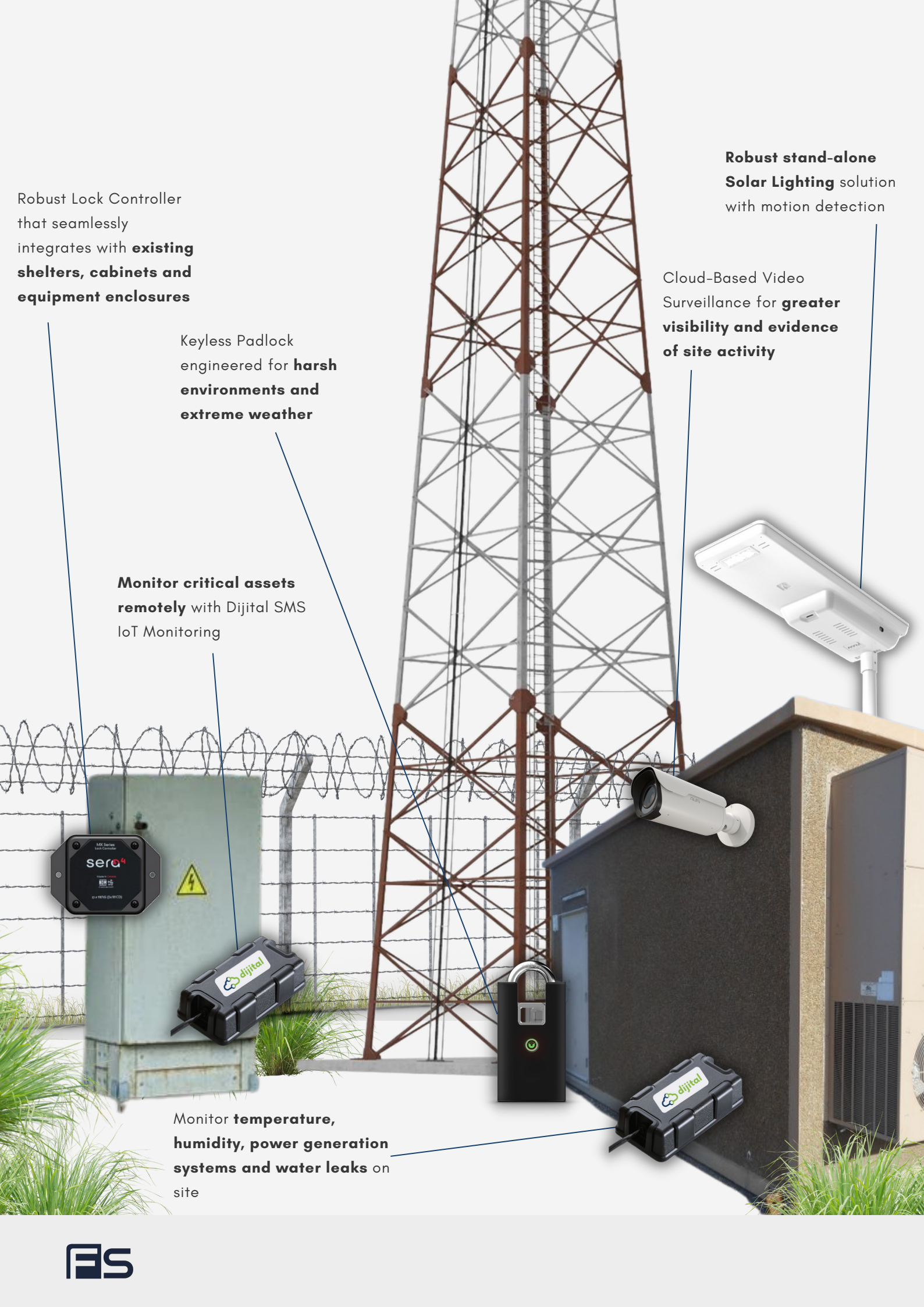
Keyless Padlock engineered for **harsh environments and extreme weather**

Monitor critical assets remotely with Dijital SMS IoT Monitoring

Monitor **temperature, humidity, power generation systems and water leaks** on site

Robust stand-alone Solar Lighting solution with motion detection

Cloud-Based Video Surveillance for **greater visibility and evidence of site activity**





Reduce Anonymity on Shared Sites

On shared sites, there is a multitude of people that need to access not only the main gates, but also separate assets owned by various operators. The challenge for Tower Companies and Network Operators is restricting access to certain assets or areas, and monitoring who is on site.

Cloud-based key management enables you to **restrict access to certain areas on site by assigning keys to specific users or groups** - allowing them to access only what they are authorised to access. Managers are also able to monitor site activity through automatic notifications, detailed access logs, robust audit trails and map view of locks on site.

Cloud-based video surveillance and sensors allow you to easily monitor sites remotely and in real time, **giving you visibility and evidence of what is happening on site**. Clients can monitor shared sites, have footage of site events and get real time alerts of unusual behaviour.

When restricted areas are accessed, you can also **receive real time alerts** through motion and tamper detection sensors, as well as track occupancy on site over time.



Deter Theft & Vandalism on Tower Sites

Reduce anonymity and increase visibility on site to prevent theft, vandalism, and trespassing.

Most current solutions use metal keys or cards which are easily cloned allowing malicious insiders and criminals to gain access without detection. With cloud-based key management, time-based restrictions can be applied to keys, keys cannot be lost or copied, combinations and passwords can't be leaked. With detailed access logs, if theft occurs on site, **it can be correlated to specific service visits.**

Video surveillance reduces anonymity, increases visibility, and deters criminal activity on site. Through traditional video security methods, you are required to physically be on-site when you want to access or view footage. Having a cloud-based solution allows you to store footage off-site and **remotely access your footage at any time.** Even when you aren't actively monitoring video feeds, real time alerts are set up for specific events, so you're always in the loop as to what's happening on site. By recording and processing on-camera, the system never stops working and no footage or evidence is ever lost.

Site security can also be improved with vehicle data. Vehicle and license plate recognition technology can gather data on site, **increasing perimeter visibility and automatically alerting you of vehicle motion or flagged license plates.**

Smart, solar powered lights, which are not reliant on the electricity grid, **provide lighting on sites with no power.** By integrating this technology with a cloud-based camera, you can always have visibility on site and can detect unusual motion. The deployment of this integration can be done very quickly, as the solar lighting does not require any underground cabling to secure.

Enrich Investigations with Digital Verification of Site Activity

As tower sites are often located in remote locations and contain a wealth of valuable goods, it can be difficult to prove when and how theft has occurred as well as to prove ownership of stolen goods recovered.

Cloud-based key management enables better investigations by being **able to verify who has last accessed a site**. If theft occurs, it can be correlated to specific service visits. Access logs provide detailed user information, access date/time and GPS location of lock events.

With cloud-based video surveillance, you have **real time alerts of unusual site activity** and the footage you need as evidence. AI features such as People Counting, Vehicle & License Plate Recognition and Unusual Behaviour detection, are designed to improve visibility. It also enables clients to securely access and view live video remotely, quickly find and share footage from either desktop or mobile app.

It can also be challenging to know when critical assets have been stolen or moved off site. **Critical assets can be tracked in real time** to prevent the loss of equipment by theft; and alerts received in real time when objects move, arrive, or depart. High value items are then tracked by location.



Improve Operational Visibility in Extremely Harsh Environments

Many tower sites based in remote locations face extreme environmental conditions and critical access control equipment needs to be able to withstand these harsh conditions, whilst still being reliable and low maintenance.

The Armoured Padlock from Sera4™ is a smart padlock designed to withstand abuse and resist attempts at theft and vandalism. It provides years of **trouble-free service in harsh environments** with operating temperatures of -30°C to 70°C, and water resistance.

Deployment of video surveillance systems on tower sites can be costly and require extensive infrastructure. With cloud-based video surveillance, there is no need for vast infrastructure or networks, therefore reducing the cost whilst still ensuring 24/7 surveillance. It also **removes the burden on constantly maintaining hardware** and infrastructure on site.

Tower managers need to constantly monitor infrastructure data and other energy parameters such as battery life, alarms and alerts, fuel usage as well as the temperature of the tower site. Access to unreliable and sometimes even inconsistent data leads to multiple, very costly site visits across the entire portfolio. With rugged, low-cost sensor monitoring devices, you always have visibility and can ensure that you have **reliable and consistent data on remote tower sites**.

Smart Solar Lighting offers a robust and reliable on-site solution, that is able to **withstand the harsh environmental conditions** and provide light on sites without power. Solar panels are embedded in the solution making them theft proof and anti-dust coating protects them against dust accumulation.



Manage Contractors on Site & Reduce Billings Anomalies

Without control over who gains access to a site and visibility into what actions are occurring, no one can be certain of what is happening on the site.

It can be difficult to know what work has been completed and by who, but through cloud-based key management, **all site activity can be tracked**. With accurate audit trails and timestamps of what has happened on site, **billing anomalies can be minimised**. Often teams access sites and sometimes arrive and leave at different times. There are usually several locks or access points on a site.

Through cloud-based key management, the process of access management and site security much more fluid and powerful. Activity is grouped from the moment the first person arrives on-site and checks in, to the time the last person leaves. This means that once a site is open, locks can be open and closed within a session without opening and closing the site. A different person may close the site and mark it as secure.

A record of the links between events in a site visit can be used to understand how long a job takes to complete on site, and even **get verified timing on specific components of a job**.





Monitor all Sites & Critical Assets Centrally from One Platform

Remote sites tend to be more isolated with gravel or dirt road, making them easily susceptible to theft and vandalism. The response time for armed response teams is longer due to difficulty in reaching site and being proactive in terms of these incidences proves to be difficult.

Not having visibility on these remote sites keeps site activity nearly anonymous and increases the risk. With cloud-based key management, you can **monitor site activity from anywhere**, giving you status of access points and site visitor identification.

Operational efficiency is also increased because keys can be issued or revoked in real time for any site; and **locks can quickly be deployed to site** by anyone with authorisation.

With cloud-based video surveillance, all sites can be managed centrally on one platform. Real time alerts are sent for **unusual or unauthorised behaviour on site**, allowing a much quicker response time. This also eliminates the need to set up an elaborate control room.

Monitoring critical assets is done through IoT sensors which provide better operational efficiency and **enhanced uptime of infrastructure**. Real time notifications are sent to users via SMS, email or mobile app.



Remove the Human Element from your Security

Security resources can be inefficient, unreliable and make errors. It is also costly to deploy security to multiple sites.

With cloud-based video surveillance, you can remove the human element from your onsite security and **monitor sites remotely and intelligently**. Surveillance can either replace or compliment onsite security, as clients can be notified of unusual behaviour in real time. It also **eliminates the need for full time security personnel** to monitor footage, as notifications can be sent via email or mobile app.

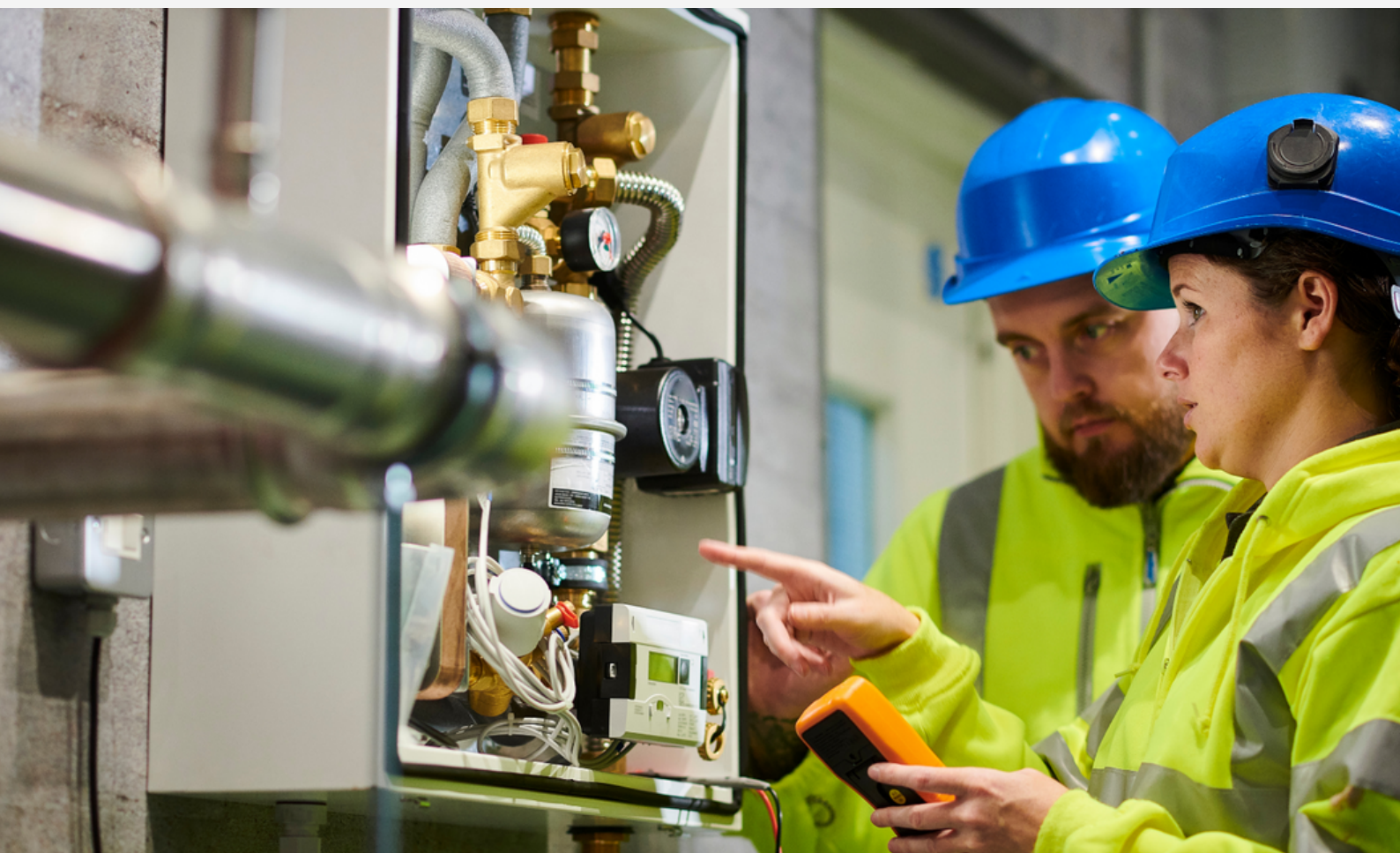
These intelligent cameras learn what is normal for a particular environment and the system **continuously monitors your site**. Video events can be indexed and filtered for unusual behaviour and custom policies set up to ensure the right people get the right alerts.

Prevent Damage to Critical Equipment

Prevent damage to critical equipment in shelters, cabinets and on site by proactively managing environmental conditions.

To achieve the high availability and reliability of Tower Sites, it is essential that the operating environment on the site and within the shelter is maintained. Through cloud based and IoT monitoring of critical equipment, site managers are able to:

- Have real time visibility into the state of their power systems
- Monitor generators for fuel level status and be notified of state changes
- Monitor environmental conditions such as humidity and temperature in shelters and cabinets on site
- Detect water leaks and flooding at an early stage



Manage Manholes with Digital Audit Trails & Alerts

Manhole covers are easy pickings for thieves and are being stolen and sold for scrap metal. Add to this the number of manholes and the geographical spread, and it becomes costly and challenging to manage them.

Access to manholes can be digitized through cloud based key management for accurate and reliable records. **Keys can be managed, issued and revoked online and in real time.**

Smart sensor devices will detect if the manhole cover has been **tilted, tampered with and if it is an open state**, giving real time visibility. Deployment is simple, and you can receive alerts and monitor all manholes on one central platform.

Flooding and water leaks in manholes are detected cost-effectively and in real time.



Secure Site Enclosures & Cabinets

Protecting on site enclosures from vandalism and damage is challenging. However, if locking mechanisms are hidden from sight, it makes it more **difficult to gain unauthorised entry**.

The Sera4 Lock Controller can be retrofitted to cabinets and other enclosures so that the Controller itself is hidden. It is designed to integrate seamlessly and easily in existing outdoor shelters, cabinets and equipment enclosures.

Going keyless makes sense in these applications, as keys can no longer be lost, forgotten or copied. Access can be digitized to provide **reliable and real time audit trails**, thus making key management more secure and efficient. Then, as with all our access points, you get to know who is in your specific cabinet, for how long, and you can grant or revoke digital keys from anywhere, instantly.

There is no limit to the number of users, keys or access events to the solution. And there is no network required to operate the management platform.

Cloud-based video surveillance allows you to identify unauthorised activity in real time and **have video footage as evidence**. These video cameras can fit neatly inside a cabinet or enclosure and come standard with infrared night vision.

Need to know if a cabinet or enclosure on site has been opened without authorisation? With real time tamper detection, you can **immediately be notified of unauthorised access**, and know if the cabinet is in an open state.





Digitise Access to IT Infrastructure & Reduce the Risk of Network Exposure

With network and server cabinets containing critical equipment, access should be both efficient and secure. With cloud-based key management, **each cabinet can be secured independently** with digital audit trails of access. Then, you get to understand who is in your specific network or server cabinets, for how long, and you can grant or revoke digital keys from anywhere, instantly. A retrofit can be done quickly with a Sera4 Lock Controller and optional Access Pad, with no IT integration required.

Using a secure off-network key management platform will also **reduce the risk of network exposure and ensure reliable service availability**. A cloud-based platform is continually kept up to date in response to security threats and changing standards, and the fact that it doesn't rely on existing network infrastructure makes the solution suitable for remote areas and reduces the risk of network exposure and exploitation.

Cloud-based video surveillance provides a more reliable network connection and the **lowest possible bandwidth** consumption. Cloud IP cameras with remote access are a powerful choice for video security and can deliver latencies that are comparable to on-premise solutions. Modern cloud solutions are definitely more secure and more carefree than an on-premise solution. As new threats emerge, **systems update automatically to minimize risk**.

As the number of critical components in your infrastructure grow, so does complexity and the necessity to stream information as it happens. With secure cloud API integrations, you can **improve productivity and quality of operations** in your organisation. Integrated systems allow you to leverage your investment in them.

Cloud based systems provide a low maintenance solution that reduces IT costs and provides flexibility and scalability.



Decrease Maintenance & Improve Operational Insights

Traditionally, companies monitor towers manually, which is easier said than done. With telecom sites and towers spread across various locations in remote areas, efficiently managing them is a huge challenge for many organizations.

Every day, remote towers are subjected to downtime, subpar maintenance or unnecessary energy consumption, as well as fuel theft or compromised security. These challenges usually result in unplanned downtime, ultimately leading to loss of revenue and expensive maintenance.

With cloud-based key management, site activity is automatically logged, and **data collected for better visibility and performance benchmarking.**

Virtual keys, backed by a cloud infrastructure, provide insights into operational processes across your assets and organization. These insights can help refine strategies from everything to resource planning to reconciling billing with contractors. It's often challenging for operations teams to understand the actual processes being undertaken at remote or satellite sites.

Access logs and audit trails **provide the intelligence needed** to make better business decisions and understand process gaps. With IoT monitoring of site assets, you have better visibility and **accurate data on the health and stats of critical site equipment.**

Product Overview



Sera4 Keyless Access Control

Secure, scalable, and reliable keyless access control that brings enterprise-grade security to critical infrastructure and remote sites. The Sera4 Teleporte® solution provides mobile provisioning of access rights using Smartphones to distribute digital keys and control keyless locks via Bluetooth.

Manage thousands of keys efficiently and in real time from any device connected to the Internet. No need for onsite servers or software and no expensive network requirements or hardware.



Ava Security, Cloud-Based Video

Ava Security offers a hybrid cloud model to increase an organization's scalability, flexibility and security.

Data can be maintained and accessed from anywhere in the world including via mobile devices. Ava's powerful cloud-based AI video management system is equipped with integrated machine learning capabilities and identifies objects and events, sends instant alarms based on rules and detects unusual activity.



Dijital, Sensor Monitoring Solution

The Dijital Sensor Monitoring Solution is a cloud-based platform that offers the ability to manage and monitor multiple critical assets across various locations remotely.

Connected with Sigfox IoT devices that offer global coverage and the lowest energy-consumption device-to-cloud, Dijital Sensor Monitoring connects your physical world with the digital universe through environmental and equipment condition monitoring sensors.



Sunna Design, Smart Solar Lighting

Sunna Design lighting, is smart, connected solar lighting, which is a robust and stand-alone solution, particularly suitable for industrial areas.

It is simple and fast to install, has a 12-year battery lifespan, is available with motion sensors and can be managed remotely. Solar panels are embedded in the solution making them theft proof and anti-dust coating protects them against dust accumulation.

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