DiCal®

SWISSPHONE

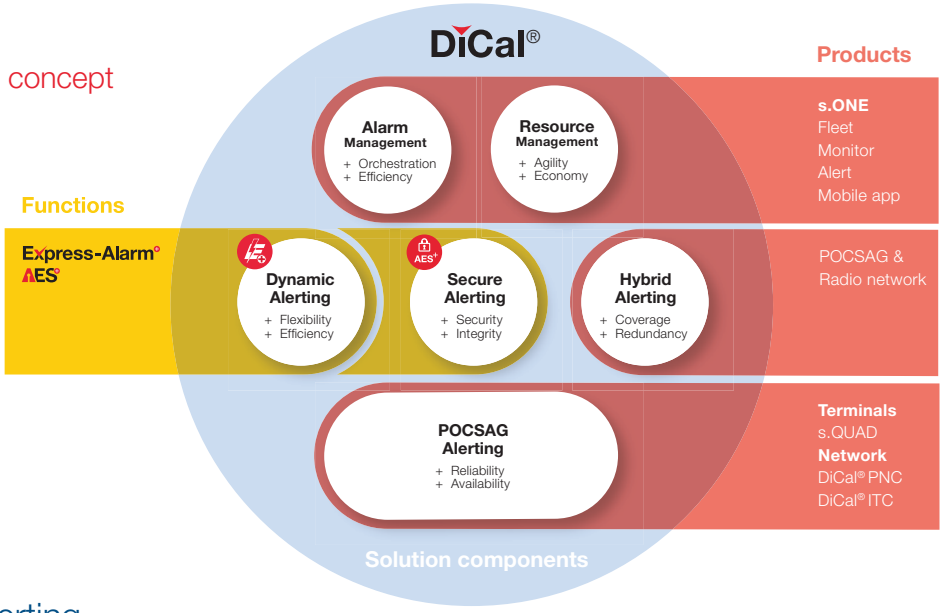
DiCal® – Digital alerting solution for blue light organisations

Safe, reliable and efficient - when every second counts

All-round security with the Swissphone DiCal® alarm solution

For over five decades, Swissphone has established itself as a reliable partner in the alerting of critical situations – with solutions that are indispensable in crucial moments. With DiCal®, we offer a comprehensive alerting solution that meets the most demanding and contemporary requirements while guaranteeing maximum resilience to enable fast and precise responses in an emergency.

Secure alerting – a holistic concept



The basis: POCSAG alerting

As the backbone of the DiCal® alarm solution, the POCSAG radio network, consisting of the Paging Network Controller (DiCal® PNC) and the Intelligent Transceiver Controller (DiCal® ITC), forms a highly available, comprehensive and independent alarm infrastructure. Especially in situations where other communication channels fail or are overloaded, the POCSAG network guarantees maximum operational reliability. Indispensable for safety-critical applications and for use in disaster or emergency management.

The system is characterised by a high degree of technical flexibility and scalability in order to ensure this reliability in a wide variety of deployment scenarios. The radio coverage can be planned flexibly and enables large-scale coverage of entire districts as well as precise alerting in specific regions or smaller on-site areas. Depending on requirements, the network can be expanded and specifically secured for exceptional situations such as power or IT failures. Swissphone's multi-master, multi-baud, multi-frequency and multi-alarm technology, which are implemented in the DiCal® PNC and DiCal® ITC, are used individually or in combination, depending on customer requirements. They enable the base station transmission sequence, transmission rate and transmission frequency to be changed in a matter of seconds. The DiCal PNC is self-governing and reacts quickly to changing requirements in the network.

A central element of the DiCal® solution are the high-performance digital alarm receivers from Swissphone. The modern s.QUAD terminals stand for maximum reliability in alerting: with their high reception sensitivity, they belong to the top class on the market and enable reliable alarm transmission even in areas with poor coverage or within complex building structures. The loud alarm of up to 95 dB ensures that no alarm goes unnoticed – even in noisy environments.

Thanks to intelligent power management, the s.QUAD C terminals achieve operating times of up to seven days in continuous wireless mode. In POCSAG mode, it can be several weeks with a standard AA battery, which makes the wireless terminal particularly efficient and low-maintenance. The s.QUAD C terminals receive alarms via the POCSAG network as well as via mobile radio. They therefore support the

How do you protect your critical infrastructure from challenges like these?

As operators and users of critical infrastructures, you face numerous challenges: The increasing threat of cyber attacks jeopardises the security of control centres, communication systems and IT infrastructures.

According to the GDPR, you must ensure that personal data is protected and compliance is met at all times. Ensuring the availability of your systems in the event of natural disasters, power failures or technical defects requires complex emergency plans and resilient systems. Technological change requires continuous investment to keep your systems secure and future-proof.

Our solution

The DiCal® alarm solution provides you with a comprehensive and flexible alarm system that meets the highest security standards and industry guidelines. With our solution, you have the option of customising the level of security, integrating feedback options for emergency services and expanding the redundancy of the alarm network in a targeted manner – tailored to your requirements. Hybrid alerting combines tried-and-tested POCSAG with mobile radio networks and guarantees maximum availability and efficiency. An outstanding feature of the DiCal® solution is the advanced AES+ encryption, which protects personal data in accordance with the GDPR. With Express-Alarm+ as an additional component, you save valuable time for rapid alerting of your emergency services. In addition, the DiCal® solution secures your entire infrastructure holistically.

infrastructure for hybrid alerting, which transmits messages via two independent networks. This functionality ensures that alarms are reliably delivered even in the event of partial network failures or network overload.
In addition, modern siren control receivers can be seamlessly integrated into the POCSAG infrastructure. They make it possible to alert the population or emergency services in a targeted and comprehensive manner – either automatically or manually. The activation is encrypted and time-synchronised, which is particularly essential for alerting across multiple sirens.

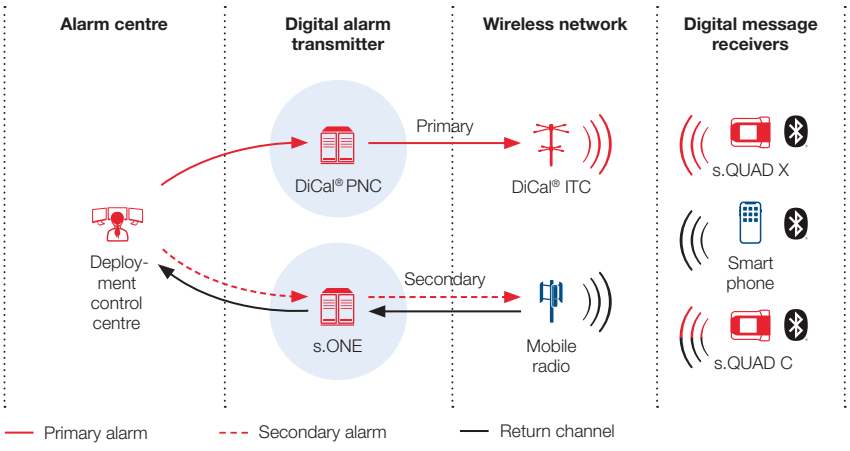
In economic terms, POCSAG offers a cost-effective alternative to broadband-based communication solutions. Thanks to the robust POCSAG radio network, large areas can be reliably covered with just a few transmitters – significantly reducing both investment and maintenance costs. In addition, POCSAG networks operate independently of commercial mobile radio networks, which not only reduces running costs, but also significantly increases reliability in critical situations.

Maximum accessibility – hybrid alerting for maximum security

The hybrid alerting within the DiCal® solution combines tried and tested with modern communication channels and thus ensures reliable and powerful alarm transmission. Alarm messages are transmitted in parallel via the POCSAG network and the mobile phone network. The terminal always displays the message that arrives first to enable a rapid response.

The perfect interplay of both transmission paths maximises reliability and ensures comprehensive network coverage – even in the event of faults or partial failures. Thanks to this hybrid architecture, alarms are always transmitted via the fastest available channel, saving valuable seconds in the event of an emergency.

Another decisive advantage is the bidirectional communication via the mobile phone channel. The signalling receiver automatically confirms the successful receipt of the alarm message with the technical feedback. The emergency services can transmit their availability in real time directly to the control centre via the radio detector – a process known as tactical feedback. This enables incident commanders to optimise operational control of the available resources. This combination of tactical and technical feedback increases planning reliability, optimises operational coordination and sustainably increases efficiency in alerting.



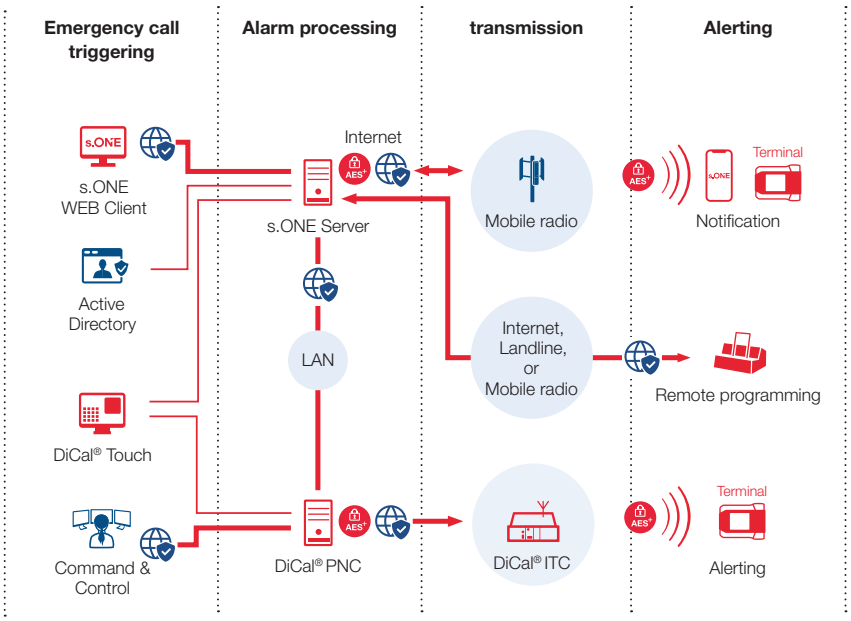
The combination of AES+ and Express-Alarm+ enables end-to-end encryption of alarm addresses (RIC). AES+ in combination with Express-Alarm+ is therefore more powerful than all previous encryption methods.

Secure alerting – a holistic concept

Reliable and protected alerting is essential for the safe operation of critical infrastructures. The DiCal® solution therefore relies on secure interfaces for access systems and encryption of alarm messages. Another important aspect is the consistent application of secure key management, which is provided by the centralised and inherently encrypted management environment with s.ONE Fleet.

The connections between the Paging Network Controller (DiCal® PNC), s.ONE and the Intelligent Transceiver Controller (DiCal® ITC) are based on secure transmission protocols, as is the public mobile radio channel which is used for hybrid alerting as well as for technical and tactical feedback and remote programming.

The DiCal® solution uses AES+ for the encryption of alarm messages, a highly developed encryption technology based on the AES-256 standard and a further development of the proven and still secure IDEA™ process from Swissphone. It fulfils the current security standards as well as the legal requirements. In addition to the technical measures offered by the DiCal® solution, organisational measures must also be taken. Swissphone offers support in the creation of a data protection impact assessment (DPIA), which serves as proof of compliance with the technical and organisational measures and is therefore also intended to minimise the risk of possible consequences.



The following diagram illustrates which interfaces and transmission paths are protected in the DiCal® solution.

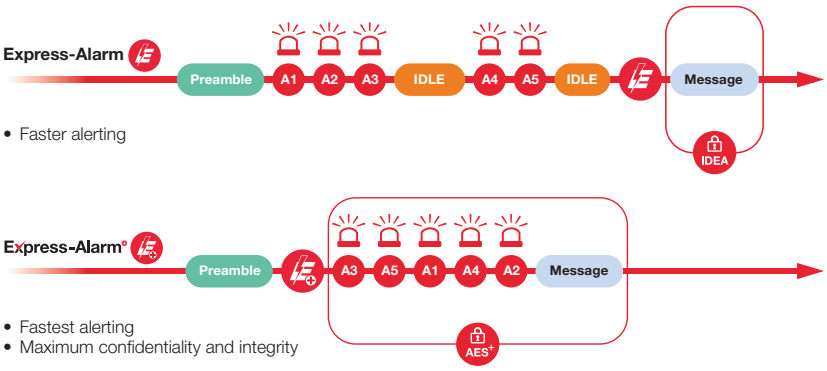
Express-Alarm+

Dynamic group alerting flexibility and efficiency

AES+

Encryption with the highest security and integrity

Message transmission process in comparison: Express-Alarm with Express-Alarm+



A = Address

Have you also thought about protecting the key management system from access by third parties?

A strong encryption system is only as secure as its key management. Without secure management, unauthorised access or tampering could compromise the integrity of the alert. Swissphone offers a specialised solution to securely manage encryption keys, efficiently configure terminals and protect the entire alerting process from unauthorised access. Find out more in the section on resource management.

Encrypt additional RIC addresses with AES+ and send messages faster at the same time!

The Express-Alarm+ offers the ideal solution here: dynamic alerting enables alarm groups to be formed quickly and flexibly. compared to Express Alarm, Express Alarm+ further increases the speed of paging transmission, as the position (frame position) of the alarm address within a paging call is no longer relevant. The combination of AES+ encryption technology and Express-Alarm+ ensures maximum efficiency in message transmission and complete protection of personal and tactical data.

GDPR compliant

GDPR compliant – Data protection at the highest level with Swissphone

Technical and organisational measures are crucial for GDPR compliance. According to Article 32 GDPR, systems must either use end-to-end encryption or take alternative measures, such as the transmission of data without personal reference.

In addition to encryption, a comprehensive data protection concept with a data protection impact assessment (DPIA) is recommended. An encryption concept could become mandatory in the future.

Find out here when a wireless network is GDPR compliant.

SCAN NOW!

Video about Encryption AES+/EA+

Efficient alarm and resource management with s.ONE

Precise alerting and the coordinated deployment of emergency personnel are crucial for efficient emergency management. Resource management provides a comprehensive overview of the available personnel with their predefined roles and the radio terminals used. Remote configuration and updates ‘over the air’ keep the end devices up to date and reduce operational effort and costs. Thanks to the availability feedback via the bidirectional terminals of the s.QUAD C series, dispatchers or incident commanders know in advance which alarm plans they can manage with the currently available resources. Monitoring and resource management therefore take place in real time. If, for example, a temporary under-staffing is detected, countermeasures such as an automated re-alerting can be taken in accordance with the stored alarm plan before an incident occurs. In addition, secure and hierarchically organised access control ensures that only authorised persons have access to security-relevant settings. The automated configuration and management of alarm addresses, devices and encryption keys helps to minimise errors and ensure operational readiness throughout. The management of terminals, such as firmware updates, is centralised without the need to send in devices.

Have you asked yourself how you can organise your key management securely and efficiently?

Key management is one of the biggest challenges in encrypted data transmission. Swissphone offers specialised solutions for secure and reliable key management. With s.ONE Fleet, the resource management module of s.ONE, keys can be managed securely and terminals can be configured efficiently. Thanks to rights and roles that are clearly defined according to the organisational hierarchy, those responsible can ensure that the alarm addresses are programmed with the correct keys and stored in the digital alarm unit. All programming data is transmitted to the terminal in encrypted form and the terminals are additionally protected by a password.

Receive terminal messages via smartphone?

The s.ONE Mobile app offers a secure and flexible solution for forwarding alarm messages. It enables the display of alarm messages on smartphones, regardless of the alarm channel. Operations managers can monitor the availability of their emergency services and trigger alarms as required. The app can be customised to the specific requirements of fire services and authorities.

Alarm management – connected, predictive, reliable

Alarm management covers the entire life cycle of an alarm – from the initial alarm before an event, through monitoring and coordination during the event, to final reporting and documentation.

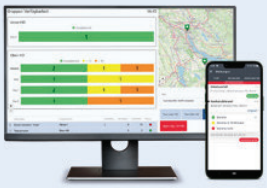
Effective alarm management determines the speed of response and coordination in an emergency. The s.ONE platform enables end-to-end control of the entire alerting process – from the preparatory resource analysis to the final follow-up. S.ONE recognises bottlenecks in emergency personnel in advance and supports managers in taking early action. A central dashboard provides a complete overview of available resources at all times in real time and enables rapid, targeted alerting. Thanks to hybrid alerting via POCSAG and mobile communications, availability is guaranteed even outside the regional alerting network.

After deployment, s.ONE ensures complete documentation as well as secure, centralised management and updating of all end devices – including remote configuration and key management. This minimises security risks and ensures long-term operational readiness.

The DiCal® total solution combines proven reliability with high speed, comprehensive network coverage and secure end-to-end encryption. This powerful combination ensures that fast, precise and secure alerting is possible even in critical moments.

Components

DiCal® PNC – Digital alarm transmitter
- Alerting and Network monitoring
- Control of the base stations
- Interface to the operations control system



s.ONE – Alarm and resource management
- s.ONE Fleet
  Device management and remote configuration
- s.ONE Monitor
  Real-time information on the availability of employees and alarm responses
- s.ONE Alert
  Hybrid alerting and targeted post-alarming
- s.ONE Mobile App
  Receive alerts and change the availability status

DiCal® ITC – Digital Alarm converter
- POCSAG radio base station
- Flexibly expandable with additional modules (e.g. LTE, HF control, IO contacts)
- Modern power supply unit for efficient transmission and reception operation

s.QUAD – Digital paging receiver
- Versatile product family for different requirements
- POCSAG optionally combined with LTE or mioty™ for hybrid alerting
- Optimised battery life of up to 100 days
- Extremely robust, dustproof and waterproof
- Large selection of accessories

DiCal® Touch
- Backup solution for alerting
- Fanless panel PC with touchscreen
- Flexible programming of softkeys
- Functions for alarm logging

DSE – Digital Siren control receiver
- Optionally also available as a combination device for the installation of an FRT for control via the BOS digital radio network (TETRA)
- Receipt and display of POCSAG alarms
- Compact 7" colour display
- Output to various printers possible

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