

Smart Meter Security

Scalable & flexible security solutions for the Smart Grid

Infineon, the worldwide leader in security chips is offering a scalable and flexible approach to address the increasing needs for security in smart grid applications. Infineon security solutions specially target smart meters, smart meter gateways and concentrators.

Security requirements are driven by many factors like use cases, deployment scenarios and also national security regulations. Infineon acknowledges that customers demand therefore a scalable approach for security and related return of security investment.

Infineon's security solutions offering include:

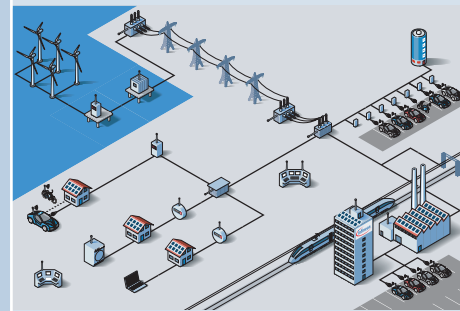
- A dedicated cryptography engine embedded in Infineon's Smart Meter ICs
- The ORIGA™2 dedicated asymmetric cryptography companion IC
- The EAL4+ Common Criteria certified Hardware Security Module SLS 52EII000

Products

- Integrated security support in Infineon's Smart Meter ICs
 - Supports symmetric as well as PKI cryptography
 - Keys programmed into the Smart Meter IC at production time in Infineon's certified secure manufacturing environment
 - Protection against software attacks
 - True Random Number Generator
 - Dedicated cryptography engine and AES 128/256 hardware accelerator
- ORIGA™2, Accessory Authentication device as companion IC
 - Dedicated asymmetric cryptography device
 - Highly efficient elliptic curve engine enables authentication in ~100ms
 - Supports mutual authentication and generates session key
 - Scalable, cost efficient solution
 - Low power device
 - Tamper resistant life cycle management capability
- Hardware Security Module SLS 52EII000
 - Security certified according to Common Criteria EAL4+
 - Implements Infineon Integrity Guard for long term field deployment security
 - Security functions with compatibility to existing security networks
 - Protected storage for meter critical configuration parameters, price signals, meter credentials, and critical system keys
 - Protection and secure update of meter firmware, critical meter configuration
 - Secure logical binding with meter metrology and communication modules
 - Secure life cycle management capability
 - Enabling critical security functionality on high assurance silicon
 - FIPS-140 supported

[www.infineon.com/smartmeter]

Smart Meter Product Line



Infineon's Products Enable Smart Grids

A Smart Grid is an upgrade of our existing grids towards a stable, clean, and secure future. It combines six key concepts in an intelligent way.

These 6 concepts are:

- 1 Renewable energies**
to produce electricity without CO₂ emissions
- 2 Advanced transmission**
to transport electricity to where it is needed with lowest losses
- 3 EV charging and energy storage**
for clean traffic and storage of excessive energy
- 4 Grid and smart meter security**
to guarantee stable and secure energy supply
- 5 Smart metering** to balance consumption and available supply
- 6 Energy-efficient consumption**
to maximize efficiency and reduce carbon footprint

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Infineon believes that security is the result of the overall processes and the related attack countermeasures. All three products help customers to both secure their systems and processes and cut cost in their overall security investment.

Customer Benefits

Return of security investment in manufacturing

Personalization is the process in which secrets (e.g. keys) are incorporated in a system. At Infineon this process is done in a security certified manufacturing location. By Infineon's secure personalization, the smart meter vendor is relieved of performing this necessary function within his own production and can thereby save substantial security infrastructure and related costs.



Additional Customer Benefits by Hardware Security Module SLS 52EII000

Return of security investment in development

By leveraging the existing security solution of the SLS 52EII000 the cost of creating security related skills across the whole smart meter development team is reduced. Customers can develop high assurance platforms with readily available security functions using best in class coding principles and years of security experience from Infineon. Application developers can concentrate on implementing the functionality of the platform and system, and fewer resources must be spend to the system security.



Fast time to market by existing and certified security

With the SLS 52EII000 high assurance device, many of the critical security attack countermeasures and operational functions have been already implemented. This provides a best in class security solution which obtains an EAL4+ Common Criteria security certification. To further facilitate system integration on the platform, system and back end network level, security functions embedded into the SLS 52EII000 are provided via an API which provides compatibility to existing security stacks. Implementation risks, verification, and implementation costs are decreased as time to market is improved.



Digital security architecture for long device lifetime

Smart meter field deployments easily exceed 15 years. In such timeframes, a vast variety of attacks against the meter and the AMI infrastructure will evolve. Deploying countermeasures now for these coming attacks can be significantly enhanced by utilizing security architectures which demonstrate key elements of future-proofing. Such market leading and scalable solutions for the smart grid are now available from Infineon with the introduction of Infineon's Integrity Guard concept.

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