



## Partner Use Case

# Secured authentication of water filters

With the security authentication function, customers will benefit from brand protection of original filters, which secure quality, safety, and after-sale service.



## Product

OPTIGA™ Trust SLS10ERE



# Use case

## Application context and security requirement

Water filters have existed for a long time. Yet now fakes are reported, which may lead to consumer and manufacturer problems. Fake filter elements without quality assurance may severely damage the ability to secure water quality, thus risking end users health. Therefore, additional means of protection from fake filter elements are expected from the host. Broadstar has worked on such a solution.

## Challenge

The security requirement is that authorized elements can be checked by the host. An authentication mechanism between the host and the filter elements help to block fake devices.

Challenges in providing this solution included matching security requirements and economic boundaries, as well as deploying the product as easy as possible on existing water bottle/filter.

## Implementation

Broadstar worked with water filter manufacturers to collaborate and improves water quality through smart authentication solution.

The authentication begins to work after connection between host and filter elements is made. Smarter authentication design allows for quick and easy filter element installations and replacements.

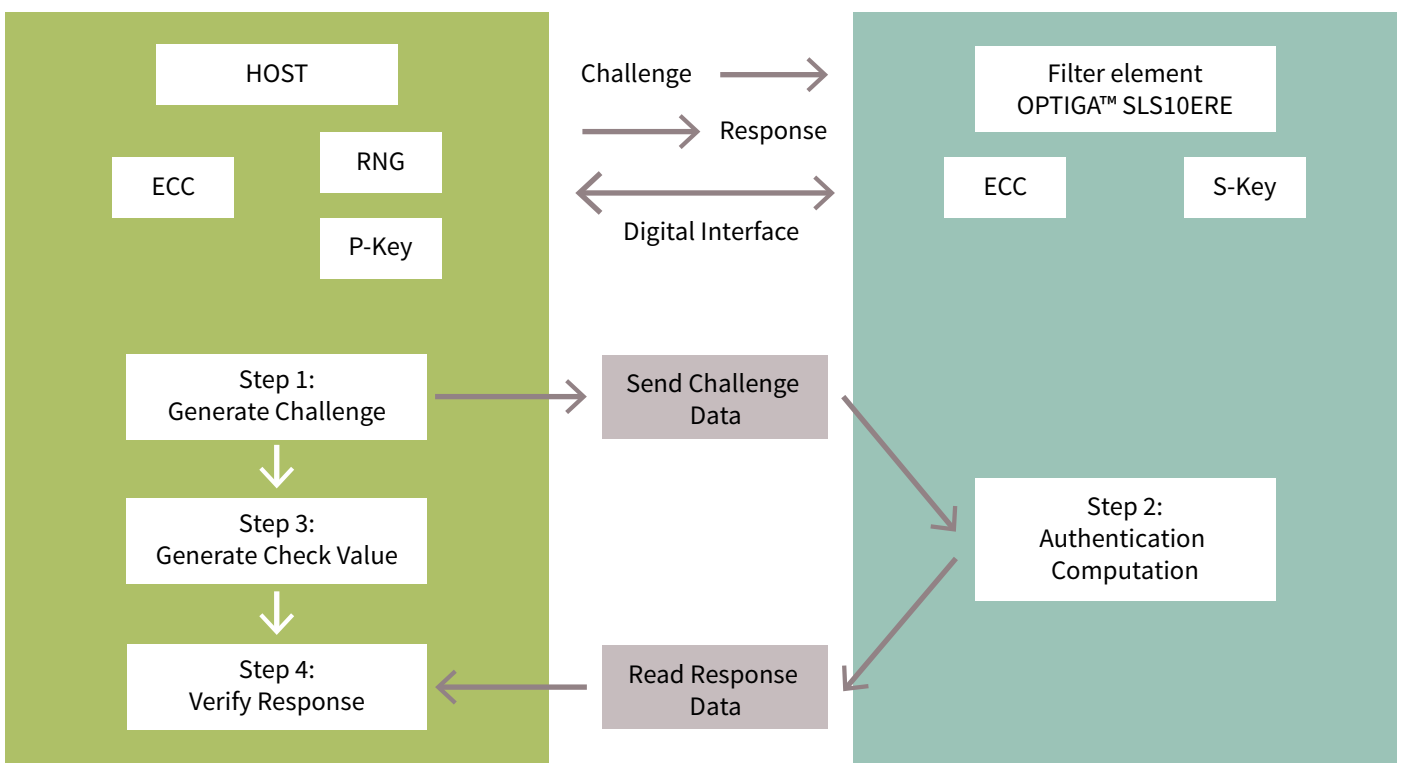
## User benefits

- › Protection of the brand and profit of water filter manufacture
- › Security for quality of water by the qualified filter element
- › Security of the after-sale service by original manufacture

## Solution

The quality of water must be secured by the qualified filter element. This means authentication function is the key to secure the connection between water filter host and qualified filter elements. Considering software-based authentication solution is easily accessible, reproducible and reversible, a hardware-based authentication solution was requested to provide at water filter manufacturers. Infineon **OPTIGA™ Trust SLS10ERE** is an authentication chip that offers a robust ECC cryptographic solution.

Each filter element will mount one **OPTIGA™ Trust** security chip. With ECC cryptography, the host will generate a challenge and then send the challenge code to **OPTIGA™ Trust SLS10ERE**. Then ECC computation in **OPTIGA™ Trust SLS10ERE** will be triggered. After ECC computation is done, the host will read a response code from **OPTIGA™ Trust SLS10ERE**. If the response code is valid, the host will accept the filter element as qualified. Otherwise, the host will reject the filter element as unqualified. Infineon's **OPTIGA™ Trust SLS10ERE** hardware-based authentication solution efficiently helps to maintain water quality and the manufacturer's service.



### Main benefits of the Infineon product

- › Protection from reproductions and from illegal reuse based on hardware-base authentication solution
- › Secure water quality and manufacture profitability based on unique ID and trust digital certificate
- › Secure time to market and mass production based on turnkey solution and smallest footprint

# Partner

Partners from the Infineon Security Partner Network help you secure your devices and applications: understand which threats can undermine your business, propose solutions that will protect your business, build and implement such security solutions and, when relevant manage their operation. They have been selected by Infineon on the basis of their system security competence and ability to design and deliver strong and trustworthy security solutions. Their activities are diverse and include security consulting, security solution provision, electronic design, systems integration and trust services management. For some, offers are off-the-shelf; while for others, offers are custom-built.

## Beijing Broadstar Information Technologies

Broadstar Technologies provides embedded security solutions. Since its foundation in 2004, Broadstar mainly focus on hardware-based embedded security solution development and marketing promotion, the main applications including prepaid water, electricity and gas meters, video surveillance, smart home, software copyright protection and mobile payment.

Broadstar is headquartered in Beijing, has more than 100 employees, and more than RMB 120 million sales revenue in 2014. With a branch office in Shenzhen, Broadstar is developing security business in domestic China, with the target to be one of the top hardware-based security solution providers. Broadstar has provided more than 50 million authentication security devices in China.

Broadstar is recognized as a China national Hi-Tech company, and certified by ISO9001:2000 quality management system.

## Broadstar's contribution to the Infineon Security Partner Network

With mature R&D capability and in-depth cooperation with Infineon, Broadstar is focusing on embedded security applications in smart home, smart industry, and smart grid. End customers can benefit from security data storage, encryption/decryption, and authentication features from the Broadstar ESAM6620 security solution, which utilizes the Broadstar self-developed BStarOS and Infineon OPTIGA™ Trust security chip. Being a security partner of Infineon, Broadstar will continue to focus on the embedded applications in mass market, and keep bringing value-added services by providing joint efforts with Infineon.

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