

Contactless authentication and secured configuration of industrial IoT devices using OPTIGA™ Authenticate NBT

The increasing prevalence of near-field communication (NFC) means that NFC-enabled smartphones now give users an easy way to configure IoT devices. Secured communication with processors, sensors, actuators, and remote process controllers is a key requirement for smart factory managers.

OPTIGA™ Authenticate NBT is a high-performance NFC I2C Type 4 bridge tag certified by the NFC Forum. It is designed for single-tap IoT device authentication and secured configuration. It enables ultra-fast, contactless communication between IoT devices and contactless readers such as smartphones. In addition, it provides high security thanks to our acclaimed Integrity Guard 32 security architecture, which is imperative for security-critical applications in the industrial domain.

Key features

- From 106 to 848 kbit/s data transfer rate for contactless interfaces
- I2C standard mode (100 kHz), fast mode (400 kHz), and fast mode plus (1 MHz) clock frequencies
- High (78 pF) on-chip capacitance
- Brand/device verification through ECDSA-based asymmetric cryptography and AES 128-based symmetric cryptography
- 32-bit password-based protection
- Storage capacity of 8 KB user memory



Use cases

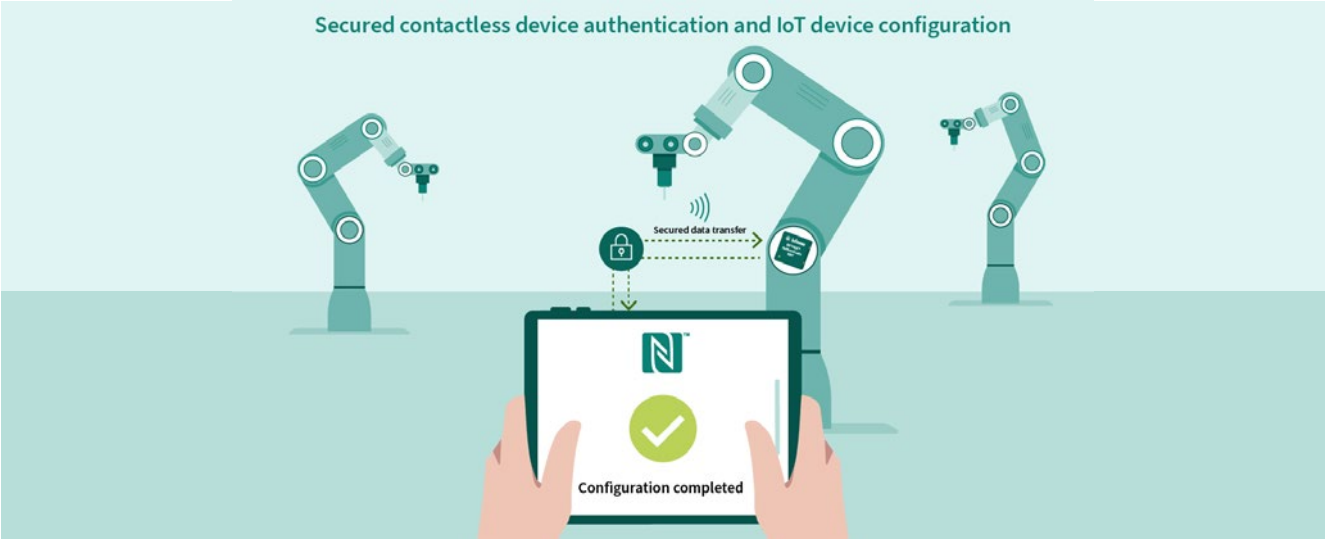
Access control, device authentication, and configuration:
OPTIGA™ Authenticate NBT helps reduce the bill of materials (BoM) for IoT devices by eliminating the need for material-intensive front panels typically used to configure machines. Authentication (both offline and online) and configuration (both synchronous and asynchronous modes of data transfer) can be managed with a simple tap on a smartphone.

Firmware updates:
The user can select the synchronous pass-through mode to download firmware updates to the host system.

Pre-installation setup and remote diagnostics:
By leveraging the asynchronous data transfer mode, technicians can transfer pre-installation settings facilitating a seamless installation process. In addition, they can effortlessly access diagnostic data using their smart phone, even when the device is powered off.

Benefits

- Enables ultra-fast and seamless data exchange
- Eliminates the need for material-intensive front panels, reducing the BoM
- Increases efficiency for device setup and maintenance
- Protects against unauthorized access and data breaches by limiting machine parameter modifications to authorized personnel
- Enhances the customer experience through long-term trustworthy sourcing plus support at every step of the project journey



Implementation support

- Full set of product documentation including data sheet, design guides, application notes, host software libraries is freely available on website and GitHub.
- Development kit/shield bundles to kick-start the design process with different antennas
- Development kit: Tailored adapter for included PSoC™ host microcontroller board: Enables easy attachment to Arduino UNO-compatible MCU boards

Please visit our webpage for more information:
www.infineon.com/OPTIGA-Authenticate-NBT