



*Establishment of a FramewORk for Transforming current
EPES into a more resilient, reliable and secure system all
over its value chain*

D4.2 Results of SecureBox performance

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Abbreviations and Acronyms

Acronym	Description
APT	Advanced Package Tool (Secure Update Mechanism)
API	Application Programming Interface
CAN	Controller Area Network
CPU	Central Processing Unit
DLT	Distributed Ledger Technology
EPES	Electrical Power and Energy Systems
GOOSE	Generic Object Oriented Substation Event
HMI	Human–Machine Interface
HTTPS	Hypertext Transfer Protocol Secure
IDS	Intrusion Detection System
IoT	Internet of Things
IP	Intelligent Platform
LTE	Long Term Evolution (4G)
MMS	Manufacturing Message Specification
NB-IoT	Narrowband Internet of Things
NFC	Near Field Communication
NTP	Network Time Protocol
OS	Operating System
RAM	Random Access Memory
RS-485	Recommended Standard 485 (Serial Communication Interface)
RTU	Remote Terminal Unit
SD	Secure Digital
SIEM	Security Information and Event Management
SoM	System on Module
SOARCA	Secure Orchestration, Automation, and Response for Critical Assets
SPI	Serial Peripheral Interface
SSH	Secure Shell



Acronym	Description
Syslog	System Logging Protocol
TPM	Trusted Platform Module
USB	Universal Serial Bus
VPN	Virtual Private Network
ZKP	Zero-Knowledge Proof



Executive summary

This deliverable presents the development and validation of SecureBox, an edge-level platform that enhances the cybersecurity, privacy, and resilience of substations within the eFORT project. SecureBox combines modular hardware — featuring the VAR-SOM-MX8M-PLUS, industrial interfaces, optional 5G connectivity, and secure elements such as the ATECC608A cryptochip and an anti-tampering accelerometer — with advanced software modules for secure data collection, blockchain integration, intrusion detection, and autonomous operation.

The platform supports StrongSwan and WireGuard VPNs, homomorphic encryption, and secure firmware updates via APT Secure and signed packages. It enables real-time protection and privacy-preserving data exchange between field devices and higher-level platforms.

Validation will be carried out in two eFORT demonstrators (Spain and Ukraine), evaluating interoperability, resilience, and cybersecurity performance. The SecureBox represents a robust, flexible, and trusted edge solution for transforming energy infrastructures into more secure and intelligent systems.

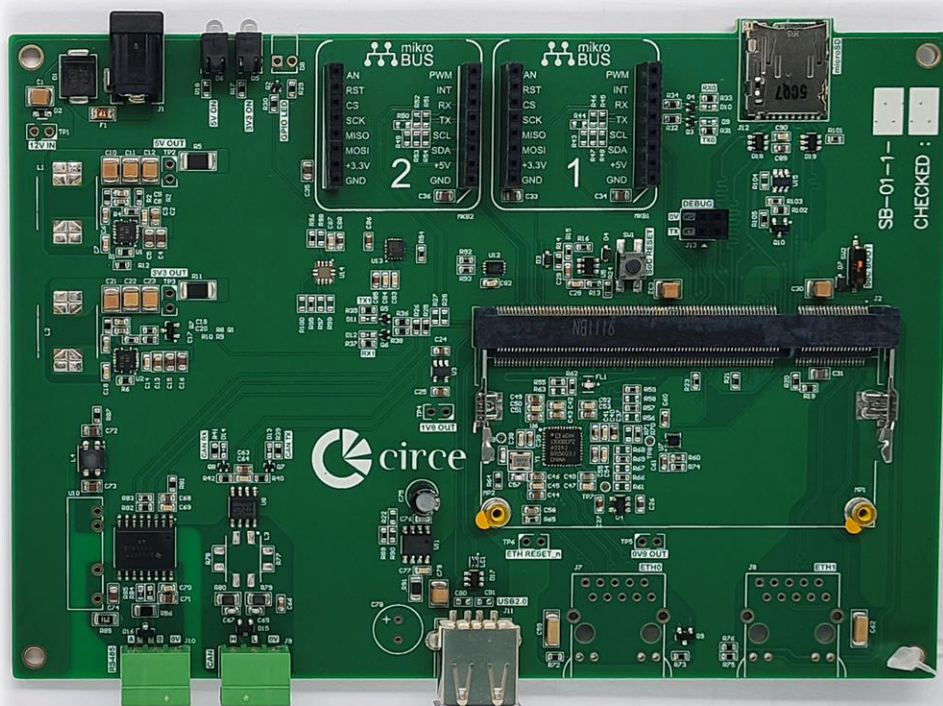


Figure 1 SecureBox overview

