


## INDUSTRIAL EDGE SECURITY

# NodeAegis™

 Made in MoroccoSecure Industrial Edge Data Platform — by **SDK Solution**

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INDUSTRIAL EDGE NODE

INDUSTRIAL EDGE



DEFENSE IN DEPTH

CYBERSECURITY



POST-QUANTUM LATTICE

POST-QUANTUM READY



## Product Overview

**NodeAegis™** is a next-generation secure industrial edge data platform engineered for multi-sensor acquisition, real-time bidirectional communication, encrypted data management, and remote field interaction. Purpose-built for critical infrastructure, OT environments, and industrial IoT — where cybersecurity is non-negotiable.



## Core Specifications

<b>MCU</b>	Arm Cortex-M33
<b>SECURITY CORE</b>	TrustZone · Secure Boot · HW Crypto Engine · Secure Key Storage
<b>CONNECTIVITY</b>	4G LTE · 5G (optional) · E-SIM (optional) · BLE · Dual Ethernet RJ45
<b>STORAGE</b>	SD Card — AES-256 encrypted, field-replaceable
<b>INTERFACES</b>	RS-232 · RS-485 · CAN · SDI-12 · Digital I/O · Analog I/O
<b>POWER SUPPLY</b>	9–36V DC industrial input
<b>PROTECTION</b>	Reverse polarity · Overvoltage · Surge · ESD · Galvanic isolation
<b>OPERATING TEMP</b>	-20°C to +70°C
<b>DISPLAY</b>	Touch LCD — local config, diagnostics, live data
<b>ENCLOSURE</b>	Industrial-grade · DIN rail / Panel mount

## Security Architecture

### Hardware Security

Arm TrustZone isolation, Secure Boot chain, hardware crypto accelerator (AES, SHA, PKA), TRNG, tamper detection.

### Data at Rest

AES-256 encrypted SD card storage. Keys managed in secure MCU memory domains. Protected against physical extraction.

### Data in Transit

TLS 1.3 encrypted API and SFTP channels. Certificate-based mutual authentication. Secure session management.

### Firmware Integrity

Cryptographically signed firmware. Boot-time integrity verification. Secure OTA update pipeline (roadmap).

### Physical Protection

ESD, surge, and overvoltage protection on all external interfaces. Galvanic isolation on RS-232, RS-485, CAN.

### Access Control

Role-based authentication. Configurable access policies. Audit logging of all administrative actions.

### SIEM / SOC Integration

Agentless monitoring — no software agent required on the device. Native Syslog (RFC 5424) forwarding of security events, alerts, and audit logs to any SIEM platform (Splunk, QRadar, Elastic, Wazuh). Designed for seamless SOC team supervision and real-time incident correlation.

**FIPS 140-2/3 Ready:** We use hardware crypto that natively supports FIPS 140-2 and FIPS 140-3 certification boundaries (AES-256, SHA-256/384/512, HMAC, TRNG, secure key storage) — enabling compliant deployments with certified cryptographic libraries.



## Post-Quantum Cryptography (PQC) Ready

NodeAegis™ is architecturally designed to integrate **NIST-standardized PQC algorithms** (ML-KEM / Kyber, ML-DSA / Dilithium) for securing REST API and SFTP communication channels — positioning it among the **first industrial edge platforms** to anticipate the post-quantum transition in OT/ICS environments. PQC integration available on demand.



## Communication Protocols

<b>NETWORK</b>	HTTPS · SFTP · TLS 1.3
<b>FIELD BUS</b>	Modbus RTU (RS-485) · CAN · SDI-12
<b>SERIAL</b>	RS-232 · RS-485
<b>LOCAL</b>	BLE · Ethernet
<b>DATA FORMATS</b>	JSON · CSV · Structured binary

## Competitive Comparison

FEATURE	NODEAEGIS™	SIEMENS IOT2050	MOXA UC-8100	HMS EWON FLEXY
Arm TrustZone	✓ Native	✗	✗	✗
Secure Boot	✓	~ Optional	✓	~ Partial
HW Crypto Engine	✓ AES/SHA/PKA/TRNG	✗ Software	~ TPM	✗
FIPS 140-2/3 Ready	✓	✗	~ With TPM	✗
PQC Ready	✓ First in class	✗	✗	✗
Encrypted Storage	✓ AES-256	~ User config	~ Optional	✗
TLS 1.3	✓	✓	✓	~ TLS 1.2
Bidirectional Ctrl	✓ REST + SFTP	✓	✓	✓
Industrial I/O	✓ Full (custom)	~ Limited	✓	✓
Galvanic Isolation	✓ All serial	~ Partial	✓	~ Partial

**Key Differentiator:** NodeAegis™ is the only product in its class combining native TrustZone hardware security, FIPS-ready crypto, and post-quantum cryptography readiness for industrial edge deployments. Competitors rely on software-based or optional security modules, with no PQC roadmap published.

## Remote Command & Control

### Bidirectional

Secure two-way communication via REST API and SFTP. Receive commands, return status, acknowledgments.

### Field Delivery

Forward commands to equipment via RS-232, RS-485. Remote polling, parameter updates, operational triggers.

### Hosted Dashboards

Real-time charts, historical data, monitoring views, device management — managed or self-hosted.

## Deployment & Use Cases

### Direct Integration

REST API, SFTP, JSON/CSV payloads. Plug into SCADA, ERP, custom apps.

### Hosted Platform

Managed dashboards, analytics, alerting, remote device access.  
Minimal client infrastructure.

### Self-Hosted

Docker-based deployment on client infrastructure for full data sovereignty.

## TARGET MARKETS

Environmental monitoring · Water management · Energy & utility telemetry · Industrial automation · Smart agriculture · Critical infrastructure · Remote equipment · OT/ICS security

## Roadmap

### GNSS

Location tracking & precision time sync

### Edge AI

Local analytics & anomaly detection

### OTA

Secure over-the-air firmware updates

### Fieldbus+

Extended industrial protocol support

✓ **Industry First:** First industrial edge platform combining TrustZone, FIPS 140-2/3 ready crypto, AES-256, TLS 1.3, and post-quantum cryptography (PQC) path — defense-in-depth from silicon to cloud.

## CONTACT

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**Made in Morocco**