

TECHNICAL DATASHEET

AITHAOS

Embedded firmware for devices based on AITHA Core

Type:	Technical datasheet
Product:	AITHAOS
System:	AITHANEX
Audience:	Engineering, installation, integration and support
Document version:	1.0
Revision date:	2026-10-04

Product type

Embedded firmware for devices based on AITHA Core.

Role within the system

AITHAOS manages the device lifecycle in the field: boot, peripherals, connectivity, telemetry and remote update.

It reports to AITHANEX when the deployment requires it.

Technical capabilities

Area	Scope
Telemetry	Collection and publication of data from local sensors and peripherals.
Connectivity	Management of LTE, Wi-Fi, BLE and LoRa according to device configuration.
OTA update	A/B partition with boot validation and automatic rollback on failure.
Local intelligence	Execution of rules and validations on the device (edge). Works without a continuous connection.
Local storage	Keeps events and telemetry when the connection is not available. Synchronizes on restoration.
Low power	Operating modes optimized for energy-constrained deployments.
Security	Device identity management. Encrypted communication.
Peripherals	Management of inputs/outputs and fieldbuses (RS485, I2C, SPI) according to the device hardware.

Devices that run AITHAOS

Device	Role
AITHA Core	Technology base. AITHAOS as reference firmware.
AITHA Protection	AITHAOS firmware with detection and alert configuration.
Router LoRa	AITHAOS firmware with LoRa gateway management and multi-network uplink.
OSHTIA EV Charger	AITHAOS firmware adapted to the electric vehicle charger.
AURA X36	AITHAOS firmware with management of 16 digital inputs, 8 relays and RS485.

Technical OTA update flow

- **Publish.** New firmware version available in AITHANEX.
- **Distribute.** AITHANEX notifies the device and transfers the signed package.
- **Validate.** AITHAOS verifies integrity before writing to the inactive partition.

- **Boot.** Restart on the new partition. If boot fails validation, automatic rollback to the previous partition.
- **Confirm.** AITHAOS reports success or failure to AITHANEX with a timestamp and the active version.

Integration notes

- AITHAOS is not a replaceable abstraction layer on third-party hardware — it is the reference firmware of the AITHA Core line.
- In OEM or white-label projects, AITHAOS is delivered as part of the hardware, not as a separate component.
- AITHAOS configuration (rules, peripherals, reporting intervals) is managed from AITHANEX or through a provisioning file at initial boot.

References

- AITHAOS: <https://aitha.es/en/resources/technology/>
- AITHANEX: <https://aitha.es/en/platform/technical/>
- AITHA Core: <https://aitha.es/en/aitha-core/technical/>