AOFS Terminology

This page defines **key terms and standard concepts** used in the Afritic Open Farming Standard (AOFS). It complements the Glossary by focusing on terminology used for operations, modules, and compliance.

Controllers & Layers

- Field Controller – Local controller at the field level that manages irrigation schedules, sensor readings, actuator control, fail-safes, and data logging.
- Farm / Local Controller – Aggregates data from multiple Field Controllers, synchronizes configurations, and provides local dashboards.
- HQ / Federated Controller – Oversees multiple Farm Controllers, aggregates data for analytics, reporting, and management decisions.

Sensors & Monitoring

- Sensors Layer – Devices and systems that measure soil, water, weather, power, and human input.
- Soil Monitoring – Includes soil moisture, temperature, and optional electrical conductivity.
- Weather Monitoring – On-site environmental measurements such as rainfall, temperature, humidity, and wind.
- Water Monitoring – Flow, pressure, and tank level sensors.
- Optical / Camera Monitoring – Field cameras for crop documentation and optional AI-assisted analysis.
- Human Input – Operator-provided observations, crop surveys, harvest data, or external events like fertilizer application.

Actuation & Infrastructure

- Actuator – Device performing a physical action, e.g., valves, pumps, gates.
- Hydraulic System – Pumps, tanks, pipes, and valves for water distribution.
- Electrical System – Power distribution, optional solar integration, and monitoring interfaces.
- Valves & Pumps – Devices controlled by the Field Controller to regulate water flow and irrigation.

Modules & Operations

- Crop Irrigation Module – Core module managing water delivery, soil, and crop conditions.
- Poultry Farming Module – Optional module for managing feed, water, and environmental monitoring.
- Livestock / Animal Husbandry Module – Tracks veterinary records, feeding, breeding, and production metrics.

- Greenhouse / Hydroponics Module – Optional module for CO_2, light, nutrient, and water management.
- Custom / Third-Party Modules – User-defined extensions using standard AOFS interfaces.

Operational Concepts

- Local Autonomy – Principle that critical control and monitoring must function even if network connectivity fails.
- Fail-Safe – Mechanisms ensuring safety of irrigation, water systems, pumps, and energy supply.
- PUE – Productive Use of Electricity; efficiency metric for energy used in farm operations.
- Energy-Aware Operation – Optional feature where irrigation and actuation are scheduled based on available energy.
- Event Prioritization – Operators assign urgency to events, guiding energy-aware scheduling.
- Data Logging – Timestamped recording of sensor readings, actuator events, and human input.

Compliance & Certification

- AOFS Compliance – Deployment adheres to AOFS minimum requirements for safety, monitoring, and operational logic.
- Certification – Formal validation that a device, module, or deployment meets AOFS standards.
- Reference Implementation – A sample hardware/software implementation provided to illustrate AOFS-compliant design.

Notes

- Terms are **AOFS-specific** and should be used consistently across documentation and deployment manuals.
- This page is **extendable** for new modules, features, or operational concepts.
- For detailed definitions of devices and sensors, see Sensors and Actuators.

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