Electrical & Power Control Interfaces

Solar & Power Integration

AOFS is designed to operate with any existing power infrastructure: grid, generator, solar, or hybrid systems. The standard is **agnostic to the power source**.

AOFS defines **optional solar integration levels**:

- **Level 1 (Recommended / Minimal Monitoring)**
  - Field Controllers may monitor battery voltage and current to enforce fail-safes and manage irrigation loads.
  - Useful for off-grid or weak-grid farms to improve reliability.
  - **Not required** if the farm has a reliable main power supply.
- **Level 2 (Optional / Integrated Monitoring)**
  - Controllers can read solar generation metrics via standard protocols (e.g., Modbus, MQTT, RS485).
  - Enables dynamic irrigation scheduling based on energy availability and advanced PUE analytics.
  - Fully optional: farms can adopt this for energy optimization, but AOFS compliance does not depend on it.

Guidelines:

- AOFS compliance does **not require any specific power monitoring**.
- Optional monitoring modules can enhance reliability and energy efficiency.
- All modules, regardless of power source, must support safe fail-safe operation for irrigation and actuation.