

IAS1200 TECHNICAL DATASHEET

Integrated Aquaponics System & Nutrient Refinery

Core Computational Intelligence

Processor: Raspberry Pi 5 High-Speed Edge Controller

Automation: Real-time sensor fusion, 5x daily precision feeding, autonomous 18/6 light cycle management, and 30-min cyclical nutrient exchange.

1. Aquaculture & Migration Infrastructure

Housing Unit	40-Foot Shipping Container (Modified for Biosecurity/Isolation)
Annual Yield	5,000 lbs Fish / Year (Continuous Harvest Cycle)
Tank 1 (Introduction)	48"W x 48"L x 36"D (50-100g Stage)
Tank 2 (Juvenile)	48"W x 48"L x 48"D (101-220g Stage)
Tank 3 (Harvest)	48"W x 96"L x 48"D (221-680g Stage)
Migration Logic	12" Lateral Interconnects with Gate Valves (Stress-Free Movement)

2. Filtration & Nutrient Manufacturing

All modular filters standardized at 32"W x 32"L x 36"D.

Filter 1: Solids Separator	Mechanical capture; 72-hour discharge to Anaerobic Digester.
Filter 2: Biological	Nitrifying bacteria media; Ammonia-to-Nitrate conversion.
Filter 3: Mineralization	Organic compound breakdown; unlocking Ca, K, Fe, and N.
Biosecurity	Integrated UV Sanitizer (Pathogen Neutralization)

3. Nutrient Monitoring & Delivery

- Analyzed Elements:** pH, Temp, Nitrogen (N), Potassium (K), Calcium (Ca), Iron (Fe).
- Dosification:** Integrated multi-pump auto-correction system.
- Exchange Protocol:** 60-gallon water swap with plant reservoirs every 30 minutes.
- System Load:** One IAS1200 services up to 180 TS40/TS60 Towers.

4. Waste Valorization Link

The IAS1200 acts as the primary fuel source for the facility's circular economy.

- Input:** Organic solids from Filter 1.
- Recipient:** Anaerobic Digester (Zero-Waste Hub).

- **Frequency:** Automated purge every 72 hours.