

VisionBox – Technical Datasheet

System Overview

VisionBox is an industrial **AI-powered vision and waste intelligence system** designed for real-time identification, profiling, and tracking of waste materials on conveyor systems. It operates as a standalone unit or as the vision backbone for automated sorting systems.

Operational Characteristics

- **Duty Cycle:**
 - 24×7 continuous industrial operation
 - **Processing Mode:**
 - Real-time, edge-based AI inference
 - **Latency:**
 - Millisecond-level inference suitable for high-speed conveyors
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AI Vision Capabilities

- **AI Inference Pipeline:**
 - Multi-model AI architecture
 - Parallel inference for object detection, material classification, and grading
 - **Waste Profiling Output:**
 - Object identification
 - Material type classification
 - Grade identification (clear, colored, contaminated, etc.)
 - Weight estimation (integration dependent)
 - **Object Handling:**
 - Handles overlapping and randomly oriented waste items
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Integration & Automation

- **Plug & Play Deployment:**
 - Rapid installation on existing conveyor lines
 - Minimal calibration required
 - **Automation Integration:**
 - Provides real-time object coordinates (X, Y)
 - Height / depth data support (Z)
 - Compatible with robotic arms, air-jet systems, and PLCs
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Connectivity & Data

- **Cloud Connectivity:**
 - Secure cloud-connected architecture
 - Supports remote monitoring and analytics
 - **Dashboard Integration:**
 - Live material flow visualization
 - Recovery, purity, and throughput metrics
 - Historical data and reporting
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User Interface & Indicators

- **LED Status Indicators:**
 - Power ON status
 - AI inference running
 - Error / fault indication
 - Network / cloud connectivity status
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Power & Utility Requirements

- **Electrical Power Requirement:**
 - < 1.5 kW (typical operation)

- **Compressed Air Requirement:**
 - Not required
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Physical Specifications

- **Enclosure Dimensions:**
 - Approx. **450 mm × 350 mm × 400 mm**
 - **System Weight:**
 - Approx. **50 kg** (configuration dependent)
 - **Mounting:**
 - Conveyor-mounted or gantry-mounted installation
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Environmental & Industrial Readiness

- **Design:**
 - Industrial-grade enclosure
 - Suitable for dusty, high-vibration environments
 - **Reliability:**
 - Designed for continuous industrial operation
 - Minimal maintenance required
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Scalability

- **Deployment Options:**
 - Single-lane or multi-lane conveyor setups
 - Multiple VisionBoxes can be networked across a facility
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Specifications are indicative and may vary based on configuration and application.