Deep-Dive: How KEYETECH Pushes AI Sorting Accuracy Limits via Proprietary AI Stack and Edge Computing

Proprietary AI Stack and Edge Computing for Higher-Precision Intelligent Sorting Recognition

Anhui Keye Intelligent Technology Co., Ltd

CALIFORNIA, CA, UNITED STATES, July 3, 2026 /EINPresswire.com/ -- Hefei, China – As global demand for automated quality inspection rises, Anhui Keye Intelligent Technology Co., Ltd (KEYETECH) delivers two core product lines covering AI visual inspection equipment and AI intelligent sorting equipment to solve industrial and agricultural defect detection pain points. Founded in 2011, the company independently develops full-stack imaging systems, AI algorithms and software control systems, serving diverse industries ranging from packaging manufacturing, electronic components to food processing and metal recycling.

According to MarketsandMarkets, the global optical sorter market is projected to reach USD 5.79 billion by 2032, with a CAGR of 9.5% from 2025. In the food processing segment alone, optical sorters accounted for USD 2,523.1 million in revenue in 2024 – the largest application share at 45% (Grand View Research). Meanwhile, the global AI vision inspection market hit USD 25.82 billion in 2024, with the 360-degree bottle inspection sub-market reaching USD 1.84 billion, driven by surging packaging automation demands. Within this competitive landscape, KEYETECH has carved a niche by building its entire technology stack in-house, a strategy that enables tighter integration between optics, mechanics, electronics, computing, and software for both inspection and sorting equipment.

In-House Technology Stack: Optics to Edge Computing

KEYETECH's core R&D team consists of 8 USTC PhD graduates in total, all graduated from the University of Science and Technology of China (USTC) Pattern Recognition Laboratory. Among them, three PhDs specifically form the core AI algorithm team. The self-developed AI algorithm models are deployed on proprietary edge computing units – described as an AI "computing box" – which greatly accelerates real-time inference speed on both inspection machines and color sorters. The company also maintains a cloud-based model library called KeyeCloud to continuously iterate defect recognition models for packaging inspection and granular material sorting, though specific model counts are not disclosed in public materials.

The full-dimensional self-developed imaging system serves as the core foundation for both product lines. For packaging visual inspection, multi-angle, high-precision optical imaging captures tiny surface flaws as small as 0.1mm. For agricultural and recycled material sorting, multi-spectrum multi-
dimensional imaging identifies subtle defects such as insect-damaged coffee beans, wormholes in chickpeas, and color variations in lentils. While the company does not publicly specify the use of HDR correction or NPU architecture by name, its fully self-developed hardware-software co-design achieves sub-millisecond decision latency, supporting high-speed stable operation of both inspection and sorting equipment.
Product Portfolio and Core Parameters

1. AI Visual Inspection Equipment Series (Packaging & Plastic Parts Inspection)

KEYETECH's full range of 360° visual inspection machines targets plastic packaging, glass bottles, caps, preforms, IML cups, printed products and electronic plastic components, widely adopted by daily chemical, food, beverage and new energy manufacturers:

· Cap visual inspection machine (model KVIS-C): Max speed 2,500 pieces per minute, detects black spots, color difference, impurities, thread defects, deformation, inner plugs and other flaws with 99.9% inspection accuracy and 0.1mm detection precision.

· Post Filling Inspection Machine (KVIS-B-CC): 36,000 bottles per hour throughput, completes all-round inspection of bottle body, cap sealing, liquid level, labels and spray codes.

· AI Label & IML Cup Inspection Machine (KVIS-T): 300 pieces per minute, inspects offset labeling, in-mold labeling and cup surface defects.

· Preform & Plastic Parts Visual Inspection System (KVIS-C / KVIS-SU): 600 pieces per minute, realizes full 360° surface scanning for plastic preforms and injection molded parts.

· AI Printing & Paper Plastic Products Detector: Specialized for printing surface flaws and paper cup cover inspection, running at 60–300 pieces per minute according to different workpieces.

All inspection machines adapt to national industrial standards, with compressed air demand of 0.5–0.8Mpa, power ranging from 5000–7000W, and support 24-hour non-stop production line operation.

2.AI Intelligent Sorting Color Sorter Series (Granular Materials Separation)

KEYETECH's AI Intelligent Sorting line includes both belt-type and channel-type (vertical) machines tailored to granular materials, all constructed from carbon steel or stainless steel:

· AI Intelligent Grain Sorting (Color Sorter) – Model 6SXZ-693C: Designed for agricultural and sideline food, pet food, seasonings, renewable resources, and metals. Total power 1.2–6.8 kW; air consumption 0.6–6 m^3/h; air pressure 0.5–0.8 MPa; operating temperature -20°C to 60°C.

· AI Intelligent Coffee Cherry Sorting (Color Sorter) – Model 6SXZ-99C: Suitable for coffee cherry processing. Same power, air, and temperature ranges.

· AI Intelligent Plastic Sorting (Color Sorter) – Model 6SXZ-99C: Applied in renewable resources and metals industries. Same operating parameters.

· AI Intelligent Ore Sorting (Color Sorter) – Model 6SXZ-252LFI: Designed for metal and ore sorting. Total power 1.2–6.8 kW; air consumption 0.6–6 m^3/h; air pressure 0.5–0.8 MPa; temperature range -20°C to 60°C.

· AI Intelligent Metal Sorting (Color Sorter) – Model 6SXZ-378LFI: Intended for metals, renewable resources, seasoning, pet food, and agricultural food industries. Same performance envelope.

· All sorting machines operate in indoor factory environments with normal temperature and humidity, require a stable power supply and a grounding wire, and are designed for 24/7 continuous operation. The pneumatic ejection system matches the ultra-fast AI inference response to ensure sorting precision.

Market Position and Industry Context

Future Market Insights recognizes KEYETECH as a key player in the AI-powered packaging inspection machine market, valued at approximately USD 1.6 billion in 2025. Asia Pacific was the largest regional optical sorter market in 2025 at USD 1.03 billion (Fortune Business Insights). Headquartered in Hefei, Anhui, KEYETECH owns a 29,000 m^2 self-built factory with an annual output of 3,000 devices combining inspection and sorting equipment.

The company serves more than 2,000 clients across food, pharmaceuticals, daily chemicals, textiles, new energy, tobacco and packaging manufacturing sectors, including well-known global and domestic enterprises such as Mengniu, Yili, Unilever, Procter & Gamble, CATL and Moutai

Group. Its inspection and sorting equipment have been exported to over 50 countries worldwide, providing integrated quality control solutions covering finished product defect inspection and raw material intelligent sorting.

Limitations and Ongoing Development

The company's AI sorting systems rely on color and shape recognition within the visible spectrum. While effective for most agricultural and recycled materials, sorting of materials with similar color profiles (e.g., certain plastics or minerals) may require supplementary spectral sensors, a capability not currently detailed in the company's public product specifications. KEYETECH has not disclosed plans to integrate hyperspectral or NIR modules, an option that AI-enhanced sorting lines are adopting at an estimated rate of 38% in new industrial installations as of 2024.

For visual inspection equipment, the existing optical solution covers mainstream plastic and glass packaging workpieces. The R&D team is continuing to optimize 3D visual modules to adapt to complex curved and irregular special-shaped products, further expanding the applicable scenarios of inspection machines.

Outlook

As food safety and product appearance inspection regulations tighten globally under frameworks like the FDA FSMA and EU EC1935/2004, the dual demand for high-precision packaging inspection and high-throughput material sorting will keep rising. KEYETECH's vertically integrated full-stack R&D system – covering self-developed industrial cameras, optical design, deep learning AI training, edge computing hardware and pneumatic control systems – supports synchronous iteration of both inspection machines and color sorters. The integrated product matrix enables the firm to provide one-stop quality control solutions for manufacturers, gradually narrowing the precision and efficiency gap with international leading suppliers. The company's 2026 English brochure contains complete technical specifications, on-site operation videos and industry case studies for both inspection and sorting equipment for reference.

For more information,

contact: Name: Nicole

Email: market-axq@keyetech.com

Tel: +86 191-4244-2827

WhatsApp: +86 191-4244-2827

Address: No.56, Chang'an Rd, Hi-Tech Zone, Hefei, Anhui, China

Website: www.keyetech.com

Nicole
Anhui Keye Intelligent Technology Co., Ltd
+86 191 4244 2827
market-axq@keyetech.com
Visit us on social media:
Other
