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TECHNICAL DATA SHEET

In-Line Inspection Systems

In-Line Inspection systems from LM3 Technologies integrate directly into active production lines to provide real-time defect detection, dimensional validation, and barcode/OCR scanning without slowing throughput. Utilizing PAQi vision control and advanced AI models, these systems ensure immediate feedback on product quality while minimizing manual handling.

Optimized for seamless deployment, In-Line Inspection solutions support **high-speed applications** across industries including automotive, medical, electronics, and molding. Their modular, scalable design allows rapid integration into conveyors, robotic cells, or existing material handling systems.

PRODUCT INFO

PRODUCT NAME: In-Line Inspection

CATEGORY: Integrated Vision Systems

Budget Range:

\$20,000 - \$45,000 Dependent on scope and hardware configuration

SYSTEM SUPPORT

Remote software support, on-site validation, hardware warranty options, and optional ongoing service contracts

SYSTEM APPLICATIONS

In-Line Inspection is deployed wherever continuous, high-speed production quality control is essential. Systems are configured to inspect molded parts, welded assemblies, labels, electronic components, and medical products, ensuring conformance without interrupting production flow.

Use cases include surface defect detection, seal verification, barcode reading, assembly validation, and OCR scanning for lot tracking. The solution enables operators and manufacturing teams to immediately react to detected quality issues, reducing rework, scrap, and warranty risk.



SYSTEM CAPABILITIES

- **Cycle Time**: Supports thousands of parts per hour, < 1.5 second inspection windows
- Automation-Ready: Integrates with PLCs, robots, conveyors, and sorters
- **Part Types**: Molded components, electronic assemblies, metal stampings, and packaging
- **Traceability**: Logs part images, defect categories, and pass/fail results for auditing

INSPECTION METRICS

Metric	Range	Notes	
Camera Resolution	5 MP - 12 MP	Based on speed vs. feature size tradeoffs	
Inspection Cycle Time	0.5 - 1.5 sec	Designed for continuous throughput	
Detection Accuracy	≥ 95% F1 Score	Validated through production dataset training	
Lighting Requirements	Adjustable RGBW	Tuned for surface contrast consistency	
Part Handling	Conveyor or Indexing	Inspection synchronized to part presentation	
Trigger Method	PLC / Encoder / Photoelectric	Supports conveyor belt or robot handoff triggering	
Output Format	Pass/Fail + Class/Location	Measurement, location, and severity available if needed	
Data Logging	Enabled	Image + defect result archiving with timestamps	

SYSTEM KEY FEATURES



Seamless Conveyor Integration

Designed to mount over or beside moving conveyors with encoder or sensor-based triggering.



High-Speed AI Vision Processing

Runs QC Hero models at the edge for real-time defect detection, dimensional measurement, and barcode/OCR scanning without interrupting flow.

Traceability and Data Storage

Automatically records inspection results, images, and defect classifications for process improvement and auditability.



Modular Scalability

Expandable to add multiple cameras, lighting zones, or breakout points for growing inspection requirements.

Integration Points

Integration Point	Connection Type	Function
Vision Trigger	Digital I/O / Encoder	Image Capture
PLC Interface	PROFINET / Ethernet/IP	Result Output
Operator Interface	HDMI / USB Touch	Status Display
MES or Database Output	REST API / SQL	Data Logging
Lighting Control	Digital Output / PWM	Illumination Sync
Status Indicator	Stacklight / Digital Out	System State
Recipe Switching	Barcode / PLC / UI	Model Switching
Manual Trigger Option	Button / Foot Pedal	Manual Capture





CONTACT US

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GET CONNECTED

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OUR LOCATION

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Setup

Hardware Installation

Recipe Configuration

Speed Calibration

Accuracy Validation

Output Mapping

Logging Setup

System Launch

Sensor Wiring

2.