

**What is PAQi?**

PAQi stands for Picture Acquisition and Inspection system, a complex vision inspection system that incorporates proprietary software with high resolution industrial cameras to achieve a customizable interface to your end devices.



**What can PAQi do?**

PAQi inspects manufactured or assembled components in an industrial environment.

- Detect part presence such as a screw in an assembly
- Detect cosmetic defects such as scratches and dents
- Detect injection molding defects such as shorts, flash, splay, sink, jetting, and distortion
- Detect metal weld defects
- Detect production equipment anomalies such as debris in a mold cavity

**Why choose PAQi?**

LM3 designed PAQi to be mounted as a stand-alone package or within a control cabinet as part of an assembly line. PAQi works with up to four industrial cameras ranging from 2 – 42MP. The PAQi software is designed to be user-friendly with no coding needed, allowing even an inexperienced technician to configure the system for many types of applications. To utilize the advantages of deep learning models, LM3 designed PAQi to host a model processing server. This avoids the need for an external server or a connection to the cloud.

**How does PAQi work?**

Initial setup can be achieved within minutes. The first step in the process is acquiring images of your manufactured component. Once images are acquired, they are processed through the LM3 provided automatic labeling software. After labeling, the images are then fed into a training pipeline using a deep learning model that generates a trained model capable of correctly identifying the labeled objects or images. The trained model is copied to PAQi and a single button calibration is used to associate the detected objects with the expected objects provided by the model. This determines pass or fail.

**Why use PAQi?**

Improve Quality Control

Avoid Costly Penalties

Allow Defect Tracking Over Time

Automate Human Inspection

Reduce Headcount and Overhead Costs

Preserve Customer Relationships

Guide Preventative Maintenance

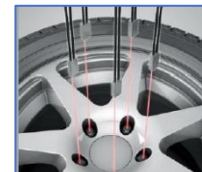
Document Conforming Processes

Avoid Costly Penalties

**PAQi Vs Traditional Inspection Methods**

	Human Inspection	Sensor Based Inspection	Traditional Machine Vision	PAQi
Increase Efficiency Over Time				X
Inexpensive		X		X
Minimal Setup Expertise	X	X		X
Not Sensitive to Color and Light Variation				X
Flexible to Various Types of Inspection	X		X	X
Requires No Additional Plant Resources		X		X
Image Storage of Each Inspection				X
Achieves 99% Accuracy		X	X	X
No Operator Training Required		X	X	X
Personalized Service and Support Available			X	X
Customizable Interface				X
Customizable Pass/Fail Levels	X		X	X

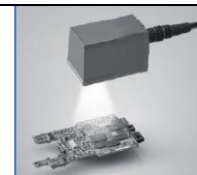
Sensor Based Inspection



Human Inspection



Traditional Machine Vision



# PAQi Object Detection

**Trained Image** OK

PAQi is programmed to recognize your conforming assembly or manufactured product.

**PAQi Detected failure** NOK

**PAQi Detected failure** NOK

**Trained Image** OK

**PAQi Detected failure** NOK

**PAQi Detected failure** NOK

**Trained Image** OK

**PAQi Detected failure** NOK

**Trained Image** OK

**PAQi Detected failure** NOK

PAQi is capable of learning an unlimited amount of data points.