

Sensor-Driven AI for Enhanced Quality Control

Increased throughput and quality by automating sensor-driven testing

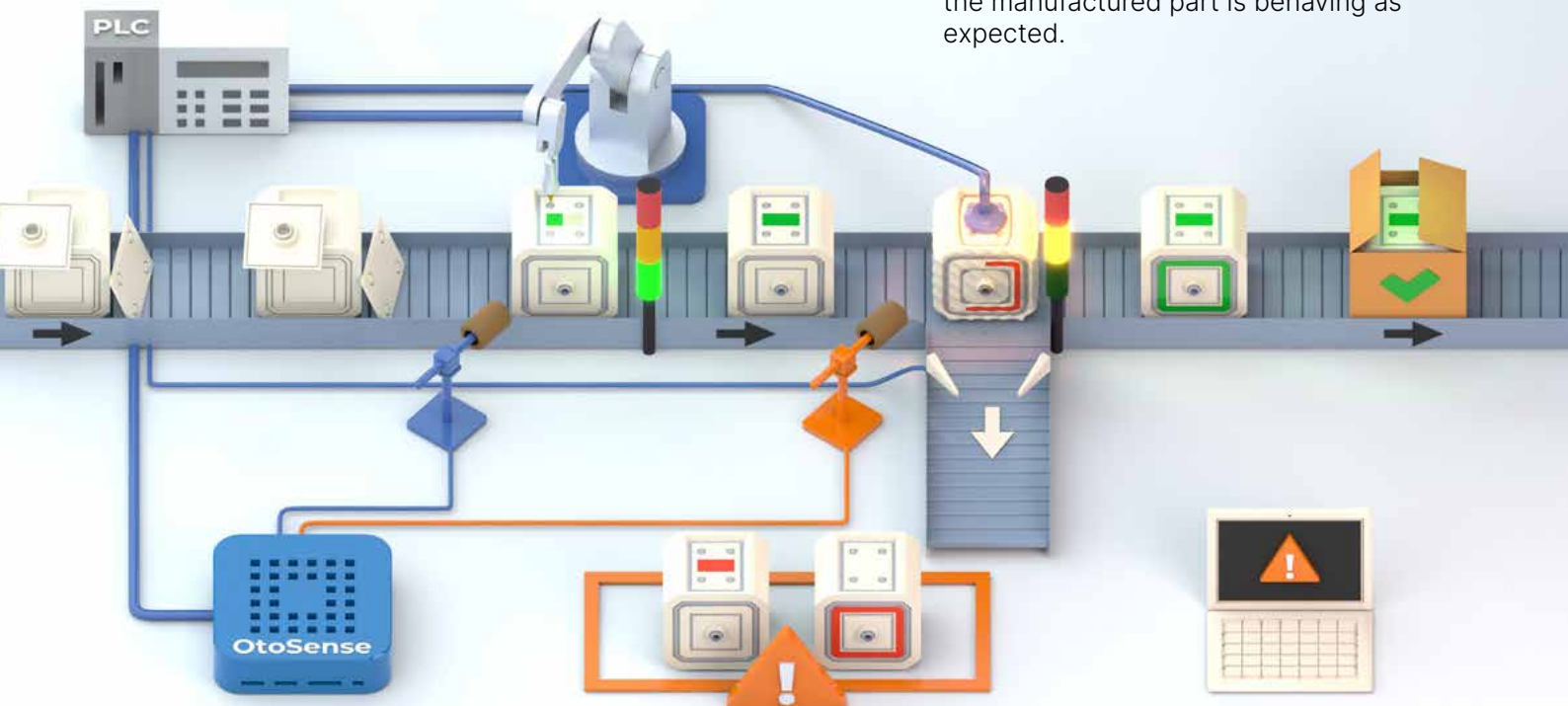
ADI OtoSense Quality Control is an intelligent solution that combines raw sensor signals, automation data and human manufacturing expertise to deliver automated quality control operations in real time, at the edge, on the production floor.

It integrates hardware, software and service, and interprets sound and vibration to quickly determine whether a manufactured part meets quality criteria and whether a manufacturing process is correctly executed.

How does it work?

Testing of any part or process

The solution can be installed anywhere on the line, whether it's to check that an operation was correctly performed or that the manufactured part is behaving as expected.



Hardware & SW installation

Sound and vibration sensors would be added if no raw sensing data is available through the customer's existing installation.

An OtoSense software-enabled edge device is installed:

- it retrieves information from the automated system to adapt to the programmed parameters
- it processes data locally and makes the result directly actionable

Integration into factory

OtoSense software collects information from a Programmable Logic Controller (PLC), for example part type, test/process phase, etc.

It also shares its results via the PLC, allowing the automated sorting of parts.

OtoSense results are also available on a local storage, on the HMI or via APIs.

Benefits

Higher quality

- Detects irregularities, including latent defects
- Provides an actionable output in real time, on the line
- Performs 100% inspection of units using sensor-driven tests

Optimized throughput

- Reduces testing time
- Catches faulty parts early, reducing scrap
- Prevents process downtime by detecting potential problems at an early stage

Easy integration

- Connects to existing automation system
- Enables the automated sorting of parts
- Adapts to complex, multi-variant, multi-phase scenarios

Case Studies

For a major OEM, OtoSense Quality Control rapidly isolates substandard compressors during production line testing



Within 3 seconds, OtoSense AI predicts the quality of the compressor with 100% accuracy when performing End-of-Line testing.

Integrated to the production line, the solution is noninvasive, using a microphone to collect raw sensing data. Through PLC, the software collects the tested compressor's identification number to deduce its type, as well as the test phases the compressor goes through, triggering the right AI model automatically.

OtoSense AI result is immediately shared via the PLC so that a robotic arm can set aside the substandard units for further testing.

For an international automotive manufacturer, ADI OtoSense solution detects the tearing of the part when being inserted by a robot



OtoSense AI enables the automated sorting of parts in real time, where the process takes place.

At an automated workstation of an automotive factory, OtoSense AI monitors an articulation insertion. It uses microphones to collect the sound of this operation and interfaces with the PLC to read cycle start/end, so that the AI model targets the exact moment the part is inserted. It immediately returns quality check results so that the torn parts can be put aside and prevented from being used further along the line.



Contact us if you have any question
otosense.analog.com/quality-control
otosense.info@analog.com

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