

Automation Case Study: Automotive quality control

Motion Tronic selects high performance PLC and HMI from Inovance Technology to engineer a smart catalytic converter quality control solution for Toyota South Africa Motors' exhaust facility.

Customer Profile

Headquartered in Prospecton, near Durban, Toyota South Africa Motors (Pty) Ltd is a manufacturer of Toyota vehicles. Since its establishment in South Africa in 1961, global motoring giant Toyota has become part of the country's culture and is one of its best-selling automotive brands. A wholly owned subsidiary of the Japanese Toyota Motor Corporation, Toyota South Africa Motors (TSAM) has a strong focus on quality control and deliverables, safety and ease of use.

Motion Tronic, founded in 2003 in Durban, is an official distributor of Inovance products in South Africa, providing a wide portfolio of Inovance solutions. The company also delivers local specialist support from engineers who have completed dedicated training on Inovance products, including installation, commissioning, technical and mechanical support.

The Challenge

Toyota South Africa Motors exhaust plant was looking for a way of ensuring that all exhausts are manufactured with the correct catalytic converter for the applicable model before assembly.

Assembly staff needed a quality control solution that would ensure the correct part matching of units being assembled and significantly reduce the risk of errors relating to catalytic converters or incorrect part matching of units being assembled.

The Solution

Toyota South Africa Motors approached Inovance's South African distributor Motion Tronic for help designing and building a solution to check the quality of its catalytic converters before assembly.

Motion Tronic worked with the team at Toyota South Africa Motors' exhaust plant to create a quality control cubical for catalytic converters that checks part numbering inside the unit, checks the weld seam and checks the part number stamped on the outside of the catalytic converter.

Solutions were selected by Motion Tronic from global industrial automation company Inovance. Technical support engineers from Inovance worked alongside Motion Tronic's project engineer to develop the correct solution to Toyota South Africa Motors' quality control challenge.

The solution sees two IFM infrared cameras identify the numbering inside the catalytic converter as well as the stamped numbering on the outside of the catalytic

converter. These are linked to a high performance Inovance H3U PLC, which provides communications over Ethernet and acts as a central processing unit. Data is processed by the PLC and compared with recipes programmed into an IIoT-ready Inovance IT7000 HMI to determine whether the catalytic converters are within the acceptable range, delivering a clear pass/fail result that can be easily read by Toyota's assembly staff.



The benefits

Inovance was chosen by Motion Tronic as offering a cost-effective, high-quality solution. Motion Tronic and Toyota found Inovance very easy to work with on this project and the Inovance range of industrial automation products provided the required communication interfaces and displays needed to acquire, process and deliver test results directly to Toyota assembly staff.

The quality control solution engineered by Inovance, Motion Tronic and Toyota South Africa Motors provides a cost effective and high performance resolution to the problem identified by the automotive company at its South African exhaust plant. The new quality control cubical ensures all exhausts assembled at the plant are manufactured with the correct catalytic converter for the applicable model.



Key benefits:

- Cost effective quality control
- High performance
- Ease of use
- Fast communication
- Clear display of data
- Reliability
- Increased productivity
- IIoT capabilities

“We really enjoyed working with Toyota and we hope to do so again in future. The project was very successful and this is in no small part due to the high quality, cost effective performance of the Inovance PLC and HMI used to solve a key quality control problem at the exhaust plant.”

Bradley Douglas, Director at Motion Tronic

“Inovance provides built-in communication even on mid-level PLC units. We were very pleased to see how well our H3U Series PLC and smart HMI suited this project. Our wide range of industrial automation products provide the flexibility and capabilities to deliver the best possible solution for projects across industry sectors.”

David Bedford Guaus, Strategic Marketing Manager at Inovance