



# FORD MOTOR COMPANY

End of Line Control

Case Study



## FORD MOTOR COMPANY

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Ford is the third largest car producer in the world with approximately 325,000 staff members worldwide. Headquartered in Cologne, Ford has 30,000 people currently working in Germany.



## CASE BACKGROUND

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Ford Cologne plant produces approximately 2,000 cars every day. In order to release a new car from a plant a number of time consuming manual checks are necessary. A detailed quality control must be carried out and the faultless shipment of new vehicles must be guaranteed. Incorrect loading, unnecessary holding and superfluous vehicle movements must be avoided at all costs.

In order to eliminate these cost intensive manual processes Ford decided to implement 7iD's end of line control system based on the UHF passive RFID technology. This solution allows an automated control of the complete end of production line process. Even the correct delivery option – train, ship, truck – is monitored via this tailor-made RFID solution.

## THE BENEFITS

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By implementing the RFID end of line control solution Ford succeeded in optimize the complete end of production line process from quality check to delivery:

- Waiting times reduced by 20 %
- Incorrect loading reduced by 100 %
- Streamlining of the shipping process by 15 %
- Increased employee satisfaction
- Secure investment thanks to selections of components conforming to international standards and Ford 's Auto-ID infrastructure

## THE SOLUTION

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- Spectrum analysis
- Installing hardware and RFID software components according to international standards and regulations
- Integration with existing middleware and backend system
- Integration of monitoring and alarm modules and a failover solution
- Guaranteed scalability of future projects by using newest components and certified software products
- Elimination of unwanted reads by using special software algorithms
- Reading-rate of min. 99.9 percent even in metallic environment

## THE CHALLENGE

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- Solution must be compliant with international standards and regulations to RFID;
- Solution must be compliant to Ford 's Auto-ID infrastructure;
- Solution must be integrated into existing backend systems;
- No interferences among the RFID solutions on the site;
- Solution must guarantee expansion, scalability and compatibility with regards for future RFID solutions.

# THE PROJECT

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At the end of production line each car is marked with an RFID label, which is attached to the right back side window. The RFID reader at the line stores the data on the user-memory of the RFID tag and monitors the tag performance at the same time.

The label contains the car identification number and other relevant data such as production day, destination or the dealer that the car shall be delivered to.

Every car is being tested for defects at the end of production line. Upon leaving the course the RFID reader captures the tag. Depending on the test result the gate opens and the car is released for the next process step or sent back to the production hall for damage handling. The entry into and the exit from the production hall is also monitored by the RFID system.

At the gate release station the cars are released for delivery. The RFID readers installed in this area perform data updates for the tags and lock them, so that they cannot be manipulated later on. A display shows the driver the distribution channel assigned for that vehicle. Each distribution channel – be it train, ship, truck or the intermediate storage in the parking house – is equipped with an RFID reader and gates. This is the last identification point before the final delivery.

Status and position of each vehicle can be called in immediately any time.

The used 7iD Identification Network products are constructed in a way that if a network failure occurs, data is cached and losses are kept to a minimum. Beside the configuration and management service, the 7iD data center fulfils the tasks of system monitoring by continuously checking the overall performance and the status of the RFID solution. In order to avoid failures a failover cluster was developed. This means that in case of hardware and software failures of the active data center a second data center takes over the system without interruption and sets off the alarms immediately.



## KEY FEATURES

- Significant reduction of waiting times
- Complete elimination of incorrect shipment
- ROI within 12 month.
- Low maintenance and faultless operations
- Installation within 4 days
- Integration with existing systems
- Easy to expand



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