

The background image shows a Siemens SIMATIC RF340R RFID reader in the upper right, emitting a bright yellow-green light. Blue, wavy lines representing radio frequency signals emanate from the reader and spread across the scene. In the lower left, a white plastic mechanical component is shown, with the blue waves interacting with it. The background is dark with faint, glowing green binary code (0s and 1s) floating in the air.

SIEMENS

Ingenuity for life

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**SIMATIC
RF340R**

State-of-the-RFID

**SIMATIC RF300 level up:
Reading accuracy for the
material flows of tomorrow**



Even more
convenient

Even more
efficient

Distinguishing features of the new SIMATIC RF300 reader generation

Even more reliable: high process reliability and reduced outage time

- Convenient setup guide for determining the optimal antenna position, especially in metallic environments
- Enhanced robustness to resist HF interference
- RGB-LED control lamps for simple visual diagnostics

Even simpler: simplified production system refitting and stock storage

- All that's required to migrate from the MOBY I legacy system is to replace the readers and transponders
- Additional transponder protocol enables easy expansion and migration from MOBY E systems
- Automatic detection of a variety of transponder types/models

Even more convenient: fast and simple system integration

- Integral part of Totally Integrated Automation
- Compact component dimensions

Even more efficient: fast programming and commissioning

- Integration into the SIMATIC STEP 7 engineering systems and the TIA Portal by means of IDENT technology object

SIMATIC RF300:

The high-performance RFID system in the HF range

As automation advances at a rapid pace, the demands placed on industrial identification are steadily growing. Siemens' response to these needs is SIMATIC Ident, a uniquely comprehensive and scalable portfolio of radio-frequency identification (RFID) and optical identification systems for the flexible implementation of efficient, economical identification solutions in manufacturing and logistics. SIMATIC Ident is the top choice for meeting today's requirements and providing a key technology on the road to digitalization.

Optimizing material flows with RFID

The RFID systems in our SIMATIC RF product line cover a broad spectrum of performance, read/write range, and frequency-range requirements. You can rely on the end-to-end data transparency of these systems – a basic prerequisite for the seamless control and systematic optimization of your material flows.

SIMATIC RF300: New readers for a proven RFID system

With our SIMATIC RF300, we're offering a high-performance RFID system that meets the highest demands for speed, data volume, and diagnostics functionality that has proven itself daily in countless applications worldwide.

As a leading provider of industrial identification systems, we are continuously driving RFID technological advances. A special priority for us in the ongoing development of our systems is ensuring compatibility with our existing portfolio – as is the case with the second reader generation of our proven RFID system SIMATIC RF300.

The three new readers are fully compatible with the existing product family, both mechanically and electrically as well as in terms of system integration. In addition to all the qualities of their proven predecessors, they offer many new pioneering features and functions.



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Technical data

- Read/write range: up to 0.2 m
- Frequency: 13.56 MHz
- Standards: ISO 15693 and MIFARE classic (ISO 14443 A)

System benefits

- Robust, compact components featuring a high degree of protection (up to IP68 rating)
- Interference-proof data communication with high data security
- Maintenance-free data storage units up to 64-KB memory; user storage capacity with additional one-time programmable (OTP) data region of up to 20 bytes, and low-cost ISO 15693 transponders can also be used
- Very fast data transmission between reader/writer and mobile data storage device (up to 8,000 bytes per second (B/s))
- Comprehensive status and diagnostic functions
- Easy to integrate into SIMATIC, PROFIBUS, PROFINET, TCP/IP, and EtherNet/IP

Example application: Powertrain – automotive engine manufacturing

Task description

Flexible manufacturing with a selection of production steps

Solution

The engine blocks secured on the workpiece holders are transported by a conveyor belt to the various workstations. The SIMATIC RF340T or 350T transponder is affixed to the underside of the pallet. The SIMATIC RF310R or RF340R reader is integrated in the conveyor system in a way that enables interference-free communication with the transponders. If pallets are not used in the production line, a screw transponder (for example MDS D428) mounted directly on the engine can be used alternatively. In this case, the reader is mounted to the side of the conveyor belt. The data of the entire production order are stored on the transponder. This data are read at each individual work station, modified or supplemented depending on the specific station, and then re-saved to the transponder. This allows the status of the engine manufacturing process to be determined at any point in time, even if communication with the superordinate database is interrupted.

Benefits

- Short cycle times for individual work steps, thanks to the very high data rate that enables a significantly higher volume of product throughput
- No additional data management needed to control the production workflow
- Production order data are also readable by SIMATIC RF350M mobile hand-held readers for maintenance purposes



Example application: Painting lines in the automotive industry

Task description

Identification of skids and car bodies in the paintshop

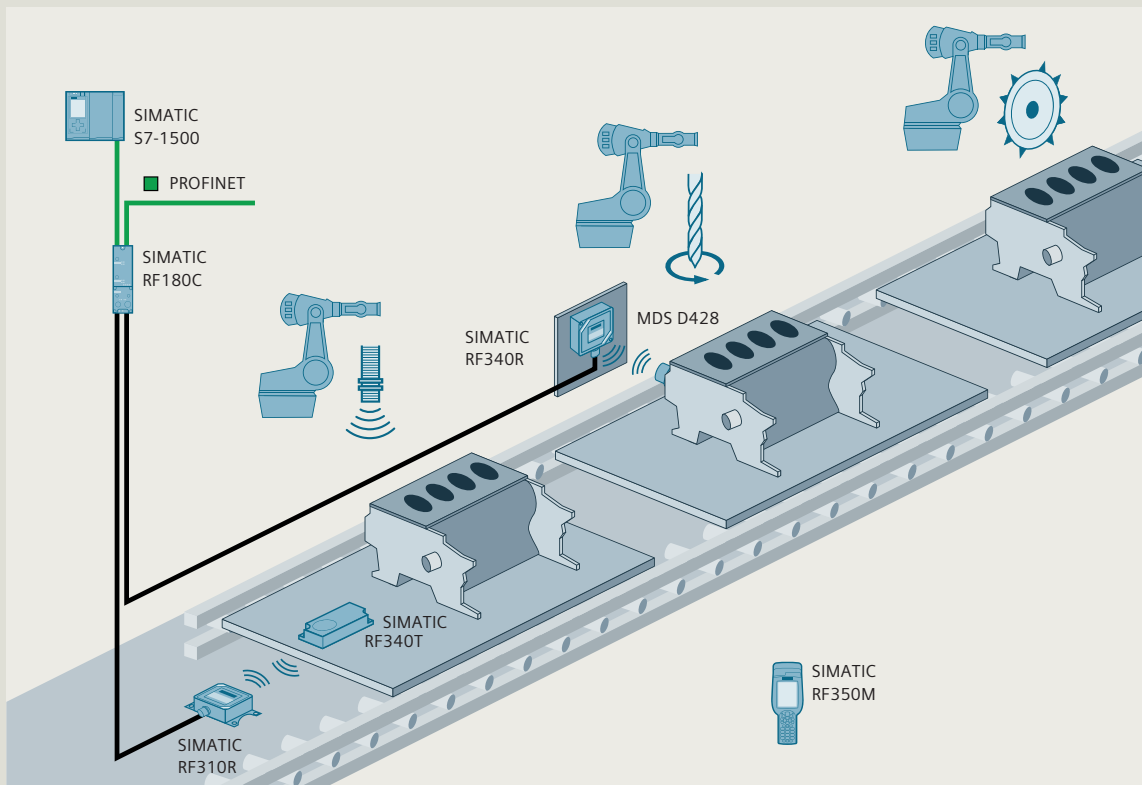
Solution

In industrial paintshops, the unique and unambiguous identification of car bodies is imperative for order-specific color selection and application. Aggressive chemicals and drying processes at temperatures of up to +220° Celsius place a very high demand on transponders in terms of their protection rating as well as chemical and temperature resistance. What's more, all components must be 100 percent free of paint-wetting impairment substances (such as silicone). The SIMATIC RF380T transponder fulfills all these requirements and can be exposed to a temperature of 220° Celsius for up to two hours. It is usually mounted on a crossbar on the skid and is readable and writable at a distance of up to 150 mm by the SIMATIC RF380R reader mounted below. The SIMATIC RF350M mobile hand-held reader allows processing of transponders from any location.

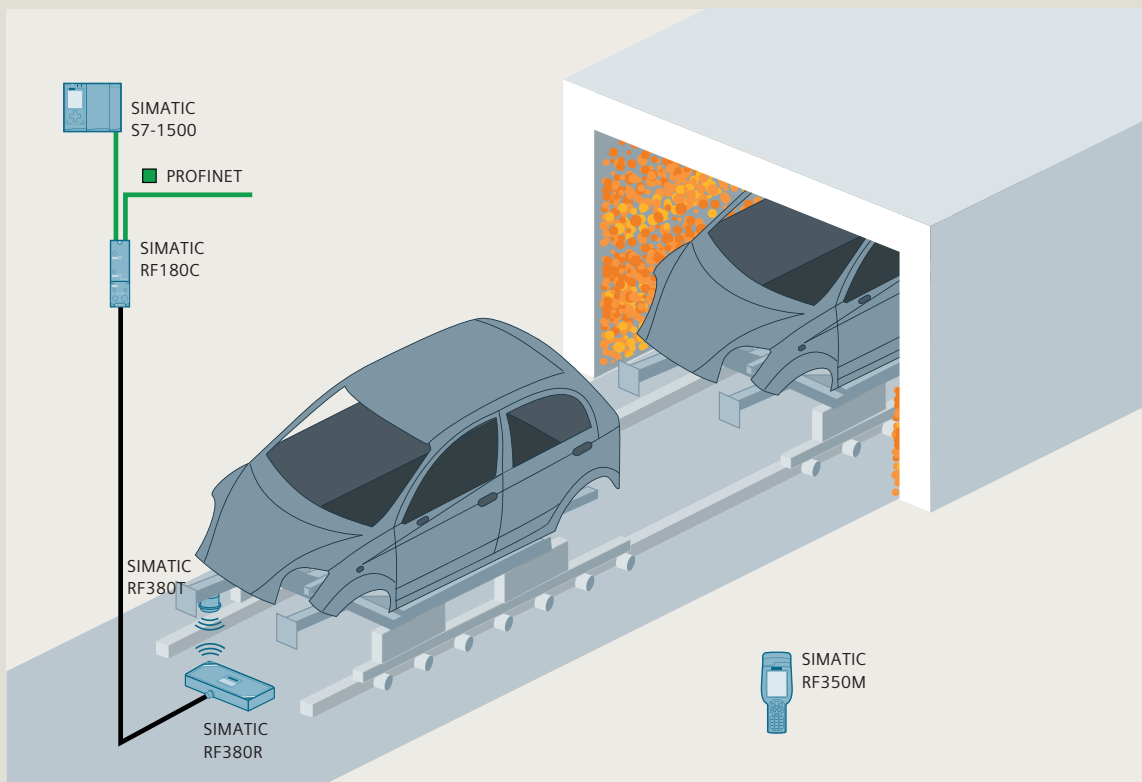
Benefits

- Fast and reliable identification
- Reliable identification even in fast, dynamic operating environments and processing of data at data transmission rates of up to 8,000 bytes/s
- Memory capacities up to 32 KB for complete data retention directly on the skid or workpiece
- Proven design concept used in countless paintshops worldwide



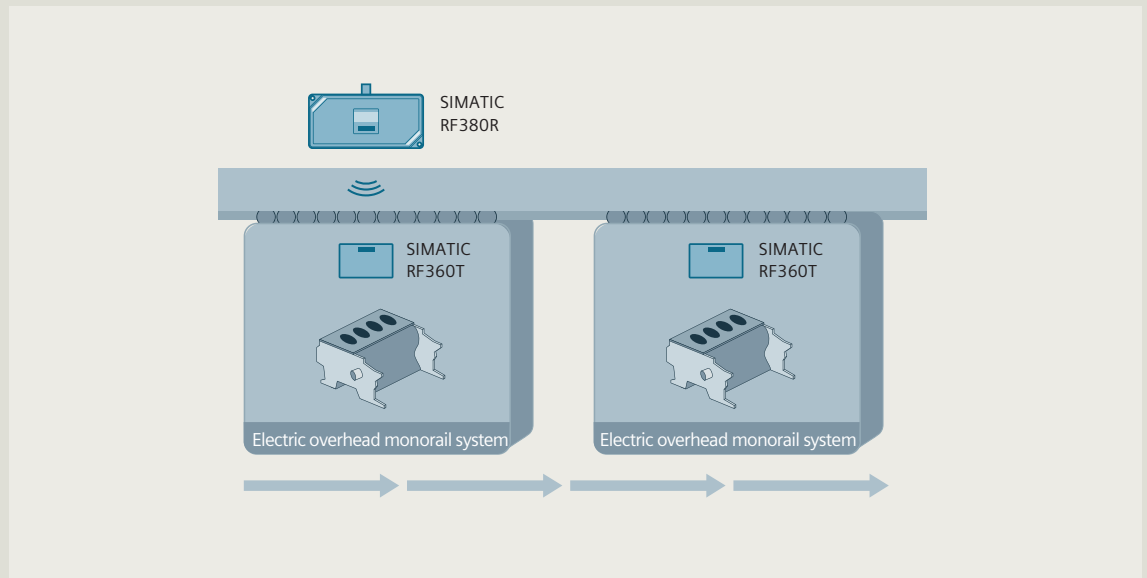


Even more
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Even
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Example application: Electric overhead monorail system in manufacturing



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Even more
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SIMATIC RF300: The top choice for many applications

Fiercer competition, stricter standards and statutory regulations, shorter product lifecycles, and increasingly individualized customer demands: Today's markets demand efficiency and transparency, goals that can be met by tracking and tracing, asset management, and production control. The optimal solution to these needs is our innovative RFID system SIMATIC RF300.

Production control

- Comprehensive, end-to-end solutions thanks to the use of standards
- Shorter cycle times due to high-speed data reading and recording
- Unique and unambiguous identification for customized as well as economical manufacturing
- Higher availability as a result of the distributed control system
- Optimized inventory management: minimized stock inventory quantities and prevention of interim warehousing
- Automatic, synchronized supply feed of parts and components
- Automation of manufacturing planning with the help of KANBAN



Task description

Storing all important manufacturing and quality data from production. Data is read and written dynamically.

Solution

Every holder is marked with a SIMATIC RF360T mobile transponder that contains up to eight KB of production and quality data (including part number and measured values). The data can be read and, where appropriate, modified at any time by a reader like the SIMATIC RF380R. SIMATIC RF300 offers reliable, automatic, and fast identification.

Benefits

- Possibility of distributed data storage
- High-speed RFID data transmission
- Dynamic reading and writing (without stopping the conveyor system)



Tracking & tracing

- Improved product quality
- Focused aftersales support (for example, callbacks)
- Compliance with statutory regulations

Asset management

- Reduced cycle time
- Optimized stock inventory
- Increased availability
- Improved service, maintenance, and repair processes

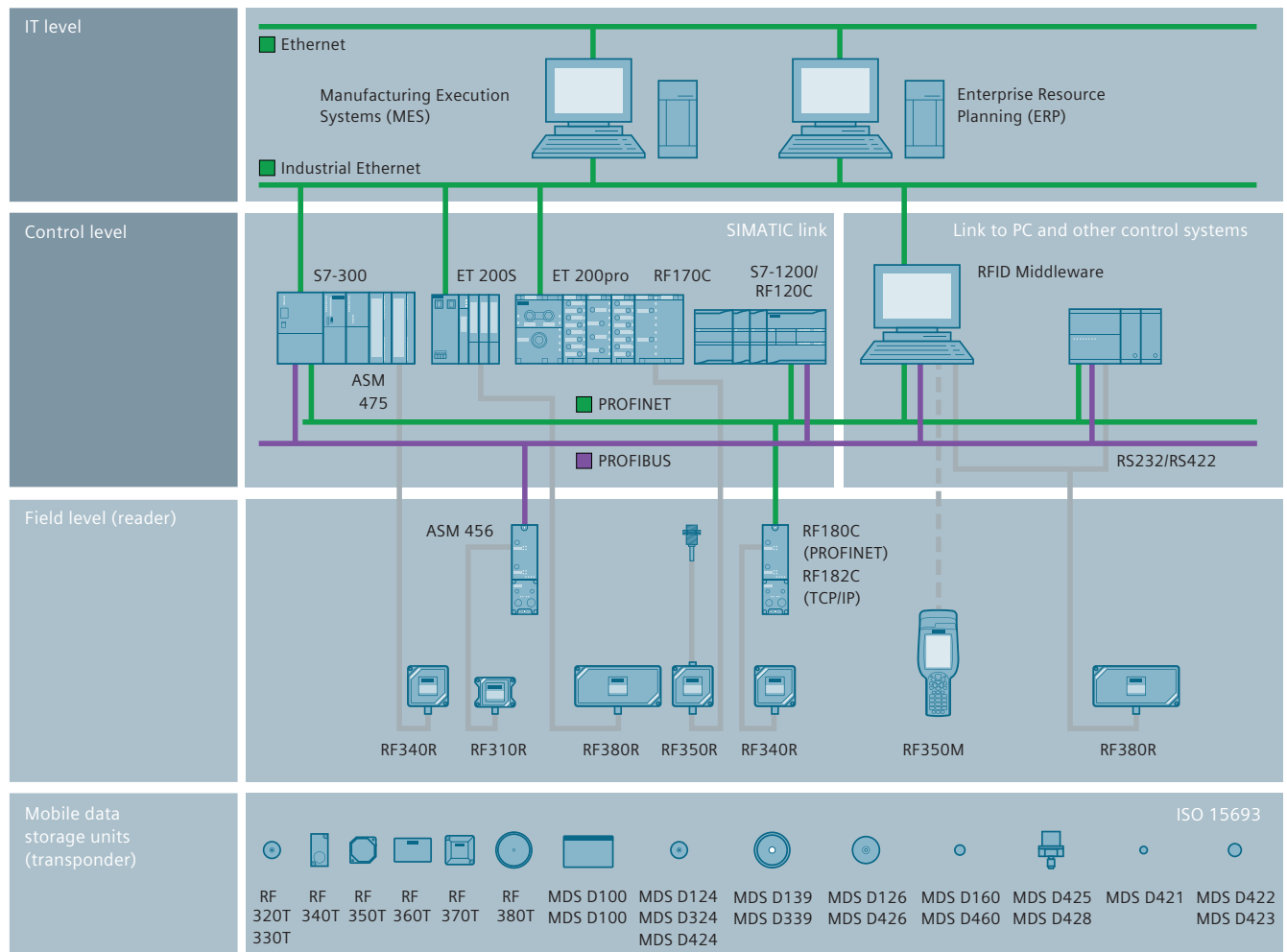


Simply less complex: System integration

One outstanding feature of our SIMATIC RF300 RFID system is the especially easy system commissioning and fault diagnostics made possible by its extensive range of sophisticated functions. Thanks to the M12 connector design concept, the plug connections are fully compatible with other automation components. It's also possible to integrate the system in communication networks like PROFIBUS, PROFINET, TCP/IP, and EtherNet/IP as well as in the PC environment.

A wide range of communication modules and function blocks as well as powerful drivers and function libraries allow quick and easy integration into the application.

Another highlight: the SIMATIC RF300 is part of our Totally Integrated Automation solution and can therefore be integrated into the world of SIMATIC very simply, efficiently, and economically.



Product overview

Readers and antennas

SIMATIC RF310R



- Especially compact reader with integrated antenna
- Optimal for use in small assembly lines

SIMATIC RF340R



- Reader with integrated antenna
- Optimal for use in assembly lines

SIMATIC RF350R



- Reader for connection of external antennas (ANT 1, 3, 12, 18, 30)
- Optimal for use in assembly lines

SIMATIC RF380R



- Reader with integrated antenna
- Optimal for use in assembly lines where a long read/write distance is required

SIMATIC RF350M mobile hand-held terminal



- Hand-held terminal with integrated or external read/write antenna

Antennas



- Antennas to meet any requirements in an abundance of applications

Transponders (RF300 mode)

- Suitable for use with SIMATIC RF300 only
- Full performance range when used with RF300 readers
- Very high reading speed and large memory capacity

RF320T



- Small, compact, universally usable
- 20-byte EEPROM memory

RF330T



- For mounting directly on metal
- For direct identification of metallic workpieces or containers
- 32-KB FRAM memory

RF340T



- Universally usable
- For mounting directly on metal: for example, on workpiece holders
- 8- or 32-KB FRAM memory

RF350T



- Universally usable
- For mounting directly on metal
- Suitable for longer ranges
- 32-KB FRAM memory

RF360T



- Universally usable, in credit-card format
- For mounting onto metal with spacer
- 8- or 32-KB FRAM memory

RF370T



- Universally usable
- With 32- or 64-KB memory
- For mounting directly on metal
- Suitable for longer ranges

RF380T



- Heat-resistant, designed for skid identification in paintshops
- For mounting directly on metal
- Temperature range up to +220° Celsius
- 32-KB FRAM memory

Transponders (ISO mode)

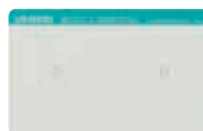
- Standardized to ISO 15693
- Universally usable, compatible with all manufacturers
- Different type/model designations for identical designs provide information on memory type and size*

MDS D165, MDS D261



- SmartLabel (PET), format similar to credit-card format
- Applications range from simple identification and storage and distribution logistics to product identification

MDS D100, MDS D200, MDS D400



- Universally usable, in credit-card format
- Suitable for identifying transport units in production-related logistics (MDS D100 and MDS D200) and in production and logistics (MDS D400)

MDS D421, MDS D521



- Suitable for tool coding to DIN 69873
- Universally usable wherever very small data storage media and precise positioning are required (for example, for tool identification)

MDS D422, MDS D522



- Suitable for identifying metallic workpiece holders, workpieces, and containers

MDS D423



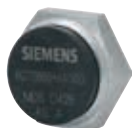
- Rugged transponder for production and distribution logistics as well as assembly and production lines

MDS D124, MDS D324, MDS D424, MDS D524



- Heat-resistant, for applications with high thermal stress (MDS D124)
- Rugged transponder for harsh industrial environments and extreme environmental conditions
- Rugged transponder for production and distribution logistics as well as assembly and production lines

MDS D425, MDS D525



- Compact and rugged transponder suitable for screw-mounting; for assembly and production lines in the powertrain sector

MDS D126, MDS D426, MDS D526



- Compact and rugged transponder for identifying transport units in production-related logistics; can also be used in harsh environments

MDS D117



- Extremely small (four-mm diameter), can be flush-mounted on metal with adhesive; for directly identifying metallic workpiece holders, small workpieces, or containers

MDS D127



- Extremely small, can be flush-mounted on metal with adhesive; for directly identifying metallic workpiece holders, small workpieces, or containers

MDS D428, MDS D528



- Compact and rugged transponder suitable for screw-mounting; for assembly and production lines in the powertrain sector

MDS D139, MDS D339



- Heat-resistant transponder for paintshops or applications with high thermal stress

MDS D160, MDS D460



- Special transponder for harsh environments in the laundry and cleaning industry (MDS D160)
- Rugged transponder for assembly lines (MDS D460)

*What the type/model designations indicate about memory size:

- MDS D1xx: 112-byte EEPROM memory
- MDS D2xx: 256-byte EEPROM memory
- MDS D3xx: 992-byte EEPROM memory
- MDS D4xx: 2000-byte FRAM memory
- MDS D5xx: 8-KB FRAM memory

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