SIMATIC IDENT

Industrial identification for company-wide data intelligence

siemens.com/ident
Let the **data** journey begin

Discover and explore Siemens’ comprehensive industrial identification portfolio. Find the right product for your application directly using intuitive navigation.

**INDUSTRIAL IDENTIFICATION – AN INTRODUCTION** → **USE CASES**

**SELECTION CRITERIA** → **SERVICES**

Product portfolio at a glance →
Industrial identification: Enabler for the IIoT

Industrial identification turns a regular object into a smart object. It makes it possible to read these objects and exchange data with them. This integrates the objects not only in automation, but also in the Industrial Internet of Things (IIoT), and makes industrial identification a key technology for the digital transformation.

Radio Frequency Identification (RFID)
RFID is based on radio waves. A reader communicates contactlessly with a data storage device – also known as a transponder, tag, or SmartLabel – attached to the object. The data exchange requires no line-of-sight connection between the read/write device and the transponder. Because transponders need no energy storage (such as a battery), RFID is especially eco-friendly.

Optical identification (OID)
For OID, a camera is the central element in the fast, accurate reading and verification of various codes and in object recognition. Its purpose is to seamlessly track products and components across the entire value chain. Reflective or soiled surfaces, difficult lighting conditions, and different reading ranges are no problem.
How RFID works

Wireless technology for locating and tracking objects.

- Reads and writes – no direct line of sight required
- Possible to read multiple transponders simultaneously
- Passive transponders (without battery), hard tags, and labels for a variety of applications
How OID works

Optical technology for identifying objects.

- Direct line of sight required
- Code reading, object recognition and verification
- Direct identification of products and components
- Printed, lasered, or dot-peened
**Our product portfolio at a glance**

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<td><strong>Optical identification (OID)</strong></td>
<td><strong>EtherNet/IP</strong></td>
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<td><strong>Sits comfortably in your hand and suitable for mobile use</strong></td>
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<td><strong>Reliably tracks thousands of objects</strong></td>
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**Radio Frequency Identification (RFID)**

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<th>Readers</th>
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<tr>
<td><strong>Short ranges (HF)</strong></td>
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<tr>
<td><strong>SIMATIC RF200</strong></td>
<td><strong>SIMATIC RF600</strong></td>
</tr>
<tr>
<td>Works quickly and flexibly and is especially cost-efficient</td>
<td>Reliably tracks thousands of objects</td>
</tr>
<tr>
<td><strong>SIMATIC RF300</strong></td>
<td><strong>SIMATIC RF1000</strong></td>
</tr>
<tr>
<td>Equipped with a large memory and transmits data at record speed</td>
<td>Handles access management using existing employee IDs</td>
</tr>
<tr>
<td><strong>SIMATIC RF600</strong></td>
<td></td>
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<tr>
<td><strong>SIMATIC RF1000</strong></td>
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**Antennas**

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<th><strong>Transponders</strong></th>
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<tr>
<td>1D code</td>
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<td>2D code</td>
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<tr>
<td>Position and shape</td>
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<tr>
<td>Verification</td>
</tr>
</tbody>
</table>

**If you need help with the selection of SIMATIC Ident components, you can use the TIA Selection Tool:**

www.siemens.com/tst
Areas of application for industrial identification

The potential applications for industrial identification vary widely and are highly beneficial for many industries.

- **Asset management**
  - Real-time inventory and status information

- **Industrial automation**
  - Material flow control in production

- **Tracking and tracing**
  - Digital tracking and tracing of products and their components

- **Supply chain management**
  - Transparency across the entire value chain

- **Access control**
  - Protection of the machine fleet against unauthorized access
Each SIMATIC Ident RFID family has characteristics that are designed for a specific application area. The following graphics provide an overview of which reader and transponder combinations are recommended for which area of application.

**Technology**

As part of our extensive SIMATIC RF portfolio, we offer you systems for the HF and UHF range.

- **HF**
  - SIMATIC RF1000
  - 125 kHz + 13.56 MHz

- **UHF**
  - SIMATIC RF600
  - 868/915 MHz
  - SIMATIC RF200/RF300
  - 13.56 MHz

**Range**

The distance between the reader and transponder must be taken into account when selecting the RFID system.

- SIMATIC RF1000
  - 30 mm
- SIMATIC RF200
  - 650 mm
- SIMATIC RF300
  - 210 mm
- SIMATIC RF600
  - 8000 mm

**Storage capacity**

Storage capacity refers to how much data can be stored on a transponder.

- SIMATIC RF600
  - 8 kB
- SIMATIC RF200
  - 256 B
- SIMATIC RF300
  - 64 kB
### Basic characteristics of RFID technology

#### Attachment to metal
To select the right RFID solution, it's important to know how the reader and transponder will be attached to metal.
- Mounted directly in metal
- Mounted directly on metal
- Mounted on metal with a spacer

#### Environment
The specific environmental conditions vary as widely as the applications themselves.
- 220º
- IP68

#### Read / write speed
The speed at which the transponder moves through the radio field also needs to be taken into account.
- SIMATIC RF200 / 1000
- SIMATIC RF300 / 600

#### Multitag / bulk capability
Selecting the optimal RFID system also depends on the number of transponders that occupy the radio field at one time.
- 1
- >100
- SIMATIC RF200 / 300 / 1000
- SIMATIC RF600
Discover how you can perfectly control and continuously optimize your material flow with SIMATIC Ident. The following use cases illustrate typical areas of application.

**Seamless transparency in a wide range of applications**

**USE CASES**

- Reliable identification in harsh environments
- Secure access control for machines and plants
- Individualized access to e-car charging stations
- Identification of load carriers in production
- Positioning of Automated Guided Vehicles
- Electric motor production in the automotive industry
- Process control in industrial production
- Monitoring of in-house logistics processes
- Cloud-based monitoring of logistics chains
- Code reading at the conveyor belt
- Position detection for interaction between component and robot
- Quality control via optical identification
Reliable identification in harsh environments

Task
Unambiguous identification of skids and car bodies for order-specific color selection and application under extremely challenging environmental conditions, such as the use of chemicals and drying processes at temperatures of up to 220 °C.

Solution
The SIMATIC RF380R reader mounted on the plant floor reads/writes the production data stored on the SIMATIC RF380T transponder. For maintenance purposes, this data can also be read using the SIMATIC RF360M mobile handheld reader.

Benefits
- Reliable identification even in harsh environments
- High security of investment thanks to durable and robust components
- Greater quality/productivity thanks to continuous identification at every workstation
- High plant safety thanks to Ex-certified components
- Distributed data storage thanks to the high storage capacity of transponders

Click the icons for more information
Secure access control for machines and plants

**Task**
Unambiguous identification of operators at machines and plants for controlling access and establishing an audit trail.

**Solution**
Based on existing employee IDs, readers in the SIMATIC RF1000 series permit simple and flexible implementation of electronic access control and management. This increases user-friendliness and reduces costs.

**Benefits**
- Maximum process reliability and efficiency
- Easy integration in existing hardware (HMI devices, IPCs, and panels)
- Prevention of operating errors thanks to secure and documented access
- Individualized, central assignment of user authorizations
- Traceability of parameter changes
- Generation of customer-specific reader configurations
- Devices with ATEX approval

Click the icons for more information
Individualized access to e-car charging stations

Task
Reliable authentication of e-car users at charging stations.

Solution
The robust SIMATIC RF1000 reader enables simple and reliable user identification. The system can be used for logging the user in at a charging station.

Benefits
- Extreme reliability
- Storage of encrypted information on the card
- High data transfer rates

Click the icons for more information
Identification of load carriers in production

Task
Track production and logistics processes when manufacturing valuable products in order to prevent counterfeits and recalls as well as distribution and process errors.

Solution
Installation of SIMATIC RF360R readers at all production and transfer locations and MDS D400 transponders on load carriers. This makes it possible to seamlessly track and document each individual product during production and after logistics processes.

Benefits
- Possibility of unambiguous traceability
- Faster processing at each production location when implementing the serialization project
- Prevents the sale of counterfeit products via the supply chain (piracy protection)

Click the icons for more information

SIMATIC RF300 Readers
SIMATIC RF300 Transponders

→ INDUSTRIAL IDENTIFICATION – AN INTRODUCTION    → USE CASES    → SELECTION CRITERIA    → SERVICES
Positioning of Automated Guided Vehicles

Task
As a megatrend, customization is responsible for highly dynamic markets worldwide. Flexibility is becoming a key success factor in many industries. As a result, Automated Guided Vehicles (AGVs) are becoming more and more important as mobile workpiece carriers.

Solution
A SIMATIC RF360R reader is attached to the underbody of the AGV and MDS D426 transponders are integrated in the hall floor along its route. When the AGV drives over these transponders, the AGV’s controller detects its current position.

Benefits
− Simple implementation of automatic positioning
− Cost-effective design thanks to the use of only two different components
− Integration of a reader even in the limited space on an AGV

Click the icons for more information
Electric motor production in the automotive industry

**Task**
The global trend toward electromobility requires fast, efficient and flexible manufacturing of electric motors. In the process, the traceability of quality-related materials and components must be guaranteed.

**Solution**
In motor production, every workpiece carrier is fitted with a SIMATIC RF350T transponder on which all the production-related information is stored. With the aid of the SIMATIC RF360R reader, this data is read and written at the workstations.

**Benefits**
- More flexible production thanks to the high-performance SIMATIC RF300 RFID system
- Space-saving and cost-efficient combination of the features of a communication module and reader in one device, the SIMATIC RF360R

Click the icons for more information
Process control in industrial production

**Task**
To enable the strategic control of manufacturing processes, production and quality data from workpieces on electric monorail systems has to be automatically identified and assigned.

**Solution**
Each carrier is fitted with a SIMATIC RF360T transponder storing the data necessary for production that is read and modified by a reader such as the SIMATIC RF380R. In this way, the SIMATIC RF300 RFID system enables fast and reliable identification.

**Benefits**
- High conveyor speed thanks to extremely high data transfer rates
- Dynamic reading/writing without stopping the conveyor system
- Seamless integration in automation environments because SIMATIC RF300 is an integral part of Totally Integrated Automation (TIA Portal)

Click the icons for more information
Monitoring of internal logistics processes

Task
The position and path of parts and product components must be monitored. This applies to incoming goods, outgoing goods, and distribution of goods.

Solution
A SIMATIC RF680R reader monitors incoming goods, reads sender data from the transponder, and communicates this data to the higher-level system. The packages are removed from the pallets, order-picked, and furnished with new transponders on which the receiver data is stored. After the packages have been checked, either the outgoing gate at outgoing goods opens - or an alarm is issued.

Benefits
- A high level of automation saves time, prevents errors, and thereby increases throughput
- The OPC UA interface integrated in the reader permits standardized communication with higher-level systems and reduces integration effort
- Combination of multiple read points in one reader saves money

Click the icons for more information

SIMATIC RF600 Readers
SIMATIC RF600 Antennas
SIMATIC RF600 SmartLabels
Cloud-based monitoring of logistics chains

Task
The current position and path of goods must be tracked via an automated, cross-location tracking and tracing system.

Solution
A SIMATIC RF650R reader and four SIMATIC RF650A antennas are mounted on a gate. The process of reading the transponders on the goods is started and stopped via the sensors. A (traffic light) signal displays red for errors and green if passage and loading are permitted. The system forwards the data acquired to the cloud platform.

Benefits
- Transparency of material flow
- Prevention of errors thanks to a high level of automation
- Worldwide availability of data that is always up to date, including across company boundaries

Click the icons for more information
**Task**
When producing industrial goods, identifying a product ID by reading a barcode is essential. Large image fields (approx. 1x1 m) and high product frequencies (0.5 Hz) must be taken into account.

**Solution**
The SIMATIC MV500 optical reader provides users with powerful lighting technology and processing power so that they can reliably read barcodes, even in challenging situations and in different rotational positions.

**Benefits**
- Maximum functional safety thanks to industry-compliant components
- Extremely easy maintenance and excellent remote support
- Security of investment thanks to standard components
- Global rollout (service/certificates)

Click the icons for more information

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**SIMATIC MV500**
Optical readers
Position detection for interaction between components and robots

**Task**
To correctly pick and place product blanks in automation, robots have to detect their position. To do so, they must be able to read the workpiece ID.

**Solution**
SIMATIC MV500 detects the location and shape of the workpiece and communicates the position of correct workpieces, including the workpiece ID, to the robot so that the workpieces can be transported to their processing position. Defective parts are also detected and ejected before further processing.

**Benefits**
- Camera has large image field to cover a large range
- High processing speed
- SINUMERIK connection available as a sample application
- Easy configuration thanks to web-based management

Click the icons for more information
Quality control using optical identification

Task
Reliable optical identification systems permit food, food packaging, and labels to be unambiguously checked.

Solution
At the first inspection station, the food’s production quality is checked. For this purpose, the SIMATIC MV560 optical reading system – which has a sufficiently large image field – is mounted on a gate. The second gate monitors the packaging for damage and labeling. Because this requires a higher resolution, multiple SIMATIC MV550 readers operate in parallel.

Benefits
− Reliable identification of production errors prevents costly product recalls and safeguards the brand’s reputation
− Graphical documentation of all quality issues thanks to the separate Gigabit Ethernet interface
− Comprehensive solution from a single source

Click the icons for more information
Starting point for your digital transformation

No matter what you want to identify, our broad range of reliable and industry-compliant SIMATIC Ident components can be used to implement almost any application, from the field level to the cloud. Select the right identification system and associated integration components for your project.

**SELECTION CRITERIA**

- RFID
- OID
- Integration
On the fast track to your optimal RFID system

All RFID systems are not alike. When selecting the solution that’s right for you, many aspects have to be taken into account – such as read range, memory size, and transponder costs. Or maybe you need SmartLabels on rolls for your printer. This is why our RFID portfolio includes different product families and technologies, so you’re sure to find the system that’s right for you.

**SELECTION CRITERIA**

**RFID**

- SIMATIC RF200 works quickly and flexibly and is especially cost-efficient
- SIMATIC RF300 has a large user memory and transfers data in record time
- SIMATIC RF600 reliably monitors thousands of objects
- SIMATIC RF1000 permits access management using existing employee IDs
SIMATIC RF200 overview

Works quickly and flexibly and is especially cost-efficient.

Your benefits at a glance:

- Seamless integration in the TIA automation environment: function blocks available, cost-efficient installation, faster commissioning, simple parameterization thanks to technology objects
- Communication and integration: connection to almost any system via standards (industrial buses, IO-Link, RS232)
- Comprehensive transponder portfolio: open standard, flexibly usable worldwide for any application

SIMATIC RF200 is the economical solution for identification tasks of medium performance in the HF range, and is suitable for use in industrial production in small assembly lines or intralogistics. Thanks to their compact design, these RFID system readers can be optimally installed even in confined spaces. Readers with an IO-Link interface are available for especially simple and open identification solutions.

Get to know the members of the product family

Readers
Antennas
Transponders
SIMATIC RF200: readers

Rely on a tireless workhorse for your RFID tasks.

SIMATIC RF210R
M18 reader; extremely compact; ideal for use on small assembly lines; also available with standardized IO-Link interface.

SIMATIC RF220R
Compact M30 reader – ideal for small assembly lines with a slightly higher range and field size; also available with standardized IO-Link interface.

SIMATIC RF240R
Especially compact reader with a high degree of protection and a robust design; also available with standardized IO-Link or RS232 interface (ASCII protocol and scan mode).

SIMATIC RF250R
Reader for operation with external antennas of various designs with many potential applications; also available with IO-Link or RS232 interface (ASCII protocol and scan mode).

SIMATIC RF260R
Compact reader with a high degree of protection and a robust design for the harshest conditions; also available with standardized IO-Link or RS232 interface (ASCII protocol and scan mode).

SIMATIC RF280R
Ideal reader for use in assembly lines with a longer range and dynamic applications; also available with RS232 interface (ASCII protocol and scan mode).
SIMATIC RF200: readers

Rely on a tireless workhorse for your RFID tasks.

SIMATIC RF290R
Very high-performance long-range reader (up to 60 cm) – ideal for use in production control and intralogistics; for operation with external antennas of various designs.

SIMATIC RF210M
Mobile cabled handheld reader with integrated RF210R M18 reader – including for manual and reworking stations.

SIMATIC RF360M
High-performance mobile handheld terminal for applications in production logistics, distribution, and service; available in two versions: with integrated antenna and for external antennas.
**SIMATIC RF200: antennas**

Refuse to compromise when it comes to reliable data transmission.

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Dimensions (L x W x H)</th>
<th>Notes</th>
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<tr>
<td>ANT 1</td>
<td>Universally usable flat antenna; also for dynamic applications</td>
<td>75 x 75 x 20 mm</td>
<td></td>
</tr>
<tr>
<td>ANT 3</td>
<td>Flat, compact antenna, can be very precisely positioned even in cramped conditions</td>
<td>50 x 28 x 10 mm</td>
<td>Same as ANT 3, except suitable exclusively for processing the very small MDS D117, MDS D127, MDS D421, and MDS D521 transponders.</td>
</tr>
<tr>
<td>ANT 8</td>
<td>Cylindrical antenna, permits highly precise positioning thanks to its extremely small design</td>
<td>M12 x 40 mm (Ø x L)</td>
<td>Primarily used for tool identification using the small MDS D117, D127, D421, and D521 transponders.</td>
</tr>
<tr>
<td>ANT 12</td>
<td>Cylindrical antenna; primarily used for tool identification</td>
<td>M18 x 40 mm (Ø x L)</td>
<td>Primarily used for small assembly lines and tool identification.</td>
</tr>
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</table>

**SIMATIC RF200: antennas**

- ANT 1 for SIMATIC RF250R
- ANT 3 for SIMATIC RF250R
- ANT 8 for SIMATIC RF250R
- ANT 12 for SIMATIC RF250R
- ANT 18 for SIMATIC RF250R
Refuse to compromise when it comes to reliable data transmission.

**ANT 30 for SIMATIC RF250R**
Cylindrical antenna; primarily used for assembly lines and tool identification; dimensions M30 x 40 mm (Ø x L).

**ANT D1 for SIMATIC RF290R**
Universally usable antenna for production and logistics; also suitable for dynamic applications; dimensions 75 x 75 x 20 mm (W x H x D).

**ANT D5 for SIMATIC RF290R**
Universally usable antenna for warehouses, logistics, and distribution; also for dynamic applications; dimensions 380 x 380 x 110 mm (W x H x D).

**ANT D6 for SIMATIC RF290R**
Universally usable antenna for warehouses, logistics, and distribution; dimensions 480 x 580 x 110 mm (W x H x D).

**ANT 10 for SIMATIC RF290R**
Universally usable antenna for warehouses, logistics, and distribution; dimensions 365 x 1150 x 115 mm (W x H x D).
SIMATIC RF200: transponders

Proving themselves daily in countless applications worldwide.

Transponder categories
Our RF200 transponders are available for the following use cases:

- Standard
- Logistics
- SmartCard
- Heat resistant
- On metal
- In metal
- Special applications

MDS D100
85 x 54 x 0.8 mm (L x W x H), ISO 15693, frequency 13.56 MHz, NXP ICODE SLI, 112-byte user memory, printable on both sides, up to +80 °C, IP68, 650 mm range.

MDS D124
27 x 4 mm (Ø x H), ISO 15693, frequency 13.56 MHz, NXP ICODE SLI, 112-byte user memory, non-printable, heat-resistant up to +180 °C, IP68, 300 mm range.

MDS D117
4 x 5 mm (Ø x H), ISO 15693, frequency 13.56 MHz, NXP ICODE SLI, 112-byte user memory, non-printable, adhesive, up to +125 °C, IP68, 4 mm range.

MDS D126
50 x 3.6 mm (Ø x H), ISO 15693, frequency 13.56 MHz, NXP ICODE SLI, 112-byte user memory, non-printable, up to +100 °C, IP68, 500 mm range.

MDS D127
6 x 6 mm (Ø x H), ISO 15693, frequency 13.56 MHz, NXP ICODE SLI, 112-byte user memory, non-printable, in metal, up to +125 °C, IP68, 5 mm range.
SIMATIC RF200: transponders

Proving themselves daily in countless applications worldwide.

MDS D139
85 x 15 mm (Ø x H), ISO 15693, frequency 13.56 MHz, NXP ICODE SLI, user memory 112-bytes / 896-bits, screw-on, non-printable, -40 to +220 °C cyclic, IP68, 600 mm range, ATEX II.

MDS D160
16 x 3 mm (Ø x H), ISO 15693, frequency 13.56 MHz, NXP ICODE SLI, 112-byte user memory, non-printable, heat-resistant up to +175 °C, IP68, 180 mm range.

MDS D200
86 x 54 x 0.8 mm (L x W x H), ISO 15693, frequency 13.56 MHz, TI TAGIT HFI, 256-byte user memory, printable on both sides, adhesive, up to +60 °C, IP67, 600 mm range.

MDS D324
27 x 4 mm (Ø x H), ISO 15693, frequency 13.56 MHz, INFINEON SRF 55V10P, 992-byte user memory, non-printable, M3 screw, adhesive, heat-resistant up to +140 °C, IP67, 280 mm range.

MDS D339
85 x 15 mm (Ø x H), ISO 15693, frequency 13.56 MHz, INFINEON SRF 55V10P, 992-byte user memory, non-printable, M5 screw, heat-resistant up to +220 °C, IP68, 480 mm range.

MDS D400
85 x 54 x 0.8 mm (L x W x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 2000-byte FRAM user memory, adhesive, printable on both sides, up to +60 °C, IP67, 650 mm range.
SIMATIC RF200: transponders

Proving themselves daily in countless applications worldwide.

**MDS D421**
10 x 4.5 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 2000-byte FRAM user memory, adhesive, non-printable, up to +100 °C, IP67, 8 mm range.

**MDS D422**
20 x 6 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 2000-byte FRAM user memory, thread M20x1, adhesive, non-printable, up to +100 °C, IP68, 19 mm range.

**MDS D423**
30 x 8 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 2000-byte FRAM user memory, M4 countersunk screw on metal, non-printable, up to +100 °C, IP68, 80 mm range.

**MDS D424**
27 x 4 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 2000-byte FRAM user memory, M3 screw, adhesive, non-printable, up to +100 °C, IP67, 300 mm range.

**MDS D425**
24 x 10 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 2000-byte FRAM user memory, screws (M6), non-printable, up to +125 °C, IP68, 45 mm range.

**MDS D426**
50 x 3.2 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 2000-byte FRAM user memory, screws (M4), non-printable, up to +100 °C, IP68, 400 mm range.
**SIMATIC RF200: transponders**

Proving themselves daily in countless applications worldwide.

<table>
<thead>
<tr>
<th>Product</th>
<th>Dimensions (Ø x H)</th>
<th>Frequency</th>
<th>Memory</th>
<th>Temperature</th>
<th>Protection</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDS D428</td>
<td>24 x 20 mm</td>
<td>13.56 MHz</td>
<td>2000-byte</td>
<td>up to +125 °C</td>
<td>IP68</td>
<td>150 mm</td>
</tr>
<tr>
<td>MDS D460</td>
<td>16 x 3 mm</td>
<td>13.56 MHz</td>
<td>8192-byte</td>
<td>up to +100 °C</td>
<td>IP67</td>
<td>160 mm</td>
</tr>
<tr>
<td>MDS D521</td>
<td>10 x 4.5 mm</td>
<td>13.56 MHz</td>
<td>8192-byte</td>
<td>up to +100 °C</td>
<td>IP67</td>
<td>5 mm</td>
</tr>
<tr>
<td>MDS D522</td>
<td>20 x 6 mm</td>
<td>13.56 MHz</td>
<td>8192-byte</td>
<td>up to +100 °C</td>
<td>IP68</td>
<td>35 mm</td>
</tr>
<tr>
<td>MDS D524</td>
<td>27 x 4 mm</td>
<td>13.56 MHz</td>
<td>8192-byte</td>
<td>up to +100 °C</td>
<td>IP67</td>
<td>300 mm</td>
</tr>
<tr>
<td>MDS D525</td>
<td>24 x 10 mm</td>
<td>13.56 MHz</td>
<td>8192-byte</td>
<td>up to +125 °C</td>
<td>IP68</td>
<td>50 mm</td>
</tr>
</tbody>
</table>
# SIMATIC RF200: Transponders

Proving themselves daily in countless applications worldwide.

## Specifications

<table>
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<tr>
<th>Model</th>
<th>Dimensions</th>
<th>ISO</th>
<th>Frequency</th>
<th>Manufacturer</th>
<th>Memory</th>
<th>Temperature</th>
<th>IP Rating</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDS D526</td>
<td>50 x 3.2 mm (Ø x H)</td>
<td>15693</td>
<td>13.56 MHz</td>
<td>FUJITSU MB89R118, 8192-byte FRAM user memory</td>
<td>400 mm</td>
<td>up to +100 °C</td>
<td>IP68</td>
<td>400 mm</td>
</tr>
<tr>
<td>MDS D528</td>
<td>24 x 20 mm (Ø x H)</td>
<td>15693</td>
<td>13.56 MHz</td>
<td>FUJITSU MB89R118, 8192-byte FRAM user memory</td>
<td>80 mm</td>
<td>up to +125 °C</td>
<td>IP68</td>
<td>80 mm</td>
</tr>
<tr>
<td>MDS D560</td>
<td>16 x 3 mm (Ø x H)</td>
<td>15693</td>
<td>13.56 MHz</td>
<td>FUJITSU MB89R118, 8192-byte FRAM user memory</td>
<td>400 mm</td>
<td>up to +100 °C</td>
<td>IP68</td>
<td>400 mm</td>
</tr>
<tr>
<td>MDS D165</td>
<td>86 x 54 x 0.3 mm</td>
<td>15693</td>
<td>13.56 MHz</td>
<td>NXP ICODE SLI, 112-byte user memory</td>
<td>500 mm</td>
<td>up to +85 °C</td>
<td>IP65</td>
<td>500 mm</td>
</tr>
<tr>
<td>MDS D261</td>
<td>55 x 55 x 0.3 mm</td>
<td>15693</td>
<td>13.56 MHz</td>
<td>STM LRI2K, 256-byte user memory</td>
<td>450 mm</td>
<td>up to +85 °C</td>
<td>IP65</td>
<td>450 mm</td>
</tr>
</tbody>
</table>
SIMATIC RF300 overview

Has a large user memory and transfers data in record time.

Your benefits at a glance:

- High-end system: extremely fast data transmission, very high immunity to noise, and a large memory
- Seamless integration in the TIA automation environment: function blocks available, cost-efficient installation, faster commissioning, simple parameterization thanks to technology objects
- Versions with Ex approval for applications in Ex zones

SIMATIC RF300 offers fast data transmission and a large data memory in a compact design, and is ideal for handling challenging applications in automation. The HF RFID system ensures seamless data transparency all the way to the cloud – a basic requirement for the perfect control and systematic optimization of your material flow.

Get to know the members of the product family

Readers
Antennas
Transponders
SIMATIC RF300: readers

Rely on extremely fast data transmission.

**SIMATIC RF310R**
Extremely compact reader; high degree of protection; ideal for small assembly lines; available with RS422 interface for the RFID communication modules and scan mode.

**SIMATIC RF340R**
Compact reader; high degree of protection; medium performance range; ideal for assembly lines and dynamic applications; with RS422 interface for the RFID communication modules.

**SIMATIC RF350R**
Universal reader; high degree of protection; for operation with external antennas; flexibly usable in industrial production; with RS422 interface for the RFID communication modules.

**SIMATIC RF360R**
High-performance compact reader with integrated interface connection; high degree of protection; simple parameterization thanks to integrated web server (WBM).

**SIMATIC RF380R**
Reader for the upper performance range; high degree of protection; for assembly lines with longer ranges and highly dynamic applications; with RS422 and RS232 interfaces.

**SIMATIC RF382R**
Scan mode reader for the upper performance range with integrated special antenna; high degree of protection; for conveyor systems and dynamic applications; with RS422 and RS232 interfaces.
High-performance mobile handheld terminal for applications in production logistics, distribution, and service; available in two versions: with integrated antenna and for external antennas.

Rely on extremely fast data transmission.
SIMATIC RF300: antennas

Discover fast data transmission in a wide range of application areas.

ANT 1 for SIMATIC RF350R
Universally usable flat antenna; also for dynamic applications; dimensions 75 x 75 x 20 mm (L x W x H).

ANT 3 for SIMATIC RF350R and RF350M
Flat, compact antenna; can be very precisely positioned even in cramped conditions; dimensions 50 x 28 x 10 mm (L x W x H).

ANT 3S for SIMATIC RF350R and RF350M
Same as ANT 3, except suitable exclusively for processing the very small MDS D117, MDS D127, MDS D421, and MDS D521 transponders.

ANT 8 for SIMATIC RF350R and RF350M
Cylindrical antenna; permits highly precise positioning thanks to its extremely small design; primarily used for tool identification using the small MDS D117, D127, D421, and D521 transponders; dimensions M8 x 38 mm (Ø x L).

ANT 12 for SIMATIC RF350R and RF350M
Cylindrical antenna; permits highly precise positioning thanks to its extremely small design; primarily used for tool identification; dimensions M12 x 40 mm (Ø x L).

ANT 18 for SIMATIC RF350R and RF350M
Cylindrical antenna; primarily used for small assembly lines and tool identification; dimensions M18 x 40 mm (Ø x L).
SIMATIC RF300: antennas

Discover fast data transmission in a wide range of application areas.

ANT 30 for SIMATIC RF350R and RF350M

Cylindrical antenna; primarily used for assembly lines and tool identification; dimensions M30 x 40 mm (Ø x L).
**SIMATIC RF300:** transponders

Large data storage that maintains a minimal size profile.

<table>
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<tr>
<th>Transponder</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MDS D100</strong></td>
<td>85 x 54 x 0.8 mm (L x W x H), ISO 15693, frequency 13.56 MHz, NXP ICODE SLI, 112-byte user memory, printable on both sides, up to +80 °C, IP68, 650 mm range.</td>
</tr>
<tr>
<td><strong>MDS D117</strong></td>
<td>4 x 5 mm (Ø x H), ISO 15693, frequency 13.56 MHz, NXP ICODE SLI, 112-byte user memory, non-printable, adhesive, up to +125 °C, IP68, 4 mm range.</td>
</tr>
<tr>
<td><strong>MDS D124</strong></td>
<td>27 x 4 mm (Ø x H), ISO 15693, frequency 13.56 MHz, NXP ICODE SLI, 112-byte user memory, non-printable, heat-resistant up to +180 °C, IP68, 300 mm range.</td>
</tr>
<tr>
<td><strong>MDS D126</strong></td>
<td>50 x 3.6 mm (Ø x H), ISO 15693, frequency 13.56 MHz, NXP ICODE SLI, 112-byte user memory, non-printable, up to +100 °C, IP68, 500 mm range.</td>
</tr>
<tr>
<td><strong>MDS D127</strong></td>
<td>6 x 6 mm (Ø x H), ISO 15693, frequency 13.56 MHz, NXP ICODE SLI, 112-byte user memory, non-printable, in metal, up to +125 °C, IP68, 5 mm range.</td>
</tr>
</tbody>
</table>

**Transponder categories**

Our RF300 transponders are available for the following use cases:

- Standard
- Logistics
- SmartCard
- Heat resistant
- On metal
- In metal
- Special applications

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**INDUSTRIAL IDENTIFICATION – AN INTRODUCTION**

**USE CASES**

**SELECTION CRITERIA**

**SERVICES**
**SIMATIC RF300:** transponders

Large data storage that maintains a minimal size profile.

- **MDS D139**: 85 x 15 mm (Ø x H), ISO 15693, frequency 13.56 MHz, NXP ICODE SLI, user memory 112-bytes/896-bits, screw-on, non-printable, -40 to +220 °C cyclic, IP68, 600 mm range, ATEX II.

- **MDS D160**: 16 x 3 mm (Ø x H), ISO 15693, frequency 13.56 MHz, NXP ICODE SLI, 112-byte user memory, non-printable, heat-resistant up to +175 °C, IP68, 180 mm range.

- **MDS D200**: 86 x 54 x 0.8 mm (L x W x H), ISO 15693, frequency 13.56 MHz, TI TAGIT HFI, 256-byte user memory, printable on both sides, adhesive, up to +60 °C, IP67, 600 mm range.

- **MDS D324**: 27 x 4 mm (Ø x H), ISO 15693, frequency 13.56 MHz, INFINEON SRF 55V10P, 992-byte user memory, non-printable, M3 screw, adhesive, heat-resistant up to +140 °C, IP67, 280 mm range.

- **MDS D339**: 85 x 15 mm (Ø x H), ISO 15693, frequency 13.56 MHz, INFINEON SRF 55V10P, 992-byte user memory, non-printable, M5 screw, heat-resistant up to +220 °C, IP68, 480 mm range.

- **MDS D400**: 85 x 54 x 0.8 mm (L x W x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 2000-byte FRAM user memory, adhesive, printable on both sides, up to +60 °C, IP67, 650 mm range.
SIMATIC RF300: transponders

Large data storage that maintains a minimal size profile.

SIMATIC RF300: transponders

MDS D421
10 x 4.5 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 2000-byte FRAM user memory, adhesive, non-printable, up to +100 °C, IP67, 8 mm range.

MDS D422
20 x 6 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 2000-byte FRAM user memory, thread M20x1, adhesive, non-printable, up to +100 °C, IP68, 19 mm range.

MDS D423
30 x 8 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 2000-byte FRAM user memory, M4 countersunk screw on metal, non-printable, up to +100 °C, IP68, 80 mm range.

MDS D424
27 x 4 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 2000-byte FRAM user memory, M3 screw, adhesive, non-printable, up to +100 °C, IP67, 300 mm range.

MDS D425
24 x 10 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 2000-byte FRAM user memory, screws (M6), non-printable, up to +125 °C, IP68, 45 mm range.

MDS D426
50 x 3.2 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 2000-byte FRAM user memory, screws (M4), non-printable, up to +100 °C, IP68, 400 mm range.
Large data storage that maintains a minimal size profile.

**MDS D428**
24 x 20 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 2000-byte FRAM user memory, screw-fit transponders M8 long, non-printable, up to +125 °C, IP68, 150 mm range.

**MDS D460**
16 x 3 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 2000-byte FRAM user memory, patch, adhesive, non-printable, up to +100 °C, IP67, 160 mm range.

**MDS D521**
10 x 4.5 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 8192-byte FRAM user memory, adhesive, non-printable, up to +100 °C, IP67, 5 mm range.

**MDS D522**
20 x 6 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 8192-byte FRAM user memory, thread M20x1, adhesive, non-printable, up to +100 °C, IP68, 35 mm range.

**MDS D524**
27 x 4 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 8192-byte FRAM user memory, M3 screw, adhesive, non-printable, up to +100 °C, IP67, 300 mm range.

**MDS D525**
24 x 10 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 8192-byte FRAM user memory, screw-fit transponders M6 short, non-printable, up to +125 °C, IP68, 50 mm range.
**SIMATIC RF300:** transponders

Large data storage that maintains a minimal size profile.

<table>
<thead>
<tr>
<th>Transponder</th>
<th>Dimensions</th>
<th>ISO</th>
<th>Frequency</th>
<th>Memory</th>
<th>Screw</th>
<th>Printability</th>
<th>Temp.</th>
<th>Range</th>
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<tbody>
<tr>
<td>SIMATIC RF330T</td>
<td>27 x 4 mm (Ø x H)</td>
<td>ISO 15693</td>
<td>13.56 MHz</td>
<td>20-byte EEPROM + 4-byte serial number</td>
<td>M4</td>
<td>Non-printable</td>
<td>+90 °C</td>
<td>160 mm</td>
</tr>
<tr>
<td>SIMATIC RF320T</td>
<td>25 x 3.2 mm (Ø x H)</td>
<td>ISO 15693</td>
<td>13.56 MHz</td>
<td>24-byte EEPROM</td>
<td>M4</td>
<td>Non-printable</td>
<td>+100 °C</td>
<td>400 mm</td>
</tr>
<tr>
<td>SIMATIC RF340T</td>
<td>16 x 3 mm (Ø x H)</td>
<td>ISO 15693</td>
<td>13.56 MHz</td>
<td>8192-byte FRAM</td>
<td>Patch, Adhesive</td>
<td>Non-printable</td>
<td>+90 °C</td>
<td>160 mm</td>
</tr>
</tbody>
</table>

**MDS D526**

- 50 x 3.2 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 8192-byte FRAM user memory, M4 screw, non-printable, up to +100 °C, IP68, 400 mm range.

**MDS D528**

- 24 x 20 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 8192-byte FRAM user memory, screw-fit transponders M8 long, non-printable, up to +125 °C, IP68, 80 mm range.

**MDS D560**

- 16 x 3 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 8192-byte FRAM user memory, patch, adhesive, non-printable, up to +90 °C, IP68, 160 mm range.

**SIMATIC RF320T**

- Universally usable; compact, 20-byte EEPROM + 4-byte serial number; in button format; dimensions 27 x 4 mm (Ø x H).

**SIMATIC RF330T**

- Universally usable; compact; high degree of protection IP68/IPx9K; can be used on metal and flush-mounted in metal; suitable for identifying metal workpiece carriers, tools, or containers.

**SIMATIC RF340T**

- Universally usable; especially suitable for small workpiece carriers; can be mounted directly on metal; dimensions 25 x 15 x 48 mm (W x H x D).
**SIMATIC RF300:** transponders

Large data storage that maintains a minimal size profile.

**SIMATIC RF350T**
Universally usable; can be mounted directly on metal; dimensions 50 x 20 x 50 mm (W x H x D).

**SIMATIC RF360T**
Universally usable; in credit card format; can be mounted on metal with a spacer; dimensions 55 x 2.5 x 86 mm (W x H x D).

**SIMATIC RF370T**
Universally usable; in cuboid format; can be mounted directly on metal; dimensions 75 x 41 x 75 mm (W x H x D).

**SIMATIC RF380T**
Heat-resistant; designed for skid identification in paintshops; maximum temperature range up to +220 °C (cyclic).

**MDS E600**
Data memory (752-byte EEPROM) in credit card format; universally usable; degree of protection IP68, up to +60 °C; max. read/write range 70 mm.

**MDS E611**
Data memory (752-byte EEPROM) in credit card format; universally usable; degree of protection IP68; up to +85 °C; max. read/write range 100 mm.
**SIMATIC RF300:** transponders

Large data storage that maintains a minimal size profile.

<table>
<thead>
<tr>
<th>Model</th>
<th>Dimension (L x W x H)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDS E623</td>
<td>10 x 4.5 mm (Ø x H)</td>
<td>752-byte EEPROM, designed for tool coding according to DIN 69873, flush-mount in metal.</td>
</tr>
<tr>
<td>MDS E624</td>
<td>27 x 4 mm (Ø x H)</td>
<td>Universally usable compact data memory, degree of protection IP67 / IP X9K 1, max. read/write range 40 mm.</td>
</tr>
<tr>
<td>MDS D165</td>
<td>86 x 54 x 0.3 mm (L x W x H)</td>
<td>ISO 15693, frequency 13.56 MHz, NXP ICODE SLI, 112-byte user memory, printable, adhesive, up to +85 °C, IP65, 500 mm range.</td>
</tr>
<tr>
<td>MDS D261</td>
<td>55 x 55 x 0.3 mm (L x W x H)</td>
<td>ISO 15693, frequency 13.56 MHz, STM LRI2K, 256-byte user memory, printable, adhesive, up to +85 °C, IP65, 450 mm range.</td>
</tr>
</tbody>
</table>
SIMATIC RF600 overview

Keeps an eye on a thousand objects.

Your benefits at a glance:

- High reliability with long read ranges and robust handling of overreach
- Maximum flexibility in terms of connectivity: connection options for all fields of application (industry, cloud, logistics)
- Reduced project expenditure thanks to quick and easy access to proven configuration, commissioning, and diagnostic tools via a web browser

SIMATIC RF600 is the enabler for seamless production and supply chain solutions that can monitor, track, and identify thousands of objects. In logistics applications with large numbers of containers, pallets, or even finished products, the system’s full potential can be realized – for example, in tasks involving long read ranges and bulk reading. The high-performance UHF RFID system transfers this data to the cloud where it is evaluated for the purpose of optimizing production processes and supply chains based on the knowledge gained.

Get to know the members of the product family

- Readers
- Antennas
- Hard tags
- SmartLabels
SIMATIC RF600: readers

Take a giant step closer to digitalization with a high-performance, standard-setting UHF RFID system.

**SIMATIC RF610R**
Compact; integrated, circular, polarized antenna; high degree of protection IP67; read range up to 1.8 m; wide range of communication options; dimensions 133 x 133 x 45 mm (W x H x D).

**SIMATIC RF615R**
Compact; integrated, circular, polarized antenna; external antenna connection; high degree of protection IP67; read range up to 4 m; wide range of communication options; dimensions 133 x 133 x 45 mm (W x H x D).

**SIMATIC RF650R**
For cost-efficient use in IT and logistics environments; with four flexibly configurable antenna connections; read range up to 8 m; dimensions 258 x 258 x 80 mm (W x H x D).

**SIMATIC RF680R**
With four flexibly configurable antenna connections; high degree of protection IP65; read range up to 8 m; wide range of communication options; dimensions 258 x 258 x 80 mm (W x H x D).

**SIMATIC RF685R**
Integrated adaptive antenna and external antenna connection; high degree of protection IP65; wide range of communication options; dimensions 258 x 258 x 80 mm (W x H x D).

**SIMATIC RF660M**
Compact; for applications in the areas of production logistics, warehouse management, inventory, and service; important tool for commissioning and testing RFID systems.
Robust and with a high degree of protection, they are also suitable for harsh industrial use.

**SIMATIC RF600: antennas**

- **SIMATIC RF615A**
  - Extremely compact; ideal for use in production, e.g. for assembly lines or track-guided conveyor systems; dimensions 52 x 52 x 16 mm (W x H x D).

- **SIMATIC RF622A**
  - Extremely compact; ideal for use in production, e.g. for assembly lines or track-guided conveyor systems; dimensions 76 x 76 x 20 mm (W x H x D).

- **SIMATIC RF642A**
  - Robust and compact; for industrial applications in production and logistics; with its linear polarization, especially suitable for severely metallic environments; dimensions 185 x 185 x 45 mm (W x H x D).

- **SIMATIC RF650A**
  - Robust and compact; for industrial applications; with its circular polarization, especially suitable for reading transponders in varying orientations; dimensions 198 x 198 x 60 mm (W x H x D).

- **SIMATIC RF660A**
  - Universal UHF antenna; robust design; high degree of protection; suitable for numerous applications in production and logistics that require a greater read range; dimensions 313 x 313 x 80 mm (W x H x D).

- **SIMATIC RF680A**
  - Adaptive antenna with switchable polarization (can be set to horizontal, vertical, or circular); makes project planning more reliable even in challenging radio environments; dimensions 198 x 198 x 60 mm (W x H x D).
**SIMATIC RF600:** hard tags

Passive and maintenance-free, they guarantee smooth operation.

**Transponder categories**
Our RF600 hard tags are available for the following use cases:

- **Standard**
- **Logistics**
- **SmartCard**
- **Heat resistant**
- **On metal**
- **In metal**
- **Special applications**

---

**SIMATIC RF610T**
Flexible card in ISO format; versatile; can be flexibly mounted on a wide range of materials; plastic enclosure designed for food safety.

**SIMATIC RF620T**
Container transponder; resistant to environmental influences and cleaning agents; can be mounted on plastic, wood, and glass – and on metal with a spacer; food-safe plastic enclosure.

**SIMATIC RF625T**
Disk transponder; can be countersunk in metal and flush-mounted on surfaces; robust; high degree of protection (IP68); two frequency versions: 865 to 868 MHz (ETSI) and 902 to 928 MHz (FCC, CMIIT).

**SIMATIC RF630T**
Screw transponder with M6 grub screw; robust; resistant to cleaning agents; two frequency versions: 865 to 868 MHz (ETSI) and 902 to 928 MHz (FCC, CMIIT).

**SIMATIC RF640T**
Robust, compact tool transponder in IP68/IPx9K; two frequency versions, for 865 to 868 MHz (ETSI) and 902 to 928 MHz (FCC, CMIIT); can be used directly on metal; European version with ATEX approval.
Passive and maintenance-free, they guarantee smooth operation.

**SIMATIC RF600:** hard tags

**SIMATIC RF645T**
Passive, maintenance-free on-metal data storage medium; robust and compact; high degree of protection (IP68); large memory (448-bit EPC/2048-bit user); resistant to mineral oils, lubricants, and cleaning agents.

**SIMATIC RF680T**
Heat-resistant; high range; high degree of protection (IP68/Ip9K); silicon-free; withstands temperatures up to 220 °C; storage capacity 96/240-bit EPC plus 512-bit user memory; ATEX approval.

**SIMATIC RF682T**
Heat-resistant; high range; high degree of protection (IP68/Ip9K), silicon-free; withstands temperatures up to 220 °C; storage capacity 256-bit EPC plus 3072-bit user memory.
**SIMATIC RF600: SmartLabels**

Passive and maintenance-free, they guarantee smooth operation.

### Transponder categories

Our RF600 SmartLabels are available for the following use cases:

- **Standard**
- **Logistics**
- **Heat resistant**
- **On metal**
- **Special applications**

#### PET, 73 x 12.5 mm, 860 to 930 MHz, EPC 56-byte / 448-bit, user memory 256-byte / 2048-bit, adhesive on one side, printable, -20 °C to +70 °C, 76.2 mm (3”) core diameter, 5 m range.

**SIMATIC RF630L**

6GT2810-2AC84

#### PET, 54 x 34 mm, 860 to 930 MHz, EPC 30-byte / 240-bit, user memory 64-byte / 512-bit, adhesive on one side, printable, -40 to +80 °C, 76.2 mm (3”) core diameter, 5 m range.

**SIMATIC RF630L**

6GT2810-2AB03

#### PET, 75 x 20 mm, 860 to 930 MHz, EPC 56-byte / 448-bit, strongly adheres to plastic, printable, -25 °C to +85 °C (short term 120 °C), 76.2 mm (3”) core diameter, 4 m range.

**SIMATIC RF630L**

6GT2810-2AE81-0AX3

#### PET white, 90 x 30 mm, 860 to 930 MHz, EPC 16-byte / 128-bit, no user memory, strongly adheres to plastic, printable, -25 °C to +85 °C (short term 160 °C), 76.2 mm (3”) core diameter, 5 m range.

**SIMATIC RF630L**

6GT2810-2AE82-0AX0

#### PET white, 80 x 26 mm, 860 to 930 MHz, EPC 16-byte / 128-bit, no user memory, strongly adheres to plastic, printable, -25 °C to +85 °C (short term 160 °C), 76.2 mm (3”) core diameter, 5 m range.

**SIMATIC RF630L**

6GT2810-2AE82-1AX0
Passive and maintenance-free, they guarantee smooth operation.

**SIMATIC RF600: SmartLabels**

- **SIMATIC RF630L 6GT2810-2AE82-0AX1**
  - PET white, 90 x 30 mm, 860 to 930 MHz, EPC 16-byte / 128-bit, no user memory, strongly adheres to plastic, printable, -25 °C to +85 °C (short term 160 °C), 152.4 mm (6") core diameter, 5 m range.

- **SIMATIC RF630L 6GT2810-2AE82-0AX2**
  - SmartLabel like RF630L 6GT2810-2AE82-0AX1 as tamper-proof version with safety perforation.

- **SIMATIC RF630L 6GT2810-2AE83-0AX0**
  - PET white, 75 x 25 mm, 860 to 930 MHz, EPC 16-byte / 128-bit, no user memory, strongly adheres to plastic, printable, -25 °C to +85 °C (short term 130 °C), 76.2 mm (3") core diameter.

- **SIMATIC RF630L 6GT2810-2AE83-0AX1**
  - PET white, 105 x 25 mm, 860 to 930 MHz, EPC 56-byte / 448-bit, user memory 256-byte / 2048-bit, strongly adheres to plastic, printable, -25 °C to +85 °C (short term 130 °C), 76.2 mm (3") core diameter, 5 m range.

- **SIMATIC RF630L 6GT2810-2AE83-1AX0**
  - PET white, 45 x 20 mm, 860 to 930 MHz, EPC 16-byte / 128-bit, no user memory, strongly adheres to plastic, printable, -25 °C to +85 °C (short term 160 °C), 76.2 mm (3") core diameter, 5 m range.
SIMATIC RF600: SmartLabels

Passive and maintenance-free, they guarantee smooth operation.

**SIMATIC RF630L**
6GT2810-2AB04-0AX1

- Paper white, 4 x 2", 860 to 930 MHz, EPC 56-byte/448-bit, user memory 256-byte/2048-bit, strongly adheres to plastic, printable, -25 °C to +80 °C, 76.2 mm (3") core diameter, 5 m range.

**SIMATIC RF635L**
6GT2810-3AC80-1AX0

- Cardboard white, 74 x 207.4 mm, 860 to 930 MHz, EPC 32-byte/256-bit, user memory 60-byte/480-bit, cardboard plug-in card, printable, 0 °C to 60 °C, 76.2 mm (3") core diameter, 6 m range.

**SIMATIC RF642L**
6GT2810-3AC10

- PET, 50 x 22.5 x 1.6 mm, 860 to 868 MHz / 902 to 928 MHz, EPC 56-byte / 448-bit, user memory 256-byte / 2048-bit, self-adhesive on metal / plastic, printable, -25 °C to +160 °C, 76.2 mm (3") core diameter, 4 m range.

**SIMATIC RF642L**
6GT2810-3AC00

- Cardboard white, 74 x 207.4 mm, 860 to 930 MHz, EPC 32-byte / 256-bit, user memory 60-byte / 480-bit, cardboard plug-in card, printable, 0 °C to 60 °C, 76.2 mm (3") core diameter, 6 m range.

**SIMATIC RF682L**
6GT2810-2AG84-0AX0

- Nomex, 156 x 40 x 0.4 mm, 860 to 930 MHz, EPC 56-byte / 448-bit, user memory 256-byte / 2048-bit, for assembly, printable, -40 °C to 200 °C (short term 230 °C), stacked, no core diameter, 6 m range.

**SIMATIC RF690L**
6GT2810-2AG00

- PET, 88 x 15 x 1.6 mm, 860 to 868 MHz / 902 to 928 MHz, EPC 12-byte / 96-bit, user memory 60-byte / 480-bit, self-adhesive on metal / plastic, printable, -25 °C to +160 °C, 76.2 mm (3") core diameter, 5 m range.
Passive and maintenance-free, they guarantee smooth operation.
Permits access management using existing employee IDs.

Your benefits at a glance:

- Individual control of access rights and prevention of operating errors
- Individual, centralized assignment of rights via central databases including Active Directory
- Versions available with ATEX II
- Easy integration in HMIs via PM-Logon

You can easily and flexibly boost process security thanks to electronic access management. SIMATIC RF1000 uses existing employee IDs as the basis for the necessary identification, allowing you to implement finely-graded access concepts, document processes, or store user-specific notes and instructions at a minimal cost.

Get to know the members of the product family
SIMATIC RF1000: readers

Discover a new level of simplicity in access control for machines and plants.

SIMATIC RF1040R
Robust, compact, shallow mounting depth; standards: HF, LF; USB interface (1.8 m cable with USB connector, type A) and additional RS232 interface.

SIMATIC RF1060R
Robust, compact, shallow mounting depth; standards: HF; USB interface (1.8 m cable with USB connector, type A) for connecting to Windows-based computers.

SIMATIC RF1070R
Robust, compact, shallow mounting depth; standards: HF including Legic; with USB and RS232 interfaces.

SIMATIC RF1070R OEM
Robust, compact, shallow mounting depth; standards: HF including Legic; OEM version with neutral front film for customer-specific design; with USB and RS232 interfaces.
**SIMATIC RF1000:** transponders

With RFID for secure access control for machines and plants.

The transponders listed below are ideal for use with the SIMATIC RF1000 system.

**MDS D100**
- 85 x 54 x 0.8 mm (L x W x H), ISO 15693, frequency 13.56 MHz, NXP ICODE SLI, 112-byte user memory, printable on both sides, up to +80 °C, IP68, 650 mm range.

**MDS D124**
- 27 x 4 mm (Ø x H), ISO 15693, frequency 13.56 MHz, NXP ICODE SLI, 112-byte user memory, non-printable, heat-resistant up to +180 °C, IP68, 300 mm range.

**MDS D200**
- 86 x 54 x 0.8 mm (L x W x H), ISO 15693, frequency 13.56 MHz, TI TAGIT HFI, 256-byte user memory, printable on both sides, adhesive, up to +60 °C, IP67, 600 mm range.

**MDS D324**
- 27 x 4 mm (Ø x H), ISO 15693, frequency 13.56 MHz, INFINEON SRF 55V10P, 992-byte user memory, non-printable, M3 screw, adhesive, heat-resistant up to +140 °C, IP67, 280 mm range.

**MDS D400**
- 85 x 54 x 0.8 mm (L x W x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 2000-byte FRAM user memory, adhesive, printable on both sides, up to +60 °C, IP67, 650 mm range.
**SIMATIC RF1000: transponders**

With RFID for secure access control for machines and plants.

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDS D424</td>
<td>27 x 4 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 2000-byte FRAM user memory, M3 screw, adhesive, non-printable, up to +100 °C, IP67, 300 mm range.</td>
</tr>
<tr>
<td>MDS D524</td>
<td>27 x 4 mm (Ø x H), ISO 15693, frequency 13.56 MHz, FUJITSU MB89R118, 8192-byte FRAM user memory, M3 screw, adhesive, non-printable, up to +100 °C, IP67, 300 mm range.</td>
</tr>
<tr>
<td>MDS E600</td>
<td>Data memory (752-byte EEPROM) in credit card format; universally usable; degree of protection IPA; up to +60 °C; max. read/write range 70 mm.</td>
</tr>
<tr>
<td>MDS E611</td>
<td>Data memory (752-byte EEPROM) in credit card format; universally usable; degree of protection IP68; up to +85 °C; max. read/write range 100 mm.</td>
</tr>
</tbody>
</table>
On a fast track to your optimal OID system

Our high-end readers with high-performance image capture excel thanks to their reading reliability, even under the most difficult conditions. Select the perfect camera to meet your needs from our extensive portfolio. Products include fully pre-equipped – as well as individually configurable – devices with various resolutions and comprehensive accessories, like ring lights and lenses. The intuitive user interface of the integrated web server makes commissioning seem like child’s play.

**SELECTION CRITERIA**

**OID**

- SIMATIC MV500 reads reliably in record time, even under difficult conditions
- SIMATIC MV300 sits comfortably in your hand and is suitable for mobile use
SIMATIC MV500 overview

Reliably reads in record time, even under difficult conditions.

Your benefits at a glance:

– Easy handling thanks to a one-button operating concept for network and reading configuration
– Seamless integration into the TIA automation environment: function blocks available, cost-efficient installation, faster commissioning, simple parameterization thanks to technology objects

Thanks to their multicore processor, these high-end readers feature high reading performance even under the most difficult conditions. These devices can be flexibly adapted to your particular task in terms of resolution, lighting, and lenses. The intuitive user interface of the web server makes commissioning easy.

Get to know the members of the product family

Stationary optical readers
# SIMATIC MV500: stationary optical readers

Experience a new level of reading performance that can be scaled to your specific task.

## SIMATIC MV530
Compact optical readers with image capture rates \(\leq 100\) images per second; resolution: SD and HD; image field and operating distance (approx. 5 cm to approx. 20 cm) predefined; PROFINET/IE (PoE), IP67.

## SIMATIC MV540
Optical readers with image capture rates \(\leq 100\) images per second; resolution: SD and HD; image field and operating distance selectable depending on lens; PROFINET/IE (PoE), IP67.

## SIMATIC MV550
Optical readers with image capture rates \(\leq 100\) images per second; resolution: SD and HD; image field and operating distance selectable depending on lens; PROFINET/IE (PoE), IP67.

## SIMATIC MV560
Optical readers with image capture rates \(\leq 60\) images per second plus Gigabit Ethernet interface; resolution: UD and XD; image field and operating distance selectable depending on lens; PROFINET/IE (PoE), GigE, IP67.
SIMATIC MV300 overview

Sits comfortably in your hand and is suitable for mobile use.

Your benefits at a glance:

- Powerful 1D/2D code reading, including low-contrast codes
- Flexible interface connection (RS232, USB, Bluetooth, communication module connection)
- Robust, ergonomic design for manual workstations

SIMATIC MV300 optical handheld readers are suitable for the portable reading of DMCs and barcodes on many different surfaces. This especially applies to labels with higher contrasts but it can also easily be used for codes with lower contrasts on an application-specific basis. A variety of interfaces – RS232, USB, or Bluetooth – open up new opportunities for universal use.

Get to know the members of the product family
SIMATIC MV300: optical handheld readers

Don’t compromise when it comes to reliably reading 1D and 2D codes with handheld readers.

SIMATIC MV320: Robust, high-performance barcode and data matrix reader (high resolution); cabled communication.

SIMATIC MV326: Robust, high-performance barcode and data matrix reader (high resolution); suitable for wireless communication.
Easy integration in all standard automation environments

To fully display their strengths, industrial identification systems must be seamlessly integrated in existing automation. The communication modules that this requires are also available in the SIMATIC Ident portfolio. They are especially compact devices with a high degree of protection that makes them suitable for harsh industrial environments and able to be used in applications where space is at a premium. The standardized connection between readers and communication modules permits maximum transfer rates. Moreover, the communication modules are extremely easy and flexible to integrate in standard industrial systems.

**SELECTION CRITERIA**

**INTEGRATION**

- Connection to industrial bus systems
- Connection to SIMATIC controllers and distributed I/Os
- Connection to cloud applications
- Connection to IO-Link master systems
Communication modules for connecting to industrial bus systems

Seamless integration via various protocols.

Your benefits at a glance:

- Tailored configuration thanks to different connection versions (1-, 2-, or 4-channel)
- Modular system configuration with standard function blocks in the TIA Portal
- Parallel connection to two applications – e.g. control system and cloud monitoring
- Integrated IO-Link master for connecting various standard sensors or actuators

The RF185C, RF186C/Ci, RF188C/Ci, and RF166C communication modules offer a variety of options for connecting to automation. Parallel reader control with optimized function blocks ensures top performance. The configuration can also be adapted during operation via integrated web-based management. Any errors can be efficiently corrected using the integrated diagnostics options.
Communication modules for connecting to industrial bus systems

Seamless integration via various protocols.

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF185C</td>
<td>For connecting a reader to PROFINET, EtherNet/IP, OPC UA, and XML.</td>
</tr>
<tr>
<td>RF186C</td>
<td>For connecting up to two readers to PROFINET, EtherNet/IP, OPC UA, and XML.</td>
</tr>
<tr>
<td>RF186CI</td>
<td>For connecting up to two readers and up to eight sensors and eight actuators to PROFINET, EtherNet/IP, OPC UA, and XML.</td>
</tr>
<tr>
<td>RF188C</td>
<td>For connecting up to four readers to PROFINET, EtherNet/IP, OPC UA, and XML.</td>
</tr>
<tr>
<td>RF188CI</td>
<td>For connecting up to four readers and up to eight sensors and eight actuators to PROFINET, EtherNet/IP, OPC UA, and XML.</td>
</tr>
<tr>
<td>RF166C</td>
<td>For connecting up to four readers to PROFIBUS.</td>
</tr>
</tbody>
</table>
Communication modules for connecting to SIMATIC controllers and distributed I/Os

Direct connection to SIMATIC S7-300, SIMATIC S7-1200, and SIMATIC ET 200pro.

Your benefits at a glance:

– Cost-efficient and high-performance integration into the automation environment
– TIA Portal system integration with standard function blocks
– Suitable cabinet installation thanks to proven DIN rail mounting

With the RF120C, ASM475, and RF170C communication modules, you can connect a SIMATIC Ident device directly to SIMATIC S7-300 and SIMATIC S7-1200 controllers as well as to SIMATIC ET 200pro distributed I/Os. Bus systems with the corresponding additional cables or hardware components are not required.
Communication modules for connecting to SIMATIC controllers and distributed I/Os

Direct connection to SIMATIC S7-300, SIMATIC S7-1200, and SIMATIC ET 200pro.

- **RF120C**: For connecting SIMATIC Ident systems to SIMATIC S7-1200 controllers.
- **ASM 475**: For connecting SIMATIC Ident systems to SIMATIC S7-300 controllers.
- **RF170C**: For connecting SIMATIC Ident systems to the SIMATIC ET 200pro distributed I/O system.
For future-oriented operation in the IIoT environment, our readers and communication modules can be connected to various cloud applications via OPC UA in a way that is standardized and secure. In this case, CP1545-1 and SIMATIC CC712 and CC716 serve as IoT gateways. Object data can then be used for cross-manufacturer communication and analysis, resulting in a long-term increase in transparency within the supply chain.
IoT gateways for connecting to cloud applications

Direct connection to cloud applications.

<table>
<thead>
<tr>
<th>SIMATIC CC712</th>
<th>SIMATIC CC716</th>
<th>SIMATIC CP 1545-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfers data to various cloud platforms like MindSphere; 2 x Ethernet RJ45; field protocols: S7, Modbus MES / Cloud; protocols: MQTT, OPC UA.</td>
<td>Transfers data to various cloud platforms like MindSphere; 2 x Ethernet RJ45, 1 x MPI / PB; field protocols: S7, Modbus MES / Cloud; protocols: MQTT, OPC UA.</td>
<td>Enables simple and reliable data transfer to MindSphere or another cloud solution that supports the standardized MQTT protocol.</td>
</tr>
</tbody>
</table>
IO-Link master modules for integration in IO-Link master systems

Seamless integration in IO-Link master systems.

You benefits at a glance:

- No RFID-specific programming necessary
- Cost-efficient integration of numerous RFID reading points
- Up to eight IO-Link ports based on IO-Link Specification V1.1 or V1.0

Our portfolio contains numerous IO-Link master modules for all peripheral devices. The standardized IO-Link interface makes it possible to integrate our RFID readers in IO-Link master systems from different manufacturers. In addition, a simple point-to-point connection significantly reduces wiring effort.
# IO-Link master modules for integration in IO-Link master systems

Seamless integration in IO-Link master systems.

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IO-Link Master for ET 200SP</strong></td>
<td>For integrating SIMATIC ET 200SP distributed I/Os and up to four SIMATIC RF200 IO-Link readers.</td>
</tr>
<tr>
<td><strong>IO-Link Master ET 200AL</strong></td>
<td>For integrating SIMATIC ET 200AL distributed I/Os and up to four SIMATIC RF200 IO-Link readers.</td>
</tr>
<tr>
<td><strong>IO-Link Master ET 200pro</strong></td>
<td>For integrating SIMATIC ET 200pro distributed I/Os and up to four SIMATIC RF200 IO-Link readers.</td>
</tr>
<tr>
<td><strong>IO-Link Master S7-1200 Basis</strong></td>
<td>For integrating the S7-1200 controller and up to four SIMATIC RF200 IO-Link readers.</td>
</tr>
<tr>
<td><strong>IO-Link Master S7-1500 Basis</strong></td>
<td>For integrating SIMATIC ET 200MP distributed I/Os and SIMATIC S7-1500 controllers and up to eight SIMATIC RF200 IO-Link readers.</td>
</tr>
<tr>
<td><strong>IO-Link Master ET 200eco PN</strong></td>
<td>For integrating SIMATIC ET 200eco PN distributed I/Os and up to eight SIMATIC RF200 IO-Link readers.</td>
</tr>
</tbody>
</table>
IO-Link master modules for integration in IO-Link master systems

Seamless integration in IO-Link master systems.

- **IO-Link Master ET 200eco PN**
  - For integrating SIMATIC ET 200eco PN distributed I/Os and up to four SIMATIC RF200 IO-Link readers.

- **IO-Link Master ET 200eco PN CM**
  - For integrating SIMATIC ET 200eco PN distributed I/Os and up to eight SIMATIC RF200 IO-Link readers.
Professional services and training courses covering all aspects of industrial identification

As a partner to industry, we offer you more than just first-class products and systems. We round off our comprehensive portfolio with a wide range of services and training courses.

Professional Services
Expert support and consulting for future-proof solutions with industrial identification:
- On-site service and support
- Health check
- Design and consulting
- Integration and implementation

simatic-ident.industry@siemens.com

Industrial Identification Education
Training courses and certifications for industrial identification:
- SIMATIC Ident
- RFID
- Optical identification

certification.ci.industry@siemens.com

Contact
Support Services
Ready to go – our system offerings

With our soon-to-be available gate offerings, we will offer you a complete, individually configurable, and immediately usable system for identifying and tracking your products. A variety of objects like beverage crates, motors, and work clothing can be transported on the installed conveyor belt. All you need to do is equip the goods with transponders.

The RFID gate scope of delivery already includes all the components. The mechanical design is standardized. Procurement and commissioning require no expert knowledge. Even the PLC-based identification software is already preinstalled.

On request, we will of course provide you with commissioning support.

Benefits
- Flexibly usable and simple to operate. A pre-generated control program for identification that is easily expandable enables seamless integration in existing automation systems
- Minimal device configuration necessary on the part of the customer
- No time-consuming compilation of individual components required
- One order number for an entire identification system
Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens’ products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g., firewalls and/or network segmentation) are in place.

For additional information on industrial security measures that may be implemented, please visit

https://www.siemens.com/industrialsecurity

Siemens’ products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase a customer’s exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under

https://www.siemens.com/industrialsecurity