November 2016

SIMATIC RF600

Technical slides

siemens.com/ident

Agenda

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Overview SIMATIC IDENT

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Optical Identification (OID)

Code reading	Text recognition	Object recognition

Radio Frequency Identification (RFID)

Short range (HF)	Long range (UHF)

SIMATIC Ident

Criteria for RFID-System: storage capacity vs. range
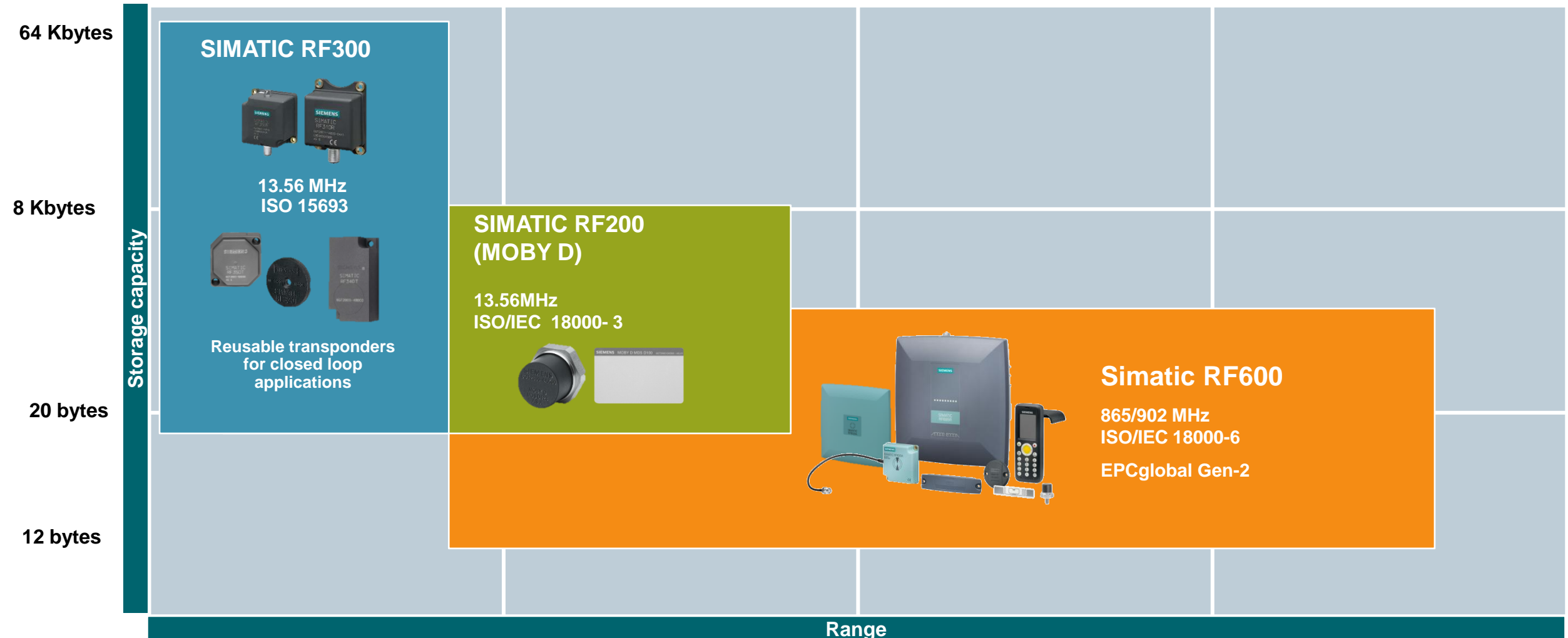
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SIMATIC RF300

13.56 MHz
ISO 15693

Reusable transponders
for closed loop
applications

SIMATIC RF200
(MOBY D)

13.56MHz
ISO/IEC 18000- 3

Simatic RF600

865/902 MHz
ISO/IEC 18000-6

EPCglobal Gen-2

Storage capacity

64 Kbytes

8 Kbytes

20 bytes

12 bytes

Range

0.3 m   1.0 m   3.0 m   8.0 m

Agenda

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SIMATIC 600
The high-performance RFID-System for long range

Readers		Antennas	Mobile Reader	Trans-ponders
▪ **RF620R/ RF630R** with integrated or up to two external antennas for SIMATIC automation ▪ **RF640R/ RF670R** with integrated or up to four external antennas for PC/IT integration and internal tag processing	▪ **RF650R** connect up to four external antennas , integrated processing logic, for use in logistics applications ▪ **RF680R** connect up to four external antennas , integrated processing logic, for use in automation sector/industrial environment ▪ **RF685R** with one integrated antenna and one external antenna connector for use in automation sector/industrial environment	▪ **RF620A** extra compact design ▪ **RF640A/RF642A** standard antenna for a wide variety of applications ▪ **RF650A** circular antenna for applications in logistics ▪ **RF660A** powerful antenna for wide range applications, high degree of protection ▪ **RF680A** adaptive high-end-antenna for applications in industrial environment	▪ **RF650M** compact and high performance handheld	▪ **RF610T** ▪ **RF620T** ▪ **RF625T** ▪ **RF630T** ▪ **RF640T Gen2** ▪ **RF680T** ▪ **Labels**

SIMATIC RF600
Features and overview

System	SIMATIC RF600
Frequencies	865-868 MHz (Europe), 902-928 MHz (USA, Canada) 920,5-924,5 MHz (China), 920-924 MHz (Japan)
Range	Up to 8 m (depending on RF-related environmental conditions and on chosen hardware)
Memory capacity	Up to 496 bits EPC-ID, up to 4 KB (user memory)
Integration	RF620R / RF630R : PROFIBUS, PROFINET, Ethernet, Ethernet/IP via communication modules RF640R / RF670 : Ethernet, TCP/IP, XML RF680R / RF685R : PROFIBUS via communication module ASM 456, PROFINET RF650R / RF680R / RF685R : Ethernet (TCP/IP, XML)
Standards	EPCglobal Class 1 Gen 2, ISO 18000-6B and -6C
Approvals	ETSI (Europa), FCC (USA/Canada), CMIIT (China), ARIB (Japan) Russia*, Brazil*, Mexico*, Argentina*, South Korea*, India*, Israel*

* For details, see: www.siemens.de/rfid-funkzulassungen

Integrated Ethernet/IP interface enables simple integration in third-party controllers. **+**

OPC UA as a future-oriented Industry 4.0 standard enables a standardized connection to a highly diverse range of systems. **+**

OPC UA offers protection against unauthorized data access and simple interchangeability (interoperability) of auto ID devices. **+**

Highlights readers RF650R, RF680R, RF685R
Extensive diagnostic functions

- No software installation required

- Easy and quick start in internet browser

- Possibility of local diagnostics and remote maintenance

Highlights readers RF650R, RF680R, RF685R
System independancy due to web based software

- Adjustment of antenna within minutes

- Feedback about the impact of the antenna position and orientation

- LED-Panel indicates the tag signal strength depending on current antenna position and orientation
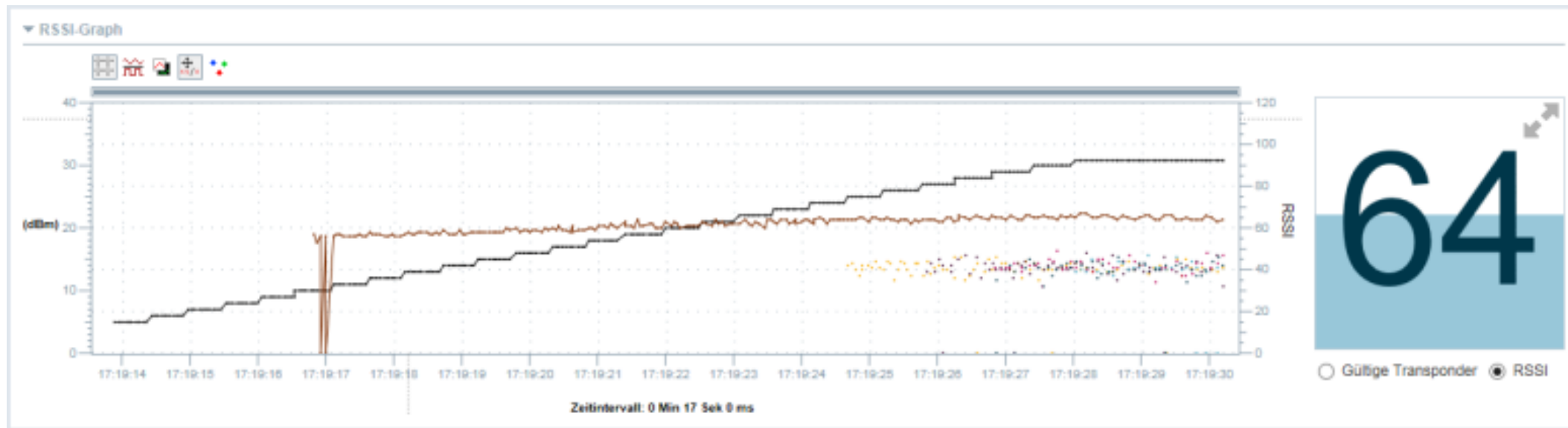
Highlights readers RF650R, RF680R, RF685R
Adjustment of the antenna in a breath

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- All relevant information at a glance (signal strength, activation power, frequency of identification)

- Graphic representation allows a detailed analysis of the read point

- The diagnostic logbook records events (read events, write events, errors, ..) for later evaluation

Highlights Antenna RF685R

RF620R
Antenna with circular polarization

RF642A
Antenna with linear polarization

NEW

RF685R with adaptive antenna

- **Linear (v/h) und circular polarization possible**
- **Configurable**
- **Automatic polarization switching**

Depending on the position and the direction of the antenna to the transponder, a reliable communication may require a different polarization. This applies particularly in a strongly reflective radio environment.

The integrated antenna of the RF685R is capable of adapting the polarization to achieve reliable communication in the air. Unnecessary high transmit power which can cause cross readings can be avoided.

Translated into project planning this means: challenges of difficult read situations can be solved with a single device.

Highlights Antenna RF680A

RF640A
Antenna with circular polarisation
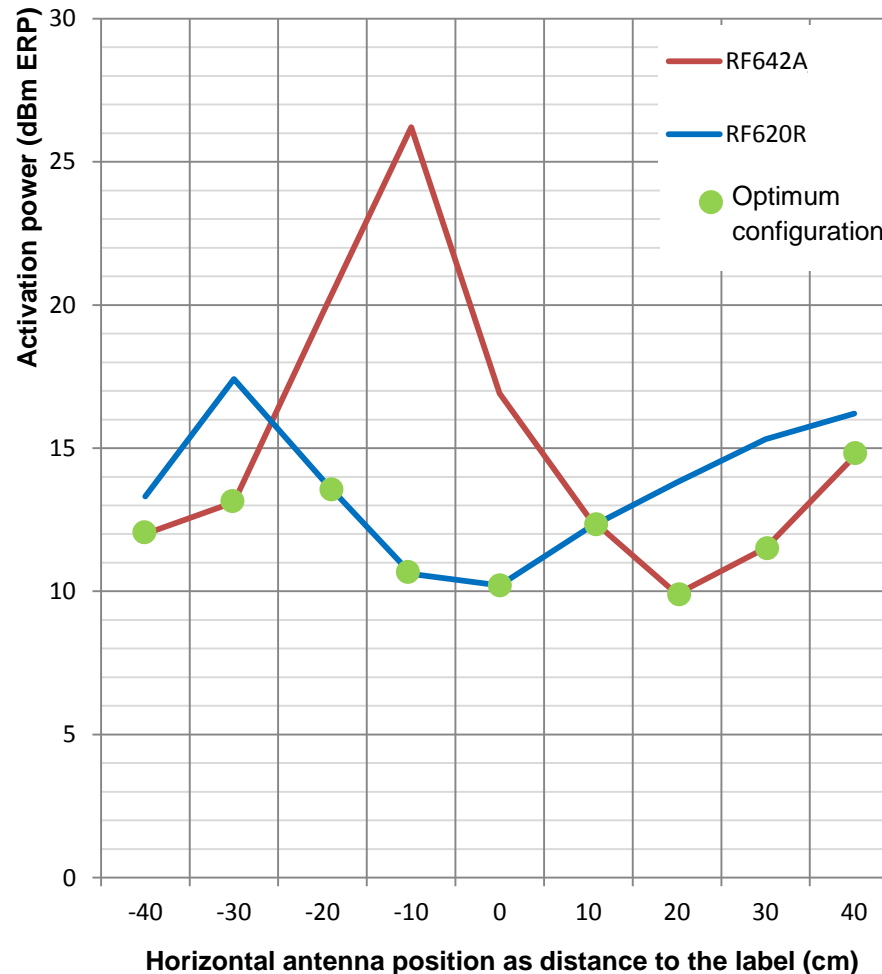
RF642A
Antenna with linear polarisation

NEU

Adaptive antenna RF680A

- Linear (v/h) und circular polarization possible
- Configurable
- Automatic polarization switching
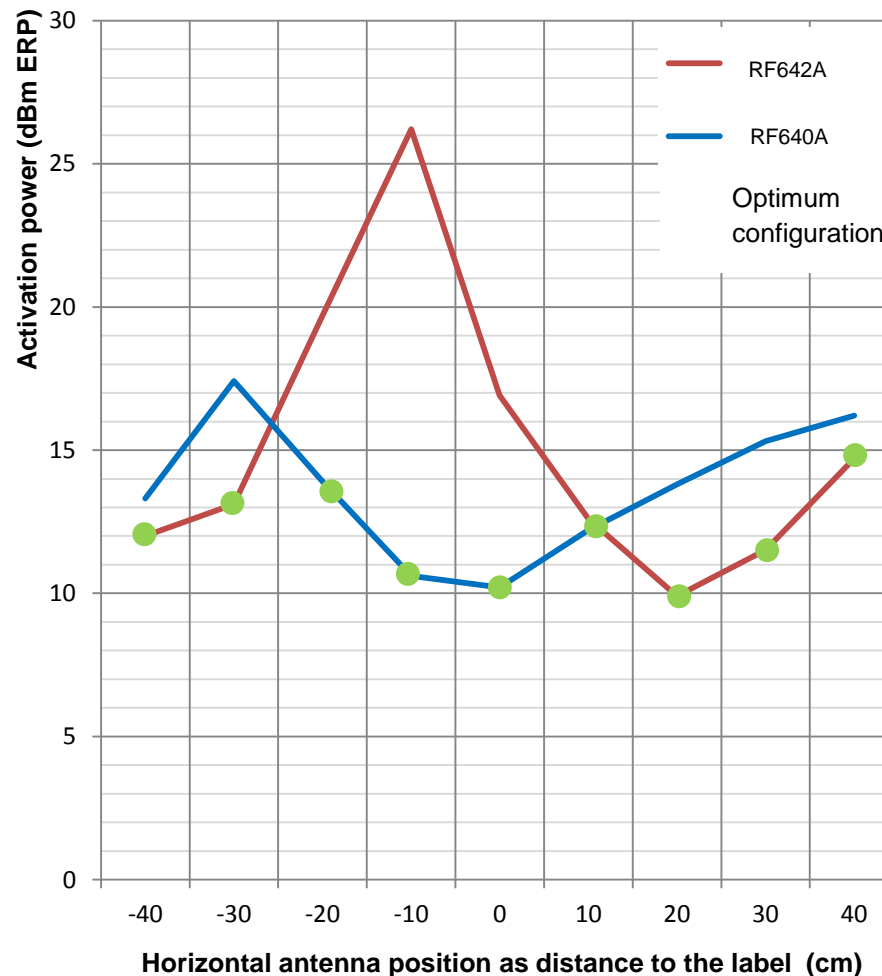
Depending on the position and the direction of the antenna to the transponder, a reliable communication may require a different polarization. This applies particularly in a strongly reflective radio environment.

RF650R and RF680/685R readers can switch the polarization of the RF680A antenna. This ensures a reliable communication in the air. Unnecessary high transmit power which can cause cross readings can be avoided.

Translated into project planning this means: one antenna ready for the challenges of any application.

SIMATIC RF650M – compact and high performance handheld reader

- Easy operating and handling

- WLAN integrated

- High protection class (IP54)

- Docking station with USB and Ethernet interface

- High radio power for long read ranges
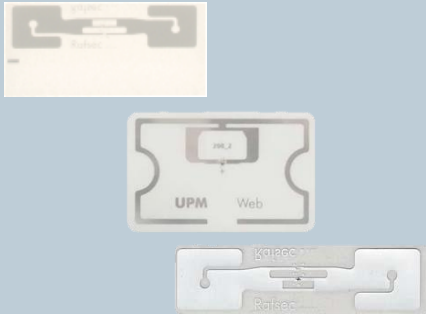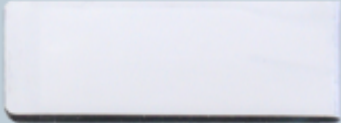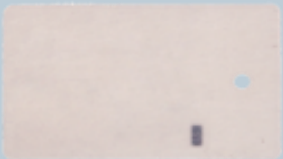
Highlights Antennas

Robust and compact antenna design for a big variety of applications

SIMATIC RF620A	SIMATIC RF640A	SIMATIC RF642A	SIMATIC RF650A	SIMATIC RF660A	SIMATIC RF680A
			NEW		NEW
Compact UHF antenna for operation in machines / conveyor systems	Universal standard antenna with small dimensions (circular polarization)	Standard antenna for reflective environments (linear polarization)	Circular antenna for universal use in industrial applications in production and logistics	High degree of protection – long range: For material flow and logistics applications	Adaptive high-end-antenna for use in harsh industrial environments
Limited range to avoid cross reads					Polarization switchable (linear/circular) 3-color-LED

Highlights Labels
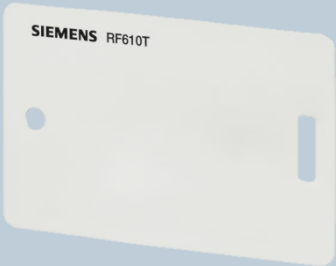
Portfolio includes different label variants from cost-efficient up to heat-resistant

RF622L	RF630L	RF640L	RF680L	RF690L
▪ Compact design ▪ Large memory	▪ Read range up to 8 m ▪ Wide frequency range ▪ Printable	▪ Small model ▪ Mounting on metallic and nonmetallic surfaces	▪ Heat-resistant smartlabel ▪ Wide frequency range ▪ Printable	▪ Read range up to 5 m ▪ Mounting on metallic surfaces ▪ Heat-resistant

Highlights Transponders

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Transponders with EPCglobal-Standard provide suitable solutions for each long range application

RF610T	RF620T	RF622T	RF625T
▪ Flexible Card in ISO-Format ▪ For mounting on metal, plastics, wood, glass ▪ Printable	▪ Read range up to 8 m ▪ Rugged design ▪ For mounting on metal and EDS-plastics	▪ Large memory ▪ Printable	▪ High protection class IP68 ▪ For mounting on metal ▪ Adapted for demanding production processes

Highlights Transponders

SIEMENS

Transponders with EPCglobal-Standard provide suitable solutions for each long range application

RF630T	RF640T	RF680T
▪ High protection class IP68 ▪ M6-screw thread ▪ Rugged design with resistance to detergents	▪ High protection class IP68 ▪ Robust and compact ▪ For mounting on metal ▪ II 2 G Ex ib IIC T6 bis T3 Gb ▪ II 2 D Ex ib IIIB T135°C Db	▪ ATEX-Approval ▪ Up to +220 °C ▪ For mounting on metal ▪ II 2G Ex ib IIB T6 bis T2 Gb ▪ II 2D Ex ib IIIB T135 °C Db

Agenda

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SIMATIC RF600 Readers

Function

- **Access to configuration, commissioning and diagnostics tools using a web browser**

- **Diagnostics during operation and diagnostics history in log available**

- **Extensive integration options: Ethernet, Profinet, Profibus, Ethernet/IP, OPC UA for Auto ID**
- **Standard function blocks for RF68x**

- **Best-in-class UHF radio module**
- **Tried and tested "UHF for Industry" algorithms**

- **Air interface according to ISO 18000-6 B/C**

- **Variable antenna polarization (RF685R´s integrated antenna)**

- **6 bit data encoding according to VDA 55xx**

- **Web user interface in Chinese language** NEW

Benefit

- Fast commissioning and diagnostics reduce project effort

- Extensive functions for simple and fast diagnostics increase plant availability

- Fully integrated in TIA - simple and flexible options for connecting to PLC and IT systems
- Possible integration in 3rd Party PLC via Ethernet/IP or OPC UA

- Maximum reliability of write/read processes even in difficult radio environments

- Simple migration of legacy systems with ISO 18000-6B protocol

- Time savings during project planning and therefore reduction of project costs

- Standardized data management along the supply chain in the automobile industry reduces costs

- Easier and faster commissioning and diagnostics

RF600 unique selling points

Configuration, diagnostic and commissioning tools "out of the box" in the web browser

- Diagnostic tools immediately available in a web browser.

- Commissioning tools immediately available in a web browser.

- HTML5 browser technology

⇒ No software installation and updates on a PC necessary

⇒ Access possible on every PC with a browser (including Unix-based systems)

⇒ No Java software required (security issues or updates away)

Awarded product design and usability

Simple integration into the world of automation

- RF600 is already included in the TIA Portal's hardware tree

⇒ No need to import description files

⇒ A project can even be set up without hardware

High flexibility and detection quality

- RF685R: high-end reader with integrated adaptive antenna – suitable for worldwide use

- RF680A: smallest variable-polarization external antenna

- RF620A: antenna for industrial applications with a very small volume

⇒ Reliable coverage by adaptive antenna

⇒ Flexible installation options thanks to a broad selection of antenna sizes

High system availability thanks to simple device replacement

Procedure to replace a reader (Ethernet-/PROFINET-interface):

Hardware

1. Disconnect reader from the power supply
2. Remove the communication cable from the reader
3. Dissemble the old reader
4. Install the new reader
5. Connect cables/antennas

PROFINET Configuration

Automatic transfer of parameters relevant to PROFINET (IP address/PROFINET names) with the aid of the PROFINET topology functionality.

Requirements

- The PROFINET topology has been configured.
- In the CPU, the "Device replacement without removable medium" option is activated in the PROFINET settings.
- The new reader is set to the factory defaults, i.e. no device name and no IP address have been assigned

Thanks to this function, only the defective device (hardware) has to be replaced. The PROFINET configuration is processed automatically . Thereby downtimes and costs can be saved.

High system availability thanks to simple device replacement

PLC

XML

PC/PU

Alarm
(OB86)

Status
(Reader status)

XML

RF685R

manual
intervention

User
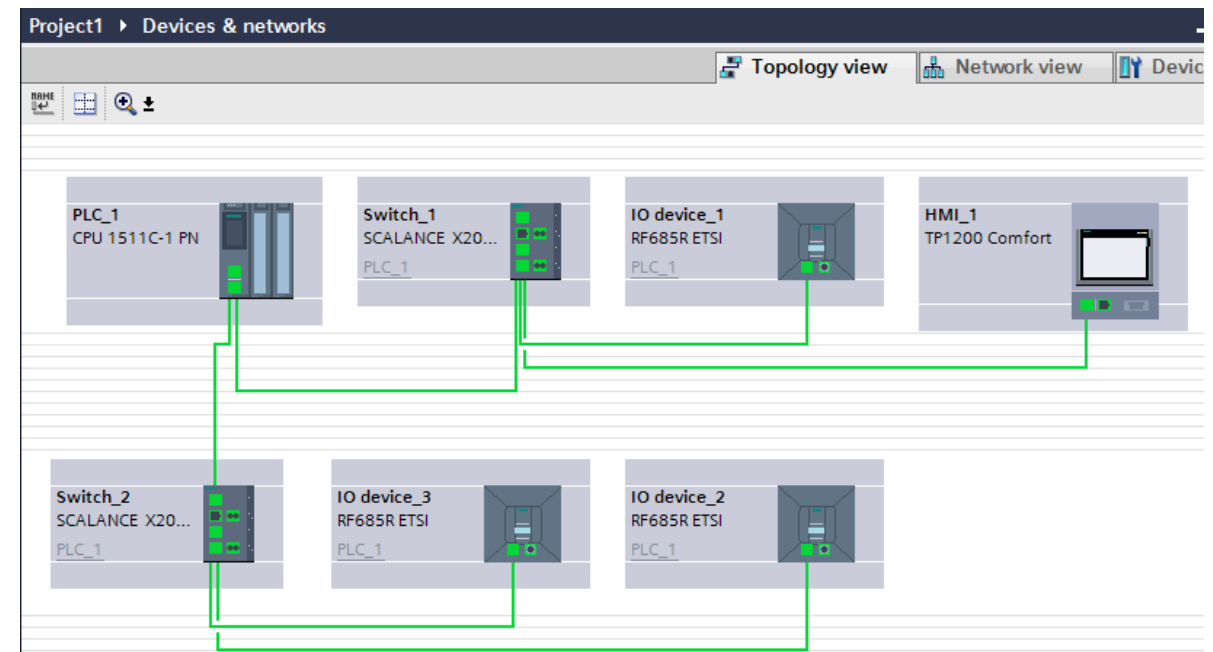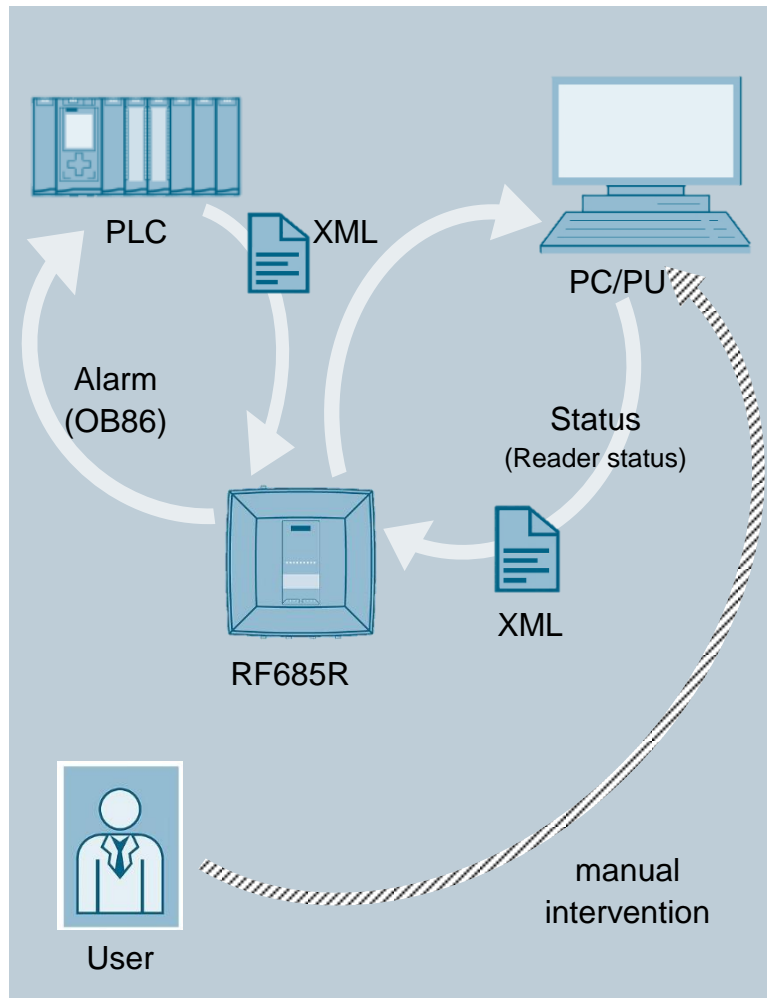
Configuration

Requirement

- XML configuration has been transferred to the PLC with the ConfigUpload command, or into the PC with the ReadConfig command, and has been backed up in non-volatile memory
- This mechanism is triggered either automatically (by PLC/PC) or optionally by an employee/user

Module replacement in the software (TIA Portal)

- A diagnostic telegram is sent automatically to the Profinet master PLC after replacement. In the PLC, the function is called up in OB86
- OB86 has three parameters (#eventclass, #hardware-identifier, #fault-id)
- The combination of #hardware-identifier and #eventclass can be used to determine which device has been replaced
- Optionally, the XML file's configuration ID can be used to determine whether the offline/online configuration is up to date
- The XML file is transferred with the ConfigDownload command

Maximum flexibility because the software can be configured both automatically and manually.

SIMATIC System Advantages
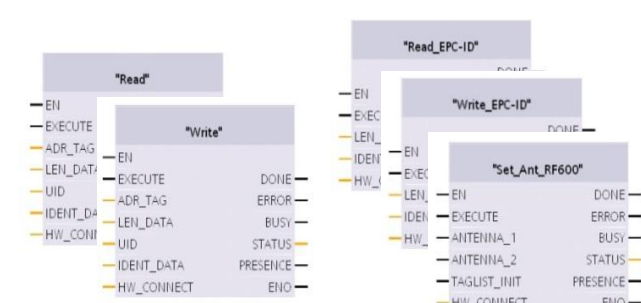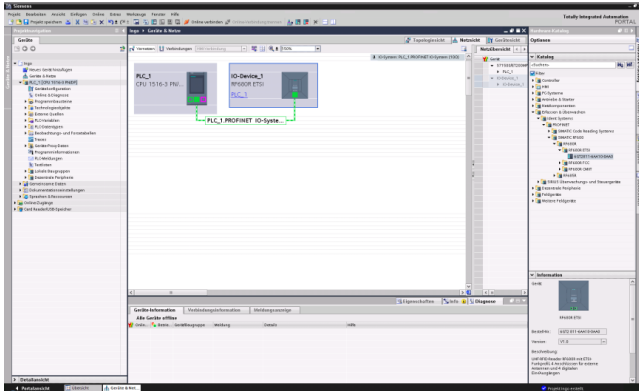
Function

- **Integrated PROFINET interface (RF680R, RF685R)**

- **Configuration and programming in TIA Portal**

- **Programming using standard function blocks (Ident profile)**

- **Direct access to the Web Based Management from TIA Portal**

Benefit

- ▶ Savings on hardware costs

- ▶ Significant time-savings and reduction of errors

- ▶ Less programming effort

- ▶ Good usability

Quick and easy system integration with TIA portal

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With TIA Siemens offers a substantial system advantage and together with RF600 a „Plug & Play" solution

- Readers are integrated in „device tree"

- Easy project integration by Drag & Drop

- Easy programming with integrated Ident-Profile function blocks

- Diagnostic and commissioning using TIA-portal
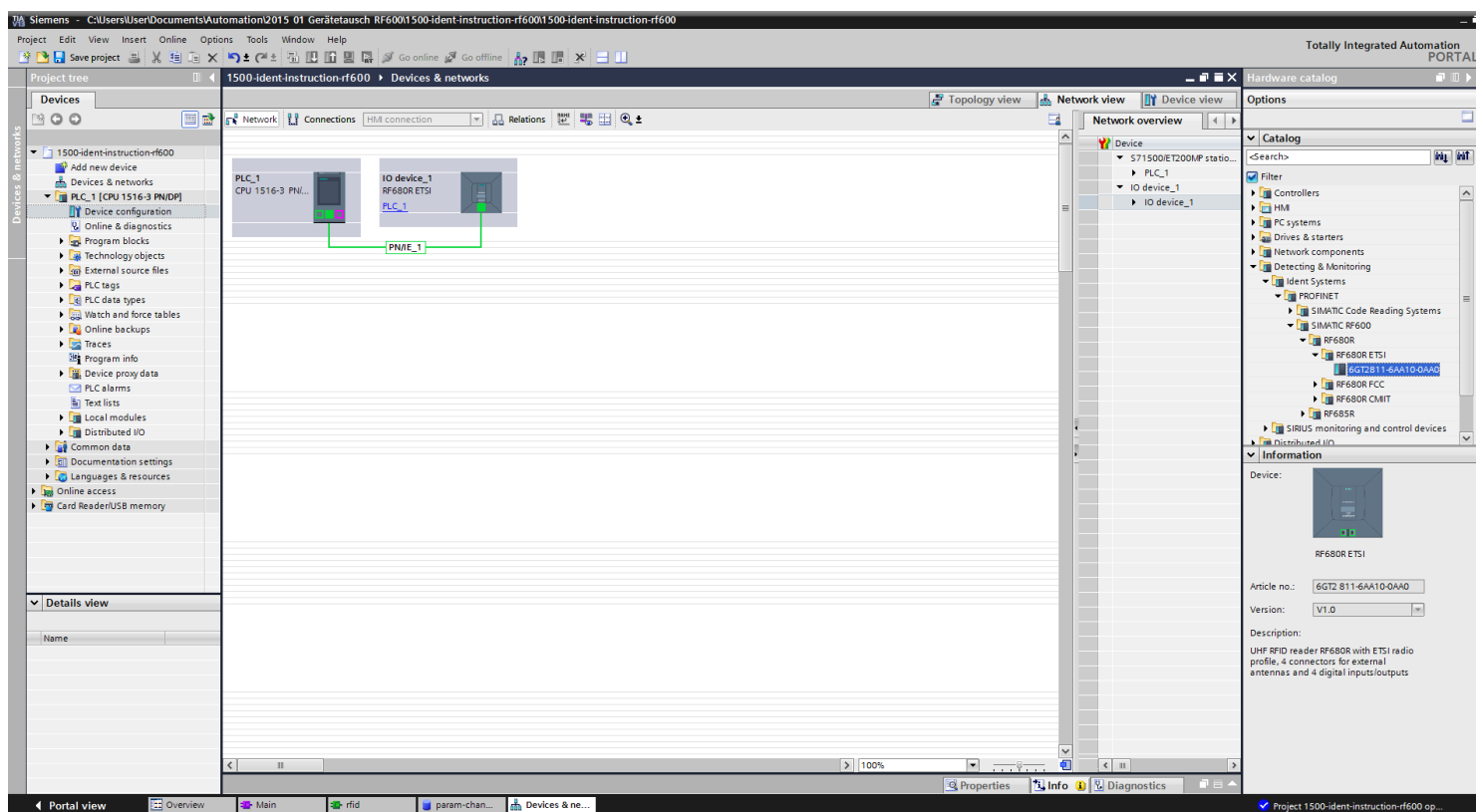
SIMATIC RF600 Antennas
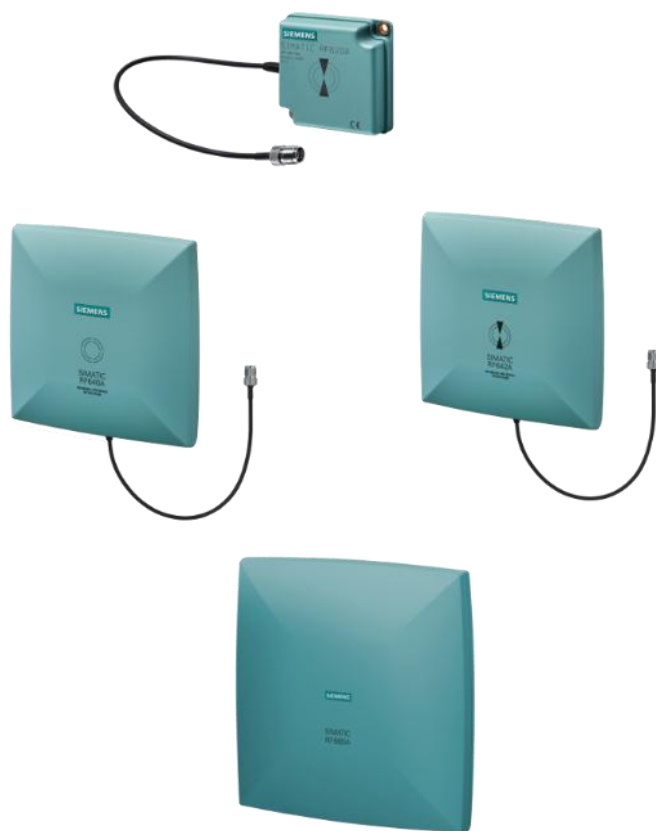
Function		Benefit
▪ **High degree of protection**	▶	▪ Application also possible in the harshest industrial environments
▪ **Compact and ultra-compact UHF-antennas**	▶	▪ High flexibility for different applications and installation conditions
▪ **Linear and circular polarized antennas**	▶	▪ Allows applications in challenging radio environments (i.e. metallic/reflective environment)
▪ **Selective read range**	▶	▪ Thanks to the adjustable read range, objects can be selectively identified

SIMATIC RF650A / RF680A

Function		Benefit
• **SIMATIC RF650A for logistics applications**	▶	• The combination of RF650R-readers and RF650A-antennas results in a cost-efficient system for logistic applications
• **SIMATIC RF680A is an adaptive high end antenna**	▶	• Simplification of project planning, since polarization of the antenna doesn't have to be considered anymore • Reliable identification even in challenging radio environments
• **Improved front-to-back ratio**	▶	• Reflection and its resulting side effects are significantly reduced
• **Large integrated LED indicator (RF680A)**	▶	• Allows fast and detailed diagnostics of detection and error status on every antenna
• **High protection class (IP65) and extended temperature range (-25 to +75 °C)**	▶	• For use in harsh industrial environments
• **Transmission frequency 865 to 928 MHz**	▶	• Both antennas can be used globally

SIMATIC RF650M Handheld

Function

- **Light and compact RFID-reader**

- **Rugged device with color touch display and keypad incl. large trigger button**
- **Convenient RFID software**

- **WLAN connection**

- **Long battery life**

- **Operating system : MS Windows CE6.0**

- **Extensive software functions**

Benefit

- Ergonomic use

- Reliable and convenient handling

- Simple and flexible connection to PLC and IT systems via WLAN

- Operation in one shift (up to 9 hours) possible without charging

- Users can create their own applications for the device

- Wide range of applications possible (reading, writing, locating tags)

Agenda

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Use Case Asset/Container Management

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Task

- Localization of containers

- Obtaining transparency about the inventory and degree of utilization

- Product quality and legal regulations require extensive documentation

- Obtaining information on the status and content of the container

Solution

- RFID gates and read points at the process stations provide information about the location and/or the area of the containers

- Regular identification at the read points and stations provide information about the number and utilization of containers

- At each process step information is read and recorded so that extensive documentation can be generated

- The transponders contain information about the status e.g. "cleaned" and content e.g. amount or type of the content
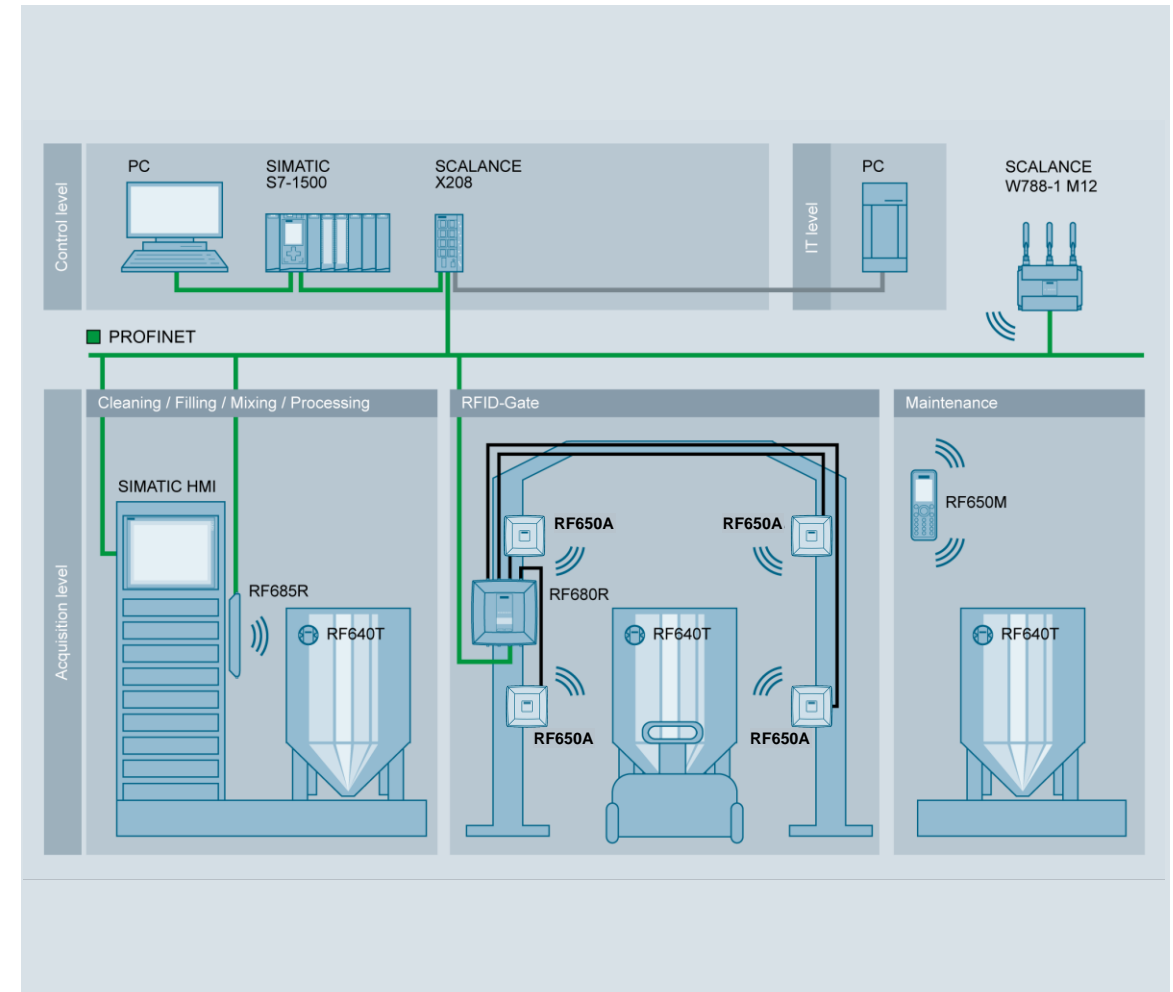
Use Case Track & Trace

Task

Automatic tracking and tracing of goods

Solution

- A reader with up to four antennas, sensors and signaling devices are mounted along a route or at a passage of buildings

- Individual products or boxes or pallets are equipped with tags

- A sensor triggers a read operation

- The signaling device, indicates if the reading operation was successful e.g.:

  - red : error, wrong goods or wrong destination

  - green : correct goods and e.g. proceed loading the truck

- The automatically generated data are sent to the higher level system
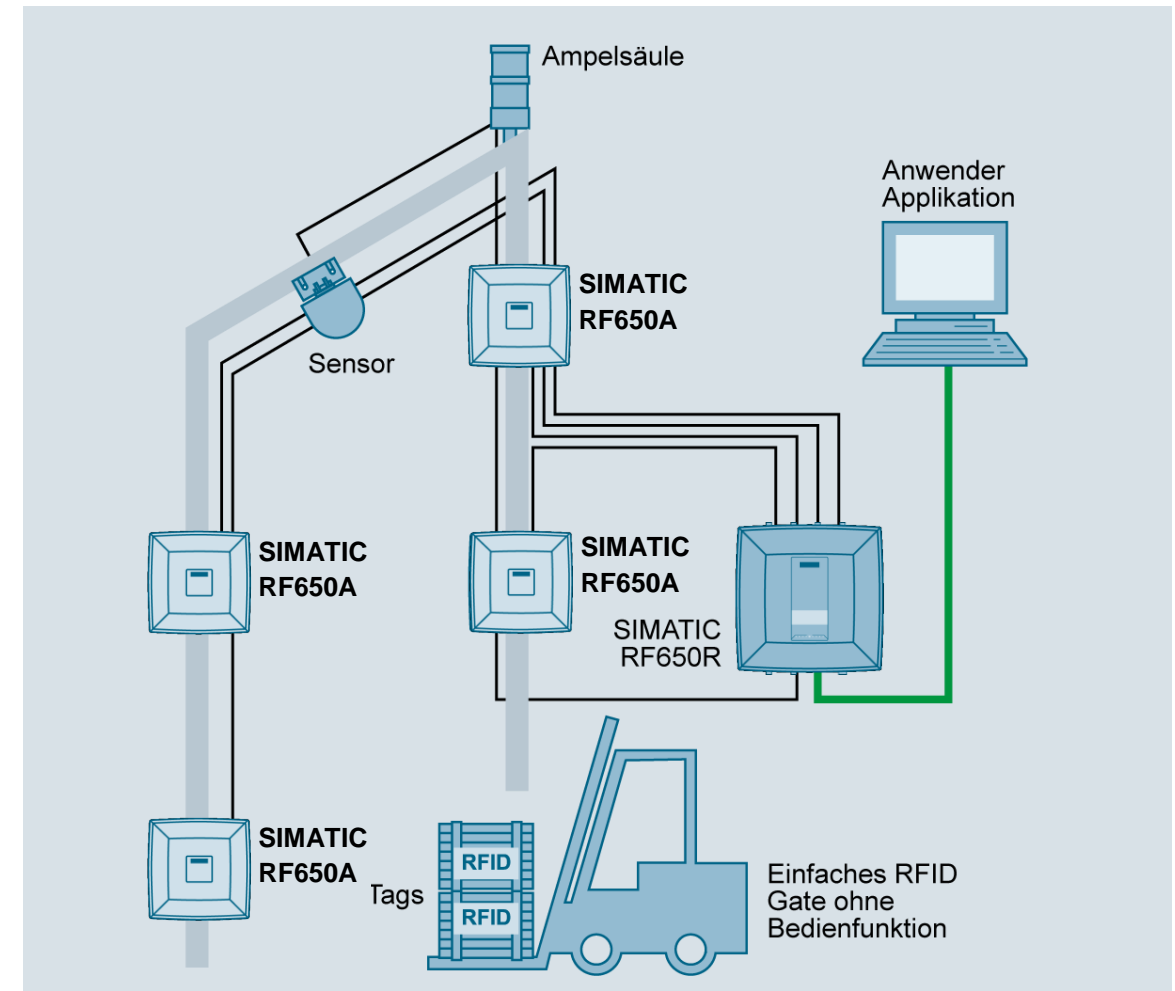
Use Case Supply Chain Management

Task

Monitoring of incoming goods, distribution of goods and outgoing goods

Solution

- A reader with four antennas monitors the incoming goods gate

- There is a tag with user data (sender, recipient of the goods) on every pallet that is read and the data is passed on to the higher level application

- The individual goods of the incoming pallet are recommissioned according to the customers order including a new tag which contains the recipients' data

- The recommissioned goods are conveyed to the outbound area. At the same time they are registered via the RFID system. According to the recipient data they are passed on to the associated outbound gate

- At the outbound gate the goods are checked again whether correct pallets are being loaded to the truck

- A light barrier starts the registration at the outgoing goods gate

- The outgoing goods gate opens depending on the read result or a warning message is displayed

Use Case Production Control

Task

Continuous identification of car bodies from body shop to final assembly

Solution

- The heat-resistant SmartLabel RF680L is automatically mounted (to the main chassis beam) and contains product data (number, body type, colour etc.)

- Many SIMATIC RF600 write/read units along the production lines guarantee reliable identification

- The RFID hardware can be connected via PROFINET or PROFIBUS using ASM456

- This leads to:

    - Reduced costs thanks to a uniform identification system and transponders mounted directly on the car body

    - Improved quality and productivity thanks to frequent identification at each workplace/at each production step

SIMATIC S7-1500
SIMATIC RF685R
SIMATIC RF680A
SIMATIC RF680L
SIMATIC RF680L
SIMATIC RF680L

Agenda

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RF600 readers at a glance

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Logistic	Production/Automatisation	

SIMATIC RF650R

- **4 antenna connectors**
- **XML, OPC UA**

- **IP30**

SIMATIC RF680R

- **4 antenna connectors**

- **PROFINET, PROFIBUS Ethernet/IP**
- **XML, OPC UA**
- **Higher transmit power**
- **Extended LED-Display**

- **IP65**

SIMATIC RF685R

- **Integrated adaptive antenna**
- **PROFINET, PROFIBUS Ethernet/IP**
- **XML, OPC UA**
- **Higher transmit power**
- **Extended LED-Display**

- **IP65**

New SIMATIC RF600 Readers
Display elements and connectors

1 antenna connector
1 internal antenna

Status LED Display

Operational LED Display

RF685R
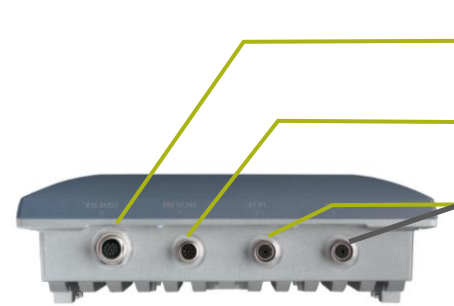
Digital I/O

Power supply/ RS422

Industrial Ethernet/PN

4 antenna connectors

Status LED display

Operational LED display

RF680R
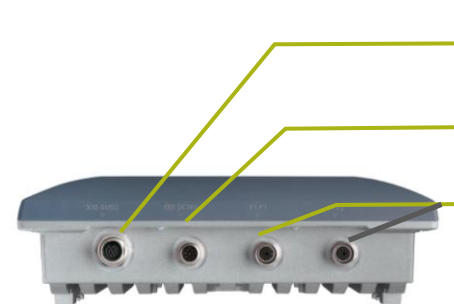
Digital I/O

Power supply / RS422

Industrial Ethernet/PN

4 antenna connectors

Operational LED display

RF650R
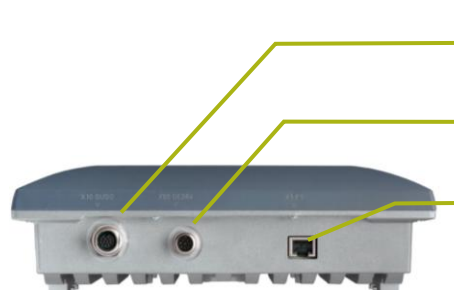
Digital I/O

Power supply

Industrial Ethernet

SIMATIC RF600
Features & performance

	RF650R	RF680R	RF685R
Antennas and connections			
Antennas	4 external	4 external	1 internal, 1 external
Switchable antenna polarisation	With RF680A	With RF680A	●
Industrial ethernet-interface	1 x RJ45 (IE, OPC UA)	2 x M12 (IE,PN, E/IP, OPC UA)	2 x M12 (IE, PN, E/IP, OPC UA)
Digital in/outcome	4/4	4/4	4/4
RS422	-	●	●
Diagnosis and configuration			
Web Server	●	●	●
Possible in operating mode	●	●	●
Radio features			
Sendeleistung (min/max)	5..30 dBm	5..33 dBm	5..33 dBm
UHF for industry-algorithm	●	●	●
Housing			
Type of protection	IP30	IP65	IP65
Dimensions (L x B x H)	258 x 258 x 80 mm		

NEW *NEW* *NEW*

Technical specifications data UHF Reader – Part 1

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Functions	RF650R	RF680R	RF685R
Antennas & connections			
Integrated antenna	-	-	✔
External antenna connectors	4	4	1
Antenna polarization	-	-	circular, linear, auto
Ethernet ports	1	2	2
PROFINET possible	-	1	1
Connector type	1x RJ45	2xM12	2xM12
Interface module interface	-	1xM12 RS422 (ASM 456)	1xM12 RS422 (ASM 456)
Digital I/Os	4/4	4/4 (S7 integrated)	4/4 (S7 integrated)
Diagnostics interface	-	✔	✔
Power supply	24V DC, max. 2 A	24V DC, max. 2 A	24V DC, max. 2 A

Technical specifications data UHF Reader – Part 2

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Functions	RF650R	RF680R	RF685R
Air interface			
ISO 1800-6C (EPC C1 Gen2)	✓	✓	✓
Sensitivity can be set	✓	✓	✓
Radio chip	R2000	R2000	R2000
Transmit power	3…1000mW (30dBm)	3…2000mW (33dBm)	3…2000mW (33dBm)
Radiated power ETSI (Europe) / FCC (USA/CAN)	-	-	4…2000 mW (ERP) / 6 … 4000 mW (EIRP)
Housing			
Protection class	IP30	IP65	IP65
Dimensions	258 x 258 x 81	258 x 258 x 81	258 x 258 x 81
Operating temperature	-25° …+55°C	-25° …+55°C	-25° …+55°C

Technical specifications data UHF Reader – Part 3

Functions	RF650R	RF680R	RF685R
UHF for industry algorithms			
RSSI threshold	✔	✔	✔
Power ramp	✔	✔	✔
Command power boost	✔	✔	✔
Antenna polarization diversity	-	-	✔
RSSI delta	✔	✔	✔
Black list	✔	✔	✔
Smoothing	✔	✔	✔
Tools			
Diagnostics tools	integrated	integrated	integrated
Commissioning tool	integrated	integrated	integrated
User management	✔	✔	✔
Web server	✔	✔	✔

Technical specifications data UHF Reader – Part 4

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Functions	RF650R	RF680R	RF685R
Software interface			
XML interface	✓	✓	✓
S7 / Ident Profile/ Function Block	-	✓	✓
Ethernet IP	-	✓	✓
OPC UA server	✓	✓	✓
Diagnostics			
During operation	✓	✓	✓
Log book	✓	✓	✓
Remote diagnostics over the Web	✓	✓	✓
Display	LED row with 9 LEDs	Two LED rows with 8 and 9 LEDs	Two LED rows with 8 and 9 LEDs

SIMATIC RF650R in detail

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Technical data		
Antenna & connectors	▪ Antenna connectors: 4 ▪ Ethernet connector: 1 (RJ45)	▪ Digital I/O's: 4/4 ▪ Power supply: 24V DC, max. 2 A
Air interface	▪ Radio standard: ISO 18000-6C (EPC Class 1 Gen 2) and -6B ▪ Transmit power : 3…1000mW (30dBm)	▪ Radio-chip: R2000 ▪ Adjustable sensitivity
Housing	▪ Protection class: IP30 ▪ Dimensions: 258mm x 258mm x 81mm	▪ Operating temperature: -25°…+55° C
UHF for Industry-Algorithms	▪ RSSI threshold ▪ Inventory Power Ramp ▪ Command Power Boost	▪ RSSI Delta ▪ Black List ▪ Smoothing
Tools	▪ Integrated diagnostic tools ▪ Integrated commissioning tools	▪ User administration ▪ Web based user interface
Software Interface	▪ XML interface, OPC UA	
Diagnosis	▪ During operation ▪ Logbook	▪ Remote diagnostic via Web ▪ Display with 9 LEDs

SIMATIC RF680R in detail

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Technical data		
Antenna & connectors	▪ Antenna connectors: 4 ▪ Ethernet connectors: 2 (2xM12, 1xPROFINET capable) ▪ RS422 for ASM 456	▪ Digital I/O's: 4/4 (S7 integrated) ▪ Diagnostic interface ▪ Power supply: : 24V DC, max. 2 A
Air interface	▪ Radio standard: ISO 18000-6C (EPC Class 1 Gen 2) und -6B ▪ Transmit power : 3…2000mW (33dBm)	▪ Radio-chip: R2000 ▪ Adjustable sensitivity
Housing	▪ Protection class: IP65 ▪ Dimensions: 258mm x 258mm x 81mm	▪ Operating temperature: -25°…+55° C
UHF for Industry-Algorithms	▪ RSSI threshold ▪ Inventory Power Ramp ▪ Command Power Boost	▪ RSSI Delta ▪ Black List ▪ Smoothing
Tools	▪ Integrated diagnostic tools ▪ Integrated commissioning tools	▪ User administration ▪ Web based user interface
Software Interface	▪ XML Interface, OPC UA	▪ Ident Profile (SIMATIC), AOI (Rockwell)
Diagnosis	▪ During operation ▪ Logbook	▪ Remote diagnostic via Web ▪ Display with 8 LEDs and display with 9 LEDs

SIMATIC RF685R in detail

Technical data		
Antenna & connectors	▪ Integrated antenna (Polarisation linear, circular, auto) ▪ Ethernet connector: 2 (2xM12, 1xPROFINET capable) ▪ RS422 for ASM 456	▪ External antenna connectors: 1 ▪ Digital I/O's: 4/4 (S7 integrated) ▪ Diagnostic interface ▪ Power supply: 24V DC, max. 2 A
Air interface	▪ Radio standard: ISO 18000-6C (EPC Class 1 Gen 2) and -6B ▪ Radio-chip: R2000 ▪ Adjustable sensitivity	▪ Transmit power : 3…2000mW (33dBm) ▪ Radio power: 4 …2000mW (ERP) / 6…4000mW (EIRP)
Housing	▪ Protection class: IP65 ▪ Dimensions : 258mm x 258mm x 81mm	▪ Operating temperature: -25…+55° C
UHF for Industry-Algorithms	▪ RSSI threshold ▪ Inventory Power Ramp ▪ Command Power Boost ▪ RSSI Delta	▪ Black List ▪ Smoothing ▪ Switchable antenna polarization
Tools	▪ Integrated diagnostic tools ▪ Integrated commissioning tools	▪ User administration ▪ Web based user interface
Software Interface	▪ XML Interface	▪ Ident Profile (SIMATIC), AOI (Rockwell)
Diagnosis	▪ During operation ▪ Logbook	▪ Remote diagnostic via Web ▪ Display with 8 LEDs and display with 9 LEDs

Web based user interface

Comprehensive commissioning and diagnosis functions

- All relevant information at a glance (signal strength, activation power, frequency of identification)

- The graphic representation allows a detailed analysis of the read point

- The diagnostic logbook records events (tag reads, errors, etc.) for later analysis
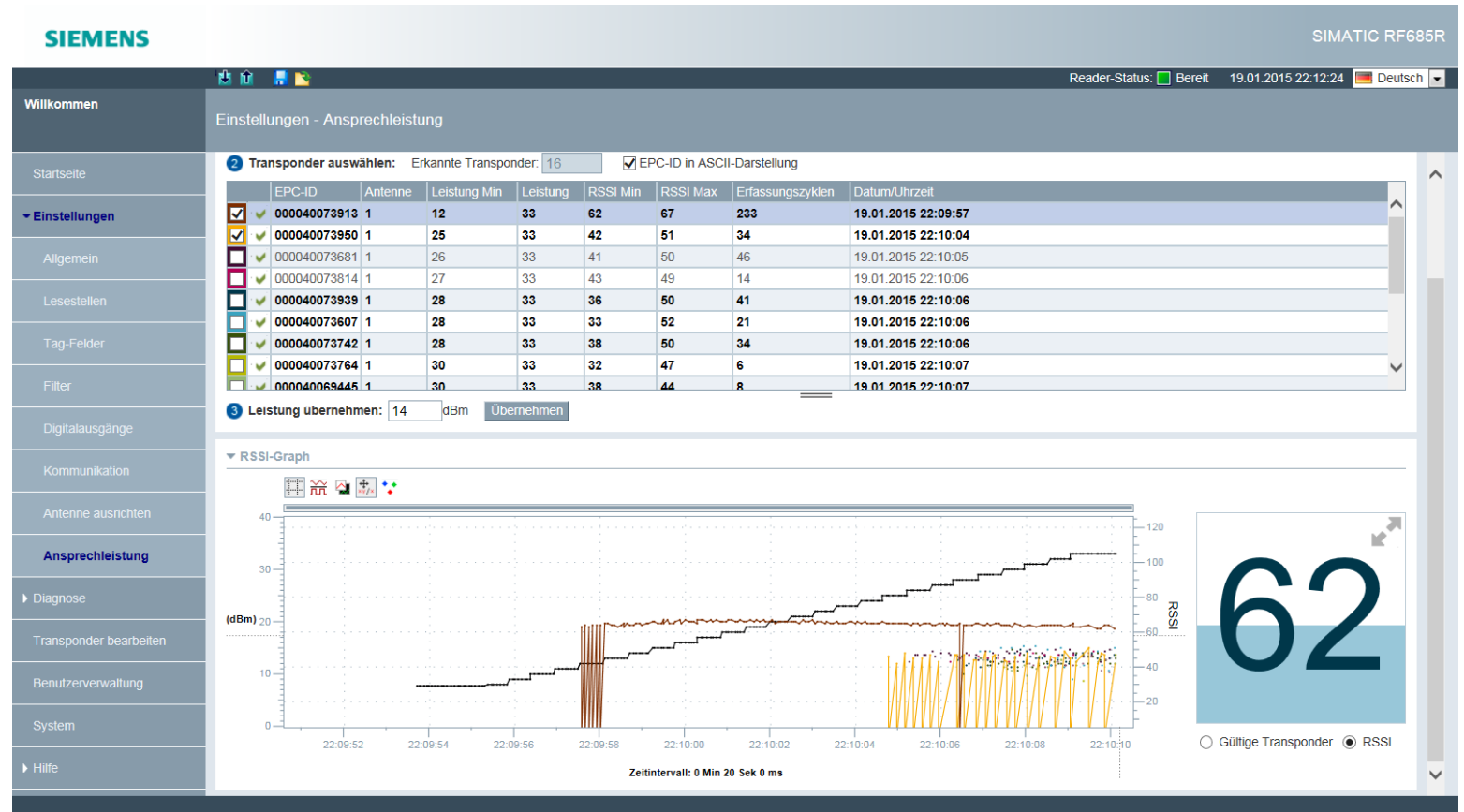
Web based user interface

Commissioning

Commissioning of the reader in three steps:

- Connect the components of the system (power supply, PLC/PC, antennas, sensors/actors)

- Enter the RFID-reader's IP-address into the address bar of the internet browser

- Configure the device

Web based user interface

Edit transponders

With a few clicks you can:

- Write EPC-ID to the tag

- Read/write tag data

- Lock/unlock tag memory banks

- Permanently deactivate tags (kill)

SIMATIC RF650M – Mobil RFID-Reader

Technical data	
Air interface	▪ Radio standard: ISO 18000-6C (EPC Class 1 Gen 2) ▪ Frequency: ETSI 865.6 - 867.6 MHz or FCC 902 - 928 MHz ▪ Radio power: 500 mW ERP ▪ Read range (typ.): 2.5 m
Platform	▪ Memory: 256 MB DDR RAM, 256 MB Flash ▪ Processor: ARM11, 532 MHz ▪ Operating system: Microsoft® Windows® Embedded CE 6.0
User interface	▪ Display: 2,2" QVGA Touchscreen, 240 x 320 Pixel ▪ Keypad with 21 keys ▪ Battery status indicator (LED)
Communication	▪ Wireless LAN IEEE 802.11 a/b/g/n ▪ Ethernet 10/100 via Docking station ▪ USB via Docking station
Power/charging	▪ Battery: Li-Polymer 3.7 V, 2260 mAh ▪ Charging: Typically 0 -90%: 3 h, 0 -100%: 4,5 h ▪ Power supply included in handheld package
Dimensions	▪ Dimensions: 147 x 60 x 39 / 115 mm (antenna in operation position) ▪ Weight: 235 g (incl. battery)
Environment	▪ Protection: IP54 ▪ Operating temperature: -20° to +55°C ▪ Relative humidity: 10% to 95% non condensing

UHF - Antennas overview

SIMATIC RF620A	SIMATIC RF640A	SIMATIC RF642A	SIMATIC RF650A	SIMATIC RF660A	SIMATIC RF680A
			NEW		NEW
Compact UHF antenna for operation in machines / conveyor systems Limited range to avoid cross reads and reflections	Universal standard antenna (circular polarization)	Standard antenna for metallic/reflective radio environments (linear polarization)	Circular antenna for universal operation in industrial applications in production and logistics	High degree of protection – long range: for material flow and logistics applications	Adaptive high-end-antenna for operation in rugged industrial environment Switchable polarization (linear v/h, circular, auto) 3 colors LED

UHF Antennas
Display elements and connectors RF600A

RF650A

1 antenna connector
1 internal antenna

Operational LED display

RF680A

1 antenna connector
1 internal antenna
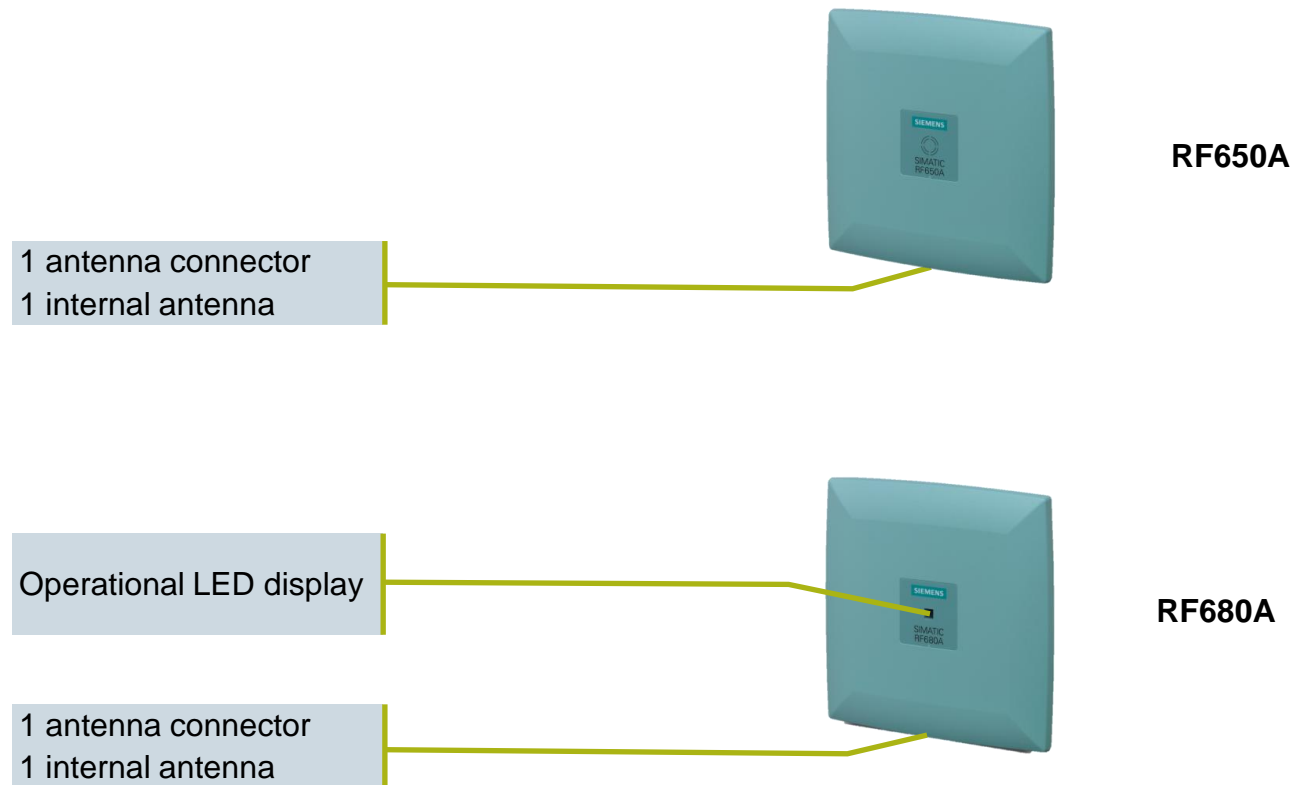
Technical data UHF-Antennas

SIEMENS

Functions	RF620A	RF640A	RF642A	RF650A	RF660A	RF680A
Range typ.	2,2 m with RF650R /RF680R /RF685R	6 m with RF650R /RF680R /RF685R	8 m with RF650R /RF680R /RF685R	6,5 m with RF650R /RF680R/ RF685R	8 m with RF650R /RF680R /RF685R	8 m with RF650R /RF680R /RF685R
Frequency range	865 with 868 MHz (ETSI) 902 with 928 MHz (FCC)	865 to 928 MHz	865 to 928 MHz	865 to 928 MHz (ETSI) 902 to 928 MHz (FCC)	865 to 928 MHz (ETSI) 902 to 928 MHz (FCC)	865 to 928 MHz (ETSI) 902 to 928 MHz (FCC)
Antenna gain	≤ -5 dBi	≤ 4 dBi	≤ 6 dBi (ETSI) ≤ 7 dBi (FCC)	≤ 4 dBi (ETSI) ≤ 3,5 dBi (FCC)	≤ 7 dBi (ETSI) ≤ 6 dBi (FCC)	≤ 3,5 dBi
Polarization	linear	circular	linear	circular	RH circular	linear, circular, switchable
VSWR	< 1,5	< 1,5	< 1,5	< 1,5	< 1,5	< 1,5
Beamwidth	> 90 degrees	> 70 degrees	> 70 degrees	> 90 degrees	55°- 60° (ETSI) 60°- 75°(FCC)	> 90 degrees
Dimensions	75 x 75 x 20 mm	185 x 185 x 45 mm	185 x 185 x 45 mm	198 x 198 x 60 mm	313 x 313 x 80 mm	198 x 198 x 60 mm
Degree of protection	IP67	IP67	IP67	IP65	IP67	IP65
Ambient temperature in operation	-25°C to +75°C	-25°C to +75°C	-25°C to +75°C	-25°C to +75°C	-25°C to +75°C	-25°C to +75°C

SIMATIC RF620A in detail

Technical data	
Range typ.	2,2 m with RF650R /RF680R /RF685R
Frequency range	865 with 868 MHz (ETSI) 902 with 928 MHz (FCC)
Antenna gain	≤ -5 dBi
Polarization	linear
VSWR	< 1,5
Beamwidth	> 90 degrees
Dimensions	75 x 75 x 20 mm
Degree of protection	IP67
Ambient temperature in operation	-25°C to +75°C

SIMATIC RF640A in detail

Technical data	
Range typ.	6 m with RF650R /RF680R /RF685R
Frequency range	865 to 928 MHz
Antenna gain	≤ 4 dBi
Polarization	circular
VSWR	< 1,5
Beamwidth	> 70 degrees
Dimensions	185 x 185 x 45 mm
Degree of protection	IP67
Ambient temperature in operation	-25°C to +75°C

SIMATIC RF642A in detail

Technical data	
Range typ.	8 m with RF650R /RF680R /RF685R
Frequency range	865 to 928 MHz
Antenna gain	≤ 6 dBi (ETSI) ≤ 7 dBi (FCC)
Polarization	linear
VSWR	< 1,5
Beamwidth	> 70 degrees
Dimensions	185 x 185 x 45 mm
Degree of protection	IP67
Ambient temperature in operation	-25°C to +75°C

SIMATIC RF680A in detail

Technical data	
Range typ.	8 m with RF650R /RF680R /RF685R
Frequency range	865 to 928 MHz
Antenna gain	≤ 3,5 dBi
Polarization	Linear, circular, switchable
VSWR	< 1,5
Beamwidth	> 90 degrees
Dimensions	198 x 198 x 60 mm
Degree of protection	IP65
Ambient temperature in operation	-25°C to +75°C

SIMATIC RF650A in detail

Technical data	
Range typ.	6,5 m with RF650R /RF680R/ RF685R
Frequency range	865 to 928 MHz
Antenna gain	≤ 4 dBi (ETSI) ≤ 3,5 dBi (FCC)
Polarization	circular
VSWR	< 1,5
Beamwidth	> 90 degrees
Dimensions	198 x 198 x 60 mm
Degree of protection	IP65
Ambient temperature in operation	-25°C to +75°C
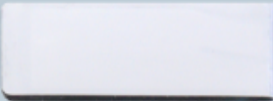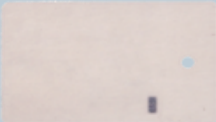
SIMATIC RF660A in detail

Technical data	
Range typ.	8 m with RF650R /RF680R /RF685R
Frequency range	865 to 868 MHz (ETSI) 902 to 928 MHz (FCC)
Antenna gain	≤ 7 dBi (ETSI) ≤ 6 dBi (FCC)
Polarization	RH circular
VSWR	< 1,5
Beamwidth	55°- 60° (ETSI) 60°- 75°(FCC)
Dimensions	313 x 313 x 80 mm
Degree of protection	IP67
Ambient temperature in operation	-25°C to +75°C

Overview Labels

Labels				
RF622L	**RF630L**	**RF640L**	**RF680L**	**RF690L**
▪ Compact design ▪ High writing/reading speed ▪ Large memory	▪ Well-priced ▪ Long range ▪ Ideal for open-loop scenarios	▪ Mounting on metallic and nonmetallic surfaces ▪ Plant management, tool identification, management of containers or metallic equipment	▪ Heat-resistant up to +200°C ▪ For the use in industrial production applications	▪ Heat-resistant ▪ Mounting on metallic and nonmetallic surfaces ▪ Paint shop and other high-temperature applications in industrial environment

Overview Transponders

Transponders						
RF610T	**RF620T**	**RF622T**	**RF625T**	**RF630T**	**RF640T**	**RF680T**
▪ Flexible ▪ Well-priced ▪ ISO card format	▪ High-performance ▪ Ruggedized ▪ Cost-effective ▪ Use in multipurpose applications	▪ Compact ▪ Ruggedized ▪ High writing/reading speed ▪ Large memory	▪ Compact ▪ Suitable for industry ▪ Mounting in and on metal possible	▪ Use on electrically conductive surfaces ▪ Ruggedized ▪ Resistant to cleaning agents	▪ Use on electrically conductive surfaces	▪ Up to +220 °C ▪ Resistant to chemicals ▪ Use in paint shops

Technical specifications transponders - ranges

SIEMENS

Smart Label	RF622L	RF630L -2AB00, -2AB02-0AX0	RF630L -2AB03	RF640L	RF680L	RF690L
RF620R						
Internal Antenna	1,8	5,0	3,0	2,0	2,5	2,5
RF630R						
With RF620A	0,2	0,9	0,55	0,35	0,55	0,7
With RF640A	2,0	4,5	2,8	2,0	2,2	3,0
With RF642A	3,0	5,5	3,5	2,5	2,8	4,5
With RF660A	3,0	6,0	4,0	3,0	3,0	5,0

Transponder	RF610T	RF620T	RF622T	RF625T	RF630T	RF640T	RF680T
RF620R							
Internal Antenna	3,0	5,0	1,8	1,0	0,8	2,5	2,5
RF630R							
With RF620A	0,55	0,55	0,2	0,3	0,3	0,8	1,3
With RF640A	2,8	4,5	2,0	0,8	0,7	2,2	3,5
With RF642A	3,5	5,5	3,0	1,1	0,8	2,8	5,0
With RF660A	4,0	6,0	3,0	1,2	0,9	3,0	5,0

Typical ranges are listed (in m) at a room temperature of 25 °C. Ranges depend on the environmental conditions and may be longer or shorter depending on the surroundings. With the RF620T, the information applies to mounting on a nonmetallic base, with the RF625T when mounted on metal.

Technical specifications transponders - ranges

Smart Label	RF622L	RF630L -2AB00, -2AB02-0AX0	RF630L -2AB03	RF640L	RF680L	RF690L
RF650R						
With RF620A	0,4	0,95	0,6	0,35	0,6	0,7
With RF640A	2,5	4,6	4,0	2,0	2,3	3,0
With RF642A	3,0	8,0	5,0	2,5	4,0	4,5
With RF650A	2,5	4,6	3,0	2,0	2,3	3,0
With RF660A	3,0	8,0	5,0	3,5	4,0	5,0
With RF680A	2,2	4,0	3,0	1,8	2,0	2,7
RF680R						
With RF620A	0,4	1,35	0,85	0,35	0,85	0,7
With RF640A	2,5	6,0	4,0	2,0	3,0	3,0
With RF642A	3,0	8,0	5,0	2,5	4,0	4,5
With RF650A	4,0	6,5	4,0	1,8	4,5	5,1
With RF660A	3,0	8,0	5,0	3,5	4,0	5,0
With RF680A	3,6	8,0	4,9	2,2	5,1	5,1
RF685R						
Internal Antenna	3,0	7,0	4,0	3,0	3,5	4,0
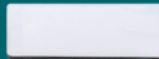
Typical ranges are listed (in m) at a room temperature of 25 °C. Ranges depend on the environmental conditions and may be longer or shorter depending on the surroundings. With the RF620T, the information applies to mounting on a nonmetallic base, with the RF625T when mounted on metal.

Technical specifications transponders - ranges
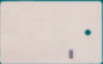
Transponder	RF610T	RF620T	RF622T	RF625T	RF630T	RF640T	RF680T
RF650R							
With RF620A	0,6	0,6	0,4	0,35	0,3	0,6	0,6
With RF640A	3,0	4,6	2,5	1,2	1,5	3,0	3,0
With RF642A	5,0	8,0	3,0	1,5	2,0	4,0	4,0
With RF650A	3,0	4,6	2,5	1,2	1,5	3,0	3,0
With RF660A	5,0	8,0	3,0	1,5	2,0	4,0	4,0
With RF680A	3,0	4,0	2,2	1,0	1,3	2,7	2,7
RF680R							
With RF620A	0,85	0,85	0,4	0,5	0,4	0,9	0,9
With RF640A	4,0	6,0	2,5	1,2	2,0	4,0	4,0
With RF642A	5,0	8,0	3,0	1,5	2,0	4,0	4,0
With RF650A	3,7	8,0	3,1	1,3	2,0	4,2	5,0
With RF660A	5,0	8,0	3,0	1,5	2,0	4,0	4,0
With RF680A	5,1	8,0	4,3	2,0	2,0	4,3	5,0
RF685R							
Internal Antenna	4,5	7,0	3,0	1,5	2,0	4,0	4,0

Typical ranges are listed (in m) at a room temperature of 25 °C. Ranges depend on the environmental conditions and may be longer or shorter depending on the surroundings. With the RF620T, the information applies to mounting on a nonmetallic base, with the RF625T when mounted on metal.

Technical specifications : Labels

SIEMENS

Feature	RF622L	RF630L	RF640L
Technology	EPC Class1 Gen2, 496 Bit	EPC Class1 Gen2, 240 Bit	EPC Class1 Gen2, 96/480 Bit
User memory	3424 Byte	-	64/16 Byte
Transponderchip	Fujitsu MB97R803	IMPINJ MONZA 2 IMPINJ MONZA 4QT NXP G2XM	Alien Higgs 3
Standard	ISO 18000-6C	ISO 18000-6C	ISO 18000-6C
Frequency band	860 … 960 MHz (for ETSI and FCC)	865..928 MHz (for ETSI and FCC)	865..868 MHz (ETSI-Variant), 902..928 MHz (FCC-Variant)
Operating temperature	-20°C … +85°C	-40°C to +65°C	-25°C to +85°C
Write/read distance	3 m	With cardboard, plastic, wood: typically up to 6 m Plastic inlay: 54 x 34 mm typically up to 3 m	Typ. Up to 4 m
Printable	Yes	Yes with thermotransfer method	Yes
Degree of protection	IP64, in glued situation	-	IP67
Operation on metal	No	No	Yes

Technical specifications : Labels

SIEMENS
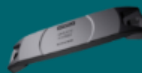
Feature	RF680L	RF690L
Technology	EPC Class1 Gen2, 240Bit	EPC Class1 Gen2, 96/480
User memory	64 Byte	64/16 Byte
Transponderchip	NXP G2XM	Alien Higgs3
Standard	ISO 18000-6C	ISO 18000-6C
Frequency band	865 … 928 MHz (for ETSI and FCC)	865..868 MHz (ETSI-Variant) 902..928 MHz (FCC-Variant)
Operating temperature	-25°C to +200°C	-20°C to +85°C (higher temperature on request)
Write/read distance	max. 4 m	Typ. Up to 4,5 m
Printable	Yes with thermal transfer process	Yes
Degree of protection	-	IP67
Operation on metal	No	Yes

Technical specifications : Transponders

Feature	RF610T	RF620T	RF622T	RF625T
Technology	EPC Class1 Gen2, 240 Bit	EPC Class1 Gen2, 128 Bit	EPC Class1 Gen2, 496	EPC Class1 Gen2, 128 Bit
User memory	64 Byte	-	3424 Byte	64 Byte
Transponderchip	NXP G2XM	IMPINJ MONZA 4QT	Fujitsu MB97R803	IMPINJ MONZA 4QT
Standard	ISO 18000-6C	ISO 18000-6C	ISO 18000-6C	ISO 18000-6C
Frequency band	865..928 MHz (for ETSI and FCC)	860..960 MHz (for ETSI and FCC)	860 … 960 MHz	865..868 MHz (ETSI-variant), 902..928 MHz (FCC-variant)
Operating temperature	-25°C to +85°C	-25°C to +85°C	-20°C to +85°C	-25°C to+85°C
Write/read distance	Typ. Up to 5 m (plastic, wood)	Typ. Up to 8 m (plastic, wood) Typ. bis 4 m (metal with spacer) Typ. Up to 2 m (metal without spacer)	3 m (depending on reader) 1 m (metal with spacer)	Typ. 1.8 m (on metal) Typ. 1.2 m (on non-conductive materials) Typ. 0.6 m (flush in metal)
Printable	Yes	Yes (lasermarking)	Yes (lasermarking)	No
Degree of protection	IP67	IP67	IP67	IP68
Operation on metal	Yes (with spacer)	Yes	Ja (with spacer)	Yes (flush in metal, 10 mm free surroundings)

Technical specifications : Transponders

SIEMENS

Feature	RF630T	RF640T	RF680T
Technology	EPC Class1 Gen2, 240 Bit	EPC Class1 Gen2, 240 Bit	EPC Class1 Gen2, 240 Bit
User memory	64 Byte	64 Byte	64 Byte
Transponderchip	NXP G2XM	NXP G2XM	NXP G2XM
Standard	ISO 18000-6C	ISO 18000-6C	ISO 18000-6C
Frequency band	865..868 MHz (ETSI-variant), 902..928 MHz (FCC-variant)	865..868 MHz (ETSI-variant), 902..928 MHz (FCC-variant)	865..928 MHz (for ETSI and FCC)
Operating temperature	-25°C to +85°C	-25°C to +220°C	-25°C to +220°C
Write/read distance	Typ. Up to 1,5 m	Typ. Up to 4 m (plastic, wood) Typ. Up to 2 m (metal)	Typ. Up to 4 m (plastic, wood) Typ. Up to 2 m (metal)
Printable	No	No	No
Degree of protection	IP68/ IPx9K	IP68/ IPx9K	IP68/ IPx9K
Operation on metal	Yes (must be mounted to be electrically conductive on metal)	Yes	Yes

SIMATIC RF622L in detail

L x B x H: 90 x 18 x 0,3 mm
Order number: 6GT2810-4HC80
Minimum order quantity: 500 pieces (500 pieces on a roll)

Technology	EPC Class1 Gen2, 496 Bit
User memory	3424 Byte
Transponderchip	Fujitsu MB97R803
Standard	ISO 18000-6C
Frequency band	860 … 960 MHz
Operating temperature	-20°C … +85°C
Write/read distance	3 m
Printable	Yes
Degree of protection	IP64, in glued condition
Operation on metal	No

SIMATIC RF630L in detail
(-2AB00)

L x B :   4" x 6" (-2AB00)
Order number :   6GT2810-2AB00
Minimum order quantity: :   1600 pieces (800 pieces on a roll for…-2AB00)

Technology	EPC Class1 Gen2, 96 Bit
User memory	12 Byte
Transponderchip	IMPINJ MONZA 2
Standard	ISO 18000-6C
Frequency band	860..960 MHz (for ETSI and FCC)
Operating temperature	-40°C to+65°C
Write/read distance	max. 8 m
Printable	Yes with thermal transfer process
Degree of protection	None, the label has to be protected against humidity
Operation on metal	No

SIMATIC RF630L in detail
(-2AB02-0AX0)

L x B :   97 x 27 mm
Order number :   6GT2810-2AB02-0AX0
Minimum order quantity: :   5000 pieces (5000 pieces on a roll)

Technology	EPC Class1 Gen2, 128 Bit
User memory	64 Byte
Transponderchip	IMPINJ MONZA 4QT
Standard	ISO 18000-6C
Frequency band	865..928 MHz (for ETSI and FCC)
Operating temperature	-40°C to +65°C
Write/read distance	Max. 5m
Printable	Yes with thermal transfer process
Degree of protection	IP65
Operation on metal	No

SIMATIC RF630L in detail
(-2AB03)

SIEMENS

L x B: 54 x 34 mm
Order number :   6GT2810-2AB03
Minimum order quantity: :   2000 pieces (2000 pieces on a roll)

Technology	EPC Class1 Gen2, 240 Bit
User memory	64 Byte
Transponderchip	NXP G2XM
Standard	ISO 18000-6C
Frequency band	865..928 MHz (for ETSI and FCC)
Operating temperature	-40°C to +65°C
Write/read distance	Max. 5m
Printable	Yes with thermal transfer process
Degree of protection	IP65
Operation on metal	No

SIMATIC RF640L in detail

L x B x H: 50 x 22,5 x 1,6 mm
Order number :   6GT2810-2AC00 (ETSI)
                                    6GT2810-2AC10 (FCC)

Minimum order quantity: 500 pieces (500 pieces on a roll)

Technology	EPC Class1 Gen2, 96/480 Bit
User memory	64/16 Byte
Transponderchip	Alien Higgs 3
Standard	ISO 18000-6C
Frequency band	Europe: 865..868MHz /USA and Canada: 902 ... 928 MHz
Operating temperature	-25°C to +85°C
Write/read distance	Typ. Up to 4 m
Printable	Yes
Degree of protection	IP67
Operation on metal	Yes

SIMATIC RF680L in detail
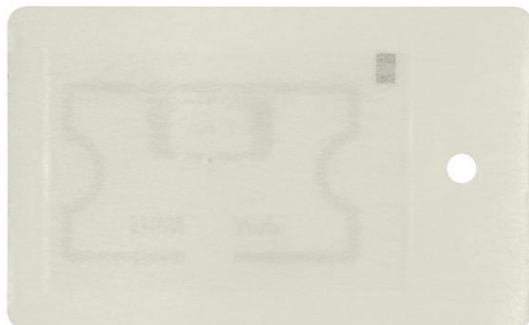
L x B x H: 89 x 54 x 0,3 mm
Order number :   6GT2810-2AG80
Minimum order quantity: 1000 pieces (1000 pieces on a roll)

Technology	EPC Class1 Gen2, 240 Bit
User memory	64 Byte
Transponderchip	NXP G2XM
Standard	ISO 18000-6C
Frequency band	865 … 928 MHz (for ETSI and FCC)
Operating temperature	-25°C to +200°C
Write/read distance	max. 4 m
Printable	Yes with thermal transfer process
Degree of protection	IP60
Operation on metal	No

SIMATIC RF690L in detail

L x B x H:

88 x 25 x 1,6 mm (-AG00)

77 x 25 x 1,6 mm (-AG10)

Order number :

6GT2810-2AG00 (ETSI)

6GT2810-2AG10 (FCC)

Minimum order quantity:

400 pieces (400 pieces on a roll)

Technology	EPC Class1 Gen2, 96/480 Bit
User memory	64/16 Byte
Transponderchip	Alien Higgs 3
Standard	ISO 18000-6C
Frequency band	Europe: 865 ... 868MHz / USA and Canada: 902 ... 928 MHz
Operating temperature	-20°C to+85°C (higher temperatures on demand)
Write/read distance	Typ. Up to 4,5 m
Printable	Yes
Degree of protection	IP67
Operation on metal	Yes

SIMATIC RF610T in detail

SIEMENS

L x B x H: 86 x 54 x 0,4 mm
Order number :   6GT2810-2BB80
Minimum order quantity: 500 pieces

Technology	EPC Class1 Gen2, 240 Bit
User memory	64 Byte
Transponderchip	NXP G2XM
Standard	ISO 18000-6C
Frequency band	865..928 MHz (for ETSI and FCC)
Operating temperature	-25°C to +85°C
Write/read distance	Typ. Up to 5 m (plastic, wood)
Printable	Yes
Degree of protection	IP67
Operation on metal	Yes (with spacer)

SIMATIC RF620T in detail

L x B x H: 127 x 38 x 6 mm
Order number :   6GT2810-2HC81
Minimum order quantity: 20 pieces

Technology	EPC Class1 Gen2, 128 Bit
User memory	64 Byte
Transponderchip	IMPINJ MONZA 4QT
Standard	ISO 18000-6C
Frequency band	860..960 MHz (for ETSI and FCC)
Operating temperature	-25°C to +85°C
Write/read distance	Typ. Up to 8 m (plastic, wood) / Typ. bis 4 m (metal with spacer) / Typ. Up to 2 m (metal without spacer)
Printable	Yes (lasermarking)
Degree of protection	IP67
Operation on metal	Yes

SIMATIC RF622T in detail

L x B x H:	120 x 30 x 6,5 mm
Order number :	6GT2810-4HC80
Minimum order quantity:	10 pieces

Technology	EPC Class1 Gen2, 496 Bit
User memory	3424 Byte
Transponderchip	Fujitsu MB97R803
Standard	ISO 18000-6C
Frequency band	860 … 960 MHz
Operating temperature	-20°C to +85°C
Write/read distance	3 m (depending on reader) 1 m (metal with spacer)
Printable	Yes (lasermarking)
Degree of protection	IP67
Operation on metal	Ja (with spacer)

SIMATIC RF625T in detail

D x H:	30 x 8 mm
Order number :	6GT2810-2EE00 (ETSI)
	6GT2810-2EE01 (FCC)
Minimum order quantity:	10 pieces

Technology	EPC Class1 Gen2, 128 Bit
User memory	64 Byte
Transponderchip	IMPINJ MONZA 4QT
Standard	ISO 18000-6C
Frequency band	865..868 MHz (ETSI-variant), 902..928 MHz (FCC-variant)
Operating temperature	-25°C to+85°C
Write/read distance	Typ. 1.8 m (on metal) / Typ. 1.2 m (on non-conductive materials) / Typ. 0.6 m (flush in metal)
Printable	No
Degree of protection	IP68
Operation on metal	Yes (flush in metal, 10 mm free surroundings)

SIMATIC RF630T in detail

D x H: 21 x 21 mm / SW19

Order number :   6GT2810-2EC00 (ETSI)
                        6GT2810-2EC10 (FCC)

Minimum order quantity: 10 pieces

Technology	EPC Class1 Gen2, 240 Bit
User memory	64 Byte
Transponderchip	NXP G2XM
Standard	ISO 18000-6C
Frequency band	865..868 MHz (ETSI-variant), 902..928 MHz (FCC-variant)
Operating temperature	-25°C to +85°C
Write/read distance	Typ. Up to 1,5 m
Printable	No
Degree of protection	IP68/ IPx9K
Operation on metal	Yes (must be mounted to be electrically conductive on metal)

SIMATIC RF640T in detail

D x H: 50 x 8 mm

Order number :   6GT2810-2DC00 (ETSI)
                                    6GT2810-2DC10 (FCC)

Minimum order quantity: 10 pieces

Ex

II 2 G Ex ib IIC T6 up to T3 Gb,
II 2 D Ex ib IIIB T135° C Db

Technology	EPC Class1 Gen2, 240 Bit
User memory	64 Byte
Transponderchip	NXP G2XM
Standard	ISO 18000-6C
Frequency band	865..928 MHz (for ETSI and FCC)
Operating temperature	-25°C to +220°C
Write/read distance	Typ. Up to 4 m (plastic, wood) Typ. Up to 2 m (metal)
Printable	No
Degree of protection	IP68/ IPx9K
Operation on metal	Yes

SIMATIC RF680T in detail

L x B x H: 130 x 32 x 15 mm
Order number :   6GT2810-2HG80
Minimum order quantity: 10 pieces

II 2G Ex ib IIB T6 up to T2 Gb,
II 2D Ex ib IIIB T135 ° C Db

Technology	EPC Class1 Gen2, 240 Bit
User memory	64 Byte
Transponderchip	NXP G2XM
Standard	ISO 18000-6C
Frequency band	865..928 MHz (for ETSI and FCC)
Operating temperature	-25°C to +220°C
Write/read distance	Typ. Up to 4 m (plastic, wood) Typ. Up to 2 m (metal)
Printable	No
Degree of protection	IP68/ IPx9K
Operation on metal	Yes

Integration
RF600 in the automation environment
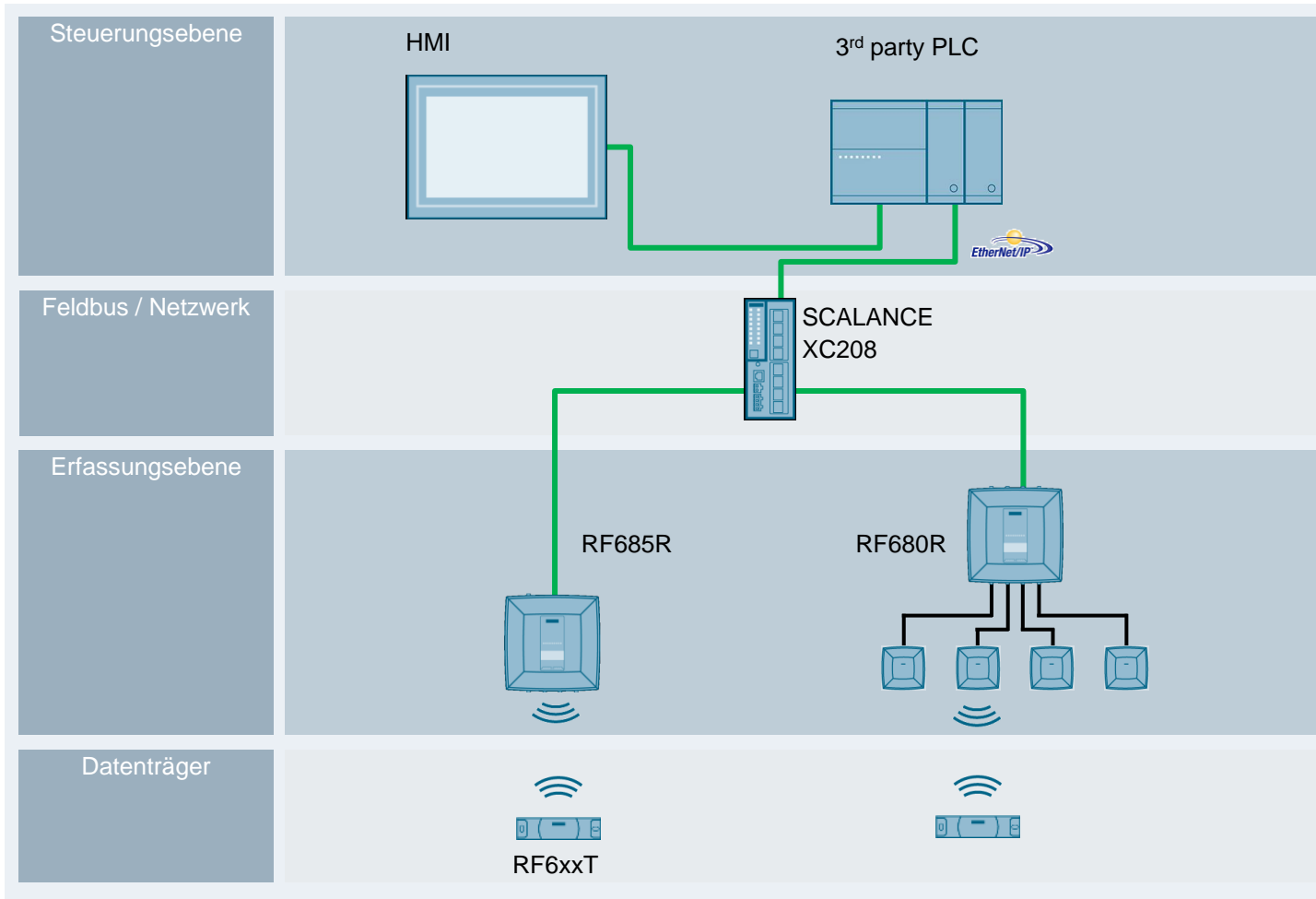

SIEMENS
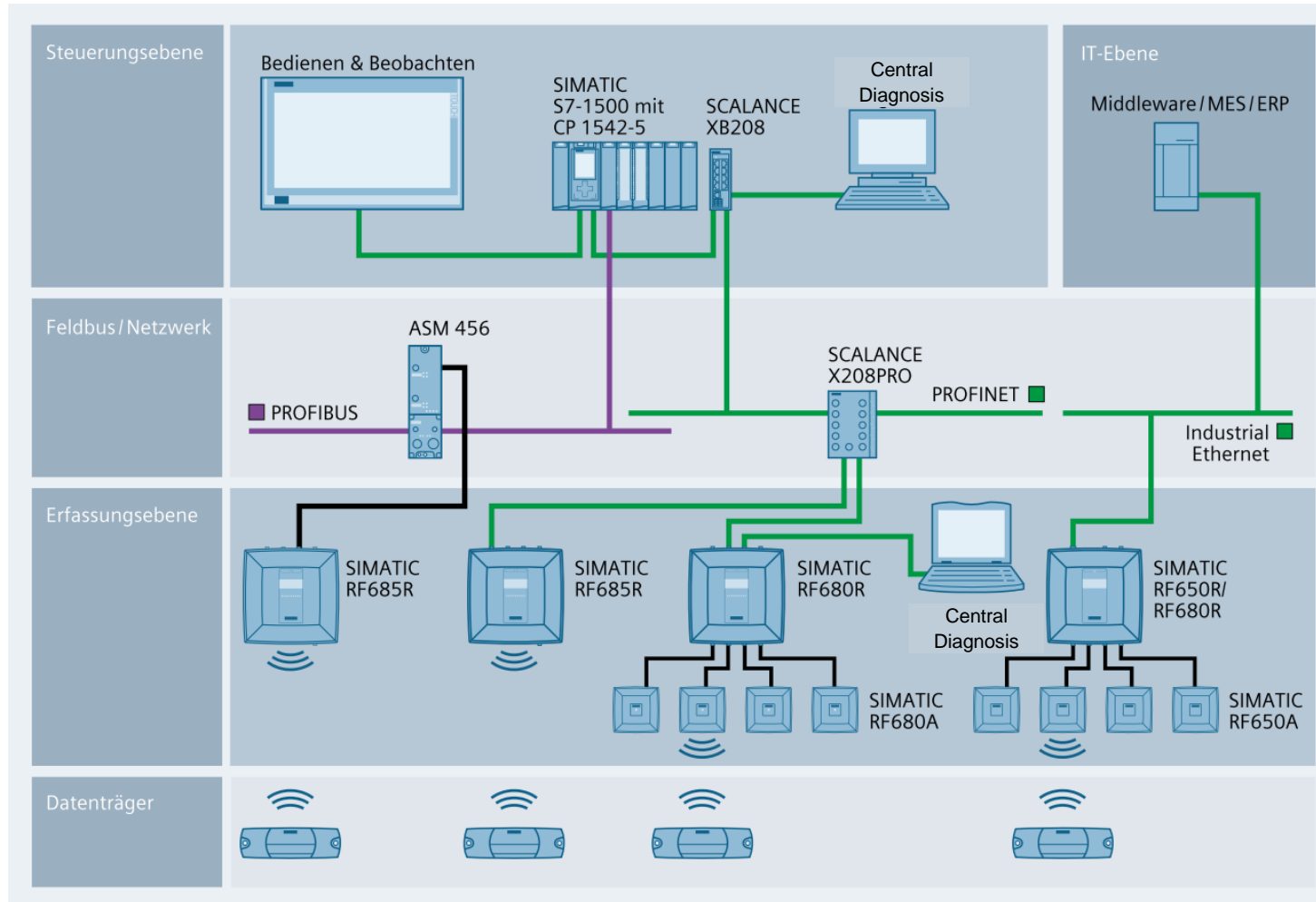
1. Direct integration of RF680R/RF685R in PROFINET networks

2. Device selection in the hardware catalog in TIA Portal

3. Programming using standard function blocks (Ident profile)

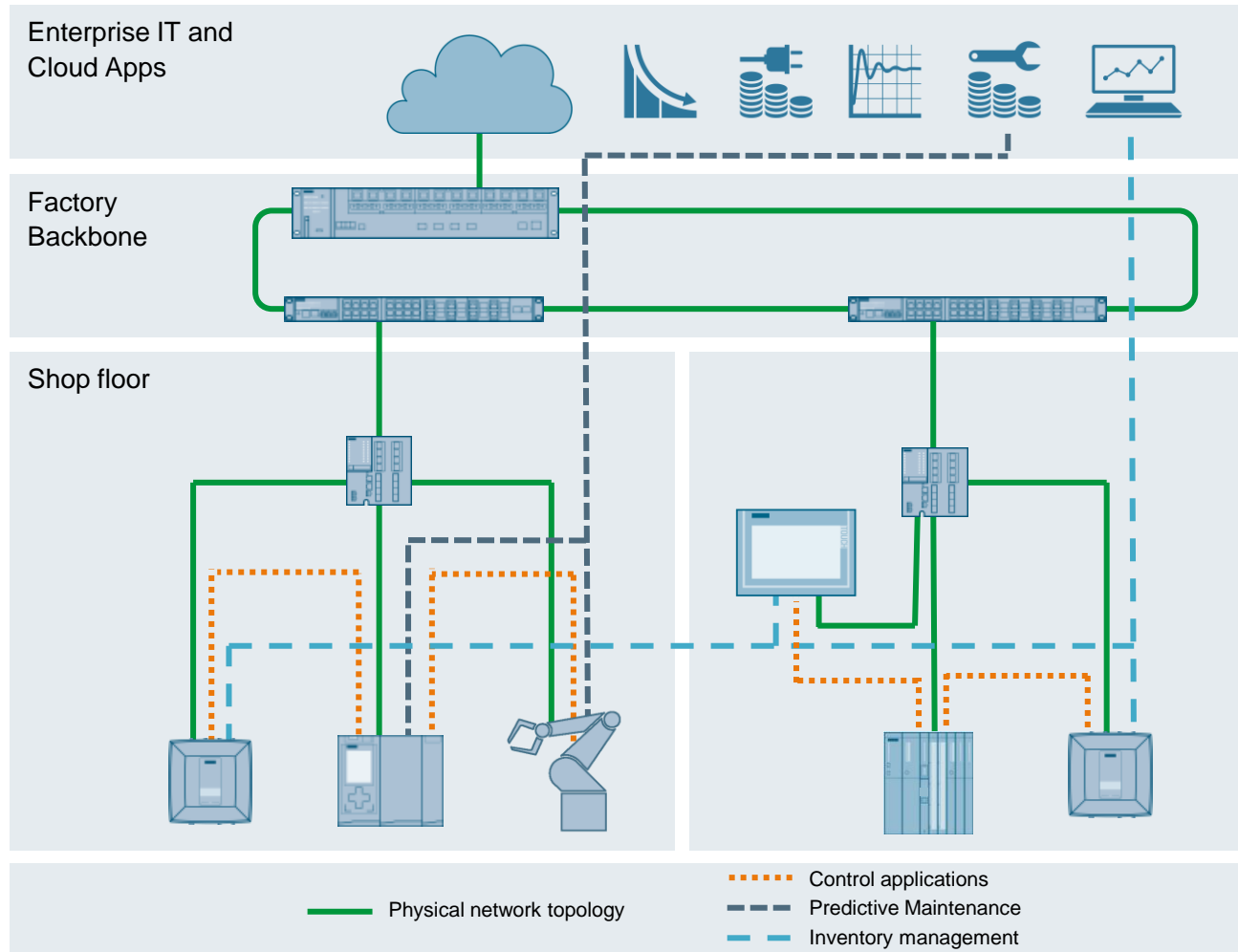4. Direct access to the Web Based Management from TIA Portal

Integration
RF600 in the automation environment

1. Direct integration of RF680R/RF685R in Ethernet/IP infrastructure

2. Downloading of EDS file from reader for integration in target system

3. Programming via add-on instructions (e.g. for Rockwell/AB)

Steuerungsebene

HMI

3rd party PLC

EtherNet/IP

Feldbus / Netzwerk

SCALANCE
XC208

Erfassungsebene

RF685R

RF680R

Datenträger

RF6xxT

Integration
RF600 with OPC UA

Enterprise IT and Cloud Apps

Factory Backbone

Shop floor

- Physical network topology
- Control applications
- Predictive Maintenance
- Inventory management

- OPC UA ermöglicht eine direkte Integration von RF600 Readern in Steuerungen, HMI, IT oder andere Automatisierungs- oder Datenverarbeitungssysteme.

- Voraussetzung ist ein OPC UA Client, der die OPC UA for Auto ID Companion Specification unterstützt.

- Die Integration erfolgt über eine Ethernetbasierende Infrastruktur.

Migration
RF620R/630R auf RF685R/680R with 3rd party (via Ethernet/IP)

3rd Party PLC

Ethernet/IP

RFID
181 EIP

RF620R

3rd Party PLC
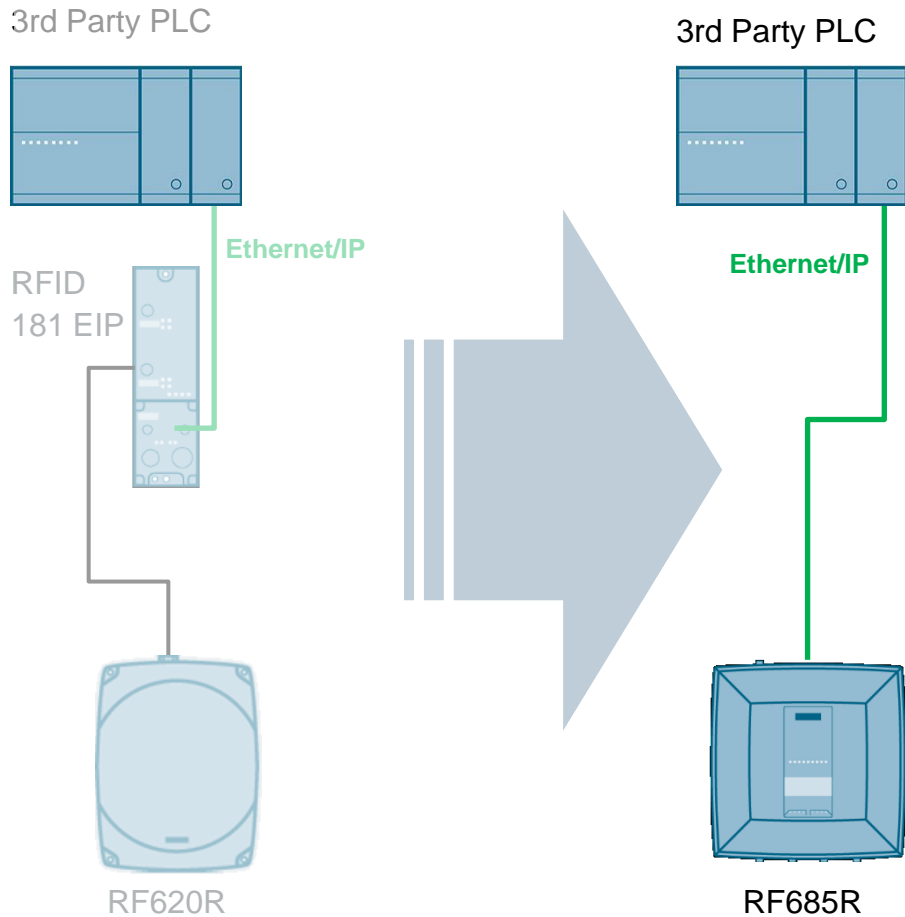
Ethernet/IP

RF685R

Method for migration from RF620R to RF685R or from RF630R to RF680R

1. Direct integration of RF680R/RF685R in Ethernet/IP infrastructure (without communication module)

2. Downloading of EDS file from reader for integration in target system

3. Programming via add-on instructions (e.g. for Rockwell/AB) of the current version

4. Configuration, commissioning and diagnostics by Web-based management (WBM) in an Internet browser

Agenda

Ordering data

Device	MLFB	Description
RF680R	**ETSI:** **6GT2811-6AA10-0AA0** **FCC:** **6GT2811-6AA10-1AA0** **CMIIT:** **6GT2811-6AA10-2AA0** **ARIB:** **6GT2811-6AA10-4AA0**	▪ 4 external antenna connectors ▪ PROFINET, Ethernet/IP, OPC UA integrated ▪ RS422 interface for connection to PROFIBUS via ASM456 ▪ TIA integrated ▪ Transmit power 33 dBm ▪ Extended LED display ▪ Extensive diagnostics and commissioning tools ▪ IP65
RF685R	**ETSI:** **6GT2811-6CA10-0AA0** **FCC:** **6GT2811-6CA10-1AA0** **CMIIT:** **6GT2811-6CA10-2AA0** **ARIB:** **6GT2811-6CA10-4AA0**	▪ Integrated adaptive antenna ▪ PROFINET, Ethernet/IP, OPC UA integrated ▪ RS422 interface for connection to PROFIBUS via ASM456 ▪ TIA integrated ▪ Transmit power 33 dBm ▪ Extended LED display ▪ Extensive diagnostics and commissioning tools ▪ IP65

You will find a complete ordering overview at:
http://w3app.siemens.com/mcms/infocenter/dokumentencenter/sc/fs/InfocenterLanguagePacks/Bestell%C3%BCbersicht%20SIMATIC%20RF600/6ZB5330-0BJ02-0BA4_en.pdf

Ordering data

Device	MLFB	Description
RF650R	**ETSI:** **6GT2811-6AB20-0AA0** **FCC:** **6GT2811-6AB20-1AA0** **CMIIT:** **6GT2811-6AB20-2AA0** **ARIB:** **6GT2811-6AB20-4AA0**	▪ 4 antenna connections ▪ Transmission power 30 dBm (depending on country) ▪ Extensive diagnostic and commissioning tools ▪ IP30 ▪ OPC UA interface integrated
RF650M	**ETSI:** **6GT2813-0CA00** **FCC:** **6GT2813-0CA10**	▪ Simple operation and handling ▪ WLAN integrated ▪ High degree of protection (IP 54) ▪ High antenna radiation for wide detection range
Dockingstation for RF650M	**6GT2898-0BB00**	▪ Docking station with USB and Ethernet interfaces

You will find a complete ordering overview at:

Ordering data

Device	MLFB	Description
RF650A	6GT2812-0GB08	▪ Circular polarization ▪ Frequency range: 865 MHz to 928 MHz ▪ High protection class (IP 65) ▪ Dimensions 198 x 198 x 60 mm
RF680A	6GT2812-2GB08	▪ Polarization switchable (linear, circular) ▪ Frequency range: 865 MHz to 928 MHz ▪ 3-colors-LED ▪ High protection class (IP 65) ▪ Dimensions198 x 198 x 60 mm

You will find a complete ordering overview at:
http://w3app.siemens.com/mcms/infocenter/dokumentencenter/sc/fs/InfocenterLanguagePacks/Bestell%C3%BCbersicht%20SIMATIC%20RF600/6ZB5330-0BJ02-0BA4_en.pdf

Agenda

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Integrated industrial identification from production to delivery

Control of production and material flow	Asset Management	Supply Chain Management	Track & Trace

Typical areas of application

- Identification of transport containers at the incoming goods gate
- Production control when producing numerous variants
- Warehouse management with forklift localization
- Backtracking supplied parts and end products
- Permanent identification of parts in production networks

- Automatic booking at the outgoing goods gate
- Recording of use history for containers
- Control of service processes
- Access monitoring

References:

http://w3.siemens.com/mcms/identification-systems/en/rfid-systems/references/simatic-rf600/Pages/default.aspx

Agenda

SIMATIC RF600R
Additional information

Produktinformationen (Industry Online Support)	→	**Link**
Webseite	→	**Link**
Industry Mall	→	**Link**
CAx Downloadmanager	→	**Link**
Reference Center	→	**Link**
Bilddatenbank	→	**Link**

Support SIMATIC Ident

SIEMENS

SIMATIC NET support

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Telephone: +49 911 895-2905

Customer support

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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 only form one element of such a concept.

Customer is responsible to prevent unauthorized access to its plants, systems, machines and networks. Systems, machines and components should only be connected to the enterprise network or the Internet if necessary and only to the extent necessary and with appropriate protective measures (e.g. use of firewalls and network segmentation) in place.

Additionally, Siemens' guidelines on appropriate security measures should be observed. For more information about industrial security, please visit
http://www.siemens.com/industrialsecurity

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends applying product updates as soon as they are available and always using the latest product versions. Using versions that are obsolete or are no longer supported can increase the risk of cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under
http://www.siemens.com/industrialsecurity

Additional information

Reference reports:

http://w3.siemens.com/mcms/identification-systems/en/rfid-systems/simatic-rf600/Pages/simatic-rf-600.aspx

Online catalog (Industry Mall):

https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10030755?tree=CatalogTree

Service & Support / Manuals

http://support.automation.siemens.com/WW/llisapi.dll?func=cslib.csinfo&lang=de&siteid=csius&aktprim=0&extranet=standard&viewreg=WW&objid=18722182&treeLang=de

Configuration Guide (Siemens Intranet, English):

https://support.industry.siemens.com/cs/document/67384964/simatic-ident-configuration-guide?dti=0&dl=en&lc=de-WW

Application examples:

https://support.industry.siemens.com/cs/products?dtp=ExampleOfUse&mfn=ps&lc=en-WW

Thank you for your attention!

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