

**SIEMENS**

# Welcome

# RF-MANAGER 2008 and Service Pack 1

## Technical Overview



## RFID system components

### System

#### Highlights

#### Applications

#### Customer Benefits

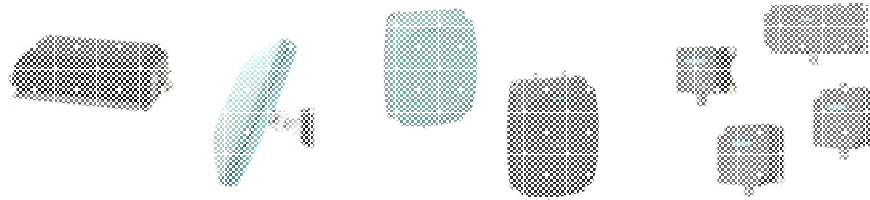
#### Functionality

#### Architecture

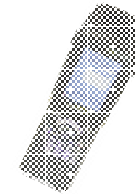
#### SW Packages

#### Tech. Data

### Stationary read/write devices



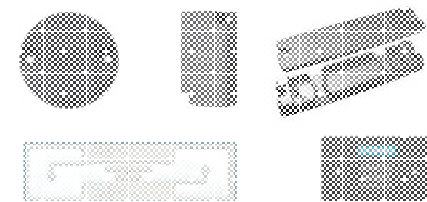
### Mobile read/write devices



### Software



### Data storage units



**Siemens offers a comprehensive UHF product spectrum**

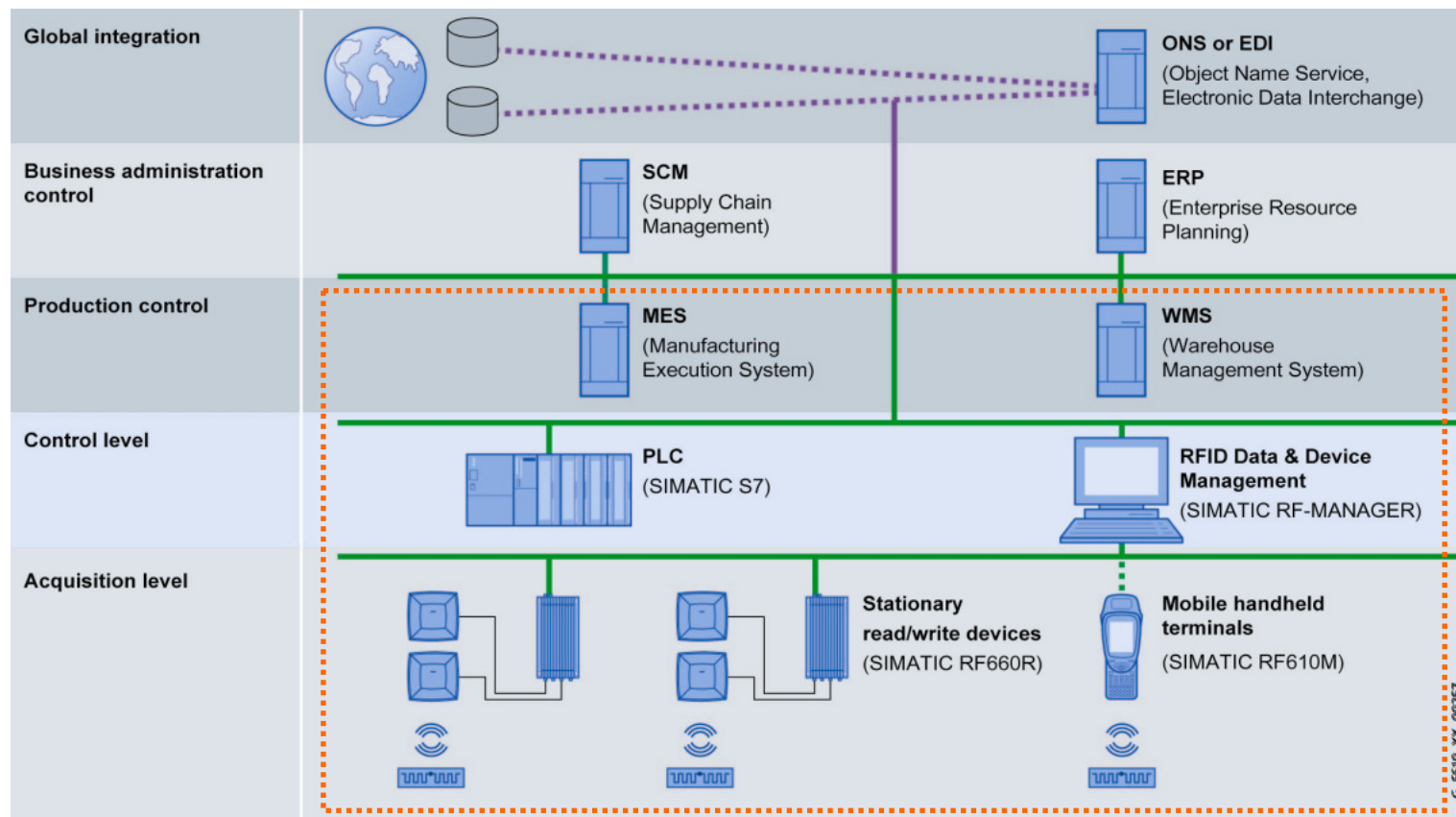
## System

## Applications

## Functionality

## SW Packages

## Tech. Data



## Vertical integration across all levels

## Automation and IT levels (2)

### System

### Highlights

### Applications

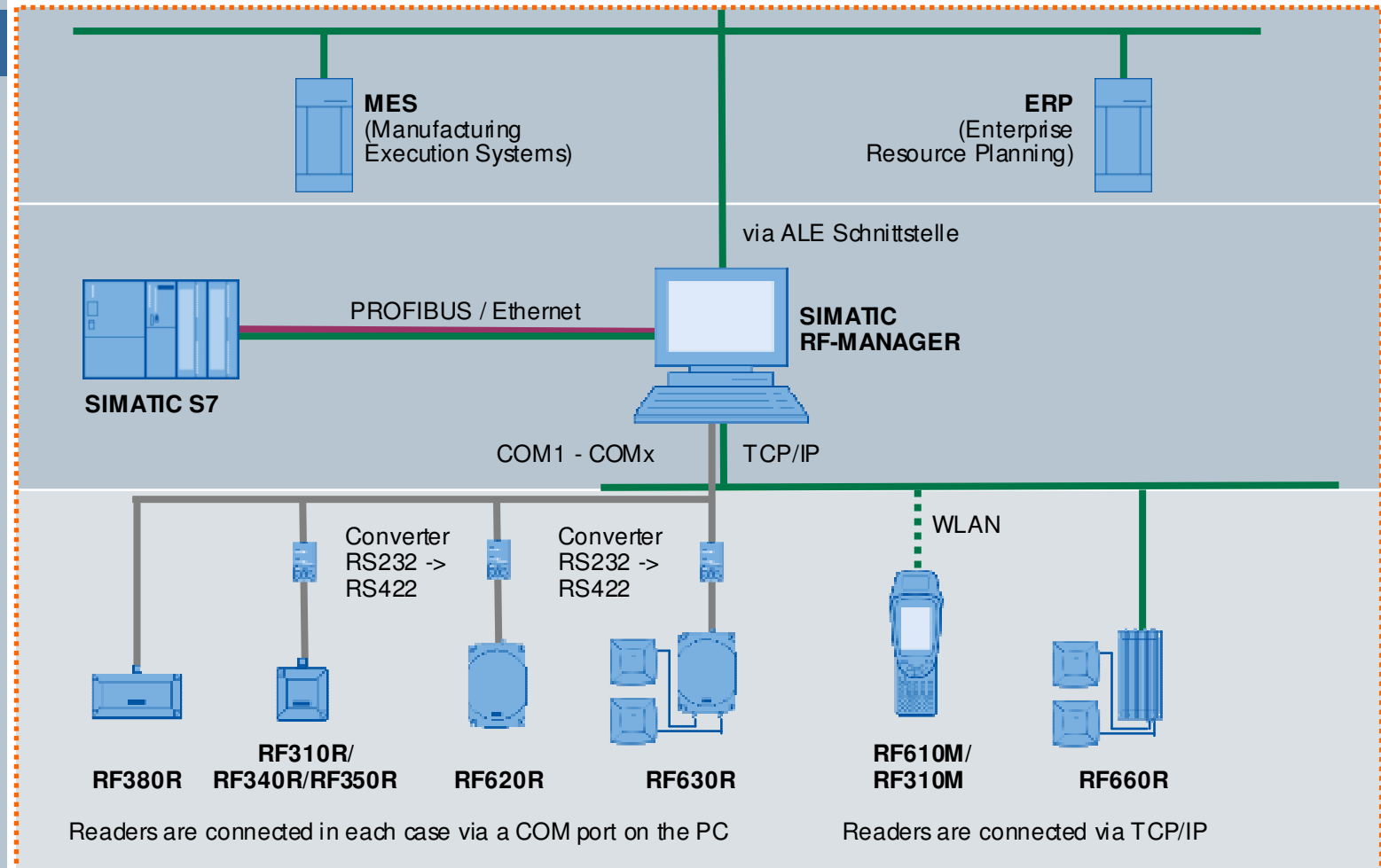
### Customer Benefits

### Functionality

### Architecture

### SW Packages

### Tech. Data



# System components and data flow (1)

## System

Highlights

Applications

Customer  
Benefits

Functionality

Architecture

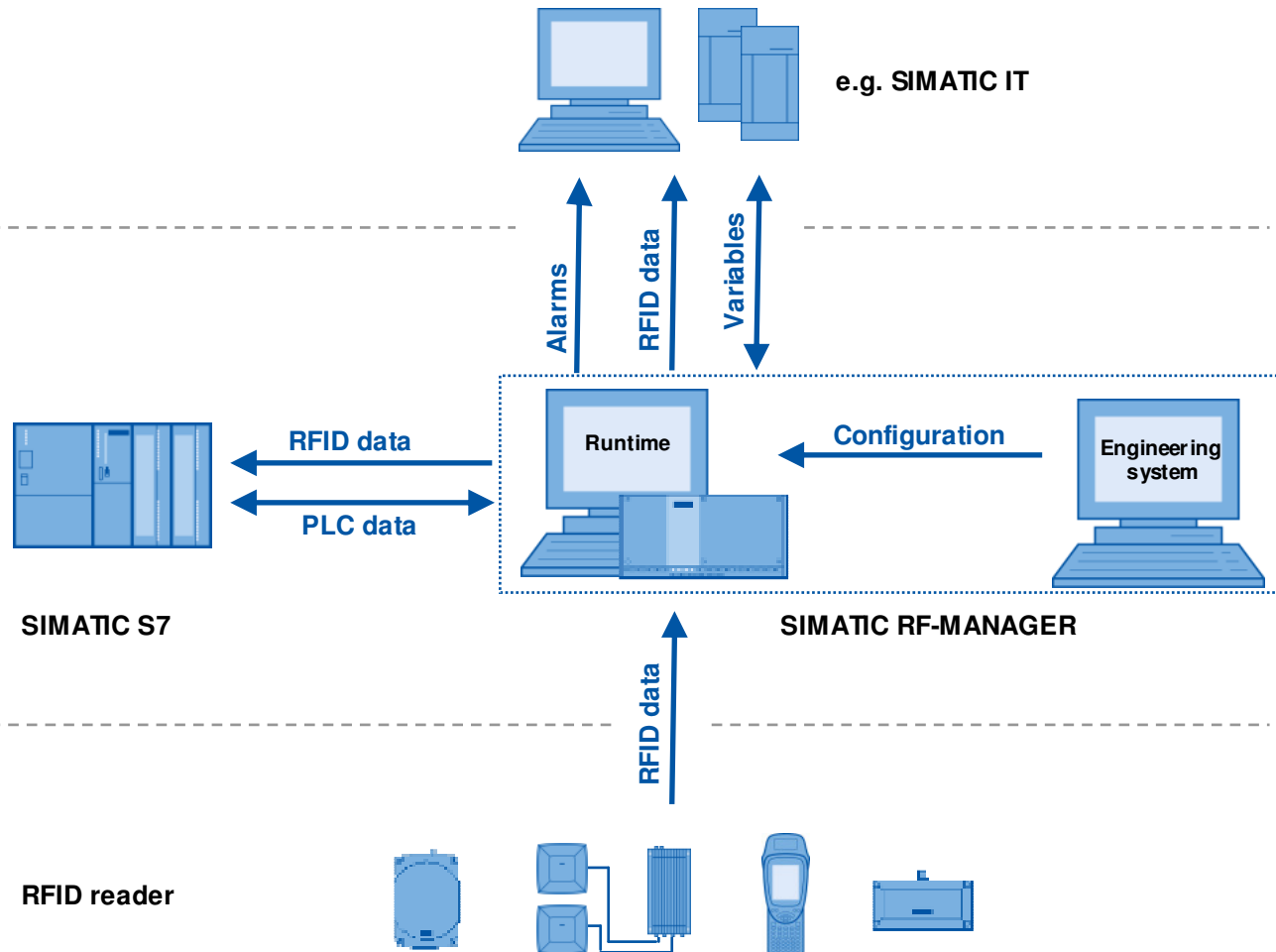
SW Packages

Tech. Data

MES/ERP  
level

Control  
level

Acquisition  
level



## System components and data flow (2)

### System

### Highlights

### Applications

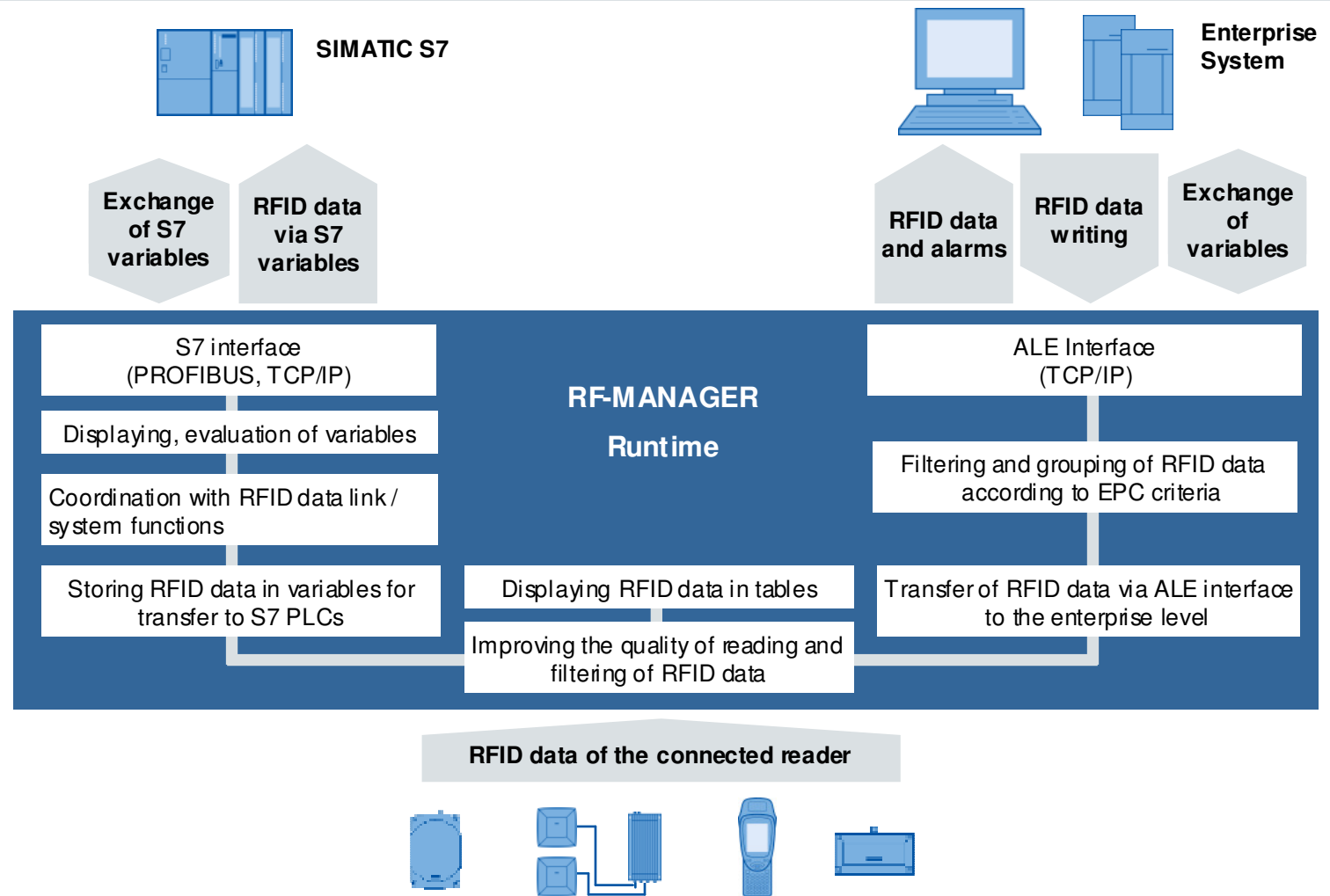
### Customer Benefits

### Functionality

### Architecture

### SW Packages

### Tech. Data



## Highlights of the RF-MANAGER 2008

### System

### Highlights

### Applications

### Customer Benefits

### Functionality

### Architecture

### SW Packages

### Tech. Data

- Uniform from the acquisition level through to data transfer to the MES/ERP level
- Supports the SIMATIC RF660R and RF610M write/read devices
- Logical combination of RFID data and PLC data through interfacing to SIMATIC S7
- Common processing / filtering of RFID and barcode data
- Easy creation of applications through simple configuration
- Independent of MES/ERP systems thanks to open ALE interface
- Investment security thanks to the use of EPCglobal standards
- Quick and easy commissioning as well as reliable operation



## Easy management of RFID systems



## Highlights of Service Pack 1 for the RF-MANAGER 2008

System

Highlights

Applications

**Highlights**

Functionality

Architecture

SW Packages

Tech. Data

- Support for the new UHF Reader RF620R and RF630R
- Support for all RF300 readers: RF310R, RF340R, RF350R, RF380R and RF310M (including ISO functionality)
- Providing uniform handling of the RF300 and RF600 readers
- Simple sample application (ALEDataBridgeClient) for storing the RFID data in CSV, XML or SQL format
- Demonstration projects for presenting the RF-MANAGER together with RF600 and RF300 readers (simple reading and writing of tag data)
- All the modifications of Hotfix 1 are included in Service Pack 1



## Manage RFID systems easily

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# Optimization of the complete supply chain with RFID software

System

Highlights

## Applications

Customer Benefits

Functionality

Architecture

SW Packages

Tech. Data

Ordering, delivery and product data



### Supplier

Production and supplier data, Proof of delivery



### Inbound log.

Incoming goods checks, Storage, Stock control



### Production

Work steps, Material selection, Quality data



### Distribution

Stock-keeping, Outbound log., Supply chain

Reliable identification and tracking of products

# Application areas of the RF-MANAGER

System

Highlights

## Applications

Customer Benefits

Functionality

Architecture

SW Packages

Tech. Data

### Warehouse and logistics

- Identification of products
- Order picking and packing
- Automatic acquisition of the flow of goods

### Production and manufacturing

- Identification of workpieces / materials
- Control of materials infeed
- Information accompanying workpieces
- PC workstations, e.g. inspection stations

### Tracking and tracing

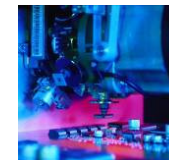
- Tracing of products
- Transparent supply chains

### Asset management

- Tracking of mobile equipment
- Stock optimization



**Automotive**



**Electronics**



**Pharmaceuticals**



**Food & Beverage**



**Airports**



**Mail logistics**

## RF-MANAGER function blocks

System

Highlights

Applications

### Customer Benefits

Functionality

Architecture

SW Packages

Tech. Data

### Business integration



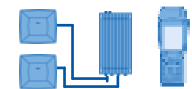
Setting up communications with the enterprise system (MES / ERP)  
Supplying RFID data to the enterprise system

### Data management



Preprocessing and evaluation of RFID data  
Logical combination of RFID data with automation data (SIMATIC S7)

### Device management



Management and configuration of the connected readers  
Monitoring and diagnosis of the readers during operation

## Functional scope and customer benefits (1)

System

Highlights

Applications

### Customer Benefits

Functionality

Architecture

SW Packages

Tech. Data

### Device management



Function	Customer benefits
Connection and operation of up to 50 readers (RF660R and RF610M) in parallel	Smooth operation of complex RFID applications with different readers
Simulation of readers Optimization of readers at runtime and display of statistical data Activation of individual readers / workstations	Quick and easy commissioning
Display of hardware status Display of status and error messages Expansion of readers / workstations	Efficient troubleshooting and diagnosis Minimization of plant downtimes
Grouping readers to form workstations Grouping antennas to form data sources	Abstraction of the hardware Performing mutually independent tasks with one reader
Reader interfacing compatible with EPCglobal reader protocol	Future-oriented due to the use of standards

## Functional scope and customer benefits (2)

System

Highlights

Applications

**Customer Benefits**

Functionality

Architecture

SW Packages

Tech. Data

### Data management



Function	Customer benefits
Reading/writing RFID data using different mechanisms (synchronous / asynchronous, system functions, ALE functions, triggers etc.)	Implementation of the application request using flexible configuration possibilities
Displaying RFID data Monitoring the RFID application	Convenient monitoring of the overall application
Sorting out irrelevant tags Filtering according to user data and EPC	Special conditioning of the RFID data is not necessary in the enterprise system
Data evaluation with scripting Activation of reader I/Os	Implementation of simple logics
Connection to SIMATIC S7 controllers over PROFIBUS and Ethernet	Logical combination of automation data with RFID data
Common processing of RFID data and barcode (RF610M)	No additional outlay necessary for processing barcode

## Functional scope and customer benefits (3)

System

Highlights

Applications

### Customer Benefits

Functionality

Architecture

SW Packages

Tech. Data

### Business integration



Function	Customer benefits
Interfacing to a higher-level enterprise system or an ALE client over an open interface (ALE)	Independent of the enterprise system used
Interfacing to a higher-level enterprise system compatible with EPCglobal ALE interface	Future-oriented thanks to the use of standards
Implementation of application-specific requirements in an ALE client	Total freedom for logical combination of the RFID data with the business data
Transfer of the RFID data to an ALE client via configurable reports	Implementation of the application request using flexible configuration possibilities
Transfer of RFID alarms to the ALE client	Information about the status of the application is available in the enterprise system

## Functional scope and customer benefits (4)

System

Highlights

Applications

Customer Benefits

Functionality

Architecture

SW Packages

Tech. Data

Business Integration

- The customer does not have to consider the underlying layers and "RFID internals"
- The ALE interface gives the customer a high degree of flexibility and investment security with regard to linking to higher levels

- Streamlined and simplified system architecture
- Quick and easy commissioning through the use of standards
- Minimization of plant downtime through efficient troubleshooting and diagnosis



# Getting started is easy with the project wizard

System

Highlights

Applications

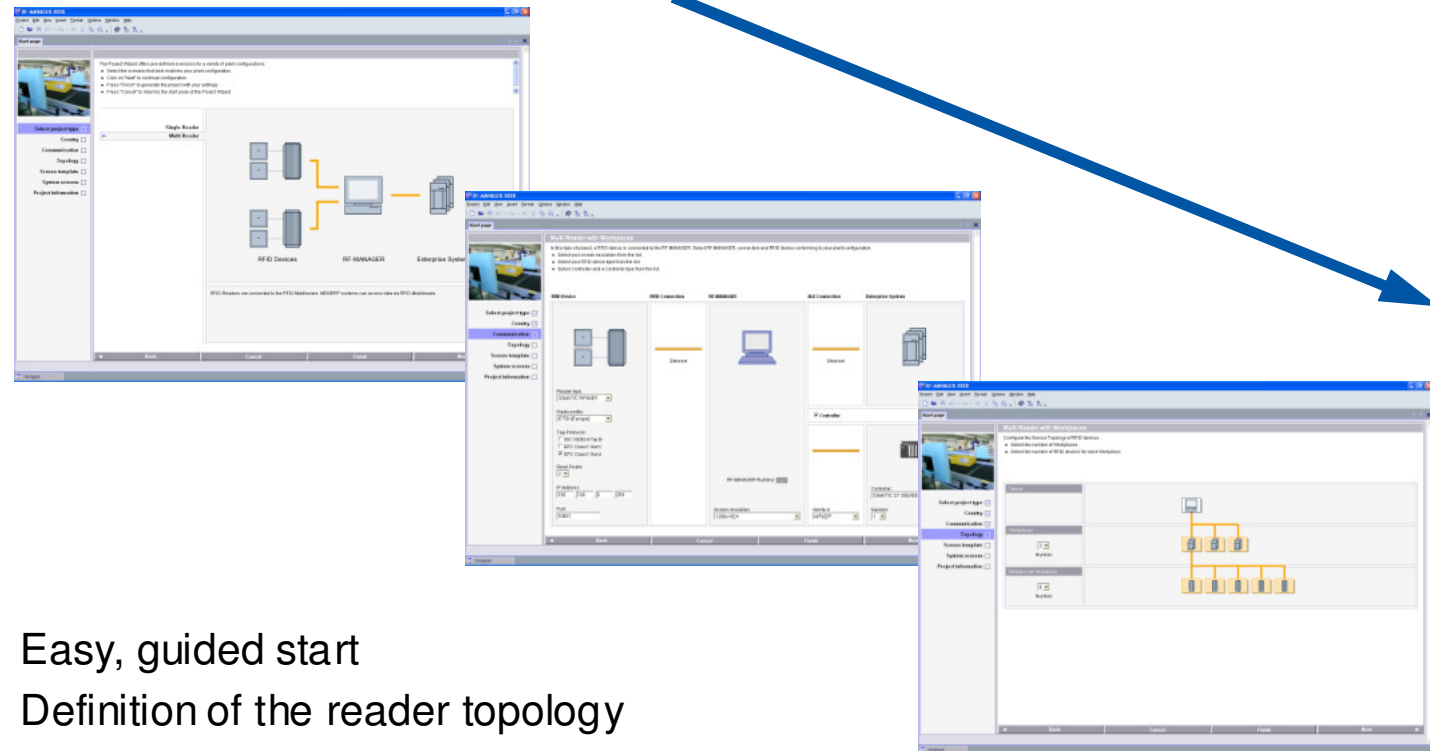
Customer  
Benefits

## Functionality

Architecture

SW Packages

Tech. Data



- Easy, guided start
- Definition of the reader topology
- Support for different scenarios
- Automatic generation of readers and screens
- Settings can be changed later in the engineering system

# Convenient engineering workbench

System

Highlights

Applications

Customer Benefits

## Functionality

Architecture

SW Packages

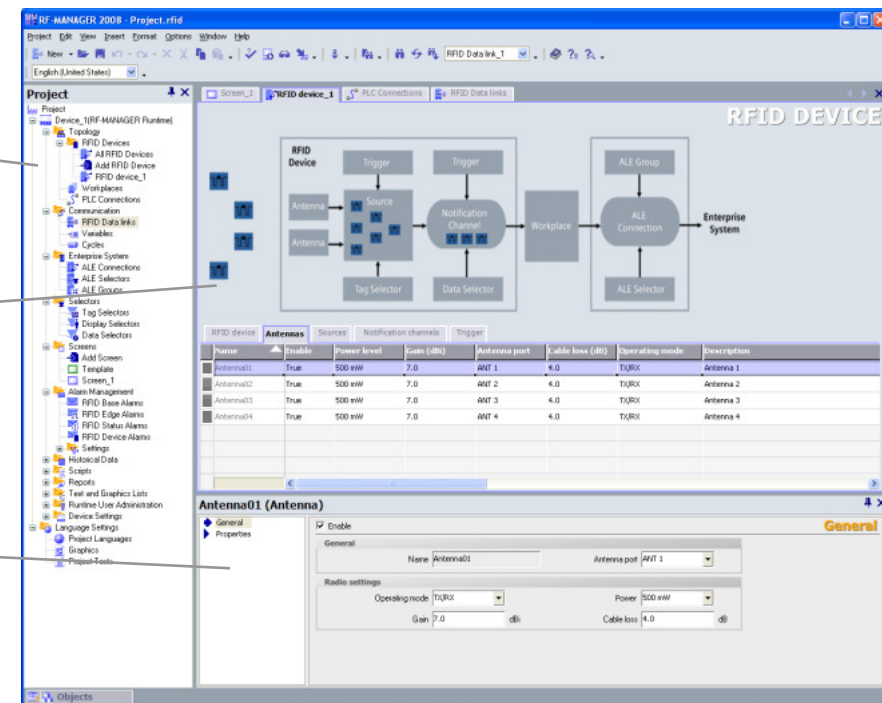
Tech. Data

- Convenient configuration (sophisticated usability, mass data editors etc.)
- Multilingual user interface
- Text library for the central management of texts
- Reader editor based on the EPCglobal object model

Project window with the objects used

Workstation with the currently opened editor

Properties area with the parameters of the current object



## One editor for all RFID devices

System

Highlights

Applications

Customer  
Benefits

Functionality

Architecture

SW Packages

Tech. Data

RFID DEVICES										
RFID devices										
Name	Communication dr...	Reader IP addr...	Port num...	Radio profile type	Switching...	Switching interval	Trigger duration	Heartbeat inte...	Me	
RFID device_1	SIMATIC RF660R	192.168.0.10001	10001	ETSI (Europe)	Yes	100	100	1000	GR	
RFID device_2	SIMATIC RF660R	192.168.0.253	10001	ETSI (Europe)	Yes	100	100	1000	GR	
RFID device_3	SIMATIC RF660R	192.168.0.253	10001	ETSI (Europe)	Yes	100	100	1000	GR	

RFID DEVICES										
Antennas										
RFID device	Name	Enable	Power level	Gain (dBi)	Antenna port	Cable loss (dB)	Operating mode	Description		
RFID device_1	Antenna02	True	500 mW	7.0	ANT 2	4.0	TX/RX	Antenna 2		
RFID device_1	Antenna03	True	500 mW	7.0	ANT 3	4.0	TX/RX	Antenna 3		
RFID device_1	Antenna04	True	500 mW	7.0	ANT 4	4.0	TX/RX	Antenna 4		
RFID device_1	Antenna01	True	500 mW	7.0	ANT 1	4.0	TX/RX	Antenna 1		
RFID device_2	Antenna03	True	500 mW	7.0	ANT 3	4.0	TX/RX	Antenna 3		
RFID device_2	Antenna01	True	500 mW	7.0	ANT 1	4.0	TX/RX	Antenna 1		
RFID device_2	Antenna04	True	500 mW	7.0	ANT 4	4.0	TX/RX	Antenna 4		
RFID device_2	Antenna02	True	500 mW	7.0	ANT 2	4.0	TX/RX	Antenna 2		

- Quick and easy set-up of RFID devices
- Attributes (e.g. power level) can be simultaneously changed for several readers
- Clear presentation of all readers in one list

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# Data and device management at runtime

System

Highlights

Applications

Customer  
Benefits

## Functionality

Architecture

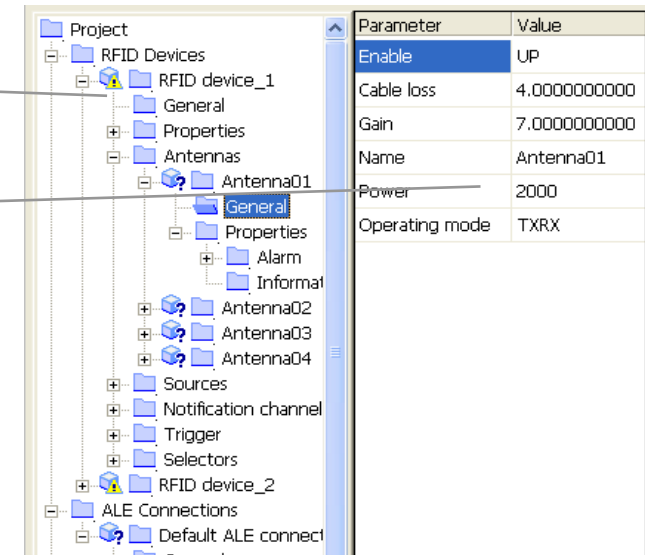
SW Packages

Tech. Data

Display of hardware status in the  
"Configuration" screen object

Optimization of parameters at  
runtime

Modified data can be copied back to  
the project



Screen for monitoring  
the application

Dynamic graphics

Display of RFID data in the  
"RFID view" screen object

# Tools for commissioning and diagnosis

System

Highlights

Applications

Customer Benefits

## Functionality

Architecture

SW Packages

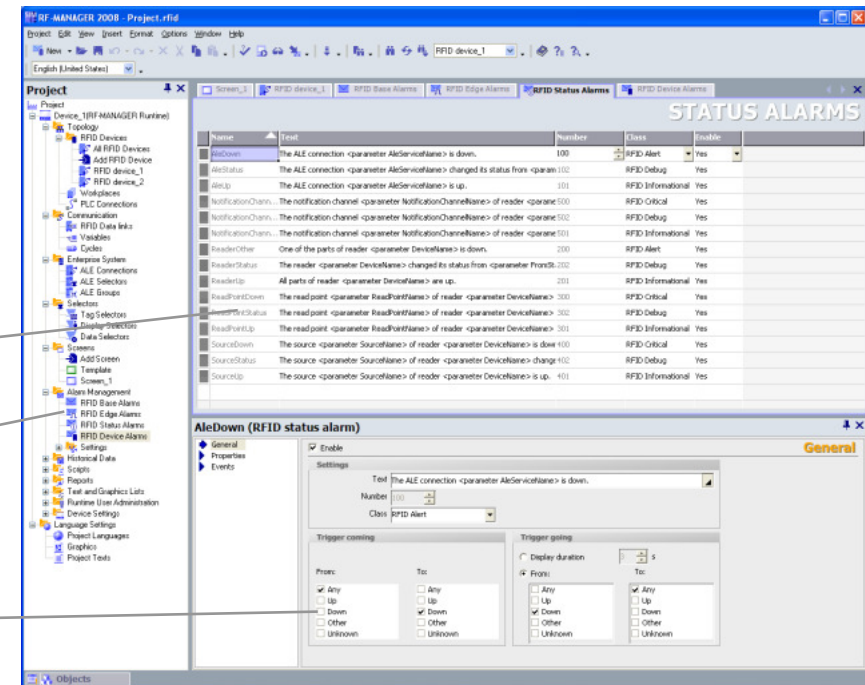
Tech. Data

- Display of RFID alarms and transfer to the enterprise system (e.g. antenna could not write, data source not ready etc.)
- Selective commissioning of readers with the help of system functions
- Expansion of the plant without any downtime (delta deployment)
- Display of hardware status in "Configuration" screen object
- Display of statistical data in the "Statistics display" screen object
- Search for all readers in the network using the engineering system

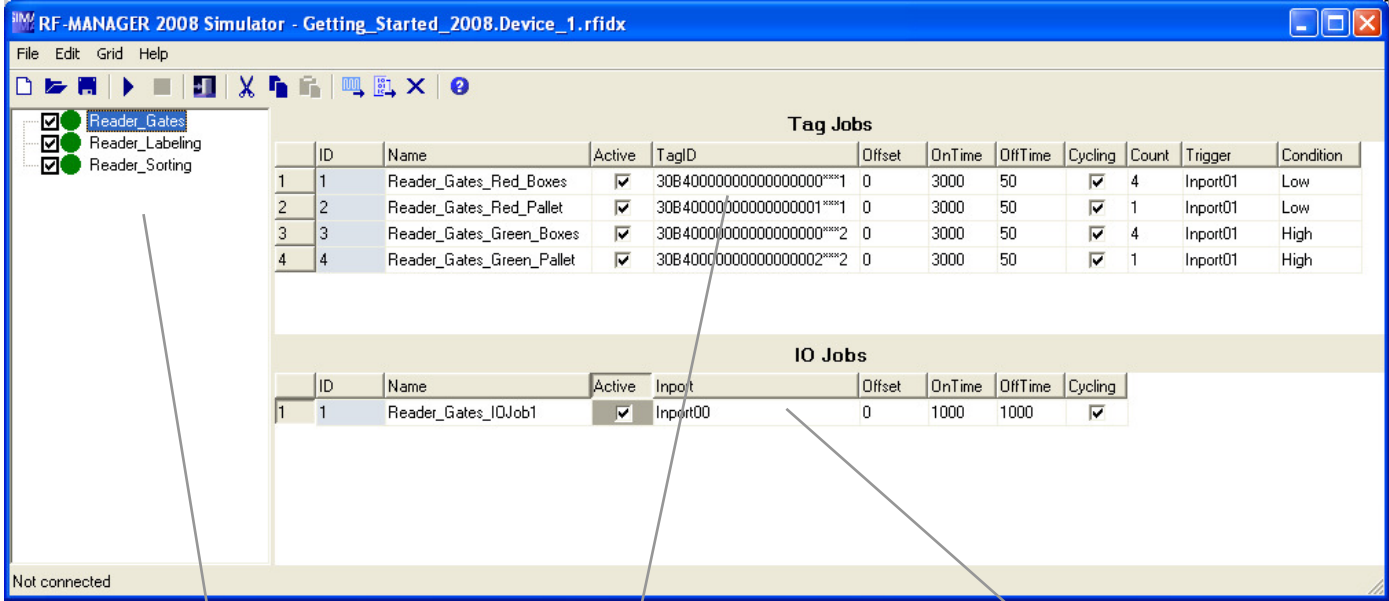
Alarm editor

Alarm types

Parameters



## Simulation of RFID data and digital inputs/outputs



Readers available in  
the project that are  
simulated

## Simulation of tag IDs

# Simulation of digital reader inputs/outputs

- Several simulation jobs are possible in parallel
- Tag IDs can be time-triggered or via inputs/outputs

# Multi-level filtering

System

Highlights

Applications

Customer Benefits

Functionality

Architecture

SW Packages

Tech. Data

## Smoothing

- Procedure for optimizing the read quality
- A status description is assigned to read events (glimpsed, observed etc.)
- Unintentionally read tags are rejected in the data selector



## Tag selector

- Mechanism for transferring/filtering data
- Defines which data areas are read or transferred
- Defines which tags are rejected and which are transferred on the basis of their data content

## ALE selector

- Reduces the volume of data for the enterprise system
- Selects data according to EPC criteria (object class, serial numbers etc.)
- Supports different EPC types (GID-96 etc.)

# Smoothing to optimize the quality of reading

System

Highlights

Applications

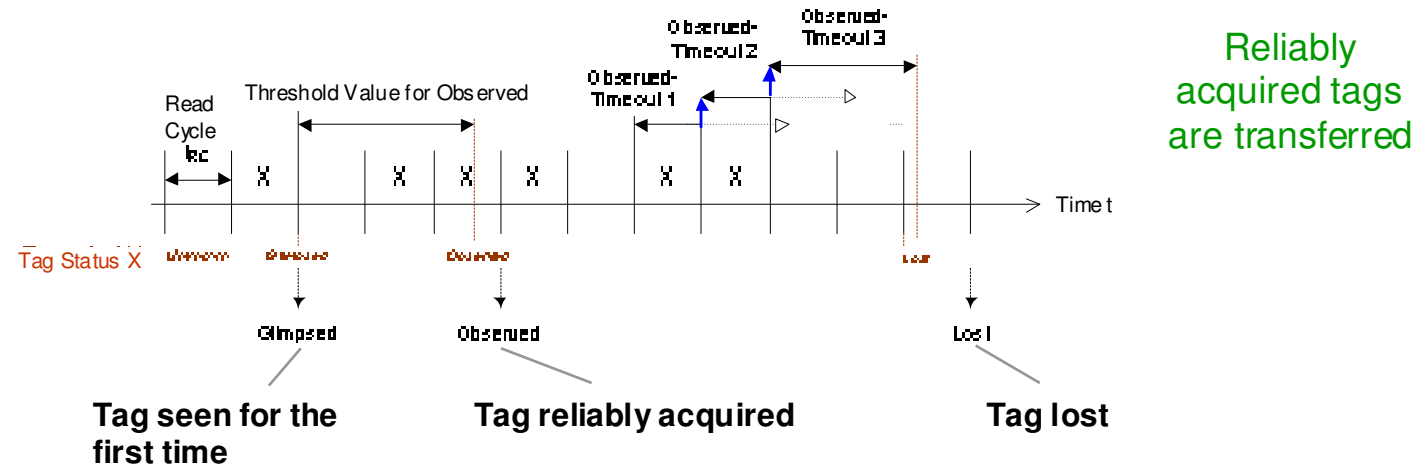
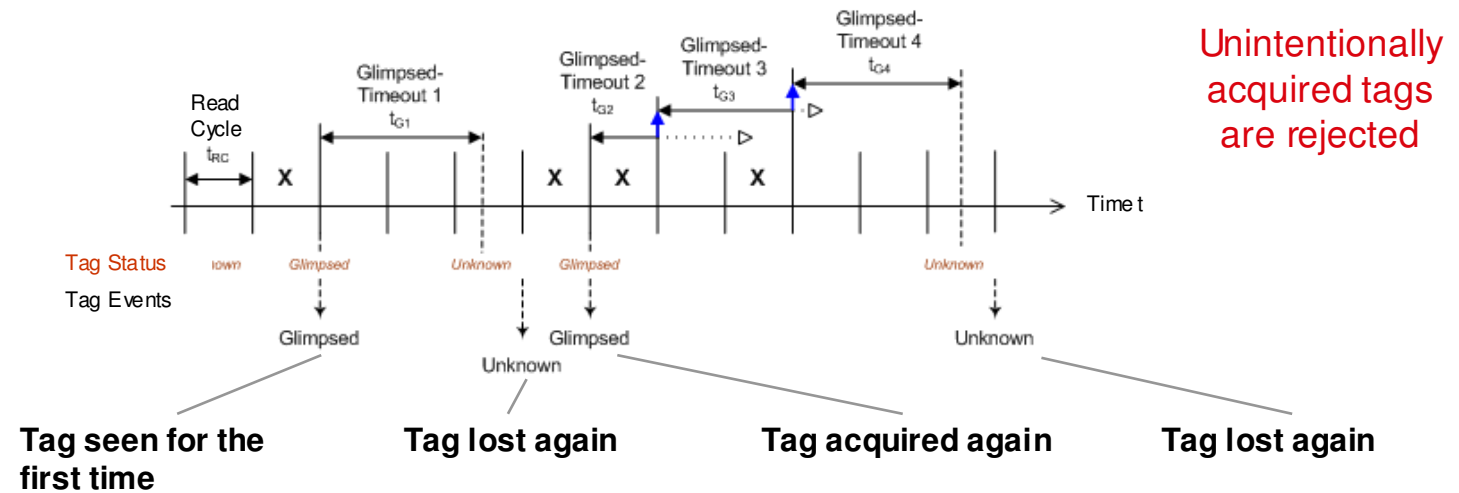
Customer Benefits

Functionality

Architecture

SW Packages

Tech. Data





# Logical combination of RFID data with automation data

System

Highlights

Applications

Customer Benefits

Functionality

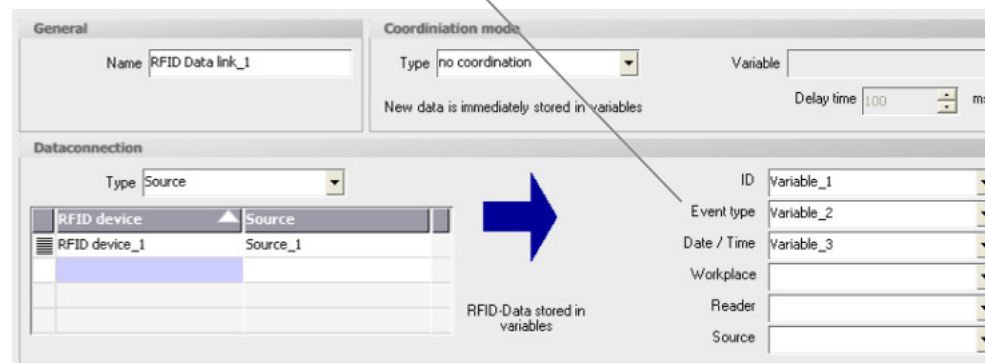
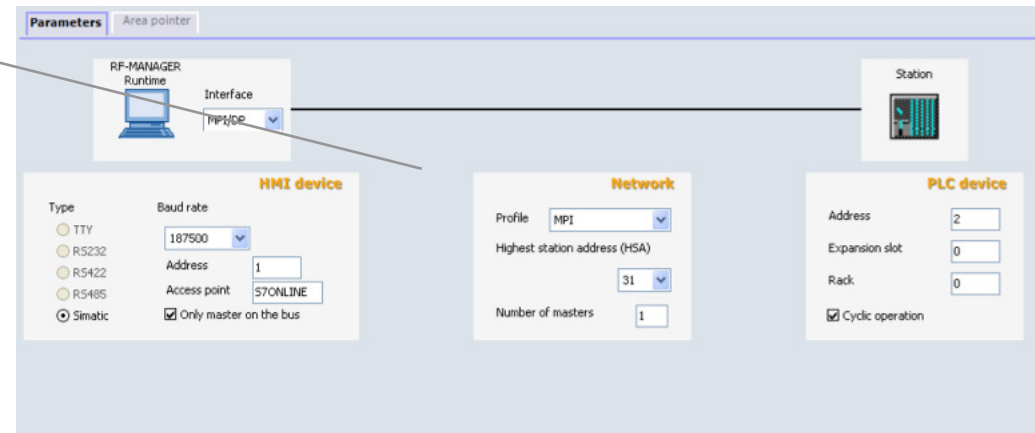
Architecture

SW Packages

Tech. Data

Definition of the connection between RF-MANAGER Runtime and SIMATIC S7

Assignment of RFID data areas (e.g. ID, date/time) to corresponding variables



- Connection to SIMATIC S7 200, 300 and 400 is possible
- Communications via PPI, MPI, PROFIBUS DP and Ethernet (TCP/IP) is possible

## Use cases for connection to S7 controllers

System

Highlights

Applications

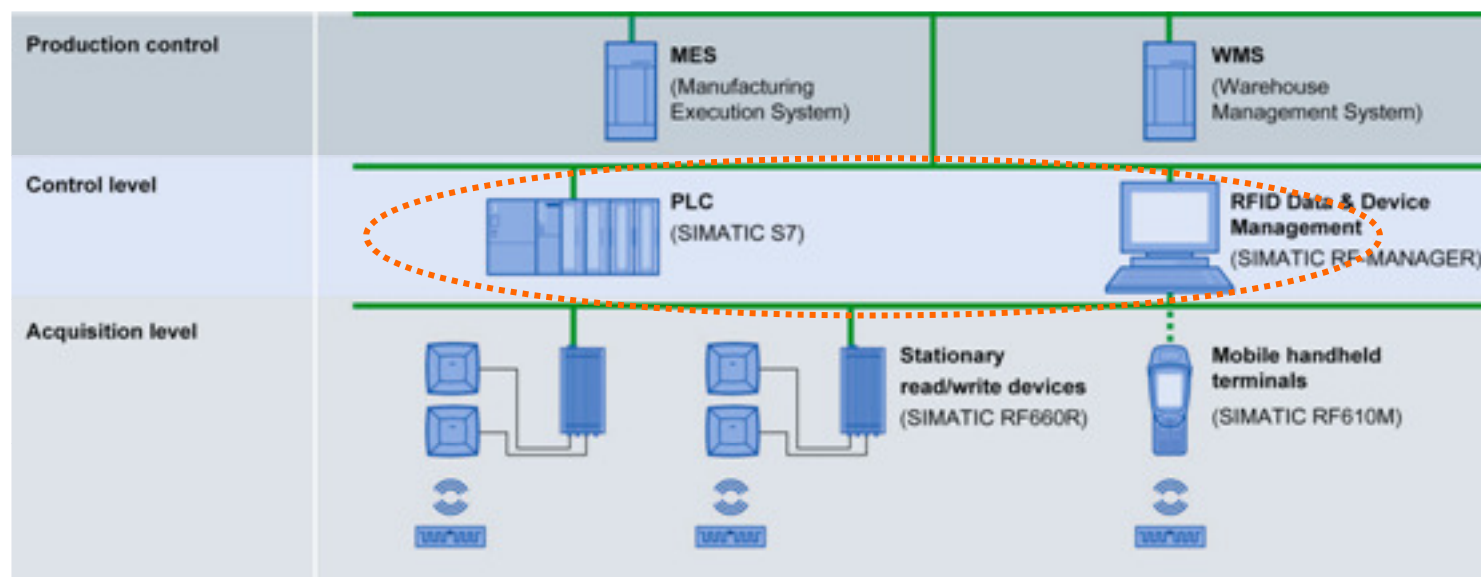
Customer  
Benefits

Functionality

Architecture

SW Packages

Tech. Data



- RFID data is transferred to a controller by means of variables for further processing
- Control tasks are performed in accordance with the results of a read or position of the tags (e.g. switch position)
- Read and write tasks of the reader are triggered via the controller

## Transfer of RFID data to the enterprise system (1)

System

Highlights

Applications

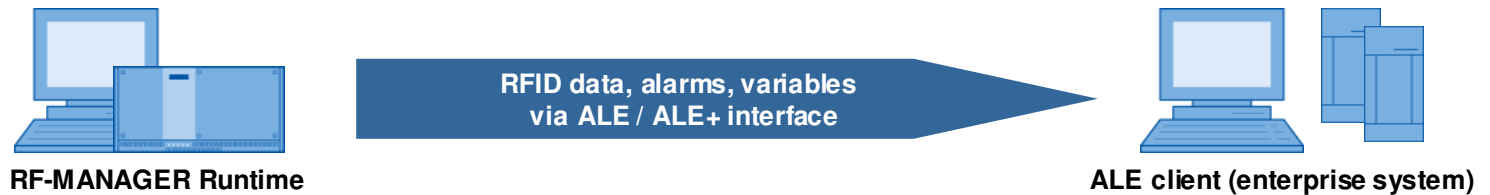
Customer  
Benefits

### Functionality

Architecture

SW Packages

Tech. Data



### Why an ALE / ALE+ interface?

- ALE = Application Level Events = Open data interface, defined by EPCglobal
- ALE+ = Expansion of ALE with specific RF600 functions (e.g. getIoPort)
- ALE allows data to be transferred from RF-MANAGER independently of the enterprise system

### What is the purpose of the ALE client?

- The ALE client is a software application that accepts the RFID data from the RF-MANAGER over the ALE / ALE+ interface for further processing
- The ALE client is not included in the scope of supply of the RF-MANAGER, it is specific to the application and must be specially developed for it
- The ALE client can be both a stand-alone software application and part of the enterprise system
- The RF-MANAGER package contains an ALE demo client as a documented and usable example
- Possible tasks of the ALE client: Transferring RFID data to the enterprise system (e.g. SAP), writing RFID data to a database, comparing RFID data with business data etc.

## Transfer of RFID data to the enterprise system (2)

System

Highlights

Applications

Customer  
Benefits

Functionality

Architecture

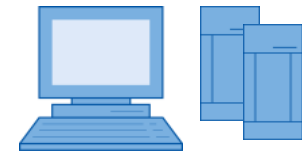
SW Packages

Tech. Data



RF-MANAGER Runtime

RFID data, alarms, variables  
via ALE / ALE+ interface



ALE client (enterprise system)

### Functionality of the ALE / ALE+ interface

- Transfer of RFID data in the form of ECSpec (ALE read cycle) and reports
- Asynchronous: Client logs on and automatically receives RFID data in the case of a change
- Synchronous: Client issues a single request and receives RFID data immediately
- Transfer of RFID alarms as language-specific strings
- Exchange of variables between RF-MANAGER and ALE client

### Examples of ALE / ALE+ functions

- Subscribe(): Logging on to an existing ECSpec
- ReadIDs() / writeID(): Reads/writes RFID data of a workstation
- Trigger(): Activates a trigger (e.g. start/stop for ECSpec)
- GetIoPort() / setIoPort(): Supplies/sets the status of a reader I/O

## Hierarchic structure

System

Highlights

Applications

Customer  
Benefits

### Functionality

Architecture

SW Packages

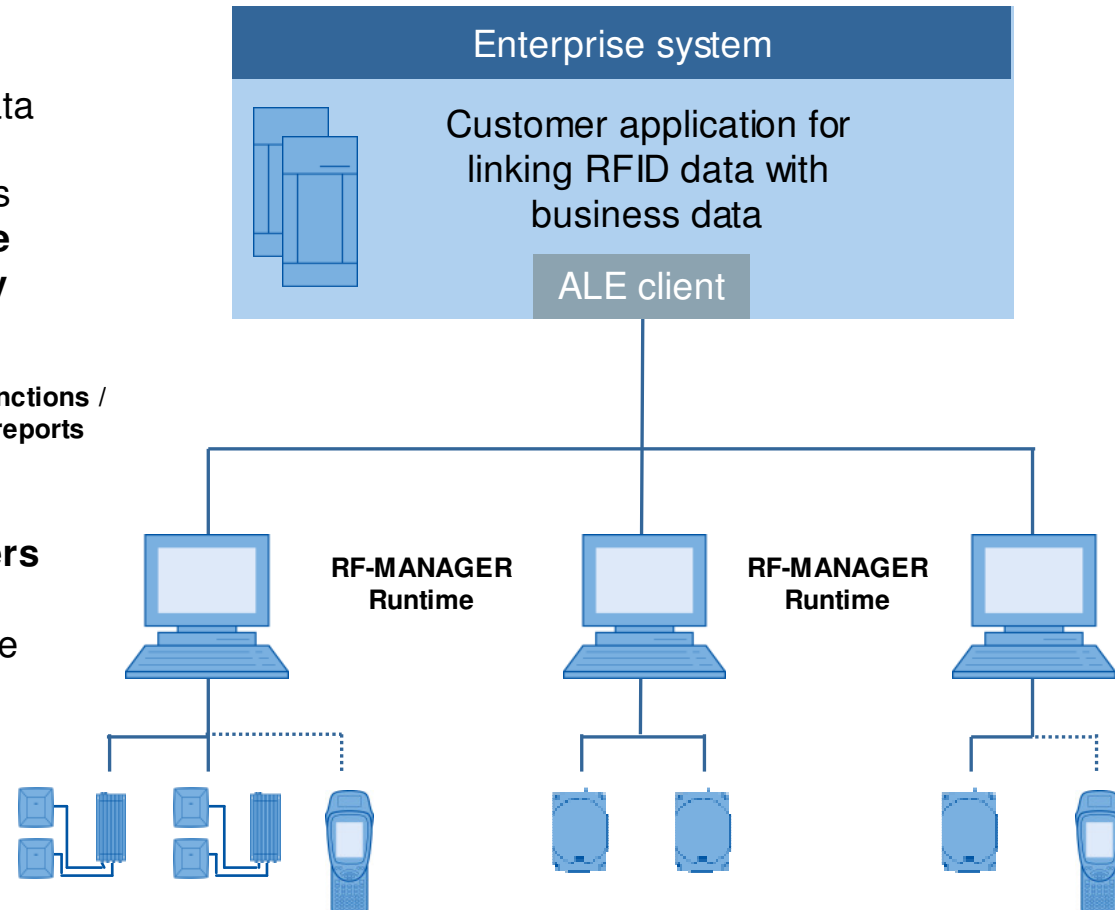
Tech. Data

Programming and data  
processing in the  
enterprise system is  
**independent of the  
RFID functionality**



ALE functions /  
ALE reports

RF-MANAGER **covers**  
the complex **RFID**  
**functionality** for the  
customer



# Architecture compatible with EPCglobal

System

Highlights

Applications

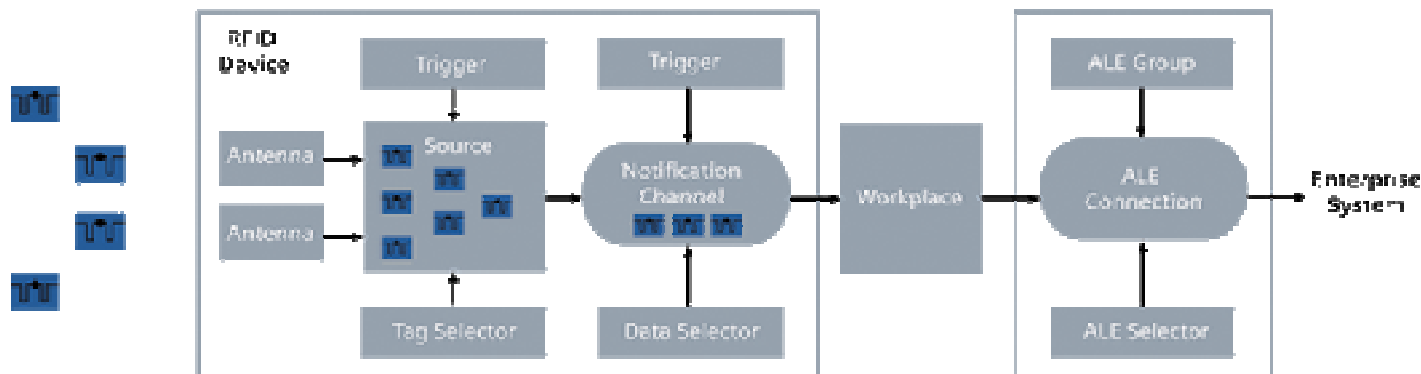
Customer  
Benefits

Functionality

## Architecture

SW Packages

Tech. Data



RFID device	Represents a reader in RF-MANAGER (RF660R, RF610M)
Antenna	Accepts RFID data and transfers it to data sources
Data source	Combines antennas that can be used so that, for example, one reader with two data sources can perform different tasks
Notification channel	Accepts the RFID data of a data source and transfers it when required (on a trigger) to a workstation
Trigger	Trigger mechanism for data sources / notification channels
Selectors	Support multi-stage filtering (tag, data and ALE selectors)
Workstation	Combines several readers, e.g. for one inbound logistics area
ALE connection	Establishes the connection to the higher-level enterprise system
ALE group	Groups the transferred RFID data according to EPC criteria

## Sample scenario – Overview

System

Highlights

Applications

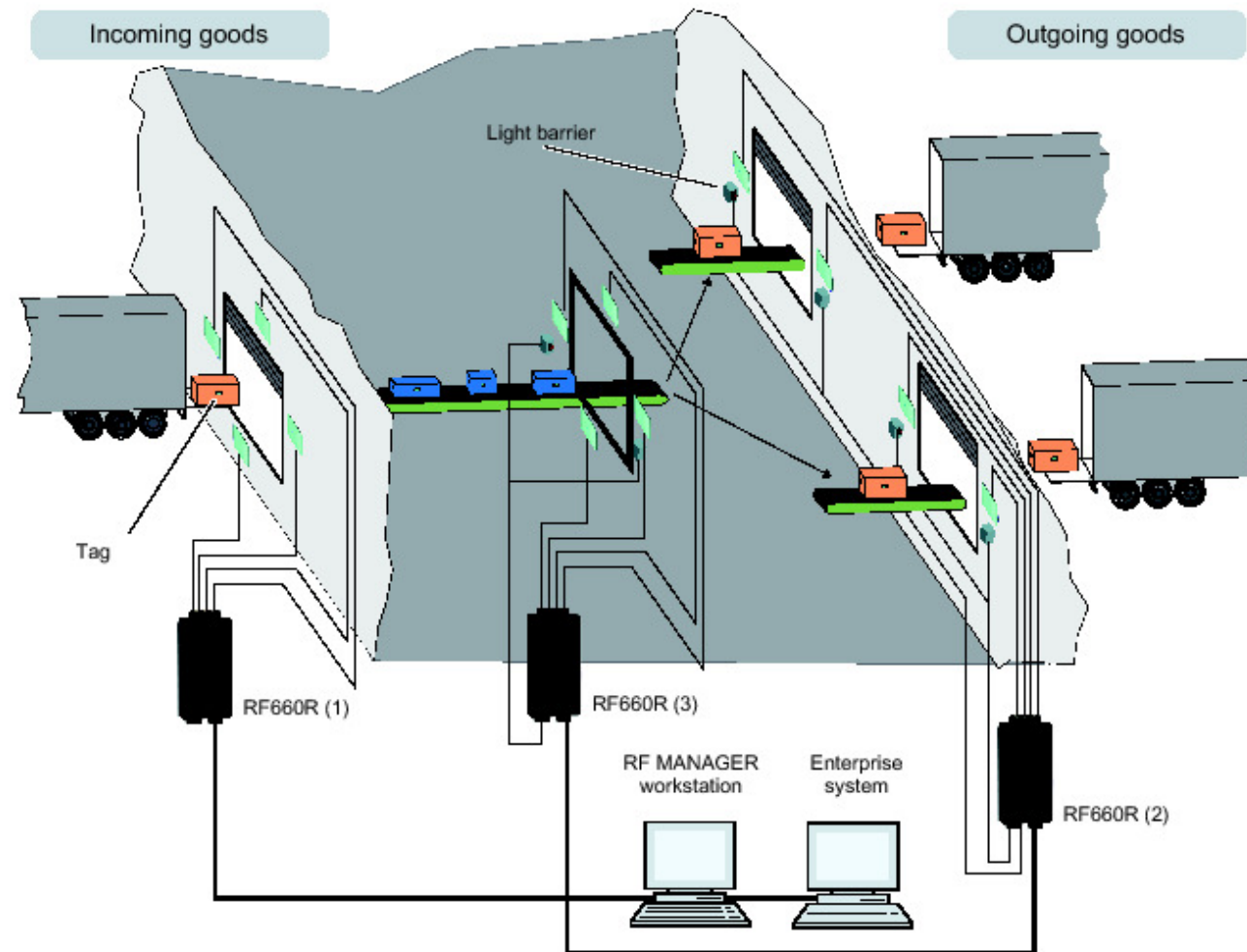
Customer  
Benefits

Functionality

Architecture

SW Packages

Tech. Data



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## Sample scenario – Object model

System

Highlights

Applications

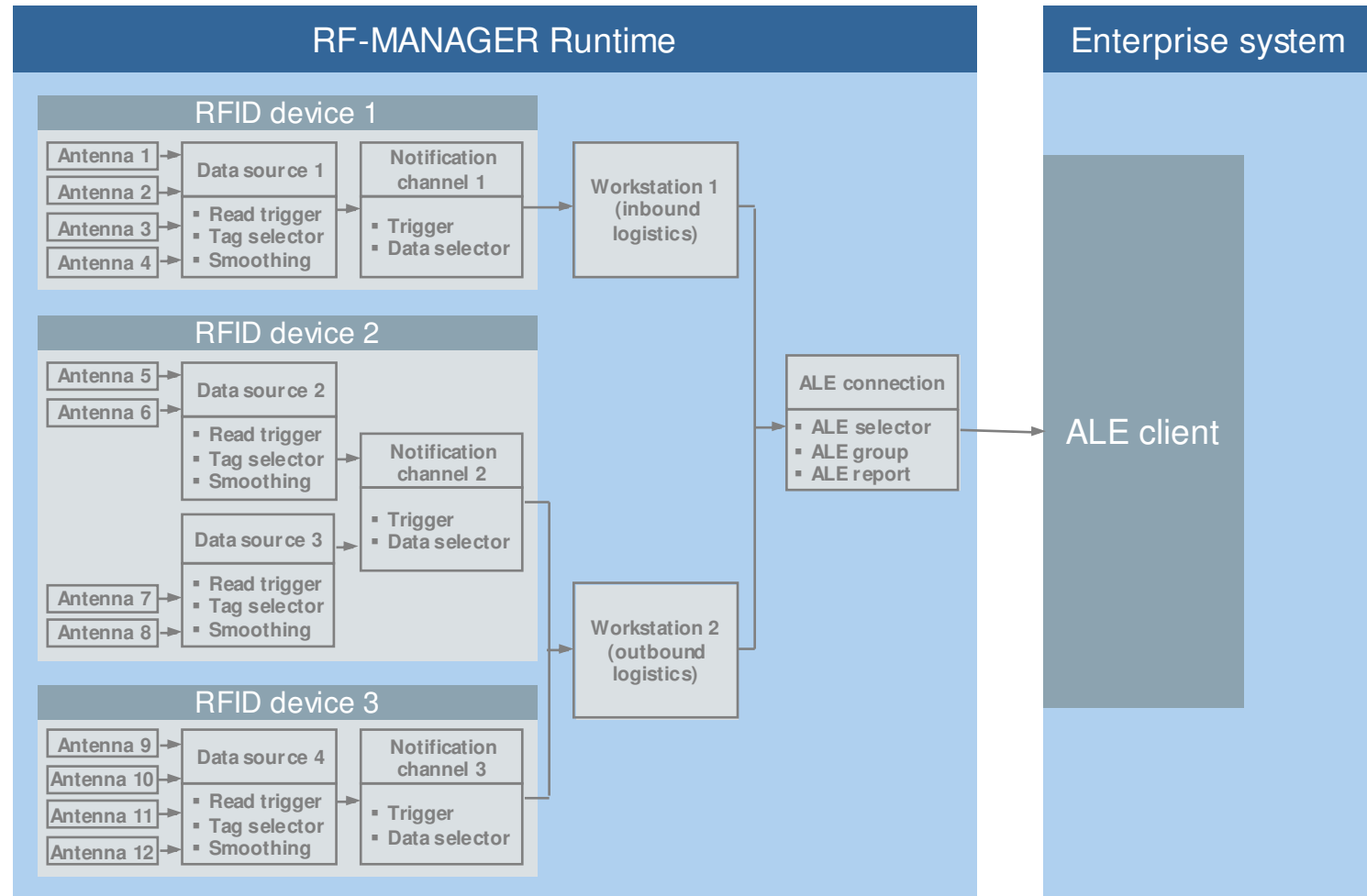
Customer  
Benefits

Functionality

### Architecture

SW Packages

Tech. Data





# Engineering System and Runtime

System

Highlights

Applications

Customer  
Benefits

Functionality

## Architecture

SW Packages

Tech. Data

**RF-  
MANAGER  
Engineering  
System**

Project  
data

PLC Connection

IT Integration Interface (ALE)

RFD Device  
Management

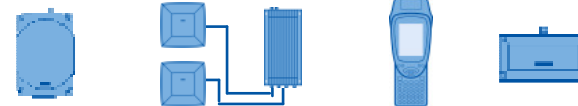
**RF-  
MANAGER  
Runtime**

Operational and  
System GUI

RFD Data  
Management

Configuration and  
Customizing

RFD Device Integration (EPC Reader Protocol)



## Available software packages

System

Highlights

Applications

Customer  
Benefits

Functionality

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SW Packages

Tech. Data

### RF-MANAGER 2008

Full version

**1 reader**

Engineering  
System and  
Runtime

MLFB: 6GT2080-  
3CA00-8AA5

**5 readers**

Engineering  
System and  
Runtime

MLFB: 6GT2080-  
3CC00-8AA5

**20 readers**

Engineering  
System and  
Runtime

MLFB: 6GT2080-  
3CE00-8AA5

**50 readers**

Engineering  
System and  
Runtime

MLFB: 6GT2080-  
3CG00-8AA5

**Demo CD**

Engineering  
System and  
Runtime  
  
Trial license  
for 14 days  
(free of charge)

Item No.: ???

### RF-MANAGER 2008

Upgrade 2007 -> 2008

**1 reader**

Engineering  
System and  
Runtime

MLFB: 6GT2080-  
3CA00-8AE5

**5 readers**

Engineering  
System and  
Runtime

MLFB: 6GT2080-  
3CC00-8AE5

**20 readers**

Engineering  
System and  
Runtime

MLFB: 6GT2080-  
3CE00-8AE5

**50 readers**

Engineering  
System and  
Runtime

MLFB: 6GT2080-  
3CG00-8AE5

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## Technical data and system requirements (1)

System

Highlights

Applications

Customer  
Benefits

Functionality

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SW Packages

**Tech. Data**

General data	
Current version	2008
Supported devices	SIMATIC RF660R, SIMATIC RF610M
Target systems	Standard PC, SIMATIC Microbox PC 420, SIMATIC Microbox PC 427B
Functions	<ul style="list-style-type: none"> <li>▪ Commissioning, management and diagnosis of RFID devices</li> <li>▪ Collection, filtering, display and writing of RFID data</li> <li>▪ Conditioning and transfer of RFID data</li> <li>▪ Logical combination of RFID data with automation data (SIMATIC S7)</li> </ul>
Delivery form	<p>Product CD</p> <ul style="list-style-type: none"> <li>▪ RF-MANAGER configuration software (Engineering System) and Runtime</li> <li>▪ Automation License Manager</li> <li>▪ Documentation as PDF</li> <li>▪ Getting started project and ALE demo client</li> <li>▪ RF660R configuration software</li> </ul> <p>Licenses via USB stick (for Automation License Manager)</p> <ul style="list-style-type: none"> <li>▪ Floating license for configuration software</li> <li>▪ Single license for Runtime (as countable licenses)</li> </ul>
Packages	<ul style="list-style-type: none"> <li>▪ Full version for 1, 5, 20 and 50 readers</li> <li>▪ Upgrade (2007 -&gt; 2008) for 1, 5, 20 and 50 readers</li> <li>▪ Demo CD free of charge</li> </ul>

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## Technical data and system requirements (2)

System

Highlights

Applications

Customer  
Benefits

Functionality

Architecture

SW Packages

**Tech. Data**

### Languages

Documentation

English, German

Configuration software

English, German

Runtime software

English, German

### Software requirements

Operating system

Standard PC: Windows XP Professional + SP2  
SIMATIC Microbox PC: Windows XP Embedded + SP2

Additional software

Microsoft Internet Explorer V6.0 SP1 / SP2, Adobe Acrobat Reader 5.02

## Technical data and system requirements (3)

System

Highlights

Applications

Customer  
Benefits

Functionality

Architecture

SW Packages

Tech. Data

### Hardware requirements

#### Configuration software

Processor	Pentium IV with 1.6 GHz processor or higher
Graphics	Resolution: 1024x768 or higher / 1280x1024 recommended, 256 or more colors
Main memory	1.0 GB or larger / 2.0 GB recommended
Memory on hard disk	1.5 GB or larger
Additional hardware	CD-ROM drive (software installation), USB port (for license transfer)

#### Runtime software

Processor	Standard PC: Pentium III with 933 MHz processor or higher SIMATIC Microbox PC: Pentium III with 933 MHz processor
Graphics	Resolution: 640x480 or higher, 256 or more colors
Main memory	512 MB or larger / 1024 MB recommended
Memory on hard disk	Standard PC: 256 MB or larger without archives SIMATIC Microbox PC: CompactFlash card with at least 512 MB
Additional hardware	CD-ROM drive (software installation), USB port (license transfer)

# Thank you