

Hotel Solution™

Hotel room management system



Building Technologies

SIEMENS

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Table of contents

1	Hotel Solution™ – System overview	4
2	Hotel room management system	5
2.1	System topology.....	5
2.2	Scalable system.....	5
2.3	Communications	6
2.4	Hotel room management	6
3	Software components	8
3.1	Hotel room management with HSW3.1	8
3.2	System expansion through integration.....	9
3.3	HSC commissioning tool.....	9
4	Hardware components	10
4.1	Room automation – Room controller unit (RCU).....	10
4.2	Room automation – Standard applications	11
4.3	Room units (TCU)	11
4.4	Card systems	12
4.5	Field devices and accessories for Hotel Solution	14


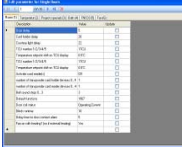





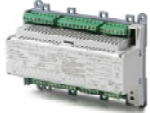









1 Hotel Solution™ – System overview

Hotel Solution is a scalable hotel room management system (HRMS) from Siemens tailored to the special needs of the hotel industry. The system can be adapted to any hotel no matter the complexity or size.

The Hotel Solution System includes the components:

- Hotel room management software HSW3.1
- Commissioning tools (e.g. HSC tool)
- Software to integrate into the Siemens DESIGO™ system
- Room controllers with tailored applications
- Room units with display and operator functions
- Card holder, reader and encoder for chip, magnet or transponder cards

System components

	Management			Integration		Commissioning	
Software	 HSW3.1 (HRMS)			FOS ↔ HRMS with e.g. HotFOS	DESIGO ↔ HRMS with HSO3.1 (OPC)	 HSC-Tool	
Hardware	User creation	Access control	Energy control	Thermal comfort / Operation		HVAC, Light, Blind, Access	
	Card encoder	Card reader	Card holder			Standard	Advanced
	Room bus RS-485					Proprietary (KNX)	
Magnet	 HBC1.M	 HMR3.1	 HMH3.1	 HSE1.1	 HSE1.2	 HRC3.2	 HRC3.1
Transponder	 HTW3.1	 HTR3.1	 HTH3.1	 HTC3.1..	 HTC3.2../		
Chip	 HCW3.2	 HCR3.2	 HCH3.2				

Hotel Solution offers the following management functions:

- Check-in, check-out
- Access management (access control and monitoring)
- Display of all system alarms / information

and the following control functions:

- Comfortable, individual room air conditioning control
- Energy control
- Lighting control
- Blinds / curtain control

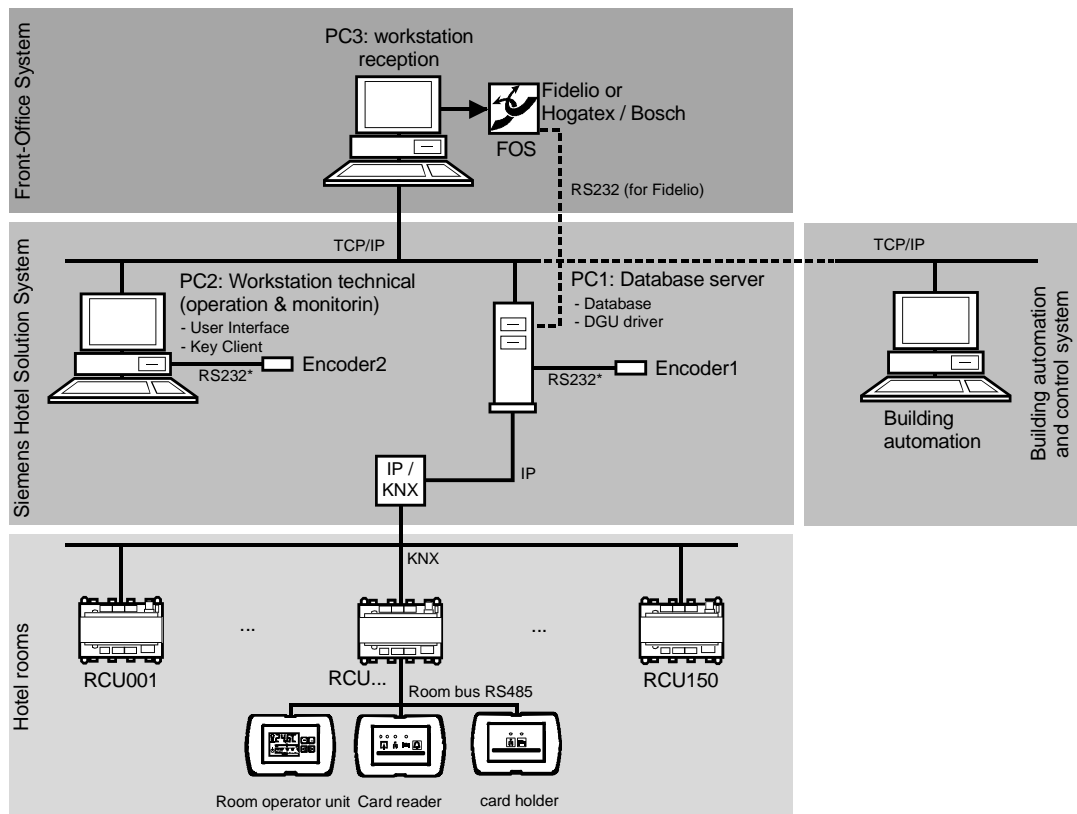
2 Hotel room management system

2.1 System topology

Hotel room management system consists of:

- One or more management stations at the reception desk (workstation reception) with access to all required guest and hotel room information as well as an available front office system,
- An operating station (workstation technical), to operate and monitor the system and e.g. to create access cards,
- A database server to record and save all system data and
- Room controllers for the individual rooms and connected to the server.

Example: Topology



* Chip card encoder is also available with optional TCP/IP interface.

2.2 Scalable system

The system can be flexibly connected to any size hotel. Any off-the-shelf PC with Windows® XP operating system and Sybase® SQL Anywhere database software can serve as the database server. This allows, for example, smaller hotels, to combine workstation technical and the server on one PC. Conversely, larger hotels can expand the system as needed, for example, by adding additional workstations at the reception desk or by integrating a building automation and control system such as DESIGO.

2.3 Communications

Communications between the individual PCs takes place via Ethernet TCP/IP or RS232 interface.

Room controllers are integrated to the system using a license-free Konnex bus. Up to 60 room controllers can be switched onto one line via the Konnex bus. You can also operate other standard EIB (KNX-TP1) devices over the same bus at an additional implementation expense.

Peripheral devices connected in the room, such as room devices, card readers or holder, are connected to the room controller via a room bus (RS 485).

2.4 Hotel room management

With HRMS software, the system offers integrated hotel room management directly from the hotel's reception desk. Efficient guest and service personnel as well as energy management help the hotel manager reduce costs.

At the reception desk

Hotel Solution is connected directly at the reception desk with the reservation system (FOS) and ensures trouble-free operation of access control, air conditioning control, safety and energy management in the guest rooms from the time the guest checks in until the guest leaves at check out.

The hotel rooms can be monitored and operated from the workstation at the reception desk. You can gain an overview for each room of guest and room status via the hotel room management software's main view. Messages and alarms, such as "Do not disturb", "Room service", "SOS / Help", "Intruder", etc., are signaled immediately in the software's alarm pane, allowing personnel to react quickly.

You can create access cards for guests and personnel at the workstation using a card encoder.

Temperature monitoring and control

The database, that is a part of the HRMS management station, stores the actual values for all the rooms and uses the management software to display the values in easy-to-read trend curves. You can also adjust the temperature setpoint from the individual rooms from the workstation, if the guest so desires.

The system allows you to easily adapt various temperature profiles for individual parts of the hotel building depending on geographic orientation (northern, southern exposure). Rooms may also be assigned to individual primary-side energy groups.

The management station can even handle the shut down of certain hotel floors or even entire wings during the off season by setting them to a special building protection mode. You can save energy optimally by using the building protection mode, without risking damage from frost in the unused sections.

Hotel room management

Each guest room is equipped with one room controller (Room Control Unit / RCU). The room controller integrates all important room functions, such as access control, room air conditioning control, energy management, blinds control, lighting scenarios, alarming, etc., into one integrated system.

All important room parameters are saved in non-volatile form on the controller as of system commissioning and configuration allowing the system to operate completely autonomously without a network connection.

Access control	Access control can occur using magnetic cards, chip cards or proximity transponder cards (smart cards).
Floor display	Card readers have integrated ring keys and LEDs to display "Please do not disturb", "Room service" and "SOS Help".
Flexible suite management	Suite management allows the hotel manager to freely combine standard rooms into suites or vice versa.
Management of public areas	For rooms in public areas, e.g. hallways, conference rooms, Hotel Solution has a tailored application with HVAC, lighting and access functionality. Specific functions for the guest rooms, e.g. "Do not disturb" or "Room service" are missing here.
Access control	Access control by Hotel Solution can also regulate access to public hotel areas. For example, only certain rooms or areas can be released for certain, authorized guests. And the guest uses the same card to access the hotel room. Corresponding access rights can be managed using the HRMS management station. This option not only makes it easier to limit access, but also increase overall security of the hotel.

3 Software components

3.1 Hotel room management with HSW3.1

The HSW3.1 software is the user interface to the Hotel Solution™ hotel room management system. The hotel room management software is operated on a PC with Microsoft® Windows® XP operating system and offers the following functionality:

- Air conditioning control and energy management
- Access management (access control and monitoring)
- Room and guest management
- Alarm and guest room monitoring
- Employee management
- System configuration, control and monitoring

The software complies with Windows® operations making it easy to learn. For example, you can query functions important to the given operational situation by simply right-clicking to access the context menu.

User interface

The screenshot shows the SIEMENS Hotel Solution software interface. It features a menu bar at the top with options: File, Rooms, Guests, Service, Access, Energy Management, System, and Help. Below the menu bar is a toolbar with icons for Log off, Check In, Check Out, Access, Room Param., and Users. A filter field is present with the text 'Room / Surname' and a dropdown menu for 'Alarm' set to 'No Filter'. The main area is a table with columns: Room, Guest Name, Group, Type, State, Temperature, Local Setpoint, Default Setpoint, and Alarms. Below this is an alarm list table with columns: Room, Information, Time of appearance, Time of acknowledgement, Alarm, User acknowledged, Time of disappearance, and Time of reset.

Room	Guest Name	Group	Type	State	Temperature	Local Setpoint	Default Setpoint	Alarms
101	Lange, Helmut	1st Floor	Single room	Comfort	0 °C	0 °C	22 °C	✓
102	Morgenstern, Christian; Wolf, Virginia	1st Floor	Double room	Comfort	0 °C	0 °C	22 °C	✓
103	Calaveras, Manny	1st Floor	Double room	Comfort	0 °C	0 °C	22 °C	✓
104	Tolkien, JRR	1st Floor	Single room	Comfort	0 °C	0 °C	22 °C	✓
105	Rowling, Joanne Kathleen	1st Floor	Single room	Comfort	0 °C	0 °C	22 °C	✓
199		Fitness	Lounges	Standby A	0 °C	0 °C	22 °C	
201		2nd Floor	Double room	Standby A	0 °C	0 °C	22 °C	
202		2nd Floor	Double room	Standby A	0 °C	0 °C	22 °C	
203		2nd Floor	Single room	Standby A	0 °C	0 °C	22 °C	
299		VIP Lounge	Lounges	Comfort	0 °C	0 °C	22 °C	
301	Von der Grün, Alexander	3rd Floor	Suite	Comfort	0 °C	0 °C	22 °C	✓
302		3rd Floor	Suite	Comfort	0 °C	0 °C	22 °C	

Room	Information	Time of appearance	Time of acknowledgement	Alarm	User acknowledged	Time of disappearance	Time of reset
101	Guest: Lange, H.	09 Dec 04 11:44:03 AM		Occupied			
101	Guest in room	09 Dec 04 12:16:03 PM		Guest in room			
102	Guest: Wolf, V.	09 Dec 04 11:52:17 AM	09 Dec 04 12:05:01 PM	Occupied	Manager		
103	Guest: Calaveras, M.	09 Dec 04 11:44:40 AM		Occupied			

Overview: Operation and functions

- Menu area:
 - Menu with all functions
 - Toolbar for common functions
 - Filter by guest names, room numbers and alarm types
- Room list:
 - Tabular display in the main pane of all guest and room data
 - Column content can be freely defined
 - User-related display of room properties
 - Sort by column by clicking column header
 - Use filtering
- Alarm list:
 - List of all alarms, messages and room states
- Additional functions:
 - Room overview for each room with a detailed status display
 - Temperature history as proof of room temperature values over the past three days
 - Define various user groups and access rights
 - User management can be freely parameterized to four levels for the user rights (e.g. the display of guest names in the room list can be hidden for the technician user group)

3.2 System expansion through integration

FOS integration

FideHot and HotFOS provide integration of the most important available front office systems (FOS) with Hotel Solution.

Linking them provides the following functions:

- Transmit data at check in, check out and hotel movements of a hotel guest from FOS to Hotel Solution. Keys are generated based on this data and rooms are opened or blocked.
- Thanks to data synchronization, initiated by the FOS, current data can be transmitted from the FOS to Hotel Solution.

FideHot

The FIDELIO ↔ Hotel Solution link FideHot links the Micros-Fidelio software for hotel operations with the Hotel Solution.

In addition to the functions described above, room messages (e.g. "Do not disturb", "Room service" or "Clean room") can be routed from Hotel Solution to the FIDELIO system using FideHot.

HotFOS

The HotFOS links the FOS from the company HOGATEX or BOSCH to Hotel Solution.

In addition to the functions described above, the HotFOS reservation and energy management can be implemented in HOGATEX or BOSCH software.

OPC server

Using the Hotel Solution OPC-Server HSO3.1, an OPC client can gain read access to a select number of data points within the Hotel Solution room controllers or even write to them under certain circumstances. This allows you to integrate Hotel Solution systems into the DESIGO V2.37 building automation and control system, among others.

3.3 HSC commissioning tool

The HSC Tool (HSC = Hotel Solution Commissioning) is available for comfortable commissioning of Hotel Solution. The HSC Tool maps the hotel with its guest rooms (rooms and suites) and public areas (e.g. hallways) for Hotel Solution and assigns the corresponding properties. It records, addresses and configures the room controllers in Hotel Solution and assigns the data to the rooms as well as loading applications.

The backup function backs up and restores the recorded data.

4 Hardware components

4.1 Room automation – Room controller unit (RCU)

Function



The room controller unit (RCU) is assigned the most important functions within the integrated system. It communicates both with the connected peripheral devices in the guest rooms as well as directly with the HRMS management station at the reception desk.

All important room parameters can no longer be lost after system commissioning and configuration and are autonomously stored in the controller. This guarantees full functionality of all local room functions even without a network connection.

Product range

Two room control units are available for Hotel Solution:

- HRC3.1 – for expanded requirements (Advanced)
- HRC3.2 – for standard requirements (Standard)

HVAC, lighting, blinds, access	
Standard	Advanced
Proprietary (KNX)	
 <p>HRC3.2</p>	 <p>HRC3.1</p>

Technical data

Room controller		HRC3.2	HRC3.1
Power supply	Power	AC 24 V	AC 24 V
	Consumption (without consumer on the relay)	Max. 1.25 A	Max. 1.5 A
Inputs/outputs			
Digital inputs	DC 12V / 5mA (no electrical isolation)	8	16
Analog inputs	For LG-Ni 1000	0	1
Relay outputs	230 V voltage free	7	8
Relay outputs	230 V powered	4	0
Relay outputs	24 V powered	0	6
Triac outputs	AC 24 V	4	0
Output door opener	DC 12 V	1	1
Output door opener	AC 24 V	0	1
Digital outputs	DC 12 V, powered	0	8
Communication	Room bus	RS485	RS485
	Konnex bus	KNX	KNX
	Interface for standard room device	–	PPS2
Dimensions		150 x 110 x 62 mm	284 x 160 x 57 mm

Applications

The room controllers are loaded and supplied with pre-configured standard applications (see 4.2). You can download modified applications for the customer project using the HSC Tool via the KNX network.

4.2 Room automation – Standard applications

The same standard applications with the same functional scope are available for both the HRC3.1 and HRC3.2 room controllers. The differences are primarily the different number of inputs and outputs for connecting sensors and actuators (see 4).

The following functions are supported:

- Fan coils with a maximum of 3 fan speeds
- Setting room and bathroom temperature (additional bathroom radiator)
- Lighting and blinds operation
- Evaluate information from the room access control system and apply to room conditions
- Support various operating modes (e.g. Comfort, economy)
- Support hotel-specific functions (e.g. "Please do not disturb", Room service, minibar, room cleaning, etc.)

Available standard applications

Standard applications	Description
HRC3.1 guest room	Applications for guest rooms
HRC3.1 common room	Application with reduced functional scope for common rooms, such as hallways, restaurants, etc.
HRC3.2 guest room	Applications for guest rooms
HRC3.2 common room	Application with reduced functional scope for common rooms, such as hallways, restaurants, etc.

4.3 Room units (TCU)

Function

Room units (TCU) HTC3.1 and HTC3.2 serve as the guest operator unit for the room control unit (RCU). It displays the room temperature setpoint and fan speeds OFF, 1, 2 and 3. The +/- keys allows the guests to adapt room temperature to individual needs within a defined, small range.

The keys allows the guest to manually turn on fan speeds 1, 2 and 3 or turn OFF the fan or set it to AUTO mode. The controller switches automatically to AUTO mode and assumes pre-comfort setpoints as soon as the guest leaves the room. The last selected state is resumed when the guest returns.

Product range

Operation	
RS-485 room bus	
 <p>HTC3.1..</p>	 <p>HTC3.2/..</p>

Mounting

The room units are suitable for wall mounting (flush mounted or in a cavity wall box).

Various frame series are available, e.g. VIMAR idea, Siemens Delta, Bticino Living.

Note

Additional frame series are available upon request for an additional fee.

Sample frames



4.4 Card systems

The three most common card systems for access control are available for Hotel Solution:

- Magnetic cards
- Transponder cards
- Chip cards

Access and room occupancy are controlled using access and guest cards. Card readers and holders are available for this purpose. A suitable card encoder is available to generate or encode the cards.





	Create user Card encoder	Access control Card reader	Energy control Card holder
RS-485 room bus			
Magnetic	 HBC1.M	 HMR3.1	 HMH3.1 / HML3.1
Transponder	 HTW3.1	 HTR3.1	 HTH3.1
Chip	 HCW3.2	 HCR3.2	 HCH3.2

Card reader

Card readers read the guest code on the guest card (proximity reader of up to 5 cm for transponder cards). The code is compared to the room controller and the door opens for a match.

In addition to the read function, the card readers display requirements and states for the guest rooms that are routed to the management station as well and includes operating functions, such as the doorbell.

Overview of functions





Card system	Magnetic cards	Transponder cards	Chip cards
Read	2 magnetic strips	Proximity up to 5 cm	Chip
Display			
	LED red: Door closed LED green: Door opened	LED red: Door closed LED green: Door opened	LED red: Door closed LED green: Door opened
	LED yellow: Please clean room	LED red: Please clean room	LED yellow: Please clean room
	LED yellow: Please do not disturb	LED red: Please do not disturb	LED yellow: Please do not disturb
Operation 	• Doorbell key	• Doorbell key	• Doorbell key

Card holder

The guest card is inserted into the card holder. It releases lighting and switches the air conditioning control from pre-Comfort to comfort mode.

The card holder has lighting for orientation when the guest card is not inserted. The card holder also has an electronic doorbell or operating elements as an option.

Overview of functions

Card system	Magnetic cards	Transponder cards	Chip cards
Read and hold	2 magnetic strips	Proximity up to 5 cm	Chip
Lighting	✓	✓	✓
Operation			
Room Service 	✗	✗	✓
Please do not disturb 	✗	✗	✓
Display			
	✗	✗	LED yellow: "Room service" activated
	✗	✗	LED yellow: "Please do not" activated
Doorbell	• Option	• Speaker with three-tone bell	• Speaker with three-tone bell

Card encoder

The card encoder encodes the access or guest card.

Overview of functions

Card system	Magnetic cards	Transponder cards	Chip cards
Card type read and encoding	Track 2 ISO 7810	Atmel/Temic T 5567	Siemens SLE5542, SLE4442
LCD display	✓	✓	✓
Mechanical design	Table top device	Table top device	Table top device
Interface	RS232	RS232	RS232 / TCP/IP

Mounting

The card reader and holder are suitable for wall mounting (flush mounted or in a cavity wall box).

As is the case for the room units, the card reader and holder has various frame series available, e.g. VIMAR idea, Siemens Delta, Bticino Living.

Note

Additional frame series are available upon request for an additional fee.

4.5 Field devices and accessories for Hotel Solution

Temperature sensor	<p>Two temperature sensors with NTC thermistor (10 kOhm) are available for recording room temperatures:</p> <ul style="list-style-type: none">• Cable temperature sensor HSE1.1• Room temperature sensor HSE1.2
Valves and actuators	<p>Acvatix provides you with a comprehensive Siemens valve and actuator product range for HVAC applications.</p>
Room devices	<p>You can also use room devices with PPS2 interfaces using the HCR3.1 room controller as an alternative to HTC3.1 and HTC3.2 room units.</p> <p>From the Siemens QAX.. room unit product range, the QAX84.1/PPS2 room unit in particular (flush mounted) is well suited for integrating with high-range solutions.</p>
Communication	<p>The IP coupler N146 is available for conversion from KNX to IP.</p>

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