Hotel Solution™

Hotel room management system
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System description
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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

<table>
<thead>
<tr>
<th>Software</th>
<th>Management</th>
<th>Integration</th>
<th>Commissioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSW3.1 (HRMS)</td>
<td>FOS ⇔ HRMS with e.g. HotFOS</td>
<td>DESIGO ⇔ HRMS with HSO3.1 (OPC)</td>
<td>HSC-Tool</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hardware</th>
<th>User creation</th>
<th>Access control</th>
<th>Energy control</th>
<th>Thermal comfort / Operation</th>
<th>HVAC, Light, Blind, Access</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Card encoder</td>
<td>Card reader</td>
<td>Card holder</td>
<td></td>
<td>Standard</td>
</tr>
<tr>
<td>Room bus RS-485</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Proprietary (KNX)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Magnet</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HBC1.M</td>
<td>HMR3.1</td>
<td>HMH3.1</td>
<td>HSE1.1</td>
<td>HRC3.2</td>
<td></td>
</tr>
<tr>
<td>HTW3.1</td>
<td>HTR3.1</td>
<td>HTH3.1</td>
<td>HSE1.2</td>
<td>HRC3.1</td>
<td></td>
</tr>
</tbody>
</table>

| Transponder |          |          |          |            |            |
| HTW3.1      | HTR3.1   | HTH3.1   | HSE1.1   | HRC3.2     |            |
| HTW3.1      | HTR3.1   | HTH3.1   | HSE1.2   | HRC3.1     |            |

| Chip |          |          |          |            |            |
| HCW3.2 | HCR3.2   | HCH3.2   | HTC3.1.. | HRC3.2     |            |
| HCW3.2 | HCR3.2   | HCH3.2   | HTC3.2.. | HRC3.2     |            |

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 serves 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.

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

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)

<table>
<thead>
<tr>
<th>HVAC, lighting, blinds, access</th>
<th>Standard</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proprietary (KNX)</td>
<td></td>
</tr>
</tbody>
</table>

Technical data

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

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.)

<table>
<thead>
<tr>
<th>Available standard applications</th>
<th>Standard applications</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HRC3.1 guest room</td>
<td>HRC3.1 guest room</td>
<td>Applications for guest rooms</td>
</tr>
<tr>
<td>HRC3.1 common room</td>
<td>HRC3.1 common room</td>
<td>Application with reduced functional scope for common rooms, such as hallways, restaurants, etc.</td>
</tr>
<tr>
<td>HRC3.2 guest room</td>
<td>HRC3.2 guest room</td>
<td>Applications for guest rooms</td>
</tr>
<tr>
<td>HRC3.2 common room</td>
<td>HRC3.2 common room</td>
<td>Application with reduced functional scope for common rooms, such as hallways, restaurants, etc.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS-485 room bus</td>
</tr>
</tbody>
</table>

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.
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.

<table>
<thead>
<tr>
<th>Create user</th>
<th>Access control</th>
<th>Energy control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Card encoder</td>
<td>Card reader</td>
<td>Card holder</td>
</tr>
<tr>
<td>RS-485 room bus</td>
<td>HBC1.M</td>
<td>HMR3.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Magnetic</th>
<th>Transponder</th>
<th>Chip</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBC1.M</td>
<td>HTW3.1</td>
<td>HCW3.2</td>
</tr>
<tr>
<td>HMR3.1</td>
<td>HTR3.1</td>
<td>HCR3.2</td>
</tr>
<tr>
<td>HMH3.1 / HML3.1</td>
<td>HTH3.1</td>
<td>HCH3.2</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Card system</th>
<th>Magnetic cards</th>
<th>Transponder cards</th>
<th>Chip cards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read</td>
<td>2 magnetic strips</td>
<td>Proximity up to 5 cm</td>
<td>Chip</td>
</tr>
<tr>
<td>Display</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LED red: Door closed</td>
<td>LED red: Door closed</td>
<td>LED red: Door closed</td>
<td></td>
</tr>
<tr>
<td>LED green: Door open</td>
<td>LED green: Door open</td>
<td>LED green: Door open</td>
<td></td>
</tr>
<tr>
<td>Lighting</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Operation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Room Service</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Please do not disturb</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Display</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Doorbell</td>
<td>• Option</td>
<td>• Speaker with three-tone bell</td>
<td>• Speaker with three-tone bell</td>
</tr>
</tbody>
</table>

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.

Card encoder

The card encoder encodes the access or guest card.

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 | Two temperature sensors with NTC thermistor (10 kOhm) are available for recording room temperatures:  
|                    | • Cable temperature sensor HSE1.1  
|                    | • Room temperature sensor HSE1.2 |

### Valves and actuators
Acvatix provides you with a comprehensive Siemens valve and actuator product range for HVAC applications.

### Room devices
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.

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.

### Communication
The IP coupler N146 is available for conversion from KNX to IP.
The information in this document contains general descriptions of available technical options, which may not apply in all cases. As a consequence, required features should be specified on a case-by-case basis at the time the contract is concluded.