

Automatic Hotel System

Booking, reception, charging, admission in a fast and simple way

2017.



The Automatic Hotel System is able to run a hotel **without staff** being present around the clock.

The partial or total automatization of a pension, guesthouse or hotel means a significant cost reduction, thus competitive advantages in the market.

The cost reduction comes not only from the **saving on the wage costs and taxes**, but also from the **effective and economic operation of the HVAC systems**.

The complete system and its elements make the **booking and check-in** possible via smart phone, but also offers alternative solutions for those who wish to book room and check in without using their smart device.

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The system architecture

The automatic hotel system builds up from the following elements.

Hardware

- **Proxer Hotel controller** – hotel access controllers, can be used with smartphones (Bluetooth, NFC)
- **Proxer H** – access control terminal
- **ProxerLock H** – door locks, can be opened with safety keys
- **Proxer Switch** – electricity supply access control terminal (switch)
- **Proxer Room** – controllers in guestrooms (setting the desired temperature, air-conditioning, “please do not disturb” message, etc.)
- **AutoPay 4400 H** – Receptionist machine and paying machine in one
- **Proxer IP** – Server PC, IP network controller and IP network
- **HotelSensor** – Sensors (opening sensors, motion sensors, temperature sensors, light sensors)
- **HotelSwitch** – Cooling and heating system remote controls

Software

- Booking module (**ProxerNet Booking**)
- Receptionist module (**ProxerNet Reception** module)
- Paying machine module (**ProxerNet AutoPay H**)
- Access Control module (**ProxerNet Access** module)
- Building automatization (**ProxerNet Building Control H** module)

Booking module

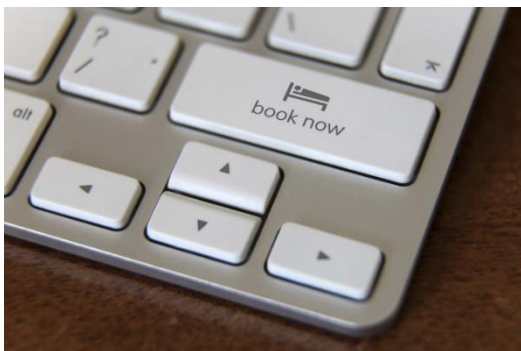
The guest books their room via the webpage of the hotel. They receive the confirmation via email. In the confirmation email, there is the reservation number and the QR code, just like on the boarding passes.

On the webpage, prepayment or part-payment options can be offered.

The guest may fulfil the whole booking (prepaying) process by installing an iOS or Android application.

Reservation data are stored on the smartphone/ device itself.

The guest, as walk-in guest, can book their room on the spot as well on the receptionist machine. They can choose either card or cash payment.



Receptionist module

The receptionist machine “welcomes” the guest at arrival via its interactive screen. The guest may choose the language they wish to communicate in.

The machine asks if the guest booked their room.

A. Booked room, without using smart device: In case the guest already booked the room and has the reservation number, but does not have or wish to use their smartphone, they can type in the reservation number or scan the printed QR code. The display welcomes the guest by name, if there was no payment, it charges them and **issues the key card** (an RFID proximity card) and the bill.

B. Booked room, using smart device: If the guest booked the room using their smartphone and the app, the receptionist machine can read the reservation number from the device. The guest can **open the main door and the room** without further check-in, **using their smartphone and the application**. They can also open all other authorized doors, gates, barriers. However, the guest may request a key card too at the receptionist machine at their convenience.

C. Walk-in: In case the guest did not book a room and wants to book on the spot, they can review the room and service offer via the display, along with the prices and discounts. The program allocates the room according to the availability, guest preferences (view, floor, interconnecting rooms, adjoining rooms, etc.). The guest books the room for the desired (available) period. The amount to pay is displayed on the screen. The guest registers filling in the data fields, pays and checks in via the receptionist machine. The machine issues the key card. Not-paid bookings are deleted by the system.

After successful booking and payment, in case A) and C) the machine issues a standard RFID key card. The guest can enter their room, the authorized passes, doors, gates and barriers (parking lot, fitness room, swimming pool). In case B) RFID card is only an option.

In case the guest keeps the card when they visit the hotel next time, the system recognises the card and handles the guest as a returning guest or frequent guest.

Paying machine module

The paying machine module operates built in one machine with the receptionist machine or in a separate housing. This module manages the banknote detector, the banknote validator, the storage unit, the bank card accepting unit and the thermal printer unit.

At the paying machine, guest may use their credit card, the PayPass function or cash.

The system may be set to accept different currencies; it returns change in the local currency.



It prints the bill with the opening code (key code) and "PAID" stamp right after payment, and sends it to the email address entered at registration. Receiving the email, the guest's smartphone can keep and store the code.

The machine permits issuing the key card from this moment and the usage of the code on the authorized doors, gates and barriers.

The system records a video, which can be archived, reviewed. This is an optional service, which can be disabled.

Access Control module

The access control module handles, monitors and logs the electronic locks and their system installed in the hotel territory. The module handles the key codes received by guests, the time frames and their modification and registration.

Cleaning and care and maintenance staff use badges a master keys; they can walk through all gates, doors, barriers they are authorized to.

The access control module registers and monitors the movement events of the guests, the movements of cleaning and maintenance staff, measures the time spent in a room, the total worktime and prepares reports.

The access control module also serves for issuing new cards, editing access rights, withdrawing rights per cards, disabling cards and worktime registry. It may handle parking places and parking lost barriers.

At fire alarm signal all doors and gates get open on the escape route.

Building automatization module

The building automatization module ensures the economic, efficient and automatic operation of the HVAC systems.

This module switches off the electricity in the free, empty rooms, keeps the heating and cooling at a minimum level.

The system monitoring function detects the energy consuming errors, like windows left open.

In the booked (prepaid) rooms the heating, cooling and electric systems are switched in before the guest arrives.

The Receptionist and the Building Automatization Module accepts orders from the supervisor on the spot or from a remote location too.

The guest-hotel interaction

Booking on the web, using the app or on the spot

Guests can book their room on the Internet *well before* their arrival, but they can also book and check in *at arrival* (walk-in guests). This option is needed at not-planned travel, when the guest does not know how far they can drive that day, or when the guest does not wish to pay in advance.

Some guests booking on the Internet do not want to use their smart phone as key. These guests can prove their booking in the Procontrol WebHotel System in other ways, like:

- the guest receives a unique, single-use reservation code (PIN)
 - displayed on the screen (of their PC, device)
 - in e-mail
 - in text message (SMS)
- the guest receives the confirmation in a printable way with barcode/ QR code
- the guest uses their existing RFID transponder (frequent guest key card) to check-in



So, if the guest has valid booking and an RFID card from their previous stay, then they can get access rights for that card. In case the guest has no such RFID card, they receive PIN, QR code in text message and displayed on the screen (which they can print if they wish so).

Typing or scanning the code, the guest requests the RFID key card at the receptionist machine. At departure, the card can be taken and used at the next stay as returning/frequent guest card.

With the very same PIN the Bluetooth program can be activated on their device (the

person and the device must be logically connected). This activation has to be done only at the first booking, check-in; later it becomes automatic.

At the same time, if the walk-in guest wishes to use their smart device as key, they can download the app using the door opening enabled device, just as if the booked from home.

Mobile option, building in the booking possibility into the WebHotel program: In case the room is booked directly in the WebHotel program, not via the browser, webpage, the PIN gets activated automatically at the first booking, and there is no need to enter it even at the first arrival.

Receptionist and paying machine (AutoPay4400 H)

These two devices can be installed into one housing, tower. In larger premises, it is worth placing them into two cases; and even more machines can work in parallel.

The tower housing the Receptionist module and the Paying machine module consists:

- Touchscreen
 - large, high resolution, colour screen with interactive, user-friendly programme
 - showing auto fill in suggestions
 - presenting the amount paid, still to pay and returned
- Peripherals
 - the bank card accepting unit
 - the bank card accepting unit (PayPass and RFID cards)
 - banknote detector and accepting unit
 - money returning unit
 - the storage unit
 - the thermal printer unit
 - key card issuing window
 - camera for the money handling peripherals, and for the recording of the person using it
 - video recorder unit



Entering the room



A. The guest can open their room and all doors, gates, barriers they are entitled for with the RFID key card received from the receptionist machine.

B. The guest has to download the ProxerAccess application on the mobile device (Bluetooth-enabled). The guest can open all doors, gates, barriers for which they are entitled for. Application is activated at payment.



C. According to the hotel management's decision, the bill printed by the paying machine may include a bar code. This printed barcode (or the one sent in email and printed by the guest) can work as key card (access controllers must include barcode readers).

Hotel rooms are equipped with **Proxer H** type locks. It consists of two units:

1. Access controller, identifying the guest, inform them and let them in. The access controller is connected to the central administration (ProxerNet Access Control module)
2. Electromechanical lock mechanism

The **Proxer H** access control terminal is an elegant, glass-like, sophisticated wall-mounted panel, housing the following parts:

- RFID reader (Radio Frequency Identification technology, for reading RFID cards, tags, bracelets)
- Bluetooth communication module (encrypted communication with smartphones or BLE tags)
- Barcode reader for 1D, 2D codes (QR codes) - optional
- Door opening sensor
- Lock controlling module
- Cabled PoE communication module (Power Over Ethernet IEEE 802.3af) data traffic and power supply via a Cat5-6 cable and an RJ45 connector
- Wireless (Wi-Fi) communication module
- Power supply from battery. wireless ZigBee data traffic - option



The Comfort version of **Proxer H** access controller contains all modules listed above:

- Displaying room number
- Displaying „Please do not disturb” message
- Displaying “Please make up the room” message
- Doorbell button - option

The **ProxerLock H** is an electromechanically bolted lock built in the doors of the hotel and connects to the lock controller of Proxer Hotel.

ProxerLock H locks are reliable, massive locks, easy to use, mount and need no maintenance.

The type, size of the locks, the shape of the handles can vary widely, giving free hand to the interior architects and decorators.

Please note: locks must have door know from the outside and handle from the inside – so the door can be opened from the inside all the time; from outside only the entitled ones can open it. (As ER opening doors may be opened with key).



ProxerIP system controller server

Server computer with Windows operation system, Microsoft SQL server and the IT cable network with switches and transmitters. Rack-mounted server is suggested in larger hotels.

To run ProxerNet program and for its smooth operation these are the minimum requirements:

- Intel Core i3 processor
- Memory: 4 GB RAM
- Winchester, at least 10 GB free space
- UPS 500VA
- Ethernet 100 MBit network interface
- For printing: Windows-compatible ink-jet, matrix or laser printer

Supported OS:

Windows XP SP3, 2003, 2008, 2008 R2, 2012, 2012 R2, 2016, Vista, 7, 8, 8.1, 10 operation system (32 and 64 bites version)

Software requirements:

- Microsoft .Net Framework 4.0

- Microsoft SQL Server database manager with Management Studio
 - Express version for smaller hotels, pensions, hostels – Procontrol takes over the installation and configuration
 - Minimal version: MSSQL Server 2008R2

The requirements above contain the recommended minimum configuration.

The necessary disc space grows along with the quantity of the stored data, it may go over 10 GB as well. As the size of the database keeps on changing, it is important to check the free space on a regular basis.

In case more resource intensive software run on the same server, the acceptable operation cannot be granted.

The optional UPS230-500 is able to ensure uninterruptible power supply thus bridge a shorter power outage.

