



**COMPENDIUM  
HOSPITALITY**

**LOXONE**

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# Preface

Dear hoteliers, restaurateurs and partners,

The hotel industry has received little attention from the building technology sector in recent decades. Many have built traditionally controlled rooms, spaces and amenities with switches and thermostats and eschewed automation solutions due to concerns about guests. Personally, I can understand this sentiment, as few building automation systems focus on the guest experience and come with easy-to-use, purposeful software.



Other manufacturers build components, sell them at a high price, and require the implementation of third-party systems to allow for truly intelligent control. At Loxone, we are committed to a more holistic and customer-focused approach to building automation. For us, this means developing and producing complete solutions instead of just components. Loxone develops all products in-house, which guarantees a fast response time and a high level of expertise in the areas of application.

As a provider of a complete solution, we have no excuse if the system fails. Taking on this responsibility is a matter of course for us as a manufacturer. Loxone has many products that, when combined in one installation, make it possible to bring the needs of the hotel operator into excellent symbiosis with simplicity for guests and employees of different hierarchies. Guest experience is at the heart of our solutions.

Perfection can only be achieved through practice. For us, this means putting our products and software into practice and allowing them to mature to perfection within our own installation; The Loxone Campus a 190,000 sq ft square foot megastructure encompassing a hotel, restaurant, wellness center, auditorium, conference rooms and office spaces. At the Loxone Campus in Austria, we have implemented a state-of-the-art building automation solution. Warehouse, office, restaurant, meeting space, wellness area, rooms and more are all part of the installation.

As hotel operators ourselves, we know that the best overnight occupancy rate and the contribution margin generated by can melt away like an ice cube in freshly brewed coffee once maintenance efforts and energy costs are deducted.

With the global energy crisis that started in 2022, energy costs rose many times over, and the world was forced to change abruptly. Within a few short weeks, Loxone rolled out a comprehensive solution to get costs under control with the Energy Manager and the Energy Monitor; features that we provided free of

charge via product updates. This level of responsiveness is only possible if a product consists of powerful software. At Loxone, our product portfolio consists of 85% software and 15% hardware. Most manufacturers of products build hardware and sell it at a higher price than Loxone, with software sold separately. As a result, interfaces between the hardware and software between manufacturers are usually unstable, which leads to high maintenance costs and disruptions in the event of updates or power failures.

Even if it is not always easy, it is certainly on us to take on all this responsibility and offer products with unique performance. This is a matter of honor for us, of which we are proud.

Since Loxone was founded in 2009, we have had the credo "The limit of what is feasible is not in the product, but in the mind". To date, we are proud to have implemented over 280,000 projects worldwide, solving a wide variety of challenges.

For an installation to do what is sensible and smart, it needs a good product architecture, which starts in the planning phase. To make this planning stage more successful, we have compiled this compendium with two primary focuses. On the one hand, it is divided into areas of application such as hotel rooms, reception and much more. On the other hand, it is divided into topics such as lighting, heating, air conditioning, ventilation, audio, etc. You can also find installation tips in this Compendium.

I hope we can make it easier for you to gain an insight into the complex world of building automation systems and hope you enjoy reading it.

Sincerely,

A handwritten signature in black ink, appearing to be 'T. Moser', with a long horizontal flourish extending to the right.

Thomas Moser  
Group CEO, Product Architect



# Introduction

Automation solutions play a central role in the modern hotel and restaurant industry.

Energy efficiency is a crucial topic for many businesses aiming to save costs and reduce their ecological footprint. Does a room really need extra lighting when there's sufficient daylight? Should the heating system run while the windows are open? Loxone offers the only solution in the world for implementing a holistic, manufacturer-independent energy management system that addresses these concerns.

Moreover, automation solutions can significantly enhance guest experience and convenience. Take a hotel bar: imagine being able to ensure the perfect atmosphere at any time of the day with the strategic use of music and lighting. That is just a small part of the experience enhancing capabilities offered by Loxone.

In today's fast-paced world, flexibility in building control is also essential. Loxone's largely software-based system allows companies to adapt quickly to changing conditions.

# Challenges

In this chapter, we shed light on the complex requirements for building automation in the hotel and dining industry. We show how intelligent systems can solve the challenges faced by hotel managers and owners to increase operational efficiency and create an unparalleled guest experience.

## Reception

Reception is the linchpin of any hotel. By integrating building automation, you can not only improve guest comfort, but also manage operational challenges more effectively.



With Loxone, you give your employees a powerful tool that is easy to use despite the comprehensive range of features. If, for example, the temperature in the wellness area needs to be adjusted, this can be done quickly and easily in the Loxone App. No technical staff is required.

Managing individual access permissions for guests can also be particularly challenging. Whether it's access to the wellness area or the use of an EV Charger – your employees can set up individual authorizations for guests quickly and easily.

To ensure an optimal guest experience, it is also important that energy wasting disturbances such as emergency exits or sauna doors being left open for too long are immediately reported to the reception. The Loxone system ensures that such

important information is communicated instantly to enable quick action. This is extremely easy to do with a product that consists of 85% software.

### **TOP FEATURES**

- > User-guided access via the Loxone App
  - Up to the last level, if required
  - It depends on the user's permissions.
- > Quick intervention in parameters such as sauna temperature, opening hours, pool cover, etc.
- > Simple assignment of individual access authorizations
- > Central reporting point for technical alarms
  - E.g. in the case of rain while doors are open
  - "No Room Service Today" requests
  - And much more



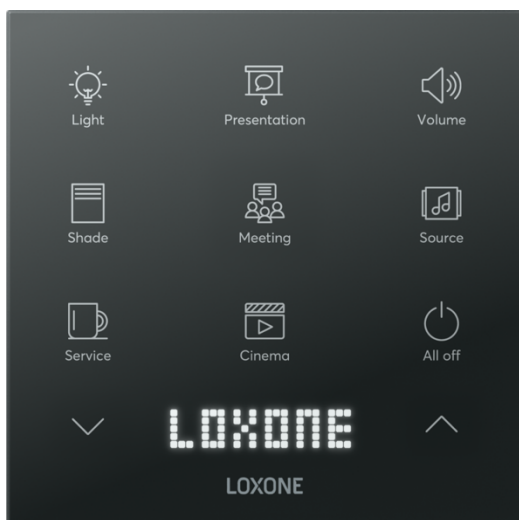
## Conference Rooms

The requirements for conference rooms are diverse and complex. These include creating an adaptable space that supports various event formats, ensuring comfort and connectivity for participants and efficiently managing energy and resources. Further, these spaces must be easy to control and utilize, even in the presence of extensive technical equipment.

Building automation from Loxone seamlessly integrates lighting, shading, air conditioning and multimedia technology, allowing the room to be quickly and easily adapted to individual needs.



With the Touch Pure Flex, we offer an intuitive control element for central control of the entire room.



Example configuration of a Touch Pure Flex



or:

<https://configurator.loxone.com/>

Another crucial aspect of conference rooms is access authorization. Both the speaker and participants need access to the conference room. This access can be quickly and easily granted to participants at check-in, eliminating the need for manually locking or unlocking doors.

### **TOP FEATURES**

- > Easy to use via Touch Pure Flex or Loxone App
- > Individual access authorization
- > Automated room ventilation control

Good air quality is essential for maintaining an environment that is conducive to concentration and productivity. Whether there are 5 or 50 people in the room, the automatic room ventilation system adjusts independently, considering humidity, temperature, and CO2 levels to ensure optimal

#### **Our recommendation:**

In conference rooms, automatic features should be used sparingly. Automatic lighting control based on presence and lighting conditions can quickly become disruptive during a presentation where full darkness is required.

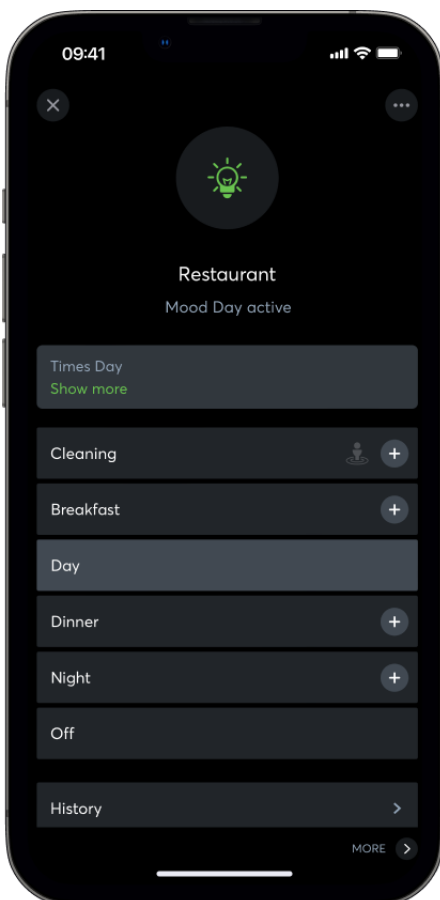
## Restaurant & Bar

In restaurants and bars, atmospheric lighting and high-quality sound are essential for creating a pleasant ambiance. Operators typically have specific ideas and preferences for their location's atmosphere, including optimizing lighting, music, air conditioning and decoration. To ensure the best guest experience, it's usually preferable to minimize the need for manual intervention in these areas by guests or staff - such as adjusting music selections.

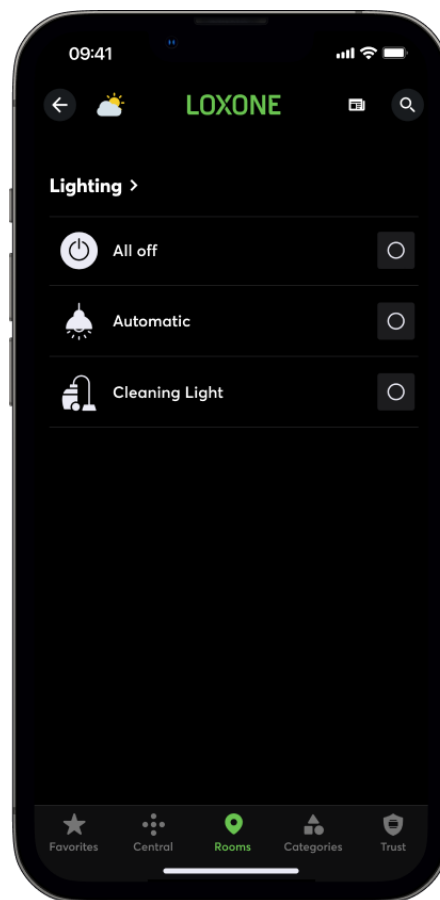


With Loxone, you can use lighting scenes and music to define the ambience that fits your desired dining experience perfectly. The Loxone Miniserver ensures that lights and music are automatically activated depending on brightness, time of day, etc.

And if desired, the ambience can be automatically changed throughout the day – completely unnoticed by the guests thanks to smooth transitions. Lighting, music and other features can be adapted to provide the optimal setting for everything from a relaxed breakfast to a lively bar. These changes can be made quickly and easily – but only by authorized persons.

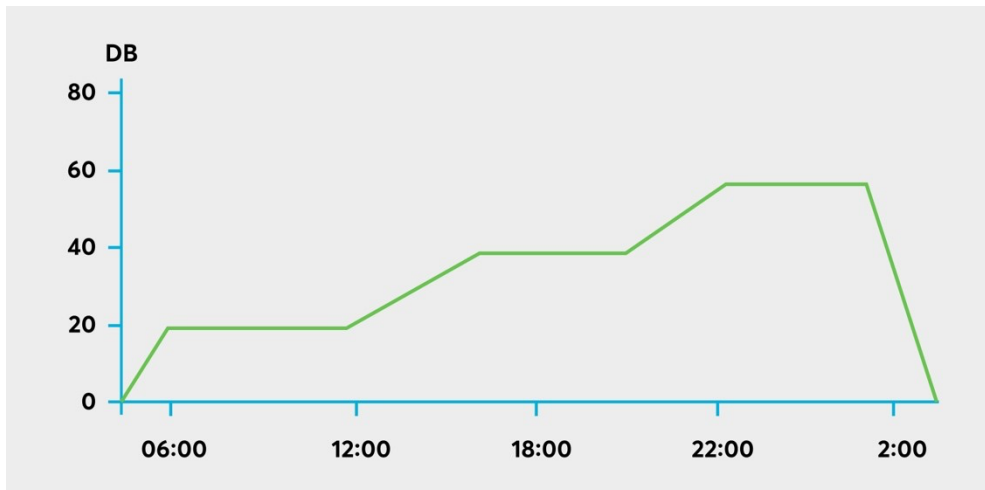


*Lighting control from the restaurant manager's point of view*



*Lighting control from an employee's point of view*

Open-plan kitchen concepts are becoming increasingly popular but pose a particular challenge for room ventilation control. Precise, automated ventilation control, based on the overpressure principle, significantly improves air quality and enhances the overall dining experience.



**Our recommendation:**

With excellent sound quality and the right music, you can ensure a pleasant ambience for your guests. Quadral Speakers, offered through Loxone, are designed to create a uniform high-quality sound carpet for the entire dining area.



**TOP FEATURES**

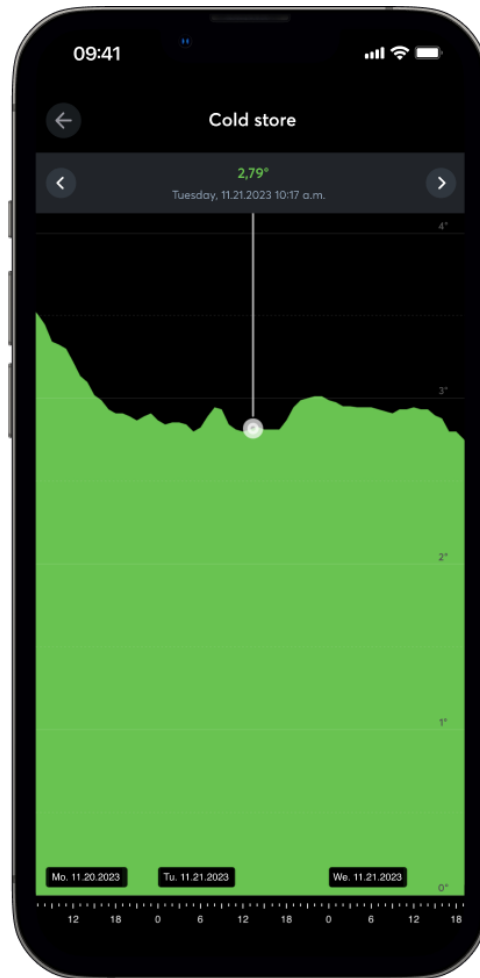
- > Sound carpet in Hi-Fi quality
- > Individual volume adjustable for each speaker
- > Automated room ventilation control
- > Automatic adjustment of light and music
  - Breakfast
  - Day
  - Dinner
  - Bar
  - Cleaning
- > Precise control of light & music
  - Music and lighting moods can be easily changed at any time via the app for those authorized
  - Selective intervention options for personnel

## Kitchen

The kitchen is the heartbeat of any restaurant. Traditionally, some of the most load-intensive energy consumers in a building can be found here. These functions and appliances not only contribute to energy costs, but they can, in the worst case, even overload a building's infrastructure. Especially in the kitchen, intelligent load management offers key advantages. Almost all professional kitchen appliances can be optimized via load management.

Additionally, electricity prices can fluctuate hourly based on demand in certain regions. An overrun of power can not only lead to a failure of the power supply, but also cause considerable additional costs. With Loxone's load management, these peak loads can be monitored and avoided.

Another challenge is the monitoring of commercial refrigeration appliances and spaces. This is often where perishable goods are stored - i.e. a lot of money! A door left accidentally ajar can lead to costly energy overages and inventory damage. The Loxone Miniserver can monitor door status as well as temperature and capture and record these data points free of charge. These readings can then be provided for regulatory reasons, analyzed to optimize energy efficiency, and in critical situations, automatically trigger an alarm chain so any issues can be addressed immediately.

*Load Manager Visualization**Cold Storage Temperature Statistics*

### TOP FEATURES

- > Peak load management
- > Cold store monitoring
- > Statistics Recording & Data Logger

## Ballroom & Event Space

Event spaces are versatile use areas that usually house extensive technical equipment including projectors, screens, sound systems and more. Ideally, these components should act as a single unit. With the Loxone Miniserver, these individual components can be easily integrated and operated synchronically, so that even untrained personnel can operate the technical equipment through simple single-control operation.

Large rooms also pose special challenges for ventilation and heating technology. If 100 people enter a room at the same time, the temperature rises rapidly, while the CO<sub>2</sub> content increases. An HVAC system controlled by the Loxone Miniserver can react quickly to these changing conditions. Only a minimal amount of hardware is required for this, as the bulk of it is solved by our free software.



### TOP FEATURES

- > Easy-to-use media control
- > Easily adaptable lighting moods
- > Automated room ventilation control

## Wellness & Spa

The wellness area is intended to be a place of complete relaxation for guests, where even small details can have a big impact on guest satisfaction. Factors like inappropriate or loud music, sub-optimal temperatures in resting areas, or unpleasant lighting can negatively affect the overall experience. However, with a customized and automated wellness environment by Loxone, this experience can be significantly improved. This approach also enhances energy efficiency, saving both time and money.





## Pool

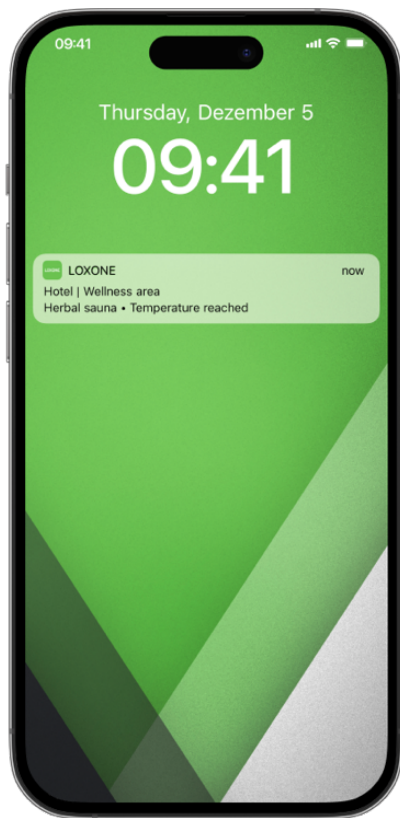
There are numerous ways to save energy on pool areas and aquatic features through building automation. For example, automation from Loxone can inform facility management when a pool is not in use allowing them to close it to preserve heat and reduce energy consumption. Additionally, waste heat can be captured for use in heating the pool area or water.

Automation also simplifies and optimizes pool area monitoring and maintenance. It allows the automatic triggering of technical alarms – e.g. in the event of significant water loss, a high temperature deviation or a pump failure. Early notification lets your staff react quickly, saving maintenance costs and preventing significant follow-up costs.

## Sauna

Automation offers significant energy savings in sauna areas. Sauna temperature can be adapted and optimized automatically for guests through presence-based controls or manually by informing building services or reception when sauna door has been open for a long time.

If a guest wishes to make changes, such as adjusting the sauna temperature, this can be done quickly and easily via the Loxone App.



*Push notification of the Loxone App*

## Relaxation Rooms

The atmosphere in relaxation rooms is created by a combination of lighting, music and room temperature. A system automated with Loxone makes it possible to define scenarios based on time of day or season to ensure an ideal environment.

Dimmable lights and LED strips that create soft gradients can contribute to a sense of calm, while the integrated audio system delivers relaxing sounds. The technology runs discreetly in the background while contributing to the well-being of the guests.

### **TOP FEATURES**

- > Automated energy management
- > Reporting of incidents
- > Perfect guest experience thanks to automated lighting, sound and air conditioning
- > Service Call Button

## Hotel Rooms

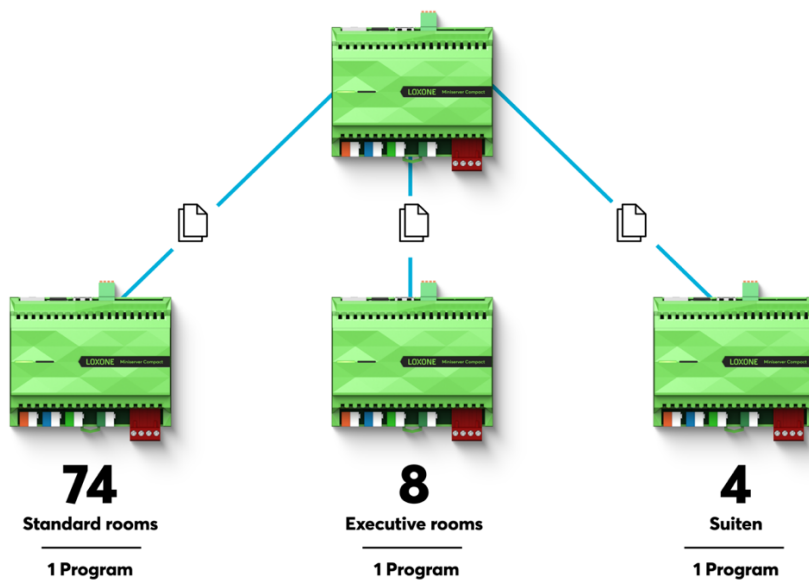
A hotel room must not only be comfortable and inviting, but also meet the diverse needs and expectations of all guests. Loxone building automation systems offers the opportunity to create a customized experience that both increases operational efficiency and improves your guests' stay.

The integration and maintenance of a large number of rooms is complicated and time-consuming with other automation solutions. But with the Multiplier, Loxone has created a special tool that allows you to set up and manage a fleet of similar rooms based on a standardized function plan with minimal effort. Parameterization and programming only needs to be done once and can then be replicated and transferred to all other rooms with similar functions and features. It doesn't matter if it's 10 rooms or 100.



or:

<https://www.loxone.com/enus/kb/multiplier-project/>



A particular challenge in hotel rooms is ease of operation for guests. A wide variety of technical equipment, from lighting to air conditioning to multimedia systems are typically controlled from an equally wide variety of devices. And operating this patchwork of controls does not make for an ideal guest experience. That's why we created the Touch Pure Flex single-point control interface. This single control panel allows for the operation of multiple features key to guest satisfaction, from lights to audio to "Do Not Disturb" notifications, without the need for individual controls. The Touch Pure Flex is individually configured based on the needs of whatever space and functionalities they are controlling.



*Example configuration of a Touch Pure Flex*



or:

<https://configurator.loxone.com>

**Our recommendation:**

At the Loxone Campus, we have taken care to use automatic features carefully in the rooms, as we do not want to patronize our guests.

**TOP FEATURES HOTEL ROOMS**

- > Simple operating concept via Touch Pure Flex
- > Multiplier project for easy configuration, maintenance, and cost savings
- > Reset to Default: at check-out, all areas (shading, audio, lighting, etc.) are automatically reverted back to the default setting
- > Eco mode when you are away (shading only in case of overheating)



## Common Areas

One of the biggest energy drains in areas such as storage rooms, corridors, changing rooms and toilets is lighting left on when these areas are not in use. In contrast to guest rooms and conference rooms, it is important to control the lighting in these areas automatically based on the presence. At the Loxone Campus, energy-saving automated lighting requires 80% less energy than the normal lighting.

A special consideration for storage rooms is access control. Given the value of goods, property and technical equipment stored in these areas, access should be reserved only for select people. With the NFC Code Touch, a personalized access system can be implemented that provides extensive history and access logging options. This avoids anonymous access and curbs fraud attempts.



or:

<https://www.loxone.com/enus/products/security-access-control/>

### TOP FEATURES

- > Automatic lighting, ventilation, and air conditioning
- > Personalized access authorization
- > Record for last authorizations
- > Time- or presence-controlled locking of entrance doors

## Real-Life Experience From an Industry Professional

For the past 20 years that I have been working in the hotel industry, I have repeatedly encountered problems due to various interfaces and software tools. Failures or even damage could usually only be responded to far too late. No provider had a solution for all relevant systems.



Here at the Loxone Campus I have an overview of everything and the perfect overall concept for the first time, thanks to building automation from Loxone.

We can act quickly if problems arise, thus avoiding major damage. I no longer worry about water getting in after a sudden rainstorm. Even a power failure is not a problem because the Miniserver restarts all relevant systems, and the hotel puts itself back into operating mode.

A real highlight for me is the energy cost monitoring. I can plan our expenses with precision and act according to the motto "it is better to act than to react". The huge savings potential can be clearly seen after just a few months of operation.

Dominik Schwarzenberger  
Hotel Manager Loxone Campus



# Features

We are often perceived as a manufacturer of automation hardware – but our hardware products are only the tip of the iceberg. We are, first and foremost, software manufacturers. 85% of our total development efforts go into our software tools. They are what set us apart from all other systems on the market.



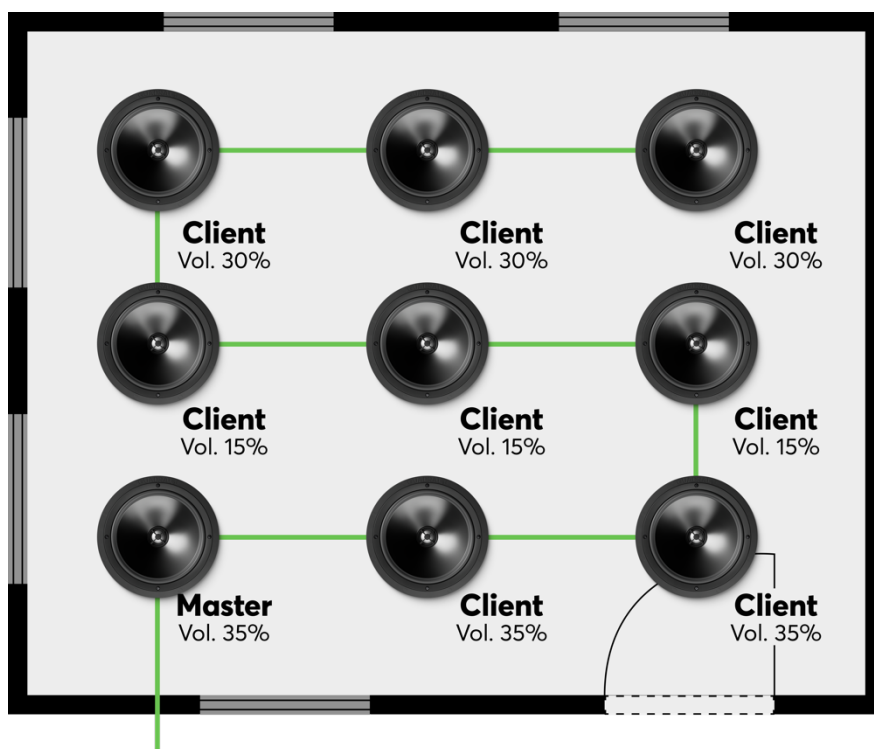
## Audio

Conventional wiring-configured audio systems often have two major drawbacks. Their integration often forms islands within the building control technology as they rarely interface well with other operations. They are also cost-intensive in terms of purchase, installation, maintenance and operation.

In addition, integrating audio systems into large areas is often not feasible with amplifier-based systems, as large distances must be bridged. And 100V audio systems, which would solve the problem of line lengths, are often a poor choice in terms of sound quality and require expensive hardware.

With the Audioserver, Loxone offers an innovative solution that has been specially developed to reliably perform 24-hour continuous operation for the entire life of a building. The system is endlessly flexible, can be seamlessly integrated into the building automation system and is freely scalable.

To provide sound for large areas intelligently and with the best audio quality throughout, we have developed a digital, bus-based master-client audio system. This makes installation extremely easy, and the error rate is reduced to a minimum.



Unlike traditional audio solutions, no server rack is required for installation. The Audioserver is installed alongside other Loxone components in the control cabinet to save space. Like the rest of the building technology, it can be installed by any qualified electrician. And with an idle mode power consumption of just 2 watts it is also extremely energy efficient.

Loxone offers perfectly matched speakers for the Audioserver. From the almost invisible [Install Speakers](#) to the powerful [Satellite Speakers](#) for outdoor use, there is a suitable solution for every application.

### TOP FEATURES

- > Automated sound system in the wellness area, common areas, bar and restaurant
- > Easy to use and quick adjustments via the Loxone App
- > Convenient TTS (Text-to-Speech) messages
- > Custom announcements
- > Easy cabling
- > Unmatched value for money



or:

<https://www.loxone.com/enus/products/audioserver/technical/>

## Music Sources & Music Formats

Loxone's fully integrated audio solution offers a comprehensive feature set in terms of music sources and music formats:



Spotify Connect



TuneIn



SD-Card



Apple AirPlay 2



USB



Line-In



Network



Soundsuit



### Our recommendation:

In the Loxone Campus's restaurant, the volume and music selection are automatically adjusted – suitable for different times of the day and occasions.

## Control

Intelligent automation eliminates many repetitive tasks. And even though the automated functions mean that it is no longer necessary to constantly interact with a control element, there are still situations where use of manual control is simply more practical. And of course, staff and guests must always remain in control of the system, the operation of which must be intuitive, user-friendly and in real time.

### **One System for the Entire Building**

The reduction to a single, consistent operating concept creates simplicity. All aspects of the building can be operated according to the same principle and there is no need for specialized training.

Whether it's changing the lighting in the lobby, controlling the temperature of the sauna, or assigning individual access authorizations – all of this can be done according to the same operating concept without the support of a technician.

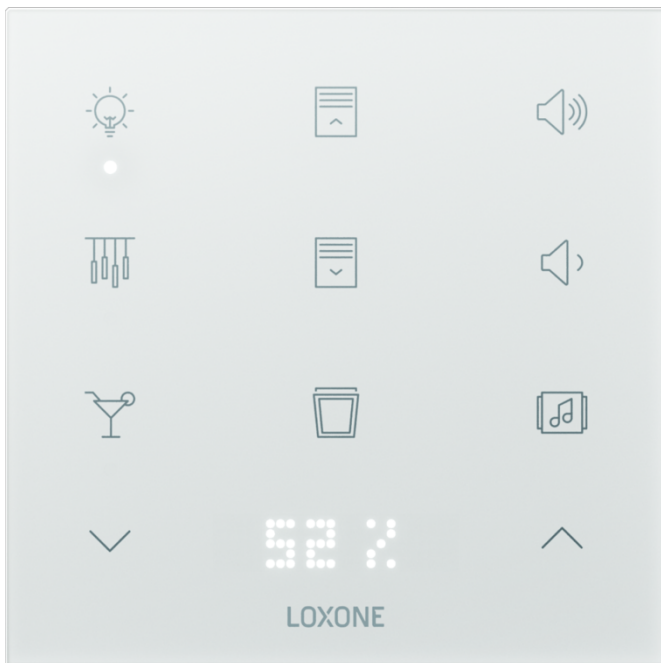
### **Fewer Controls, More Clarity**

Clarity and intuition are at the forefront of Loxone controls. You don't need a multitude of switches, buttons, etc. to control a room.

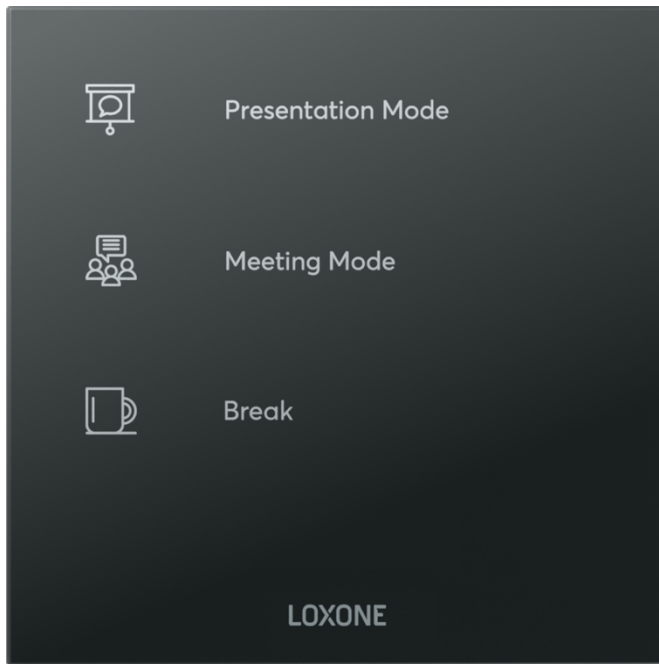
Thanks to the Loxone Switch Standard and the Touch Pure Flex, operation is simple and intuitive for staff and guests without the need for cumbersome and unattractive wall controls.



*Touch Pure Flex Hotel Room Template*



*Touch Pure Flex Restaurant Template*



*Touch Pure Flex Meeting Room Template*

**Worth knowing:**

Loxone's controls not only enable easy control, but they also provide data on temperature, humidity, and CO<sub>2</sub> – depending on the version. These can be used directly for intelligent automation.

## The Loxone App

All the functionality of a smart building in one application – that's the free Loxone App. Whether on a wall-mounted tablet or on a smartphone: with the Loxone App, intuitive and precise operation of all areas is always at your fingertips. The Loxone App can be customized so that different users, such as hotel management, housekeeping staff, technicians or receptionists, can only access the features that are important to their roles.



### Practical example:

The hotel management is authorized to adjust the lighting and music of the entire restaurant, if necessary, while the kitchen staff can only change the lighting inside the kitchen.



## Access

In every hotel and restaurant, there are areas and features that are only accessible to certain employees or guests. Conventional access systems can be complex and changes to authorizations are often difficult. Customizations, such as adding new users or changing access permissions, typically require a system administrator.

Loxone offers a comprehensive yet user-friendly solution for assigning access authorizations that integrates seamlessly into the overall system. Adjustments can be made easily and independently via the Loxone App without the need for specialist personnel.

### Practical example:

A craftsman receives a time-limited key card to carry out maintenance of the elevators. This key card can be created quickly and easily with the help of the Loxone App.



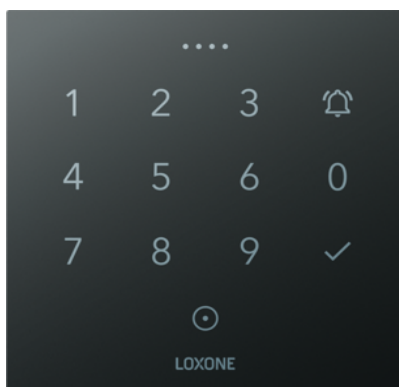
or:

<https://www.loxone.com/enus/products/security-access-control/>



Spotlight Special: Access system at Loxone Campus:

<https://www.loxone.com/enus/blog/access-control-loxone-campus>

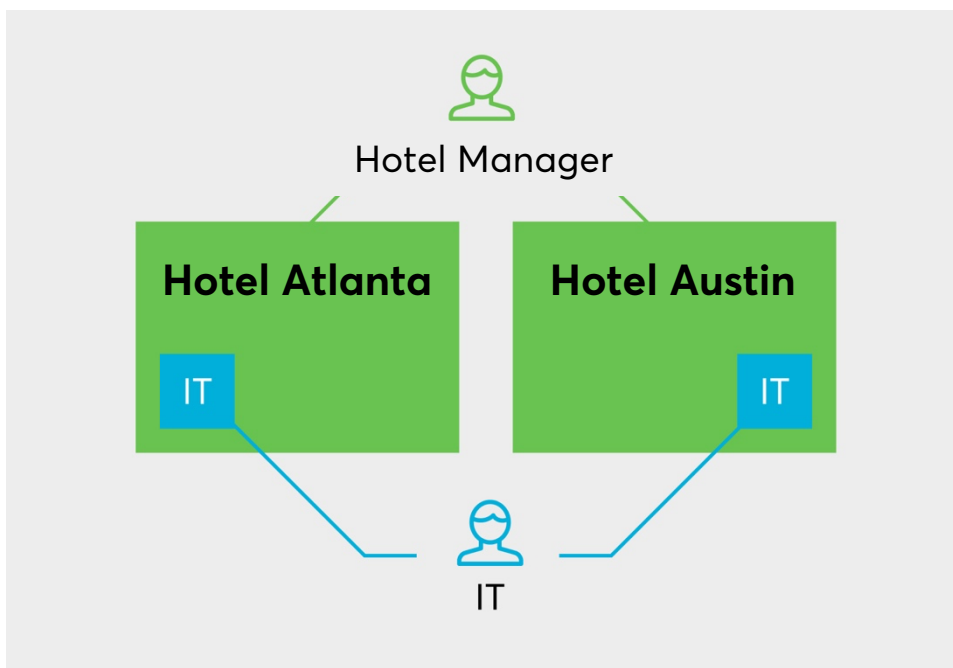


NFC Code Touch

## User Management

Access authorization and user management are critical to building and business security. Both access to certain areas and the authorization to perform functions via the Loxone App are linked to individual users or groups of users. New users can be easily created and assigned to the appropriate groups. All of this can be done independently without specialist personnel via the Loxone App.

We have developed a unique feature especially for larger companies: Loxone Trust. It provides employees with cross-site user management without having to create it individually.



### TOP FEATURES

- > Individual user and rights management
- > Logging & tracking
- > Time-dependent codes / one-time codes
- > Cross-site user/access management
- > Low cost per key thanks to NFC cards
- > In the event of loss, NFC Cards can be blocked or replaced easily, quickly and inexpensively

## Shading

Loxone's intelligent automatic shading system ensures comfort, energy efficiency and privacy.

Especially for hotels and restaurants, the increased energy costs associated with heating and cooling can be an immense financial drain. To heat and cool your rooms as efficiently as possible, Loxone shading control adjusts window coverings automatically based on the position of the sun, interior temperature, and presence of occupants. This approach takes energy load off the HVAC system, saving significant money in the long run.

At dusk, the shading elements can be made to close automatically, guaranteeing privacy for hotel guests.

This feature does not remove user control of shading in their room, as manual input will override the automatic functions on request.

And in specific situations, automated control of shades can be overridden entirely. For example, in a conference room that is currently in use, automatic rules can be fully deactivated ensuring shades stay in their desired position independent of external factors.

### TOP FEATURES

- > Intelligent control depending on daylight, position of the sun, indoor temperature and much more
- > Reduce energy costs thanks to intelligent automation
- > Unique guest experience thanks to comfort features such as light alarm clocks
- > Maintenance-free, long-lasting system
- > Safety features such as fire, storm and frost protection
- > Control of numerous shading elements such as blinds, roller shutters, awnings, Venetian blinds, etc.
- > Easy to use with Loxone Touches or App



or:

<https://www.loxone.com/enus/products/shading/>

## Lighting

Lighting has a decisive influence on our well-being and the power to completely change the ambience of a location.

Larger installations and public areas like event rooms often employ a variety of different light sources. This makes operation complicated and often requires the skills of a specialized lighting technician.

An automated lighting control system ensures optimal lighting of these larger rooms, depending on need, presence and daylight. The software automatically adjusts the lighting throughout the day.

### TOP FEATURES

- > Intelligent automation depending on brightness, time, presence and much more
- > Simple and intuitive control of all light sources via Loxone Touches or in the Loxone App
- > High energy efficiency due to presence-dependent control
- > Integration of a wide variety of light sources and standards such as DALI, DMX and more

Lighting can be quickly and easily adapted to the individual needs of your guests in the Loxone App without the need for a specialist.

We recommend the use of 24VDC bulbs as these can be dimmed continuously and are flicker-free. Further, control via the 24V RGBW dimmer is very cheap.

### Good to know:

In one of the various Carnegie Diners throughout the country automated with Loxone, you can indulge in culinary delights while living automation. Get inspired by their unique ambience through lighting moods. A wide variety of light sources and lighting techniques are combined here. They impressively set the scene for the stylish equipment. Almost unnoticed by the guests, the lighting changes automatically throughout the day. From a relaxed breakfast to a cozy dinner and a lively bar.



or:

<https://www.loxone.com/enus/products/lighting-control/>

## Heating, Cooling & Ventilation

Studies have shown that climate control accounts for more than 40%\* of the energy consumption in hotels and restaurants. Building automation with Loxone greatly increases the energy efficiency of heating and cooling systems, providing a massive reduction in overall energy costs.

The system learns autonomously when it needs to start heating or cooling to achieve a desired temperature at a given time in the most energy-efficient way possible.

If a guest is not in their room, the air conditioning works in eco mode. And if a window is open, the air conditioning is deactivated completely.

And this is all provided without taking control away from your guests. Guests can still manually adjust the temperature quickly and easily in their rooms according to their personal preferences.

### TOP FEATURES

1. High energy efficiency through intelligent automation such as presence-based control
2. Easy customization by the guest via Loxone Touches and Loxone App
  - After a check-out, all settings are automatically reset to the defined default settings
3. Air quality monitoring and control
4. Low-maintenance, reliable system
5. Integration of different heating systems

In public areas, such as restaurants and seminar rooms, good air quality and circulation are also essential to create the perfect guest experience.



or:

<https://www.loxone.com/enus/products/zoned-hvac-control/>

\*Sources:

Energy Use in Hotel Businesses – Empirical Survey and Programme Evaluation of the Energy Check for Tourism Businesses in the Province of Salzburg, page 79

Optimal use of energy – Information for the hotel industry, page 2

## Energy Management & Energy Monitoring

According to the research by NREL\*, buildings are responsible for 40% of the United States' total energy consumption. With comprehensive energy management, this energy consumption can be reduced by half.

This starts with recording and visualizing all energy consumers and producers, as well as energy flow, in a building. To visualize and optimize all energy flows a building needs a central control system, like the Loxone Miniserver. It connects all the electrical components of a building and ensures that they work as efficiently as possible, both individually and in combination.

There are three main phases to energy management with Loxone:

1. Recording and visualizing energy flows: The first step to true energy management is to know where the energy in a building goes, how much it consumes and how much it produces. Loxone's Energy Flow Monitor plays a central role in this. All data can be displayed in real time in an easy-to-read visualization on the Loxone App. Based on this information, a clear overview of the current energy status of the building is created and targeted optimization measures can be taken. It is important to note the exact differentiation between power (kW) and work (kW/h).
2. Reduction of basic consumption: Loxone energy management finds ways to reduce the base load of a building. This is accomplished by automatically switching off unnecessary energy outputs and identifying potential energy wasters (like lights left on in unoccupied rooms).
3. Shifting energy consumption: With Loxone's unique software, energy consumption can be shifted to times when energy is cheaper or even free – especially when solar energy is available.

\*Source: Sept. 14, 2023 | By Susannah Shoemaker | Contact media relations

Share: (n.d.). NREL researchers reveal how buildings across United States do-and could-use energy. NREL. <https://www.nrel.gov/news/features/2023/nrel-researchers-reveal-how-buildings-across-the-united-states-do-and-could-use-energy.html#:~:text=Buildings%20are%20responsible%20for%2040,building%20stock%20is%20also%20essential>.



*The Energy Flow Monitor in the Loxone App*

As detailed previously, about 40% of the energy requirements of a hotel and dining business are accounted for by heating and cooling. The efficient air conditioning of guest rooms and common areas is critical to energy management efforts. Guest rooms, for instance, should only be heated or cooled if they are booked.

Another big energy consumer is wellness areas. Pools and ventilation systems are often among the biggest energy guzzlers in the hotel industry.

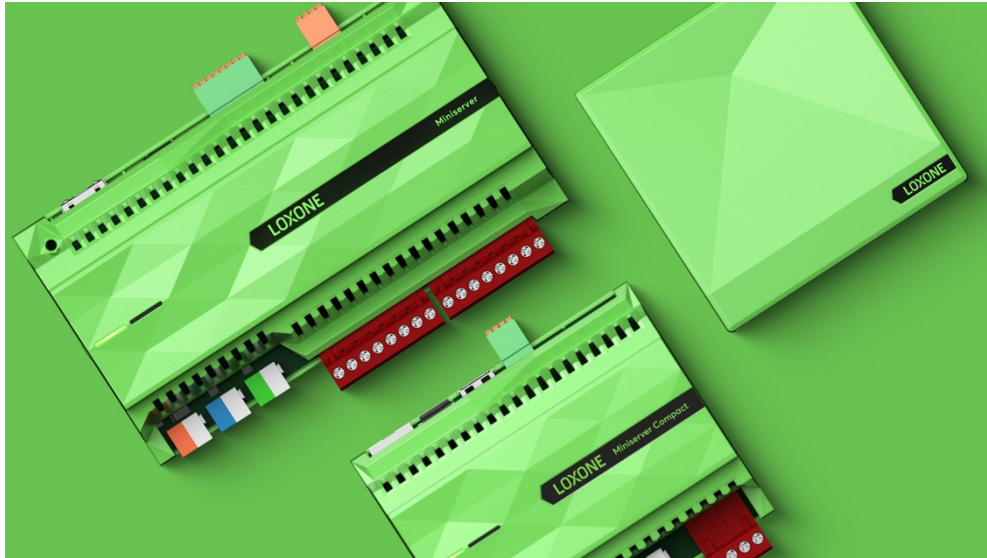


or:

<https://www.loxone.com/enus/products/energy-management/>

# Planning

## Miniserver Architecture



The Miniserver is the brain of every Loxone installation. In contrast to other systems, there are hardly any components that make decisions independently, which simplifies structuring and configuration. Centralization enables comprehensive automation, simplifies configuration, and ensures greater operational reliability.

Depending on the size of the project and the specific project requirements, several [Miniservers](#) can work separately or in combination. This enables free scalability of the system and allows the automation of even large-scale projects. In such projects, the choice of the correct communication type and the correct distribution of the Miniservers is crucial.

### Our recommendation:

By using several decentralized Miniservers, you save time in configuration and, at the same time, ensure increased reliability.



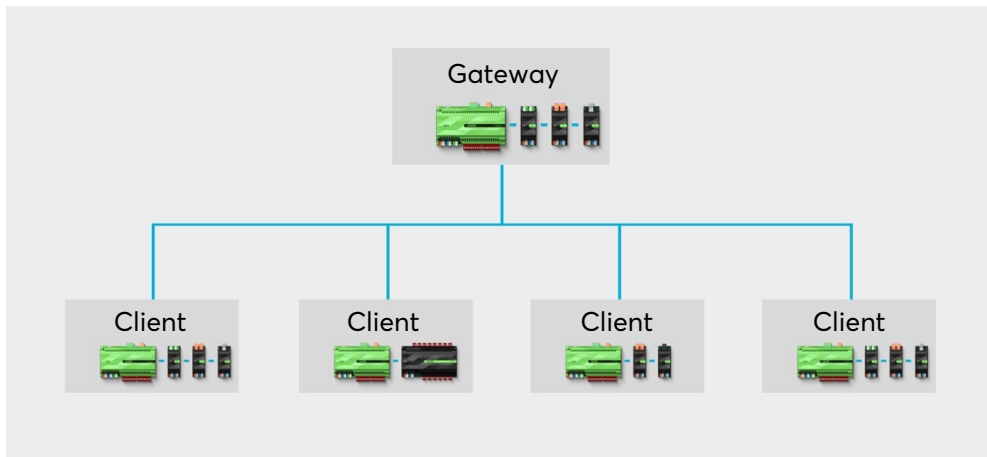
or:

<http://www.loxone.com/miniserver>



## Gateway Client:

In a Gateway-Client system, a Miniserver serving as a gateway manages other Miniservers that are linked as clients. One advantage to this approach is that the individual client Miniservers operate independently allowing the installation to continue to function in the case of a localized outage - for example, during maintenance work on a client.



### Good to know:

Where is Gateway-Client technology used on campus?

- > In the office area, where individual Miniservers control one area at a time
- > In the restaurant
- > In the hotel corridors
- > In the parking areas and in outdoor areas
- > In the wellness area
- > In the seminar area

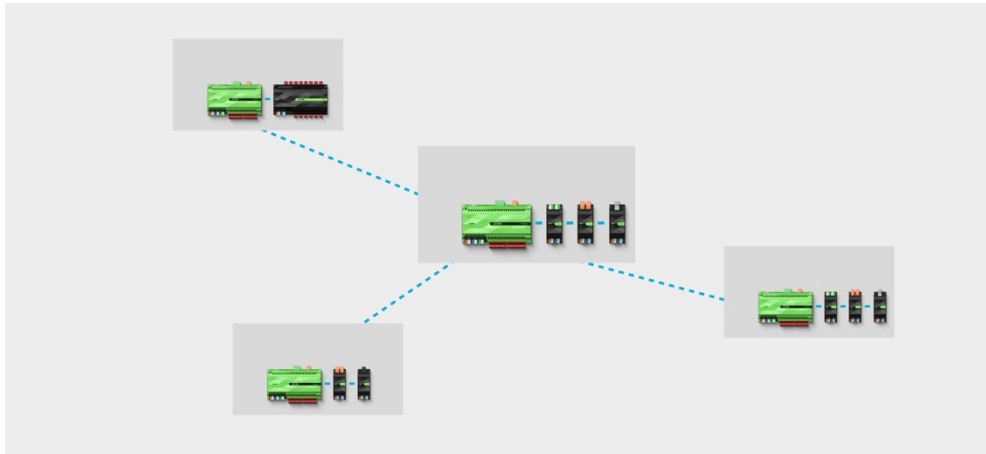


or:

<https://www.loxone.com/enen/kb/gateway-client/>

## Network Intercommunication:

Network intercommunication is an efficient and elegant way to exchange value between Miniservers, allowing digital, analog and text values to be sent and received. This communication method is suitable for the exchange of weather information, power, and meter values as well as individual control commands. Network intercommunication is ideally suited for integrating self-sufficient areas into the overall system.



### Good to know:

At the Loxone Campus, network intercommunication is used in the following areas:

- > For communication between the hotel room and the reception
- > To broadcast control commands
- > To dispatch heating or cooling supplies
- > Between Client Gateway Systems



or:

<https://www.loxone.com/enus/kb/network-intercommunication/>

## Tree Intercommunication

Tree Intercommunication is an encrypted communication method via the Tree interface of various Miniservers. As with network intercommunication, digital, analogue and text values can be transmitted. Communication takes place independently of the network, which leads to increased reliability.



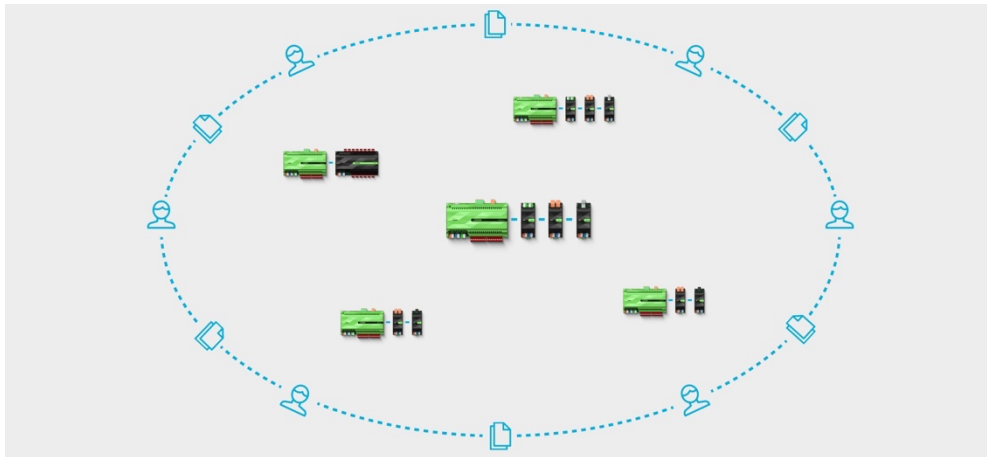
or:

<https://www.loxone.com/enen/kb/tree-intercommunication/>

## Trust

The Loxone Trust is a trust relationship between different Miniservers. As part of the Trust, it is possible to transmit users, user groups and their data across locations and in TLS encryption, including via internet connections. Digital, analogue and text values can also be sent.

In a hotel chain with different locations, a trust network provides employees with quick and uncomplicated access to the respective branches across locations, depending on their authorizations.



### Good to know:

All Miniservers of the Loxone Campus are in a common Trust. The Miniservers at the Loxone Campus also have a Trust to the Miniservers of our international branches. This means that one user can be used anywhere.



or:

<https://www.loxone.com/enus/kb/trust/>



# Implementation

## Cabling

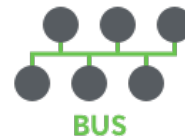
### Tree & Tree Turbo

When constructing a modern building, planning and installing cabling is a significant factor. In hotels or dining establishments, it is not uncommon to lay miles of cable throughout the building.

With the development of Loxone Tree, our goal was clear: to minimize the cabling and installation efforts for switches, sensors and lighting, without compromising on flexibility or functionality.

The Tree Extension forms the basis for the Loxone Tree technology. Fifty Tree devices can be connected to one Tree branch. For easy wiring, we have created a special cable.

The following topologies are possible with a maximum cable length of 1,640ft:

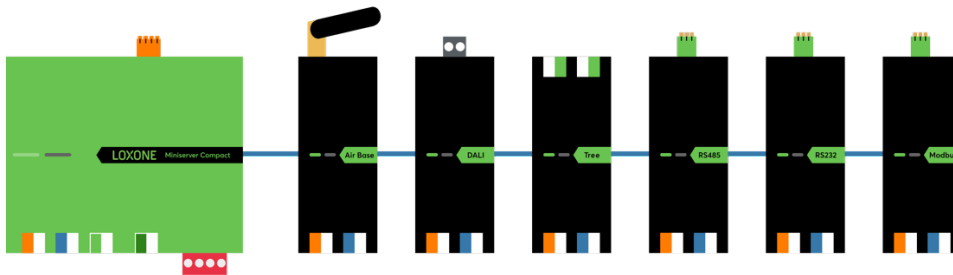


or:

<https://www.loxone.com/enus/kb/tree-extension/>

## Link

The Miniserver can be extended individually, depending on the project requirements. Through the Link interface, it can be expanded with up to 30 extensions, offering additional inputs, outputs, and various interfaces. The Link wiring must follow a linear configuration, serving as the bus connection within the distribution system.



or:

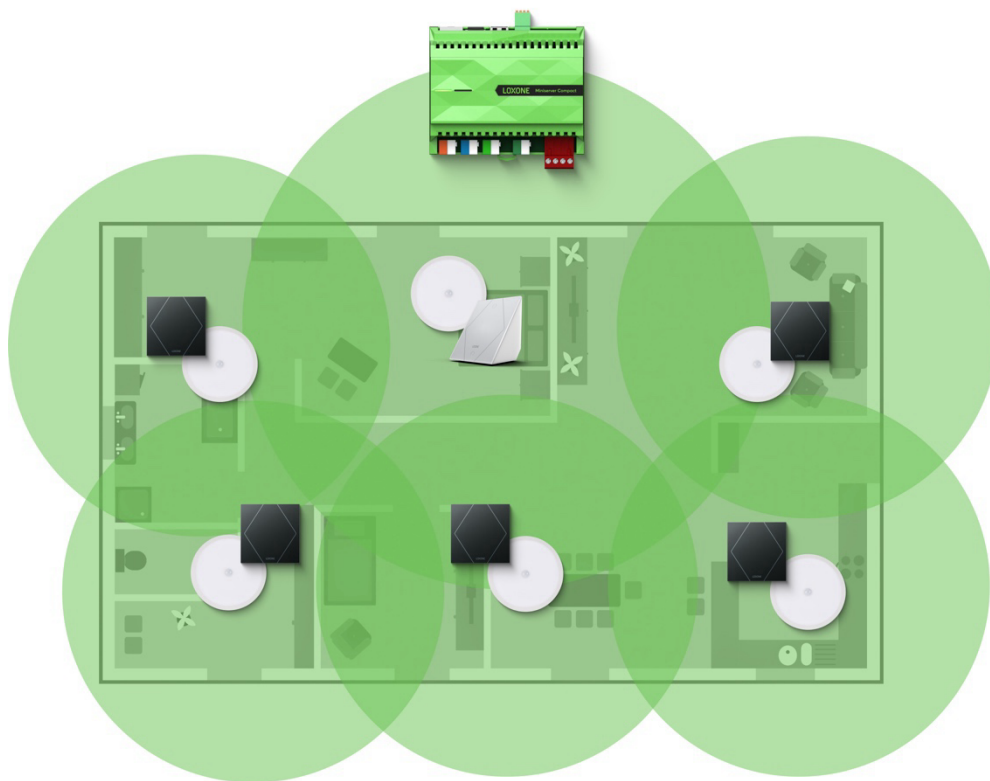
<https://www.loxone.com/enus/kb/link/>

## Air

Loxone Air wireless technology is designed for situations where laying cables is not feasible but modern building automation is still desired.

Using mesh technology, any product with a permanent power supply enhances the range and stability of the entire system.

The Loxone Air wireless interface supports up to 128 Air devices and is provided by the Air Base Extension, Miniserver Compact, Miniserver Go, or, for up to 49 devices, the Tree to Air Bridge. Specifically developed for building automation, Loxone Air seamlessly integrates numerous compatible devices.



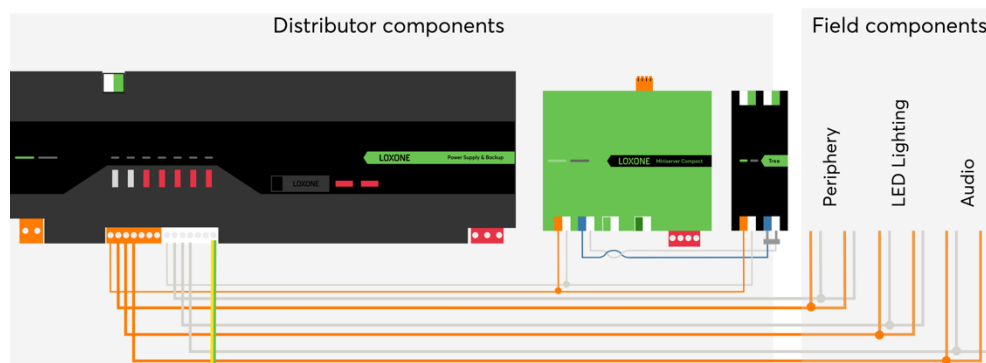
or:

<https://www.loxone.com/enus/kb/air/>



## 24V DC Supply

The operating voltage for Loxone products is 24V DC. A division of the 24V supply into several circuits is strongly recommended, as with 230V. This effectively prevents a total failure of the subsystem in the event of a short circuit or overload. The Loxone products are suitable for a PELV as well as SELV installation. We always recommend choosing the PELV installation, since a SELV installation is often not possible because an unwanted connection with the protective conductor (PE) is created via devices or grounded cable shields. In the event of an indirect lightning strike, this leads to high equalizing currents via electronic devices and can damage them.



### We recommend separate 24V DC circuits for:

- > Miniservers and Extensions
- > Field components (presence detectors, touch, etc.)
- > LED lighting
- > Audio

For an even more reliable power supply, we recommend our Power Supply & Backup. The DIN rail power supply unit takes over the power supply for your Loxone products - in combination with an external battery, even in the event of a power failure.



or:

<https://www.loxone.com/enen/kb/power-supply-backup-monitor/>

# Installation

## Periphery & Network

The network design can be flexibly adapted to your specific project requirements. However, it is important that the Miniservers are allowed to communicate with each other. This communication can be implemented either via routed subnets or within a single network. A prerequisite for a successful and fast installation is a fully functioning network.

**Good to know:**

In the Loxone Campus, the following network segments were implemented as VLAN:

- > General office space
- > Warehousing & logistics
- > Owner level
- > Hotel & restaurant
- > Infrastructure (cold rooms, ventilation, ...)
- > Experience Zone

Communication is allowed between these segments.

## Distribution Components

An existing network infrastructure greatly simplifies the installation process. If the Miniserver and the computer from which the Miniserver is configured are located in the network (even without an active internet connection), the Miniserver can be easily and quickly identified and taught.

**Good to know:**

In a company with a professionally managed network, we recommend:

- > Assign a static IP address to the Miniservers
- > Assign a logical host name to the Miniservers
- > Miniserver Network Documentation

To quickly gain an overview in the event of an error, we rely on clear and structured labeling at the Loxone Campus. As an example of this, we have set the hostnames of the Miniservers and Audioservers according to a specific scheme.

<b>MS</b>	<b>HO</b>	<b>U10</b>
Miniserver	Hotel	Subdistribution 10
<b>ACE</b>	<b>GL</b>	<b>BA</b>
Audioserver	Glorious Bastards	Bar

This makes it possible to see at a glance which device is in an error state, what it is responsible for and where it is located.

After the successful installation of the Miniserver, the connected extensions can now be searched for and found. Here, too, it is important to ensure precise labelling/documentation.



or:

<https://www.loxone.com/enus/kb/tree-branch/>

## Field Components

All Loxone field components are equipped with a status LED. This indicates whether the wiring has been carried out correctly.

<b>Red/green fast flashing</b>	Device is identified
<b>Flashing green</b>	Device is ready for use
<b>Orange flashing</b>	Wiring is fine. However, the device has not yet been taught-in
<b>Flashing red</b>	Wiring is out of order.



or:

<https://www.loxone.com/enen/kb/initial-setup-miniserver/>

## In the Spotlight: LED Spots

The Loxone RGBW Tree LED Spots are equipped with a special installation mode. This mode makes it possible to check the functionality of the connection during installation: a green LED indicates a working connection, while a red LED indicates a faulty connection.

**Good to know:**

This feature has proven to be very useful, especially in the auditorium at the Loxone Campus. Here, the use of a lifting platform was necessary for the installation of the spots, which made it much easier to check the correct wiring immediately.

## Labeling and Documentation

### Control Cabinet Components

The correct labeling of the Loxone peripherals is essential and forms the basis for accurate documentation. In the Loxone Config, both row and position can be stored in the distributor. This, in combination with the status LED, ensures that the devices can be easily identified later.

Installation location	
Installation location	
Panel	8 Space
Row in Panel	1
Position in panel row	2

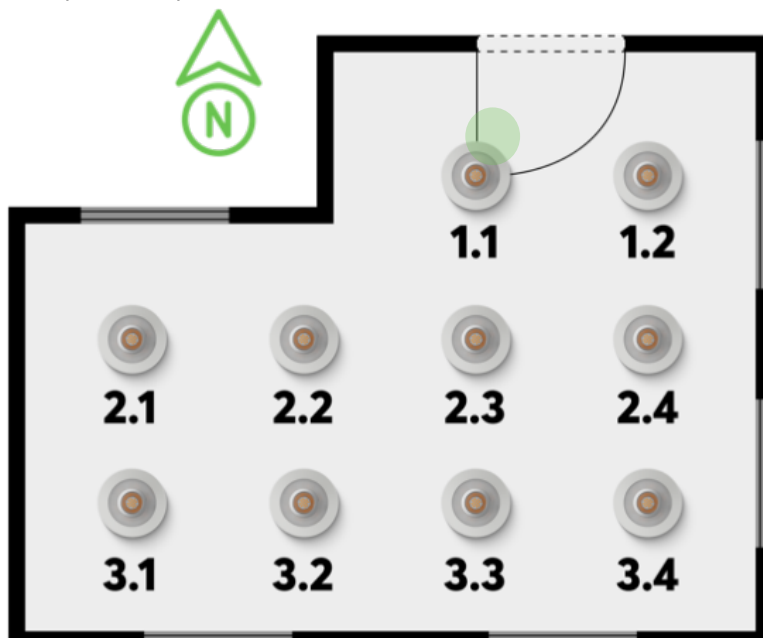
*Example: Miniserver in Space 8*

## Field Components

If the installation location of the field components is clear and the device acts where it is mounted, the position is indicated in the "Designation" field. In this example, it is an LED spot in the room "8 Box N" in the first row, second position. The numbering always starts in the cardinal direction north to south. The [LED spots](#) are numbered from left to right: 1.1 / 1.2 / 1.3 / 2.1 / 2.2 / 2.3.

General	
Name	1.2
Description	
Hint Text	Edit...
Connection	13000001.21.13114F5F.0.B038AE66
<input type="checkbox"/> Display Diagnostic Inputs	
Category	Lighting
Room	8 Box N
Object Type	Tree Device
Extension	Tree Extension (Schaltschrank R01 P03,...
Lighting Group	Spots (8 Box N)

Example: LED spot in the area "8 Box N" in the first row in the second position



If the device, such as a Nano 2 Relay Tree, which is responsible for opening the front door, is not installed in the place where it operates, the installation location must be specified. In this case, the relay that opens the entrance door to the underground car park is mounted in a terminal box in the entrance area.

General	
Name	Entry Door Underground Car Park
Description	
Hint Text	Edit...
Connection	13000001.21.13114F3D.1.B03FCBA9
<input type="checkbox"/> Display Diagnostic Inputs	
Room	Lounge Staircase
Object Type	Tree Device
Extension	Tree Extension (C-Level R01 P05, 13:11:...
Settings	
<input checked="" type="checkbox"/> Monitor online status	
Serial number	B0:3F:CB:A9
Device type	Nano 2 Relay Tree
Application	Universal
Threshold for current detection [mA]	100
Installation location	
Installation location	Terminal Box Entry Way Downstairs

# Maintenance & Service

## Loxone Exosphere

The Loxone Exosphere is an innovative, cloud-based platform that aims to revolutionize the management and maintenance of Miniserver fleets in various locations. Complementing existing Loxone products, Exosphere offers the following key features:

- > **Device Management:** Users are able to maintain all Miniservers at the same time. This includes features such as updates and backups, which can be performed for individual Miniservers as well as in bulk for entire fleets.
- > **Collaborate:** Exosphere enables the creation of workspaces where teams can collaborate and manage tasks efficiently. With the Loxone Config Cloud Connector, users are able to store projects in the cloud and make them accessible to team members. A built-in Credential Manager provides end-to-end encrypted storage for passwords and connection information.
- > **Observe:** Users are able to quickly search and analyze data from Miniservers and display it in different types of charts. Fully customizable dashboards provide a comprehensive view of key data, and system schemas make it possible to graphically display the system data of Miniserver fleets.

Exosphere is available in three editions – Essentials, Pro, and Enterprise – that differ in feature set and pricing structure to meet different needs. While the Essentials edition is designed for basic maintenance tasks and is available free, the Pro and Enterprise editions offer advanced features for commercial users, including more comprehensive data monitoring and management.

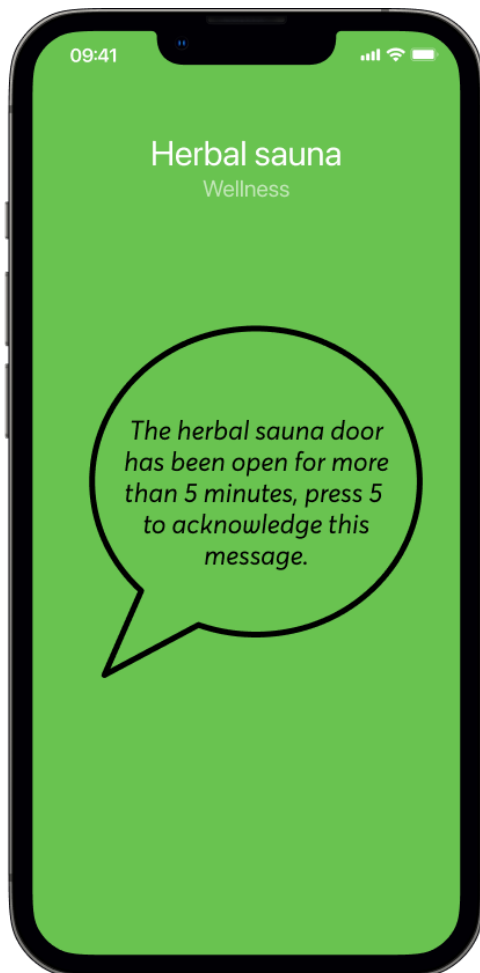
In summary, Exosphere is a powerful solution for Loxone Partners and commercial users to efficiently manage, maintain and monitor extensive Miniserver fleets.

# Alarms & Error Messages

## Technical Alert

Technical glitches can spoil the guest experience or cause significant damage. For example, a sauna that is too cold due to a door left open is an (energy-intensive) nuisance for the guest, while a failure of the cooling technology in the restaurant area can cause considerable monetary damage.

That's why, with the Loxone Miniserver, we offer numerous options for simple and timely alerts in the event of technical malfunctions. An effective way to address a malfunction is by using the Miniserver to activate an alarm chain with a call alert.



Loxone Caller Service

### Alarm chain:

- > Reception
- > In-house technician 1
- > In-house technician 2
- > Hotel manager
- > Owner



## Alarm

### TOP FEATURES

- > Any number of alarm zones
- > Presence simulation
- > Logging feature
- > Status of windows and doors (open/ closed)

An intelligent building equipped with Loxone equipment reliably detects whether a person gains unauthorized access to an area and reports this reliably. The 360° safety system also senses water leaks and warns of hazards such as fire or smoke, ensuring total safety.

#### Our recommendation:

If an area is not protected via access control, the Miniserver can be used to provide a discreet alarm in the event of unauthorized entry. If, for example, a guest enters the wellness area outside of regular opening hours, the system can activate reduced lighting. In addition, a text-to-speech (TTS) message is generated and output via the audio system, informing the guest that he or she is in the area outside of the intended usage times.

## Power Outage / Network Failure

A home and building automation system must be fail-safe. This ensures that in the event of a fault, such as a power failure, the system remains undamaged and automatically resumes service without needing technician intervention.

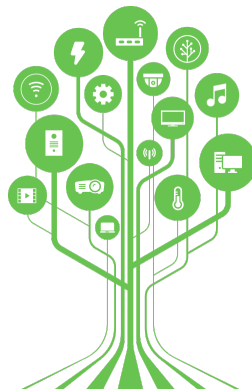
#### Tips for a reliable system:

- > Static IP addresses of all network components
- > Fail Safe Mode
  - o e.g. ventilation to 50% if network fails
- > Avoid dependencies
- > Remanence (the state before a power failure is automatically restored)

# Connection to Third-Party Systems

## Interfaces

Loxone is an open system. Regardless of the manufacturer and the area of application – if a product has a suitable interface, it can be integrated into the Loxone building automation system. Whether ventilation systems, TVs, KNX peripherals...



## Extensions & Protocols

Tree	Air	Digital Input/Output	Analog Input/Output	M-Bus
ModBus RTU	ModBus TCP	RS232	RS485	DMX
Internorm	Fröhling	Schüco	1-Wire	EnOcean
Infrared	EEBus	BacNet IP	Network (LAN)	SIA DC-09
Apple HomeKit	Apple AirPlay 2	Home Connect	Miele@home	KNX

## Library

Thanks to the open Loxone system, you can develop your own templates for our interfaces and make them available to the world via our Loxone Library.



or:

<https://library.loxone.com>

# Your Project – From idea to reality

**Are you interested in Loxone or would you like to implement a project?**

Your personal contact will be happy to accompany you on your way to an intelligent, comfortable, secure and energy-efficient building.

Loxone Inc.

Igor Beletsky

Email: [igor.beletsky@loxone.com](mailto:igor.beletsky@loxone.com)

Phone: +1 610 810 3344

**Are you looking for inspiration and want to see Loxone for yourself?**

Visit our website to learn more about the world of building automation in the hospitality industry. We've got exciting reference projects and blog posts with more tips for you.



or:

[loxone.com/enus/commercial/hospitality/](https://loxone.com/enus/commercial/hospitality/)

**Do you want to become a Loxone Partner?**

Contact us to schedule a free consultation without any obligations.



or:

[loxone.com/enus/for-pros/](https://loxone.com/enus/for-pros/)

**Do you want to experience our technology firsthand?**

Join us for one of our trainings – we would love to meet you in-person or online.



or:

[loxone.com/enus/training/](https://loxone.com/enus/training/)

# Notes





