

# Integrated Building Management and Security Solutions



AdCept Technologies Pvt. Ltd.

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## Introduction

### IP-based Building Management for Large Buildings and Campuses

A Single platform that encompasses many functions of present systems, namely

1. BMS systems
2. CCTV surveillance systems
3. Fire detection systems
4. Access control systems
5. On-campus communication system – IP-based
6. On-campus real-time asset-tracking (requires Wireless tracking infrastructure)
7. Perimeter security
8. On campus wireless access to Internet
9. Networked announcement boards or Billboards

Now, customers can source a comprehensive solution from a single vendor and enjoy the benefits of IP-enabled systems, such as distributed monitoring from central location with messaging and alerting options, not technologically feasible before!

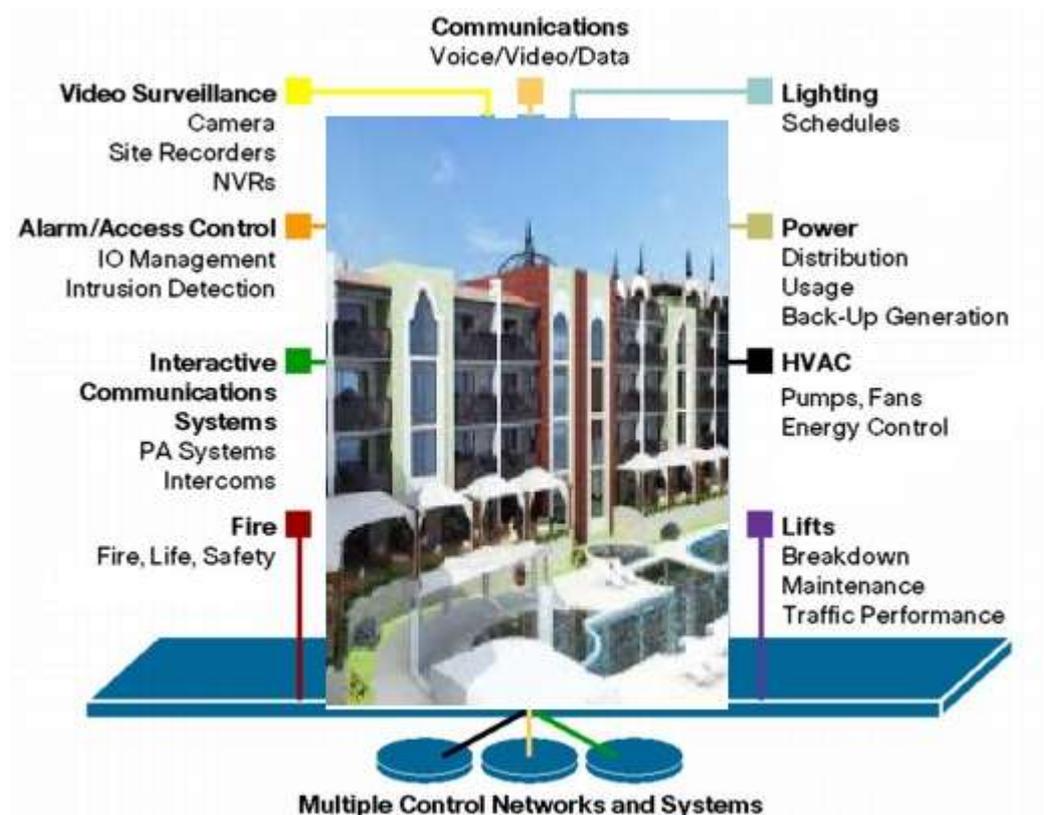


Figure 1 Intelligent Building Services

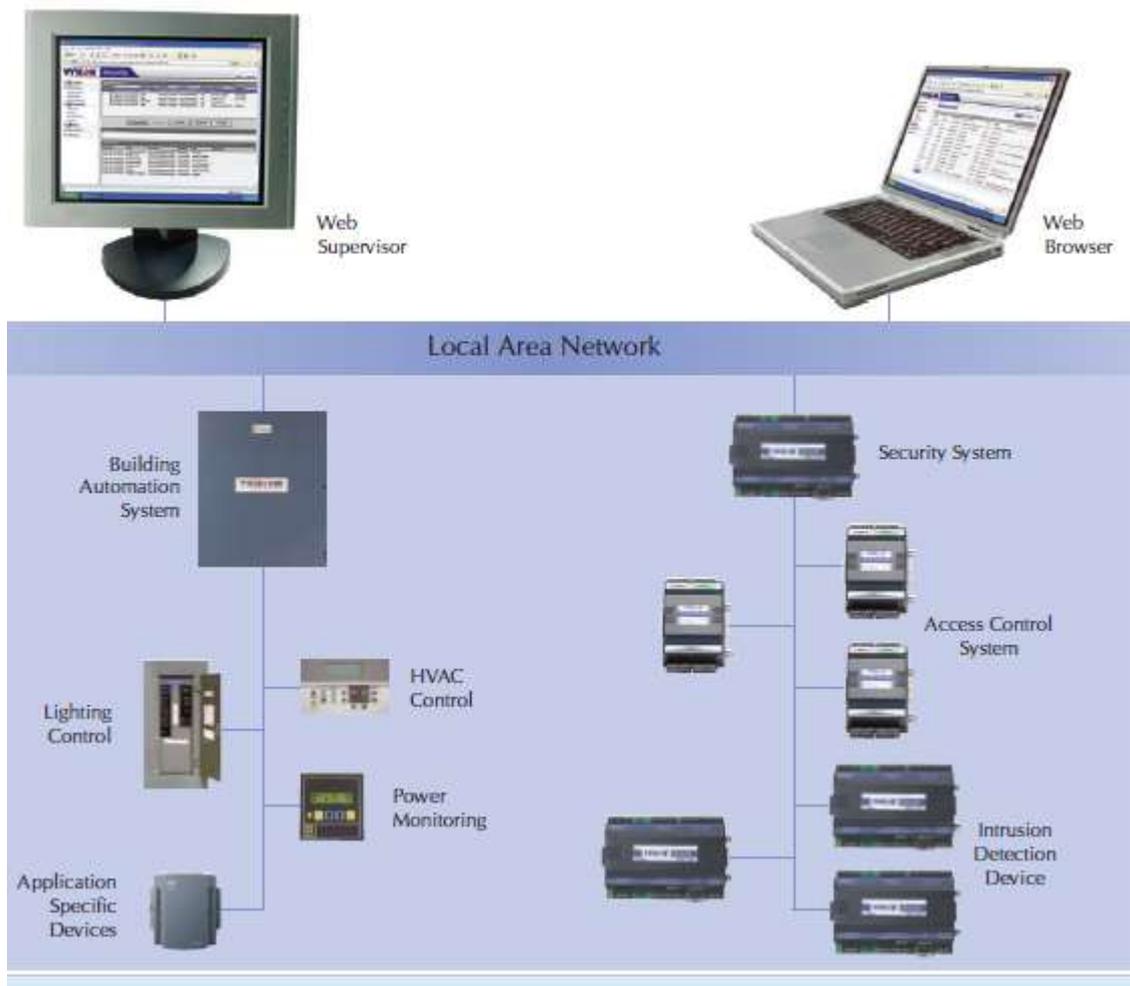


Figure 2 IP Based System Architecture

## Underlying requirement – Communication Infrastructure and Connectivity

### Inter building connectivity

Connectivity options for Inter building campus wide connectivity include fiber optic or wireless networking.

### In-building connectivity

In this scenario, there is the Fiber optic option or in-building wireless system for comprehensive building wide coverage.

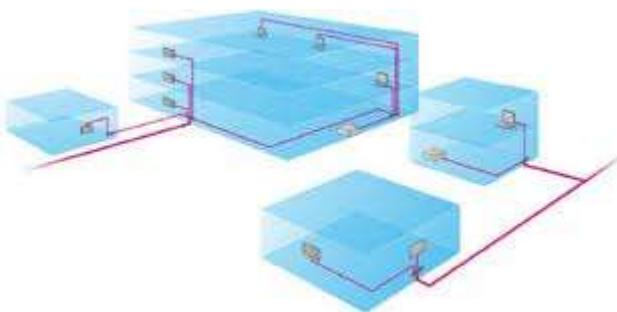
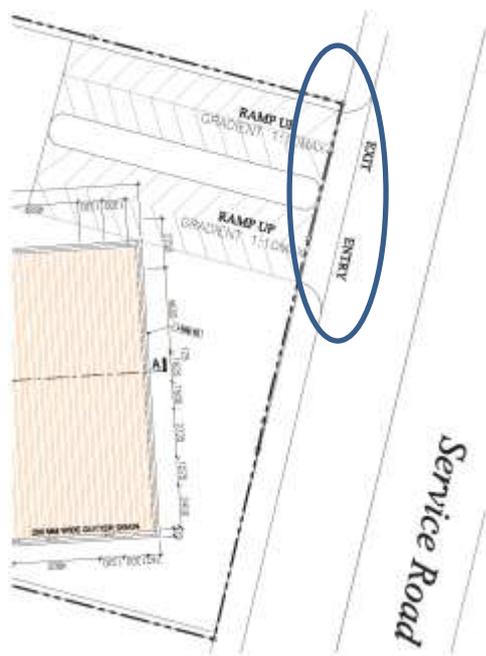


Figure 3 Inter and Intra-building Connectivity

## Tier One Security



## Perimeter security with option for Camera integration

The proposed system addresses the issue of lack of integrity as found in most systems. The deploying authorities require systems that are able to operate easily and reliably under a variety of operational and environmental conditions and that are not prone to false alarms and nuisance alarms. With confidence in the integrity of the monitoring system being a major concern today, new technology employing advanced distributed fiber optic sensors provide a reliable and cost-effective intrusion detection technology. These technology solutions come in two flavours, namely, “in-fence” deployment and “in ground” deployment for intrusion detection.

The multi-zone fiber optic sensor cable can be mounted to rigid fencing and/or buried in trenches around a perimeter for optimum monitoring of acoustic disruptions. The system uses high-fidelity reproduction and classification to accurately alarm upon detection of any noise or vibration that indicates tampering, intrusion, digging, operating of machinery or vehicles, and any other breaching events near the cable’s location.



### “In fence” intrusion detection

“In fence” intrusion detection is a monitoring system that detects the first signs of intrusion at the fence line, performing easily and reliably under a wide variety of operational and environmental conditions with an extremely low false alarm and nuisance alarm rates.

### **“In ground” intrusion detection**

This consists of a buried fiber optic perimeter security system designed to detect and verify personnel, animals, walking, running, digging, or the operation of machinery/vehicles near the sensing cable.

### **Advantage of fiber optic based system**

The buried fiber optic cable system replaces more expensive, unreliable, bulky electronic sensors currently used in existing conventional perimeter security systems with a low cost, ultra-reliable fiber optic sensor cable.

## **Main Entry Gate (Boom Barrier and PTZ Camera with Microphone controllers)**

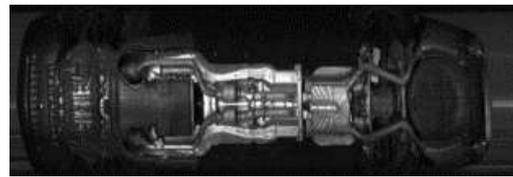
### **Boom Barriers**

Automatic Boom Barrier offer efficient security at the exit and the entry points of condominiums, parking lots, where medium to heavy traffic is expected. Designed for heavy-duty operation with sleek and modern looks, these have inbuilt anti-crush safety device suspends the motion of the barrier, should it meet any obstruction. Optional beam sensor provides further protection to vehicles. Dual speed of the barrier optimizes time and maximizes safety. This unique feature ensures quick opening and closing of the barrier with soft landing. Duration of fast and slow speeds is programmed at the time of installation according to the length of the boom and the frequency of traffic expected. Entire system is powered by 24 Volts DC to avoid electrocution and to integrate barrier with other peripheral safety devices such as access control system, optical beam sensor, etc. for greater flexibility and added safety. The barrier is activated either by a single touch push button or remote control. However its electronic control panel is designed to accept signals from various controls and safety accessories such as Beam sensor(optional), Magnetic card reader (optional), computer, etc. and added safety, at the time of installation according to the length of the boom and the frequency of traffic expected.



### **Under Vehicle Scanners**

The Under Vehicle Scanning System is a computer vision based system which uses high end electro mechanical and camera based assemble to image the underside of the moving vehicle at the entrance of any high security installations. The video grabbed by the system is stitched to form a compote image of the underside of the vehicle. Potential applications include inspection of vehicle underside for presence and detection of unwanted substances like bombs, explosives, contraband things etc.



As the vehicle remains moving at all times through a preselected area, the operator has time to interrogate the image produced within seconds of the vehicle having been driven over the scanner system. Faster display prevents any lengthy & often undesirable disruptions to the traffic flow. The image is displayed on a monitor and can be controlled by the operator to change the appearance of the image or zoom into selected areas to examine the underside image of the vehicle in more details.

Another distinct feature is the additional 3-4 auxiliary cameras, which are placed at an angle so as to cover the video of the hard to image areas, e.g. the area between tyre and mudguard, top part of the silencer etc. Which provide a thorough view of the hidden parts of the vehicle's underside.

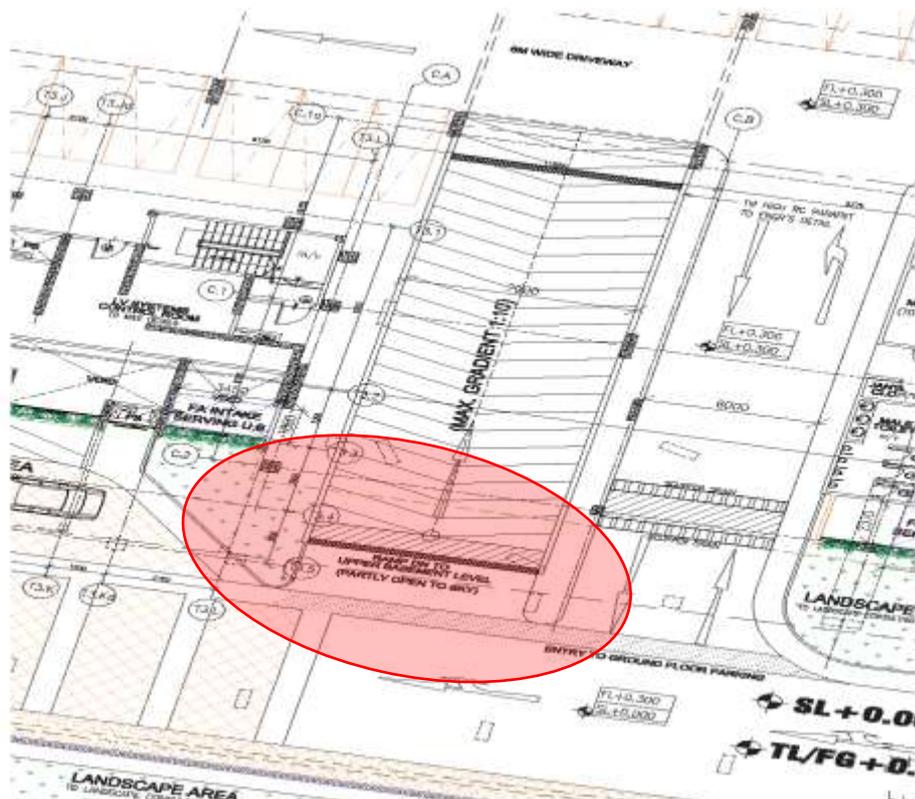
## Digital Signage

Electronic messaging systems, such as outdoor and indoor LED signs and displays, moving message boards, variable message signs, tickers, electronic message centers, and many other forms of digital signage are being put to use today.



The above picture shows a specialized line of electronic message boards designed for affordability and simplicity. Most will find these outdoor electronic message boards simple to install and very easy to program. In addition, these electronic message boards are ideal for safety awareness applications. These electronic message boards can stand-alone as a single electronic message board or be networked together as a system of electronic message centers. These LED message boards are based on a modular construction which allows for a variety of sizes, lines and characters. Furthermore, these LED message boards are weather resistant and can handle harsh environmental conditions, such as sun glare, heat, cold, and humidity.

## Tier Two Security



### Tier 2 Security Location

#### Access Control System - Entry & exit boom barrier with RFID & access cards

ID Badges and Access Control - Most organizations today require a performing and efficient access control system. There are many reasons for having such a system and these include:

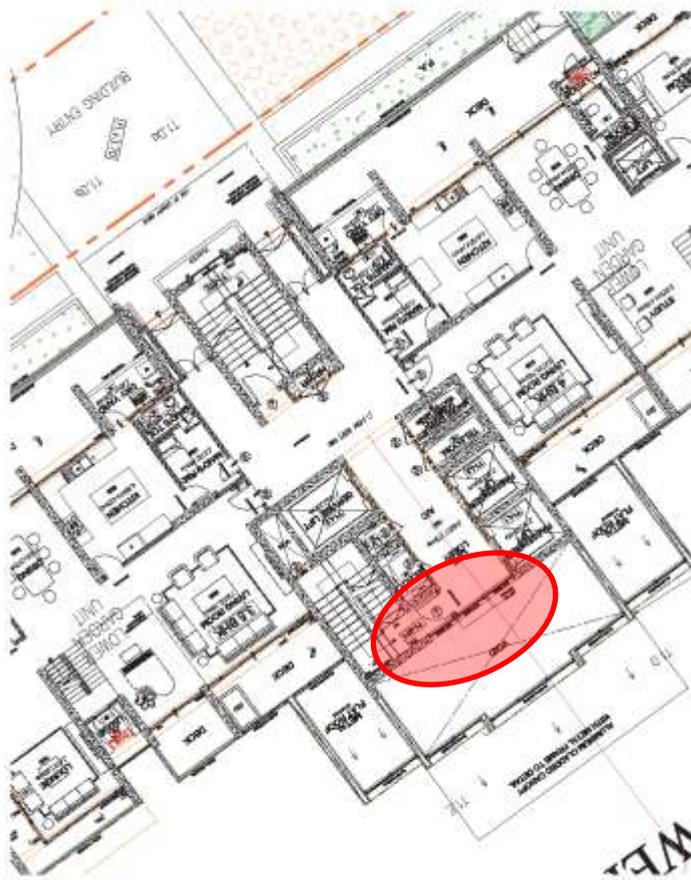
- 1) Enhanced security to limit access to restricted areas,
- 2) Tracking residence/visitor activity,
- 3) Improve loss prevention and
- 4) Prevent terrorist activities

RFID technology is quickly becoming a popular choice since the advancement in technology makes a variety of solutions available to any organization. There are major deficiencies in the legacy solutions that use the traditional access control systems. Barcodes, magnetic stripes, and proximity readers all rely on the user to either make contact or place the badge very close to the reader. In addition, bar codes can only be read one at a time and the respective embedded information cannot be updated. Such limitations can be cumbersome and time consuming.



An RFID access control system can provide an easy and efficient solution. RFID badges can be read from much further distances than other traditional technologies and the embedded electronic information for each badge can be over-written repeatedly. The increased reading distance thus enables other tracking technologies like surveillance cameras to be activated in conjunction with an employee being in their vicinity. Furthermore, multiple RFID badges can be read all at the same time. Information about employee access, attendance, and duties performed, can be easily and efficiently monitored and stored in a database. Access information can also be tied to a Windows Active Directory or LDAP for user authentication and therefore be synchronized to an authorized access scheme.

### Tier Three Security



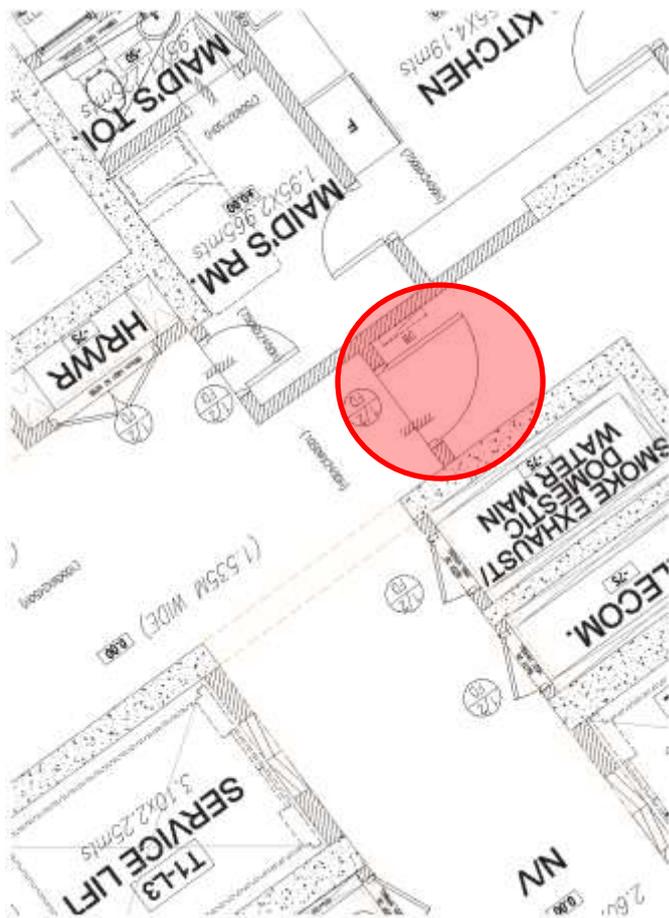
### Flap Barrier Access

The retractable panel pedestrian barrier is a user friendly access barrier developed for the fast processing of people in areas such as elevators, bars, recreation clubs, etc in an apartment complex.

A modular front panel concept allows adaptation to a large variety of ticket readers , as well as customised designs for all sorts of card readers for the security industry.



## Tier Four Security



## Home Automation System

Home Automation System - including cooling control, ventilation control, lighting controls, curtain controls, irrigation control and other electrical controls, consumption measurements, access control, intruder alarms, smoke/heat alarms, leakage/moisture alarms, gas alarms, cameras and video monitoring, IP intercom and audio distribution.

## Modes of Residences

Home Automation systems shall be functionally integrated. All systems shall react to pre-defined modes, as well as occupancy information and other conditions as applicable. Apartment systems shall be controlled through the following modes: Home, Away, Away (long), Night and Party. All

systems shall react to these modes adjusting automatically into the predefined configuration. Modes are turned on through indication from access control system and through dedicated push buttons. Modes shall enable functionality as described in the following.

- Home: When arriving home and showing the access control tag and/or finger to the access reader, the following takes place automatically: Burglary alarm system is turned off, doors are opened, ventilation becomes need-based instead of minimum level, set point of cooling is at the optimum level, and the default lighting scene and music is automatically switched on.
- Away: When leaving the residence, the following takes place automatically, with one single button touch: Doors are locked, burglary alarm system is turned on, ventilation is turned down, set point of cooling is allowed to be higher to allow for energy savings, and all lights and speakers are automatically switched off.
- Away Long: When leaving the residence for a longer time, the following takes place automatically, with one single button touch: Doors are locked, burglary alarm system is turned on, ventilation is turned down, set point of cooling is allowed to be much higher than normally to allow for energy savings, all lights and speakers are automatically switched off.
- Night: With one single button touch from the master bedroom the house is set to night mode. Doors are locked and cover protection system is activated. Adequate cooling and ventilation are ensured especially in the bedrooms. Only selected lights stay on as night lights, all others are turned off.
- Party: Apartment is cooled and fresh air is produced more efficiently than normally. Specially selected party lighting scenes, music settings and other special settings can be applied.

Alarms shall be shown on the Central User Interface of the facility and forwarded to Service Center, when applicable. Alarms can be also forwarded to defined GSM phones.

## Video Door Entry System

Video Door entry system in each apartment: Premium high clarity colour video door phone that enables a resident to see and speak to visitors, before granting them access to the sanctity of their home. This security device offers amazingly effective security and convenience, since it comes with a remote door release button. This means that one can open your front door through the indoor unit installed anywhere in the house!



## Benefits at a glance:

- **MANAGE** all of your building automation, energy, security, and operational systems in real time using a standard web browser from anywhere at any time.
- **INTEGRATE** all of your devices and equipment (regardless of manufacturer or communications protocol) into a unified, interoperable solution that meets the complex challenges of building integration and enterprise connectivity ...
- **TRANSFORM** conventional facilities into dynamic, flexible Intelligent Buildings that drive your strategic success with higher efficiencies, lower costs, and greater returns.

## Optional Systems

**These controllers are an excellent replacement for other domestic controllers to provide "comfort" temperature when the occupants are present.**

### Greenhouses



**In greenhouses, the logic controller centralises the management of the automatic watering system. The programming options offered, both optimizes the water consumption and provides direct control over opening the solenoid valves under 24 VDC.**

### Processing the air in air conditioning



**The concept is a cooling tower chilling a water circuit. It is used in air conditioning systems or to cool medium- or large-scale climatic installations in industrial processes, industrial premises and large tertiary activities.**

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### Temperature control in service rooms/lifts

**Relays temperature control relays monitor the ambient temperature of service rooms or lift pulley rooms, to check that it remains within the statutory limits (between 4°C and 40°C) in accordance with standard EN 81.**

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### HVAC



**Heating, cooling, air conditioning or extraction. Relay control relays stop the motor to protect the unit in the event of phase, current or supply voltage faults..**

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## Conclusion

### Intelligent Buildings/Complexes

Buildings powered by our integrated system offer compelling value to building owners and facility management, including the ability to:

- Preserve existing investments in control and monitoring devices and integrate them with new standards-based technologies.
- Access and control all of your diverse systems through a standard web browser.

- Combine information from different systems to support better overall facility management.
- Specify interoperable systems and applications from multiple vendors, thereby reducing vendor lock-in.
- Obtain financial paybacks, lower operational costs, improved facility operations, reduced energy costs, increased occupant/tenant satisfaction, and greater control, manageability, and security of your building operations.



### **1 Exterior Systems**

With the such management systems, you can manage all of your exterior systems in real time to create a new level of efficiency and cost control across your entire site. This includes automated parking systems, parking lot access gates, outdoor surveillance cameras and security, outside lighting, and landscape systems.

### **2 Building Access and Surveillance**

The system supports integrated real-time management and control over your building access, surveillance, and visitor management systems. Observe time and attendance of people, track visitors, control room access, manage fire/life safety systems, and resolve alarms from any web browser, anywhere.

### **3 HVAC/Mechanical**

All environmental and mechanical systems can be integrated and controlled with complete interoperability so you can monitor multi-system performance, identify and resolve issues, and change operational parameters in real time to respond to shifting climate, occupant, and business dynamics.

#### **4 Gas/Contamination**

The system supports seamless communication with smoke, contamination monitoring, and biological detection devices. With continuous monitoring, you can detect and contain air quality and other problems before they do damage to your business or harm occupants.

#### **5 Elevators**

Interface with elevator systems from any web browser for real-time maintenance and monitoring, and override control in case of emergencies.

#### **6 Lighting**

Optimize lighting for energy conservation and comfort. Manage your interior lighting schemes and tenant lighting overrides – with point-and-click ease using automated lighting controls. Reduce your utility costs, maximize daylight harvesting and integrate the perfect lighting for card access, life safety, and HVAC systems.

#### **7 Energy Management**

With the intelligent energy management capabilities of the system, you can manage usage, analyze rates, and reduce costs with unparalleled efficiency across the enterprise. Proactively manage energy budgets, benchmark facilities, and analyze rates for electricity, water, gas, and other utilities.

#### **8 IP Connectivity**

With the proposed system's open architecture, all facility systems are converged on an open, interoperable IP network, so any IP-connected device can become a facility operations and management terminal for the entire Intelligent Building. You can remotely monitor and control your entire facility from anywhere at any time.

#### **9 Digital Signage**

Using digital signage to broadcast real-time life safety and emergency communications throughout your facility is vital in the protection of occupants and tenants. The system makes it easy. You can also distribute meeting room schedules, energy/green building awareness, general emergency preparedness, and company/tenant announcements with instant impact and unsurpassed efficiency.

#### **10 Central Control**

The system is the cornerstone of a powerful new era in Intelligent Buildings, supporting a complete IP-based information network for real-time management and control across a single facility or multiple facilities. It's the one software platform for total integration, interoperability, connectivity, and ROI. With it, there's no limit on how intelligent your buildings can be.