PLC AUTOMATION

AC500 PLC

Building automation solutions

Create the buildings of tomorrow already today

ABB technology offers a complete concept for building automation starting from monitoring, controlling, heating and ventilation down to precise room control.

Take advantage of an all-in-one homogenous and integrated platform for scalable automation and reliable building systems.

AC500 PLC
Building automation solutions

ABB building automation

Flexible and scalable high-performance devices for future-proof building automation

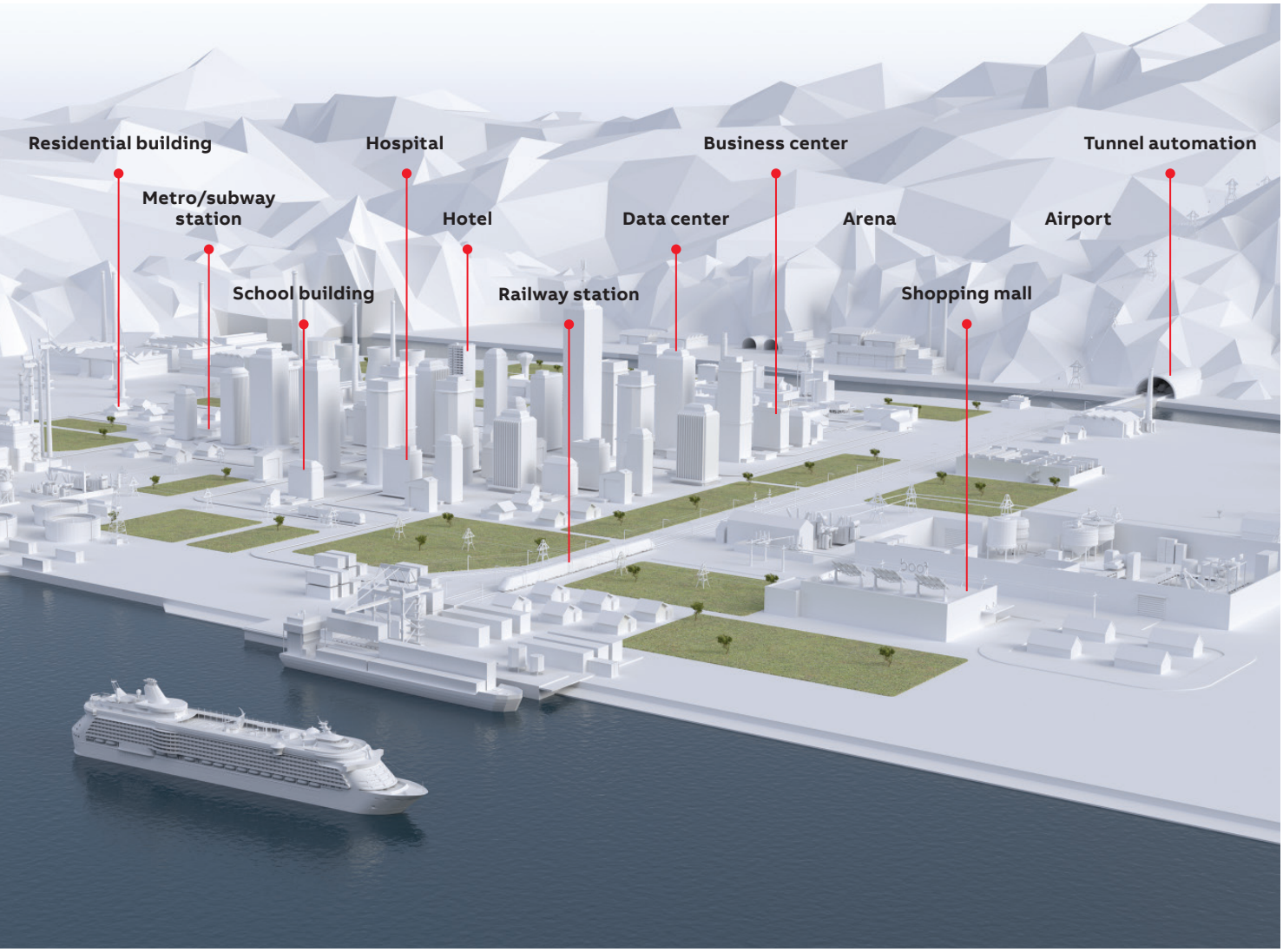
Create the buildings of tomorrow already today and protect your long-term assets. Smart networking features make it easy to meet the requirements for energy efficiency, cyber security and the availability of real-time data for the efficient management of the complete building.

Use the AC500 PLC and S500 I/O for modular control e.g. for advanced energy-efficient and safe operation and monitoring tasks, from small to the largest buildings.

Use KNX-IP connectivity to add communication capabilities of the proven ABB i-bus® KNX devices such as Dali, M-Bus etc. at the PLC automation level.

Use the AC500 communication capabilities with industrial fieldbuses and protocols like Modbus, BACnet to connect, control and monitor third party equipment and the large portfolio of ABB components such as low voltage products, ACS drives, motors and substations.

Use the AC500 to connect to building automation management systems and the cloud e.g. with BACnet and OPC UA. Complete the solution with local CP600 control panels and AC500 HTML5 web server visualization capabilities for powerful local or remote monitoring across all levels.



The intelligent and homogenous platform reduces cost and waste

AC500 is the perfect building block for your infrastructure project, no matter in what kind of building it will be installed. Designed to meet the toughest industry standards and ready to follow future trends.

—

Feel comfortable and rely on AC500

The technology inside is intended to be used in various automation segments. One system for room to central building functions, including KNX and BACnet. With seamless configuration by using the IEC 61131-3 standardized programming languages and libraries in ABB Ability™ Automation Builder, the programming suite for the entire AC500 platform.

AC500 covers the needs of a smart building

The AC500 PLC is an open control platform and used in many building and infrastructure projects. The safety and security of public buildings and tunnels are regularly reviewed and adapted to the latest findings. No matter where comfort is required, using state-of-the-art technologies will bring you satisfied visitors.

ABB's core competence is proven by numerous complex building and tunnel projects around the world – based on ABB PLCs, HMI, motors, drives and the integrated ABB Ability™ Automation Builder engineering suite. They are a perfect match creating top class engineering productivity.

The AC500 PLC platform


Local and distributed I/O-system based on standard protocols


Wide range of control panels, scalable for each application


Open Ethernet architecture for the easy development of your own protocol on TCP/IP


Built in HTML5 web interface for a convenient and standardized access point

Protection and security


Optimized building and tunnel ventilation


Video and radar control


Emergency evacuation system


Modern lighting technology

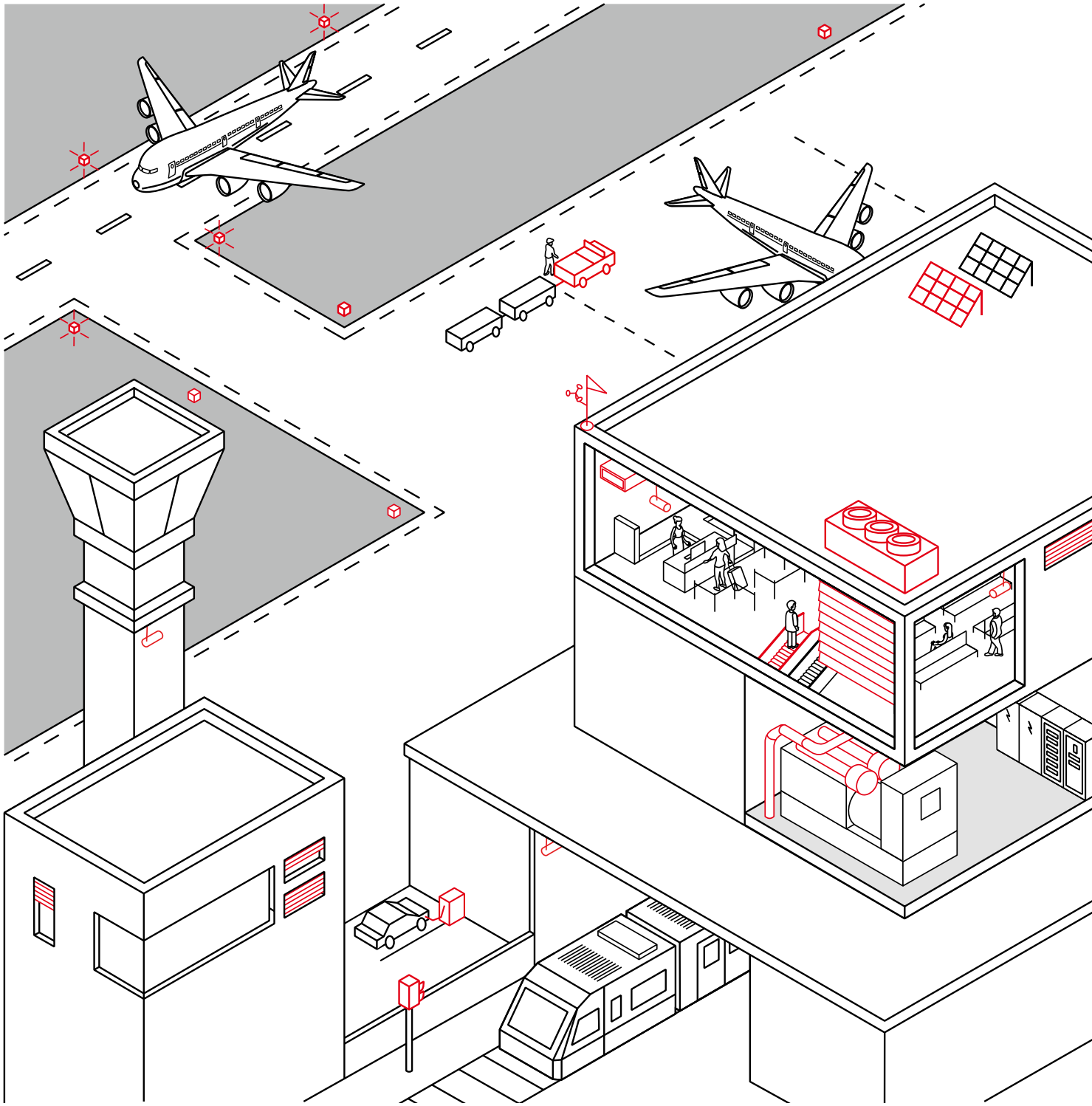

Firefighting systems

Supervision and monitoring


Local and higher-level control systems


Energy management for the complete building or tunnel


Optimized traffic flow through the integration of signal systems into the AC500 control architecture



AC500 is scalable to create a secure, reliable and future-proof building

In critical building applications, such as data centers, hospitals, airports or railway/metro stations, reliability of the installed automation solution is key to a safe, productive and cost-efficient operation.

Prefabricated functions, libraries and the integration of ABB drives ensure stable working conditions in all aspects. Due to the expandability, scalability and flexibility of ABB's product range your investment is always prepared for any future requirements, upgrades or trends.

Efficient engineering
BACnet protocol and object libraries enable AC500 PLCs to serve as BACnet servers and/or client connecting to BACnet IP (Ethernet) and BACnet MS/TP (serial) networks.

Increasing engineering and maintenance efficiency, reducing complexity

The application can be scaled from 300 up to 5000 objects depending on the CPU used

Easy connectivity to units such as ventilation pumps and HVAC systems

Continuous operation
During surgery, uninterrupted functions are essential for the safety of patients and treatment. Hot swap and high availability ensure reliability of the AC500.

Hot swap and high availability ensure reliability and uninterrupted operation of the building's systems

Prefabricated functions and libraries

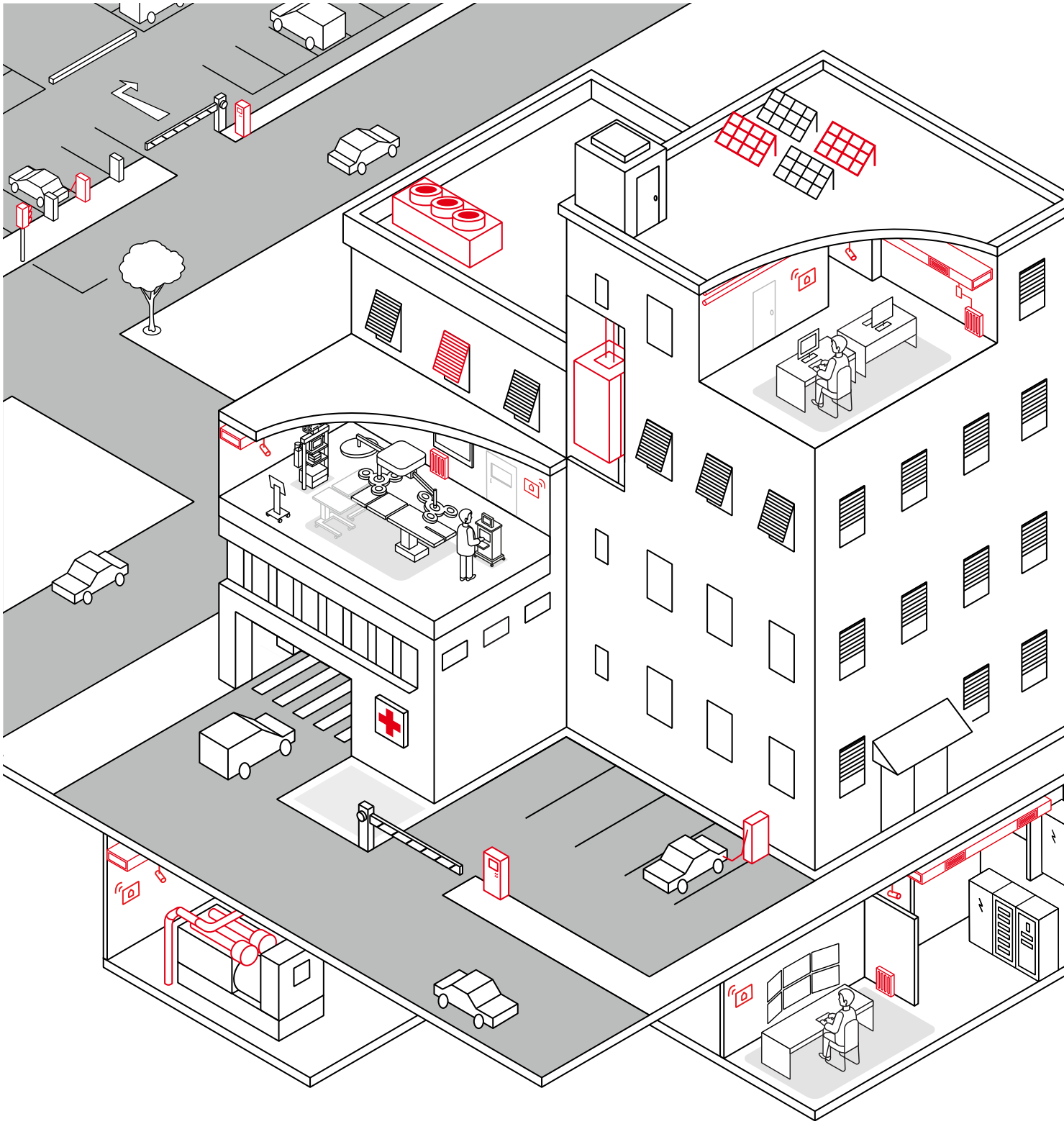
Integration of ABB Drives ensures stable working conditions

Optimized total cost of ownership

Prepared to meet any future demands or trends

Configurable I/O module ready for multiple purposes helps to reduce stock on site

- Digital inputs/outputs configurable by channel
- Analog I/Os configurable for U/I/R per channel
- Local or distributed use



AC500 adds profitability and intelligence

The experience and comfort of a building is just there, before anyone will even notice, the smart buildings have acted to avoid any discomfort. To create smart buildings, AC500 can either be the central processing unit for the complete building or the link between the Building Automation Management System and the central, floor or room level functions.

Monitoring and control
In commercial buildings the operation is important for a satisfying customer experience, automatically notifying service personnel in case of malfunction is of great importance.

Control of critical functions like doors, access systems, escalators and elevators

Safe and secure operation even in emergency control mode

Monitoring and interlocking the electrical switchboards

Managing emergency lighting and providing 24/7 availability to protect the people in the building

Parking areas and charging stations
Considering the parking areas in the complete building the management system helps to reduce energy consumption of the entire building and supports user friendly operation by user and the service personnel.

Adapt heating and ventilation to demand

Access control to charging stations in parking areas

Collect and store useful data from charging

Navigation to nearest parking spot

Sustainability and profitability
Smart building success factors are the increase of cost-effectiveness, the reduced environmental impact and the interconnected systems supervising the building locally or remotely.

Interconnected subsystem and compatible and efficient products

Local or remote supervision

Energy management
Monitoring of green energy

Monitoring, control and protection of power circuits

Comfort and customer experience
ABB's KNX devices can control heating, cooling and lighting management systems at room and floor levels and communicate directly with AC500.

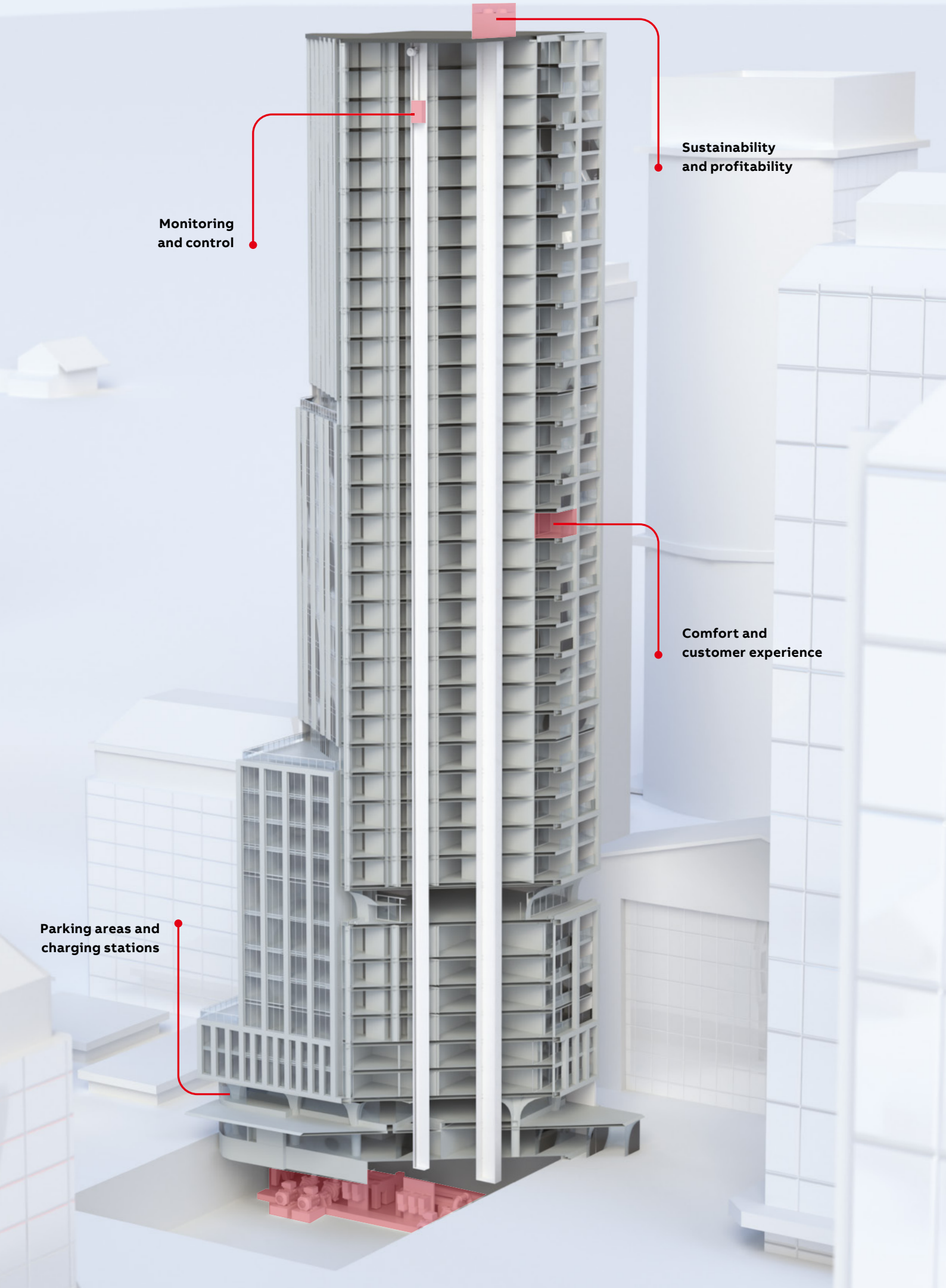
KNX data integration

Sensing activity or absence in rooms to adjust heating, cooling and light accordingly

Solar radiation activates the solar shading system

Wind protection to improve comfort

Control critical functions like HVAC and light


Sustainability
and profitability
Monitoring
and control
Comfort and
customer experience
Parking areas and
charging stations

AC500 provides distinctive features for building automation

ABB Ability™ Automation Builder

Automation Builder is the integrated software suite combining the tools required for configuring, programming, debugging and maintaining automation projects from one common intuitive interface.

Ability™ Automation Builder connects the engineering tools for PLC, safety, control panels, SCADA, drives and motion

AC500 PLC High Availability

The high availability of AC500 HA prevents downtimes caused by either human error or cabling/hardware/software malfunction. Redundant CPUs and the redundant I/O communication reduce the risk of total system failure, thus enhancing system availability. If critical data retention and the avoidance of downtimes are paramount to your application, ABB's AC500 HA will be the perfect solution.

- Powerful PLC with scalable performance, communication and I/O capabilities for critical infrastructure applications
- The ideal choice for complex, networked solutions with a large number of I/Os
- Options with OPC, OPC UA and telecontrol protocols
- Long distance HA-sync possible

S500 with hot swap

The hot swap terminal units TU516-H and TU532-H allow no-load hot swapping of S500 I/O modules during operation. When replacing a S500 I/O module the other modules in the cluster continue operating.

- Modular I/O devices with protected outputs and comprehensive diagnosis, covering a wide range of signal types
- The I/O modules can be installed as decentralized I/O with a communication interface module or be connected directly to the AC500 CPU
- Support of different fieldbuses makes it possible to use the S500 I/O modules with PLCs from different manufacturers

CP600 control panels

ABB control panels feature excellent robustness and easy usability. To increase the user experience and create a pleasant look, the CP600 panels will blend into the surroundings of the building thanks to their black, neutral front to give them a luxurious appearance.

- The basic CP600-eCo control panel is intended to be used for standard functions and features high usability for clear interaction with the operation process
- The robust CP600 HMI provides high visualization performance, versatile communication and a representative design for machines and systems
- The CP600-Pro HMI comes with high-end visualization performance, multi-touch operation, versatile trendsetting communication and representative design

ABB offering for smart buildings

AC500 system integration into superior control systems

If you want to scale up your project or need an advanced operator performance and asset utilization ABB's "ABB Ability™ System 800xA" will be the right choice.

The AC500 PLC hardware can be integrated efficiently into System 800xA via OPC. A function block library is available to facilitate the task and optimize the solution by combining PLC control tasks, operator benefits and user experience from a SCADA system.

A library with ready-made symbols and faceplates for the objects is available for System 800xA.

Multiple objects are available such as digital and analog set-point, valve control, motor control.

KNX smart building products

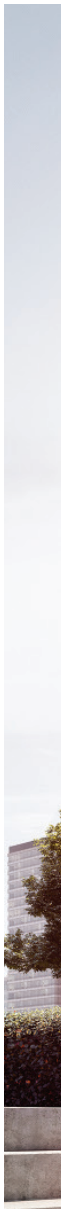
KNX is a leading world-wide standard for products in smart buildings. ABB has references for thousands of installed KNX products around the world and therefore great experience. ABB Ability™ Automation Builder offers seamless integration to add KNX connectivity to the PLC automation level. Via the KNX protocol AC500 as controller can also access data from other building automation protocols available in ABB i-bus® KNX devices like e.g. Dali and M-Bus.

Everything in one system from room to central building functions, based on KNX and its efficient engineering by importing the KNX communication objects from Automation Builder.

ACH580 and ACS880 drives

ABB has a large range of devices for motor control, from softstarters to units with advanced functionality such as programmable drives with options for remote and local application control. ABB drives for heating, ventilation and air conditioning (HVAC) provide a comfortable, safe and energy-efficient environment in commercial and residential buildings.

- Drives in HVAC typically save 20 to 60% of energy.
- Drives help manage temperature, humidity and CO_2 levels in buildings for increased occupants' comfort.
- Built-in Modbus and BACnet protocols provide seamless drive integration into a building management system.
- The drives' override mode ensures operation of the ventilation system in case of fire as long as technically possible for safe evacuation and firefighting.
- The ultra-low harmonic drives help to secure building power network reliability and save on project costs reducing the size of power network components such as cables, transformers and generators.



AC500 PLC platform

- Freely programmable with IEC61311-3 editor
- Flexible and scalable platform
- Hardware configurability for optimized utilization to reduce cost and footprint
- Open connectivity platform to make integration easy for various applications
- Seamless integration from room to central Building Automation Management System
- KNX efficient engineering by integration of ETS and Automation Builder
- BACnet (IP and MS/TP) with comfortable configuration in Automation Builder
- Reliability built in with features such as high availability (redundancy) and hot swap

—
ABB Automation Products GmbH
Eppelheimer Strasse 82
69123 Heidelberg
Germany
Tel: +49 62 21 701 1444
Fax: +49 62 21 701 1382

abb.com/plc

abb.com/automationbuilder

abb.com/knx

abb.com/drives

new.abb.com/process-automation

Additional information
We reserve the right to make technical changes or modify the contents of this document without prior notice. ABB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

3ADR010624,1, en_US - (Edition 11.2020)