WIRELESS LIGHTING MANAGEMENT SOLUTION

AN OCCUPANT-DEPENDENT LIGHTING CONTROL SOLUTION

Honeywell

Honeywell is a Fortune 100 technology company that delivers industry-specific solutions. Our technologies help everything from automobiles and aircraft to buildings and supply chains. We help workers become more connected and to make our world smarter, safer, and more sustainable.

We believe that our present defines our future. Over 100 years ago, we paved the way for energy efficiency by making indoor comfort automatic. Today, we continue to redefine it through the 10 million buildings that rely on our technology. We have been innovating for more than 100 years – and now we're creating what's next.

Honeywell's Lighting Management Solution can help organisations enhance their employee and space productivity and reduce energy cost by 45%*. It also allows the management to monitor underutilized workstations and save cost. Whats's more, the right lux level at employee workstations ensure better productivity.

Most offices today are looking at enhancing their productivity – both employee productivity and space productivity. While they would like to optimise space utilisation to bring down the real estate expense, improving employee productivity can have a huge impact on revenue and profitability.

ABOUT
THE SOLUTION

Lighting accounts for significant electricity consumption in commercial buildings and improper lighting can even affect employee productivity. To manage this critical lighting architecture, Honeywell has come up with its Honeywell Lighting Management Solution that banks upon an occupant-dependent lighting control strategy.

This solution is mapped with smart sensors that conduct daylight harvesting, detect human presence, modulate lux levels to maintain the optimum intensity of light for everyone, at all times.

Honeywell's Lighting Management System is suitable for multiple work environments and helps to optimise comfort, productivity and energy savings.

OFFICES

UNIVERSITIES

MALLS

HOSPITALS

BENEFITS

EMPLOYEE PRODUCTIVITY

Optimum lux levels are maintained at all desks through lighting control, giving an employee just the right amount of light. This enhances productivity by up to 12%.*

LOW ENERGY CONSUMPTION

Energy consumption in the building can be reduced up to 45% with the use of IoT technology, thus cutting energy costs and meeting green goals. An additional 16%* energy can be saved through HVAC* based on the inputs of ambient and occupancy sensors.

OCCUPANCY-BASED CONTROL

Lights are switched on and off depending on whether an area is occupied. Lights switch on as human presence is detected and vice versa, which helps save energy.

EASE OF ACCESS

Lights across multiple floors, buildings, or sites can be controlled and optimised as per individual needs. Solution components can be easily accessed from anywhere in the facility via the commissioning or centralised software.

SPACE AND ENERGY OPTIMIZATION

Data collected wirelessly gives an in-depth understanding of space and light utilisation. This not only helps reduce energy costs throughout the building/office but also to effectively utilise space.

EASY AND FAST INSTALLATION

Wireless sensors are easy to install, programme and service. The solution is ideal for both greenfield and brownfield projects, given that complete system installation can be deployed in a few weeks. This system reduces installation time by 55%.

END TO END WIRELESS SOLUTION

Wiring and maintenance costs are optimised as the overall wiring in this system reduces by 80%*. The only wired component is a dally.

RETROFIT SOLUTION

It is easy to move this wireless and retrofittable solution in case of shifting offices or even changing its position within the office.

* HVAC controls will be required

MULTI-CEILING OFFERING

Can be used for both false ceilings and the main ceiling of the building.

EXTENDED BATTERY LIFE

Batteries in the sensors are designed to last longer than ordinary batteries.

COLOUR VARIANTS

Available in black and white to complement all kinds of ceilings.

DAY LIGHT HARVESTING

For areas in the building that receive abundant natural light, this system reduces the use of artificial lights.

LOWER ENERGY CONSUMPTION

Honeywell's lighting management solution alerts the facility management in case of malfunctions in the solution component. The server also detects battery levels of sensors to prevent downtime. These ensure predictive maintenance and hence reduces the cost of maintenance.
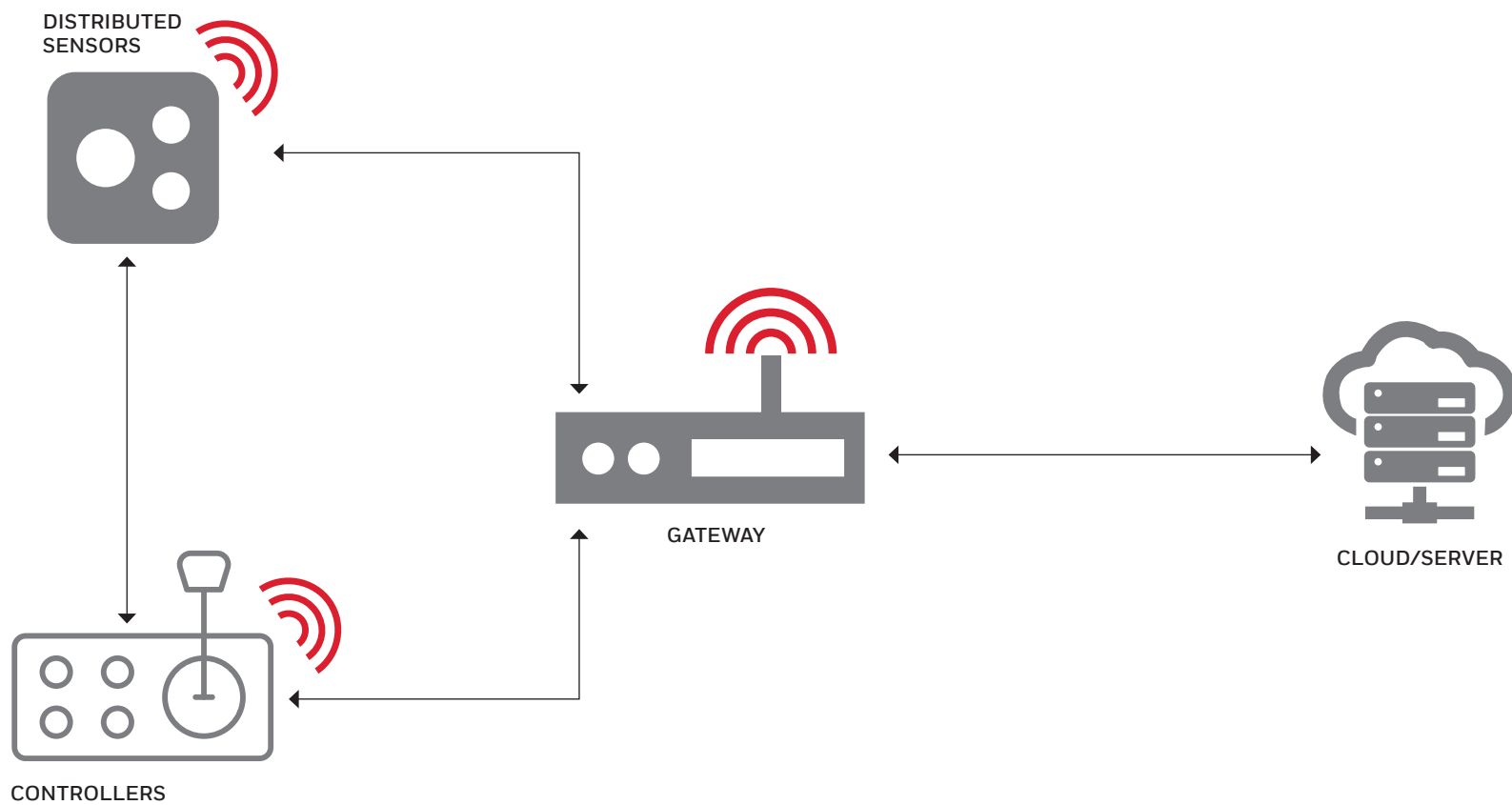
SYSTEM
ARCHITECTURE

DISTRIBUTED
SENSORS

GATEWAY

CLOUD/SERVER

CONTROLLERS

PRODUCT COMPONENTS

WIRELESS OCCUPANCY SENSORS

Wireless Occupancy Sensors are placed in the ceiling above workstations, cabins, meeting rooms and other office areas. These sensors detect human presence and transmit this data to the wireless controllers, which then switch the lights on or off accordingly.

- Passive infrared sensor for detecting human presence
- Field of View: 90°
- Data communication to DALI Light Controller over Zigbee
  - Transmit Output Power: +4 dBm
  - Receiver Sensitivity: -17 dBm
  - Transmission Range: 50 ft (in open air)
- Battery powered device
  - Uses CR123A battery (1,400 mAh)
- Configurable time-out interval
- Compact ceiling and wall-mountable device

WIRELESS AMBIENT SENSORS

Wireless Ambient Sensors are placed across the floor to measure lux levels. This data is used to adjust the intensity of the light, thereby allowing daylight harvesting and increasing energy savings.

- Integrated sensor for measuring temperature, humidity and lux levels
- Range:
  - Temperature: 0-55°C
  - Humidity: 0-100% RH
  - Lux: 0-100,000 Lux
- Measurement Accuracy:
  - Temperature: ±0.4°C
  - Humidity: ±3% RH
- Data communication to Gateway over Zigbee
  - Transmit Output Power: 0 dBm
  - Data Rate: 250 kbps
- Battery powered device
  - Coin cell CR2477N (1,000 mAh)

WIRELESS DALI LIGHT CONTROLLER

The DALI Controller functions as a local data collector and issues a control signal to up to 64 DALI lights over the DALI loop. It also acts as a part of the local mesh network.

- Control device for DALI lights
- Can control up to 64 lights each
- Receives data from Occupancy Sensors over Zigbee
- Lighting control methods: occupancy-based, manual override
- Communicates occupancy data and receives control commands from the Gateway
- Wireless operating parameters:
  - Transmit Output Power: +4 dBm
  - Receiver Sensitivity: -17 dBm
  - Data Rate: 250 kbps
- Operating Voltage: 85-300 V (AC)
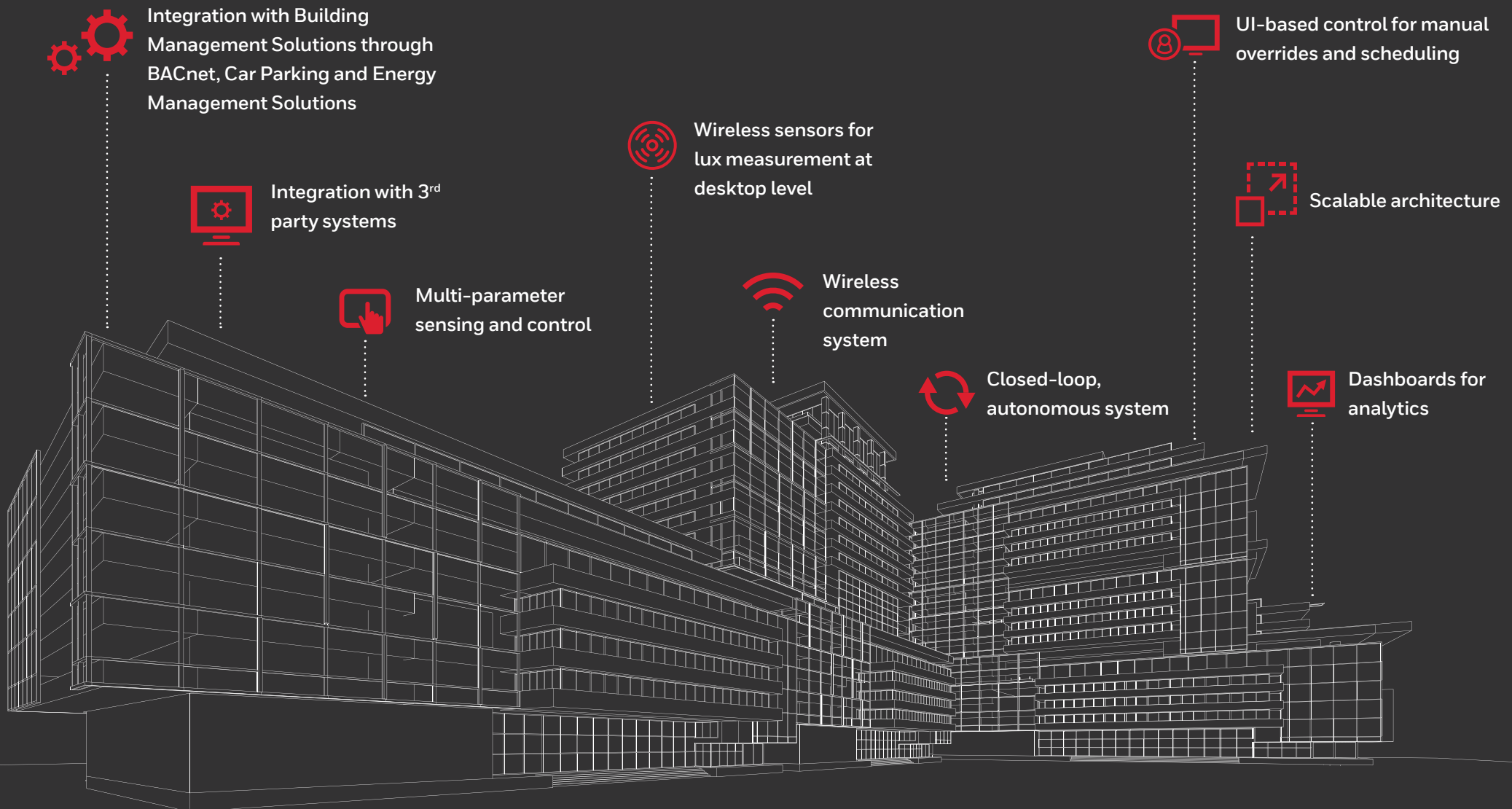- Ceiling-mountable device

GATEWAYS

Gateways are placed across the floor to collate data from occupancy and ambient sensors from all zones and transmit it to a central server.

- Manages network and data monitoring of the Lighting Management System
- Zigbee network co-ordinator
- Can transmit data over TCP/IP network to the server
  - Wi-Fi and ethernet interface
- Built-in data logging capability
- Wireless Parameters:
  - Transmit Output Power: +10 dBm
  - Receiver Sensitivity: -90 dBm
- Can connect to 60 Zigbee devices
- Ceiling and wall-mountable

THE HONEYWELL
ADVANTAGE

Integration with Building Management Solutions through BACnet, Car Parking and Energy Management Solutions

Integration with 3rd party systems

Multi-parameter sensing and control

Wireless sensors for lux measurement at desktop level

Wireless communication system

Closed-loop, autonomous system

UI-based control for manual overrides and scheduling

Scalable architecture

Dashboards for analytics

USER INTERFACE
DASHBOARD

Honeywell's IoT platform is a combination of software and hardware devices. Operations for the system and its devices are managed through the software while a Facility Manager or an electrician can operate the complete system through a web app.

The web app allows authorised Facility Managers to view and set controls for the entire facility. The software facilitates scheduled and manual overrides, whenever needed. In addition, it boasts of dashboards with extensive analytics.

- Single page access for any device at any site

- Allows anytime, anywhere access

- Analytics: Energy Consumption, Space Utilisation, Burn Hours, Lux Level, Equipment Maintenance and Suspicious Detection through Alerts

- Optimises lighting operations remotely through an intuitive dashboard that provides lighting usage insights

THE FUTURE IS WHAT WE MAKE IT

Honeywell