



# The Abound™ Edge System for Multi-site Enterprises

Intelligent automation for multi-site organizations to maximize occupant comfort and energy savings.



With the increased need of automation in multi-site building operations, the Internet of Things (IoT) technology has taken centre stage in enabling the monitoring and control of equipment. It enables the possibility of generating actionable insights through the equipment and the operational data it transmits, enabling multi-site business operators to digitally transform their site operations. With this as the driving factor, most of the enterprise owners and managers are seeking solutions beyond traditional System Integration to bring a layer of intelligence to monitor and control their facilities efficiently. Carrier Abound's Abound Edge system provides an integrated smart solution of hardware with base programming, and an automated action (auto-act) software package powered by the Abound Insights platform. The Abound Insights platform is an Artificial Intelligence platform that adds the intelligence to connected edge devices to deliver actionable insights and automated actions.

**Our services with the Abound Edge system enables achieving the following:-**

- Enhanced Occupant Comfort
- Improved Energy Savings
- Increased Visibility of Operations
- Increased life and uptime of equipment
- Refrigeration temperature compliance

With a wide range of functionalities, the Abound Edge system provides multi-site operators with the ability to control and manage connected store equipment seamlessly.

## The Abound Edge System

### 1. Hardware: An Abound Edge controller (Series J) and instrumentation

The Abound Edge Series J controller is a compact, intelligent embedded IoT controller and server platform for connecting multiple and diverse devices and sub-systems (like HVAC equipment, lighting systems, refrigeration equipment, thermostats, meters and sensors). With internet connectivity and web-serving capability, the Abound Edge controller provides integrated control, supervision, data logging, alarming, scheduling and network management. It streams data and rich graphical displays to a standard web browser via an Ethernet or wireless LAN, or remotely over the internet.

As part of the System Integration offering, Carrier Abound provides the complete spectrum of the associated services as well, including designing the solution (tailor-made to each site's requirements), procuring the required hardware and instrumentation (such as meters, sensors, contactors, power supply, modem, consumables), installation at the sites and remote commissioning of the solution to ensure proper connectivity and data transfer.

**Key features:**

- Open interface which connects to any MODBUS device
- Secure and efficient data transfer with minimum bandwidth
- Auto selection of telecom carrier with the strongest available signal to enable smart communication
- Preloaded with numerous intelligent control libraries
- High availability with multiple recovery options
- Cloud enabled data collection



## 2. Software: Preloaded Base Program

The Abound Edge controller is preloaded by Carrier Abound with a Base Program, as a one-time activity. This enables complete customization (of User interface, Schedules, Set-point settings, sequence of operations) as per business requirements and establishes remote connectivity to the edge device over the internet.

**To optimize on the time, cost and efficacy, the base programming is executed over 2 levels:**

Level 1: Physically on Device	To establish remote connectivity over the internet
Level 2: Remote	For all other customization

### Key features:

- Turnaround time for installation of 2-3 days
- First-time-right fix, with high accuracy for remote programming

### Value delivered to retailers

The combination of the Abound Edge system with the aforementioned hardware and software components enables businesses with a/an:

- single interface monitoring capability for major systems in the facility [Connectivity, Controls, Lighting and HVAC (Chillers / RTUs)]
- competitive menu-card based pricing for the edge system with detailed breakup
- technically evaluated and remotely guided installation, commissioning for seamless integration and operations
- consistent, automated, unified data availability from various systems
- easy integration with Carrier Abound's Abound Insights platform with most of the operations templates preloaded for integration.

Carrier Abound has a wide-spread international install base across North America and many countries in the European Union, the Middle East, India and the Far East.

### We have:

- An established national installation and repair contractor base.
- A mobile application available to both users and contractors alike.

## Beyond System Integration

System Integration is the first and the vital step towards store automation. The following service offered would significantly enhance operational automation, occupant comfort and savings.

### Intelligence at the edge:

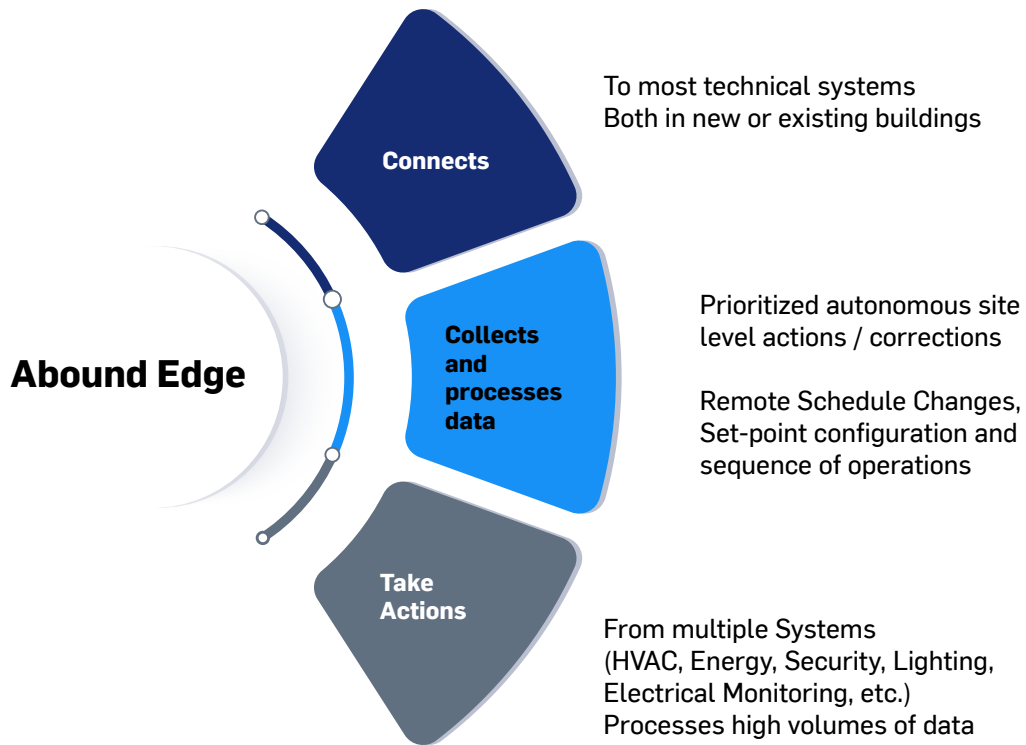
#### The Abound Act software automation package

Carrier Abound enhances the efficacy of the system by adding a layer of intelligence in the form of Abound Act, an auto-act module that is powered by the Abound Insights platform.

The Abound Act software package is an AI enabled intelligence implemented as a casing program over base control logic (Carrier Abound smart program/ any other OEM). The Abound Act package autonomously implements the AI driven actionable insights at the connected sites, wherever feasible. It enables minimizing, if not completely avoiding, human intervention and hence the associated errors. The Abound Act package enables:

- running predictive maintenance
- improving energy efficiency through finer controls
- continuously assessing dynamic operational conditions and equipment health at sites and changing controls profiles
- taking proactive actions autonomously or with limited human intervention

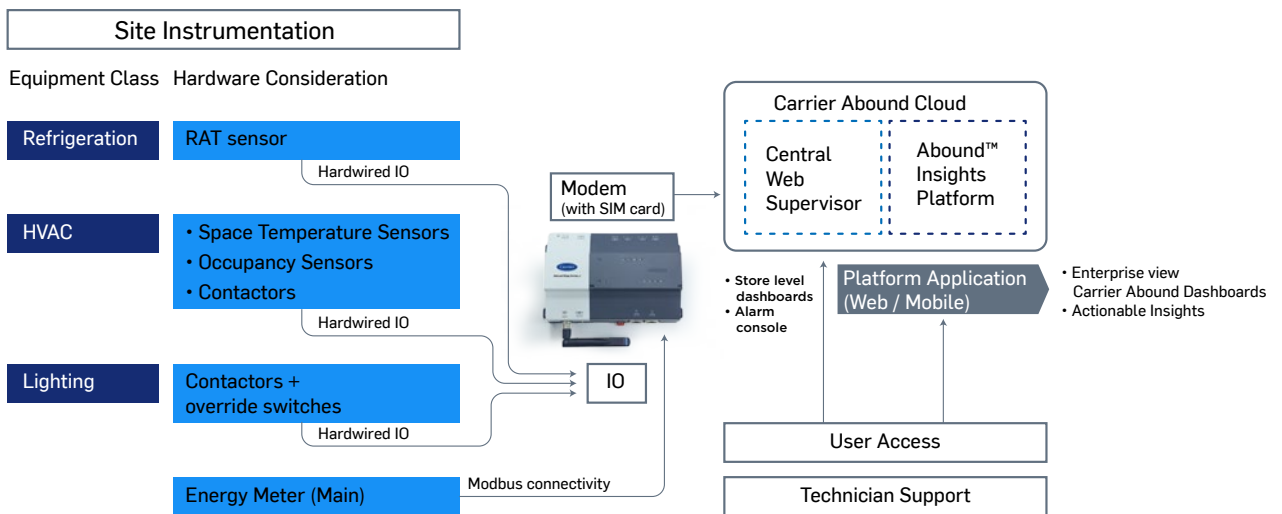
With the Abound Edge system, multi-site businesses can manage their facilities proactively in order to provide better experiences for the occupants, without dealing with the complexity of technology, connectivity, data security, the diversity of equipment on their premises and, in most cases, connecting to multiple clouds.



### The Abound Insights Platform:

All data from various connected systems at each site is transmitted through edge devices to the cloud, where it is processed by the Abound Insights platform for trend analysis, contextualization, and transformation into actionable insights. These insights are then transmitted to the Abound Act automation package to enable autonomous actions, where feasible. These AI generated insights are also accessible over the Abound Insights desktop or mobile app, when subscribed for the same, for manual actions.

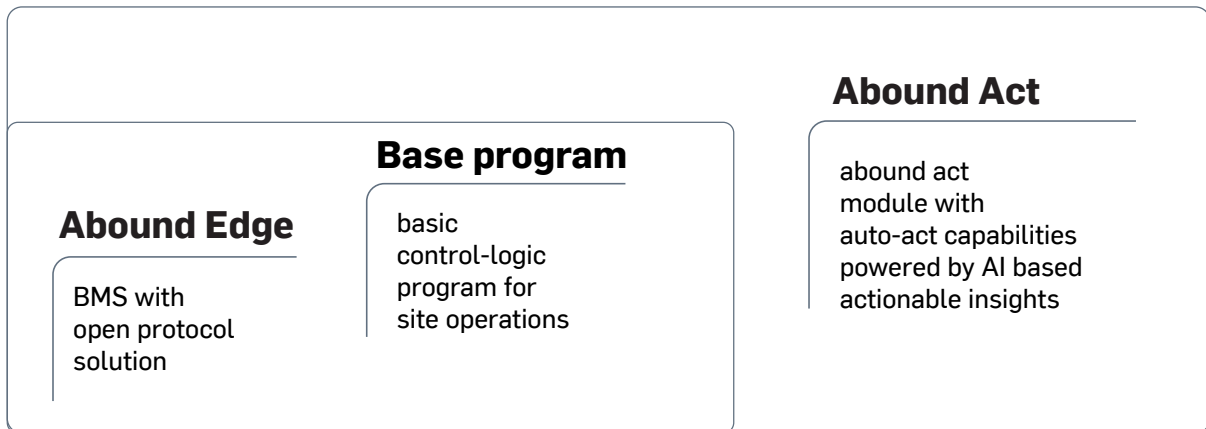
### Network Architecture



Note: The above architecture is indicative and is subject to change based on the site conditions, automation requirements and Carrier Abound offering.

## The Overview of the Solution

The solution is offered as a package with all the 3 vital components of automation and intelligence to deliver value.



Note: The Abound Insights component in the above offering comes integrated with the Abound Insights platform on a subscription model for a minimum tenure of 2 years, beyond which, the multi-site business has the option to retain only the base package of Abound Edge hardware along with the base program.

## Carrier Abound's Experience and Expertise:

With over 12 years of experience in Energy Management, Carrier Abound, a recognized visionary in this space, provides industry leading services through its BluEdge™ Command Centers, which have teams of skilled analysts, data scientists and domain experts who manage requisite site interventions, define action plans and ensure their comprehensive completion in a timely manner.

There are BluEdge Command Centers in Kennesaw, USA and Bengaluru, India. They offer a 24/7 service desk, which caters to remote monitoring and control of store equipment, to ensure policy compliance and equipment uptime, thereby enabling energy and maintenance savings. The command centers serve as the multi-site business' 'eye in the sky', providing central visibility and control of all the sites under management. Technical, as well as operations support, is provided by taking requests over calls and e-mails, for making configuration changes, such as updating schedules and store temperature policies. The command centers are capable of remotely resolving issues, resulting in maintenance cost avoidance and quicker resolution for enhanced uptime of equipment. For cases where remote resolution is not feasible, the centers carry out smart field dispatches by clubbing multiple listed issues at that site (and others within close vicinity). Support is further extended even to the on-field technicians, by providing insights on possible issues and recommended solutions.

### Below are few of the performance metrics:

- Energy Saved for all customers till date: Over 5.7 billion kWh
- Sites Managed: 55,000+
- Equipment Managed: 440,000+
- Remote Resolutions of issues raised by customers: 63% per annum<sup>^</sup>
- Remote Commissioning: 65+ per month<sup>^</sup>
- Customer Service Requests: -12,000 per month
- Technician Service Requests: -10,000/month

<sup>^</sup> Average

Customers can avail the support of a technical team at Carrier Abound that can carry out remote resolutions without having to deal with complex process of pushing policies and schedules across their enterprise by themselves.

Write to us at [abound@carrier.com](mailto:abound@carrier.com) for more on how we can help your company achieve its business and sustainability goals.

#### **About Carrier Abound**

Carrier Abound provides digitally connected lifecycle solutions and services for diverse building portfolios. The solutions and services enable building management to see deeply and broadly across their assets, prioritize and act on real-time insights, and refine, adapt, and scale on a continual basis to improve energy efficiency and asset performance, enhance occupant comfort and productivity, and streamline compliance reporting. Carrier Abound is part of Carrier Global Corporation.

For more information, please visit [abound.carrier.com](https://abound.carrier.com). Join the conversation on [LinkedIn](#).

