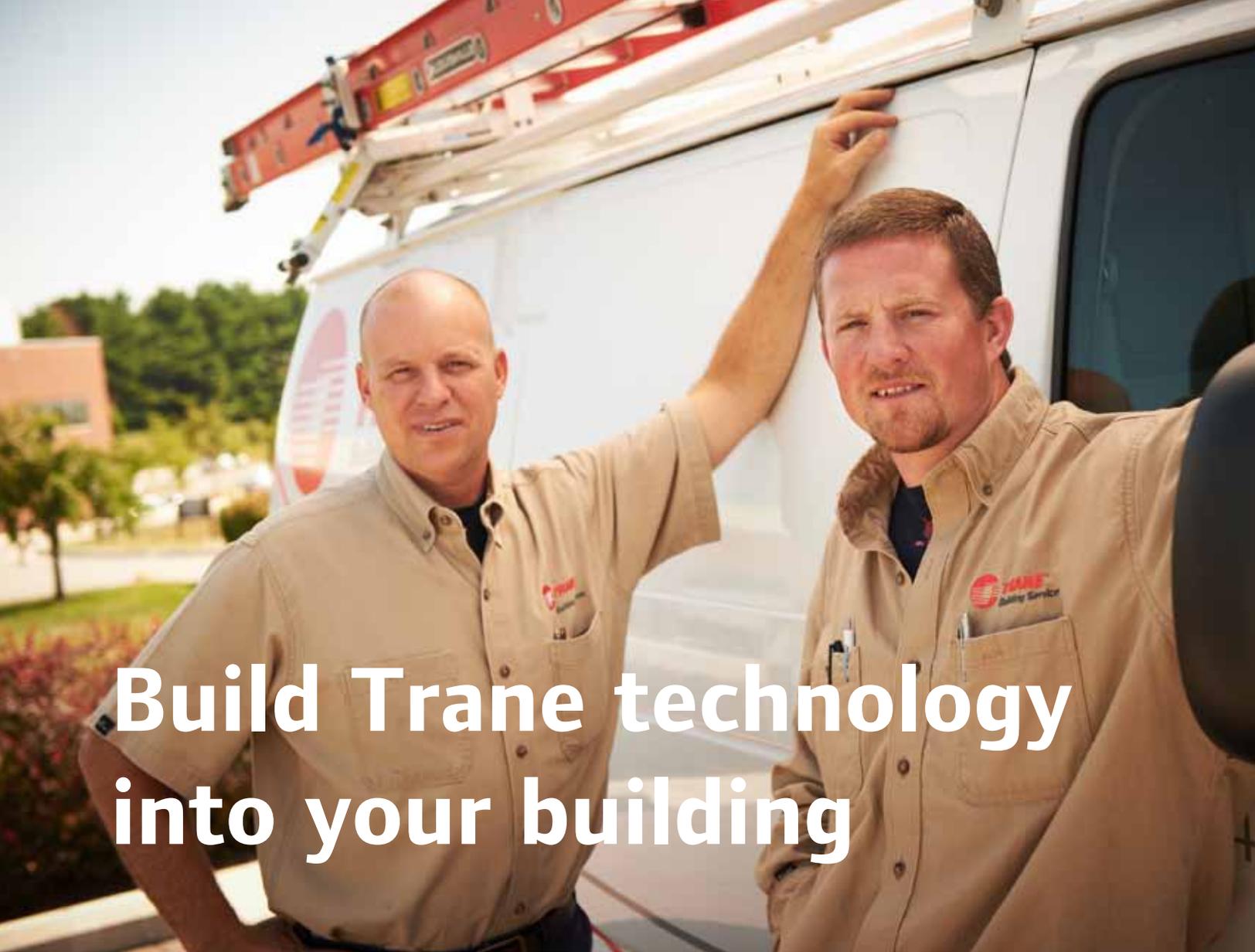




# *Building Controls*

*From equipment controllers to enterprise management: Trane makes it easier*





# Build Trane technology into your building



From our industry-leading building automation systems to equipment controls and sensors, Trane offers a complete controls portfolio to enable you to operate buildings at peak energy and operational efficiency.

Trane controls are built on open, scalable platforms. They'll integrate seamlessly with your existing equipment and controls—no matter what brand—and give you the latitude to easily expand into other systems within your building, multiple buildings and buildings you'll add in the future.

Intuitive, web-enabled interfaces provide visibility into your systems' performance on any connected device—smartphone, tablet or workstation—giving you control over your building systems whether you're in your office or on the go.

The very way buildings operate is rapidly changing. Trane controls provide the technology base for new-generation Trane Intelligent Services by providing the data stream you need to pursue high performance building outcomes.

Flexible. Scalable. Compatible. Easy to use. Technologically strong. It's no wonder so many building owners prefer Trane Tracer™ Building Controls.

# Comprehensive systems and controls

## Enterprise management

Managing multiple facilities? Get an online, enterprise-wide view and control over all your buildings and systems from any PC, tablet or web-connected device on your network. Tracer ES™ Building Management Workstation Software integrates easily with other systems via BACnet® IP, giving you the information you need to make enterprise-wide decisions for optimized performance.

## Building management

Manage all the systems in your building with the Tracer™ SC System Controller. With a complete portfolio of building management applications and an intuitive, easy-to-use internet-based user interface, you'll have fingertip control over your building's efficiency.

Using Tracer SC also gives you access to mobile apps, so you can manage building systems remotely through your Android™ or Apple® smartphone or tablet. Tracer™ BAS Operator Suite allows you to monitor equipment, make set point changes, control spaces, manage alarms, view systems graphics and more.

And our portfolio of Tracer™ controls utilizing BACnet open protocols are UL864 (UUKL) approved for smoke control, so you can manage both comfort and smoke control with a single building controls solution. Whether you need smoke control for a single area or the entire building, Tracer controls provide a simple, web-enabled, scalable solution.

## Equipment controls

Trane practically invented factory-installed controls for equipment. Today we have more than 3 million factory-mounted controls shipped and offer an unrivaled ability to integrate with other systems from Trane and competitors.

Whether your controllers have LonTalk (FTT-10) and BACnet MS/TP, Modbus, legacy Trane or proprietary protocols, Tracer controls' open architecture can integrate them seamlessly. Now you can take advantage of Trane controls expertise, without having to replace existing systems.

## Wireless Comm

Wireless communication stability is assured because the Trane system has double the signal range used by typical systems, combined with redundant and self-healing signal paths. That makes Trane Wireless Comm more reliable than most BAS networks on the market, including those with wires. It is the HVAC industry's first wireless BAS communication network to run BACnet protocol on top of ZigBee® Building Automation standards—the global standards for interoperable wireless products. Trane Wireless Comm is ZigBee certified.

## Bridging past to present



Legacy CenTraVac® and Series-R™ chillers can be integrated into new Tracer systems without replacing the existing unit controls simply by installing the Tracer™ Communications Bridge. By converting outmoded Comm2

communications protocol to current BACnet IP, the bridge allows existing UCP1-controlled chillers to interact with current Tracer systems for present-day monitoring and control.

# A full range of products for the life of your building



## Building automation systems controllers and workstations

Whether you manage multiple facilities across various locations or a single on-site HVAC unit, Trane can put together a building automation system (BAS) that is scaled to your needs, no matter what brand of equipment you may have in your building.



### Tracer™ SC System Controller

Allows you to streamline facility management without reinventing the entire system. Adding Tracer SC to your system provides a flexible, cost-effective solution for programming

and managing facility climate that can extend to lighting and energy consumption.

Accessible from any PC, tablet or connected device, Tracer SC eliminates the need for a dedicated computer and monitor, so you can manage system performance whenever, wherever it is convenient. Tracer SC controller's simplified, web-based management tool reduces scheduling, reporting and applications programming chores to simple "point-and-click" tasks. The intuitive online tools produce improved efficiencies, increased tenant comfort and reduced energy costs, adding up to a better bottom line.



### MOBILE CONTROL



The Tracer™ BAS Operator Suite provides mobile apps that allow you to monitor and manage buildings from virtually anywhere, giving you greater freedom and constant peace of mind.

- Monitor equipment and systems performance. Graphics and animations make it easy to assess the state of your systems.
- View active and historic system alarms, assess their severity, determine the cause and add notes for others to see.
- Take action! Respond to hot/cold calls by adjusting set points and overriding equipment and occupancy.

The Tracer BAS Operator Suite works with iPhone®, iPod touch® and iPad® devices with iOS 5 or 6. It also works with Android™ devices.

## Tracer ES™ Building Management Workstation Software (enterprise system)



Managing multiple facilities as a single enterprise couldn't be easier. A Tracer ES system offers both flexibility and precision. Each system is customized by Trane to reflect your unique requirements. Tracer ES is easy to install, and it enables users to perform daily building operations

tasks remotely, including troubleshooting, scheduling, alarm management and data analysis. The system provides a single window into multiple Trane or qualified BACnet systems (including Tracer SC) for easier integration, providing simplified facilities and energy management.

## Factory-mounted and field-installed equipment controllers

Trane offers a wide range of controllers to suit virtually any application. These units are compatible with a variety of building types and can be used for new construction or renovation. Through extensive usability testing internally and with building operators, we've designed our controls for real-world ease of use.

### Tracer™ UC400 Programmable Terminal Unit Controller

Uses a common repeatable, consistent platform, providing greater flexibility on VAV boxes. Tracer UC400 is an ideal solution when special sequences are required. Standard software applications come preloaded at the factory, simplifying field installation. Supports factory and field mount, graphical programming and BACnet protocol and is UUKL listed.

### Tracer™ UC600 Programmable Unit Controller

A programmable BACnet unit controller designed to work with the Tracer SC and third-party BACnet MS/TP systems. The UC600 is UUKL listed and has the I/O and size to meet the controls needs for air handlers, central plants and other high-point count applications.

### Tracer™ TD7 Color Touch Screen Display

A 7-inch diagonal color touch screen designed for both indoor and outdoor use. This visually intuitive solution makes it quicker and easier than ever to access the reliable control offered by the Tracer UC600.

## Chiller controllers

### Tracer™ UC800 Controller

Advanced digital control. The algorithms embedded in this controller work with the unique capabilities of the Trane CenTraVac® Chiller to keep it running—even during the most challenging conditions when other chillers would shut down.

### Tracer AdaptiView™ Color Touch Screen Display

A large, intuitive touch screen interface for the Tracer UC800.

## General purpose equipment unit controllers

- Tracer™ Air Handler Controllers AH540 and AH541
- Tracer™ Variable-Air-Volume Controllers VV550 and VV551
- Tracer™ Zone Controllers ZN511 and ZN521
- Tracer™ Unitary Controller ZN517
- Tracer™ Programmable Controllers MP580 and MP581
- Tracer™ Controllers MP501 and MP503

## Wireless Comm

### Wireless Sensors

A selection of zone sensors adds flexibility wherever you need to monitor and control temperature or change set points or fan or system modes.



### Wireless Comm Interface (WCI)

Replaces the wires between zone sensors, terminal equipment and the system controller. Available factory installed and pre-addressed to improve installation quality.

### Tracer TU Adapter

The Tracer TU adapter provides wireless TU access for customers who prefer to do routine service on their own.

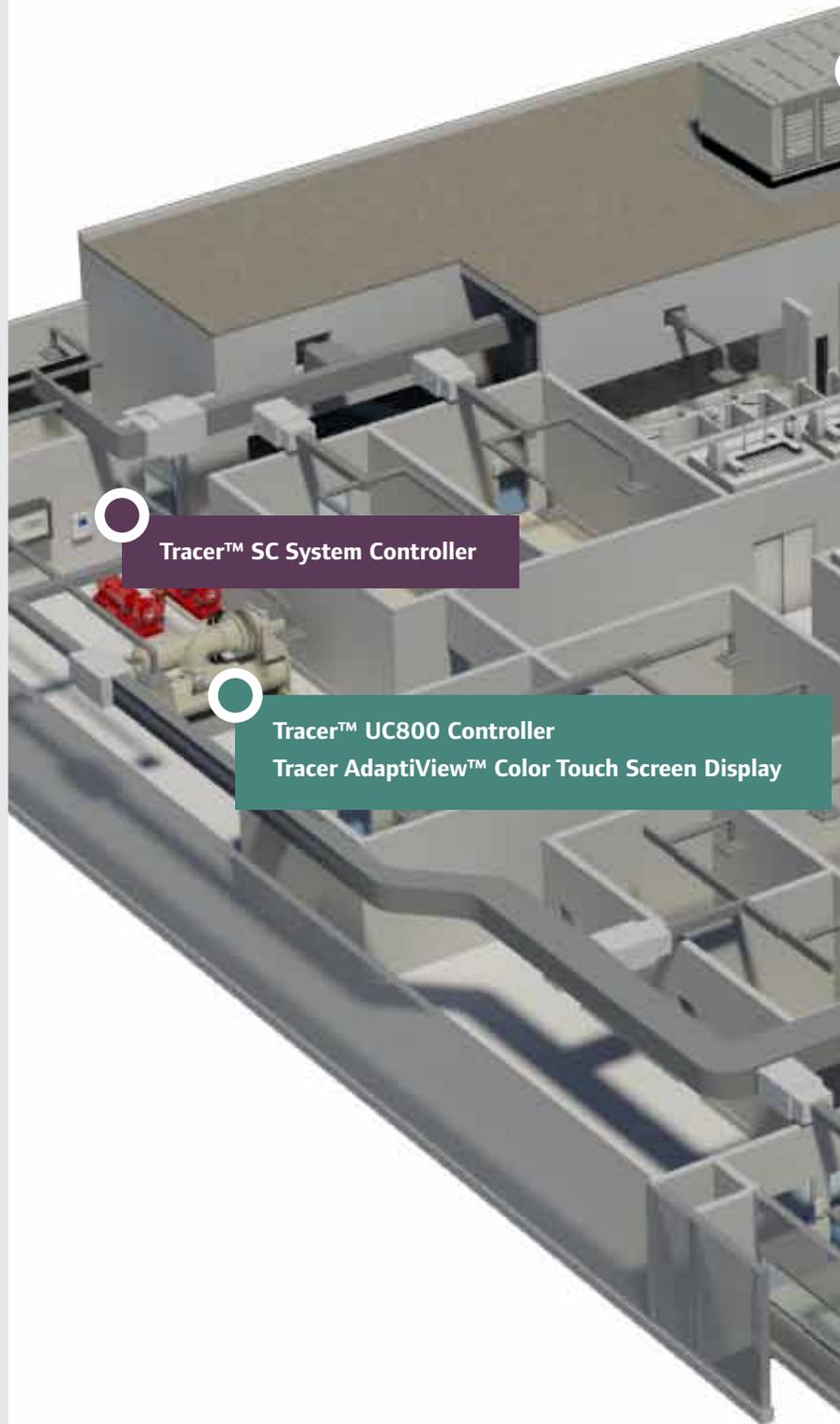
## Building automation systems

Complexity doesn't make a building automation system (BAS) better. In fact, it makes it less effective. That's because building automation customers typically use only a fraction of the capabilities of the systems they've purchased. As a result, they often don't get the energy and operational efficiencies they were promised.

That's why Trane works so hard to make our systems intuitive and easy to use. Our graphical dashboards give you visibility into your system and make it easy for you to monitor and adjust your equipment for optimum performance.

With a Trane Tracer™ Building Automation System, you'll:

- Reduce operating costs through energy management strategies
- **Consistently provide occupant comfort**
- Enjoy reliable operation with standard, pre-engineered and pretested applications
- Easily troubleshoot and monitor either on site or from a remote location
- Reduce installation time and simplify troubleshooting





Tracer™ UC600 Programmable Unit Controller  
Tracer™ TD7 Color Touch Screen Display



Tracer™ UC400 Programmable Terminal Unit Controller



Wireless Comm Interface (WCI)



Wireless Zone Sensors

### **Built on BACnet®**

Tracer controls are built on the open BACnet® data communication protocol. Install Trane Tracer controls today, and you're ready for the future integration of additional building automation devices, from both Trane and other suppliers.

# Trane. A specialist in outcome-based systems and services

## High Performance Buildings

The Trane innovative and holistic approach to creating a high performance building considers efficiency and control within the context of the organization's operational mission. A building can only achieve your desired performance outcomes when its systems are reporting reliable data, when that data is analyzed for problems and when opportunities for improvement are acted upon.

Tracer™ technology from Trane fills that gap. This range of devices comprises a control interface and communication system, enabling services that pave the way to more effective building environments and greater energy efficiency: Trane Intelligent Services.



## Trane Intelligent Services (TIS)

Our technology-enabled services are delivered through a combination of Trane technology, proprietary analytics and our deep industry knowledge. Your building's data, generated and transmitted by Trane or non-Trane controls and conveyed to us via Tracer SC, provides the basis for TIS support.

Day to day, Trane can monitor your building's data and automatically alert your personnel when temperature, pressure or energy use deviate from your desired parameters.

Our technicians can diagnose and even repair minor issues remotely, before they develop into major events.

TIS also features a process for continuous improvement. Trane analysts can use your building's data to identify (and help you prioritize) service work that will establish and sustain conditions that are energy efficient, cost effective and conducive to productivity—the hallmarks of high performance buildings.

## WHAT IS A HIGH PERFORMANCE BUILDING?

While there are many accepted definitions of high performance buildings, Trane sees them as buildings that contribute measurable, year-over-year benefits for building owners based on:

- The building's purpose
- Business metrics (set by the owner)
- The responsible use of resources including energy, water, air and human capital consistent with, or exceeding, industry standards and certifications

## EarthWise™ Systems

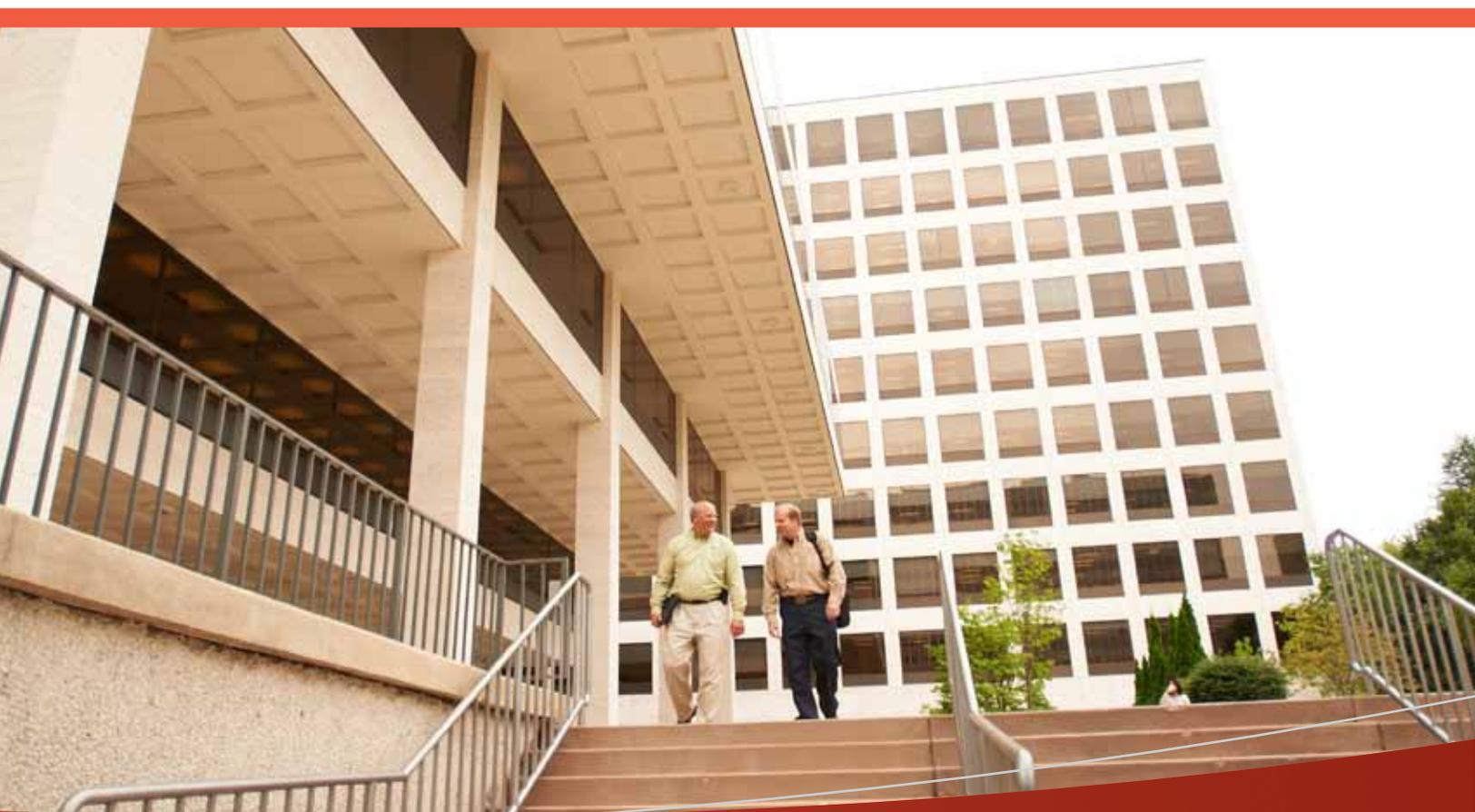
In our modern world, where energy is increasingly costly and environmental impact is top of mind, it's not enough for an HVAC system to simply heat, cool and circulate air. It also has to make judicious use of energy resources. EarthWise™ systems apply integrated design concepts that are optimized for energy and environmental performance. EarthWise systems are sustainable systems that deliver measurable, repeatable and superior performance at a lower operating cost. Designed in accordance with EPA recommendations, these systems combine Trane high efficiency HVAC equipment, optimized building controls and ongoing service.

EarthWise delivers:

- Enhanced system performance for life
- Lower life cycle costs
- Sustainable system performance that can be measured, documented and sustained

## Trane eView™ Energy Monitoring Software

The Trane eView™ energy management solution provides automated monitoring, analysis, alerts, reporting and data visualization and facilitates the sharing of results through the use of dashboards, reports and other tools. Based on data gathered through your Tracer controls, eView shows you how much energy your building consumes and helps you develop strategies to control energy costs. eView energy management software tracks energy use, costs and CO2 emissions and processes the information for review, analysis and compliance reporting.



# Total customer support



## Local service and technical support

Trane delivers building control solutions through our offices around the world. In addition to consultation in system design construction and commissioning, we can provide local support through the life of your building:

- Technical service in case of an emergency
- Maintenance to keep your system operating reliably
- A full line of replacement parts in local inventory
- Available extended service warranties for added protection

## Financial options

Trane can help you offset the cost of a new or renovated control system for an existing building. A solutions-based approach, PACT™ (Performance Agreement for Comfort from Trane), is one way for customers to pay for the system without upfront capital. A facility analysis by Trane energy auditors will identify mechanical system improvements and energy conservation measures that will yield annual energy savings to help pay for the renovations and improvements. Trane manages the project, monitors results and delivers savings with no upfront capital expenditure.



## **Upgrade/retrofit solutions**

The Trane R'newal™ program will help you maximize building performance, improve occupant comfort and increase operation productivity while meeting your budget and long-term service needs. This program will assess your building control system as it exists today, then present a migration path to a more efficient and productive control solutions. You'll get reliability and performance, backed by a factory warranty and long-term service agreement.



## **Training**

To ensure that operators learn how to take advantage of their building control system's full capabilities, Trane offers a comprehensive portfolio of training courses. These range from HVAC fundamentals, system applications, technical services, refrigerant safety and the operation, installation and programming of Trane building automation control systems.



## **Documentation**

Data generated by Tracer controls can be used to create reports, offering proof of energy efficiency and other documentation that may be necessary in areas where compliance reporting is a requirement, or to provide proof of sustainability to potential investors.

## Support from a partner, solutions for the long term

Trane controls are installed in tens of thousands of buildings around the world, supported by local offices that provide emergency service, maintenance and replacement parts for the life of your building.

With over 30 years of experience in the controls industry, and over 100 years of accumulated knowledge about how buildings work, Trane has an unrivaled understanding of what it takes to create and maintain integrated comfort systems that are energy efficient and sustainable.

Building automation systems have reached a turning point. Technology is now available that allows us to capture more building data, and to use that information to drive ever-better building performance and more precise levels of control.

Install building controls from Trane. Gain a partner in making your buildings better for life.



*BACnet is a trademark of ASHRAE.*

*ZigBee is a registered trademark of ZigBee Alliance.*



Ingersoll Rand (NYSE:IR) advances the quality of life by creating and sustaining safe, comfortable and efficient environments. Our people and our family of brands—including Club Car®, Ingersoll Rand®, Schlage®, Thermo King® and Trane® — work together to enhance the quality and comfort of air in homes and buildings; transport and protect food and perishables; secure homes and commercial properties; and increase industrial productivity and efficiency. We are a \$14 billion global business committed to a world of sustainable progress and enduring results.



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