## Discover complete, connected solutions to help you increase comfort, security and efficiency

### **Building Management Systems**

### Services & Solutions



With service locations across 11 countries and approximately 3,000 highly skilled technicians across Asia, we help facilities perform at optimum levels, extend asset life, reduce repair costs, and realize energy savings



Building Wide Systems Integration (BWSI) We integrate building systems (HVAC, BAS, fire, security), business systems (finance, IT, communications) and specialty systems nurse call, distance learning, scheduling) onto a unified, intelligent



Technology Contracting™

**Energy Solutions** 

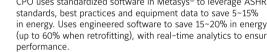
We are responsible for managing design, integration, installation and service of all technologies. Along with innovative partners, we reduce risk, minimize change orders and meet budgets and



tomorrow's energy savings to pay for today's upgrades.

Optimization

Central Plant Optimization (CPO)





vironment by linking building automation with surgical





of IT standards and technologies.





Sensors, Thermostats & Airflow Measuring System Temperature, humidity and CO<sub>2</sub> sensors including analog, network, wireless and pneumatic-to-digital.





manner that matches your facility with instant display of building





CH-PC Field Controller Family

Enable control of a wide variety of HVAC equipment, meters, fire connects all components through the BACnet® IP protocol.

### Air Systems

### **Air Handling Units**



1 200~200 000 m<sup>3</sup>/h Indoor and outdoor, 50 mm double-wall panels with external frame, variable aspect. Furovent certified



1,195~98,500 m³/h

Indoor and outdoor, 25/50 mm double-wall panels with external frame, variable aspect, Eurovent & AHRI certified



Indoor, standard configuration, foam double wall, panels: 25 mm or

YORK<sup>®</sup> Y∆H

YORK® YDEC

YORK® YGFC

80~2 380 m<sup>3</sup>/h

YORK® YEDFC

680~3,500 m<sup>3</sup>/h

540~2 700 m<sup>3</sup>/h

**VAV Terminals** 

heating options

efficiency.

400~3,400 m³/h

YORK® YECFC

1.369~3.645 m<sup>3</sup>/h

1,500~15,000 m³/h

YORK® YCM

2,000~60,000 m<sup>3</sup>/h

YORK® YSF 2,000~36,000 m<sup>3</sup>/h Indoor standard configuration, horizontal and vertical type

Indoor, exposed and concealed, ceiling mounted cabinet

Exposed and concealed, horizontal and vertical, PSC/BLDC motor

Single-duct: 51~13,600 m³/h, series or parallel fan-powered:

AHRI certified, flexible factory-packaged controls, water and electric

Used for kitchen oil fume and industrial dust purification with high

Used for AHU, FCU and other HVAC application with high efficiency,

High static ceiling concealed, PSC motor

oncealed, horizontal, EC motor

Concealed, horizontal, FC motor

**Electronstatic Precipitation Purification** 

Kitchen/Industrial ESP

Commercial HVAC ESP

ow resistance and long lifespan.

4,000~100,000 m<sup>3</sup>/h

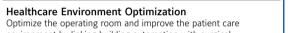
### Fan Coil Units



tandards, best practices and equipment data to save 5~15% n energy. Uses engineered software to save 15~20% in energy (up to 60% when retrofitting), with real-time analytics to ensure

We assess facilities and design a plan to prioritize repairs, upgrade

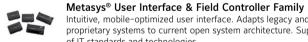
equipment, reduce energy use and improve overall efficiency. Use





Simplify data collection from a variety of building systems to provide a single, integrated view of building and system

### Metasys® Building Automation Systems



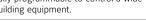
Intuitive, mobile-optimized user interface. Adapts legacy and proprietary systems to current open system architecture. Support



Valves, Actuators & Dampers







Fully programmable to control a wide variety of HVAC and other BACNET® Router and Modbus Gateway

TRION® Residential Air Purifier 250~840 m<sup>3</sup>/h alarm panels and lighting and integration with third-party MODBUS Apply to 18~100 m<sup>2</sup> with high CCM, efficiency and low noise equipment. As the heart of the BCPro™ system, the workstation

Fire Detection and Alarm Systems Flexible, reliable, cost-effective and highly scalable systems that can grow and expand as buildings change.

Fire & Hazard Protection



Water-based Fire Suppression Products Automatic sprinklers, valves and devices, piping and electrical products



Foam concentrates and hardware, clean agent gas suppression, restaurant systems, vehicle systems and fire extinguisher protecting high hazard areas



Mass Notification Systems Customizable, multi-tiered technology helps improve situational awareness and response time.



Cost-effective grooved piping solutions for a full range of fire, mechanical, HVAC and industrial applications. Flame Detection

### Chillers & Heat Pumps

Advanced sensor technology for multiple flame detection.

### Water-Cooled



Heating capacity: 20~40 MW frigerant: R134a application: Hot water up to 80°C, Large-scale district heating



Steam Turbine Driven Centrifugal Chiller (YST) Cooling capacity: 700~2,800 TR lefrigerant: R134a



Multi-Stage Centrifugal Chiller/Heat Pump (OM) Cooling capacity: 3,000~5,500 TR, Heating capacity: 12~28 MW 'efrigerant: R134a Flectric-motor, steam-turbine



Centrifugal Chiller Containerized Plant Room (YCP2020) Cooling capacity: 2,000 TR



Magnetic Bearing VSD Centrifugal (YZ) Cooling capacity: 165~1000 TR frigerant: R-1233zd Optimized for low-GWP (Global Warming Potential)



Magnetic Bearing Variable Speed Centrifugal (YMC<sup>2</sup>) Variable Air Volume(VAV) Terminals Cooling capacity: 165~1,000 TR



Variable Speed Centrifugal (YK) Cooling capacity: 300~3,000 TR

ermanent magnet motor



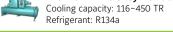
Centrifugal With Economizer (YK-EP) Cooling capacity: 2,500~3,500 TR efrigerant: R134a Variable-speed drive



efrigerant: R134a Smallest footprint per TR, Variable-speed drive



Cooling capacity: 360~2,000 TR Heating capacity: 2,500~11,000 kW Refrigerant: R134a Premium Efficiency Variable-Speed Screw Chiller (YVWH)



### Variable-Speed Screw (YVWE)



Cooling capacity: 103~428 TR Refrigerant: R134a



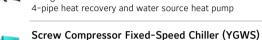
Cooling capacity: 120~300 TR Refrigerant: R134a remium efficiency variable-speed screw chiller



Cooling capacity: 117~378 TR Refrigerant: R134a Premium efficiency screw chiller



Screw Compressor Fixed-Speed Chiller (YEWS) Cooling capacity: 100~415 TR



Refrigerant: R134a 4-pipe heat recovery as option

Cooling capacity: 95~330 TR



Refrigerant: R134a

Scroll (YCWL)
Cooling capacity: 50~200 TR



Variable-Speed Screw Chiller W/Free Cooling (YVFA) Cooling capacity: 150~450 TR



Screw Heat Pump (YSPA) Cooling capacity: 107~475 TR Heating capacity: 368~1,528 kW



Scroll Chiller (YLAA) Cooling capacity: 56~148 TR Refrigerant: R410A

Refrigerant: R134a



Cooling capacity: 100~183 TR
Heating capacity: 358~672 111 Scroll Heat Pump (YLPA) Refrigerant: R410A

### Modular Chiller & Mini-chiller

Water Cooled Scroll Chiller (YCWE-E)



Cooling Capacity: 65~130 kW Heating Capacity: 66~131.9 kW Refrigerant: R410A



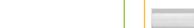
Modular Type Air Cooled Chiller/Air Source Heat Pump (YMAA/YMPA) ooling capacity: 44~255 kW



Refrigerant: R410A

Heating capacity: 48~255 kW

Cooling capacity from 10-45 kW The unit is suitable for E-houses and meet the highest market demands for performance and quality.





YORK® YHAU-CG/CA

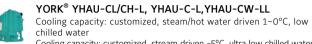
Cooling capacity: 120~3,200 RT

Absorption

Cooling capacity: 120~4,000 RT puble effect steam/single effect stream



MIN YORK® YHAP-C, YHAP-CL/CH, YHAP-CG Heating capacity: 1~40 MW ustomized steam, hot water & direct fired type 1 heat pump



Cooling capacity: customized, stream driven -5°C, ultra low chilled water

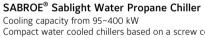
### Marine & Offshore Solutions



Cooling capacity from 50~400 kw
Compact skid mounted condensing unit designed to meet the high Cooling capacity from 50~400 kW demands in marine applications.



Cooling capacity from 350~1,200 kW Compact skid mounted marine chiller suitable for water or water-glycol cooling. Industrial type semi-hermetic screw compressors ensure high operational efficiencies with a COP of 5.5



Compact water cooled chillers based on a screw compressor. The unit provide a cost-effective alternative to traditional air conditioning



Cooling capacity from 100~1,400 kW Extremely compact packaged ammonia chillers based on reciprocating compressors. The unit is so narrow it can fit through a normal doorway.



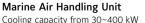
The chiller unit automation concept integrates control and monitoring of one or two compressor and one or two evaporators.



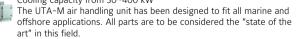
Cooling capacity from 6~47 kW A condenser coil of copper fins and copper tubes is standard. The unit operates under very high ambient temperatures with adjustable speed according to cooling requirement.

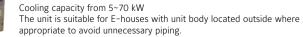


Marine HVAC&R Automation Concept The HVAC&R automation concept integrates control and monitoring of mpressors and air handling units.



Wall Mounted Unit Suitable for ATEX





appropriate to avoid unnecessary piping. Wall Mounted SCU (Self Contained Unit)

### LED Retrofit Kits

Utilize existing housing and lens Utilize existing housing with updated lens/look

**Industrial Refrigeration** 

YORK® RWH Large Screw Compressor Packages

The RWH packages with Frick 408 mm series rotary screw compressors are accommodating a wide range of large-scale process

RWF II and RXF rotary screw compressor units leading the food and

range available for industrial applications. Provide swept volumes of

applications, with swept volumes of 7,096~11,630 m<sup>3</sup>/h and working

pressures up to 4.2 MPa. Flexible design to meet wide range of

The RWKII-CM screw compressors are designed and configured to

essential. Provide swept volumes of between 567 and 2,250 m<sup>3</sup>/h.

ackle industrial refrigeration requirements where a combination of

exceptional reliability, high performance and low operating costs is

Packaged chillers based on screw compressors and shell and tube

YORK® RWKII-IC/EC Screw Chillers for Ice Rink

YORK® RWKII-CU Screw Condensing Units

YORK® X-PAC Modular Ammonia Chillers

YORK® CAFP R717/CO<sub>2</sub> Cascade Packages

evaporating temperature down to -54°C.

and CO<sub>2</sub> /ammonia as refrigerant, with a 100~800 kW capacity range,

YORK® M Series Multistage Centrifugal Packages

process cooling application.

and installation cost

neat exchangers, with a 1,000~2,000 kW capacity range, compact

structure and better operating experience, suitable for process cooling

ackaged chillers based on screw compressors and shell and tube heat

changers designed for ice rink application, compact structure and

better operating experience, suitable for process cooling application.

Packaged condensing units based on screw compressors and shell

and tube heat exchangers, with a 1,000~2,000 kW capacity range,

ompact structure and better operating experience, suitable for

Packaged ammonia chillers based on screw compressors and plate

heat exchangers, with a 600~2,500 kW capacity range and reduce

packages. Compact structure reduce 50% footprint, saving shipment

Compact packaged freezer systems using reciprocating compressors

The M Turbomaster multistage centrifugal compressor is designed for

heavy industrial use, and has proven itself in over 3,000 demanding

as compression and refrigeration applications worldwide in the

Factory pre-packaged chiller system for GTIAC solution, containerized

chemical, petrochemical, hydrocarbon processing and refining

industries. Provide swept volumes from 680 to 44,180 m<sup>3</sup>/h.

YORK® YCP-2020 Modular Chiller Plant

design, compact structure, easy for installation.

monia charge volume 90% compare shell & tube heat exchanger

industry requirements and compliant with API 619 standards.

YORK® RWK II-CM Screw Compressor Units

YORK® RWKII-BC/RC Screw Chillers

application.

beverage industry with the most innovative and broadest product

YORK® RXF/RWFII Screw Compressor Units



### SABROE® TCMO/TSMC Two-stage Reciprocating

neavy-duty refrigeration, using all common refrigerants.

SABROE® CMO/SMC Reciprocating Compressor Units

CMO/SMC compressors are world-renowned for their exceptional

reliability, making them an economical, low-maintenance solution for

Fifteen different models are available to provide swept volumes of

### Compressor Units Two-stage versions of CMO and SMC reciprocating compressors, with

between 97 and 1.357 m<sup>3</sup>/h.

swept volumes of 150~1.000 m<sup>3</sup>/h.



Compressor Units
High-pressure hybrids of CMO and SMC reciprocating compressors, with swept volumes of 100~450 m<sup>3</sup>/h.

SABROE® HPO/HPC/HPX High-pressure Reciprocating



Extremely compact packaged ammonia chillers based on reciprocating compressors and shell & plate heat exchangers, with a 100~1,400 kW

SABROE® ChillPAC™ Chillers



### SABROE® ComPAC™ Chillers Compact packaged ammonia chillers based on screw compressors and shell & plate heat exchangers, with a 500~2,200 kW capacity range.



HeatPAC™ heat pumps are the ideal solution for effectively exploiting low-temperature waste heat, and turning it into hot water (up to 90 °C), using only a minimum of electrical energy.

### Integrated Security

Integrated Security Platform

Video Based Analytics

Security Monitoring



Our open platform has the flexibility to integrate with a wide range of video, access control, intrusion and other systems, to provide real-time, streaming security command and control in one powerful, intuitive interface



Video Surveillance, Video Management & Storage Robust video surveillance systems with full range of cameras, Network Video Recorder (NVR), Video Management Solutions (VMS), monitors and etc provide scalable and integrated solutions as well as advanced video analytics.



This intuitive function uses and converts video analytics or metadata, (e.g. dwell times, people counting and heat mapping) into actionable information that is displayed in graphical, chart or report formats, that enables for quick identification of trends and business

monitoring services provider. Across Asia Pacific, our Customer Care Centres monitor in excess of 250,000 alarms, 24 hours a day, every day of the year, responding to a variety of situations from break and entry to fire alarms. Our customer base includes residential homes, shops, banks, offices and government buildings.

ADT Security is the world's largest and most experienced



Turning disparate information sources into real-time actionable intelligence, evaluate situational awareness and provide timely and accurate insights, and its automated workflow results in quicker and more effective operational response that saves lives protect assets reduces public damage and minimizes impact to organizations and cities alike

### Intrusion Security

Command & Control

From our revolutionary control panels, to our industry-leading IP alarm monitoring products and sleek, contemporary self-contained wireless panels, DSC has always been front and center in the



Access Control/Biometrics Controllers, readers, management software and etc help control, track and manage access to any facility, and provide enhanced security with integrated biometrics technologies.

### **Energy Storage**



ements of 43 and 65 kWh.

Scalable system builds on proven design and environmental controls to ensure economical, reliable performance. Storage capacity configured

### **Retail Solutions**



Sensormatic is one of the most trusted names in loss prevention. We offer innovative, top-quality solutions that help combat. shrink and deliver predictive analytics and insights you can use to help improve operational efficiency and create a better shopper



TrueVUE's Inventory Intelligence harnesses the power of data and gives you a single view of item-level inventory across the enterprise. It provides valuable analytics you can use to drive sales by improving inventory accuracy and ensuring that merchandise is available where and when customers shop.

### ShopperTrak, part of Sensormatic Solutions, partners with

understand consumer behavior and leverage that information to increase profitability. Through the use of analytics, ShopperTrak enables clients to increase traffic, conversion and transaction size. Constant innovation, global reach, and benchmarking set us apart. Today, ShopperTrak manages in excess of 150,000 devices and

### Inventory Intelligence









Loss Prevention

Traffic Insights

retailers, malls and entertainment venues to help them better serve more than 2,100 customers worldwide.

# L2000 Modular Distributed Energy Storage System

### Security Security

and tomorrow with integrated, customer-specific solutions from HVAC, security and life-safety system installation and product the world's leading security company.

- 24/7 remote monitoring
- Access control
- Advanced video surveillance
- Intrusion detection Managed services



### Fire & Hazard Protection

Help keep people and assets safe with comprehensive solutions, design, installation, service and monitoring from a world leading fire systems.

- Fire alarm systems
- Fire sprinkler systems
- Valves and devices
- Fire suppression systems
- Mass notification systems
- Special hazard solutions



### Optimization & Retrofit Services

Make the most of existing building and financial assets through cost-effective upgrades, central plant strategies, and financing

- Central chiller plant optimization (CPO)
- Clean energy assessments
- Energy performance contracts
- Energy retrofits
- Equipment financing
- Healthcare environment optimization (HEO)
- Public/private partnerships
- Technology refresh services Turnkey upgrades and retrofits



### Lighting Controls & Retrofit

Save energy, minimize costs and meet organization goals with a range of services, from business remodels, to new construction lighting design, to municipal street lights.

- · Lighting controls and retrofit
- Street and roadway lighting
- Turn-key lighting upgrades



Rely on our innovative distributed energy storage products to better manage energy use, cut costs and ensure electrical back-up for a building, campus or enterprise.

In-building distributed energy storage system

innovative, optimized, sustainable environment.

Modular distributed energy storage system

### Building Wide Systems Integration

Construct a smarter building by converging building, business/IT and specialty systems on an intelligent infrastructure. Let us streamline the process to measurably improve initial and lifecycle costs, enhance function, ensure connectivity and create an

### Building Services & Parts

support. Approximately 3.000 technicians working out of local offices across 11 countries can provide 24x7x365 proactive monitoring, remote and on-site service and repair, and replacement parts.

- Aftermarket parts
- Building remote monitoring
- Building system and HVAC repair Planned and preventive maintenance
- Predictive and diagnostic services
- Security and life-safety system repair



Use efficient air flow building-wide to create healthy, comfortable and visually appealing environments that increase work productivity and occupant satisfaction.

- Air handling units
- Fan coil units
- · Variable air volume (VAV) terminals
- Grilles and diffusers
- Electrostatic precipitation purification



## Building Automation Systems

Connect commercial HVAC, lighting, security and protection systems on one platform. Vital data and insights improve efficiency, productivity, and occupants' comfort and safety.

- Metasys<sup>®</sup> building automation system
- Metasys<sup>®</sup> Enterprise Management (MEM)
- · Metasys<sup>®</sup> Enterprise Optimization applications
- BCPro™ building automation system

### Operational Intelligence & Loss Prevention

Minimize costs, maximize operational performance and enhance return on investment in security programs with business intelligence solutions.

- Information management solutions
- · Real-time location systems (RTLS) for asset management
- Video and traffic analytics

### Retail Solutions

Gain real-time insights into retail facilities, inventories, employees & customers to achieve maximum business performance in a digitally driven shopping world.

- Loss Prevention
- · Inventory Intelligence
- Traffic Insights

### The power behind your mission

# Controls

At Johnson Controls, we transform the environments where people live, work, learn and play, From optimizing building performance to improving safety and enhancing comfort, we drive the outcomes that matter most. We deliver our promise in industries such as healthcare, education, data centers and manufacturing. With a global team of 105,000 experts in more than 150 countries and over 130 years of innovation, we are the power behind our customers' mission. Our leading portfolio of building technology and solutions includes some of the most trusted names in the industry, such as Tyco<sup>®</sup>, York<sup>®</sup>, Metasys<sup>®</sup>, Ruskin<sup>®</sup>, Titus<sup>®</sup>, Frick<sup>®</sup>, Penn<sup>®</sup>, Sabroe<sup>®</sup>, Simplex<sup>®</sup>, Ansul<sup>®</sup> and Grinnell<sup>®</sup>,

For more information, visit www.johnsoncontrols.com or follow us @johnsoncontrols on Twitter.

### Some of the renowned brands from Johnson Controls include:



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China (Macau)

**Johnson Controls:** 

















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Grinnell HAIDUN HOLIS HYGOOD









































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### The power behind your mission

Johnson Controls

Enabling a Safer, Smarter and

More Sustainable World

# **Controls**

### Take advantage of a broader range of capabilities.

Johnson Controls now provides a wider spectrum of innovative products, expert installation and services, and systems integration to help improve operational and energy outcomes for customers worldwide.



### Digital Solutions

We transform the way we live, learn, play and work by creating the blueprint of the future across three key pillars by impacting sustainability, providing frictionless safety and security which elevates customer experience.

Our ability to aggregate data across a plethora of IoT devices in three key categories of People, Space and Technology has harness the power of Artificial Intelligence. Our platform, sitting at the intersection of People, Space and Tech gives us the ability to drive a digital thread through connected spaces. It is our ability to merge domain expertise and digital solutions that make us your preferred choice.

- Johnson Controls Enterprise Management Platform (JEM)
- Companion App
- Connected Chillers (CEP)
- Central Plant Optimization (CPO) Location-Based Services (LBS)
- Assurance Services
  - · Active Standard Operation Procedure (SOP) · Johnson Controls Situation Awareness Management (JSAM)
- Open Blue Platform



### HVAC & IR Equipment

Draw on the most comprehensive HVAC & IR portfolio for commercial and residential buildings of all types, ages and sizes and industrial applications as well, to enhance sustainability, energy use and the indoor environment.

- · Air-cooled chillers, water-cooled chillers, and heat pumps Condensers and condensing units
- Dedicated outdoor air systems (DOAS) • Room air conditioner (high wall split, window air conditioner, etc.)
- Industrial Refrigeration Heat Recovery and District Heating



Equip facilities with intelligent HVAC controls to keep occupants comfortable, run equipment efficiently and optimize operating budgets.

- Field controllers
- Refrigeration controls Thermostats
- Wired and wireless sensors
- Valve and actuators

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