

Healthcare

Clean air solutions



Experts by experience

Daikin Applied UK is the main supplier of HVAC equipment to healthcare facilities. We have supplied over 500 hospitals in the UK and over 300 hospitals internationally.



AHUs

CHILLERS

PROJECTS

SERVICE

Daikin Applied

Technically better...

Daikin Applied UK is the market leader in the design and manufacture of efficient heating and cooling systems for healthcare. Our standard and bespoke products including air handling units, chillers and heat pumps; offers precise control of temperature and humidity with zone-by-zone comfort settings and intelligent energy saving; Ideal for complex healthcare environments.

Considering the quality of air is one of many prerequisites that healthcare facilities expect from HVAC equipment, our products ensure other requirements such as: low noise level, reliability, and low running costs are achieved without compromising on performance.

We meet these challenges by offering our expertise in designing the flexible system to preserve healthy environments for both hospital staff and patients.

Specialist solutions

for healthcare facilities

Expertise

Daikin Applied UK have supplied over 1000 AHUs to healthcare facilities nationally and internationally, giving us a wealth of knowledge and expertise when it comes to product benefits and future developments.

In addition, members of the Daikin Applied UK team continue to sit on the HEVAC committee for the Health Technical Memorandum HTM 03-01 standard. This means that not only our solutions comply with the regulation, but also we lead the way for innovation used in the specialised ventilation equipment for healthcare premises.

Sustainable products

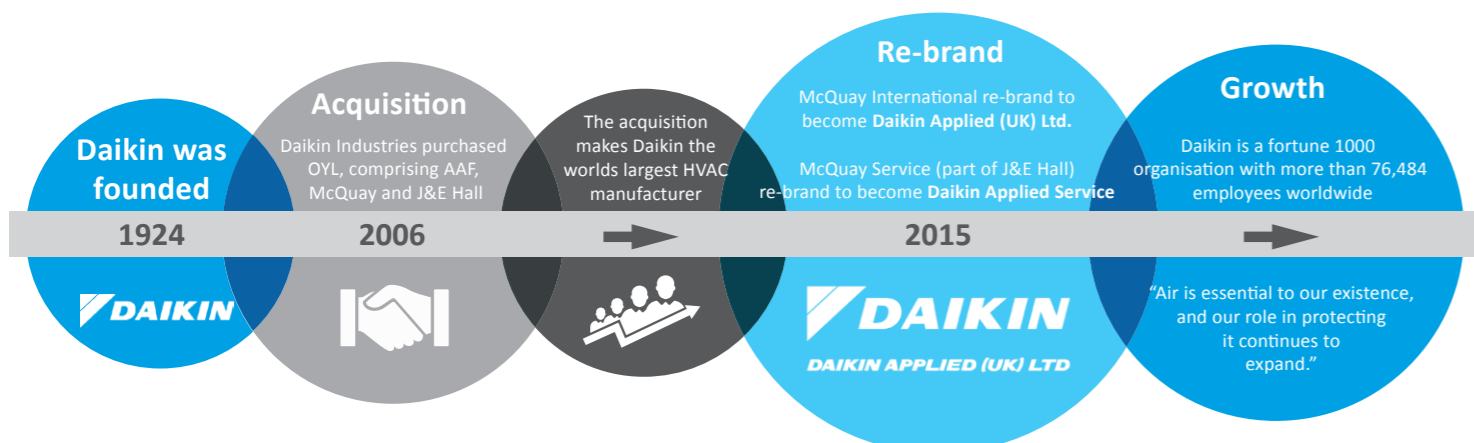
We design products that take the entire product lifecycle into account; to minimise carbon emissions energy usage and running costs, offering high seasonal efficiencies and surpassing environmental targets set by European Union (EU). We have manufactured our chillers to use lower GWP and reclaimed refrigerants, complying with environmental and F-Gas legislations.

Service and maintenance solutions

Daikin Applied Service offers a comprehensive service packages tailored to your need. Our dedicated team of expert and service engineers are able to provide a rapid response to you maintenance, repairs and supports needs, extended across Air Handling Units (AHU), chillers, split air conditioning, VRV and heat pump products. Covering ALL brands of HVAC systems and applied system solutions.

Remote monitoring

Daikin on Site (DOS) is an intelligent remote monitoring system that collects complex operational data from the AHU or chiller control system 24/7. This autonomous platform enables the gathering and analysis of raw operational data that is used to report useful operational information available to the user via web platform. This platform allows Daikin professionals to remotely optimise and schedule maintenance of the equipment to reduce energy consumption and running costs and to increase the lifespan of your equipment.



Trust in Daikin's experts

Research and development

Our in-house research and development team ensures we stay at the forefront of technology used in HVAC in line with new and developing legislation including the Health Technical Memorandum (HTM). But more importantly it allows us to offer to our customers the flexibility of bespoke design and development of the solution that suits individual building needs.

Design

Our Engineering and R&D teams are made up of highly skilled mechanical and electrical engineers, specialising in healthcare estate sector who are experienced to help you meet complex specifications and requirements. All projects are supported with SolidWorks 3D models and BIM files for precise design, fast execution and improved computational analysis.

After sales services

Our after sales and maintenance teams are here to provide you with spare parts, tailored maintenance packages and repairs, as well as upgrades and retrofits to help you get the most out of your investment. This is further enhanced by the option to implement Daikin On Site remote monitoring to any existing AHU or Chiller.

Daikin Industries

As a global company, Daikin has over 76,000 employees, with a turnover of over £35 million within Europe. Daikin is the only manufacturer involved in all facets of air conditioning products; including Daikin's own market leading compressor and inverter technologies.

Our AHU & chiller manufacturing facilities

Manufacture



Daikin Applied (UK) Ltd has over 30,000m² of manufacturing and testing facilities across our dedicated plant for AHU manufacturing located in Northumberland and our chiller manufacturing plant in Rome.

With recent investment of £1.5million into our UK manufacturing machinery, we have been able to further improve the quality of our products and increase production capacity to over 1000 units per year.

Witness testing

Our new state of the art factory testing facilities are located in Northumberland (AHUs) and Rome (chillers) offering full performance and witness tests, simulating the design conditions of our products. Our performance testing procedures are compliant with industry standards, including ISO 3744/5136 and BS EN1886:2007; offering a comprehensive report of product performance before delivery, ensuring ultimate peace-of-mind.



Air handling units

Fully HTM 03-01 compliant

Our fully HTM compliant Professional and Modular air handling units give you ultimate flexibility. They can be configured and combined to meet the exact specification to your healthcare premises requirements



D-AHU Professional

- > HTM 03-01 compliant
- > Air flow up to 39.5 m³/s
- > Plug and play design
- > Unlimited flexibility in size (Professional range)
- > Anodised frame (Class up to C5M corrosion & D1 deflection)
- > High efficiency EC motors as standard
- > Thermal Bridge frame (T2 and TB2)
- > AHU casing with leakage rate L1

Public awareness

To protect health, the latest ISO 16890 standard will allow for selection of PM1 rated filters. Therefore PM2.5 and PM10 rated filters are advised to be used as pre-filters and for less demanding applications.

Filter class	PM1	PM2.5	PM10
M5	<20%	<40%	>50%
M6	<40%	50-60%	>60%
F7	50-75%	>70%	>80%
F8	75-85%	>80%	>90%
F9	>85%	>90%	>95%

*Typical efficiencies of air filters against PM1 and other fine dust mass concentrations.

PM = Particulate matter

N+1 system redundancy backup

Our standard duty standby EC motor arrangement offers the N+1 system redundancy and includes features such as divider panels and backdraft dampers to enable easy access and maintenance whilst maintaining continuous operation.

High efficiency

Our AHU's consist of low pressure drop mechanical components and low consumption electrical components, ensures the high efficiency of our units and low operation cost of your plant.

High quality and durable materials used in the construction of our units ensure endurance and longevity during the lifespan. This ensures that our units satisfy low thermal transmittance (T2), low thermal bridging effect (TB2) and the lowest deflection rates (D1).

We also ensure maximum recyclability and limited landfill waste in the production and lifecycle of our products.

Our state-of-the-art manufacturing facilities and equipment ensure the premium quality of our products, achieving the lowest leakage rate (L1).

Noise

We offer a range of attenuators (splitter units) and acoustic-weather louvres manufactured from a range of materials to your specific noise level requirements with no limitations on size and material. We also offer an on-site noise survey prior to design, as well as factory noise acceptance tests prior to delivery.

Warranty

Daikin Applied offer a comprehensive 12 month warranty on all AHU's and chillers as standard. This will be extended by a further 12 months warranty on parts when you take out a service and maintenance package with Daikin Applied Service (chillers only). In addition to this we also offer a range of extended warranty packages tailored to your requirements.



D-AHU range

Key features

EC Fans

2 x 100% market leading EC fans as standard for N+1 system redundancy backup. A blanking plate can be fitted to allow for continuous operation in the event that an individual fan should fail.

Coil features

Fog / frost heating coils constructed of plain tubing without fins, which are accessible from both sides for cleaning and maintenance. Installed as standard to protect downstream filters from low temperature and high humidity.

Stainless steel cooling / heating coil supplied with 2.5mm fin spacing and eliminator as standard, with cleaning access from both sides. All components made from stainless steel. Stainless steel drain pan optional.

Heat recovery

We offer a range of high efficiency heat recovery systems in line with EU regulation No 1253/2018. All our heat recoveries are available in stainless steel and protected on the extract stream by ISO course μ 60% filtration, with drainage system.

Colour coding and labels

Casing available in a variety of colours at no additional cost. Permanent identification label for air flow and test points.

Controls

Our packaged controls include the internal wiring of the AHU complying with BS7671. All wiring is installed in cable containment system to provide effective protection and allows inspection and cleaning.

Filters

All filter categories securely mounted in fully sealed frame with additional vertical supports to seal filter joints and pressure drop monitoring system directly linked to the BMS. Easy access via withdrawal slip and hinged access door.

UV system

Ultra violet (UV) system to control microbiological growth, available as optional extra to be installed across heating, cooling and heat recovery systems (available on the professional range only).

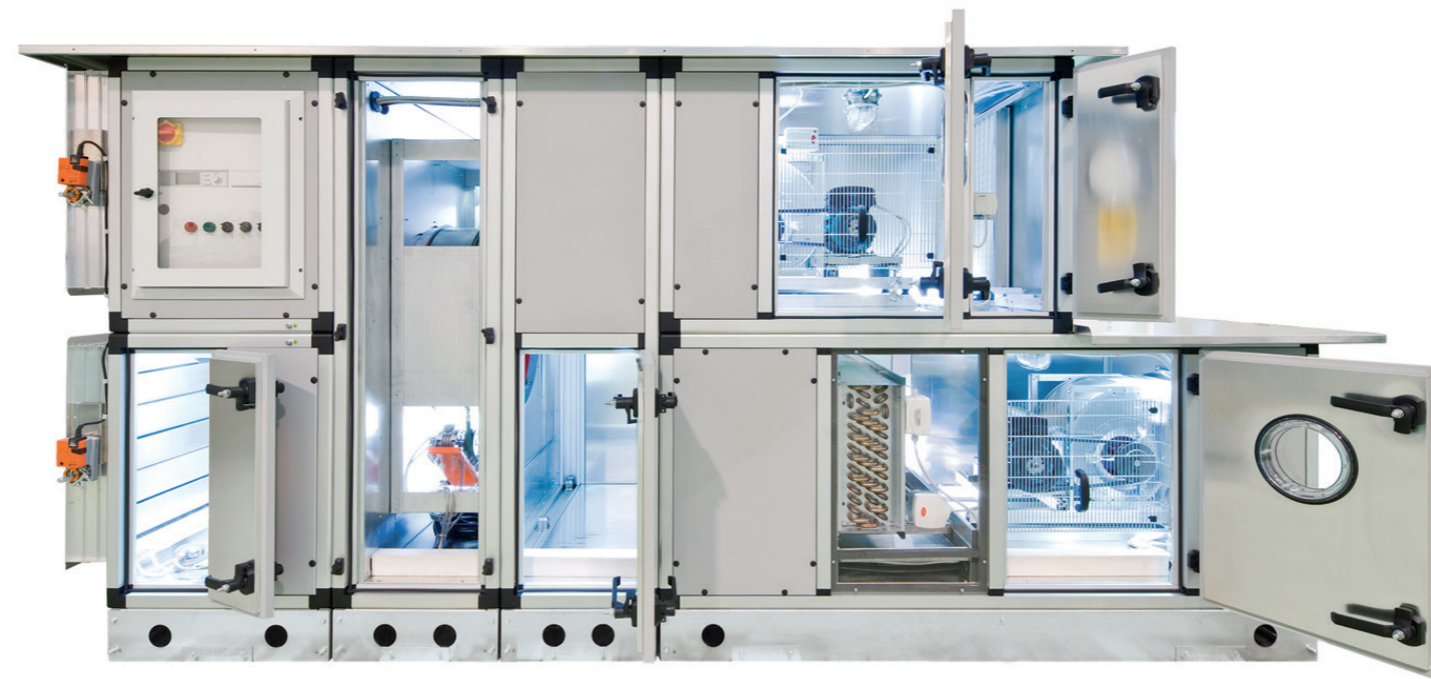
Frame and panel construction

Fully anodised and internally rounded aluminium frame joined with bolted composite corner blocks for improved sealing effect, in line with HTM 03-01, VDI 6022 and DIN 1946-4 standards.

All components and Inner skins feature ultra-smooth surface finish to prevent water and dust ingress for efficient cleaning, and within wet sections are manufactured from stainless steel.

Drainage trays

All drain trays are manufactured from stainless steel with a glass trap as standard, are easily accessible from both sides, and feature 4 way 1:20 sloping to prevent water pooling. (Plastic drain trays and trace heated pan and trap optional).



Access doors

Access to all elements that require routine servicing via secure and lockable 500mm wide hinged doors with access from both sides with two stage opening sequence and viewing porthole with internal illumination.

Attenuator units

Attenuator units with sound absorbing properties and suitable infills for air being handled, protected by membranes to stop fibrous particles entering the air stream.



Filter range

From our sister company AAF International

AAF has an in-depth understanding of the challenges for healthcare facilities. This understanding and technical ability makes AAF the preferred partner in protecting your patients, workers, and visitors. AAF products are designed with energy efficiency in mind, offering you the highest efficiency products with the lowest energy requirements.

HEPA and ULPA filters

HEPA and ULPA filters are the most efficient air filters commercially available and are used in applications requiring ultra-clean air. AAF HEPA filters are available in a variety of efficiencies—from 99.97% tested on .3 µm particles to 99.9995% and higher tested on .1 to .2 µm particles.

The HEPA/ULPA Filter line delivers:

- › Individually tested for certified performance
- › Designed to meet the requirements of critical applications
- › ePTFE Filtration Technology provides superior durability
- › Designed specifically for high airflow applications requiring HEPA efficiency at an ultra low pressure drop

High efficiency extended surface filters

These rigid, extended surface filters are ideal for use in all high efficiency applications, including ICU, treatment rooms, laboratories and minor surgical suites. The supported pleat box filters provide strength and integrity in high flow, turbulent, and variable airflow conditions.

The High Efficiency Extended Surface Filter line features:

- Filter classes M6–E10 (EN779:2012; EN1822:2009)
- ISO ePM2,5 to ePM1 (ISO 16890)
- Patented Impress® Technology delivers a higher DHC and a lower pressure drop for greater energy efficiency
- Filters designed to remove gaseous and airborne biological contaminants in critical areas

Pleated panel filters

The pleated panel filter line provides the industry's broadest selection of high performance, high capacity filters, including specialty and standard capacity options. This enhanced line of filters offers consistent air quality, improved process performance and optimised Total Cost of Ownership. Pleated filters can be used as prefilters to protect and extend the life of higher efficiency, more expensive final filters.

The Pleated Panel Filter line features:

- Filter classes G2–M5 (EN779:2012)
- ISO coarse to ePM10 (ISO 16890)
- Lowest life cycle pressure drop and highest Dust Holding Capacity (DHC) reduces energy consumption and total operating costs
- Lowest initial resistance panel filter in the industry, combined with high DHC provides an extended life cycle and energy efficient performance
- High efficiency pleated filter supports achievement of LEED® credits by significantly improving Indoor Air Quality (IAQ) and reducing energy consumption

Case study

Royal Papworth Hospital

Cutting-edge technology and unprecedented sustainability underpin one of the UK's biggest health sector construction projects.

The Challenge

Daikin Applied UK successfully bid to work with Skanska on the design and build of 60 Air Handling Units (AHU) plus 3 water cooled chillers, totaling 1MW of cooling for one of the biggest health sector construction projects in the UK. The contract included design, build, on-site installation, commissioning and maintenance.

Solution

The early appointment of Daikin Applied as the specified manufacturer allowed our engineering team to custom design each AHU unit to provide a bespoke solution and satisfy multi-space air conditioning requirements.

Daikin Applied's unique modular design has provided complete design flexibility with no restrictions to satisfy a bespoke solution to meet tight building and plant space limitations internally and externally. To provide 1MW of cooling, Daikin Applied Engineers collaborated with the Skanska design team to modify the original design of air cooled installation, achieving a lower cost and improved efficiency water cooled solution.

Spatial restrictions are always an issue for plant rooms, particularly in hospitals where the strict HTM maintenance requirements must be met.

Use of the latest high efficiency EC motor, low pressure drop and low maintenance components were the key features of the proposal by Daikin Applied. This was

adopted by the Skanska design team as it exceeded the clients expectations in unit size, performance, efficiency and budget.

During the commissioning period further design restrictions imposed by the site mechanical installation has created additional challenges to our site commissioning team. Our highly qualified site team responded to these issues by modifying the AHU designs in collaboration with our manufacturing facilities located in the UK, while our experienced project manager ensured the delivery and commissioning of the units was completed within the original time scale and budget.

Equipment

- › 60 AHU's - Professional range (various air volumes)
 - › 42 Internal units
 - › 18 External Weather-proof Units
- › 3 Water Cooled Chillers - EWWQ 430 L SS (360kW)



Service & Maintenance

with Daikin Applied Service

Daikin Applied Service offers maintenance, repairs and support on ALL brands of HVAC systems and applied system solutions; covering air handling units, chillers, split air conditioning, VRV and heat pumps.

Service capabilities

- › Flexible maintenance contracts tailored to your needs
- › Maintenance of ALL brands of HVAC equipment
- › 24/7 emergency call out service
- › Up to four hour response time
- › Qualified site service engineers (F-Gas Registered)
- › Remote monitoring with Daikin On Site (DOS)
- › On site training for front-line personnel
- › Tailored Service Level Agreement (SLA)
- › Full chiller running logs taken on every service visit
- › Comprehensive spare parts & support on all brands
- › Retrofitting & refurbishment

Benefits of a maintained system

- › Lower operation costs and energy usage
- › Extended life-cycle of assets
- › Fast and reliable remote diagnostics with Daikin On Site
- › Reduced equipment downtime and costly repairs
- › Improved indoor air quality

Service Packages	BUSINESS Saver	BUSINESS Standard	BUSINESS Plus
Conforms to S standard	✓	✓	✓
F-Gas leak test	✓	✓	✓
Unit controller set points, safeties and running conditions logged	✓	✓	✓
Equipment condition report	✓	✓	✓
Four visits per annum (1 major / 3 minor)		✓	
Calibration of all sensors, probes and safety switches		✓	✓
System Diagnostics		✓	✓
Oil Analysis		●	✓
Thermography	✓	●	●
Multi-site visits & bespoke offering			●
Daikin on Site remote monitoring			●
1 point vibration analysis			●
System water analysis			●
Condenser coil cleaning			●

● Optional extras that can be tailored to your needs.

Daikin on Site

Standard on all new installations

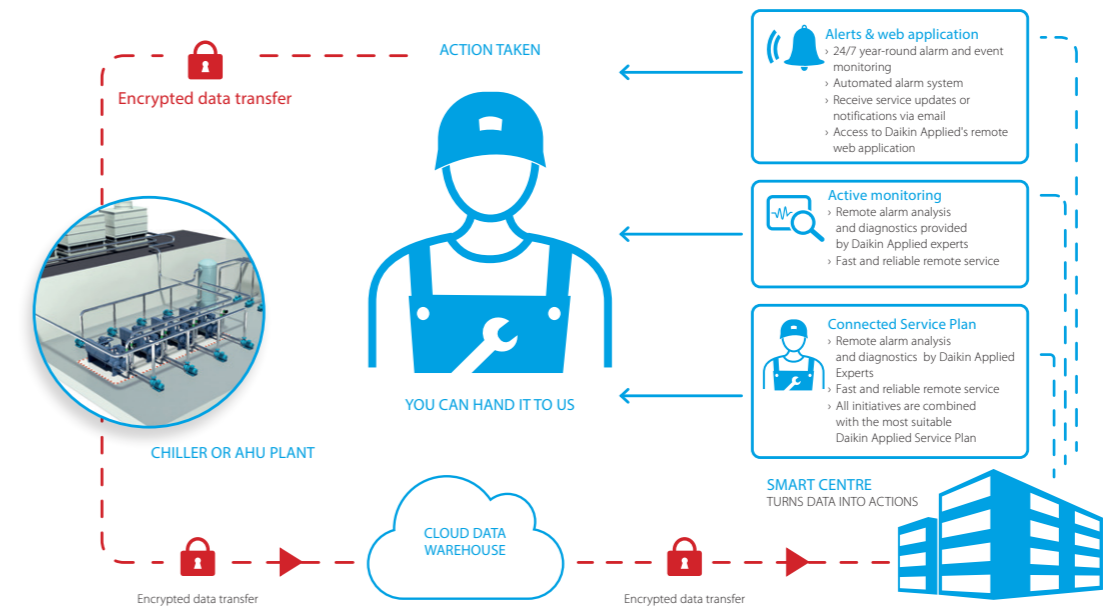
What is Daikin on Site?

Daikin on Site (DOS) is a web-based 24/7 remote monitoring system that collects complex operational data from the AHU or chiller control system.

Daikin's Smart Centre turns the operational data into useful information that allows the user to remotely monitor performance. It also allows Daikin professionals to remotely optimise and maintain the equipment.

Main benefits of DOS

- › Remote diagnostic support from Daikin experts
- › Enhanced reliability and reduced system downtime
- › Optimised energy efficiency and reduced operational costs over the systems lifetime
- › Insight into operational data to optimise the use of equipment via Trend Analysis



Cloud technology to hand

Remote maintenance allows your system to be accessed using any web-compatible devices any time and anywhere using cloud technology. Process data is collected automatically in real time and stored centrally.



Insight into operational data for enhanced control and reliability

Through enhanced operational data, Daikin engineers are able to remotely monitor system performance, run diagnostics and software upgrades. If an on-site visit is required, the service engineer will arrive already informed of the issue, reducing system downtime.



Simple, effective connection

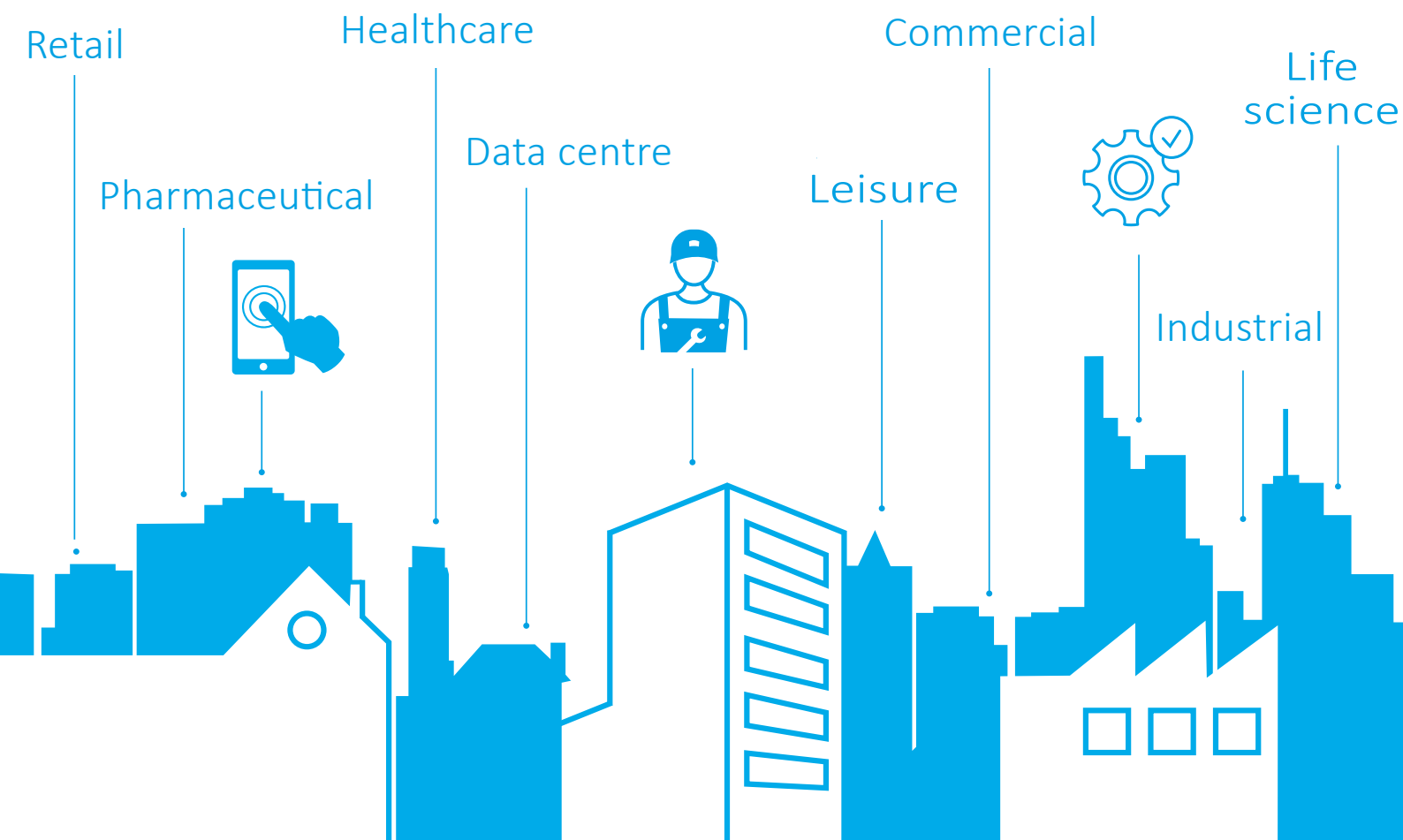
Most Daikin Applied Chiller and AHU controllers have a built-in IP interface. This allows connection for remote monitoring either through LAN or with wireless modem communication.



High security

Secure in all aspects such as data privacy, data storage security and data transport.

- › All connections are encrypted (HTTPS) to prevent wiretapping and man-in-the-middle (MITM) attacks
- › CSA security attestation
- › Data privacy conforming to EU regulations
- › Geo-redundant data storage in Northern Europe



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