



Raise your data centre's IQ



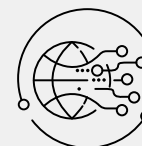
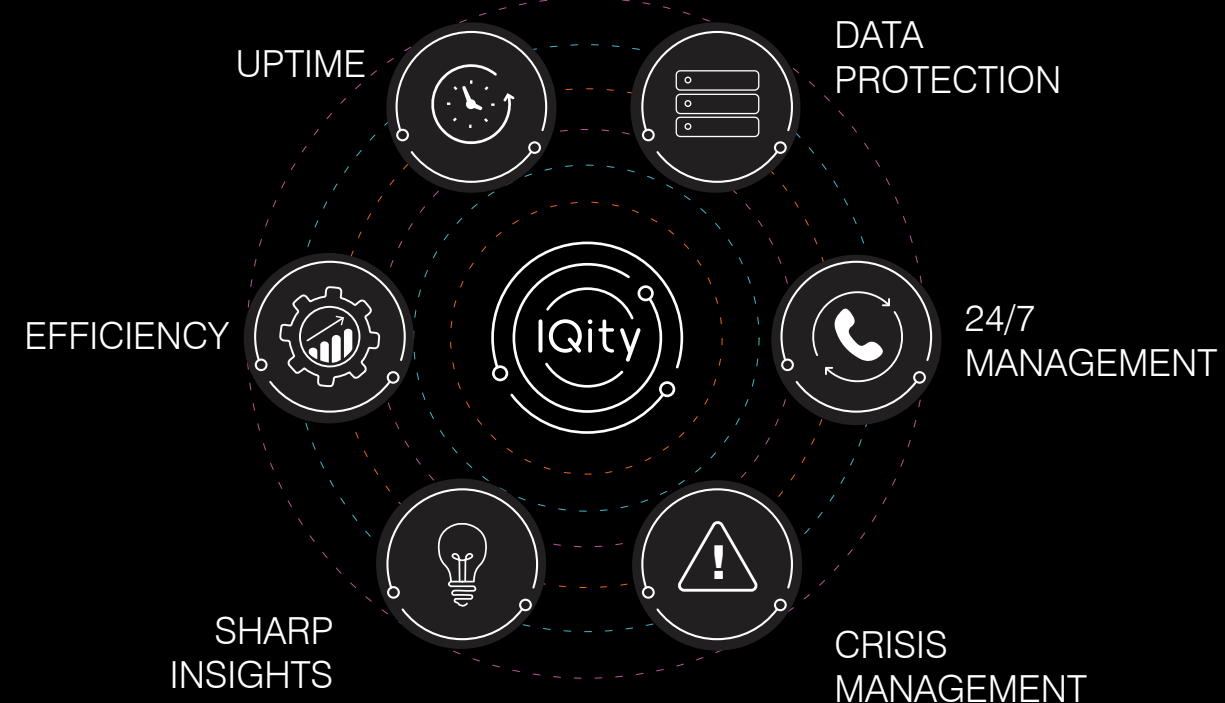


## Raise your data centre's IQ

**IQity is Airedale's IoT-enabled technology framework, revolutionising how cooling is connected, controlled and automated at critical facilities.**

It delivers unparalleled uptime and efficiency benefits by connecting smart building software and remarkable hardware in an entirely unique way. IQity works at a product, system, and site level to make sense of your critical systems and step in when you need a hand.

It is the only framework that manages normal building cooling 24/7, an emergency in real-time, and gives the breadth of data necessary to prevent threats and protect your bottom line.



## IQity for Data Centres

Connectivity underpins everything we do. Meaning that data centres need to be ever smarter and work far harder than before. As such, the data centre industry is in a constant state of exciting evolution.

With this growth, comes responsibility. Data centres are consuming a greater share of natural resources. So, the industry and its supply chain must work as a team to minimise environmental impact while delivering high availability.

Critical systems like cooling are extremely complex. Software can help, but expertise is crucial. Airedale are data centre experts with 45 years of IT cooling experience. They have designed cooling equipment and systems found in some of the world's largest facilities.

IQity is the culmination of this experience. It is a software framework and digital toolkit developed specifically for this most demanding of industries, tested and validated in the field and developed with efficiency and uptime as its core deliverables.





# The IQity Philosophy

**Raising your Data Centre's IQ means taking a holistic, strategic view of the entire critical facility. Airedale starts with intelligent products, connects them to create smart systems, and combines smart systems to architect a solution that makes your whole site more resilient, efficient, and green.**

Over the years, Airedale has developed a suite of controls tools for data centres, from simple product applications right through to Building Management Systems. Some of these tools come from within the R&D team, some come from working with clients on site. Some come from when things go wrong. Some are at product level, some can be applied to systems and some can manage whole facilities. Every project undertaken, something new is learned.

IQity is the culmination of all this experience. Airedale reimagined how software and hardware connect to transform uptime and efficiency. Believing that intelligently binding products, and harmonising the systems they create, delivers better performing sites.

## Improving the Status Quo

Some companies do hardware, some do software. Some even offer both. However, because many of these corporations are fragmented, the factory making the "things" is not always in harmony with the software connecting those "things" to the internet. This leads to spiralling costs and lead times, teething problems, and unfulfilled ROI promises. They aspire to tie clients into long relationships and prevent operators from finding a better way of doing things.

Airedale's software and hardware divisions exist under one roof. Teams talk to each other, so that products do too. Airedale is not just an air conditioning company; it is a software development company too. A critical cooling specialist. The people at Airedale understand your business and understand how their business can make you stronger.

**Led by the IQity philosophy and working together, Airedale can raise your data centre's IQ**

SPIRALLING  
COSTS

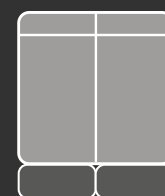
PROTRACTED  
LEAD TIMES

UNFULFILLED  
PROMISES



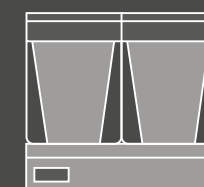
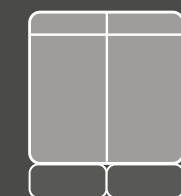
### PRODUCT

Intelligent products flex with their environment, optimise their own operation and let you know if they need repairs.



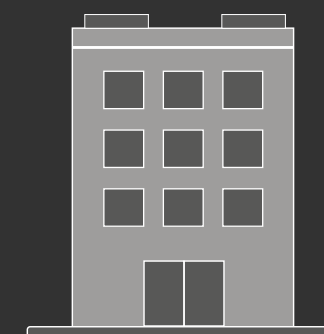
### SYSTEM

Intelligent systems work as a team, taking into account multiple variables to operate in the most efficient and effective manner.



### SITE

Intelligent sites work in harmony with their owners and operators to manage multiple systems and products, delivering holistic improvement and accurate reporting data.







## PRODUCT

helix



PRECISION CONTROLS



CHILLER CONTROLS



OPTIMISED HEAD  
PRESSURE CONTROL



CHILLER FAST START



ENERGY MANAGER



REFRIGERANT MANAGER



COMPRESSOR MANAGER

## SYSTEM

Acis



CW SYSTEM OPTIMISER



CRAH ENERGY OPTIMISER



CHILLER SEQUENCER



REMOTE MONITORING

## IQity helps data centre operators protect our digital world

IQity is a digital glue. It binds intelligent products to form systems, and harmonises these systems across entire sites. It is not just a software system on its own. Rather a philosophy and vehicle that enables Airedale to apply its products and software in a way which delivers unparalleled efficiency and uptime benefits to high-stakes, critical industries.



## SITE

Acis



HVAC CONTROLS SUITE



ACIS EDGE



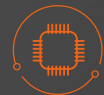
ACIS TELECOMS



BEMS



BMS



ACIS AI



PMS



# How a software company was borne from air conditioning excellence



## 1974

Since 1974, Airedale has been an IT cooling expert. In its founding years, they began deploying basic controllers for equipment. Using timers and relays to perform the essential cooling functions of the day.



## 1990

In the 1990s, having already made its name as an innovator, Airedale evolved again. This time developing special strategies for cooling, helped by the adoption of Carel controllers.



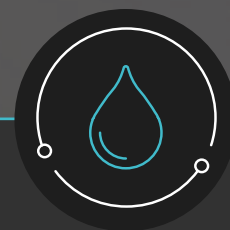
## 2005

Single products paved the way for systems, including third-party equipment. They didn't stop there. Yet again, Airedale innovated and advanced to entire site solutions. In 2005, they introduced their flagship ACIS™ BMS.



## 2000

Leap forward a decade and with big ideas for the future of cooling, Airedale launched their controls division. As knowledge grew - already bolstered from years of supporting clients - they created 3 seminal products. Their interface units, chiller sequencers, and pump panels.



## 2021

And now, Airedale has something truly special - IQity.

A technology framework that maps a journey from products, through systems, to entire sites. It encompasses Helix unit controls and ACIS™ system/building controls. And at the beating heart are solutions crafted by sector, using validated architectures and philosophies.

## 2010

Airedale combined intelligent unit controls and the ability to deliver complete building management. And took it to the data centre industry. An unparalleled portfolio was borne from bespoke supervisory software projects with impressive clients. Every new project produced a fresh idea.



Why has software become so important in the control and management of mechanical systems in data centre environments?

*"The software is the brain of the system. The more intelligence built into the software routine, the better the operational efficiency. It's no longer good enough to only turn components on and off via a relay, or run things at a fixed speed. For example, if a group of fans is modulated based on actual demand for pressure or airflow, and are grouped to work to a network average control, then a complex software routine is at the heart".*

- Jon Martinez, Commercial Controls Manager





## What creates IQity?

helix



### Helix Unit Controls



Controls software and hardware



Efficient control and automation



Multisite connectivity



Enables self-diagnostics



ACIS™ and BMS integration



Accessible user interface

Every Airedale product supplied has a Helix “brain”.

Helix is a controls platform for cooling hardware, custom developed in-house at Airedale, by dedicated controls engineers. Helix represents the bonding of hardware, software and innovation that makes Airedale products special; that eke out every last kilowatt, that get you back online faster, that tell you when there’s a problem and how products are performing.

Airedale’s Helix team is based in their manufacturing and R&D hub in Leeds, working closely with product engineers to rigorously test and qualify product and ensure seamless integration between software and hardware.

The Helix team constantly pioneer new technologies to keep their embedded controls systems ahead of the curve. From being early adopters of new controls hardware and testing new control philosophies. To developing cutting edge, modern UIs that are future-fit for the digital age.

The Helix platform facilitates connectivity between multiple units, and to Airedale’s supervisory system, ACIS™, plus third-party BMS.







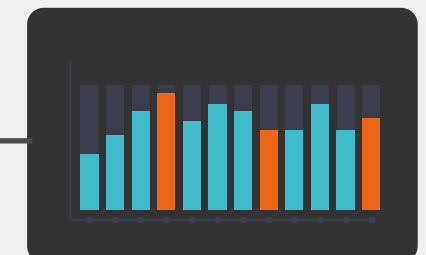
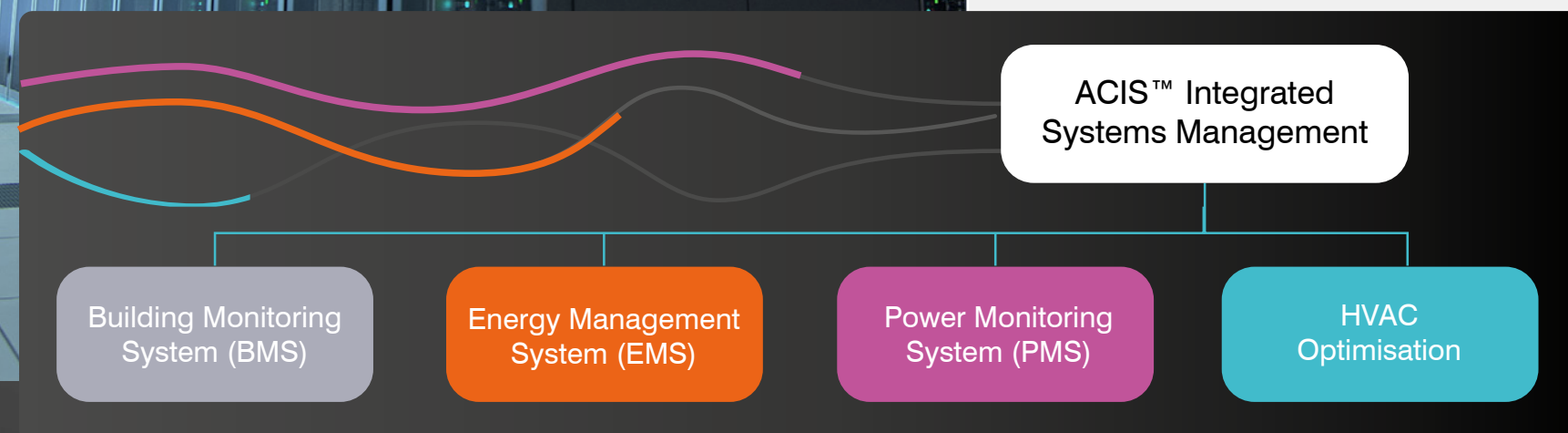
## ACIS™ Systems / Building Controls

-  Single, precise platform management
-  Total, instant data visibility
-  Multisite connectivity
-  Enables self-diagnostics
-  Monitors and controls critical functions
-  Intuitive user interface

ACIS™ allows users to manage smart cooling and other business services from a single, integrated system. It has a simplistic and intuitive interface and connectivity across sites and manufacturers. ACIS™ has a wide range of cutting-edge monitoring, reporting and diagnostic tools. These enable total system efficiency to be evaluated and put users in complete control.

At a base level, ACIS monitors data like temperatures, power flows, circuit breaker positions, liquid levels and alarms. Analysis of this data allows it to identify issues, for example hot spots in server rooms, blocked filters in CRAC units or inefficient chilled water flow. ACIS then pinpoints and carries the exact action required - down to precise components – to keep sites operating as efficiently as possible.

At its best, ACIS is unsurpassed. The platform combines a Building Management System, an Energy Management System and a Power Monitoring System. This forms a ground-breaking management tool that is homogenised and truly enterprise level. It gives sharp, instant insights via an accessible UI. But it is powerful enough to effortlessly manage complex data centre fleets.







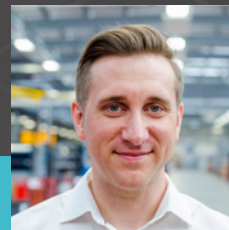
## Leveraging IoT frameworks

Airedale wants to create solutions that get the best outcomes for clients. So, they didn't develop a proprietary IoT platform. They pioneered a distinctive way of using open frameworks, which delivers maximum client flexibility and cooling performance.

Airedale has exceptional strength in enhancing how existing, industry-accepted systems are deployed. And with their unparalleled HVAC knowledge, only the best controls providers are selected. Simply put, they know how to engineer a cooling solution that is accessible and enterprise-level.

Airedale uses the Niagara 4 system from Tridium as a base. The Niagara Framework® is the future gold-standard operating system for IoT. It connects and translates data from nearly any device or system. And manages and optimises performance from buildings and factories, to cities and regions. The Niagara Framework® also provides a single access point for real-time, critical data centre assets. So, users get instant insights for improving operational efficiency, uptime and energy consumption.

It is a truly open platform built on a no lock-in framework. It connects multi-vendor systems and solutions, and is supported by systems integrators and developers. Because Niagara 4 is open source, developers at Airedale can access its source codes. This enables their expert team to manipulate the framework for peak functionality and commercial performance.



For an industry based entirely around digital, how do we change cautious mindsets around IoT and cloud?

*"There are many benefits to utilising the processing power of the cloud. Especially for efficiency, reduced downtime, predictive maintenance and end-user alerts. A singular, exclusive benefit of cloud services is the ability for machine learning algorithms to develop. This is achieved by accessing data from thousands of connected assets."*

*The counterargument to this, of course, is the perceived risk to security. We have worked hard to develop military-grade secure pipelines for connecting systems to the IoT. As we continue to demonstrate the robustness of security, we expect cautious clients to be reassured, and become advocates."*

- Jon Martinez, Commercial Controls Manager



## Secure as standard



### Powerful security

Airedale takes a "defence-in-depth" approach to cybersecurity. Their software platforms, like ACIS™, are secure by default. Authentication requires users to choose strong credentials. And data in motion and sensitive data at rest are encrypted. ACIS™ also uses Role-Based Access Control, making user permissions easy to configure. It can also integrate with existing enterprise identity and access management systems. Every user action and security event is recorded and traceable in the ACIS™ security log.



### Risk mitigation

ACIS™ operates in critical environments. Therefore, to reduce the damage a malicious actor could inflict, ACIS™ can only access a limited subset of unit setpoints.

These subsets must be strictly required for system optimisations. The remaining data is only accessible as read-only points. Setpoints have functional limits that cannot be forced. Fall-back strategies are applied at unit level, so that unit operation is unaffected if communication with ACIS™ controllers is lost. For example, in the event of a DDoS attack.





