innovations in
ENVIRONMENTAL CONTROL
THE SOLUTIONS OF CHOICE FOR ALL THE REASONS THAT MATTER
In every industry, disruptive technology and the accelerating pace of change are subjecting critical infrastructure to increasingly demanding challenges. From edge computing and colocation providers, to distributed facilities and indoor agriculture, operational sustainability depends on environmental control solutions that are innovative, intelligent and efficient.

Data Aire meets these challenges through a solutions-driven approach built on more than 50 years of collaborating with customers. Solutions are designed through a consultative process and tailored to the needs of each application. With our extensive expertise in control logic and precision manufacturing, Data Aire delivers customized technology which is reliable, scalable and rapidly deployable.

OUR MISSION
To support critical facilities that rely on our consultative approach to invent, manufacture and deliver environmental control systems—securing operating continuity.
Business Demands
The environmental and efficiency needs of facilities such as data centers demand application-specific solutions. In addition to delivering high performance, economizer solutions must be sufficiently agile to meet requirements for flexibility and implementation speed. In the specific case of colocation centers, design is also essential to maximize the available space.

Data Aire Solutions
Data Aire meets these needs with responsive solutions that achieve energy-efficiency goals through transformational changes in design. Customizable and scalable, these products emanated from the combined efforts of our Product Development, Applications Engineering and Manufacturing teams. By integrating this expertise, Data Aire delivers superior, well-designed systems that outperform industry standard alternatives.

The philosophy behind the legacy of Data Aire innovations in Datacom includes the first Computer Room Air Conditioning (CRAC) system, first microprocessor alarm controller, first integrated humidifier and first variable-speed air conditioning system.

Industry Applications
Datacom operations located onsite in offices, offsite in colocation facilities, or on the network edge are prime candidates to take advantage of flexible Data Aire solutions designed for critical environmental demands. Likewise, sports and entertainment arenas also benefit from these agile and flexible designs.

Design Innovations
Introduced in 2015, Data Aire’s gForce Ultra offers a number of technological advances and is the first CRAC product to incorporate variable-speed compressor technology to efficiently manage fluctuating cooling demands. This proven solution is designed to decrease energy use and maintenance costs, minimize noise pollution, improve room performance, and enhance equipment reliability.
when **ACCURACY** matters

**Business Demands**

Applications such as edge facilities and ultra-low PUE sites, which push the limits of the ASHRAE operating window, require environmental control solutions capable of exceptional precision and accuracy. These systems must deliver superior thermal management and be precisely specified to account for each installation’s climate zone, IT equipment layout and thermal modeling analysis.

**Data Aire Solutions**

Engineered to respond swiftly to changing environmental conditions, Data Aire systems maintain both temperature and humidity stability to support everyday work life across a wide range of applications and industries. Removing heat with maximum efficiency and managing neutral air requirements is possible across our product portfolio. Data Aire solutions provide precise control throughout their assigned space to best fit your specific application.

**Industry Applications**

Data Aire precision environmental control solutions provide the accuracy essential in installations such as agriculture, archives, aviation, medical imaging rooms, healthcare, and laboratories.

**Accuracy Innovations**

In high-density equipment installations, Data Aire’s versatile family of Rack and In Row (IR) solutions directs cold air precisely and efficiently to prevent hot spots. And Electronic Expansion Valve (EEV) technology contributes to the accuracy and energy savings of the gForce Ultra line of CRAC products. Indoor cultivators improve the quality and quantity of their yields with gPod units that harmoniously balance CO$_2$ levels, temperature and humidity. Environments that require neutral air—controlling humidity in the absence of the need for cooling—can rely on InterpretAire.

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From its inception, Data Aire has focused on the protection of critical systems. The solutions we develop are engineered from the ground up to protect data within a unique environment while ensuring maximum reliability. Data Aire systems are built using top-of-the-line, industrial-grade components selected for their ability to withstand 24/7/365 duty. In addition, many models are seismically rated to validate their ability to remain online during earth-shaking events.

Industry Applications
Whether it’s protecting financial transactions or government communications, proven designs and precision manufacturing make Data Aire products the solution of choice for maintaining an environment that helps keep vital assets secure.

Security Innovations
Data Aire’s gForce CRAC systems, available in both chilled-water and DX varieties, employ leading-edge technologies to meet mission-critical cooling needs. Backward-curved plenum or “plug” fans combine electrically commutated motors and fans into a single, reliable unit that eliminates belts, pulleys, external bearings, and shafts—along with belt dust and periodic maintenance. Rifled cooling-coil tubing spins refrigerant to maximize heat transfer. Data Aire also builds industrial-grade heat exchangers engineered with security in mind. These include rugged outdoor solutions that withstand the rigors of exposure to the elements and eliminate the need to rip and replace weathered motors.
when PERFORMANCE matters

Business Demands
Shifting demands and multiple locations challenge environmental control systems, as well as those who oversee their operations. Managers need systems that not only help protect data, but also generate and communicate relevant operational data to enable informed actions. Effective solutions must include connectivity that supports central management of local as well as remote installations and helps optimize operations to reduce energy consumption during peak and off-peak hours.

Data Aire Solutions
Data Aire’s worldwide installed base is a testament to the reputation earned over half a century as a trusted source of high-performance technology. Today this includes comprehensive connectivity that encompasses the Internet of Things, inter-unit communications and Building Management Systems. Years of experience in control logic provide user-friendly functionality including time schedules, set points, timers, trend logs, and alarms. As digital transformation accelerates and cloud adoption reshapes the digital landscape, Data Aire supports customers with solutions designed for traditional, on-premises IT storage, as well as partnerships with colocation and cloud providers. Data Aire also offers data center design and deployment services to help achieve the benefits of increased integration.

Industry Applications
Agile environmental control systems, able to respond quickly to varying demands, are essential for data centers involved in processing-intensive roles such as edge computing and colocation. Clear, intuitive monitoring and informational displays are vital to simplify total cost of ownership and real-time decisions. Data Aire delivers the high-performance solutions necessary to meet these needs.

Performance Innovations
Data Aire’s control-system expertise maximizes performance while also providing operational flexibility and growth potential. Solutions include the Data Alarm Processor 4 (dap4), today’s fastest and most advanced microprocessor controller, and the Dara-4g2 Relay AutoChangeover unit, which offers enhanced features for streamlined programming. Data Centers benefit from the integrated control capabilities of the Data Aire Zone Master system, which coordinates the operating modes of multiple environmental control units. A range of accessories helps enhance the performance of Data Aire installations by monitoring power usage, providing multiple pinpoint temperature readings and compensating for short-term power outages.

INTELLIGENCE
DESIGN.  ACCURACY.  SECURITY.  PERFORMANCE.

More than half a century of meeting and surpassing demanding expectations by every measure has made Data Aire a leading developer of innovative precision air control equipment and intelligent energy management solutions. With a dual mandate to protect assets as well as the environment, today Data Aire serves sensitive locations around the globe, including One World Trade Center, the Pentagon and the National Security Agency.

Data Aire is a solutions-driven organization with a reputation for innovative and individually tailored products. This is the natural consequence of our consultative approach to customer partnerships and a creative environment that inspires engineers and fabricators alike to express their passion for their work.

Over the years, Data Aire has pioneered numerous advances that have helped set new benchmarks for capability and reliability. Developments in application-specific control logic have made systems more responsive and efficient. As the Internet era gained momentum, Data Aire's Intelli-DART site-monitoring device was honored by the industry for enabling online monitoring and control of individual units. Data Aire's latest In-Row solutions target hot spots in rack installations by steering airflow precisely, using curved exit geometry that employs the Coanda effect to maintain directional control.

Customers also benefit from an Upgrades Program, managed by Data Aire service and parts specialists, that helps maximize return on investment by leveraging ongoing innovation to ensure peak performance.

World-class manufacturing capability translates innovative designs into solutions—assembled with precision and built to last. Data Aire Management Systems include 5S methodology to optimize workplace performance and safety, and ensure ETL Intertek, UL Labels, and Intertek LAB certified standards. Data Aire is ISO 9001 certified and maintains its own AireLab™, which generates varied psychrometric conditions in support of product research and development and witness testing, prior to installation and commissioning.

What are your environmental control challenges? We invite you to contact us, and explore how Data Aire's experience and innovative technology can provide the solutions of choice—for all the reasons that matter.

ARCHIVES & LIBRARIES  •  AIRPORTS  •  COLLOCATION & TELECOM  •  EDUCATION  •  ENTERTAINMENT  •  FINANCIAL  •  GOVERNMENT & UTILITIES  •  HEALTHCARE  •  INDOOR AGRICULTURE  •  LABORATORIES
**OUR PRODUCTS**

**FLOOR UNITS**

- **gPod Floor**
  - Energy efficient and environmentally responsible
  - Multiple configurations with EC plug fans
  - Control of supply air temperature or return air temperature
  - Temperature and dehumidification control
  - CO2 control
  - Hot gas reheat allows for energy efficient dehumidification and supplemental electric reheat
  - Interpretable

- **gPod Ceiling**
  - High efficiency DX single circuit
  - Energy efficient and environmentally responsible
  - Multiple configurations with EC plug fans
  - Control of supply air temperature or return air temperature
  - Temperature and dehumidification control
  - CO2 control
  - Hot gas reheat allows for energy efficient dehumidification and supplemental electric reheat
  - Interpretable

- **gFeast**
  - Energy efficient and environmentally responsible
  - Multiple configurations with EC plug fans
  - Control of supply air temperature or return air temperature
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- **gFeast II**
  - Energy efficient and environmentally responsible
  - Multiple configurations with EC plug fans
  - Control of supply air temperature or return air temperature
  - Temperature and dehumidification control
  - CO2 control
  - Hot gas reheat allows for energy efficient dehumidification and supplemental electric reheat
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**CEILING UNITS**

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**OUR PRODUCTS**

**FLOOR UNITS**

- **gForce Ultra**
  - Energy efficient and environmentally responsible
  - Multiple configurations with EC plug fans
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- **gForce IR**
  - High efficiency DX single circuit
  - Energy efficient and environmentally responsible
  - Multiple configurations with EC plug fans
  - Control of supply air temperature or return air temperature
  - Temperature and dehumidification control
  - CO2 control
  - Hot gas reheat allows for energy efficient dehumidification and supplemental electric reheat
  - Interpretable

- **gForce IR Chilled Water**
  - High efficiency DX single circuit
  - Energy efficient and environmentally responsible
  - Multiple configurations with EC plug fans
  - Control of supply air temperature or return air temperature
  - Temperature and dehumidification control
  - CO2 control
  - Hot gas reheat allows for energy efficient dehumidification and supplemental electric reheat
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- **gForce IR Duct**
  - High efficiency DX single circuit
  - Energy efficient and environmentally responsible
  - Multiple configurations with EC plug fans
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CEILING UNITS

LCS (Large Ceiling Systems) (3)

The Large Ceiling Systems (LCS) are designed for when floor space is limited but larger amounts of cooling is required. The LCS is the largest classification of the ceiling unit family and comes in a variety of capacity ranges, from 6–13 tons. Single or dual circuit units are available.

Mini-Ceiling (3)

The Mini-Ceiling System is the perfect environmental control system for small computer centers, electronic, telephone, and battery rooms, or wherever spot cooling may be necessary and space is at a premium. The Mini-Ceiling offers a high standard of performance with capacities from 1–2.5 tons and units are engineered to be ducted above ceiling applications.

WALL UNITS

Shelf Systems (3)

For locations with space limitations, the Shelf System is the perfect unit for applications with space limitations; and is available in 2–3 ton capacities. Shelf System units are front access only.

Data Cool

Tight space cooling

In many instances, cooling is required in very tight spaces, such as in tall data closets, computer closets, or MDF rooms. This is where the Data Cool is the preferred solution. Available in 2–3 ton capacities, the Data Cool can be wall or floor mounted and has a minimal footprint.

- Compact design
- Variable configuration—wall or floor mounted
- Air, water, glycol-cooled or chilled water
- Front access only

FRONT ACCESS
- Optional humidifier and reheat

OCTAL (Outdoor Condensing Units)

- Front access only
- Air, water, glycol-cooled or chilled water
- Compact design
- Vertical air flow
- Horizontal air flow
- Air/Water/Glycol Cooled w/Compressor
- Chilled Water Cooling
- # of Constant Speed Scroll Compressor
- VFD, Variable Speed Scroll Compressor
- Direct Drive Plenum Fan
- Belt Drive Forward Curved Fan
- or
- (EC Motor)
- (Indoor / Outdoor)
- Variable Speed Fan

OUR PRODUCTS

CONDENSERS

Outdoor Condensers are used to meet the heat rejection and ambient conditions as required. The Industrial-duty design includes an aluminum finned housing, aluminum finned copper tube coils and powder coated fan guards. Available in 3–110 ton capacities.

- Choice of thermally protected direct drive fan motors or energy efficient electronically commutated (EC) fan motors.
- Direct drive motors have variable fan speed control on lead fan motor for proper control down to 20°F.
- Additional fan motors can be controlled with ambient thermostats.

Condensing Unit - Outdoor

These heat exchangers are identical to outdoor condensers—with the exception of the compressor being located outdoors instead of inside the evaporator. Units from 91–174 kWe.

- Single compressor units: 1 to 13 ton capacity
- Dual compressor units: 6 to 30 ton capacity
- Aluminum housings, aluminum finned copper tube coils

Condensers - Indoor (Floor or Ceiling)

For applications with limited outdoor space where an outdoor condenser cannot be located, Data Aire offers a selection of floor mounted indoor condensers with horizontal intake and discharge.

- Available in 6–28 ton capacities
- Condenser has a centrifugal, forward-curved, double-width, double inlet blower
- Belt driven variable pitch drive provides adjustable air flow

FLUID COOLERS

Fluid Coolers - Outdoor (Dry Coolers)

Remote outdoor fluid coolers available with electronically commutated (EC) motors from 300–1,000 ton capacities. Units have sturdy aluminum housings for weather protection and increased service life.

- Aluminum finned copper tube coil
- Powder coated fan guards
- Motors and pump contactors

Fluid Coolers - Indoor (Dry Coolers)

For applications where an outdoor dryer cannot be used, a remote selection of floor mounted indoor fluid coolers with horizontal intake and discharge are available in 6–28 nominal ton models.

- Finished to match the indoor evaporator sections
- Includes a centrifugal, forward curved, double-width, double inlet blower for panel, adjustable operation
- Belt driven variable pitch drive provides adjustable air flow
- Motor has internal overload protection
Data Alarm Processor 4 (dap4)
The dap4 control system is the industry’s fastest and most advanced microprocessor controller available. The dap4 includes all the functionality of previous Data Aire controllers—while providing a solid platform for future growth.

- Multiple protocol integration
- Easy-to-read display module includes a backlit liquid crystal display
- Six buttons for easy programming and communication
- All programming, status and alarm conditions are displayed on the module

Zone Master
Zone Master software provides unit lead/lag rotation and prevents units in the zone from performing conflicting operations—such as simultaneous humidification and dehumidification.

- Handles up to 16 Data Aire units
- Can connect to a BMS or BAS system for monitoring and changing settings while performing vital functions

RackSense 32
The RackSense 32 Module allows 32 rack temperature sensors to be connected to the dap4—the fastest and most advanced microprocessor controller—for monitoring and/or control.

- Provides reliable rack-level temperatures to ensure adequate cool air is provided for the elimination and prevention of hot spots
- Offers an option in Data Aire’s gForce floor-mounted and In-Row cooling series

System Controls / Accessories

Airside Economizer
Dampers, sensors and controls are factory mounted and wired. The digital controller provides one setpoint for minimum humidity and temperature and a separate setting for maximum temperature and humidity. The farther apart the settings, the greater the number of hours on the free cooling cycle.

- Supplies dual cooling coils for airside economizer
- Economizer coils can be connected to a dry cooler that eliminates the use of potable water in the economizer cycle or to an evaporative cooling tower for maximum efficiency
- The economizer coil precools air going to the DX cooling coil. This arrangement reduces the amount of compressor run time. When the water in the economizer coil is cold enough, the economizer provides 100% of the cooling without any assistance from the unit’s compressors

Waterside Economizer
Data Aire provides dual cooling coils for waterside economizer. Economizer coils can be connected to a dry cooler that eliminates the use of potable water in the economizer cycle or to an evaporative cooling tower for maximum efficiency.

- The economizer coil precools air going to the DX cooling coil. This arrangement reduces the amount of compressor run time. When the water in the economizer coil is cold enough, the economizer provides 100% of the cooling without any assistance from the unit’s compressors

System Controls / Accessories

Building Management System Communications Card
Communication with any major building management system or building automation system is easily accomplished with the addition of an optional communication card.

- Connects into the dap4 and allows monitoring
- Installation flexibility—can be installed with the unit or later

Idap Communications Card
The idap Network Card allows IT personnel to monitor a data center in real-time and respond to cooling system alarms—before the data center experiences an extreme environmental change.

- Supports 10 Mbps Ethernet network connections
- Real-time monitoring of system operating parameters and alarms
- Remote modification of operational parameter settings
- Interfaces with Building Monitoring Systems (BMS) or Building Automation Systems (BAS)
Subaru Telescope in Mauna Kea, Hawaii