innovations in
ENVIRONMENTAL CONTROL

THE SOLUTIONS OF CHOICE FOR ALL THE REASONS THAT MATTER

dataaire

Precise by Design

DATA AIRE

OUR MISSION

To support critical facilities that rely on our consultative approach to invent, manufacture and deliver environmental control systems—securing operating continuity.

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.

when**DESIGN**
matters

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.

OFFICE

HIGHER EDUCATION

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.

LABORATORIES

AIRPORTS

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.

when**SECURITY**matters

Business Demands

Infrastructure failures. Destructive acts of nature. In addition to criminal and malicious attacks, there are many threats to the integrity of stored data. Those who are entrusted with data protection need the confidence that only a highly reliable and resilient environmental control system, engineered for maximum uptime, can provide. They will also benefit from the assurance of streamlined supply chain security through our voluntary participation in the C TPAT program. In addition, Data Aire's production design and manufacturing process is ISO 9001 certified.
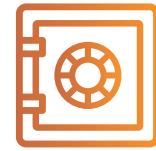
FINANCIAL

GOVERNMENT

Data Aire Solutions

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 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 commuted 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.`

COLOCATION

HEALTHCARE

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. And 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.

when**EXPERIENCE** matters

OUR VALUES

Solutions-driven

Integrity

Creativity

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.

aire LAB

OSHPD

c UL us LISTED

c ETL us

OUR PRODUCTS

FLOOR UNITS

	CAPACITY						MOUNT TYPE			AIR FLOW		COOLING		COMPRESSOR			FAN(S)		
Header	1 to 2 Ton	3 to 5 Ton	6 to 13 ton	13 to 30 Ton	30 to 70 Ton	70 to 200 Ton	Ceiling-Mounted	Wall-Mounted	Vertical Floor-Mounted	(Up/Down) Vertical Air Flow	Horizontal Air Flow	Air/Water/Glycol Cooled w/Compressor	Chilled Water Cooling	VFD Variable-Speed Scroll Compressor	# of Constant-Speed Scroll Compressor	Direct Drive Plenum Fan	Belt Drive Forward Curved Fan	(EC Motor) Variable-Speed Fan	(Infeed/Outfeed) Mounting Location

gForce Ultra

The gForce Ultra is the industry's first CRAC to incorporate variable speed technology for substantial energy savings, precise cooling and greater capacity modulation. The Ultra can ramp down the unit's energy consumption to precisely meet a facility's load demand. Units are available from 22-125kW.

- Variable speed compressor for tighter, optimal temperature range
- Matches temperature set points almost perfectly – eliminating swings in temperature with a variable frequency drive
- Superior superheat control and ability to maintain a lower, energy-saving superheat–achieved with an electronic expansion valve
- Backward curved plenum fans with EC motors
- Units are dual circuit

gForce DX [1]

Energy efficient and environmentally responsible
gForce DX Dual Circuit units are available from 21 to 106 kW and feature advanced mission critical cooling technology.

- Backward curved plenum "plug" fans–no belts, pulleys or external bearings to wear out
- Fewer parts mean less dust and periodic maintenance
- Air or water/glycol-cooled and configured for upflow or downflow
- Available with an optional electronic expansion valve (EEV) for increased energy savings

gForce Chilled Water [1][3]

In multiple configurations with EC plug fans
gForce Chilled Water systems come in an array of sizes–7 to 730kW–and provide users with an economically efficient precision cooling solution.

- Backward curved plenum fans with EC motors
- Three stage reheat
- Upflow or downflow configuration

gForce GT [1]

High efficiency DX single circuit
gForce GT systems feature a space-friendly footprint and increased thermodynamic efficiencies that allow users to enjoy increased energy savings and reliability. Sizes available from 7–46 kW.

- Backward curved plenum fans with EC motors
- Single circuit
- Improved airflow design
- Air, water or glycol-cooled

[1] Standard humidifier and reheat
[3] Chilled water units include a 3-way modulating valve

OUR PRODUCTS

FLOOR UNITS

gForce IR DX

The gForce IR easily retrofits into data centers that require high density cooling but have maxed out their current configuration. The unit comes in 12" width (single fixed speed) and 24" width (single variable speed).

- Standardized with EC plenum fans for variable speed operation
- Does not protrude into the aisle – sits flush between the servers
- Compatible with all Data Aire CRAC units

gForce IR Chilled Water

The gForce IR precision low approach in-row cooling unit is designed to be installed within high-density server racks that are placed in a hot/cold aisle design. The unit comes in 12" width (single fixed speed) and 24" width (single variable speed).

- Standardized with EC plenum fans for variable speed operation
- Does not protrude into the aisle – sits flush between the servers
- Compatible with all Data Aire CRAC units

gPod Floor [1]

The gPod is the indoor agriculture industry's first true precision environmental control system. It provides consistent temperature, dehumidification and CO_2 levels for users to achieve successful yield after yield. Units are available in 2.5–30 ton capacities.

- Floor or ceiling configuration
- Web-based control on any smart device
- Temperature and dehumidification control
- Belt drive standard fan; optional EC variable speed fan

CEILING UNITS

gPod Ceiling [1]

The gPod is the indoor agriculture industry's first true precision environmental control system. It provides consistent temperature, dehumidification and CO_2 levels for users to achieve successful yield after yield. Units are available in 2.5–30 ton capacities.

- Floor or ceiling configuration
- CO_2 control
- Web-based control on any smart device
- Temperature and dehumidification control

InterpretAire

Controlling humidity in laboratories, archives and clean rooms is a challenge for standard computer room air conditioning units. InterpretAire meets the challenge of conditioning even the most difficult of spaces. Hot gas reheat is provided for energy efficient dehumidification and supplemental electric reheat allows for precise control of supply air temperature or return air temperature. InterpretAire also has a heating cycle that can warm the space when the compressor is not operating.

[1] Standard humidifier and reheat

CEILING UNITS

	CAPACITY					MOUNT TYPE			AIR FLOW		COOLING		COMPRESSOR			FAN(S)			
	1 to 2 ton	3 to 5 ton	6 to 13 ton	13 to 30 ton	30 to 70 ton	Ceiling-Mounted	Vertical Floor-Mounted	Wall-Mounted	Vertical Air Flow (Up/Down)	Horizontal Air Flow	Air/Water/Glycol Cooled w/Compressor	Chilled Water Cooling	VFD Variable-Speed Scroll Compressor	# of Constant-Speed Scroll Compressor	Direct Drive Plenum Fan	Belt Drive Forward Curved Fan	Direct Drive Fan	(EC Motor) Variable-Speed Fan	(Infeed/Outfeed) Mounting Location
LCS (Large Ceiling Systems) [2]			●			●			⇄		●	●	●	① or ②		●	●		In
Mini-Plus Ceiling [2]		●				●			⇄		●	●	●			●	●		In
Mini Ceiling [2]	●					●			⇄		●	●	●			●			In

LCS (Large Ceiling Systems) [2] — 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-Plus Ceiling [2] — The Mini-Plus Ceiling Unit is designed for environments where floor space is at a premium and additional cooling is required. The Mini-Plus is available in a wide range of system configurations with capacities from 2.5 to 5 tons. This unit functions independently from other building air conditioning and ventilation systems.

Mini Ceiling [2] — 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

	1 to 2 ton	3 to 5 ton	6 to 13 ton	13 to 30 ton	30 to 70 ton	Ceiling-Mounted	Vertical Floor-Mounted	Wall-Mounted	Vertical Air Flow	Horizontal Air Flow	Air/Water/Glycol Cooled	Chilled Water	VFD Variable-Speed	# Constant-Speed	Direct Drive Plenum	Belt Drive Fwd Curved	Direct Drive	EC Var-Speed	Mounting Location
Shelf Systems [2]	●	●						●	⇄		●	●		①		●			In
Data Cool	●	●						●	⇄		●	●		①		●			In

Shelf Systems [2] — For locations with space limitations
The Shelf System is the perfect unit for applications with space limitations and is available in 2–4 ton capacities. Shelf System units are front access only.
- Air, water, glycol-cooled or chilled water

Data Cool — Tight space cooling
In many instances, cooling is required in very tight spaces, such as in small data closets, IDF 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
- Versatile configuration–wall or floor-mounted
- Air, water, glycol-cooled or chilled water
- Front access only

CONDENSERS

	CAPACITY					MOUNT TYPE			AIR FLOW		COOLING		COMPRESSOR			FAN(S)			
	1 to 2 ton	3 to 5 ton	6 to 13 ton	13 to 30 ton	30 to 70 ton	Ceiling-Mounted	Vertical Floor-Mounted	Wall-Mounted	Vertical Air Flow	Horizontal Air Flow	Air/Water/Glycol Cooled	Chilled Water	VFD Variable-Speed	# Constant-Speed	Direct Drive Plenum	Belt Drive Fwd Curved	Direct Drive Fan	EC Var-Speed Fan	Mounting Location
Condensers – Outdoor		●	●	●	●	●			↑								●	●	Out
Condensing Unit – Outdoor	●	●	●	●		●			↑					① or ②			●	●	Out
Condensers – Indoor (Floor or Ceiling)			●	●	●	●			↑	⇄						●			In

Condensers – Outdoor — Outdoor Condensers are sized to meet the heat rejection and ambient conditions as required. The industrial-duty design includes an aluminum housing, aluminum finned copper tube coils and powder coated fan guards. Available in 3–100 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 11–176 kW.
- 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
In places where outdoor condensers cannot be used, 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

	1 to 2 ton	3 to 5 ton	6 to 13 ton	13 to 30 ton	30 to 70 ton	Ceiling-Mounted	Vertical Floor-Mounted	Wall-Mounted	Vertical Air Flow	Horizontal Air Flow	Air/Water/Glycol Cooled	Chilled Water	VFD Variable-Speed	# Constant-Speed	Direct Drive Plenum	Belt Drive Fwd Curved	Direct Drive Fan	EC Var-Speed Fan	Mounting Location
Fluid Coolers – Outdoor (Dry Coolers)			●	●	●	●			↑								●		Out
Fluid Coolers – Indoor (Dry Coolers)			●	●		●			↑	⇄						●			In

Fluid Coolers – Outdoor (Dry Coolers) — Remote outdoor fluid coolers–available with electronically commutated (EC) motors–from 6–100 ton capacities. Units have sturdy aluminum housings for weather protection and increased service life.
- Aluminum finned copper tube coil
- Powder coated fan guards
- Motor and pump contactors

Fluid Coolers – Indoor (Dry Coolers) — For applications where an outdoor dry cooler cannot be used, a wide 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 section
- Includes a centrifugal, forward-curved, double-width, double-inlet blower for quiet, reliable operation
- Belt-driven variable pitch drive provides adjustable air flow
- Motor has internal overload protection

Data Alarm Processor 4 (dap4)
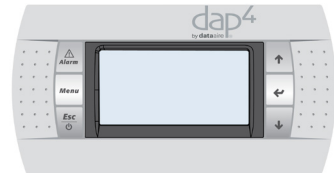
The dap4 control system is the industry's fastest and most advanced microprocessor controller available. The dap4 includes all the functionality of previous Data Aire controllers—while providing a solid platform for future growth.

- 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
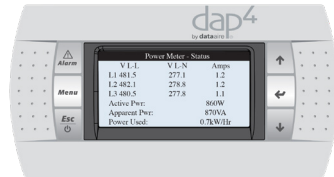
Zone Master software provides unit lead/lag, rotation and prevents units in the zone from performing conflicting operations—such as simultaneous humidification and dehumidification.
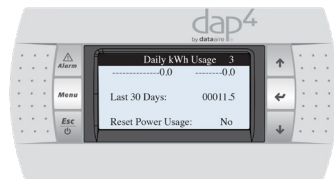
- Handles up to 16 Data Aire units
- Can connect to a BMS or BAS system for monitoring and changing settings while performing vital functions

dap4 Smart Power Capacitor

The Smart Power Capacitor provides a 90 second ride-through to eliminate controller reboot upon momentary loss of power—allowing the dap4 to perform a controlled logic shutdown of running compressors so they restart in a controlled manner.

- Small footprint (4.5" x 2.5" x 3")
- Easily retrofits to existing dap4 units in the field

dap4 Power Meter

The dap4 Power Meter is a line-powered three phase energy sub-meter that connects to an existing dap4 control module via a built-in Modbus communication port.

- Analyzes the power usage and condition for energy analysis
- Provides historical power consumption
- Includes phase loss alarm

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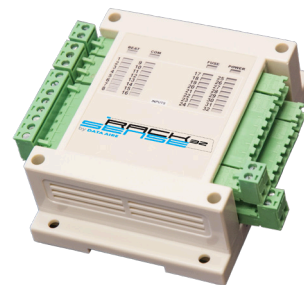
The RackSense 32 Module allows 32 rack temperature sensors to be connected to the dap4—the fastest and most advanced microprocessor controller—for monitoring and/or control.

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

Airside Economizer

Dampers, sensors and controls are factory mounted and wired. The digital controller provides one setting 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.

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.

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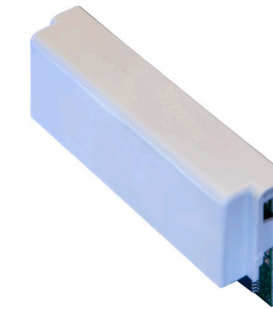
Communication with any major building management system or building automation system is easily accomplished with the addition of an optional communication card.

- Cards insert into the dap4 and allow 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. Device is Windows browser-based.

- 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)

![dataaire Precise by Design]

230 West BlueRidge Avenue, Orange CA 92865

ph: 800.347.2473 | fax: 714.921.6010 | sales@dataaire.com | dataaire.com

Subaru Telescope in Mauna Kea, Hawaii