

EcoBreeze

A modular economizer that meets the future cooling and energy efficiency requirements of data centers today and tomorrow



The industry's only modular, indirect economizer, EcoBreeze is one of several Schneider Electric Data Center Facility Modules, which help make large data center deployment fast and easy.

- EcoBreeze™ provides indirect evaporative cooling or air-to-air heat exchange in one footprint
- Right-sized cooling is made possible by individual modules that can be scaled to capacity as needed
- The IT airstream is isolated from the outdoor ambient airstream
- Deployment is flexible and cost-effective since the unit is modular and uses no data center space
- The pre-engineered modules can be deployed according to the data center's specific redundancy needs

Features and benefits

An innovative answer to cooling challenges

Today's data centers face unprecedented cooling challenges brought on by high-density computing. Blade servers, for example, generate risky hot spots and therefore require a highly efficient, cost-effective cooling solution to safeguard availability while also streamlining cooling costs. Cooling also presents environmental challenges. With local, regional, and federal standards and regulations related to energy efficiency, now is the time for data centers to adopt economization ("free cooling") as an innovative way to reduce energy consumption. EcoBreeze is the Schneider Electric™ answer to meeting the latest cooling and energy efficiency requirements facing today's data centers. This innovative cooling approach employs a modular design for capacity, redundancy, and service flexibility. The efficiency of the system is rationalized in three forms of cooling to maximize localized climate conditions and ensure the most efficient and effective form of cooling year round. EcoBreeze employs the fully adaptable cooling of electronically commutated (EC) fan technology, along with an ozone-friendly proportional refrigerant circuit, making it one of the most efficient forms of cooling on the market today.

EcoBreeze

Efficient and effective cooling

Right-sized cooling made possible by individual 50 kW modules that can be grouped up to a maximum of 200 kW and 400 kW of sensible cooling per frame

Fully adaptable cooling via EC fan technology

Efficient and effective cooling via total internal isolation of the IT airstream from the outdoor ambient airstream

Regulatory compliance with recommendations and requirements for economization and efficiency (e.g., ASHRAE 90.1 in North America).

Adaptability

Ability to address any cooling requirement worldwide via multiple module and frame voltages/frequencies

Adaptability via the integration of multiple cooling options in one module footprint: indirect evaporative, air-to-air heat exchange, and proportional direct expansion

Ability to control redundancy from the frame down to the individual module level

Flexible and easy installation and servicing

Flexible and cost-effective deployment since the unit uses zero white space within the data center

Easy installation because of a single point of connection for water, power, and communications

Adaptable installation because it can be deployed with raised or non-raised floor applications

Safe and easy capacity expansion and servicing via individual isolation of air, power, and communications between the frame and modules

Environmentally friendly

No chemical treatment required due to an on-board water treatment system

Environmentally friendly because of zero ozone-depleting proportional R410a refrigerant system

Features and benefits

Modularity

- Reduction in CapEx results from right-sizing your cooling capacity based on current load with the flexibility to expand later.
- Built-in redundancy from modular form factor allows extra capacity to be incorporated into the system from the module level to ensure availability at the system level.
- Modular design reduces single point of failure issues from the component to the control level.
- The modular design prevents routine maintenance or break/fix repairs from interfering with system operation.



Total internal isolation of the IT airstream from the outdoor ambient airstream

- Isolation of the airstreams prevents airborne pollutants from entering the data center environment.
- Maintenance costs are reduced since enhanced filtration requirements aren't necessary when outside air is not being introduced into the data center environment.
- Operating costs are less from not needing to pretreat the data center air due to variations in outside air dew points associated with 100 percent outside air economizers.



Two forms of economization cooling in one footprint

- Indirect evaporative cooling and air-to-air heat exchange in the same module allow a wider range of economization opportunities than use of just one form of economization.
- Automatic selection of which form of economization should be used based on ambient conditions provides seamless operation and maximized efficiency.
- Proportional refrigeration circuit ensures precise discharge temperature control back to the data center. The proportional operation uses just enough mechanical cooling to ensure discharge temperatures and minimize power consumption when mechanical cooling assist is required.



Technical Specifications

	Module	200 kW Frame	400 kW Frame
Weight	2,750 lb. (1247.4 kg)	20,875 lb.* (9469 kg)	38,740 lb.* (17572 kg)
Length	9.3 ft. (2.8 m)	19 ft. 10.5 in. (6.1 m)	40 ft. (12.2 m)
Height	8.2 ft. (2.5 m)	9.5 ft. (2.9 m)	9.5 ft. (2.9 m)
Width	3.3 ft. (1 m)	8.0 ft. (2.4 m)	8.0 ft. (2.4 m)
IT airflow	5,000 CFM (2359.74 LPS)	20,000 CFM (9438.95 LPS)	40,000 CFM (18877.9 LPS)
Outside airflow	7,000 CFM (3303.63 LPS)	28,000 CFM (13214.53 LPS)	56,000 CFM (26429.06 LPS)
Nominal Cooling Capacity	50 kW	200 kW	400 kW

*Approximate operating weight with ducting

Economization Comparisons

System Architecture	Partial PUE	kW - Hr/Yr	Relative power
1 MW Design Data @ 60% Load			
EcoBreeze	1.09	466,518	45 %
Air econ w/heat wheel	1.10	503,999	48 %
Water-cooled chiller w/econ	1.14	728,195	70 %
Air-cooled chiller w/econ	1.16	846,039	81 %
Fresh air econ	1.14	718,159	69 %
DX fluid-cooled CRAC w/econ	1.20	1,044,073	100 %

1. Hot aisle containment 101.48° F (38.6° C) Return to A/C
2. Supply air/cold aisle 77° F (25° C)
3. Bin Weather Data Saint Louis, Mo.
4. Does not reflect humidification losses
5. All systems should have fan control proportional to IT load of design