Liebert® DM™

High Performance, Sensible Cooling for Small Computer Rooms and Network Closets

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Network Power

Emerson Network Power, *a business of Emerson (NYSE: EMR), is a worldwide leader in infrastructure solutions across the globe.*

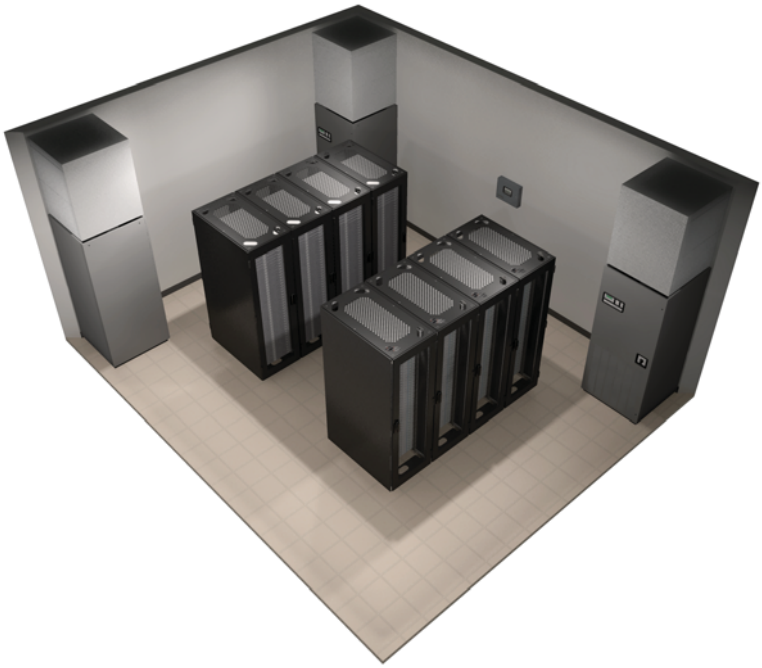
Emerson Network Power delivers innovation and solutions without sacrificing efficiency, availability and reliability. Its 12 Centers of Expertise are distinct and uniquely positioned to help you achieve your business objectives, identifying which solutions fit your requirements.

Over the years, Thermal Management systems from Emerson Network Power have been proven as the world's standard for reliable operations in computer rooms and critical infrastructure applications. Installed in thousands of data centers around the world, our latest thermal management portfolio offers the highest efficiency and flexibility without compromising reliability for your mission critical

Why Thermal Management?

Start with the right kind of cooling

Some operations use standard comfort cooling systems to **save money** or **to avoid using additional floor space** within the facility. But this approach may provide some benefits in the short term – they must be balanced against the **cost of downtime** and **equipment damage resulting from serious overheating** as well as the **risk of financial loss**.



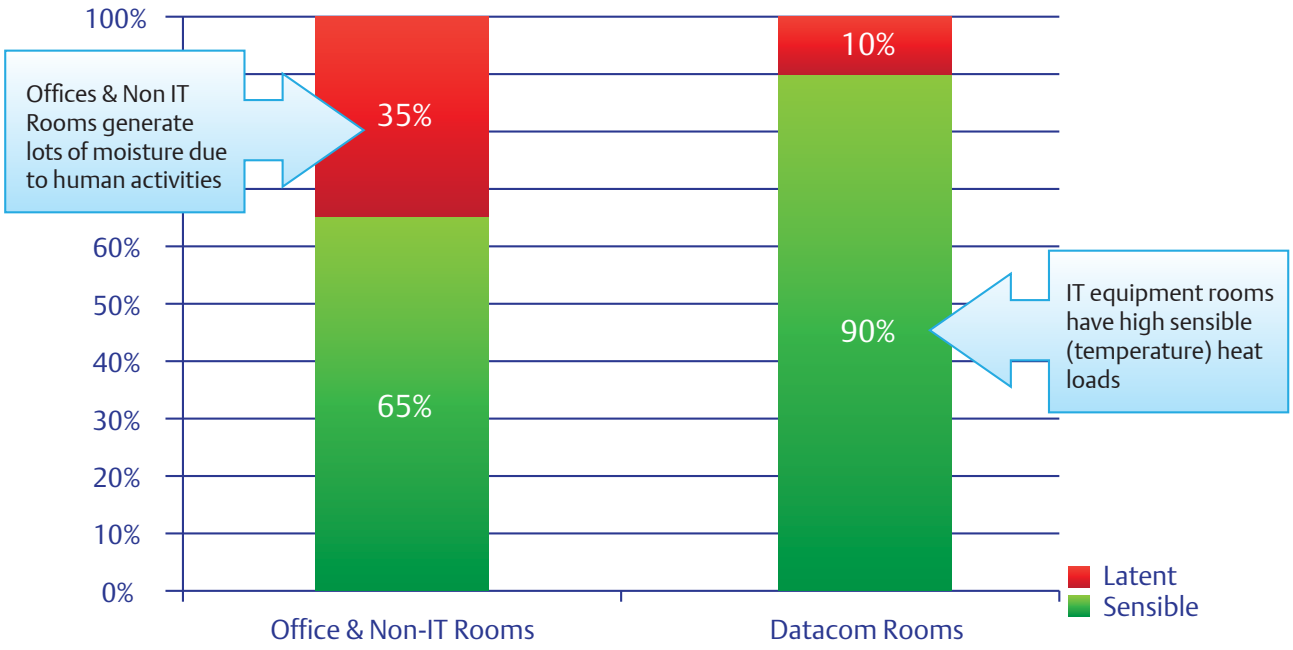
Issues when using Comfort Cooling in Small Data Centre/Computer Room (Datacom Rooms)

1. Using rigid over head ducts provides insufficient air volume (45-55 l/sec per kW) which results in hot spots, and they are also difficult to relocate
2. Comfort cooling systems cannot control humidity levels and do not typically have integral humidity control.
3. Using separate humidification systems, not controlled by the cooling system, can waste energy and reduce the stability of the environment.

These issues can have long and short term effects on your IT operations. The business risks range from degraded IT services to system interruption and shutdown.

Thermal Management vs. Comfort Cooling

Computers Generate Heat, But Not Humidity.



90%-95% of a thermal management system's energy and capacity are designed to remove the dry heat that electronic equipment produces. Comfort cooling systems are designed to keep people comfortable and are only capable of using about 60%-65% of their cooling capacity to remove heat generated by computers. The other 35%-40% is used to remove moisture, commonly found in office space, but not server or network rooms. This can lower humidity too much causing **electricity problems** and even **electronic failure**.

Why run the risk of relying on building air?

RISK: These systems shut down overnight and weekends
RISK: Systems designed to operate 5 x 8 vs. Continuous Operation
RISK: Insufficient filtration for IT equipment and no humidity control
RISK: Building air removes too much moisture, introducing the risk of static discharge
RISK: Insufficient airflow causes overheating in IT equipment

COST:

- Building air is designed to cool people (heat and perspiration)
- As a consequence a lot of energy (cost) goes into removing moisture
- Energy is wasted where building air is used to cool IT equipment

	Liebert DM	Domestic/Split Systems	Benefits	Comment
Temperature Control	+/- 1C	+/- 3C	Stable temperatures ensure operational integrity and reliability of IT equipment	Wide temperature fluctuations shorten operational life of IT equipment and will increase the risk of catastrophic failure
Humidity Control	+/- 5%RH	> =/- 15% RH	Only thermal management units can control room humidity	High humidity can lead to condensation and corrosion, low humidity increases the risk of electrostatic discharge, both are major threats to IT equipment
Network Managed	Yes IP network managed	No	Liebert® DM™ is a network managed device. It will notify you if there is a failure or potential threat to your equipment	Standard IP connectivity: • Email (SMTP) • SMS (through email gateway) • SNMP (MIB and trap support) • HTTP (browser) • Optional temperature and humidity sensors can be placed directly into the racks
Reliability and Warranty for 24x7 operation	Yes	No	Liebert® DM™ thermal management is designed to run nonstop in demanding IT environments	Domestic air conditioning warranty only covers applications for human comfort and explicitly not for the climatic control of electronic equipment.
Load sharing/ Duty Cycling	Yes	No	Interconnected units provide standby rotation and lead/ lag operation through a single cable	Domestic units require third party or customised management devices adding complexity, warranty and operational risk
Operational life	10 years+	1-3 years est. Not designed for IT operations	Liebert® DM™ is designed to run 24hrs x365 with a mean time to failure of 4 years. Domestic units typically designed to run only 2000-4000 hours/year	If you run a Domestic unit 24hrsx365 the expected mean time to failure is 1 year!!
Operating Range	-10C to 46C	Most Domestic units will only provide cooling when the outside temperature is above 10C	Liebert® DM™ provides continuous cooling operation down to -10C outdoor temperatures. (-30C optional). Most comfort systems can only cool if the outside temperature its above 10C.	Domestic systems are designed to cool in summer and heat in winter, IT equipment requires cooling all year round. Misapplication may lead to loss of cooling

Product Overview

Liebert® DM™ delivers enterprise level thermal management to small computer rooms and network closets. It is designed for year-round temperature and humidity control for IT applications across the critical infrastructure. Equipped with an air-filtration feature, the Liebert® DM™ is ideal for areas where people and IT equipment occupy the same space. It provides enough flexibility in the critical infrastructure as it occupies minimum floor space which suits small and medium-sized computer rooms.

The Liebert® DM™ offers a selection of variants to fit your infrastructure's requirements and conditions. It also features communication capabilities to the critical infrastructure manager for easy monitoring of the temperature across the IT infrastructure.

Liebert® DM™ variants:

- Air Cooled up to 16kW capacity
- Chilled Water up to 25kW capacity

The Liebert® DM™ is ideally suited for:

- Small and medium sized computer rooms
- UPS and battery rooms
- Outdoor electronic and communication equipment rooms
- Transformer stations, substations
- Laboratories, test rooms and storage rooms

Features and Benefits

Energy saving

- High sensible heat ratio and high energy efficiency
- Equipped with Copeland Scroll Compressors
- Provides stable temperature and humidity condition
- Fans for outdoor units feature easy to access full range speed regulation
- Manageable and uniqe Eco-Mode option
- Energy saving component options

Space Saving

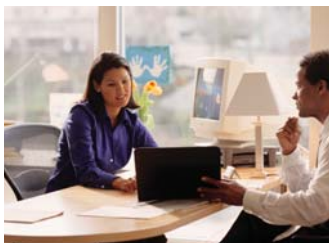
- Small footprint – 100% front door access

User-Friendly and Maintenance-Free

- Large screen display with multi-level password protection and expert fault-diagnosis functions
- Automatic startup on power and scheduled startup also available
- Standard RS485 Monitoring Interface
- Equipped with alarm for irregularities on blast reduction, fan failure and filter clogging
- Email and SMS notification (thru the Liebert® RDU™) for remote monitoring functions

Highly adaptive

- 24/7 operation capable
- Ultra wide input voltage range; multiple power protection functions
- Environment adaptability: adoption to outdoor temperature while meeting cooling requirements
- Adaptive to heat dissipation of the main equipment



Liebert® DM™ – *Air Cooled*

The Liebert® DM™ Air Cooled Thermal Management System is suitable for precise air conditioning of small and medium sized computer rooms and UPS & Battery rooms. Designed with the latest thermal management technology, the Liebert® DM™ Air Cooled and has passed industry standards for thermal management systems and features high energy efficiency, excellent reliability and long service life. The Air Cooled series is configured with constant temperature and humidity adjustment functionalities that can be easily managed and monitored at the on-screen display.

Options & Accesories (Air-cooled)

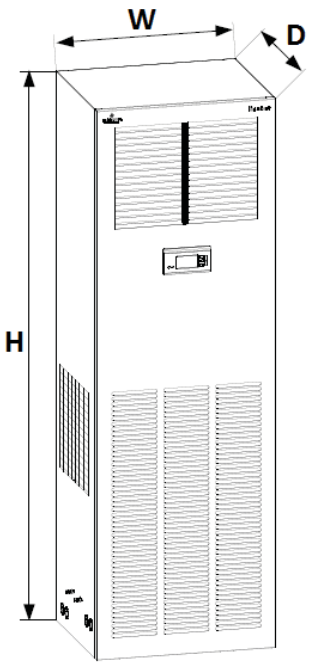
- Extended Piping Kit
- Water Leak Detection System
- RDU-SIC Card

*Power protection available, please contact Emerson Network Power sales for more details.

Liebert DM - Air cooled		
Model	DME07	DME12
Capacities, kW	7.5	12.5
Available configuration	Upflow Plenum Only	
Indoor Unit Power Supply	230V/3ph/60Hz+N 380V/3ph/50Hz or 230V/3ph/60Hz+N 380V/3ph/60Hz+N	
Condenser Type	Outdoor Condenser	
Refrigerant	R407C	
Humidifier[1]	Electrode	
Electric Heater Power, kW	3.2	
No. of fans	1	
Indoor Unit Dimension HxWxD), mm	1750 x 510 x 385	1850 x 600 x 500
Outdoor Unit Dimension (HxWxD), mm	830 x 790 x 355	1240 x 790 x 355
Indoor Net Weight, kg	95	145
Outdoor Net Weight, kg	40	60
Liquid line diameter, inch	1/2"	5/8"
Discharge line diameter, inch	3/4"	5/8"
FLA[2], A	8 - 20	11 - 22
Air breaker	32	

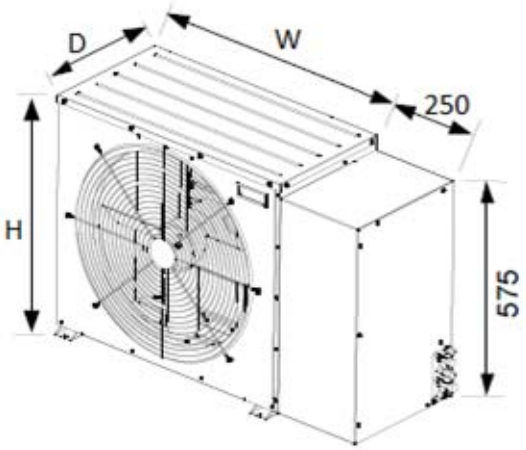
[1] This is an optional feature.
[2] FLA is Full Load Ampere; the maximum full load current value of the air conditioner is not the sum of rated maximum full load current of all components. It is the sum of rated maximum full load current value of the operating components, which may operate at the same time on the maximum work load condition.

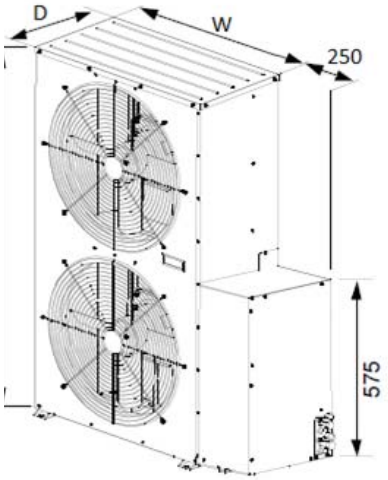
Air Cooled Indoor Dimension



DMH07,

Air Cooled Outdoor Dimension





Liebert® DM™ – *Chilled Water Series*

The Liebert® DM™ Chilled Water utilizes low-temperature chilled water available on site as the source for cold temperature and does not require an outdoor unit. The Chilled water series best applies to computer rooms located on commercial buildings with adequate chilled water source.

Options & Accesories Chilled Water System

- RDU-SIC Card
- Water Leak Detection System

*Power protection available, please contact Emerson Network Power sales for more details.

Chilled Water				
Model	DMH09	DMH12	DMH17	DMH25
Capacities, kW	8.2	11.6	16.3	23.2
Available configuration	Upflow Plenum and Downflow			
Power Supply	380V/3ph/50Hz or 380V/3ph/60Hz+N			
Refrigerant	Chilled Water			
Humidifier[1]	Electrode Humidifier			
Electric Heater Power, kW	4	4	6	6
No. of fans	1	1	2	2
Dimension (HxWxD), mm	1740 x 510 x 390	1900 x 610 x 580	1740 x 1105 x 405	1900 x 1205 x 575
Net Weight, kg	90	130	170	210
FLA[2], A	12	12	18	18
Air breaker	25	25	32	32
Water flow, l/s	0.4	0.6	0.8	1
Inlet/Outlet pipe diameter, inch	1"	1"	1.25"	1.25"
Total Pressure Drop, kPa	46	62	46	45

[1] This is an optional feature.

[2] FLA is Full Load Ampere; the maximum full load current value of the air conditioner is not the sum of rated maximum full load current of all components. It is the sum of rated maximum full load current value of the operating components, which may operate at the same time on the maximum work load condition.

Chilled Water Dimension

DMH09, DMH12

DMH17, DMH25

Communications

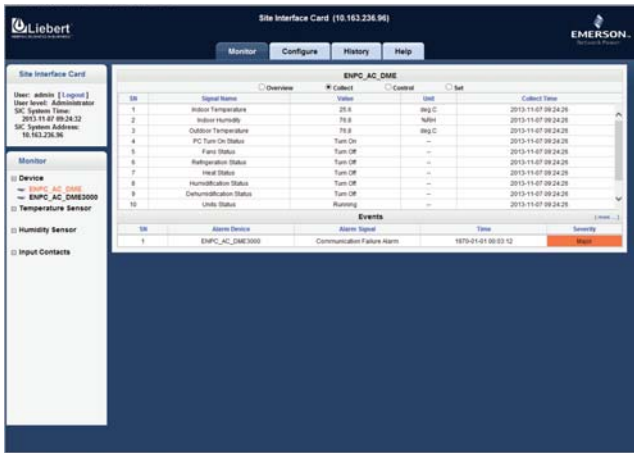
The Liebert® DM™ Series can be managed through your IP network.
As a standalone network management device it provides the following:

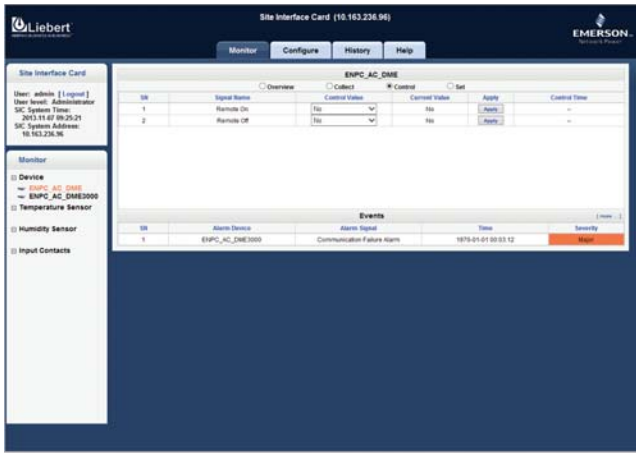
- Browser access through HTTP protocol
- Email notifications of critical events and potential operational impacts
- SMS alerts through your SMS gateway
- SNMP management through GET/SET requests and industry standard MIB

It is also compatible with Emerson management and monitoring systems for comprehensive integration with computer rooms and critical applications.

Liebert® RDU™ Monitoring Interface

The Liebert® RDU™ offers maximum visibility for insight in the infrastructure.





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