


Liebert® DM™

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





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

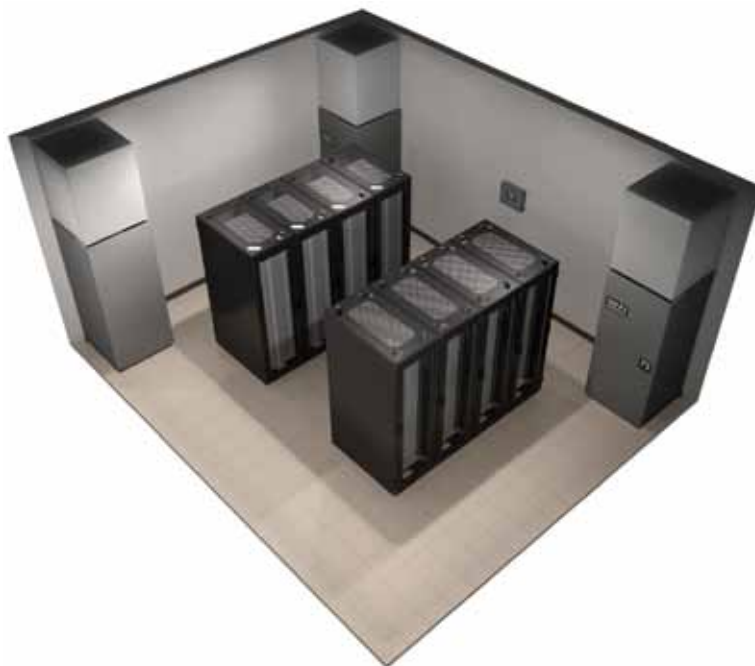
Emerson Network Power delivers innovation and solutions without sacrificing efficiency, availability and reliability. Its 12 Centres of Expertise are distinct and uniquely positioned to help you achieve your business objectives, identifying which solutions fit your requirements.

Over the years, Precision Cooling 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 centres around the world, our latest precision cooling portfolio offers the highest efficiency and flexibility without compromising reliability for your mission critical operations.

Why Precision Cooling?

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**.



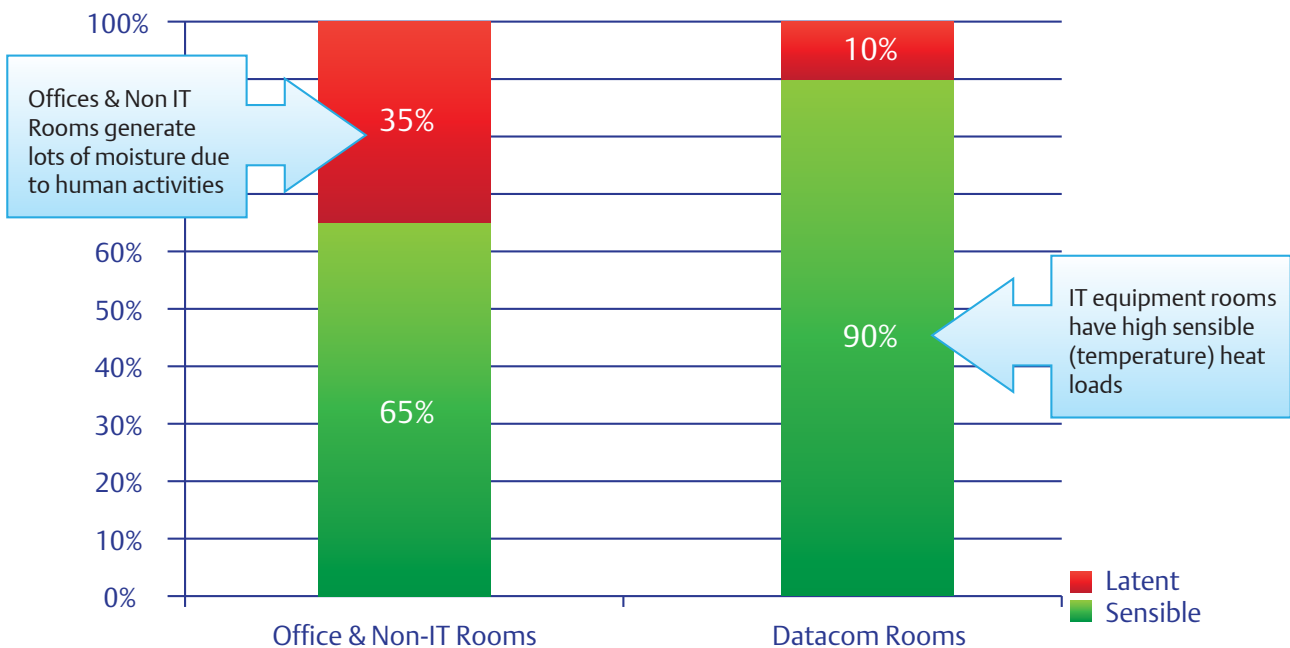
Issues when using Comfort Cooling in Small Data Centre/Computer Room (Datacom Rooms)

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.

Precision Cooling vs. Comfort Cooling

Computers Generate Heat, But Not Humidity.



90%-95% of a precision cooling 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 Precision cooling 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: <ul style="list-style-type: none"> • 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™ Precision cooling 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 precision cooling to small computer rooms and network closets. It is designed for year-round temperature and humidity control for IT applications across the critical infrastructure. With a small footprint it is ideal for small and medium-sized computer rooms.

The Liebert® DM™ is a fully featured precision cooling solution for your critical IT infrastructure. It also features network management capabilities and integrates with your standard IT management systems using standard IT protocols such as http, SMTP, SNMP and SMS.



Liebert® DM™ variants:

- Air Cooled / Water Cooled
- Chilled Water

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

Description	Air Cooled / Water Cooled	Chilled Water System
Models	DME07 & DME12	DMH09U/D/F, DMH12U/D/F, DMH17U/D/F & DMH25U/D/F
Available Capacities	7.5kW & 12.5kW	8.2kW, 11.6kW, 16.3kW & 23.2kW
Upflow Plenum	Yes	Yes
Ducted	No	Yes
Downflow	No	Yes
Power Supply	400V/3PH/50Hz	400V/3PH/50Hz
Condenser Type	Air Cooled: Outdoor Condenser Water Cooled Heat Exchanger	Not Applicable
Refrigerant	R407C	Not Applicable

Features and Benefits



Energy saving

- Energy efficient design optimised for IT applications
- Equipped with Copeland Scroll Compressors
- Provides stable temperature and humidity environment
- Intelligent outdoor fan speed control
- ECO-mode and other energy saving options

Space Saving

- Small footprint – 100% front service access

User-Friendly and Maintenance-Free

- Large screen display with multi-level password protection and expert fault-diagnosis functions
- Automatic startup on power recovery and scheduled startup also available
- Monitoring and exception management through standard network interface and protocols
- Loss of air and filter clog event notification
- Email and SMS notification for remote monitoring functions

Highly adaptive

- Designed for 24x7 operation
- Ultra wide input voltage range; multiple power protection functions



Liebert® DM™ – Air Cooled / Water Cooled Series



The Liebert® DM™ Air Cooled and Water Cooled Precision Cooling System is suitable for precise air conditioning of small and medium sized computer rooms and UPS & Battery rooms. Designed with the latest precision cooling technology, the Liebert® DM™ Air Cooled and Water Cooled series has passed industry standards for precision cooling systems and features high energy efficiency, excellent reliability and long service life. The user friendly LCD display allows the operator to set temperature and humidity setpoints.

The Water Cooled series adopts a separate water cooled heat exchanger module and rejects heat thru the circulating condenser water from its source.

Key Features of the Liebert® DM™ Air Cooled Series:

- Highly adaptable to environment conditions and varying temperature
- Equipped with Scroll Compressor
- Eco-mode option available
- Variable speed and low noise fans for outdoor units
- Front door access
- Constant temperature and humidity function
- Large on screen display (OSD) with multi-level password protection
- Automatic and scheduled startup functions up to 2 units
- RS485 monitoring interface standard
- Low maintenance
- Wide input voltage range and multiple power protection functions (400V +10%/-20%)
- Compatible with remote monitoring software

Product series

Model	Cooling Capacity (kW)	Heating capacity (kW)	Humidifying capacity (Kg/h)	FLA (A)	Indoor unit size L x W x H (mm)	Standard condenser	Low-temperature condenser
DME07MHP1 Heating and humidifying	7.5	3.2	1.5	20	510 × 385 × 1750	DMC07WT1 (787 × 352 × 829)	DML07W1 (1037 × 352 × 829)
DME12MHP1 Heating and humidifying	12.5	3.2	2.5	22	600 × 500 × 1850	DMC12WT1 (787 × 352 × 1240)	DML12W1 (1037 × 352 × 1240)

Optional water cooled heat exchanger

Model	Water flow m ³ /h	Pressure drop (kPa)
DMW07	1.65	15
DMW12	2.9	25

Dimension and weight

Unit	Model	Length x Width x Height (mm)	Weight (kg)
Water cooled heat exchanger	DMW07	843 × 533 × 704	35
	DMW12	843 × 533 × 704	35

Standard Options and Accessories

Air/Water Cooled Systems

- Extended Piping Kit (Air Cooled Only)
- Lee-temp Condenser Unit (Air Cooled Only)
- Water Cooled Heat Exchanger (Water Cooled Only)
- Power SPD
- Energy Saving Card
- Network Management card (RDU-SIC)

Liebert® DM™ – Chilled Water Series



The Liebert® DM™ Chilled Water utilizes low-temperature chilled water available on site as the cooling source and does not require an outdoor unit. This is ideally suited to computer rooms located in commercial buildings with adequate chilled water source.

Key Features of the Liebert® DM™ Chilled Water Series:

- Eliminates outdoor condenser, ideal for small rooms
- Eco-mode option available
- Front door access
- Constant temperature and humidity function
- Large on screen display (OSD) with multi-level password protection
- Automatic and scheduled startup functions
- RS485 monitoring interface standard
- Low maintenance
- Ultra-wide input voltage range and multiple power protection functions (400V+15%/-20%)
- Compatible with remote monitoring software

Product series

Model	Cooling Capacity (kW)	Heat capacity (kW)	Humidifying capacity (kg/h)	Chilled water parameters		
				Water flow (l/s)	Total pressure drop (kPa)	Inlet/outlet water pipe diameter (mm)
DMH09U/D/FMH1	8.2	4	3	0.39	46	25
DMH12U/D/FMH1	11.6	4	3	0.55	62	25
DMH17U/D/FMH1	16.3	6	5	0.78	46	32
DMH25U/D/FMH1	23.2	6	5	1.1	45	32

Remark:

1. As for Model, “U” indicates upflow unit (supply via hood), “D” indicates upflow unit (supply via duct), “F” indicates downflow unit (supply under floor).
2. Test conditions: 400V/50Hz~3P, indoor temperature of 24°C, relative humidity of 50%RH, chilled water supply temperature of 7°C and return temperature of 12°C.
3. The system is configured with two-way valve as a standard configuration, with three-way valve optional.
4. If the water pressure of chilled water system is higher than 1600kPa, please contact Emerson Network Power.
5. If the required data are not listed in the table, please contact Emerson Network Power.

Dimension and weight

Unit model	Number of fan(s)	Length x Width x Height (mm)	Weight (kg)
DMH09U/D/FMH1	1	510 × 386 × 1740	90
DMH12U/D/FMH1	1	608 × 575 × 1900	127
DMH17U/D/FMH1	2	1102 × 386 × 1740	169
DMH25U/D/FMH1	2	1202 × 575 × 1900	210

Standard Options and Accessories Chilled Water System

- Energy Saving Card
- RDU-SIC™ Card

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.





The Liebert® DM™ is ready to respond to the challenges and rapid changes in the critical infrastructure, be it power disturbances or fluctuating humidity levels. The Liebert® DM™ delivers 24 x 7 precision cooling in the critical space.

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