



Condensation Management System (CMS85) Manual

CMS85-MANUAL – 1.8

Read and understand this manual prior to operating or servicing the products.

THIS PRODUCT IS NO LONGER SOLD.

WAUKESHA 

Patented Condensation Management Systems are manufactured and distributed by Waukesha® Service & Components, a division of SPX Transformer Solutions, Inc. U.S. Patent Nos. 5,902,381; 6,797,037; 7,285,150 and 7,332,015.

TABLE OF CONTENTS

General Description	Pages 3
System Specifications	Page 4
Construction	Page 5-6
Installation	Page 7
Specifications	Page 8
Installation	Page 9
Operation	Pages 10
Maintenance	Page 11
Replacement Components	Page 12

GENERAL DESCRIPTION

The Waukesha® Condensation Management System (CMS85) is designed to remove moisture from air and thereby reduce the relative humidity and dew point inside *sealed* enclosures. Outdoor enclosures may experience condensation on the inside as the ambient temperature drops faster than the temperature on the inside of the enclosure. The primary cause for condensation is the interior surface temperatures dropping below the dew point of the air contained inside an enclosure. This system reduces the dew point of the internal air to prevent condensation inside the cabinet.

The CMS85 can be ordered in two configurations, depending on proposed use: 1) with an AC power supply, and 2) with a DC power supply. All systems include a thermoelectric module, mounting din rail, drain hose, and drain assembly. **CMS85-DC** is shipped as described in previous sentence. **CMS85-AC** ships as noted and includes a 120W 115/230V AC power supply.

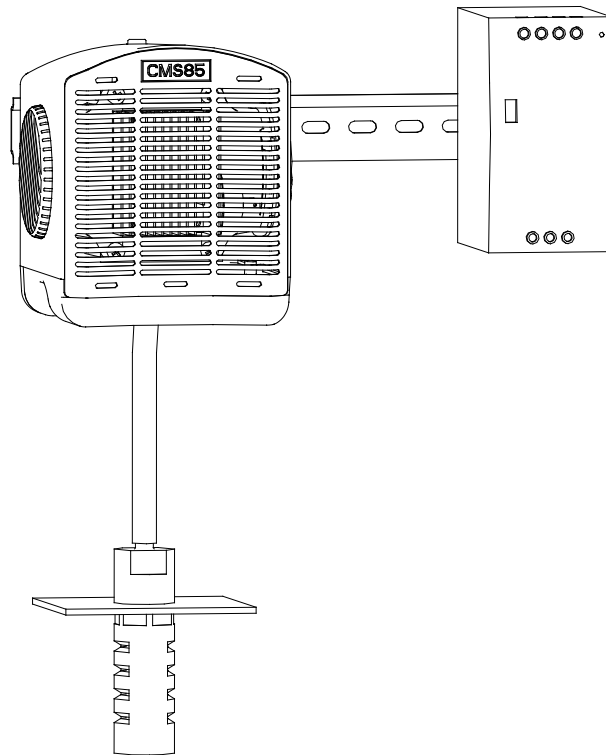


Figure 1 – Condensation Management System (CMS85), AC configuration.

SYSTEM SPECIFICATIONS

SEALED CABINET

Waukesha's Condensation Management System (CMS85) is intended for use within a sealed cabinet. Once the unit is installed, the cabinet should be isolated from atmospheric conditions.

TEMPERATURE RANGE

The CMS85 is effective in removing moisture at temperatures above freezing.

HUMIDITY RANGE

The unit is rated for operation in a relative humidity range up to 100%.

ENCLOSURE SIZING

At 78°F, the CMS85 unit removes 8 oz. of moisture in 24 hours. For example, a 4 cubic meter sealed enclosure will experience a 50% reduction of relative humidity in 6 hours.

CURRENT DRAW

The unit draws 2.6 amps at 115V AC and 1.6 amps at 230V AC.

BREAKER RECOMMENDATIONS

A 4 amp breaker is recommended for use with a 115V AC system and a 3 amp breaker is recommended for use with a 230V AC system.

POWER CONSUMPTION

The power supply is rated at 120 watts. The dehumidifier unit specification for power consumption is 85 watts at 24V DC.

SAFETY INFORMATION

Correct use of this equipment is important for your personal safety and for trouble-free functioning of the unit. Do not operate the unit beyond its limits (see specifications on page 3). In addition to the warnings and cautions in this manual, use the following safety guidelines for safe operation of the unit.



WARNING – Electrical shock hazard. Failure to follow these instructions could result in serious injury or death.

The relative humidity condition for installation of the unit into an enclosure should be 90% RH or less in a non-condensing environment. Once the unit is installed and the enclosure is sealed, the RH will be reduced by the unit inside the enclosure.

CONSTRUCTION

The condensation management system consists of a thermo-electric dehumidifier unit, 24V DCo power supply, drain hose and self-sealing drain assembly. The dehumidifier and power supply are to be mounted using a single din rail (supplied with the unit). The drain assembly is installed at the lowest elevation of the cabinet to facilitate the flow of moisture to the exterior of the cabinet.

THERMO-ELECTRIC DEHUMIDIFIER UNIT

The thermo-electric dehumidifier unit uses a Peltier device to remove moisture from the surrounding air that is drawn into the unit. This unit also moderately heats the air after removing moisture before it exits the unit out of the circular vents located on each side.

POWER SUPPLY

A 24 volt power supply rated at 120 watts (pictured at right) is used to power the dehumidifier. The power supply is mounted alongside the dehumidifier unit. The input voltage to the power supply can be selected between 115V AC and 230V AC using a switch located on the front of the unit. The power supply is secured to the cabinet using a din rail shared with the dehumidifier unit.

See power supply connections in Figure 3 on page 6.

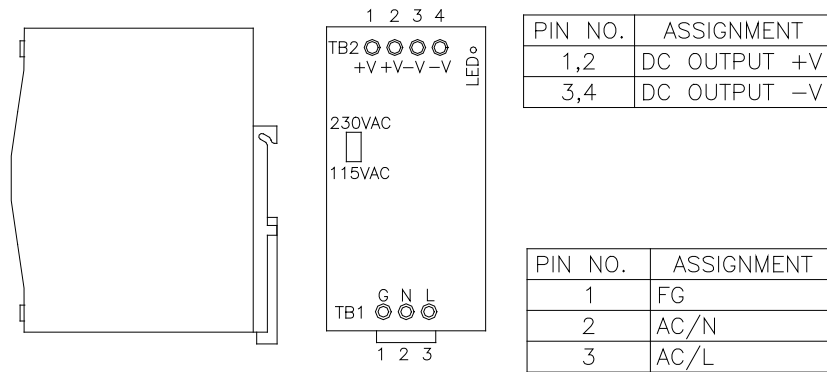


Figure 3 – Power Supply Connections

DRAIN ASSEMBLY

The drain assembly consists of a hose, drain plug, ball float, gasket and filter vent. The hose is connected to the water outlet on the dehumidifier unit on one end, and the other end is connected to the drain plug on the inside of the enclosure. The polypropylene ball is inserted into the drain plug, and the filter vent is assembled from the outside. The cabinet includes a hole 0.882 inches in diameter on the bottom surface in which to insert the filter vent. See these steps illustrated in Figure 4 below.

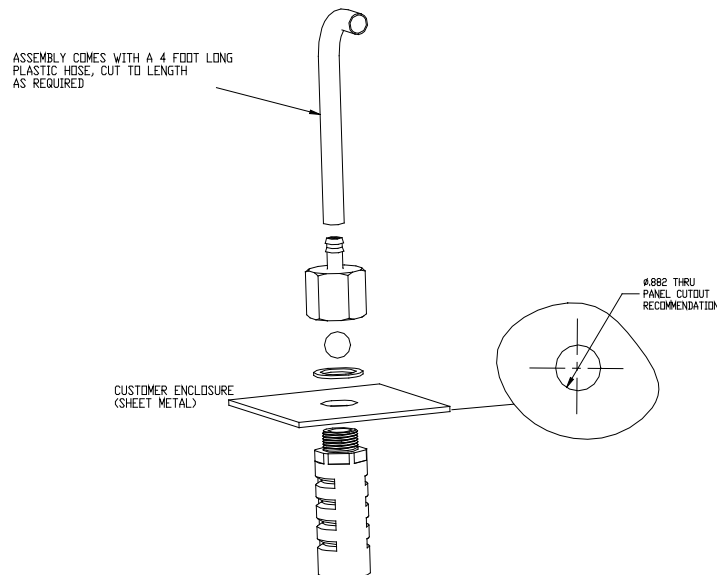


Figure 4 – Drain Assembly

INSTALLATION

The dehumidifier unit and power supply should be mounted on the inside of the sealed enclosure using the din rail provided. Air inlet and outlet vents should not be obstructed and have a minimum clearance of 4 inches to facilitate air flow to and from the unit. Choose the mounting location for the din rail in such a manner as to have the drain assembly located directly below the dehumidifier unit. If unable to locate the drain assembly directly below the dehumidifier unit, the drain assembly can be moved in a manner in which generated moisture will flow freely to the filter vent. **The hose running from the dehumidifier to the drain should not be bent or crushed at any point to allow for free flow of the moisture.** A gasket is used to seal the drain vent as shown in Figure 4 on page 6. Figure 5 below shows the assembly of the complete unit.

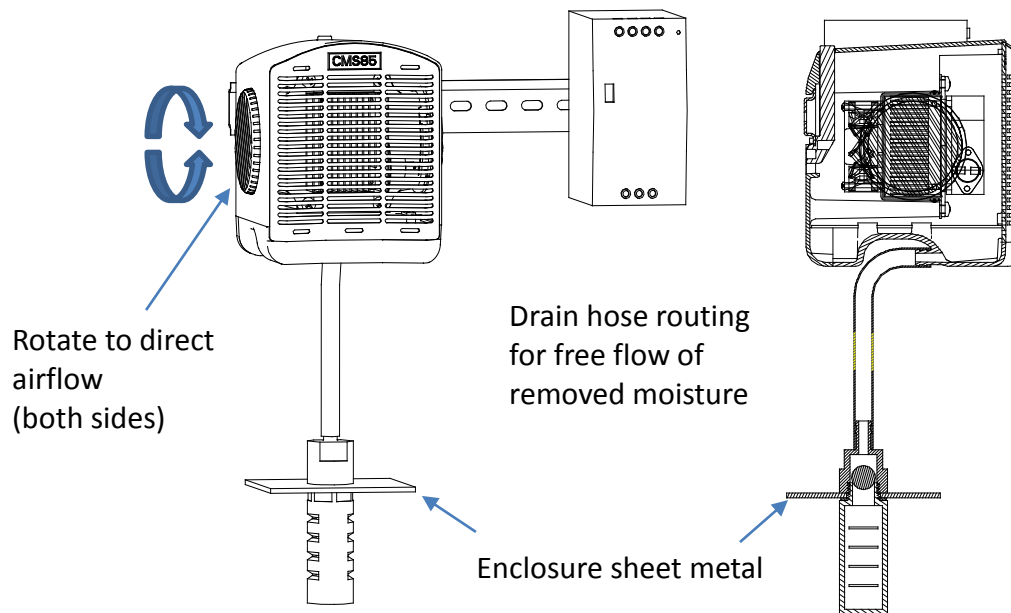


Figure 5 – Drain Assembly Placement

ELECTRICAL CONNECTIONS

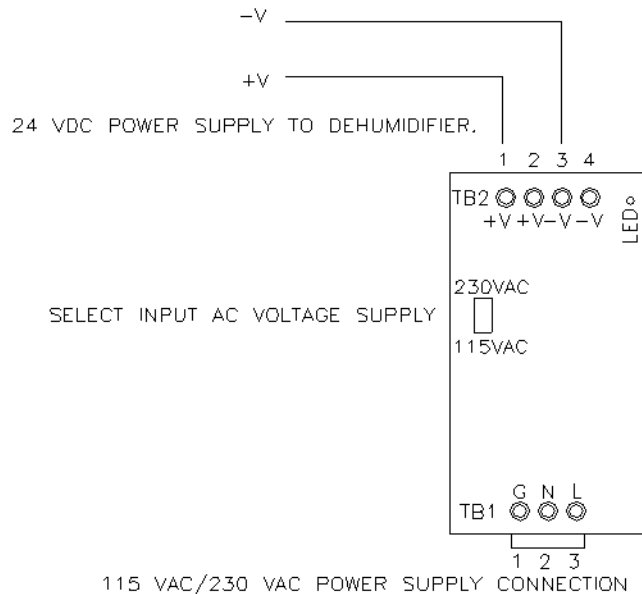
The input power to the system can be either 230V AC or 115V AC (see Figure 6 on page 8). The power supply is shipped with the selector switch set to 230V AC. If 115V AC is required, change the setting using the switch located on the front of the power supply. Wire the input voltage to the bottom of the power supply (three terminals) as shown in Figure 6 on page 8. The output terminals (two pair) are located on the top of the power supply. Connect wires from the dehumidifier to positive (+) and one negative (-) terminal as shown in Figure 6 on page 8. The wires on the dehumidifier are labeled “common” and “24VDC”. *The unit will not operate if polarity is reversed.*

SPECIFICATIONS

Components		Electrical	
Airflow Solenoid	12VDC non-latching	Voltage/Frequency	100 – 240 VAC, 50/60 Hz
Humidity Sensor	RH 2% to 100%	Power Consumption*	0 – 5.5 A
Vacuum Switch	Normally open, 0.1 psi vacuum to close	Alarm Relay**	Normally CLOSED; help open with power 4 A 120 VAC, 4 A 30 VDC
Indicator Lights	LED	Inrush Damping	Staged heating 30 seconds apart (2 KG Unit Only)
Timer Control	Dip switch on PCB	Ambient Conditions	
Operation		Temperature: Standard ARDB2	Range 0° a to 80°C
Time Base Settings	5, 10, 20, 40 day settings	Temperature: Arctic Zone ARDB2	Range -50° a to 80°C
Relative Humidity Sense Trigger	50% required to activate regeneration	Air Quality	Normally clean ambient air
Heating	10 seconds staging, 3 hour full power	Relative Humidity	>90%
Cooling Time	10 minutes before solenoid deactivation	Environment	
Vacuum Detection	10 seconds continuous required	Instalación	interior/exterior montaje en pared
Failure Detection	Heater, vacuum, switch, humidity sensor	* Typical operation is non-regenerating: 20 mA small Breather – 5.5A inrush, 1 a 1.5A nom large Breather - 5.5A inrush, 2 a 3A nom ** Units manufactured prior to 6/30/2010 have only “Heater ON” monitored relay rated at 1A 120VAC/30VDC	

Table 1 – Auto Recharging Dehydrating Breather Specifications

INSTALLATION: Electrical Connections (continued)



RECOMMENDED BREAKERS: 4 amp type B breaker for 115V AC supply; 3 amp type B breaker for 230V AC supply.

Figure 6 – Electrical Power Connections



WARNING - Electrical shock hazard. Failure to follow these instructions could result in serious injury or death.

- Electrical ground is required on this piece of equipment.
- Do not use an extension cord with the CMS85.
- The unit should be grounded according to local electrical codes to prevent the possibility of electrical shock. It requires a grounded receptacle with separate electrical lines, protected by fuses or circuit breaker of the proper rating.
- Check with a qualified electrician if you are in doubt as to whether the CMS85 is properly grounded.

OPERATION

After the unit has been mounted and the drain assembly installed, check voltage setting on the front of the power supply. The unit is shipped with the switch in the 230V setting. If the power supplied is 115V, change the selector switch to the 115V setting before powering up the unit. Once this is verified, the unit can be turned on.

Once the power supply is plugged in, a green LED (located on the front) should turn on to indicate that 24 volts are being sent to the dehumidifier unit. At this point, the fan should be running on the dehumidifier unit. The exit vents are located on each side and can be rotated to direct flow of air so as to have evenly distributed air flow within the enclosure.

Depending on the relative humidity at the time of installation the unit may or may not produce a quantity of moisture visible from the drain. A temperature and humidity indicator can be used to verify the reduction of relative humidity and increase in temperature, if required.

PERFORMANCE

In a constant temperature condition, the CMS removes moisture in the enclosure and thereby reduces the dew point. The reduction in dew point allows for a larger temperature drop before condensing may take place. As the unit is in continuous operation, it is always removing moisture and maintaining lower dew point than the ambient conditions outside the enclosure (see Chart 1 below).

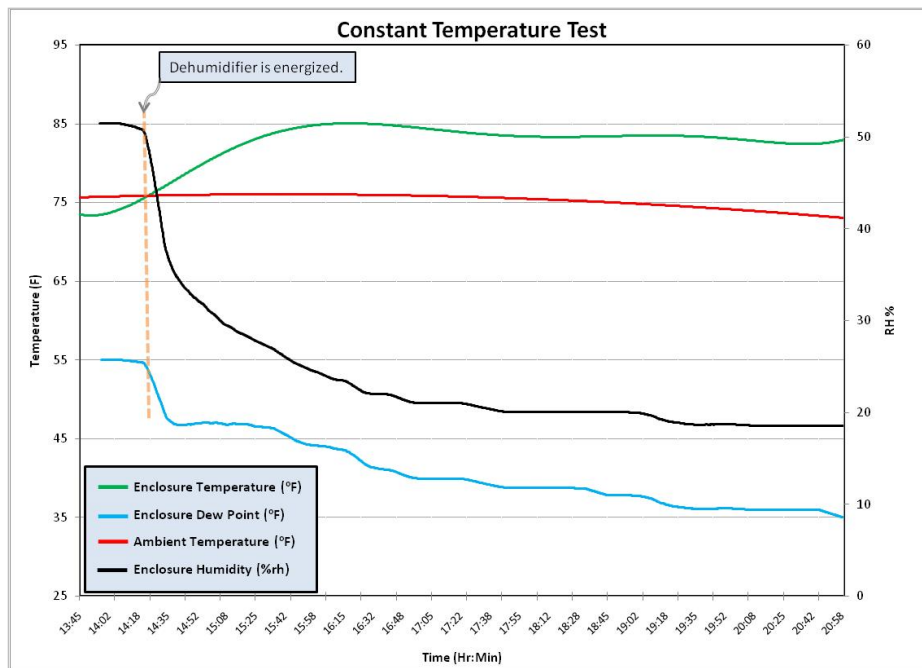


Chart 1 – Constant Temperature Performance

MAINTENANCE

ANNUAL INSPECTION

1. Check the power supply and verify operation. A green LED will indicate powered unit. If the dehumidification system fan is running, the power supply is operating normally.
2. Check the drain hose for clogged and/or disconnected ends. If hose shows aging or cracking, it should be replaced.
3. Check the filter vent and ball assembly for particles that may restrict the flow of water to the exterior of the enclosure. The two parts can be cleaned and reused or replaced.
4. Check drain connection on bottom of the CMS85 for clogging and clean if necessary.

TROUBLESHOOTING

POWER SUPPLY WILL NOT OPERATE.

1. Check the breaker and verify it is turned on.
2. Check the voltage selector switch and verify it is at the correct setting.
3. Verify connection of power supply to the three terminals located on the bottom of the power supply.
4. Check the voltage at the three terminals and verify 115/230V AC.

DEHUMIDIFIER UNIT DOES NOT OPERATE.

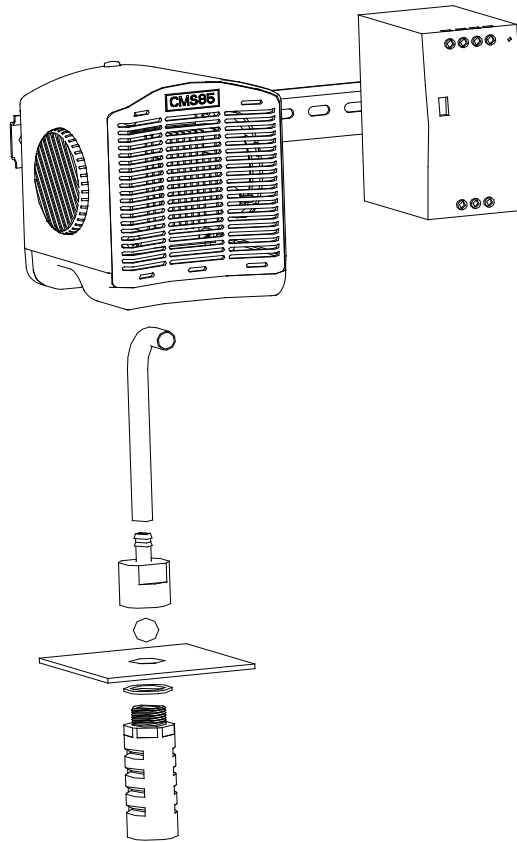
(indicated initially by non-operating fan, no air flows out of the unit)

1. Check the power supply to make sure the green light is on.
2. Check and make sure the power cord is connected from the power supply to the dehumidifier.
3. Check if power cable on the dehumidifier is damaged.
4. If green light is on, verify 24V output from the power supply.

GENERATED MOISTURE DOES NOT DRAIN OUTSIDE THE ENCLOSURE.

1. Check the filter vent and polypropylene ball assembly for contaminants.
2. Check the hose for bends that could obstruct the free flow of water to the vent drain.
3. Check if inlet and outlet vents are clogged. These areas should be free of obstructions and not enclosed by other components (see installation instructions on page 7 for details).

REPLACEMENT COMPONENTS



Description	Part Number
Power supply	1030-1526
Polypropylene ball	1030-257
Gasket	1030-1527
Filter vent	1030-385

REPLACEMENT PARTS AND SERVICE

Please contact us at **800-338-5526** for replacement parts and/or service. Or visit us online at www.waukeshacomponents.com.