SUBMITTAL DATA SHEET – CW-H WITH MULTI-MAGIC CONTROLS

Job Name:		Location:	
Order No.:		Contractor:	
Project Manager:		Engineer:	
Submitted To:		Submitted By:	
Date:		Asset ID:	
Special Instructions:			

MODEL **QUANTITY**

- ☐ CW-H15 ____
- ☐ CW-H15S ____
- ☐ CW-H15S PLUS ____

VOLTAGE SELECTION

☐ 440-480V / 3~ ☐ 220-240V / 3~ ☐ 220-240V / 1~

COOLING APPLICATION

☐ Standalone ☐ Pre-Cooling ☐ Supplementary

DESIGN CONDITIONS

Outdoor Ambient Conditions:

Dry Bulb		°F
Wet Bulb		°F
Elevation Above Sea Level		ft

Fan Duty Point:

Supply Air Volume		cfm
External Static Pressure		in.wg

Performance:

Supply Air Temperature		°F
Pre-Cooling Capacity		BTU/hr

OPTIONAL ACCESSORIES **QUANTITY**

- ☐ Multi-Magic Wall Controller ____
- ☐ Room Temperature & Humidity Sensor ____
- ☐ Ambient Temperature & Humidity Sensor ____
- ☐ MERV13 Airfilters ____

STANDARD FEATURES

- ☑ Indirect Evaporative Cooling.
- ☑ Patented high technology CW Indirect Cooling cores.
- ☑ Fresh, outside air for better indoor air quality (IAQ).
- ☑ No refrigerants or ozone depleting chemicals.
- ☑ Quiet and vibration free operation.
- ☑ Filtered air with reduced dust, pollens and allergens.
- ☑ High EER (Energy Efficiency Ratio).
- ☑ Horizontal side discharge for conditioned air.
- ☑ Horizontal discharge for exhaust air.
- ☑ Low maintenance, simple winterization
- ☑ Integrated PLC for internal control.
- ☑ Integrated water management system.
- ☑ Removable panels for easy maintenance access.
- ☑ Easy to connect power/control wiring.
- ☑ BMS/BAS control terminals.
- ☑ Modbus RS-485 control terminals.
- ☑ 1x Backward-curved centrifugal supply fans.
- ☑ Direct coupled EC fan motors.
- ☑ Molded plastic (ABS) water tank.
- ☑ Cabinet constructed with marine grade aluminum.
- ☑ Built-in forklift tyne openings for lifting the cooler.
- ☑ 1-year limited warranty.

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GENERAL

Climate Wizard coolers are characterized by the supply of 100% fresh, cool, outside air with NO additional moisture added, with greatly reduced energy consumption relative to an equivalent refrigerated system performing the same duty.

The cooler comprises of a supply air fan, an indirect heat exchanger pack, integrated water reservoir, pump, and chlorinator system.

CW-H15S and CW-H15S Plus can be operated in "Supercool" mode producing even colder supply air with added moisture (direct cooling). Supercool coolers have an additional pump and Chillcel® pads.

CABINET

The cabinet is constructed from coated marine grade aluminum incorporating the motor/fan assembly, non-corrodible heat exchange core and other ancillary equipment mounted on a heavy gauge base frame for structural stability.

Fork lift tine channels are provided within the frame to facilitate transport and lifting.

Components are effectively treated to ensure corrosion resistance and mechanical fasteners are zinc coated, stainless steel or aluminum.

Connection surfaces are provided for outlet supply air and exhaust ductwork to be fitted using established industry practices.

FAN & MOTOR

The fan is a multi-blade, centrifugal type with backward curved blades. It has a cast aluminum rotor and plastic impeller which is statically and dynamically balanced.

The fan is directly mounted to the electric motor. The electric motor is high efficiency, inverter driven and responsive to 0-10V control signals to implement speed control that delivers optimum efficiency at lower speed operation.

HEAT EXCHANGE CORE

The heat exchange cores are designed to facilitate heat exchange between the wet air passages and the dry air passages such that high efficiency heat transfer takes place without the addition of any additional moisture.

They are designed to provide long life and consistent, long term high efficiency.

Supercool models are fitted with additional Chillcel® fabricated, honeycomb direct cooling pads.

WATER MANAGEMENT SYSTEM

The water supply connection is a ½" fitting that connects directly to the internally mounted solenoid valve.

Water is held in an internal reservoir manufactured as a one-piece molded polymer construction to ensure durability and corrosion resistance.

Heat exchange core saturation is achieved through internally mounted pumps delivering water to a specially designed non-clog water distribution system guaranteeing continuous uniform flow.

The pumps are manufactured from engineering plastics, with stainless steel shafts and fully encapsulated synchronous motors with thermal overload protection. They are provided with an easily cleanable strainer within the reservoir section.

An electronic water management system controls the maximum salinity level and chlorination of the reservoir water through continuous monitoring and replenishment.

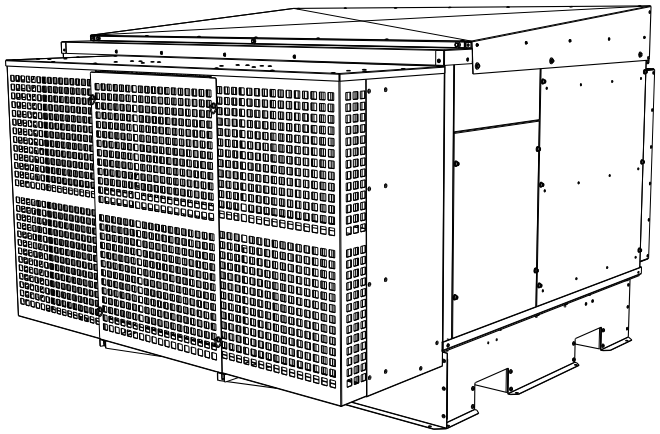
The reservoir is drained by an electric drain valve that responds to the water management control system. The design of the reservoir ensures that no water remains after draining.

ELECTRICAL CABINET AND CONTROLS

All electrical control equipment including supply connection terminals, motor control hardware, BMS interface electronics, and water management hardware is pre-wired and factory mounted within a robust IP66 enclosure meeting the requirements for outdoor mounting.

AIR FILTERS

Intake air is filtered through aluminium framed, washable pleated filters. The as¬sembly includes a safety screen to protect the fan and a cover to minimise intrusion of rain.



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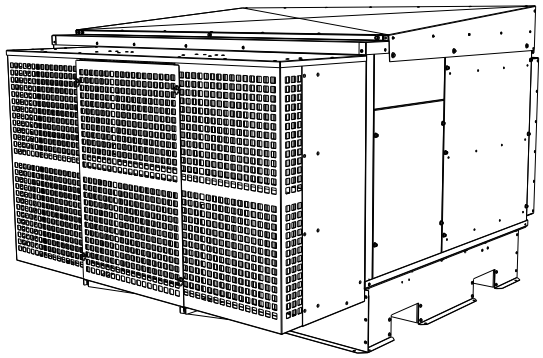

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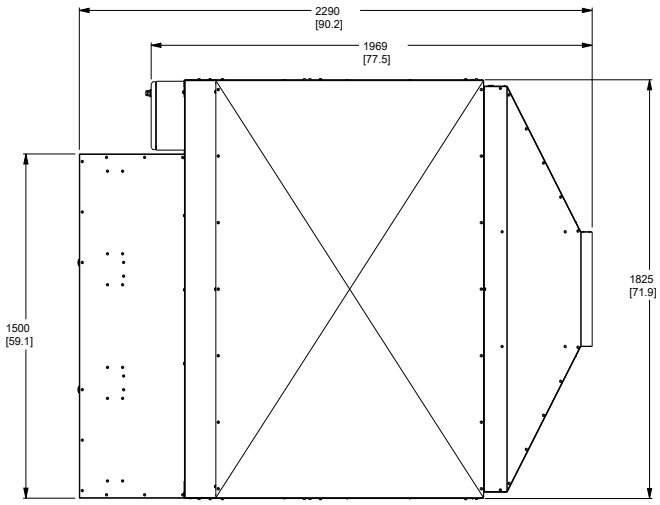

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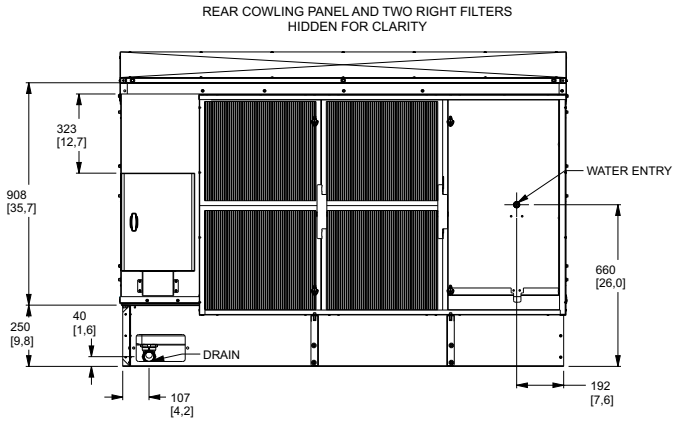

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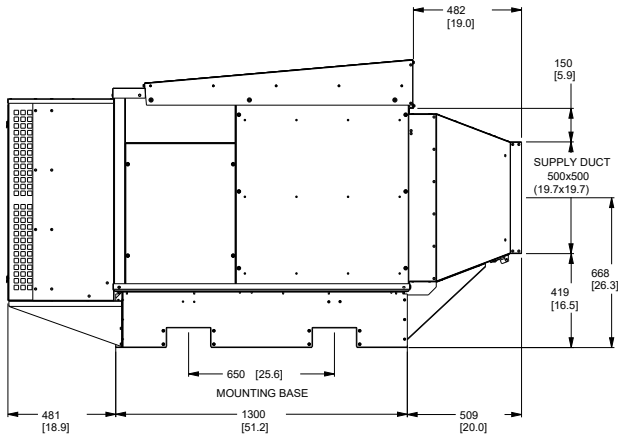

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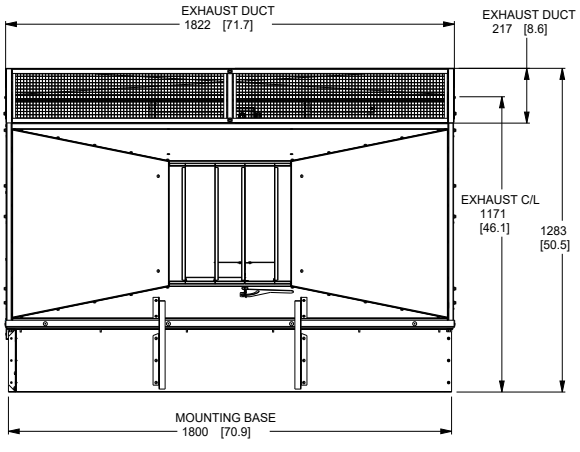

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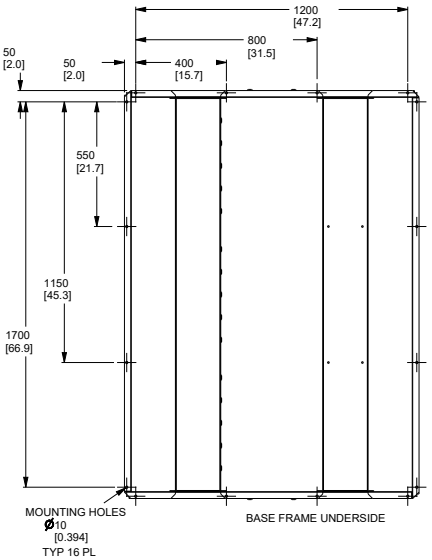

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NOTE: Installers must allow adequate access to and around the cooler for Maintenance. Provision must be made for access to power, control, water supplies and drains. Refer to the Installation Manual for full details.

SUBMITTAL DATA SHEET – CW-H WITH MULTI-MAGIC CONTROLS

MODEL:			CW-H15	CW-H15S	CW-H15S Plus
OPTIMUM PERFORMANCE	Airflow	Supply Air	2330 CFM @ 0.60 in.w.g.	2330 CFM @ 0.48 in.w.g.	3390 CFM @ 0.32 in.w.g.
		Exhaust Air	1910 CFM	1910 CFM	1270 CFM
	Temperature*	Supply Air	67.1 °F	60.4 °F	63.3 °F
	Cooling Capacity*	Standalone	35,500 BTU/hr	52,500 BTU/hr	66,000 BTU/hr
		Pre-Cooling	84,000 BTU/hr	100,500 BTU/hr	136,000 BTU/hr
	EER*	Standalone	20	29	31
		Pre-Cooling	47	56	65
ENVIRONMENT	Maximum Inlet Air Temperature		131 °F	131 °F	131 °F
SERVICES	Electrical	Voltage Maximum Rated Current	440-480 V / 3~ / 60Hz 3A FLA / 8.5 MCA / 15 MOPD	440-480 V / 3~ / 60Hz 3A FLA / 8.5 MCA / 15 MOPD	440-480 V / 3~ / 60Hz 3A FLA / 8.5 MCA / 15 MOPD
			200-240 V / 3~ / 60Hz 6A FLA / 14.5 MCA / 20 MOPD	200-240 V / 3~ / 60Hz 6A FLA / 14.5 MCA / 20 MOPD	200-240 V / 3~ / 60Hz 6A FLA / 14.5 MCA / 20 MOPD
			200-240 V / 1~ / 60Hz 8A FLA / 11.5 MCA / 15 MOPD	200-240 V / 1~ / 60Hz 8A FLA / 12 MCA / 15 MOPD	200-240 V / 1~ / 60Hz 8A FLA / 12 MCA / 15 MOPD
		Input Power	1.8 kW	1.8 kW	2.2 kW
	Water	Supply	5.3 GPM @ 15 PSI - 115 PSI	5.3 GPM @ 15 PSI - 115 PSI	5.3 GPM @ 15 PSI - 115 PSI
		Max Temperature	105 oF	105 oF	105 oF
		Inlet	1/2" Male NPT	1/2" Male NPT	1/2" Male NPT
		Consumption*	15 GPH	16 GPH	19 GPH
		Drain	1.5" Flexible Coupling	1.5" Flexible Coupling	1.5" Flexible Coupling
		Drain Flow Rate	4 GPM	4 GPM	4 GPM
	Duct Connections	Supply Air	Side Discharge 20 x 20 in	Side Discharge 20 x 20 in	Side Discharge 20 x 20 in
		Exhaust Air	Side Discharge 72 x 9 in	Side Discharge 72 x 9 in	Side Discharge 72 x 9 in
AIR SYSTEMS	Supply Air Fan/Motor	Fan	1x 22" Centrifugal Backward Curve	1x 22" Centrifugal Backward Curve	1x 22" Centrifugal Backward Curve
		Motor	3.5 kW	3.5 kW	3.5 kW
		Control	Variable Speed, ECM, PWM Control	Variable Speed, ECM, PWM Control	Variable Speed, ECM, PWM Control
		Max Speed	1350 rpm	1350 rpm	1460 rpm
	Air Filters	Inlet	MERV 10 Disposable 18" x 20" x 2" - 6	MERV 10 Disposable 18" x 20" x 2" - 6	MERV 10 Disposable 18" x 20" x 2" - 6
HEAT EXCHANGERS	Indirect Evaporative		3 Cores	3 Cores	3 Cores
	Direct Evaporative		NONE	3 Chillcel Pads	3 Chillcel Pads
WATER SYSTEMS	Tank (Reservoir) Capacity		17.2 Gal	17.2 Gal	17.2 Gal
	Inlet Valve		12 VDC Solenoid Valve	12 VDC Solenoid Valve	12 VDC Solenoid Valve
	Pumps Indirect Heat Exchangers		2 Pumps 3.4 GPM @ 60" Head 220-240V 60Hz Input Power 32W ea.	2 Pumps 3.4 GPM @ 60" Head 220-240V 60Hz Input Power 32W ea.	2 Pumps 3.4 GPM @ 60" Head 220-240V 60Hz Input Power 32W ea.
	Pump Direct Heat Exchangers		NONE	1 Pump 3.4 GPM @ 60" Head 220-240V 60Hz Input Power 32W ea.	1 Pump 3.4 GPM @ 60" Head 220-240V 60Hz Input Power 32W ea.
	Salinity Management		Conductivity Probe	Conductivity Probe	Conductivity Probe
	Chlorinator		12 VDC	12 VDC	12 VDC
	Drain Valve		12 VDC Vertical	12 VDC Vertical	12 VDC Vertical
DIMENSIONS	Shipping		90" Long 77" Wide 50" High	90" Long 77" Wide 50" High	90" Long 77" Wide 50" High
	Operating inc. Accessories		90" Long 72" Wide 51" High	90" Long 72" Wide 51" High	90" Long 72" Wide 51" High
WEIGHT	Shipping		750 lb	785 lb	785 lb
	Operating inc. Water/ Accessories		730 lb	760 lb	760 lb
STANDARDS COMPLIANCE	ETL Listed to UL 507 pending				

* Supply Air Temperatures, Cooling Capacities, COP and Water Consumption tested to ASHRAE 143 with design condition of: 100 F dry-bulb, 70 F wet-bulb and 81 F room exit temperature.

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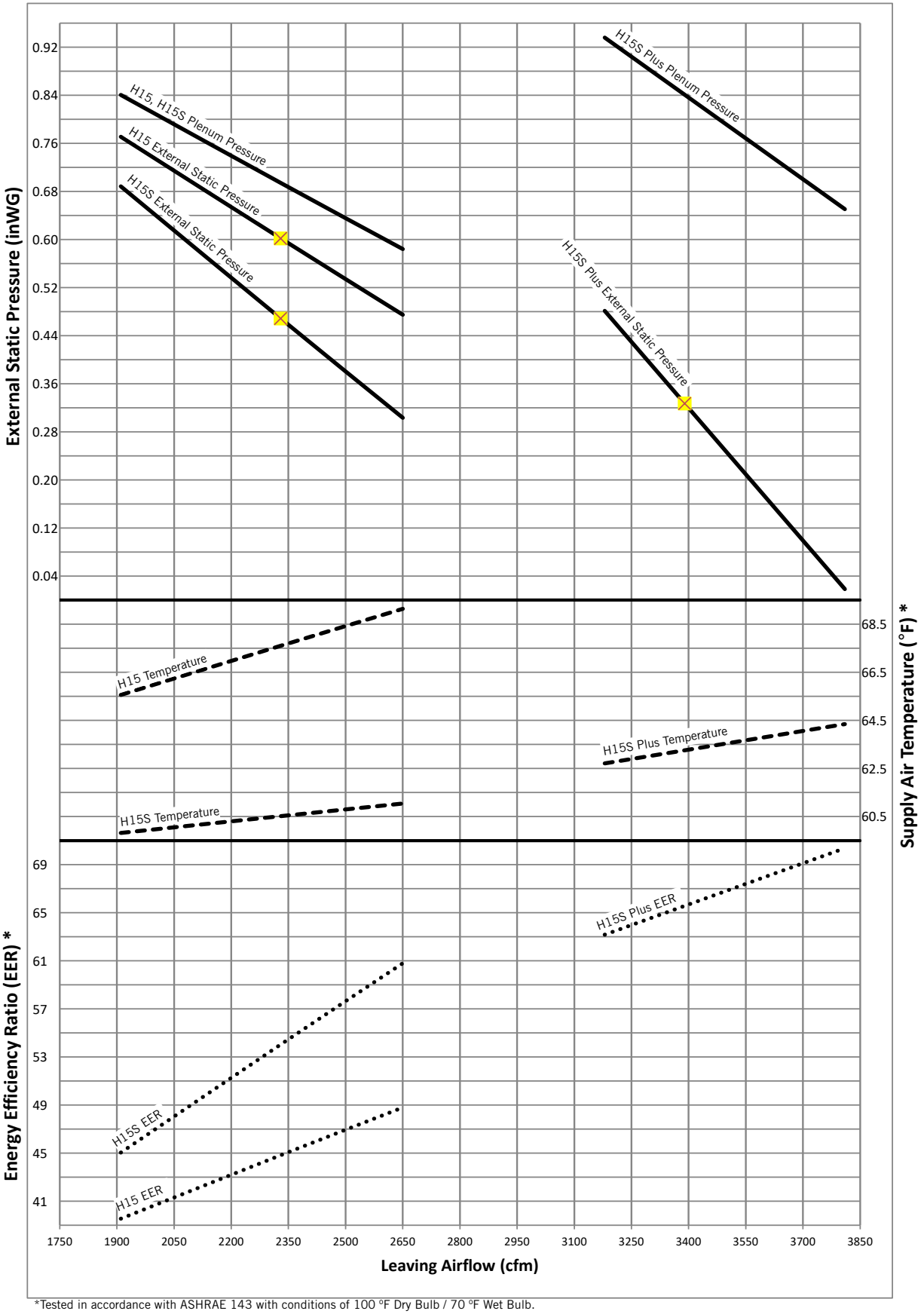

*Tested in accordance with ASHRAE 143 with conditions of 100 °F Dry Bulb / 70 °F Wet Bulb.

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OPTIONS, FEATURES & ACCESSORIES

Multi-Magic coolers are supplied with a series of interface terminals inside the electrical enclosure for use with additional accessories.

ITEM	ID	TYPE
MODBUS	+	RS-485 MODBUS Communication for Wall Controller or 3rd Party Master
	-	
	GND	
POWER SUPPLY	24Vdc	DC Power Supply for Wall Controller, Sensors or BMS
	0Vdc	
MULTI-MAGIC SENSORS (sold separately)	RM TEMP	Room Temperature 0-10V
	RM RH	Room Humidity 0-10V
	AMB TEMP	Ambient Temperature 0-10V
	AMB RH	Ambient Humidity 0-10V
	SUP TEMP	Duct Temperature 0-10V
	SUP RH	Duct Humidity 0-10V
FAN STATUS	FAN STS	Fan Run Output. Relay Output Dry Contact, Adjustable Timer
	FAN COM	
FIRE	FIRE	Fire Terminals. Bridge to Run.
	FIRE	

Multi-Magic coolers can be controlled via 4 different methods

OPTION 1: BUILDING MANAGEMENT SYSTEM (BMS)

Multi-Magic coolers are supplied with a series of low voltage BMS Interface Terminals to allow external devices, such as 3rd party controllers, to control the basic functions of the cooler.

ITEM	ID	TYPE
BMS	IEC	Digital Input Dry Contact
	DEC	Digital Input Dry Contact
	SPD	Speed: Analogue Input 0-10Vdc
	ERR	Error: Relay Output Dry Contact. Configurable NO/NC
	GND	GND

OPTION 2: MULTI-MAGIC WALL CONTROLLER

(sold separately)

- MODBUS RS-485 to control up to 15 Devices
- Temperature & Relative Humidity Sensors
- Manual IEC, Supercool & Fan Speed Control
- Thermostatic Speed Control
- Supercool Humidity Setpoint
- 7-Day Program
- Room Sensor Averaging
- Ambient Condition Monitoring
- Min & Max Fan Speed Limits
- Screen Security Lock
- Auto-Restart Function
- Device Fault History
- English, Spanish, French, Italian, Portuguese

OPTION 3: RS-485 MODBUS PRIMARY

Multi-Magic coolers can be controlled via a 3rd Party RS-485 Modbus Primary. Modbus Registers are available for controlling and monitoring the basic functions of the connected coolers.

REGISTER	TYPE		DETAILS
COMMANDS			
9200	UINT	Bit 0	IEC Enable
		Bit 1	DEC Enable
		Bit 2	Fault Reset
		Bit 3	Manual Drain
9201	UINT	0-1000	Supply Fan Speed (0-100%)
STATUS			
9205	UINT	Bit 0	Fault State
		Bit 1	Low Probe WET
		Bit 2	High Probe WET
		Bit 3	Inlet Solenoid Valve OPEN
		Bit 4	Drain Valve OPEN
		Bit 5	Indirect Pump RUNNING
		Bit 6	Direct Pump RUNNING
		Bit 7	Chlorinator RUNNING
9206	UINT	0-1000	Supply Fan Speed (0-100%)
9207	UINT	0-6615	Water Salinity Level
9208	UINT	0-100	Chlorinator Output (%)
9209	UINT		Fault Code
9210	INT	-400 - 700	Ambient Temperature
9211	INT	0 - 1000	Ambient Relative Humidity
9212	INT	0 - 500	Room Temperature
9213	INT	0 - 1000	Room Relative Humidity

OPTION 4: BACNET MS/TP OR BACNET IP

Multi-Magic coolers can be controlled via a 3rd Party BACnet Controller, either via MS/TP or IP protocols. BACnet objects are available for controlling and monitoring the basic functions of the connected coolers.

OBJECT	DETAILS
COMMANDS	
CMD_IEC	IEC Enable
CMD_DEC	DEC Enable
CMD_Spd	0 to 10 Fan Speed
CMD_Drain	Manual Drain
BCN_CMD_ON_OFF	Cooler Run
CMD_FaultReset	Reset Fault Codes
STATUS	
STSIEC	IEC Pump RUNNING
STSDEC	DEC Pump RUNNING
STSERROR	Fault
STSLowProbe	Low Probe WET
STSHighProbe	High Probe WET
STSSolenoid	Inlet Solenoid OPEN
STSDrain	Drain Valve OPEN
STSChlorinator	Chlorinator RUNNING
STSSupplyFSpd	Supply Fan Speed Range 0 to 10
STSSalinity	Water Salinity Level (uS/cm)
STSChlPWM	Chlorinator PWM %
STSFaultCode	Fault Code.
STSAmbientTemp	Ambient Sensor Temperature -40 to 158°F
STSAmbientRH	Ambient Sensor RH, Range 0 to 100 %
STSRoomTemp	Room Sensor Temperature 32 to 212°F
STSRoomRH	Room Sensor RH, Range 0 to 100 %

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TEMPERATURE & RELATIVE HUMIDITY SENSORS

(sold separately)

For all sensors:
Operating Voltage DC 24V
Signal Output DC 0...10 V
Accuracy at 73ºF and 50% r.h.
Temperature: ± 0.3K
Relative Humidity: ± 3% r.h.

Each CW-H cooler had dedicated inputs for one each of the following optional sensors.

ROOM SENSOR

Temperature Range
0...+122ºF

Relative Humidity Range
0...100% r.h.

IP30

When used in conjunction with the Multi-Magic Wall Controller:

- Allows the Wall Controller to be located safely away from the conditioned space. Wall Controller sensor values are disabled and only Room Sensor used for setpoint control.
- Multiple Room Sensor values from multiple coolers be average together to provide an overall temperature and relative humidity ales for larger spaces.

AMBIENT SENSOR

Temperature Range
-40...+158ºF

Relative Humidity Range
0...100% r.h.

Radiation Shield
IP65

When used in conjunction with the Multi-Magic Wall Controller:

- Ambient Condition Monitoring mode uses advanced formulas to calculate a predicted supply temperature. Coolers are disabled if the predicted supply temperature is greater than the current room temperature.
- Particularly suitable for applications which require room temperatures less than 68 °F