PERFECT HUMIDIFICATION

DIRECT SPACE- WALL SERIES

WALL MOUNTED ULTRASONIC HUMIDIFIER SUBMITTAL DATA

WALL MOUNTED ULTRASONIC HUMIDIFIER SUBMITTAL DATA:

Wall mounted ultrasonic humidification for direct room humidification. High frequency vibrations of 4-16 transducers (1.7 MHz) producing extremely fine droplets delivering cool mist via variable speed fan out of the cabinet into the space with approximately 1M size droplets. Si6ma Ultrasonic humidifiers use 93% less power then electrode or infrared humidifiers.

Ultrasonic (adiabatic) type humidification systems use mechanical energy to generate extremely small water droplets that evaporate into the air once using the integral variable speed fans. Energy extracted from the air stream is approximately 1,000 BTU/lb of moisture

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WALL MOUNTED ULTRASONIC HUMIDIFIER SUBMITTAL DATA:

Forced air flow (with integral variable speed fans) all in one distribution system allows the nebulized mist to be distributed evenly and uniform via each black nozzle on the front of humidifier.

The complete wall mounted humdifier module includes everything required for operation in a single self contained package. In turn, installation costs are dramatically decreased **without** the need for seperate control boxes and associated wiring costs. Thereby, also reducing space consumption. Each humidifier is independent of one another so placement is very simple. Our plug-and-play design simplifies installation, and combined with advanced technology, enables end users to easily receive and track maintainence notifications to protect there equipment and provide a complete customer experience.

Hygiene Clean/Purified Moisture

This is one of the most important aspects of Si6ma. Using UltraPure Systems RODI cabinets the guess work has been removed by monitoring PPM (parts per million) water quality. If water quality exceeds 0-15.6 microS/Cm an audible and/or visual alarm are activated on each water cabinet notifying the customer of the immediate need for filter maintainence.

Although Si6ma humidifiers are not designed to drain water as part of there normal cycle periodic washing occurs every 48 hours from last use assuring that no standing water will be held inside the ultrasonic unit during extended off cycles

If power is lost to humidifier, drain valve opens, thereby draining all water within the humidifier.

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WALL MOUNTED ULTRASONIC HUMIDIFIER SUBMITTAL DATA:

Plug-and-Play: Complete System in a a single Cabinet

Si6ma humidifiers are plug-and-play with each unit equipped with an on-board control card, power supply, and relative humidity/temperature sensor. This allows for precise and independant relative humidity control in each room without having to use averaging control boards if more than one humidifier is required in different rooms. This eliminates the need for control cabinets and associated wiring costs.

Each humidifier receives 110vac (table on page 7) to operate using a standard receptacle, and operates independently with an integral relative humidity/temperature sensor. If the humidifier is not generating mist after 5 minutes, only the integral fan(s) will turn on momentary to sample humidity and temperature conditions This function allows each humidifier to measure current readings within the space.

All Si6ma humidifiers are shipped standard with integral proportional control(s) that operate independently without any external low voltage wiring needed. Using the supplied remote display allows the customer to change the control method without any additional hardware.

ON-OFF Operation (external humidistat or remote switch)

External Proportional Controller (0-10V, 2-10V, 0-20 and 4-20mA)

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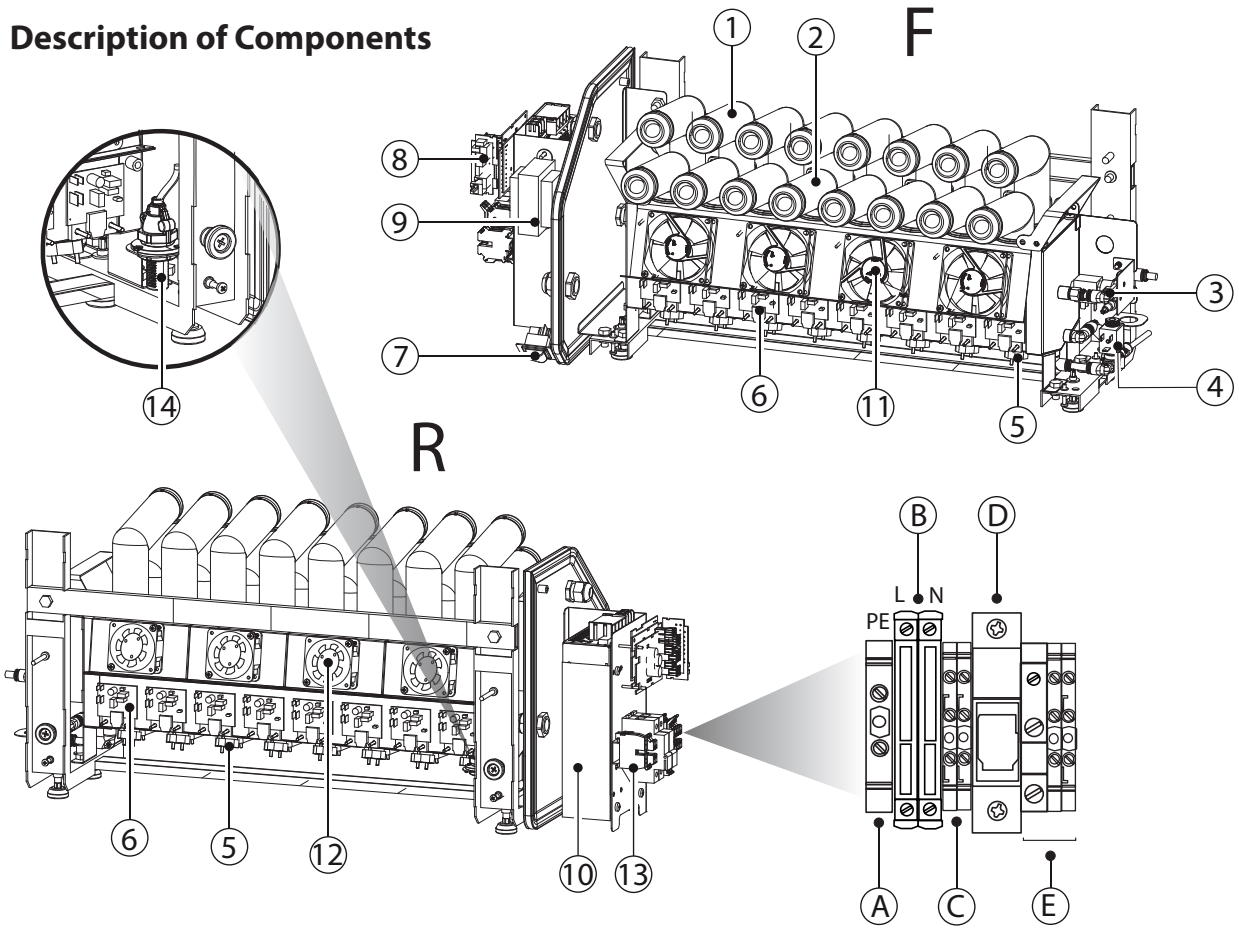
WALL MOUNTED ULTRASONIC HUMIDIFIER SUBMITTAL DATA:

Description of Components



F	Front
R	Rear
1	Rear Diffuser
2	Front Diffuser
3	Fill Solenoid
4	Drain Solenoid
5	Piezoelectric Transducer
6	Driver

7	ON/OFF Switch
8	Electronic Control Board
9	Transformer (24v)
10	Power Supply (48v)
11	Front Fan
12	Rear Fan
13	Terminal Block
14	Humidity Probe

A	Ground Terminal PE
B	Power Terminals with Fuse Carrier L-N
C	Transducer Cable Extension
D	Power Supply 48v with Fuse Carrier
E	Reserved

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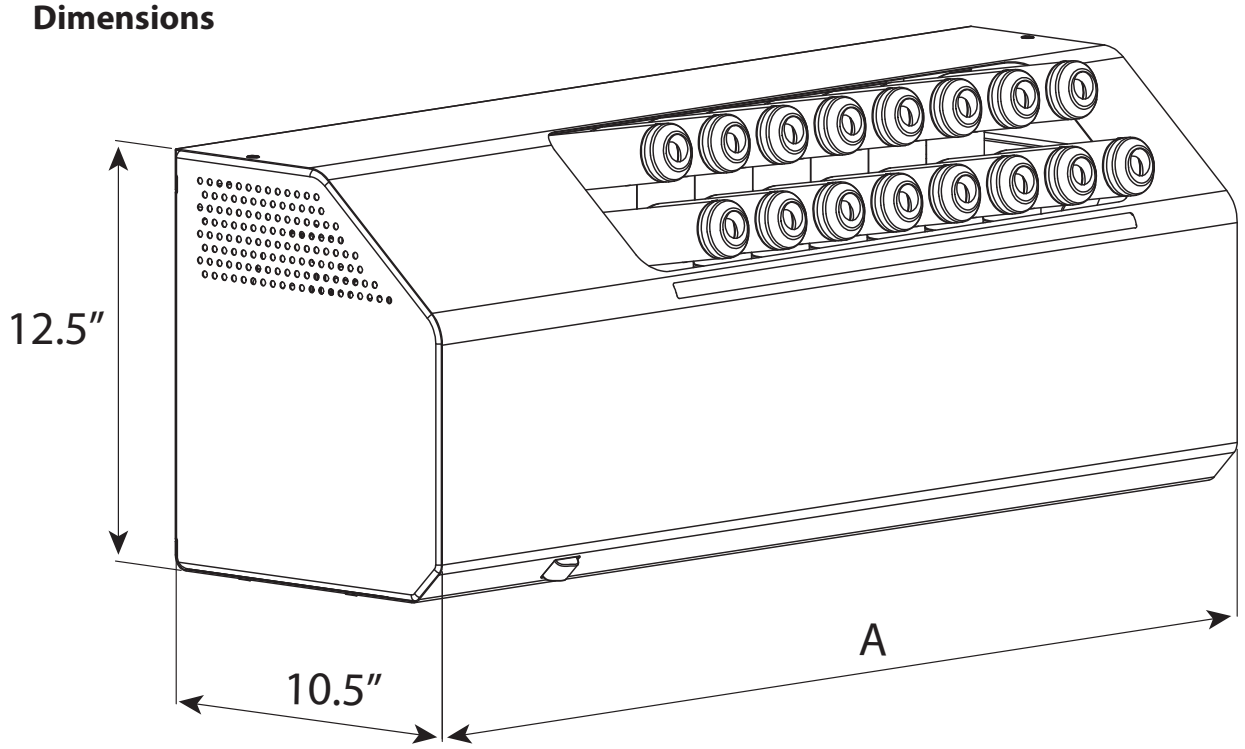
WALL MOUNTED ULTRASONIC HUMIDIFIER SUBMITTAL DATA:

Dimensions



Models

MODELS	UP 4.4	UP 8.8	UP13	UP17
Production lbs/hr	4.4lbs/hr	8.8lbs/hr	13.2lbs/hr	17.6lbs/hr
Width A (in)	19″	24″	28.9″	33.8″

Box Weight	24lbs	31lbs	38lbs	46lbs
Empty Weight	21lbs	28lbs	34lbs	41lbs
Installed Weight *	23lbs	32lbs	40lbs	48lbs

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WALL MOUNTED ULTRASONIC HUMIDIFIER SUBMITTAL DATA:

Electrical Specifications

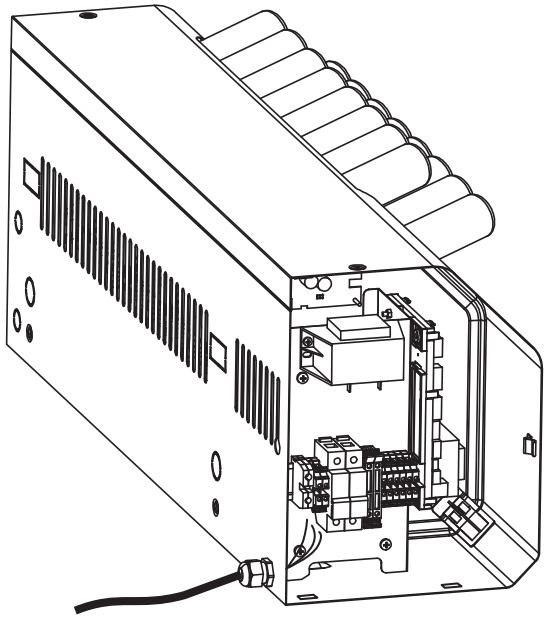
MODEL	POWER WATTS	VOLTAGE	CURRENT DRAW	MFS
UP 04	180	110/1/60	1.65	15
UP 08	330	110/1/60	3	15
UP13	480	110/1/60	4.4	15
UP 17	690	110/1/60	6.3	15

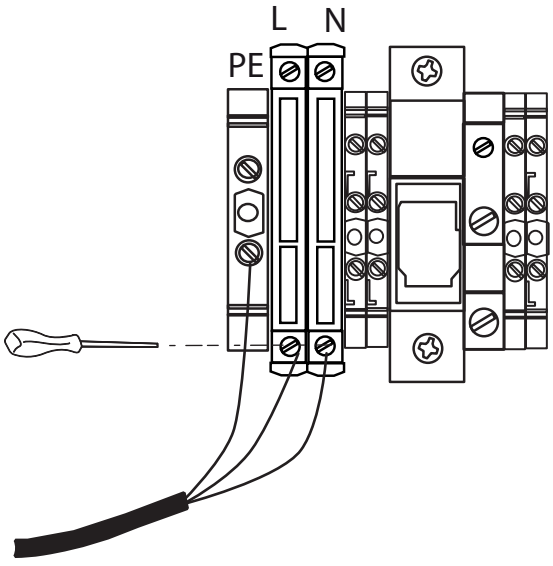
Electrical

Check that each unit power supply voltage corresponds to the rated data shown on the product label.

Each humidifier includes (1) 110vac #14AWG extension cord used to power humidifier. Includes Hubble-type 1/2" electrical connector to route the cord into the cabinet.

Terminate 115v power cord into electrical cabinet marked L1, N and green ground.





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WALL MOUNTED ULTRASONIC HUMIDIFIER SUBMITTAL DATA:

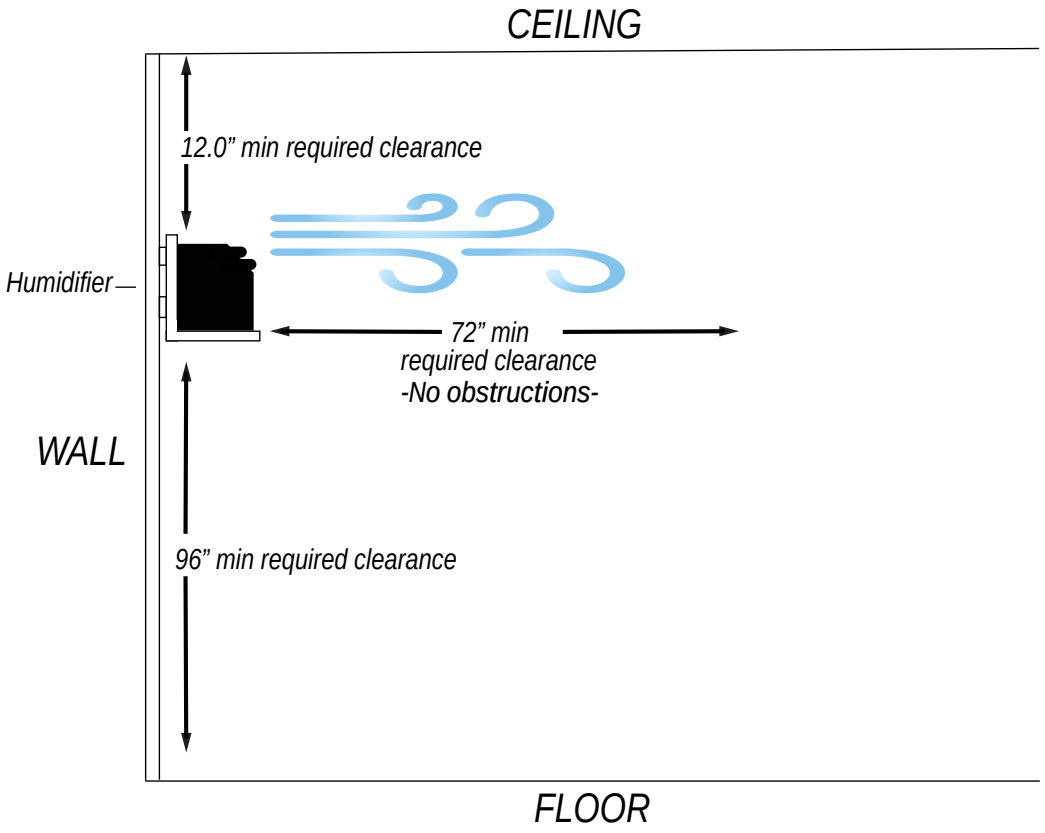
Installation

The unit is designed to be assembled on a horizontal wall that can support the weight of the unit filled with water operating under normal conditions.

Humidifier placement is critical to the operation of each unit. Position humidifier on wall 60" above floor and 24" below ceiling grid. 60" is required in front of humidifier to allow absorbtion of the mist without obstructions that may potentially interfere with displacement of mist.

L brackets are included with each humidifier. Mount L brackets to wall using commercial grade anchors preferably to concrete wall with included template to assist with proper alignment of L brackets.

S/S Bolts are included to attach humidifier to L Brackets



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WALL MOUNTED ULTRASONIC HUMIDIFIER SUBMITTAL DATA:

Secondary Containment tray

Each humidifier is shipped with a secondary containment tray designed to be installed below humdifier.

All trays are manufactured to fit exact size of humdifier with heat bonded standaoffs so that humdifier does not sit in tray and has pre drilled holes for securing humdifier to L brackets.

Included with each humidifier is (1) 1/2" drain bulkhead that will seal water from escaping tray if any water were to fall into tray. This bulkhead serves as the primary drain for the humidifier and also a safety drain.

Primary drain falls into bulkhead via 1/2" short tube included with each humdifier.

Once L brackets are hung on wall and leveled set tray on L brackets, align holes with humidifier threaded holes and use included S/S bolts to secure humdifier to L brackets.

Included are (4) black decorative plugs to cover holes when complete.

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WALL MOUNTED ULTRA SONICHUMIDIFIER SUBMITTAL DATA:

Plumbing

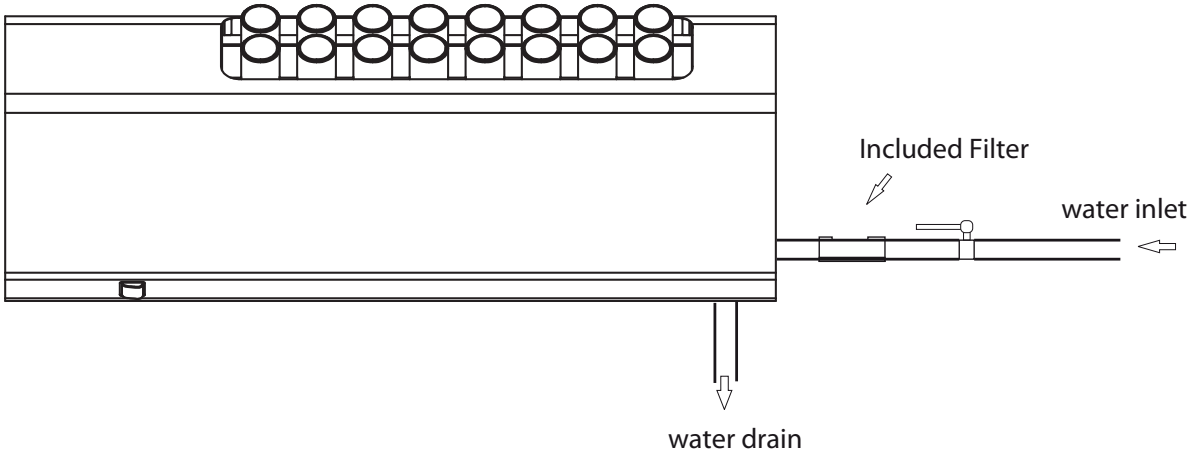
Each humidifier has John Guest - type push connection fittings on back and bottom of humidifier.

3/8"" RED = DI Inlet Water

1/2" BLACK = Drain Water

Route inlet supply water to the back of the humidifier and secure using included red safety clips and included sediment pre-filter included with humdifier into back of humidifier and secure using included red safety clips

DRAIN: Use included 1/2" tubing with humidifier and plug into the bottom John Guest fitting on bottom of humidifier. Set humidifier onto included black tray, 1/2" pipe will line up to bulkhead drain and set into opening.



Ultrasonic humidifiers operate best with demineralized water (DI). Using RO (Reverse Osmosis) or tap water will shorten the transducer life. Maintenance intervals for cleaning or replacing transducers depends upon on water quality. Using UltraPure RODI cabinets will mitigate the possibility of white dust or other contaminants from entering the space.

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WALL MOUNTED ULTRASONIC HUMIDIFIER SUBMITTAL DATA:

Controls

Each humidifier incorporates an on-board relative/temperature sensor (factory default). During normal operation air moves across this sensor and will control to design RH set point using the included digital display. During off cycles when there is no air movement across the sensor RH, readings may become less accurate. To achieve accurate RH readings an internal fan is programmed to turn on briefly during off cycles to attain an accurate RH reading and turn off within 1 minute.

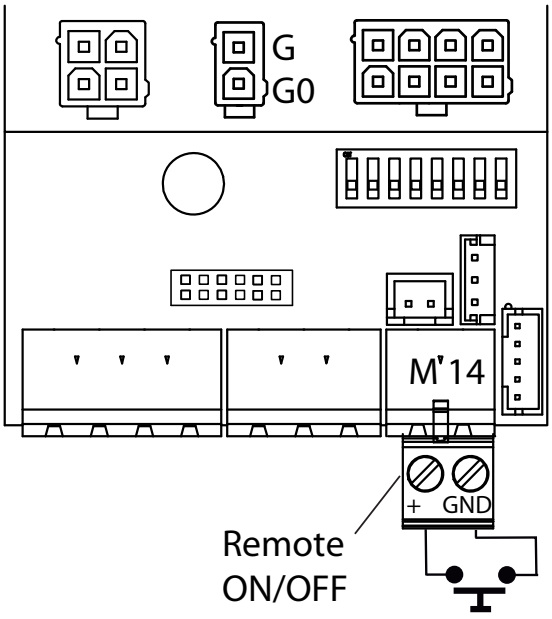
An optional remote mounted sensor is available to enable control of RH only. Sensor can be mounted in the space that enables control of RH only. Temperature sensing is defaulted to the onboard sensor. If a remote sensor is used RH would be used for control and the onboard sensor can be proagrammed as a high limit sensor.

Factory Default

Onboard relative humidity sensor is used to control space humidity via a digital display setpoint/ hysteresis.

Option 1

Humidistat Remote ON/OFF Production is enabled by closing terminal M14. M14 can be connected to a switch an on/off humidistat or a controller (5vdc MAX)



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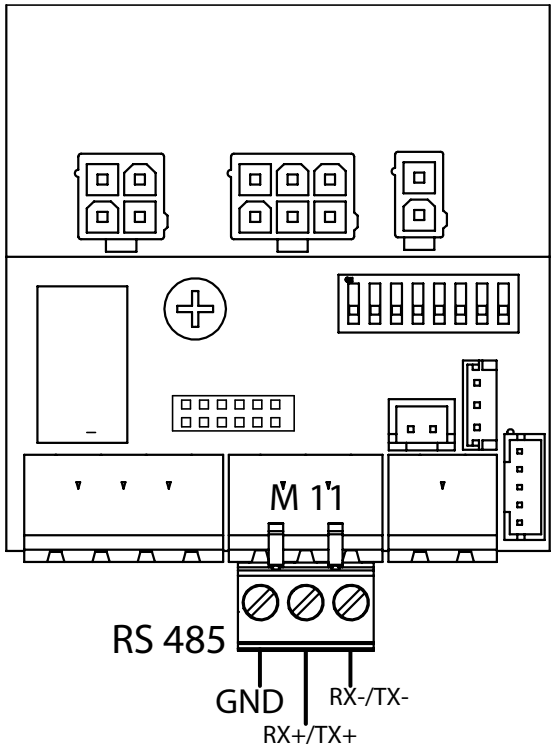
WALL MOUNTED ULTRASONIC HUMIDIFIER SUBMITTAL DATA:

Option 2
Remote factory shipped RH wall mounted sensor (Optional).

If a remote sensor is purchased and wired & terminated on M11 (see below image) the humidifier production cycle starts when remote sensor RH falls below design setpoint and hysteresis using digital display.

On board humidistat can be configured as a high limit safety humidistat with this option of control. Temperature is calculated using the onboard sensor as a viewable point only.



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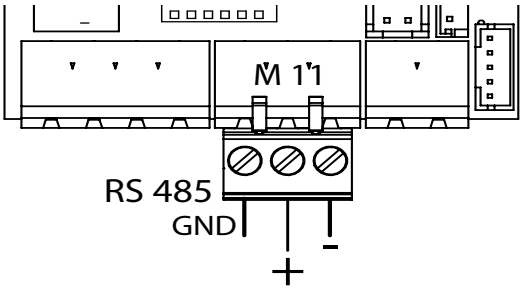
Optional 3
External Proportional Control

Si6ma humidifiers can be easily programmed so that a BMS can control relative humidity depending on a chosen signal. (0-10vdc, 2-10vdc. 0-20vdc, or 4-20mA. Local programming is required with a digital display. Refer to IOM instructions to change control method.



WALL MOUNTED ULTRASONIC HUMIDIFIER SUBMITTAL DATA:

Remote Display Terminal

A terminal display is included with each Si6ma humidifier. Remote display includes (1) 3' & (1) 8' RJ-11 cord that plugs into left side of humidifier cabinet. Install display below humidifier ensuring not to disrupt the RJ-11 plug and terminate into display. Mounting hardware included within packaging.

Display ***"is not"*** a sensor. Relative Humidity/Temperature Sensor is located within humidifier cabinet

Display shows Relative Humidity, Temperature and Alarms if active.

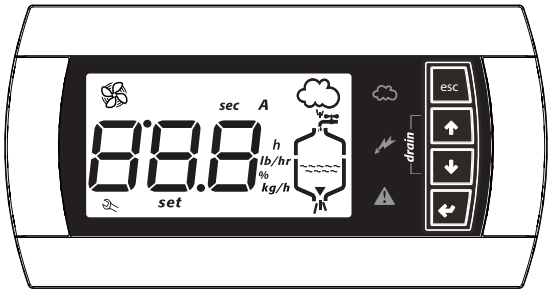
User Changeable Features : Relative Humidity set point, Hysteresis, Mist outlet percentage, Custom setups using factory PW (refer to the IOM for PW).

Display will show when humidifier "locally or externally" is shut off:

"T" Terminal Off

"S" Serial RS485 BMS control

"C" off by dry contacts M14



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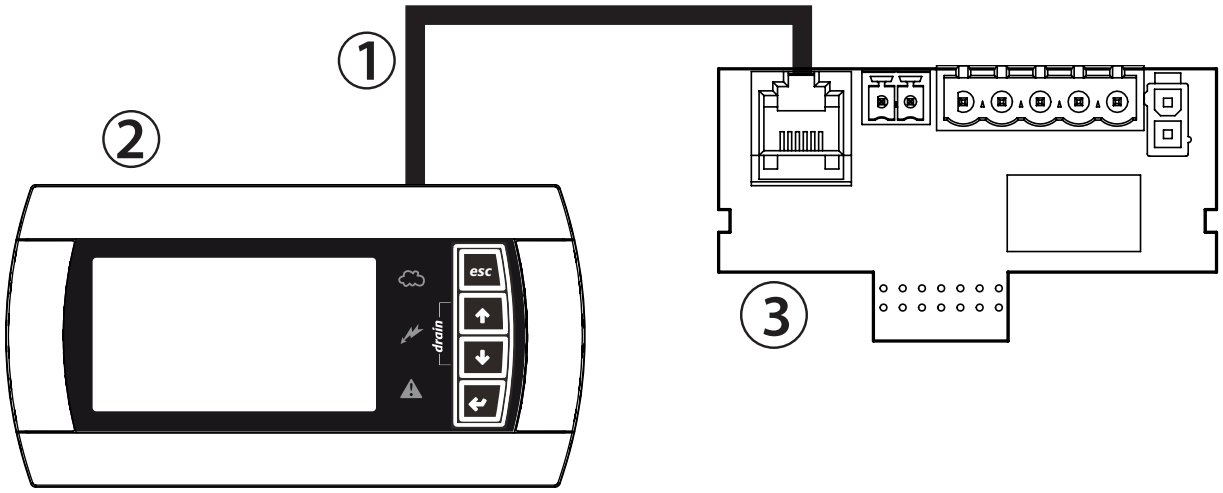
WALL MOUNTED ULTRASONIC HUMIDIFIER SUBMITTAL DATA:



Key

1	8'-Wire Telephone Style Cable)
2	Remote Display terminal
3	485 Serial Card (Display plug)

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WALL MOUNTED ULTRASONIC HUMIDIFIER SUBMITTAL DATA:

Technical Specifications

MODELS	UP04	UP08	UP13	UP17
Flow Rate lbs/hr	4.4	8.8	13.2	17.6
Number of Transducers	4	8	12	16
Rated Power (Watts)	180	330	480	600
Application	Room			
Feed Water Temperature	(40° to 105°)			
Feed Water Pressure	(14.5 to 87psi)			
Electronic Controller				
Aux. Voltage/Frequency (V/HZ)	24V/50 -60Hz			
Maximum Aux. Power (VA)	3			
Power Supply to Active Probes	21VDC max. 150mA			
Alarm Relay Output	24V (max 3W)			
Serial Connection	RS485 (Carel/Modbus protocols 1/8 unit load) Bacnet IP & Bacnet MS/TP (cpicoMini Gateway required for BMS communications) Max. 25 units per cpicoMini			
Environmentally Conditions				
Operating Temperature °F	33.8°-104°			
Operating Humidity RH%	10% -90%			

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WALL MOUNTED ULTRASONIC HUMIDIFIER SUBMITTAL DATA:

To access and set the following parameters, see chapters 6 and 12.

7.1 Basic parameters

Parameter		UOM	range	def	note
A0	Operating mode 0 = On/Off mode from auxiliary card probe input 1 = Proportional mode from auxiliary probe input 2 = Humidity probe mode from auxiliary card probe input 3 = Auto mode: if fitted, humidity probe TH reading is used, otherwise On/Off mode from contact on main board. Parameter A2 is not used	-	0...3	3	# 3 Default #2 Remote Humidity Sensor
A1	Unit of measure 0 = Celsius ; 1= Fahrenheit	-	0...1	1	
A2	Type of external sensor (optional card) (0 = On/Off ; 1 = 0-10V; 2 = 2-10V; 3 = 0-20 mA; 4 = 4-20 mA)	-	0...4	1	Optional (UP_P_0569)
P0	Maximum production	Pm...100	100	80	Default 80%
SP	Humidity Set Point	% rH	20..80	50	Only if terminal connected otherwise values seet by dipswitch
P1	Humidity control hysteresis	2...20	2	5	Default 5°
Pm	Minimum production	5...P0	10	10	
SL	Humidity limit set point	%rH	0..80	70	
bP	Proportional band for control with probe	%rH	2..20	10	
bL	Proportional band for humidity probe	%rH	2..20	10	
C0	Default display (Terminal) 0 = Probe reading/control signal; 1 = P0 maximum production; 2 = Hour counter	-	0...2	0	

7.2 Advanced parameters

Parameter		UOM	range	def	note
A3	Probe minimum	%rH	0…100	0	
A4	Probe maximum	%rH	0…100	100	
A5	Probe offset	%rH	-99…100	0	
A6	Fan off delay time	min	0…15	5	
A7	Fan speed	%	40…100	50	
A8	Maximum evaporation time for reduced production alarm	min	0…200	30	
A9	Minimum evaporation time for reduced production alarm	min	0…A8	1	
AA	Waiting time for retry	min	1…60	10	
Ab	Percentage of A8 to carry out level test	%	50…90	70	
AC	Maximum time to measure level when refilling	s	1…60	40 (UP02) 60 (UP04) 80 (UP06) 100 (UP08)	
Ad	Maximum time to measure high level	s	1…60	10	
AE	Restart fan time in standby for integrated probe reading	min	0…120	10(**)	
AF	Piezoelectric transducer working life	h	0...9999	9999	DI water only
b0	Operating options (see table for parameter b0) keeps the drain solenoid valve closed during standby (no demand), disables wash cycle due to inactivity and disables autotest upon powering unit on	-	0…255	32	
b1	Time between two washing cycles	min	0…120	0	Disables periodic washing
b2	Inactivity time for washing	h	0…240	24	
b3	Washing time (fill + drain)	min	0…10	0	Disables periodic washing
b4	Start delay time	s	0…120	10	
b5	Operating hours for CL alarm	h	0…9999(*)	9999	
b6	Time to display new CL alarm after reset from keypad (without resetting hour counter)	min	0…240	60	
b7	Transducer modulating control period	s	0…10	2	
b8	Probe disconnected delay	s	0…200	10	
b9	OFF delay from TAM	s	0…60	2	
bA	Maximum fill time	min	0…30	6 (UP02) 9 (UP04) 12(UP06) 15 (UP08)	
bb	Water refill time in production	s	0…120	20 (UP02) 28 (UP04 40 (UP06) 52 (UP08)	
bC	Maximum drain time	s	0…1500	75 (UP02) 100 (UP04) 150 (UP06)200 (UP08)	
bd	Drain opening time to completely empty tank	s	0…1500	60 (UP02)80 (UP04) 120 (UP06)160 (UP08)	
bE	Delay time after measuring low level for refilling	s	1…20	10	
bf	Drain activation delay in standby (if drain solenoid valve in standby = OPEN)	min	0…60	1	
bH	Enable probe TH as humidity limit	-	0...1	0	if enabled, applies to modes AO = 0,1,2
bL	Proportional band for humidity limit	%rH	2...20	10	
bP	Proportional band for control with probe	%rH	2...20	10	
P1	Humidity control hysteresis	%rH	2…20	2	
P2	Low humidity alarm threshold	%rH	0…100	20	
P3	High humidity alarm threshold	%rH	0…100	80	

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WALL MOUNTED ULTRASONIC HUMIDIFIER SUBMITTAL DATA:

1.1 Supervisor variable list

"A" CAREL - Modbus®	analogue variables* (Modbus®: REGISTERS)	R/W
1	param. d0: Th probe temperature reading	R
2	param. d1: Th probe humidity reading	R
3	param. d2: Probe reading	R
4	param. d5: Instant production	R

"I" CAREL	"I" Modbus®	integer variables (Modbus®: REGISTERS)	R/W
1	128	Level access password	R/W
7	134	Humidifier Status	R
2	129	Firmware release	R
15	142	Alarms, refer to Chap.8 ALARMS: • bit0: Alarm E0 bit8: Alarm EE • bit1: Alarm Et bit9: Alarm CL • bit2: Alarm EF bit10 Alarm ES1 • bit3: Alarm Ed bit11: Alarm ES2 • bit4: Alarm EP bit12: Alarm ES3 • bit5: Alarm PU bit 13: Alarm OFL • bit6: Alarm H ¯ bit 14: Alarm EL • bit7: Alarm H_ bit 15: Alarm ETL • bit8: Alarm EE • bit9: Alarm CL	R/W
20	147	Parameter A0: Operating mode	R/W
21	148	Parameter A2: Type of external probe	R/W
22	149	Parameter A3: Probe minimum	R/W
23	150	Parameter A4: Probe maximum	R/W
24	151	Parameter A5: Probe offset	R/W
25	152	Parameter A6: Fan off delay time	R/W
26	153	Parameter A7: Fan speed	R/W
27	154	Parameter A8: Maximum evaporation time for no production alarm	R/W
28	155	Parameter A9: Minimum evaporation time for no production alarm	R/W
29	156	Parameter b0: Operating options	R/W
30	157	Parameter b1: Time between two washing cycles	R/W
31	158	Parameter b2: Inactivity time for washing on next start	R/W
32	159	Parameter b3: Washing time (fill + drain)	R/W
33	160	Parameter b4: Start delay time	R/W
34	161	Parameter b5: Operating hours for CL alarm	R/W
35	162	Parameter b6: Time to display new CL alarm in minutes	R/W
36	163	Parameter b7: Transducer On/Off control interval	R/W
37	164	Parameter b8: Probe delay disconnected	R/W
38	165	Parameter b9 TAM OFF delay	R/W
39	166	Parameter bA: Maximum fill time	R/W
40	167	Parameter bb: Refill time in evaporation	R/W
41	168	Parameter bC: Maximum drain time	R/W
42	169	Parameter bd: Drain opening time to completely empty tank	R/W
43	170	Parameter bE: Delay time after measuring low level for refilling	R/W
44	171	Parameter C0: Default display (Terminal)	R/W
45	172	Parameter C1: Parameter A0: Baud rate	R/W
46	173	Parameter C2: tLAN address (If 0 Master controller)	R/W
47	174	Parameter C3: Serial address	R/W
48	175	Parameter P0: Maximum flow-rate	R/W
49	176	Parameter P1: Humidity control hysteresis	R/W
50	177	Parameter P2: Low humidity alarm threshold	R/W
51	178	Parameter P3: High humidity alarm threshold	R/W
52	179	Parameter SP: Humidity set point	R/W
53	180	Parameter d3: Operating hour counter	R
54	181	Parameter d4: Unit hour counter (not resettable)	R/W
60	187	Request via serial (if digital 37 set)	R/W
62	189	Identification of variable on slave unit to read/write from supervisor (see paragraph 14.4)	R/W
63	190	Value of variable on slave unit identified by integer 62 (see paragraph 14.4)	R/W
65	192	Parameter C4: Timeout for master serial offline	R/W
69	196	AA: Waiting time for retry	R/W
70	197	Ab: Percentage of A8 for carrying out level test	R/W
71	198	Pn: Minimum Production	R/W

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WALL MOUNTED ULTRASONIC HUMIDIFIER SUBMITTAL DATA:

"I"		integer variables (Modbus®: REGISTERS)	R/W
CAREL	Modbus®		
72	199	bF: Drain activation delay in standby	R/W
73	200	AC: Maximum time to measure level when refilling	R/W
74	201	Ad: Maximum time to measure high level	R/W
82	209	AE: Restart fan time in standby for integrated probe reading	R
87	214	Slave 1 firmware release	R
89	216	Slave 1 humidifier status	R
92	219	Parameter d3, slave 1: Operating hour counter	R/W
93	220	Slave 2 firmware release	R
95	222	Slave 2 humidifier status	R
98	225	Parameter d3, slave 2: Operating hour counter	R/W
99	226	Slave 3 humidifier status	R
101	228	Slave 3 humidifier status	R
104	231	Parameter d3, slave 3: Operating hour counter	R/W
105	232	Piezoelectric transducer operating hour counter	R
106	233	Parameter d6 Time remaining to end of piezoelectric transducer life	R/W
107	234	Parameter AF: Piezoelectric transducer working life	R/W
112	239	Parameter bH: Enable probe TH as humidity limit	R/W
113	240	Parameter SL: Humidity limit set point	R/W
114	241	Parameter bP: proportional band for control with probe TH or external probe	R/W
115	242	Parameter bL: limit proportional band	R/W

"D"			"D"
Carel	Modbus	digital variables (ModBus: COILS)	
2	1	Just Started Flag	R
3	2	• Humidity ready to produce	R
4	3	• Humidity set point reached	R
5	4	• Green LED	R
6	5	• Red LED	R
7	6	• Yellow LED	R
8	7	• Remote ON-OFF	R
9	8	• Low Level	R
10	9	• High Level	R
11	10	• Aux Level	R
12	11	• AutoTest Completed	R
14	12	• BMS serial in tLAN mode	R
15	14	• TAM enabled	R
16	15	• TAM reading	R
17	16	• Display connected	R
18	17	• Production in process	R
19	18	• Fill	R
20	19	• Drain	R
21	20	• Transducer 1	R
22	21	• Transducer 2	R
23	22	• Fan	R
24	23	• Alarm Relay	R
24	23		

When BACnet IP or BACnet MS/TP is required, a cpicoMini gateway would be required and will accommodate up to 25 humidifiers.

UltraPure Gateway is pre programmed wiht useful relevant read/write variables. Contact UltraPure for compelte list

If multiple humidifiers are used daisy-chain each humidifier using 18g 3wire, plenum rated cable to the BMS/EMS and terminate into cpicoMini with BACnet MS/TP or BACnet IP.

24v power supply required

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