
SCIENTIFIC HUMIDIFIER

Installation, Operation and Maintenance Instructions

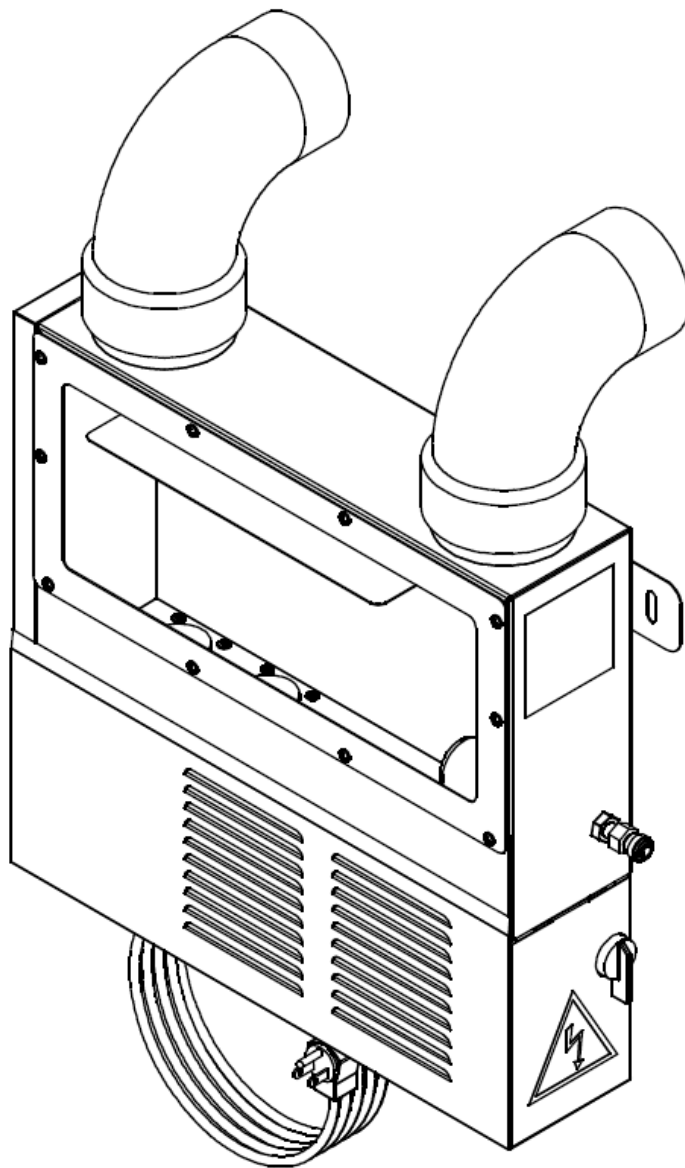


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INTENDED USE

This humidifier has been designed to meet the demanding requirements for scientific and laboratory research for humidifying environments that require up to 8 pounds of water per hour. The humidifier can be mounted in or next to the humidified area. If mounted internal to the conditioned area, the humidifier is designed to condition air from +33°F up to +75°F up to 95% RH non-condensing. If mounted external to conditioned area and in a +75°F ambient humidifier can condition air from +33°F up to +140°F up to 95% RH non-condensing.

TECHNICAL SPECIFICATION

Model	Voltage supply	Total Amp Draw
NSH20-20	115V 60HZ 1 phase	2.5 amp
NSH20-40	115V 60HZ 1 phase	2.5 amp
NSH20-60	115V 60HZ 1 phase	2.5 amp
NSH20-80	115V 60HZ 1 phase	2.5 amp
NSH20-24	220V 60HZ 1 phase	2.5 amp
NSH20-44	220V 60HZ 1 phase	2.5 amp
NSH20-64	220V 60HZ 1 phase	2.5 amp
NSH20-84	220V 60HZ 1 phase	2.5 amp

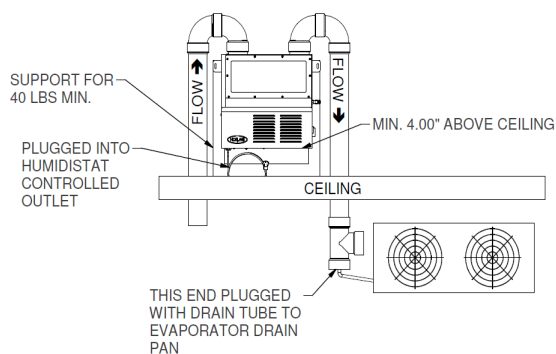
INSPECTION

When the equipment is received, all items should be carefully checked against the bill of lading to insure all crates and cartons have been received. All units should be inspected for concealed damage by uncrating the units immediately. If any damage is found, it should be reported to the carrier at once, and a claim should be filed with the carrier. This equipment has been inspected and tested in the manufacturing facility and has been crated in accordance with transportation rules and guidelines. Manufacturer is not responsible for freight loss or damage.

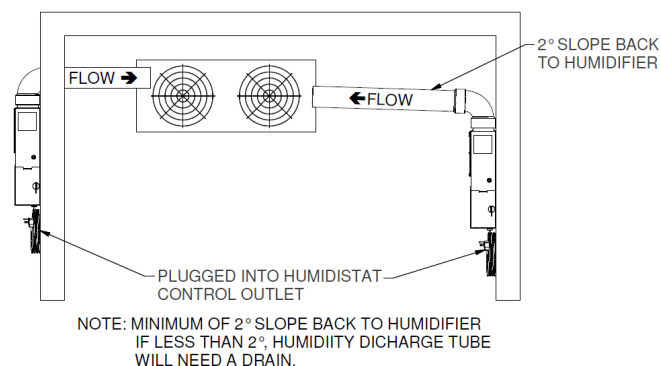
LOCATION

The humidifier should be located within reach of an outlet that has appropriate supply voltage with a protective earth ground. The outlet should be easily accessible when installation is complete. The humidifier should be leveled when it is placed in its permanent location. The humidifier will need a water supply and drain accessible. This unit has been designed for 75°F with 95%RH non-condensing @ up to 2000 Meter elevation. If equipment is not used for its designed manner specified by the manufacturer, the protection provided by the equipment may be impaired. Note: typical installation shown below. When piping horizontally, a minimum of 2" slope back to the humidifier is required. If slope back is not permissible, a drain will need to be installed at the discharge end.

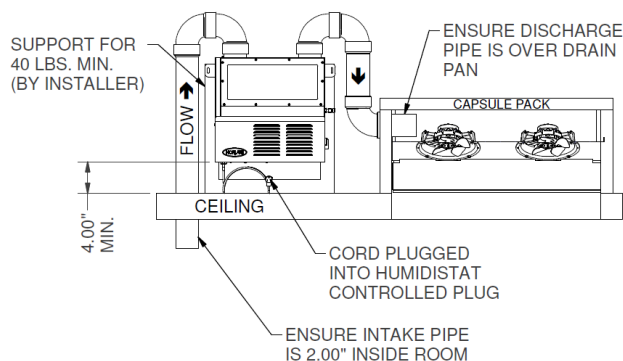
THROUGH CEILING INSTALLATION



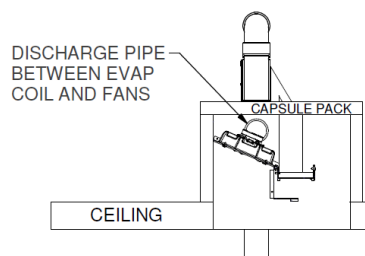
WALL INSTALLATION



CAPSULE PAK INSTALLATION



CAPSULE PAK END VIEW



WARNINGS AND CAUTIONS



Warning: Electric Shock Hazard.

Do Not remove electrical cover. Contact a qualified service representative.



Important: in the event of a water leak, disconnect power and repair leak

Never operate humidifier with viewing pane removed, water damage could occur.

Never place hand or other body parts inside humidification reservoir as burns may occur.

Observe all Warning Labels. Disconnect power supply to eliminate injury from electrical shock or moving parts when servicing equipment.

INSTALLATION AND OPERATION

1. Connect 1/4" water tube and supply water to the unit.
2. Connect 3/8" water tube to drain.
3. Connect the power cord.
4. Humidifier will operate continuously

Distribution piping

1. The rings on the top of the humidifier will accept standard 3" PVC. Please note all piping must maintain a minimum 2° angle back to the humidifier.
2. When installing a PVC pipe to the humidifier, make sure to apply a generous bead of silicone between the humidifier and PVC pipe before seating the pipe. (a leak may occur if this step is omitted)

Water supply

The ultrasound humidifier works best on de-mineralized water. Using normal water will reduce transducer life. Maintenance periods will need to be reduced. If clean water is not used the production capacity may be reduced. RO water is recommended. Water pressure above 60PSI may need to be reduced, as overflowing may occur. Water supply temperature may not exceed +33°F to +104°F.

Important: Do not add disinfectants or anticorrosive chemicals to the supply water as these are potential irritants. The use of un-treated well water, industrial water and or water from cooling circuits and in general any potentially chemically or bacteriologically contaminated water is prohibited.

MAINTENANCE

PERIODIC CLEANING

In normal conditions, the tank and ultrasonic generators require periodic maintenance.

Normal conditions would be up to 3000 hours if cleaned periodically, or if unit is not used for an extended period or if problems should occur.

Periodic cleaning:

Monthly or sooner depending on water quality and operational hours, no more than 250 hours completely drain and flush water from vaporization tank by turning blue valve.

Yearly or sooner depending on water quality and operational hours, no more than 1500 hours clean ultrasonic discs and confirm proper operation of float valve.

Disc replacement procedure:

1. Disconnect humidifier from power
2. Turn off water supply
3. Completely drain water from vaporization tank by turning blue valve
4. Remove viewing ring and window by removing screws
5. Remove winding ring to expose ceramic disc
6. Replace disc (caution make sure gaskets are properly seated)
7. Reinstall viewing ring and window, turn water on and restore power

Disabling the humidifier in the event of non-use:

1. Turn off the water supply
2. Open blue drain valve
3. Unplug humidifier

MAINTENANCE SERVICE AND ANALYSIS GUIDE

MALFUNCTION

No water vapor but fan is running

POSSIBLE CAUSE

1. High limit thermostat tripped
2. Wiring incorrect
3. No water in tank

SOLUTION

1. Allow unit to cool, ultrasonic generators will automatically reset
2. Check wiring against diagram
3. Confirm water supply is on

Fan is not running, but water is being vaporized.

1. Wiring incorrect
2. Fan failure

1. Check wiring against diagram
2. Replace fan motor

Humidity output is low

1. Dirty ultrasonic disc

1. Clean or replace disc

No humidity output

1. No power to unit

1. Confirm voltage at supply
2. Confirm if desired set point has been met

Water level is low

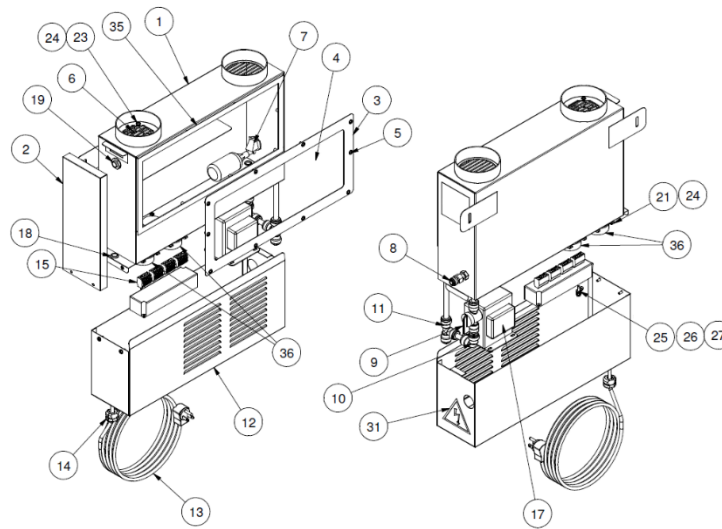
1. Water supply off
2. Float valve stuck

1. Confirm water supply is on
2. Check operation of float valve

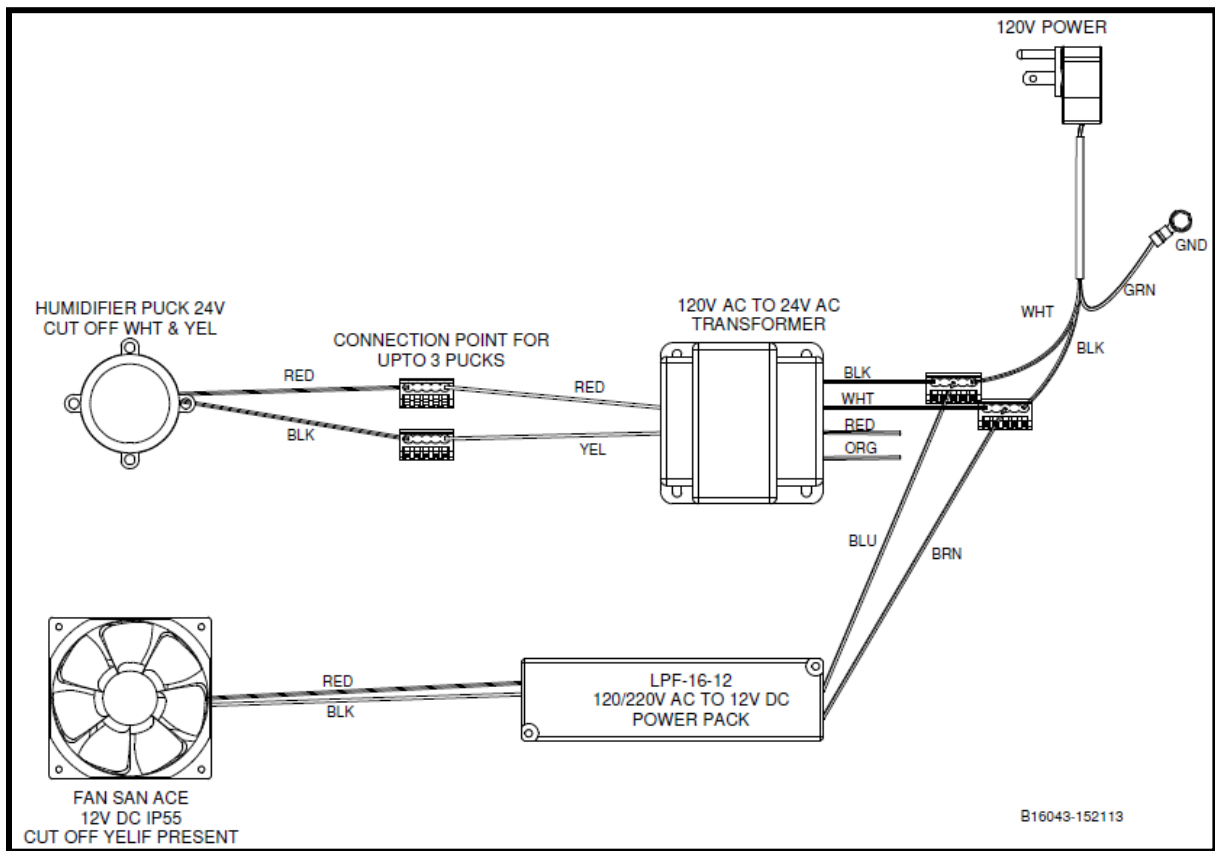
Water is continuously draining

1. Float valve stuck

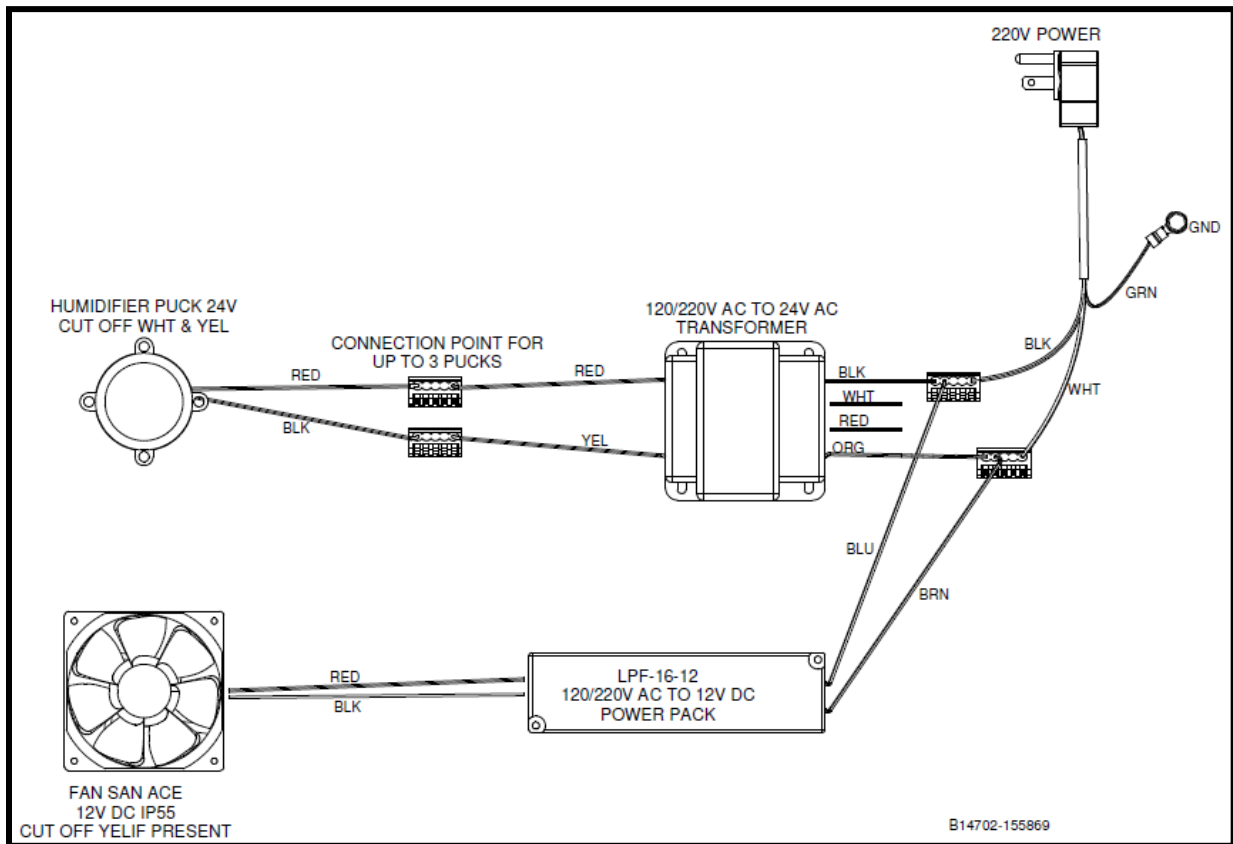
1. Check operation of float valve



ITEM NUMBER	PART NUMBER	ITEM DESCRIPTION
1	MISC	HUMIDITY BOX WELDMENT
2	MISC	HUMIDITY BOX END COVER
3	MISC	VIEWING RING
4	MISC	HUMIDITY BOX - VIEWING PANE
5	001352	SCREW MS PH 8-32X3/8 ZN TH-C
6	MISC	FAN 12VDC IP55
7	148568	FLOAT VALVE MINI 1/4"NPT 3"FLT"
8	148587	FEMALE ADAPTER 1/4" QC TO NPT
9	152103	VALVE 3/8" UNION STOP
10	151789	ELBOW STACKABLE 3/8" QC
11	151788	TEE 3-8" QUICK CONNECT
12	MISC	BOTTOM BOX COVER WELDMENT HUMIDIFIER
13	MISC	HARNESS SERVICE CORD
14	035420	STRAIN RELIEF SR-34-2 BLACK
15	152105	TERMINAL 5 POS LEVER
16	151783	POWER SUPPLY 12 VOLT 16 WATT
17	104011	TRANSFORMER 120/240V TO 24VAC
18	000453	GROMMET BLACK 1/2 #G500
19	151786	STRAIN RELIEF WATER PROOF
21	151787	SCREW 8-32 X 1/2 S/S SELF SEAL WITH ORING
22	152104	PVC ELBOW 3" 1/4 TURN STREET
23	123698	SCREW 8-32X1-3/8 PH PAN MS SS
24	127995	NUT HEX 8-32 S/S
25	001487	SCREW MS RH 10-24X1/2 ZN PH
26	001469	NUT STEEL ZINC PLTD. 10-24 HEX
27	039775	WASHER INT.TOOTHLOCK #10 ZN.PL
29	152107	COPPER TUBE TEE TO ELBOW
31	099018	LABEL ELECTRICAL DANGER
35	089501	GASKET 1/8 X 1/2
36	152110	HUMIDIFIER PUCK 24VAC
37	152113	WIRE DIAGRAM HUMIDIFIER ULTRASONIC
39	057644	SCREW 6-32 x 3/8 PAN SLT M/S
40	057645	NUT 6-32 M/S ZN
41	152118	REPLACEMENT DISKS AND TOOL (SET OF 3 WITH TOOL)



120V model



220V model



Thank you for buying a Nor-Lake Scientific product.

Parts and Service Contact:

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