Model 82A, 82W, P82W, P82WC

Premium Humidity Sensing Wall Control

Installation Instructions

INCLUDED

Switch
Instruction Sheet
Note: Wall plate not included – Use Broan Part No. S97012925 (or equivalent)

CONTROL SPECIFICATIONS

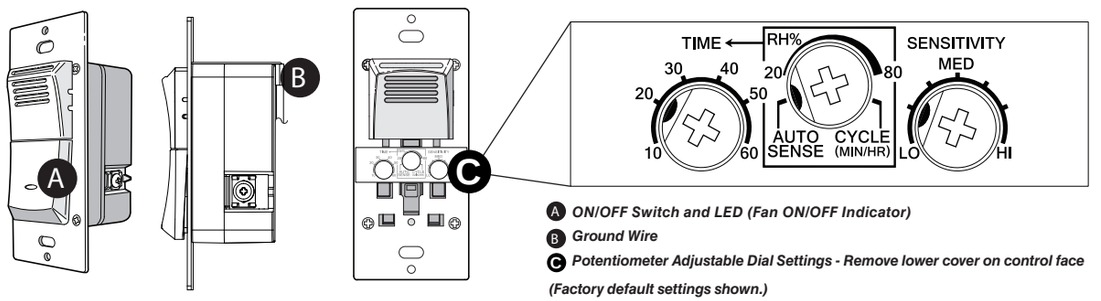
- cULus listed
- 120 VAC 60 Hz Line Power
- 9A Max. Total Load (Fan + Lamp)
- When used in combination with fan/light fixtures that are switched together, the device is rated for the following lamps: 600W Incandescent, 150W LED, 150W CFL, or 400VA Inductive Ballasted Fluorescent Lamps
- Typical wire sizes: 12AWG (MAX) or 14AWG solid or stranded copper wire
- Operating temperature: 0-50°C (32-122°F)

SAFETY

Before installing control, switch power off at service panel and lock the service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.

Installation work and electrical wiring must be done by a qualified person(s) in accordance with all applicable codes and standards.

1. Use copper wire only.
2. CAUTION: Risk of Electric Shock - More than one disconnect switch may be required to de-energize the equipment before servicing.
3. WARNING: This device shall not be used in combination with a wall switch controlling a receptacle.
4. Install only in a UL Listed junction box sized 50.8 x 76.2 x 76.2 mm (2.0 x 3.0 x 3.0 in.) or larger, minimum volume 295 CM^3 (18.0 in^3).
5. Requires a neutral wire for operation.
6. Note: When power is applied, the Model 82W requires approx. 30 seconds to boot up and be ready to function.



A ***ON/OFF Switch and LED (Fan ON/OFF Indicator)***
B ***Ground Wire***
C ***Potentiometer Adjustable Dial Settings - Remove lower cover on control face***

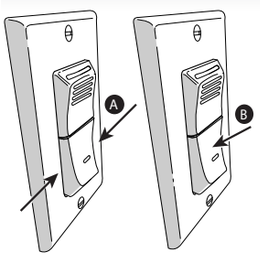
(Factory default settings shown.)

1. For bathroom applications the Control should be placed at a level to detect humidity. Placing the Control directly above a heater or near drafts is not recommended.
2. It is recommended that in large spaces the Broan-NuTone Premium Humidity Sensing Wall Control be placed within close proximity to the shower/tub/sink (main source of the humidity/steam) to most effectively measure/detect excess humidity.

INSTALLATION

1. Turn power (circuit breaker) OFF.
2. Remove existing switch cover and switch from wall box.
3. Disconnect and label switch wires.
4. Connect Black (HOT), White (Neutral - Required) and Black or Red (Load) wires to Humidity Wall Control Switch.
5. Install Humidity Control in wall box, and secure with the two attached screws.
6. Install wall plate (not provided) on Humidity Control, and secure with the two captive screws.
7. Turn power (circuit breaker) ON. Note: When power is applied, the Model 82W requires approx. 30 seconds to boot up and be ready to function.
8. Remove lower switch cover and adjust initial control mode potentiometers.

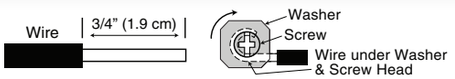
LOWER COVER REMOVAL AND INSTALL



A Removal:
- Grasp sides of lower cover and pull straight outward.

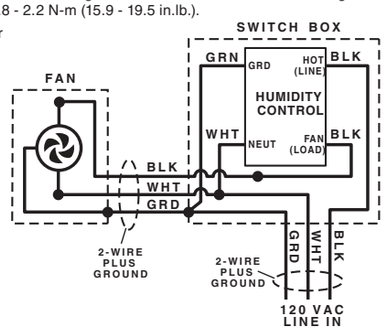
B Install:
- Align tabs on cover with holes in metal panel and push straight inward

WIRE INSTALLATION & WIRING DIAGRAM



Wire terminals accept up to #12 AWG MAX solid and stranded wire.

1. Remove combination Screw/Washer from terminal.
2. Wrap stripped end of Wire around Screw thread - under Washer.
3. Re-install Screw/Washer - making sure Wire remains under Washer. Tighten terminal screws to 1.8 - 2.2 N-m (15.9 - 19.5 in.lb.).
4. Note: Screw/Washer are not designed for straight insertion of stripped wire. Use only wire formed into a "J" loop and wrapped around Screw thread for proper mechanical and electrical connection.



CONTROL MODE SETTINGS (POTENTIOMETER ADJUSTMENTS)

AUTO SENSE / RH% / CYCLE Potentiometer:

- **AUTO SENSE Mode:**

  The control has an automatic sensing mode **(AUTO SENSE**) that senses increasing changes in humidity level (i.e. Sense on Rise). Once the threshold is met, the bath fan will activate within 2 minutes with the device located within 8 feet from the humidity source (e.g. shower head or faucet). Fan activation may take longer if the Control is located further than 8 feet from the humidity source. The fan will remain ON based on the user adjustable **TIME** function (See TIME Potentiometer description).

  TIME: User adjustable from 10-60 minutes per hour, in 10 minute increments
  AUTO SENSE / RH% / CYCLE: AUTO SENSE
  SENSITIVITY: Active; user adjustable from LO to HI

  Control Function:
  SENSE ON RISE is ACTIVE
  SENSITIVITY is ACTIVE

- **CYCLE (Air Cycling) Mode:**

  The control provides a pre-set ventilation ON TIME for meeting continuous ventilation codes. After the initial ON time is set by manually turning the fan ON, the control will provide continuous activation cycles every hour. Also, Sense on Rise is active in the CYCLE mode, so if the control is in the "Fan OFF" portion of the cycle and it senses a rise in humidity it will bypass the remainder of the OFF cycle and start a new ON cycle with a time duration equal to the TIME potentiometer setting.

  To calculate the applicable TIME potentiometer setting, use the following formula: TIME potentiometer setting = (required CFM[1] ÷ fan CFM) x 60

  [1] *from ASHRAE 62.2 formula/table (based on square footage and number of bedrooms)*

  TIME: User adjustable from 10-60 minutes per hour, in 10 minute increments
  AUTO SENSE / RH% / CYCLE: CYCLE
  SENSITIVITY: Active; user adjustable from LO to HI

  Control Function:
  SENSE ON RISE is ACTIVE
  SENSITIVITY is ACTIVE

- **RH% (Humidistat) Mode:**

  The control has a **RH%** mode with a user adjustable threshold relative humidity level. The RH% setting can be adjusted from 20 to 80% RH in 10% RH increments. Once the threshold is met, or if SENSE ON RISE detects an increase in humidity, the connected fan should activate within 2 minutes with the device located within 8 feet from the humidity source (e.g. shower head or faucet). Fan activation may take longer if the Control is located further than 8 feet from the humidity source. The fan will remain ON based on the user adjustable **TIME** function.

  TIME: User adjustable from 10-60 minutes per hour, in 10 minute increments
  AUTO SENSE / RH% / CYCLE: RH%; user adjustable from 20-80% in 10% RH increments.
  SENSITIVITY: Inactive

  Control Function:
  SENSE ON RISE is ACTIVE
  SENSITIVITY is INACTIVE.
  When room humidity reaches **RH%** potentiometer setting:
  - Fan (and LED) will turn ON.
  - When timer times out, Fan (and LED) will turn OFF until another event occurs, or is still occurring (i.e. ambient humidity is still at or above RH% setpoint, ambient humidity reaches the RH% setpoint again or Sense on Rise detects a rise in humidity level).

TIME Potentiometer:

The TIME potentiometer is used to set the fan run time every time the fan turns ON. It can be adjusted to run between 10 and 60 minutes, in 10 minute increments. In CYCLE mode the TIME selection is the portion of each hour that the fan will run, and the countdown begins when CYCLE mode is selected and the fan turns ON. In MANUAL mode the TIME countdown begins when the fan is turned ON using the ON/OFF switch. In AUTO SENSE and RH% modes the TIME countdown begins when the relative humidity stops rising.

SENSITIVITY Potentiometer:

The SENSITIVITY potentiometer is used to adjust the controls' sensitivity to ambient humidified air and to the size of the room. In a low humidity environment and/or large room, it may be necessary to adjust the SENSITIVITY potentiometer to a higher setting (MED to HI) to increase the control sensitivity for humidity detection. In a high humidity environment and/or small room, it may be necessary to adjust the SENSITIVITY potentiometer to a lower setting (LO to MED) to reduce the control sensitivity for humidity detection and to prevent undesired activations.

MANUAL OPERATION MODE

Note: Regardless of all other settings, the front panel blue LED will always be ON when fan is ON, and OFF when fan is OFF.

The control has a manual operation mode with the ability to turn the fan ON or OFF at the user's discretion. Press and release the lower control switch to turn the fan ON or OFF.

In addition to manually turning the fan OFF, the manual mode also utilizes the automatic OFF function with user adjustable fan ON time duration, as described previously in the TIME Potentiometer section. With this feature the user can manually turn the fan ON and not be concerned about manually turning the fan back OFF, because the TIME function will turn the fan OFF automatically.

The manual mode will override the AUTO SENSE / RH% / CYCLE modes whenever they are active. This mode setting will turn OFF all user adjustable set points, with the exception of the **TIME** setting, until the switch is manually turned OFF or the switch turns OFF automatically due to the TIME countdown, at which time the unit will return to the previous modes setting(s) following a 5-minute delay.

In other words, if the fan is turned ON manually, and then turned OFF manually (or due to the TIME countdown completing its cycle), and if the previous setting was **RH%**, then following a 5-minute delay the control will return to the **RH%** setting and turn the fan ON if the **RH** set point is reached, surpassed, or if the Control senses the appropriate rate of rise of humidity.

If the previous setting was **AUTO**, the control will turn the fan ON (after the 5-minute delay) if the control senses the appropriate rate of rise of humidity.

TIME: User adjustable from 10-60 minutes per hour, in 10 minute increments
AUTO SENSE / RH% / CYCLE: Inactive
SENSITIVITY: Inactive

Control Function:
Regardless of the MODE the unit is in, pressing the front panel switch overrides that mode to immediately turn the Fan ON if it was OFF, or OFF if it was ON.