



*better AIRFLOW by DESIGN™*

## ***Installation & Maintenance***



***TF100-EC  
TRANQUIL BATHROOM FANS***

READ AND SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE.

# SAFETY INSTRUCTIONS

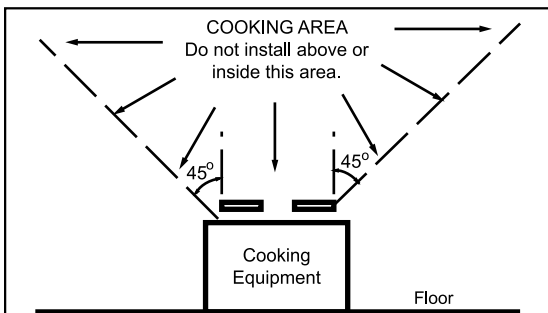
**NOTICE** TF100-EC fan is not explosion proof and should not be used when a potentially explosive situation exists.

**WARNING** To reduce the risk of fire, electric shock, or injury to persons—observe the following:

1. Use this unit only in the manner intended by the manufacturer. If you have questions, contact the factory.
2. Before installing or servicing, switch power off at service panel and lock the service disconnecting means to prevent power from being switched on accidentally. Do not re-establish power supply until fan and activation device are completely installed. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.
3. A qualified person(s) must perform installation work and electrical wiring in accordance with all applicable codes and standards, including fire-rated construction.
4. Sufficient air is needed for proper combustion and exhausting of gases through the flue (chimney) of fuel burning equipment to prevent backdrafting. Follow the heating equipment manufacturer's guidelines and safety standards as published by the National Fire Protection Association (NFPA), the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE), and local code authorities.
5. When cutting or drilling into walls or ceilings, take care not to damage electrical wires or other hidden utilities.
6. Ducted fans must always be vented to the outdoors.
7. TF100-EC fan is suitable for installation over a shower or tub when connected to a GFCI (Ground Fault Circuit Interrupter) protected branch circuit.
8. This unit must be grounded.

## **CAUTION**

1. For general ventilation use only. Do not use to exhaust hazardous or explosive materials and vapors.
2. TF100-EC fan is designed for installation in ceilings up to a 12/12 pitch (45 degree angle). Duct connector must point up. **DO NOT MOUNT THIS PRODUCT IN A WALL.**
3. To avoid motor bearing damage and noisy and/or unbalanced impellers, keep drywall spray, construction dust, etc. off power unit.
5. Check voltage at the fan to see that it corresponds to the motor nameplate.
6. TF100-EC fan is not suitable for use in kitchens or cooking areas.

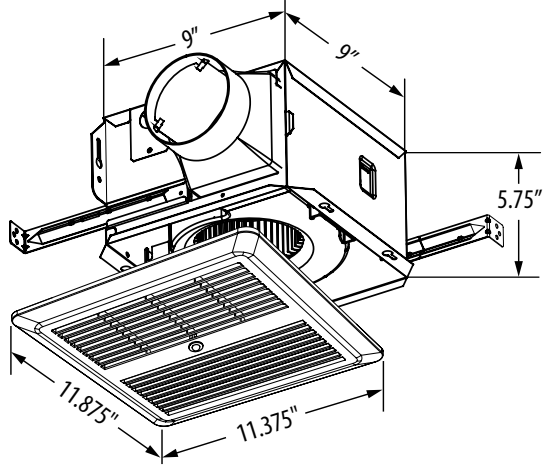
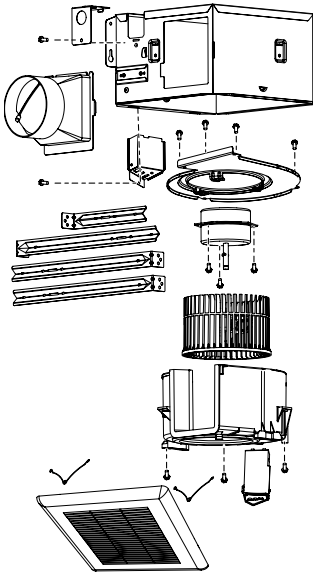


# TF100-EC TRANQUIL BATHROOM FANS

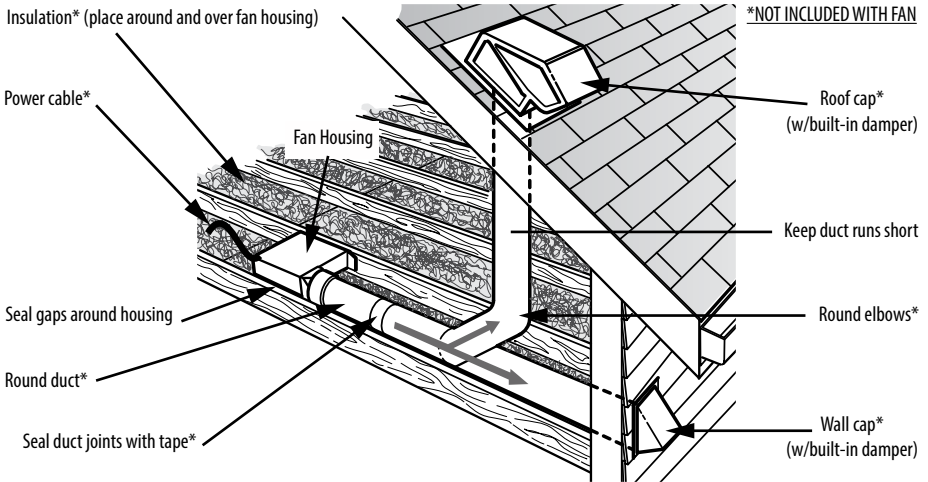
## MODEL: TF100-EC

The delivery set includes:

- Housing
- Duct assembly
- Grille
- Mounting hardware
- Blower assembly
- Power box knobs



## TWO WAYS TO CONNECT DUCTWORK TO A UNIT



Ducting has a strong effect on the airflow, noise and energy use of the fan. Use the shortest, straightest duct routing possible for best performance, and avoid installing the fan with smaller ducts than recommended. Insulation around the ducts can reduce energy loss and inhibit mold growth. Fans installed with existing ducts may not achieve their rated airflow.

# FAN INSTALLATION

**⚠ WARNING** Disconnect and lock out power supply before performing any installation work. Working on or near energized equipment could result in death or serious injury.

Remove wire panel (retrofit only) and blower assembly before installation (Figure 1).

## **STEP 1. INSTALL HOUSING (New Construction or Retrofit)**

### **New Construction (A or B)**

#### **A) Fasten to joist or I-joist**

Position the housing so that the housing contacts the bottom of the joist. Secure housing to joist through holes in each mounting flange with four (4) screws (Figure 2).

#### **B) Hanger Bar**

Slide hanger bar into the channel on the housing and adjust to fit between framing. Position the housing so that the housing contacts the bottom of the joist. Secure housing to joist through hole in the housing. Next secure the hanger bar to side of joist through the hole and secure hanger bar to housing with screw (Figure 3 & 4).

### **Retrofit**

Fold mounting ears flat against the housing (Figure 5). Create a 9-1/2" x 9-1/2" ceiling opening, leaving ductwork and wiring in place. Secure the housing directly to the framing or joists, using the additional mounting holes located in the interior of the housing (Figure 6), or secure the housing to the ceiling through holes in the flange with included screws (Figure 7).

## **STEP 2. INSTALL DUCT CONNECTOR & CONNECT DUCTWORK (New Construction or Retrofit)**

### **New Construction**

Attach the damper/duct connector from the inside of the housing. Secure the damper/duct connector by the tab (Figure 8). Using the recommended duct size, connect round ductwork to the damper/duct connector (Figure 9), and run ductwork to an exterior roof or wall cap using the shortest, straightest duct routing possible. Using tape (not included), ensure all duct connections are airtight. Insulated flexible duct is recommended for the quietest installation.

### **Retrofit**

Pull existing ductwork through the opening of the housing discharge. Attach ductwork to the damper/duct connector with tape, ensuring duct connection is airtight. Push the ductwork back through the opening and secure the damper/duct connector by the tab (Figure 10).

## **STEP 4. CONNECT WIRING**

Refer to wiring diagram on page 6. Re-install wire panel (retrofit only).

## **STEP 5. INSTALL BLOWER ASSEMBLY**

Insert the blower assembly into the housing and secure the motor plate to the housing with three (3) screws (Figure 11).

## **STEP 6. INSTALL GRILLE**

Insert sensor plug into the plug base on the power box before installing the grille. Pinch the springs on the sides of grille and insert them into the slots in the housing. Firmly push the grille against the ceiling to secure (Figure 12).

**NOTICE** Before applying power, ensure all electrical box covers are installed.

# FAN INSTALLATION

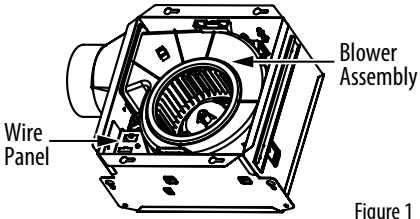


Figure 1

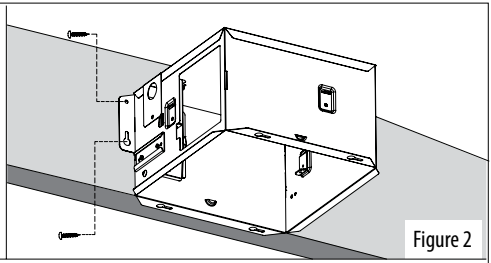


Figure 2

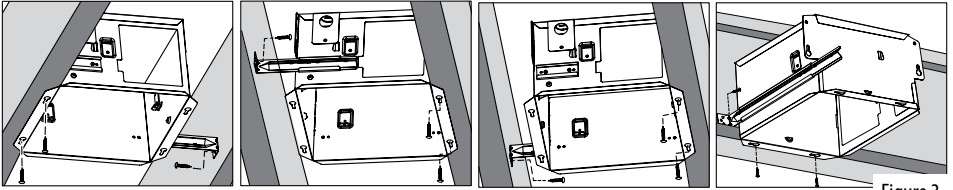


Figure 3

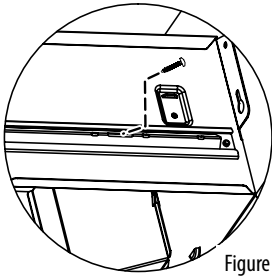


Figure 4

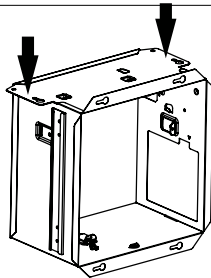


Figure 5

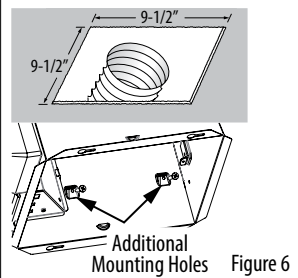


Figure 6

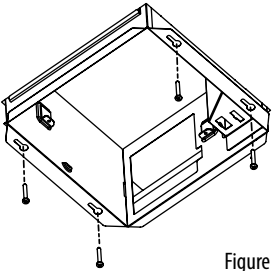


Figure 7

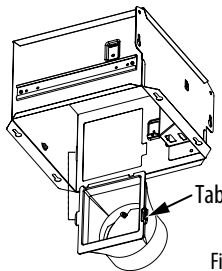


Figure 8

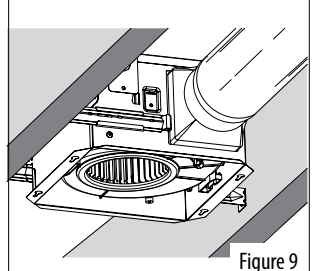


Figure 9

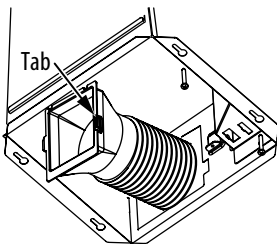


Figure 10

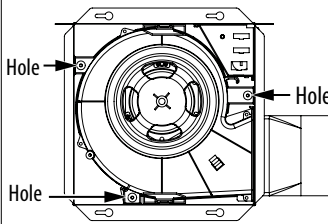


Figure 11

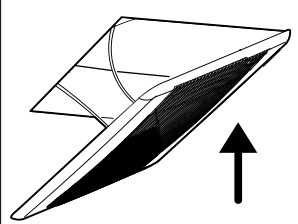
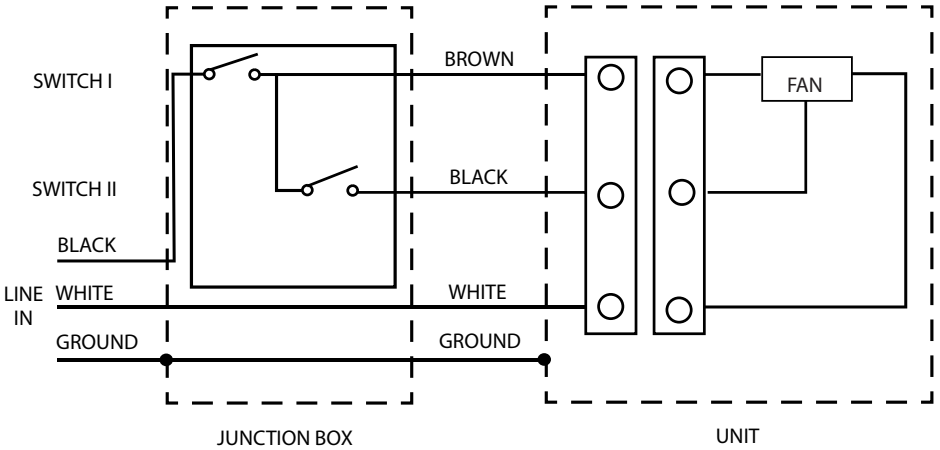


Figure 12

# WIRING DIAGRAM

**MODEL: TF100-EC**



Note: Switch I and switch II are supplied by others.

Run 120V AC house wiring to the location of the fan. Use only UL-approved connectors (not included) to attach the house wiring to the wiring plate.

# FAN CONTROLS

The **Power Box**, located inside the fan housing, has three separate adjustments:

- a. **Toggle Switch** positions determine the maximum airflow rate (factory set to 100 cfm). To select the desired maximum airflow (50, 80 or 100 cfm), set toggle switch 1 & 2 according to one of three switch positions in the table.
- b. **Low Airflow Knob** adjusts the low airflow rate from 30 cfm up to the maximum airflow rate set with the toggle switch. The low airflow is deactivated (fan stops in 20 minutes) when set between OFF and 30 cfm. Factory setting: OFF.
- c. **Humidity Sensor Knob** is adjustable from OFF to 80% relative humidity. The humidity sensor is deactivated when set between OFF and 30%. Factory setting: 80%.

Toggle Switch Positions			
Airflow (cfm)	50	80	100
Duct Diameter	4"		

To change the pre-selected airflow, adjust toggle switch positions as per the table above. ■ is the position of switch.

## FAN OPERATION

When the fan is OFF, by turning ON both **Switch I** and **Switch II**, the fan will start and run at the maximum airflow rate pre-set by the Toggle Switch, independent of the pre-set Low Airflow and Humidity Sensor Knobs. From this condition:

- If turning OFF **Switch I**, the fan will stop immediately.
- If turning OFF only **Switch II**, the fan will continue to run for 20 minutes, then it will automatically switch OFF or to the low airflow rate.

When the fan is OFF, by turning ON only **Switch I**, the fan is ready to operate and will automatically start if any of the following conditions are met:

- If the Low Airflow Knob position is anywhere above 30 cfm, the fan will run continuously at the pre-set low airflow rate.
- If the Humidity Sensor detects a relative humidity above the pre-set value or a rapid increase in humidity, the fan will run at the maximum pre-set airflow rate for 20 minutes after reaching the pre-set humidity level. After that, the fan will switch to the pre-set low airflow rate (if above 30 cfm) or stop (if OFF or below 30 cfm).
- If the optional motion sensor is installed and detecting motion, the fan will run at the maximum pre-set airflow rate for 20 minutes after the last detection of motion. After that, the fan will switch to the pre-set low airflow rate (if above 30 cfm) or stop (if OFF or below 30 cfm).

Turning OFF **Switch I** will stop the fan from any operating situations above.

## HUMIDITY SENSOR OPERATION

Fan boosts automatically to high speed when either humidity is above a user-adjusted set-point (30%-80% relative humidity) or a rapid increase in humidity is detected. After a 20-minute time delay and the humidity is reduced below the set-point, the fan defaults to the previous state.

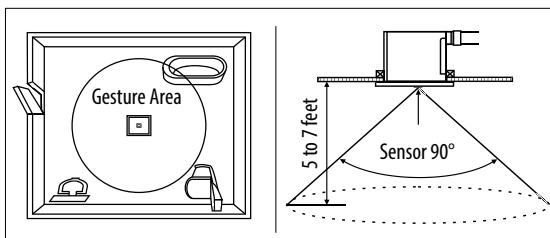
The Humidity Sensor Knob "H" has been factory set to 80% relative humidity. However, if an adjustment to the humidity knob is required:

- a. Disconnect power at service entrance.
- b. Remove the grille and locate the slot marked "H" on the control box.
- c. Carefully rotate the "H" adjustment toward maximum or minimum.
- d. Turn on power.
- e. Check operation by running a shower or other humidity source until the fan turns on.
- f. Repeat above steps if necessary.

Humidity sensor response may deviate depending on air temperature change.

## MOTION SENSOR OPERATION

If the optional motion sensor grille is installed and motion is detected, the fan shifts automatically to the maximum pre-set airflow rate. The fan will continue to operate at that speed for 20 minutes after the last detection of motion. At the end of the time delay, the fan will return to its previous state.



## TROUBLESHOOTING

**⚠ WARNING** Only qualified personnel should work on electrical equipment. Working on or near energized equipment could result in death or serious injury.

1. If the fan fails to start, consult wiring diagram to ensure proper connection.
2. Check the incoming supply for proper voltage.
3. Ensure that the electrical service to the fan is locked in the "OFF" position.
4. Use a meter to test for continuity across the fan motor leads.
5. If the motor leads show continuity, rewire the fan.
6. Turn on the electrical supply and restart.
7. If the fan fails to start, please contact factory.

## RECOMMENDED MAINTENANCE

**⚠ WARNING** Disconnect and lock out power supply before performing any maintenance. Working on or near energized equipment could result in death or serious injury.

1. The motor is permanently lubricated. No additional lubrication is necessary.
2. Periodic inspection, based upon usage, should be performed to ensure that the fan impeller is not obstructed.
3. Excessive fan noise or vibration may indicate an obstructed impeller.
4. To inspect and clean impeller:
  - a. Remove the grille from the fan and remove any obstruction from the impeller.
  - b. Vacuum the interior of the unit.
  - c. Reconnect the grille to the fan.
  - d. Turn power supply on.

## ACCEPTANCE CERTIFICATE

The TF100-EC fan has been duly certified as serviceable.

Manufactured on (date): \_\_\_\_\_

Date of sale: \_\_\_\_\_

Sold by: \_\_\_\_\_

(name of trading enterprise, stamp of store)

## CONNECTION CERTIFICATE

Company name: \_\_\_\_\_

Electrician name: \_\_\_\_\_

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Due to constant product improvements, some models may differ slightly from those portrayed in this manual.

TF100-EC-I&M-2304



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