



# F262 Series Airflow Switch

## Installation Instructions

Part No. 24-7664-2977, Rev. C  
Issued March 2016

Refer to the [QuickLIT website](#) for the most up-to-date version of this document.

### Applications

**IMPORTANT:** Use this F262 Series Airflow Switch only as an operating control. Where failure or malfunction of the F262 switch could lead to personal injury or property damage to the controlled equipment or other property, additional precautions must be designed into the control system. Incorporate and maintain other devices, such as supervisory or alarm systems or safety or limit controls, intended to warn of or protect against failure or malfunction of the F262 switch.

**IMPORTANT:** Utiliser ce F262 Series Airflow Switch uniquement en tant que dispositif de régulation. Lorsqu'une défaillance ou un dysfonctionnement du F262 switch I risque de provoquer des blessures ou d'endommager l'équipement contrôlé ou un autre équipement, la conception du système de contrôle doit intégrer des dispositifs de protection supplémentaires. Veiller dans ce cas à intégrer de façon permanente d'autres dispositifs, tels que des systèmes de supervision ou d'alarme, ou des dispositifs de sécurité ou de limitation, ayant une fonction d'avertissement ou de protection en cas de défaillance ou de dysfonctionnement du F262 switch.

The F262 Series Airflow Switch detects airflow or the absence of airflow by responding only to the velocity of air movement within a duct. The switch can be wired to open one circuit and close a second circuit (SPDT) for either signalling or interlock purposes.

Airflow failure during the normal operation of air handling systems may cause overheating, coil icing, or other conditions that may be detrimental to the equipment.

Typical applications include:

- make-up air systems
- air cooling or heating processes
- exhaust systems

The switch has a Type 3R/IP43 enclosure with an integral mounting plate. A mounting plate gasket is supplied with each control.

The enclosed SPDT PENNSwitch has color-coded terminals for ease of wiring. The control is factory set at approximately the minimum flow rate. (See Table 1.) It must not be any lower than the factory setting as this may result in the control failing to return at a no-flow condition. If a higher flow rate setting is to be maintained, turn the range adjusting screw clockwise.

The F262 switch can be mounted on the top, side, or bottom of a duct in a horizontal position whenever possible. If vertical duct mounting is required and the flow is downward, the control setting must be readjusted. If the flow is upward, refer to Table 1 for minimum flow required to actuate the control.

The switch is not designed for use where it is exposed to outside weather.

# Installation

## Dimensions

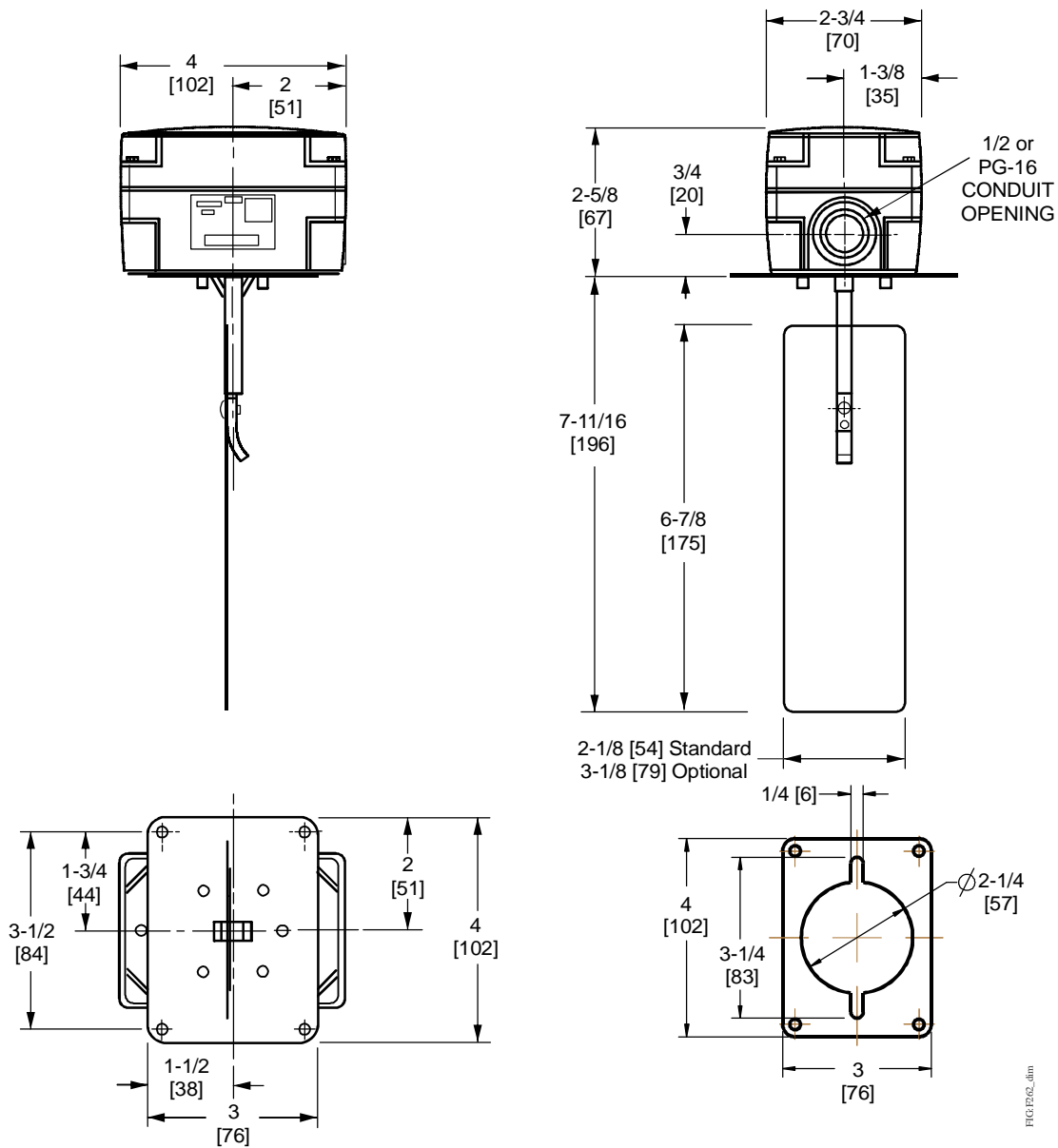


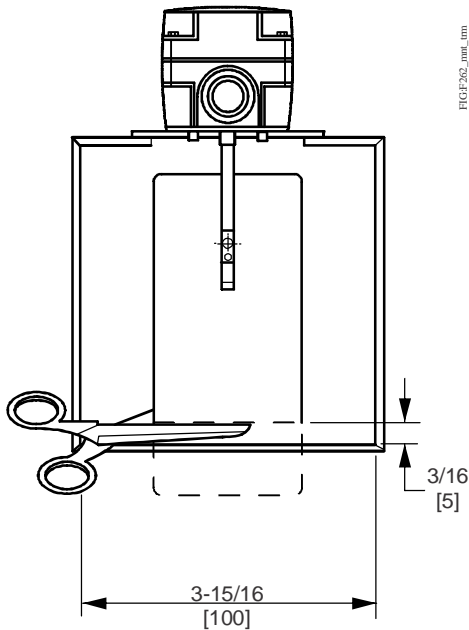
Figure 1: F262 Airflow Switch with Type 3R/IP43 Enclosure Dimensions, in. [mm]

### Installation Procedure

Select the proper location. See [Mounting](#).

1. Use the mounting plate gasket as a template and mark hole positions.
2. Drill or punch screw holes.
3. Cut the center hole large enough for the paddle to pass through.

4. Trim the paddle, if necessary (see Figure 2).
  - The standard paddle fits into ducts of 3 in. x 8 in. (76 x 203 mm) minimum.
  - The paddle may be trimmed for installing in ducts as small as 3 in. x 6 in. (76 x 152 mm).



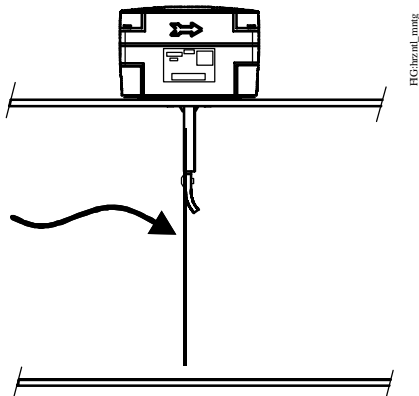
**Figure 2: Trimming the Paddle, Dimensions, in. [mm]**

## Mounting

**IMPORTANT:** Mount the switch so that the housing is level horizontally (or plumb vertically). Use a shim, if necessary.

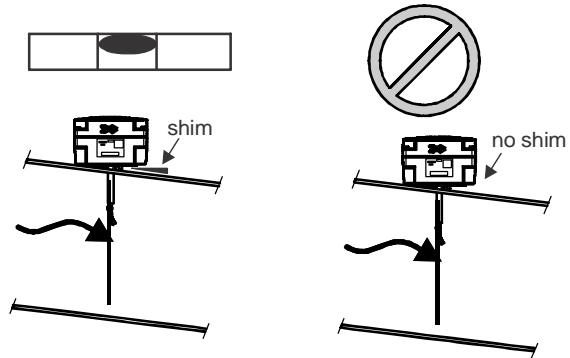
The F262AA switch can be mounted on the top, side, or bottom of a duct.

- Mount the switch in a horizontal duct whenever possible. In a horizontal duct, the switch housing must be level, and the paddle should be at approximately a right angle to the air flow.



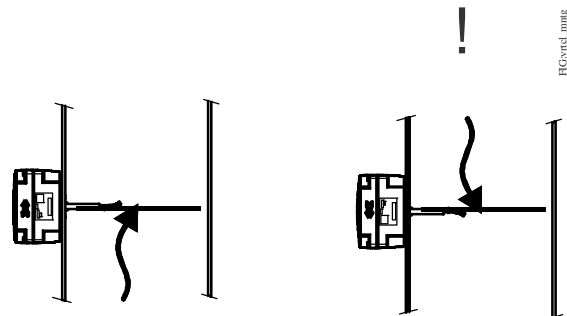
**Figure 3: Mounting the F262 Switch in a Horizontal Duct**

- When mounting the switch in a horizontal duct that is not horizontally true, check with a level and place a shim under the switch mounting plate. Do not mount the switch without a shim (see Figure 4).



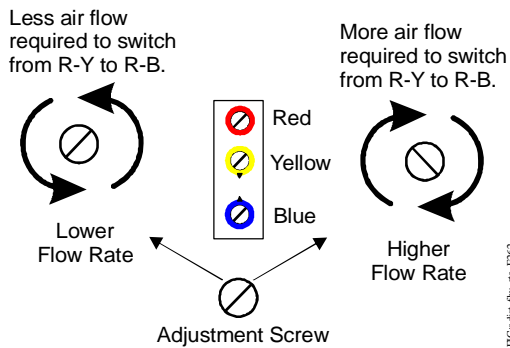
**Figure 4: Mounting the F262 Switch in an Angled Duct**

- When mounting the switch in a vertical duct where the airflow is upward (Figure 5), see Table 1 for the minimum flow required to actuate the switch. The maximum air velocity should not exceed 2,000 FPM (10.16 m/s).



**Figure 5: Mounting the F262 Control in a Vertical Duct**

- When mounting the switch in a vertical duct where the airflow is downward (Figure 5), adjust the switch:
  - a. Turn the adjusting screw (Figure 6) clockwise until the switch closes the circuit between the red and blue terminals when there is no air flow.
  - b. Turn the adjustment screw one additional turn clockwise.



**Figure 6: F262 Switch Action**

**Location Considerations**

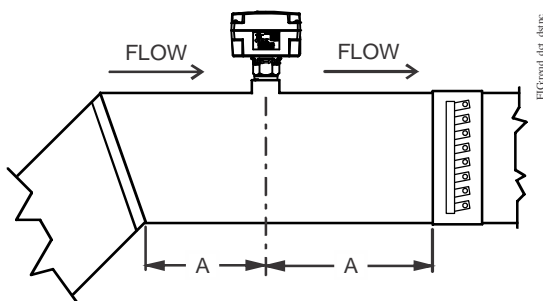
**IMPORTANT:** Mount the switch so that the housing is level horizontally (or plumb vertically). Use a shim, if necessary.

Do not use this switch where it is exposed to outdoor weather. The switch is designed specifically for indoor use.

Avoid locations close to elbows, dampers, fans, duct openings, or other areas where excessive turbulence occurs.

Mount the switch away from such areas at least five times the distance of the smallest duct dimension (Figure 7).

**Example:** On a 3 in. x 8 in. duct, mount the F261 at least 15 in. (381 mm) from the nearest bend.



Dimension A must be at least five times the distance of the smallest duct dimension.

**Figure 7: Required Duct Distance**

**Wiring**



**WARNING: Risk of Electric Shock.**

Disconnect the power supply before making electrical connections. The printed circuit board and its components are at AC line voltage. Contact with components carrying hazardous voltage can cause electric shock and may result in personal injury or death.

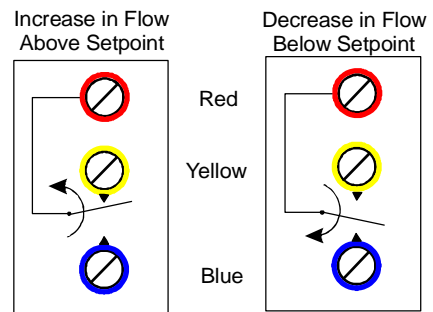
**AVERTISSEMENT : Risque de décharge électrique.**

Débrancher l'alimentation avant de réaliser tout raccordement électrique. Le circuit imprimé et ses composants présentent une tension CA. Tout contact avec des composants porteurs de tensions dangereuses risque d'entraîner une décharge électrique et de provoquer des blessures graves, voire mortelles.

**IMPORTANT:** Use the terminal screws provided (M4 x 8 crosshead). Substitution of other screws voids the warranty and agency approvals.

**IMPORTANT:** Use copper conductors only. Make all wiring connections in accordance with local, national, and regional regulations. Do not exceed the device's electrical ratings.

The terminals are color coded. Red is common. See Figure 8 for switch action.



**Figure 8: F262 Control Switch Action**

The circuit between the red and yellow terminals closes when the required airflow velocity is reached within the duct where the switch is installed.

An indicator light or signal, when connected to the blue terminal, activates when the airflow decreases or ceases.

## Setup and Adjustments



**CAUTION: Risk of Property Damage.**  
Do not set the switch lower than the factory setting. The switch is factory set at approximately the minimum flow rate. A lower setting may result in the switch failing to return to a no-flow position which may result in damage to the controlled equipment or other property.

**MISE EN GARDE : Risque de dégâts matériels.**

Ne pas régler le commutateur sur une valeur inférieure au paramètre d'usine. Le commutateur est réglé en usine sur une valeur correspondant environ au débit minimum. Un réglage sur une valeur inférieure risque d'empêcher le commutateur de revenir sur une position « aucun-débit », ce qui risque d'endommager l'équipement contrôlé ou de provoquer d'autres dégâts matériels.



**CAUTION: Risk of Property Damage.**  
Do not attempt to change sealed settings (screws marked with black paint). Attempted adjustment may damage the switch or cause loss of calibration or other property damage.

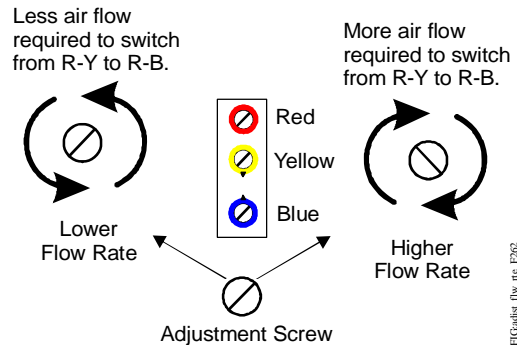
**MISE EN GARDE : Risque de dégâts matériels.**

Ne pas essayer de modifier la position des éléments de réglage bloqués (vis identifiées par de la peinture noire). Toute tentative de réglage risque d'endommager le dispositif de contrôle ou de provoquer la perte des valeurs d'étalonnage ou d'autres dégâts matériels.

To adjust the setting of the flow switch:

1. Disconnect the power supply before making any electrical connections.

2. Remove the enclosure cover.
3. Adjust the switch's flow rate (Figure 9):
  - Turn the adjustment screw **counterclockwise** to **lower** the flow rate required to activate the switch.
  - Turn the adjustment screw **clockwise** to **raise** the flow rate required to activate the switch.



**Figure 9: Flow Rate Adjustment**

**Note:** Do not lower the flow rate required to activate the switch, unless the flow rate required to activate the switch was raised from the factory-set flow rate.

4. Replace the enclosure cover and tighten the cover screws with 12 in•lb of torque.

Table 1 shows airflow velocities in FPM required to activate the switch for any given duct size (horizontal or vertical upward flow). The flow rate table is based on a standard air density of 0.075 lb/ft<sup>3</sup> [1.2 kg/m<sup>3</sup>].

**Table 1: Flow Rate Table, FPM (m/second)**

Paddle Width	Switch Actuation on Flow	Minimum Air Velocity Required to Activate Control			
		Horizontal Flow		Vertical Flow	
		50 in. <sup>2</sup> (323 cm <sup>2</sup> ) or larger Duct Area	Less Than 50 in. <sup>2</sup> (323 cm <sup>2</sup> ) Duct Area	50 in. <sup>2</sup> (323 cm <sup>2</sup> ) or larger Duct Area	Less Than 50 in. <sup>2</sup> (323 cm <sup>2</sup> ) Duct Area
2-1/8 in.	Increase (R to Y Closes)	625 (3.2)	575 (2.9)	950 (4.8)	750 (3.8)
	Decrease (R to B Closes)	325 (1.7)	220 (1.1)	850 (4.3)	575 (2.9)
3-1/8 in.	Increase (R to Y Closes)	500 (2.5)	350 (1.8)	750 (3.8)	500 (2.5)
	Decrease (R to B Closes)	250 (1.3)	100 (0.5)	650 (3.3)	350 (1.8)

### Checkout Procedure

The circuit between the red and yellow terminals closes when air flows through the duct (where the switch is located) at the required velocity. When connected to the red and blue terminals, the warning light or signal activates when the air flow decreases or ceases.

Before leaving the installation, observe at least three complete operating cycles to be sure that all components are functioning correctly.

### Ordering Information

**Table 2: Replacement Paddle Kits for F262 Switch**

Product Code Number	Description
PLT112-1R	2-1/8 in. wide x 6-7/8 in. long (54 mm x 175 mm) paddle
PLT112-2R	3-1/8 in. wide x 6-7/8 in. long (79 mm x 175 mm) paddle

### Repair Information

Do not make field repairs, except for replacement of the flow paddle. For a replacement control or paddle kit, contact the nearest Johnson Controls/PENN distributor.

## Technical Specifications


Table 3: F262 Series Airflow Switch Electrical Ratings

Volts 50/60 Hz	UL60730/UL1059				EN60730	
	24	120	208	240	24	230
Horsepower	–	1	1	1	–	–
Full Load Amperes	–	16	10	10	–	8
Locked Rotor Amperes	–	96	60	60	–	48
Resistive Amperes	16	16	10	10	16	16
Pilot Duty VA	125	720	720	720	77	720

Table 4: UL Conformity Declaration Information

Information	Description
Purpose of Control	F262 Airflow Switch
Construction of Control	Electronic independently mounted control
Number of Cycles	100,000 cycles
Method of Mounting Control	Mounting to sensed media vessel/orientation
Type 1 or Type 2 Action	Type 1.C (Microinterruption)
External Pollution Situation	Pollution degree 4
Internal Pollution Situation	Pollution degree 2
Rated Impulse Voltage	4,000 VAC
Ball Pressure Temperature	<b>Enclosure:</b> 266°F (130°C ) <b>Switch Component:</b> 252°F (122°C)
Control Adjustment Instruction	-
Field Wiring Rating	<b>Wire/Cord Temperature Ratings:</b> <ul style="list-style-type: none"> <li>• 140°F (60°C) only permitted when ambient air and media are less than 113°F (45°C)</li> <li>• 167°F (75°C) only permitted when ambient air and media are less than 140°F (60°C)</li> <li>• 194°F (90°C) only permitted when ambient air is less than 140°F (60°C) and media is less than 167°F (75°C)</li> <li>• 302°F (150°C) permitted when ambient air is less than 140°F (60°C) and media is less than 249°F (121°C)</li> </ul>

## F262 Series Airflow Switch

<b>Switch</b>	SPDT
<b>Enclosure</b>	UL: Type 3R CE: IP43
<b>Wiring Connections</b>	Three color-coded screw terminals and one ground terminal
<b>Conduit Connection</b>	One 7/8 in. (22 mm) hole for 1/2 in. trade size (or PG16) conduit
<b>Paddle Material</b>	0.006 in. (0.15 mm) stainless spring steel
<b>Maximum Air Velocity</b>	2,000 FPM (10.16 m/sec)
<b>Maximum Duct Air Temperature</b>	176°F (80°C)
<b>Ambient Conditions</b>	32 to 104°F (0 to 40°C)
	<b>North America:</b> cULus Listed; UL 60730, File E6688; FCC Compliant to CFR47, Part 15, Subpart B, Class B Industry Canada (IC) Compliant to Canadian ICES-003, Class B limits
	<b>Europe:</b> CE Mark – Johnson Controls, Inc. declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive and the Low Voltage Directive.
	<b>Australia/New Zealand Mark:</b> RCM Compliant

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult Johnson Controls/PENN Refrigeration Application Engineering at 1-800-275-5676. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

### United States Emissions Compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### Canadian Emissions Compliance

This Class (B) digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations.  
 Cet appareil numérique de la Classe (B) respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

### European Single Point of Contact:

JOHNSON CONTROLS  
 WESTENDHOF 3  
 45143 ESSEN  
 GERMANY

### NA/SA Single Point of Contact:

JOHNSON CONTROLS  
 507 E MICHIGAN ST  
 MILWAUKEE WI 53202  
 USA

### APAC Single Point of Contact:

JOHNSON CONTROLS  
 C/O CONTROLS PRODUCT MANAGEMENT  
 NO. 22 BLOCK D NEW DISTRICT  
 WUXI JIANGSU PROVINCE 214142  
 CHINA



### Building Efficiency

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