F262 Series Airflow Switch Installation Guide

Part No. 24-7664-2977 Rev. E

2021-04-20

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 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 only in response to the velocity of air movement within a duct. You can wire the switch to open one circuit and close a second circuit, single-pole, double-throw (SPDT), for either signaling 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 Penn switch has color-coded terminals for ease of wiring. The control is factory set at approximately the minimum flow rate. See Table 1. You must not set the control any lower than the factory setting because the control may fail to return to a no-flow condition. If you require a higher flow rate setting, turn the range adjusting screw clockwise.

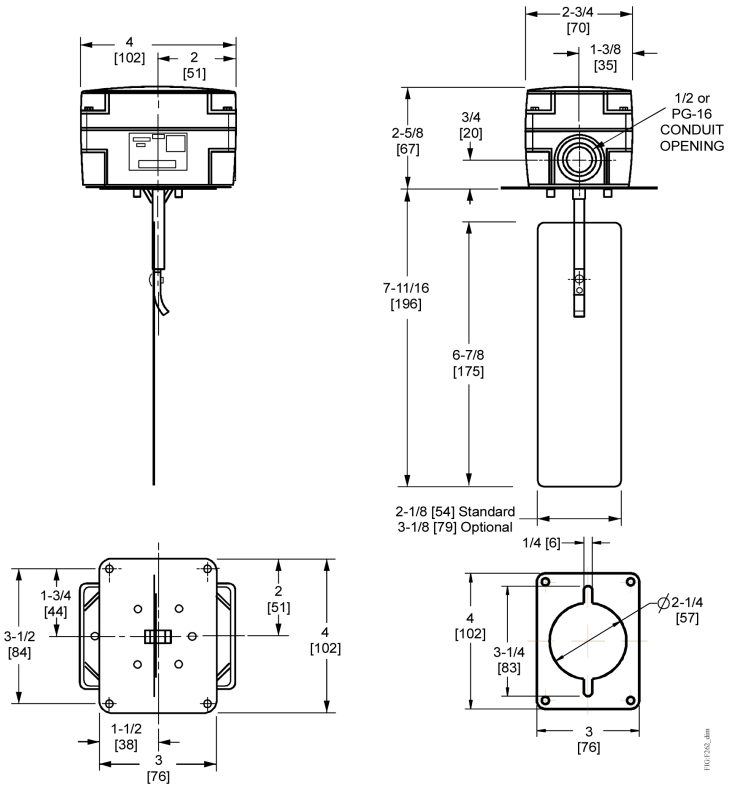
Mount the F262 switch on the top, side, or bottom of a duct in a horizontal position whenever possible. If vertical duct mounting is required and the flow is downward, you must readjust the control. If the flow is upward, refer to Table 1 for minimum flow required to actuate the control.

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]



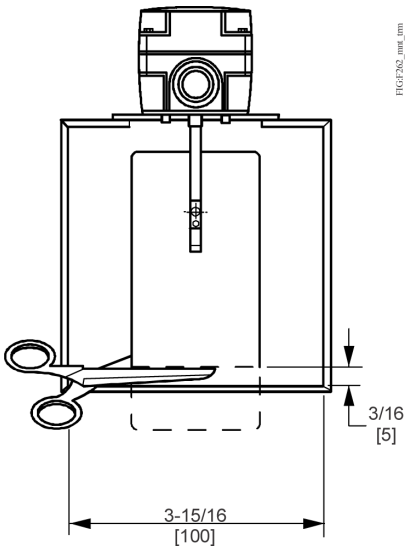
Installation procedure

Before you begin:

Select the proper location. See Mounting.

1. Use the mounting plate gasket as a template and mark the hole positions.
2. Drill or punch the 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. × 8 in. (76 mm × 203 mm) minimum.
   - You can trim the paddle for installation in ducts as small as 3 in. × 6 in. (76 mm × 152 mm).

Figure 2: Trimming the paddle, dimensions, in. [mm]



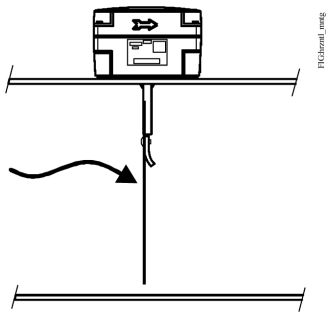
Mounting

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

You can mount the F262AA switch on the top, side, or bottom of a duct.

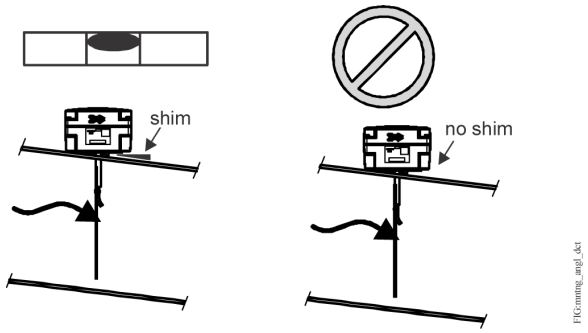
- Mount the switch in a horizontal duct whenever possible. In a horizontal duct, make sure that the switch housing is level and the paddle is at approximately a right angle to the air flow.

Figure 3: Mounting the F262 Switch in a horizontal duct



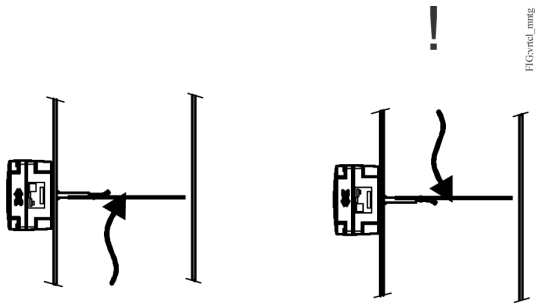
- When you mount the switch in a horizontal duct that is not horizontally true, check with a level and place a shim under the switch mounting plate. Do not mount the switch without a shim. See the following figure.

Figure 4: Mounting the F262 Switch in an angled duct



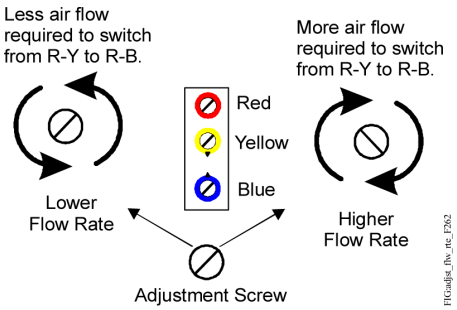
- When you mount the switch in a vertical duct where the airflow is upward as shown in the following figure, see Table 1 for the minimum flow required to actuate the switch. The maximum air velocity must not exceed 2,000 fpm (10.16 m/s).

Figure 5: Mounting the F262 control in a vertical duct



- When you mount the switch in a vertical duct where the airflow is downward as shown in the previous figure, adjust the switch:
  a. Turn the adjustment screw clockwise until the switch closes the circuit between the red and blue terminals when there is no air flow. See the following figure.
  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.

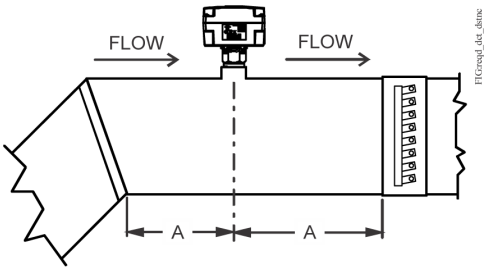
Do not use this switch where exposure to outdoor weather occurs. Use the switch only for indoor situations.

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 as shown in the following figure.

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

Figure 7: Required duct distance



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

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.

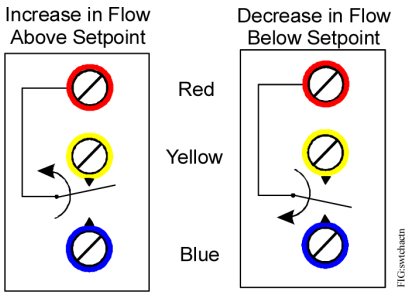
Débrancher l'alimentation avant de réaliser tout raccordement électrique. Le circuit imprimé et ses composants présentent une tension CA. Tout contact avec des composants porteurs de tensions dangereuses risque d'entraîner une décharge électrique et de provoquer des blessures graves, voire mortelles.

Important:

- Use the M4 x 8 crosshead terminal screws provided. Substitution of other screws voids the warranty and agency approvals.
- 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 the following figure for switch action.

Figure 8: F262 control switch action



On an installed switch, the circuit between the red and yellow terminals closes when the required airflow velocity is present within the duct.

When you connect an indicator light or signal to the blue terminal, the light or signal activates when the airflow decreases or ceases.

Setup and adjustments

Before you begin:

⚠ 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.

⚠ ATTENTION

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.

⚠ ATTENTION

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.

About this task:
The following table shows airflow velocities in fpm required to activate the switch for any given duct size, with horizontal or vertical upward flow. The flow rate table is based on a standard air density of 0.075 lb/ft³ (1.2 kg/m³).

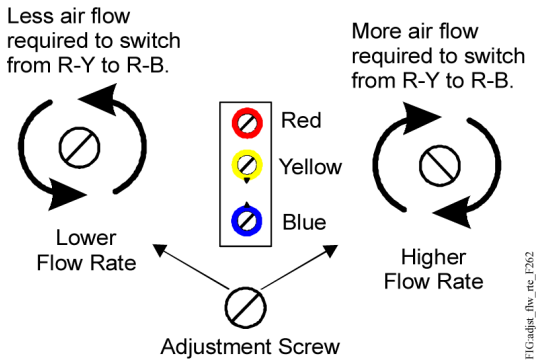
Table 1: Flow rate table, fpm (m/s)

Paddle width	Switch actuation on flow	Minimum air velocity required to activate control			
		Horizontal flow		Vertical flow	
		50 in.² (323 cm²) or larger duct area	Less than 50 in.² (323 cm²) duct area	50 in.² (323 cm²) or larger duct area	Less than 50 in.² (323 cm²) 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)

To adjust the setting of the flow switch, complete the following steps:

1. Disconnect the power supply before you make any electrical connections.
2. Remove the enclosure cover.
3. Adjust the switch's flow rate. For more information, see the following figure.
   - 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 it is set above the factory set flow rate.

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

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 you connect 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 make sure that all components function correctly.

Ordering information

Table 2: Replacement paddle kits for F262 Switch

Product code	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.

F262 Airflow Switch technical specifications

Table 3: F262 Series Airflow Switch electrical ratings

Volts 50/60 Hz	UL 60730/UL 1059				EN 60730	
	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 and orientation
Type 1 or Type 2 action	Type 1.C (Micro-interruption)
External pollution situation	Pollution degree 4
Internal pollution situation	Pollution degree 2
Rated impulse voltage	4,000 VAC
Ball pressure temperature	Enclosure: 266°F (130°C) Switch component: 252°F (122°C)
Control adjustment instruction	-
Field wiring rating	Wire/cord temperature ratings: • 140°F (60°C) only permitted when ambient air and media are less than 113°F (45°C) • 167°F (75°C) only permitted when ambient air and media are less than 140°F (60°C) • 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) • 302°F (150°C) permitted when ambient air is less than 140°F (60°C) and media is less than 176°F (80°C)

Table 5: F262 Airflow Switch technical specifications

Specification	Description
Switch	SPDT
Enclosure	UL: Type 3R CE: IP43
Wiring connections	Three color-coded screw terminals and one ground terminal
Conduit connection	One 7/8 in. (22 mm) hole for 1/2 in. trade size (or PG16) conduit
Paddle material	0.006 in. (0.15 mm) stainless spring steel

Table 5: F262 Airflow Switch technical specifications

Specification	Description
Maximum air velocity	2,000 fpm (10.16 m/sec)
Maximum duct air temperature	176°F (80°C)
Ambient conditions	32°F to 131°F (0°C to 55°C)
Compliance	**North America:** cULus Listed; UL 60730, File E6688; FCC Compliant to CFR47, Part 15, Subpart B, Class B Plenum rated; UL 2043, suitable for use in other environmental spaces, plenums, in accordance with section 300.22.(c) of the National Electrical Code Industry Canada (IC) Compliant to Canadian ICES-003, Class B limits
CE	**Europe:** CE Mark – Johnson Controls declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive and the Low Voltage Directive.
	Australia/New Zealand: Mark: RCM Compliant

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

North American emissions compliance

United States

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.

Warning (Part 15.21)

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Canada

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.

Industry Canada Statement(s)

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage, et
2. L'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Product warranty

This product is covered by a limited warranty, details of which can be found at www.johnsoncontrols.com/buildingswarranty.

Single point of contact

APAC	Europe	NA/SA
JOHNSON CONTROLS C/O CONTROLS PRODUCT MANAGEMENT NO. 32 CHANGJIJANG RD NEW DISTRICT WUXI JIANGSU PROVINCE 214028 CHINA	JOHNSON CONTROLS WESTENDHOF 3 45143 ESSEN GERMANY	JOHNSON CONTROLS 507 E MICHIGAN ST MILWAUKEE WI 53202 USA

Contact information

Contact your local branch office: www.johnsoncontrols.com/locations

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