



SBS-FAN-120

Intake or Exhaust Fan for SBS-Gas Detection Systems

INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS



Protects Life, Property and Profits

Compliant with NFPA 70E[®] and IEEE Recommendations

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Warnings

- This fan is for added protection and is not a substitute for prudent safety measures.
- For hazardous gas where accumulations could be present.
- For large or highly-sensitive areas, it is recommended to install additional fans for increased air flow.
- The intake or exhaust fan is intended to be utilized with a gas detection system to prevent the buildup of hazardous gases from reaching the lower explosive limits.
- Ensure that installation complies completely with all relevant Local, State, Federal and OSHA safety and health regulations.

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Main Unit and Accessories

<u>Part No.</u>	<u>Description</u>
SBS-FAN-120-EX	Exhaust fan 12", 115/120 Vac 50/60 Hz, stainless steel
SBS-FAN-120-IN	Intake fan 12", 115/120 Vac 50/60 Hz, stainless steel
SBS-FAN-120-RH	Rain hood for SBS-FAN 12" stainless steel
SBS-FAN-120-FLT	Filter pack (quantity of six) for SBS-FAN

1.0 Overview

There are many types of gases that can reach or exceed the lower explosive limit or lower flammability limits when allowed to buildup in concentration. Using an intake or exhaust fan can allow the hazardous gases to be ventilated from a building, room or area to keep these hazardous concentrations of gases from reaching dangerous levels.

The SBS-FAN-120 has been designed to operate with the SBS-Gas detection systems to provide air flow when a gas detection is present, and eliminate the need to run an exhaust fan continuously.

2.0 Benefits

In addition to protecting employees and property, the exhaust used in conjunction with the SBS-Gas detections systems may also reduce the following costs:

Energy Efficiencies

Instead of continuously running an exhaust fan to prevent hazardous gas accumulation, use the detector to activate a fan only if the gas concentration reaches 25% of the LEL.

Insurance Savings

Installation of an automated exhaust system may result in an insurance premium reduction.

3.0 How it Works (When used with a SBS-Gas detection system)

Should the concentration of hazardous gas in the air surrounding the sensor reach 25% LEL by volume, the “**25% LEL Warning**” yellow LED will light up on the main control of the unit. In addition, the 25% LEL internal relay will energize and is used to activate the SBS-FAN-120.

Should the gas concentration reach 50% LEL by volume, the “**50% LEL Alarm**” red LED will light up, the strobe will flash and an audible alarm will sound. In addition, the 50% LEL internal relay will energize and can be used to activate a building management/alarm system (via SCADA/Modbus).

The SBS-FAN-120 is a stainless steel constructed, 115/120 VAC, 50/60 Hz, single phase 3 wire intake or exhaust fan.

The Intake fan and the exhaust fan are manufactured in two separate enclosures in 2 separate assemblies with unique part numbers.

4.0 Specifications



Power Requirements

Warning: Power requirements for the unit should not exceed min/max specifications

- 120 Vac, 60Hz, 1.27 Amps (145 Watts)
- 115 Vac, 50Hz, 0.93 Amps (102 Watts)
- 3 wire AWG #14, in a 6 ft., flexible conduit

Physical Properties

- Size 12" L x 12" W x 9.5" D (305 x 305 x 241 mm)
- Weight 18 lb. (8.2kg)
- Mounting Rough opening: 12.25" x 12.25" (311 x 311 mm)
- Wall thickness: 1.5" to 8" (38 x 203 mm)

Temperature/Humidity

- Operating Temperature Range: -13°F (-25°C) to 149°F (65°C)
- Operating Humidity Range: 20-95% non-condensing
- Storage Humidity Range: 5-95% non-condensing

Maximum Altitude

- 2000 meters (1.3 correction factor for airflow)

Air Flow Information

- | | |
|-----------------------|--|
| • Fan Only | 988 CFM @ 120 VAC, 60 Hz
853 CFM @ 115 VAC, 50 Hz |
| • Fan W/Louver | 500 CFM @ 120 VAC, 60 Hz
447 CFM @ 115 VAC, 50 Hz |
| • Fan W/Louver/Filter | 383 CFM @ 120 VAC, 60 Hz
353 CFM @ 115 VAC, 50 Hz |

Fan Specifications

Speed	2,675 rpm @ 50 Hz, 3,040 rpm @ 60 Hz
Noise	68 db(A) @ 50 Hz, 72 db(A) @ 60 Hz

5.0 Mechanical Installation

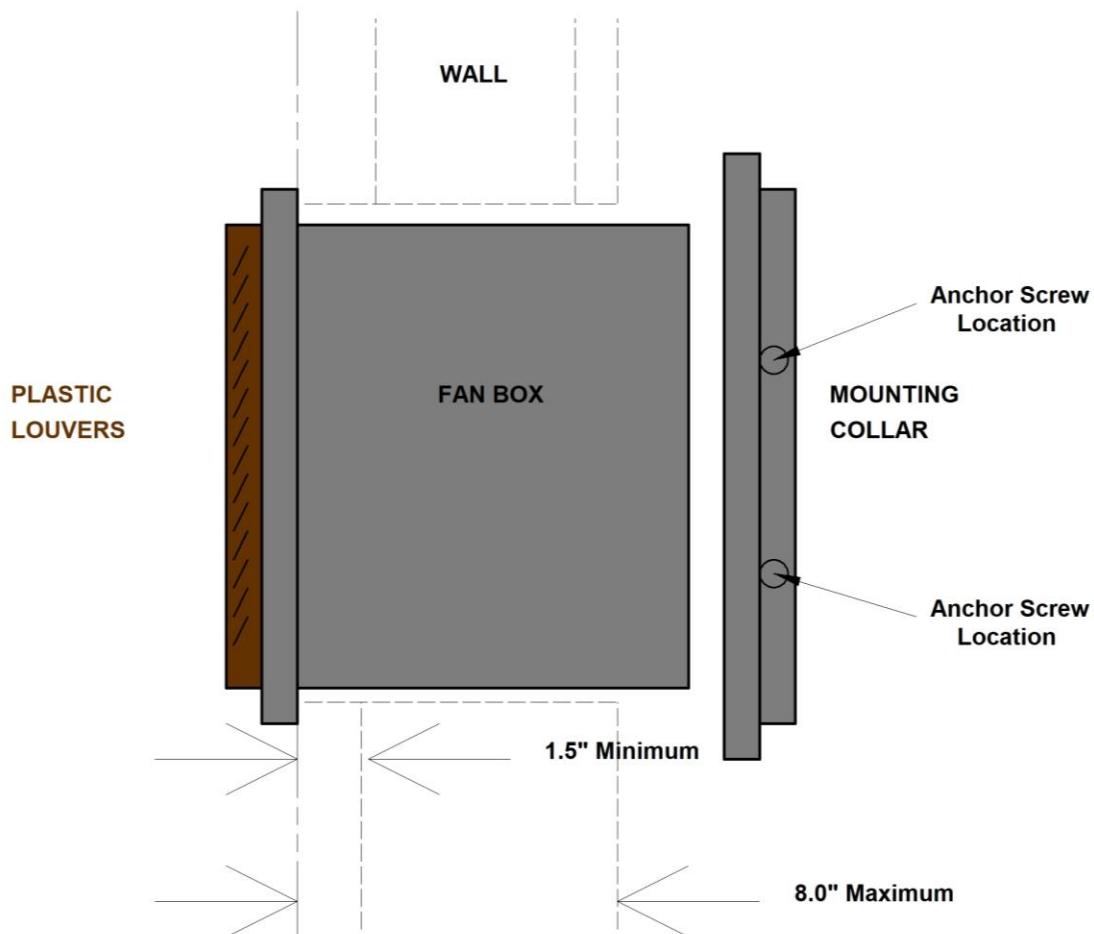


WARNING

High voltage relay terminals (115 / 120 VAC) are located within the fan enclosure and gas detection systems, presenting a hazard to installers and service technicians. Only qualified technicians should open the detector case or fan assembly and service the internal circuits. Ensure power is removed from the equipment prior to servicing the unit. Failure to do so may result in injury or death.

- **Rough Opening**

The SBS-FAN-120 can be installed in walls with a thicknesses from 1.5" to 8" in depth. **Maximum wall thickness is 8.0" to allow for mounting of the fan retaining collar.** The rough opening must be 12.25" x 12.25" to allow insertion of the fan assembly.



(mechanical bracing or duct transition inserts can be used to achieve minimum wall thickness)

Mechanical Installation Steps

1. Prepare the rough opening
2. Insert the fan assembly through the rough opening and from the inside apply a bead of sealant or foam to fill in the gap between the fan housing and rough opening.
3. Slide the retaining collar over the back of the fan assembly.
4. Use four (4) or more #7 zinc plated self-taping metal screws to fasten the collar to the fan box assembly locking it in place.

Rain Hood Installation Steps

1. Remove mounting screws from fan collar to allow rain hood mounting bracket to be slid down behind fan external baffle.
2. Slide Rain Hood mounting bracket down around the external side of the fan assembly.
3. Re-install fan collar and re-attach the mounting screws.
4. Slide down and snap Rain Hood into place on the mounting bracket.

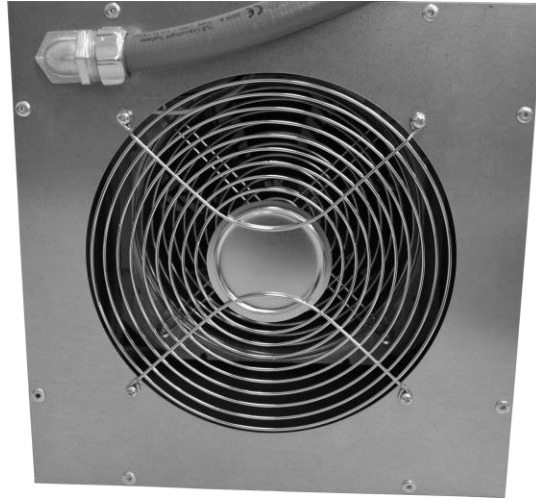
Filter Media Replacement

The SBS-FAN-120 has an optional filter media which must be replaced at a frequency to be determined by installation environmental conditions.

1. Remove the plastic louver assembly from the exterior of the fan assembly.
2. Remove old filter media.
3. Vacuum or clean exposed surface areas.
4. Insert new replacement filter media.
5. Re-install the plastic louver assembly.

6.0 Electrical Connections

The SBS-FAN-120 is supplied with a 6-foot flexible conduit for supplying 115/120 Vac 50/60 Hz single phase power to the fan assembly. (3) #14 wires are supplied for line, neutral and ground connections to the power source.



AC Power Wiring

120 Vac (Neutral)



Ground



120 Vac (Switched)



(For electrical connection to an SBS-Gas detection system, see the manual for the gas detector main assembly.)

7.0 Operation

The SBS-FAN-120 Intake or Exhaust fan is designed for continuous operation. Once power is applied from the external source, the fan will run continuously as long as power is available.

If connected to a SBS-Gas detection system, the fan power hot wire and operation of the fan is controlled by the operation of the “normally open” contact closure of the main controls “1%” warning relay. Testing of the fan operation is accomplished by pressing the TEST button on the front of the SBS-Gas detection main assembly.

8.0 Electrical Testing

A "TEST" button is located on the front of the main control. Push and hold this button for approximately 10 seconds to test the unit's electronic circuitry and application of supply power to the SBS-FAN-120.

The warning and alarm LEDs will light up in sequence, the strobe will flash, the relays will activate and the SBS-FAN-120 should energize.

Note: The "TEST" button does NOT test the sensor(s) itself, only the unit's electronic circuitry.

9.0 Troubleshooting and Maintenance

No Power

Verify the AC power wires are installed per the connection diagram on page 9.

Relays

The SBS-Gas detection systems are designed for the relays to operate in a failsafe condition when the power supply is interrupted. If the fan connected to a relay runs as soon as the unit is powered on, the unit has been wired for the use of the Normally Closed contact instead of a Normally Open contact.

Avoid installation in highly corrosive environments where high densities of hydrogen sulfide, sulfur oxide, chlorine, hydrogen chloride, etc. may be present. These gases can cause excessive corrosion of the fan, assembly and the power leads.

Maintenance Tips

To maintain the unit, it is recommended to:

1. Test the fans operation once a month by pressing the 'TEST' button on the SBS-Gas detection system.
2. Vacuum the louvers once a quarter to remove accumulated dust and each time the filter media is replaced.
3. Mild detergents can be used to clean the mechanical portions of the fan assembly.



WARNINGS

Do not disassemble unit or attempt to repair or modify any component of this assembly. This assembly contains no user serviceable parts, and substitution of components may impair intrinsic safety, which may adversely affect product performance and result in injury.

The SBS-Gas detection systems are not a standalone safety device and does not provide protection from hazardous gas accumulations or explosions. The relay contacts are intended to be connected to a safety system, enabling audible alarms, system shutdown, ventilation, or other measures to ensure monitoring of hydrogen gas occurs before concentrations reach dangerous levels.

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In the case of a defect in the fan assembly, SBS shall not be liable for any damages which may result, including, but not limited to, loss of revenue, property, or life. In an event, SBS shall limit liability to replacement of the defective unit. SBS does not convey any license under its patent rights nor the rights of others.



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