

UniTrak® Sensor Assembly Kit Vertical and Combination Sashes

Product Description

The UniTrak® Vertical Sash kit contains the hardware for one fume hood sash. Fume hoods with multiple vertical sashes, including walk-in fume hoods, require multiple UniTrak® kits.

The kit consists of one adhesive-backed UniTrak® sensor strip with one sensor strip actuator attached, one sensor connector with adhesive back, two unbent linkages, and mounting hardware. See Figure 1.

Actuator materials: polyvinyl chloride (PVC) and stainless steel.

Sensor strip materials: polyester.

NOTE: Fume hoods may have dimensional variations; however, these variations will have minimal impact on UniTrak® Sensor Assembly Kit installations.



Product Numbers

546-00041 Trim Tool Kit
(must be ordered separately)

546-00042 Five-Piece Spare/Replacement Unbent Linkage Kit (must be ordered separately)

Kit Number	Sensor Length (inches)	Sensor Length (millimeters)
546-00126	26	660
546-00128	28	711
546-00130	30	762
546-00132	32	813
546-00134	34	864
546-00136	36	914
546-00140	40	1016
546-00145	45	1143
546-00154	54	1372
546-00160	60	1524
546-00172	72	1829

Warning/Caution Notations

WARNING:		Personal injury/loss of life may occur if a procedure is not performed as specified.
CAUTION:		Equipment damage, or loss of data may occur if the user does not follow procedure as specified.

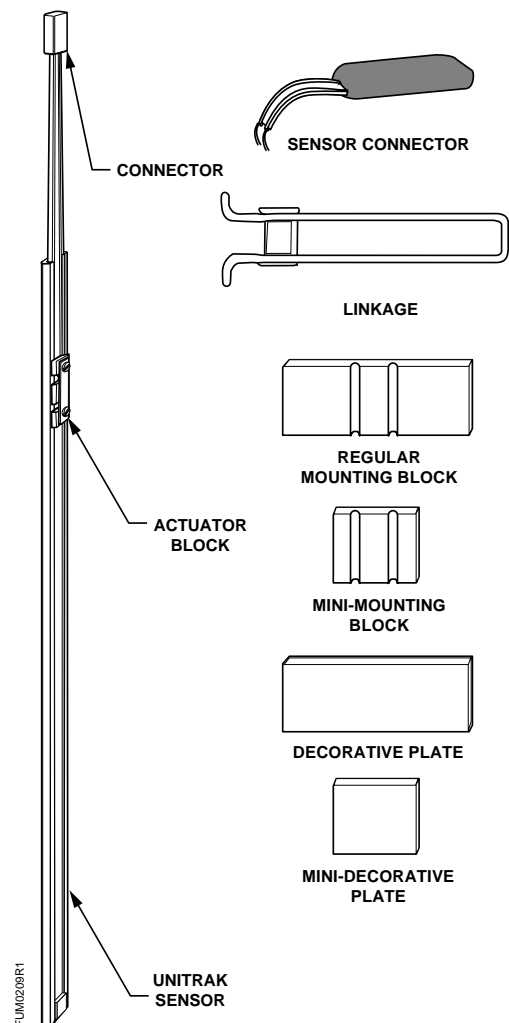


Figure 1. UniTrak® Sash Sensor Assembly Kit.

Required Tools

- #1 Phillips screwdriver
- Flat-blade screwdriver
- 6-inch or larger adjustable wrench
- Paper towels or soft cloths
- Permanent marking pen
- Pencil
- Ruler or measuring tape
- Wire cutters
- Electric drill
- 3/32-inch carbide tip drill bit
- 3/8-inch carbide tip drill bit
- 6-foot ladder

Expected Installation Time

35 minutes

Prerequisites

- If this is your first UniTrak[®] installation, read these instructions entirely before beginning the installation.
- The fume hood sash panels must be installed to ensure proper fit of the UniTrak[®] sensor.
- For retrofit installations, notify the laboratory safety officer that you will be working in the fume hood. Take the necessary precautions to have the fume hood cleaned, prepared and safety certified.
- For best appearance, mount the UniTrak[®] sensor on the inside of the fume hood.
- If corrosive fumes are to be exhausted, mount the UniTrak[®] sensor on the outside of the fume hood.
- The surface on which you mount the sensor strip should be smooth, flat, clean, free of obstacles (rivets, screw heads, nozzles, sash stops, etc.) and abrasives.

Instructions



WARNING:

Do not proceed with this installation until the fume hood has been cleaned and emptied of all hazardous substances including fumes, vapors, toxic materials, contaminants, chemicals, bacteria, etc.

The installation instructions consist of five sections. Sections 3 and 5 have separate instructions for outside and inside mountings of the UniTrak[®] sensor.

1. Measuring the Sash Opening
2. Cutting and Mounting the UniTrak
3. Bending Linkage
4. Attaching Linkages to Sash
5. Wiring



CAUTION:

Do not bend or kink the sensor strip, as this will damage the sensor. Bends in the sensor strip will actuate the strip causing errors in the sash measurement.

Section 1: Measuring the Sash Opening

Outside mounted sash sensors:

1. Measure the length of the mounting surface.
2. With the sash window fully closed, mark the location of the bottom of the sash window with the marker.
3. With the sash window fully open, mark the location of the bottom of the sash window with the marker.
4. Measure the length between the open and closed marks. Add 2 inches (5 cm) to account for over-travel.

NOTE: This measurement must not exceed the mounting surface length from Step 1.

5. Erase the marks on the fume hood by using isopropyl alcohol and a soft cloth.

Inside mounted sash sensors:

1. With the sash window fully closed, mark the location of the bottom of the sash window with the marker.
2. With the sash window fully open, mark the location of the bottom of the sash window with the marker.
3. Measure the length between the open and closed marks. Add 2 inches (5 cm) to account for over-travel.
4. Erase the marks on the fume hood by using isopropyl alcohol and a soft cloth.

Section 2: Cutting and Mounting the UniTrak®

1. Compare the actual length of the sensor strip with the required length of the sensor strip determined in Section 1. If necessary, use the trim tool kit to cut the sensor strip. Be sure that the sensor is face up. See Figure 2. If you do not have to cut the sensor strip, skip to Step 3.
2. Separate the two sensor wires and seal the cut ends with the provided silicon (small, unmarked white tube). Rejoin the sensor wires. See Figure 2.
3. Use the alcohol towelette to clean the surface on which the UniTrak® sensor is to be applied. Dry

the surface thoroughly before mounting the UniTrak.

NOTE: If you apply the UniTrak® sensor without pressure to the mounting surface, you may remove and reapply the sensor if necessary. If pressure is applied, the sensor's adhesive backing may be damaged if the sensor is removed. The sensor will be applied firmly after the linkage-mounting block is installed.

4. Remove the protective backing from the sensor strip. Make sure the sensor connector is positioned at the top of the sensor.
5. Be certain that there is a gap of least 3/8-inch between the sensor strip and the sash panel.
6. When attaching the UniTrak® to the mounting surface hold one end up and lightly place the opposite end down. The UniTrak should be mounted as straight (parallel to the sash) as possible.
7. Locate the correct mounting area for the UniTrak sensor. See Figure 3 and Figure 4.
8. Slide the actuator block to the bottom of the UniTrak® sensor strip.

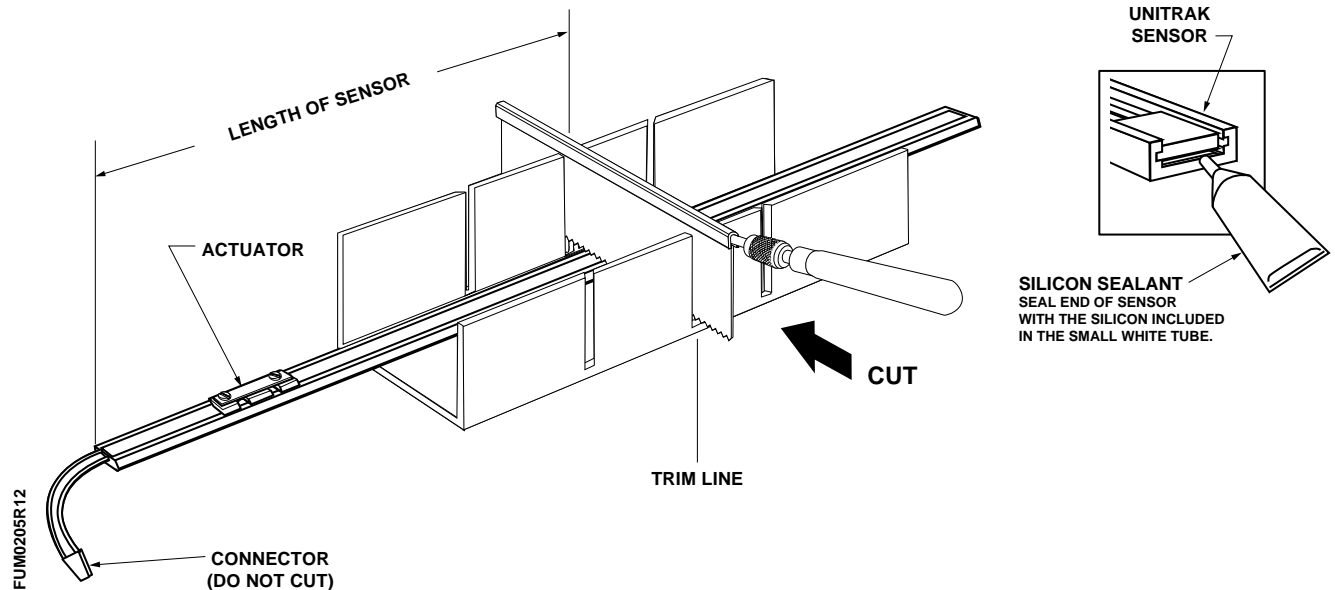


Figure 2. Cutting UniTrak® Sensor Using the Trim Tool Kit.

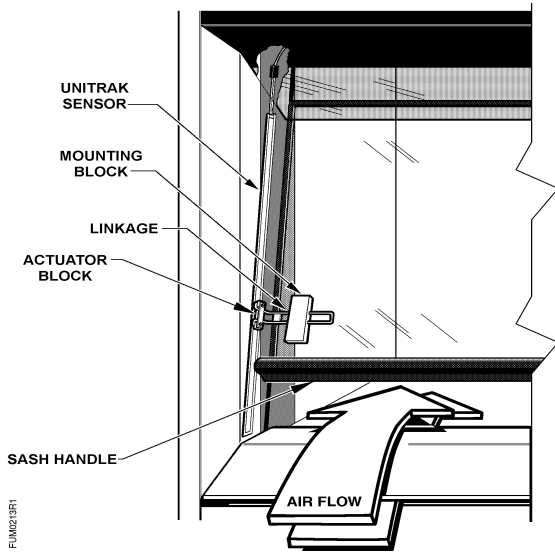


Figure 3. Outside Installation of UniTrak® Sensor.

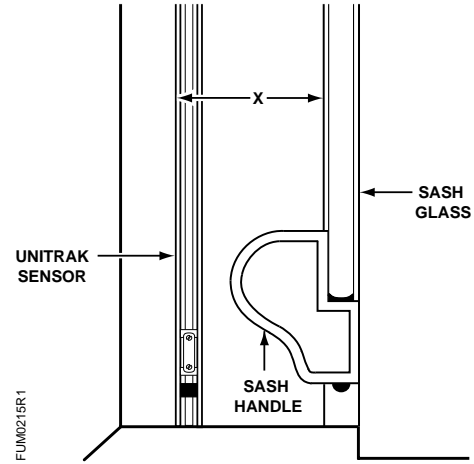


Figure 5. Measuring Between Sash and UniTrak® Sensor.

NOTE: Whenever possible, use the regular mounting block. If space is limited, use the mini-mounting block.

2. Measure the distance (x) from the edge of the sash glass to the edge of the UniTrak®. See Figure 5.
3. If a regular mounting block is used, add 1/8-inch (3 mm) to the measurement made in Step 2. If a mini-mounting block is used, subtract 1/4-inch (6 mm) from the measurement made in Step 2.
4. Measure from the upper end of the linkage to the value you obtained in Step 3. Use the permanent marker to mark this point on the linkage. See Figure 6.

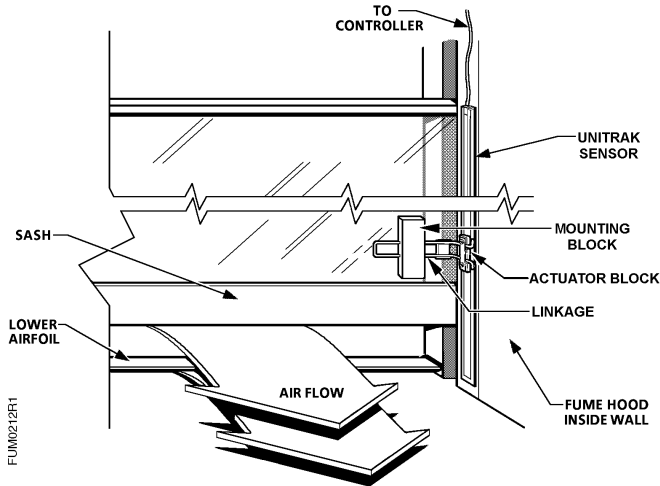


Figure 4. Inside Installation of UniTrak® Sensor.

Section 3: Bending Linkage

Outside sash UniTrak® mount

1. Locate the surface to which the mounting block will be attached.

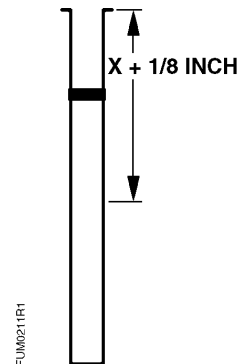


Figure 6. Marking Linkage Bend.

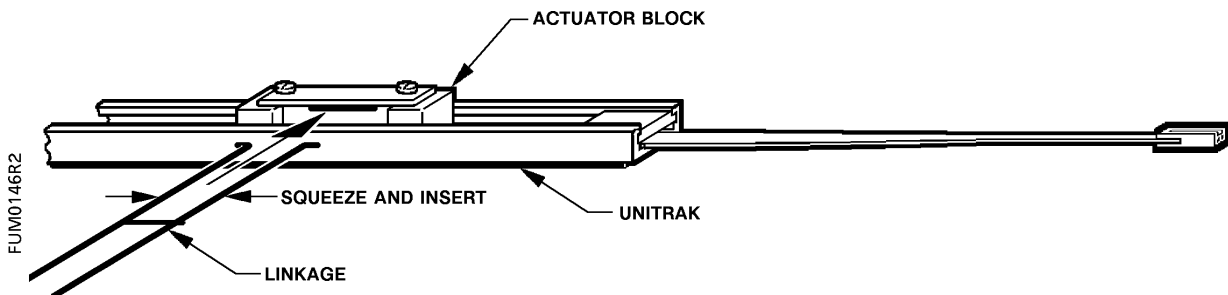


Figure 7. Attaching Linkage to Actuator Block.

5. **For sensors mounted at a 45° angle.** Grip *both* wires of the linkage with the adjustable wrench and bend the linkage at a 45° angle on the mark so that the linkage is parallel to the sash. See Figure 8. Skip to Step 8.

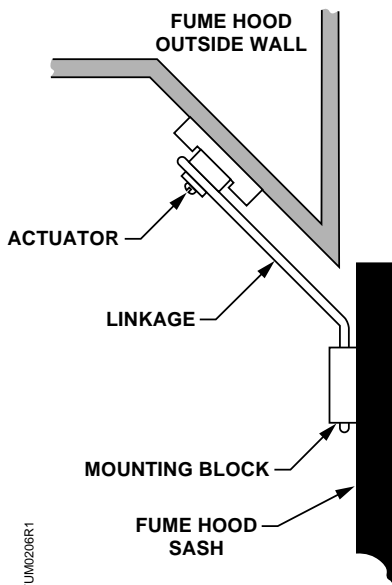


Figure 8. Linkage on 45° Angle.

6. **For sensors mounted at a 90° angle.** Grip *both* wires of the linkage with the adjustable wrench and bend the linkage at a 90° angle on the mark so the linkage is parallel to the sash.
7. Move the sash to the fully open position. Be sure that the actuator block is at the bottom of the sash sensor.
8. Attach the linkage to the actuator block by pinching the upper end of the linkage together and inserting it through the holes in the side of the actuator block. See Figure 7.

Section 3: Bending Linkage

Inside sash UniTrak mount:

1. Locate the surface to which the mounting blocking will be attached.

NOTE: Whenever possible, use the regular linkage mounting block. If space is limited, use the mini-mounting block.
2. Measure the distance (x) from the edge of the sash glass to the edge of the UniTrak. See Figure 5.
3. If a regular mounting block is used, add 1/8-inch (3 mm) to the measurement made in Step 2. If a mini-mounting block is used, subtract 1/4-inch (6 mm) from the measurement made in Step 2.
4. Measure from the upper end of the linkage to the value you obtained in Step 3. Use the permanent marker to mark this point on the linkage. See Figure 6.
5. Grip *both* wires of the linkage with the adjustable wrench and bend the linkage at a 90° angle on the mark so the linkage is parallel to the sash.
6. Move the sash to the fully open position, and be sure the actuator block is at the bottom of the sash sensor.
7. Attach the linkage to the actuator block by pinching the upper end of the linkage together and inserting it through the holes on the side of the actuator block. See Figure 7.

Section 4: Attaching Linkages to Sash Panels

NOTE: For best performance, attach the linkage mounting blocks to the sash glass.

1. To determine the linkage mounting block location, hold the free end of the linkage flat against the sash panel. Generally, the linkage should be mounted approximately 1 inch from the inside edge of the sash panel. See Figure 9.

NOTE: For combination sashes, the mounting blocks must be attached as shown in Figure 10.

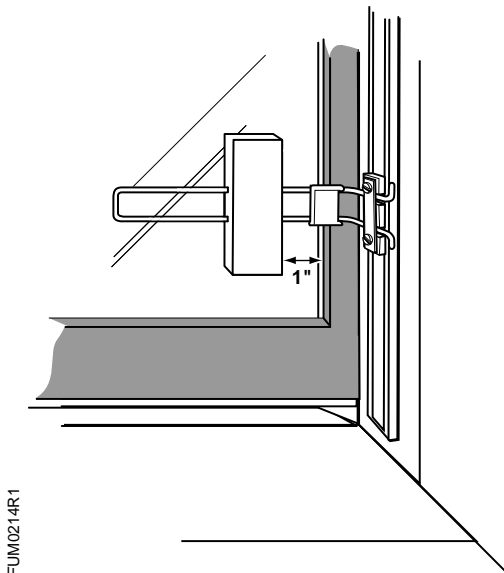


Figure 9. Location of Mounting Block.

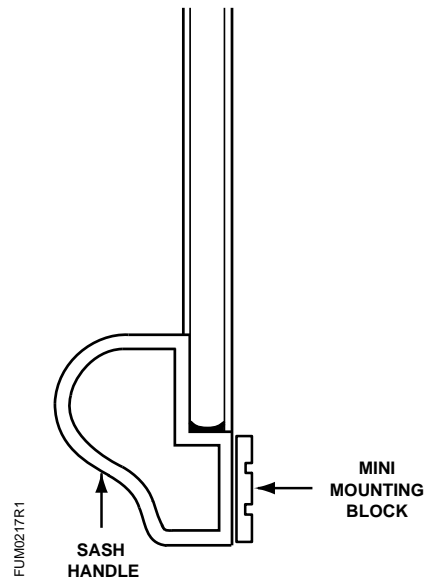


Figure 10. Location of Mounting Block on Combination Sash.

NOTE: Make sure that the block is mounted so that the sash can travel without running the actuator block off the track or interfering with any obstacles.

2. Use the alcohol towelette to clean the surface on which the linkage-mounting block is to be applied. Dry the surface thoroughly before applying the linkage-mounting block.
3. Peel the protective backing from the linkage-mounting block.

NOTE: If applied without pressure to the mounting surface, you may remove and reapply the linkage-mounting block if necessary. If pressure is applied, the adhesive backing on the block may be damaged if the block is removed.

NOTE: For best performance and appearance, mount the linkage-mounting block squarely and uniformly on the sash panel. Also, use the palms of your hands and press the mounting blocks and decorator plates firmly on the sash glass.

4. Insert the linkage into the mounting block and press it onto the block's mounting surface.

5. **For mini mounting blocks only.** Attach a decorator plate to the front of the mounting block to lock in the linkage.
6. Check the alignment of the linkage block and the UniTrak sensor.
 - a. Raise and lower the sash.
 - b. If necessary, re-align the strip so that the actuator block travels evenly along the center of the sensor strip, and that it does not bind.

NOTE: If the mounting block linkage is improperly bent, the tension on the linkage, after being affixed to the sash, may cause the linkage to pull the mounting block from the sash.

7. Press the UniTrak sensor strip firmly to the fume hood.
8. Press the mounting block firmly to the sash panel.
9. **If you are mounting to a metal sash frame.** To reinforce the adhesive, secure the block to the sash with the screws provided.

NOTE: Be sure that the sash glass is not encased in the frame in the area where the screws will be attached. If in doubt, do not drill into the sash frame.

Regular mounting block

- Drill one 3/32-inch hole on the outside of each of the linkage grooves, through the mounting block and into the sash frame. See Figure 11.

Mini mounting block

- Drill one 3/32-inch hole in between the two linkage grooves, through the mounting block and into the sash frame. See Figure 11.
10. Screw the Phillips screw(s) into the 3/32-inch hole(s).

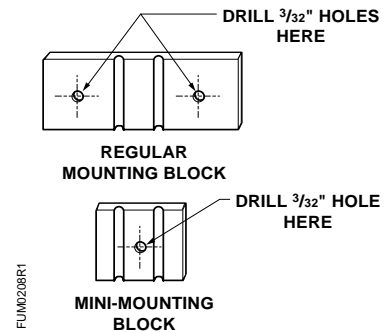


Figure 11. Screw Locations for Mounting Blocks.

11. **For linkage blocks mounted inside of the fume hood and on the glass.** Align a decorator plate (that is the same size as the mounting block) on the front of the sash glass. Clean the decorator plate mounting area with the alcohol towelette. Peel the protective backing from the decorator plate. Line up the edges of the decorator plate with the edges of the mounting block. Press the plate firmly to the sash glass. See Figure 12.

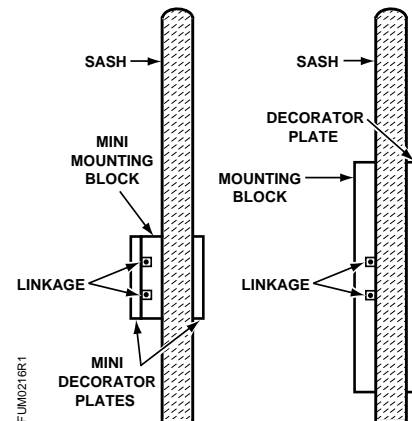


Figure 12. Mounting Block and Decorator Plate Installation for Regular and Mini Mounting Blocks.

Section 5: Wiring

Outside sash UniTrak mount:

1. Locate a position on the fume hood to mount the sensor connector.
2. Plug the sensor connector into the connector on the end of the wires leading from the UniTrak strip.
3. Route the sensor and attached wiring so that when the vertical sash is moved up and down the wires will not interfere with the sash movement.

4. Clean the mounting surface with the alcohol towelette.
5. Peel the adhesive backing from the sensor connector. Affix the connector to the fume hood so that there is no tension and minimal slack on the sensor and its attached wires.
6. Route the sensor wires between the fume hood and the bottom of the airfoil, and to the controller.
7. Secure the wires with the wire tie mounts and nylon wire ties. Trim the wire ties with the wire cutters.
8. If there are multiple sashes, use the wire marker labels to number the end of the sensor wires. See Figure 14 for proper sash numbering.
9. Bundle multiple wires together every 12 inches (306 mm).

5. Reach through the access panel opening (between the inside and outside walls of the fume hood) and plug the sensor connector into the connector on the end of the wires leading from the UniTrak sensor strip.
6. Route the wires between the inside and outside walls, and to the controller.
7. Secure the wires with the wire tie mounts and nylon wire ties. Trim the wire ties with the wire cutters.
8. If there are multiple sashes, use the wire marker labels to number the end of the sensor wires. See Figure 14 for proper sash numbering.
9. Bundle multiple wires together every 12 inches (306 mm).

The installation is now complete.

Inside sash UniTrak mount:

1. Remove the access panel on the inside wall of the fume hood.
2. Drill a 3/8-inch hole through the inside wall of the fume hood.
3. Insert the white plastic bushing in the 3/8-inch hole.
4. Route the sensor wires through the hole, and fill the bushing with the silicon in the white tube. See Figure 13.

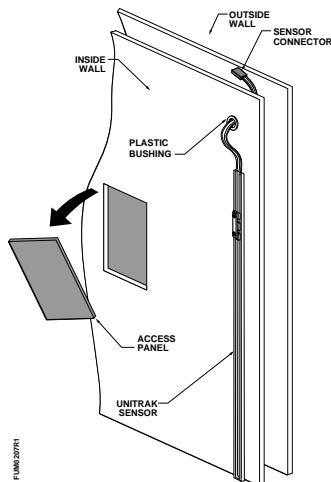


Figure 13. Routing Wires Through Fume Hood Wall.

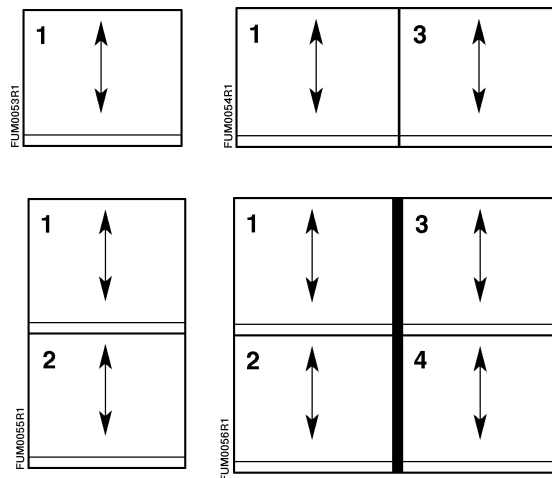


Figure 14. Sash Wire Numbering.

Information in this publication is based on current specifications. The company reserves the right to make changes in specifications and models as design improvements are introduced. © 2000 Siemens Building Technologies, Inc.