

### NJK PRECISION AIR FLOW SENSOR



The NJK Air Flow Station can be mounted with no inlet duct lengths, or with no outlet duct lengths (See Page #6)<sup>1</sup>.

If the NJK-02 Sensor is ordered to be mounted in ductwork with a duct insulation liner the NJK Sensor will be delivered with mounting brackets designed for the lined duct mounting installation.

The NJK-02 Sensor can be enlarged slightly in the field for a tight fit into the ductwork by loosening the set screws in the die cast corners of the NJK Sensor Assembly and sliding the corner pieces outward. The set screws must be re-tightened. It is recommended that the corners be slid out no more than half of the total distance that the die cast corners fit into the extruded sidepieces.

In the event that the NJK-02 Sensor Assembly Flow Frame is too large for the ductwork the extruded side pieces can be trimmed in the field with a chop or circular saw with a non-ferrous saw blade or a Sawzall.

The NJK Air Flow Station can be secured from outside of the ductwork by screwing into each sensor corner pieces (1 inch from edge of damper framing ) with self-tapping screws.

**NJK Sensors installed in an open inlet** such as an Outside Air Damper opening in a Rooftop Unit will require a 1 inch flange around the inlet face of the NJK Sensor Flow Frame.

**Do Not install NJK Sensors downstream of damper banks:**

- Place all NJK sensors ahead of damper banks. This will keep the sensor out of mixing chambers and will eliminate poor sensor readings due to damper restrictions and possible return air entrainment. Whenever the NJK Sensor is mounted inside of a mixing air chamber there may be air flow issues caused by internal system effects and air flow dynamics.

**Do Not install NJK Sensors on the face of a Coil or Filter Bank** as the coil or filters will become loaded with dirt and debris and will cause a false reading through the NJK Sensor.

**Do Not install NJK Sensor Modules external to the Flow Frame on the bottom of the Flow Frame** as this can allow water to build up inside of the Sensor Module and effect sensor accuracy. This is most often an issue with outside air applications.

**Do Not install NJK Sensors directly downstream of turning vanes** as they can divert air from the perimeter of the ductwork and create an unreliable flow signal through the NJK Sensor.

## NJK PRECISION AIR FLOW SENSOR

### NJK Precision Sensor Assembly Instructions:

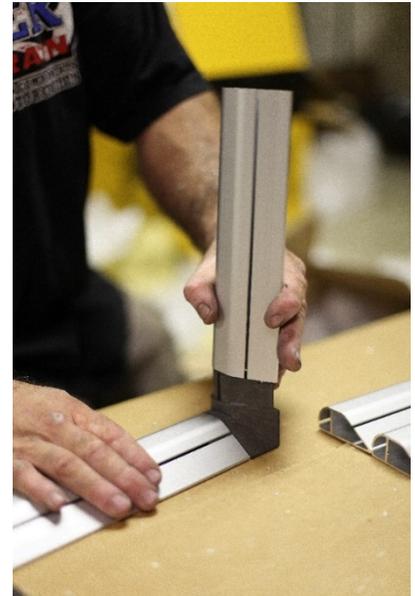
Open sensor assembly package and inspect contents for any damage

- Verify that there are two equal length side extrusion pieces and an equal length top and bottom piece.
- Verify that there are four aluminum corner pieces, a sensor probe assembly and transmitter, and an operator display panel.

Lay sensor bottom piece on its back on the floor, slide one corner piece into each end of the sensor bottom piece. (set screws in corner pieces may need to be loosened to allow the corner piece to slide into place). Tighten set screws snugly to extrusion piece.



Slide extrusion side piece onto sensor bottom piece corner (set screws in corner pieces may need to be loosened to allow the side piece to slide into place). Tighten set screws snugly to extrusion piece. Repeat for other side piece.



Flip top piece assembly onto side piece extrusions while setting corner pieces into side extrusion pieces (set screws in corner pieces may need to be loosened to allow the side pieces to slide into place). Tighten set screws snugly to extrusion piece.



Locate pre-drilled mounting holes on Sensor Flow Frame. Match the NJK Sensor Module to the mounting holes in the Sensor Flow Frame and secure the Sensor Module to the sensor frame by four screws (Included).

\*Please note that air flow direction is marked on the Sensor Module and will be labeled on the sensor frame near the pre-drilled mounting holes. The sensor air flow must be the same for both the sensor module and the flow frame.



### NJK PRECISION AIR FLOW SENSOR

#### Rain Hood Mount Installation: (Sensor Module internally mounted)

1. Set NJK Air Flow Station inside rain hood and assure proper fit.
2. Flow direction arrow on NJK Air Flow Station should match air flow in ductwork.
3. Secure NJK Air Flow Station from outside of rain hood by screwing into corners with self-tapping screws.
4. Assure that all screws and the NJK Air Flow Station do not interfere with damper operation or functionality.
5. Drill 1-1/4" hole in side of damper housing section and pull sensor wire from the NJK Sensing Module to the outside of the air system.



#### Assemble in Duct Installation: (Sensor Module internally mounted)

1. Bring NJK Air Flow Station sensor pieces into duct area ensuring 2 straight extrusion pieces of one dimension and two of the other side wall dimension (NJK Sensor Module will need to be mounted on the extrusion piece with factory mounting holes) and that you have 4 die cast corner pieces.
2. Assemble the four extrusion pieces together with the 4 corners to form the NJK Air Flow Station sensor assembly on a slight angle in the ductwork.
3. Move the NJK Air Flow Station sensor assembly into place and slide the 4 corners out to match the duct walls in the installation. Be careful not to slide the corner pieces out more than 1-1/2" to avoid disassembling the sensor assembly.
4. Flow direction arrow on NJK Air Flow Station should match air flow in ductwork
5. Secure NJK Air Flow Station from outside of ductwork into each sensor corner piece (1 inch from edge of ductwork) with self-tapping screws.
6. Drill 1-1/4" hole in side of ductwork directly left or right of cut-out section and pull sensor wire from the NJK Sensing Module to the outside of the air system (using grommet provided).



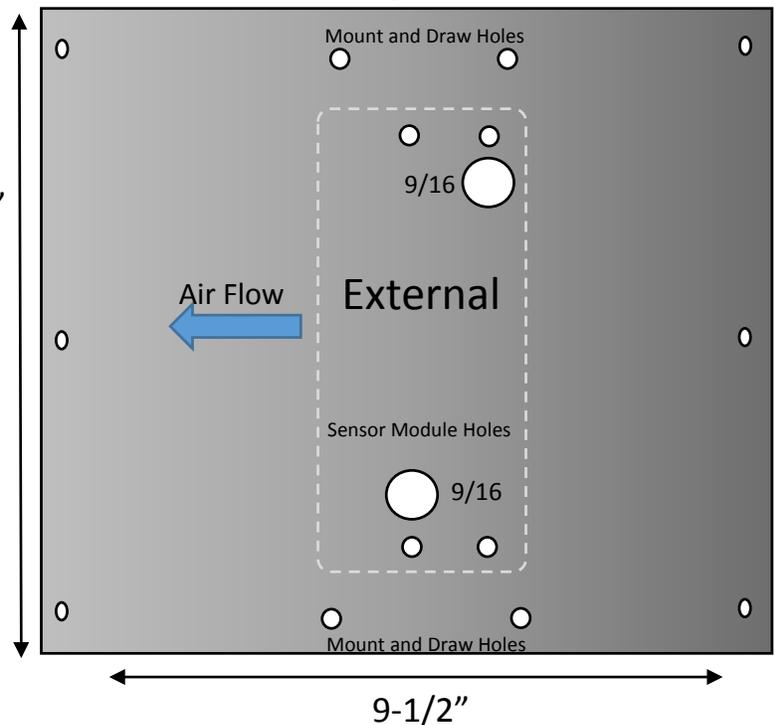
## NJK PRECISION AIR FLOW SENSOR

### Assemble in Duct Installation: (Sensor Module Externally mounted)

1. Bring NJK Air Flow Station sensor pieces into duct area ensuring 2 straight extrusion pieces of one dimension and two of the other side wall dimension (NJK Sensor Module will need to be mounted on the extrusion piece with factory mounting holes) and that you have 4 die cast corner pieces.
2. Assemble the four extrusion pieces together with the 4 corners to form the NJK Air Flow Station sensor assembly on a slight angle in the ductwork.
3. Move the NJK Air Flow Station sensor assembly into place and slide the 4 corners out to match the duct walls in the installation. Be careful not to slide the corner pieces out more than 1-1/2" to avoid disassembling the sensor assembly.
4. Flow direction arrow on NJK Air Flow Station should match air flow in ductwork
5. Cut rectangular hole in ductwork (where Sensor Module will be placed). Cut hole no smaller than 6-1/4" in height and 2-1/2" in width, cut hole no larger than 7-1/4" in height and 4-1/4" in width.
6. Add foam seal kits to reverse side of NJK Adaptor Plate and align NJK Sensor so that pre-drilled holes in NJK Sensor Frame are located in the center of the rectangular cut opening.
7. Add NJK Adaptor Plate to exterior of ductwork while aligning holes in NJK Adaptor Plate with pre-drilled holes in NJK Sensor Frame. Pay attention that "Exterior" marking is visible on NJK Adaptor Plate as a reversed installation of the Adaptor Plate will not allow alignment with the NJK Sensor Frame pre-drilled holes.
8. Flow direction arrow on NJK Adaptor Plate should match air flow in ductwork 8-1/2"
9. Fasten NJK Adaptor Plate to NJK Sensor Frame Assembly via 4 screws in exterior – center of adaptor plate (Mount and Draw screws). These screws can be used to draw NJK Sensor Frame tightly to the NJK Adaptor Plate for an air-tight fit.
10. Fasten NJK Adaptor Plate to existing ductwork by screws in the outside edge of the NJK Adaptor Plate into the ductwork.
11. Mount and tighten NJK Sensor Module to NJK Adaptor Plate.
12. Flow direction arrow on NJK Sensor Module should match air flow in ductwork.



### NJK Adaptor Plate



**Note:** The NJK Adaptor Plate is not to be used as a drilling template to align the sensor module or the mounting holes in the NJK Flow Frame. NJK Precision cannot guarantee sensor accuracy or repeatability if any of the sensor holes are misaligned or improperly drilled or sealed.

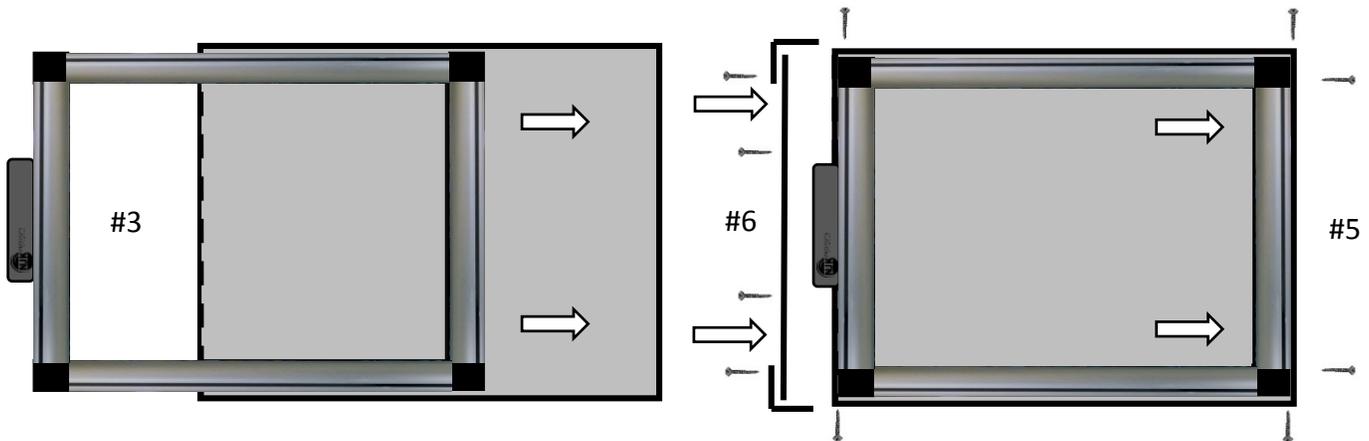
## NJK PRECISION AIR FLOW SENSOR

### Cut and Slide\* Installation: (Delivered with Finish End Plate Option)

1. Cut opening in the long side of ductwork the full width of the duct and 6 inches high.
2. Install Angle Mounting Brackets in each of the four corners directly below the cut-out section approximately 1 inch inward from each corner (Vertical Mount).
3. Set the NJK Air Flow Station into the cut-out section and rest on all four Angle Mounting Brackets. Ensure that air flow station is completely into the insert.
4. Flow direction arrow on NJK Air Flow Station should match air flow in ductwork.
5. Secure NJK Air Flow Station from outside of ductwork into each sensor corner piece (1 inch from edge of ductwork) with self-tapping screws.
6. Add end cover plate and corners to the NJK Flow Station and fasten with screws provided.

\* - In the event that sufficient side room is unavailable to slide the Sensor into the ductwork the NJK Sensor can be provided with Extrusion Couplings

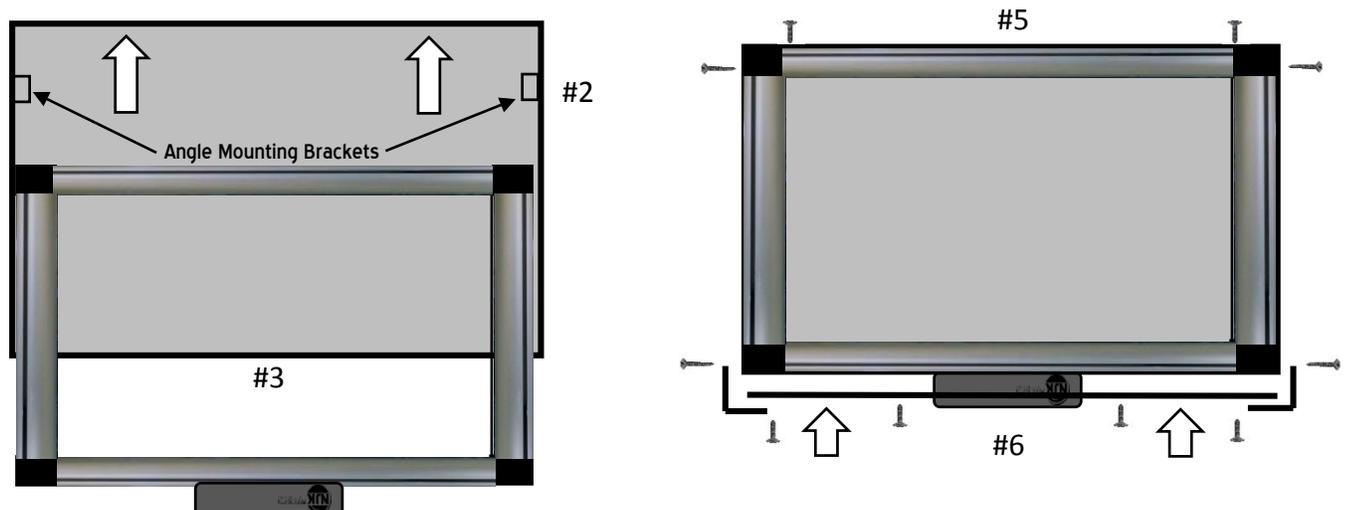
### Horizontal Mount



Slide the NJK Air Flow Station into the cut-out section and rest against opposite duct sidewall. Ensure that air flow station is completely into the insert.

Secure NJK Air Flow Station from outside of ductwork into each sensor corner piece (1 inch from edge of ductwork) with self-tapping screws. Add cover plate and corners to the NJK Flow Station and fasten with screws provided.

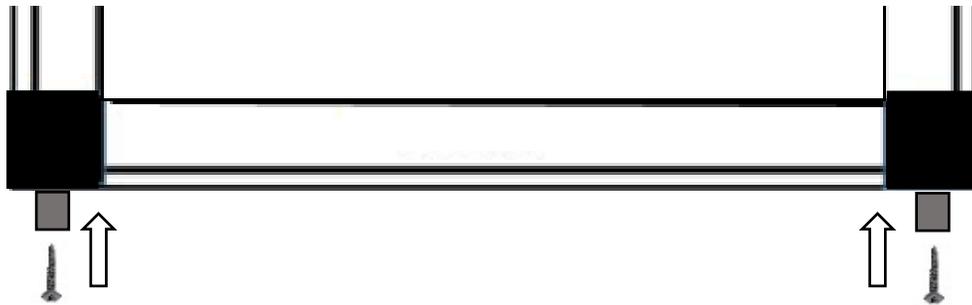
### Vertical Mount



## NJK PRECISION AIR FLOW SENSOR

### Lined Duct Installation: (Sensor Module internally or externally mounted)

1. Fasten duct liner offset pieces to corners of NJK Air Flow Station.
2. Cut duct liner where duct liner offset pieces holding the NJK Air Flow Station will be mounted
3. Flow direction arrow on NJK Air Flow Station should match air flow in ductwork
4. Put duct liner back into position assuring that duct liner is back in place and is not covering any of the NJK Air Flow Station inlet aperture
5. Secure NJK Air Flow Station from outside of ductwork into each sensor corner piece (1 inch from edge of ductwork) with self-tapping screws.
6. Drill 1-1/4" hole in side of ductwork directly left or right of cut-out section and pull sensor wire from the NJK Sensing Module to the outside of the air system (using grommet provided).



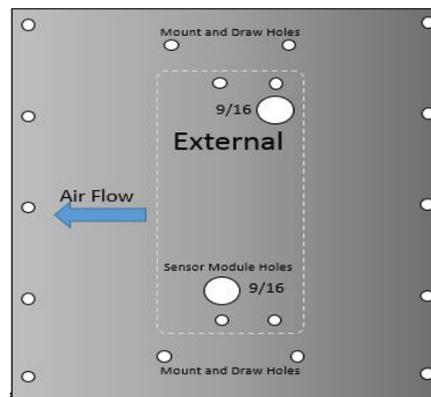
**NJK Mounting Brackets**



**NJK End Plate**



**NJK Adaptor Plate**



**Duct Liner Offset**



**NJK Angle Mounts**



**1 - System Effects** must always be considered when installing an NJK Air Flow Measuring Station to assure that the air flow measured through the NJK Sensor is a true representation of the desired air flow and is not being effected by other air sources such as return air flows or by system dynamics that adversely effect the air flow through the NJK Sensor. **System Effects must also be considered** to assure that the installation of the NJK Sensor does not create any negative impact on the dynamics of the air system such as stratification, excessive flow restrictions, or low temperature detector (freeze stat) operations.