

### NJK-02 Precision Ordering:

NJK items available:

- NJK Sensor Flow Frame
- NJK Flow Measuring Module
- NJK Signal Processing Unit – S (Single Output)
- NJK Signal Processing Unit – M (Multiple Output)
- NJK Multi Sensor Hub
- NJK Cables



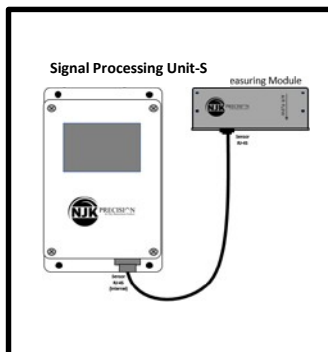
**NJK Signal Processing Unit – S**, “Single Sensor, Single Output” is for a single sensor only. These must be ordered and will be delivered similar to our prior sensor with one Sensor Flow Frame, one Flow Measuring Module, and one Signal Processing Unit – S (Single Output), and one cable.

- NJK Signal Processing Unit – S, has one 1 to 10 VDC output for the Building Automation System.
- Total sensor cost will be similar to prior sensor costs.

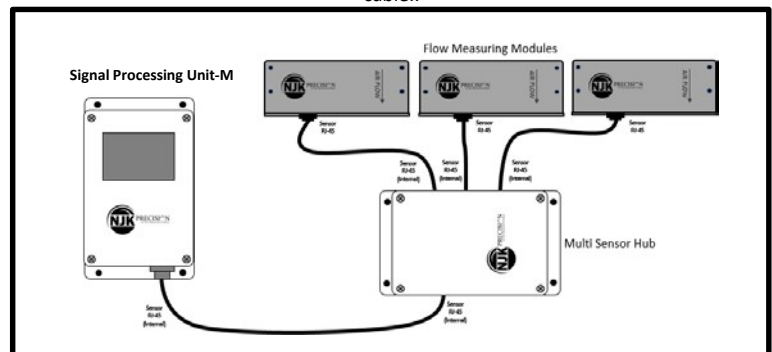
**NJK Signal Processing Unit – M**, “Multiple Sensor, Multiple Output” is for multiple sensors. These must be ordered and will be delivered with the desired number of Sensor Flow Frames, Flow Measuring Modules, one Multi Sensor Hub, and one Signal Processing Unit – M (Multiple Output), and cables for each.

- NJK Signal Processing Unit – M, has four 1 to 10 VDC outputs for the Building Automation System.
- NJK Signal Processing Unit – M, will be delivered with a Multi Sensor Hub and cables for each sensor connection.
- NJK Signal Processing Unit – M, can accept several inputs from the same input type (multiple Outside Air, Supply Air, etc.) to be added or averaged to one of four 1 to 10 VDC outputs for the Building Automation System.
- NJK Signal Processing Unit – M, can accept several inputs from different input types (Outside Air, Supply Air, Return Air, etc.) or even from different air handling systems to be programmed to one of four 1 to 10 VDC outputs for the Building Automation System.
- In applications where system upgrades to add multiple sensors to a single sensor order may happen the NJK Signal Processing Unit – M should be used to avoid a complete system changeout in the future.
- Total sensor cost will vary as sensor needs are met but will often be less than the prior single sensor, single display costs when used in multiple sensor applications due to the necessity for only one Signal Processing Unit to communicate with the multiple sensors.

For single NJK Flow Measuring Module applications, the NJK Signal Processing Unit-S will receive a direct RJ-45 connection from the NJK Flow Measuring Module.

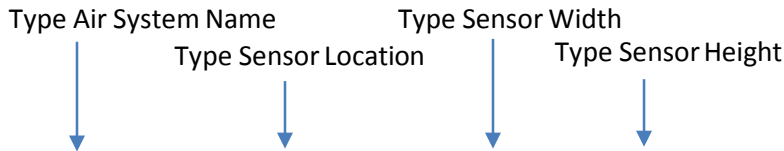


The NJK Signal Processing Unit-M can accept signals from multiple Flow Measuring Modules. This is done by connecting all NJK Flow Measuring Modules to one NJK Multi Sensor Hub enabling all sensors to connect to the Signal Processing Unit via one RJ-45 cable..



**NJK-02 Precision Ordering:**

To order NJK Air Flow Sensors from the NJK Order Form or using the NJK Technical Submittal use the following process below. Please refer to pages 3 - 6 of this document for assistance and/or contact your NJK Sales Representative.



Unit	Location	Width	Height	SPU	Cable	Mtg. Option	Mtg. Location
AHU-14	Supply Air	64	32	SPU-S	Std	None	Int-Height
				SPU-S SPU-M			
Then select from Drop Down Menus:				Select Sensor Processing Unit			

Unit	Location	Width	Height	SPU	Cable	Mtg. Option	Mtg. Location
AHU-14	Supply Air	64	32	SPU-S	Std	None	Int-Height
					Std 50' 75' 100'		
					Select Cable Length		

Unit	Location	Width	Height	SPU	Cable	Mtg. Option	Mtg. Location
AHU-14	Supply Air	64	32	SPU-S	Std	None	Int-Height
						None End Plate Slv-TDF	
						Select Mounting Type	

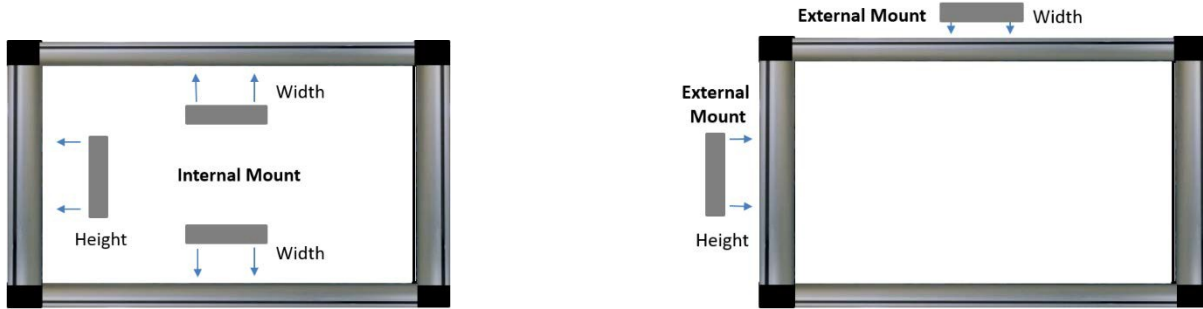
Unit	Location	Width	Height	SPU	Cable	Mtg. Option	Mtg. Location
AHU-14	Supply Air	64	32	SPU-S	Std	None	Int-Height
							Int-Height Int-Width Ext-Height Ext-Width
							Select Mounting Location

**NJK-02 Precision Ordering:**

**NJK-02 Ordering: Determine Sensor Module Placement.**

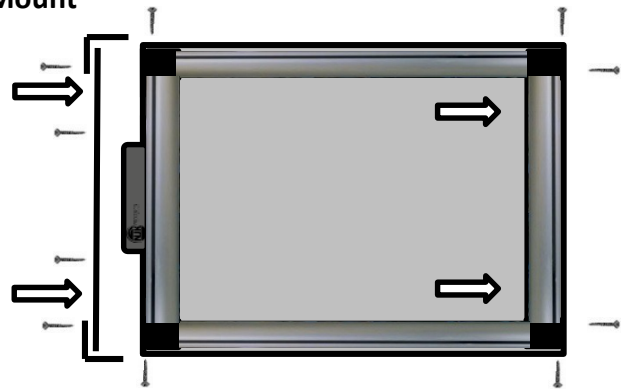
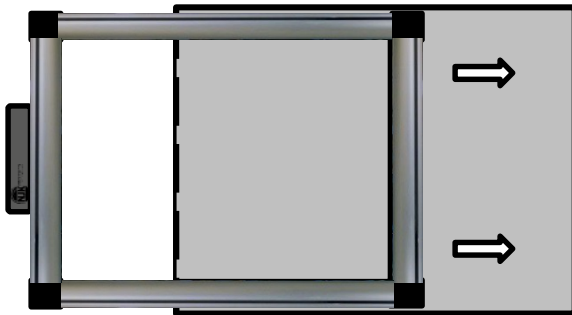
NJK Flow Measuring Modules are available mounted **inside (Internal)** of the NJK Sensor Flow Frame or **outside (External)** to the NJK Sensor Flow Frame. These can also be mounted on the Height side of the NJK Sensor Flow Frame or on the Width side of the NJK Sensor Flow Frame.

- **Rain Hood** and **Assemble in Duct** sensors will come with an Internally mounted NJK Flow Measuring Module .
- **Sleeve Mounted** and **Cut and Slide** applications will normally come with an Externally mounted NJK Flow Measuring Module
- In both of these applications we will need to know if the NJK Flow Measuring Module will be located on the Height side or on the Width side of the NJK Sensor Flow Frame.

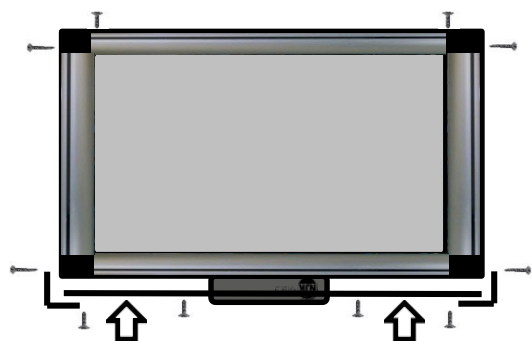
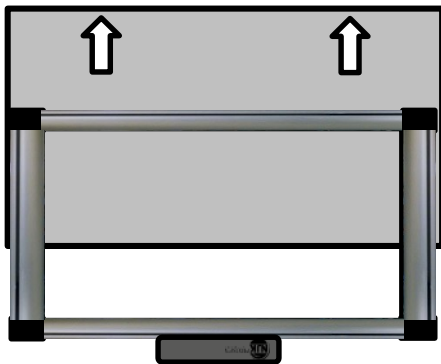


**NJK-02 Ordering: Cut and Slide-In Option with Finish End Plate**

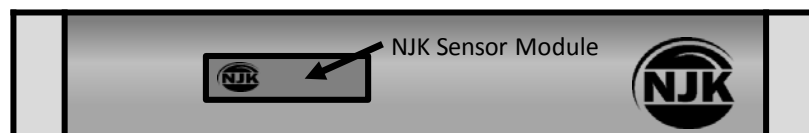
**Horizontal Mount**



**Vertical Mount**



**NJK Sensor Finish End Plate Option:**



**NJK-02 Precision Ordering:**

**NJK-02 Ordering: Mounting Options.**

Rain Hood Mount Installation: (Sensor Module internally mounted)



**Sheet Metal Sleeve Option**

The NJK Precision Air Flow Measuring Station can be ordered with a sheet metal sleeve to allow for easy field adaptation of “bolt-together” fastening flange products for installation ease or if the job specifications require their usage. The NJK Sensor Flow Frame will come mounted externally to the sensor frame. Available configurations are Sleeve-TDF.



Sleeve-TDF,



**Sensor Mounting Accessories:**

**Mounting Brackets**



**Weather Tight Fittings**



**NJK End Plates**



## NJK-02 Precision Ordering:

### NJK-02 Air Flow Measuring Station Deliverables:

1. The NJK Sensor Flow Frame will usually ship disassembled and will require field assembly.
2. The NJK Flow Measuring Module will contain the sensing probe and signal transmitter. This will come with a factory cable that will be 25 feet in length. Custom cables can be purchased at 50', 75', and 100'.
3. Ideally all NJK Flow Measuring Module will be mounted **internally** on the NJK Sensor Flow Frame and will be located on the longer side of the assembly. If an alternate placement of the NJK Flow Measuring Module is desired this must be stated when the NJK Sensor is ordered.
4. All NJK-02 Sensor orders will be delivered with an Assembly and Mounting Guide, a Building Automation Data sheet, and an Installation and Operators Manual.
5. All NJK Sensor Flow Frames will be delivered with mounting brackets for both the front and rear of the sensor housing for sensor attachment purposes (unless ordered with an installation sleeve). The NJK Sensor Flow Frame can be secured from outside of the ductwork by screwing into each sensor corner piece (1 inch from edge of damper framing ) with self-tapping screws. Screw-Through extrusion mounting can be used to secure the Flow Frame in place provided that the screw holes are moderately air-tight
6. NJK Sensors ordered with the smallest dimension being less than 16" and a sizing aspect ratio of 3 to 1 or less may use the smaller sized sensor flow frame. Any sensor larger than that will be delivered as the larger sized NJK Sensor Flow Frame .
7. NJK Sensors ordered with the longest dimension being less than 10' (120 inches) and a sizing aspect ratio of 3 to 1 or less will be a standard NJK Precision product order. Any sensors greater than 120 inches will be a special order and may require special mounting and location considerations.
8. NJK Sensors required to fill a single opening with a sizing aspect ration of greater than 4 to 1 should be sold with two NJK Sensor Flow Frames side by side with a Multi Sensor Processing Unit to cover signals from both Flow Frames unless optimal system flow dynamics can be achieved.
9. The NJK Air Flow Measuring Station can be ordered with a sheet metal sleeve to allow for easy field adaptation of "bolt-together" fastening flange products for installation ease or if the job specifications require their usage. The NJK Flow Measuring Module will come mounted externally to the sensor frame.
10. All electrical connections will be an RJ-45 plug-in from the NJK Flow Measuring Module to the NJK Signal Processing Unit, and will require ½ inch and ¾ inch EMT fittings to couple the wires to the SignalProcessing Unit
11. NJK Sensor Flow Frame Sizing is either the Plan and Specification duct size or the sensor inlet opening size. NJK will manufacture every sensor ½" less than the size that is quoted (both height and width).
12. 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.
13. NJK Sensor Flow Frames, NJK Flow Measuring Module , NJK Signal Processing Unit, and NJK Multi Sensor Hubs all come with a three year product warranty.
14. The NJK Air Flow Measuring Station can be ordered with a sheet metal Finish End Plate for use with installations where ductwork is already in place and the NJK Sensor will be mounted inside of a cut opening in the ductwork (See Page 4). The opening will need to be 6 inches in height and the entire width of the duct where the sensor will be mounted. Finish End Plates are available for either horizontal or vertical sensor mounts and are delivered in 22 gauge thickness and come with alignment mounts and 2 inch by 2 inch angle corner plates. The NJK Flow Measuring Module will come mounted externally to the sensor frame and will extend through an opening in the Finish End Plate

## NJK-02 Precision Ordering:

### NJK-02 - Location and Mounting: Installation Guidelines.

All NJK-02 Air Flow Measuring Station installations should be verified by an NJK Sales Representative or NJK Factory Representative to assure that the air flow measured through the NJK Sensor Flow Frame 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 Flow Frame operations.

Air Flow Sensor Accuracy is often enhanced by straight, even runs of ductwork that help smooth out air flows and signal noise. The NJK Sensor will perform accurately in these ideal settings. We anticipate that our product may be installed in less than ideal placements such as limited straight duct lengths or ductless (plenums or rain hood) installations.

*There are some installation situations that should be avoided:*

1. Do Not install the NJK Sensor Flow Frame immediately downstream of damperbanks:
2. Place all NJK Sensor Flow Frames 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.
3. Do Not install the NJK Sensor Flow Frame in an outside air louver section where the NJK Sensor is hanging freely in the OA chamber as this can allow air to swirl on the outlet side of the sensor and may cause a false reading through the NJK Sensor Flow Frame .
4. Do Not install the NJK Sensor Flow Frame for multiple branch duct flow measurements directly on a main ducted plenum. The air that will flow in the plenum will inherently create a negative swirling effect at the branch transition and will cause a false reading through the NJK Sensor Flow Frame . If the NJK Sensor Flow Frame is to be mounted in a branch duct off from a main supply plenum with multiple branch ducts move the NJK Sensor further downstream in the branch ductwork to avoid the turbulent flow at the plenum to branch transition.
5. Do Not install the NJK Sensor Flow Frame 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 Flow Frame.
6. Do Not install NJK Sensor Modules external to the Flow Frame on the bottom of the Flow Frame in an application close to an outside air inlet as this can allow water to build up inside of the Sensor Module and effect sensor accuracy. Refer to your Sales Representative for approval.
7. Do Not install the NJK Sensor Flow Frame 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.
8. Do Not install the NJK Sensor Flow Frame in a supply plenum with a large (or multiple) Centrifugal Fan feeding the air into a supply plenum. This air will be distributed unevenly throughout the supply plenum and can also have strong cross flows of air across the face any of the supply duct take offs.
9. Do Not install the NJK Sensor Flow Frame in a supply plenum with a large Centrifugal Fan feeding air into the supply plenum tapered "bell-mouth" as the air will be turbulent. The tapered section of ductwork can allow supplied air to be forced through the center of the duct and bypassing some of the sampled air from the NJK Sensor Flow Frame.

Although some customers have found ways to make the NJK Sensor Flow Frame operate effectively in applications that NJK Precision suggests to avoid, NJK Precision will not warrant accuracy or repeatability when the NJK Sensor Flow Frame is installed outside of recommended installation practices.