Air Flow Sensor

The air flow sensor is applicable to various building automation,environmentamonitoring, and HVAC systems. It features asimple appearance, with directly -connectable terminals for convenien-tinstallation. The product utilizes a high .perfor-mance embedded microprocesso!along with high -precision sensors, capableof meeting all kinds of high - precision andhighly stable measurement reguirements and adapting to different environ-mentalconditions.The air flow sensor offers cur-rent, voltageand 485 monitoring output signals for selection, employing a 485 serial port output and Modbus communication protocol.It is commonly used in HVAC systems, power plant monitoring, dynamic environmental monitoring, meteorologica environmental monitoring, agricultural environmen-tal monitoring, oiopharmaceutica environmenta monitoring, as well as in places like airports sub-way stations, hotels, museums stadiums, etc.

AFS-150

Highlights

- High -precision pressure sensor
- Suitable for HVAC systems
- Advanced circuit design, ensuring highaccuracy and stable performance
- Concise appearance, easy installationand cost -effective
- Active -adiustable sensor output
- Programmable measurement range
- output and fan characteristics from fanmanufacturers
- Professional and practical productdesign, able to withstand harshenvironmental conditions
- Support for Modbus and BACnetprotocols
- Easy configuration of air flow inengineering units such as CFM and m3r

Specifictions

Typical Application	Duct mount indoors
Output Signal	Supports 4-20ma and 0-10V (default)
Output Signal Drive	〉500Ω for mA mode,75mA,max output drive for voltagemode
Power	15-24V+/-10% AC or DC,1 Watt typical
Plastic Housing	Flammability rating UL 94V0 file E194560
Size	72.2mmX64mmX38.4mm

Pressure	Measurement range	- 1500 to + 1500 Pa(-6 to 6 inches H2O)
	Zero point accuracy	0.2 Pa
	Span accuracy	3% of reading (- 500 to + 500 Pa),6% of reading (- 1500 to + 1500 Pa)
	Zero point repeatability	0.1 Pa
	Span repeatability	0.5% of reading (- 500 to + 500 Pa),3% of reading (- 1500 to + 1500 Pa)
	Span shift due to temperature variation	< 1% of reading per 10°C
	Offset stability	< 0.03 Pa/year
	Flow step response time	< 3ms
	Resolution	16 bit
	Calibrated for	Air, N2
	Media compatibility	Air, N2, O2, non-condensing
Temperature Specification	Measurement range	- 40 °C to +85 °C
	Resolution	16 bit
	Accuracy	2 °C (-10 °C to +60 °C) 3 °C (-40 °C to +85 °C)
	Repeatability	0.1°C

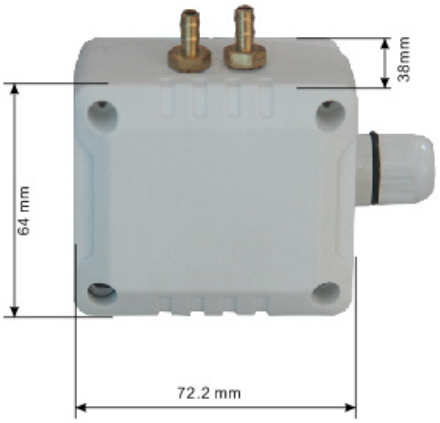
Part Number Scheme

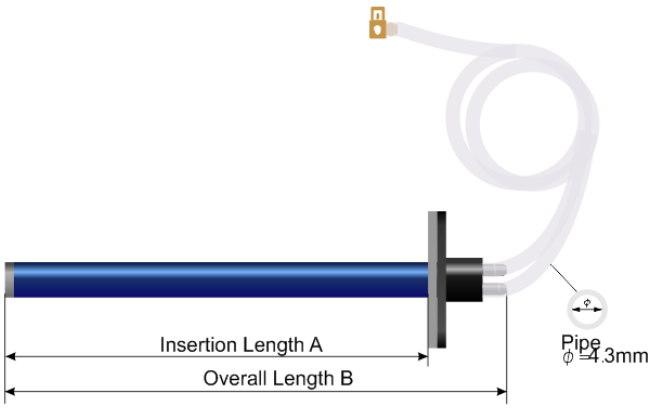
AFS —150

Code	Description
AFS	Air Flow Sensor

Code	Pitot Length
150	6''
200	8''
250	10''
300	12''
1000	39''
*	other custom lengths are available , no minimum order

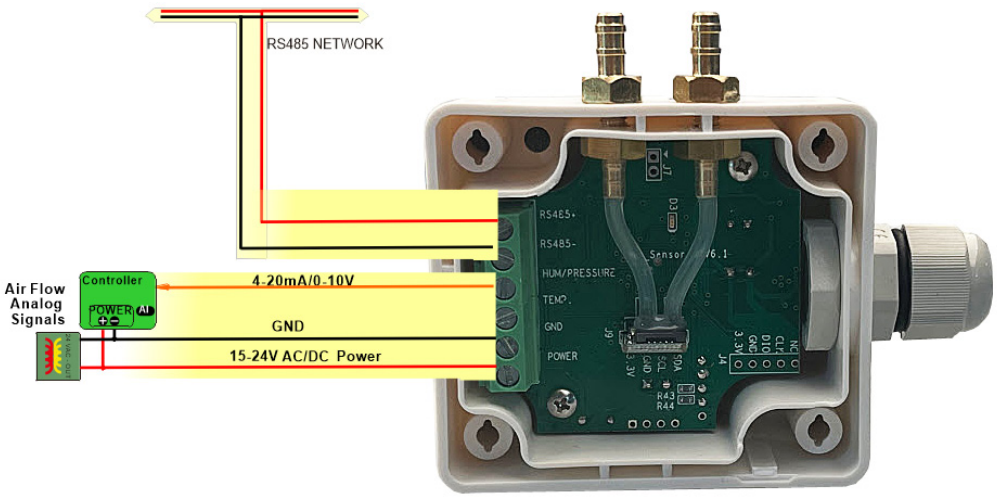
Dimensions



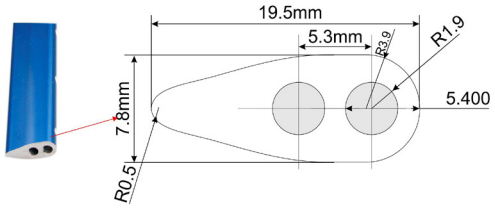


Insertion Length A (mm)	Overall Length B (mm)
150	193
200	243
250	293
300	343
1000	1043
Other custom lengths are available, no minimum order	

Wiring Diagram



Probe	Material	Aluminium alloy
	Dimensions	7.8 x 19.5mm (0.3”x 0.8”)
	Tubing inner diameter	Φ3.8mm
Rubber cap	Material	Rubber
	Connections	To suit 4mm (0.16”) i/d PVC air tubing
Duct flange	Material	ABS
	Dimensions	30 x 75mm (1.2”X 3”)
Air tube	Material	PU
	Dimensions	inside and out side diameter Φ 4 x Φ6mm length 1m



K Factor

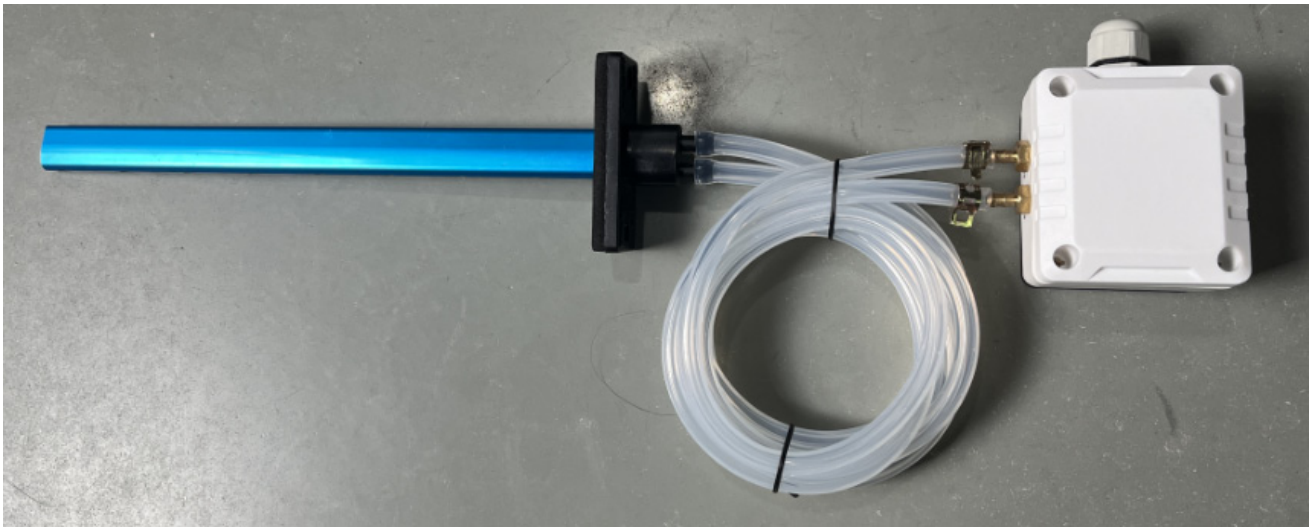
Velocity (KM/H)	Pitot length(mm) Fan speed(Hz)	150	200	250	300	350	Average (mBar)	Comments / Remarks
25.2	60	0.420	0.421	0.427	0.424	0.451	0.429	
23.7	55	0.360	0.365	0.377	0.368	0.393	0.373	
21.7	50	0.306	0.307	0.314	0.308	0.332	0.313	
19.8	45	0.245	0.250	0.258	0.251	0.269	0.255	
17.7	40	0.197	0.195	0.198	0.195	0.208	0.199	
15.1	35	0.146	0.148	0.149	0.147	0.156	0.149	
12.6	30	0.103	0.101	0.102	0.100	0.107	0.103	
9.6	25	0.060	0.060	0.059	0.056	0.059	0.059	
7.4	20	0.032	0.033	0.034	0.034	0.036	0.034	

Fan Speed (Hz)	Left Side (KM/H)	Center (KM/H)	Right Side (KM/H)	Averge Speed (KM/H)
60	25.1	24.8	25.6	25.2
55	23.6	23.3	24.1	23.7
50	21.7	21.2	22.2	21.7
45	19.6	19.4	20.3	19.8
40	17.7	17.4	17.9	17.7
35	15.1	14.8	15.4	15.1
30	12.8	12.4	12.6	12.6
25	9.6	9.4	9.7	9.6
20	7.7	7.2	7.4	7.4

Installation

Step 1:
First, carefully remove the parts from thepackaging and check for any damage.

Step 2:
as shown in the diagrams, attach one endof the pitot tube to the flange and the otherend to the sensor, securing it with a clip.Just two simple steps, and the installation iscomplete.



Register List

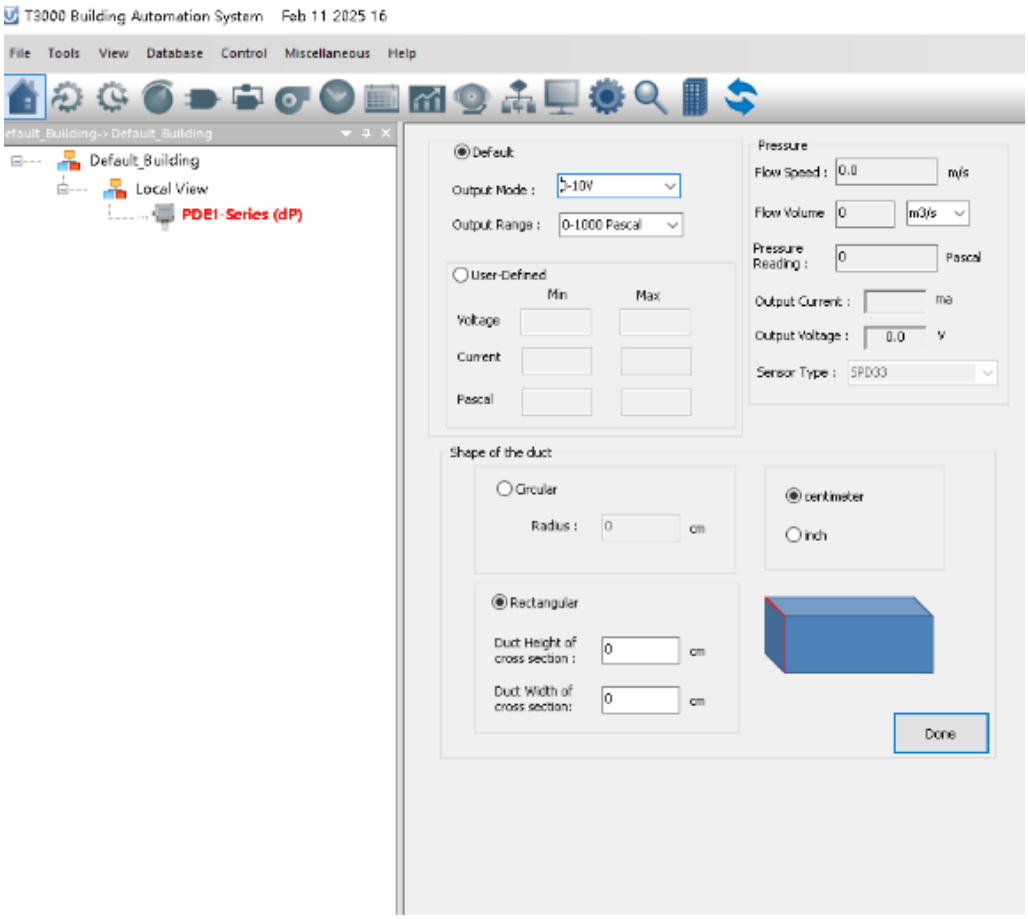
Address	Bytes	Register and Description
0	4	serial numbler
4	2	firmware Version
6	1	Modbus device address
7	1	Prodouct model
8	1	Hardware Version Number
10	1	0…modbus, 1…bancet
15	1	baudrate 0:9600 1:19200 2:38400 3:57600 4:115200
17	1	1=0…10V, 0=4…20mA
18	1	0=0-50,1=0-100,2=0-250,3=0-500,unit:Pa
19	1	Sensor response time,4 sec or 10 sec
34	2	The differential pressure value obtained by the sensor,unit: Pascal
57	2	The length of the square channel, unit: cm
58	2	The Width of the square channel, unit: cm
59	1	Flow unit, 0-m^3/s, 1-ft^3/min, 2-L/min
60	2	Velocity, unit m/s
61	2	High 16 bits of the flow value
62	2	Low 16 bits of the flow value
63	2	The radius of the circular channel, unit: cm. When using a square channel, please make sure that this value is 0
92	1	The shape of the channel, 0: square; 1: round
93	1	The unit of the length, width or radius of the channel shape. 0: Metric unit; 1: Imperial unit.
95	1	sub product, 1 - PLC
98	1	Humdity type or 2nd sensor， 0 - no sensor, 2 - SHT3X, 3 - STH4X （REG95 = 1, FOR PLC）
99	1	Humdity type， 0 - no sensor, 2 - SHT3X, 3 - STH4X
100	1	for temperature,default scale or customized, 0: default , 1: customized
101	1	for temperature,the minimum currnet of customiezed scale
102	1	for temperature,the maximum currnet of customiezed scale
103	1	for temperature,the minimum voltage of customiezed scale
104	1	for temperature,the maximum voltage of customiezed scale
105	2	for temperature,the minimum temperature of customiezed scale
106	2	for temperature,the maximum temperature of customiezed scale
107	1	for temperature,vale of output current , You need to divide by 10. For example, 123 means 12.3 ma

Address	Bytes	Register and Description
108	1	for temperature,value of output voltage , You need to divide by 10. For example, 123 means 12.3 V
110	1	for humidity,default scale or customized, 0: default , 1: customized
111	1	for humidity,the minimum currnet of customiezed scale
112	1	for humidity,the maximum currnet of customiezed scale
113	1	for humidity,the minimum voltage of customiezed scale
114	1	for humidity,the maximum voltage of customiezed scale
115	1	for humidity,the minimum pressure of customiezed scale
116	1	for humidity,the maximum pressure of customiezed scale
117	1	for humidity,vale of output current , You need to divide by 10. For example, 123 means 12.3 ma
118	1	for humidity,value of output voltage , You need to divide by 10. For example, 123 means 12.3 V

T3000 Operation

1.Visit https://temcocontrols.com/ftp/software/09T3000Software.zip, download T3000 software and install it;

2.Connect AFS to PC by RS485, start T3000 software



3. The Settings of the slave ID and Modbus parameters are as follows