

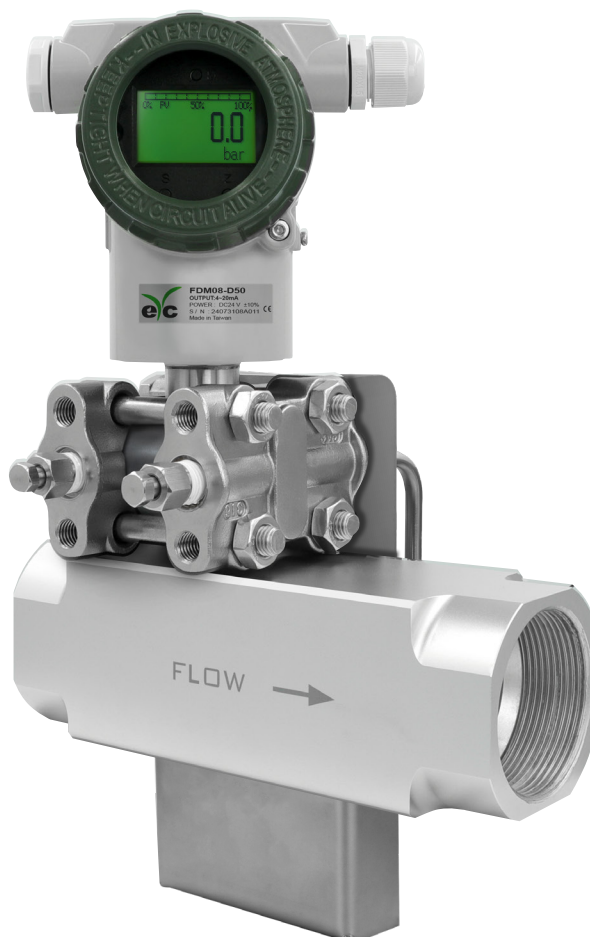


FDM08

Air flow / Air velocity-FDM08

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Venturi Inline Type Air Flow Transmitter



| Features |

- Precision measurement : Adopting the unique fluid dynamics principles of Venturi tube, the FDM08 provides accurate measurement.
- Wide range of applications : Suitable for general gases, steam, contaminated gases, or high-humidity gases.
- Stable performance : No moving or electronic parts inside the pipeline, ensuring excellent long-term stability.
- Easy installation : Shorter front and rear straight pipe sections compared to standard throttling devices, approximately 2.5D in the front and 2D in the rear.
- Low pressure loss : Designed to minimize pressure loss, reducing energy consumption.

| Applications |

Compressed air systems / Boiler systems / Industrial process gases / Water treatment aeration systems

Specification

Measurement

Sensor type	Differential pressure sensor
Air flow measuring range*	Reference airflow range table based on environmental conditions
Turndown ratio	≥ 10 : 1

*The measurement range is defined at the standard condition(1013 mbar, 20°C).
*Pairs with DPM04 Flow Totalizer for instant conversion of differential pressure to air velocity and volume.

Accuracy

Accuracy	±2%F.S.
Temp. influence	±0.5%F.S.
Long-term stability	±0.2%F.S./year
Zero drift	±0.25%F.S.

Electrical

Output signal	4 ... 20 mA
Power supply	DC 24V ± 10%
Electrical connection	M20x1.5

Environmental

Medium Temp.	-40°C ... +120°C
Operating Temp.	-30°C ... +70°C
Operating Humid.	0...95%RH (Non-condensing)
Operating pressure	16 bar
Storage Temp.	-30°C ... +70°C

Installation

Pipe connection	G thread
Pipe size	DN 25/40/50/80/100

Protection

IP rating	IP65 (Housing)
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Material

Pipe	Aluminum alloy
Sensor	Diaphragm : SS316L
	O-ring : Nitrile Butadiene Rubber (NBR) (Contact measuring medium)
	Filling oil : Silicon oil
	Fittings : SS304
	Housing : Die-cast aluminum epoxy coating
Weight	DN25 : 4.0 kg
	DN40 : 4.5 kg
	DN50 : 5.0 kg
	DN80 : 10.1 kg
	DN100 : 13.1 kg

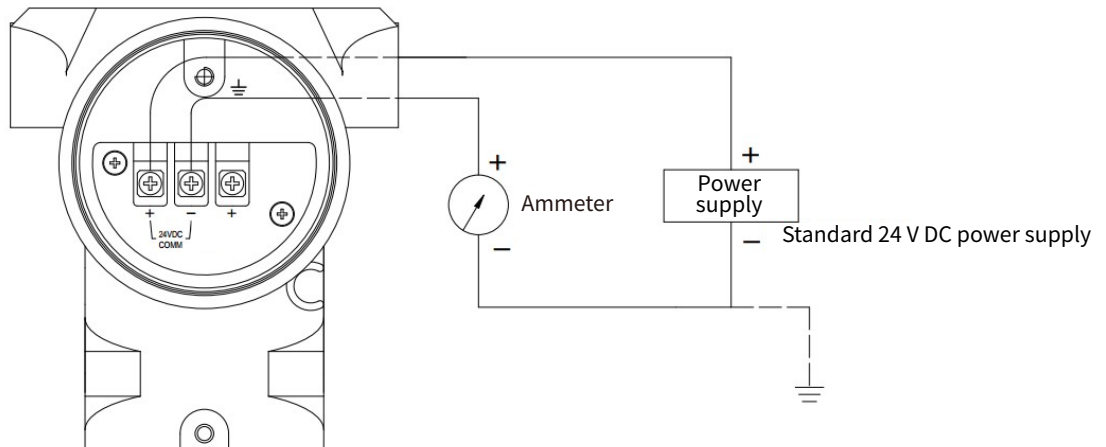
Airflow Range Table

*The table provides reference airflow based on common environmental conditions, but actual data should be adjusted according to on-site conditions.
*For special environmental requirements, please refer to professional standards or consult experts.

Absolute Pressure (bar)	Temp. (°C)	Airflow Range (Nm ³ /h)				
		DN25 (1")	DN40 (1-1/2")	DN50 (2")	DN80 (3")	DN100 (4")
1	25	0 ... 166	0 ... 368	0 ... 566	0 ... 1497	0 ... 2267
	30	0 ... 164	0 ... 365	0 ... 562	0 ... 1485	0 ... 2237
	35	0 ... 163	0 ... 362	0 ... 557	0 ... 1473	0 ... 2218
	40	0 ... 162	0 ... 359	0 ... 553	0 ... 1461	0 ... 2199
	50	0 ... 159	0 ... 353	0 ... 544	0 ... 1438	0 ... 2164
2	25	0 ... 240	0 ... 531	0 ... 817	0 ... 2161	0 ... 3304
	30	0 ... 238	0 ... 527	0 ... 810	0 ... 2143	0 ... 3273
	35	0 ... 236	0 ... 522	0 ... 803	0 ... 2126	0 ... 3244
	40	0 ... 234	0 ... 518	0 ... 797	0 ... 2108	0 ... 3216
	50	0 ... 231	0 ... 510	0 ... 784	0 ... 2076	0 ... 3161
3	25	0 ... 296	0 ... 655	0 ... 1007	0 ... 2664	0 ... 4100
	30	0 ... 294	0 ... 649	0 ... 998	0 ... 2642	0 ... 4064
	35	0 ... 291	0 ... 644	0 ... 990	0 ... 2621	0 ... 4029
	40	0 ... 289	0 ... 639	0 ... 982	0 ... 2600	0 ... 3995
	50	0 ... 284	0 ... 629	0 ... 976	0 ... 2559	0 ... 3929

Absolute Pressure (bar)	Temp. (°C)	Airflow Range (Nm ³ /h)				
		DN25 (1")	DN40 (1-1/2")	DN50 (2")	DN80 (3")	DN100 (4")
4	25	0 ... 343	0 ... 758	0 ... 1166	0 ... 3087	0 ... 4651
	30	0 ... 340	0 ... 752	0 ... 1156	0 ... 3061	0 ... 4610
	35	0 ... 337	0 ... 746	0 ... 1146	0 ... 3036	0 ... 4571
	40	0 ... 335	0 ... 740	0 ... 1137	0 ... 3012	0 ... 4533
	50	0 ... 329	0 ... 728	0 ... 1118	0 ... 2965	0 ... 4459
5	25	0 ... 384	0 ... 850	0 ... 1310	0 ... 3458	0 ... 5229
	30	0 ... 381	0 ... 842	0 ... 1299	0 ... 3429	0 ... 5182
	35	0 ... 378	0 ... 836	0 ... 1289	0 ... 3401	0 ... 5138
	40	0 ... 375	0 ... 829	0 ... 1278	0 ... 3374	0 ... 5094
	50	0 ... 369	0 ... 816	0 ... 1257	0 ... 3322	0 ... 5010
6	25	0 ... 421	0 ... 932	0 ... 1435	0 ... 3793	0 ... 5756
	30	0 ... 418	0 ... 924	0 ... 1423	0 ... 3762	0 ... 5705
	35	0 ... 415	0 ... 917	0 ... 1412	0 ... 3731	0 ... 5655
	40	0 ... 411	0 ... 909	0 ... 1401	0 ... 3701	0 ... 5606
	50	0 ... 405	0 ... 895	0 ... 1379	0 ... 3643	0 ... 5513
7	25	0 ... 456	0 ... 1007	0 ... 1550	0 ... 4101	0 ... 6246
	30	0 ... 452	0 ... 999	0 ... 1537	0 ... 4067	0 ... 6189
	35	0 ... 448	0 ... 991	0 ... 1525	0 ... 4034	0 ... 6135
	40	0 ... 445	0 ... 983	0 ... 1513	0 ... 4001	0 ... 6081
	50	0 ... 438	0 ... 968	0 ... 1490	0 ... 3939	0 ... 5979
8	25	0 ... 487	0 ... 1078	0 ... 1657	0 ... 4387	0 ... 6706
	30	0 ... 483	0 ... 1069	0 ... 1643	0 ... 4351	0 ... 6644
	35	0 ... 479	0 ... 1060	0 ... 1630	0 ... 4315	0 ... 6585
	40	0 ... 476	0 ... 1052	0 ... 1617	0 ... 4281	0 ... 6527
	50	0 ... 468	0 ... 1035	0 ... 1593	0 ... 4214	0 ... 6416
10	25	0 ... 546	0 ... 1206	0 ... 1854	0 ... 4910	0 ... 7533
	30	0 ... 541	0 ... 1196	0 ... 1839	0 ... 4869	0 ... 7467
	35	0 ... 537	0 ... 1186	0 ... 1824	0 ... 4829	0 ... 7403
	40	0 ... 532	0 ... 1177	0 ... 1809	0 ... 4791	0 ... 7341
	50	0 ... 524	0 ... 1159	0 ... 1781	0 ... 4716	0 ... 7222
12	25	0 ... 598	0 ... 1322	0 ... 2032	0 ... 5382	0 ... 8281
	30	0 ... 593	0 ... 1311	0 ... 2015	0 ... 5337	0 ... 8208
	35	0 ... 588	0 ... 1300	0 ... 1999	0 ... 5294	0 ... 8137
	40	0 ... 584	0 ... 1290	0 ... 1983	0 ... 5252	0 ... 8068
	50	0 ... 574	0 ... 1270	0 ... 1952	0 ... 5170	0 ... 7936
14	25	0 ... 646	0 ... 1429	0 ... 2196	0 ... 5816	0 ... 8952
	30	0 ... 641	0 ... 1417	0 ... 2178	0 ... 5768	0 ... 8879
	35	0 ... 636	0 ... 1405	0 ... 2160	0 ... 5721	0 ... 8808
	40	0 ... 631	0 ... 1394	0 ... 2143	0 ... 5675	0 ... 8738
	50	0 ... 621	0 ... 1372	0 ... 2109	0 ... 5586	0 ... 8597
16	25	0 ... 691	0 ... 1528	0 ... 2349	0 ... 6220	0 ... 9566
	30	0 ... 685	0 ... 1515	0 ... 2329	0 ... 6168	0 ... 9489
	35	0 ... 680	0 ... 1503	0 ... 2310	0 ... 6118	0 ... 9413
	40	0 ... 674	0 ... 1491	0 ... 2292	0 ... 6069	0 ... 9339
	50	0 ... 664	0 ... 1468	0 ... 2256	0 ... 5974	0 ... 9196

| Diagram |



| Calibration System |



Air volume standard calibration system

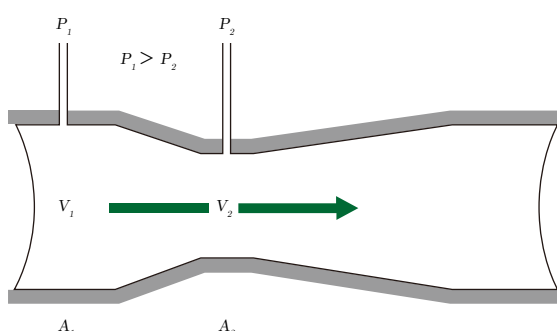
Air volume : 1 m³/h ... 1000 m³/h

Referring to ISO 9300 "Flow Measurement of Critical Flow Venturi Nozzles", this device is a standard flow device combination consisting of multiple venturi nozzles according to the maximum and minimum flow ranges that need to be calibrated.

| Measurement Principle |

■ Venturi tube

The Venturi tube is a flow measurement device designed based on the Venturi effect and is often used in conjunction with differential pressure transmitters. When flow passes through the narrow center of the Venturi tube, its velocity increases while the pressure decreases; this phenomenon is known as the Venturi effect. According to Bernoulli's principle and the continuity equation, the pressure difference between the inlet section and the narrow center is proportional to the square of the fluid velocity, and the product of the velocity and the cross-sectional area at different points remains constant. Therefore, by measuring the differential pressure, the velocity at the narrow center can be calculated. The Venturi tube has significant advantages in flow measurement, including high accuracy and low pressure loss, allowing for precise measurement while minimizing energy loss. It is suitable for various fluids, including gases, liquids, and steam. Its robust structure, with no moving parts, requires minimal maintenance, reducing operational costs.



■ Formula

$$P_1 - P_2 = \frac{\rho}{2} (V_2^2 - V_1^2)$$

$$A_1 V_1 = A_2 V_2$$

P_1 : Pressure 1

P_2 : Pressure 2

ρ : Density

V_1 : Velocity 1

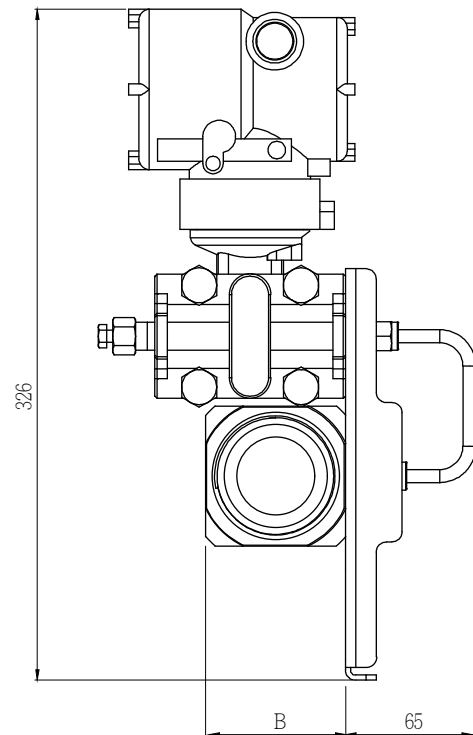
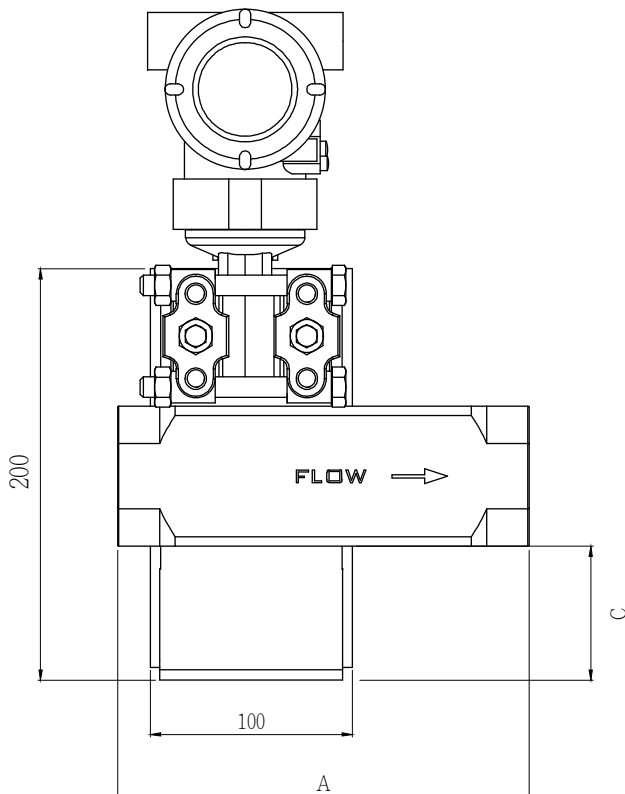
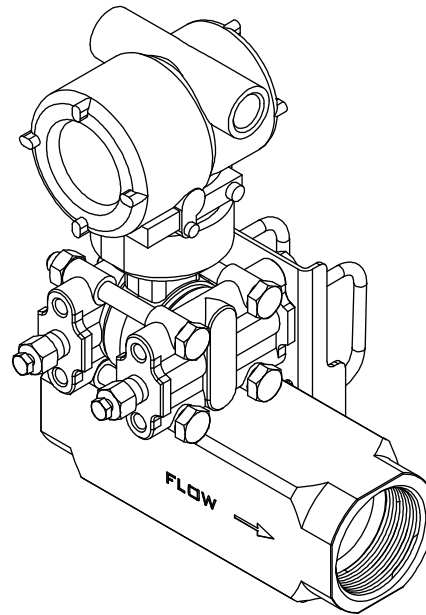
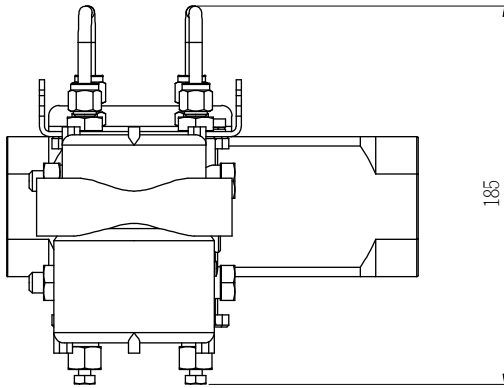
V_2 : Velocity 2

A_1 : Cross-sectional area 1

A_2 : Cross-sectional area 2

Dimension | Unit: mm

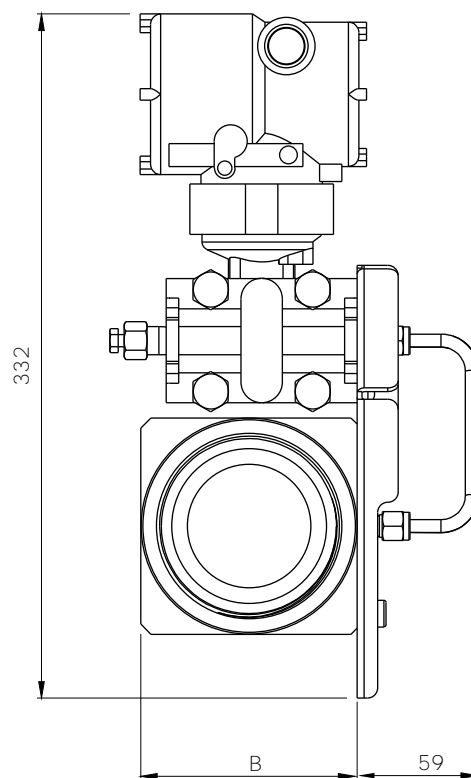
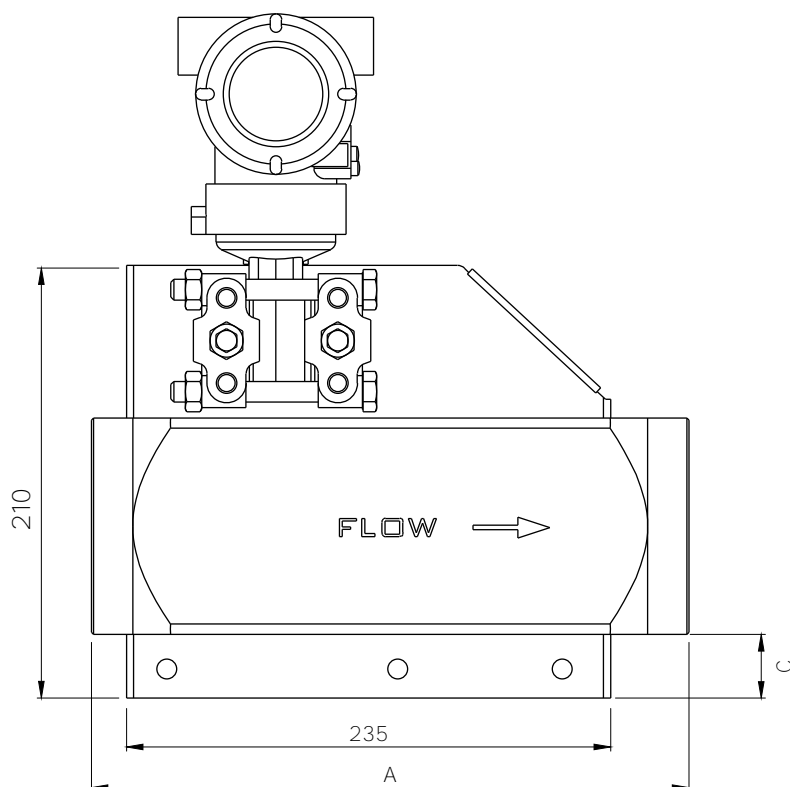
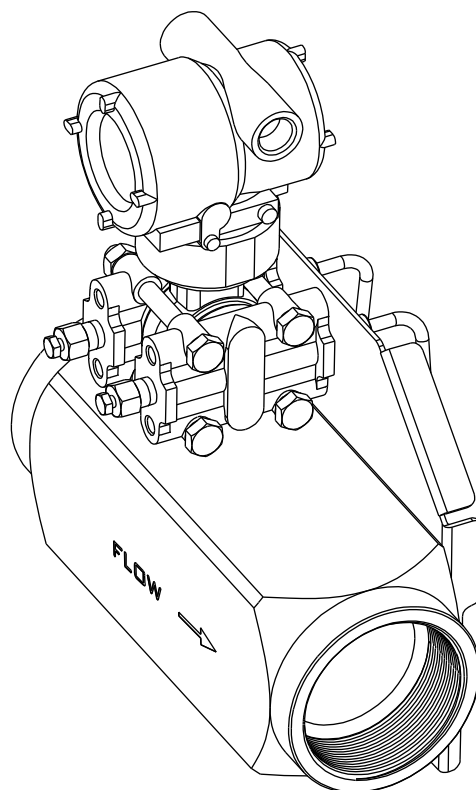
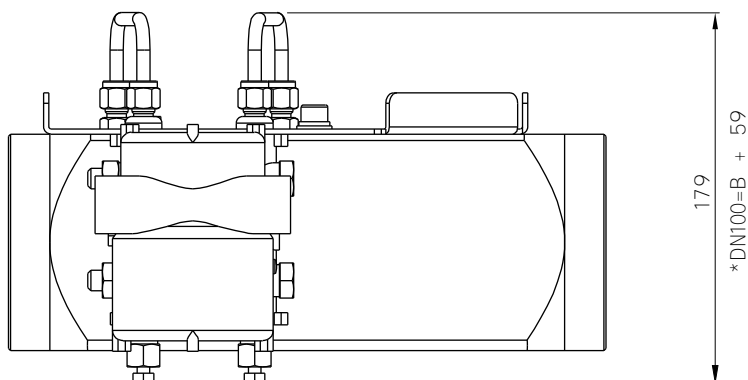
■ DN25 (1") / DN40 (1-1/2") / DN50 (2")



	DN25 (1")	DN40 (1-1/2")	DN50 (2")
A	143 mm	170 mm	200 mm
B	43 mm	58 mm	68 mm
C	78 mm	70 mm	66 mm

Dimension | Unit : mm

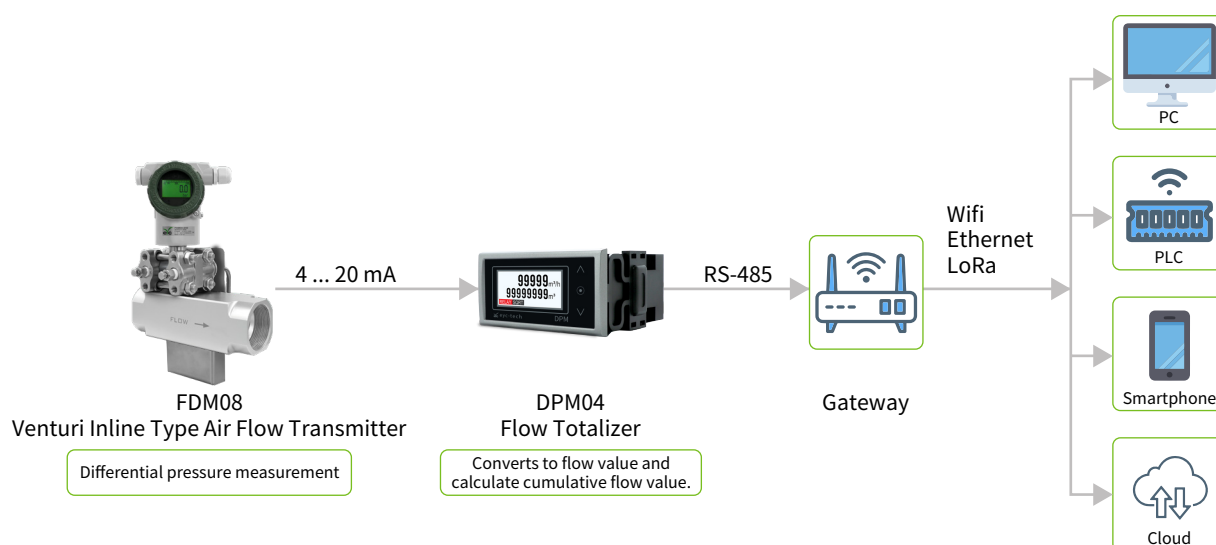
■ DN80 (3") / DN100 (4")



	DN80 (3")	DN100 (4")
A	290 mm	347 mm
B	105 mm	130 mm
C	31 mm	5 mm

| Optional Combination |

eyc-tech FDM08 Venturi Inline Type Air Flow Transmitter + eyc-tech DPM04 Flow Totalizer



| Ordering Guide |

FDM08	—	Diameter
		D25
		D25 : DN25 (1"
		D40 : DN40 (1-1/2"
		D50 : DN50 (2"
		D80 : DN80 (3"
		D100 : DN100 (4"

| Additional Option Test Report |

For more detailed information please contact us.

■ ISO 9001

Project	Measurand level or range
Air velocity / Air volume	Air velocity : ≤ 120 m/s
	Air volume : 1 m ³ /h ... 1000 m ³ /h